

FUJITSU Storage
ETERNUS SF
Storage Cruiser V16.2 /
AdvancedCopy Manager V16.2

Cluster Environment Setup Guide

Preface

Purpose

This manual provides information on installation and operation for FUJITSU Storage ETERNUS SF Storage Cruiser or FUJITSU Storage ETERNUS SF AdvancedCopy Manager of the following products on storage systems in a clustered system.

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

Intended Readers

This manual is intended for system managers responsible for managing storage with Storage Cruiser or AdvancedCopy Manager in a clustered system.

Organization

This manual is composed as follows:

[Chapter 1 Overview](#)

This chapter provides an overview of clustered systems

[Chapter 2 Operating Environment](#)

This chapter explains operating environments for installing Storage Cruiser and AdvancedCopy Manager in a clustered system.

[Chapter 3 Installation of ETERNUS SF Manager](#)

This chapter explains how to install ETERNUS SF Manager in a clustered system.

[Chapter 4 Preparations for Customizing Management Server Transactions](#)

This chapter explains the preparations that are required to customize Management Server transactions.

[Chapter 5 Customization for Management Server Transaction](#)

This chapter explains how to customize Management Server transactions.

[Chapter 6 Installation of ETERNUS SF Agent](#)

This chapter explains how to install ETERNUS SF Agent in a clustered system.

[Chapter 7 Preparations for Customizing Managed Server Transactions](#)

This chapter explains the resources and input items that are required to customize Managed Server transactions.

[Chapter 8 Customization of Managed Server Transactions](#)

This chapter explains how to customize Managed Server transactions.

[Chapter 9 Installation of AdvancedCopy Manager CCM](#)

This chapter explains how to install AdvancedCopy Manager CCM in a clustered system.

[Chapter 10 Preparations for Customizing CCM Server Transactions](#)

This chapter explains the preparations that are required to customize CCM Server transactions when you have installed AdvancedCopy Manager CCM.

[Chapter 11 Customization for CCM Server Transactions](#)

This chapter explains how to customize CCM Server transactions.

[Chapter 12 Changing Operational Environment](#)

This chapter explains how to change the environment for ETERNUS SF Manager when it is being operated in a clustered system.

[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)

This chapter explains how to delete cluster environments for Management Server transactions.

Chapter 14 Deletion of Cluster Environment for Managed Server Transactions

This chapter explains how to delete the cluster environment of a Managed Server transaction.

Chapter 15 Deletion of Cluster Environments for CCM Server Transactions

This chapter explains how to delete cluster environments for CCM Server transactions.

Chapter 16 Command References

This chapter explains how to use commands.

Appendix A Applying Clusters for Solaris/Linux/HP-UX Version

This appendix explains how to apply AdvancedCopy Manager's agents in Solaris, Linux, or HP-UX version clustered systems.

Notation

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

Operating Systems

Formal Name	Abbreviation	
Microsoft(R) Windows Server(R) 2003, Standard Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition	Windows Server 2003	Windows
Microsoft(R) Windows Server(R) 2008 Standard (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V(TM) (32-bit) (64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V(TM) (32-bit) (64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter (32-bit)(64-bit) Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V(TM) (32-bit) (64-bit)	Windows Server 2008	
Microsoft(R) Windows Server(R) 2008 R2 Foundation Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter	Windows Server 2008 R2	
Microsoft(R) Windows Server(R) 2012 Standard Microsoft(R) Windows Server(R) 2012 Datacenter	Windows Server 2012	
Microsoft(R) Windows Server(R) 2012 R2 Standard Microsoft(R) Windows Server(R) 2012 R2 Datacenter	Windows Server 2012 R2	
Windows Vista(R) Home Basic Windows Vista(R) Home Premium Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate	Windows Vista	
Windows(R) 7 Home Basic Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows 7	

Formal Name	Abbreviation	
Windows(R) 8 Windows(R) 8 Pro	Windows 8	
Windows(R) 8.1 Windows(R) 8.1 Pro	Windows 8.1	
Solaris(TM) 9 Operating System	Solaris 9	Solaris or Solaris OS
Oracle Solaris 10	Solaris 10	
Oracle Solaris 11	Solaris 11	
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5	Linux
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6	
Red Hat(R) Enterprise Linux(R) 7 (for Intel64)	RHEL7	
SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T	SUSE Linux Enterprise Server 11	
HP-UX 11i v1 HP-UX 11i v2 HP-UX 11i v3	HP-UX	
AIX(R) V6.1 AIX(R) V7.1	AIX	
VMware vSphere(R) 4	VMware vSphere 4	VMware
VMware vSphere(R) 5	VMware vSphere 5	
VMware vSphere(R) 6	VMware vSphere 6	

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

FUJITSU Storage ETERNUS

Formal Name	Abbreviation	
FUJITSU Storage ETERNUS DX60 FUJITSU Storage ETERNUS DX80 FUJITSU Storage ETERNUS DX90	-	ETERNUS DX series or ETERNUS Disk storage system
FUJITSU Storage ETERNUS DX410 FUJITSU Storage ETERNUS DX440	ETERNUS DX400 series	
FUJITSU Storage ETERNUS DX8100 FUJITSU Storage ETERNUS DX8400 FUJITSU Storage ETERNUS DX8700	ETERNUS DX8000 series	
FUJITSU Storage ETERNUS DX60 S2 FUJITSU Storage ETERNUS DX80 S2 FUJITSU Storage ETERNUS DX90 S2	-	ETERNUS DX S2 series
FUJITSU Storage ETERNUS DX410 S2 FUJITSU Storage ETERNUS DX440 S2	ETERNUS DX400 S2 series	
FUJITSU Storage ETERNUS DX8100 S2 FUJITSU Storage ETERNUS DX8700 S2	ETERNUS DX8000 S2 series	
FUJITSU Storage ETERNUS DX60 S3 FUJITSU Storage ETERNUS DX100 S3 FUJITSU Storage ETERNUS DX200 S3	-	

Formal Name	Abbreviation		
FUJITSU Storage ETERNUS DX500 S3 FUJITSU Storage ETERNUS DX600 S3	-		
FUJITSU Storage ETERNUS DX8700 S3 FUJITSU Storage ETERNUS DX8900 S3	ETERNUS DX8000 S3 series		
FUJITSU Storage ETERNUS DX200F	-		
FUJITSU Storage ETERNUS Multipath Driver	ETERNUS Multipath Driver		

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

Software Products

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

Manuals

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

Formal Name	Abbreviation
FUJITSU Storage ETERNUS SF Express / Storage Cruiser / AdvancedCopy Manager Glossary	ETERNUS SF Glossary

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

Others

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

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Notes

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- This manual is subject to change without advance notice.

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Update History

Content of Update	Updated Section	Revision
The information related to ETERNUS DX200F is described.	"Others" in Preface	1.1
Unnecessary information is removed.	4.1.3, 5.2.3, 7.3, (previous version)12.1.4, (previous version)12.2.4, 13.1.4, 13.2.7, 13.3.7, 16.3.4, A.1.1, (previous version)A.1.2, A.2.3, A.3.1, A.3.2	2
The work procedure is improved.	3.1.2, 3.2.2, 5.1.1.4, 5.1.2.4, 12.1.1 to 12.1.4, 12.2.1 to 12.2.4, 13.1.2.1, 13.1.3.1, A.2.2, A.4.2	
It is described to have to perform procedures by the user with Administrator privileges or root (superuser) as notes.	5.1.1.4, 5.1.2.4, 8.1.2, 13.1.2, 13.1.3, 14.1.2, 16.1, 16.2, 16.3, A.2.2, A.4.2	
The [Note] is added.	5.1, 5.2, 5.3	2.1
Information related to the ETERNUS DX200F is modified.	"Others" in Preface	3
Information related to Red Hat(R) Enterprise Linux(R) 7 is modified.	2.1.2, 2.2.1.2, 2.3.2, 5.3.1.1.2, 5.3.2.1.1, 13.3.4.4, 13.3.6.4, A.2.3, A.4.3	
Information related to Red Hat(R) Enterprise Linux(R) AS v.4 and Red Hat(R) Enterprise Linux(R) ES v.4 is deleted.	2.2.1.2	
The composition in the chapter is changed.	Chapter 3, 15, and 16	
Information related to the VMware associated operations is added.	3.2, 5.1.1.1.4, 5.1.1.1.5, 5.1.2.1.3, 5.1.3, 13.1.4	
The Function Terminate () is described in the generic script file (start script and stop script) for Windows environment.	4.1.1	

Content of Update	Updated Section	Revision
The path name of the startSFmanager command is changed in the generic script file (start script and stop script) for Solaris or Linux environment.	4.1.1	
The work procedure for Windows Server 2012 environments is added.	5.1.1.1.2, 5.1.1.4, 5.1.3, 5.2.1.1.1, 5.2.1.5, 5.2.2.1.2, 5.2.2.5, 5.3.1.1.1, 5.3.1.5, 5.3.2.1.2, 5.3.2.5, 7.2, 7.3, 8.1.2, 11.1.2, 11.2.2, 13.1.3.1, 13.1.4, 13.2.3, 13.2.4.4, 13.2.5, 13.2.6.4, 13.3.3, 13.3.4.4, 13.3.5, 13.3.6.4	
The work procedure is modified.	5.1.1.2, 5.1.2.2	
A depending resource is added in Table 5.4.	5.1.3	
The term "VMware Virtual Volumes" is changed to "VMware vSphere Virtual Volumes" according to the terms used by VMware, Inc.	Throughout this manual	3.1
Information related to VMware vSphere(R) 6 is added.	"Notation" in Preface	
Information related to the VMware associated operations is deleted.	3.2, 5.1.1.1.4, 5.1.1.1.5, 5.1.2.1.3, 5.1.3, 13.1.4	
A note about the swstg.ini file is added.	A.2.3, A.4.3	
Information related to the ETERNUS DX8700 S3/DX8900 S3 is added.	"Notation" in Preface	3.2

Manual Organization and Reading Suggestions

Manual Organization

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

When to Read	Related Manuals (Abbreviated)	Related Products (*1)			Explanation
		EXP	SC	ACM	
Before installation	Quick Reference	Yes	Yes	Yes	This manual is common for all products.
	Release Notes	Yes	Yes	Yes	This manual is common for all products.
	Overview	-	-	Yes	This manual is unique for the product.
During installation	Installation and Setup Guide	Yes	Yes	Yes	This manual is common for all products.
	Cluster Environment Setup Guide	-	Yes	Yes	This manual is common for Storage Cruiser and AdvancedCopy Manager.
	Migration Guide	Yes	Yes	Yes	This manual is common for all products.
During operation	Operation Guide	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available: <ul style="list-style-type: none"> - Express Operation Guide - Storage Cruiser Operation Guide - Storage Cruiser Operation Guide for Optimization Function - AdvancedCopy Manager Operation Guide (for Windows)

When to Read	Related Manuals (Abbreviated)	Related Products (*1)			Explanation
		EXP	SC	ACM	
					<ul style="list-style-type: none"> - AdvancedCopy Manager Operation Guide (for Solaris) - AdvancedCopy Manager Operation Guide (for Linux) - AdvancedCopy Manager Operation Guide (for HP-UX) - AdvancedCopy Manager Operation Guide (for AIX) - AdvancedCopy Manager Operation Guide for Copy Control Module - Storage Cruiser / AdvancedCopy Manager Operation Guide for VMware vSphere Virtual Volumes
	Web Console Guide	Yes	Yes	Yes	This manual is common for all products.
Anytime	Event Guide	Yes	Yes	-	This manual is common for Express and Storage Cruiser.
	Messages	Yes	Yes	Yes	This manual is common for all products.
	Glossary	Yes	Yes	Yes	This manual is common for all products.

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

How to Read Manuals

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

Purpose	Manual	Main Contents	How to Read
Acquiring a product overview and basic operation knowledge	Quick Reference	<ul style="list-style-type: none"> - Product overview - Installation decision - Overview of the necessary tasks from installation to first use 	Please read if you want to acquire a fundamental knowledge of the product and its operation in order to decide to install it or not.
	AdvancedCopy Manager Overview	<ul style="list-style-type: none"> - Main functions - Linkable applications - Procedure overview for Advanced Copy of ETERNUS Disk storage system 	
Confirming the updated contents	Release Notes	<ul style="list-style-type: none"> - New function overview - Incompatibilities with previous version - Fixed bugs 	Please read if you want to know the updated contents from a previous version and if you perform the upgrade.
Deciding if a version upgrade is required	Migration Guide	<ul style="list-style-type: none"> - Notes and cautions about version upgrade - Version upgrade procedure 	Please read if you want to upgrade from a previous version.
Installing and correctly operating the product	Installation and Setup Guide	<ul style="list-style-type: none"> - Operating environment - Installation procedure - Setup procedure 	Please read if you want to install and setup the product.

Purpose	Manual	Main Contents	How to Read
Setting up operating environment depending on purpose		<ul style="list-style-type: none"> - Uninstallation procedure 	Please read if you want to install and setup the product on a clustered system.
	Cluster Environment Setup Guide	<ul style="list-style-type: none"> - Supported cluster software - Installation procedure for a clustered system - Setup procedure for a clustered system - Uninstallation procedure for a clustered system 	
Administration and operation of the installed system	Express Operation Guide	<ul style="list-style-type: none"> - Starting and stopping the software - Device monitoring - Data copy inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance 	Please read if you want to start or shutdown the system, monitor the operation status, do backup/restore operations, etc.
	Storage Cruiser Operation Guide	<ul style="list-style-type: none"> - Starting and stopping the software - Device monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	
	Storage Cruiser Operation Guide for Optimization Function	<ul style="list-style-type: none"> - Operating environment construction - Operating status monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	
	AdvancedCopy Manager Operation Guide (for Windows) AdvancedCopy Manager Operation Guide (for Solaris) AdvancedCopy Manager Operation Guide (for Linux) AdvancedCopy Manager Operation Guide (for HP-UX) AdvancedCopy Manager Operation Guide (for AIX)	<ul style="list-style-type: none"> - Starting and stopping the software - Data backup/restore inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	

Purpose	Manual	Main Contents	How to Read
	AdvancedCopy Manager Operation Guide for Copy Control Module		
	Storage Cruiser / AdvancedCopy Manager Operation Guide for VMware vSphere Virtual Volumes	<ul style="list-style-type: none"> - Operating environment construction - Virtual machine operation using a virtual volume - Backup/restore of the virtual machine - Necessary tasks after an architectural modification of the system as well as product maintenance 	
	Web Console Guide	<ul style="list-style-type: none"> - Operating environment - Screen layout description 	
Dealing with messages issued by the software	Messages	<ul style="list-style-type: none"> - Messages and their explanations - Parameter (variable information) description - System action - Countermeasures 	Please read if you want a practical way of investigating and dealing with messages issued by the software.
Dealing with events issued by the software	Event Guide	<ul style="list-style-type: none"> - Phenomenon of event - Countermeasures 	Please read if you need to find a practical way of investigating and dealing with events.
Researching the meaning of specific terms related to the products and other important terms	Glossary	<ul style="list-style-type: none"> - Product specific terminology explanation - Explanation of important terminology appearing in the manual - Synonyms and related terms - Proper form of abbreviated terms 	Please read if you want to learn the meaning of important terms, product specific terms or abbreviations used in the manuals.

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Chapter 1 Overview

This chapter provides an overview of clustered systems.

A clustered system uses two or more server machines as a single virtual server machine to provide high level of availability.

In single-server machine operation, if the server machine or an application running on it stops, the machine or the application must be restarted. During this time, the operation stops.

A clustered system, however, uses two or more server machines. If a failure occurs on one server machine or an application running on it, the transaction can be resumed immediately by restarting the application on the other server machine. As a result, transaction downtime is reduced. The switching of a transaction from a server with a problem to another server that is operating normally is referred to as failover.

In the clustered system, each server machine in the clustered system is called "node".

The clustered system operation is classified into one of the following types. These types are explained in names of "PRIMECLUSTER".

- Standby operation
 - 1:1 standby
 - Mutual standby
 - N:1 standby
 - Cascade
 - Priority transfer
- Scalable operation



See

The clustered system operation and the names given to those that are supported by cluster software differ from each other in different systems. Refer to the cluster software manuals for more information.

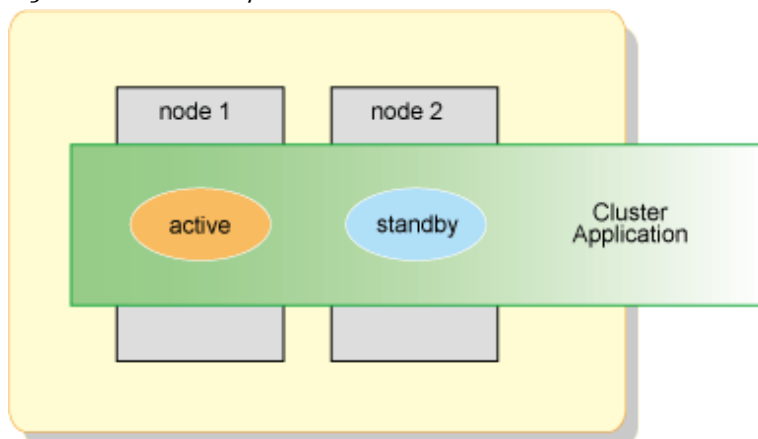
1.1 Standby Operation

In the standby operation, a standby node exists to take over transactions from an active node on which transactions are being performed.

1.1.1 1:1 Standby

The clustered system consists of one active node and one standby node. The active node performs transactions while the standby node is waiting to become the active node, when required.

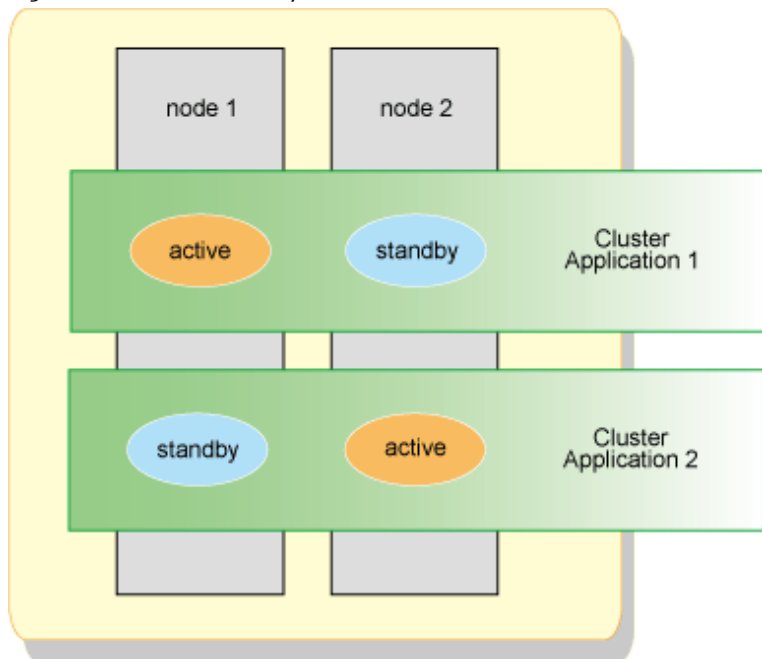
Figure 1.1 1:1 Standby



1.1.2 Mutual Standby

The clustered system consists of two or more nodes. Generally, two of the nodes are used as "active nodes". Each node performs its own transaction and, at the same time, is on standby to run the transaction of the other node. If either node fails, the other node takes over running both of the cluster applications.

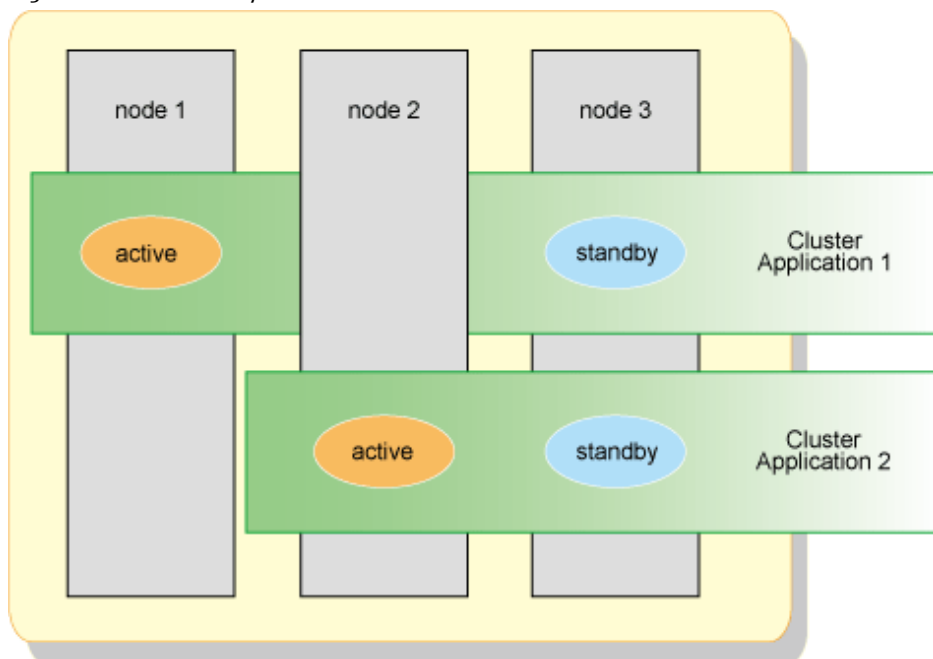
Figure 1.2 Mutual Standby



1.1.3 N:1 Standby System

The clustered system consists of N active nodes and one standby node. Each of the N active nodes performs separate transactions while a separate standby node stands by to take over from any failing active nodes.

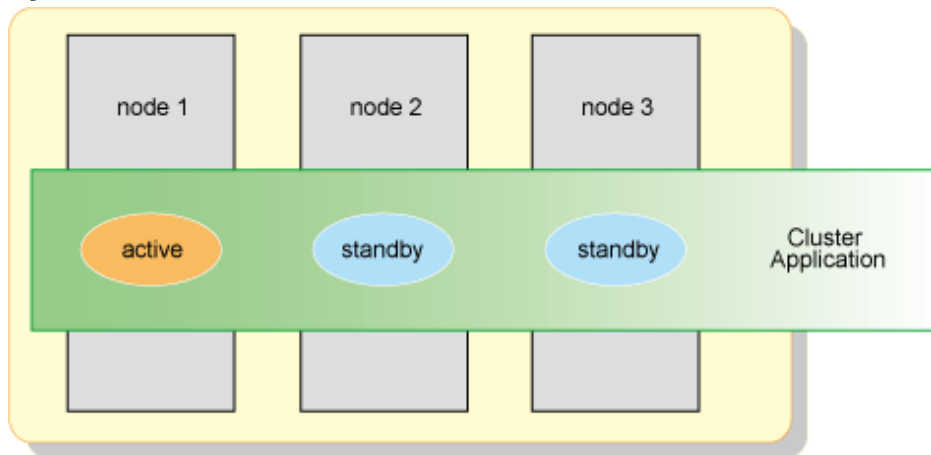
Figure 1.3 N:1 Standby



1.1.4 Cascade

The clustered system consists of three or more nodes. One node is an active node, and the remaining nodes are standby nodes.

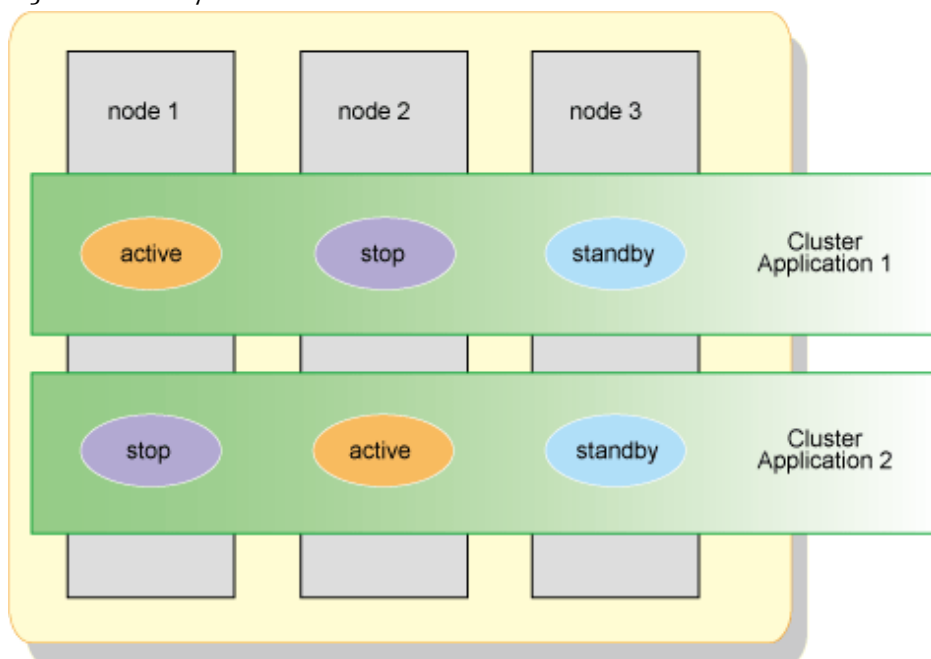
Figure 1.4 Cascade



1.1.5 Priority Transfer

The clustered system consists of three or more nodes. One node is an active node, one node is a standby node, and the remaining nodes are stop nodes.

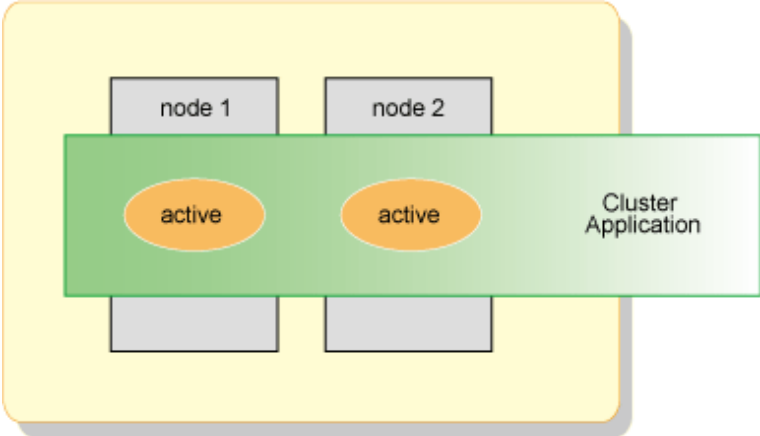
Figure 1.5 Priority Transfer



1.2 Scalable Operation

In a scalable operation, the clustered system is designed for performance improvement and degraded operation when a failure occurs by means of parallel processing on multiple server machines. In contrast to the standby operation, nodes in the scalable operation are not divided into active and standby nodes. If one server in a clustered system fails, the remaining servers in the clustered system operate at a degraded level so that the transaction continues.

Figure 1.6 Scalable Operation



Chapter 2 Operating Environment

This chapter explains operating environments for installing Storage Cruiser and AdvancedCopy Manager in a clustered system. Collectively, Storage Cruiser's manager and AdvancedCopy Manager's manager are described as "ETERNUS SF Manager".

2.1 Operating Environment of ETERNUS SF Manager

This section explains the operating environment that is required for ETERNUS SF Manager.

2.1.1 Hardware Requirements

Refer to "Hardware Requirements" in "Operating Environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the server on which to install ETERNUS SF Manager.

2.1.2 Software Requirements

The following cluster software can be linked with the operating system on which ETERNUS SF Manager is running.

Table 2.1 Operating Systems Running ETERNUS SF Manager and Compatible Cluster Software

OS	OS Level	Cluster Software and Version
Windows	Windows Server 2012 R2 Standard (*1)	Windows Server Failover Clustering
	Windows Server 2012 R2 Datacenter (*1)	
	Windows Server 2012 Standard (*1)	
	Windows Server 2012 Datacenter (*1)	
	Windows Server 2008 R2 Enterprise SP1	
	Windows Server 2008 R2 Datacenter SP1	
	Windows Server 2008 R2 Enterprise	
	Windows Server 2008 R2 Datacenter	
	Windows Server 2008 Enterprise SP2 (64-bit)	
	Windows Server 2008 Datacenter SP2 (64-bit)	
	Windows Server 2008 Enterprise (64-bit)	
	Windows Server 2008 Datacenter (64-bit)	
	Windows Server 2008 Enterprise SP2 without Hyper-V (64-bit)	
	Windows Server 2008 Datacenter SP2 without Hyper-V (64-bit)	
	Windows Server 2008 Enterprise without Hyper-V (64-bit)	
Windows Server 2008 Datacenter without Hyper-V (64-bit)		
Solaris	Solaris 11 (11/11 or later)	PRIMECLUSTER 4.3A10 or later (*2)
	Solaris 10	PRIMECLUSTER 4.1A40 or later (*2)
Linux	Red Hat Enterprise Linux 7 (for Intel64)	PRIMECLUSTER 4.3A40 or later (*2)
	Red Hat Enterprise Linux 6 (for Intel64)	PRIMECLUSTER 4.3A10 or later (*2)
	Red Hat Enterprise Linux 5 (for Intel64)	PRIMECLUSTER 4.2A30 or later (*2)

*1: The Failover Cluster Command Interface must be installed.

*2: Hot-standby operation for PRIMECLUSTER is not supported.



Refer to "Software Requirements" in "Operating Environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on software required for a server in which ETERNUS SF Manager will be installed.

2.2 Operating Environment of ETERNUS SF Agent

This section explains the operating environment that is required for ETERNUS SF Agent.
Note that Storage Cruiser's agents do not work in a clustered system.

2.2.1 Operating Environment of AdvancedCopy Manager's Agent

This section explains the operating environment that is required for AdvancedCopy Manager's agents.

2.2.1.1 Hardware Requirements

Refer to "Hardware Requirements" in "Operating Environment of AdvancedCopy Manager's Agent" in the *ETERNUS SF Installation and Setup Guide* for information on the servers on which to install the AdvancedCopy Manager's agent.

2.2.1.2 Software Requirements

The following cluster software can be linked with the operating system on which AdvancedCopy Manager's agents are running.

Table 2.2 Operating Systems Running AdvancedCopy Manager's Agents and Compatible Cluster Software

OS	OS Level	Cluster Software and Version
Windows	Windows Server 2012 R2 Standard (*1) Windows Server 2012 R2 Datacenter (*1) Windows Server 2012 Standard (*1) Windows Server 2012 Datacenter (*1) Windows Server 2008 R2 Enterprise SP1 Windows Server 2008 R2 Datacenter SP1 Windows Server 2008 R2 Enterprise Windows Server 2008 R2 Datacenter Windows Server 2008 Enterprise SP2 (32-bit) (64-bit) Windows Server 2008 Datacenter SP2 (32-bit) (64-bit) Windows Server 2008 Enterprise (32-bit) (64-bit) Windows Server 2008 Datacenter (32-bit) (64-bit) Windows Server 2008 Enterprise SP2 without Hyper-V (32-bit) (64-bit) Windows Server 2008 Datacenter SP2 without Hyper-V (32-bit) (64-bit) Windows Server 2008 Enterprise without Hyper-V (32-bit) (64-bit) Windows Server 2008 Datacenter without Hyper-V (32-bit) (64-bit)	Windows Server Failover Clustering
	Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2003 R2, Enterprise x64 Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003, Enterprise x64 Edition SP2	Cluster Service
Solaris	Solaris 11 (11/11 or later)	PRIMECLUSTER 4.3A10 or later (*2)
	Solaris 10	PRIMECLUSTER 4.1A40 or later (*2) VERITAS Cluster Server 4.1 VERITAS Cluster Server 5.0 VERITAS Cluster Server 5.1 VERITAS Cluster Server 6.0 Sun Cluster 3.1 Sun Cluster 3.2
	Solaris 9	SynfinityCluster 2.0 PRIMECLUSTER 4.1A30 or later (*2) VERITAS Cluster Server 4.0 VERITAS Cluster Server 4.1
Linux	Red Hat Enterprise Linux 7 (for Intel64)	PRIMECLUSTER 4.3A40 or later (*2)
	Red Hat Enterprise Linux 6 (for x86)	PRIMECLUSTER 4.3A10 or later (*2)

OS	OS Level	Cluster Software and Version
	Red Hat Enterprise Linux 6 (for Intel64)	PRIMECLUSTER 4.3A10 or later (*2) Veritas Storage Foundation Standard HA 5.1
	Red Hat Enterprise Linux 5 (for x86)	PRIMECLUSTER 4.2A30 or later (*2)
	Red Hat Enterprise Linux 5 (for Intel64)	PRIMECLUSTER 4.2A30 or later (*2) Veritas Storage Foundation Standard HA 5.1
	SUSE Linux Enterprise Server 11 Service Pack 1 for EM64T SUSE Linux Enterprise Server 11 Service Pack 2 for EM64T	Veritas Storage Foundation Standard HA 5.1
HP-UX	HP-UX 11i v3(Itanium)	Serviceguard A.11.17 Serviceguard A.11.18 Serviceguard A.11.19
	HP-UX 11i v2(PA-RISC) HP-UX 11i v2(Itanium)	MC/ServiceGuard A.11.17 VERITAS Cluster Server 5.0
	HP-UX 11i v1	MC/ServiceGuard A.11.13
AIX	AIX V6.1 AIX V7.1	None.

*1: The Failover Cluster Command Interface must be installed.

*2: Hot-standby operation for PRIMECLUSTER is not supported.

Point

Refer to "Software Requirements" in "Operating Environment of AdvancedCopy Manager's Agent" in the *ETERNUS SF Installation and Setup Guide* for information on the software requirements on the server on which AdvancedCopy Manager's agents are installed.

2.3 Operating Environment of AdvancedCopy Manager CCM

This section explains the operating environment that is required for the AdvancedCopy Manager Copy Control Module (hereafter referred to as "AdvancedCopy Manager CCM").

2.3.1 Hardware Requirements

Refer to "Hardware Requirements" in "Operating Environment of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for information on the server on which to install AdvancedCopy Manager CCM.

2.3.2 Software Requirements

The following cluster software can be linked with the operating system on which AdvancedCopy Manager CCM is running.

Table 2.3 Operating Systems Running AdvancedCopy Manager CCM and Compatible Cluster Software

OS	OS Level	Cluster Software and Version
Windows	Windows Server 2012 R2 Standard (*1) Windows Server 2012 R2 Datacenter (*1) Windows Server 2012 Standard (*1) Windows Server 2012 Datacenter (*1) Windows Server 2008 R2 Enterprise SP1 Windows Server 2008 R2 Datacenter SP1 Windows Server 2008 R2 Enterprise Windows Server 2008 R2 Datacenter	Windows Server Failover Clustering

OS	OS Level	Cluster Software and Version
	Windows Server 2008 Enterprise SP2 (64-bit) Windows Server 2008 Datacenter SP2 (64-bit) Windows Server 2008 Enterprise (64-bit) Windows Server 2008 Datacenter (64-bit) Windows Server 2008 Enterprise SP2 without Hyper-V (64-bit) Windows Server 2008 Datacenter SP2 without Hyper-V (64-bit) Windows Server 2008 Enterprise without Hyper-V (64-bit) Windows Server 2008 Datacenter without Hyper-V (64-bit)	
Solaris	Solaris 11 (11/11 or later)	PRIMECLUSTER 4.3A10 or later (*2)
	Solaris 10	PRIMECLUSTER 4.1A40 or later (*2)
Linux	Red Hat Enterprise Linux 7 (for Intel64)	PRIMECLUSTER 4.3A40 or later (*2)
	Red Hat Enterprise Linux 6 (for Intel64)	PRIMECLUSTER 4.3A10 or later (*2)
	Red Hat Enterprise Linux 5 (for Intel64)	PRIMECLUSTER 4.2A30 or later (*2)

*1: The Failover Cluster Command Interface must be installed.

*2: Hot-standby operation for PRIMECLUSTER is not supported.



Point

Refer to "Software Requirements" in "Operating Environment of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for information on the software requirements on the server on which AdvancedCopy Manager CCM is installed.

2.4 Operating Modes

This section explains the types of operation for running Storage Cruiser and AdvancedCopy Manager in a clustered system.

2.4.1 Supported Types of Operation

This section explains the types of operation supported by Storage Cruiser and AdvancedCopy Manager running in a clustered system.

2.4.1.1 Operation Type That ETERNUS SF Manager Supports

ETERNUS SF Manager supports the following operation types.

Table 2.4 Types of Operation Supported by ETERNUS SF Manager

OS	Cluster Software	1:1 Standby	N:1 Standby	Mutual Standby	Cascade Topology	Priority Transfer	Scalable Operation	Combined Operation with Scalable Operation
Windows	Windows Server Failover Clustering	Support	-	-	-	-	-	-
Solaris	PRIMECLUSTER	Support	-	-	-	-	-	-
Linux	PRIMECLUSTER	Support	-	-	-	-	-	-

2.4.1.2 Operation Type That AdvancedCopy Manager's Agent Supports

AdvancedCopy Manager's agent supports the following operation types.

Table 2.5 Operation Type that AdvancedCopy Manager's Agent Supports

OS	Cluster Software	1:1 Standby	N:1 Standby	Mutual Standby	Cascade Topology	Priority Transfer	Scalable Operation	Combined Operation with Scalable Operation
Windows	Cluster Service	Support	Support	Support	Support	-	-	-
	Windows Server Failover Clustering	Support	Support	Support	Support	-	-	-
Solaris	SynfinityCluster PRIMECLUSTER	Support	Support	Support	Support	Support	-	Support
	VERITAS Cluster Server	Support	Support	Support	Support	-	-	-
	Sun Cluster	Support	-	Support	-	-	-	-
Linux	PRIMECLUSTER	Support	Support	Support	Support	Support	-	Support
	VERITAS Cluster Server	Support	-	Support	-	-	-	-
HP-UX	MC/ServiceGuard	Support	Support	Support	Support	-	-	-
	VERITAS Cluster Server	Support	-	Support	-	-	-	-

2.4.1.3 Operation Type That AdvancedCopy Manager CCM Supports

AdvancedCopy Manager CCM supports the following operation types.

Table 2.6 Types of Operation Supported by AdvancedCopy Manager CCM

OS	Cluster Software	1:1 Standby	N:1 Standby	Mutual Standby	Cascade Topology	Priority Transfer	Scalable Operation	Combined Operation with Scalable Operation
Windows	Windows Server Failover Clustering	Support	-	-	-	-	-	-
Solaris	PRIMECLUSTER	Support	-	-	-	-	-	-
Linux	PRIMECLUSTER	Support	-	-	-	-	-	-
	VERITAS Cluster Server	Support	-	-	-	-	-	-

2.4.2 Cluster Transaction and Local Transaction

In Storage Cruiser and AdvancedCopy Manager, a component of a group that switches over to another by failover is called a cluster transaction. The name of the cluster transaction depends on the cluster software.

Table 2.7 Names of Cluster Transactions in Cluster Software

Cluster Software	Name of Cluster Transaction
Cluster Service Windows Server Failover Clustering	Cluster Group
SynfinityCluster	Cluster Service
Sun Cluster	Resource Group

Cluster Software	Name of Cluster Transaction
PRIMECLUSTER	Cluster Application or userApplication
VERITAS Cluster Server	Service Group
MC/ServiceGuard	Package
High Availability Cluster Multi-Processing	Resource Group

For Using AdvancedCopy Manager

To back up a transaction volume for cluster operation by using AdvancedCopy Manager backup management or replication management, add AdvancedCopy Manager to an objective cluster transaction. To back up the transaction volume in two or more cluster transactions as in the case of the mutual standby operation, add AdvancedCopy Manager to each cluster transaction.

To recognize the transaction in which an executed AdvancedCopy Manager function (such as a backup management command) is included, AdvancedCopy Manager assigns a unique name (a logical node name) to each cluster transaction. If an AdvancedCopy Manager command is executed with this logical node name specified in the environment variable SWSTGNODE, the command recognizes and executes the objective cluster transaction.

When "Logical IP address" and "Communication daemon/service port number for transaction (*stgxfws_logical/NodeName*)" are set in the AdvancedCopy Manager server addition processing, the objective cluster transaction is added as a server of AdvancedCopy Manager.



Note

The logical node name is a value used by AdvancedCopy Manager only. It does not link with a logical host name assigned by a cluster transaction and clustered system.

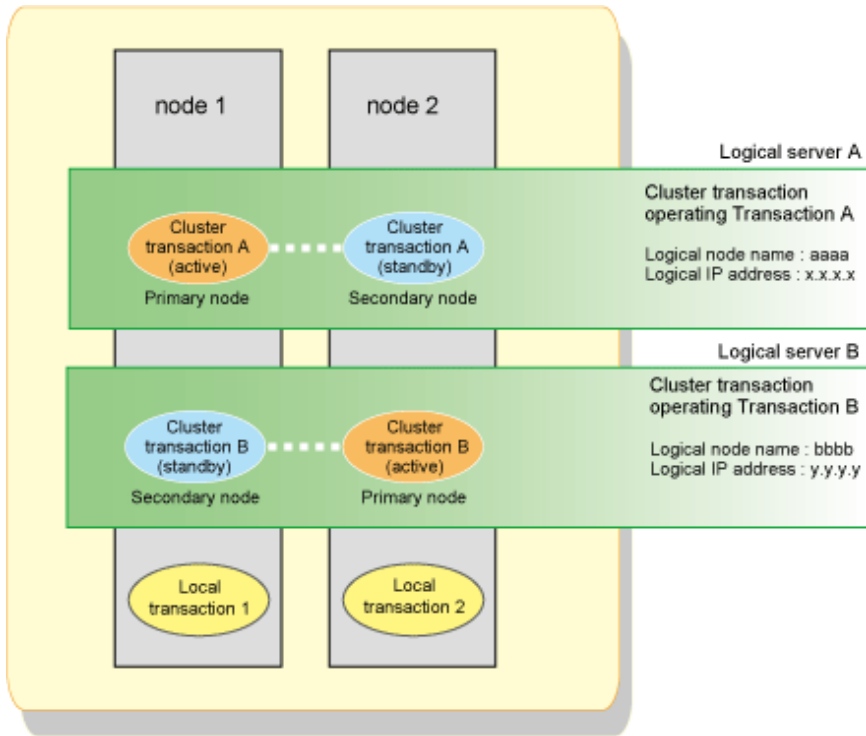
AdvancedCopy Manager can perform local disk (i.e., not in cluster operation) backup/replication with a cluster operation machine. A transaction where such a local disk backup/replication operation is performed is called a local transaction. The local transaction does not switch over to another by failure. For local transactions, set this local transaction to perform local volume backup/replication that is not included in a cluster transaction. When operating the backup/replication that is not included in a cluster transaction, set the backup/replication to the local transaction.

A local transaction does not use a logical node name. If an AdvancedCopy Manager command is executed without the environment variable SWSTGNODE, the command recognizes the transaction to be a local transaction and executes it.

When "Physical IP address" and "Communication daemon/service port number (*stgxfws*) for local transaction" are set in the AdvancedCopy Manager server addition processing, an objective machine is added as a server of AdvancedCopy Manager.

The relationship between cluster and local transactions is shown below.

Figure 2.1 Cluster Transactions and Local Transactions



To operate the volume of cluster transaction A by backup management or replication management, add AdvancedCopy Manager to cluster transaction A.

To operate the volume of cluster transaction B by backup management or replication management, add AdvancedCopy Manager to cluster transaction B.

To operate the volume of node 1 by backup management or replication management, create local transaction 1.

To operate the volume of node 2 by backup management or replication management, create local transaction 2.

2.4.3 Server Types and Server Transaction Types

Storage Cruiser and AdvancedCopy Manager have the following 3 server types:

- Management Server
- Managed Server
- CCM Server

A similar rule holds for clustered systems. A clustered system with ETERNUS SF Manager installed is referred to as a Management Server, and a clustered system with ETERNUS SF Agent installed is referred to as a Managed Server.

A clustered system with AdvancedCopy Manager CCM installed is referred to as a CCM Server.

These categories are called server types.

When Storage Cruiser and AdvancedCopy Manager operate in a clustered system, Management Server operations are referred to as Management Server transactions, Managed Server operations are referred to as Managed Server transactions, and CCM Server operations are referred to as CCM Server transactions.

These categories are called server transaction types.

The server types used in Storage Cruiser and AdvancedCopy Manager's cluster operation and the server transaction types that can operate on different servers are shown in the following table:

Table 2.8 Server Types Available for Operation

Server Types	Management Server Transactions	Managed Server Transactions	CCM Server Transactions
Management Server (ETERNUS SF Manager and AdvancedCopy Manager CCM)	1:1	1:1	1:1
Managed Server (ETERNUS SF Agent)	No	Yes (*1)	No
CCM Server (AdvancedCopy Manager CCM)	No	No	1:1

Yes (*1): The transactions that can be performed in clustered systems. Multiple cluster transactions can be performed in mutual standby systems.

Yes: The transactions that can be performed in clustered systems. Operation in a mutual standby system is only possible with a single transaction.

1:1: The transactions that can be performed in clustered systems. Operation in a 1:1 standby system is only possible with a single transaction.

No: Transactions not included in the package.

2.4.4 Transaction Types of Applications

The transaction types of an application in cluster operation are listed in the following table. The table describes, for each applicable transaction, the active and the standby states.

Table 2.9 Relationship between Applications and Standby States

Application (Function)	Management Server Transaction	Managed Server Transaction	Local Transaction
Configuration management Manager	Active on primary node Standby on secondary node	-	-
Transaction configuration management Agent	Active on primary node Standby on secondary node	Active on primary node Standby on secondary node	-
Local configuration management Agent	-	-	Active on each node
Repository	Active on primary node Standby on secondary node	-	-
Transaction replication management	Active on primary node Standby on secondary node	Active on primary node Standby on secondary node	-
Local replication management	-	-	Active on each node
Transaction backup management	Active on primary node Standby on secondary node	Active on primary node Standby on secondary node	-
Local backup management	-	-	Active on each node

The resources of Managed Server transactions can be divided for operation on two or more logical servers. That is, whether a Managed Server transaction is to be operated can be selected for each logical server. Local transactions cannot operate in a cluster.

2.5 Environment Construction for Cluster Operation

This section explains how to provide the environment construction to operate Storage Cruiser and AdvancedCopy Manager on the clustered system.

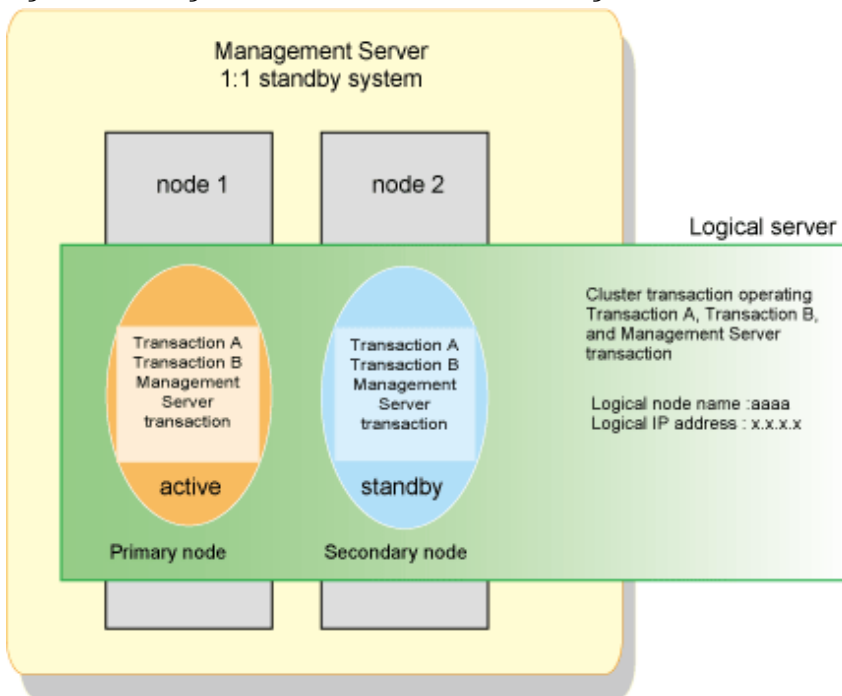
2.5.1 Construction of Clustered System of Type with 1:1 Standby

This section explains how to provide the cluster environment construction for a Management Server transaction or Managed Server transaction on the clustered system of the type with 1:1 standby.

Constructing Management Server Transactions or Managed Server Transactions

This section explains how to provide the cluster environment construction for a Management Server transaction or Managed Server transaction on the clustered system of the type with 1:1 standby.

Figure 2.2 Management Server Transactions or Managed Server Transactions in 1:1 Standby Clustered System



In the above configuration, the ETERNUS SF Manager is installed on node 1 and node 2 to construct the Management Server transaction.

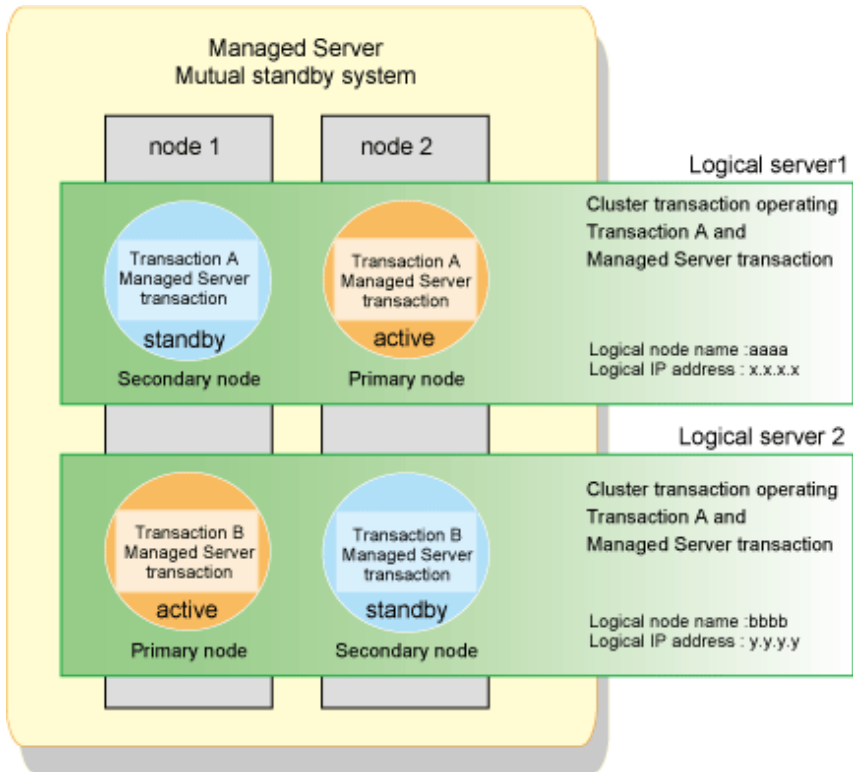
To build Management Server transactions, install the ETERNUS SF Manager on both nodes.

To build Managed Server transactions, install the ETERNUS SF Agent on both nodes.

2.5.2 Construction of Clustered System of Type with Mutual Standby

This section explains how to provide the cluster environment construction for a Managed Server transaction on the clustered system of the type with mutual standby.

Figure 2.3 Managed Server Transactions in Mutual Standby Clustered System



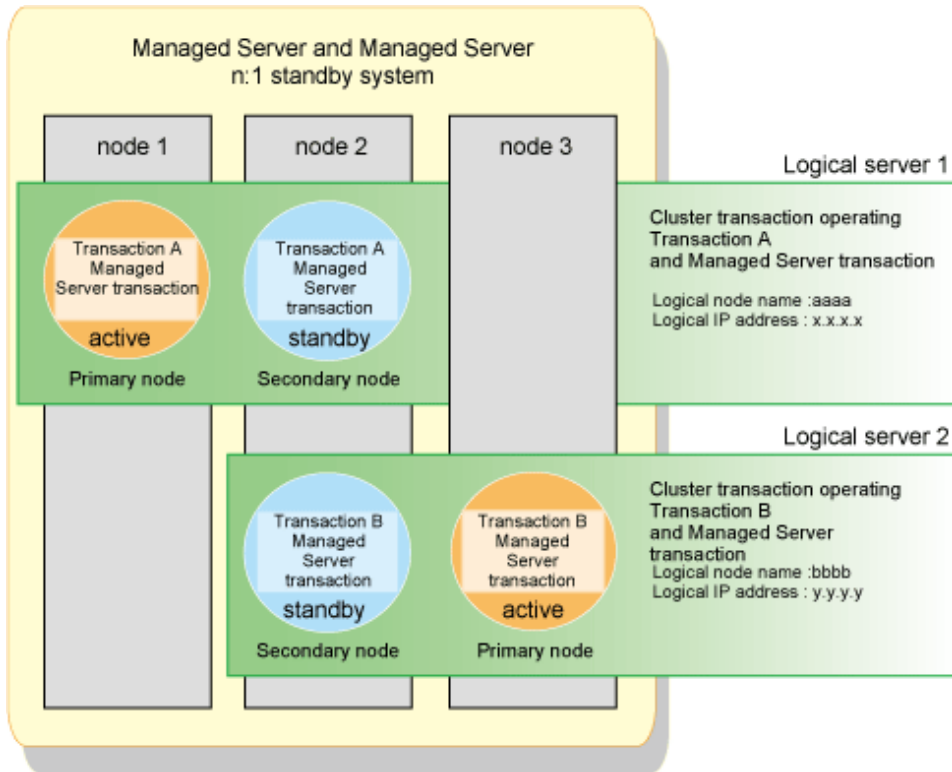
To configure a mutual standby environment for Managed Server transactions, install the AdvancedCopy Manager's agent on both nodes.

In the above configuration, the AdvancedCopy Manager's agent is installed on node 1 and node 2 to construct the Managed Server transaction.

2.5.3 Construction of Clustered System of Type with N:1 Standby

This section explains how to provide the cluster environment construction for a Managed Server transaction on the clustered system of the type with n:1 standby.

Figure 2.4 Managed Server Transactions in N:1 Standby Clustered System

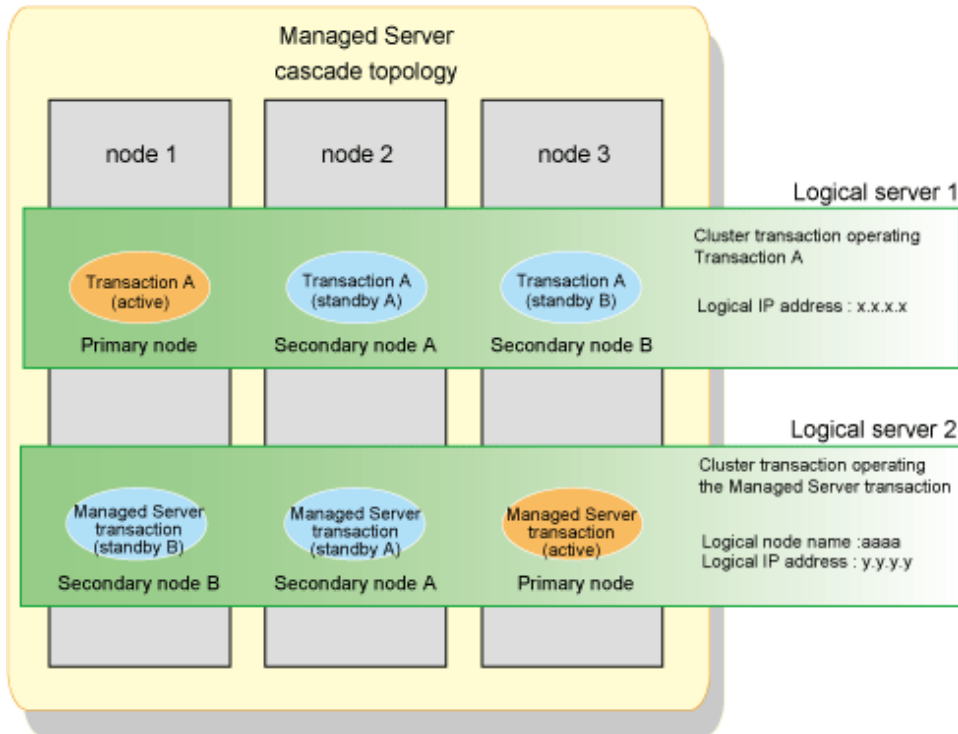


To configure an n:1 standby environment for Managed Server transactions, install the AdvancedCopy Manager's agent on all nodes. In the above configuration, the AdvancedCopy Manager's agent is installed on all nodes to construct the Managed Server transaction.

2.5.4 Construction of Clustered System of Type with Cascade Topology and Type with Priority Transfer

This section explains how to provide the cluster environment construction for a Managed Server transaction on the clustered system of the type with cascade topology and the type with priority transfer.

Figure 2.5 Managed Server Transactions in Cascade and Priority Transfer Clustered System



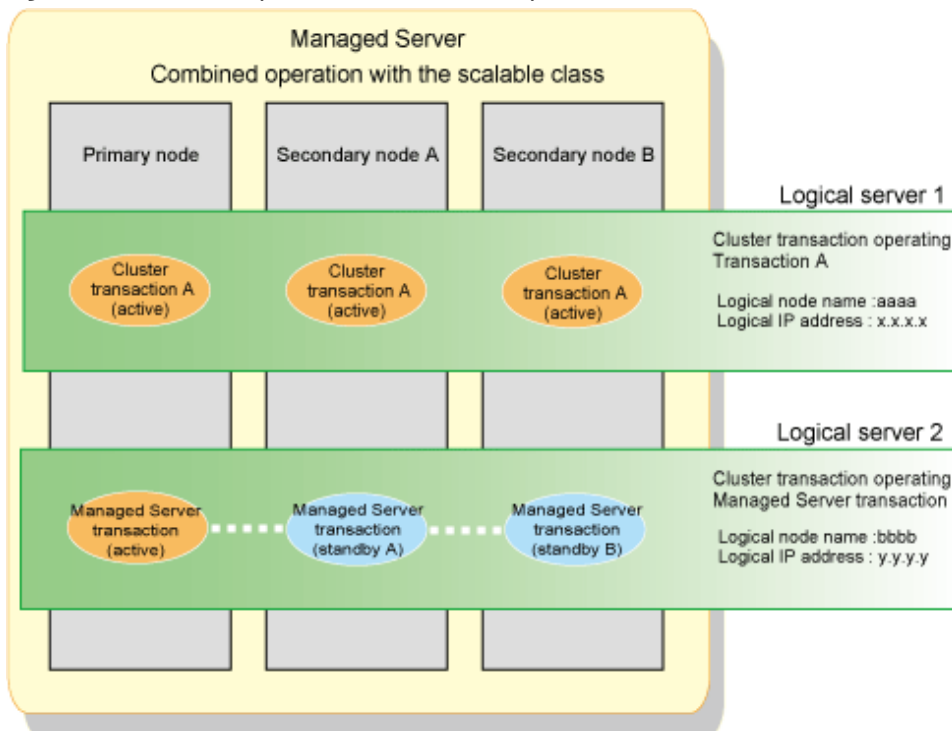
To configure a cascade topology environment and a priority transfer environment for Managed Server transactions, install the AdvancedCopy Manager's agent on all nodes.

In the above configuration, the AdvancedCopy Manager's agent is installed on all nodes to construct the Managed Server transaction.

2.5.5 Combined Operation with Scalable Operation

The method of performing backup operation or replication operation on the transaction volume in scalable operation is explained.

Figure 2.6 Combined Operation with Scalable Operation



AdvancedCopy Manager does not support the scalable operation. Therefore, the resource of AdvancedCopy Manager cannot be added to a scalable operation.

When performing backup operation and replication operation to the transaction volume in scalable operation, create the cluster service of new Managed Server transaction or Management Server transaction. When cluster service in a scalable operation consists of three or more nodes, create the Managed Server transaction in cascade topology. When cluster service in scalable operation consists of 2 nodes, create the Managed Server transaction in mutual standby.

The backup operation and replication operation are performed from the Managed Server transaction to the transaction volume in scalable operation.

The above figure shows combined operation of userApplication in scalable operation, and cluster service of Managed Server transaction. The backup operation for volume on transaction A is performed from the Managed Server transaction. The backup operation's information is managed in the Managed Server transaction.

 Note

.....
Refer to "Notes on Cluster Operation" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for notes on combined operation with transactions in scalable operation.
.....

Chapter 3 Installation of ETERNUS SF Manager

This chapter explains how to install ETERNUS SF Manager in a clustered system.

Refer to "Upgrade for Storage Cruiser" or "Upgrade for AdvancedCopy Manager" in the *ETERNUS SF Migration Guide* for migrating a version from a previous version.

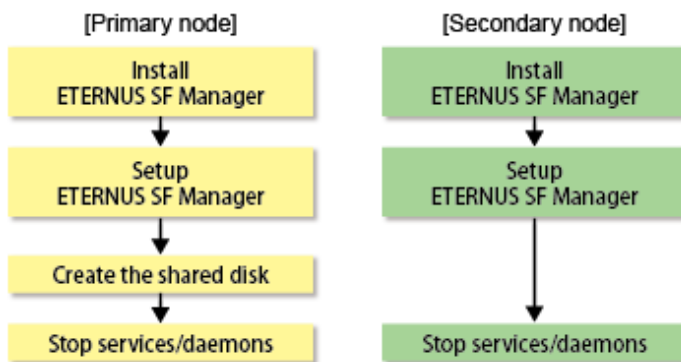
Point

To operate a Management Server transaction on the clustered system, cluster software installation and environment setting are required. Refer to your cluster software manuals for details.

3.1 Installation Workflow

The installation workflow is shown below.

Perform the installation first on the primary node and then on the secondary node.



3.2 Installation Procedure of ETERNUS SF Manager (for Windows)

The installation procedure of ETERNUS SF Manager (for Windows) is performed as follows:

Note

- If customization in the Windows version of WSFC is implemented by a user belonging to the Administrators of the domain, the Windows "Computer Browser Service" must be running.
- Do not use the Telnet Server service.

1. Perform the following steps on the primary node.

- a. Install ETERNUS SF Manager. However, do not install it on a shared disk.

Refer to "Installation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details.

- b. Set up ETERNUS SF Manager.

Refer to "Setup of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details. However, the procedure of "Updating Management Server IP address information" is not required.

- c. Create a shared disk.

- d. Stop the following services.

After stopping these services, change the settings for their startup type to "Manual".

- ETERNUS SF Manager Apache Service

- ETERNUS SF Manager Tomcat Service
 - ETERNUS SF Manager Postgres Service
 - ETERNUS SF Storage Cruiser Optimization Option
2. Perform the following steps on the secondary node.
 - a. Install ETERNUS SF Manager. However, do not install it on a shared disk.
Refer to "Installation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details. For the installation target, specify the same path as the one specified for the primary node.
 - b. Set up ETERNUS SF Manager.
Refer to "Setup of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details. However, the procedure of "Updating Management Server IP address information" is not required.
 - c. Stop the following services.
After stopping these services, change the settings for their startup type to "Manual".
 - ETERNUS SF Manager Apache Service
 - ETERNUS SF Manager Tomcat Service
 - ETERNUS SF Manager Postgres Service
 - ETERNUS SF Storage Cruiser Optimization Option

3.3 Installation Procedure of ETERNUS SF Manager (for Solaris/Linux)

The installation procedure of ETERNUS SF Manager (for Solaris/Linux) is performed as follows:



Note

The port number for the communication daemon to be specified by installation is for communication daemon for local transactions. For setting port number of the cluster transaction communication daemon, refer to "[Chapter 8 Customization of Managed Server Transactions](#)" to perform the procedure according to the cluster software to be used.

1. Assign a user ID used by the ETERNUS SF Manager internally. (For example, 15999)
Refer to the `/etc/passwd` file for the primary node and secondary node to assign an unused user ID.
2. Perform the following steps on the primary node.
 - a. Specify the user ID determined in step 1 for the install parameter "esfpostgres_UID" and perform a custom installation of ETERNUS SF Manager. However, do not install it on a shared disk.
Refer to "Installation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details.
 - b. Set up ETERNUS SF Manager.
Refer to "Setup of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details. However, the procedure of "Updating Management Server IP address information" is not required.
 - c. Create a shared disk as required.
 - d. Stop the daemons.
Execute the following shell script:


```
# /opt/FJSSvesfcm/bin/stopesf.sh
```

 The following daemons are stopped.
 - ETERNUS SF Manager Apache daemon
 - ETERNUS SF Manager Tomcat daemon

- ETERNUS SF Manager Postgres daemon
- ETERNUS SF AdvancedCopy Manager daemon
- SNMP Trap daemon
- ETERNUS SF Storage Cruiser Optimization Option daemon

3. Perform the following steps on the secondary node.

- a. Specify the user ID determined in step 1 for the install parameter "esfpostgres_UID" and perform a custom installation of ETERNUS SF Manager. However, do not install it on a shared disk.

Refer to "Installation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details. For the installation target, specify the same path as the one specified for the primary node.

- b. Set up ETERNUS SF Manager.

Refer to "Setup of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for details. However, the procedure of "Updating Management Server IP address information" is not required.

- c. Stop the daemons.

Execute the following shell script:

```
# /opt/FJSVesfcm/bin/stopesf.sh
```

The following daemons are stopped.

- ETERNUS SF Manager Apache Service
- ETERNUS SF Manager Tomcat Service
- ETERNUS SF Manager Postgres daemon
- ETERNUS SF AdvancedCopy Manager daemon
- SNMP Trap daemon
- ETERNUS SF Storage Cruiser Optimization Option daemon

Chapter 4 Preparations for Customizing Management Server Transactions

This chapter explains the preparations that are required to customize Management Server transactions.

If you have installed AdvancedCopy Manager CCM, refer to "[Chapter 10 Preparations for Customizing CCM Server Transactions](#)".

4.1 Resources

This section explains the resources that are required when installing ETERNUS SF Manager in a clustered system.

4.1.1 Shared Resources

ETERNUS SF Manager requires the following resources:

Table 4.1 Items Required for ETERNUS SF Manager

Items	OS		
	Windows	Solaris	Linux
Transaction name	Required	Required	Required
Logical IP address	Required	Required	Required
Shared disk for shared data	Required	Required	Required
Disk resource of shared disk for shared data	Required	Required	Required
Resource type	Unnecessary	Required	Required
Cluster name	Required	Unnecessary	Unnecessary
Network name	Required	Unnecessary	Unnecessary
Network for external connections	Required	Unnecessary	Unnecessary
IP address resource	Required	Unnecessary	Unnecessary
Generic script	Required	Required	Required

Each item is explained below.

- Transaction name

Name of cluster transaction.

- Logical IP address

IP address for data communication with the Web Console and Managed Servers.

We recommend that you use a new logical IP address created only for ETERNUS SF Manager.

When allocating a new one, make sure that existing transactions use the IP address as a failover resource and that adding the IP address resource has no adverse effects on transactions.

If you use an existing logical IP address, share it with ETERNUS SF Manager in order to make sure that no trouble occurs with any other product already using this logical IP address.

- Shared disk for shared data

Volume for storing shared data of ETERNUS SF Manager.

With regard to such factors as reliability and update performance, we recommend that you use a new volume created only for ETERNUS SF Manager.

Note

When you specify a shared disk for shared data, be careful about the following points:

- Define the shared disk for shared data as a shared disk of a cluster.
- Allocate a disk that does not use AdvancedCopy Manager to carry out backup and replication.
- Allocate a disk that is not used by AdvancedCopy Manager CCM as a copy source, copy destination or access volume.
- On the shared disk for shared data, create a file system.
- In order to be used by the file system, make the shared disk mountable.
- Use a disk that is not used as a Quorum disk.

Refer to "Required Disk Space for Operation" in "Operating Environment for ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the disk space required for ETERNUS SF Manager.

- Disk resource of shared disk for shared data

Disk resource name of shared disk for shared data.

- Resource type

Cmdline resource.

- Cluster name

Cluster name specified in WSFC.

- Network name

Dedicated network name for ETERNUS SF Manager that is specified when using a new logical IP address. ETERNUS SF Manager creates a network resource under this network name.

- Network for external connections

Network name for external communication specified in WSFC, to be specified when using a new logical IP address.

- IP address resource

IP address resource name in which logical IP address is set up, to be specified when using an already existing logical IP address.

- Generic script

Script for starting or stopping services/daemon.

For Windows

Create generic script files for starting and stopping the following services:

- ETERNUS SF Manager Apache Service
- ETERNUS SF Manager Tomcat Service

Create the following script file separately for each service.

You can freely specify any file name, but the file extension must be ".vbs".

```
Function Online()  
  
    Dim objWmiProvider  
    Dim objService  
    Dim strServiceState  
  
    ' Check to see if the service is running  
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")  
    set objService = objWmiProvider.get("win32_service='serviceName'")  
    strServiceState = objService.state
```

```

If ucase(strServiceState) = "RUNNING" Then
    Online = True
Else

    ' If the service is not running, try to start it.
    response = objService.StartService()

    ' response = 0 or 10 indicates that the request to start was accepted
    If ( response <> 0 ) and ( response <> 10 ) Then
        Online = False
    Else
        Online = True
    End If
End If
End Function

Function Offline()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    ' Check to see if the service is running
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='serviceName'")
    strServiceState = objService.state

    If ucase(strServiceState) = "RUNNING" Then

        response = objService.StopService()

        If ( response <> 0 ) and ( response <> 10 ) Then
            Offline = False
        Else
            Offline = True
        End If
    Else
        Offline = True
    End If
End Function

Function Terminate()

    Dim objWmiProvider
    Dim objService

    ' Stopping the service
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='serviceName'")
    response = objService.StopService()

    Resource.LogInformation "Terminate Stop Response: " & response

    Terminate = True
End Function

Function LooksAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

```

```

set objWmiProvider = GetObject("winmgmts:/root/cimv2")
set objService = objWmiProvider.get("win32_service='serviceName'")
strServiceState = objService.state

if ucase(strServiceState) = "RUNNING" Then
    LooksAlive = True
Else
    LooksAlive = False
End If
End Function

Function IsAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='serviceName'")
    strServiceState = objService.state

    if ucase(strServiceState) = "RUNNING" Then
        IsAlive= True
    Else
        IsAlive = False
    End If

End Function

```

Instead of *serviceName* in the script, enter the corresponding service name (one of the following):

- esfmanagerweb
- esfmanagertomcat

For Solaris or Linux

Create generic scripts (Start/Stop/Check) for the following daemons.

- ETERNUS SF Manager Apache daemon
- ETERNUS SF Manager Tomcat daemon
- ETERNUS SF Manager Postgres daemon

Create the generic scripts according to the following settings. Specify the unique names to the files.

Type	Owner	Group	Access Permission
Start script	root	root	544
Stop script	root	root	544
Check script	root	root	544

[Start script]

```

#!/bin/sh

#
# ETERNUS SF Manager daemon start for PRIMECLUSTER
#

/opt/FJSVesfcm/bin/startSFmanager start
if [ $? -ne 0 ]; then

```



```
        exit 1
    fi
exit 0
```

[Stop script]

```
#!/bin/sh

#
# ETERNUS SF Manager daemon stop for PRIMECLUSTER
#

/opt/FJSVesfcm/bin/startSFmanager stop
if [ $? -ne 0 ]; then
    exit 1
fi
```

[Check script]

- For Solaris

```
#!/bin/sh

#
# ETERNUS SF Manager Check script for PRIMECLUSTER
#

PATH=/bin:/usr/bin:/sbin:/usr/sbin
export PATH

check_postgres()
{
    ps -ef | grep '/opt/FJSVesfcm/postgres/bin/postgres' | grep -v grep > /dev/null 2>&1
    if [ $? -ne 0 ]; then
        return 1
    fi

    return 0
}

check_apache()
{
    ps -ef | grep '/opt/FJSVesfcm/apache/bin/httpd' | grep -v grep > /dev/null 2>&1
    if [ $? -ne 0 ]; then
        return 1
    fi;

    return 0
}

check_tomcat()
{
    ps -ef | grep '/opt/FJSVesfcm/JRE/bin/java' | grep 'FJSVesfcm' | grep -v grep > /dev/null 2>&1
    if [ $? -ne 0 ]; then
        return 1
    fi;

    return 0
}
```

```

}

for EXEC in check_postgres check_apache check_tomcat
do
    eval $EXEC
    if [ $? -ne 0 ]; then
        exit 1
    fi
done

exit 0

```

- For Linux

```

#!/bin/sh

#
# ETERNUS SF Manager Check script for PRIMECLUSTER
#

PATH=/bin:/usr/bin:/sbin:/usr/sbin
export PATH

check_postgres()
{
    ps -ef --cols 90 | grep '/opt/FJSVesfcm/postgres/bin/postgres' | grep -v grep
> /dev/null 2>&1
    if [ $? -ne 0 ]; then
        return 1
    fi

    return 0
}

check_apache()
{
    ps -ef --cols 90 | grep '/opt/FJSVesfcm/apache/bin/httpd' | grep -v grep
> /dev/null 2>&1
    if [ $? -ne 0 ]; then
        return 1
    fi;

    return 0
}

check_tomcat()
{
    ps -ef --cols 90 | grep '/opt/FJSVesfcm/JRE/bin/java' | grep 'FJSVesfcm' |
grep -v grep > /dev/null 2>&1
    if [ $? -ne 0 ]; then
        return 1
    fi;

    return 0
}

for EXEC in check_postgres check_apache check_tomcat
do
    eval $EXEC
    if [ $? -ne 0 ]; then
        exit 1
    fi
done

```

```

fi
done

exit 0

```

4.1.2 Resources Required for Storage Cruiser's Manager

Storage Cruiser's manager does not require any resources.

4.1.3 Resources Required for AdvancedCopy Manager's Manager

AdvancedCopy Manager's manager requires the following resources:

Table 4.2 Items Required for AdvancedCopy Manager's Manager

Items	OS		
	Windows	Solaris	Linux
Logical node name	Required	Required	Required
Communication daemon/service port number for transaction	Required	Required	Required
Installing user	Required	Unnecessary	Unnecessary
Start up/shut down script for AdvancedCopy Manager daemon	Unnecessary	Required	Required

Each item is explained below.

- Logical node name

Name of logical server for AdvancedCopy Manager

The user can freely set any logical node name, consisting of alphanumeric characters up to 8 bytes.

In order to determine to which cluster transaction an executed AdvancedCopy Manager function (e.g. backup management command) belongs, AdvancedCopy Manager assigns a unique name (logical node name) to each cluster transaction. By specifying this logical node name in the environment variable SWSTGNODE when running an AdvancedCopy Manager command, the command will identify the applicable cluster transaction and carry out processing accordingly.

When "Logical IP address" and "Communication daemon/service port number for transaction (stgxfws_ *logicalNodeName*)" are set in the processing for adding the AdvancedCopy Manager server, the applicable cluster transaction is added as a server of AdvancedCopy Manager.

Note

13-character strings of the following table cannot be made into a logical node name for Solaris version PRIMECLUSTER or Linux version PRIMECLUSTER.

Table 4.3 Character Strings That Cannot Be Used in Logical Node Names

audit	cluster	cmdevs	config	daemon	data	java
log	pid	report	samp	sh	tmp	

- Communication daemon/service port number for transaction

Port number allocated to the communication daemon and service for transactions.

Specify the unused number (the number not used for ports of other demons/services) between 1024 and 65535.

Also note that the same port number needs to be specified on both the primary and secondary nodes.

Note

Ensure that the port number of the communication service for transaction is different from the port number of the communication daemon for local transaction or the other communication services for transaction.

- Installing user

User name and password that were used when installing ETERNUS SF Manager.

- Start up/shut down script for AdvancedCopy Manager daemon

It is the script to start up and shut down AdvancedCopy Manager daemon from the cluster application (transaction). Create the script reference to "A.3 Registration of AdvancedCopy Manager Service".

The example of creating script as the Start/Stop script for Cmdline resource is shown below.

```
#!/bin/sh
swstgnodedata=logicalNodeName

SWSTGNODE=$swstgnodedata
export SWSTGNODE

case $1 in
'start' )
    /opt/FJSVswstf/cluster/MgrStart
    exit 0 ;;
'stop' )
    /opt/FJSVswstf/cluster/MgrStop
    exit 0 ;;
esac
```

Specify the logical node name for *logicalNodeName*.

For register a Cmdline resource, specify "start" to the argument for the Start script, specify "stop" to the argument for the Stop script.

Refer to the manuals of your cluster software for creating procedure of Start/Stop script.

4.1.4 Resources Required for AdvancedCopy Manager CCM

AdvancedCopy Manager CCM requires the following resources:

Table 4.4 Items Required for AdvancedCopy Manager CCM

Items	OS		
	Windows	Solaris	Linux
Generic script for AdvancedCopy Manager CCM	Required	Required	Required
Access volume	Required	Required	Required

Each item is explained below.

- Generic script for AdvancedCopy Manager CCM

Script for stopping the management service of AdvancedCopy Manager CCM.

Before the shared disk for shared data goes offline, the following service must be stopped.

In order to stop this service, create a generic script file that executes the `acserv stop` command with the `-lan` option. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

- Management service of ETERNUS SF AdvancedCopy Manager CCM

For Windows WSFC

Below is an example of a generic script file.

You can freely specify any file name, but the file extension must be ".vbs".

```
Dim WshShell
Set WshShell = CreateObject("WScript.Shell")

Function Open( )
    Open = True
End Function

Function Online( )
    Online = True
End Function

Function LooksAlive( )
    LooksAlive = True
End Function

Function IsAlive( )
    IsAlive = True
End Function

Function Offline( )
    Resource.LogInformation "--- start offline ---"
    Set oExec = WshShell.Exec("installDir\CCM\bin\acservic.exe stop -lan")
    Resource.LogInformation oExec.StdOut.ReadAll
    Resource.LogInformation oExec.StdErr.ReadAll
    Resource.LogInformation "--- end offline ---"
    Offline = True
End Function

Function Close( )
    Close = True
End Function

Function Terminate( )
    Terminate = True
End Function
```

Instead of *installDir* in the script, specify the directory in which ETERNUS SF Manager or AdvancedCopy Manager CCM is installed.

For Solaris or Linux PRIMECLUSTER

The example of creating script as the Start/Stop script for Cmdline resource is shown below.

```
#!/bin/sh

case $1 in
'start')
    exit 0 ;;
'stop' )
    /opt/FJSVccm/bin/acservic stop -lan
    exit 0 ;;
esac
```

For register a Cmdline resource, specify "start" to the argument for the Start script, specify "stop" to the argument for the Stop script.

Refer to the manuals of your cluster software for creating procedure of Start/Stop script.

- Access volume

This is a volume for issuing Advanced Copy from the CCM Server to ETERNUS Disk storage systems.

It is required for issuing Advanced Copy to ETERNUS Disk storage systems that operate with copy control functions via SAN.

From among the logical volumes in the ETERNUS Disk storage system to be backed up for AdvancedCopy Manager CCM, connect one logical volume as an access volume to all nodes making up the cluster.

For Windows

Make the environment settings for the connected logical volume so as to allow access from all nodes making up the cluster to the same physical disk number (Disk # displayed on the disk management screen).

For Solaris or Linux

Make the environment settings for the connected logical volume so as to allow access from all nodes making up the cluster to the same physical device name.

 Note

When specify a device file of ETERNUS Multipath Driver to an access volume in Solaris or Linux, setup the device file name and system. Refer to the ETERNUS Multipath Driver manual for details.

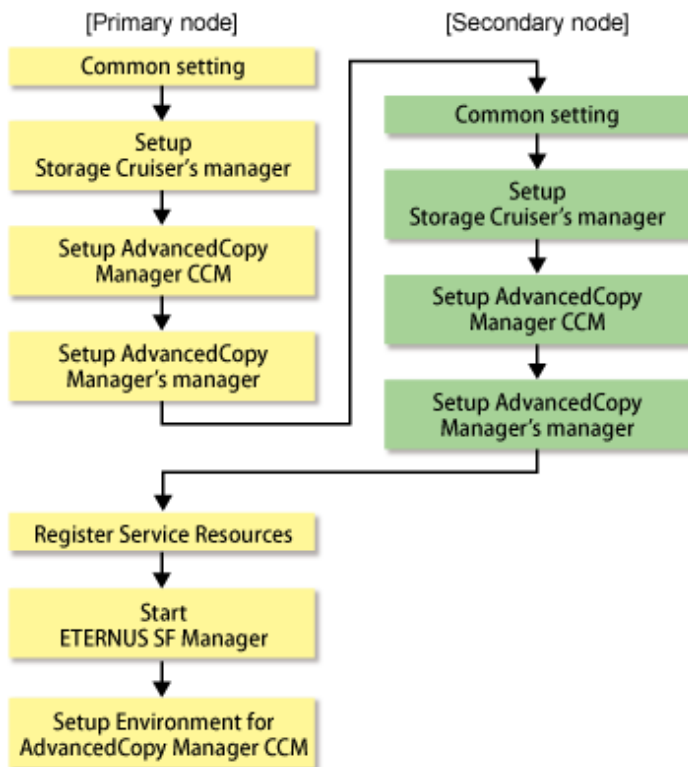
Chapter 5 Customization for Management Server Transaction

This chapter explains how to customize Management Server transactions.

If you have installed AdvancedCopy Manager CCM as a standalone, refer to "[Chapter 11 Customization for CCM Server Transactions](#)".

5.1 Customization for Windows

The following flow is the customization procedure for Management Server transaction in Windows version.



Note

Whether using Storage Cruiser or AdvancedCopy Manager separately or using both of them together, all the above steps must be performed.

5.1.1 Customization for Primary Node

This section explains the customization procedure for a primary node.

5.1.1.1 Common Settings

This section explains the required procedure for customizing a primary node for ETERNUS SF Manager.

5.1.1.1.1 Preparation of Generic Script

Follow the procedure below to prepare a generic script to be used on the primary node.

1. In the ETERNUS SF Manager program directory on the primary node, store the generic script file that you created in "[4.1.1 Shared Resources](#)".

2. Set the access restrictions for the stored generic script file.

Run the following command for the stored generic script file:

```
>cacls fileName /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

Example

```
C:\ETERNUS_SF>cacls apache.vbs /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F"  
Are you sure (Y/N)?y  
Processing file: C:\ETERNUS_SF\apache.vbs
```

5.1.1.1.2 Creation of Cluster Resources

Create the cluster resources to be used on the primary node.

For Adding ETERNUS SF Manager to Already Existing Cluster Services (Transactions)

Use the **Failover Cluster Manager** screen to stop all transactions of the relevant cluster service. However, keep the shared disk being used by ETERNUS SF Manager online.

For Creating ETERNUS SF Manager in Newly Created Cluster Services (Transactions)

Follow the procedure below to create cluster resources for ETERNUS SF Manager in the cluster service.

The screen name and item name may be different depending on operating systems.

The procedures for Windows Server 2008 and Windows Server 2012 are as follows:

[For Windows Server 2008]

For explanation purposes, the name of the "Service or Application" for ETERNUS SF Manager is set to "ESF-manager" in Windows Server 2008.

1. Start the **Failover Cluster Manager** screen and connect to the clustered system.
2. Create a "Service or Application" for ETERNUS SF Manager.
 - a. Right-click **Services and Applications** in the **Failover Cluster Manager** tree, and, in the subsequently displayed menu, select **More Actions... > Create Empty Service or Application**.
Under **Services and Applications**, the **New service or application** will be created.
 - b. Right-click **New service or application** and then select **Properties**.
The **New service or application Properties** dialog box will be displayed.
 - c. On the **General** tab, modify the **Name**. Then, under **Preferred owners**, select the resource name for the primary node, and click **Apply**.
 - d. After applying the settings, click **OK**.
3. Allocate a shared disk to the "Service or Application" for ETERNUS SF Manager.
 - a. Right-click **Services and Applications > ESF-manager**, and then select **Add storage**.
The **Add Storage** screen will be displayed.
 - b. From **Available disks**, select the shared disk for ETERNUS SF Manager and click **OK**.
4. Allocate a client access point to the "Service or Application" for ETERNUS SF Manager.
 - a. Right-click **Services and Applications > ESF-manager**, and then select **Add a resource > 1 - Client Access Point**.
The **New Resource Wizard** screen will be displayed.
 - b. Set the following items and click **Next**.
 - Name
Set the network name that you prepared in "[4.1.1 Shared Resources](#)".
 - Network
Check the network to be used.

- Address

Set the Logical IP address resources (the IP address resources) that you prepared in "[4.1.1 Shared Resources](#)".

- c. Check the contents on the **Confirmation** screen and click **Next**.
- d. Check the contents on the **Summary** screen and click **Finish**.
- e. Make sure that the settings have been applied.

At the center of the screen, under **ESF-manager Summary**, confirm that the set resources have been added to the **Server Name**.

[For Windows Server 2012]

For explanation purposes, the name of the "Role" for ETERNUS SF Manager is set to "ESF-manager" in Windows Server 2012.

1. Start the **Failover Cluster Manager** screen and connect to the clustered system.
2. Create a Role for ETERNUS SF Manager.
 - a. Right-click **Roles** in the **Failover Cluster Manager** tree, and, in the subsequently displayed menu, select **Create Empty Role**.
Under **Roles**, the **New Role** will be created.
 - b. Right-click **New Role** and then select **Properties**.
The **New Role Properties** dialog box will be displayed.
 - c. On the **General** tab, modify the **Name**. Then, under **Preferred Owners**, select the resource name for the primary node, and click **Apply**.
 - d. After applying the settings, click **OK**.
3. Allocate a shared disk to the Role for ETERNUS SF Manager.
 - a. Right-click **Roles > ESF-manager**, and then select **Add Storage**.
The **Add Storage** screen will be displayed.
 - b. From **Available disks**, select the shared disk for ETERNUS SF Manager and click **OK**.
4. Allocate a client access point to the Role for ETERNUS SF Manager.
 - a. Right-click **Roles > ESF-manager**, and then select **Add Resource > Client Access Point**.
The **New Resource Wizard** screen will be displayed.
 - b. Set the following items and click **Next**.
 - Name
Set the network name that you prepared in "[4.1.1 Shared Resources](#)".
 - Networks
Check the network to be used.
 - Address
Set the Logical IP address resources (the IP address resources) that you prepared in "[4.1.1 Shared Resources](#)".
 - c. Check the contents on the **Confirmation** screen and click **Next**.
 - d. Check the contents on the **Summary** screen and click **Finish**.
 - e. Make sure that the settings have been applied.
At the center of the screen, under **ESF-manager**, confirm that the set resources have been added to the **Server Name** in the **Resources** tab.

5.1.1.1.3 Taking of Ownership

Take ownership of the shared disk and of the transactions that are used by the Quorum disk and ETERNUS SF Manager.

5.1.1.1.4 Copying of Dynamic Disk Files

Copy the files on the dynamic disks of ETERNUS SF Manager on the primary node to the shared disk for ETERNUS SF Manager. When recreating a cluster environment, if the earlier environment files remain on the shared disk, delete them beforehand.

1. Use Explorer or a similar tool to create the directory "*driveName*:\ETERNUS_SF" in a directory on the shared disk.
2. Use Explorer or a similar tool to copy the files from the local disks on the primary node to the directory on the shared disk.

Local Disk (Copy Source)	Shared Disk (Copy Destination)
<i>programDi</i> \Common\sys\apache\conf	<i>driveName</i> :\ETERNUS_SF\apache\conf
<i>programDi</i> \Common\sys\apache\logs	<i>driveName</i> :\ETERNUS_SF\apache\logs
<i>programDi</i> \Common\sys\tomcat\conf	<i>driveName</i> :\ETERNUS_SF\tomcat\conf
<i>programDi</i> \Common\sys\tomcat\logs	<i>driveName</i> :\ETERNUS_SF\tomcat\logs
<i>programDi</i> \Common\sys\tomcat\webapps\esf\WEB-INF\log	<i>driveName</i> :\ETERNUS_SF\tomcat\webapps\esf\WEB-INF\log
<i>environmentDi</i> \Common\etc\db	<i>driveName</i> :\ETERNUS_SF\db
<i>environmentDi</i> \Common\etc\message	<i>driveName</i> :\ETERNUS_SF\message
<i>workDi</i> \Common\var	<i>driveName</i> :\ETERNUS_SF\var
<i>workDi</i> \LM\var	<i>driveName</i> :\ETERNUS_SF\LM\var

3. Use Explorer or a similar tool to modify the following directory names:

- *programDi*\Common\sys\apache\conf
- *programDi*\Common\sys\apache\logs
- *programDi*\Common\sys\tomcat\conf
- *programDi*\Common\sys\tomcat\logs
- *programDi*\Common\sys\tomcat\webapps\esf\WEB-INF\log
- *environmentDi*\Common\etc\db
- *environmentDi*\Common\etc\message
- *workDi*\Common\var



Note

If another program is using any files in the above directories, modification of the directory names may fail. If modification of the directory names fails, reboot the server and try again.

5.1.1.1.5 Link Setup for Shared Disk

On the primary node, set up links to the directories of the shared disk for shared data.

1. Set up symbolic links from the directories on the local disks on the primary node to the directories on the shared disk. Setup of symbolic links is required for the following directories:

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>programDi</i> \Common\sys\apache\conf	<i>driveName</i> :\ETERNUS_SF\apache\conf
<i>programDi</i> \Common\sys\apache\logs	<i>driveName</i> :\ETERNUS_SF\apache\logs
<i>programDi</i> \Common\sys\tomcat\conf	<i>driveName</i> :\ETERNUS_SF\tomcat\conf
<i>programDi</i> \Common\sys\tomcat\logs	<i>driveName</i> :\ETERNUS_SF\tomcat\logs

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>programDir</i> \Common\sys\tomcat\webapps\lesfWEB-INF\log	<i>driveName</i> :\ETERNUS_SF\tomcat\webapps\lesfWEB-INF\log
<i>environmentDir</i> \Common\etc\db	<i>driveName</i> :\ETERNUS_SF\db
<i>environmentDir</i> \Common\etc\message	<i>driveName</i> :\ETERNUS_SF\message
<i>workDir</i> \Common\var	<i>driveName</i> :\ETERNUS_SF\var

Implement the following procedure for all directories:

- a. Move each directory that you copied according to "5.1.1.1.4 Copying of Dynamic Disk Files" to the directory one level above the original directory.
- b. Execute the following command:

```
>mklink /d srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the local disk from which to set the link.

For *dstDir*, specify the directory on the shared disk to which the link is to be set.

2. Edit the registry.

Use the registry editor to modify the registry key that stores the var directory for the license manager.

As described below, change the path that is written in the registry key to the path of the copy destination directory you used in "5.1.1.1.4 Copying of Dynamic Disk Files".

Before Modification	After Modification
<i>workDir</i> \LM\var	<i>driveName</i> :\ETERNUS_SF\LM\var

[Sample display for registry key]

```
HKEY_LOCAL_MACHINE
SOFTWARE
  Wow6432Node
    Fujitsu
      ETERNUS SF License Manager
        CurrentVersion
          VarPathName
```

5.1.1.1.6 Setup of Access Restrictions

Set up the access restrictions for the folder on the shared disk.

Execute the following command:

```
>cacls folderName /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

For *folderName*, specify "*driveName*:\ETERNUS_SF\var\log".

5.1.1.1.7 Setup of Access Restrictions to Database Folder

Set up the access restrictions for the ETERNUS SF Manager database folder that you copied to the shared disk.

On the primary node, execute the following command:

```
>cacls driveName:\ETERNUS_SF\db\data /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F"
"esfpostgres:C" <RETURN>
```

5.1.1.2 Customization for Storage Cruiser's Manager

Customize a primary node according to the following procedure.

1. Copy all files from the environment settings directory of Storage Cruiser's manager and from the working directory to the shared disk.

Use Explorer or a similar tool to create "*sharedDisk\ESC*" directory.
Then, copy the following data to the directories on the shared disk.:

Copy Source Directory	Copy Destination Directory
<i>environmentDi\ESC\Manager\etc</i>	<i>sharedDisk\ESC\Manager\etc</i>
<i>workDi\ESC\Manager\var</i>	<i>sharedDisk\ESC\Manager\var</i>

2. Use Explorer or a similar tool to modify the following directory names:

- *environmentDi\ESC\Manager\etc*
- *workDi\ESC\Manager\var*

Examples to change the directory name are shown below:

- C:\ETERNUS_SF\ESC\Manager\etc_original
- C:\ETERNUS_SF\ESC\Manager\var_original



Note

If another program is using any files in the above directories, modification of the directory names may fail.
If modification of the directory names fails, reboot the server and try again.

3. On the primary node, set up links to the directories on the shared disk.

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>environmentDi\ESC\Manager\etc</i>	<i>sharedDisk\ESC\Manager\etc</i>
<i>workDi\ESC\Manager\var</i>	<i>sharedDisk\ESC\Manager\var</i>

Execute the following command for all directories:

```
>mklink /d srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the local disk from which to set the link.
For *dstDir*, specify the directory on the shared disk to which the link is to be set.

4. Edit the detailed setting file of the storage management.

Use the text editor to set the detailed setting file that store the takeover IP address for Management Server transaction.

Add the line of "LOGICAL_MANAGER_IP" and/or "LOGICAL_MANAGER_V6IP" in below detailed setting file.

- File name: *sharedDisk\ESC\Manager\etc\opt\FJSSmgr\current\sanma.conf*

Additional line is different according to the takeover IP address for Management Server transaction as follows:

- For only IPv4 address:

```
LOGICAL_MANAGER_IP="takeoverIPAddressForManagementServerTransaction(IPv4Format)";
```

- For only IPv6 address:

```
LOGICAL_MANAGER_V6IP="takeoverIPAddressForManagementServerTransaction(IPv6Format)";
```

- For IPv4 address and IPv6 address:

```
LOGICAL_MANAGER_IP="takeoverIPAddressForManagementServerTransaction(IPv4Format)";
LOGICAL_MANAGER_V6IP="takeoverIPAddressForManagementServerTransaction(IPv6Format)";
```

Refer to "LOGICAL_MANAGER_IP" and "LOGICAL_MANAGER_V6IP" in "sanma.conf Parameter" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the detailed setting file.

5. Copy the files on the dynamic disks that are used by Automated Storage Tiering on the primary node to a shared disk.

Use Explorer or a similar tool to create "*sharedDisk\AST*" directory.
Then, copy the following data to the directories on the shared disk.

Local Disk (Copy Source)	Shared Disk (Copy Destination)
<i>environmentDi\AST\Manager\etc\opt\FJSVssast\data</i>	<i>sharedDisk\AST\etc\data</i>
<i>workDi\AST\Manager\var\opt\FJSVssast\data</i>	<i>sharedDisk\AST\var\data</i>

6. Use Explorer or a similar tool to modify the following directory names:

- *environmentDi\AST\Manager\etc\opt\FJSVssast\data*
- *workDi\AST\Manager\var\opt\FJSVssast\data*

Examples to change the directory name are shown below:

- C:ETERNUS_SF\AST\Manager\etc\opt\FJSVssast\data_original
- C:ETERNUS_SF\AST\Manager\var\opt\FJSVssast\data_original



Note

If another program is using any files in the above directories, modification of the directory names may fail.
If modification of the directory names fails, reboot the server and try again.

7. On the primary node, set up links to the directories on the shared disk for shared data.

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>environmentDi\AST\Manager\etc\opt\FJSVssast\data</i>	<i>sharedDisk\AST\etc\data</i>
<i>workDi\AST\Manager\var\opt\FJSVssast\data</i>	<i>sharedDisk\AST\var\data</i>

Execute the following command for all directories:

```
>mklink /d srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the local disk from which to set the link.
For *dstDir*, specify the directory on the shared disk to which the link is to be set.

5.1.1.3 Customization for AdvancedCopy Manager CCM

Customize the primary node.

5.1.1.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM

Follow the procedure below to prepare a generic script to be used on the primary node.

1. In the program directory for ETERNUS SF Manager or AdvancedCopy Manager CCM on the primary node, store the generic script file that you created in "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)".

2. Set up the access restrictions for the stored generic script file.

Execute the following command to the stored generic script file.

```
>cacls fileName /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

5.1.1.3.2 Customization Procedure

Customize the primary node.

Information

This section uses the following values for explanatory purposes:

Value	Description
\$INS_DIR	"Program directory" used when installing ETERNUS SF Manager or AdvancedCopy Manager CCM
\$ENV_DIR	"Environment settings directory" used when installing ETERNUS SF Manager or AdvancedCopy Manager CCM
\$TMP_DIR	"Working directory" used when installing ETERNUS SF Manager or AdvancedCopy Manager CCM
\$SHARE_DL	"Drive letter" of shared disk for shared data
\$SHARE_TOP	"Storage directory" for "Environment settings directory" and "Working directory" of shared disk for shared data

For the path name of "\$SHARE_DL:\\$SHARE_TOP", only single-byte alphanumeric characters with no spaces can be used. The path name can be specified with a maximum of 76 characters.

1. Create directories on the shared disk for shared data.

On the primary node, create the following directories on the shared disk for shared data:

- \$SHARE_DL:\\$SHARE_TOP\etc
- \$SHARE_DL:\\$SHARE_TOP\var

2. Copy the environment setup files to the shared disk for shared data.

On the primary node, copy the files from the following directory paths to the copy destination directories on the shared disk for shared data.

Copy Source Directory	Copy Destination Directory
\$ENV_DIR\CCM\etc	\$SHARE_DL:\\$SHARE_TOP\etc
\$TMP_DIR\CCM\var	\$SHARE_DL:\\$SHARE_TOP\var

3. Create backup directories for the AdvancedCopy Manager CCM setup files.

On the primary node, create the following directories.

- \$INS_DIR\CCM\noncluster\bin
- \$INS_DIR\CCM\noncluster\micc\sys
- \$INS_DIR\CCM\noncluster\sys

4. Copy the .install.sys, stxc_install.sys, and sys.properties files.

Copy the following files from the source directories to the destination directories on the primary node.

Copy Source Directory	Copy Destination Directory
\$INS_DIR\CCM\micc\sys\install.sys	\$INS_DIR\CCM\noncluster\micc\sys\install.sys
\$INS_DIR\CCM\bin\stxc_install.sys	\$INS_DIR\CCM\noncluster\bin\stxc_install.sys
\$INS_DIR\CCM\sys\sys.properties	\$INS_DIR\CCM\noncluster\sys\sys.properties

Note

The copied files are required for "Chapter 13 Deletion of Cluster Environment for Management Server Transactions".

5. Edit the .install.sys, stxc_install.sys, and sys.properties files.

On the primary node, edit nodes from *1 to *4 of files below:

- File name: \$INS_DIR\CCM\micc\sys\install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir= (Do not modify these settings!)
stxs_varidir=*1
stxs_jredir= (Do not modify these settings!)
```

- File name: \$INS_DIR\CCM\bin\stxc_install.sys

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*2
stxc_jredir= (Do not modify these settings!)
```

- File name: \$INS_DIR\CCM\sys\sys.properties

```
com.fujitsu.eternussf.acm.ccm.optpath= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.etcpath=*3
com.fujitsu.eternussf.acm.ccm.varpath=*4
com.fujitsu.eternussf.acm.ccm.micc.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.grapi.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.language= (Do not modify these settings!)
```

Table 5.1 Contents of Setting Values

Setting Item	Setting Value	Sample Setting
*1	\$SHARE_DL:\$SHARE_TOP\var\micc	G:\ccmdata\var\micc
*2	\$SHARE_DL:\$SHARE_TOP\etc	G:\ccmdata\etc
*3	\$SHARE_DL:\$SHARE_TOP\etc\	G:\ccmdata\etc\
*4	\$SHARE_DL:\$SHARE_TOP\var\	G:\ccmdata\var\

The sample setting values use drive "G:" for \$SHARE_DIR and "ccmdata" for \$SHARE_TOP.

Note

If \$SHARE_TOP of *3 or *4 is located on multiple directory levels, use "\\" as a delimiter.

5.1.1.4 Customization for AdvancedCopy Manager's Manager

To set up a primary node, use the procedure below.

Note

- Perform the procedures using Administrator privileges.
- For Windows Server 2012 or later, install the Failover Cluster Command Interface before performing the cluster setup.
- The Windows "Computer Browser service" must be activated if a user belonging to the Administrators of the domain wants to perform customization for the Windows version of WSFC.

- Do not use the Telnet Server service.

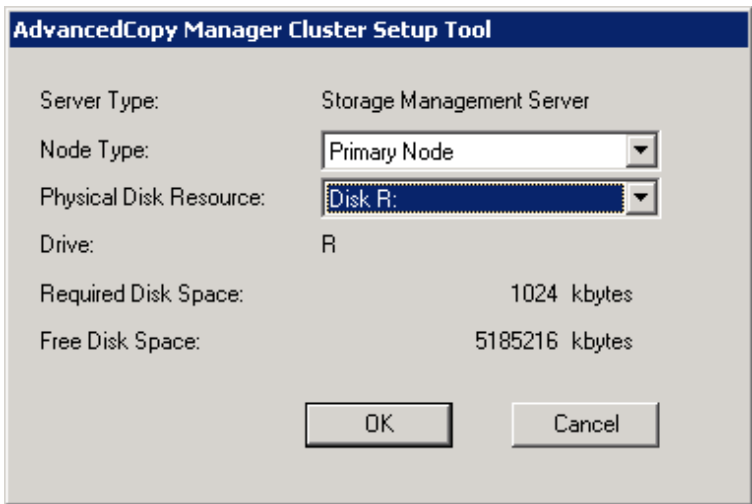
1. Execute the cluster setup command.

Execute the following cluster setup command on the primary node:

```
programDir\ACM\bin\stgclset_mscs
```

2. Select the node type and shared disk.

The initial window of the cluster setup command will be displayed.



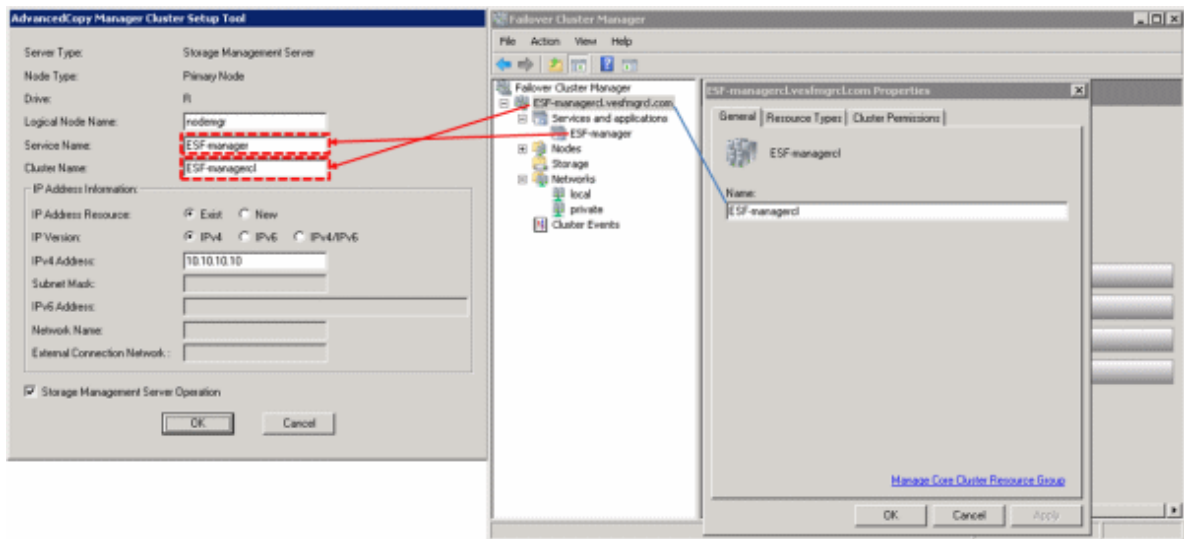
Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Management Server".
Node Type	Select "Primary Node".
Physical Disk Resource	Select the disk resource of the shared disk for shared data that was prepared in "4.1.1 Shared Resources" .
Drive	The drive letter corresponding to the physical disk resource is displayed.
Required Disk Space	The minimum disk size required for the cluster environment is displayed.
Free Disk Space	The amount of free disk space of the specified drive is displayed.

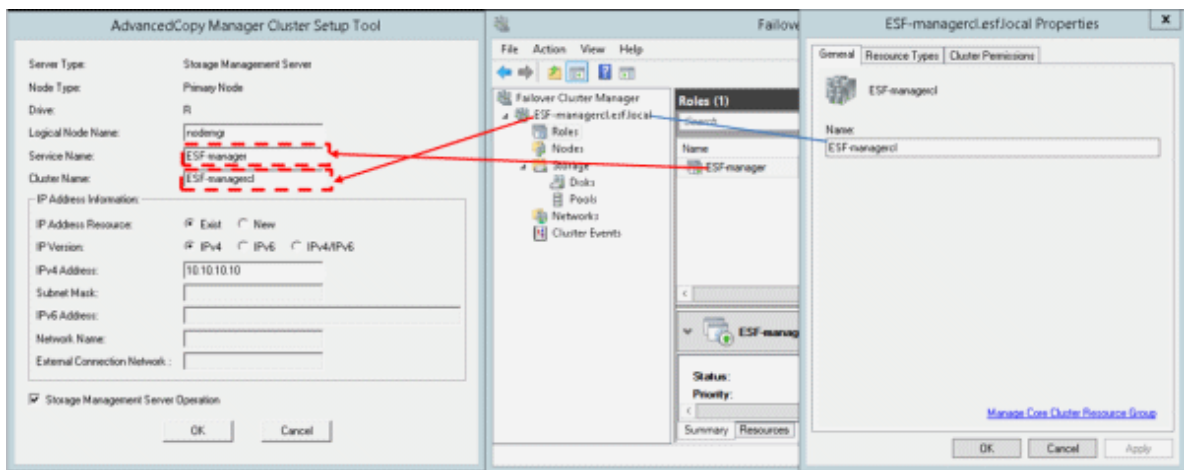
3. Set the cluster information for the primary node.

The setting screen of the cluster setup command will be displayed.

The following screen is for Windows Server 2008.



The following screen is for Windows Server 2012.



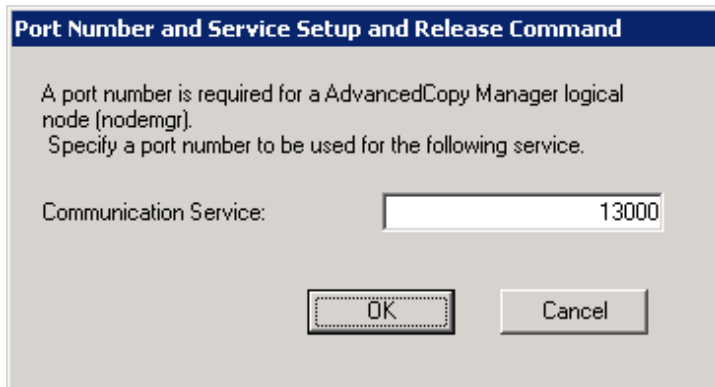
Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Management Server".
Node Type	Confirm that the node is "Primary Node".
Drive	The drive letter corresponding to the physical disk resource is displayed.
Logical Node Name	Enter the logical node name as defined in " 4.1.3 Resources Required for AdvancedCopy Manager's Manager ".
Service Name	Enter the service name as defined in " 4.1.1 Shared Resources ".
Cluster Name	Enter the cluster name as confirmed in " 4.1.1 Shared Resources ".
IP Address Resource	Select "Exist" if a server is the Management Server.
IP Version	Select the IP version of Management Server IP address.
IPv4 Address	Enter the logical IP address as defined in " 4.1.1 Shared Resources ". Enter the IPv4 address if "IPv4" or "IPv4/IPv6" is selected in the IP Version.

Item	Explanation
IPv6 Address	Enter the logical IP address as defined in " 4.1.1 Shared Resources ". Enter the IPv6 address if "IPv6" or "IPv4/IPv6" is selected in the IP Version. The specified IPv6 address should one that is usable with WSFC.
Storage Management Server Operation	Select this item.

- Set the port number and service.

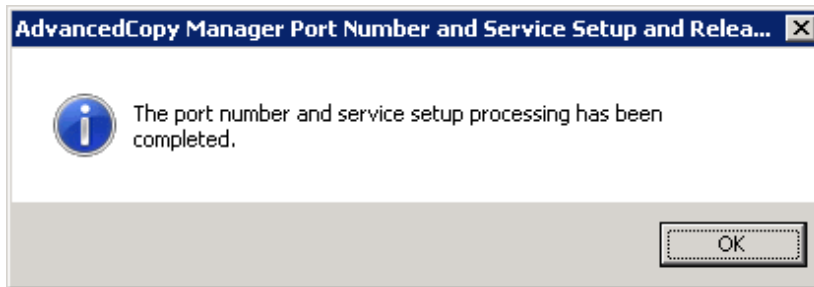
The following page will be displayed. If the port number and service has already been set, this page is not displayed.



Each item is explained below. Make the required entries and then click **OK**.

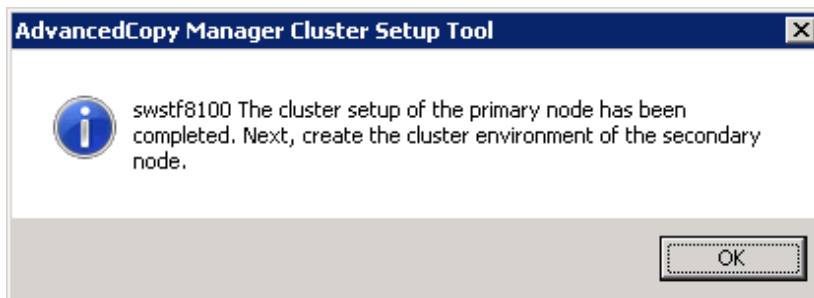
Item	Explanation
Communication Service	Enter the port number for the transaction communication service as defined in " 4.1.3 Resources Required for AdvancedCopy Manager's Manager ".

- The following page will be displayed. Click **OK**.



- The cluster setup of the primary node has been completed.

When the cluster setup completion window is displayed, click **OK**.



5.1.2 Customization for Secondary Node

This section explains the customization procedure for secondary nodes.

5.1.2.1 Common Settings

This section explains the required procedure for customizing secondary nodes for ETERNUS SF Manager.

5.1.2.1.1 Preparation of Generic Script

Follow the procedure below to prepare a generic script to be used on the secondary node.

1. In the ETERNUS SF Manager program directory on the secondary node, store the generic script file that you created in "4.1.1 Shared Resources".
2. Set up the access restrictions for the stored generic script file.

Run the following command for the stored generic script file:

```
>cacls fileName /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

5.1.2.1.2 Taking of Ownership

Take ownership of the shared disk and of the transactions that are used by the Quorum disk and ETERNUS SF Manager.

5.1.2.1.3 Link Setup for Shared Disk

On the secondary node, set up links to the directories on the shared disk for shared data.

1. Use Explorer or a similar tool to modify the following directory names:
 - *programDi*\Common\sys\apache\conf
 - *programDi*\Common\sys\apache\logs
 - *programDi*\Common\sys\tomcat\conf
 - *programDi*\Common\sys\tomcat\logs
 - *programDi*\Common\sys\tomcat\webapps\esf\WEB-INF\log
 - *environmentDi*\Common\etc\ldb
 - *environmentDi*\Common\etc\message
 - *workDi*\Common\var



Note

If another program is using any files in the above directories, modification of the directory names may fail. If modification of the directory names fails, reboot the server and try again.

2. Set up symbolic links from the directories on the local disks on the secondary node to the directories on the shared disk.

Setup of symbolic links is required for the following directories:

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>programDi</i> \Common\sys\apache\conf	<i>driveName</i> :\ETERNUS_SF\apache\conf
<i>programDi</i> \Common\sys\apache\logs	<i>driveName</i> :\ETERNUS_SF\apache\logs
<i>programDi</i> \Common\sys\tomcat\conf	<i>driveName</i> :\ETERNUS_SF\tomcat\conf
<i>programDi</i> \Common\sys\tomcat\logs	<i>driveName</i> :\ETERNUS_SF\tomcat\logs

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>programDir</i> \Common\sys\tomcat\webapps\esfWEB-INF\log	<i>driveName</i> :\ETERNUS_SF\tomcat\webapps\esfWEB-INF\log
<i>environmentDir</i> \Common\etc\db	<i>driveName</i> :\ETERNUS_SF\db
<i>environmentDir</i> \Common\etc\message	<i>driveName</i> :\ETERNUS_SF\message
<i>workDir</i> \Common\var	<i>driveName</i> :\ETERNUS_SF\var

Implement the following procedure for all directories:

- a. Move each directory that you copied according to "5.1.1.1.4 Copying of Dynamic Disk Files" to the directory one level above the original directory.
- b. Execute the following command:

```
>mklink /d srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the local disk from which to set the link.

For *dstDir*, specify the directory on the shared disk to which the link is to be set.

3. Edit the registry.

Use the registry editor to modify the registry key that stores the var directory for the license manager.

Change the registry key that is written in the registry of the secondary node to the value that you set in the registry for the primary node in "5.1.1.1.5 Link Setup for Shared Disk".

5.1.2.1.4 Setup of Access Restrictions to Database Folder

Set up the access restrictions for the ETERNUS SF Manager database folder that you copied to the shared disk.

On the secondary node, execute the following command:

```
>cacls driveName:\ETERNUS_SF\db\data /T /G "esfpostgres:C" /E <RETURN>
```

5.1.2.2 Customization for Storage Cruiser's Manager

Customize a secondary node according to the following procedure.

1. Use Explorer or a similar tool to modify the following directory names:

- *environmentDir*\ESC\Manager\etc
- *workDir*\ESC\Manager\var

Examples to change the directory name are shown below:

- C:\ETERNUS_SF\ESC\Manager\etc_original
- C:\ETERNUS_SF\ESC\Manager\var_original



Note

If another program is using any files in the above directories, modification of the directory names may fail.

If modification of the directory names fails, reboot the server and try again.

2. Take ownership of the shared disk and of the transactions that are used by the Quorum disk and ETERNUS SF Manager.
3. On the secondary node, set up links to the directories on the shared disk.

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>environmentDi\ESCManager\etc</i>	<i>sharedDisk\ESCManager\etc</i>
<i>workDi\ESCManager\var</i>	<i>sharedDisk\ESCManager\var</i>

Execute the following command for all directories:

```
>mklink /d srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the local disk from which to set the link.
For *dstDir*, specify the directory on the shared disk to which the link is to be set.

4. Use Explorer or a similar tool to modify the following directory names:

- *environmentDi\AST\Manager\etc\opt\FJSVssast\data*
- *workDi\AST\Manager\var\opt\FJSVssast\data*

Examples to change the directory name are shown below:

- C:ETERNUS_SF\AST\Manager\etc\opt\FJSVssast\data_original
- C:ETERNUS_SF\AST\Manager\var\opt\FJSVssast\data_original



Note

If another program is using any files in the above directories, modification of the directory names may fail.
If modification of the directory names fails, reboot the server and try again.

5. On the secondary node, set up links to the directories on the shared disk for shared data.

Local Disk (Linked Source)	Shared Disk (Link Target)
<i>environmentDi\AST\Manager\etc\opt\FJSVssast\data</i>	<i>sharedDisk\AST\etc\data</i>
<i>workDi\AST\Manager\var\opt\FJSVssast\data</i>	<i>sharedDisk\AST\var\data</i>

Execute the following command for all directories:

```
>mklink /d srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the local disk from which to set the link.
For *dstDir*, specify the directory on the shared disk to which the link is to be set.

5.1.2.3 Customization for AdvancedCopy Manager CCM

Customize the secondary node.

5.1.2.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM

Follow the procedure below to prepare a generic script to be used on the secondary node.

1. In the program directory for ETERNUS SF Manager or AdvancedCopy Manager CCM on the secondary node, store the generic script file that you created in "4.1.4 Resources Required for AdvancedCopy Manager CCM".
2. Set up the access restrictions for the stored generic script file.

Execute the following command to the stored generic script file.

```
>cacls fileName /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

5.1.2.3.2 Customization Procedure

Customize the secondary node.

1. Create backup directories for the AdvancedCopy Manager CCM setup files.

On the secondary node, create the following directories.

- \$INS_DIR\CCM\noncluster\bin
- \$INS_DIR\CCM\noncluster\micc\sys
- \$INS_DIR\CCM\noncluster\sys

\$INS_DIR : "Program Directory" as specified during ETERNUS SF Manager or AdvancedCopy Manager CCM installation

2. Copy the .install.sys, stxc_install.sys, and sys.properties files.

On the secondary node, copy the following files from the following source directories to the destinations.

Copy Source Directory	Copy Destination Directory
\$INS_DIR\CCM\micc\sys\install.sys	\$INS_DIR\CCM\noncluster\micc\sys\install.sys
\$INS_DIR\CCM\bin\stxc_install.sys	\$INS_DIR\CCM\noncluster\bin\stxc_install.sys
\$INS_DIR\CCM\sys\sys.properties	\$INS_DIR\CCM\noncluster\sys\sys.properties



Note

The copied files are required for "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)".

3. Edit the .install.sys, stxc_install.sys, and sys.properties files.

On the secondary node, edit nodes from *1 to *4 of files below:

- File name: \$INS_DIR\CCM\micc\sys\install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir= (Do not modify these settings!)
stxs_var_dir=*1
stxs_jredir= (Do not modify these settings!)
```

- File name: \$INS_DIR\CCM\bin\stxc_install.sys

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*2
stxc_jredir= (Do not modify these settings!)
```

- File name: \$INS_DIR\CCM\sys\sys.properties

```
com.fujitsu.eternussf.acm.ccm.optpath= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.etcpath=*3
com.fujitsu.eternussf.acm.ccm.varpath=*4
com.fujitsu.eternussf.acm.ccm.micc.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.grapi.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.language= (Do not modify these settings!)
```

Table 5.2 Contents of Setting Values

Setting Item	Setting Value	Sample Setting
*1	\$SHARE_DL:\$SHARE_TOP\var\micc	G:\ccmdata\var\micc
*2	\$SHARE_DL:\$SHARE_TOP\etc	G:\ccmdata\etc

Setting Item	Setting Value	Sample Setting
*3	\$SHARE_DIR:\\$SHARE_TOP\etc\	G:\ccmdata\etc\
*4	\$SHARE_DIR:\\$SHARE_TOP\var\	G:\ccmdata\var\

The sample setting values use drive "G:" for \$SHARE_DIR and "ccmdata" for \$SHARE_TOP.

Note

If \$SHARE_TOP of *3 or *4 is located on multiple directory levels, use "\\" as a delimiter.

5.1.2.4 Customization for AdvancedCopy Manager's Manager

Customize a secondary node according to the following procedure.

Note

- Perform the procedures using Administrator privileges.
- For Windows Server 2012 or later, install the Failover Cluster Command Interface before performing the cluster setup.
- The Windows "Computer Browser service" must be activated if a user belonging to the Administrators of the domain wants to perform customization for the Windows version of WSFC.
- Do not use the Telnet Server service.

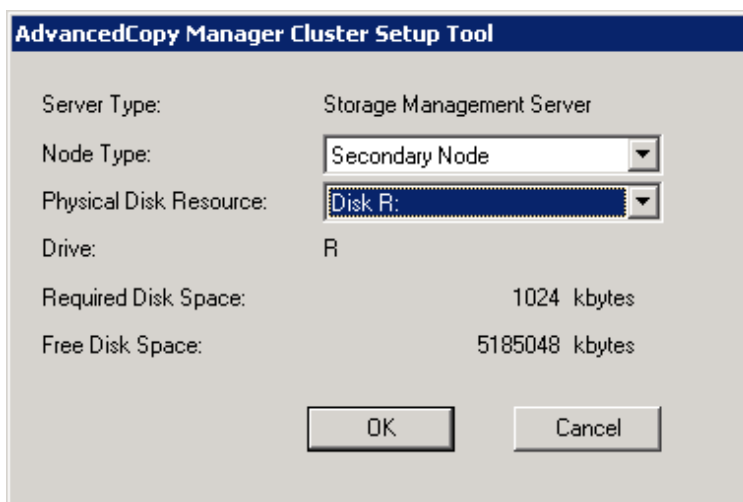
1. Execute the cluster setup command.

Execute the following cluster setup command on the secondary node:

```
programDir\ACM\bin\stgclset_mscs
```

2. Select the node type and shared disk.

The initial window of the cluster setup command is displayed.



Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Management Server".
Node Type	Select "Secondary Node".

Item	Explanation
Physical Disk Resource	Select the resource for the shared disk for shared data. Select the same resource as for the primary node.
Drive	The drive letter corresponding to the physical disk resource is displayed.
Required Disk Space	The minimum disk size required for the cluster environment is displayed.
Free Disk Space	The amount of free disk space of the specified drive is displayed.

3. Confirm the cluster information for the secondary node.

The screenshot shows the 'AdvancedCopy Manager Cluster Setup Tool' dialog box. The title bar is dark blue with white text. The main area is light gray. The following fields are visible:

- Server Type: Storage Management Server
- Node Type: Secondary Node
- Drive: R
- Logical Node Name:
- Service Name:
- Cluster Name:
- IP Address Information:
 - IP Address Resource: Exist New
 - IP Version: IPv4 IPv6 IPv4/IPv6
 - IPv4 Address:
 - Subnet Mask:
 - IPv6 Address:
 - Network Name:
 - External Connection Network:
- Storage Management Server Operation

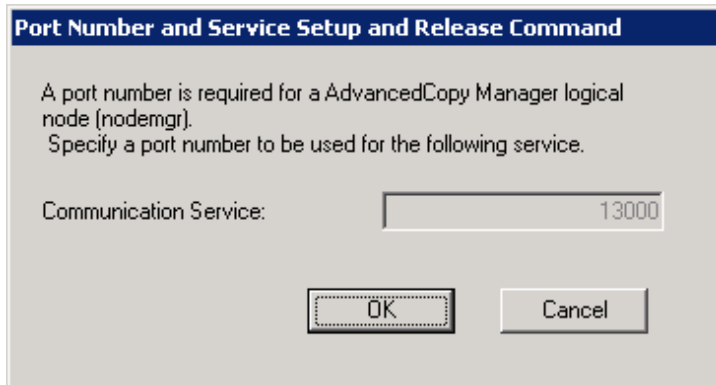
At the bottom, there are two buttons: 'OK' and 'Cancel'.

The values set for the primary node will be displayed (Only the Node Type needs to be changed to "Secondary Node".).

After confirming each item, click **OK**.

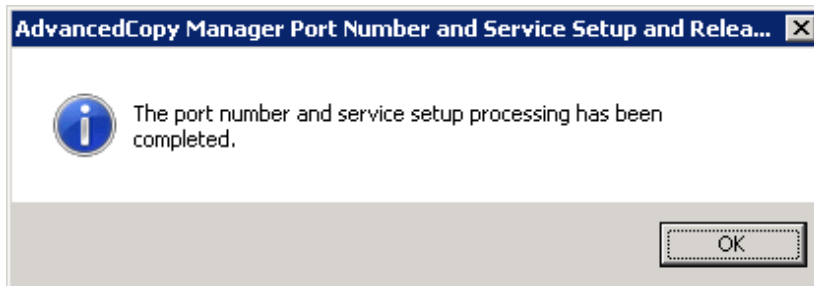
4. Set the port number and service.

The following page will display the value that was set for the primary node. If a port number and service has already been set, this page is not displayed.



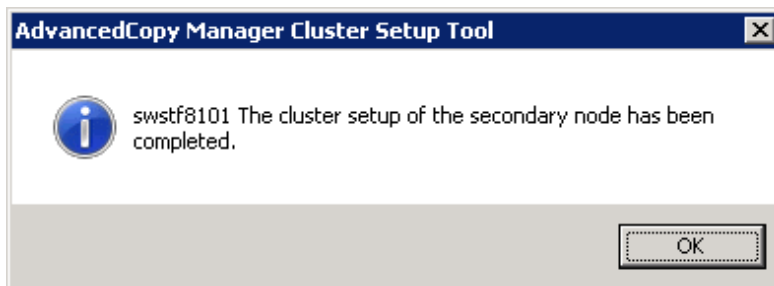
Click **OK**.

5. The following page will be displayed. Click **OK**.



6. The cluster setup of the secondary node has been completed.

When the cluster setup completion window is displayed, click **OK**.



7. Specify the resource dependency.

If you execute Management Server transactions and Managed Server transactions, or execute backup management in the Managed Server, add the disk resources for transactions to the following resource by using Failover Cluster Manager.

- AdvancedCopy COM Service_ *logicalNodeName*

Note

When a volume is added, or when it is deleted, it is necessary to again set up the above-mentioned dependency. Refer to "Notes on Cluster Operation" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for more information about this.

5.1.3 Register Service Resources

Register service resources used in the Management Server on the primary node.

The screen name and item name may be different depending on operating systems.

The procedures for Windows Server 2008 and Windows Server 2012 are as follows:

[For Windows Server 2008]

For explanation purposes, the name of the "Service or Application" for ETERNUS SF Manager has been set to "ESF-manager" in Windows Server 2008.

1. Add ETERNUS SF Manager services to "Service or Application" for ETERNUS SF Manager.

Add the following services:

- ETERNUS SF Manager Postgres Service
- ETERNUS SF Storage Cruiser Optimization Option

Follow the procedure below to add new services:

- a. Right-click **Services and Applications** > **ESF-manager** in the **Failover Cluster Manager** tree, and, in the subsequently displayed menu, select **Add a resource** > **3- Generic Service**.
The **New Resource Wizard** screen is displayed.
- b. Select the new service to add on the **Select Service** screen and click **Next**.
- c. Confirm the contents that are displayed on the **Confirmation** screen and click **Next**.
- d. Click **Finish**.
- e. Make sure that the settings have been applied.

At the center of the screen, under **ESF-manager Summary**, confirm that the newly added services are displayed in the **Other Resources**.

2. Add generic scripts to the "Service or Application" for ETERNUS SF Manager.

Add the 2 generic script files that you stored according to "[5.1.1.1.1 Preparation of Generic Script](#)" and the generic script for AdvancedCopy Manager CCM that you created according to "[5.1.1.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM](#)". For each of these generic script files, implement the following procedure:

- a. Right-click **Services and Applications** > **ESF-manager** in the **Failover Cluster Manager** tree, and, in the subsequently displayed menu, select **Add a resource** > **4- Generic Script**.
The **New Resource Wizard** screen is displayed.
- b. In **Script file path** field of the **Generic Script Info** pane, specify the script file name that you stored according to "[5.1.1.1.1 Preparation of Generic Script](#)" by its absolute file path and click **Next**.
- c. Confirm the contents that are displayed on the **Confirmation** screen and click **Next**.
- d. Confirm the contents that are displayed on the **Summary** screen and click **Finish**.
- e. Make sure that the settings have been applied.

At the center of the screen, under **Other Resources** of **ESF-manager Summary**, confirm that the newly added generic scripts are displayed.

3. In "Service or Application" for ETERNUS SF Manager, set the resource dependencies.

Make the resource dependency settings in accordance with the chart below:

Table 5.3 Setting Resource Dependencies

Resource for Which to Make Settings	Depending Resource
ETERNUS SF Manager Apache Service script	Shared disk
ETERNUS SF Manager Tomcat Service script	ETERNUS SF Manager Apache Service script, ETERNUS SF Manager Postgres Service,

Resource for Which to Make Settings	Depending Resource
	ETERNUS SF Storage Cruiser Optimization Option, Shared disk, IP address
ETERNUS SF Manager Postgres Service	Shared disk
ETERNUS SF Storage Cruiser Optimization Option	Shared disk
Generic script for ETERNUS SF Manager AdvancedCopy Manager CCM	Shared disk

4. For each resource for which you made settings in step 3, make the following settings:
 - a. At the center of the **Failover Cluster Manager** screen, under **Other Resources** of **ESF-manager Summary**, click the resource for which to make settings, and, in the subsequently displayed menu, select **Properties**.
The [*resourceName* Properties] screen is displayed.
 - b. On the **Dependencies** tab, under **Resource**, select the name of the "Depending resource" from "[Table 5.3 Setting Resource Dependencies](#)", and then click **Apply**.
 - c. When the settings have been applied, click **OK**.

[For Windows Server 2012]

For explanation purposes, the name of the "Role" for ETERNUS SF Manager has been set to "ESF-manager" in Windows Server 2012.

1. Add ETERNUS SF Manager services to the Role for ETERNUS SF Manager.
Add the following services:
 - ETERNUS SF Manager Postgres Service
 - ETERNUS SF Storage Cruiser Optimization Option
Follow the procedure below to add new services:
 - a. Right-click **Roles > ESF-manager** in the **Failover Cluster Manager** tree, and, in the subsequently displayed menu, select **Add Resource > Generic Service**.
The **New Resource Wizard** screen is displayed.
 - b. Select the new service to add on the **Select Service** screen and click **Next**.
 - c. Confirm the contents that are displayed on the **Confirmation** screen and click **Next**.
 - d. Click **Finish**.
 - e. Make sure that the settings have been applied.
At the center of the screen, under **ESF-manager**, confirm that the newly added services are displayed in the **Resources** tab.
2. Add generic scripts to the Role for ETERNUS SF Manager.
Add the 2 generic script files that you stored according to "[5.1.1.1.1 Preparation of Generic Script](#)" and the generic script for AdvancedCopy Manager CCM that you created according to "[5.1.1.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM](#)". For each of these generic script files, implement the following procedure:
 - a. Right-click **Roles > ESF-manager** in the **Failover Cluster Manager** tree, and, in the subsequently displayed menu, select **Add Resource > Generic Script**.
The **New Resource Wizard** screen is displayed.
 - b. In **Script file path** field of the **Generic Script Info** pane, specify the script file name that you stored according to "[5.1.1.1.1 Preparation of Generic Script](#)" by its absolute file path and click **Next**.
 - c. Confirm the contents that are displayed on the **Confirmation** screen and click **Next**.
 - d. Confirm the contents that are displayed on the **Summary** screen and click **Finish**.

e. Make sure that the settings have been applied.

At the center of the screen, under **ESF-manager**, confirm that the newly added generic scripts are displayed in the **Resources** tab.

3. In the Roles for ETERNUS SF Manager, set the resource dependencies.

Make the resource dependency settings in accordance with the chart below:

Table 5.4 Setting Resource Dependencies

Resource for Which to Make Settings	Depending Resource
ETERNUS SF Manager Apache Service script	Shared disk
ETERNUS SF Manager Tomcat Service script	ETERNUS SF Manager Apache Service script, ETERNUS SF Manager Postgres Service, ETERNUS SF Storage Cruiser Optimization Option, Shared disk, IP address
ETERNUS SF Manager Postgres Service	Shared disk
ETERNUS SF Storage Cruiser Optimization Option	Shared disk
Generic script for ETERNUS SF Manager AdvancedCopy Manager CCM	Shared disk

4. For each resource for which you made settings in step 3, make the following settings:

a. At the center of the **Failover Cluster Manager** screen, under the **Resources** tab of **ESF-manager**, click the resource for which to make settings, and, in the subsequently displayed menu, select **Properties**.

The [*resourceName* Properties] screen is displayed.

b. On the **Dependencies** tab, under **Resource**, select the name of the "Depending resource" from "[Table 5.4 Setting Resource Dependencies](#)", and then click **Apply**.

c. When the settings have been applied, click **OK**.

5.1.4 Start ETERNUS SF Manager

To Start ETERNUS SF Manager in the primary node, bring the "Service or Application" for ETERNUS SF Manager online.

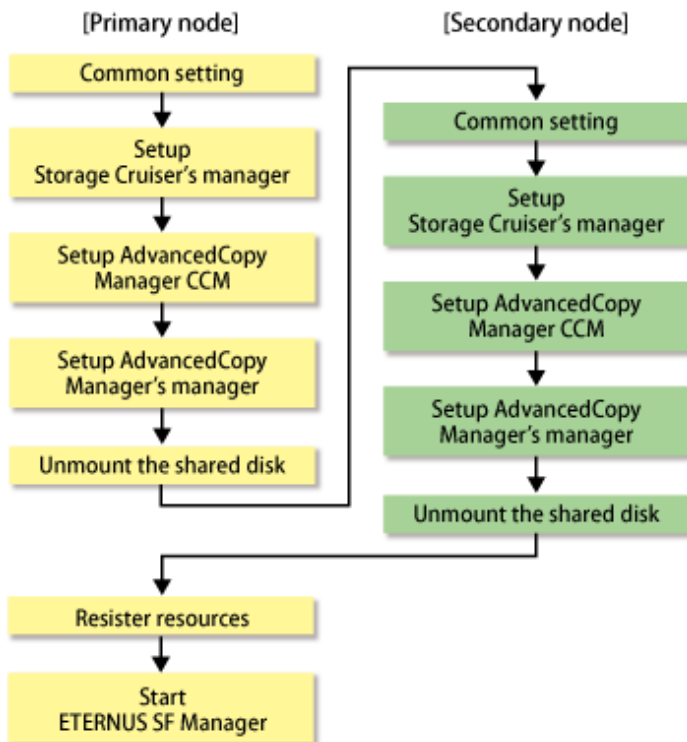
Select **Action** > **Bring this resource online** to take the resource online.

5.1.5 Setup Environment for AdvancedCopy Manager CCM

For the environment settings for AdvancedCopy Manager CCM, after starting ETERNUS SF Manager, implement "[11.1.2 Details of Customization Work](#)" from step 8 (setting of environment variable PATH) onwards.

5.2 Customization for Solaris

The following flow is the customization procedure for Management Server transaction in Solaris version.



Note

Whether using Storage Cruiser or AdvancedCopy Manager separately or using both of them together, all the above steps must be performed.

5.2.1 Customization for Primary Node

This section explains the customization procedure for a primary node.

5.2.1.1 Common Settings

This section explains the required procedure for customizing a primary node for ETERNUS SF Manager.

5.2.1.1.1 Creation of Cluster Resources

Follow the procedure below to create cluster resources to be used on the primary node.

1. Create the cluster application (transaction) for ETERNUS SF Manager.

This step is required when ETERNUS SF Manager is created in a new cluster application (transaction), not for adding ETERNUS SF Manager in the existing cluster application (transaction).

Refer to your cluster software manuals for creating a cluster application (transaction).

2. Stop the cluster application (transaction).

Stop the cluster application (transaction) for ETERNUS SF Manager, if it is started up.

Refer to your cluster software manuals for stopping a cluster application (transaction).

3. Mount the shared disk for shared data.

Mount the shared disk for shared data for ETERNUS SF Manager in the primary node.

5.2.1.1.2 Startup Settings for ETERNUS SF Manager

Setup the starting process of ETERNUS SF Manager to be controlled by cluster software instead of operating system.

1. Execute the following command on the primary node.

```
ls /etc/rc*.d/*SFmanager*
```

2. Rename all of the files exported by executing the command above.

Add "X" to the start of the file names.

The example for executing command is shown below.

```
# mv /etc/rc2.d/S99startSFmanager /etc/rc2.d/XS99startSFmanager
```

5.2.1.1.3 Copying of Dynamic Disk Files

Copy the files on the dynamic disks of ETERNUS SF Manager on the primary node to the shared disk for ETERNUS SF Manager. When recreating a cluster environment, if the earlier environment files remain on the shared disk, delete them beforehand.

1. Copy the files from the local disks on the primary node to the directory on the shared disk.

Local Disk (Copy Source)	Shared Disk (Copy Destination)
/var/opt/FJSVesfcm	<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesfcm
/etc/opt/FJSVesfcm	<Mountpoint-of-shared-disk-for-shared-data>/etc/opt/FJSVesfcm
/var/opt/FJSVesflm	<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesflm



Point

Specify the owner, the access restrictions of the copy destination files and directories the same as the copy resource.

2. Modify the following copied directory names:

- /var/opt/FJSVesfcm
- /etc/opt/FJSVesfcm
- /var/opt/FJSVesflm

5.2.1.1.4 Link Setup for Shared Disk

On the primary node, set up links to the directories of the shared disk for shared data.

Set up symbolic links from the directories on the local disks on the primary node to the directories on the shared disk.

Setup of symbolic links is required for the following directories:

Linked Source Directory (Shared Disk)	Link Target Directory (Symbolic Link File)
<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesfcm	/var/opt/FJSVesfcm
<Mountpoint-of-shared-disk-for-shared-data>/etc/opt/FJSVesfcm	/etc/opt/FJSVesfcm
<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesflm	/var/opt/FJSVesflm

Implement the following procedure for all directories:

1. Move each directory that you copied according to "5.2.1.1.3 Copying of Dynamic Disk Files" to the directory one level above the original directory.
2. Execute the following command:

```
>ln -s srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the shared disk which to set the link.
For *dstDir*, specify the file name of local disk from which the link is to be set.

5.2.1.1.5 Preparation of Generic Script

Follow the procedure below to prepare a generic script to be used on the primary node.

1. In the ETERNUS SF Manager program directory on the primary node, store the generic script file that you created in "4.1.1 Shared Resources".
2. Creating a Cmdline resource for ETERNUS SF Manager.
Specify the generic script file stored in step 1 to Start script, Stop script and Check script to be registered in Cmdline resource.
Refer to the PRIMECLUSTER manuals for creating Cmdline resource.

5.2.1.2 Customization for Storage Cruiser's Manager

Customize a primary node according to the following procedure.

1. Execute the cluster setup command on the primary node.

On the primary node, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data. When an IPv6 address is used as the takeover IP address for Management Server transaction, specify "127.0.0.1" here.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Primary -m <Mountpoint-of-shared-disk-for-shared-data> -i takeoverIPAddressForManagementServerTransaction(IPv4Format)
```

2. Check the setup object.

Information specified by the command is displayed.

After confirming the displayed information, input "y". The primary node is set up.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Primary -m /esfmnt -i 10.10.10.10
ETERNUS SF Storage Cruiser settings are as follows.
Cluster system : PRIMECLUSTER
Node type : Primary
Mount point : /esfmnt
IP Address : 10.10.10.10
Manager cluster setup : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n".

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27700:esc_clsetup:primary node setup completed
```

4. [Only when you set the IPv6 address to the takeover IP address] Edit the detailed setting file of the storage management.

When you set the IPv6 address to the takeover IP address for Management Server transaction, use the text editor to describe it in the detailed setting file.

Add the line of "LOGICAL_MANAGER_V6IP" in below detailed setting file.

- File name: <Mountpoint-of-shared-disk-for-shared-data>/FJSVssmgr/etc/opt/FJSVssmgr/2.0/sanma.conf

Additional line is as follows:

```
LOGICAL_MANAGER_V6IP="takeoverIPAddressForManagementServerTransaction(IPv6Format)";
```

In addition, when you do not use the IPv4 address to the takeover IP address for Management Server transaction, delete the following line from the detailed setting file.

```
LOGICAL_MANAGER_IP="takeoverIPAddressForManagementServerTransaction(IPv4Format)";
```

Refer to "LOGICAL_MANAGER_IP" and "LOGICAL_MANAGER_V6IP" in "sanma.conf Parameter" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the detailed setting file.

5.2.1.3 Customization for AdvancedCopy Manager CCM

Customize the primary node.

5.2.1.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM

Follow the procedure below to prepare a generic script to be used on the primary node.

1. In the program directory for ETERNUS SF Manager or AdvancedCopy Manager CCM on the primary node, store the generic script file that you created in "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)".
2. Set up the access restrictions for the stored generic script file.
Specify the authority that the root user can access.

5.2.1.3.2 Customization Procedure

Customize the primary node.

Information

This section uses the following values for explanatory purposes:

Value	Description
<code>SHARE_MNT</code>	"Mount point" of shared disk for shared data

For the path name of "`SHARE_MNT`", only single-byte alphanumeric characters with no spaces can be used. The path name can be specified with a maximum of 70 characters.

1. Create directories on the shared disk for shared data.

On the primary node, create the following directories on the shared disk for shared data:

- `SHARE_MNT/etc/opt/FJSVccm`
- `SHARE_MNT/var/opt/FJSVccm`

Point

Specify the following values for each directory.

- Set "root (super user)" to owner.
- Execute `chmod` command with 755 as the argument to set the access restrictions.

2. Copy the environment setup files to the shared disk for shared data.

On the primary node, copy the files from the following directory paths to the copy destination directories on the shared disk for shared data.

Copy Source Directory	Copy Destination Directory
<code>/etc/opt/FJSVccm</code>	<code>SHARE_MNT/etc/opt/FJSVccm</code>
<code>/var/opt/FJSVccm</code>	<code>SHARE_MNT/var/opt/FJSVccm</code>

 **Point**

Specify the owner, the access restrictions of the copy destination files and directories the same as the copy resource.

3. Create backup directories for the AdvancedCopy Manager CCM setup files.

Create the following directories on the primary node.

- /opt/FJSVccm/noncluster/bin
- /opt/FJSVccm/noncluster/micc/sys
- /opt/FJSVccm/noncluster/sys

 **Point**

Specify the following values for each directory.

- Set "root (super user)" to owner.
- Execute chmod command with 755 as the argument to set the access restrictions.

4. Copy the .install.sys, stxc_install.sys, and sys.properties files.

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

Copy Source Directory	Copy Destination Directory
/opt/FJSVccm/micc/sys/.install.sys	/opt/FJSVccm/noncluster/micc/sys/.install.sys
/opt/FJSVccm/bin/.stxc_install.sys	/opt/FJSVccm/noncluster/bin/.stxc_install.sys
/opt/FJSVccm/sys/sys.properties	/opt/FJSVccm/noncluster/sys/sys.properties

 **Note**

The copied files are required for "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)".

5. Edit the .install.sys, stxc_install.sys, and sys.properties files.

On the primary node, edit nodes from *1 to *4 of files below:

- File name: /opt/FJSVccm/micc/sys/.install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir= (Do not modify these settings!)
stxs_varidir=*1
stxs_jredir= (Do not modify these settings!)
```

- File name: /opt/FJSVccm/bin/.stxc_install.sys

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*2
stxc_jredir= (Do not modify these settings!)
```

- File name: /opt/FJSVccm/sys/sys.properties

```
com.fujitsu.eternussf.acm.ccm.optpath= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.etcpath=*3
com.fujitsu.eternussf.acm.ccm.varpath=*4
com.fujitsu.eternussf.acm.ccm.micc.path= (Do not modify these settings!)
```

```
com.fujitsu.eternussf.acm.ccm.grapi.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.language= (Do not modify these settings!)
```

Table 5.5 Contents of Setting Values

Setting Item	Setting Value	Sample Setting
*1	\$SHARE_MNT/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*2	\$SHARE_MNT/etc/opt/FJSVccm/accc/etc	/esfmnt/etc/opt/FJSVccm/accc/etc
*3	\$SHARE_MNT/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*4	\$SHARE_MNT/var/opt/FJSVccm/	/esfmnt/var/opt/FJSVccm/

The sample setting values use "/esfmnt" for \$SHARE_MNT.

5.2.1.4 Customization for AdvancedCopy Manager's Manager

Customize the primary node.

5.2.1.4.1 Preparation for Start Up/Shut Down Script for AdvancedCopy Manager Daemon

Prepare the start up/shut down script for AdvancedCopy Manager daemon using on the primary node, according to the following procedure.

1. Store the start up/shut down script for AdvancedCopy Manager daemon created in "[4.1.3 Resources Required for AdvancedCopy Manager's Manager](#)" under the ETERNUS SF Manager program directory in the primary node.
2. Set up the access restrictions for the start up/shut down script for AdvancedCopy Manager daemon.

Specify the authority that the root user can access.

5.2.1.4.2 Customization Procedure

Customize the primary node.

Perform "[Customization Procedure for Primary Node](#)" in "[A.2.2 Customization Procedure](#)".

5.2.1.5 Dismount the Shared Disk

Dismount the shared disk for shared data for ETERNUS SF Manager in the primary node.

5.2.2 Customization for Secondary Node

This section explains the customization procedure for a secondary node.

5.2.2.1 Common Settings

This section explains the required procedure for customizing a secondary node for ETERNUS SF Manager.

5.2.2.1.1 Startup Settings for ETERNUS SF Manager

Setup the starting process of ETERNUS SF Manager to be controlled by cluster software instead of operating system.

1. Execute the following command on the secondary node.

```
# ls /etc/rc*.d/*SFmanager*
```

2. Rename all of the files exported by executing the command above.

Add "X" to the start of the file names.

The example for executing command is shown below.

```
# mv /etc/rc2.d/S99startSFmanager /etc/rc2.d/XS99startSFmanager
```

5.2.2.1.2 Link Setup for Shared Disk

On the secondary node, set up links to the directories on the shared disk for shared data.

1. Mount the shared disk for shared data for ETERNUS SF Manager in the secondary node.
2. Change the directory name in reference to step 2 in "5.2.1.1.3 Copying of Dynamic Disk Files".
3. Set up symbolic links in reference to "5.2.1.1.4 Link Setup for Shared Disk".

5.2.2.1.3 Preparation of Generic Script

Follow the procedure below to prepare a generic script to be used on the secondary node.

Store the generic script file created in "4.1.1 Shared Resources" under the ETERNUS SF Manager program directory in the secondary node.

The storage location of the generic script file must be the same path which specified in the primary node.

5.2.2.2 Customization for Storage Cruiser's Manager

Customize a secondary node according to the following procedure.

1. Execute the cluster setup command on the secondary node.

On the secondary node, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data.

```
# /opt/FJVSsmgr/cluster/esc_clsetup -k Secondary -m <Mountpoint-of-shared-disk-for-shared-data>
```

2. Check the setup object.

Information specified by the command is displayed.

After confirming the displayed information, input "y". The secondary node is set up.

```
# /opt/FJVSsmgr/cluster/esc_clsetup -k Secondary -m /esfmnt
ETERNUS SF Storage Cruiser settings are as follows.
Cluster system : PRIMECLUSTER
Node type : Secondary
Mount point : /esfmnt
IP Address : 10.10.10.10
Manager cluster setup : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n".

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27701:esc_clsetup:secondary node setup completed
```

4. Create the resources for Automated Storage Tiering.

Use the cluster software "userApplication Configuration Wizard" to create the following resources in the cluster application (transaction). Then, register them on the cluster application (transaction).

- Cmdline resource

Select "Cmdline" for Resource creation in the userApplication Configuration Wizard to create the resources through path input, and make the following configurations.

Type	Input Pathname
Start script	/opt/FJSVssast/cluster/cmd/rcxclstartcmd
Stop script	/opt/FJSVssast/cluster/cmd/rcxclstopcmd
Check script	/opt/FJSVssast/cluster/cmd/rcxclcheckcmd



See

Refer to the *PRIMECLUSTER Installation and Administration Guide* for details.

5.2.2.3 Customization for AdvancedCopy Manager CCM

Customize the secondary node.

5.2.2.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM

Follow the procedure below to prepare a generic script to be used on the secondary node.

1. In the program directory for ETERNUS SF Manager or AdvancedCopy Manager CCM on the secondary node, store the generic script file that you created in "4.1.4 Resources Required for AdvancedCopy Manager CCM".
2. Set up the access restrictions for the stored generic script file.
Specify the authority that the root user can access.

5.2.2.3.2 Customization Procedure

Customize the secondary node.



Information

This section uses the following values for explanatory purposes:

Value	Description
\$_SHARE_MNT	"Mount point" of shared disk for shared data

For the path name of "\$SHARE_MNT", only single-byte alphanumeric characters with no spaces can be used. The path name can be specified with a maximum of 70 characters.

1. Create backup directories for the AdvancedCopy Manager CCM setup files.

Create the following directories on secondary nodes.

- /opt/FJSVccm/noncluster/bin
- /opt/FJSVccm/noncluster/micc/sys
- /opt/FJSVccm/noncluster/sys



Point

Specify the following values for each directory.

- Set "root (super user)" to owner.
- Execute chmod command with 755 as the argument to set the access restrictions.

2. Copy the .install.sys, stxc_install.sys, and sys.properties files.

Copy the following files from the source directories to the destinations on secondary nodes.

Copy Source Directory	Copy Destination Directory
/opt/FJsvccm/micc/sys/.install.sys	/opt/FJsvccm/noncluster/micc/sys/.install.sys
/opt/FJsvccm/bin/.stxc_install.sys	/opt/FJsvccm/noncluster/bin/.stxc_install.sys
/opt/FJsvccm/sys/sys.properties	/opt/FJsvccm/noncluster/sys/sys.properties

Note

The copied files are required for "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)".

3. Edit the .install.sys, stxc_install.sys, and sys.properties files.

On the secondary node, edit nodes from *1 to *4 of files below:

- File name : /opt/FJsvccm/micc/sys/.install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir= (Do not modify these settings!)
stxs_varidir=*1
stxs_jredir= (Do not modify these settings!)
```

- File name : /opt/FJsvccm/bin/.stxc_install.sys

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*2
stxc_jredir= (Do not modify these settings!)
```

- File name : /opt/FJsvccm/sys/sys.properties

```
com.fujitsu.eternussf.acm.ccm.optpath= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.etcpath=*3
com.fujitsu.eternussf.acm.ccm.varpath=*4
com.fujitsu.eternussf.acm.ccm.micc.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.grapi.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.language= (Do not modify these settings!)
```

Table 5.6 Contents of Setting Values

Setting Item	Setting Value	Sample Setting
*1	\$(SHARE_MNT)/var/opt/FJsvccm/micc	/esfmnt/var/opt/FJsvccm/micc
*2	\$(SHARE_MNT)/etc/opt/FJsvccm/accc/etc	/esfmnt/etc/opt/FJsvccm/accc/etc
*3	\$(SHARE_MNT)/etc/opt/FJsvccm/	/esfmnt/etc/opt/FJsvccm/
*4	\$(SHARE_MNT)/var/opt/FJsvccm/	/esfmnt/var/opt/FJsvccm/

The sample setting values use "/esfmnt" for \$(SHARE_MNT).

4. Register the generic script file for AdvancedCopy Manager CCM created in "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)".

See

Refer to the *PRIMECLUSTER Installation and Administration Guide* for details.

5.2.2.4 Customization for AdvancedCopy Manager's Manager

Customize the secondary node.

5.2.2.4.1 Preparation for Start Up/Shut Down Script for AdvancedCopy Manager Daemon

Prepare the start up/shut down script for AdvancedCopy Manager daemon using on the secondary node, according to the following procedure.

1. Store the start up/shut down script for AdvancedCopy Manager daemon, which is created in "[4.1.3 Resources Required for AdvancedCopy Manager's Manager](#)", under ETERNUS SF Manager program directory for the secondary node.
2. Set up the access restrictions for the start up/shut down script for AdvancedCopy Manager daemon.
Specify the authority that the root user can access.

5.2.2.4.2 Customization Procedure

To set up a secondary node, use the procedure below.

1. Perform "[Customization Procedure for Secondary Node](#)" in "[A.2.2 Customization Procedure](#)".
2. Register the start up/shut down script for AdvancedCopy Manager daemon on the cluster application (transaction).
Register the start up/shut down script for AdvancedCopy Manager daemon prepared in "[5.2.2.4.1 Preparation for Start Up/Shut Down Script for AdvancedCopy Manager Daemon](#)". Refer to your cluster software manuals for details.

5.2.2.5 Dismount Shared Disk

Dismount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

5.2.3 Register Resources

Register resources used in the Management Server on the primary node.

Check that all of the following conditions are fulfilled before starting each service of ETERNUS SF Manager to be registered with the Management Server transaction (before executing generic scripts):

- Data communication is possible with the failover IP address.
- The shared disk for shared data is mounted.

If any settings to your cluster software are necessary, make them with reference to the corresponding documentation.

5.2.4 Start ETERNUS SF Manager

Startup cluster application (transaction) for ETERNUS SF Manager.

Refer to your cluster software manuals for starting cluster application (transaction).



Note

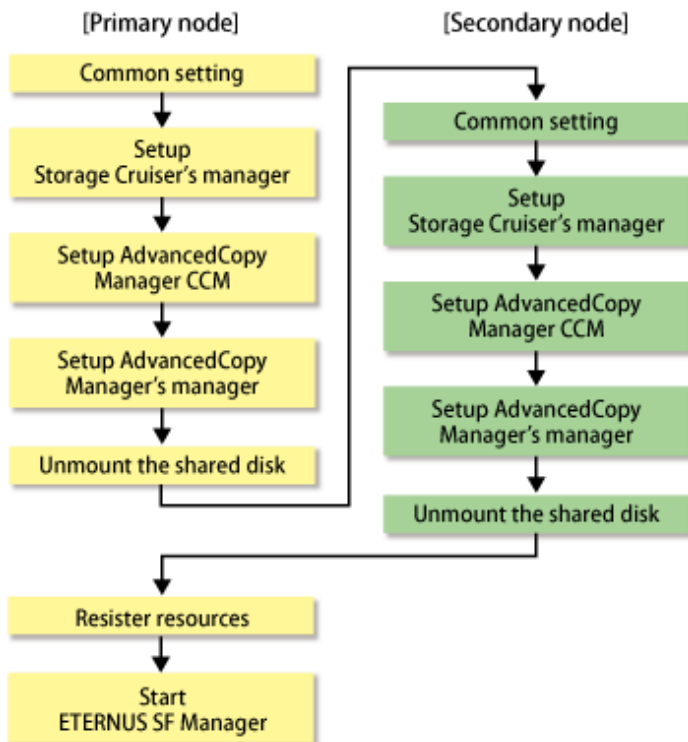
The communication daemon for local transactions of AdvancedCopy Manager's manager is stopped.
When you use the communication daemon for local transactions of AdvancedCopy Manager's manager, execute the following command to start the daemon.

```
# /opt/FJSVswstf/bin/stgfwcom start
```

Refer to "Starting and Stopping Communication Daemon" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for details.

5.3 Customization for Linux

The following flow is the customization procedure for Management Server transaction in Linux version.



Note

Whether using Storage Cruiser or AdvancedCopy Manager separately or using both of them together, all the above steps must be performed.

5.3.1 Customization for Primary Node

This section explains the customization procedure for a primary node.

5.3.1.1 Common Settings

This section explains the required procedure for customizing a primary node for ETERNUS SF Manager.

5.3.1.1.1 Creation of Cluster Resources

Follow the procedure below to create cluster resources to be used the primary node.

1. Create the cluster application (transaction) for ETERNUS SF Manager.

This step is required when ETERNUS SF Manager is created in a new cluster application (transaction), not for adding ETERNUS SF Manager in the existing cluster application (transaction).

Refer to your cluster software manuals for creating a cluster application (transaction).

2. Stop the cluster application (transaction).

Stop the cluster application (transaction) for ETERNUS SF Manager, if it is started up.

Refer to your cluster software manuals for stopping a cluster application (transaction).

3. Mount the shared disk for shared data.

Mount the shared disk for shared data for ETERNUS SF Manager in the primary node.

5.3.1.1.2 Startup Settings for ETERNUS SF Manager

Setup the starting process of ETERNUS SF Manager to be controlled by cluster software instead of operating system.

Execute the following commands on the primary node.

- For RHEL5 or RHEL6

```
# mv /etc/rc0.d/K00startSFmanager /etc/rc0.d/XK00startSFmanager
# mv /etc/rc1.d/K00startSFmanager /etc/rc1.d/XK00startSFmanager
# mv /etc/rc2.d/K00startSFmanager /etc/rc2.d/XK00startSFmanager
# mv /etc/rc3.d/S99startSFmanager /etc/rc3.d/XS99startSFmanager
# mv /etc/rc4.d/S99startSFmanager /etc/rc4.d/XS99startSFmanager
# mv /etc/rc5.d/S99startSFmanager /etc/rc5.d/XS99startSFmanager
# mv /etc/rc6.d/K00startSFmanager /etc/rc6.d/XK00startSFmanager
```

- For RHEL7

```
# /usr/bin/systemctl disable fjsvesfcm-internalDB.service
# /usr/bin/systemctl disable fjsvesfcm-webserver.service
# /usr/bin/systemctl disable fjsvesfcm-system.service
# /usr/bin/systemctl disable fjsvswstf.service
```

5.3.1.1.3 Copying of Dynamic Disk Files

Copy the files on the dynamic disks of ETERNUS SF Manager on the primary node to the shared disk for ETERNUS SF Manager. When recreating a cluster environment, if the earlier environment files remain on the shared disk, delete them beforehand.

1. Copy the files from the local disks on the primary node to the directory on the shared disk.

Local Disk (Copy Source)	Shared Disk (Copy Destination)
/var/opt/FJSVesfcm	<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesfcm
/etc/opt/FJSVesfcm	<Mountpoint-of-shared-disk-for-shared-data>/etc/opt/FJSVesfcm
/var/opt/FJSVesflm	<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesflm

Point

Specify the owner, the access restrictions of the copy destination files and directories the same as the copy resource.

2. Modify the following copied directory names:

- /var/opt/FJSVesfcm
- /etc/opt/FJSVesfcm
- /var/opt/FJSVesflm

5.3.1.1.4 Link Setup for Shared Disk

On the primary node, set up links to the directories of the shared disk for shared data.

Set up symbolic links from the directories on the local disks on the primary node to the directories on the shared disk.

Setup of symbolic links is required for the following directories:

Linked Source Directory (Shared Disk)	Link Target Directory (Symbolic Link File)
<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesfcm	/var/opt/FJSVesfcm
<Mountpoint-of-shared-disk-for-shared-data>/etc/opt/FJSVesfcm	/etc/opt/FJSVesfcm
<Mountpoint-of-shared-disk-for-shared-data>/var/opt/FJSVesflm	/var/opt/FJSVesflm

Implement the following procedure for all directories:

1. Move each directory that you copied according to "5.3.1.1.3 Copying of Dynamic Disk Files" to the directory one level above the original directory.

2. Execute the following command:

```
>ln -s srcDir dstDir <RETURN>
```

For *srcDir*, specify the directory on the shared disk which to set the link.

For *dstDir*, specify the file name of local disk from which the link is to be set.

5.3.1.1.5 Preparation of Generic Script

Follow the procedure below to prepare a generic script to be used on the primary node.

1. In the ETERNUS SF Manager program directory on the primary node, store the generic script file that you created in "4.1.1 Shared Resources".
2. Creating a Cmdline resource for ETERNUS SF Manager.

Specify the generic script file stored in step 1 to Start script, Stop script and Check script to be registered in Cmdline resource.

Refer to the PRIMECLUSTER manuals for creating Cmdline resource.

5.3.1.2 Customization for Storage Cruiser's Manager

Customize a primary node according to the following procedure.

1. Execute the cluster setup command on the primary node.

On the primary node, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data. When an IPv6 address is used as the takeover IP address for Management Server transaction, specify "127.0.0.1" here.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Primary -m <Mountpoint-of-shared-disk-for-shared-data> -i takeoverIPAddressForManagementServerTransaction(IPv4Format)
```

2. Check the setup object.

Information specified by the command is displayed.

After confirming the displayed information, input "y". The primary node is set up.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Primary -m /esfmnt -i 10.10.10.10
ETERNUS SF Storage Cruiser settings are as follows.
Cluster system : PRIMECLUSTER
Node type : Primary
Mount point : /esfmnt
IP Address : 10.10.10.10
Manager cluster setup : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n".

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27700:esc_clsetup:primary node setup completed
```

4. [Only when you set the IPv6 address to the takeover IP address] Edit the detailed setting file of the storage management.

When you set the IPv6 address to the takeover IP address for Management Server transaction, use the text editor to describe it in the detailed setting file.

Add the line of "LOGICAL_MANAGER_V6IP" in below detailed setting file.

- File name: <Mountpoint-of-shared-disk-for-shared-data>/FJSVssmgr/etc/opt/FJSVssmgr/2.0/sanma.conf

Additional line is as follows:

```
LOGICAL_MANAGER_V6IP="takeoverIPAddressForManagementServerTransaction(IPv6Format)";
```

In addition, when you do not use the IPv4 address to the takeover IP address for Management Server transaction, delete the following line from the detailed setting file.

```
LOGICAL_MANAGER_IP="takeoverIPAddressForManagementServerTransaction(IPv4Format)";
```

Refer to "LOGICAL_MANAGER_IP" and "LOGICAL_MANAGER_V6IP" in "sanma.conf Parameter" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the detailed setting file.

5.3.1.3 Customization for AdvancedCopy Manager CCM

Customize the primary node.

5.3.1.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM

Follow the procedure below to prepare a generic script to be used on the primary node.

1. In the program directory for ETERNUS SF Manager or AdvancedCopy Manager CCM on the primary node, store the generic script file that you created in "4.1.4 Resources Required for AdvancedCopy Manager CCM".
2. Set up the access restrictions for the stored generic script file.

Specify the authority that the root user can access.

5.3.1.3.2 Customization Procedure

Customize the primary node.

Information

This section uses the following values for explanatory purposes:

Value	Description
\$SHARE_MNT	"Mount point" of shared disk for shared data

For the path name of "\$SHARE_MNT", only single-byte alphanumeric characters with no spaces can be used. The path name can be specified with a maximum of 70 characters.

1. Create directories on the shared disk for shared data.

On the primary node, create the following directories on the shared disk for shared data:

- \$SHARE_MNT/etc/opt/FJSVccm
- \$SHARE_MNT/var/opt/FJSVccm

Point

Specify the following values for each directory.

- Set "root (super user)" to owner.
- Execute chmod command with 755 as the argument to set the access restrictions.

2. Copy the environment setup files to the shared disk for shared data.

On the primary node, copy the files from the following directory paths to the copy destination directories on the shared disk for shared data.

Copy Source Directory	Copy Destination Directory
/etc/opt/FJSVccm	\$SHARE_MNT/etc/opt/FJSVccm

Copy Source Directory	Copy Destination Directory
/var/opt/FJSVccm	\$SHARE_MNT/var/opt/FJSVccm

 **Point**

Specify the owner, the access restrictions of the copy destination files and directories the same as the copy resource.

3. Create backup directories for the AdvancedCopy Manager CCM setup files.

Create the following directories on all nodes in the clusters that are run by the CCM Server.

- /opt/FJSVccm/noncluster/bin
- /opt/FJSVccm/noncluster/micc/sys
- /opt/FJSVccm/noncluster/sys

 **Point**

Specify the following values for each directory.

- Set "root (super user)" to owner.
- Execute chmod command with 755 as the argument to set the access restrictions.

4. Copy the .install.sys, stxc_install.sys, and sys.properties files.

Copy the following files from the following source directories to the destinations on all nodes in the clusters that are run by the CCM Server.

Copy Source Directory	Copy Destination Directory
/opt/FJSVccm/micc/sys/.install.sys	/opt/FJSVccm/noncluster/micc/sys/.install.sys
/opt/FJSVccm/bin/.stxc_install.sys	/opt/FJSVccm/noncluster/bin/.stxc_install.sys
/opt/FJSVccm/sys/sys.properties	/opt/FJSVccm/noncluster/sys/sys.properties

 **Note**

The copied files are required for "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)".

5. Edit the .install.sys, stxc_install.sys, and sys.properties files.

On the primary node, edit nodes from *1 to *4 of files below:

- File name : /opt/FJSVccm/micc/sys/.install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir= (Do not modify these settings!)
stxs_varidir=*1
stxs_jredir= (Do not modify these settings!)
```

- File name : /opt/FJSVccm/bin/.stxc_install.sys

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*2
stxc_jredir= (Do not modify these settings!)
```

- File name : /opt/FJSVccm/sys/sys.properties

```

com.fujitsu.eternussf.acm.ccm.optpath= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.etcpath=*3
com.fujitsu.eternussf.acm.ccm.varpath=*4
com.fujitsu.eternussf.acm.ccm.micc.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.grapi.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.language= (Do not modify these settings!)

```

Table 5.7 Contents of Setting Values

Setting Item	Setting Value	Sample Setting
*1	\$(SHARE_MNT)/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*2	\$(SHARE_MNT)/etc/opt/FJSVccm/accc/etc	/esfmnt/etc/opt/FJSVccm/accc/etc
*3	\$(SHARE_MNT)/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*4	\$(SHARE_MNT)/var/opt/FJSVccm/	/esfmnt/var/opt/FJSVccm/

The sample setting values use "/esfmnt" for \$(SHARE_MNT).

5.3.1.4 Customization for AdvancedCopy Manager's Manager

Customize the primary node with reference to "[5.2.1.4 Customization for AdvancedCopy Manager's Manager](#)".

5.3.1.5 Dismount Shared Disk

Dismount the shared disk for shared data for ETERNUS SF Manager in the primary node.

5.3.2 Customization for Secondary Node

This section explains the customization procedure for a secondary node.

5.3.2.1 Common Settings

This section explains the required procedure for customizing a secondary node for ETERNUS SF Manager.

5.3.2.1.1 Startup Settings for ETERNUS SF Manager

Setup the starting process of ETERNUS SF Manager to be controlled by cluster software instead of operating system. Execute the following command on the secondary node.

- For RHEL5 or RHEL6

```

# mv /etc/rc0.d/K00startSFmanager /etc/rc0.d/XK00startSFmanager
# mv /etc/rc1.d/K00startSFmanager /etc/rc1.d/XK00startSFmanager
# mv /etc/rc2.d/K00startSFmanager /etc/rc2.d/XK00startSFmanager
# mv /etc/rc3.d/S99startSFmanager /etc/rc3.d/XS99startSFmanager
# mv /etc/rc4.d/S99startSFmanager /etc/rc4.d/XS99startSFmanager
# mv /etc/rc5.d/S99startSFmanager /etc/rc5.d/XS99startSFmanager
# mv /etc/rc6.d/K00startSFmanager /etc/rc6.d/XK00startSFmanager

```

- For RHEL7

```

# /usr/bin/systemctl disable fjsvesfcm-internalDB.service
# /usr/bin/systemctl disable fjsvesfcm-webserver.service
# /usr/bin/systemctl disable fjsvesfcm-system.service
# /usr/bin/systemctl disable fjsvswstf.service

```

5.3.2.1.2 Link Setup for Shared Disk

On the secondary node, set up links to the directories on the shared disk for shared data.

1. Mount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

2. Change the directory name in reference to step 2 in "5.3.1.1.3 Copying of Dynamic Disk Files".
3. Set up symbolic links by referring to "5.3.1.1.4 Link Setup for Shared Disk".

5.3.2.1.3 Preparation of Generic Script

Follow the procedure below to prepare a generic script to be used on the secondary node.

Store the generic script file created in "4.1.1 Shared Resources" under the ETERNUS SF Manager program directory in the secondary node.

The storage location of the generic script file must be the same path which specified in the primary node.

5.3.2.2 Customization for Storage Cruiser's Manager

Customize a secondary node according to the following procedure.

1. Execute the cluster setup command on the secondary node.

On the secondary node, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Secondary -m <Mountpoint-of-shared-disk-for-shared-data>
```

2. Check the setup object.

Information specified by the command is displayed.

After confirming the displayed information, input "y". The secondary node is set up.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Secondary -m /esfmnt
ETERNUS SF Storage Cruiser settings are as follows.
Cluster system : PRIMECLUSTER
Node type : Secondary
Mount point : /esfmnt
IP Address : 10.10.10.10
Manager cluster setup : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n".

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27701:esc_clsetup:secondary node setup completed
```

4. Create the resources for Automated Storage Tiering.

Use the cluster software "userApplication Configuration Wizard" to create the following resources in the cluster application (transaction). Then, register them on the cluster application (transaction).

- Cmdline resource

Select "Cmdline" for Resource creation in the userApplication Configuration Wizard to create the resources through path input, and make the following configurations.

Type	Input Pathname
Start script	/opt/FJSVssast/cluster/cmd/rcxclstartcmd
Stop script	/opt/FJSVssast/cluster/cmd/rcxclstopcmd
Check script	/opt/FJSVssast/cluster/cmd/rcxclcheckcmd



See

Refer to the *PRIMECLUSTER Installation and Administration Guide* for details.

5.3.2.3 Customization for AdvancedCopy Manager CCM

Customize the secondary node.

5.3.2.3.1 Preparation of Generic Script for AdvancedCopy Manager CCM

Follow the procedure below to prepare a generic script to be used on the secondary node.

1. In the program directory for ETERNUS SF Manager or AdvancedCopy Manager CCM on the secondary node, store the generic script file that you created in "4.1.4 Resources Required for AdvancedCopy Manager CCM".
2. Set up the access restrictions for the stored generic script file.
Specify the authority that the root user can access.

5.3.2.3.2 Customization Procedure

Customize the secondary node.



Information

This section uses the following values for explanatory purposes:

Value	Description
\$\$SHARE_MNT	"Mount point" of shared disk for shared data

For the path name of "\$\$SHARE_MNT", only single-byte alphanumeric characters with no spaces can be used. The path name can be specified with a maximum of 70 characters.

1. Create backup directories for the AdvancedCopy Manager CCM setup files.

Create the following directories on secondary nodes.

- /opt/FJSVccm/noncluster/bin
- /opt/FJSVccm/noncluster/micc/sys
- /opt/FJSVccm/noncluster/sys



Point

Specify the following values for each directory.

- Set "root (super user)" to owner.
- Execute chmod command with 755 as the argument to set the access restrictions.

2. Copy the .install.sys, stxc_install.sys, and sys.properties files.

Copy the following files from the source directories to the destinations on secondary nodes.

Copy Source Directory	Copy Destination Directory
/opt/FJSVccm/micc/sys/.install.sys	/opt/FJSVccm/noncluster/micc/sys/.install.sys
/opt/FJSVccm/bin/.stxc_install.sys	/opt/FJSVccm/noncluster/bin/.stxc_install.sys
/opt/FJSVccm/sys/sys.properties	/opt/FJSVccm/noncluster/sys/sys.properties



Note

The copied files are required for "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)".

3. Edit the .install.sys, stxc_install.sys, and sys.properties files.

On the secondary node, edit nodes from *1 to *4 of files below:

- File name : /opt/FJSVccm/micc/sys/.install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir= (Do not modify these settings!)
stxs_varidir=*1
stxs_jredir= (Do not modify these settings!)
```

- File name : /opt/FJSVccm/bin/.stxc_install.sys

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*2
stxc_jredir= (Do not modify these settings!)
```

- File name : /opt/FJSVccm/sys/sys.properties

```
com.fujitsu.eternussf.acm.ccm.optpath= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.etcpath=*3
com.fujitsu.eternussf.acm.ccm.varpath=*4
com.fujitsu.eternussf.acm.ccm.micc.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.grapi.path= (Do not modify these settings!)
com.fujitsu.eternussf.acm.ccm.language= (Do not modify these settings!)
```

Table 5.8 Contents of Setting Values

Setting Item	Setting Value	Sample Setting
*1	\$SHARE_MNT/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*2	\$SHARE_MNT/etc/opt/FJSVccm/accc/etc	/esfmnt/etc/opt/FJSVccm/accc/etc
*3	\$SHARE_MNT/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*4	\$SHARE_MNT/var/opt/FJSVccm/	/esfmnt/var/opt/FJSVccm/

The sample setting values use "/esfmnt" for \$SHARE_MNT.

4. Register the generic script file for AdvancedCopy Manager CCM created in "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)".



See

Refer to the *PRIMECLUSTER Installation and Administration Guide* for details.

5.3.2.4 Customization for AdvancedCopy Manager's Manager

Customize the secondary node with reference to "[5.2.2.4 Customization for AdvancedCopy Manager's Manager](#)".

5.3.2.5 Dismount Shared Disk

Dismount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

5.3.3 Register Resources

Register resources used in the Management Server on the primary node with reference to "5.2.3 Register Resources".

5.3.4 Start ETERNUS SF Manager

Startup cluster application (transaction) for ETERNUS SF Manager.

Refer to your cluster software manuals for starting cluster application (transaction).



.....

The communication daemon for local transactions of AdvancedCopy Manager's manager is stopped.
When you use the communication daemon for local transactions of AdvancedCopy Manager's manager, execute the following command to start the daemon.

```
# /opt/FJSVswstf/bin/stgfwcom start
```

Refer to "Starting and Stopping Communication Daemon" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for details.

.....

Chapter 6 Installation of ETERNUS SF Agent

This chapter explains how to install ETERNUS SF Agent in a clustered system. Note that only AdvancedCopy Manager's agent can be installed.

Point

To operate an AdvancedCopy Manager transaction on the clustered system, cluster software installation and environment settings are required. Refer to your cluster software manuals for details.

6.1 Installation of AdvancedCopy Manager's Agent (for Windows)

This section explains how to install Windows version AdvancedCopy Manager's agent in a clustered system.

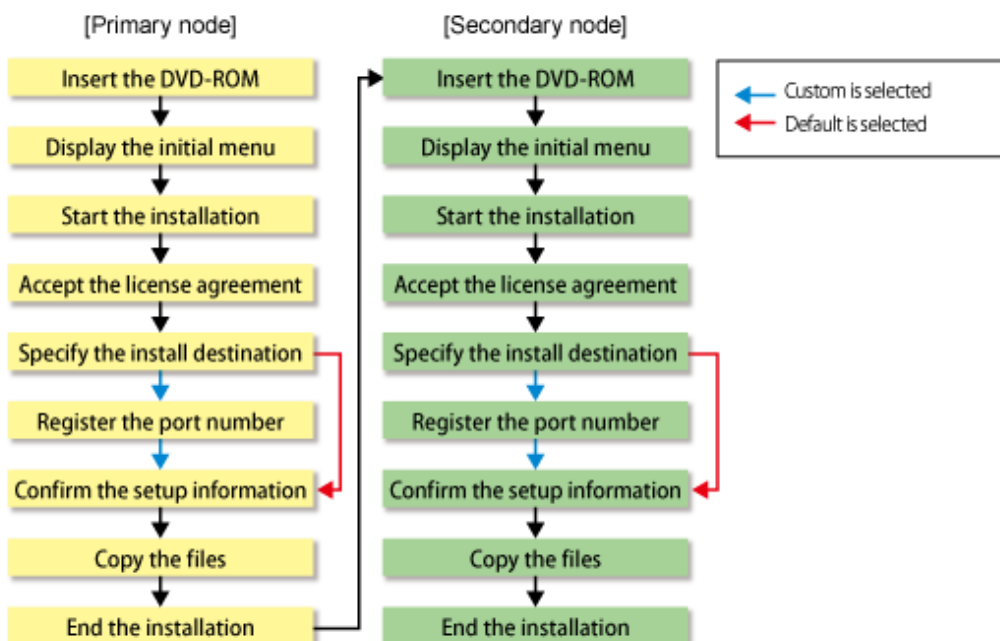
Note

- At installation, all the nodes must be installed in the same environment (i.e., the local drive name, port number, and install directory must be the same for both).
- Do not install the AdvancedCopy Manager's agent on a shared disk.
- The port number for the communication service to be specified during the installation is for communication service for local transactions. For setting port number of the cluster transaction communication daemon, refer to "[Chapter 8 Customization of Managed Server Transactions](#)" to perform the procedure according to the cluster software to be used.

6.1.1 Installation Flow

The flow of the installation is shown below. The node on which installation is performed first is called the primary node; the other node becomes the secondary node.

For a cascade, follow the procedure for the secondary node on every other secondary node.



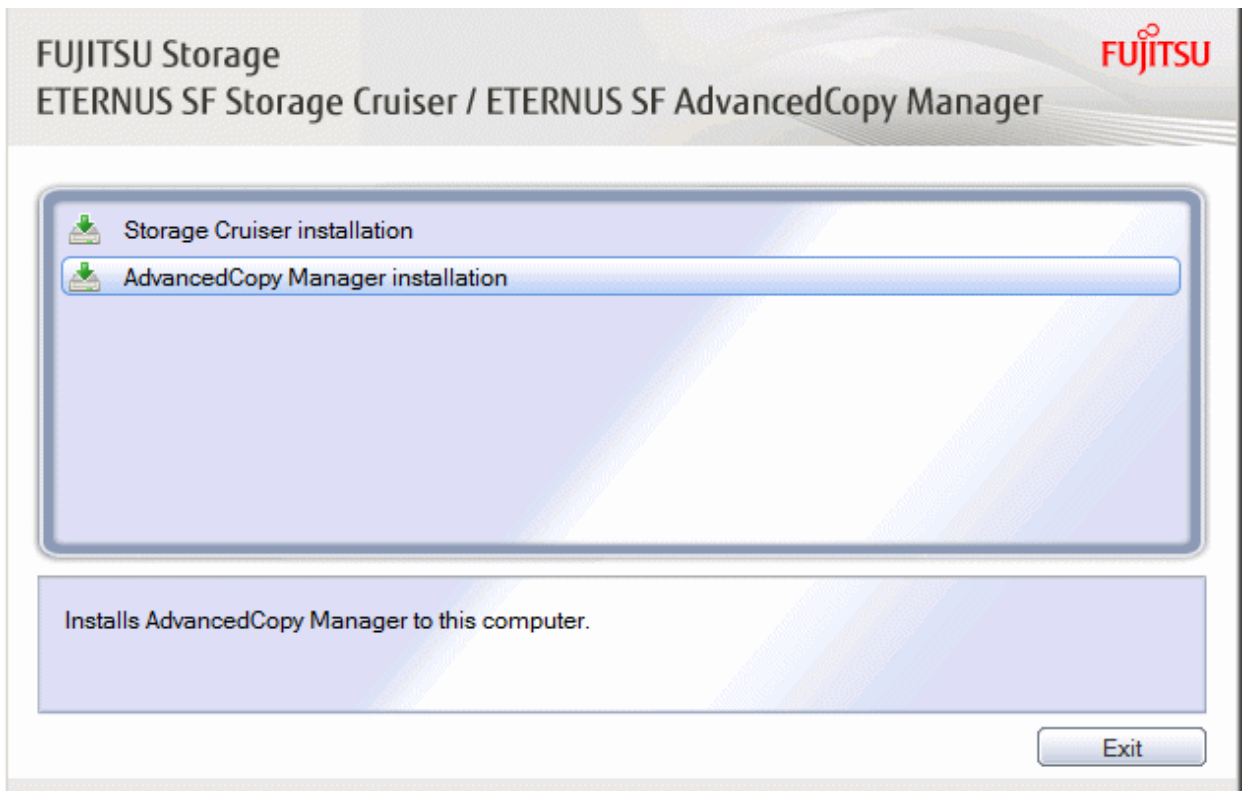
6.1.2 Details of Installation

Install the AdvancedCopy Manager's agent with the following procedure.

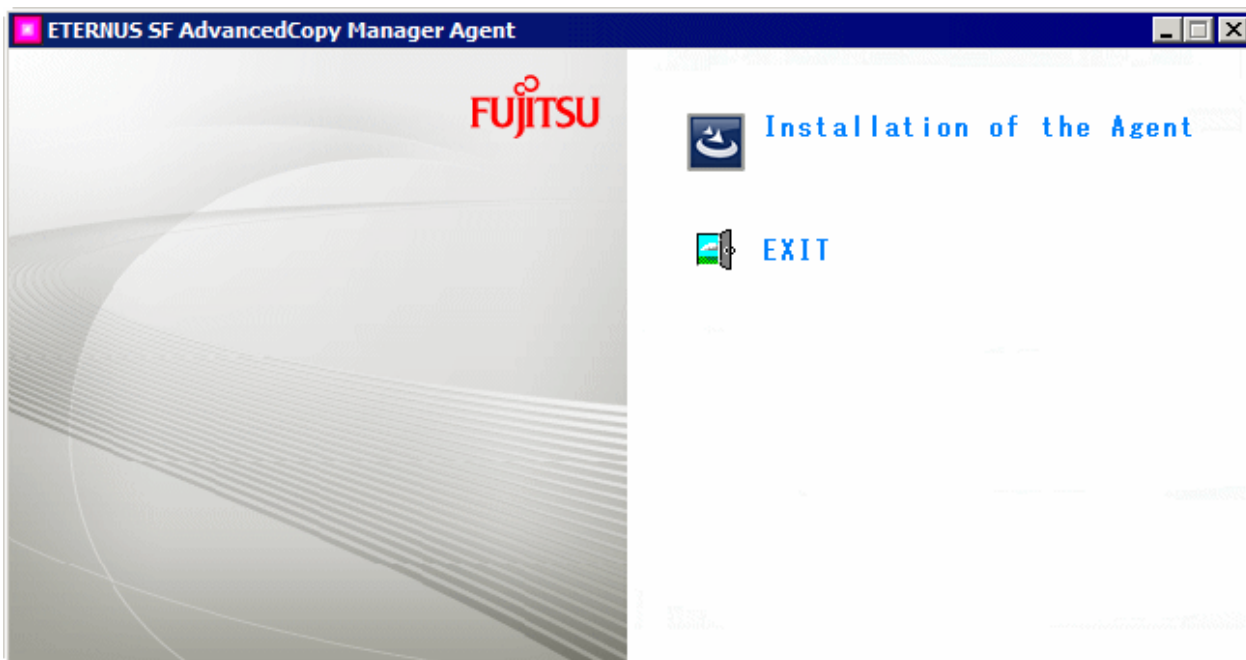
1. Log on to the primary node.

Log on to the primary node as the administrator. Ignore "(Secondary node)" in the following explanation.

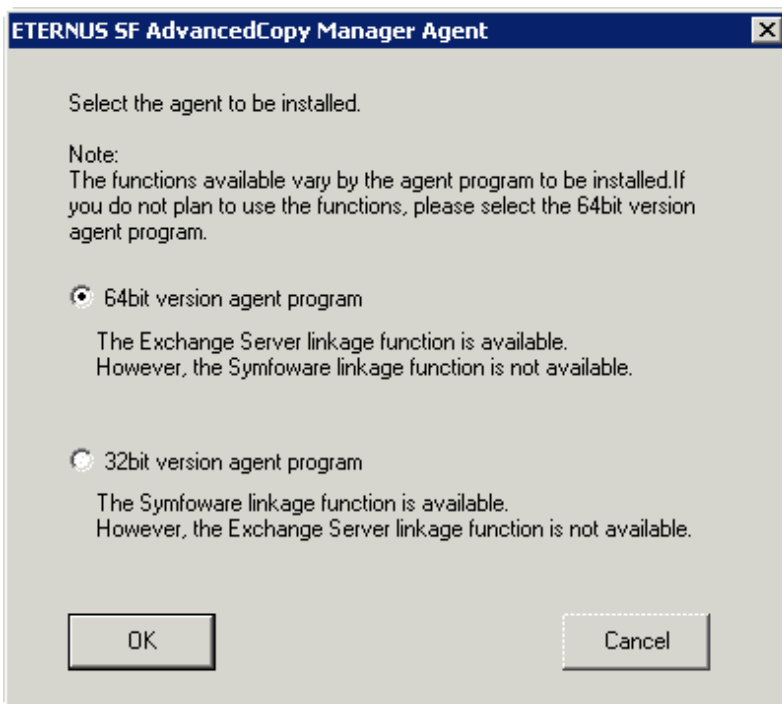
2. Insert the DVD-ROM "ETERNUS SF SC/ACM/Express Mediapack (Agent Program and Manual)" for this version into the DVD-ROM drive.
3. The following window will be displayed. Click **AdvancedCopy Manager installation**.



4. The following page will be displayed. Click **Installation of the Agent**.



5. The following page will be displayed if the server OS is Windows Server 2008 x64, Windows Server 2008 R2, or Windows Server 2012 or later. Select the agent to be installed.

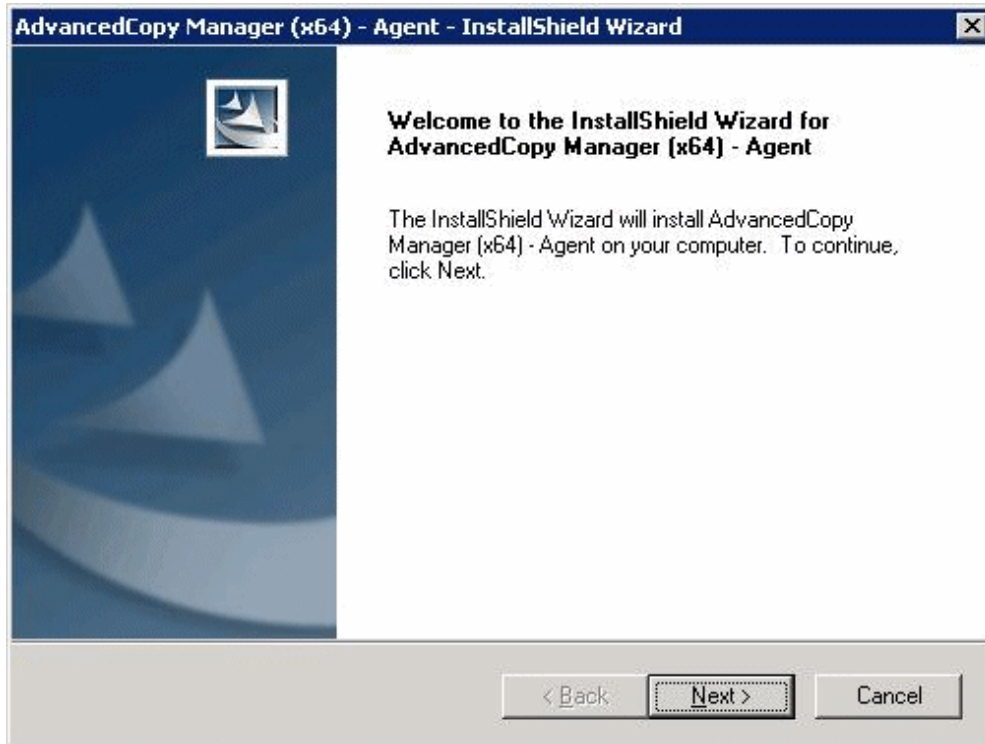


Make your selection according to the following reference criteria:

Function Intended to Be Used	Explanation
Exchange Server linkage online backup function	Select the "64bit version agent program". AdvancedCopy Manager (64bit) for Windows Server 2008 / 2012 (x64) will be installed. The Symfoware linkage function will not be available.

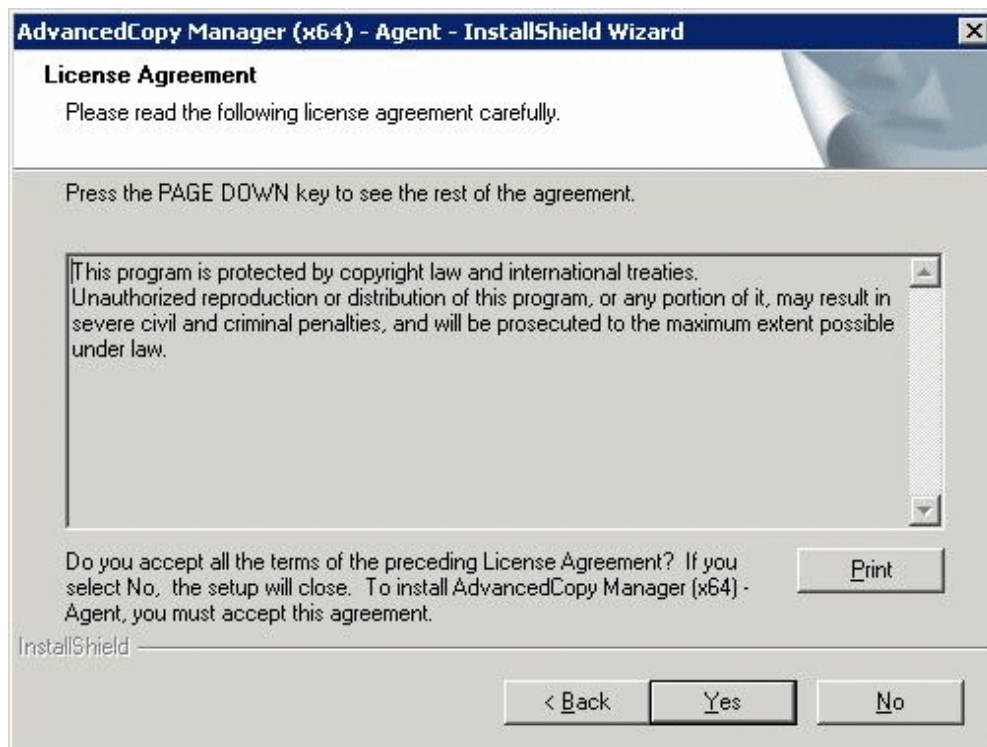
Function Intended to Be Used	Explanation
Symfoware linkage function	Select the "32bit version agent program". AdvancedCopy Manager (32bit) for Windows Server 2008 / 2012 (x86,x64) will be installed. The Exchange Server linkage online backup function will not be available.
Not intending to use any of the above	Select the "64bit version agent program". AdvancedCopy Manager (64bit) for Windows Server 2008 / 2012 (x64) will be installed.

6. The installation wizard page will be displayed. Click **Next**.



7. Read the terms and conditions of the **License Agreement** page.

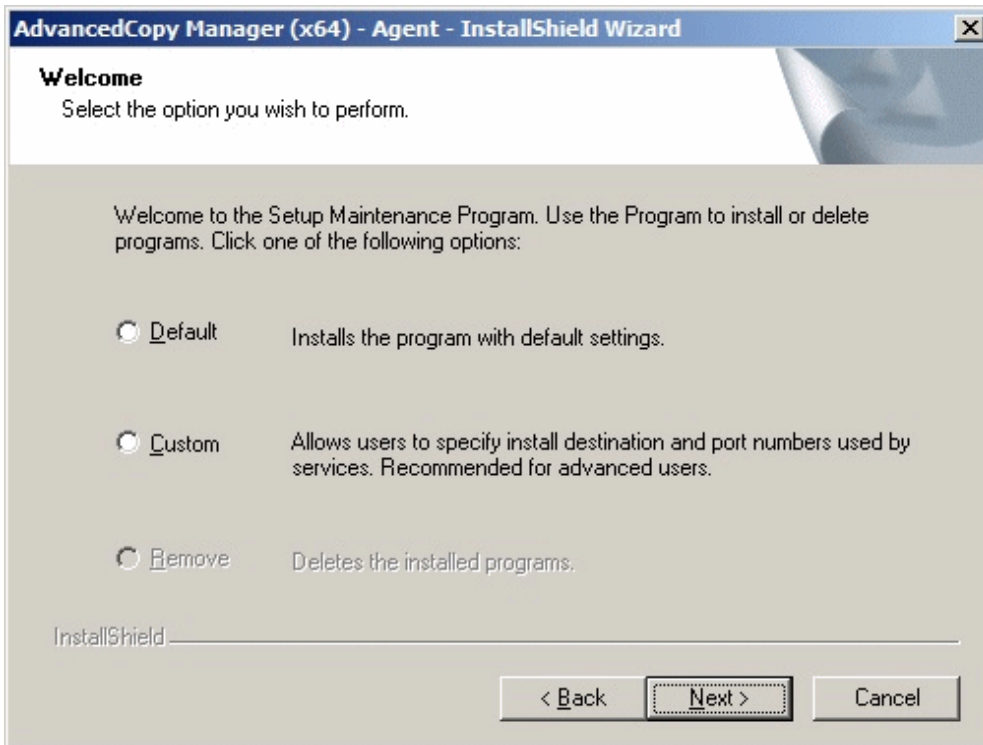
If the conditions are agreeable, click **Yes**.



8. The following page will be displayed.

Select the desired options according to the following information.

Install Option	Explanation
Default	<p>For this installation method, the following checks are automatically performed relating to the information provided by default:</p> <ul style="list-style-type: none"> - Is there enough disk space for the installation in the default directory? - Is the default port number (1226) available? <p>Consequently, steps 8 and 9 are skipped.</p> <p>If an error is detected at this stage, a warning dialog box will be displayed. If no error is detected, the Start Copying Files page will be displayed.</p>
Custom	The installation information must be manually entered in the pages for step 8 and later.



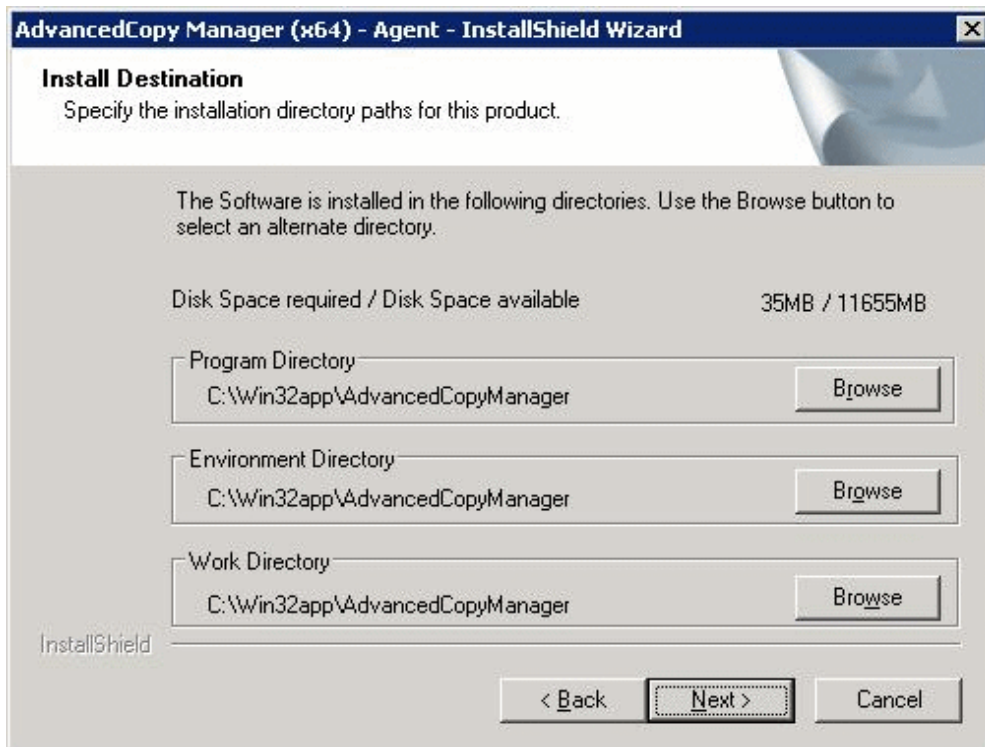
9. Specify the installation directory in the **Install Destination** page.

- For the primary node

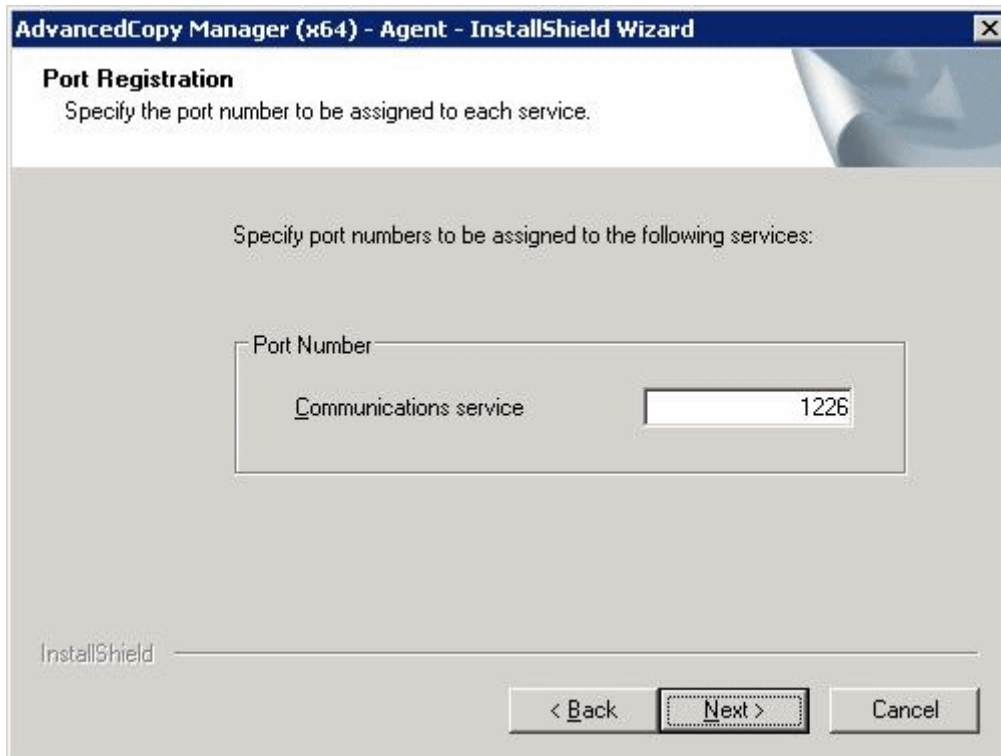
If this product is to be installed in directories other than those displayed (default directories), click **Browse** to select the desired directories. After all the proper directories have been selected, click **Next**.

Spaces and the characters " | : * ? / . < > ; & () + , = ^ are not supported for the installation destination directory name. Do not install AdvancedCopy Manager on a shared disk.

- For the secondary node
Specify the same drive and directories as those specified for the primary node.



10. Specify the port number for the service in the **Port Registration** page.



- For the primary node
Enter the port number to be allocated to each service. Enter the unused number between 1024 and 65535.

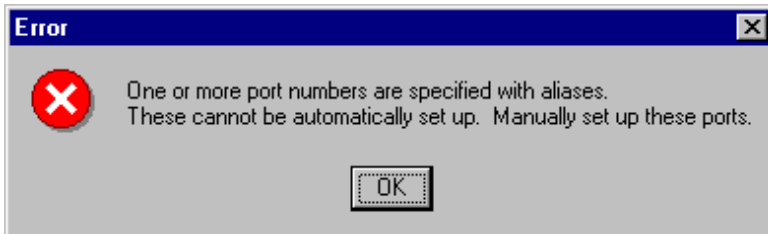
The first displayed value is a recommended value in a non-clustered system and is not always unique. To perform cluster operation with Windows Server 2003, change all port numbers so that they are within the range as indicated above.

After entering port numbers completely, click **Next**. If a port number that has already been assigned was entered, this window appears again.

- For the secondary node

Specify the same value which is specified for the primary node.

If the AdvancedCopy Manager service name is defined with alias name, the following dialog will be displayed and the port number specified on the previous screen is ignored. However, processing for installation will continue.



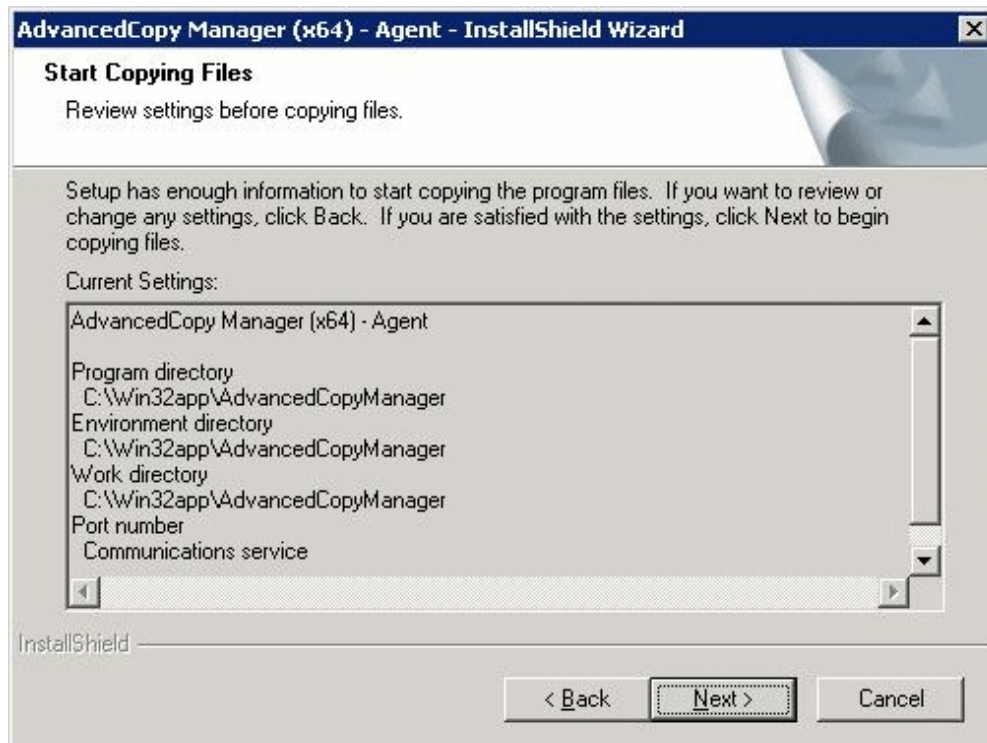
Point

For setting the port number manually, edit the %SystemRoot%\system32\drivers\etc\services file.

11. Check the settings information in the **Start Copying Files** page.

If the settings are correct, click **Next**. The copy processing starts.

To change the settings, click **Back**.



12. When the copying process is completed, the following installation wizard page will be displayed. Click **Finish**.

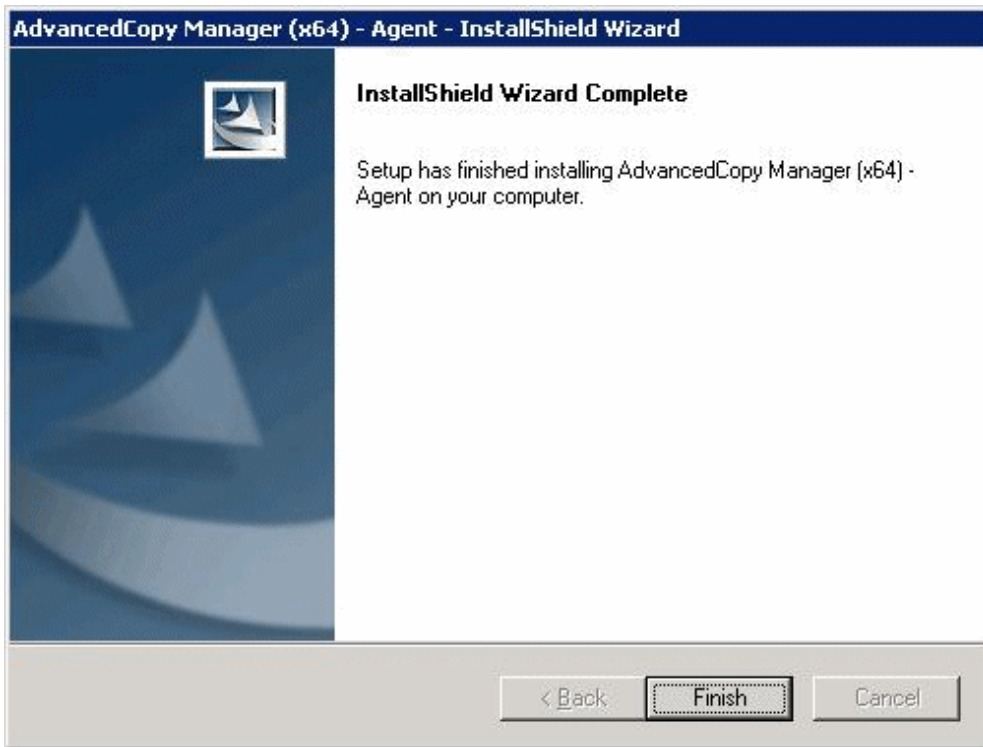
Click **Exit** in the window displayed in step 3 and step 4.

- For the primary node

Next, start the installation on the secondary node by continuing with step 13.

- For the secondary node

The installation on both nodes is completed. To construct a clustered system, refer to "[Chapter 7 Preparations for Customizing Managed Server Transactions](#)".



13. Log on to the secondary node.

Log on to the secondary node as the administrator.

14. Go back to step 2.

Starting with step 2, perform the same installation procedure for the secondary node as for the primary node. Ignore (Primary node) in the following explanation.

6.2 Installation of AdvancedCopy Manager's Agent (for Solaris/Linux/HP-UX)

This section explains how to install Solaris, Linux, or HP-UX version AdvancedCopy Manager's agent in a clustered system.

Install the AdvancedCopy Manager's agent in all nodes with the same environment (refer to "[2.5 Environment Construction for Cluster Operation](#)" and the *ETERNUS SF Installation and Setup Guide* for details).

In N:1 standby, installation to the secondary node may already be completed. In this case, install a primary node in the same environment as a secondary node.



Note

- Do not install the AdvancedCopy Manager's agent on a shared disk.
- The port number for the communication daemon (service name: stgxfws) to be set up on the Managed Server is for communication daemon for local transactions. For setting port number of the cluster transaction communication daemon, refer to "[Chapter 8 Customization of Managed Server Transactions](#)" to perform the procedure according to the cluster software to be used.

Chapter 7 Preparations for Customizing Managed Server Transactions

This chapter explains the following resources and input items that are required to customize.

- Managed Server transactions

7.1 Resources

The following resources are necessary to install AdvancedCopy Manager on a clustered system:

Table 7.1 References for Resources Required in Clustered Systems

Cluster Software	Reference
SynfinityCLUSTER or PRIMECLUSTER (for Solaris)	A.1.1 Required Resources (for Solaris/Linux/HP-UX)
VERITAS Cluster Server (for Solaris)	A.1.1 Required Resources (for Solaris/Linux/HP-UX)
Sun Cluster (for Solaris)	A.1.1 Required Resources (for Solaris/Linux/HP-UX)
MSCS or WSFC (for Windows)	7.1.1 Resources Required for MSCS/WSFC (for Windows)
MC/ServiceGuard (for HP-UX)	A.1.1 Required Resources (for Solaris/Linux/HP-UX)
VERITAS Cluster Server (for HP-UX)	A.1.1 Required Resources (for Solaris/Linux/HP-UX)
Clustered systems (for Linux)	A.1.1 Required Resources (for Solaris/Linux/HP-UX)

7.1.1 Resources Required for MSCS/WSFC (for Windows)

The following resources are required when installing AdvancedCopy Manager's agent on the Windows version of MSCS or WSFC.

- Takeover IP address for AdvancedCopy Manager

Allocate a new IP address that is unique in the network for use in clustered system operations.

IP address is required for each AdvancedCopy Manager transaction.

FUJITSU recommends preparing and adding a new logical IP address for AdvancedCopy Manager.

When allocating a new IP address, check whether existing transactions use the IP address as a takeover resource, and make sure that adding the corresponding IP address has no adverse effect on transactions.

To use an existing logical IP address, make sure that sharing the logical IP address with AdvancedCopy Manager does not cause a problem in (does not restrict) existing products that already use the logical IP address.

- The partition where shared data for AdvancedCopy Manager is stored

Prepare partitions in which the shared data for AdvancedCopy Manager is stored on the shared disk. The table below lists the number of required partitions. Note that the listed values indicate the number of partitions required for each transaction. Refer to "7.2 Capacity of Shared Disk" for information on the size of the shared disks.

Table 7.2 Number of Partitions Required for Each AdvancedCopy Manager Transaction

Name	Managed Server Transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of drive letter	1



Note

- Assign a disk that is not backed up or replicated using AdvancedCopy Manager as the shared disk for AdvancedCopy Manager shared data.

- The shared disk used with AdvancedCopy Manager must use disks other than the Quorum disk.
- On the shared disk for AdvancedCopy Manager shared data, do not create the multiple partitions.

7.1.2 Resources Required for Clustered Systems (for Solaris/Linux/HP-UX)

Refer to "A.1.1 Required Resources (for Solaris/Linux/HP-UX)" for installing AdvancedCopy Manager's agent in Solaris, Linux, or HP-UX version clustered systems.

7.2 Capacity of Shared Disk

The capacity of the shared disk of AdvancedCopy Manager's agent is explained.

7.2.1 Capacity of Shared Disk for Shared Data

The capacity required for the shared disk for shared data of AdvancedCopy Manager's agent is as follows:

Table 7.3 Capacity of Shared Disk for Shared Data of AdvancedCopy Manager's Agent

Transaction Type	Disk Space Required
Managed Server transaction	The total value of 1 to 3 below

1. Replication operations

- If the number of paired replication source/replication destination volumes used for a replication operation is p, use the following formula:
 $1.1 * p$ [KB]

2. Backup operations

- If the number of backup volumes is "a", the number of transaction volumes is "b", and the number of DSIs of all database spaces to be backed up is "c":
 - When backing up Symfoware:
 $((a + b * 35) + (b + c * 0.5)) / 1024$ [MB]
 - When not backing up Symfoware:
 $(a + b * 35) / 1024$ [MB]

3. Capacity required for cluster operation management data

1024 [KB]

7.3 Confirmation of Items

The Managed Server transaction needs the following items for customization. Confirm and prepare items required for a cluster transaction which you use.

Table 7.4 Items Required During Customization

Items	Solaris			Linux		Windows
	Safe CLUSTER PRIME CLUSTER	VERITAS Cluster Server	Sun Cluster	PRIME CLUSTER	VERITAS Cluster Server	MSCS WSFC
Logical node name	Required	Required	Required	Required	Required	Required
Communication daemon/ service port number for transaction	Required	Required	Required	Required	Required	Required

Items	Solaris			Linux		Windows
	Safe CLUSTER PRIME CLUSTER	VERITAS Cluster Server	Sun Cluster	PRIME CLUSTER	VERITAS Cluster Server	MSCS WSFC
Service name	Required	Required	Required	Required	Required	Required
Logical IP address	Required	Required	Required	Required	Required	Required
Shared disk for shared data	Required	Required	Required	Required	Required	Required
Resource type	Required	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary
User when installing	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
Cluster Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
Disk resource of the shared disk for shared data	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
Network Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
External Connection Network	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
IP Address Resource	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required (*1)
Volume Group Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary

*1: Windows Server 2003 only.

Items	HP-UX	
	MC/Service Guard	VERITAS Cluster Server
Logical node name	Required	Required
Communication daemon/ service port number for transaction	Required	Required
Service name	Required	Required
Logical IP address	Required	Required
Shared disk for shared data	Required	Required
Resource type	Unnecessary	Unnecessary
User when installing	Unnecessary	Unnecessary
Cluster Name	Unnecessary	Unnecessary
Disk resource of the shared disk for shared data	Unnecessary	Unnecessary
Network Name	Unnecessary	Unnecessary
External Connection Network	Unnecessary	Unnecessary
IP Address Resource	Unnecessary	Unnecessary
Volume Group Name	Required	Unnecessary

Chapter 8 Customization of Managed Server Transactions

This chapter explains how to customize Managed Server transactions.

Note

- The environment of all nodes must be the same.
- In case of n:1 standby operation, the secondary node environment may already have been set up earlier. In such a case, set up the environment for the primary node in the same way as it is on the secondary node.
- Each execution of the Managed Server transaction creates the settings for one cluster transaction. To build a mutual standby system, execute the procedure for customizing as many times as necessary.
- Before starting customization, add to an existing cluster transaction or decide whether to create a new cluster transaction.
- Do not move the resource used by Managed Server transactions from a cluster transaction after setup to another cluster transaction.

The following table shows the references to use for information concerning customization methods:

Table 8.1 Customization Method References

Cluster Software	Reference
SynfinityCluster or PRIMECLUSTER (for Solaris)	A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems
VERITAS Cluster Server (for Solaris)	A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems
Sun Cluster (for Solaris)	A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems
MSCS or WSFC (for Windows)	8.1 Customization for MSCS/WSFC (for Windows)
MC/ServiceGuard (for HP-UX)	A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems
VERITAS Cluster Server (for HP-UX)	A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems
Clustered Systems (for Linux)	A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems

8.1 Customization for MSCS/WSFC (for Windows)

This section explains how to customize Windows version MSCS or WSFC.

The primary node is an active node in a cluster service (userApplication) performing Managed Server transactions, and the secondary node is the standby node in the same group.

The secondary node A shows the node which creates the environment of Managed Server transactions first in the secondary nodes in this cluster group. The secondary node B shows the remaining secondary nodes in this cluster group.

The customizing work of a primary node and a secondary node A is executed as a 1:1 standby system, a mutual standby system, and a n:1 standby system.

The customizing work of a primary node, a secondary node A, and a secondary node B is executed as a cascade topology system.

Example

- When creating a cascade with three sets of nodes, one set is a primary node, one set is the secondary node A, and one set is the secondary node B.

- When creating a cascade with four sets of nodes, one set is a primary node, one set is the secondary node A, and the two other sets are the secondary node B.

Note

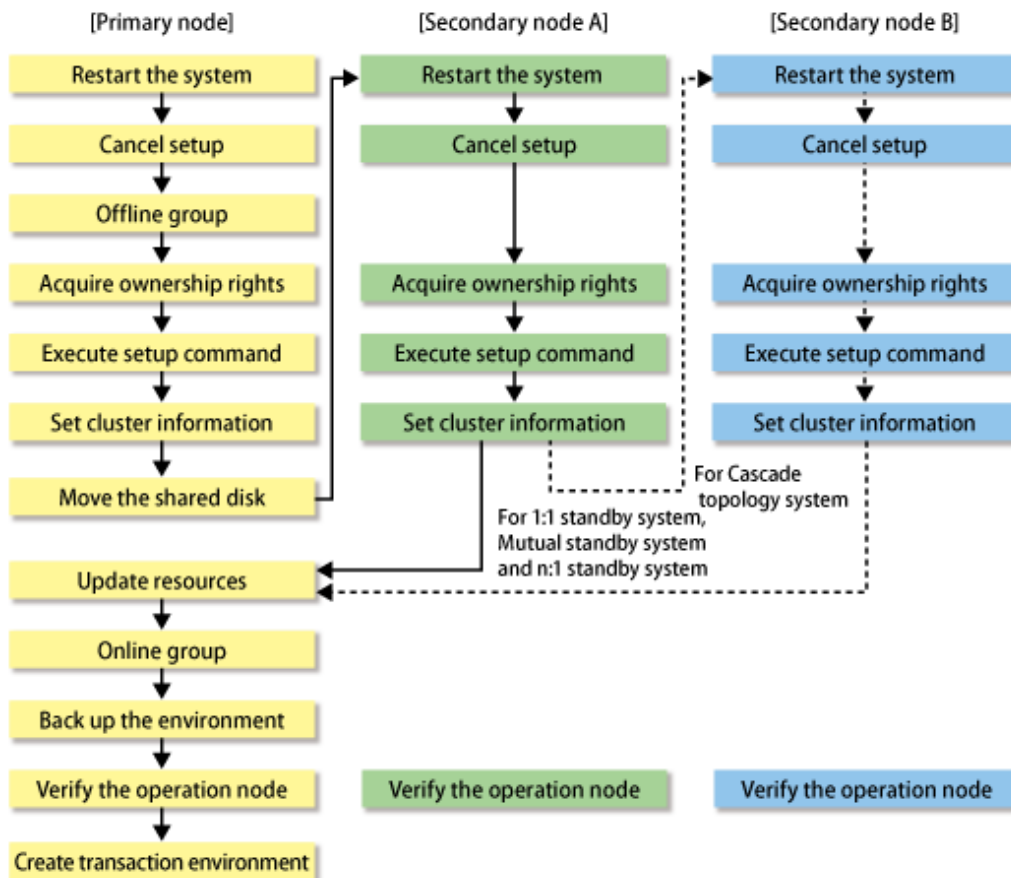
In any of the following cases, refer to "Firewall Setting (Windows Environment Only)" in the *ETERNUS SF Installation and Setup Guide* to set the firewall function:

- When Windows Server 2003 Service Pack 1 is applied
- Windows Server 2003 R2
- Windows Server 2008 or later

8.1.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.1 Customization Flow for MSCS or WSFC



8.1.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

Note

- Perform the procedures using Administrator privileges.
- For Windows Server 2012 or later, install the Failover Cluster Command Interface before performing the cluster setup.

- The Windows "Computer Browser service" must be activated if a user belonging to the Administrators of the domain wants to perform customization for the Windows version of MSCS/WSFC.
- Do not use the Telnet Server service.

1. Reactivate the primary node.
2. Offline group as required.

To add a Managed Server transaction to an existing cluster group, switch the cluster group offline using the Cluster Administrator (for MSCS) or the Failover Cluster Manager (for WSFC). This step is not required if a new cluster group is being created.

Leave the shared disk for AdvancedCopy Manager shared data online.

Refer to the MSCS/WSFC manuals for Windows for information on how to stop the cluster group and how to vary the shared disk online.

3. Acquire the ownership rights on MSCS/WSFC.

Acquire the ownership rights for the Quorum disk and the shared disk used by AdvancedCopy Manager and the ownership rights for the cluster group on the primary node using the Cluster Administrator (for MSCS) or the Failover Cluster Manager (for WSFC). Refer to MSCS/WSFC manuals for Windows for information on how to acquire ownership rights.

4. Execute the cluster setup command.

Execute the following cluster setup command on the primary node:

- When executing in Management Server

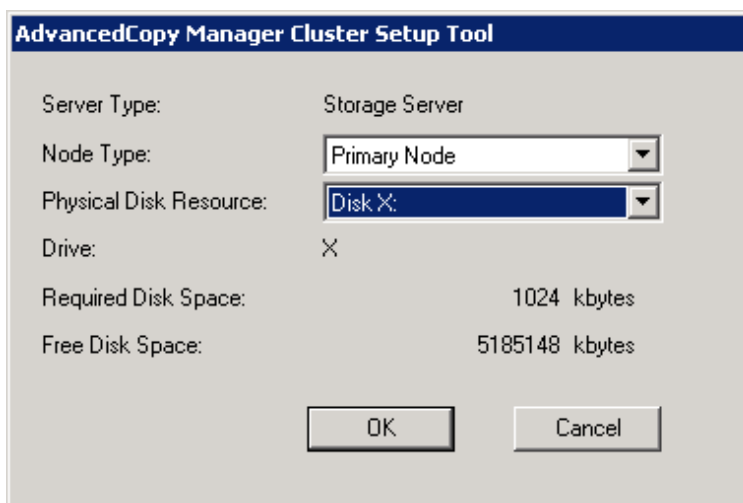
```
programDir\ACM\bin\stgclset_mscs
```

- When executing in Managed Server

```
programDir\bin\stgclset_mscs
```

5. Select the node type and shared disk.

The initial window of the cluster setup command will be displayed.



Each item is explained below. Make the required entries and then click **OK**.

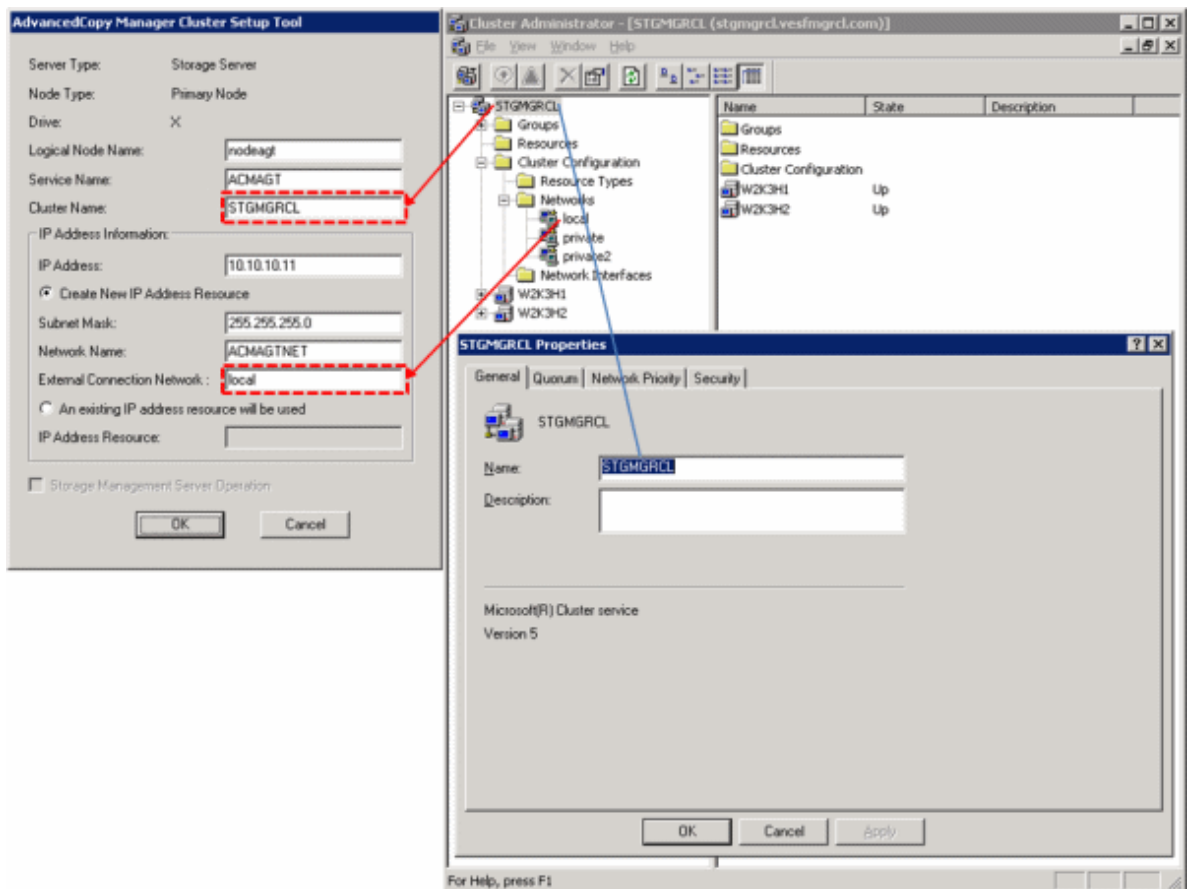
Item	Explanation
Server Type	Confirm that the server is a "Storage Server".
Node Type	Select "Primary Node".

Item	Explanation
Physical Disk Resource	Select the resource for the shared disk for AdvancedCopy Manager shared data that was prepared in "7.3 Confirmation of Items".
Drive	The drive letter corresponding to the physical disk resource is displayed.
Required Disk Space	The minimum disk size required for the shared data is displayed. Use the calculated shared disk size for the required disk size. Make sure that there is enough free space.
Free Disk Space	The amount of free disk space of the specified drive is displayed.

6. Set the cluster information for the primary node.

The setting screen of the cluster setup command will be displayed. A displayed screen may vary from operating system to operating system.

- For Windows Server 2003



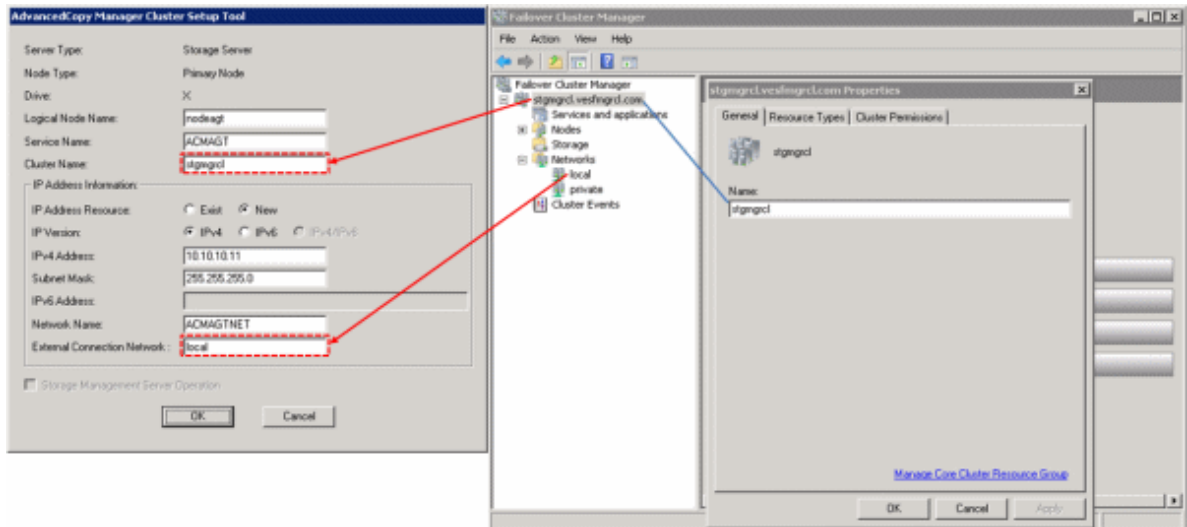
Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Server".
Node Type	Confirm that the node is "Primary Node".
Drive	The drive letter corresponding to the physical disk resource is displayed.
Logical Node Name	Enter the logical node name as defined in "7.3 Confirmation of Items".
Service name	Enter the service name as defined in "7.3 Confirmation of Items".
Cluster Name	Enter the cluster name as confirmed in "7.3 Confirmation of Items".
IP Address	Enter the logical IP address as defined in "7.3 Confirmation of Items".

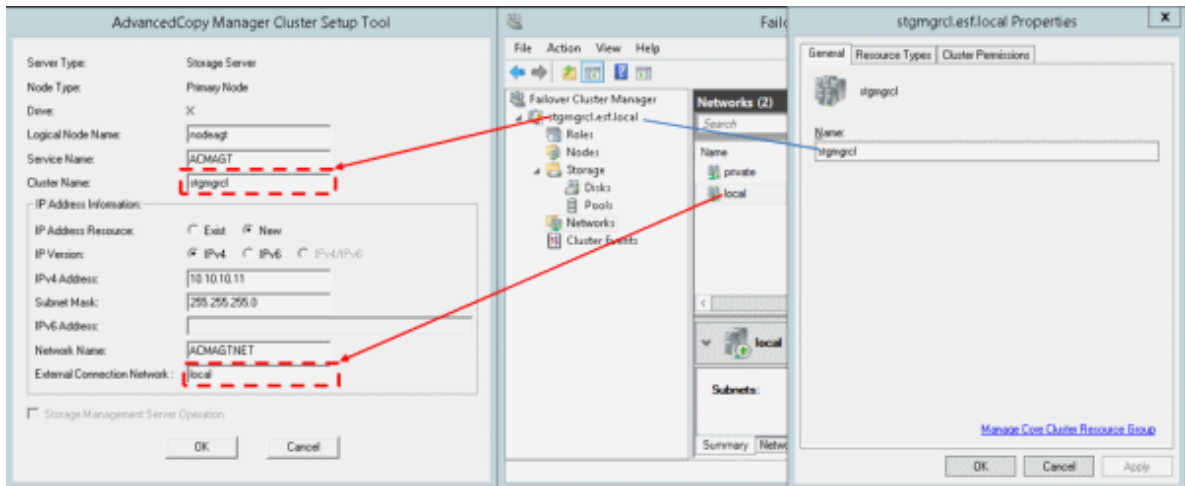
Item	Explanation
Create New IP Address Resource	<p>If the IP address entered above is a new IP address, select this button. Enter information for the following three items only if this button has been selected.</p> <ul style="list-style-type: none"> - Subnet Mask Enter the subnet mask of the IP address entered above. - Network Name Enter the network name as prepared in "7.3 Confirmation of Items". - External Connection Network Enter the external connection network name as confirmed in "7.3 Confirmation of Items".
An existing IP address resource will be used	<p>If the IP address entered above is an IP address inherited from an existing cluster group, select this button. Enter information for the following item only if this button has been selected.</p> <ul style="list-style-type: none"> - IP Address Resource Enter the IP address resource confirmed in "7.3 Confirmation of Items".
Storage Management Server Operation	<p>Do not select this item for setting the Managed Server transaction.</p>

- For Windows Server 2008 or Windows Server 2012

The following screen is for Windows Server 2008.



The following screen is for Windows Server 2012.

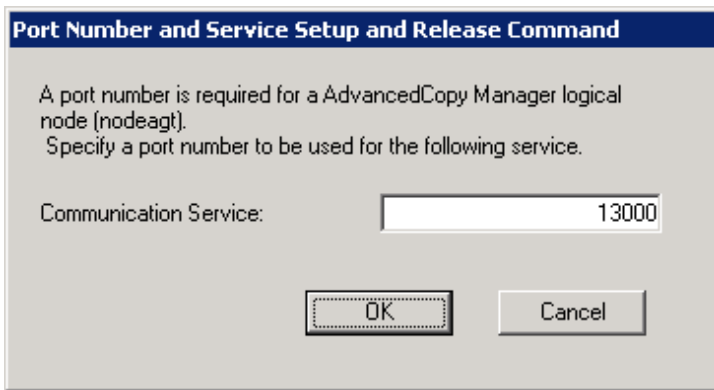


Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Server".
Node Type	Confirm that the node is "Primary Node".
Drive	The drive letter corresponding to the physical disk resource is displayed.
Logical Node Name	Enter the logical node name as defined in "7.3 Confirmation of Items" .
Cluster Name	Enter the cluster name as confirmed in "7.3 Confirmation of Items" .
IP Address Resource	<ul style="list-style-type: none"> - Exist Select if you use an existing IP address resource. - New Select if you create a new IP address resource. If "IPv4" or "IPv6" is selected in the IP Version, this can be specified. If "IPv4/IPv6" is selected in the IP Version, this cannot be specified.
IP Version	Select the IP version of Managed Server IP address. "IPv4" or "IPv6" can be selected for the Managed Server. "IPv4/IPv6" cannot be selected.
IPv4 Address	Enter the logical IP address (IPv4) as defined in "7.3 Confirmation of Items" when using IPv4 to operate the Managed Server.
Subnet Mask	Enter the subnet mask of the IP address in the IPv4 Address, when "New" is selected in the IP Address Resource and "IPv4" is selected in the IP Version.
IPv6 Address	Enter the logical IP address (IPv6) as defined in "7.3 Confirmation of Items" when using IPv4 to operate the Managed Server. The specified IPv6 address should one that is usable with WSFC.
Network Name	Enter the network name as confirmed in "7.3 Confirmation of Items" when "New" is selected in the IP Address Resource.
External Connection Network	Enter the external connection network name as confirmed in "7.3 Confirmation of Items" , when "New" is selected in the IP Address Resource and "IPv4" is selected in the IP Version.
Storage Management Server Operation	Do not select this item for setting the Managed Server transaction.

- Set the port number and service.

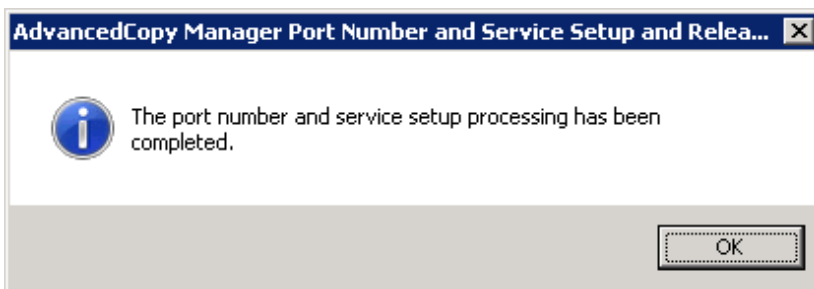
The following page will be displayed. If the port number and service has already been set, this page is not displayed.



The item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Communication Service	Enter the port number for the transaction communication service as defined in " 7.3 Confirmation of Items ".

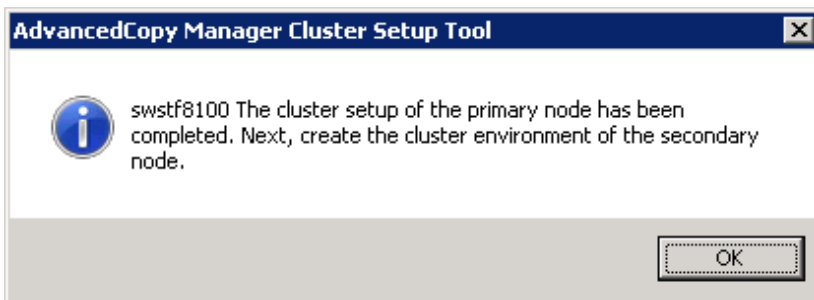
- The port number and service settings have been completed.



Click **OK**.

- The cluster setup of the primary node has been completed.

When the cluster setup completion window is displayed, click **OK**. Continue by setting up the secondary node.



- Reactivate the secondary node A.

- Acquire cluster group ownership on the secondary node A.

Acquire the ownership rights for cluster group on the secondary node A on the Windows version of MSCS/WSFC, using the Cluster Administrator (for MSCS) or the Failover Cluster Manager (for WSFC). Refer to MSCS/WSFC manuals for Windows for information on how to acquire ownership rights.

- Execute the cluster setup command.

Execute the following cluster setup command on the secondary node:

- When executing in Management Server

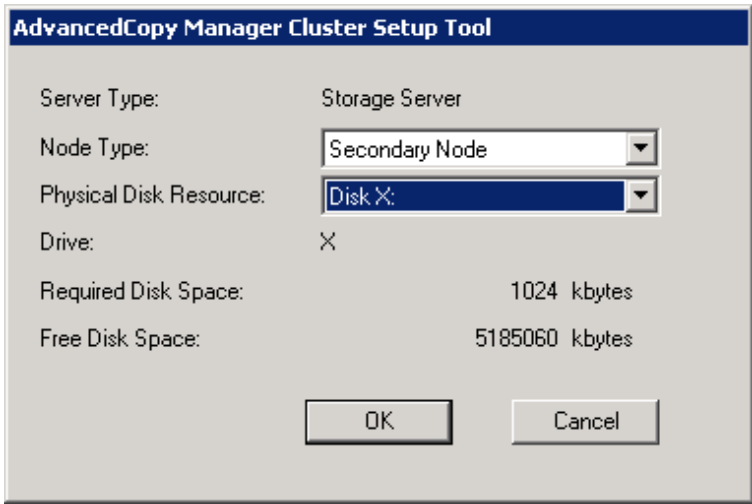
```
programDir\ACM\bin\stgclset_mscs
```

- When executing in Managed Server

```
programDir\bin\stgclset_mscs
```

13. Select the node type and shared disk.

The initial window of the cluster setup command will be displayed.



Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Server".
Node Type	Select "Secondary Node".
Physical Disk Resource	Select the resource for the shared disk for AdvancedCopy Manager shared data that was prepared in " 7.3 Confirmation of Items ".
Drive	The drive letter corresponding to the physical disk resource is displayed.
Required Disk Space	The minimum disk size required for the cluster environment is displayed.
Free Disk Space	The amount of free disk space of the specified drive is displayed.

14. Set the cluster information for the secondary node A.

The values set for the primary node will be displayed in the following page (The Node type is displayed as a "Secondary Node"). After confirming each item, click **OK**.

- For Windows Server 2003

AdvancedCopy Manager Cluster Setup Tool

Server Type: Storage Server

Node Type: Secondary Node

Drive: X

Logical Node Name:

Service Name:

Cluster Name:

IP Address Information:

IP Address:

Create New IP Address Resource

Subnet Mask:

Network Name:

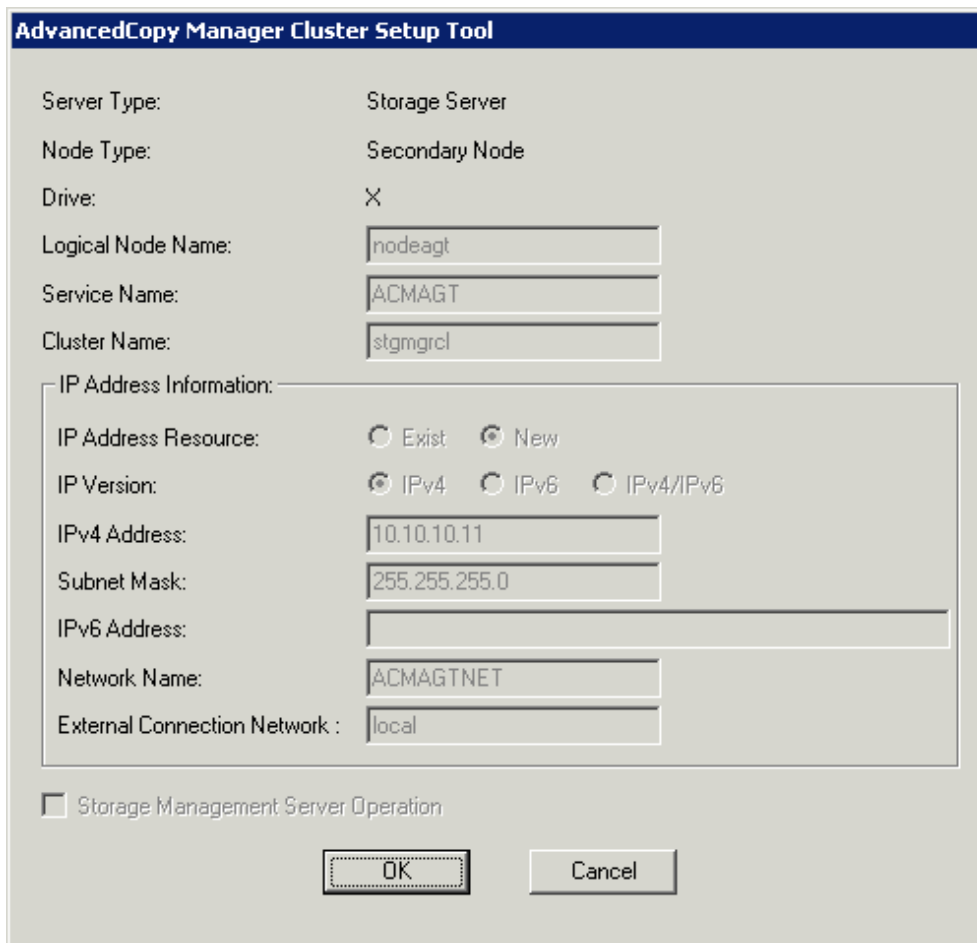
External Connection Network :

An existing IP address resource will be used

IP Address Resource:

Storage Management Server Operation

- For Windows Server 2008 or later



The image shows a dialog box titled "AdvancedCopy Manager Cluster Setup Tool". It contains several fields for configuration:

- Server Type: Storage Server
- Node Type: Secondary Node
- Drive: X
- Logical Node Name: nodeagt
- Service Name: ACMAGT
- Cluster Name: stgmgrcl

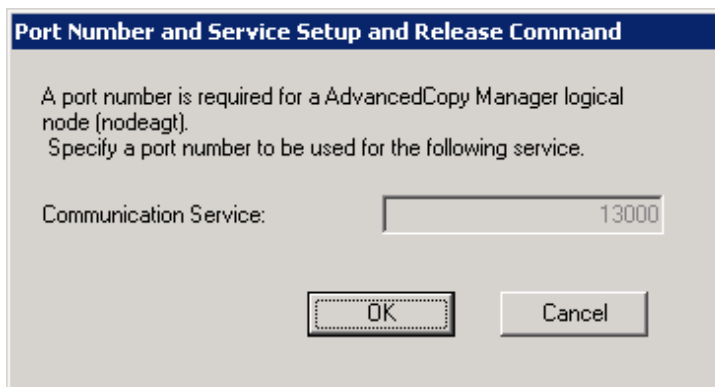
Below these fields is a section titled "IP Address Information:" which includes:

- IP Address Resource: Exist New
- IP Version: IPv4 IPv6 IPv4/IPv6
- IPv4 Address: 10.10.10.11
- Subnet Mask: 255.255.255.0
- IPv6 Address: (empty field)
- Network Name: ACMAGTNET
- External Connection Network : local

At the bottom, there is a checkbox for "Storage Management Server Operation" which is unchecked, and two buttons: "OK" and "Cancel".

15. Set the port number and service.

The following page will be displayed. The same value as those set for the primary node is displayed. If a port number and service has already been set, this page is not displayed.



The image shows a dialog box titled "Port Number and Service Setup and Release Command". It contains the following text:

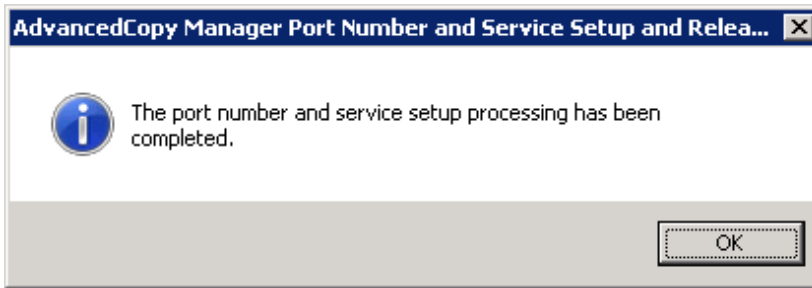
A port number is required for a AdvancedCopy Manager logical node (nodeagt).
Specify a port number to be used for the following service.

Communication Service: 13000

At the bottom, there are two buttons: "OK" and "Cancel".

Click **OK**.

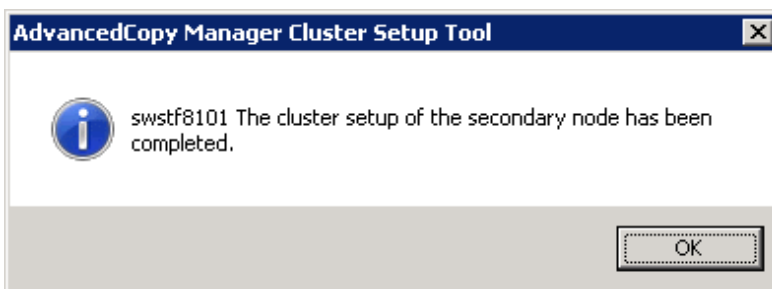
16. The port number and service settings have been completed.



Click **OK**.

17. The cluster setup of the secondary node has been completed.

When the cluster setup completion window is displayed, click **OK**.



If the clustered system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, proceed to step 27.
If the system is the Cascade topology, proceed to step 18.

18. Reactivate the secondary node B.

Note

When the secondary node B consists of two or more nodes, perform from step 18 to step 26 on all of the secondary nodes B.

19. Acquiring cluster group ownership on the secondary node B.

Acquire the ownership rights for cluster group on the secondary node B on the Windows version of MSCS/WSFC, using the Cluster Administrator (for MSCS) or the Failover Cluster Manager (for WSFC). Refer to MSCS/WSFC manuals for Windows for information on how to acquire ownership rights.

20. Execute the cluster setup command.

Execute the following cluster setup command on the secondary node B:

- When executing in Management Server

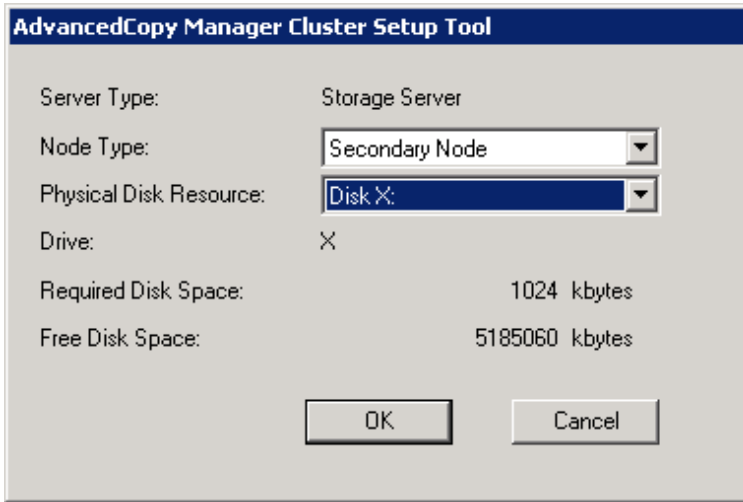
```
programDir\ACM\bin\stgclset_mscs
```

- When executing in Managed Server

```
programDir\bin\stgclset_mscs
```

21. Select the node type and shared disk.

The initial window of the cluster setup command will be displayed.

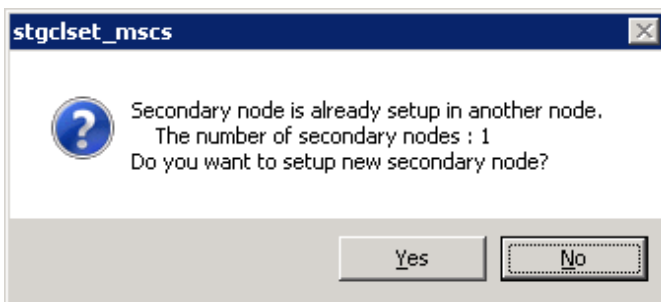


Each item is explained below. Make the required entries and then click **OK**.

Item	Explanation
Server Type	Confirm that the server is a "Storage Server".
Node Type	Select "Secondary Node".
Physical Disk Resource	Select the resource of the shared disk for AdvancedCopy Manager shared data. Select the same resource as that selected for the primary node.
Drive	The drive letter corresponding to the physical disk resource is displayed.
Required Disk Space	The minimum disk size required for the AdvancedCopy Manager cluster environment is displayed.
Free Disk Space	The amount of free disk space of the specified drive is displayed.

22. Confirm the addition of the secondary node.

A confirmation dialog box for adding a secondary node to a cascade topology is displayed. Confirm that the service is for a cascade topology, and then click **Yes**.



The number of secondary nodes already set up is displayed at the item "The number of secondary nodes".

 **Note**

Note that the default is **No** (cancellation of processing).

23. Set the cluster information for the secondary node B.

The values set for the primary node will be displayed in the following page (The Node type is displayed as a "Secondary Node"). After confirming each item, click **OK**.

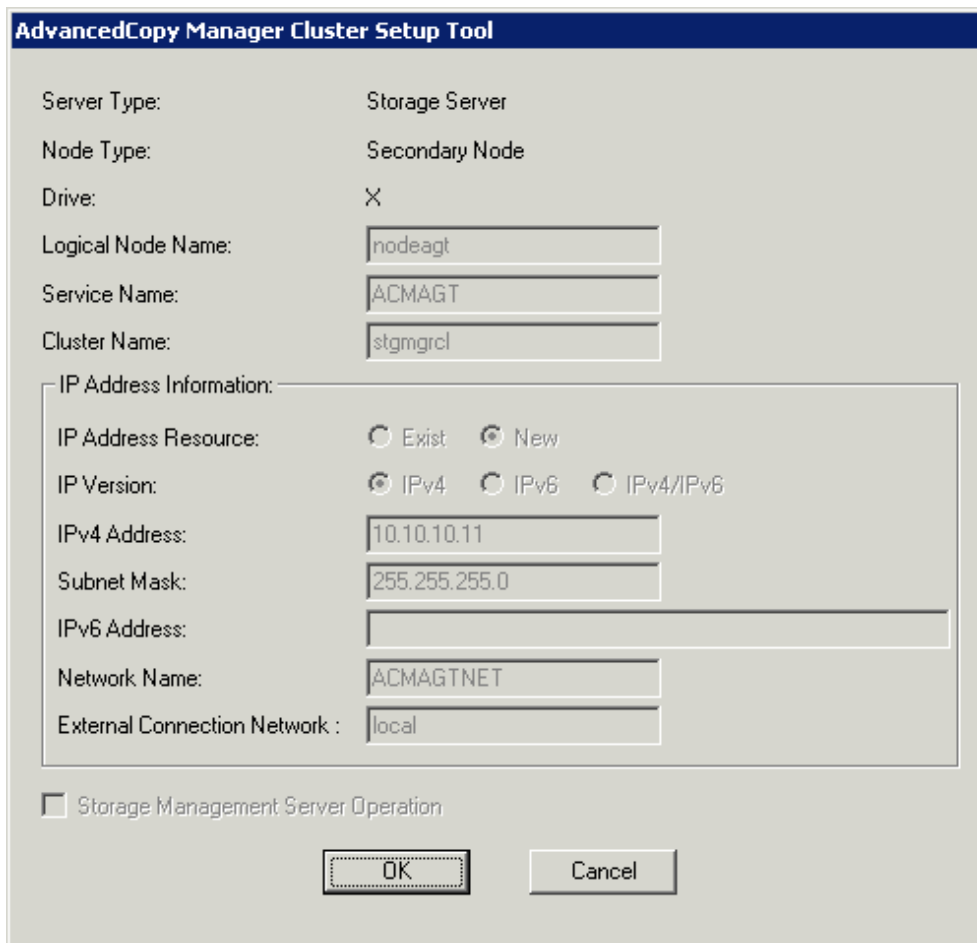
- For Windows Server 2003

The screenshot shows the 'AdvancedCopy Manager Cluster Setup Tool' dialog box. The title bar is dark blue with white text. The main area is light gray. The following fields are visible:

- Server Type: Storage Server
- Node Type: Secondary Node
- Drive: X
- Logical Node Name: nodeagt
- Service Name: ACMAGT
- Cluster Name: stgmgcrl
- IP Address Information section (bordered box):
 - IP Address: 10.10.10.11
 - Create New IP Address Resource
 - Subnet Mask: 255.255.255.0
 - Network Name: ACMAGTNET
 - External Connection Network : local
 - An existing IP address resource will be used
 - IP Address Resource: (empty field)
- Storage Management Server Operation

At the bottom, there are two buttons: 'OK' and 'Cancel'.

- For Windows Server 2008 or later



The image shows a dialog box titled "AdvancedCopy Manager Cluster Setup Tool". It contains several fields for configuration:

- Server Type: Storage Server
- Node Type: Secondary Node
- Drive: X
- Logical Node Name: nodeagt
- Service Name: ACMAGT
- Cluster Name: stgmgrcl

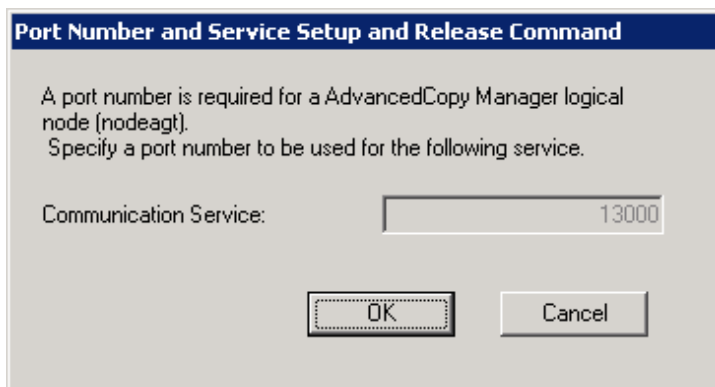
Below these fields is a section titled "IP Address Information:" which includes:

- IP Address Resource: Exist New
- IP Version: IPv4 IPv6 IPv4/IPv6
- IPv4 Address: 10.10.10.11
- Subnet Mask: 255.255.255.0
- IPv6 Address: (empty field)
- Network Name: ACMAGTNET
- External Connection Network : local

At the bottom, there is a checkbox for "Storage Management Server Operation" which is unchecked, and two buttons: "OK" and "Cancel".

24. Set the port number and service.

The following page will be displayed. The same value as those set for the primary node is displayed. If a port number and service has already been set, this page is not displayed.



The image shows a dialog box titled "Port Number and Service Setup and Release Command". It contains the following text:

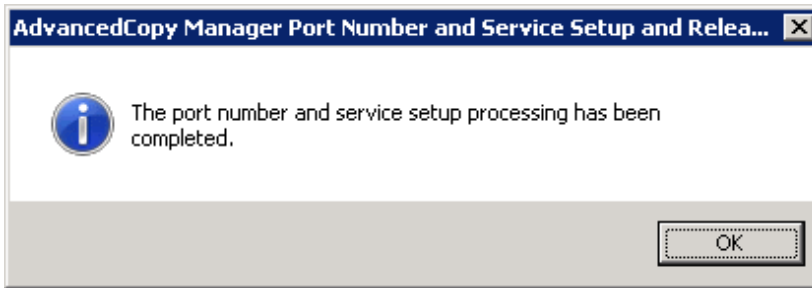
A port number is required for a AdvancedCopy Manager logical node (nodeagt).
Specify a port number to be used for the following service.

Communication Service: 13000

At the bottom, there are two buttons: "OK" and "Cancel".

Click **OK**.

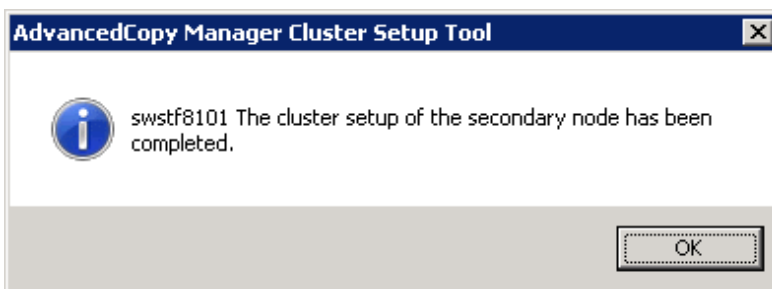
25. The port number and service settings have been completed.



Click **OK**.

26. The cluster setup of the secondary node B has been completed.

When the cluster setup completion window is displayed, click **OK**.



Note

If more secondary nodes B remain (steps from step 18 to step 26 have not been performed on them), perform from step 18 in the remaining nodes. When operation from step 18 to step 26 is completed for all secondary nodes B, go to step 27.

27. If necessary, specify the resource dependency and the ownership rights required for execution.

Set the dependency of the resource.

Add a business disk resource to the dependency of the following resources by using Cluster Administrator (for MSCS) or Failover Cluster Manager (for WSFC).

- AdvancedCopy COM Service_ *logicalNodeName*

Note

When a volume is added, or when it is deleted, it is necessary to again set up the above-mentioned dependency. Refer to "Notes on Cluster Operation" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information about this.

If the number of clustered system nodes is greater than the number of cluster group nodes (such as in an n:1 standby system), change the ownership rights required for execution.

Using Cluster Administrator (for MSCS) or Failover Cluster Manager (for WSFC), change the property information (ownership rights required for execution) of the AdvancedCopy Manager resources belonging to the cluster group for only the nodes operating in the cluster group. Refer to the Windows version of MSCS/WSFC manuals for information on how to change the ownership rights required for execution. The property information must be changed for the following resources:

- AdvancedCopy COM Service_ *logicalNodeName*
- AdvancedCopy IP Address logical node name (if "Create New IP Address Resource" has been selected with the cluster setup command of AdvancedCopy Manager or "New" has been selected in the "IP Address Resource")

- AdvancedCopy Network logical node name (if "Create New IP Address Resource" has been selected with the cluster setup command of AdvancedCopy Manager or "New" has been selected in the " IP Address Resource")
 - Shared disk for AdvancedCopy Manager shared data
 - Backup volume or replica volume
28. Online the AdvancedCopy Manager service on the primary node.
- Use Cluster Administrator (for MSCS) or Failover Cluster Manager (for WSFC) to take the cluster group whose settings have been completed online and to start AdvancedCopy Manager service.
29. Back up the environment.
- As a safeguard against accidental loss of data or file corruption, back up the data environment on the shared disk for AdvancedCopy Manager shared data.
- Using the copy function (for example, Windows Explorer), back up the following folders on the shared disk for AdvancedCopy Manager shared data.
- Drive of the shared disk for AdvancedCopy Manager shared data:\etc
 - Drive of the shared disk for AdvancedCopy Manager shared data:\var
30. Verify the operation node.
- Using Cluster Administrator (for MSCS) or Failover Cluster Manager (for WSFC), verify that the cluster group operates on the node.
31. Create an environment for the Managed Server transaction.
- Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.
- Refer to the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* to create the environment for Managed Server transactions according to the operation type.

Note

When adding a Managed Server transaction to a Managed Server, execute the `stgxfwcmaddsrv` command.

```
programDir\ACM\bin\stgxfwcmaddsrv [-n serverName] -i logicalIpAddr -p portNumber
```

serverName: Server name
logicalIpAddr: Logical IP address
portNumber: Port number

Refer to "2.4.2 Cluster Transaction and Local Transaction" for information on the specified argument for command option.
Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide* for information on the command.

32. Reboot all nodes.
- If the secondary node in n:1 standby operation was already completely installed and customized (including the reboot) earlier, reboot only the primary node.

8.2 Customization for Clustered Systems (for Solaris/Linux/HP-UX)

Refer to "A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems" for information on how to customize Solaris, Linux, or HP-UX version clustered system.

Chapter 9 Installation of AdvancedCopy Manager CCM

This chapter explains how to install AdvancedCopy Manager CCM in a clustered system.

9.1 Installation Procedure for AdvancedCopy Manager CCM

Install AdvancedCopy Manager CCM on the servers that are operating in a cluster.

Install the same version of AdvancedCopy Manager CCM on each server. Specify the same target paths for installation (program directory, environment settings directory, and working directory) on each server.

Refer to "Installation of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.



Do not install this product on any shared disks.

Chapter 10 Preparations for Customizing CCM Server Transactions

This chapter explains the preparations that are required to customize CCM Server transactions when you have installed AdvancedCopy Manager CCM.

If you have installed ETERNUS SF Manager, refer to "[Chapter 4 Preparations for Customizing Management Server Transactions](#)".

10.1 Resources Required for Clustered Systems (for Windows)

For installing AdvancedCopy Manager CCM in a Windows version clustered system, the following resources are required:

- Shared disk for shared data

Volume for storing shared data of AdvancedCopy Manager CCM.

With regard to such factors as reliability and update performance, we recommend that you use a new volume created only for AdvancedCopy Manager CCM.

Refer to "Required Disk Space for Operation" in "Operating Environment for AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for information on the disk space required for AdvancedCopy Manager CCM.



Note

When you specify a shared disk for shared data of AdvancedCopy Manager CCM, be careful about the following points:

- Define the shared disk for shared data as a shared disk of a cluster.
- Allocate a disk that does not use AdvancedCopy Manager to carry out backup and replication.
- Allocate a disk that is not used by AdvancedCopy Manager CCM as a copy source, copy destination or access volume.
- On the shared disk for shared data, create a file system.
- In order to be used by the file system, make the shared disk mountable.
- Use a disk that is not used as a Quorum disk.

- Partitions for storing shared data for AdvancedCopy Manager CCM

Prepare partitions on the shared disk for storing shared data for AdvancedCopy Manager CCM. The numbers of required partitions are listed below. Note that these numbers of partitions are required for each AdvancedCopy Manager CCM transaction.

Table 10.1 Numbers of Partitions Required for Each AdvancedCopy Manager CCM Transaction

Name	CCM Server Transactions
Shared disk for shared data	1
Total amount of partitions	1

- Resources listed in "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)"

10.2 Resources Required for Clustered Systems (for Solaris/Linux)

For installing AdvancedCopy Manager CCM in Solaris or Linux version clustered systems, the following resources are required:

- Shared disk for shared data

Volume for storing shared data of AdvancedCopy Manager CCM.

With regard to such factors as reliability and update performance, we recommend that you use a new volume created only for AdvancedCopy Manager CCM.

Refer to "Required Disk Space for Operation" in "Operating Environment for AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for information on the disk space required for AdvancedCopy Manager CCM.

 Note

When you specify a shared disk for shared data of AdvancedCopy Manager CCM, be careful about the following points:

- Define the shared disk for shared data as a shared disk of a cluster.
- Allocate a disk that does not use AdvancedCopy Manager to carry out backup and replication.
- Allocate a disk that is not used by AdvancedCopy Manager CCM as a copy source, copy destination or access volume.
- On the shared disk for shared data, create a file system.
- In order to be used by the file system, make the shared disk mountable.

- Partitions for storing shared data for AdvancedCopy Manager CCM

Prepare partitions on the shared disk for storing shared data for AdvancedCopy Manager CCM. The numbers of required partitions are listed below. Note that these numbers of partitions are required for each AdvancedCopy Manager CCM transaction.

Table 10.2 Numbers of Partitions Required for Each AdvancedCopy Manager CCM Transaction

Name	CCM Server Transactions
Shared disk for shared data	1
Total amount of partitions	1

- Resources listed in "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)"

Chapter 11 Customization for CCM Server Transactions

This chapter explains how to customize CCM Server transactions.

11.1 Customization in Clustered Systems (for Windows)

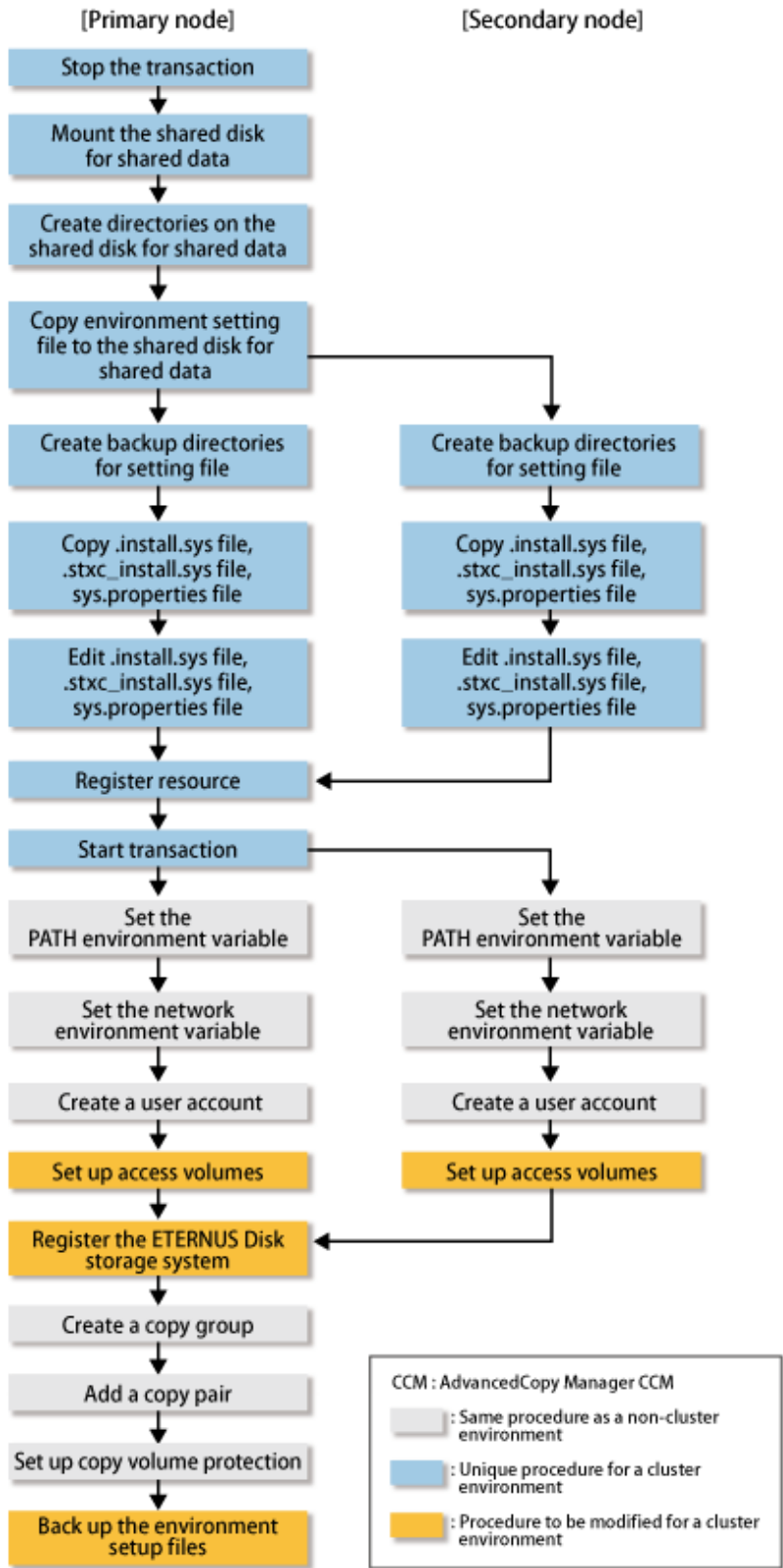
This section explains methods for customization in Windows version clustered systems.

A primary node is an operative node in a group of cluster transactions that implement CCM Server transactions. A secondary node is a standby node in the same group of cluster transactions.

11.1.1 Workflow of Customization

The following is a description of the workflow of customization.

Figure 11.1 Workflow of Customization in Clustered Systems (for Windows)



Note

- Unless instructed otherwise, do not use any commands of AdvancedCopy Manager CCM.

- After setting up access volumes on all nodes, register the ETERNUS Disk storage system on the primary node.

11.1.2 Details of Customization Work

Follow below procedure for setting up CCM Server transactions.

1. On the primary and secondary nodes, log in as a user with Administrator privileges.

Note

- If AdvancedCopy Manager CCM is currently operating on any node in the cluster, use the following commands to stop all Advanced Copy processes that are being executed.
 - `acopc cancel` command
 - `acsnap cancel` command
 - `acec cancel` command
- If a management service is being executed, execute the `acservice stop` command with the `-lan` option to stop the management service.

2. Stop the CCM Server transactions.

If you are setting up CCM Server transactions within already existing cluster transactions, stop the relevant cluster transactions. Refer to your cluster software documentation for the procedure for stopping cluster transactions.

3. Mount the shared disk for shared data.

Make settings to allow access from the primary node to the file system of the shared disk for shared data.

4. Refer to "[5.1.1.3 Customization for AdvancedCopy Manager CCM](#)" to customize the primary node.
5. Refer to "[5.1.2.3 Customization for AdvancedCopy Manager CCM](#)" to customize the secondary node.
6. On the primary node, register the resources in the CCM Server transactions.

The resources required for CCM Server transactions are as follows:

- Shared disk for shared data
Refer to "[10.1 Resources Required for Clustered Systems \(for Windows\)](#)" for details.
- Generic script for AdvancedCopy Manager CCM
Refer to "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)" for details.

Refer to your cluster software documentation for the procedure for registering resources in CCM Server transactions.

Note

Set the dependencies of the shared disk for shared data in such a way that it is mounted before executing the generic script for AdvancedCopy Manager CCM.

Refer to "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)" for information on the generic script for AdvancedCopy Manager CCM.

7. On the primary node, start the CCM Server transactions.

8. Set the environment variable PATH.

Add the bin directory of AdvancedCopy Manager CCM to the environment variable PATH.

Refer to "Setting Environment Variable PATH" in "Setup of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.

9. Set up the network environment.

Refer to "Configuring Network Environment" in "Setup of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.

10. Create a user account.

Create a user account for using AdvancedCopy Manager CCM.

Refer to "Creating User Account for Using AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.

11. Set up access volumes on all nodes that are operating the clustered system.

Refer to "4.1.4 Resources Required for AdvancedCopy Manager CCM" and to "Access Volume Settings" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

12. Register the ETERNUS Disk storage system.

Follow below procedure to register the ETERNUS Disk storage system.

If an ETERNUS Disk storage system is already registered, use the `acarray remove` command to delete the existing registration. After that, register it again according to the following procedure:

- a. Execute the `acutil devs` command and check the output results. From the Box ID (BOX-ID) and the logical volume number (LV No) of the ETERNUS Disk storage system, identify the access volume to be used and check the Device value.

```
> acutil devs
Device          BOX-ID          LV No Size
-----
PHYSICALDRIVE4 00E8000M9#####E890S20A####KO4070639003## 0x61 1048576
PHYSICALDRIVE5 00E8000M9#####E890S20A####KO4070639003## 0x62 1048576
PHYSICALDRIVE6 00E8000M9#####E890S20A####KO4070639003## 0x63 1048576
```

- b. Use the Device value you checked in the a) above to register the ETERNUS Disk storage system by the `acarray add` command.

```
> acarray add -a E8000 -ip 10.124.6.251 -user root -password root -path Device
value from a)
Successful completion.
```

If, for the access volume to be used, the BOX-ID is "00E8000M9#####E890S20A####KO4070639003##" and the LV No is "0x61", specify it as follows:

```
> acarray add -a E8000 -ip 10.124.6.251 -user root -password root -path
PHYSICALDRIVE4
Successful completion.
```

 Note

Use the same access volume for all nodes in the cluster.

If you use an access volume, when you register the ETERNUS Disk storage system, execute the `acarray add` command with the `-path` option specified.

13. Create a copy group.

Refer to "Creating Copy Groups" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

14. Add a copy pair.

Add a copy pair to the newly created copy group.

Refer to "Adding Copy Pairs" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

15. Set up copy volume protection.

In order to prevent destruction of the volume by any mistakes in operation, you can set the volume protection function on the transaction volume.

Refer to "Setting Copy Volume Protection" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

16. Back up the environment setup files for the CCM Server transactions.

To be prepared for unexpected situations, back up the environment setup files. Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for the files to be backed up.



See

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

11.2 Customization in Clustered Systems (for Solaris/Linux)

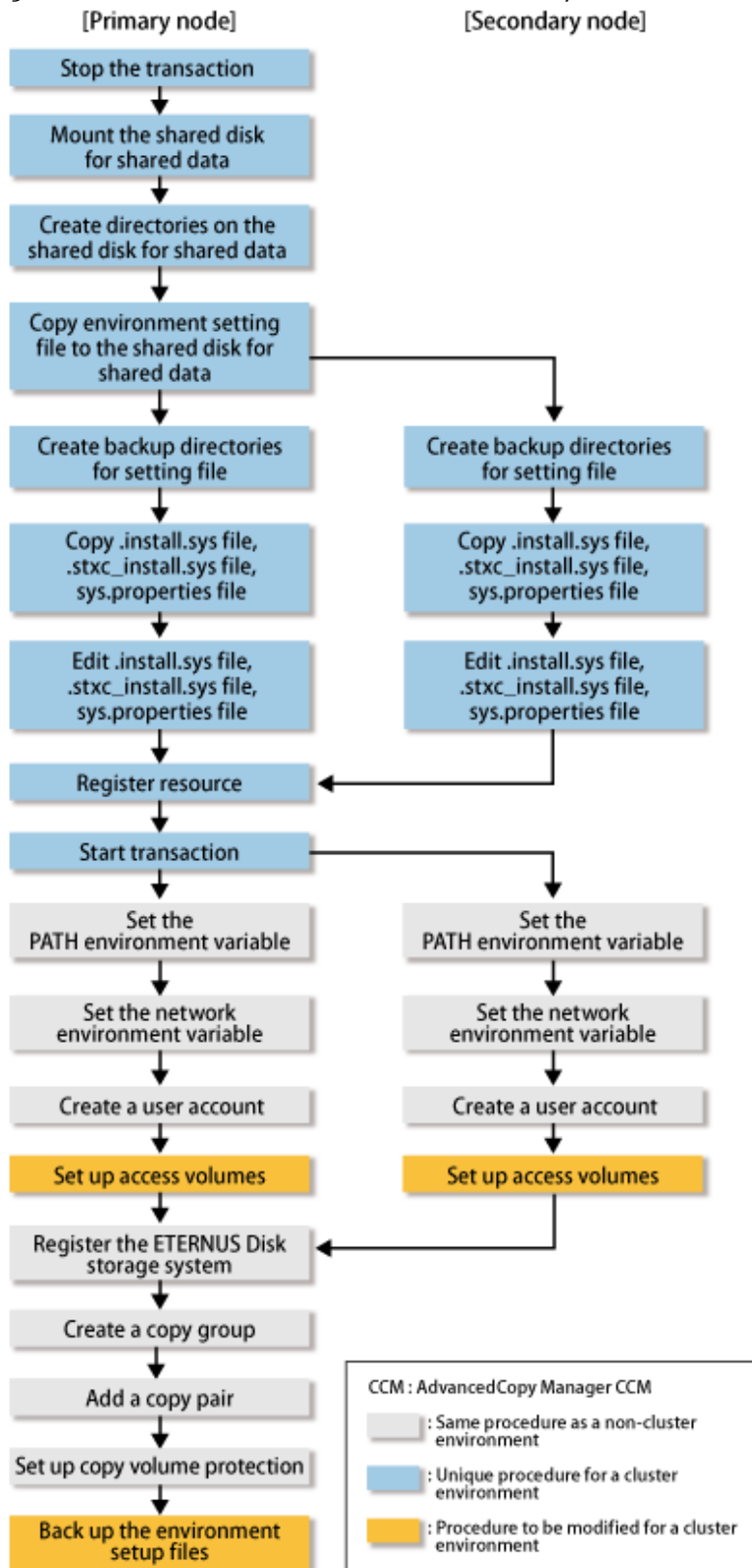
This section explains methods for customization in Solaris or Linux version clustered systems.

A primary node is an operative node in a group of cluster transactions that implement CCM Server transactions. A secondary node is a standby node in the same group of cluster transactions.

11.2.1 Workflow of Customization

The following is a description of the workflow of customization.

Figure 11.2 Workflow of Customization in Clustered Systems (for Solaris/Linux)



Note

- Unless instructed otherwise, do not use any commands of AdvancedCopy Manager CCM.

- After setting up access volumes on all nodes, register the ETERNUS Disk storage system on the primary node.

11.2.2 Details of Customization Work

Follow below procedure for setting up CCM Server transactions.

1. Log in to the primary and secondary nodes. Perform the operation after logging in as a root user.

Note

- If AdvancedCopy Manager CCM is currently operating on any node in the cluster, use the following commands to stop all Advanced Copy processes that are being executed.
 - `acopc cancel` command
 - `acsnap cancel` command
 - `acec cancel` command
- If a management service is being executed, execute the `acservice stop` command with the `-lan` option to stop the management service.

2. Stop the CCM Server transactions.

If you are setting up CCM Server transactions within already existing cluster transactions, stop the relevant cluster transactions. Refer to your cluster software documentation for the procedure for stopping cluster transactions.

3. Mount the shared disk for shared data.

Make settings to allow access from the primary node to the file system of the shared disk for shared data.

4. Customize the primary node.

For Solaris: Refer to "[5.2.1.3 Customization for AdvancedCopy Manager CCM](#)".

For Linux: Refer to "[5.3.1.3 Customization for AdvancedCopy Manager CCM](#)".

5. Customize the secondary node.

For Solaris: Refer to "[5.2.2.3 Customization for AdvancedCopy Manager CCM](#)".

For Linux: Refer to "[5.3.2.3 Customization for AdvancedCopy Manager CCM](#)".

6. On the primary node, register the resources in the CCM Server transactions.

The resources required for CCM Server transactions are as follows:

- Shared disk for shared data
Refer to "[10.2 Resources Required for Clustered Systems \(for Solaris/Linux\)](#)" for details.
- Generic script for AdvancedCopy Manager CCM
Refer to "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)" for details.

Refer to your cluster software documentation for the procedure for registering resources in CCM Server transactions.

Note

Set the dependencies of the shared disk for shared data in such a way that it is mounted before executing the generic script for AdvancedCopy Manager CCM.

Refer to "[4.1.4 Resources Required for AdvancedCopy Manager CCM](#)" for information on the generic script for AdvancedCopy Manager CCM.

7. On the primary node, start the CCM Server transactions.

8. Set the environment variable PATH.

Add the bin directory of AdvancedCopy Manager CCM to the environment variable PATH.

Refer to "Setting Environment Variable PATH" in "Setup of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.

9. Set up the network environment.

Refer to "Configuring Network Environment" in "Setup of AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.

10. Create a user account.

Create a user account for using AdvancedCopy Manager CCM.

Refer to "Creating User Account for Using AdvancedCopy Manager CCM" in the *ETERNUS SF Installation and Setup Guide* for details.

11. Set up access volumes on all nodes that are operating the clustered system.

Refer to "4.1.4 Resources Required for AdvancedCopy Manager CCM" and to "Access Volume Settings" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

12. Register the ETERNUS Disk storage system.

Refer to "Registering ETERNUS Disk Storage System" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.



Use the same access volume for all nodes in the cluster.

If you use an access volume, when you register the ETERNUS Disk storage system, execute the `acarray add` command with the `-path` option specified.

13. Create a copy group.

Refer to "Creating Copy Groups" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

14. Add a copy pair.

Add a copy pair to the newly created copy group.

Refer to "Adding Copy Pairs" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

15. Set up copy volume protection.

In order to prevent destruction of the volume by any mistakes in operation, you can set the volume protection function on the transaction volume.

Refer to "Setting Copy Volume Protection" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

16. Back up the environment setup files for the CCM Server transactions.

To be prepared for unexpected situations, back up the environment setup files. Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for the files to be backed up.



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

Chapter 12 Changing Operational Environment

This chapter explains how to change the environment for ETERNUS SF Manager when it is being operated in a clustered system.

12.1 Changing Operational Environment (for Windows)

12.1.1 Changing IP Address for Management Server Transactions

Follow the procedure below to change (including addition and deletion) the IP address for Management Server transactions.

1. Stop the Management Server transaction.
Refer to the cluster software manual for information on how to stop the transaction.
2. Change the IP address resource.
Refer to the cluster software manual for information on how to change the IP address resource.
3. Check the operational status of the Management Server transaction. If the transaction is stopped, start up the Management Server transaction.
Refer to the cluster software manual for information on how to start up the transaction.
4. Create the server information change instruction file in a node in which the Management Server transaction is operating.
Execute the `stgxfwcmmodsrv` command with the `-f` option specified to change the IP address. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on the command.
5. Edit the detailed setting file of the storage management.
Refer to step 4 in "[5.1.1.2 Customization for Storage Cruiser's Manager](#)" for information on how to edit the detailed setting file.
6. Refer to "Change Server Information" in the *ETERNUS SF Web Console Guide* to change the IP address information.
7. Set the SNMP Trap transmission place for each managed device again.
Execute the `sanadm chtraprvcip` command to set the SNMP Trap transmission place for each managed device again. Refer to "Command References" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the command.



Note

When you change/delete the IP version of the Management Server, perform the following procedures to the Managed Server registered by the IP version before it changes/deletes.

- For changing IP version (from IPv4 to IPv6, or from IPv6 to IPv4)
 1. Delete the target Managed Server.
 2. Change the Management Server IP address with the above procedures.
 3. Re-register the target Managed Server with the changed IP version.
- For deleting IP version (from IPv4/IPv6 to IPv6 only, or from IPv4/IPv6 to IPv4 only)
 1. Change the target Managed Server IP address to the changed IP version.
 2. Change the Management Server IP address with the above procedures.

12.1.2 Changing Port Number for Management Server Transactions

Follow the procedure below to change the port number for Management Server transactions.

1. Stop the Management Server transaction.
Refer to the cluster software manual for how to stop the transaction.

2. Change the port number.
 - For changing the port number of AdvancedCopy Manager transaction communication service:

In the primary and secondary nodes for Management Server transactions, change the following port number which was set to the %SystemRoot%\system32\drivers\etc\services file.

 - AdvancedCopy Manager transaction communication service (stgxfws_logicalNodeName)
 - For changing the port number used by the ETERNUS SF Manager:

Perform the steps 1 to 4 in "Changing Port Numbers Used in Express" in "Changing Port Numbers (Windows)" in the *ETERNUS SF Express Operation Guide*.
The httpd.conf file described in step 4 exists on the shared disk. Therefore, edit the httpd.conf file either the primary or secondary node.
 - For changing the port number used by the Web Console:

Perform the steps 2 to 4 in "Changing Port Numbers Used in Web Console" in "Changing Port Numbers (Windows)" in the *ETERNUS SF Express Operation Guide*.
The server.xml, httpd.conf, and postgresql.conf files exist on the shared disk. Therefore, edit their files either the primary or secondary node.
3. Start up the Management Server transaction.

Refer to the cluster software manual for information on how to start up the transaction.
4. If you have changed the port number of AdvancedCopy Manager transaction communication service in step 2, create the change instruction file for the server information in a node in which the Management Server transaction is running.

Execute the stgxfwcmmodsrv command with the -f option specified to change the port number. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on the command.
5. Perform the following procedures using the Web Console to reload the server configuration information.
 - a. On the global navigation tab, click **Server**.
The registered server list is displayed on the Main pane.
 - b. On the Main pane, check the target server checkbox.
 - c. On the Action pane, click **Reload Conf.** under **Server**.

12.1.3 Changing Server Name for AdvancedCopy Manager for Management Server Transactions

Follow the procedure below to change the server name for the AdvancedCopy Manager for the Management Server.

1. Create the server information change instruction file in a node in which the Management Server transactions is operating.

Execute the stgxfwcmmodsrv command with the -f option specified to change the server name. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on the command.
2. Perform the following procedures using the Web Console to reload the server configuration information.
 - a. On the global navigation tab, click **Server**.
The registered server list is displayed on the Main pane.
 - b. On the Main pane, check the target server checkbox.
 - c. On the Action pane, click **Reload Conf.** under **Server**.

12.1.4 Changing Logical Node Name

Follow the procedure below to change the logical node name for a Management Server transaction.

1. Check the operational status of the Management Server transaction for which you wish to change the logical node name. If the transaction is stopped, start up the Management Server transaction.
Refer to cluster software manual for information on how to start up the transaction.

2. Check to see if the Management Server transaction for which you wish to change the logical node name is also serving as a Managed Server transaction for AdvancedCopy Manager. If it also serves as a Managed Server transaction, proceed to step 3. If it does not, proceed to step 4.

3. Delete the environment for the Managed Server transaction.

If using the backup management function, delete the transaction volumes and backup volumes.

Refer to "Deleting Device" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to delete the environment.

If it is defined as a copy source or copy destination volume with the replication management function, delete the copy source/destination volume settings.

Refer to "Deleting Source Volume or Replica Volume" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to delete the settings.

4. Back up the data for AdvancedCopy Manager.

Back up the following data.

- Repository Data

Refer to "Backup of Common Control and AdvancedCopy Manager Repository" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to back up the data.

If the Management Server transaction also serves as a Managed Server transaction, back up the following data as well.

- Backup/Restore Pre- and Post-Processing Scripts
- Replication Pre- and Post-Processing Scripts

- Locking Specification Files

Back up the following locking specification files if they are being used.

- Transaction Volume Locking Specification File for Backup - Backup Volume Locking Specification File for Backup
- Restore Destination Volume Locking Specification File
- Copy Source Volume Locking Specification File
- Copy Destination Volume Locking Specification File

If the server is a management information package backup server for AdvancedCopy Manager, back up the following data as well.

- Policy file for package backup of management information

Refer to "Preliminaries" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for the file path of the policy file.

5. Back up the environment setting data for the AdvancedCopy Manager CCM.

Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module*.

6. Delete the cluster environment for the Management Server transaction for which you wish to change the logical node name.

Refer to "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)" for information on how to delete the environment.

7. Specify the new logical node name and create the cluster environment for the Management Server transaction.

Refer to "[Chapter 5 Customization for Management Server Transaction](#)" for information on how to create the environment.



Note

Input the new logical volume name for the input item for the logical node name in the AdvancedCopy Manager's cluster setup command.

8. Start up the created Management Server transaction.

Refer to the cluster software manual for information on how to start up the transaction.

9. Restore the AdvancedCopy Manager data.

Restore the following data.

- Repository Data

Refer to "Restore of Common Control and AdvancedCopy Manager Repository" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to restore the data.

If, in the Management Server transaction, it also serves as a Managed Server transaction for AdvancedCopy Manager, restore the following data as well.

- Pre- and Post-Processing Scripts for Backup Management and Replication Management
- Locking Specification Files

If you backed up the locking specification files in step 4, restore those backed up files.

If the server is a management information package backup server for AdvancedCopy Manager, restore the following data as well.

- Policy File for Package Backup of Management Information

Refer to "Preliminaries" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for the file path of the policy file.

10. Restore the environment setting data for AdvancedCopy Manager CCM.

Refer to "Restoring Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on how to restore the data.

11. Change the server name.

Refer to "Changing Server Name of Management Server Transaction or Managed Server Transaction" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to change the server name.

12. If using the backup management function or replication management function, rebuild the environment for the various functions.

If using the backup management function, perform the procedures from the section "Configuring Environment for Backup Operation Server" and onwards in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)*.

If using the replication management function, perform the procedures from the section "Configuring Source Volume and Replica Volume" and onwards in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)*.

13. To execute a package backup of management information for the AdvancedCopy Manager, register it as a management information package backup server.

Refer to "stgmgrinfoset (Management Information Package Backup Server Registration/Deletion Command)" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to perform the registration.

12.2 Changing Operational Environment (for Solaris/Linux)

12.2.1 Changing IP Address for Management Server Transactions

Follow the procedure below to change (including addition and deletion) the IP address for the Management Server transactions.

1. Stop the Management Server transaction.

Refer to the cluster software manual for information on how to stop the transaction.

2. Change the IP address resource.

Refer to the cluster software manual for information on how to change the IP address resource.

3. Check the operational status for the Management Server transaction. If the transaction is stopped, start up the Management Server transaction.

Refer to the cluster software manual for information on how to start up the transaction.

4. Create the server information change instruction file in a node in which the Management Server transaction is operating.
Execute the `stgxfwcmmodsrv` command with the `-f` option specified to change the IP address. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on the command.
5. Edit the detailed setting file of the storage management.
Refer to step 4 in "5.2.1.2 Customization for Storage Cruiser's Manager" (for Solaris) or "5.3.1.2 Customization for Storage Cruiser's Manager" (for Linux) for information on how to edit the detailed setting file.
6. Refer to "Change Server Information" in the *ETERNUS SF Web Console Guide* to change the IP address information.
7. Set the SNMP Trap transmission place for each managed device again.
Execute the `sanadm chtraprcvip` command to set the SNMP Trap transmission place for each managed device again. Refer to "Command References" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on the command.



Note

When you change/delete the IP version of the Management Server, perform the following procedures to the Managed Server registered by the IP version before it changes/deletes.

- For changing IP version (from IPv4 to IPv6, or from IPv6 to IPv4)
 1. Delete the target Managed Server.
 2. Change the Management Server IP address with the above procedures.
 3. Re-register the target Managed Server with the changed IP version.
- For deleting IP version (from IPv4/IPv6 to IPv6 only, or from IPv4/IPv6 to IPv4 only)
 1. Change the target Managed Server IP address to the changed IP version.
 2. Change the Management Server IP address with the above procedures.

12.2.2 Changing Port Number for Management Server Transactions

Follow the procedure below to change the port number for the Management Server transactions.

1. Stop the Management Server transaction.
Refer to the cluster software manual for information on how to stop the transaction.
2. Change the port number.
 - For changing the port number of AdvancedCopy Manager transaction communication daemon:
In the primary and secondary nodes for the Management Server transactions, change the following port number which is set to `/etc/services`.
 - AdvancedCopy Manager transaction communication daemon (`stgxfws_logicalNodeName`)
 - For changing the port number used by the ETERNUS SF Manager:
Perform the steps 1 to 4 in "Changing Port Numbers Used in Express" in "Changing Port Numbers (Linux)" in the *ETERNUS SF Express Operation Guide*.
The `httpd.conf` file described in step 4 exists on the shared disk. Therefore, edit the `httpd.conf` file either the primary or secondary node.
 - For changing the port number used by the Web Console:
Perform the steps 2 to 4 in "Changing Port Numbers Used in Web Console" in "Changing Port Numbers (Linux)" in the *ETERNUS SF Express Operation Guide*.
The `server.xml`, `httpd.conf`, and `postgresql.conf` files exist on the shared disk. Therefore, edit their files either the primary or secondary node.

3. Start up the Management Server transaction.
Refer to the cluster software manual for information on how to start up the transaction.
4. If you have changed the port number of AdvancedCopy Manager transaction communication daemon in step 2, create the change instruction file for the server information in a node in which the Management Server transaction is operating.
Execute the `stgxfwcmmodsrv` command with the `-f` option specified to change the port number. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on the command.
5. Perform the following procedures using the Web Console to reload the server configuration information.
 - a. On the global navigation tab, click **Server**.
The registered server list is displayed on the Main pane.
 - b. On the Main pane, check the target server checkbox.
 - c. On the Action pane, click **Reload Conf.** under **Server**.

12.2.3 Changing Server Name for AdvancedCopy Manager for Management Server Transactions

Follow the procedure below to change the server name for the AdvancedCopy Manager for Management Server transactions.

1. Create the server information change instruction file in a node in which the Management Server transaction is operating.
Execute the `stgxfwcmmodsrv` command with the `-f` option specified to change the server name. Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on the command.
2. Perform the following procedures using the Web Console to reload the server configuration information.
 - a. On the global navigation tab, click **Server**.
The registered server list is displayed on the Main pane.
 - b. On the Main pane, check the target server checkbox.
 - c. On the Action pane, click **Reload Conf.** under **Server**.

12.2.4 Changing Logical Node Name

Follow the procedure below to change the logical node name for a Management Server transaction.

1. Check the operational status of the Management Server transaction for which you wish to change the logical node name. If the transaction is stopped, start up the Management Server transaction.
Refer to the cluster software manual for information on how to start up the transaction.
2. Check to see if the Management Server transaction for which you wish to change the logical node name also serves as a Managed Server transaction for AdvancedCopy Manager. If it also serves as Managed Server transactions, proceed to step 3. If it does not, proceed to step 4.
3. Delete the environment for the Managed Server transaction.
If the backup management function is being used, delete the transaction volumes and backup volumes.
Refer to "Deleting Device" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on how to delete the environment.
If it is defined as a copy source or copy destination volume with the replication management function, delete the copy source/destination volume settings.
Refer to "Deleting Source Volume or Replica Volume" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on how to delete the settings.
4. Back up the AdvancedCopy Manager data.
Back up the following data.

- Repository Data
Refer to "Backup of Common Control and AdvancedCopy Manager Repository" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on how to back up the data.

If the Management Server transaction also serves as Managed Server transaction, back up the following data as well.

- Backup/Restore Pre- and Post-Processing Scripts
- Replication Pre- and Post-Processing Scripts

If the server is a management information package backup server for AdvancedCopy Manager, back up the following data as well.

- Policy File for Package Backup of Management Information
Refer to "Preliminaries" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for the file path of the policy file.

5. Back up the environment setting data for the AdvancedCopy Manager CCM.
Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module*.
6. Delete the cluster environment for the Management Server transaction for which you wish to change the logical node name.
Refer to "[Chapter 13 Deletion of Cluster Environment for Management Server Transactions](#)" for information on how to delete the environment.
7. Specify the new logical node name and create the cluster environment for the Management Server transaction.
Refer to "[Chapter 5 Customization for Management Server Transaction](#)" for information on how to create the cluster environment.



Note

Input the new logical volume name for the input item for the logical node name in the AdvancedCopy Manager's cluster setup command.

8. Start up the created Management Server transaction.
Refer to the cluster software manual for information on how to start up the transaction.
9. Restore the AdvancedCopy Manager data.
Restore the following data.
 - Restore the repository data.
Refer to "Restore of Common Control and AdvancedCopy Manager Repository" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on how to restore the data.

If, in the Management Server transaction, it also serves as a Managed Server transaction for AdvancedCopy Manager, restore the following data as well.

 - Pre- and Post-Processing Scripts for Backup Management and Replication Management

If the server is a management information package backup server for AdvancedCopy Manager, restore the following data as well.

 - Policy File for Package Backup of Management Information
Refer to "Preliminaries" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for the file path of the policy file.
10. Restore the environment setting data for the AdvancedCopy Manager CCM.
Refer to "Restoring Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on how to restore the data.
11. Change the server name.
Refer to "Changing Server Name of Management Server Transaction or Managed Server Transaction" in the *ETERNUS SF*

AdvancedCopy Manager Operation Guide (for Solaris) or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on how to change the server name.

12. If using the backup management function or replication management function, rebuild the environments for the various management functions.

If using the backup management function, perform the procedures starting from the section "Configuring Environment for Backup Operation Server" and onwards in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)*.

If using the replication management function, perform the procedures starting from the section "Configuring Source Volume and Replica Volume" and onwards in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)*.

13. To execute the package backup of management information for AdvancedCopy Manager, register it as a management information package backup server.

Refer to "stgmgrinfo set (Management Information Package Backup Server Registration/Deletion Command)" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)* or *ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)* for information on how to perform registration.

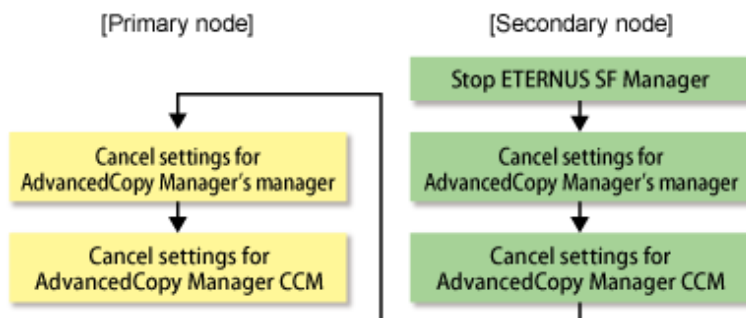
Chapter 13 Deletion of Cluster Environment for Management Server Transactions

This chapter explains how to delete cluster environments for Management Server transactions.

Throughout this section, the primary node is a node set up as a primary by the ETERNUS SF Manager cluster setup command, and the secondary node is a node set up as a secondary by the ETERNUS SF Manager cluster setup command in the same cluster group.

13.1 Deletion of Cluster Environment (for Windows)

This section describes the flow of deleting Windows version Cluster Environment.



13.1.1 Stopping ETERNUS SF Manager

On the secondary node, use the Failover Cluster Manager to stop the transactions to which ETERNUS SF Manager belongs. However, the shared disk that was used by ETERNUS SF Manager must be online.

13.1.2 Canceling Settings on Secondary Node

On the secondary node, cancel each of the following settings.



Note

Perform the procedures using Administrator privileges.

13.1.2.1 Canceling Settings for AdvancedCopy Manager's Manager

Cancel the settings for the AdvancedCopy Manager's manager.

1. Use the Failover Cluster Manager to take ownership of the transactions to which AdvancedCopy Manager belongs on the secondary node.
2. Copy the environment setting file for AdvancedCopy Manager.

Copy the following copy source file to copy destination on the secondary node.

File Names in Copy Source	File Names in Copy Target
\$ENV_DIR\ACM\etc\swstg.ini	\$ENV_DIR\ACM\etc\swstg.ini.cluster.bk

(\$ENV_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)

3. Edit the \$ENV_DIR\ACM\etc\swstg.ini.cluster.bk file.

(\$ENV_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)

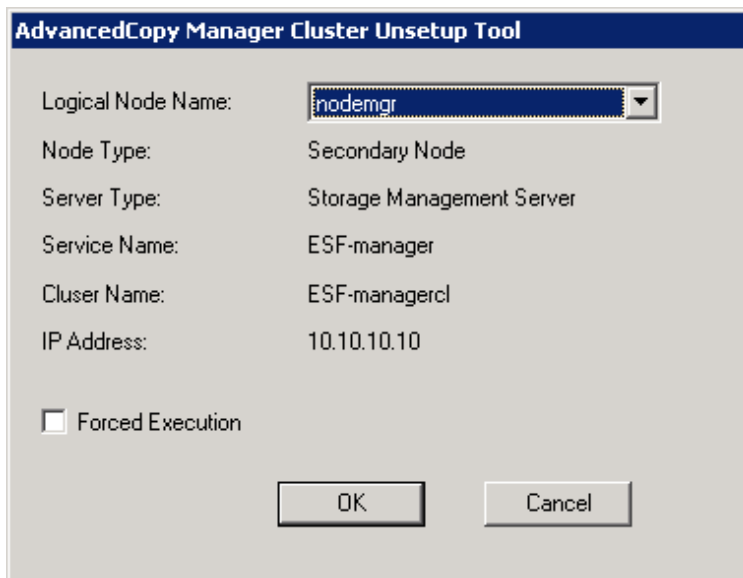
Change the value of type in [Common] tag to "1".

4. On the secondary node, execute the cluster unsetup command.

On the secondary node, execute the following command:

```
programDir\ACM\bin\stgclunset_mscs
```

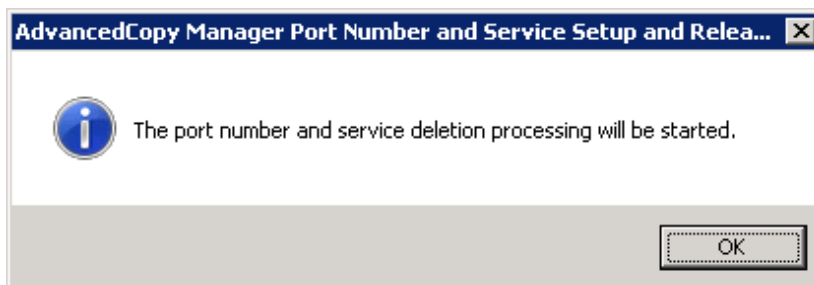
5. The cluster unsetup command window will be displayed.



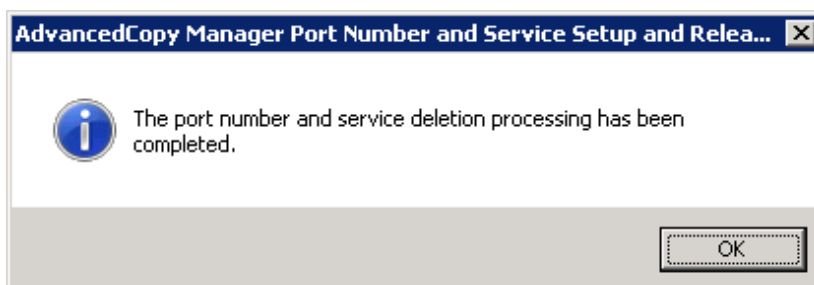
Select the logical node name of the Management Server transaction to be deleted. For unsetup after node failure by the hardware error etc., select the **Forced Execution** checkbox.

After confirming each field, click **OK**.

6. The following page will be displayed. Click **OK**.

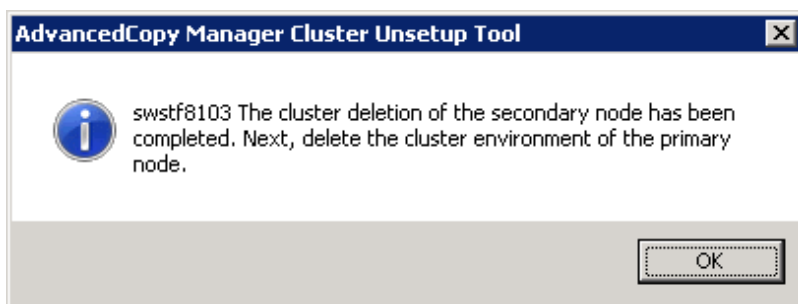


7. The following page will be displayed. Click **OK**.



- Complete the cluster unsetup of the secondary node.

When the completion window of cluster unsetup is displayed, click **OK**.



- Delete the port number of AdvancedCopy Manager that was set for transaction use.

Delete the port number set for the Management Server transaction from the %SystemRoot%\system32\drivers\etc\services file. The service name is as follows:

- stgxfws_logicalNodeName

13.1.2.2 Canceling Settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

- Stop Advanced Copy.

Stop all Advanced Copy functions that are executed by AdvancedCopy Manager CCM. Refer to the copy stop commands described in "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on how to stop Advanced Copy.

- Execute the following command to stop the management service.

```
acservice stop -lan
```

Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

- Copy the .install.sys, .stxc_install.sys and sys.properties files, overwriting the existing files.

Copy below files from the source to the target directory, overwriting the existing files.

File Names in Copy Source	File Names in Copy Target
\$INS_DIR\CCM\noncluster\micc\sys\install.sys	\$INS_DIR\CCM\micc\sys\install.sys
\$INS_DIR\CCM\noncluster\bin\stxc_install.sys	\$INS_DIR\CCM\bin\stxc_install.sys
\$INS_DIR\CCM\noncluster\sys\sys.properties	\$INS_DIR\CCM\sys\sys.properties

\$INS_DIR : "Program Directory" as specified during ETERNUS SF Manager or AdvancedCopy Manager CCM installation

- Delete the directories which contain copy source files.

Delete all directories and their contents listed below.

```
$INS_DIR\CCM\noncluster
```

\$INS_DIR: "Program Directory" as specified during ETERNUS SF Manager or AdvancedCopy Manager CCM installation

13.1.3 Canceling Settings on Primary Node

On the primary node, cancel each of the following settings.



Note

Perform the procedures using Administrator privileges.

13.1.3.1 Canceling Settings for AdvancedCopy Manager's Manager

Cancel the settings for the AdvancedCopy Manager's manager.

1. Use the Failover Cluster Manager to take ownership of the transactions to which AdvancedCopy Manager belongs on the primary node.
2. Use the Failover Cluster Manager to confirm the transactions to which ETERNUS SF Manager belongs is offline.
However, the shared disk that was used by ETERNUS SF Manager must be online.

3. Copy the environment setting file for AdvancedCopy Manager.

Copy the following copy source file to copy destination on the primary node.

File Names in Copy Source	File Names in Copy Target
\$ENV_DIR\ACM\etc\swstg.ini	\$ENV_DIR\ACM\etc\swstg.ini.cluster.bk

(\$ENV_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)

4. Edit the \$ENV_DIR\ACM\etc\swstg.ini.cluster.bk file.

(\$ENV_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)

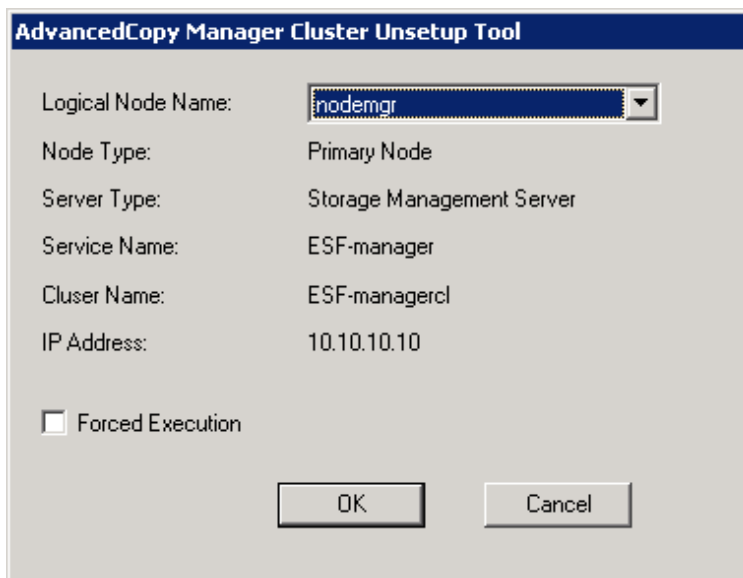
Change the value of type in **Common** tag to "1".

5. On the primary node, execute the cluster unsetup command.

On the primary node, execute the following command:

```
programDir\ACM\bin\stgclunset_mscs
```

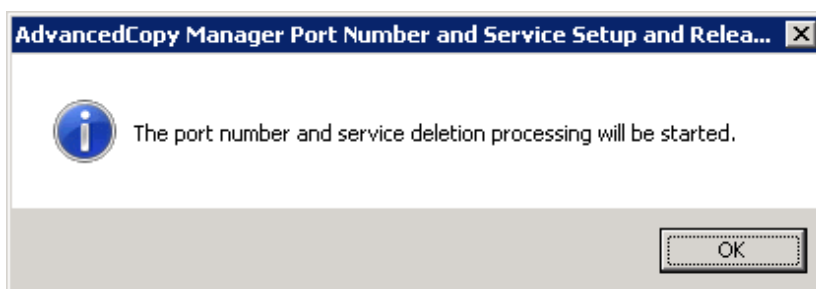
6. The cluster unsetup command window will be displayed.



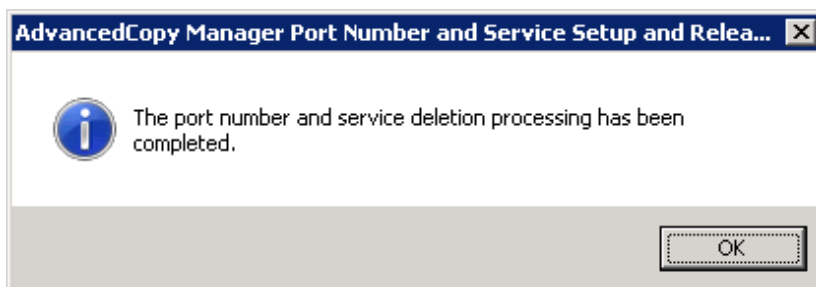
Select the logical node name selected of the Management Server transaction in the cluster unsetup window. For unsetup after node failure by the hardware error etc., check the **Forced Execution** checkbox.

After confirming each field, click **OK**.

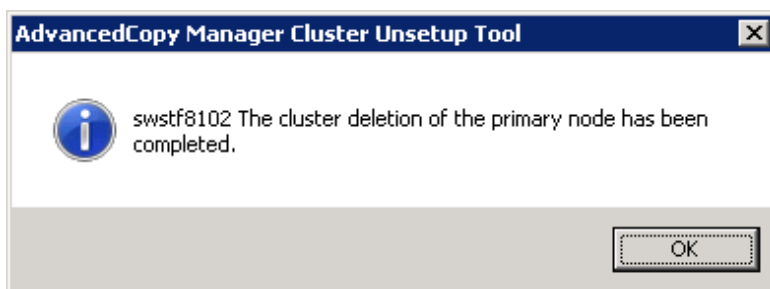
7. The following page will be displayed. Click **OK**.



8. The following page will be displayed. Click **OK**.



9. Complete cluster unsetup of the primary node.



When the completion window of cluster unsetup is displayed, click **OK**.

10. Delete the port number of AdvancedCopy Manager that was set for transaction use.

Delete the port number set for the Management Server transaction from the %SystemRoot%\system32\drivers\etc\services file. The service name is as follows:

- stgxfws_logicalNodeName

13.1.3.2 Canceling Settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

1. Copy the .install.sys, .stxc_install.sys and sys.properties files, overwriting the existing files.

Copy below files from the source to the target directory, overwriting the existing files.

File Names in Copy Source	File Names in Copy Target
\$INS_DIR\CCM\noncluster\micc\sys\install.sys	\$INS_DIR\CCM\micc\sys\install.sys
\$INS_DIR\CCM\noncluster\bin\stxc_install.sys	\$INS_DIR\CCM\bin\stxc_install.sys
\$INS_DIR\CCM\noncluster\sys\sys.properties	\$INS_DIR\CCM\sys\sys.properties

\$INS_DIR: "Program Directory" as specified during ETERNUS SF Manager or AdvancedCopy Manager CCM installation

2. Delete the directories which contain copy source files.

Delete all directories and their contents listed below.

`$INS_DIR\CCM\noncluster`

\$INS_DIR: "Program Directory" as specified during ETERNUS SF Manager or AdvancedCopy Manager CCM installation

13.1.4 Uninstallation of ETERNUS SF Manager

Uninstall the ETERNUS SF Manager.

The procedures for Windows Server 2008 and Windows Server 2012 are as follows:

[For Windows Server 2008]

This explanation for uninstalling the ETERNUS SF Manager uses "ESF-manager" as the name of the cluster service to be deleted.

1. Uninstall the ETERNUS SF Manager from the primary node.
 - a. Use the Failover Cluster Manager to take ownership of the transactions to which ETERNUS SF Manager belongs on the primary node.
 - b. Refer to "Uninstallation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* to uninstall the ETERNUS SF Manager.
2. Uninstall the ETERNUS SF Manager from the secondary node.
 - a. Use the Failover Cluster Manager to take ownership of the transactions to which ETERNUS SF Manager belongs on the secondary node.
 - b. Refer to "Uninstallation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* to uninstall the ETERNUS SF Manager.

3. Delete the service resources from the primary and secondary nodes.

Use the **Failover Cluster Manager** screen to delete below resources from the transactions to which ETERNUS SF Manager belongs. If you are going to use them in any other services, the shared disks and IP addresses do not have to be deleted.

- Shared disks

Right-click the resources for the shared disks that were used by ETERNUS SF Manager and select **Delete from ESF-manager** to delete the shared disk resources.

- IP addresses

Right-click the resources for the IP addresses that were used by ETERNUS SF Manager and select **Delete** to delete the IP address resources. The **Confirm Operation** will be displayed. Click **Yes**.

- Scripts

Right-click the scripts that were used by ETERNUS SF Manager and select **Delete** to delete the script resources. The **Confirm Operation** will be displayed. Click **Yes**.

- Services

Right-click the following services and select **Delete** to delete the service resources. The **Confirm Operation** will be displayed. Click **Yes**.

- ETERNUS SF Manager Postgres Service
- ETERNUS SF Storage Cruiser Optimization Option
- AdvancedCopy Manager COM Service for *logicalNodeName* (when "AdvancedCopy COM Service_*logicalNodeName*" is remained)

4. Delete the cluster resources from the primary and secondary nodes.

If only ETERNUS SF Manager belonged to the transaction, delete the cluster service (transaction).

In the **Failover Cluster Manager** tree, right-click **Services and Applications > ESF-manager** and then select **Delete**. The **Confirm Operation** will be displayed. Click **Yes**.

5. Delete unnecessary resources.

Delete the directories and the files that remain in the following locations.

- Under ETERNUS SF Manager install directory on the primary node
- Under ETERNUS SF Manager install directory on the secondary node
- Under the shared disk folder that copied dynamic disk
- Under the shared disk folder that copied files under ETERNUS_SF\ESC
- Under the shared disk folder that copied files under ETERNUS_SF\AST
- Storage destination of generic script for AdvancedCopy Manager CCM, Apache, and Tomcat

6. Use the Failover Cluster Manager to resume the suspended transactions.

Refer to the Windows Server Failover Clustering manuals for information on how to start the cluster group.

[For Windows Server 2012]

This explanation for uninstalling the ETERNUS SF Manager uses "ESF-manager" as the name of the cluster service to be deleted.

1. Uninstall the ETERNUS SF Manager from the primary node.

- a. Use the Failover Cluster Manager to take ownership of the transactions to which ETERNUS SF Manager belongs on the primary node.
- b. Refer to "Uninstallation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* to uninstall the ETERNUS SF Manager.

2. Uninstall the ETERNUS SF Manager from the secondary node.

- a. Use the Failover Cluster Manager to take ownership of the transactions to which ETERNUS SF Manager belongs on the secondary node.
- b. Refer to "Uninstallation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* to uninstall the ETERNUS SF Manager.

3. Delete the service resources from the primary and secondary nodes.

Use the **Failover Cluster Manager** screen to delete below resources from the transactions to which ETERNUS SF Manager belongs. If you are going to use them in any other services, the shared disks and IP addresses do not have to be deleted.

- Shared disks

Right-click the resources for the shared disks that were used by ETERNUS SF Manager and select **Remove from ESF-manager** to delete the shared disk resources.

- IP addresses

Right-click the resources for the IP addresses that were used by ETERNUS SF Manager and select **Remove** to delete the IP address resources. The **Remove Client Access Point** will be displayed. Click **Yes**.

- Scripts

Right-click the scripts that were used by ETERNUS SF Manager and select **Remove** to delete the script resources. The **Remove Generic Script** will be displayed. Click **Yes**.

- Services

Right-click the following services and select **Remove** to delete the service resources. The **Remove Generic Service** will be displayed. Click **Yes**.

- ETERNUS SF Manager Postgres Service
- ETERNUS SF Storage Cruiser Optimization Option

- AdvancedCopy Manager COM Service for *logical/nodeName* (when "AdvancedCopy COM Service_*logical/nodeName*" is remained)
4. Delete the cluster resources from the primary and secondary nodes.

If only ETERNUS SF Manager belonged to the transaction, delete the cluster service (transaction).

In the **Failover Cluster Manager** tree, right-click **Roles > ESF-manager** and then select **Remove**. The **Remove Other** will be displayed. Click **Yes**.
 5. Delete unnecessary resources.

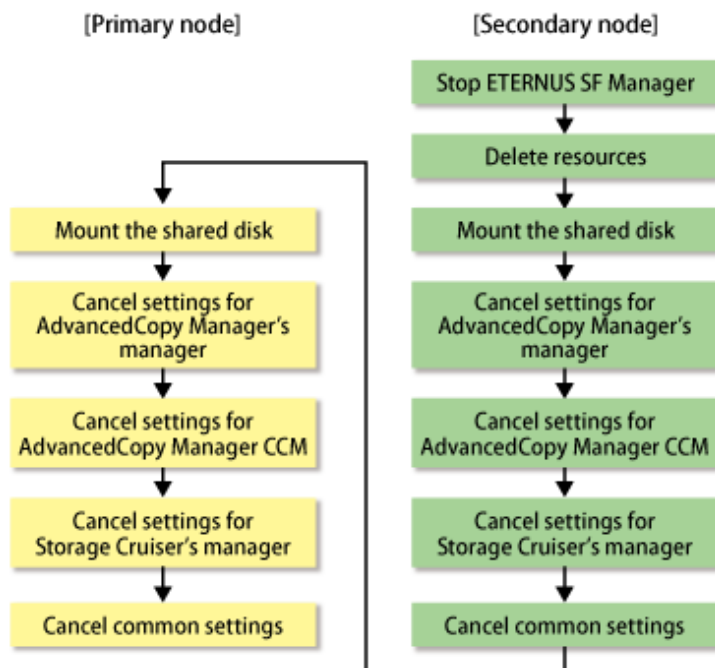
Delete the directories and the files that remain in the following locations.

 - Under ETERNUS SF Manager install directory on the primary node
 - Under ETERNUS SF Manager install directory on the secondary node
 - Under the shared disk folder that copied dynamic disk
 - Under the shared disk folder that copied files under ETERNUS_SF\ESC
 - Under the shared disk folder that copied files under ETERNUS_SF\AST
 - Storage destination of generic script for AdvancedCopy Manager CCM, Apache, and Tomcat
 6. Use the Failover Cluster Manager to resume the suspended transactions.

Refer to the Windows Server Failover Clustering manuals for information on how to start the cluster group.

13.2 Deletion of Cluster Environment (for Solaris)

This section describes the flow of deleting Solaris version Cluster Environment.



13.2.1 Stopping ETERNUS SF Manager

Stop the cluster application (transaction) to which ETERNUS SF Manager belongs.

Refer to your cluster software manuals for stopping the cluster application (transaction).

13.2.2 Deleting Resources

Delete the resources for ETERNUS SF Manager.

1. Delete the resources.

Delete the resources only for ETERNUS SF Manager from cluster service (transaction). The resources for existing transaction are not required to delete.

2. Delete the cluster service (transaction).

Delete the cluster service (transaction) when the transaction is only for ETERNUS SF Manager.



See

Refer to your cluster software manuals for deleting the resources or cluster application (transaction).

13.2.3 Mount Shared Disk

Mount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

13.2.4 Canceling Settings on Secondary Node

On the secondary node, cancel each of the following settings.

13.2.4.1 Canceling Settings for AdvancedCopy Manager's Manager

Cancel the settings for the AdvancedCopy Manager's manager according to "Deletion Procedure for Secondary Node" in "A.4.2 Deletion Procedure".

13.2.4.2 Canceling Settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

1. Stop Advanced Copy.

Stop all Advanced Copy functions that are executed by AdvancedCopy Manager CCM. Refer to the copy stop commands described in "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on how to stop Advanced Copy.

2. Execute the following command to stop the management service.

```
# acservice stop -lan
```

Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

3. Copy the .install.sys, .stxc_install.sys and sys.properties files, overwriting the existing files.

Copy files below from the source to the target directory, overwriting the existing files.

File Names in Copy Source	File Names in Copy Target
/opt/FJSVccm/noncluster/micc/sys/.install.sys	/opt/FJSVccm/micc/sys/.install.sys
/opt/FJSVccm/noncluster/bin/.stxc_install.sys	/opt/FJSVccm/bin/.stxc_install.sys
/opt/FJSVccm/noncluster/sys/sys.properties	/opt/FJSVccm/sys/sys.properties

4. Delete the directories which contain copy source files.

Delete all directories and their contents listed below.

```
/opt/FJSVccm/noncluster
```


13.2.4.3 Canceling Settings for Storage Cruiser's Manager

Cancel the settings for the Storage Cruiser's manager.

1. Execute the cluster unsetup command on the secondary node.

On the secondary node, execute the following command after blocking other users from accessing the shared disk for shared data.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup
```

Specify the -l option if local free disk space on the secondary node is insufficient.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup -l
```

2. Check the configurations.

```
ETERNUS SF Storage Cruiser settings were as follows.
Cluster system : PRIMECLUSTER
Node type      : Secondary
Mount point    : /esfmnt
IP Address     : 10.10.10.10
Mode          : Normal
(restore from Shared Disk)Manager cluster deletion : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27703:esc_clunsetup:secondary node deletion completed
```

13.2.4.4 Canceling Common Settings

1. Delete the symbolic link set in "[5.2.1.1.4 Link Setup for Shared Disk](#)".
2. Rename the directory name changed in step 2 of "[5.2.1.1.3 Copying of Dynamic Disk Files](#)" as an original.
3. Set up the starting and stopping process of ETERNUS SF Manager to be controlled by the operating system.

1. Execute the following command on the secondary node.

```
# ls /etc/rc*.d/*SFmanager*
```

2. Rename all of the files exported by executing the above command. Delete "X" at the start of the file names.

The example for executing command is shown below.

```
# mv /etc/rc2.d/XS99startSFmanager /etc/rc2.d/S99startSFmanager
```

4. Unmount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

13.2.5 Mount Shared Disk

Mount the shared disk for shared data for ETERNUS SF Manager in the primary node.

13.2.6 Canceling Settings on Primary Node

On the primary node, cancel each of the following settings.

13.2.6.1 Canceling Settings for AdvancedCopy Manager's Manager

Cancel the settings for the AdvancedCopy Manager's manager according to "[Deletion Procedure for Primary Node](#)" in "[A.4.2 Deletion Procedure](#)".

13.2.6.2 Canceling Settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

1. Copy the .install.sys, .stxc_install.sys and sys.properties files, overwriting the existing files.
Copy files below from the source to the target directory, overwriting the existing files.

File Names in Copy Source	File Names in Copy Target
/opt/FJSVccm/noncluster/micc/sys/.install.sys	/opt/FJSVccm/micc/sys/.install.sys
/opt/FJSVccm/noncluster/bin/.stxc_install.sys	/opt/FJSVccm/bin/.stxc_install.sys
/opt/FJSVccm/noncluster/sys/sys.properties	/opt/FJSVccm/sys/sys.properties

2. Delete the directories which contain copy source files.
Delete all directories and their contents listed below.

```
/opt/FJSVccm/noncluster
```

13.2.6.3 Canceling Settings for Storage Cruiser's Manager

Cancel the settings for the Storage Cruiser's manager.

1. Execute the cluster unsetup command on the primary node.
On the primary node, execute the following command after blocking other users from accessing the shared disk for shared data.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup
```

Specify the -l option if local free disk space on the secondary node is insufficient.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup -l
```

2. Check the configurations.

```
ETERNUS SF Storage Cruiser settings were as follows.
Cluster system : PRIMECLUSTER
Node type      : Primary
Mount point    : /esfmnt
IP Address     : 10.10.10.10
Mode           : Normal
(restore from Shared Disk)Manager cluster deletion : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27702:esc_clunsetup:primary node deletion completed
```

13.2.6.4 Canceling Common Settings

1. Delete the symbolic link set in "5.2.1.1.4 Link Setup for Shared Disk".
2. Rename the directory name changed in step 2 of "5.2.1.1.3 Copying of Dynamic Disk Files" as an original.
3. Set up the starting and stopping process of ETERNUS SF Manager to be controlled by operating system.
 1. Execute the following command on the primary node.

```
# ls /etc/rc*.d/*SFmanager*
```

2. Rename all of the files exported by executing the command above.

Delete "X" at the start of the file names.

The example for executing command is shown below.

```
# mv /etc/rc2.d/XS99startSFmanager /etc/rc2.d/S99startSFmanager
```

4. Unmount the shared disk for shared data for ETERNUS SF Manager in the primary node.

13.2.7 Uninstallation of ETERNUS SF Manager

Uninstall the ETERNUS SF Manager.

1. Perform the uninstallation first on the primary node and then on the secondary node.

Refer to "Uninstallation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on how to uninstall the ETERNUS SF Manager.

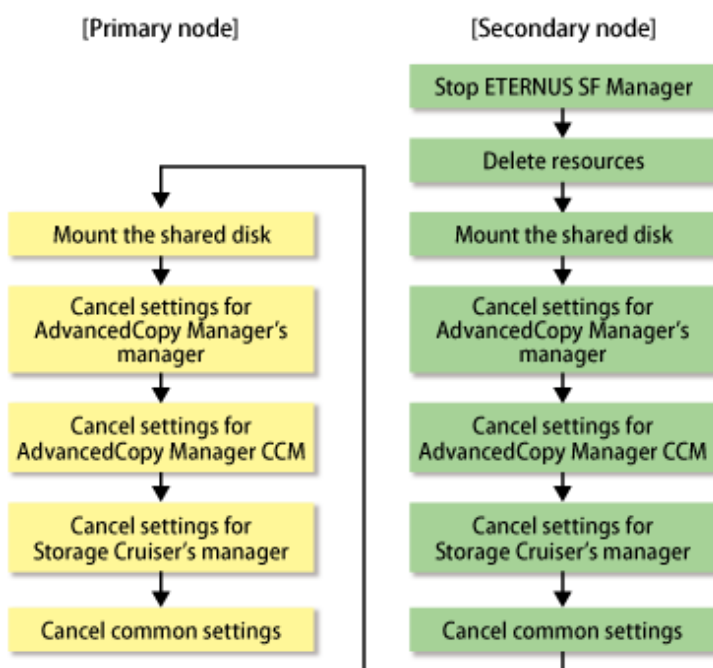
2. Delete unnecessary resources.

Delete the directories and the files that remain in the following locations.

- The directory of the shared disk for shared data that created by the following procedures and the files under its directory
 - Step 1 in "5.2.1.1.3 Copying of Dynamic Disk Files"
 - Step 1 in "5.2.1.3.2 Customization Procedure"
- The following storage destination of generic scripts (both primary node and secondary node)
 - ETERNUS SF Manager Apache daemon
 - ETERNUS SF Manager Tomcat daemon
 - ETERNUS SF Manager Postgres daemon
 - AdvancedCopy Manager daemon
 - AdvancedCopy Manager CCM

13.3 Deletion of Cluster Environment (for Linux)

This section describes the flow of deleting Linux version Cluster Environment.



13.3.1 Stopping ETERNUS SF Manager

Stop the cluster application (transaction) to which ETERNUS SF Manager belongs.

Refer to your cluster software manuals for stopping the cluster application (transaction).

13.3.2 Deleting Resources

Delete the resources for ETERNUS SF Manager.

1. Delete the resources.

Delete the resources only for ETERNUS SF Manager from cluster service (transaction). The resources for existing transaction are not required to delete.

2. Delete the cluster service (transaction).

Delete the cluster service (transaction) when the transaction is only for ETERNUS SF Manager.



See

.....
Refer to your cluster software manuals for deleting the resources or cluster application (transaction).
.....

13.3.3 Mount Shared Disk

Mount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

13.3.4 Canceling Settings on Secondary Node

On the secondary node, cancel each of the following settings.

13.3.4.1 Canceling Settings for AdvancedCopy Manager's Manager

Cancel the settings for the AdvancedCopy Manager's manager with reference to "[13.2.4.1 Canceling Settings for AdvancedCopy Manager's Manager](#)".

13.3.4.2 Canceling Settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

1. Stop Advanced Copy.

Stop all Advanced Copy functions that are executed by AdvancedCopy Manager CCM. Refer to the copy stop commands described in "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on how to stop Advanced Copy.

2. Execute the following command to stop the management service.

```
# acservice stop -lan
```

Refer to "Command References" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the command.

3. Copy the .install.sys, .stxc_install.sys and sys.properties files, overwriting the existing files.

Copy below files from the source to the target directory, overwriting the existing files.

File Names in Copy Source	File Names in Copy Target
/opt/FJsvccm/noncluster/micc/sys/.install.sys	/opt/FJsvccm/micc/sys/.install.sys
/opt/FJsvccm/noncluster/bin/.stxc_install.sys	/opt/FJsvccm/bin/.stxc_install.sys
/opt/FJsvccm/noncluster/sys/sys.properties	/opt/FJsvccm/sys/sys.properties

4. Delete the directories which contain copy source files.

Delete all directories and their contents listed below.

```
/opt/FJSVccm/noncluster
```

13.3.4.3 Canceling Settings for Storage Cruiser's Manager

Cancel the settings for the Storage Cruiser's manager.

1. Execute the cluster unsetup command on the secondary node.

On the secondary node, execute the following command after blocking other users from accessing the shared disk for shared data.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup
```

Specify the -l option if local free disk space on the secondary node is insufficient.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup -l
```

2. Check the configurations.

```
ETERNUS SF Storage Cruiser settings were as follows.
Cluster system : PRIMECLUSTER
Node type      : Secondary
Mount point    : /esfmnt
IP Address     : 10.10.10.10
Mode           : Normal
(restore from Shared Disk)Manager cluster deletion : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27703:esc_clunsetup:secondary node deletion completed
```

13.3.4.4 Canceling Common Settings

1. Delete the symbolic link set in "5.3.1.1.4 Link Setup for Shared Disk".
2. Rename the directory name changed in step 2 of "5.2.1.1.3 Copying of Dynamic Disk Files" as an original.
3. Set up the starting and stopping process of ETERNUS SF Manager to be controlled by operating system.
Execute the following command on the secondary node.

- For RHEL5 or RHEL6

```
# mv /etc/rc0.d/XK00startSFmanager /etc/rc0.d/K00startSFmanager
# mv /etc/rc1.d/XK00startSFmanager /etc/rc1.d/K00startSFmanager
# mv /etc/rc2.d/XK00startSFmanager /etc/rc2.d/K00startSFmanager
# mv /etc/rc3.d/XS99startSFmanager /etc/rc3.d/S99startSFmanager
# mv /etc/rc4.d/XS99startSFmanager /etc/rc4.d/S99startSFmanager
# mv /etc/rc5.d/XS99startSFmanager /etc/rc5.d/S99startSFmanager
# mv /etc/rc6.d/XK00startSFmanager /etc/rc6.d/K00startSFmanager
```

- For RHEL7

```
# /usr/bin/systemctl enable fjsvesfcm-internalDB.service
# /usr/bin/systemctl enable fjsvesfcm-webserver.service
# /usr/bin/systemctl enable fjsvesfcm-system.service
# /usr/bin/systemctl enable fjsvswstf.service
```

4. Unmount the shared disk for shared data for ETERNUS SF Manager in the secondary node.

13.3.5 Mount Shared Disk

Mount the shared disk for shared data for ETERNUS SF Manager in the primary node.

13.3.6 Canceling Settings on Primary Node

On the primary node, cancel each of the following settings.

13.3.6.1 Canceling Settings for AdvancedCopy Manager's Manager

Cancel the settings for the AdvancedCopy Manager's manager with reference to "[13.2.6.1 Canceling Settings for AdvancedCopy Manager's Manager](#)".

13.3.6.2 Canceling Settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

1. Copy the .install.sys, .stxc_install.sys and sys.properties files, overwriting the existing files.

Copy below files from the source to the target directory, overwriting the existing files.

File Names in Copy Source	File Names in Copy Target
/opt/FJSVccm/noncluster/micc/sys/.install.sys	/opt/FJSVccm/micc/sys/.install.sys
/opt/FJSVccm/noncluster/bin/.stxc_install.sys	/opt/FJSVccm/bin/.stxc_install.sys
/opt/FJSVccm/noncluster/sys/sys.properties	/opt/FJSVccm/sys/sys.properties

2. Delete the directories which contain copy source files.

Delete all directories and their contents listed below.

```
/opt/FJSVccm/noncluster
```

13.3.6.3 Canceling Settings for Storage Cruiser's Manager

Cancel the settings for the Storage Cruiser's manager.

1. Execute the cluster unsetup command on the primary node.

On the primary node, execute the following command after blocking other users from accessing the shared disk for shared data.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup
```

Specify the -l option if local free disk space on the secondary node is insufficient.

```
# /opt/FJSVssmgr/cluster/esc_clunsetup -l
```

2. Check the configurations

```
ETERNUS SF Storage Cruiser settings were as follows.
Cluster system : PRIMECLUSTER
Node type      : Primary
Mount point    : /esfmnt
IP Address     : 10.10.10.10
Mode           : Normal
(restore from Shared Disk)Manager cluster deletion : Are you sure? [y,n,?]
```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

3. Confirm that the displayed message is as follows:

```
FJSVrcx:INFO:27702:esc_clunsetup:primary node deletion completed
```

13.3.6.4 Canceling Common Settings

1. Delete the symbolic link set in "5.3.1.1.4 Link Setup for Shared Disk".
2. Rename the directory name changed in step 2 of "5.2.1.1.3 Copying of Dynamic Disk Files" as an original.
3. Set up the starting and stopping process of ETERNUS SF Manager to be controlled by operating system.
Execute the following command on the primary node.

- For RHEL5 or RHEL6

```
# mv /etc/rc0.d/XK00startSFmanager /etc/rc0.d/K00startSFmanager
# mv /etc/rc1.d/XK00startSFmanager /etc/rc1.d/K00startSFmanager
# mv /etc/rc2.d/XK00startSFmanager /etc/rc2.d/K00startSFmanager
# mv /etc/rc3.d/XS99startSFmanager /etc/rc3.d/S99startSFmanager
# mv /etc/rc4.d/XS99startSFmanager /etc/rc4.d/S99startSFmanager
# mv /etc/rc5.d/XS99startSFmanager /etc/rc5.d/S99startSFmanager
# mv /etc/rc6.d/XK00startSFmanager /etc/rc6.d/K00startSFmanager
```

- For RHEL7

```
# /usr/bin/systemctl enable fjsvesfcm-internalDB.service
# /usr/bin/systemctl enable fjsvesfcm-webserver.service
# /usr/bin/systemctl enable fjsvesfcm-system.service
# /usr/bin/systemctl enable fjsvswstf.service
```

4. Unmount the shared disk for shared data for ETERNUS SF Manager in the primary node.

13.3.7 Uninstallation of ETERNUS SF Manager

Uninstall the ETERNUS SF Manager.

1. Perform the uninstallation first on the primary node and then on the secondary node.

Refer to "Uninstallation of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on how to uninstall the ETERNUS SF Manager.

2. Delete unnecessary resources.

Delete the directories and the files that remain in the following locations.

- The directory of the shared disk for shared data that created by the following procedures and the files under its directory
 - Step 1 in "5.3.1.1.3 Copying of Dynamic Disk Files"
 - Step 1 in "5.3.1.3.2 Customization Procedure"
- The following storage destination of generic scripts (both primary node and secondary node)
 - ETERNUS SF Manager Apache daemon
 - ETERNUS SF Manager Tomcat daemon
 - ETERNUS SF Manager Postgres daemon
 - AdvancedCopy Manager daemon
 - AdvancedCopy Manager CCM

Chapter 14 Deletion of Cluster Environment for Managed Server Transactions

This chapter explains how to delete the cluster environment of a Managed Server transaction.

For information on how to delete cluster environments, refer to the following table.

Table 14.1 References for Deletion Methods in Cluster Environment

Cluster Software	Reference
SynfinityCluster or PRIMECLUSTER (for Solaris)	A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems
VERITAS Cluster Server (for Solaris)	A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems
Sun Cluster (for Solaris)	A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems
MSCS or WSFC (for Windows)	14.1 Deleting for MSCS/WSFC (for Windows)
MC/ServiceGuard (for HP-UX)	A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems
VERITAS Cluster Server (for HP-UX)	A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems
Clustered Systems (for Linux)	A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems

14.1 Deleting for MSCS/WSFC (for Windows)

This section explains how to delete the Windows version MSCS or WSFC.

Throughout this section, the primary node is a node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the AdvancedCopy Manager cluster setup command in the same cluster group.

The secondary node A defines the last node to delete a environment in this cluster group. The secondary node B defines the remaining secondary nodes in this cluster group.

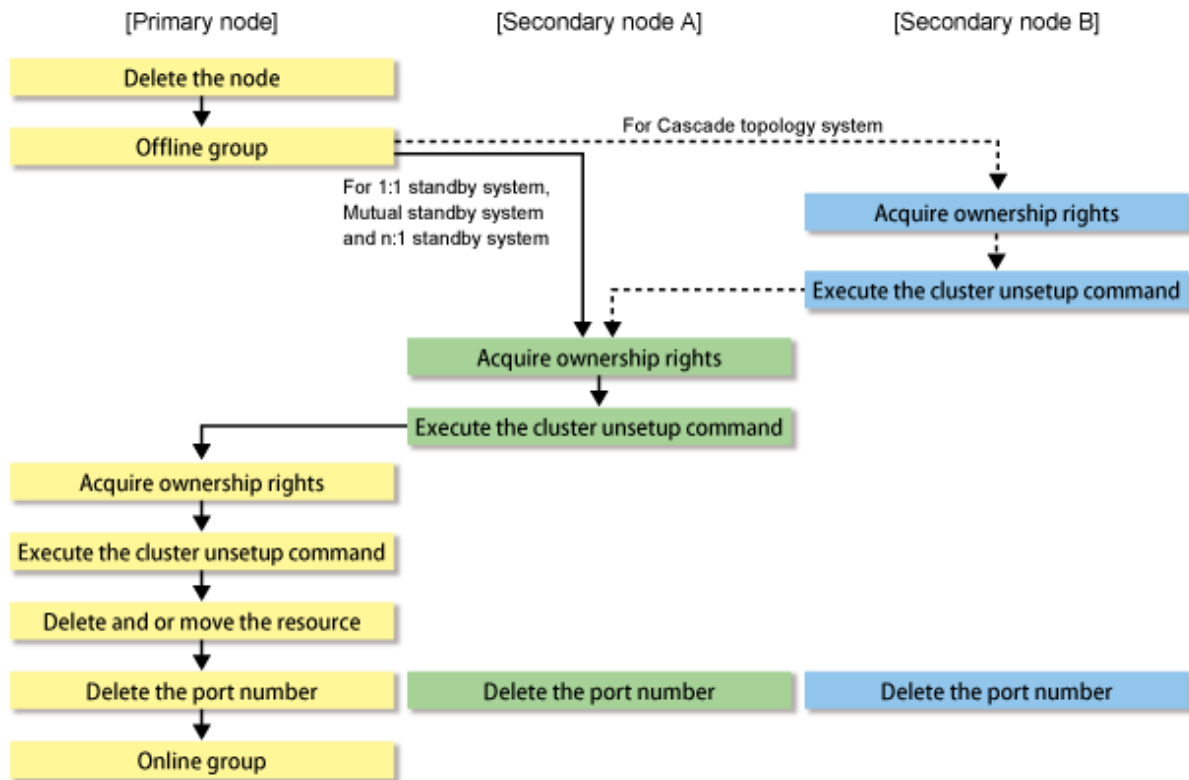
For a 1:1 standby system, a mutual standby system, and an n:1 standby system, perform the deleting operation on the primary node and secondary node A.

For a cascade topology system, perform the deleting operation on the primary node, secondary node A and all remaining secondary nodes B.

14.1.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

Figure 14.1 Deletion Flow for MSCS/WSFC Cluster Environment (for Windows)



14.1.2 Deletion Procedure

To delete the cluster environment, use the following procedure:



Note

- Perform the procedures using Administrator privileges.
- The Windows "Computer Browser service" must be activated if a user belonging to the Administrators of the domain wants to perform customization for the Windows version of MSCS/WSFC.
- Do not use the Telnet Server service.

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. Stop the operation to which the applicable AdvancedCopy Manager belongs, using the cluster administrator (for MSCS) or failover cluster manager (for WSFC). However, leave the shared disk for AdvancedCopy Manager shared data online. For information about how to switch the cluster group offline, refer to MSCS/WSFC manuals for Windows.

If the system is the 1:1 standby system, the Mutual standby system or the n:1 standby system, proceed to step 5.

If the system is Cascade topology, proceed to step 3.

3. Acquire the ownership right of the operation to which the applicable AdvancedCopy Manager belongs, using the cluster administrator (for MSCS) or failover cluster manager (for WSFC) on the secondary node B. For information about how to acquire ownership rights, refer to MSCS/WSFC manuals for Windows.



Note

When there are two or more secondary nodes B, perform step 3 and step 4 for all of these nodes.

4. On the secondary node B, execute the cluster unsetup command. The procedure for executing the command is as follows.

a. Execute the following command.

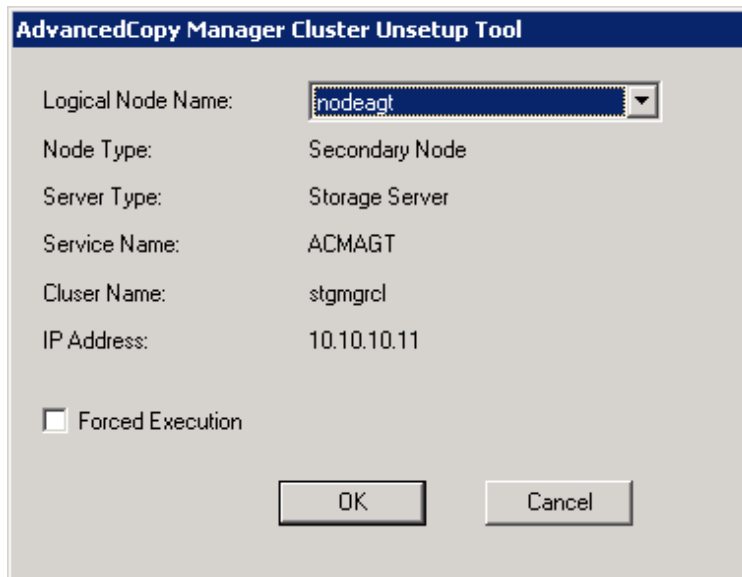
- When executing in Management Server

```
programDir\ACM\bin\stgclunset_mscs
```

- When executing in Managed Server

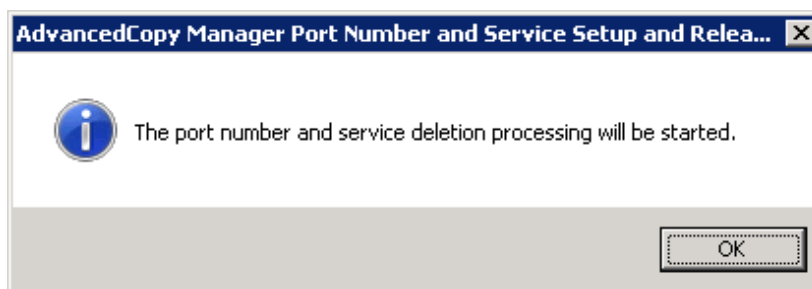
```
programDir\bin\stgclunset_mscs
```

b. The cluster unsetup command window will be displayed.

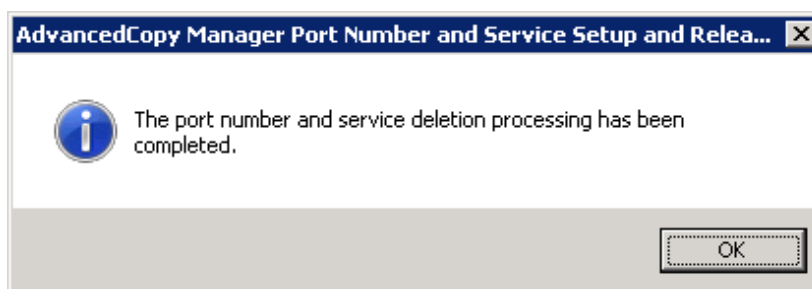


Select the logical node name of the AdvancedCopy Manager transaction to be deleted. For unsetup after node failure, select the **Forced Execution** checkbox. After confirming each field, click **OK**.

c. The following page will be displayed. Click **OK**.



d. The following page will be displayed. Click **OK**.



- e. Complete the cluster unsetup of the secondary node.

When the completion window of cluster unsetup is displayed, click **OK**.

 **Note**

For the secondary node B, the swstf8143 message is displayed.

If there are remaining secondary nodes B for which step 3 to step 4 have not been performed, perform from step 3 on the nodes.

When operation from step 3 and step 4 is completed on all secondary nodes B, go to step 5.

5. Acquire the ownership right of the operation to which the applicable AdvancedCopy Manager belongs, using the cluster administrator (for MSCS) or failover cluster manager (for WSFC) on the secondary node A. For information about how to acquire ownership rights, refer to MSCS/WSFC manuals for Windows.
6. On the secondary node A, execute the cluster unsetup command. The procedure for executing the command is as follows.
- a. Execute the following command.

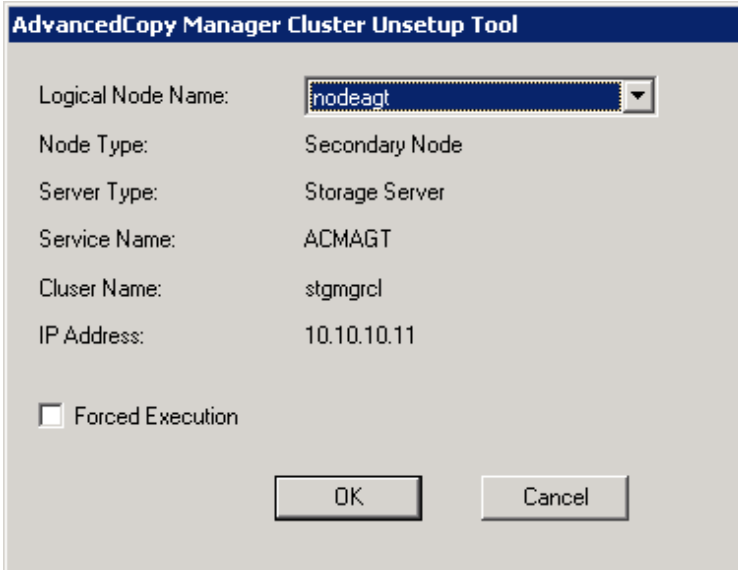
- When executing in Management Server

```
programDir\ACM\bin\stgclunset_mscs
```

- When executing in Managed Server

```
programDir\bin\stgclunset_mscs
```

- b. The cluster unsetup command window will be displayed.



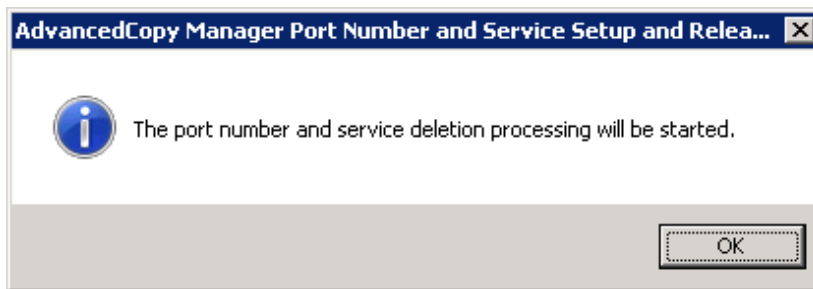
The image shows a dialog box titled "AdvancedCopy Manager Cluster Unsetup Tool". It contains the following fields and controls:

- Logical Node Name: A dropdown menu with "nodeagt" selected.
- Node Type: Secondary Node
- Server Type: Storage Server
- Service Name: ACMAGT
- Cluster Name: stgmgrcl
- IP Address: 10.10.10.11
- Forced Execution: An unchecked checkbox.
- Buttons: OK and Cancel.

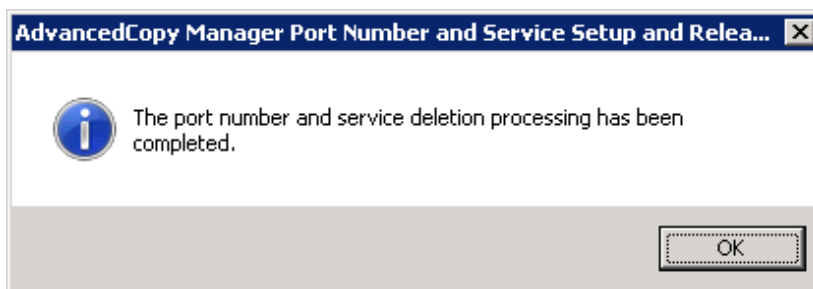
Select the logical node name of the transaction to be deleted. For unsetup after node failure, select the **Forced Execution** checkbox.

After confirming each field, click **OK**.

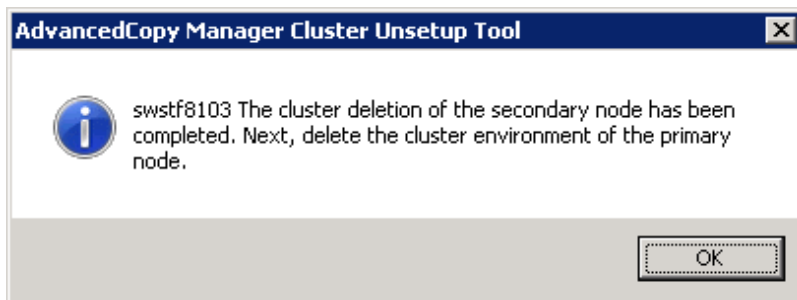
c. The following page will be displayed. Click **OK**.



d. The following page will be displayed. Click **OK**.



e. Complete the cluster unsetup of the secondary node.



When the completion window of cluster unsetup is displayed, click **OK**. Next, execute unsetup for the primary node.

7. Acquire the ownership right of the operation to which the applicable AdvancedCopy Manager belongs, using the cluster administrator (for MSCS) or failover cluster manager (for WSFC) on the primary node. For information about how to acquire ownership rights, refer to MSCS/WSFC manuals for Windows.

8. On the primary node, execute the cluster unsetup command. The procedure for executing the command is as follows.

a. Execute the following cluster unsetup command.

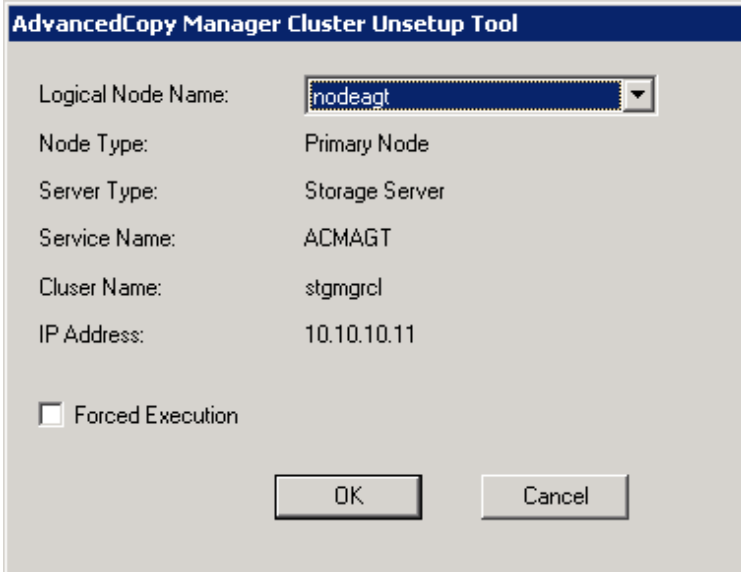
- When executing in Management Server

```
programDir\ACM\bin\stgclunset_mscs
```

- When executing in Managed Server

```
programDir\bin\stgclunset_mscs
```

b. The cluster unsetup command window will be displayed.



The image shows a dialog box titled "AdvancedCopy Manager Cluster Unsetup Tool". It contains the following fields and values:

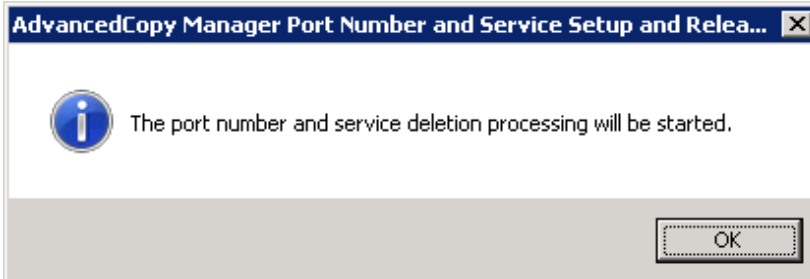
Logical Node Name:	nodeagt
Node Type:	Primary Node
Server Type:	Storage Server
Service Name:	ACMAGT
Cluster Name:	stgmgrcl
IP Address:	10.10.10.11

There is an unchecked checkbox labeled "Forced Execution" and two buttons at the bottom: "OK" and "Cancel".

Select the logical node name selected in the cluster unsetup window on the secondary node. For unsetup after node failure, select the **Forced Execution** checkbox.

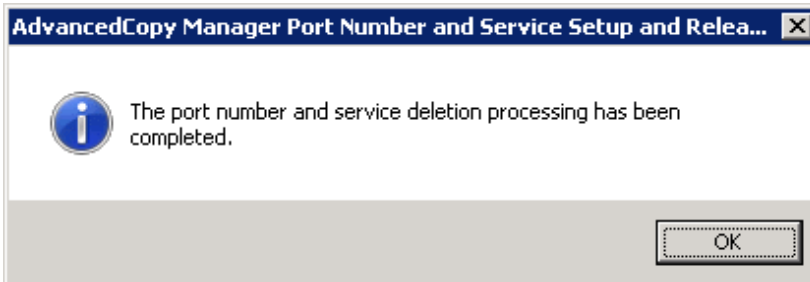
After confirming each field, click **OK**.

c. The following page will be displayed. Click **OK**.



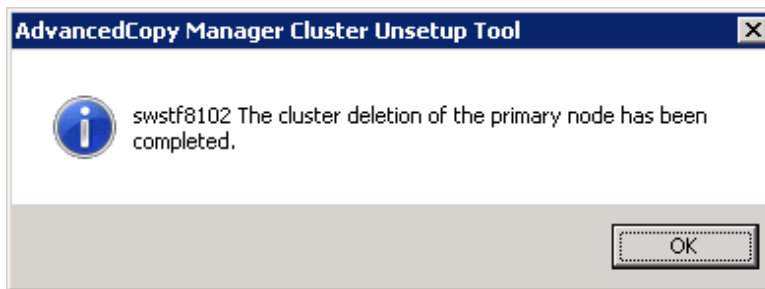
The image shows a dialog box titled "AdvancedCopy Manager Port Number and Service Setup and Release...". It contains an information icon and the text: "The port number and service deletion processing will be started." There is an "OK" button at the bottom right.

d. The following page will be displayed. Click **OK**.



The image shows a dialog box titled "AdvancedCopy Manager Port Number and Service Setup and Release...". It contains an information icon and the text: "The port number and service deletion processing has been completed." There is an "OK" button at the bottom right.

- e. Complete cluster unsetup of the primary node.



When the completion window of cluster unsetup is displayed, click **OK**.

9. Delete and/or move the resource of AdvancedCopy Manager used for cluster group.
 - If the shared disk for AdvancedCopy Manager shared data is not used for the operation
Use the cluster administrator (MSCS) or failover cluster management (WSFC) to move them to another group.
 - If "Create New IP Address Resource" is selected or "New" is selected in the "IP Address Resource" when the AdvancedCopy Manager cluster setup
If the following resource is not being used, use the cluster administrator (MSCS) or failover cluster manager (WSFC) to delete them.
 - AdvancedCopy IP Address_ *logicalNodeName*
 - AdvancedCopy Network_ *logicalNodeName*

For information about moving disk resource, refer to MSCS/WSFC manuals for Windows.
10. Delete the port number of AdvancedCopy Manager that was set for transaction use.
Delete the port number set for the Managed Server transaction from the %SystemRoot%\system32\drivers\etc\services file. Delete the port numbers on the primary node and the secondary node. The service name is as follows:
 - stgxfws_ *logicalNodeName*
11. Use the cluster administrator (MSCS) or failover cluster management (WSFC) to switch the cluster group online. For information about switching the cluster group online, refer to MSCS/WSFC manuals for Windows.

14.2 Deleting for Clustered Systems (for Solaris/Linux/HP-UX)

For information on how to delete for Solaris, Linux, or HP-UX version clustered system, refer to "[A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems](#)".

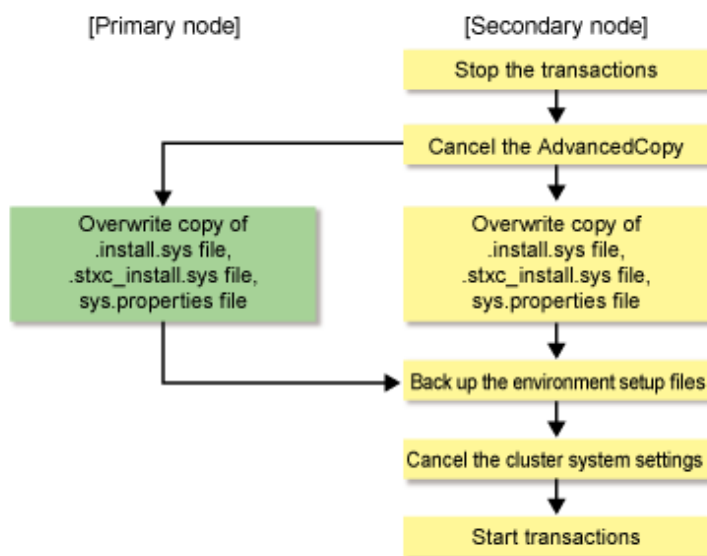
Chapter 15 Deletion of Cluster Environments for CCM Server Transactions

This chapter explains how to delete cluster environments for CCM Server transactions.

A primary node is a node in a group of cluster transactions that was set up as the primary node during customization of CCM Server transactions. A secondary node is a node in the same group of cluster transactions that was set up as the secondary node during customization of CCM Server transactions.

15.1 Deletion Workflow of Cluster Environment

The deletion workflow of cluster environment is shown below.



Note

Unless instructed otherwise, do not execute any commands of AdvancedCopy Manager CCM.

15.2 Deletion Procedure of Cluster Environments for CCM Server Transactions (for Windows)

The deletion procedure of cluster environment for CCM Server transactions (for Windows) is performed as follows:

1. On the primary and secondary nodes, log in as a user with Administrator privileges.
2. Stop the CCM Server transactions.
Refer to your cluster software manuals for information on the stopping methods.
After stopping the CCM Server transactions, mount the shared disk for shared data.
3. Refer to "[13.1.2.2 Canceling Settings for AdvancedCopy Manager CCM](#)" to cancel the AdvancedCopy Manager CCM settings on the secondary node.
4. Refer to "[13.1.3.2 Canceling Settings for AdvancedCopy Manager CCM](#)" to cancel the AdvancedCopy Manager CCM settings on the primary node.

5. Back up the environment setup files.

Back up the environment setup files for the cluster environment. Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the files to be backed up.

6. Cancel the clustered system settings.

Cancel the settings that you made when setting up the clustered system.
Refer to your cluster software manuals for information on the setting cancellation methods.

7. Migrate the environment settings.

For migrating the environment setup files that you defined in the cluster environment to a non-cluster environment, follow below procedure for restoring the environment setup files.

- a. In the cluster environment, back up the environment setup files.

Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

- b. Restore the backed-up environment setup files in a non-cluster environment.

Refer to "For Non-cluster Operation" in "Restoring Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

However, do not restore the following files:

- \$INS_DIR\CCM\micclsys\install.sys
- \$INS_DIR\CCM\bin\stxc_install.sys
- \$INS_DIR\CCM\sys\sys.properties
- \$INS_DIR\CCM\noncluster\micclsys\install.sys
- \$INS_DIR\CCM\noncluster\bin\stxc_install.sys
- \$INS_DIR\CCM\noncluster\sys\sys.properties

\$INS_DIR is the "Program Directory" as specified during ETERNUS SF Manager or AdvancedCopy Manager CCM installation.

- c. If any access volume information has been modified, execute the `acarray remove` command to remove the device information. After that, execute the `acarray add` command to register it again.

8. Delete the directories and files from the shared disk for shared data.

Delete all directories and their contents on the shared disk for shared data that you created in step 1 of "5.1.1.3.2 Customization Procedure".

9. If you are going to use the stopped cluster transactions in any application other than AdvancedCopy Manager CCM, restart these cluster transactions.

Refer to your cluster software manuals for information on how to start cluster transactions.



See

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

15.3 Deletion Procedure of Cluster Environments for CCM Server Transactions (for Solaris/Linux)

The deletion procedure of cluster environment for CCM Server transactions (for Solaris/Linux) is performed as follows:

1. Log in to the primary and secondary nodes. Perform the operation after logging in as a root user.
2. Stop the CCM Server transactions.

Refer to your cluster software manuals for information on the stopping methods.

After stopping the CCM Server transactions, mount the shared disk for shared data.

3. Cancel the AdvancedCopy Manager CCM settings on the secondary node.

For Solaris, refer to "[13.2.4.2 Canceling Settings for AdvancedCopy Manager CCM](#)".

For Linux, refer to "[13.3.4.2 Canceling Settings for AdvancedCopy Manager CCM](#)".

4. Cancel the AdvancedCopy Manager CCM settings on the primary node.

For Solaris, refer to "[13.2.6.2 Canceling Settings for AdvancedCopy Manager CCM](#)".

For Linux, refer to "[13.3.6.2 Canceling Settings for AdvancedCopy Manager CCM](#)".

5. Back up the environment setup files.

Back up the environment setup files for the cluster environment. Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for information on the files to be backed up.

6. Cancel the clustered system settings.

Cancel the settings that you made when setting up the clustered system.

Refer to your cluster software manuals for information on the setting cancellation methods.

7. Take over the environment settings.

For migrating the environment setup files that you defined in the cluster environment to a non-cluster environment, follow below procedure for restoring the environment setup files.

- a. In the cluster environment, back up the environment setup files.

Refer to "Backing Up Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

- b. Restore the backed-up environment setup files in a non-cluster environment.

Refer to "For Non-cluster Operation" in "Restoring Environment Settings Files" in the *ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module* for details.

However, do not restore the following files:

- /opt/FJSVccm/micc/sys/.install.sys
- /opt/FJSVccm/bin/.stxc_install.sys
- /opt/FJSVccm/sys/sys.properties
- /opt/FJSVccm/noncluster/micc/sys/.install.sys
- /opt/FJSVccm/noncluster/bin/.stxc_install.sys
- /opt/FJSVccm/noncluster/sys/sys.properties

- c. If any access volume information has been modified, execute the `acarray remove` command to remove the device information. After that, execute the `acarray add` command to register it again.

8. Delete the directories and files from the shared disk for shared data.

For Solaris, delete all directories and their contents on the shared disk for shared data that you created in step 1 of "[5.2.1.3.2 Customization Procedure](#)".

For Linux, delete all directories and their contents on the shared disk for shared data that you created in step 1 of "[5.3.1.3.2 Customization Procedure](#)".

9. If you are going to use the stopped cluster transactions in any application other than AdvancedCopy Manager CCM, restart these cluster transactions.

Refer to your cluster software manuals for information on how to start cluster transactions.



See

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

Chapter 16 Command References

This chapter describes how to use commands.

16.1 Environment Setup/Cancel Commands

This section describes the commands for setting up and cancelling environments.



Execute commands using Administrator privileges.

16.1.1 stgclset_mscs (Windows MSCS/WSFC Environment Setup Command)

NAME

stgclset_mscs - Setup of AdvancedCopy Manager in Windows MSCS/WSFC environment

SYNOPSIS

To Execute on Management Server:

```
<Program-directory>\ACM\bin\stgclset_mscs
```

To Execute on Managed Server:

```
<Program-directory>\bin\stgclset_mscs
```

DESCRIPTION

In the Windows MSCS/WSFC environment, AdvancedCopy Manager is set up.

16.1.2 stgclunset_mscs (Windows MSCS/WSFC Environment Cancel Command)

NAME

stgclunset_mscs - Cancellation of AdvancedCopy Manager in Windows MSCS/WSFC

SYNOPSIS

To Execute on Management Server:

```
<Program-directory>\ACM\bin\stgclunset_mscs
```

To Execute on Managed Server:

```
<Program-directory>\bin\stgclunset_mscs
```

DESCRIPTION

In the Windows MSCS/WSFC environment, AdvancedCopy Manager is cancelled.

NOTES

The IP address information displayed when you run the cluster unsetup command is the information that you specified in the cluster setup command. This is not the IP address that you modified according to "Changing IP Address of Management Server" or "Changing IP Address of Managed Server" in the *ETERNUS SF AdvancedCopy Manager Operation Guide*.

16.2 Environment Setup/Cancel Commands for Clustered Systems

This section explains the commands for setting up and cancelling environments in the clustered systems described in "[Appendix A Applying Clusters for Solaris/Linux/HP-UX Version](#)".

Point

.....
Execute commands by root (superuser).
.....

16.2.1 clset_FJSVswstf (Framework Environment Setup/Cancel Command)

NAME

clset_FJSVswstf - Setup or cancellation of framework environment in a clustered system

SYNOPSIS

```
/opt/FJSVswstf/bin/clset_FJSVswstf [-u] -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t {Primary | Secondary}
```

DESCRIPTION

Sets or cancels the framework environment in the clustered systems described in "[Appendix A Applying Clusters for Solaris/Linux/HP-UX Version](#)".

OPTIONS

-u

 Cancels the environment.
 If this option is omitted, the command sets up the environment.

-f

 Specifies to use the clsetup.ini file (AdvancedCopy Manager setting up file).
 Refer to "[A.2.3 Methods for Editing Setup Files](#)" for information on how to edit the clsetup.ini file.

-t {Primary | Secondary}

 Specify the node type.

- For setting or cancelling the primary node: Primary
- For setting or cancelling the secondary node: Secondary

EXIT STATUS

=0: Completed successfully
>0: Terminated abnormally

16.2.2 clset_FJSVswsts (Backup Environment Setup/Cancel Command)

NAME

clset_FJSVswsts - Setup or cancellation of environment for backup function in a clustered system

SYNOPSIS

```
/opt/FJSVswsts/bin/clset_FJSVswsts [-u] -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t {Primary | Secondary}
```

DESCRIPTION

Sets or cancels the environment for the backup function in the clustered systems described in "[Appendix A Applying Clusters for Solaris/Linux/HP-UX Version](#)".

OPTIONS

-u

Cancels the environment.
If this option is omitted, the command sets up the environment.

-f

Specifies to use the clsetup.ini file (AdvancedCopy Manager setting up file).
Refer to "[A.2.3 Methods for Editing Setup Files](#)" for information on how to edit the clsetup.ini file.

-t {Primary | Secondary}

Specify the node type.

- For setting or cancelling the primary node: Primary
- For setting or cancelling the secondary node: Secondary

EXIT STATUS

=0: Completed successfully
>0: Terminated abnormally

16.2.3 clset_FJSVswsrp (Replication Environment Setup/Cancel Command)

NAME

clset_FJSVswsrp - Setup or cancellation of environment for replication function in a clustered system

SYNOPSIS

```
/opt/FJSVswsrp/bin/clset_FJSVswsrp [-u] -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t {Primary | Secondary}
```

DESCRIPTION

Sets or cancels the environment for the replication function in the clustered systems described in "[Appendix A Applying Clusters for Solaris/Linux/HP-UX Version](#)".

OPTIONS

-u

Cancels the environment.
If this option is omitted, the command sets up the environment.

-f

Specifies to use the clsetup.ini file (AdvancedCopy Manager setting up file).
Refer to "[A.2.3 Methods for Editing Setup Files](#)" for information on how to edit the clsetup.ini file.

-t {Primary | Secondary}

Specify the node type.

- For setting or cancelling the primary node: Primary
- For setting or cancelling the secondary node: Secondary

EXIT STATUS

- =0: Completed successfully
- >0: Terminated abnormally

16.2.4 StgDbSetup (Repository Environment Setup/Cancel Command)

NAME

StgDbSetup - Setup or cancellation of environment for repository function in a clustered system

SYNOPSIS

```
/opt/FJSVswstf/bin/StgDbSetup [-u] -f <Mountpoint-of-shared-disk>/etc/opt/swstorage/clsetup.ini -t  
{Primary | Secondary}
```

DESCRIPTION

Sets or cancels the environment for the repository function in the clustered systems described in "[Appendix A Applying Clusters for Solaris/Linux/HP-UX Version](#)".

OPTIONS

-u

Cancels the environment.
If this option is omitted, the command sets up the environment.

-f

Specifies to use the clsetup.ini file (AdvancedCopy Manager setting up file).
Refer to "[A.2.3 Methods for Editing Setup Files](#)" for information on how to edit the clsetup.ini file.

-t {Primary | Secondary}

Specify the node type.

- For setting or cancelling the primary node: Primary
- For setting or cancelling the secondary node: Secondary

EXIT STATUS

- =0: Completed successfully
- >0: Terminated abnormally

NOTES

- For Solaris or Linux, if the value of the environment variable PATH is more than 800 characters, change it to 800 characters or less to execute this command.

Appendix A Applying Clusters for Solaris/Linux/HP-UX Version

This appendix explains how to apply AdvancedCopy Manager in Solaris, Linux, or HP-UX version clustered systems. Refer to "[Chapter 2 Operating Environment](#)" for the supported OS types, cluster software and the cluster operation modes.

For other operating systems, refer to "[Chapter 8 Customization of Managed Server Transactions](#)" for the setup procedure, and refer to "[Chapter 14 Deletion of Cluster Environment for Managed Server Transactions](#)" for the deletion procedure.

A.1 Preparations for Customization in Clustered Systems (for Solaris/Linux/HP-UX)

This chapter explains the resources and input items that are required to customize Managed Server transactions.

- Managed Server transaction

A.1.1 Required Resources (for Solaris/Linux/HP-UX)

The following resources are required when installing AdvancedCopy Manager's agent on the Solaris, Linux or HP-UX version of a clustered system.

- Takeover IP address for AdvancedCopy Manager

Allocate an IP address that is used during clustered system operations and that is unique on AdvancedCopy Manager transactions.

FUJITSU recommends preparing and adding a new logical IP address to be used by AdvancedCopy Manager.

When allocating a new IP address, confirm that adding the IP address will not adversely affect other transactions, by checking whether any existing transactions use the IP address as a takeover resource.

If an existing logical IP address is used, ensure that there are no problems (for example, any restrictions) as a result of sharing the logical IP address between AdvancedCopy Manager and existing products already using the address.

A.1.2 Confirmation of Items

For applying AdvancedCopy Manager in a Solaris, Linux or HP-UX version clustered system, confirm the following items:

- Logical node name
- Port number for the transaction communication daemon

Refer to "[7.3 Confirmation of Items](#)" for more information.

A.2 Customization for Solaris/Linux/HP-UX version Clustered Systems

This section explains how to customize Solaris, Linux, or HP-UX version clustered system.

The primary node is an active node in a cluster transaction performing Managed Server transactions. The secondary node is the standby node in the same group.

The secondary node A is the node which creates the environment of Managed Server transactions first in the secondary nodes in this cluster transaction. The secondary node B is the remaining standby nodes in this cluster transaction.

The customizing work of the primary node and secondary node A is executed as the 1:1 standby system, the mutual standby system, and the n:1 standby system.

The customizing work of the primary node, secondary node A and secondary node B is executed as the cascade topology system and the priority transfer system.



Example

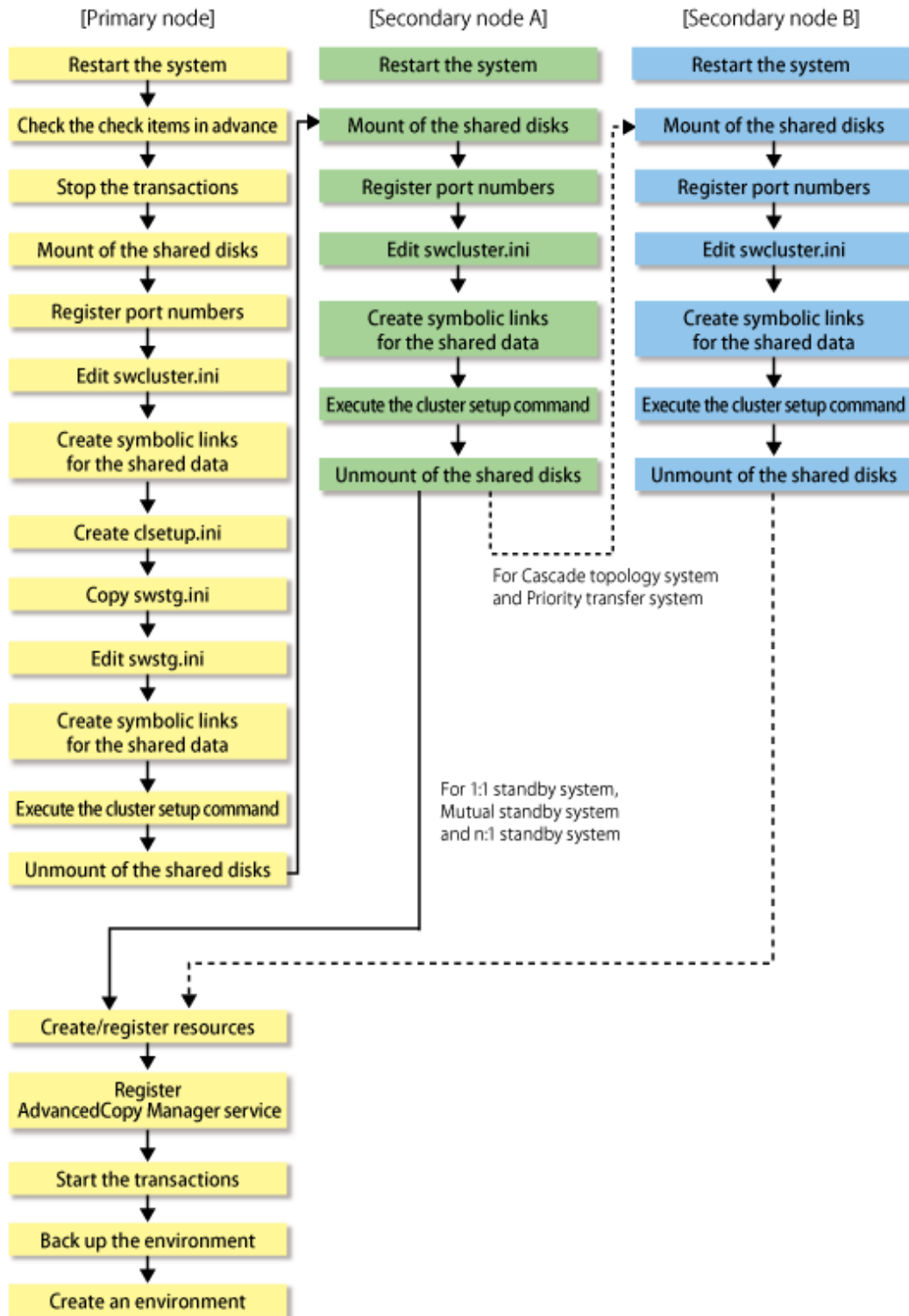
- When creating a cascade with three sets of nodes, one set is a primary node, one set is the secondary node A, and one set is the secondary node B.

- When creating a cascade with four sets of nodes, one set is a primary node, one set is the secondary node A, and two other sets are the secondary node B.

A.2.1 Flow of Customizing

This section describes the flow of customization.

Figure A.1 Customization Flow for Clustered Systems (for Solaris/Linux/HP-UX)



A.2.2 Customization Procedure

To set up a Managed Server transaction, use the following procedure:

Point

For explanatory purposes, the <Examples of command execution> in this section use the following settings:

- <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data> : /acmdata01
 - Logical node name : acmnode1
-

Note

Perform the procedures by root (superuser).

1. Restart the system.
Reboot all primary and secondary nodes that create Managed Server transactions.
2. Check the preparations.
Check each item of "[A.1.1 Required Resources \(for Solaris/Linux/HP-UX\)](#)", for the cluster transaction to be set up.
3. To add a Managed Server transaction to an existing cluster transaction, stop the cluster transaction.
Refer to your cluster software manuals for the procedure for stopping cluster transactions.
4. Execute "[Customization Procedure for Primary Node](#)" in a primary node.
5. Execute "[Customization Procedure for Secondary Node](#)" in a secondary node A.
For the cascade topology system or the priority transfer system, execute "[Customization Procedure for Secondary Node](#)" in a secondary node B.
6. Create a cluster transaction and resources on the primary node.
Refer to your cluster software manuals for details.
7. Register the AdvancedCopy Manager service to the cluster software on the primary node.
Refer to "[A.3 Registration of AdvancedCopy Manager Service](#)" for more information.
8. Start the AdvancedCopy Manager service registered to the cluster software on the primary node.
9. Back up the environment on the primary node.
In order to prepare for accidental data deletion or corruption, back up the data environments on the shared disk for AdvancedCopy Manager shared data.
Use an OS command such as cp to back up the following directories on the shared disk for shared data:
 - Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc
 - Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

Customization Procedure for Primary Node

1. For Managed Server transactions, mount the shared disk.
Mount the shared disk for the AdvancedCopy Manager shared data on the primary node.
2. Register port numbers.
Register the port number for the transaction communication in /etc/services. Use an OS command such as vi to register it in /etc/services.
 - Communication daemon for transactions : *stgxfws_logicalNodeName*

Note

Register the same port number on the primary node and all secondary nodes.
Specify the same value as **Swstgnode** in "Table A.6 Setting Items" for *logicalNodeName*.

3. Edit the /opt/FJVSwtstf/cluster/swcluster.ini file. Refer to "swcluster.ini" for information on how to edit.
4. Create directories on the shared disk for AdvancedCopy Manager shared data.

Create each directory in below structure:

```
<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>
+---/etc
|   ---/opt
|       ---/swstorage
+---/var
     ---/opt
         ---/swstorage
```

Example

```
# mkdir -p /acmdata01/etc/opt/swstorage
# chmod -R 755 /acmdata01/etc/opt/swstorage
# chown -R root:root /acmdata01/etc/opt/swstorage
# mkdir -p /acmdata01/var/opt/swstorage
# chmod -R 755 /acmdata01/var/opt/swstorage
# chown -R root:root /acmdata01/var/opt/swstorage
```

5. Create the <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini file. Refer to "clsetup.ini" for information on how to edit.
6. Copy the /etc/opt/swstorage/swstg.ini file.
Copy "swstg.ini" from the source directory to the directory under the mount point of the shared disk for AdvancedCopy Manager shared data.

Source Directory of Copying	Target Directory of Copying
/etc/opt/swstorage	<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage

7. Edit the <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/swstg.ini file. Refer to "swstg.ini" for information on how to edit.
8. For the Management Server transactions, edit the /etc/opt/swstorage/swstg.ini file. Refer to "swstg.ini" for information on how to edit.
9. Create symbolic links on the shared disk for AdvancedCopy Manager shared data.

Table A.1 Symbolic Link for Data in etc Area

Linked Source Directory	Link Target Directory (Symbolic Link File)
<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage	/etc/opt/swstorage/ <i>logicalNodeName</i>

Table A.2 Symbolic Link for Data in var Area

Linked Source Directory	Link Target Directory (Symbolic Link File)
<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/var/opt/swstorage	/var/opt/swstorage/ <i>logicalNodeName</i>

Note

Specify the same value as **Swstgnode** in "Table A.6 Setting Items" for *logicalNodeName*.

Example

```
# ln -s /acmdat01/etc/opt/swstorage /etc/opt/swstorage/acmnode1
# ln -s /acmdat01/var/opt/swstorage /var/opt/swstorage/acmnode1
```

10. Execute the following commands in the given sequence:

Sequence of Execution	Command Name	Type of Server That Requires Command Execution
1	clset_FJSVswstf	Management Server transactions Managed Server transactions
2	clset_FJSVswsts	Management Server transactions Managed Server transactions
3	clset_FJSVswsrp	Management Server transactions Managed Server transactions
4	StgDbSetup	Management Server transactions

Note

For Solaris or Linux, if the value of the environment variable PATH is more than 800 characters, change it to 800 characters or less to execute the `StgDbSetup` command.

Example

- For Management Server transactions

```
# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdat01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswstf completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdat01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsts completed
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdat01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsrp completed
# /opt/FJSVswstf/bin/StgDbSetup -f /acmdat01/etc/opt/swstorage/clsetup.ini -t Primary
```

- For Managed Server transactions

```
# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdat01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswstf completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdat01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsts completed
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdat01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsrp completed
```

11. For Managed Server transaction, dismount the shared disk.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

Customization Procedure for Secondary Node

1. For Managed Server transactions, mount the shared disk.

Mount the shared disk for the AdvancedCopy Manager shared data on the secondary node.

2. Register port numbers.

Register the port number for the transaction communication in `/etc/services`. Use an OS command such as `vi` to register it in `/etc/services`.

- Communication daemon for transactions : `stgxfws_logicalNodeName`

Note

Register the same port number on the primary node and all secondary nodes.
Specify the same value as **Swstgnode** in "Table A.6 Setting Items" for `logicalNodeName`.

3. Edit the `/opt/FJVSvswstf/cluster/swcluster.ini` file. Refer to "[swcluster.ini](#)" for information on how to edit.
4. For the Management Server transactions, edit the `/etc/opt/swstorage/swstg.ini` file. Refer to "[swstg.ini](#)" for information on how to edit.
5. Create symbolic links on the shared disk for AdvancedCopy Manager shared data.

Table A.3 Symbolic Link for Data in etc Area

Linked Source Directory	Link Target Directory (Symbolic Link File)
<code><Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage</code>	<code>/etc/opt/swstorage/<i>logicalNodeName</i></code>

Table A.4 Symbolic Link for Data in var Area

Linked Source Directory	Link Target Directory (Symbolic Link File)
<code><Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/var/opt/swstorage</code>	<code>/var/opt/swstorage/<i>logicalNodeName</i></code>

Note

Specify the same value as **Swstgnode** in "Table A.6 Setting Items" for `logicalNodeName`.

Example

```
# ln -s /acmdata01/etc/opt/swstorage /etc/opt/swstorage/acmnode1
# ln -s /acmdata01/var/opt/swstorage /var/opt/swstorage/acmnode1
```

6. Execute the following commands in the given sequence:

Sequence of Execution	Command Name	Type of Server That Requires Command Execution
1	<code>clset_FJVSvswstf</code>	Management Server transactions Managed Server transactions
2	<code>clset_FJVSvswsts</code>	Management Server transactions Managed Server transactions
3	<code>clset_FJVSvswsrp</code>	Management Server transactions Managed Server transactions
4	<code>StgDbSetup</code>	Management Server transactions

Note

For Solaris or Linux, if the value of the environment variable PATH is more than 800 characters, change it to 800 characters or less to execute the StgDbSetup command.

Example

- For Management Server transactions

```
# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswstf completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsts completed
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsrp completed
# /opt/FJSVswstf/bin/StgDbSetup -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
```

- For Managed Server transactions

```
# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswstf completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsts completed
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsrp completed
```

7. For Managed Server transaction, dismount the shared disk.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node.

A.2.3 Methods for Editing Setup Files

This section explains how to edit setup files for setting up the cluster environment.

- On the primary node
 - [swcluster.ini](#)
 - [clsetup.ini](#)
 - [swstg.ini](#)
- On the secondary node
 - [swcluster.ini](#)
 - [swstg.ini](#)

On Primary Node

swcluster.ini

This section explains how to edit the /opt/FJSVswstf/cluster/swcluster.ini file on the primary node.

Table A.5 Setting Items

Item	Contents of Setting
Env_#	Logical node name For #, specify a non-duplicate value from 1 to 20. Specify the same value as Swstgnode in "Table A.6 Setting Items" for the logical node name.
BusiType	AdvancedCopy Manager server type Specify each of the following values depending on the server transaction. - For Management Server transactions: 1 - For Managed Server transactions: 2
Business	Name of cluster transaction
ShareEtc	Name of directory for environment settings for cluster transactions <i><Mount point of shared disk for shared data>/etc/opt</i>
ShareVar	Name of working directory for cluster transactions <i><Mount point of shared disk for shared data>/var/opt</i>
MountPoint	Mount point of shared disk for shared data
IPVersion	[Solaris 10, Solaris 11, Linux only] IP version of the takeover IP address for AdvancedCopy Manager Specify the following value according to the IP version of the takeover IP address to be used, if the server type is Management Server transactions. - If using IPv4 address only: IPv4 - If using IPv6 address only: IPv6 - If using both IPv4 and IPv6 addresses: Dual
IPAddr	Takeover IP address for AdvancedCopy Manager Specify only if the server type is Management Server transactions. Specify the IPv4 address when using IPv4 address or both IPv4 and IPv6 addresses.
IPv6Addr	[Solaris 10, Solaris 11, Linux only] Takeover IP address for AdvancedCopy Manager Specify only if the server type is Management Server transactions. Specify the IPv6 address when using IPv6 address or both IPv4 and IPv6 addresses. The specified IPv6 address should one that is usable with the cluster software.
NodeName	Name of primary node (Name of primary node host)

Edit the file. Modify or add the portions in italics according to your environment.

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_#=<Logical node name>
[<Logical node name>]
Type=Primary
BusiType=<AdvancedCopy Manager server type>
Business=<Name of cluster transaction>
ShareEtc=<Mount point of shared disk for shared data>/etc/opt
ShareVar=<Mount point of shared disk for shared data>/var/opt
```

```

MountPoint=<Mount point of shared disk for shared data>
IPVersion=<IP version of IP address>
IPAddr=<Takeover IPv4 address for AdvancedCopy Manager>
IPv6Addr=<Takeover IPv6 address for AdvancedCopy Manager>
IPUseType=0
IPRscName=
Hostname=
NodeName=<Name of primary node (Name of primary node host)>
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

The following is an example of editing the file.

- For Management Server transactions : When creating the first cluster transactions on this server

<Before setting>

```

[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300

```

<After setting; for using IPv4>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Primary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

<After setting; for using IPv6>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Primary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv6
IPAddr=
IPv6Addr=2001:db8::1234:0:0:1
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

<After setting: for using both IPv4 and IPv6>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Primary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=Dual
IPAddr=10.10.10.10
IPv6Addr=2001:db8::1234:0:0:1
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

- For Management Server transactions : When cluster transactions have already been created on this server

<Before setting>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
[acmnode2]
Type=Primary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPVersion=IPv4
IPAddr=
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After setting>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Primary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPVersion=IPv4
IPAddr=
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
```



```

MCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Primary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

- For Managed Server transactions: When creating the first cluster transactions on this server

<Before setting>

```

[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300

```

<After setting>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Primary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=

```

```
MSCSNetName=  
Date=00/00/00 00:00:00  
Setup=YES  
ResourceType=Procedure
```

- For Managed Server transactions: When cluster transactions have already been created on this server

<Before setting>

```
[ClusterCommon]  
Cluster=ON  
Max=20  
StartTimeOut=300  
StopTimeOut=300  
System=GEN  
Env_2=acmnode2  
[acmnode2]  
Type=Primary  
BusiType=2  
Business=acmbiz02  
ShareEtc=/acmdata02/etc/opt  
ShareVar=/acmdata02/var/opt  
MountPoint=/acmdata02  
IPAddr=  
IPUseType=0  
IPRscName=  
Hostname=  
NodeName=m40001  
ClusterName=  
DiskName=  
GroupName=  
SubNetMask=  
MSCSNetName=  
Date=00/00/00 00:00:00  
Setup=YES  
ResourceType=Procedure
```

<After setting>

```
[ClusterCommon]  
Cluster=ON  
Max=20  
StartTimeOut=300  
StopTimeOut=300  
System=GEN  
Env_2=acmnode2  
Env_1=acmnode1  
[acmnode2]  
Type=Primary  
BusiType=2  
Business=acmbiz02  
ShareEtc=/acmdata02/etc/opt  
ShareVar=/acmdata02/var/opt  
MountPoint=/acmdata02  
IPAddr=  
IPUseType=0  
IPRscName=  
Hostname=  
NodeName=m40001  
ClusterName=  
DiskName=  
GroupName=
```

```

SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Primary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m4001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

clsetup.ini

This section explains how to edit the "<Mount point of shared disk for AdvancedCopy Manager shared data>etc/opt/swstorage/clsetup.ini" file on the primary node.

Table A.6 Setting Items

Item	Contents of Setting
Swstgnode	<p>Logical node name</p> <p>Use only alphanumeric characters up to 8 bytes for logical node name. Refer to the following sections about other restrictions for logical node name:</p> <ul style="list-style-type: none"> - For Management Server transactions: "Logical node name" in "4.1.3 Resources Required for AdvancedCopy Manager's Manager" - For Managed Server transactions: "Logical node name" in "7.3 Confirmation of Items"
Business	Name of cluster transaction
ShareEtc	Name of directory for environment settings for cluster transactions <Mount point of shared disk for shared data>etc/opt
ShareVar	Name of working directory for cluster transactions <Mount point of shared disk for shared data>var/opt
MountPoint	Mount point of shared disk for shared data
IPVersion	<p>[Solaris 10, Solaris 11, Linux only]</p> <p>IP version of the takeover IP address for AdvancedCopy Manager</p> <p>Specify the following value according to the IP version of the takeover IP address to be used, if the server type is Management Server transactions.</p> <ul style="list-style-type: none"> - If using IPv4 address only: IPv4 - If using IPv6 address only: IPv6 - If using both IPv4 and IPv6 addresses: Dual

Item	Contents of Setting
IPAddr	Takeover IP address for AdvancedCopy Manager Specify only if the server type is Management Server transactions. Specify the IPv4 address when using IPv4 address or both IPv4 and IPv6 addresses.
IPv6Addr	[Solaris 10, Solaris 11, Linux only] Takeover IP address for AdvancedCopy Manager Specify only if the server type is Management Server transactions. Specify the IPv6 address when using IPv6 address or both IPv4 and IPv6 addresses. The specified IPv6 address should one that is usable with the cluster software.
NodeName	Name of primary node (Name of primary node host)
BusiType	AdvancedCopy Manager server type
Type	Specify each of the following values depending on the server transaction. - For Management Server transactions: 1 - For Managed Server transactions: 2
Version	Version of AdvancedCopy Manager Specify the same value as for the [Common]-"Version" character string in the /etc/opt/swstorage/swstg.ini file.
Language	Language used for AdvancedCopy Manager Specify one of the following text strings according to the language to be used for AdvancedCopy Manager: - For Japanese: JAPANESE - For English: ENGLISH

Edit the file. Modify or add the portions in italics according to your environment.

```
[Cluster]
System=GEN
Swstgnode=<Logical node name>
Business=<Name of cluster transaction>
ShareEtc=<MountPoint>/etc/opt
ShareVar=<MountPoint>/var/opt
MountPoint=<Mount point of shared disk for shared data>
IPVersion=<IP version of IP address>
IPAddr=<Takeover IPv4 address for AdvancedCopy Manager>
IPv6Addr=<Takeover IPv6 address for AdvancedCopy Manager>
IPUseType=0
IPRscName=
Hostname=
NodeName=<Name of primary node (Name of primary node host)>
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
BusiType=<AdvancedCopy Manager server type>
ResourceType=Procedure
[StorageMGR]
Version=<Version of AdvancedCopy Manager>
Edition=EE
Type=<AdvancedCopy Manager server type>
AFSType=1
```

```
Language=<Language used for AdvancedCopy Manager>
[Secondary]
Setup=YES
Date=00/00/00 00:00:00
[Primary]
Date=00/00/00 00:00:00
Setup=YES
```

The following is an example of editing the file.

- For Management Server transactions

<For using IPv4>

```
[Cluster]
System=GEN
Swstgnode=acmnode1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
BusiType=1
ResourceType=Procedure
[StorageMGR]
Version=V16.2
Edition=EE
Type=1
AFSType=1
Language=ENGLISH
[Secondary]
Setup=YES
Date=00/00/00 00:00:00
[Primary]
Date=00/00/00 00:00:00
Setup=YES
```

<For using IPv6>

```
[Cluster]
System=GEN
Swstgnode=acmnode1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv6
IPAddr=
IPv6Addr=2001:db8::1234:0:0:1
IPUseType=0
```

```
IPRscName=  
Hostname=  
NodeName=m40001  
ClusterName=  
DiskName=  
GroupName=  
SubNetMask=  
MSCSNetName=  
BusiType=1  
ResourceType=Procedure  
[StorageMGR]  
Version=V16.2  
Edition=EE  
Type=1  
AFSType=1  
Language=JAPANESE  
[Secondary]  
Setup=YES  
Date=00/00/00 00:00:00  
[Primary]  
Date=00/00/00 00:00:00  
Setup=YES
```

<For using both IPv4 and IPv6>

```
[Cluster]  
System=GEN  
Swstgnode=acmnode1  
Business=acmbiz01  
ShareEtc=/acmdata01/etc/opt  
ShareVar=/acmdata01/var/opt  
MountPoint=/acmdata01  
IPVersion=Dual  
IPAddr=10.10.10.10  
IPv6Addr=2001:db8::1234:0:0:1  
IPUseType=0  
IPRscName=  
Hostname=  
NodeName=m40001  
ClusterName=  
DiskName=  
GroupName=  
SubNetMask=  
MSCSNetName=  
BusiType=1  
ResourceType=Procedure  
[StorageMGR]  
Version=V16.2  
Edition=EE  
Type=1  
AFSType=1  
Language=JAPANESE  
[Secondary]  
Setup=YES  
Date=00/00/00 00:00:00  
[Primary]  
Date=00/00/00 00:00:00  
Setup=YES
```

- For Managed Server transactions

```

[Cluster]
System=GEN
Swstgnode=acmnode1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
BusiType=2
ResourceType=Procedure
[StorageMGR]
Version=V16.2
Edition=EE
Type=2
AFSType=1
Language=ENGLISH
[Secondary]
Setup=YES
Date=00/00/00 00:00:00
[Primary]
Date=00/00/00 00:00:00
Setup=YES

```

swstg.ini

This section explains how to edit the *<Mount point of shared disk for AdvancedCopy Manager shared data>etc/opt/swstorage/swstg.ini* file on the primary node.

 **Note**

After starting operation, the program in this product may add/modify/delete parameters other than those of "Table A.7 Setting Items" for the swstg.ini file. For this reason, do not add/modify/delete parameters other than those of "Table A.7 Setting Items".

Table A.7 Setting Items

Item	Contents of Setting
Type	AdvancedCopy Manager server type Specify each of the following values depending on the server transaction. <ul style="list-style-type: none"> - For Management Server transactions: 1 - For Managed Server transactions: 2

Edit the file. Modify or add the portions in italics according to your environment.

```

[Common]
Edition=EE
Version=V16.2
Type=<AdvancedCopy Manager server type>
AFSType=1

```

```
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

The following is an example of editing the file.

- For Management Server transactions

```
[Common]
Edition=EE
Version=V16.2
Type=1
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

- For Managed Server transactions

```
[Common]
Edition=EE
Version=V16.2
Type=2
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

This section explains how to edit the "/etc/opt/swstorage/swstg.ini" file on the primary node.



Note

After starting operation, the program in this product may add/modify/delete parameters other than those of "Table A.8 Setting Items" for the swstg.ini file. For this reason, do not add/modify/delete parameters other than those of "Table A.8 Setting Items".

Table A.8 Setting Items

Item	Contents of Setting
Type	Type of local transaction server for AdvancedCopy Manager Set to "2".

Edit the file according to your environment.

```
[Common]
Edition=EE
Version=V16.2
Type=<Type of local transaction server for AdvancedCopy Manager>
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

The following is an example of editing the file. Modify or add the portions in italics.

```
[Common]
Edition=EE
Version=V16.2
Type=2
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

On Secondary Node

swcluster.ini

This section explains how to edit the /opt/FJSVswstf/cluster/swcluster.ini file on the secondary node.

Table A.9 Setting Items

Item	Contents of Setting
Env_ <i>N</i>	Logical node name For <i>N</i> , specify a non-duplicate value from 1 to 20. Specify the same value as Swstgnode in "Table A.6 Setting Items" for the logical node name.
BusiType	AdvancedCopy Manager server type Specify each of the following values depending on the server transaction.

Item	Contents of Setting
	<ul style="list-style-type: none"> - For Management Server transactions: 1 - For Managed Server transactions: 2
Business	Name of cluster transaction
ShareEtc	Environment setting directory for cluster transactions <Mount point of shared disk for shared data>/etc/opt
ShareVar	Working directory for cluster transactions <Mount point of shared disk for shared data>/var/opt
MountPoint	Mount point of shared disk for shared data
IPVersion	<p>[Solaris 10, Solaris 11, Linux only]</p> <p>IP version of the takeover IP address for AdvancedCopy Manager</p> <p>Specify the following value according to the IP version of the takeover IP address to be used, if the server type is Management Server transactions.</p> <ul style="list-style-type: none"> - If using IPv4 address only: IPv4 - If using IPv6 address only: IPv6 - If using both IPv4 and IPv6 addresses: Dual
IPAddr	Takeover IP address for AdvancedCopy Manager
IPv6Addr	<p>[Solaris 10, Solaris 11, Linux only]</p> <p>Takeover IP address for AdvancedCopy Manager</p> <p>Specify only if the server type is Management Server transactions. Specify the IPv6 address when using IPv6 address or both IPv4 and IPv6 addresses. The specified IPv6 address should one that is usable with the cluster software.</p>
NodeName	Name of primary node (Name of primary node host)

Edit the file. Modify or add the portions in italics according to your environment.

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_N=<Logical node name>
[<Logical node name>]
Type=Secondary
BusiType=<AdvancedCopy Manager server type>
Business=<Name of cluster transaction>
ShareEtc=<MountPoint>/etc/opt
ShareVar=<MountPoint>/var/opt
MountPoint=<Mount point of shared disk for shared data>
IPVersion=<IP version of IP address>
IPAddr=<Takeover IPv4 address for AdvancedCopy Manager>
IPv6Addr=<Takeover IPv6 address for AdvancedCopy Manager>
IPUseType=0
IPRscName=
Hostname=
NodeName=<Name of primary node (Name of primary node host)>
ClusterName=
DiskName=
GroupName=
SubNetMask=
```

```
MSCSNetName=  
Date=00/00/00 00:00:00  
Setup=YES  
ResourceType=Procedure
```

The following is an example of editing the file.

- For Management Server transactions : When creating the first cluster transactions on this server

<Before setting>

```
[ClusterCommon]  
Cluster=OFF  
Max=20  
StartTimeOut=300  
StopTimeOut=300
```

<After setting: for using IPv4>

```
[ClusterCommon]  
Cluster=ON  
Max=20  
StartTimeOut=300  
StopTimeOut=300  
System=GEN  
Env_1=acmnode1  
[acmnode1]  
Type=Secondary  
BusiType=1  
Business=acmbiz01  
ShareEtc=/acmdata01/etc/opt  
ShareVar=/acmdata01/var/opt  
MountPoint=/acmdata01  
IPVersion=IPv4  
IPAddr=10.10.10.10  
IPv6Addr=  
IPUseType=0  
IPRscName=  
Hostname=  
NodeName=m4001  
ClusterName=  
DiskName=  
GroupName=  
SubNetMask=  
MSCSNetName=  
Date=00/00/00 00:00:00  
Setup=YES  
ResourceType=Procedure
```

<After setting: for using IPv6>

```
[ClusterCommon]  
Cluster=ON  
Max=20  
StartTimeOut=300  
StopTimeOut=300  
System=GEN  
Env_1=acmnode1  
[acmnode1]  
Type=Secondary  
BusiType=1  
Business=acmbiz01
```

```

ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv6
IPAddr=
IPv6Addr=2001:db8::1234:0:0:1
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

<After setting: for using both IPv4 and IPv6>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Secondary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=Dual
IPAddr=10.10.10.10
IPv6Addr=2001:db8::1234:0:0:1
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

- For Management Server transactions : When cluster transactions have already been created on this server

<Before setting>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2

```

```
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPVersion=IPv4
IPAddr=
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After setting>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPVersion=IPv4
IPAddr=
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Secondary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
```

```
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m4001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

- For Managed Server transactions: When creating the first cluster transactions on this server

<Before setting>

```
[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300
```

<After setting>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Secondary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m4001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

- For Managed Server transactions: When cluster transactions have already been created on this server

<Before setting>

```
[ClusterCommon]
Cluster=ON
```

```
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After setting>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Secondary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
```

```

MountPoint=/acmdat01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

swstg.ini

This section explains how to edit the /etc/opt/swstorage/swstg.ini file on the secondary node.



After starting operation, the program in this product may add/modify/delete parameters other than those of "Table A.10 Setting Items" for the swstg.ini file. For this reason, do not add/modify/delete parameters other than those of "Table A.10 Setting Items".

Table A.10 Setting Items

Item	Contents of Setting
Type	AdvancedCopy Manager server type of local transaction Set to "2".

Edit the file. Modify or add the portions in italics according to your environment.

```

[Common]
Edition=EE
Version=V16.2
Type=<AdvancedCopy Manager server type of local transaction>
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116

```

The following is an example of editing the file.

```

[Common]
Edition=EE
Version=V16.2
Type=2
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt

```



```
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

A.3 Registration of AdvancedCopy Manager Service

Register the AdvancedCopy Manager service in the cluster software you are using.

Set the following processes in your cluster software so as to enable the AdvancedCopy Manager service to be started and stopped with cluster transactions.

- Processing when starting cluster transactions: "[A.3.1 Method for Starting AdvancedCopy Manager Service](#)"
- Processing when stopping cluster transactions: "[A.3.2 Method for Stopping AdvancedCopy Manager Service](#)"



See

Refer to your cluster software documentation for the setup methods.

A.3.1 Method for Starting AdvancedCopy Manager Service

Start the AdvancedCopy Manager service.

1. Check that all of the following conditions are fulfilled:
 - Data communication is possible with the failover IP address for AdvancedCopy Manager
 - The shared disk for AdvancedCopy Manager shared data is mounted

If any settings to your cluster software are necessary, make them with reference to the corresponding documentation.

2. Set the environment variable SWSTGNODE.

Set the logical node name of the Management Server transactions or the Managed Server transactions to be started to the environment variable SWSTGNODE.

```
SWSTGNODE=logicalNodeName
export SWSTGNODE
```



Note

Specify the same value as **Swstgnode** in "[Table A.6 Setting Items](#)" for *logicalNodeName*.

3. Start the AdvancedCopy Manager service.

Execute the following command to start the AdvancedCopy Manager service.

- For Management Server transactions
`/opt/FJSVswstf/cluster/MgrStart`
- For Managed Server transactions
`/opt/FJSVswstf/cluster/AgtStart`

- Set the notification setting to a value that is appropriate for the clustered system.

Based on the completion status for the start command executed in step 3, set the notification setting to a value that is appropriate for the clustered system.

Refer to your cluster software documentation for information on the notification settings.

Table A.11 Information Required for Starting AdvancedCopy Manager Service

Item	Contents
Environment variable SWSTGNODE	Logical node name Specify the same value as Swstgnode in "Table A.6 Setting Items" for the logical node name.
Start command for AdvancedCopy Manager service	<ul style="list-style-type: none"> - Management Server transaction: /opt/FJVSswstf/cluster/MgrStart - Managed Server transaction: /opt/FJVSswstf/cluster/AgtStart
Completion status of start command for AdvancedCopy Manager service	<ul style="list-style-type: none"> - Normally completed: 0 - Failed: 1

A.3.2 Method for Stopping AdvancedCopy Manager Service

Stop the AdvancedCopy Manager service.

- Check that all of the following conditions are fulfilled:
 - Data communication is possible with the failover IP address for AdvancedCopy Manager
 - The shared disk for AdvancedCopy Manager shared data is mounted

If any settings to your cluster software are necessary, make them with reference to the corresponding documentation.

- Set the environment variable SWSTGNODE.

Set the name of the logical node of the Management Server transactions or the Managed Server transactions to be stopped to the environment variable SWSTGNODE.

```
SWSTGNODE=logicalNodeName
export SWSTGNODE
```

Note

Specify the same value as **Swstgnode** in "Table A.6 Setting Items" for *logicalNodeName*.

- Stop the AdvancedCopy Manager service.

Execute the following command to stop the AdvancedCopy Manager service.

- For Management Server transactions
/opt/FJVSswstf/cluster/MgrStop
- For Managed Server transactions
/opt/FJVSswstf/cluster/AgtStop
- For Managed Server transactions (HP-UX version MC/ServiceGuard)
/opt/FJVSswstf/cluster/mcsg/SmgrStop_mcsg

- Check that the AdvancedCopy Manager service has stopped.

After executing the command to stop the service, check that the completion status is "0" (normal completion).

5. Set the notification setting to a value that is appropriate for the clustered system.

Based on the completion status for the stop command executed in step 3, set the notification setting to a value that is appropriate for the clustered system.

Refer to your cluster software documentation for information on the notification settings.

Table A.12 Information Required for Stopping AdvancedCopy Manager Service

Item	Contents
Environment variable SWSTGNODE	Logical node name Specify the same value as Swstgnode in "Table A.6 Setting Items" for the logical node name.
Stop command for AdvancedCopy Manager service	<ul style="list-style-type: none"> - Management Server transaction : /opt/FJSVswstf/cluster/MgrStop - Managed Server transaction : /opt/FJSVswstf/cluster/AgtStop - HP-UX version Serviceguard : /opt/FJSVswstf/cluster/mcsg/SmgrStop_mcsg
Completion status of stop command for AdvancedCopy Manager service	<ul style="list-style-type: none"> - Normally completed : 0 - Failed : 1

A.4 Deletion for Solaris/Linux/HP-UX version Clustered Systems

This section explains how to delete for Solaris, Linux, or HP-UX version clustered system.

The primary node is a node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the AdvancedCopy Manager cluster setup command in the same cluster transaction.

The secondary node A defines the node which deletes the environment last in the secondary nodes in this cluster transaction. The secondary node B defines the remaining secondary nodes in this cluster transaction.

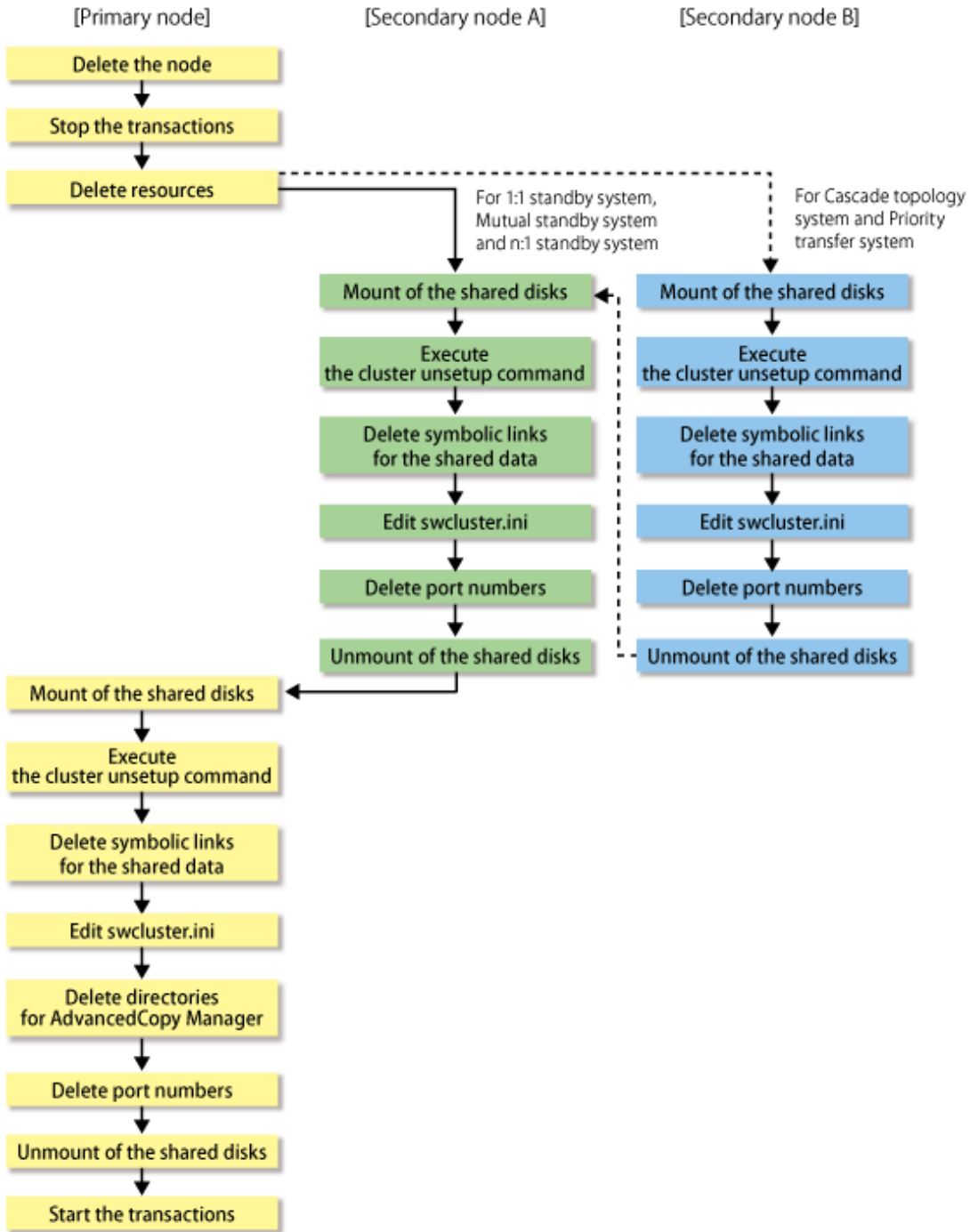
Deletion of a primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

Deletion of a primary node, secondary node A and secondary node B is executed for the cascade topology system and the priority transfer system.

A.4.1 Flow of Deletion

This section describes the flow of deletion for a Cluster Environment.

Figure A.2 Deletion Flow for Clustered Systems (for Solaris/Linux/HP-UX)



A.4.2 Deletion Procedure

To delete the cluster environment, use the following procedure:



Point

For explanatory purposes, the <Examples of command execution> in this section use the following settings:

- <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data> : lacmdata01
- Logical node name : acmnode1



Note

Perform the procedures by root (superuser).

1. Delete the node.
Use the AdvancedCopy Manager command to delete the node.
2. Use the function of a clustered system to stop the transaction on the primary node.
Refer to your cluster software documentation for information on how to stop transactions.
3. Delete resources.
Delete the AdvancedCopy Manager resources registered for the target transaction.
Refer to your cluster software documentation for information on how to delete resources.
4. If the system is a Cascade topology or a Priority transfer, execute "[Deletion Procedure for Secondary Node](#)" on the secondary node B.
5. Execute "[Deletion Procedure for Secondary Node](#)" on the secondary node A.
6. Execute "[Deletion Procedure for Primary Node](#)" on the primary node.

Deletion Procedure for Secondary Node

1. For Managed Server transactions, mount the shared disk.
Mount the shared disk for the AdvancedCopy Manager shared data on the secondary node.
2. Execute the following commands in the given sequence:

Sequence of Execution	Command Name	Type of Server That Requires Command Execution
1	StgDbSetup	Management Server transactions
2	clset_FJSVswsrp	Management Server transactions Managed Server transactions
3	clset_FJSVswsts	Management Server transactions Managed Server transactions
4	clset_FJSVswstf	Management Server transactions Managed Server transactions

Example

- For Management Server transactions

```
# /opt/FJSVswstf/bin/StgDbSetup -u -f /acmda01/etc/opt/swstorage/clsetup.ini -t
Secondary
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmda01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsrp completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmda01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsts completed
# /opt/FJSVswstf/bin/clset_FJSVswstf -u -f /acmda01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswstf completed
```

- For Managed Server transactions

```
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsrp completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswsts completed
# /opt/FJSVswstf/bin/clset_FJSVswstf -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Secondary
clset_FJSVswstf completed
```

3. Delete the symbolic links to the shared disk for AdvancedCopy Manager shared data.

Table A.13 Symbolic Link for Data in etc Area

Link Target Directory (Symbolic Link File)
<i>/etc/opt/swstorage/logical/NodeName</i>

Table A.14 Symbolic Link for Data in var Area

Link Target Directory (Symbolic Link File)
<i>/var/opt/swstorage/logical/NodeName</i>

Example

```
# rm /etc/opt/swstorage/acmnode1
# rm /var/opt/swstorage/acmnode1
```

4. Edit the */opt/FJSVswstf/cluster/swcluster.ini* file. Refer to "[swcluster.ini](#)" for information on how to edit.
5. For Management Server transactions, edit the */etc/opt/swstorage/swstg.ini* file. Refer to "[swstg.ini](#)" for information on how to edit.
6. Delete port numbers.
Delete the following service defined in */etc/services* during cluster setup. Use an OS command such as *vi* to delete it from */etc/services*.
- Communication daemon for transactions : *stgxfws_logicalNodeName*
7. For Managed Server transactions, unmount the shared disk.
Unmount the shared disks for the AdvancedCopy Manager shared data on the secondary node.

Deletion Procedure for Primary Node

1. For Managed Server transactions, mount the shared disk.
Mount the shared disk for the AdvancedCopy Manager shared data on the primary node.
2. Execute the following commands in the given sequence:

Sequence of Execution	Command Name	Type of Server That Requires Command Execution
1	StgDbSetup	Management Server transactions
2	clset_FJSVswsrp	Management Server transactions Managed Server transactions
3	clset_FJSVswsts	Management Server transactions Managed Server transactions
4	clset_FJSVswstf	Management Server transactions Managed Server transactions

Example

- For Management Server transactions

```
# /opt/FJSVswstf/bin/StgDbSetup -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsrp completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsts completed
# /opt/FJSVswstf/bin/clset_FJSVswstf -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswstf completed
```

- For Managed Server transactions

```
# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsrp completed
# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswsts completed
# /opt/FJSVswstf/bin/clset_FJSVswstf -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t
Primary
clset_FJSVswstf completed
```

- 3. Delete the symbolic links to the shared disk for AdvancedCopy Manager shared data.

Table A.15 Symbolic Link for Data in etc Area

Link Target Directory (Symbolic Link File)
/etc/opt/swstorage/logical/NodeName

Table A.16 Symbolic Link for Data in var Area

Link Target Directory (Symbolic Link File)
/var/opt/swstorage/logical/NodeName

Example

```
# rm /etc/opt/swstorage/acmnode1
# rm /var/opt/swstorage/acmnode1
```

- 4. Edit the /opt/FJSVswstf/cluster/swcluster.ini file. Refer to "swcluster.ini" for information on how to edit.
- 5. Delete the directories in the shared disk for AdvancedCopy Manager shared data.

```
<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>
+---/etc
|   ---/opt
|   ---/swstorage
+---/var
    ---/opt
    ---/swstorage
```

- 6. For Management Server transactions, edit the /etc/opt/swstorage/swstg.ini file. Refer to "swstg.ini" for information on how to edit.

7. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Use an OS command such as vi to delete it from /etc/services.

- Communication daemon for transactions : stgxfws_logicalNodeName

8. For Managed Server, unmount the shared disks.

Unmount the shared disks for the AdvancedCopy Manager shared data on the primary node.

9. For Managed Server transactions, start up cluster transaction when using the stopped cluster transaction except for AdvancedCopy Manager.

Refer to your cluster software manual for information on how to start cluster transactions.

A.4.3 Methods for Editing Setup Files

This section explains how to edit setup files for deleting the cluster environment.

- On the secondary node
 - [swcluster.ini](#)
 - [swstg.ini](#)
- On the primary node
 - [swcluster.ini](#)
 - [swstg.ini](#)

On Secondary Node

swcluster.ini

This section explains how to edit the "/opt/FJSVswstf/cluster/swcluster.ini" file on the secondary node.

Table A.17 Setting Items

Item	Contents of Setting
Env_ <i>N</i>	Logical node name For <i>N</i> , specify a non-duplicate value from 1 to 20. Specify the same value as Swstgnode in "Table A.6 Setting Items" for the logical node name.
BusiType	AdvancedCopy Manager server type Specify each of the following values depending on the server transaction. <ul style="list-style-type: none"> - For Management Server transactions: 1 - For Managed Server transactions: 2
Business	Name of cluster transaction
ShareEtc	Name of directory for environment settings for cluster transactions <Mount point of shared disk for shared data>/etc/opt
ShareVar	Name of working directory for cluster transactions <Mount point of shared disk for shared data>/var/opt
MountPoint	Mount point of shared disk for shared data
IPVersion	[Solaris 10, Solaris 11, Linux only] IP version of the takeover IP address for AdvancedCopy Manager Specify the following value according to the IP version of the takeover IP address to be used, if the server type is Management Server transactions. <ul style="list-style-type: none"> - If using IPv4 address only: IPv4

Item	Contents of Setting
	<ul style="list-style-type: none"> - If using IPv6 address only: IPv6 - If using both IPv4 and IPv6 addresses: Dual
IPAddr	Takeover IP address for AdvancedCopy Manager
IPv6Addr	<p>[Solaris 10, Solaris 11, Linux only]</p> <p>Takeover IP address for AdvancedCopy Manager</p> <p>Specify only if the server type is Management Server transactions. Specify the IPv6 address when using IPv6 address or both IPv4 and IPv6 addresses. The specified IPv6 address should one that is usable with the cluster software.</p>
NodeName	Name of primary node (Name of primary node host)

Edit the file. Modify or add the portions in italics according to your environment.

```
[ClusterCommon]
Cluster=ON (*1)
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN (*2)
Env_N=<Logical node name>
[<Logical node name>]
Type=Secondary
BusiType=<AdvancedCopy Manager server type>
Business=<Name of cluster transaction>
ShareEtc=<Mount point of shared disk for shared data>/etc/opt
ShareVar=<Mount point of shared disk for shared data>/var/opt
MountPoint=<Mount point of shared disk for shared data>
IPVersion=<IP version of IP address>
IPAddr=<Takeover IPv4 address for AdvancedCopy Manager>
IPv6Addr=<Takeover IPv6 address for AdvancedCopy Manager>
IPUseType=0
IPRscName=
Hostname=
NodeName=<Name of primary node (Name of primary node host)>
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

*1: This line needs to be modified when deleting the last cluster transactions on this server.

*2: This line needs to be deleted when deleting the last cluster transactions on this server.

The following is an example of editing the file.

- For Management Server transactions : When deleting the last cluster transactions on this server

<Before deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
```

```

Env_1=acmnode1
[acmnode1]
Type=Secondary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

<After deletion>

```

[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300

```

- For Management Server transactions : When other cluster transactions have already been created on this server

<Before deletion>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00

```

```
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Secondary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

- For Managed Server transactions: For deleting the last cluster transactions on this server

<Before deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
```

```
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Secondary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After deletion>

```
[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300
```

- For Managed Server transactions: When other cluster transactions have already been created on this server

<Before deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
```

```

Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Secondary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

<After deletion>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
[acmnode2]
Type=Secondary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

swstg.ini

This section explains how to edit the "/etc/opt/swstorage/swstg.ini" file on the secondary node.



After starting operation, the program in this product may add/modify/delete parameters other than those of "Table A.18 Setting Items" for the swstg.ini file. For this reason, do not add/modify/delete parameters other than those of "Table A.18 Setting Items".

Table A.18 Setting Items

Item	Contents of Setting
Type	AdvancedCopy Manager server type of local transaction Set to "1".

Edit the file. Modify or add the portions in italics according to your environment.

```
[Common]
Edition=EE
Version=V16.2
Type=<AdvancedCopy Manager server type of local transaction>
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

The following is an example of editing the file.

```
[Common]
Edition=EE
Version=V16.2
Type=1
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

On Primary Node

swcluster.ini

This section explains how to edit the "/opt/FJSVswstf/cluster/swcluster.ini" file on the primary node.

Table A.19 Setting Items

Item	Contents of Setting
Env_ <i>N</i>	Logical node name For <i>N</i> , specify a non-duplicate value from 1 to 20. Specify the same value as Swstgnode in "Table A.6 Setting Items" for the logical node name.
BusiType	AdvancedCopy Manager server type Specify each of the following values depending on the server transaction. - For Management Server transactions: 1 - For Managed Server transactions: 2
Business	Name of cluster transaction
ShareEtc	Name of directory for environment settings for cluster transactions <i><Mount point of shared disk for shared data>/etc/opt</i>
ShareVar	Name of working directory for cluster transactions <i><Mount point of shared disk for shared data>/var/opt</i>
MountPoint	Mount point of shared disk for shared data
IPVersion	[Solaris 10, Solaris 11, Linux only] IP version of the takeover IP address for AdvancedCopy Manager Specify the following value according to the IP version of the takeover IP address to be used, if the server type is Management Server transactions. - If using IPv4 address only: IPv4 - If using IPv6 address only: IPv6 - If using both IPv4 and IPv6 addresses: Dual
IPAddr	Takeover IP address for AdvancedCopy Manager
IPv6Addr	[Solaris 10, Solaris 11, Linux only] Takeover IP address for AdvancedCopy Manager Specify only if the server type is Management Server transactions. Specify the IPv6 address when using IPv6 address or both IPv4 and IPv6 addresses. The specified IPv6 address should one that is usable with the cluster software.
NodeName	Primary node name (Name of primary node host)

Edit the file. Modify or add the portions in italics according to your environment.

```
[ClusterCommon]
Cluster=ON (*1)
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN (*2)
Env_N =<Logical node name>
[<Logical node name>]
Type=Primary
BusiType=<AdvancedCopy Manager server type>
Business=<Name of cluster transaction>
ShareEtc=<MountPoint>/etc/opt
ShareVar=<MountPoint>/var/opt
MountPoint=<Mount point of shared disk for shared data>
IPVersion=<IP version of IP address>
IPAddr=<Takeover IPv4 address for AdvancedCopy Manager>
```

```

IPv6Addr=<Takeover IPv6 address for AdvancedCopy Manager>
IPUseType=0
IPRscName=
Hostname=
NodeName=<Name of primary node (Name of primary node host)>
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

*1: This line needs to be modified when deleting the last cluster transactions on this server.

*2: This line needs to be deleted when deleting the last cluster transactions on this server.

The following is an example of editing the file.

- For Management Server transactions : When creating the last cluster transactions on this server

<Before deletion>

```

[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Primary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m4001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure

```

<After deletion>

```

[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300

```


- For Management Server transactions : When other cluster transactions have already been created on this server
<Before deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Primary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Primary
BusiType=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPVersion=IPv4
IPAddr=10.10.10.10
IPv6Addr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
```

```
System=GEN
Env_2=acmnode2
[acmnode2]
Type=Primary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

- For Managed Server transactions:When deleting the last cluster transactions on this server

<Before deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_1=acmnode1
[acmnode1]
Type=Primary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After deletion>

```
[ClusterCommon]
Cluster=OFF
Max=20
StartTimeOut=300
StopTimeOut=300
```

- For Managed Server transactions: When other cluster transactions have already been created on this server

<Before deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
Env_1=acmnode1
[acmnode2]
Type=Primary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
[acmnode1]
Type=Primary
BusiType=2
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

<After deletion>

```
[ClusterCommon]
Cluster=ON
Max=20
StartTimeOut=300
StopTimeOut=300
System=GEN
Env_2=acmnode2
```

```
[acmnode2]
Type=Primary
BusiType=2
Business=acmbiz02
ShareEtc=/acmdata02/etc/opt
ShareVar=/acmdata02/var/opt
MountPoint=/acmdata02
IPAddr=
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
Date=00/00/00 00:00:00
Setup=YES
ResourceType=Procedure
```

swstg.ini

This section explains how to edit the "/etc/opt/swstorage/swstg.ini" file on the primary node.



After starting operation, the program in this product may add/modify/delete parameters other than those of "Table A.20 Setting Items" for the swstg.ini file. For this reason, do not add/modify/delete parameters other than those of "Table A.20 Setting Items".

Table A.20 Setting Items

Item	Contents of Setting
Type	AdvancedCopy Manager server type of local transaction Set to "1".

Edit the file. Modify the portions in italics according to your environment.

```
[Common]
Edition=EE
Version=V16.2
Type=<AdvancedCopy Manager server type of local transaction>
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```

The following is an example of editing the file.

```
[Common]
Edition=EE
```

```
Version=V16.2
Type=1
AFSType=1
Language=ENGLISH
BaseDir_Opt=/opt
BaseDir_Var=/var/opt
BaseDir_Etc=/etc/opt
[Install]
FJSVswstf=20101116
FJSVswtrc=20101116
FJSVgrapi=20101116
FJSVswsts=20101116
FJSVswsrp=20101116
FJSVswstc=20101116
```