

ETERNUS SF
Storage Cruiser V15.0/
AdvancedCopy Manager V15.0

Cluster Environment Setup Guide

Preface

Purpose

This manual provides information on installation and operation for ETERNUS SF Storage Cruiser and ETERNUS SF AdvancedCopy Manager of the following Storage Management Software ETERNUS SF products (hereafter abbreviated as "ETERNUS SF series") on storage systems in a clustered system.

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

Target readers

This manual is intended for system managers responsible for managing storage with ETERNUS SF Storage Cruiser and ETERNUS SF 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 Commands](#)

This chapter explains how to use commands.

[Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER](#)

This appendix explains how to create AdvancedCopy Manager resources and userApplications with Solaris version PRIMECLUSTER.

[Appendix B Setup procedures on Windows Server 2008 x64](#)

This appendix explains the cluster setup procedures to the Managed Server on Windows Server 2008 x64.

[Appendix C Applying Clusters for Linux/HP-UX Version](#)

This appendix explains how to apply AdvancedCopy Manager's agents in the following Linux and 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(R) XP Professional Edition Microsoft(R) Windows(R) XP Home Edition	Windows XP	
Windows Vista(R) Home Basic Windows Vista(R) Home Premium Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate	Windows Vista	

Formal name	Abbreviation		
Windows(R) 7 Home Basic Windows(R) 7 Home Premium Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate	Windows 7		
Solaris(TM) 9 Operating System	Solaris 9	Solaris or Solaris OS	
Oracle Solaris 10	Solaris 10		
Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T)	RHEL-AS4	Linux	
Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T)	RHEL-ES4		
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5		
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6		
SUSE(R) Linux Enterprise Server 11 (for x86) SUSE(R) Linux Enterprise Server 11 (for EM64T)	-		
HP-UX 11.0 HP-UX 11i v1 HP-UX 11i v2 HP-UX 11i v3	HP-UX		
AIX 5L V5.1 AIX 5L V5.2 AIX 5L V5.3	AIX		
VMware(R) Infrastructure 3 Foundation VMware(R) Infrastructure 3 Standard VMware(R) Infrastructure 3 Enterprise	VMware Infrastructure 3	VMware	
VMware vSphere(R) 4 Essentials Kit VMware vSphere(R) 4 Essentials Plus Kit VMware vSphere(R) 4 Standard Edition(TM) VMware vSphere(R) 4 Standard Plus Data Recovery VMware vSphere(R) 4 Advanced Edition(TM) VMware vSphere(R) 4 Enterprise Edition(TM) VMware vSphere(R) 4 Enterprise Plus Edition(TM)	VMware vSphere 4		
VMware vSphere(R) 5 Essentials Kit VMware vSphere(R) 5 Essentials Plus Kit VMware vSphere(R) 5 Standard Edition(TM) VMware vSphere(R) 5 Standard Plus Data Recovery VMware vSphere(R) 5 Enterprise Edition(TM) VMware vSphere(R) 5 Enterprise Plus Edition(TM)	VMware vSphere 5		

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

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

Formal name	Abbreviation		
ETERNUS DX60/DX60 S2 ETERNUS DX80/DX80 S2 ETERNUS DX90/DX90 S2	-	ETERNUS DX series	ETERNUS Disk storage system
ETERNUS DX410 ETERNUS DX440	ETERNUS DX400 series	ETERNUS DX400/ DX400 S2 series	

Formal name	Abbreviation			
ETERNUS DX410 S2 ETERNUS DX440 S2	ETERNUS DX400 S2 series			
ETERNUS DX8100 ETERNUS DX8400 ETERNUS DX8700	ETERNUS DX8000 series	ETERNUS DX8000/DX8000 S2 series		
ETERNUS DX8100 S2 ETERNUS DX8700 S2	ETERNUS DX8000 S2 series			
ETERNUS2000 ETERNUS4000 ETERNUS8000	-			
Web GUI of ETERNUS DX series	ETERNUS Web GUI			
ETERNUSmgr				

Software products

Formal name	Abbreviation
Microsoft(R) Internet Explorer(R)	Internet Explorer
Mozilla(R) Firefox(R)	Firefox
Microsoft(R) Cluster Service	MSCS
Microsoft(R) Windows Server(R) Failover Clustering	WSFC
Microsoft(R) Exchange Server	Exchange Server
Microsoft(R) SQL Server(TM)	SQL Server
PRIMECLUSTER Global Disk Services	GDS
PRIMECLUSTER Global File Services	GFS
Symfoware Server Enterprise Extended Edition Symfoware Server Enterprise Edition	Symfoware
HITACHI JP1/HiCommand Dynamic Link Manager	HDLM
VMware(R) ESX(R)	VMware ESX
VMware(R) ESXi(TM)	VMware ESXi
VMware(R) vCenter(TM) Server	VMware vCenter Server or vCenter Server

Manuals

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

Formal name	Abbreviation
ETERNUS SF Express / ETERNUS SF Storage Cruiser Event Guide	ETERNUS SF Event Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Glossary	ETERNUS SF Glossary

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Notes

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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 (NOTE)			Explanation
		EXP	SC	ACM	
Before installation	Quick Reference	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available: <ul style="list-style-type: none"> - Express Quick Reference - Storage Cruiser Quick Reference - AdvancedCopy Manager Quick Reference
	Overview	No	No	Yes	This manual is unique for each product.
During installation	Installation and Setup Guide	Yes			This manual is common for all products.
	Cluster Environment Setup Guide	No	Yes		This manual is common for Storage Cruiser and AdvancedCopy Manager.
	Migration Guide	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 Option - AdvancedCopy Manager Operation Guide (for Windows) - AdvancedCopy Manager Operation Guide (for Solaris) - AdvancedCopy Manager Operation Guide (for Linux) - AdvancedCopy Manager Operation Guide (for HP-UX) - AdvancedCopy Manager Operation Guide (for AIX)
	Operation Guide for Copy Control Module	Yes	No	Yes	This manual is common for Express and AdvancedCopy Manager.
	Web Console Guide	Yes			This manual is common for all products.
Anytime	Event Guide	Yes		No	This manual is common for Express and Storage Cruiser.
	Messages	Yes			This manual is common for all products.
	Glossary	Yes			This manual is common for all products.

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

How to read manuals

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

Purpose	Related products (NOTE)	Manual	Main contents	How to read
Acquiring a product overview	EXP	- Express Quick Reference	- Product overview	Please read if you want to acquire a fundamental

Purpose	Related products (NOTE)	Manual	Main contents	How to read
and basic operation knowledge	SC	- Storage Cruiser Quick Reference	- Installation decision	knowledge of the product and its operation in order to decide to install it or not.
	ACM	- AdvancedCopy Manager Quick Reference	- Overview of the necessary tasks from installation to first use	
		- AdvancedCopy Manager Overview	- Main functions - Linkable applications - Procedure overview for Advanced Copy of ETERNUS Disk storage system	
Deciding if a version upgrade is required	common	- ETERNUS SF Migration Guide	- Incompatibilities with previous version - Notes and cautions about version upgrade - Version upgrade procedure	Please read if you want to upgrade from a previous version.
Installing and correctly operating the product Setting up operating environment depending on purpose	common	- ETERNUS SF Installation and Setup Guide	- Operating environment - Installation procedure - Setup procedure - Uninstallation procedure	Please read if you want to install and setup the product.
	SC, ACM	- ETERNUS SF Cluster Environment Setup Guide	- Supported cluster software - Installation procedure for a clustered system - Setup procedure for a clustered system - Uninstallation procedure for a clustered system	Please read if you want to install and setup the product on a clustered system.
Administration and operation of the installed system	EXP	- Express Operation Guide	- 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.
	SC	- Storage Cruiser Operation Guide	- Starting and stopping the software - Device monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance	

Purpose	Related products (NOTE)	Manual	Main contents	How to read
		- Storage Cruiser Operation Guide for Optimization Option	<ul style="list-style-type: none"> - Command reference - Operating environment construction - Operating status monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	
	EXP, ACM	- ETERNUS SF Operation Guide for Copy Control Module	- Starting and stopping the software	
	ACM	<ul style="list-style-type: none"> - 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"> - Data backup/restore inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference 	
	common	- ETERNUS SF Web Console Guide	<ul style="list-style-type: none"> - Operating environment - Screen layout description 	
Dealing with messages issued by the software	common	- ETERNUS SF 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	EXP, SC	- ETERNUS SF 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	common	- ETERNUS SF Glossary	<ul style="list-style-type: none"> - Product specific terminology explanation - Explanation of important terminology appearing in the manual - Synonyms and related terms 	Please read if you want to learn the meaning of important terms, product specific terms or abbreviations used in the manuals.

Purpose	Related products (NOTE)	Manual	Main contents	How to read
			- Proper form of abbreviated terms	

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

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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, the server machines are collectively called a cluster, and each server machine in the cluster is called a node.

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

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



See

The cluster operation and the names given to those that are supported with a clustered system differ from each other in different systems. For more information on this, refer to the cluster software manuals.

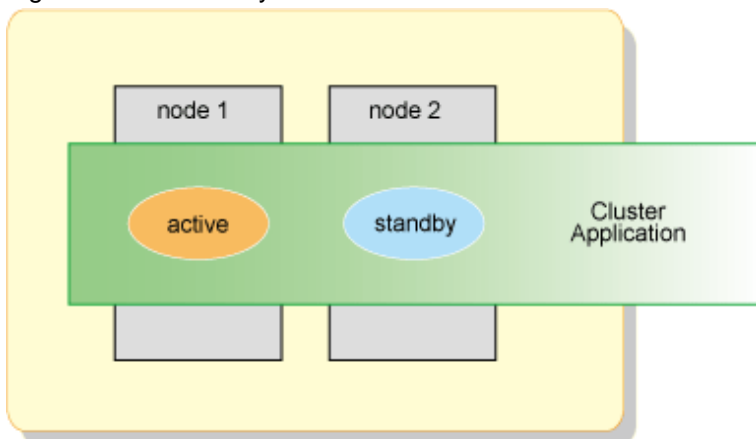
1.1 Standby Operation

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 cluster 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.

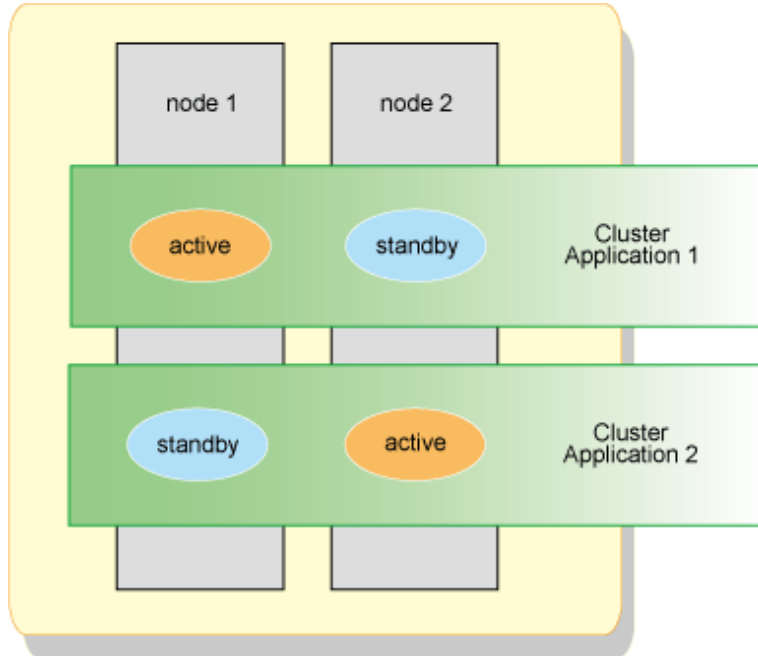
Figure 1.1 1:1 standby



1.1.2 Mutual standby

The cluster 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.

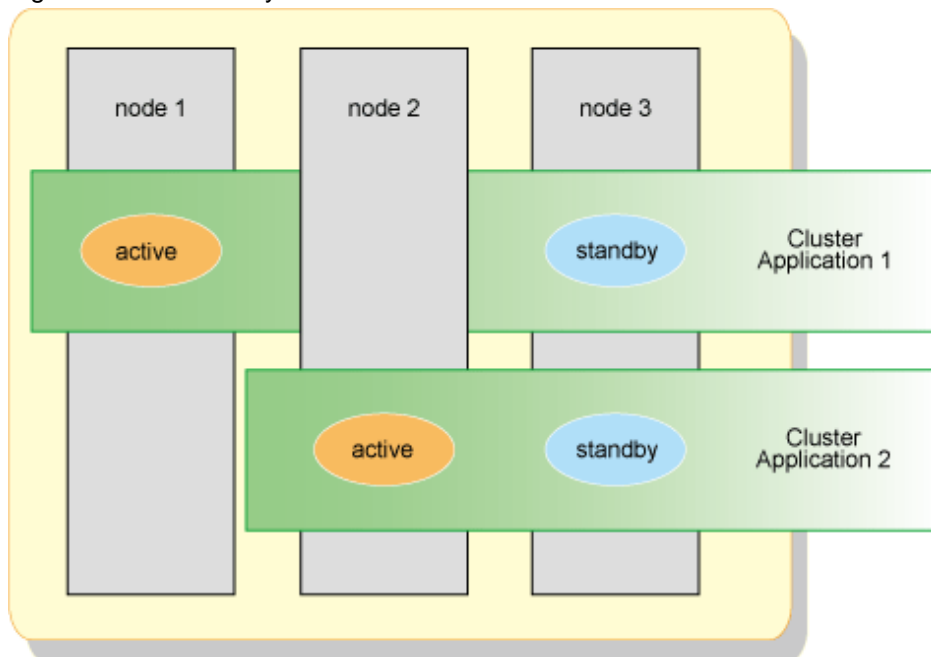
Figure 1.2 Mutual standby



1.1.3 N:1 standby system

The cluster 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.

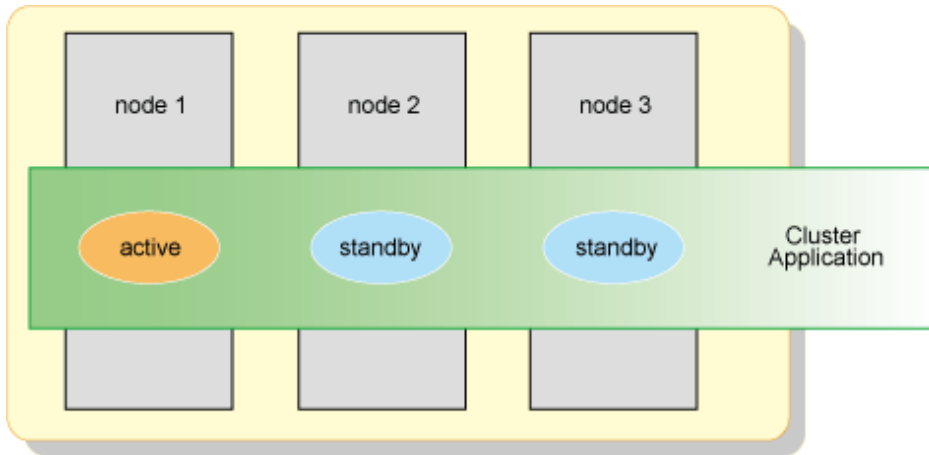
Figure 1.3 N:1 standby



1.1.4 Cascade

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

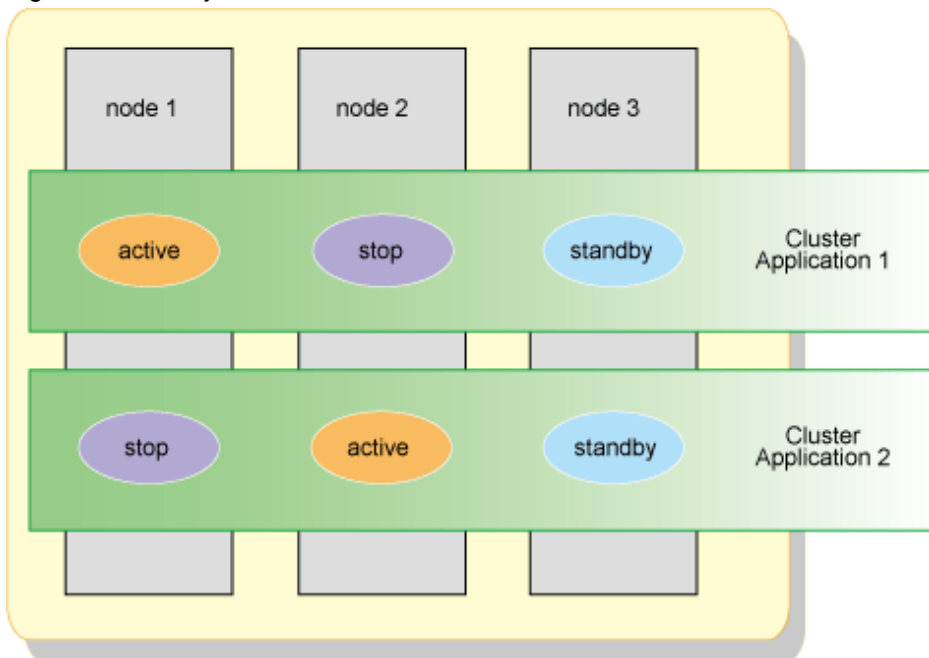
Figure 1.4 Cascade



1.1.5 Priority transfer

The cluster 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.

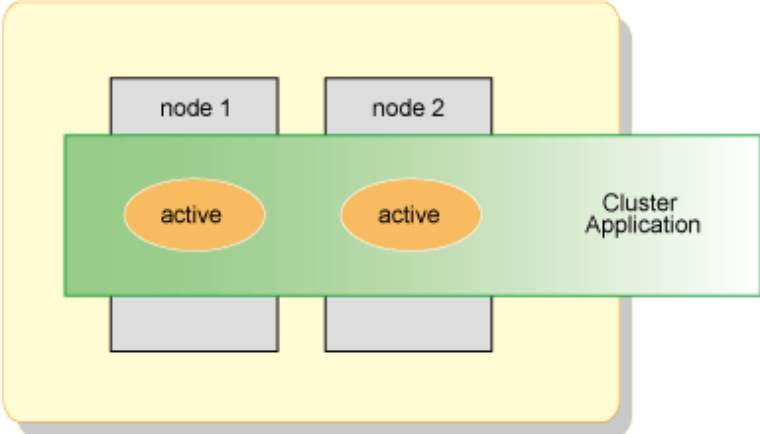
Figure 1.5 Priority transfer



1.2 Scalable Operation

In a scalable operation, the cluster 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 this operation of cluster are not divided into active and standby nodes. If one server in a cluster fails, the remaining servers in the cluster 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 "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

For details about the server on which to install ETERNUS SF Manager, refer to "Hardware requirements" under "Operating environment of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

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 2008 R2 Standard SP1	Windows Server Failover Clustering
	Windows Server 2008 R2 Enterprise SP1	
	Windows Server 2008 R2 Datacenter SP1	
	Windows Server 2008 R2 Standard	
	Windows Server 2008 R2 Enterprise	
	Windows Server 2008 R2 Datacenter	
	Windows Server 2008 Standard SP2 (32-bit)(64-bit)	
	Windows Server 2008 Enterprise SP2 (32-bit)(64-bit)	
	Windows Server 2008 Datacenter SP2 (32-bit)(64-bit)	
	Windows Server 2008 Standard (32-bit)(64-bit)	
	Windows Server 2008 Enterprise (32-bit)(64-bit)	
	Windows Server 2008 Datacenter (32-bit)(64-bit)	
	Windows Server 2008 Standard SP2 without Hyper-V (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 Standard 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)		
Solaris	Solaris 10	Fujitsu PRIMECLUSTER V4.1A40 or later
	Solaris 9	Fujitsu PRIMECLUSTER V4.1A30 or later
Linux	Red Hat Enterprise Linux 6 (for x86) Red Hat Enterprise Linux 6 (for Intel64)	Fujitsu PRIMECLUSTER V4.3A10
	Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64)	Fujitsu PRIMECLUSTER V4.2A30 or later



For details on software condition required for a server in which ETERNUS SF Manager will be installed, refer to "Software requirements" under "Operating environment of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

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

For details about the servers on which to install the AdvancedCopy Manager's agent, refer to "Hardware requirements" under "Operating environment of AdvancedCopy Manager's agent" in the "ETERNUS SF Installation and Setup Guide".

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 2008 R2 Standard SP1 Windows Server 2008 R2 Enterprise SP1 Windows Server 2008 R2 Datacenter SP1 Windows Server 2008 R2 Standard Windows Server 2008 R2 Enterprise Windows Server 2008 R2 Datacenter Windows Server 2008 Standard SP2 (32-bit)(64-bit) Windows Server 2008 Enterprise SP2 (32-bit)(64-bit) Windows Server 2008 Datacenter SP2 (32-bit)(64-bit) Windows Server 2008 Standard (32-bit)(64-bit) Windows Server 2008 Enterprise (32-bit)(64-bit) Windows Server 2008 Datacenter (32-bit)(64-bit) Windows Server 2008 Standard SP2 without Hyper-V (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 Standard 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, Standard Edition SP2 Windows Server 2003 R2, Enterprise Edition SP2 Windows Server 2003 R2, Standard x64 Edition SP2 Windows Server 2003 R2, Enterprise x64 Edition SP2 Windows Server 2003, Standard Edition SP2 Windows Server 2003, Enterprise Edition SP2 Windows Server 2003, Standard x64 Edition SP2 Windows Server 2003, Enterprise x64 Edition SP2	Cluster Service
Solaris	Solaris 10	Fujitsu PRIMECLUSTER V4.1A40 or later VERITAS Cluster Server 4.1 VERITAS Cluster Server 5.0 Sun Cluster 3.1 Sun Cluster 3.2

OS	OS level	Cluster software and version
	Solaris 9	Fujitsu SynfinityCluster V2.0 Fujitsu PRIMECLUSTER V4.1A30 or later VERITAS Cluster Server 4.0 VERITAS Cluster Server 4.1
Linux	Red Hat Enterprise Linux 6 (for x86)	Fujitsu PRIMECLUSTER V4.3A10
	Red Hat Enterprise Linux 6 (for Intel64)	Fujitsu PRIMECLUSTER V4.3A10 Veritas Storage Foundation Standard HA 5.1
	Red Hat Enterprise Linux 5 (for x86)	Fujitsu PRIMECLUSTER V4.2A30 or later
	Red Hat Enterprise Linux 5 (for Intel64)	Fujitsu PRIMECLUSTER V4.2A30 or later Veritas Storage Foundation Standard HA 5.1
	Red Hat Enterprise Linux AS (v.4 for x86) Red Hat Enterprise Linux ES (v.4 for x86)	Fujitsu PRIMECLUSTER V4.2A00 or later
	Red Hat Enterprise Linux AS (v.4 for EM64T) Red Hat Enterprise Linux ES (v.4 for EM64T)	Fujitsu PRIMECLUSTER V4.1A40 or later
	SUSE Linux Enterprise Server 11 (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.11.13 VERITAS Cluster Server 5.0
	HP-UX 11.0 HP-UX 11i v1	MC/ServiceGuard A.11.13
AIX	AIX 5L V5.3	High Availability Cluster Multi-Processing 5.1 VERITAS Cluster Server 5.0
	AIX 5L V5.1 AIX 5L V5.2	High Availability Cluster Multi-Processing 5.1

Point

For details about the software requirements on the server on which AdvancedCopy Manager's agents are installed, check the "Software requirements" under "Operating environment of AdvancedCopy Manager's agent" in the "ETERNUS SF Installation and Setup Guide".

2.3 Operating Environment of AdvancedCopy Manager CCM

This section explains the operating environment that is required for the AdvancedCopy Manager Copy Control Module (Abbreviated as "AdvancedCopy Manager CCM" in the following.).

2.3.1 Hardware requirements

For details about the server on which to install AdvancedCopy Manager CCM, refer to "Hardware requirements" under "Operating environment of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

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 2008 R2 Standard SP1 Windows Server 2008 R2 Enterprise SP1 Windows Server 2008 R2 Datacenter SP1 Windows Server 2008 R2 Standard Windows Server 2008 R2 Enterprise Windows Server 2008 R2 Datacenter Windows Server 2008 Standard SP2 (32-bit)(64-bit) Windows Server 2008 Enterprise SP2 (32-bit)(64-bit) Windows Server 2008 Datacenter SP2 (32-bit)(64-bit) Windows Server 2008 Standard (32-bit)(64-bit) Windows Server 2008 Enterprise (32-bit)(64-bit) Windows Server 2008 Datacenter (32-bit)(64-bit) Windows Server 2008 Standard SP2 without Hyper-V (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 Standard 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
Solaris	Solaris 10	Fujitsu PRIMECLUSTER V4.1A40 or later
Linux	Red Hat Enterprise Linux 6 (for x86) Red Hat Enterprise Linux 6 (for Intel64)	Fujitsu PRIMECLUSTER V4.3A10
	Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64)	Fujitsu PRIMECLUSTER V4.2A30 or later

Point

For details about the software requirements on the server on which AdvancedCopy Manager CCM is installed, check the "Software requirements" under "Operating environment of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

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 the 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 the 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	-	-	-	-
AIX	High Availability Cluster Multi-Processing	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 the 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
PRIMECLUSTER	Cluster Application or userApplication
VERITAS Cluster Server	Service Group
MC/ServiceGuard	Package
High Availability Cluster Multi-Processing	Resource Group

In case of 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 node name)" 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 (ie, 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

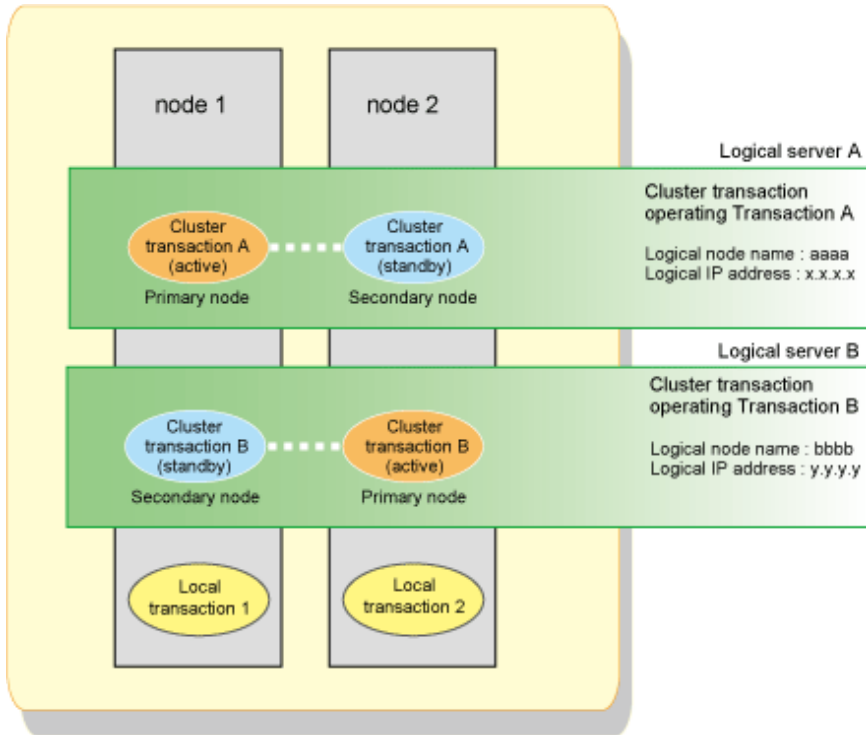
switch over to another by failure. For local transactions, set this local transaction to perform local volume backup/replication that is not included in a cluster transaction. When operating the backup/replication that is not included in a cluster transaction, set the backup/replication to the local 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 (Storage Management Server)
- Managed Server (Storage 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 Copy Control Module 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 (Storage Management Server transactions), Managed Server operations are referred to as Managed Server

transactions (Storage 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

[Notes:]

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.

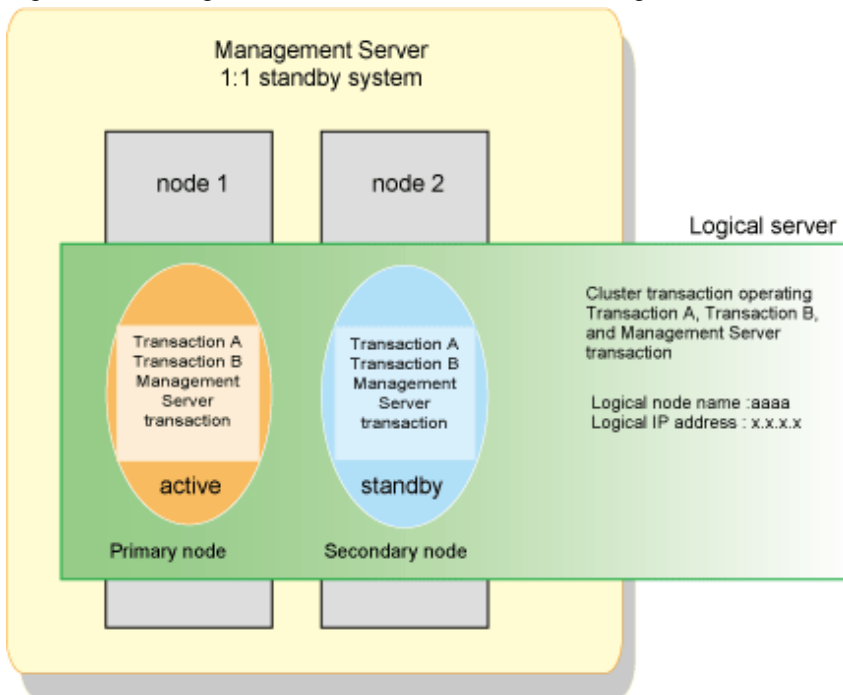
2.5.1 Construction of a clustered system of the type with 1:1 standby

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 are installed on node 1 and node 2 to construct the Management Server transaction.

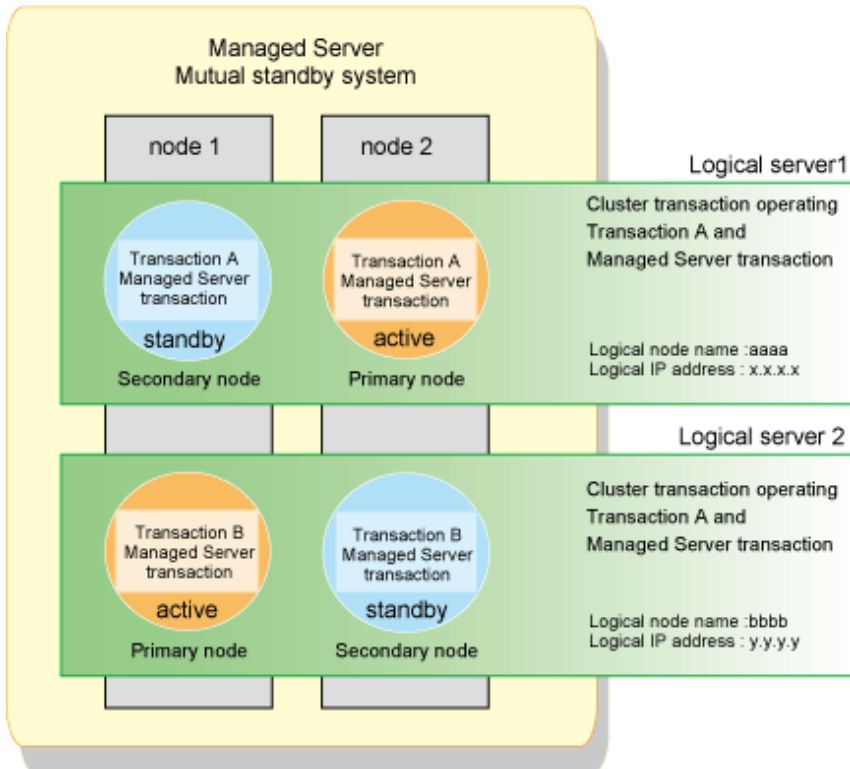
To build Management Server transactions, install the ETERNUS SF Manager on both nodes.

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

2.5.2 Construction of a clustered system of the 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

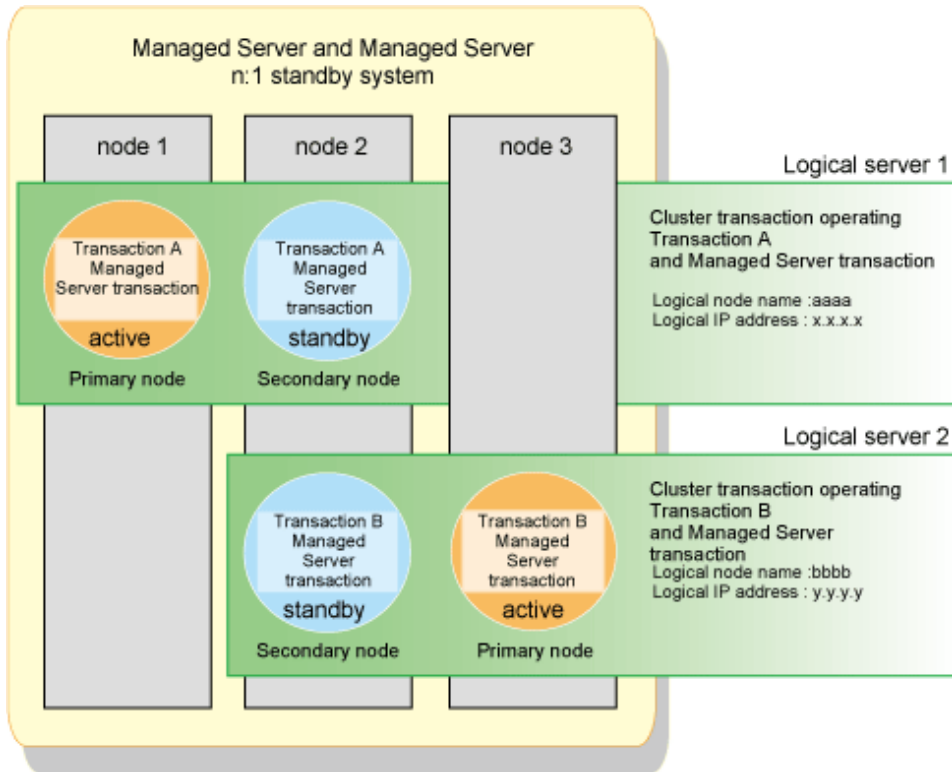


To configure a mutual standby environment for Managed Server transactions, install the AdvancedCopy Manager's agent on both nodes. In the above configuration, the AdvancedCopy Manager's agent is installed on node 1 and node 2 to construct the Managed Server transaction.

2.5.3 Construction of a clustered system of the 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

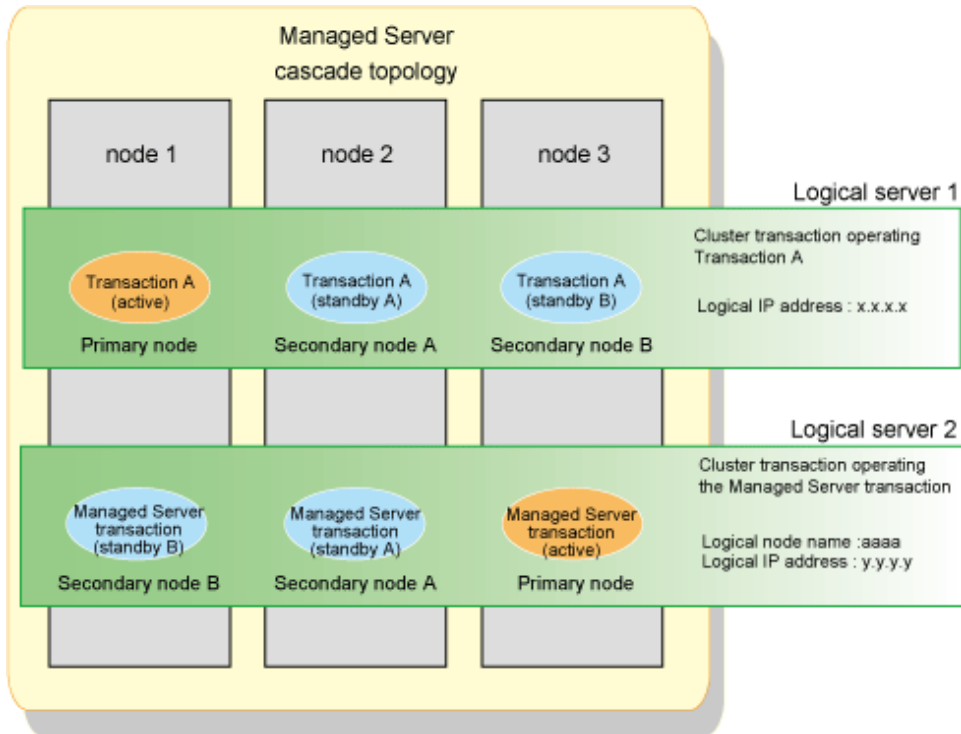


To configure an n:1 standby environment for Managed Server transactions, install the AdvancedCopy Manager's agent on all nodes. In the above configuration, the AdvancedCopy Manager's agent is installed on all nodes to construct the Managed Server transaction.

2.5.4 Construction of a clustered system of the 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



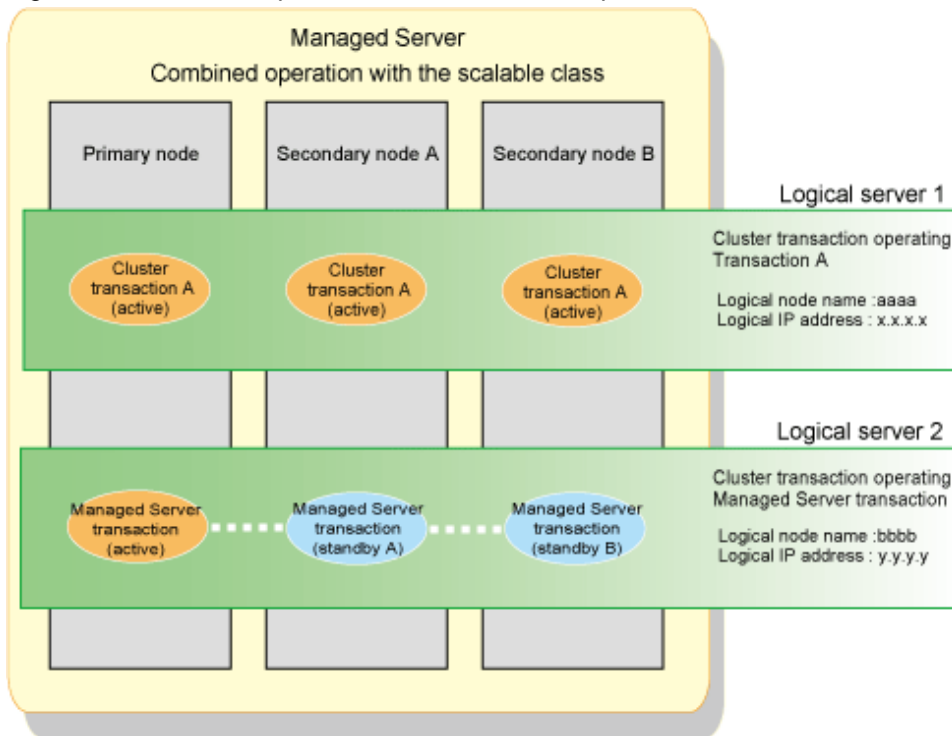
To configure a cascade topology environment and a priority transfer environment for Managed Server transactions, install the AdvancedCopy Manager's agent on all nodes.

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 the 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 the 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**

For notes on combined operation with transactions in scalable operation, refer to "Notes on cluster operation" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

Chapter 3 Installation of ETERNUS SF Manager

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

For migrating a version level from a previous version level, refer to "Upgrade for Storage Cruiser" or "Upgrade for AdvancedCopy Manager" in the "ETERNUS SF Migration Guide".

Point

To operate a Management Server transaction on the clustered system, cluster software installation and environment setting are required. For details, refer to the cluster software manual of your environment.

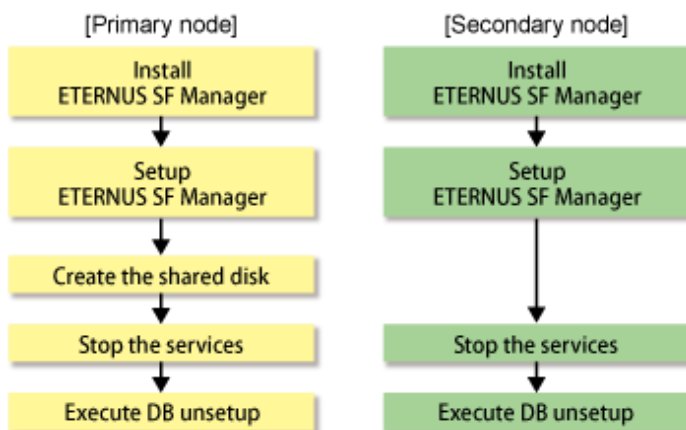
3.1 Installation for Windows version

This section explains the procedure for installing ETERNUS SF Manager in Windows version.

3.1.1 Installation workflow

The workflow for installation is as shown below.

Carry out installation first on the primary node and then on the secondary node.



3.1.2 Details of installation work

Install ETERNUS SF Manager according to the procedure below.

Note

- If customization in the Windows version of WSFC is implemented by a user belonging to the "Administrators" of the domain, the "Computer Browser Service" of the Windows services must be running.
- Since using the telnet server service for implementing this process causes malfunctions, do not use the telnet server service.

1. Install ETERNUS SF Manager on the primary node. However, do not install it on a shared disk.

For details, refer to "Installation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

2. Set up ETERNUS SF Manager on the primary node.

For details, refer to "Setup of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

3. Create a shared disk on the primary node.

4. Stop the following services on the primary node.

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

5. On the primary node, execute DB unsetup.

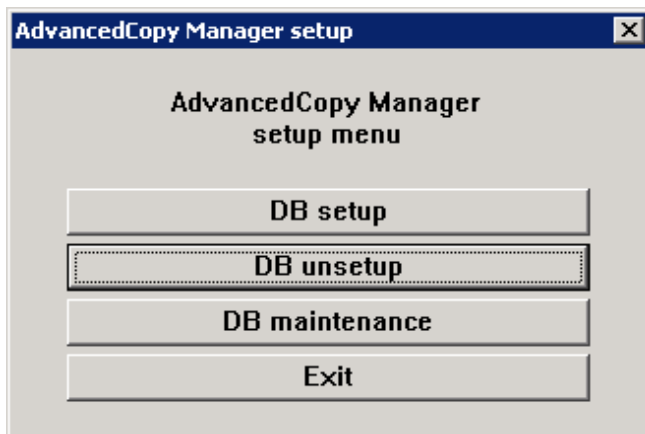


Precautions for running DB unsetup

- Since using the telnet server service for implementing this process causes malfunctions, do not use the telnet server service.
- DB unsetup utilizes Symfoware functions. If Symfoware is being monitored by other software at the same time, execution of DB unsetup may fail.
Therefore, stop Symfoware monitoring before executing DB unsetup.

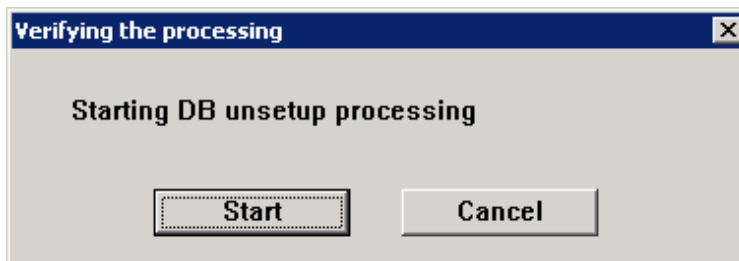
1. Start the [AdvancedCopy Manager Setup] menu.

Start by the [Start] button-> [Programs] -> [ETERNUS SF Manager] -> [DB setup tool] to start the [AdvancedCopy Manager Setup] menu.



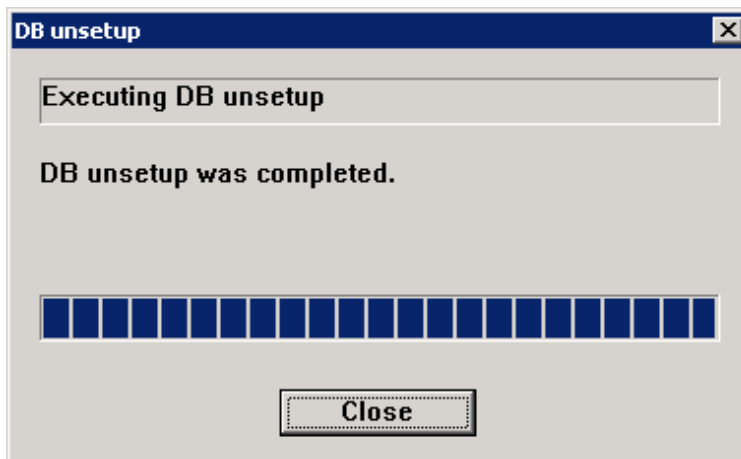
2. Start [DB unsetup].

On clicking [DB unsetup], the prompt below is displayed. Make sure that it is no problem to delete the DB, and then click the [Start] button.



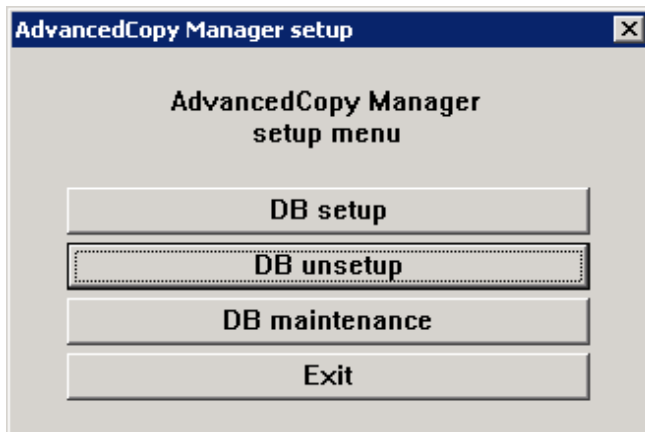
3. Exit the [DB unsetup] dialog.

When DB unsetup is complete and the following prompt is displayed, click the [Close] button.



4. Exit the [AdvancedCopy Manager Setup] menu.

On the prompt below, click the [Exit] button.



6. Install ETERNUS SF Manager on the secondary node. However, do not install it on a shared disk.
For details, refer to "Installation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".
For the installation target, specify the same path as the one specified for the primary node.
7. Set up ETERNUS SF Manager on the secondary node.
For details, refer to "Setup of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".
8. Stop the following services on the secondary node.
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
9. On the secondary node, execute DB unsetup.
The procedure for executing DB unsetup is the same as for the primary node.

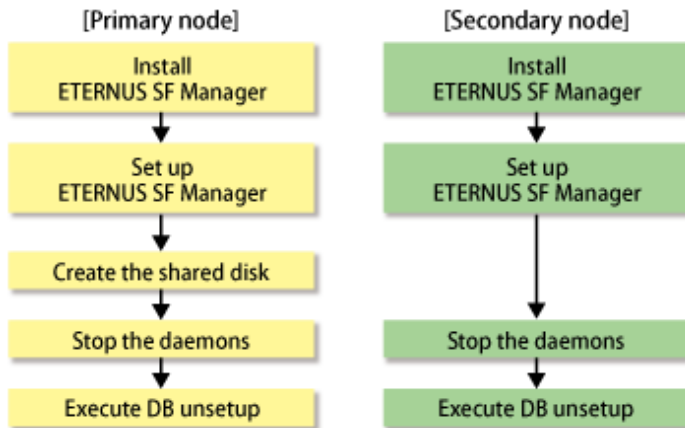
3.2 Installation for Solaris and Linux versions

This section explains the procedure for installing ETERNUS SF Manager in Solaris version/Linux version.

3.2.1 Installation workflow

The workflow for installation is as shown below.

Carry out installation first on the primary node and then on the secondary node.



3.2.2 Details of installation work

Install ETERNUS SF Manager according to the procedure below.



Note

- The port number for the communication service to be specified by installation is for communication service for local transactions. For setting port number of the cluster transaction communication service, execute the procedure according to the clustered system reference to "[Chapter 8 Customization of Managed Server Transactions](#)".
- Do not perform "Setup of Storage Cruiser's manager" in "ETERNUS SF Installation and Setup Guide" here. This setup is performed when setting up the Management Server transaction.

1. Install ETERNUS SF Manager on the primary node. However, do not install it on a shared disk.

For details, refer to "Installation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

2. Set up ETERNUS SF Manager on the primary node.

For details, refer to "Setup of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

3. Create a shared disk on the primary node as required.

4. Stop the daemons on the primary node.

Execute the following shell script:

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

The following daemons are stopped.

- ETERNUS SF Manager Apache daemon
- ETERNUS SF Manager Tomcat daemon
- ETERNUS SF Manager Postgres daemon
- Storage Cruiser Management Server daemon
- AdvancedCopy Manager daemon

5. On the primary node, execute DB unsetup.

Start uninstallation of the database integrated unsetup. Delete the database and its environment. Cancel the repository configurations.

Note

- Perform this procedure on the location that is specified when the Management Server is installed.
- DB unsetup utilizes Symfoware functions. If Symfoware is being monitored by other software at the same time, execution of DB unsetup may fail.
Therefore, stop Symfoware monitoring before executing DB unsetup.

The procedure is shown below.

1. Log in as a root user in the server.
2. Start uninstallation of the database integrated unsetup.

Enter the following command to start uninstallation of the database integrated unsetup.

```
# /opt/swstorage/bin/stgdbunset
```

3. Confirm whether to continue processing.

To continue processing, enter "y". To stop processing, enter "n".

```
////////////////////////////////////
AdvancedCopy Manager Storage management server ( kiku )
Database unsetup
////////////////////////////////////

+-----+
|
| All of database environments of AdvancedCopy Manager
| will be deleted.
|
| [Notes]
|   Once processing has started, all stored data is discarded.
|   Make sure that the environment allows execution
|   before proceeding.
|
+-----+

Do you want to continue with processing? [y/n] ==> y
```

4. The database and database environment of the Management Server are deleted.

During deletion of the database and database environment of the Management Server, the progress is displayed on the screen. The following is an example of execution progress.

Note

If an RDA-SV definition file overwrite confirmation message is displayed on the screen during processing, enter "y".

```
///// AdvancedCopy Manager database unsetup /////
```

```
Activation of RDB is complete.
```

```
=====  
The replication management will be deleted.  
=====
```

```

=====
Clearing of database will start. (replication management)
=====
.
Tables have been deleted. (replication management)
=====
Clearing of database is complete. (replication management)
=====

=====
The replication management has been deleted.
=====

.
.
.

=====
Clearing of database environment is complete.
=====

=====
The basic section has been deleted.
=====

Database unsetup ended normally.

#

```

6. Install ETERNUS SF Manager on the secondary node. However, do not install it on a shared disk.

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

7. Set up ETERNUS SF Manager on the secondary node.

For details, refer to "Setup of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

8. Stop the daemons on the secondary node.

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
- Storage Cruiser Management Server daemon
- AdvancedCopy Manager daemon

9. On the secondary node, execute DB unsetup.

Start uninstallation of the database integrated unsetup using same procedure as a primary node. Delete the database and its environment. Cancel the repository configurations.

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 (Storage 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.

For details on the disk space required for ETERNUS SF Manager, refer to "Dynamic Disk Space" under "Operating Environment for ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

- Disk resource of shared disk for shared data

Disk resource name of shared disk for shared data.

- Resource type

Procedure resource and command line 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 version

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='service name'")  
    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='service name'")
    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 LooksAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

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

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

End Function

```

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

- esfmanagerweb
- esfmanagertomcat

For Solaris version/Linux version

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
#

/etc/init.d/startSFmanager start
if [ $? -ne 0 ]; then
    exit 1
fi

exit 0

```

[Stop script]

```

#!/bin/sh

#
# ETERNUS SF Manager daemon stop for PRIMECLUSTER
#

/etc/init.d/startSFmanager stop

```

```
if [ $? -ne 0 ]; then
    exit 1
fi
```

[Check script]

- For Solaris version

```
#!/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 version

```

#!/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

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
Shared disk for repository	Required	Required	Required
Repository access user	Required	Required	Required
Installing user	Required	Unnecessary	Unnecessary
Start up/shut down script for AdvancedCopy Manager daemon	Unnecessary	Unnecessary	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_logical node name)" 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.

A port number must be an integer from 1024 to 65535 (from 5001 to 65535, in case of Windows version WSFC) that is currently not being used by another port.

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.

- Shared disk for repository

Prepare partitions on the shared disk for storing shared data for the AdvancedCopy Manager repository.

Any of the numbers listed below can be used for setting the number of partitions.

Table 4.4 Numbers of partitions required for each AdvancedCopy Manager's manager

Name	Management Server
Shared disk for AdvancedCopy Manager repository	4, 3, 2, 1, or 0

Each of the partitions of the shared disk for the repository is used for the database area stored in the following four directories:

- The directory for database file
- The directory for RDB dictionary
- The directory for RDB log file
- The directory for repository data storage database space

All of these directories can be created on the shared disk for AdvancedCopy Manager shared data.

Calculate the required disk space using the size estimate of database. For estimate the size, refer to "Estimation of database size" in "ETERNUS SF Installation and Setup Guide".

 **Note**

- Define both the shared disk for AdvancedCopy Manager shared data and the shared disk for AdvancedCopy Manager repository as shared disks of the clustered system.
- Assign a disk that is not backed up or replicated using AdvancedCopy Manager as the shared disk for AdvancedCopy Manager shared data and the shared disk for AdvancedCopy Manager repository.
- The four directories can be created on the same shared disk that includes both the shared disk for the repository and the shared disk for AdvancedCopy Manager shared data. However, in consideration of replicability and to upgrade performance, Fujitsu recommends each directory be created in a separate partition.
- The shared disk for AdvancedCopy Manager shared data and the shared disk for AdvancedCopy Manager repository are used for file systems. Make arrangements so that these disks can be mounted.

 **See**

For setting methods for shared disks and for file systems, refer to the manuals of your cluster software and your operating system.

- Repository access user

User name and password for accessing to the repository for Management Server transactions.

 **Note**

The local logon authority is needed for Windows version WSFC.

When the prepared user name is not registered in a system, register it in the system and add the local logon authority to it by cluster setup command. A user name is registered in a primary node and a secondary node.

It is necessary to register beforehand for all nodes for Solaris version PRIMECLUSTER and Linux version PRIMECLUSTER.

- 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 "[C.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=<Logical node name>

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 <Logical node name>.

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

For creating procedure of Start/Stop script, refer to the manuals of your cluster software.

4.1.4 Resources required for AdvancedCopy Manager CCM

AdvancedCopy Manager CCM requires the following resources:

Table 4.5 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 acservice stop command with the -lan option. For details on this command, refer to "acservice stop (management service stop command)" in the "ETERNUS SF Operation Guide for Copy Control Module".

- Management service of ETERNUS SF AdvancedCopy Manager CCM

For Windows version WSFC

Below is an example of a generic script file.

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

```

Function Online()
Dim WshShell
Set WshShell = CreateObject("WScript.Shell")
End Function

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("$INS_DIR\CCM\bin\acservice.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 "\$INS_DIR" in the script, specify the directory in which ETERNUS SF Manager or AdvancedCopy Manager CCM is installed.

For Solaris version/Linux version 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/acservice 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.

For creating procedure of Start/Stop script, refer to the manuals of your cluster software.

- Access volume

Access volume for issuing AdvancedCopy commands from the CCM server to ETERNUS Disk storage systems.

It is required for issuing AdvancedCopy commands 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 version

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 version/Linux version

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 multi path driver to an access volume in Solaris or Linux version, setup the device file name and system. For detail, refer to ETERNUS multi path driver manual.

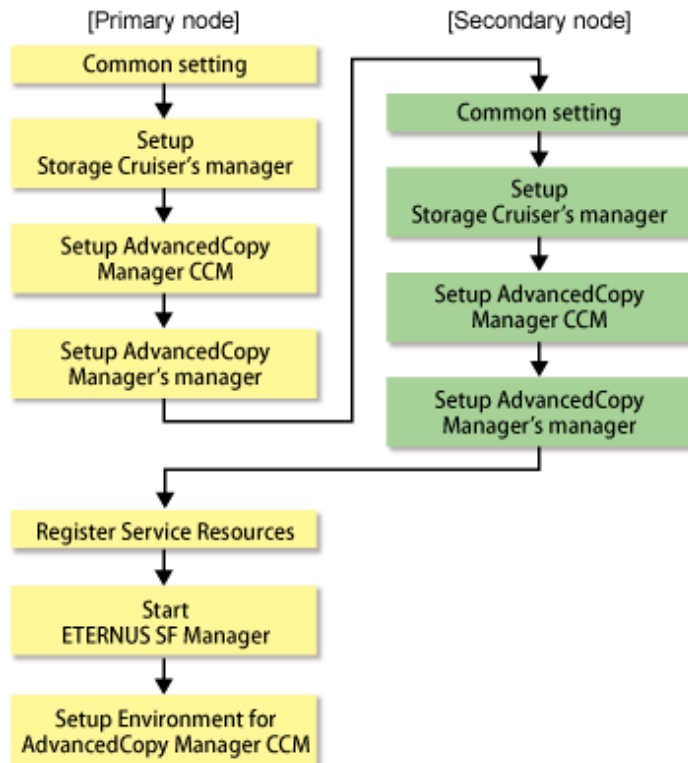
Chapter 5 Customization for Management Server Transaction

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 version

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



5.1.1 Customization for Primary Node

This section explains the customization procedure for a primary node.

5.1.1.1 Common setting

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 <file name> /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.

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

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], a [New service or application] is created.
 - b. Right-click [New service or application] and, in the subsequently displayed menu, select [Properties].
The [New service or application Properties] dialog is displayed.
 - c. On the [General] tab, modify the [Name]. Then, under [Preferred owners], select the resource name for the primary node, and click the [Apply] button.
 - d. After applying the settings, click the [OK] button.
3. Allocate a shared disk to the "Service or Application" for ETERNUS SF Manager.
 - a. Right-click [Services and Applications] -> [ESF-manager], and, in the subsequently displayed menu, select [Add storage].
The [Add Storage] screen is displayed.
 - b. From [Available disks], select the shared disk for ETERNUS SF Manager and click the [OK] button.
4. Allocate a client access point to the "Service or Application" for ETERNUS SF Manager.
 - a. Right-click [Services and Applications] -> [ESF-manager], and, in the subsequently displayed menu, select [Add a resource] -> [1 - Client Access Point].
The [New Resource Wizard] screen is displayed.
 - b. Set the following items and click the [Next] button.
 - 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 the [Next] button.
 - d. Check the contents on the [Summary] screen and click the [Finish] button.

- 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 [Server Name].

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.

1. Use Explorer or a similar tool to create the directory "*Drive name*:\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)
<Program directory used during installation>\Common\etc\db	<Drive name>:\ETERNUS_SF\db
<Program directory used during installation>\Common\etc\message	<Drive name>:\ETERNUS_SF\message
<Program directory used during installation>\Common\sys\apache\conf	<Drive name>:\ETERNUS_SF\apache\conf
<Program directory used during installation>\Common\sys\apache\logs	<Drive name>:\ETERNUS_SF\apache\logs
<Program directory used during installation>\Common\var	<Drive name>:\ETERNUS_SF\var
<Program directory used during installation>LM\var	<Drive name>:\ETERNUS_SF\LM\var
<Program directory used during installation>\Common\sys\tomcat\conf	<Drive name>:\ETERNUS_SF\tomcat\conf
<Program directory used during installation>\Common\sys\tomcat\logs	<Drive name>:\ETERNUS_SF\tomcat\logs
<Program directory used during installation>\Common\sys\tomcat\webapps\esfv15\WEB-INF\log	<Drive name>:\ETERNUS_SF\tomcat\webapps\esfv15\WEB-INF\log

3. Use Explorer or a similar tool to modify the following directory names:
 - <Program directory used during installation>\Common\etc\db
 - <Program directory used during installation>\Common\etc\message
 - <Program directory used during installation>\Common\sys\apache\conf
 - <Program directory used during installation>\Common\sys\apache\logs
 - <Program directory used during installation>\Common\var
 - <Program directory used during installation>\Common\sys\tomcat\conf
 - <Program directory used during installation>\Common\sys\tomcat\logs
 - <Program directory used during installation>\Common\sys\tomcat\webapps\esfv15\WEB-INF\log

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)
<Program directory used during installation>\Common\etc\db	<Drive name>:\ETERNUS_SF\db
<Program directory used during installation>\Common\etc\message	<Drive name>:\ETERNUS_SF\message
<Program directory used during installation>\Common\sys\apache\conf	<Drive name>:\ETERNUS_SF\apache\conf
<Program directory used during installation>\Common\sys\apache\logs	<Drive name>:\ETERNUS_SF\apache\logs
<Program directory used during installation>\Common\var	<Drive name>:\ETERNUS_SF\var
<Program directory used during installation>\Common\sys\tomcat\conf	<Drive name>:\ETERNUS_SF\tomcat\conf
<Program directory used during installation>\Common\sys\tomcat\logs	<Drive name>:\ETERNUS_SF\tomcat\logs
<Program directory used during installation>\Common\sys\tomcat\webapps\esfv15\WEB-INF\log	<Drive name>:\ETERNUS_SF\tomcat\webapps\esfv15\WEB-INF\log

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 <Linked source directory> <Link target directory> <RETURN>
```

For the linked source directory, specify the directory on the local disk from which to set the link.

For the link target directory, 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
<Program directory used during installation>\LM\var	<Drive name>:\ETERNUS_SF\LM\var

[Sample display for registry key]

- For 32-bit operating system:

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

- For 64-bit operating system:

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

For <Folder name>, specify "<Drive name>:\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 <Drive name>:\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.

Perform step 6 and later are required when Optimization option is installed.

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 copy the following directories of Storage Cruiser's manager to the shared disk:

Copy source directory	Copy destination directory
<Environment Directory used during installation>\ESC \Manager\etc	<Shared disk>\ESC\Manager\etc
<Work Directory used during installation>\ESC\Manager\var	<Shared disk>\ESC\Manager\var

2. Edit the registry.

Use the registry editor to modify the registry keys that store the environment settings directory and the working directory.

Change the path that is written in the registry key to the path of the copy destination directory you used in Step 1.

Name	Before modification	After modification
etcdir	<Environment Directory used during installation> \ESC\Manager	<Shared disk>\ESC\Manager
etcPathName	<Environment Directory used during installation> \ESC\Manager\etc	<Shared disk>\ESC\Manager\etc
vardir	<Work Directory used during installation>\ESC \Manager	<Shared disk>\ESC\Manager

Name	Before modification	After modification
varPathName	<Work Directory used during installation>\ESC \Manager\var	<Shared disk>\ESC\Manager\var

[Sample display for registry key]

- For 32-bit operating system:

```
HKEY_LOCAL_MACHINE
SOFTWARE
  Fujitsu
    Systemwalker_Resource_Coordinator
      Site
        CurrentVersion
```

- For 64-bit operating system:

```
HKEY_LOCAL_MACHINE
SOFTWARE
  Wow6432Node
    Fujitsu
      Systemwalker_Resource_Coordinator
        Site
          CurrentVersion
```

3. Edit the setup file.

Use the text editor to modify the setup file that store the environment settings directory and the working directory.

Edit below file *1 and *2.

- File name: <Program directory used during installation>\ESC\Manager\opt\FJSVssetl\sys\.install.sys

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdire=*1
stxs_vardir=*2
stxs_jredire= (Do not modify these settings!)
```

Table 5.1 Contents of setting values

Setting item	Setting value
*1	<Shared disk>\ESC\Manager\etc\opt\FJSVssetl
*2	<Shared disk>\ESC\Manager\var\opt\FJSVssetl

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" in below detailed setting file.

- File name: <Shared disk>\ESC\Manager\etc\opt\FJSVssmgr\current\sanma.conf

Additional line is as follow.

```
LOGICAL_MANAGER_IP="<Takeover IP address for Management Server transaction>"
```

For details on the detailed setting file, refer to "LOGICAL_MANAGER_IP" under "sanma.conf Parameter" in the "ETERNUS SF Storage Cruiser Operation Guide".

5. Delete the directories.

Use Explorer or a similar tool to delete the following directories of ETERNUS SF Manager from the primary node.

- <Environment Directory used during installation>\ESC\Manager\etc
- <Work Directory used during installation>\ESC\Manager\var

6. Copy the files on the dynamic disks that are used by Optimization option on the primary node to a shared disk.

Use Explorer or a similar tool to create "<shared disk>:\AST\" directory.

Copy the following data to the directories on the shared disk.

Local disk (copy source)	Shared disk (copy destination)
<Environment Directory used during installation>\AST\Manager\etc\opt\FJSVssast\data	<Shared disk>\AST\etc\data
<Work Directory used during installation>\AST\Manager\var\opt\FJSVssast\data	<Shared disk>\AST\var\data

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

- <Environment Directory used during installation>\AST\Manager\etc\opt\FJSVssast\data
- <Work Directory used during installation>\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.

8. 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)
<Environment Directory used during installation>\AST\Manager\etc\opt\FJSVssast\data	<Shared disk>\AST\etc\data
<Work Directory used during installation>\AST\Manager\var\opt\FJSVssast\data	<Shared disk>\AST\var\data

Execute the following command for all directories:

```
>mklink /d <Linked source directory> <Link target directory> <RETURN>
```

For the linked source directory, specify the directory on the local disk from which to set the link. For the link target directory, 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 <File name> /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 AdvancedCopy Manager CCM
\$ENV_DIR	"Environment settings directory" used when installing AdvancedCopy Manager CCM
\$TMP_DIR	"Working directory" used when installing 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:\etc
\$TMP_DIR\CCM\var	\$SHARE_DL:\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 *5 of files below:

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

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir=*1
stxs_varidir=*2
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=*3
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=*4
com.fujitsu.eternussf.acm.ccm.varpath=*5
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\etc\micc	G:\ccmdata\etc\micc
*2	\$\$SHARE_DL:\$\$SHARE_TOP\var\micc	G:\ccmdata\var\micc
*3	\$\$SHARE_DL:\$\$SHARE_TOP\etc	G:\ccmdata\etc
*4	\$\$SHARE_DL\:\\$SHARE_TOP\etc\	G:\:\ccmdata\etc\
*5	\$\$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 *4 or *5 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

- The "Computer Browser service" Windows service must be activated if a user belonging to the Administrators domain wants to perform customization for the Windows version of WSFC.
- Do not use Telnet server service, as it will not work properly.

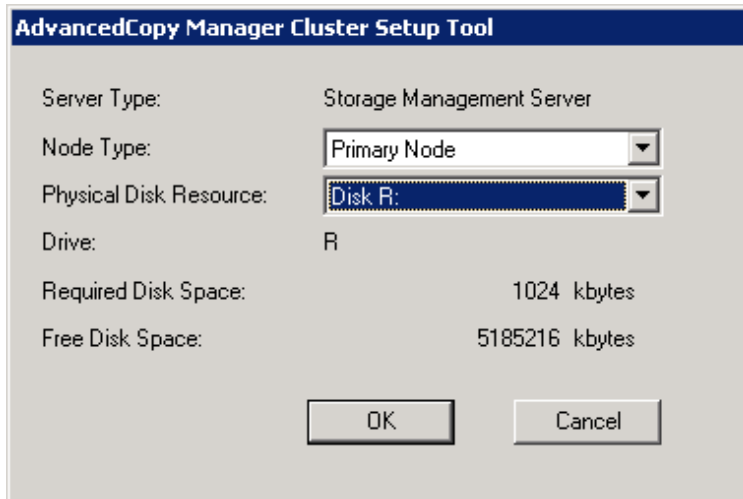
1. Execute the cluster setup command.

Execute the following cluster setup command on the primary node:

```
<Program_directory>\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 the [OK] button.

- 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

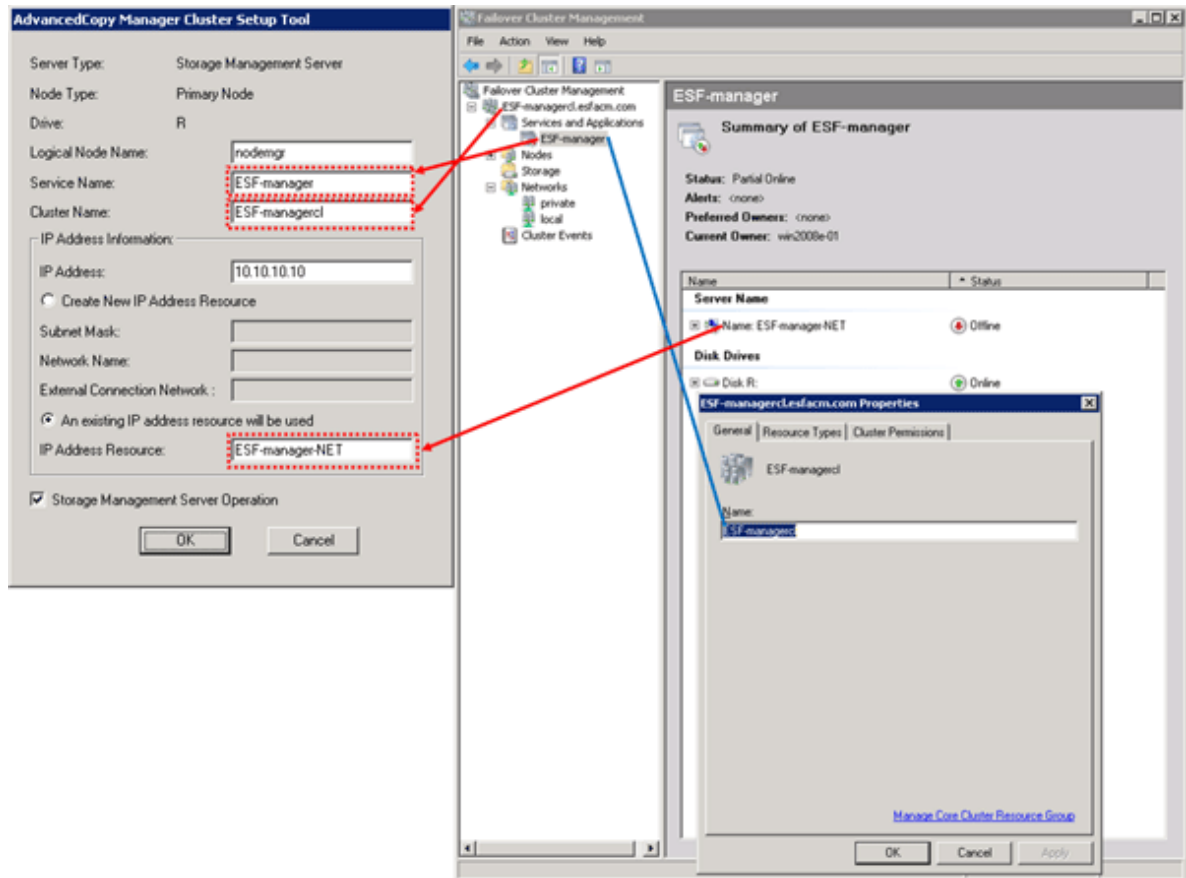
The minimum disk size required for the cluster environment is displayed.

- 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 window of the cluster setup command is displayed. The following "Failover Cluster Management" screen is for Windows Server 2008. A screen name may vary from operating system to operating system.



Each item is explained below. Make the required entries and then click the [OK] button.

- 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
Enter the logical IP address as defined in "4.1.1 Shared resources."
- An existing IP address resource will be used.
Select this radio button.

- IP Address Resource

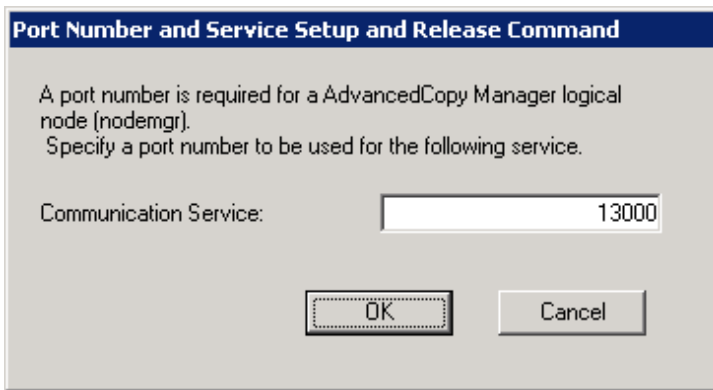
Enter the IP address resource confirmed in "[4.1.1 Shared resources.](#)"

- Storage Management Server Operation

Select this item.

4. Set the port number and service.

The [Port Number and Service Setting and Release Command setting] window is displayed. If the port number and service has already been set, this window does not display.

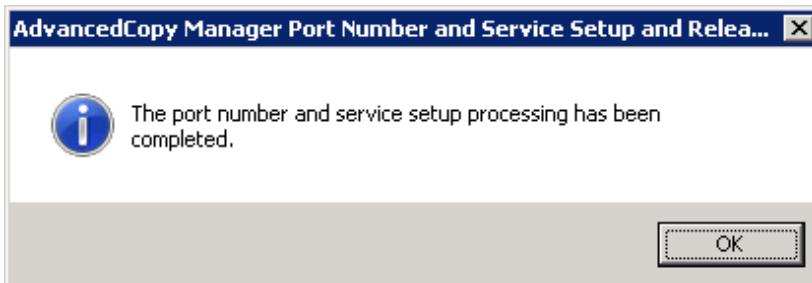


Each item is explained below. Make the required entries and then click the [OK] button.

- Communication Service

Enter the port number for the transaction communication service as defined in "[4.1.3 Resources required for AdvancedCopy Manager's manager.](#)"

5. The port number and service settings have been completed.



Click the [OK] button.

6. Set the database information.

When the [Database creation location and database size settings] window is displayed, change the displayed information as required, and click the [Continue] button. If one shared disk for AdvancedCopy Manager repository and shared disk for shared data, specify the drive selected in item 2 as the database creation folder. Finally, be sure that you create a database on the shared disk.

Database creation location and database size settings

Specify a folder in which the database is to be created and the size of the database.

Database creation folder

DB log file storage location
L:\ACMDB\DBlog ...

DB dictionary file storage location
L:\ACMDB\DBdic ...

Repository database space storage location
L:\ACMDB\DBspa ...

Database size

Default size (65 MB) Direct input 65 MB

Continue Cancel

Each item is explained below. Make the required entries and then click the [Continue] button.

Database creation folder

This is the folder where the database will be created.

Enter the path, including the drive name, for each of the database directories. The specified folders must be new NTFS folders. If a folder specified is not a NTFS folder or if it already exists, choose another name.

 Note

- Do not check the option [Compress drive to save disk space] in the **General** tab for any of these drives. Overhead is greater to a compressed drive than a non compressed drive. Depending on the amount of I/O, access errors may occur in low OS resource conditions.
- Do not check the [Compress or Encrypt Attributes] in the [Advanced Attributes] section of the [Properties] or [Advanced] part of the **General** tab. Overhead is greater to a compressed and/or encrypted drive. Access errors may occur in low OS resource conditions. If the encryption property is checked, access errors may occur when decryption cannot be performed.

Database size

Specify the database size in MB. Use the value calculated by referring to "Estimation of database size" in the "ETERNUS SF Installation and Setup Guide." If you want to use the default value, check the [Default size] button.

7. Set the database access user.

Enter the user name and password of the user who will access the database. After entering the information, click the [Settings] button. The IP address entered in the cluster setup command window is displayed in the IP address field of the Storage Management Server. This IP address cannot be changed.

IP address and repository access user settings

Specify the IP address of the Storage management server.

IP address

10 . 10 . 10 . 10

Specify the name of a user who will access the repository and a password.

Repository access user

User eternususer

Password *****

Settings Cancel

These are the following conditions for the specification of User and Password.

- A user name and password that can be specified in the operating system

 **Note**

.....

If user settings were entered as shown above, and the user is deleted or the password is changed on the operating system, perform the setup processing again. Refer to "User deletion or password change in repository access user settings" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".

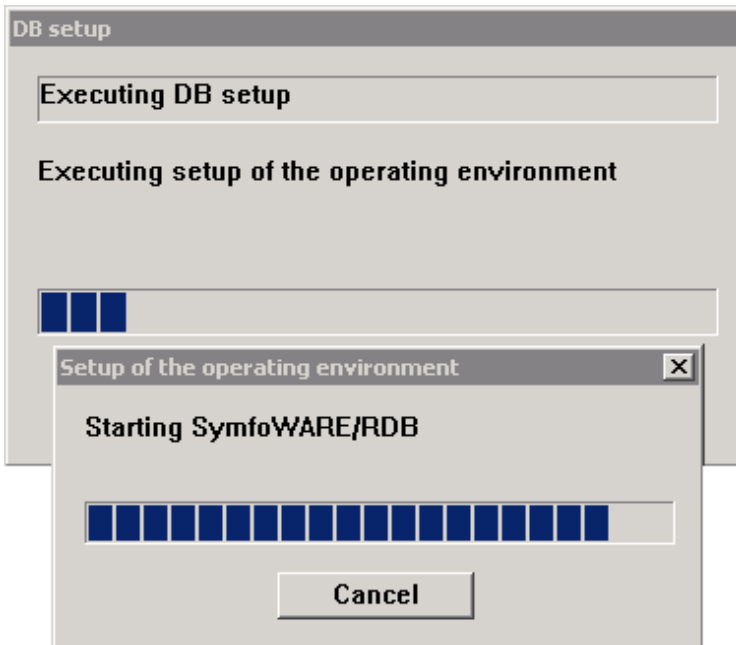
.....

8. Confirm the setting information.

When the setting information for the database is displayed, confirm the displayed information and click the [Start] button.

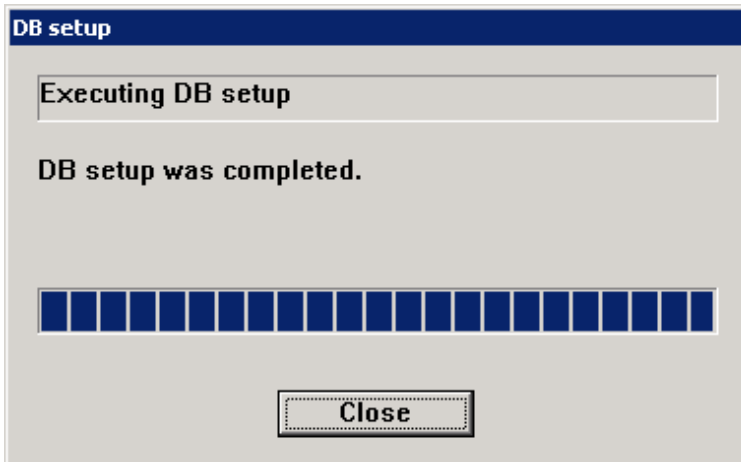


9. The DB Setup processing started.



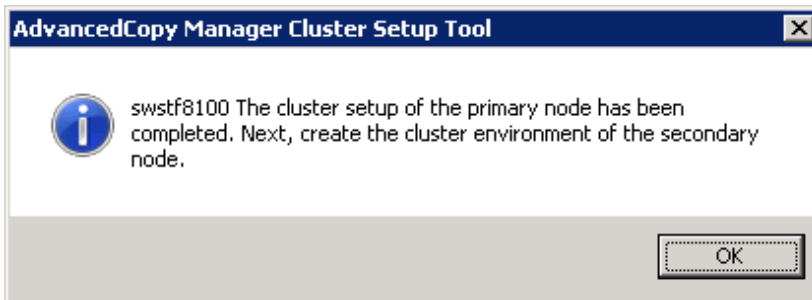
10. The DB Setup processing is completed.

The DB Setup completion window is displayed. Click the [Close] button.



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

When the cluster setup completion window is displayed, click the [OK] button.



When the operating system is Windows Server 2008 x64 or Windows Server 2008 R2, an error with swstf8514 message is encountered. Execute the following processes.

1. Edit the <Shared disk>\etc\opt\swstorage\clsetup.ini file.
Change the value of Setup in [Primary] tag to "YES".
2. Edit the \$INS_DIR\env\swcluster.ini file.
(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)
Change the value of Setup in [Logical node name] tag to "YES".
The [Logical node name] is the Logical Node Name that was specified in "AdvancedCopy Manager Cluster Setup Tool" windows.
3. Edit the \$ENV_DIR\etc\swstg.ini file.
(\$ENV_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)
Change the value of type in [Common] tag to "2".

5.1.2 Customization for Secondary Node

This section explains the customization procedure for secondary nodes.

5.1.2.1 Common setting

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 File name /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:
 - <Program directory used during installation>\Common\etc\db
 - <Program directory used during installation>\Common\etc\message
 - <Program directory used during installation>\Common\sys\apache\conf
 - <Program directory used during installation>\Common\sys\apache\logs
 - <Program directory used during installation>\Common\var
 - <Program directory used during installation>\Common\sys\tomcat\conf
 - <Program directory used during installation>\Common\sys\tomcat\logs
 - <Program directory used during installation>\Common\sys\tomcat\webapps\esfv15\WEB-INF\log



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)
<Program directory used during installation>\Common\etc\db	<Drive name>\ETERNUS_SF\db
<Program directory used during installation>\Common\etc\message	<Drive name>\ETERNUS_SF\message
<Program directory used during installation>\Common\sys\apache\conf	<Drive name>\ETERNUS_SF\apache\conf
<Program directory used during installation>\Common\sys\apache\logs	<Drive name>\ETERNUS_SF\apache\logs
<Program directory used during installation>\Common\var	<Drive name>\ETERNUS_SF\var
<Program directory used during installation>\Common\sys\tomcat\conf	<Drive name>\ETERNUS_SF\tomcat\conf
<Program directory used during installation>\Common\sys\tomcat\logs	<Drive name>\ETERNUS_SF\tomcat\logs

Local disk (linked source)	Shared disk (link target)
<Program directory used during installation>\Common\sys\tomcat \webapps\esfv15\WEB-INF\log	<Drive name>:\ETERNUS_SF\tomcat \webapps\esfv15\WEB-INF\log

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 <Linked source directory> <Link target directory> <RETURN>
```

For the linked source directory, specify the directory on the local disk from which to set the link.

For the link target directory, 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 <Drive name>:\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.

Perform step 4 and later are required when Optimization option is installed

1. Edit the registry.

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 "5.1.1.2 Customization for Storage Cruiser's manager".

2. Edit the setup file.

Change the setting value that is written in the setup file of the secondary node to the value that you set in the setup file for the primary node in "5.1.1.2 Customization for Storage Cruiser's manager".

3. Delete the directories.

Use Explorer or a similar tool to delete the following directories of ETERNUS SF Manager from the secondary node.

- <Environment Directory used during installation>\ESC\Manager\etc
- <Work Directory used during installation>\ESC\Manager\var

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

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

- <Environment Directory used during installation>\AST\Manager\etc\opt\FJSVssast\data
- <Work Directory used during installation>\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.

- 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)
<Environment Directory used during installation>\AST\Manage\etc\opt\FJSVssast\data	<Shared disk>\AST\etc\data
<Work Directory used during installation>\AST\Manage\var\opt\FJSVssast\data	<Shared disk>\AST\var\data

Execute the following command for all directories:

```
>mklink /d <Linked source directory> <Link target directory> <RETURN>
```

For the linked source directory, specify the directory on the local disk from which to set the link.
For the link target directory, 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.

- 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".
- Set up the access restrictions for the stored generic script file.

Execute the following command to the stored generic script file.

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

5.1.2.3.2 Customization procedure

Customize the secondary node.

- 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 AdvancedCopy Manager CCM installation

- 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

Copy source directory	Copy destination directory
\$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 *5 of files below:

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

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir=*1
stxs_varidir=*2
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=*3
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=*4
com.fujitsu.eternussf.acm.ccm.varpath=*5
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 5.3 Contents of setting values

Setting item	Setting value	Sample setting
*1	\$SHARE_DL:\$SHARE_TOP\etc\micc	G:\ccmdata\etc\micc
*2	\$SHARE_DL:\$SHARE_TOP\var\micc	G:\ccmdata\var\micc
*3	\$SHARE_DL:\$SHARE_TOP\etc	G:\ccmdata\etc
*4	\$SHARE_DL\:\$SHARE_TOP\etc\	G:\:\ccmdata\etc\
*5	\$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 *4 or *5 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

- The "Computer Browser service" Windows service must be activated if a user belonging to the Administrators domain wants to perform customization for the Windows version of WSFC.
- Do not use Telnet server service, as it will not work properly.

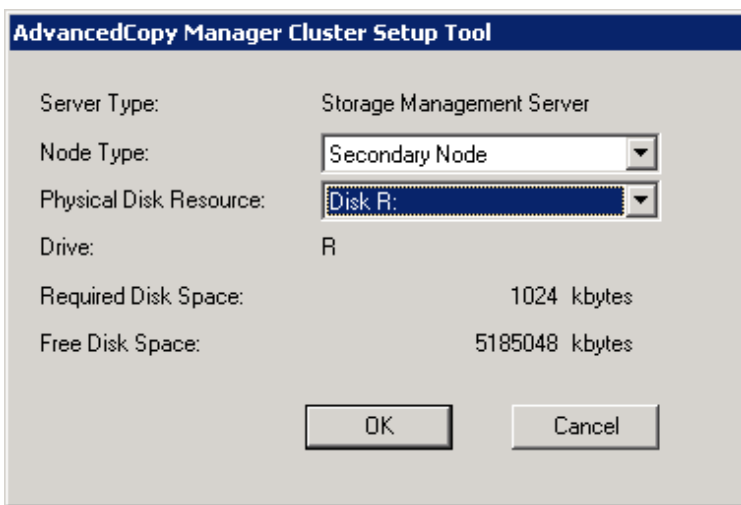
1. Execute the cluster setup command.

Execute the following cluster setup command on the secondary node:

```
<Program_directory>\ACM\bin\stgclset_mscs
```

2. Select the node type and shared disk.

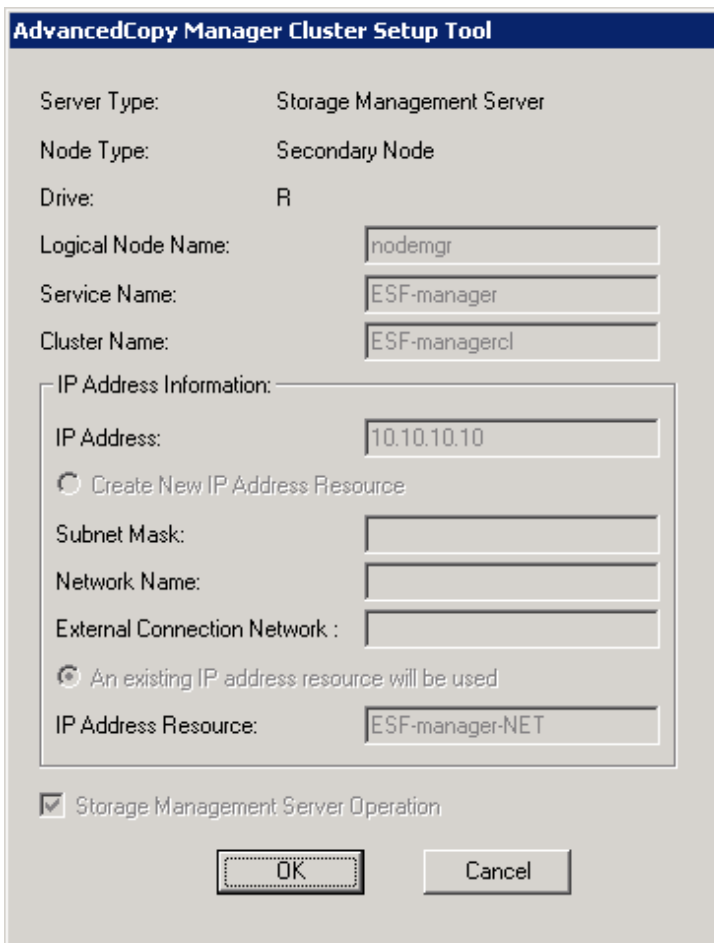
The initial window of the cluster setup command is displayed.



Each item is explained below. Make the required entries and then click the [OK] button.

- Server Type
Confirm that the server is a "Storage Management Server."
- Node Type
Select "Secondary Node."
- 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 image shows a dialog box titled "AdvancedCopy Manager Cluster Setup Tool". It contains the following fields and options:

- Server Type: Storage Management Server
- Node Type: Secondary Node
- Drive: R
- Logical Node Name: nodemgr
- Service Name: ESF-manager
- Cluster Name: ESF-managercl
- IP Address Information:
 - IP Address: 10.10.10.10
 - Create New IP Address Resource
 - Subnet Mask: (empty)
 - Network Name: (empty)
 - External Connection Network: (empty)
 - An existing IP address resource will be used
 - IP Address Resource: ESF-manager-NET
- Storage Management Server Operation

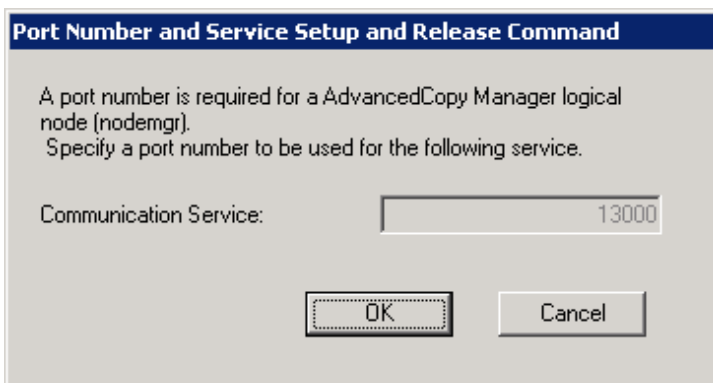
At the bottom, there are two buttons: "OK" and "Cancel".

The values set for the primary node are displayed (Only the node type needs to be changed to secondary node.).

After confirming each item, click the [OK] button.

4. Set the port number and service.

[Port number and Service Setup and Release Command] displays the value that was set for the primary node. If a port number and service has already been set, this window does not display.



The image shows a dialog box titled "Port Number and Service Setup and Release Command". It contains the following text and fields:

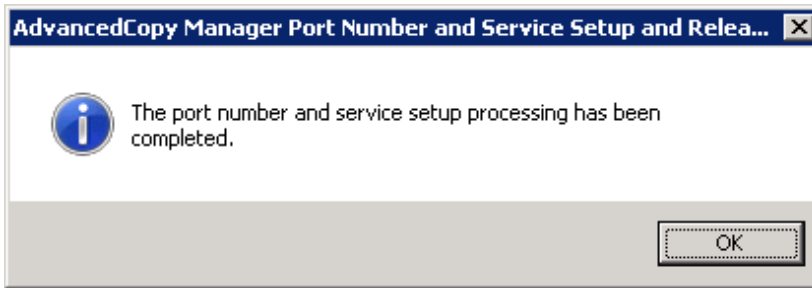
A port number is required for a AdvancedCopy Manager logical node (nodemgr).
Specify a port number to be used for the following service.

Communication Service: 13000

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

Click the [OK] button.

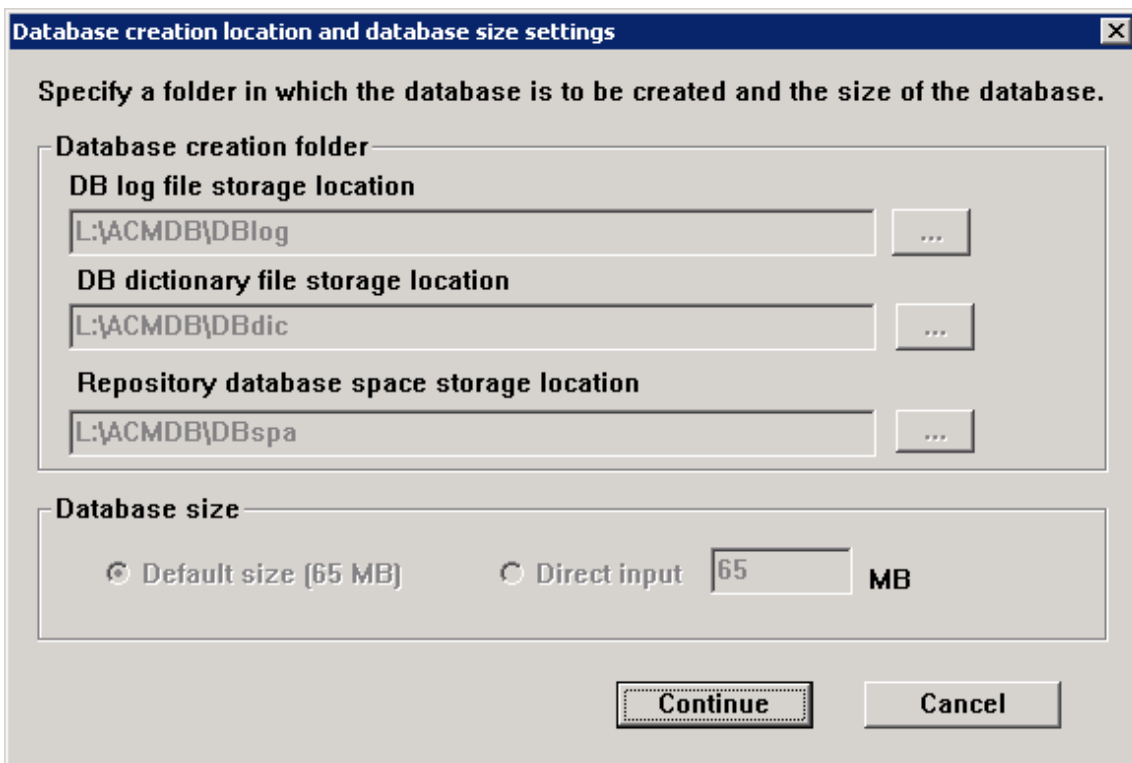
5. The port number and service settings have been completed.



Click the [OK] button.

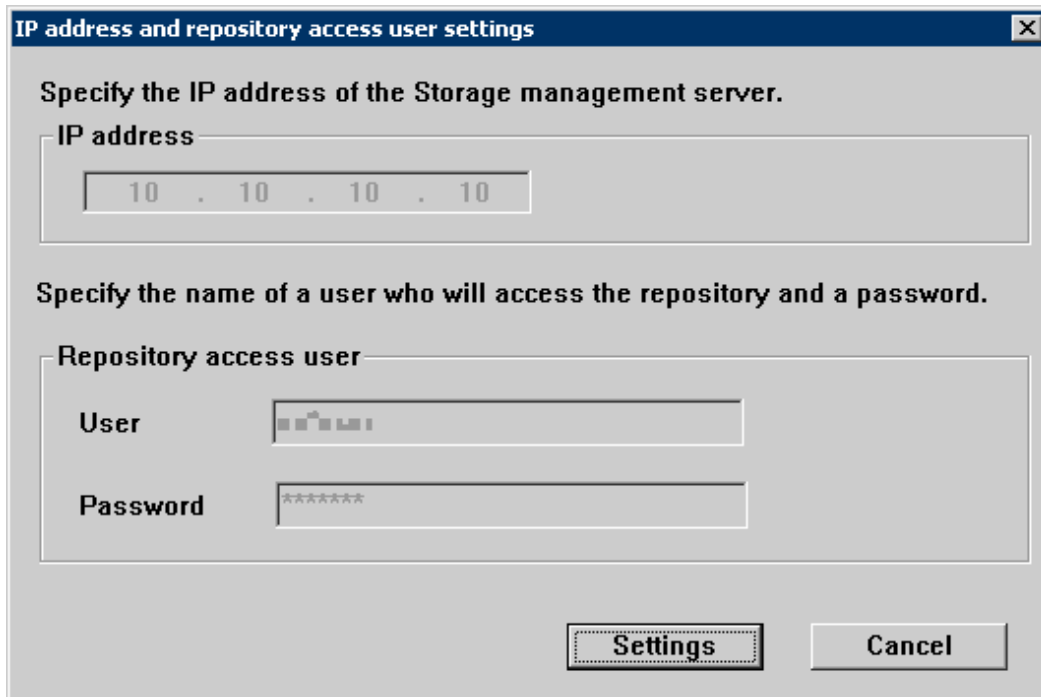
6. Confirm the database information.

The values set for the primary node are displayed in the [Database creation location and database size settings] window. Confirm each setting, and click the [Continue] button.



7. Confirm the database access user.

The values set for the primary node are displayed in the [IP address and repository access user setting] window. Confirm each setting, and click the [Settings] button.



IP address and repository access user settings

Specify the IP address of the Storage management server.

IP address
10 . 10 . 10 . 10

Specify the name of a user who will access the repository and a password.

Repository access user

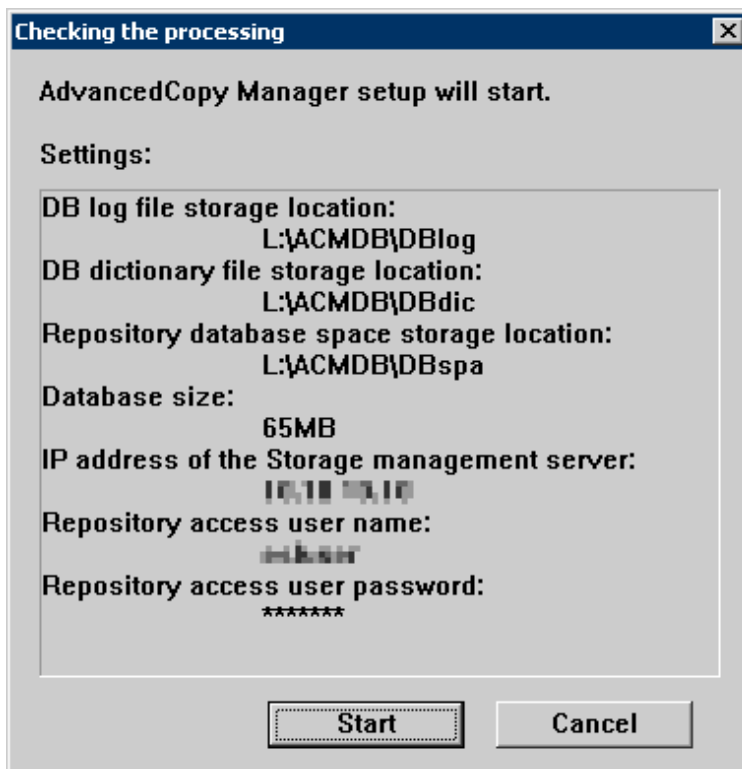
User [REDACTED]

Password [REDACTED]

Settings Cancel

8. Confirm the setting information.

When the setting information for the database is displayed, confirm the displayed information and click the [Start] button.



Checking the processing

AdvancedCopy Manager setup will start.

Settings:

DB log file storage location:
L:\ACMDB\DBlog

DB dictionary file storage location:
L:\ACMDB\DBdic

Repository database space storage location:
L:\ACMDB\DBspa

Database size:
65MB

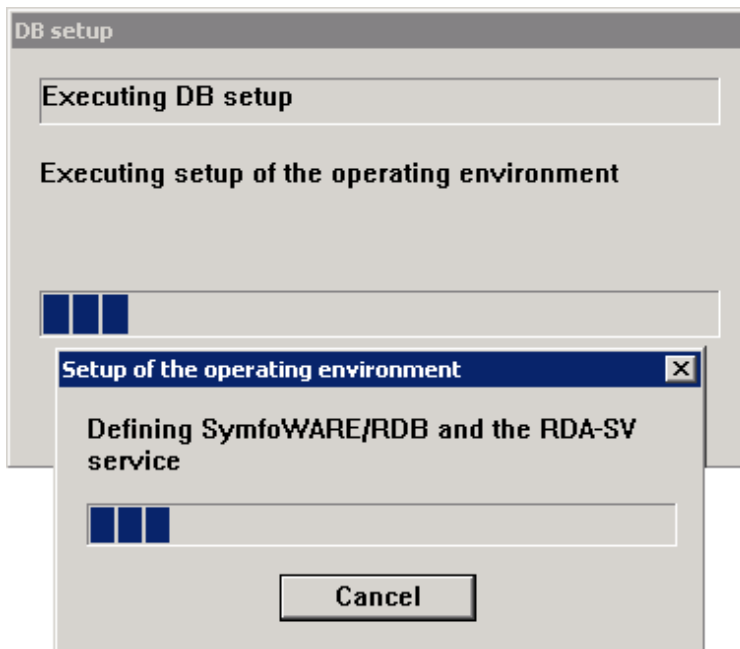
IP address of the Storage management server:
10.10.10.10

Repository access user name:
[REDACTED]

Repository access user password:
[REDACTED]

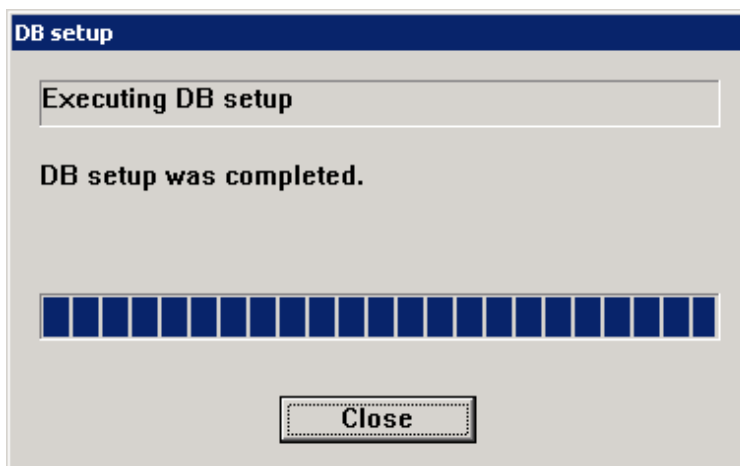
Start Cancel

9. The DB Setup processing is started.



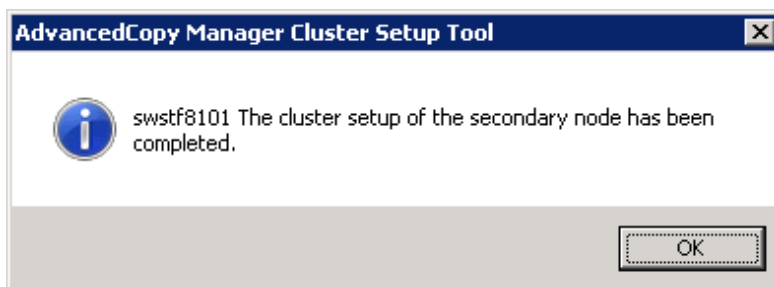
10. The DB Setup processing is completed.

The DB Setup completion window is displayed. Click the [Close] button.



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

When the cluster setup completion window is displayed, click the [OK] button.



When the operating system is Windows Server 2008 x64 or Windows Server 2008 R2, an error with swstf8514 is encountered, but you can ignore it and proceed to the next step.

12. Set up the resources.

1. Start the [Failover Cluster Manager] screen and, from the Failover Cluster Manager tree, select the [Service Name] that you set in Step 3 of "[5.1.1.4 Customization for AdvancedCopy Manager's manager](#)".
At the center of the screen, under [Other Resources], click below resource names and, in the subsequently displayed menu, select [Delete].

- AdvancedCopy GUI Service
- SymfoWARE RDB RDBSWSTF

2. Add the following services as the resource by using WSFC management.

- a. AdvancedCopy Manager GUI Service (**NOTE1**)
- b. AdvancedCopy Manager COM Service for *LogicalNodeName* (**NOTE2**)
- c. SymfoWARE RDB RDBSWSTF

NOTE1 : For the resource name, specify "AdvancedCopy GUI Service".

NOTE2 : Add a service that has logical node name. The logical node name is the Logical Node Name that was specified in "AdvancedCopy Manager Cluster Setup Tool" windows. Make the resource name "AdvancedCopy COM Service_*LogicalNodeName*".

Follow the procedure below to add new services:

1. In the [Failover Cluster Manager] tree, right-click [Services and Applications] -> [ESF-manager], and, in the subsequently displayed menu, select [Add a resource] -> [3- Generic Script].

The [New Resource Wizard] screen is displayed.

2. Select the new service to add on the [Select Service] screen, and click the [Next] button.
3. Confirm the contents that are displayed on the [Confirmation] screen and click the [Next] button.
4. Click the [Finish] button.
5. 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 resources are displayed.

3. For each service added in Step 2, set the dependencies.

Set the shared disk resource to the above all services.

Set the logical IP resource to the above service a.

Follow the procedure below for setting the dependencies.

1. At the center of the [Failover Cluster Manager] screen, under [Other Resources] of [ESF-manager Summary], right-click the relevant resource and, in the subsequently displayed menu, select [Properties].

The [*Name of Resource* Properties] screen is displayed.

2. On the [Dependencies] tab, under [Resource], select the name of the "Depending resource" from "[Table 5.4 Setting resource dependencies](#)", and then click the [Apply] button.
3. When the settings have been applied, click the [OK] button.

13. Edit the definition file.

1. Edit the <Shared disk>\etc\opt\swstorage\clsetup.ini file.

Change the value of Setup in [Secondary] tag to "YES".

2. Edit the \$INS_DIR\env\swcluster.ini file.

(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)

Change the value of Setup in [Logical node name] tag to "YES".

3. Edit the \$ENV_DIR\etc\swstg.ini file.

(\$ENV_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)

Change the value of type in [Common] tag to "2".

14. Specify the resource dependency.

If the shared disk for AdvancedCopy Manager repository and the shared disk for shared data are separated, add the shared disk resource for AdvancedCopy Manager repository to the dependency of the following resources by using Failover Cluster Manager. For information on how to add the resource dependency, refer to the Windows Server Failover Clustering manuals.

- SymfoWARE RDA RDBSWSTF (added only if neither Windows Server 2008 and Windows Server 2008 R2)
- SymfoWARE RDB RDBSWSTF

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 dependency by using Failover Cluster Manager.

- AdvancedCopy COM Service_Logical-Node-Name



Note

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

5.1.3 Register Service Resources

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

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

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 Manager
- 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 the [Next] button.

c. Confirm the contents that are displayed on the [Confirmation] screen and click the [Next] button.

d. Click the [Finish] button.

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 services are displayed.

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 the [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 the [Next] button.
- c. Confirm the contents that are displayed on the [Confirmation] screen and click the [Next] button.
- d. Confirm the contents that are displayed on the [Summary] screen and click the [Finish] button.
- 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 5.4 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	Shared disk
ETERNUS SF Manager Postgres Service	Shared disk
ETERNUS SF Storage Cruiser Manager	Shared disk, IP address
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 [*Name of Resource* 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 the [Apply] button.
 - c. When the settings have been applied, click the [OK] button.

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.

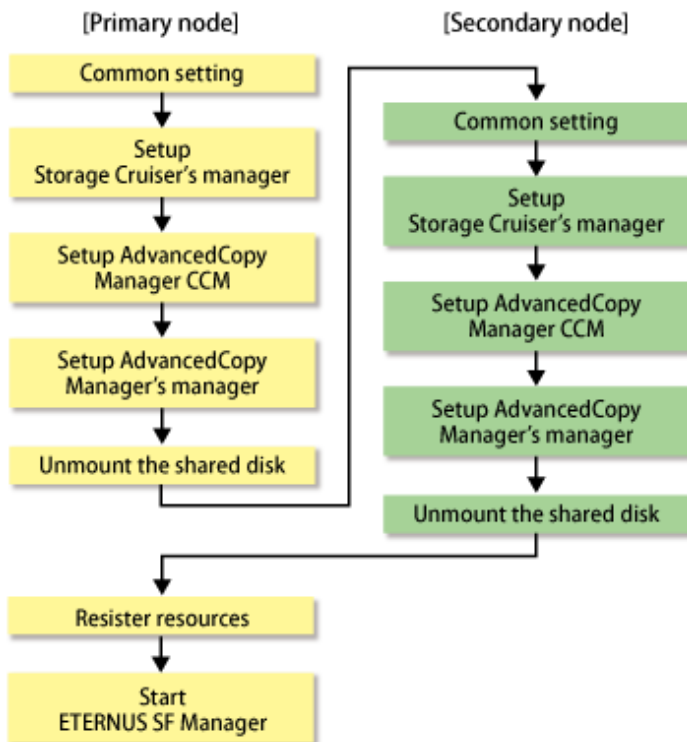
Select [Action] -> [Bring this resource online], to take the resource online.

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 PATH environment variable) onwards.

5.2 Customization for Solaris version

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



5.2.1 Customization for Primary Node

This section explains the customization procedure for a primary node.

5.2.1.1 Common setting

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 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).

For creating a cluster application (transaction), refer to the manuals of your cluster software.

2. Stop the cluster application (transaction).

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

For stopping a cluster application (transaction), refer to the manuals of your cluster software.

3. Mount the shared disk for shared data.

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

5.2.1.1.2 Startup setting 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 the all files exported by executing above command with "X" at 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.

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 and the access restrictions of the copy destination files and directories 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:

- 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.
- Execute the following command:

```
>ln -s <Linked source directory> <Link target directory> <RETURN>
```

For the linked source directory, specify the directory on the shared disk which to set the link.
For the link target directory, 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.
For creating Cmdline resource, refer to PRIMECLUSTER manual.

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.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Primary -m <Mountpoint-of-shared-disk-for-shared-data> -  
i <Takeover IP address for Management Server transaction>
```

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 follow.

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

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 and the access restrictions of the copy destination files and directories 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 *5 of files below:

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

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir=*1
stxs_varidir=*2
stxs_jredir= (Do not modify these settings!)
```

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

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*3
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=*4
com.fujitsu.eternussf.acm.ccm.varpath=*5
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/etc/opt/FJSVccm/micc	/esfmnt/etc/opt/FJSVccm/micc
*2	\$\$SHARE_MNT/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*3	\$\$SHARE_MNT/etc/opt/FJSVccm/acc/et	/esfmnt/etc/opt/FJSVccm/acc/et
*4	\$\$SHARE_MNT/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*5	\$\$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

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

1. Register port numbers.

Register the port number of communication daemon for transaction prepared in "4.1.3 Resources required for AdvancedCopy Manager's manager" under the following service name in /etc/services. Use the OS command such as vi to register it in /etc/services.

- Communication daemon for transactions : stgxfws_*Logical-Node-Name*

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

On the primary node, execute the following cluster set up command after blocking other users from accessing the shared disk for shared data and the shared disk for AdvancedCopy Manager repository. Executing this command sets up cluster environment and creates repository. Create a directory for database in advance, which is specified after executing command. For details, refer to "4.1.3 Resources required for AdvancedCopy Manager's manager".

- If the status transition procedure resources are used:

Example:

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /esfmnt -n nodeMGR -s manager_service -i
10.10.10.10 -f mgr
```

- If command line resources are used:

Example:

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /esfmnt -n nodeMGR -s manager_service -i
10.10.10.10 -f mgr -r cmd
```

For details on this command, refer to "16.2.1 stgclset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command)".



Execute the command in the location specified at the time of Management Server installation. However, if Symfoware is already installed, execute the command in the location of Symfoware installation.

3. Check the setup object.

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /esfmnt -n nodeMGR -s manager_service -i
10.10.10.10 -f mgr
AdvancedCopy Manager settings are as follows.
    Cluster system : SynfinityCluster or PRIMECLUSTER
    Node type      : Primary
    IP Address     : 10.10.10.10
    Mount point   : /esfmnt
    Node name      : nodeMGR
    Service        : manager_service
    Resource       : Procedure
    Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

4. Start the creation of a common environment.

1. Confirm the displayed information, then enter "y", and press the Enter key.

```
+-----+
| A common environment for the AdvancedCopy Manager |
| Storage Management Server will be created.         |
| [Notes]                                           |
| Prepare the following directories before starting |
| processing.                                       |
|=====|
```

```

|
| 1) Directory for the DB file
| 2) Directory for the RDB dictionary
| 3) Directory for the RDB log file
| 4) Directory for the DB space to store the repository data
|
+-----+
Do you want to continue with processing? [y/n] ==> y

```

2. Specify the directory for the DB file.

The window shown below opens. Enter the directory name for the DB file system and press the Enter key.

```

-----< DB device setting >-----
Enter the directory name for the DB file.
[Notes]
Enter the absolute path name of the directory.
Enter ==> /ACMMnt/Vol202/DBFile

```

Enter the following directory name and data size.

- Directory name for the RDB dictionary
- Directory name for the RDB log file
- Directory name for the DB space used to save repository data
- Repository data Size



Enter the directory name of the shared disk for shared repository that prepared in "[4.1.3 Resources required for AdvancedCopy Manager's manager](#)".

3. Confirm the settings of the directory for the DB file.

The configured four directory names and the repository data size are displayed. When confirmed the displayed contents, enter "y" and press the Enter key.

```

=====
Directory name for the DB file ...../ACMMnt/Vol202/DBFile
Directory name for the RDB dictionary .... /ACMMnt/Vol203/DBDic
Directory name for the RDB log file ...../ACMMnt/Vol204/DBLog
Directory name for the DB space
used to save repository data .... /ACMMnt/Vol205/DBSpa
Repository data Size .....65MB
=====
Okay? [y/n] ==> y

```

4. Confirm the continuation of processing.

After the window for confirming the continuation of processing opens, enter "y", and press the Enter key.

```

+-----+
| Creation of the AdvancedCopy Manager Storage management |
+-----+

```

```

server environment will start.
=====
Once processing has started, system information is rewritten.
Make sure that the environment allows execution
before proceeding.
+-----+

Do you want to continue with processing? [y/n] ==> y

```

 **Point**

For repository access user, the user configured in the "3.2 Installation for Solaris and Linux versions" is used. To change the user name and password of repository access user, create the cluster environment, and reconfigure them referring to "12.2.4 Deleting the user/changing the password specified for the repository access user".

5. Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

```

swstf8100 The cluster setup of the primary node has been completed. Next, create
the cluster environment of the secondary node.
#

```

5.2.1.5 Dismount the shared disk

Dismount the shared disk for shared data and the shared disk for repository 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 setting

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

5.2.2.1.1 Startup setting 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 the all files exported by executing above command with "X" at 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 and the shared disk for repository 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/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 follow.

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

4. Create the resources for Storage Cruiser.

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/FJSVssmgr/cluster/cmd/rcxclstartcmd
Stop script	/opt/FJSVssmgr/cluster/cmd/rcxclstopcmd
Check script	/opt/FJSVssmgr/cluster/cmd/rcxclcheckcmd

If the Optimization option is installed, also create the following "Cmdline" resources using the same procedure shown above.

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

Point

If shared with the operations Management Server or division Management Server for Storage Cruiser's manager, make settings so that Cmdline resources are started after Systemwalker Centric Manager.

See

For details, refer to the "PRIMECLUSTER Installation and Administration Guide".

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
<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 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 *5 of files below:

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

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir=*1
stxs_varpath=*2
stxs_jredir= (Do not modify these settings!)
```

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

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*3
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=*4
com.fujitsu.eternussf.acm.ccm.varpath=*5
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/etc/opt/FJSVccm/micc	/esfmnt/etc/opt/FJSVccm/micc
*2	\$\$SHARE_MNT/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*3	\$\$SHARE_MNT/etc/opt/FJSVccm/accc/etc	/esfmnt/etc/opt/FJSVccm/accc/etc
*4	\$\$SHARE_MNT/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*5	\$\$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**

For details, refer to the "PRIMECLUSTER Installation and Administration Guide".

5.2.2.4 Customization for AdvancedCopy Manager's manager

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

1. Register port numbers.

Register the port number in "4.1.3 Resources required for AdvancedCopy Manager's manager" for the transaction communication in /etc/services. Use the OS command such as vi to register it in /etc/services.

- Communication daemon for transactions : stgxfws_*Logical-Node-Name*

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

On the secondary node, execute the following cluster set up command after blocking other users from accessing the shared disk for shared data or the shared disk for AdvancedCopy Manager repository. Executing this command setup the cluster environment.

Example:

```
# /opt/swstorage/bin/stgclset_safe -k Secondary -m /esfmnt
```

For details on this command, refer to "16.2.1 stgclset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command)".



Execute the command in the location specified at the time of Management Server installation.

However, if Symfoware is already installed, execute the command in the location of Symfoware installation.

3. Check the setup object.

```
# /opt/swstorage/bin/stgclset_safe -k Secondary -m /esfmnt

AdvancedCopy Manager settings are as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Secondary
  IP Address     : 10.10.10.10
  Mount point   : /esfmnt
  Node name      : nodeMGR
  Service        : manager_service
  Resource       : Procedure
  Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

4. Confirm the continuation of processing.

After the window for confirming the continuation of processing opens, enter "y", and press the Enter key.

```
+-----+
| Creation of the AdvancedCopy Manager Storage management |
| server environment will start.                          |
| =====                                                |
| Once processing has started, system information is rewritten. |
| Make sure that the environment allows execution          |
| before proceeding.                                       |
| -----+-----+
|
| Do you want to continue with processing? [y/n] ==> y
```

5. Finish the cluster setup command on the secondary node.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.  
#
```

6. Create the resources for AdvancedCopy Manager.

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).

- Gds resource

Register the class of the shared disk for AdvancedCopy Manager repository.
The shared disk must be set as a switching disk.

- Fsystem resource

Register the mount point of the shared disk for AdvancedCopy Manager repository.

- Procedure resource

Specify if the status transition procedure resources are used.
Specify "SMGRPROC_Logical-Node-Name".

- Cmdline resource

Specify this resource if the command line resources are used.
Specify the following path names in the each script.

Type	Input pathname
Start script	/opt/FJSVswstf/cluster/clproc/acm_Logical-Node-Name start
Stop script	/opt/FJSVswstf/cluster/clproc/acm_ Logical-Node-Name stop
Check script	None (Do not specify anything)

5.2.2.5 Dismount the shared disk

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

5.2.3 Register Resources

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

Register the following resources in cluster application (transaction) used for ETERNUS SF Manager.

- Gls resource

Specify a logical IP address used for ETERNUS SF Manager.
For using the existing logical IP address, registering this resource is not necessary.
Register a logical IP address by selecting "Gls:Global-Link-Services" in RMS Wizard.

- Gds resource

Specify the volume allocated to the shared disk for shared data using ETERNUS SF Manager.
Register the shared disk for shared data by selecting "Gls:Global-Link-Services" in RMS Wizard.

- Fsystem resource

Specify the mount point of the volume which is allocated to the shared disk for shared data using ETERNUS SF Manager.
Register a mount point by selecting "LocalFileSystems" in RMS Wizard.

When a mount point is not defined, refer to PRIMECLUSTER manual and define a mount point.

5.2.4 Start ETERNUS SF Manager

Startup cluster application (transaction) for ETERNUS SF Manager.

For starting cluster application (transaction), refer to the manuals of your cluster software.

Note

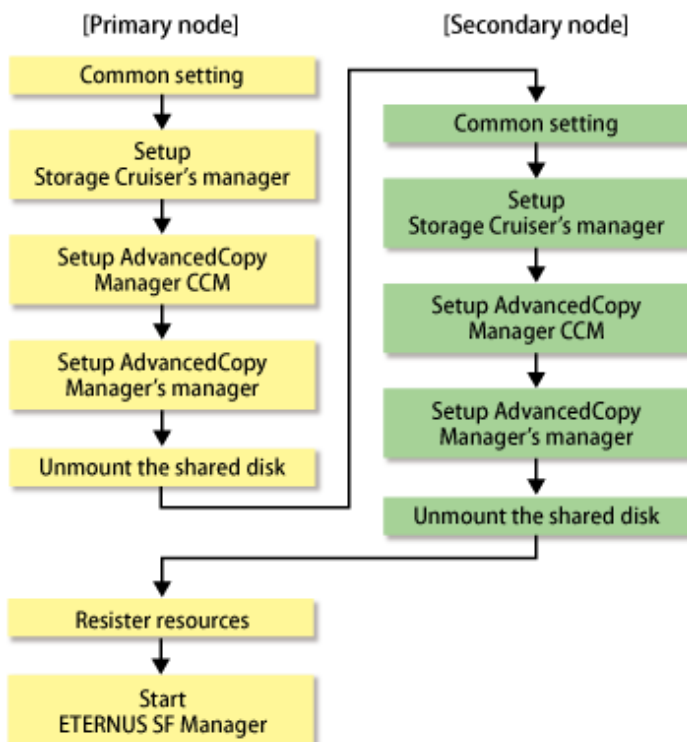
The communication daemon for local transactions of AdvancedCopy Manager's manager is stopped.

When you use the communication daemon for local transactions of AdvancedCopy Manager's manager, start the daemon.

For starting method of the daemon, refer to "Starting and stopping the communication daemon" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

5.3 Customization for Linux version

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



5.3.1 Customization for Primary Node

This section explains the customization procedure for a primary node.

5.3.1.1 Common setting

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).

For creating a cluster application (transaction), refer to the manuals of your cluster software.

2. Stop the cluster application (transaction).

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

For stopping a cluster application (transaction), refer to the manuals of your cluster software.

3. Mount the shared disk for shared data.

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

5.3.1.1.2 Startup setting 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.

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

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.

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



Specify the owner and the access restrictions of the copy destination files and directories 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:

- a. 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.
- b. Execute the following command:

```
>ln -s <Linked source directory> <Link target directory> <RETURN>
```

For the linked source directory, specify the directory on the shared disk which to set the link.

For the link target directory, 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.
For creating Cmdline resource, refer to PRIMECLUSTER manual.

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.

```
# /opt/FJSVssmgr/cluster/esc_clsetup -k Primary -m <Mountpoint-of-shared-disk-for-shared-data> -  
i <Takeover IP address for Management Server transaction>
```

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 follow.

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

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
/var/opt/FJSVccm	\$SHARE_MNT/var/opt/FJSVccm

Point

Specify the owner and the access restrictions of the copy destination files and directories 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 *5 of files below:

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

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir=*1
stxs_varidir=*2
stxs_jredir= (Do not modify these settings!)
```

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

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*3
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=*4
com.fujitsu.eternussf.acm.ccm.varpath=*5
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/etc/opt/FJSVccm/micc	/esfmnt/etc/opt/FJSVccm/micc
*2	\$\$SHARE_MNT/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*3	\$\$SHARE_MNT/etc/opt/FJSVccm/accc/etc	/esfmnt/etc/opt/FJSVccm/accc/etc
*4	\$\$SHARE_MNT/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*5	\$\$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.

5.3.1.4.1 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.

5.3.1.4.2 Customization procedure

Customize the primary node.

Perform "[Customization procedure for primary node](#)" in "[C.2.2 Customization Procedure](#)".

5.3.1.5 Dismount the shared disk

Dismount the shared disk for shared data and the shared disk for repository 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 setting

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

5.3.2.1.1 Startup setting 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.

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

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 and the shared disk for repository 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 follow.

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

4. Create the resources for Storage Cruiser.

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/FJSVssmgr/cluster/cmd/rcxclstartcmd
Stop script	/opt/FJSVssmgr/cluster/cmd/rcxclstopcmd
Check script	/opt/FJSVssmgr/cluster/cmd/rcxclcheckcmd

If the Optimization option is installed, also create the following "Cmdline" resources using the same procedure shown above.

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



If shared with the operations Management Server or division Management Server for Storage Cruiser's manager, make settings so that Cmdline resources are started after Systemwalker Centric Manager.



See

For details, refer to the "PRIMECLUSTER Installation and Administration Guide".

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 *5 of files below:

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

```
stxs_optdir= (Do not modify these settings!)
stxs_etcdir=*1
stxs_varidir=*2
stxs_jredir= (Do not modify these settings!)
```

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

```
stxc_optdir= (Do not modify these settings!)
stxc_etcdir=*3
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=*4
com.fujitsu.eternussf.acm.ccm.varpath=*5
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/etc/opt/FJSVccm/micc	/esfmnt/etc/opt/FJSVccm/micc
*2	\$\$SHARE_MNT/var/opt/FJSVccm/micc	/esfmnt/var/opt/FJSVccm/micc
*3	\$\$SHARE_MNT/etc/opt/FJSVccm/accc/etc	/esfmnt/etc/opt/FJSVccm/accc/etc
*4	\$\$SHARE_MNT/etc/opt/FJSVccm/	/esfmnt/etc/opt/FJSVccm/
*5	\$\$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

For details, refer to the "PRIMECLUSTER Installation and Administration Guide".

5.3.2.4 Customization for AdvancedCopy Manager's manager

Customize the secondary node.

5.3.2.4.1 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.

5.3.2.4.2 Customization procedure

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

1. Perform "[Customization procedure for secondary node](#)" in "[C.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 "[5.3.2.4.1 Preparation for start up/shut down script for AdvancedCopy Manager daemon](#)". For details, refer to the manuals of your cluster software.

5.3.2.5 Dismount the shared disk

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

5.3.3 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.
- The shared disk for AdvancedCopy Manager repository is mounted.

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

5.3.4 Start ETERNUS SF Manager

Startup cluster application (transaction) for ETERNUS SF Manager.

For starting cluster application (transaction), refer to the manuals of your cluster software.



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, start the daemon.

For starting method of the daemon, refer to "Starting and stopping the communication daemon" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

.....

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 setting are required.

For details, refer to the cluster manual of your environment.

6.1 Installation of the Windows version of AdvancedCopy Manager's agent

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

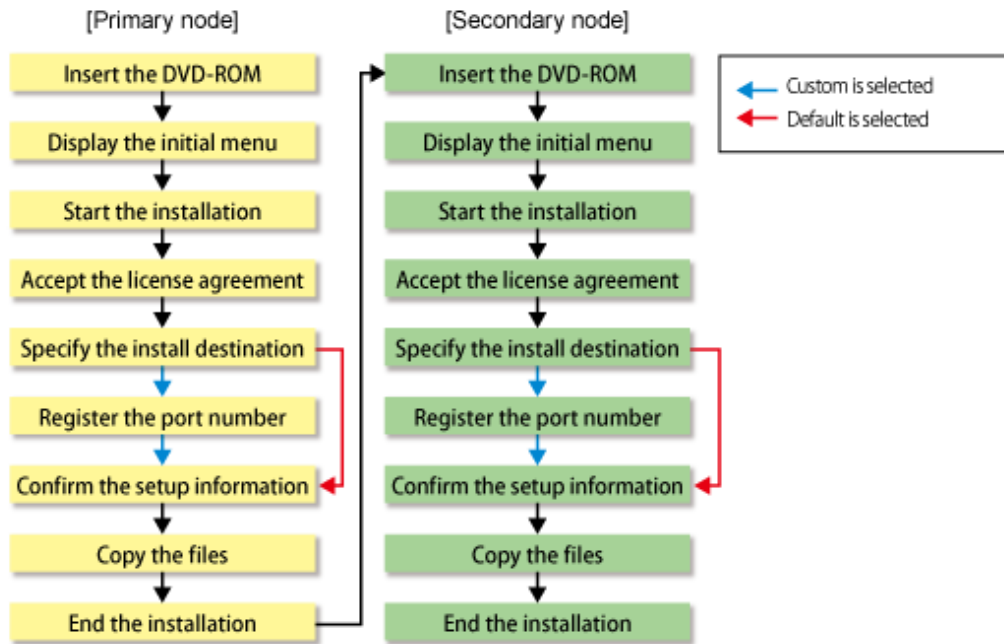
Note

- At installation, all the nodes must be installed in the same environment (ie, 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. Perform the setting procedure of the using clustered system to set the port number of the communication service for the cluster transactions, refer to "[Chapter 8 Customization of Managed Server Transactions](#)".

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 the Installation

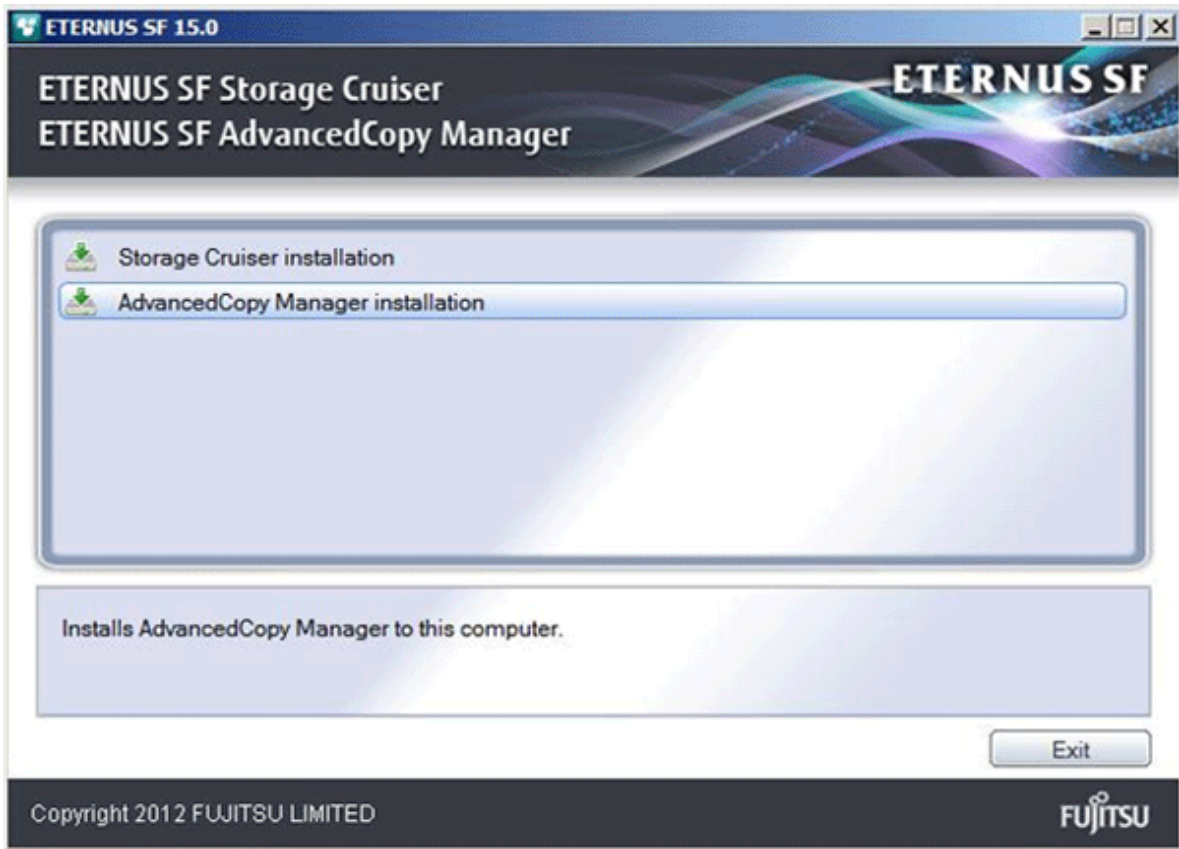
Install the AdvancedCopy Manager's agent with the following procedure.

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 V15.0 Mediapack (Agent Program and Manual)" into the DVD-ROM drive.

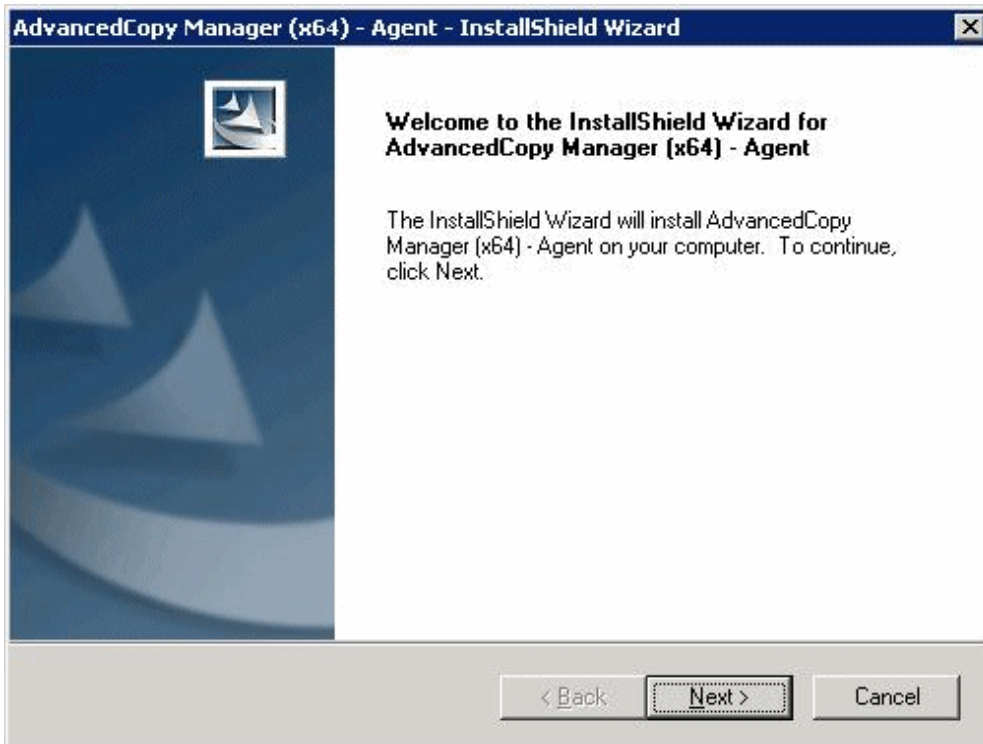
3. The following screen is displayed. Click the [AdvancedCopy Manager installation] button.



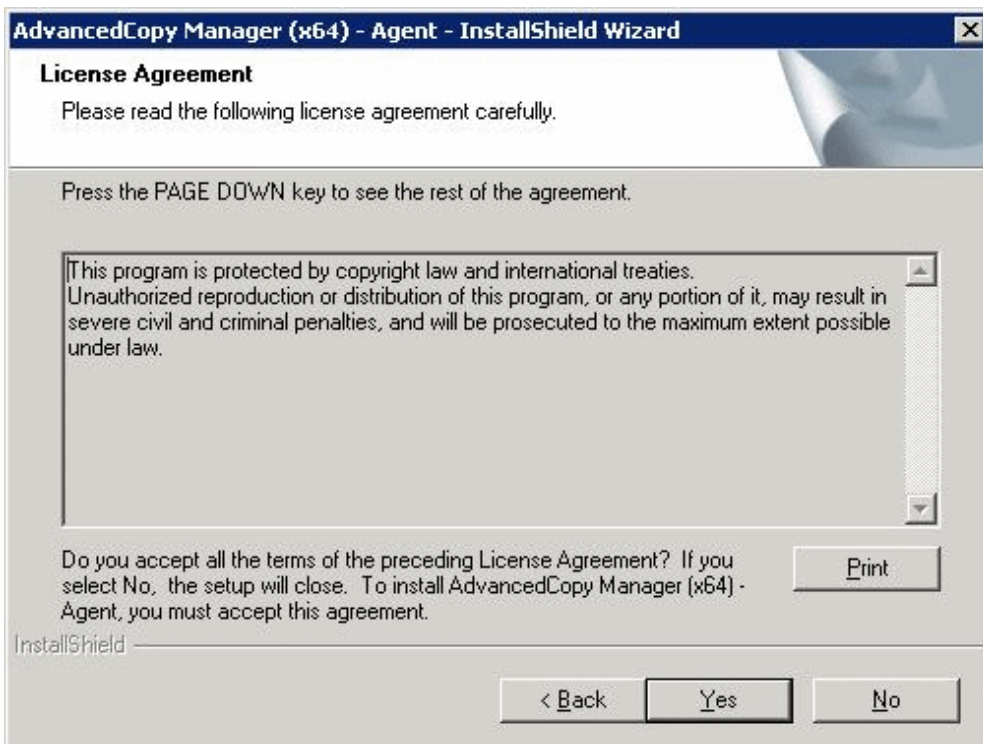
4. The following initial screen is displayed. Click [Installation of the Agent].



5. The following screen is displayed in case of the 64bit operating system. After checking the screen contents, click the [Next] button.
In case of the 32bit operating system, "x86" is displayed instead of "x64".

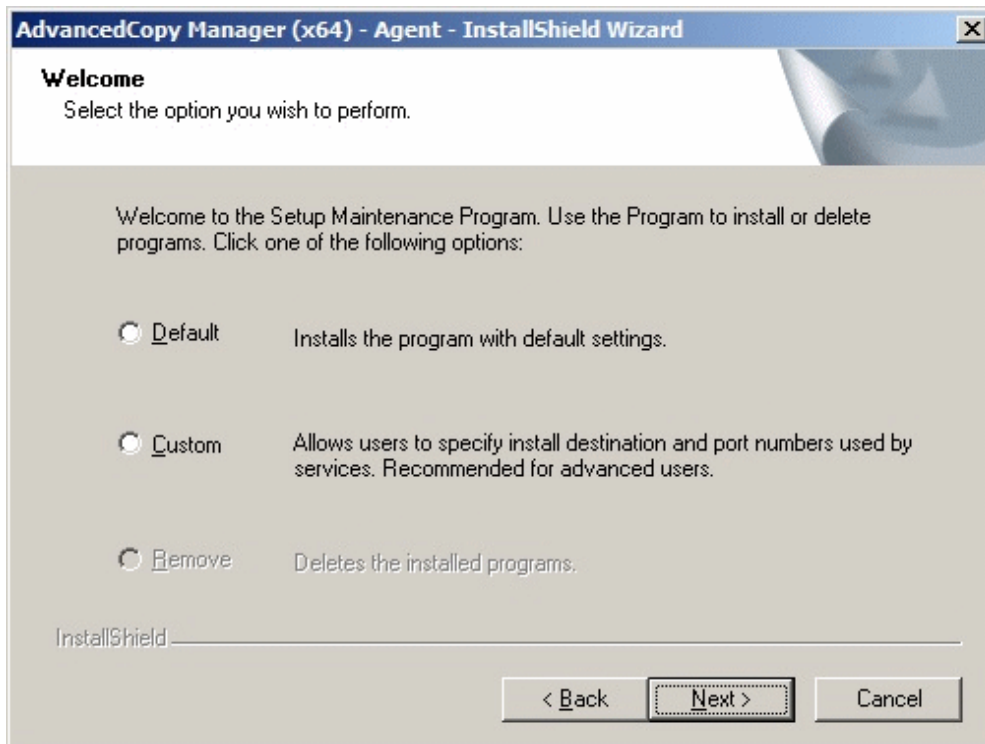


6. Read the terms and conditions in the [License Agreement] screen.
After reading the contents, if the conditions are agreed click the [Yes] button.



7. On the [Welcome] screen, select the install option.
Select an option with reference to the criteria in below table.

Install option	Explanation
Default	<p>In this installation method, the following checks are automatically performed regarding the information provided as a 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, the steps 8 and 9 are skipped.</p> <p>If an error is detected at this stage, a warning dialog is displayed. If no error is detected, the [Start Copying Files] screen is displayed.</p>
Custom	The installation information must be entered in the screens from step 8 and later.



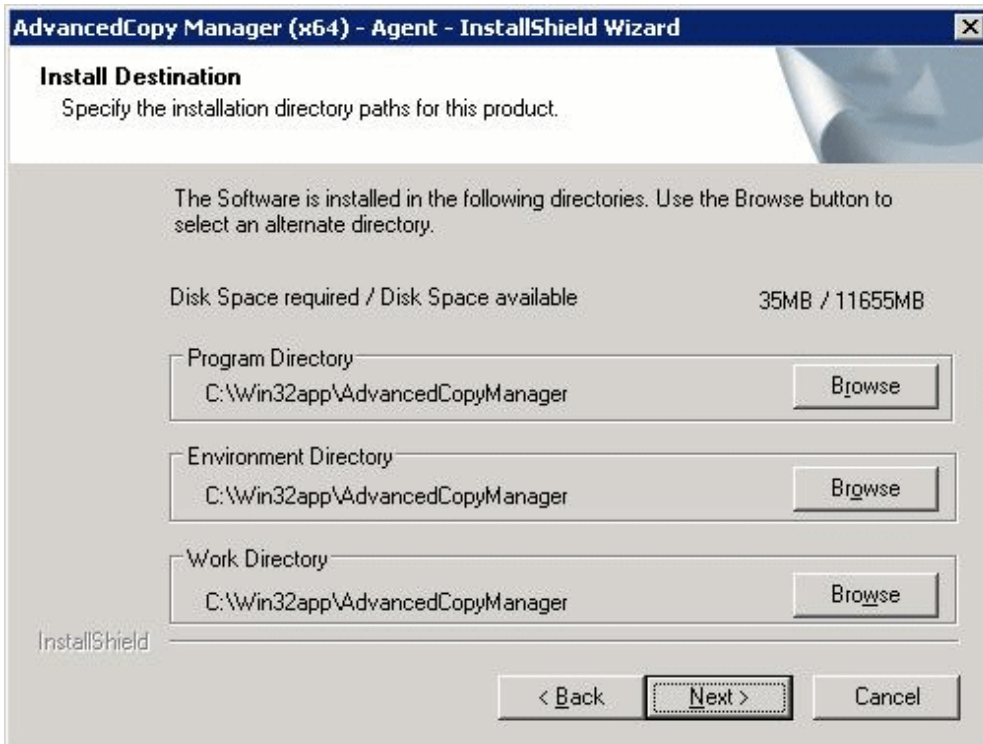
8. Specify the installation directory in the [Install Destination] screen.

- (Primary node)

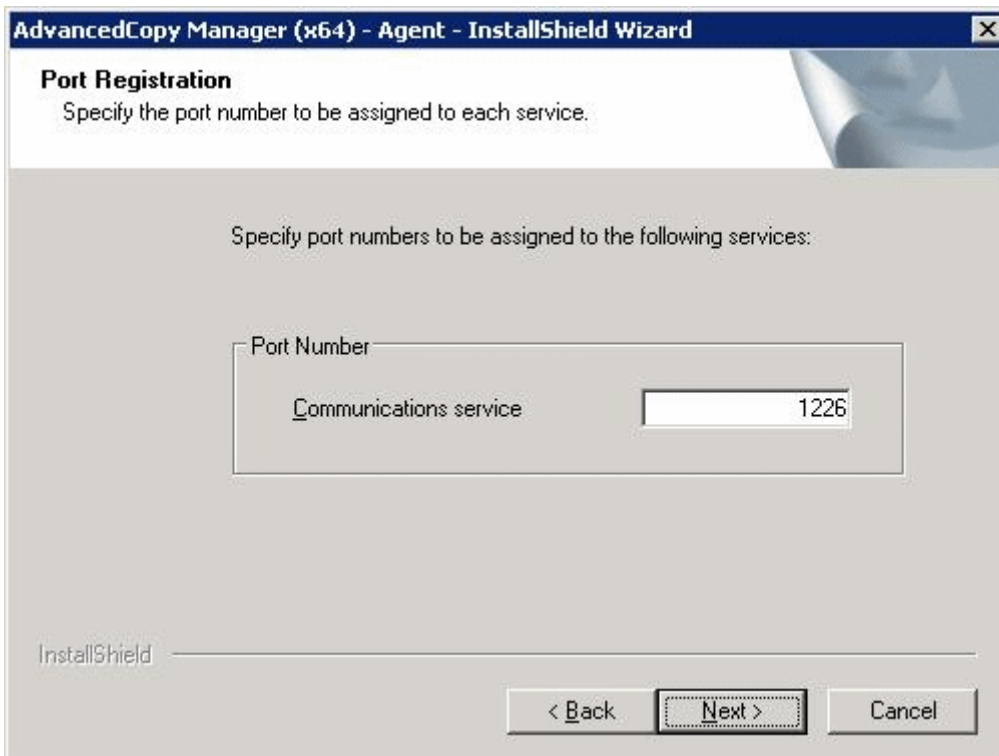
If this product is to be installed in directories other than those displayed (default directories), click the [Browse] button to select the desired directories. After all the proper directories have been selected, click the [Next] button. Note: directories with spaces their names (e.g., Program Files) must not be specified. Do not install AdvancedCopy Manager on a shared disk.

- (Secondary node)

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



9. Enter the port number to be allocated for the service in the [Port Registration] screen.



- (Primary node)

Enter the port number to be allocated to each service within the following range:

- 5001 to 32767

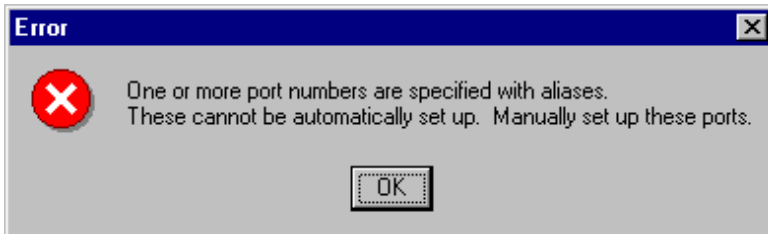
The first displayed value is a recommended value in a non-cluster environment and is not always unique. To perform cluster operation with Windows Server 2003, change all port numbers so that they are within the range as indicated above.

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

- (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.



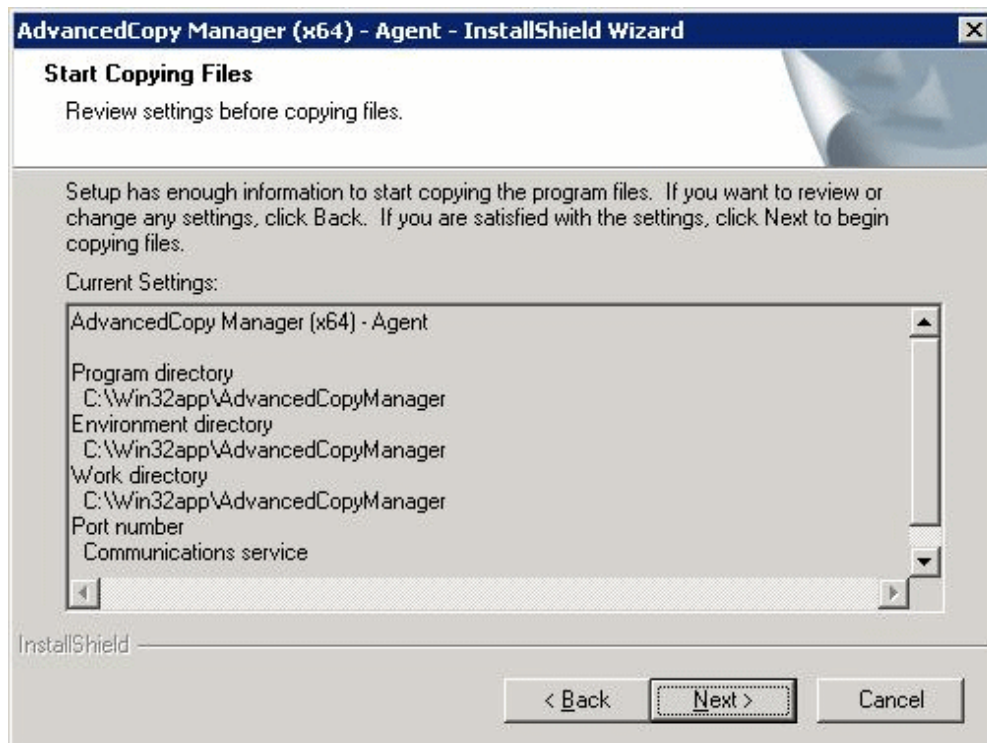
Point

For setting the port number manually, edit the C:\WINDOWS\system32\drivers\etc\services file.

10. Check the settings information in the [Start Copying Files] screen.

If the settings are correct, click the [Next] button. The copy processing starts.

To go back and change a setting, click the [Back] button.



11. Once the copy processing ends, the following screen is displayed. To complete the installation, click the [Finish] button.

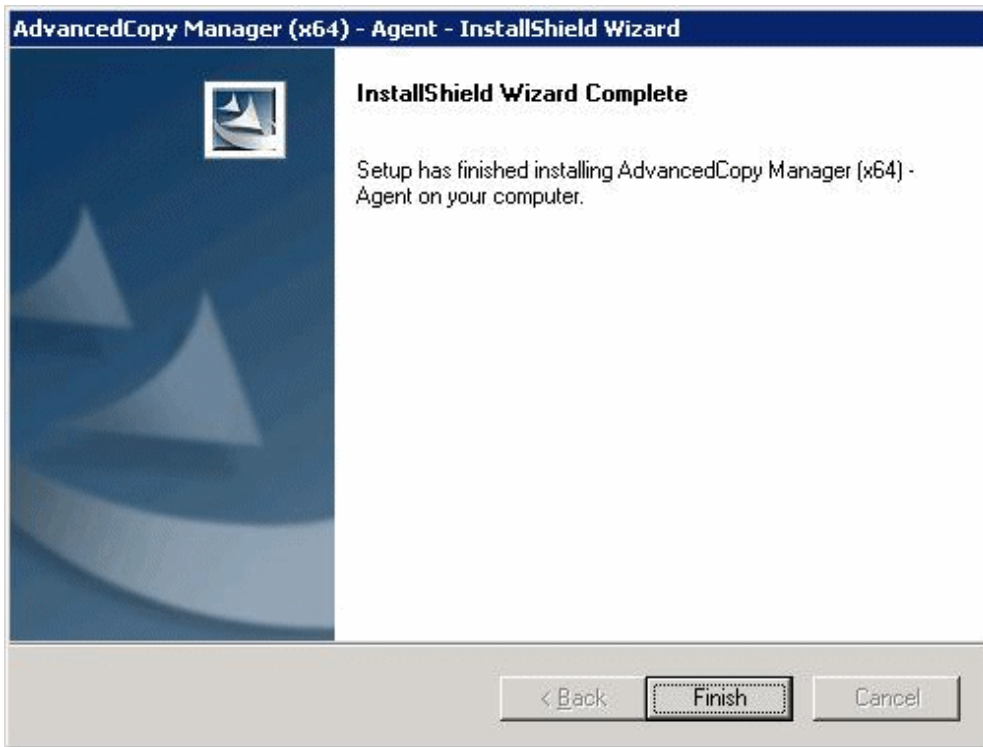
Click [Exit] in the window displayed in step 3 and step 4.

- (Primary node)

Next, start the installation on the secondary node by continuing with step 12.

- (Secondary node)

The installation on both nodes is completed. To set up a cluster environment, refer to "[Chapter 7 Preparations for Customizing Managed Server Transactions](#)".



12. Log on to the secondary node.

Log on to the secondary node as the administrator.

13. Go back to step 4.

Starting with step 4, 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 the Solaris version/Linux version/HP-UX version/AIX version of AdvancedCopy Manager's agent

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

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

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 of the port number of the communication daemon for cluster transactions, perform the procedure corresponding to the used clustered system, refer to "[Chapter 8 Customization of Managed Server Transactions](#)".

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
Solaris version of SynfinityCLUSTER or PRIMECLUSTER		7.1.1 Resources required for Solaris version SynfinityCLUSTER/PRIMECLUSTER
Solaris version of VERITAS Cluster Server		7.1.2 Resources required for Solaris version VERITAS Cluster Server
Solaris version of Sun Cluster		7.1.3 Resources required for Solaris version Sun Cluster
Windows version of MSCS/WSFC		7.1.4 Resources required for Windows version MSCS/WSFC
HP-UX version of MC/ServiceGuard	A.11.13 A.11.17	7.1.5 Resources required for HP-UX version MC/ServiceGuard
HP-UX version of ServiceGuard	Versions other than listed above	C.1.1 Resources required for Linux/HP-UX version
HP-UX version of VERITAS Cluster Server		7.1.6 Resources required for HP-UX version VERITAS Cluster Server
AIX version of VERITAS Cluster Server		7.1.7 Resources required for AIX version VERITAS Cluster Server
AIX version of High Availability Cluster Multi-Processing		7.1.8 Resources required for AIX version High Availability Cluster Multi-Processing
Linux version of clustered system		C.1.1 Resources required for Linux/HP-UX version

7.1.1 Resources required for Solaris version SynfinityCLUSTER/PRIMECLUSTER

The following resources are required when installing AdvancedCopy Manager's agent on the Solaris version of SynfinityCluster or PRIMECLUSTER.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "[7.2 Capacity of shared disk](#)".

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 partitions	1

 **Note**

- Define the shared disk for AdvancedCopy Manager shared data as SynfinityCluster or PRIMECLUSTER shared disk.
- Allocate shared disk for AdvancedCopy Manager shared data that are not involved in AdvancedCopy Manager backups or replication.
- The shared disk for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.
- For details on how to set up PRIMECLUSTER shared disks and file systems, refer to the "PRIMECLUSTER Installation Guide". Register these file systems (shared disk for AdvancedCopy Manager shared data) as Fsystem resources in the procedure described in "Customization operation details" in this manual. Refer to the "PRIMECLUSTER Installation Guide".
- For details on how to set up SynfinityCluster shared disks and file systems, refer to the "SynfinityCluster Installation Guide". Use the shared disk for AdvancedCopy Manager shared data as file systems. Refer to the "SynfinityCluster Installation Guide".

7.1.2 Resources required for Solaris version VERITAS Cluster Server

The following resources are required when installing AdvancedCopy Manager's agent on the Solaris version of VERITAS Cluster Server.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "7.2 Capacity of shared disk".

Table 7.3 Number of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

 **Note**

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by VERITAS Cluster Server.
- 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 for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.

7.1.3 Resources required for Solaris version Sun Cluster

The following resources are required when installing AdvancedCopy Manager's agent on the Solaris version of Sun Cluster.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "[7.2 Capacity of shared disk](#)".

Table 7.4 Number of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1



Note

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by Sun Cluster.
- 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 for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.

7.1.4 Resources required for Windows version MSCS/WSFC

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

1. 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.

2. 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. For more information about the size of the shared disks, refer to "[7.2 Capacity of shared disk](#)".

Table 7.5 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.

7.1.5 Resources required for HP-UX version MC/ServiceGuard

The following resources are required when installing AdvancedCopy Manager's agent on the HP-UX version of MC/ServiceGuard.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "7.2 Capacity of shared disk".

Table 7.6 Number of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

 **Note**

- The shared disk for AdvancedCopy Manager shared data is defined as a shared disk of MC/ServiceGuard.
- 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 for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.

7.1.6 Resources required for HP-UX version VERITAS Cluster Server

The following resources are required when installing AdvancedCopy Manager's agent on the HP-UX version of VERITAS Cluster Server.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "[7.2 Capacity of shared disk](#)".

Table 7.7 Number of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

 Note

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by the VERITAS Cluster Server.
- 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 for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.

7.1.7 Resources required for AIX version VERITAS Cluster Server

The following resources are required when installing AdvancedCopy Manager's agent on the AIX version of VERITAS Cluster Server.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "[7.2 Capacity of shared disk](#)".

Table 7.8 Number of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

 Note

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by the VERITAS Cluster Server.

- 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 for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.

7.1.8 Resources required for AIX version High Availability Cluster Multi-Processing

The following resources are required when installing AdvancedCopy Manager's agent on the AIX version of High Availability Cluster Multi-Processing.

1. 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.

2. 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. For more information about the size of the shared disks, refer to "7.2 Capacity of shared disk".

Table 7.9 Number of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1



Note

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by the VERITAS Cluster Server.
- 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 for AdvancedCopy Manager shared data uses file systems. Make arrangement for this disk to be mounted.

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 7.10 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 disks is "a" and the number of transaction disks is "b":
(a + b x 35)/1024 [MB]

3. Capacity required for cluster operation management data

1,024 [KB]



Note

If a single shared disk is to be used for both the repository and the shared data, add the size of the shared disk for repository (partition, etc.) that will coexist on the shared disk for AdvancedCopy Manager shared data to the abovementioned value.

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 7.11 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
Port number for the transaction communication daemon	Required	Required	Required	Required	Required	Required
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
Volume Group Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary

Items	HP-UX		AIX	
	MC/Service Guard	VERITAS Cluster Server	High Availability Cluster Multi-Processing	VERITAS Cluster Server
Logical node name	Required	Required	Required	Required
Port number for the transaction communication daemon	Required	Required	Required	Required
Service name	Required	Required	Required	Required
Logical IP address	Required	Required	Required	Required
Shared disk for shared data	Required	Required	Required	Required
Resource type	Unnecessary	Unnecessary	Unnecessary	Unnecessary
User when installing	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Cluster Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Disk resource of the shared disk for shared data	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Network Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary
External Connection Network	Unnecessary	Unnecessary	Unnecessary	Unnecessary
IP Address Resource	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Volume Group Name	Required	Unnecessary	Unnecessary	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
Solaris version of SynfinityCluster /PRIMECLUSTER		8.1 Customization for Solaris version SynfinityCluster/PRIMECLUSTER
Solaris version of VERITAS Cluster Server		8.2 Customization for Solaris version VERITAS Cluster Server
Solaris version of Sun Cluster		8.3 Customization for Solaris version Sun Cluster
Windows version of MSCS/WSFC		8.4 Customization for Windows version MSCS/WSFC
HP-UX version of MC/ServiceGuard	A.11.13 A.11.17	8.5 Customization for HP-UX version MC/ServiceGuard
HP-UX version of ServiceGuard	Versions other than above	C.2 Customization for Linux/HP-UX version clustered system
HP-UX version of VERITAS Cluster Server		8.6 Customization for HP-UX version VERITAS Cluster Server
AIX version of VERITAS Cluster Server		8.7 Customization for AIX version VERITAS Cluster Server
AIX version of High Availability Cluster Multi-Processing		8.8 Customization for AIX version High Availability Cluster Multi-Processing
Linux version clustered system		C.2 Customization for Linux/HP-UX version clustered system

8.1 Customization for Solaris version SynfinityCluster/PRIMECLUSTER

This section explains how to customize Solaris version SynfinityCluster/PRIMECLUSTER.

Throughout this section, 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 cluster service (userApplication).

The secondary node A shows the node which creates the environment of Managed Server transactions first in the secondary nodes in this cluster service (userApplication). The secondary node B shows the remaining secondary nodes in this cluster service (userApplication).

The customizing work of primary node and secondary node A is executed at 1:1 standby system, mutual standby system, and n:1 standby system.

The customizing work of primary node, secondary node A and secondary node B is executed at cascade topology system and priority transfer system.

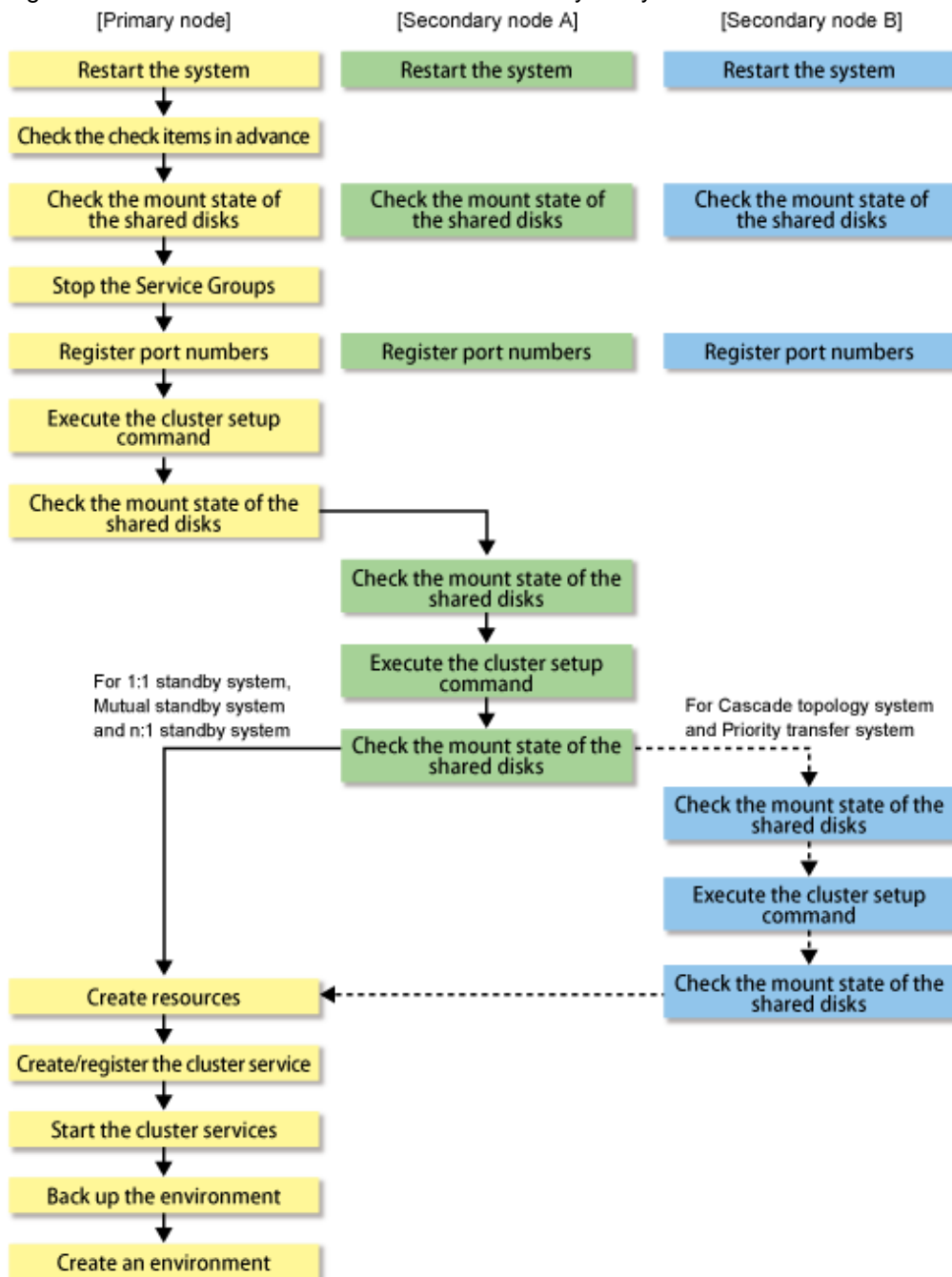
Example

- 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 sets are the secondary node B.

8.1.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.1 Customization flow for Solaris version SynfinityCluster/PRIMECLUSTER



8.1.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Restart the primary node and secondary node.
2. Check the preparations.

Check each item of "[7.3 Confirmation of items](#)", for the cluster service (userApplication) to be set up.

3. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

4. Stop the cluster services.

To add a Managed Server transaction (Management Server transaction) to an existing cluster service (userApplication), stop the cluster service (userApplication) from the SynfinityCluster Operation Management view or PRIMECLUSTER RMS main window.

5. Register port numbers.

Register the port number for the transaction communication in /etc/services. Use the OS command such as vi to register it in /etc/services.

- Communication daemon for transactions: stgxfws_*Logical-Node-Name*

Note

Register the same port number on the primary node and all secondary nodes.

6. 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 AdvancedCopy Manager shared data:

- If the status transition procedure resources are used:

Example

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /CTTEST3 -n nodeAGT -s agent_service
```

- If command line resources are used:

Example

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /CTTEST3 -n nodeAGT -s agent_service -r cmd
```

Note

Do not specify "-r cmd" with SynfinityCluster.

Refer to "[16.2.1 stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)" for command details.

7. Check the setup object.

Information is displayed about the logical node specified by the command. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /CTTEST3 -n nodeAGT -s agent_service -r cmd  
AdvancedCopy Manager settings are as follows.
```

```

Cluster system : SynfinityCluster or PRIMECLUSTER
Node type      : Primary
Mount point    : /CTTEST3
Node name      : nodeAGT
Service        : agent_service
Resource       : CmdLine
Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]

```

To interrupt the cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

8. Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

```

swstf8100 The cluster setup of the primary node has been completed. Next, create
the cluster environment of the secondary node.
#

```

9. Dismount the shared disks on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

10. Mount the shared disks on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

11. Execute the cluster setup command on the secondary node A.

Execute the following cluster setup command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example

```

# /opt/swstorage/bin/stgclset_safe -k Secondary -m /CTTEST3

```

Refer to "[16.2.1 stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)" for command details.

12. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```

# /opt/swstorage/bin/stgclset_safe -k Secondary -m /CTTEST3
AdvancedCopy Manager settings are as follows.
Cluster system : SynfinityCluster or PRIMECLUSTER
Node type      : Secondary
Mount point    : /CTTEST3
Node name      : nodeAGT
Service        : agent_service
Resource       : CmdLine
Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]

```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

13. Finish the cluster setup command on the secondary node.

The window indicating cluster setup command completion opens.

```

swstf8101 The cluster setup of the secondary node has been completed.
#

```

14. Dismount the shared disks on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager share data on the secondary node A.

If the system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, proceed to step 21.

If the system is Cascade topology and the Priority transfer, proceed to step 15.

15. Mount the shared disks on the secondary node B.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, Step 15 to Step 20 is processed by all the secondary nodes B.

16. Execute the cluster setup command on the secondary node B.

Execute the cluster setup command on the secondary node B on which the shared disk for AdvancedCopy Manager shared data was mounted in step 15.

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

Example

```
# /opt/swstorage/bin/stgclset_safe -k Secondary -m /CTTEST3
```

Refer to "[16.2.1 stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)" for command details.

17. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_safe -k Secondary -m /CTTEST3
AdvancedCopy Manager settings are as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Secondary
  Mount point    : /CTTEST3
  Node name      : nodeAGT
  Service        : agent_service
  Resource       : CmdLine
  Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

18. Check the addition of a secondary node.

The window for confirming of adding a secondary node is displayed. After confirmation of a cascade, "y" is inputted and the Enter key is pushed.

```
Secondary node is already setup in another node.
  The number of secondary nodes : 1
Do you want to setup new secondary node? [default:n] y
```

The number of secondary nodes already set up is outputted to "The number of secondary nodes."

Note

The default value is "n." "n" means cancellation of processing.

19. Finish the cluster setup command on the secondary node B.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.  
#
```

20. Dismount the shared disks on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When more secondary nodes B remain to be set up ie, (Step 15 to Step 20 have not been performed on these nodes), perform from Step 15 in the nodes. When operation from Step 15 to Step 20 is completed for all secondary nodes B, go to Step 21.

21. Create resources.

In SynfinityCluster, use the SynfinityCluster management view to create a takeover IP address resource. This operation is not necessary if a takeover IP address resource has already been created by the applicable cluster service.

In PRIMECLUSTER, use the PRIMECLUSTER "userApplication Configuration Wizard" to create the following resources.

- GDS resource
Register the class of the shared disk for AdvancedCopy Manager shared data.
The shared disk must be set as a switching disk.
- Fsystem resource
Register the mount point of the shared disk for AdvancedCopy Manager shared data.
- IP address resource
Not necessary to register IP address resources when using the existing takeover IP address.
- Procedure resource
Specify if procedure resources are used.
Specify "SMGRPROC_Logical-Node-Name".
- Command line resource
Specify if command line resources are used.
Specify the following values in each of the command line resource parameters:
 - Start script
/opt/FJSVswstf/cluster/clproc/acm_logical-node-name start
 - Stop script
/opt/FJSVswstf/cluster/clproc/acm_logical-node-name stop

Note

- For creating resources with PRIMECLUSTER, refer to "[Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER](#)".
- The cluster setup command ([16.2.1 stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)) has already created the preparatory settings (ie, creating a state transition procedure and storing resources in the resource database) that are defined to set PRIMECLUSTER procedure resources.
- Do not specify anything in the command line resource check script.
- Set the following for the parameters specified as "script attributes" of the command line resource:
 - NULLDETECTOR:Yes
 - ALLEXITCODES:No
 - LIEOFFLINE:No

- CLUSTEREXCLUSIVE:No
- AUTORECOVER:No
- MONITORONLY:No
- STANDBYCAPABLE:No
- REALTIME:No
- TIMEOUT:300

22. Create and register a cluster service

In SynfinityCluster, use the SynfinityCluster management view to create and register a cluster service for AdvancedCopy Manager.

- Operation type : Standby

Register the following resources that compose the cluster service.

- Takeover IP resource

This is not required if an existing takeover IP address resource is used.

- Shared disk prepared for AdvancedCopy Manager

The shared disk must be set as a switching disk.

- State transition procedure

The state transition procedure name is "SMGRPROC_*Logical-Node-Name*".

In PRIMECLUSTER, use the PRIMECLUSTER "userApplication Configuration Wizard" to create and register a userApplication for AdvancedCopy Manager.

- Operation type : Standby

Register the following resources that comprise the userApplication.

- The resources are created in Step 21

 Note

- Information of the shared disk for AdvancedCopy Manager shared data, includes mount point and partition, must be registered as switchover file system information. Refer to "SynfinityCluster Installation/Administration Guide" or "PRIMECLUSTER Installation and Administration Guide" for the registration method.
- The cluster setup command ([16.2.1 stgelset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)) has already created the SynfinityCluster "Setting up Resources (Application Resources)" (ie, creating a state transition procedure and storing resources in the resource database).
- For information on how to create resources with PRIMECLUSTER, refer to "[Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER](#)".

23. Start the cluster services (userApplication) and the AdvancedCopy Manager.

Use the SynfinityCluster management view and the RMS main window of PRIMECLUSTER to start the new cluster service (userApplication) or the cluster service (userApplication) stopped in step 4.

24. 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.

Use an OS command such as cp to back up the following directories on the shared disk for AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc
- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

25. Create an environment for a Managed Server transaction.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)", create the environment for Managed Server transactions according to the operation type.

Note

When adding a Managed Server transaction to a Managed Server, use `stgxfwcmaddsrv` (Server information addition command). For detailed information, refer to "`stgxfwcmaddsrv` (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "[2.4.2 Cluster transaction and local transaction](#)".

26. 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 Solaris version VERITAS Cluster Server

This section explains how to customize a Solaris version VERITAS Cluster Server.

Throughout this section, the primary node is the active node in the Service Group that executes Managed Server transactions, and the secondary node is the standby node in the same Service Group.

The secondary node A shows the node which creates the environment of Managed Server transactions first in the secondary nodes in this cluster service group. The secondary node B shows the remaining secondary nodes in this cluster service group.

The customizing work of primary node and secondary node A is executed at 1:1 standby system, mutual standby system, and n:1 standby system.

The customizing work of primary node, secondary node A and secondary node B is executed at cascade topology system.

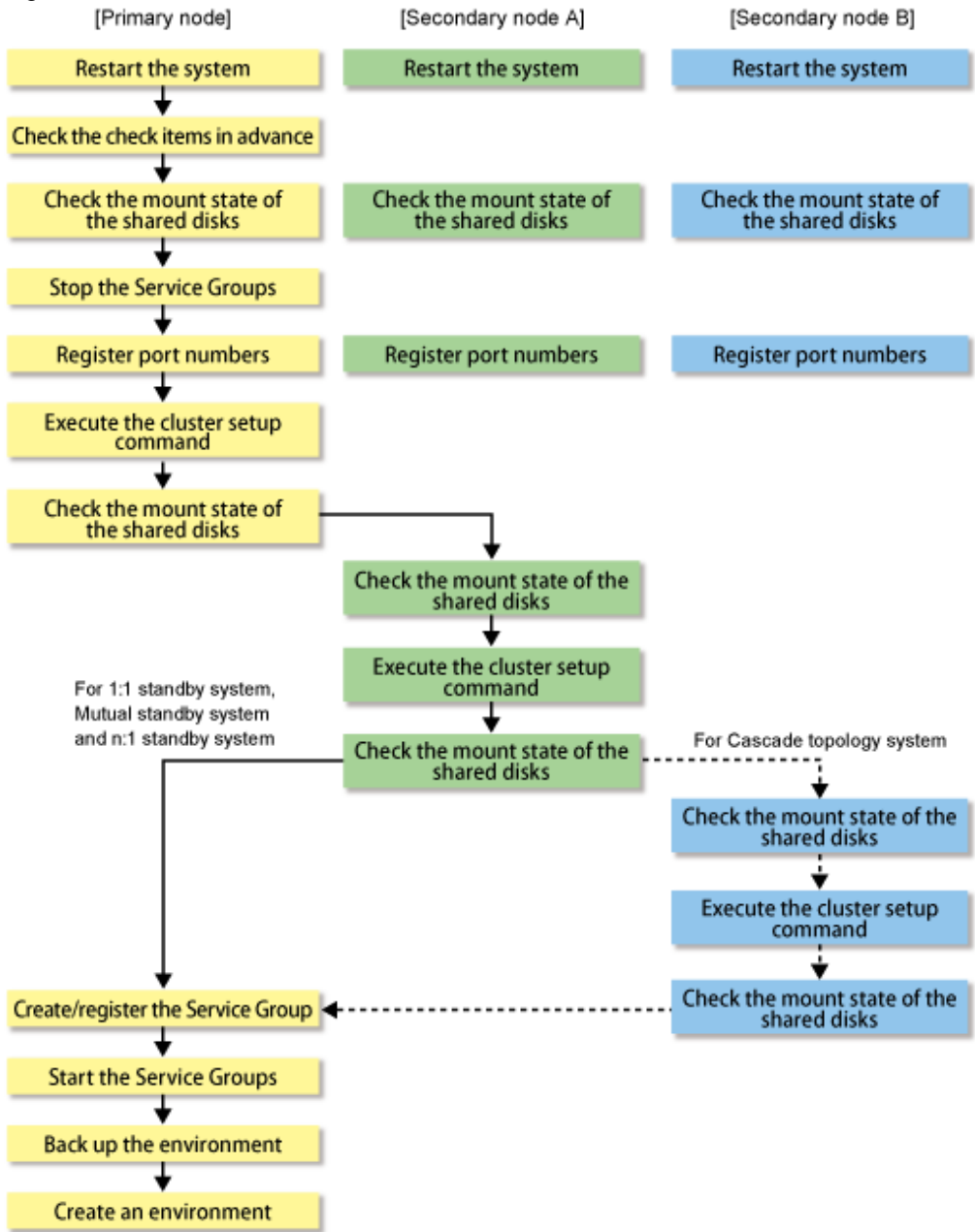
Example

- 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 two sets are the secondary node B.

8.2.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.2 Customization flow for Solaris version VERITAS Cluster Server



8.2.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Set the code that indicates an application status.

Open the following files, and set the code that indicates an application status and is defined by MonitorProgram. For the code, confirm by referring the manuals of using VERITAS Cluster Server.

File name	Code for setting
/opt/FJSVswstf/cluster/smgr_vstart_OK	Code that indicates ONLINE
/opt/FJSVswstf/cluster/smgr_vstop_OK	Code that indicates OFFLINE

Example

Setting example when using VERITAS Cluster Server 5.0:

File name	Before	After
/opt/FJSVswstf/cluster/smgr_vstart_OK	exit 1	exit 110
/opt/FJSVswstf/cluster/smgr_vstop_OK	exit 0	exit 100

Point

Execute these changes on all primary nodes and secondary nodes where the cluster is being set up.

- Restart the primary node and all secondary nodes.

- Check the preparations.

Check each item of "7.3 Confirmation of items," for the Service Group to be set up.

- Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

- Stop the Service Groups.

To add a Management Server transaction and a Managed Server transaction to an existing Service Group by using the VERITAS Cluster Server function, stop the applicable Service Group.

For information on how to stop the user Service Group, refer to the "VERITAS Cluster Server User's Guide."

```
# hagr -offline User-Service-Group -sys system-name
```

system-name : The node name by which the user service group is started

- 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_ *Logical-Node-Name*

Note

Register the same port number on the primary node and all secondary nodes.

- 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 AdvancedCopy Manager shared data:

Example

```
# /opt/swstorage/bin/stgclset_vcs -k Primary -m /STGAGTMNT -n nodeAGT -s agent_service
```

Refer to "16.2.2 stgclset_vcs (Solaris version VERITAS Cluster Server environment setup command)" for command details.

- Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_vcs -k Primary -m /STGAGTMNT -n nodeAGT -s
agent_service
AdvancedCopy Manager settings are as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Primary
    Mount point   : /STGAGTMNT
    Node name     : nodeAGT
    Service       : agent_service
    Function      : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

9. Finish the cluster setup command on the primary node.

The window indicating password registration and cluster setup command completion opens.

```
swstf8100 The cluster setup of the primary node has been completed. Next, create
the cluster environment of the secondary node.
#
```

10. Dismount the shared disks on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

11. Mount the shared disks on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

12. Execute the cluster setup command on the secondary node A.

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

Example

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary -m /STGAGTMNT
```

Refer to "[16.2.2 stgclset_vcs \(Solaris version VERITAS Cluster Server environment setup command\)](#)" for command details.

13. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Secondary
    Mount point   : /STGAGTMNT
    Node name     : nodeAGT
    Service       : agent_service
    Function      : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

14. Finish the cluster setup command on the secondary node A.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.
#
```

15. Dismount the shared disks on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

If the system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, proceed to step 22.

If the system is Cascade topology, proceed to step 16.

16. Mount the shared disks on the secondary node B.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, Step 16 to Step 21 is processed for all the secondary nodes B.

17. Execute the cluster setup command on the secondary node B.

Execute the cluster setup command on the secondary node B on which the shared disk for AdvancedCopy Manager shared data in step 16.

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

Example

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary -m /STGAGTMNT
```

Refer to "[16.2.2 stgclset_vcs \(Solaris version VERITAS Cluster Server environment setup command\)](#)" for command details.

18. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Secondary
  Mount point    : /STGAGTMNT
  Node name      : nodeAGT
  Service        : agent_service
  Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

19. Check the addition of a secondary node.

The window for confirming the addition of a secondary node is displayed. After confirmation of a cascade, "y" is inputted and the Enter key is pushed.

```
Secondary node is already setup in another node.
  The number of secondary nodes : 1
Do you want to setup new secondary node? [default:n] y
```

The number of secondary nodes already set up is outputted to "The number of secondary nodes."

Note

The default value is "n." The "n" means cancellation of processing.

20. Finish the cluster setup command on the secondary node B.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.  
#
```

21. Dismount the shared disks on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When more secondary nodes B remain to be set up (ie Step 16 to Step 21 has not been performed in them as yet), perform from Step 16 in the node. When operation from Step 16 to Step 21 is completed by all secondary nodes B, go to Step 22.

22. Create and register a Service Group.

A service of VERITAS Cluster Server can be created and registered in a User Service Group.

Please add the following types as a resource of AdvancedCopy Manager.

- Application

Specify a "/opt/FJSSVswstf/cluster/clproc/vcsStart_**Logical-Node-Name**" to be StartProgram.

Specify a "/opt/FJSSVswstf/cluster/clproc/vcsStop_**Logical-Node-Name**" to be StopProgram.

Specify a "/opt/FJSSVswstf/cluster/clproc/vcsMoni_**Logical-Node-Name**" to be MonitorProgram.

- MountPoint

Register the shared disk for AdvancedCopy Manager shared data.

- IP

Register the logic IP address for AdvancedCopy Manager. When using the logic IP address already used on business, it is not necessary to register newly.

The application should set up a dependency after MountPoint and IP to become on-line.

Refer to VERITAS Cluster Server User's Guide for information about a user service group and the creation/registration method of a resource.

The User Service Group by the command of VERITAS Cluster Server and the example of creation/registration of a resource are as follows.

In this example, User Service Group name is set to "STGMGRSRV", active system node name is set to "node1", standby system node name is set to "node2", and resource (ie, application) name is set to "AdvancedCopy_Manager_appl."

VCS config file is saved with another file-name. (Execute at all nodes.)

```
# mv /etc/VRTSvcs/conf/config/main.cf /etc/VRTSvcs/conf/config/main.cf.bk
```

Place VCS into the read-write enabled state.

```
# haconf -makerw
```

Define a list of systems used at occurrence of fail-over.

Note that when set up into the User Service Group, it is not necessary to set them up.

The following commands perform a check.

```
# hagr -display STGMGRSRV -attribute SystemList  
# hagr -display STGMGRSRV -attribute AutoStartList
```

A User Service Group is newly created (it is unnecessary when already set up into the User Service Group). As the system priority sequence, the active node has priority over the standby node.

```
# hagr -add STGMGRSRV
# hagr -modify STGMGRSRV SystemList node1 0 node2 1
# hagr -modify STGMGRSRV AutoStartList node1 node2
```

Register applications.

A resource (an application) is registered into a User Service Group.

```
# hares -add AdvancedCopy_Manager_appl Application STGMGRSRV
```

Place resources into the enabled state.

```
# hares -modify AdvancedCopy_Manager_appl Enabled 1
```

Specify a super-user (ie, root) who starts StartProgram, StopProgram, MonitorProgram.

```
# hares -modify AdvancedCopy_Manager_appl User root
```

Specify a start application. When a logical node name is nodemgr, the path of the application for starting becomes "/opt/FJSVswstf/cluster/clproc/vcsStart_nodemgr."

```
# hares -modify AdvancedCopy_Manager_appl StartProgram /opt/FJSVswstf/cluster/clproc/
vcsStart_nodemgr
```

Specify a stop application. When a logical node name is nodemgr, the path of the application for a stop becomes "/opt/FJSVswstf/cluster/clproc/vcsStop_nodemgr."

```
# hares -modify AdvancedCopy_Manager_appl StopProgram /opt/FJSVswstf/cluster/clproc/
vcsStop_nodemgr
```

Specify a monitor application. When a logical node name is nodemgr, the path of monitor application becomes "/opt/FJSVswstf/cluster/clproc/vcsMoni_nodemgr."

```
# hares -modify AdvancedCopy_Manager_appl MonitorProgram /opt/FJSVswstf/cluster/
clproc/vcsMoni_nodemgr
```

The mount information on the shared disk for AdvancedCopy Manager shared data is registered. In this example, a resource (mount) name is set to "AdvancedCopy_Manager_mount", and the mount point of the shared disk for AdvancedCopy Manager shared data is set to "/STGAGTMNT".

Register resource into User Service Group.

```
# hares -add AdvancedCopy_Manager_mount Mount STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify AdvancedCopy_Manager_mount Enabled 1
```

A mount pointer is set as a resource.

```
# hares -modify AdvancedCopy_Manager_mount MountPoint /STGAGTMNT
```

Specify a block device to be mounted. In this example, the block device of a shared disk is set to "/dev/dsk/c2t0d0s4".

```
# hares -modify AdvancedCopy_Manager_mount BlockDevice /dev/dsk/c2t0d0s4
```

Specify a file system type for the shared disk. In this example, a file system type is set to vxfs.

```
# hares -modify AdvancedCopy_Manager_mount FSType vxfs
```

Register a logical address.

However, when it is already set up in the User Service Group, it is not necessary to set up this resource.

In this example, a resource (ie, an IP address) name is set to "sybase_ip".

A resource is registered into a User Service Group.

```
# hares -add sybase_ip IP STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify Sybase_ip Enabled 1
```

Specify a device. In this example, a device is set to "hme0".

```
# hares -modify Sybase_ip Device hme0
```

Specify an address. In this example, an IP address is set to "10.10.10.10".

```
# hares -modify sybase_ip Address "10.10.10.10"
```

Specify the dependency of a resource.

```
# hares -link AdvancedCopy_Manager_appl AdvancedCopy_Manager_mount  
# hares -link AdvancedCopy_Manager_appl sybase_ip
```

Write the VCS configuration to disk change the mode to read-only.

```
# haconf -dump -makero
```

23. Start the AdvancedCopy Manager and Transaction.

Start the new User Service Group or the User Service Group stopped in step 5.

Please refer to VERITAS Cluster Server User's Guide for the method of starting a User Service Group.

The example of starting the User Service Group by the command of VERITAS Cluster Server is as follows. In this example, a User Service Group name is set to "STGMGRSRV", and an active system node name is set to "node1".

```
# hagrps -online STGMGRSRV -sys node1
```

24. 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.

Use the OS command such as cp to back up the following directories on the shared disk for AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc
- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

25. Create an environment for a Managed Server transaction.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)", create the environment for Managed Server transactions according to the operation type.

Note

When adding a Managed Server transaction to a Managed Server, use `stgxfwcmaddsrv` (Server information addition command). For detailed information, refer to "`stgxfwcmaddsrv` (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "[2.4.2 Cluster transaction and local transaction](#)".

26. 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.

8.3 Customization for Solaris version Sun Cluster

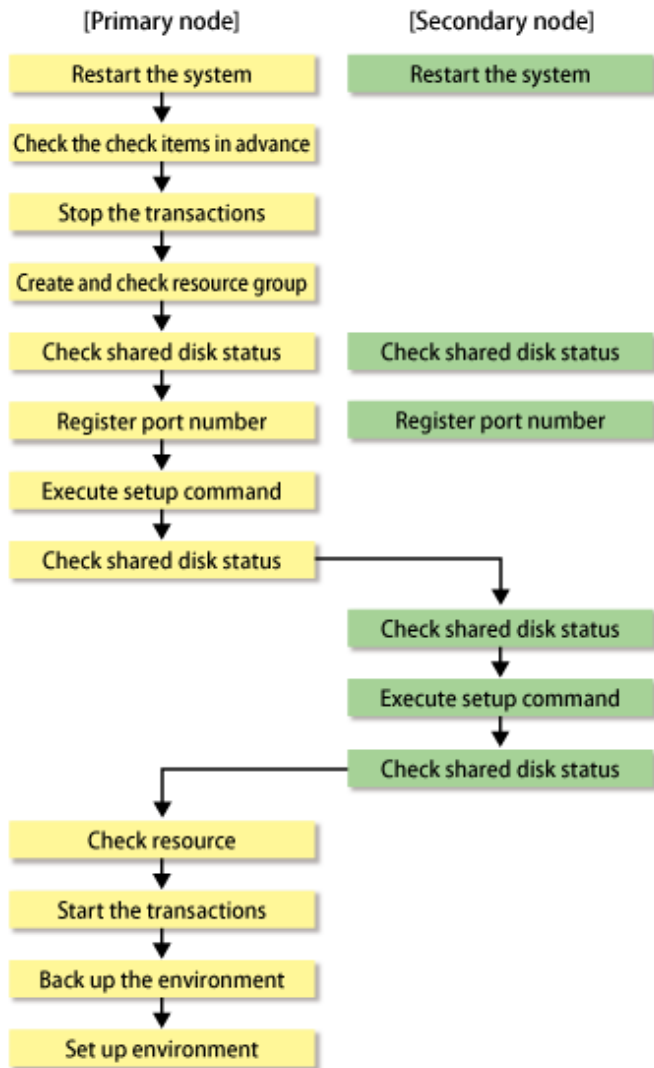
This section explains how to customize Solaris version Sun Cluster.

Throughout this section, the primary node is the active node in the resource group that executes Managed Server transactions, and the secondary node is the standby node in the same resource group.

8.3.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.3 Customization flow for Solaris version Sun Cluster



8.3.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Restart the primary and secondary nodes.
2. Check the preparations.
 Check each item of "7.3 Confirmation of items" for the resource group to be set up.
3. Create and check the resource group.
 Check the resource group that adds the Managed Server transactions. If there is no resource group, create one.
 Check the logical host name resources and shared address resources that belong to the resource group. If there are no resources, create logical host name resources and add them to the resource group.
 Create a shared disk SUNW.HASStoragePlus resource group for AdvancedCopy Manager, and add it to the resource groups.

 **Note**

- The resource group must be a failover resource group.

- The resource name for the shared disk SUNW.HAStoragePlus resource for AdvancedCopy Manager must be STGMGR-DSK-logical-node-name.

4. Stop transactions.

Use the Sun Cluster functions to stop the targeted resource group.

Refer to the Sun Cluster manual for information on stopping resource groups.

5. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

6. Register port numbers.

Use the service name shown below to register the port number for transaction communication daemon, prepared in advance, in /etc/services. Use an OS command such as vi to register it in /etc/services.

- Communication daemon for transactions : stgxfws_ *Logical-Node-Name*



Register the same port number on the primary node and all secondary nodes.

7. 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 AdvancedCopy Manager shared data:

Example

```
# /opt/swstorage/bin/stgclset_sun -k Primary -m /STGAGTMNT -h stgnet -n nodeAGT -s agent_service
```

Refer to "16.2.3 stgclset_sun (Solaris version Sun Cluster environment setup command)" for command details.

8. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_sun -k Primary -m /STGAGTMNT -h stgnet -n nodeAGT -s agent_service
AdvancedCopy Manager settings are as follows.
    Cluster system : Sun Cluster
    Node type      : Primary
    Mount point   : /STGAGTMNT
    Node name     : nodeAGT
    Service       : agent_service
    Network Resource : stgnet
    Function      : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environment setting process, enter "n". To continue the setting process, enter "y" or press the Enter key.

9. Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

```
swstf8100 The cluster setup of the primary node has been completed. Next, create the cluster environment of the secondary node.
```

```
#
```

10. Dismount the shared disks on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

11. Mount the shared disks on the secondary node.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.

12. 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 AdvancedCopy Manager shared data:

Example

```
# /opt/swstorage/bin/stgclset_sun -k Secondary -m /STGAGTMNT
```

Refer to "[16.2.3 stgclset_sun \(Solaris version Sun Cluster environment setup command\)](#)" for command details.

13. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_sun -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
  Cluster system : Sun Cluster
  Node type      : Secondary
  Mount point    : /STGAGTMNT
  Node name      : nodeAGT
  Service        : agent_service
  Network Resource : stgnet
  Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environment setting process, enter "n". To continue the setting process, enter "y" or press the Enter key.

14. Finish the cluster setup command on the secondary node.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.
#
```

15. Unmount the shared disks on the secondary node.

Unmount the shared disk for AdvancedCopy Manager shared data on the secondary node.

16. Check the resource group resources.

Check that the following resource has been registered:

- AdvancedCopy Manager application resource (resource name: STGMGR-APP-logical-node-name)

17. Start AdvancedCopy Manager and the Transaction.

Use the Sun Cluster functions to start the resource group that was stopped in Step 4.

Refer to the Sun Cluster manual for information on starting resource groups.

18. 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.

Use an OS command such as cp to back up the following directories on the shared disk for AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

19. Create an environment for Managed Server transactions.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)", create the environment for Managed Server transactions according to the operation type.

 **Note**

When adding a Managed Server transaction to a Managed Server, use stgxfwcmaddsrv (Server information addition command). For detailed information, refer to "stgxfwcmaddsrv (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "2.4.2 Cluster transaction and local transaction".

20. 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.

8.4 Customization for Windows version MSCS/WSFC

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**

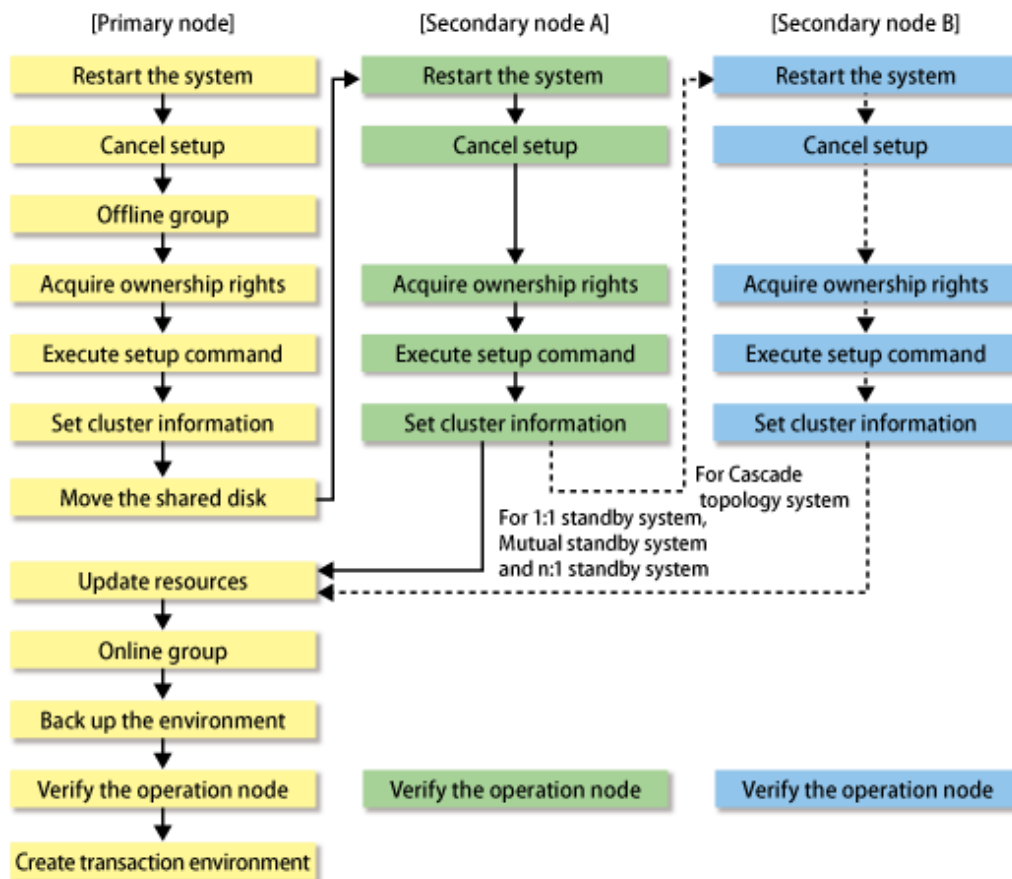
In any of the following cases, set the firewall function by referring to "Firewall setting (Windows environment only)" in the "ETERNUS SF Installation and Setup Guide":

- When Windows Server 2003 Service Pack 1 is applied
- Windows Server 2003 R2
- Windows Server 2008
- Windows Server 2008 R2

8.4.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.4 Customization flow for Windows version MSCS or WSFC



8.4.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

Note

- The "Computer Browser service" Windows service must be activated if a user belonging to the Administrators domain wants to perform customization for the Windows version of MSCS/WSFC.
- Do not use the Telnet server service, as it will not work properly.

Point

When executing the cluster setup on the following environment, refer to "[Appendix B Setup procedures on Windows Server 2008 x64](#)".

- The operating system is either of the following.
 - Windows Server 2008 x64
 - Windows Server 2008 R2

and

- The either of the following AdvancedCopy Manager applications is installed.
 - AdvancedCopy Manager's manager
 - 32bit AdvancedCopy Manager's agent

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.

For information on how to stop the cluster group and how to vary the shared disk online, refer to the MSCS/WSFC manuals for Windows.

3. Acquire the ownership rights on MSCS/WSFC for Windows.

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). For information about how to acquire ownership rights, refer to MSCS/WSFC manuals for Windows.

4. Execute the cluster setup command.

Execute the following cluster setup command on the primary node:

- When executing in Management Server

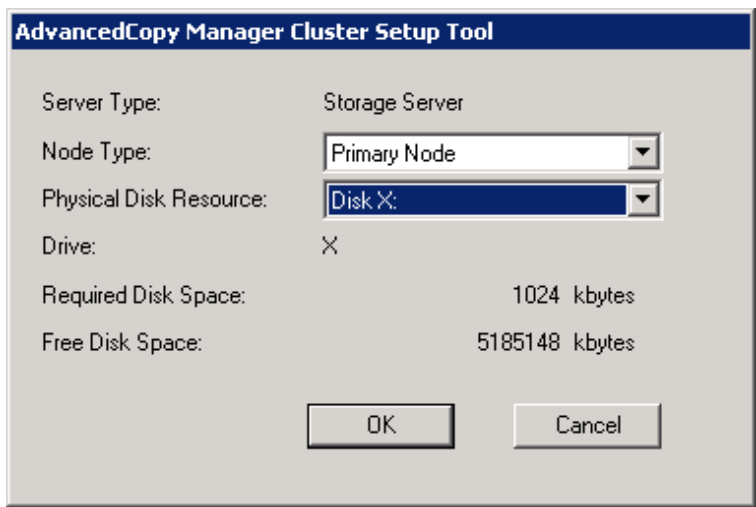
```
<Program_directory>\ACM\bin\stgclset_mscs
```

- When executing in Managed Server

```
<Program_directory>\bin\stgclset_mscs
```

5. 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 the [OK] button.

- Server Type

Confirm that the server is a "Storage Server."

- Node Type

Select "Primary 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

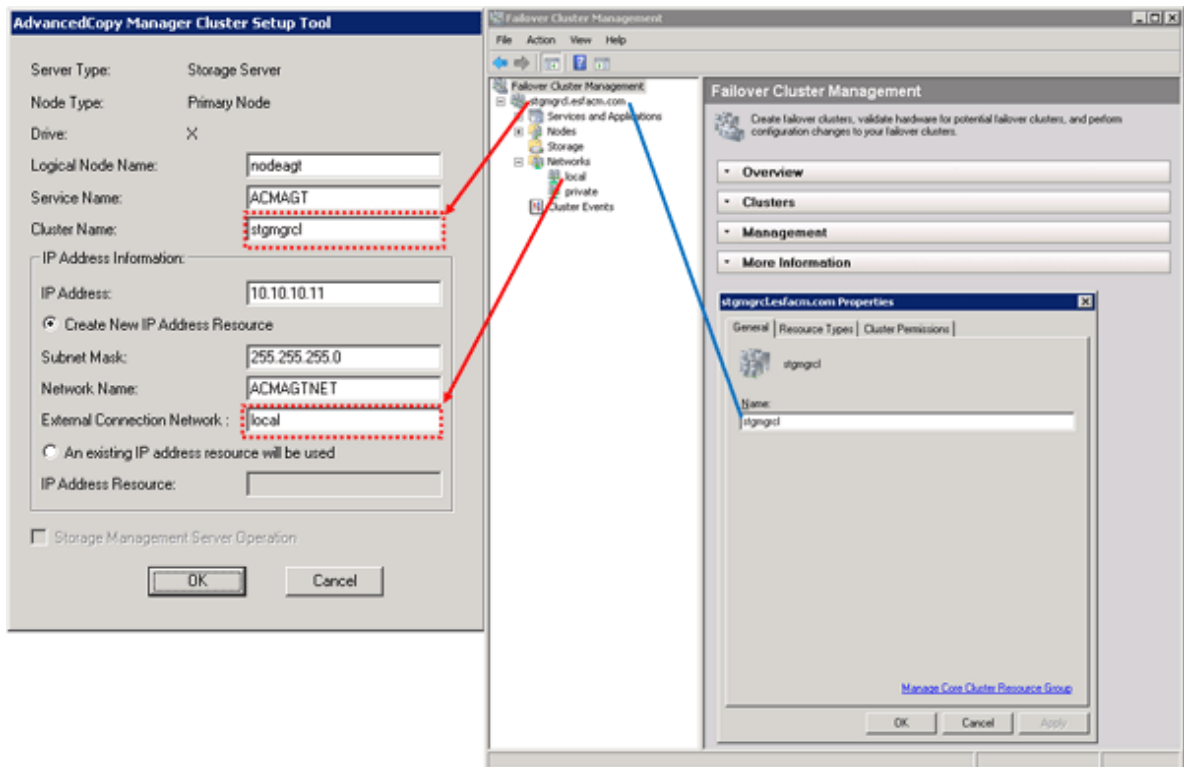
The minimum disk size required for the shared data is displayed. Use the calculated shared disk size for the required disk size. Make sure that there is enough free space.

- 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 window of the cluster setup command is displayed. The following "Failover Cluster Management" screen is for Windows Server 2008. A screen name may vary from operating system to operating system.



Each item is explained below. Make the required entries and then click the [OK] button.

- 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.](#)"

- Create New IP Address Resource

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.

- 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

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.

- IP Address Resource

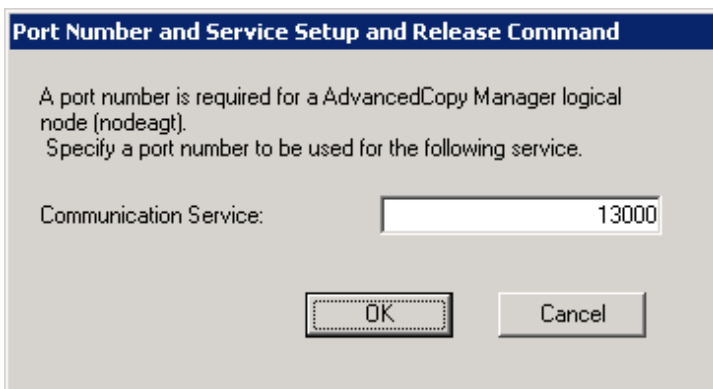
Enter the IP address resource confirmed in "[7.3 Confirmation of items.](#)"

- Storage Management Server Operation

Do not select this item for setting the Managed Server transaction.

7. Set the port number and service.

The [Port Number and Service Setup and Release Command] window is displayed. If the port number and service has already been set, this window does not display.

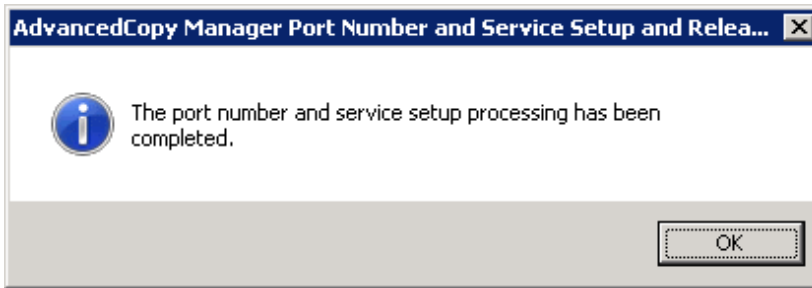


The item is explained below. Make the required entries and then click the [OK] button.

- Communication Service

Enter the port number for the transaction communication service as defined in "[7.3 Confirmation of items.](#)".

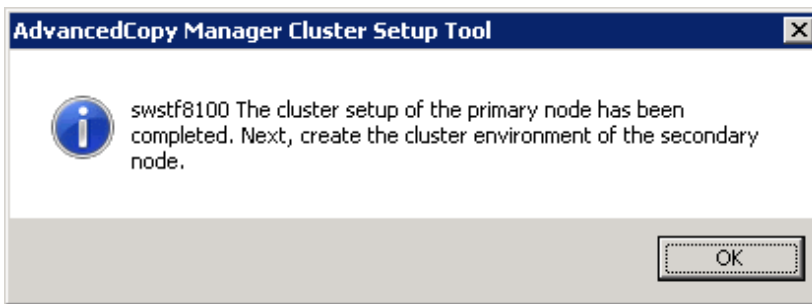
8. The port number and service settings have been completed.



Click the [OK] button.

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

When the cluster setup completion window is displayed, click the [OK] button. Continue by setting up the secondary node.



10. Reactivate the secondary node A.
11. 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). For information about how to acquire ownership rights, refer to MSCS/WSFC manuals for Windows.

12. Execute the cluster setup command.

Execute the following cluster setup command on the secondary node:

- When executing in Management Server

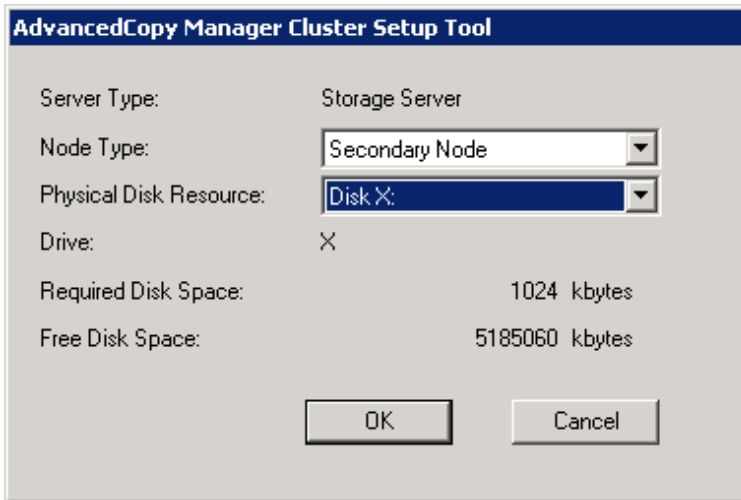
```
<Program_directory>\ACM\bin\stgclset_mscs
```

- When executing in Managed Server

```
<Program_directory>\bin\stgclset_mscs
```


13. 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 the [OK] button.

- 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 used for shared data. Select the same resource as the one 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 cluster environment is displayed.
- Free Disk Space
The amount of free disk space in the specified drive is displayed.

14. Set the cluster information for the secondary node A.

The values set for the primary node are displayed in the cluster setup command setting window (Node type is displayed as a secondary node.). After confirming each item, click the [OK] button.

The screenshot shows the 'AdvancedCopy Manager Cluster Setup Tool' dialog box. It contains the following fields and options:

- Server Type: Storage Server
- Node Type: Secondary Node
- Drive: X
- Logical Node Name: nodeagt
- Service Name: ACMAGT
- Cluster Name: stgmgrcl
- IP Address Information:
 - 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 'OK' and 'Cancel' buttons.

15. Set the port number and service.

The [Port number and Service Setup and Release Command] window is displayed. The same values as those set for the primary node are displayed. If a port number and service has already been set, this window does not display.

The screenshot shows the 'Port Number and Service Setup and Release Command' dialog box. It contains the following text and fields:

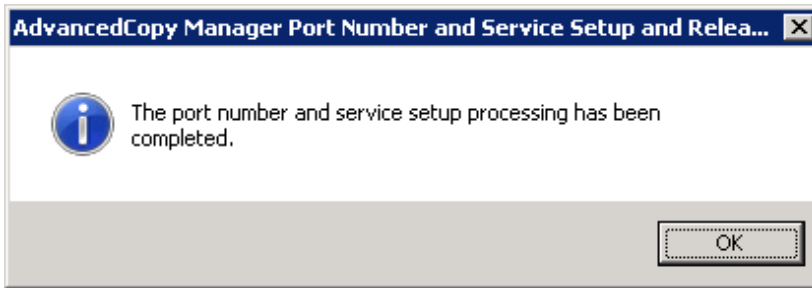
A port number is required for a AdvancedCopy Manager logical node (nodeagt).
Specify a port number to be used for the following service.

Communication Service: 13000

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

Click the [OK] button.

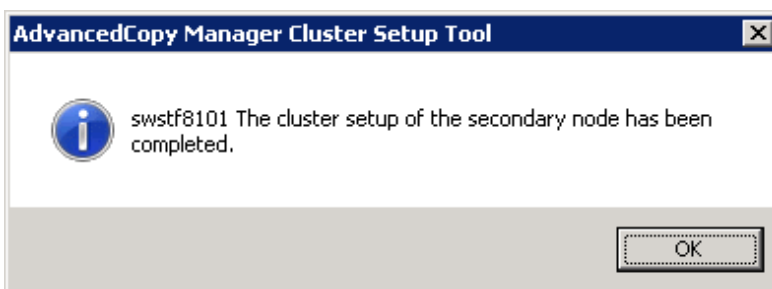
16. The port number and service settings have been completed.



Click the [OK] button.

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

When the cluster setup completion window is displayed, click the [OK] button.



If the clustered system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, proceed to step 30.
If the system is the Cascade topology, proceed to step 19.

18. Reactivate the secondary node B.

Note

When the secondary node B consists of two or more nodes, perform from Step 19 and Step 29 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). For information about how to acquire ownership rights, refer to MSCS/WSFC manuals for Windows.

20. Execute the cluster setup command.

Execute the following cluster setup command on the secondary node B:

- When executing in Management Server

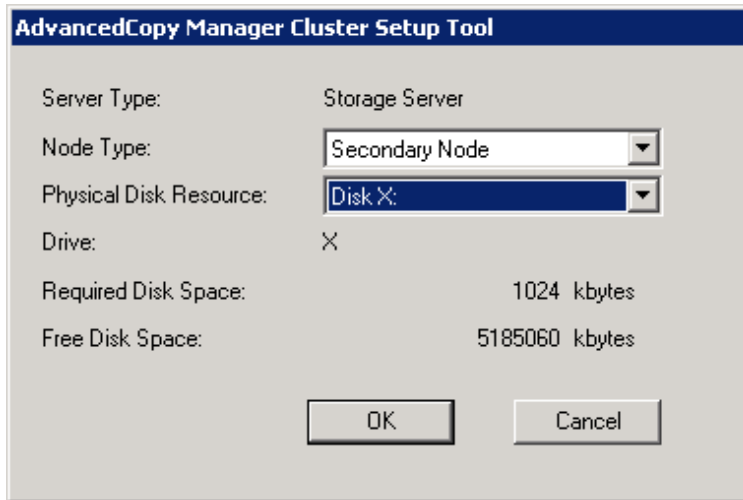
```
<Program_directory>\ACM\bin\stgclset_mscs
```

- When executing in Managed Server

```
<Program_directory>\bin\stgclset_mscs
```

21. 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 the [OK] button.

- 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

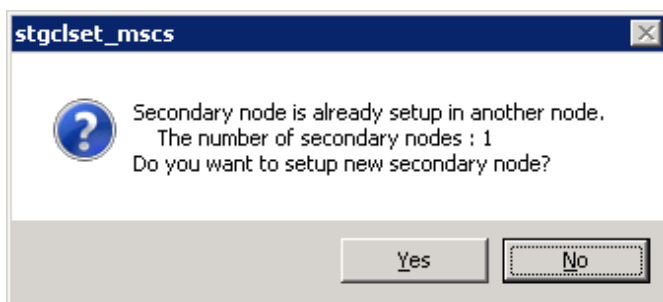
The minimum disk size required for the AdvancedCopy Manager cluster environment is displayed.

- 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 the [Yes] button.



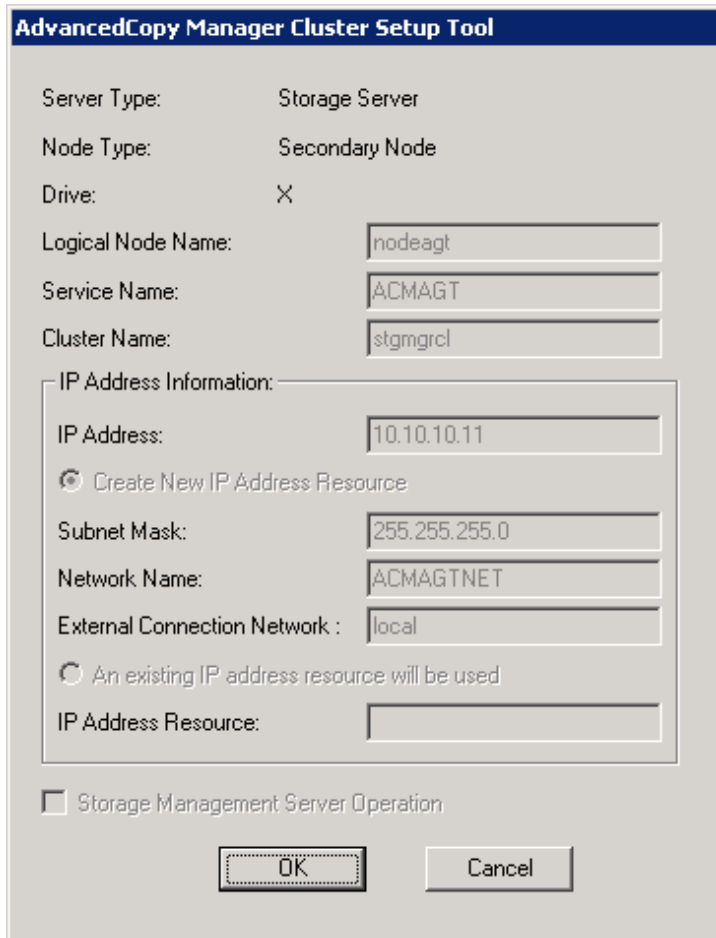
The number of secondary nodes already set up is displayed at the item "The number of secondary nodes".

 **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 are displayed in the cluster setup command setting window (Node type is displayed as a secondary node.). After confirming each item, click the [OK] button.



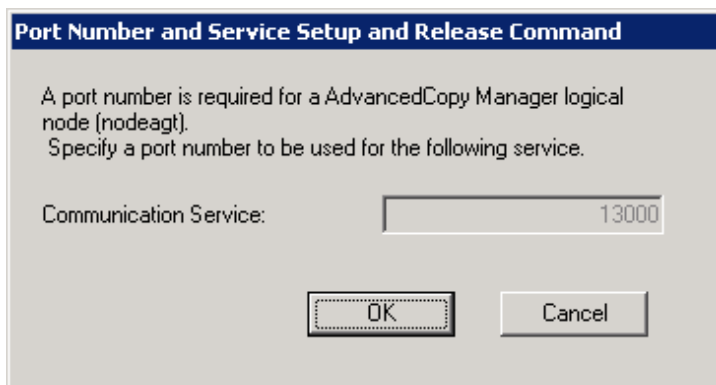
The dialog box is titled "AdvancedCopy Manager Cluster Setup Tool". It contains the following fields and options:

- Server Type: Storage Server
- Node Type: Secondary Node
- Drive: X
- Logical Node Name: nodeagt
- Service Name: ACMAGT
- Cluster Name: stgmgrcl
- IP Address Information:
 - 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

Buttons: OK, Cancel

24. Set the port number and service.

The [Port number and Service Setup and Release Command] window is displayed. The same values as those set for the primary node are displayed. If a port number and service has already been set, this window does not display.



The dialog box is titled "Port Number and Service Setup and Release Command". It contains the following text and fields:

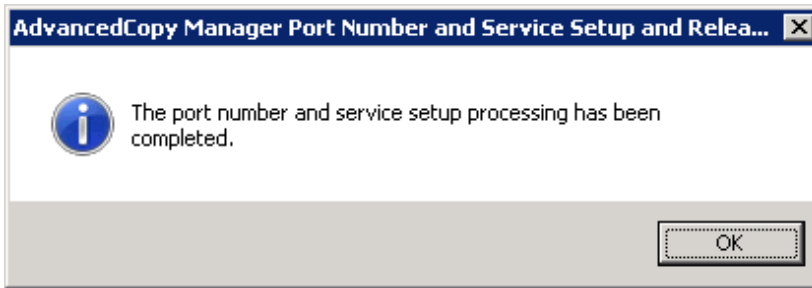
A port number is required for a AdvancedCopy Manager logical node (nodeagt).
Specify a port number to be used for the following service.

Communication Service: 13000

Buttons: OK, Cancel

Click the [OK] button.

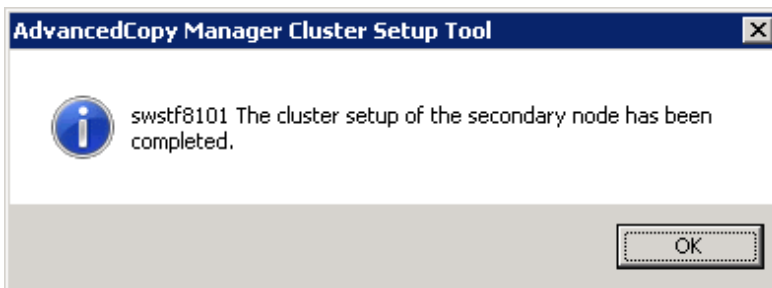
25. The port number and service settings have been completed.



Click the [OK] button.

26. The cluster setup of the secondary node B has been completed.

When the cluster setup completion window is displayed, click the [OK] button.



Note

If more secondary nodes B remain (and steps Step 19 to Step 26 have not been performed on them), perform from Step 19 in the remaining nodes. When operation from Step 19 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 *Logical-Node-Name*

Note

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

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. For information on how to change the ownership rights required for execution, refer to the Windows version of MSCS/WSFC manuals. The property information must be changed for the following resources:

- AdvancedCopy COM Service *Logical-Node-Name*
- AdvancedCopy IP Address logical node name (if "Create New IP Address Resource" has been selected with the cluster setup command of AdvancedCopy Manager)

- AdvancedCopy Network logical node name (if "Create New IP Address Resource" has been selected with the cluster setup command of AdvancedCopy Manager)
 - 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.
- Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)", create the environment for Managed Server transactions according to the operation type.

 **Note**

When adding a Managed Server transaction to a Managed Server, use stgxfwcmaddsrv (Server information addition command). For detailed information, refer to "stgxfwcmaddsrv (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "[2.4.2 Cluster transaction and local transaction](#)".

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.

8.5 Customization for HP-UX version MC/ServiceGuard

This section explains how to customize the HP-UX version MC/ServiceGuard.

Throughout this section, the primary node is an active node in a cluster service performing Managed Server transactions, and the secondary node is the standby node in the same package.

The secondary node A defines the node which first creates the environment of the Managed Server transactions in the secondary nodes in this package. The secondary node B defines the remaining secondary nodes in this package.

The primary node and secondary node A are customized in a 1:1 standby system, a mutual standby system, and a n:1 standby system.

The primary node, secondary node A, and secondary node B are customized in a cascade topology system.

 **Example**

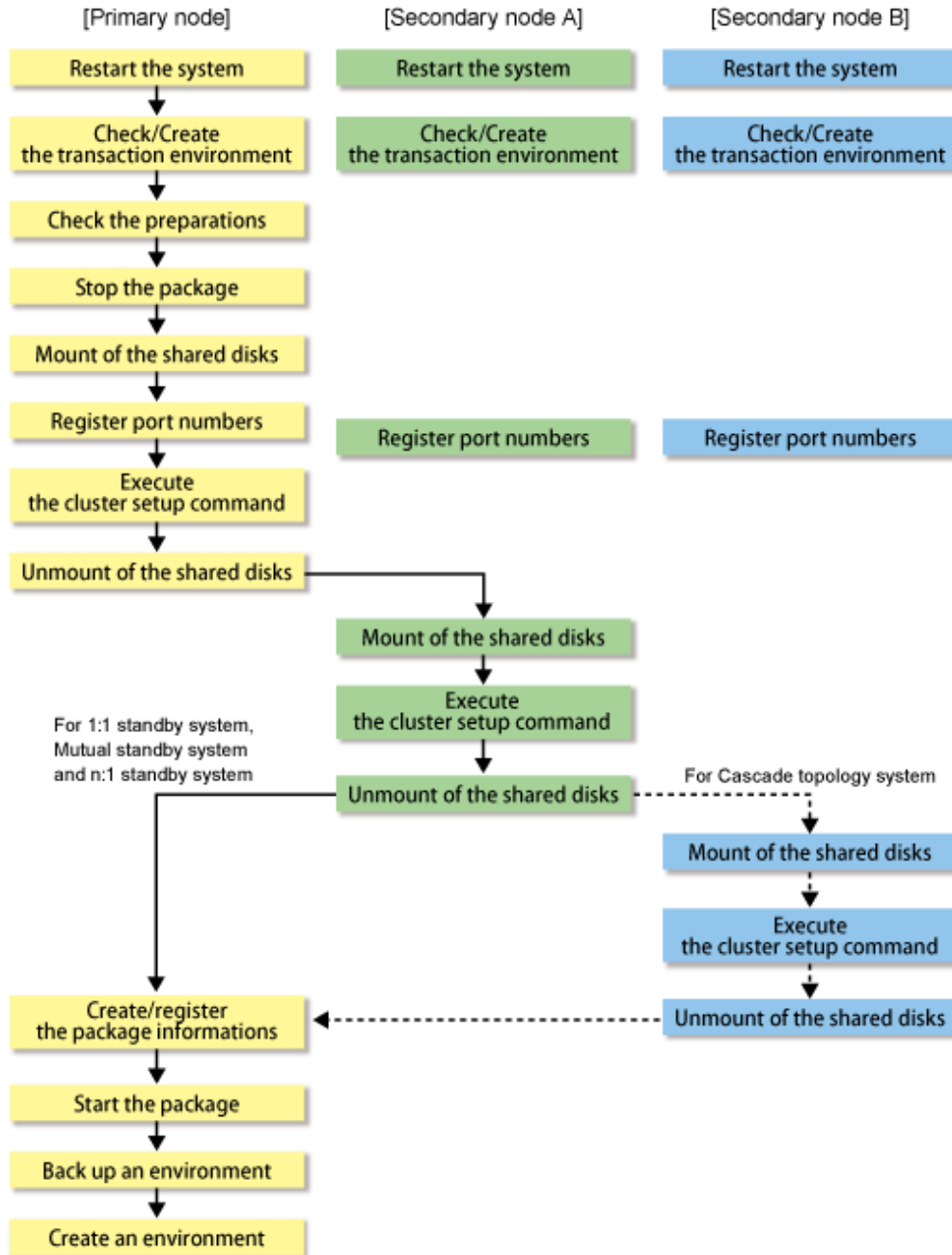
- When creating a cascade with three sets of nodes, one set is a primary node, one set is the secondary node A, and one set is the secondary node B.

- When creating a cascade with four sets of nodes, one set is a primary node, one set is the secondary node A, and the other two sets are the secondary node B.

8.5.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.5 Customization flow for HP-UX version MC/ServiceGuard



8.5.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Restart the primary node and secondary node.
2. Confirm and create the transaction environment using the MC/ServiceGuard function.

Refer to MC/ServiceGuard manual for information about confirming and creating a package.

Confirm the transactions (package) which adds Managed Server transactions. When creating new transactions, make sure that the package can move between nodes after creating and starting it.

3. Check the preparations.

Check each item in "7.3 Confirmation of items" for the setting package.

4. Stop the transaction using the MC/ServiceGuard function.

Stop the target transaction (stop a package).

Refer to MC/ServiceGuard manual for stopping the transaction.

5. Mount the shared disk on the primary node.

Confirm the status of the shared disk for AdvancedCopy Manager shared data is dismount on the primary node and the secondary node.

Then, mount the shared disk for AdvancedCopy Manager shared data on the primary node.

6. Register port numbers.

Register the port number for the transaction communication daemon in /etc/services. Use the OS command such as vi to register it in /etc/services.

- Communication daemon for transactions : stgxfws_ *Logical-Node-Name*

 Note

Register the same port number on the primary node and the secondary node.

7. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclset_mcsg -k Primary -m /stgmount -n nodepr -s serv1 -v vg01  
-i 10.10.10.10 -u 10.10.10.0
```

Refer to "16.2.5 stgclset_mcsg (HP-UX version MC/ServiceGuard environment setup command)" for command details.

8. Check the setup object.

Information on the logical node specified by the command is displayed. After the displayed content is confirmed press the Enter key.

```
# /opt/swstorage/bin/stgclset_mcsg -k Primary -m /stgmount -n nodepr -s serv1 -v vg01  
-i 10.10.10.10 -u 10.10.10.0  
AdvancedCopy Manager settings are as follows.  
Cluster system   : MC/ServiceGuard  
Node type        : Primary  
IP Address       : 10.10.10.10  
SUBNET           : 10.10.10.0  
Mount point      : /stgmount  
Device Name      : /dev/vg01/lvol1  
Volume Group     : vg01  
Node name        : nodepr  
Service          : serv1  
Function         : Server  
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y] y
```

To interrupt cluster environmental setting processing, input "n". To continuing processing, input "y", or press the Enter key.

- Completed the setup command on the primary node.

The completion screen of the cluster setup command is displayed.

```
swstf8100 The cluster setup of the primary node has been completed. Next, create the
cluster environment of the secondary node.
#
```

- Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

- Mount the shared disk on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

- Execute the cluster setup command on the secondary node A.

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

Example :

```
# /opt/swstorage/bin/stgclset_mmsg -k Secondary -m /stgmout
```

Refer to "[16.2.5 stgclset_mmsg \(HP-UX version MC/ServiceGuard environment setup command\)](#)" for command details.

- Check the setup object.

Information on the logical node specified by the command is displayed. After the displayed content is confirmed press the Enter key.

```
# /opt/swstorage/bin/stgclset_mmsg -k Secondary -m /stgmout
AdvancedCopy Manager settings are as follows.
Cluster system      : MC/ServiceGuard
Node type           : Secondary
IP Address          : 10.10.10.10
SUBNET              : 10.10.10.0
Mount point         : /stgmout
Device Name         : /dev/vg01/lvol1
Volume Group        : vg01
Node name           : nodepr
Service             : serv1
Function            : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y] y
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

- Completed the setup command on the secondary node A.

The completion screen of the cluster setup command is displayed.

```
swstf8101 The cluster setup of the secondary node has been completed.
#
```

- Dismount the shared disk on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager share data on the secondary node A.

If the system is a 1:1 standby system, a mutual standby system or an n:1 standby system, proceed to step 22.

If the system is Cascade topology, proceed to step 16.

- Mount the shared disk on the secondary node B where the cluster setup command will be executed.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, Step 16 to Step 21 is processed for all the secondary nodes B.

17. Execute the cluster setup command on the secondary node B.

Execute the cluster setup command on the secondary node B on which the shared disk for AdvancedCopy Manager was mounted in step 16.

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

Example:

```
# /opt/swstorage/bin/stgclset_mcsg -k Secondary -m /stgmount
```

Refer to "[16.2.5 stgclset_mcsg \(HP-UX version MC/ServiceGuard environment setup command\)](#)" for command details.

18. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_mcsg -k Secondary -m /stgmount
AdvancedCopy Manager settings are as follows.
  Cluster system   : MC/ServiceGuard
  Node type        : Secondary
  IP Address       : 10.10.10.10
  SUBNET           : 10.10.10.0
  Mount point      : /stgmount
  Device Name      : /dev/vg01/lvol1
  Volume Group     : vg01
  Node name        : nodepr
  Service          : serv1
  Function         : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y] y
```

To interrupt cluster environmental setting processing, type "n", to continue processing, type "y" or press the Enter key.

19. Check the addition of a secondary node.

The confirmation window to add a secondary node for the cascade is displayed. After confirming the cascade, type "y" and press the Enter key.

```
Secondary node is already setup in another node.
  The number of secondary nodes : 1
Do you want to setup new secondary node? [default:n] y
```

The number of secondary nodes already set up is output to "The number of secondary nodes."

Note

The default value is "n", which indicates cancellation of processing.

20. Finish the cluster setup command on the secondary node B.

A window displays, indicating that the cluster setup command is complete.

```
swstf8101 The cluster setup of the secondary node has been completed.
#
```

21. Dismount the shared disks on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager share data on the secondary node B.

 Note

If there are remaining secondary nodes B for which steps 16 to 21 have not been performed, perform these steps in each node. When steps 16 to 21 have been completed by all secondary nodes B, proceed to Step 22.

22. Edit and register package information.

- When business is newly created in step 2, the sample control script created by the cluster environmental setting command is copied to the control script of a package.

When resources other than AdvancedCopy Manager are set in the package control script (AdvancedCopy Manager was added to the existing business), with reference to the sample control script created by the cluster environmental setting command, the information on AdvancedCopy Manager is set as the existing control script. The information on AdvancedCopy Manager in a sample control script can be searched with "AdvancedCopy Manager."

- MC/ServiceGuard A.11.13 sample control script:

`/var/opt/swstorage/cluster/samp_Logical-Node-Name.sh.`

- Serviceguard A.11.17 sample control script:

`/var/opt/swstorage/cluster/samp1117_Logical-Node-Name.sh.`

- The default timeout value for a daemon to stop in AdvancedCopy Manager is 300 seconds. When the timeout value is set up by the package configuration file, check that the timeout value is enough.

- After replacing/editing a package control script, verification, registration and checking of a package composition file are carried out.

For more information, refer to MC/ServiceGuard manual.

23. Start the transaction using the MC/ServiceGuard function.

Start the transaction that was stopped in step 4. (the package should be switched to on-line.)

Refer to MC/ServiceGuard manual for information about starting the transaction.

24. Back up the environment.

As a safeguard against accidental loss of data or file corruption, back up the following environments on the shared disk for AdvancedCopy Manager shared data.

- Data 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 AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

25. Create an environment for a Managed Server transaction.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for HP-UX)", create the environment for Managed Server transactions according to the operation type.

 Note

When adding a Managed Server transaction to a Managed Server, use stgxfwcmaddsrv (Server information addition command).

For detailed information, refer to "stgxfwcmaddsrv (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "[2.4.2 Cluster transaction and local transaction](#)".

26. 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.

8.6 Customization for HP-UX version VERITAS Cluster Server

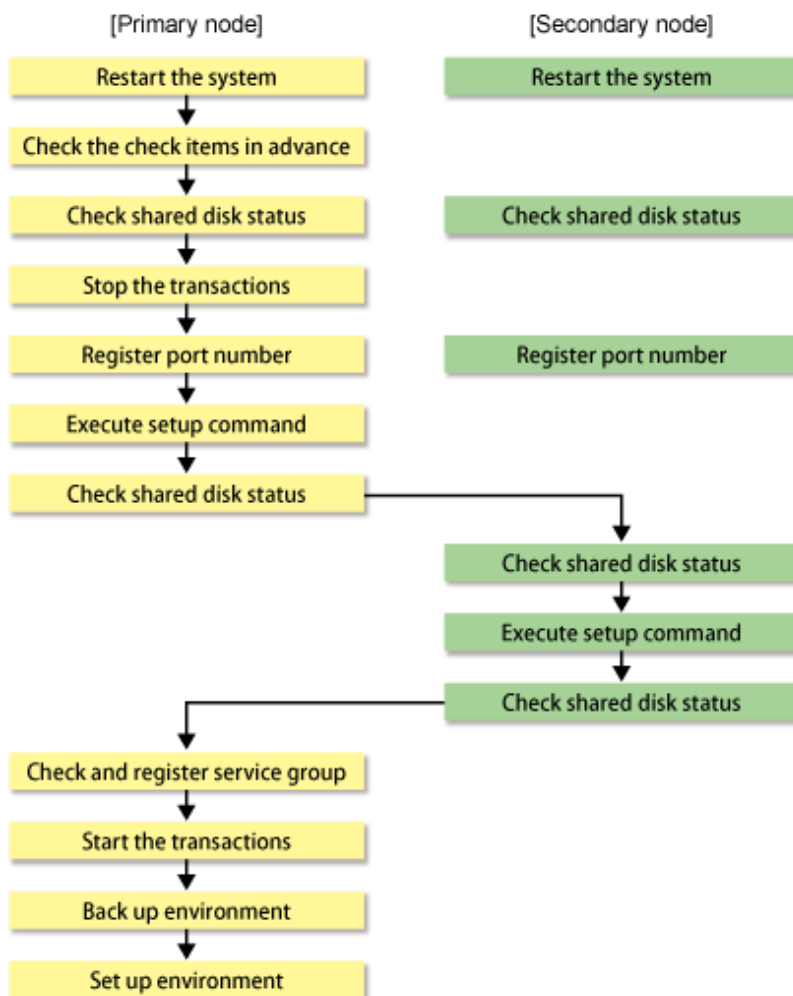
This section explains how to customize the HP-UX version VERITAS Cluster Server.

Throughout this section, the primary node is the active node in the Service Group that executes Managed Server transactions, and the secondary node is the standby node in the same Service Group.

8.6.1 Flow of Customizing

This section describes the customization flow.

Figure 8.6 Customization flow for HP-UX version VERITAS Cluster Server



8.6.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Set the code that indicates an application status.

Open the following files, and set the code that indicates an application status and is defined by MonitorProgram. For the code, confirm by referring the manuals of using VERITAS Cluster Server.

File name	Code for setting
/opt/FJSVswstf/cluster/smgr_vstart_OK	Code that indicates ONLINE
/opt/FJSVswstf/cluster/smgr_vstop_OK	Code that indicates OFFLINE

Example

Setting example when using VERITAS Cluster Server 5.0:

File name	Before	After
/opt/FJSVswstf/cluster/smgr_vstart_OK	exit 1	exit 110
/opt/FJSVswstf/cluster/smgr_vstop_OK	exit 0	exit 100

Point

Execute these changes on all primary nodes and secondary nodes where the cluster is being set up.

- Restart the primary node and secondary nodes.
- Check the preparations.

Check each item of "7.3 Confirmation of items," for the Service Group to be set up.

- Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

- Stop the transaction.

To add a Managed Server transaction to an existing Service Group by using the VERITAS Cluster Server function, stop the applicable Service Group.

For information on how to stop the user Service Group, refer to the "VERITAS Cluster Server User's Guide."

```
# hagrps -offline User-Service-Group -sys system-name
```

system-name : The name of the node at which the user service group is started

- Register port numbers

Register the port number for the transaction communication daemon, in advance, in /etc/services under the service name below. Use an OS command, such as vi, to register it in /etc/services.

- Communication daemon for transactions: stgxfws_ *Logical-Node-Name*

Note

Register the same port number on the primary node and all secondary nodes.

- Execute the cluster setup command on the primary node.

On the primary node, execute the cluster setup command shown below after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data.

Example

```
# /opt/swstorage/bin/stgclset_hpvc -k Primary -m /STGAGTMNT -n nodeAGT -s agent_service
```

Refer to "[16.2.6 stgclset_hpvcs \(HP-UX version VERITAS Cluster Server environment setup command\)](#)" for command details.

8. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_hpvcs -k Primary -m /STGAGTMNT -n nodeAGT -s
agent_service
AdvancedCopy Manager settings are as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Primary
    Mount point    : /STGAGTMNT
    Node name      : nodeAGT
    Service        : agent_service
    Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environment setting process, enter "n". To continue the setting process, enter "y" or press the Enter key.

9. Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

```
swstf8100 The cluster setup of the primary node has been completed. Next, create the
cluster environment of the secondary node.
#
```

10. Unmount the shared disks on the primary node.

Unmount the shared disk for AdvancedCopy Manager shared data on the primary node.

11. Mount the shared disks on the secondary node.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.

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

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

Example

```
# /opt/swstorage/bin/stgclset_hpvcs -k Secondary -m /STGAGTMNT
```

Refer to "[16.2.6 stgclset_hpvcs \(HP-UX version VERITAS Cluster Server environment setup command\)](#)" for command details.

13. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_hpvcs -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Secondary
    Mount point    : /STGAGTMNT
    Node name      : nodeAGT
    Service        : agent_service
    Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environment setting process, enter "n". To continue the setting process, enter "y" or press the Enter key.

14. Finish the cluster setup command on the secondary node.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.  
#
```

15. Unmount the shared disks on the secondary node.

Unmount the shared disk for AdvancedCopy Manager share data on the secondary node.

16. Create and register a Service Group.

Use the VERITAS Cluster Service functions to create and register a User Service Group.

Add the following types as AdvancedCopy Manager resources:

- Application

For StartProgram, specify `"/opt/FJSVswstf/cluster/clproc/vcsStart_Logical-Node-Name".`

For StopProgram, specify `"/opt/FJSVswstf/cluster/clproc/vcsStop_Logical-Node-Name".`

For MonitorProgram, specify `"/opt/FJSVswstf/cluster/clproc/vcsMoni_Logical-Node-Name".`

- MountPoint

Register the shared disk for AdvancedCopy Manager shared data.

- IP

Register the logical IP address for AdvancedCopy Manager. If you plan to use the logical IP address that is already in use for transactions, a new logical IP address need not be registered.

Applications should set a dependency relationship after the MountPoint and IP in order to become online.

Refer to the "VERITAS Cluster Server User's Guide" for information concerning user service groups and the creation and registration of resources.

Examples of using VERITAS Cluster Server commands to create and register user service groups and resources are shown below. In these examples, the User Service Group name is set to "STGMGRSRV", the active system node name is set to "node1", the standby system node name is set to "node2", and the resource (application) name is set to "AdvancedCopy_Manager_appl."

VCS config file is saved under another file-name. (Execute at all nodes.)

```
# mv /etc/VRTSvcs/conf/config/main.cf /etc/VRTSvcs/conf/config/main.cf.bk
```

Place VCS into the read-write enabled state.

```
# haconf -makerw
```

Set the list of systems used when failover occurs.

If it is already set for the User Service Group, this setting is not required.

The following commands perform a check.

```
# hagr -display STGMGRSRV -attribute SystemList  
# hagr -display STGMGRSRV -attribute AutoStartList
```

A User Service Group is newly created (this is not necessary when already set up into the User Service Group). In the sequence of system priority, active node has priority over standby node.

```
# hagr -add STGMGRSRV  
# hagr -modify STGMGRSRV SystemList node1 0 node2 1  
# hagr -modify STGMGRSRV AutoStartList node1 node2
```


Register applications.

A resource (ie, an application) is registered into a User Service Group.

```
# hares -add AdvancedCopy_Manager_appl Application STGMGRSRV
```

Place resources into the enabled state.

```
# hares -modify AdvancedCopy_Manager_appl Enabled 1
```

Specify a super-user (root) who starts StartProgram, StopProgram, and MonitorProgram.

```
# hares -modify AdvancedCopy_Manager_appl User root
```

Specify a start application. When the logical node name is nodeagt, the path of the application for starting is "/opt/FJSVswstf/cluster/clproc/vcsStart_nodeagt."

```
# hares -modify AdvancedCopy_Manager_appl StartProgram /opt/FJSVswstf/cluster/clproc/vcsStart_nodeagt
```

Specify a stop application. When the logical node name is nodeagt, the path of the application for a stop is "/opt/FJSVswstf/cluster/clproc/vcsStop_nodeagt."

```
# hares -modify AdvancedCopy_Manager_appl StopProgram /opt/FJSVswstf/cluster/clproc/vcsStop_nodeagt
```

Specify a monitor application. When the logical node name is nodeagt, the path of the monitor application is "/opt/FJSVswstf/cluster/clproc/vcsMoni_nodeagt."

```
# hares -modify AdvancedCopy_Manager_appl MonitorProgram /opt/FJSVswstf/cluster/clproc/vcsMoni_nodeagt
```

The mount information on the shared disk for AdvancedCopy Manager shared data is registered. In this example, the resource (mount) name is set to "AdvancedCopy_Manager_mount", and the mount point of the shared disk for AdvancedCopy Manager shared data is set to "/STGAGTMNT".

Register the resource into the User Service Group.

```
# hares -add AdvancedCopy_Manager_mount Mount STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify AdvancedCopy_Manager_mount Enabled 1
```

A mount point is set as a resource.

```
# hares -modify AdvancedCopy_Manager_mount MountPoint /STGAGTMNT
```

Specify a block device to be mounted. In this example, the block device of the shared disk is set to "/dev/dsk/c2t0d0s4".

```
# hares -modify AdvancedCopy_Manager_mount BlockDevice /dev/dsk/c2t0d0s4
```

Specify a file system type for the shared disk. In this example, the file system type is set to vxfs.

```
# hares -modify AdvancedCopy_Manager_mount FSType vxfs
```

Register a logical address.

If the logical address is already set for the User Service Group, this setting is not required.

In this example, the resource (IP address) name is set to "sybase_ip".

A resource is registered into a User Service Group.

```
# hares -add sybase_ip IP STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify Sybase_ip Enabled 1
```

Specify a device. In this example, the device is set to "hme0".

```
# hares -modify Sybase_ip Device hme0
```

Specify an address. In this example, the IP address is set to "10.10.10.10".

```
# hares -modify sybase_ip Address "10.10.10.10"
```

Specify the dependency of the resource.

```
# hares -link AdvancedCopy_Manager_appl AdvancedCopy_Manager_mount  
# hares -link AdvancedCopy_Manager_appl sybase_ip
```

Write the VCS configuration to disk change the mode to read-only.

```
# haconf -dump -makero
```

17. Start the AdvancedCopy Manager and Transaction.

Use the VERITAS Cluster Service functions to start the new User Service Group or the User Service Group stopped in step 5.

Refer to the "VERITAS Cluster Server User's Guide" for the User Service Group start method.

An example of starting the User Service Group using VERITAS Cluster Server commands is given below. In this example, the User Service Group name is set to "STGMGRSRV", and the active system node name is set to "node1".

```
# hagrps -online STGMGRSRV -sys node1
```

18. 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.

Use an OS command such as cp to back up the following directories on the shared disk for AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc
- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

19. Create the environment for Managed Server transactions.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for HP-UX)", create the environment for Managed Server transactions according to the operation type.

Note

When adding a Managed Server transaction to a Managed Server, use `stgxfwcmaddsrv` (Server information addition command). For detailed information, refer to "stgxfwcmaddsrv (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server. For details on the specified argument for command option refer to "2.4.2 Cluster transaction and local transaction".

20. 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.

8.7 Customization for AIX version VERITAS Cluster Server

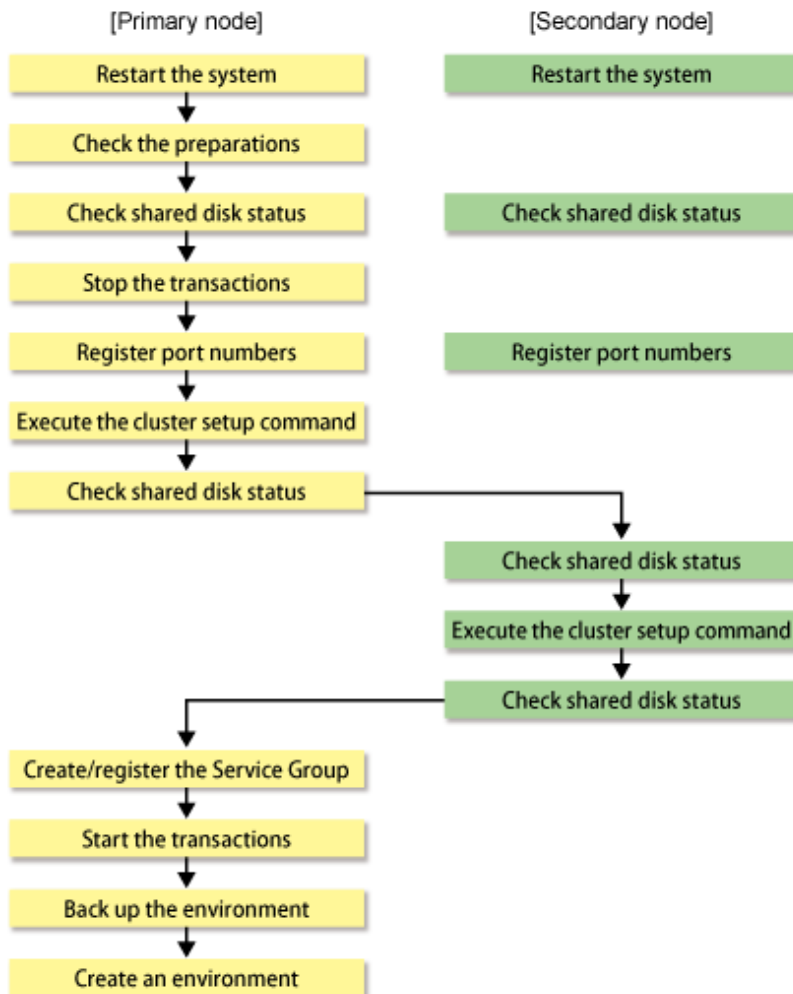
This section explains how to customize AIX version VERITAS Cluster Server.

Throughout this section, the primary node is the active node in the Service Group that executes Managed Server transactions, and the secondary node is the standby node in the same Service Group.

8.7.1 Flow of Customizing

This section describes the customization flow.

Figure 8.7 Customization flow for AIX version VERITAS Cluster Server



8.7.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Set the code that indicates an application status.

Open the following files, and set the code that indicates an application status and is defined by MonitorProgram. For the code, confirm by referring the manuals of using VERITAS Cluster Server.

File name	Code for setting
/opt/FJSVswstf/cluster/smgr_vstart_OK	Code that indicates ONLINE
/opt/FJSVswstf/cluster/smgr_vstop_OK	Code that indicates OFFLINE

Example

Setting example when using VERITAS Cluster Server 5.0:

File name	Before	After
/opt/FJSVswstf/cluster/smgr_vstart_OK	exit 1	exit 110
/opt/FJSVswstf/cluster/smgr_vstop_OK	exit 0	exit 100

Point

Execute these changes on all primary nodes and secondary nodes where the cluster is being set up.

2. Restart the primary and secondary nodes.
3. Check the preparations.

Check each item of "7.3 Confirmation of items," for the Service Group to be set up.

4. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

5. Stop the transaction.

To add a Managed Server transaction to an existing Service Group by using the VERITAS Cluster Server function, stop the applicable Service Group.

For information on how to stop the user Service Group, refer to the "VERITAS Cluster Server User's Guide".

```
# hagrps -offline User-Service-Group -sys system-name
```

system-name: The node name by which the user service group is started

6. Register port numbers

Register the port number for the transaction communication daemon, prepared in advance, in /etc/services under the service name below. Use an OS command, such as vi, to register it in /etc/services.

- Communication daemon for transactions: stgxfws_*Logical-Node-Name*

Note

Register the same port number on the primary node and all secondary nodes.

- Execute the cluster setup command on the primary node.

On the primary node, execute the cluster setup command shown below after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data.

Example

```
# /opt/swstorage/bin/stgclset_aixvcs -k Primary -m /STGAGTMNT -n nodeAGT -s
agent_service
```

Refer to "[16.2.7 stgclset_aixvcs \(AIX version VERITAS Cluster Server environment setup command\)](#)" for command details.

- Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_aixvcs -k Primary -m /STGAGTMNT -n nodeAGT -s
agent_service
AdvancedCopy Manager settings are as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Primary
  Mount point    : /STGAGTMNT
  Node name      : nodeAGT
  Service        : agent_service
  Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt the cluster environment setting process, enter "n". To continue the setting process, enter "y" or press the Enter key.

- Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

```
swstf8100 The cluster setup of the primary node has been completed. Next, create the
cluster environment of the secondary node.
#
```

- Unmount the shared disks on the primary node.

Unmount the shared disk for AdvancedCopy Manager shared data on the primary node.

- Mount the shared disks on the secondary node.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.

- Execute the cluster setup command on the secondary node.

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

Example

```
# /opt/swstorage/bin/stgclset_aixvcs -k Secondary -m /STGAGTMNT
```

Refer to "[16.2.7 stgclset_aixvcs \(AIX version VERITAS Cluster Server environment setup command\)](#)" for command details.

- Check the setup object.

Information about the logical node that was specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_aixvcs -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
  Cluster system : VERITAS Cluster Server
```

```

Node type      : Secondary
Mount point   : /STGAGTMNT
Node name     : nodeAGT
Service      : agent_service
Function     : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]

```

To interrupt the cluster environment setting process, enter "n". To continue the setting process, enter "y" or press the Enter key.

14. Finish the cluster setup command on the secondary node.

The window indicating cluster setup command completion opens.

```

swstf8101 The cluster setup of the secondary node has been completed.
#

```

15. Unmount the shared disks on the secondary node.

Unmount the shared disk for AdvancedCopy Manager shared data on the secondary node.

16. Create and register a Service Group.

Use the VERITAS Cluster Service functions to create and register a User Service Group.

Add the following types as AdvancedCopy Manager resources:

- Application

For StartProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsStart_*Logical-Node-Name*".

For StopProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsStop_*Logical-Node-Name*".

For MonitorProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsMoni_*Logical-Node-Name*".

- MountPoint

Register the shared disk for AdvancedCopy Manager shared data.

- IP

Register the logical IP address for AdvancedCopy Manager. If the logical IP address already in use for transactions is to be used, a new logical IP address need not be registered.

Applications should set a dependency relationship after the MountPoint and IP in order to become online.

Refer to the "VERITAS Cluster Server User's Guide" for information concerning user service groups and the creation and registration of resources.

Examples of using VERITAS Cluster Server commands to create and register user service groups and resources are shown below. In these examples, the User Service Group name is set to "STGMGRSRV", the active system node name is set to "node1", the standby system node name is set to "node2", and the resource (application) name is set to "AdvancedCopy_Manager_appl".

VCS config file is saved under another file-name. (Execute at all nodes.)

```

# mv /etc/VRTSvcs/conf/config/main.cf /etc/VRTSvcs/conf/config/main.cf.bk

```

Place VCS into the read-write enabled state.

```

# haconf -makerw

```

Set the list of systems used when failover occurs.

If it has already been set for the User Service Group, this setting is not required.

The following commands perform a check.

```
# hagr -display STGMGRSRV -attribute SystemList
# hagr -display STGMGRSRV -attribute AutoStartList
```

A User Service Group is newly created (this is not necessary when it has already been set up into the User Service Group). As the system priority sequence, the active node has priority over the standby node.

```
# hagr -add STGMGRSRV
# hagr -modify STGMGRSRV SystemList node1 0 node2 1
# hagr -modify STGMGRSRV AutoStartList node1 node2
```

Register applications.

A resource (application) is registered into a User Service Group.

```
# hares -add AdvancedCopy_Manager_appl Application STGMGRSRV
```

Place resources into the enabled state.

```
# hares -modify AdvancedCopy_Manager_appl Enabled 1
```

Specify a super-user (root) who starts StartProgram, StopProgram, and MonitorProgram.

```
# hares -modify AdvancedCopy_Manager_appl User root
```

Specify a start application. When the logical node name is nodeagt, the path of the application for starting is "/opt/FJSVswstf/cluster/clproc/vcsStart_nodeagt."

```
# hares -modify AdvancedCopy_Manager_appl StartProgram /opt/FJSVswstf/cluster/clproc/
vcsStart_nodeagt
```

Specify a stop application. When the logical node name is nodeagt, the path of the application for stopping is "/opt/FJSVswstf/cluster/clproc/vcsStop_nodeagt."

```
# hares -modify AdvancedCopy_Manager_appl StopProgram /opt/FJSVswstf/cluster/clproc/
vcsStop_nodeagt
```

Specify a monitor application. When the logical node name is nodeagt, the path of the monitor application is "/opt/FJSVswstf/cluster/clproc/vcsMoni_nodeagt."

```
# hares -modify AdvancedCopy_Manager_appl MonitorProgram /opt/FJSVswstf/cluster/
clproc/vcsMoni_nodeagt
```

The mount information on the shared disk for AdvancedCopy Manager shared data is registered. In this example, the resource (mount) name is set to "AdvancedCopy_Manager_mount", and the mount point of the shared disk for AdvancedCopy Manager shared data is set to "/STGAGTMNT".

Register the resource into the User Service Group.

```
# hares -add AdvancedCopy_Manager_mount Mount STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify AdvancedCopy_Manager_mount Enabled 1
```

A mount point is set as a resource.

```
# hares -modify AdvancedCopy_Manager_mount MountPoint /STGAGTMNT
```

Specify a block device to be mounted. In this example, the block device of the shared disk is set to "/dev/dsk/c2t0d0s4".

```
# hares -modify AdvancedCopy_Manager_mount BlockDevice /dev/dsk/c2t0d0s4
```

Specify a file system type for the shared disk. In this example, the file system type is set to vxfs.

```
# hares -modify AdvancedCopy_Manager_mount FSType vxfs
```

Register a logical address.

If the logical address has already been set for the User Service Group, this setting is not required.

In this example, the resource (IP address) name is set to "sybase_ip".

A resource is registered into a User Service Group.

```
# hares -add sybase_ip IP STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify Sybase_ip Enabled 1
```

Specify a device. In this example, the device is set to "hme0".

```
# hares -modify Sybase_ip Device hme0
```

Specify an address. In this example, the IP address is set to "10.10.10.10".

```
# hares -modify sybase_ip Address "10.10.10.10"
```

Specify the dependency of the resource.

```
# hares -link AdvancedCopy_Manager_appl AdvancedCopy_Manager_mount  
# hares -link AdvancedCopy_Manager_appl sybase_ip
```

Write the VCS configuration to disk change the mode to read-only.

```
# haconf -dump -makero
```

17. Start the AdvancedCopy Manager and the transaction.

Use the VERITAS Cluster Service functions to start the new User Service Group or the User Service Group stopped in step 5.

Refer to the "VERITAS Cluster Server User's Guide" for the User Service Group starting method.

An example of starting the User Service Group using VERITAS Cluster Server commands is given below. In this example, the User Service Group name is set to "STGMGRSRV", and the active system node name is set to "node1".

```
# hagrps -online STGMGRSRV -sys node1
```

18. 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.

Use the OS command such as cp to back up the following directories on the shared disk for AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

19. Create the environment for Managed Server transactions.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for AIX)", create the environment for Managed Server transactions according to the operation type.

 **Note**

When adding a Managed Server transaction to a Managed Server, use stgxfwcmaddsrv (Server information addition command). For detailed information, refer to "stgxfwcmaddsrv (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "2.4.2 Cluster transaction and local transaction".

20. 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.

8.8 Customization for AIX version High Availability Cluster Multi-Processing

This section explains how to customize the AIX version High Availability Cluster Multi-Processing.

Throughout this section, the primary node is the active node in the Resource Group that executes Managed Server transactions, and the secondary node is the standby node in the same Resource Group.

The secondary node A defines the node which creates the environment of Managed Server transactions first in the secondary nodes in this cluster resource group. The secondary node B defines the remaining secondary nodes in this cluster resource group.

The customizing work of a primary node and 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, secondary node A and secondary node B is executed as a cascade topology system.

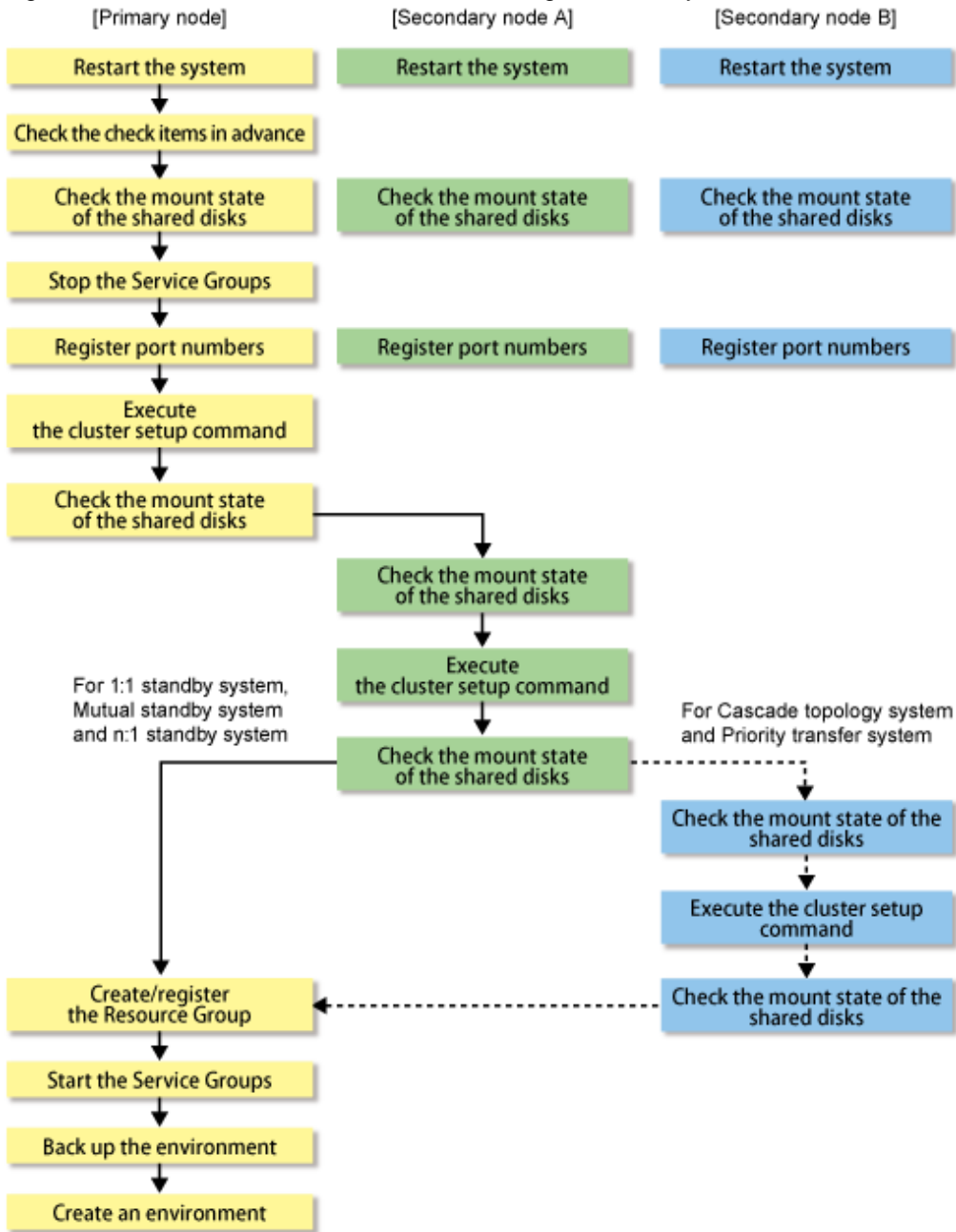
 **Example**

- When creating a cascade from 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 from 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.

8.8.1 Flow of Customizing

This section describes the flow of customization.

Figure 8.8 Customization flow for AIX version High Availability Cluster Multi-Processing



8.8.2 Customization Procedure

Set up a Managed Server transaction using the procedure below.

1. Restart the primary node and all secondary nodes.
2. Check the preparations.
Check each item of "7.3 Confirmation of items" for the Resource Groups to be set up.
3. Mount the shared disk on the primary node.
Mount the shared disk for AdvancedCopy Manager shared data on the primary node.
4. Stop the Resource Groups.

To add a Managed Server transaction to an existing Resource Group using the High Availability Cluster Multi-Processing function, stop the applicable Resource Group.

For information on how to stop the user Resource Group, refer to the "High Availability Cluster Multi-Processing" manual.

5. 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_ *Logical-Node-Name*

 **Note**

Register the same port number on the primary node and all secondary nodes.

6. 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 AdvancedCopy Manager shared data:

Example

```
# /opt/swstorage/bin/stgclset_hacmp -k Primary -m /STGAGTMNT -n nodeAGT -s agent_service
```

Refer to "16.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)" for command details.

7. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_hacmp -k Primary -m /STGAGTMNT -n nodeAGT -s agent_service
AdvancedCopy Manager settings are as follows.
  Cluster system : High Availability Cluster Multi-Processing
  Node type      : Primary
  Mount point    : /STGAGTMNT
  Node name      : nodeAGT
  Service       : agent_service
  Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

8. Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

```
swstf8100 The cluster setup of the primary node has been completed. Next, create the cluster environment of the secondary node.
#
```

9. Dismount the shared disks on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

10. Mount the shared disks on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

11. Execute the cluster setup command on the secondary node A.

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

Example

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary -m /STGAGTMNT
```

Refer to "16.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)" for command details.

12. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
    Cluster system : High Availability Cluster Multi-Processing
    Node type      : Secondary
    Mount point   : /STGAGTMNT
    Node name     : nodeAGT
    Service       : agent_service
    Function      : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

13. Finish the cluster setup command on the secondary node A.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.
#
```

14. Dismount the shared disks on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

If the system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, proceed to step 21.

If the system is the Cascade topology, proceed to step 15.

15. Mount the shared disks on the secondary node B.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, Step 15 to Step 20 is processed for all the secondary nodes B.

16. Execute the cluster setup command on the secondary node B.

Execute the cluster setup command on the secondary node B on which the shared disk for AdvancedCopy Manager shared data was mounted in step 15.

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

Example

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary -m /STGAGTMNT
```

Refer to "16.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)" for command details.

17. Check the setup object.

Information about the logical node specified by the command is displayed. After confirming the displayed information, press the Enter key.

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
  Cluster system : High Availability Cluster Multi-Processing
  Node type      : Secondary
  Mount point    : /STGAGTMNT
  Node name      : nodeAGT
  Service        : agent_service
  Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

18. Check the addition of a secondary node.

The window for confirming the addition of a secondary node is displayed. After confirmation of a cascade, "y" is inputted and the Enter key is pushed.

```
Secondary node is already setup in another node.
  The number of secondary nodes : 1
Do you want to setup new secondary node? [default:n] y
```

The number of secondary nodes already set up is outputted to "The number of secondary nodes."



Note

The default value is "n." "n" means cancellation of processing.

19. Finish the cluster setup command on the secondary node B.

The window indicating cluster setup command completion opens.

```
swstf8101 The cluster setup of the secondary node has been completed.
#
```

20. Dismount the shared disks on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.



Note

When more secondary nodes B remain (that have not performed Step 15 to Step 20), perform from Step 15 in the remaining nodes. When operation from Step 15 to Step 20 is completed by all secondary nodes B, go to Step 21.

21. Create and register a Resource Group.

Use the function of the High Availability Cluster Multi-Processing to create and register a Resource Group for AdvancedCopy Manager.

Add the following types as a resource of AdvancedCopy Manager.

- Application Server

For Start script, specify a "/opt/FJSVswstf/cluster/clproc/hacmpStart_*Logical-Node-Name*".

For Stop script, specify a "/opt/FJSVswstf/cluster/clproc/hacmpStop_*Logical-Node-Name*".

- MountPoint

Register the shared disk for AdvancedCopy Manager shared data.

- IP

Register the logical IP address for AdvancedCopy Manager. When using the logical IP address already used in the system, it is not necessary to register.

Refer to the High Availability Cluster Multi-Processing manuals for information about a resource group and the creation/registration method for a resource.

22. Start the AdvancedCopy Manager and the transaction.

Start the new Resource Group or the Resource Group stopped in step 4 using High Availability Cluster Multi-Processing function.

Refer to the High Availability Cluster Multi-Processing manuals for starting a Resource Group.

23. 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.

Use an OS command such as cp to back up the following directories on the shared disk for AdvancedCopy Manager shared data:

- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/etc
- Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data/var

24. Create an environment for a Managed Server transaction.

Create an environment for the replication operation or backup operations, which is executed in AdvancedCopy Manager, in a Managed Server transaction.

Referring to the "ETERNUS SF AdvancedCopy Manager Operation Guide (for AIX)", create the environment for Managed Server transactions according to the operation type.

Note

When adding a Managed Server transaction to a Managed Server, use stgxfwcmaddsrv (Server information addition command).

For detailed information, refer to "stgxfwcmaddsrv (Server information addition command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide" relevant to the OS of the Management Server.

For details on the specified argument for command option refer to "[2.4.2 Cluster transaction and local transaction](#)".

25. 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.

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.

For details, refer to "Installation of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".



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 Windows version clustered systems

For installing AdvancedCopy Manager CCM in a Windows version clustered system, the following resources are required:

1. 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.

For details on the disk space required for AdvancedCopy Manager CCM, refer to "Dynamic Disk Space" under "Operating Environment for AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".



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.

2. 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

3. Resources listed in "[4.1.4 Resources required for AdvancedCopy Manager CCM](#)"

10.2 Resources required for Solaris version/Linux version clustered systems

For installing AdvancedCopy Manager CCM in Solaris version/Linux version clustered systems, the following resources are required:

1. 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.

For details on the disk space required for AdvancedCopy Manager CCM, refer to "Dynamic Disk Space" under "Operating Environment for AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

 **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.
-

2. 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

3. 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 Windows version clustered systems

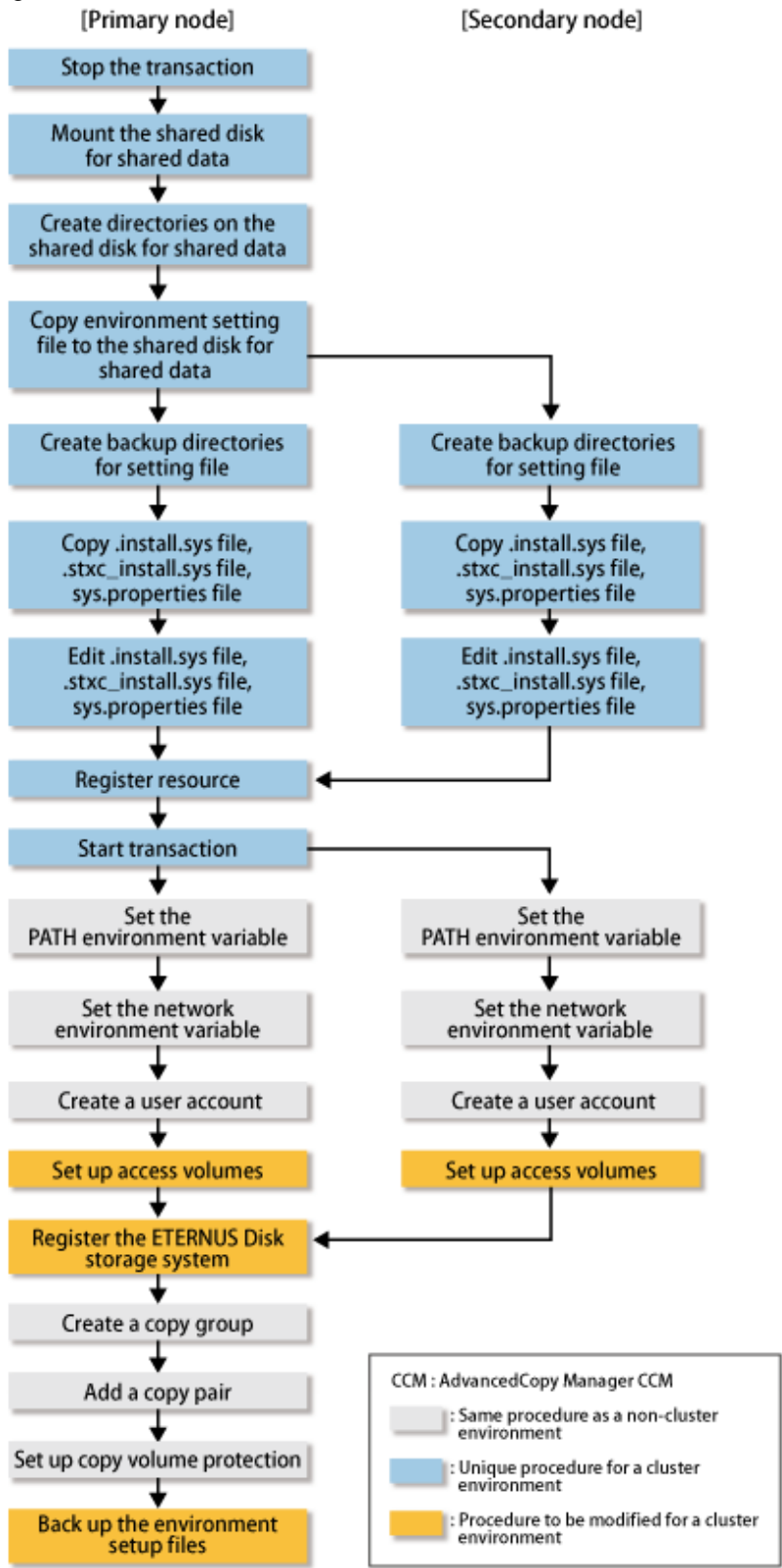
This section explains methods for customization in Windows version clustered systems.

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 Windows version clustered systems



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 AdvancedCopy functions that are being executed.
 - acopc cancel command
 - acsnap cancel command
 - acec cancel command
- If a management service is being executed, run 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.

For the procedure for stopping cluster transactions, refer to the documentation of your cluster software.

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. Referring to "[5.1.1.3.2 Customization procedure](#)", customize the primary node.
5. Referring to "[5.1.2.3 Customization for AdvancedCopy Manager CCM](#)", 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
For details, refer to "[10.1 Resources required for Windows version clustered systems](#)".
- Generic script for AdvancedCopy Manager CCM
For details, refer to "[4.1.4 Resources required for AdvancedCopy Manager CCM](#)".

For the procedure for registering resources in CCM Server transactions, refer to the documentation of your cluster software.

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.

For details on the generic script for AdvancedCopy Manager CCM, refer to "[4.1.4 Resources required for AdvancedCopy Manager CCM](#)".

7. On the primary node, start the CCM Server transactions.

8. Set the PATH environment variable.

Add the bin directory of AdvancedCopy Manager CCM to the PATH environment variable.

For details, refer to "Setting PATH environment variable" under "Setup of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

9. Set up the network environment.

For details, refer to "Configuring the network environment" under "Setup of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

10. Create a user account.

Create a user account for using AdvancedCopy Manager CCM.

For details, refer to "Creating CCM User Accounts" in the "ETERNUS SF Installation and Setup Guide".

11. Set up access volumes on all nodes that are operating the clustered system.

For details, refer to "[4.1.4 Resources required for AdvancedCopy Manager CCM](#)" and to "Access Volume Settings in the "ETERNUS SF Operation Guide for Copy Control Module".

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.

For details, refer to "Creating copy groups" in the "ETERNUS SF Operation Guide for Copy Control Module".

14. Add a copy pair.

Add a copy pair to the newly created copy group.

For details, refer to "Adding copy pairs" in the "ETERNUS SF Operation Guide for Copy Control Module".

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.

For details, refer to "Setting Copy Volume Protection" in the "ETERNUS SF Operation Guide for Copy Control Module".

16. Back up the environment setup files for the Managed Server transactions.

To be prepared for unexpected situations, back up the environment setup files.

For the files to be backed up, refer to "Backing up environment settings files" in the "ETERNUS SF Operation Guide for Copy Control Module".



See

.....
For details on commands, refer to "Commands" in the "ETERNUS SF Operation Guide for Copy Control Module".
.....

11.2 Customization in Solaris version/Linux version clustered systems

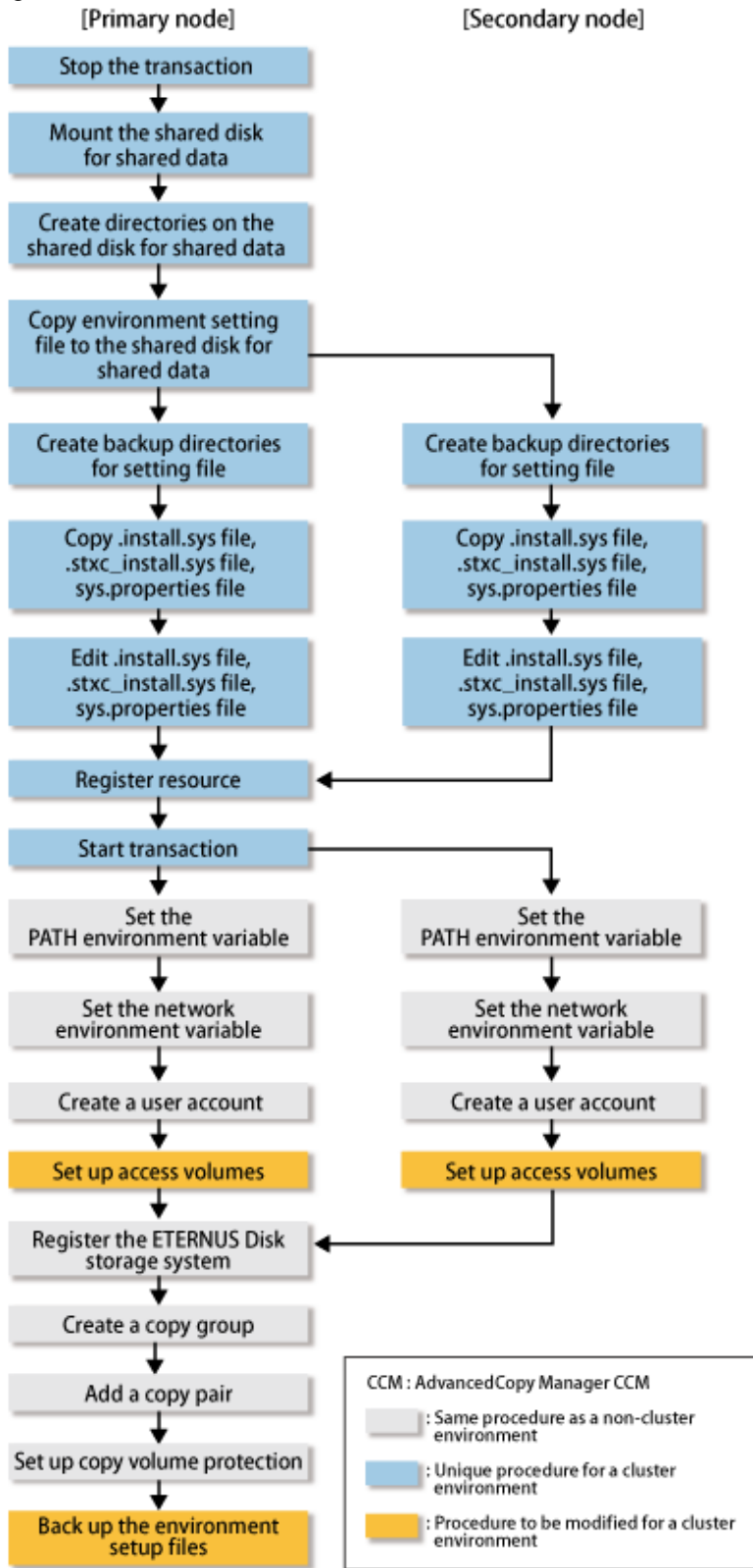
This section explains methods for customization in Solaris version/Linux version clustered systems.

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 Solaris version/Linux version clustered systems



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. On the primary and secondary nodes, log 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 AdvancedCopy functions that are being executed.
 - acopc cancel command
 - acsnap cancel command
 - acec cancel command
- If a management service is being executed, run 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.

For the procedure for stopping cluster transactions, refer to the documentation of your cluster software.

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 "[5.2.1.3.2 Customization procedure](#)".

For Linux, refer to "[5.3.1.3.2 Customization procedure](#)".

5. Customize the secondary node.

For Solaris, refer to "[5.2.2.3.2 Customization procedure](#)".

For Linux, refer to "[5.3.2.3.2 Customization procedure](#)".

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
For details, refer to "[10.2 Resources required for Solaris version/Linux version clustered systems](#)".
- Generic script for AdvancedCopy Manager CCM
For details, refer to "[4.1.4 Resources required for AdvancedCopy Manager CCM](#)".

For the procedure for registering resources in CCM Server transactions, refer to the documentation of your cluster software.

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.

For details on the generic script for AdvancedCopy Manager CCM, refer to "[4.1.4 Resources required for AdvancedCopy Manager CCM](#)".

7. On the primary node, start the CCM Server transactions.

8. Set the PATH environment variable.

Add the bin directory of AdvancedCopy Manager CCM to the PATH environment variable.

For details, refer to "Setting PATH environment variable" under "Setup of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

9. Set up the network environment.

For details, refer to "Configuring the network environment" under "Setup of AdvancedCopy Manager CCM" in the "ETERNUS SF Installation and Setup Guide".

10. Create a user account.

Create a user account for using AdvancedCopy Manager CCM.

For details, refer to "Creating CCM User Accounts" in the "ETERNUS SF Installation and Setup Guide".

11. Set up access volumes on all nodes that are operating the clustered system.

For details, refer to "4.1.4 Resources required for AdvancedCopy Manager CCM" and to "Access Volume Settings" in the "ETERNUS SF Operation Guide for Copy Control Module".

12. Register the ETERNUS Disk storage system.

For details, refer to "Registering ETERNUS Disk storage system" in the "ETERNUS SF Operation Guide for Copy Control Module".

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.

For details, refer to "Creating copy groups" in the "ETERNUS SF Operation Guide for Copy Control Module".

14. Add a copy pair.

Add a copy pair to the newly created copy group.

For details, refer to "Adding copy pairs" in the "ETERNUS SF Operation Guide for Copy Control Module".

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.

For details, refer to "Setting Copy Volume Protection" in the "ETERNUS SF Operation Guide for Copy Control Module".

16. Back up the environment setup files for the Managed Server transactions.

To be prepared for unexpected situations, back up the environment setup files.

For the files to be backed up, refer to "Backing up environment settings files" in the "ETERNUS SF Operation Guide for Copy Control Module".

See

For details on commands, refer to "Commands" in the "ETERNUS SF Operation Guide for Copy Control Module".

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 the Operational Environment for Windows version

12.1.1 Changing the IP address for Management Server transactions

Follow the procedure below to change the IP address for Management Server transactions.

1. If, in the Management Server transaction, 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 the section "Deleting a source volume or replica volume" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)" for information on how to delete the settings.
2. Stop the Management Server transaction.
Refer to the manual for the cluster software for information on how to stop the transaction.
3. Change the IP address resource.
Refer to the manual for the cluster software for information on how to change the IP address resource.
4. Check the operational status of the Management Server transaction. If the transaction is stopped, start up the Management Server transaction.
Refer to the manual for the cluster software for information on how to start up the transaction.
5. Create the server information change instruction file in a node in which the Management Server transaction is operating.
Run the `stgxfwcmmodsrv` command with the `-f` option specified to change the IP address.
For details on the command, refer to "`stgxfwcmmodsrv (Server information change command)`" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".
6. Edit the detailed setting file of the storage management.
For information on how to edit the detailed setting file, refer to step 4 in the "[5.1.1.2 Customization for Storage Cruiser's manager](#)".
7. Restart the Management Server transaction.
Refer to the manual for the cluster software for information on how to stop and start up the transaction.
8. If using the replication management function, rebuild the replication management environment.
Perform the tasks starting from the section "Configuring the source volume and replica volume" and onwards in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".
9. 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.
For details on the command, refer to "SNMP Trap transmission place IP address change command (`sanadmsh chtraprcvip`)" in the "ETERNUS SF Storage Cruiser Operation Guide".

12.1.2 Changing the port number for the AdvancedCopy Manager for Management Server transactions

Follow the procedure below to change the port number for AdvancedCopy Manager for Management Server transactions.

1. If, in the Managed Server transaction, 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 the section "Deleting a source volume or replica volume" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)" for information on how to delete the settings.
2. Stop the Management Server transaction.
Refer to the manual for the cluster software for how to stop the transaction.

3. In the primary and secondary nodes for Management Server transactions, change the following port number which was set to "<Windows installation directory>/system32/drivers/etc/services".
 - AdvancedCopy Manager transaction communication service (stgxfws_logical node name)
4. Start up the Management Server transaction.
Refer to the manual for the cluster software for information on how to start up the transaction.
5. 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.
For details on the command, refer to the section "stgxfwcmmodsrv (Server information change command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".
6. If using the replication management function, rebuild the environment for replication management.
Perform the tasks from the section "Configuring the source volume and replica volume" and onwards in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".

12.1.3 Changing the server name for the AdvancedCopy Manager for Management Server transactions

Follow the procedure below to change the server name for the AdvancedCopy Manager for the Management Server.

1. If, in the Management Server transaction, 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 the section "Deleting a source volume or replica volume" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)" for information on how to delete the settings.
2. 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.
For details on the command, refer to the section "stgxfwcmmodsrv (Server information change command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".
3. Stop the Managed Server transaction.
Refer to the manual for the cluster software for how to stop the transaction.
4. If using the replication management function, rebuild the environment for replication management.
Perform the tasks from the section "Configuring the source volume and replica volume" and onwards in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".

12.1.4 Deleting the user/changing the password specified for the repository access user

Follow the procedure below to change the information for the repository access user.

1. Check the operational status of the Management Server transaction. If the transaction is stopped, start up the Management Server transaction.
Refer to the manual for the cluster software for information on how to start up the transaction.
2. Change the repository access user.
Refer to the section "Change of password or deletion of the user who was specified as the repository access user" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)" for information on how to change the user information.

12.1.5 Changing the 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 manual for the cluster software 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 the section "Deleting a 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 the section "Deleting a 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 the section "Database backup" 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

For the file path for the policy file, refer to the section "Preliminaries" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".

5. Back up the environment settings data for the AdvancedCopy Manager CCM.

Refer to the section "Backing up environment settings files" in the "ETERNUS SF 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 the "[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 the "[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 manual for the cluster software for information on how to start up the transaction.

9. Restore the AdvancedCopy Manager data.

Restore the following data.

- Repository Data

Refer to the section "Database restoration" 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

For the file path for the policy file, refer to the section "Preliminaries" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)".

10. Restore the environment settings data for AdvancedCopy Manager CCM.

Refer to the section "Restoring environment settings files" in the "ETERNUS SF Operation Guide for Copy Control Module" for information on how to restore the data.

11. Change the server name.

Refer to the section "Changing the 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 the environment for a 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 the 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 the section "stgmgrinfo (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 the Operational Environment for Solaris and Linux versions

12.2.1 Changing the IP address for the Management Server transactions

Follow the procedure below to change the IP address for the Management Server transactions.

1. If, in the Management Server transaction, 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 the section "Deleting a 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.

2. Stop the Management Server transaction.

Refer to the manual for the cluster software for information on how to stop the transaction.

3. Change the IP address resource.

Refer to the manual for the cluster software for information on how to change the IP address resource.

4. Check the operational status for the Management Server transaction. If the transaction is stopped, start up the Management Server transaction.

Refer to the manual for the cluster software for information on how to start up the transaction.

5. Create the server information change instruction file in a node in which the Management Server transaction is operating.

Run the `stgxfwcmmodsrv` command with the `-f` option specified to change the IP address.

For details on the command, refer to the section "stgxfwcmmodsrv (Server information change command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)" or "ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)".

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

For information on how to edit the detailed setting file, refer to step 4 in the "[5.1.1.2 Customization for Storage Cruiser's manager](#)".

Edit file is following.

- File name: `/etc/opt/FJSVssmgr/current/sanma.conf`

7. Restart the Management Server transaction.

Refer to the manual for the cluster software for information on how to stop and start up the transaction.

8. If using the replication management function, rebuild the replication management environment.

Perform the procedures starting from the section "Configuring the 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)".

9. 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.

For details on the command, refer to "SNMP Trap transmission place IP address change command (`sanadmsh chtraprcvip`)" in the "ETERNUS SF Storage Cruiser Operation Guide".

12.2.2 Changing the port number for the AdvancedCopy Function for Management Server transactions

Follow the procedure below to change the port number for the AdvancedCopy Manager for the Management Server transactions.

1. If, in the Management Server transaction, 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 the section "Deleting a 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.

2. Stop the Management Server transaction.

Refer to the manual for the cluster software for information on how to stop the transaction.

3. 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_logical` node name)

4. Start up the Management Server transaction.

Refer to the manual for the cluster software for information on how to start up the transaction.

5. 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.

For details on the command, refer to the section "stgxfwcmmodsrv (Server information change command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)" or "ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)".

6. If using the replication management function, rebuild the replication management environment.

Perform the procedures starting from the section "Configuring the 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)".

12.2.3 Changing the server name for the AdvancedCopy Manager for Management Server transactions

Follow the procedure below to change the server name for the AdvancedCopy Manager for Management Server transactions.

1. If, in the Management Server transaction, 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 the section "Deleting a 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.
2. 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.
For details on the command, refer to the section "`stgxfwcmmodsrv` (Server information change command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)" or "ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)".
3. If using the replication management function, rebuild the replication management environment.
Perform the procedures starting from the section "Configuring the 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)".

12.2.4 Deleting the user/changing the password specified for the repository access user

Follow the procedure below to change the repository access user information.

1. Check the operational status of the Management Server transactions. If the transactions are stopped, start up the Management Server transactions.
Refer to the manual for the cluster software for information on how to start up the transactions.
2. Change the repository access user.
 - a. In the each OS which configures the cluster, change the user information for the OS to be changed.
 - b. Execute the `stguserset` command, and reconfigure the information for the repository access user.
For the details on the command, refer to "`stguserset` (Repository access user change command)" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)" or "ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)".

12.2.5 Changing the 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 manual for the cluster software 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 the section "Deleting a 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 the section "Deleting a 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 the section "Database backup" 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
For the file path for the policy file, refer to the section "Preliminaries" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)" or "ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)".

5. Back up the environment settings data for the AdvancedCopy Manager CCM.
Refer to the section "Backing up environment settings files" in the "ETERNUS SF 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 the "[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 the "[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 manual for the cluster software 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 the section "Database restoration" 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
For the file path of the policy file, refer to the section "Preliminaries" in the "ETERNUS SF AdvancedCopy Manager Operation Guide (for Solaris)" or "ETERNUS SF AdvancedCopy Manager Operation Guide (for Linux)".

10. Restore the environment settings data for the AdvancedCopy Manager CCM.
Refer to the section "Restoring environment settings files" in the "ETERNUS SF Operation Guide for Copy Control Module" for information on how to restore the data.
11. Change the server name.
Refer to the section "Changing the 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 the environment for a 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 the 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 the section "stgmgrinfo (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.

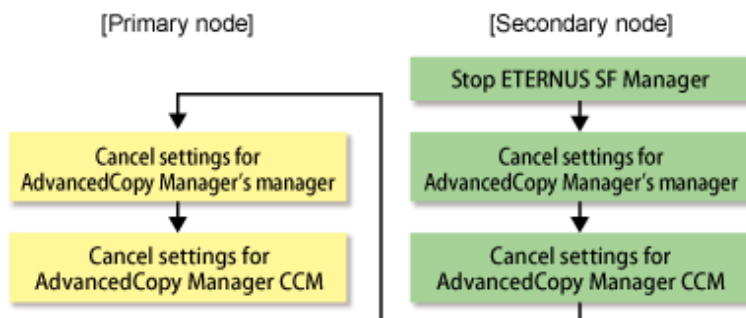
Chapter 13 Deletion of Cluster Environment for Management Server Transactions

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 version

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.

13.1.2.1 Canceling settings for AdvancedCopy Manager's manager

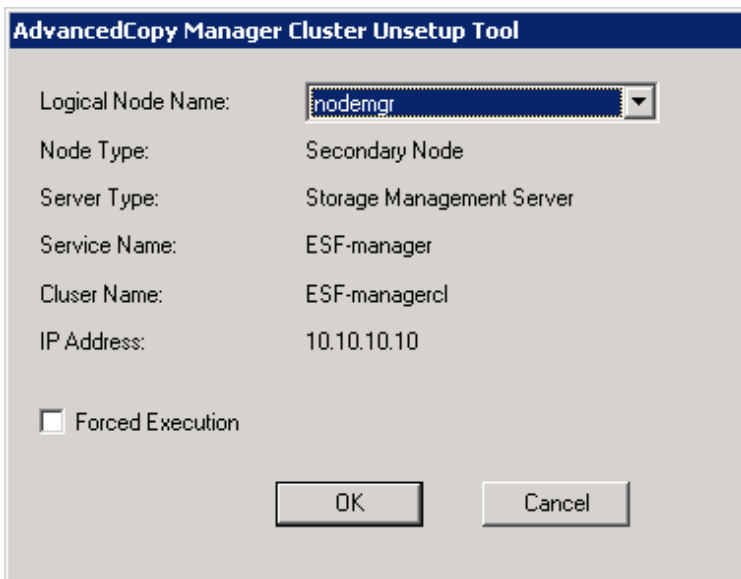
Cancel the settings for the AdvancedCopy Manager's manager.

1. Use the Failover Cluster Manager to take ownership of the transactions to which AdvancedCopy Manager belongs on the secondary node.
2. On the secondary node, execute the cluster unsetup command.

On the secondary node, execute the following command:

```
<Program-directory>\ACM\bin\stgclunset_mscs
```

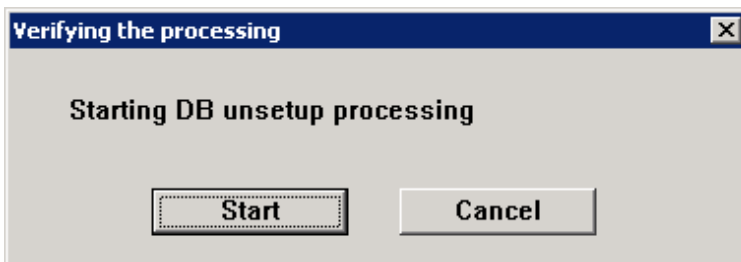
3. The cluster unsetup command window is displayed.



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.

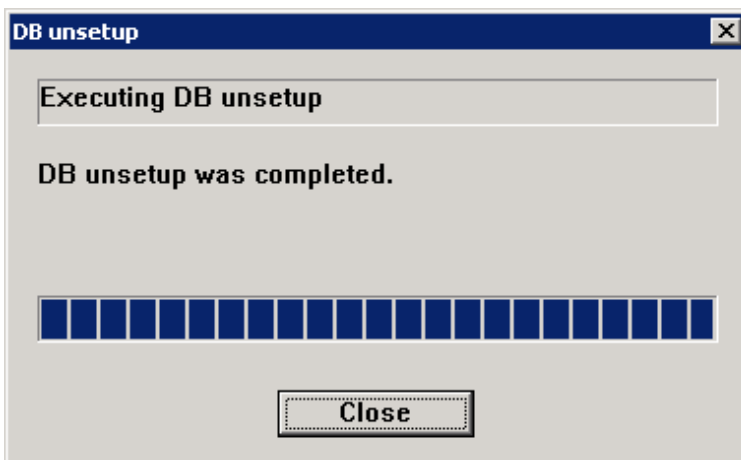
After confirming each field, click the [OK] button.

4. The start window for deleting the environment (database) of the Management Server transaction is displayed.



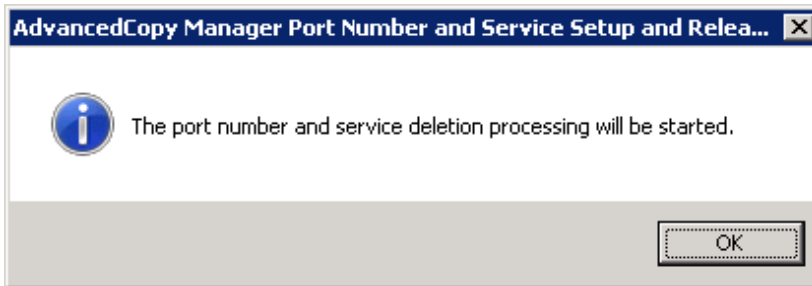
Click the [Start] button.

5. The deletion complete window of the environment (database) of the Management Server transaction is displayed.



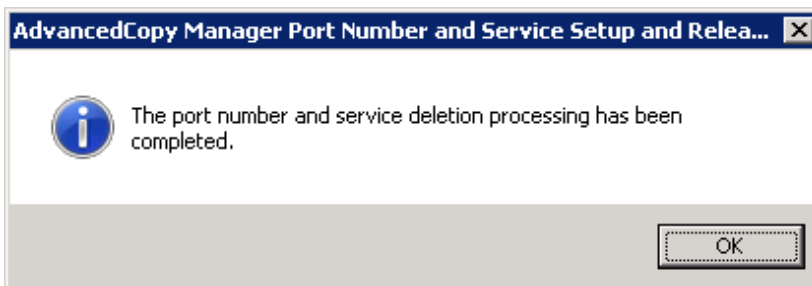
Click the [Close] button.

6. The start window of the port number and service setting/release command is displayed.



Click the [OK] button.

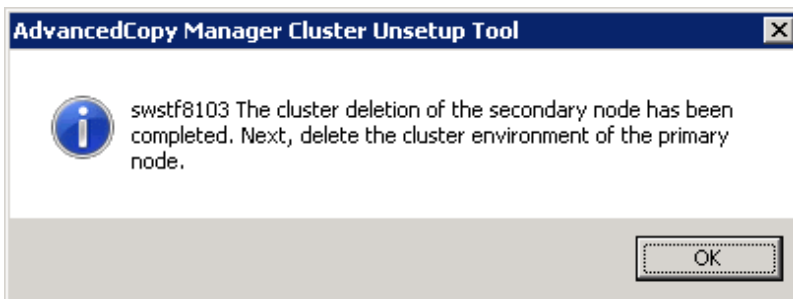
7. The deletion complete window of the port number and service setting/release command is displayed.



Click the [OK] button.

8. Complete the cluster unsetup of the secondary node.

When the completion window of cluster unsetup is displayed, click the [OK] button.



9. Delete the port number of AdvancedCopy Manager that was set for transaction use.

Delete the port number set for the Management Server transaction from <windows-install-directory>\system32\drivers\etc\services.

The service name is as follows:

- stgxfws_Logical Node Name

13.1.2.2 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. For information on how to stop Advanced Copy, refer to the copy stop commands described in "Commands" of the "ETERNUS SF Operation Guide for Copy Control Module".

2. Execute the acservice stop command with the -lan option to stop the management service.

For details on the command, refer to "acservice stop (management service stop command)" in the "ETERNUS SF Operation Guide for Copy Control Module".

- 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 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 AdvancedCopy Manager CCM installation

13.1.3 Canceling settings on primary node

On the primary node, cancel each of the following settings.

13.1.3.1 Canceling settings for AdvancedCopy Manager's manager

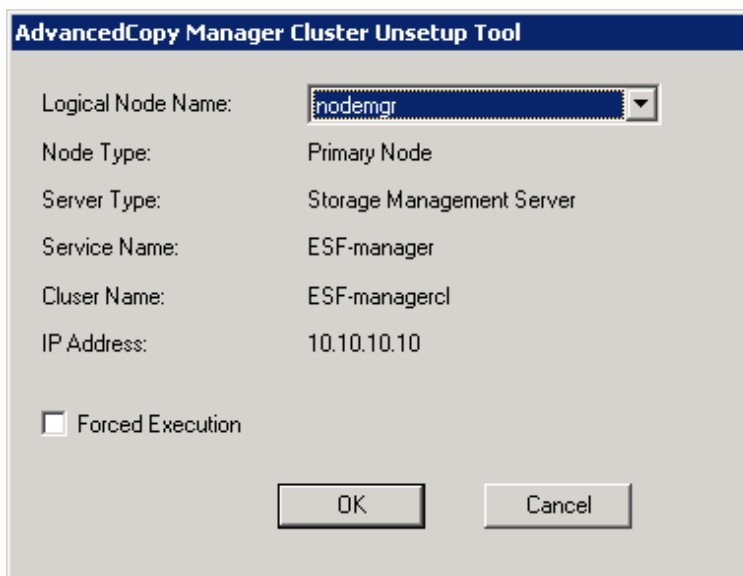
Cancel the settings for the AdvancedCopy Manager's manager.

- Use the Failover Cluster Manager to take ownership of the transactions to which AdvancedCopy Manager belongs on the primary node.
- 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.
- On the primary node, execute the cluster unsetup command.

On the primary node, execute the following command:

<Program-directory>\ACM\bin\stgclunset_mscs

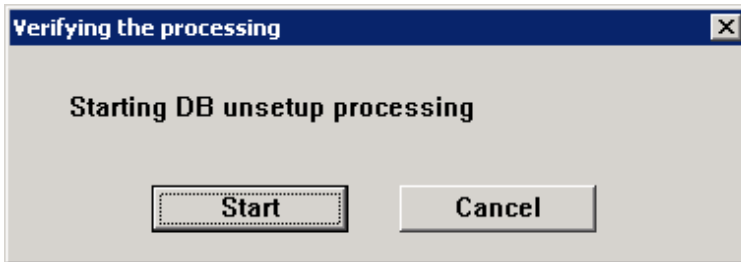
- The cluster unsetup command window is displayed.



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., select the Forced Execution field.

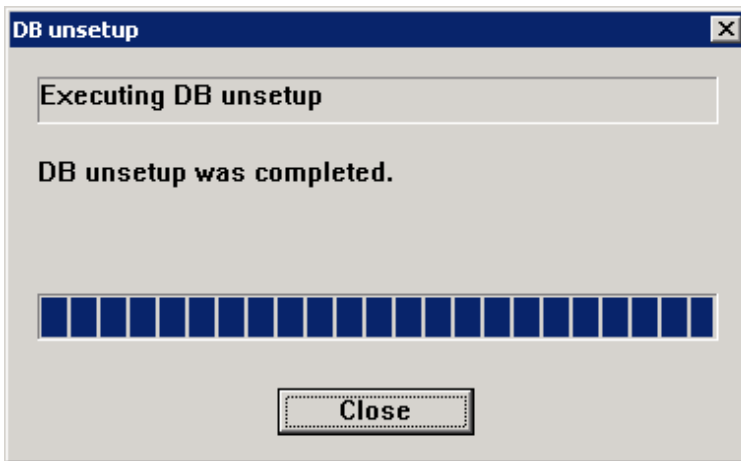
After confirming each field, click the [OK] button.

5. The start window for deleting the environment (database) of the Management Server transaction is displayed.



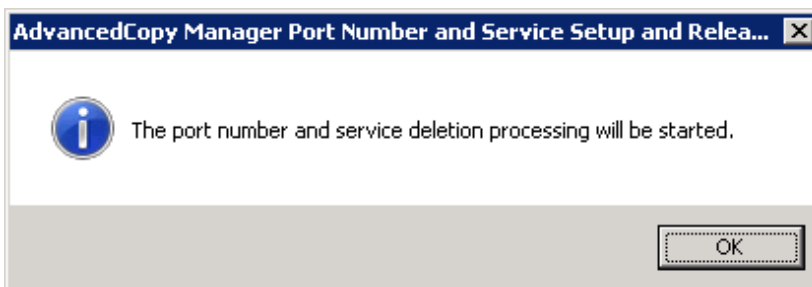
Click the [Start] button.

6. The deletion complete window of the environment (database) of the Management Server transaction is displayed.



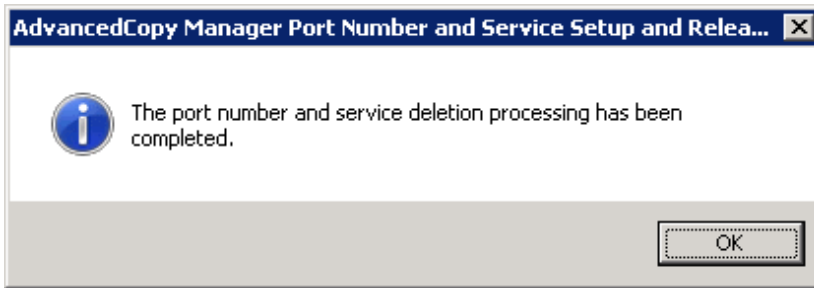
Click the [Close] button.

7. The start window of the port number and service setting/release command is displayed.



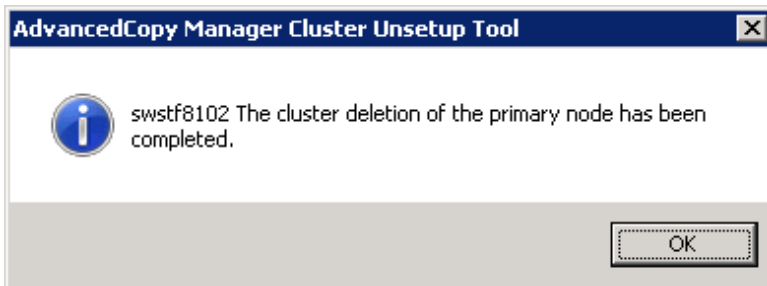
Click the [OK] button.

- The deletion complete window of the port number and service setting/release command is displayed.



Click the [OK] button.

- Complete cluster unsetup of the primary node.



When the completion window of cluster unsetup is displayed, click the [OK] button.

- Delete the resource of AdvancedCopy Manager.

If you don't use the shared disk for repository in the transactions in the operation that divide the shared disk for shared data and the shared disk for repository, delete the shared disk for repository.

For information about how to move disk resource, refer to the Windows Server Failover Clustering manuals.

- Delete the port number of AdvancedCopy Manager that was set for transaction use.

Delete the port number set for the Management Server transaction from <windows-install-directory>\system32\drivers\etc\services. The service name is as follows:

- stgxfws_Logical-Node-Name

13.1.3.2 Canceling settings for AdvancedCopy Manager CCM

Cancel the settings for AdvancedCopy Manager CCM.

- 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 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 AdvancedCopy Manager CCM installation

13.1.4 Uninstallation of ETERNUS SF Manager

Uninstall ETERNUS SF Manager.

This explanation for uninstalling ETERNUS SF Manager uses "ESF-manager" as the name of the cluster service to be deleted.

1. Uninstall 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. Uninstall ETERNUS SF Manager with reference to "Uninstallation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".
2. Uninstall 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. Uninstall ETERNUS SF Manager with reference to "Uninstallation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".
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. [Confirm Operation] is displayed. Click the [Yes] button.

- Scripts

Right-click the scripts that were used by ETERNUS SF Manager and select [Delete] to delete the script resources. [Confirm Operation] is displayed. Click the [Yes] button.

- Services

Right-click the following services and select [Delete] to delete the service resources. [Confirm Operation] is displayed. Click the [Yes] button.

- ETERNUS SF Storage Cruiser Manager
- ETERNUS SF Manager Postgres Service
- AdvancedCopy Manager COM Service for logical node name (If "AdvancedCopy COM Service_logical node name" is remained.)
- AdvancedCopy Manager GUI Service (If "AdvancedCopy GUI Service" 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, in the subsequently displayed menu, select [Delete]. [Confirm Operation] is displayed. Click the [Yes] button.

5. Delete unnecessary resources.

Delete the directories and the files that remain in the following locations.

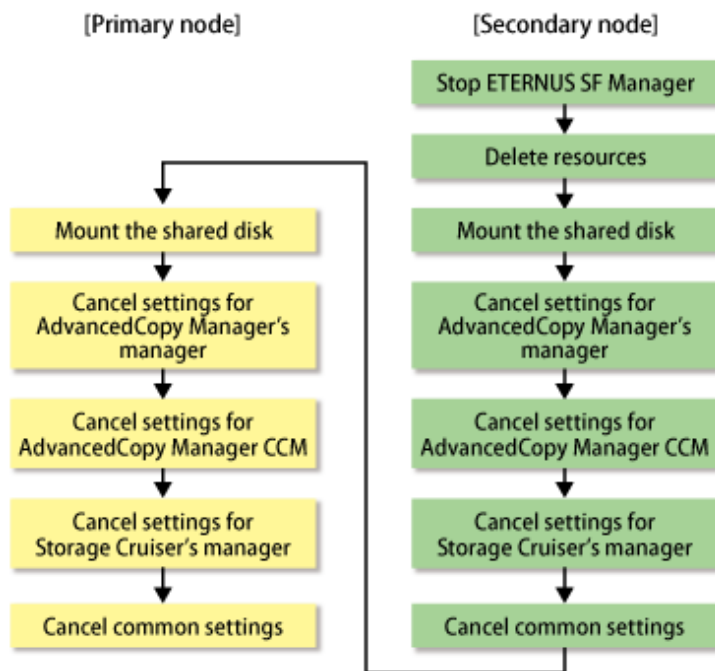
- Under ETERNUS SF Manager install directory on the primary node
- Under ETERNUS SF Manager install directory on the secondary node

- 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 for AdvancedCopy Manager repository and the shared disk for AdvancedCopy Manager shared data.
 - Storage destination of generic script for AdvancedCopy Manager CCM, Apache, and Tomcat
6. Use the Failover Cluster Manager to resume the suspended transactions.

For information on how to start the cluster group, refer to Windows Server Failover Clustering manuals.

13.2 Deletion of Cluster Environment for Solaris version

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.

For stopping the cluster application (transaction), refer to the manuals of your cluster software.

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

For deleting the resources or cluster application (transaction), refer to the manuals of your cluster software.

13.2.3 Mount the shared disk

Mount the shared disk for shared data and the shared disk for repository 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.

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 and the shared disk for AdvancedCopy Manager repository.

Example

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Note

Use the location that is specified when the Management Server is installed.

For details on this command, refer to "[16.3.1 stgclunset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command\)](#)".

2. Check the objects to be deleted.

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
AdvancedCopy Manager settings were as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Secondary
  IP Address     : 10.10.10.10
  Mount point    : /esfmnt
  Node name      : nodeMGR
  Service        : manager_service
  Resource       : Procedure
  Function       : Management Server
  Number         : 2
  MODE           : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not performing the cluster unsetup command is outputted to "Number".

3. Delete the database.

A window for confirming database deletion opens. Confirm the displayed information, enter "y", and press the Enter key. The window is not displayed in the case of a Managed Server transaction.

```
+-----+
|
| All of database environments of AdvancedCopy Manager
| will be deleted.
|
```

```

| [Notes]
|   Once processing has started, all stored data is discarded.
|   Make sure that the environment allows execution
|   before proceeding.
|-----+
|
| Do you want to continue with processing? [y/n] ==> y

```

4. The cluster unsetup command is executed on the secondary node.

The window indicating cluster unsetup command completion opens.

```

swstf8143 The cluster deletion of the secondary node has been completed. Next, delete the cluster
environment of the other secondary node.
#

```

5. Delete port numbers.

Delete the following daemon defined in /etc/services during cluster setup. Use an OS command such as vi to delete the daemon from /etc/services.

- Communication daemon for transactions: stgxfws_ *Logical-Node-Name*

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. For information on how to stop Advanced Copy, refer to the copy stop commands described in "Commands" of the "ETERNUS SF Operation Guide for Copy Control Module".

2. Execute the acservice stop command with the -lan option to stop the management service.

For details on the command, refer to "acservice stop (management service stop command)" in the "ETERNUS SF Operation Guide for Copy Control Module".

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

```

13.2.4.3 Canceling settings for Storage Cruiser's manager

Cancel the settings for 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 follow.

```
FJSVrcx:INFO:27703:esc_clunsetup:secondary node deletion completed
```

13.2.4.4 Canceling common setting

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 secondary node.

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

2. Rename the all files exported by executing 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 and the shared disk for repository for ETERNUS SF Manager in the secondary node.

13.2.5 Mount the shared disk

Mount the shared disk for shared data and the shared disk for repository 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.

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 and the shared disk for AdvancedCopy Manager repository.

Example

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Note

Use the location that is specified when the Management Server is installed.

For details on this command, refer to "[16.3.1 stgclunset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command\)](#)".

2. Check the objects to be deleted.

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
AdvancedCopy Manager settings were as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Primary
  IP Address     : 10.10.10.10
  Mount point   : /esfmnt
  Node name      : nodeMGR
  Service        : manager_service
  Resource       : Procedure
  Function       : Management Server
  Number         : 1
  MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not performing the cluster unsetup command is outputted to "Number". In a primary node, it must be one.

3. Delete the database.

A window for confirming database deletion opens. Confirm the displayed information, enter "y", and press the Enter key.

```
+-----+
|
| All of database environments of AdvancedCopy Manager
| will be deleted.
|
| [Notes]
| Once processing has started, all stored data is discarded.
| Make sure that the environment allows execution
| before proceeding.
|
+-----+
Do you want to continue with processing? [y/n] ==> y
```

4. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed
#
```

5. Delete port numbers.

Delete the following daemon defined in /etc/services during cluster setup. Use an OS command such as vi to delete the daemon from /etc/services.

- Communication daemon for transactions: stgxfws_Logical-Node-Name

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 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
```

13.2.6.3 Canceling settings for Storage Cruiser's manager

Cancel the settings for 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 follow.

```
FJSVrcx:INFO:27702:esc_clunsetup:primary node deletion completed
```

13.2.6.4 Canceling common setting

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 the all files exported by executing 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 and the shared disk for repository for ETERNUS SF Manager in the primary node.

13.2.7 Uninstallation of ETERNUS SF Manager

Uninstall ETERNUS SF Manager.

1. Carry out uninstallation first on the primary node and then on the secondary node.

For Uninstall ETERNUS SF Manager, refer to "Uninstallation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

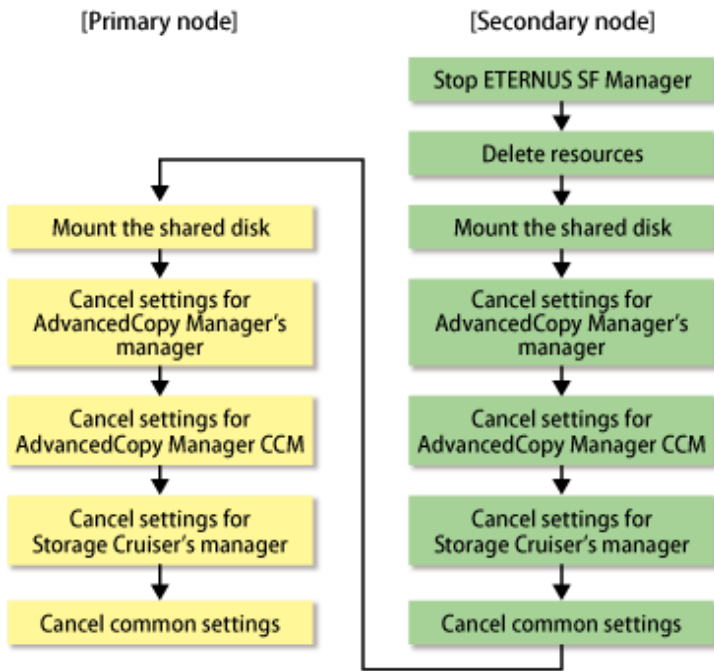
2. Delete unnecessary resources.

Delete the directories and the files that remain in the following locations.

- 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 for AdvancedCopy Manager repository and the shared disk for AdvancedCopy Manager shared data.
- The following storage destination of generic scripts
 - ETERNUS SF Manager Apache daemon
 - ETERNUS SF Manager Tomcat daemon
 - ETERNUS SF Manager Postgres daemon
 - AdvancedCopy Manager CCM

13.3 Deletion of Cluster Environment for Linux version

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.

For stopping the cluster application (transaction), refer to the manuals of your cluster software

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

.....
 For deleting the resources or cluster application (transaction), refer to the manuals of your cluster software.

13.3.3 Mount the shared disk

Mount the shared disk for shared data and the shared disk for repository 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 AdvancedCopy Manager's manager setting according to "[Customization procedure for secondary node](#)".

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. For information on how to stop Advanced Copy, refer to the copy stop commands described in "Commands" of the "ETERNUS SF Operation Guide for Copy Control Module".

2. Execute the acservice stop command with the -lan option to stop the management service.

For details on the command, refer to "acservice stop (management service stop command)" in the "ETERNUS SF Operation Guide for Copy Control Module".

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 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 follow.

```
FJSVrcx:INFO:27703:esc_clunsetup:secondary node deletion completed
```

13.3.4.4 Canceling common setting

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.

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

4. Unmount the shared disk for shared data and the shared disk for repository for ETERNUS SF Manager in the secondary node.

13.3.5 Mount the shared disk

Mount the shared disk for shared data and the shared disk for repository 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 AdvancedCopy Manager's manager setting according to "Deletion procedure for primary node".

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 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 follow.

```
FJSVrcx:INFO:27702:esc_clunsetup:primary node deletion completed
```

13.3.6.4 Canceling common setting

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.

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

4. Unmount the shared disk for shared data and the shared disk for repository for ETERNUS SF Manager in the primary node.

13.3.7 Uninstallation of ETERNUS SF Manager

Uninstall ETERNUS SF Manager.

1. Carry out uninstallation first on the primary node and then on the secondary node.

For Uninstall ETERNUS SF Manager, refer to "Uninstallation of ETERNUS SF Manager" in the "ETERNUS SF Installation and Setup Guide".

2. Delete unnecessary resources.

Delete the directories and the files that remain in the following locations.

- 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 for AdvancedCopy Manager repository and the shared disk for AdvancedCopy Manager shared data.
- The following storage destination of generic scripts
 - ETERNUS SF Manager Apache daemon
 - ETERNUS SF Manager Tomcat daemon
 - ETERNUS SF Manager Postgres 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 followings.

Table 14.1 References for deletion methods in a cluster environment

Cluster software		Reference
Solaris version SynfinityCluster/PRIMECLUSTER		14.1 Deleting for Solaris version SynfinityCluster/PRIMECLUSTER
Solaris version VERITAS Cluster Server		14.2 Deleting for Solaris version VERITAS Cluster Server
Solaris version Sun Cluster		14.3 Deleting for Solaris version Sun Cluster
Windows version MSCS/WSFC		14.4 Deleting for Windows version MSCS/WSFC
HP-UX version MC/ServiceGuard	A.11.13 A.11.17	14.5 Deleting for HP-UX version MC/ServiceGuard
HP-UX version ServiceGuard	Versions other than listed above	C.4 Deletion on Linux/HP-UX version clustered systems
HP-UX version VERITAS Cluster Server		14.6 Deleting for HP-UX version VERITAS Cluster Server
AIX version VERITAS Cluster Server		14.7 Deleting for AIX version VERITAS Cluster Server
AIX version High Availability Cluster Multi-Processing		14.8 Deleting for AIX version High Availability Cluster Multi-Processing
Linux version of clustered system		C.4 Deletion on Linux/HP-UX version clustered systems

14.1 Deleting for Solaris version SynfinityCluster/PRIMECLUSTER

This section explains how to delete Solaris version SynfinityCluster/PRIMECLUSTER.

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 service (userApplication).

The secondary node A defines the last node to delete a environment in the same cluster service (userApplication). The secondary node B defines the remaining secondary nodes in the same cluster service (userApplication).

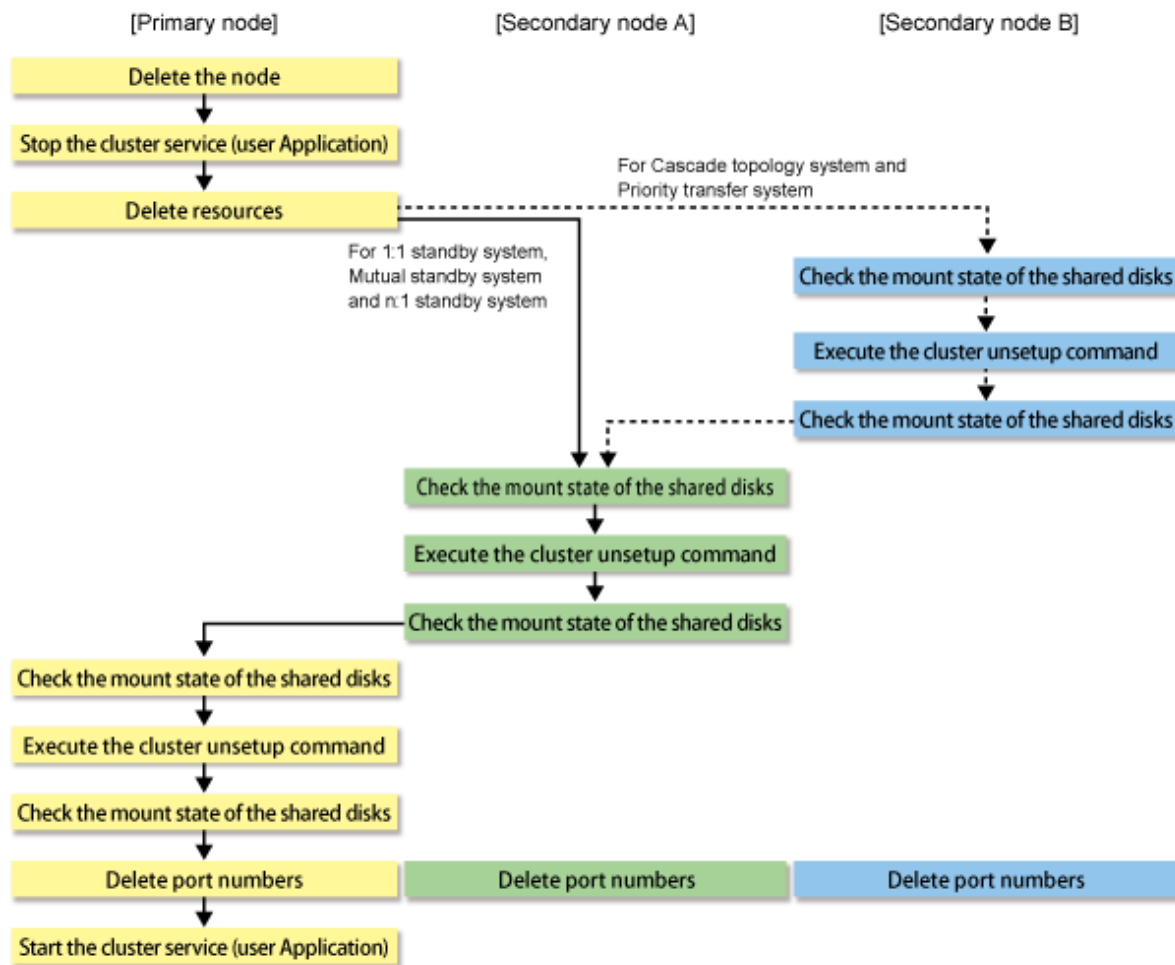
For a 1:1 standby system, a mutual standby system, and an n:1 standby system, perform the deleting operation on the primary node and secondary node A.

For a cascade topology system and a priority transfer 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 Solaris version SynfinityCluster/PRIMECLUSTER cluster environment



14.1.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
 - Use the AdvancedCopy Manager command to delete the node.
2. Stop the transaction.
 - Use the SynfinityCluster management view or the RMS main window of PRIMECLUSTER to stop the transaction to be deleted.
3. Delete the resources.
 - In SynfinityCluster
 - Use the SynfinityCluster management view to delete the AdvancedCopy Manager resources registered for the target transaction. If cluster service has been created using only AdvancedCopy Manager resources, delete the whole cluster service.
 - In PRIMECLUSTER
 - Use the PRIMECLUSTER "userApplication Configuration Wizard" to delete the AdvancedCopy Manager resources registered for the target transaction. If userApplication has been created using only AdvancedCopy Manager resources, delete the whole userApplication.

If the system is the 1:1 standby system, the Mutual standby system or the n:1 standby system, proceed to step 9.
 If the system is the Cascade topology or the Priority transfer, proceed to step 4.

4. Mount the shared disk on the secondary node B.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, perform step 4 to step 8 for all of these nodes.

5. Execute the cluster unsetup command on the secondary node B.

On the secondary node B, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Refer to "16.3.1 stgclunset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command)" for command details.

6. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
AdvancedCopy Manager settings were as follows.
    Cluster system : SynfinityCluster or PRIMECLUSTER
    Node type      : Secondary
    Mount point   : /STGMGRDISK
    Node name     : nodeMGR
    Service       : manager_service
    Resource      : Procedure
    Function      : Server
    Number        : 3
    MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not performing the cluster unsetup command is output to "Number". For a secondary node B, it must be three or more.

7. The cluster unsetup command is executed on the secondary node B.

The window indicating cluster unsetup command completion opens.

```
swstf8143 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the other secondary node.
#
```

Note

For the secondary node B, a completion message is swstf8143.

8. Dismount the shared disk on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

If there are remaining secondary nodes B for which step 4 to step 8 have not been performed, perform from step 4 on the nodes.

When operation from step 4 to step 8 is completed on all secondary nodes B, go to step 9.

9. Mount the shared disk on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

10. Execute the cluster unsetup command on the secondary node A.

On the secondary node A, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Refer to "[16.3.1 stgclunset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
AdvancedCopy Manager settings were as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Secondary
  Mount point    : /STGMGRDISK
  Node name      : nodeMGR
  Service        : manager_service
  Resource       : Procedure
  Function       : Server
  Number         : 2
  MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node, it must be two.

12. The cluster unsetup command is executed on the secondary node A.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

13. Dismount the shared disk on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

14. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

15. 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 AdvancedCopy Manager shared data:

[Input example]

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Refer to "16.3.1 stgclunset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command)" for command details.

16. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
AdvancedCopy Manager settings were as follows.
    Cluster system : SynfinityCluster or PRIMECLUSTER
    Node type      : Primary
    Mount point    : /STGMGRDISK
    Node name      : nodeMGR
    Service        : manager_service
    Resource       : Procedure
    Function       : Server
    Number         : 1
    MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a primary node, it must be one.

17. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.
#
```

18. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

19. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: stgxfws_*Logical-Node-Name*

20. Start the cluster service (userApplication).

Use the SynfinityCluster management view or the RMS main window of PRIMECLUSTER to start the transaction stopped in step 2. This operation is not necessary if the cluster service (userApplication) was deleted in step 3.



In SynfinityCluster, check that there is no state transition procedure for AdvancedCopy Manager (*SMGRPROC_Logical-Node-Name*) in the service which deleted the cluster environment of AdvancedCopy Manager with the SynfinityCluster management view. When it exists, delete it manually.

14.2 Deleting for Solaris version VERITAS Cluster Server

This section explains how to delete the Solaris version VERITAS Cluster Server.

The service group 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 cluster setup command in the same service group. The secondary node A defines the last node to delete a environment in this service group. The secondary node B defines the remaining secondary nodes in this service group.

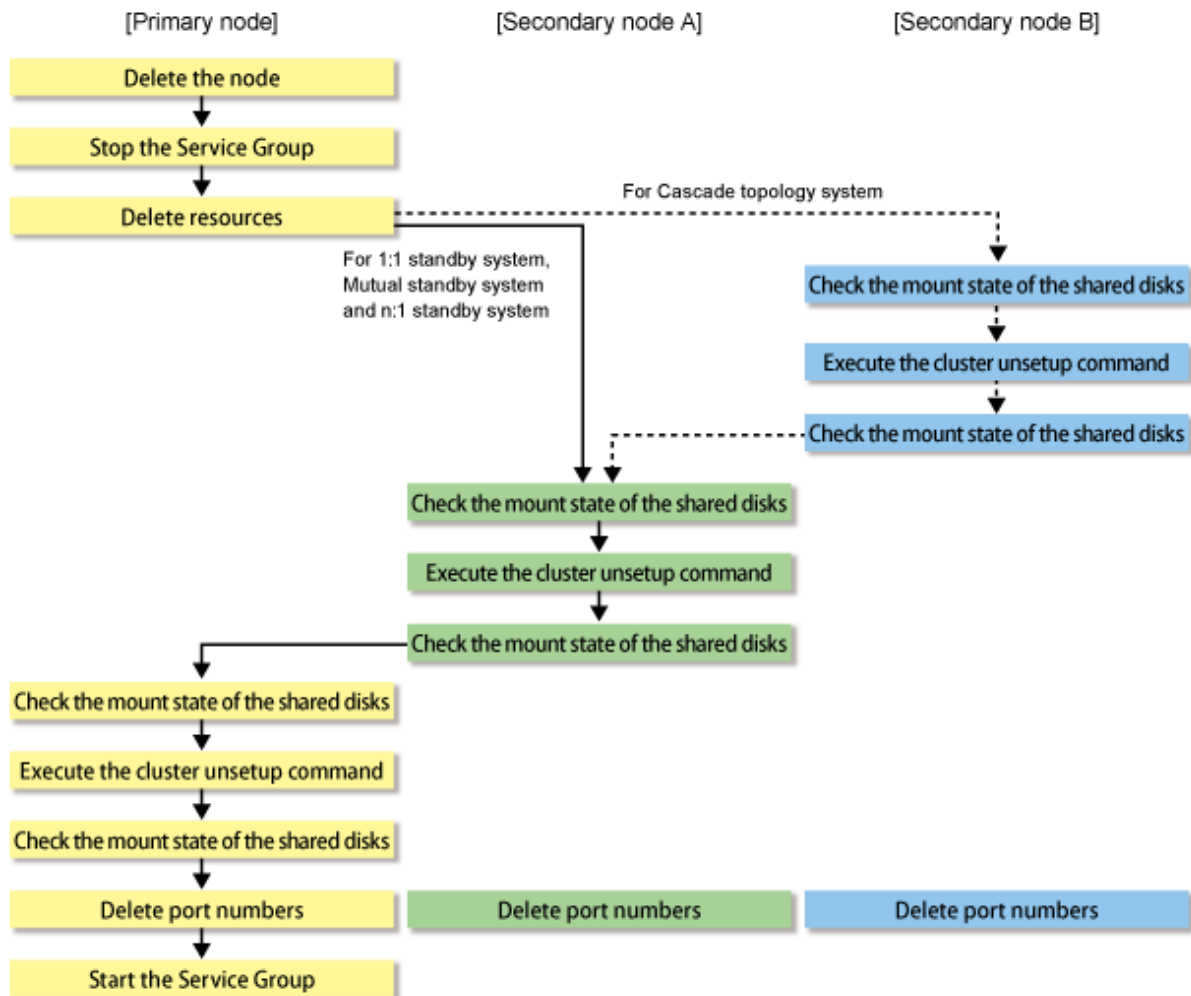
For a 1:1 standby system, a mutual standby system, and an n:1 standby system, perform the deleting operation on the primary node and secondary node A.

For a cascade topology system, perform the deleting operation on the primary node, secondary node A and all remaining secondary nodes B.

14.2.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

Figure 14.2 Deletion flow for Solaris version VERITAS Cluster Server cluster environment



14.2.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. Stop the transaction.

Stop the transaction to be deleted using the VERITAS Cluster Server function.

Refer to "VERITAS Cluster Server User's Guide" for stopping a user service group.

An example of stopping the user service group by the VERITAS Cluster Server command is as follows.

In this example, a User Service Group name is set to "STGMGRSRV", and an active system node name is set to "node1".

```
# hagr -offline STGMGRSRV -sys node1
```

3. Delete resources.

Use the VERITAS Cluster Server function to delete the AdvancedCopy Manager resources registered for the target transaction. If Service Groups have been created using only AdvancedCopy Manager resources, delete the whole Service Group.

Refer to "VERITAS Cluster Server User's Guide" for deleting a user service group and a resource.

The user service group by the command of VERITAS Cluster Server and the example of deletion of a resource are as follows.

In this example, a user service group name is set to "STGMGRSRV".

Moreover, each resource name is carried out as follows.

- Resource name (Application): AdvancedCopy_Manager_appl
- Resource name (MountPoint of the shared disk for AdvancedCopy Manager shared data): AdvancedCopy_Manager_mount
- Resource name (IP): sybase_ip

VCS config table is saved by another file-name.

```
# mv /etc/VRTSvcs/conf/config/main.cf /etc/VRTSvcs/conf/config/main.cf.bk
```

Place VCS into the read-write enabled state.

```
# haconf -makerw
```

Delete a resource (Application, MountPoint).

```
# hares -delete AdvancedCopy_Manager_appl
# hares -delete AdvancedCopy_Manager_mount
```

When not using resource (IP) in a transaction, delete it.

```
# hares -delete sybase_ip
```

When deleting a transaction, delete a user service group.

```
# hagr -delete STGMGRSRV
```

Write the VCS configuration to disk change the mode to read-only.

```
# haconf -dump -makero
```

If the system is the 1:1 standby system, the Mutual standby system or the n:1 standby system, proceed to step 9.

If the system is Cascade topology, proceed to step 4.

4. Mount the shared disk on the secondary node B.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, perform step 4 to step 8 for all of these nodes.

5. Execute the cluster unsetup command on the secondary node B.

On the secondary node B, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
```

Refer to "[16.3.2 stgclunset_vcs \(Solaris version VERITAS Cluster Server environment cancel command\)](#)" for command details.

6. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
AdvancedCopy Manager settings were as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Secondary
  Mount point    : /STGMGRDISK
  Node name      : nodeMGR
  Service        : STGMGRSRV
  Function       : Server
  Number         : 3
  MODE           : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node B, it must be three or more.

7. The cluster unsetup command is executed on the secondary node B.

The window indicating cluster unsetup command completion opens.

```
swstf8143 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the other secondary node.
#
```

Note

For secondary node B, a completion message is swstf8143.

8. Dismount the shared disk on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

If there are remaining secondary nodes B for which steps 4 to step 8 have not been performed, perform from step 4 on the nodes.

When operation from step 4 to step 8 is completed for all secondary nodes B, go to step 9.

9. Mount the shared disk on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

10. Execute the cluster unsetup command on the secondary node A.

On the secondary node A, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
```

Refer to "[16.3.2 stgclunset_vcs \(Solaris version VERITAS Cluster Server environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
AdvancedCopy Manager settings were as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Secondary
  Mount point    : /STGMGRDISK
  Node name      : nodeMGR
  Service        : STGMGRSRV
  Function       : Server
  Number         : 2
  MODE           : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node, it must be two.

12. The cluster unsetup command is executed on the secondary node.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

13. Dismount the shared disk on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

14. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

15. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
```

Refer to "16.3.2 stgclunset_vcs (Solaris version VERITAS Cluster Server environment cancel command)" for command details.

16. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
AdvancedCopy Manager settings were as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Primary
    Mount point    : /STGMGRMNT
    Node name      : nodeMGR
    Service        : STGMGRSRV
    Function       : Server
    Number         : 1
    MODE           : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.



The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a primary node, it must be one.

17. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.
#
```

18. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

19. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: stgxfws_*Logical-Node-Name*

20. Start the Service Group.

The function of VERITAS Cluster Server is used to start the transaction stopped in step 2. This operation is not necessary if the Service Group was deleted in step 3.

Refer to "VERITAS Cluster Server User's Guide" for starting a user service group.

```
# hagr -online User-Service-Group -sys system-name
```

system-name : The node name to be started a user service group.

14.3 Deleting for Solaris version Sun Cluster

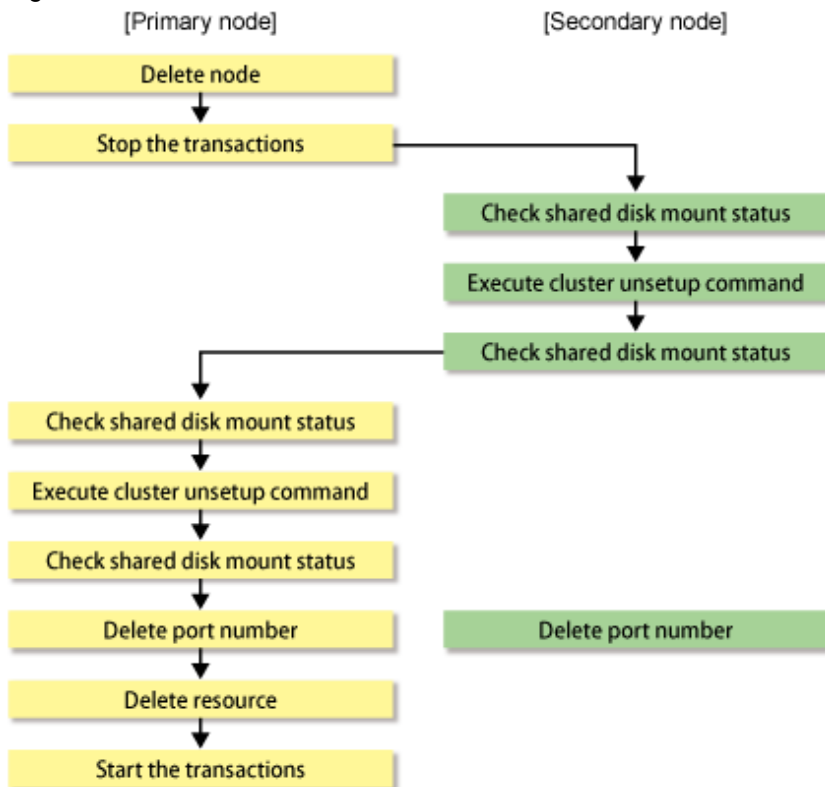
This section explains how to delete the Solaris version Sun Cluster.

The primary node is a resource group 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 cluster setup command in the same resource group.

14.3.1 Flow of Deleting

This section describes the correct order when deleting a Cluster Environment.

Figure 14.3 Deletion flow for Solaris version Sun Cluster cluster environment



14.3.2 Deletion procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. Stop the transaction.

Stop the resource group to be deleted using the Sun Cluster function.

Refer to the Sun Cluster manual for stopping a resource group.

3. Mount the shared disk on the secondary node.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.

4. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_sun -n nodeMGR
```

Refer to "16.3.3 stgclunset_sun (Solaris version Sun Cluster environment cancel command)" for command details.

5. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_sun -n nodeMGR
AdvancedCopy Manager settings were as follows.
    Cluster system      : Sun Cluster
    Node type           : Secondary
    Mount point         : /STGMGRDISK
    Node name            : nodeMGR
    Service              : manager_service
    Network Resource    : stgnet
    Function             : Server
    Number               : 2
    MODE                 : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.



The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node, it must be two.

6. The cluster unsetup command is executed on the secondary node.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

7. Dismount the shared disk on the secondary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node.

8. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

9. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_sun -n nodeMGR
```

Refer to "16.3.3 stgclunset_sun (Solaris version Sun Cluster environment cancel command)" for command details.

10. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.


```
# /opt/swstorage/bin/stgclunset_sun -n nodeMGR
AdvancedCopy Manager settings were as follows.
    Cluster system      : Sun Cluster
    Node type           : Primary
    Mount point         : /STGMGRMNT
    Node name           : nodeMGR
    Service              : manager_service
    Network Resource    : stgnet
    Function             : Server
    Number               : 1
    MODE                 : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a primary node, it must be one.

11. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.
#
```

12. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

13. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: *stgxfws_Logical-Node-Name*

14. Delete resources.

Delete the following resources, as necessary:

- Name of the AdvancedCopy Manager logical hostname resource and the shared address resource
- The AdvancedCopy Manager SUNW.HAStoragePlus resource

15. Start the transactions.

The function of Sun Cluster is used to start the transaction stopped in step 2.

Refer to the Sun Cluster manual for starting a resource group.

14.4 Deleting for Windows version MSCS/WSFC

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.

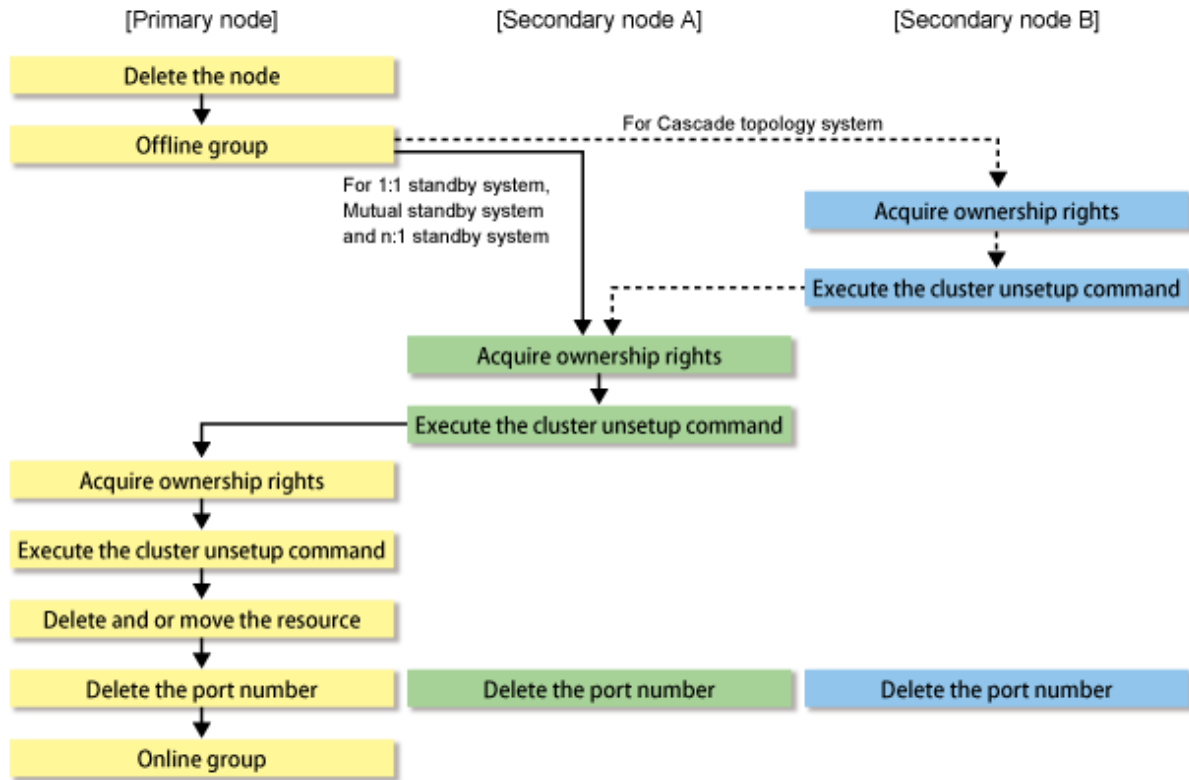
For a 1:1 standby system, a mutual standby system, and an n:1 standby system, perform the deleting operation on the primary node and secondary node A.

For a cascade topology system, perform the deleting operation on the primary node, secondary node A and all remaining secondary nodes B.

14.4.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

Figure 14.4 Deletion flow for Windows version MSCS/WSFC cluster environment



14.4.2 Deletion Procedure

To delete the cluster environment, use the following procedure:



- The "Computer Browser service" Windows service must be activated if a user belonging to the Administrators domain wants to perform customization for the Windows version of MSCS/WSFC.
- Do not use Telnet server service, as it will not work properly.

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.

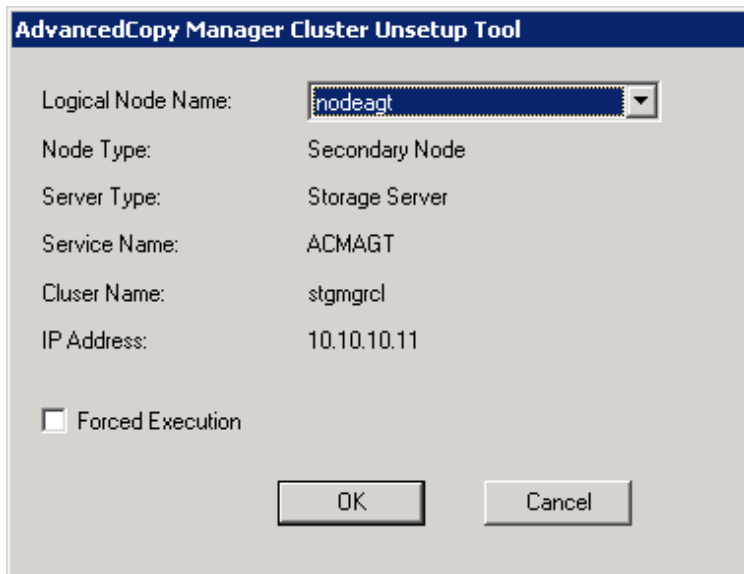
- When executing in Management Server

```
<Program directory>\ACM\bin\stgclunset_mscs
```

- When executing in Managed Server

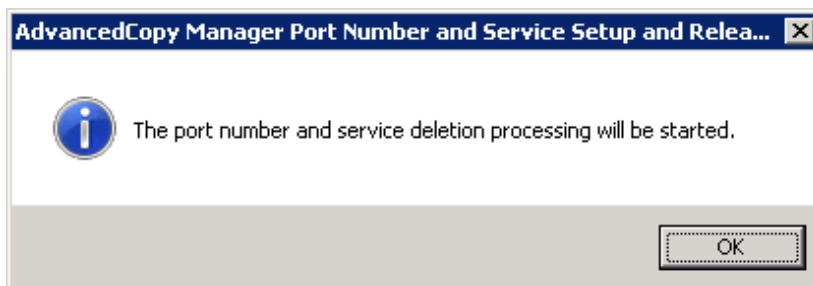
```
<Program_directory>\bin\stgclunset_mscs
```

- b. The cluster unsetup command window is displayed.



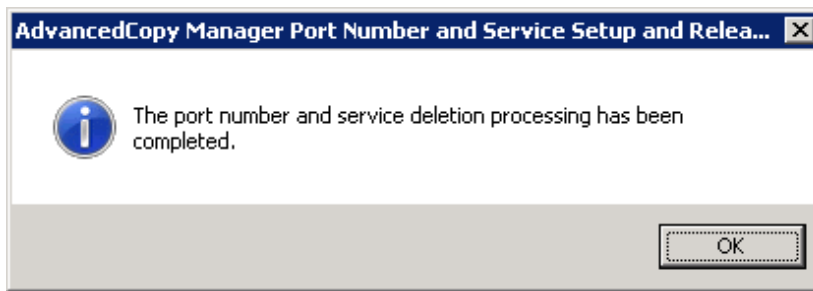
Select the logical node name of the AdvancedCopy Manager transaction to be deleted. For unsetup after node failure, select the Forced Execution checkbox. After confirming each field, click the [OK] button.

- c. The start window of the port number and service setting/release command is displayed.



Click the [OK] button.

- d. The completion window of the port number and service setting/release command is displayed.



Click the [OK] button.

- e. Complete the cluster unsetup of the secondary node.

When the completion window of cluster unsetup is displayed, click the [OK] button.

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.

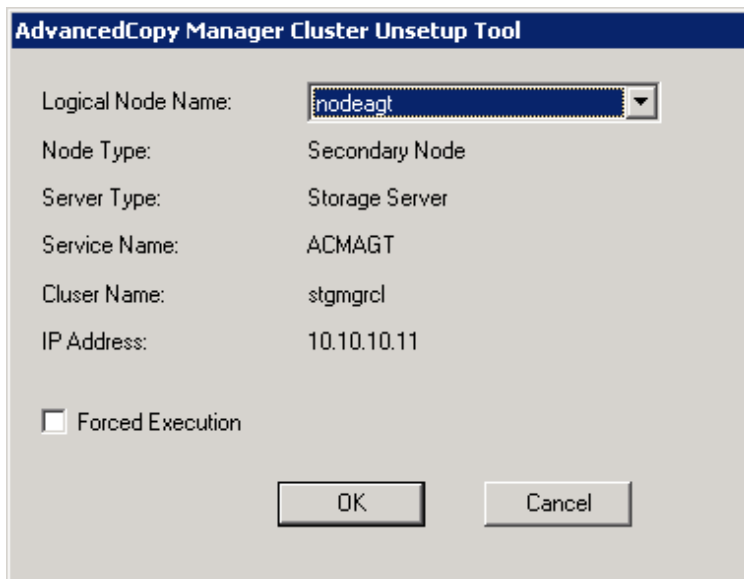
- When executing in Management Server

```
<Program_directory>\ACM\bin\stgclunset_mscs
```

- When executing in Managed Server

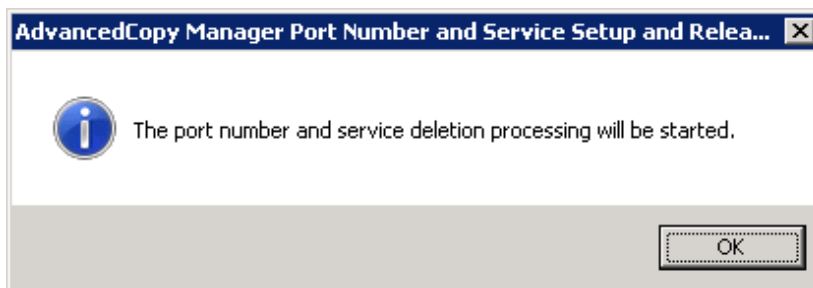
```
<Program_directory>\bin\stgclunset_mscs
```

- b. The cluster unsetup command window is displayed.



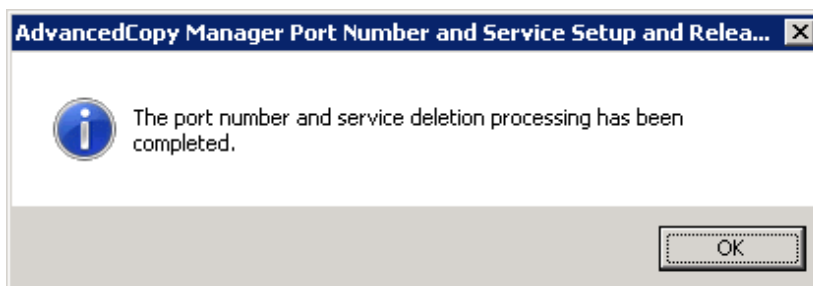
Select the logical node name of the transaction to be deleted. For unsetup after node failure, select the Forced Execution field. After confirming each field, click the [OK] button.

- c. The start window of the port number and service setting/release command is displayed.



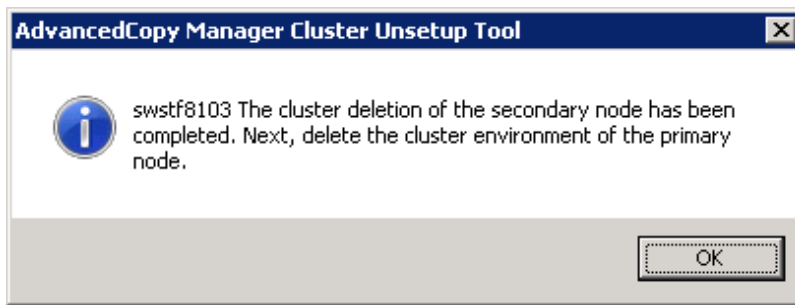
Click the [OK] button.

- d. The completion window of the port number and service setting/release command is displayed.



Click the [OK] button.

- e. Complete the cluster unsetup of the secondary node.



When the completion window of cluster unsetup is displayed, click the [OK] button. 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.

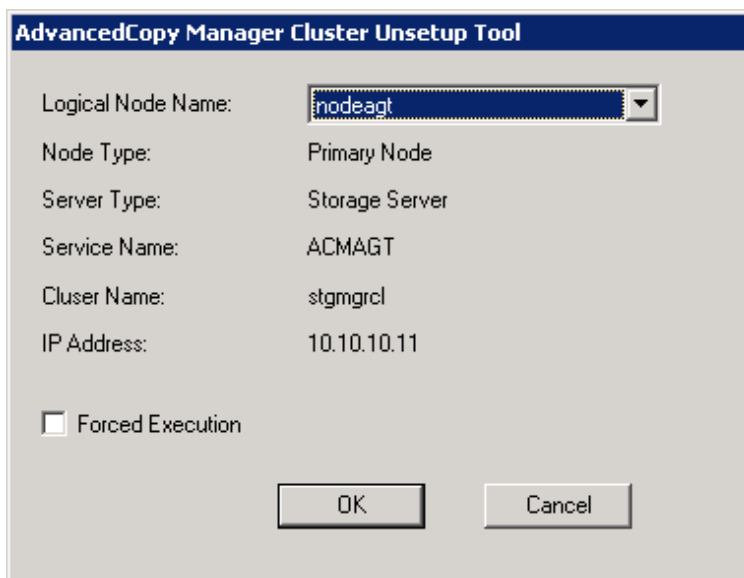
- When executing in Management Server

```
<Program directory>\ACM\bin\stgclunset_mscs
```

- When executing in Managed Server

```
<Program_directory>\bin\stgclunset_mscs
```

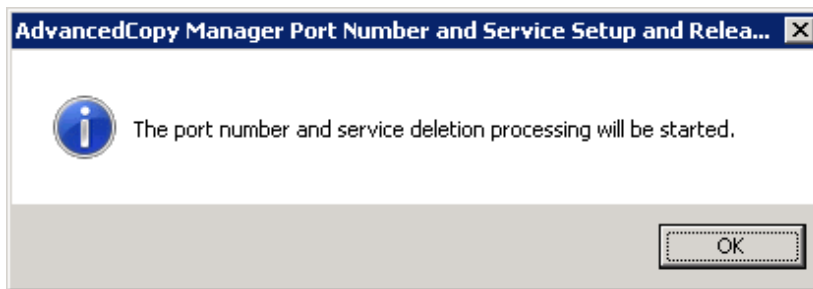
- b. The cluster unsetup command window is displayed.



Select the logical node name selected in the cluster unsetup window on the secondary node. For unsetup after node failure, select the Forced Execution field.

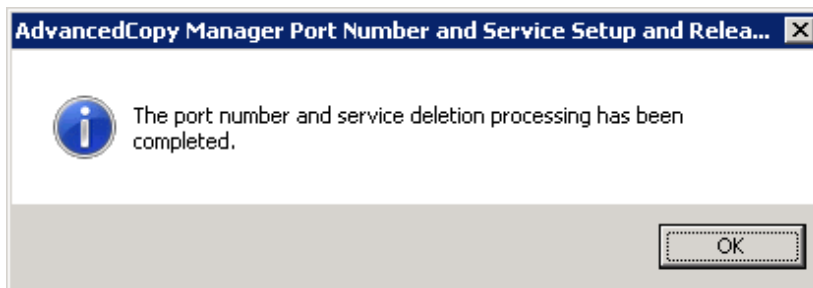
After confirming each field, click the [OK] button.

- c. The start window of the port number and service setting/release command is displayed.



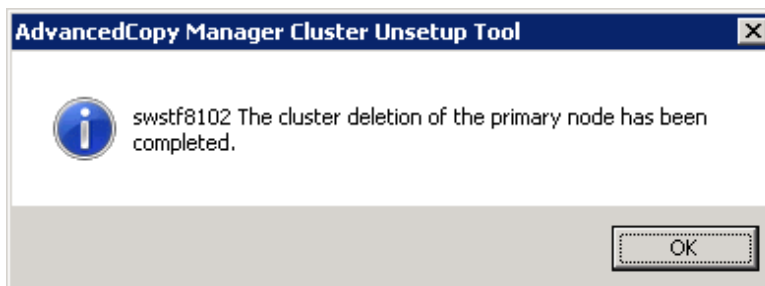
Click the [OK] button.

- d. The completion window of the port number and service setting/release command is displayed.



Click the [OK] button.

- e. Complete cluster unsetup of the primary node.



When the completion window of cluster unsetup is displayed, click the [OK] button.

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 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_ *Logical-Node-Name*
 - AdvancedCopy Network_ *Logical-Node-Name*

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 windows-installdirectory\system32\drivers\etc\services. Delete the port numbers on the primary node and the secondary node. The service name is as follows:

- stgxfws_ *Logical-Node-Name*

- 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.

14.5 Deleting for HP-UX version MC/ServiceGuard

This section explains how to delete the HP-UX version MC/ServiceGuard.

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 cluster setup command in the same package.

The secondary node B is defined the remaining secondary nodes in this package.

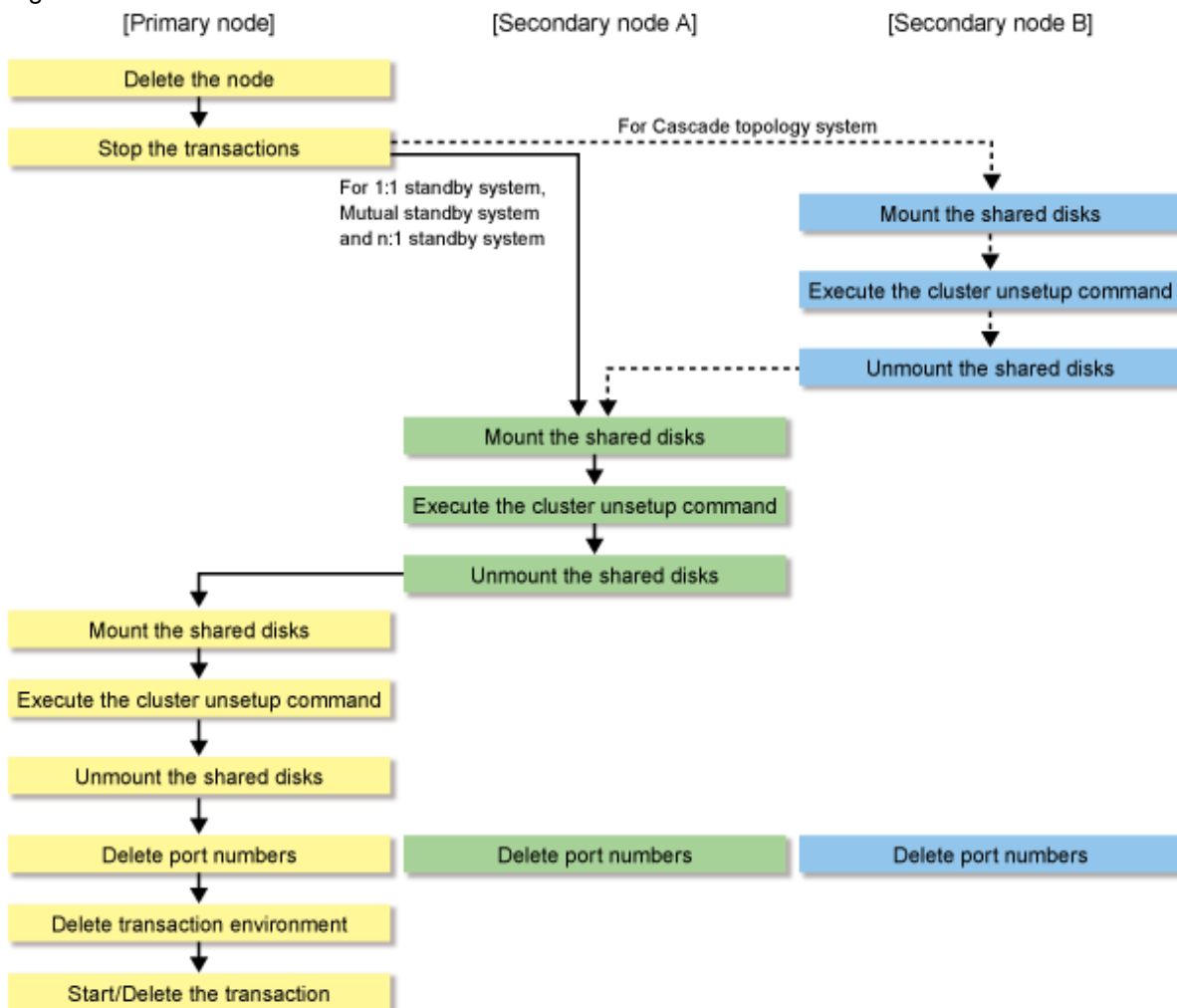
For a 1:1 standby system, a mutual standby system, and an n:1 standby system, perform the deleting operation on the primary node and secondary node A.

For a cascade topology system and a priority transfer system, perform the deleting operation on the primary node, secondary node A and all remaining secondary nodes B.

14.5.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

Figure 14.5 Deletion flow for HP-UX version MC/ServiceGuard cluster environment



14.5.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. The function of MC/ServiceGuard is used to stop the transaction.

Stop the transaction (package) to be deleted.

Refer to MC/ServiceGuard manual for stopping the transaction.

If the system is a 1:1 standby system, a mutual standby system or an n:1 standby system, proceed to step 8.

If the system is a Cascade topology, proceed to step 3.

3. Mount the shared disk on the secondary node B.

Check the status of the shared disk for AdvancedCopy Manager shared data is dismount on the primary node and all the secondary nodes.

Then, Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

When there are two or more secondary nodes B, perform step 3 to step 7 for all of these nodes.

4. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_mcsgr -n nodepr
```

Refer to "[16.3.5 stgclunset_mcsgr \(HP-UX version MC/ServiceGuard environment cancel command\)](#)" for command details.

5. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
AdvancedCopy Manager settings were as follows.
Cluster system   : MC/ServiceGuard
Node type        : Secondary
IP Address       : 10.10.10.10
SUBNET           : 10.10.10.0
Mount point      : /stgmout
Device Name      : /dev/vg01/lv011
Volume Group     : vg01
Node name        : nodepr
Service          : serv1
Function         : Server
Number          : 3
MODE             : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
Y
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes which are not executing the cluster unsetup command is output to "Number". For a secondary node B, it must be three or more.

6. The cluster unsetup command is executed on the secondary node B.

The window indicating cluster unsetup command completion opens.

```
swstf8143 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of another secondary node.
#
```

Note

For secondary node B, the completion message is swstf8143.

7. Dismount the shared disks on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

If there are remaining secondary nodes B for which step 3 to step 7 have not been performed, perform these steps in each node. When operation from step 3 to step 7 has been completed on all secondary nodes B, go to step 8.

8. Mount the shared disk on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

9. Execute the cluster unsetup command on the secondary node A.

On the secondary node A, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_mmsg -n nodepr
```

Refer to "[16.3.5 stgclunset_mmsg \(HP-UX version MC/ServiceGuard environment cancel command\)](#)" for command details.

10. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
AdvancedCopy Manager settings were as follows.
Cluster system   : MC/ServiceGuard
Node type        : Secondary
IP Address       : 10.10.10.10
SUBNET           : 10.10.10.0
Mount point      : /stgmout
Device Name      : /dev/vg01/lvol1
Volume Group     : vg01
Node name        : nodepr
Service          : serv1
Function         : Server
Number           : 2
MODE             : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y] y
```

To interrupt cluster environmental unsetup processing, type "n. To continue processing, type "y" or press the Enter key.

Note

The number of nodes which are not executing the cluster unsetup command is output to "Number". For a secondary node A, it must be two.

11. The cluster unsetup command is executed on the secondary node A.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

12. Dismount the shared disk on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

13. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

14. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_mmsg -n nodepr
```

Refer to "[16.3.5 stgclunset_mmsg \(HP-UX version MC/ServiceGuard environment cancel command\)](#)" for command details.

15. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
AdvancedCopy Manager settings were as follows.
Cluster system   : MC/ServiceGuard
Node type        : Primary
IP Address       : 10.10.10.10
SUBNET           : 10.10.10.0
Mount point      : /stgmount
Device Name      : /dev/vg01/lvol1
Volume Group     : vg01
Node name        : nodepr
Service          : serv1
Function         : Server
Number           : 1
MODE             : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
y
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes which are not executing the cluster unsetup command is output to "Number". For a primary node, it must be one.

16. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.  
#
```

17. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

18. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: stgxfws_*Logical-Node-Name*

19. Delete transaction environment.

Delete the start/stop commands of the Managed Server transaction, from the CUSTOMER DEFINE FUNCTIONS section for the package control script of target transaction

Delete the following commands (including the start option) from the section at the time of starting.

```
/opt/FJSVswstf/cluster/clproc/SmgrMCSG_Logical-Node-Name start
```

Delete the following commands (including the stop option) from the section at the time of a stop.

```
/opt/FJSVswstf/cluster/clproc/SmgrMCSG_Logical-Node-Name stop
```

When not using in the transaction the shared disk prepared for AdvancedCopy Manager, the information on a shared disk is also deleted. Moreover, the transaction (package) is deleted when the transaction will not be used in the future.

Refer to the MC/ServiceGuard manuals for editing a control script, reflection to other nodes, and deleting a package.

20. Object transaction (package) is started by using the MC/ServiceGuard function.

Refer to the MC/ServiceGuard manuals for starting a transaction.

This operation is not required when a transaction is deleted in step 19.

14.6 Deleting for HP-UX version VERITAS Cluster Server

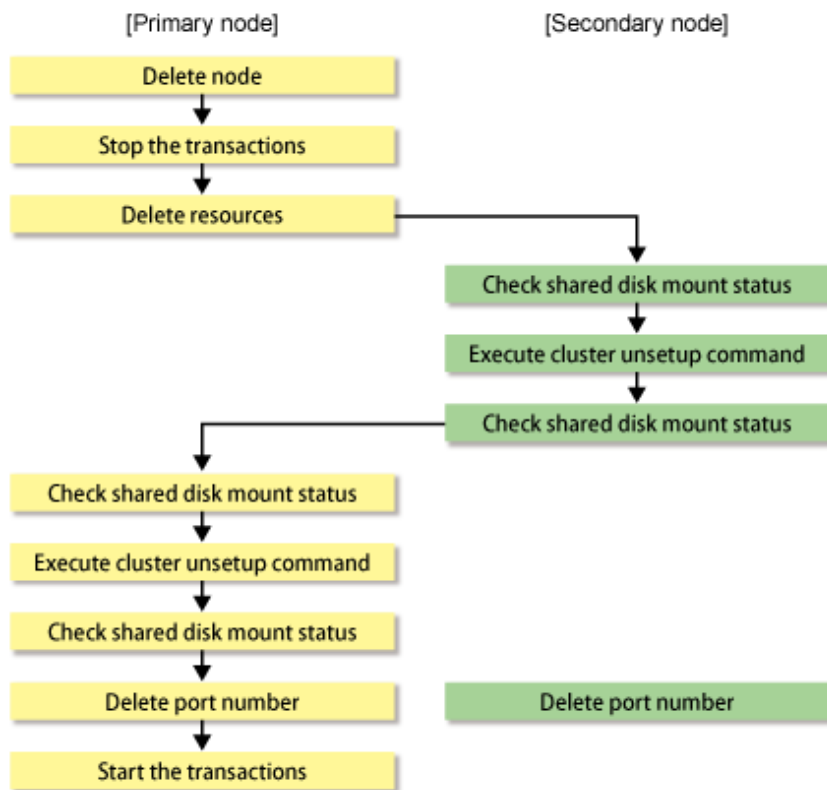
This section explains how to delete the HP-UX version VERITAS Cluster Server.

The primary node is a service group 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 cluster setup command in the same service group.

14.6.1 Flow of Deleting

This section describes the order used when deleting a Cluster Environment.

Figure 14.6 Deletion flow for HP-UX version VERITAS Cluster Server cluster environment



14.6.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. Stop the transaction.

Stop the transaction to be deleted using the VERITAS Cluster Server function.

Refer to "VERITAS Cluster Server User's Guide" for stopping a user service group.

An example of stopping the user service group by the VERITAS Cluster Server command is as follows.

In this example, a User Service Group name is set to "STGMGRSRV", and an active system node name is set to "node1".

```
# hagrps -offline STGMGRSRV -sys node1
```

3. Delete resources.

Use the VERITAS Cluster Server function to delete the AdvancedCopy Manager resources registered to the target transaction. If Service Groups have been created using only AdvancedCopy Manager resources, delete the whole Service Group.

Refer to "VERITAS Cluster Server User's Guide" for deleting a user service group and a resource.

The user service group by the command of VERITAS Cluster Server and the example of deletion of a resource are as follows. In this example, a user service group name is set to "STGMGRSRV". Moreover, each resource name is carried out as follows.

- Resource name (Application) : AdvancedCopy_Manager_appl
- Resource name (MountPoint of the shared disk for AdvancedCopy Manager shared data) : AdvancedCopy_Manager_mount
- Resource name (IP) : sybase_ip

VCS config table is saved by another file-name.

```
# mv /etc/VRTSvcs/conf/config/main.cf /etc/VRTSvcs/conf/config/main.cf.bk
```

Place VCS into the read-write enabled state.

```
# haconf -makerw
```

Delete a resource (Application, MountPoint).

```
# hares -delete AdvancedCopy_Manager_appl
# hares -delete AdvancedCopy_Manager_mount
```

When not using resource (IP) in a transaction, delete it.

```
# hares -delete sybase_ip
```

When deleting a transaction, delete a user service group.

```
# hagrps -delete STGMGRSRV
```

Write the VCS configuration to disk change the mode to read-only.

```
# haconf -dump -makero
```

4. Mount the shared disk on the secondary node.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.

5. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_hpvc -n nodeagt
```

Refer to "[16.3.6 stgclunset_hpvc \(HP-UX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

6. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_hpvc -n nodeagt
AdvancedCopy Manager settings were as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Secondary
    Mount point    : /STGMGRDISK
    Node name      : nodeagt
    Service        : STGMGRSRV
    Function       : Server
    Number         : 2
    MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node, it must be two.

7. The cluster unsetup command is executed on the secondary node.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

8. Dismount the shared disk on the secondary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node.

9. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

10. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_hpvcs -n nodeagt
```

Refer to "[16.3.6 stgclunset_hpvcs \(HP-UX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_hpvcs -n nodeagt
AdvancedCopy Manager settings were as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Primary
    Mount point    : /STGMGRMNT
    Node name      : nodeagt
    Service        : STGMGRSRV
    Function       : Server
    Number         : 1
    MODE           : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a primary node, it must be one.

12. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.
#
```

13. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

14. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: stgxfws_Logical-Node-Name

15. Start the transaction.

Start the transaction which stopped in step 2, using VERITAS Cluster Server function. This operation is not necessary if the Service Group was deleted in step 3.

Refer to "VERITAS Cluster Server User's Guide" for starting a user service group.

```
# hagrps -online User-Service-Group -sys system-name
```

system-name: The node name to be started a user service group.

14.7 Deleting for AIX version VERITAS Cluster Server

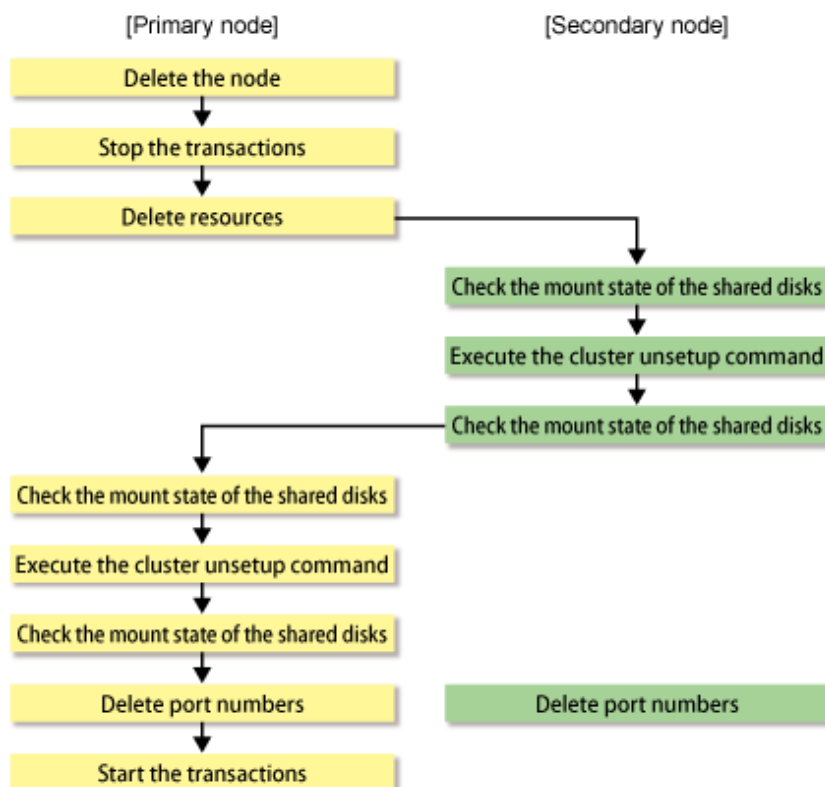
This section explains how to delete the AIX version VERITAS Cluster Server.

The primary node is a service group 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 cluster setup command in the same service group.

14.7.1 Flow of Deleting

This section describes the order when deleting a Cluster Environment.

Figure 14.7 Deletion flow for AIX version VERITAS Cluster Server cluster environment



14.7.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. Stop the transaction.

Stop the transaction to be deleted using the VERITAS Cluster Server function.

Refer to "VERITAS Cluster Server User's Guide" for stopping a user service group.

An example of stopping the user service group by the command of VERITAS Cluster Server is as follows.

In this example, a User Service Group name is set to "STGMGRSRV", and an active system node name is set to "node1".

```
# hagr -offline STGMGRSRV -sys node1
```

3. Delete resources.

Use the VERITAS Cluster Server function to delete the AdvancedCopy Manager resources registered for the target transaction. If Service Groups have been created using only AdvancedCopy Manager resources, delete the whole Service Group.

Refer to "VERITAS Cluster Server User's Guide" for deleting a user service group and a resource.

The user service group by the command of VERITAS Cluster Server and the example of deletion of a resource are as follows.

In this example, a user service group name is set to "STGMGRSRV".

Moreover, each resource name is carried out as follows.

- Resource name (Application): AdvancedCopy_Manager_appl
- Resource name (MountPoint of the shared disk for AdvancedCopy Manager shared data): AdvancedCopy_Manager_mount
- Resource name (IP): sybase_ip

VCS config table is saved by another file-name.

```
# mv /etc/VRTSvcs/conf/config/main.cf /etc/VRTSvcs/conf/config/main.cf.bk
```

Place VCS into the read-write enabled state.

```
# haconf -makerw
```

Delete a resource (Application, MountPoint).

```
# hares -delete AdvancedCopy_Manager_appl
# hares -delete AdvancedCopy_Manager_mount
```

When not using resource (IP) in a transaction, delete it.

```
# hares -delete sybase_ip
```

When deleting a transaction, delete a user service group.

```
# hagr -delete STGMGRSRV
```

Write the VCS configuration to disk change the mode to read-only.

```
# haconf -dump -makero
```

4. Mount the shared disk on the secondary node.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.

5. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
```

Refer to "16.3.7 stgclunset_aixvcs (AIX version VERITAS Cluster Server environment cancel command)" for command details.

6. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Secondary
  Mount point   : /STGMGRDISK
  Node name     : nodeagt
  Service       : STGMGRSRV
  Function      : Server
  Number        : 2
  MODE         : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.



The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node, it must be two.

7. The cluster unsetup command is executed on the secondary node.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

8. Dismount the shared disk on the secondary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node.

9. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

10. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
```

Refer to "16.3.7 [stgclunset_aixvcs \(AIX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Primary
  Mount point    : /STGMGRMNT
  Node name      : nodeagt
  Service        : STGMGRSRV
  Function       : Server
  Number         : 1
  MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.



The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a primary node, it must be one.

12. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.
#
```

13. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

14. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: *stgxfws_Logical-Node-Name*

15. Start the transaction.

Start the transaction which stopped in step 2, using VERITAS Cluster Server function. This operation is not necessary if the Service Group was deleted in step 3.

Refer to "VERITAS Cluster Server User's Guide" for starting a user service group.

```
# hagr -online User-Service-Group -sys system-name
```

system-name : The node name to be started a user service group.

14.8 Deleting for AIX version High Availability Cluster Multi-Processing

This section explains how to delete the AIX version High Availability Cluster Multi-Processing.

The resource group 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 cluster setup command in the same resource group. The secondary node A defines the last node to delete a environment in this resource group. The secondary node B defines the remaining secondary nodes in this resource group.

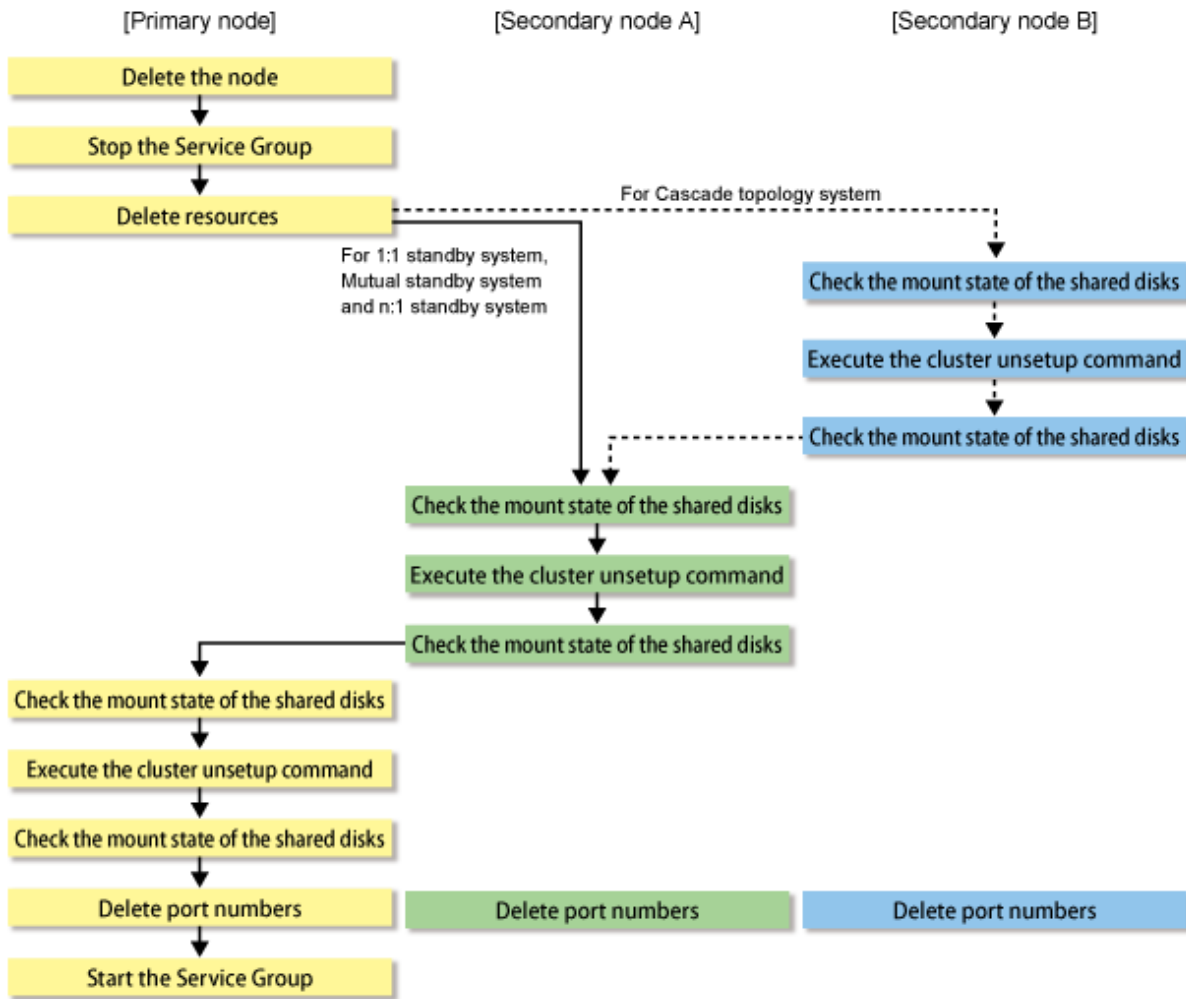
For a 1:1 standby system, a mutual standby system, and an n:1 standby system, perform the deleting operation on the primary node and secondary node A.

For a cascade topology system, perform the deleting operation on the primary node, secondary node A and all remaining secondary nodes B.

14.8.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

Figure 14.8 Deletion flow for AIX version High Availability Cluster Multi-Processing cluster environment



14.8.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.

Use the AdvancedCopy Manager command to delete the node.

2. Stop the transaction.

Stop the transaction to be deleted using the High Availability Cluster Multi-Processing function.

Refer to "High Availability Cluster Multi-Processing User's Guide" for stopping a Resource Group.

3. Delete resources.

Use the High Availability Cluster Multi-Processing function to delete the AdvancedCopy Manager resources registered for the target transaction. If Resource Groups have been created using only AdvancedCopy Manager resources, delete the whole Resource Group.

Refer to "High Availability Cluster Multi-Processing User's Guide" for deleting a user resource group and a resource.

If the system is the 1:1 standby system, the Mutual standby system or the n:1 standby system, proceed to step 9.

If the system is Cascade topology, proceed to step 4.

4. Mount the shared disk on the secondary node B.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.



When there are two or more secondary nodes B, perform step 4 to step 8 for all of these nodes.

5. Execute the cluster unsetup command on the secondary node B.

On the secondary node B, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
```

Refer to "[16.3.8 stgclunset_hacmp \(AIX version High Availability Cluster Multi-Processing environment cancel command\)](#)" for command details.

6. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : High Availability Cluster Multi-Processing
  Node type      : Secondary
  Mount point    : /STGMGRDISK
  Node name      : nodeagt
  Service        : STGMGRSRV
  Function       : Server
  Number         : 3
  MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.



The number of nodes that are not carrying out cluster unsetup command is output to "Number". For a secondary node B, it must be three or more.

7. The cluster unsetup command is executed on the secondary node B.

The window indicating cluster unsetup command completion opens.

```
swstf8143 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the other secondary node.
#
```

Note

For secondary node B, a completion message is swstf8143.

8. Dismount the shared disk on the secondary node B.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node B.

Note

If there are any remaining secondary nodes B that have not performed step 4 to step 8, perform from step 4 on the nodes. When operation from step 4 to step 8 is completed by all secondary nodes B, go to step 9.

9. Mount the shared disk on the secondary node A.

Mount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

10. Execute the cluster unsetup command on the secondary node A.

On the secondary node A, execute the following command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
```

Refer to "[16.3.8 stgclunset_hacmp \(AIX version High Availability Cluster Multi-Processing environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
AdvancedCopy Manager settings were as follows.
    Cluster system : High Availability Cluster Multi-Processing
    Node type      : Secondary
    Mount point   : /STGMGRDISK
    Node name     : nodeagt
    Service       : STGMGRSRV
    Function      : Server
    Number        : 2
    MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.

Note

The number of nodes that are not performing the cluster unsetup command is output to "Number". For a secondary node, it must be two.

12. The cluster unsetup command is executed on the secondary node A.

The window indicating cluster unsetup command completion opens.

```
swstf8103 The cluster deletion of the secondary node has been completed. Next, delete
the cluster environment of the primary node.
#
```

13. Dismount the shared disk on the secondary node A.

Dismount the shared disk for AdvancedCopy Manager shared data on the secondary node A.

14. Mount the shared disk on the primary node.

Mount the shared disk for AdvancedCopy Manager shared data on the primary node.

15. 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 AdvancedCopy Manager shared data:

Example:

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
```

Refer to "[16.3.8 stgclunset_hacmp \(AIX version High Availability Cluster Multi-Processing environment cancel command\)](#)" for command details.

16. Check the objects to be deleted.

Information about the logical node specified by the command is displayed. Confirm the displayed information, and press the Enter key.

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : High Availability Cluster Multi-Processing
  Node type      : Primary
  Mount point    : /STGMGRMNT
  Node name      : nodeagt
  Service        : STGMGRSRV
  Function       : Server
  Number         : 1
  MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To continue processing, input "y", or press the Enter key.



Note

The number of nodes which is not carrying out cluster unsetup command is output to "Number". For a primary node, it must be one.

17. The cluster unsetup command is executed on the primary node.

The window indicating cluster unsetup command completion opens.

```
swstf8102 The cluster deletion of the primary node has been completed.
#
```

18. Dismount the shared disk on the primary node.

Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.

19. Delete port numbers.

Delete the following service defined in /etc/services during cluster setup. Delete the services on the primary node and the secondary node. Use an OS command such as vi to delete the service from /etc/services.

- Communication daemon for transactions: *stgxfws_Logical-Node-Name*

20. Start the transaction.

Start the transaction which stopped in step 2, using High Availability Cluster Multi-Processing function. This operation is not necessary if the Resource Group was deleted in step 3.

Refer to "High Availability Cluster Multi-Processing User's Guide" for starting a resource group.

Chapter 15 Deletion of Cluster Environments for CCM Server Transactions

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

15.1 Deletion from Windows version clustered systems

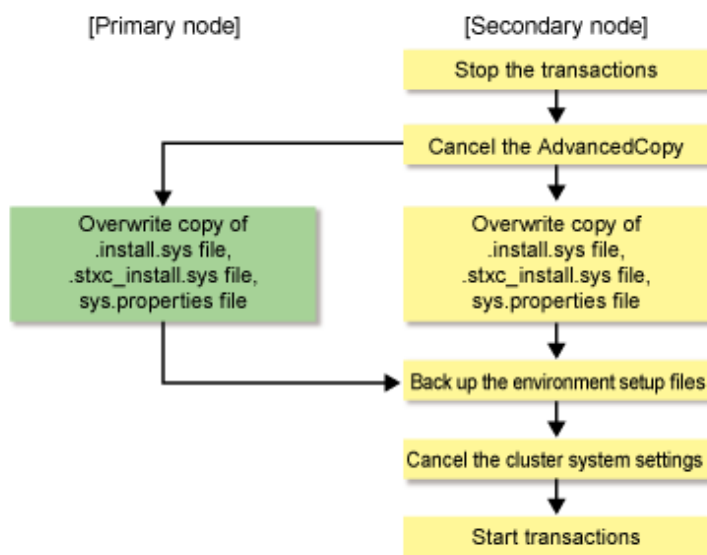
This section explains methods for deletion from Windows version clustered systems.

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.

15.1.1 Workflow of deletion

The following is a description of the workflow of deletion.

Figure 15.1 Workflow of deletion from Windows version clustered systems



Note

Unless instructed otherwise, do not execute any commands of AdvancedCopy Manager CCM.

15.1.2 Details of deletion work

Follow below procedure for deleting the cluster environment.

1. On the primary and secondary nodes, log in as a user with Administrator privileges.
2. Stop the CCM Server transactions.
For stopping methods, refer to the documentation of your cluster software.
After stopping the CCM Server transactions, mount the shared disk for shared data.
3. Referring to "13.1.2.2 Canceling settings for AdvancedCopy Manager CCM", cancel the AdvancedCopy Manager CCM settings on the secondary node.
4. Referring to "13.1.3.2 Canceling settings for AdvancedCopy Manager CCM", 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.

For the files to be backed up, refer to "Backing up environment setup files" in the "ETERNUS SF Operation Guide for Copy Control Module".

6. Cancel the clustered system settings.

Cancel the settings that you made when setting up the clustered system.

For methods for canceling the settings, refer to the documentation of your cluster software.

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.

1. In the cluster environment, back up the environment setup files.

For details, refer to "Backing up environment setup files" in the "ETERNUS SF Operation Guide for Copy Control Module".

2. Restore the backed-up environment setup files in a non-cluster environment.

For details, refer to "If not operated as a cluster" under "Restoring environment setup files" in the "ETERNUS SF Operation Guide for Copy Control Module".

However, do not restore the following files:

- \$INS_DIR\CCM\micc\sys\install.sys
- \$INS_DIR\CCM\bin\stxc_install.sys
- \$INS_DIR\CCM\sys\sys.properties
- \$INS_DIR\CCM\noncluster\micc\sys\install.sys
- \$INS_DIR\CCM\noncluster\bin\stxc_install.sys
- \$INS_DIR\CCM\noncluster\sys\sys.properties

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

3. If any access volume information has been modified, execute the acarrray remove command to remove the device information. After that, execute the acarrray 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.

For information on how to start cluster transactions, refer to the documentation of your cluster software.



.....
For details on commands, refer to "Commands" in the "ETERNUS SF Operation Guide for Copy Control Module".
.....

15.2 Deletion from Solaris version/Linux version clustered systems

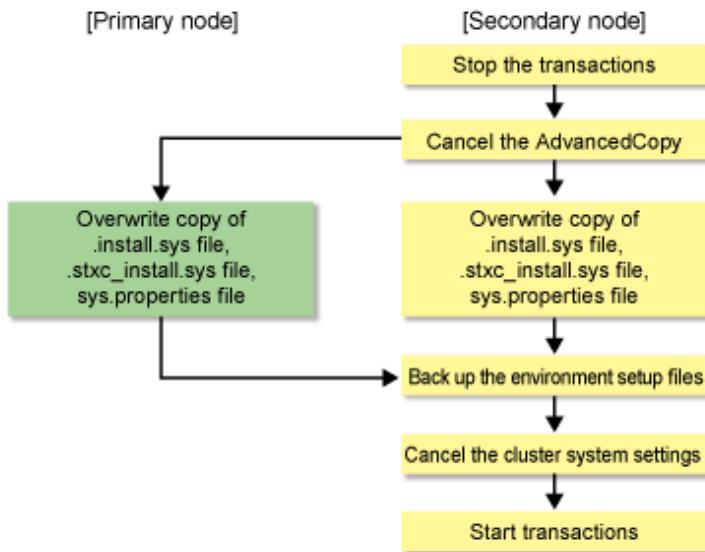
This section explains methods for deletion from Solaris version/Linux version clustered systems.

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.

15.2.1 Workflow of deletion

The following is a description of the workflow of deletion.

Figure 15.2 Workflow of deletion from Solaris version/Linux version clustered systems



Note

Unless instructed otherwise, do not execute any commands of AdvancedCopy Manager CCM.

15.2.2 Details of deletion work

Follow below procedure for deleting the cluster environment.

1. On the primary and secondary nodes, log in as a root user.
2. Stop the CCM Server transactions.
For stopping methods, refer to the documentation of your cluster software.
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.
For the files to be backed up, refer to "Backing up environment setup files" in the "ETERNUS SF Operation Guide for Copy Control Module".
6. Cancel the clustered system settings.
Cancel the settings that you made when setting up the clustered system.
For methods for canceling the settings, refer to the documentation of your cluster software.

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.

1. In the cluster environment, back up the environment setup files.

For details, refer to "Backing up environment setup files" in the "ETERNUS SF Operation Guide for Copy Control Module".

2. Restore the backed-up environment setup files in a non-cluster environment.

For details, refer to "If not operated as a cluster" under "Restoring environment setup files" in the "ETERNUS SF Operation Guide for Copy Control Module".

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

3. 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.

For information on how to start cluster transactions, refer to the documentation of your cluster software.



See

.....
For details on commands, refer to "Commands" in the "ETERNUS SF Operation Guide for Copy Control Module".
.....

Chapter 16 Commands

This chapter describes how to use commands.

16.1 Command List

The commands can be classified as shown below.

Environment setup commands

Table 16.1 List of environment setup commands

Command name	Clustered system
stgclset_safe	Solaris version SynfinityCLUSTER/PRIMECLUSTER
stgclset_vcs	Solaris version VERITAS Cluster Server
stgclset_sun	Solaris version Sun Cluster
stgclset_mscs	Windows version MSCS/WSFC
stgclset_mcsq	HP-UX version MC/ServiceGuard
stgclset_hpvc	HP-UX version VERITAS Cluster Server
stgclset_aixvcs	AIX version VERITAS Cluster Server
stgclset_hacmp	AIX version High Availability Cluster Multi-Processing

Environment cancel commands

Table 16.2 List of environment cancel commands

Command name	Clustered system
stgclunset_safe	Solaris version SynfinityCLUSTER/PRIMECLUSTER
stgclunset_vcs	Solaris version VERITAS Cluster Server
stgclunset_sun	Solaris version Sun Cluster
stgclunset_mscs	Windows version MSCS/WSFC
stgclunset_mcsq	HP-UX version MC/ServiceGuard
stgclunset_hpvc	HP-UX version VERITAS Cluster Server
stgclunset_aixvcs	AIX version VERITAS Cluster Server
stgclunset_hacmp	AIX version High Availability Cluster Multi-Processing

Environment setup commands / environment cancel commands for clustered system

Table 16.3 List of environment setup commands / environment cancel commands for clustered system

Command name	Clustered system
clset_FJSVswstf	For the supported types and versions of clustered systems, refer to " Appendix C Applying Clusters for Linux/HP-UX Version ".
clset_FJSVswsts	
clset_FJSVswsrp	
StgDbSetup	

16.2 Environment setup commands

This section describes the environment setup commands.

16.2.1 stgclset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command)

This section describes the cluster setup command used with the Solaris version SynfinityCLUSTER/PRIMECLUSTER.

NAME

stgclset_safe - Setup of AdvancedCopy Manager in Solaris version SynfinityCLUSTER/PRIMECLUSTER environment

SYNOPSIS

To be executed on the Management Server:

[Primary node]

```
/opt/swstorage/bin/stgclset_safe -k Primary|Pri -m Mount_Point -n Node_name -s Service_name -i IP_address -f mgr [-r Resource_type]
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_safe -k Secondary|Sec -m Mount_Point
```

To be executed on the Managed Server:

[Primary node]

```
/opt/swstorage/bin/stgclset_safe -k Primary|Pri -m Mount_Point -n Node_name -s Service_name [-r Resource_type]
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_safe -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Solaris version SynfinityCLUSTER/PRIMECLUSTER environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

It is recommended to use the same value as the cluster service name of the Fujitsu clustered system.

-i *IP_address*

If a Management Server transaction, specify the IP address.

-f mgr

Specify the type of transaction being built. If this option is not specified, a Managed Server transaction is built.

To build a Management Server transaction: mgr

-r *Resource_type*

Specify the resource type. If this option is not specified, a status transition procedure is created.

To operate using a command line resource: cmd

For SynfinityCLUSTER, do not specify "-r cmd".

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

16.2.2 stgclset_vcs (Solaris version VERITAS Cluster Server environment setup command)

This section describes the cluster setup command used with the Solaris version VERITAS Cluster Server.

NAME

stgclset_vcs - Setup of AdvancedCopy Manager in Solaris version VERITAS Cluster Server environment

SYNOPSIS

[Primary node]

```
/opt/swstorage/bin/stgclset_vcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_vcs -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Solaris version VERITAS Cluster Server environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

It is recommended to use the same value as the cluster service name of the Fujitsu clustered system.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

16.2.3 stgclset_sun (Solaris version Sun Cluster environment setup command)

This section describes the cluster setup command used with the Solaris version Sun Cluster.

NAME

stgclset_sun - Setup of AdvancedCopy Manager in Solaris version Sun Cluster environment

SYNOPSIS

[Primary node]

```
/opt/swstorage/bin/stgclset_sun -k Primary|Pri -m Mount_Point -h Network_resource -n Node_name -s Service_name
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_sun -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Solaris version Sun Cluster environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-h *Network_Resource*

Specify the name of a logical host name resource or the name of a shared address resource.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

Specify the same value as the Sun Cluster resource group name of the targeted transaction.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

16.2.4 stgclset_mscs (Windows version MSCS/WSFC environment setup command)

This section describes the cluster setup command used with the Windows version MSCS/WSFC.

NAME

stgclset_mscs - Setup of AdvancedCopy Manager in Windows version MSCS/WSFC environment

SYNOPSIS

To be executed on the Management Server:

<Program-directory>\ACM\bin\stgclset_mscs

To be executed on the Managed Server:

<Program-directory>\bin\stgclset_mscs

DESCRIPTION

In the Windows version MSCS/WSFC environment, AdvancedCopy Manager is set up.

16.2.5 stgclset_mcsg (HP-UX version MC/ServiceGuard environment setup command)

This section describes the cluster setup command used with the HP-UX version MC/ServiceGuard.

NAME

stgclset_mcsgr - Setup of AdvancedCopy Manager in HP-UX version MC/ServiceGuard environment

SYNOPSIS

[Primary node]

```
/opt/swstorage/bin/stgclset_mcsgr -k Primary|Pri -m Mount_Point -n Node_name -s Service_name -v  
Volume_Group -i IP_address -u Subnet
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_mcsgr -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the HP-UX version MC/ServiceGuard environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

Specify the same value as the MC/ServiceGuard package name of the targeted transaction.

-v *Volume_Group*

Specify the name of the volume group belonging to the shared disk used for AdvancedCopy Manager shared data.

-i *IP_address*

Specify the IP address.

-u *Subnet*

Specify the subnet of the IP address.

EXIT STATUS

- =0: Completed successfully
- >0: Terminated abnormally

16.2.6 stgclset_hpvcs (HP-UX version VERITAS Cluster Server environment setup command)

This section describes the cluster setup command used with the HP-UX version VERITAS Cluster Server.

NAME

stgclset_hpvcs - Setup of AdvancedCopy Manager in HP-UX version VERITAS Cluster Server environment

SYNOPSIS

[Primary node]

```
/opt/swstorage/bin/stgclset_hpvcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_hpvcs -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the HP-UX version VERITAS Cluster Server environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

EXIT STATUS

- =0: Completed successfully
- >0: Terminated abnormally

16.2.7 stgclset_aixvcs (AIX version VERITAS Cluster Server environment setup command)

This section describes the cluster setup command used with the AIX version VERITAS Cluster Server.

NAME

stgclset_aixvcs - Setup of AdvancedCopy Manager in AIX version VERITAS Cluster Server environment

SYNOPSIS

[Primary node]

```
/opt/swstorage/bin/stgclset_aixvcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_aixvcs -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the AIX version VERITAS Cluster Server environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

EXIT STATUS

- =0: Completed successfully
- >0: Terminated abnormally

16.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)

This section describes the cluster setup command used with the AIX version High Availability Cluster Multi-Processing.

NAME

stgclset_hacmp - Setup of AdvancedCopy Manager in AIX version High Availability Cluster Multi-Processing environment

SYNOPSIS

[Primary node]

```
/opt/swstorage/bin/stgclset_hacmp -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

[Secondary node]

```
/opt/swstorage/bin/stgclset_hacmp -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the AIX version High Availability Cluster Multi-Processing environment, AdvancedCopy Manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

EXIT STATUS

=0: Completed successfully
>0: Terminated abnormally

16.3 Environment Cancel Commands

This section describes the environment cancel commands.

16.3.1 stgclunset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command)

This section describes the cluster cancel setup command used with the Solaris version SynfinityCLUSTER/PRIMECLUSTER.

NAME

stgclunset_safe - Cancellation of AdvancedCopy Manager in Solaris version SynfinityCLUSTER/PRIMECLUSTER

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_safe -n Node_name
```

DESCRIPTION

In the Solaris version SynfinityCLUSTER/PRIMECLUSTER environment, AdvancedCopy Manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully
>0: Terminated abnormally

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 the IP address of Management Server" or "Changing the IP address of Managed Server" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.2 stgclunset_vcs (Solaris version VERITAS Cluster Server environment cancel command)

This section describes the cluster cancel setup command used with the Solaris version VERITAS Cluster Server.

NAME

stgclunset_vcs - Cancellation of AdvancedCopy Manager in Solaris version VERITAS Cluster Server

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_vcs -n Node_name
```

DESCRIPTION

In the Solaris version VERITAS Cluster Server environment, AdvancedCopy Manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

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 the IP address of Managed Server transaction" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.3 stgclunset_sun (Solaris version Sun Cluster environment cancel command)

This section describes the cluster cancel setup command used with the Solaris version Sun Cluster.

NAME

stgclunset_sun - Cancellation of AdvancedCopy Manager in Solaris version Sun Cluster

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_sun -n Node_name
```

DESCRIPTION

In the Solaris version Sun Cluster environment, AdvancedCopy Manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

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 the IP address of Managed Server transaction" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.4 stgclunset_mscs(Windows version MSCS/WSFC environment cancel command)

This section describes the cluster cancel setup command used with the Windows version MSCS/WSFC.

NAME

stgclunset_mscs - Cancellation of AdvancedCopy Manager in Windows version MSCS/WSFC

SYNOPSIS

To be executed on the Management Server:

```
<Program-directory>\ACM\bin\stgclunset_mscs
```

To be executed on the Managed Server:

```
<Program-directory>\bin\stgclunset_mscs
```

DESCRIPTION

In the Windows version MSCS/WSFC environment, AdvancedCopy Manager is canceled.

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 the IP address of Management Server" or "Changing the IP address of Managed Server" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.5 stgclunset_mcsg (HP-UX version MC/ServiceGuard environment cancel command)

This section describes the cluster cancel setup command used with the HP-UX version MC/ServiceGuard.

NAME

stgclunset_mcsg - Cancellation of AdvancedCopy Manager in HP-UX version MC/ServiceGuard

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_mcsg -n Node_name
```

DESCRIPTION

In the HP-UX version MC/ServiceGuard environment, AdvancedCopy Manager is canceled.

OPTIONS

`-n Node_name`

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

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 the IP address of Managed Server transaction" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.6 stgclunset_hpvcs (HP-UX version VERITAS Cluster Server environment cancel command)

This section describes the cluster cancel setup command used with the HP-UX version VERITAS Cluster Server.

NAME

`stgclunset_hpvcs` - Cancellation of AdvancedCopy Manager in HP-UX version VERITAS Cluster Server

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_hpvcs -n Node_name
```

DESCRIPTION

In the HP-UX version VERITAS Cluster Server environment, AdvancedCopy Manager is canceled.

OPTIONS

`-n Node_name`

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

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 the IP address of Managed Server transaction" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.7 stgclunset_aixvcs (AIX version VERITAS Cluster Server environment cancel command)

This section describes the cluster cancel setup command used with the AIX version VERITAS Cluster Server.

NAME

stgclunset_aixvcs - Cancellation of AdvancedCopy Manager in AIX version VERITAS Cluster Server

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_aixvcs -n Node_name
```

DESCRIPTION

In the AIX version VERITAS Cluster Server environment, AdvancedCopy Manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

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 the IP address of Managed Server transaction" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.3.8 stgclunset_hacmp (AIX version High Availability Cluster Multi-Processing environment cancel command)

This section describes the cluster cancel setup command used with the AIX version High Availability Cluster Multi-Processing.

NAME

stgclunset_hacmp - Cancellation of AdvancedCopy Manager in AIX version High Availability Cluster Multi-Processing

SYNOPSIS

```
/opt/swstorage/bin/stgclunset_hacmp -n Node_name
```

DESCRIPTION

In the AIX version High Availability Cluster Multi-Processing environment, AdvancedCopy Manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

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 the IP address of Managed Server transaction" in the "ETERNUS SF AdvancedCopy Manager Operation Guide".

16.4 Environment setup commands / environment cancel commands for clustered system

This section explains the commands for setting up and canceling environments in the clustered systems described in "[Appendix C Applying Clusters for Linux/HP-UX Version](#)".

16.4.1 clset_FJSVswstf(set/cancel framework environment)

NAME

clset_FJSVswstf - Setup or cancellation of framework environment in a clustered system

SYNOPSIS

For setting the environment:

[Primary node]

```
/opt/FJSVswstf/bin/clset_FJSVswstf -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswstf/bin/clset_FJSVswstf -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

For canceling the environment:

[Primary node]

```
/opt/FJSVswstf/bin/clset_FJSVswstf -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswstf/bin/clset_FJSVswstf -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

DESCRIPTION

Sets or cancels the framework environment in the clustered systems described in "[Appendix C Applying Clusters for Linux/HP-UX Version](#)".

OPTIONS

-u

Cancels the environment.

If this option is not specified, the command sets the environment.

-f

Specifies to use the clsetup.ini setup file for AdvancedCopy Manager.

For information on how to edit clsetup.ini, refer to "[C.2.3 Methods for editing setup files](#)".

-t { Primary | Secondary }

Specify the node type.

- For setting or canceling the primary node: Primary

- For setting or canceling the secondary node: Secondary

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

16.4.2 clset_FJSVswsts(set/cancel command for backup environment)

NAME

clset_FJSVswsts - Setup or cancellation of environment for backup function in a clustered system

SYNOPSIS

For setting the environment:

[Primary node]

```
/opt/FJSVswsts/bin/clset_FJSVswsts -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswsts/bin/clset_FJSVswsts -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

For canceling the environment:

[Primary node]

```
/opt/FJSVswsts/bin/clset_FJSVswsts -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswsts/bin/clset_FJSVswsts -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

DESCRIPTION

Sets or cancels the environment for the backup function in the clustered systems described in "[Appendix C Applying Clusters for Linux/HP-UX Version](#)".

OPTIONS

-u

 Cancels the environment.

 If this option is not specified, the command sets the environment.

-f

 Specifies to use the clsetup.ini setup file for AdvancedCopy Manager.

 For information on how to edit clsetup.ini, refer to "[C.2.3 Methods for editing setup files](#)".

-t { Primary | Secondary }

 Specify the node type.

 - For setting or canceling the primary node: Primary

 - For setting or canceling the secondary node: Secondary

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

16.4.3 clset_FJSVswsrp(set/cancel command for replication environment)

NAME

clset_FJSVswsrp - Setup or cancellation of environment for replication function in a clustered system

SYNOPSIS

For setting the environment:

[Primary node]

```
/opt/FJSVswsrp/bin/clset_FJSVswsrp -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswsrp/bin/clset_FJSVswsrp -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

For canceling the environment:

[Primary node]

```
/opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

DESCRIPTION

Sets or cancels the environment for the replication function in the clustered systems described in "[Appendix C Applying Clusters for Linux/HP-UX Version](#)".

OPTIONS

-u

Cancels the environment.

If this option is not specified, the command sets the environment.

-f

Specifies to use the clsetup.ini setup file for AdvancedCopy Manager.

For information on how to edit clsetup.ini, refer to "[C.2.3 Methods for editing setup files](#)".

-t { Primary | Secondary }

Specify the node type.

- For setting or canceling the primary node: Primary
- For setting or canceling the secondary node: Secondary

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

16.4.4 StgDbSetup(set/cancel command for repository environment)

NAME

StgDbSetup - Setup or cancellation of environment for repository function in a clustered system

SYNOPSIS

For setting the environment:

[Primary node]

```
/opt/FJSVswstf/bin/StgDbSetup -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswstf/bin/StgDbSetup -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

For canceling the environment:

[Primary node]

```
/opt/FJSVswstf/bin/StgDbSetup -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini -t Primary
```

[Secondary node]

```
/opt/FJSVswstf/bin/StgDbSetup -u -f <Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-  
data>/etc/opt/swstorage/clsetup.ini -t Secondary
```

DESCRIPTION

Sets or cancels the environment for the repository function in the clustered systems described in "[Appendix C Applying Clusters for Linux/HP-UX Version](#)".

OPTIONS

-u

Cancels the environment.

If this option is not specified, the command sets the environment.

-f

Specifies to use the clsetup.ini setup file for AdvancedCopy Manager.

For information on how to edit clsetup.ini, refer to "[C.2.3 Methods for editing setup files](#)".

-t { Primary | Secondary }

Specify the node type.

- For setting or canceling the primary node: Primary

- For setting or canceling the secondary node: Secondary

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER

This appendix explains how to create AdvancedCopy Manager resources and userApplications with PRIMECLUSTER.

For details, refer to the "PRIMECLUSTER Installation and Administration Guide".



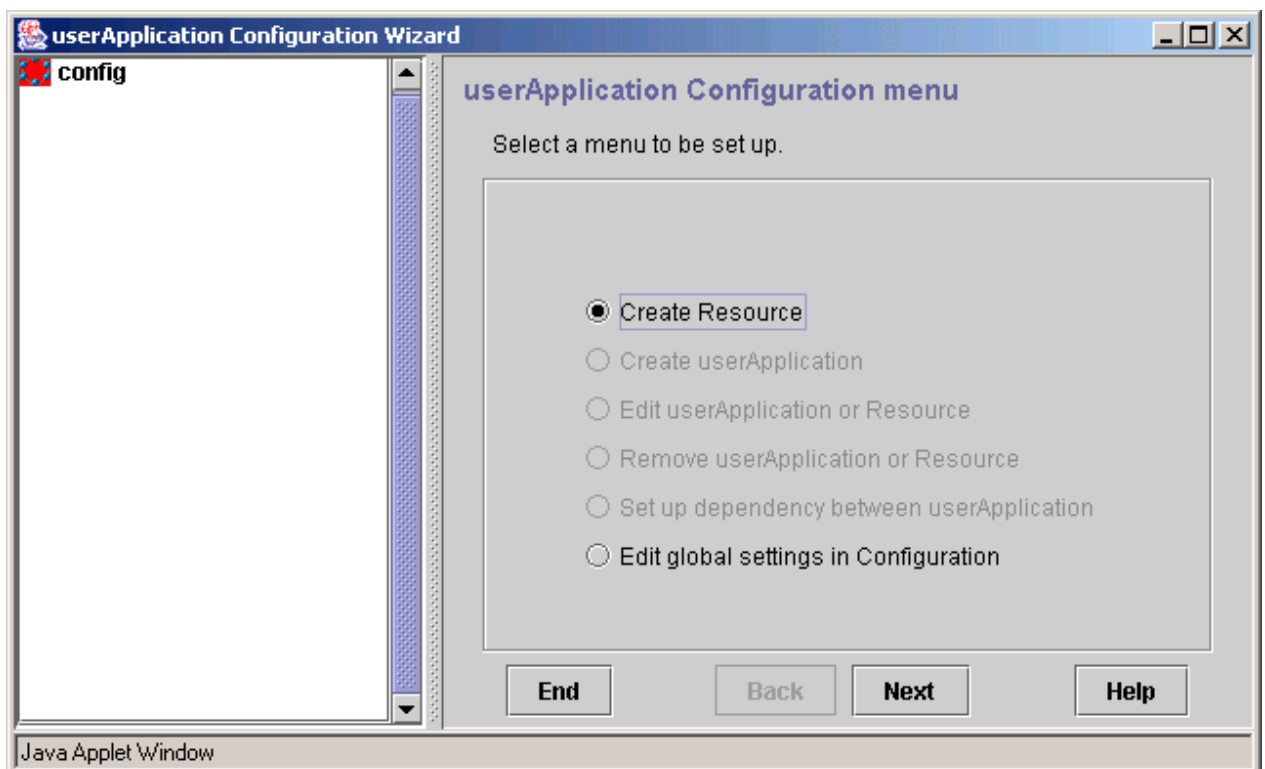
The version level for Solaris version PRIMECLUSTER explaining in this chapter is Solaris version PRIMECLUSTER 4.1. When your version is other than Solaris version PRIMECLUSTER 4.1, refer to the "PRIMECLUSTER Installation and Administration Guide" for details on difference in function and compatibility between the versions.

A.1 Creating Resources

Create resources by using the "userApplication Configuration Wizard" of PRIMECLUSTER.

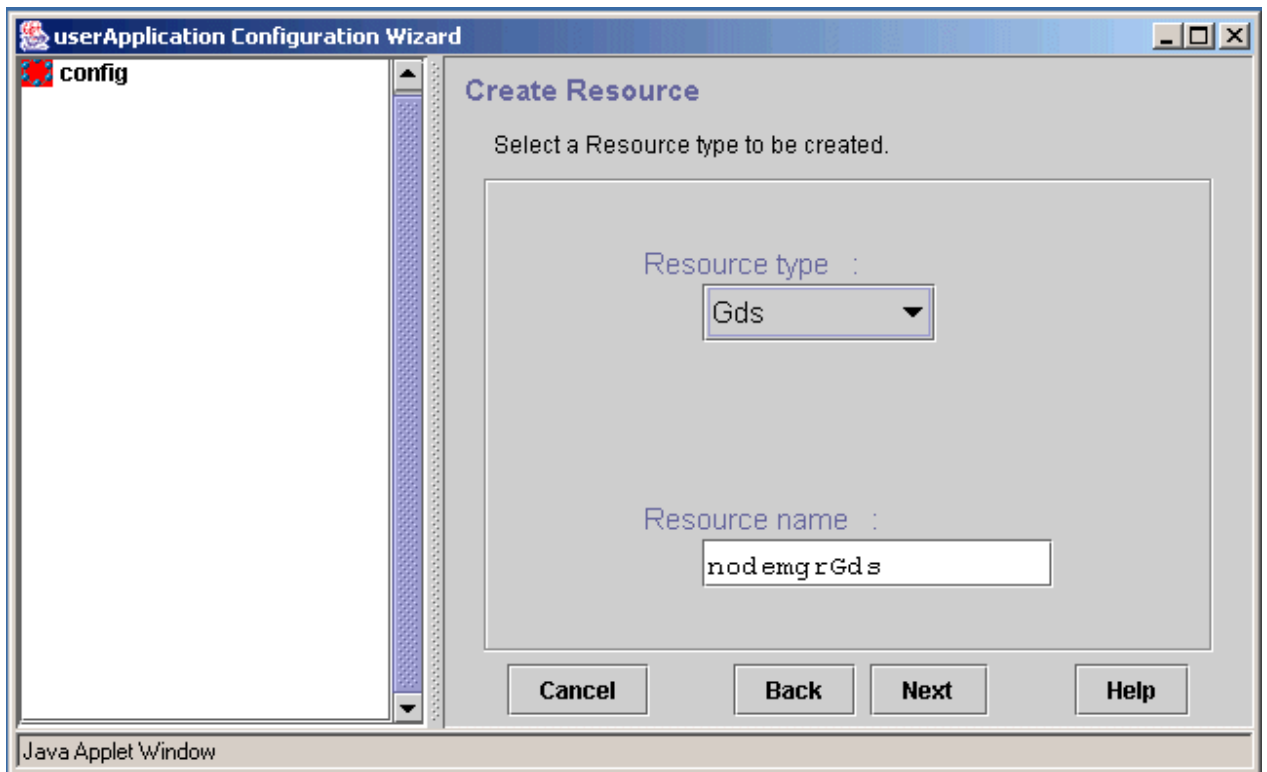
A.1.1 Creating a Gds resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

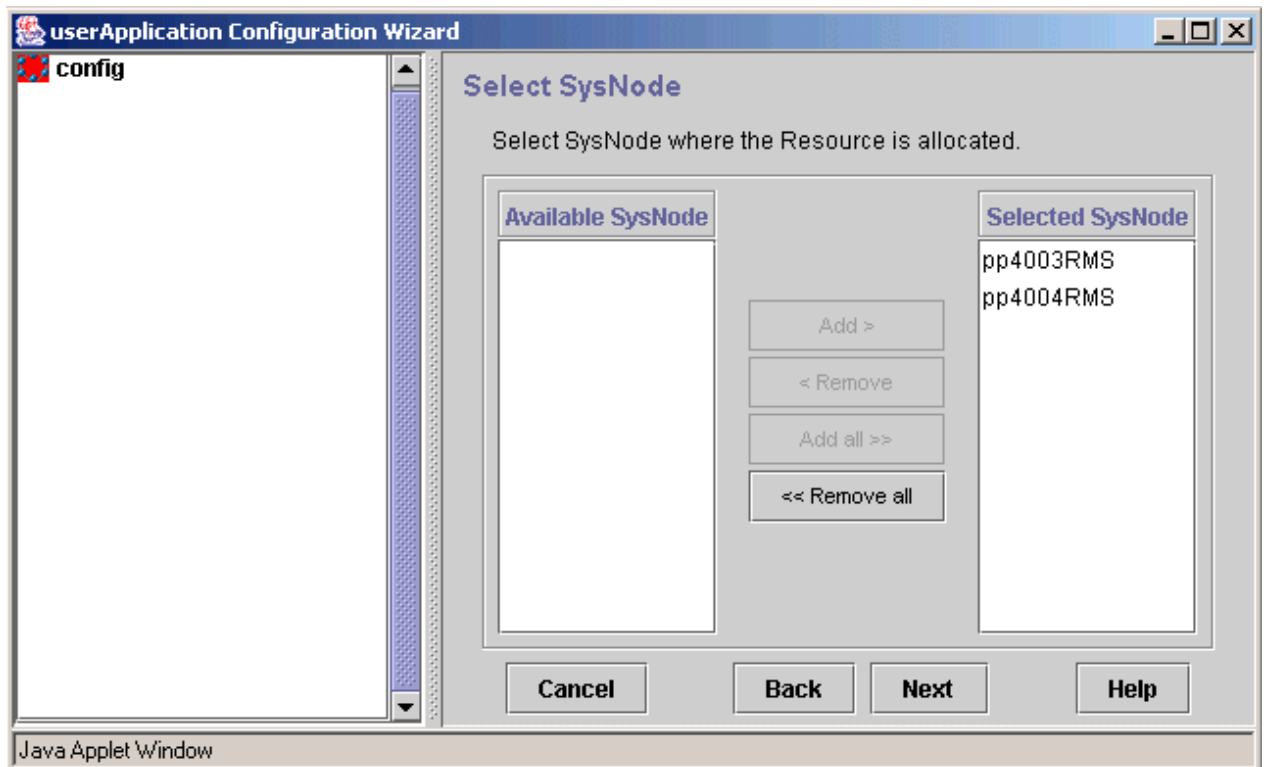


2. Select "Gds" for the resource type.

"nodemgrGds" is specified as the resource name in the following example.



3. Select SysNode to set the resource in it.

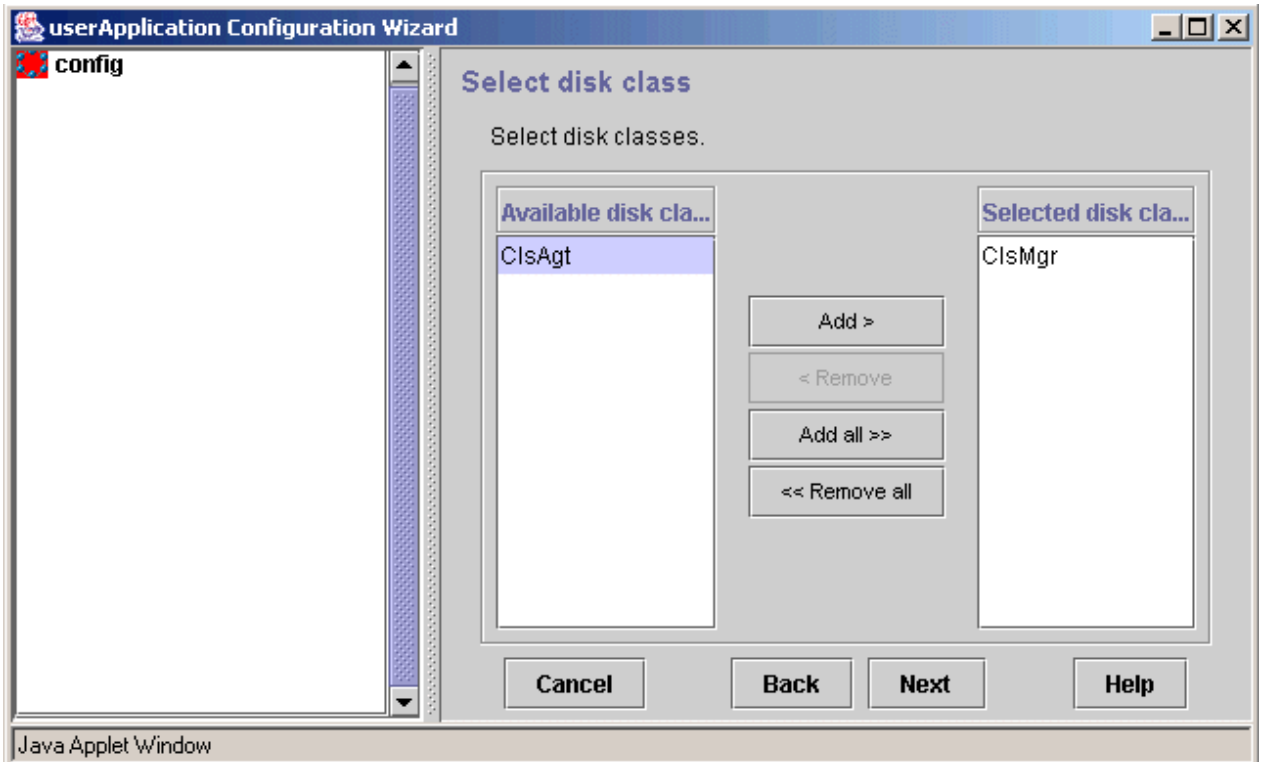


4. Select a disk class.

Register the class of the GDS to which the shared disk for AdvancedCopy Manager shared data belongs.

For a Management Server transaction, also register the class of the GDS to which the shared disk for AdvancedCopy Manager repository belongs.

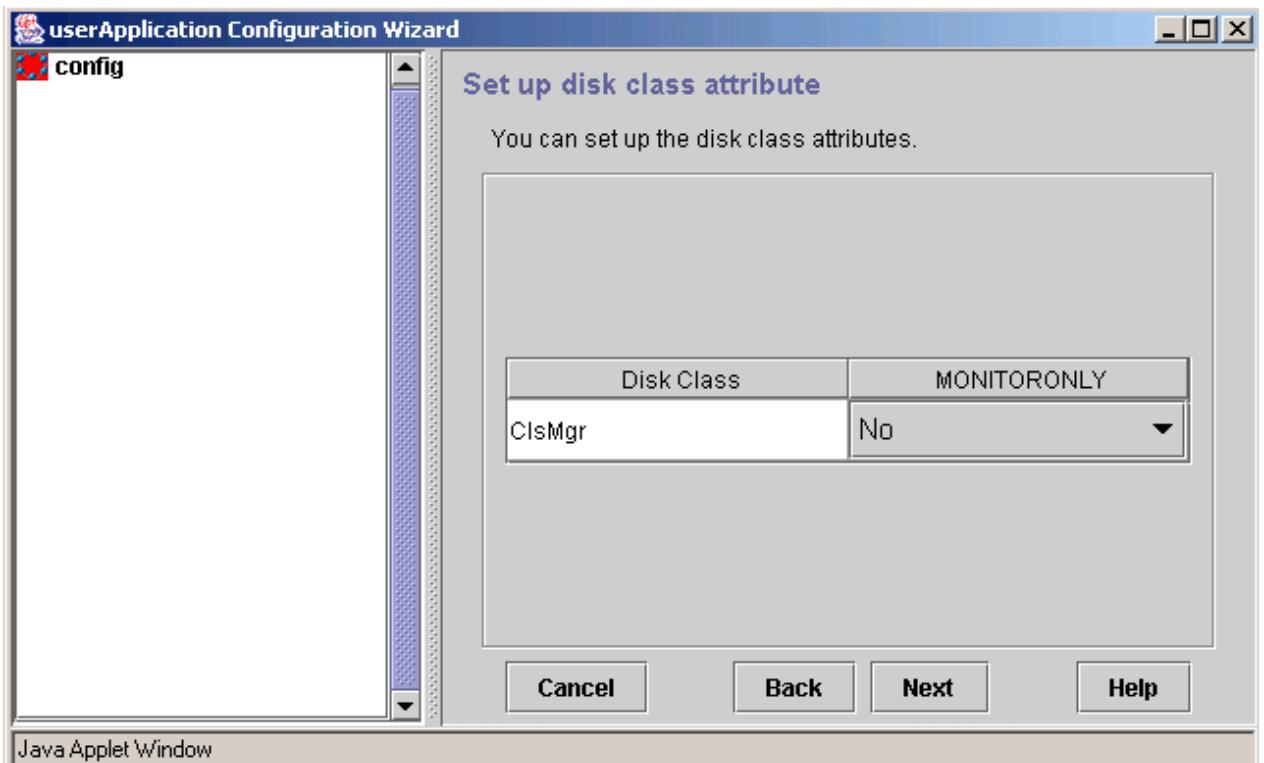
Disk class "ClsMgr" is specified in the following example.



5. Specify the attributes of the disk class.

For details on disk class attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".

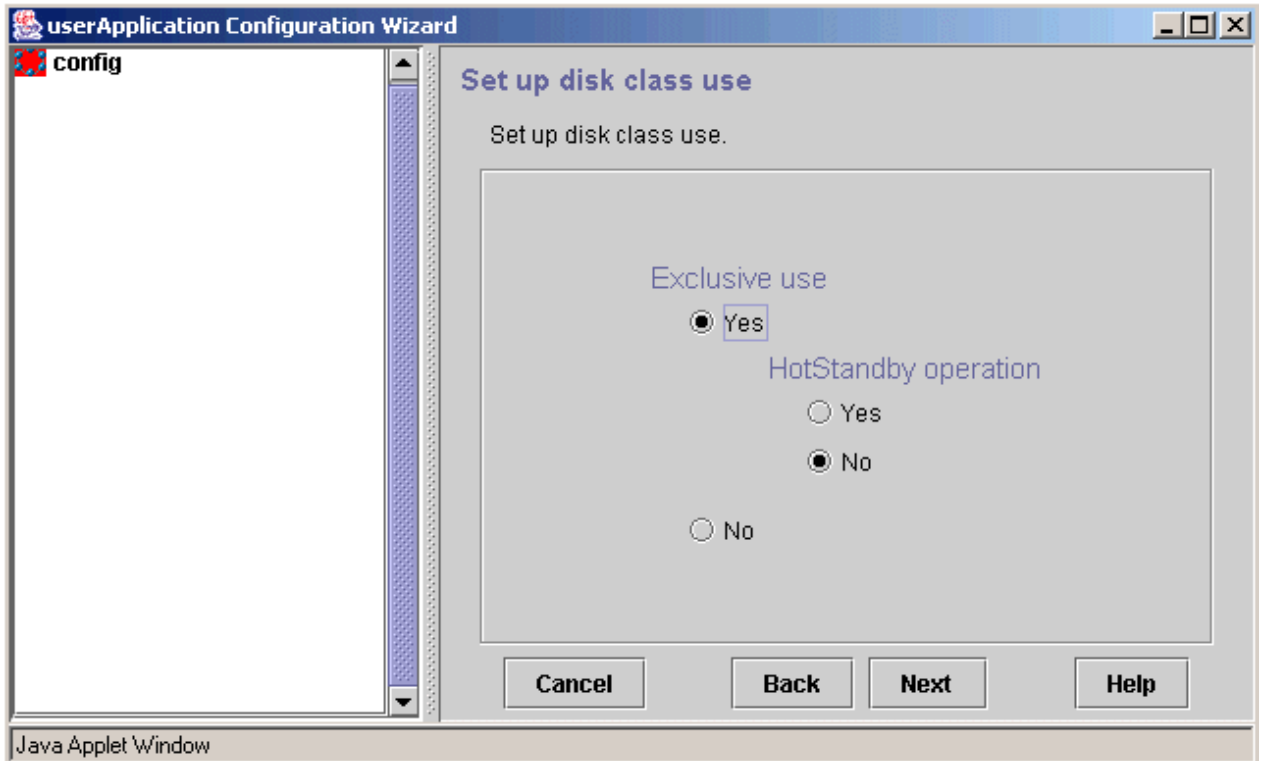
"No" is specified for the MONITORONLY attribute in the following example.



6. Specify the use of the disk class.

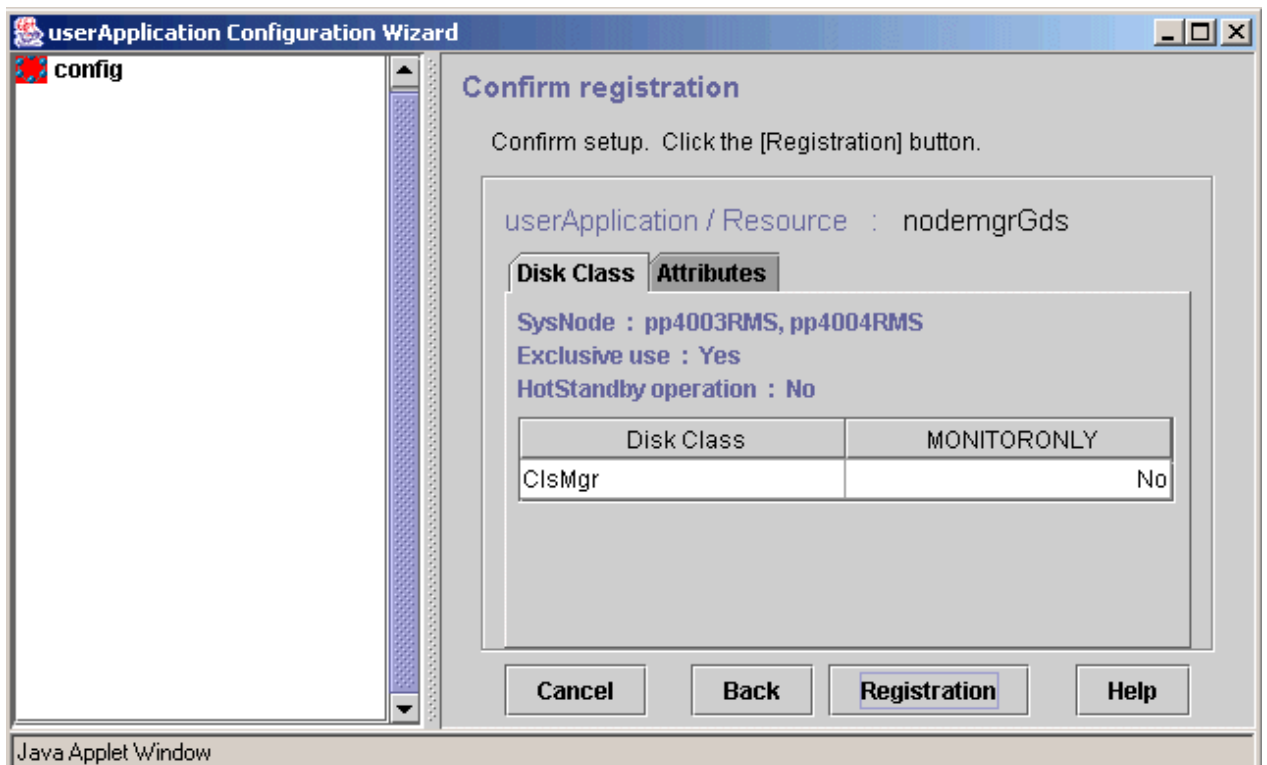
Register the shared disk for AdvancedCopy Manager shared data and the shared disk for AdvancedCopy Manager repository as switching disks (exclusive use = "Yes", HotStandby operation = "No").

For the uses of the disk class, refer to the "PRIMECLUSTER Installation and Administration Guide".



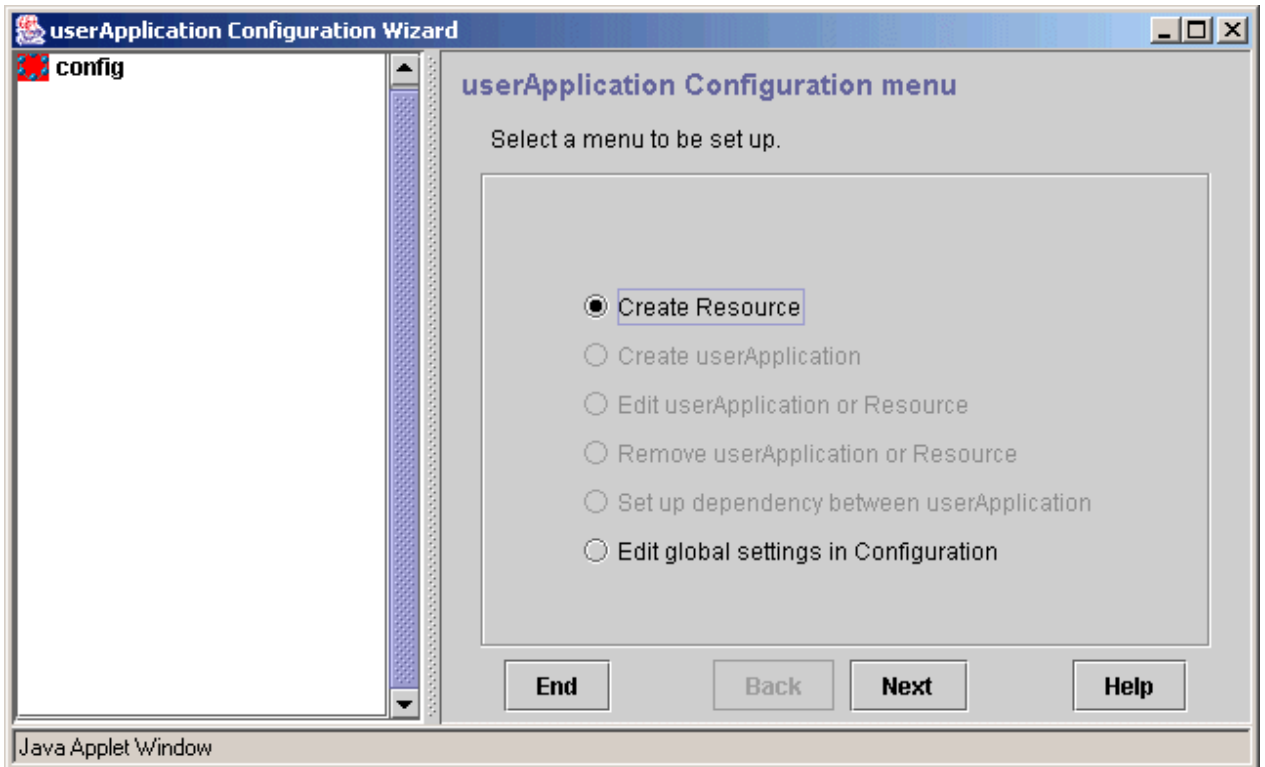
7. Confirm the information registered for the Gds resource.

For details on the resource attributes, refer to the "PRIMECLUSTER Installation and Administration Guide."



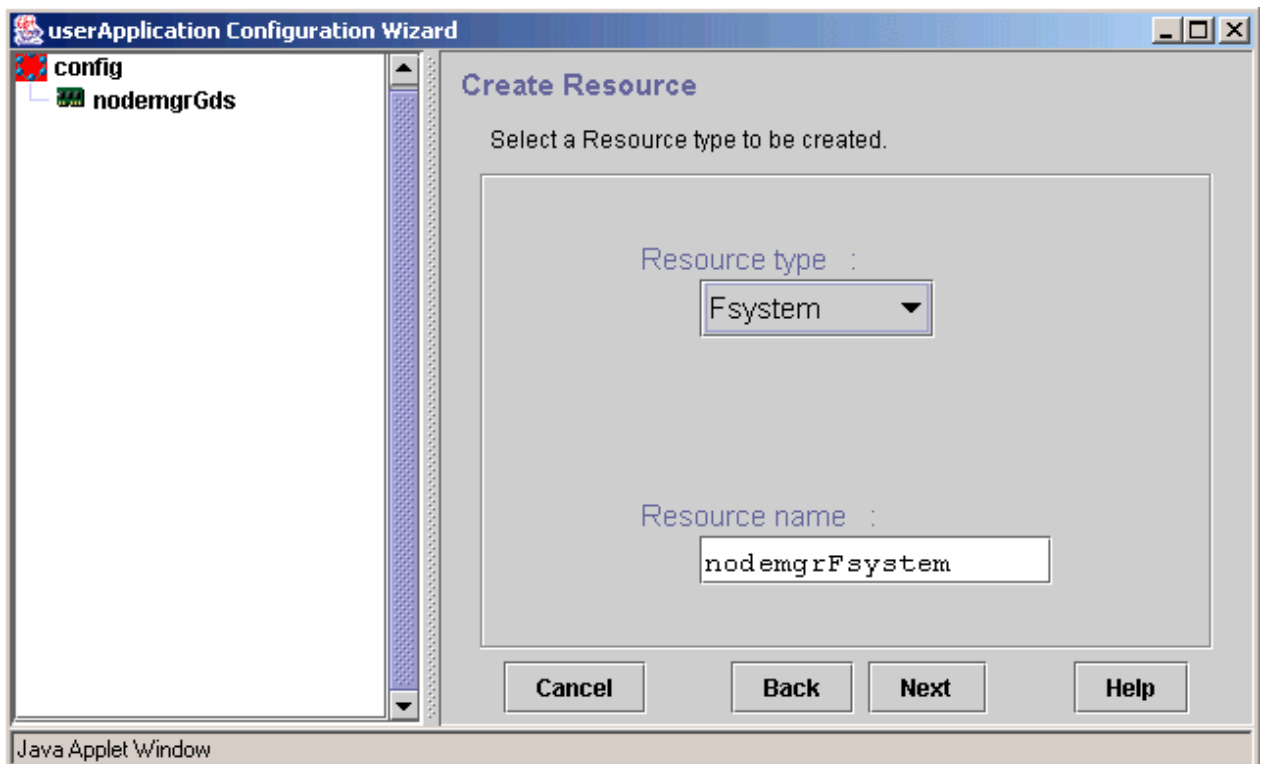
A.1.2 Creating an Fsystem resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

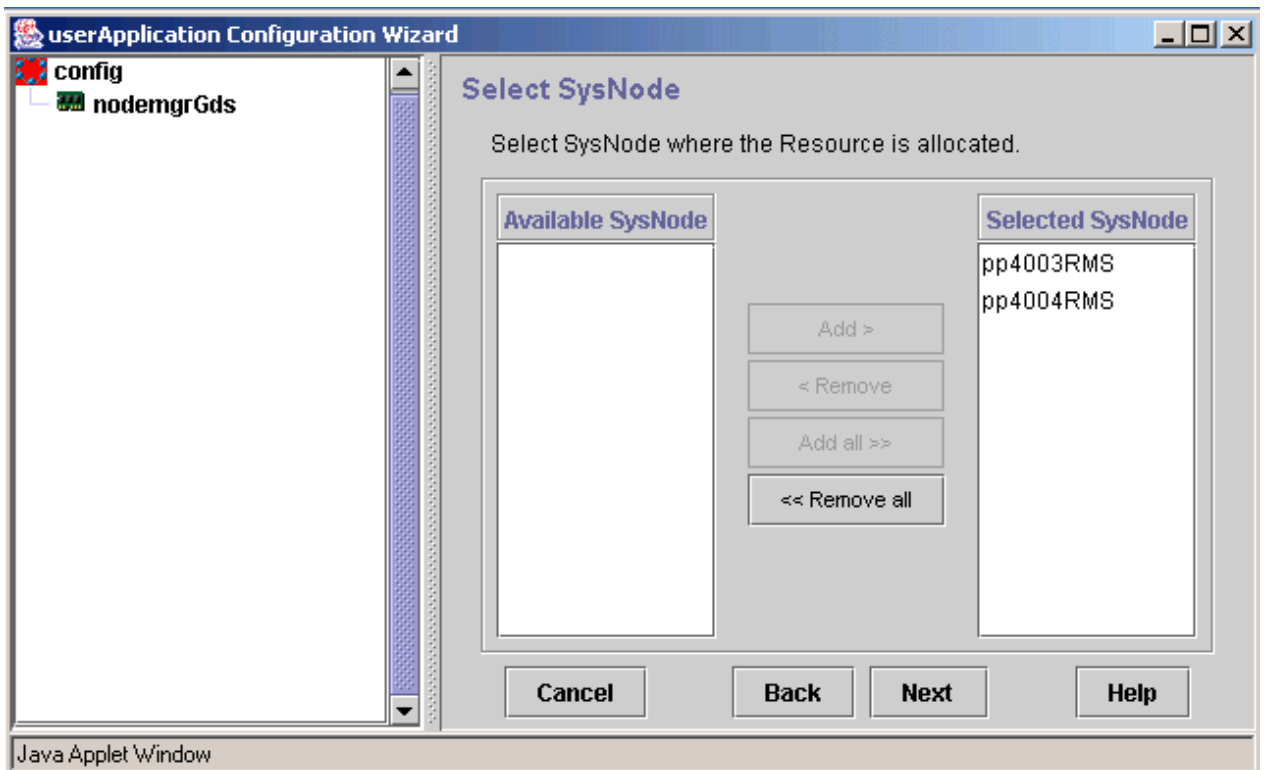


2. Select "Fsystem" for the resource type.

"nodemgrFsystem" is specified for the resource name in the following example.



3. Select SysNode to set the resource in it.

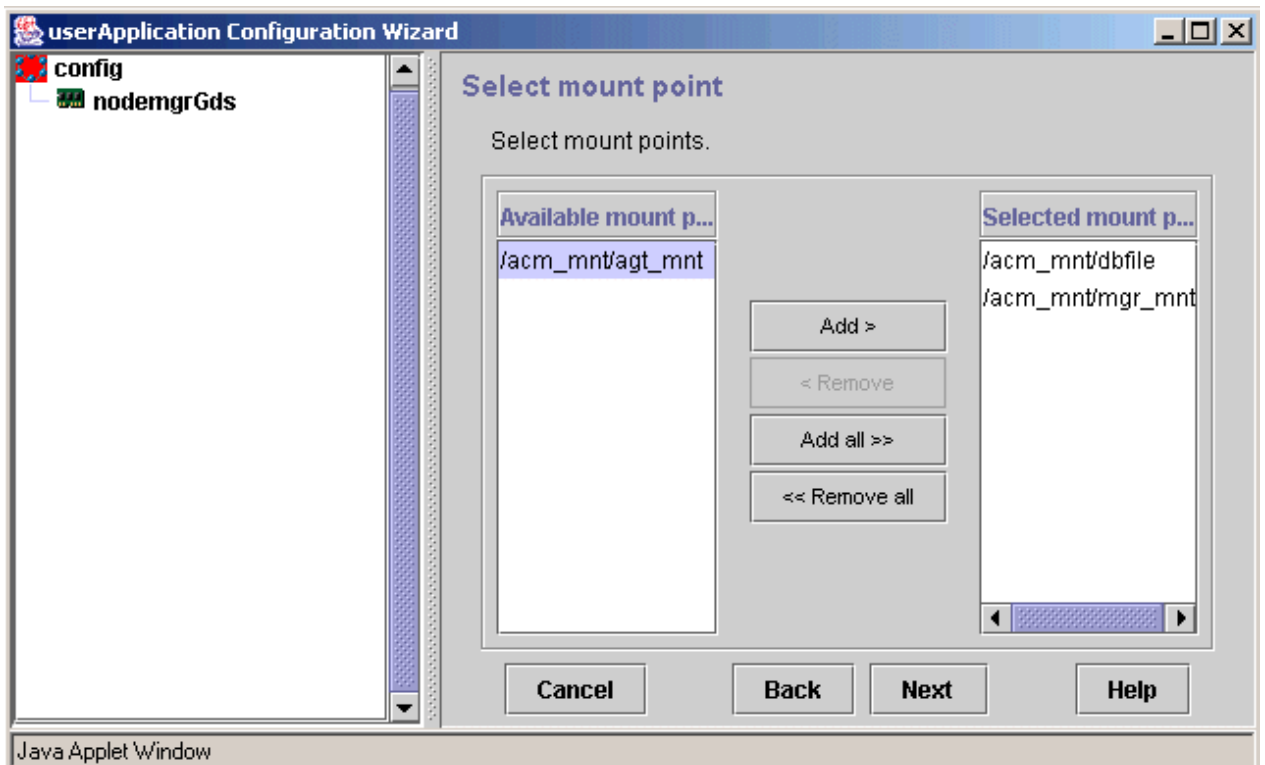


4. Select a mount point.

Register the mount point of the shared disk for AdvancedCopy Manager shared data.

For a Management Server transaction, also register the mount point of the shared disk for AdvancedCopy Manager repository.

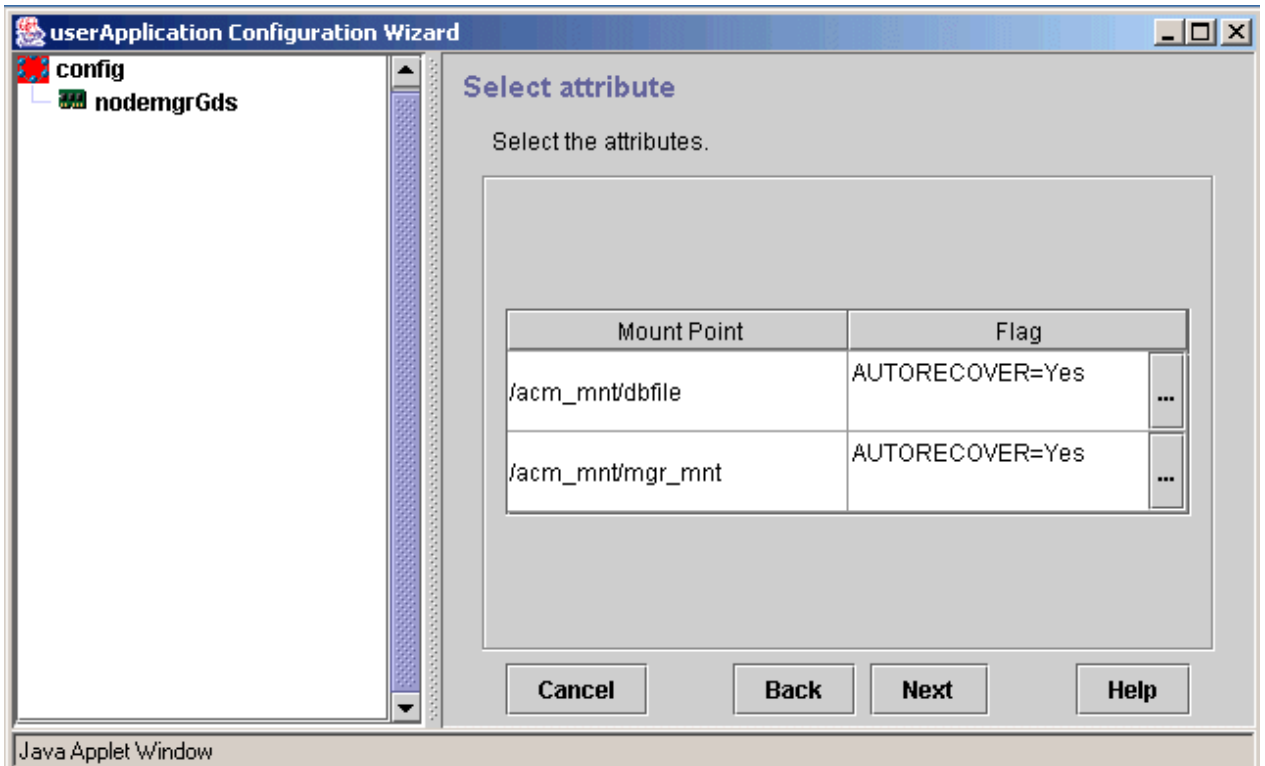
The mount point "/acm_mnt/dbfile" and "/acm_mnt/mgr_mnt" is specified in the following example.



- Specify the attributes of the mount point.

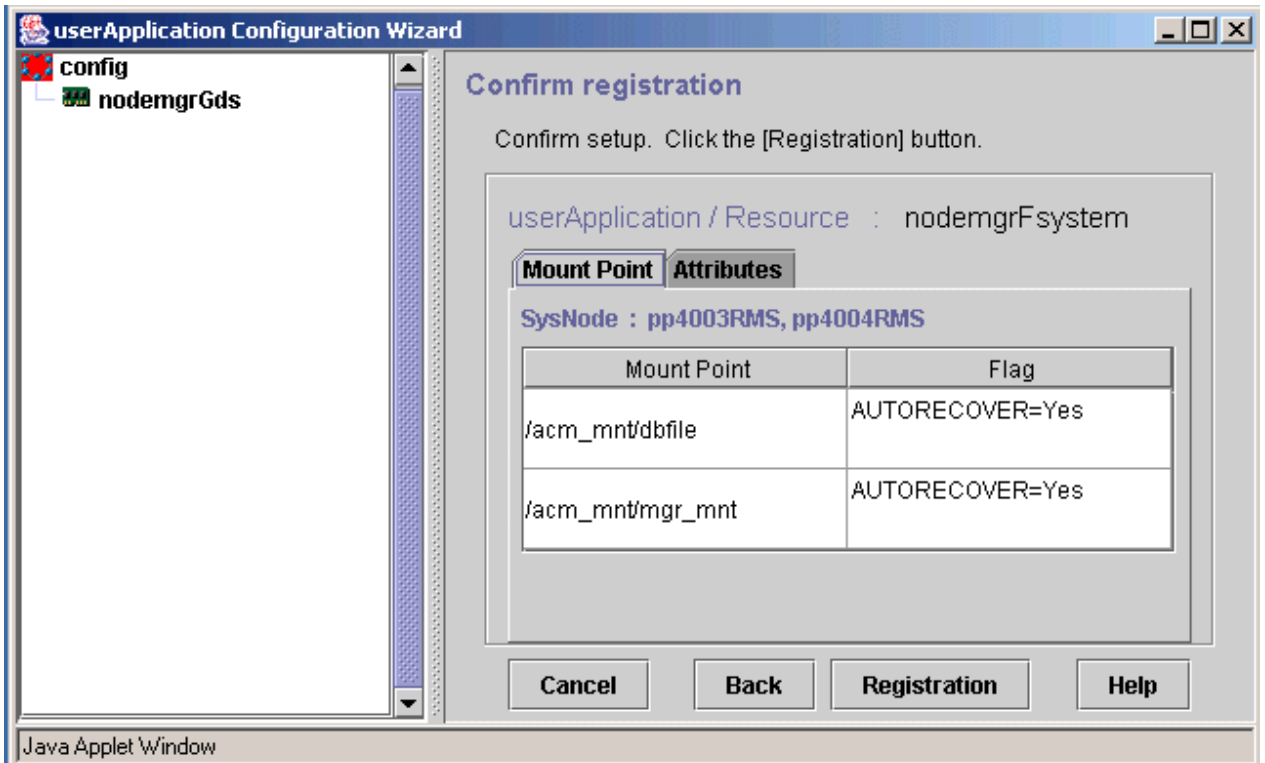
For details on mount point attributes, refer to the "PRIMECLUSTER Installation and Administration Guide."

"Yes" is specified for the AUTORECOVER attribute in the following example.



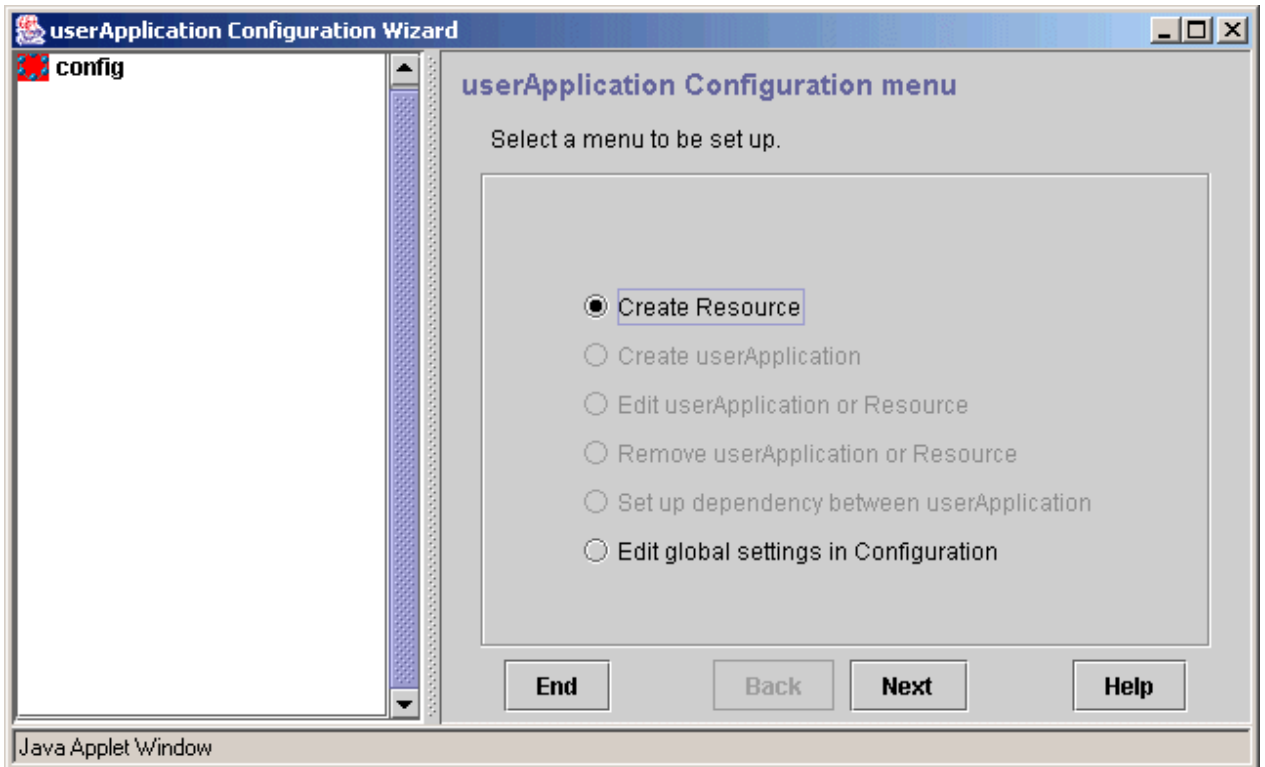
- Confirm the information registered for Fsystem.

For details on the resource attributes, refer to the "PRIMECLUSTER Installation and Administration Guide."

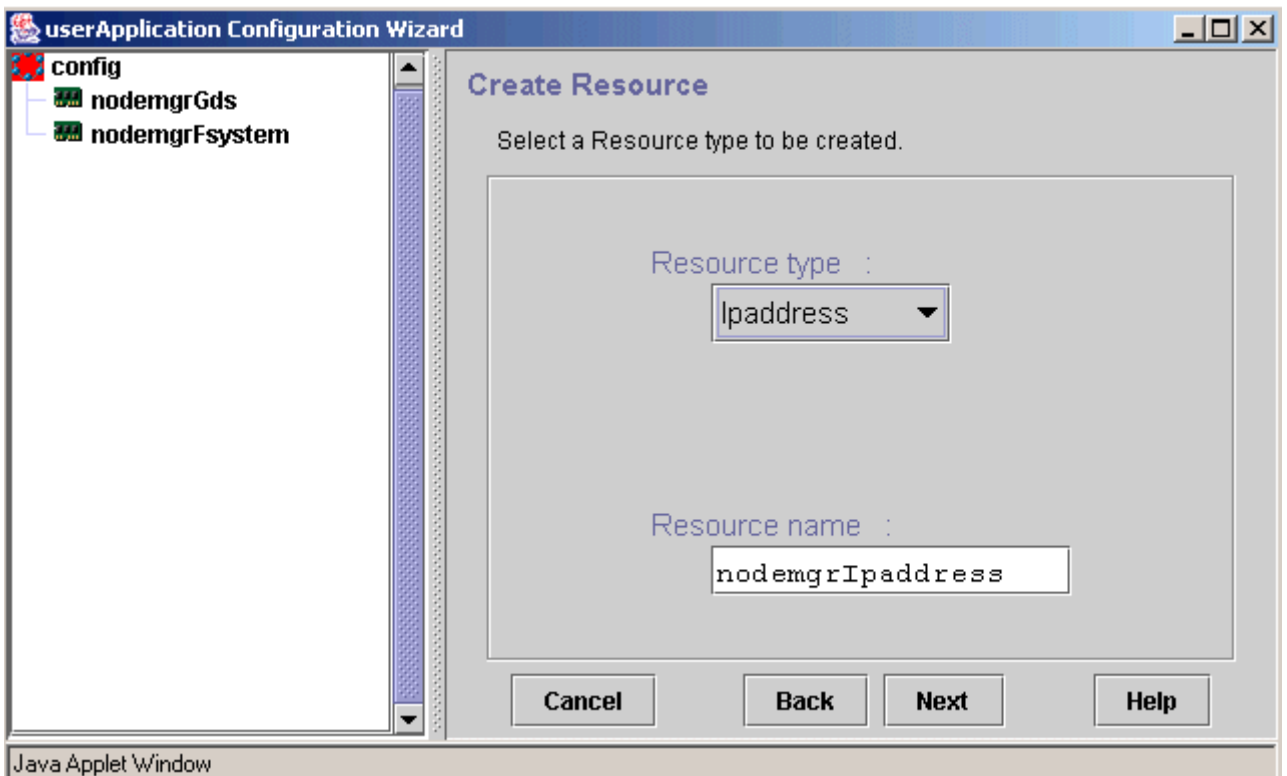


A.1.3 Creating an Ipaddress resource

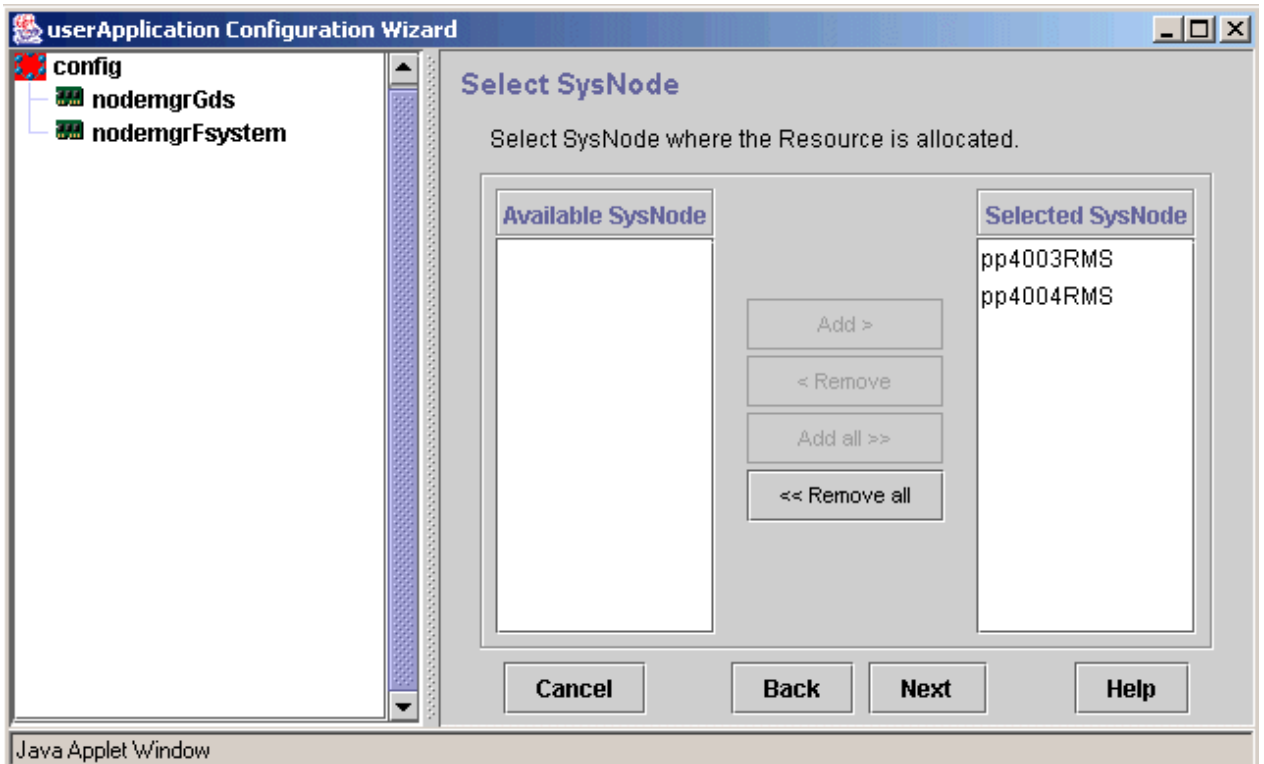
1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".



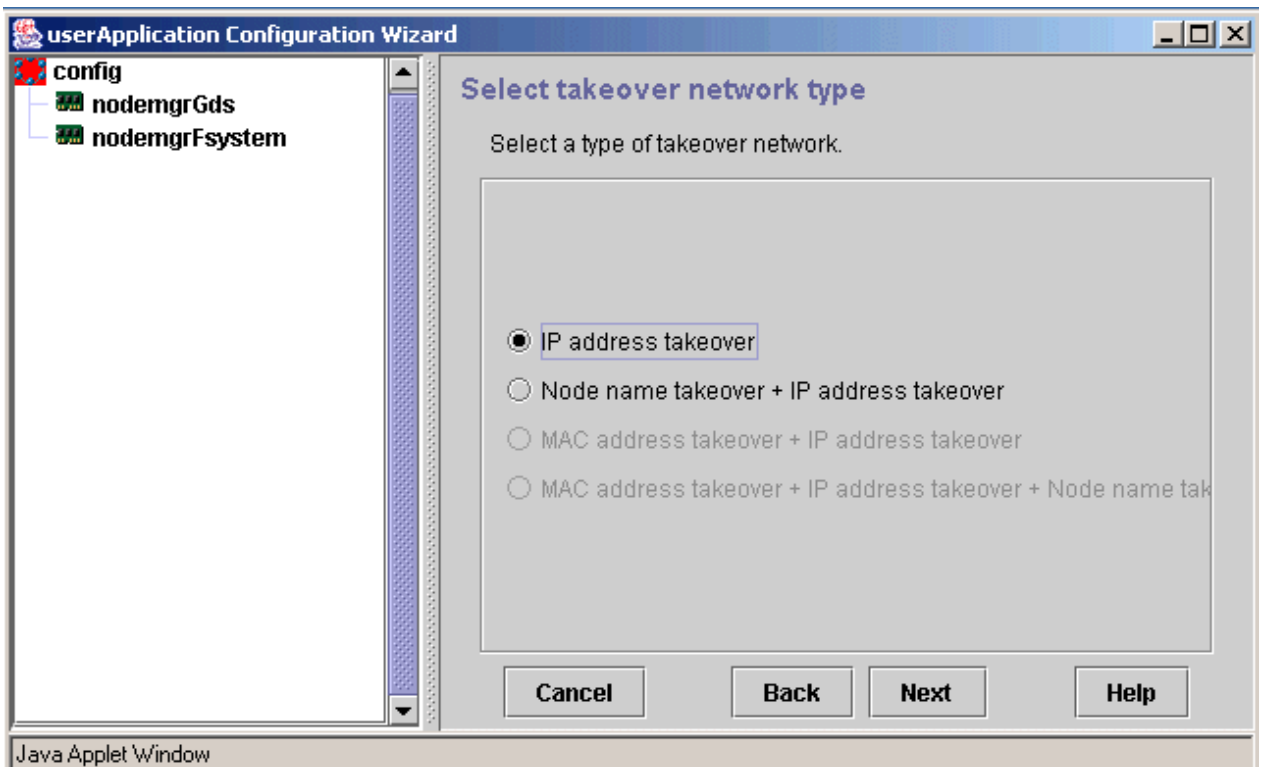
2. Select "Ipaddress" for the resource type.
"nodemgrIpaddress" is specified for the resource name in the following example.



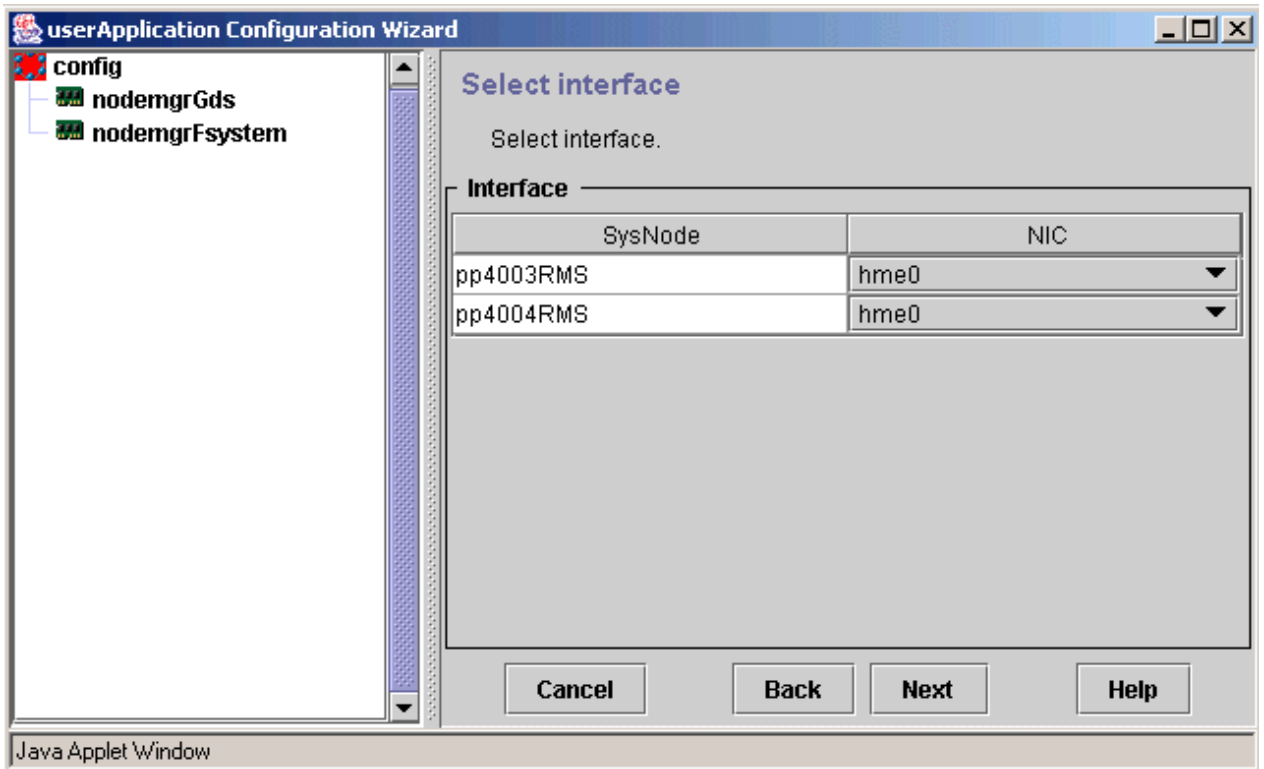
3. Select SysNode to set the resource in it.



4. Select the type of takeover network.

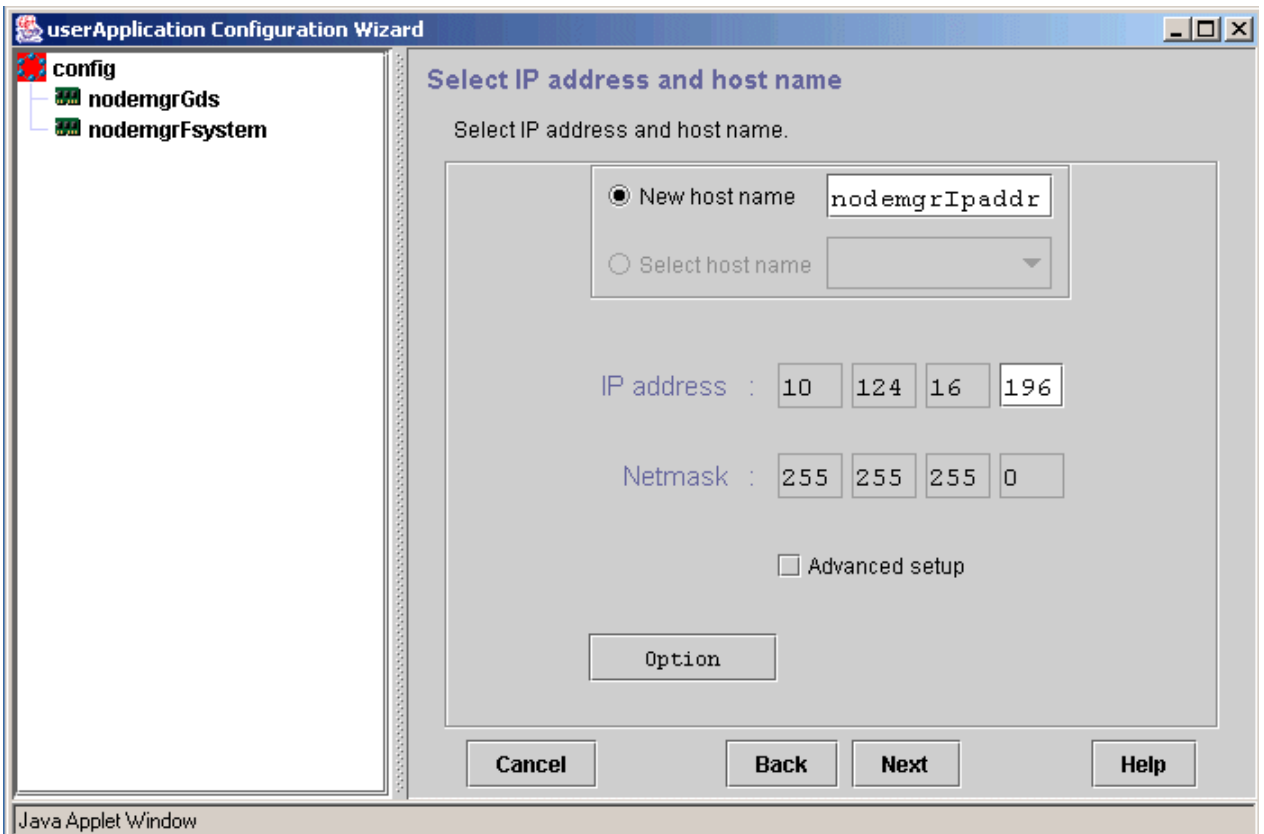


5. Select an interface.



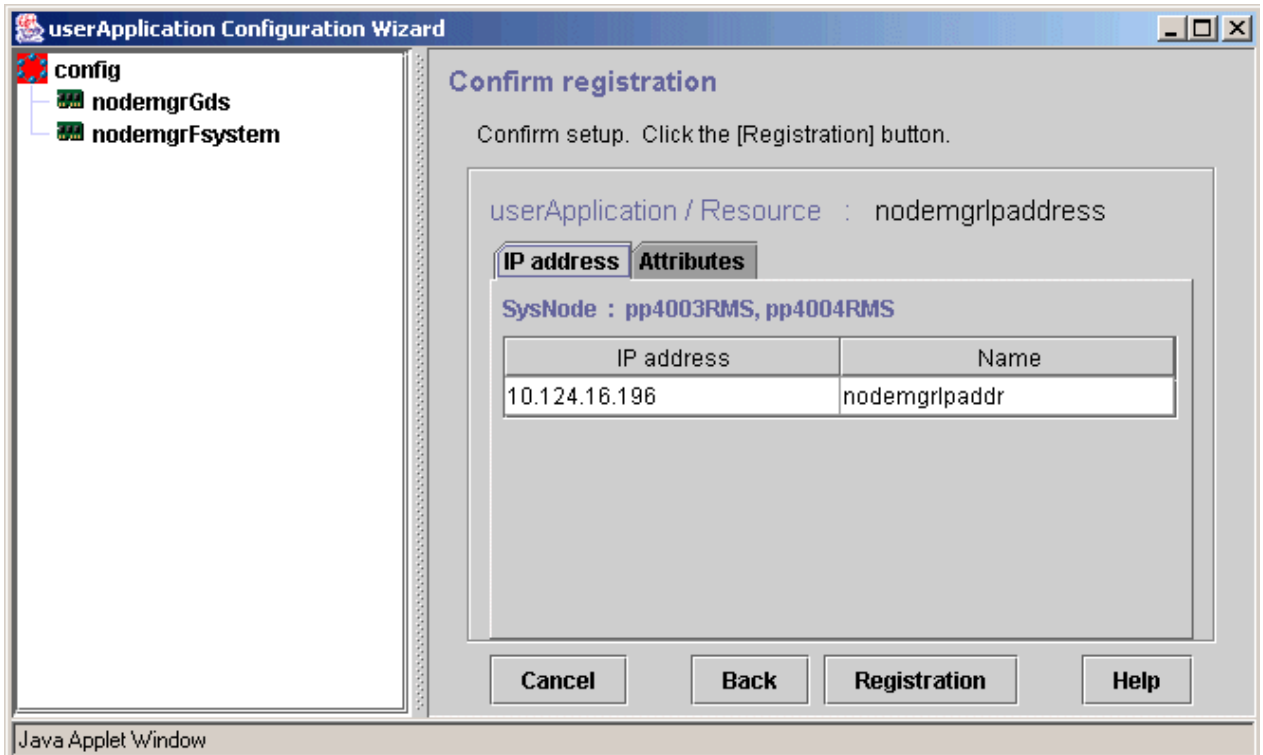
6. Select a takeover IP address and host name, or specify a new address and name.

For information on how to select a takeover IP address and host name and how to specify a new address and name, refer to the "PRIMECLUSTER Installation and Administration Guide".



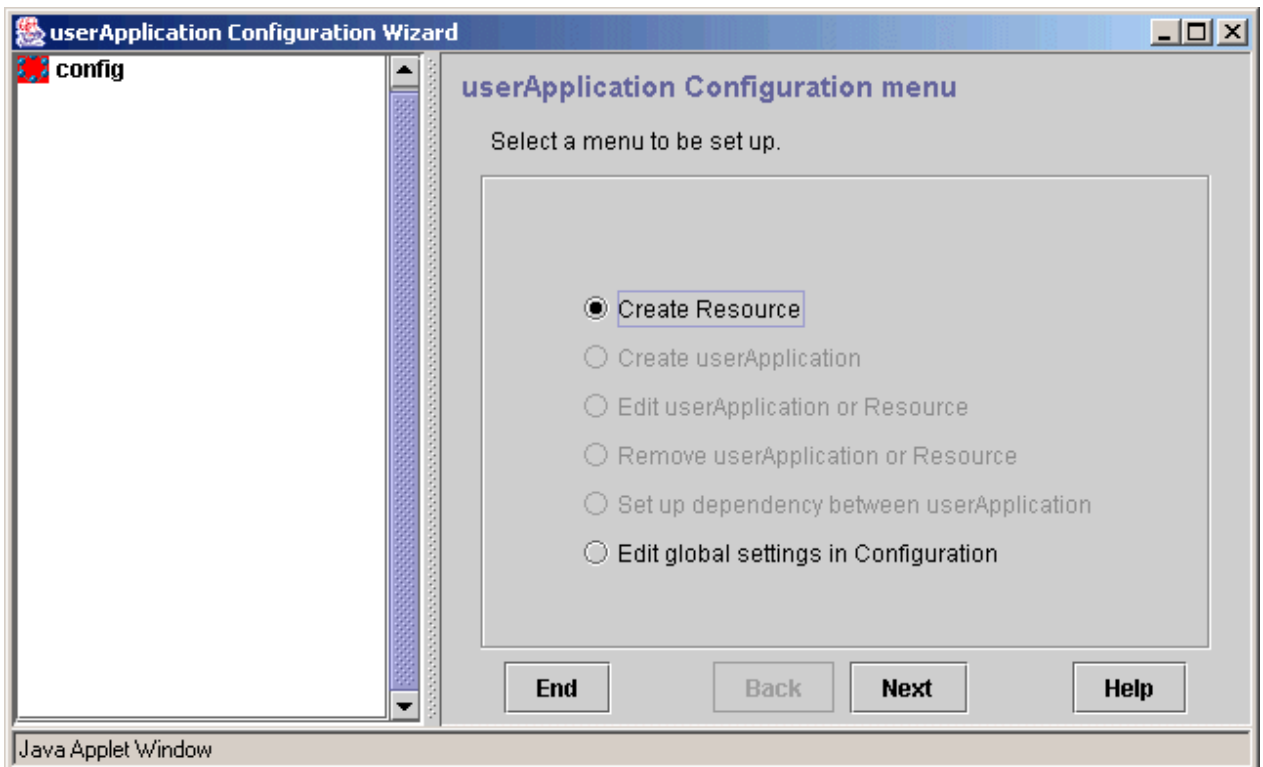
7. Confirm the information registered for the takeover network.

For details on the resource attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".



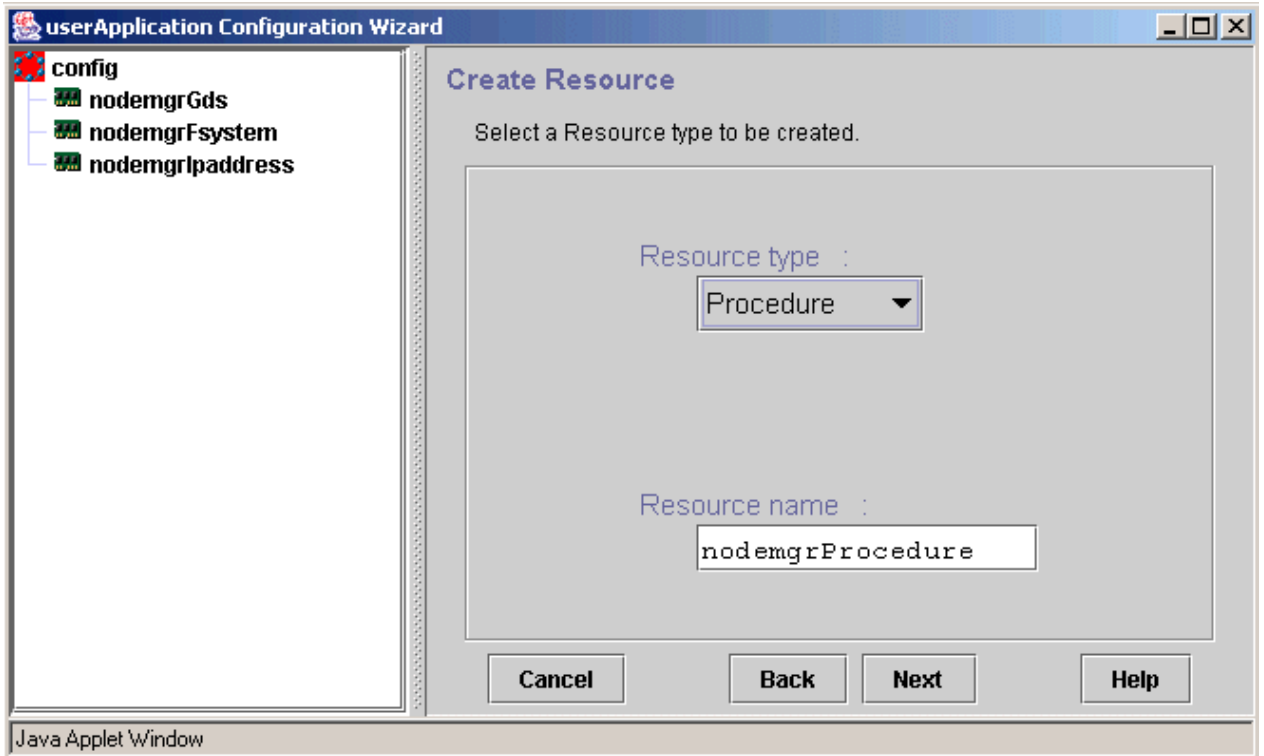
A.1.4 Creating procedure resources

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

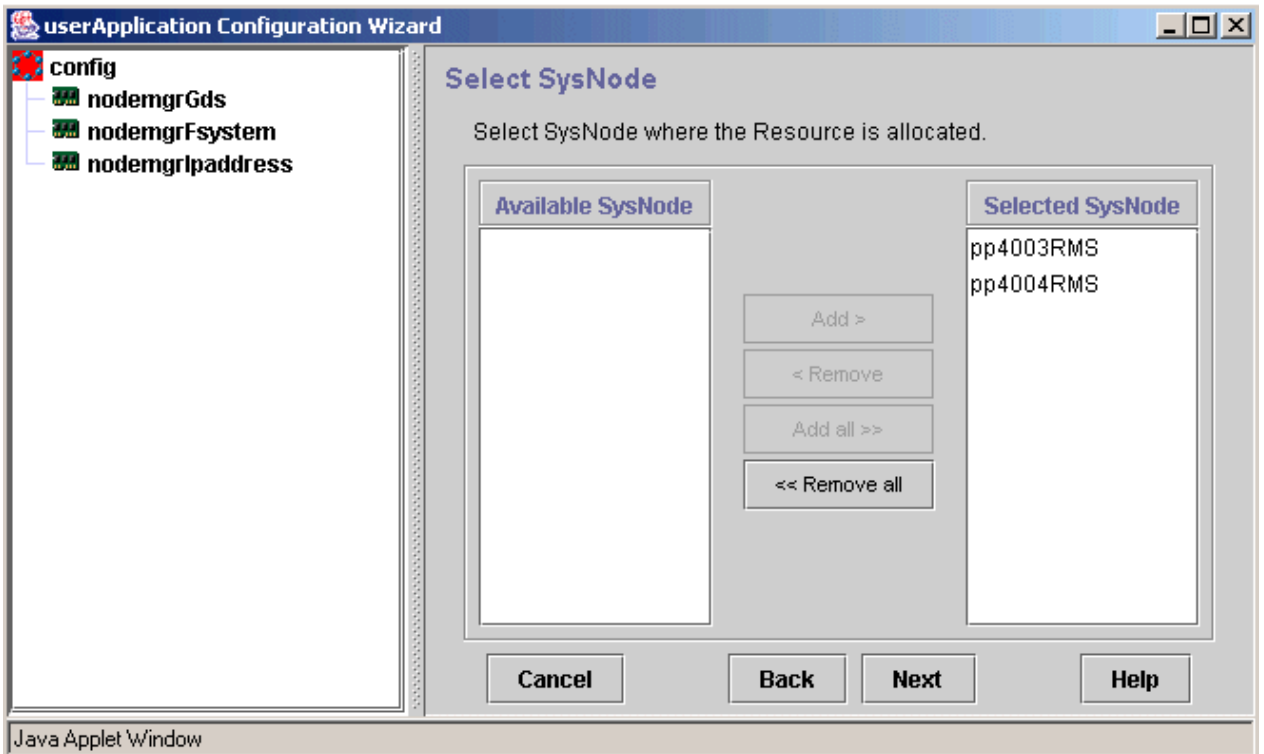


2. Select "Procedure" for the resource type.

"nodemgrProcedure" is specified for the resource name in the following example.

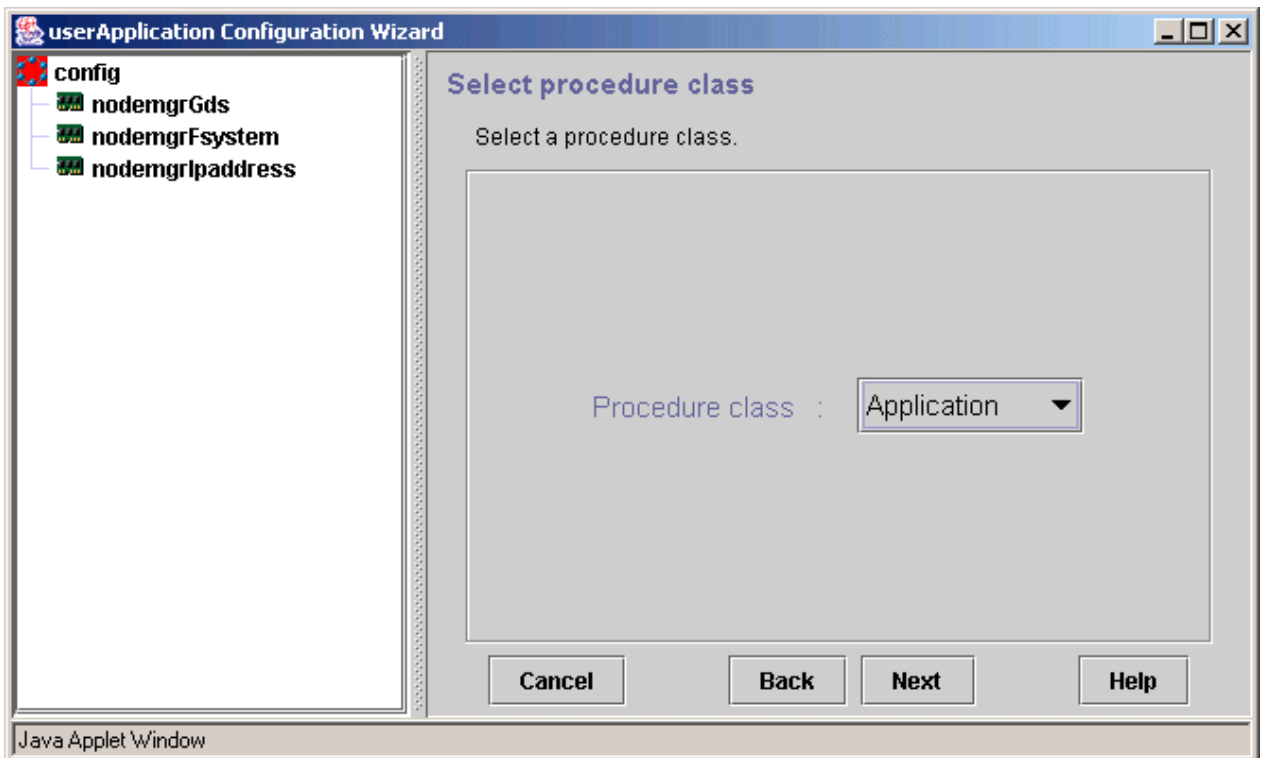


3. Select SysNode to set the resource in it.



4. Select the class of the procedure to be created.

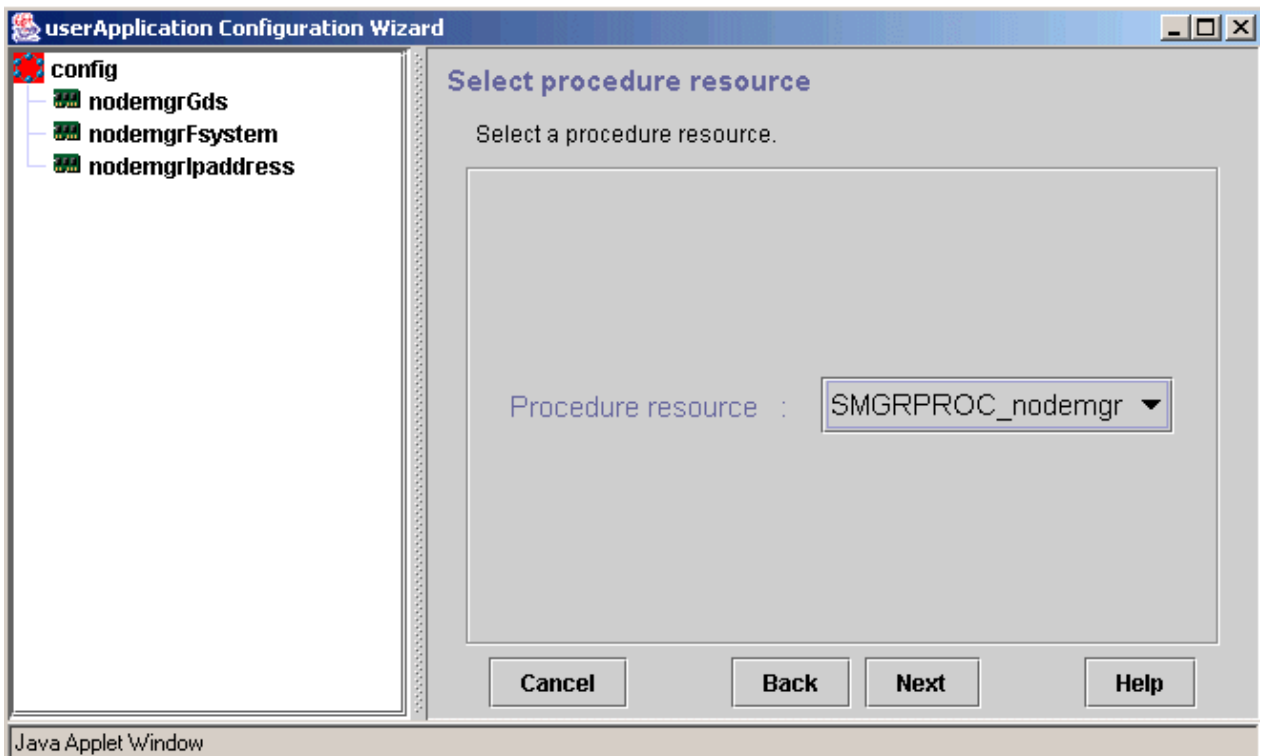
Register an AdvancedCopy Manager procedure resource in the Application class (procedure class = Application).



5. Select the procedure resource to be created.

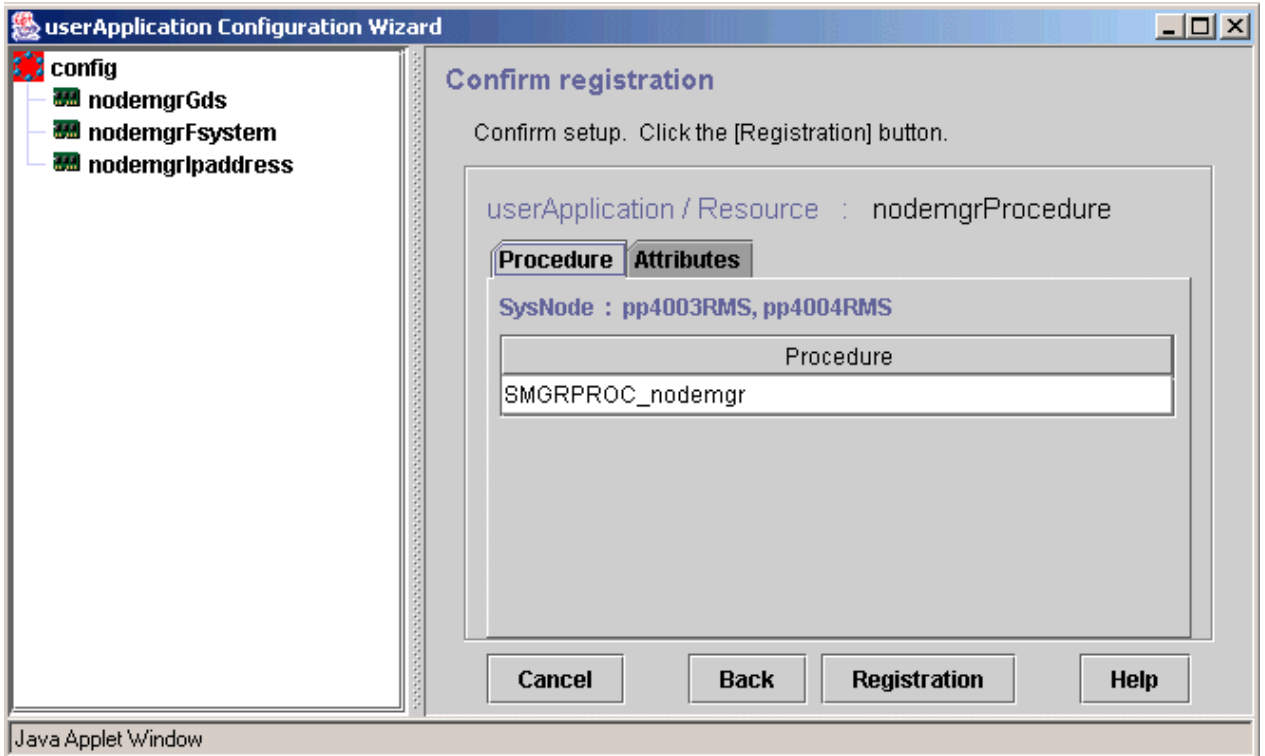
An AdvancedCopy Manager procedure resource name is *SMGRPROC_logical-node-name*.

A procedure resource with the logical node name "nodemgr" (SMGRPROC_nodemgr) is specified in the following example.



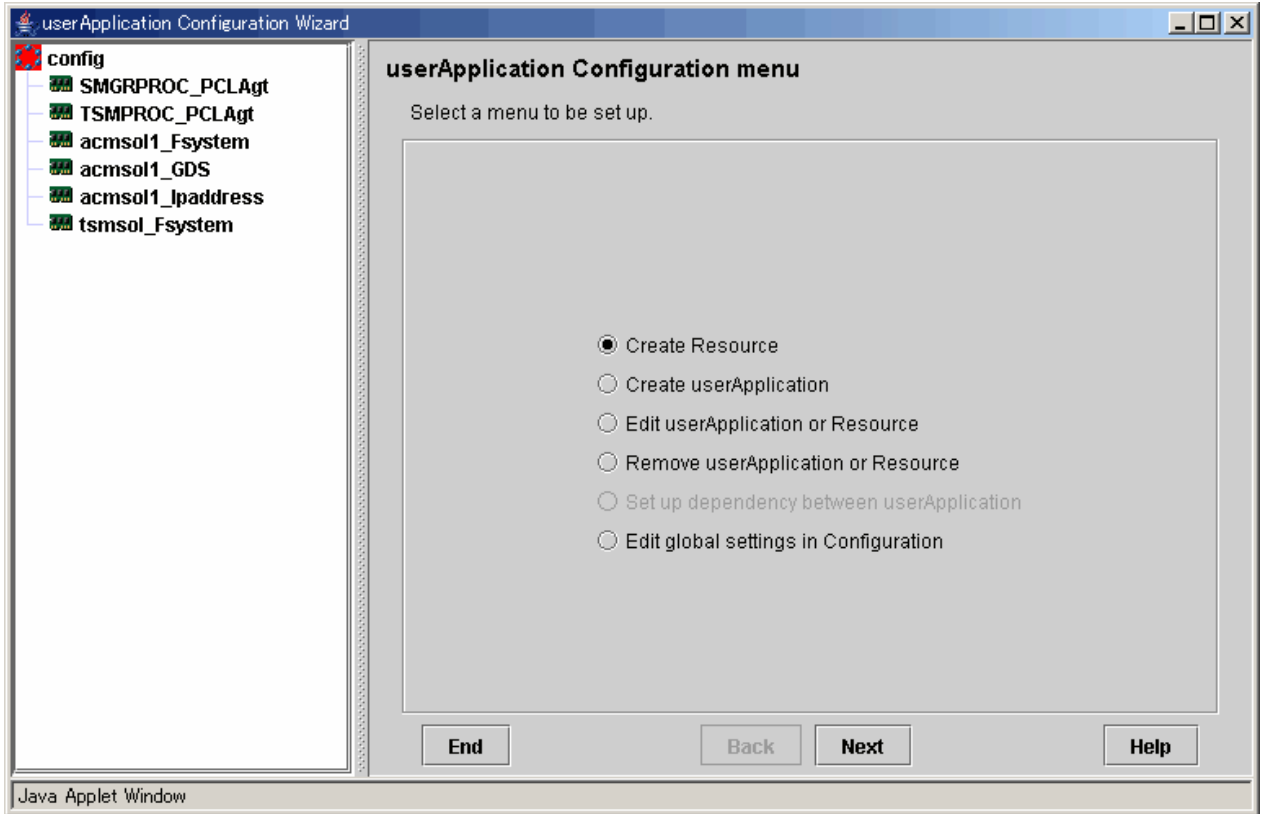
6. Confirm the information registered for the procedure resource.

For details on the resource attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".



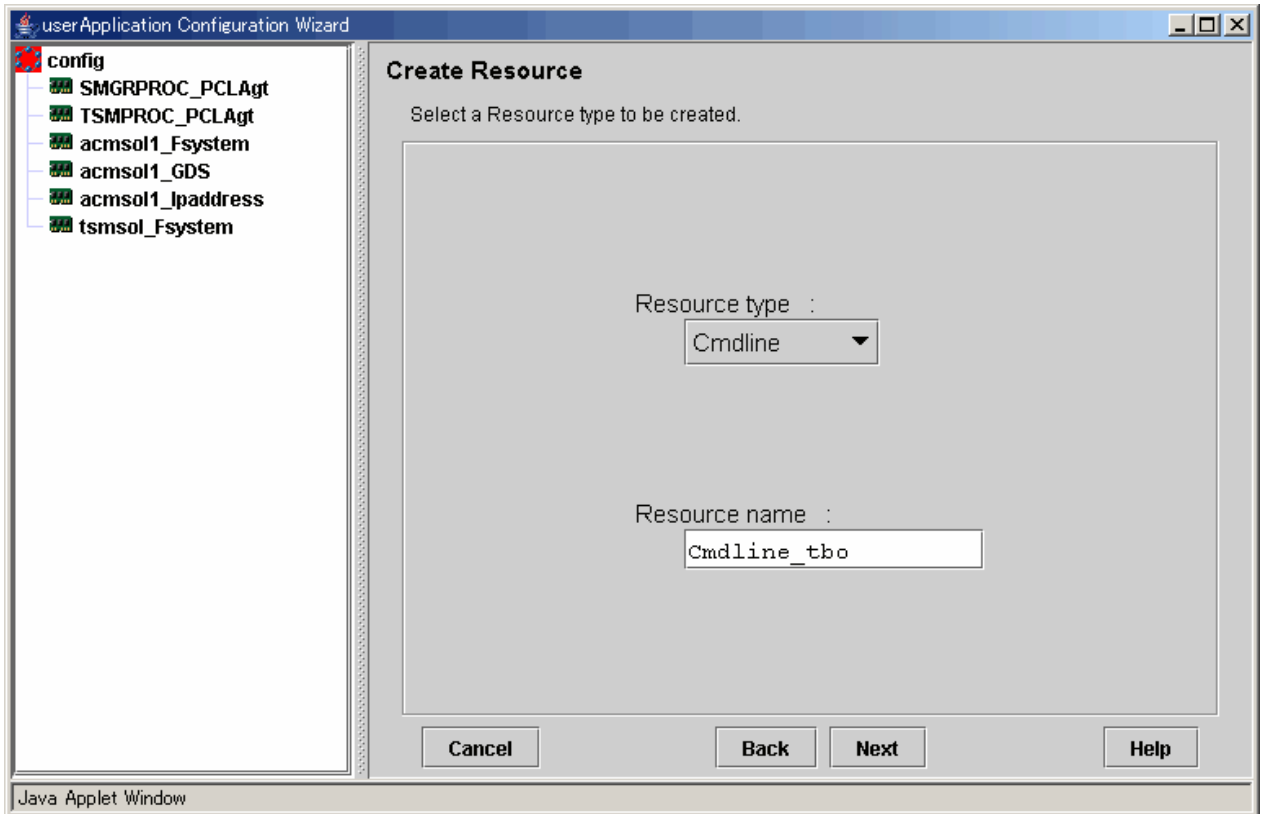
A.1.5 Creating a Cmdline resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

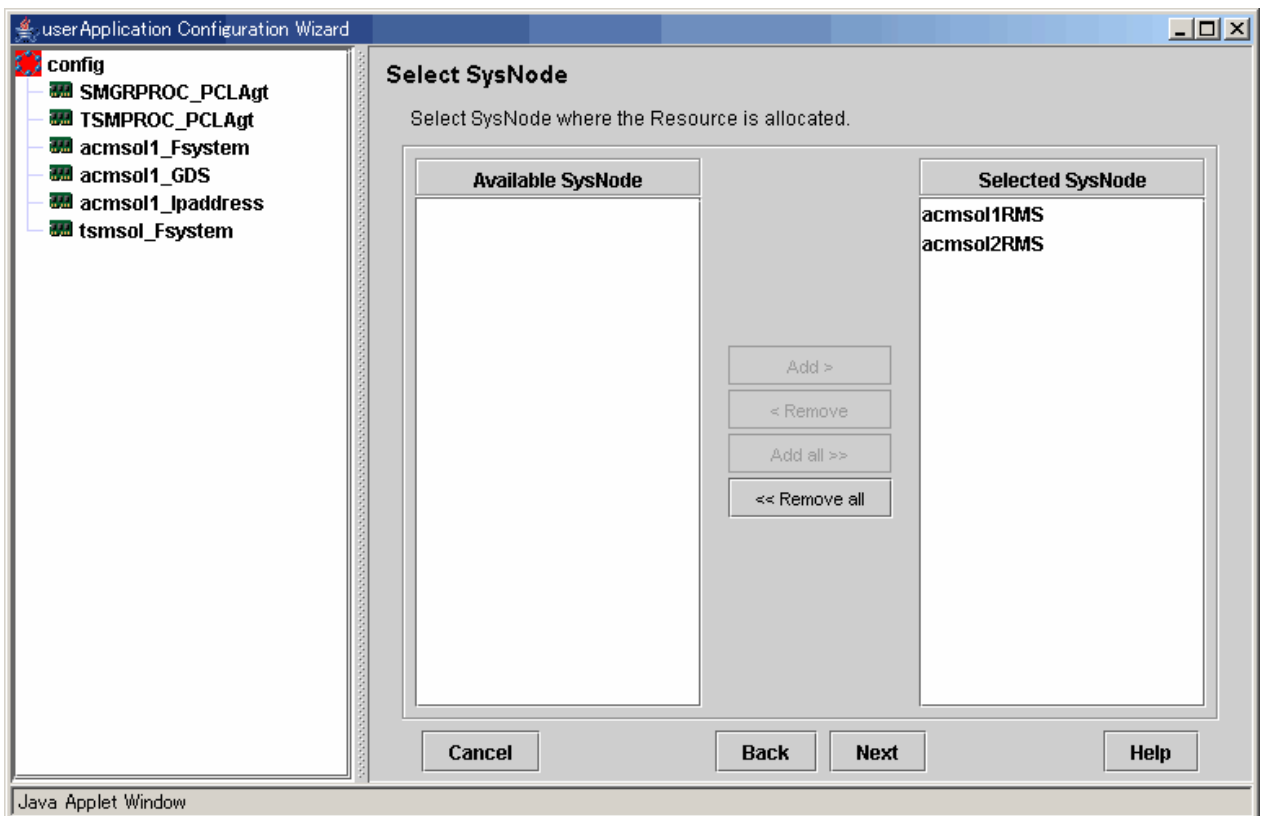


2. Select "Cmdline" for the resource type

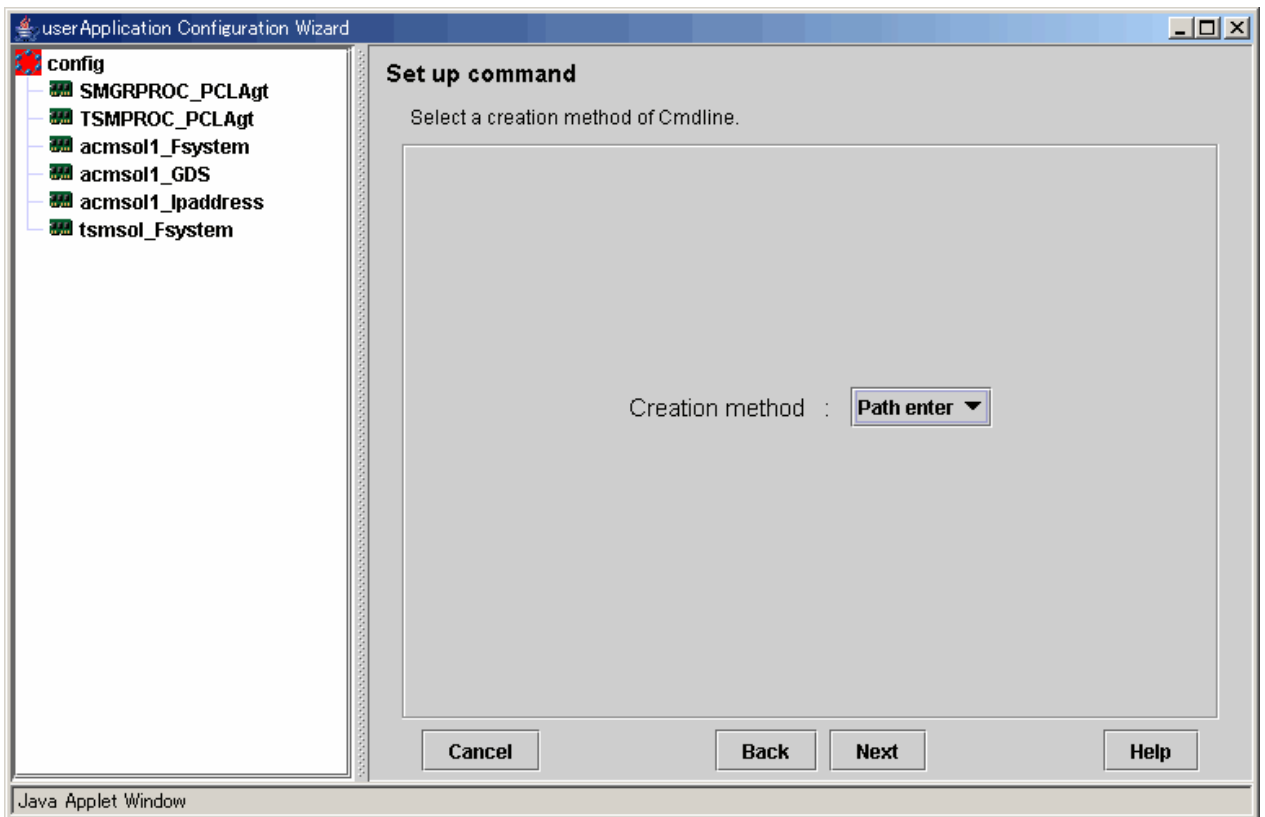
"Cmdline_tbo" is specified as the resource name in the following example



3. Select SysNode to set the resource in it

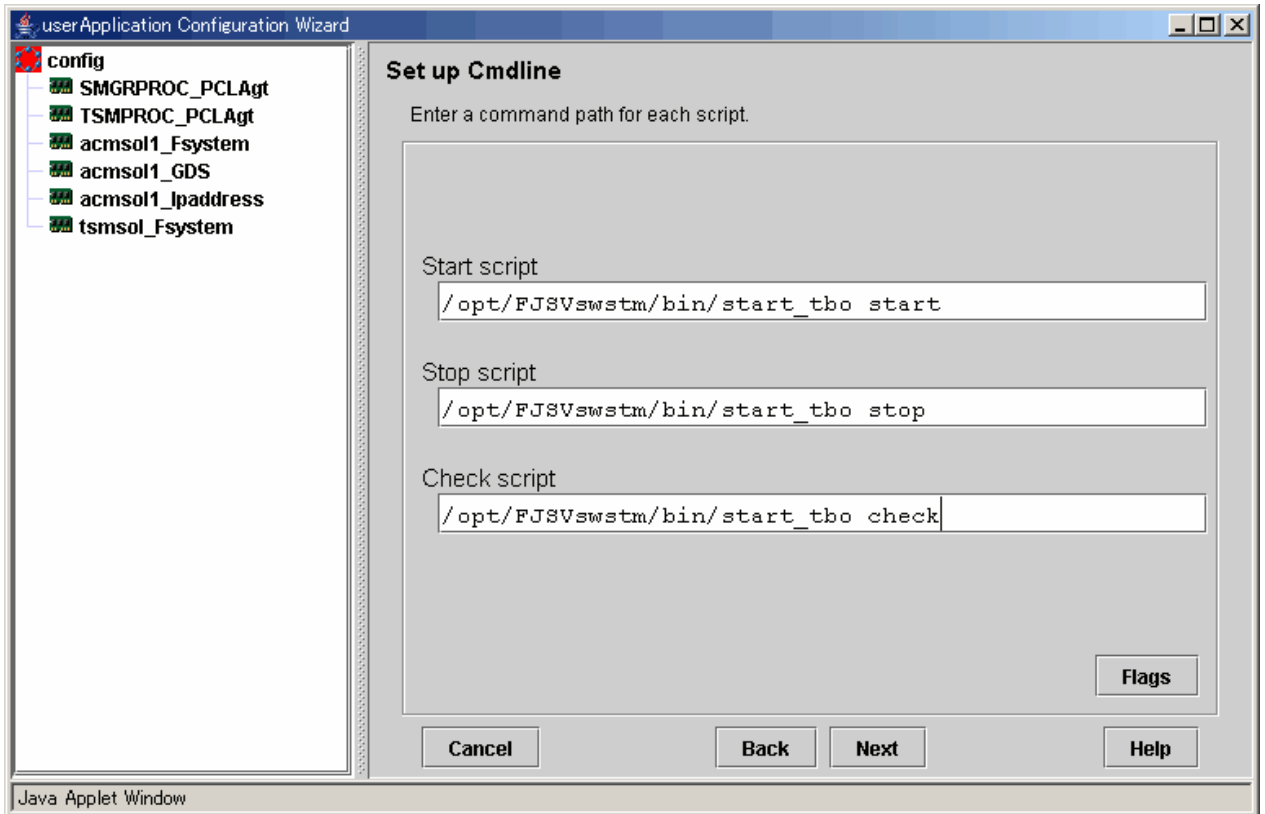


4. Select the method for creating the Cmdline
Select "Path input" for the creation method



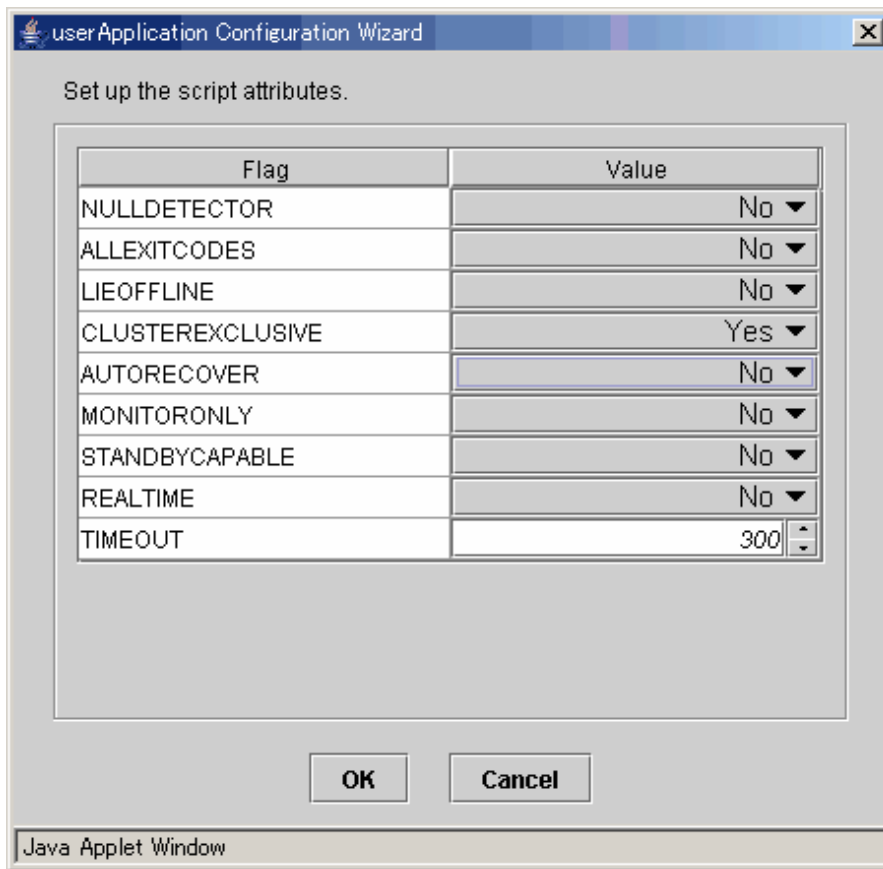
5. Enter the command paths that are used by each script

Enter the command paths that are used by the "Start", "Stop", and "Check" scripts



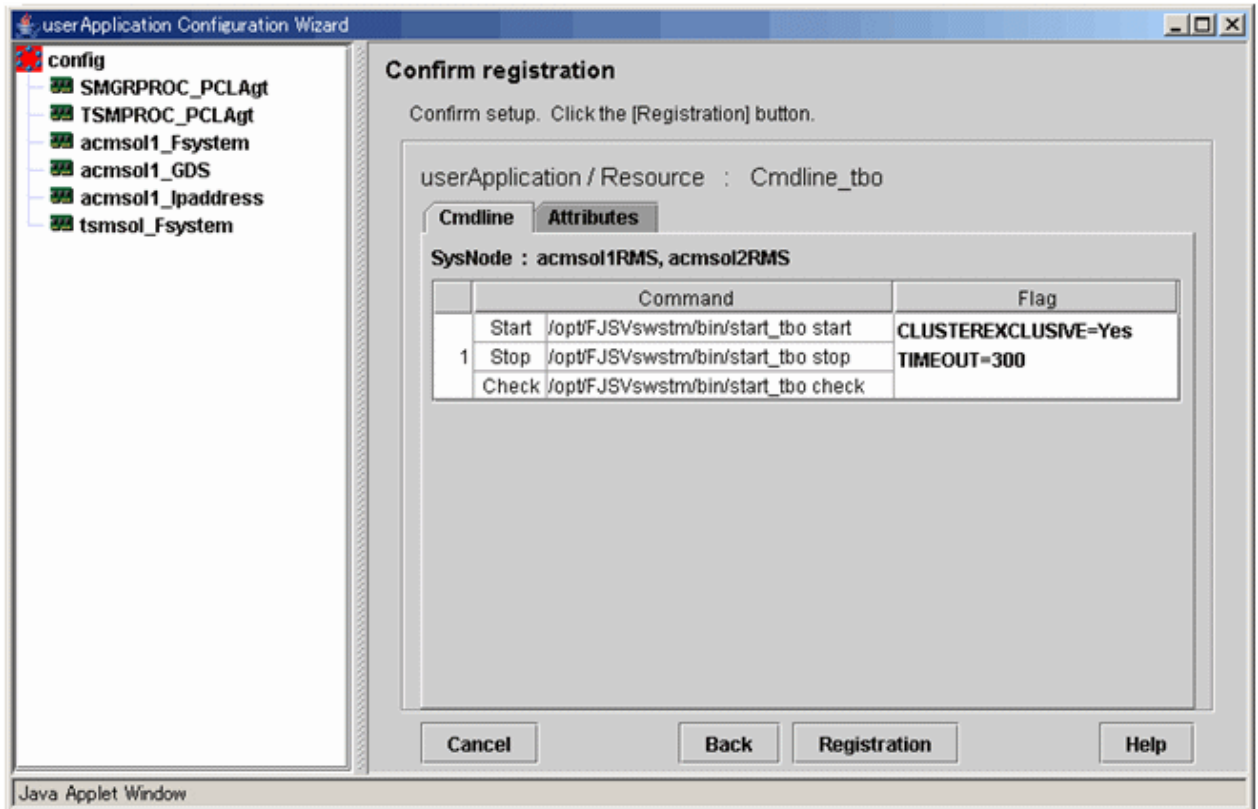
6. Set the script attributes

In the following example, AUTORECOVER is set to "No"



7. Confirm the information registered for the Cmdline resource

For details on resource attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".

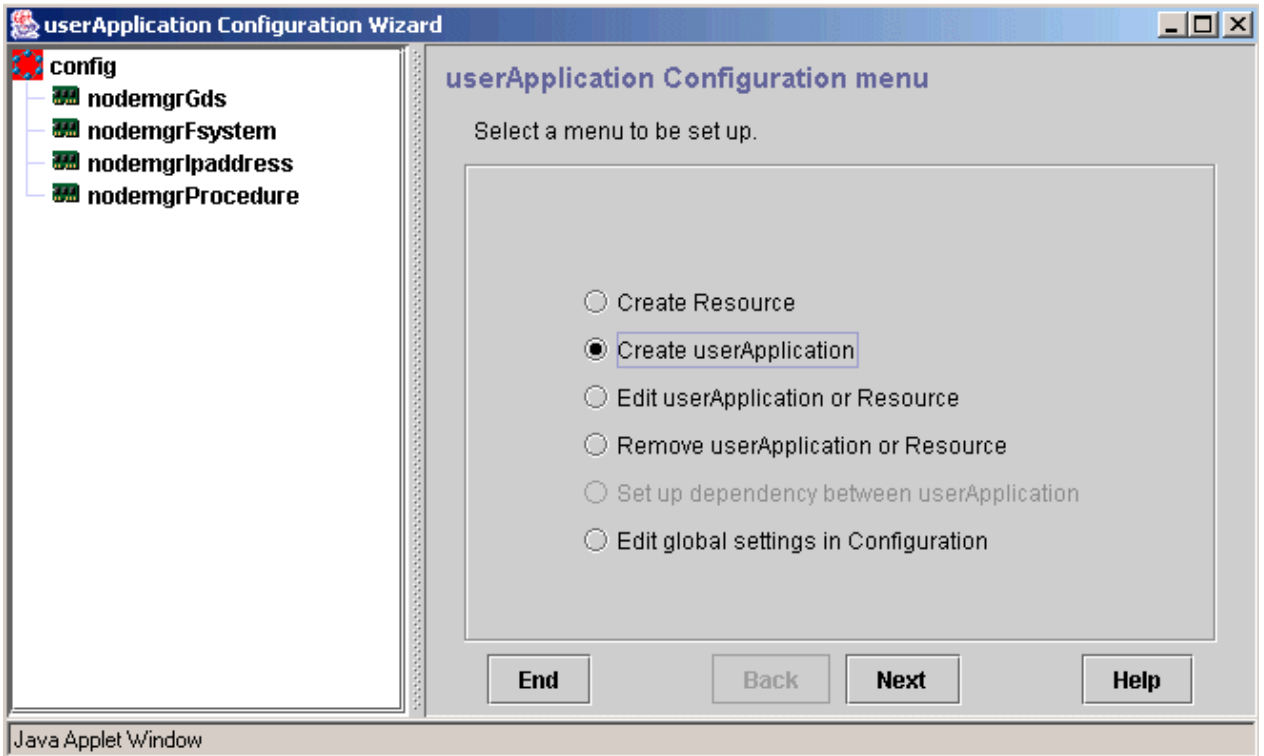


A.2 Creating a userApplication

Create a userApplication by using the "userApplication Configuration Wizard" of PRIMECLUSTER.

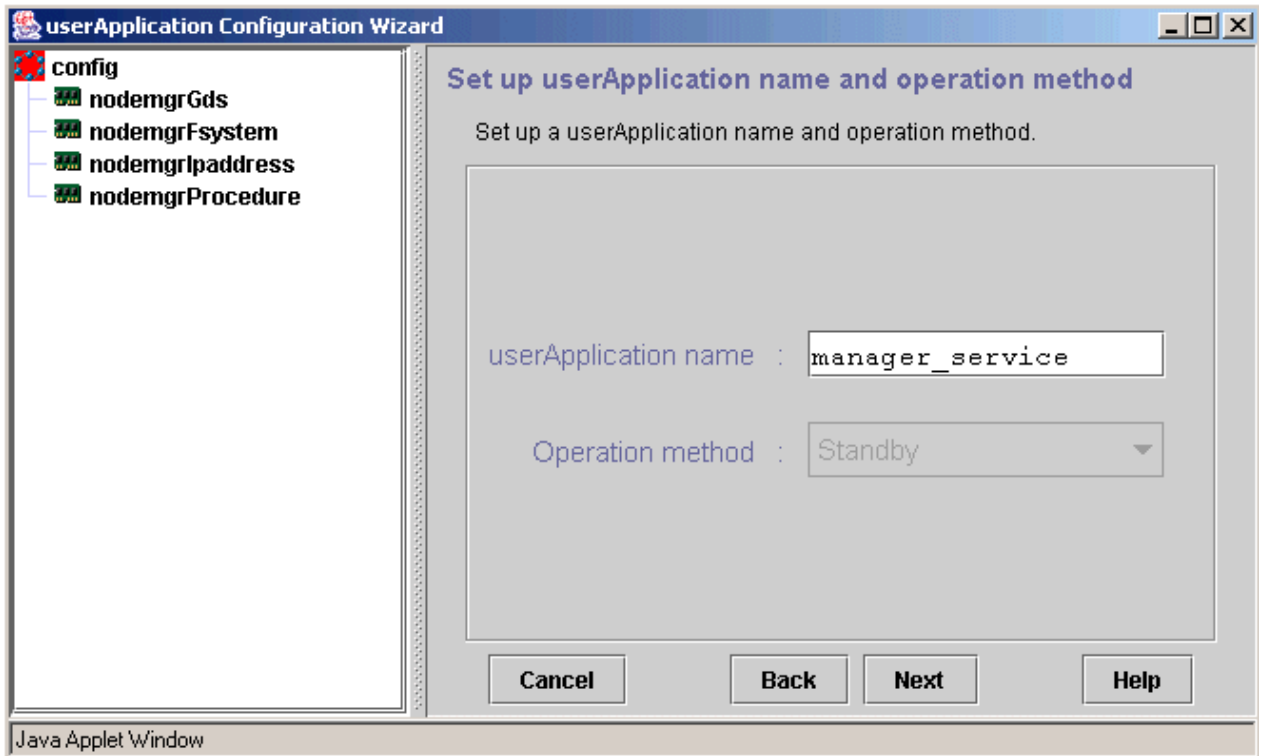
Always specify the standby class for a userApplication.

1. Select [Create userApplication] from the top menu of the "userApplication Configuration Wizard".

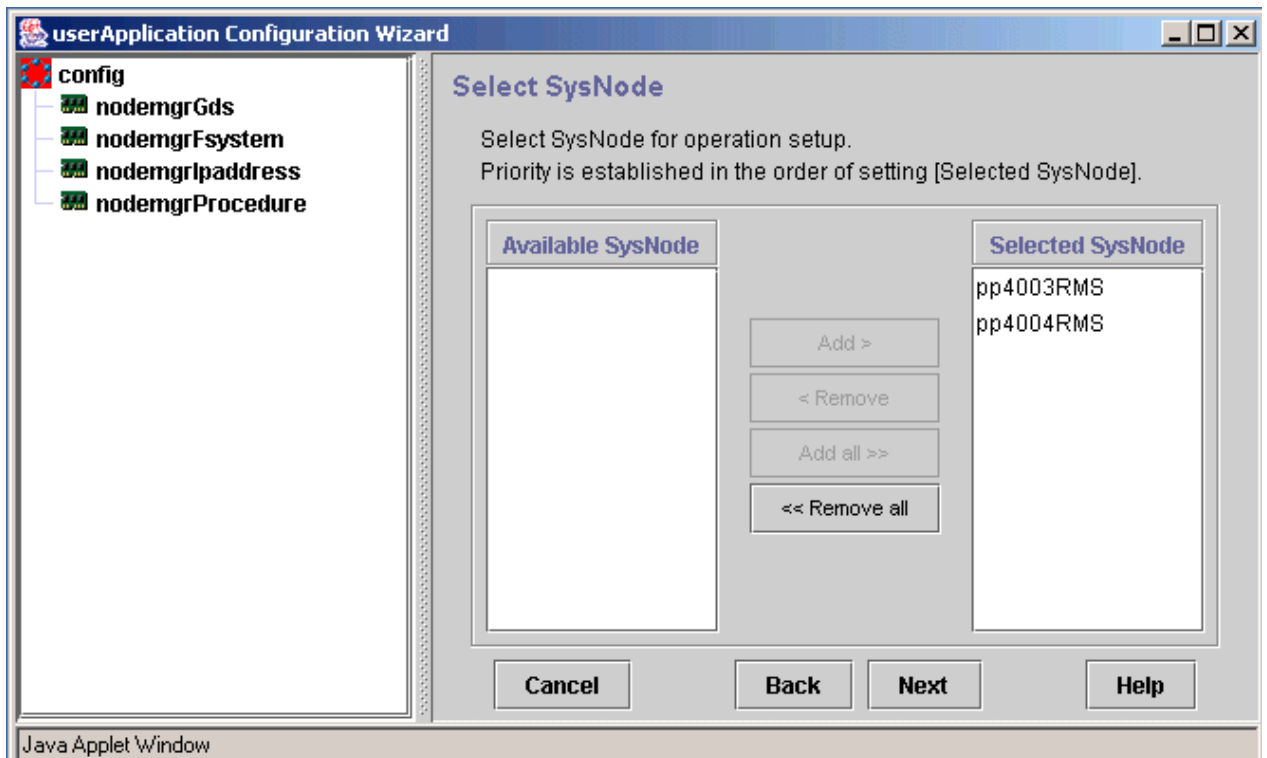


2. Specify a userApplication name and the operation type.

"manager_service" is specified for the userApplication name in the following example.



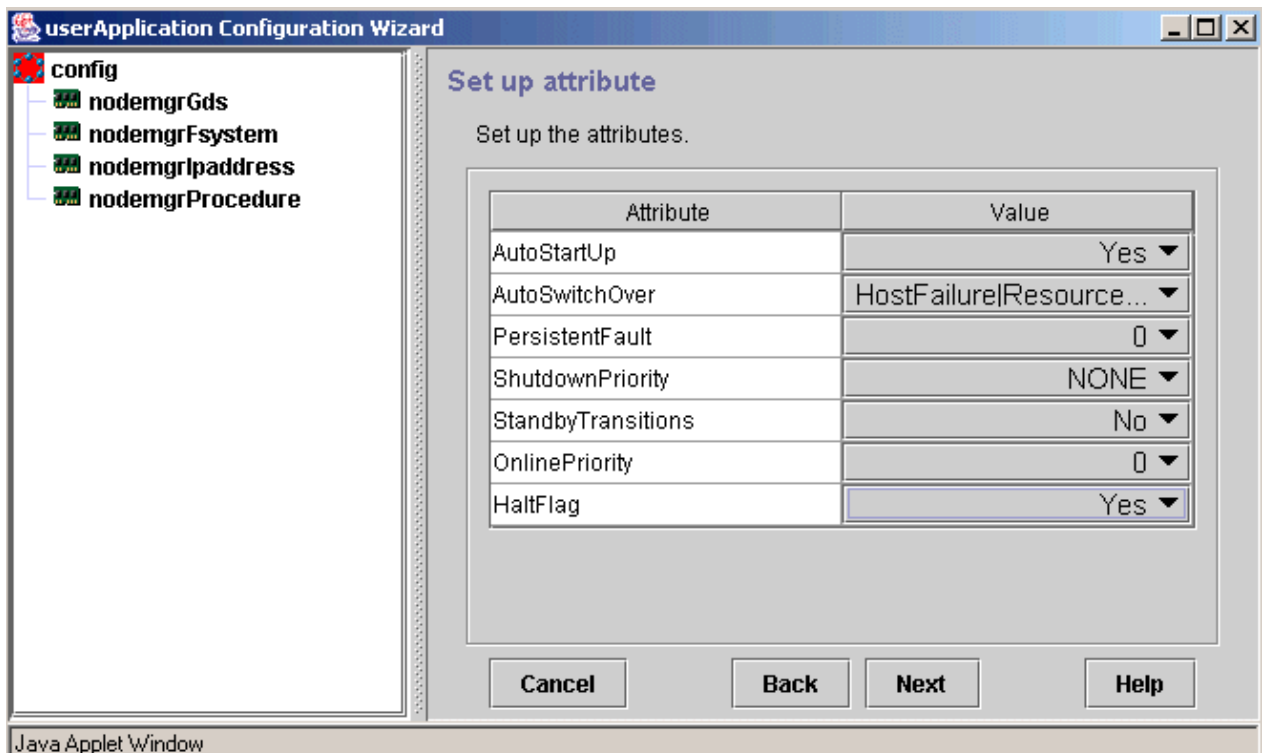
3. Select SysNode to set the cluster application in it.



4. Specify the userApplication attributes.

Specify the userApplication attributes according to the operation type.

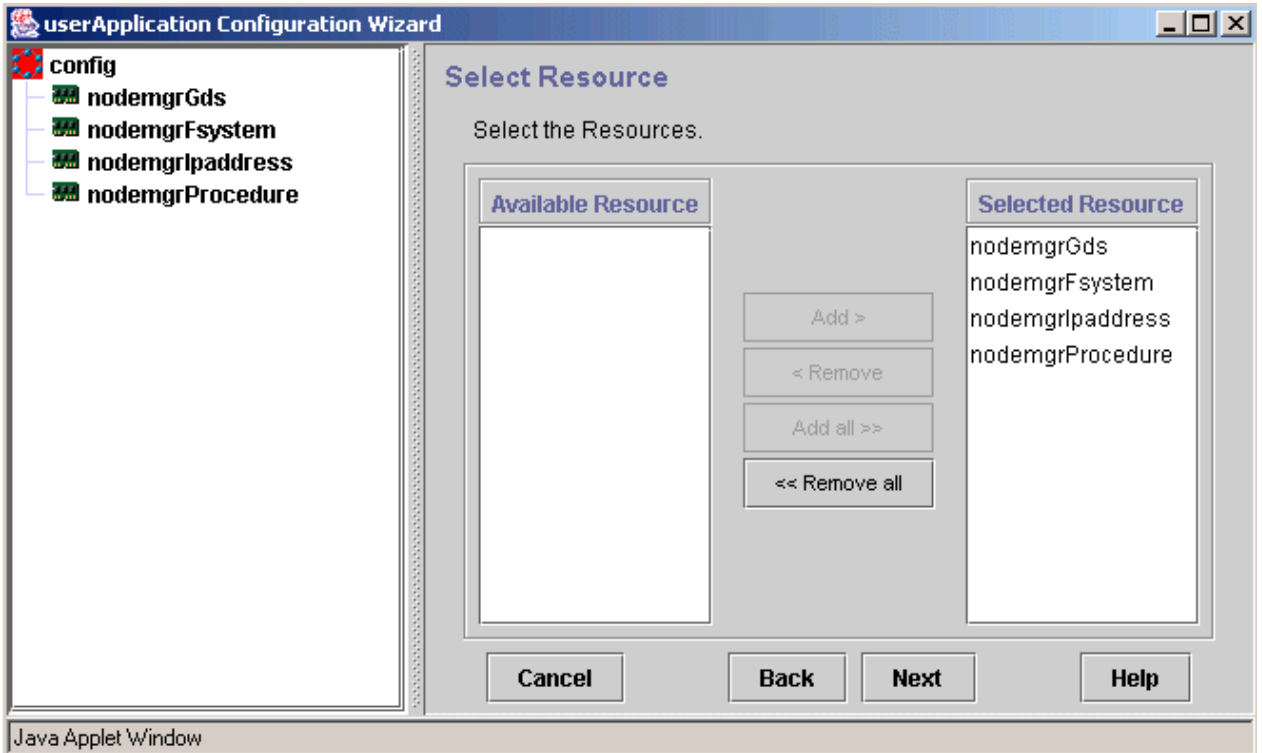
For details on userApplication attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".



5. Specify the resources used by the userApplication.

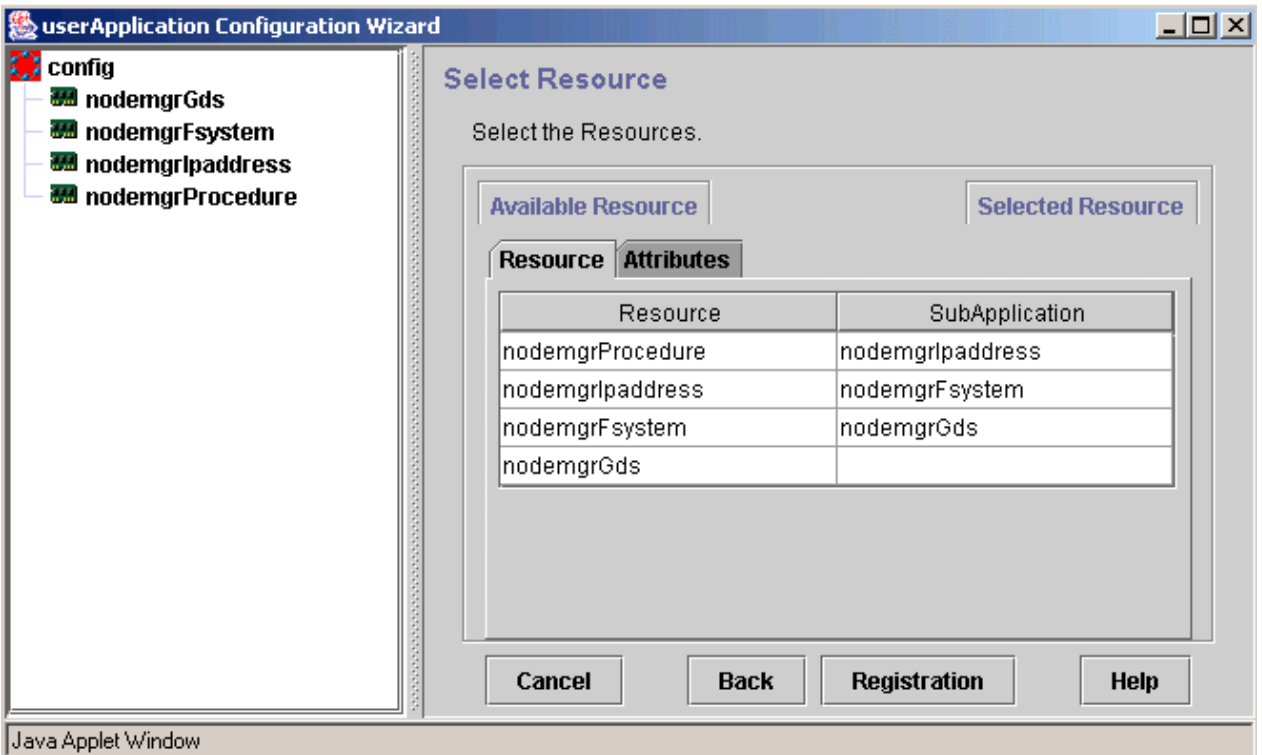
Register resources created for AdvancedCopy Manager.

The resources created in "A.1 Creating Resources" are specified in the following example.



6. Confirm the information registered for the userApplication.

For details on the attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".



Appendix B Setup procedures on Windows Server 2008 x64

This appendix explains the cluster setup procedures to the Managed Server on the following environment.

- The operating system is either of the following.
 - Windows Server 2008 x64
 - Windows Server 2008 R2

and

- The either of the following is installed.
 - AdvancedCopy Manager's manager
 - 32-bit AdvancedCopy Manager's agent

The cluster setup procedure is as follows. For the WSFC setting method, refer to manuals of Microsoft Server Failover Clustering.

1. Execute step 1 to step 3 described in the "[8.4.2 Customization Procedure](#)".
2. Create the following resources by using WSFC.
 - Create an application folder of transaction name in the [Services and Applications]
Create an application folder by clicking [Action] - [More Actions] - [Create Empty Service or Application].
 - Create an IP address resource
Create it by clicking [Action] - [Add a resource] - [More resources] - [4-Add IP Address].
3. Set the property of IP Address Resource.
 - Specify the unique value to the resource name.
 - Select the network (subnet) to be used.
 - Specify the logical IP address to the static IP address.
4. Execute step 4 and step 5 described in the "[8.4.2 Customization Procedure](#)".
5. Execute step 6 described in the "[8.4.2 Customization Procedure](#)".
 - Select "An existing IP address resource will be used" in the "AdvancedCopy Manager Cluster Setup Tool" windows.
6. Execute step 7 to step 8 described in the "[8.4.2 Customization Procedure](#)".
7. The cluster setup of the primary node has been completed.
 - The swstf8100 message is displayed. Go to next step.
8. Continue by setting up the secondary node.
 - Execute step 10 to step 16 described in the "[8.4.2 Customization Procedure](#)".
9. The cluster setup of the secondary node has been completed.
 - Although the error is occurred with swstf8514 message, go to next step.
10. Set up the resources.
 1. Delete the following resource by using WSFC management.
AdvancedCopy COM Service_ *LogicalNodeName* (**NOTE**)
NOTE: The *LogicalNodeName* is the Logical Node Name that was specified in "AdvancedCopy Manager Cluster Setup Tool" windows.
 2. Add a following service as the resource.
AdvancedCopy Manager COM Service for *LogicalNodeName* (**NOTE**)

NOTE: Add a service that has logical node name. The logical node name is the Logical Node Name that was specified in "AdvancedCopy Manager Cluster Setup Tool" windows. Make the resource name "AdvancedCopy COM Service_*LogicalNodeName*".

3. Specify the resource dependency to the above service.

Add the shared disk resource.

11. Edit the definition file.

1. Edit the <Shared disk>\etc\opt\swstorage\clsetup.ini file.

Change the value of Setup in [Secondary] tag to "YES".

2. Edit the \$INS_DIR\env\swcluster.ini file.

(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)

Change the value of Setup in [Logical node name] tag to "YES".

Continue by setting up the secondary node B.

If the system is the Cascade topology, go to next step.

If the clustered system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, go to step 16.

12. Execute step 18 to step 25 described in the "[8.4.2 Customization Procedure](#)".

13. The cluster setup of the secondary node B has been completed.

Although the error is occurred with swstf8514 message, go to next step.

14. Edit the definition file.

1. Add the following three lines at the bottom in the <Shared disk>\etc\opt\swstorage\clsetup.ini file.

```
[Secondary_2]
Setup=YES
Date=00/00/00 00:00:00
```

Replace [Secondary_2] to [Secondary_3], if the system is the third secondary node.

2. Edit the \$INS_DIR\env\swcluster.ini file.

(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)

Change the value of Setup in [Logical node name] tag to "YES".

15. Execute step 27 to step 29 described in the "[8.4.2 Customization Procedure](#)".

When the node that becomes secondary node B is remained, execute from step 12.

16. Execute step 30 and step 32 described in the "[8.4.2 Customization Procedure](#)".

The procedure is finished.

Appendix C Applying Clusters for Linux/HP-UX Version

This appendix explains how to apply AdvancedCopy Manager in the following Linux and HP-UX version clustered systems.

OS	OS level	Cluster software and version
Linux	Red Hat Enterprise Linux 6 (for x86)	Fujitsu PRIMECLUSTER V4.3A10
	Red Hat Enterprise Linux 6 (for Intel64)	Fujitsu PRIMECLUSTER V4.3A10 Veritas Storage Foundation Standard HA 5.1
	Red Hat Enterprise Linux 5 (for x86)	Fujitsu PRIMECLUSTER V4.2A30 and later
	Red Hat Enterprise Linux 5 (for Intel64)	Fujitsu PRIMECLUSTER V4.2A30 and later Veritas Storage Foundation Standard HA 5.1
	Red Hat Enterprise Linux AS (v.4 for x86) Red Hat Enterprise Linux ES (v.4 for x86)	Fujitsu PRIMECLUSTER V4.2A00 and later
	Red Hat Enterprise Linux AS (v.4 for EM64T) Red Hat Enterprise Linux ES (v.4 for EM64T)	Fujitsu PRIMECLUSTER V4.1A40 and later
HP-UX	HP-UX 11i v3(Itanium)	Serviceguard A.11.18 Serviceguard A.11.19

For operating systems other than the above, 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.

Point

For cluster operation modes available on Fujitsu PRIMCLUSTER with Linux and on Serviceguard with HP-UX, check "[2.4 Operating Modes](#)".

C.1 Preparations for customization in Linux/HP-UX version clusters

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

- Managed Server transaction

C.1.1 Resources required for Linux/HP-UX version

The following resources are required when installing AdvancedCopy Manager's agent on the Linux/HP-UX version of a clustered system.

1. 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.

2. The partition where shared data for AdvancedCopy Manager is stored

Prepare a partition on the shared disk that stores the shared data used by AdvancedCopy Manager. The number of partitions required is shown in the following table. Make sure that the required number of partitions is prepared for each AdvancedCopy Manager transaction. Refer to "[7.2 Capacity of shared disk](#)" for information on the disk space that should be reserved on the shared disk.

Table C.1 Numbers of partitions required for each AdvancedCopy Manager transaction

Name	Managed Server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

Note

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by clustered system.
- 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 for AdvancedCopy Manager shared data used for file systems. Make arrangements so that the disk can be mounted.

See

For the setup methods for shared disks and for file systems, refer to the documentation for your cluster software and the operating system.

C.1.2 Capacity of shared disk

The capacity of the shared disk of AdvancedCopy Manager is explained.

Capacity of shared disk for shared data

Refer to the "[7.2.1 Capacity of shared disk for shared data](#)" for the capacity required for the shared disk for AdvancedCopy Manager shared data.

C.1.3 Confirmation of items

For applying AdvancedCopy Manager in a Linux/HP-UX version clustered system, confirm the following items:

- Logical node name
- Port number for the transaction communication daemon

For more information, refer to the "[7.3 Confirmation of items](#)".

C.2 Customization for Linux/HP-UX version clustered system

This section explains how to customize Linux/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.



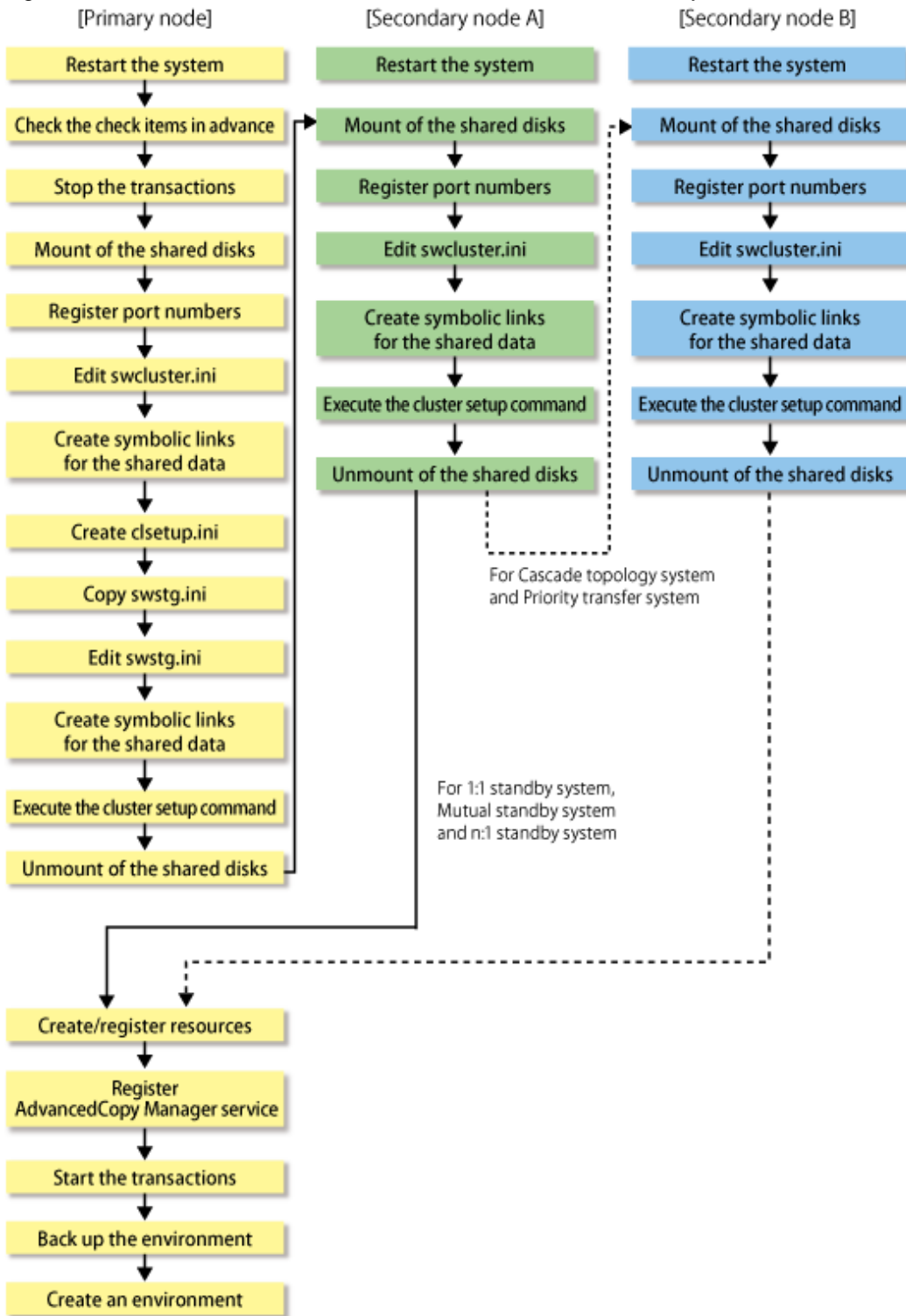
Example

- 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.

C.2.1 Flow of Customizing

This section describes the flow of customization.

Figure C.1 Customization flow for Linux/HP-UX version clustered system



C.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

1. Restart the system.

Reboot all primary and secondary nodes that create Managed Server transactions.

2. Check the preparations.

Check each item of "[C.1.1 Resources required for Linux/HP-UX version](#)", for the cluster transaction to be set up.

3. To add a Managed Server transaction to an existing cluster transaction, stop the cluster transaction.

For the procedure for stopping cluster transactions, refer to the documentation for your cluster software.

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.

For details, refer to the documentation for your cluster software.

7. Register the AdvancedCopy Manager service to the cluster software on the primary node.

For more information, refer to the "[C.3 Registration of AdvancedCopy Manager service](#)".

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_Logical node name

Note

Register the same port number on the primary node and all secondary nodes.

3. Edit the "/opt/FJSVswstf/cluster/swcluster.ini" setup file for AdvancedCopy Manager. For details on how to edit, refer to "[swcluster.ini](#)".

4. Create directories on the shared disk for AdvancedCopy Manager shared data.

Create each directory so as to result in below structure:

```
<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>
+---/etc
|   ---/opt
|       ---/swstorage
+---/var
     ---/opt
         ---/swstorage
```

Example

```
[root@m40001]# mkdir -p /acmdata01/etc/opt/swstorage
[root@m40001]# chmod -R 755 /acmdata01/etc
[root@m40001]# chown -R root:root /acmdata01/etc
[root@m40001]# mkdir -p /acmdata01/var/opt/swstorage
[root@m40001]# chmod -R 755 /acmdata01/var
[root@m40001]# chown -R root:root /acmdata01/var
```

5. Create the "*<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/clsetup.ini*" setup file for AdvancedCopy Manager. For details on how to edit, refer to "[clsetup.ini](#)".
6. Copy the "*/etc/opt/swstorage/swstg.ini*" setup file for AdvancedCopy Manager.
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
<i>/etc/opt/swstorage</i>	<i><Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage</i>

7. Edit the "*<Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage/swstg.ini*" setup file for AdvancedCopy Manager. For details on how to edit, refer to "[swstg.ini](#)".
8. For the Management Server transactions, edit a setup file for AdvancedCopy Manager (*/etc/opt/swstorage/swstg.ini*). For details on how to edit, refer to "[swstg.ini](#)".
9. Create symbolic links on the shared disk for AdvancedCopy Manager shared data.

Table C.2 Symbolic link for data in the etc area

Linked source directory	Link target directory (symbolic link file)
<i><Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/etc/opt/swstorage</i>	<i>/etc/opt/swstorage/<Logical node name></i>

Table C.3 Symbolic link for data in the var area

Linked source directory	Link target directory (symbolic link file)
<i><Mountpoint-of-shared-disk-for-AdvancedCopy-Manager-shared-data>/var/opt/swstorage</i>	<i>/var/opt/swstorage/<Logical node name></i>

Example

```
[root@m40001]# ln -s /acmdata01/etc/opt/swstorage /etc/opt/swstorage/acmnode1
[root@m40001]# ln -s /acmdata01/var/opt/swstorage /var/opt/swstorage/acmnode1
```

10. Execute the following commands in the given sequence:

Sequence of execution	Command	Type of server that requires command execution
1	clset_FJSVswstf(set/cancel framework environment)	Management Server transactions Managed Server transactions
2	clset_FJSVswsts(set/cancel command for backup environment)	Management Server transactions Managed Server transactions
3	clset_FJSVswsrp(set/cancel command for replication environment)	Management Server transactions Managed Server transactions
4	StgDbSetup(set/cancel command for repository environment)	Management Server transactions

Example

For Management Server transactions

```
[root@m40001]# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Primary
clset_FJSVswstf completed
[root@m40001]# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Primary
clset_FJSVswsts completed
[root@m40001]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Primary
clset_FJSVswsrp completed
[root@m40001]# /opt/FJSVswstf/bin/StgDbSetup -f /acmdata01/etc/opt/swstorage/clsetup.ini -
t Primary
```

Running the StgDbSetup command starts configuration of the shared environment.

1. Check the displayed contents, enter "y", and press the [Enter] key.

```
+-----+
| A common environment for the AdvancedCopy Manager |
| Storage Management Server will be created.         |
| [Notes]                                           |
| Prepare the following directories before starting  |
| processing.                                       |
| =====                                         |
| 1) Directory for the DB file                     |
| 2) Directory for the RDB dictionary              |
| 3) Directory for the RDB log file                |
| 4) Directory for the DB space to store the       |
| repository data                                  |
| -----                                         |
| Do you want to continue with processing? [y/n] ==> y
```

2. Specify the DB device.

The window shown below opens. Enter the directory name for the DB file system and press the Enter key.

```
-----< DB device setting >-----

Enter the directory name for the DB file.

[Notes]
Enter the absolute path name of the directory.

Enter ==> /ACMMnt/Vol202/DBfile
```

Enter the following directory name and data size.

- Directory name for the RDB dictionary
- Directory name for the RDB log file
- Directory name for the DB space used to save repository data
- Repository data Size

3. Confirm the continuation of processing.

After the window for confirming the continuation of processing opens, enter "y", and press the Enter key.

```
=====  
Directory name for the DB file ...../ACMMnt/Vol202/DBFile  
Directory name for the RDB dictionary ...../ACMMnt/Vol203/DBDic  
Directory name for the RDB log file ...../ACMMnt/Vol204/DBLog  
Directory name for the DB space  
    used to save repository data .../ACMMnt/Vol205/DBSpa  
Repository data Size .....65MB  
  
=====  
  
Okay? [y/n] ==> y
```

4. Confirm the continuation of processing.

After the window for confirming the continuation of processing opens, enter "y", and press the Enter key.

```
+-----+  
|      Creation of the AdvancedCopy Manager Storage management      |  
|      server environment will start.                               |  
|      =====                                                    |  
|      Once processing has started, system information is rewritten. |  
|      Make sure that the environment allows execution              |  
|      before proceeding.                                           |  
+-----+  
  
Do you want to continue with processing? [y/n] ==> y
```



For repository access user, the user configured in the "3.2 Installation for Solaris and Linux versions" is used.

To change the user name and password of repository access user, create the cluster environment, and reconfigure them referring to "12.2.4 Deleting the user/changing the password specified for the repository access user".

For Managed Server transactions

```
[root@m40001]# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdata01/etc/opt/swstorage/  
clsetup.ini -t Primary  
clset_FJSVswstf completed  
[root@m40001]# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdata01/etc/opt/swstorage/  
clsetup.ini -t Primary  
clset_FJSVswsts completed  
[root@m40001]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdata01/etc/opt/swstorage/  
clsetup.ini -t Primary  
clset_FJSVswsrp completed
```


- For Managed Server transaction, dismount the shared disk.

Dismount the shared disk for AdvancedCopy Manager share data on the primary node.

Customization procedure for secondary node

- For Managed Server transactions, mount the shared disk.

Mount the shared disk for the AdvancedCopy Manager shared data on the secondary node.

- 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_Logical node name



Note

Register the same port number on the primary node and all secondary nodes.

- Edit the "/opt/FJSVswstf/cluster/swcluster.ini" setup file for AdvancedCopy Manager. For details on how to edit, refer to "swcluster.ini".
- For the Management Server transactions,, edit a setup file for AdvancedCopy Manager (/etc/opt/swstorage/swstg.ini). For details on how to edit, refer to "swstg.ini".
- Create symbolic links on the shared disk for AdvancedCopy Manager shared data.

Table C.4 Symbolic link for data in the 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/<Logical node name>

Table C.5 Symbolic link for data in the 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/<Logical node name>

Example

```
[root@m40002]# ln -s /acmdata01/etc/opt/swstorage /etc/opt/swstorage/acmnode1
[root@m40002]# ln -s /acmdata01/var/opt/swstorage /var/opt/swstorage/acmnode1
```

- Execute the following commands in the given sequence:

Sequence of execution	Command	Type of server that requires command execution
1	clset_FJSVswstf(set/cancel framework environment)	Management Server transactions Managed Server transactions
2	clset_FJSVswsts(set/cancel command for backup environment)	Management Server transactions Managed Server transactions
3	clset_FJSVswsrp(set/cancel command for replication environment)	Management Server transactions Managed Server transactions
4	StgDbSetup(set/cancel command for repository environment)	Management Server transactions

Example

- For Management Server transactions

```
[root@m40002]# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswstf completed
[root@m40002]# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsts completed
[root@m40002]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsrp completed
[root@m40002]# /opt/FJSVswstf/bin/StgDbSetup -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
```

Running the StgDbSetup command starts configuration of the shared environment.

Check the displayed contents, enter "y", and press the [Enter] key.

```
+-----+
| Creation of the AdvancedCopy Manager Storage management |
| server environment will start.                          |
| =====|
| Once processing has started, system information is rewritten. |
| Make sure that the environment allows execution          |
| before proceeding.                                       |
|-----+
Do you want to continue with processing? [y/n] ==> y
```

- For Managed Server transactions

```
[root@m40002]# /opt/FJSVswstf/bin/clset_FJSVswstf -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswstf completed
[root@m40002]# /opt/FJSVswsts/bin/clset_FJSVswsts -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsts completed
[root@m40002]# /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.

C.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](#)

On the primary node

swcluster.ini

This section explains how to edit the "/opt/FJSVswstf/cluster/swcluster.ini" file on the primary node.

Table C.6 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.
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
IPAddr	Takeover IP address for AdvancedCopy Manager
NodeName	Name of primary node (Name of primary node host)

Edit the file. Modify and 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=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>
IPAddr=<Takeover IP 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 the same 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=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=10.10.10.10
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 the same 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=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=10.10.10.10
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 creating the first cluster transactions on the same 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 the same 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=m40001
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 C.7 Setting items

Item	Contents
Swstgnode	Logical node name
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
IPAddr	Takeover IP address for AdvancedCopy Manager
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. <ul style="list-style-type: none"> - 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 " <i>/etc/opt/swstorage/swstg.ini</i> ".
Language	Language used for AdvancedCopy Manager Specify one of the following text strings according to the language to be used for AdvancedCopy Manager: <ul style="list-style-type: none"> - For Japanese: JAPANESE - For English: ENGLISH

Edit the file. Modify and 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>
IPAddr=<Takeover IP 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>
Code=
[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

```

[Cluster]
System=GEN
Swstgnode=acmnode1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=10.10.10.10
IPUseType=0
IPRscName=
Hostname=
NodeName=m40001
ClusterName=
DiskName=
GroupName=
SubNetMask=
MSCSNetName=
BusiType=1
ResourceType=Procedure
[StorageMGR]
Version=V15.0
Edition=EE
Type=1
AFSType=1
Language=ENGLISH
Code=
[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=
MCSNetName=
BusiType=2
ResourceType=Procedure
[StorageMGR]
Version=V15.0
Edition=EE
Type=2
AFSType=1
Language=ENGLISH
Code=
[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.

Table C.8 Setting items

Item	Contents
Type	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

Edit the file. Modify and add the portions in italics according to your environment.

```

[Common]
Code=ASCII
Edition=EE
Version=V15.0
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]
Code=ASCII
Edition=EE

```

```

Version=V15.0
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]
Code=ASCII
Edition=EE
Version=V15.0
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.

Table C.9 Setting items

Item	Contents
Type	Type of local transaction server for AdvancedCopy Manager Set to "2".

Edit the file according to your environment.

```

[Common]
Code=ASCII
Edition=EE
Version=V15.0
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 and add the portions in italics.

```
[Common]
Code=ASCII
Edition=EE
Version=V15.0
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 the secondary node

swcluster.ini

This section explains how to edit the "/opt/FJSVswstf/cluster/swcluster.ini" file on the secondary node.

Table C.10 Setting items

Item	Contents
Env_N	Logican node name For N, specify a non-duplicate value from 1 to 20.
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	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
IPAddr	Takeover IP address for AdvancedCopy Manager
NodeName	Name of primary node (Name of primary node host)

Edit the file. Modify and 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>
IPAddr=<Takeover IP 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 the same 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=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=10.10.10.10
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 the same 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=1
Business=acmbiz01
ShareEtc=/acmdata01/etc/opt
ShareVar=/acmdata01/var/opt
MountPoint=/acmdata01
IPAddr=10.10.10.10
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 the same 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 the same 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=/acmdata01
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.

Table C.11 Setting items

Item	Contents of setting
Type	AdvancedCopy Manager server type of local transaction Set to "2".

Edit the file. Modify and add the portions in italics according to your environment.

```

[Common]
Code=ASCII
Edition=EE
Version=V15.0
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]
Code=ASCII
Edition=EE
Version=V15.0
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
FJSVwsrps=20101116
FJSVswstc=20101116
```

C.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: "[C.3.1 Method for starting AdvancedCopy Manager service](#)"
- Processing when stopping cluster transactions: "[C.3.2 Method for stopping AdvancedCopy Manager service](#)"



See

.....
For the setup methods for your cluster software, refer to the documentation for your cluster software.
.....

C.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
 - The shared disk for AdvancedCopy Manager repository is mounted. (For Management Server transactions)

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 name of the logical node of the Management Server transactions or the Managed Server transactions to be started to the environment variable SWSTGNODE.

```
SWSTGNODE=<Logical node name>
export SWSTGNODE
```

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`

4. 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.

For details on the notification settings, refer to the documentation for your cluster software.

Table C.12 Information required for starting AdvancedCopy Manager service

Item	Contents
Environment variable SWSTGNODE	Logical node name
Start command for AdvancedCopy Manager service	<ul style="list-style-type: none"> - Management Server transaction : /opt/FJSVswstf/cluster/MgrStart - Managed Server transaction : /opt/FJSVswstf/cluster/AgtStart
Completion status of start command for AdvancedCopy Manager service	<ul style="list-style-type: none"> - Normally completed : 0 - Failed : 1

C.3.2 Method for stopping AdvancedCopy Manager service

Stop 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
- The shared disk for AdvancedCopy Manager repository is mounted. (For Management Server transactions)

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 name of the logical node of the Management Server transactions or the Managed Server transactions to be stopped to the environment variable SWSTGNODE.

```
SWSTGNODE=<Logical node name>
export SWSTGNODE
```

3. Stop the AdvancedCopy Manager service.

Execute the following command to start the AdvancedCopy Manager service.

- For Management Server transactions


```
/opt/FJSVswstf/cluster/MgrStop
```
- For Managed Server transactions (Linux)


```
/opt/FJSVswstf/cluster/AgtStop
```
- For Managed Server transactions (HP-UX)


```
/opt/FJSVswstf/cluster/mcsg/SmgrStop_mcsg
```

4. 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.

For details on the notification settings, refer to the documentation for your cluster software.

Table C.13 Information required for stopping AdvancedCopy Manager service

Item	Contents
Information required for stopping AdvancedCopy Manager service	Information required for stopping AdvancedCopy Manager service

Item	Contents
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

C.4 Deletion on Linux/HP-UX version clustered systems

This section explains how to delete Linux/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.

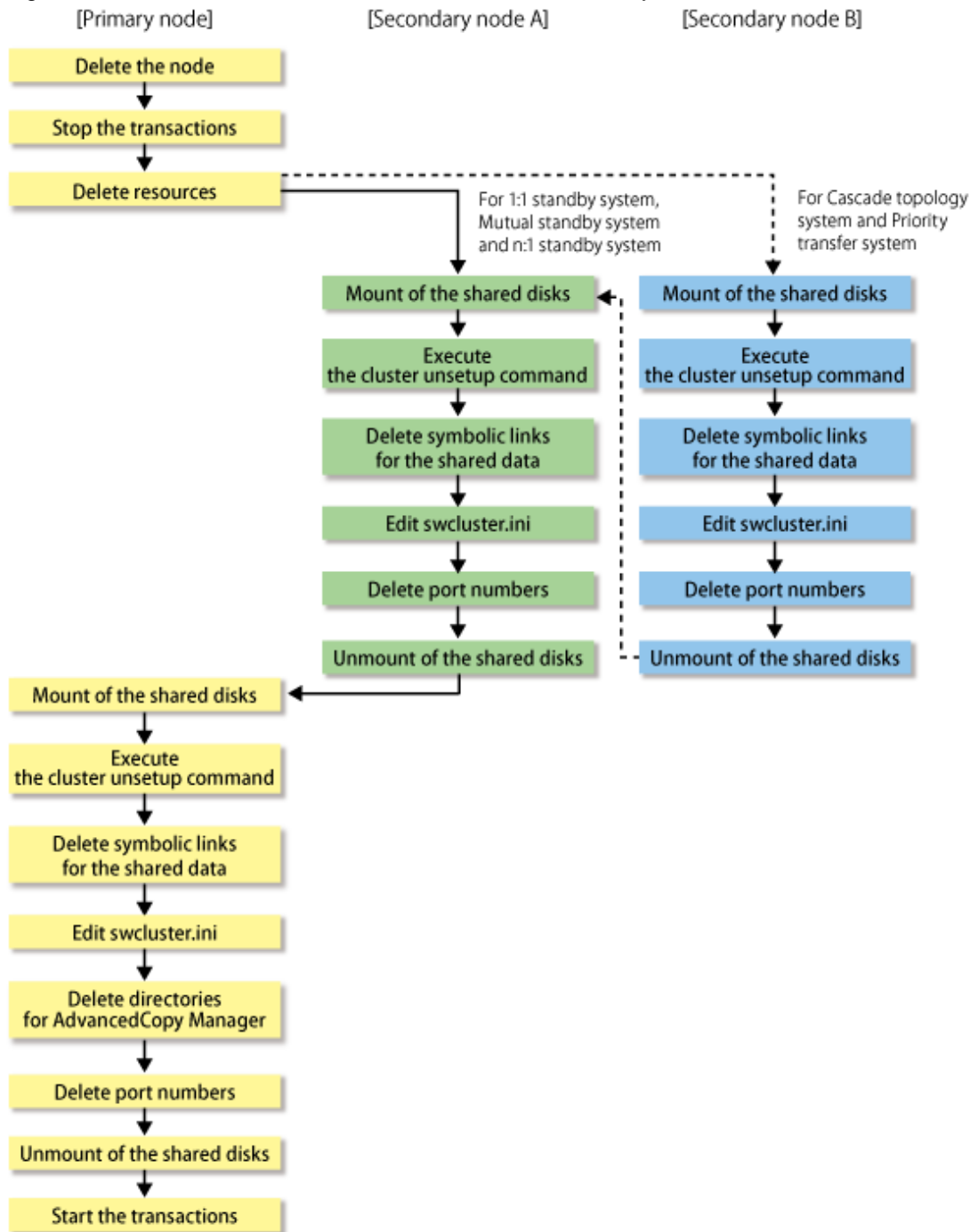
The deleting work of primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

The deleting work of primary node, secondary node A and secondary node B is executed for the cascade topology system and the priority transfer system.

C.4.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

Figure C.2 Deletion flow for Linux/HP-UX version clustered system



C.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> : /acmdata01
- Logical node name : acmnode1

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.
For information on how to stop transactions, refer to the documentation for your cluster software.
3. Delete resources.
Delete the AdvancedCopy Manager resources registered for the target transaction.
For information on how to delete resources, refer to the documentation for your cluster software.
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	Type of server that requires command execution
1	StgDbSetup(set/cancel command for repository environment)	Management Server transactions
2	clset_FJSVswsrp(set/cancel command for replication environment)	Management Server transactions Managed Server transactions
3	clset_FJSVswsts(set/cancel command for backup environment)	Management Server transactions Managed Server transactions
4	clset_FJSVswstf(set/cancel framework environment)	Management Server transactions Managed Server transactions

Example

- For Management Server transactions

```
[root@m4002]# /opt/FJSVswstf/bin/StgDbSetup -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Secondary
```

On running the StgDbSetup command, a screen for confirming whether to delete the database is displayed. Check the displayed contents, enter "y", and press the [Enter] key. For Managed Server transactions, the screen is not displayed.

```
+-----+
|
| All of database environments of AdvancedCopy Manager
| will be deleted.
|
| [Notes]
| Once processing has started, all stored data is discarded.
| Make sure that the environment allows execution
| before proceeding.
|
+-----+

Do you want to continue with processing? [y/n] ==> y
```

```
[root@m40002]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsrp completed
[root@m40002]# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsts completed
[root@m40002]# /opt/FJSVswstf/bin/clset_FJSVswstf -u -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswstf completed
```

- For Managed Server transactions

```
[root@m40002]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsrp completed
[root@m40002]# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/
clsetup.ini -t Secondary
clset_FJSVswsts completed
[root@m40002]# /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 C.14 Symbolic link for data in the etc area

Link target directory (symbolic link file)
/etc/opt/swstorage/<Logical node name>

Table C.15 Symbolic link for data in the var area

Link target directory (symbolic link file)
/var/opt/swstorage/<Logical node name>

Example

```
[root@m40002]# rm /etc/opt/swstorage/acmnode1
[root@m40002]# rm /var/opt/swstorage/acmnode1
```

4. Edit the "/opt/FJSVswstf/cluster/swcluster.ini" setup file for AdvancedCopy Manager. For details on how to edit, refer to "swcluster.ini".
5. For Management Server transactions, edit the setup file for AdvancedCopy Manager (/etc/opt/swstorage/swstg.ini). For details on how to edit, refer to "swstg.ini".
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_<Logical-Node-Name>

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	Type of server that requires command execution
1	StgDbSetup(set/cancel command for repository environment)	Management Server transactions
2	clset_FJSVswsrp(set/cancel command for replication environment)	Management Server transactions Managed Server transactions
3	clset_FJSVswsts(set/cancel command for backup environment)	Management Server transactions Managed Server transactions
4	clset_FJSVswstf(set/cancel framework environment)	Management Server transactions Managed Server transactions

Example

- For Management Server transactions

```
[root@m40001]# /opt/FJSVswstf/bin/StgDbSetup -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Primary
```

On running the StgDbSetup command, a screen for confirming whether to delete the database is displayed.

Check the displayed contents, enter "y", and press the [Enter] key. For Managed Server transactions, the screen is not displayed.

```
+-----+
|
| All of database environments of AdvancedCopy Manager
| will be deleted.
|
| [Notes]
| Once processing has started, all stored data is discarded.
| Make sure that the environment allows execution
| before proceeding.
|
+-----+

Do you want to continue with processing? [y/n] ==> y
```

```
[root@m40001]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Primary
clset_FJSVswsrp completed
[root@m40001]# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Primary
clset_FJSVswsts completed
[root@m40001]# /opt/FJSVswstf/bin/clset_FJSVswstf -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Primary
clset_FJSVswstf completed
```

- For Managed Server transactions

```
[root@m40001]# /opt/FJSVswsrp/bin/clset_FJSVswsrp -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Primary
clset_FJSVswsrp completed
[root@m40001]# /opt/FJSVswsts/bin/clset_FJSVswsts -u -f /acmdata01/etc/opt/swstorage/clsetup.ini -t Primary
clset_FJSVswsts completed
[root@m40001]# /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 shared disk for AdvancedCopy Manager shared data.

Table C.16 Symbolic link for data in the etc area

Link target directory (symbolic link file)
/etc/opt/swstorage/<Logical node name>

Table C.17 Symbolic link for data in the var area

Link target directory (symbolic link file)
/var/opt/swstorage/<Logical node name>

Example

```
[root@m40001]# rm /etc/opt/swstorage/acmnode1
[root@m40001]# rm /var/opt/swstorage/acmnode1
```

4. Edit the "/opt/FJSVswstf/cluster/swcluster.ini" setup file for AdvancedCopy Manager. For details on how to edit, refer to "swcluster.ini".
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 setup file for AdvancedCopy Manager (/etc/opt/swstorage/swstg.ini). For details on how to edit, refer to "swstg.ini".
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_<Logical-Node-Name>

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.

For starting the cluster transaction, refer to the cluster manual of your environment.

C.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](#)

On the secondary node

swcluster.ini

This section explains how to edit the "/opt/FJSVswstf/cluster/swcluster.ini" file on the secondary node.

Table C.18 Setting items

Item	Contents
Env_ <i>N</i>	Logical node name For <i>N</i> , specify a non-duplicate value from 1 to 20.
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 <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
IPAddr	Takeover IP address for AdvancedCopy Manager
NodeName	Name of primary node (Name of primary node host)

Edit the file. Modify and 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>
IPAddr=<Takeover IP 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 the same server.

*2 : This line needs to be deleted when deleting the last cluster transactions on the same server.

The following is an example of editing the file.

- For Management Server transactions : When deleting the last cluster transactions on the same 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
IPAddr=10.10.10.10
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 the same 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
IPAddr=10.10.10.10
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 the same 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 the same 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.

Table C.19 Setting items

Item	Contents
Type	AdvancedCopy Manager server type of local transaction Set to "1".

Edit the file. Modify and add the portions in italics according to your environment.

```
[Common]
Code=ASCII
Edition=EE
Version=V15.0
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]
Code=ASCII
Edition=EE
Version=V15.0
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 the primary node

swcluster.ini

This section explains how to edit the "/opt/FJSVswstf/cluster/swcluster.ini" file on the primary node.

Table C.20 Setting items

Item	Contents
Env_N	Logical node name For N, specify a non-duplicate value from 1 to 20.
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 <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
IPAddr	Takeover IP address for AdvancedCopy Manager
NodeName	Primary node name (Name of primary node host)

Edit the file. Modify and 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>
IPAddr=<Takeover IP address for AdvancedCopy Manager>
IPUseType=0
IPRscName=
Hostname=
NodeName=<Name of primary node (Name of primary node host)>
ClusterName=
DiskName=
GroupName=
SubNetMask=
MCSNetName=
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 the same server.

*2 : This line needs to be deleted when deleting the last cluster transactions on the same server.

The following is an example of editing the file.

- For Management Server transactions : When creating the last cluster transactions on the same 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
IPAddr=10.10.10.10
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 the same 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
IPAddr=10.10.10.10
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 the same 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=
MCSNetName=
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 the same 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.

Table C.21 Setting items

Item	Contents
Type	AdvancedCopy Manager server type of local transaction Set to "1".

Edit the file. Modify the portions in italics according to your environment.

```
[Common]
Code=ASCII
Edition=EE
Version=V15.0
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]
Code=ASCII
Edition=EE
Version=V15.0
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
```

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