ETERNUS SF
AdvancedCopy Manager V13.1

Operator's Guide for
Cluster Environment

FUJITSU

Preface

++Purpose

This manual explains the installation and customization of ETERNUS SF AdvancedCopy Manager when it is used in a cluster system.

++Audience

This manual is intended for system managers responsible for managing storage with ETERNUS SF AdvancedCopy Manager in a cluster system.

++Organization

This manual has the following chapters:

+Chapter 1 Overview

This chapter provides an overview of cluster systems.

+Chapter 2 Installation of AdvancedCopy Manager

This chapter explains how to install ETERNUS SF AdvancedCopy Manager.

+Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions

This chapter describes the resources and input items that are required to customize Storage Management Server transactions, Storage Server transactions, and Tape Server transactions.

+Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions

This chapter explains how to customize Storage Management Server transactions and Storage Server Transactions.

+Chapter 5 Deleting **Storage Management Server Transactions and Storage Server Transactions**

This chapter explains how to delete a Storage Management Server transaction and Storage Server transaction cluster environment.

+Chapter 6 Customizing Tape Server Transactions

This chapter explains how to customize Tape Server transactions.

+Chapter 7 Deleting Tape Server Transactions

This chapter explains how to delete a cluster environment for Tape Server transactions.

+Appendix A Creating Resources and userApplications with PRIMECLUSTER for Solaris OS

This appendix explains how to use PRIMECLUSTER for Solaris OS to create resources and userApplications for AdvancedCopy Manager.

+Appendix B Creating Resources and userApplications with PRIMECLUSTER for Linux

This appendix explains how to use PRIMECLUSTER for Linux to create resources and userApplications for AdvancedCopy Manager.

+Appendix C Configuring Cluster Service Settings with SafeCLUSTER for Windows

This appendix explains how to use SafeCLUSTER for Windows to configure cluster service settings.

+Appendix D TSM Cluster Settings

This appendix explains the TSM cluster settings.

++Positioning of This Manual

This manual is a separate volume that is only provided to users who use AdvancedCopy Manager in a cluster system environment. Before reading this manual, first read the following AdvancedCopy Manager manuals and to gain an overall understanding of AdvancedCopy Manager:

- ETERNUS SF AdvancedCopy Manager Installation Guide

This manual explains how to install ETERNUS SF AdvancedCopy Manager.

- ETERNUS SF AdvancedCopy Manager Operator's Guide

This manual explains the operation of ETERNUS SF AdvancedCopy Manager.

- ETERNUS SF AdvancedCopy Manager GUI User's Guide

This manual explains Web-GUI operation in ETERNUS SF AdvancedCopy Manager.

- ETERNUS SF AdvancedCopy Manager Message Guide

This manual explains the messages output by AdvancedCopy Manager and the action that the operator should take in response to them.

++Conventions for Product Names

- Microsoft(R) Windows(R) 2000 Professional, Microsoft(R) Windows(R) 2000 Server, and Microsoft(R) Windows(R) 2000 Advanced Server are referred to as Windows 2000.

- Microsoft(R) Windows(R) XP Professional and Microsoft(R) Windows(R) XP Home Edition are abbreviated as Windows XP.

- Microsoft(R) Windows Server(R) 2003, Standard Edition and Microsoft(R) Windows Server(R) 2003, Enterprise Edition, Microsoft(R) Windows Server(R) 2003, Enterprise Edition for Itanium-based Systems are abbreviated as Windows Server 2003.

- Microsoft(R) Windows Vista(TM) Home Basic, Microsoft(R) Windows Vista(TM) Home Premium, Microsoft(R) Windows Vista(TM) Business, Microsoft(R) Windows Vista(TM) Enterprise, and Microsoft(R) Windows Vista(TM) Ultimate are abbreviated as Windows Vista.

- Solaris (TM) Operating System is referred to as Solaris OS.

- ETERNUS SF AdvancedCopy Manager running on Solaris OS is referred to as the Solaris version of ETERNUS SF AdvancedCopy Manager.

- ETERNUS SF AdvancedCopy Manager running on Windows is referred to as the Windows version of ETERNUS SF AdvancedCopy Manager.

- ETERNUS SF AdvancedCopy Manager running on Linux is referred to as the Linux version of ETERNUS SF AdvancedCopy Manager.

- "ETERNUS SF AdvancedCopy Manager" is abbreviated as "AdvancedCopy Manager".

- The manager function of AdvancedCopy Manager is referred to as Manager function of AdvancedCopy Manager.

- The agent function of AdvancedCopy Manager is referred to as Agent function of AdvancedCopy Manager.

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Chapter 1　Overview

This chapter provides an overview of cluster systems.

1.1 What Is a Cluster System?

A cluster 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 cluster 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 cluster 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 class

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

a) 1:1 standby system

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, if required.
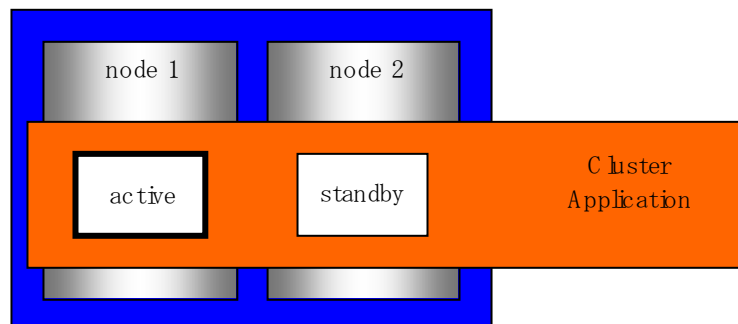
b) Mutual standby system

This is a cluster consisting 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 the transactions on both nodes.
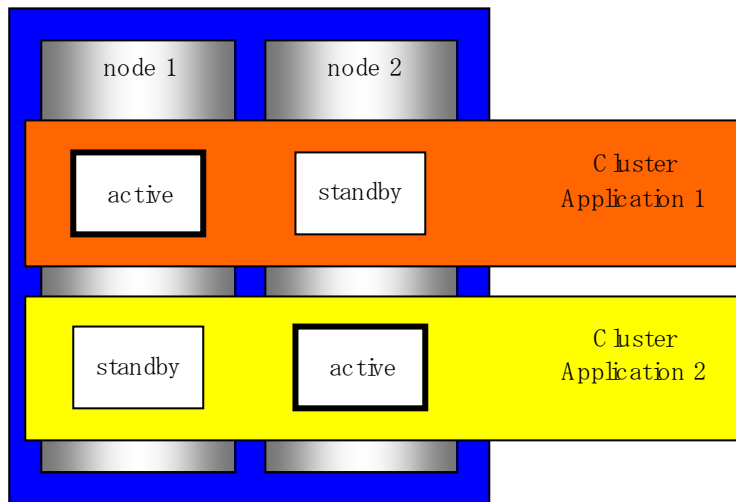
c) n:1 standby system

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.
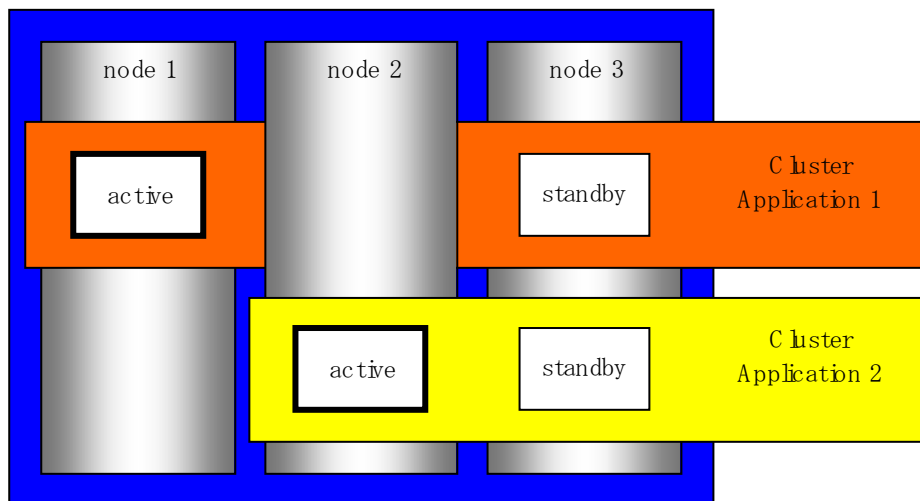
d) Cascade topology

This consists of three or more sets of nodes. One node in the set is an active node, and the remaining nodes are standby nodes.
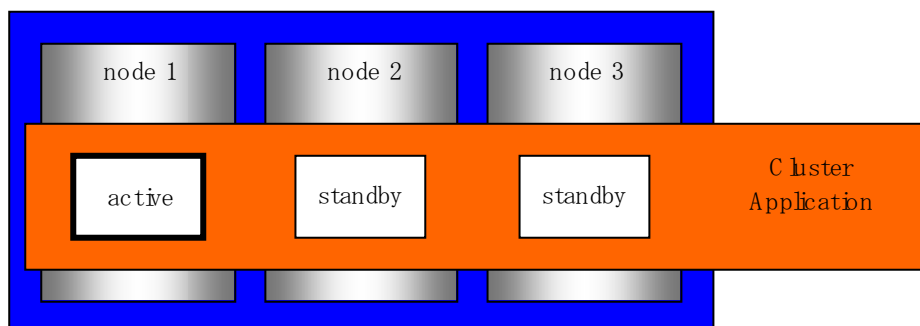
e) Priority transfer

This consists of three or more sets of nodes. One node in each set is an active node, one node is a standby node, and the remaining nodes in a set are stop nodes.
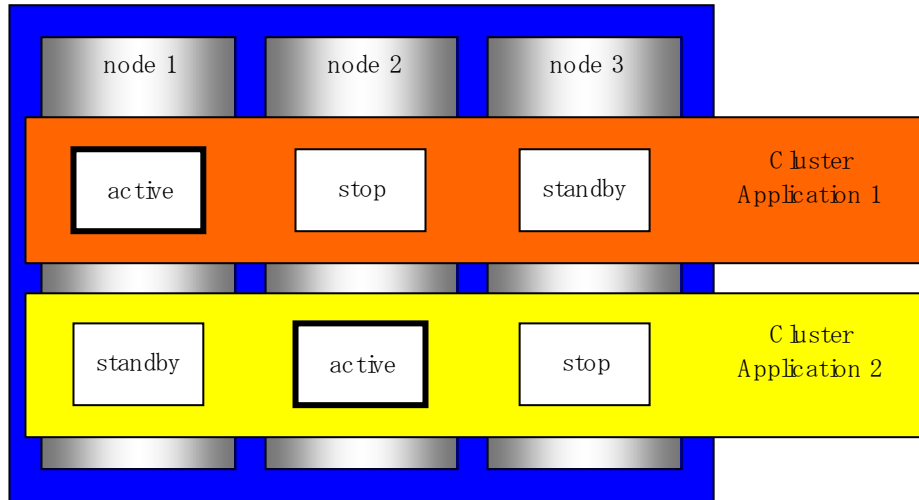
● Scalable class

In a scalable class, 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 system, nodes in this class of cluster are not divided into active and standby nodes.   If a server in a cluster fails, the remaining servers in the cluster operate at a degraded level so that the transaction continues.
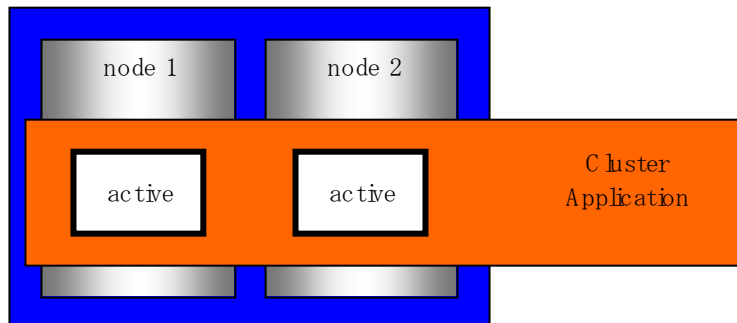
Note

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

1.2 Support

AdvancedCopy Manager runs on the following operating systems:

Table 1.1 Operating system where AdvancedCopy Manager operates

Operating system	Non Cluster			Cluster		
	Storage Management Server	Storage Server	Tape Server	Storage Management Server transaction	Storage Server transaction	Tape Server transaction
Solaris(TM) 8 Operating system Solaris(TM) 9 Operating system Solaris(TM) 10 Operating system	Support	Support	Support	Support	Support	No support Support
Red Hat Enterprise Linux AS (v.3 for x86) Red Hat Enterprise Linux ES (v.3 for x86) Red Hat Enterprise Linux AS (v.4 for x86) Red Hat Enterprise Linux ES (v.4 for x86) Red Hat Enterprise Linux AS (v.4 for Itanium)	Support	Support	No support	Support	Support	No support
Red Hat Enterprise Linux AS (v.4 for EM64T) Red Hat Enterprise Linux ES (v.4 for EM64T) Red Hat Enterprise Linux (v.5 for x86) Red Hat Enterprise Linux (v.5 for EM64T) Red Hat Enterprise Linux (v.5 for Intel Itanium)	No support	Support	No support	No support	Support	No support
Microsoft(R) Windows(R)2000 Server SP4 or later Microsoft(R) Windows(R)2000 Advanced Server SP4 or later Microsoft(R) Windows Server(R) 2003, Standard Edition SP1, SP2 Microsoft(R) Windows Server(R) 2003, Enterprise Edition SP1, SP2 Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Standard Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition SP2	Support	Support	No support	Support	Support	No support

Operating system	Non Cluster			Cluster		
	Storage Management Server	Storage Server	Tape Server	Storage Management Server transaction	Storage Server transaction	Tape Server transaction
Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Microsoft(R) Windows Server(R) 2003, Standard x64 Edition SP2 Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition SP2 Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition SP2 Microsoft(R) Windows Server(R) 2003, Enterprise Edition for Itanium-based Systems Microsoft(R) Windows Server(R) 2003, Enterprise Edition for Itanium-based Systems SP2 (A 64-bit processor version)	No support	Support	No support	No support	Support	No support
HP-UX 11.00, 11i, v2(PA-RISC), HP-UX 11i v2.0(Itanium)	No support	Support	No support	No support	Support	No support
AIX 5L V5.1,AIX 5L V5.2,AIX 5L V5.3	No support	Support	No support	No support	Support	No support

AdvancedCopy Manager supports only the following cluster systems:

Table 1.2 Cluster system where AdvancedCopy Manager operates

OS	AdvancedCopy Manager version	Cluster system and version
Solaris	AdvancedCopy Manager 13.1	Fujitsu SynfinityCluster V2.0 Fujitsu PRIMECLUSTER V4.1 Fujitsu PRIMECLUSTER V4.1 A40 VERITAS Cluster Server 4.0 VERITAS Cluster Server 4.1 VERITAS Cluster Server 5.0 Sun Cluster 3.1
Linux	AdvancedCopy Manager 13.1	Fujitsu PRIMECLUSTER V4.1A20 Fujitsu PRIMECLUSTER V4.1A30 Fujitsu PRIMECLUSTER V4.1A40 Fujitsu PRIMECLUSTER V4.2A00Fujitsu PRIMECLUSTER V4.2A30
Windows	AdvancedCopy Manager 13.1	Microsoft(R) Cluster Server
HP	AdvancedCopy Manager 13.1	MC/ServiceGuard A.11.13 VERITAS Cluster Server 5.0
AIX	AdvancedCopy Manager 13.1	High Availability Cluster Multi-Processing 5.1 VERITAS Cluster Server 5.0

Note

- ● Refer to the manual of the cluster system being used for information about correspondence between the version of the cluster system and the version of the OS.
- ● "Solaris 8" and "Solaris 9" support the 64-bit processor version of the Solaris edition of "Fujitsu SynfinityCluster V2.0".
- ● "Solaris 8" and "Solaris 9" support the Solaris edition of "Fujitsu PRIMECLUSTER V4.1".
- ● "Solaris 8" and "Solaris 9" support the Solaris edition of "VERITAS Cluster Server 4.0".
- ● "Solaris 10" supports the Solaris edition "Sun Cluster 3.1".
- ● "Fujitsu PRIMECLUSTER V4.2A30" is the only cluster system supported by "Red Hat Enterprise Linux 5".
- ● Only "Red Hat Enterprise Linux v.3" supports the Linux edition of "Fujitsu PRIMECLUSTER V4.1A20" and "Fujitsu PRIMECLUSTER V4.1A30".
- ● "Red Hat Enterprise Linux v.3" and "Red Hat Enterprise Linux v.4" support the Linux edition of "Fujitsu PRIMECLUSTER V4.1A40".
- ● "Microsoft(R) Cluster Server" is the only cluster supported by the 64-bit processor version of "Windows Server 2003, Enterprise Edition for Itanium-based systems", "Microsoft(R) Systems", and "Windows Server(TM) 2003 x64 Editions".
- ● Only "HP-UX 11i v2.0" supports the HP edition of "VERITAS Cluster Server 5.0".
- ● Only "AIX 5L V5.3" supports the AIX edition of "VERITAS Cluster Server 5.0".

AdvancedCopy Manager Tape Server supports the following cluster systems:

Table 1.3 Cluster systems compatible with AdvancedCopy Manager Tape Server

OS	AdvancedCopy Manager version	Cluster system and version
Solaris	AdvancedCopy Manager 13.1 (Tape Server)	Fujitsu PRIMECLUSTER V4.1 Fujitsu PRIMECLUSTER V4.1 A40

AdvancedCopy Manager supports the following operation types:

Table 1.4 Operation type that AdvancedCopy Manager supports

OS	Cluster system	1:1 standby	n:1 standby	Mutual standby	Cascade topology	Priority transfer	Scalable class	Combined operation with the scalable class
Solaris	SynfinityCluster PRIMECLUSTER	Support	Support	Support	Support	Support	No support	Support
	VERITAS Cluster Server	Support	Support	Support	Support	No support	No support	No support
	Sun Cluster	Support	No support	Support	No support	No support	No support	No support
Linux	PRIMECLUSTER	Support	Support	Support	Support	Support	No support	Support
Windows	Microsoft(R) Cluster Server	Support	Support	Support	Support	No support	No support	No support
HP	MC/ServiceGuard	Support	Support	Support	Support	No support	No support	No support
	VERITAS Cluster Server	Support	No support	Support	No support	No support	No support	No support
AIX	High Availability Cluster Multi-Processing	Support	Support	Support	Support	No support	No support	No support
	VERITAS Cluster Server	Support	No support	Support	No support	No support	No support	No support

Note

● AdvancedCopy Manager cannot run any type of operation that is unsupported by the cluster system.

● AdvancedCopy Manager backup and replication can be used for scalable class transaction volumes. Refer to "Combined operation with the scalable class" for the operation method

● Storage Management Server transactions on the Storage Management Server are supported only for standby system operation. None of the functions for Storage Management Server transactions can be used in mutual standby operation.

AdvancedCopy Manager supports the following operation types:

Table 1.5 Operation types supported by AdvancedCopy Manager Tape Server

OS	Cluster system	1:1 standby	n:1 standby	Mutual standby	Cascade topology	Priority transfer	Scalable class	Combined operation with the scalable class
Solaris	PRIMECLUSTER	Support	No support	No support	No support	No support	No support	No support

> **Note**
>
> ● Use AdvancedCopy Manager in a 1:1 active/standby configuration when using the AdvancedCopy Manager Tape Server.

1.3 Types of Operation

This section explains the methods in which AdvancedCopy Manager operates in a cluster system.

1.3.1 Cluster transaction and local transaction of AdvancedCopy Manager

In 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 system.

Table 1.6 Names of cluster transactions in cluster system

Cluster system	Name of cluster transaction
SynfinityCluster	Cluster Service
Sun Cluster	Resource Group
PRIMECLUSTER	Cluster Application or userApplication
VERITAS Cluster Server	Service Group
Microsoft(R) Cluster Server	Cluster Group
MC/ServiceGuard	Package
High Availability Cluster Multi-Processing	Resource Group

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 cluster 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. Set this local transaction to perform local volume backup/replication that is not included in a cluster 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.
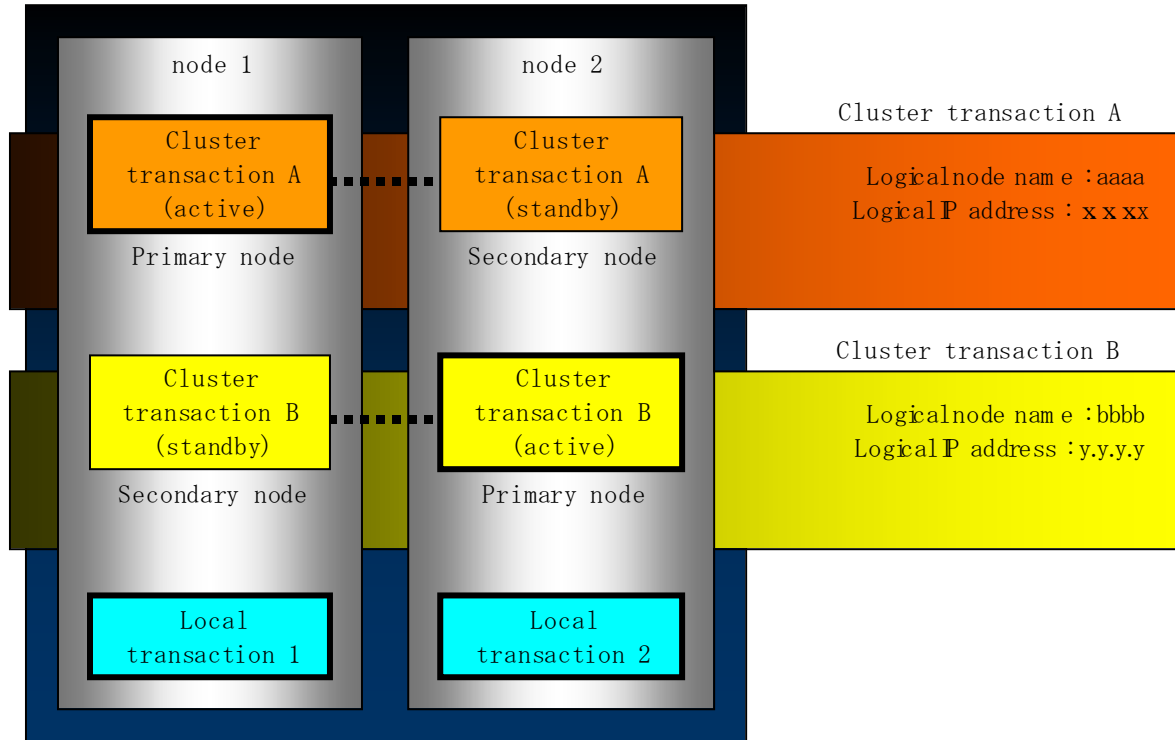
To operate the volume of cluster transaction A by backup management or replication management, add AdvancedCopy Manager to cluster transaction A.
To operate the volume of cluster transaction B by backup management or replication management, add AdvancedCopy Manager to cluster transaction B.
To operate 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.

1.3.2 AdvancedCopy Manager server types and server transaction types

There are three types of AdvancedCopy Manager: Storage Server, Storage Management Server, and Tape Server.

A similar rule holds for cluster systems. A cluster system with AdvancedCopy Manager's Manager function installed is referred to as a Storage Management Server, and a cluster system with AdvancedCopy Manager's Agent function installed is referred to as a Storage Server.
Cluster systems with both the Manager function and Tape Manager function installed are referred to as Tape Servers, as are cluster systems on which the Agent manager function and Tape Manager function are installed.
These categories are known as server types.

When AdvancedCopy Manager operates in a cluster system, Storage Server operations are

referred to as Storage Server transactions, Storage Management Server operations are referred to as Storage Management Server transactions, and Tape Server operations are referred to as Tape Server transactions. These categories are known as server transaction types.

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

Table 1.7 Server Types

	Storage Management Server transaction	Storage Server transaction	Tape Server transaction
Storage Management Server (AdvancedCopy Manager's Manager)	Yes	Yes(*1)	No
Storage Server (AdvancedCopy Manager's Agent function)	No	Yes(*1)	No
Tape Server (AdvancedCopy Manager's Manager function and the AdvancedCopy Manager Tape Manager function)	Yes(*2)	Yes(*2)	Yes(*2)
Tape Server (AdvancedCopy Manager's Agent function and the AdvancedCopy Manager Tape Manager function)	No	Yes(*2)	Yes(*2)

Notes:
Yes (*1): The transactions that can be performed in cluster systems. Multiple cluster transactions can be performed in mutual standby systems.
Yes: The transactions that can be performed in cluster systems. Operation in a mutual standby system is only possible with a single transaction.
Yes (*2): The transactions that can be performed in cluster systems. Operation in a 1:1 active/standby system is only possible with a single transaction.
No: Transactions not included in the package.

Storage Server transactions can be included in multiple cluster transactions within a cluster system. This means that Storage Server functions can be used with each cluster transaction. On a network, users cannot tell whether a system is clustered, so it will appear as though there are multiple Storage Servers even when there is only one physical cluster system.
However, it is not possible to divide Storage Management Server transactions among multiple cluster transactions. Storage Management Server transactions are performed as a single cluster transaction on a cluster system.

Storage Management Server transactions and Storage Server transactions must be included in each cluster transaction that uses AdvancedCopy Manager functions. However, see "Combined operation with the scalable class" for information about combined operation with scalable class transactions.

A Storage Management Server can operate as both a Storage Management Server and a Storage Server. (For details, see "System configuration example of AdvancedCopy Manager" in the "ETERNUS SF AdvancedCopy Manager Installation Guide".) Similarly, Storage Management Server transactions can perform both Storage Management Server transactions and Storage Server transactions. (Storage Management Server transactions include the functions of Storage Server transactions.)

The Tape Server must have the Tape Manager function installed, and it is also necessary to install the Manager or Agent function beforehand.
To perform Storage Management Server transactions on a Tape Server, install the Manager function.
To perform Storage Server transactions on a Tape Server, install the Agent function.
To perform Tape Server transactions only, install the Agent function.

When the Manager function and the Tape Manager function are installed, the Tape Server can operate as a Storage Management Server, a Storage Server, and also a Tape Server. When the Agent function and the Tape Manager function are installed, the Tape Server can operate as a Storage Server and a Tape Server. See "System configuration example of AdvancedCopy Manager" in the "ETERNUS SF AdvancedCopy Manager Installation Guide" for more information.

Similarly, when the Manager function and the Tape Manager function are installed, Tape Server transactions can perform Storage Management Server transactions, Storage Server transactions, and Tape Server transactions.
Additionally, when the Agent function and Tape Manager function are installed, Tape Server transactions can perform Storage Server transactions and Tape Server transactions.

1.3.3 Transaction types of applications

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

Application (function)	Storage Management Server transaction	Storage Server transaction	Storage 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	–	–

Authentication management	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

When a mutual standby system using the Storage Management Servers is built, all Storage Management Server transactions must be operated on the same logical server in a cluster. It is not possible to divide for operation the resources of Storage Management Server transactions between two or more logical servers.

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

1.3.4 Combined operation with the scalable class

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

Storage server
Combined operation with the scalable class

Transaction A (active) — Primary node
Transaction A (active) — Secondary node A
Transaction A (active) — Secondary node B

Storage server transaction (active) — Primary node
Storage server transaction (standby) — Secondary node A
Storage server transaction (standby) — Secondary node B

Logical server 1
Cluster transaction oprating
Transaction A
Logical IP address : x.x.x.x

Logical server 2
Cluster transaction oprating
Storage server transaction
Logical node name : aaaa
Logical IP address : y.y.y.y

AdvancedCopy Manager does not support the scalable class. Therefore, the resource of AdvancedCopy Manager cannot be added to a scalable class.
When performing backup operation and replication operation to the transaction volume in scalable class, create the cluster service of new Storage Server transaction or Storage Management Server transaction. When cluster service in a scalable class consists of three or more nodes, create the Storage Server transaction in cascade topology. When cluster service in scalable class consists of 2 nodes, create the Storage Server transaction in mutual standby system.

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

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

Note

— For notes on combined operation with transactions in scalable operation, see "Notes on cluster operation" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide".

1.4 Environment construction for cluster operation

This section explains how to provide the environment construction to operate AdvancedCopy Manager on the cluster system.

1.4.1 Construction of a cluster system of the type with standby system

Constructing Storage Management Server transactions or Storage Server transactions

This section explains how to provide the cluster environment construction for a Storage Management Server transaction or Storage Server transaction on the cluster system of the type with 1:1 standby system.
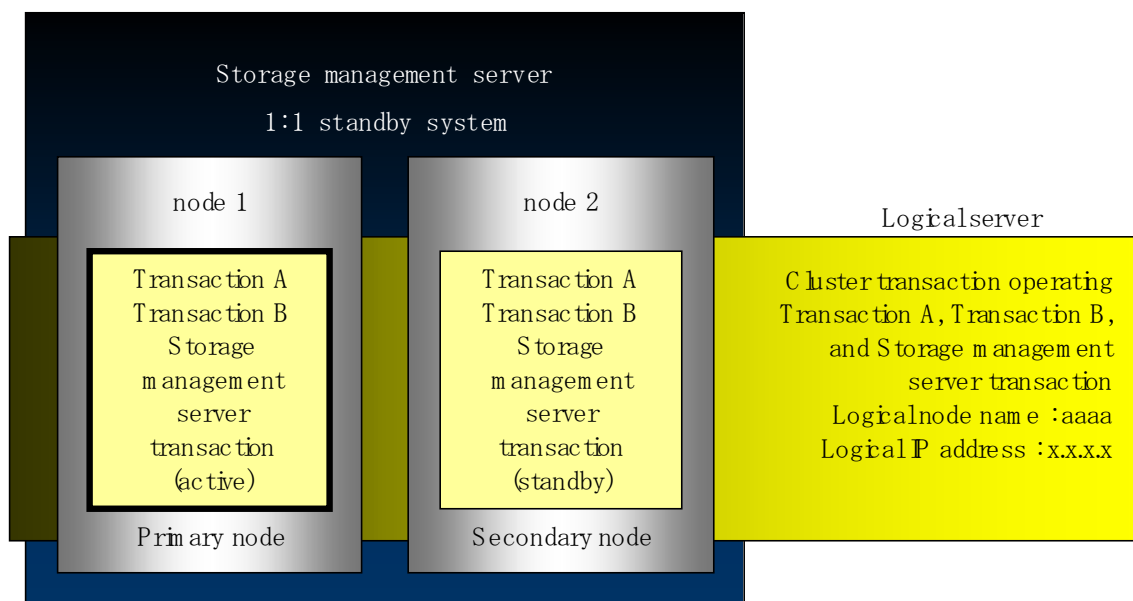
To build Storage Management Server transactions, install the Manager function of AdvancedCopy Manager on both nodes.
To build Storage Server transactions, install the Agent function of AdvancedCopy Manager on both nodes.

See "Installation of AdvancedCopy Manager," "Preparations for Customizing Storage Management Server Transactions and Storage Server Transactions," and "Customization of Storage Management Server Transactions and Storage Server Transactions" for information on AdvancedCopy Manager installation and customization.

In the above configuration, the AdvancedCopy Manager functions are installed on node 1 and node 2 to construct the Storage Management Server transaction.

Constructing Tape Server transactions

This section explains how to construct a cluster environment for Tape Server transactions in a 1:1 active/standby cluster system.

Storage management server and tape server
1:1 Active/standby cluster system

node 1

Transaction A
Transaction B
Storage
management
server
transaction
Tape server
transaction
(active)

Primary node

node 2

Transaction A
Transaction B
Storage
management
server
transaction
Tape server
transaction
(Standby)

Secondary node

Logical server

Cluster transaction operating
Transaction A, Transaction B,
Storage management server
transaction and Tape server
transaction
Logical node name : aaaa
Logical IP address : x.x.x.x

To create Storage Management Server transactions and Tape Server transactions, install AdvancedCopy Manager's Manager function and the AdvancedCopy Manager Tape Manager function on both nodes.
To create Storage Server transactions and Tape Server transactions, install the AdvancedCopy Manager's Agent function and the AdvancedCopy Manager Tape Manager function on both nodes.
To create Tape Server transactions only, install AdvancedCopy Manager's Agent function and the AdvancedCopy Manager Tape Manager function on both nodes.

For details on installing and customizing AdvancedCopy Manager, see "Installation of AdvancedCopy Manager", "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions", and "Customizing Tape Server Transactions".

In the configuration shown in the above diagram, to create both Storage Management Server transactions and Tape Server transactions, both AdvancedCopy Manager's Manager function and the AdvancedCopy Manager Tape Manager function are installed on Node 1 and Node 2.

1.4.2 Construction of a cluster system of the type with mutual standby system

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

Storage management server
Mutual standby system

node 1	node 2	Logical server 1
Transaction B Storage management server transaction (standby)	Transaction B Storage management server transaction (active)	Cluster service operating transaction B and storage server transaction Logical node name :aaaa Logical IP address :x.x.x.x
Secondary node	Primary node	
Storage management server transaction (active)	Storage management server transaction (standby)	Cluster service operating the Storage management server transaction Logical node name :bbbb Logical IP address :y.y.y.y
Primary node	Secondary node	Logical server 2
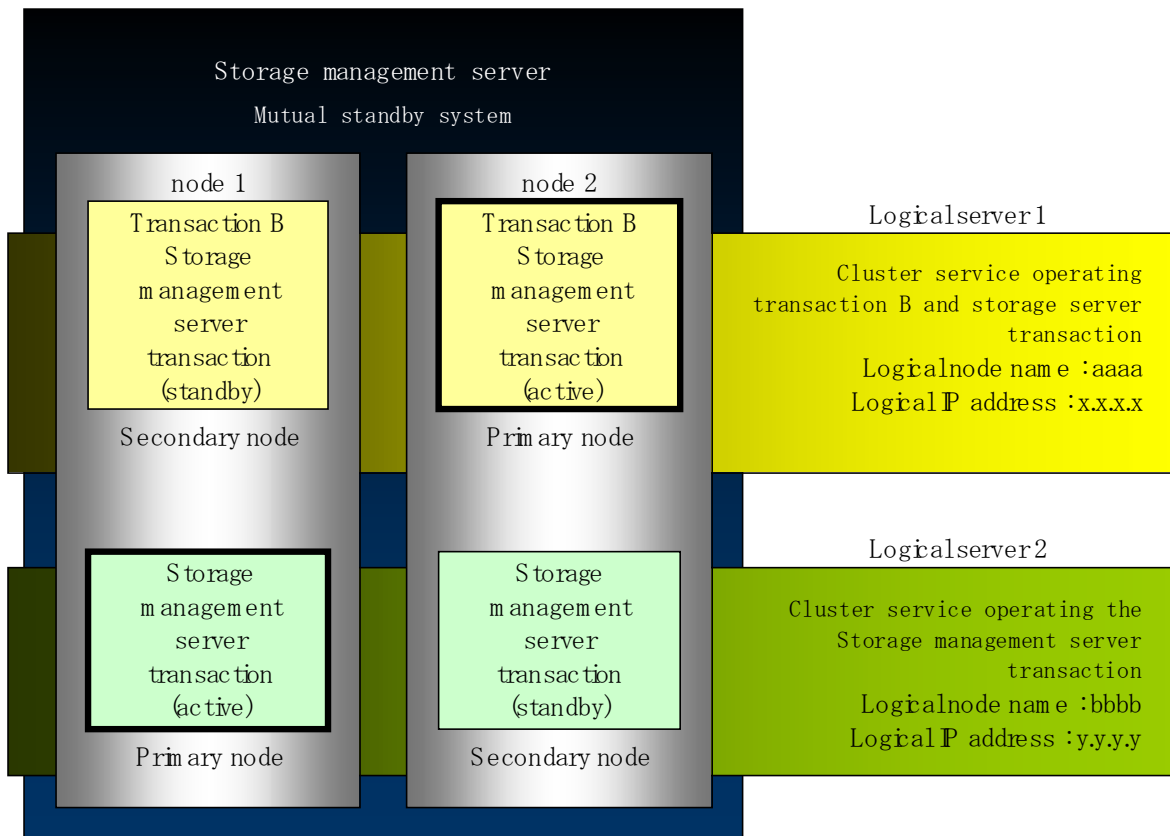
To configure a mutual standby environment for Storage Management Server transactions and Storage server transactions, install the Manager function of AdvancedCopy Manager on both nodes.

To configure a mutual standby system for Storage Server transactions, install the Agent function of AdvancedCopy Manager on both nodes.

See "Installation of AdvancedCopy Manager," "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions," and "Customization of Storage Management Server Transactions and Storage Server Transactions" for information on AdvancedCopy Manager installation and customization.

In the above configuration, the AdvancedCopy Manager functions are installed on node 1 and node 2 to construct the Storage Management Server transaction and the Storage Server transaction.

1.4.3 Construction of a cluster system of the type with n:1 standby system

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

Storage management server and storage server n:1 standby system

node 1	node 2	node 3
Transaction A Storage management server transaction (active)	Transaction A Storage management server transaction (standby)	
Primary node	Secondary node	
	Storage management server transaction (standby)	Storage management server transaction (active)
	Secondary node	Primary node

Logical server 1

Cluster service operating transaction A and storage server transaction
Logical node name : aaaa
Logical IP address : x.x.x.x

Logical server 2

Cluster service operating the Storage management server transaction
Logical node name : bbbb
Logical IP address : y.y.y.y
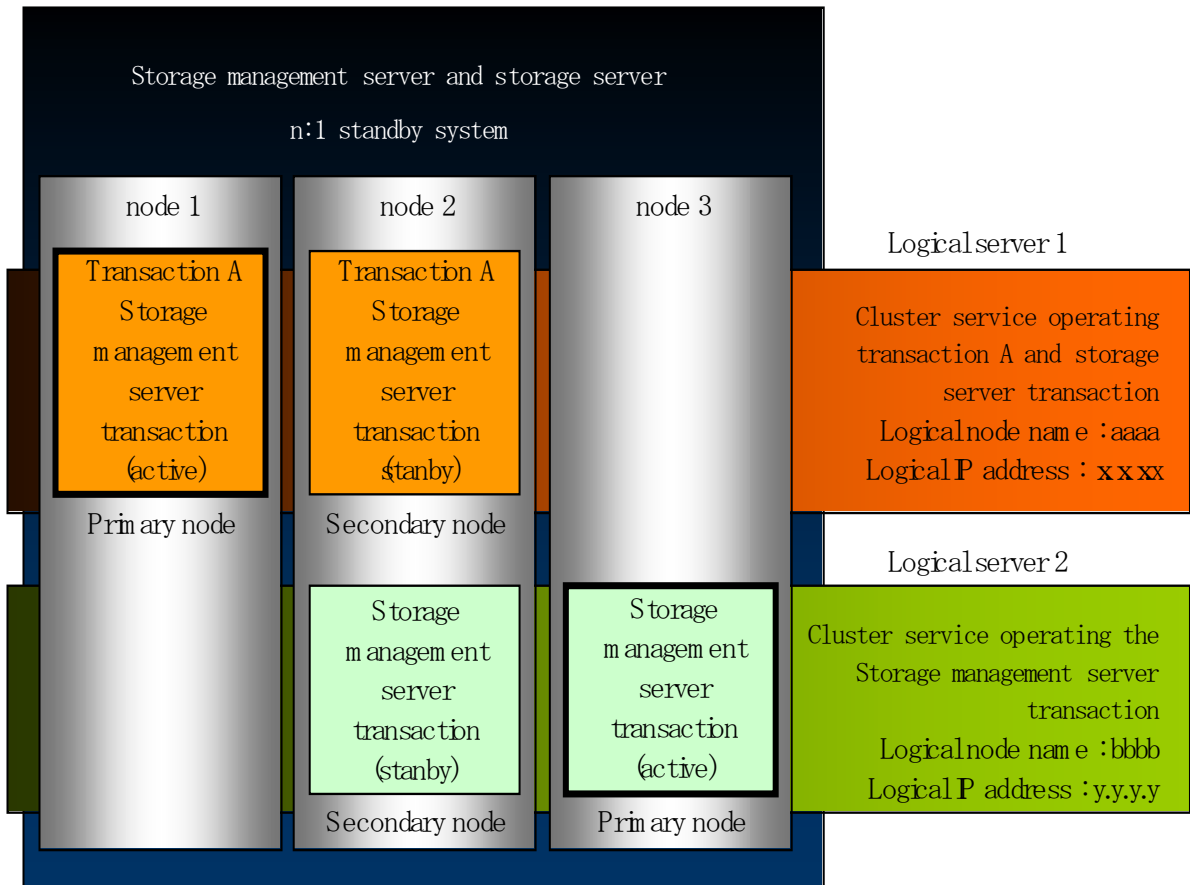
To configure an n:1 standby environment for Storage Management Server transactions and Storage Server transactions, install the Manager function on the node where Storage Management Server transactions are built. Then, install the Agent function on the other nodes.
To configure an n:1 standby environment for Storage server transactions, install the Agent function on all nodes.

See "Installation of AdvancedCopy Manager," "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions," and "Customization of Storage Management Server Transactions and Storage Server Transactions" for information on AdvancedCopy Manager installation and customization.

In the above configuration, the AdvancedCopy Manager functions are installed on node 2 and node 3. The Agent functions are installed on node 1. Because the Manager functions are installed, node 2 need not install the Agent functions.

1.4.4 Construction of a cluster system of the type with cascade topology and type with priority transfer

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

Storage management server cascade topology

node 1	node 2	node 3
Transaction A (active)	Transaction A (stanby A)	Transaction A (stanby B)
Primary node	Secondary node A	Secondary node B
Storage management server transaction (stanby B)	Storage management server transaction (stanby A)	Storage management server transaction (active)
Secondary node B	Secondary node A	Primary node

Logical server 1

Cluster service operating transaction A
Logical IP address : x x x x

Logical server 2

Cluster service operating the Storage server transaction
Logical node name : aaaa
Logical IP address : y.y.y.y

To configure a cascade topology environment and a priority transfer environment for Storage Management Server transactions, install the Manager function on all nodes.

To configure a cascade topology environment and a priority transfer environment for Storage Server transactions, install the Agent function on all nodes.

See "Installation of AdvancedCopy Manager," "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions," and "Customization of Storage Management Server Transactions and Storage Server Transactions" for information on AdvancedCopy Manager installation and customization.

With the above-mentioned composition, install the Storage Management Server in all nodes.

Chapter 2 Installation of AdvancedCopy Manager

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

● To operate an AdvancedCopy Manager transaction on the cluster system, cluster system installation and environment setting are required. For details, see cluster system manuals.

2.1 Installation of Solaris version AdvancedCopy Manager, Linux version AdvancedCopy Manager, HP version AdvancedCopy Manager, and AIX version AdvancedCopy Manager

This section explains how to install Solaris version AdvancedCopy Manager, Linux version AdvancedCopy Manager, HP version AdvancedCopy Manager, and AIX version AdvancedCopy Manager in a cluster system.

2.1.1 Installation of Manager function of AdvancedCopy Manager

Install the Manager function. Refer to "Environment construction for cluster operation", in the "ETERNUS SF AdvancedCopy Manager Installation Guide", and install the Manager function so that both the all nodes have the same environment.

Set up the environment of Storage Management Server. See "Customization of Storage Management Server," in the "ETERNUS SF AdvancedCopy Manager Installation Guide". Set up the environment of the Storage Management Server so that both the all nodes have the same environment.

When the installation and customization are completed, enable all nodes again. To provide the cluster construction for a Storage Management Server transaction, see "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions".

● Do not install the Manager function on a shared disk.

● Execute the cluster setup command to create a database environment. Take care to respond with "No" to any prompt to create a database environment as an extension of the installation process.

● The communication daemon port number (service name: stgxfws) specified in the customization of Storage Management Server is the port number of the communication daemon for local transactions. For the communication daemon for cluster transactions, specify a port number according to the operation mode as follows:
Perform the "Customization" procedure for the cluster system in "Customization of Storage Management Server Transactions and Storage Server Transactions" in this manual.

2.1.2 Installation of Agent function of AdvancedCopy Manager

Install the Agent function of AdvancedCopy Manager. Refer to "Environment construction for cluster operation", in the "ETERNUS SF AdvancedCopy Manager Installation Guide", and install Agent function in the all nodes with the same environment.
In n:1 standby system, installation to the secondary node may already be completed. In this case, install a primary node in the same environment as a secondary node.

Set up the environment of the Storage Server. For details, refer to "Customization of Storage Server," in the "ETERNUS SF AdvancedCopy Manager Installation Guide". Set up the Storage Server in the all nodes with the same environment.
In n:1 standby system, setting up to the secondary node may already be completed. In this case, setup a primary node in the same environment as a secondary node. When a secondary node is a Storage Management Server and a primary node is a Storage Server, customize the environment of a Storage Server according to the environment of a Storage Management Server.

When the installation and customization are completed, enable all the nodes again. If the customization (including re-enabling) of the secondary node has already been finished in a cluster type with n:1 standby system, enable the primary node only. To provide the cluster construction for a Storage Server transaction, see "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions".

- Do not install the Agent function of AdvancedCopy Manager on a shared disk.

- The communication daemon port number (service name: stgxfws) specified in "Customization of Storage Server," in the "ETERNUS SF AdvancedCopy Manager Installation Guide," is the port number of the communication daemon for local transactions. For the communication daemon for cluster transactions, specify a port number according to the operation mode as follows:
  Perform the "Customization" procedure for the cluster system "Customization of Storage Management Server Transactions and Storage Server Transactions".

2.1.3 How to install the Tape Manager function

This section explains the procedure for installing the Tape Manager function.

- Do not install the Tape Manager on the shared disk.

1. Install and customize either the Manager or Agent function on the primary node.
   For details, refer to "Installing AdvancedCopy Manager".
2. Install the Tape Manager function on the primary node.
   For details, refer to "Installation of Tape Manager" in the "ETERNUS SF AdvancedCopy Manager Installation Guide".
3. Install and customize either the Manager or Agent function on the secondary node, using the same procedure as for the primary node.
4. Install the Tape Manager function on the secondary node, using the same procedure as for the primary node.

The procedure for configuring environment settings for the Tape Server is described below.
1. Perform tape server customization on the primary node.
   For details, refer to "Customization of Tape Server" in the "ETERNUS SF AdvancedCopy Manager Installation Guide".

Note

— The following sections in the "ETERNUS SF AdvancedCopy Manager Installation Guide" describe how to customize the tape server transactions. The following settings are different to those described above: "Initial settings for the tape server", "TSM settings (settings made before the automatic startup settings for the daemon)", "Automatic startup settings for the daemon" and "TSM settings (settings made before the automatic startup settings for the daemon)". In these sections, ensure that you do not perform the customization procedure described above.

2. Perform tape server customization on the secondary node, using the same procedure as for the primary node.

Restart both nodes after the installation and customization procedures are complete.

2.2 Installation of the Windows version of AdvancedCopy Manager

This chapter explains how to install the Windows version of AdvancedCopy Manager in a cluster system.

2.2.1 Installation of the Manager function of AdvancedCopy Manager

This chapter explains how to install Manager function.

● At installation, all the nodes must be installed in the same environment (i.e., the local drive name, port number, and install directory must be the same for both).

● Do not install the Manager function on a shared disk.

● Because the database environment is created with the cluster setup command, be sure to respond with "No" to any prompt about whether to create a database environment as an extension of installation process.

● The port number for the communication service to be specified by installation is for communication service for local transactions. Set the port number for cluster transactions in the following location according to the operation method.
Perform the "Customization" procedure for the cluster system in "Customization of Storage Management Server Transactions and Storage Server Transactions".

2.2.1.1 Installation flow

The installation flow 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 topology, follow the procedure given for the secondary node on every other secondary node.

[Primary node tasks]	[Secondary node tasks]
Insert the CD-ROM	Insert the CD-ROM
Display the initial menu	Display the initial menu
Start the installation (Select "Install")	Start the installation (Select "Install")
Select the install menu (Select "Install")	Select the install menu (Select "Install")
Sign the use permission contract	Sign the use permission contract
Specify the system to be installed	Specify the system to be installed
Register the startup account	Register the startup account
Register the port number	Register the port number
Confirm the setup information	Confirm the setup information
Copy the resources	Copy the resources
Confirm the environment settings	Confirm the environment settings
End of installation	End of installation

2.2.1.2 Details of Installation

Install the Manager function of the Windows version AdvancedCopy Manager with the following procedure.

The Manager function does not install correctly if installed while the following services are in use. Ensure these services are not running before attempting installation:

- Terminal service (used from remote desktop connection)
- Telnet server service

Note that a console session connection to a terminal service can be used if the Storage Management server is Windows Server 2003. Refer to the following site for the console session connection method:

      http://support.microsoft.com/kb/278845/ja

1. Log on to the primary node.
    Log on to the primary node. Log on as the administrator of the terminal where the installation is to be done. Ignore "(Secondary node)" in the following explanation.

2. Insert the AdvancedCopy Manager CD-ROM (Manager Program DISC1) into the drive and an initial [ETERNUS SF] window will be displayed. Click on [Install Function for Storage Management].

3. At the following (InstallShield) window click the [Next] button.
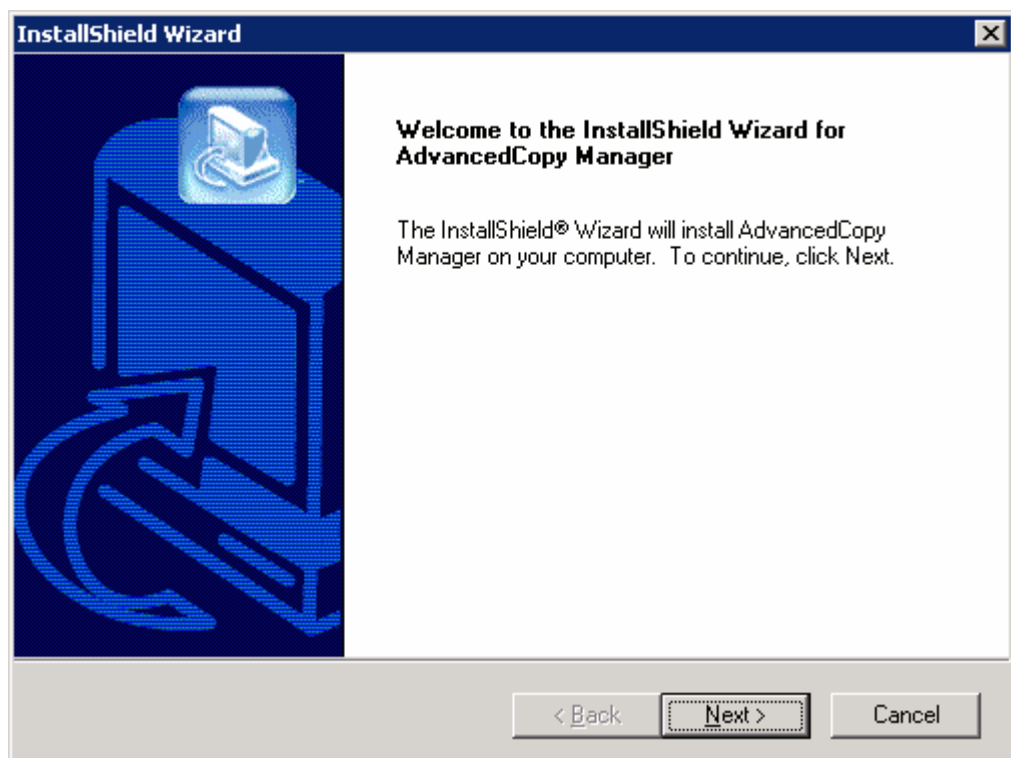
4. Click [Installation] in the (Welcome) window, and then click on [Next].
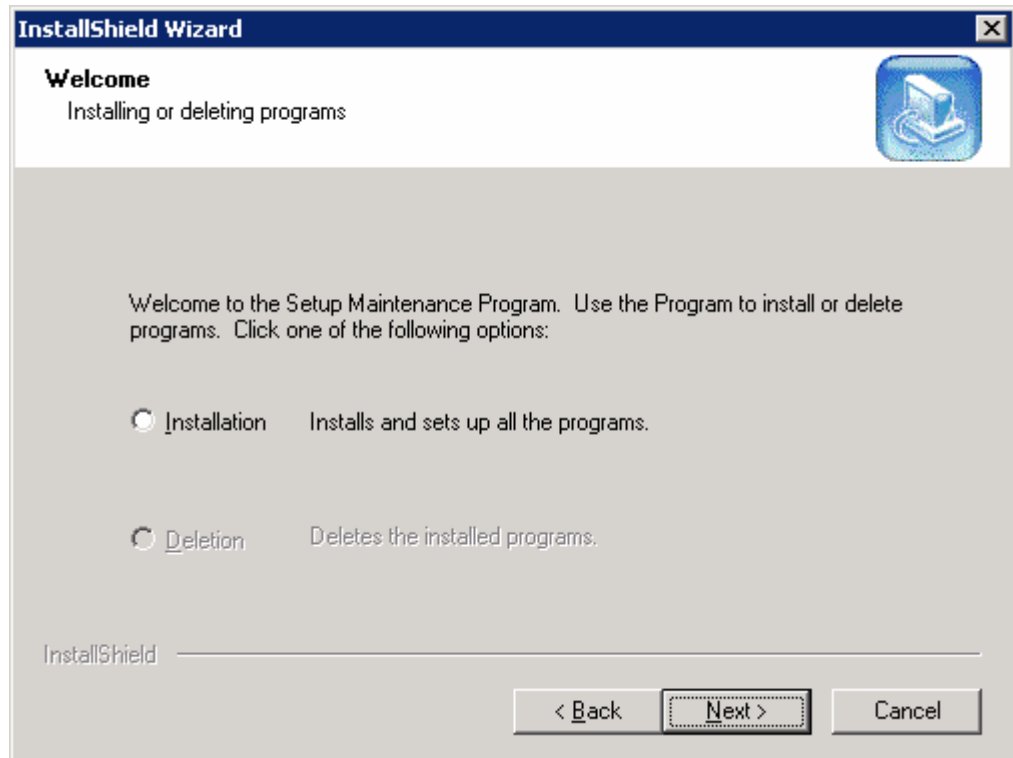
5. Accept the use permission contract displayed on the [License Agreement] window by clicking on [Yes].
   Confirm the displayed contents, and click the [Yes] button.
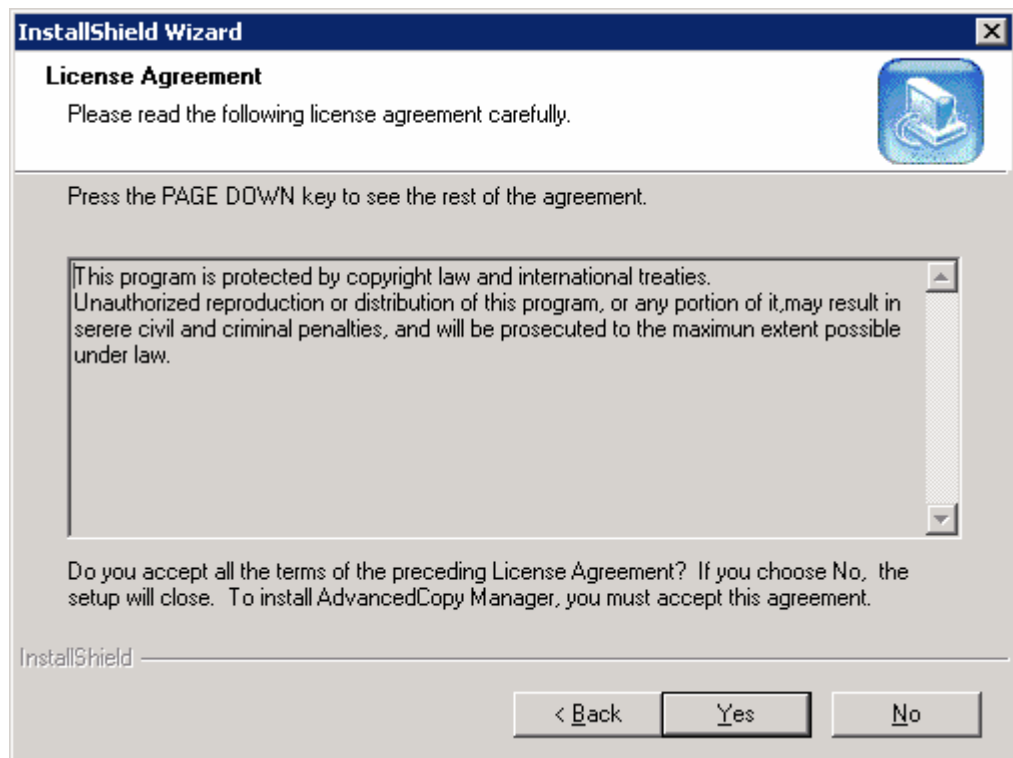
6. Specify the system to be installed.

   (Primary node)

If this product is to be installed in directories other than those displayed (default directories), click the [Reffer] button to select the desired directories. After all the correct 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 the Manager function on a shared disk.

(Secondary node)
Specify the same drive and directories as those specified for the primary node.
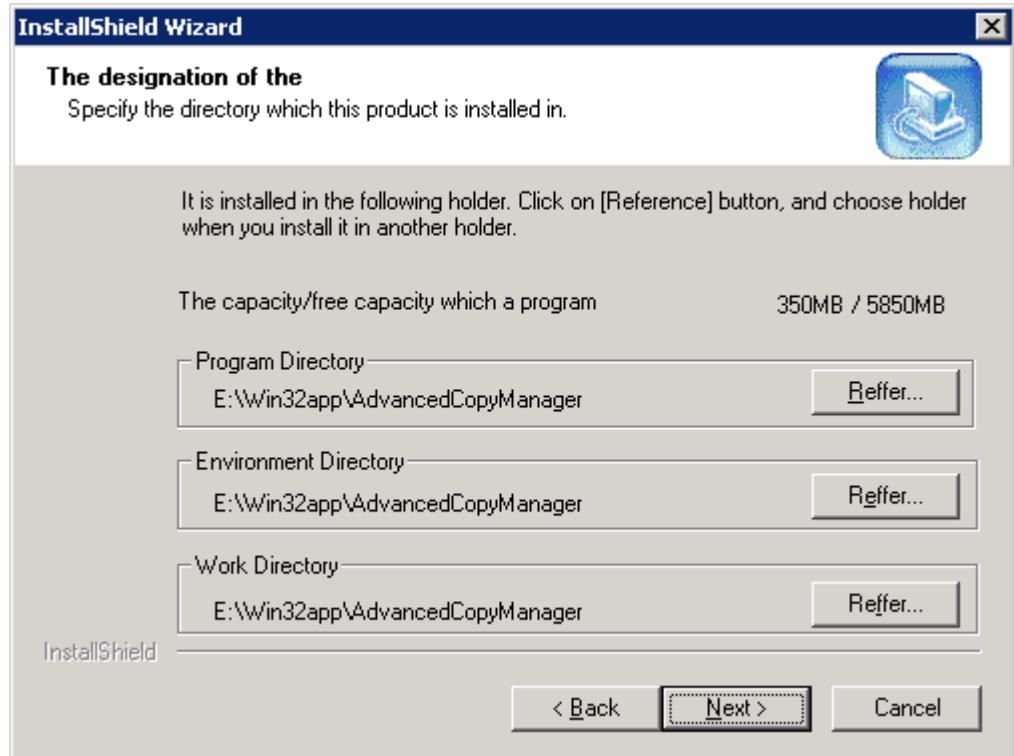
When the [Reffer] button is clicked, the following window is displayed, allowing the selection of other than the defaulted directories.
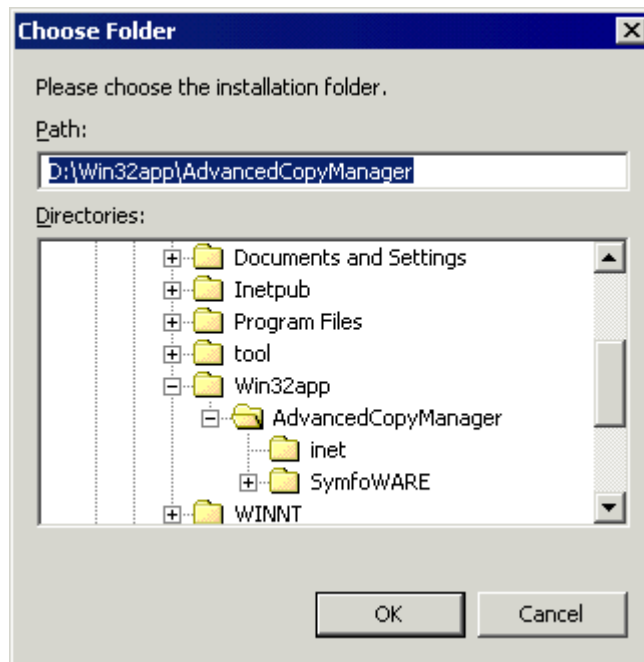
7. Input the startup account on the [Startup/Authentication feature manager] window.

(Primary node)
Input the account name belonging to the Administrator's group with a password, and click the [Next] button. The account name and password must satisfy the following conditions:
　　― An account name and password that can be specified in the operating system
　　　　.

For details of the startup account, see "Startup account" in the "ETERNUS SF AdvancedCopy Manager Installation Guide."

If the account name is not registered, the system adds this account with Administrative rights with the password set not to expire.　In addition, the system sets the following user authority:
　　― Log on as a service
　　― Function as part of the operating system
　　― Adding a quota
　　― Replace the process level token

(Secondary node)
Specify the same account name and password as those specified for the primary node.

8. Input the number of the port to be allocated to the service on the [Registering a port number] window.

(Primary node)
Enter the port number to be allocated to each service within the following range:
　　― 5001 to 65535
The first displayed value is a recommended value in a non-cluster environment and is not always unique.
　To perform cluster operation, change all port numbers so that they are within the range as indicated above.

After the port number entry is completed, click the [Next] button. This window will
be redisplayed with the accepted port number.

(Secondary node)
Specify the same values for all items as the values specified for the primary node.

If the AdvancedCopy Manager service name is defined with an ALIAS, the following window
will be displayed and the port number specified on the previous screen is ignored.
The installation is proceeds.
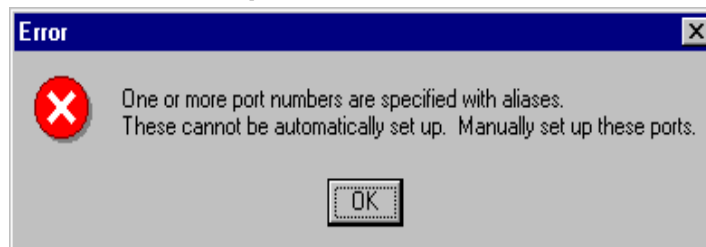
9. Confirm the settings in the [Start Copying Files] window.
   If no errors are detected, click the [Next] button. To correct or otherwise change
   any settings, click the [Back] button.
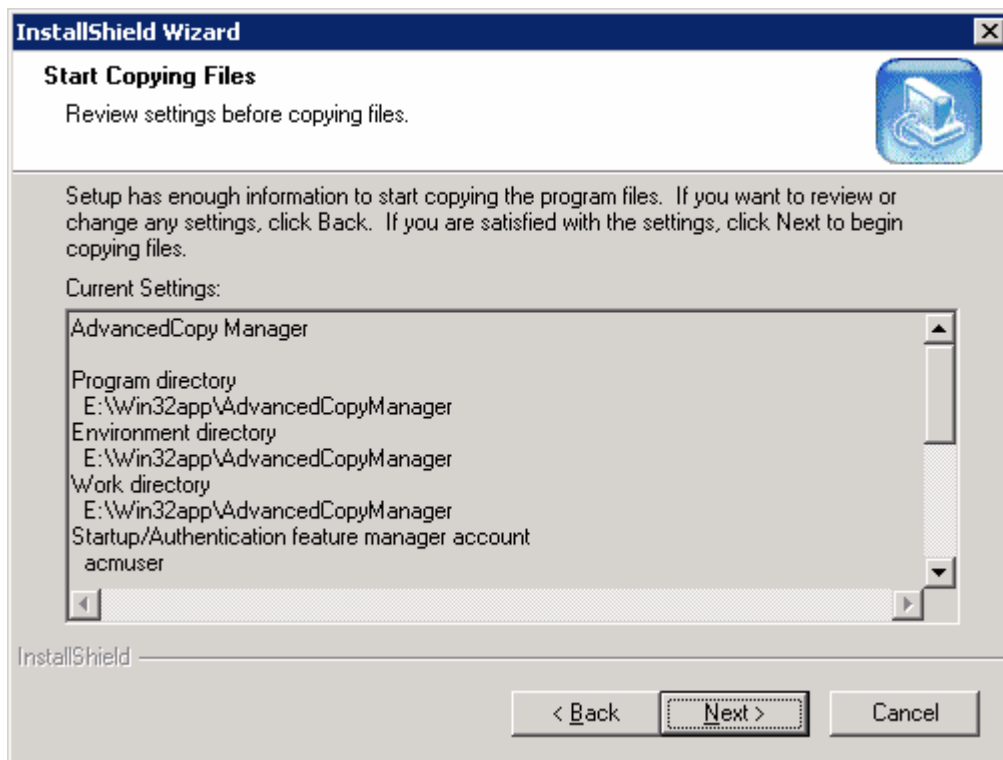
10. Copying starts.

    The file transfer that is in progress can be viewed on the [Setup Status] window.
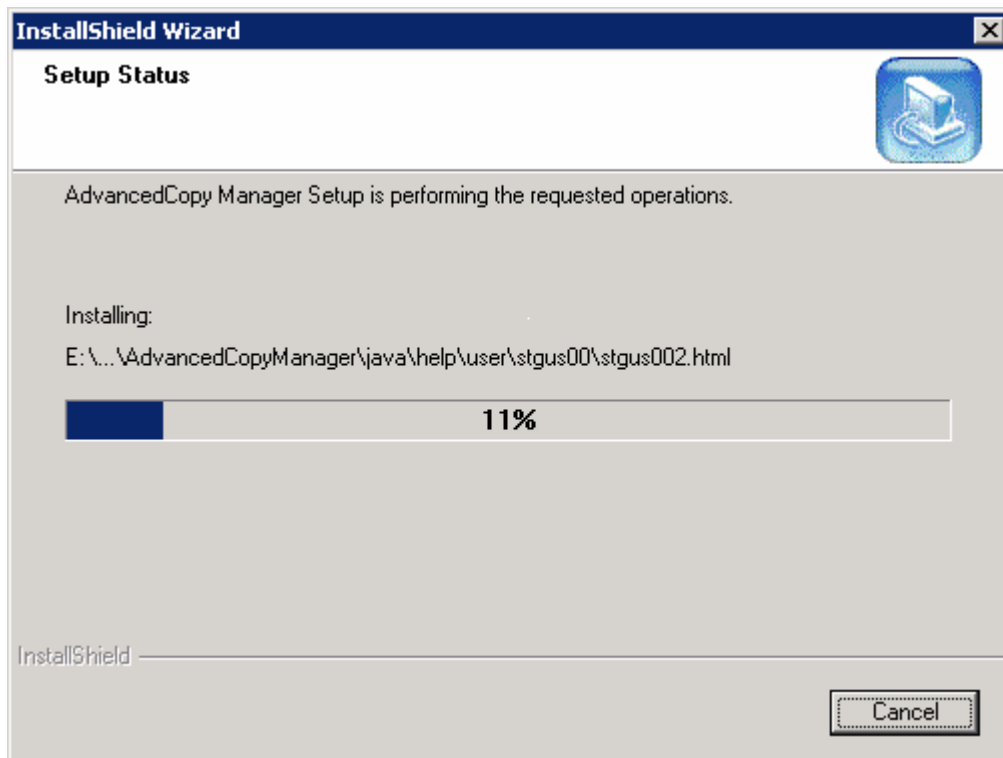
11. Confirm the environment settings.

    When the following [Environment setup] window opens, click the [No] button.
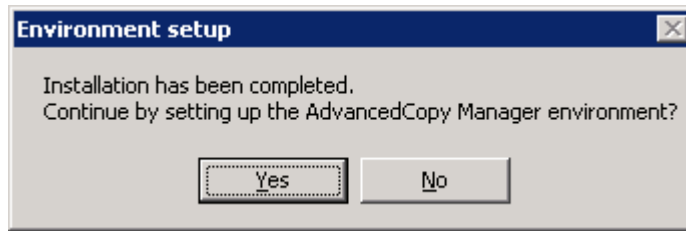
12. Finish the installation.
    Select the [restart the computer] option and click the [Finish] button to complete
    the installation.

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

    (Secondary node)
    Installation of both nodes is now complete.   To provide the cluster construction for
    a Storage Server transaction, see "Preparations for Customizing Storage Management
    Server Transactions, Storage Server Transactions and Tape Server Transactions".
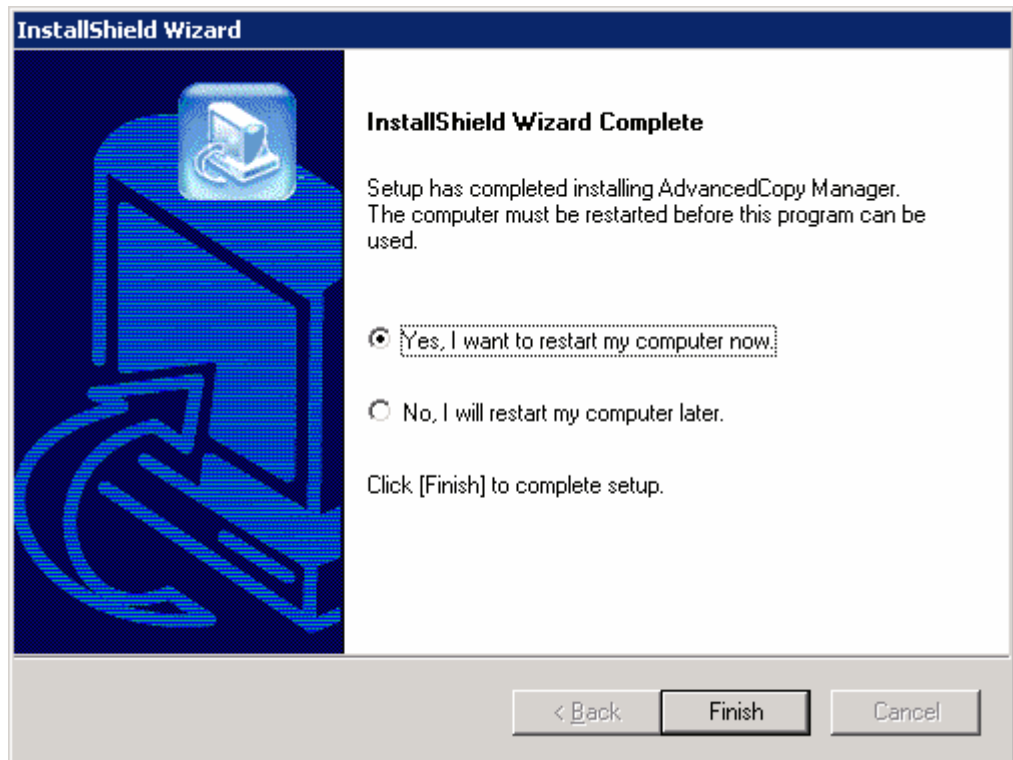
13. Log on to the secondary node.
    Log on to the secondary node.   Log on as the administrator of the terminal where the
    installation is to be done.
14. Go back to 2.
    Starting with step 2, perform the same installation procedure for the secondary node
    that you did for the primary node.   Ignore (Primary node) in the following explanation.

2.2.2 Installation of the Agent function of AdvancedCopy Manager

This chapter explains how to install the Agent function of the Windows version AdvancedCopy
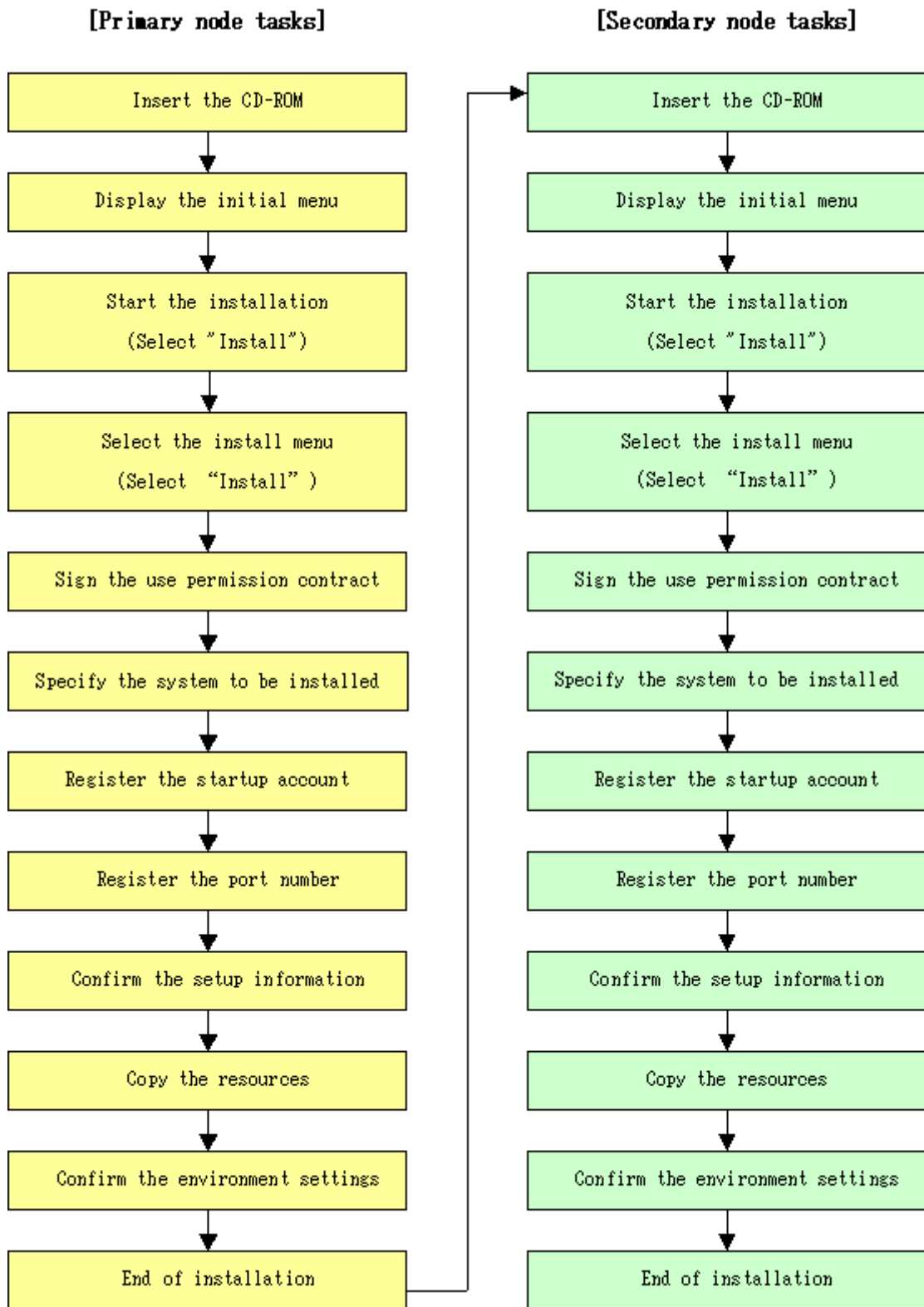Manager.

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 Agent function on a shared disk.

● The port number for the communication service to be specified during the installation is for communication service for local transactions.   Set the port number for cluster transactions in the following location according to the operation method.
Perform the "Customization" procedure for the cluster system in "Customization of Storage Management Server Transactions and Storage Server Transactions".

2.2.2.1 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 topology, follow the procedure for the secondary node on every other secondary node.

[Primary node tasks]	[Secondary node tasks]
Insert the CD-ROM	Insert the CD-ROM
↓	↓
Display the initial menu	Display the initial menu
↓	↓
Start the installation (Select "Install")	Start the installation (Select "Install")
↓	↓
Select the install menu (Select "Install")	Start the install menu (Select "Install")
↓	↓
Sign the use permission contract	Sign the use permission contract
↓	↓
Specify the system to be installed	Specify the system to be installed
↓	↓
Register the startup account	Register the startup account
↓	↓
Register the port number	Register the port number
↓	↓
Confirm the setup information	Confirm the setup information
↓	↓
Copy the resources	Copy the resources
↓	↓
End of installation	End of installation

2.2.2.2 Details of the Installation

Install the Agent function with the following procedure.
1. Log on to the primary node.
   Log on to the primary node. Log on as the administrator of the terminal where the installation will be done. Ignore "(Secondary node)" in the following explanation.

2. Prinsert the AdvancedCopy Manager CD-ROM (Agent Program DISC2) into the drive and an initial [ETERNUS SF] window will be displayed. Click [Install Function for Storage Server].

3. At the following window (InstallShield) window, click the [Next] button.
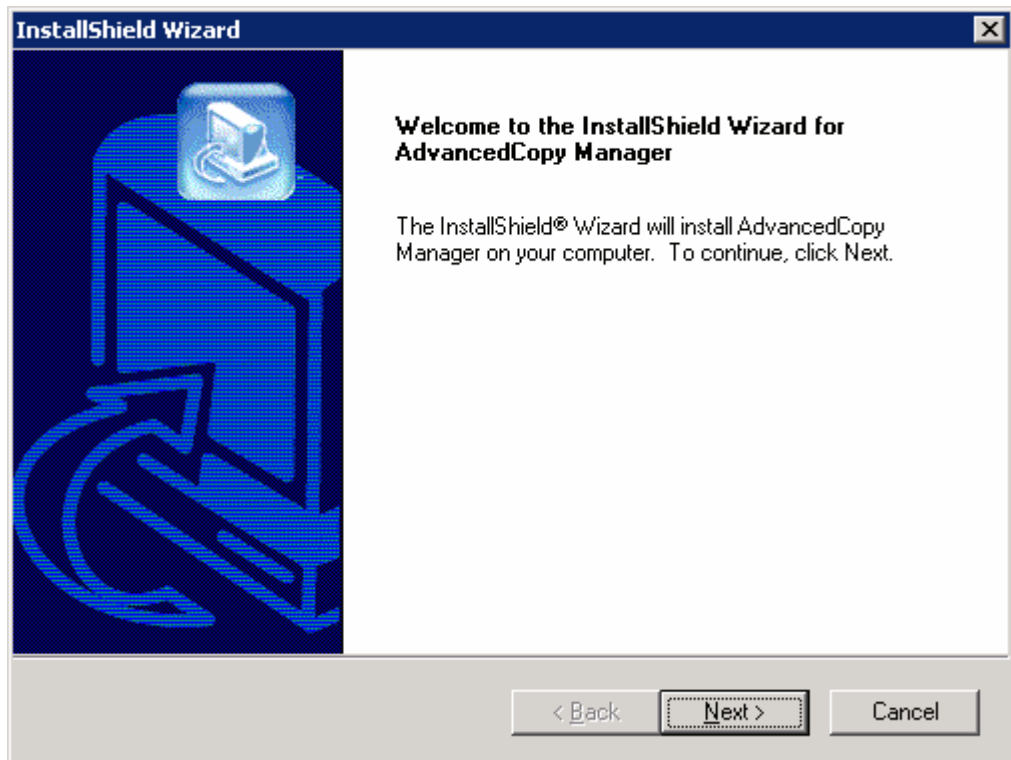
4. Click [Installation] in the (Welcome) window, and then click on [Next].
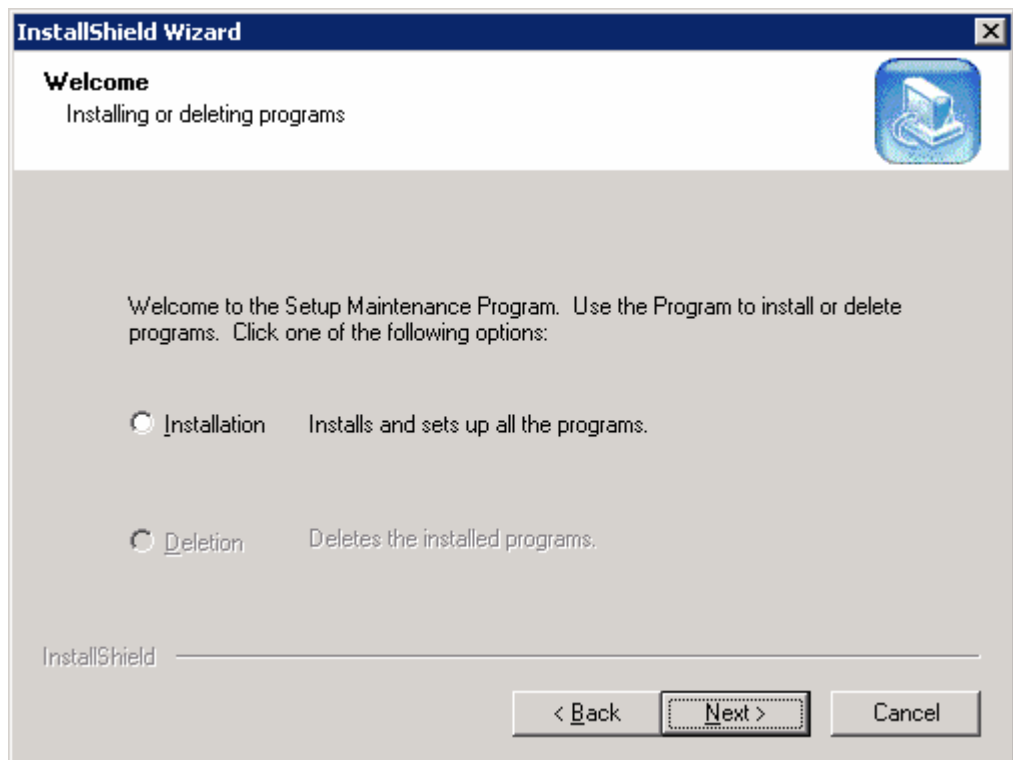
5. Accept the use contract permission displayed on the [License Agreement] window by clicking on [Yes].

   Confirm the displayed contents, and click the [Yes] button.
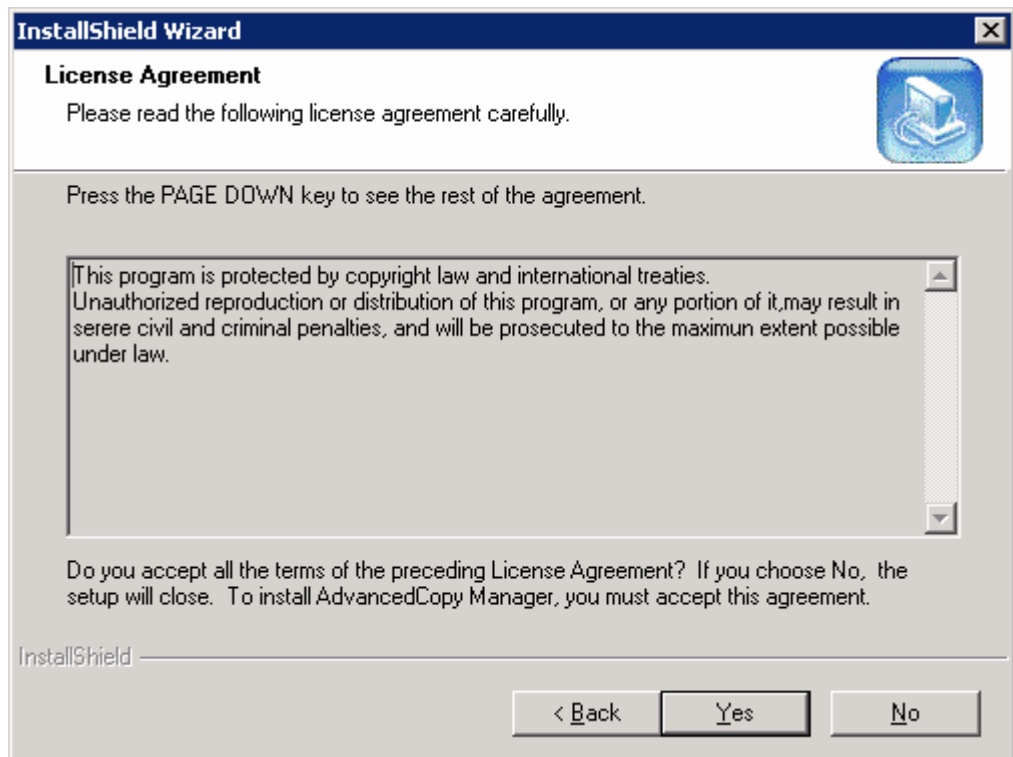
6. Specify the system to be installed.

   (Primary node)
   If this product is to be installed in directories other than those displayed (default

directories), click the [Refer] 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
Agent function of AdvancedCopy Manager on a shared disk.

(Secondary node)
Specify the same drive and directories as those specified for the primary node.
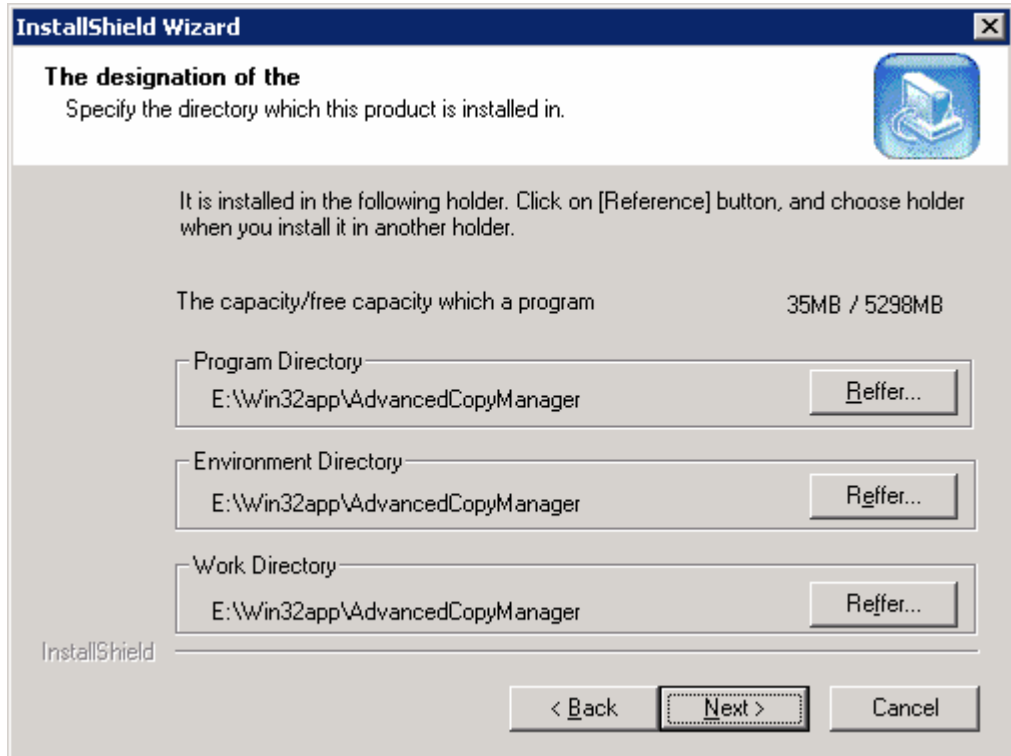
When one of the [Reffer] buttons is clicked, the following window is displayed,
allowing the selection of other than the defaulted directories:
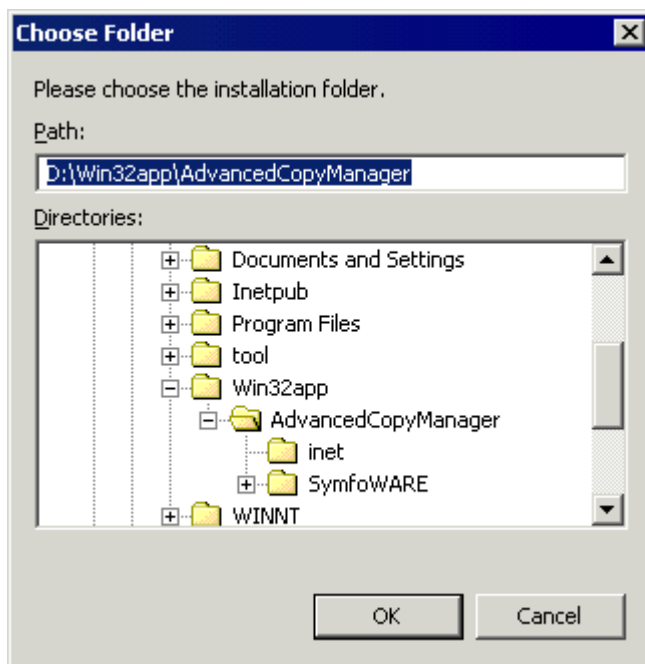
7. Input the startup account to the [Register Startup Account] window.

(Primary node)
Input the account's name belonging to the Administrator's group with a password, and click the [Next] button. The account name and password must satisfy the following conditions:
— An account name and password that can be specified in the operating system

    For details of the startup account, see "Startup account" in the "ETERNUS SF AdvancedCopy Manager Installation Guide."

    If a previously unregistered name is entered, it should be registered as a new account. At this time, the system automatically sets the password to never expire, and assigns it to the Administrator's group. In addition, the system automatically sets the following user's authority to allow them to:
— Log on as a service
— Act as part of the operating system
— Increase quotas
— Replace a process level token

(Secondary node)
Specify the same account name and password as those specified for the primary node.

8. Input the number of the port to be allocated to the service on the [Register Port Number] window.

(Primary node)
Enter the port number to be allocated to each service within the following range:
— 5001 to 65535
The first displayed value is a recommended value in a non-cluster environment and is not always unique.
The number displayed by default is recommended, but it is not always a unique number.
To perform cluster operation, 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 values for all items as the values specified for the primary node.
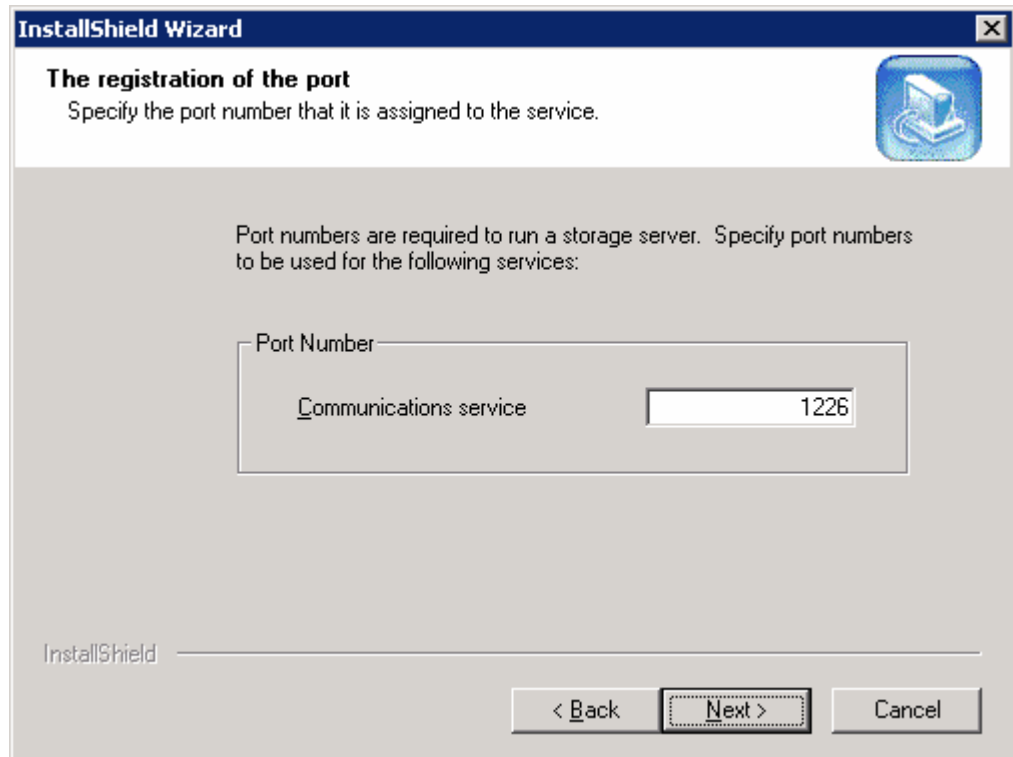
If the AdvancedCopy Manager service name is defined with an ALIAS, the following window
will be displayed and the port number specified on the previous window is ignored.
The installation proceeds.
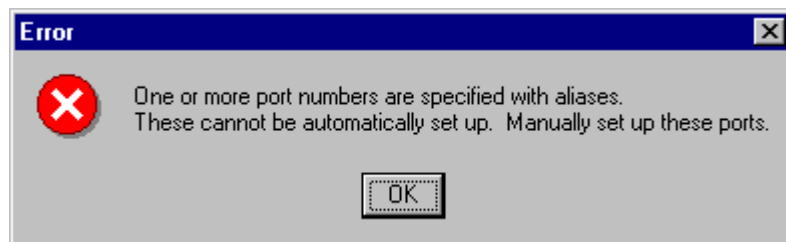
9. Confirm the settings on the [Start Copying Files] window.
    If no errors are detected, click the [Next] button. To correct or otherwise change
    any settings, click the [Back] button.
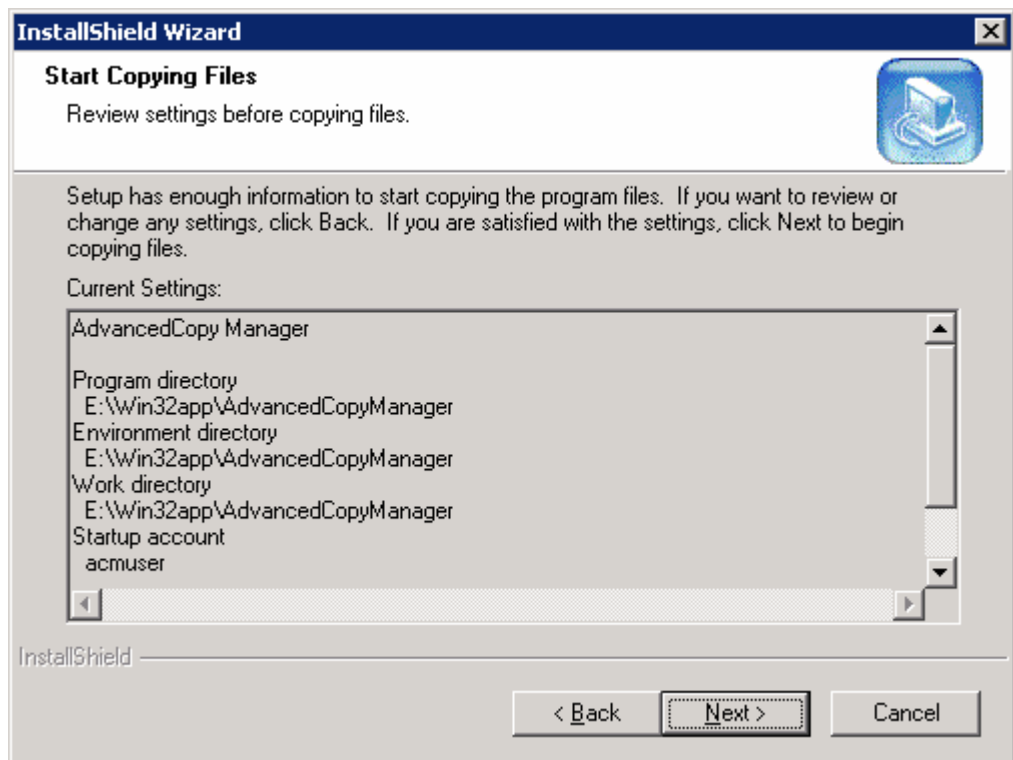
10. Copying starts.

    The file transfer that is in progress can be viewed on the [Setup Status] window.
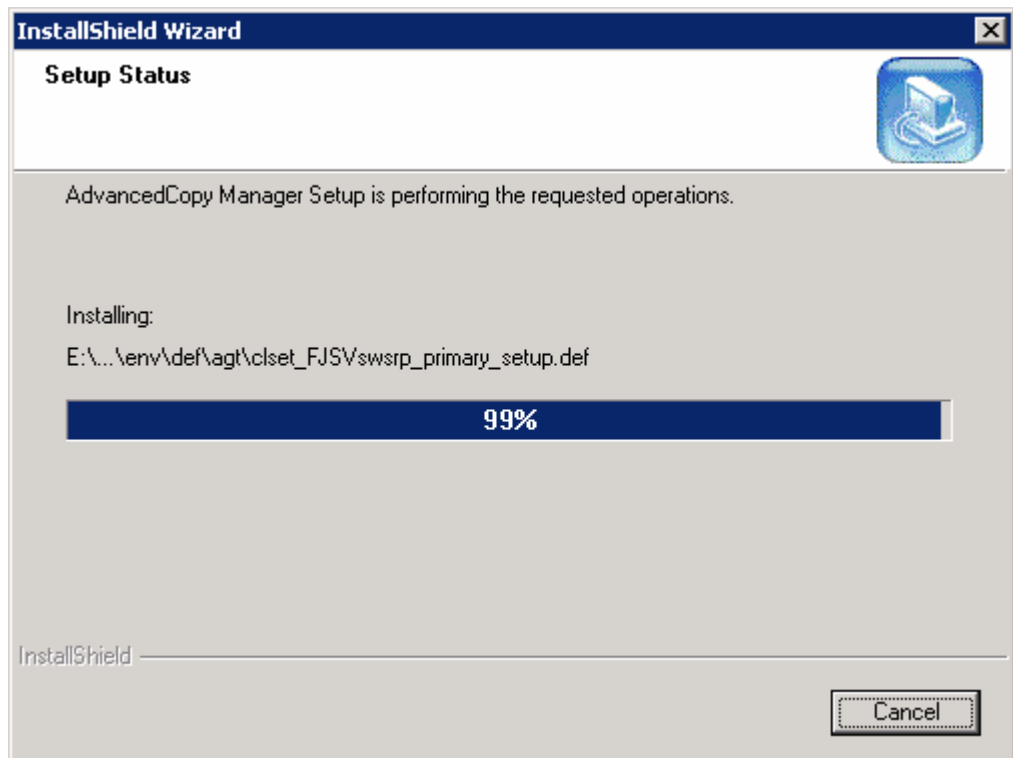
11. Finish the installation.

    Click the [Finish] button to complete the installation.

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

(Secondary node)

The installation on both nodes is now complete. To provide the cluster construction for a Storage Server transaction, see "Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions and Tape Server Transactions".
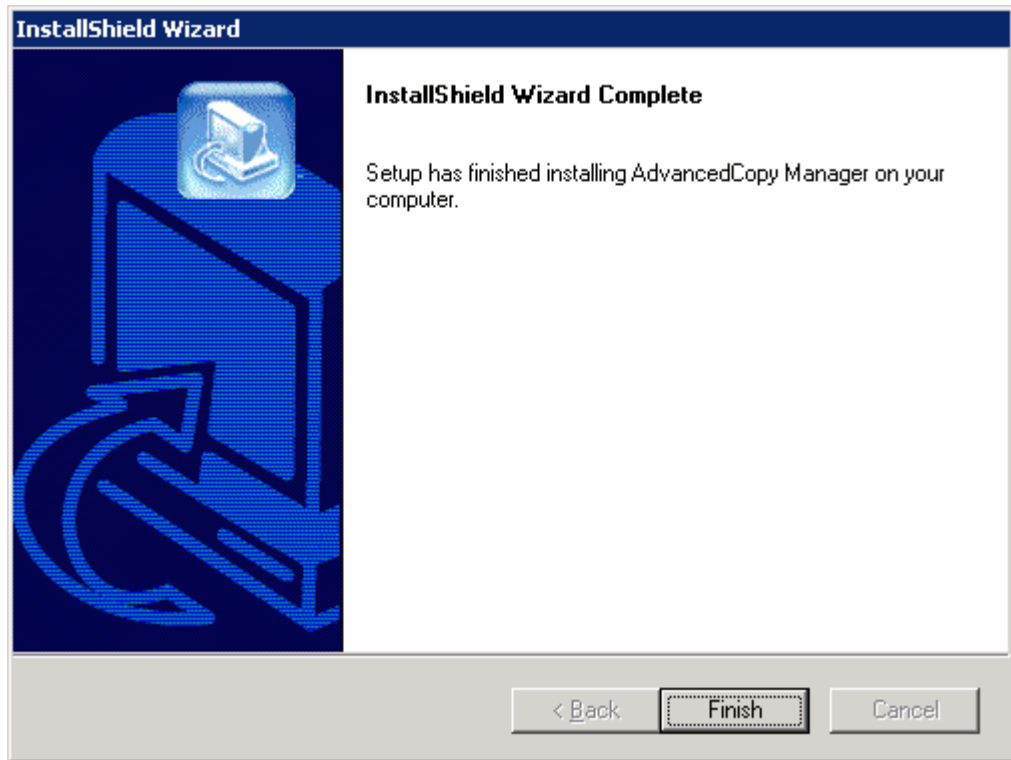
12. Log on to the secondary node.

Log on to the secondary node. Log on as the administrator of the terminal where the installation is to be performed.

13. Go back to 2.

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

Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions

This chapter explains the resources and input items that are required to customize Storage Management Server transactions, Storage Server transactions, and Tape Server transactions.

3.1 Resources

The following resources are necessary to install AdvancedCopy Manager on a cluster system:
The table shows the references for information on the required resources:

Cluster system	Reference
Solaris version of SynfinityCLUSTER or PRIMECLUSTER	Resources required for Solaris version SynfinityCLUSTER /PRIMECLUSTER
Solaris version of VERITAS Cluster Server	Resources required for Solaris version VERITAS Cluster Server
Solaris version of Sun Cluster	Resources required for Solaris version Sun Cluster
Linux version of PRIMECLUSTER	Resources required for Linux version PRIMECLUSTER
Windows version of MSCS	Resources required for Windows version of MSCS
HP version of MC/ServiceGuard	Resources required for HP version MC/ServiceGuard
HP version of VERITAS Cluster Server	Resources required for HP version VERITAS Cluster Server
AIX version of VERITAS Cluster Server	Resources required for AIX ersion VERITAS Cluster Server
AIXversion of High Availability Cluster Multi-Processing	Resources required for AIX version High Availability Cluster Multi-Processing

3.1.1 Resources required for the Solaris version SynfinityCLUSTER/PRIMECLUSTER

The following resources are required when installing AdvancedCopy Manager on the Solaris edition of SynfinityCluster or PRIMECLUSTER.

1) Takeover IP address for AdvancedCopy Manager

Allocate an IP address that is used during cluster system operations and that is unique on the network. This IP address is required for each AdvancedCopy Manager transaction.

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 "Capacity of a shared disk" for information on the disk space that should be reserved on the shared disk.

Name	Storage Management Server transaction	Storage Server transaction	Tape Server transaction
Shared disk for AdvancedCopy Manager repository	4 or 3 or 2 or 1 or 0	0	0
Shared disk for AdvancedCopy Manager shared data	1	1	0
Shared disk for TSM shared data	0	0	1
Total number of partitions	5 or 4 or 3 or 2 or 1	1	$1+a^{*1}$

*1 If a Tape Server transaction coexists with a Storage Management Server transaction, "a" is the total number of partitions for the Storage Management Server transaction.
If a Tape Server transaction coexists with a Storage Server transaction, "a" is the total number of partitions for the Storage Server transaction.

Each of the partitions of the shared disk for the AdvancedCopy Manager repository is used for the database area stored in the following four directories:
— The directory for the database file (This can be created on the shared disk for AdvancedCopy Manager shared data.)
— The directory for the RDB dictionary (This can be created on the shared disk for AdvancedCopy Manager shared data.)
— The directory for the RDB log file (This can be created on the shared disk for AdvancedCopy Manager shared data.)
— The directory for the repository data storage database space (This can be created on the shared disk for AdvancedCopy Manager shared data.)

Note

— Define the shared disks for AdvancedCopy Manager shared data and the AdvancedCopy Manager repository as SynfinityCluster or PRIMECLUSTER shared disks.
— Allocate shared disks for AdvancedCopy Manager shared data and the AdvancedCopy Manager repository that are not involved in AdvancedCopy Manager backups or replication
— 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 shared data. However, in consideration of replicability and to upgrade the performance, Fujitsu recommends that each directory be created in a separate partition.
— The shared disk shared data and the shared disk for the repository are used for file systems. Make arrangements for these disks to be mounted.

— Refer to "GDS initial settings" in the "PRIMECLUSTER Installation Guide" for information on how to set up PRIMECLUSTER shared disks and file systems. Register these file systems (both the shared disk for shared data and the shared disk for the repository) as Fsystem resources in the procedure described in "Customization operation details" in this manual. Perform the steps described in "Prior settings" under "Setting up Fsystem resources" in the PRIMECLUSTER Installation Guide.

— Refer to "Setting up shared disk devices" in the "SynfinityCluster Installation Guide" for information on how to set up SynfinityCluster shared disks and file systems. Use the shared disk for the repository and the shared disk for shared data as file systems. Perform the procedure in "Using as file systems" under "Setting up Slice and Mount Information" in the "SynfinityCluster Installation Guide".

— Refer to the TSM manuals for information about TSM shared disks.

3.1.2 Resources required for the Solaris version VERITAS Cluster Server

The following resources are necessary to install AdvancedCopy Manager on a Solaris version VERITAS Cluster Server:

1) Takeover IP address for AdvancedCopy Manager

Allocate a new IP address that is unique in the network for use in cluster system operations.   However, to use an IP address that is already in use for transactions, no new IP address need be allocated for AdvancedCopy Manager.   One IP address is required per 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 is stored

Prepare partitions on the shared disks on which to store shared data.   The table below lists the number of required partitions.   Note that the listed values indicate the number of partitions required for every transaction. For more information about the size of the shared disks, see "Capacity of a shared disk".

Name	Storage Management Server transaction	Storage Server transaction
Shared disk for the repository	4 or 3 or 2 or 1 or 0	0
Shared disk for shared data	1	1
Total number of partitions	5 or 4 or 3 or 2 or 1	1

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 (This can be created on the shared disk for shared data.)

— The directory for RDB dictionary (This can be created on the shared disk for shared data.)

— The directory for RDB log file (This can be created on the shared disk for shared data.)

— The directory for repository data storage database space (This can be created on the shared disk for shared data.)

— Define the shared disk for shared data and the shared disk for the repository 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 shared data and the shared disk for the 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 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 shared data and the shared disk for the repository are used for file systems. Make arrangements so that these disks can be mounted.

3.1.3 Resources required for Solaris version Sun Cluster

The following resources are necessary to install AdvancedCopy Manager on a Solaris version Sun Cluster:

1) Takeover IP address for AdvancedCopy Manager
   Allocate a new IP address that is unique in the network for use in cluster system operations. One 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 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 (that is, it does not restrict the use) in existing products that already use the logical IP address.

2) Partition where shared data for AdvancedCopy Manager is stored
   Prepare sufficient partitions on the shared disks on which to store shared data for AdvancedCopy Manager. The table below lists the numbers of required partitions. Note that the listed values indicate the number of partitions required for every AdvancedCopy Manager transaction. For more information about the size of the shared disks for AdvancedCopy Manager shared data, see "Capacity of a shared disk".

Name	Storage management server transaction	Storage server transaction
Shared disk for AdvancedCopy Manager repository	4 or 3 or 2 or 1 or 0	0
Shared disk for AdvancedCopy Manager shared data	1	1
Total number of partitions	5 or 4 or 3 or 2 or 1	1

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

— The directory for the database file (This can be created on the shared disk for AdvancedCopy Manager shared data.)

— The directory for the RDB dictionary (This can be created on the shared disk for AdvancedCopy Manager shared data.)

— The directory for the RDB log file (This can be created on the shared disk for AdvancedCopy Manager shared data.)

— The directory for repository database storage space (This can be created on the shared disk for AdvancedCopy Manager shared data.)

— Define the shared disk for AdvancedCopy Manager shared data and for the AdvancedCopy Manager repository 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, and the shared disk for the AdvancedCopy Manager repository.

— The four directories can be created on the same shared disk that includes both the shared disk for the AdvancedCopy Manager repository and the shared disk for AdvancedCopy Manager shared data. However, from the point of view of replicability and update performance, Fujitsu recommends each directory be created in a separate partition.

— The shared disk for AdvancedCopy Manager shared data and the shared disk for the AdvancedCopy Manager repository are used for file systems. Make arrangements so that these disks can be mounted.

3.1.4 Resources required for the Linux version PRIMECLUSTER

The following resources are necessary to install AdvancedCopy Manager on a Linux version PRIMECLUSTER:

1) Takeover IP address for AdvancedCopy Manager

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

    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 GLS resource 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 (ie, a restriction) in existing products that already use the logical IP address.

2) Partition where shared data for AdvancedCopy Manager is stored

    Prepare partitions on the shared disks on which to store shared data. The table below lists the number of required partitions. Note that the listed values indicate the number of partitions required for every transaction.

    For more information about the size of the shared disks for shared data, see "Capacity of a shared disk".

Name	Storage Management Server transaction	Storage Server transaction
Shared disk for AdvancedCopy Manager repository	4 or 3 or 2 or 1 or 0	0
Shared disk for AdvancedCopy Manager shared data	1	1
Total number of partitions	5 or 4 or 3 or 2 or 1	1

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 (This can be created on the shared disk for shared data.)

— The directory for RDB dictionary (This can be created on the shared disk for shared data.)

— The directory for RDB log file (This can be created on the shared disk for shared data.)

— The directory for repository data storage database space (This can be created on the shared disk for shared data.)

Note

— Define the shared disk for shared data and that for the repository as the shared disk used by PRIMECLUSTER.

— Assign a disk that is not backed up or replicated using AdvancedCopy Manager as the shared disk for shared data and the shared disk for the 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 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 shared data and the shared disk for the repository are used for file systems. Make arrangements so that these disks can be mounted.

— For information on how to set up the PRIMECLUSTER shared disk and file system, see the "Initial GDS Setup" section in the "PRIMECLUSTER Installation and Administration Guide."
Register the file system (the shared disk for shared data or the DB file system) as an Fsystem resource by following the procedure provided in "Customization Procedure". Follow the instructions for "Preparatory settings" in the "Setting Up Fsystem Resources" section in the "PRIMECLUSTER Installation and Administration Guide."

3.1.5 Resources required for the Windows version MSCS

The following resources are necessary to install AdvancedCopy Manager on a Windows-version MSCS:

1) Takeover IP address for AdvancedCopy Manager
Allocate a new IP address that is unique in the network for use in cluster system operations. However, to use an IP address that is already in use for transactions, no new IP address for AdvancedCopy Manager need be allocated.   One IP address is required per 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 (ie, that it does not restrict) existing products that already use the logical IP address.

2) Drive letter where shared data for AdvancedCopy Manager is stored
Prepare drive letter on the shared disks on which to store shared data. The table below lists the numbers of required drive letter. Note that the listed values indicate the number of drive letter required for every transaction. For more information about the size of the shared disks for shared data, see "Capacity of a shared disk".

Name	Storage Management Server transaction	Storage Server transaction
Shared disk for repository	1 or 0	0
Shared disk for shared data	1	1
Total number of drive letter	2 or 1	1

— A shared disk for the repository and a shared disk for shared data can be the same. If so, the shared disk capacity for shared data must also include free space for the shared disk capacity of the repository.

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

— The shared disk used with AdvancedCopy Manager must use disks other than the Quorum disk.

3.1.6 Resources required for the HP version MC/ServiceGuard

The following resources are necessary to install AdvancedCopy Manager on an HP-version MC/ServiceGuard:

1) Takeover IP address for AdvancedCopy Manager

Allocate a new IP address that is unique in the network for use in cluster system operations. However, to use an IP address that is already in use for transactions, no new IP address for AdvancedCopy Manager need be allocated. One IP address is required per 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 (ie, that it does not restrict) existing products that already use the logical IP address.

2) Partition where shared data is stored

Prepare partitions on the shared disks on which to store shared data. The table below lists the numbers of required partitions. Note that the listed values indicate the numbers of partitions required for every AdvancedCopy Manager transaction. For more information about the size of the shared disk for shared data, see "Capacity of a shared disk".

Name	Storage Server transaction
Shared disk for shared data	1
Total number of partitions	1

— The shared disk for 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 shared data and the shared disk for the repository.

— The shared disk for shared data is used as a file system. Make arrangements to

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enable mounting of the shared disk for shared data.

3.1.7 Resources required for the HP version VERITAS Cluster Server

The following resources are necessary to install AdvancedCopy Manager on an HP version VERITAS Cluster Server:
1) Takeover IP address for AdvancedCopy Manager
   Allocate a new IP address that is unique in the network for use in cluster system operations. One IP address is required per 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 (that is, it does not restrict the use) in existing products that already use the logical IP address.
2) Partition where shared data for AdvancedCopy Manager is stored
   Prepare sufficient partitions on the shared disks on which to store shared data for AdvancedCopy Manager. The table below lists the number of required partitions. Note that the listed values indicate the numbers of partitions required for every AdvancedCopy Manager transaction. For more information about the size of the shared disks, see "Capacity of a shared disk".

Name	Storage server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

— 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 is used as a file system. Make arrangements to enable mounting of the shared disk for AdvancedCopy Manager shared data.

3.1.8 Resources required for the AIX version VERITAS Cluster Server

The following resources are necessary to install AdvancedCopy Manager on an AIX version VERITAS Cluster Server:

1) Takeover IP address for AdvancedCopy Manager
   Allocate a new IP address that is unique in the network for use in cluster system operations. One IP address is required per 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 (that is, it does not restrict the use) in existing products that already use the logical IP address.

2) Partition where shared data for AdvancedCopy Manager is stored
   Prepare sufficient partitions on the shared disks on which to store shared data for AdvancedCopy Manager. The table below lists the number of required partitions. Note that the listed values indicate the numbers of partitions required for every AdvancedCopy Manager transaction. For more information about the size of the shared disks, see "Capacity of a shared disk".

Name	Storage server transaction
Shared disk for AdvancedCopy Manager shared data	1
Total number of partitions	1

— 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 is used as a file system. Make arrangements to enable mounting of the shared disk for AdvancedCopy Manager shared data.

3.1.9 Resources required for the AIX version High Availability Cluster Multi-Processing

The following resources are necessary to install AdvancedCopy Manager on an AIX version 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 cluster system operations. However, to use an IP address that is already in use for

transactions, no new IP address for AdvancedCopy Manager need be allocated. One IP address is required per 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 (ie, that it does not restrict) in existing products that already use the logical IP address.

2) Partition where shared data for AdvancedCopy Manager is stored
Prepare partitions on the shared disks on which to store shared data. The table below lists the numbers of required partitions. Note that the listed values indicate the numbers of partitions required for every transaction. For more information about the size of the shared disks, see "Capacity of a shared disk".

Name	Storage Server transaction
Shared disk for shared data	1
Total number of partitions	1

— Define the shared disk for shared data as the shared disk used by High Availability Cluster Multi-Processing.

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

— The shared disk for AdvancedCopy Manager shared data is used as a file system. Make arrangements to enable mounting of the shared disk for shared data.

3.2 Capacity of a shared disk

The capacity of the shared disk of AdvancedCopy Manager is explained.

3.2.1 Shared disk capacity for the AdvancedCopy Manager repository

There is no difference in the size of the repository between ordinary operation and cluster operation. For information about estimating the shared disk for the repository, see "Estimation of Database area" in the "ETERNUS SF AdvancedCopy Manager Installation Guide".

3.2.2 Shared disk capacity for AdvancedCopy Manager shared data

The capacity required for the shared disk used to store shared data is as follows:

Transaction Type	Disk Space Required
Storage Management Server transaction	The total value of 1 to 4 below
Storage Server transaction	The total value of 2 to 4 below
Tape Server transaction	If the Tape Server transaction coexists with the Storage Management Server transaction, the total value of 1 to 5 below is required. If the Tape Server transaction coexists with the Storage Server transaction, the total value of 2 to 5 below is required.

1. Security operations
   — For the Windows edition of MSCS and the Windows edition of SynfinityCluster:
   Number of transactions * 7 + number of devices/3 + number of cabinets + 13,319 + (number of users)/20 [KB]
   — For all other cases:
   Number of transactions * 2 + number of devices/3 + number of cabinets + 13,319 + (number of users)/20 [KB]
2. 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]
3. Backup operations
   — If the number of backup disks is "a" and the number of transaction disks is "b":
   (a + b*35)/1024 [MB]
4. Capacity required for cluster operation management data
   1,024[KB]
5. Capacity required for Tape Server transaction management data
   A + 300[MB]

   "A" is the value that is given by the formula below, rounded up to the nearest multiple of 20 megabytes.
   If "m", "n" and "o" are the following values:

m	The number of backups held per transaction volume, including both generation management backups and day number management backups. Add up the number of generation management backups and day number management backups held.
n	The number of transaction volumes for which tape backups are performed.

o	The total number of backups, restorations, and copies to tape that will be executed simultaneously.

((10+ 3 x (n + 1)) x m) + (50 x o x 2) [KB]

— 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 the repository (partition, etc.) that
will coexist on the shared disk for shared data to the abovementioned value.

3.2.3 Capacity of Shared Disks for TSM

The capacity required for TSM shared disks is as follows:

Size of TSM database [MB] + 512 MB

The size of the TSM database is the value given by the formula below, rounded up to
the nearest multiple of 4 megabytes, plus 1 MB.
    If "m", "n" and "o" are the following values:

m	The number of backups held per transaction volume, including both generation management backups and day number management backups. Add up the number of generation management backups and day number management backups held.
n	The number of transaction volumes for which tape backups are performed.

(n + 1) x (m x 2) x 700 [byte]

The size of the TSM database can also be used as the value when the TSM database is
formatted.

3.3 Confirmation of items

When customizing it, the following items are needed in the Storage Management Server transaction and the Storage Server transaction.

After understanding the meaning of each item, prepare and confirm the information to be entered for each cluster transaction to be set up.

● Storage Management Server transaction

Items	Solaris			Linux	Windows
	SynfinityCluster PRIMECLUSTER	VERITAS Cluster Server	Sun Cluster	PRIMECLUSTER	Microsoft(R) Cluster Server
Logical node name	Required	Required	Required	Required	Required
Port number for the transaction communication daemon	Required	Required	Required	Required	Required
Service name	Required	Required	Required	Required	Required
Logical IP address	Required	Required	Required	Required	Required
Shared disk information for share data	Required	Required	Required	Required	Required
Shared disk information for repository	Required	Required	Required	Required	Required
The user name and password for repository access	Required	Required	Required	Required	Required
Resource type	Required	Unnecessary	Required	Required	Unnecessary
User when installing	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
Cluster Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
Disk resource of the shared disk for share data	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
Network Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
IP Address Resource	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required
External Connection Network	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required

● Storage Server transaction

Items	Solaris			Linux	Windows	HP		AIX	
	SynfinityCluster PRIMECLUSTER	VERITAS Cluster Server	Sun Cluster	PRIMECLUSTER	Microsoft(R) Cluster Server	MC/ServiceGuard		High Availability Cluster Multi-Processing	
Logical node name	Required	Required	Required	Required	Required	Required	Required	Required	Required
Port number for the transaction communication daemon	Required	Required	Required	Required	Required	Required	Required	Required	Required
Service name	Required	Required	Required	Required	Required	Required	Required	Required	Required
Logical IP address	Required	Required	Required	Required	Required	Required	Required	Required	Required
Shared disk for shared data	Required	Required	Required	Required	Required	Required	Required	Required	Required
Resource type	Required	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Unnecessary
User when installing	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Cluster Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Disk resource of the shared disk for shared data	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Network Name	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary
External Connection Network	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary
IP Address Resource	Unnecessary	Unnecessary	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary	Unnecessary
Volume Group Name	Unnecessary	Unnecessary	Unnecessa	Unnecessary	Unnecessary	Required	Unnecessary	Unnecessary	Unnecessary

Items	Solaris			Linux	Windows	HP		AIX	
	SynfinityCluster PRIMECLUSTER	VERITAS Cluster Server	Sun Cluster	PRIMECLUSTER	Microsoft(R) Cluster Server	MC/ServiceGuard		High Availability Cluster Multi-Processing	
			ry						

● For Tape Server transactions
   Prepare and check the items required for any Storage Management Server transactions
   or Storage Server transactions that coexist with the Tape Server transaction.

Content of each item
   ― Logical node name
      This is a name of the logical server in the AdvancedCopy Manager.   The user can
      set any logical node name that does not exceed eight alphanumeric characters.
      For logical node name, see "Cluster transaction and local transaction of
      AdvancedCopy Manager".

      13-character strings of the following table cannot be made into a logical node
      name for Solaris-version SynfinityCluster/PRIMECLUSTER, Solaris-version
      VERITAS Cluster Server, Solaris-version Sun Cluster, Linux-version PRIMECLUSTER,
      HP-version MC/ServiceGuard, HP-version VERITAS Cluster Server, AIX-version
      High Availability Cluster Multi-Processing, and AIX-version VERITAS Cluster
      Server.

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

   ― Port number for the transaction communication daemon
      Prepare the port number to be allocated to the transaction communication daemon.
      A port number must be an integer from 1024 to 65535 (from 5001 to 65535, in case
      of Windows-version MSCS) that is currently not being used by another port. Also,
      a port number must be the same on both the primary node and secondary node because
      operations are cluster transactions.

      Make the port number of the communication daemon for Storage management server
      transaction into a different number from the port number of the communication
      daemon for local storage server transaction.

   ― Service name
      This is the name of the cluster transaction.

   ― Logical IP address
      Refer to the paragraph of "resource required" corresponding to the cluster system
      of "Resources".

      Check the subnet mask for Windows-version Microsoft(R) Cluster Server and
      HP-version MC/ServiceGuard.

— Shared disk information for share data
  Refer to the paragraph of "resource required" corresponding to the cluster system
  of "Resources".

— Shared disk information for repository
  Refer to the paragraph of "resource required" corresponding to the cluster system
  of "Resources".

— The user name and password for repository access
  Prepare the user name and password for repository access.

The local logon authority is needed for Windows-version Microsoft(R) Cluster
Server. 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
SynfinityCluster/PRIMECLUSTER, Solaris-version VERITAS Cluster Server, and
Linux-version PRIMECLUSTER.

— Resource type
  This determines the procedure resource/command line resource.

0
Only the status transition procedure can be used under the Solaris version of
SynfinityCluster.

— User when installing
  The user and the password that installs AdvancedCopy Manager are confirmed.

— Cluster Name
  The cluster name specified with Microsoft(R) Cluster Server is confirmed. Refer
  to the manual of Microsoft(R) Cluster Server for details.

— Disk resource of the shared disk for share data
  The disk resource name of the shared disk for share data is confirmed.

— Network Name
  When a new logical IP address is used, the network name for AdvancedCopy Manager
  is prepared. AdvancedCopy Manager makes the network resource by this network
  name. Refer to the manual of Microsoft(R) Cluster Server for details.

— External Connection Network
  When a new logical IP address is used, the network name for the external
  connection specified with Microsoft(R) Cluster Server is confirmed. Refer to
  the manual of Microsoft(R) Cluster Server for details.

─ IP Address Resource

When an existing logical IP address is used, the IP address resource name to which logical IP address is set is confirmed.

─ Volume Group Name

The volume group name of the shared disk for the share data is confirmed.

3.4 Preparing the TSM Cluster Setup Information File

When TSM server transactions are customized, the sizes of the TSM log and TSM database that are specific to the TSM server must be set in the TSM cluster setup information file (/opt/tivoli/tsm/ CLUS /tsmclsetup.ini), together with the parameters for the server option file (dsmserv.opt). First understand each of the following items, then prepare and check a TSM cluster setup information file for each cluster service (userApplication) set up.

The TSM cluster setup information file (/opt/tivoli/tsm/CLUS/tsmclsetup.ini) records information using the "ini" file format. The information recorded is as follows:

Refer to the "ETERNUS SF TSM Administrator's Guide (Solaris version)" for the detailed information about the value corresponding to each key.

Section name	Key name	Setting value	Description
TSM server name(service1)	Dbsize	Numerical value	Specifies the size (MB) of the TSM database.
	RLOGsize	Numerical value	Specifies the size (MB) of the TSM log.
	TCPPort	Numerical value	Specifies the port number for TCP/IP. The default value is 1500.
	SHMPort	Numerical value	Specifies the port number for shared memory. The default value is 1510.
	TCPNODELAY	Yes	Specification relating to TCP transmission delay. If "yes" is specified, data packets will be sent to the network before the MTU size is reached.
		No	Specification relating to TCP transmission delay.
	BUFPoolsize	Numerical value	Specifies the size (KB) of the buffer used for input and output from/to the TSM database. The default value is 2048 (KB).
	LOGPoolsize	Numerical value	Specifies the size (KB) of the buffer used for writing to the TSM log.
	TXNGroupmax	Numerical value	Specifies the timing for committing data to the TSM database in terms of the number of files that have been sent (from the TSM client to the server). The recommended value is 256.
	VOLUMEHistory	Path name	Specifies the file that holds a copy of the sequential volume information (required for recovering the TSM database)
	DEVCONFig	Path name	Specifies the file that holds a copy of the device configuration information (required for recovering the TSM database)

File coding example

```
[service1]
DBsize=101
RLOGsize=33
TCPPort=1501
SHMPort=1510
TCPNODELAY=yes
BUFPoolsize=32768
LOGPoolsize=2048
TXNGroupmax=256
VOLUMEHistory=/tmp/volhistory.log
DEVCONFig=/tmp/devconfig.log
```

Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions

This chapter explains how to customize Storage Management Server Transactions and Storage Server transactions.

● Each execution of the Storage Management Server transaction and the Storage Server transaction creates the settings for one cluster transaction. To build a mutual standby system, execute the procedure for customize as many times as necessary.

● For the Storage Management Server transaction, the database environment is created with the cluster setup command. Do not create a database environment before executing the cluster setup command.

● 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 Storage Management Server transactions and Storage 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:

Cluster system	Reference
Solaris version of SynfinityCLUSTER or PRIMECLUSTER	Customization for Solaris version SynfinityCLUSTER /PRIMECLUSTER
Solaris version of VERITAS Cluster Server	Customization for Solaris-version VERITAS Cluster Server
Solaris version of Sun Cluster	Customization for Solaris version Sun Cluster
Linux version of PRIMECLUSTER	Customization for Linux version PRIMECLUSTER
Windows version of MSCS	Customization for Windows version of MSCS
HP version of MC/ServiceGuard	Customization for HP version MC/ServiceGuard
HP version of VERITAS Cluster Server	Customization for HP version VERITAS Cluster Server

Cluster system	Reference
AIX version of VERITAS Cluster Server	Customization for AIX version VERITAS Cluster Server
AIX version of High Availability Cluster Multi-Processing	Customization for AIX version High Availability Cluster Multi-Processing

4.1 Customization for Solaris-version SynfinityCluster/PRIMECLSTER

This section explains how to customize Solaris-version SynfinityCluster/PRIMECLSTER.

Throughout this section, the primary node is an active node in a cluster service (userApplication) performing Storage Management Server transactions and Storage 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 Storage Management 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.

4.1.1 Flow of Customizing

This section describes the flow of setup.

	[Primary node]	[Secondary node A]	[Secondary node B]

Restart the system | Restart the system | Restart the system

Check the check items in advance

Check the mount state of the shared disks | Check the mount state of the shared disks | Check the mount state of the shared disks

Stop the cluster services

Register port numbers | Register port numbers | Register port numbers

Execute the cluster setup command

Check the mount state of the shared disks

Check the mount state of the shared disks

Execute the cluster setup command

For 1:1 standby system, Mutual standby system and n:1 standby system

Check the mount state of the shared disks

For Cascade topology system and Priority transfer system

Check the mount state of the shared disks

Execute the cluster setup command

Check the mount state of the shared disks

Create resources

Create/register the cluster service

Set up WebServer | Set up WebServer | Set up WebServer

Start the cluster services

Back up the environment

Create an environment

4.1.2 Customization Procedure

To set up a Storage Management Server transaction and a Storage Server transaction, use the procedure below.

1. Restart the system.
   Restart the primary node and secondary node.
   If the system is restarted in an extension of the installation process of AdvancedCopy Manager, proceed to step 2.

2. Check the preparations.
   Check each item of "Confirmation of items," for the cluster service (userApplication) to be set up.

3. Mount the shared disk on the primary node.
   For a Storage Management Server transaction, mount the shared disk for AdvancedCopy Manager shared data and that for the AdvancedCopy Manager repository on the primary node.
   For a Storage Server transaction, mount the shared disk for shared data on the primary node.

4. Stop the cluster services (userApplication).
   To add a Storage Management Server transaction and a Storage 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.
   — Transaction communication daemon: stgxfws_*Logical-Node-Name*

   — 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 cluster setup command shown below after blocking other users from accessing the shared disk for shared data and also for the repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

   If the status transition procedure resources are used:

   ```
   # /opt/swstorage/bin/stgclset_safe  -k Primary | Pri -m
   AdvancedCopy-Manager-Shared-Data-Mount-Point -n Logical-Node-Name -s Service-Name -i
   IP-Address -f mgr
   ```

   Example

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

or

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

If command line resources are used:

```
# /opt/swstorage/bin/stgclset_safe -k Primary | Pri -m
AdvancedCopy-Manager-shared-data-mount-point -n logical-node-name -s
transaction-name -i IP-address -f mgr -r cmd
```

Example

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

or

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

Note

- For a Storage Management Server transaction to be performed, use the location that is specified when the Storage Management Server is installed.

- In combined operation with the scalable class, the IP address for a Storage Management Server transaction specified with the -i option must be the "takeover IP address for AdvancedCopy Manager" prepared for the Storage Management Server transaction. Do not specify the logical IP address of the transaction in the scalable class.

- Do not specify "-r cmd" with SynfinityCLUSTER.

For Storage Management Server transaction, on the primary node, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data:

If the status transition procedure resources are used:

```
# /opt/swstorage/bin/stgclset_safe  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point -n Logical-Node-Name -s
Transaction-Name
```

Example

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

or

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

If command line resources are used:

```
# /opt/swstorage/bin/stgclset_safe -k Primary | Pri -m
AdvancedCopy-Manager-shared-data-mount-point -n logical-node-name -s
transaction-name -r cmd
```

Example

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

or

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


- Do not specify "-r cmd" with SynfinityCLUSTER.

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.

   For a Storage Management Server transaction (when using status transition procedure
   resources):

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /STGMGRDISK -n nodeMGR -s manag
er_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    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : manager_service

        Resource       : Procedure
        Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

   For a Storage Server transaction (when using command line resources):

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /CTTEST3 -n nodeAGT -s agent_se
rvice -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.

Note

— If the transaction is the Storage Management Server transaction, proceed to step 8.

If the transaction is the Storage Server transaction, proceed to step 13.

8. Start the creation of a common environment for Storage Management Server transactions. The initial window for setting the common environment opens. 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
```

9. For a Storage Management Server transaction, specify the DB device. The window shown below opens. Enter the directory name for the DB file system according to the information in [Notes], 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/DBFile/DBFile
```

A similar setting window opens for input of the directory names for the RDB dictionary, RDB log file, and DB space where repository data is stored. Enter a directory name for each item, and press the Enter key after each entry.
After setting up the directory name for DB space where repository data is stored, the setting window for inputting the size of repository data is opened. Enter the size of repository data, and press the Enter key.

10. For a Storage Management Server transaction, check the DB directory settings. The four directory names and the size of repository data specified in step 9 are displayed. Confirm the displayed information, enter "y", and press the Enter key.

```
====================================================================

  Directory name for the DB file ............/ACMMnt/DBFile/DBFile

  Directory name for the RDB dictionary .....pt/ACMMnt/DBDic/DBDic

  Directory name for the RDB log file .......pt/ACMMnt/DBLog/DBLog

  Directory name for the DB space

            used to save repository data ....ptACMMnt/DBSpa/DBSpa

  Repository data Size .......................65MB



  ===================================================================



        Okay? [y/n] ==> y
```

11. 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
```

12. For Storage Management Server transaction, perform the repository access settings.
    The window for setting repository access opens. Enter a user name and password, and
    press the Enter key.

Point

For security purposes it is recommended to use a general user and not a root user.

```
          Enter the user name and password for accessing
          the repository of AdvancedCopy Manager.


          [Notes]
           We recommend you to input a general user other than root.


                 Username          : acmuser
                 Password          :
                 Password(Re-enter) :
```

― If user settings were entered as shown above, and the user is deleted or the password is changed from 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 Operator's Guide".

13. 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.
#
```

14. Dismount the shared disks on the primary node.
For a Storage Management Server transaction, dismount the shared disk for shared data and the one for the repository on the primary node.
For a Storage Server transaction, dismount the shared disk for shared data on the primary node.

15. Mount the shared disks on the secondary node A.
For a Storage Management Server transaction, mount the shared disk for shared data and the one for the repository on the secondary node A.
For a Storage Server transaction, mount the shared disk for shared data on the secondary node A.

16. Execute the cluster setup command on the secondary node A.
For a Storage Management Server transaction, on the secondary node A, execute the cluster setup command shown below after blocking other users from accessing the shared disk for shared data and also for the repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

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

```
# /opt/swstorage/bin/stgclset_safe  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_safe -k Sec -m /STGMGRDISK
```

Note

— For a Storage Management Server transaction to be performed, use the location that is specified when the Storage Management Server is installed.

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.

For a Storage Management Server transaction:

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

AdvancedCopy Manager settings are as follows.
        Cluster system : SynfinityCluster or PRIMECLUSTER
        Node type      : Secondary
        IP Address     : 10.10.10.10
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : manager_service

        Resource       : Procedure
        Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

For a Storage Server transaction:

```
# /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.

Note

— If the transaction is the Storage Management Server transaction, proceed to step 18.
If the transaction is the Storage Server transaction, proceed to step 19.

18. For a Storage Management Server transaction, 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.                           |
```

75

```
| ============================================================ |
|                                                              |
|   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
```

19. 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.
#
```

20. Dismount the shared disks on the secondary node A.
    For a Storage Management Server transaction, dismount the shared disk for data and
    that for the repository on the secondary node A.
    For a Storage Server transaction, dismount the shared disk for 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 28.
  If the system is Cascade topology and the Priority transfer, proceed to step
  21.

21. Mount the shared disks on the secondary node B.
    For a Storage Management Server transaction, mount the shared disk for shared data
    and that for the repository on the secondary node B.
    For a Storage Server transaction, mount the shared disk for shared data on the secondary
    node B.

— When there are two or more secondary nodes B, Step 21 to Step 27 is processed
  by all the secondary nodes B.

22. 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 shared data were mounted in step 21.
    For a Storage Management Server transaction, on the secondary node B, execute the
    cluster setup command shown below after blocking other users from accessing the shared
    disk for shared data and the one for the repository. When this command is executed,
    a repository is created in addition to the cluster being set up. For more information,
    see the chapter on database creation.

For a Storage Server transaction, on the secondary node B, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data:

```
# /opt/swstorage/bin/stgclset_safe -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_safe -k Sec -m /STGMGRDISK
```

Note

— For a Storage Management Server transaction to be performed, use the location that is specified when the Storage Management Server is installed.

23. Check the setup object.

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

For a Storage Management Server transaction:

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

AdvancedCopy Manager settings are as follows.
        Cluster system : SynfinityCluster or PRIMECLUSTER
        Node type      : Secondary
        IP Address     : 10.10.10.10
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : manager_service

        Resource       : Procedure
        Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

For a Storage Server transaction:

```
# /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.

24. 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."

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

— If the transaction is the Storage Management Server transaction, proceed to step 25.
   If the transaction is the Storage Server transaction, proceed to step 26.

25. Start the creation of a common environment for AdvancedCopy Manager management server transactions.
The initial window for setting the common environment opens.   Confirm the displayed information, 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
```

26. 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.
#
```

27. Dismount the shared disks on the secondary node B.
For a Storage Management Server transaction, dismount the shared disk for shared data and the one for the repository on the secondary node B.
For a Storage Server transaction, dismount the shared disk for share data on the secondary node B.

― When more secondary nodes B remain to be set up ie, (Step 21 to Step 27 have
  not been performed on these nodes), perform from Step 21 in the nodes
― ―Then, when. When operation from Step 21 to Step 27 is completed for all
  secondary nodes B, go to Step 28.

28. 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
      For a Storage Management Server transaction, register the class of the shared
      disk for shared data and the class of the shared disk for a repository.
      For a Storage Server transaction, register the class of the shared disk for shared
      data.
      The shared disk must be set as a switching disk.

    ― Fsystem resource
      For Storage Management Server transactions, register the mount point of the
      shared disk for shared data and the mount point of the shared disk with the
      directory for the repository.
      For Storage Server transactions, register the mount point of the shared disk
      for shared data.

    ― IP address resource
      This resource is not necessary if a takeover IP address resource has already
      been created by the applicable userApplication.

    ― Procedure resource
      Specify if procedure resources are used.
       Specify "SMGRPROC_*Logical-Node-Name*".

    ― Command line resource
      Specify of 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

    ― For information on how to create resources with PRIMECLUSTER, see "Creating
      Resources and userApplications with Solaris-version PRIMECLUSTER".

    ― The cluster setup command (stgclset_safe) has already made 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:Yes
AUTORECOVER:No
MONITORONLIY:No
STANDBYCAPABLE:No
REALTIME:No
TIMEOUT:300

29. 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 28

    — Some information must be registered as switchover file system information. This includes the mount point and slice on the shared disk for shared data, and the mount point and slice for the shared disk where the repository directory is located. Please refer to a SynfinityCluster Installation/Administration Guide for the registration method or a PRIMECLUSTER Installation and Administration Guide for the registration method

    — The cluster setup command (stgclset_safe) has already made 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 "Creating Resources and userApplications with Solaris-version PRIMECLUSTER".

30. For a Storage Management Server transaction, perform the WebServer settings.
By referring to "Setting up the Web Server," in the ETERNUS SF AdvancedCopy Manager Installation Guide, set up the Web Server in all nodes. If WebServer operation requires the use of a physical IP address, specify settings so that multiple IP addresses can be used to access WebServer: that is, a physical IP address and a logical IP address. This is necessary because AdvancedCopy Manager in cluster operations accesses WebServer through a logical IP. For the required settings, refer to the applicable WebServer manual.

31. Start the cluster services (userApplication) and the AdvancedCopy Manager.
Use the SynfinityCluster management view and the RMS main window of PRIMECLLUSTER to start the new cluster service (userApplication) or the cluster service (userApplication) stopped in step 4.

32. Back up the environment.
In order to prepare for accidental data deletion or corruption, back up the following environments.
— Database
For Storage Management Server transactions, refer to "Saving a database," in the "ETERNUS SF AdvancedCopy Manager Operations Guide (Solaris)" and back up the created database area.

— Data on the shared disk for 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

33. Create an environment for a Storage Management Server transaction and a Storage Server transaction.
Use the Web GUI screen of AdvancedCopy Manager to create an environment for a Storage Management Server transaction and a Storage Server transaction.
In using the Storage Server transaction function in a Storage Management Server transaction, create an environment for a Storage Server transaction.

Note

— Create an environment for a Storage Management Server transaction and an environment for a Storage Server transaction by referring to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (Solaris)."

4.2 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 Storage Management Server transaction and Storage 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 Storage Management Server transactions and Storage 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.

4.2.1 Flow of Customizing

This section describes the flow of setup.

[Primary node]	[Secondary node A]	[Secondary node B]
Restart the system	Restart the system	Restart the system
Check the check items in advance		
Check the mount state of the shared disks	Check the mount state of the shared disks	Check the mount state of the shared disks
Stop the Service Groups		
Register port numbers	Register port numbers	Register port numbers
Execute the cluster setup command		
Check the mount state of the shared disks		
	Check the mount state of the shared disks	
	Execute the cluster setup command	
	Check the mount state of the shared disks	
		Check the mount state of the shared disks
		Execute the cluster setup command
		Check the mount state of the shared disks
Create/register the Service Group		
Setup WebServer	Setup WebServer	Setup WebServer
Start the Service Groups		
Back up the environment		
Create an environment		

For 1:1 standby system, Mutual standby system and n:1 standby system

For Cascade topology system

4.2.2 Customization Procedure

To set up a Storage Management Server transaction and a Storage Server transaction, use the procedure below.

1. Restart the system.
   Restart the primary node and all secondary nodes. If the system is restarted in an extension of the installation process of AdvancedCopy Manager, proceed to step 2.

   Note

   — If VERITAS Cluster Server 5.0 is used, modify the following files:
     - /opt/FJSVswstf/cluster/smgr_vstart_OK
     - /opt/FJSVswstf/cluster/smgr_vstop_OK
   — "Contents to be changed"
     - /opt/FJSVswstf/cluster/smgr_vstart_OK
       exit 1 -> exit 110
     - /opt/FJSVswstf/cluster/smgr_vstop_OK
       exit 0 -> exit 100
     ＊Make these changes on all primary nodes and secondary nodes where the cluster is being set up.

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

3. Mount the shared disk on the primary node.
   For a Storage Management Server transaction, mount the shared disk for shared data (one partition). Also mount the shared disk for the repository (mount all shared disks where repository directories will be created) on the primary node.
   For a Storage Server transaction, mount the shared disk for shared data on the primary node.

4. Stop the Service Groups.
   To add a Storage Management Server transaction and a Storage 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, see the "VERITAS Cluster Server User's Guide."

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

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

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.
   — Transaction communication daemon: 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.
   For a Storage Management Server transaction, on the primary node, execute the cluster

setup command shown below after blocking other users from accessing the shared disk for shared data and that for the repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

```
# /opt/swstorage/bin/stgclset_vcs  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point  -i IP-Address -n Logical-Node-Name -s
Service-Name -f mgr
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_vcs -k Pri -m /STGMGRDISK -n nodeMGR -s manager_service
-i 10.10.10.10 -f mgr
```

Note

— For a Storage Management Server transaction to be performed, use the location
  that is specified when the Storage Management Server is installed.

For a Storage Server transaction, on the primary node, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data:

```
# /opt/swstorage/bin/stgclset_vcs  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point -n Logical-Node-Name -s Service-Name
```

Example

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

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.

For a Storage Management Server transaction:

```
# /opt/swstorage/bin/stgclset_vcs -k Primary -m /STGMGRDISK -n nodeMGR -s
manager_service -i 10.10.10.10 -f mgr
AdvancedCopy Manager settings are as follows.
        Cluster system : VERITAS Cluster Server
        Node type      : Primary
        IP Address     : 10.10.10.10
        Mount point    : /STGMGRDISK
        Node name      : nodemgr
```

```
            Service        : STGMGRSRV
            Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster?
[default:y]
```

For a Storage Server transaction:

```
# /opt/swstorage/bin/stgclset_vcs -k Primary -m /STGAGTMNT -n nodeAGT -s agent_se
rvice
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.

Note

— If the transaction is the Storage Management Server transaction, proceed to step
  8.
  If the transaction is the Storage Server transaction, proceed to step 13.

8. Start the creation of a common environment for Storage Management Server transactions.

   The initial window for setting the common environment opens.   Confirm the displayed
   information, 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
```

9. For a Storage Management Server transaction, specify the DB device.

   The window shown below opens.   Enter the directory name for the DB file system
   according to the information in [Notes], 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/DBFile/DBFile
```

A similar setting window opens for input of the directory names for the RDB dictionary,
RDB log file, and DB space where repository data is stored. Enter a directory name
for each item, and press the Enter key after each entry.

After setting up the directory name for DB space where repository data is stored, the
setting window for inputting the size of repository data is opened. Enter the size
of repository data, and press the Enter key.

10. For a Storage Management Server transaction, check the DB directory settings.
   The four directory names and the size of repository data specified in step 9 are
   displayed. Confirm the displayed information, enter "y", and press the Enter key.

```
========================================================================

 Directory name for the DB file ............/ACMMnt/DBFile/DBFile
 Directory name for the RDB dictionary .....ACMMnt/DBDic/DBDic
 Directory name for the RDB log file .......ACMMnt/DBLog/DBLog
 Directory name for the DB space
          used to save repository data ....ACMMnt/DBSpa/DBSpa
 Repository data Size ......................65MB


=====================================================================


        Okay? [y/n] ==> y
```

11. For a Storage Management Server transaction, 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
```

12. For a Storage Management Server transaction, perform the repository access settings.

The window for setting repository access opens. Enter a user name and password, and press the Enter key.

For security reasons it is recommended to use a general username and not the root user.

```
        Enter the user name and password for accessing
        the repository of AdvancedCopy Manager.

    [Notes]
    We recommend you to input a general user other than root.

        Username            : acmuser
        Password            :
        Password(Re-enter) :
```


    ― If user settings were entered as shown above, and the user is deleted or the
      password is changed from 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 Operator's Guide (Solaris)".

13. 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.
 #
```

14. Dismount the shared disks on the primary node.
    For a Storage Management Server transaction, dismount the shared disk for shared data
    and the one for the repository on the primary node.
    For a Storage Server transaction, dismount the shared disk for shared data on the
    secondary node.

15. Mount the shared disks on the secondary node A.
    For a Storage Management Server transaction, mount the shared disk for shared data
    and the one for the repository on the secondary node A.
    For a Storage Server transaction, mount the shared disk for shared data on the secondary
    node A.

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

For a Storage Management Server transaction, on the secondary node A, execute the cluster setup command shown below after blocking other users from accessing the shared disk for shared data and the one for the repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

For a Storage Server transaction, on the secondary node A, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data:

```
# /opt/swstorage/bin/stgclset_vcs  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_vcs -k Sec -m /STGMGRDISK
```


— For a Storage Management Server transaction to be performed, use the location that is specified when the Storage Management Server is installed.

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.

For a Storage Management Server transaction:

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

AdvancedCopy Manager settings are as follows.
        Cluster system : VERITAS Cluster Server
        Node type      : Secondary
        IP Address     : 10.10.10.10
        Mount point    : /STGMGRDISK
        Node name      : nodemgr
        Service        : STGMGRSRV
        Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster?
[default:y]
```

For a Storage Server transaction:

```
# /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.

— If the transaction is a Storage Management Server transaction, proceed to step
   18.
   If the transaction is a Storage Server transaction, proceed to step 19.

18. Start the creation of a common environment for AdvancedCopy Manager management server
    transactions.
    The initial window for setting the common environment opens. Confirm the displayed
    information, 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
```

19. 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.
#
```

20. Dismount the shared disks on the secondary node A.
    For a Storage Management Server transaction, dismount the shared disk for shared data
    and the one for the repository on the secondary node A.

    For a Storage Server transaction, dismount the shared disk for 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 28.
   If the system is Cascade topology and the Priority transfer, proceed to step
   21.

21. Mount the shared disks on the secondary node B.
    For a Storage Management Server transaction, mount the shared disk for shared data
    and that for the repository on the secondary node B.

    For a Storage Server transaction, mount the shared disk for shared data on the secondary
    node B.

— When there are two or more secondary nodes B, Step 21 to Step 27 is processed
  for all the secondary nodes B.

22. 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 shared data and the shared disk for the repository were mounted in step 21.

    For a Storage Management Server transaction, on the secondary node B, execute the
    cluster setup command shown below after blocking other users from accessing the shared
    disk for shared data and the one for the repository. When this command is executed,
    a repository is created in addition to the cluster being set up. For more information,
    see the chapter on database creation.

    For a Storage Server transaction, on the secondary node B, execute the following
    cluster setup command after blocking other users from accessing the shared disk for
    shared data:

```
# /opt/swstorage/bin/stgclset_vcs  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_vcs -k Sec -m /STGMGRDISK
```


— For a Storage Management Server transaction to be performed, use the location
  that is specified when the Storage Management Server is installed.

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

    For a Storage Management Server transaction:

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary -m /STGMGRDISK
AdvancedCopy Manager settings are as follows.
        Cluster system : VERITAS Cluster Server
```

```
          Node type    : Secondary
          IP Address   : 10.10.10.10
          Mount point  : /STGMGRDISK
          Node name    : nodemgr
          Service      : STGMGRSRV
          Function     : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster?
[default:y]
```

For a Storage Server transaction:

```
# /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.

24. 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."

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

— If the transaction is a Storage Management Server transaction, proceed to step
    25.
    If the transaction is a Storage Server transaction, proceed to step 26.

25. Start the creation of a common environment for AdvancedCopy Manager management server
    transactions.
    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
```

26. 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.
#
```

27. Dismount the shared disks on the secondary node B.
    For a Storage Management Server transaction, dismount the shared disk for shared data
    and that for the repository on the secondary node B.
    For a Storage Server transaction, dismount the shared disk for share data on the
    secondary node B.

Note

— When more secondary nodes B remain to be set up (ie Step 21 to Step 27 have not
  been performed in them as yet), perform from Step 21 in the node.   When operation
  from Step 21 to Step 27 is completed by all secondary nodes B, go to Step 28.

28. Create and register a Service Group.
    A service of AdvancedCopy Manager 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/FJSVswstf/cluster/clproc/vcsStart_*Logical-Node-Name*" to be
      StartProgram.
      Specify a "/opt/FJSVswstf/cluster/clproc/vcsStop_*Logical-Node-Name*" to be
      StopProgram.
      Specify a "/opt/FJSVswstf/cluster/clproc/vcsMoni_*Logical-Node-Name*" to be
      MonitorProgram.
    — MountPoint

      For a Storage Management Server transaction, register the shared disk for share
      data, and the shared disk for the repository.
       For a Storage Server transaction, register the shared disk for share 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.

```
# hagrp -display STGMGRSRV -attribute SystemList
# hagrp -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.

```
# hagrp -add STGMGRSRV
# hagrp -modify STGMGRSRV SystemList node1 0 node2 1
# hagrp -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 share data is registered.

In this example, a resource (mount) name is set to "AdvancedCopy_Manager_mount", and
the mount point of shared disk for share data is set to "/STGMGRDISK".

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 /STGMGRDISK
```

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
```

For a Storage Management Server transaction, the mount information on the repository
is registered. This operation is not required when the shared disk for share data is
substituted for the shared disk for the repository.

In this example, all repository directories will be created on a single shared disk,
and the resource (ie, mount) name for this shared disk will be
"AdvancedCopy_Manager_DB". If multiple shared disks have been prepared for repository
directories, perform the same operation on all shared disks.

Register resource in User Service Group.

```
# hares -add AdvancedCopy_Manager_DB Mount STGMGRSRV
```

Place the resource into the enabled state.

```
# hares -modify AdvancedCopy_Manager_DB Enabled 1
```

The mount pointer of a resource is set up.

```
# hares -modify AdvancedCopy_Manager_DB MountPoint /ACMDB
```

Specify a block device to be mounted.
In this example, the block device of a shared disk is set to "/dev/dsk/c2t0d1s4".

```
# hares -modify AdvancedCopy_Manager_DB BlockDevice /dev/dsk/ c2t0d1s4
```

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

```
# hares -modify AdvancedCopy_Manager_DB 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_DB
# hares -link AdvancedCopy_Manager_appl AdvancedCopy_Manager_mount
# hares -link AdvancedCopy_Manager_appl sybase_ip
```

Reflect the VCS setting and set VCS into the read-only mode.

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

29. For a Storage Management Server transaction, make the WebServer settings.

    By referring to "Setting up the Web Server," in the "ETERNUS SF AdvancedCopy Manager
    Installation Guide", set up the Web Server in all nodes. If WebServer operation
    requires the use of a physical IP address, specify settings so that multiple IP
    addresses can be used to access WebServer: that is, a physical IP address and a logical
    IP address. This is necessary because AdvancedCopy Manager in cluster operations
    accesses the WebServer through a logical IP address. For the required settings, refer

to the applicable WebServer manual.

30. Start the AdvancedCopy Manager and Transaction.
    Start the new User Service Group or the User Service Group stopped in step 4.
    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".

    ```
    # hagrp -online STGMGRSRV -sys node1
    ```

31. Back up the environment.
    To guard against the possibility of accidental deletion or corruption of data, back
    up the following environments.
    — Database
        For a Storage Management Server transaction, refer to "Saving a database," in
        the "ETERNUS SF AdvancedCopy Manager Operations Guide (Solaris)" and back up
        the created database area.

    — Data on the shared disk for shared data
        Use the 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

32. Create an environment for a Storage Management Server transaction and a Storage Server
    transaction.
    Use the Web GUI of AdvancedCopy Manager to create an environment for a Storage
    Management Server transaction and a Storage Server transaction.
    If using a Storage Server transaction function in a Storage Management Server
    transaction, create an environment for the Storage Server transaction.

    Note

    — Create an environment for a Storage Management Server transaction and an
      environment for a Storage Server transaction by referring to the "ETERNUS SF
      AdvancedCopy Manager Operator's Guide (Solaris)."

4.3 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 Storage Management Server transaction and Storage Server transactions, and the secondary node is the standby node in the same resource group.
The secondary node shows the node which creates the environment of Storage Management Server transactions and Storage Server transactions first in the standby nodes in this resource group.

4.3.1 Flow of Customizing

This section describes the flow of setup.

[Primary node]	[Secondary node]
Restart the system	Restart the system
Check the check items in advance	
Stop transactions	
Create and check resource group	
Check shared disk status	Check shared disk status
Register port number	Register port number
Execute setup command	
Check shared disk status	
	Check shared disk status
	Execute setup command
	Check shared disk status
Check resource	
Set Web Server	Set Web Server
Start transactions	
Back up environment	
Set up environment	

4.3.2 Customization Procedure

To set up a Storage Management Server transaction and a Storage Server transaction, use the procedure below.

1. Restart the system.
   Restart the primary and secondary nodes. If the system is restarted in an extension of the installation process of AdvancedCopy Manager, proceed to step 2.

2. Check the preparations.
   Check each item of "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 Storage Management Server transactions or Storage 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.HAStoragePlus resource group for AdvancedCopy Manager, and add it to the resource groups.

   — 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.
   For a Storage Management Server transaction, mount the shared disk for AdvancedCopy Manager shared data (one partition). Also mount the shared disk for the AdvancedCopy Manager repository (mount **all shared disks where repository directories will be created**) on the primary node.
   For Storage Server transaction, 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.
   — Transaction communication daemon: 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.
   For a Storage Management Server transaction, 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, and the shared disk for the AdvancedCopy Manager repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

```
# /opt/swstorage/bin/stgclset_sun  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point  -h logical-host-name-resource-name or
shared-address-resource-name -n Logical-Node-Name -s Service-Name -I IP-address -f mgr
```

Example

```
# /opt/swstorage/bin/stgclset_sun -k Primary -m /STGMGRDISK -h stgnet -n nodeMGR -s
manager_service -i 10.10.10.10 -f mgr
```

or

```
# /opt/swstorage/bin/stgclset_sun -k Pri -m /STGMGRDISK -h stgnet -n nodeMGR -s
manager_service -i 10.10.10.10 -f mgr
```

Note

— For a Storage Management Server transaction to be performed, use the location that is specified when the Storage Management Server is installed.

For Storage Server transaction, on the primary node, execute the following cluster setup command after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data:

```
# /opt/swstorage/bin/stgclset_sun  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point -h logical-host-name-resource-name or
shared-address-resource-name -n Logical-Node-Name -s Service-Name
```

Example

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

or

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

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.

   For a Storage Management Server transaction:

```
# /opt/swstorage/bin/stgclset_sun -k Primary -m /STGAGTMNT -h stgnet -n nodeMGR
-s manager_service -i 10.10.10.10 -f mgr
AdvancedCopy Manager settings are as follows.
        Cluster system : Sun Cluster
        Node type      : Primary
        IP Address     : 10.10.10.10
        Mount point    : /STGAGTMNT
        Node name      : nodeMGR
        Service        : manager service
        Network Resource : stgnet

        Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster?
[default:y]
```

For a Storage Server transaction:

```
# /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.

— For a Storage Management Server transaction, proceed to step 9.
    For a Storage Server transaction, proceed to step 14.

9. Start the creation of a common environment for Storage Management Server transactions.
    The initial window for setting the common environment opens. Confirm the displayed
    information, enter "y", and then 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
```

10. For a Storage Management Server transaction, specify the DB directory.
    The window shown below opens.   Enter the directory name for the DB file system
    according to the information in [Notes], 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
```

    A similar setting window opens for input of the directory names for the RDB dictionary,
    RDB log file, and DB space where repository data is stored.   Enter a directory name
    for each item, and press the Enter key after each entry.
    After setting up the directory name for DB space where repository data is stored, the
    setting window for inputting the size of repository data is opened. Enter the size
    of repository data, and press the Enter key.

11. For a Storage Management Server transaction, check the DB directory settings.
    The four directory names and the size of repository data specified in step 9 above
    are displayed.   Confirm the displayed information, 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
```

12. For a Storage Management Server transaction, 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
```

13. For a Storage Management Server transaction, enter the repository access settings.
    The window for setting AdvancedCopy Manager repository access opens. Enter a user
    name and then a password, and press the Enter key.

Point

For the sake of security, Fujitsu recommends a general user as the user name, not a
root user which has frequent password changes.

```
          Enter the user name and password for accessing
          the repository of AdvancedCopy Manager.


          [Notes]
          We recommend you to input a general user other than root.


               Username            : acmuser
               Password            :
               Password(Re-enter)  :
```


Note

   — If user settings were entered as shown above, and the user is deleted or the
     password is changed from 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 Operator's Guide (Solaris)".

14. 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.
 #
```

15. Dismount the shared disks on the primary node.
    For a Storage Management Server transaction, dismount the shared disk for AdvancedCopy
    Manager shared data and that for the AdvancedCopy Manager repository on the primary
    node.
    For a Storage Server transaction, dismount the shared disk for AdvancedCopy Manager

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shared data on the secondary node.

16. Mount the shared disks on the secondary node.
    For a Storage Management Server transaction, mount the shared disk for AdvancedCopy
    Manager shared data and the shared disk for the AdvancedCopy Manager repository on
    the secondary node.
    For a Storage Server transaction, mount the shared disk for AdvancedCopy Manager shared
    data on the secondary node.

17. Execute the cluster setup command on the secondary node.
    For a Storage Management Server transaction, 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 and the shared disk for the AdvancedCopy Manager
    repository. When this command is executed, a repository is created in addition to
    the cluster being set up. For more information, see the chapter on database creation.
    For a Storage Server transaction, on the secondary node, execute the following cluster
    setup command after blocking other users from accessing the shared disk for
    AdvancedCopy Manager shared data:

    ```
    # /opt/swstorage/bin/stgclset_sun  -k Secondary │ Sec -m
    AdvancedCopy-Manager-Shared-Data-Mount-Point
    ```

    Example
    ```
    # /opt/swstorage/bin/stgclset_sun -k Secondary -m /STGMGRDISK
    ```

    or
    ```
    # /opt/swstorage/bin/stgclset_sun -k Sec -m /STGMGRDISK
    ```


    Note

    ― For a Storage Management Server transaction to be performed, use the location
      that is specified when the Storage Management Server was installed.

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.

    For a Storage Management Server transaction:
    ```
    # /opt/swstorage/bin/stgclset_sun -k Secondary -m /STGMGRDISK

    AdvancedCopy Manager settings are as follows.
            Cluster system : Sun Cluster
            Node type      : Secondary
            IP Address     : 10.10.10.10
            Mount point    : /STGMGRDISK
            Node name      : nodeMGR
            Network Resource: stgnet
            Service        : manager service
    ```

```
        Function      : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster?
[default:y]
```

For a Storage Server transaction:

```
# /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.

— If the transaction is a Storage Management Server transaction, proceed to step
  19.
  If the transaction is a Storage Server transaction, proceed to step 20.

19. For Storage Management Server transactions, confirm the continuation of processing.

    The window for confirmation of continuation opens.   Enter "y", then 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
```

20. 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.
#
```

21. Unmount the shared disks on the secondary node.
    For a Storage Management Server transaction, unmount the shared disk for AdvancedCopy
    Manager shared data and the shared disk for the AdvancedCopy Manager repository on
    the secondary node.
    For a Storage Server transaction, unmount the shared disk for AdvancedCopy Manager
    share data on the secondary node.

22. Check the resource group resources.
    Check that the following resource has been registered:
    AdvancedCopy   Manager   application   resource   (resource   name:
    STGMGR-APP-logical-node-name)

23. For a Storage Management Server transaction, enter the WebServer settings.
    By referring to "Setting up the Web Server" in the "ETERNUS SF AdvancedCopy Manager
    Installation Guide", set up the WebServer in all nodes. If WebServer operation
    requires the use of a physical IP address, specify settings so that multiple IP
    addresses can be used to access WebServer: that is, a physical IP address and a logical
    IP address. This is necessary because AdvancedCopy Manager in cluster operations
    accesses WebServer through a logical IP. For the required settings, refer to the
    applicable WebServer manual.

24. 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.

25. Back up the environment.
    As a safeguard against loss of data, back up the following environments.
    — Database
        For a Storage Management Server transaction, refer to "Saving a database" in
        the "ETERNUS SF AdvancedCopy Manager Operations Guide (Solaris)" and back up
        the database area that was created.

    — 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

26. Create an environment for Storage Management Server transactions and Storage Server
    transactions.
    Use the Web GUI of AdvancedCopy Manager to create an environment for Storage Management
    Server transactions and Storage Server transactions.
    If only one server is used for Storage Management Server transactions and Server
    storage transactions, you should also create a Storage Server transaction environment.

Note

    — Create an environment for Storage Management Server transactions and an
        environment for Storage Server transactions by referring to the "ETERNUS SF
        AdvancedCopy Manager Operator's Guide (Solaris)."

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4.4 Customization for Linux-version PRIMECLSTER

This section explains how to customize the Linux-version PRIMECLSTER.

The primary node is an active node in a userApplication performing Storage Management Server transactions, and the secondary node is the standby node in the same group. The secondary node A is the node which creates the environment of Storage Management Server transactions and Storage Server transactions first in the secondary nodes in this userApplication. The secondary node B is the remaining standby node and is not the active node in this userApplication.

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

The customizing work of the primary node, secondary node A and secondary node B is executed as a 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 other sets are the secondary node B.

4.4.1 Flow of Customizing

This section describes the flow of setup.

	[Primary node]	[Secondary node A]	[Secondary node B]

[Primary node]

Restart the system

Check the check items in advance

Check the mount state of the shared disks

Stop the userApplication

Register port numbers

Execute the cluster setup command

Check the mount state of the shared disks

For 1:1 standby system, Mutual standby system and n:1 standby system

Create the userApplication and resources

Set up WebServer

Start the userApplication

Back up the environment

Create an environment

[Secondary node A]

Restart the system

Check the mount state of the shared disks

Register port numbers

Check the mount state of the shared disks

Execute the cluster setup command

Check the mount state of the shared disks

For Cascade topology system and Priority transfer system

Create the userApplication and resources

Set up WebServer

[Secondary node B]

Restart the system

Check the mount state of the shared disks

Register port numbers

Check the mount state of the shared disks

Execute the cluster setup command

Check the mount state of the shared disks

Create the userApplication and resources

Set up WebServer

4.4.2 Customization Procedure

To set up a Storage Management Server transaction and a Storage Server transaction, use the following procedure:

1. Restart the system.
   If the system is restarted as an extension of the installation process of AdvancedCopy Manager, proceed to step 2.

2. Check the preparations.
   Check each item of "Confirmation of items," for the userApplication to be set up.

3. Mount the shared disk on the primary node.
   For a Storage Management Server transaction, mount the shared disk for AdvancedCopy Manager shared data and that for the AdvancedCopy Manager repository on the primary node.
   For a Storage Server transaction, mount the shared disk for shared data on the primary node.

4. Stop the userApplication.
   To add a Storage Management Server transaction and a Storage Server transaction to an existing userApplication, use the RMS Wizard to stop the applicable userApplication.

5. Register port number
   Register the port number for the transaction communication in /etc/services. Use an OS command such as vi to register it in /etc/services.
   ― Transaction communication daemon: stgxfws_*Logical-Node-Name*

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

6. Execute the cluster setup command on the primary node.
   For a Storage Management Server transaction, on the primary node, execute the cluster setup command shown below after blocking other users from accessing the shared disk for shared data and that for the repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

   If status transition procedure resources are used:

   ```
   # /opt/swstorage/bin/stgclset_lxprm  -k Primary | Pri -m
   AdvancedCopy-Manager-Shared-Data-Mount-Point -n Logical-Node-Name -s Service-Name -i
   IP-Address -f mgr
   ```

   Example

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

   or

```
# /opt/swstorage/bin/stgclset_lxprm -k Pri -m /STGMGRDISK -n nodeMGR -s manager_service
-i 10.10.10.10 -f mgr
```

If command line resources are used:

```
# /opt/swstorage/bin/stgclset_lxprm -k Primary | Pri -m
AdvancedCopy-Manager-shared-data-mount-point -n logical-node-name -s
transaction-name -i IP-address -f mgr -r cmd
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_lxprm -k Pri -m /STGMGRDISK -n nodeMGR -s
manager_service -i 10.10.10.10 -f mgr-r cmd
```


Note

- For a Storage Management Server transaction to be performed, use the location
  that is specified when the Storage Management Server is installed.

- In combined operation with the scalable class, the IP address for a Storage
  Management Server transaction specified with the -i option must be the "takeover
  IP address for AdvancedCopy Manager" prepared for the Storage Management Server
  transaction. Do not specify the logical IP address of the transaction in the
  scalable class.

For a Storage Management Server transaction, on the primary node, execute the following
cluster setup command after blocking other users from accessing the shared disk for
shared data:

If status transition procedure resources are used:

```
# /opt/swstorage/bin/stgclset_lxprm  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point -n Logical-Node-Name -s Service-Name
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_lxprm -k Pri -m /CTTEST3 -n nodeAGT -s agent_service
```

If command line resources are used:

```
# /opt/swstorage/bin/stgclset_lxprm  -k Primary | Pri -m
AdvancedCopy-Manager-shared-data-mount-point -n logical-node-name -s
transaction-name -r cmd
```

Example

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

or

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

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.

   For a Storage Management Server transaction (using status transition procedure resources):

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

   For a Storage Server transaction (using command line resources):

```
# /opt/swstorage/bin/stgclset_lxprm -k Primary -m /CTTEST3 -n nodeAGT -s agent_service
AdvancedCopy Manager settings are as follows.
        Cluster system : 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 cluster environmental setting processing, input "n". To continue processing, input "y", or press the Enter key.

   Note

   — If the transaction is the Storage Management Server transaction, proceed to step 8.
     If the transaction is the Storage Server transaction, proceed to step 13.

8. Start the creation of a common environment for Storage Management Server transactions.

The initial window for setting the common environment opens. Confirm the displayed
information, 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
```

9. For a Storage Management Server transaction, specify the DB device.

    The window shown below opens. Enter the directory name for the DB file system
    according to the information in [Notes], 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/DBFile/DBFile
```

    A similar setting window opens for input of the directory names for the RDB dictionary,
    RDB log file, and the DB space where repository data is stored. Enter a directory
    name for each item, and press the Enter key after each entry.
    After setting up the directory name for DB space where repository data is stored, the
    setting window for inputting the size of repository data is opened. Enter the size
    of repository data, and press the Enter key.

10. For a Storage Management Server transaction, check the DB directory settings.

    The four directory names and the size of repository data specified in step 9 are
    displayed. Confirm the displayed information, enter "y", and press the Enter key.

```
================================================================

 Directory name for the DB file ............/ACMMnt/DBFile/DBFile
 Directory name for the RDB dictionary .....ABMMnt/DBDic/DBDic
 Directory name for the RDB log file .......ACMMnt/DBLog/DBLog
 Directory name for the DB space
          used to save repository data ....ACMMnt/DBSpa/DBSpa
 Repository data Size .....................65MB
```

```
     ==================================================================


             Okay? [y/n] ==> y
```

11. For a Storage Management Server transaction, 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
```

12. For a Storage Management Server transaction, perform the repository access settings.
    The window for setting repository access opens. Enter a user name and password, and
    press the Enter key.

Point

From a security point of view, it is recommended to log on as a general user and not
the root user.

```
             Enter the user name and password for accessing
             the repository of AdvancedCopy Manager.

             [Notes]
             We recommend you to input a general user other than root.

                 Username          : acmuser
                 Password          :
                 Password(Re-enter) :
```

Note

    ─ If user settings were entered as shown above, and the user is deleted or the
       password is changed from the operating system, perform the setup processing again.
       Refer to "User deletion or password change in repository access user settings"

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in the "ETERNUS SF AdvancedCopy Manager Operator's Guide (Linux)".

13. 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.
 #
```

14. Dismount the shared disks on the primary node.
For a Storage Management Server transaction, dismount the shared disk for shared data and the one for the repository on the primary node.
For a Storage Server transaction, dismount the shared disk for shared data on the primary node.

15. Mount the shared disks on the secondary node A.
For a Storage Management Server transaction, mount the shared disk for shared data and the one for the repository on the secondary node A.
For a Storage Server transaction, mount the shared disk for shared data on the secondary node A.

16. Execute the cluster setup command on the secondary node A.
For a Storage Management Server transaction, on the secondary node A, execute the cluster setup command shown below after blocking other users from accessing the shared disk for shared data and that for the repository. When this command is executed, a repository is created in addition to the cluster being set up. For more information, see the chapter on database creation.

For a Storage Server transaction, on the secondary node A, execute the following cluster setup command after blocking other users from accessing the shared disk for shared data:

```
# /opt/swstorage/bin/stgclset_lxprm  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary -m /STGMGRDISK
```

or

```
# /opt/swstorage/bin/stgclset_lxprm -k Sec -m /STGMGRDISK
```


— For a Storage Management Server transaction to be performed, use the locale that is specified when the Storage Management Server is installed.

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.

For a Storage Management Server transaction:

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary -m /STGMGRDISK
AdvancedCopy Manager settings are as follows.
          Cluster system : PRIMECLUSTER
          Node type      : Secondary
          IP Address     : 10.10.10.10
          Mount point    : /STGMGRDISK
          Node name      : nodeMGR
          Service        : manager_service

          Resource       : Procedure
          Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

For a Storage Server transaction:

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary -m /CTTEST3
AdvancedCopy Manager settings are as follows.
          Cluster system : 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.

Note

— If the transaction is the Storage Management Server transaction, proceed to step 18.

If the transaction is the Storage Server transaction, proceed to step 19.

18. Start the creation of a common environment for AdvancedCopy Manager management server transactions.
    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
```

19. 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.
#
```

20. Dismount the shared disks on the secondary node A.
    For a Storage Management Server transaction, dismount the shared disk for shared data
    and that for the repository on the secondary node A.
    For a Storage Server transaction, dismount the shared disk for share data on the
    secondary node A.

    ![Note]

    — If the system is the 1:1 standby system, the Mutual standby system and the n:1
      standby system, proceed to step 28.
      If the system is a Cascade topology or Priority transfer, proceed to step 21.

21. Mount the shared disks on the secondary node B.
    For a Storage Management Server transaction, mount the shared disk for shared data
    and that for the repository on the secondary node B.
    For a Storage Server transaction, mount the shared disk for shared data on the secondary
    node B.

    ![Note]

    — When there are two or more secondary nodes B, Step 21 to Step 27 is processed
      by all the secondary nodes B.

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

    For a Storage Management Server transaction, on the secondary node B, execute the
    cluster setup command shown below after blocking other users from accessing the shared
    disk for shared data and that for the repository. When this command is executed, a
    repository is created in addition to the cluster being set up. For more information,
    see the chapter on database creation.

    For a Storage Server transaction, on the secondary node B, execute the following
    cluster setup command after blocking other users from accessing the shared disk for
    shared data:

```
# /opt/swstorage/bin/stgclset_lxprm  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

    Example

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary -m /STGMGRDISK
```

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or

```
# /opt/swstorage/bin/stgclset_lxprm -k Sec -m /STGMGRDISK
```

— For a Storage Management Server transaction to be performed, use the location
that is specified when the Storage Management Server is installed.

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

For a Storage Management Server transaction:

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary -m /STGMGRDISK
AdvancedCopy Manager settings are as follows.
          Cluster system : PRIMECLUSTER
          Node type      : Secondary
          IP Address     : 10.10.10.10
          Mount point    : /STGMGRDISK
          Node name      : nodeMGR
          Service        : manager_service

          Resource       : Procedure
          Function       : Management Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]
```

For a Storage Server transaction:

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary -m /CTTEST3
AdvancedCopy Manager settings are as follows.
          Cluster system : 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.

24. 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."

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

— If the transaction is the Storage Management Server transaction, proceed to step 25.
   If the transaction is the Storage Server transaction, proceed to step 26.

25. Start the creation of a common environment for AdvancedCopy Manager management server transactions.

    The initial window for setting the common environment opens. Confirm the displayed information, 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
```

26. 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.
#
```

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

    For a Storage Management Server transaction, dismount the shared disk for shared data and that for the repository on the secondary node B.

    For a Storage Server transaction, dismount the shared disk for share data on the secondary node B.

— When any secondary nodes B remain (those that haven't performed Step 21 to Step 27), perform from Step 21 in the nodes. When operation from Step 21 to Step 27 is completed for all secondary nodes B, go to Step 28.

28. Create the userApplication and resources.
   On both the primary node and the secondary node, set up "logical IP takeover of the NIC switching mode" of GLS. When using the existing GLS, this setup of GLS is unnecessary.

   On either the primary node or the secondary node, use the RMS Wizard to create a userApplication and the following resources.
   — GDS resource
      For a Storage Management Server transaction, register the class of the shared disk for shared data and the class of the shared disk for the repository.
      For a Storage Server transaction, register the class of the shared disk for shared data.

   — Fsystem resource
      For Storage Management Server transaction, register the mount point of the shared disk for shared data and the mount point of the shared disk with the directory for the repository.
      For Storage Server transaction, register the mount point of the shared disk for shared data.

   — GLS resource
      This resource is not necessary if a GLS resource has already been created by the applicable userApplication.

   — Procedure resource
      Specify if procedure resources are used.

   — Register "SMGRPROC_*Logical-Node-Name*" into an Application class.

   — Command line resource
      Specify if command line resources are used.
      Set 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 information on how to set GLS, refer to the "PRIMECLUSTER Installation and Administration Guide" and "PRIMECLUSTER Global Link Services."

   — For information on how to create resources and userApplications with PRIMECLUSTER, see "Creating Resources and userApplications with Linux-version PRIMECLUSTER".

   — The cluster setup command (stgclset_lxprm) has already made 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.

29. For a Storage Management Server transaction, perform the WebServer settings.
    By referring to "Setting up the Web Server," in the "ETERNUS SF AdvancedCopy Manager
    Installation Guide", set up the Web Server in all nodes.

30. Start the userApplication and the AdvancedCopy Manager.
    Use the RMS Wizard to start the new userApplication or the userApplication stopped
    in step 4.

31. Back up the environment.
    To guard against accidental deletion or corruption of data, back up the following
    environments.
    — Database
        For a Storage Management Server transaction, refer to "Saving a database," in
        the "ETERNUS SF AdvancedCopy Manager Operations Guide (Linux)", and back up the
        created database area.

    — Data on the shared disk for shared data
        Use the 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

32. Create an environment for a Storage Management Server transaction and a Storage Server
    transaction.
    Use the Web GUI of AdvancedCopy Manager to create an environment for a Storage
    Management Server transaction and a Storage Server transaction.
    In the case of a Storage Management Server transaction that acts as a Storage Server
    transaction, also create an environment for the Storage Server transaction.

    Note

    — Refer to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (Linux)", and
        create the environment for a Storage Management Server transaction and a Storage
        Server transaction.

4.5 Customization for Windows-version MSCS

This section explains how to customize Windows-version MSCS.

The primary node is an active node in a cluster service (userApplication) performing Storage Management 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 Storage Management Server transactions and Storage 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 an n:1 standby system.
The customizing work of a primary node, secondary node A and a secondary node B is executed s a cascade topology system.

Examples:
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.

When you applied Windows Server 2003 Service Pack 1 or Windows Server 2003 R2, set the firewall function by referring to "Notes on installation," in the "ETERNUS SF AdvancedCopy Manager Installation Guide".

4.5.1 Flow of Customizing

This section describes the flow of setup.

```
        [Primary node]              [Secondary node A]          [Secondary node B]

    ┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
    │ Restart the system│──────▶│ Restart the system│──────▶│ Restart the system│
    └────────┬─────────┘        └────────┬─────────┘        └────────┬─────────┘
             ▼                           ▼                           ▼
    ┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
    │Cancel database setup│     │Cancel database setup│     │Cancel database setup│
    └────────┬─────────┘        └────────┬─────────┘        └────────┬─────────┘
             ▼                           │                           │
    ┌──────────────────┐                 │                           │
    │  Offline group   │                 │                           │
    └────────┬─────────┘                 ▼                           ▼
             ▼                  ┌──────────────────┐        ┌──────────────────┐
    ┌──────────────────┐        │Acquire ownership │        │Acquire ownership │
    │Acquire ownership │        │      rights      │        │      rights      │
    │      rights      │        └────────┬─────────┘        └────────┬─────────┘
    └────────┬─────────┘                 ▼                           ▼
             ▼                  ┌──────────────────┐        ┌──────────────────┐
    ┌──────────────────┐        │ Execute the cluster│      │ Execute the cluster│
    │ Execute the cluster│      │  setup command   │        │  setup command   │
    │  setup command   │        └────────┬─────────┘        └────────┬─────────┘
    └────────┬─────────┘                 ▼                           ▼
             ▼                  ┌──────────────────┐        ┌──────────────────┐
    ┌──────────────────┐        │  Set the cluster │        │  Set the cluster │
    │  Set the cluster │        │   information    │        │   information    │
    │   information    │        └────────┬─────────┘        └────────┬─────────┘
    └────────┬─────────┘                 ▼                           ▼
             ▼                  ┌──────────────────┐        ┌──────────────────┐
    ┌──────────────────┐        │ Set the database │        │ Set the database │
    │ Set the database │        │   information    │        │   information    │
    │   information    │        └────────┬─────────┘        └────────┬─────────┘
    └────────┬─────────┘                 │                           │
             ▼                           │     For 1:1 standby system, For Cascade topology
    ┌──────────────────┐                 │     M utual standby system     system
    │Move the shared disk│───────────────┘     and n:1 standby system
    └──────────────────┘

    ┌──────────────────┐◀──────────────────────────┐
    │ Update resources │◀┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┈┘
    └────────┬─────────┘
             ▼
    ┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
    │   Set the MME    │        │   Set the MME    │        │   Set the MME    │
    └────────┬─────────┘        └──────────────────┘        └──────────────────┘
             ▼
    ┌──────────────────┐
    │   Online group   │
    └────────┬─────────┘
             ▼
    ┌──────────────────┐
    │Backup an environment│
    └────────┬─────────┘
             ▼
    ┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
    │Confirm the operation│     │Confirm the operation│     │Confirm the operation│
    │      node        │        │      node        │        │      node        │
    └────────┬─────────┘        └──────────────────┘        └──────────────────┘
             ▼
    ┌──────────────────┐
    │Create an environment│
    │ for transaction  │
    └──────────────────┘
```

4.5.2 Customization Procedure

To set up a Storage Management Server transaction and a Storage Server transaction, use the procedure below.

Do not use the following services to perform this processing, otherwise a problem may occur:

— Terminal service (use by remote desktop connection)

— Telnet server service

If the Storage Management Server is a Windows Server 2003, use it by creating a console session connection with a terminal service. Refer to the following for the method of creating a console session connection.

http://support.microsoft.com/kb/278845

1. Reactivate the primary node.
   Reactivate the primary node. If the system has been reactivated as an extension of AdvancedCopy Manager installation, go to the step 2.

2. For a Storage Management Server transaction, cancel the process of setting the database information.

   When the following window is displayed, click the [Cancel] button.

3. Offline group as required.

   To add Storage Management Server transactions and a Storage Server transaction to an existing cluster group, switch the cluster group offline using the cluster administrator. This step is not required if a new cluster group is being created. For a Storage Management Server transaction, leave the shared disk for shared data and the shared disk for the repository online.

   For a Storage Server transaction, leave the shared disk for shared data online.

   For information on how to stop the cluster group and how to vary the shared disk online, refer to the Microsoft(R) Cluster Server manuals.

4. Acquire the ownership rights on Microsoft(R) Cluster Server.
   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 information about how to acquire ownership rights, refer to the Microsoft(R) Cluster Server manuals.

5. Execute the cluster setup command.
Execute the following cluster setup command on the primary node:

```
Program_directory\bin\stgclset_mscs
```

6. Select the node type and shared disk.
The initial window of the cluster setup command is displayed.
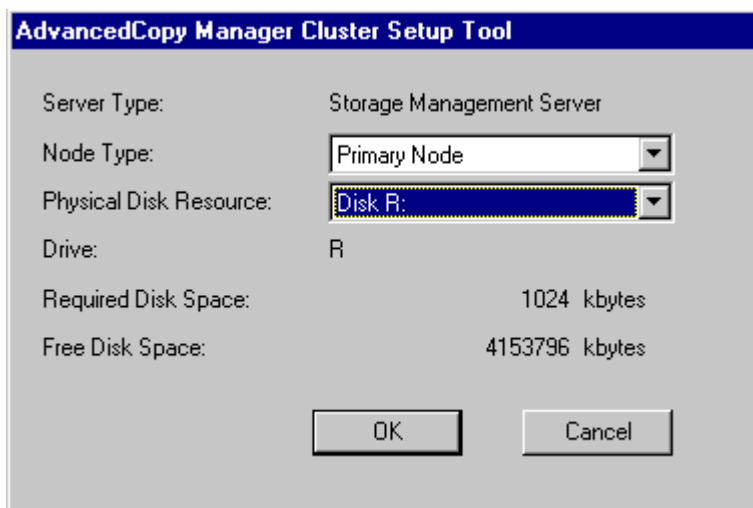
Each item is explained below.   Make the required entries and then click the [OK] button.
— Server Type
Confirm that the server is a "Storage Management Server" or a "Storage Server."
— Node Type
Select "Primary Node."
— Physical Disk Resource
Select the resource for the shared disk used for shared data that was prepared in "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.

7. Set the cluster information for the primary node.
The setting window of the cluster setup command is displayed.

For a Storage Management Server transaction:

For a Storage Server transaction:

AdvancedCopy Manager Cluster Setup Tool

Server Type:	Storage Server
Node Type:	Primary 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:	

☐ Storage Management Server Operation

[OK]   [Cancel]

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" or 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 "Confirmation of items."
  — Service name
    Enter the service name as defined in "Confirmation of items."
  — Cluster Name
    Enter the cluster name as confirmed in "Confirmation of items."
  — IP Address
    Enter the logical IP address as defined in "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 "Confirmation of items."
  — External Connection Network
    Enter the external connection network name as confirmed in "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 "Confirmation of items."

— Storage Management Server Operation

For a Storage Management Server transaction, select this item. If this item is not selected, settings are made for Storage Server transactions.

8. 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.
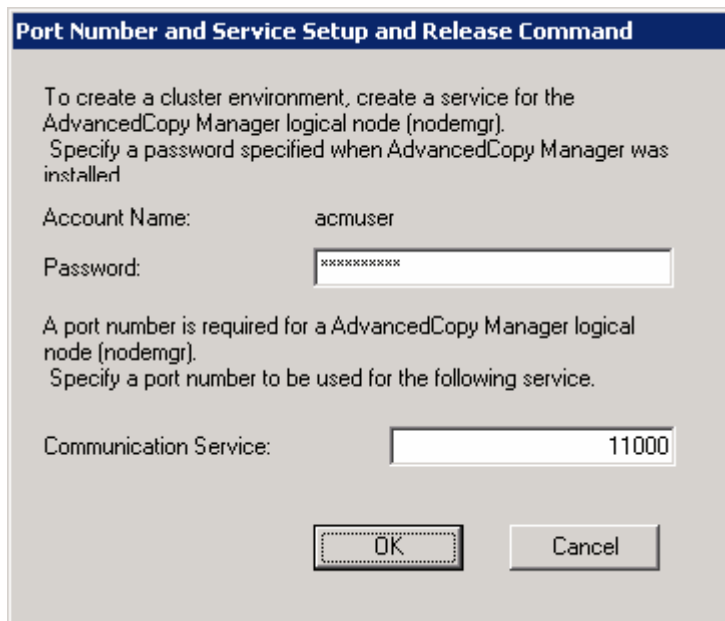
Each item is explained below. Make the required entries and then click the [OK] button.

— Account Name

The account name entered when AdvancedCopy Manager was installed is displayed.

— Password

Enter the password entered when AdvancedCopy Manager was installed.

— Communication Service

Enter the port number for the transaction communication service as defined in "Confirmation of items".

9. The port number and service settings have been completed.
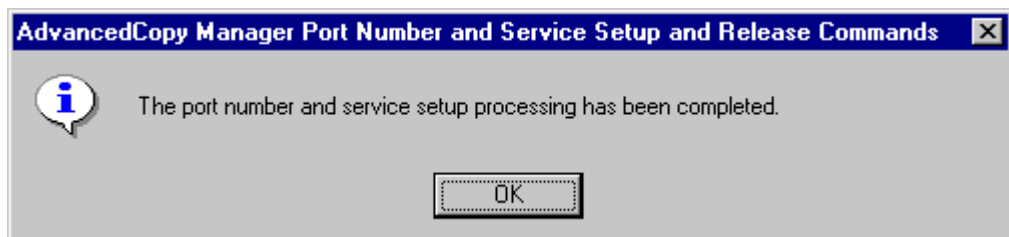
Click the [OK] button.

Note

─ If the transaction is the Storage Management Server transaction, proceed to step 10.

If the transaction is the Storage Server transaction, proceed to step 16.

10. For a Storage Management Server transaction, 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 is used for the repository and shared data, specify the drive selected in item 6 as the database creation folder.   Finally, be sure that you create a database on the shared disk.

─ Database creation folder
Enter the folder name where each database will be stored. Specify the absolute path name including the drive name. The folder name specified here must be a new NTFS folder. If the specified folder has been formatted by any other system or if it is an existing folder, change it to another folder name.
─ Database size
Specify the database size in MB. Use the value calculated by referring to "Repository" in the "ETERNUS SF AdvancedCopy Manager Installation Guide." If you want to use the default value, check the [Default size] button.

11. For a Storage Management Server transaction, 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.

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

— If user settings were entered as shown above, and the user is deleted or the
password is changed from 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 Operator's Guide (Windows)".

12. For a Storage Management Server transaction, confirm the setting information.

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

13. For a Storage Management Server transaction, the DB Setup processing started.
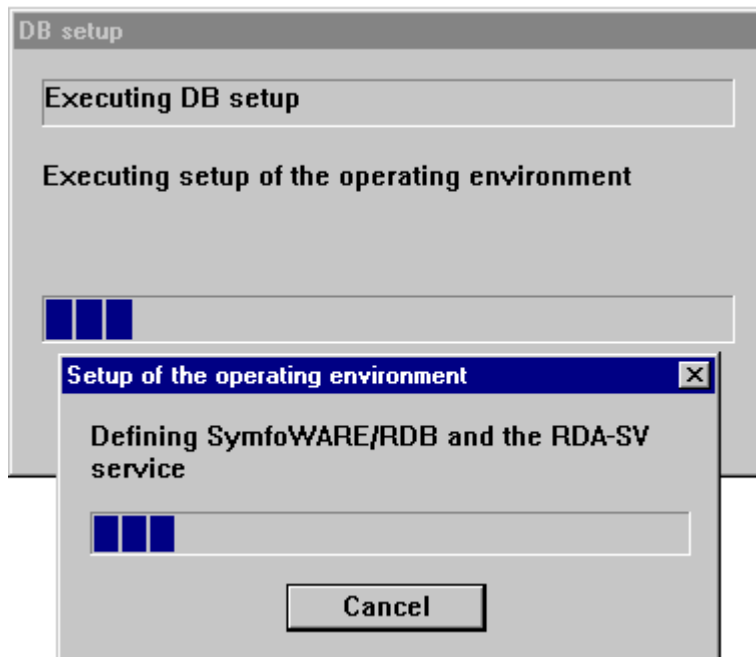
14. For a Storage Management Server transaction, the DB Setup processing is completed.

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

DB setup

Executing DB setup

DB setup was completed.

Close
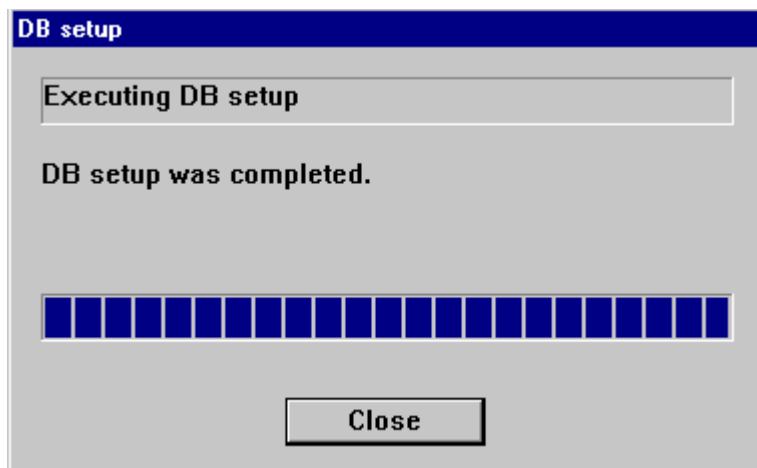
15. For a Storage Management Server transaction, set the Web server.

The following confirmation dialogs are displayed. In using a Web client, click the [OK] button and set up a Web server (eg, Microsoft Internet Information Server/Microsoft Internet Information Services).

When only a command is used without using a Web client, click the [NO] button.

Confirmation of Web Server setting

Do you set it to Internet Information Services ?

Yes   No

The following virtual directories are set in a Web server.

Virtual directory	Directory name	Property of virtual directory
Swstorage	program-directory¥inet¥wwwroot	Addition of "read"
swstorage-j	program-directory¥java	Addition of "read"
swstorage-cgi	program-directory¥inet¥cgi	Addition of "Execute permissions" (CGI is stored.)
swstorage-d	shared-disk-for-advancedcopymanager-shared-data:¥etc¥opt¥swstorage¥etc¥data	Addition of "read"

Note

— If version 6.0 of Internet Information Service is installed, the following confirmation dialog box is displayed when the Yes button in the Confirmation of Web Server setting dialog box is clicked. To make CGI script executable, click Yes and set up the Web server.

Confirmation of Web Server setting

For Internet Information Services 6.0, it is necessary to register CGI files of this product, and make CGI executable.
Do you want to continue the processing?

Yes   No

— If Windows SharePoint Services have been installed in a Windows Server 2003 R2 environment, SharePoint server management settings and IIS settings must be performed to use the Web client. Refer to "Running the Software in an Environment where Windows SharePoint Services have been Installed" in the "ETERNUS SF Advanced Copy Manager Installation Guide" for more information about these settings.

16. 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.

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

OK
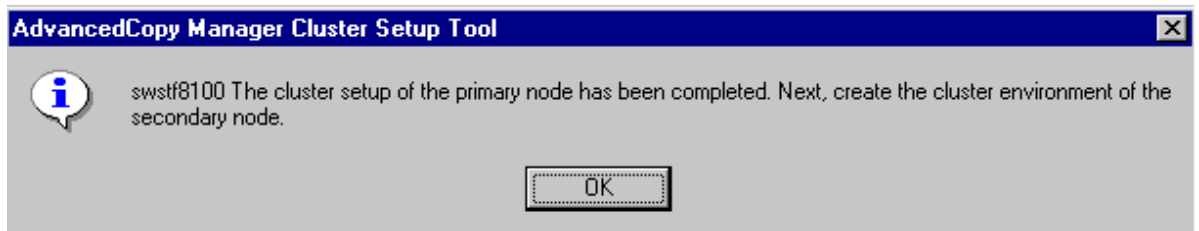
17. For Storage Management Server transaction, move the disk resource as required.

If the shared disk for the repository and the shared disk for shared data are separate, use the cluster administrator to move the disk resource on the shared disk for the repository to the cluster group. For information about how to move a disk resource, refer to the Microsoft(R) Cluster Server manuals.

18. Reactivate the secondary node A.
If the system has been reactivated as an extension of the AdvancedCopy Manager installation process, go to the step 19.

19. For a Storage Management Server transaction, cancel the process of setting the database information.

When the following window is displayed, click the [Cancel] button.
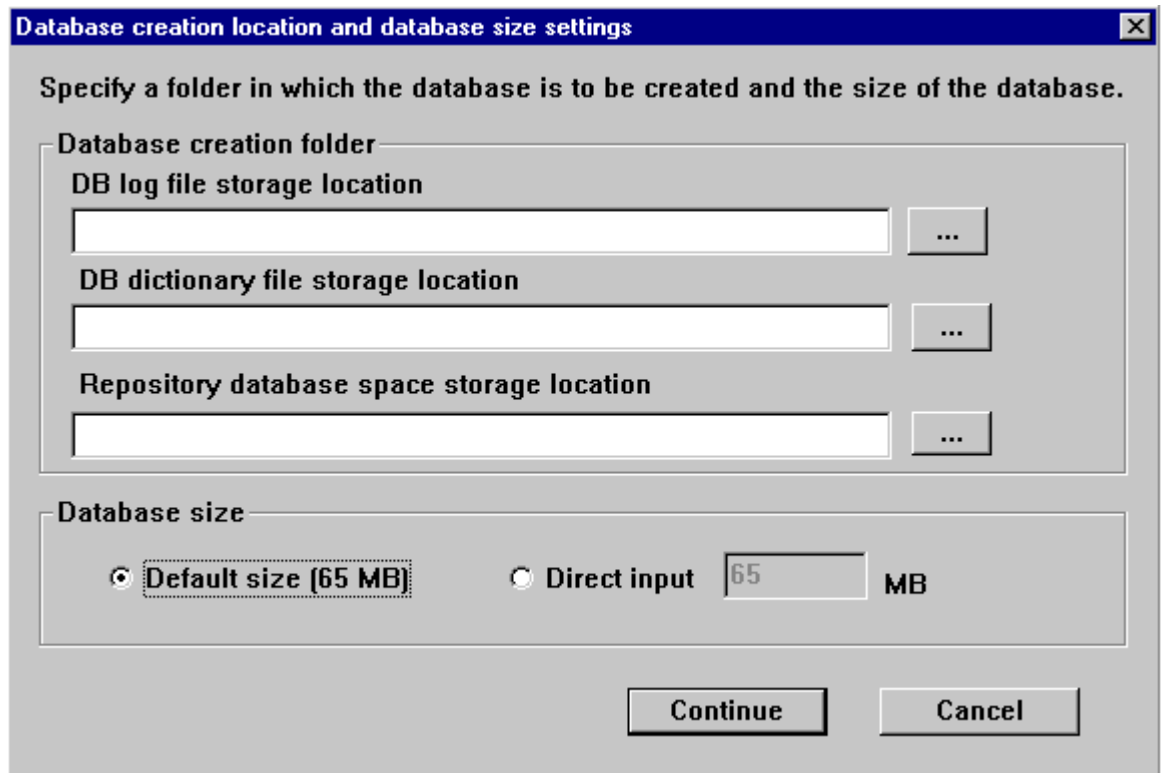
20. Acquire cluster group ownership by using the secondary node A.
    Acquire the ownership rights for cluster group on the secondary node A.   For
    information about how to acquire ownership rights, refer to the Microsoft(R) Cluster
    Server manuals.

21. Execute the cluster setup command.
    Execute the following cluster setup command on the secondary node:

    ```
    Program_directory ¥bin¥stgclset_mscs
    ```

22. Select the node type and shared disk.
    The initial window of the cluster setup command is displayed.
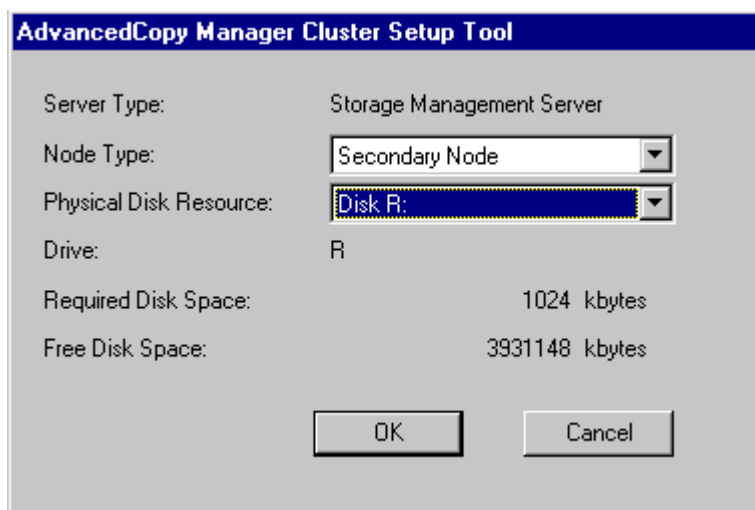
    Each item is explained below.   Make the required entries and then click the [OK]
    button.

— Server Type

Confirm that the server is a "Storage Management Server" or "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.

23. 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 (Only the node type needs to be changed to secondary node.). After confirming each item, click the [OK] button.

For a Storage Management Server transaction:

For a Storage Server transaction:

24. Set the port number and service.

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

Enter the password that was first entered when AdvancedCopy Manager was installed in
the password field. After entering the password, click the [OK] button.

25. The port number and service settings have been completed.
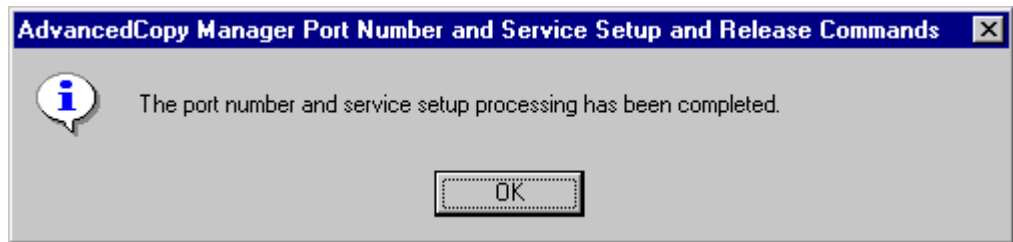
Click the [OK] button.

— If the transaction is the Storage Management Server transaction, proceed to step 26.

If the transaction is the Storage Server transaction, proceed to step 32.

26. For a Storage Management Server transaction, set the database information.

When the [Database creation location and database size settings] window is displayed, enter the same information as that which was set for the primary node, and click the [Continue] button.
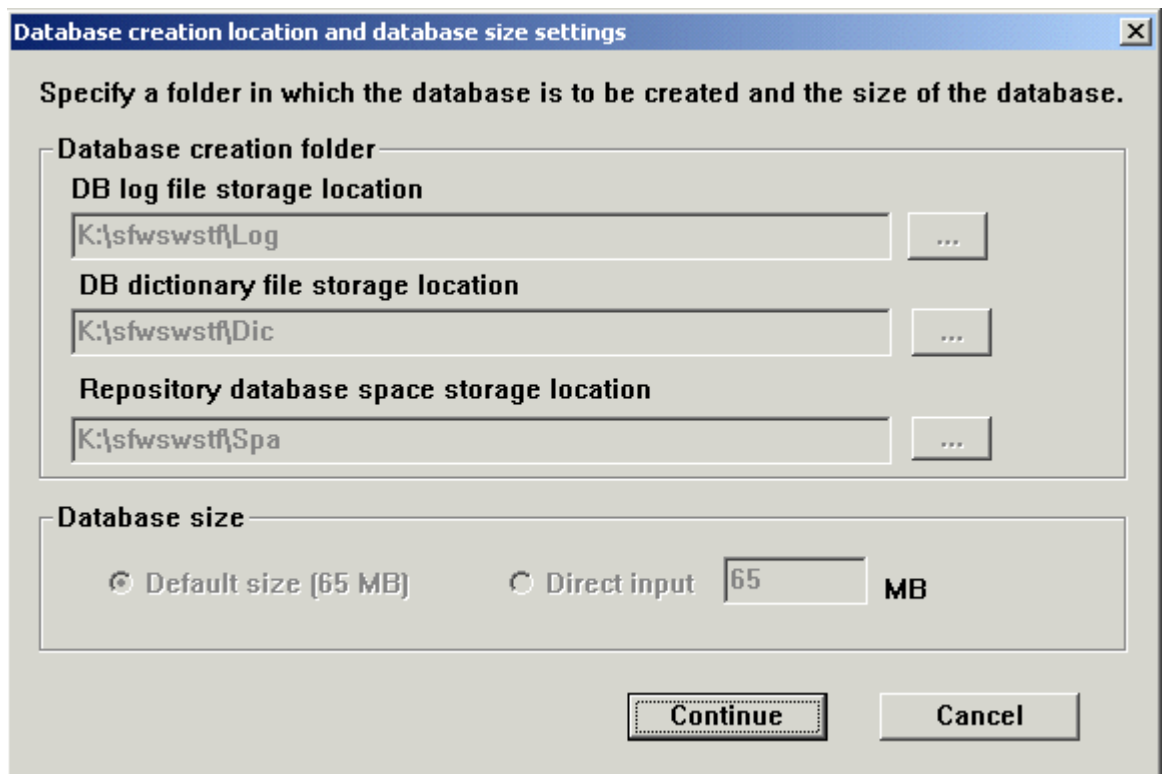
27. For a Storage Management Server transaction, confirm the database access user.

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.

28. For a Storage Management Server transaction, confirm the setting information.
    When the setting information for the database is displayed, confirm the displayed
    information and click the [Start] button.

29. For a Storage Management Server transaction, the DB Setup processing is started.

30. For a Storage Management Server transaction, the DB Setup processing is completed.
The DB Setup completion window is displayed; click the [Close] button.

31. For a Storage Management Server transaction, set the Web server.

The following confirmation dialog is displayed. If you are using a Web client, click the [OK] button and set up a Web server (Microsoft Internet Information Server/Microsoft Internet Information Services).

When only a command is used without using a Web client, click the [No] button.

The following virtual directories are set in a Web server.

Virtual	Directory name	Property of

directory		virtual directory
Swstorage	program-directory¥inet¥wwwroot	Addition of "read"
swstorage-j	program-directory¥java	Addition of "read"
swstorage-cgi	program-directory¥inet¥cgi	Addition of "Execute permissions" (CGI is stored.)
swstorage-d	shared-disk-for-advancedcopymanager-shared-data: ¥etc¥opt¥swstorage¥etc¥data	Addition of "read"

— If version 6.0 of Internet Information Service is installed, the following confirmation dialog box is displayed when the Yes button in the Confirmation of Web Server setting dialog box is clicked. To make CGI script executable, click [Yes] and set up the Web server.

— If Windows SharePoint Services have been installed in a Windows Server 2003 R2 environment, SharePoint server management settings and IIS settings must be performed to use the Web client. Refer to "Running the Software in an Environment where Windows SharePoint Services have been Installed" in the "ETERNUS SF Advanced Copy Manager Installation Guide" for more information about these settings.

32. The cluster setup of the secondary node has been completed.
    When the cluster setup completion window is displayed, click the [OK] button.

— If the cluster system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, proceed to step 49.
   If the system is the Cascade topology, proceed to step 33.

33. Reactivate the secondary node B.
    If the system has been reactivated as an extension of the AdvancedCopy Manager installation process, go to the step 34.

Note

— When the secondary node B consists of two or more nodes, perform from Step33
    and Step 48 on all of the secondary nodes B.

34. For a Storage Management Server transaction, cancel setting processing of the database
   information.
    When the following window is displayed, click the [Cancel] button.

35. Acquiring cluster group ownership by using the secondary node B.
    Use the cluster administrator access to acquire the ownership rights for cluster group
    on the secondary node B. For information about how to acquire ownership rights, refer
    to the Microsoft(R) Cluster Server manuals.

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

    Program_directory ¥bin¥stgclset_mscs

37. Select the node type and shared disk.
    The initial window of the cluster setup command is displayed.
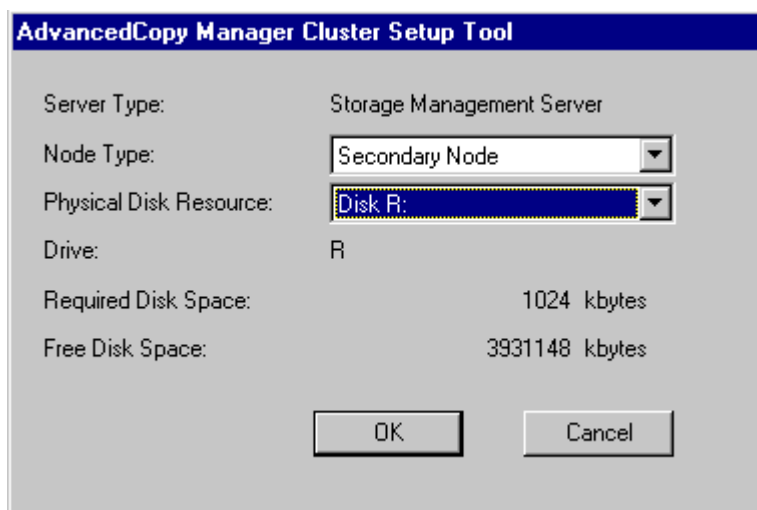
Each item is explained below. Make the required entries and then click the [OK] button.

— Server Type

Confirm that the server is a "Storage Management Server" or "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 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 cluster environment is displayed.

— Free Disk Space

The amount of free disk space of the specified drive is displayed.

38. 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.
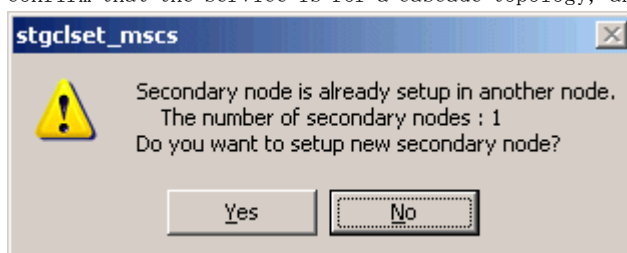
The number of secondary nodes already set up is displayed at the item "Secondary nodes already set up."
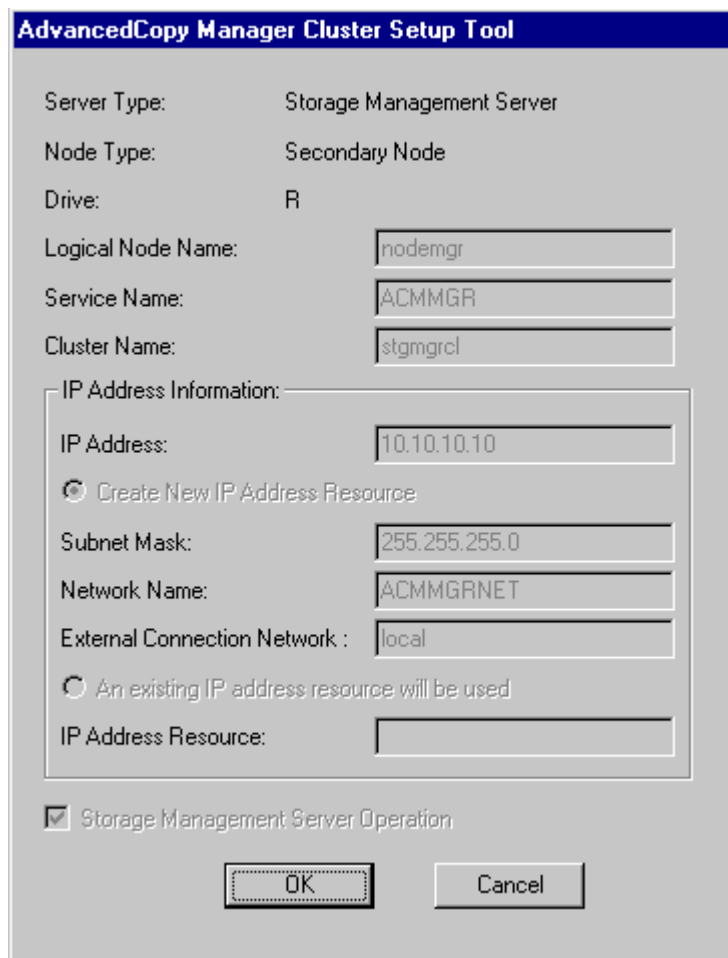
— Note that the default is [No] (cancellation of processing).

39. 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 (only the node type needs to be changed to secondary node.). After confirming

each item, click the [OK] button.

For a Storage Management Server transaction:

For a Storage Server transaction:

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

Enter the password that was entered when AdvancedCopy Manager was installed in the
password field. After entering the password, click the [OK] button.

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


Click the [OK] button.

— If the transaction is the Storage Management Server transaction, proceed to step 42.
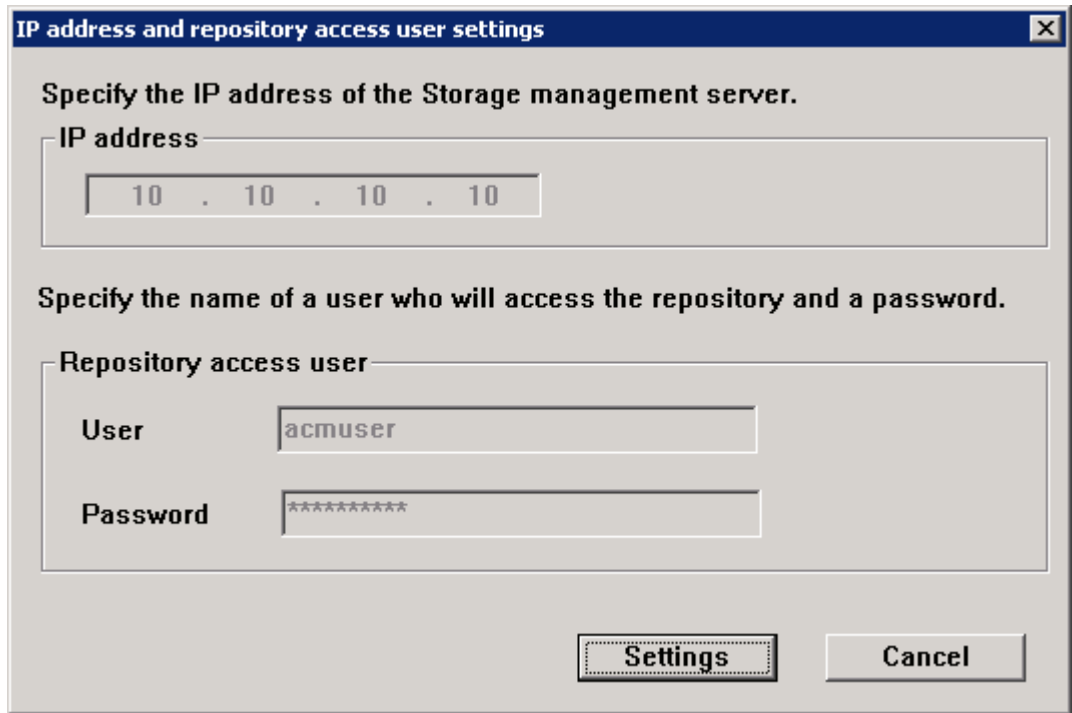If the transaction is the Storage Server transaction, proceed to step 48.

42. For a Storage Management Server transaction, set the database information.
When the [Database creation location and database size settings] window is displayed, enter the same information as that set for the primary node, and click the [Continue] button.
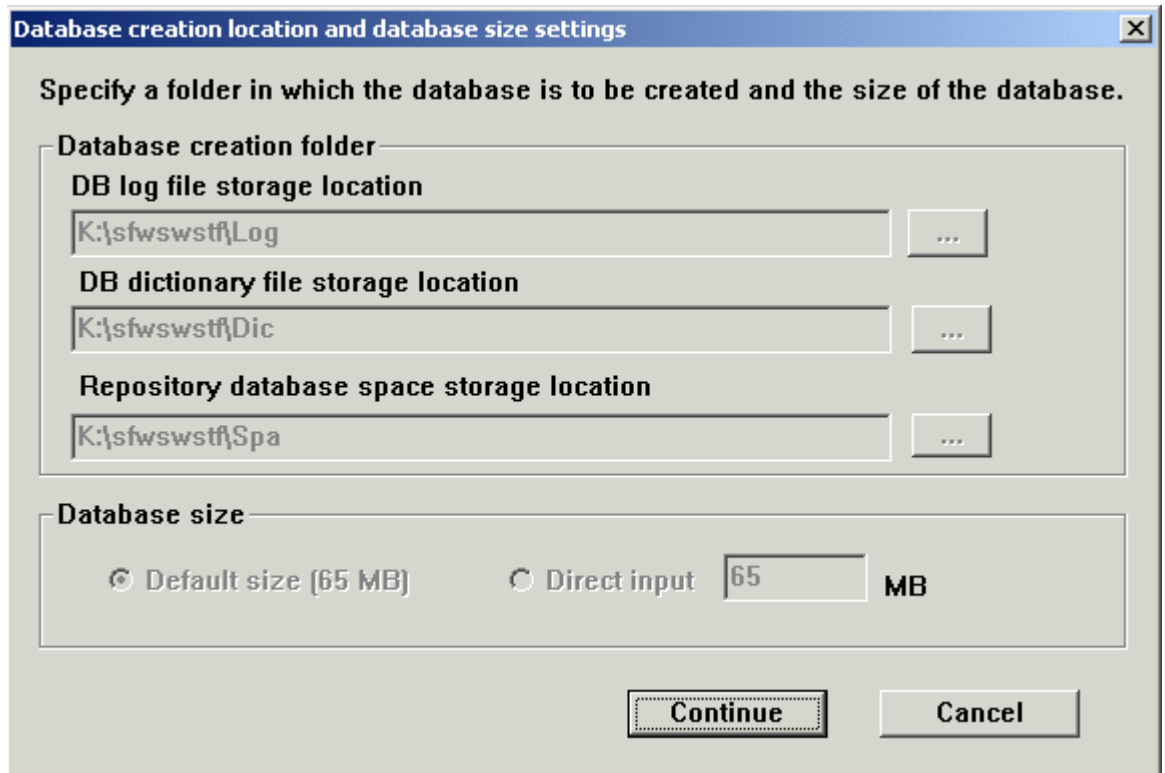
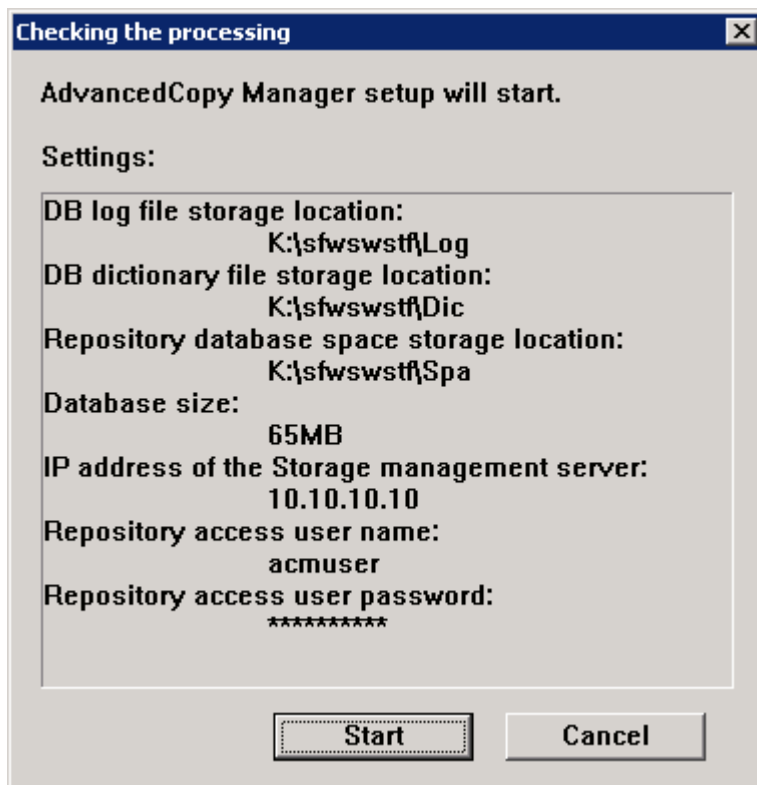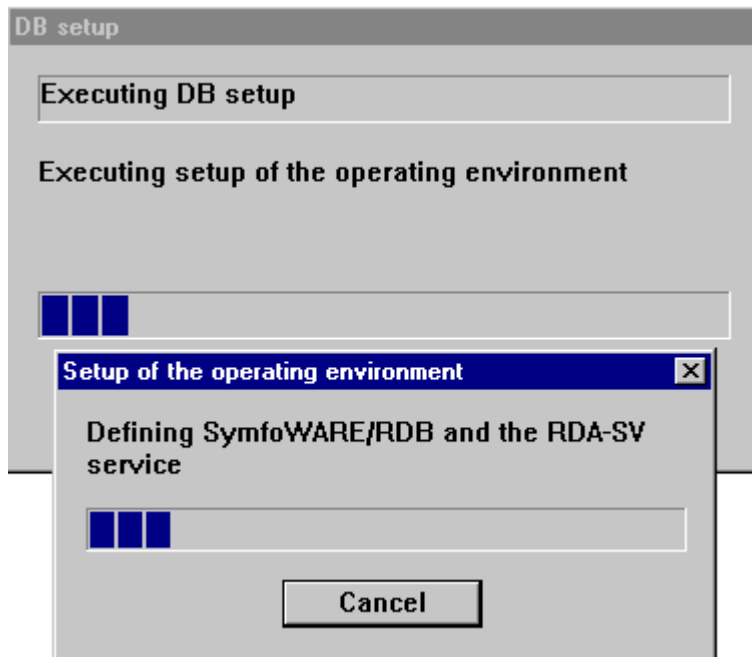43. For a Storage Management Server transaction, confirm the database access user.
The values set for the primary node are displayed in the [IP address and repository access user setting] window. Confirm each setting, and click the [Settings] button.
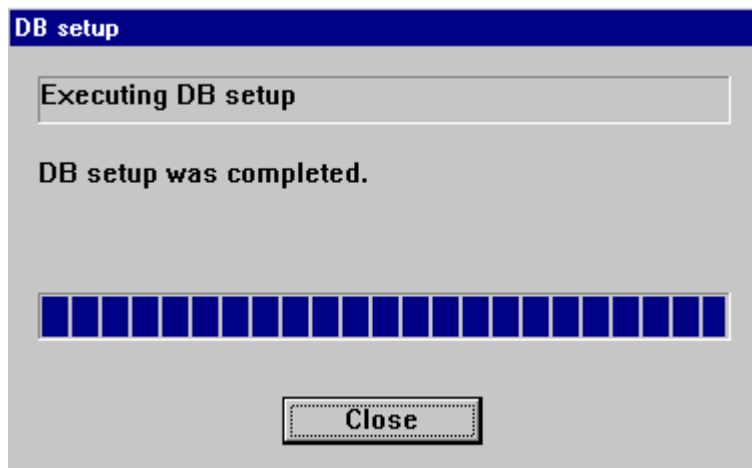
44. For a Storage Management Server transaction, confirm the setting information.
    When the setting information for the database is displayed, confirm the displayed
    information and click the [Start] button.

45. For a Storage Management Server transaction, the DB Setup processing is started.

46. For a Storage Management Server transaction, the DB Setup processing is completed.
    The DB Setup completion window is displayed; click the [Close] button.

47. For a Storage Management Server transaction, set the Web server.

    The following confirmation dialogs are displayed. In using a Web client, click the
    [OK] button and set up a Web server (Microsoft Internet Information Server/Microsoft
    Internet Information Services).

    When only a command is used without using a Web client, click the [NO] button.

    The following virtual directories are set in a Web server.

Virtual	Directory name	Property of

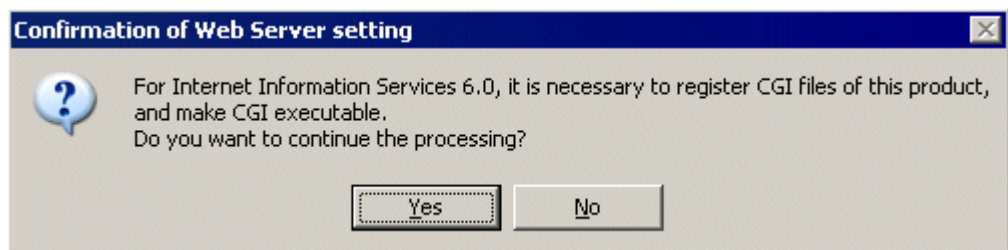| directory		virtual directory
Swstorage	program-directory¥inet¥wwwroot	Addition of "read"
swstorage-j	program-directory¥java	Addition of "read"
swstorage-cgi	program-directory¥inet¥cgi	Addition of "Execute permissions" (CGI is stored.)
swstorage-d	shared-disk-for-advancedcopymanager-shared-data: ¥etc¥opt¥swstorage¥etc¥data	Addition of "read"

— If version 6.0 of Internet Information Service is installed, the following confirmation dialog box is displayed when the [Yes] button in the Confirmation of Web Server setting dialog box is clicked. To make CGI script executable, click [Yes] and set up the Web server.

— If Windows SharePoint Services have been installed in a Windows Server 2003 R2 environment, SharePoint server management settings and IIS settings must be performed to use the Web client. Refer to "Running the Software in an Environment where Windows SharePoint Services have been Installed" in the "ETERNUS SF Advanced Copy Manager Installation Guide" for more information about these settings.

48. The cluster setup of the secondary node B has been completed.
    When the cluster setup completion window is displayed, click the [OK] button.

— If more secondary nodes B remain (and steps Step 33 to Step 48 have not been performed on them), perform from Step 33 in the remaining nodes. When operation from Step 33 to Step 48 is completed for all secondary nodes B, go to Step 49.

49. If necessary, specify the resource dependency and the ownership rights required for execution.
    For a Storage Management Server transaction, if the shared disk for the

repository and the shared disk for shared data are separate, use the cluster administrator access to add the shared disk resource for the repository to the dependency of the following resources. For information on how to add the resource dependency, refer to the Microsoft(R) Cluster Server manuals.

- SymfoWARE RDA RDBSWSTF
- SymfoWARE RDB RDBSWSTF

Add a business disk resource to the dependence of the following resources by using the cluster administrator access when the operation of the backup management etc. is executed (for a Storage Management Server transaction, Storage Server transaction, and Storage Server transaction).

- AdvancedCopy COM Service_*Logical-Node-Name*

- 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, see "Notes on Cluster Operation" in then "ETERNUS SF AdvancedCopy Manager Operator's Guide (Windows)".

If the number of cluster group nodes is greater than the number of cluster system nodes (such as in an n:1 standby system), change the ownership rights required for execution. Using cluster administrator authority, 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 Microsoft(R) Cluster Server manuals.

The property information must be changed for the following resources:

- AdvancedCopy COM Service_*Logical-Node-Name*

- AdvancedCopy ACL Service (For Storage Management Server transaction)

- AdvancedCopy GUI Service (For Storage Management Server transaction)

- SymfoWARE RDA RDBSWSTF (For Storage Management Server transaction)

- SymfoWARE RDB RDBSWSTF (For Storage Management Server transaction)

- 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 shared data

- Shared disk for the repository (For Storage Management Server transaction)

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- Backup volume or replica volume (for operation of Storage Management Server transactions, Storage Server transactions and Storage Server transactions)

- For the resources that do not belong to the cluster group, check with the system where the resources were created.

50. For a Storage Management Server transaction, set the Web server to enable MIME use in the primary and secondary nodes.
In order to use the Web screen, files may have to be downloaded. When the [Yes] button has been clicked in steps 15 and 30 to set up the Web server, the following settings are required for downloading these files.

For information on the settings, see Step 9 (MIME setting of the Web server) in "Details of Storage Management Server Customization" in the "ETERNUS SF AdvancedCopy Manager Installation Guide".

51. Online cluster group on the primary node.
Use the cluster administrator access to cause the cluster group whose settings have been completed online to start AdvancedCopy Manager service.

52. Back up the environment.
Back up the following environment to safeguard against an accident:
— Database
For a Storage Management Server transaction, refer to "Saving a database" in the "ETERNUS SF AdvancedCopy Manager Operations Guide (Windows)" and back up the created database area.

— Data on the shared disk for shared data
Using, for example, the copy function of Windows Explorer, back up the following folders on the shared disk for shared data.
Drive of the shared disk for shared data: ¥etc
Drive of the shared disk for shared data: ¥var

53. Verify the operation on the node.
Using cluster administrator authority, verify that the cluster group operates on the node.

54. Create an environment for a Storage Management Server transaction and a Storage Server transaction.
Use the Web GUI of AdvancedCopy Manager to create an environment for Storage Management Server transactions and Storage Server transactions.
When using the Storage Server transaction function in a Storage Management Server transaction, create an environment for a Storage Server transaction.

— Create an environment for a Storage Management Server transaction and an environment for a Storage Server transaction by referring to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (Windows)".

4.6 Customization for HP-version MC/ServiceGuard

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

Throughout this section, the primary node is an active node in a cluster service performing Storage 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 Storage 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 an n:1 standby system.
The primary node, secondary node A, and secondary node B are customized in a cascade topology system.

Examples:
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.

4.6.1 Flow of Customizing

This section describes the flow of setup.

[Primary node]	[Secondary node A]	[Secondary node B]
Restart the system	Restart the system	Restart the system
Check/Create the transaction environment	Check/Create the transaction environment	Check/Create the transaction environment
Check the preparations		
Stop the package		
Mount of the shared disks		
Register port numbers	Register port numbers	Register port numbers
Execute the cluster setup command		
Mount of the shared disks		
	Mount of the shared disks	
	Execute the cluster setup command	
	Unmount of the shared disks	
		Mount of the shared disks
		Execute the cluster setup command
		Unmount of the shared disks
Create/register the package informations		
Start the package		
Backup an environment		
Create an environment for Storage server transaction		

For 1:1 standby system, Mutual standby system and n:1 standby system

For Cascade topology system

4.6.2 Customization Procedure

To set up a Storage Server transaction, use the procedure below.

1. Restart the system.
   Restart the primary node and secondary node. If the system is restarted as an extension of the installation process of AdvancedCopy Manager, proceed to step 2.
2. The transaction environment is checked or created by using the MC/ServiceGuard function.

   Please refer to the manual of MC/ServiceGuard for information about the checking method of a package, as well as the creation method.

   The Transactions (package) which adds Storage Server Transactions is checked. In the case of new Transactions, it checks that a package is created, a package is started and a package can move between nodes.

3. Check the preparations.
   Check each item in "Confirmation of items" for the package to be set up.

4. Stop the transaction by using the MC/ServiceGuard function.
   Stop the target transaction (stop a package).

   Please refer to the manual of MC/ServiceGuard for information about the method of stopping the transaction.

5. Mount the shared disk on the primary node.
   The shared disk for share data checks that it is in a state of dismount on the primary node and the secondary node.
   Then, Mount the shared disk for 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.
     ― Transaction communication daemon: 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 shared data:

   ```
   # /opt/swstorage/bin/stgclset_mcsg  -k Primary | Pri -m
   AdvancedCopy-Manager-Shared-Data-Mount-Point -s Service-Name -v Volume-Group-Name -i
   IP-Address -u Subnet
   ```

   The example of an input:

   ```
   # /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
   ```

   or

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

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.

```
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
```

   It asks whether to continue the setting processing.

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

9. 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.
 #
```

10. Dismount the shared disk on the primary node.
    Dismount the shared disk for share data on the primary node.

11. Mount the shared disk on the secondary node A.
    Mount the shared disk for 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 shared data:

```
# /opt/swstorage/bin/stgclset_mcsg  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

    The example of an input:

```
# /opt/swstorage/bin/stgclset_mcsg  -k Secondary -m /stgmount
```

    or

```
# /opt/swstorage/bin/stgclset_mcsg  -k Sec -m /stgmount
```

13. 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.

```
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
```

It asks whether continue setting processing.

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

14. 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.
#
```

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

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

Note

— 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.

16. Mount the shared disk on the secondary node B where the cluster setup command will be executed.

Mount the shared disk 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 shared data:

```
# /opt/swstorage/bin/stgclset_mcsg  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example:

```
# /opt/swstorage/bin/stgclset_mcsg  -k Secondary -m /stgmount
```

or

```
# /opt/swstorage/bin/stgclset_mcsg  -k Sec -m /stgmount
```

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.

```
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
```

A message displays, asking whether to continue the setup processing. 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 for adding a secondary node 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

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— 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 share data on the secondary node B.

— 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 Procedure 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 as 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."
Sample   control   scripts   are
/var/opt/swstorage/cluster/samp_*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,
it should be checked that the timeout value is enough.

— After replacing/editing a package control script, verification of a package
composition file, registration, and checking are carried out.
Refer to the manual on MC/ServiceGuard for the method of verification of a package
configuration file, registration, and checking.

23. Start the transaction by using the MC/ServiceGuard function.
Start the transaction that was stopped in step 4. (the package should be switched to
on-line.)

Please refer to the manual of MC/ServiceGuard for information about the method of
starting the transaction.

24. Back up the environment.
As a safeguard against accidental loss of data, back up the following environments.
— Data on the shared disk for 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
```

25. Create an environment for a Storage Server transaction.
    Use the Web GUI of AdvancedCopy Manager to create an environment for a Storage Server
    transaction.

 ─ Create an environment for a Storage Server transaction with reference to the
   "ETERNUS SF AdvancedCopy Manager Operator's Guide." If the Storage Management
   Server runs in Solaris, refer to the "ETERNUS SF AdvancedCopy Manager Operator's
   Guide (Solaris)". If it runs in Windows, refer to the "ETERNUS SF AdvancedCopy
   Manager Operator's Guide (Windows)". If it runs in Linux, refer to the "ETERNUS
   SF AdvancedCopy Manager Operator's Guide (Linux)".

4.7 Customization for HP-version VERITAS Cluster Server

This section explains how to customize the HP-version VERITAS Cluster Server.
Throughout this section, the primary node is the active node in the Service Group that executes Storage Server transactions, and the secondary node is the standby node in the same Service Group.
The secondary node A is the node which creates the environment of Storage Server transactions first of all the secondary nodes in this service group.

4.7.1 Flow of Customizing

This section describes the setup flow.

```
            [Primary node]              [Secondary node]

          ┌──────────────────┐        ┌──────────────────┐
          │ Restart the system│        │ Restart the system│
          └──────────────────┘        └──────────────────┘
                   │
          ┌──────────────────┐
          │ Check the check   │
          │ items in advance  │
          └──────────────────┘
                   │
          ┌──────────────────┐        ┌──────────────────┐
          │ Check shared disk │        │ Check shared disk │
          │     status        │        │     status        │
          └──────────────────┘        └──────────────────┘
                   │
          ┌──────────────────┐
          │ Stop transactions │
          └──────────────────┘
                   │
          ┌──────────────────┐        ┌──────────────────┐
          │ Register port     │        │ Register port     │
          │     number        │        │     number        │
          └──────────────────┘        └──────────────────┘
                   │
          ┌──────────────────┐
          │ Execute setup     │
          │     command       │
          └──────────────────┘
                   │
          ┌──────────────────┐
          │ Check shared disk │───────┐
          │     status        │       │
          └──────────────────┘       │
                                      │
                               ┌──────────────────┐
                               │ Check shared disk │
                               │     status        │
                               └──────────────────┘
                                      │
                               ┌──────────────────┐
                               │ Execute setup     │
                               │     command       │
                               └──────────────────┘
                                      │
                        ┌──────│ Check shared disk │
                        │      │     status        │
                        │      └──────────────────┘
          ┌──────────────────┐
          │ Check and register│
          │  service group    │
          └──────────────────┘
                   │
          ┌──────────────────┐
          │ Start transactions│
          └──────────────────┘
                   │
          ┌──────────────────┐
          │ Back up environment│
          └──────────────────┘
                   │
          ┌──────────────────┐
          │ Set up environment│
          └──────────────────┘
```

4.7.2 Customization Procedure

To set up a Storage Server transaction, use the procedure below.

1. Restart the system.
   Restart the primary node and secondary nodes. If the system is restarted in an extension

of the installation process of AdvancedCopy Manager, proceed to step 2.

2. Check the preparations.
   Check each item of "Confirmation of items," for the Service Group 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 transaction.
   To add a Storage 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, see the "VERITAS Cluster Server
   User's Guide."

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

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

5. 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.

   ― Transaction communication daemon: stgxfws_*Logical-Node-Name*

   ― 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 cluster setup command shown below after blocking other
   users from accessing the shared disk for AdvancedCopy Manager shared data.

   ```
   # /opt/swstorage/bin/stgclset_hpvcs  -k Primary | Pri -m
   AdvancedCopy-Manager-Shared-Data-Mount-Point  -n Logical-Node-Name -s Service-Name
   ```

   Example

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

   or

   ```
   # /opt/swstorage/bin/stgclset_hpvcs -k Pri -m /STGAGTMNT -n nodeAGT -s agent_service
   ```

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_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.

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. Unmount the shared disks on the primary node.
   Unmount the shared disk for AdvancedCopy Manager shared data on the primary node.

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

11. 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.

```
# /opt/swstorage/bin/stgclset_hpvcs  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

```
# /opt/swstorage/bin/stgclset_hpvcs -k Secondary -m /STGMGRDISK
```

or

```
# /opt/swstorage/bin/stgclset_hpvcs -k Sec -m /STGMGRDISK
```

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_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.

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

15. 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 share 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.

```
# hagrp -display STGMGRSRV -attribute SystemList
# hagrp -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.

```
# hagrp -add STGMGRSRV
# hagrp -modify STGMGRSRV SystemList node1 0 node2 1
# hagrp -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 share 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 share data is set to
"/STGMGRDISK".

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 /STGMGRDISK
```

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
```

Reflect the VCS setting and set VCS into the read only mode.

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

16. 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 4.
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".

```
# hagrp -online STGMGRSRV -sys node1
```

17. Back up the environment.
    As a safeguard against accidental loss of data or file corruption, back up the following environments.

    ― 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

18. Create the environment for Storage Server transactions.
    Use the GUI of AdvancedCopy Manager to create the environment for Storage Server transactions.

Note

    ― Create the environment for the Storage Server transactions with reference to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (HP)".

4.8 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 Storage Server transactions, and the secondary node is the standby node in the same Service Group.
The secondary node A is the node which creates the environment of Storage Server transactions first of all the secondary nodes in this service group.

4.8.1 Flow of Customizing

This section describes the setup flow.

[Primary node]	[Secondary node]
Restart the system	Restart the system
Check the check items in advance	
Check shared disk status	Check shared disk status
Stop transactions	
Register port number	Register port number
Execute setup command	
Check shared disk status	
	Check shared disk status
	Execute setup command
	Check shared disk status
Check and register service group	
Start transactions	
Back up environment	
Set up environment	

4.8.2 Customization Procedure

To set up a Storage Server transaction, use the procedure below.

1. Restart the system.

Restart the primary and secondary nodes. If the system is restarted in an extension of the installation process of AdvancedCopy Manager, proceed to step 2.

Note

— If VERITAS Cluster Server 5.0 is used, modify the following files:
- /opt/FJSVswstf/cluster/smgr_vstart_OK
- /opt/FJSVswstf/cluster/smgr_vstop_OK
— "Contents to be changed"
- /opt/FJSVswstf/cluster/smgr_vstart_OK

  exit 1 -> exit 110
- /opt/FJSVswstf/cluster/smgr_vstop_OK

  exit 0 -> exit 100

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

2. Check the preparations.
Check each item of "Confirmation of items," for the Service Group 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 transaction.
To add a Storage 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, see the "VERITAS Cluster Server User's Guide".

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

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

5. 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.
— Transaction communication daemon: 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 cluster setup command shown below after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data.

```
# /opt/swstorage/bin/stgclset_aixvcs  -k Primary | Pri -m
AdvancedCopy-Manager-Shared-Data-Mount-Point  -n Logical-Node-Name -s Service-Name
```

Example

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

or

```
# /opt/swstorage/bin/stgclset_aixvcs -k Pri -m /STGAGTMNT -n nodeAGT -s agent_service
```

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_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.

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. Unmount the shared disks on the primary node.
   Unmount the shared disk for AdvancedCopy Manager shared data on the primary node.

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

11. 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.

```
# /opt/swstorage/bin/stgclset_aixvcs  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

```
# /opt/swstorage/bin/stgclset_aixvcs -k Secondary -m /STGMGRDISK
```

or

```
# /opt/swstorage/bin/stgclset_aixvcs -k Sec -m /STGMGRDISK
```

12. 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.

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

15. 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 share 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.

```
# hagrp -display STGMGRSRV -attribute SystemList
# hagrp -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.

```
# hagrp -add STGMGRSRV
# hagrp -modify STGMGRSRV SystemList node1 0 node2 1
# hagrp -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 share 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 share data is set to
"/STGMGRDISK".

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 /STGMGRDISK
```

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
```

Reflect the VCS setting and set VCS into the read only mode.

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

16. 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 4.
    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".

```
# hagrp -online STGMGRSRV -sys node1
```

17. Back up the environment.
    As a safeguard against accidental loss of data or file corruption, back up the following
    environments.

    — Data 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

18. Create the environment for Storage Server transactions.
    Use the Web GUI of AdvancedCopy Manager to create the environment for Storage Server
    transactions.

    Note

    — Create the environment for the Storage Server transactions with reference to
      the "ETERNUS SF AdvancedCopy Manager Operator's Guide (AIX)".

    .

4.9 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 Storage 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 Storage 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 an 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.

4.9.1 Flow of Customizing

This section describes the flow of setup.

[Primary node]	[Secondary node A]	[Secondary node B]
Restart the system	Restart the system	Restart the system
Check the check items in advance		
Check the mount state of the shared disks	Check the mount state of the shared disks	Check the mount state of the shared disks
Stop the Service Groups		
Register port numbers	Register port numbers	Register port numbers
Execute the cluster setup command		
Check the mount state of the shared disks		

Check the mount state of the shared disks

Execute the cluster setup command

For 1:1 standby system, Mutual standby system and n:1 standby system

Check the mount state of the shared disks

For Cascade topology system

Check the mount state of the shared disks

Execute the cluster setup command

Check the mount state of the shared disks

Create/register the Resource Group

Start the Service Groups

Back up the environment

Create an environment

4.9.2 Customization Procedure

To set up a Storage Server transaction, use the procedure below.

1. Restart the system.
    Restart the primary node and all secondary nodes. If the system is restarted as an

extension of the installation process of AdvancedCopy Manager, proceed to step 2.

Note

— If VERITAS Cluster Server 5.0 is used, modify the following files:
   - /opt/FJSVswstf/cluster/smgr_vstart_OK
   - /opt/FJSVswstf/cluster/smgr_vstop_OK
— "Contents to be changed"
   - /opt/FJSVswstf/cluster/smgr_vstart_OK
     exit 1 -> exit 110
   - /opt/FJSVswstf/cluster/smgr_vstop_OK
     exit 0 -> exit 100
   ＊Make these changes on all primary nodes and secondary nodes where the cluster is being set up.

2. Check the preparations.
   Check each item of "Confirmation of items" for the package to be set up.

3. Mount the shared disk on the primary node.
   Mount the shared disk for shared data on the primary node.

4. Stop the Resource Groups.
   To add a Storage Server transaction to an existing Resource Group by using the High Availability Cluster Multi-Processing function, stop the applicable Resource Group.

   For information on how to stop the user Resource Group, see the "High Availability Cluster Multi-Processing User's Guide."

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.
      — Transaction communication daemon: 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 shared data:

   ```
   # /opt/swstorage/bin/stgclset_hacmp  -k Primary | Pri -m
   AdvancedCopy-Manager-Shared-Data-Mount-Point -n Logical-Node-Name -s Service-Name
   ```

   Example

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

   or

```
# /opt/swstorage/bin/stgclset_hacmp -k Pri -m /STGAGTMNT -n nodeAGT -s agent_service
```

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 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.
#
```

9. Dismount the shared disks on the primary node.
   Dismount the shared disk for shared data on the secondary node.

10. Mount the shared disks on the secondary node A.
    Mount the shared disk for 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 shared data:

```
# /opt/swstorage/bin/stgclset_hacmp  -k Secondary | Sec -m
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

    Example

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary -m /STGMGRDISK
```

    or

```
# /opt/swstorage/bin/stgclset_hacmp -k Sec -m /STGMGRDISK
```

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

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

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

    — 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 shared data and the shared disk for the repository were 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 shared data:

```
# /opt/swstorage/bin/stgclset_hacmp  -k Secondary | Sec -m
```

```
AdvancedCopy-Manager-Shared-Data-Mount-Point
```

Example

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary -m /STGMGRDISK
```

or

```
# /opt/swstorage/bin/stgclset_hacmp -k Sec -m /STGMGRDISK
```

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."

    — 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 share data on the secondary node B.

Note

    — When more secondary nodes B remain (that have not performed Step 21 to Step 27), perform from Step 21 in the remaining nodes. When operation from Step 21 to Step 27 is completed by all secondary nodes B, go to Step 28.

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.

Please add the following types as a resource of AdvancedCopy Manager.
    — Application Server
    Specify a "/opt/FJSVswstf/cluster/clproc/hacmpStart_*Logical-Node-Name*" to be Start script.
    Specify a "/opt/FJSVswstf/cluster/clproc/hacmpStop_*Logical-Node-Name*" to be Stop script.
    — MountPoint
    Register the shared disk for share 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 it again.

The application should set up a dependency after MountPoint and IP become on-line. Refer to the High Availability Cluster Multi-Processing User's Guide for information about a resource group and the creation/registration method for a resource.

22. Start the AdvancedCopy Manager and Transaction.
Start the new Resource Group or the Resource Group stopped in step 4.

Please refer to the High Availability Cluster Multi-Processing User's Guide about the method of starting a Resource Group.

23. Back up the environment.
To safeguard against accidental loss of data or file corruption, back up the following environments.
    — Data on the shared disk for 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

24. Create an environment for a Storage Server transaction.
Use the Web GUI of AdvancedCopy Manager to create an environment for a Storage Server transaction.

Note

- Create an environment for a Storage Management Server transaction and an environment for a Storage Server transaction by referring to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (AIX)"

Chapter 5 Deleting Storage Management Server Transactions and Storage Server Transactions

This chapter explains how to delete the cluster environment of a Storage Management Server transaction or Storage Server transaction.

Cluster system	Reference
Solaris-version SynfinityCluster/PRIMECLUSTER	Deleting for Solaris-version SynfinityCluster/PRIMECLUSTER
Solaris-version VERITAS Cluster Server	Deleting for Solaris-version VERITAS Cluster Server
Solaris-version Sun Cluster	Deleting for Solaris-version Sun Cluster
Linux-version PRIMECLUSTER	Deleting for Linux-version PRIMECLUSTER
Windows-version MSCS	Deleting for Windows-version MSCS
HP-version MC/ServiceGuard	Deleting for HP-version MC/ServiceGuard
HP-version VERITAS Cluster Server	Deleting for HP-version VERITAS Cluster Server
AIX-version VERITAS Cluster Server	Deleting for AIX-version VERITAS Cluster Server
AIX-version High Availability Cluster Multi-Processing	Deleting for AIX-version High Availability Cluster Multi-Processing

5.1 Deleting for Solaris-version SynfinityCluster/PRIMECLUSTER

This section explains how to delete Solaris-version SynfinityCluster/PRIMECLSTER.

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 shows the node that deletes the environment last in the secondary nodes in this cluster service (userApplication). The secondary node B shows the remaining secondary nodes in this cluster service (userApplication).

The deleting work of the 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 the primary node, secondary node A and secondary node B is executed for a cascade topology system and a priority transfer system.

5.1.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

[Primary node]   [Secondary node A]   [Secondary node B]

```
┌─────────────────────┐
│   Delete the node   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Stop the cluster service │
│    (userApplication)    │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Delete resources  │ - - - - - - - - - - - - - - - - - - - - - - - - - ┐
└─────────────────────┘                                                   :
```

For Cascade topology
system and Priority
transfer system

For 11 standby system,
Mutual standby system
and n1 standby system

```
                                        ┌─────────────────────────┐
                                        │   Check the mount state  │
                                        │   of the shared disks    │
                                        └─────────────────────────┘
                                                    │
                                                    ▼
                                        ┌─────────────────────────┐
                                        │   Execute the cluster    │
                                        │   unsetup command        │
                                        └─────────────────────────┘
                                                    │
                                                    ▼
                                        ┌─────────────────────────┐
                                        │   Check the mount state  │
                                        │   of the shared disks    │
                                        └─────────────────────────┘

           ┌─────────────────────────┐
           │   Check the mount state  │
           │   of the shared disks    │
           └─────────────────────────┘
                      │
                      ▼
           ┌─────────────────────────┐
           │   Execute the cluster    │
           │   unsetup command        │
           └─────────────────────────┘
                      │
                      ▼
           ┌─────────────────────────┐
           │   Check the mount state  │
           │   of the shared disks    │
           └─────────────────────────┘

┌─────────────────────┐
│  Check the mount state │
│  of the shared disks   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Execute the cluster │
│   unsetup command     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│  Check the mount state │
│  of the shared disks   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│  Delete port numbers │     │  Delete port numbers │     │  Delete port numbers │
└─────────────────────┘     └─────────────────────┘     └─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Start the cluster service │
│    (userApplication)    │
└─────────────────────┘
```

5.1.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
   Use the Web GUI of the AdvancedCopy Manager to delete the node. For a Storage Management Server transaction, however, this operation is not necessary.

2. Stop the cluster service (userApplication).
   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 10.
   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.
   For a Storage Management Server transaction, also mount the shared disk for the repository in the secondary node B.

   When there are two or more secondary nodes B, Step 4 to Step 9 is processed by all the secondary nodes B.

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 shared data:

   ```
   # /opt/swstorage/bin/stgclunset_safe -n Logical-Node-Name
   ```

Note

For a Storage Management Server transaction to be performed, use the location that was specified when the Storage Management Server was installed.

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
          IP Address     : 10.10.10.10  (In the case of Storage Server transaction, it is
not displayed.)
          Mount point    : /STGMGRDISK
          Node name      : nodeMGR
          Service        : manager_service
          Resource       : Procedure
          Function       : Management Server (In the case of Storage Server transaction,
it is displayed as 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 outputted to "Number". In a secondary node B, it is likely to be three or more.

7. For a Storage Management Server transaction, 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 Storage 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
```

8. 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.
#
```


In the secondary node B, a completion message is swstf8143.

9. Dismount the shared disk on the secondary node B.
   Dismount the shared disk for share data on the secondary node B.
   For a Storage Management Server transaction, also dismount the shared disk for the
   repository on the secondary node B.

If there are remaining secondary nodes B for which steps 4 to 9 have not been performed,
perform from Step 4 in the nodes.

When operation from Step 4 to Step 9 is completed by all secondary nodes B, go to Step
10.

10. Mount the shared disk on the secondary node A.
    Mount the shared disk for shared data on the secondary node A.
    For a Storage Management Server transaction, also mount the shared disk for the
    repository in the secondary node A.

11. 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 shared data:

```
# /opt/swstorage/bin/stgclunset_safe -n Logical-Node-Name
```


For a Storage Management Server transaction to be performed, use the location that
was specified when the Storage Management Server was installed.

12. 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
         IP Address     : 10.10.10.10  (In the case of Storage Server transaction, it is
not displayed.)
         Mount point    : /STGMGRDISK
         Node name      : nodeMGR
         Service        : manager_service
         Resource       : Procedure
         Function       : Management Server (In the case of Storage Server transaction,
it is displayed as 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 continuing
   processing, input "y", or press the Enter key.

Note

   The number of nodes that are not carrying out cluster unsetup command is outputted
   to "Number". In a secondary node, it will be set to 2.

13. For a Storage Management Server transaction, 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 Storage
   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
```

14. 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.
#
```

15. Dismount the shared disk on the secondary node A.
    Dismount the shared disk for share data on the secondary node A.
    For a Storage Management Server transaction, also dismount the shared disk for the
    repository on the secondary node A.

16. Mount the shared disk on the primary node.
    Mount the shared disk for shared data on the primary node.
    For a Storage Management Server transaction, also mount the shared disk for the
    repository on the primary node.

17. 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/swstorage/bin/stgclunset_safe -n Logical-Node-Name
```


Note

For a Storage Management Server transaction to be performed, use the location that
was specified when the Storage Management Server was installed.

18. 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
        IP Address     : 10.10.10.10   (In the case of Storage Server transaction, it
is not displayed.)
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : manager_service
        Resource       : Procedure
        Function       : Management Server (In the case of Storage Server transaction,
it is displayed as 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 outputted to "Number". In a primary node, it will be set to 1.

19. For a Storage Management Server transaction, 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 Storage 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
```

20. 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.
#
```

21. Dismount the shared disk on the primary node.
Dismount the shared disk for share data on the primary node.
For a Storage Management Server transaction, also dismount the shared disk for the repository on the primary node.

22. Delete port numbers.
Delete the following services 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*

23. 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, please 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, please delete it manually.

5.2 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 node which deletes the environment last in the secondary nodes in this service group. The secondary node B defines the remaining secondary nodes in this service group.

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 a cascade topology system.

5.2.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

[Primary node]   [Secondary node A]   [Secondary node B]

```
┌─────────────────────┐
│   Delete the node   │
└──────────┬──────────┘
           │
┌──────────▼──────────┐
│ Stop the Service Group │
└──────────┬──────────┘
           │
┌──────────▼──────────┐              For Cascade topology system
│   Delete resources  │- - - - - - - - - - - - - - - - - - - - - ┐
└──────────┬──────────┘                                          │
           │                                        ┌────────────▼────────────┐
           │                                        │  Check the mount state  │
           │  For 11 standby system,                │   of the shared disks   │
           │  Mutual standby system                 └────────────┬────────────┘
           │  and n1 standby system                              │
           │                                        ┌────────────▼────────────┐
           │                                        │  Execute the cluster    │
           │                                        │   unsetup command       │
           │                                        └────────────┬────────────┘
           │                                                     │
           │                                        ┌────────────▼────────────┐
           │                                        │  Check the mount state  │
           │                                        │   of the shared disks   │
           │                                        └────────────┬────────────┘
           │                                                     │
    ┌──────▼────────────────────┐                               │
    │   Check the mount state   │◄ - - - - - - - - - - - - - - - ┘
    │    of the shared disks    │
    └──────────┬────────────────┘
               │
    ┌──────────▼────────────────┐
    │   Execute the cluster     │
    │    unsetup command        │
    └──────────┬────────────────┘
               │
    ┌──────────▼────────────────┐
    │   Check the mount state   │
    │    of the shared disks    │
    └──────┬────────────────────┘
           │
┌──────────▼──────────┐
│  Check the mount state │
│   of the shared disks  │
└──────────┬──────────┘
           │
┌──────────▼──────────┐
│  Execute the cluster │
│   unsetup command    │
└──────────┬──────────┘
           │
┌──────────▼──────────┐
│  Check the mount state │
│   of the shared disks  │
└──────────┬──────────┘
           │
┌──────────▼──────────┐   ┌─────────────────────┐   ┌─────────────────────┐
│  Delete port numbers │   │  Delete port numbers │   │  Delete port numbers │
└──────────┬──────────┘   └─────────────────────┘   └─────────────────────┘
           │
┌──────────▼──────────┐
│ Start the Service Group │
└─────────────────────┘
```

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5.2.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

24. Delete the node.
Use the Web GUI of the AdvancedCopy Manager to delete the node. For a Storage Management Server transaction, however, this operation is not necessary.

25. Stop the Service Group.
Stop the transaction to be deleted by using the VERITAS Cluster Server function. Please refer to VERITAS Cluster Server User's Guide for information about the method of 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".

```
# hagrp -offline STGMGRSRV -sys node1
```

26. 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.

Please refer to VERITAS Cluster Server User's Guide for information about the method of 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 share data): AdvancedCopy_Manager_mount

— Resource name (MountPoint for AdvancedCopy Manager RIPOJITORI): AdvancedCopy_Manager_DB
The resource concerned exists only on Storage Management Server business.

— 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
# hares -delete AdvancedCopy_Manager_DB
```

A resource (IP) is deleted when not using it in a transaction.

```
# hares -delete sybase_ip
```

When deleting a transaction, a user service group is deleted.

```
# hagrp -delete STGMGRSRV
```

Reflect the VCS setting and set VCS into the read-only mode.

```
# 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 10.
If the system is Cascade topology or the Priority transfer, proceed to step 4.

27. Mount the shared disk on the secondary node B.
    Mount the shared disk for AdvancedCopy Manager shared data on the secondary node B.
    For a Storage Management Server transaction, also mount the repository shared disk
    in the secondary node B.

When there are two or more secondary nodes B, Step 4 to Step 9 is processed by all
the secondary nodes B.

28. 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 shared data:

```
# /opt/swstorage/bin/stgclunset_vcs -n Logical-Node-Name
```


For a Storage Management Server transaction to be performed, use the location that
was specified when the Storage Management Server was installed.

29. 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
        IP Address     : 10.10.10.10    (In the case of Storage Server transaction,
it is not displayed.)
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : STGMGRSRV
        Function       : Management Server  (In the case of Storage Server
transaction, it is displayed as 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 outputted to "Number". In a secondary node B, it is likely to be three or more.

30. For a Storage Management Server transaction, 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 Storage 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
```

31. 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

In secondary node B, a completion message is swstf8143.

32. Dismount the shared disk on the secondary node B.
    Dismount the shared disk for share data on the secondary node B.
    For a Storage Management Server transaction, also dismount the repository shared disk
    on the secondary node B.

Note

If there are remaining secondary nodes B for which steps 4 to 9 have not been performed,
perform them from Step 4 for the nodes. When operation from Step 4 to Step 9 is
completed for all secondary nodes B, go to Step 10.

33. Mount the shared disk on the secondary node A.
    Mount the shared disk for shared data on the secondary node A.
    For a Storage Management Server transaction, also mount the repository shared disk
    in the secondary node A.

34. 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 shared data:

```
# /opt/swstorage/bin/stgclunset_vcs -n Logical-Node-Name
```


Note

For a Storage Management Server transaction to be performed, use the location that
was specified when the Storage Management Server was installed.

35. 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
        IP Address     : 10.10.10.10     (In the case of Storage Server transaction,
```

```
it is not displayed.)
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : STGMGRSRV
        Function       : Management Server  (In the case of Storage Server
transaction, it is displayed as 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 outputted to "Number". In a secondary node, it will be set to 2.

36. For a Storage Management Server transaction, 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 Storage 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
```

37. 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.
#
```

38. Dismount the shared disk on the secondary node A.
    Dismount the shared disk for share data on the secondary node A.
    For a Storage Management Server transaction, also dismount the repository shared disk on the secondary node A.

39. Mount the shared disk on the primary node.
    Mount the shared disk for shared data on the primary node.
    For a Storage Management Server transaction, also mount the repository shared disk
    on the primary node.

40. 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/swstorage/bin/stgclunset_vcs -n Logical-Node-Name
```

Note

For a Storage Management Server transaction to be performed, use the location that
was specified when the Storage Management Server was installed.

41. 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
        IP Address     : 10.10.10.10     (In the case of Storage Server transaction,
it is not displayed.)
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : STGMGRSRV
        Function       : Management Server (In the case of Storage Server transaction,
it is displayed as 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 continuing
processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is outputted
to "Number". In a secondary node, it will be set to 1.

42. For a Storage Management Server transaction, 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 Storage
    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
```

43. 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.
#
```

44. Dismount the shared disk on the primary node.
    Dismount the shared disk for share data on the primary node.
    For a Storage Management Server transaction, also dismount the repository shared disk
    on the primary node.

45. Delete port numbers.
    Delete the following services 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*

46. 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.
    Please refer to VERITAS Cluster Server User's Guide about the method of starting a
    user service group.

```
# hagrp -online User-Service-Group -sys system-name
```

    system-name: The node name which wants to start a user service group

5.3 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.

5.3.1 Flow of Deleting

This section describes the correct order when deleting a Cluster Environment.
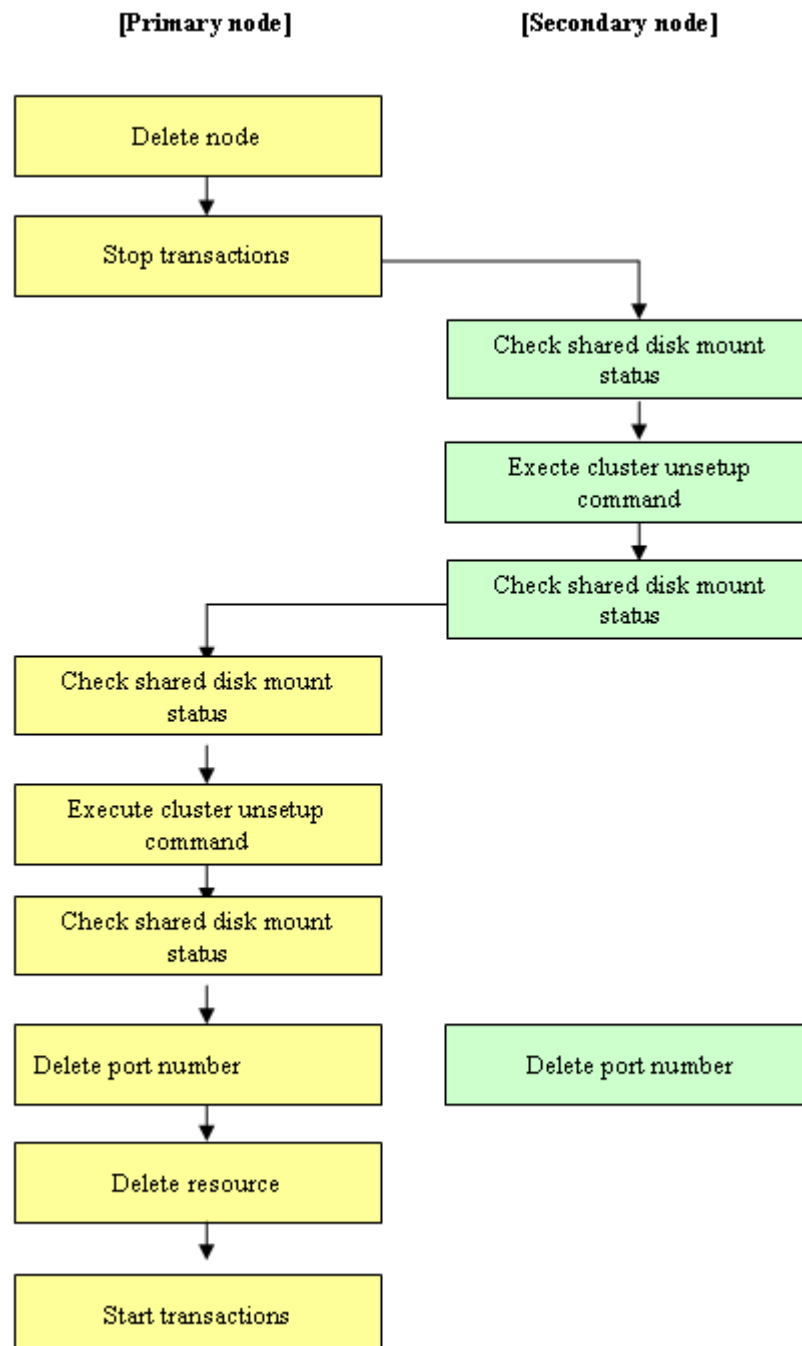
5.3.2 Deletion procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
   Use the Web GUI of the AdvancedCopy Manager to delete the node. For a Storage
   Management Server transaction, however, this operation is not necessary.

2. Stop the transaction.
   Stop the resource group to be deleted by using the Sun Cluster function.
   Please refer to the Sun Cluster manual for information about the method of 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.
   For a Storage Management Server transaction, also mount the repository shared disk
   in 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 shared data:

   ```
   # /opt/swstorage/bin/stgclunset_sun -n logical-node-name
   ```

   ![Note]

   For a Storage Management Server transaction to be performed, use the location that
   was specified when the Storage Management Server was installed.

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
           IP Address        : 10.10.10.10     (not displayed for Storage Server
   transactions)
           Mount point       : /STGMGRDISK
           Node name         : nodeMGR
           Service           : manager_service
           Network Resource  : stgnet
           Function          : Management Server  ("Server" is displayed for a Storage server
   transaction)
           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 outputted to "Number". In a secondary node, it is likely to be two.

6. For a Storage Management Server transaction, 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 Storage 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
```

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.
   For a Storage Management Server transaction, also dismount the repository shared disk 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.
   For a Storage Management Server transaction, also mount the repository shared disk 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:

```
# /opt/swstorage/bin/stgclunset_sun -n logical-node-name
```

Note

For a Storage Management Server transaction to be performed, use the location that was specified when the Storage Management Server was installed.

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_sun -n nodeMGR
AdvancedCopy Manager settings were as follows.
        Cluster system    : Sun Cluster
        Node type         : Primary
        IP Address        : 10.10.10.10   (not displayed for a Storage server
transaction)
        Mount point       : /STGMGRMNT
        Node name         : nodeMGR
        Service           : manager_service
        Network Resource  : stgnet
        Function          : Management Server    ("Server" is displayed for a Storage
server transaction)
        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 continuing processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is outputted to "Number". In a primary node, it will be set to 1.

12. For a Storage Management Server transaction, 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 Storage 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
```

13. 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.
#
```

14. Dismount the shared disk on the primary node.
    Dismount the shared disk for AdvancedCopy Manager shared data on the primary node.
    For a Storage Management Server transaction, also dismount the repository shared disk
    on the primary node.

15. Delete port numbers.
    Delete the following services 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*

16. Delete resources.
    If required, delete the following resources:
    - Name of the AdvancedCopy Manager logical hostname resource and the shared address
    resource
    - The AdvancedCopy Manager SUNW.HAStoragePlus resource

17. Start the transactions.
    The function of Sun Cluster is used to start the transaction stopped in step 2.
    Please refer to the Sun Cluster manual about the method of starting a resource group.

5.4 Deleting for Linux-version PRIMECLUSTER

This section explains how to delete the Linux-version PRIMECLSTER.

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 userApplication.
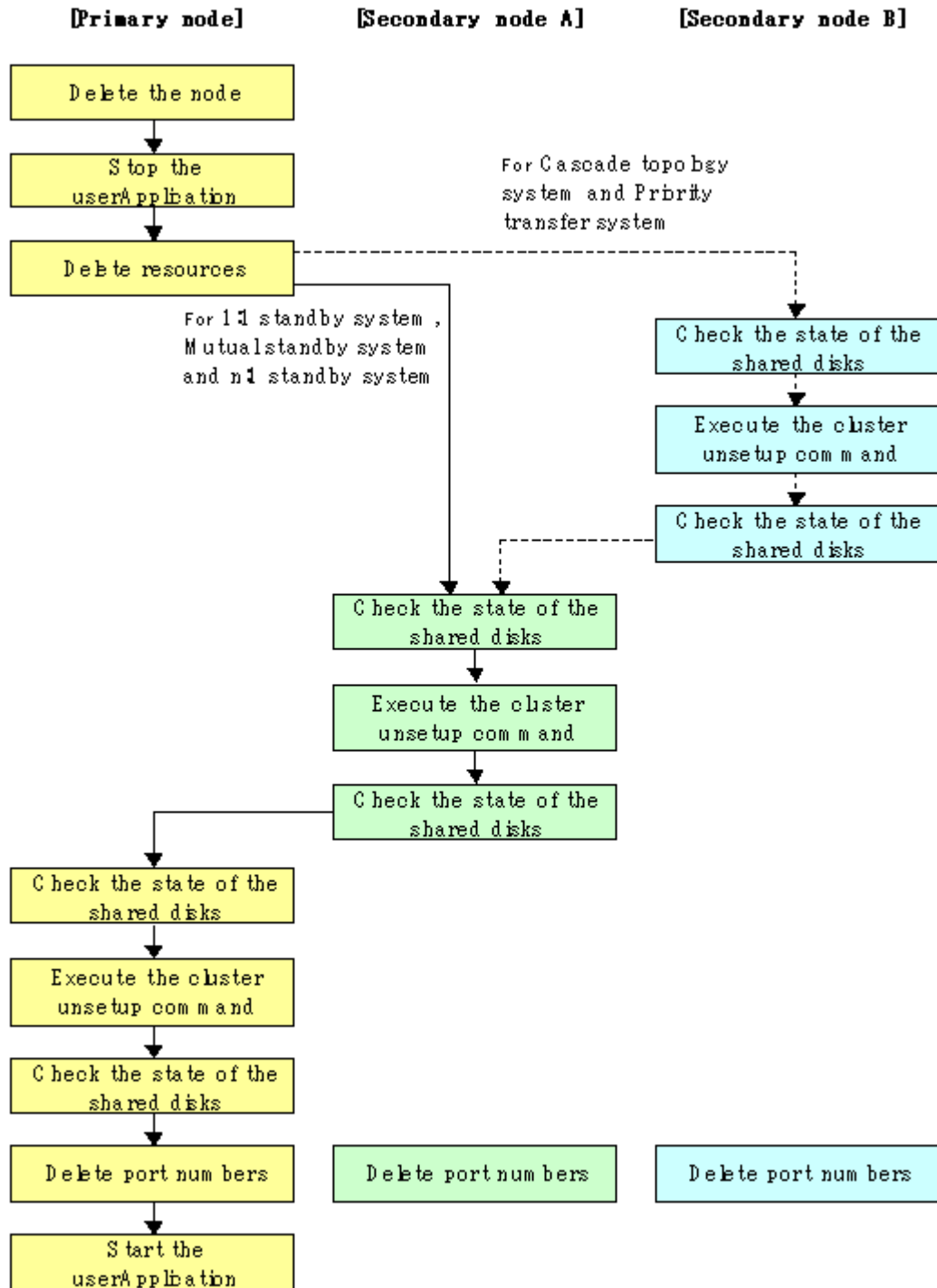
The secondary node A defines the node which deletes the environment last in the secondary nodes in this userApplication. The secondary node B defines the remaining secondary nodes in this userApplication.

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 a cascade topology system and a priority transfer system.

5.4.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

[Primary node]　　　　[Secondary node A]　　　　[Secondary node B]

Delete the node

Stop the
userApplication

For Cascade topology
system and Priority
transfer system

Delete resources

For 1:1 standby system,
Mutual standby system
and n:1 standby system

Check the state of the
shared disks

Execute the cluster
unsetup command

Check the state of the
shared disks

Check the state of the
shared disks

Execute the cluster
unsetup command

Check the state of the
shared disks

Check the state of the
shared disks

Execute the cluster
unsetup command

Check the state of the
shared disks

Delete port numbers　　　　Delete port numbers　　　　Delete port numbers

Start the
userApplication

5.4.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
    Use the Web GUI of the AdvancedCopy Manager to delete the node. For a Storage
    Management Server transaction, however, this operation is not necessary.

2. Stop the userApplication.
    Use the RMS main window of PRIMECLUSTER to stop the transaction to be deleted.

3. Delete resources.
   Use the RMS Wizard to delete the AdvancedCopy Manager resources registered for the target transaction. If the userApplication has been created using only AdvancedCopy Manager resources, delete the whole userApplication.

   ![Note]

   For information on how to delete the userApplication and resources, see the "PRIMECLUSTER Installation and Administration Guide."

   ![Note]

   If the system is a 1:1 standby system, a Mutual standby system or a n:1 standby system, proceed to step 10.
   If the system is a Cascade topology or a Priority transfer, proceed to step 4.

4. Mount the shared disk on the secondary node B.
   Mount the shared disk for shared data on the secondary node B.
   For a Storage Management Server transaction, also mount the shared disk for repository in the secondary node B.

   ![Note]

   When there are two or more secondary nodes B, Step 4 to Step 9 is processed by all the secondary nodes B.

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 shared data:

   ```
   # /opt/swstorage/bin/stgclunset_lxprm -n Logical-Node-Name
   ```

   ![Note]

   For a Storage Management Server transaction to be performed, use the location that was specified when the Storage Management Server was installed.

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_lxprm -n nodeMGR
   AdvancedCopy Manager settings were as follows.
           Cluster system : PRIMECLUSTER
           Node type      : Secondary
   ```

```
         IP Address    : 10.10.10.10     (In the case of Storage Server transaction, it
is not displayed.)
         Mount point   : /STGMGRDISK
         Node name     : nodeMGR
         Service       : manager_service
         Resource      : Procedure
         Function      : Management Server (In the case of Storage Server transaction,
it is displayed as 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 the cluster unsetup command is outputted
to "NUMBER".   In a secondary node B, it is likely to be three or more.

7. For a Storage Management Server transaction, 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 Storage
   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
```

8. 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

In secondary node B, a completion message is swstf8143.

9. Dismount the shared disk on the secondary node B.
Dismount the shared disk for share data on the secondary node B.
For a Storage Management Server transaction, also dismount the shared disk for the repository on the secondary node B.

Note

If there are remaining secondary nodes B for which steps 4 to 9 have not been performed, perform from Step 4 for the nodes.
When operation from Step 4 to Step 9 is completed by all secondary nodes B, go to Step 10.

10. Mount the shared disk on the secondary node A.
Mount the shared disk for shared data on the secondary node A.
For a Storage Management Server transaction, also mount the shared disk for the repository in the secondary node A.

11. 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 shared data:

```
# /opt/swstorage/bin/stgclunset_lxprm -n Logical-Node-Name
```


Note

For a Storage Management Server transaction to be performed, use the location that was specified when the Storage Management Server was installed.

12. 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_lxprm -n nodeMGR
AdvancedCopy Manager settings were as follows.
        Cluster system : PRIMECLUSTER
        Node type      : Secondary
        IP Address     : 10.10.10.10     (In the case of Storage Server transaction, it
is not displayed.)
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : manager_service
        Resource       : Procedure
```

```
        Function       : Management Server (In the case of Storage Server transaction,
 it is displayed as 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 outputted
to "NUMBER". In a secondary node, it is surely set to 2.

13. For a Storage Management Server transaction, 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 Storage
    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
```

14. 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.
 #
```

15. Dismount the shared disk on the secondary node A.
    Dismount the shared disk for share data on the secondary node A.
    For a Storage Management Server transaction, also dismount the shared disk for the
    repository on the secondary node A.

16. Mount the shared disk on the primary node.
    Mount the shared disk for shared data on the primary node.
    For a Storage Management Server transaction, also mount the shared disk for the
    repository on the primary node.

17. 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/swstorage/bin/stgclunset_lxprm -n Logical-Node-Name
    ```


    For a Storage Management Server transaction to be performed, use the location that
    was specified when the Storage Management Server was installed.

18. 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_lxprm -n nodeMGR
    AdvancedCopy Manager settings were as follows.
            Cluster system : PRIMECLUSTER
            Node type      : Primary
            IP Address     : 10.10.10.10   (In the case of Storage Server transaction, it
    is not displayed.)
            Mount point    : /STGMGRDISK
            Node name      : nodeMGR
            Service        : manager_service
            Resource       : Procedure
            Function       : Management Server (In the case of Storage Server transaction,
    it is displayed as 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 outputted
    to "NUMBER". In a primary node, it will be set to 1.

19. For a Storage Management Server transaction, 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 Storage
    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
```

20. 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.
#
```

21. Dismount the shared disk on the primary node.
    Dismount the shared disk for share data on the primary node.
    For a Storage Management Server transaction, also dismount the shared disk for the
    repository on the primary node.

22. Delete port numbers.
    Delete the following services 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*

23. Start the userApplication.
    Use the RMS main window of PRIMECLUSTER to start the transaction stopped in step 2.
    This operation is not necessary if the userApplication was deleted in step 3.

5.5 Deleting for Windows-version MSCS

This section explains how to delete the Windows-version MSCS.

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.
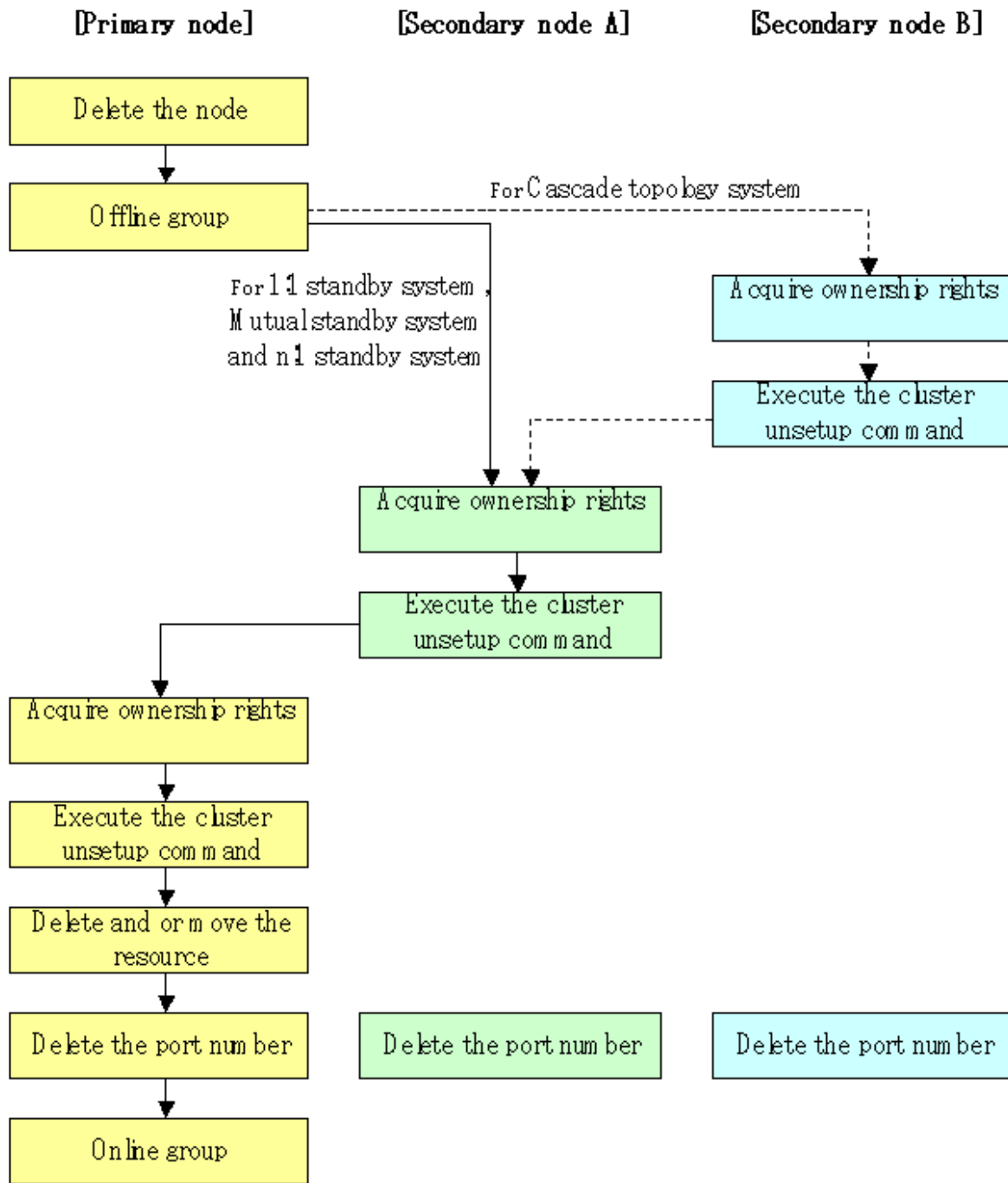
The secondary node A defines the node which deletes the environment of Storage Management Server transactions or Storage Server transactions last in the secondary nodes in this cluster group. The secondary node B defines the remaining secondary nodes in this cluster group.

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 a cascade topology system.

5.5.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

[Primary node]   [Secondary node A]   [Secondary node B]

```
[Primary node]              [Secondary node A]          [Secondary node B]

┌──────────────┐
│ Delete the node │
└──────────────┘
        │
        ▼                                For Cascade topology system
┌──────────────┐ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
│ Offline group  │                                        │
└──────────────┘                                        ▼
        │        For 1:1 standby system,        ┌──────────────────────┐
        │        Mutual standby system          │ Acquire ownership rights │
        │        and n:1 standby system         └──────────────────────┘
        │                                                   │
        │                                                   ▼
        │                                        ┌──────────────────────┐
        │                                        │ Execute the cluster      │
        │                                        │ unsetup command          │
        │                                        └──────────────────────┘
        │                                                   │
        ▼                                                   │
┌──────────────────────┐ ◄ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
│ Acquire ownership rights │
└──────────────────────┘
        │
        ▼
┌──────────────────────┐
│ Execute the cluster      │
│ unsetup command          │
└──────────────────────┘
        │
        ▼
┌──────────────────────┐
│ Acquire ownership rights │
└──────────────────────┘
        │
        ▼
┌──────────────────────┐
│ Execute the cluster      │
│ unsetup command          │
└──────────────────────┘
        │
        ▼
┌──────────────────────┐
│ Delete and or move the   │
│ resource                 │
└──────────────────────┘
        │
        ▼
┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ Delete the port number │ Delete the port number │ Delete the port number │
└──────────────────┘   └──────────────────┘   └──────────────────┘
        │
        ▼
┌──────────────┐
│ Online group   │
└──────────────┘
```

5.5.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

⚠ **Note**

Do not use the following services to perform this processing. Otherwise, a problem may occur:
- — Terminal service (use by remote desktop connection)
- — Telnet server service

If the Storage Management Server is the Windows Server 2003, use it by making console session connection with the terminal service. Refer to the following web page for details of the method of console session connection.

http://support.microsoft.com/kb/278845

1. If the object to be deleted is a Storage Server, use the Web GUI of the AdvancedCopy Manager to delete the logical server to which the applicable Storage Server transaction belongs.　If the object to be deleted is a Storage Management Server, this step is not required.

2. Use the cluster administrator to switch the cluster group to which the applicable AdvancedCopy Manager belongs to offline operation.　However, leave the shared disk for shared data online.　Moreover, in the case of Storage Management Server transaction, leave the shared disk for the repository online.　For information about how to switch the cluster group offline, refer to the Microsoft(R) Cluster Server manuals.

   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 or the Priority transfer, proceed to step 3.

3. On the secondary node B, use the cluster administrator to acquire the ownership right to the cluster group to which the applicable AdvancedCopy Manager belongs.　For information about how to acquire ownership rights, refer to the Microsoft(R) Cluster Server manuals.

   When the secondary node B consists of two or more nodes, perform Step 3 and Step 4 on all the secondary nodes B.

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 from the command prompt window on the secondary node B:

   ```
   Program-directory¥bin¥stgclunset_mscs
   ```

   b) The cluster unsetup command window is displayed.
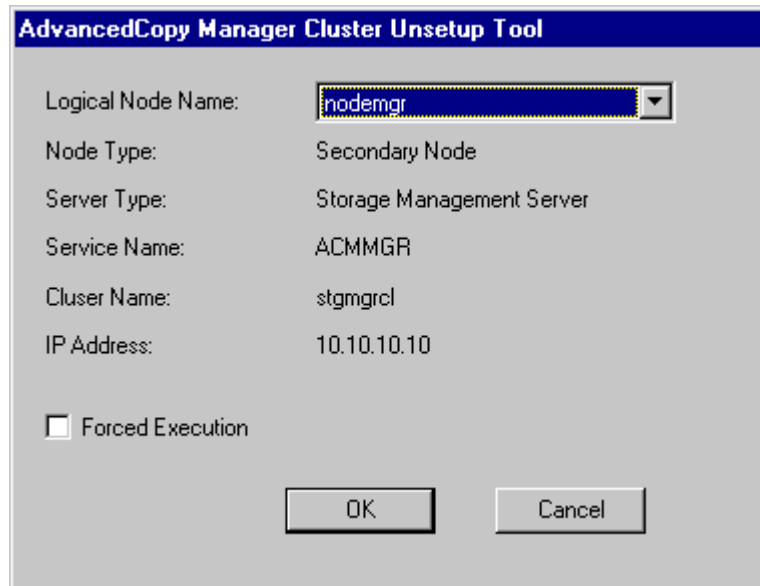
Select the logical node name of the AdvancedCopy Manager transaction to be deleted. For unsetup after node failure, select the Forced Execution checkbox. After confirming each field, click the [OK] button.

c) If the transaction to be deleted is a Storage Management Server transaction, the start window for deleting the environment (database) of the Storage Management Server transaction is displayed.


Click the [Start] button.

d) If the transaction to be deleted is a Storage Management Server transaction, the deletion complete window of the environment (database) of the Storage Management Server transaction is displayed.
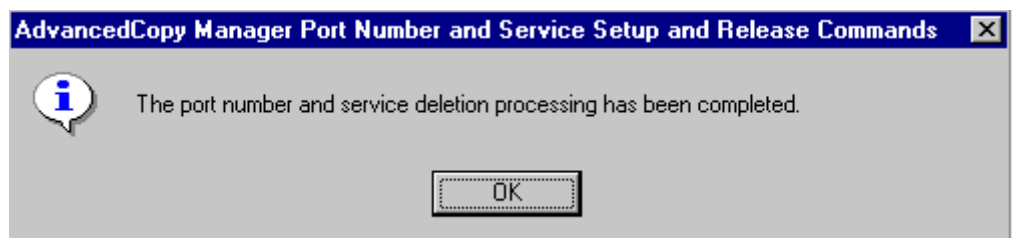
Click the [Close] button.

e) The start window of the port number and service setting/release command is
displayed.

Click the [OK] button.

f) The completion window of the port number and service setting/release command
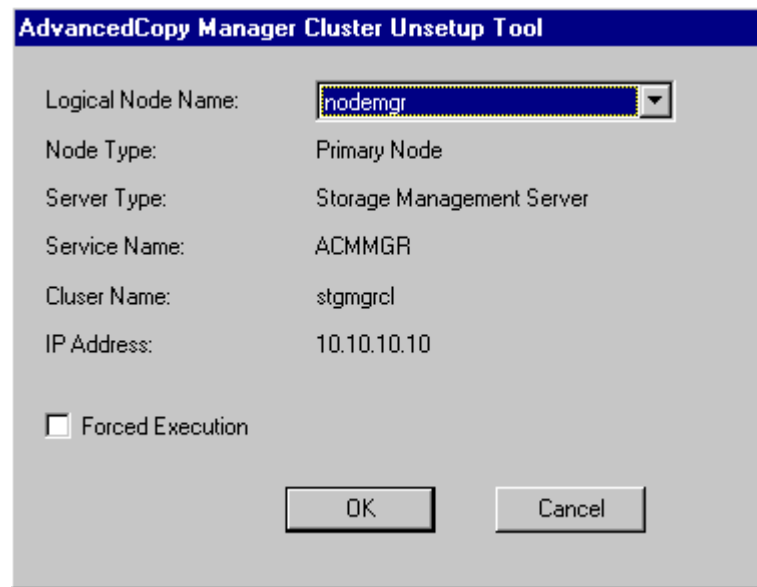is displayed.

Click the [OK] button.

g) Complete the cluster unsetup of the secondary node.
When the completion window of cluster unsetup is displayed, click the [OK]
button.

For the secondary node B, the swstf8143 message is displayed.

If there are remaining secondary nodes B for which steps 3 to 4 have not been
performed, perform from Step 3 for the nodes. When operation from Step 3 and
Step 4 is completed by all secondary nodes B, go to Step 5.

5. On the secondary node A, use the cluster administrator to acquire the ownership right
to the cluster group to which the applicable AdvancedCopy Manager belongs. For
information about how to acquire ownership rights, refer to the Microsoft(R) Cluster
Server manuals.

6. On the secondary node A, execute the cluster unsetup command. The procedure for
executing the command is as follows.

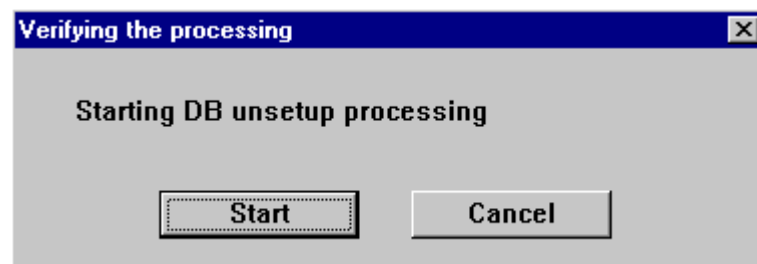a) Execute the following command from the command prompt window on the secondary
node A:

```
Program-directory¥bin¥stgclunset_mscs
```

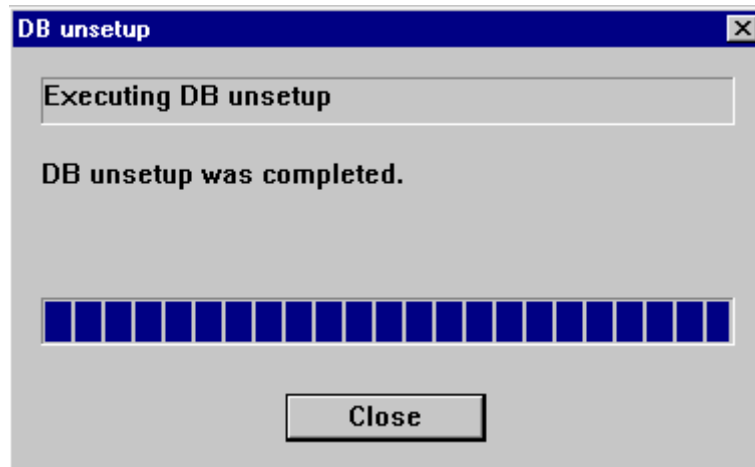b) The cluster unsetup command window is displayed.
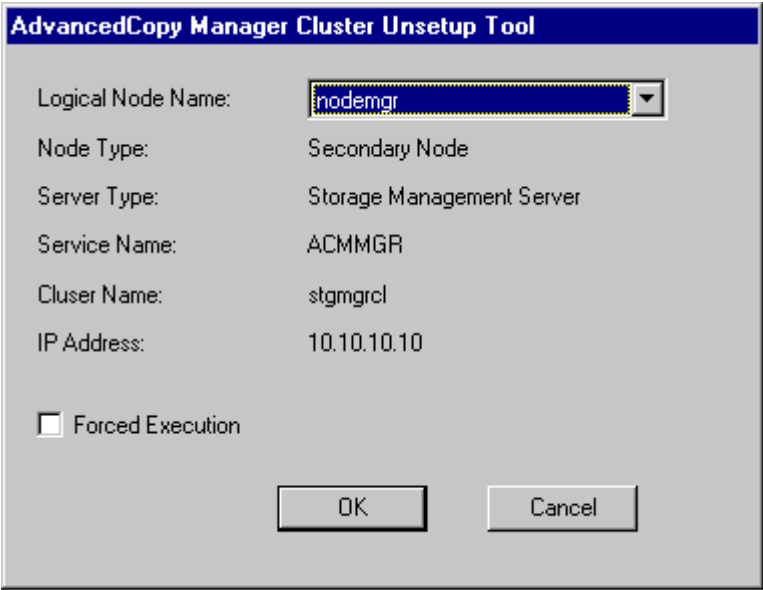
Select the logical node name of the transaction to be deleted. For unsetup after node failure, select the Forced Execution field. After confirming each field, click the [OK] button.

c) If the transaction to be deleted is a Storage Management Server transaction, the start window for deleting the environment (database) of the Storage Management Server transaction is displayed.
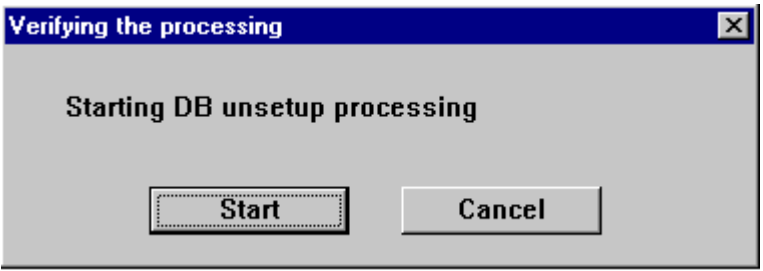
Click the [Start] button.

d) If the transaction to be deleted is a Storage Management Server transaction, the deletion completed window of the environment (database) of the Storage Management Server transaction is displayed.
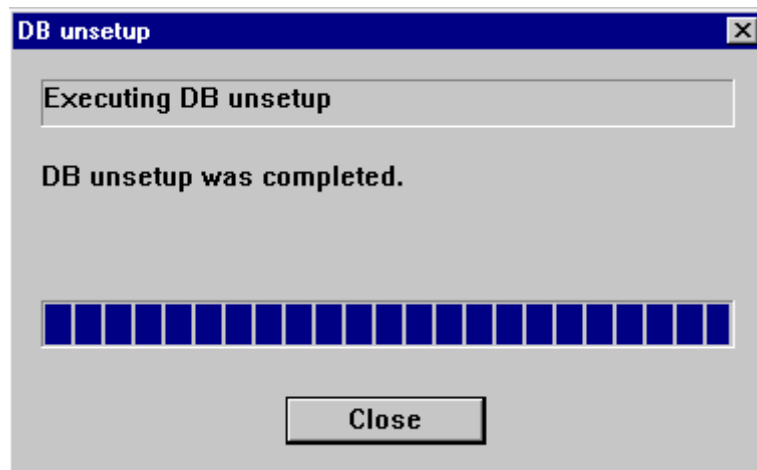
Click the [Close] button.

e) The start window of the port number and service setting/release command is displayed.
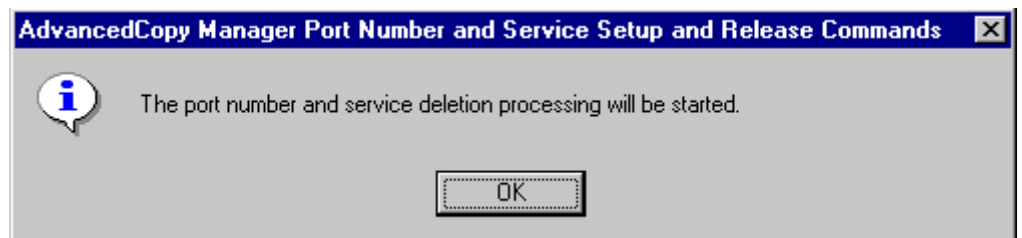
Click the [OK] button.

f) The completion window of the port number and service setting/release command is displayed.

Click the [OK] button.

g) 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.
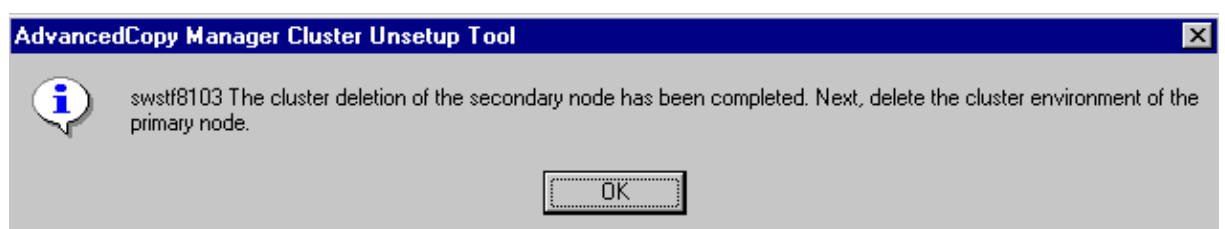
7. On the primary node, use the cluster administrator to acquire the ownership right to the cluster group to which the applicable AdvancedCopy Manager belongs. For information about how to acquire ownership rights, refer to the Microsoft(R) Cluster Server manuals.

8. On the primary node, execute the cluster unsetup command. The procedure for executing the command is as follows.

    a) Execute the following command from the command prompt window on the primary node:

    ```
    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) If the transaction to be deleted is a Storage Management Server transaction, the start window for deleting the environment (database) of the Storage Management Server transaction is displayed.
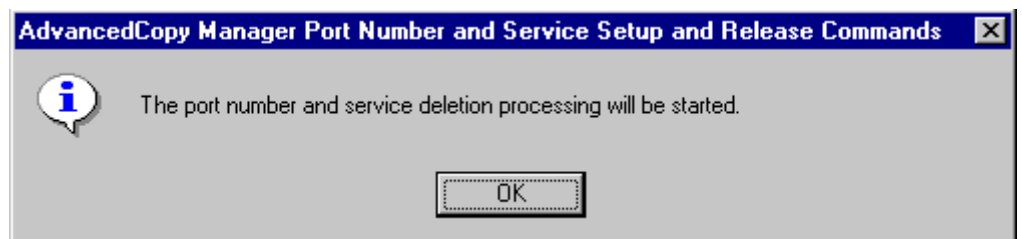

    Click the [Start] button.

d) If the transaction to be deleted is a Storage Management Server transaction, the deletion complete window of the environment (database) of the Storage Management Server transaction is displayed.
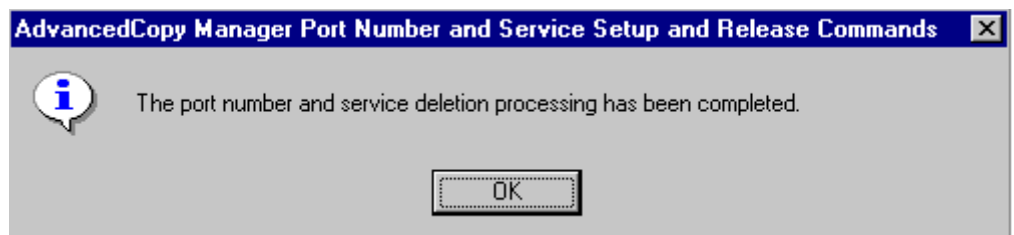

Click the [Close] button.

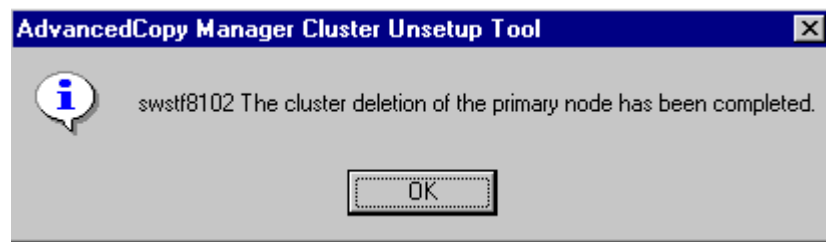e) The start window of the port number and service setting/release command is displayed.

Click the [OK] button.

f) The completion window of the port number and service setting/release command is displayed.

Click the [OK] button.

g) 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 shared data is not being used for the cluster group, use the cluster administrator to move them to another group. Moreover, in the case of a Storage Management Server transaction, if the shared disk for the repository is not being used for the cluster group, use the cluster administrator to move them to another group.

   If the following resource is not being used, use the cluster administrator to delete them. The following resources exist when "Create New IP Address Resource" has previously been selected with the cluster setup command of AdvancedCopy Manager.
   ― AdvancedCopy IP Address_*Logical-Node-Name*
   ― AdvancedCopy Network_*Logical-Node-Name*
   For information about how to move disk resource, refer to the Microsoft(R) Cluster Server manuals.

10. Delete the port number of AdvancedCopy Manager that was set for transaction use.
    Delete the port number set for the Storage Server transaction or the Storage Management Server transaction from windows-install-directory¥system32¥drivers¥etc¥services.
    Delete the port number on the primary node and the secondary node. The service name is as follows:

    ― stgxfws_Logical-Node-Name

11. Use the cluster administrator to switch the cluster group online. For information about how to switch the cluster group online, refer to the Microsoft(R) Cluster Server manuals.

5.6 Deleting for HP-version MC/ServiceGuard

This section explains how to delete the HP-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.
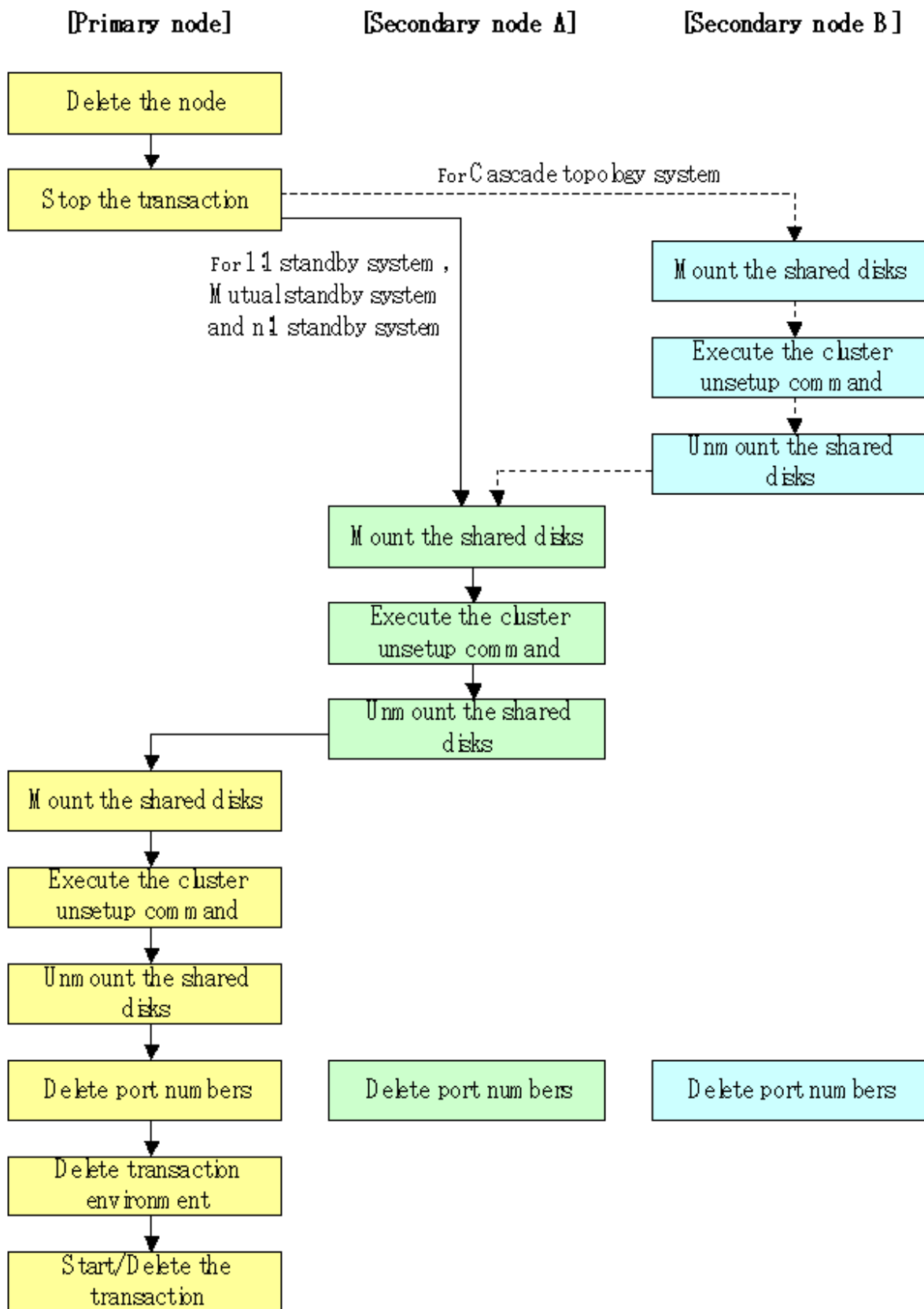
The secondary node B defines the remaining secondary nodes in this package.

The processing required to customize the primary node and secondary node A is executed on a 1:1 standby system, a mutual standby system, and an n:1 standby system.

The primary node, secondary node A, and secondary node B are deleted on a cascade topology system and a priority transfer system.

5.6.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.

[Primary node]   [Secondary node A]   [Secondary node B]

```
┌─────────────────────┐
│   Delete the node   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐         For Cascade topology system
│ Stop the transaction│- - - - - - - - - - - - - - - - - - - - - - - ┐
└─────────────────────┘                                              ▼
           │                                          ┌─────────────────────────┐
           │                                          │  Mount the shared disks │
   For 1:1 standby system ,                           └─────────────────────────┘
   Mutual standby system                                          │
   and n:1 standby system                                         ▼
           │                                          ┌─────────────────────────┐
           │                                          │   Execute the cluster   │
           │                                          │   unsetup command       │
           │                                          └─────────────────────────┘
           │                                                       │
           │                                                       ▼
           │                                          ┌─────────────────────────┐
           ▼                                          │   Unmount the shared    │
┌─────────────────────────┐  - - - - - - - - - - - - │   disks                 │
│  Mount the shared disks │                           └─────────────────────────┘
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│   Execute the cluster   │
│   unsetup command       │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│   Unmount the shared    │
│   disks                 │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│  Mount the shared disks │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│   Execute the cluster   │
│   unsetup command       │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│   Unmount the shared    │
│   disks                 │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐   ┌─────────────────────────┐   ┌─────────────────────────┐
│   Delete port numbers   │   │   Delete port numbers   │   │   Delete port numbers   │
└─────────────────────────┘   └─────────────────────────┘   └─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│   Delete transaction    │
│   environment           │
└─────────────────────────┘
           │
           ▼
┌─────────────────────────┐
│   Start/Delete the      │
│   transaction           │
└─────────────────────────┘
```

5.6.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
   Use the Web GUI of the AdvancedCopy Manager 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 the manual of MC/ServiceGuard for details of the method of 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.
   The shared disk for share data checks that it is in a state of dismount on the primary node and all the secondary nodes.

   Then, Mount the shared disk for shared data on the secondary node B.

   When there are two or more secondary nodes B, steps 3 to 7 are executed 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 shared data:

   ```
   # /opt/swstorage/bin/stgclunset_mcsg -n Logical-Node-Name
   ```

   The example of an input:

   ```
   # /opt/swstorage/bin/stgclunset_mcsg -n nodepr
   ```

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     : /stgmount
    Device Name     : /dev/vg01/lvol1
    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". In a secondary node B, this value will be at least three.

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

In secondary node B, the completion message is swstf8143.

7. Dismount the shared disks on the secondary node B.
   Dismount the shared disk for shared data on the secondary node B.

Note

If there are remaining secondary nodes B for which steps 3 to 7 have not been performed, perform these steps in each node. When steps 3 to 7 have been completed by all secondary nodes B, proceed to Step 8.

8. Mount the shared disk on the secondary node A.
   Mount the shared disk for 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 preventing other users from accessing the shared disk for shared data:

   ```
   # /opt/swstorage/bin/stgclunset_mcsg -n Logical-Node-Name
   ```

   Example

   ```
   # /opt/swstorage/bin/stgclunset_mcsg -n nodepr
   ```

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      : /stgmount
        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". In a secondary node A, this value is likely to be 2.

11. Finish the cluster unsetup command on the secondary node A.

    A window opens, indicating the completion of the cluster unsetup command.

    ```
    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 shared data on the secondary node A.

13. Mount the shared disk on the primary node.
    Mount the shared disk for 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 shared data:

    ```
    # /opt/swstorage/bin/stgclunset_mcsg -n Logical-Node-Name
    ```

    The example of an input:

    ```
    # /opt/swstorage/bin/stgclunset_mcsg -n nodepr
    ```

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.

    The number of nodes which are not executing the cluster unsetup command is output to
    "Number". In a primary node, this value is likely to be 1.

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 share data on the primary node.

18. Delete port numbers.
    On the primary node and the secondary node, delete the following services defined in /etc/services during cluster setup.   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.
    The start/stop commands of the Storage Server transaction are deleted from the CUSTOMER DEFINE FUNCTIONS section of the package control script of object transaction.

    The following commands (the start option is included) are deleted from the section at the time of starting.

    /opt/FJSVswstf/cluster/clproc/SmgrMCSG_*Logical-Node-Name* start

    The following commands (the stop option is included) are deleted 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 manual of MC/ServiceGuard for details of the method of editing a control script, the method of reflection to other nodes, and the method of deleting a package.

20. Object transaction (package) is started by using the MC/ServiceGuard function.
    This carries out this operation and is not required when a transaction is deleted in Procedure 19.

    Refer to the manual of MC/ServiceGuard for information about the method of starting a transaction.

5.7 Deleting for HP-version VERITAS Cluster Server

This section explains how to delete the HP-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.

5.7.1 Flow of Deleting

This section describes the order used when deleting a Cluster Environment.

[Primary node]   [Secondary node]

```
┌─────────────────────┐
│     Delete node     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Stop transactions │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Delete resources  │───────────────┐
└─────────────────────┘               │
                                      ▼
                          ┌─────────────────────────┐
                          │ Check shared disk mount  │
                          │         status           │
                          └─────────────────────────┘
                                      │
                                      ▼
                          ┌─────────────────────────┐
                          │  Execute cluster unsetup │
                          │         command          │
                          └─────────────────────────┘
                                      │
                                      ▼
                          ┌─────────────────────────┐
                          │ Check shared disk mount  │
           ┌──────────────│         status           │
           │              └─────────────────────────┘
           ▼
┌─────────────────────┐
│ Check shared disk   │
│    mount status     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Execute cluster     │
│ unsetup command     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Check shared disk   │
│    mount status     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐          ┌─────────────────────────┐
│  Delete port number │          │    Delete port number   │
└─────────────────────┘          └─────────────────────────┘
           │
           ▼
┌─────────────────────┐
│  Start transactions │
└─────────────────────┘
```

5.7.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
   Use the Web GUI of the AdvancedCopy Manager to delete the node.

2. Stop the transaction.
   Stop the transaction to be deleted by using the VERITAS Cluster Server function.
   Please refer to VERITAS Cluster Server User's Guide for information about the method
   of 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".

   ```
   # hagrp -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.

   Please refer to VERITAS Cluster Server User's Guide for information about the method
   of 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 share
      data): AdvancedCopy_Manager_mount

   — Resource   name   (MountPoint   for   AdvancedCopy   Manager   RIPOJITORI):
      AdvancedCopy_Manager_DB
      The resource concerned exists only on Storage Management Server business.

   — 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
```

A resource (IP) is deleted when not using it in a transaction.

```
# hares -delete sybase_ip
```

When deleting a transaction, a user service group is deleted.

```
# hagrp -delete STGMGRSRV
```

Reflect the VCS setting and set VCS into the read-only mode.

```
# 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 shared data:
```
# /opt/swstorage/bin/stgclunset_hpvcs -n logical-node-name
```

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_hpvcs -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 outputted to "Number". In a secondary node, it is likely to 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:

```
# /opt/swstorage/bin/stgclunset_hpvcs -n logical-node-name
```

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 continuing processing, input "y", or press the Enter key.

The number of nodes that are not carrying out cluster unsetup command is output to "Number". In a primary node, it will be set to 1.

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 services 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.
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. Please refer to VERITAS Cluster Server User's Guide about the method of starting a user service group.

```
# hagrp -online User-Service-Group -sys system-name
```

　　system-name: The node name where the user service group is to be started

5.8 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.

5.8.1 Flow of Deleting

This section describes the order when deleting a Cluster Environment.

[Primary node]　　　　　　　　[Secondary node]

```
┌─────────────────────┐
│     Delete node     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│  Stop transactions  │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐                    ┌──────────────────────┐
│  Delete resources   │───────────────────▶│ Check shared disk    │
└─────────────────────┘                    │    mount status      │
                                           └──────────────────────┘
                                                      │
                                                      ▼
                                           ┌──────────────────────┐
                                           │ Execute cluster      │
                                           │  unsetup command     │
                                           └──────────────────────┘
                                                      │
                                                      ▼
                                           ┌──────────────────────┐
           ┌───────────────────────────────│ Check shared disk    │
           │                               │    mount status      │
           ▼                               └──────────────────────┘
┌─────────────────────┐
│ Check shared disk   │
│   mount status      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Execute cluster     │
│  unsetup command    │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Check shared disk   │
│   mount status      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐                    ┌──────────────────────┐
│  Delete port number │                    │  Delete port number  │
└─────────────────────┘                    └──────────────────────┘
           │
           ▼
┌─────────────────────┐
│  Start transactions │
└─────────────────────┘
```

5.8.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
   Use the Web GUI of the AdvancedCopy Manager to delete the node.

2. Stop the transaction.
   Stop the transaction to be deleted by using the VERITAS Cluster Server function.
   Please refer to VERITAS Cluster Server User's Guide for information about the method of 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".

   ```
   # hagrp -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.

   Please refer to VERITAS Cluster Server User's Guide for information about the method of 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 share data): AdvancedCopy_Manager_mount

   — Resource name (MountPoint for AdvancedCopy Manager RIPOJITORI): AdvancedCopy_Manager_DB
     The resource concerned exists only on Storage Management Server business.

   — 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
```

A resource (IP) is deleted when not using it in a transaction.

```
# hares -delete sybase_ip
```

When deleting a transaction, a user service group is deleted.

```
# hagrp -delete STGMGRSRV
```

Reflect the VCS setting and set VCS into the read-only mode.

```
# 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:

```
# /opt/swstorage/bin/stgclunset_aixvcs -n logical-node-name
```

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.

Note

The number of nodes that are not carrying out cluster unsetup command is outputted
to "Number". In a secondary node, it is likely to 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:

```
# /opt/swstorage/bin/stgclunset_aixvcs -n logical-node-name
```

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 continuing
processing, input "y", or press the Enter key.

Note

The number of nodes that are not carrying out cluster unsetup command is outputted
to "Number". In a primary node, it will be set to 1.

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 services 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.
    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.
    Please refer to VERITAS Cluster Server User's Guide about the method of starting a
    user service group.

    ```
    # hagrp -online User-Service-Group -sys system-name
    ```

    system-name: The node name where the user service group is to be started

5.9 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 node which deletes the environment last in the secondary nodes in this resource group. The secondary node B defines the remaining secondary nodes in this resource group.

The deleting work of the 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 a cascade topology system.

5.9.1 Flow of Deleting

This section describes the flow of deleting a Cluster Environment.
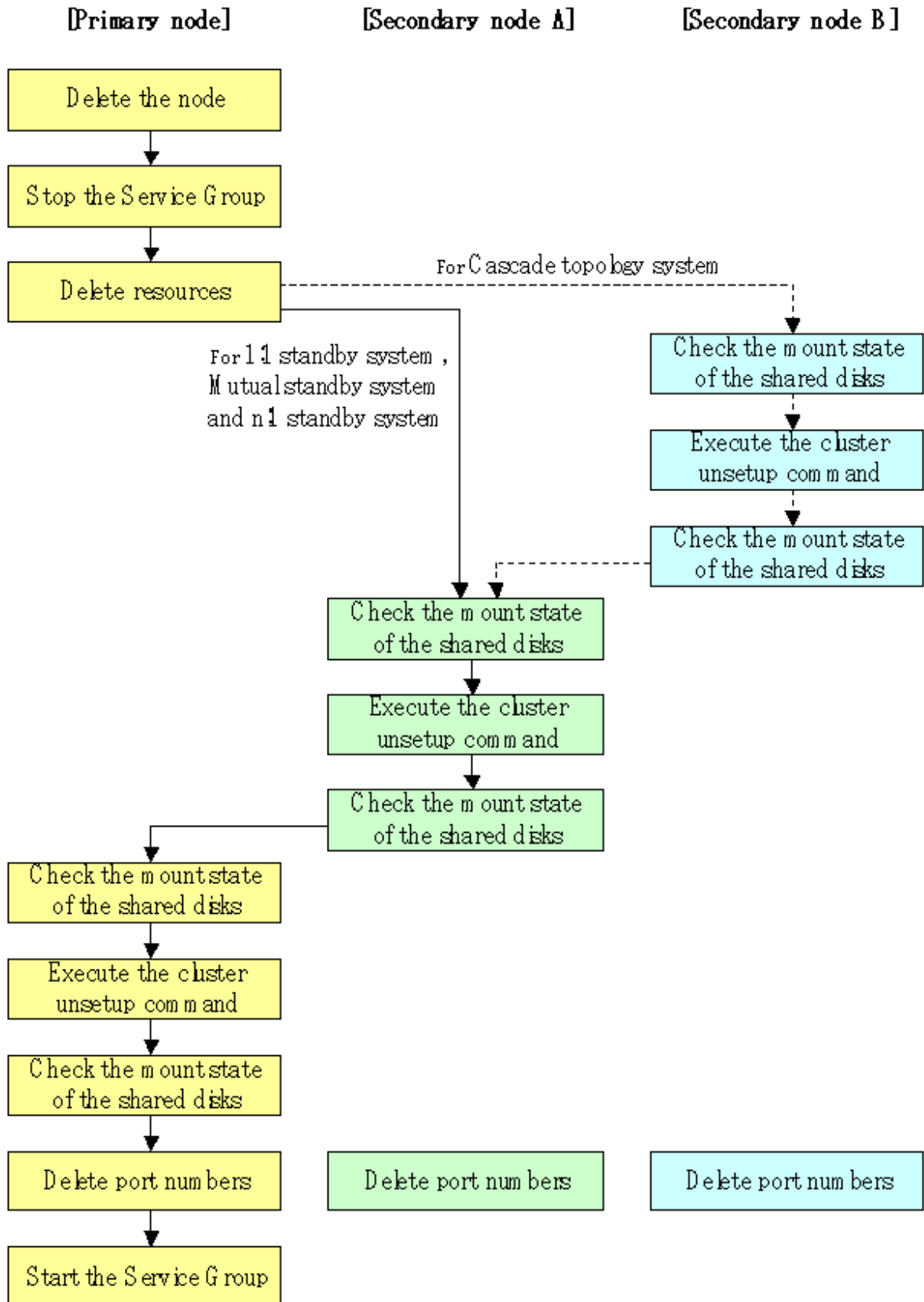
5.9.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

1. Delete the node.
   Use the Web GUI of the AdvancedCopy Manager to delete the node.

2. Stop the Resource Group.
   Stop the transaction that is to be deleted by using the High Availability Cluster Multi-Processing function.

   Please refer to High Availability Cluster Multi-Processing User's Guide for information about the method of 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.

   Please refer to High Availability Cluster Multi-Processing User's Guide for information about the method of deletion of 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 or the Priority transfer, proceed to step 4.

4. Mount the shared disk on the secondary node B.
   Mount the shared disk for shared data on the secondary node B.

   When there are two or more secondary nodes B, Step 4 to Step 8 is processed by all the secondary nodes B.

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 shared data:

   ```
   # /opt/swstorage/bin/stgclunset_hacmp -n Logical-Node-Name
   ```

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 continuing
processing, input "y", or press the Enter key.

The number of nodes that are not carrying out cluster unsetup command is outputted
to "Number". In a secondary node B, it is likely to 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.
#
```


In secondary node B, a completion message is swstf8143.

8. Dismount the shared disk on the secondary node B.
    Dismount the shared disk for share data on the secondary node B.

If there are any remaining secondary nodes B that have not performed Step 4 to Step
8, perform from Step 4 in 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 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 shared data:

```
# /opt/swstorage/bin/stgclunset_hacmp -n Logical-Node-Name
```

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 nodeMGR

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 outputted
    to "Number". In a secondary node, it is likely to be set to 2.

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 share data on the secondary node A.

14. Mount the shared disk on the primary node.
    Mount the shared disk for 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 shared data:

```
# /opt/swstorage/bin/stgclunset_hacmp -n Logical-Node-Name
```

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    : /STGMGRDISK
        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 continuing
processing, input "y", or press the Enter key.

Note

The number of nodes which is not carrying out cluster unsetup command is outputted
to "Number". In a secondary node, it is likely to be set to 1.

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 share data on the primary node.

19. Delete port numbers.
    Delete the following services 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 Resource Group.
    The function of High Availability Cluster Multi-Processing is used, and start the
    transaction stopped in step 2.   This operation is not necessary if the Resource Group
    was deleted in step 3.

    Please refer to High Availability Cluster Multi-Processing User's Guide for
    information about the method of starting a resource group.

Chapter 6   Customizing Tape Server Transactions

This chapter explains how to customize Tape Server transactions.

Note

When setup has completed, do not move the resources used by Storage Management Server transactions or Storage Server transactions to other cluster transactions.

Refer to "Customizing Tape Server Transactions with the Solaris Edition of PRIMECLUSTER" for information about the Solaris edition of PRIMECLUSTER.

6.1 Customizing Tape Server Transactions with the Solaris Edition of PRIMECLUSTER

This section explains how to customize Tape Server transactions with the Solaris edition of PRIMECLUSTER. "Primary node" refers to the active node of the userApplication performing the Tape Server transaction. "Secondary node" refers to a standby node for the same userApplication.

6.1.1 Customization flow

The setup flow is described below.

[Primary node]	[Secondary node]
Restart the system	Restart the system
Check the pre-operation check items	
Check the status of the shared disk	Check the status of the shared disk
Stop transactions	
Register port numbers	Register port numbers
	Check the status of the shared disk
Execute the setup command for the Storage Mgmt Server transaction or the Storage Server transaction	Execute the setup command for the Storage Mgmt Server transaction or the Storage Server transaction
Execute the setup command for the Tape Server transaction	Execute the setup command for the Tape Server transaction
Set up TSM cluster	Set up TSM cluster
	Customize the Tape Server
Check the status of the shared disk	Check the status of the shared disk
Create resources	
Create and register transactions	
Set up WebServer	Set up WebServer
Start transactions	
Back up the environment	
Set up the environment	

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6.1.2 Detailed customization operations

Use the following procedure to customize the Tape Server transaction:

1. Restart the system.
    Restart both the primary node and the secondary node. If the system has already been restarted after installing AdvancedCopy Manager, proceed to step 2.

2. Perform a preparatory check.
    Check each of the items in "Confirmation of items" for the userApplication being set up.

3. Stop transactions.
    If a Storage Management Server transaction, Storage Server transaction, or Tape Server transaction is to be added to an existing userApplication, use the PRIMECLUSTER RMS main window to stop the userApplication.

4. Mount the shared disk on the primary node.
    If the same server is used for both a Storage Management Server transaction and a Tape Server transaction, mount both the shared disk for AdvancedCopy Manager shared data and the shared disk for the AdvancedCopy Manager repository on the primary node.
    If the same server is used for both a Storage Management Server transaction and a Tape Server transaction, mount the shared disk for AdvancedCopy Manager shared data on the primary node.

5. Register port numbers.
    For the communications daemon for transactions (prepared beforehand in the /etc/services file), register port numbers using the following service name.

    Register the port numbers in the /etc/services file using a text editor such as vi, which is provided by the operating system.
    — Communications daemon for transactions: stgxfws_logical node name

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

6. Execute the cluster setup command for the Storage Management Server transaction or the Storage Server transaction on the primary node.

    Perform steps 6 to 13 in the procedure in "Customization Procedure" under "Customization of Storage Management Server Transactions and Storage Server Transactions".

    When the setup command completes, a message will display, suggesting that the cluster environment be set up on the secondary node. However, you should go on to execute the cluster setup command for the Tape Server transaction on the primary node.

7. Execute the cluster setup command for the Tape Server transaction on the primary node.

```
# /opt/swstorage/bin/tboclset_lxprm -n logical node name
```


—   The logical node name is the logical node name specified with the cluster setup
command executed in step 6 for the Storage Management Server transaction or Storage
Server transaction.

—   Before executing the cluster setup command, ensure that the tape server daemon
has not been started. Use the following command to check:

```
# ps -ef | grep tbod
```

If the character string "/opt/FJSVswstm/bin/tbod" is displayed in the result, the
tape server daemon has been started. Refer to "Daemon start and stop" under
"Commands" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide - Tape Backup
Linkage", and stop the tape daemon.

8. Check the setup target.
   Information will be displayed about the logical node specified with the command. Check
   the information, and then press the Enter key.

```
/opt/swstorage/bin/tboclset_lxprm -n nodeMGR
AdvancedCopy Manager Tape Server settings are as follows.
        Cluster system : PRIMECLUSTER
        Node type      : Primary
        Mount point    : /STGMGRDISK
        Node name      : nodeMGR
        Service        : manager_service
        Function       : Tape Server
Do you want to continue with setting of AdvancedCopy Manager Tape Server cluster?
[default:y]
```

   Enter "n" to cancel the cluster setup, or type "y" or press the Enter key to continue
   with the cluster setup.

9. The cluster setup command for the Tape Server transaction on the primary node will
   complete.
   The completion screen for the cluster setup command will be displayed.

```
swstm2000 The Tape Server cluster setup of the primary node has been completed. Next,
create the cluster environment of the secondary node.
#
```

10. Configure TSM cluster settings.
    Configure TSM cluster settings on the primary node. Refer to "Settings on the primary
    node" under "TSM Cluster Settings" for information on how to configure these settings.

11. Dismount the shared disk on the primary node.
    If the cluster setup command for a Storage Management Server transaction has been
    executed, dismount both the shared disk for shared data and the shared disk for the

repository on the primary node.

If the cluster setup command for a Storage Server transaction has been executed, dismount the shared disk for shared data on the primary node.

12. Mount the shared disk on the secondary node.
    If the cluster setup command for a Storage Management Server transaction has been executed on the primary node, mount both the shared disk for shared data and the shared disk for the repository on the secondary node.

    If the cluster setup command for a Storage Server transaction has been executed on the primary node, mount the shared disk for shared data on the secondary node.

13. Execute the cluster setup command for the Storage Management Server transaction or the Storage Server transaction on the secondary node.

    Perform steps 16 to 19 in the procedure in "Customization Procedure" under "Customization of Storage Management Server Transactions and Storage Server Transactions".

14. Execute the cluster setup command for the Tape Server transaction on the secondary node.

    ```
    # /opt/swstorage/bin/tboclset_lxprm -n logical node name
    ```

15. Check the setup target.
    Information will be displayed about the logical node specified with the command. Check the information displayed, and then press the Enter key.

    ```
    /opt/swstorage/bin/tboclset_lxprm -n nodeMGR
    AdvancedCopy Manager Tape Server settings are as follows.
            Cluster system : PRIMECLUSTER
            Node type      : Secondary
            Mount point    : /STGMGRDISK
            Node name      : nodeMGR
            Service        : manager_service
            Function       : Tape Server
    Do you want to continue with setting of AdvancedCopy Manager Tape Server cluster?
    [default:y]
    ```

    Enter "n" to cancel the cluster setup, or type "y" or press the Enter key to continue with the cluster setup.

16. The cluster setup command for the Tape Server transaction on the secondary node will complete.

    The completion screen for the cluster setup command will be displayed.

    ```
    swstm2001 The Tape Server cluster setup of the secondary node has been completed.
    #
    ```

17. Configure TSM cluster settings.

Configure TSM cluster settings on the secondary node. Refer to "Settings on the secondary node" under "TSM Cluster Settings" for information on how to configure these settings.

18. Customize the Tape Server.
Perform the procedures in "Initial settings for the Tape Server", "TSM Settings (settings that are made before the automatic startup settings for the daemon are made)"and "TSM Settings (settings that are made after the automatic startup settings for the daemon are made)" under "Customization of Tape Server" in the "ETERNUS SF AdvancedCopy Manager Installation Guide".

There is no need to make "automatic settings for the daemon" with cluster systems.

19. Dismount the shared disk on the secondary node.
If the cluster setup command for a Storage Management Server transaction has been executed, dismount both the shared disk for shared data and the shared disk for the repository on the secondary node.
If the cluster setup command for a Storage Server transaction has been executed, dismount the shared disk for shared data on the secondary node.

20. Create resources
Use the PRIMECLUSTER "userApplication Configuration Wizard" to create the following resources:
   ― GDS resource
      If the cluster setup command for a Storage Management Server transaction has been executed, specify the classes for both the shared disk for shared data and the shared disk for the repository.
      If the cluster setup command for a Storage Server transaction has been executed, specify the class for the shared disk for the shared data.
   ― Fsystem resource
      For Storage management server transactions, register the mount point of the shared disk for shared data and the mount point of the shared disk with the directory for the repository.
      If the cluster setup command for a Storage Server transaction has been executed, specify the mount point for the shared disk for shared data.
   ― Ipaddress resource
      This resource is not required if an existing Ipaddress resource is used.
   ― Procedure resource
      Specify "SMGRPROC_*logical node name*".
   ― Cmdline resource
      Create the following Cmdline resource.

Start script		Optional (specify something like "Cmdline_tbo")
Script creation method		Path input
Path name	Start script	/opt/FJSVswstm/bin/start_tbo start
	Stop script	/opt/FJSVswstm/bin/start_tbo stop
	Check script	/opt/FJSVswstm/bin/start_tbo check
Script attributes	NULLDETECTOR	Default

Start script	Optional (specify something like "Cmdline_tbo")	
Script creation method	Path input	
	ALLEXITCODES	Default
	LIEOFFLINE	Default
	CLUSTEREXCLUSIVE	Default
	AUTORECOVER	No
	MONITORONLY	Default
	STANDBYCAPABLE	Default
	TIMEOUT	Default
Resource attributes	SubApplications	Default
	InParallel	Default
	NeedAll	Default

Additionally, create the resources required for TSM by referring to "Registering resources" in "TSM Cluster Settings".

Note

Refer to "Creating a Cmdline resource" and "Creating Resources and userApplications with Solaris-version PRIMECLUSTER" for information on how to create PRIMECLUSTER resources.

The pre-settings that are made with the PRIMECLUSTER procedure resource settings (ie, creating a state transition procedure and registering resources with the resource database) have already been made by the cluster setup command (stgclset_safe).

21. Create and register transactions.
    Use the PRIMECLUSTER "userApplication Configuration Wizard" to create and register userApplications for AdvancedCopy Manager.
    ― Operation mode: Standby

    Register the following resources that make up the userApplication:
    ― The resources created in step 20

Note

Some information must be registered as switchover file system information. This includes the mount point and slice on the shared disk for shared data, and the mount point and slice for the shared disk where the repository directory is located.

Refer to "Creating Resources and userApplications with Solaris-version PRIMECLUSTER" for information on how to create userApplications with PRIMECLUSTER.

22. For Storage Management Server transactions, configure WebServer settings.

Configure WebServer settings on all nodes by referring to "Setting up the Web Server" in the "ETERNUS SF AdvancedCopy Manager Installation Guide". If it is necessary to use a physical IP address for the WebServer, configure the settings so that the WebServer can be accessed from multiple IP address, including both the physical IP address and logical IP addresses. This allows a clustered AdvancedCopy Manager to access the WebServer via a logical IP address. Refer to the technical guide for each WebServer for information about these settings.

23. Start the transactions and AdvancedCopy Manager.
    Use the PRIMECLUSTER RMS main window to start the userApplication that has just been created and any userApplications that were stopped in step 3.

24. Back up the environment.
    Back up the following environments in case of any unexpected incidents:
    — Databases
       If the same server is used for both a Storage Management Server transaction and a Tape Server transaction, back up the database space that has been created, by referring to "How to Backup Databases" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide (Solaris)".
    — Data on the shared disk for shared data
       Back up the following directories on the shared disk for shared data by using a command such as the operating system's cp command:
       Mount point for shared disk for AdvancedCopy Manager shared data/etc
       Mount point for shared disk for AdvancedCopy Manager shared data/var
       Mount point for shared disk for AdvancedCopy Manager shared data/TBO

25. Create environments for the Storage Management Server transaction, the Storage Server transaction, and the Tape Server transaction.

    Create environments for the Storage Management Server transaction, the Storage Server transaction, and the Tape Server transaction by referring to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (Solaris)".

Chapter 7　Deleting Tape Server Transactions

This chapter explains how to delete cluster environments for Tape Server transactions For the Solaris edition of PRIMECLUSTER, refer to the section entitled "Deleting Tape Server Transactions with the Solaris Edition of PRIMECLUSTER".

7.1 Deleting Tape Server Transactions with the Solaris Edition of PRIMECLUSTER

This section explains how to delete Tape Server transactions with the Solaris edition of PRIMECLUSTER.

"Primary node" refers to the userApplication node that has been set up as the primary node using the AdvancedCopy Manager cluster setup command.

"Secondary node" refers to the node of the same userApplication that has been set up as the secondary node using the AdvancedCopy Manager cluster setup command

7.1.1 Deletion flow

The flow for deleting the cluster environment is described below.

[**Primary node**]   [**Secondary node**]

```
┌─────────────────────┐
│   Delete the node   │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  Stop transactions  │
└─────────────────────┘
          │
          ▼
┌─────────────────────┐
│  Delete resources   │────────────────┐
└─────────────────────┘                │
                                       ▼
                          ┌──────────────────────────┐
                          │   Check the mount status of │
                          │      the shared disk         │
                          └──────────────────────────┘
                                       │
                                       ▼
                          ┌──────────────────────────┐
                          │  Cancel the cluster settings │
                          │     for the TSM server       │
                          └──────────────────────────┘
                                       │
                                       ▼
                          ┌──────────────────────────────────┐
                          │ Execute the cluster unsetup command for the │
                          │        Tape Server transaction              │
                          └──────────────────────────────────┘
                                       │
                                       ▼
                          ┌──────────────────────────────────┐
                          │ Execute the cluster unsetup command for the │
                          │ Storage Manager Server transaction or Storage│
                          │          Server transaction                 │
                          └──────────────────────────────────┘
                                       │
                                       ▼
          ┌──────────────────────────────────┐
          │          Check the mount status of │
          │             the shared disk        │
          │◄─────────────────────────────────┘
          ▼
┌─────────────────────────┐
│  Check the mount status of │
│     the shared disk        │
└─────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│  Cancel the cluster settings │
│     for the TSM server       │
└─────────────────────────┘
          │
          ▼
┌──────────────────────────────────┐
│ Execute the cluster unsetup command for the │
│        Tape Server transaction              │
└──────────────────────────────────┘
          │
          ▼
┌──────────────────────────────────┐
│ Execute the cluster unsetup command for the │
│ Storage Manager Server transaction or Storage│
│          Server transaction                 │
└──────────────────────────────────┘
          │
          ▼
┌─────────────────────────┐
│  Check the mount status of │
│     the shared disk        │
└─────────────────────────┘
          │
          ▼
┌─────────────────────┐          ┌─────────────────────┐
│  Delete port numbers │          │  Delete port numbers │
└─────────────────────┘          └─────────────────────┘
          │
          ▼
┌─────────────────────┐
│ Restart transactions │
└─────────────────────┘
```

7.1.2 Detailed deletion operations

Use the following procedure to delete the cluster environment:

1. Delete the node
   Delete the node using the AdvancedCopy Manager Web GUI. This step is not required for
   Storage Management Server transactions.

2. Stop transactions
   Stop the transactions that are to be deleted using the PRIMECLUSTER RMS main window

3. Delete resources
   Use the PRIMECLUSTER "userApplication Configuration Wizard" to delete the
   AdvancedCopy Manager resources and TSM resources registered for the transactions to
   be deleted. If the userApplication has been created using only AdvancedCopy Manager
   resources, delete the entire userApplication

   ![Note]

   Refer to the PRIMECLUSTER Installation and Administration Guide for information on
   how to delete userApplications and resources

4. Mount the shared disk on the secondary node
   Mount the shared disk for AdvancedCopy Manager shared data on the secondary node.
   If the same server is used for both a Storage Management Server transaction and a Tape
   Server transaction, mount the shared disk for the repository as well.

5. Cancel the TSM cluster settings.
   On the secondary node, execute the PRIMECLUSTER environment deletion procedure by
   referring to "Deleting TSM server state transition procedures" under "Canceling
   Applications" in the "TSM PRIMECLUSTER Application Guide".

6. Execute the cluster unsetup command for the Tape Server transaction on the secondary
   node

   ```
   # /opt/swstorage/bin/tboclunset_lxprm -n logical node name
   ```

7. Check the deletion target

   Information will be displayed about the logical node specified with the command. Check
   the information that is displayed, and then press the Enter key

   ```
   # /opt/swstorage/bin/tboclunset_lxprm -n nodeMGR
   AdvancedCopy Manager Tape Server settings were as follows.
           Cluster system : PRIMECLUSTER
           Node type      : Secondary
           Mount point    : /STGMGRDISK
           Node name      : nodeMGR
           Function       : Tape Server
   Do you want to continue with un-setting of AdvancedCopy Manager Tape Server cluster?
   [default:y]
   ```

Enter "n" to cancel the cluster environment deletion, or type "y" or press the Enter key to continue with the deletion

8. The cluster unsetup command on the secondary node will complete

    The completion screen for the cluster unsetup command will be displayed

    ```
    swstm 2003 The Tape Server cluster deletion of the secondary node has been completed.
    Next, delete the clust er environment of the primary node.
    #
    ```


Note

When the unsetup command completes, a message will display suggesting that the cluster environment be canceled on the primary node. However, you should go on to execute the cluster unsetup command for the Storage Management Server transaction or the Storage Server transaction on the secondary node.

9. On the secondary node, execute the cluster unsetup command for the Storage Management Server transaction or the Storage Server transaction

    Perform steps 11 to 14 of the procedure in "Deletion Procedure" under "Deleting Storage Management Server Transactions and Storage Server Transactions"

10. Dismount the shared disk on the secondary node
    Dismount the shared disk for shared data on the secondary node.

    For Storage Management Servers, dismount the shared disk for the repository on the secondary node as well

11. Mount the shared disk on the primary node
    Mount the shared disk for shared data on the primary node.
    For Storage Management Servers, mount the shared disk for the repository on the primary node as well

12. Cancel the TSM cluster settings
    Execute the PRIMECLUSTER environment deletion procedure on the primary node by referring to "Deleting TSM server state transition procedures" under "Canceling Applications" in the "TSM PRIMECLUSTER Application Guide"

    Additionally, delete any shared resources or procedures that were used with TSM by referring to "Deleting TSM shared resources" under "Canceling Applications" in the "TSM PRIMECLUSTER Application Guide".

    Delete procedures on both the primary node and the secondary node

13. Execute the cluster unsetup command for the Tape Server transaction on the primary node

    ```
    # /opt/swstorage/bin/tboclunset_lxprm -n logical node name
    ```

14. Check the deletion target

    Information about the logical node specified with the command will be displayed. Check
    the information that is displayed, and then press the Enter key

    ```
    # /opt/swstorage/bin/tboclunset_lxprm -n nodeMGR
    AdvancedCopy Manager Tape Server settings were as follows.
            Cluster system : PRIMECLUSTER
            Node type      : Primary
            Mount point    : /STGMGRDISK
            Node name      : nodeMGR
            Function       : Tape Server
    Do you want to continue with un-setting of AdvancedCopy Manager Tape Server cluster?
    [default:y]
    ```

    Enter "n" to cancel the cluster environment deletion, or type "y" or press the Enter
    key to continue with the deletion.

15. The cluster unsetup command on the primary node will complete

    The completion screen for the cluster unsetup command will be displayed

    ```
    swstm 2002 The Tape Server cluster deletion of the primary node has been completed.
    #
    ```

16. Execute the cluster unsetup command for the Storage Management Server transaction or
    the Storage Server transaction on the primary node.

    Perform steps 17 to 20 in the procedure in "Deletion Procedure" under "Deleting Storage
    Management Server Transactions and Storage Server Transactions".

17. Dismount the shared disk on the primary node
    Dismount the shared disk for shared data on the primary node.

    For Storage Management Servers, dismount the shared disk for the repository on the
    primary node as well

18. Delete port numbers
    Delete the following service, which was set in the /etc/services file when the cluster
    was set up.

     Delete this service on both the primary node and the secondary node using a text editor
    such as vi, which is provided by the operating system
        ─ Communications daemon for transactions:stgxfws_logical node name

19. Restart transactions
    Use the PRIMECLUSTER RMS main window to restart the transactions that were stopped
    in step 2.

    This step is not required if the userApplication was deleted in step 3.

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, see "Building Cluster Applications" in the "PRIMECLUSTER Installation and Administration Guide."

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".
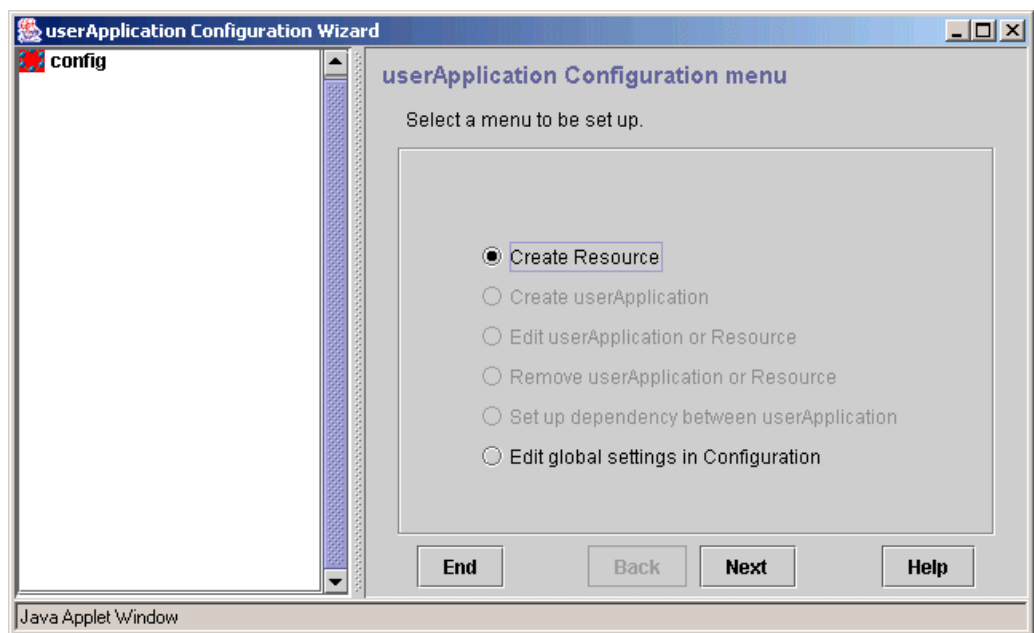
2. Select "Gds" for the resource type.

"nodemgrGds" is specified as the resource name in the following example.
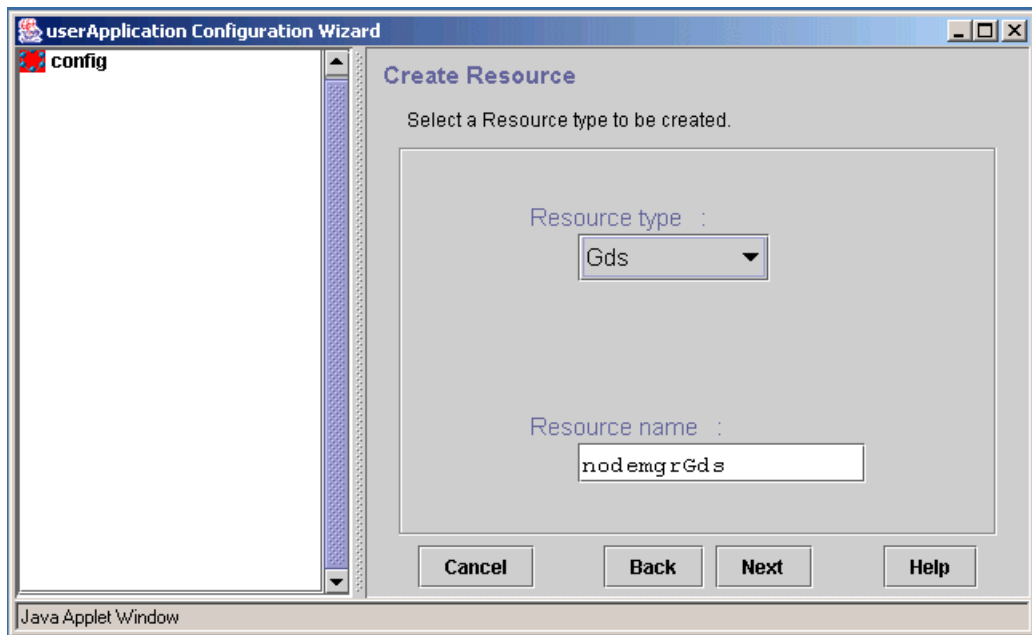
3. Select SysNode to set the resource in it.
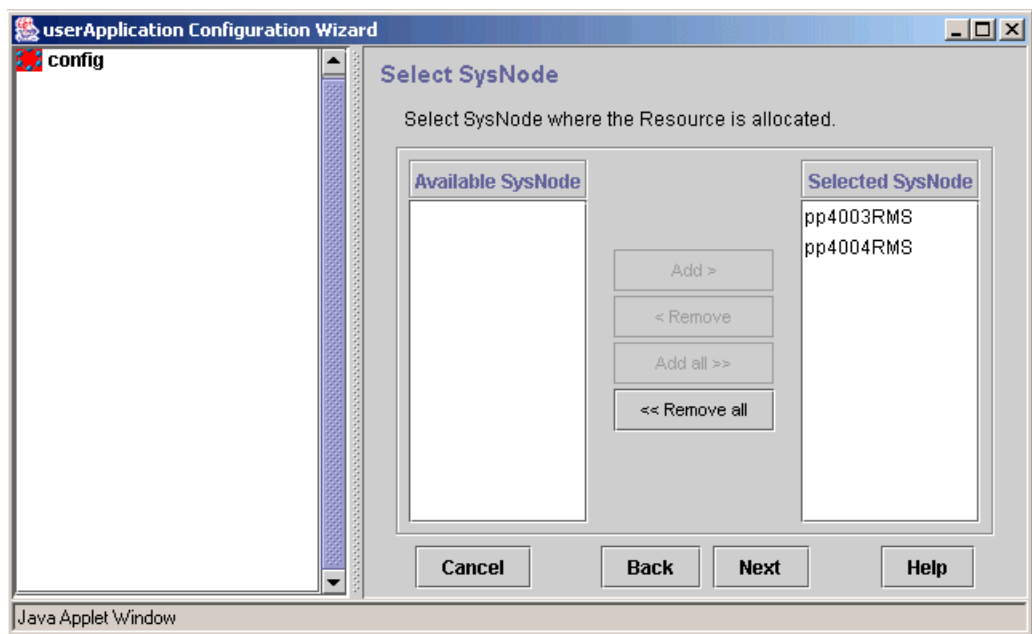
4. Select a disk class.

   Register the class of the GDS to which the shared disk for AdvancedCopy Manager shared data belongs.

   For a Storage management server transaction, also register the class of the GDS to which the shared disk for the AdvancedCopy Manager repository belongs.
   Disk class "ClsMgr" is specified in the following example.
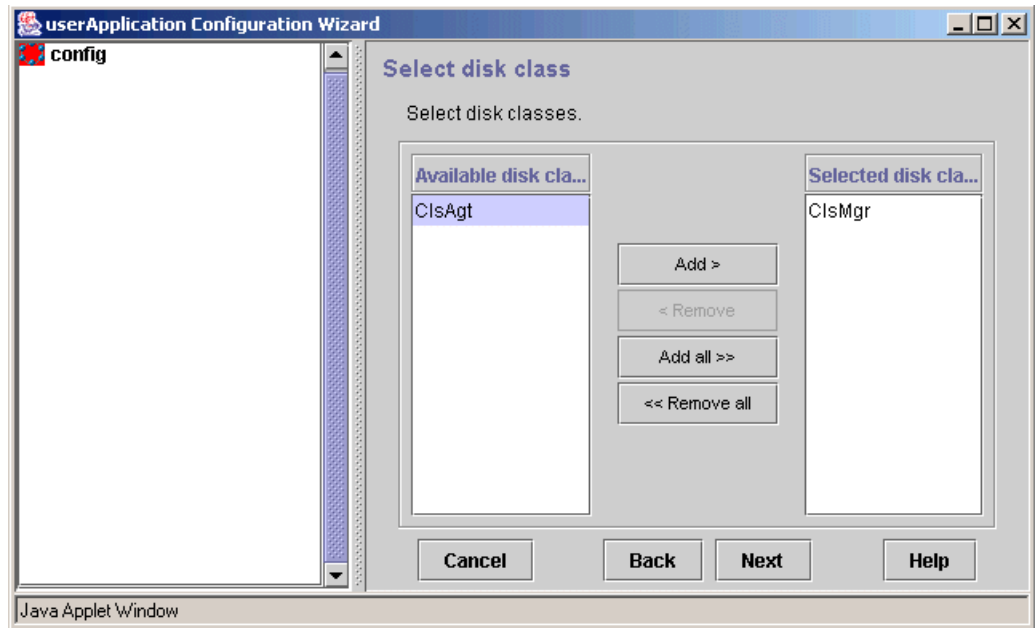
5. Specify the attributes of the disk class.

   For details on disk class attributes, see "Creating Gds Resources" in the "PRIMECLUSTER Installation and Administration Guide".

   "No" is specified for the MONITORONLY attribute in the following example.
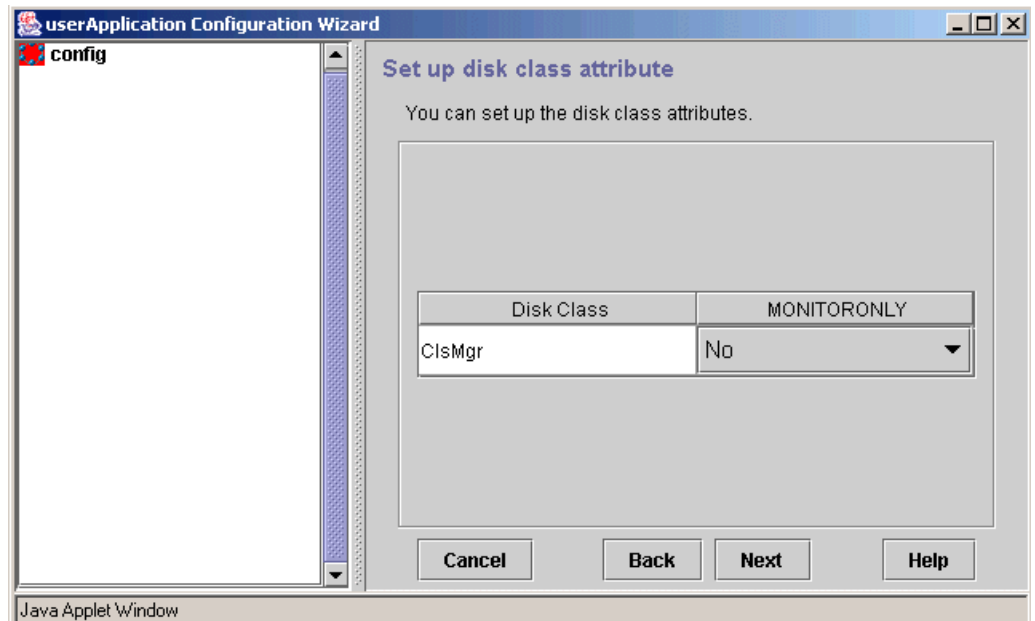
6. Specify the use of the disk class.

   Register the shared disk for shared data and the shared disk for the repository as switching disks (exclusive use = "Yes", HotStandby operation = "No").

   For the uses of the disk class, see "Creating Gds Resources" in the "PRIMECLUSTER Installation and Administration Guide".
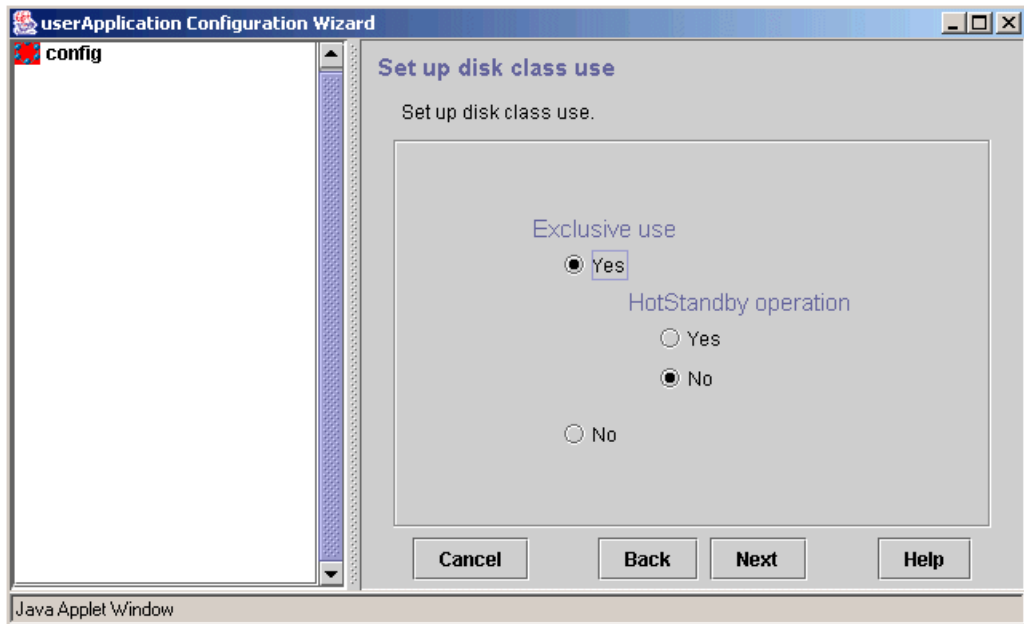
7. Confirm the information registered for the Gds resource.

   For details on the resource attributes, see "Creating Gds Resources" in the
   "PRIMECLUSTER Installation and Administration Guide."
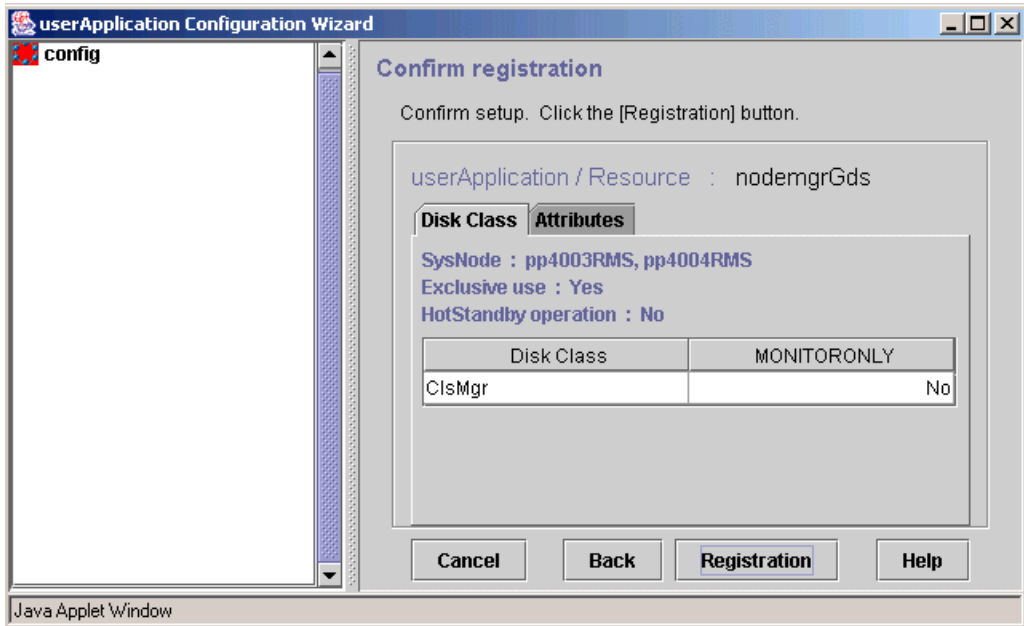
A.1.2　Creating an Fsystem resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration
   Wizard".
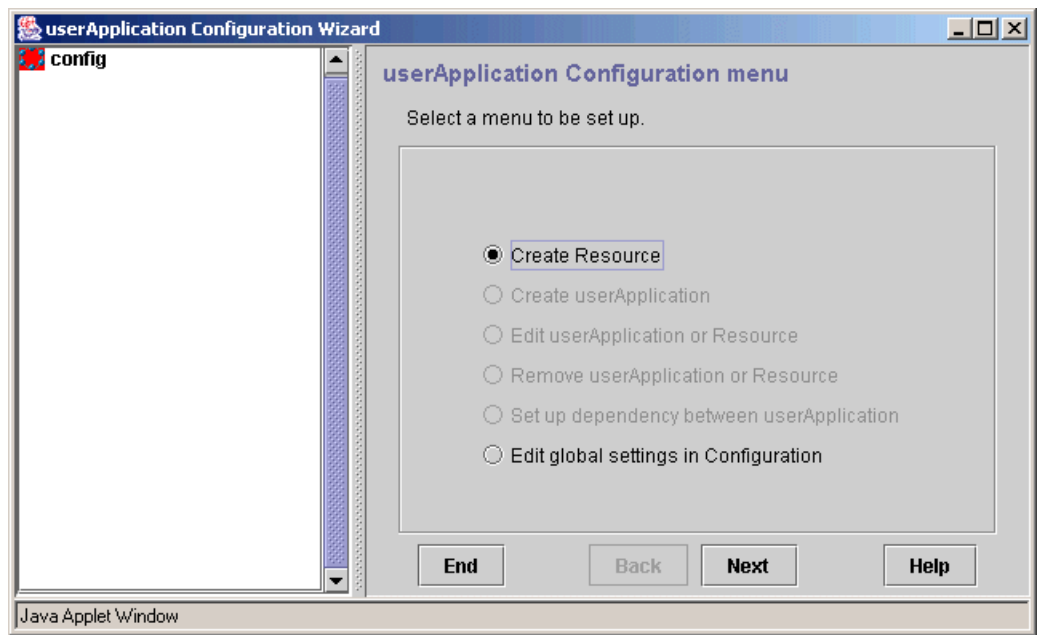
2. Select "Fsystem" for the resource type.

    "nodemgrFsystem" is specified for the resource name in the following example.
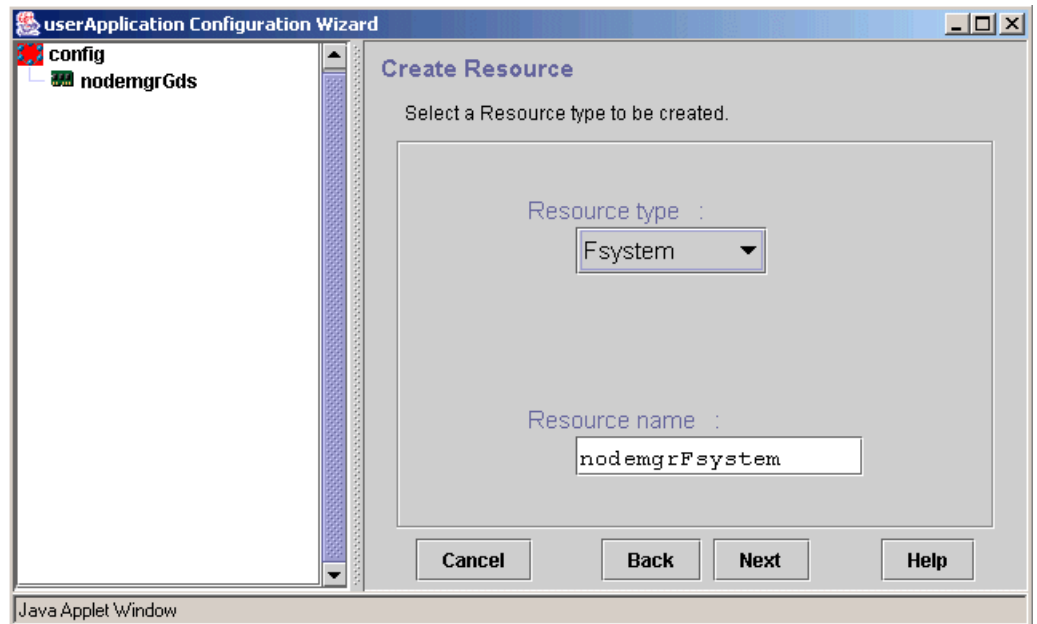

3. Select SysNode to set the resource in it.
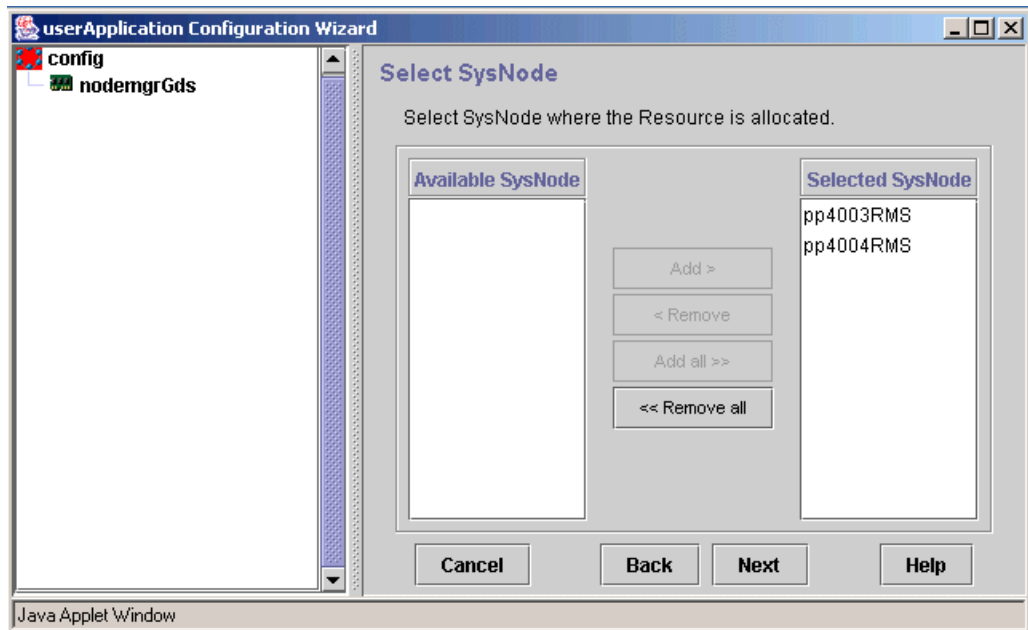
4. Select a mount point.

    Register the mount point of the shared disk for shared data.
    For a Storage management server transaction, also register the mount point of the
    shared disk for the repository.

    The mount point "/acm_mnt/dbfile" and "/acm_mnt/mgr_mnt" is specified in the following
    example.
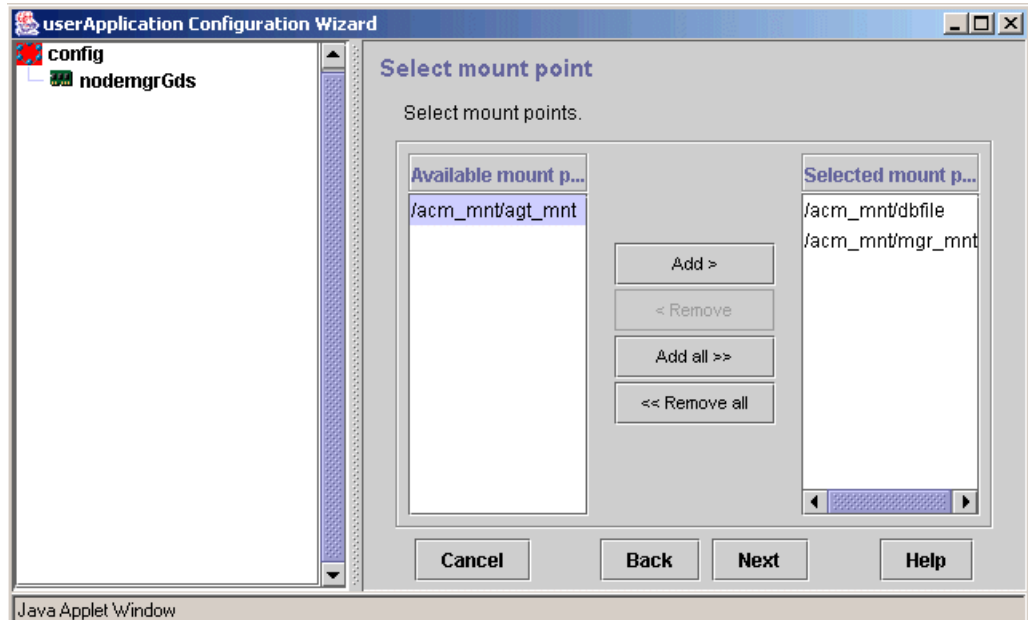
5. Specify the attributes of the mount point.

    For details on mount point attributes, see "Creating Fsystem Resources" in the
    "PRIMECLUSTER Installation and Administration Guide."

    "yes" is specified for the AUTORECOVER attribute in the following example.
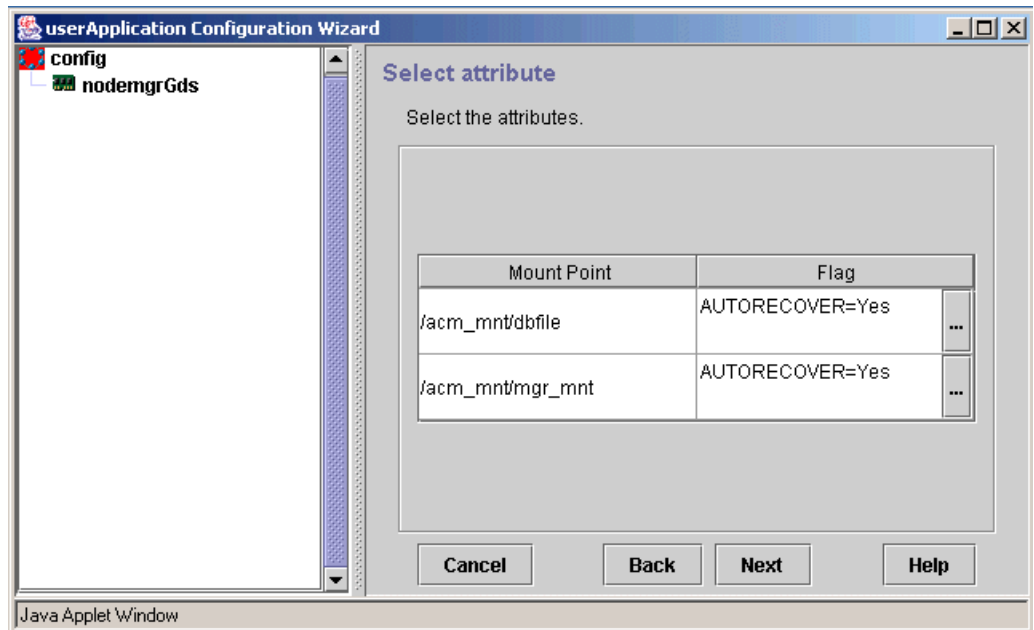
6. Confirm the information registered for Fsystem.

   For details on the resource attributes, see "Creating Fsystem Resources" in the "PRIMECLUSTER Installation and Administration Guide."
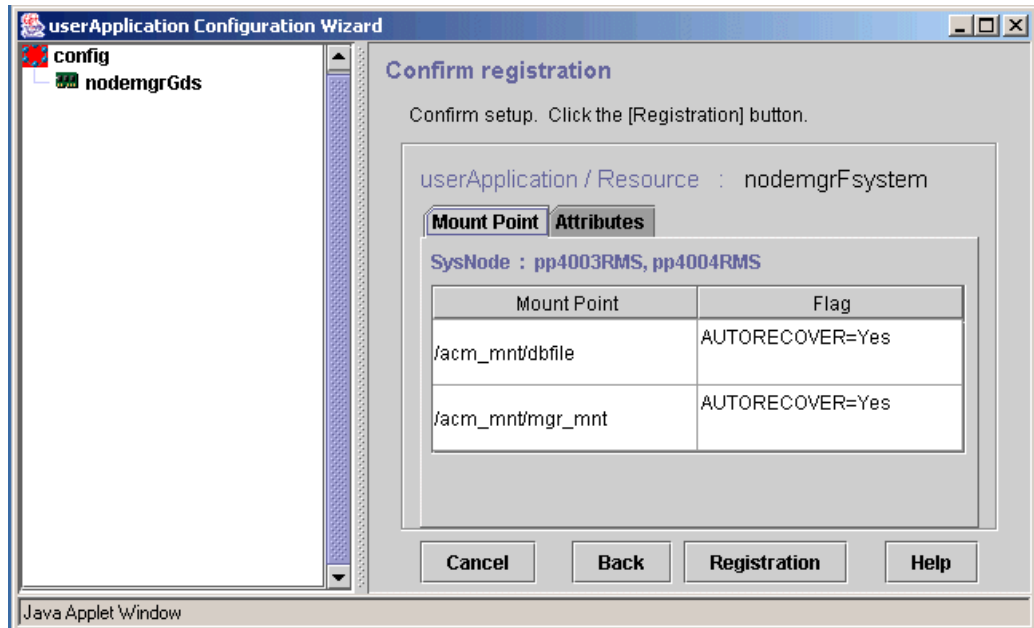
## A.1.3　　Creating an Ipaddress resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".
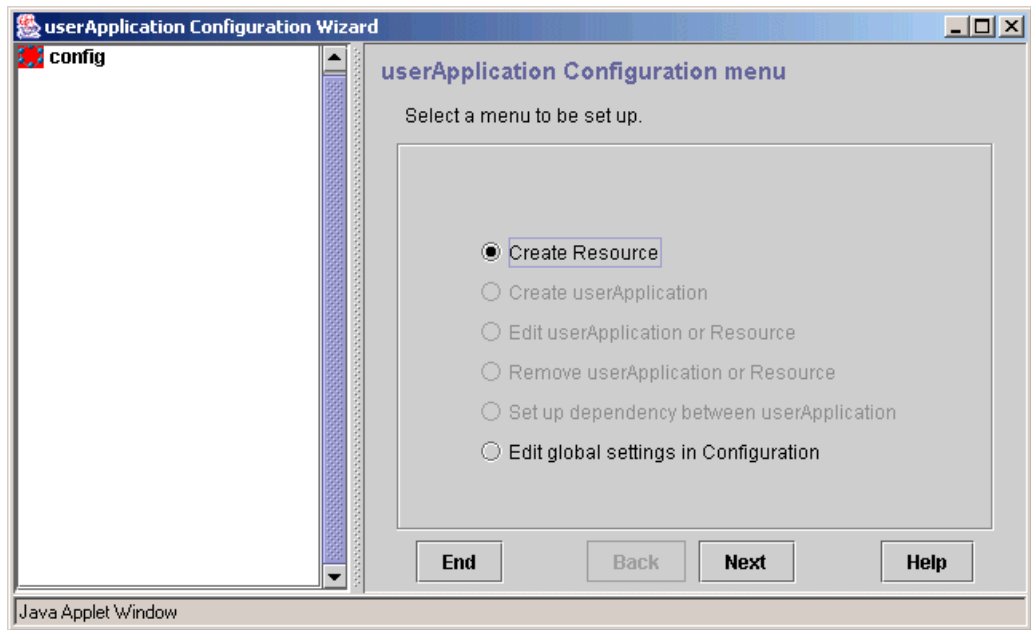
2. Select "Ipaddress" for the resource type.

   "nodemgrIpaddress" is specified for the resource name in the following example.
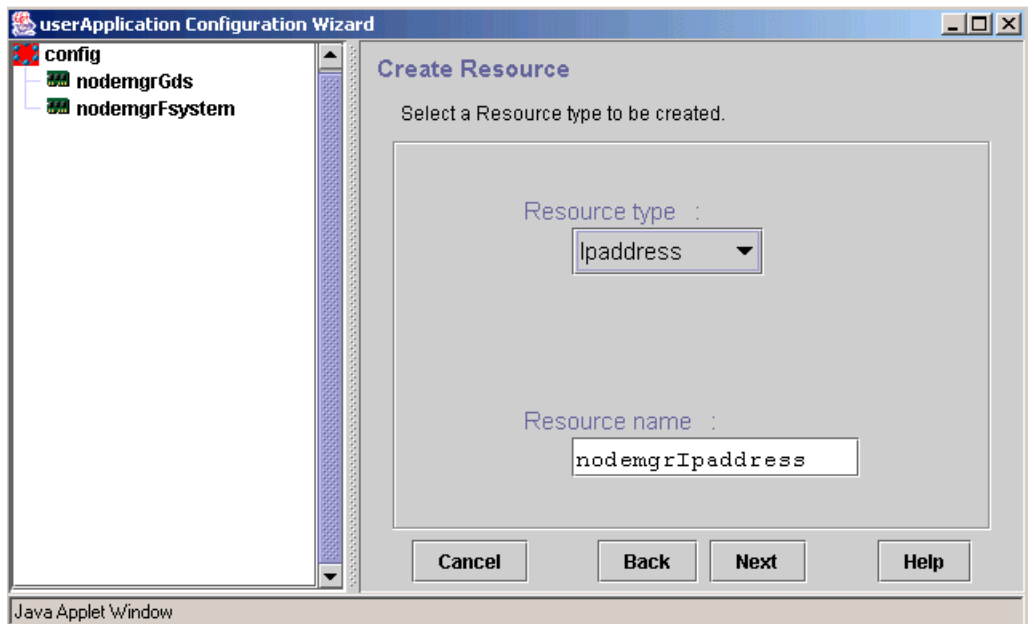
3. Select SysNode to set the resource in it.
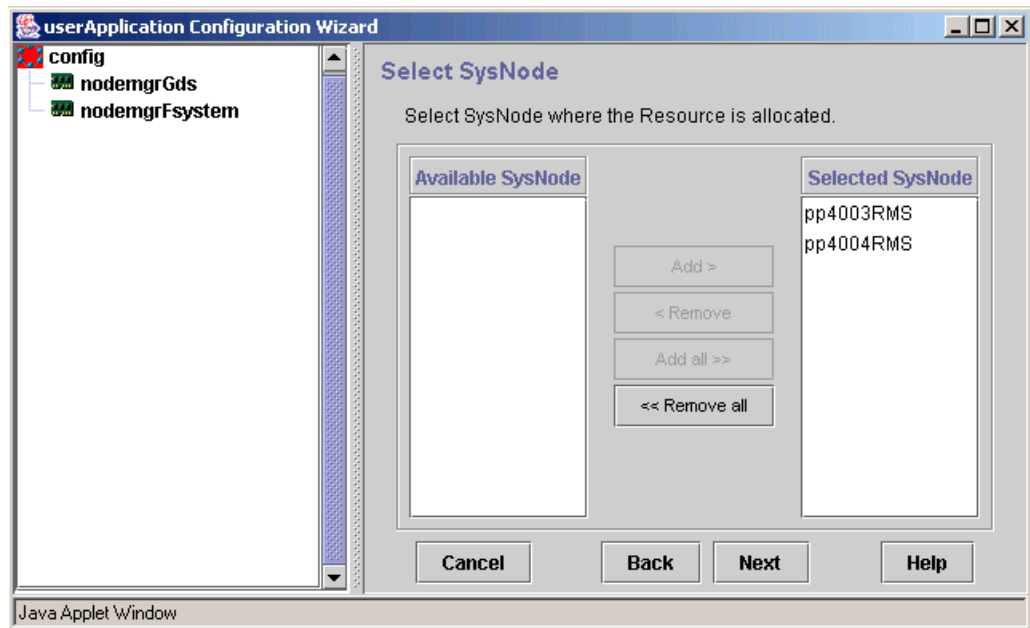
4. Select the type of takeover network.
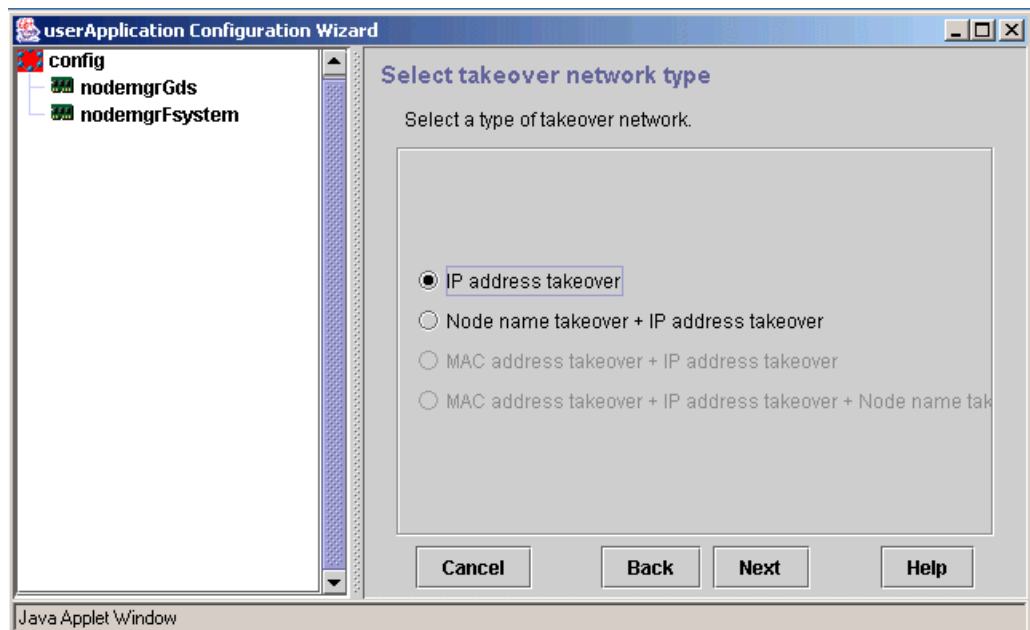
5. Select an interface.
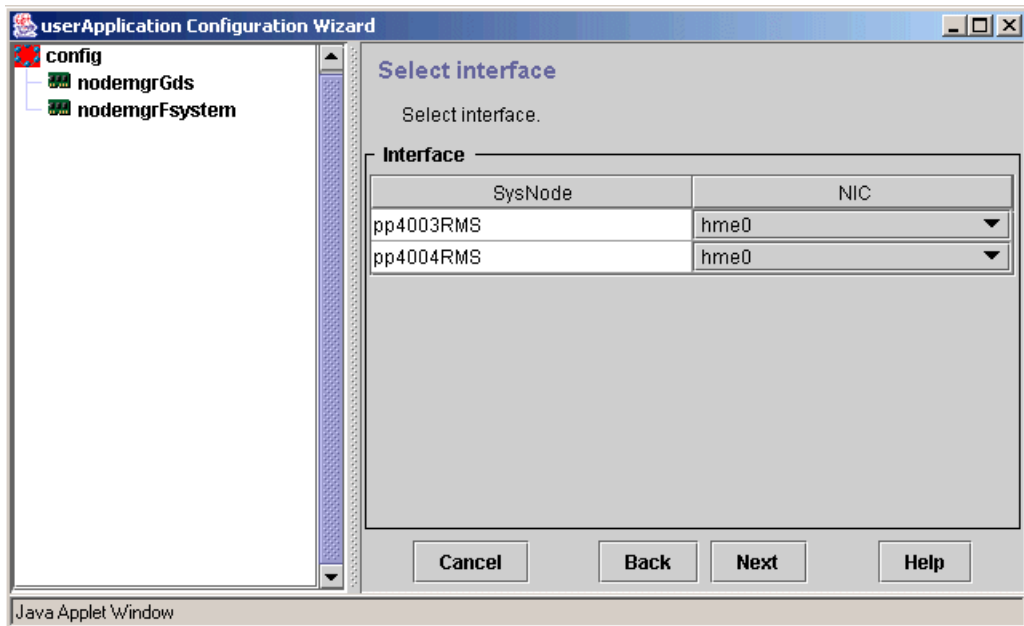
6. Select a takeover IP address and host name, or specify a new address and name.

   For information on how to select a takeover IP address and host name and how to specify a new address and name, see "Creating Takeover Network Resources" in the "PRIMECLUSTER Installation and Administration Guide".
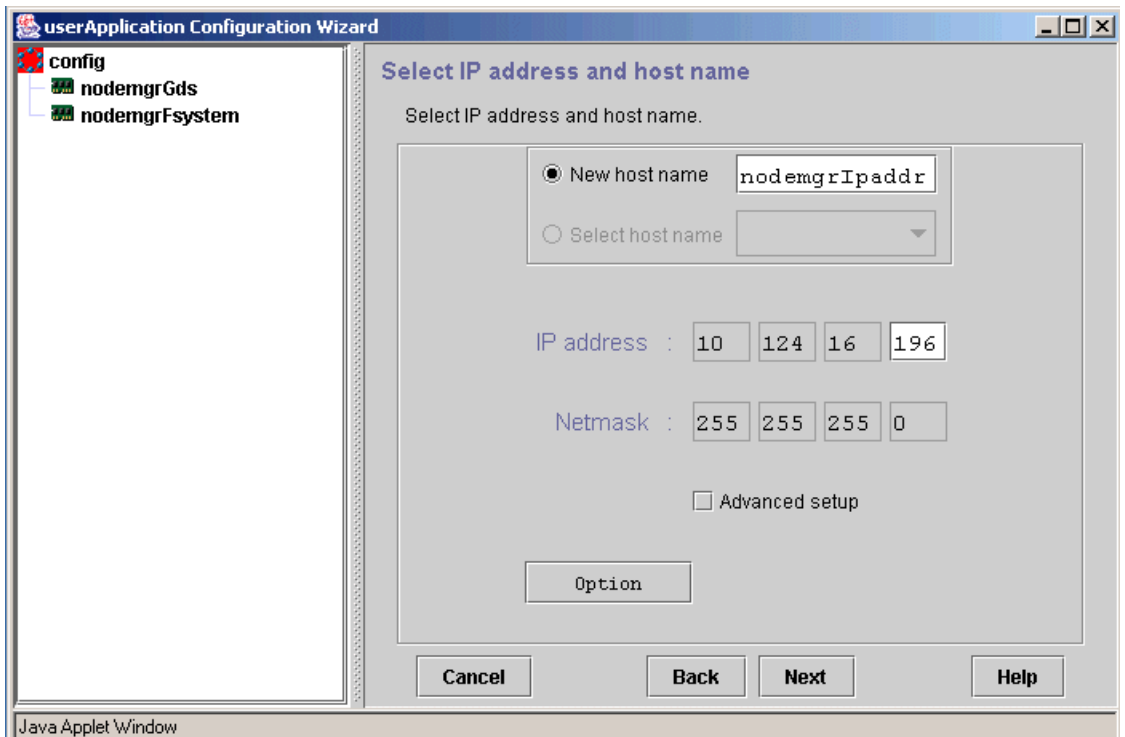
7. Confirm the information registered for the takeover network.

   For details on the resource attributes, see "Creating Takeover Network Resources" in the "PRIMECLUSTER Installation and Administration Guide".
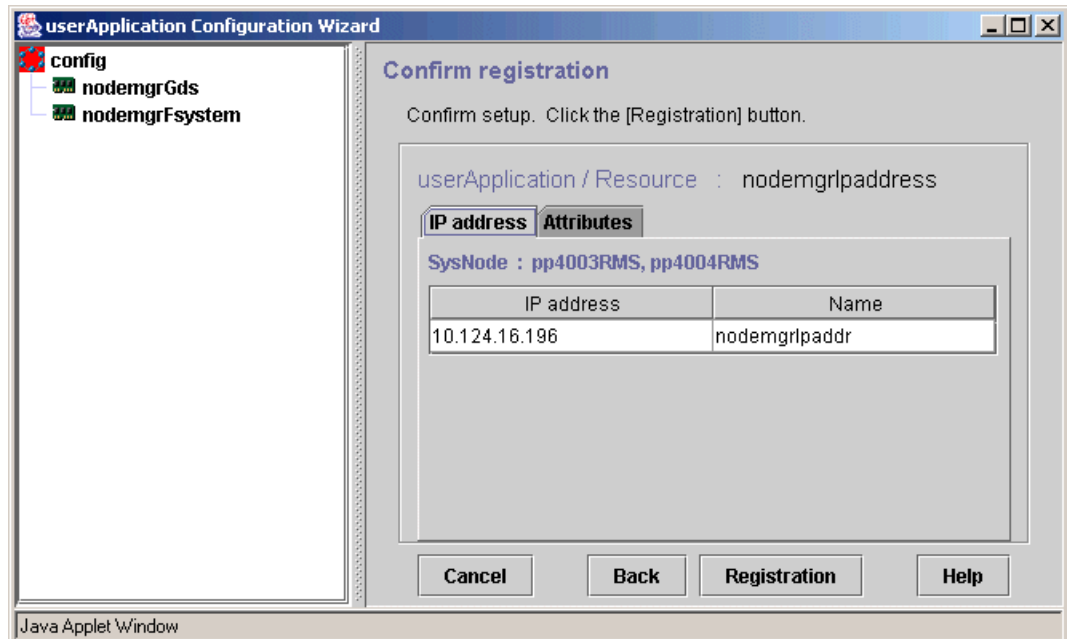
A.1.4   Creating procedure resources

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".
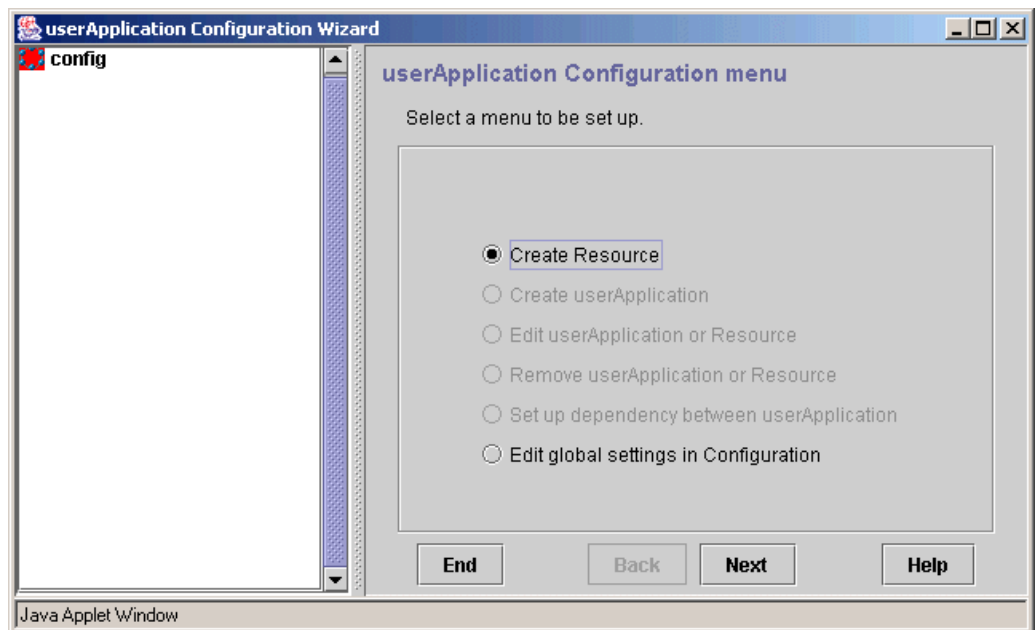
2. Select "Procedure" for the resource type.

   "nodemgrProcedure" is specified for the resource name in the following example.
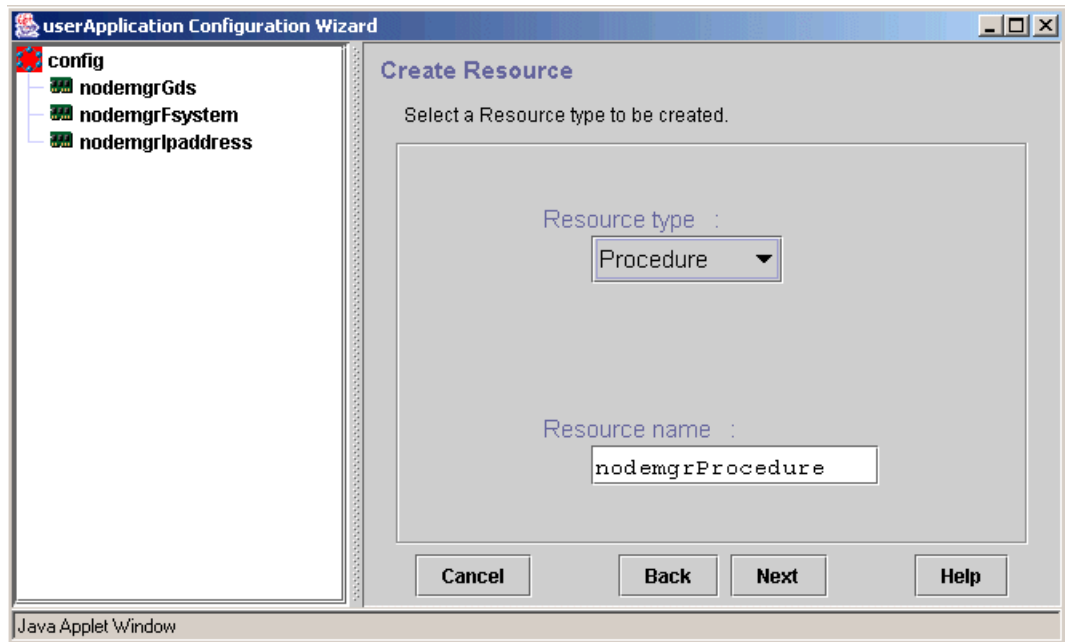
3. Select SysNode to set the resource in it.
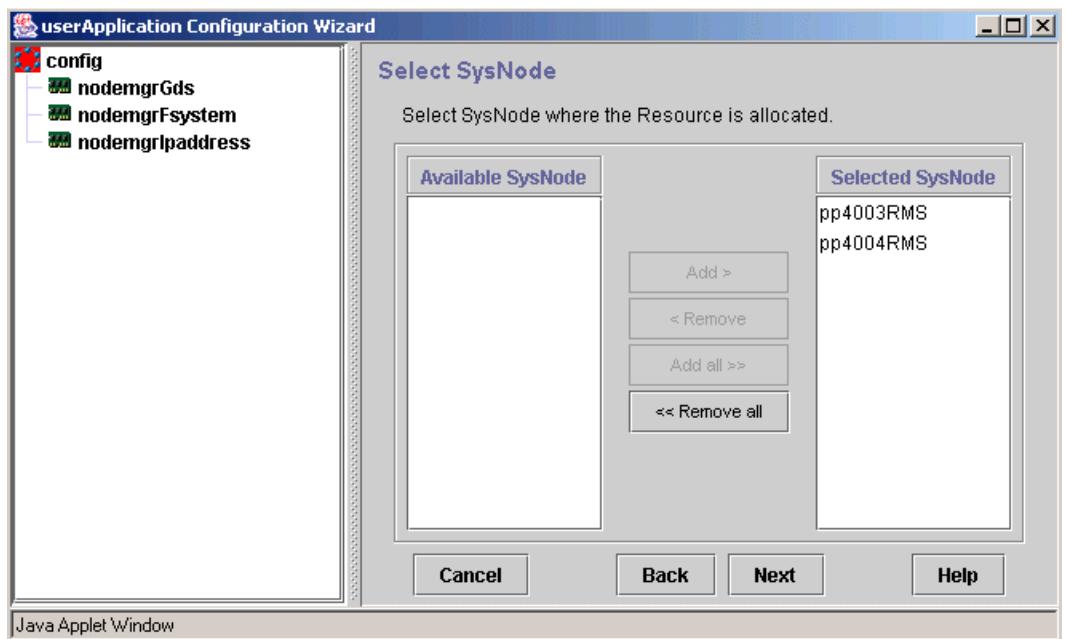
4. Select the class of the procedure to be created.

    Register an AdvancedCopy Manager procedure resource in the Application class
    (procedure class = Application).
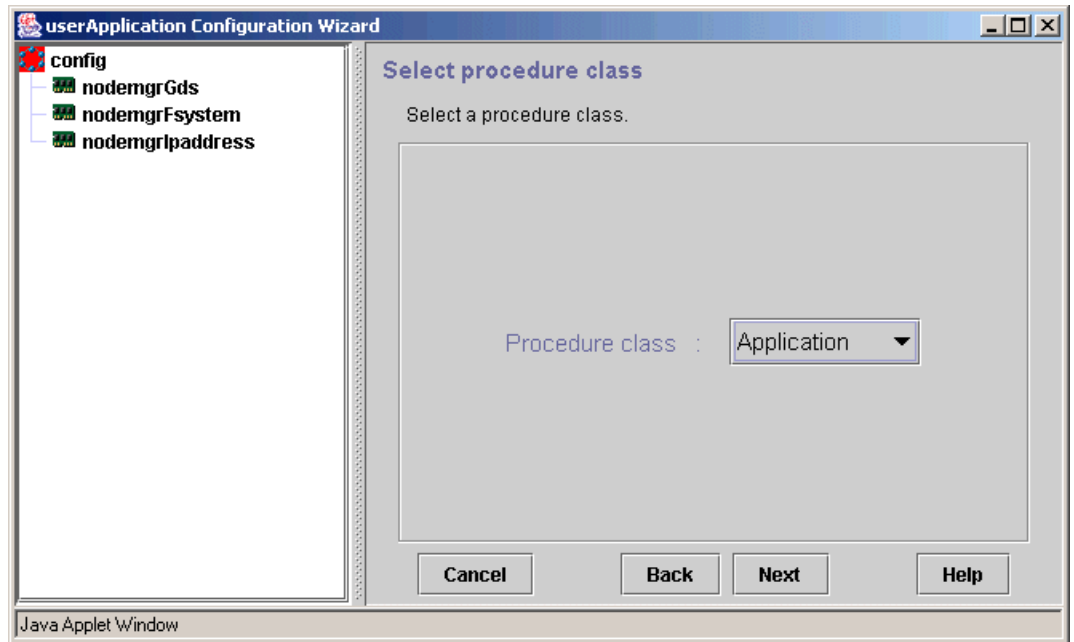
5. Select the procedure resource to be created.

   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.
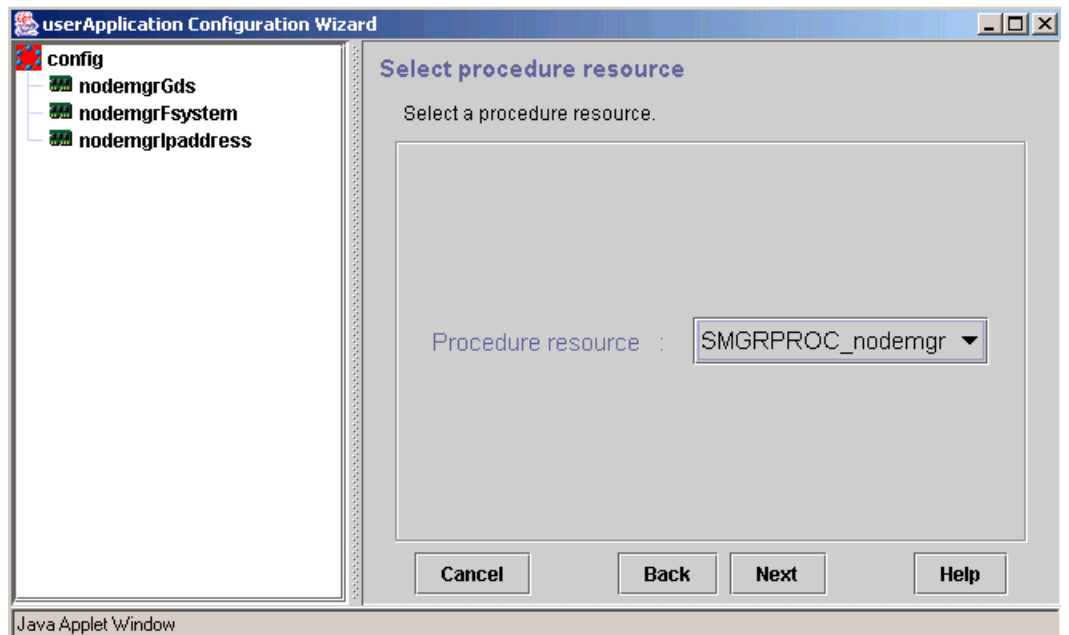
6. Confirm the information registered for the procedure resource.

   For details on the resource attributes, see "Creating Procedure Resources" in the
   "PRIMECLUSTER Installation and Administration Guide".
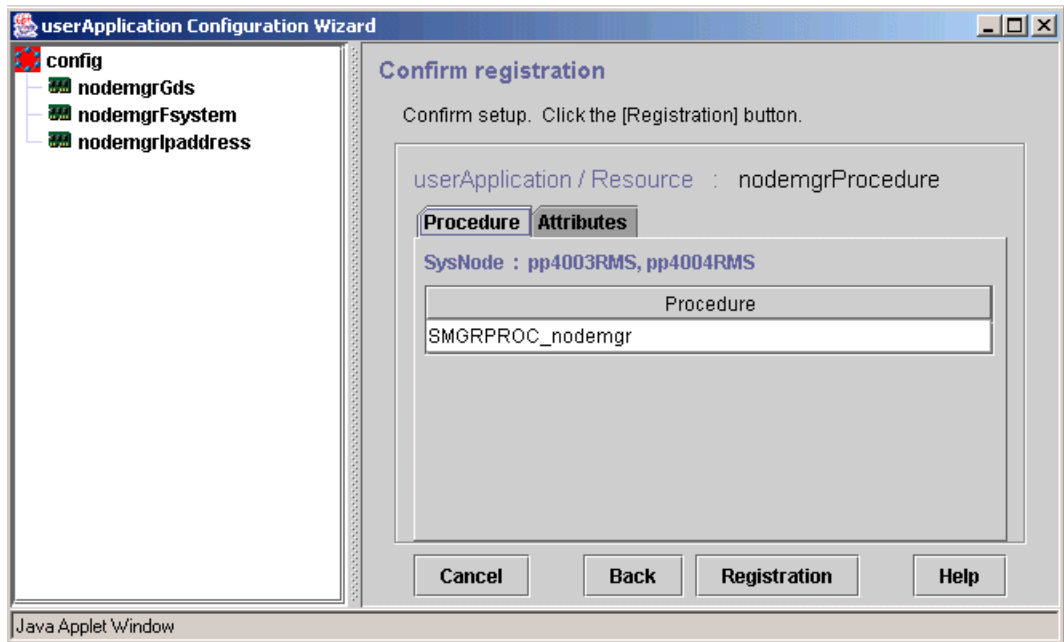
A.1.5   Creating a Cmdline resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".
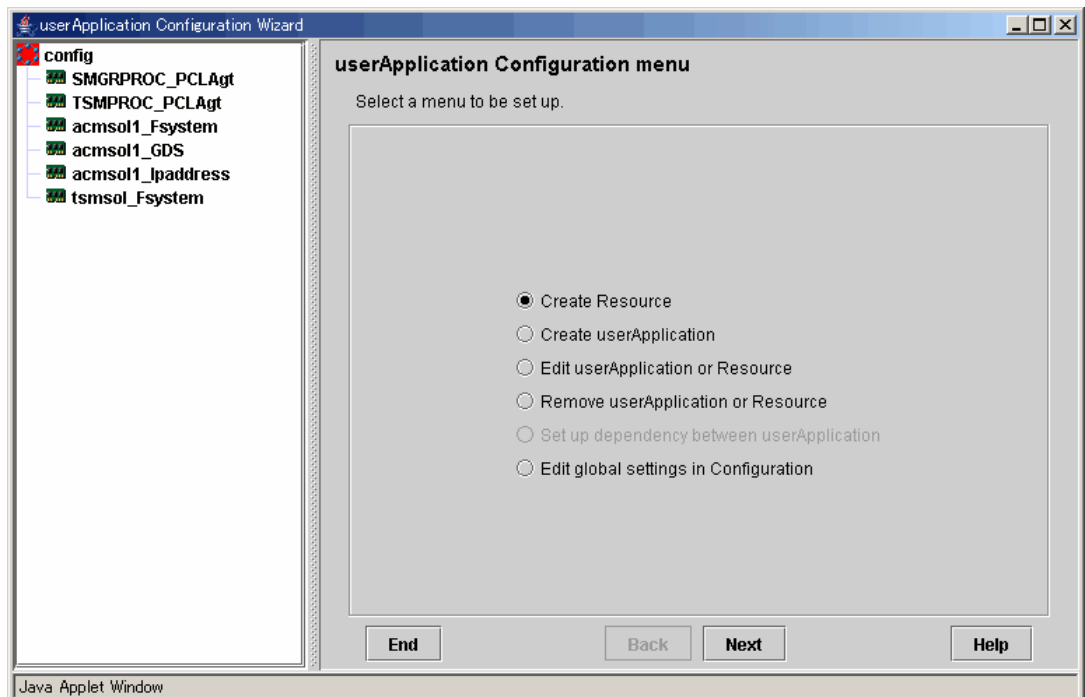
2. Select "Cmdline" for the resource type

   "Cmdline_tbo" is specified as the resource name in the following example
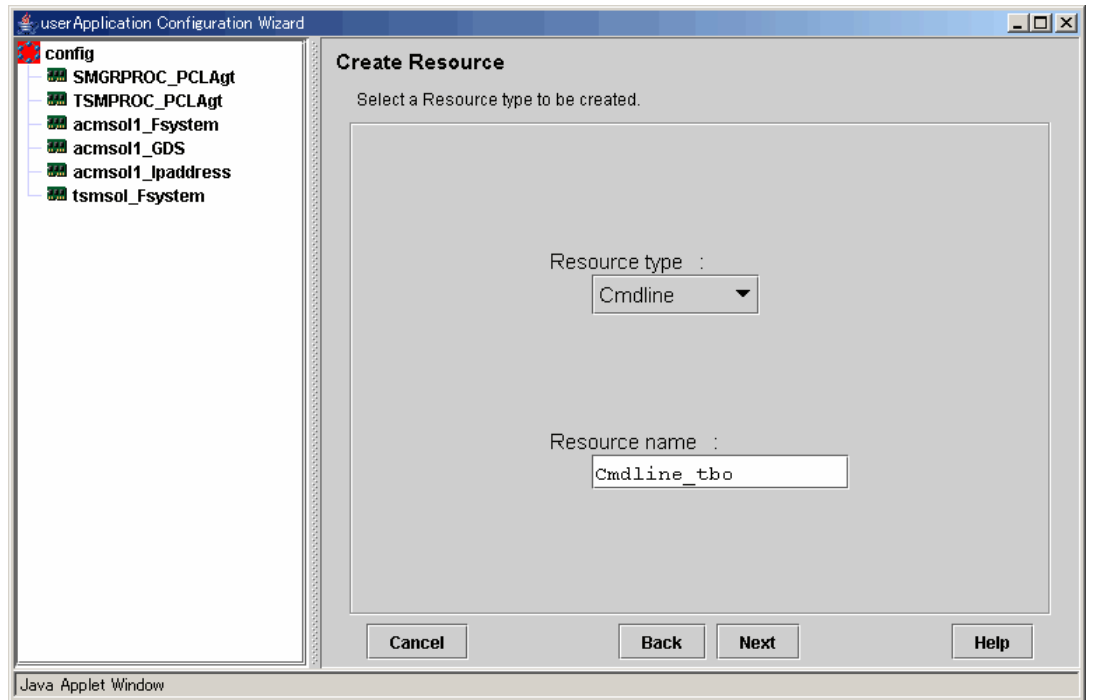
3. Select SysNode to set the resource in it
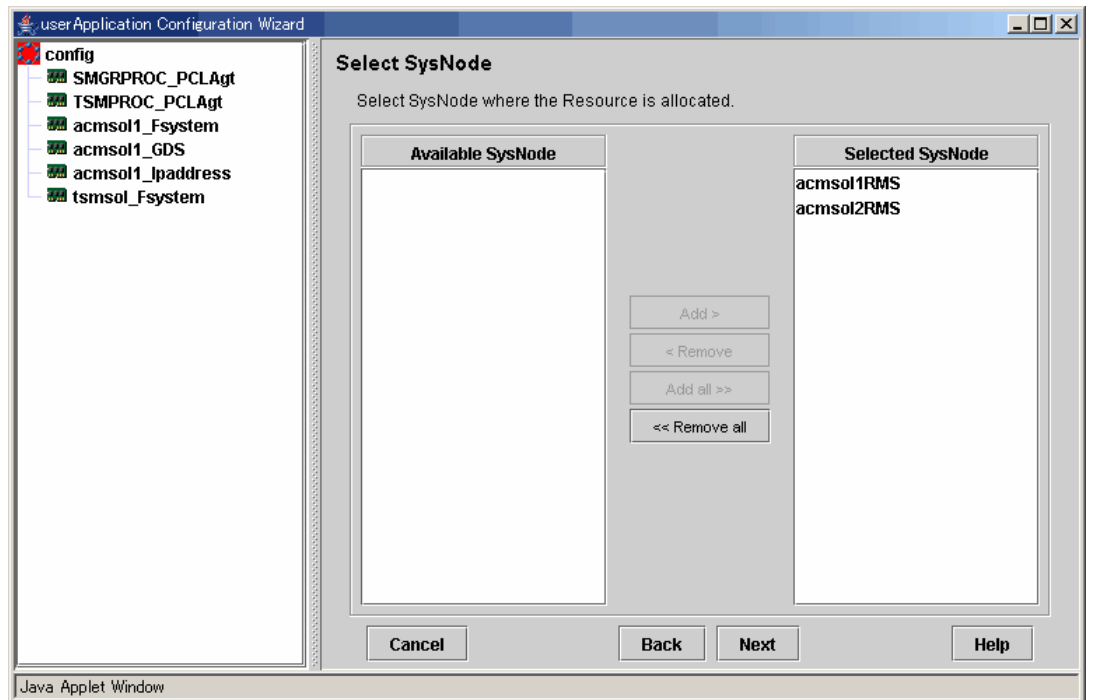
4. Select the method for creating the Cmdline

   Select "Path input" for the creation method
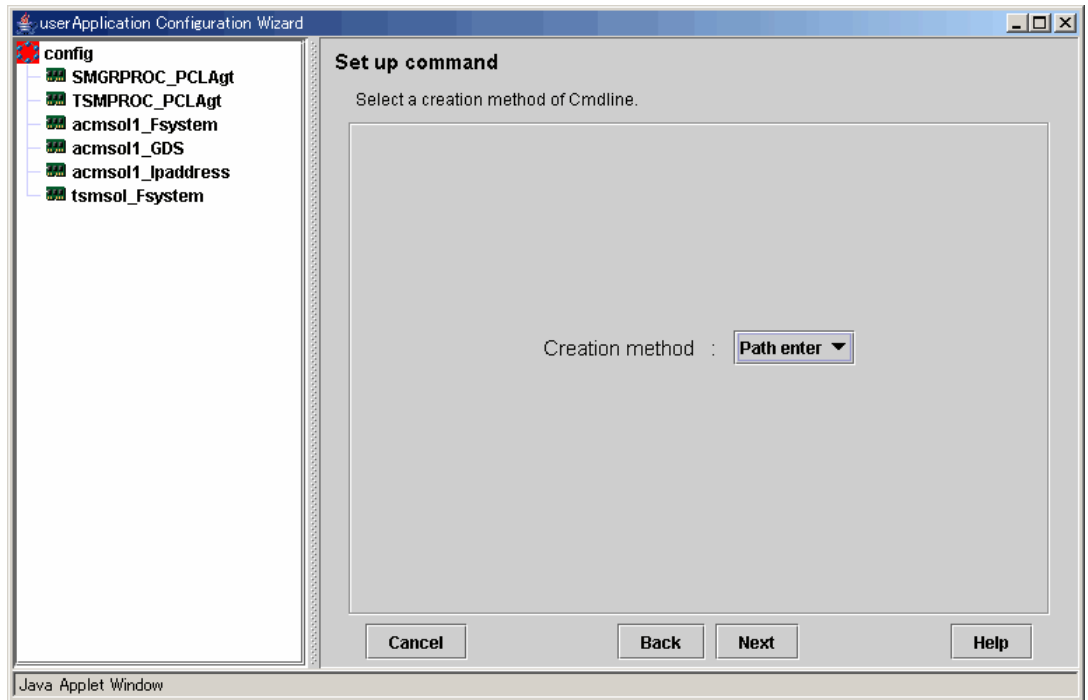
5. Enter the command paths that are used by each script

   Enter the command paths that are used by the "Start", "Stop", and "Check" scripts
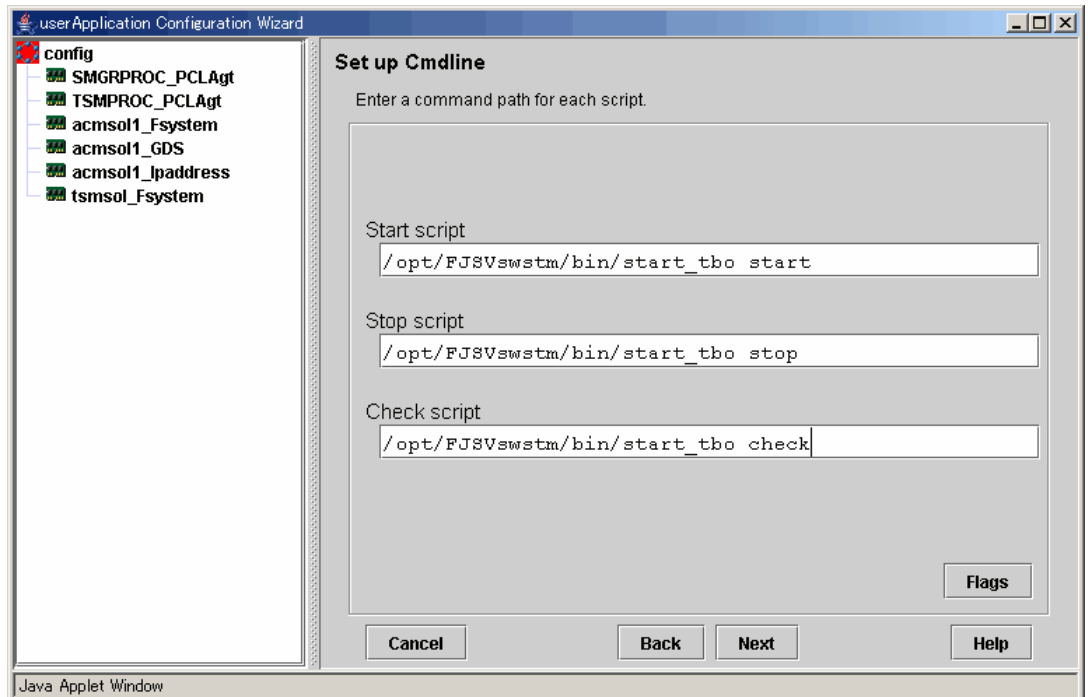
6. Set the script attributes

   In the following example, AUTORECOVER is set to "No"
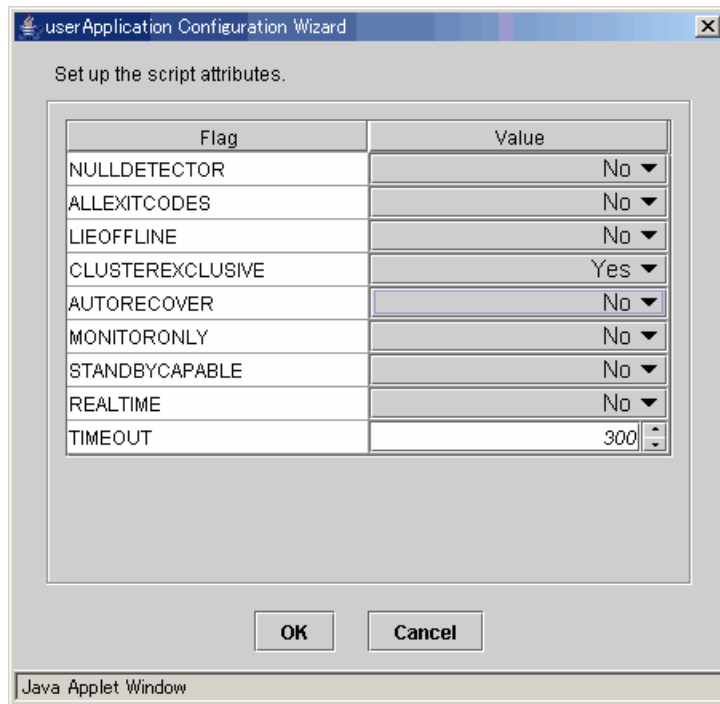
7. Confirm the information registered for the Cmdline resource

   For details on resource attributes, refer to ″Creating Cmdline Resources″ in the
    "PRIMECLUSTER Installation and Administration Guide".
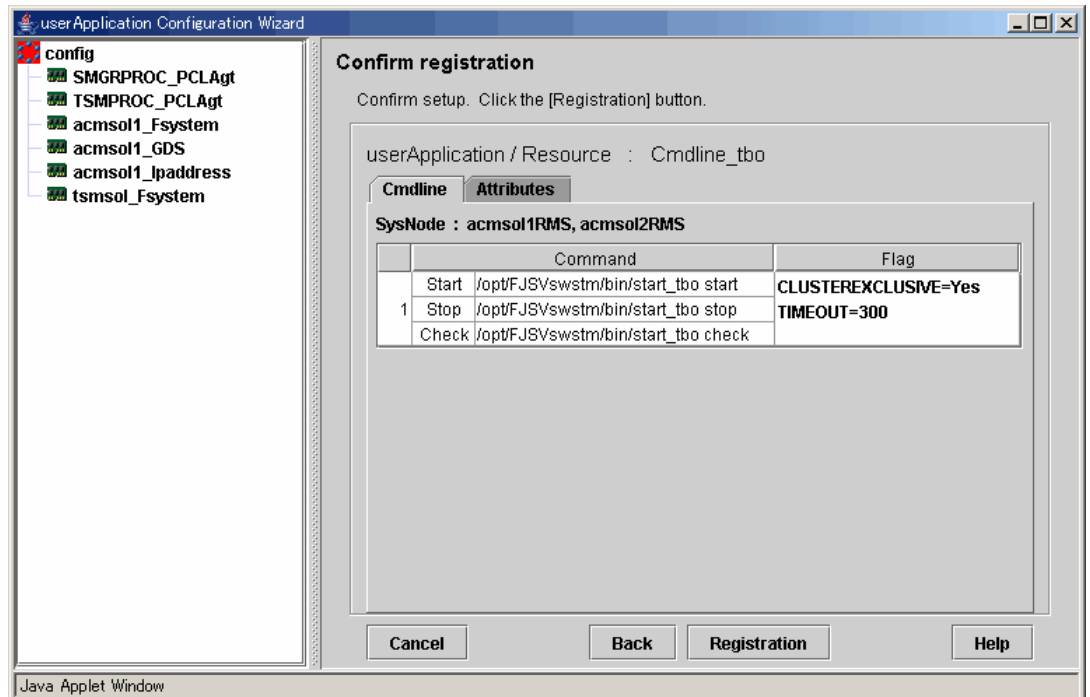
A.2   Creating a userApplication

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".
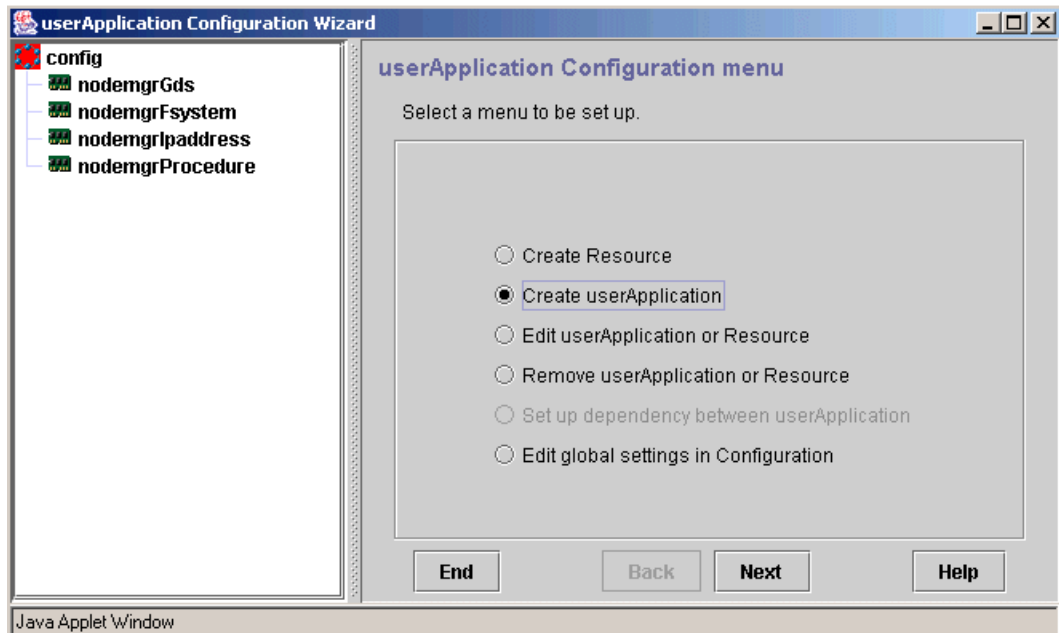
2. Specify a userApplication name and the operation type.

   "manager_service" is specified for the userApplication name in the following example.
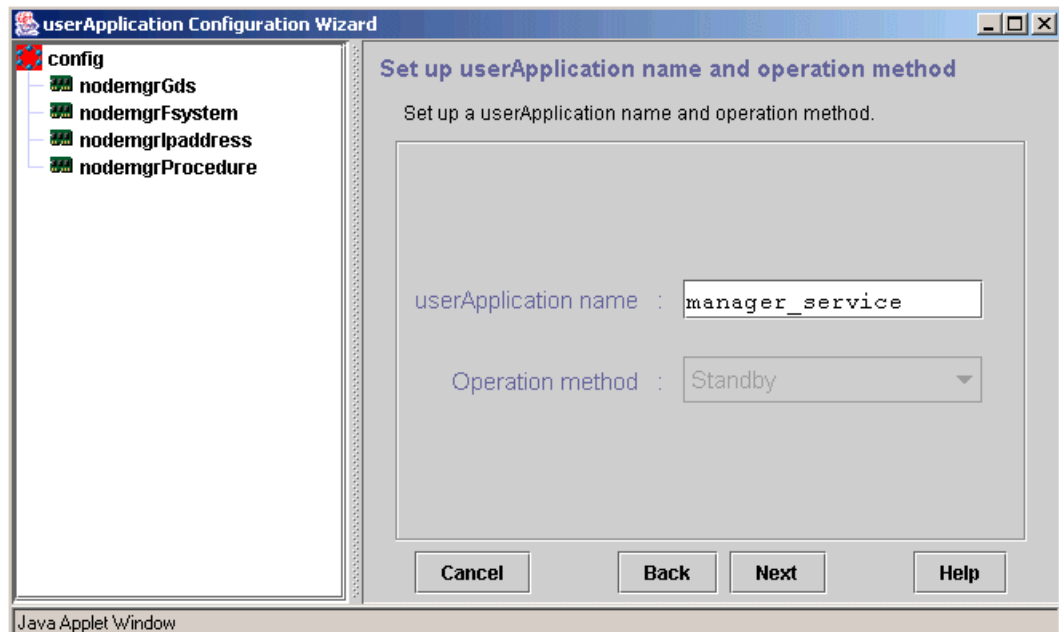
3. Select SysNode to set the cluster application in it.
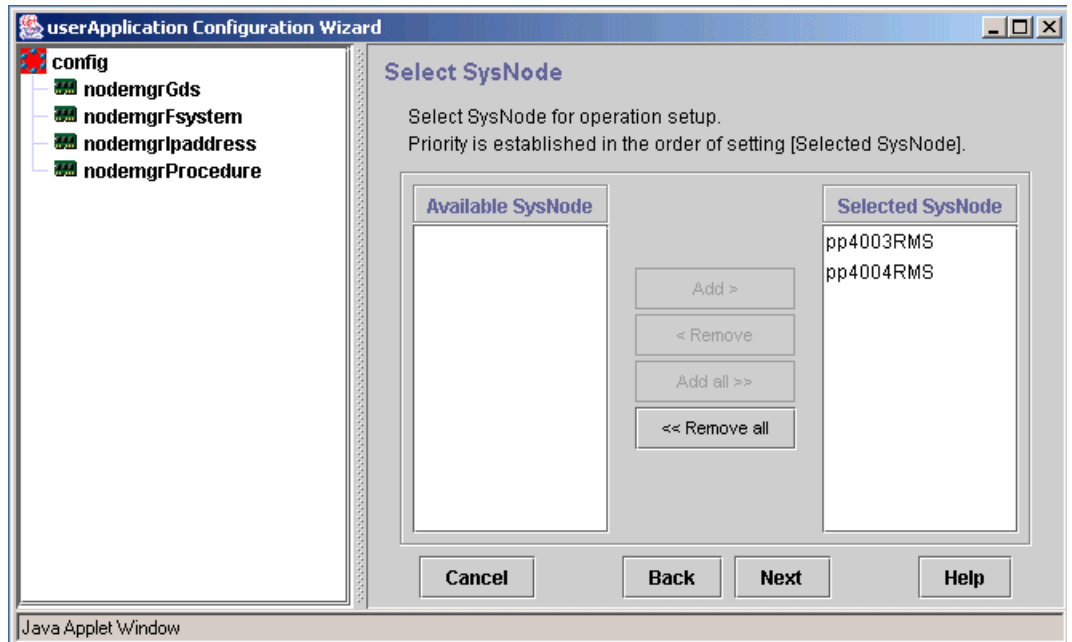
4. Specify the userApplication attributes.

    Specify the userApplication attributes according to the operation type.

    For details on userApplication attributes, see "Creating Standby Cluster
    Applications" in the "PRIMECLUSTER Installation and Administration Guide".
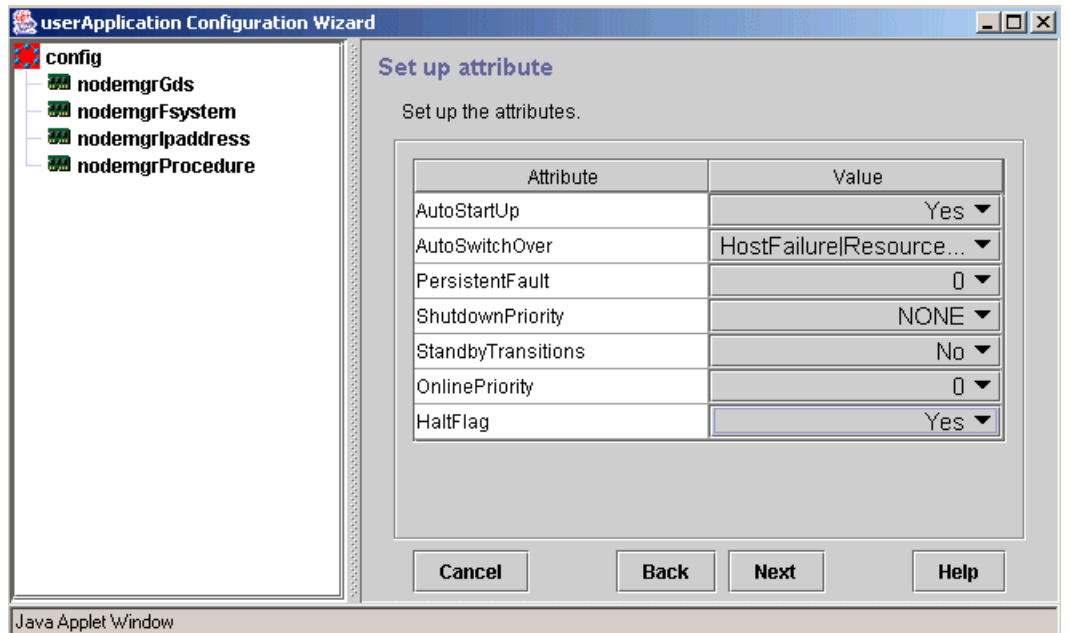
5. Specify the resources used by the userApplication.

    Register resources created for AdvancedCopy Manager.

    The resources created in "Creating Resources" are specified in the following example.
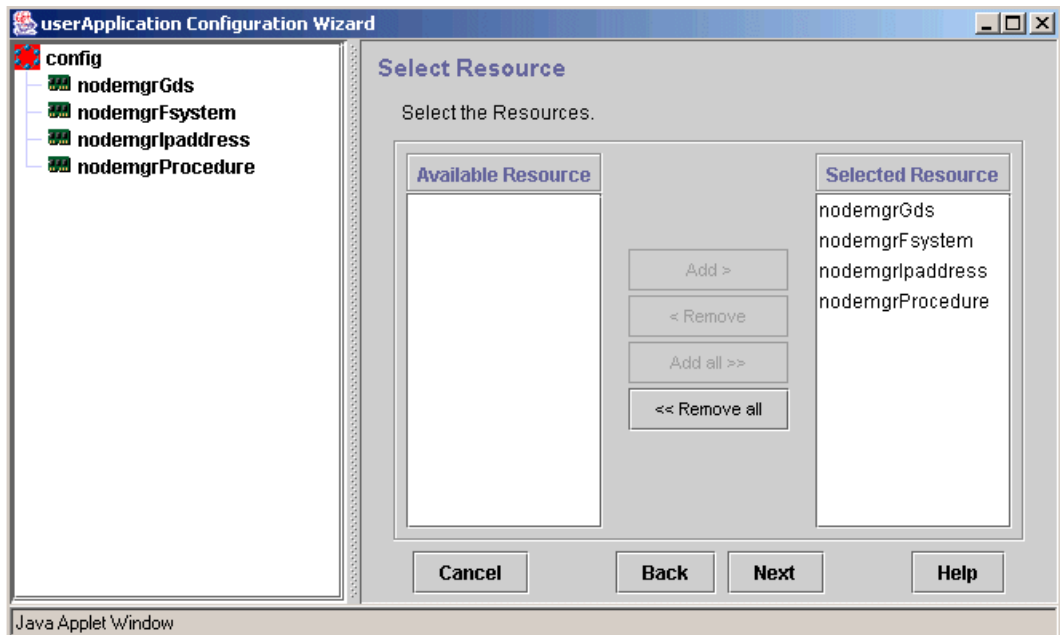
6. Confirm the information registered for the userApplication.

   For details on the attributes, see "Creating Standby Cluster Applications" in the "PRIMECLUSTER Installation and Administration Guide".
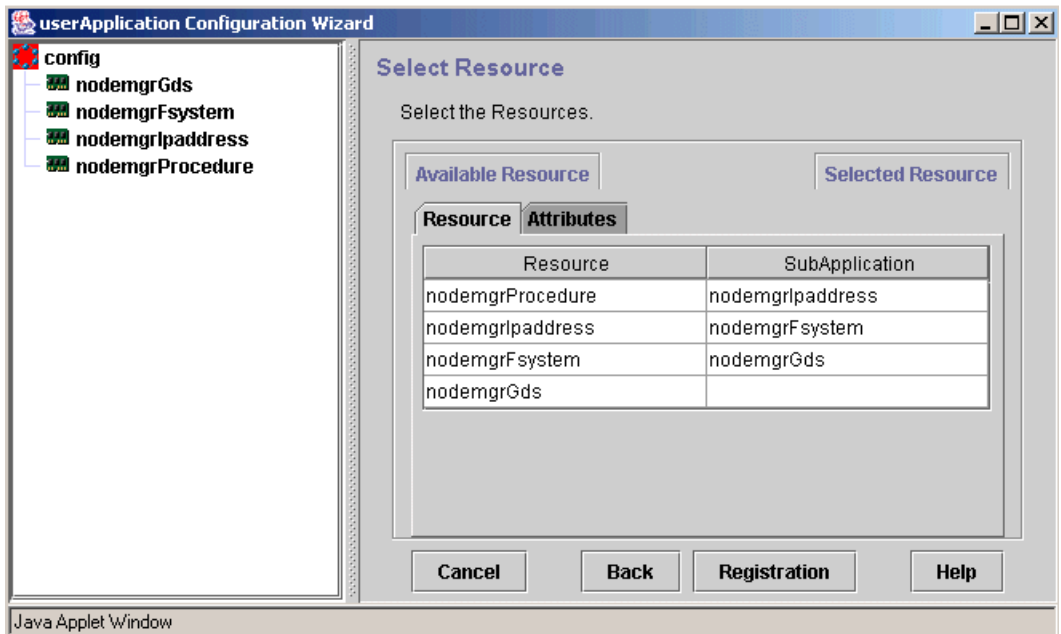
Appendix B Creating Resources and userApplications with Linux-version PRIMECLUSTER

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

For details, see "Building Cluster Applications" in the "PRIMECLUSTER Installation and Administration Guide".

B.1 Starting the RMS Wizard

Execute the hvw command to start the RMS Wizard, and create resources and userApplications.

Example of starting the RMS Wizard with "acmeng" specified as the configuration file name

```
# /opt/SMAW/SMAWRrms/bin/hvw -n acmeng
```

The "Main configuration menu" as shown below is displayed.

```
f250-1: Main configuration menu, current configuration: acmeng
No RMS active in the cluster
1) HELP                          10) Configuration-Remove
2) QUIT                          11) Configuration-Freeze
3) Application-Create            12) Configuration-Thaw
4) Application-Edit              13) Configuration-Edit-Global-Settings
5) Application-Remove            14) Configuration-Consistency-Report
6) Application-Clone             15) Configuration-ScriptExecution
7) Configuration-Generate        16) RMS-CreateMachine
8) Configuration-Activate        17) RMS-RemoveMachine
9) Configuration-Copy
Choose an action:
```

B.2 Creating Resources and userApplications

Create a userApplication and resources by following the procedure below.

1. Select "Application-Create" from the "Main configuration menu".

```
f250-1: Main configuration menu, current configuration: acmeng
No RMS active in the cluster
1) HELP                          10) Configuration-Remove
2) QUIT                          11) Configuration-Freeze
3) Application-Create            12) Configuration-Thaw
4) Application-Edit              13)
Configuration-Edit-Global-Settings
5) Application-Remove            14)
Configuration-Consistency-Report
6) Application-Clone             15) Configuration-ScriptExecution
7) Configuration-Generate        16) RMS-CreateMachine
```

```
8) Configuration-Activate              17) RMS-RemoveMachine
9) Configuration-Copy
Choose an action: 3
```

2. Select "CRM" from the "Application type selection menu".

```
Creation: Application type selection menu:
1) HELP                 10) Crm              19) Rawdisk
2) QUIT                 11) DEMO             20) SYMFOWARE
3) RETURN               12) Demo             21) Symfoware
4) OPTIONS              13) Fsystem          22) SystemState2
5) Application          14) GENERIC          23) SystemState3
6) BasicApplication     15) Gds              24) foreign-code
7) CRM                  16) Gls              25) generic
8) Cmdline              17) Ipaddress
9) Controller           18) Lvm
Application Type: 7
```

The ["CRM" turnkey wizard] as shown below is displayed.

```
Settings of turnkey wizard "CRM"
1) HELP                    4) REMOVE+EXIT         7) Machines+Basics(-)
2) NO-SAVE+EXIT            5) ApplicationName=APP1
3) SAVE+EXIT               6) BeingControlled=no
Choose the setting to process:
```

3. Change the userApplication name.

Depending on the operation, change the userApplication name. If the userApplication
name is not changed, this operation is not required.
   a) Select "ApplicationName" in [turnkey wizard "CRM"].

```
Settings of turnkey wizard "CRM"
1) HELP                    4) REMOVE+EXIT         7)
Machines+Basics(-)
2) NO-SAVE+EXIT            5) ApplicationName=APP1
3) SAVE+EXIT               6) BeingControlled=no
Choose the setting to process: 5
```

   b) Select "FREECHOICE."

```
1) HELP
2) RETURN
3) FREECHOICE
4) APP1
Enter the name of this application: 3
```

   c) Enter the userApplication name.
      "agent_service" is used as the userApplication name in the following example.

```
1) HELP
```

```
2) RETURN
3) FREECHOICE
4) APP1
Enter the name of this application: 3
        >> agent_service
```

Press the Enter key. The [turnkey wizard "CRM"] window is displayed again.

```
Settings of turnkey wizard "CRM"
1) HELP                          5) ApplicationName=AGENT_SERVICE
2) NO-SAVE+EXIT                   6) BeingControlled=no
3) SAVE+EXIT                      7) Machines+Basics(-)
4) REMOVE+EXIT
Choose the setting to process:
```

4. Specify the userApplication configuration. Be sure to define the userApplication for standby operation.

   a) Select "Machines+Basics" in the [turnkey wizard "CRM"].

```
Settings of turnkey wizard "CRM"
1) HELP                          5) ApplicationName=AGENT_SERVICE
2) NO-SAVE+EXIT                   6) BeingControlled=no
3) SAVE+EXIT                      7) Machines+Basics(-)
4) REMOVE+EXIT
Choose the setting to process: 7
```

   b) Select "AdditionalMachine," and specify the secondary node.

```
Machines+Basics (agent_service:consistent)
1) HELP                  10) (PostOnlineScript=)    19) (OnlinePriority=)
2) -                     11) (PreOfflineScript=)    20) (StandbyTransitions=)
3) SAVE+EXIT             12) (OfflineDoneScript=)   21) (LicenseToKill=no)
4) REMOVE+EXIT           13) (FaultScript=)         22) (AutoBreak=yes)
5) AdditionalMachine     14) (AutoStartUp=no)       23) (HaltFlag=no)
6) AdditionalConsole     15) (AutoSwitchOver=No)    24) (PartialCluster=0)
7) Machines[0]=f250-1RMS 16) (PreserveState=no)     25) (ScriptTimeout=)
8) (PreCheckScript=)     17) (PersistentFault=0)
9) (PreOnlineScript=)    18) (ShutdownPriority=)
Choose the setting to process: 5
```

   Select the secondary node. f250-2RMS is selected for the secondary node in the following example.

```
1) HELP
2) RETURN
3) f250-1RMS
4) f250-2RMS
Choose a machine for this application: 4
```

   c) Specify attributes.
      Depending on the operation mode, also specify the userApplication attributes.
      For information on userApplication attributes, see "Creating Standby Cluster

Applications" in the "PRIMECLUSTER Installation and Administration Guide".

The "AutoSwitchOver" attribute is set to "automatically cause a failover in the event of node failure, resource failure, or node termination" in the following example.

```
Machines+Basics (agent_service:consistent)
1) HELP                    10) (PreOnlineScript=)      19) (ShutdownPriority=)
2) -                       11) (PostOnlineScript=)     20) (OnlinePriority=)
3) SAVE+EXIT               12) (PreOfflineScript=)     21) (StandbyTransitions=)
4) REMOVE+EXIT             13) (OfflineDoneScript=)    22) (LicenseToKill=no)
5) AdditionalMachine       14) (FaultScript=)          23) (AutoBreak=yes)
6) AdditionalConsole       15) (AutoStartUp=no)        24) (HaltFlag=no)
7) Machines[0]=f250-1RMS   16) (AutoSwitchOver=No)     25) (PartialCluster=0)
8) Machines[1]=f250-2RMS   17) (PreserveState=no)      26) (ScriptTimeout=)
9) (PreCheckScript=)       18) (PersistentFault=0)
Choose the setting to process: 16
```

Select HOSTFAILURE(H).

```
Set flags for AutoSwitchOver:  Currently set: NO (N)
1) HELP                 4) DEFAULT              7) RESOURCEFAILURE(R)
2) -                    5) NO(N)                8) SHUTDOWN(S)
3) SAVE+RETURN          6) HOSTFAILURE(H)
Choose one of the flags: 6
```

Select RESOURCEFAILURE(R).

```
Set flags for AutoSwitchOver:  Currently set: HOSTFAILURE (H)
1) HELP                 4) DEFAULT              7) RESOURCEFAILURE(R)
2) -                    5) NO(N)                8) SHUTDOWN(S)
3) SAVE+RETURN          6) HOSTFAILURE(H)
Choose one of the flags: 7
```

Select SHUTDOWN(S).

```
Set flags for AutoSwitchOver:  Currently set: HOSTFAILURE,RESOURCEFAILURE (HR)
1) HELP                 4) DEFAULT              7) RESOURCEFAILURE(R)
2) -                    5) NO(N)                8) SHUTDOWN(S)
3) SAVE+RETURN          6) HOSTFAILURE(H)
Choose one of the flags: 8
```

Select SAVE+RETURN.

```
Set flags for AutoSwitchOver:  Currently set:
HOSTFAILURE, RESOURCEFAILURE, SHUTDO
WN (HRS)
1) HELP                 4) DEFAULT              7)
RESOURCEFAILURE(R)
2) -                    5) NO(N)                8) SHUTDOWN(S)
3) SAVE+RETURN          6) HOSTFAILURE(H)
Choose one of the flags: 3
```

d) After specifying all of the attributes completely, select SAVE+EXIT.

```
Machines+Basics (agent_service:consistent)
1) HELP
2) -
3) SAVE+EXIT
4) REMOVE+EXIT
5) AdditionalMachine
6) AdditionalConsole
7) Machines[0]=f250-1RMS
8) Machines[1]=f250-2RMS
9) (PreCheckScript=)
10) (PreOnlineScript=)
11) (PostOnlineScript=)
12) (PreOfflineScript=)
13) (OfflineDoneScript=)
14) (FaultScript=)
15) (AutoStartUp=yes)
16) (AutoSwitchOver=HostFailure|ResourceFailure|ShutDown)
17) (PreserveState=no)
18) (PersistentFault=0)
19) (ShutdownPriority=)
20) (OnlinePriority=)
21) (StandbyTransitions=)
22) (LicenseToKill=no)
23) (AutoBreak=yes)
24) (HaltFlag=yes)
25) (PartialCluster=0)
26) (ScriptTimeout=)
Choose the setting to process: 3
```

Press the Enter key to return to the [turnkey wizard "CRM"] window.

```
Settings of turnkey wizard "CRM"
1) HELP                              9) CRM(-)
2) -                                10) LocalFileSystems(-)
3) SAVE+EXIT                        11) RemoteFileSystems(-)
4) -                                12) IpAddresses(-)
5) ApplicationName=AGENT_SERVICE   13) RawDisks(-)
6) Machines+Basics(agent_service)  14) LVM-VolumeManagement(-)
7) CommandLines(-)                 15) Gds:Global-Disk-Services(-)
8) Controllers(-)                  16) Gls:Global-Link-Services(-)
Choose the setting to process:
```

5. Define the Fsystem resources.

    Before the Fsystem resources can be defined, the mount point must be specified in
    /etc/fstab on all nodes making up the userApplication. For details on how to define
    the resources, refer to "Setting Up Fsystem Resources" in the "PRIMECLUSTER
    Installation and Administration Guide".

    Do not specify a file system because AdvancedCopy Manager data exists.
    a) Select "LocalFileSystems" in the [turnkey wizard "CRM"].

    ```
    Settings of turnkey wizard "CRM"
    ```

```
1) HELP                             9) CRM(-)
2) -                               10) LocalFileSystems(-)
3) SAVE+EXIT                       11) RemoteFileSystems(-)
4) -                               12) IpAddresses(-)
5) ApplicationName=AGENT_SERVICE   13) RawDisks(-)
6) Machines+Basics(agent_service)  14) LVM-VolumeManagement(-)
7) CommandLines(-)                 15) Gds:Global-Disk-Services(-)
8) Controllers(-)                  16) Gls:Global-Link-Services(-)
Choose the setting to process: 10
```

b) Select AdditionalMountPoint.

```
File systems (Lfs_AGENT_SERVICE:not yet consistent)
1) HELP                  4) REMOVE+EXIT           7) (Timeout=180)
2) -                     5) AdditionalMountPoint
3) SAVE+EXIT             6) (Filter=)
Choose the setting to process: 5
```

    Register the mount point of the shared disk for shared data.

    For a Storage Management Server transaction, also register the mount point of the shared disk for the repository.

    To register multiple mount points, repeat steps b to d as many times as the number of mount points to be registered.

c) Select the mount point to be registered.
    /acm_mnt/acmagt is set in the following example.

```
1) HELP                             5) /acm_mnt/acmagt
2) RETURN                           6) /acm_mnt/acmmgr
3) FREECHOICE
4) ALL
Choose a mount point: 5
```

d) Select SAVE+RETURN.

```
Set flags for mount point: /acm_mnt/acmagt Currently set: LOCAL, AUTORECOVER
(LA)
1) HELP                  4) DEFAULT               7) SHARE(S)
2) -                     5) SYNC(Y)               8) MONITORONLY(M)
3) SAVE+RETURN           6) NOT:AUTORECOVER(A)
Choose one of the flags: 3
```

e) After registering all of the mount points, select SAVE+EXIT.

```
File systems (Lfs_AGENT_SERVICE:consistent)
1) HELP                             5) AdditionalMountPoint
2) -                                6) MountPoints[0]=LA:/acm_mnt/acmagt
3) SAVE+EXIT                        7) (Filter=)
4) REMOVE+EXIT                      8) (Timeout=180)
Choose the setting to process: 3
```

Press the Enter key to return to the [turnkey wizard "CRM"] window.

```
Settings of turnkey wizard "CRM"
1) HELP                                9) CRM(-)
2) -                                   10)
LocalFileSystems(Lfs_AGENT_SERVICE)
3) SAVE+EXIT                           11) RemoteFileSystems(-)
4) -                                   12) IpAddresses(-)
5) ApplicationName=AGENT_SERVICE       13) RawDisks(-)
6) Machines+Basics(agent_service)      14) LVM-VolumeManagement(-)
7) CommandLines(-)                     15) Gds:Global-Disk-Services(-)
8) Controllers(-)                      16) Gls:Global-Link-Services(-)
Choose the setting to process:
```

6. Define the Gds resources.

    a) After registering all of the mount points, select SAVE+EXIT.

    Select "Gds:Global-Disk-Services" in the [turnkey wizard "CRM"] window.

```
Settings of turnkey wizard "CRM"
1) HELP                                9) CRM(-)
2) -                                   10)
LocalFileSystems(Lfs_AGENT_SERVICE)
3) SAVE+EXIT                           11) RemoteFileSystems(-)
4) -                                   12) IpAddresses(-)
5) ApplicationName=AGENT_SERVICE       13) RawDisks(-)
6) Machines+Basics(agent_service)      14) LVM-VolumeManagement(-)
7) CommandLines(-)                     15) Gds:Global-Disk-Services(-)
8) Controllers(-)                      16) Gls:Global-Link-Services(-)
Choose the setting to process: 15
```

    b) Select AdditionalDiskClass.

```
Volume management (Gds_AGENT_SERVICE:not yet consistent)
1) HELP                 4) REMOVE+EXIT        7) (StandbySupport=no)
2) -                    5) AdditionalDiskClass 8) (AutoRecover=no)
3) SAVE+EXIT            6) (ClassNameFilter=)  9) (Timeout=1800)
Choose the setting to process: 5
```

Register the GDS class to which the shared disk for shared data belongs.

For a Storage Management Server transaction, also register the GDS class to which the shared disk for the repository belongs.

To register multiple GDS classes, repeat steps b to d as many times as the number of GDS classes to be registered.

    c) Select the class to be registered.

    ACM-E-Agt is set in the following example.

```
1) HELP                                6) ACM-E-Mgr
2) RETURN                              7) ACM
3) FREECHOICE                          8) ACM-E-Agt
4) CTCLS01
5) CTCLS02
```

```
Choose the disk class: 8
```

d) Select SAVE+RETURN.

```
Currently set:
1) HELP                                5) MONITORONLY(M)
2) -
3) SAVE+RETURN
4) DEFAULT
Choose additionally one of the flags: 3
```

e) After registering all of the GDS classes, select SAVE+EXIT.

```
Volume management (Gds_AGENT_SERVICE:consistent)
1) HELP                          6) DiskClasses[0]=ACM-E-Agt
2) -                             7) (ClassNameFilter=)
3) SAVE+EXIT                     8) (StandbySupport=no)
4) REMOVE+EXIT                   9) (AutoRecover=no)
5) AdditionalDiskClass          10) (Timeout=1800)
Choose the setting to process: 3
```

Press the Enter key to return to the [turnkey wizard "CRM"] window.

```
Settings of turnkey wizard "CRM"
1) HELP
2) -
3) SAVE+EXIT
4) -
5) ApplicationName=AGENT_SERVICE
6) Machines+Basics(agent_service)
7) CommandLines(-)
8) Controllers(-)
9) CRM(-)
10) LocalFileSystems(Lfs_AGENT_SERVICE)
11) RemoteFileSystems(-)
12) IpAddresses(-)
13) RawDisks(-)
14) LVM-VolumeManagement(-)
15) Gds:Global-Disk-Services(Gds_AGENT_SERVICE)
16) Gls:Global-Link-Services(-)
Choose the setting to process:
```

7. Define the Gls resources.
    a) Select "Gls:Global-Link-Services" in the turnkey wizard "CRM".

```
Settings of turnkey wizard "CRM"
1) HELP
2) -
3) SAVE+EXIT
4) -
5) ApplicationName=AGENT_SERVICE
6) Machines+Basics(agent_service)
```

```
7) CommandLines(-)
8) Controllers(-)
9) CRM(-)
10) LocalFileSystems(Lfs_AGENT_SERVICE)
11) RemoteFileSystems(-)
12) IpAddresses(-)
13) RawDisks(-)
14) LVM-VolumeManagement(-)
15) Gds:Global-Disk-Services(Gds_AGENT_SERVICE)
16) Gls:Global-Link-Services(-)
Choose the setting to process: 16
```

b) Select AdditionalTakeoverIpaddress.

```
Gls (Gls_AGENT_SERVICE:not yet consistent)
1) HELP                              4) REMOVE+EXIT
2) -                                 5) AdditionalTakeoverIpaddress
3) SAVE+EXIT                         6) (Timeout=60)
Choose the setting to process: 5
```

    Register the logical IP address prepared for AdvancedCopy Manager.
c) Select the logical IP address to be registered.
    10.10.10.11 is set in the following example.

```
1) HELP
2) RETURN
3) FREECHOICE
4) 10.10.10.10
5) 10.10.10.11
Choose a takeover IP address for Gls: 5
```

d) Select SAVE+RETURN.

```
Set a flag for takeover IP address: 10.10.10.11
Currently set:
1) HELP                              5) AUTORECOVER(A)
2) -
3) SAVE+RETURN
4) DEFAULT
Choose additionally one of the flags: 3
```

    The resource operation mode can be set in the window. Depending on the operation
    mode, set the resource operation mode.

    For information on the resource operation modes, refer to "Setting Up Gls
    Resources" in the "PRIMECLUSTER Installation and Administration Guide".
e) Select SAVE+EXIT.

```
Gls (Gls_AGENT_SERVICE:consistent)
1) HELP                              5) AdditionalTakeoverIpaddress
2) -                                 6) TakeoverIpaddress[0]=N,10.10.10.11
3) SAVE+EXIT                         7) (Timeout=60)
4) REMOVE+EXIT
```

```
Choose the setting to process: 3
```

The timeout value of the Gls resource can be set in the window. Depending on
the operation mode, specify the timeout value of the Gls resource.

For information on the timeout values of the Gls resources, refer to "Setting
Up Gls Resources" in the "PRIMECLUSTER Installation and Administration Guide".

Press the Enter key to return to the [turnkey wizard "CRM"] window.

```
Settings of turnkey wizard "CRM"
1) HELP
2) -
3) SAVE+EXIT
4) -
5) ApplicationName=AGENT_SERVICE
6) Machines+Basics(agent_service)
7) CommandLines(-)
8) Controllers(-)
9) CRM(-)
10) LocalFileSystems(Lfs_AGENT_SERVICE)
11) RemoteFileSystems(-)
12) IpAddresses(-)
13) RawDisks(-)
14) LVM-VolumeManagement(-)
15) Gds:Global-Disk-Services(Gds_AGENT_SERVICE)
16) Gls:Global-Link-Services(Gls_AGENT_SERVICE)
Choose the setting to process:
```

8. Define the procedure resources.
    a) Select "CRM" in the [turnkey wizard "CRM"].

```
Settings of turnkey wizard "CRM"
1) HELP
2) -
3) SAVE+EXIT
4) -
5) ApplicationName=AGENT_SERVICE
6) Machines+Basics(agent_service)
7) CommandLines(-)
8) Controllers(-)
9) CRM(-)
10) LocalFileSystems(Lfs_AGENT_SERVICE)
11) RemoteFileSystems(-)
12) IpAddresses(-)
13) RawDisks(-)
14) LVM-VolumeManagement(-)
15) Gds:Global-Disk-Services(Gds_AGENT_SERVICE)
16) Gls:Global-Link-Services(Gls_AGENT_SERVICE)
Choose the setting to process: 9
```

    b) Select "Application." Register the AdvancedCopy Manager procedure resource as

an Application.

```
Crm (CRM_AGENT_SERVICE:not yet consistent)
1) HELP                  4) REMOVE+EXIT              7)
BasicApplication(-)
2) -                     5) SystemState2(-)      8) Application(-)
3) SAVE+EXIT             6) SystemState3(-)
Choose the setting to process: 8
```

c) Select AdditionalResource.

```
Settings of "Application"
1) HELP                            4) REMOVE+RETURN
2) NO-SAVE+RETURN                  5) AdditionalResource
3) -
Choose the setting to process: 5
```

d) Select the AdvancedCopy Manager procedure resource. The name of the AdvancedCopy
   Manager procedure resource is SMGRPROC_logical-node-name.

   The procedure resource with the logical node name "nodeagt (SMGRPROC_nodeagt)"
   is set in the following example.

```
1) HELP
2) RETURN
3) -
4) SMGRPROC_nodeagt
Choose the resource: 4
```

e) Select SAVE+RETURN.

```
Settings of "Application"
1) HELP                            5) AdditionalResource
2) NO-SAVE+RETURN                  6) ResourceName[0]=SMGRPROC_nodeagt
3) SAVE+RETURN                     7) Flags[0]=OT1800
4) REMOVE+RETURN                   8) Priority[0]=65535
Choose the setting to process: 3
```

   Do not change the timeout value and resource class internal priority for the
   state transition procedure, which is the AdvancedCopy Manager procedure
   resource.

   For information on timeout values and the resource class internal priority for
   the state transition procedure, refer to "Setting Up Procedure Resources" in
   the "PRIMECLUSTER Installation and Administration Guide".

f) Select SAVE+EXIT.

```
Crm (CRM_AGENT_SERVICE:consistent)
1) HELP                            5) SystemState2(-)
2) -                               6) SystemState3(-)
3) SAVE+EXIT                       7) BasicApplication(-)
4) REMOVE+EXIT                     8) Application(Crm_Application)
```

```
Choose the setting to process: 3
```

Press the Enter key to return to the [turnkey wizard "CRM"] window.

```
Settings of turnkey wizard "CRM"
1) HELP
2) -
3) SAVE+EXIT
4) -
5) ApplicationName=AGENT_SERVICE
6) Machines+Basics(agent_service)
7) CommandLines(-)
8) Controllers(-)
9) CRM(CRM_AGENT_SERVICE)
10) LocalFileSystems(Lfs_AGENT_SERVICE)
11) RemoteFileSystems(-)
12) IpAddresses(-)
13) RawDisks(-)
14) LVM-VolumeManagement(-)
15) Gds:Global-Disk-Services(Gds_AGENT_SERVICE)
16) Gls:Global-Link-Services(Gls_AGENT_SERVICE)
Choose the setting to process:
```

9. After registering all of the resources, select SAVE+EXIT.

```
Settings of turnkey wizard "CRM"
1) HELP
2) -
3) SAVE+EXIT
4) -
5) ApplicationName=AGENT_SERVICE
6) Machines+Basics(agent_service)
7) CommandLines(-)
8) Controllers(-)
9) CRM(CRM_AGENT_SERVICE)
10) LocalFileSystems(Lfs_AGENT_SERVICE)
11) RemoteFileSystems(-)
12) IpAddresses(-)
13) RawDisks(-)
14) LVM-VolumeManagement(-)
15) Gds:Global-Disk-Services(Gds_AGENT_SERVICE)
16) Gls:Global-Link-Services(Gls_AGENT_SERVICE)
Choose the setting to process: 3
```

Press the Enter key to return to the [Main configuration menu] window.

```
f250-1: Main configuration menu, current configuration: acm
No RMS active in the cluster
1) HELP                            10) Configuration-Remove
2) QUIT                            11) Configuration-Freeze
3) Application-Create              12) Configuration-Thaw
4) Application-Edit                13)
Configuration-Edit-Global-Settings
5) Application-Remove              14)
```

```
Configuration-Consistency-Report
6) Application-Clone                15) Configuration-ScriptExecution
7) Configuration-Generate           16) RMS-CreateMachine
8) Configuration-Activate           17) RMS-RemoveMachine
9) Configuration-Copy
Choose an action:
```

10. Select "Configuration-Generate" from the "Main RMS Management menu".

```
f250-1: Main configuration menu, current configuration: acm
No RMS active in the cluster
1) HELP                             10) Configuration-Remove
2) QUIT                             11) Configuration-Freeze
3) Application-Create               12) Configuration-Thaw
4) Application-Edit                 13)
Configuration-Edit-Global-Settings
5) Application-Remove               14)
Configuration-Consistency-Report
6) Application-Clone                15) Configuration-ScriptExecution
7) Configuration-Generate           16) RMS-CreateMachine
8) Configuration-Activate           17) RMS-RemoveMachine
9) Configuration-Copy
Choose an action: 7
```

11. Select "Configuration Active" from the "Main RMS Management menu".

```
f250-1: Main configuration menu, current configuration: acm
No RMS active in the cluster
1) HELP                             10) Configuration-Remove
2) QUIT                             11) Configuration-Freeze
3) Application-Create               12) Configuration-Thaw
4) Application-Edit                 13) Configuration-Edit-Global-Settings
5) Application-Remove               14) Configuration-Consistency-Report
6) Application-Clone                15) Configuration-ScriptExecution
7) Configuration-Generate           16) RMS-CreateMachine
8) Configuration-Activate           17) RMS-RemoveMachine
9) Configuration-Copy
Choose an action: 8
```

Appendix C   TSM Cluster Settings

Refer to the "TSM PRIMECLUSTER Application Guide" for information about the TSM cluster settings for the Solaris edition of PRIMECLUSTER

C.1   Settings on the Primary Node

The following procedures perform a setup on a primary node (cluster node 1).
1. A setup of the TSM server on the primary node
2. A setup of the TSM client on the primary node

For the TSM client on the primary node by referring to "A setup of the TSM server in the cluster node 1" and "TSM client settings for cluster nodes" in "If the TSM server is in an active/standby configuration" of the "TSM PRIMECLUSTER Application Guide".

The following key points relate to the TSM cluster settings required for tape server transactions

● The following setup commands are executed in a setup of the TSM server on the cluster node 1.

```
# cd /opt/tivoli/tsm/CLUS
# ./tsmclset_safe -k Primary -m mount point of shared disk for TSM -n logical node
name -s transaction name
```

No other options are necessary in order to read information from a TSM cluster setup information file.

Please refer to "Preparing the TSM Cluster Setup Information File" about a TSM cluster setup information file.

● A special file name must be set for drives on the tape device used by the TSM server on node 1. Refer to item (8) in "TSM server settings on cluster node 1" in "If the TSM server is in an active/standby configuration" of the "TSM PRIMECLUSTER Application Guide" for information about these settings.

● When creating (ie, formatting) the database for the TSM server, set the TSM database size as calculated by the formula in "Capacity of Shared Disks for TSM"

● When creating (ie, formatting) the amount of space required for the restoration log, specify a value of 128 (Mbytes) or more. Specify sufficient log space to take into account future changes to backup operations.

● Refer to "Settings for the Client System Option File" in "TSM Settings (to be done before Setting of Automatic Activation of Daemons)"in the "ETERNUS SF AdvancedCopy Manager Installation Guide" for information about the content of the TSM client option file

C.2　　Settings on the Secondary Node

Use the following procedures to set up the secondary node (cluster node 2):
1.　Set up the secondary node TSM server.
2.　Set up the secondary node TSM client.

For information on secondary node setup, refer to "A setup of the TSM server in the cluster node 2" and "TSM client settings for cluster nodes" in "If the TSM server is in an active/standby configuration" of the "TSM PRIMECLUSTER Application Guide".

C.3　　Registering Resources

Refer to "Registering resources" in "If the TSM server is in an active/standby configuration" of the "TSM PRIMECLUSTER Application Guide" for information about registering TSM resources on cluster systems.