

ETERNUS SF

AdvancedCopy Manager 14.2



Operator's Guide for Cluster Environment

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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.

[Chapter 8 Commands](#)

This chapter explains how to use each type of command.

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

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 Linux version PRIMECLUSTER](#)

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

[Appendix C TSM Cluster Settings](#)

This appendix explains the TSM cluster settings.

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

This appendix explains the cluster setup procedures on Windows Server 2008 x64 and Windows Server 2008 R2 environment.

Positioning of This Manual

The ETERNUS SF AdvancedCopy Manager suite of manuals is as follows:

- ETERNUS SF AdvancedCopy Manager Overview
Provides an overview of ETERNUS SF AdvancedCopy Manager.

- ETERNUS SF AdvancedCopy Manager Installation and Setup 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. The Operator's Guide is divided into supported operating systems.
- ETERNUS SF AdvancedCopy Manager GUI User's Guide
This manual explains GUI Client 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.
- ETERNUS SF AdvancedCopy Manager Operator's Guide for Cluster Environment (this manual)
This manual explains installation and customization in the ETERNUS SF AdvancedCopy Manager cluster environment.
- ETERNUS SF AdvancedCopy Manager Operator's Guide for Tape Server Option
This manual explains the operation of ETERNUS SF AdvancedCopy Manager Tape Backup.
- ETERNUS SF AdvancedCopy Manager Operator's Guide for Copy Control Module
This manual explains the operation of the ETERNUS SF AdvancedCopy Manager Copy Control Module.
- ETERNUS SF AdvancedCopy Manager Glossary
This manual explains the terminology used in ETERNUS SF AdvancedCopy Manager manuals.

Users are recommended to read the "ETERNUS SF AdvancedCopy Manager Overview" first to gain an understanding of the general concepts of this software before reading the other manuals as required.

Conventions for Product Names

- 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 Server(R) 2008 Standard, Microsoft(R) Windows Server(R) 2008 Enterprise, Microsoft(R) Windows Server(R) 2008 Datacenter, Microsoft(R) Windows Server(R) 2008 for Itanium-Based Systems are abbreviated as "Windows Server 2008".
- Microsoft(R) Windows Server(R) 2008 R2 Standard, Microsoft(R) Windows Server(R) 2008 R2 Enterprise, Microsoft(R) Windows Server(R) 2008 R2 Datacenter are abbreviated as "Windows Server 2008 R2".
- Windows Vista(R) Home Basic, Windows Vista(R) Home Premium, Windows Vista(R) Business, Windows Vista(R) Enterprise and Windows Vista(R) Ultimate are abbreviated as "Windows Vista".
- Windows(R) 7 Home Basic, Windows(R) 7 Home Premium, Windows(R) 7 Professional, Windows(R) 7 Enterprise and Windows(R) 7 Ultimate are abbreviated as "Windows 7".
- Oracle Solaris might be described as Solaris, Solaris Operating System, or Solaris OS.
- ETERNUS SF AdvancedCopy Manager running on Solaris 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 running on HP-UX is referred to as the "HP-UX version of ETERNUS SF AdvancedCopy Manager".
- ETERNUS SF AdvancedCopy Manager running on AIX is referred to as the "AIX 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."

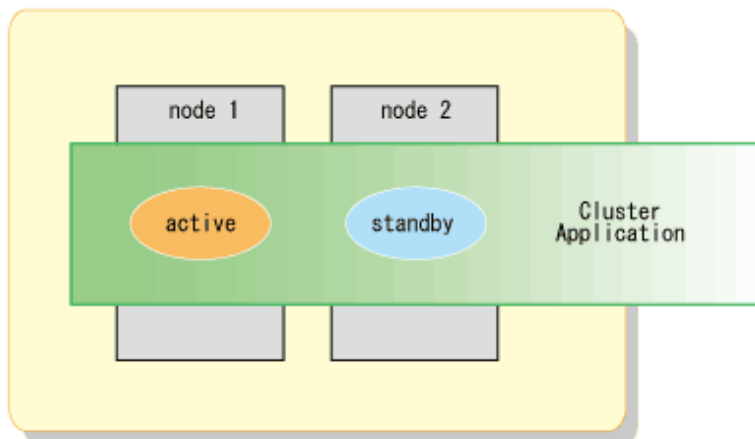
- Standby class

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.

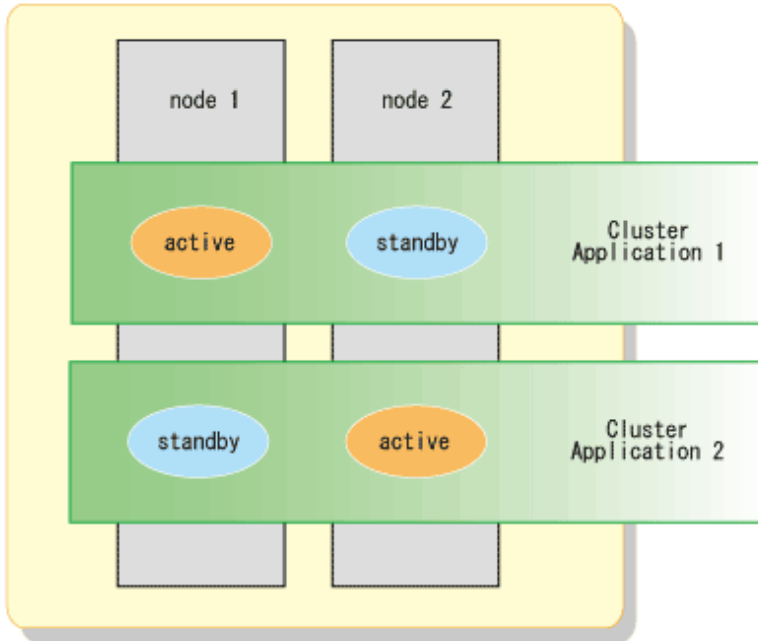
Figure 1.1 1:1 standby system



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.

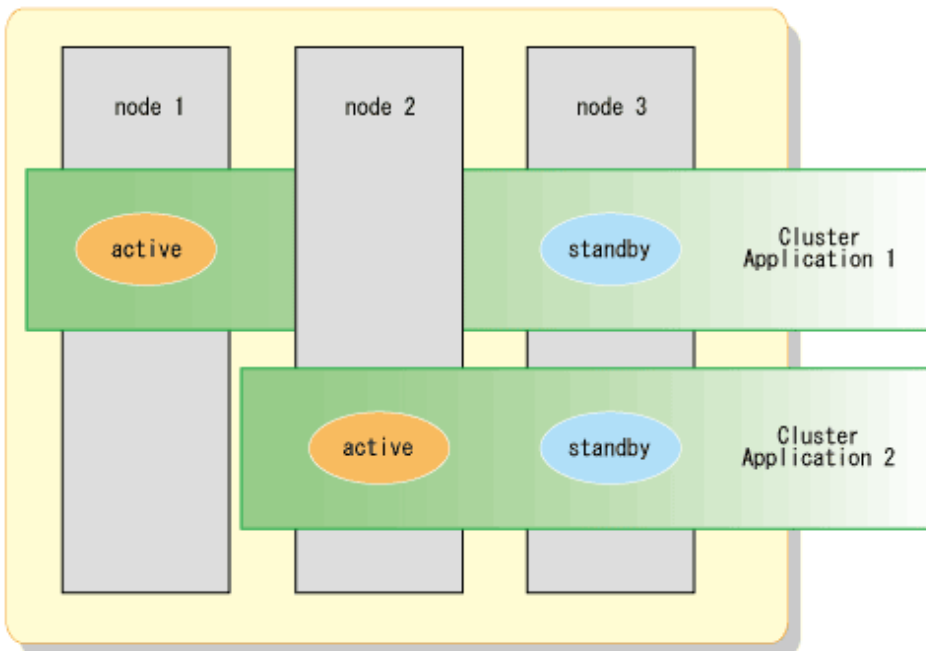
Figure 1.2 Mutual standby system



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.

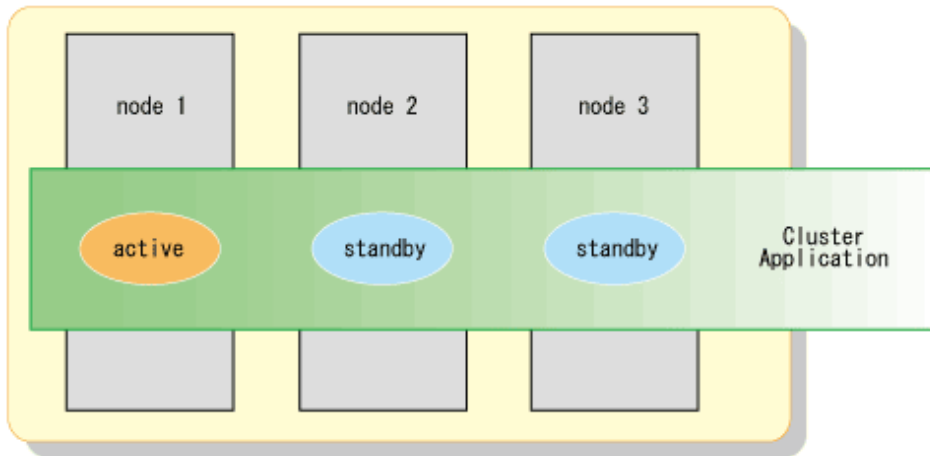
Figure 1.3 n:1 standby system



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.

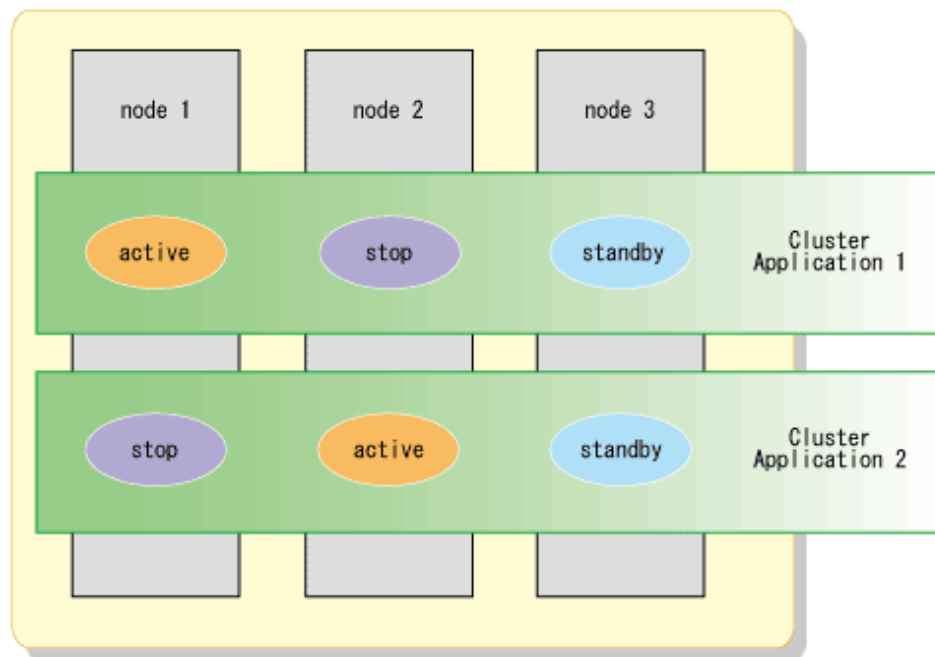
Figure 1.4 Cascade system



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.

Figure 1.5 Priority transfer system

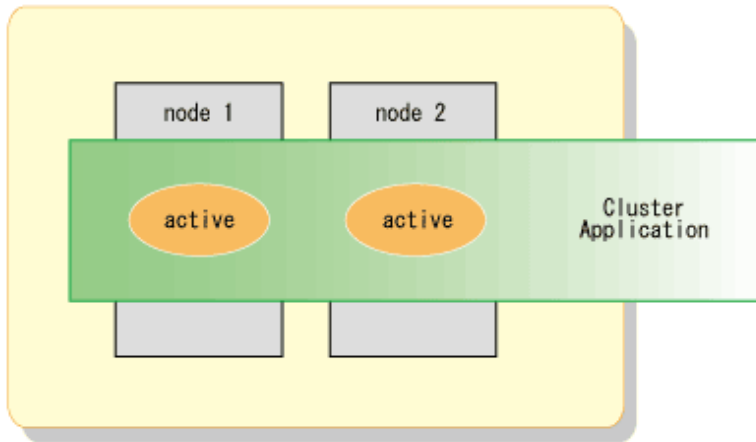


- Scalable class

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 one server in a cluster fails, the remaining servers in the cluster operate at a degraded level so that the transaction continues.

Figure 1.6 Scalable class



See

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 | Support | Support | No support | Support | Support | No support |
| Solaris(TM) 9 Operating system Solaris(TM) 10 Operating system | Support | Support | Support | Support | Support | support |
| 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 EM64T) Red Hat Enterprise Linux ES (v.4 for EM64T) Red Hat Enterprise Linux AS (v.4 for Itanium) Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64) Red Hat Enterprise Linux 5 (for Intel Itanium) | 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 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 |
| Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 Enterprise SP2 Microsoft (R) Windows Server(R) 2008 Datacenter Microsoft(R) Windows Server(R) 2008 Datacenter SP2 Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Enterprise SP1 Microsoft(R) Windows Server(R) 2008 R2 Datacenter Microsoft(R) Windows Server(R) 2008 R2 Datacenter SP1 | Support | Support | No support | Support | Support | No support |
| Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Standard SP2 Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Standard SP1 | Support | Support | No support | No support | No support | No support |
| 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 | No support | Support | No support | No 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 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) Microsoft(R) Windows Server(R) 2008 for Itanium-Based Systems Microsoft(R) Windows Server(R) 2008 for Itanium-Based Systems SP2 | | | | | | |
| HP-UX 11.00, 11i, v2(PA-RISC), HP-UX 11i v2.0(Itanium), HP-UX 11i v3(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 |

Note

For Windows:

A Windows system with Active Directory Domain Services installed is not supported.

AdvancedCopy Manager supports the following cluster systems:

Table 1.2 Cluster System where AdvancedCopy Manager operates

| OS | OS level | Cluster system and version |
|---------|---|---|
| Solaris | Solaris 8 Solaris 9 | Fujitsu SynfinityCluster V2.0 Fujitsu PRIMECLUSTER V4.1 and later VERITAS Cluster Server 4.0 VERITAS Cluster Server 4.1 |
| | Solaris 10 | Fujitsu PRIMECLUSTER V4.1 A40 and later VERITAS Cluster Server 4.1 VERITAS Cluster Server 5.0 Sun Cluster 3.1 Sun Cluster 3.2 |
| Linux | Red Hat Enterprise Linux (v.4 for x86) | Fujitsu PRIMECLUSTER V4.2A00 and later |
| | Red Hat Enterprise Linux (v.4 for Itanium) | Fujitsu PRIMECLUSTER V4.1A40 and later |
| | Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64) Red Hat Enterprise Linux 5(for Intel Itanium) | Fujitsu PRIMECLUSTER V4.2A30 |
| Windows | Windows Server 2003 | Microsoft(R) Cluster Service |
| | Windows Server 2008 Windows Server 2008 R2 | Windows Server(R) Failover Clustering |

| OS | OS level | Cluster system and version |
|-------|-----------------------------|--|
| HP-UX | HP-UX 11.00 HP-UX 11i v1 | MC/ServiceGuard A.11.13 |
| | HP-UX 11i v3(Itanium) | ServiceGuard A.11.17 |
| AIX | AIX 5L V5.1 AIX 5L V5.2 | High Availability Cluster Multi-Processing 5.1 |
| | AIX 5L V5.3 | High Availability Cluster Multi-Processing 5.1 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 | Cluster system and version |
|---------|--|
| Solaris | 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 Service | Support | Support | Support | Support | No support | No support | No support |
| | Windows Server(R) Failover Clustering | Support | Support | Support | Support | No support | No support | No support |
| HP-UX | 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 Service Windows Server(R) Failover Clustering | 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.

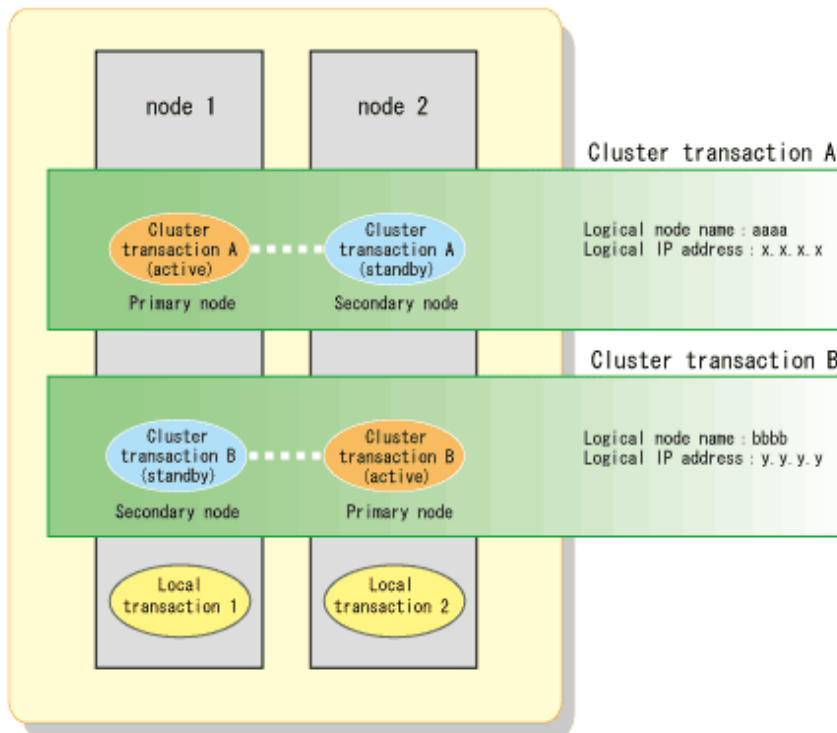
AdvancedCopy Manager can perform local disk (ie, not in cluster operation) backup/replication with a cluster operation machine. A transaction where such a local disk backup/replication operation is performed is called a local transaction. The local transaction does not switch over to another by failure. 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.

Figure 1.7 Cluster transactions and local transactions



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

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

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

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

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 "1.3.4 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.

Table 1.8 Relationship between AdvancedCopy Manager applications and 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 |

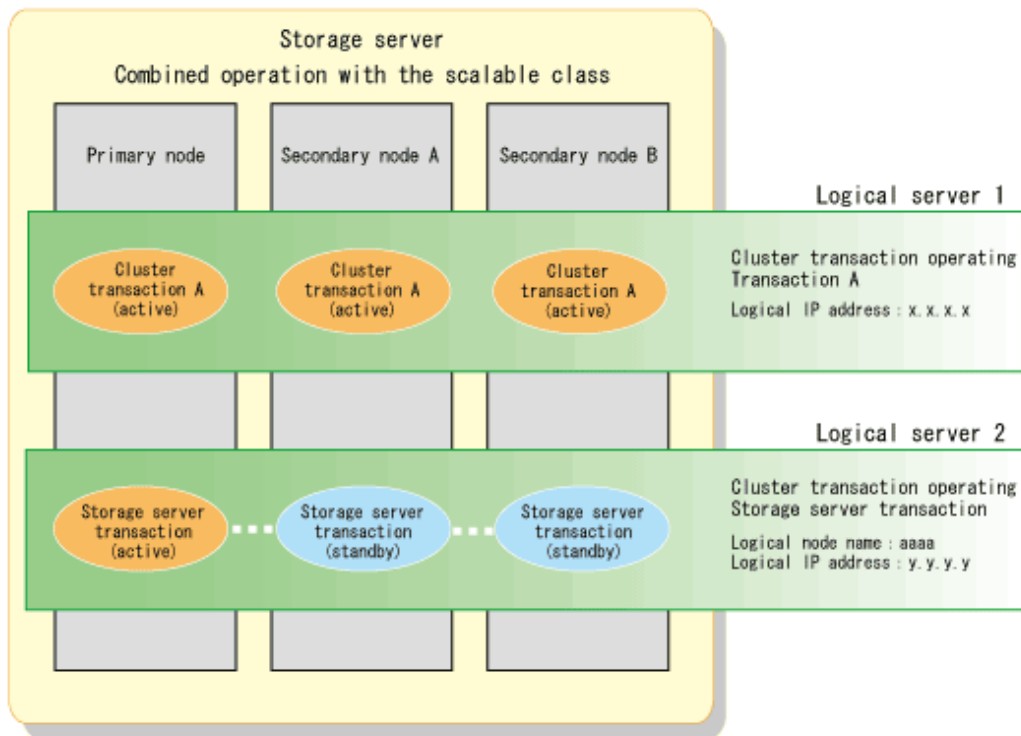
When a mutual standby system using the Storage Management Servers is built, all Storage Management Server transactions must be operated on the same logical server in a cluster. It is not possible to divide for operation the resources of Storage Management Server transactions between two or more logical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

Figure 1.8 Combined operation with the scalable class



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

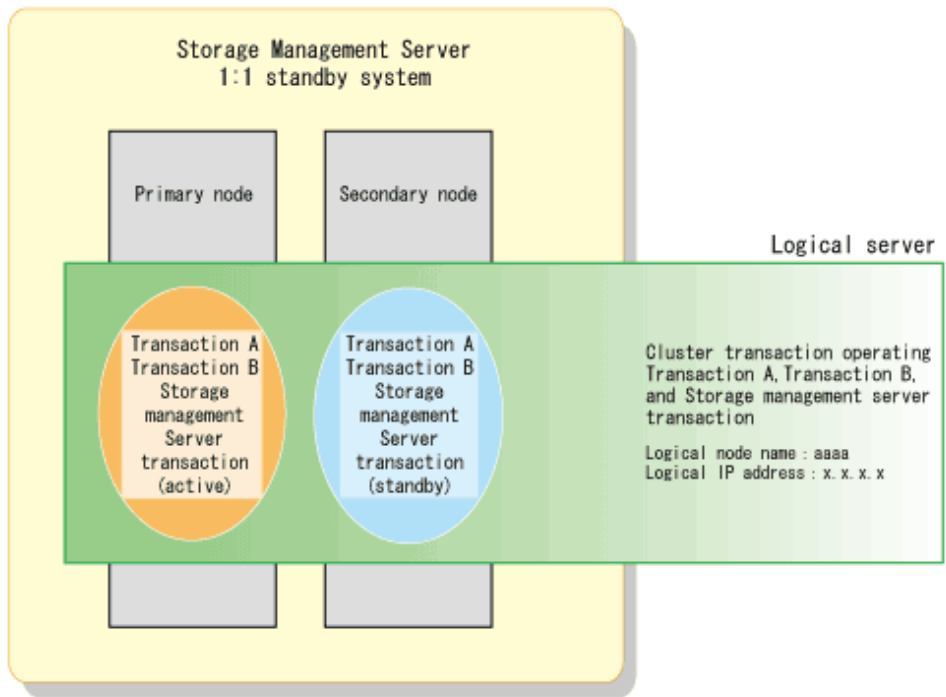
This section explains how to provide the environment construction to operate AdvancedCopy Manager on the cluster system.

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.

Figure 1.9 Storage Management Server transactions or Storage Server transactions in 1:1 standby cluster 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.

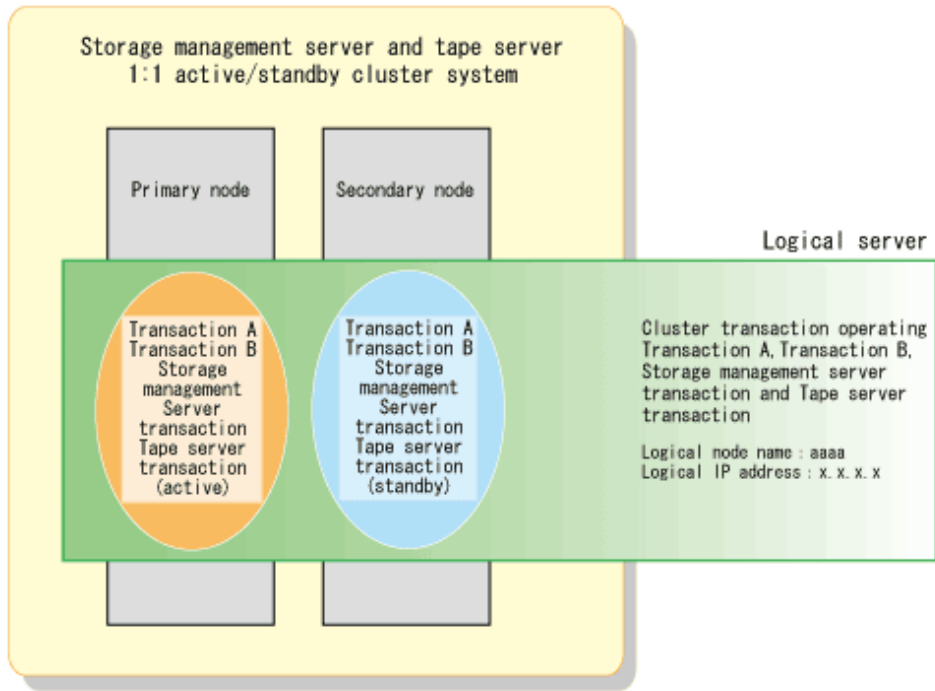
See "[Chapter 2 Installation of AdvancedCopy Manager](#)," "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)," and "[Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions](#)" 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.

Figure 1.10 Tape Server transactions in a 1:1 standby cluster system



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.

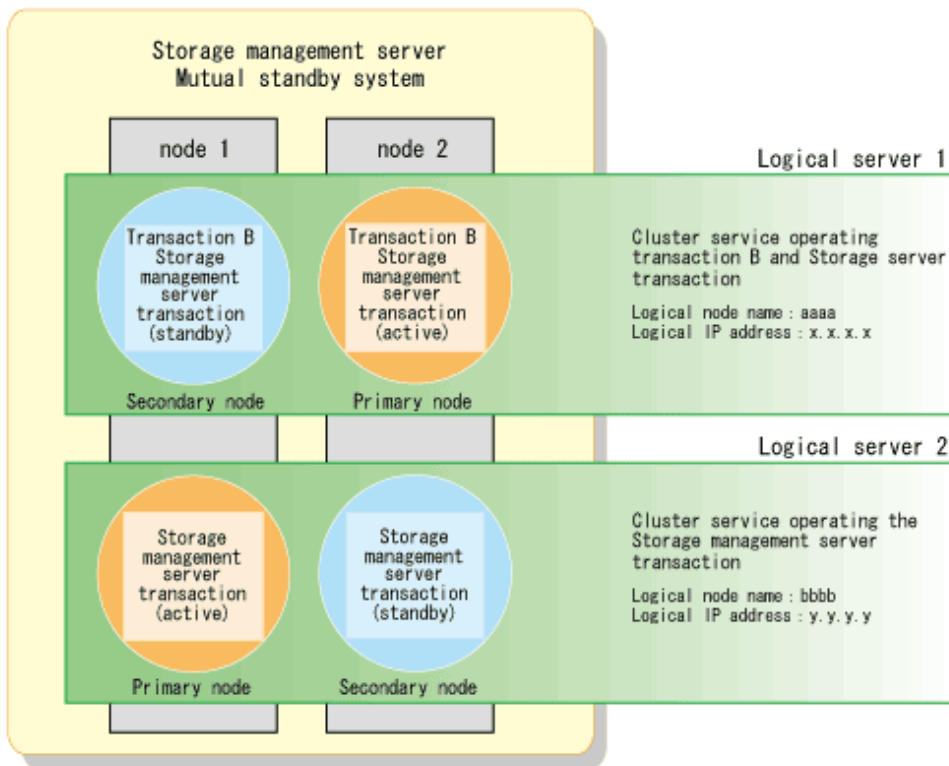
For details on installing and customizing AdvancedCopy Manager, see "[Chapter 2 Installation of AdvancedCopy Manager](#)", "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)", and "[Chapter 6 Customizing Tape 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.

Figure 1.11 Storage Management Server transactions or Storage Server transactions in mutual standby cluster system



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.

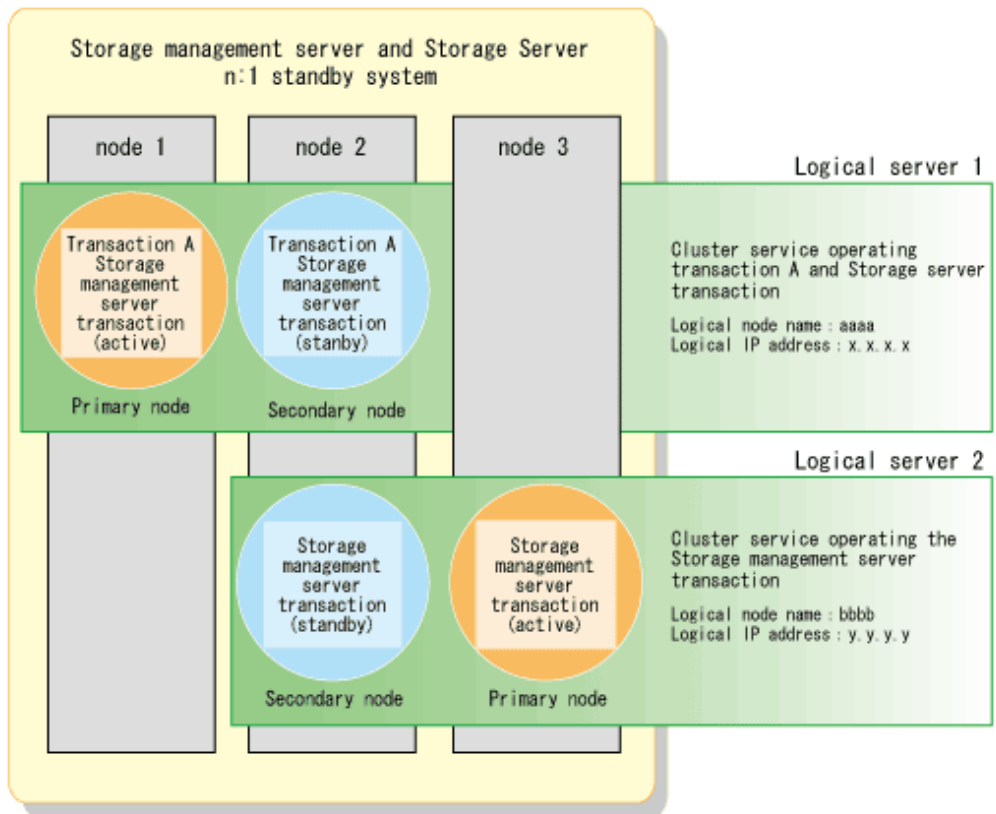
See "[Chapter 2 Installation of AdvancedCopy Manager](#)," "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)," and "[Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions](#)" 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.

Figure 1.12 Storage Management Server transactions or Storage Server transactions in n:1 standby cluster system



To configure an n:1 standby environment for Storage server transactions, install the Agent function on all nodes.

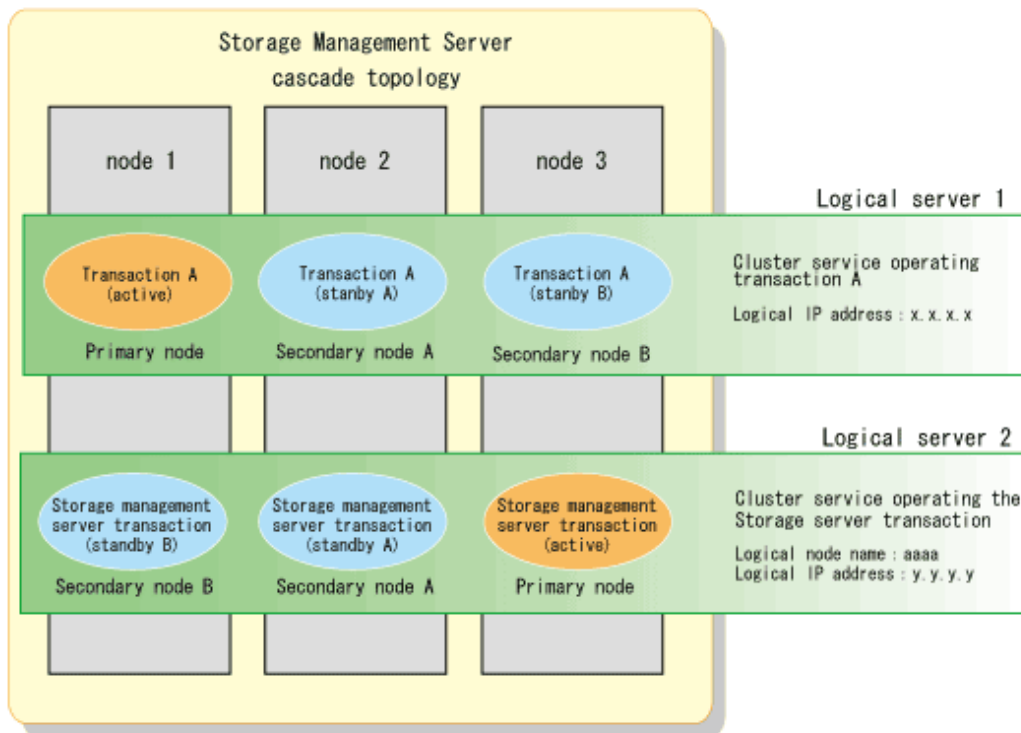
See "[Chapter 2 Installation of AdvancedCopy Manager](#)," "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)," and "[Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions](#)" 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.

Figure 1.13 Storage Management Server transactions or Storage Server transactions in cascade system and priority transfer cluster system



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

See "[Chapter 2 Installation of AdvancedCopy Manager](#)," "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)," and "[Chapter 4 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.

Point

To operate an AdvancedCopy Manager transaction on the cluster software, cluster system installation and environment setting are required. For details, refer to the cluster manual of your environment.

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

This section explains how to install Solaris version AdvancedCopy Manager, Linux version AdvancedCopy Manager, HP-UX 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 so that all nodes have the same environment (for details, refer to "[1.4 Environment construction for cluster operation](#)" and the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide").

Set up the environment of Storage Management Server so that both the all nodes have the same environment (for details, refer to "[1.4 Environment construction for cluster operation](#)" and the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide").

When the installation and customization are completed, enable all nodes again. To provide the cluster construction for a Storage Management Server transaction, see "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)".

Note

- 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 a part of Storage Management Server customization.
- 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 "[Chapter 4 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 in all nodes with the same environment (for details, refer to "[1.4 Environment construction for cluster operation](#)" and the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide").

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 in all nodes with the same environment (for details, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Customization of Storage Server").

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 "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)".

Note

- Do not install the Agent function of AdvancedCopy Manager on a shared disk.
- The communication daemon port number (service name: stgxfws) specified in the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Customization of Storage Server" is the port number of the communication daemon for local transactions. Specify a port number for the communication daemon for cluster transactions according to the operation mode (for details, refer to "[Chapter 4 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.

Note

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 "[Chapter 2 Installation of AdvancedCopy Manager](#)".
2. Install the Tape Manager function on the primary node.
For details, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Installation of Tape Manager".
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.
Refer to "Customization of Tape Server" of "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide" and execute the followings.
 - Customization of Storage Server or Storage Management Server
 - Creation of Access Path Partition
 - Configuring the Port Number
 - Kernel Parameter Tuning
 - TSM Configuration

Note

Do not perform the procedure described in the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Customization of Tape Server" > "TSM Configuration" > "Configuration of a Tape Library System".

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. To build a cluster for tape server transactions, proceed as described in "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)".

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.



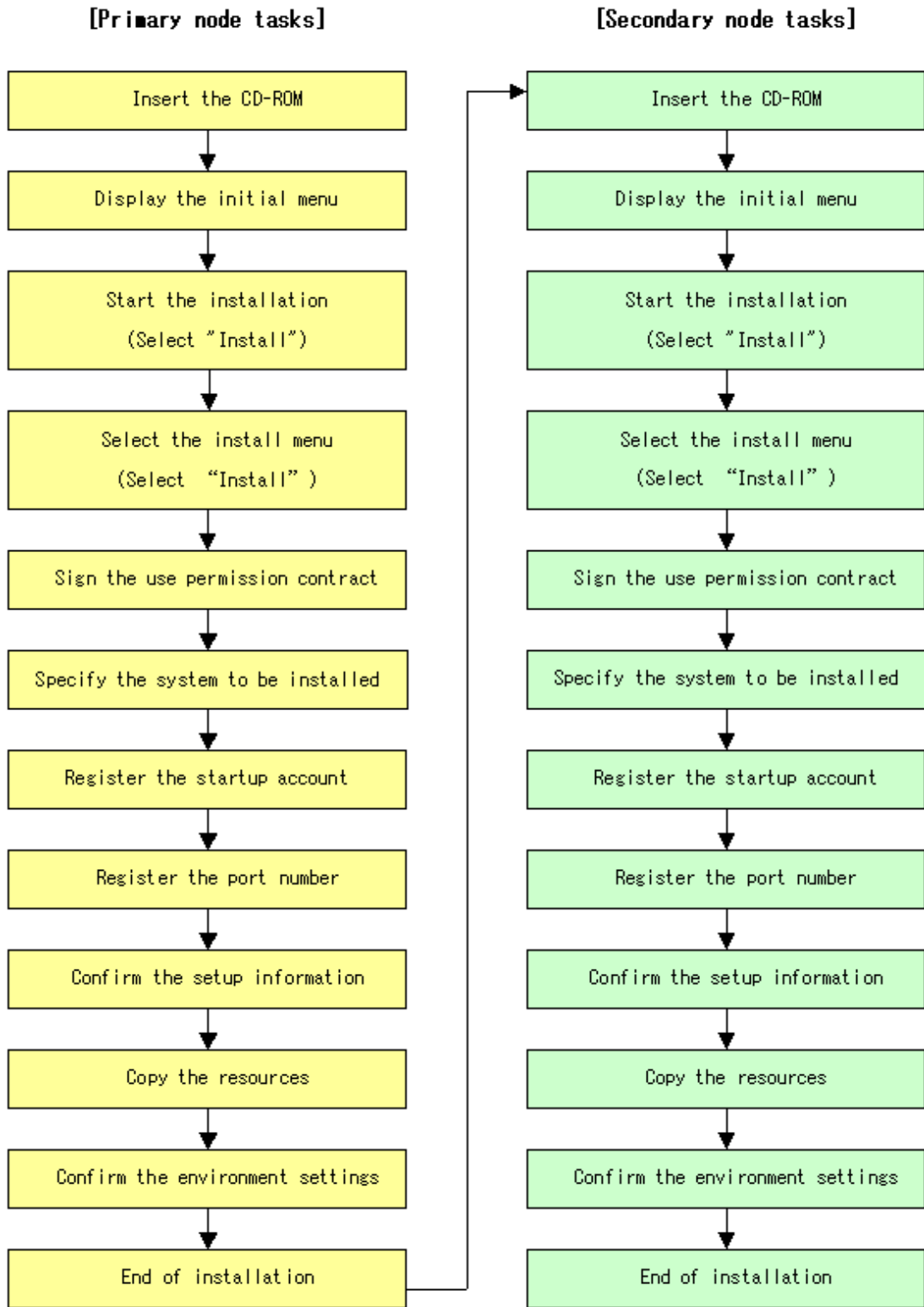
- At installation, all the nodes must be installed in the same environment (i.e., the local drive name, port number, and install directory must be the same for both).
- Do not install the Manager function on a shared disk.
- Because the database environment is created with the cluster setup command, 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 "[Chapter 4 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.



2.2.1.2 Details of Installation

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

Note

- Executing this process with the service listed below must be paid attention.

- Terminal service (via a remote desktop connection)

If the Storage Management Server is running on Windows Server 2003, the Terminal Service must be used by making a console session connection to it. Refer to the following link for information on how to make console session connections:

<http://support.microsoft.com/kb/947723>

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

- Do not use service listed below, as it will not work properly.

- Telnet server service

- For a user belonging to the domain Administrators group to perform the installation tasks under Windows Server 2008 or Windows Server 2008 R2, the Windows service "Computer Browser service" must be started.

If the "Computer Browser service" has not been started, start this service in order to perform the installation tasks.

- The following table shows the intended users for user creation, user authentication, and service execution for each server type being used.

| Server type | | |
|-------------------|-------------------------------|--|
| Domain controller | Machine belonging to a domain | WORKGROUP (not belonging to a domain) |
| Domain user | Local user | Local user |

1. Log on to the primary node.

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

2. Confirm and Install the ETERNUS SF License Manager.

- For Windows Server 2003

Double-click on the [Add or Remove Programs] icon in the Control Panel. On the "Add or Remove Programs" window, check whether [ETERNUS SF License Manager] is displayed or not.

- For Windows Server 2008 or Windows Server 2008 R2

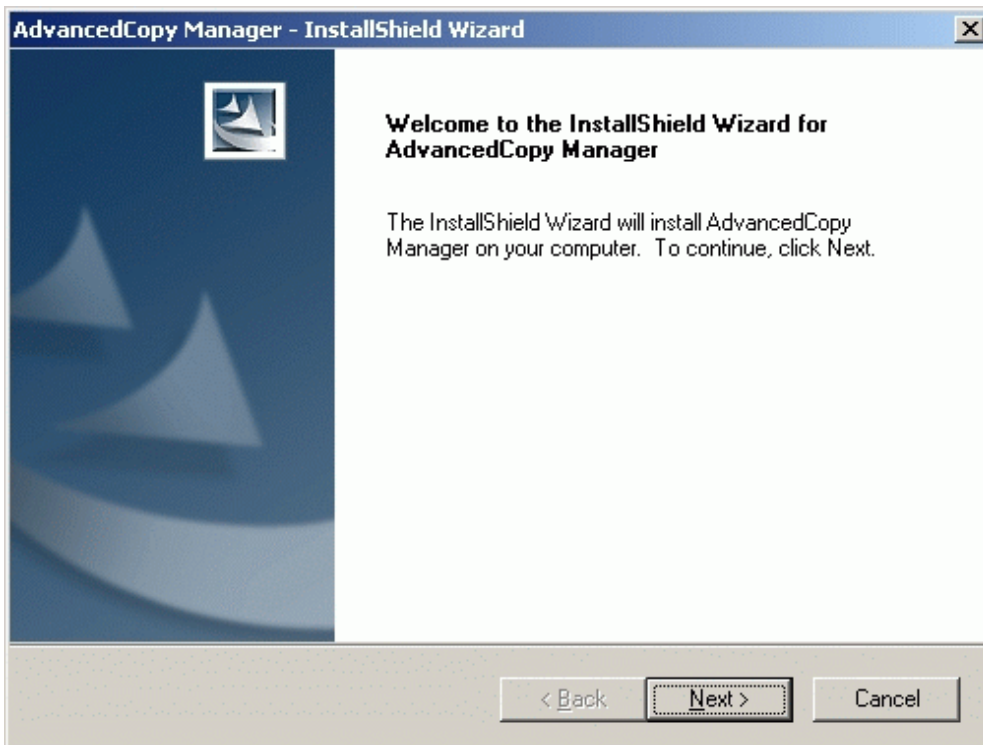
Double-click on the [Programs and Features] icon in the Control Panel. On the "Programs and Features" window, check whether [ETERNUS SF License Manager] is displayed or not.

If the [ETERNUS SF License Manager] is not displayed, install the ETERNUS SF License Manager by referring the "Installation of License Manager" in the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide".

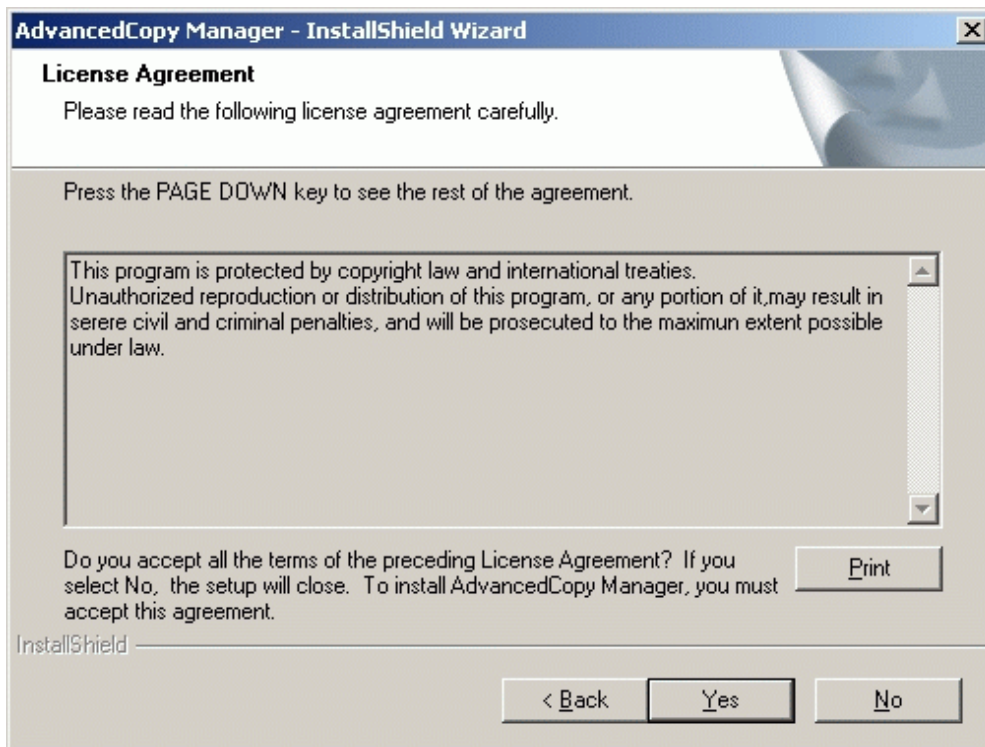
3. Insert the AdvancedCopy Manager CD-ROM (Manager Program) into the drive and an initial [ETERNUS SF] window will be displayed. Click on [Install Function for Storage Management Server].



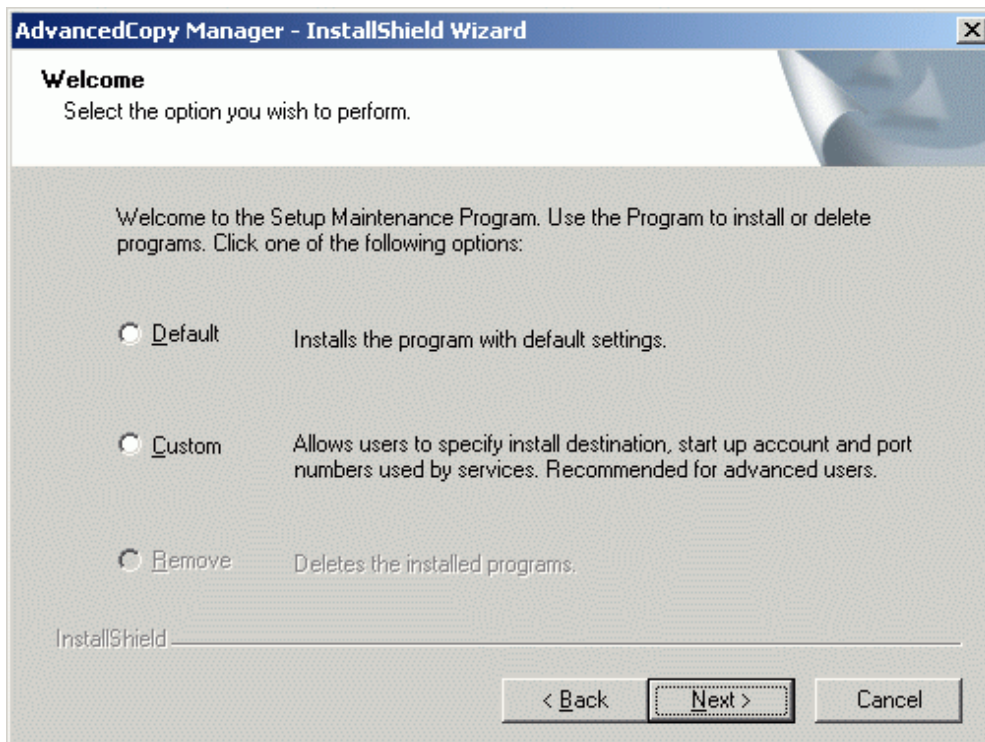
4. At the following (InstallShield) window click the [Next] button.



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. Click "Default" or "Custom" on the [Welcome] window, and then click [Next].



- If [Default] is selected

The install information on the following windows need not be set (steps 6 to 8 are not required):

- [Set install destination] window

- [Startup/Account registration] window
- [Register port number] window

An error check is performed automatically for the default install information in the omitted screens.

- If an error is detected: A warning dialog is displayed and the display switches back to that window.
- If no errors are detected: A warning dialog is displayed and the [Start copying files] window is displayed.

For details on default installation information and error check contents, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Installation of the Manager" > "Prerequisites for Windows Platform" > "Installation".

- If [Custom] is selected

Installation information must be set in all the installation windows.

Enter the required information in the windows displayed in step 8 and subsequent steps.

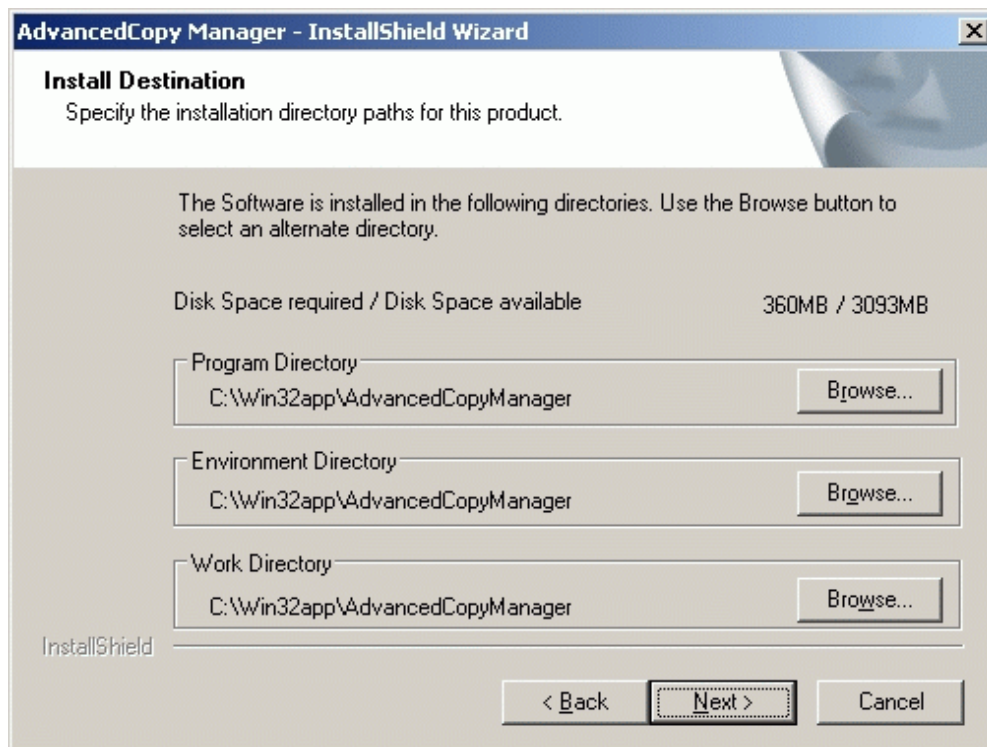
7. Specify the system to be installed.

- (Primary node)

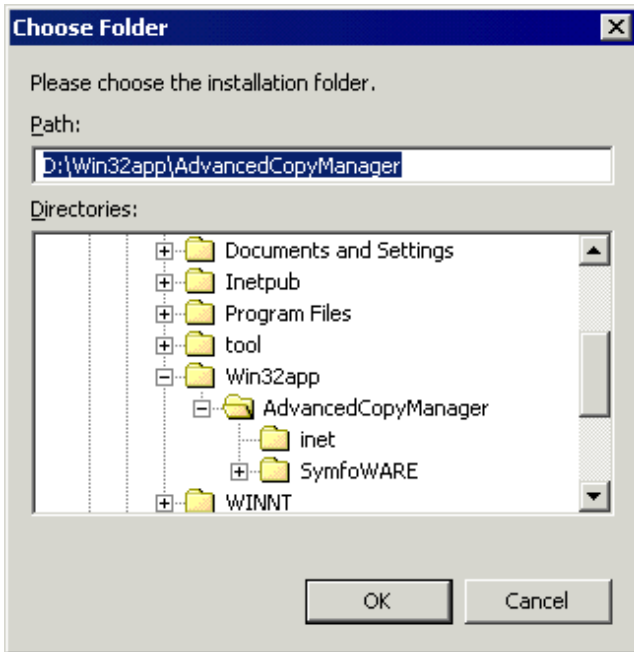
If this product is to be installed in directories other than those displayed (default directories), click the [Browse] button to select the desired directories. After all the correct directories have been selected, click the [Next] button. Note: directories with spaces their names (e.g., Program Files) 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 [Browse] button is clicked, the following window is displayed, allowing the selection of other than the defaulted directories.



8. 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 on the startup account, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Installation of the Manager" > "Prerequisites for Windows Platform" > "Startup account".

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.

The screenshot shows a Windows-style dialog box titled "AdvancedCopy Manager - InstallShield Wizard". The main heading is "Startup/Authentication Account". Below the heading, it says "Startup/Authentication Account Registration. Specify an account name and a password to use as a startup account." There is a block of explanatory text: "If the account specified exists, it must belong to the Administrator's group, otherwise it will be added to the group. If a new account is specified, it will be added to the Administrator's group." Below this, it says "And, the following user authority is added to the startup account." followed by a list: "- Log on as a service", "- Act as part of operating system", "- Increase quotas", and "- Replace a process level token". A form area titled "Startup/Authentication Account" contains three input fields: "Account" (with the value "acmuser"), "Password", and "Confirm Password". At the bottom left is the "InstallShield" logo, and at the bottom right are three buttons: "< Back", "Next >" (which is highlighted with a dashed border), and "Cancel".

9. 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 32767

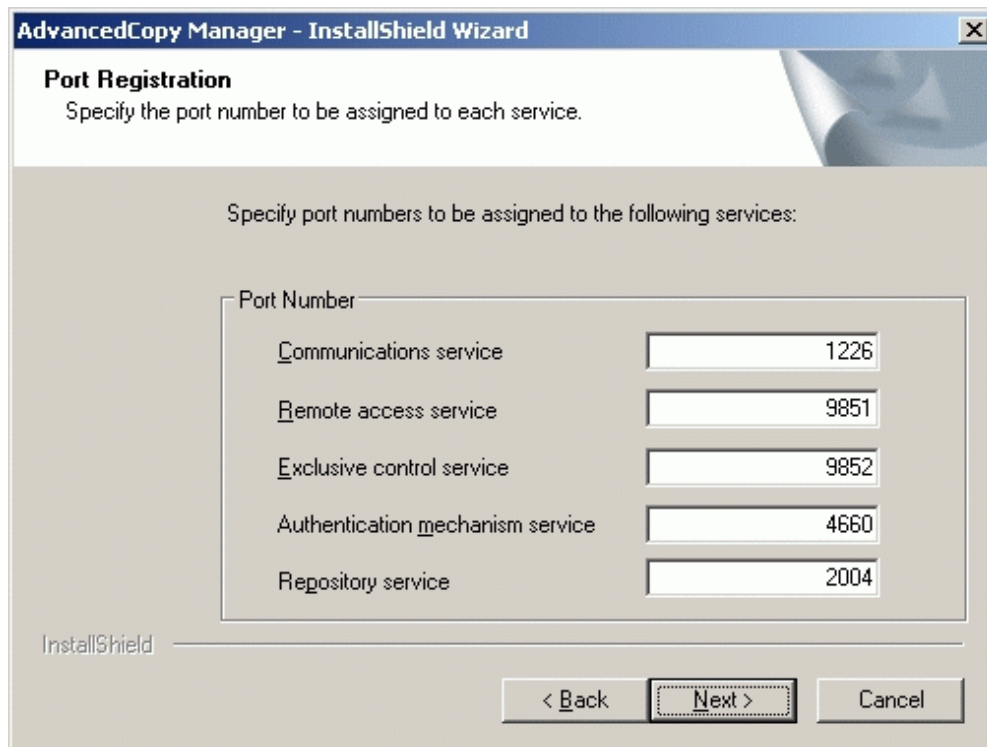
The first displayed value is a recommended value in a non-cluster environment and is not always unique.

To perform cluster operation with Windows Server 2003, change all port numbers so that they are within the range as indicated above.

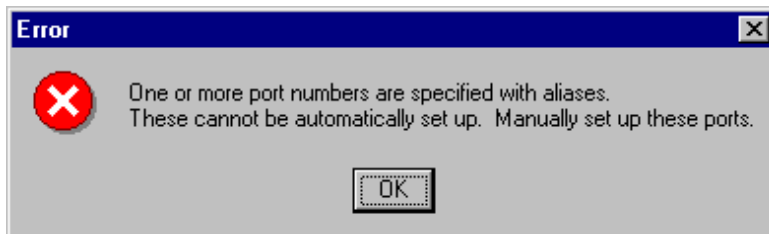
After the port number entry is completed, click the [Next] button. This window will be redisplayed with the accepted port number.

- (Secondary node)

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



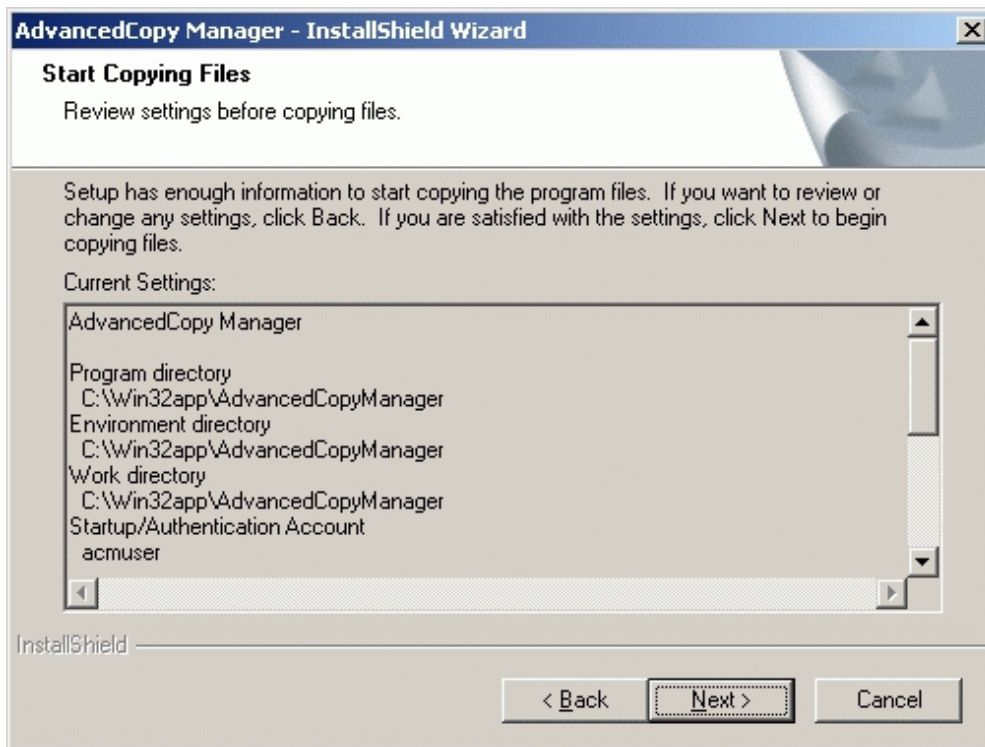
If the AdvancedCopy Manager service name is defined with an ALIAS, the following window will be displayed and the port number specified on the previous screen is ignored. The installation proceeds anyway.



Configure the port number manually by editing the file C:\WINDOWS\system32\drivers\etc\Services.

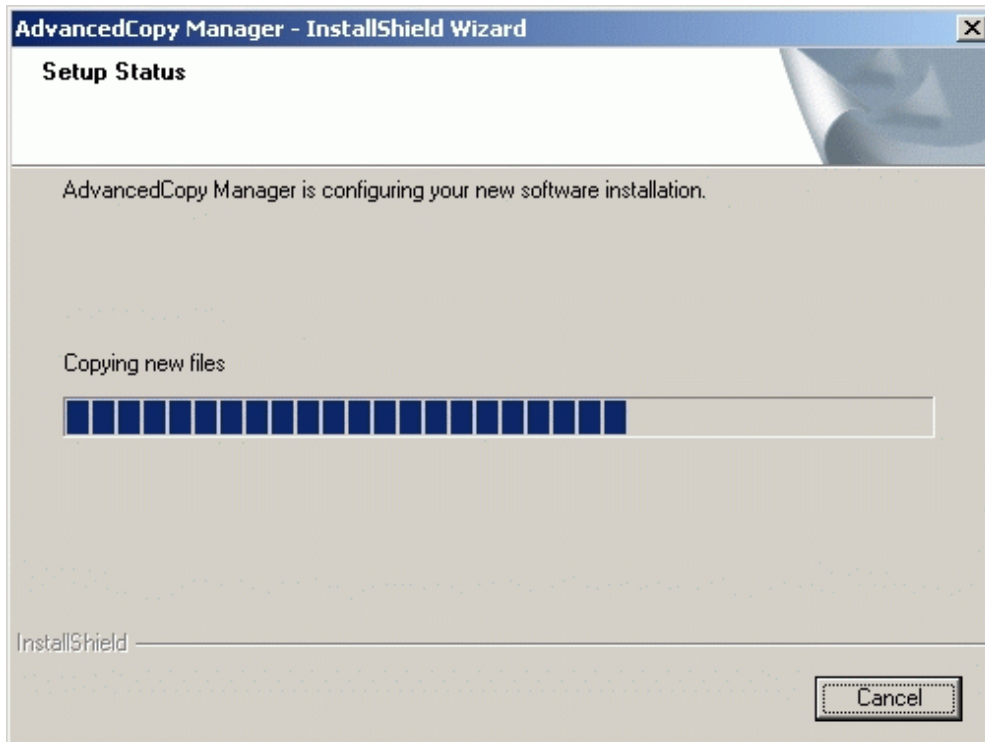
10. Confirm the settings in the [Start Copying Files] window.

If no errors are detected, click the [Next] button. To correct or otherwise change any settings, click the [Back] button.



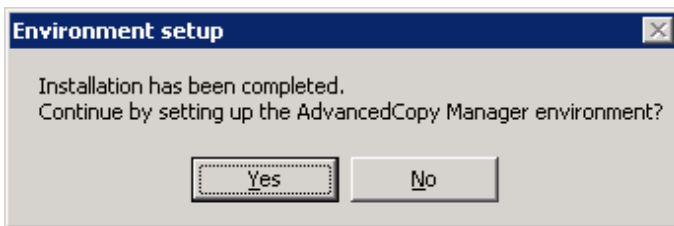
11. Copying starts.

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



12. Confirm the environment settings.

When the following [Environment setup] window opens, click the [No] button.



13. Finish the installation.

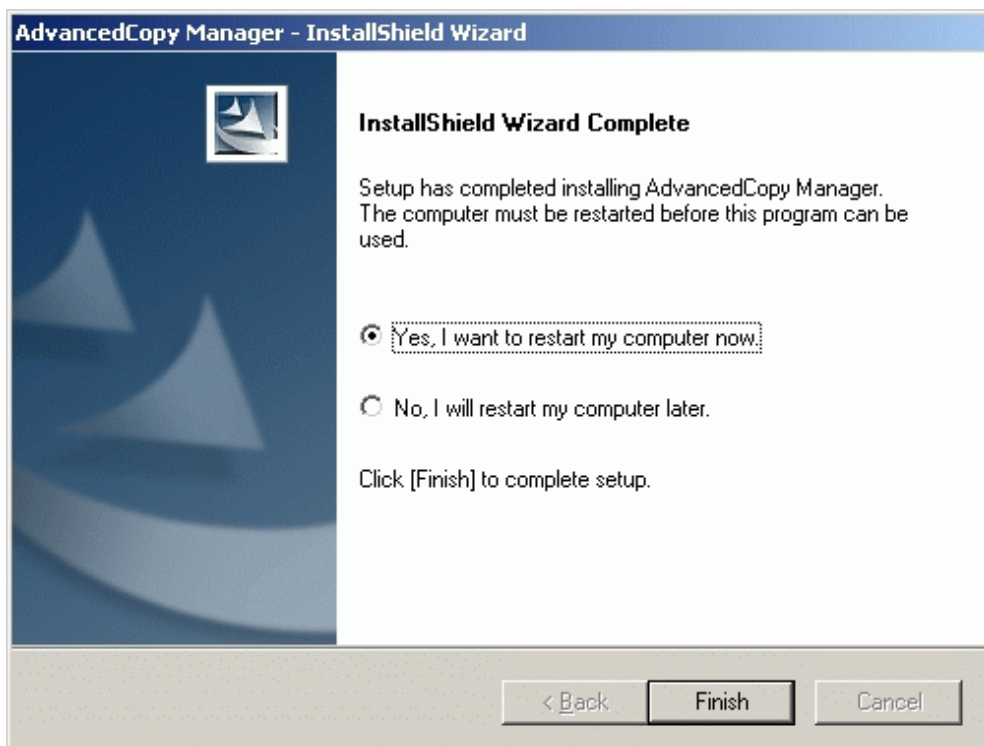
Select the [restart the computer] option and click the [Finish] button to complete the installation.

- (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 "[Chapter 3 Preparations for Customizing Storage Management Server Transactions, Storage Server Transactions, and Tape Server Transactions](#)".



14. Log on to the secondary node.

Log on to the secondary node as the administrator.

15. 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.

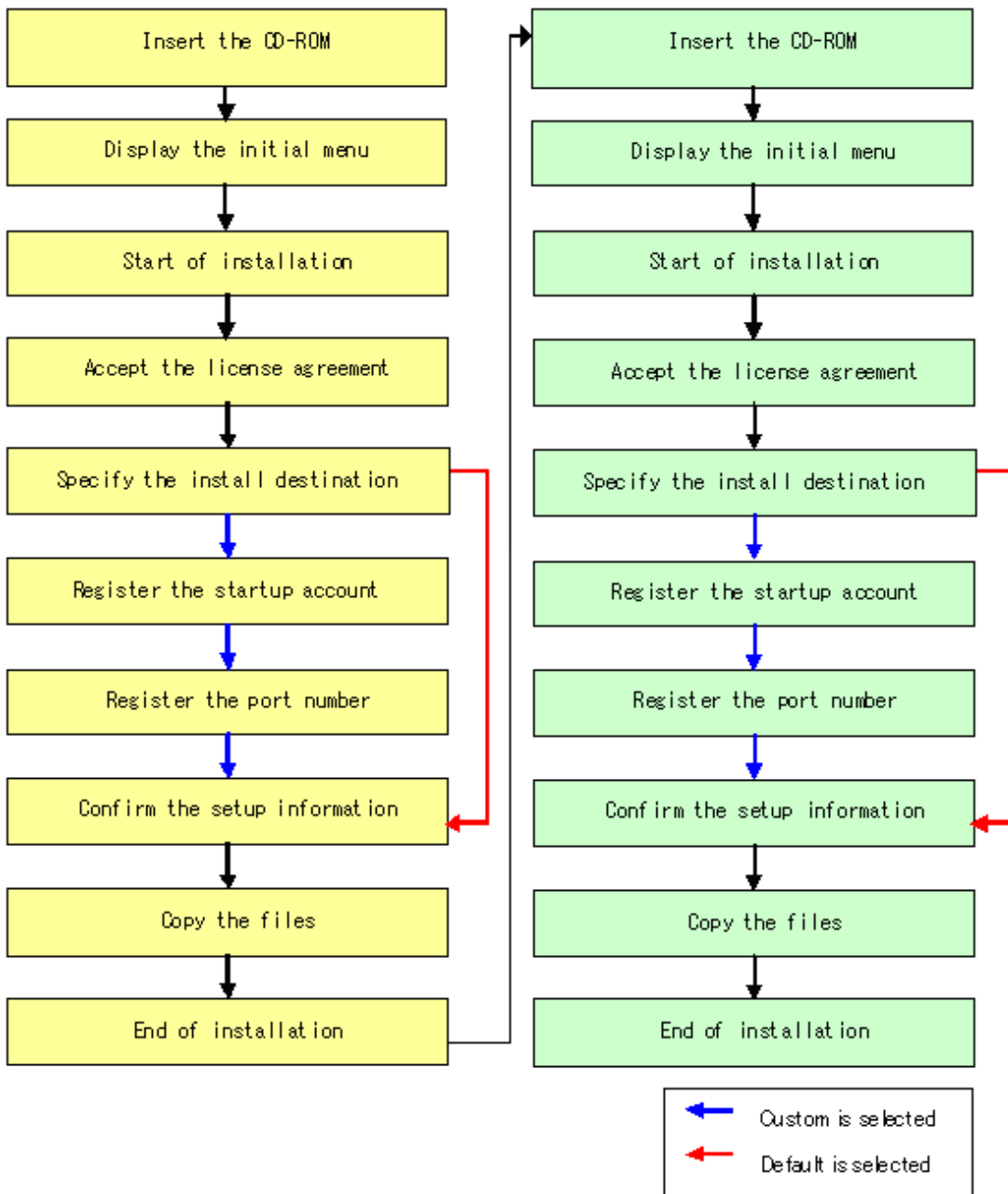
 **Note**

- 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 "[Chapter 4 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.



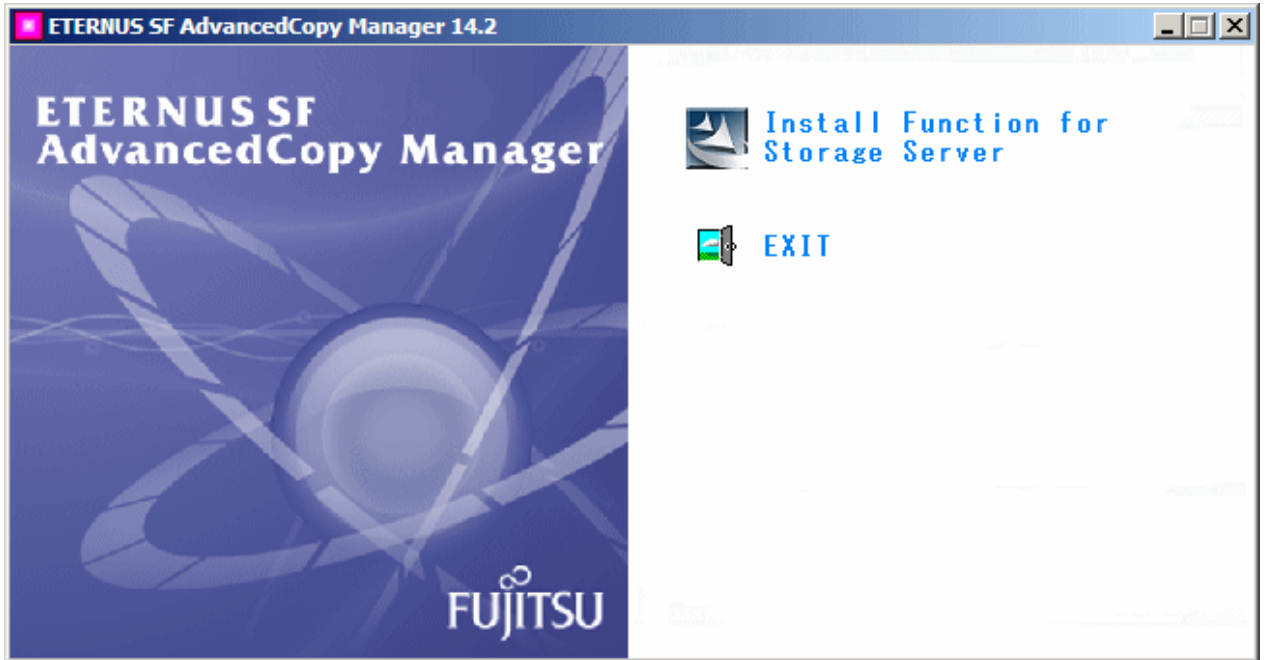
2.2.2.2 Details of the Installation

Install the Agent function with the following procedure.

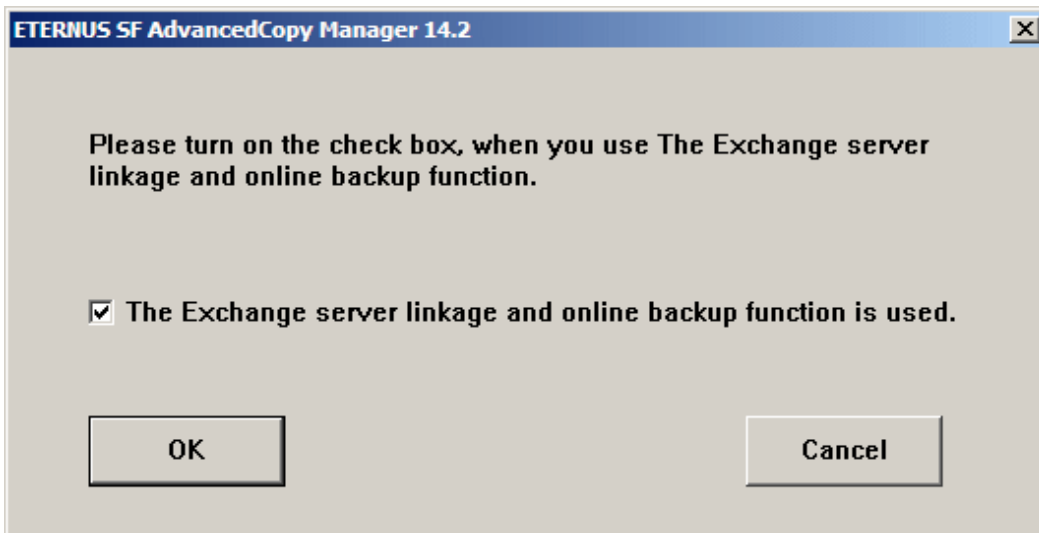
1. Log on to the primary node.

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

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

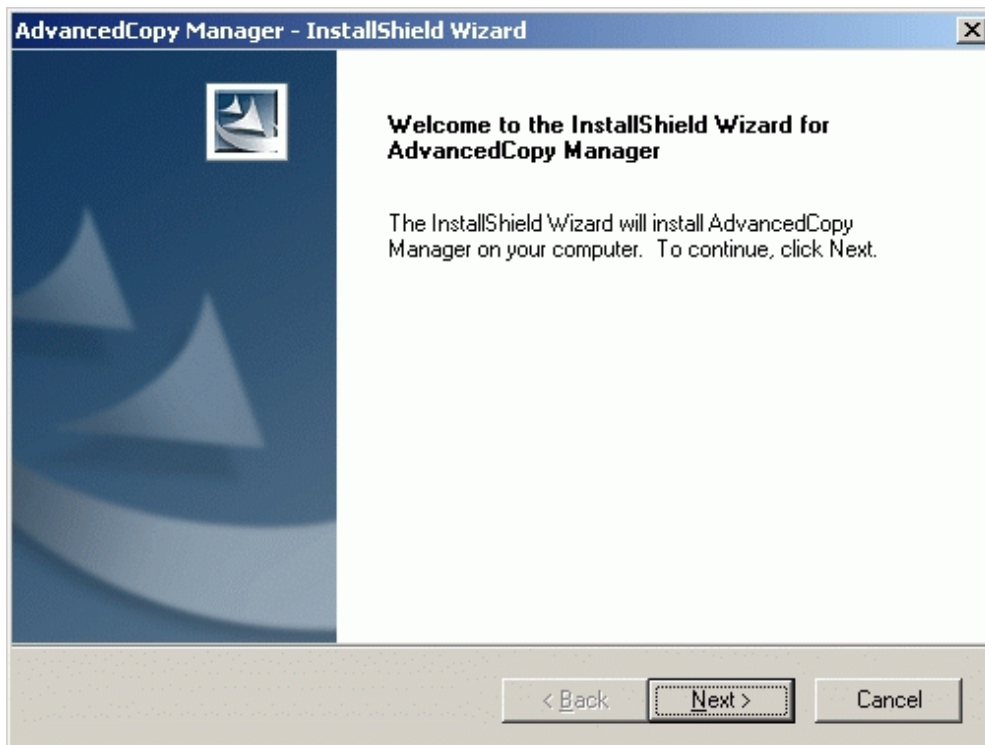


3. Choose whether to use the Exchange server online backup feature in the following window. (This window is displayed in case of Windows Server 2008 x64 or Windows Server 2008 R2)

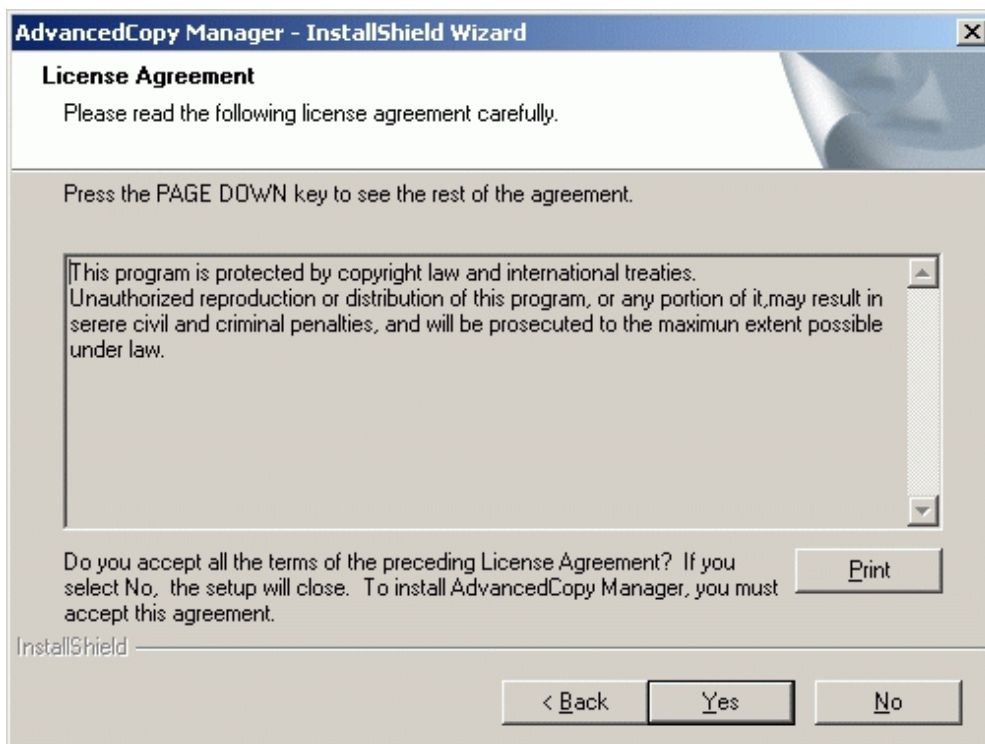


- If the check box is checked
AdvancedCopy Manager (64bit) for Windows Server 2008 (x64) is installed.
- If the check box is not checked
AdvancedCopy Manager (32bit) for Windows Server 2008 (x86,x64) is installed.

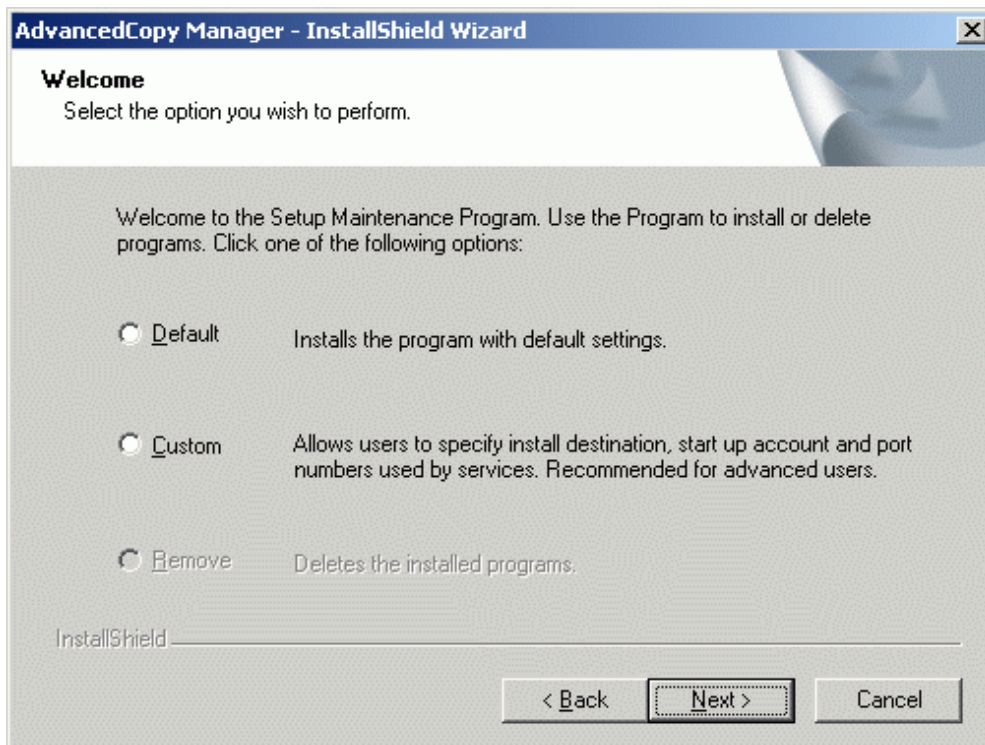
4. The next window is displayed. Check the displayed contents, then click the [Next] button.



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. Click "Default" or "Custom" in the (Welcome) window, and then click on [Next].



- If [Default] is selected

The install information on the following windows need not be set (steps 6 to 8 are not required):

- [Set install destination] window
- [Startup/Account registration] window
- [Register port number] window

An error check is performed automatically for the default install information in the omitted screens.

- If an error is detected: A warning dialog is displayed and the display switches back to that window.
- If no errors are detected: A warning dialog is displayed and the [Start copying files] window is displayed.

For details on default installation information and error check contents, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Installation of the Agent" > "Windows Platform".

- If [Custom] is selected

Installation information must be set in all the installation windows.

Enter the required information in the windows displayed in step 8 and subsequent steps.

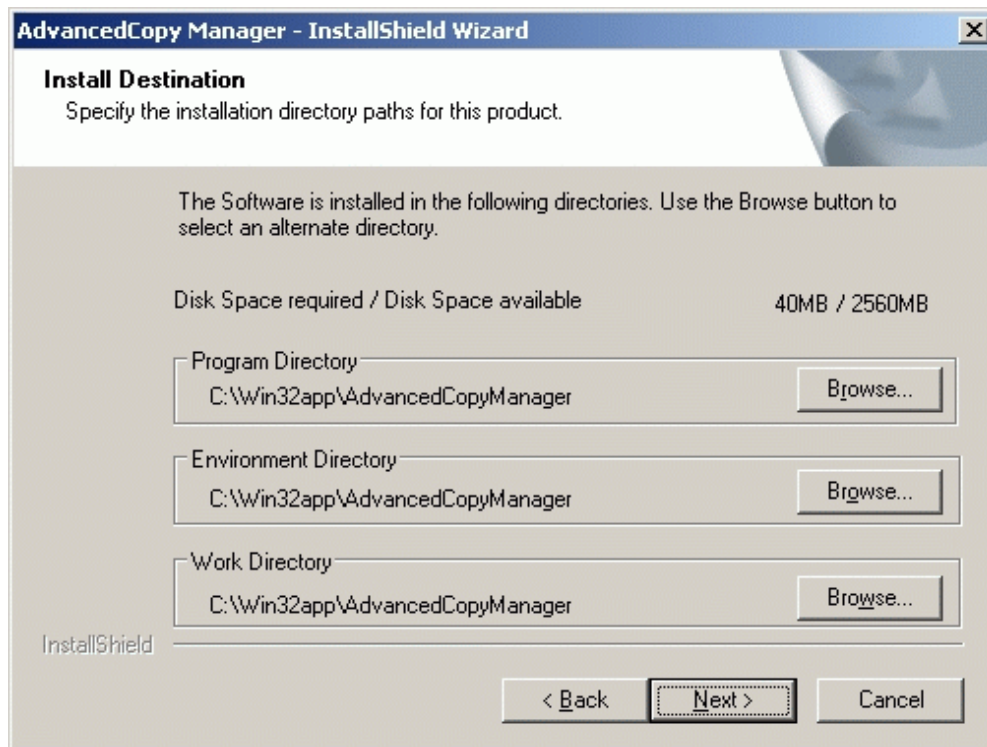
7. Specify the system to be installed.

- (Primary node)

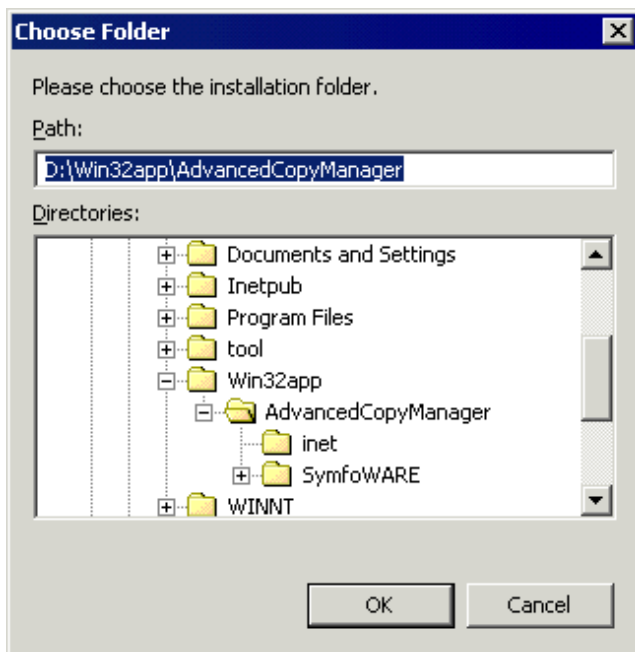
If this product is to be installed in directories other than those displayed (default directories), click the [Browse] button to select the desired directories. After all the proper directories have been selected, click the [Next] button. Note: directories with spaces their names (e.g., Program Files) must not be specified. Do not install 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 [Browse] buttons is clicked, the following window is displayed, allowing the selection of other than the defaulted directories:



8. 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 on the startup account, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Installation of the Manager" > "Prerequisites for Windows Platform" > "Startup account".

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.

AdvancedCopy Manager - InstallShield Wizard

Startup/Authentication Account

Startup/Authentication Account Registration. Specify an account name and a password to use as a startup account.

If the account specified exists, it must belong to the Administrator's group, otherwise it will be added to the group. If a new account is specified, it will be added to the Administrator's group.

And, the following user authority is added to the startup account.

- Log on as a service
- Act as part of operating system
- Increase quotas
- Replace a process level token

Startup/Authentication Account

| | |
|------------------|---------|
| Account | acmuser |
| Password | |
| Confirm Password | |

InstallShield

< Back **Next >** Cancel

9. 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 32767

The first displayed value is a recommended value in a non-cluster environment and is not always unique.

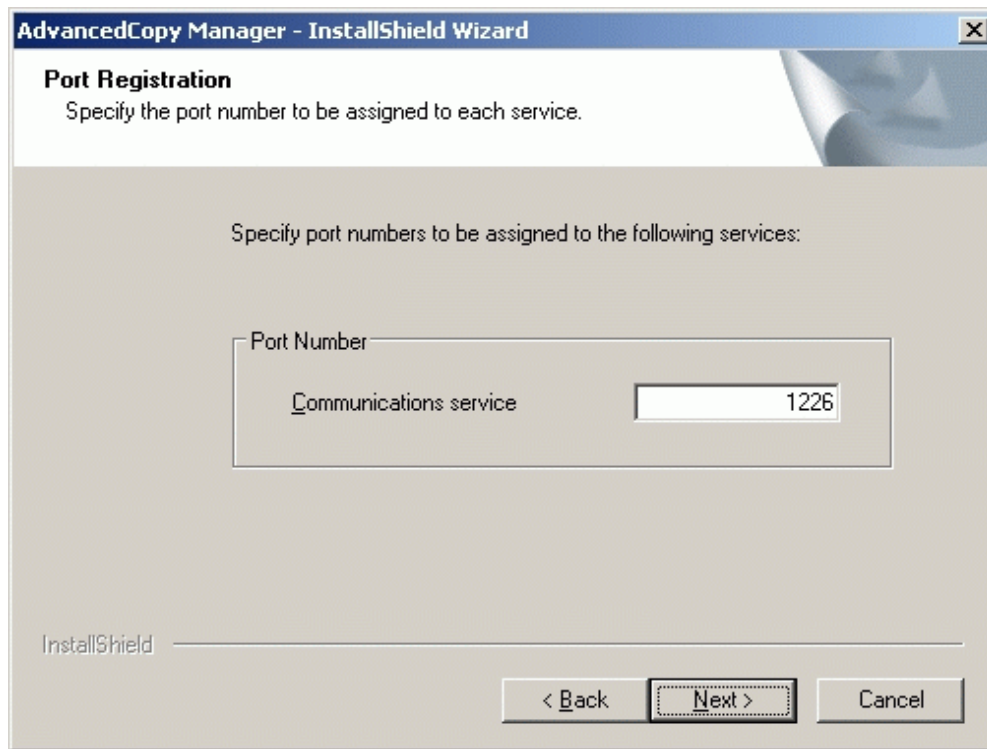
The number displayed by default is recommended, but it is not always a unique number.

To perform cluster operation with Windows Server 2003, change all port numbers so that they are within the range as indicated above.

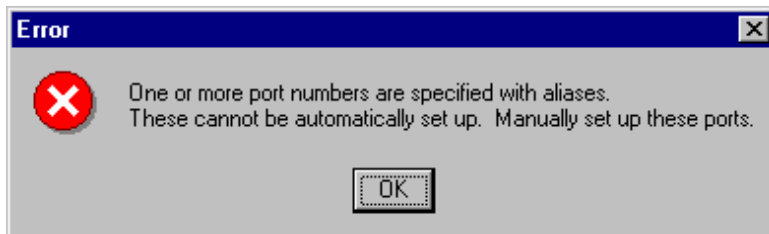
After entering port numbers completely, click the [Next] button. If a port number that has already been assigned was entered, this window appears again.

- (Secondary node)

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



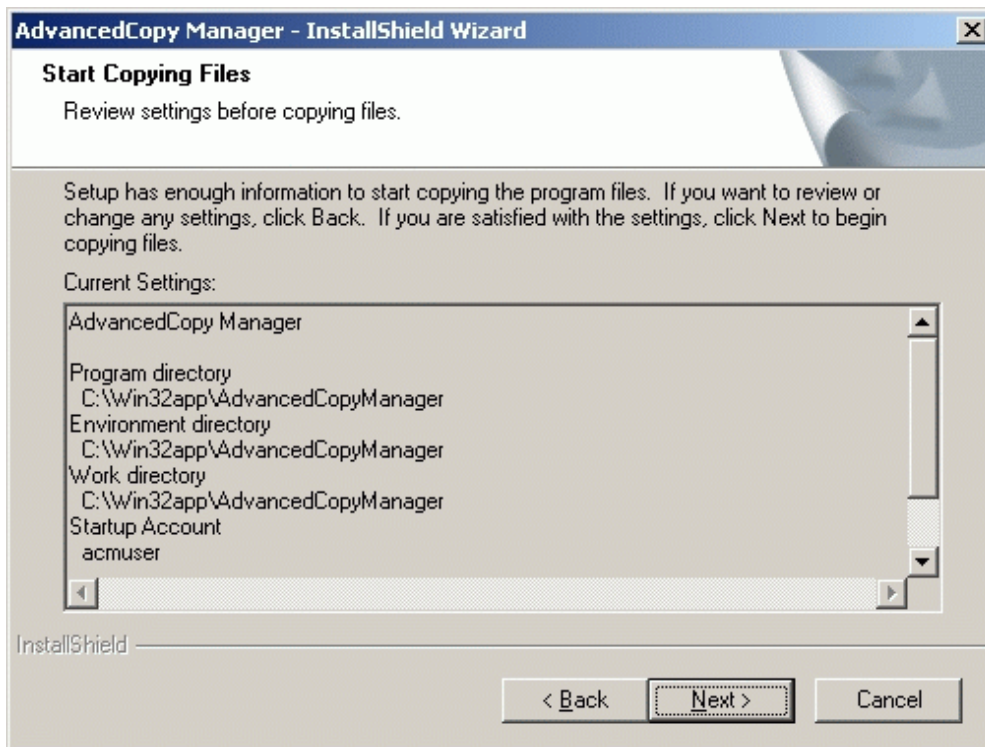
If the AdvancedCopy Manager service name is defined with an ALIAS, the following window will be displayed and the port number specified on the previous window is ignored. The installation proceeds.



Configure the port manually, by editing the file C:\WINDOWS\system32\drivers\etc\Services.

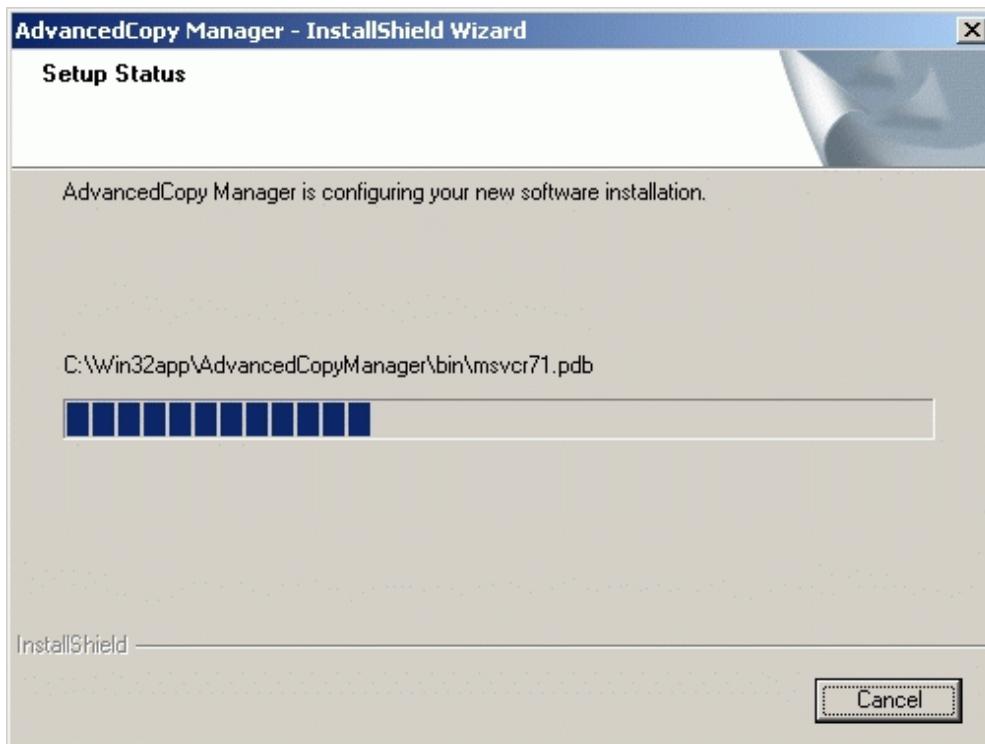
10. Confirm the settings on the [Start Copying Files] window.

If no errors are detected, click the [Next] button. To correct or otherwise change any settings, click the [Back] button.



11. Copying starts.

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



12. Finish the installation.

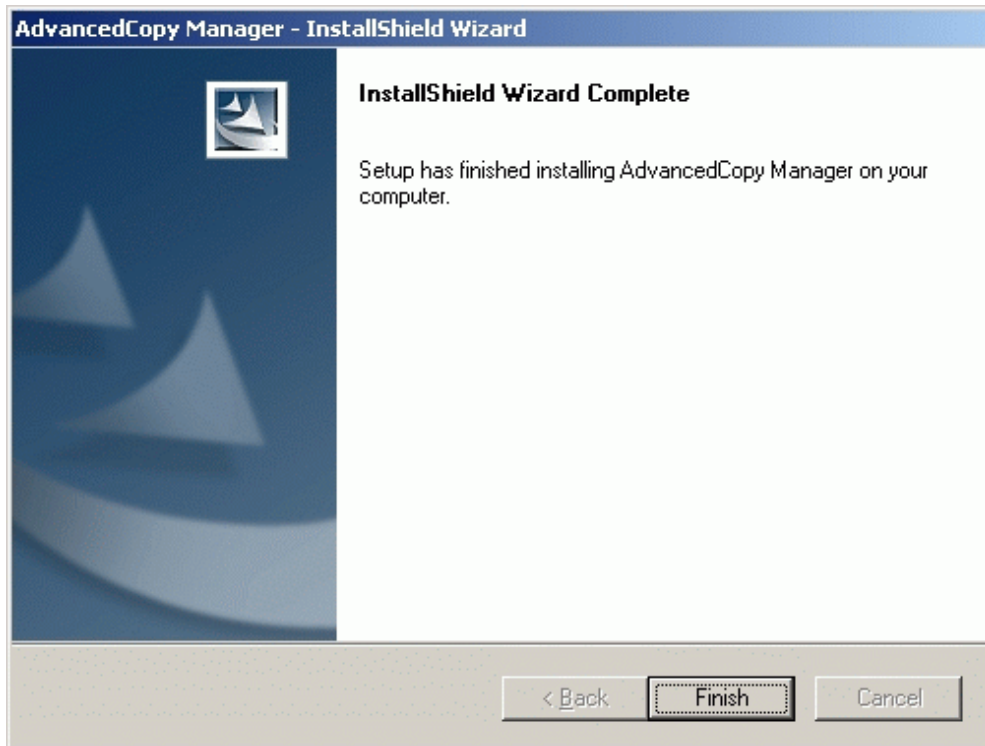
Click the [Finish] button to complete the installation.

- (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 "[Chapter 3 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 as the administrator.

14. 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:

Table 3.1 References for resources required in cluster systems

| Cluster system | Reference |
|---|---|
| Solaris version of SynfinityCLUSTER or PRIMECLUSTER | 3.1.1 Resources required for Solaris version SynfinityCLUSTER/PRIMECLUSTER |
| Solaris version of VERITAS Cluster Server | 3.1.2 Resources required for Solaris version VERITAS Cluster Server |
| Solaris version of Sun Cluster | 3.1.3 Resources required for Solaris version Sun Cluster |
| Linux version of PRIMECLUSTER | 3.1.4 Resources required for Linux version PRIMECLUSTER |
| Windows version of MSCS/WSFC | 3.1.5 Resources required for Windows version MSCS/WSFC |
| HP-UX version of MC/ServiceGuard | 3.1.6 Resources required for HP-UX version MC/ServiceGuard |
| HP-UX version of VERITAS Cluster Server | 3.1.7 Resources required for HP-UX version VERITAS Cluster Server |
| AIX version of VERITAS Cluster Server | 3.1.8 Resources required for AIX version VERITAS Cluster Server |
| AIX version of High Availability Cluster Multi-Processing | 3.1.9 Resources required for AIX version High Availability Cluster Multi-Processing |

3.1.1 Resources required for Solaris version SynfinityCLUSTER/PRIMECLUSTER

The following resources are required when installing AdvancedCopy Manager on the Solaris version 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 "[3.2 Capacity of a shared disk](#)" for information on the disk space that should be reserved on the shared disk.

Table 3.2 Numbers of partitions required for each AdvancedCopy Manager transaction

| 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 |

*1If 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.
- For details on how to set up PRIMECLUSTER shared disks and file systems, refer to the "PRIMECLUSTER Installation Guide".

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 the "PRIMECLUSTER Installation Guide".

- For details on how to set up SynfinityCluster shared disks and file systems, refer to the "SynfinityCluster Installation Guide".

Use the shared disk for the repository and the shared disk for shared data as file systems. Perform the procedure in the "SynfinityCluster Installation Guide".

- For information on TSM shared disks, refer to the TSM manuals.

3.1.2 Resources required for 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 "3.2 Capacity of a shared disk".

Table 3.3 Numbers of partitions required for each AdvancedCopy Manager transaction

| 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.)

 Note

- 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 "3.2 Capacity of a shared disk".

Table 3.4 Numbers of partitions required for each AdvancedCopy Manager transaction

| 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.)

 **Note**

- 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 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 "[3.2 Capacity of a shared disk](#)".

Table 3.5 Numbers of partitions required for each AdvancedCopy Manager transaction

| 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 "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 [4.4.2 Customization Procedure](#). Follow the instructions in the "PRIMECLUSTER Installation and Administration Guide."

3.1.5 Resources required for Windows version MSCS/WSFC

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

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 "3.2 Capacity of a shared disk".

Table 3.6 Numbers of drive letters required for each AdvancedCopy Manager transaction

| 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 |

 Note

- 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 HP-UX version MC/ServiceGuard

The following resources are necessary to install AdvancedCopy Manager on an HP-UX 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 "3.2 Capacity of a shared disk"

Table 3.7 Numbers of partitions required for each AdvancedCopy Manager transaction

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

 Note

- 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 enable mounting of the shared disk for shared data.

3.1.7 Resources required for HP-UX version VERITAS Cluster Server

The following resources are necessary to install AdvancedCopy Manager on an HP-UX 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 "[3.2 Capacity of a shared disk](#)".

Table 3.8 Numbers of partitions required for each AdvancedCopy Manager transaction

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

 Note

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by the VERITAS Cluster Server.
- Assign a disk that is not backed up or replicated using AdvancedCopy Manager as the shared disk for AdvancedCopy Manager shared data.
- The shared disk for AdvancedCopy Manager shared data 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 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 "[3.2 Capacity of a shared disk](#)".

Table 3.9 Numbers of partitions required for each AdvancedCopy Manager transaction

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

 **Note**

- Define the shared disk for AdvancedCopy Manager shared data as the shared disk used by the VERITAS Cluster Server.
- Assign a disk that is not backed up or replicated using AdvancedCopy Manager as the shared disk for AdvancedCopy Manager shared data.
- The shared disk for AdvancedCopy Manager shared data 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 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 "3.2 Capacity of a shared disk".

Table 3.10 Numbers of partitions required for each AdvancedCopy Manager transaction

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

 **Note**

- 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 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:

Table 3.11 Shared disk capacity for AdvancedCopy Manager shared data

| 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 version MSCS/WSFC:

Number of transactions * 7 + number of devices/3 + number of cabinets + 13,319 + (the number of users using GUI client+1)/20 [KB]

- For all other cases:

Number of transactions * 2 + number of devices/3 + number of cabinets + 13,319 + (the number of users using GUI client+1)/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 Symfoware is backed up:

((13 + 3 x (n + 1)) x m) + (50 x o x 3) [KB]

- If Symfoware is not backed up:

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

Refer to the table below for the values of m, n, and o.

Table 3.12 Values of m, n, and o

| | |
|---|--|
| 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. For Symfoware backups, add up the number of database spaces. |
| o | The total number of backups, restorations, and copies to tape that will be executed simultaneously. For Symfoware backups, add up the number of database spaces. |

Note

If a single shared disk is to be used for both the repository and the shared data, add the size of the shared disk for 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 Symfoware is backed up:

$$(n + 1) \times m \times 700 \text{ [byte]}$$

- If Symfoware is not backed up:

$$(n + 1) \times (m \times 2) \times 700 \text{ [byte]}$$

Refer to the table below for the values of m and n.

Table 3.13 Values of m and n

| | |
|---|--|
| 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. For Symfoware backups, add up the number of database spaces. |

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

Table 3.14 Items required during customization

| Items | Solaris | | | Linux | Windows |
|-------------------|----------------------------------|---------------------------|-------------|--------------|--|
| | SynfinityCluster PRIMECLUSTER | VERITAS Cluster Server | Sun Cluster | PRIMECLUSTER | Microsoft(R) Cluster Service Windows Server(R) Failover Clustering |
| Logical node name | Required | Required | Required | Required | Required |

| Items | Solaris | | | Linux | Windows |
|--|----------------------------------|---------------------------|-------------|--------------|--|
| | SynfinityCluster PRIMECLUSTER | VERITAS Cluster Server | Sun Cluster | PRIMECLUSTER | Microsoft(R) Cluster Service Windows Server(R) Failover Clustering |
| 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

Table 3.15 Items required during customization

| Items | Solaris | | | Linux | Windows |
|--|----------------------------------|---------------------------|-------------|--------------|--|
| | SynfinityCluster PRIMECLUSTER | VERITAS Cluster Server | Sun Cluster | PRIMECLUSTER | Microsoft(R) Cluster Service Windows Server(R) Failover Clustering |
| 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 for shared data | Required | Required | Required | Required | Required |

| Items | Solaris | | | Linux | Windows |
|--|----------------------------------|---------------------------|-------------|--------------|--|
| | SynfinityCluster PRIMECLUSTER | VERITAS Cluster Server | Sun Cluster | PRIMECLUSTER | Microsoft(R) Cluster Service Windows Server(R) Failover Clustering |
| Resource type | Required | Unnecessary | Unnecessary | Required | Unnecessary |
| User when installing | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Required |
| Cluster Name | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Required |
| Disk resource of the shared disk for shared data | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Required |
| Network Name | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Required |
| External Connection Network | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Required |
| IP Address Resource | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Required |
| Volume Group Name | Unnecessary | Unnecessary | Unnecessary | Unnecessary | Unnecessary |

| Items | HP-UX | | AIX | |
|--|---------------------|---------------------------|---|------------------------------|
| | MC/ ServiceGuard | VERITAS Cluster Server | High Availability Cluster Multi- Processing | VERITAS Cluster Server |
| Logical node name | Required | Required | Required | Required |
| Port number for the transaction communication daemon | Required | Required | Required | Required |
| Service name | Required | Required | Required | Required |
| Logical IP address | Required | Required | Required | Required |
| Shared disk for shared data | Required | Required | Required | Required |
| Resource type | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| User when installing | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| Cluster Name | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| Disk resource of the shared disk for shared data | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| Network Name | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| External Connection Network | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| IP Address Resource | Unnecessary | Unnecessary | Unnecessary | Unnecessary |
| Volume Group Name | Required | Unnecessary | Unnecessary | Unnecessary |

- 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 "1.3.1 Cluster transaction and local transaction of AdvancedCopy Manager".

 Note

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-UX version MC/ServiceGuard, HP-UX version VERITAS Cluster Server, AIX version High Availability Cluster Multi-Processing, and AIX version VERITAS Cluster Server.

Table 3.16 Character strings that cannot be used in logical node names

| 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/WSFC) 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.

 Note

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 "3.1 Resources".

 Note

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

- Shared disk information for share data

Refer to the paragraph of "resource required" corresponding to the cluster system of "3.1 Resources".

- Shared disk information for repository

Refer to the paragraph of "resource required" corresponding to the cluster system of "3.1 Resources".

- The user name and password for repository access

Prepare the user name and password for repository access.

Note

The local logon authority is needed for Windows version Microsoft(R) Cluster Service/Windows Server(R) Failover Clustering. 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.

Note

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 Service/Windows Server(R) Failover Clustering is confirmed. Refer to the manual of Microsoft(R) Cluster Service/Windows Server(R) Failover Clustering 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 Service/Windows Server(R) Failover Clustering 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 Service/Windows Server(R) Failover Clustering is confirmed. Refer to the manual of Microsoft(R) Cluster Service/Windows Server(R) Failover Clustering 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:

For details on the value corresponding to each key, refer to the "ETERNUS SF TSM PRIMECLUSTER Administrator's Guide".

Table 3.17 Information recorded in the TSM cluster setup information file

| Section name | Key name | Setting value | Description |
|---------------------------|----------|-----------------|--|
| TSM server name(service1) | Dbsize | Numerical value | Specifies the size (MB) of the TSM database. |

| Section name | Key name | Setting value | Description |
|--------------|---------------|-----------------|---|
| | 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.

Note

- 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:

Table 4.1 Customization method references

| Cluster system | Reference |
|---|--|
| Solaris version of SynfinityCLUSTER or PRIMECLUSTER | 4.1 Customization for Solaris version SynfinityCluster/PRIMECLUSTER |
| Solaris version of VERITAS Cluster Server | 4.2 Customization for Solaris version VERITAS Cluster Server |
| Solaris version of Sun Cluster | 4.3 Customization for Solaris version Sun Cluster |
| Linux version of PRIMECLUSTER | 4.4 Customization for Linux version PRIMECLUSTER |
| Windows version of MSCS/WSFC | 4.5 Customization for Windows version MSCS/WSFC |
| HP-UX version of MC/ServiceGuard | 4.6 Customization for HP-UX version MC/ServiceGuard |
| HP-UX version of VERITAS Cluster Server | 4.7 Customization for HP-UX version VERITAS Cluster Server |
| AIX version of VERITAS Cluster Server | 4.8 Customization for AIX version VERITAS Cluster Server |
| AIX version of High Availability Cluster Multi-Processing | 4.9 Customization for AIX version High Availability Cluster Multi-Processing |

4.1 Customization for Solaris version SynfinityCluster/PRIMECLUSTER

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

Throughout this section, the primary node is an active node in a cluster service (userApplication) performing 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.

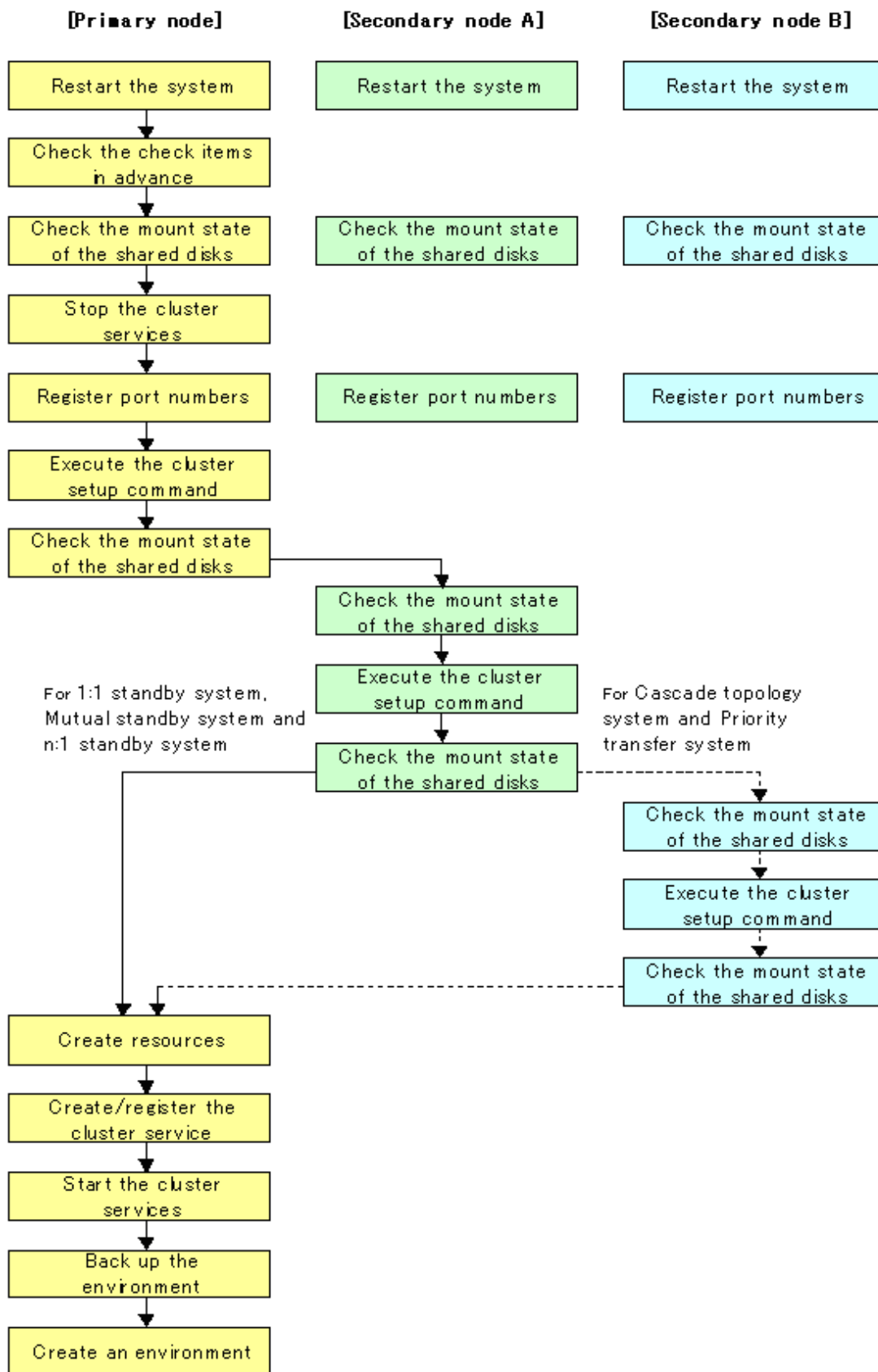
Example:

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 customization.

Figure 4.1 Customization flow for Solaris version SynfinityCluster/PRIMECLUSTER



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, then proceed to check the preparations.

2. Check the preparations.

Check each item of "3.3 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*

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 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:

Example

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

- If command line resources are used:

Example

```
# /opt/swstorage/bin/stgclset_safe -k Primary -m /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:

Example

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

- If command line resources are used:

Example

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



Note

Do not specify "-r cmd" with SynfinityCLUSTER.

For details on this command, refer to "[8.2.1 stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)".

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
manager_service -i 10.10.10.10 -f mgr
AdvancedCopy Manager settings are as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Primary
  IP Address     : 10.10.10.10
  Mount point    : /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_service -r cmd
AdvancedCopy Manager settings are as follows.
  Cluster system : SynfinityCluster or PRIMECLUSTER
  Node type      : Primary
  Mount point    : /CTTEST3
  Node name      : nodeAGT
  Service        : agent_service
  Resource       : CmdLine
```

```

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

```

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

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/ 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.

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/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
```

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.



For security purposes it is recommended to use a general user and not a root user which has frequent 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) :
```



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:

Example

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

Refer to "8.2.1 [stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)" for command details.



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.

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.                               |
|=====|
|      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.

 **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.

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:

Example

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

Refer to "8.2.1 [stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)" for command details.

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."

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.

Note

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

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.

Note

- 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.
- 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 if command line resources are used.

Specify the following values in each of the command line resource parameters:

- Start script

/opt/FJSVswstf/cluster/clproc/acm_logical-node-name start

- Stop script

/opt/FJSVswstf/cluster/clproc/acm_logical-node-name stop



Note

- For information on how to create resources with PRIMECLUSTER, see "[Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER](#)".
- The cluster setup command (8.2.1 [stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)) has already created the preparatory settings (ie, creating a state transition procedure and storing resources in the resource database) that are defined to set PRIMECLUSTER procedure resources.
- Do not specify anything in the command line resource check script.
- Set the following for the parameters specified as "script attributes" of the command line resource:
 - NULLDETECTOR:Yes
 - ALLEXITCODES:No
 - LIEOFFLINE:No
 - CLUSTEREXCLUSIVE:No
 - AUTORECOVER:No
 - MONITORONLY:No
 - STANDBYCAPABLE:No
 - REALTIME:No
 - TIMEOUT:300

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

Note

- Some information must be registered as switchover file system information. This includes the mount point and partition on the shared disk for shared data, and the mount point and partition 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 (8.2.1 [stgclset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command\)](#)) has already created the SynfinityCluster "Setting Up Resources (Application Resources)" (ie, creating a state transition procedure and storing resources in the resource database).
- For information on how to create resources with PRIMECLUSTER, refer to "[Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER](#)".

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

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

31. 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

32. 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.

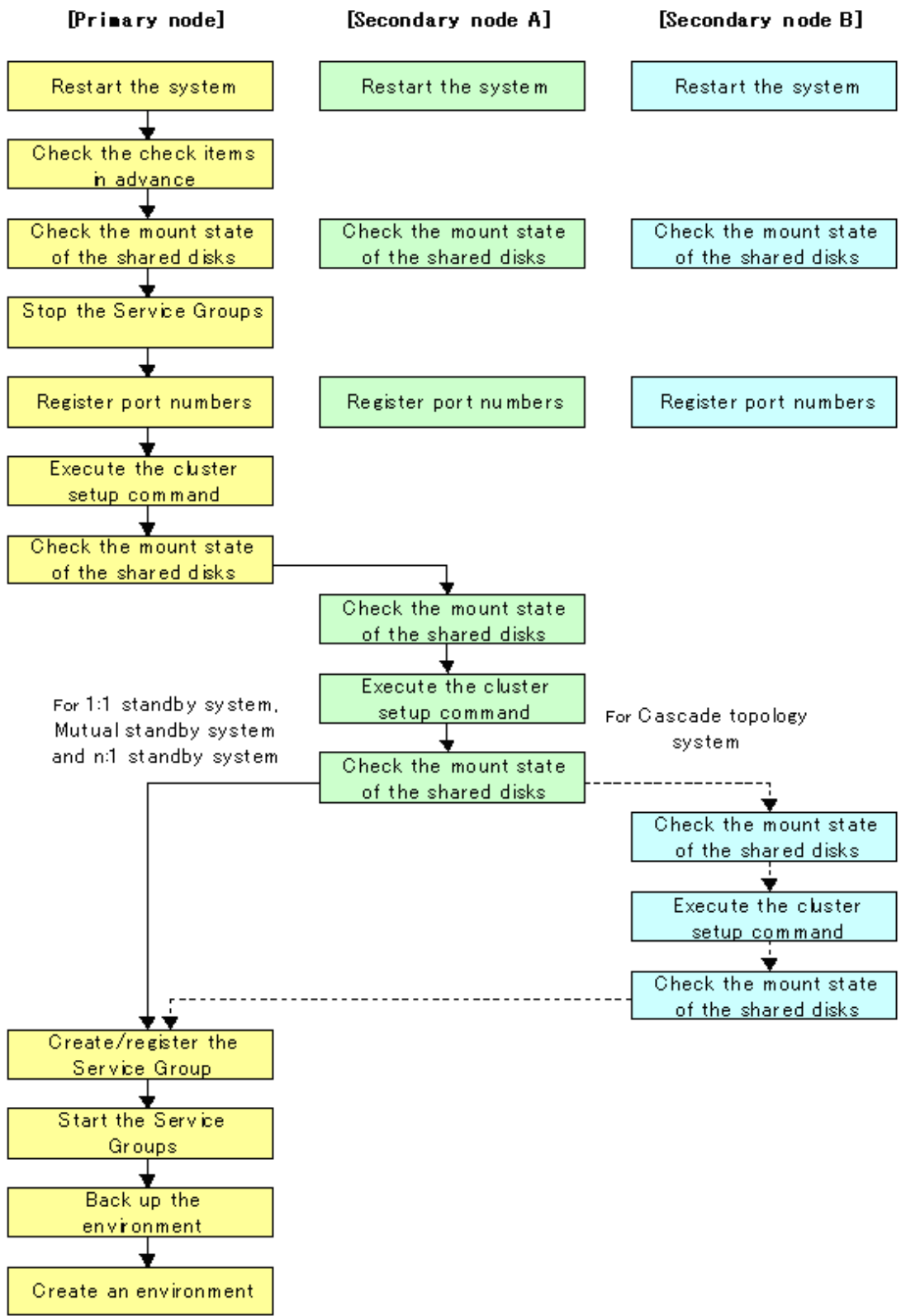
Example:

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 customization.

Figure 4.2 Customization flow for Solaris version VERITAS Cluster Server



4.2.2 Customization Procedure

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

1. Set the code that indicates an application status.

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

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

Example

Setting example when using VERITAS Cluster Server 5.0:

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

Point

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

2. Restart the 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 next step.

3. Check the preparations.

Check each item of "3.3 Confirmation of items," for the Service Group to be set up.

4. 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.

5. 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."

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

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

6. Register port numbers

Register the port number for the transaction communication 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.

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 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.

Example

```
# /opt/swstorage/bin/stgclset_vcs -k Primary -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:

Example

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

Refer to "8.2.2 stgclset_vcs (Solaris version VERITAS Cluster Server environment setup command)" for command details.

8. Check the setup object.

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

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

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

If the transaction is the Storage Management Server transaction, proceed to step 9.

If the transaction is the 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 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 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/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 10 are displayed. Confirm the displayed information, enter "y", and press the Enter key.

```
=====
Directory name for the DB file ...../ACMMntVol202/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 for saving 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

```

- 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**

For security reasons it is recommended to use a general username and not the 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)".

- 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.
#

```

- 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.

- 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.

17. 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:

Example

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

Refer to "8.2.2 stgclset_vcs (Solaris version VERITAS Cluster Server environment setup command)" for command details.



For a Storage Management Server transaction to be performed, use the location that is specified when the Storage Management Server is 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_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 19.

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

19. 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

```

20. 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.
#

```

21. 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 29.

If the system is Cascade topology and the Priority transfer, proceed to step 22.

22. 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 22 to Step 28 is processed for all the secondary nodes B.

23. 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 22.

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:

Example

```

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

```

Refer to "8.2.2 stgclset_vcs (Solaris version VERITAS Cluster Server environment setup command)" for command details.

Note

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

24. 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.

25. 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."

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

If the transaction is a Storage Server transaction, proceed to step 27.

Note

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

26. 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

```

27. 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.
#

```

28. 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 more secondary nodes B remain to be set up (ie Step 22 to Step 28 have not been performed in them as yet), perform from Step 22 in the node. When operation from Step 22 to Step 28 is completed by all secondary nodes B, go to Step 29.

29. 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.

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

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

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

Register applications.

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

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

Place resources into the enabled state.

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

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

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

Specify a start application.

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

```
# hares -modify AdvancedCopy_Manager_appl StartProgram /opt/FJVSwsstf/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/FJVSwsstf/cluster/clproc/vcsStop_nodemgr."

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

Specify a monitor application.

When a logical node name is nodemgr, the path of monitor application becomes "/opt/FJVSwsstf/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
```

30. Start the AdvancedCopy Manager and Transaction.

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

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

The example of starting the User Service Group by the command of VERITAS Cluster Server is as follows.

In this example, a User Service Group name is set to "STGMGRSRV", and an active system node name is set to "node1".

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

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.

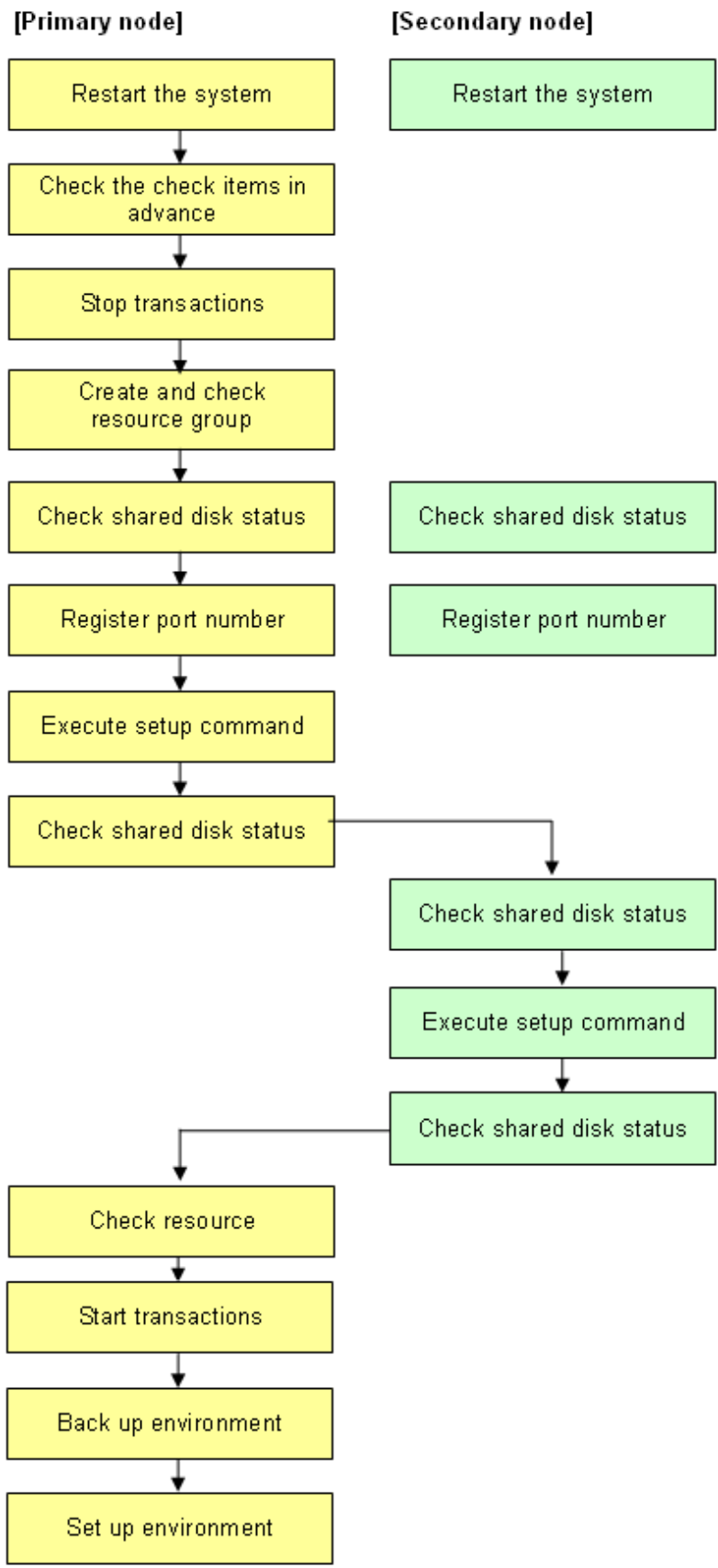
Throughout this section, the primary node is the active node in the resource group that executes Storage Management Server transaction and Storage Server transactions, and the secondary node is the standby node in the same resource group.

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 customization.

Figure 4.3 Customization flow for Solaris version Sun Cluster



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 "3.3 Confirmation of items" for the resource group to be set up.

3. Create and check the resource group

Check the resource group that adds the 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.HASStoragePlus 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.HASStoragePlus 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.

Example

```
# /opt/swstorage/bin/stgclset_sun -k Primary -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:

Example

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

Refer to "8.2.3 stgclset_sun (Solaris version Sun Cluster environment setup command)" for command details.

8. Check the setup object.

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

- 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       |
|  =====                                               |
|  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  |
|  =====                                               |
+-----+

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 for saving 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
```

- 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)".

- 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.
#
```

- 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 shared data on the secondary node.

- 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.

- 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:

Example

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

Refer to "8.2.3 stgclset_sun (Solaris version Sun Cluster environment setup command)" for command details.

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. 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.

24. 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

25. 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)."

4.4 Customization for Linux version PRIMECLUSTER

This section explains how to customize the Linux version PRIMECLUSTER.

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.

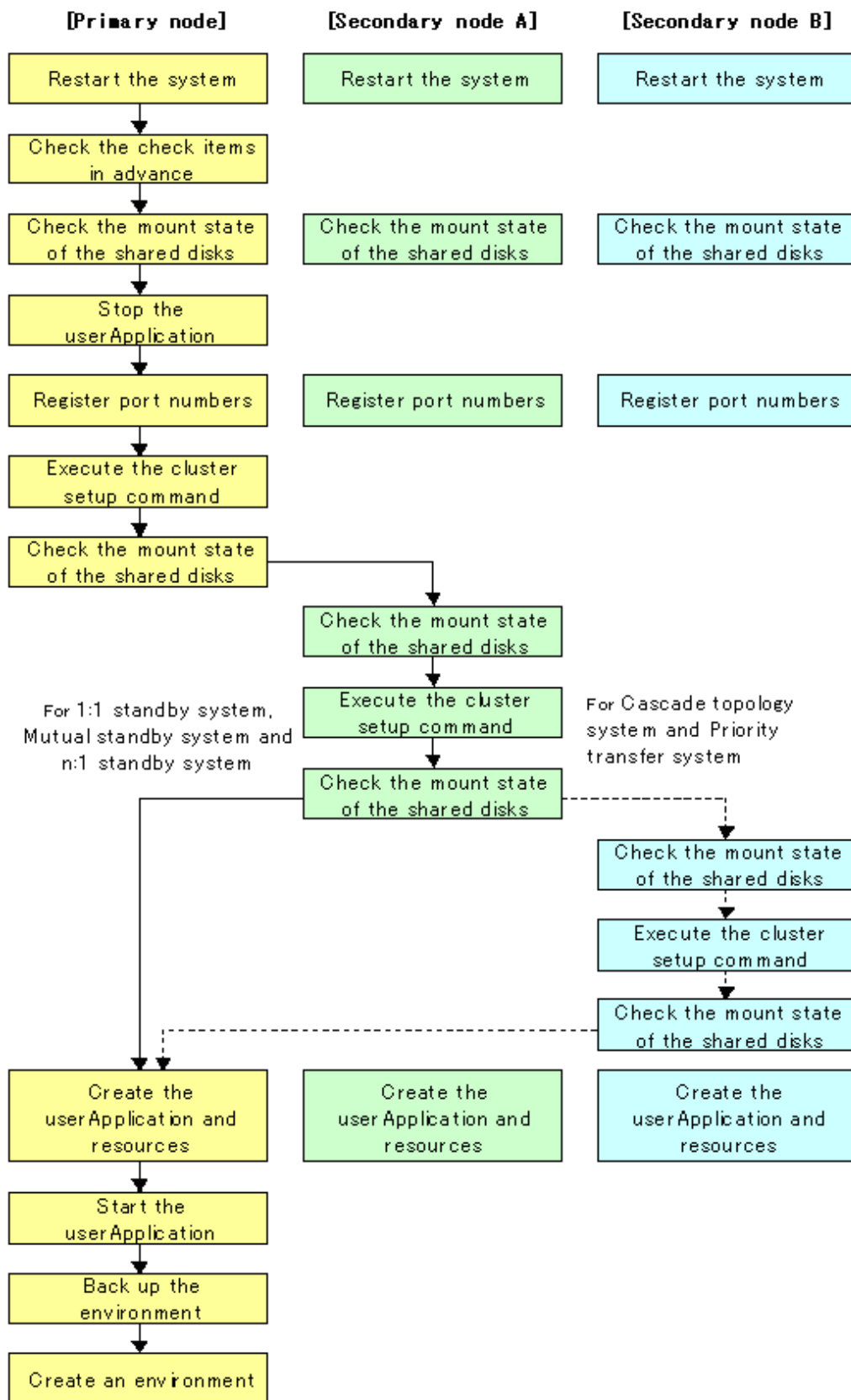
Example:

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 customization.

Figure 4.4 Customization flow for Linux version PRIMECLUSTER



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 "3.3 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*

Note

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:

Example

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

- If command line resources are used:

Example

```
# /opt/swstorage/bin/stgclset_lxprm -k Primary -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 same location specified during Storage Management Server installation.
- 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:

Example

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

- If command line resources are used:

Example

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

Refer to "8.2.4 stgclset_lxprm (Linux version PRIMECLUSTER environment setup command)" for command details.

7. Check the setup object.

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

- 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 -r cmd
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.

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/Vol202/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/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 for saving repository data ...../ACMMnt/Vol205/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
```

- 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**

For security reasons, it is recommended to log on as a general user and 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 (Linux)".

- 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.
#
```

- 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.

- 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.

- 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:

Example

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

Refer to "8.2.4 stgclset_lxprm (Linux version PRIMECLUSTER environment setup command)" for command details.

Note

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.

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.

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:

Example

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

Refer to "8.2.4 stgclset_lxprm (Linux version PRIMECLUSTER environment setup command)" for command details.

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_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."

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.



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

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.

Note

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 "PRIMECLUSTER Installation and Administration Guide" and either "PRIMECLUSTER Global Link Services Configuration and Administration Guide (Redundant Line Control Function)" or "PRIMECLUSTER Global Link Services Configuration and Administration Guide (Multipath Function)".

- For information on how to create resources and userApplications with PRIMECLUSTER, see "[Appendix B Creating Resources and userApplications with Linux version PRIMECLUSTER](#)".
- The cluster setup command (8.2.4 [stgclset_lxprn \(Linux version PRIMECLUSTER environment setup command\)](#)) 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. Start the userApplication and the AdvancedCopy Manager.

Use the RMS Wizard to start the new userApplication or the userApplication stopped in step 4.

30. 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

31. 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/WSFC

This section explains how to customize Windows version MSCS or WSFC.

The primary node is an active node in a cluster service (userApplication) performing 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 as 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.

Note

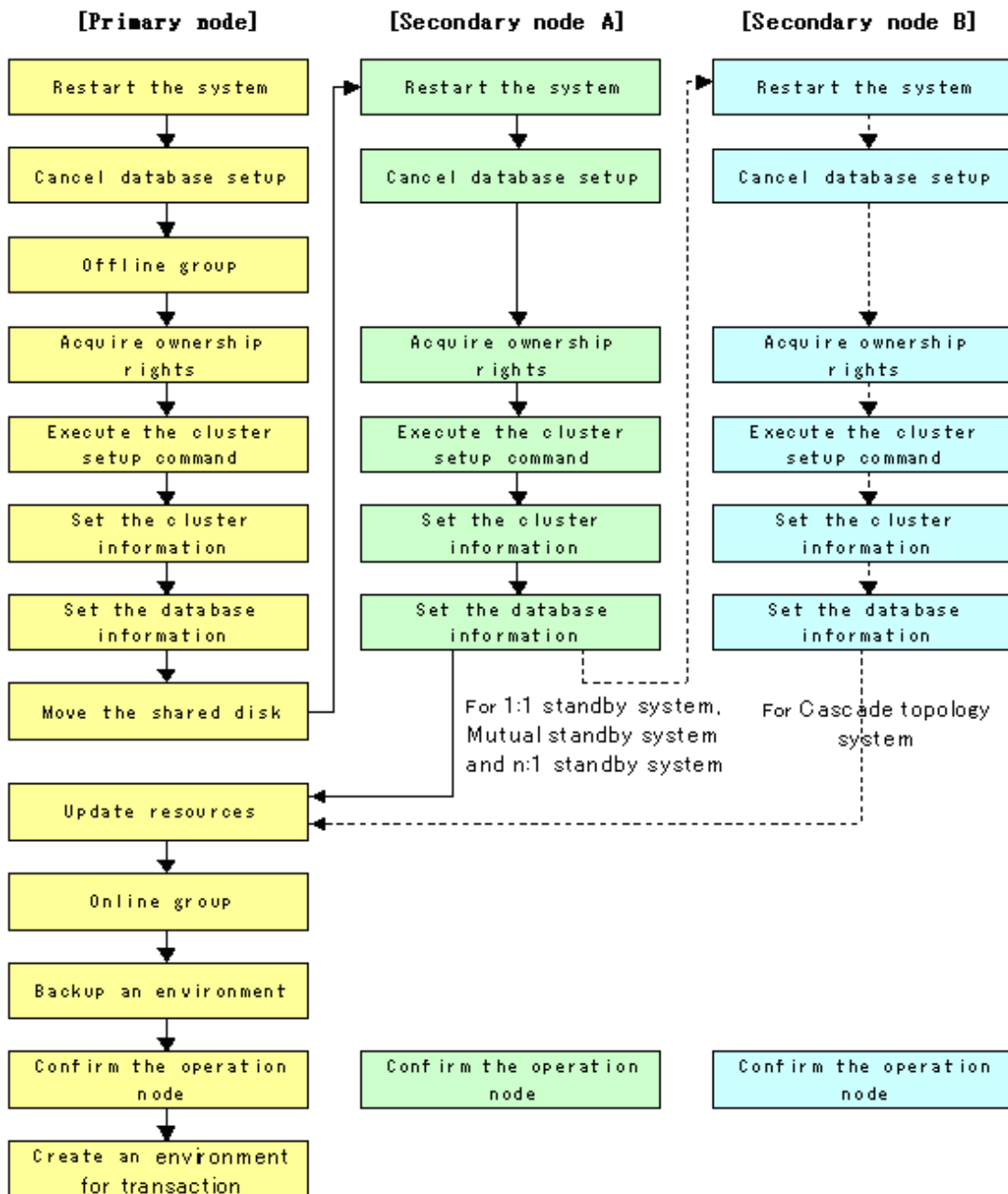
In any of the following cases, set the firewall function by referring to "Notes on installation," in the "ETERNUS SF AdvancedCopy Manager Installation Guide":

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

4.5.1 Flow of Customizing

This section describes the flow of customization.

Figure 4.5 Customization flow for Windows version MSCS or WSFC



4.5.2 Customization Procedure

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

Point

Please record the logon user who executes the customization procedure of Storage Management Server transaction. This logon user is needed for the deletion of Storage Management Server transaction.

The deletion of Storage Management Server transaction may be failed, when the deletion of it is executed by a user different from the user who executed the customization.

Note

- The "Computer Browser service" Windows service must be activated if a user belonging to the Administrators domain wants to perform customization for the Windows version of MSCS/WSFC.
- Executing this process with the service listed below must be paid attention.
 - Terminal service (via a remote desktop connection)

If the Storage Management Server is running on Windows Server 2003, the Terminal Service must be used by making a console session connection to it. Refer to the following link for information on how to make console session connections:

<http://support.microsoft.com/kb/947723>

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

Do not use service listed below, as it will not work properly.

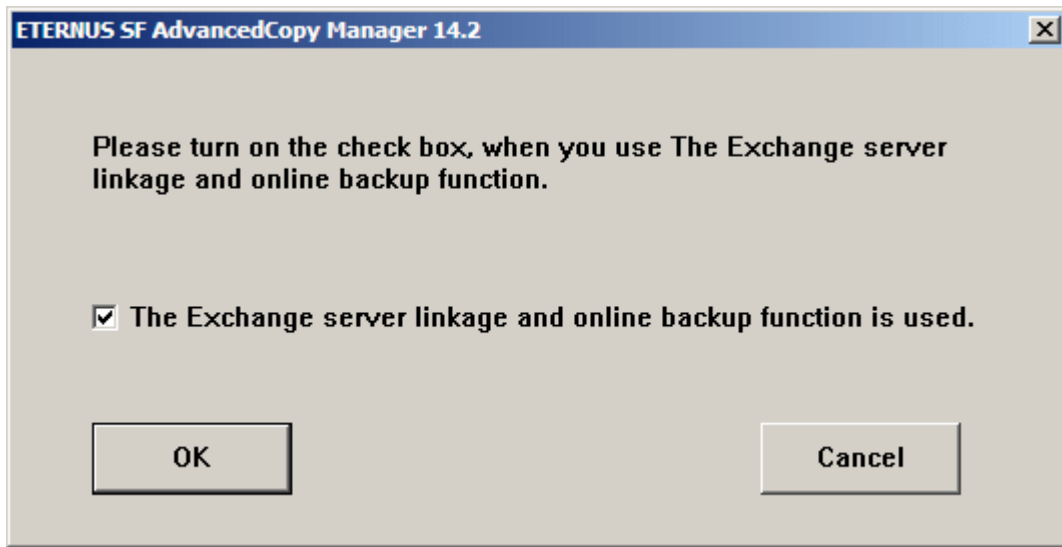
- Telnet server service
-

Point

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

- The operating system is either of the following.
 - Windows Server 2008 x64 Edition
 - Windows Server 2008 R2
- The either of the following AdvancedCopy Manager is installed.
 - Manager

- Agent that was installed by non-checking the check box of the following window, displayed during the installation.

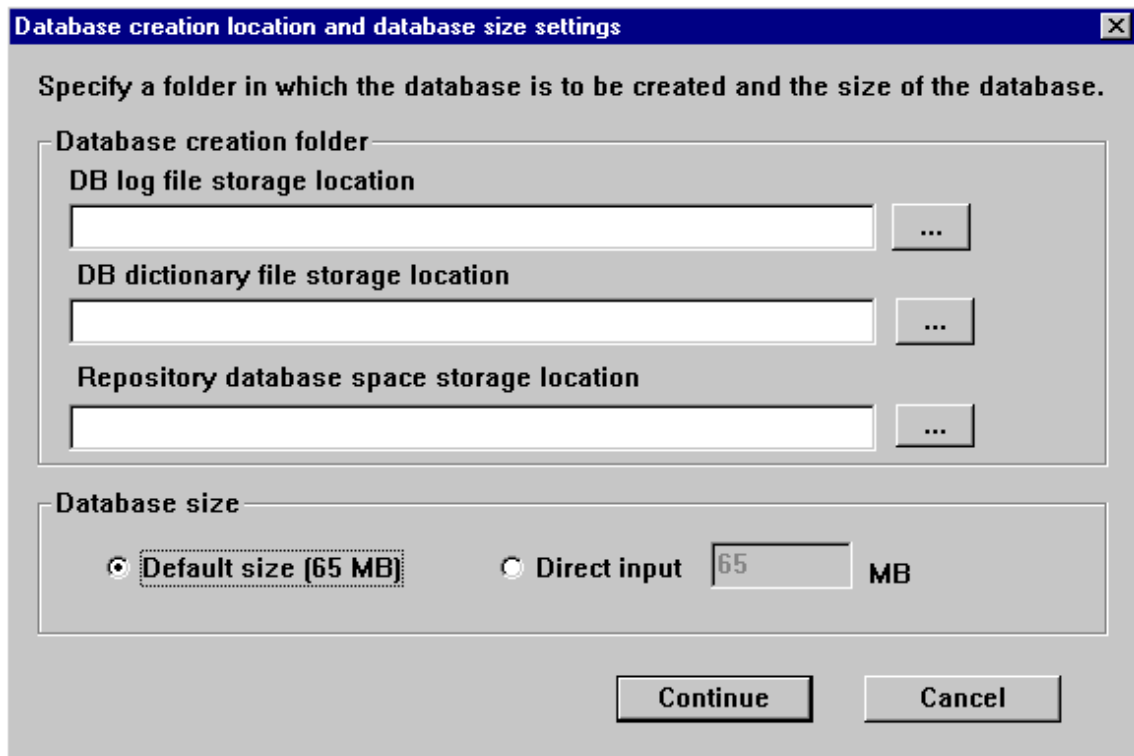


1. Reactivate the primary node.

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 Service/Windows Server(R) Failover Clustering manuals.

4. Acquire the ownership rights on Microsoft(R) Cluster Service/Windows Server(R) Failover Clustering.

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 Service/Windows Server(R) Failover Clustering manuals.

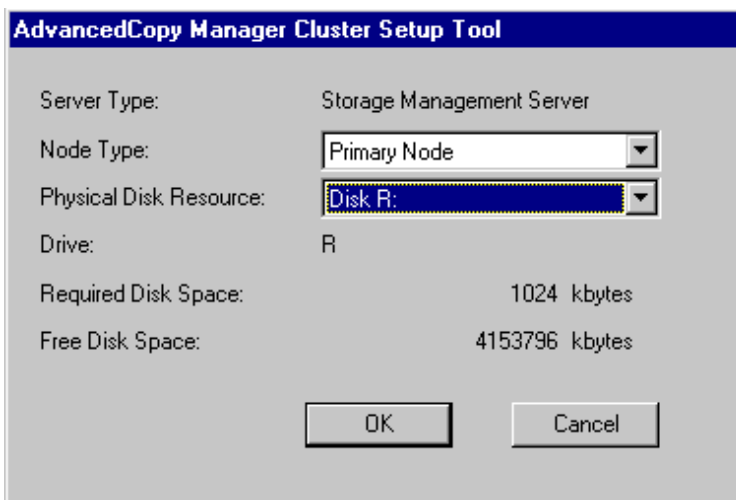
5. Execute the cluster setup command.

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 "[3.3 Confirmation of items.](#)"

- Drive

The drive letter corresponding to the physical disk resource is displayed.

- Required Disk space

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

- Free Disk Space

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

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:

AdvancedCopy Manager Cluster Setup Tool

Server Type: Storage Management Server

Node Type: Primary Node

Drive: R

Logical Node Name:

Service Name:

Cluster Name:

IP Address Information:

IP Address:

Create New IP Address Resource

Subnet Mask:

Network Name:

External Connection Network :

An existing IP address resource will be used

IP Address Resource:

Storage Management Server Operation

- For 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 "3.3 Confirmation of items."

- Service name

Enter the service name as defined in "3.3 Confirmation of items."

- Cluster Name

Enter the cluster name as confirmed in "3.3 Confirmation of items."

- IP Address

Enter the logical IP address as defined in "3.3 Confirmation of items."

- Create New IP Address Resource

If the IP address entered above is a new IP address, select this button. Enter information for the following three items only if this button has been selected.

- Subnet Mask
Enter the subnet mask of the IP address entered above.
- Network Name
Enter the network name as prepared in "[3.3 Confirmation of items.](#)"
- External Connection Network
Enter the external connection network name as confirmed in "[3.3 Confirmation of items.](#)"
- An existing IP address resource will be used
If the IP address entered above is an IP address inherited from an existing cluster group, select this button. Enter information for the following item only if this button has been selected.
- IP Address Resource
Enter the IP address resource confirmed in "[3.3 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.

Port Number and Service Setup and Release Command

To create a cluster environment, create a service for the AdvancedCopy Manager logical node (nodemgr). Specify a password specified when AdvancedCopy Manager was installed

Account Name: acmuser

Password: *****

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

Communication Service: 11000

OK Cancel

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 "[3.3 Confirmation of items.](#)".

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



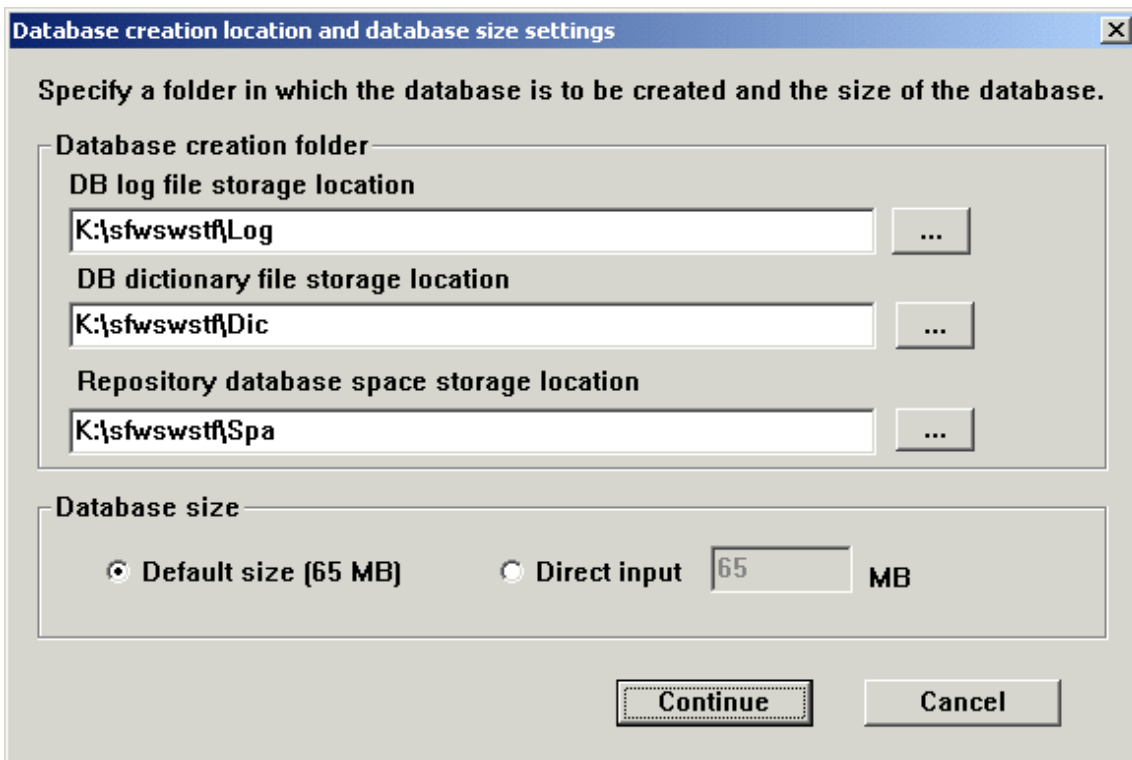
Click the [OK] button.

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

IP address and repository access user settings

Specify the IP address of the Storage management server.

IP address

10 . 10 . 10 . 10

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

Repository access user

User acmuser

Password *****

Settings Cancel

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

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

Note

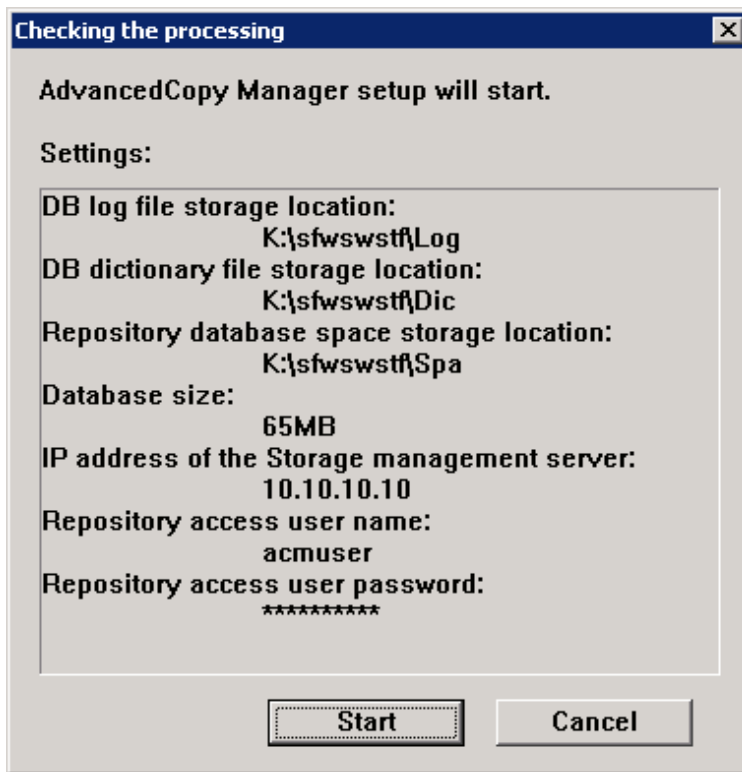
.....

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

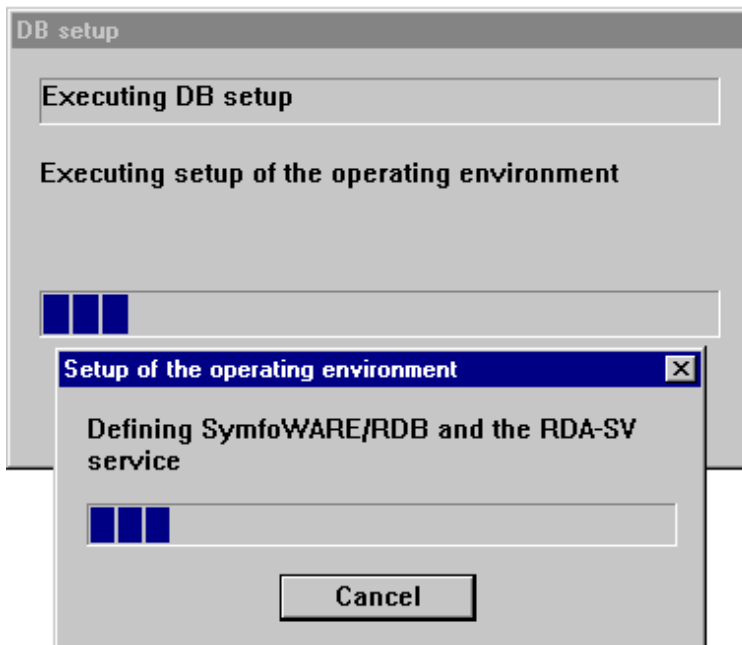
.....

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

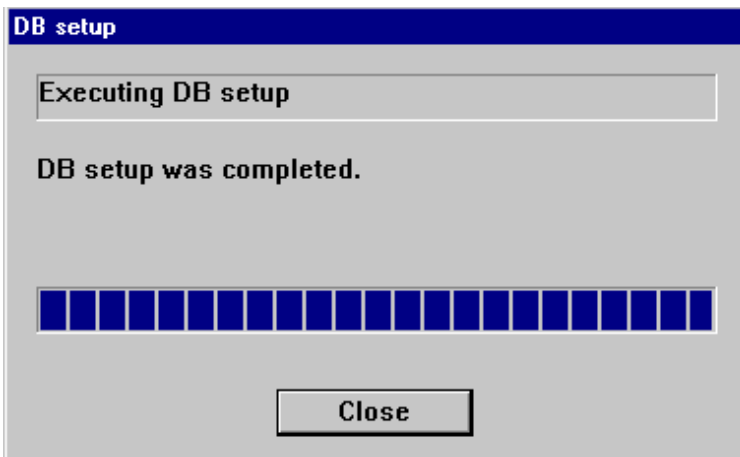
When the setting information for the database is displayed, confirm the displayed information and click the [Start] button.



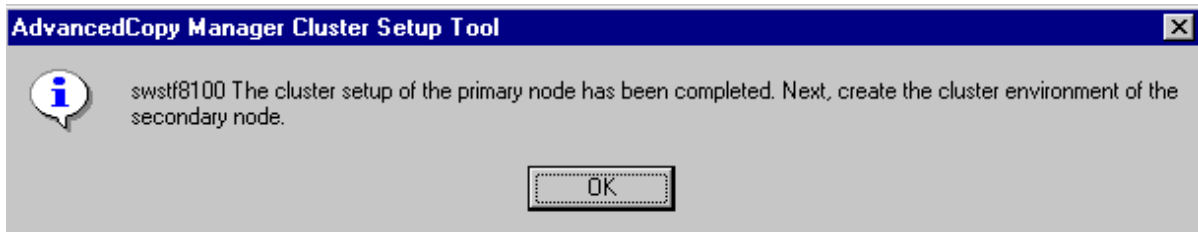
13. For a Storage Management Server transaction, the DB Setup processing started.



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



15. 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.



16. 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 Service/Windows Server(R) Failover Clustering manuals.
17. 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.

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

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

Database creation location and database size settings

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

Database creation folder

DB log file storage location

DB dictionary file storage location

Repository database space storage location

Database size

Default size [65 MB] Direct input [65] MB

Continue Cancel

- 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 Service/Windows Server(R) Failover Clustering manuals.

- Execute the cluster setup command.

Execute the following cluster setup command on the secondary node:

```
Program_directory \bin\stgclset_mscs
```

- Select the node type and shared disk.

The initial window of the cluster setup command is displayed.

AdvancedCopy Manager Cluster Setup Tool

Server Type: Storage Management Server

Node Type: Secondary Node

Physical Disk Resource: Disk R

Drive: R

Required Disk Space: 1024 kbytes

Free Disk Space: 3931148 kbytes

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
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.

22. 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:

AdvancedCopy Manager Cluster Setup Tool

Server Type: Storage Management Server

Node Type: Secondary Node

Drive: R

Logical Node Name:

Service Name:

Cluster Name:

IP Address Information:

IP Address:

Create New IP Address Resource

Subnet Mask:

Network Name:

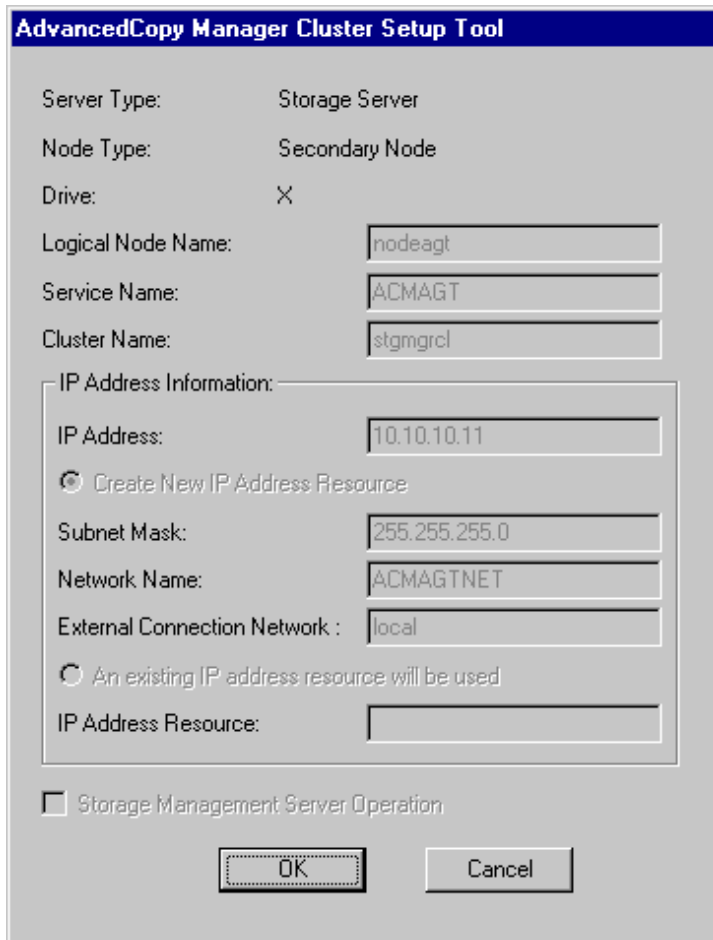
External Connection Network :

An existing IP address resource will be used

IP Address Resource:

Storage Management Server Operation

- For a Storage Server transaction:



AdvancedCopy Manager Cluster Setup Tool

Server Type: Storage Server

Node Type: Secondary Node

Drive: X

Logical Node Name:

Service Name:

Cluster Name:

IP Address Information:

IP Address:

Create New IP Address Resource

Subnet Mask:

Network Name:

External Connection Network :

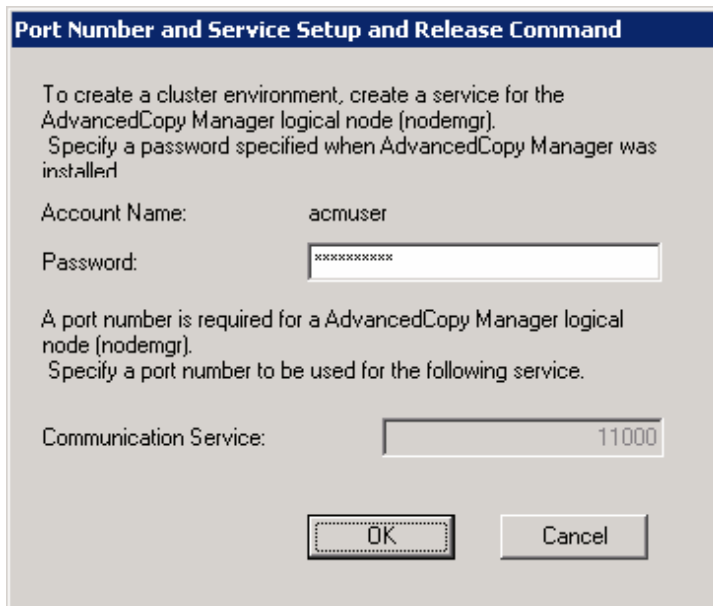
An existing IP address resource will be used

IP Address Resource:

Storage Management Server Operation

23. 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.



Port Number and Service Setup and Release Command

To create a cluster environment, create a service for the AdvancedCopy Manager logical node (nodemgr). Specify a password specified when AdvancedCopy Manager was installed

Account Name: acmuser

Password:

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

Communication Service:

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

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



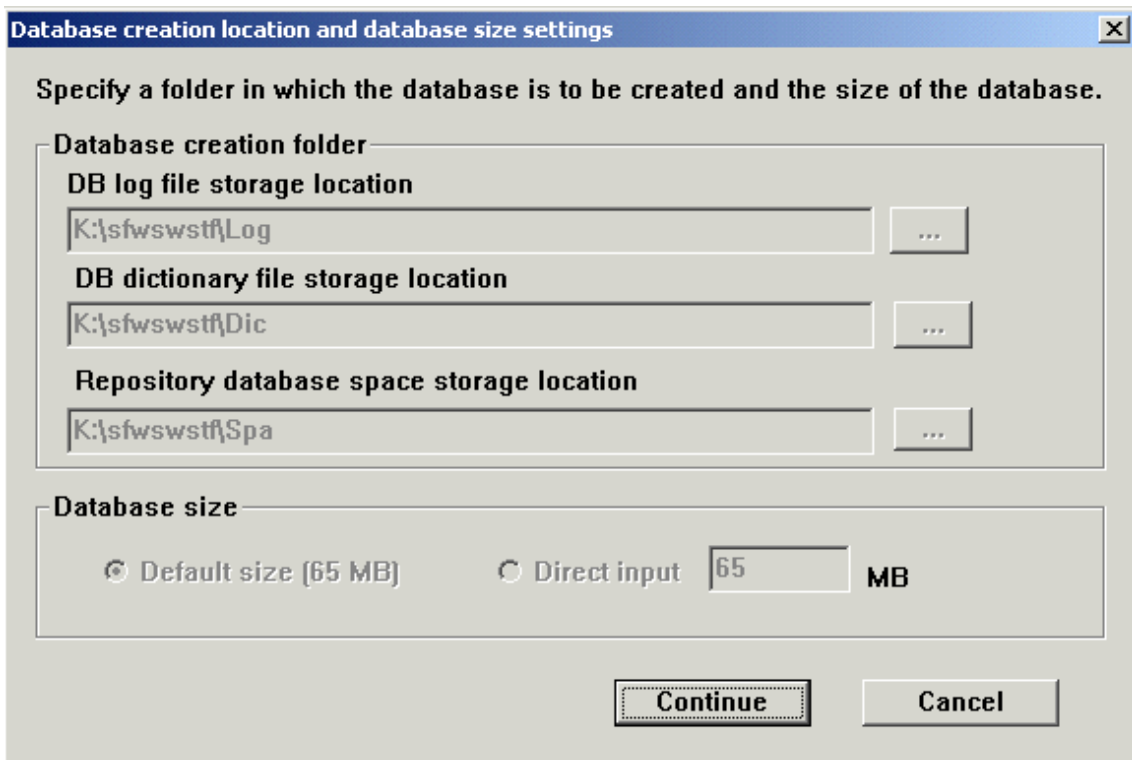
Click the [OK] button.

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.

25. 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.



26. 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.

IP address and repository access user settings

Specify the IP address of the Storage management server.

IP address

10 . 10 . 10 . 10

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

Repository access user

User acmuser

Password *****

Settings Cancel

27. 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.

Checking the processing

AdvancedCopy Manager setup will start.

Settings:

DB log file storage location:
K:\sfwswstf\Log

DB dictionary file storage location:
K:\sfwswstf\Dic

Repository database space storage location:
K:\sfwswstf\Spa

Database size:
65MB

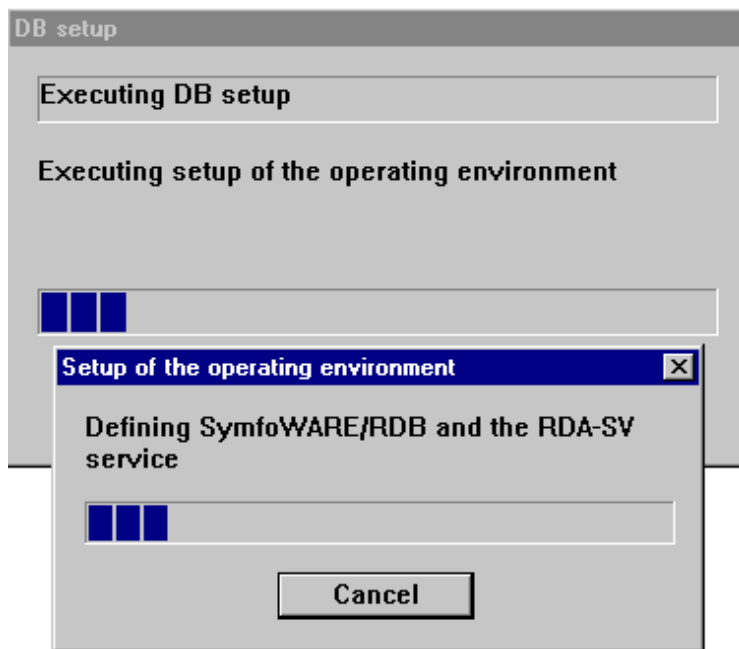
IP address of the Storage management server:
10.10.10.10

Repository access user name:
acmuser

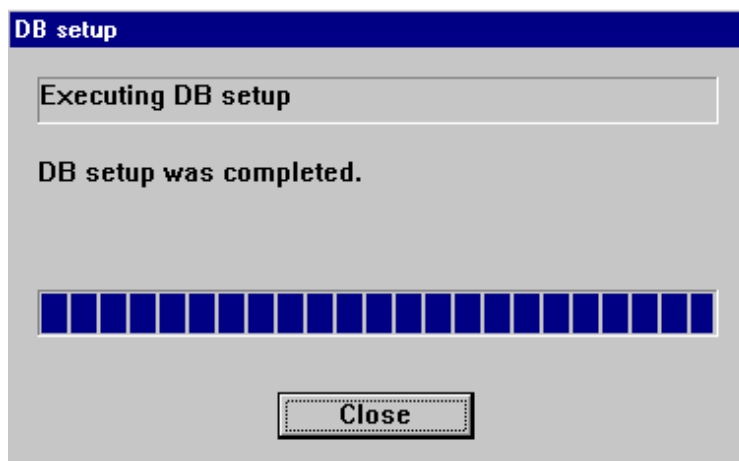
Repository access user password:

Start Cancel

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



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



30. 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.

31. Reactivate the secondary node B.

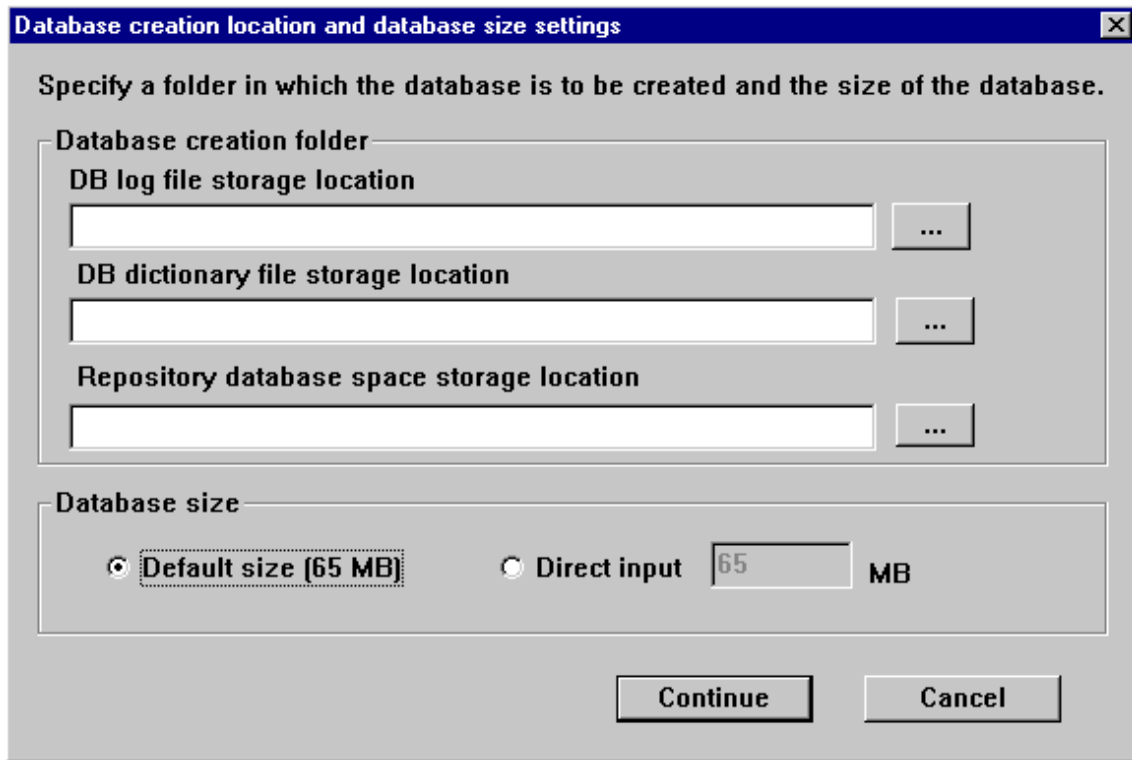
If the system has been reactivated as an extension of the AdvancedCopy Manager installation process, go to the step 34.

 **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.

32. For a Storage Management Server transaction, cancel setting processing of the database information.

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



33. 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) Service/Windows Server(R) Failover Clustering manuals.

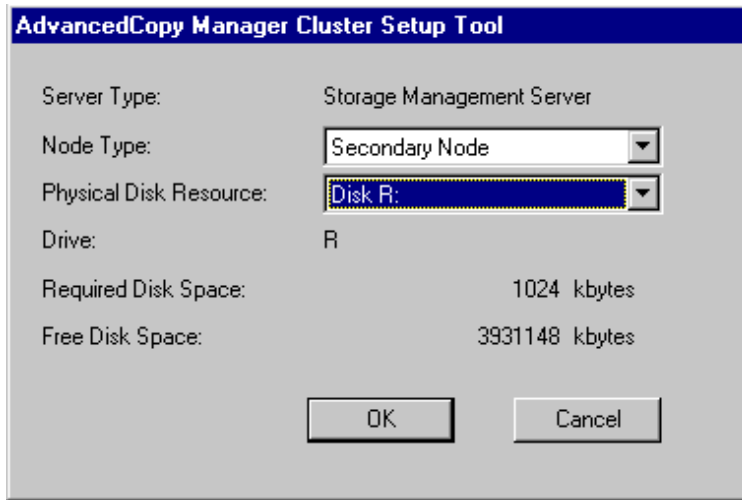
34. Execute the cluster setup command.

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

```
Program_directory \bin\stgclset_mscs
```

35. 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

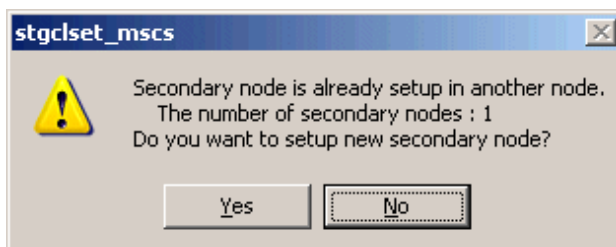
The minimum disk size required for the cluster environment is displayed.

- Free Disk Space

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

36. 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

Note that the default is [No] (cancellation of processing).

37. 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.

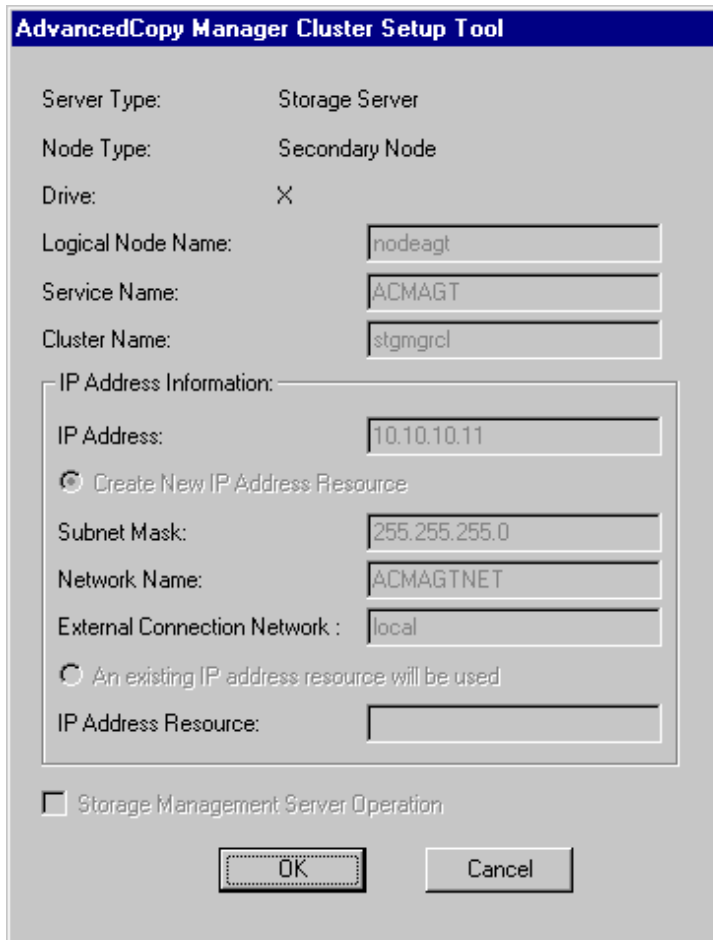
- For a Storage Management Server transaction:

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

- Server Type: Storage Management Server
- Node Type: Secondary Node
- Drive: R
- Logical Node Name:
- Service Name:
- Cluster Name:
- IP Address Information:
 - IP Address:
 - Create New IP Address Resource
 - Subnet Mask:
 - Network Name:
 - External Connection Network :
 - An existing IP address resource will be used
 - IP Address Resource:
- Storage Management Server Operation

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

- For a Storage Server transaction:



AdvancedCopy Manager Cluster Setup Tool

Server Type: Storage Server

Node Type: Secondary Node

Drive: X

Logical Node Name:

Service Name:

Cluster Name:

IP Address Information:

IP Address:

Create New IP Address Resource

Subnet Mask:

Network Name:

External Connection Network :

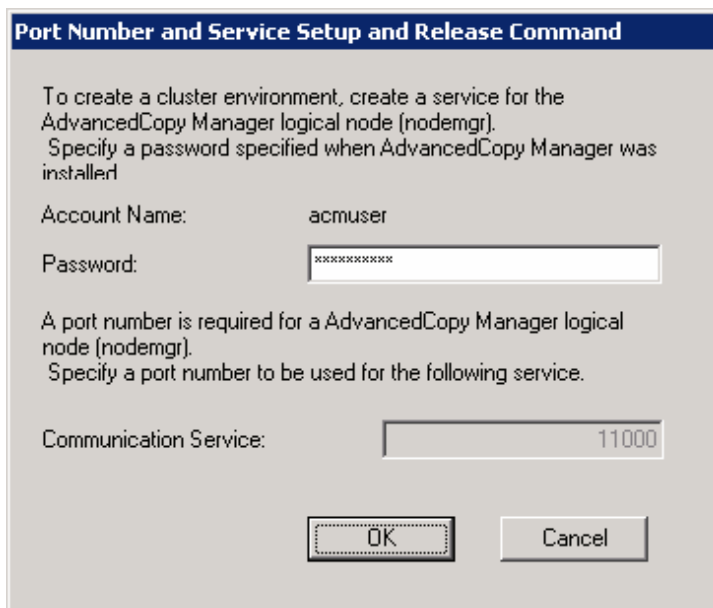
An existing IP address resource will be used

IP Address Resource:

Storage Management Server Operation

38. 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.



Port Number and Service Setup and Release Command

To create a cluster environment, create a service for the AdvancedCopy Manager logical node (nodemgr). Specify a password specified when AdvancedCopy Manager was installed

Account Name: acmuser

Password:

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

Communication Service:

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

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



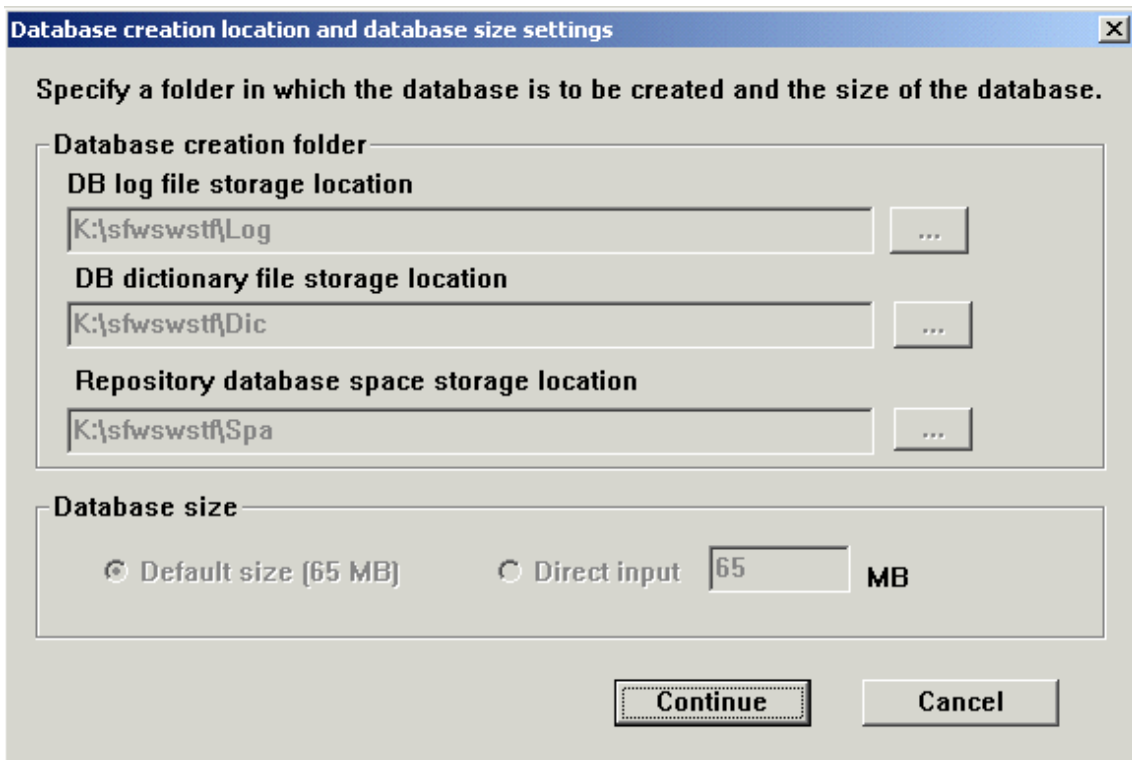
Click the [OK] button.

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.

40. 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.



41. 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.

The dialog box has a title bar with the text "IP address and repository access user settings" and a close button (X). The main content area contains the following elements:

- A heading: "Specify the IP address of the Storage management server."
- A label: "IP address" above a text input field containing "10 . 10 . 10 . 10".
- A heading: "Specify the name of a user who will access the repository and a password."
- A label: "Repository access user" above a text input field containing "acmuser".
- A label: "Password" above a text input field containing "*****".
- Two buttons at the bottom: "Settings" (highlighted with a dotted border) and "Cancel".

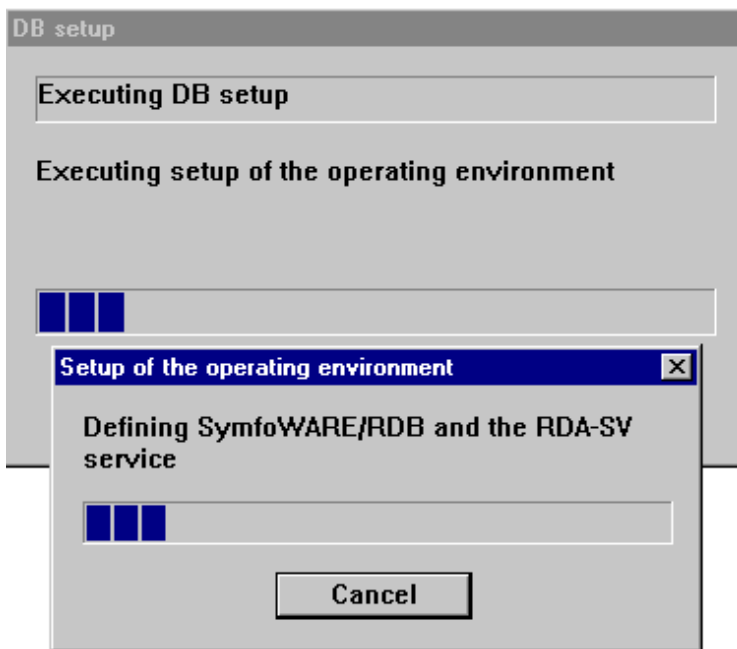
42. For a Storage Management Server transaction, confirm the setting information.

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

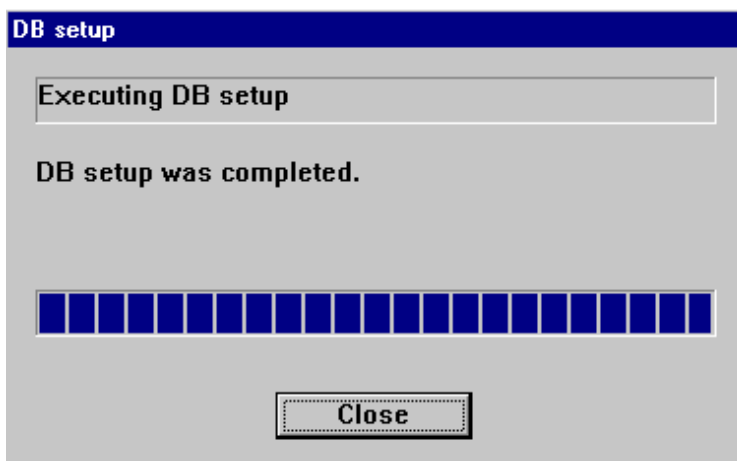
The dialog box has a title bar with the text "Checking the processing" and a close button (X). The main content area contains the following elements:

- A heading: "AdvancedCopy Manager setup will start."
- A heading: "Settings:"
- A list of settings displayed in a text area:
 - DB log file storage location: K:\sfwswstf\Log
 - DB dictionary file storage location: K:\sfwswstf\Dic
 - Repository database space storage location: K:\sfwswstf\Spa
 - Database size: 65MB
 - IP address of the Storage management server: 10.10.10.10
 - Repository access user name: acmuser
 - Repository access user password: *****
- Two buttons at the bottom: "Start" (highlighted with a dotted border) and "Cancel".

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



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



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



 **Note**

If more secondary nodes B remain (and steps Step 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.

46. 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 Service/Windows Server(R) Failover Clustering manuals.

- SymfoWARE RDA RDBSWSTF (added only if neither Windows Server nor 2008 Windows Server 2008 R2)
- 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*

Note

When a volume is added, or when it is deleted, it is necessary to again set up the above-mentioned dependency. For more information about this, 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 Service/Windows Server(R) Failover Clustering 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)
- Backup volume or replica volume (for operation of Storage Management Server transactions, Storage Server transactions and Storage Server transactions)

47. 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.

48. 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

49. Verify the operation on the node.

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

50. 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-UX version MC/ServiceGuard

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

Throughout this section, the primary node is an active node in a cluster service performing 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:

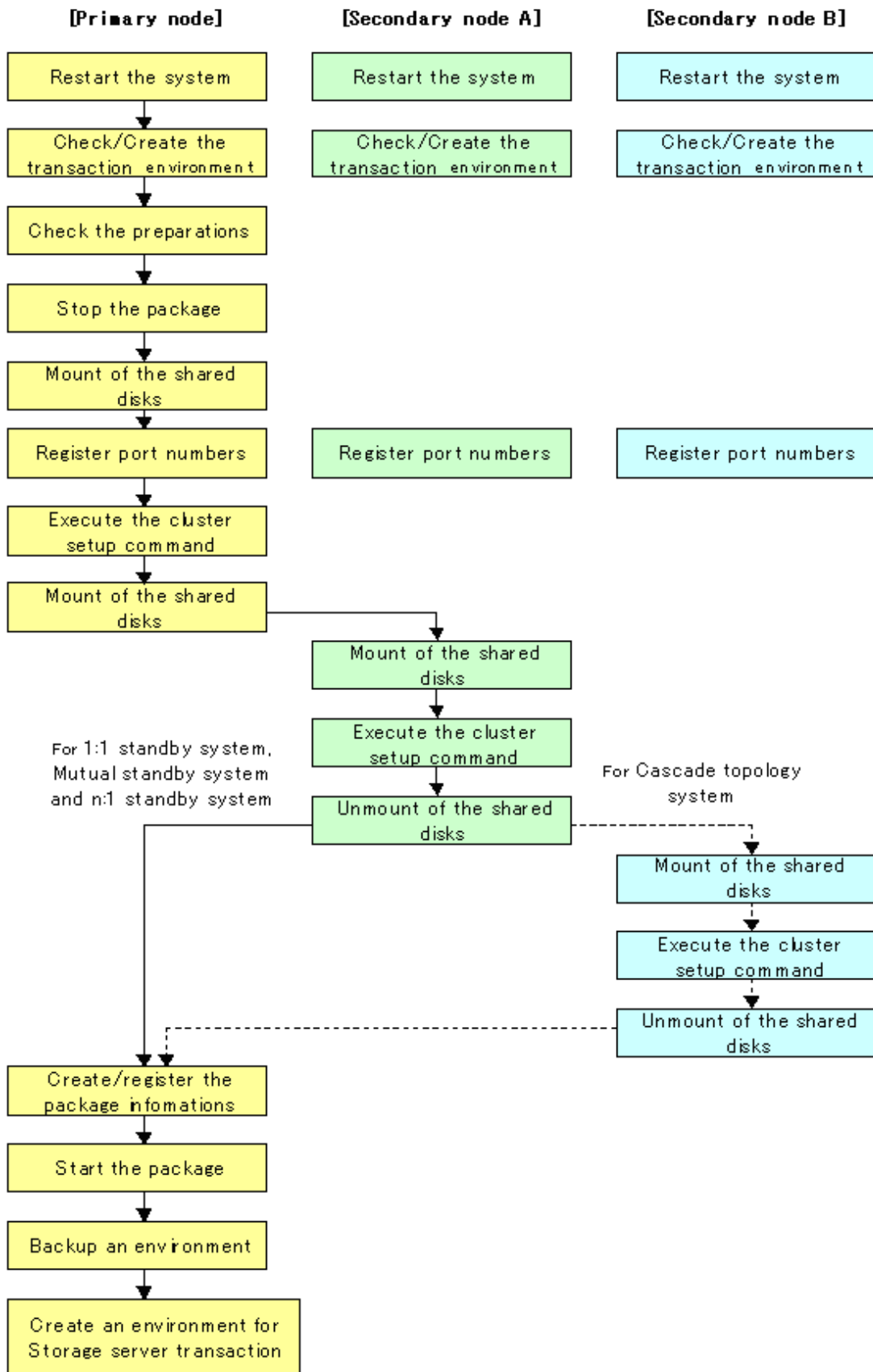
When creating a cascade with three sets of nodes, one set is a primary node, one set is the secondary node A, and one set is the secondary node B.

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 customization.

Figure 4.6 Customization flow for HP-UX version MC/ServiceGuard



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 "3.3 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*



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:

The example of an input:

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

Refer to "8.2.5 stgclset_mcsg (HP-UX version MC/ServiceGuard environment setup command)" for command details.

8. Check the setup object.

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

```
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      : /stgmout
```

```

Device Name      : /dev/vg01/lvol1
Volume Group    : vg01
Node name       : nodepr
Service        : serv1
Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y] y

```

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:

The example of an input:

```

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

```

Refer to "[8.2.5 stgclset_mmsg \(HP-UX version MC/ServiceGuard environment setup command\)](#)" for command details.

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     : /stgmout
Device Name     : /dev/vg01/lvol1
Volume Group    : vg01
Node name       : nodepr
Service        : serv1
Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y] y

```

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.

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.



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:

Example:

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

Refer to "[8.2.5 stgclset_mcsg \(HP-UX version MC/ServiceGuard environment setup command\)](#)" for command details.

18. Check the setup object.

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

```
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

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.

Note

If there are remaining secondary nodes B for which steps 16 to 21 have not been performed, perform these steps in each node. When steps 16 to 21 have been completed by all secondary nodes B, proceed to Step 22.

22. Edit and register package information.

- When business is newly created in 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."

- MC/ServiceGuard A.11.13 sample control script: `/var/opt/swstorage/cluster/samp_Logical-Node-Name.sh`.
- Serviceguard A.11.17 sample control script:
`/var/opt/swstorage/cluster/samp1117_Logical-Node-Name.sh`.
- The default timeout value for a daemon to stop in AdvancedCopy Manager is 300 seconds. When the timeout value is set up by the package configuration file, 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.



Note

.....

Create an environment for a Storage Server transaction with reference to the "ETERNUS SF AdvancedCopy Manager Operator's Guide" that is applicable to the Storage Management Server OS.

- If the Storage Management Server runs in Solaris
"ETERNUS SF AdvancedCopy Manager Operator's Guide (Solaris)"
 - If the Storage Management Server runs in Windows
"ETERNUS SF AdvancedCopy Manager Operator's Guide (Windows)"
 - If the Storage Management Server runs in Linux
"ETERNUS SF AdvancedCopy Manager Operator's Guide (Linux)"
-

4.7 Customization for HP-UX version VERITAS Cluster Server

This section explains how to customize the HP-UX version VERITAS Cluster Server.

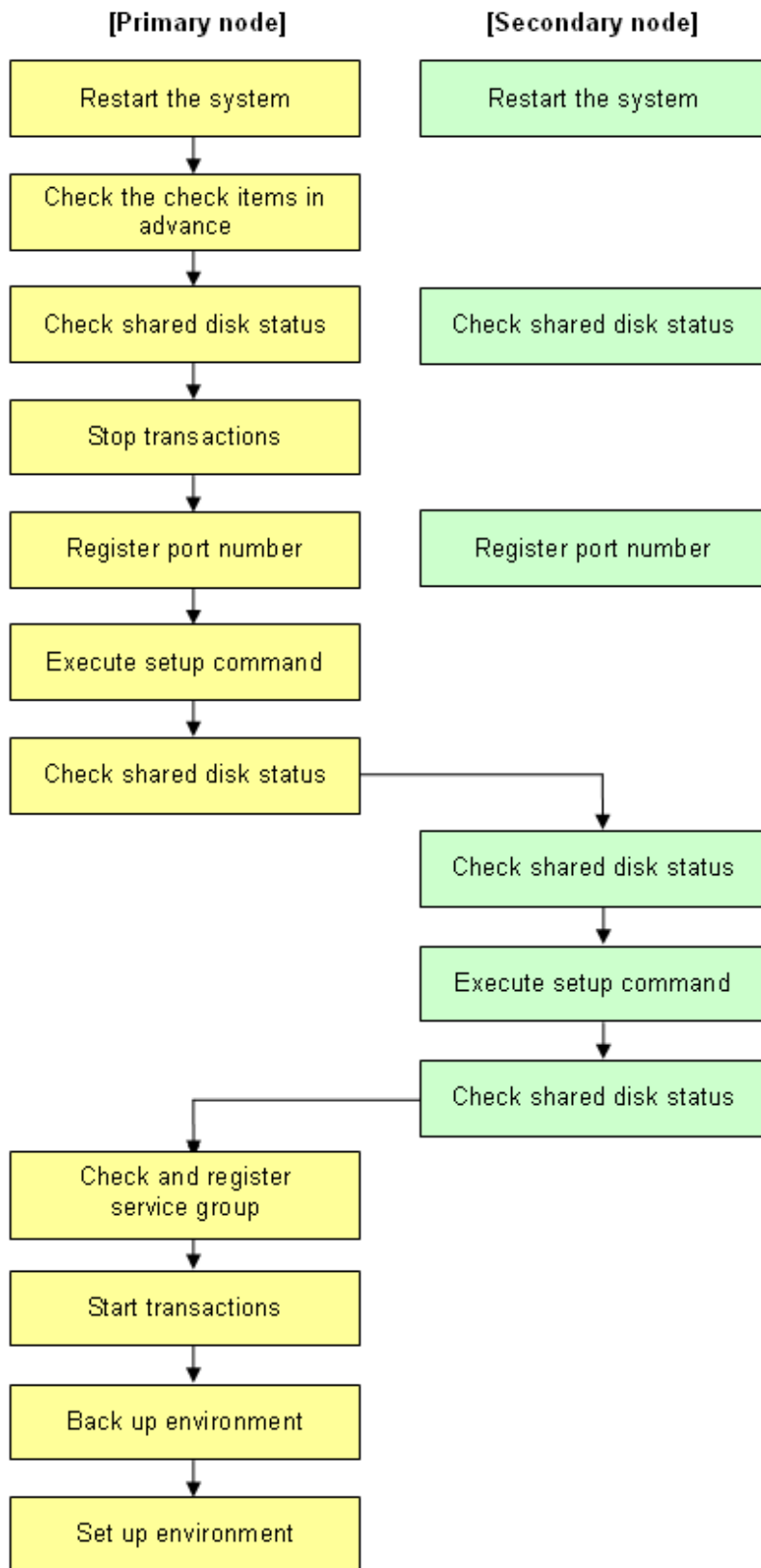
Throughout this section, the primary node is the active node in the Service Group that executes Storage Server transactions, and the secondary node is the standby node in the same Service Group.

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 customization flow.

Figure 4.7 Customization flow for HP-UX version VERITAS Cluster Server



4.7.2 Customization Procedure

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

1. Set the code that indicates an application status.

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

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

Example

Setting example when using VERITAS Cluster Server 5.0:

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

Point

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

2. Restart the 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 next step.

3. Check the preparations.

Check each item of "3.3 Confirmation of items," for the Service Group to be set up.

4. Mount the shared disk on the primary node.

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

5. Stop the transaction.

To add a 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."

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

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

6. 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*

Note

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

- Execute the cluster setup command on the primary node.

On the primary node, execute the cluster setup command shown below after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data.

Example

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

Refer to "[8.2.6 stgclset_hpvcs \(HP-UX version VERITAS Cluster Server environment setup command\)](#)" for command details.

- Check the setup object.

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

```
# /opt/swstorage/bin/stgclset_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.

- Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

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

- Unmount the shared disks on the primary node.

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

- Mount the shared disks on the secondary node.

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

- Execute the cluster setup command on the secondary node.

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

Example

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

Refer to "[8.2.6 stgclset_hpvcs \(HP-UX version VERITAS Cluster Server environment setup command\)](#)" for command details.

- Check the setup object.

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

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

AdvancedCopy Manager settings are as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Secondary
```

```

Mount point      : /STGAGTMNT
Node name       : nodeAGT
Service        : agent_service
Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]

```

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

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

The window indicating cluster setup command completion opens.

```

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

```

15. Unmount the shared disks on the secondary node.

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

16. Create and register a Service Group.

Use the VERITAS Cluster Service functions to create and register a User Service Group.

Add the following types as AdvancedCopy Manager resources:

- Application

For StartProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsStart_*Logical-Node-Name*".

For StopProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsStop_*Logical-Node-Name*".

For MonitorProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsMoni_*Logical-Node-Name*".

- MountPoint

Register the shared disk for AdvancedCopy Manager 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.

```

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

```

A User Service Group is newly created (this is not necessary when already set up into the User Service Group). In the sequence of system priority, active node has priority over standby node.

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

Register applications.

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

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

Place resources into the enabled state.

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

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

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

Specify a start application.

When the logical node name is nodeagt, the path of the application for starting is "/opt/FJSVswstf/cluster/clproc/vcsStart_nodeagt."

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

Specify a stop application.

When the logical node name is nodeagt, the path of the application for a stop is "/opt/FJSVswstf/cluster/clproc/vcsStop_nodeagt."

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

Specify a monitor application.

When the logical node name is nodeagt, the path of the monitor application is "/opt/FJSVswstf/cluster/clproc/vcsMoni_nodeagt."

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

The mount information on the shared disk for AdvancedCopy Manager 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
```

17. Start the AdvancedCopy Manager and Transaction.

Use the VERITAS Cluster Service functions to start the new User Service Group or the User Service Group stopped in step 5.

Refer to the "VERITAS Cluster Server User's Guide for the User Service Group start method.

An example of starting the User Service Group using VERITAS Cluster Server commands is given below.

In this example, the User Service Group name is set to "STGMGRSRV", and the active system node name is set to "node1".

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

18. Back up the environment.

As a safeguard against accidental loss of data or file corruption, back up the 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

19. Create the environment for Storage Server transactions.

Use the GUI of AdvancedCopy Manager to create the environment for Storage Server transactions.



.....
Create the environment for the Storage Server transactions with reference to the "ETERNUS SF AdvancedCopy Manager Operator's Guide (for HP-UX)".
.....

4.8 Customization for AIX version VERITAS Cluster Server

This section explains how to customize AIX version VERITAS Cluster Server.

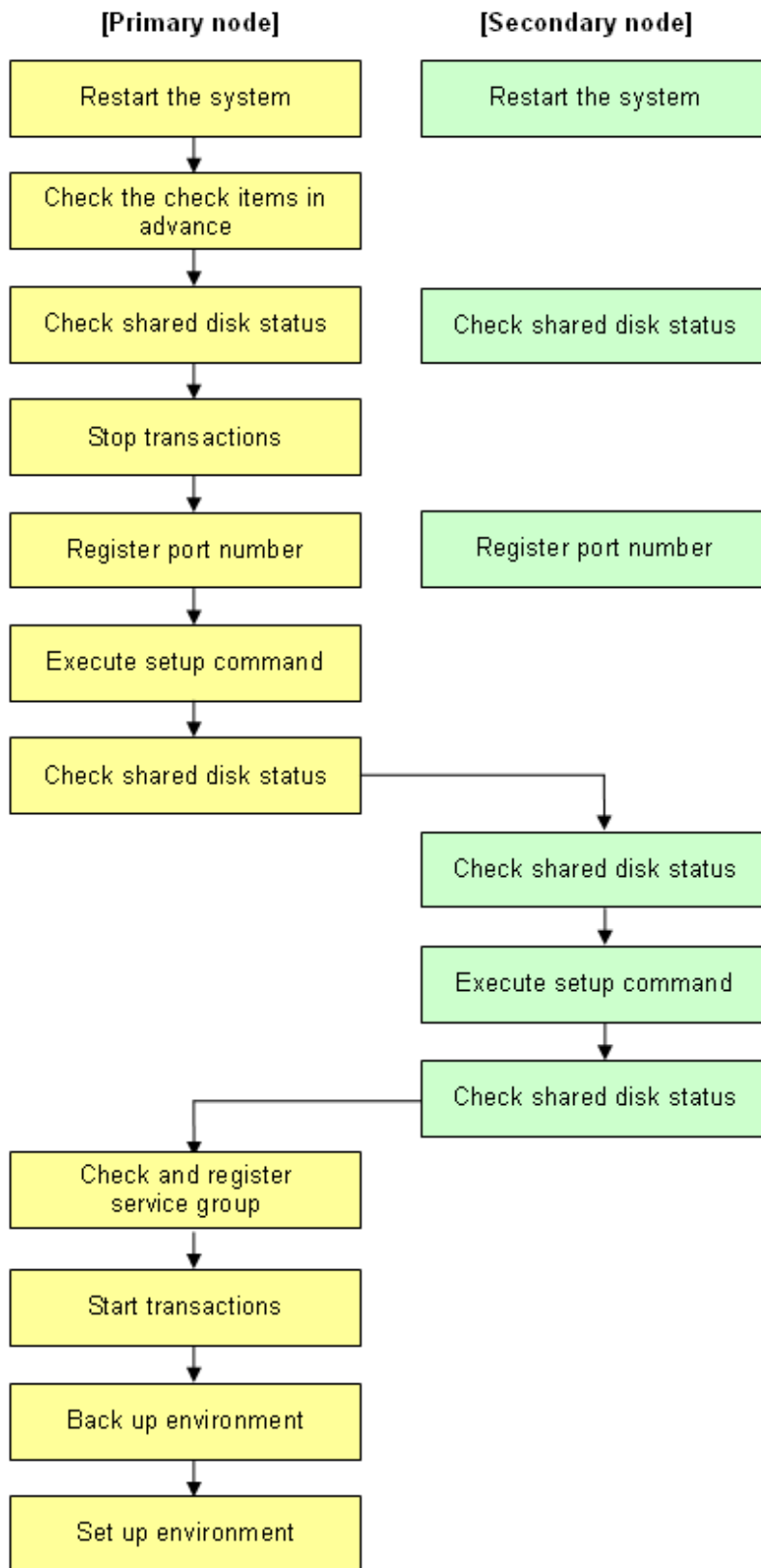
Throughout this section, the primary node is the active node in the Service Group that executes Storage Server transactions, and the secondary node is the standby node in the same Service Group.

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 customization flow.

Figure 4.8 Customization flow for AIX version VERITAS Cluster Server



4.8.2 Customization Procedure

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

1. Set the code that indicates an application status.

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

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

Example

Setting example when using VERITAS Cluster Server 5.0:

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

Point

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

2. Restart the system.

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

3. Check the preparations.

Check each item of "3.3 Confirmation of items," for the Service Group to be set up.

4. Mount the shared disk on the primary node.

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

5. Stop the transaction.

To add a 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".

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

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

6. Register port numbers

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

- Transaction communication daemon: stgxfws_*Logical-Node-Name*

Note

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

- Execute the cluster setup command on the primary node.

On the primary node, execute the cluster setup command shown below after blocking other users from accessing the shared disk for AdvancedCopy Manager shared data.

Example

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

Refer to "8.2.7 [stgclset_aixvcs \(AIX version VERITAS Cluster Server environment setup command\)](#)" for command details.

- Check the setup object.

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

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

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

- Finish the cluster setup command on the primary node.

The window indicating cluster setup command completion opens.

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

- Unmount the shared disks on the primary node.

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

- Mount the shared disks on the secondary node.

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

- Execute the cluster setup command on the secondary node.

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

Example

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

Refer to "8.2.7 [stgclset_aixvcs \(AIX version VERITAS Cluster Server environment setup command\)](#)" for command details.

- Check the setup object.

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

```
# /opt/swstorage/bin/stgclset_aixvcs -k Secondary -m /STGAGTMNT
AdvancedCopy Manager settings are as follows.
```

```

Cluster system : VERITAS Cluster Server
Node type      : Secondary
Mount point    : /STGAGTMNT
Node name      : nodeAGT
Service        : agent_service
Function       : Server
Do you want to continue with setting of AdvancedCopy Manager cluster? [default:y]

```

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

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

The window indicating cluster setup command completion opens.

```

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

```

15. Unmount the shared disks on the secondary node.

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

16. Create and register a Service Group.

Use the VERITAS Cluster Service functions to create and register a User Service Group.

Add the following types as AdvancedCopy Manager resources:

- Application

For StartProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsStart_*Logical-Node-Name*".

For StopProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsStop_*Logical-Node-Name*".

For MonitorProgram, specify "/opt/FJSVswstf/cluster/clproc/vcsMoni_*Logical-Node-Name*".

- MountPoint

Register the shared disk for AdvancedCopy Manager 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.

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

A User Service Group is newly created (this is not necessary when it has already been set up into the User Service Group). As the system priority sequence, the active node has priority over the standby node.

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

Register applications.

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

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

Place resources into the enabled state.

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

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

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

Specify a start application.

When the logical node name is nodeagt, the path of the application for starting is "/opt/FJSVswstf/cluster/clproc/vcsStart_nodeagt."

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

Specify a stop application.

When the logical node name is nodeagt, the path of the application for stopping is "/opt/FJSVswstf/cluster/clproc/vcsStop_nodeagt."

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

Specify a monitor application.

When the logical node name is nodeagt, the path of the monitor application is "/opt/FJSVswstf/cluster/clproc/vcsMoni_nodeagt."

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

The mount information on the shared disk for AdvancedCopy Manager 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
```

17. Start the AdvancedCopy Manager and Transaction.

Use the VERITAS Cluster Service functions to start the new User Service Group or the User Service Group stopped in step 5.

Refer to the "VERITAS Cluster Server User's Guide" for the User Service Group starting method.

An example of starting the User Service Group using VERITAS Cluster Server commands is given below.

In this example, the User Service Group name is set to "STGMGRSRV", and the active system node name is set to "node1".

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

18. Back up the environment.

As a safeguard against accidental loss of data or file corruption, back up the 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

19. Create the environment for Storage Server transactions.

Use the Web GUI of AdvancedCopy Manager to create the environment for Storage Server transactions.



.....
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:

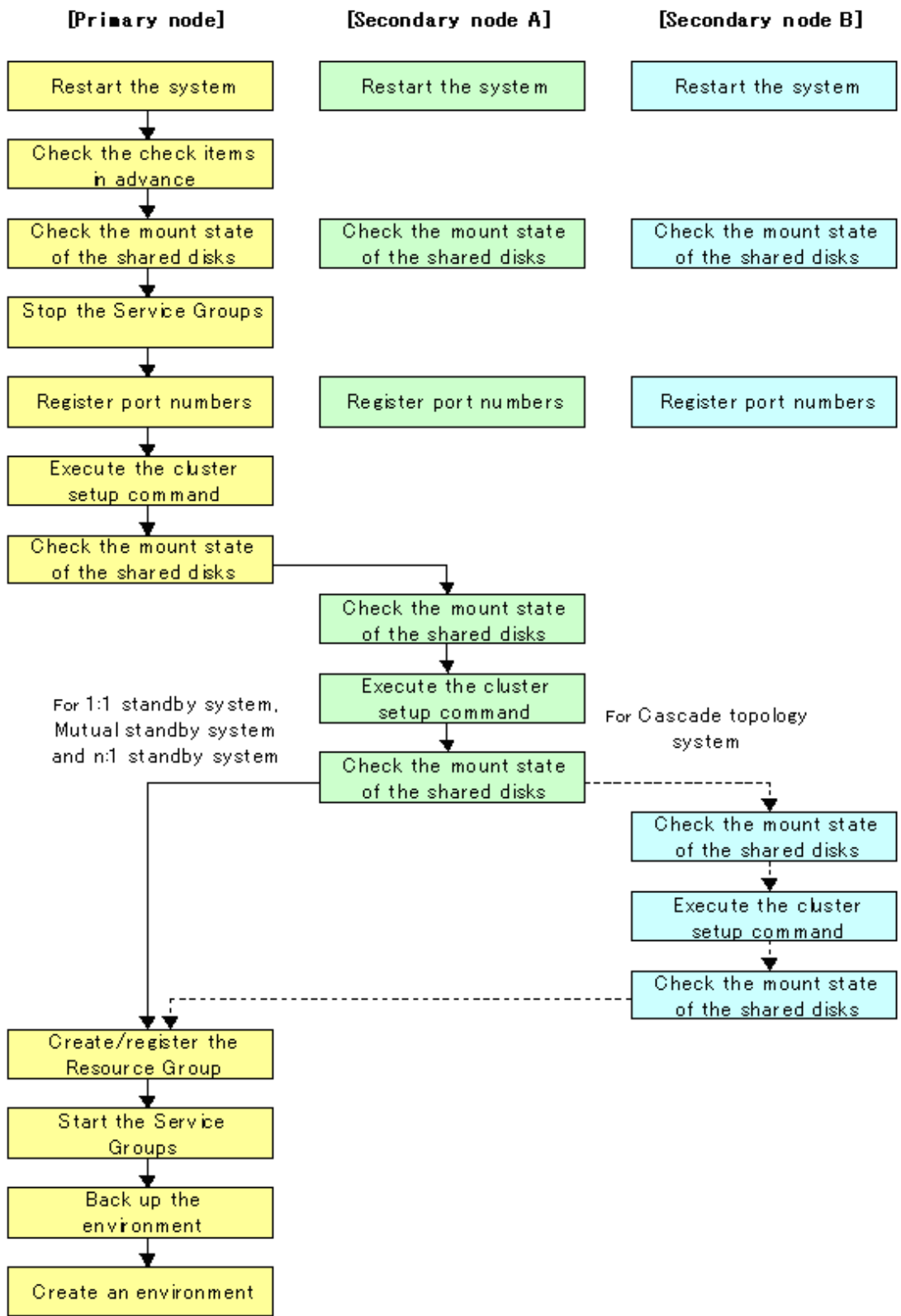
When creating a cascade from three sets of nodes, one set is a primary node, one set is the secondary node A, and one set is the secondary node B.

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 customization.

Figure 4.9 Customization flow for AIX version High Availability Cluster Multi-Processing



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.

2. Check the preparations.

Check each item of "3.3 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*



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:

Example

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

Refer to "8.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)" for command details.

7. Check the setup object.

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

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

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

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

The window indicating 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:

Example

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

Refer to "8.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)" for command details.

12. Check the setup object.

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

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

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

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

The window indicating cluster setup command completion opens.

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

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

Dismount the shared disk for 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.



Note

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

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

Execute the cluster setup command on the secondary node B on which the shared disk for 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:

Example

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

Refer to "8.2.8 [stgclset_hacmp \(AIX version High Availability Cluster Multi-Processing environment setup command\)](#)" for command details.

17. Check the setup object.

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

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

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

18. Check the addition of a secondary node.

The window for confirming the addition of a secondary node is displayed.

After confirmation of a cascade, "y" is inputted and the Enter key is pushed.

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

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



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.

Table 5.1 References for deletion methods in a cluster environment

| Cluster system | Reference |
|--|---|
| Solaris version SynfinityCluster/PRIMECLUSTER | 5.1 Deleting for Solaris version SynfinityCluster/PRIMECLUSTER |
| Solaris version VERITAS Cluster Server | 5.2 Deleting for Solaris version VERITAS Cluster Server |
| Solaris version Sun Cluster | 5.3 Deleting for Solaris version Sun Cluster |
| Linux version PRIMECLUSTER | 5.4 Deleting for Linux version PRIMECLUSTER |
| Windows version MSCS/WSFC | 5.5 Deleting for Windows version MSCS/WSFC |
| HP-UX version MC/ServiceGuard | 5.6 Deleting for HP-UX version MC/ServiceGuard |
| HP-UX version VERITAS Cluster Server | 5.7 Deleting for HP-UX version VERITAS Cluster Server |
| AIX version VERITAS Cluster Server | 5.8 Deleting for AIX version VERITAS Cluster Server |
| AIX version High Availability Cluster Multi-Processing | 5.9 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/PRIMECLUSTER.

The primary node is a node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the AdvancedCopy Manager cluster setup command in the same cluster service (userApplication).

The secondary node A 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).

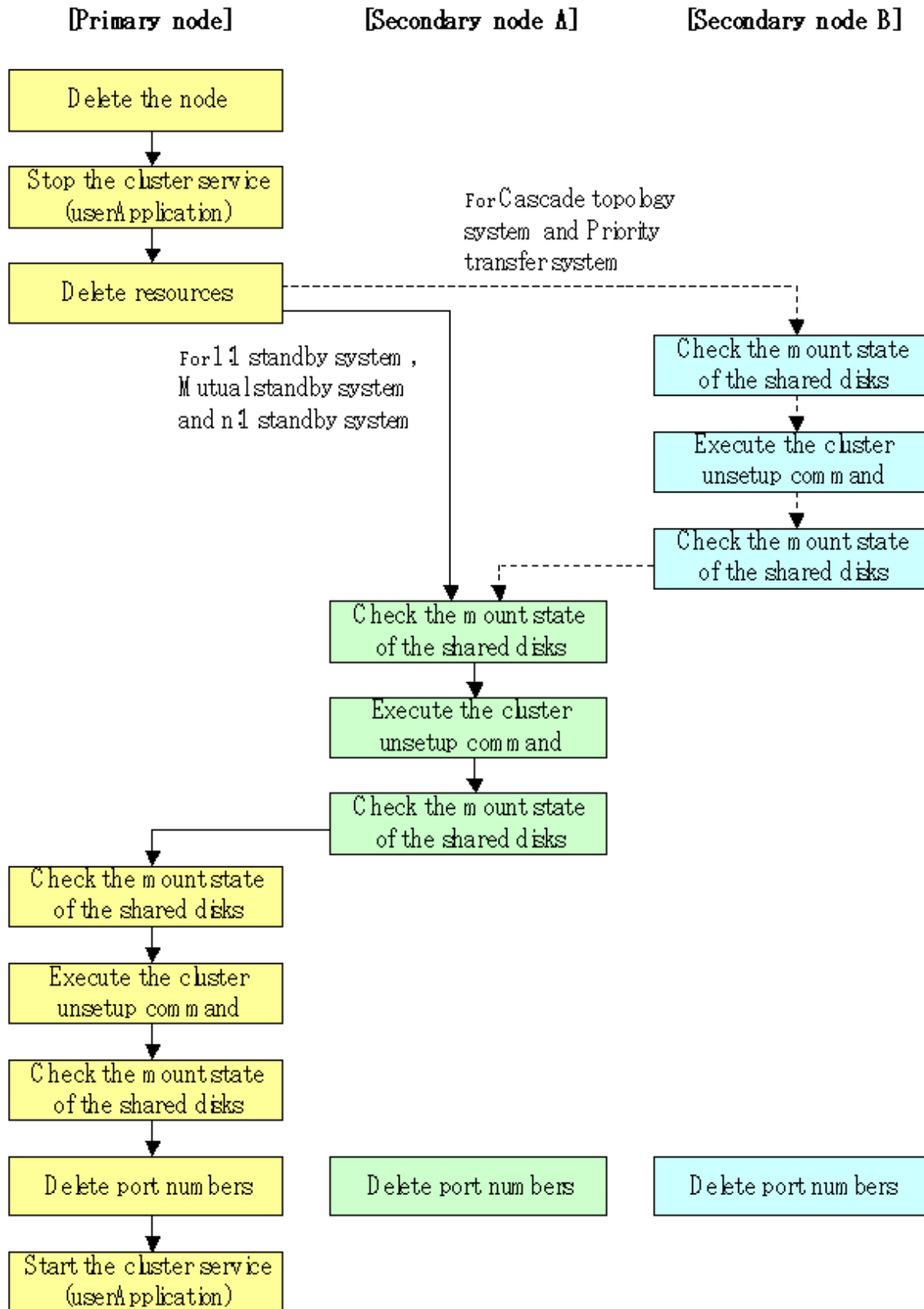
The deleting work of the primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

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.

Figure 5.1 Deletion flow for Solaris version SynfinityCluster/PRIMECLUSTER cluster environment



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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Refer to "8.3.1 [stgclunset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command\)](#)" for command details.



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.
#

```

Note

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.

Note

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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_safe -n nodeMGR
```

Refer to "8.3.1 [stgclunset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command\)](#)" for command details.



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_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

```

- 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.
#

```

- 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.

- 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.

- 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:

[Input example]

```

# /opt/swstorage/bin/stgclunset_safe -n nodeMGR

```

Refer to "8.3.1 [stgclunset_safe \(Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command\)](#)" for command details.

Note

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

- 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.

- 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

```

- 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.
#

```

- 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.

- 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**

- 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.

Note

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.

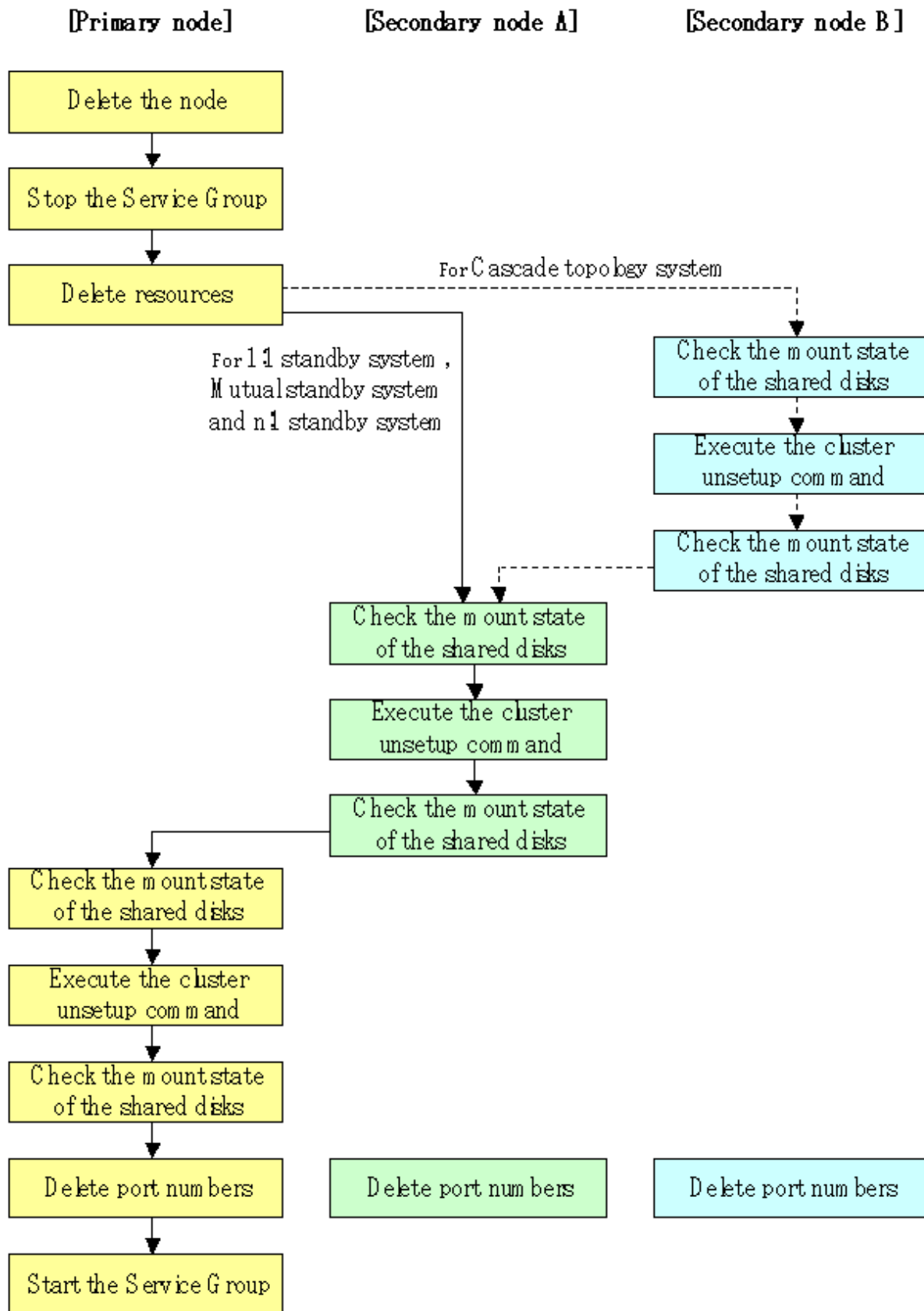
The deleting work of primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

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.

Figure 5.2 Deletion flow for Solaris version VERITAS Cluster Server cluster environment



5.2.2 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 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".

```
# hagr -offline STGMGRSRV -sys node1
```

3. Delete resources.

Use the VERITAS Cluster Server function to delete the AdvancedCopy Manager resources registered for the target transaction. If Service Groups have been created using only AdvancedCopy Manager resources, delete the whole Service Group.

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.

```
# hagr -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, 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 repository shared disk 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
```

Refer to "[8.3.2 stgclunset_vcs \(Solaris version VERITAS Cluster Server environment cancel command\)](#)" for command details.



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_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.



Note

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. 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.
#
```

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 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.

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 repository shared disk 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
```

Refer to "8.3.2 stgclunset_vcs (Solaris version VERITAS Cluster Server environment cancel command)" for command details.

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_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.

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.

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 repository shared disk 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 repository shared disk 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_vcs -n nodeMGR
```

Refer to "8.3.2 stgclunset_vcs (Solaris version VERITAS Cluster Server environment cancel command)" for command details.

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_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.

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 repository shared disk 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 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.

```
# hagr -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

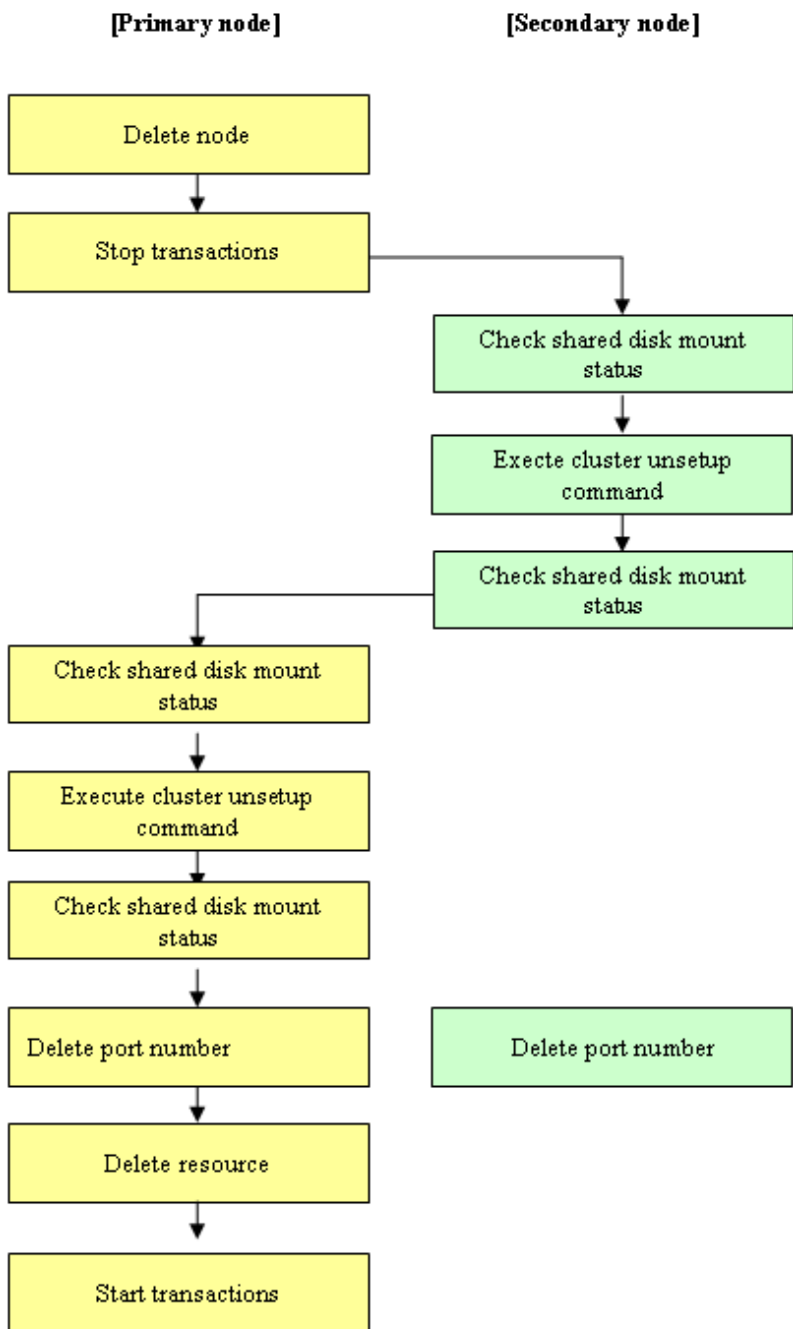
This section explains how to delete the Solaris version Sun Cluster.

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.

Figure 5.3 Deletion flow for Solaris version Sun Cluster 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_sun -n nodeMGR
```

Refer to "8.3.3 stgclunset_sun (Solaris version Sun Cluster environment cancel command)" for command details.

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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_sun -n nodeMGR
```

Refer to "8.3.3 stgclunset_sun (Solaris version Sun Cluster environment cancel command)" for command details.

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.HASStoragePlus 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 PRIMECLUSTER.

The primary node is a node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the AdvancedCopy Manager cluster setup command in the same 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.

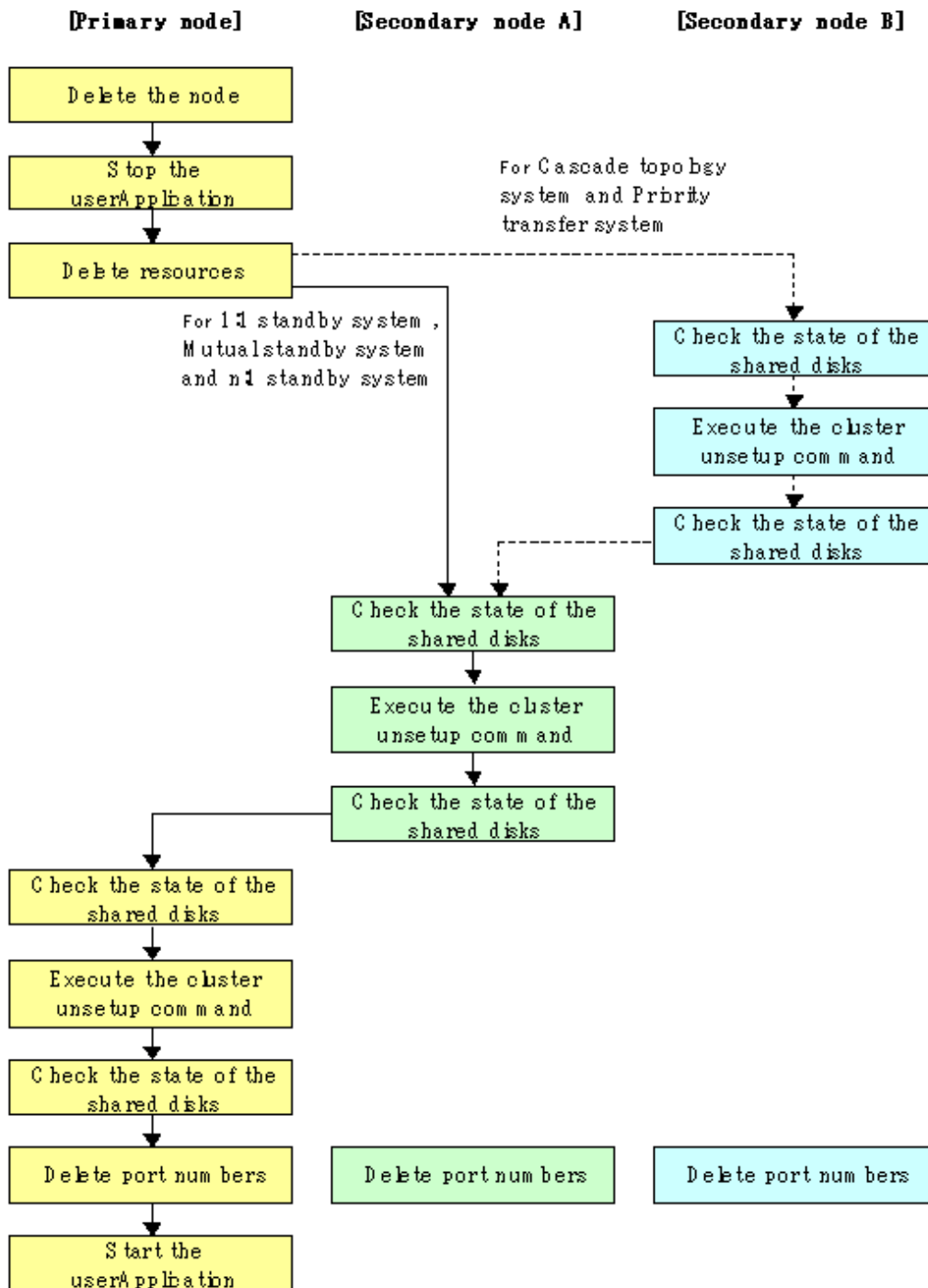
The deleting work of primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

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.

Figure 5.4 Deletion flow for Linux version PRIMECLUSTER cluster environment



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.



.....
For information on how to delete the userApplication and resources, see the "PRIMECLUSTER Installation and Administration Guide."
.....

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.



.....
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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_lxprm -n nodeMGR
```

Refer to "8.3.4 stgclunset_lxprm (Linux version PRIMECLUSTER environment cancel command)" for command details.



.....
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.

Note

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.

- 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

```

- 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.

- 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_lxprm -n nodeMGR
```

Refer to "8.3.4 stgclunset_lxprm (Linux version PRIMECLUSTER environment cancel command)" for command details.



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.



Note

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
```

- 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.
#
```

- 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.

- 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.

- 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_lxprm -n nodeMGR
```

Refer to "[8.3.4 stgclunset_lxprm \(Linux version PRIMECLUSTER environment cancel command\)](#)" for command details.

Note

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

- 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.



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 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/WSFC

This section explains how to delete the Windows version MSCS or WSFC.

Throughout this section, the primary node is a node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the AdvancedCopy Manager cluster setup command in the same cluster group.

The secondary node A defines the 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.

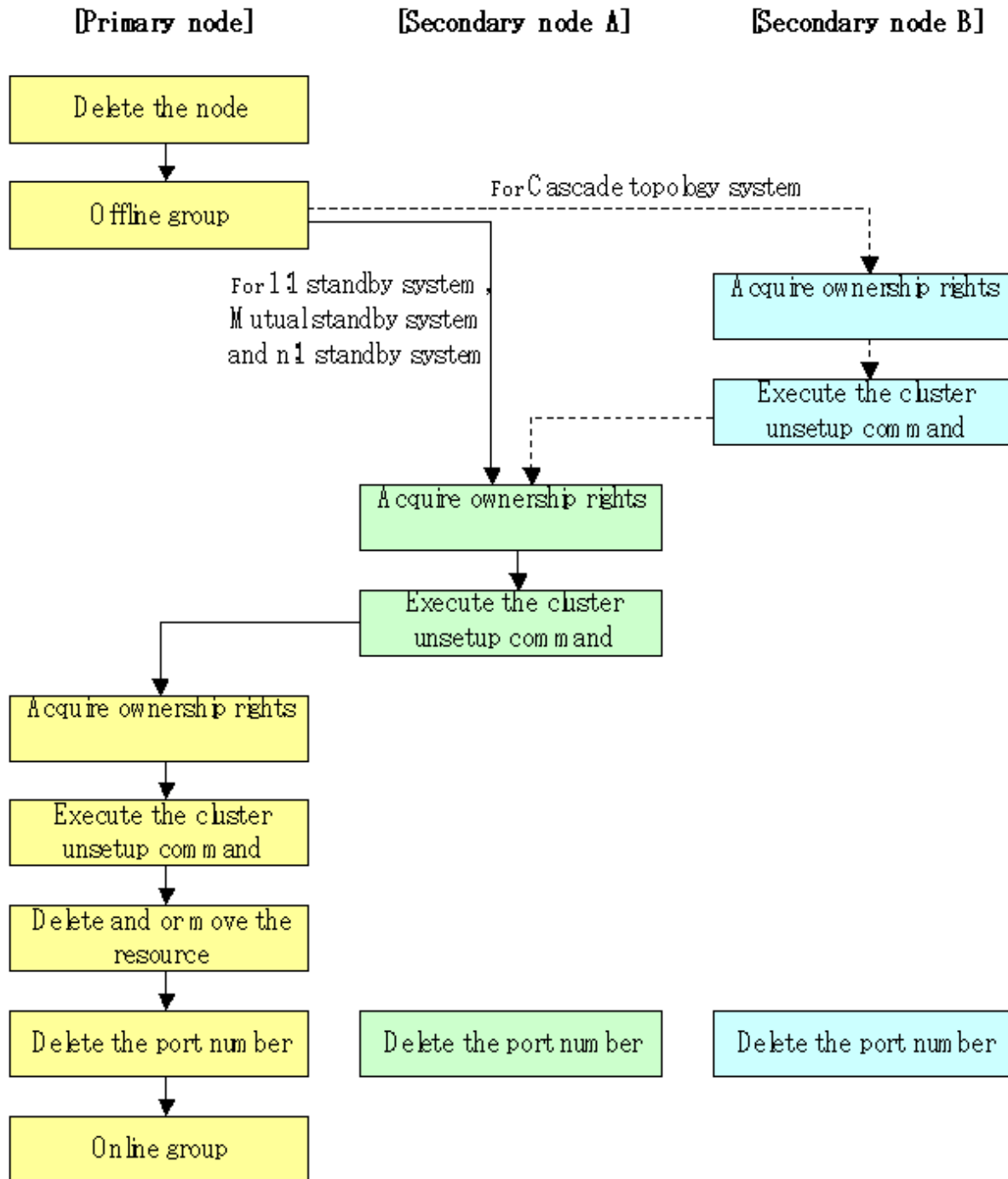
The deleting work of primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

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.

Figure 5.5 Deletion flow for Windows version MSCS/WSFC cluster environment



5.5.2 Deletion Procedure

To delete the cluster environment, use the following procedure:

Point

Delete the Storage Management Server transaction by a user who executed its customization.

The deletion may be failed, when it executed by a different user.

Note

- The "Computer Browser service" Windows service must be activated if a user belonging to the Administrators domain wants to perform customization for the Windows version of MSCS/WSFC.
- Executing this process with the service listed below must be paid attention.
 - Terminal service (via a remote desktop connection)

If the Storage Management Server is running on Windows Server 2003, the Terminal Service must be used by making a console session connection to it. Refer to the following link for information on how to make console session connections:

<http://support.microsoft.com/kb/947723>

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

Do not use service listed below, as it will not work properly.

- Telnet server service

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 (MSCS) or failover cluster management (WSFC) 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 Service/Windows Server(R) Failover Clustering 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, proceed to step 3.

3. On the secondary node B, use the cluster administrator (MSCS) or failover cluster management (WSFC) 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 Service/Windows Server(R) Failover Clustering manuals.

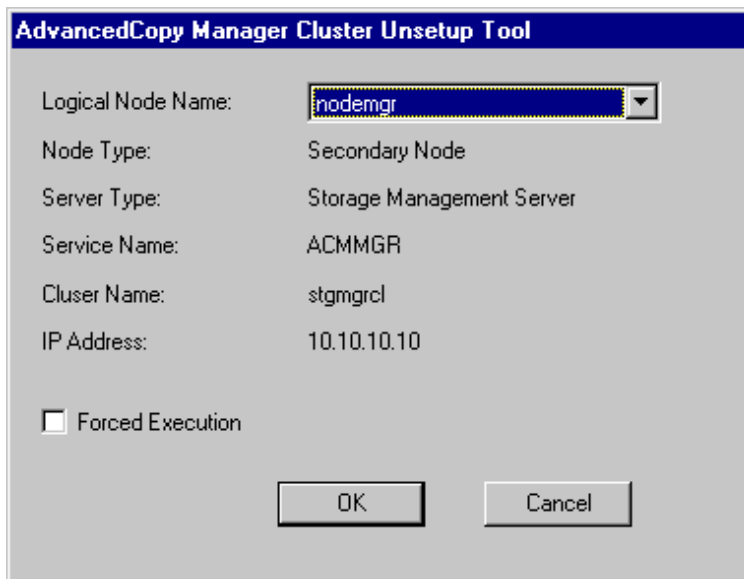
Note

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:

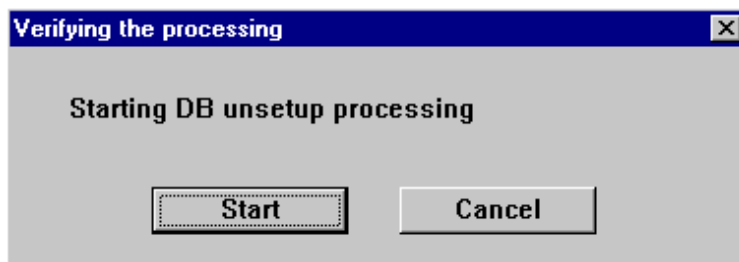
```
Program-directory\bin\stgclunset_mscs
```

- b. The cluster unsetup command window is displayed.



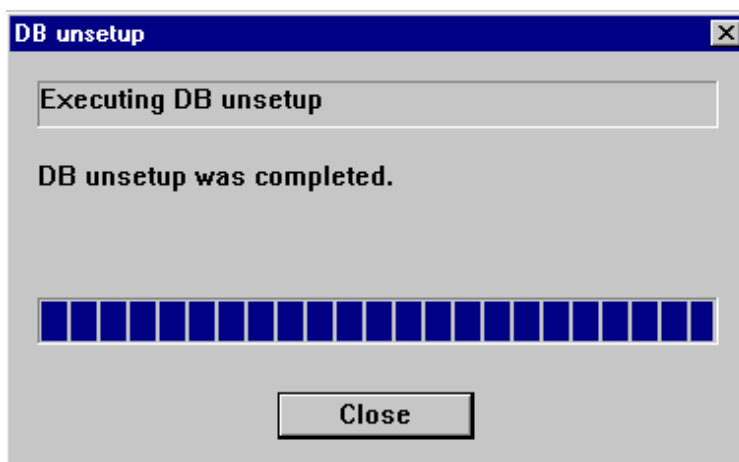
Select the logical node name of the AdvancedCopy Manager transaction to be deleted. For unsetup after node failure, select the Forced Execution checkbox. After confirming each field, click the [OK] button.

- 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.



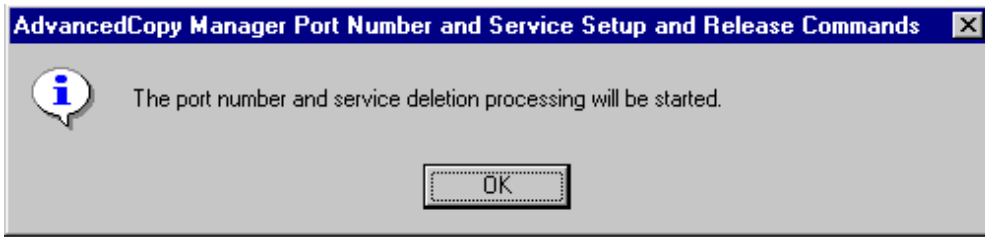
Click the [Start] button.

- 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.



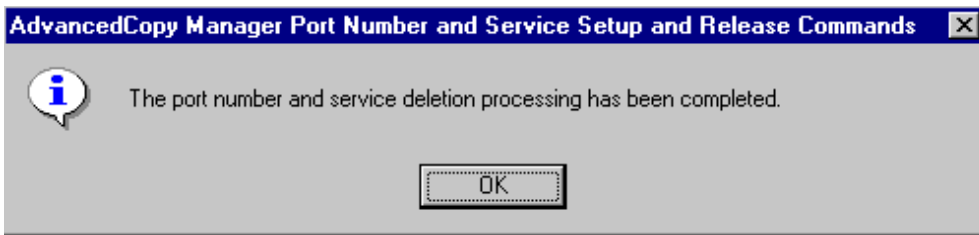
Click the [Close] button.

- 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.

Note

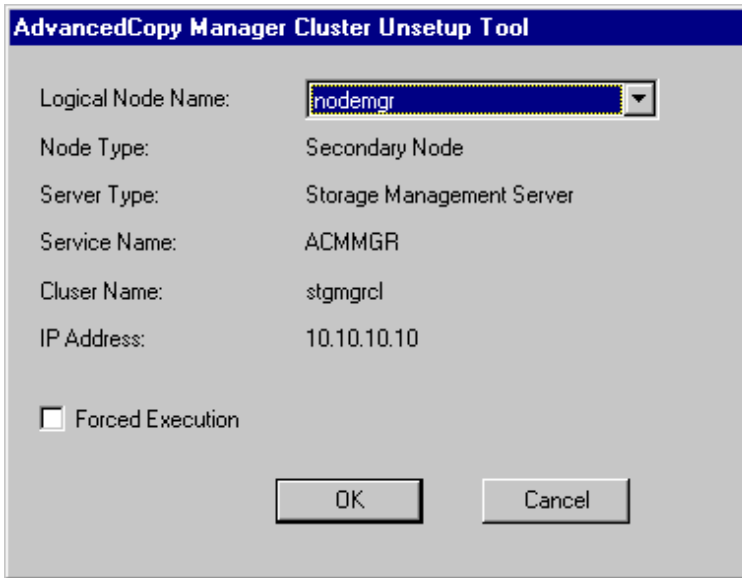
For the secondary node B, the swstf8143 message is displayed.

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 (MSCS) or failover cluster management (WSFC) 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 Service/Windows Server(R) Failover Clustering 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:

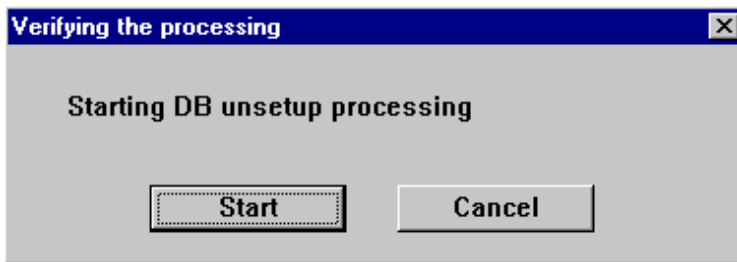
```
Program-directory\bin\stgclunset_mscs
```

- b. The cluster unsetup command window is displayed.



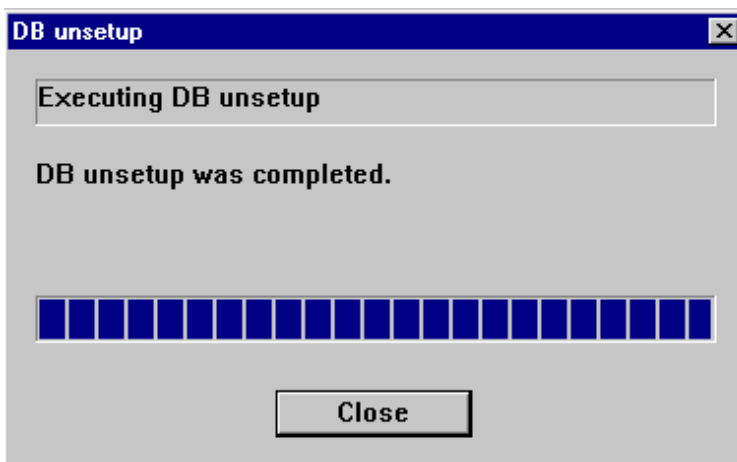
Select the logical node name of the transaction to be deleted. For unsetup after node failure, select the Forced Execution field. After confirming each field, click the [OK] button.

- 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.



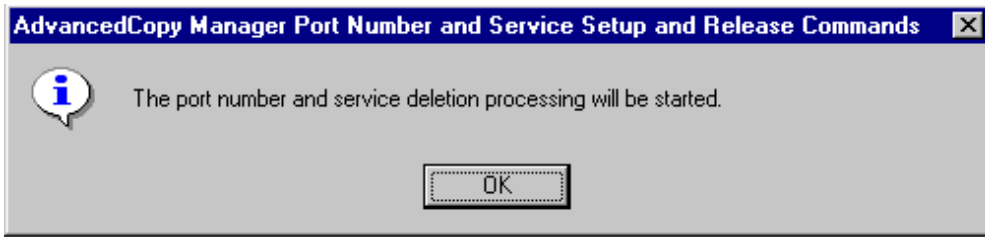
Click the [Start] button.

- 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.



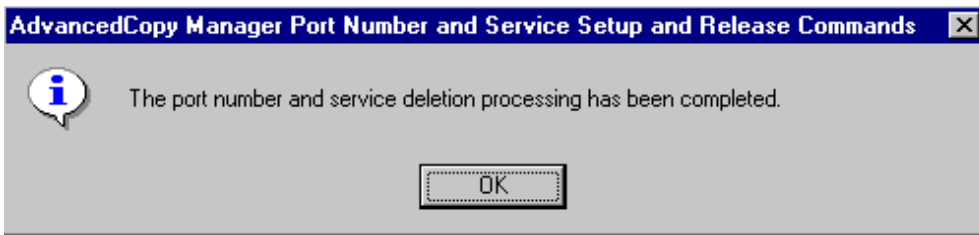
Click the [Close] button.

- e. The start window of the port number and service setting/release command is displayed.



Click the [OK] button.

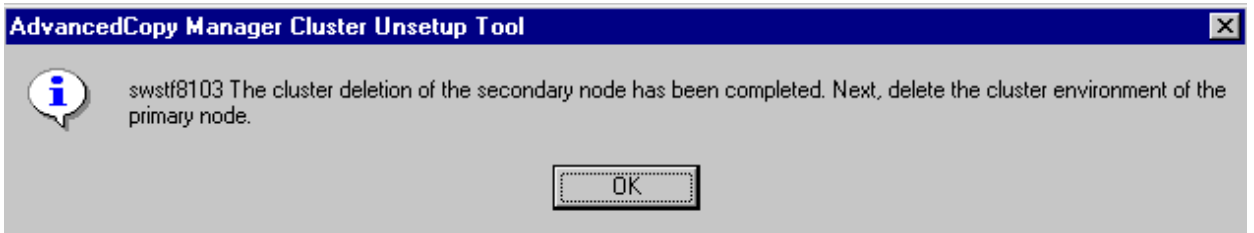
- f. The completion window of the port number and service setting/release command is displayed.



Click the [OK] button.

- g. Complete the cluster unsetup of the secondary node.

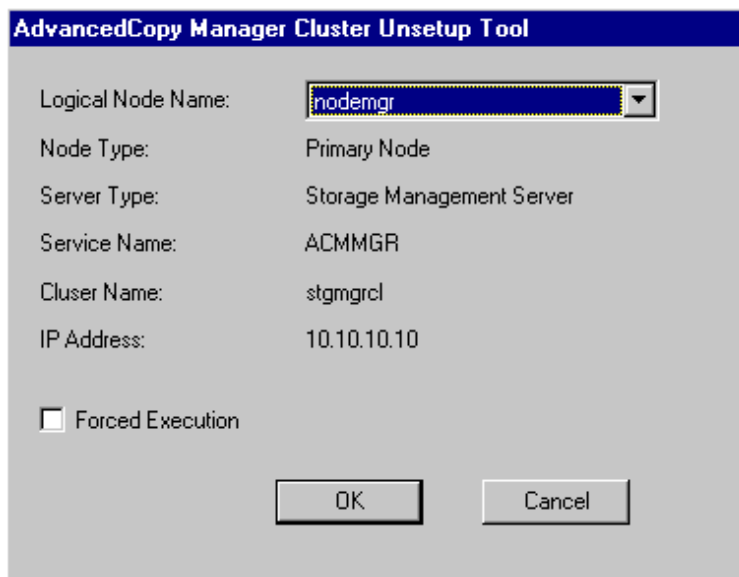
When the completion window of cluster unsetup is displayed, click the [OK] button. Next, execute unsetup for the primary node.



7. On the primary node, use the cluster administrator (MSCS) or failover cluster manager (WSFC) 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 Service/Windows Server(R) Failover Clustering 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:

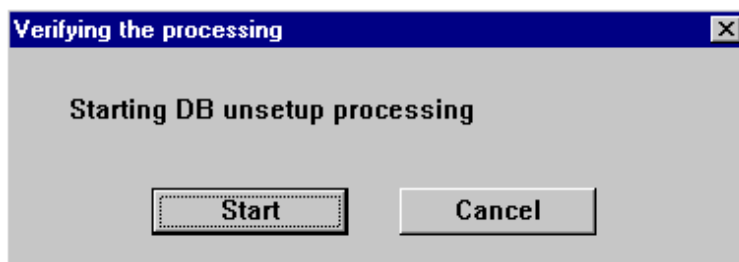
```
Program-directory\bin\stgclunset_mscs
```

- b. The cluster unsetup command window is displayed.



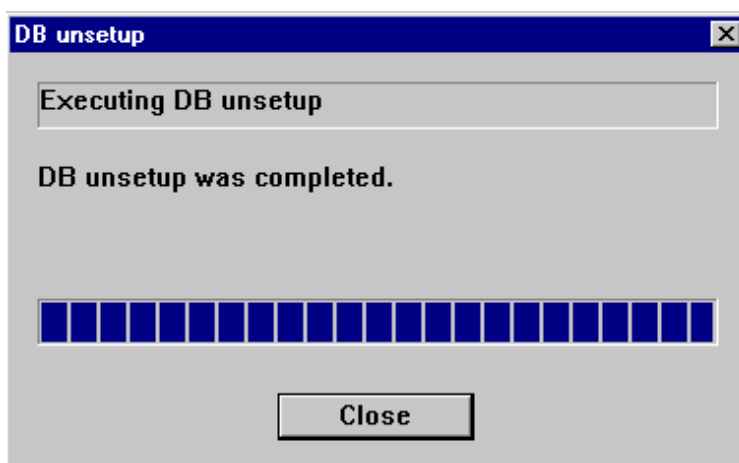
Select the logical node name selected in the cluster unsetup window on the secondary node. For unsetup after node failure, select the Forced Execution field. After confirming each field, click the [OK] button.

- 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.



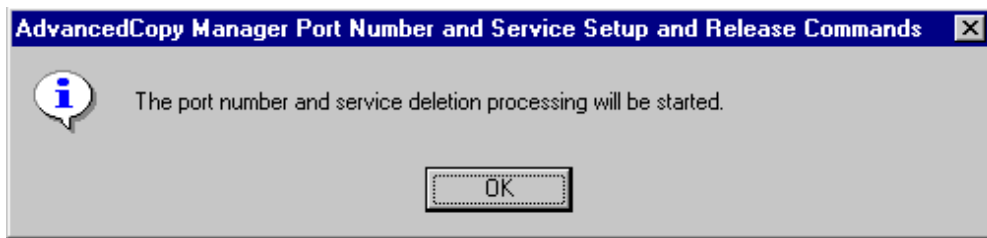
Click the [Start] button.

- 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.



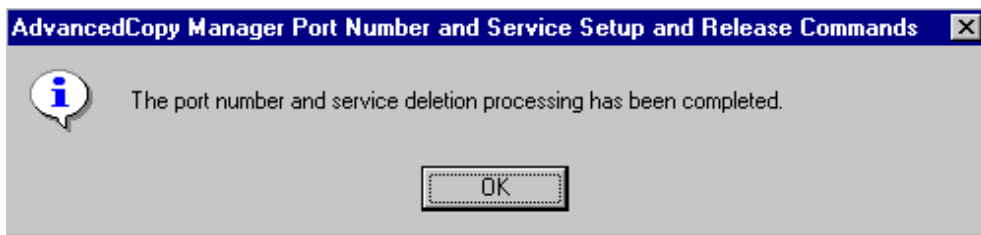
Click the [Close] button.

- e. The start window of the port number and service setting/release command is displayed.



Click the [OK] button.

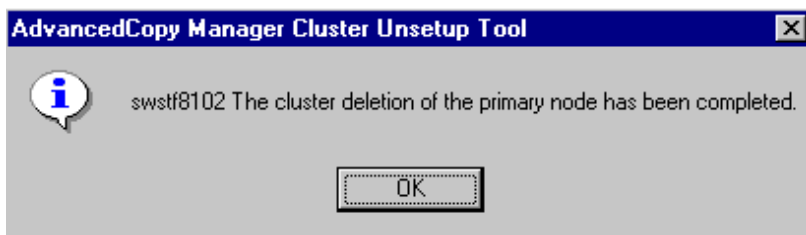
- f. The completion window of the port number and service setting/release command is displayed.



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 (MSCS) or failover cluster management (WSFC) 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 (MSCS) or failover cluster management (WSFC) to move them to another group.

If the following resource is not being used, use the cluster administrator (MSCS) or failover cluster management (WSFC) 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 Service/Windows Server(R) Failover Clustering 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 (MSCS) or failover cluster management (WSFC) to switch the cluster group online. For information about how to switch the cluster group online, refer to the Microsoft(R) Cluster Service/Windows Server(R) Failover Clustering manuals.

5.6 Deleting for HP-UX version MC/ServiceGuard

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

The primary node is a node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the cluster setup command in the same package.

The secondary node B 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.

Figure 5.6 Deletion flow for HP-UX version MC/ServiceGuard cluster environment



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:

The example of an input:

```
# /opt/swstorage/bin/stgclunset_mmsg -n nodepr
```

Refer to "[8.3.5 stgclunset_mmsg \(HP-UX version MC/ServiceGuard environment cancel command\)](#)" for command details.

5. Check the objects to be deleted.

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

```
AdvancedCopy Manager settings were as follows.
Cluster system   : MC/ServiceGuard
Node type        : Secondary
IP Address       : 10.10.10.10
SUBNET           : 10.10.10.0
Mount point      : /stgmout
Device Name      : /dev/vg01/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.



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:

Example

```
# /opt/swstorage/bin/stgclunset_mmsg -n nodepr
```

Refer to "[8.3.5 stgclunset_mmsg \(HP-UX version MC/ServiceGuard environment cancel command\)](#)" for command details.

10. Check the objects to be deleted.

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

```
AdvancedCopy Manager settings were as follows.
Cluster system   : MC/ServiceGuard
Node type        : Secondary
IP Address       : 10.10.10.10
SUBNET           : 10.10.10.0
Mount point      : /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:

The example of an input:

```
# /opt/swstorage/bin/stgclunset_mmsg -n nodepr
```

Refer to "[8.3.5 stgclunset_mmsg \(HP-UX version MC/ServiceGuard environment cancel command\)](#)" for command details.

15. Check the objects to be deleted.

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

```
AdvancedCopy Manager settings were as follows.
Cluster system   : MC/ServiceGuard
Node type        : Primary
IP Address       : 10.10.10.10
SUBNET           : 10.10.10.0
Mount point      : /stgmount
Device Name      : /dev/vg01/lvol1
Volume Group     : vg01
Node name        : nodepr
Service          : serv1
Function         : Server
Number           : 1
MODE             : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y] y
```

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

Note

The number of nodes which are not executing the cluster unsetup command is output to "Number". 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-UX version VERITAS Cluster Server

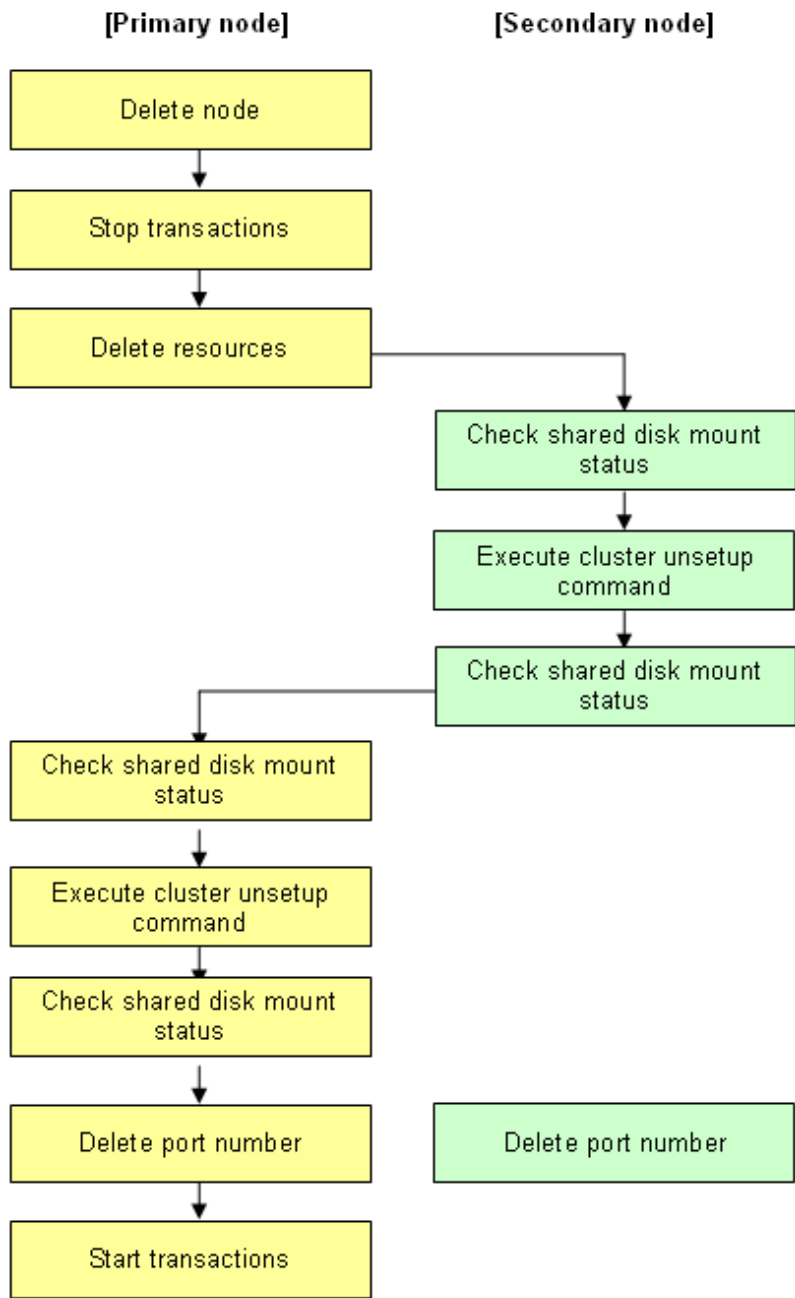
This section explains how to delete the HP-UX version VERITAS Cluster Server.

The primary node is a service group node set up as a primary by the AdvancedCopy Manager cluster setup command, and the secondary node is a node set up as a secondary by the cluster setup command in the same service group.

5.7.1 Flow of Deleting

This section describes the order used when deleting a Cluster Environment.

Figure 5.7 Deletion flow for HP-UX version VERITAS Cluster Server cluster environment



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".

```
# hagrps -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.

```
# hagrps -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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_hpvcs -n nodeagt
```

Refer to "[8.3.6 stgclunset_hpvcs \(HP-UX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

6. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_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.



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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_hpvcs -n nodeagt
```

Refer to "[8.3.6 stgclunset_hpvcs \(HP-UX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_hpvcs -n nodeagt
AdvancedCopy Manager settings were as follows.
    Cluster system : VERITAS Cluster Server
    Node type      : Primary
    Mount point   : /STGMGRMNT
    Node name     : nodeagt
    Service       : STGMGRSRV
```



```
Function      : Server
Number       : 1
MODE        : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

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

Note

The number of nodes that are not carrying out cluster unsetup command is output to "Number". 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.

```
# hagrps -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

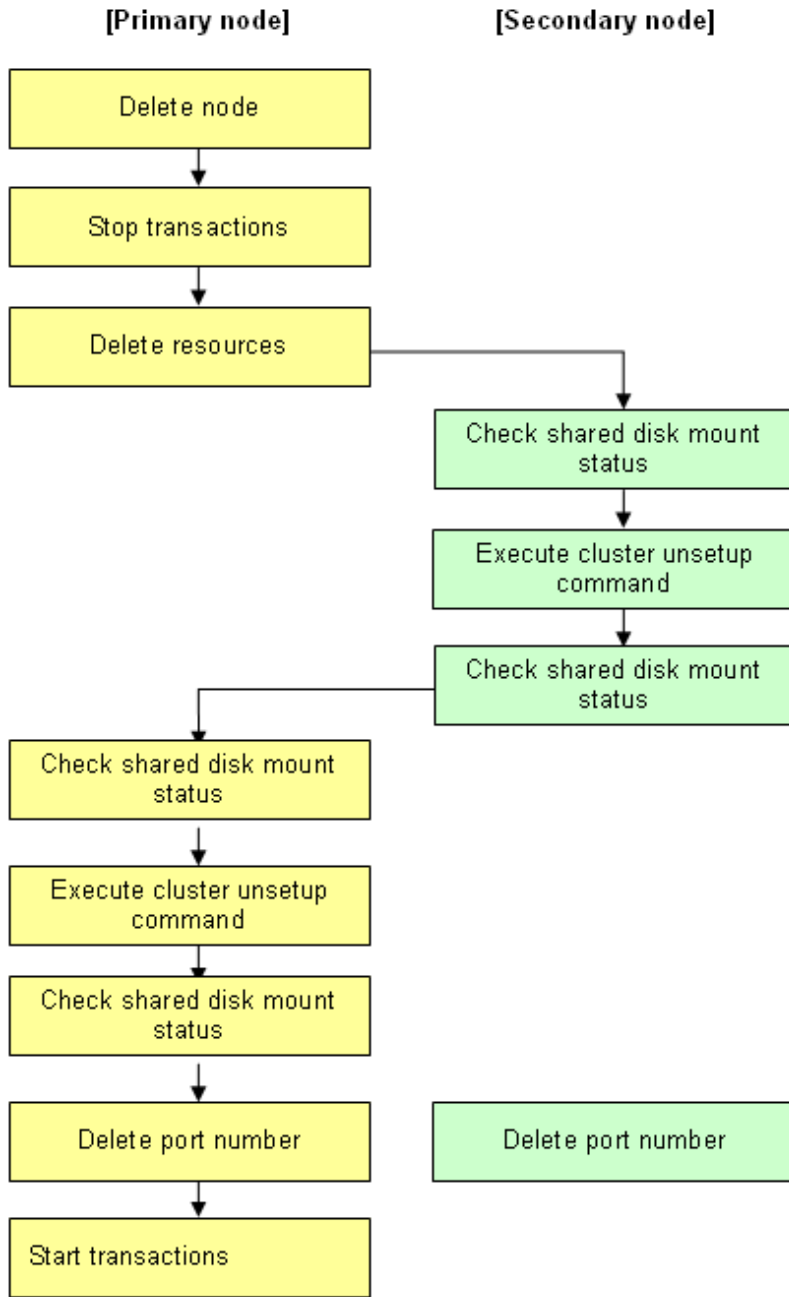
This section explains how to delete the AIX version VERITAS Cluster Server.

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.

Figure 5.8 Deletion flow for AIX version VERITAS Cluster Server cluster environment



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".

```
# hagrps -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.

```
# hagrps -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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
```

Refer to "8.3.7 [stgclunset_aixvcs \(AIX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

6. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Secondary
  Mount point    : /STGMGRDISK
  Node name      : nodeagt
  Service        : STGMGRSRV
  Function       : Server
  Number         : 2
  MODE           : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

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

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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
```

Refer to "8.3.7 [stgclunset_aixvcs \(AIX version VERITAS Cluster Server environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_aixvcs -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : VERITAS Cluster Server
  Node type      : Primary
  Mount point    : /STGMGRMNT
  Node name      : nodeagt
```

```

Service      : STGMGRSRV
Function     : Server
Number      : 1
MODE        : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]

```

To interrupt cluster environmental unsetup processing, input "n". To 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.

- 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.
#

```

- Dismount the shared disk on the primary node.

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

- 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*

- 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.

```

# hagrps -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.

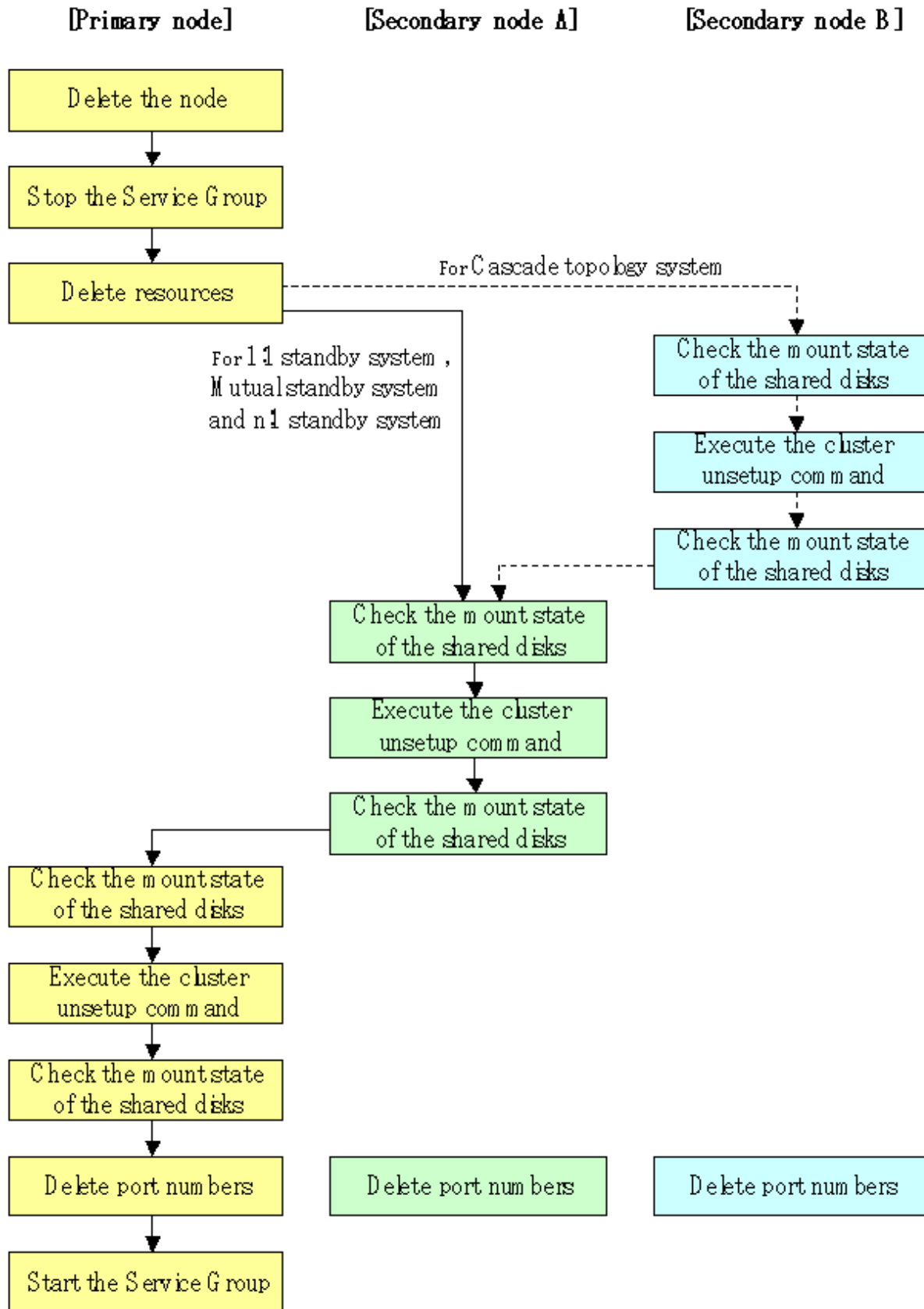
The deleting work of the primary node and secondary node A is executed for a 1:1 standby system, a mutual standby system, and an n:1 standby system.

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.

Figure 5.9 Deletion flow for AIX version High Availability Cluster Multi-Processing 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, 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
```

Refer to "8.3.8 stgclunset_hacmp (AIX version High Availability Cluster Multi-Processing environment cancel command)" for command details.

6. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : High Availability Cluster Multi-Processing
  Node type      : Secondary
  Mount point    : /STGMGRDISK
  Node name      : nodeagt
  Service        : STGMGRSRV
  Function       : Server
  Number         : 3
  MODE          : Normal
Do you want to continue with un-setting of AdvancedCopy Manager cluster? [default:y]
```

To interrupt cluster environmental unsetup processing, input "n". To 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 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.
#
```

Note

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.

Note

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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
```

Refer to "[8.3.8 stgclunset_hacmp \(AIX version High Availability Cluster Multi-Processing environment cancel command\)](#)" for command details.

11. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_hacmp -n 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:

[Input example]

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
```

Refer to "[8.3.8 stgclunset_hacmp \(AIX version High Availability Cluster Multi-Processing environment cancel command\)](#)" for command details.

16. Check the objects to be deleted.

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

```
# /opt/swstorage/bin/stgclunset_hacmp -n nodeagt
AdvancedCopy Manager settings were as follows.
  Cluster system : High Availability Cluster Multi-Processing
  Node type      : Primary
  Mount point    : /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.



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 "[6.1 Customizing Tape Server Transactions with the Solaris version PRIMECLUSTER](#)" for information about the Solaris version PRIMECLUSTER.

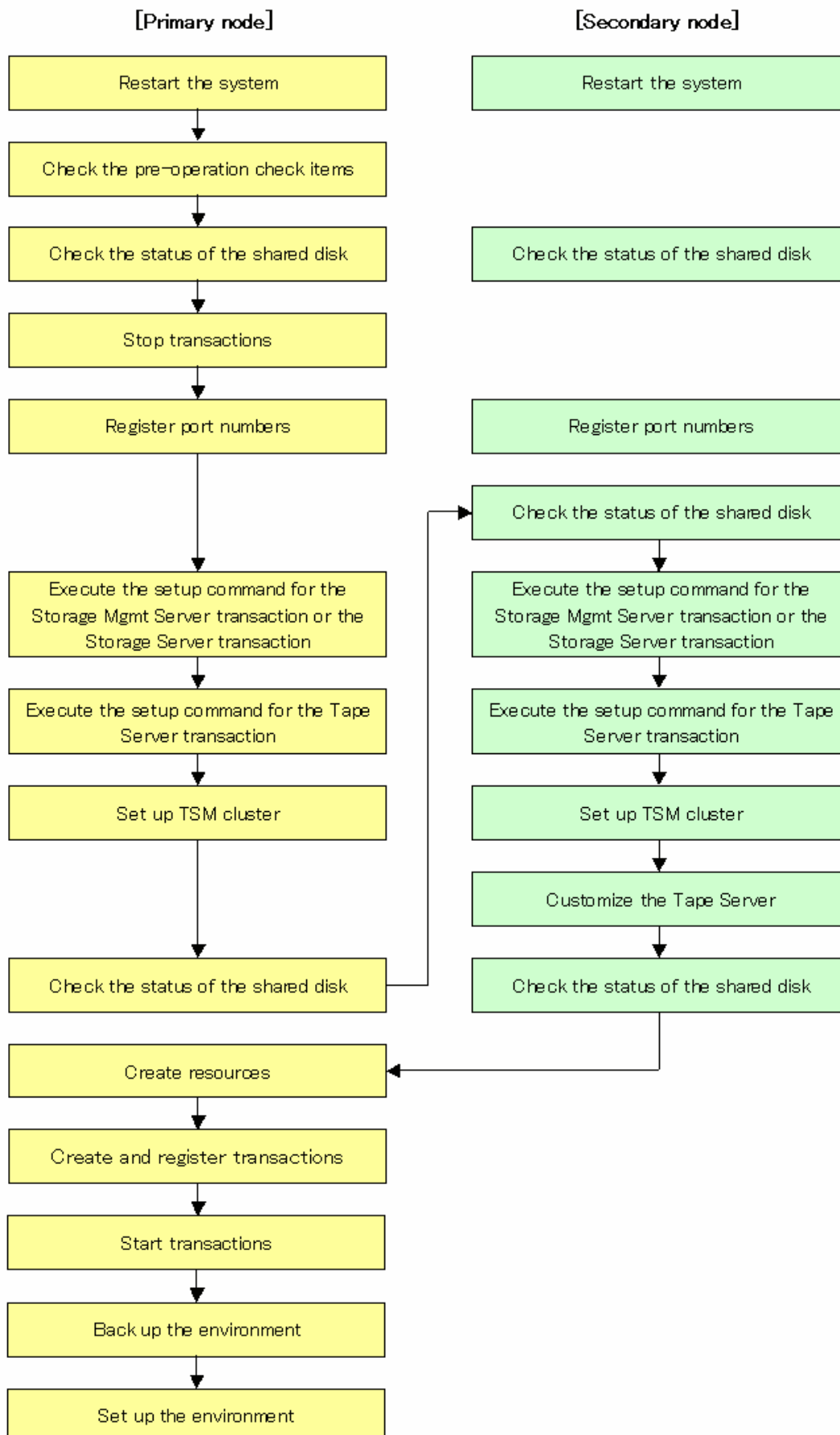
6.1 Customizing Tape Server Transactions with the Solaris version PRIMECLUSTER

This section explains how to customize Tape Server transactions with the Solaris version 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 customization flow is described below.

Figure 6.1 Customization flow for the Solaris version PRIMECLUSTER



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 "[3.3 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`

Note

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.

For details, refer to "[Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions](#)" > "[4.1.2 Customization Procedure](#)", from steps "6.Execute the cluster setup command on the primary node" to "13.Finish the cluster setup command on the primary node".

Note

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
```

Note

- 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. Customize the tape server.

Configure the primary node (for details, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Customization of Tape Server" > "TSM Configuration" > "Configuration of a Client System Option File").

Set the SHMPort item to the same value of the TSM cluster setup information file (/opt/tivoli/tsm/CLUS/tsmclsetup.ini).

12. 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.

13. 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.

- Execute the cluster setup command for the Storage Management Server transaction or the Storage Server transaction on the secondary node.

For details, refer to "Chapter 4 Customization of Storage Management Server Transactions and Storage Server Transactions" > "4.1.2 Customization Procedure", from steps "16.Execute the cluster setup command on the secondary node A" to "19.Finish the cluster setup command on the secondary node".

- Execute the cluster setup command for the Tape Server transaction on the secondary node.

```
# /opt/swstorage/bin/tboclset_lxprm -n logical node name
```

- 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.

- 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.
#
```

- 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.

- Customize the Tape Server.

Configure the secondary node (for details, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Customization of Tape Server" > "TSM Configuration", sub-sections "Driver Configuration of Tape Library System", "Configuration of a Server System Option File" and "Configuration of a Client System Option File").

Note

There is no need to make "automatic settings for the daemon" with cluster systems.

- 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.

- 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.

- Ippaddress resource

This resource is not required if an existing Ippaddress resource is used.

- Procedure resource

Specify "SMGRPROC_logical node name".

- Cmdline resource

Create the following Cmdline resource.

Table 6.1 Cmdline resources

| 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 | No (Default) |
| | ALLEXITCODES | No (Default) |
| | LIEOFFLINE | No (Default) |
| | CLUSTEREXCLUSIVE | Yes (Default) |
| | AUTORECOVER | No |
| | MONITORONLY | No (Default) |
| | STANDBYCAPABLE | No (Default) |
| | TIMEOUT | 300 (Default) |
| Resource attributes | SubApplications | Blank (Default) |
| | InParallel | No (Default) |
| | NeedAll | No (Default) |

Additionally, create the resources required for TSM by referring to "Registering resources" in "TSM Cluster Settings".

 Note

Refer to "A.1.5 Creating a Cmdline resource" and "Appendix A 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 stgclset_safe command (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command).

22. 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 "[Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER](#)" for information on how to create userApplications with PRIMECLUSTER.

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. Set the TSM settings.

For details, refer to the "ETERNUS SF AdvancedCopy Manager Installation and Setup Guide", section "Customization of Tape Server" > TSM Configuration".

25. 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

26. 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 version PRIMECLUSTER, refer to the section entitled "[7.1 Deleting Tape Server Transactions with the Solaris version PRIMECLUSTER](#)".

7.1 Deleting Tape Server Transactions with the Solaris version PRIMECLUSTER

This section explains how to delete Tape Server transactions with the Solaris version PRIMECLUSTER.

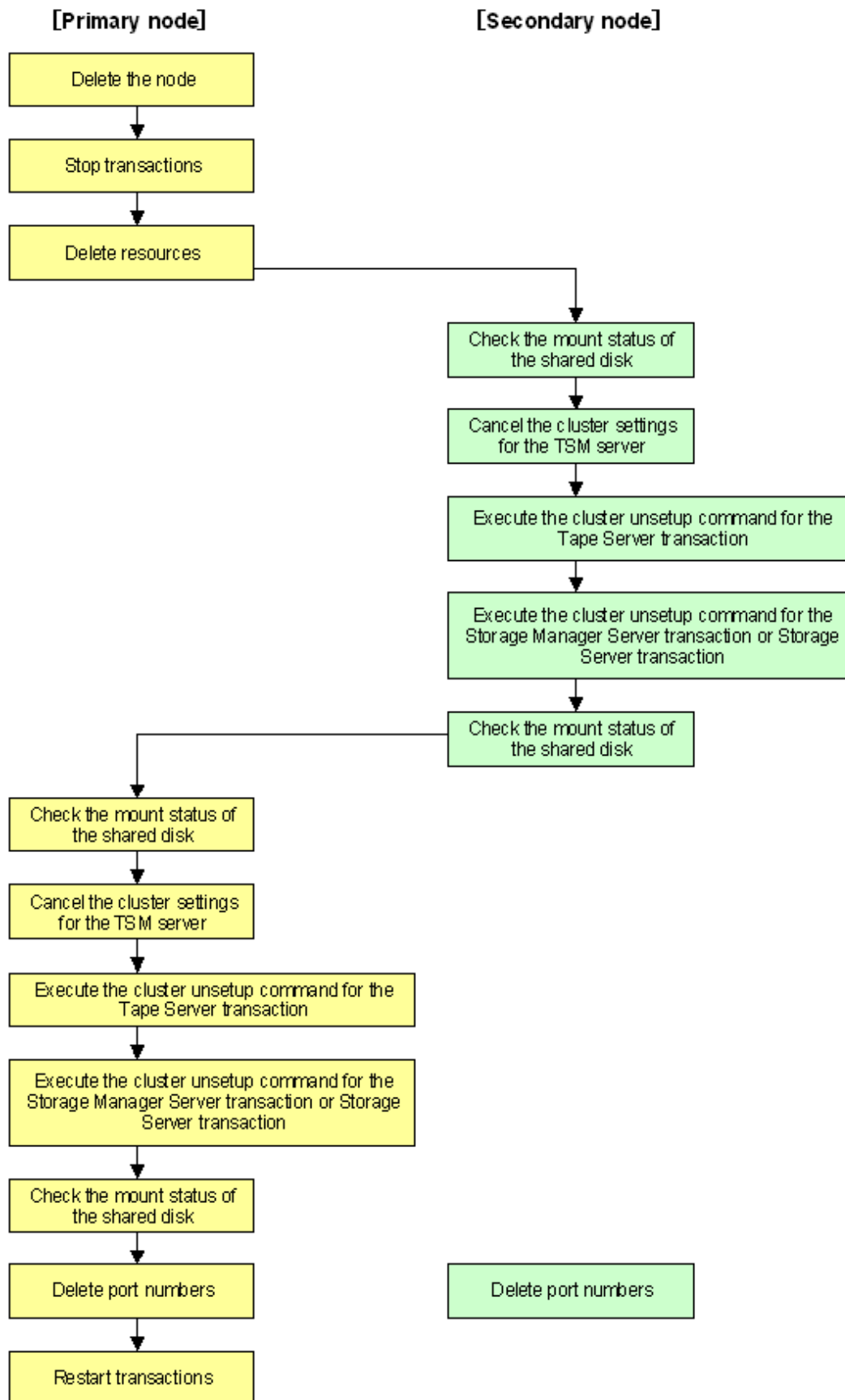
"Primary node" refers to the userApplication node that has been set up as the primary node using the AdvancedCopy Manager cluster setup command.

"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.

Figure 7.1 Deletion flow for the Solaris version PRIMECLUSTER cluster environment



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.

If also used as a Storage Server, perform the steps below before deleting the cluster environment.

Refer to "Commands" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide for Tape Backup Option" for command details.

The deletion procedure depends on the type of device being deleted. The deletion procedures for each device type are explained below.

- Deleting a transaction volume

Use the following procedures to delete a transaction volume. Ensure that that these procedures are performed before the targeted transaction volume is removed.

1. Delete the tape backup management class.

Execute `acmtpmgmtclassdel` (Tape backup management class deletion command).

Refer to "`acmtpmgmtclassdel` (Tape backup management class deletion command)" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide for Tape Backup Option" for details.

2. Execute `acmhistdel` (history information deletion command) to delete all the backup history of the transaction volume that is targeted for deletion.

A command execution example is shown below.

```
# /opt/FJSVswstc/bin/acmhistdel -z /dev/dsk/clt1d0s6
/dev/dsk/clt1d0s6 acmhistdel completed
#
```

3. Execute `acmbkpdel` (Disk backup policy delete command) and `acmtpbkpdel` (Tape backup policy delete command) to delete the backup policies of the transaction volume that is targeted for deletion.

An example of executing these commands is shown below.

```
# /opt/FJSVswstc/bin/acmbkpdel /dev/dsk/clt1d0s6
/dev/dsk/clt1d0s6 acmbkpdel completed
#
# /opt/FJSVswstc/bin/acmtpbkpdel /dev/dsk/clt1d0s6
/dev/dsk/clt1d0s6 acmtpbkpdel completed
#
```

4. Execute `acmdevinfo` (Device Configuration command) to delete the device information of the transaction volume that is targeted for deletion.

A command execution example is shown below.

```
# /opt/FJSVswstc/bin/acmdevinfo -o /dev/dsk/clt1d0s6
acmdevinfo completed
#
```

- Deleting a backup volume

Take the steps below to delete a backup volume. Note that it is essential to perform these steps before removing the targeted backup volume.

1. Delete the tape backup management class.

Execute `acmtpmgmtclassdel` (Tape backup management class delete command).

Refer to "acmtpmgmtclassdel (Tape backup management class deletion command)" in the "ETERNUS SF AdvancedCopy Manager Operator's Guide for Tape Backup Option" for details.

2. Set the not-in-use status for the backup volume that is targeted for deletion.

The not-in-use status for a volume means that the relevant volume does not exist in the backup history. If the volume is in the backup history, delete the backup history. If the same backup history also exists on tape, the history on tape does not need to be deleted. Refer to acmhistdel (History information delete command) for details. If the volume already has the not-in-use status, proceed to the next step.

A command execution example is shown below.

```
# /opt/FJSVswstc/bin/acmhistdel -m DISK -g 1 /dev/dsk/clt1d0s6
/dev/dsk/clt1d0s6 acmhistdel completed
#
```

3. Execute acmdevinfofet (Device Configuration command) to delete the device information of the backup volume that is targeted for deletion.

A command execution example is shown below.

```
# /opt/FJSVswstc/bin/acmdevinfofet -o /dev/dsk/clt2d1s6
acmdevinfofet completed
#
```

Note

When a backup volume is deleted, a backup policy that is already set may no longer be met (for example, the number of backup volumes may be less than the required number of saved generations). In this case, subsequent backup operations may not be possible. Therefore, it is essential to check the backup policies that have already been set before deleting a backup volume.

If, as described above, there will be insufficient backup volumes, add a replacement backup volume before deleting the targeted backup volume.

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

See

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 the TSM server cluster environment" under "Canceling Applications" in the "TSM PRIMECLUSTER Application Guide".

Use the procedure below to delete the PRIMECLUSTER environment:

```
# cd shared disk mount point for TSM/tsm/cluster
# ./tsmclunset_safe -k Sec -m shared disk mount point for TSM
```

Note

Do not delete environment for the primary node.

- Execute the cluster unsetup command for the Tape Server transaction on the secondary node

```
# /opt/swstorage/bin/tboclunset_lxprm -n logical node name
```

- 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

- 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 cluster 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.

- 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 "[5.1.2 Deletion Procedure](#)" under "Deleting Storage Management Server Transactions and Storage Server Transactions"

- 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

- 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 the "ETERNUS SF TSM PRIMECLUSTER Application Guide".

To delete the PRIMECLUSTER environment, mount the ETERNUS SF AdvancedCopy Manager Tape Server Option CD and execute the following command from the CD:

```
# cd CD-ROM mount point/tape-mgr/solaris/pkg/tsm/CLUS
# ./tsmclunset_safe -k Pri -m shared disk mount point for TSM
```

Additionally, delete any shared resources or procedures that were used with TSM by referring to the "ETERNUS SF 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 "5.1.2 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.

Chapter 8 Commands

This chapter describes how to use commands.

8.1 Command List

The commands can be classified as shown below.

Environment setup commands

Table 8.1 List of environment setup commands

| Command name | Cluster system |
|---------------------------------|--|
| stgclset_safe | Solaris version SynfinityCLUSTER/PRIMECLUSTER |
| stgclset_vcs | Solaris version VERITAS Cluster Server |
| stgclset_sun | Solaris version Sun Cluster |
| stgclset_lxprm | Linux version PRIMECLUSTER |
| stgclset_mcsq | HP-UX version MC/ServiceGuard |
| stgclset_hpvcs | HP-UX version VERITAS Cluster Server |
| stgclset_aixvcs | AIX version VERITAS Cluster Server |
| stgclset_hacmp | AIX version High Availability Cluster Multi-Processing |

Environment cancel commands

Table 8.2 List of environment cancel commands

| Command name | Cluster system |
|-----------------------------------|--|
| stgclunset_safe | Solaris version SynfinityCLUSTER/PRIMECLUSTER |
| stgclunset_vcs | Solaris version VERITAS Cluster Server |
| stgclunset_sun | Solaris version Sun Cluster |
| stgclunset_lxprm | Linux version PRIMECLUSTER |
| stgclunset_mcsq | HP-UX version MC/ServiceGuard |
| stgclunset_hpvcs | HP-UX version VERITAS Cluster Server |
| stgclunset_aixvcs | AIX version VERITAS Cluster Server |
| stgclunset_hacmp | AIX version High Availability Cluster Multi-Processing |

8.2 Environment setup commands

This section describes the environment setup commands.

8.2.1 [stgclset_safe](#) (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment setup command)

This section describes the cluster setup command used with the Solaris version SynfinityCLUSTER/PRIMECLUSTER.

NAME

[stgclset_safe](#) - Setup of AdvancedCopy Manager in Solaris version SynfinityCLUSTER/PRIMECLUSTER environment

SYNOPSIS

- If executed on a Storage Management Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_safe -k Primary|Pri -m Mount_Point -n Node_name -s Service_name  
-i IP_address -f mgr [-r Resource_type]
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_safe -k Secondary|Sec -m Mount_Point
```

- If executed on a Storage Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_safe -k Primary|Pri -m Mount_Point -n Node_name -s Service_name  
[-r Resource_type]
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_safe -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Solaris version SynfinityCLUSTER/PRIMECLUSTER environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

It is recommended to use the same value as the cluster service name of the Fujitsu cluster system.

-i *IP_address*

If a Storage Management Server transaction, specify the IP address.

-f mgr

Specify the type of transaction being built. If this option is not specified, a Storage Server transaction is built.

To build a Storage Management Server transaction: mgr

-r *Resource_type*

Specify the resource type. If this option is not specified, a status transition procedure is created.

To operate using a command line resource: cmd

For SynfinityCLUSTER, do not specify "-r cmd".

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.2 stgclset_vcs (Solaris version VERITAS Cluster Server environment setup command)

This section describes the cluster setup command used with the Solaris version VERITAS Cluster Server.

NAME

stgclset_vcs - Setup of AdvancedCopy Manager in Solaris version VERITAS Cluster Serve environment

SYNOPSIS

- If executed on a Storage Management Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_vcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name -  
i IP_address -f mgr
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary|Sec -m Mount_Point
```

- If executed on a Storage Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_vcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_vcs -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Solaris version VERITAS Cluster Server environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

It is recommended to use the same value as the cluster service name of the Fujitsu cluster system.

-i *IP_address*

If a Storage Management Server transaction, specify the IP address.

-f mgr

Specify the type of transaction being built. If this option is not specified, a Storage Server transaction is built.

To build a Storage Management Server transaction: mgr

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.3 stgclset_sun (Solaris version Sun Cluster environment setup command)

This section describes the cluster setup command used with the Solaris version Sun Cluster.

NAME

stgclset_sun - Setup of AdvancedCopy Manager in Solaris version Sun Cluster environment

SYNOPSIS

- If executed on a Storage Management Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_sun -k Primary|Pri -m Mount_Point -h Network_resource -n Node_name -s Service_name -i IP_address -f mgr
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_sun -k Secondary|Sec -m Mount_Point
```

- If executed on a Storage Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_sun -k Primary|Pri -m Mount_Point -h Network_resource -n Node_name -s Service_name
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_sun -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Solaris version Sun Cluster environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-h *Network_Resource*

Specify the name of a logical host name resource or the name of a shared address resource.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

Specify the same value as the Sun Cluster resource group name of the targeted transaction.

-i *IP_address*

If a Storage Management Server transaction, specify the IP address.

-f mgr

Specify the type of transaction being built. If this option is not specified, a Storage Server transaction is built.

To build a Storage Management Server transaction: mgr

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.4 stgclset_lxprm (Linux version PRIMECLUSTER environment setup command)

This section describes the cluster setup command used with the Linux version PRIMECLUSTER.

NAME

stgclset_lxprm - Setup of AdvancedCopy Manager in Linux version PRIMECLUSTER environment

SYNOPSIS

- If executed on a Storage Management Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_lxprm -k Primary|Pri -m Mount_Point -n Node_name -s Service_name  
-i IP_address -f mgr [-r Resource_type]
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary|Sec -m Mount_Point
```

- If executed on a Storage Server

- [Primary node]

```
# /opt/swstorage/bin/stgclset_lxprm -k Primary|Pri -m Mount_Point -n Node_name -s Service_name  
[-r Resource_type]
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_lxprm -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the Linux version PRIMECLUSTER environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

It is recommended to use the same value as the PRIMECLUSTER userApplication name.

-i *IP_address*

If a Storage Management Server transaction, specify the IP address.

-f mgr

Specify the type of transaction being built. If this option is not specified, a Storage Server transaction is built.

To build a Storage Management Server transaction: mgr

-r *Resource_type*

Specify the resource type. If this option is not specified, a status transition procedure is created.

To operate using a command line resource: cmd

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.5 stgclset_mcsmsg (HP-UX version MC/ServiceGuard environment setup command)

This section describes the cluster setup command used with the HP-UX version MC/ServiceGuard.

NAME

stgclset_mcsmsg - Setup of AdvancedCopy Manager in HP-UX version MC/ServiceGuard environment

SYNOPSIS

- [Primary node]

```
# /opt/swstorage/bin/stgclset_mcsmsg -k Primary|Pri -m Mount_Point -n Node_name -s Service_name -v  
Volume_Group -i IP_address -u Subnet
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_mcsmsg -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the HP-UX version MC/ServiceGuard environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

Specify the same value as the MC/ServiceGuard package name of the targeted transaction.

-v *Volume_Group*

Specify the name of the volume group belonging to the shared disk used for AdvancedCopy Manager shared data.

-i *IP_address*

Specify the IP address.

-u *Subnet*

Specify the subnet of the IP address.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.6 stgclset_hpvcs (HP-UX version VERITAS Cluster Server environment setup command)

This section describes the cluster setup command used with the HP-UX version VERITAS Cluster Server.

NAME

stgclset_hpvcs - Setup of AdvancedCopy Manager in HP-UX version VERITAS Cluster Server environment

SYNOPSIS

- [Primary node]

```
# /opt/swstorage/bin/stgclset_hpvcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_hpvcs -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the HP-UX version VERITAS Cluster Server environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.7 stgclset_aixvcs (AIX version VERITAS Cluster Server environment setup command)

This section describes the cluster setup command used with the AIX version VERITAS Cluster Server.

NAME

stgclset_aixvcs - Setup of AdvancedCopy Manager in AIX version VERITAS Cluster Server environment

SYNOPSIS

- [Primary node]
/opt/swstorage/bin/stgclset_aixvcs -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
- [Secondary node]
/opt/swstorage/bin/stgclset_aixvcs -k Secondary|Sec -m Mount_Point

DESCRIPTION

In the AIX version VERITAS Cluster Server environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.2.8 stgclset_hacmp (AIX version High Availability Cluster Multi-Processing environment setup command)

This section describes the cluster setup command used with the AIX version High Availability Cluster Multi-Processing.

NAME

stgclset_hacmp - Setup of AdvancedCopy Manager in AIX version High Availability Cluster Multi-Processing environment

SYNOPSIS

- [Primary node]

```
# /opt/swstorage/bin/stgclset_hacmp -k Primary|Pri -m Mount_Point -n Node_name -s Service_name
```

- [Secondary node]

```
# /opt/swstorage/bin/stgclset_hacmp -k Secondary|Sec -m Mount_Point
```

DESCRIPTION

In the AIX version High Availability Cluster Multi-Processing environment, the AdvancedCopy manager is set up.

OPTIONS

-k { Primary | Pri | Secondary | Sec }

Specify the node type.

To set a primary node: Primary or Pri

To set a secondary node: Secondary or Sec

-m *Mount_Point*

Specify the mount point of the shared disk used for AdvancedCopy Manager shared data.

-n *Node_name*

Specify up to 8 alphanumeric characters (do not use spaces) as the logical node name of AdvancedCopy Manager.

Refer to the reserved word list for the character strings (reserved words) that cannot be specified as the logical node name of AdvancedCopy Manager.

Reserved word list

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

-s *Service_name*

Specify the transaction name.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3 Environment Cancel Commands

This section describes the environment cancel commands.

8.3.1 stgclunset_safe (Solaris version SynfinityCLUSTER/PRIMECLUSTER environment cancel command)

This section describes the cluster cancel setup command used with the Solaris version SynfinityCLUSTER/PRIMECLUSTER.

NAME

stgclunset_safe - Cancellation of AdvancedCopy Manager in Solaris version SynfinityCLUSTER/PRIMECLUSTER

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_safe -n Node_name
```

DESCRIPTION

In the Solaris version SynfinityCLUSTER/PRIMECLUSTER environment, the AdvancedCopy manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.2 stgclunset_vcs (Solaris version VERITAS Cluster Server environment cancel command)

This section describes the cluster cancel setup command used with the Solaris version VERITAS Cluster Server.

NAME

stgclunset_vcs - Cancellation of AdvancedCopy Manager in Solaris version VERITAS Cluster Server.

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_vcs -n Node_name
```

DESCRIPTION

In the Solaris version VERITAS Cluster Server environment, the AdvancedCopy manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.3 stgclunset_sun (Solaris version Sun Cluster environment cancel command)

This section describes the cluster cancel setup command used with the Solaris version Sun Cluster.

NAME

stgclunset_sun - Cancellation of AdvancedCopy Manager in Solaris version Sun Cluster

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_sun -n Node_name
```

DESCRIPTION

In the Solaris version Sun Cluster environment, the AdvancedCopy manager is canceled.

OPTIONS

-n Node_name

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.4 stgclunset_lxprm (Linux version PRIMECLUSTER environment cancel command)

This section describes the cluster cancel setup command used with the Linux version PRIMECLUSTER.

NAME

stgclunset_lxprm - Cancellation of AdvancedCopy Manager in Linux version PRIMECLUSTER

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_lxprm -n Node_name
```

DESCRIPTION

In the Linux version PRIMECLUSTER environment, the AdvancedCopy manager is canceled.

OPTIONS

-n Node_name

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.5 stgclunset_mcsg (HP-UX version MC/ServiceGuard environment cancel command)

This section describes the cluster cancel setup command used with the HP-UX version MC/ServiceGuard.

NAME

stgclunset_mcsg - Cancellation of AdvancedCopy Manager in HP-UX version MC/ServiceGuard

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_mcsg -n Node_name
```

DESCRIPTION

In the HP-UX version MC/ServiceGuard environment, the AdvancedCopy manager is canceled.

OPTIONS

`-n Node_name`

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.6 stgclunset_hpvcs (HP-UX version VERITAS Cluster Server environment cancel command)

This section describes the cluster cancel setup command used with the HP-UX version VERITAS Cluster Server.

NAME

`stgclunset_hpvcs` - Cancellation of AdvancedCopy Manager in HP-UX version VERITAS Cluster Server

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_hpvcs -n Node_name
```

DESCRIPTION

In the HP-UX version VERITAS Cluster Server environment, the AdvancedCopy manager is canceled.

OPTIONS

`-n Node_name`

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.7 stgclunset_aixvcs (AIX version VERITAS Cluster Server environment cancel command)

This section describes the cluster cancel setup command used with the AIX version VERITAS Cluster Server.

NAME

`stgclunset_aixvcs` - Cancellation of AdvancedCopy Manager in AIX version VERITAS Cluster Server

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_aixvcs -n Node_name
```

DESCRIPTION

In the AIX version VERITAS Cluster Server environment, the AdvancedCopy manager is canceled.

OPTIONS

`-n Node_name`

Specify the logical node name of AdvancedCopy Manager.

OPERANDS

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

8.3.8 stgclunset_hacmp (AIX version High Availability Cluster Multi-Processing environment cancel command)

This section describes the cluster cancel setup command used with the AIX version High Availability Cluster Multi-Processing.

NAME

stgclunset_hacmp - Cancellation of AdvancedCopy Manager in AIX version High Availability Cluster Multi-Processing

SYNOPSIS

```
# /opt/swstorage/bin/stgclunset_hacmp -n Node_name
```

DESCRIPTION

In the AIX version High Availability Cluster Multi-Processing environment, the AdvancedCopy manager is canceled.

OPTIONS

-n *Node_name*

Specify the logical node name of AdvancedCopy Manager.

EXIT STATUS

=0: Completed successfully

>0: Terminated abnormally

Appendix A Creating Resources and userApplications with Solaris version PRIMECLUSTER

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

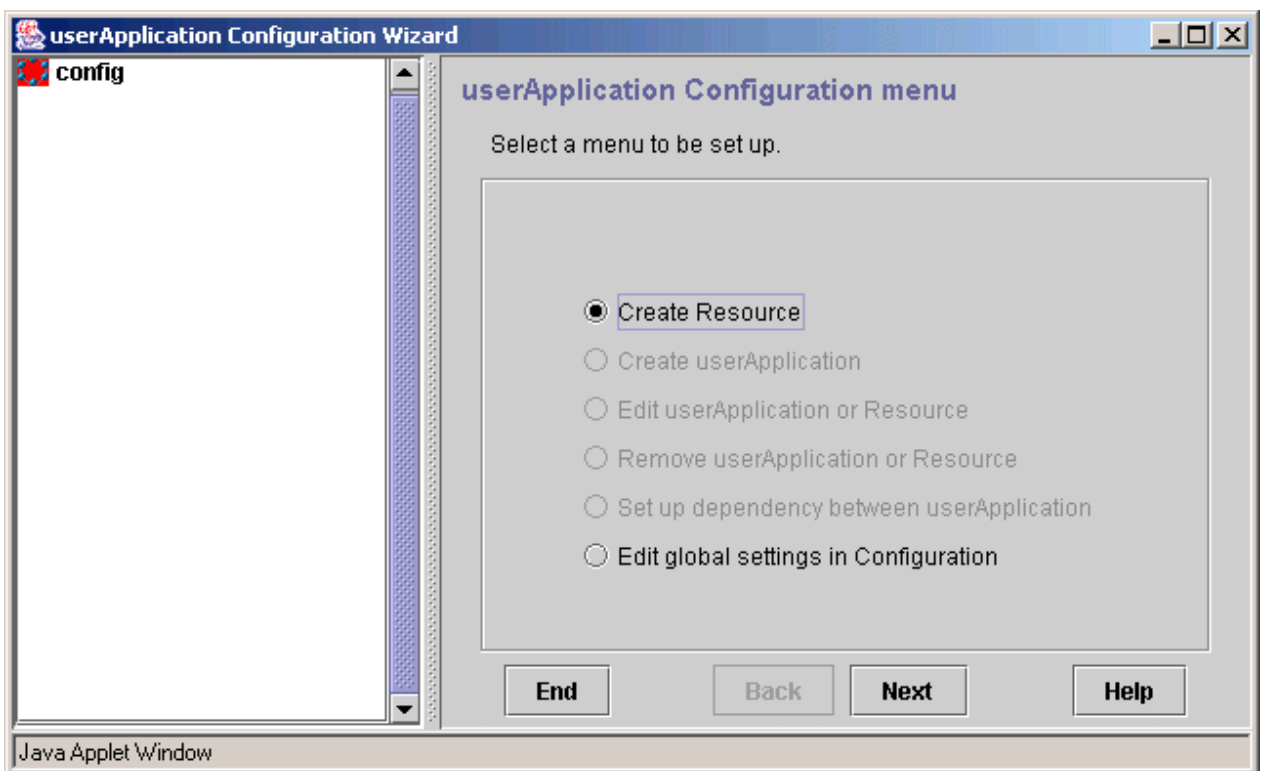
For details, refer to the "PRIMECLUSTER Installation and Administration Guide".

A.1 Creating Resources

Create resources by using the "userApplication Configuration Wizard" of PRIMECLUSTER.

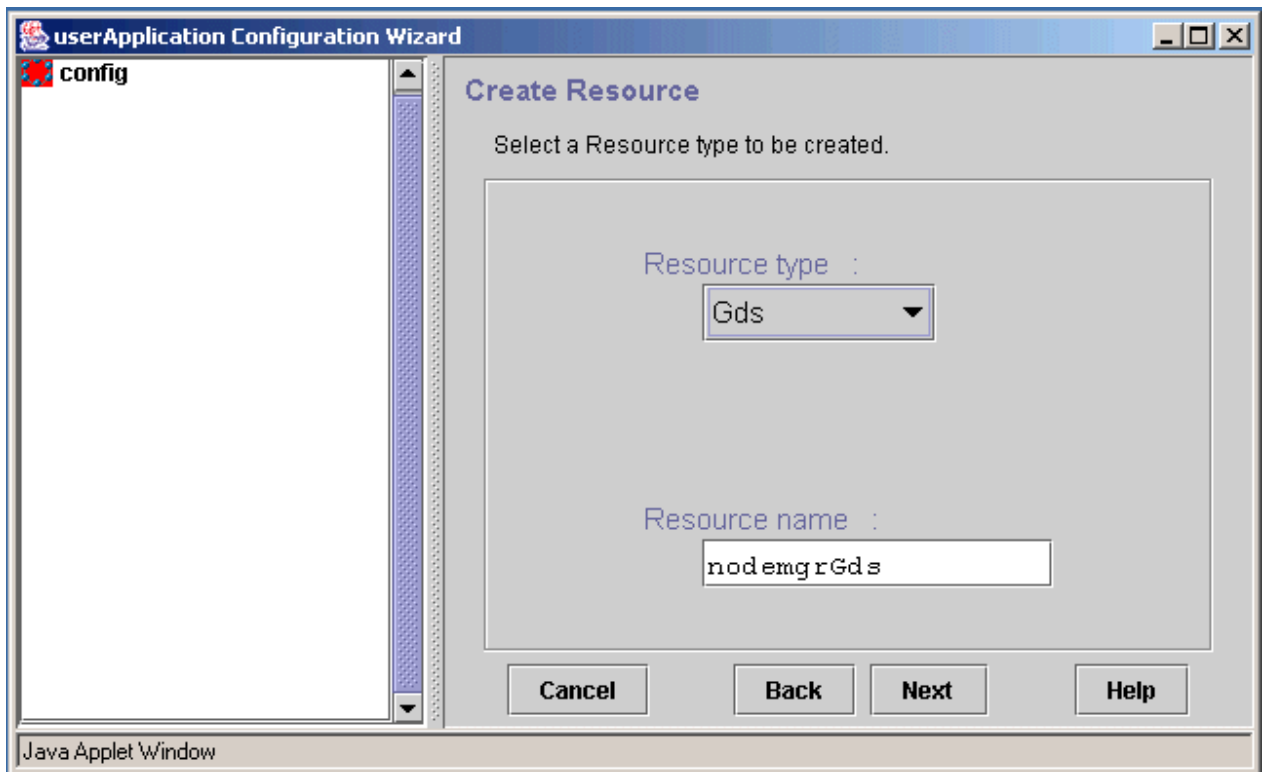
A.1.1 Creating a Gds resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

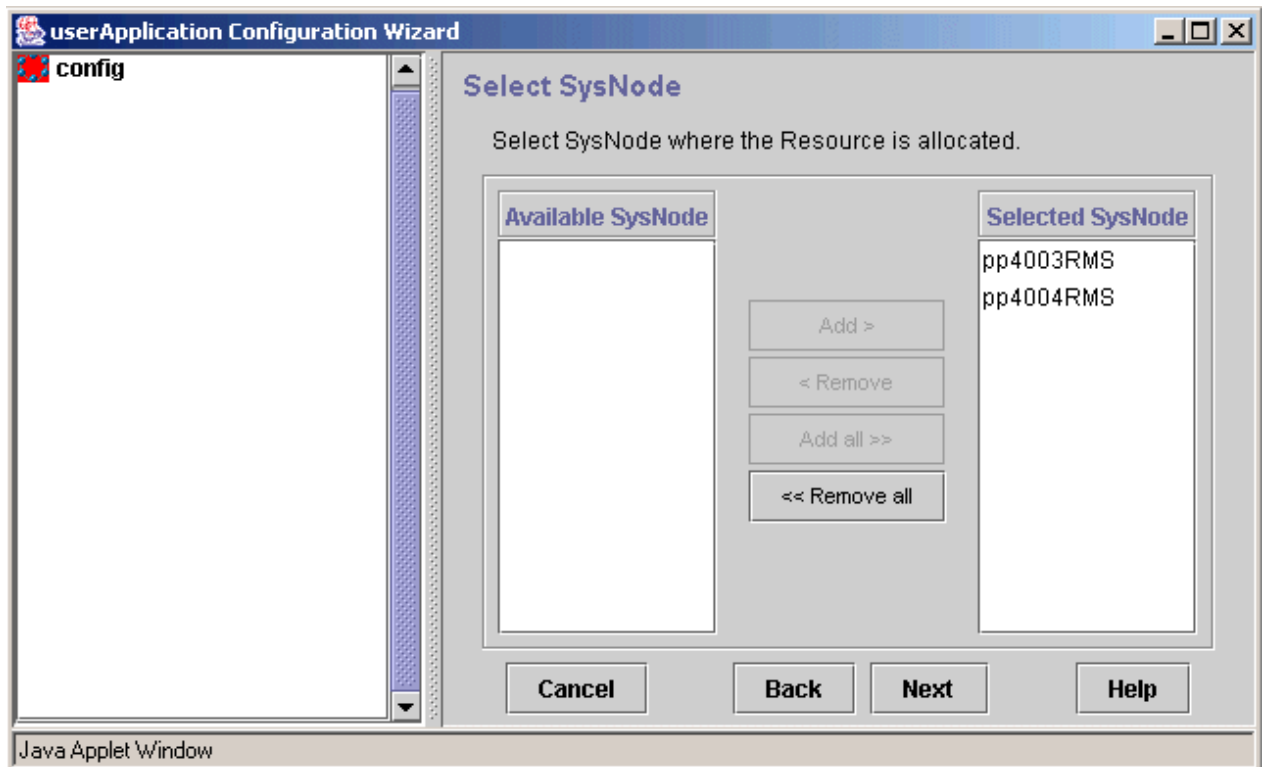


2. Select "Gds" for the resource type.

"nodemgrGds" is specified as the resource name in the following example.



3. Select SysNode to set the resource in it.

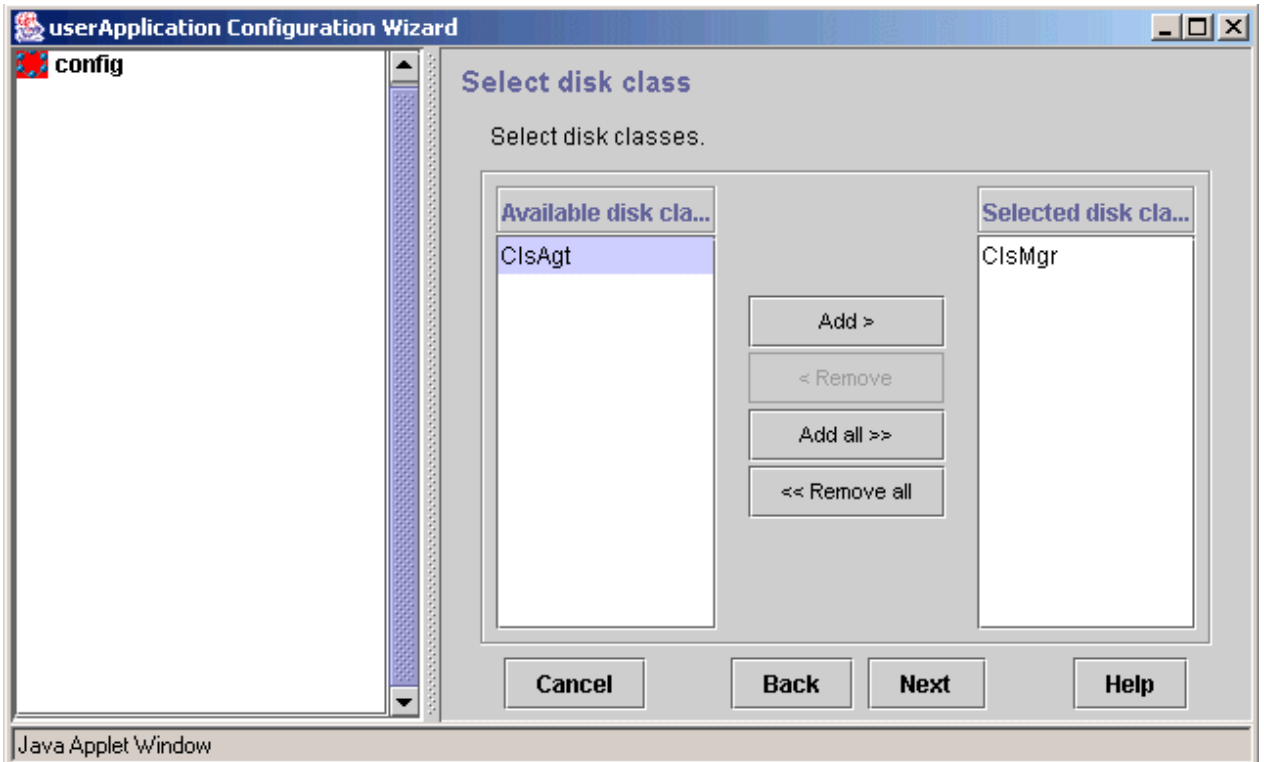


4. Select a disk class.

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.

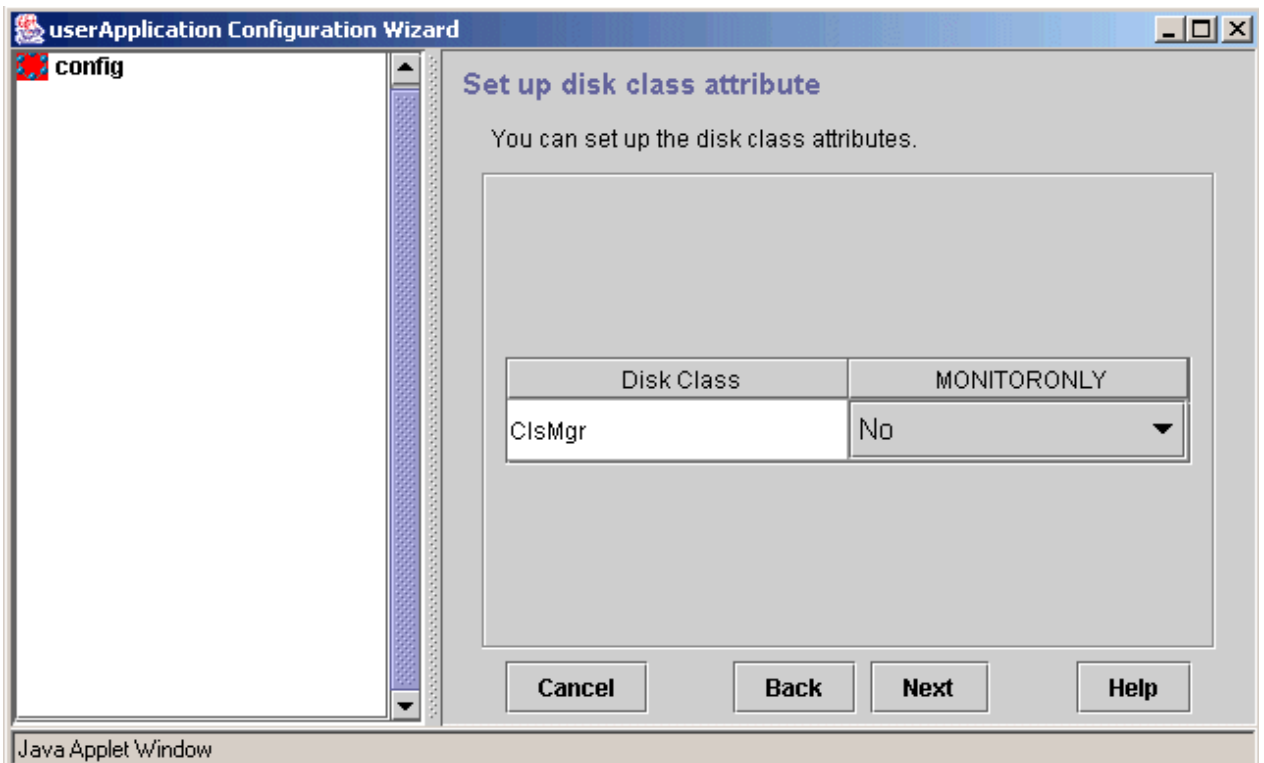
Disk class "ClsMgr" is specified in the following example.



5. Specify the attributes of the disk class.

For details on disk class attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".

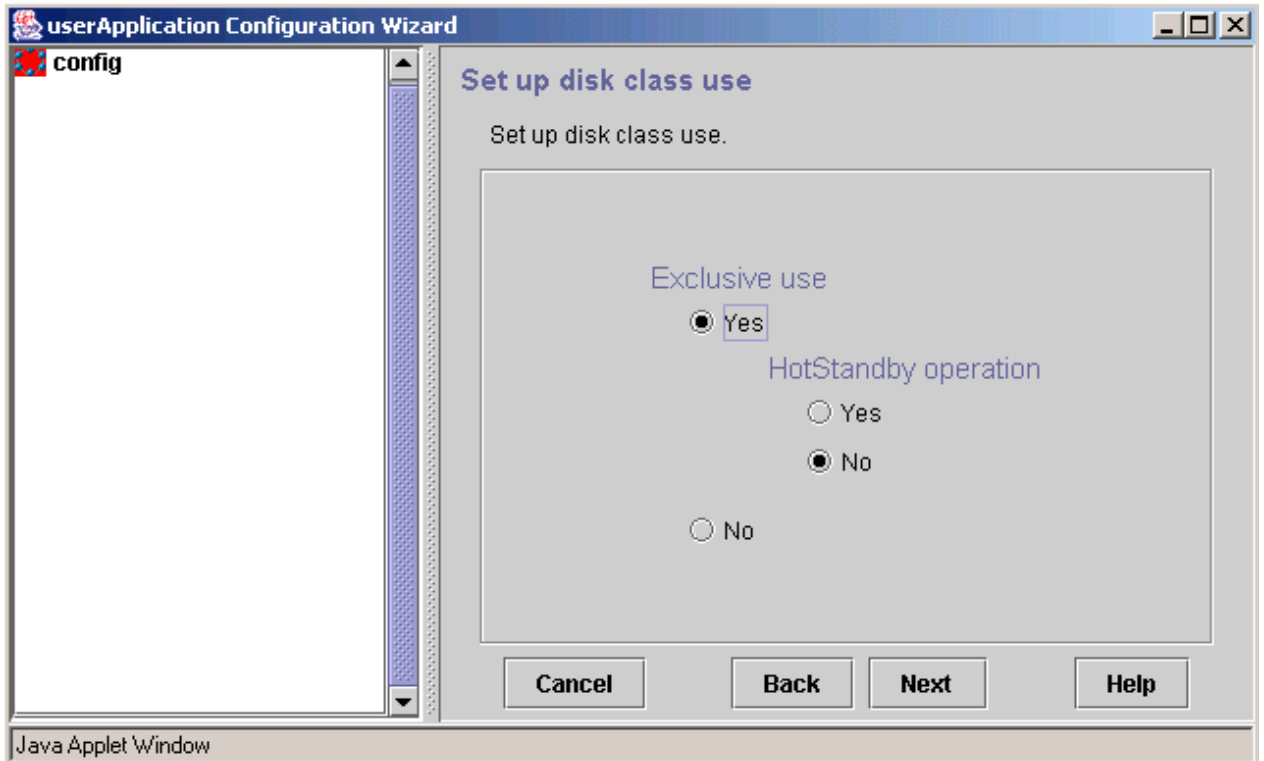
"No" is specified for the MONITORONLY attribute in the following example.



- Specify the use of the disk class.

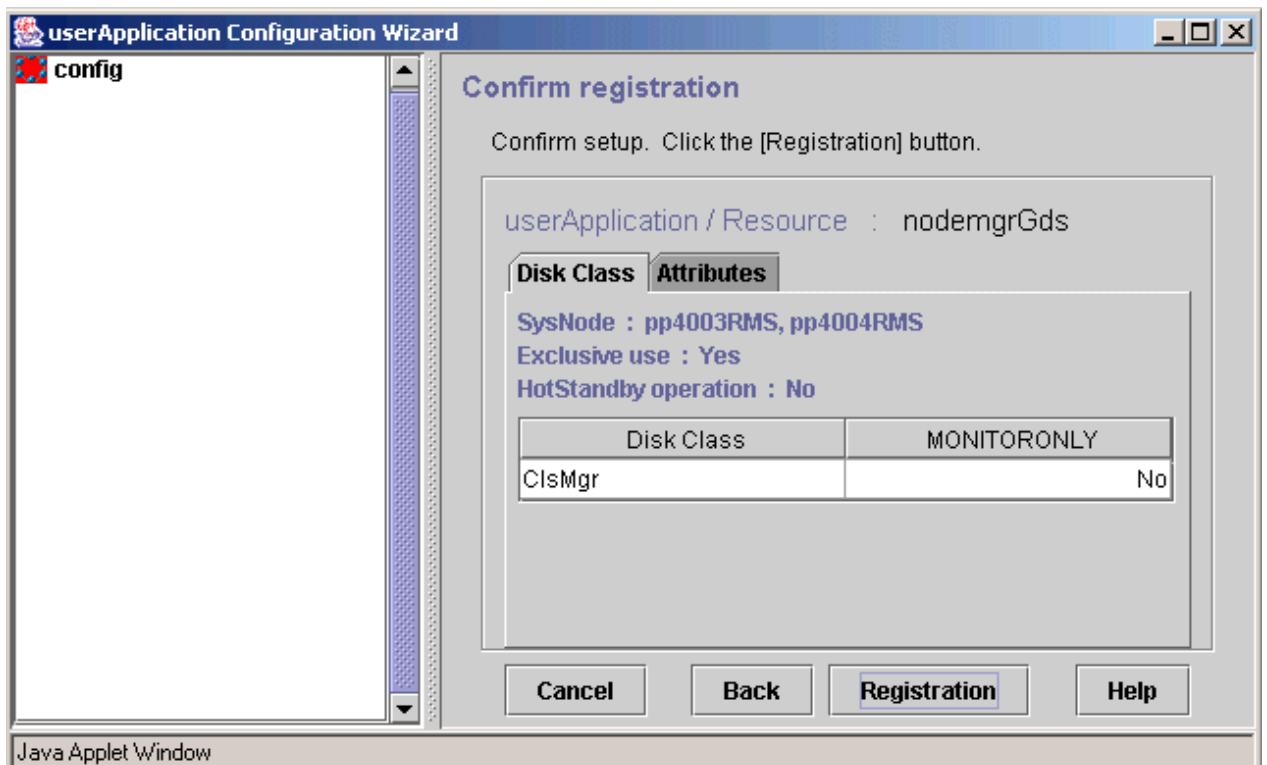
Register the shared disk for shared data and the shared disk for the repository as switching disks (exclusive use = "Yes", HotStandby operation = "No").

For the uses of the disk class, refer to the "PRIMECLUSTER Installation and Administration Guide".



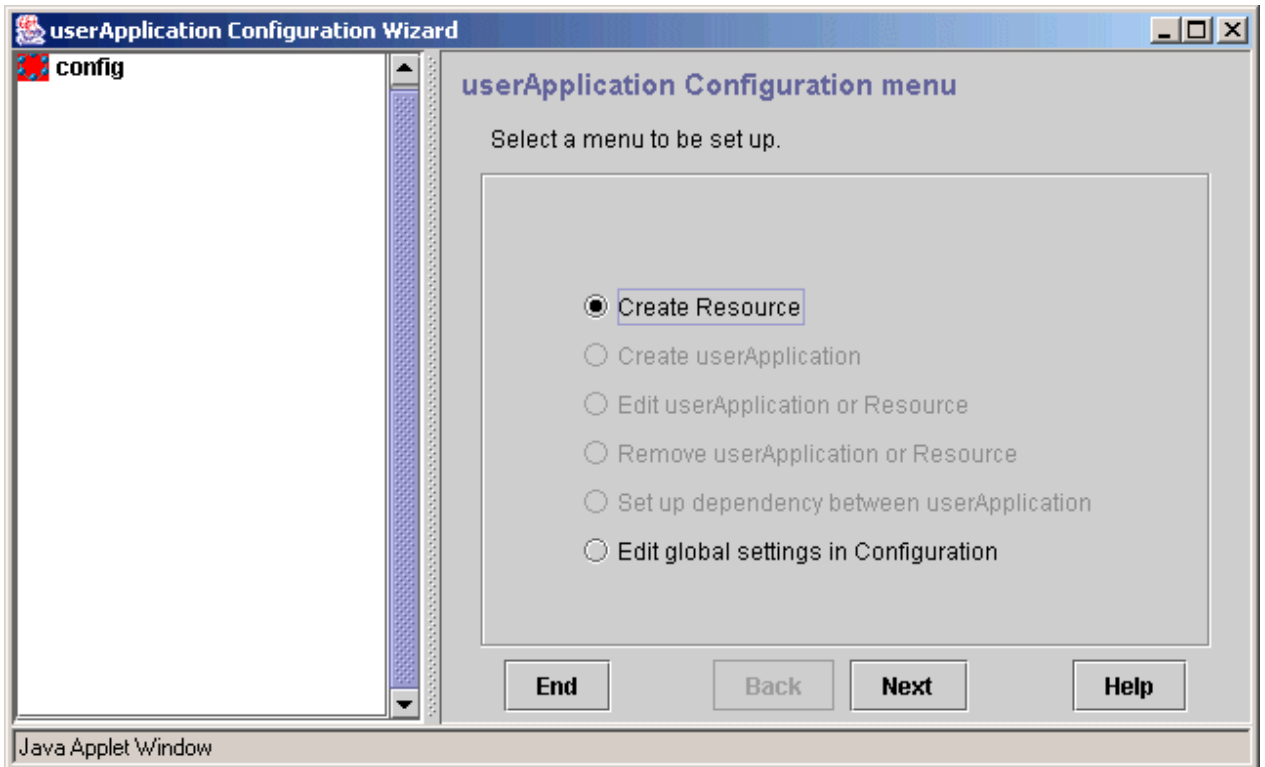
- Confirm the information registered for the Gds resource.

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



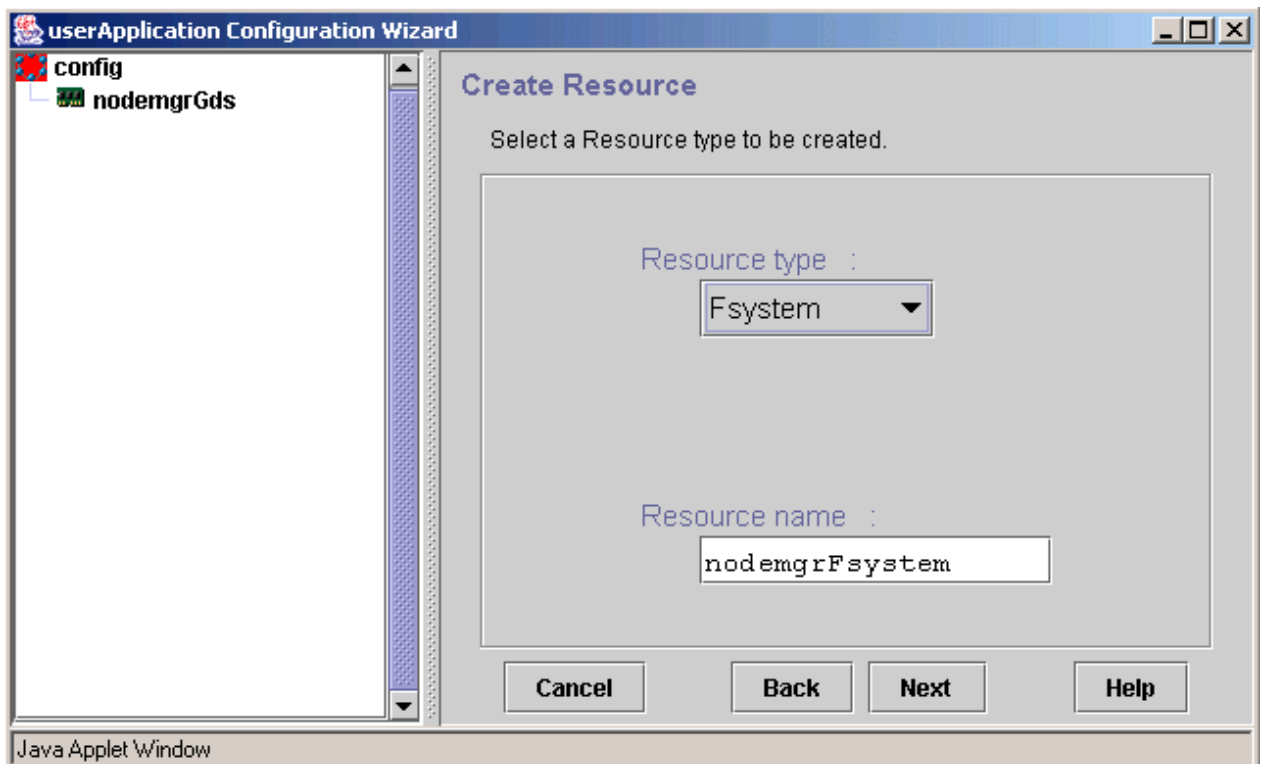
A.1.2 Creating an Fsystem resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

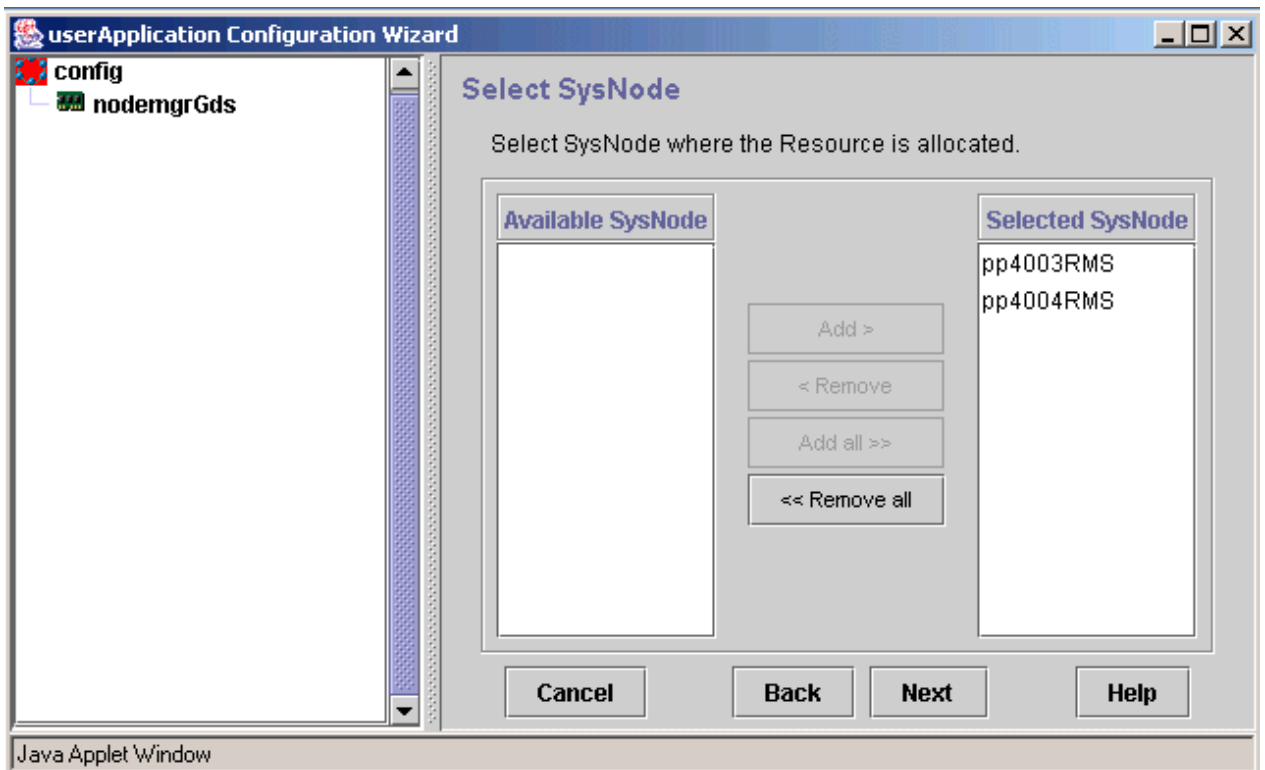


2. Select "Fsystem" for the resource type.

"nodemgrFsystem" is specified for the resource name in the following example.



3. Select SysNode to set the resource in it.

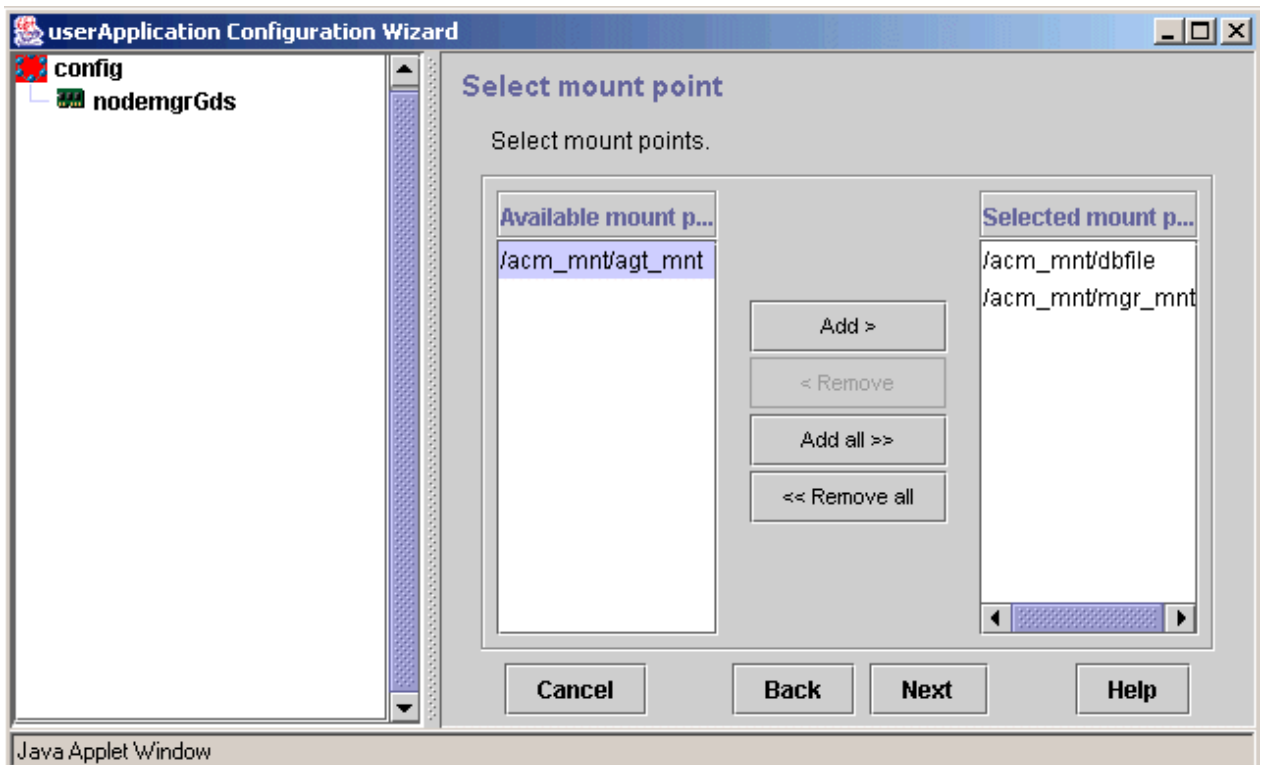


4. Select a mount point.

Register the mount point of the shared disk for shared data.

For a Storage management server transaction, also register the mount point of the shared disk for the repository.

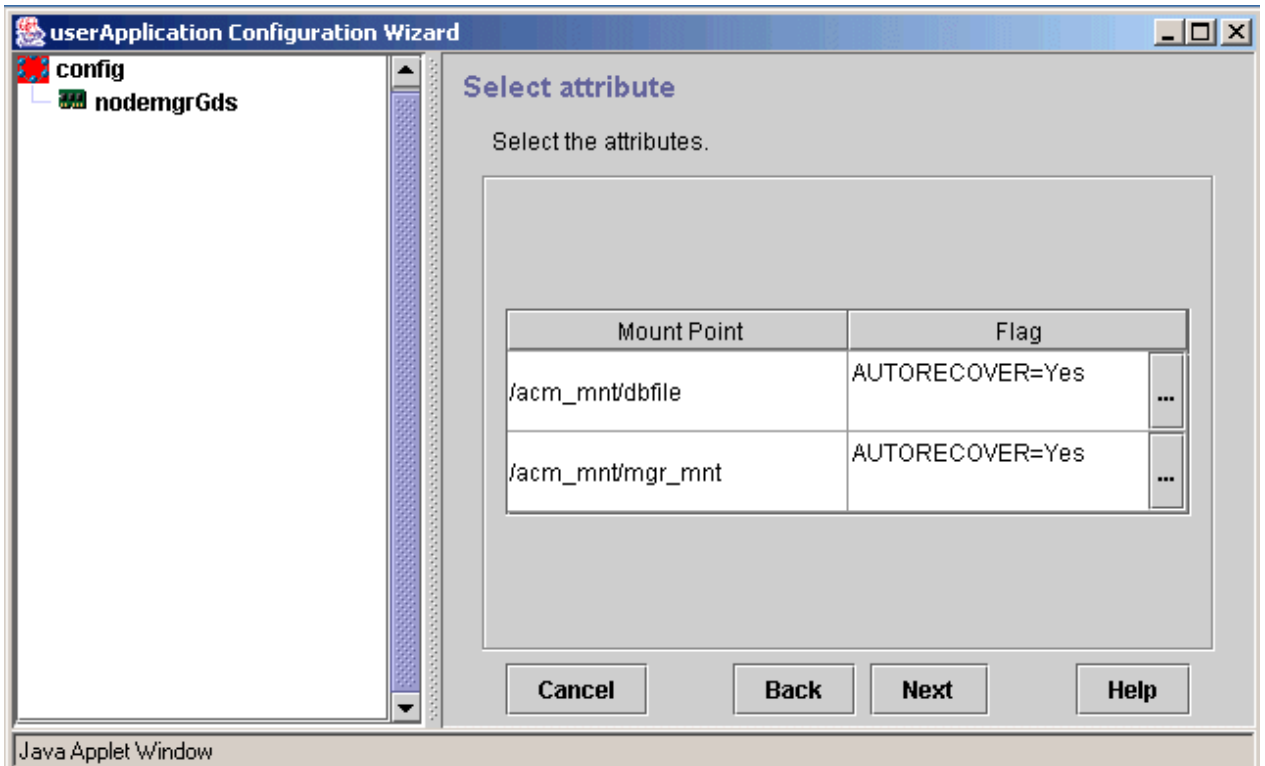
The mount point "/acm_mnt/dbfile" and "/acm_mnt/mgr_mnt" is specified in the following example.



- Specify the attributes of the mount point.

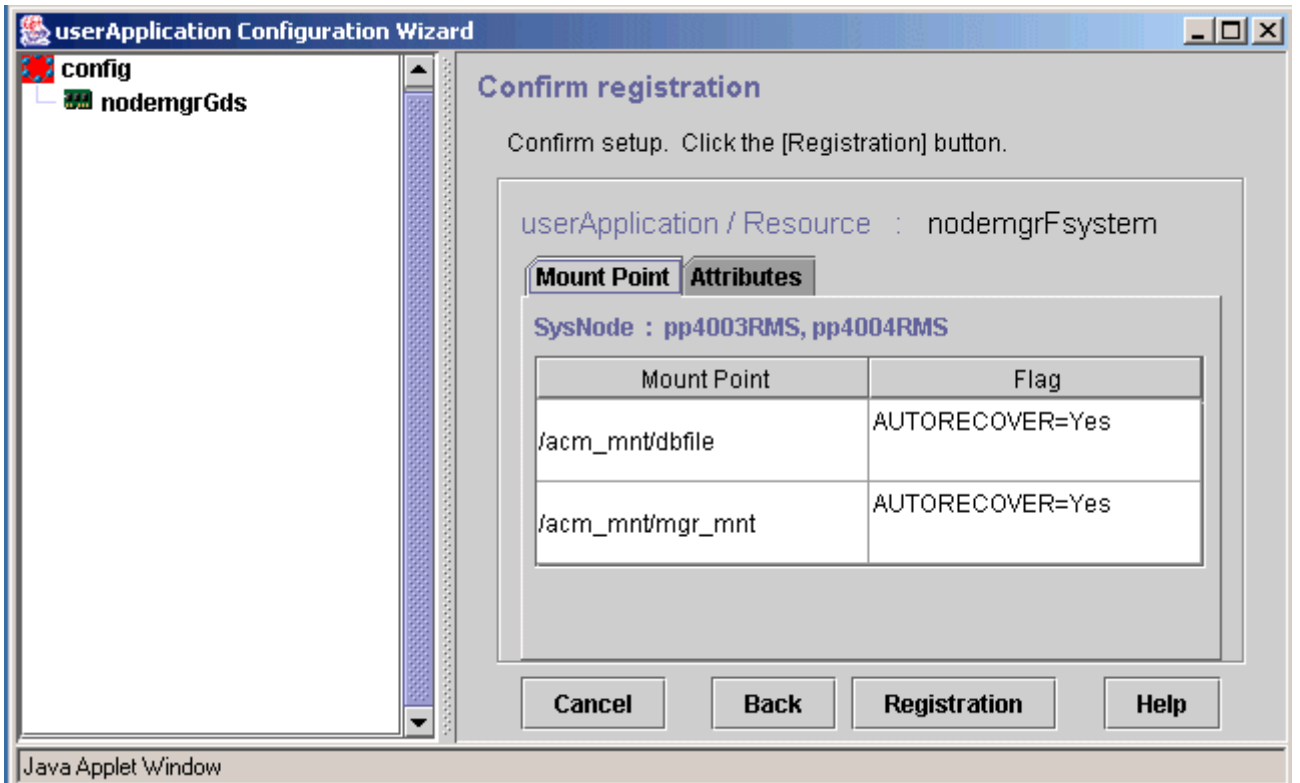
For details on mount point attributes, refer to the "PRIMECLUSTER Installation and Administration Guide."

"yes" is specified for the AUTORECOVER attribute in the following example.



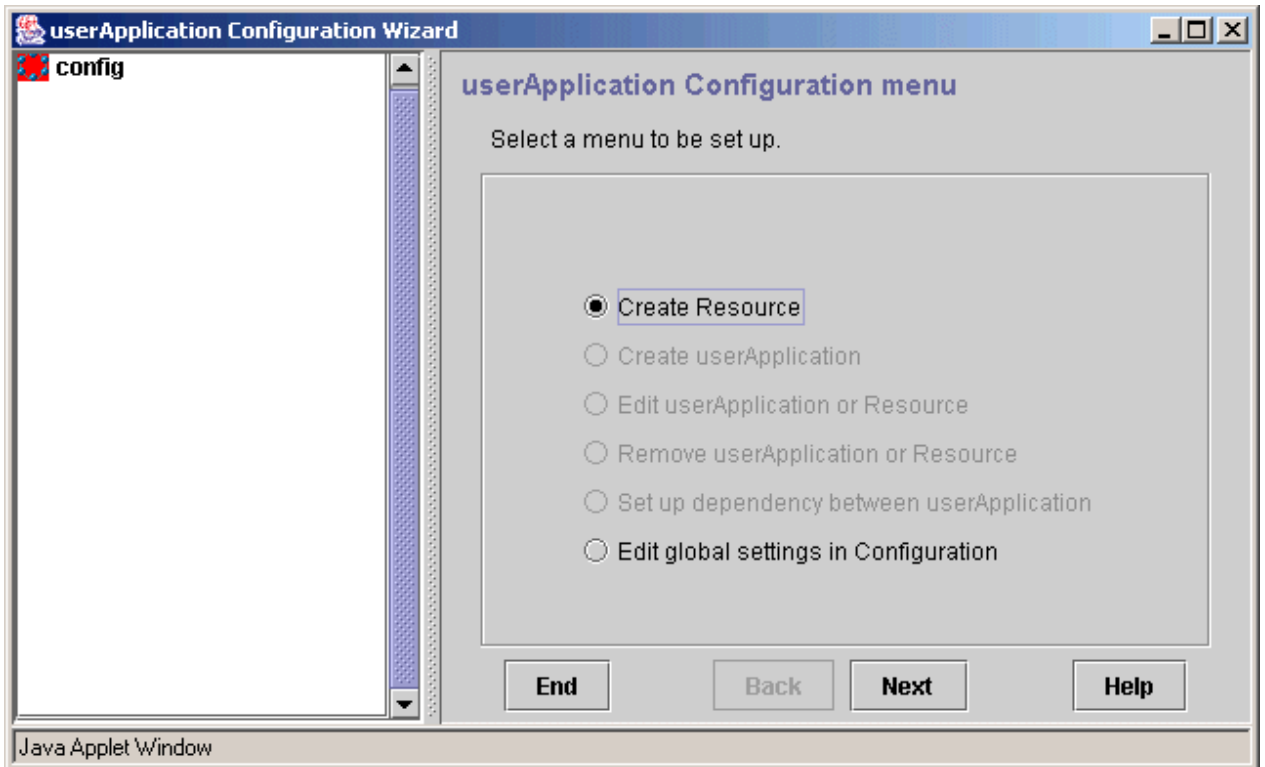
- Confirm the information registered for Fsystem.

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

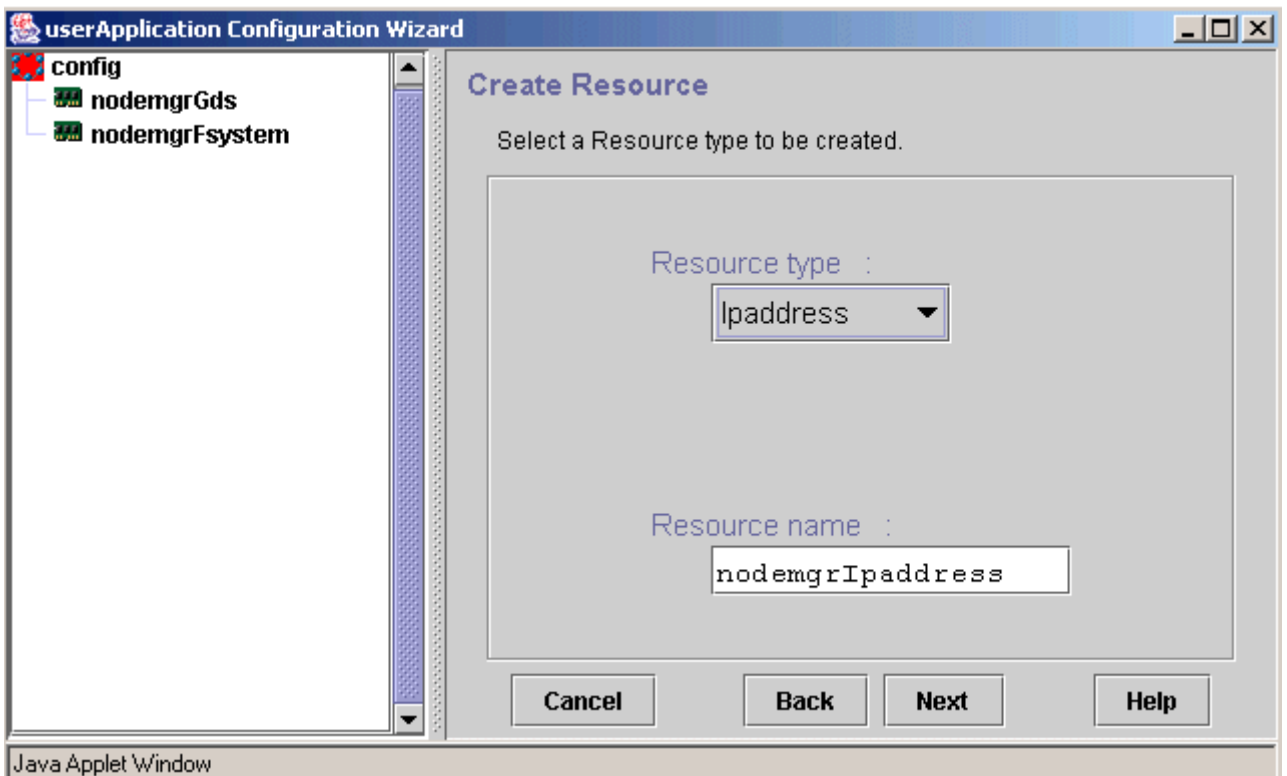


A.1.3 Creating an Ipaddress resource

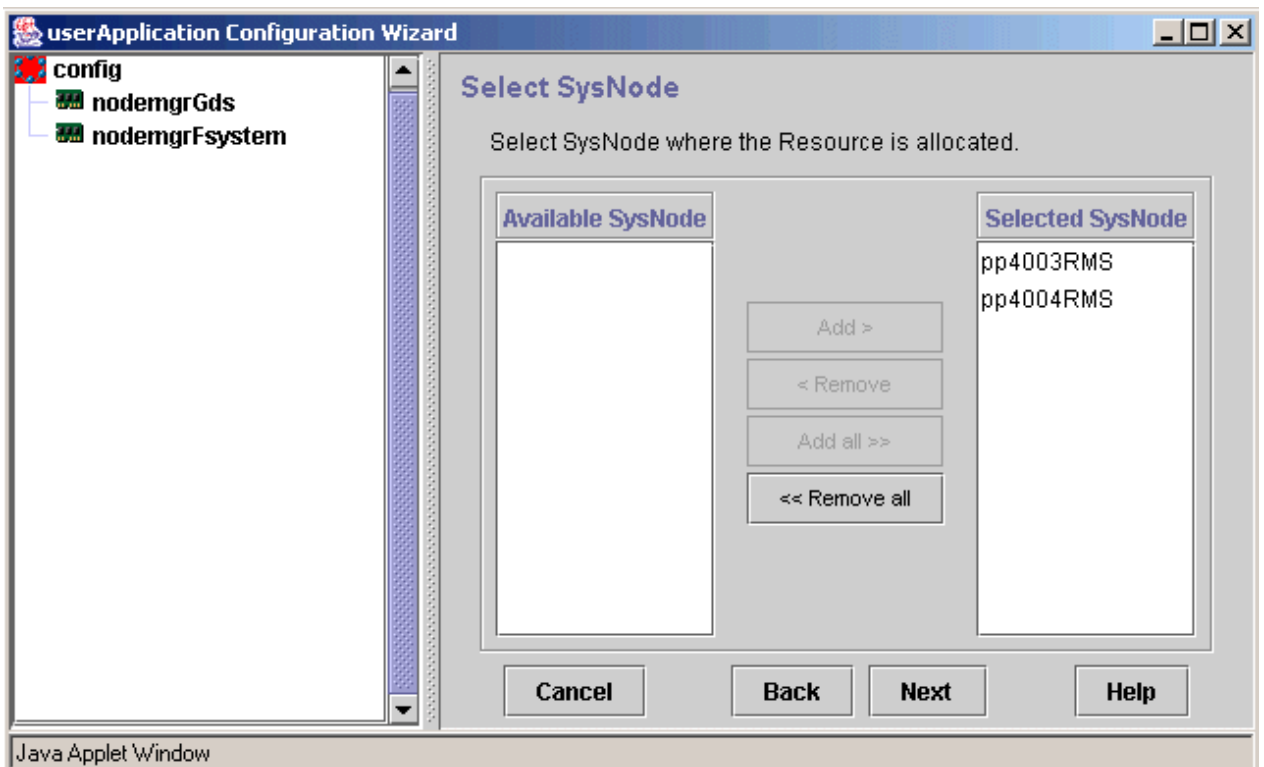
1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".



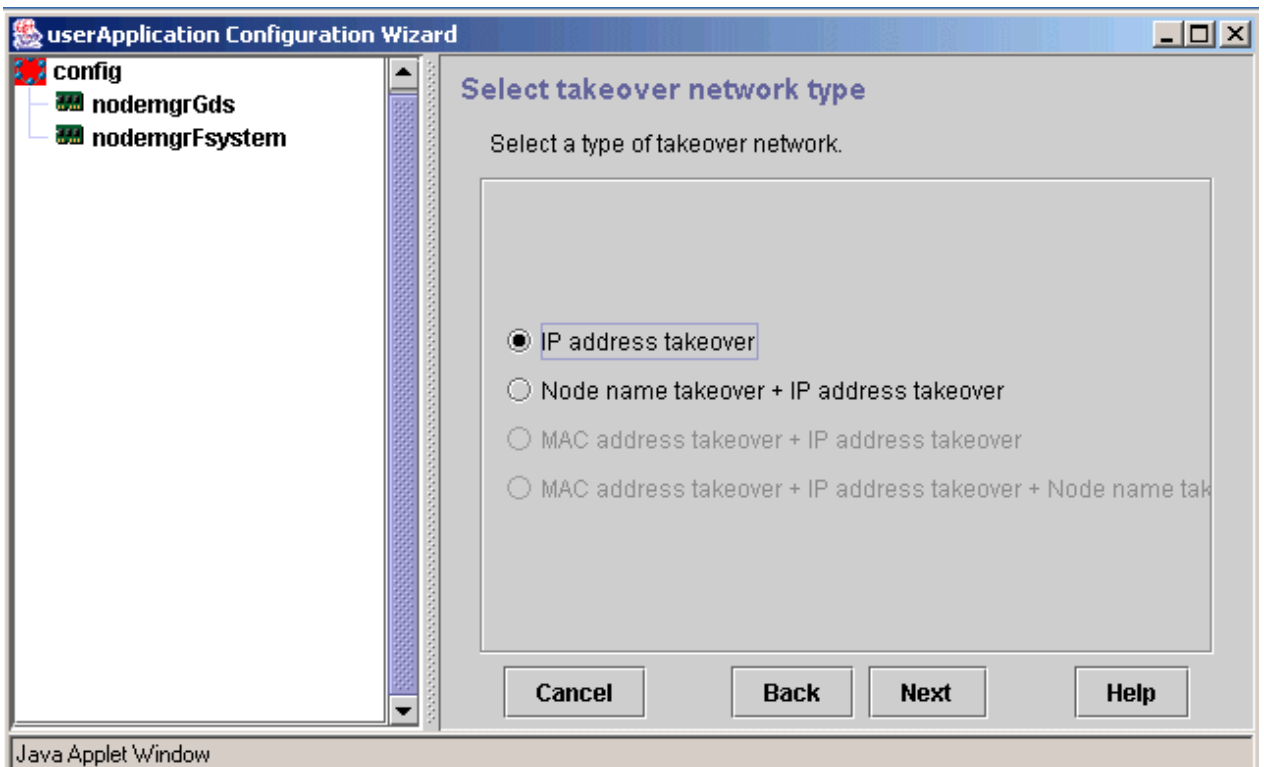
2. Select "Ipaddress" for the resource type.
"nodemgrIpaddress" is specified for the resource name in the following example.



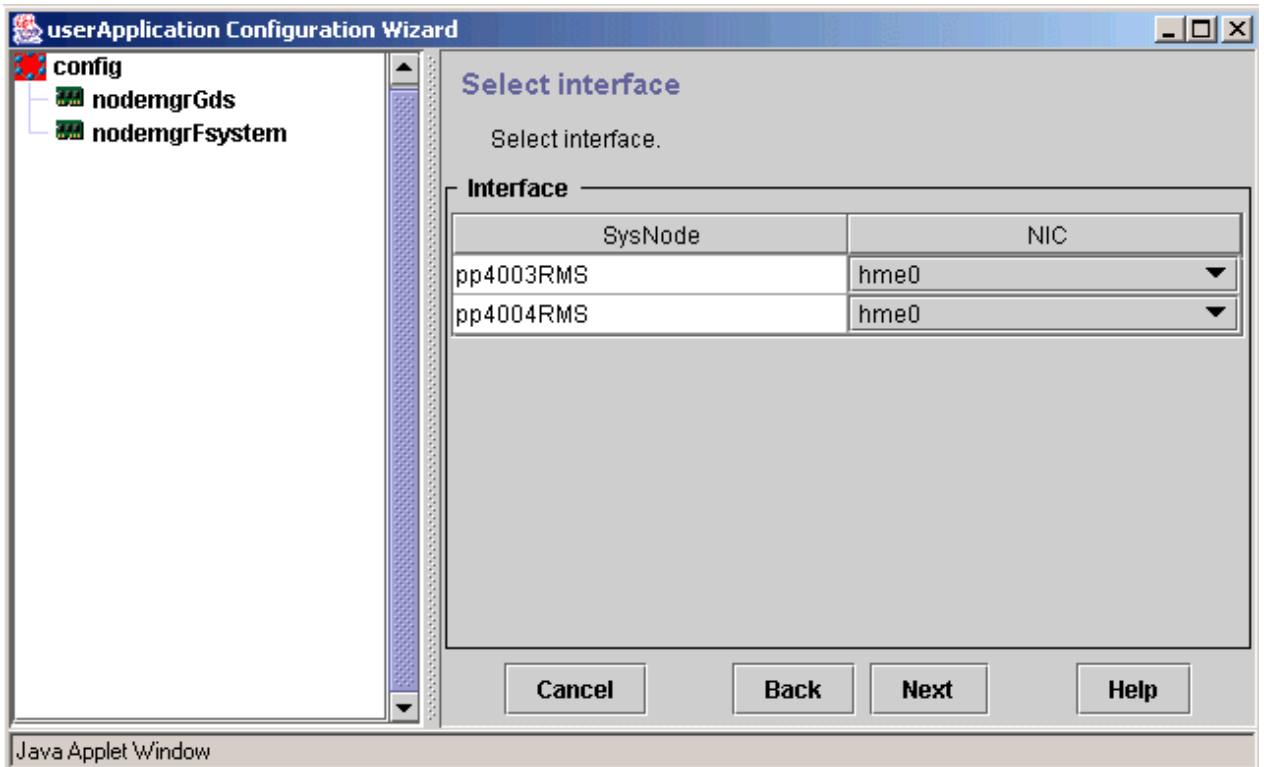
3. Select SysNode to set the resource in it.



4. Select the type of takeover network.

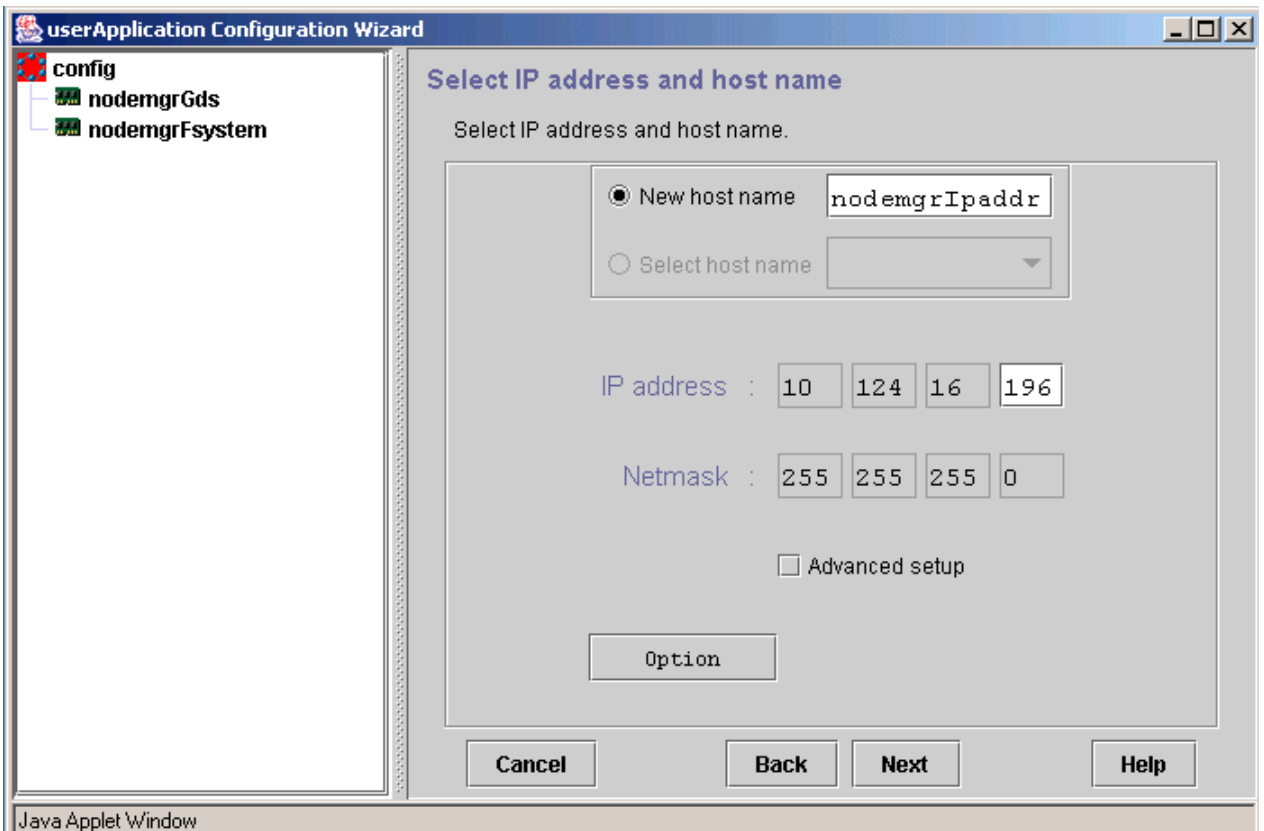


5. Select an interface.



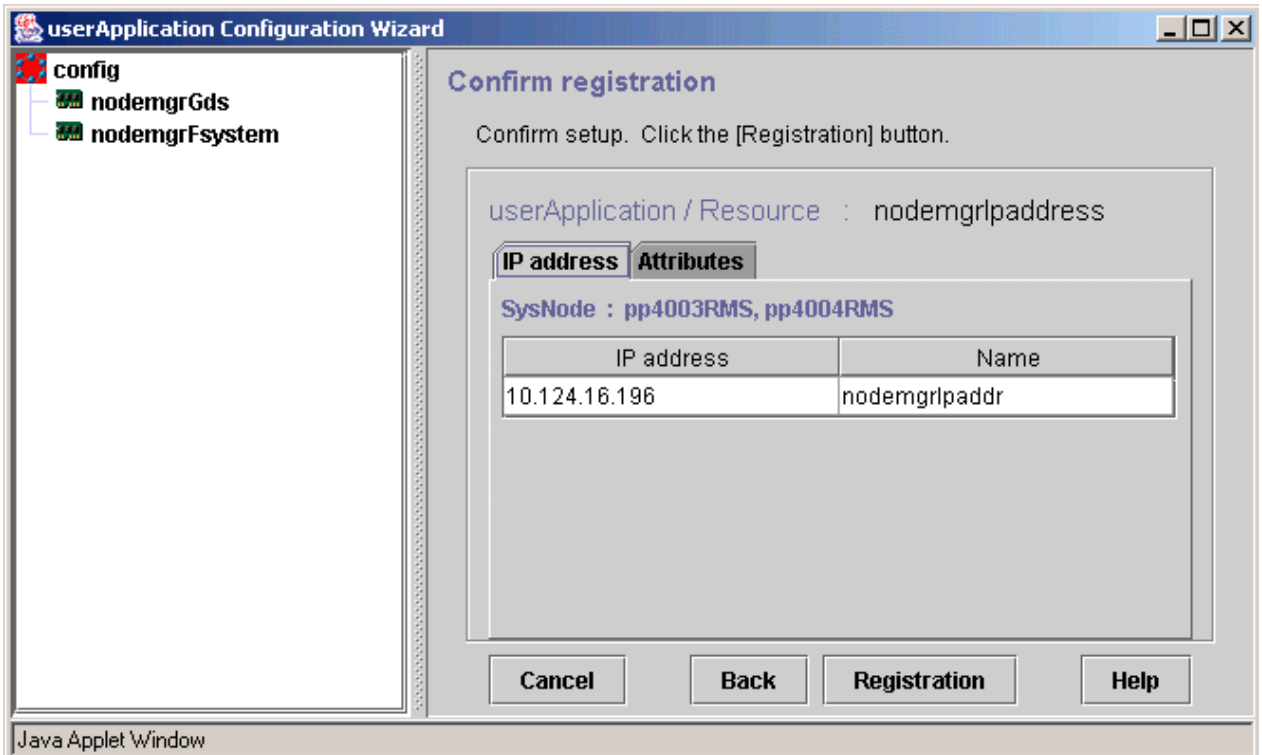
6. Select a takeover IP address and host name, or specify a new address and name.

For information on how to select a takeover IP address and host name and how to specify a new address and name, refer to the "PRIMECLUSTER Installation and Administration Guide".



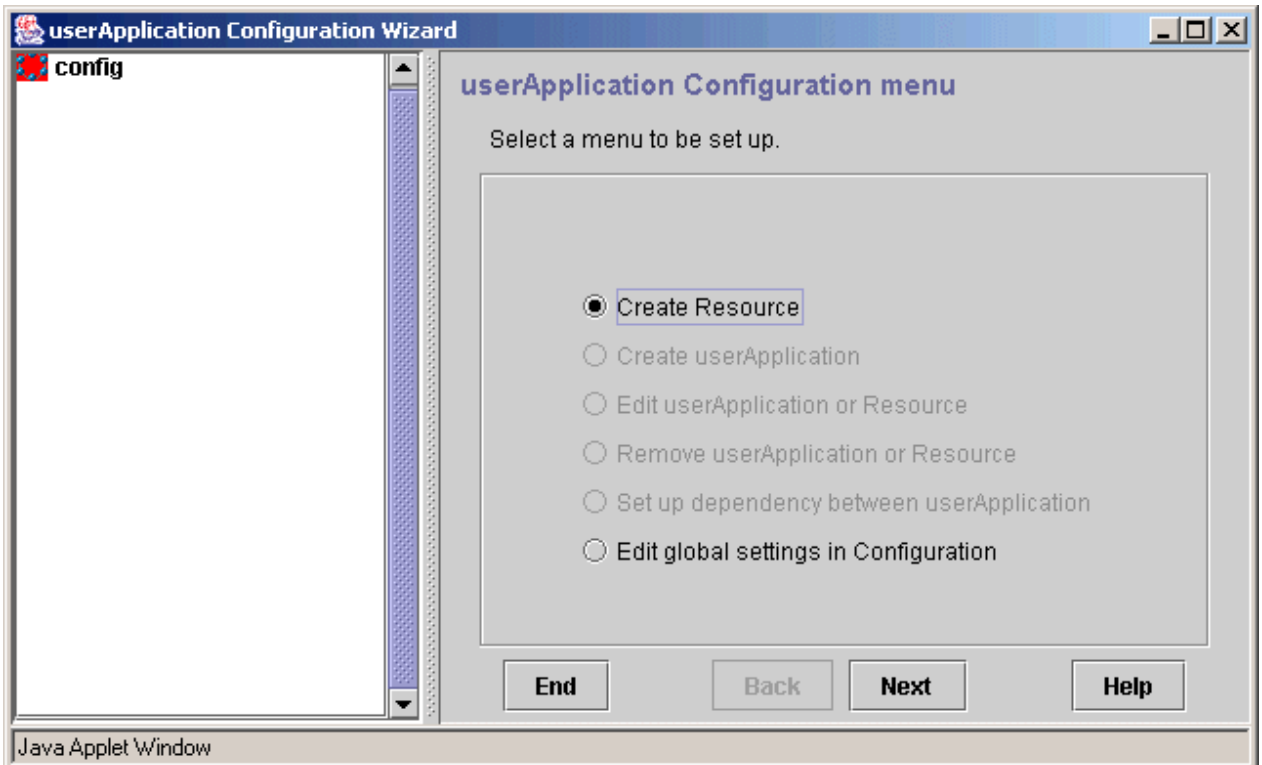
7. Confirm the information registered for the takeover network.

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



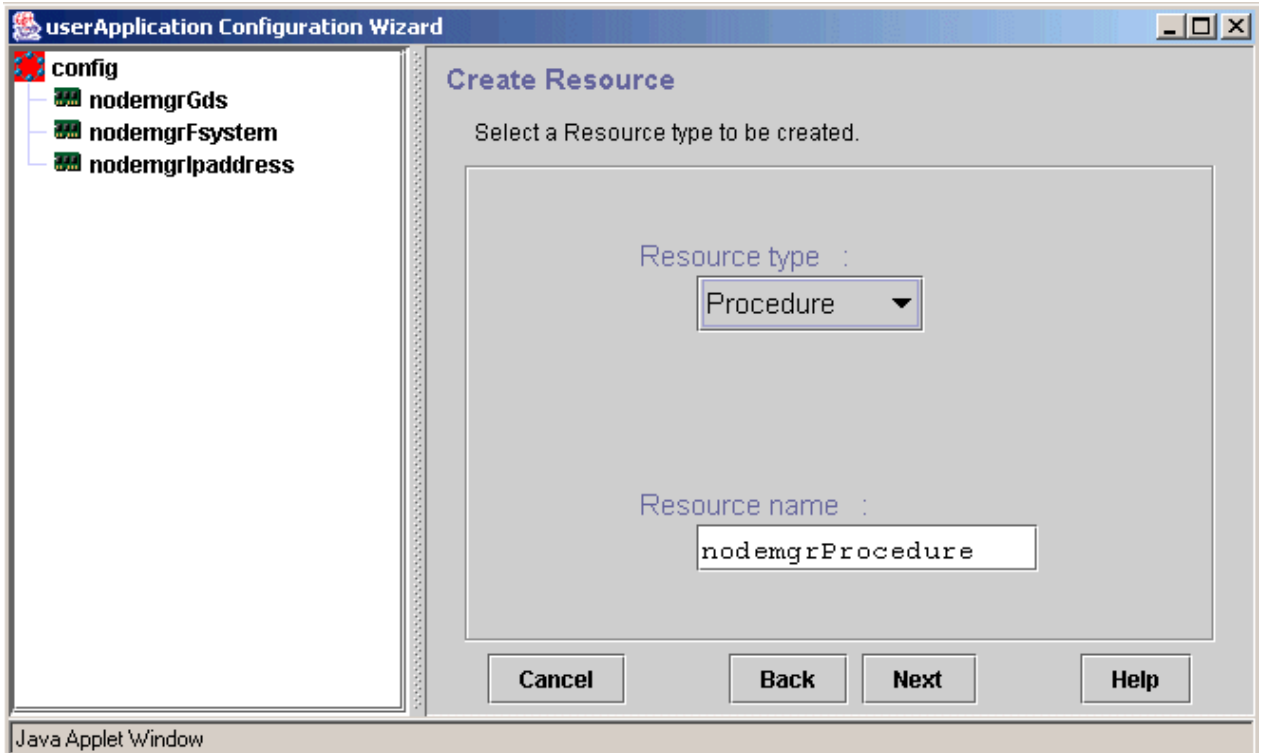
A.1.4 Creating procedure resources

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

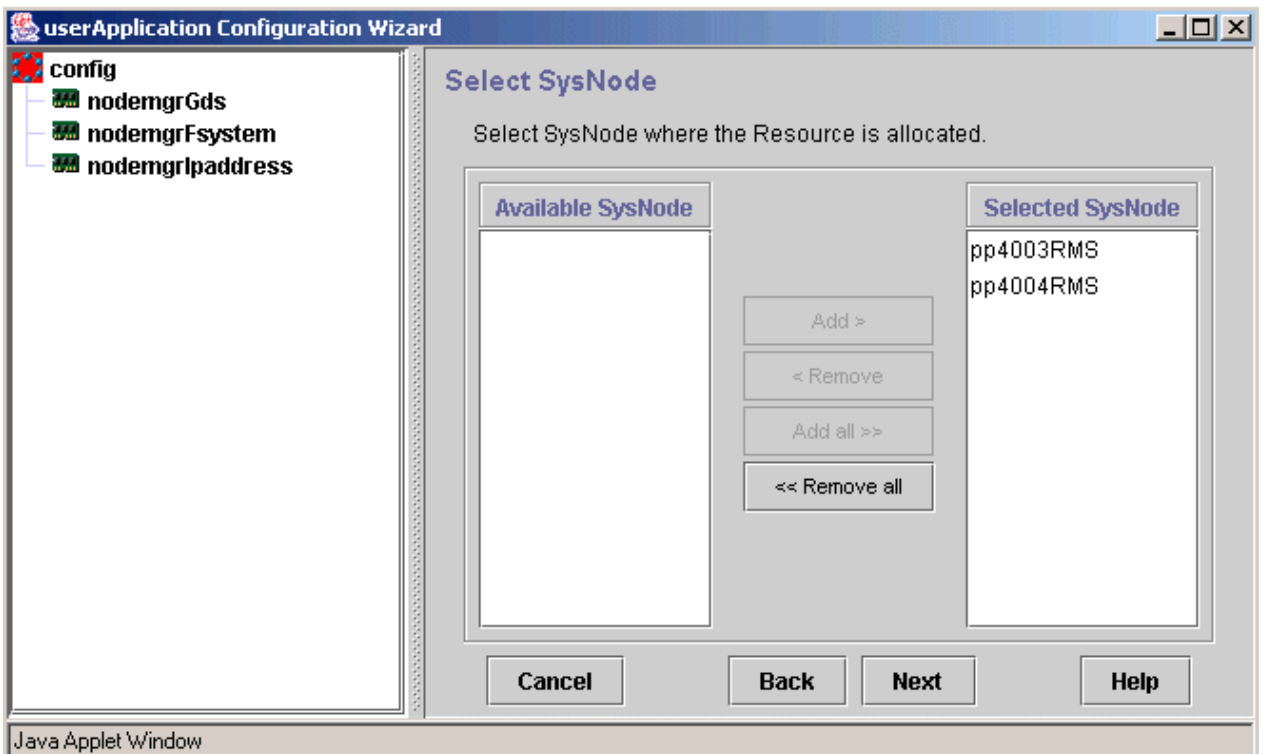


2. Select "Procedure" for the resource type.

"nodemgrProcedure" is specified for the resource name in the following example.

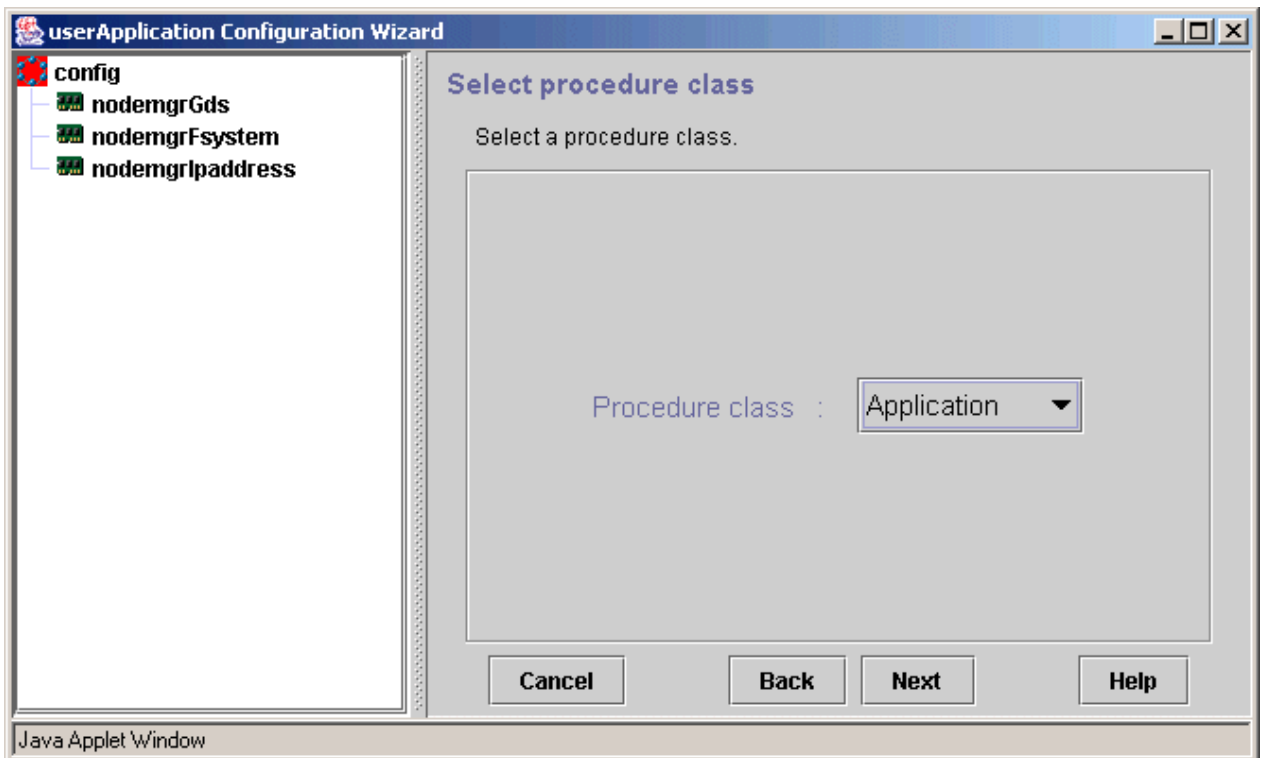


3. Select SysNode to set the resource in it.



4. Select the class of the procedure to be created.

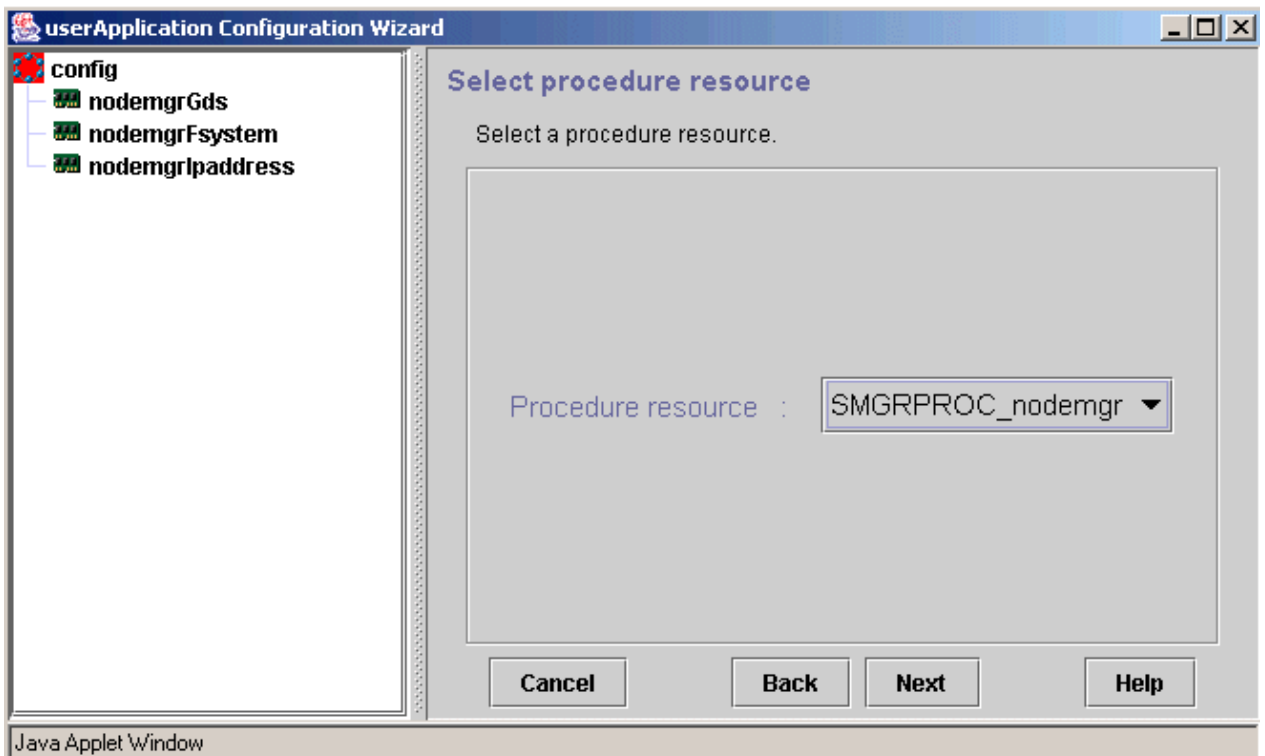
Register an AdvancedCopy Manager procedure resource in the Application class (procedure class = Application).



5. Select the procedure resource to be created.

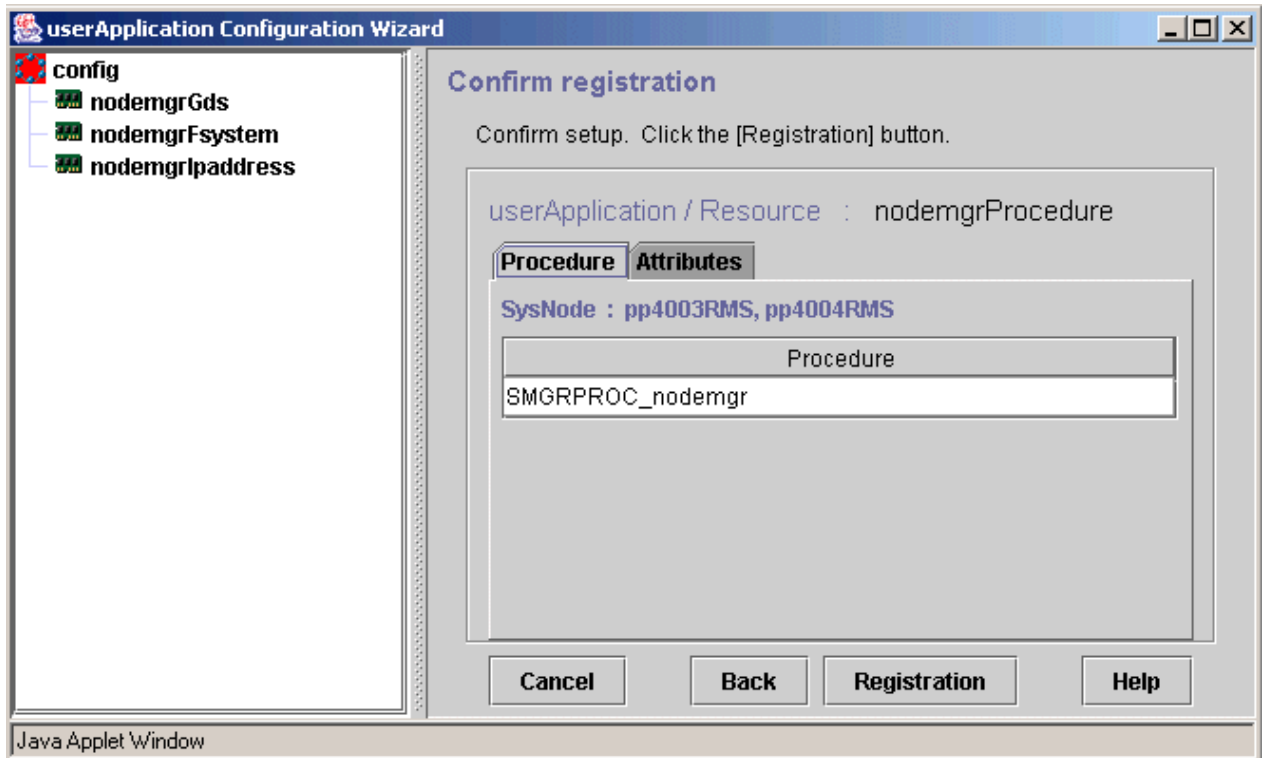
An AdvancedCopy Manager procedure resource name is *SMGRPROC_logical-node-name*.

A procedure resource with the logical node name "nodemgr" (SMGRPROC_nodemgr) is specified in the following example.



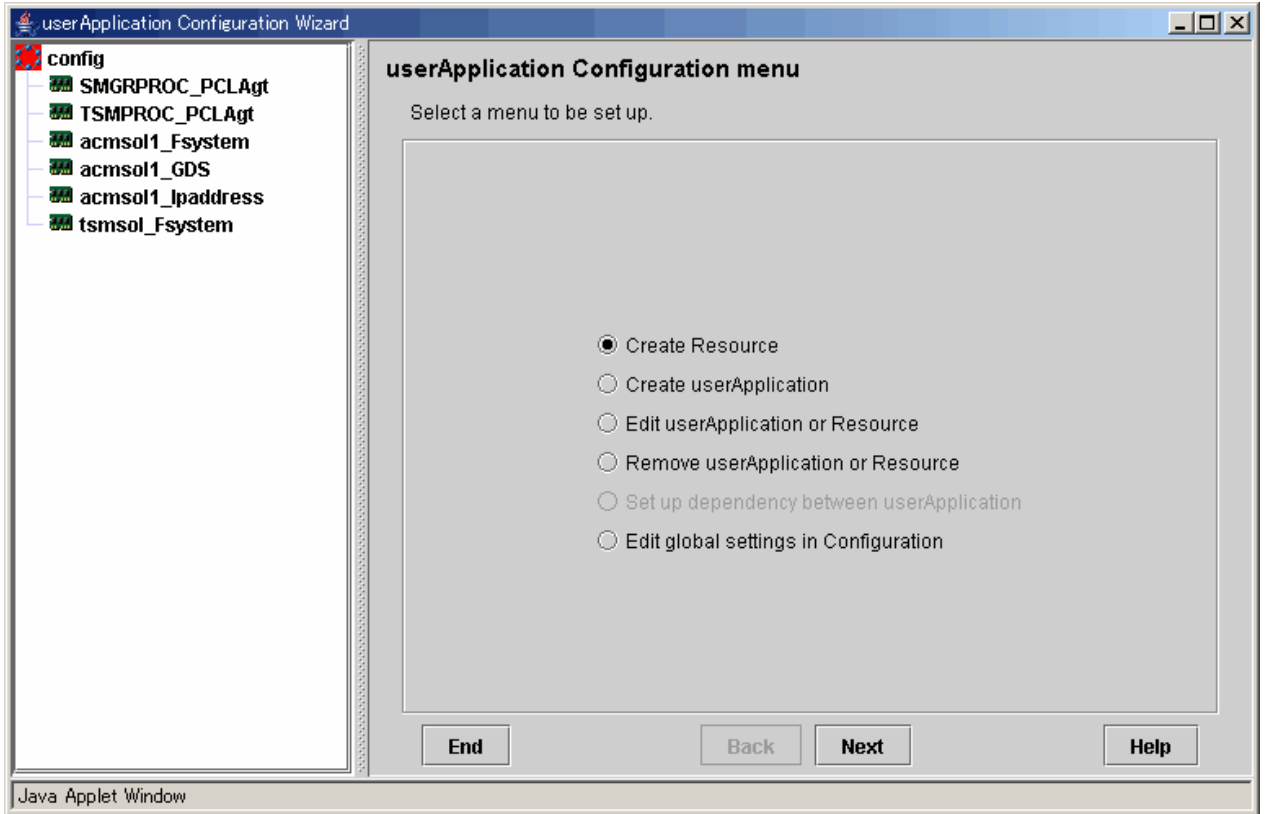
6. Confirm the information registered for the procedure resource.

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



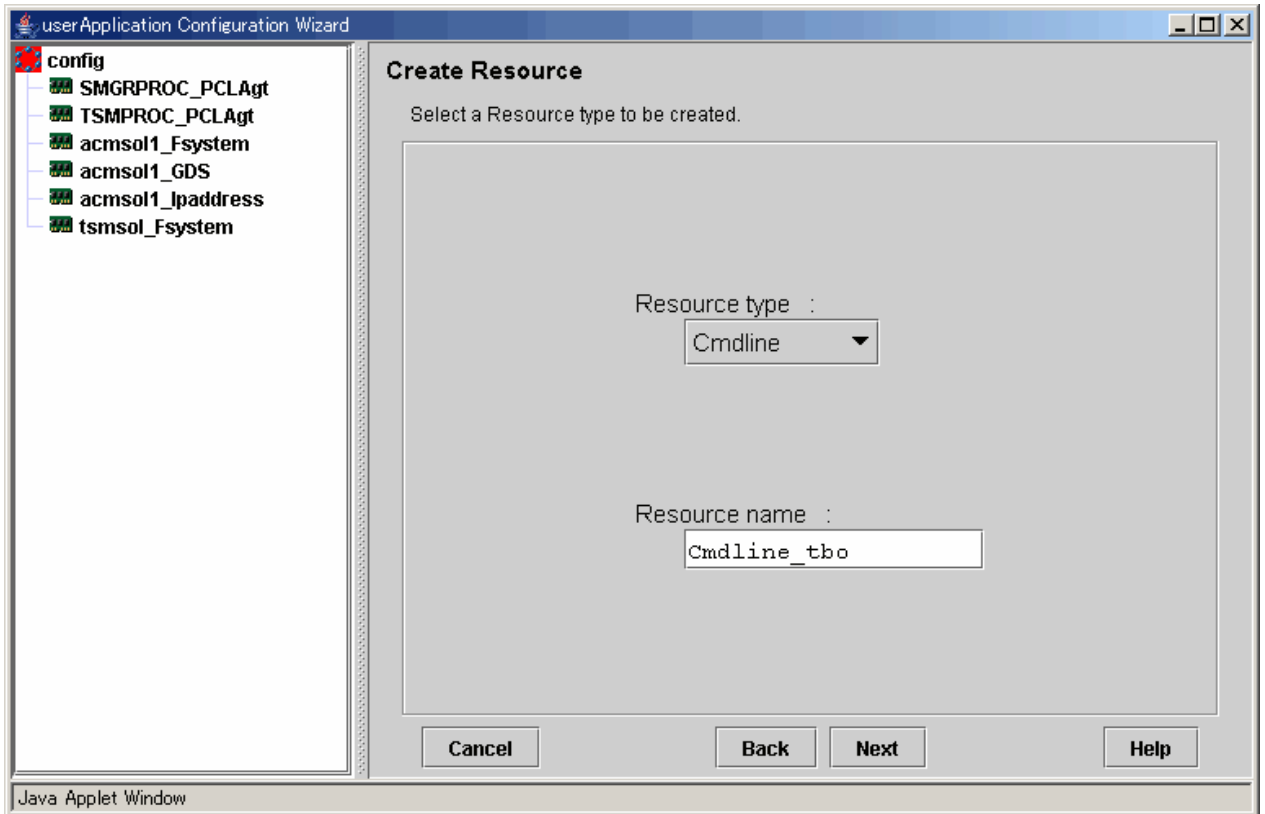
A.1.5 Creating a Cmdline resource

1. Select [Create Resource] from the top menu of the "userApplication Configuration Wizard".

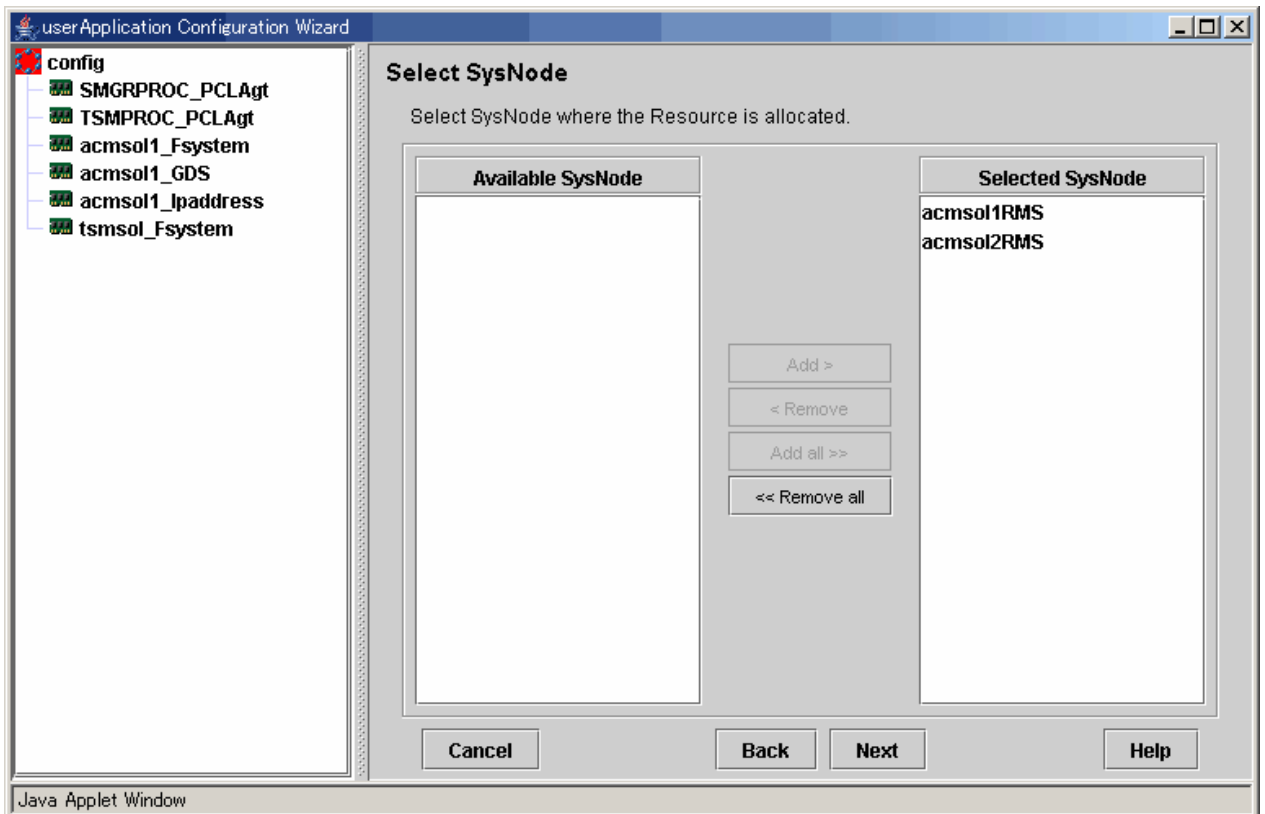


2. Select "Cmdline" for the resource type

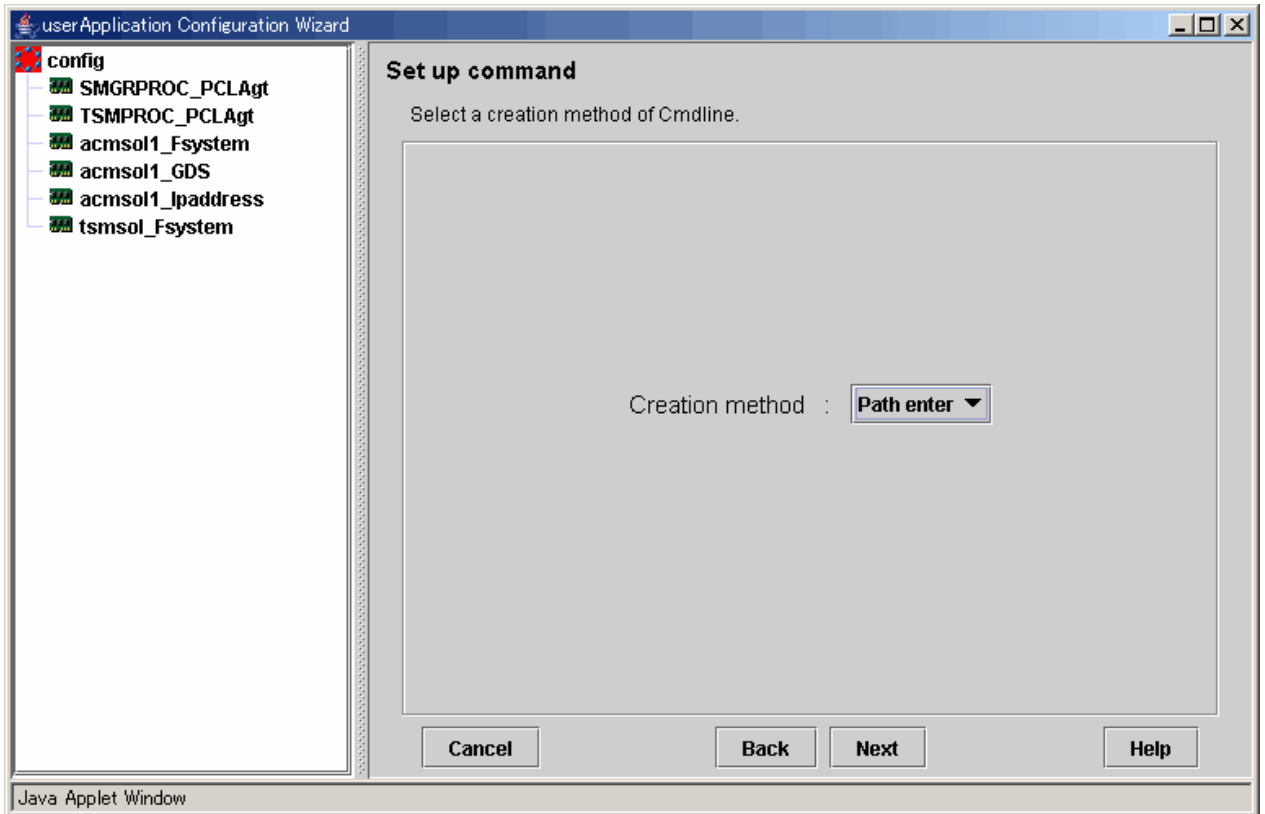
"Cmdline_tbo" is specified as the resource name in the following example



3. Select SysNode to set the resource in it

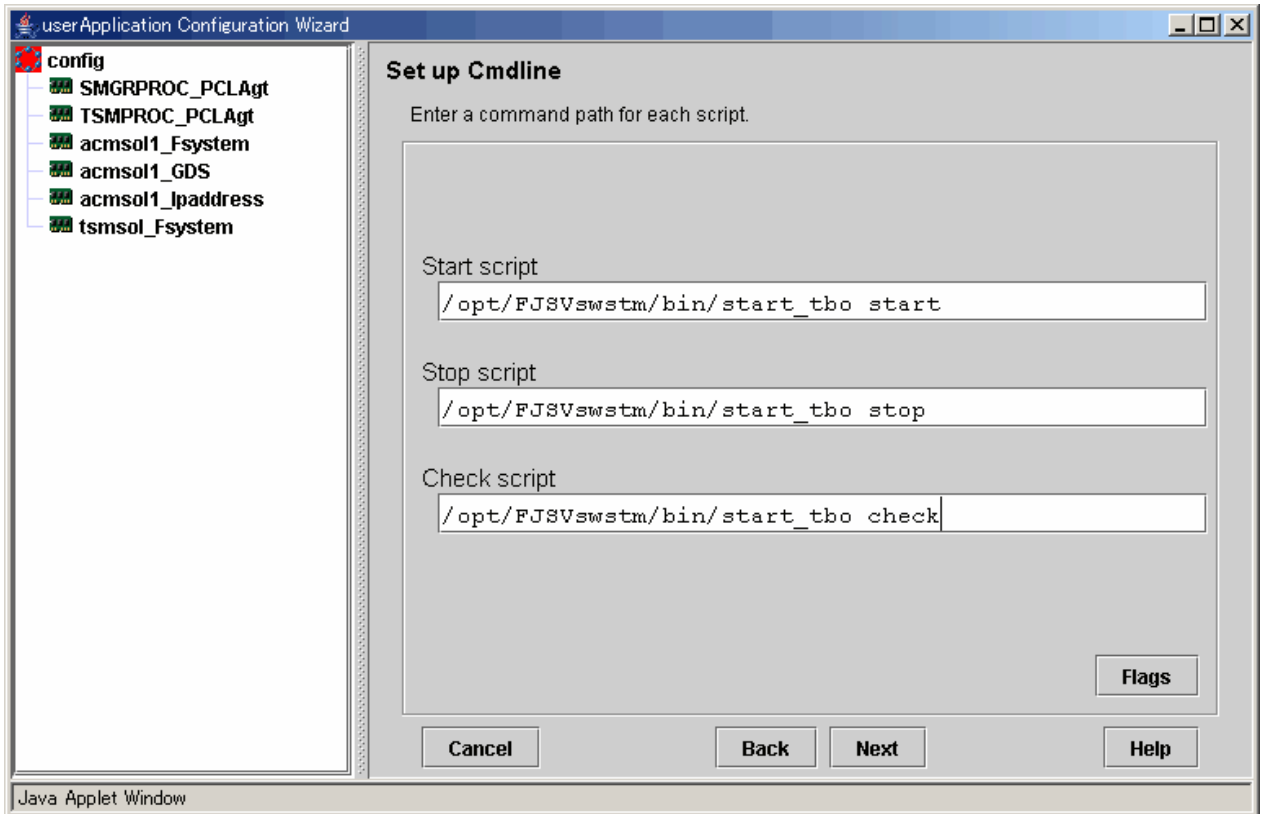


4. Select the method for creating the Cmdline
Select "Path input" for the creation method



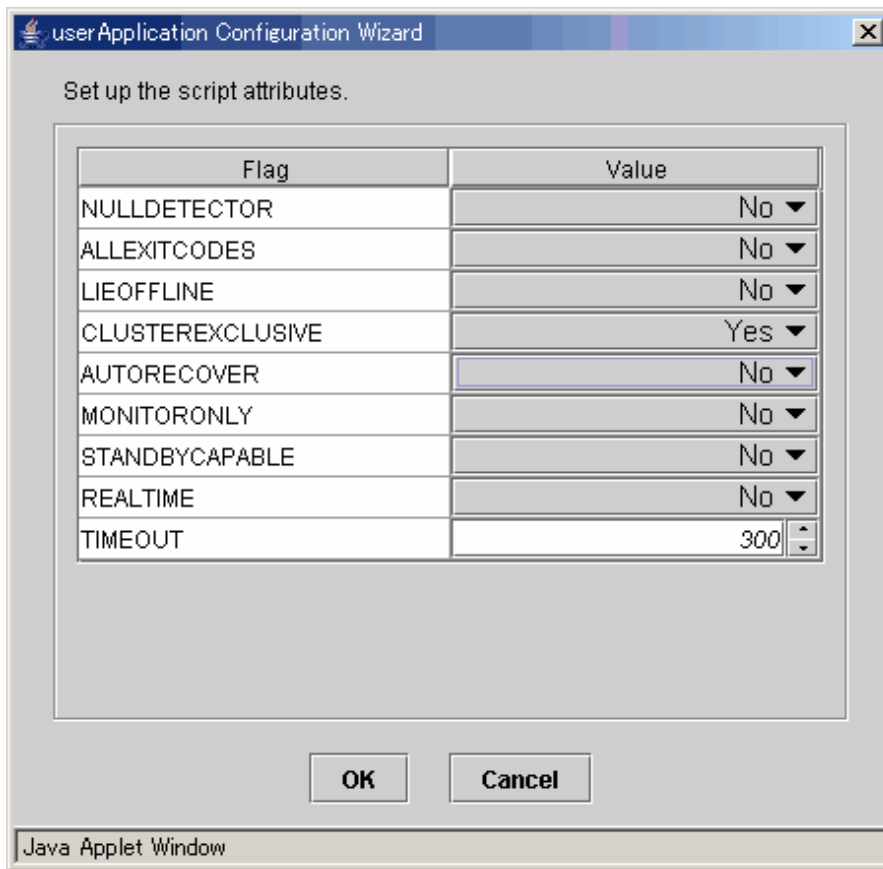
5. Enter the command paths that are used by each script

Enter the command paths that are used by the "Start", "Stop", and "Check" scripts



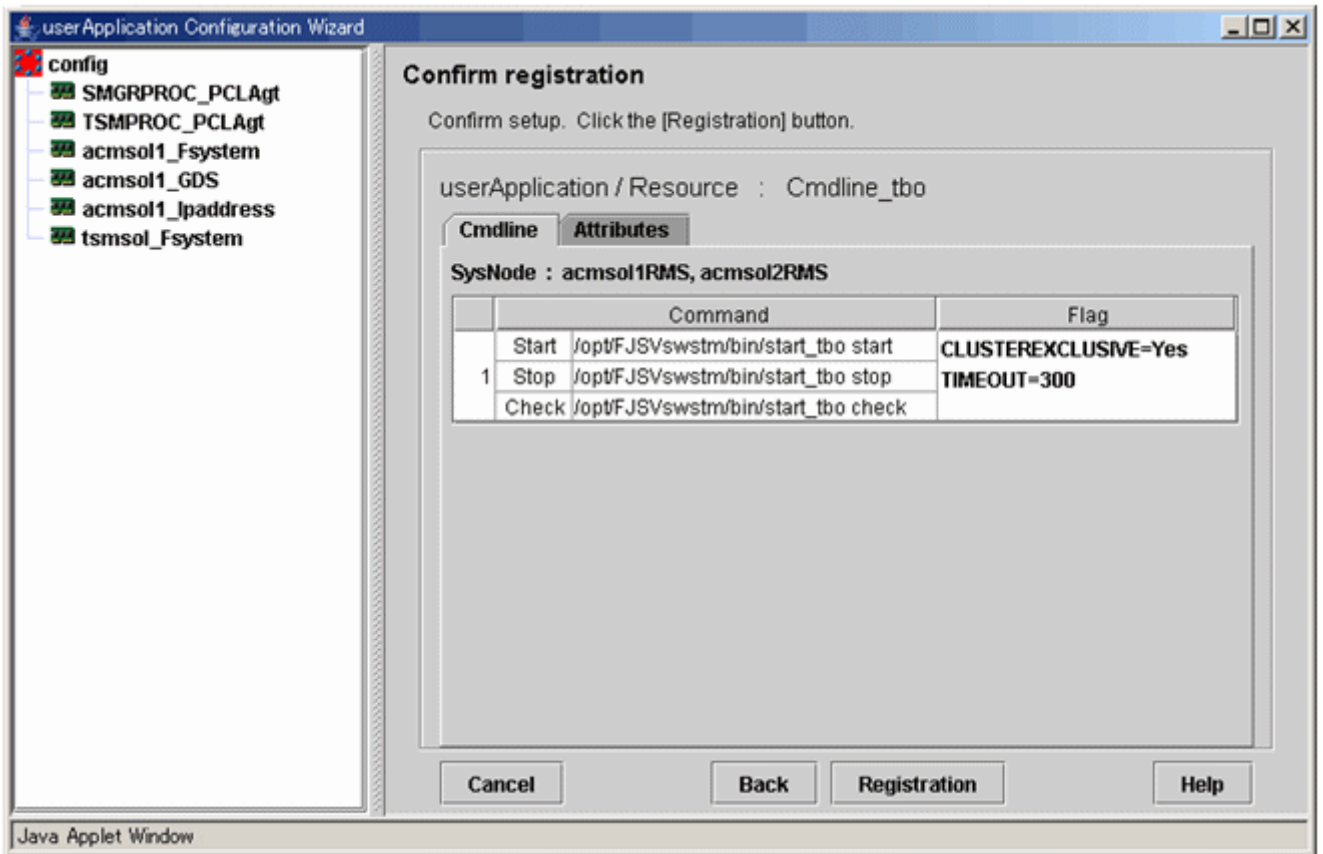
6. Set the script attributes

In the following example, AUTORECOVER is set to "No"



7. Confirm the information registered for the Cmdline resource

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

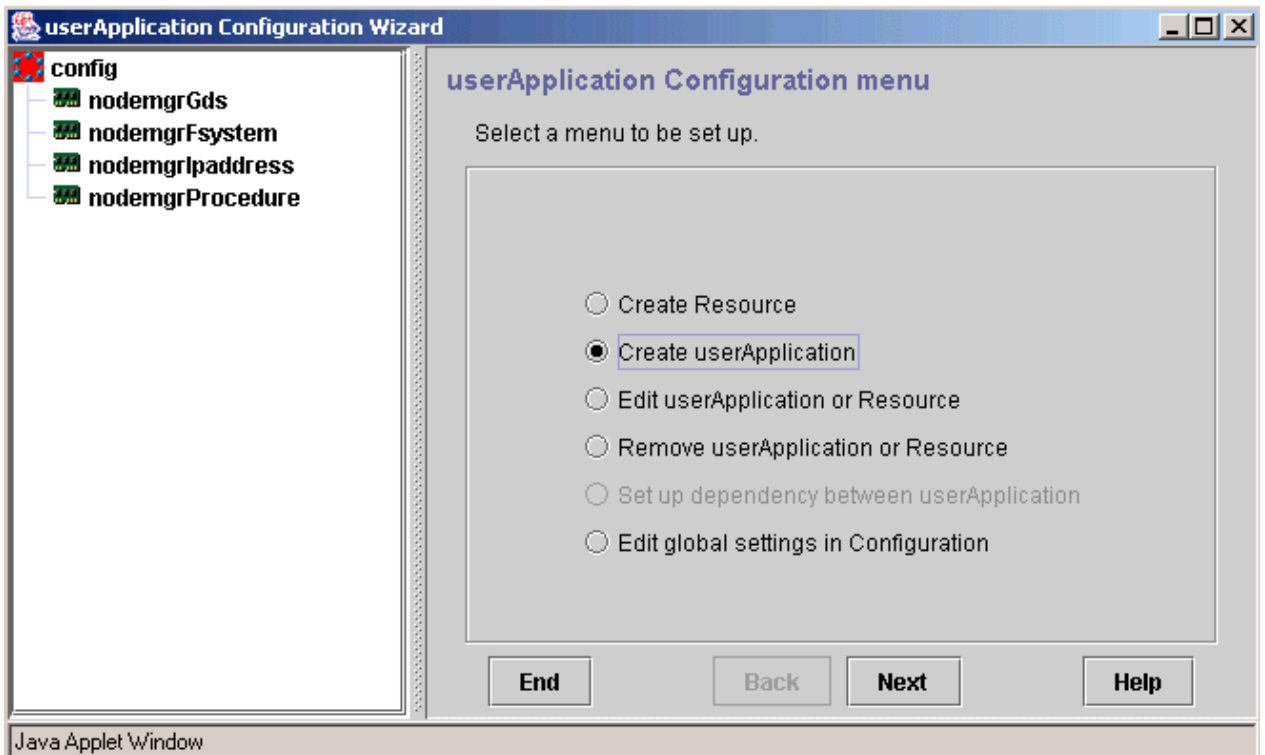


A.2 Creating a userApplication

Create a userApplication by using the "userApplication Configuration Wizard" of PRIMECLUSTER.

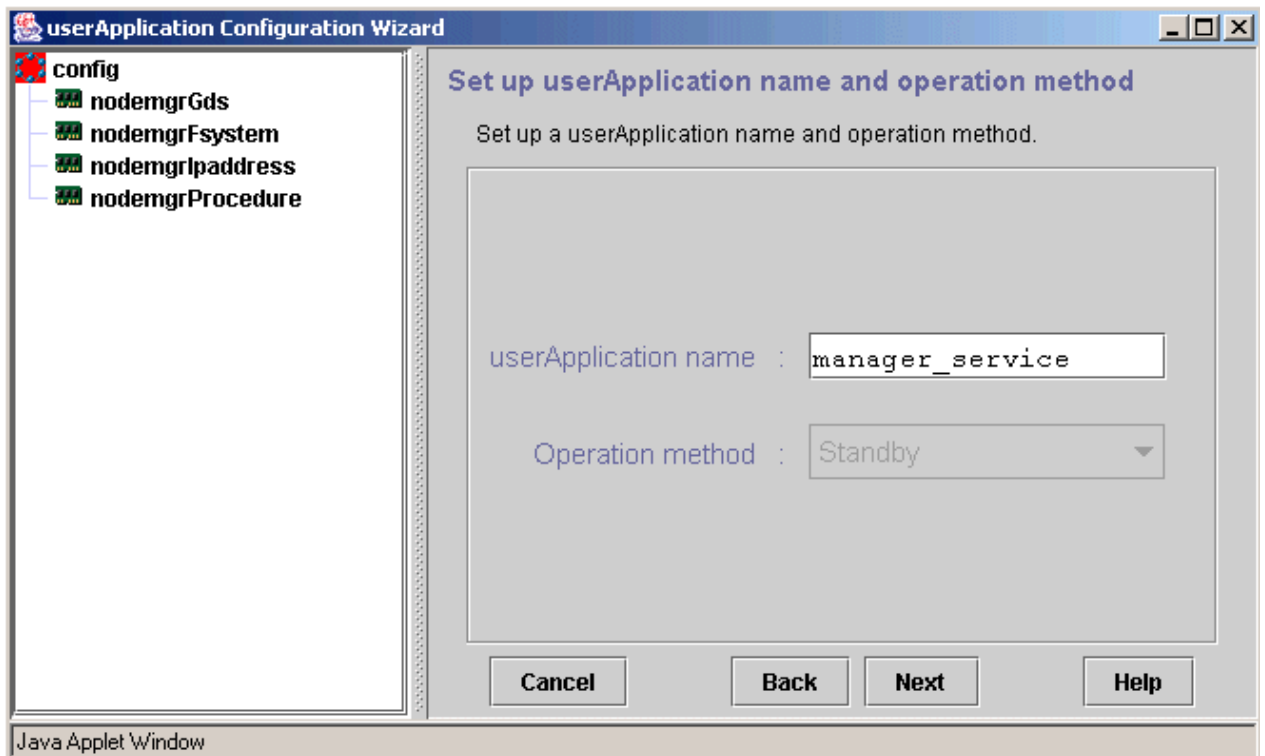
Always specify the standby class for a userApplication.

1. Select [Create userApplication] from the top menu of the "userApplication Configuration Wizard".

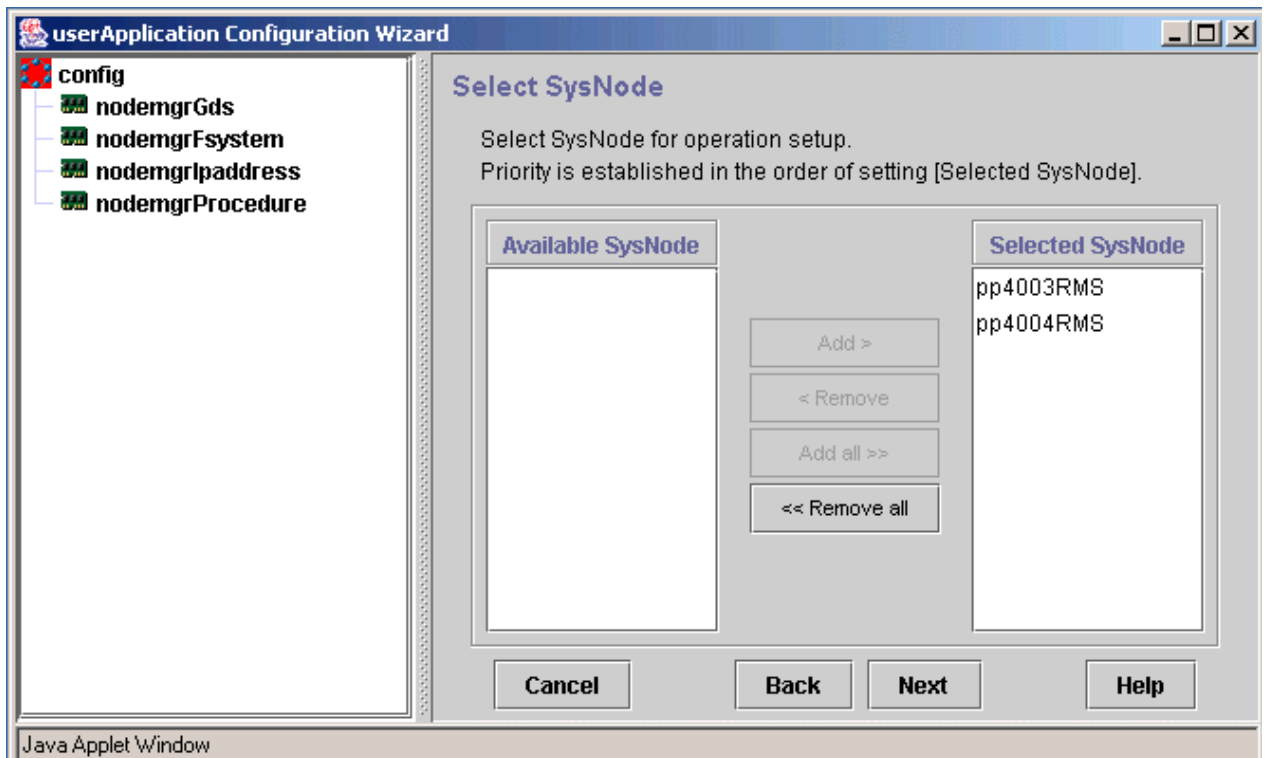


2. Specify a userApplication name and the operation type.

"manager_service" is specified for the userApplication name in the following example.



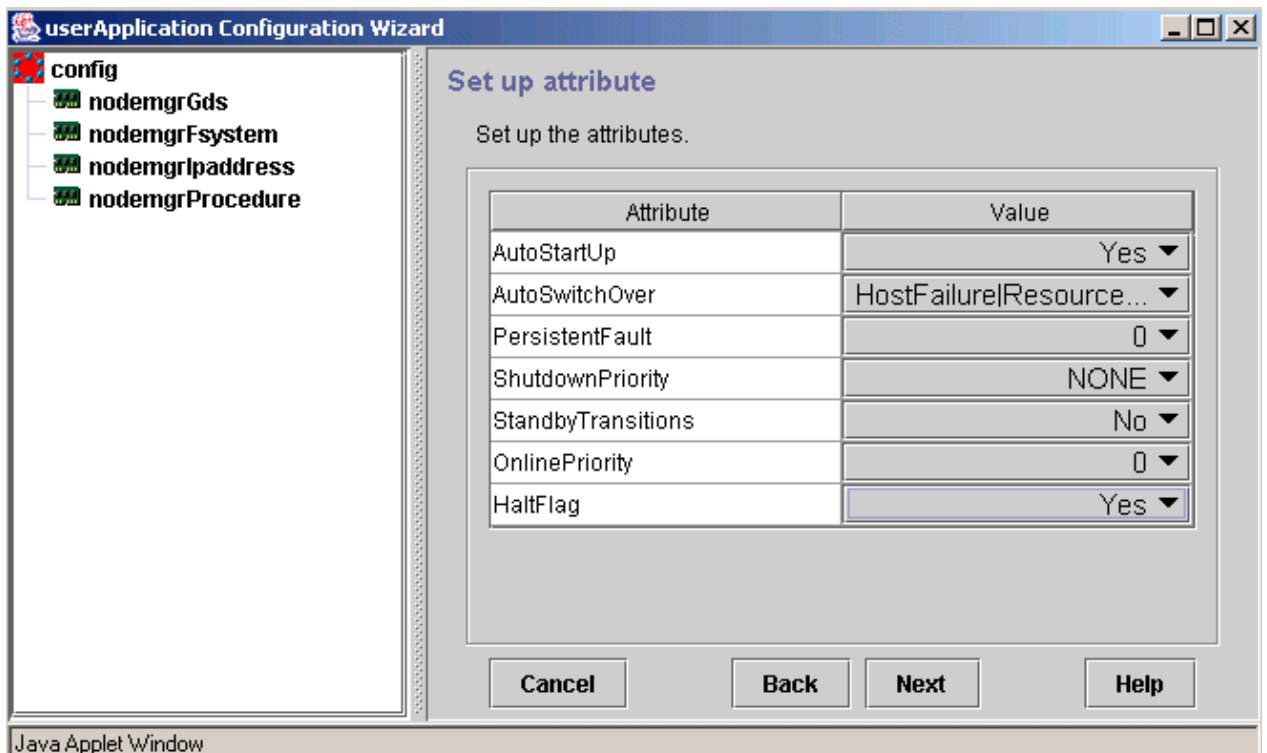
3. Select SysNode to set the cluster application in it.



4. Specify the userApplication attributes.

Specify the userApplication attributes according to the operation type.

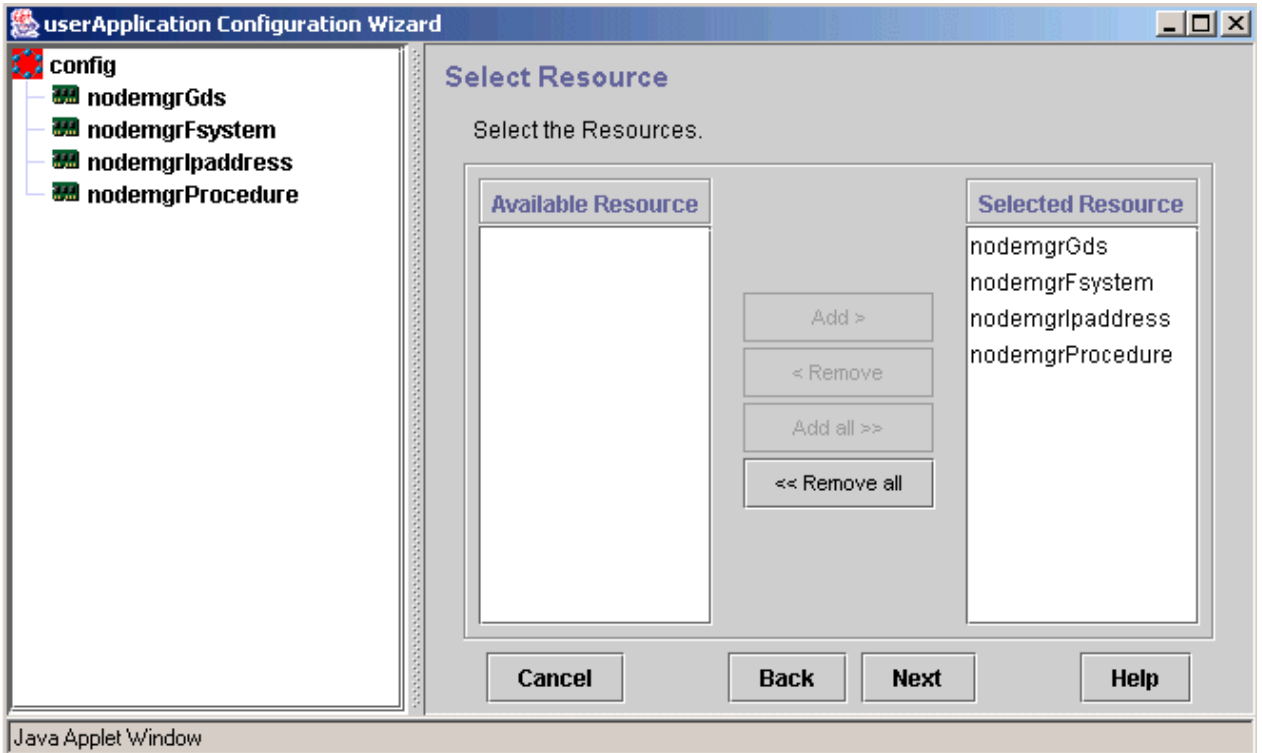
For details on userApplication attributes, refer to the "PRIMECLUSTER Installation and Administration Guide".



5. Specify the resources used by the userApplication.

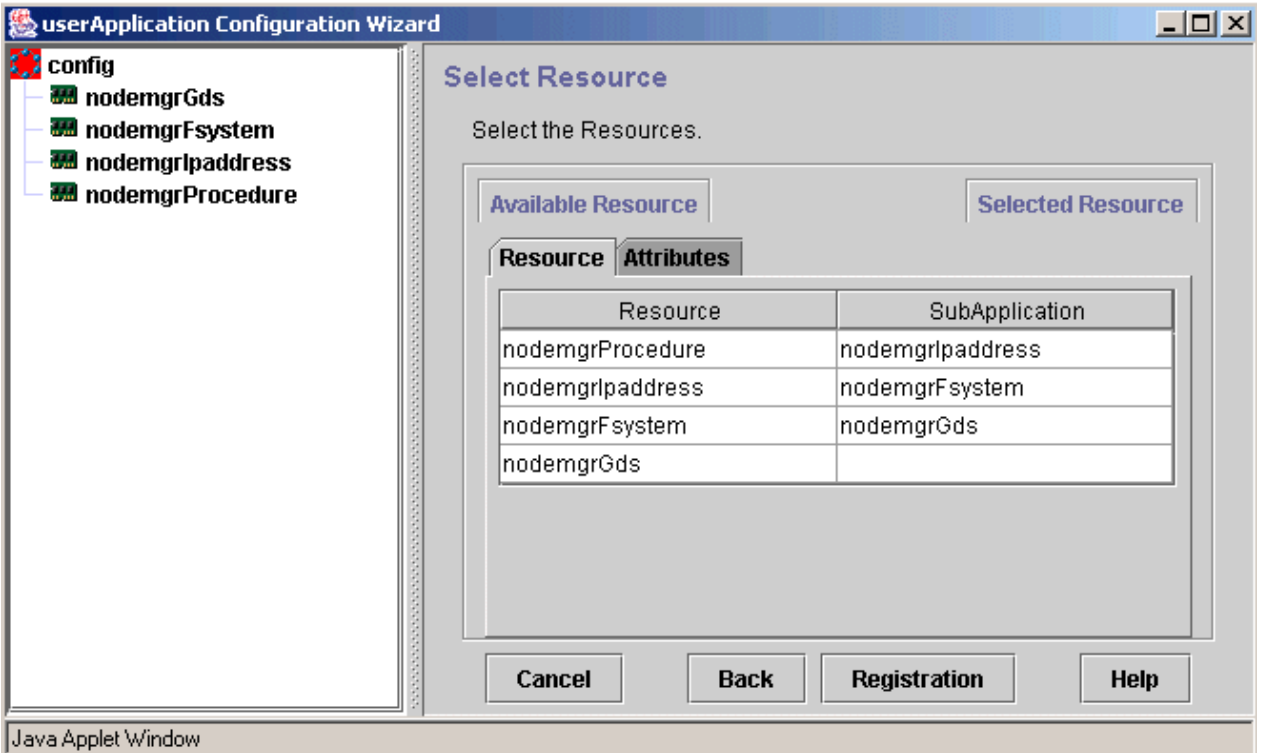
Register resources created for AdvancedCopy Manager.

The resources created in "A.1 Creating Resources" are specified in the following example.



6. Confirm the information registered for the userApplication.

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



Appendix B Creating Resources and userApplications with Linux version PRIMECLUSTER

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

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

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 acm
```

The "Main configuration menu" as shown below is displayed.

```
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:
```

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: 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: 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, refer to 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) NOT: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) NOT:RESOURCEFAILURE(R)
2) -                       5) NO(N)                  8) SHUTDOWN(S)
3) SAVE+RETURN             6) NOT: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) NOT:RESOURCEFAILURE(R)
2) -                       5) NO(N)                  8) NOT:SHUTDOWN(S)
3) SAVE+RETURN             6) NOT: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 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.

/CTTEST3 is set in the following example.

```

1) HELP                               5) /CTTEST3            9) /kensa/work_c
2) RETURN                             6) /acm                10) /kensa/work_d
3) FREECHOICE                         7) /kensa/work_a      11) /kensa/work_e
4) ALL                                8) /kensa/work_b
Choose a mount point: 5

```

d. Select SAVE+RETURN.

```

Set flags for mount point: /CTTEST3 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:/CTTEST3
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
2) RETURN
3) FREECHOICE
4) Symfo
5) test001
Choose the disk class: 5

```

- 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]=test001
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 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 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 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 "ETERNUS SF TSM PRIMECLUSTER Application Guide" for information about the TSM cluster settings for the Solaris version PRIMECLUSTER

C.1 Settings 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 in "If the TSM server is in an active/standby configuration" of the "ETERNUS SF 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. For details, refer to the "ETERNUS SF TSM PRIMECLUSTER Application Guide", section "If the TSM server is in an active/standby configuration" > "TSM server settings on cluster node 1".

Execute the command below to check the special file name to be set.

- For LT20/LT40/LT60 (non-IBM drives)

```
#ls -l /dev/rmt/*[0-9]
lrwxrwxrwx 1 root root 50 Feb 27 15:07 /dev/rmt/1 ->
../../../../devices/pci@17,4000/fibre-channel@4/mt@1,0:
...
#
```

- For LT220/LT230/LT250/LT270 (IBM drives)

```
#ls -l /dev/rmt/*st
lrwxrwxrwx 1 root sys 57 Apr 22 13:28 /dev/rmt/2st ->
../../../../devices/pci@15,2000/fibre-channel@1/IBMtape@1,0:st
#
```

- When creating (*i.e.*, formatting) the database for the TSM server, set the TSM database size as calculated by the formula in ["3.2.3 Capacity of Shared Disks for TSM"](#)
- When creating (*i.e.*, formatting) the amount of space required for the restoration log, specify a value of 128 (MB) or more. Specify sufficient log space to take into account future changes to backup operations.

C.2 Settings on the Secondary Node

For information on secondary node setup, refer to "A setup of the TSM server in the cluster node 2" and "If the TSM server is in an active/standby configuration" of the "ETERNUS SF TSM PRIMECLUSTER Application Guide".

- For the secondary node also, a special file name must be set for drives on the tape device used by the TSM server. For details, refer to the "ETERNUS SF TSM PRIMECLUSTER Application Guide", section "If the TSM server is in an active/standby configuration" > "TSM server settings on cluster node 1".

Execute the command below to check the special file name to be set.

- For LT20/LT40/LT60 (non-IBM drives)

```
#ls -l /dev/rmt/*[0-9]
lrwxrwxrwx 1 root root 50 Feb 27 15:07 /dev/rmt/1 ->
../../devices/pci@17,4000/fibre-channel@4/mt@1,0:
...
#
```

- For LT220/LT230/LT250/LT270 (IBM drives)

```
#ls -l /dev/rmt/*st
lrwxrwxrwx 1 root sys 57 Apr 22 13:28 /dev/rmt/2st ->
../../devices/pci@15,2000/fibre-channel@1/IBMtape@1,0:st
#
```

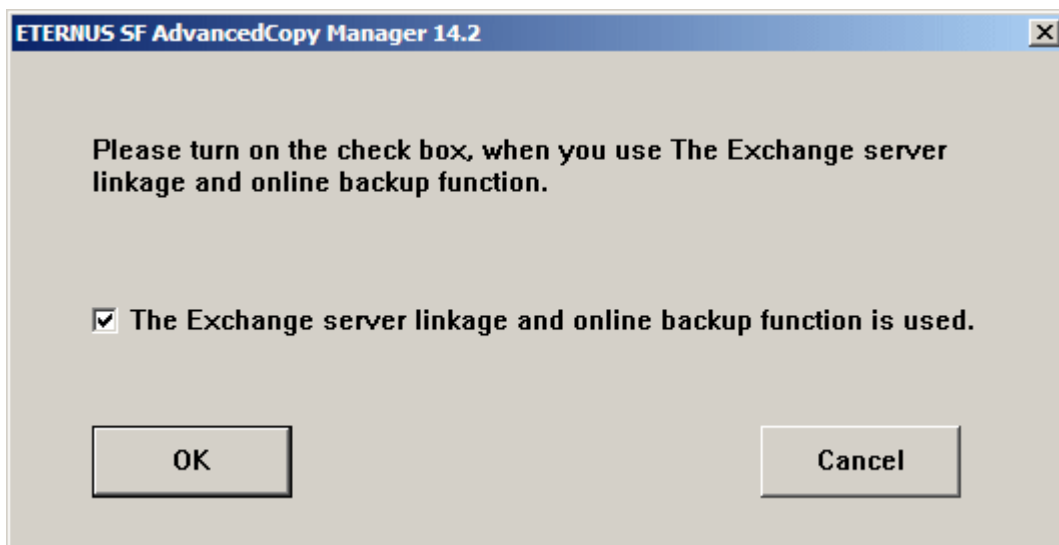
C.3 Registering Resources

Refer to "Registering resources" in "If the TSM server is in an active/standby configuration" of the "ETERNUS SF TSM PRIMECLUSTER Application Guide" for information about registering TSM resources on cluster systems.

Appendix D Setup procedures on Windows Server 2008 x64

This appendix explains the cluster setup procedures on the following environment.

- The operating system is either of the following.
 - Windows Server 2008 x64 Edition
 - Windows Server 2008 R2
- The either of the following AdvancedCopy Manager is installed.
 - Manager
 - Agent that was installed by non-checking the check box of the following window, displayed during the installation.



The cluster setup procedure is as follows. For the WSFC setting method, refer to manuals of Microsoft Server(R) Failover Clustering.

1. Execute step 1 to step 4 described in the "[4.5.2 Customization Procedure](#)".
2. Create the following resources by using WSFC.
 - Create an application folder of transaction name in the [Services and Applications]
Create an application folder by clicking [Action] - [More Actions] - [Create Empty Service or Application].
 - Create an IP address resource
Create it by clicking [Action] - [Add a resource] - [More resources] - [4-Add IP Address].
3. Set the property of IP Address Resource.
 - Specify the unique value to the resource name.
 - Select the network (subnet) to be used.
 - Specify the logical IP address to the static IP address.
4. Execute step 5 and step 6 described in the "[4.5.2 Customization Procedure](#)".
5. Execute step 7 described in the "[4.5.2 Customization Procedure](#)".
 - Select "An existing IP address resource will be used" in the "AdvancedCopy Manager Cluster Setup Tool" windows.
6. Execute step 8 to step 14 described in the "[4.5.2 Customization Procedure](#)".
7. The cluster setup of the primary node has been completed.
 - For a Storage Management Server
The error is occurred with swstf8514 message. Execute the following processes.

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

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

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

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

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

The [Logical node name] is the Logical Node Name that was specified in "AdvancedCopy Manager Cluster Setup Tool" windows.

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

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

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

- For a Storage Server

The swstf8100 message is displayed. Go to next step.

8. Continue by setting up the secondary node.

Execute step 16 to step 29 described in the "[4.5.2 Customization Procedure](#)".

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

Although the error is occurred with swstf8514 message, go to next step.

10. Set up the resources.

- For a Storage Management Server

1. Delete the following resources.

- AdvancedCopy GUI Service

- SymfoWARE RDB RDBSWSTF

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

(A) AdvancedCopy ACL Service

(B) AdvancedCopy GUI Service

(C) AdvancedCopy COM Service for *LogicalNodeName* (**NOTE**)

(D) SymfoWARE RDB RDBSWSTF

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

3. Specify the resource dependency to the above services.

Add the shared disk resource to the above all services.

Add the logical IP resource to the above service (C).

- For a Storage Server

1. Delete the following resource by using WSFC management.

AdvancedCopy COM Service_*LogicalNodeName* (**NOTE**)

NOTE: The *LogicalNodeName* is the Logical Node Name that was specified in "AdvancedCopy Manager Cluster Setup Tool" windows.

2. Add a following service as the resource.

- AdvancedCopy COM Service for *LogicalNodeName* (**NOTE**)

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

3. Specify the resource dependency to the above service.

Add the shared disk resource.

11. Edit the definition file.

- For a Storage Management Server

1. Edit the <Shared disk>\etc\opt\swstorage\clsetup.ini file.
Change the value of Setup in [Secondary] tag to "YES".
2. Edit the \$INS_DIR\env\swcluster.ini file.
(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)
Change the value of Setup in [Logical node name] tag to "YES".
3. Edit the \$ETC_DIR\etc\swstg.ini file.
(\$ETC_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)
Change the value of type in [Common] tag to "2".

- For a Storage Server

1. Edit the <Shared disk>\etc\opt\swstorage\clsetup.ini file.
Change the value of Setup in [Secondary] tag to "YES".
2. Edit the \$INS_DIR\env\swcluster.ini file.
(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)
Change the value of Setup in [Logical node name] tag to "YES".

Continue by setting up the secondary node B.

If the system is the Cascade topology, go to next step.

If the cluster system is the 1:1 standby system, the Mutual standby system and the n:1 standby system, go to step 16 of this appendix.

12. Execute step 31 to step 44 described in the "[4.5.2 Customization Procedure](#)".

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

Although the error is occurred with swstf8514 message, go to next step.

14. Edit the definition file.

- For a Storage Management Server

1. Add the following three lines at the bottom in the <Shared disk>\etc\opt\swstorage\clsetup.ini file.
[Secondary_2]
Setup=YES
Date=00/00/00 00:00:00
Replace [Secondary_2] to [Secondary_3], if the system is the third secondary node.
2. Edit the \$INS_DIR\env\swcluster.ini file.
(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)
Change the value of Setup in [Logical node name] tag to "YES".
3. Edit the \$ETC_DIR\etc\swstg.ini file.
(\$ETC_DIR means "Environment Directory" specified at the AdvancedCopy Manager installation.)
Change the value of type in [Common] tag to "2".

- For a Storage Server

1. Add the following three lines at the bottom in the <Shared disk>\etc\opt\swstorage\clsetup.ini file.
[Secondary_2]
Setup=YES
Date=00/00/00 00:00:00
Replace [Secondary_2] to [Secondary_3], if the system is the third secondary node.

2. Edit the \$INS_DIR\env\swcluster.ini file.
(\$INS_DIR means "Program Directory" specified at the AdvancedCopy Manager installation.)

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

15. Execute step 46 to step 48 described in the "[4.5.2 Customization Procedure](#)".

When the node that becomes secondary node B is remained, execute from step 12 of this appendix on its node.

16. Execute step 49 and step 50 described in the "[4.5.2 Customization Procedure](#)".

The procedure is finished.

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