ETERNUS SF

FUJITSU

ETERNUS SF
AdvancedCopy Manager V15.3

for Exchange Server
Operation Guide

Windows

Preface

Purpose

This manual explains how to execute the Exchange Server Restore function using the ETERNUS SF AdvancedCopy Manager for Exchange Server (hereafter referred to as the "AdvancedCopy Manager for Exchange Server").

Intended Readers

This manual is intended for a system administrator who performs storage management using the AdvancedCopy Manager for Exchange Server.

Organization

This manual is composed as follows:

Chapter 1 Overview

This chapter provides an overview of the AdvancedCopy Manager for Exchange Server.

Chapter 2 Operating Procedure

This chapter explains the necessary operating procedures for the AdvancedCopy Manager for Exchange Server.

Chapter 3 Operation Maintenance

This chapter explains the operation maintenance of the AdvancedCopy Manager for Exchange Server.

Notation

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

Operating systems

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

Formal name	Abbreviation	
Windows(R) 7 Professional Windows(R) 7 Enterprise Windows(R) 7 Ultimate		
Windows(R) 8 Windows(R) 8 Pro	Windows 8	
Solaris(TM) 9 Operating System	Solaris 9	Solaris or Solaris OS
Oracle Solaris 10	Solaris 10	
Oracle Solaris 11	Solaris 11	
Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T)	RHEL-AS4	Linux
Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T)	RHEL-ES4	
Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64)	RHEL5	
Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64)	RHEL6	
SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T	SUSE Linux Enterprise Server 11	
HP-UX 11.0 HP-UX 11i v1 HP-UX 11i v2 HP-UX 11i v3	HP-UX	
AIX 5L(TM) V5.1 AIX 5L(TM) V5.2 AIX 5L(TM) V5.3 AIX(R) V6.1 AIX(R) V7.1	AIX	
VMware(R) Infrastructure 3 Foundation VMware(R) Infrastructure 3 Standard VMware(R) Infrastructure 3 Enterprise	VMware Infrastructure 3	VMware
VMware(R) vSphere 4 Essentials Kit VMware(R) vSphere 4 Essentials Plus Kit VMware(R) vSphere 4 Standard Edition(TM) VMware(R) vSphere 4 Standard Plus Data Recovery VMware(R) vSphere 4 Advanced Edition(TM) VMware(R) vSphere 4 Enterprise Edition(TM) VMware(R) vSphere 4 Enterprise Plus Edition(TM)	VMware vSphere 4	
VMware(R) vSphere 5 Essentials Kit VMware(R) vSphere 5 Essentials Plus Kit VMware(R) vSphere 5 Standard Edition(TM) VMware(R) vSphere 5 Standard Plus Data Recovery VMware(R) vSphere 5 Enterprise Edition(TM) VMware(R) vSphere 5 Enterprise Plus Edition(TM)	VMware vSphere 5	

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

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

Formal name	Abbreviation			
ETERNUS DX60/DX60 S2 ETERNUS DX80/DX80 S2 ETERNUS DX90/DX90 S2	-		ETERNUS DX series	ETERNUS Disk storage system
ETERNUS DX410 ETERNUS DX440	ETERNUS DX400 series	ETERNUS DX400/DX400 S2 series		
ETERNUS DX410 S2 ETERNUS DX440 S2	ETERNUS DX400 S2 series			
ETERNUS DX8100 ETERNUS DX8400 ETERNUS DX8700	ETERNUS DX8000 series	ETERNUS DX8000/DX8000 S2 series		
ETERNUS DX8100 S2 ETERNUS DX8700 S2	ETERNUS DX8000 S2 series			
ETERNUS2000 ETERNUS4000 ETERNUS8000	-			
Web GUI of ETERNUS DX series	ETERNUS Web GUI			
ETERNUSmgr				

Software products

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

Manuals

Formal name	Abbreviation
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Release Notes	ETERNUS SF Release Notes
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Installation and Setup Guide	ETERNUS SF Installation and Setup Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Migration Guide	ETERNUS SF Migration Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Web Console Guide	ETERNUS SF Web Console Guide

Formal name	Abbreviation
ETERNUS SF Express / ETERNUS SF AdvancedCopy Manager Operation Guide for Copy Control Module	ETERNUS SF Operation Guide for Copy Control Module
ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Cluster Environment Setup Guide	ETERNUS SF Cluster Environment Setup Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Messages	ETERNUS SF Messages
ETERNUS SF Express / ETERNUS SF Storage Cruiser Event Guide	ETERNUS SF Event Guide
ETERNUS SF Express / ETERNUS SF Storage Cruiser / ETERNUS SF AdvancedCopy Manager Glossary	ETERNUS SF Glossary

Others

- In this manual, "ETERNUS4000" does not include ETERNUS4000 models 80 and 100.

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Notes

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Manual organization and reading suggestions

Manual organization

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

When to read	Related manuals (abbreviated)	Related products (*1)			Explanation
		EXP	SC	ACM	
Before installation	Quick Reference	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available: - Express Quick Reference - Storage Cruiser Quick Reference - AdvancedCopy Manager Quick Reference
	Release Notes	Yes	Yes	Yes	This manual is common for all products.
	Overview	-	-	Yes	This manual is unique for each product.
During installation	Installation and Setup Guide	Yes	Yes	Yes	This manual is common for all products.
	Cluster Environment Setup Guide	-	Yes	Yes	This manual is common for Storage Cruiser and AdvancedCopy Manager.
	Migration Guide	Yes	Yes	Yes	This manual is common for all products.
During operation	Operation Guide	Yes	Yes	Yes	This manual is unique for each product. The following manuals are available: - Express Operation Guide - Storage Cruiser Operation Guide - Storage Cruiser Operation Guide for Optimization Option - AdvancedCopy Manager Operation Guide (for Windows) - AdvancedCopy Manager Operation Guide (for Solaris) - AdvancedCopy Manager Operation Guide (for Linux) - AdvancedCopy Manager Operation Guide (for HP-UX) - AdvancedCopy Manager Operation Guide (for AIX) - AdvancedCopy Manager for Exchange Server Operation Guide

When to read	Related manuals (abbreviated)	Related products (*1)			Explanation
		EXP	SC	ACM	
	Operation Guide for Copy Control Module	Yes	-	Yes	This manual is common for Express and AdvancedCopy Manager.
	Web Console Guide	Yes	Yes	Yes	This manual is common for all products.
Anytime	Event Guide	Yes	Yes	-	This manual is common for Express and Storage Cruiser.
	Messages	Yes	Yes	Yes	This manual is common for all products.
	Glossary	Yes	Yes	Yes	This manual is common for all products.

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

How to read manuals

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

Purpose	Related products (*1)	Manual	Main contents	How to read
Acquiring a product overview and basic operation knowledge	EXP	- Express Quick Reference	- Product overview - Installation decision - Overview of the necessary tasks from installation to first use	Please read if you want to acquire a fundamental knowledge of the product and its operation in order to decide to install it or not.
	SC	- Storage Cruiser Quick Reference		
	ACM	- AdvancedCopy Manager Quick Reference		
		- AdvancedCopy Manager Overview	- Main functions - Linkable applications - Procedure overview for Advanced Copy of ETERNUS Disk storage system	
Confirming the updated contents	common	- ETERNUS SF Release Notes	- New function overview - Incompatibilities with previous version - Fixed bugs	Please read if you want to know the updated contents from a previous version and if you perform the upgrade.
Deciding if a version upgrade is required	common	- ETERNUS SF Migration Guide	- Notes and cautions about version upgrade - Version upgrade procedure	Please read if you want to upgrade from a previous version.
Installing and correctly operating the product Setting up operating environment depending on purpose	common	- ETERNUS SF Installation and Setup Guide	- Operating environment - Installation procedure - Setup procedure - Uninstallation procedure	Please read if you want to install and setup the product.
	SC, ACM	- ETERNUS SF Cluster Environment Setup Guide	- Supported cluster software - Installation procedure for a clustered system	Please read if you want to install and setup the product on a clustered system.

Purpose	Related products (*1)	Manual	Main contents	How to read
			- Setup procedure for a clustered system - Uninstallation procedure for a clustered system	
Administration and operation of the installed system	EXP	- Express Operation Guide	- Starting and stopping the software - Device monitoring - Data copy inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance	Please read if you want to start or shutdown the system, monitor the operation status, do backup/restore operations, etc.
	SC	- Storage Cruiser Operation Guide	- Starting and stopping the software - Device monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference	
		- Storage Cruiser Operation Guide for Optimization Option	- Operating environment construction - Operating status monitoring - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference	
	EXP, ACM	- ETERNUS SF Operation Guide for Copy Control Module	- Starting and stopping the software	
	ACM	- AdvancedCopy Manager Operation Guide (for Windows) - AdvancedCopy Manager Operation Guide (for Solaris) - AdvancedCopy Manager Operation Guide (for Linux) - AdvancedCopy Manager Operation Guide (for HP-UX) - AdvancedCopy Manager Operation Guide (for AIX)	- Data backup/restore inside the storage system - Necessary tasks after an architectural modification of the system as well as product maintenance - Command reference	

Purpose	Related products (*1)	Manual	Main contents	How to read
		- AdvancedCopy Manager for Exchange Server Operation Guide	- Restoring the Exchange Server database using the Restore Wizard	
	common	- ETERNUS SF Web Console Guide	- Operating environment - Screen layout description	Please read if you want to understand the ETERNUS SF Web Console.
Dealing with messages issued by the software	common	- ETERNUS SF Messages	- Messages and their explanations - Parameter (variable information) description - System action - Countermeasures	Please read if you want a practical way of investigating and dealing with messages issued by the software.
Dealing with events issued by the software	EXP, SC	- ETERNUS SF Event Guide	- Phenomenon of event - Countermeasures	Please read if you need to find a practical way of investigating and dealing with events.
Researching the meaning of specific terms related to the products and other important terms	common	- ETERNUS SF Glossary	- Product specific terminology explanation - Explanation of important terminology appearing in the manual - Synonyms and related terms - Proper form of abbreviated terms	Please read if you want to learn the meaning of important terms, product specific terms or abbreviations used in the manuals.

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

Contents

Chapter 1 Overview

This chapter provides an overview of the AdvancedCopy Manager for Exchange Server.

1.1 AdvancedCopy Manager for Exchange Server

The AdvancedCopy Manager for Exchange Server provides a Restore Wizard for Exchange Server for the Exchange Server mailbox database.

When the Restore Wizard for Exchange Server is used, Exchange database restoration, which requires complex procedures, can be easily carried out by users even without specialized knowledge.

System Restoration through Restore Execution

The Mailbox Server database can be restored by launching the Restore Wizard, with no need for administrators to restore.

An example for a data center is shown below.

Figure 1.1 Restoration using Restore Wizard for Exchange Server (Example of application in a data center)
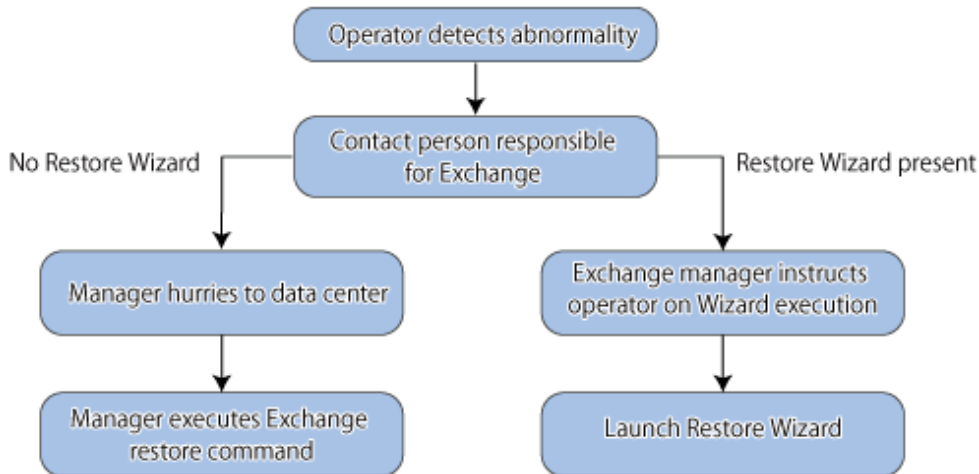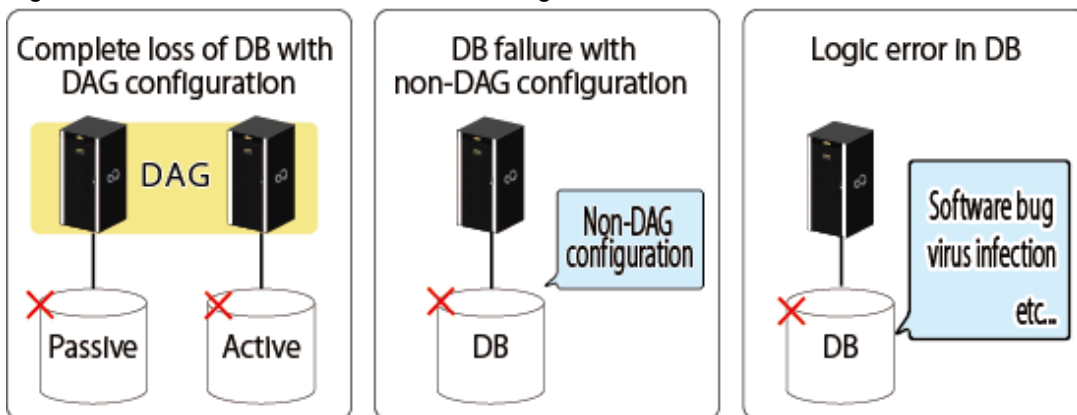

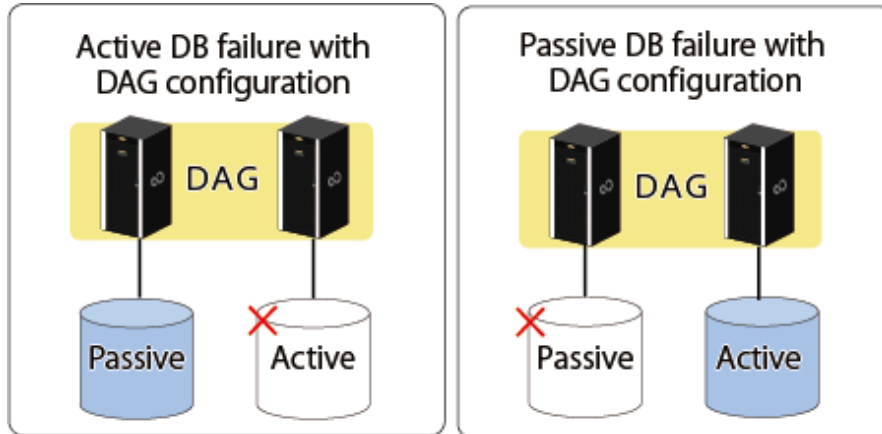Figure 1.2 Use of Restore Wizard for Exchange Server

Restore Wizard for Exchange Server can handle the following 3 usage cases.

- Complete loss of DB in Database Availability Group (DAG) configuration

- DB failure in non-DAG configuration

- Logical failure in DB

・・

Figure 1.3 Restoration using the Exchange Server function

Please use the Exchange Server function for restoration in the following cases.

- Active DB failure in DAG configuration

- Passive DB failure in DAG configuration

・・

Support Range Provided by Restore Wizard for Exchange Server

The Restore Wizard for Exchange Server is capable of the following restoration.

- Restoration Targets

  - Mailbox database (Active, Passive)

  - Public folder database

- Restoration Point

  - Roll-forward

    Restoring to the point immediately before fault

  - Point-in-time

    Restoring to the point when the (last) backup was taken

Restoration process

Executing the Restore Wizard for Exchange Server executes the following process in sequence.

1. Stop QuickOPC session

2. Activate database (only in case of DAG configuration)

3. Delete database copy (only in case of DAG configuration)

4. Permit database overwrite

5. High-speed restoration of data using the Advanced Copy function of ETERNUS Disk storage system

6. Mount database

1.2 Operating Environment

This section explains the operating environment for the AdvancedCopy Manager for Exchange Server.

1.2.1 Hardware Requirements

- Management Server

  The following Management Server hardware requirements must be satisfied.

  - "Hardware requirements" in "Operating environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide*

- Managed Servers

  The following Mailbox Server or backup server hardware requirements must all be satisfied.

  - "Hardware requirements" in "Operating environment of Storage Cruiser's agent" in the *ETERNUS SF Installation and Setup Guide*

  - The environment in which the Exchange Server operates

Note

Devices supported by AdvancedCopy Manager and ETERNUS VSS Hardware Provider are usable. Refer to the following for details.

- "Devices supported by AdvancedCopy Manager" in "Supported devices" in the *ETERNUS SF Installation and Setup Guide*

- "Supported Environment" in the *ETERNUS VSS Hardware Provider User's Guide*

1.2.2 Software Requirements

Management Server

Refer to "Supported operating systems" in "Operating environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide* for information on the required Management Server software.

Backup Server

The required backup server software is as follows:

- Windows Server 2008 R2

- Windows Server 2008 SP2 (x64)

- Windows Server 2012

Note

The Exchange management tools need to be installed in the backup server. Its version must be the same as Exchange Server that will be installed in the Mailbox Server.

Mailbox Server

The required Mailbox Server software is as follows:

- Windows Server 2008 R2

- Windows Server 2008 SP2 (x64)

- Windows Server 2012

Note

- The following software is required for Mailbox Server DAG configurations:

  - Windows Server 2008 R2 Enterprise

  - Windows Server 2008 Enterprise SP2 (x64)

- Windows Server 2012

- Exchange Server 2010 SP2, SP3 or the Exchange Server 2013 needs to be installed in the Mailbox Server.

Note

- When operating the Mailbox Server or backup server with a virtual environment guest OS, VMware must be used and VMware Tools installed.

- If version 15.2 Storage Cruiser's agent will be installed in the environment where version 15.3 or later AdvancedCopy Manager's agent has been installed, execute the following command from the Command Prompt after Storage Cruiser's agent had been installed.

```
<AdvancedCopy Manager program directory>\Wizard\etc\applinkINST.bat
```

Restart the Storage Cruiser's agent after executing the above command. Refer to "Starting and Stopping the Agent" in "Command References" in the *ETERNUS SF Storage Cruiser Operation Guide* for information on how to start and stop the Storage Cruiser's agent.

1.2.3 Incompatible Software

Refer to the following for information on incompatible software:

- Management Server

"Incompatible software" in "Operating environment of ETERNUS SF Manager" in the *ETERNUS SF Installation and Setup Guide*

- Backup Server and Mailbox Server

- "For Windows environment" under "Incompatible software" in "Operating environment of AdvancedCopy Manager's agent" in the *ETERNUS SF Installation and Setup Guide*

- "For Windows environment" under "Incompatible software" in "Operating environment of Storage Cruiser's agent" in the *ETERNUS SF Installation and Setup Guide*

1.2.4 Supported Configurations

This function supports the following configurations.

- DAG configuration (Management Server: Cluster configuration)

- DAG configuration (Management Server: Non-cluster configuration)

- DAG configuration (minimum configuration)

- Non-DAG configuration

- Non-DAG (minimum configuration)

Note

- Do not operate the backup server in cluster operation mode.

- Do not use multiple backup servers for 1 Mailbox Server.

- Prepare the dedicated servers respectively for Management Server, the backup server, and Mailbox Server. (Do not combine all 3 applications on one server. Each application will need a dedicated server.)

- Make sure that the Exchange Server version and service pack on the backup server and Mailbox Server are equivalent.

- The AdvancedCopy Manager's agent (Mailbox Server) platform must be Windows.

- Do not allow multiple versions of the Exchange Server to co-exist on 1 backup server or Mailbox Server.

- Do not let the size and the composition of the device that has executed the backup of the Exchange Server database be changed.

Refer to "Supported configurations" in "Backup using the Backup Wizard for Exchange Server" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for details.

DAG configuration (Management Server: Cluster configuration)

Environment built with the Management Server in cluster configuration with DAG configuration.
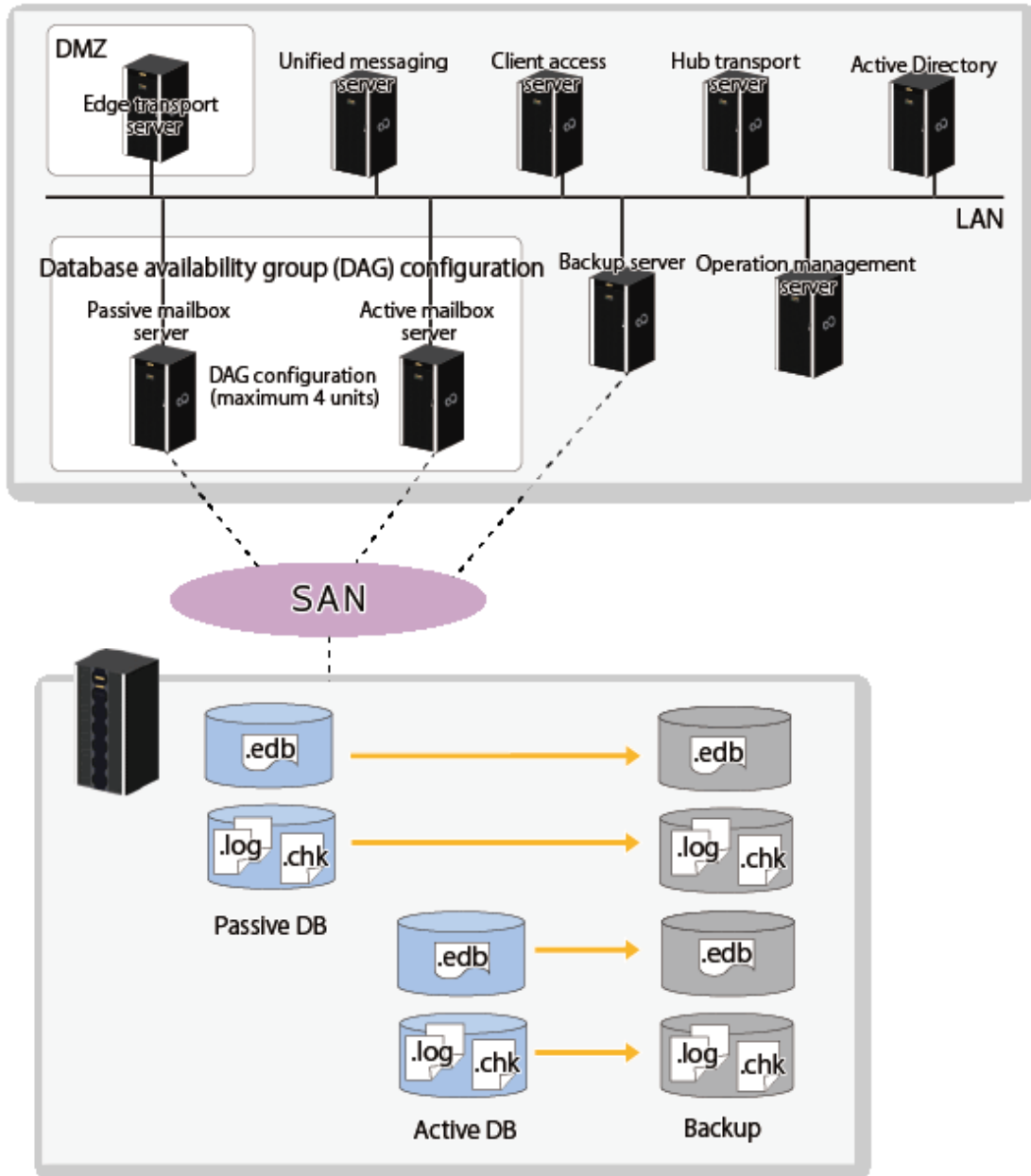
Figure 1.4 DAG configuration (Management Server: Cluster configuration)
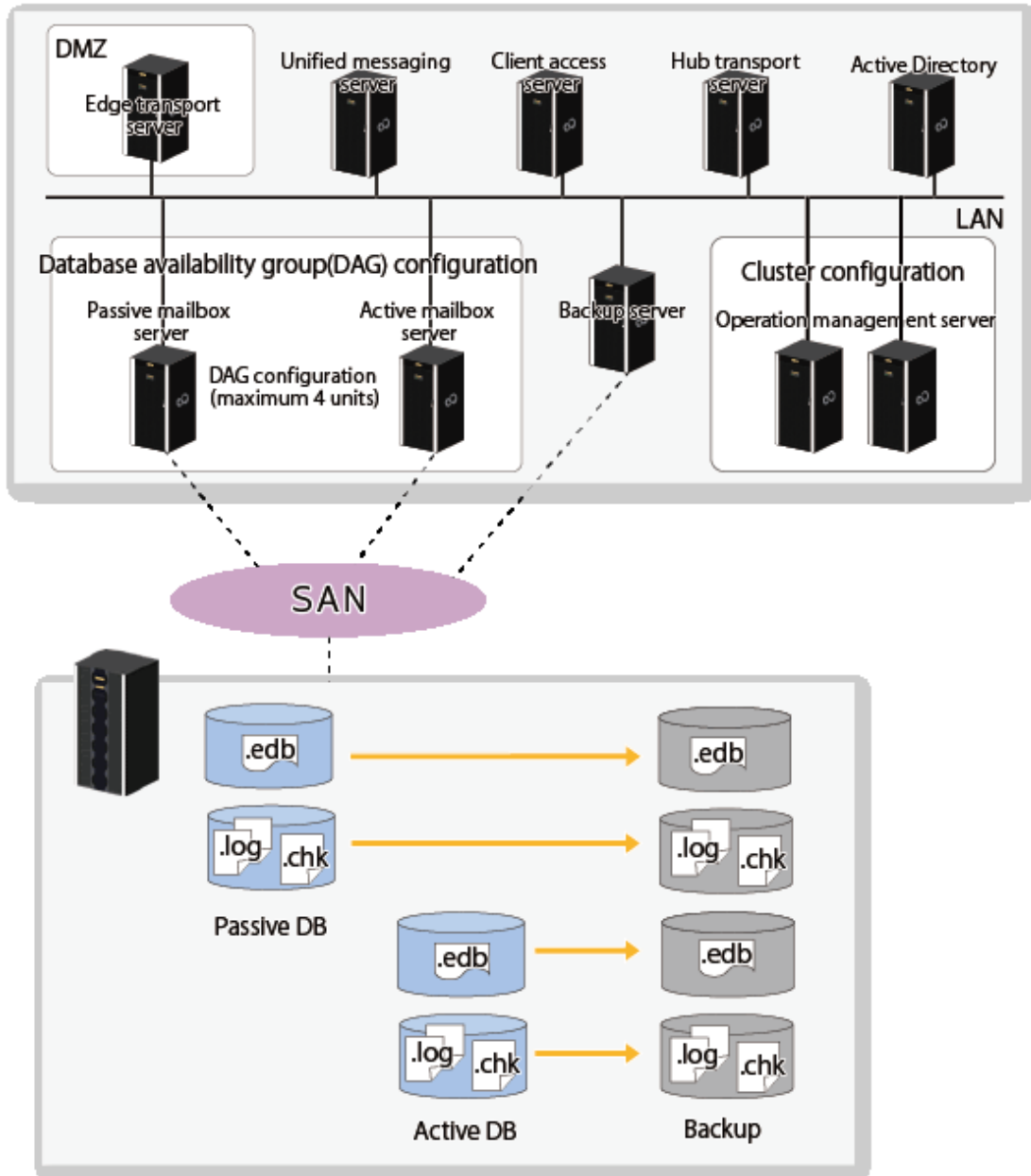
DAG configuration (Management Server: Non-cluster configuration)

Environment built with the Management Server in non-cluster configuration with DAG configuration.
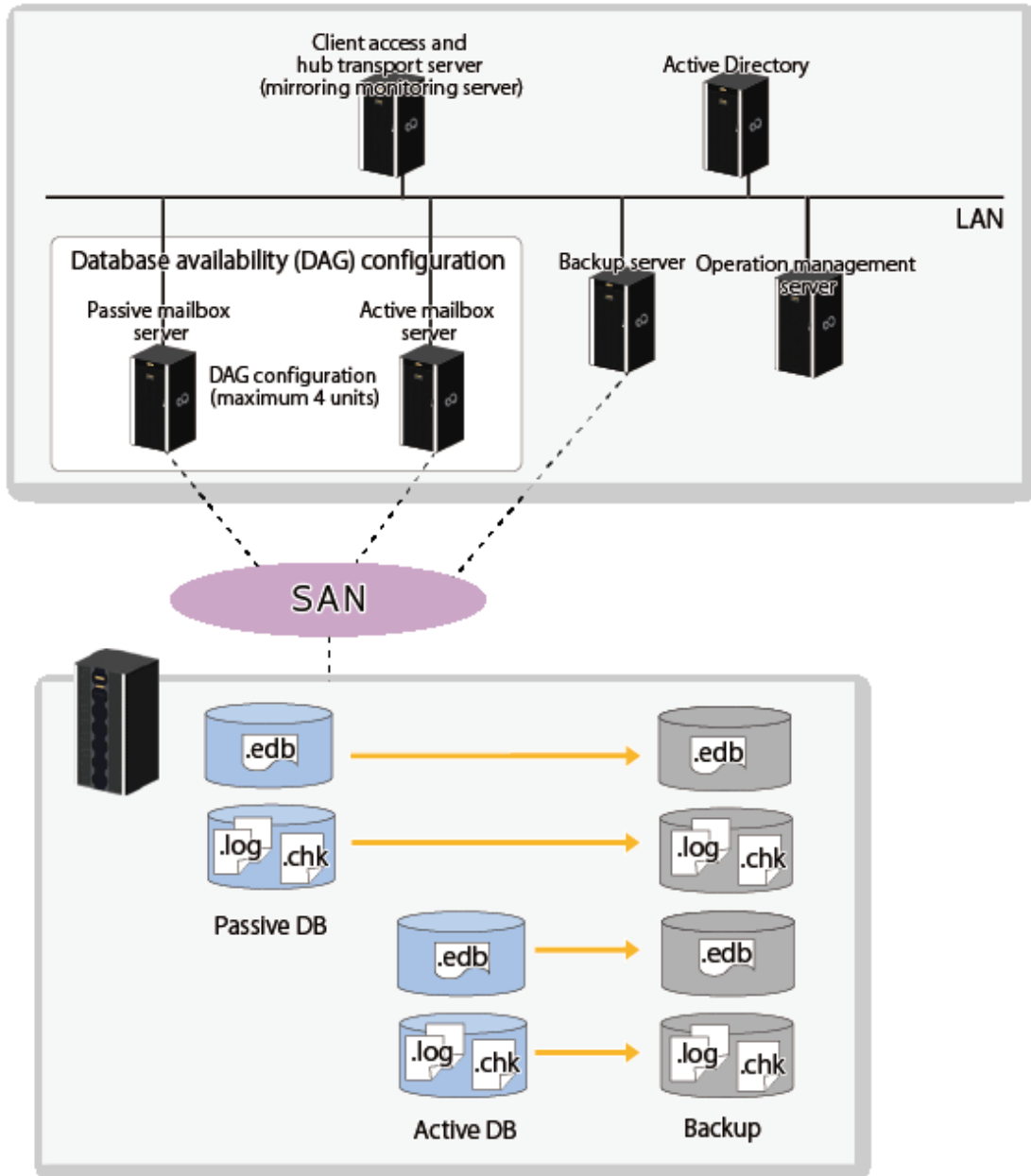
Figure 1.5 DAG configuration (Management Server: Non-cluster configuration)

DAG configuration (minimum configuration)

Environment built with the client access server and hub transport server as the same server with DAG configuration.
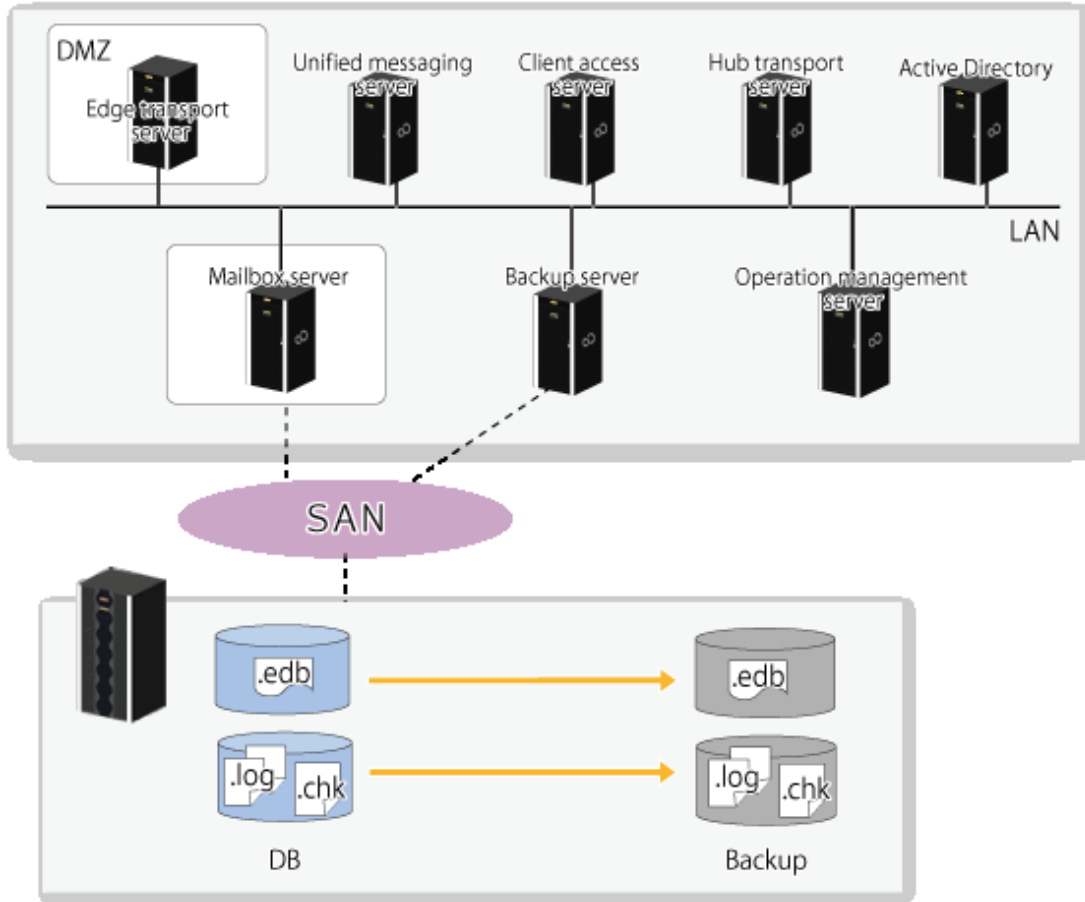
Figure 1.6 DAG configuration (minimum configuration)

Non-DAG configuration

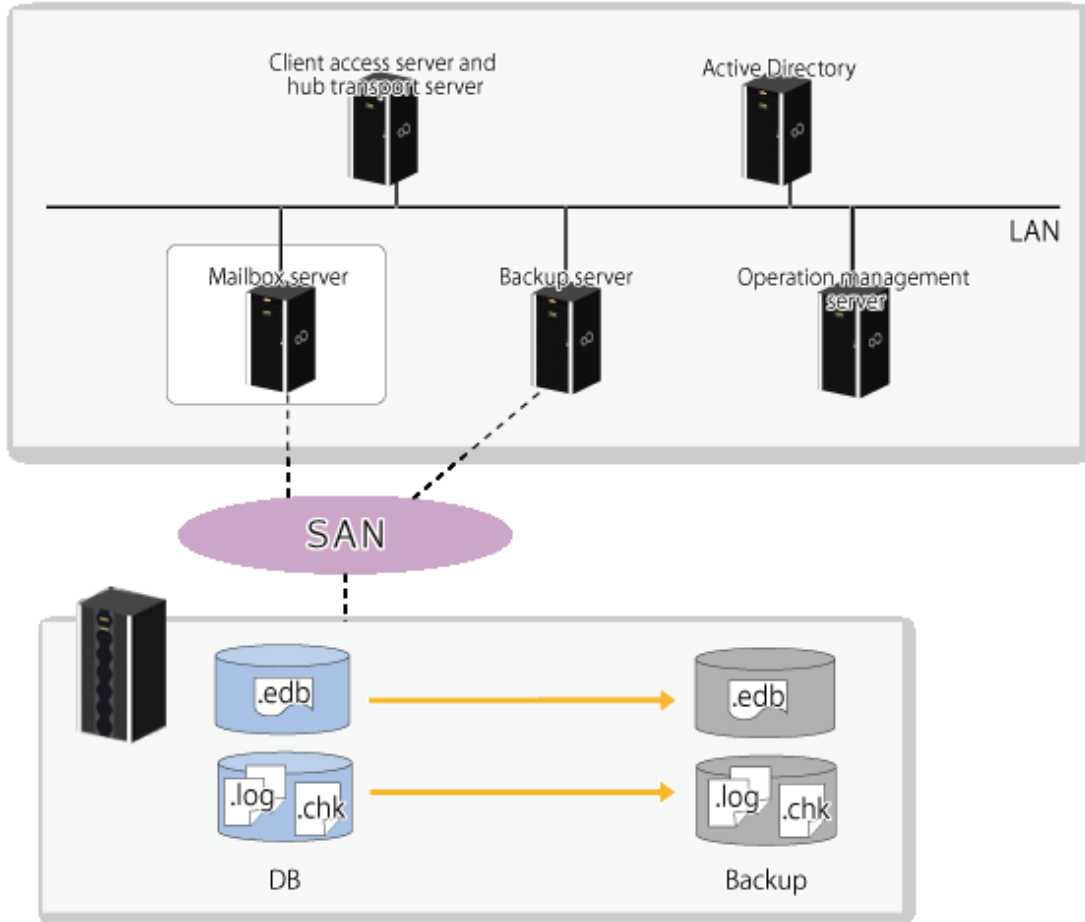Environment that does not have DAG configuration

Figure 1.7 Non-DAG configuration

Non-DAG (minimum configuration)

Environment built with the client access server and hub transport server as the same server in an environment that does not have DAG configuration.

Figure 1.8 Non-DAG configuration (minimum configuration)

Overview of Server Roles and Functions

Please refer to the following for an explanation of the server roles pertaining to Exchange Server backup restore operation.

Server Type	Server Roles	Required/Optional	Co-existence with other servers
Mailbox Server	This is the server that hosts the mailbox and public folder. This is the backup target server. AdvancedCopy Manager's agent, Storage Cruiser's agent, and. ETERNUS VSS Hardware Provider must be installed.	Required (maintain the mailbox database and public folder database)	Co-existence with the following servers is possible - Client access server - Hub transport server - Unified messaging server *Cannot co-exist with the backup server and Management Server
Client access server	This server hosts client protocols such as POP3, IMAP4, HTTPS, Outlook Anywhere, free/busy status service, and automatic detection services, among others.	Required (in charge of handling connection requests from clients)	Co-existence with the following servers is possible - Mailbox Server (not possible if co-existing with a Management Server) - Client access server - Hub transport server - Unified messaging server

Server Type	Server Roles	Required/Optional	Co-existence with other servers
			- Management Server (not possible if co-existing with a Mailbox Server)
Hub transport server	This is a mail routing server that routes mail in the Exchange Server system. *Automatically built as a monitoring server when DAG is created by default (mirroring monitoring server).	Required (in charge of handling delivery of messages in the Exchange Server system)	Co-existence with the following servers is possible - Mailbox Server (not possible if co-existing with a Management Server) - Unified messaging server - Management Server (not possible if co-existing with a Mailbox Server)
Edge transport server	This is the mail routing server that routes mail with the Exchange Server system and is set up on the perimeter network (DMZ).	Optional	Not possible (must be operated with DMZ so cannot co-exist with other roles operating in the LAN)
Unified messaging server	This server connects the private branch exchange (PBX) system to the Exchange Server.	Optional	Co-existence with the following servers is possible - Mailbox Server (not possible if co-existing with a Management Server) - Client access server - Hub transport server - Unified messaging server - Management Server (not possible if co-existing with a Mailbox Server)
Backup server	This is a dedicated backup server for online backup of the Exchange Server. A backup volume must be connected. AdvancedCopy Manager's agent, Storage Cruiser's agent, ETERNUS VSS Hardware Provider, and Exchange Management Tools must be installed.	Required (dedicated backup server for online backup of the Exchange Server)	Not possible
Management Server	This is a dedicated Management Server for online backup of the Exchange Server. It is necessary to Install ETERNUS SF Manager (AdvancedCopy Manager).	Required (dedicated Management Server for online backup of the Exchange Server)	Co-existence with the following servers is possible - Client access server - Hub transport server - Unified messaging server *Cannot co-exist with Mailbox Server and backup server

> **Note**
> - Co-existence of the ETERNUS SF Manager (AdvancedCopy Manager Manager) and AdvancedCopy Manager Agent on the same physical machine is not supported.
>
> - Virtualization of all servers is supported, with the exception of Active Directory (see Note).
>
>   The virtualization environment's support range is based on the support range of the AdvancedCopy Manager and the support range of the VSSHP. For details, please refer to Table 1.1 Host/Guest Reference Table.
>
>   Note: Active directory virtualization is not recommended and is therefore not supported by this function.

Table 1.1 Host/Guest Reference Table

				Physical	Hyper-V Host	Hyper-V Guest	VMware Guest (*2)	KVM Host	KVM Guest
Manager	**Physical**			O	O	X	O	-	X
	Virtual	**Hyper-V**	**Host**	X	X	X	X	-	X
			Guest (*1)	O	O	X	O	-	X
		VMware	**Guest**	O	O	X	O	-	X
		KVM	**Host**	O	O	X	O	-	X
			Guest	O	O	X	O	-	X

O: Supported

X: Not supported

-: Not for Backup Wizard for Exchange Server and Restore Wizard for Exchange Server

*1: The Manager supports Windows Server 2008 R2 and Windows Server 2012

*2: VMware Tools must be installed

1.3 Configuration

This section provides an explanation of the configuration for the AdvancedCopy Manager for Exchange Server.

1.3.1 License Registration

This optional product becomes available when the AdvancedCopy Manager for Exchange Server license is registered to the ETERNUS Disk storage system to be restored.

License registration is carried out through the Web Console. Refer to "Register the license" in the *ETERNUS SF Web Console Guide* for registration instructions.

Chapter 2 Operating Procedure

This chapter explains the necessary operating procedures for restoration using the Restore Wizard for Exchange Server.

The flow of the restore operation is shown below.
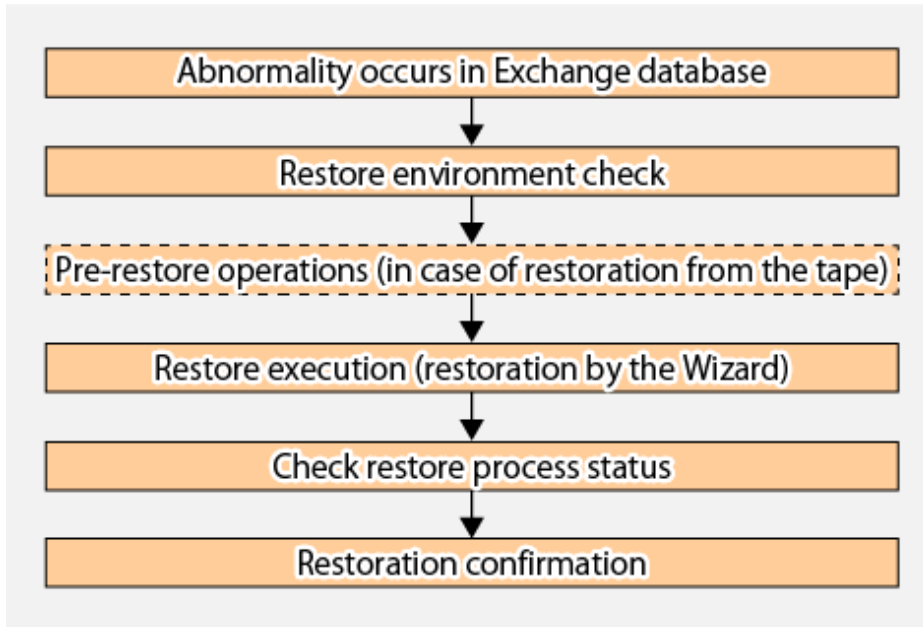
2.1 Preparations

This section explains the necessary preparations for running the Restore Wizard for Exchange Server.

2.1.1 Restore Environment Check

Check the following conditions.

- Check the backup

   - The Exchange database backup must be acquired using the Backup Execution Script created by the Backup Wizard. Or the backup of the Exchange Server 2010 database or the Exchange Server 2013 database must be acquired according to the procedure described in the following sections in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)*.

      - "Backup and restore of Exchange Server database in Windows Server 2008 or later"

      - "Backup and restore of Database Availability Group"

   - A new backup must be created immediately after the Exchange database path is changed.

   - A new backup must be created immediately after the ESEUTIL/p (restores faults or damaged Exchange databases) or ESEUTIL/d (defrags/compresses Exchange databases) commands are executed.

- Confirmation of restoring

   - For the point-in-time restoration

      - Exchange database must not be running.
        (Please dismount the Exchange database if running.)

   - For the roll-forward restoration

      - All of the transaction logs that have been created since the latest complete backup was taken must exist.

      - The generation numbers of existing transaction log files ("*XXXXXXXX*" part of E0n*XXXXXXXX*.log) must be consecutive.

- Exchange database must not be running.
  (Please dismount the Exchange database if running.)

- Check the server/storage (at a physical malfunction)

  - Each device must satisfy the following conditions:

Device	Conditions
ETERNUS Disk storage system	The following initial settings must be implemented. - RAID group settings - Volume settings - Host affinity settings - AdvancedCopy license registration - Copy table size settings
Mailbox Server	The following initial settings must be implemented. - The Exchange Server environment must be set. - Firewall settings (access permission) - The Exchange Server (DAG/non-DAG) must have a normally running environment setup. - There must be a client terminal capable of confirming that the Exchange Server (DAG/non-DAG) is running. - The ports necessary for AdvancedCopy Manager must be allowed in firewall settings (Table 2.1 Default port numbers). - The copy set file must exist. Refer to "Creating a copy set file" in "Backup and restore of Exchange Server database in Windows Server 2008 or later" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for information on how to confirm it.
Management Server	The ports necessary for AdvancedCopy Manager must be allowed in firewall settings (Table 2.1 Default port numbers).

Backup Server	The following initial settings must be implemented.
	
	- The Exchange Server environment must be set.
	
	   - Installing the Exchange Management Tool
	
	   - Firewall settings (access permission)
	
	- The ports necessary for AdvancedCopy Manager and VSS Hardware Provider must be allowed in firewall settings (Table 2.1 Default port numbers).
	
	- The metadata documents must exist on the backup server (Table 2.2 Metadata document).
	
	- The Exchange database area (active/passive) and log area (active/passive) partitions must have the same partition configuration as that during the time of backup and must be formatted as NTFS.
	
	- The backup volume and backup destination volume must be set to be combined.

Table 2.1 Default port numbers

Product	Manager/Agent	OS	Port number
AdvancedCopy Manager	Manager	Windows/Solaris/Linux	1226/tcp
AdvancedCopy Manager	Agent	Windows	1226/tcp
Storage Cruiser	Manager	Windows/Solaris/Linux	4917/tcp
Storage Cruiser	Agent	Windows	4917/tcp

Table 2.2 Metadata document

File	Save destination
Writer Metadata Document	\<ACM environment settings directory>\etc\repl\data\exchange\<active mailbox server host name>\metadoc\<Exchange database name>.wmd.xml
Backup Component Document	\<ACM environment settings directory>\etc\repl\data\exchange\<active mailbox server host name>\metadoc\<Exchange database name>.bcd.xml

Note: "ACM" refers to AdvancedCopy Manager.

🅖 Note

For Exchange Server 2013, Microsoft Exchange Search Host Controller service is stopped and restarted by the Restore Wizard while the Restore Wizard is running. There is a possibility of influencing making and the retrieval of the index of Exchange Server if Microsoft Exchange Search Host Controller service stops. Please consider the influence by the stop of Microsoft Exchange Search Host Controller service, that is, Exchange Server on the retrieval when you execute the Restore Wizard for Exchange Server.

2.1.2 Pre-restore Operations (When Restoring from Tape)

The following preparatory operations 1~6 are necessary when restoring from tape (secondary backup) due to a storage malfunction.

1. Delete the shadow copy

    The shadow copy must be deleted when restoring from tape.

    1. Login to the active Mailbox Server as an AdvancedCopy Manager user.

    2. Bring up the command prompt.

    3. Execute the following command.

        ```
        C:\>C:\Win32app\AdvancedCopyManager\bin\swsrpshadowadm_exchange delete -dbname dbName
        ```

    ### 🅘 Information

    When the command in step 3 is executed, the following processes will take place:

    -   The shadow copy existing on the backup server will be deleted.

    -   The backup server writer metadata and backup component documents are deleted.

2. Stop QuickOPC session

    Before executing a restore from tape, stop the QuickOPC session for the Exchange database for which restore is to be performed.

    1. Login to the active Mailbox Server as an AdvancedCopy Manager user.

    2. Bring up the command prompt.

3. Execute the following command:

```
C:\>C:\Win32app\AdvancedCopyManager\bin\swsrpshadowadm_exchange stopqopc -dbname dbName
```

📝 **Note**
....
When there is no QuickOPC session, the command will be abnormally terminated. Please advance to the following procedure to continue processing, and confirm the stop of the session.
....

3. Confirmation of QuickOPC session stop

   Execute the following command to confirm that the QuickOPC session has stopped.

   When the QuickOPC session has stopped, "----" is displayed in the **Trk** column.

```
C:\>C:\Win32app\AdvancedCopyManager\bin\swsrpshadowadm_exchange status -dbname dbName
```

4. Initializing a disk

   Because backup destination volume is read-only, disk initialization must be performed in order to reset it.

📝 **Note**
....
- Please make it online before initializing the disk when the disk is offline.

- All data on the initialized disk will be deleted. Be careful to correctly identify the target.
....

   1. Login to the backup server as an AdvancedCopy Manager user.

   2. Bring up the command prompt.

   3. Execute the following command:

```
C:\ >diskpart
DISKPART> select disk diskNumber
DISKPART> clean
```

5. Creating a partition

   Create a partition with the same configuration as that before initialization, and assign a drive letter.

   1. Login to the backup server as an AdvancedCopy Manager user.

   2. Bring up the server manager screen.

   3. Select "Disk Management."

   4. Right click on the target volume and select "New simple volume." Using the wizard, create a partition having the same configuration as that before initialization.

6. Restoring data from tape

   Restore the database domain and transaction log domain backup data to its initial location (the backup destination volume where a backup was acquired).

   1. Login to the backup server as an AdvancedCopy Manager user.

   2. Restore the saved files to their original location (the backup destination volume where a backup was acquired).

7. Restoring metadata documents from tape

   Restore metadata documents to their initial location (the location where a backup was acquired).
   For information on metadata document save destinations, please refer to Table 2.2 Metadata document.

   1. Login to the backup server as an AdvancedCopy Manager user.

   2. Restore the saved files to their original location (the location where a backup was acquired).

2.2 Restore Execution (Restoring Using the Wizard)

Please refer to "Restore an Exchange Server database using a wizard" in the *ETERNUS SF Web Console Guide* for the operating procedure.

2.3 Checking the Status of the Restore Process

Restore process status can be checked in the Web Console Job Status pane. Refer to "Job Status pane" in the *ETERNUS SF Web Console Guide* for details about the Job Status pane display.

When a restore is executed using the Restore Wizard for Exchange Server, the following information is displayed in the Job Status pane.

Table 2.3 Contents displayed during restore process execution

Item	Display contents
Action	Restore Wizard for Exchange Server
Status	Executing
Results	-

Table 2.4 Contents displayed when restore process is complete

Item		Display contents
Action		Restore Wizard for Exchange Server
Status		Completed
Results	Normal case	Success
	Abnormal case	Failed

2.4 Restoration Confirmation

After completing a restore using the Restore Wizard (for Exchange Sever), confirm that the Exchange database has been correctly restored.

In the case of DAG configuration, create a passive database copy after completing OPC physical copy.

🅿 Point
. . . .

Because the passive database copy creation process is performed through the network, it can be expected to increase network and server loads for an extended period of time. It is therefore recommended that this action be performed during a time when it will have minimum effect on operations, such as during a holiday or at night.
. . . .

Chapter 3 Operation Maintenance

This chapter explains the operation maintenance of the AdvancedCopy Manager for Exchange Server.

Please also refer to "Operation Maintenance" in the *AdvancedCopy Manager Operation Guide (for Windows).*

3.1 Collect the Troubleshooting Data

If an error occurred when the Restore Wizard for Exchange Server was used, collect the required diagnostic data and contact a Fujitsu system engineer.

Refer to "Collecting maintenance information" in the *ETERNUS SF AdvancedCopy Manager Operation Guide (for Windows)* for how to collect the required diagnostic data.