NEC Storage

ControlCommand on Windows

Ver9.2 Installation Guide

This page is intentionally left blank.

Preface

This document describes the installation of the program products in the CD labeled as:

NEC Storage ControlCommand

English Version

VERSION: 9.2

This CD includes the setup programs and the PDF manuals of NEC Storage ControlCommand.

For further usage after installation and the function of NEC Storage ControlCommand, refer to the PDF manuals in this CD.

Remarks

1. This product is available for Windows.

2. The NEC Storage Manager is referred to as iSM or Storage Manager in this guide unless clearly specified. Also, the following terms refer to the corresponding NEC Storage software products.

Term	NEC Storage Software Product
BaseProduct	NEC Storage BaseProduct
ControlCommand	NEC Storage ControlCommand
AccessControl	NEC Storage AccessControl
DynamicDataReplication	NEC Storage DynamicDataReplication
DynamicDataReplication Lite	NEC Storage DynamicDataReplication Lite
RemoteDataReplication	NEC Storage RemoteDataReplication
RemoteDataReplication Asynchronous	NEC Storage RemoteDataReplication Asynchronous
RemoteDataReplication/DisasterRecovery	NEC Storage RemoteDataReplication/DisasterRecovery
DynamicSnapVolume	NEC Storage DynamicSnapVolume
VolumeProtect	NEC Storage VolumeProtect
PowerConserver	NEC Storage PowerConserver

3. The NEC Storage series disk array subsystem is referred to as a disk array in this guide unless clearly specified. Also, the following terms refer to the corresponding NEC Storage hardware products.

Term	NEC Storage Hardware Product
M series	NEC Storage M series
M100 series	NEC Storage M100 series
M300 series	NEC Storage M300 series
M500 series	NEC Storage M500 series
M700 series	NEC Storage M700 series
M5000 series	NEC Storage M5000 series
A3000	NEC Storage A3000
A5000	NEC Storage A5000
D series	NEC Storage D series
D1 series	NEC Storage D1 series
D3 series	NEC Storage D3 series
D4 series	NEC Storage D4 series
D8 series	NEC Storage D8 series
xxxx / xxxx series	NEC Storage xxxx / NEC Storage xxxx series

 * xxxx represents a model number.

4. The following terms in this guide refer to the NEC Storage software manuals.

Term	NEC Storage Software Manual
User's Manual	NEC Storage Software User's Manual (IS050)
Configuration Setting Tool User's Manual (GUI)	NEC Storage Software Configuration Setting Tool User's Manual (GUI) (IS007)
Configuration Setting Tool User's Manual (GUI) for the M Series	NEC Storage Software Configuration Setting Tool User's Manual (GUI) for the M Series (IS051)
Storage Manager Command Reference	NEC Storage Software NEC Storage Manager Command Reference (IS052)
Messages Handbook	NEC Storage Software Messages Handbook (IS010)
Data Replication User's Manual (Function Guide)	NEC Storage Software Data Replication User's Manual (Function Guide) (IS015)
Data Replication User's Manual (Installation and Operation Guide for Windows)	NEC Storage Software Data Replication User's Manual (Installation and Operation Guide for Windows) (IS016)
Snapshot User's Manual (Installation and Operation Guide for Windows)	NEC Storage Software Snapshot User's Manual (Installation and Operation Guide for Windows) (IS031)
Data Retention User's Manual	NEC Storage Software Data Retention User's Manual (IS040)
ControlCommand Command Reference	NEC Storage Software ControlCommand Command Reference (IS041)
Power Saving User's Manual	NEC Storage Software Power Saving User's Manual (IS042)

5. Trademarks and registered trademarks

- Microsoft, Windows, Windows Server, and Hyper-V are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.

- .Net Framework is a trademark or registered trademark of Microsoft Corporation in the United States and other countries.

- Oracle and Java are registered trademarks of Oracle Corporation and/or its affiliates in the United States and other

countries.

- Other product names and company names, etc. are trademarks or registered trademarks of the associated companies.

6. In this document, matters to which careful attention needs to be paid will be described as follows:

Be sure to observe the instructions.

If the indications are ignored and the system is improperly operated, settings which have been already made might be affected.

Type of Indication	
Type	Description
	Describes contents which require users to pay special attention for operation.
	Describes information about restrictions on operation.

1st Edition in May 2015

Contents

Chapter 1　　Installation

1.1　Operating Environment

The following are the supported operating environments at the initial shipping of the product of this version.

Indispensable hardware	**For using the data replication function** A4900 series, D8 series, D4 series, D3 series, D1 series, M5000 series, M700 series, M500 series, M300 series, M100 series, A3000, and A5000 Disaster recovery function of data replication available only for the following: A4900 series, D8 series, M5000 series, M700 series, M500 series, and A5000 **For using the snapshot function** A4900 series, D8 series, D4 series, D3 series, D1 series, M5000 series, M700 series, M500 series, M300 series, and M100 series, A5000 **For using the data retention function** D8 series, D4 series, D3 series, D1 series, M5000 series, M700 series, M500 series, M300 series, and M100 series **For using the power saving function** D8 series, D4 series, D3 series, D1 series, M5000 series, M700 series, M500 series, M300 series, and M100 series *: The host information collection function (common function) included in Storage Manager Agent Utility can be used for the D series, M series, A3000, or A5000 disk arrays with FC. *: It is not possible to connect one server to a disk array with an FC port and a disk array with a SAS port at the same time.
Operating system	**M series, D series, A3000, and A5000** Microsoft Windows Server 2003, Standard Edition (SP0 to SP2) (*1) Microsoft Windows Server 2003 R2, Standard Edition (SP0, SP2) Microsoft Windows Server 2003, Standard x64 Edition (SP0, SP2) Microsoft Windows Server 2003 R2, Standard x64 Edition (SP0, SP2) Microsoft Windows Server 2003, Enterprise Edition (SP0 to SP2) (*1) Microsoft Windows Server 2003 R2, Enterprise Edition (SP0, SP2) Microsoft Windows Server 2003, Enterprise x64 Edition (SP0, SP2) Microsoft Windows Server 2003 R2, Enterprise x64 Edition (SP0, SP2) Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems (SP0 to SP2) (*1) (*4) Microsoft Windows Server 2008 Standard (SP0, SP2) (*2) (*3) (*5) Microsoft Windows Server 2008 R2 Standard (SP0, SP1) (*3) (*5) Microsoft Windows Server 2008 Enterprise (SP0, SP2) (*2) (*3) (*5) Microsoft Windows Server 2008 R2 Enterprise (SP0, SP1) (*3) (*5) Microsoft Windows Server 2008 R2, Datacenter (SP0, SP1) (*3) Microsoft Windows Server 2008 for Itanium-based Systems (SP0, SP2) (*4) **M series, D series** Microsoft Windows Server 2012 Standard Edition (SP0) (*3) (*5) Microsoft Windows Server 2012 Datacenter Edition (SP0) (*3) (*5) Microsoft Windows Server 2012 R2, Standard Edition (SP0) (*3) (*5) Microsoft Windows Server 2012 R2, Datacenter Edition (SP0) (*3) (*5) Microsoft Windows Storage Server 2012 R2 Standard Edition (*3) (*5)

	A series Microsoft Windows Server 2003, Standard Edition (SP0 to SP2) (*1) Microsoft Windows Server 2003 R2, Standard Edition (SP0, SP2) Microsoft Windows Server 2003, Standard x64 Edition (SP0, SP2) Microsoft Windows Server 2003 R2, Standard x64 Edition (SP0, SP2) Microsoft Windows Server 2003, Enterprise Edition (SP0 to SP2) (*1) Microsoft Windows Server 2003 R2, Enterprise Edition (SP0, SP2) Microsoft Windows Server 2003, Enterprise x64 Edition (SP0, SP2) Microsoft Windows Server 2003 R2, Enterprise x64 Edition (SP0, SP2) Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems (SP0 to SP2) (*1) Microsoft Windows Server 2008 Standard (SP0, SP2) (*2) Microsoft Windows Server 2008 R2 Standard (SP0, SP1) Microsoft Windows Server 2008 Enterprise (SP0, SP2) (*2) Microsoft Windows Server 2008 R2 Enterprise (SP0, SP1) Microsoft Windows Server 2008 R2, Datacenter (SP0, SP1) Microsoft Windows Server 2008 for Itanium-based Systems (SP0, SP2) *1: To use the data retention function and host information collection function (common function), SP1 or SP2 must be applied on this OS. *2: These are supported even if Hyper-V is not available. The Server Core installation option is not supported. *3: The iSCSI Setup Tool (sharing function) for the M series supports Windows Server 2008 or later. The 32-bit version of Java Runtime Environment (JRE) must be installed to use this function. *4: Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems and Microsoft Windows Server 2008 for Itanium-based Systems are not supported by the M series. *5: In the case of the connection with the disk arrays with SAS, Windows Server 2008 or later is supported. However, collection of contact information by the host information collection function does not support it. Collection of HBA information of SAS on a server by the host information collection function supports Windows Server 2008 R2 or later.	
Virtual environment	VMware ESX 3.5, 4.0 (VMware vSphere 4.0), 4.1 (VMware vSphere 4.1), 5.0 (VMware vSphere 5.0), 5.1 (VMware vSphere 5.1), 5. 5 (VMware vSphere 5. 5), 6.0 (VMware vSphere 6.0) Windows Server 2008 Hyper-V, Windows Server 2008 R2 Hyper-V, Windows Server 2012 Hyper-V	
Related software	BaseProduct (including Storage Manager) AccessControl **Data replication function** DynamicDataReplication DynamicDataReplication Lite RemoteDataReplication RemoteDataReplication Asynchronous RemoteDataReplication/DisasterRecovery **Snapshot function** DynamicSnapVolume DynamicDataReplication Lite **Data retention function** VolumeProtect **Power saving function** PowerConserver	

Memory	**For using the data replication function**	
	Microsoft Windows Server 2003, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Enterprise x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	
		OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2008 Standard (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Enterprise (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2012 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Storage Server 2012 R2, Standard	OS required memory + 22 MB or more
	For using the snapshot function	
	Microsoft Windows Server 2003, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Enterprise x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	
		OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2008 Standard (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Enterprise (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2012 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Storage Server 2012 R2, Standard	OS required memory + 22 MB or more

	For using the data retention function	
	Microsoft Windows Server 2003, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Enterprise x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	
		OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2008 Standard (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Enterprise (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2012 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Storage Server 2012 R2, Standard	OS required memory + 22 MB or more
Memory		
	For using the power saving function	
	Microsoft Windows Server 2003, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Standard Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Standard x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003 R2, Enterprise Edition	OS required memory + 18 MB or more
	Microsoft Windows Server 2003, Enterprise x64 Edition	OS required memory + 22 MB or more
	Microsoft Windows Server 2003 R2, Enterprise x64 Edition	
		OS required memory + 22 MB or more
	Microsoft Windows Server 2003, Enterprise Edition for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2008 Standard (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Enterprise (IA32)	OS required memory + 18 MB or more
	Microsoft Windows Server 2008 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Enterprise (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2008 for Itanium-based Systems	
		OS required memory + 44 MB or more
	Microsoft Windows Server 2012 Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Standard (EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Server 2012 R2, Datacenter(EM64T)	OS required memory + 22 MB or more
	Microsoft Windows Storage Server 2012 R2, Standard	OS required memory + 22 MB or more
Disk capacity	60 MB or more	

1.2 Installation and Uninstallation

1.2.1 Installation

To install ControlCommand, follow the procedure below.

Installing ControlCommand enables use of the following functions.

- ReplicationControl
- ReplicationControl/DisasterRecovery
- SnapControl
- ProtectControl
- PowerControl
- Storage Manager Agent Utility

If any of the following software products are installed, uninstall before installing ControlCommand.

If ReplicationControl/DisasterRecovery is installed, you must uninstall it before uninstalling ReplicationControl.

ReplicationControl

ReplicationControl/DisasterRecovery

SnapControl

Volume list command (`iSMvollist`) * or Storage Manager Agent Utility

ControlCommandSet or ControlCommand

* If the version of the Storage Manager Agent Utility that is installed is Ver7.1 or later and if its version is
  equal to or less than the version of ControlCommand, then ControlCommand can be overwritten and
  installed without uninstalling the Storage Manager Agent Utility.

For disk arrays configured with a RemoteDataReplication pair, it is required that the version of the
software to be installed supports both the disk array connected to the server and the disk array connected
to the server-connected disk array using RemoteDataReplication.

You can confirm the version of ControlCommand according to the procedure below.

1. Open Control Panel.
2. Select [Programs and Features] .
3. See the version of ControlCommand.

On Windows Server 2008 or later, User Account Control (UAC) is enabled by default. So if the installation is performed by a user other than the Local Administrator Account which is the default super user of the operating system, the user must be elevated to Administrator privileges before the operation. And after the installation of ControlCommad, the following operation must also be operated after elevation to Administrator privileges.

- When you execute the function of ControlCommad

  When you execute the command of this software using the command prompt, select [Run as administrator] at the launch of the command prompt.

- When you edit the operation option setting file of ControlCommad using text editor etc

When applying quota management[*1] and file screening[*2] to the folder and disk where the iSM is installed, use them properly; otherwise, problems may occur during installation or operation.

*1 The function which controls the usable capacity and prevents the capacity from being used above the set limit.

*2 The function which prevents files with certain names (extensions) from being saved.

To use ControlCommand through the Windows task scheduler or previously installed job scheduling software after installation, it is required to restart services and systems in order to recognize the path names of the installed executable files and also to start the iSM host agent service that has been installed. If you cannot restart the system immediately when you installed and have an impact in the application of running, after installing ControlCommand, execute the following operations.

- Select [Services] of [Administrative Tools] in Windows [Control Panel] and then start the following services.

  - Storage Manager Host Agent

  - iSM Host Information Registration Agent

- When there are the task scheduler, job scheduling and command prompt of Windows which have already been started for recognition of a path name of an executable file, restart them.

In addition, it is recommended that the system be restarted in a planned.

⚠️

If Windows Server 2012 is used at the installation destination, install .Net Framework3.5 in advance.

Please install .NET Framework 3.5 following either of the procedures below.

  [Procedure 1]

   (1) Log in as a user with administrator privileges.

   (2) Insert the Windows Server 2012 installation media.

   (3) Execute the following at the command prompt:

```
dism /online /enable-feature /featurename:NetFx3 /all
     /source:D:\sources\sxs
```

   * In this command, D:is an example for the drive letter for the DVD drive or for the Windows
      Server 2012 installation media.

  [Procedure 2]

   (1) Log in as a user with administrator privileges.

   (2) Install .NET Framework 3.5 from [Add Roles and Features].

      * Ensure that the environment is connectable with "Windows Update".

(1)   Log on as a user with Administrator privileges.

(2)   Set the ControlCommand CD on the server and execute the following installation program:

        \ISMCCS\SETUP.EXE

       For Windows Server 2008 or later, the [User Account Control] dialog box might be displayed when

       installation starts. Select [Continue], [Allow] or [Yes] to execute the installation program.

(3)   Follow the installer directions.

After installing ControlCommand, collect/store Host Information (only for the D series, M series, A3000, or
A5000 disk arrays with FC) and create a volume list.

For details, refer to 2.1 "Host Information Collection/Storage" and 2.2 "Volume List Creation".

1.2.2 Uninstallation

To uninstall ControlCommand, follow the procedure below.

⚠️

On Windows Server 2008 or later, User Account Control (UAC) is enabled by default. So if the uninstallation is performed by a user other than the Local Administrator Account which is the default super user of the operating system, the user must be elevated to Administrator privileges before the operation.

(1) Log on as a user with Administrator privileges.

(2) Check whether commands for each software product are running and whether the Volume List Display screen is open.

Terminate all running commands and close all screens.

(3) Close [Event Viewer] if it is open.

(4) Select the following from [Control Panel].

- On Windows Server 2008 or later, select [Programs and Features] or [Programs]
- On Windows Server 2003, select [Add or Remove Programs]

Select the following software, and uninstall it.

ControlCommand

For Windows Server 2008 or later, the [User Account Control] dialog box might be displayed when uninstallation starts. Select [Continue], [Allow] or [Yes] to execute the uninstallation program.

For the Server Core environment, set the CD of the version to be uninstalled, and then execute the following at the command prompt.

```
\ISMCCS\SETUP.EXE /uninstall
```

(5) Follow the uninstaller directions.

If commands of any software products are running or the Volume List Display screen is open and uninstallation is performed, a message may appear which prompts you to reboot the operating system. Reboot the operating system if this is the case. If not restarting the system, restart the task scheduler, the job scheduling and the command prompt of Windows which are already started for the renewal of the recognized pathname.

1.2.3   Updating

To update the ControlCommand software, uninstall the existing software, and then install the new software.

For details about the procedures, refer to the 1.2.1 "Installation" and 1.2.2 "Uninstallation".

When you upgrade OS of the server to which ControlCommand is installed to Windows Server 2008 or later, you must update ControlCommand by the following procedure.

This procedure is necessary even if the version of installed ControlCommand is the same as that of ControlCommand after update.

1. Upgrade the OS of the server to which ControlCommand is installed to Windows Server 2008 or later.
2. After the upgrade to Windows Server 2008 or later has finished, uninstall the installed ControlCommand.
3. Install ControlCommand again.
4. Display the [Properties] of the following executable file which is stored in the folder of installation destination.

   iSMvollistGUI.exe
   iSMvolmnu_gather.exe

5. At the [Properties] of each executable file, click to select the [Run this program as an administrator] check box at [Privilege Level] of [Compatibility] tab and then click [OK].

When using a version of ReplicationControl earlier than V2.1.052, the operation option setting file iSMrpl.ini (replication operation option setting file of data replication function) is deleted at uninstallation. Therefore, to update ReplicationControl to ControlCommand, save the operation option setting file before uninstalling ReplicationControl. Then, after installing ControlCommand, inherit the file by overwriting it to the new folder where ControlCommand has been installed.

For versions before Ver2.1.052, the operation option setting file is stored just under the system folder.

   %SystemRoot%\iSMrpl.ini

For version of Ver2.1.052 or later, the operation option setting file is stored under the ismvol folder in the system folder.

   %SystemRoot%\ismvol\iSMrpl.ini

Since the operation option setting file is not deleted at uninstallation when using ReplicationControl V2.1.052 or later, you can inherit the file as it is when updating to ControlCommand.

When updating the ControlCommand software from a version older than Ver3.3, re-create the volume list after performing the update; otherwise, the property information of the volume list will not be displayed when using the following functions:

- Specifying the -p or -ax option for the iSMvollist command to display information
- Selecting [File] → [Properties] on the Volume List Display screen to display information

The volume list property information can be used when the volume list is created with ControlCommand software Ver3.3 or later.

Chapter 2   Preparing for Operation

2.1   Host Information Collection/Storage

When using the D series, M series, A3000, or A5000 disk arrays with FC, collect host information by using iSM Host Agent Service (Storage Manager Host Agent) or `iSMcc_hostinfo` (host information collection command) included in ControlCommand, and store the host information in the Storage Manager server.

To use `iSMcc_hostinfo` for the D1 series, D3 series, D4 series, and M series initial settings or the D series and M series configuration settings, refer to the user's guide of the target disk array and Appendix H "Configuration Settings Simplified by Host Information Collection/Storage" in the iSM installation guide.

This procedure is not mandatory. But, by collecting and storing host information, the following operation becomes possible.

- It is possible to perform the following disk array configuration setting easily by using host information.
    - LD Quick Configuration
    - LD Set Setting of Access Control
- It is possible to display the connected host information in the connected host list screen of iSM client (Web GUI).

Refer to the "Configuration Setting Tool User's Manual (GUI)" or "Configuration Setting Tool User's Manual (GUI) for the M Series" for details about LD Quick Configuration and Access Control settings. And, refer to the "User's Manual" for details about the connected host list screen of iSM client (Web GUI).

On an application server which does not meet the operation requirement, iSM Host Agent Service and `iSMcc_hostinfo` (host information collection command) cannot be operated.

And, storing host information by using iSM Host Agent Service, `iSMcc_hostinfo` (host information collection command), or `iSMhoststore` (host information store command) is possible only for the D series, M series, A3000, and A5000 disk arrays with FC.

Refer to the "ControlCommand Command Reference" for details about `iSMcc_hostinfo` (host information collection command). And, refer to the "Storage Manager Command Reference" for details about `iSMhoststore` (host information store command).

2.1.1 Collection of Host Information

There are roughly two methods for collection of host information and it differs depending on the composition of the system.

[1] Automatic collection of host information using iSM Host Agent Service

When the disk array is newly introduced and all new servers of Windows (server that does not begin operating) are introduced as a server connected with the FC cable, automatic collection of host information that uses the iSM host agent service and FC connection between the disk array and servers of Windows is possible.

But, if collect the host information without connect FC cable in this composition, refer to the methods shown in "[2] Host information collection using file output from host information collection command".
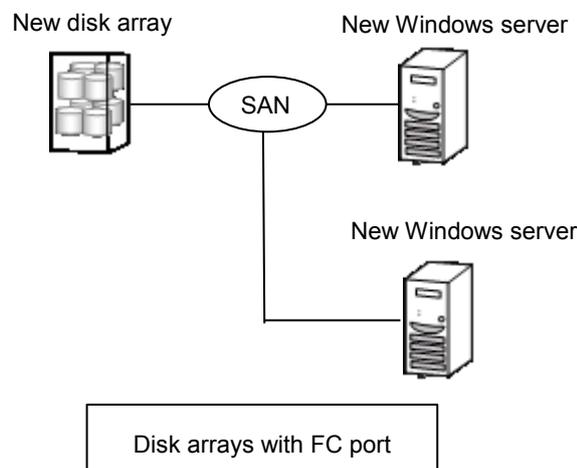
Configuration for which automatic collection of host information is possible

Confirm the FC connection between new disk array and new Windows server. Then, carry out the procedure shown below. For the S/D series, refer to the "Configuration Setting Tool User's Manual (GUI)." For the M series, refer to the User's Guide for each disk array for M series for details about the configuration setting.

[2] Host information collection using file output from host information collection command

If setting up a disk array unit in a system that has already begun operation, or if an application server connected by FC cable contains OS other than Windows, or if collect the host information without connect FC cable between disk array and server, collect host information by using file output from host information collection command (`iSMcc_hostinfo`).
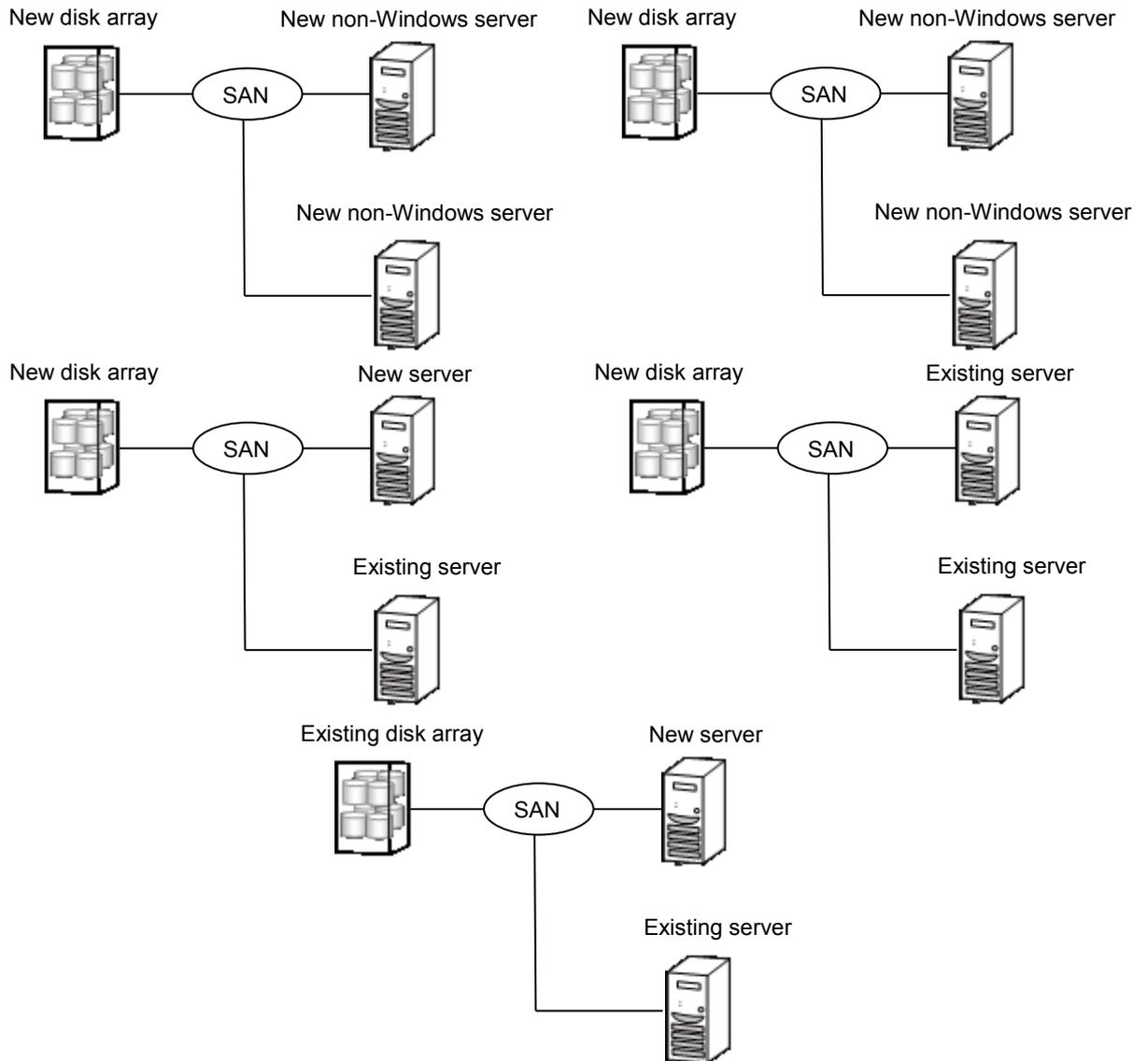
Configuration for which collection of host information using file output is needed (Disk arrays with FC port)

Execute the host information collection command (`iSMcc_hostinfo`) from the command prompt in the application server for host information collection. In the `-export` option, specify the file that is the output destination of the host information (host information file).

Execute the host information collection command (`iSMcc_hostinfo`) as a user with administrator privileges.

```
iSMcc_hostinfo -export \ServerName
```

When host information collection succeeded, the following message is output. The process number is output in *aaaa* in the message and an internal code for maintenance is output in *bbbb*.

```
iSMcc_hostinfo: Info:        iSM11770: Host Information was exported successfully.
(code=aaaa-bbbb-bbbb-bbbb)
iSMcc_hostinfo: Info:        iSM11100: Command has completed successfully.
```

After collecting and exporting host information to a host information file, perform the procedure of 2.1.2 "Forwarding of Host Information File and Host Information Storage".

2.1.2 Forwarding of Host Information File and Host Information Storage

If "[2] Host information collection using file output from host information collection command" was performed in 2.1.1 "Collection of Host Information", transfer the host information file that is output by executing the host information collection command (`iSMcc_hostinfo`) to the management server on which the Storage Manager server is operating by using file transfer or USB memory, etc.

Afterwards, execute the host information store command (`iSMhoststore`) on the management server on which the Storage Manager server is operating. In the `-import` option, specify the host information file that was transferred from the application server. And in the `-arrayname` option, specify the nickname of the disk array to which the operation applies.

Execute the host information store command (`iSMhoststore`) as a user with appropriate privileges. Moreover, when performing host information storage, the target disk array that is the storage destination must be being monitored normally from the Storage Manager server.

```
iSMhoststore -import \ServerName -arrayname StorageName
```

When host information storage succeeded, the following message is output.

```
iSMhoststore: 002 Host Information was imported successfully. (Disk Array=StorageName)
iSMhoststore: 001 Command completed successfully.
```

2.1.3 Confirmation of Stored Host Information

Confirm that stored host information of application server is displayed in connected host list screen of iSM client (Web GUI). Then, open the connected host detail information screen by right-click the host information in connected host list screen and select [Properties]. Confirm the following in the connected host detail information screen.

- Confirm that, 'HBA information (WWNN, WWPN) of FC port', of the relevant application server is displayed in [HBA List].
- Confirm that port information of the connected disk array is displayed in [Diskarray Port] when a WWNN/WWPN of FC port connected to the disk array is selected in [HBA List].

Refer to the "User's Manual" for details about iSM client (Web GUI).

If host information was not stored correctly after more than 10 minutes even if "[1] Automatic collection of host information using iSM Host Agent Service" was performed in 2.1.1 "Collection of Host Information", perform the following procedure.

- When the application server does not recognize the logical disk of target disk array, perform the procedure in 2.1.1 "Collection of Host Information", 2.1.2 "Forwarding of Host Information File and Host Information Storage", and 2.1.3 "Confirmation of Stored Host Information".
- When the application server recognizes the logical disk of target disk array, restart the "iSM Host Agent Service" and wait for at least three minutes or more. Then, perform the procedure in 2.1.3 "Confirmation of Stored Host Information" again.

If host information of application server is not displayed in connected host list screen of iSM client (Web GUI) or 'HBA information (WWNN, WWPN) of FC port', of the application server is not displayed in [HBA List], note that the following phenomena occur in configuration setting of disk array.

<In the case of S/D series>

- Host name is not displayed in "Selection host" in the "LD Bind Quick Configuration" screen of Quick Configuration.
- Host name is not displayed in "Host" in the "Link Path" screen of AccessControl.

<In the case of M series>

- For the [Logical Disk] – [Manage Logical Disk] – [Assign Logical Disk to Host] and
  [Host] – [Assign Logical Disk to Host], host information is not displayed on the Host List view

The following causes are thought if the [Diskarray Port] information is not displayed in the connected host detail information screen.

When host information was collected,

- FC cable between disk array and application server was not connected correctly.
- The application server did not recognize the logical disks of disk array.

In this case, after the FC cable between disk array and application server is connected and the application server recognizes the logical disks of disk array, perform the procedure in 2.1.1 "Collection of Host Information", 2.1.2 "Forwarding of Host Information File and Host Information Storage", and 2.1.3 "Confirmation of Stored Host Information" again.

When multiple IP addresses are set for an application server (cluster configuration hosts, etc), IP addresses of the host collected by the host information collection command (`iSMcc_hostinfo`) become the IP addresses returned by the OS on a priority basis.

If the IP address stored as host information is not an intended IP address, it is possible to store the host information with another IP address by the following procedures.

Refer to the "Storage Manager Command Reference" for the details about the host information file.

1. After stopping iSM Host Agent Service, change the Startup type of iSM Host Agent Service to [Manual]. Stopping the service and changing the Startup type can be executed by using [Services] of [Administrative Tools] in Windows [Control Panel].
2. Update the IP address (Item name: `IPAddress`) of host information file to the preferable one by using a text editor, etc. (Host information file is output in the application server.)
3. Store the host information of updated host information file by using the `iSMhoststore` command.
4. Refer to the connected host list screen of iSM client (Web GUI) and confirm that IP address has been updated correctly.

When multiple network adaptors are installed, and there are multiple "connections", it is possible to collect the intended IP address by change the priority of "connections". But this may affect the other application, it is necessary to confirm that the modification of priority of "connections" does not affect

18

the system before doing the following procedure.

How to change the priority of "connections":

1. Open [Network Connections] in [Control Panel].

2. Select and start [Advanced] from the [Advanced Settings] menu.

3. Select the connection of the IP address to be prioritized from the [Connections] list on the [Adapters and Bindings] tab. Move to the top of the list using the arrow button.

4. Click [OK] to close [Advanced Settings].

5. Restart the iSM Host Agent Service and wait for at least three minutes or more, then refer to the connected host list screen of iSM client (Web GUI) and confirm that IP address has been updated correctly.

2.1.4 iSM Host Agent Service

After installing ControlCommand and restarting the system, or starting [Storage Manager Host Agent] from [Services] of [Administrative Tools] in Windows [Control Panel], an iSM host agent service (Storage Manager Host Agent) is started as a Windows service. Confirm that [Storage Manager Host Agent] was successfully started by using [Services] of [Administrative Tools] in Windows [Control Panel].

Since then, the iSM host agent service starts and stops automatically when the system starts and stops. If you want to prevent the iSM host agent service from automatically starting during reboot of the system, start [Services] of [Administrative Tools] in Windows [Control Panel], select [Storage Manager Host Agent], and change the startup type from [Automatic] to [Manual].

The iSM host agent service collects and registers host information to the disk array in the following situations:

- When starting the iSM host agent service.
- When the OS detects and recognizes a logical disk that is assigned to the Windows server.

  * A logical disk might not be recognized to OS only by the allocation of a logical disk to the server or connecting the FC cable between the disk array and the server. In this case, to recognize the logical disk allocated to OS, it is necessary to use the function such as "Disk Management" of Windows or restart the server.

The iSM host agent service can be operated in the stopped state when it is unnecessary to collect and register host information to the disk array automatically.

2.1.5 iSM Host Information Registration Agent

After installing ControlCommand and restarting the system, or starting [Storage Host Register Agent] from [Services] of [Administrative Tools] in Windows [Control Panel], the iSM host information registration agent is started. The iSM host information registration agent is a Windows service with the function to register the configuration information between the host and the disk array in the disk array.

Check that the "iSM host information registration agent" service has been started by selecting [Services] from [Administrative Tools] in Windows [Control Panel].

The iSM host information registration agent is automatically started when the system is started and automatically stopped when the system is stopped. To prevent the iSM host information registration agent from being automatically started due to system restart, start [Services] from [Administrative Tools] in Windows [Control Panel], specify [Storage Host Register Agent], and change the startup method from [Automatic] to [Manual].

Configuration information between the host and the disk array can be registered in the disk array only when the M series, A3000, and A5000 disk array is used.

The iSM host information registration agent collects configuration information between the host and the disk array and registers it in the disk array in response to the following triggers.
- When the iSM host information registration agent service is started
- If changed configuration information is found as a result of every minute configuration information check
- Configuration information is registered at least every ten minutes even if it has not been changed.

Note that the system can operate with the iSM host information registration agent stopped when it is not necessary to automatically collect configuration information between the host and the disk array and register it in the disk array.

When the iSM host information registration agent is installed on a virtual machine on ESXi, the iSM host information registration agent must be stopped.

Execute the following procedure.

1.   Start [Computer Management].

2.   Select [Services] from [Services and Applications].

3.   Right click [iSM host information registration agent], and then select [Properties].

4.   Click the [Stop] button of [Service Status] on the [General] tab, and then confirm that [Service Status] is [Stopped].

5.   On the [General] tab, change [Startup Type] from [Auto] to [Manual], and then click the [OK] button.

6.   Check the following of [iSM host information registration agent].

     - The [Status] column is blank.

     - [Startup Type] is [Manual].

7.   Run the following command from a command prompt.

```
> iSMHostRegisterService -s all
```

2.2   Volume List Creation

⚠️

You must create a volume list under the condition that a logical disk bound on the disk array is recognized as a disk device by a server.

For operations other than the joint operation with iSM, creation of a volume list is required before using ControlCommand functions. A volume list is created by activating the Volume List Display screen and selecting [File] → [Create/Update Volume List], or by executing the iSMvollist command with the -cr option. Execute the iSMvollist command as a user with administrator privileges.

The following is an example of creating the volume list using the iSMvollist command.

```
iSMvollist -cr
```

Upon successful creation of the volume list, the following message is displayed:

```
iSM11701: Volume list is created successfully.
```

If creation of a volume list fails, execution of ControlCommand functions is disabled. Troubleshoot in accordance with error messages and create a volume list again. For details about the error messages, refer to the "Messages Handbook".

After creating a volume list, confirm that logical disk information and corresponding Windows physical disk information is stored correctly by display the volume list information. If partitions were created, or mount point (drive letter or NTFS folder name) setting was performed, confirm that volume information (mount point volume name) and mount point is stored correctly.

To display the volume list information, launch the Volume List Display function or execute the iSMvollist command with the -a option.

```
iSMvollist -a
```

Even after a volume list is created correctly, the volume list must be recreated and updated in the following cases. Failure to update volume lists may result in abnormality or data inconsistency upon execution of ControlCommand commands.

- Change of disk array settings (disk array name, logical disk name, OS type)
- Setting/change of Access Control
- Addition/change/deletion of logical disk
- Addition/deletion of snapshot generation (SV)
- Binding of link-volume (LV)
- Addition/change/deletion of partition
- Addition/change/deletion of drive name on partition and drive path mounted on NTFS folder
- Addition/change/deletion of control volume (Only when a control volume is used)
- Addition/deletion of disk array which is connected using RemoteDataReplication
- Change of the connection composition (path) between a disk array and server

Also re-create and update the volume list if settings have been changed (disk array name, logical disk name, and OS type) on the remote side disk array of the disk arrays configured with a RemoteDataReplication pair. Create and update volume lists with the link path between disk arrays under normal conditions.

2.3 Control Volume Settings

For operations using ReplicationControl/DisasterRecovery, SnapControl, ProtectControl, or PowerControl functions, it is essential to register a control volume.

For details about the functions in use, refer to the electronic manual for each function: "Data Replication User's Manual (Installation and Operation Guide for Windows)", "Snapshot User's Manual (Installation and Operation Guide for Windows)", "Data Retention User's Manual", or "Power Saving User's Manual".

Replication-volumes (RV) or base-volumes (BV), and link-volumes (LV) for the snapshot function cannot be registered as control volumes since they enter the Not Ready state during operation.

Do not pair logical disks built as control volumes as replication-volumes (RV).

The purpose (attribute) of logical disks built as control volumes can be identified with the following disk array series.

- M series, A3000, and A5000
- D series

When the logical disk information is displayed by the iSM client (and so on) for disk arrays on which the purpose (attribute) of a control volume can be identified, the identification information indicating the control volume as a logical disk purpose (attribute) is displayed.

The control volume setting procedure differs depending on the disk array functions as shown below.

2.3.1   Disk Arrays Identifying the Control Volume Attribute

Create or update the volume list when a logical disk built as a control volume is connected to the server and recognized as a disk by the system. The disk array identifies the logical disk with the control volume attribute from the logical disks connected to the server and automatically registers it in the volume list.

To create or update the volume list, refer to 2.2 "Volume List Creation".

After updating the volume list, display the Volume List Display screen or the control volume list with the `iSMvollist` command to check that the setting information in the control volume definition file has been successfully reflected to the volume list.

The following is an example of displaying the control volume list using the `iSMvollist` command.

```
iSMvollist -ctl
```

2.3.2   Other Disk Arrays

It is necessary to select a volume to be used as a control volume from the logical disks connected to the server and to describe and define the disk array name and logical disk number of the selected volume in the control volume definition file of the server.

The control volume definition function is used to register a control volume on the Volume List Display screen. This function is activated by starting the Volume List Display screen and selecting [Operation] → [Define Control Volume]. For details, refer to the electronic manual for each function: "Data Replication User's Manual (Installation and Operation Guide for Windows)", "Snapshot User's Manual (Installation and Operation Guide for Windows)", "Data Retention User's Manual", or "Power Saving User's Manual".

After the control volume is registered using the control volume definition function, update the volume list and reflect the registered control volume to the volume list. To create or update the volume list, refer to 2.2 "Volume List Creation".

After updating the volume list, display the Volume List Display screen or the control volume list with the `iSMvollist` command to check that the setting information in the control volume definition file has been successfully reflected to the volume list.

The following is an example of displaying the control volume list using the `iSMvollist` command.

```
iSMvollist -ctl
```

2.4 Disabling Automount

When the volume being unmounted is accessed through a file system, unmount operations are invalid since Windows automatically mounts the volume. This will leave unintended data in the file system buffer and damage the file system.

To disable unexpected automounts like this, specify the -offline option when executing an unmount operation with the iSMrc_umount command. The following is an example of unmounting an H drive volume with the specification of the -offline option.

```
iSMrc_umount   -drv H:   -offline
```

Also, when using Windows Server 2003 or later, execute the MOUNTVOL command with the /N option, which is the OS standard for automount disabling, in addition to the setting above. The /N option of the MOUNTVOL command is valid in the subsequent operation by executing it once after system configuration.

```
MOUNTVOL   /N
```

For details about disabling automount and operation with automount disabled, refer to the electronic manual for each function: "Data Replication User's Manual (Installation and Operation Guide for Windows)", "Snapshot User's Manual (Installation and Operation Guide for Windows)", "Data Retention User's Manual", or "Power Saving User's Manual".

Also refer to 2.5.1 "Automount Disable Setting" when executing data replication operation using the ReplicationControl or ReplicationControl/DisasterRecovery function.

2.5   Operation Option Setting File

Various operations can be specified for commands by using the operation option setting file.

The operation option setting file corresponds to the replication operation option setting file for the data replication function, the option setting filed for the snapshot function, data retention function, and power saving function.

For details about the operation option setting file, refer to the "ControlCommand Command Reference".

[Location and name of the operation option setting file]

```
%SystemRoot%\ismvol\iSMrpl.ini
```

2.5.1 Automount Disable Setting

For data replication operation using the ReplicationControl function, disable automount so that an unmounted replication-volume (RV) is not mounted automatically due to unintended access to this volume. This setting is especially essential for disaster recovery operations using the ReplicationControl/DisasterRecovery function.

For details about disabling automount and operation with automount disabled, refer to the electronic manual for each function: "Data Replication User's Manual (Installation and Operation Guide for Windows)".

If unintended access to the replication-volume (RV) being unmounted occurs and automount is not disabled, Windows automatically mounts the volume. This will leave unintended data in the file system buffer. If replication operation is executed under these conditions, the replication-volume (RV) file system may be damaged. Therefore, be sure to execute operation with automount disabled.

To set automount disable, specify NOTREADY for the UMOUNT_RVACC parameter in the [FILESYSTEMOPERATION] section of the operation option setting file.
The following is a description example:

```
[FILESYSTEMOPERATION]
UMOUNT_RVACC=NOTREADY
```

Also, when using Windows Server 2003 or later, execute the MOUNTVOL command with the /N option, which is the OS standard for automount disabling, in addition to the setting above. The /N option of the MOUNTVOL command is valid in the subsequent operation by executing it once after system configuration.

```
MOUNTVOL   /N
```

2.5.2   Operation Trace Collecting

In preparation for fault occurrence, ControlCommand outputs the operation trace (trace log) in the following directory when executing commands.

In operation trace files, messages output to the standard output, standard error output, event log and command trace, and the detailed internal information are recorded. These files are used as critical data for analyzing a fault upon occurrence.

```
\iSMrpl\etc\trace under the installation folder
```

The output operation trace amount (file size) and retention amount and period vary depending on the command execution frequency and other factors. You can set these items optionally by writing the following option parameters:

`[TRACELOG]` section

    RPLLOGFILENUM

        Specifies the maximum number of log files to be saved.

        When this option parameter is omitted, up to 10 log files are used sequentially.

    RPLLOGFILEMAXSIZE

        Specifies the maximum size per log file to be saved in kilobytes.

        When this option parameter is omitted, the size of one log file is about 400 kilobytes.

For how to collect information when a fault occurs, refer to the electronic manual for each function: "Data Replication User's Manual (Installation and Operation Guide for Windows)", "Snapshot User's Manual (Installation and Operation Guide for Windows)", "Data Retention User's Manual", or "Power Saving User's Manual".

In ReplicationControl Ver2.1 or earlier, log data recorded during the number of days specified by the option parameter `RPLLOG` in the `[TRACELOG]` section was saved in one log file. This conventional method is not recommended due to the following reasons:

- The saved log file becomes larger in proportion to the command execution frequency.
- When the first command is executed after a change-of-day, the log for one day out of the retention period is deleted.
- If there is a lot of log data for the day to be deleted, it takes a long time to delete it.

Accordingly, if the option parameter `RPLLOG` was used, it is advised to change settings using the option parameters above, `RPLLOGFILENUM` and `RPLLOGFILEMAXSIZE`, for operation.

2.5.3 Other Settings

When a low-speed line (low-speed line and a line without the band guarantee) is used for lines between disk arrays where RemoteDataReplication is composed, the link path fault might occur on the line between disk array due to the delay and performance degradation by the defect of line quality and the decreasing bandwidth. In such cases, the commands of this software that operate the pair of RemoteDataReplication might terminate abnormally.

Therefore, it is necessary to do the various operation settings about the retry control for the link path fault when a low-speed line is used.

About the use of the low-speed line, refer to the "Data Replication User's Manual (Function Guide)".

About the operation settings of the retry control for the link path fault, refer to the "ControlCommand Command Reference".

From SnapControl Ver3.4, the default port number to be used for communication is changed to 8060 for joint operation with iSM. For joint operation with iSM, check the environment settings of the iSM (port number used for snapshot management) and operation option setting file and use the same port number.

To use ControlCommand functions on a Hyper-V virtual machine with Windows Server 2008 R2 or later, you must execute the `iSMpassthrough_enabler` command on the host once before using a Hyper-V virtual machine.

This command must also be executed when a Hyper-V virtual machine is added to your operating environment.

Refer to the "ControlCommand Command Reference" for details about the `iSMpassthrough_enabler` command.

.NET Framework must be installed by executing the following commands on Server Core environment.

```
start /w ocsetup NetFx2-ServerCore
start /w ocsetup NetFx2-ServerCore-WOW64
```