

Hitachi Protection Manager for Exchange

6.4.0-02 Release Notes

Table of Contents

About This Document.....	1
Intended Audience	2
Getting Help	2
About This Release	2
Product Package Contents	2
New Features and Important Enhancements	2
System Requirements	3
Fixed Problems	53
Known Problems	55
Installation Precautions	55
Usage Precautions	55
Documentation	70
Abbreviations	71

About This Document

This document(RN-00HS283EX - August 2010) provides late-breaking information about the Hitachi Protection Manager for Exchange 6.4.0-02. It includes information that was not available at the time the technical documentation for this product was published, as well as a list of known problems and solutions.

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Intended Audience

This document is intended for customers and Hitachi Data Systems partners who license and use the Hitachi Protection Manager for Exchange.

Getting Help

The Hitachi Data Systems Support Center staff is available 24 hours a day, seven days a week. To reach us, please visit the support Web site for current telephone numbers and other contact information:

<http://www.hds.com/services/support/>. If you purchased this product from an authorized HDS reseller, contact that reseller for support.

About This Release

This release is a major release that adds new features and fixes a variety of bugs.

Product Package Contents

	Item	Revision
Software	Hitachi Protection Manager for Exchange*1 (*1) This product consists of the following components. Hitachi Protection Manager Console 6.4.0-00 Hitachi Protection Manager Copy Controller 6.4.0-02 Hitachi Protection Manager Copy Controller (x64) 6.4.0-02 Hitachi Protection Manager for Exchange 6.4.0-00 Hitachi Protection Manager for Exchange 2007 6.4.0-00	6.4.0-02
Documents	Release Notes (this document)	
	Hitachi Protection Manager Software User's Guide	MK-94HC070-14
	Hitachi Protection Manager Software Console User's Guide	MK-94HC071-12
	Hitachi Protection Manager Software Command Reference	MK-94HC072-14
	Hitachi Protection Manager Software Messages	MK-94HC073-14

New Features and Important Enhancements

Enhancements in 6.4.0-00

Common

- Hitachi AMS2000 series (H/W Rev. 0200) is now supported.
- The environment variables for specifying the CCI instance that is started by the Protection Manager command are now supported.

System Requirements

- The collection of the dictionary map files whose storage destination is changed and the schedule map files by the data collection tool (drm_log.bat) is now supported.

Exchange

None

Exchange 2007

None

Console

None

System Requirements

Conditions When Using Exchange Server 2007 or VSS (Volume Shadow Copy Service) in Windows Server 2003(x64), Windows Server 2008(x64) or Windows Server 2008 R2(x64)

Server System

PC/AT compatible machines

Storage System

Protection Manager support the following Hitachi Storage subsystems

Abbreviation
Thunder 9570V and Thunder 9530V
Thunder 9580V
Lightning 9900V series
USP/NSC
Hitachi AMS series
Hitachi WMS series
USP V/USP VM
Hitachi SMS series
Hitachi AMS2000 series
Hitachi AMS2000 series(H/W Rev. 0200)

HBA (Host Bus Adapter)

When using the VSS (Volume Shadow Copy Service) backup functionality of this product, make sure that both the HBA and HBA driver support VSS (Volume Shadow Copy Service) functionality.

Also, note that following HBA driver cannot be used in the import server.
Emulex 9802 32-bit and 64-bit FC Port Drivers 5.2.21a8

Operating Systems

#	Operating Systems	Service Pack
1	Windows Server 2003, Standard x64 Edition	SP2 #2,#3
2	Windows Server 2003, Enterprise x64 Edition	SP2 #2,#3
3	Windows Server 2003, Datacenter x64 Edition	SP2 #2,#3
4	Windows Server 2003 R2, x64 Standard Edition	SP2 #1,#2,#3
5	Windows Server 2003 R2, x64 Enterprise Edition	SP2 #1,#2,#3
6	Windows Server 2003 R2, x64 Datacenter Edition	SP2 #1,#2,#3
7	Windows Server 2008 Standard	noSP #4,#5
		SP2 #4,#5
8	Windows Server 2008 Enterprise	noSP #4,#5
		SP2 #4,#5
9	Windows Server 2008 Datacenter	noSP #4,#5
		SP2 #4,#5
10	Windows Server 2008 R2 Standard	noSP #4,#6
11	Windows Server 2008 R2 Enterprise	noSP #4,#6
12	Windows Server 2008 R2 Datacenter	noSP #4,#6

Note that an upgrade installation of the OS can cause problems, so perform a clean installation.

Note:

Protection Manager supports a Windows environment that is run as a guest OS of VMware ESX Server 3.x/4.0, VMware ESXi Server 3.x/4.0, or Hyper-V.
For details, see the manual Hitachi Protection Manager Software User's Guide.

#1: The new feature of Windows Server 2003 R2 is not supported.

#2: In a cascade configuration, when a backup is performed at a local site and remote site at the same time, a VDS (Virtual Disk Service) update module (Hotfix 938390) is required for the backup servers. For details, refer to the following URL:

<http://support.microsoft.com/default.aspx?scid=kb;en-us:938390>

#3: In a cluster configuration, GPT disks are not supported. Use MBR disks when using this product to perform a backup.

#4: The Server Core feature is not supported.

#5: Backup in local site and remote site at a time in a cascade configuration and restoration are not supported.

#6: This OS is not supported when Exchange Server 2007 is used.

Available Backup Targets and Methods for Each Database-Backup Server Combination

#	DB Server		BK Server		Backup Target/Method	
	OS	Product	OS	Product	FileSystem	Exchange 2007
					VSS	VSS
1	Windows Server 2003(x64)	HPtM CC	-	-	--	--
2	Windows Server 2003(x64)	HPtM CCx64	Windows 2000 Server	HPtM CC	--	--
3	Windows Server 2003(x64)	HPtM CCx64	Windows Server 2003(32bit)	HPtM CC	Y	--
4	Windows Server 2003(x64)	HPtM CCx64	Windows Server 2003(64bit)	HPtM CC	--	--
5	Windows Server 2003(x64)	HPtM CCx64	Windows Server 2003(x64)	HPtM CC x64	Y	--
6	Windows Server 2003(x64)	HPtM CCx64 and HPtM EXG2007	Windows 2000 Server	HPtM CC	--	--
7	Windows Server 2003(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2003(32bit)	HPtM CC	Y	Y
8	Windows Server 2003(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2003(64bit)	HPtM CC	--	--
9	Windows Server 2003(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2003(x64)	HPtM CCx64	Y	Y
10	Windows Server 2003(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2008	HPtM CC	--	--
11	Windows Server 2003(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2008 R2	HPtM CC	--	--
12	Windows Server 2008(x64)	HPtM CCx64 and HPtM EXG2007	-	-	--	--
13	Windows Server 2008(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2003	HPtM CC	--	--
14	Windows Server 2008(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2008(32bit)	HPtM CC	Y	Y
15	Windows Server 2008(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2008(64bit)	HPtM CC	--	--
16	Windows Server 2008(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2008(x64)	HPtM CCx64	Y	Y
17	Windows Server 2008(x64)	HPtM CCx64 and HPtM EXG2007	Windows Server 2008 R2	HPtM CCx64	--	--
18	Windows Server 2008 R2(x64)	HPtM CCx64	-	-	--	--
19	Windows Server 2008 R2(x64)	HPtM CCx64	Windows Server 2003	HPtM CC	--	--

System Requirements

20	Windows Server 2008 R2(x64)	HPtM CCx64	Windows Server 2008	HPtM CC	--	--
21	Windows Server 2008 R2(x64)	HPtM CCx64	Windows Server 2008 R2(x64)	HPtM CCx64	Y	--
21	Windows Server 2008 R2(x64)	HPtM CCx64	Windows Server 2008 R2(IPF)	HPtM CCx64	--	--

Prerequisite Programs for Hitachi Protection Manager Console

(1) When using Protection Manager, the following prerequisite programs are required because the Protection Manager Console is used as one of the components:

#	Operating Systems	Service Pack	Prerequisite Java Runtime Environment (JRE) version and Java Web Start (JWS) version
1	Windows Server 2003 Windows Server 2003 R2	SP2	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1
			JRE: 5.0(1.5.0) 32-bit version JWS: 5.0(1.5.0) 32-bit version #1
			JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1
2	Windows Server 2008(32bit) Windows Server 2008(x64)	noSP, SP2	JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1
3	Windows Server 2008(IPF)	noSP, SP2	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1
4	Windows Server 2008 R2(x64)	noSP	JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1

#1: When JRE is installed, JWS is also automatically installed.

(2) When using Protection Manager and using Device Manager functionality to launch Protection Manager Console, the following prerequisite programs are required:

- Any of the following management client OSs (Device Manager client):

#	Operating Systems	Service Pack
1	Any of the OSs written in above Operating Systems	None
2	Windows 2000 Professional	SP4
3	Windows XP Professional	SP2
4	Windows Vista Business Windows Vista Enterprise Windows Vista Ultimate	noSP

System Requirements

5	Windows 7 Professional Windows 7 Enterprise Windows 7 Ultimate	noSP
6	Solaris 8	None
7	Solaris 9	None

- Device Manager:

#	Operating Systems	Service Pack	Device Manager
1	Windows 2000 Server	SP4	HiCommand Device Manager 3.5.0 or later
			Hitachi Device Manager 6.0.0 or later
2	Windows Server 2003	SP2	HiCommand Device Manager 4.2.0 or later
			Hitachi Device Manager 6.0.0 or later
3	Windows Server 2003 (x64)	SP2	HiCommand Device Manager 3.5.0 or later
			Hitachi Device Manager 6.0.0 or later
4	Windows Server 2003 R2	SP2	HiCommand Device Manager 5.1.0 or later
			Hitachi Device Manager 6.0.0 or later
5	Windows Server 2008	noSP	Hitachi Device Manager 6.0.0 or later
6	Windows Server 2008 R2	noSP	Hitachi Device Manager 6.3.0 or later

- Any of the following Web browsers:

#	Operating Systems	Web browser
1	Windows	Internet Explorer 6.0
		Internet Explorer 7
		Internet Explorer 8
2	Solaris 8	Netscape 6.2.3
		Netscape 7.0
3	Solaris 9	Netscape 6.2.3
		Netscape 7.0
		Mozilla 1.4

Note:

If you use Windows Server 2003(IPF), you must install "The IA-32 Execution Layer 4.3 Software Driver". You can download "The IA-32 Execution Layer 4.3 Software Driver" from Microsoft Web site. In Windows Server 2008(IPF), you do

System Requirements

not need an additional installation of "IA-32 Execution Layer" because it is included in the OS.

DKS Software Products/Storage System Devices

(1) When VSS backup is performed on Windows Server 2003

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E or later
Thunder 9580V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E or later
Lightning 9900V series#2	Hitachi ShadowImage or Hitachi TrueCopy -Sync	21-14-28 or later
USP/NSC#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	50-08-05 or later
Hitachi AMS series#2 (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0750/A or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series#2(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0750/A or later
USP V#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-30/xx or later
USP VM#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-6x/xx or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1810/N or later
Hitachi AMS2000 series#3 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(2) When VSS backup is performed on Windows Server 2008 noSP

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E or later

System Requirements

Thunder 9580V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E or later
Lightning 9900V series#2	Hitachi ShadowImage or Hitachi TrueCopy -Sync	NOT supported
USP/NSC#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	50-09-34 or later
Hitachi AMS series#2 (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series#2 (WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
USP V#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-68 or later
USP VM#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-68 or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1810/N or later
Hitachi AMS2000 series#3 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(3) When VSS backup is performed on Windows Server 2008 SP2 or Windows Server 2008 R2

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E/A or later
Thunder 9580V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E/A or later
Lightning 9900V series#2	Hitachi ShadowImage or Hitachi TrueCopy -Sync	NOT supported

System Requirements

USP/NSC#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	50-09-71 or later
Hitachi AMS series#2 (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series#2 (WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
USP V#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-72 or later
USP VM#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-72 or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1832/A or later
Hitachi AMS2000 series#3 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(4) When VSS backup is performed in local site and remote site at a time in a cascade configuration.

Storage subsystem	DKS Software Products	Microcode Version
USP/NSC	ShadowImage or TrueCopy	50-09-70 or later
USP V	ShadowImage or TrueCopy	60-02-41 or later
USP VM	ShadowImage or TrueCopy	60-02-41 or later

#1: RM Shadow Copy Provider (01-03-03/02 or later) bundled to RAID Manager 01-20-03/05 or later is required when all of the following conditions exist:

- A copy group that is the target of Protection Manager operation is created by TrueCopy Sync.
- None of the following volume replication functions is installed on the storage subsystem of the secondary volume:
ShadowImage, QuickShadow, Cross-system Copy, Hi-Copy, Volume Migration

System Requirements

#2: ShadowImage must be installed on the storage subsystem of the secondary volume when VSS backup using TrueCopy Sync is operated.

#3: Make sure the storage subsystem microcode version is 0880/A or later when using virtual volumes created by using the Dynamic Provisioning function.

RAID Management Products

This section describes the combination of storage subsystems, version of microcodes, and available functionality of Protection Manager showing in tables. In the following tables, the versions listed in Microcode column are the earliest versions, which make the functionality available indicated in Available Functionality column.

When using the later version of Microcode than listed version in the table below, be sure to use RAID Manager and RM Shadow Copy Provider included in the same complete set of media as that of the Microcode.

The following sections in the RAID Manager configuration definition file (`horcmn.conf`) of the RAID Manager instance that links to Protection Manager are supported:

- HORCM_MON
- HORCM_CMD
- HORCM_DEV
- HORCM_LDEV #1
- HORCM_INST

#1: RAID Manager 01-18-03/06 or later is required.

(1) For RAID Storage System Devices

Storage subsystem	Microcode Version	Prerequisite RAID Manager (RM) and RM Shadow Copy Provider (RMCP) software	Available Functionality
Lightning 9900V series	21-14-28	RM:01-19-03/04	Backup on Windows Server 2003#1
		RMCP:01-02-03/07	
USP/NSC	50-08-05	RM:01-19-03/04	Backup on Windows Server 2003#1
		RMCP:01-02-03/07	
	50-09-34	RM:01-20-03/06	Backup on Windows Server 2003
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP
50-09-71	RM:01-23-03/08	Backup on Windows Server 2008 SP2	

System Requirements

		RMCP:01-04-03/01	Backup on Windows Server 2008 R2
USP V/USP VM	60-01-30/XX	RM:01-20-03/XX	Backup on Windows Server 2003#1
		RMCP:01-03-03/XX	
	60-01-6X/XX	RM:01-20-03/XX	Backup on Windows Server 2003#1
		RMCP:01-03-03/XX	
	60-01-68	RM:01-20-03/06	Backup on Windows Server 2003
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP
	60-01-72	RM:01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2

(2) For DF Storage System Devices

Storage subsystem	Microcode Version	Prerequisite RAID Manager (RM) and RM Shadow Copy Provider (RMCP) software	Available Functionality
Thunder 9570V and Thunder 9530V	065E	RM:01-19-03/04	Backup on Windows Server 2003#2
		RMCP:01-02-03/07	
	065E	RM:01-20-03/06	Backup on Windows Server 2003#2
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP #2
	065E/A	RM:01-23-03/08	Backup on Windows Server 2008 SP2#2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2#2
Thunder 9580V	165E	RM:01-19-03/04	Backup on Windows Server 2003#2
		RMCP:01-02-03/07	
	165E	RM:01-20-03/06	Backup on Windows Server 2003#2
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP #2
	165E/A	RM:01-23-03/08	Backup on Windows Server 2008 SP2#2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2#2
Hitachi AMS series	0750/A	RM:01-19-03/04	Backup on Windows Server 2003#2
		RMCP:01-02-03/07	
	0770/G	RM:01-20-03/06	Backup on Windows Server 2003#2
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP #2
	0770/G	RM:01-23-03/08	Backup on Windows Server 2008 SP2#2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2#2
Hitachi WMS series	0750/A	RM:01-19-03/04	Backup on Windows Server 2003#2
		RMCP:01-02-03/07	
	0770/G	RM:01-20-03/06	Backup on Windows Server 2003#2

System Requirements

		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP #2
	0770/G	RM:01-23-03/08	Backup on Windows Server 2008 SP2#2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2#2
Hitachi SMS series	1810/N	RM:01-20-03/06	Backup on Windows Server 2003#2
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP #2
	1832/A	RM:01-23-03/08	Backup on Windows Server 2008 SP2#2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2#2
Hitachi AMS2000 series#3	0832/E	RM:01-20-03/06	Backup on Windows Server 2003#2
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP #2
	0832/E	RM:01-23-03/08	Backup on Windows Server 2008 SP2#2
		RMCP:01-04-03/01	Backup on Windows Server 2008 R2#2
Hitachi AMS2000 series(H/W Rev. 0200)	0890/A	RM:01-23-03/08	Backup on Windows Server 2003#2
		RMCP:01-04-03/01	Backup on Windows Server 2008#2 Backup on Windows Server 2008 R2#2

#1: RM Shadow Copy Provider (01-03-03/02 or later) bundled to RAID Manager 01-20-03/05 or later is required when all of the following conditions exist:

- When using USP/NSC or USP V.
- A copy group that is the target of Protection Manager operation is created by TrueCopy Sync.
- None of the following volume replication functions is installed on the storage subsystem of the secondary volume:

ShadowImage, QuickShadow, Cross-system Copy, Hi-Copy, Volume Migration

#2: ShadowImage must be installed on the storage subsystem of the secondary volume when VSS backup using TrueCopy Sync is operated.

#3: Make sure the storage subsystem microcode version is 0880/A or later when using virtual volumes created by using the Dynamic Provisioning function.

File System

#	File System	Service Pack
1	NTFS	None

Microsoft(R) Exchange Server

#	Product Name	Service Pack
1	Microsoft (R) Exchange Server 2007 Standard Edition#1	noSP
		SP1
		SP2
2	Microsoft (R) Exchange Server 2007 Enterprise Edition#1	noSP
		SP1
		SP2

#1: Single Copy Cluster (SCC), Cluster Continuous Replication (CCR), and Standby Continuous Replication (SCR), which are high-availability features of Exchange Server 2007, are supported. Local Continuous Replication (LCR) is not supported.

.NET execution environment

- .NET Framework 2.0#1

#1: This is the prerequisite execution environment for Exchange Server 2007.

Cluster Software

#	Cluster Software	Service Pack and Maintenance Pack
1	Microsoft(R) Cluster Service	None
2	Microsoft(R) Failover Cluster	None

Volume Manager Software

#	Volume Manager Software	Service Pack and Maintenance Pack
1	OS-standard logical volume manager	None #1

#1: Only basic disk is supported but dynamic disk is not.

Backup Management Software

When linking with a tape backup management product to back up the data on a secondary volume to a tape device:

#	Operating Systems	Service Pack	Backup Management Software	Prerequisite Maintenance Pack
1	Windows Server 2003	SP2	Symantec NetBackup 6.0	MP2 #1
			Symantec NetBackup 6.5	None
			Symantec Backup Exec 11d	None
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None

System Requirements

2	Windows Server 2003 R2	SP2	Veritas NetBackup 6.0	MP2 #1
			Veritas NetBackup 6.5	None
			Symantec Backup Exec 11d	None
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
3	Windows Server 2008 (32bit) Windows Server 2008 (x64)	noSP	Veritas NetBackup 6.5	None #2
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
4	Windows Server 2008(IPF)	noSP	Veritas NetBackup 6.5	None #2

#1: Both of the NetBackup master server feature and the NetBackup media server feature must be running on the backup server.

#2: NetBackup 6.5.2 or later is required.

Path Manager Software

When multiple paths of physical disks are managed by the path manager software:

#	Operating Systems	Service Pack	Path Manager Software
1	Windows Server 2003	SP2	HiCommand Dynamic Link Manager 5.8.0 or later
			Hitachi Dynamic Link Manager 6.0.0 or later
2	Windows Server 2008	noSP	HiCommand Dynamic Link Manager 5.9.5 or later
			Hitachi Dynamic Link Manager 6.0.0 or later

Scripting Engine

When using extended commands of Protection Manager:

#	Operating Systems	Service Pack	Scripting Engine
1	Windows Server 2003	SP2	Windows Scripting Host 5.6
			Windows Scripting Host 5.7
2	Windows Server 2008	noSP, SP2	Windows Scripting Host 5.7
3	Windows Server 2008 R2	noSP	Windows Scripting Host 5.8

FTP Server Software (on the Backup Server)

When performing ftp operation by using extended commands of Protection Manager:

#	FTP Server Software	Service Pack
1	Microsoft(R) Internet Information Services 6.0	None #1 #2
2	Microsoft(R) Internet Information Services 7.5	None #2

#1: FTP operation in an IPv6 environment is not supported.

#2: The ftp service must be treated as exception program by Windows Firewall.

FTP Client Software (on the Database Server or File Server)

When performing ftp operation by using extended commands of Protection Manager:

#	FTP Client Software	Service Pack
1	Standard FTP utility for the OS (ftp.exe)	None #1

#1: The ftp.exe must be treated as exception program by Windows Firewall.

Conditions When Using VSS (Volume Shadow Copy Service)

Server System

PC/AT compatible machines

Storage System

Protection Manager support the following Hitachi Storage subsystems

Abbreviation
Thunder 9570V and Thunder 9530V
Thunder 9580V
Lightning 9900V series
USP/NSC
Hitachi AMS series
Hitachi WMS series
USP V/USP VM
Hitachi SMS series
Hitachi AMS2000 series
Hitachi AMS2000 series(H/W Rev. 0200)

HBA (Host Bus Adapter)

When using the VSS (Volume Shadow Copy Service) backup functionality of this product, make sure that both the HBA and HBA driver support VSS (Volume Shadow Copy Service) functionality.

Also, note that following HBA driver cannot be used in the import server.

Emulex 9802 32-bit and 64-bit FC Port Drivers 5.2.21a8

Operating Systems

#	Operating Systems	Service Pack
1	Windows Server 2003, Standard Edition	SP2 #2,#3
2	Windows Server 2003, Enterprise Edition	SP2 #2,#3
3	Windows Server 2003, Datacenter Edition	SP2 #2,#3
4	Windows Server 2003 R2, Standard Edition	SP2 #1,#2,#3
5	Windows Server 2003 R2, Enterprise Edition	SP2 #1,#2,#3
6	Windows Server 2003 R2, Datacenter Edition	SP2 #1,#2,#3
7	Windows Server 2008 Standard 32-bit	noSP #4
		SP2 #4
8	Windows Server 2008 Enterprise 32-bit	noSP #4
		SP2 #4
9	Windows Server 2008 Datacenter 32-bit	noSP #4
		SP2 #4

Note that an upgrade installation of the OS can cause problems, so perform a clean installation.

Note:

Protection Manager supports a Windows environment that is run as a guest OS of VMware ESX Server 3.x/4.0, VMware ESXi Server 3.x/4.0, or Hyper-V.

For details, see the manual Hitachi Protection Manager Software User's Guide.

#1: The new feature of Windows Server 2003 R2 is not supported.

#2: Windows Server 2003 (32-bit) is supported but Windows Server 2003 (64-bit) is not.

#3: In a cluster configuration, GPT disks are not supported. Use MBR disks when using this product to perform a backup.

#4: The Server Core feature is not supported.

Available Backup Targets and Methods for Each Database-Backup Server Combination

#	DB Server		BK Server		Backup Target/Method	
	OS	Product	OS	Product	FileSystem	Exchange 2003
					VSS	VSS
1	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows 2000 Server	HPtM CC	--	--
2	Windows Server 2003(32bit)	HPtM CC	Windows Server 2003(32bit)	HPtM CC	Y	--
3	Windows Server 2003(32bit)	HPtM CC	Windows Server 2003(64bit)	-	--	--
4	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows Server 2003(32bit)	HPtM CC	Y	Y
5	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows Server 2003(64bit)	-	--	--
6	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows Server 2008	HPtM CC	--	--
7	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows Server 2008 R2	HPtM CCx64	--	--
8	Windows Server 2008(32bit)	HPtM CC	-	-	--	--
9	Windows Server 2008(32bit)	HPtM CC	Windows Server 2003	HPtM CC	--	--
10	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008(32bit)	HPtM CC	Y	--
11	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008(64bit)	HPtM CC	--	--
12	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008(x64)	HPtM CCx64	--	--
13	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008 R2	HPtM CCx64	--	--

Prerequisite Programs for Hitachi Protection Manager Console

- (1) When using Protection Manager, the following prerequisite programs are required because the Protection Manager Console is used as one of the components:

#	Operating Systems	Service Pack	Prerequisite Java Runtime Environment (JRE) version and Java Web Start (JWS) version
1	Windows Server 2003 Windows Server 2003 R2	SP2	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1
			JRE: 5.0(1.5.0) 32-bit version JWS: 5.0(1.5.0) 32-bit version #1

System Requirements

			JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1
2	Windows Server 2008	noSP, SP2	JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1

#1: When JRE is installed, JWS is also automatically installed.

(2) When using Protection Manager and using Device Manager functionality to launch Protection Manager Console, the following prerequisite programs are required:

- Any of the following management client OSs (Device Manager client):

#	Operating Systems	Service Pack
1	Any of the OSs written in above Operating Systems	None
2	Windows 2000 Professional	SP4
3	Windows XP Professional	SP2
4	Windows Vista Business Windows Vista Enterprise Windows Vista Ultimate	noSP
5	Windows 7 Professional Windows 7 Enterprise Windows 7 Ultimate	noSP
6	Solaris 8	None
7	Solaris 9	None

- Device Manager:

#	Operating Systems	Service Pack	Device Manager
1	Windows 2000 Server	SP4	HiCommand Device Manager 3.5.0 or later
			Hitachi Device Manager 6.0.0 or later
2	Windows Server 2003	SP2	HiCommand Device Manager 4.2.0 or later
			Hitachi Device Manager 6.0.0 or later
3	Windows Server 2003 (x64)	SP2	HiCommand Device Manager 3.5.0 or later
			Hitachi Device Manager 6.0.0 or later
4	Windows Server 2003 R2	SP2	HiCommand Device Manager 5.1.0 or later
			Hitachi Device Manager 6.0.0 or later
5	Windows Server 2008	noSP	Hitachi Device Manager 6.0.0 or later

System Requirements

6	Windows Server 2008 R2	noSP	Hitachi Device Manager 6.3.0 or later
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- Any of the following Web browsers:

#	Operating Systems	Web browser
1	Windows	Internet Explorer 6.0
		Internet Explorer 7
		Internet Explorer 8
2	Solaris 8	Netscape 6.2.3
		Netscape 7.0
3	Solaris 9	Netscape 6.2.3
		Netscape 7.0
		Mozilla 1.4

Note:

If you use Windows Server 2003(IPF), you must install "The IA-32 Execution Layer 4.3 Software Driver". You can download "The IA-32 Execution Layer 4.3 Software Driver" from Microsoft Web site. In Windows Server 2008(IPF), you do not need an additional installation of "IA-32 Execution Layer" because it is included in the OS.

DKS Software Products/Storage System Devices

(1) When VSS backup is performed on Windows Server 2003#1

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V#3	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065A/R or later
Thunder 9580V#3	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165A/R or later
Lightning 9900V series#3	Hitachi ShadowImage or Hitachi TrueCopy -Sync	21-13-04-00 or later
USP/NSC#2	ShadowImage or TrueCopy	50-03-80 or later
	Copy-on-write SnapShot	50-06-06-00/00 or later
Hitachi AMS series#3 (AMS1000/AMS500/AMS200)	ShadowImage in-system replication	0712/A or later#4
	Copy-on-write SnapShot or TrueCopy remote replication	0712/A or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS	ShadowImage in-system replication	0712/A or later#4

System Requirements

series#3(WMS100)	Copy-on-write SnapShot or TrueCopy remote replication	0712/A or later
USP V#2	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-30/xx or later
USP VM#2	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-6x/xx or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1810/N or later
Hitachi AMS2000 series#5 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(2) When VSS backup is performed on Windows Server 2008 noSP

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V#3	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E or later
Thunder 9580V#3	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E or later
Lightning 9900V series#3	Hitachi ShadowImage or Hitachi TrueCopy -Sync	NOT supported
USP/NSC#2	ShadowImage or Copy-on-write SnapShot or TrueCopy	50-09-34 or later
Hitachi AMS series#3 (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series#3(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
USP V#2	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-68 or later
USP VM#2	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-68 or later

System Requirements

Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1810/N or later
Hitachi AMS2000 series#5 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(3) When VSS backup is performed on Windows Server 2008 SP2

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E/A or later
Thunder 9580V#2	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E/A or later
Lightning 9900V series#2	Hitachi ShadowImage or Hitachi TrueCopy -Sync	NOT supported
USP/NSC#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	50-09-71 or later
Hitachi AMS series#2 (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series#2(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
USP V#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-72 or later
USP VM#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-72 or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1832/A or later
Hitachi AMS2000 series#5 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

- #1: RM Shadow Copy Provider 01-02-03/06 bundled with RAID Manager cannot be used when VSS backup is performed using multiple generations or a remote copy function. Instead, use RM Shadow Copy Provider 01-02-03/05 bundled with RAID Manager 01-17-03/05, or RM Shadow Copy Provider 01-02-03/07 or later bundled with RAID Manager 01-19-03/04 or later.
- #2: RM Shadow Copy Provider (01-03-03/02 or later) bundled to RAID Manager 01-20-03/05 or later is required when all of the following conditions exist:
- A copy group that is the target of Protection Manager operation is created by TrueCopy Sync.
 - None of the following volume replication functions is installed on the storage subsystem of the secondary volume:
ShadowImage, QuickShadow, Cross-system Copy, Hi-Copy, Volume Migration
- #3: ShadowImage must be installed on the storage subsystem of the secondary volume when VSS backup using TrueCopy Sync is operated.
- #4: Microcode version 0750/A or later must be installed on the storage subsystem, when VSS backup is performed using multiple generations function.
- #5: Make sure the storage subsystem microcode version is 0880/A or later when using virtual volumes created by using the Dynamic Provisioning function.

RAID Management Products

This section describes the combination of storage subsystems, version of microcodes, and available functionality of Protection Manager showing in tables. In the following tables, the versions listed in Microcode column are the earliest versions, which make the functionality available indicated in Available Functionality column.

When using the later version of Microcode than listed version in the table below, be sure to use RAID Manager and RM Shadow Copy Provider included in the same complete set of media as that of the Microcode.

The following sections in the RAID Manager configuration definition file (`horcmn.conf`) of the RAID Manager instance that links to Protection Manager are supported:

- HORCM_MON
- HORCM_CMD
- HORCM_DEV
- HORCM_LDEV #1

System Requirements

- HORCM_INST

#1: RAID Manager 01-18-03/06 or later is required.

(1) For RAID Storage System Devices

Storage subsystem	Microcode Version	Prerequisite RAID Manager (RM) and RM Shadow Copy Provider #2(RMCP) software	Available Functionality
Lightning 9900V series	21-13-04-00	RM:01-16-03/06	Backup on Windows Server 2003#1
		RMCP:01-02-03/05	
USP/NSC	50-03-93	RM:01-16-03/06	Backup on Windows Server 2003
		RMCP:01-02-03/05	
	50-06-06-00/00	RM:01-18-03/06	Backup on Windows Server 2003#1 Backup with Copy-on-write Snapshot
		RMCP:01-02-03/06	
	50-09-34	RM:01-20-03/06	Backup on Windows Server 2003 Backup on Windows Server 2008 noSP Backup with Copy-on-write Snapshot
		RMCP:01-03-03/02	
	50-09-71	RM:01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP:01-04-03/01	
USP V/ USP VM	60-01-30/XX	RM:01-20-03/XX	Backup on Windows Server 2003#1
		RMCP:01-03-03/XX	
	60-01-6X/XX	RM:01-20-03/XX	Backup on Windows Server 2003#1
		RMCP:01-03-03/XX	
	60-01-68	RM:01-20-03/06	Backup on Windows Server 2003 Backup on Windows Server 2008 noSP Backup with Copy-on-write Snapshot
		RMCP:01-03-03/02	
	60-01-72	RM:01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP:01-04-03/01	

(2) For DF Storage System Devices

System Requirements

Storage subsystem	Microcode Version	Prerequisite RAID Manager (RM) and RM Shadow Copy Provider #3(RMCP) software	Available Functionality
Thunder 9570V and Thunder 9530V	065A/R	RM: 01-19-03/04	Backup on Windows Server 2003
		RMCP: 01-02-03/07	
	065E	RM: 01-20-03/06	Backup on Windows Server 2003
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP
	065E/A	RM: 01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP: 01-04-03/01	
Thunder 9580V	165A/R	RM: 01-19-03/04	Backup on Windows Server 2003
		RMCP: 01-02-03/07	
	165E	RM: 01-20-03/06	Backup on Windows Server 2003
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP
	165E/A	RM: 01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP: 01-04-03/01	
Hitachi AMS series	0712/A	RM: 01-02-03/05	Backup on Windows Server 2003
		RMCP: 01-16-03/06	
	0750/A	RM: 01-19-03/04	Backup on Windows Server 2003
		RMCP: 01-02-03/07	
	0770/G	RM: 01-20-03/06	Backup on Windows Server 2003
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP
	0770/G	RM: 01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP: 01-04-03/01	
Hitachi WMS series	0712/A	RM: 01-02-03/05	Backup on Windows Server 2003
		RMCP: 01-16-03/06	
	0750/A	RM: 01-19-03/04	Backup on Windows Server 2003
		RMCP: 01-02-03/07	
	0770/G	RM: 01-20-03/06	Backup on Windows Server 2003
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP
	0770/G	RM: 01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP: 01-04-03/01	
Hitachi SMS series	1810/N	RM: 01-20-03/06	Backup on Windows Server 2003
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP
	1832/A	RM: 01-23-03/08	Backup on Windows Server 2008 SP2

System Requirements

		RMCP:01-04-03/01	
Hitachi AMS2000 series#4	0832/E	RM:01-20-03/06	Backup on Windows Server 2003
		RMCP:01-03-03/02	Backup on Windows Server 2008 noSP
	0832/E	RM:01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP:01-04-03/01	
Hitachi AMS2000 series(H/W Rev. 0200)	0890/A	RM:01-23-03/08	Backup on Windows Server 2003
		RMCP:01-04-03/01	Backup on Windows Server 2008

#1: RM Shadow Copy Provider 01-02-03/06 bundled with RAID Manager cannot be used when VSS backup is performed using multiple generations or a remote copy function. Instead, use RM Shadow Copy Provider 01-02-03/05 bundled with RAID Manager 01-17-03/05, or RM Shadow Copy Provider 01-02-03/07 or later bundled with RAID Manager 01-19-03/04 or later.

#2: RM Shadow Copy Provider (01-03-03/02 or later) bundled to RAID Manager 01-20-03/05 or later is required when all of the following conditions exist:

- When using USP/NSC or USP V.
- A copy group that is the target of Protection Manager operation is created by TrueCopy Sync.
- None of the following volume replication functions is installed on the storage subsystem of the secondary volume:
ShadowImage, QuickShadow, Cross-system Copy, Hi-Copy, Volume Migration

#3: ShadowImage must be installed on the storage subsystem of the secondary volume when VSS backup using TrueCopy Sync is operated.

#4: Make sure the storage subsystem microcode version is 0880/A or later when using virtual volumes created by using the Dynamic Provisioning function.

File System

- NTFS

Microsoft(R) Exchange Server

#	Product Name	Service Pack
1	Microsoft (R) Exchange Server 2003 Standard Edition	SP1#1
		SP2
2	Microsoft (R) Exchange Server 2003 Enterprise Edition	SP1#1
		SP2

System Requirements

#1: This is required.

Also, Exchange Server 2003 update module (Hotfix 892514) is required.
For details, refer to the following URL:

<http://support.microsoft.com/default.aspx?scid=kb;en-us;892514>

Cluster Software

#	Cluster Software	Service Pack and Maintenance Pack
1	Microsoft(R) Cluster Service	None
2	Microsoft(R) Failover Cluster	None

Volume Manager Software

#	Volume Manager Software	Service Pack and Maintenance Pack
1	OS-standard logical volume manager	None #1

#1: Only basic disk is supported but dynamic disk is not.

Backup Management Software

When linking with a tape backup management product to back up the data on a secondary volume to a tape device:

#	Operating Systems	Service Pack	Backup Management Software	Prerequisite Maintenance Pack
1	Windows Server 2003 (32bit)	SP2	Symantec NetBackup 6.0	MP2 #1
			Symantec NetBackup 6.5	None
			Symantec Backup Exec 11d	None
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
2	Windows Server 2003 R2 (32bit)	SP2	Veritas NetBackup 6.0	MP2 #1
			Veritas NetBackup 6.5	None
			Symantec Backup Exec 11d	None
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
3	Windows Server 2008 (32bit)	noSP	Veritas NetBackup 6.5	None #2
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None

#1: Both of the NetBackup master server feature and the NetBackup media server feature must be running on the backup server.

System Requirements

#2: NetBackup 6.5.2 or later is required.

Path Manager Software

When multiple paths of physical disks are managed by the path manager software:

#	Operating Systems	Service Pack	Path Manager Software
1	Windows Server 2003	SP2	HiCommand Dynamic Link Manager 5.8.0 or later
			Hitachi Dynamic Link Manager 6.0.0 or later
2	Windows Server 2008	noSP	HiCommand Dynamic Link Manager 5.9.5 or later
			Hitachi Dynamic Link Manager 6.0.0 or later

Scripting Engine

When using extended commands of Protection Manager:

#	Operating Systems	Service Pack	Scripting Engine
1	Windows Server 2003	SP2	Windows Scripting Host 5.6
			Windows Scripting Host 5.7
2	Windows Server 2008	noSP, SP2	Windows Scripting Host 5.7

FTP Server Software (on the Backup Server)

When performing ftp operation by using extended commands of Protection Manager:

#	FTP Server Software	Service Pack
1	Microsoft(R) Internet Information Services 6.0	None #1 #2

#1: FTP operation in an IPv6 environment is not supported.

#2: The ftp service must be treated as exception program by Windows Firewall.

FTP Client Software (on the Database Server or File Server)

When performing ftp operation by using extended commands of Protection Manager:

#	FTP Client Software	Service Pack
1	Standard FTP utility for the OS (ftp.exe)	None #1

#1: The ftp.exe must be treated as exception program by Windows Firewall.

Conditions When not Using VSS (Volume Shadow Copy Service)

Server System

PC/AT compatible machines

Storage System

Protection Manager support the following Hitachi Storage subsystems

Abbreviation
Thunder 9200 series
Lightning 9900 series
Thunder 9500V series
Lightning 9900V series
USP/NSC
Hitachi AMS series
Hitachi WMS series
USP V/USP VM
Hitachi SMS series
Hitachi AMS2000 series
Hitachi AMS2000 series(H/W Rev. 0200)

HBA (Host Bus Adapter)

When using the VSS (Volume Shadow Copy Service) backup functionality of this product, make sure that both the HBA and HBA driver support VSS (Volume Shadow Copy Service) functionality.

Also, note that following HBA driver cannot be used in the import server.

Emulex 9802 32-bit and 64-bit FC Port Drivers 5.2.21a8

Operating Systems

#	Operating Systems	Service Pack
1	Windows 2000 Server	SP4 #1
2	Windows 2000 Advanced Server	SP4 #1
3	Windows 2000 Datacenter Server	SP4 #1
4	Windows Server 2003, Standard Edition	SP2 #2
5	Windows Server 2003, Enterprise Edition	SP2 #2
6	Windows Server 2003, Datacenter Edition	SP2 #2

System Requirements

7	Windows Server 2003, Enterprise Edition for Itanium-based systems	SP2 #2
8	Windows Server 2003, Datacenter Edition for Itanium-based systems	SP2 #2
9	Windows Server 2003, Standard x64 Edition	SP2 #2
10	Windows Server 2003, Enterprise x64 Edition	SP2 #2
11	Windows Server 2003, Datacenter x64 Edition	SP2 #2
12	Windows Server 2003 R2, Standard Edition	SP2 #2,#3
13	Windows Server 2003 R2, Enterprise Edition	SP2 #2,#3
14	Windows Server 2003 R2, Datacenter Edition	SP2 #2,#3
15	Windows Server 2003 R2, Standard x64 Edition	SP2 #2,#3
16	Windows Server 2003 R2, Enterprise x64 Edition	SP2 #2,#3
17	Windows Server 2003 R2, Datacenter x64 Edition	SP2 #2,#3
18	Windows Server 2008 Standard	noSP #4
		SP2 #4
19	Windows Server 2008 Enterprise	noSP #4
		SP2 #4
20	Windows Server 2008 Datacenter	noSP #4
		SP2 #4
21	Windows Server 2008 Standard 32-bit	noSP #4
		SP2 #4
22	Windows Server 2008 Enterprise 32-bit	noSP #4
		SP2 #4
23	Windows Server 2008 Datacenter 32-bit	noSP #4
		SP2 #4
24	Windows Server 2008 for Itanium-based Systems	noSP #4
		SP2 #4
25	Windows Server 2008 R2 Standard	noSP #4
26	Windows Server 2008 R2 Enterprise	noSP #4
27	Windows Server 2008 R2 Datacenter	noSP #4
28	Windows Server 2008 R2 for Itanium-Based Systems	noSP #4

Note that an upgrade installation of the OS can cause problems, so perform a clean installation.

Note:

Protection Manager supports a Windows environment that is run as a guest OS of VMware ESX Server 3.x/4.0, VMware ESXi Server 3.x/4.0, or Hyper-V.
For details, see the manual Hitachi Protection Manager Software User's Guide.

#1: The Update Rollup 1 for Windows 2000 SP4 - v2 is recommended.

System Requirements

#2: In the cluster configuration, GPT disks are not supported. Use MBR disks when using this product to perform a backup.

#3: The new feature of Windows Server 2003 R2 is not supported.

#4: The Server Core feature is not supported.

Available Backup Targets and Methods for Each Database-Backup Server Combination

#	DB Server		BK Server		Backup Target/Method	
	OS	Product	OS	Product	FileSystem	Exchange 2003
					non-VSS	non-VSS
1	Windows 2000 Server	HPtM CC	No backup server	-	Y	--
2	Windows 2000 Server	HPtM CC	Windows 2000 Server	HPtM CC	Y	--
3	Windows 2000 Server	HPtM CC	Windows Server 2003	HPtM CC or HPtM CCx64	--	--
4	Windows Server 2003	HPtM CC or HPtM CCx64	No backup server	-	Y	--
5	Windows Server 2003	HPtM CC or HPtM CCx64	Windows Server 2003	HPtM CC or HPtM CCx64	Y	--
6	Windows Server 2003	HPtM CC or HPtM CCx64	Windows 2000 Server	HPtM CC	--	--
7	Windows 2000 Server	HPtM CC and HPtM EXG	No backup server	-	Y	Y
8	Windows 2000 Server	HPtM CC and HPtM EXG	Windows 2000 Server	HPtM CC	Y	Y
9	Windows 2000 Server	HPtM CC and HPtM EXG	Windows Server 2003	HPtM CC or HPtM CCx64	--	--
10	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	No backup server	-	Y	Y
11	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows Server 2003	HPtM CC or HPtM CCx64	Y	Y
12	Windows Server 2003(32bit)	HPtM CC and HPtM EXG	Windows 2000 Server	HPtM CC	--	--
13	Windows Server 2003	HPtM CC	Windows Server 2008	HPtM CC or HPtM CCx64	--	--
14	Windows Server 2008	HPtM CC	No backup server	-	Y	--
15	Windows Server 2008	HPtM CC	Windows Server 2003	HPtM CC or HPtM CCx64	--	--

System Requirements

16	Windows Server 2008	HPtM-CC	Windows Server 2008	HPtM-CC or HPtM-CCx64	Y	--
17	Windows Server 2008	HPtM-CC	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	Y	--
18	Windows Server 2008 R2(x64)	HPtM-CC	No backup server	-	Y	--
19	Windows Server 2008 R2(x64)	HPtM-CC	Windows 2000 Server	HPtM-CC	--	--
20	Windows Server 2008 R2(x64)	HPtM-CC	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
21	Windows Server 2008 R2(x64)	HPtM-CC	Windows Server 2008	HPtM-CC or HPtM-CCx64	Y	--
22	Windows Server 2008 R2(x64)	HPtM-CC	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64	Y	--
23	Windows Server 2008 R2(x64)	HPtM-CC	Windows Server 2008 R2(IPF)	HPtM-CC	Y	--
24	Windows Server 2008 R2(IPF)	HPtM-CC	No backup server	-	Y	--
25	Windows Server 2008 R2(IPF)	HPtM-CC	Windows 2000 Server	HPtM-CC	--	--
26	Windows Server 2008 R2(IPF)	HPtM-CC	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
27	Windows Server 2008 R2(IPF)	HPtM-CC	Windows Server 2008	HPtM-CC or HPtM-CCx64	Y	--
28	Windows Server 2008 R2(IPF)	HPtM-CC	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64	Y	--
29	Windows Server 2008 R2(IPF)	HPtM-CC	Windows Server 2008 R2(IPF)	HPtM-CC	Y	--

Prerequisite Programs for Hitachi Protection Manager Console

(1) When using Protection Manager, the following prerequisite programs are required because the Protection Manager Console is used as one of the components:

#	Operating Systems	Service Pack	Prerequisite Java Runtime Environment (JRE) version and Java Web Start (JWS) version
1	Windows 2000 Server	SP4	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1
			JRE: 5.0(1.5.0) 32-bit version JWS: 5.0(1.5.0) 32-bit version #1
			JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1

System Requirements

2	Windows Server 2003 Windows Server 2003 R2	SP2	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1
			JRE: 5.0(1.5.0) 32-bit version JWS: 5.0(1.5.0) 32-bit version #1
			JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1
3	Windows Server 2008(32bit) Windows Server 2008(x64)	noSP, SP2	JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1
4	Windows Server 2008(IPF)	noSP, SP2	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1
5	Windows Server 2008 R2(x64)	noSP	JRE: 6.0 32-bit version JWS: 6.0 32-bit version #1

#1: When JRE is installed, JWS is also automatically installed.

(2) When using Protection Manager and using Device Manager functionality to launch Protection Manager Console, the following prerequisite programs are required:

- Any of the following management client OSs (Device Manager client):

#	Operating Systems	Service Pack
1	Any of the OSs written in above Operating Systems	
2	Windows 2000 Professional	SP4
3	Windows XP Professional	SP2
4	Windows Vista Business Windows Vista Enterprise Windows Vista Ultimate	noSP
5	Windows 7 Professional Windows 7 Enterprise Windows 7 Ultimate	noSP
6	Solaris 8	
7	Solaris 9	

- Device Manager:

#	Operating Systems	Service Pack	Device Manager

System Requirements

1	Windows 2000 Server	SP4	HiCommand Device Manager 3.5.0 or later
			Hitachi Device Manager 6.0.0 or later
2	Windows Server 2003	SP2	HiCommand Device Manager 4.2.0 or later
			Hitachi Device Manager 6.0.0 or later
3	Windows Server 2003 (x64)	SP2	HiCommand Device Manager 3.5.0 or later
			Hitachi Device Manager 6.0.0 or later
4	Windows Server 2003 R2	SP2	HiCommand Device Manager 5.1.0 or later
			Hitachi Device Manager 6.0.0 or later
5	Windows Server 2008	noSP	Hitachi Device Manager 6.0.0 or later
6	Windows Server 2008 R2	noSP	Hitachi Device Manager 6.3.0 or later

- Any of the following Web browsers:

#	Operating Systems	Web browser
1	Windows	Internet Explorer 6.0
		Internet Explorer 7
		Internet Explorer 8
2	Solaris 8	Netscape 6.2.3
		Netscape 7.0
3	Solaris 9	Netscape 6.2.3
		Netscape 7.0
		Mozilla 1.4

Note:

If you use Windows Server 2003(IPF), you must install "The IA-32 Execution Layer 4.3 Software Driver". You can download "The IA-32 Execution Layer 4.3 Software Driver" from Microsoft Web site. In Windows Server 2008(IPF), you do not need an additional installation of "IA-32 Execution Layer" because it is included in the OS.

DKS Software Products/Storage System Devices

- (1) When using the volume replication function within a storage subsystem

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9200 series	Multiple RAID Coupling Feature (MRCF) –Lite	05xD/B or later
Lightning 9900 series	Hitachi Open Multiple RAID Coupling Feature (HOMRCF)	01-17-7x-00 or later
Thunder 9500V series	Hitachi ShadowImage	0651/M or later

System Requirements

	Hitachi QuickShadow	x655/D or later
Lightning 9900V series	Hitachi ShadowImage	21-01-20-xx or later
USP/NSC	ShadowImage	50-02-01-xx or later
	Copy-on-write SnapShot	50-05-06-00/00 or later
Hitachi AMS series (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot	0712/A or later
Hitachi WMS series(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	0712/A or later
USP V	ShadowImage or Copy-on-write SnapShot	60-01-24/xx or later
USP VM	ShadowImage or Copy-on-write SnapShot	60-01-6x/xx or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1810/N or later
Hitachi AMS2000 series (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write	0832/E or later
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write	0890/A or later

(2) When using the remote copy function to copy from a storage subsystem to another storage subsystem

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9200 series	Multiple RAID Coupling Feature-Lite Remote Pack	05xD/B or later
Lightning 9900 series	Hitachi Open Remote Copy (HORC)	01-17-7x-00 or later
Thunder 9500V series	Hitachi TrueCopy Basic	0651/M or later
Lightning 9900V series	Hitachi TrueCopy –Sync or Hitachi TrueCopy –Async	21-01-20-xx or later
USP/NSC	TrueCopy or TrueCopy Asynchronous	50-02-01-xx or later
	Universal Replicator	50-03-30-xx/00 or later
Hitachi AMS series (AMS1000/AMS500/AMS200)	TrueCopy remote replication	0712/A or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series(WMS100)	TrueCopy remote replication	0712/A or later

System Requirements

USP V	TrueCopy or Universal Replicator	60-01-24/xx or later
	TrueCopy Asynchronous	60-01-6x/xx or later
USP VM	TrueCopy or TrueCopy Asynchronous or Universal Replicator	60-01-6x/xx or later
Hitachi AMS2000 series (AMS2500/AMS2300/AMS2100)	TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(3)When operating in such a way that the OS dynamically recognizes secondary volumes

This operation is required when either of the following conditions exists:

- When a primary volume is a dynamic disk, and multiple generations of the secondary volume are backed up.
- When a primary volume is a cluster resource of Microsoft Cluster Service, and multiple generations of the secondary volume are backed up.

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9200 series	Multiple RAID Coupling Feature (MRCF) –Lite	NOT supported
	Multiple RAID Coupling Feature-Lite Remote Pack	NOT supported
Lightning 9900 series	Hitachi Open Multiple RAID Coupling Feature (HOMRCF)	NOT supported
	Hitachi Open Remote Copy (HORC)	NOT supported
Thunder 9500V series	Hitachi ShadowImage	x657/A or later
	Hitachi QuickShadow	x657/A or later
	Hitachi TrueCopy Basic	x657/A or later
Lightning 9900V series	Hitachi ShadowImage	21-09-08 or later
	Hitachi TrueCopy –Sync or Hitachi TrueCopy –Async	21-09-08 or later
USP/NSC	ShadowImage or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy or TrueCopy Asynchronous	The same version as shown in Table (2) above
	Universal Replicator	The same version as shown in Table (2) above

System Requirements

Hitachi AMS series (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy remote replication	The same version as shown in Table (2) above
	TrueCopy Extended Distance	The same version as shown in Table (2) above
Hitachi WMS series(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy remote replication	The same version as shown in Table (2) above
USP V	ShadowImage or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy or Universal Replicator	The same version as shown in Table (2) above
	TrueCopy Asynchronous	The same version as shown in Table (2) above
USP VM	ShadowImage or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy or TrueCopy Asynchronous or Universal Replicator	The same version as shown in Table (2) above
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	The same version as shown in Table (1) above
Hitachi AMS2000 series#2(AMS2500/AMS2300/ AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy remote replication	The same version as shown in Table (2) above
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot	The same version as shown in Table (1) above
	TrueCopy remote replication	The same version as shown in Table (2) above

(4) When backup is performed on Windows Server 2008 noSP

System Requirements

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E or later
Thunder 9580V	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E or later
Lightning 9900V series	Hitachi ShadowImage or Hitachi TrueCopy -Sync	NOT supported
USP/NSC	ShadowImage or Copy-on-write SnapShot or TrueCopy or TrueCopy Asynchronous or Universal Replicator	50-09-34 or later
Hitachi AMS series (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
USP V	ShadowImage or Copy-on-write SnapShot or TrueCopy or TrueCopy Asynchronous or Universal Replicator	60-01-68 or later
USP VM	ShadowImage or Copy-on-write SnapShot or TrueCopy or TrueCopy Asynchronous or Universal Replicator	60-01-68 or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1810/N or later
Hitachi AMS2000 series (AMS2500/AMS2300/AMS2100)	TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

(5) When backup is performed on Windows Server 2008 SP2 or Windows Server 2008 R2

Storage subsystem	DKS Software Products	Microcode Version
Thunder 9570V and Thunder 9530V	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	065E/A or later

System Requirements

Thunder 9580V	Hitachi ShadowImage or Hitachi QuickShadow or Hitachi TrueCopy Basic	165E/A or later
Lightning 9900V series	Hitachi ShadowImage or Hitachi TrueCopy -Sync	NOT supported
USP/NSC#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	50-09-71 or later
Hitachi AMS series (AMS1000/AMS500/AMS200)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series(WMS100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0770/G or later
USP V#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-72 or later
USP VM#1	ShadowImage or Copy-on-write SnapShot or TrueCopy	60-01-72 or later
Hitachi SMS series(SMS100)	ShadowImage in-system replication or Copy-on-write SnapShot	1832/A or later
Hitachi AMS2000 series (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later
	TrueCopy Extended Distance	NOT supported
Hitachi AMS2000 series (AMS2500(H/W Rev. 0200) /AMS2300(H/W Rev. 0200) /AMS2100(H/W Rev. 0200))	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0890/A or later
	TrueCopy Extended Distance	NOT supported

#1: "x" or "xx" in a version number indicates any number.

#2: Make sure the storage subsystem microcode version is 0880/A or later when using virtual volumes created by using the Dynamic Provisioning function.

RAID Management Products

This section describes the combination of storage subsystems, version of microcodes, and available functionality of Protection Manager showing in tables. In the following tables, the versions listed in Microcode column are the earliest versions, which make the functionality available indicated in Available Functionality column.

When using the later version of Microcode than listed version in the table below, be sure to use RAID Manager and RM Shadow Copy Provider included in the same complete set of media as that of the Microcode.

System Requirements

The following sections in the RAID Manager configuration definition file (horcmn.conf) of the RAID Manager instance that links to Protection Manager are supported:

- HORCM_MON
- HORCM_CMD
- HORCM_DEV
- HORCM_LDEV #1
- HORCM_INST

#1: RAID Manager 01-18-03/06 or later is required.

(1) For RAID Storage System Devices

Storage subsystem	Microcode Version	Prerequisite RAID Manager (RM) software	Available Functionality
Lightning 9900 series	01-17-7x-00	RM:01-19-03/04	Backup using Single/Multiple generation with HOMRCF Remote backup using HORC
Lightning 9900V series	21-01-24-00/00	RM:01-19-03/03	Backup using Single/Multiple generation with Hitachi ShadowImage Remote backup using Hitachi TrueCopy –Sync or Hitachi TrueCopy –Async
	21-09-08-00/00	RM:01-13-03/00	Backup using Single/Multiple generation with Hitachi ShadowImage Remote backup using Hitachi TrueCopy –Sync or Hitachi TrueCopy –Async When operating in such a way that the OS dynamically recognizes secondary volumes
USP/NSC	50-02-01-xx (Only for USP)	RM:01-15-03/04	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes
	50-03-30-xx/00 (Only for USP)	RM:01-16-03/03	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator
	50-05-06-00/00	RM:01-17-03/04	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot

System Requirements

	50-09-34	RM:01-20-03/06	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot Backup on Windows Server 2008 noSP
	50-09-71	RM:01-23-03/08	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot Backup on Windows Server 2008 SP2 Backup on Windows Server 2008 R2
USP V/USP VM	60-01-24/XX	RM:01-20-03/XX	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot
	60-01-6X/XX	RM:01-20-03/XX	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot
	60-01-68	RM:01-20-03/06	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot Backup on Windows Server 2008 noSP
	60-01-72	RM:01-23-03/08	Backup using Single/Multiple generation with ShadowImage. Remote backup using TrueCopy or TrueCopy Asynchronous When operating in such a way that the OS dynamically recognizes secondary volumes Remote backup with Universal Replicator Backup with Copy-on-write Snapshot Backup on Windows Server 2008 SP2 Backup on Windows Server 2008 R2

(2) For DF Storage System Devices

System Requirements

Storage subsystem	Microcode Version	Prerequisite RAID Manager (RM) software	Available Functionality
Thunder 9200 series	05xD/B	RM:01-09-03/03	Backup using Single/Multiple generation with MRCF Backup with Multiple RAID Coupling Feature-Lite Remote Pack
Thunder 9500V series	0651/M	RM:01-10-03/02	Backup using Single/Multiple generation with Hitachi ShadowImage Backup with Hitachi TrueCopy Basic
	x655/D	RM:01-12-03/04	Backup using Single/Multiple generation with Hitachi ShadowImage Backup with Hitachi QuickShadow Backup with Hitachi TrueCopy Basic
	x657/A	RM:01-13-03/00	Backup using Single/Multiple generation with Hitachi ShadowImage Backup with Hitachi QuickShadow Backup with Hitachi TrueCopy Basic When operating in such a way that the OS dynamically recognizes secondary volumes
	x65E	RM:01-20-03/06	Backup using Single/Multiple generation with Hitachi ShadowImage Backup with Hitachi QuickShadow Backup with Hitachi TrueCopy Basic When operating in such a way that the OS dynamically recognizes secondary volumes Backup on Windows Server 2008 noSP
	x65E/A	RM:01-23-03/08	Backup using Single/Multiple generation with Hitachi ShadowImage Backup with Hitachi QuickShadow Backup with Hitachi TrueCopy Basic When operating in such a way that the OS dynamically recognizes secondary volumes Backup on Windows Server 2008 SP2 Backup on Windows Server 2008 R2
Hitachi AMS series	0712/A	RM:01-16-03/06	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot Backup with TrueCopy remote replication When operating in such a way that the OS dynamically recognizes secondary volumes
	0770/G	RM:01-20-03/06	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot Backup with TrueCopy remote replication When operating in such a way that the OS dynamically recognizes secondary volumes Backup on Windows Server 2008 noSP

System Requirements

	0770/G	RM:01-23-03/08	<p>Backup using Single/Multiple generation with ShadowImage in-system replication</p> <p>Backup with Copy-on-write Snapshot</p> <p>Backup with TrueCopy remote replication</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p> <p>Backup on Windows Server 2008 SP2</p> <p>Backup on Windows Server 2008 R2</p>
Hitachi WMS series	0712/A	RM:01-16-03/06	<p>Backup using Single/Multiple generation with ShadowImage in-system replication</p> <p>Backup with Copy-on-write Snapshot</p> <p>Backup with TrueCopy remote replication</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p>
	0770/G	RM:01-20-03/06	<p>Backup using Single/Multiple generation with ShadowImage in-system replication</p> <p>Backup with Copy-on-write Snapshot</p> <p>Backup with TrueCopy remote replication</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p> <p>Backup on Windows Server 2008 noSP</p>
	0770/G	RM:01-23-03/08	<p>Backup using Single/Multiple generation with ShadowImage in-system replication</p> <p>Backup with Copy-on-write Snapshot</p> <p>Backup with TrueCopy remote replication</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p> <p>Backup on Windows Server 2008 SP2</p> <p>Backup on Windows Server 2008 R2</p>
Hitachi SMS series	1810/N	RM:01-20-03/06	<p>Backup using Single/Multiple generation with ShadowImage in-system replication</p> <p>Backup with Copy-on-write Snapshot</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p> <p>Backup on Windows Server 2008 noSP</p>
	1832/A	RM:01-23-03/08	<p>Backup using Single/Multiple generation with ShadowImage in-system replication</p> <p>Backup with Copy-on-write Snapshot</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p> <p>Backup on Windows Server 2008 SP2</p> <p>Backup on Windows Server 2008 R2</p>

System Requirements

Hitachi AMS2000 series	0832/E	RM:01-20-03/06	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot Backup with TrueCopy remote replication When operating in such a way that the OS dynamically recognizes secondary volumes#1 Backup on Windows Server 2008 noSP
	0832/E	RM:01-23-03/08	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot Backup with TrueCopy remote replication When operating in such a way that the OS dynamically recognizes secondary volumes#1 Backup on Windows Server 2008 SP2 Backup on Windows Server 2008 R2
Hitachi AMS2000 series (H/W Rev. 0200)	0890/A	RM:01-23-03/08	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot Backup with TrueCopy remote replication When operating in such a way that the OS dynamically recognizes secondary volumes#1 Backup on Windows Server 2008 Backup on Windows Server 2008 R2

#1: Make sure the storage subsystem microcode version is 0880/A or later when using virtual volumes created by using the Dynamic Provisioning function.

File System

- NTFS

Microsoft(R) Exchange Server

#	Product Name	Service Pack
1	Microsoft (R) Exchange 2000 Server	SP3
2	Microsoft (R) Exchange 2000 Enterprise	SP3
3	Microsoft (R) Exchange Server 2003 Standard Edition	SP1
		SP2
4	Microsoft (R) Exchange Server 2003 Enterprise Edition	SP1
		SP2

Cluster Software

#	Cluster Software	Service Pack and Maintenance Pack
1	Microsoft(R) Cluster Service	#1

System Requirements

2	Microsoft(R) Failover Cluster	None
3	Veritas Storage Foundation HA 4.1 for Windows	None #2, #3
4	Veritas Storage Foundation HA 4.3 for Windows	MP1 #2, #3
5	Veritas Storage Foundation HA 5.0 for Windows	None #2, #3

OS requirements for Veritas Storage Foundation HA for Windows and notes are shown below.

OS requirements			Veritas Storage Foundation HA for Window				
OS name		SP No	4.1	4.2	4.3		5.0
					None	MP1	
Windows 2000	Server	SP4	Y	--	--	Y#4	--
	Advanced Server	SP4	Y	--	--	Y#4	--
	Datacenter Server	SP4	Y	--	--	Y#4	--
Windows Server 2003, (32 bit)	Standard Edition	SP2	--	--	--	--	Y#4
	Enterprise Edition	SP2	--	--	--	--	Y#4
	Datacenter Edition	SP2	--	--	--	--	Y#4
Windows Server 2003, (x64)	Standard x64 Edition	SP2	--	--	--	--	Y#4
	Enterprise x64 Edition	SP2	--	--	--	--	Y#4
	Datacenter x64 Edition	SP2	--	--	--	--	Y#4
Windows Server 2003, (IPF)	Enterprise Edition	SP2	--	--	--	--	Y#4
	Datacenter Edition	SP2	--	--	--	--	Y#4
Windows Server 2003 R2, (32 bit)	Standard Edition	SP2	--	--	--	--	Y#4
	Enterprise Edition	SP2	--	--	--	--	Y#4
	Datacenter Edition	SP2	--	--	--	--	Y#4
Windows Server 2003 R2, (x64)	Standard x64 Edition	SP2	--	--	--	--	Y#4
	Enterprise x64 Edition	SP2	--	--	--	--	Y#4
	Datacenter x64 Edition	SP2	--	--	--	--	Y#4
Windows Server 2008 (32-bit)	Standard	None	--	--	--	--	--
	Enterprise	None	--	--	--	--	--
	Datacenter	None	--	--	--	--	--
Windows	Standard	None	--	--	--	--	--

System Requirements

Server 2008 (x64)	Enterprise	None	--	--	--	--	--
	Datacenter	None	--	--	--	--	--
Windows Server 2008 (IPF)	Enterprise	None	--	--	--	--	--
Windows Server 2008 R2(x64)	Standard	None	--	--	--	--	--
	Enterprise	None	--	--	--	--	--
	Datacenter	None	--	--	--	--	--
Windows Server 2008 R2(IPF)	Enterprise	None	--	--	--	--	--

(Legend) Y: Supported
 --: NOT supported

#1: Restoration of a cluster resource in an online state is not supported in Windows 2000.

#2: Creation of a volume on a basic disk is not supported if the volume is to be subject to Protection Manager backup or restoration. Create such a volume onto a dynamic disk configured by Veritas Volume Manager for Windows, which is bundled with Veritas Storage Foundation HA for Windows.

#3: Backups taken using VSS are not supported.

#4: When using a Global Cluster Option configuration, Veritas Cluster Server 4.3, 5.0 Hardware Replication Agent for Hitachi TrueCopy is now supported as a data replication method but Veritas Volume Replicator is not.

Volume Manager Software

#	Volume Manager Software	Service Pack and Maintenance Pack
1	OS-standard logical volume manager	None #1
2	Veritas Storage Foundation 4.1 for Windows Veritas Storage Foundation HA 4.1 for Windows	None #2, #3
3	Veritas Storage Foundation 4.3 for Windows Veritas Storage Foundation HA 4.3 for Windows	None #2, #3
		MP1 #2, #3
4	Veritas Storage Foundation 5.0 for Windows Veritas Storage Foundation HA 5.0 for Windows	None #2, #3, #5

OS requirements for Veritas Storage Foundation for Window or Veritas Storage Foundation HA for Window and notes are shown below.

OS requirements		Veritas Storage Foundation for Windows and Veritas Storage Foundation HA for Windows			
OS name	SP No	4.1	4.2	4.3	5.0

System Requirements

					None	MP1	
Windows 2000	Server	SP4	Y	--	--	Y#4	--
	Advanced Server	SP4	Y	--	--	Y#4	--
	Datacenter Server	SP4	Y	--	--	Y#4	--
Windows Server 2003, (32 bit)	Standard Edition	SP2	--	--	--	--	Y#4
	Enterprise Edition	SP2	--	--	--	--	Y#4
	Datacenter Edition	SP2	--	--	--	--	Y#4
Windows Server 2003, (x64)	Standard x64 Edition	SP2	--	--	--	--	Y#4
	Enterprise x64 Edition	SP2	--	--	--	--	Y#4
	Datacenter x64 Edition	SP2	--	--	--	--	Y#4
Windows Server 2003, (IPF)	Enterprise Edition	SP2	--	--	--	--	Y#4
	Datacenter Edition	SP2	--	--	--	--	Y#4
Windows Server 2003 R2, (32 bit)	Standard Edition	SP2	--	--	--	--	Y#4
	Enterprise Edition	SP2	--	--	--	--	Y#4
	Datacenter Edition	SP2	--	--	--	--	Y#4
Windows Server 2003 R2, (x64)	Standard x64 Edition	SP2	--	--	--	--	Y#4
	Enterprise x64 Edition	SP2	--	--	--	--	Y#4
	Datacenter x64 Edition	SP2	--	--	--	--	Y#4
Windows Server 2008 (32-bit)	Standard	None	--	--	--	--	--
	Enterprise	None	--	--	--	--	--
	Datacenter	None	--	--	--	--	--
Windows Server 2008 (x64)	Standard	None	--	--	--	--	--
	Enterprise	None	--	--	--	--	--
	Datacenter	None	--	--	--	--	--
Windows Server 2008 (IPF)	Enterprise	None	--	--	--	--	--
Windows Server 2008 R2(x64)	Standard	None	--	--	--	--	--
	Enterprise	None	--	--	--	--	--
	Datacenter	None	--	--	--	--	--

System Requirements

Windows Server 2008 R2(IPF)	Enterprise	None	--	--	--	--	--
-----------------------------	------------	------	----	----	----	----	----

(Legend) Y: Supported
 --: NOT supported

#1: Dynamic disks are supported. However, dynamic disks are not supported in Windows 2000 Server, Windows Server 2008 and Windows Server 2008 R2.

#2: The Dynamic Multi Pathing (DMP) option is not supported.

#3: Backups taken using VSS are not supported.

#4: Usage in combination with Microsoft(R) Cluster Service is not supported.

#5: An error event log (event ID 10) of the Virtual Disk Service might be displayed. Apply the Veritas Storage Foundation for Windows 5.0 Rollup Patch 1a to avoid this problem.

Backup Management Software

When linking with a tape backup management product to back up the data on a secondary volume to a tape device:

#	Operating Systems	Service Pack	Backup Management Software	Prerequisite Maintenance Pack
1	Windows 2000 Server	SP4	Veritas NetBackup 5.0	None #1
			Veritas NetBackup 5.1	None #1
			Veritas NetBackup 6.0	MP2 #1
			Symantec Backup Exec 10.0	MP1
2	Windows Server 2003 (32bit)	SP2	Symantec NetBackup 6.0	MP2 #1
			Symantec NetBackup 6.5	None
			Symantec Backup Exec 11d	None
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
3	Windows Server 2003 (x64)	SP2	Veritas NetBackup 6.0	MP2 #1
			Veritas NetBackup 6.5	None
			Symantec Backup Exec 11d	None
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
4	Windows Server 2003 (IPF)	SP2	Veritas NetBackup 6.0	MP2 #1
			Veritas NetBackup 6.5	None #1
5	Windows Server 2008 (32bit)	noSP	Veritas NetBackup 6.5	None #2

System Requirements

			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
6	Windows Server 2008 (x64)	noSP	Veritas NetBackup 6.5	None #2
			Symantec Backup Exec 12	None
			Symantec Backup Exec 12.5	None
7	Windows Server 2008 (IPF)	noSP	Veritas NetBackup 6.5	None #2

#1: Both of the NetBackup master server feature and the NetBackup media server feature must be running on the backup server.

#2: NetBackup 6.5.2 or later is required.

Path Manager Software

When multiple paths of physical disks are managed by the path manager software:

#	Operating Systems	Service Pack	Path Manager Software
1	Windows 2000 Server	SP4	HiCommand Dynamic Link Manager 4.0.0 or later
			Hitachi Dynamic Link Manager 6.0.0 or later
2	Windows Server 2003	SP2	HiCommand Dynamic Link Manager 4.0.0 or later
			Hitachi Dynamic Link Manager 6.0.0 or later
3	Windows Server 2008	noSP	HiCommand Dynamic Link Manager 5.9.5 or later
			Hitachi Dynamic Link Manager 6.0.0 or later

Scripting Engine

When using extended commands of Protection Manager:

#	Operating Systems	Service Pack	Scripting Engine
1	Windows 2000 Server	SP4	Windows Scripting Host 5.6
2	Windows Server 2003	SP2	Windows Scripting Host 5.6
3	Windows Server 2008	noSP, SP2	Windows Scripting Host 5.7
3	Windows Server 2008 R2	noSP	Windows Scripting Host 5.8

FTP Server Software (on the Backup Server)

When performing ftp operation by using extended commands of Protection Manager:

#	FTP Server Software	Service Pack
1	Microsoft(R) Internet Information Services 6.0	None #1 #2
2	Microsoft(R) Internet Information Services 7.5	None #2

#1: FTP operation in an IPv6 environment is not supported.

#2: The ftp service must be treated as exception program by Windows Firewall.

FTP Client Software (on the Database Server or File Server)

When performing ftp operation by using extended commands of Protection Manager:

#	FTP Server Software	Service Pack
1	Standard FTP utility for the OS (ftp.exe)	None #1

#1: The ftp.exe must be treated as exception program by Windows Firewall.

Memory and Disk Space Requirements

Memory Requirements

No.	Item	Memory requirements KB (*1)
1	Command facility	Standard: 64000 (Minimum: 32000)
2	GUI facility	Standard: 111000 (Minimum 41000)

(*1) 1KB (Kilobyte)=1,024 bytes

Disk Space Requirements

No.	Item	Disk space requirements KB (*1)
1	Protection-Manager-installation-destination\	33000
2	Protection-Manager-Console-installation-destination\	18000

(*1) 1KB (Kilobyte)=1,024 bytes

The following files also require additional disk space.

No.	Item	Directory	Size KB (*1)
1	Trace log-file	Protection-Manager-installation-destination\log	64000+ Additional size (*2)

System Requirements

2	Dictionary map file	Protection-Manager-installation-destination\db	(*3)
3	Backup catalog file	Protection-Manager-installation-destination\db	(*4)

(*1) 1KB (Kilobyte)=1,024 bytes

(*2) Additional size =

(trace-log-file-size) *

(number-of-trace-log-files) *

(number-of-instances-of-this-product-concurrently-activated-on-the-same-host)

The size of a trace log file and number of trace log files are set in the console.conf file.

For example, when the size of a trace log file is 32,000 KB (maximum), number of trace log files is 10 (maximum), and number of instances concurrently activated on the same host is 1, the additional disk space requirement is as follows.

$$32,000 \text{ KB} \times 10 \times 1 = 320,000 \text{ KB}$$

(*3) Disk space requirements of the dictionary map file :KB

$$= 0.2 +$$

number-of-storage-groups +

number-of-data-files +

(number-of-mount-point-directories * 2) +

number-of-physical-volumes +

(number-of-secondary-volumes * 0.2) +

(number-of-pair-volumes * 0.1)

(*4) Disk space requirements of the backup catalog file for Exchange Server 2000/2003 :KB

$$= \{ 8.0 +$$

(number-of-storage-groups * 4) +

(number-of-data-files * 3) +

(number-of-transaction-log-files * 2) +

(number-of-mount-point-directories * 5) +

(number-of-physical-volumes * 4) +

(number-of-secondary-volumes * 4) +

number-of-pair-volumes +

System Requirements

$$\begin{aligned} & (\text{number-of-backup-target-storage-groups} * 8) + \\ & (\text{number-of-backup-target-data-files} * 3) + \\ & (\text{number-of-backup-target-transaction-log-files} * 3) + \\ & \text{number-of-backup-target-drive-characters} + \\ & (\text{number-of-target-files-or-directories} * 3) + \\ & \text{number-of-target-pair-volumes} \} * (\text{number-of-backup-times}) \end{aligned}$$

Disk space requirements of the backup catalog file for Exchange Server 2007 :KB

$$\begin{aligned} = & \{ 8.0 + \\ & (\text{number-of-storage-groups} * 4) + \\ & (\text{number-of-data-files} * 3) + \\ & (\text{number-of-mount-point-directories} * 5) + \\ & (\text{number-of-physical-volumes} * 4) + \\ & (\text{number-of-secondary-volumes} * 4) + \\ & (\text{number-of-pair-volumes}) + \\ & (\text{number-of-backup-target-storage-groups} * 10) + \\ & (\text{number-of-backup-target-data-files} * 3) + \\ & (\text{number-of-backup-target-drive-characters}) + \\ & (\text{number-of-target-files-or-directories} * 3) + \\ & (\text{number-of-target-pair-volumes}) \} * (\text{number-of-backup-times}) \end{aligned}$$

Number of mounted drives: Number of mounted drives displayed by Windows explorer.

Number of Physical disks: Number of volume which displayed by RAID Manager inraid command.

Number of Pair volumes: Number of paired volume which displayed by RAID Manager pairedisplay command.

Number of Secondary volumes: Number of secondary volumes (SVOL) which displayed by RAID Manager pairedisplay command.

Addition:

Protection Manager products and Protection Manager for Exchange products share the use of the additional disk space requirement described above in (*2) and (*3).

System Resource Requirements

No.	Item	Disk space requirements KB (*1)
-----	------	---------------------------------

Fixed Problems

1	Semaphore	2
2	Shared memory size	132
3	Nonpaged Pool	Minimum: 8192 We recommend a value at least as large as the disk space requirements of the backup catalog file for a single backup.

(*1) 1KB (Kilobyte)=1,024 bytes

Parameter Specs

No.	Parameter Item	Parameter requirements
1	Copy group	Only alphanumerical character or comma. Maximum 63 characters.
2	Path-name	Absolute path-name onyx. Maximum 255 characters.
3	File-name	Maximum 255 characters.
4	Backup ID	Only an integer. Valid range is from 0000000001 to 4294967295 Leading zeros cannot be omitted.
5	Class name of NetBackup	Maximum 255 characters.
6	Schedule name of NetBackup	Maximum 255 characters.
7	Backup Exec Job-script-file-name	Maximum 1024 characters.
8	Virtual server name	Maximum 255 characters.
9	Storage group name	Maximum 64 characters. - Exchange Server 2003 except = ; \ / , - Exchange Server 2007 except = ; \ / , " ` \$

Fixed Problems

Fixed Problems 6.4.0-02

Common

None

Exchange

- 1) The following problem has been corrected: If multiple database servers are using one backup server, the value of the VERIFY_PARALLEL_COUNT parameter in the init.conf file on the backup server is 2 or more, and a VSS backup of Exchange Server is performed, the Protection Manager service on the backup server may stop and the VSS backup may fail with the error code KAVX0258-E.

Exchange 2007

- 1) The following problem has been corrected: If multiple database servers are using one backup server, the value of the VERIFY_PARALLEL_COUNT parameter in the init.conf file on the backup server is 2 or more, and a VSS backup of Exchange Server is performed, the Protection Manager service on the backup server may stop and the VSS backup may fail with the error code KAVX0258-E.

Console

None

Fixed Problems 6.4.0-01

Common

- 1) The following problem has been corrected: When an HPtM backup command is executed with the "-auto_import" option, the command may fail with the KAVX0258-E message.
- 2) The following problem has been corrected: Even if a command to mount a volume fails with the KAVX0006-E (DRM-10016) message, the command returns a value of zero, and the copy group is locked.

Exchange

None

Exchange 2007

None

Console

None

Fixed Problems 6.4.0-00

Common

None

Exchange

None

Exchange 2007

- 1) The following problem has been corrected: When using Exchange Server 2007, the `drmexgdisplay -refresh` command, the `drmexgbackup` command, or the `drmexgrestore` command sometimes fails with the KAVX1514-E message.

Console

None

Known Problems

About Support for Protection Manager Console on Windows Server 2008 R2:

After the Java Runtime Environment for Windows Server 2008 R2 formally ships, we plan to check and verify operations, and provide formal support. However, note that formal support is not available for this release.

Installation Precautions

If a "Locked File Detected" message appears during installation or uninstallation of Protection Manager, click [Reboot] to continue the installation or uninstallation.

In the [Input user account of Protection Manager Service] dialog box, use the format "*domain\user*" when specifying the domain user for the user account of the Protection Manager Service. Note that the format "*user@FQDN*" cannot be used. Use Windows service management console to specify the format "*user@FQDN*" for the user account of the Protection Manager Service.

To install this product, see Chapter 3 of the manual Hitachi Protection Manager Software User's Guide.

Usage Precautions

Common

- (1) If the `drmfsbackup` command is executed before creating the dictionary-mapping file by the `drmfsdisplay` command, it takes a long time to perform the backup processing because the dictionary-mapping file needs to be created.
To resolve this problem, execute the `drmfsdisplay` command with the `-refresh` option and create the dictionary-mapping file before executing the `drmfsbackup` command.
- (2) In Windows 2000, if you execute one of the following commands while a software system that refers to the Windows performance registry (#1) is running, the execution may fail (#2):

`drmfbackup -mode cold`: Unmounts the target disk and backs it up as a snapshot

`drmfrestore -resync`: Unmounts the target disk and restores

(#1): The Tuning Manager family is a typical example of software products that refers to the Windows performance registry.

(#2): If the Windows performance registry of the disk is referred, unmounting of the disk will fail.

When executing the commands above, stop the software that is referring to the Windows performance registry, and then execute the above commands. This should eliminate command failures and delays.

If the unmounting fails, Protection Manager retries unmounting 3 times at 5 second intervals.

If all the retries fail, scan the relevant disk, as another problem might have occurred.

(3) If the version of the dictionary map file is earlier than 01-03, the most recent modification date of the file (as indicated when the `drmfdisplay` command is executed with the `-v` option) is not guaranteed to be correct. To resolve this problem, execute the `drmfdisplay` command with the `-refresh` option, create an application map file, and correct the date.

(4) Notes on using Hitachi Dynamic Link Manager 5.4 in Windows

When a Protection Manager command is executed and the following error message is output, a path error may have been detected in Hitachi Dynamic Link Manager.

Protection Manager message:

KAVX0006-E An error that stopped processing occurred.

Cause = DRM-10015 An attempt to obtain RAID information failed.

Dynamic Link Manager path errors can be checked in the application event log. If the KAPL08022-E message has been output to the application event log, check which paths have errors by using the `dlnkmgr view -lu -item ie` or `dlnkmgr view -path` command provided by Dynamic Link Manager. When the path that Dynamic Link Manager first recognized is the one among the paths with an error, reboot the server. The procedure for the checking is:

1. Search for the following message in the application event log, and then acquire the PathID output in the explanation:

Source: DLM Manager
Event ID: 32790

2. Acquire the iLU that the PathID connects to by executing the `dlnkmgr view -lu -item ie` or `dlnkmgr view -path` command.

3. When the path that Dynamic Link Manager first recognized as having an error is the one among the paths connecting to the same iLU, reboot the server.

The following is an example of when a reboot is required. In this example, when the PathID acquired from the event log is 0, the path, whose PathID is 0, is recognized first among the paths whose iLU is 0012. The dlnkmgr view -lu -item ie command is executed as follows:

```
c:\>dlnkmgr view -lu -item ie
Product      : DF600F
SerialNumber : 0671
LUs          : 3
iLU          HDevName  PathID   Status   IO-Errors
0012         D          000000  Offline(E)  1
              000003  Online    0
0013         F          000001  Online      0
              000004  Online    0
0014         G          000003  Online      0
              000005  Online    0
```

```
KAPL01001-I The HDLM command completed normally. Operation
name = view
```

- (5) For multi-path configurations made with Dynamic Link Manager (HDLM) from 5.5.0 to 5.7.0, if a path failure occurs during the backup/restore for this product and the recovery from the failure is performed, the Windows Plug and Play function may replace the PhysicalDrive number(s) of the command device(s) described in the RAID Manager configuration definition file with the number of another disk. When the backing up or restoration is executed in this situation, the commands provided by Protection Manager may fail with an error. When the PhysicalDrive number for the command device is changed after the path recovery, reboot the server or execute the following PhysicalDrive number recovery procedure to reset the PhysicalDrive number of the command device back to the original number that is described in the RAID Manager configuration definition file:

[This example assumes that the PhysicalDrive number is replaced with that of grp described in the RAID Manager configuration definition file]

After the path restoration, temporarily hide all of the backup disks other than the command device (in this case, grp only) and perform a re-scan to reset PhysicalDrive number to its original number that has been assigned to the command device.

```
C:\HORCM\etc> raidvchkset -g grp -vg idb (Hide the backup disk.)
C:\HORCM\etc>diskpart
:
DISKPART> rescan
```

```
C:\HORCM\etc> raidvchkset -g grp -vg (Re-display the backup disk.)
C:\HORCM\etc>diskpart
```

```
:  
DISKPART> rescan
```

Once completed, use `inraid $Phys -CLI` to make sure that the disk assignment has been reset.

- (6) When all of the following conditions exist, make sure that the secondary volume to be used as the backup destination for the primary volume is a single generation. Also, note that operations such as recognizing secondary volumes dynamically in a backup server cannot be performed.
 - The environment is Veritas Storage Foundation 4.3 or 5.0 for Windows, or Veritas Storage Foundation HA 4.3 or 5.0 for Windows.
 - The target for backup is a dynamic disk.
 - The configuration is for tape backup to be performed in the backup server.
- (7) In a cluster configuration using the Global Cluster Option of Veritas Storage Foundation HA 4.3 or 5.0 for Windows, even when you are using the same instance on Protection Manager as the one specified as the HTC resource on RAID Manager, you must perform the following procedure before you start backup or restore operations:
 1. Register the RAID Manager instance as a Windows service. For details on the registration method, see the RAID Manager manual.
 2. Change the startup account for the RAID Manager service to the Administrator account.
 3. Make the Veritas High availability engine service (Had) dependent on the RAID Manager service.
 4. Restart the server.
 5. Make sure that the user who started the RAID Manager instance is the Administrator.
- (8) If all of the following items apply to the configuration and the `CHKDSK /F` command is executed, an attempt to execute Protection Manager's cold backup command might fail because the operation for bringing the MountV resource of Veritas Cluster Server online sometimes fails:
 - Windows Server 2003
 - Veritas Storage Foundation HA 4.2, 4.3 or 5.0 for a Windows environment
 - Veritas Cluster Server is in a cluster configuration

If this happens, the following error messages are output to the agent logs of Veritas Cluster Server:

```
Resource Type: MountV  
Log Type: Error  
Description: V-16-10051-9026 MountV:resource-Name:online:Filesystem  
at mount-point is not clean.
```

- If this problem occurs, recover the environment by performing the following procedure:
 1. Use Cluster Explorer to remove the error in the MountV resource.
 2. Use Cluster Explorer to place the VMDg resource online.
 3. Execute the CHKDSK command for the volume monitored by the MountV resource.
 PROMPT>CHKDSK /F \\?\Volume{GUID}
 4. Use Cluster Explorer to place the MountV resource online.
 - After executing the CHKDSK /F command, the problem described here can be prevented by performing the following procedure:
 1. Use Cluster Explorer to place the MountV resource offline.
 2. Execute the fsutil command and make sure that the dirty bit is set to the volume monitored by the MountV resource.
 PROMPT>fsutil dirty query Volume{GUID}
 - If the output result of the command is "Volume{GUID} is Dirty", go to step 3.
 - If the output result of the command is "Volume{GUID} is NOT Dirty", go to step 4.
 3. Execute the CHKDSK command for the volume monitored by the MountV resource.
 PROMPT>CHKDSK /F \\?\Volume{GUID}
 4. Use Cluster Explorer to place the MountV resource online.
- (9) When using Veritas Cluster Server in Windows Server 2003, before executing the backup command, use Computer Management to make sure the startup type of the Windows Management Instrumentation service is not "disable".

If the startup type is "disable", the following commands will fail and the following error message will be displayed:

Backup commands:

- drmfbackup -mode cold
- EX_DRM_FS_BACKUP -mode cold
- drmexgbackup -mode cold
- EX_DRM_EXG_BACKUP -mode cold

Restore commands:

- drmfrestore -resync
- EX_DRM_FS_RESTORE -resync
- drmsqlrestore -resync

Usage Precautions

- EX_DRM_SQL_RESTORE –resync
- drmxgrestore –resync
- EX_DRM_EXG_RESTORE –resync

The following message is displayed:

KAVX0006-E An error that stopped processing occurred.

Cause = DRM-10040: An attempt to place the cluster resource offline failed.

(10) The online help of Protection Manager is developed by using RoboHelp of Adobe Systems Incorporated. Therefore, the behavior complies with the RoboHelp specifications. Note the following when using the online help:

(1) Printing the content of a pop-up window

To print the content of a pop-up window, right-click on the pop-up window, and then choose Print. If clicking the Print icon in the upper-right corner, the contents of the pop-up window and the background window are printed on top of each other.

(2) About fuzzy search

The online help uses fuzzy search. The results of fuzzy search include the singular form of a noun even if you specifying the plural form of a noun, and the past form of a verb even if specifying the present form of a verb. For example, when searching for the word "appeared", then "appear" and "appears" may be found.

(3) About searching for more than 30 words

Specify less than 29 words when you searching. Searches on more than 30 words may not run correctly.

(11) The 32bit emulation mode (<OS-installation-directory>\SysWOW64\cmd.exe) for a 64bit OS is not supported for the commands `drm_log.bat` and `drmaddfwlist.bat`. The 64bit native execution environment (<OS-installation-directory>\system32\cmd.exe) is required to use these commands.

(12) When the `drmmmediabackup` command or the `EX_DRM_TAPE_BACKUP` command is executed with the `-raw` option, mount the secondary volume to a drive (indicated by a drive letter) and then use a following procedure to back up to the tape device:

- When using the `drmmmediabackup` command:

1) Mount the secondary volume to a drive (indicated by a drive-letter):

Mount the secondary volume by either of the following methods:

- PROMPT> `drmmount backup-ID`
- PROMPT> `drmmount backup-ID -mount_pt drive-letter`

2) Back up to the tape device:

PROMPT> drmmmediabackup backup-ID -raw

3) Unmount the secondary volume:

PROMPT> drmumount backup-ID

- When using the EX_DRM_TAPE_BACKUP command:

1) Back up to the tape device:

Mount the secondary volume and back up to the tape device by either of the following methods:

- PROMPT> EX_DRM_TAPE_BACKUP operation-ID -raw
- PROMPT> EX_DRM_TAPE_BACKUP operation-ID -raw -mount_pt drive-letter

Note: A restoration by the drmmmediarestore command and the EX_DRM_TAPE_RESTORE command will fail if the secondary volume is mounted to an NTFS folder. If a backup from the secondary volume mounted to the NTFS folder has already been performed, perform the restoration by using NetBackup Administration Console.

(13) In an IPv6 environment, the IP address in the application event log message displayed by Protection Manager might be displayed incorrectly:

< Example of event log in the environment whose IP address is ' fec0::15e:20f:eaff:fe50:5bdc%1' >

KAVX0258-E An error occurred during communication with the Protection Manager service.

Host name =

fec0::15e:20f:eaff:fe50:5bdcfec0::15e:20f:eaff:fe50:5bdc ... (iteration) ... fec0::15e:20f:eaff:fe50:5bdc%1

In an IPv6 environment, specify the host name instead of the IP address to the following items:

- 1) The parameter of the configuration file:
 - The VSS definition file (vsscom.conf)
BACKUP_SERVER
 - The definition file for the cascade configuration
DB_SERVER,BK_SERVER
 - The operation definition file
DB_SERVER_NAME
 - The the mail send definition file (mail.conf)
SMTP_SERVER
 - The Exchange environment configuration file
EXG_CCR_PASSIVE_NODE

- 2) The option of the command line:
 - -s Backup server name
Command: EX_DRM_FS_BACKUP, EX_DRM_SQL_BACKUP, EX_DRM_EXG_BACKUP, drmfbackup, drmsqlbackup, drmemxgbackup
 - -server FTP-server (*1)
Command: EX_DRM_FTP_GET, EX_DRM_FTP_PUT
 - -hostname host-name
Command: drmfscat, drmapcat, drmtapecat, drmsqlcat, drmemxgcat
- 3) The input item of Protection Manager Console:
 - Backup / Backup job
Location: [Backup Advanced Options] dialog box
Input item: [Remote Server] text box
 - Setup GUI
Location: [VSS Definition] window
Input item: [Backup server host name] text box
Location: [Extended Commands Definition] window
Input item: [Database server name] text box
Location: [Email Notification] window
Input item: [Mail Server Name] text box
 - Configuration Check Function
Location: [Input Servers] dialog
Input item: [Server Name] list box

*1: The present version of Protection Manager does not support FTP operation in an IPv6 environment.

- (14) If you use VMware ESX/ESXi Server 4.0, the backup servers must be physical servers. Moreover, if you use Hyper-V, the backup servers may have to be physical servers. For details, see the manual Hitachi Protection Manager Software User's Guide.
- (15) A value that includes double quotation marks (") cannot be specified for the value of an extended command option.

Notes on Using Volume Shadow Copy Service

- (1) When performing a VSS backup, a combination of different OS editions (Standard Edition, Enterprise Edition, and Datacenter Edition) on the backup server and the database server is supported. However, the service packs of the backup server and the database server must be the same. Note that Windows Server 2003 R2 and Windows Server 2003, or Windows Server 2008 R2 and Windows Server 2008 cannot be used together.
- (2) When the following operations are performed, Protection Manager command may fail and the Windows system event log items (event IDs 1003 and 1076) may be output in the backup server:

- VSS backup is performed.
 - Dynamic recognition# is used to mount or unmount a secondary volume.
- #: Dynamic recognition is enabled by specifying ENABLE for DEVICE_DETACH in the RAID Manager linkage definition file (DEFAULT.dat).

This problem is fixed in Windows Server 2003 Service Pack 2.

If this problem occurs in another OS, the problem is solved by applying the OS patch (Hotfix 921597) to the backup server. For details, see the following URL:

<http://support.microsoft.com/kb/921597/en-us>

- (3) When performing a VSS backup, the backup may fail and error log events with the event IDs 17, 1, and 10010 may be output to the backup server's event log. In this case, the status of the Logical Disk Manager Administrative Service remains as stop-pending. If this problem occurs, perform the following procedure for recovery:

- Open Task Manager, and then on the [Process] tabbed page, select dmadimn.exe.
- Terminate the dmadimn.exe process by selecting [Terminate Process].
- Open the [Service] console, and then start the Logical Disk Manager Administrative Service.

This problem is the same as the one described in Microsoft technical information KB912063, however Hotfix 912063 cannot solve this problem. This problem is fixed in Windows 2003 Service Pack 2 or Windows 2003 R2 Service Pack 2.

- (4) When a VSS backup is performed, the following event logs may be output in the backup server.

Event Type: Warning
Event Source: ntfs
Event ID: 50

This event log has no effect on the backup processing and is output, because a secondary volume is temporarily hidden during VSS backup.

- (5) When applying the VSS update module that contains Hotfix 940349, apply the module to all servers that use VSS.
- (6) When VSS backup is executed in a Windows Server 2008 environment using Protection Manager, the following event log data is sometimes output to the backup server:

Source: VDS Dynamic Provider
Event ID: 10
Level: Error
Description: The provider failed while storing notifications from the driver.
The Virtual Disk Service should be restarted. hr=80042505

Even if the above event log data is output, it will not effect backup processing.

- (7) Apply Update 4 to VMware ESX/ESXi Server 3.5 to use VMware ESX/ESXi Server 3.5 to perform VSS backups.
- (8) When a VSS backup is performed, the following event logs may be output in the backup server.

Event Type: Warning
Event Source: VSS
Event ID: 12290

Description: Volume Shadow Copy Service warning:
GetVolumeInformationW(\\?\Volume{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}\,NULL,0,NULL,NULL,[0x00000000], , 260) ==
0x00000057. hr = 0x00000000.

Event Type: Warning
Event Source: VSS
Event ID: 12290

Description: Volume Shadow Copy Service warning:
GetVolumeInformationW(\\?\Volume{XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}\,NULL,0,NULL,NULL,[0x00000000], , 260) ==
0x00000001. hr = 0x00000000.

Event Type: Error
Event Source: Service Control Manager
Event ID: 7034

Description: The Virtual Disk Service terminated unexpectedly. It has done this XX time(s).

Even if the above event log data is output, it will not effect backup processing.

Notes on Using Hitachi Protection Manager for Exchange

- (1) When a VSS backup is executed without the -noverify option or -noverify_log_del option specified for an Exchange Server database whose data file path name or transaction log file path name exceeds 219 characters, the error below might occur.

To prevent the error from occurring, make sure you specify the data file path name or the transaction log file path name of the database so it does not exceed 219 characters.

For Exchange Server 2007:

KAVX5023-E An error occurred on the backup server.

Cause = DRM10002: An internal error occurred.

For Exchange Server 2003:

KAVX1614-E Verification detected a database error on the backup server.

Processing will now stop.

- (2) In a cascade configuration, when a backup is performed at a local site and remote site at the same time, one of the following events might be output to

the system event log by the backup server of the remote site. Even if system event log data is output, however, backed up data is not affected.

Event Type: Warning

Event Source: PlugPlayManager

Event ID: 257

Description: Timed out sending notification of target device change to window of "LDM Service"

Event Type: Warning

Event Source: PlugPlayManager

Event ID: 257

Description: Timed out sending notification of target device change to window of "VDS Notification Thread Hidden Window {XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX}"

Event Type: Error

Event Source: Service Control Manager

Event ID: 7034

Description: The Logical Disk Manager Administrative Service service terminated unexpectedly. It has done this XX time(s).

- (3) Using Protection Manager-Console in either of the following configurations is not supported:
- A cascade configuration.
 - A CCR configuration.
 - A SCR configuration.
- (4) Protection Manager cannot treat Exchange Server offline address book data as a backup or restore target. As a result, do not put data files, transaction log files or checkpoint files that are backup targets in the volume that is storing the offline address book data. If the backup target files are stored in the same volume that is storing the offline address book data, you must backup and restore the offline address book data separately.
- (5) When using VSS in Exchange Server, define the consistency group according to the following requirements:
- If files of each storage group use different physical volumes, define a consistency group for each storage group.
 - If files of multiple storage groups use the same physical volume, define one consistency group for all storage groups that use the same physical volume.
- (6) If Protection Manager is used and, in a Windows Server 2008 environment, a backup is acquired on a passive node of a CCR environment, the following event log data is sometimes output to the application event log:

Source: ESE

Event ID: 522

Level: Error

Description: Microsoft.Exchange.Cluster.ReplayService (xxxx) Log Verifier
exx xxx: An attempt to open the device name "xxx"
containing "xxx" failed with system error 5 (0x00000005):
"Access is denied. ". The operation will fail with error -1032
(0xfffffbf8).

Even if the above event log data is output, it will not effect backup processing.

- (7) If Protection Manager is used and, in a Windows Server 2008 environment, a backup is acquired on a target of an SCR environment, the following event log data is sometimes output to the application event log:

Source: ESE
Event ID: 522
Level: Error

Description: Microsoft.Exchange.Cluster.ReplayService (xxxx) Log Verifier
exx xxx: An attempt to open the device name "xxx"
containing "xxx" failed with system error 5 (0x00000005):
"Access is denied. ". The operation will fail with error -1032
(0xfffffbf8).

Source: MExchangeRepl
Event ID: 2104
Level: Error

Description: Log file action LogCopy failed for storage group "xxx".
Reason: CreateFile("xxx") = 2

Even if the above event log data is output, it will not effect backup processing.

- (8) If all of the following conditions are met, the Microsoft Exchange Replication Service stops for some period when a point-in-time restoration is executed:
- A CCR or SCR configuration is used (*1).
 - A transaction log is stored in a volume that is mounted to a directory.
 - A point-in-time restoration is performed.

While the Microsoft Exchange Replication Service is stopped, performance data provided by the Microsoft Exchange Replication Service cannot be acquired. In addition, a VSS backup that uses other products does not operate correctly.

If the point-in-time restoration fails, the Microsoft Exchange Replication Service might not restart. In this case, start it manually.

*1: However, if both of the following conditions are satisfied, the Microsoft Exchange Replication Service does not stop:

- 1) A SCR configuration and SCC configuration are used.
- 2) The restoration is performed while the cluster resources are offline.

- (9) When there is no free space in the volume in which the transaction log file is stored, if VSS backup is performed with the command `drmxgbackup`, the command might not return a response. Therefore, do not use this command to perform a VSS backup if there is no free space in the volume.

To make sure the volume does not become full, periodically delete the transaction log data by executing the command `drmexgbackup` with the option `-transact_log_del` or `-noverify_log_del` specified. However, after you do so, rolling forward cannot be performed for a backup obtained before you deleted the transaction log data.

- (10) In Exchange Server 2003 or Exchange Server 2007, if a storage group name or information store name contains the character ",", the commands below fail when executed with the "-target" option:

Command	Message
<code>drmexgdisplay</code>	KAVX0073-E
<code>drmexgbackup</code>	KAVX1500-E
<code>drmexgcat</code>	KAVX0024-E
<code>drmexgrestore</code>	KAVX1711-E

Therefore, whenever a storage group name or information store name is specified from Exchange Server, in addition to the unusable characters listed in the manual, do not use the character ",":

- (11) Stop the Protection Manager service before applying Exchange Server service packs or rollups. After the service packs or rollups have been applied, restart the Protection Manager service.

Notes on Using Hitachi Protection Manager Console

- (1) When using JRE version previous than 1.4.2_12 with a Dual-Core Intel(R) Itanium(R) 2 processor, invalid unfixed instruction codes may be executed. Therefore, when using a Dual-Core Intel(R) Itanium(R) 2 processor on the server, JRE 1.4.2_12 or later is required.
- (2) Note the specifications below at the setting of [Start Time] that is one of the schedule options of a backup job.
When the system time of the server is adjusted to summer time / daylight saving time, a backup job is executed as follows:
- 1) When the system time of the server is adjusted forward one hour (for example, from 2am to 3am), any backup job scheduled to be executed between 2am and 3am is not executed.
 - 2) When the system time of the server is adjusted back one hour (for example, from 2am to 1am), any backup job scheduled to be executed between 1am and 2am is executed twice.

Therefore, when using Protection Manager Console, to ensure that a regular backup is executed correctly, do not schedule the backup to be executed during the time period when the system time of the server is adjusted to summer time / daylight saving time.

- (3) Extended characters such as the third/fourth level Kanji characters included in the Japanese character set JIS X0213 supported by Windows Vista cannot be used.
- (4) If Protection Manager Help is selected in the main window of Protection Manager Console but the Protection Manager Copy Controller manual has not been installed, the Protection Manager manual cannot be displayed.
- (5) When using JRE version 1.5.0_08, if dialog boxes launched from the main window of Protection Manager - Console (such as setup windows) are started and closed repeatedly, the memory used by the javaw.exe process that started the main window of Protection Manager - Console can become large. In this case, close and then restart Protection Manager - Console.
- (6) If a backup job of Protection Manager Console was operated under the environment that other than a period ('.') or a comma (',') is set to "Decimal symbol" in the "Regional and Language Options"#1 in Windows OS, and Protection Manager Copy Controller earlier version than 5.5.0-01 or 5.7.0-00 to 5.7.0-02, or Protection Manager Copy Controller (x64) 5.7.0-00 to 5.7.0-02 is installed, it is necessary to delete the log file for executed result of the backup job by the following procedure:

Confirm that no backup job is running, and then delete the following files:

<Folder name which is set to SCH_MAP_PATH#2>*.log

Deleting the log files has no influence on other than the job scheduler.

#1: In Windows Server 2003, it names "Regional and Language Options".
In Windows 2000, it names "Regional Options".

#2: SCH_MAP_PATH is defined in <Protection-Products-installation-directory>\conf\sched.conf.

- (7) The memory usage of the javaw process increases when the operation of file dialogs in Protection Manager Console is performed. There is a possibility that lack of memory of the entire system occurs if keep using Protection Manager Console because the memory usage does not decrease even if the file dialog is shut.

Shut the Protection Manager Console window, or minimize it regularly.

The displaying location of file dialog in Protection Manager Console:

- 1) The [Output to CSV file (C)] in the [File] menu in Protection Manager Console window or [CSV output] button in the following windows:
 - [Application View] window
 - [Backup Catalog View] window
 - [Backup Job View] window
- 2) The [Browse] button in the following windows of Setup GUI:
 - [Operation Setup] window
 - [RAID Manager Linkage] window
 - [Copy Definition] window

- [List File] window
- [Extended Command Definition] window

(8) Note that, in some cases, if an attempt is made to register a backup job by using HPtM Console, the system does not respond.

This problem occurs when the conditions of occurrence listed below are met, and then the operation is performed according to the procedure for occurrence listed below.

If this problem occurs, force the job registration process to terminate according to the procedure for recovery shown below.

Conditions of occurrence:

This problem occurs when both of the following conditions are met:

- The OS is Windows Server 2003, Windows Server 2008, or Windows Server 2008 R2.
- The system date is February 1, April 1, June 1, September 1, or November 1.

Procedure for occurrence:

- 1) In the [Backup application] window, click the [Schedule] button to open the [Schedule Option] window.
- 2) In the [Schedule Option] window, select "Monthly" from the [Schedule Type] drop-down list.
- 3) In the [Schedule Option] window, select one or more of the below values in [Day(s) of month].
 - When the system date is April 1, June 1, September 1 or November 1: 31
 - When the system date is February 1 in a leap year: 30, 31
 - When the system date is February 1 in a non-leap year: 29, 30, 31
- 4) Click the [OK] button to close the [Schedule Option] window and return to the [Backup application] window.
- 5) Click the [OK] button in the [Backup application] window to open the [Confirmation to Backup application Job Registration] window.
- 6) Click the [OK] button in the [Confirmation to Backup application Job Registration] window.

Procedure for recovery:

- 1) Start Windows Task Manager.
- 2) In the [Process] tab, select the process whose image name is "drmjobsch.exe".
- 3) Click the [End Process] button to terminate the process.

- (9) If the Protection Manager Console is remotely started, the following message is sometimes output and the Protection Manager Console cannot be used:

DRM23303-E A timeout occurred while communicating with the agent.

If this problem occurs, change the agent.request_timeout parameter in the console.conf file to 0.

If the agent.request_timeout parameter is set to 0, then the Device Manager server.agent.shutdownTime parameter is used to determine if and when a connection with Device Manager will timeout.

- (10) If the Protection Manager Console is remotely started in Internet Explorer 8, two Protection Manager Console Main windows are sometimes started.

If this problem occurs, configure Internet Explorer as follows:

- 1) In the Security tab, add the active Hitachi Device Manager server to the trusted sites zone.
- 2) Under Trusted sites, disable SmartScreen Filter.

- (11) If the configuration check function is used with any of the following products, displayed compatibility results are sometimes incorrect:

- 1) Windows Server 2008 R2
- 2) Windows Server 2008 SP2
- 3) Windows Server 2003 R2(with no SPs installed)
- 4) Windows Server 2003 SP1

Notes on Using Provisioning Manager with Protection Manager

- (1) In the following cases, do not operate Protection Manager in a Windows host where Provision Manager co-exists:

- (a) During a host setup operation or the host refresh operation of Provisioning Manager in a Windows host
- (b) Within ten minutes after having finished the Provisioning Manager operations in (a)

If Protection Manager is operated at the times described in (a) or (b), Protection Manager commands may fail with an error. If such a failure occurs, wait 10 or more minutes and then perform the Protection Manager operation again.

Documentation

Available Documents

Manual Name	Manual No.	Issue Date
Hitachi Protection Manager Software User's Guide	MK-94HC070-14	April 2010
Hitachi Protection Manager Software Command Reference	MK-94HC072-14	April 2010
Hitachi Protection Manager Software Messages	MK-94HC073-14	April 2010

Documentation Errata

None

Abbreviations

This document uses the following abbreviations for product names:

Full Name	Abbreviation
Hitachi Device Manager HiCommand Device Manager	Device Manager or HDvM
Hitachi Dynamic Link Manager HiCommand Dynamic Link Manager	Dynamic Link Manager or HDLM
Hitachi Protection Manager HiCommand Protection Manager	Protection Manager or HPtM
Hitachi Protection Manager Copy Controller HiCommand Protection Manager Copy Controller	HPtM CC
Hitachi Protection Manager for SQL HiCommand Protection Manager for SQL	HPtM SQL
Hitachi Protection Manager for Exchange HiCommand Protection Manager for Exchange	HPtM Exchange
Hitachi Protection Manager Console HiCommand Protection Manager Console	HPtM Console
Hitachi Protection Manager Copy Controller (x64) HiCommand Protection Manager Copy Controller (x64)	HPtM CCx64
Hitachi Protection Manager for Exchange 2007 HiCommand Protection Manager for Exchange 2007	HPtM Exchange2007
- HPtM CC - HPtM SQL - HPtM Exchange - HPtM Console	HPtM(32bit)
- HPtM CCx64 - HPtM Exchange 2007	HPtM(64bit)
Hitachi Provisioning Manager HiCommand Provisioning Manager	Provisioning Manager or HPvM
Hitachi Tuning Manager HiCommand Tuning Manager	Tuning Manager or HTM
Microsoft(R) Windows(R) 2000 Server Operating System	Windows 2000 Server
Microsoft(R) Windows(R) 2000 Advanced Server Operating System	Windows 2000 Advanced Server

Abbreviations

Microsoft(R) Windows(R) 2000 Datacenter Server Operating System	Windows 2000 Datacenter Server
Microsoft(R) Windows Server(R) 2003, Standard Edition Operating System	Windows Server 2003, Standard Edition
Microsoft(R) Windows Server(R) 2003, Enterprise Edition Operating System	Windows Server 2003, Enterprise Edition
Microsoft(R) Windows Server(R) 2003, Datacenter Edition Operating System	Windows Server 2003, Datacenter Edition
Microsoft(R) Windows Server(R) 2003, Enterprise Edition for Itanium-based systems Operating System	Windows Server 2003, Enterprise Edition for Itanium-based systems
Microsoft(R) Windows Server(R) 2003, Datacenter Edition for Itanium-based systems Operating System	Windows Server 2003, Datacenter Edition for Itanium-based systems
Microsoft(R) Windows Server(R) 2003, Standard x64 Edition Operating System	Windows Server 2003, Standard x64 Edition
Microsoft(R) Windows Server(R) 2003, Enterprise x64 Edition Operating System	Windows Server 2003, Enterprise x64 Edition
Microsoft(R) Windows Server(R) 2003, Datacenter x64 Edition Operating System	Windows Server 2003, Datacenter x64 Edition
Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Operating System	Windows Server 2003 R2, Standard Edition
Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Operating System	Windows Server 2003 R2, Enterprise Edition
Microsoft(R) Windows Server(R) 2003 R2, Datacenter Edition Operating System	Windows Server 2003 R2, Datacenter Edition
Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Operating System	Windows Server 2003 R2, Standard x64 Edition
Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition Operating System	Windows Server 2003 R2, Enterprise x64 Edition
Microsoft(R) Windows Server(R) 2003 R2, Datacenter x64 Edition Operating System	Windows Server 2003 R2, Datacenter x64 Edition
Microsoft(R) Windows(R) XP Professional Operating System	Windows XP Professional
Microsoft(R) Windows(R) 2000 Professional Operating System	Windows 2000 Professional
- Microsoft(R) Windows Vista(R) Ultimate Operating System - Microsoft(R) Windows Vista(R) Business Operating System - Microsoft(R) Windows Vista(R) Enterprise Operating System	Windows Vista
- Windows 2000 Server - Windows Server 2003	Windows
- Windows 2000 Server - Windows Server 2003 (32bit)	Windows(32bit)
- Windows 2000 Server - Windows 2000 Advanced Server - Windows 2000 Datacenter Server	Windows 2000 Server

Abbreviations

- Windows 2003 (32bit) - Windows 2003 (64bit)	Windows Server 2003
- Windows Server 2003, Standard Edition - Windows Server 2003, Enterprise Edition - Windows Server 2003, Datacenter Edition - Windows Server 2003 R2, Standard Edition - Windows Server 2003 R2, Enterprise Edition - Windows Server 2003 R2, Datacenter Edition	Windows Server 2003(32bit)
- Windows Server 2003, Standard Edition without a service pack - Windows Server 2003, Enterprise Edition without a service pack - Windows Server 2003, Datacenter Edition without a service pack	Windows Server 2003(32bit noSP)
- Windows Server 2003, Standard Edition with a service pack - Windows Server 2003, Enterprise Edition with a service pack - Windows Server 2003, Datacenter Edition with a service pack - Windows Server 2003 R2, Standard Edition - Windows Server 2003 R2, Enterprise Edition - Windows Server 2003 R2, Datacenter Edition	Windows Server 2003(32bit SP)
- Windows Server 2003(x64) - Windows Server 2003(IPF)	Windows Server 2003(64bit)
- Windows Server 2003, Standard x64 Edition - Windows Server 2003, Enterprise x64 Edition - Windows Server 2003, Datacenter x64 Edition - Windows Server 2003 R2, Standard x64 Edition - Windows Server 2003 R2, Enterprise x64 Edition - Windows Server 2003 R2, Datacenter x64 Edition	Windows Server 2003(x64)
- Windows Server 2003, Enterprise Edition for Itanium-based systems - Windows Server 2003, Datacenter Edition for Itanium-based systems	Windows Server 2003(IPF)
- Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V™ - Microsoft(R) Windows Server(R) 2008 Standard	Windows Server 2008 Standard
- Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V™ - Microsoft(R) Windows Server(R) 2008 Enterprise	Windows Server 2008 Enterprise
- Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V™ - Microsoft(R) Windows Server(R) 2008 Datacenter	Windows Server 2008 Datacenter
- Microsoft(R) Windows Server(R) 2008 Standard without Hyper-V™ 32-bit - Microsoft(R) Windows Server(R) 2008 Standard 32-bit	Windows Server 2008 Standard 32-bit
- Microsoft(R) Windows Server(R) 2008 Enterprise without Hyper-V™ 32-bit - Microsoft(R) Windows Server(R) 2008 Enterprise 32-bit	Windows Server 2008 Enterprise 32-bit

Abbreviations

- Microsoft(R) Windows Server(R) 2008 Datacenter without Hyper-V™ 32-bit - Microsoft(R) Windows Server(R) 2008 Datacenter 32-bit	Windows Server 2008 Datacenter 32-bit
- Microsoft(R) Windows Server(R) 2008 for Itanium-based Systems	Windows Server 2008 for Itanium-based Systems
- Windows Server 2008 Standard - Windows Server 2008 Enterprise - Windows Server 2008 Datacenter	Windows Server 2008(x64)
- Windows Server 2008 for Itanium-based Systems	Windows Server 2008(IPF)
- Windows Server 2008(x64) - Windows Server 2008(IPF)	Windows Server 2008(64bit)
- Windows Server 2008 Standard 32-bit - Windows Server 2008 Enterprise 32-bit - Windows Server 2008 Datacenter 32-bit	Windows Server 2008(32bit)
- Windows Server 2008(32bit) - Windows Server 2008(64bit)	Windows Server 2008
- Microsoft(R) Windows Server(R) 2008 R2 Standard	Windows Server 2008 R2 Standard
- Microsoft(R) Windows Server(R) 2008 R2 Enterprise	Windows Server 2008 R2 Enterprise
- Microsoft(R) Windows Server(R) 2008 R2 Datacenter	Windows Server 2008 R2 Datacenter
- Microsoft(R) Windows Server(R) 2008 R2 for Itanium-Based Systems	Windows Server 2008 R2 for Itanium-Based Systems
- Windows Server 2008 R2 Standard - Windows Server 2008 R2 Enterprise - Windows Server 2008 R2 Datacenter	Windows Server 2008 R2(x64)
- Windows Server 2008 R2 for Itanium-Based Systems	Windows Server 2008 R2(IPF)
- Windows Server 2008 R2(x64) - Windows Server 2008 R2(IPF)	Windows Server 2008 R2
Veritas Backup Exec for Windows Servers Symantec Backup Exec for Windows Servers	Backup Exec
Veritas NetBackup Server Veritas NetBackup Enterprise Server	NetBackup
Microsoft(R) Internet Information Services	IIS