

# Hitachi Protection Manager for SQL

## 6.4.0-01 Release Notes

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### About This Document

This document(RN-00HS283SQ - June, 2010) provides late-breaking information about the Hitachi Protection Manager for SQL 6.4.0-01. 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 SQL.

## 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 SQL*1 (*1) This product consists of the following components. Hitachi Protection Manager Console 6.4.0-00 Hitachi Protection Manager Copy Controller 6.4.0-01 Hitachi Protection Manager for SQL 6.4.0-00	6.4.0-01
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.

### SQL

- Coexistence of the backup operation for SQL Server databases and the VSS backup operation for the file systems in the Windows Server x64 edition is now supported.

### Console

None

## System Requirements

### 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
					VSS
1	Windows Server 2003(32bit)	HPtM CC	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)	HPtM CC or HPtM CCx64	--
4	Windows Server 2003(32bit)	HPtM CC	Windows Server 2008	HPtM CC or HPtM CCx64	--
5	Windows Server 2003(32bit)	HPtM CC	Windows Server 2008 R2	HPtM CC or HPtM CCx64	--
6	Windows Server 2008(32bit)	HPtM CC	-	-	--
7	Windows Server 2008(32bit)	HPtM CC	Windows Server 2003	HPtM CC	--
8	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008(32bit)	HPtM CC	Y
9	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008(64bit)	HPtM CC or HPtM CCx64	--
10	Windows Server 2008(32bit)	HPtM CC	Windows Server 2008 R2	HPtM CC or 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 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
2	Windows Server 2003 Windows Server 2003 R2	SP2	JRE: 1.4.2 32-bit version JWS: 1.4.2 32-bit version #1

## System Requirements

			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)	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

## System Requirements

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 VSS backup is performed on Windows Server 2003

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	ShadowImage in-system replication	0712/A or later#4

### System Requirements

(AMS1000/AMS500/AMS200)	Copy-on-write SnapShot or TrueCopy remote replication	0712/A or later
	TrueCopy Extended Distance	NOT supported
Hitachi WMS series#3(WMS100)	ShadowImage in-system replication	0712/A or later#4
	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 (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



### System Requirements

USP VM #2	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 (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 (AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot or TrueCopy remote replication	0832/E or later

## System Requirements

	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.

### 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
		RMCP: 01-02-03/06	Backup with Copy-on-write Snapshot
	50-09-34	RM: 01-20-03/06	Backup on Windows Server 2003
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP Backup with Copy-on-write Snapshot
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
		RMCP: 01-03-03/02	Backup on Windows Server 2008 noSP Backup with Copy-on-write Snapshot
	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
	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
	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
	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
	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
	1832/A	RM: 01-23-03/08	Backup on Windows Server 2008 SP2
		RMCP: 01-04-03/01	
Hitachi	0832/E	RM: 01-20-03/06	Backup on Windows Server 2003

## System Requirements

AMS2000 series		RMCP:01-03-03/02	Backup on Windows Server 2008
	0832/E	RM: 01-23-03/08 RMCP:01-04-03/01	Backup on Windows Server 2008 SP2
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
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 01-02-03/06 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.

### File System

#	File System	Service Pack
1	NTFS	None

### 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
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)	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.

#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

## System Requirements

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 2000 Server	SP4	Windows Scripting Host 5.6
2	Windows Server 2003	SP2	Windows Scripting Host 5.6
			Windows Scripting Host 5.7
3	Windows Server 2008	noSP, SP2	Windows Scripting Host 5.7
4	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

#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)

### 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
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,#3
11	Windows Server 2003, Datacenter x64 Edition	SP2 #2,#3
12	Windows Server 2003 R2, Standard Edition	SP2 #2,#3



## System Requirements

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
18	Windows Server 2008 R2 Standard	noSP #4
19	Windows Server 2008 R2 Enterprise	noSP #4
20	Windows Server 2008 R2 Datacenter	noSP #4
24	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.

#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
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## System Requirements

	OS	Product	OS	Product	FileSystem	SQL
1	Windows 2000 Server	HPtM-CC and HPtM-SQL	No backup server	--	Y	Y
2	Windows 2000 Server	HPtM-CC and HPtM-SQL	Windows 2000 Server	HPtM-CC	Y	Y
3	Windows 2000 Server	HPtM-CC and HPtM-SQL	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	-
4	Windows 2000 Server	HPtM-CC and HPtM-SQL	Windows Server 2008	HPtM-CC or HPtM-CCx64	--	-
5	Windows 2000 Server	HPtM-CC and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	--	-
6	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	No backup server	--	Y	Y
7	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
8	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2003(32bit)	HPtM-CC	Y	Y
9	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2003(IPF)	HPtM-CC	Y	Y
10	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2003(x64)	HPtM-CC	Y	Y
11	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2003(x64)	HPtM-CCx64	Y	Y
12	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008	HPtM-CC or HPtM-CCx64	--	--
13	Windows Server 2003(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	--	--
14	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	No backup server	--	Y	Y
15	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
16	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2003(32bit)	HPtM-CC	Y	Y
17	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2003(IPF)	HPtM-CC	Y	Y
18	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2003(x64)	HPtM-CC	Y	Y
19	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2003(x64)	HPtM-CCx64	Y	Y
20	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008	HPtM-CC or HPtM-CCx64	--	--
21	Windows Server 2003(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	--	--
22	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	No backup server	-	Y	Y

## System Requirements

23	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
24	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2003(32bit)	HPtM-CC	Y	Y
25	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2003(IPF)	HPtM-CC	Y	Y
26	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2003(x64)	HPtM-CC	Y	Y
27	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2003(x64)	HPtM-CCx64	Y	Y
28	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008	HPtM-CC or HPtM-CCx64	--	-
29	Windows Server 2003(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	--	-
30	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	No backup server	--	Y	Y
31	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
32	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
33	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008(32bit)	HPtM-CC	Y	Y
34	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008(IPF)	HPtM-CC	Y	Y
35	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008(x64)	HPtM-CC	Y	Y
36	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008(x64)	HPtM-CCx64	Y	Y
37	Windows Server 2008(32bit)	HPtM-CC and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	Y	Y

### System Requirements

38	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	No backup server	--	Y	Y
39	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
40	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
41	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008(32bit)	HPtM-CC	Y	Y
42	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008(IPF)	HPtM-CC	Y	Y
43	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008(x64)	HPtM-CC	Y	Y
44	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008(x64)	HPtM-CCx64	Y	Y
45	Windows Server 2008(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	Y	Y
46	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	No backup server	--	Y	Y
47	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
48	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
49	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008(32bit)	HPtM-CC	Y	Y
50	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008(IPF)	HPtM-CC	Y	Y
51	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008(x64)	HPtM-CC	Y	Y
52	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008(x64)	HPtM-CCx64	Y	Y

## System Requirements

53	Windows Server 2008(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008 R2	HPtM-CC or HPtM-CCx64	Y	Y
54	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	No backup server	--	Y	Y
55	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
56	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
57	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008	HPtM-CC or HPtM-CCx64	Y	Y
58	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64	Y	Y
59	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64 and HPtM-SQL	Windows Server 2008 R2(IPF)	HPtM-CC	Y	Y
60	Windows Server 2008 R2(IPF)	HPtM-CC and HPtM-SQL	No backup server	--	Y	Y
61	Windows Server 2008 R2(IPF)	HPtM-CC and HPtM-SQL	Windows 2000 Server	HPtM-CC	--	--
62	Windows Server 2008 R2(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2003	HPtM-CC or HPtM-CCx64	--	--
63	Windows Server 2008 R2(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008	HPtM-CC or HPtM-CCx64	Y	Y
64	Windows Server 2008 R2(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008 R2(x64)	HPtM-CC or HPtM-CCx64	Y	Y
65	Windows Server 2008 R2(IPF)	HPtM-CC and HPtM-SQL	Windows Server 2008 R2(IPF)	HPtM-CC	Y	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:

## System Requirements

#	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
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 update16 or later 32-bit version JWS: 6.0 update16 or later 32-bit version
6	Windows Server 2008 R2(IPF)	noSP	Not supported.

#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	

## System Requirements

7	Solaris 9	
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- 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

## System Requirements

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
	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



### System Requirements

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
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

## System Requirements

	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
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(AMS2500/AMS2300/AMS2100)	ShadowImage in-system replication or Copy-on-write SnapShot	The same version as shown in Table (1) above

### System Requirements

	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

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	TrueCopy remote replication	0832/E or later

### System Requirements

(AMS2500/AMS2300/AMS2100)	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
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	0890/A or later
	TrueCopy remote replication	NOT supported

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

## 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) 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

## System Requirements

	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
	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

## System Requirements

	60-01-72	RM:01-23-03/08	<p>Backup using Single/Multiple generation with ShadowImage.</p> <p>Remote backup using TrueCopy or TrueCopy Asynchronous</p> <p>When operating in such a way that the OS dynamically recognizes secondary volumes</p> <p>Remote backup with Universal Replicator</p> <p>Backup with Copy-on-write Snapshot</p> <p>Backup on Windows Server 2008 SP2</p> <p>Backup on Windows Server 2008 R2</p>
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### (2) For DF Storage System Devices

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



## System Requirements

Hitachi SMS series	1810/N	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
	1832/A	RM:01-23-03/08	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot 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 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 Backup on Windows Server 2008 noSP
	1832/A	RM:01-23-03/08	Backup using Single/Multiple generation with ShadowImage in-system replication Backup with Copy-on-write Snapshot 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 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 Backup on Windows Server 2008 noSP

### File System

#	File System	Service Pack
1	NTFS	None

### Database Management System (DBMS)

#	DBMS	Service Pack
1	Microsoft (R) SQL Server 2000 Standard Edition	SP4 #1#2

## System Requirements

2	Microsoft (R) SQL Server 2000 Enterprise Edition	SP4 #1,#2,#3
3	Microsoft(R) SQL Server 2005 Workgroup Edition	SP2 #1,#2
		SP3 #1,#2
4	Microsoft(R) SQL Server 2005 Standard Edition	SP2 #1,#2,#3
		SP3 #1,#2,#3
5	Microsoft(R) SQL Server 2005 Enterprise Edition	SP2 #1,#2,#3,#4
		SP3 #1,#2,#3,#4
6	Microsoft(R) SQL Server 2008 Workgroup	noSP #1,#2,#4
		SP1 #1,#2,#4
7	Microsoft(R) SQL Server 2008 Standard	noSP #1,#2,#4
		SP1 #1,#2,#4
8	Microsoft(R) SQL Server 2008 Enterprise	noSP #1,#2,#3,#4
		SP1 #1,#2,#3,#4

#1: Only transaction replication environments are supported in replication environments.

#2: 32-bit edition is supported.

#3: IPF edition is supported.

#4: x64 edition is supported.

### ODBC Driver

#	ODBC Driver	Service Pack
1	Microsoft(R) SQL Server ODBC Driver	None

### Cluster Software

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

## System Requirements

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 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	--	--	--	--	--
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.

## System Requirements

#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 Windows or Veritas Storage Foundation HA for Windows 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
					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	Standard Edition	SP2	--	--	--	--	Y#4

## System Requirements

2003 R2, (32-bit)	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	--	--	--	--	--
Windows Server 2008 R2(IPF)	Enterprise	None	--	--	--	--	--

(Legend)                      Y: Supported

                                     --: NOT supported

#1: Dynamic disks are not supported.

#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

## System Requirements

			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
5	Windows Server 2008 (32bit)	noSP	Veritas NetBackup 6.5	None #2
			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
			Windows Scripting Host 5.7
3	Windows Server 2008	noSP, SP2	Windows Scripting Host 5.7
4	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\ destination\	33000
2	Protection-Manager-Console- installation-destination\ 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)
2	Dictionary map file	Protection-Manager-installation- destination\db	(*3)
3	Backup catalog file	Protection-Manager-installation- destination\db	(*4)
4	Transaction log catalog file	Protection-Manager-installation- destination\db	(*5)

(\*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



## System Requirements

$$\begin{aligned} &= 0.2 + \\ &\quad \text{number-of-databases} + \\ &\quad \text{number-of-data-files} + \\ &\quad (\text{number-of-mount-point-directories} * 2) + \\ &\quad \text{number-of-physical-volumes} + \\ &\quad (\text{number-of-secondary-volumes} * 0.2) + \\ &\quad (\text{number-of-pair-volumes} * 0.1) \end{aligned}$$

(\*4) Disk space requirements of the backup catalog file: KB

$$\begin{aligned} &= \{ 8.0 + \\ &\quad (\text{number-of-databases} * 2) + \\ &\quad (\text{number-of-data-files} * 2) + \\ &\quad (\text{number-of-mount-point-directories} * 5) + \\ &\quad (\text{number-of-physical-volumes} * 4) + \\ &\quad (\text{number-of-secondary-volumes} * 4) + \\ &\quad \text{number-of-pair-volumes} + \\ &\quad \text{number-of-backup-target-databases} + \\ &\quad (\text{number-of-backup-target-data-files} * 3) + \\ &\quad \text{number-of-backup-target-drives} + \\ &\quad (\text{number-of-target-files-or-directories} * 3) + \\ &\quad \text{number-of-target-pair-volumes} \\ &\quad \} * (\text{number-of-backup-times}) \end{aligned}$$

(\*5) Disk space requirements of the transaction log backup catalog file: KB

$$\begin{aligned} &= \{ 40 + \text{byte-count-of-the-SQL-Server-instance-name} + \\ &\quad \text{number-of-target-databases-for-transaction-log-backups} * \\ &\quad \{ 3 + \text{byte-count-of-a-database-name} + \\ &\quad \quad \text{number-of-transaction-log-backup-times-for-each-backup} * \\ &\quad \quad \{ 67 + \text{byte-count-of-a-database-name} + \\ &\quad \quad \quad \text{byte-count-of-the-transaction-log-backup-file-storage-} \\ &\quad \quad \quad \text{directory-name} \\ &\quad \quad \quad \} \\ &\quad \quad \} \\ &\quad \} * \text{number-of-backup-times} * 0.001 \end{aligned}$$

## System Requirements

- Number of mounted drives: Number of mounted drives displayed by Windows explorer.
- Number of Physical disks: Number of volume which displayed by RAID Manager inqraid command.
- Number of Pair volumes: Number of paired volume which displayed by RAID Manager pairdisplay command.
- Number of Secondary volumes: Number of secondary volumes (SVOL) which displayed by RAID Manager pairdisplay command.

### Addition:

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

## System Requirements

### System Resource Requirements

No.	Item	Disk space requirements KB (*1)
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 only. 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	Instance name	Maximum 16 characters.
10	Storage directory for metafiles	Maximum 128 characters accept the directory name that has Japanese characters.
11	Storage directory for UNDO-files.	Maximum 128 characters.
12	Transaction log backup file storage directory	Maximum 128 characters.
13	Database-name	Maximum 128 characters. Except \ / : , ; * ? < >
14	The number of SQL-databases executable by one command.	Maximum 64 pieces.

## Fixed Problems

15	Log backup ID	Only numeral character. Valid range is from 0001 to 9999. Leading zeros cannot be omitted.
----	---------------	--

## Fixed Problems

### 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.

#### SQL

None

#### Console

None

### Fixed Problems 6.4.0-00

#### Common

None

#### SQL

- 1) The following problem has been corrected: The Protection Manager restoration command for SQL Server may fail with the message KAVX1008-E (DRM-11011).

#### Console

None

## Known Problems

None

## Installation Precautions

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

- 2) 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.
- 3) In Windows Server 2003 x64 edition, Windows Server 2008 x64 edition or Windows Server 2008 R2 x64 edition, when Protection Manager for SQL earlier than 6.4.0-00 has already been used and the backup operation for SQL Server and the VSS backup operation for the file system will be performed in the same environment, you must install the Protection Manager products according to the following procedures:
  1. Uninstall Protection Manager for SQL.
  2. Install Protection Manager Copy Controller (x64) (Upgrade installation).
  3. Re-install Protection Manager for SQL.

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):
  - `drmfsbackup -mode cold`: Unmounts the target disk and backs it up as a snapshot
  - `drmfsrestore -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
           D          000003 Online      0
0013        F          000001 Online      0
```

## Usage Precautions

		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.

## Usage Precautions

- 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
- EX\_DRM\_SQL\_RESTORE -resync
- drmexgrestore -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, drmappcat, drmtapecat, drmsqlcat, drmexgcat

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 SQL

- (1) When performing a transaction log backup by executing the `drmsqllogbackup` command or the `EX_DRM_SQL_TLOG_BACKUP` command, a transaction log backup catalog file, named `logbk_Backup-ID.info`, is created in the transaction log backup file storage directory. The transaction log backup catalog file is required to automatically create a transaction log list file. The transaction log list file is a definition file for specifying the order of transaction log files to be applied when performing roll-forward recovery. Delete old unused catalog files for the transaction log backup manually on a regular basis.
- (2) Note that if you execute a following command to delete backup information, the VDI metafiles that were created during backups are also deleted. Before deleting such information, back up not only the exported backup information but also the VDI metafile.

Commands that delete backup information:

The `drmresync` command or the `EX_DRM_RESYNC` command

The `drmapcat -delete` command

- (3) In regions where the system time of the server is adjusted to summer time or daylight saving time, to specify the transaction log backup to be used for recovery, do not use the `[FULL-BACKUP-TIME]` displayed by the `drmsqlcat -lsn` command and the `[LAST-FULL-BACKUP-TIME]` displayed by the `drmsqllogbackup -lsn` command. Instead, use `[CHECKPOINT-LSN]`, `[FIRST-`

LSN], and [LAST-LSN]. The [FULL-BACKUP-TIME] and [LAST-FULL-BACKUP-TIME] reflect the SQL Server database time. Note that the [FULL-BACKUP-TIME] and [LAST-FULL-BACKUP-TIME] might be incorrect for a backup performed for a time zone for which the system time of the server and SQL Server are adjusted to summer time or daylight saving time.

### 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.

## Documentation

(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
- 5) SQL Server 2005 SP3
- 6) SQL Server 2008 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
Hitachi Protection Manager Software Console User's Guide	MK-94HC071-12	April 2010

### Documentation Errata

None

## Abbreviations

This document uses the following abbreviations for product names:

Full Name	Abbreviation
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## Abbreviations

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
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

## Abbreviations

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)

## Abbreviations

Windows 2000 Server Windows 2000 Advanced Server Windows 2000 Datacenter Server	Windows 2000 Server
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

## Abbreviations

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
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

## Abbreviations

Veritas NetBackup Server Veritas NetBackup Enterprise Server	NetBackup
Microsoft(R) Internet Information Services	IIS