

IBM System Storage Support for Microsoft Volume Shadow
Copy Service and Virtual Disk Service
Version 4.5.0

Release Notes

IBM

First Edition (June 2013)

This edition applies to version 4.5.0 of the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service and to all subsequent releases and modifications until otherwise indicated in a newer publication. Newer document editions may be issued for the same product version in order to add missing information or amend typographical errors. The edition is reset to 'First Edition' for every new product version.

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Overview

The Microsoft Volume Shadow Copy Service (VSS) can provide a point-in-time (shadow) copy of a Windows host volume while the volume is mounted and files are in use. The Microsoft Virtual Disk Service (VDS) provides a single vendor and technology-neutral interface for managing block storage virtualization, whether done by operating system software, RAID storage hardware, or other storage virtualization engines.

The IBM® System Storage® Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service for DS8000® and SAN Volume Controller is a software module that runs as a service on Microsoft Windows Server and automatically creates snapshots of Windows-based applications. The module uses the Windows Server VSS framework for its management interface, and the DS8000 and SAN Volume Controller as the storage system on which snapshot data is stored and maintained.

Download site

The IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service is available for download from the IBM website at the following web address:

IBM Support Fix Central

Compatibility and requirements

This section specifies the compatibility and requirements of version 4.5.0 of the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service.

Required operating systems

- Microsoft Windows Server 2003 with Service Pack 2
- Microsoft Windows Server 2008 with Service Pack 2
- Microsoft Windows Server 2008 R2 with Service Pack 1
- Microsoft Windows Server 2012

Required Multipath I/O

- 5.2.3790.4706 (srv03_sp2_qfe.100510 -16540) for Windows 2003

Note: The Multipath I/O feature should be enabled with the appropriate vendor multipath driver only in the Hyper-V server to support Windows Servers that are owned by the Hyper-V server.

Required Storport Driver

- 5.2.3790.4485 (srv03_sp2_qfe.090330 -1212) for Windows 2003

Test fixes

The following test fixes must be installed before installing the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service.

Test fixes for Windows 2003 Service Pack 2

This section details test fix information for Windows 2003 Service Pack 2.

Test fix ID	Description	Download site
KB919117	Adds support for GUID partition table (GPT) volumes that are larger than 2 terabytes on a Windows Server 2003-based server cluster	http://support.microsoft.com/kb/919117
KB932532	A Volume Shadow Copy import operation may generate an error on a Windows Server 2003-based computer: VSS_E_NO_SNAPSHOTS_IMPORTED	http://support.microsoft.com/kb/932532
KB934016	Availability of Windows Server 2003 Post-Service Pack 2 COM+ 1.5 test fix Rollup Package 12	http://support.microsoft.com/kb/934016
KB934739	The Plug and Play subsystem may not detect an external storage device when it is reconnected in Windows Server 2003	http://support.microsoft.com/kb/934739
KB940349	Availability of a Volume Shadow Copy Service (VSS) update rollup package for Windows Server 2003 to resolve some VSS snapshot issues	http://support.microsoft.com/kb/940349
KB941276	A Windows Server 2003-based computer stops responding when the system is under a heavy load and when the Storport driver is being used	http://support.microsoft.com/kb/941276
KB949391	When Volume Shadow Copy Service (VSS) tries to delete hardware support snapshots on a computer that is running Windows Server 2003 or an x64 version of Windows XP, the operation may fail	http://support.microsoft.com/kb/949391
KB951568	VSS-based backup operations may fail if VSS tracing is enabled on a Windows Server 2003-based computer that	http://support.microsoft.com/kb/951568
KB957778	VSS requestor instances fail when you start multiple VSS requestor instances with a VSS hardware provider to delete snapshots in Windows Server 2003	http://support.microsoft.com/kb/957778

Test fix ID	Description	Download site
KB957910	A Windows Server 2003 SP2-based iSCSI boot server cannot generate dump files if the server uses a Storport virtual miniport as the LUN controller	http://support.microsoft.com/kb/957910
KB972623	A non-persistent snapshot cleanup operation is aborted by VSS if the VSS hardware provider takes more than three minutes to perform this operation on a computer that is running Windows Server 2003 or Windows XP Professional x64 Edition	http://support.microsoft.com/kb/972623
KB982109	Access to an MPIO-controlled storage device fails after you disconnect all data cables in Windows Server 2003	http://support.microsoft.com/kb/982109

Test fixes for Windows 2008 Service Pack 1

This section details test fix information for Windows 2008 Service Pack 1.

Test fix ID	Description	Download site
KB959476	A VSS hardware snapshot database keeps growing with duplicated snapshot information when it is updated for snapshot creation/deletion in Windows Server 2008.	http://support.microsoft.com/kb/959476

Test fixes for Windows 2008 Service Pack 2

This section details test fix information for Windows 2008 Service Pack 2

Test fix ID	Description	Download site
KB972135	Backups fail and Event ID 12293 is logged on a computer that is running Windows Server 2008.	http://support.microsoft.com/kb/972135
KB2528357	Non-paged pool leak when you disable and enable some storage controllers in Windows Server 2008.	http://support.microsoft.com/kb/2528357

Test fixes for Windows Server 2008

This section details test fix information for Windows Server 2008.

Table 1. Test fixes for Windows 2008

Test fix ID	Description	Download site
KB975688	A snapshot may become corrupted when the Volume Shadow Copy Service (VSS) snapshot providers take more than 10 seconds to create it on a computer that is running Windows Server 2008 R2.	http://support.microsoft.com/kb/975688
KB2637197	CSV LUNs fail if you use a VSS hardware provider to back up virtual machines on a Windows Server 2008 R2-based cluster.	http://support.microsoft.com/kb/2637197
KB2661794	MPIO does not remove a disk that is on a failed path in Windows Server 2008 R2.	http://support.microsoft.com/kb/2661794
KB2528357	Non-paged pool leak when you disable and enable some storage controllers in Windows Server 2008 R2.	http://support.microsoft.com/kb/2528357

Supported platforms

The Volume Shadow Copy Service and Virtual Disk Service supports the following server platforms:

- vSphere ESX Server 4.0, 4.1, 5.0, 5.1
- vSphere ESXi Server 4.0, 4.1, 5.0, 5.1
- vCenter Server: 4.0, 4.1, 5.0, 5.1

Supported storage systems

The Volume Shadow Copy Service and Virtual Disk Service supports the following storage systems.

Table 2. Supported storage systems

Storage System	Microcode Version
DS8000	6.x, 7.0, 7.1
Storwize® V3500	6.4.1, 7.1
Storwize V3700	6.4.1, 7.1
Storwize V7000	6.1, 6.2, 6.3, 6.4, 6.4.1, 7.1
SAN Volume Controller	5.1, 6.1, 6.2, 6.3, 6.4, 6.4.1, 7.1
Storwize V7000 Unified	1.3, 1.4, 1.4.1
IBM Flex System™	6.4.1, 7.1

Change log

This section summarizes the changes that are made in different version releases of the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service.

Version 4.5.0 (June 2013)

Version 4.5.0 (released in June 2013) included the following changes:

- Support for vSphere ESX Server 5.1
- Support for vSphere ESXi Server 5.1
- Support for Storwize V3500 7.1
- Support for Storwize V3700 7.1
- Support for Storwize V7000 7.1
- Support for Storwize V7000 Unified 1.4.1
- Support for SAN Volume Controller 7.1
- Support for IBM Flex System 7.1
- Support for DS8000 7.1

Known Issue fixes

The following known issues are resolved in Version 4.5.0:

Ticket ID	Description
VPSD-250031	<p>Cascading FlashCopy volumes are mapped to the wrong host after deleting shadows when the backgroupCopy is zero. To reproduce the problem:</p> <ol style="list-style-type: none">1. Create cascading transportable FlashCopy volumes with a backgroupCopy rate 0.2. Import one FlashCopy volume and delete it.3. The FlashCopy volume are mapped to both free pool and reserved pool. <p>Work around:</p> <ul style="list-style-type: none">• Import all the FlashCopy volumes before deleting one of them.• After deleting the FlashCopy volumes, map the deleted FlashCopy volumes to the right pool manually.
VPSD-251973	<p>The Devicepath cannot be parsed into the VDisk ID in hosts without SDDDSM.</p> <p>For those hosts without SDDDSM, the VSS hardware provider offline code fails because the Devicepath cannot be parsed into the VDisk ID to identify the specific LUNs.</p> <p>Work around:</p> <p>Compare the Devicepath directly, instead of VDisk ID, to identify the LUN.</p>

Version 4.4.0 (February 2013)

Version 4.4.0 (released in February 2013) included the following changes:

- Support for DS8000 7.0
- Support Virtual HBA feature in Windows Server 2012 with Hyper-V
- Support for Windows Server 2012

Ticket ID	Description
VPSD-246573	VDS provider is not automatically registered after installation. Work around: To register the IBM VDS provider manually, issue the following command under the IBM VSS provider directory: regsvr32 ibmvds.d11

Version 4.3.0

Version 4.3.0 included the following changes:

Build	Summary of Changes
121018 (October 2012)	Support for Storwize V3500 and Storwize V3700 code level 6.4.1.22
120907 (September 2012)	Support for the SAN Volume Controller/Storwize V7000/Storwize V7000 Unified cascading/multi-target FlashCopies with zero copy rate in a Microsoft cluster environment.
	Clean up of snapshot IDs of dependant FlashCopies whose target volume has already been put back to free pool: ibmvcfg.exe tool.
Build 0729 (July 2012)	Support for SAN Volume Controller and Storwize V7000 code level 6.4.0.0/6.4.1.17
	Support for DS8000 CIMOM version 6.3.x
	Upgraded to Java™ 7.0

Version 4.2.1

Version 4.2.1 included the following changes:

Build	Summary of Changes
1207 (March 2012)	Support for SAN Volume Controller and Storwize V7000 code level 6.3.0.62.
	VMware ESXi 5.0 support for MS Windows Server.
	Support for Storwize v7000 Unified 1.3 environment.
	Support for DS8000 CIMOM version 6.2.x in code bundle 86.20.103.0.

Build	Summary of Changes
0816 (August 2011)	Pre-test snapshot to find a suitable free target volume and adjustable time length for disk rescan injection: ibmvcfg.exe tool.
	Support for Hyper-V on Windows Guest operating system.
	Support SAN Volume Controller microcode level 6.2.x.

Version 4.2.0 (November 2010)

Version 4.2.0 included the following changes:

- VMware ESX 4.x and ESXi 4.x server support for Microsoft Windows Server System.
- Support for SAN Volume Controller 6.1 and Storwize V7000.

Version 4.1.0 (June 2010)

Version 4.1.0 included the following changes:

- FlashCopy® Manager support for version 2.2.
- Support for Cascading/Multi-FlashCopy instant restore for SAN Volume Controller.
- Support for Cascading/Multi-FlashCopy downstream deletion for SAN Volume Controller.

Version 4.0.1 (October 2009)

Version 4.0.1 included the following changes:

- Microsoft Windows Server 2008 R2.
- Support for FlashCopy Manager.
- Support for Virtual Disk Service (VDS) for SAN Volume Controller.
- Enhancement in **IBMvcfg.exe** for list reserved, list that is assigned, and <-1> verbose to detail all listings.
- Support for SAN Volume Controller 5.1 cascading/multi-target FlashCopy restore with Space efficient and fully allocated volumes.
- Support diskshadow - Resync.

Version 3.4.1 (January 2009)

Version 3.4.1 included the following changes:

- Microsoft Windows Server 2008 32-bit and 64-bit.
- GUID Partition Disks.
- Incremental FlashCopy support
- Extended the size of LUN for Diskraid.
- Support for DS embedded CIMOM.
- IBM System Storage Virtual Disk Service Provider can support Windows 2008 Hyper-V.

Known issues

This section summarizes the known issues that are made in different version releases of the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service.

Version 4.5.0 (June 2013)

This section details the known issues in version 4.5.0.

Version 4.4.0 (February 2013)

This section details the known issues in version 4.4.0, along with best practices.

- Supports only NTFS volume.
- Creating shadow copy for dynamic disk on Windows 2003 must perform transportable type.
- Import operation for GPT + Dynamic disk is not supported on Windows 2003.
- Incremental FlashCopy does not support dynamic disks with concatenate volumes either spanned or striped, and does not support multi-target volumes for the same source disk.
- Drops support of DS6000™, SAN Volume Controller 4.3.1 and lower, and DS8000 CIM agent version 5.3 and below.
- Supports only embedded CIM Agent.
- For DS8000 restore operation, space efficient volume or backgroundCopy of zero is not supported.
- For the SAN Volume Controller/Storwize V7000 cascading/multi-target FlashCopies with zero copy rate, after restoring one of the FlashCopy mappings, the current and newer FlashCopy relationships are withdrawn. The current target volume and newer FlashCopy volumes will be returned to the free pool.
- For the SAN Volume Controller/Storwize V7000 cascading/multi-target FlashCopies with zero copy rate, after deleting one of the FlashCopy mappings, the current and older FlashCopy relationships are withdrawn. The current target volume and older FlashCopy volumes are returned to the free pool. The snapshot ids of older FlashCopy volumes will stay in host until the next snapshot/restore execution. Alternatively, **ibmvcfg.exe cleanupDependentMaps** can be used to clean up the snapshot ids of older FlashCopy volumes manually.
- Before using the IBM Virtual Disk Service, the prerequisite Java JRE 7.0 application must be installed. For example, **ibm-java-jre-70-win-i386.exe** or **ibm-java-jre-70-win-x86_64.exe**.
- Starting from version 4.4.0, IBM VDS provider is not automatically registered after installation. To register IBM VDS provider manually, issue command **regsvr32 ibmvds.dll** under the directory of the IBM VSS provider.

Known defects

Ticket ID	Description
VPSD-245364	<p>Microsoft DPM creates the FlashCopy for the shared source volume. In case SEV and copy rate are zero, the cascading FlashCopy is created unexpectedly. The deletion of cascading FlashCopy(s) causes target volumes to error.</p> <p>Work around:</p> <p>Set the background copy rate above zero when you use the space efficient volume in Microsoft DPM.</p>
VPSD-250031	<p>Cascading FlashCopy(s) are mapped to the wrong host after deleting shadows when backgroundCopy is zero.</p> <p>Work around:</p> <p>Create cascading transportable FlashCopy(s) with backgroundCopy rate 0. Import one FlashCopy and delete it. The FlashCopy volume will be mapped to both free the pool and reserved pool. It is recommended to import all the FlashCopy(s) before you delete one of them to avoid this issue. Or, after you delete the FlashCopy, map the deleted FlashCopy volume to the right pool manually.</p>

Recommendations

- To use space efficient volume, it is recommended to set the backgroundCopy to zero.
- Mix volume types (fully allocated and space-efficient) of VDisks in VSS_FREE pool are not recommended.
- Mix copy rates in cascading/multi-target volumes are not recommended.

Error codes

This section details error messages for the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service software.

Note: For additional help, see:

- IBM Storwize V7000 Information Center
- SAN Volume Controller library and related publications

Error Code	Description
-1	Other errors for restore.
5	The CIMOM password or user name is incorrect.
100	VerifyMTFC: All the FCMAPS?copy rate is 0 in the dependency list of Target Volume
102	findTarget: An exception occurred while getting VSS_FREE volumes.
103	findTarget: The number of source and target volumes are not equal.

Error Code	Description
200	assignVol: Invalid controller WWPN.
201	assignVol: Invalid volume serial number; or Internal Error. Unable to determine target storage.
202	assignVol: Invalid assignment/unassignment operation, needs to be 1 or 2; or Internal Error: Unable to obtain Storage Configuration Service.
205	ERROR: The local host has defined WWPN/IQN that the configuration does not support.
300	The operation was successfully completed. And Newer plus current cascading snapshots are deleted.
308	Please specify to list 'all free reserved assigned unassigned infc'.
400	executeFlashCopy: Input Vector was null.
401	executeFlashCopy: AttachReplicas returned null.
402	AttachReplicas returned error.
500	withdrawFlashCopy: Input volume was null.
501	withdrawFlashCopy: Volumes are not in a storage synchronized relationship; or Invalid parameters.
502	withdrawFlashCopy: ModifySynchronization returned null
503	withdrawFlashCopy: Input volume was invalid.
504	withdrawFlashCopy: Storage Configuration Service was null!
512	Error: Volume is offline.
600	cleanup: Source volumes were null.
700	ERROR: Null value found either WWPN, boolean variable, or targetSVC.
701	ERROR: The length of WWPN does not match with boolean variable.
702	ERROR: The targetSVC's ID does not match.
711	No matching synchronization was found.
712	Internal Error: Unable to obtain Storage Configuration Service.
713	The SAN Volume Controller does NOT support restoring FlashCopy.
714	The SAN Volume Controller does not support restoring FlashCopy with SEV.
715	Cannot restore the FlashCopy because target volume is already a copying state FCMAP's target.
716	Reuse existing FCMAP to perform restore failed.
718	Provider does not support restoring FlashCopy for SAN Volume Controller 5.1 or higher.

Error Code	Description
719	Provider does not support restoring FlashCopy with cascading on SAN Volume Controller 5.1 or higher.
720	Prepare FlashCopy to restore failed.
730	Execute restore FlashCopy failed.
740	Wait related FCMAP to finish failed.
800	There is FCMAP with copy rate 0 and others copy rate greater than 0 in the dependency list of Target Volume.
911	Internal Error: The CIMOM may not be functioning correctly.
1000	JVM Creation failed. ERR_JVM
1001	Class not found: %1. ERR_CLASS_NOT_FOUND
1002	Some required parameters are missing. ERR_MISSING_PARAMS
1003	Method not found: %1. ERR_METHOD_NOT_FOUND
1004	A missing parameter is required. Use the configuration utility to set this parameter: %1. ERR_REQUIRED_PARAM
1006	The following method failed: %1. ERR_METHOD
1007	Provider initialization failed. Refer to the logs for the error messages. ERR_GLOBALINIT
1600	The recovery file could not be created. ERR_RECOVERY_FILE_CREATION_FAILED
1700	ibmGetLunInfo failed in AreLunsSupported. ERR_ARELUNSSUPPORTED_IBMGETLUNINFO
1800	ibmGetLunInfo failed in FillLunInfo. ERR_FILLLUNINFO_IBMGETLUNINFO
1900	Failed to delete the following temp files: %1 ERR_GET_TGT_CLEANUP
2500	Error initializing log. ERR_LOG_SETUP
2501	Unable to search for incomplete Shadow Copies. Windows Error: %1. ERR_CLEANUP_LOCATE
2502	Unable to read incomplete Shadow Copy Set information from file: %1. ERR_CLEANUP_READ
2503	Unable to clean up snapshot stored in file: %1. ERR_CLEANUP_SNAPSHOT
2504	Cleanup call failed with error: %1. ERR_CLEANUP_FAILED
2505	Unable to open file: %1. ERR_CLEANUP_OPEN
2506	Unable to create file: %1. ERR_CLEANUP_CREATE
2507	HBA: Error loading hba library: %1. ERR_HBAAPI_LOAD
3000	An exception occurred. Check the ESSService log. ERR_ESSSERVICE_EXCEPTION

Error Code	Description
3001	Unable to initialize logging. ERR_ESSSERVICE_LOGGING
3002	Unable to connect to the CIM agent. Check your configuration. ERR_ESSSERVICE_CONNECT
3003	Unable to get the Storage Configuration Service. Check your configuration. ERR_ESSSERVICE_SCS
3004	An internal error occurred with the following information: %1. ERR_ESSSERVICE_INTERNAL
3005	Unable to find the VSS_FREE controller. ERR_ESSSERVICE_FREE_CONTROLLER
3006	Unable to find the VSS_RESERVED controller. Check your configuration. ERR_ESSSERVICE_RESERVED_CONTROLLER
3007	Unable to find suitable targets for all volumes. ERR_ESSSERVICE_INSUFFICIENT_TARGETS
3008	The assign operation failed. Check the CIM agent log for details. ERR_ESSSERVICE_ASSIGN_FAILED
3009	The withdraw FlashCopy operation failed. Check the CIM agent log for details. ERR_ESSSERVICE_WITHDRAW_FAILED
4000	Failed to initialize the %1. ERR_INIT
4001	Internal Error: %1. ERR_INTERNAL
4002	%1. INFO_GENERAL
4096	executeFlashCopy() - Job started
32816	Volume(s) are already in a FlashCopy relationship. ERR_FLASHCOPY_ALREADY_IN_PROGRESS
37883	Volume already assigned.
38163	Volume already unassigned.

Related information and publications

You can find more information and publications that are related to the IBM System Storage Support for Microsoft Volume Shadow Copy Service and Virtual Disk Service.

- IBM Flex System Information Center
- IBM Storwize V3500 Information Center
- IBM Storwize V3700 Information Center
- IBM Storwize V7000 Information Center
- IBM Storwize V7000 Unified Information Center
- IBM System Storage SAN Volume Controller Information Center
- IBM System Storage DS8000 Information Center
- VMware ESXi and ESX Information Center

- VMware Product Support for VMware vSphere, including support for ESX, ESXi, and vCenter.
- VMware knowledgebase
- Microsoft MSDN web page for Volume Shadow Copy Service
- Microsoft Windows Server Troubleshooting Center

Getting information, help, and service

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- IBM website (ibm.com[®])
- IBM Support Portal website (www.ibm.com/storage/support)
- IBM Directory of Worldwide Contacts website (www.ibm.com/planetwide)

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