Data ONTAP® DSM 3.2R1 for Windows® MPIO
Release Notes

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About this release

About DSM 3.2R1

Data ONTAP® DSM 3.2R1 for Windows® MPIO is an update to DSM 3.2 to correct the issue described in bug 291281. You can get the latest information at Bugs Online: http://now.netapp.com/NOW/cgi-bin/bol/.

Problem: Using the Data ONTAP DSM 3.2 for Windows MPIO on Windows Server 2003. When the active node in a Microsoft Cluster (MSCS) environment fails, none of the passive nodes can take over the disk resources from the failed node. The passive nodes are unable to clear the disk reservation held by the failed node.

The active node is still able to correctly fail over to its other available paths if an active path is lost. This issue applies only to the complete loss of the active node, or the loss of all paths between the active node and the storage system.

What to do: This issue is corrected by DSM 3.2R1.

Note

All customers running the Data ONTAP DSM 3.2 on Windows Server 2003 should install DSM 3.2R1. Customers currently using MSCS should upgrade immediately. Customers not currently using MSCS should upgrade during their next maintenance window. Installing DSM 3.2R1 does require a reboot of the Windows host.

Customers currently running DSM 3.2 on Windows Server 2008 do not need to upgrade to DSM 3.2R1. However, all new installations should use DSM 3.2R1.

Release Notes Update

The Data ONTAP® DSM 3.2 for Windows® MPIO *Release Notes* update of March 2008:

- Added a documentation corrections section. See "Documentation correction" on page 4.
- Added a known problem when uninstalling the DSM in a SAN boot environment. See "Uninstalling from FCP SAN-booted host" on page 4.
- Added a known problem with the DSM GUI and CLI displaying 0.0.0.0 as the initiator address. See "DSM GUI and CLI display 0.0.0.0 for initiator address" on page 5.

Overview

The Data ONTAP® DSM 3.2 for Windows® MPIO enables you to manage multiple Fibre Channel protocol (FCP) and iSCSI paths between a Network Appliance™ or IBM® N series storage system and a Windows host computer. You can have one or more active paths and any number of passive paths, up to a total of 32 paths to a virtual disk (LUN). If all active paths fail, the DSM automatically switches to the passive paths, maintaining the host's access to its storage.

What is new in 3.2

The Data ONTAP® DSM 3.2 for Windows MPIO includes the following changes from DSM 3.1:

- Two new load balance policies: Least Queue Depth, the new default, and Least Weighted Paths.
- Support for Windows Server 2008 and Failover Clusters.
- Support for iSCSI paths, including mixed FCP and iSCSI paths to the same virtual disk (LUN).
- A new installation program.
- Data ONTAP 7.2.2 and later supported.
- No support for Windows 2000 Server.

What is included

The DSM includes the following components and documentation:

- An installation program that installs the DSM and any required Windows MPIO components. The program also sets Windows registry values and Fibre Channel host bus adapter (HBA) parameters.
- Installation and Administration Guide - This document provides instructions for installing the DSM on a Windows host and managing it using the graphical user interface or command line interface.
- Release Notes - Lists known problems and limitations, and any last minute documentation changes in this release of the DSM.

SnapDrive versions

The Data ONTAP DSM 3.2 for Windows MPIO is designed to work with SnapDrive® for Windows. The DSM works with SnapDrive 5.0 for Windows and later on Windows Server 2003.

Do not use the Data ONTAP DSM 3.2 with SnapDrive 4.2.1 for Windows or earlier on Windows Server 2003.

For Windows Server 2008, see the *Compatibility and Configuration Guide for NetApp FCP and iSCSI Products* at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml for the supported SnapDrive version.

About licenses

A valid license key is required to install and use the DSM. The license key from DSM 3.0 or DSM 3.1 works for DSM 3.2.

If you have an MPIO license key from SnapDrive 4.1 for Windows or earlier (SDR-MPIO license key), you can use that key for the Data ONTAP DSM when you upgrade your system to the Data ONTAP DSM and SnapDrive 5.0 for Windows or later.

If you are using a new license key, be sure to get the Data ONTAP DSM for Windows MPIO license key (MPIO-WIN).

For more information on obtaining a license key, see the Data ONTAP DSM for Windows MPIO *Installation and Administration Guide*.

System requirements

Check the *Compatibility and Configuration Guide for NetApp FCP and iSCSI Products* at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml for the latest system requirements and compatibility information, including:

- Hardware platforms
- OS version and hotfix requirements
- HBA models and drivers
- Supported versions of Data ONTAP software
- Supported versions of FCP Windows Host Utilities and iSCSI Windows Host Utilities
- Supported versions of SnapDrive for Windows software
- Supported configurations

About Windows Server 2008 upgrades

If you are running an earlier version of the Data ONTAP DSM for Windows MPIO with Windows Server 2003, you must upgrade to DSM 3.2 *before* upgrading your host from Windows Server 2003 to Windows Server 2008.

Known problems and limitations

Documentation correction

On page 47 of the Data ONTAP DSM 3.2 for Windows MPIO *Installation and Administration Guide* (part number 215-03688_A0), the section "LUN path limitation" is not correct. The LUN path limit was fixed in DSM 3.2. The DSM now supports the full 256-character LUN path allowed by Data ONTAP software.

Uninstalling from FCP SAN-booted host

Problem: This problem applies only to FCP SAN-booted Windows Server 2003 hosts with both the Data ONTAP DSM and the Microsoft iSCSI DSM (or another MPIO DSM) installed.

Uninstalling the Data ONTAP DSM can cause the Windows host to crash on reboot. This is because the connection to the boot LUN is not correctly handled by the MPIO layer after removing the Data ONTAP DSM. The Windows host is unable to reconnect to its boot LUN.

What to do: To uninstall the Data ONTAP DSM in this configuration:

1. First, uninstall the Microsoft iSCSI Initiator and reboot the Windows host.
2. Check the value of the HKLM\SYSTEM\CurrentControlSet\Control\MPDEV registry key. Make sure that only the following values are listed:
   - IBM NSeries 2862-A
   - IBM NSeries 2862-G
   - IBM NSeries 2864-A
   - IBM NSeries 2864-G
   - IBM NSeries 2865-A
   - IBM NSeries 2865-G
   - IBM NSeries 2866-A
   - IBM NSeries 2866-G
   - IBM NSeries 2867-A
   - IBM NSeries 2867-G
   - IBM NSeries 2868
   - NETAPP LUN

If any other values are listed, that means another DSM is still installed on the host. Remove the multipathing software package to which that DSM belongs.

3. Uninstall the Data ONTAP DSM.
4. Reboot the Windows host.
5. Reinstall the Microsoft iSCSI Initiator. Be sure to select the Microsoft MPIO Multipathing Support for iSCSI check box. If you removed another multipathing software package, reinstall it.

New load balance policies still not available after Data ONTAP upgrade

Problem: The Least Queue Depth, Round Robin, and Round Robin with Subset load balance policies require Data ONTAP software 7.2.2 or later on the storage system. After upgrading the storage system, the load balance policies are still not available.

What to do: The Data ONTAP version for a LUN is queried when the LUN is initially claimed by the DSM. This version information is not automatically updated for existing LUNs when a new version of Data ONTAP is installed.

Reboot the Windows host to force a refresh of the Data ONTAP version information for existing LUNs. The new load balance policies become available.

DSM GUI and CLI display 0.0.0.0 for initiator address

Problem: When viewing the paths for a virtual disk in the DSM GUI, or when running the dsmcli path list -v CLI command, the iSCSI initiator address is displayed as 0.0.0.0. This problem occurs only when the iSCSI session is created and the initiator address is allowed to default in the Microsoft iSCSI initiator.

What to do: When creating an iSCSI session, manually select the initiator address.

FCP paths added to existing iSCSI paths not available

Problem: Adding FCP paths to an existing virtual disk with iSCSI paths and an active/active load balance policy fails. The paths are not displayed in the DSM GUI.

What to do: iSCSI paths have no restrictions to load balance policy based on Data ONTAP version or cfmode setting. However, FCP paths can only use active/passive load balance policies if the Data ONTAP version is less than 7.2.2

or the cfmode setting is not single_image or standby. Also, mixed iSCSI and FCP paths to the same virtual disk require the single_image cfmode setting on the storage system.

Change the cfmode setting of the storage system to single_image (see the Data ONTAP documentation for the specific steps). If the version of Data ONTAP is less than 7.2.2, change to an active/passive load balance policy or upgrade the Data ONTAP software. Then reboot the Windows host to make the FCP paths available.

Full DSM feature set not available using Microsoft user interfaces

Problem: All management functions of the Data ONTAP DSM are not available through the native Microsoft user interfaces, such as the Microsoft iSCSI GUI.

What to do: Use the GUI or CLI supplied with the Data ONTAP DSM for management. The GUI is an MMC Snapin Extension under the Storage node in both the Server Manager console and the Computer Management console. See the Data ONTAP DSM for Windows MPIO *Installation and Administration Guide* for instructions.

Maximum 32 paths to a virtual disk

Problem: The DSM supports a maximum of 32 paths to a virtual disk (LUN), in any combination of FCP and iSCSI paths. This is a limitation of the MPIO layer.

Attention

Additional paths can be created, but are not claimed by the DSM. Exceeding 32 paths leads to unpredictable behavior of the Windows MPIO layer and possible data loss.

What to do: Do not create more than 32 paths to a virtual disk.

For the latest information, see bug 279429 at Bugs Online: http://now.netapp.com/NOW/cgi-bin/bol/

New LUNs do not appear in DSM GUI or CLI

Problem: When you add new LUNs to your storage system, the new virtual disks are not automatically discovered by the Windows host. You must manually rescan disks.

What to do: To discover new virtual disks:

1. **Start>Administrative Tools>Computer Management**
2. Select **Storage>Disk Management** in the left pane.

3. The **Initialize and Convert Disk** wizard starts. Follow the prompts to initialize the disks, but do not convert them to dynamic disks. Partition and format the disks if desired. If the wizard does not start, select **Action> Rescan Disks**.

The new virtual disks appear in the DSM GUI (you might have to refresh the display).

Setting one path preferred sets other paths as preferred

Problem: Using the Round Robin with Subset load balance policy, you use the **Set Active** command to select a preferred path for a LUN. In addition to the selected path, one or more other paths to the same LUN are set as selected at the same time.

What to do: This is caused by multiple paths from the Windows host to the same target port on the storage system. The DSM tracks the preferred setting of each LUN path based on the combination of host SCSI port and target port.

If possible, reconfigure your system so that each host port connects to a different target port on the storage system. This is the recommended configuration for high availability.

Do not install iSCSI initiator 2.02

Problem: The iSCSI initiator installer overwrites the MPIO components used by the Data ONTAP DSM with an earlier, incompatible version. This will cause the system to crash and prevent Windows from booting. For more information, see bug 217388 at Bugs Online: http://now.netapp.com/NOW/cgi-bin/bol/.

What to do: Do not install the Microsoft iSCSI Initiator 2.02 or earlier on a Windows system running the Data ONTAP DSM 3.2 for Windows MPIO. This problem is corrected in iSCSI initiator 2.03 and later. See the *Compatibility and Configuration Guide for NetApp FCP and iSCSI Products* at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml for supported iSCSI initiator versions.

iSCSI LUNs not available after installing Data ONTAP DSM

Problem: iSCSI LUNs appear in the Microsoft iSCSI Initiator applet, but do not appear in Windows Disk Management. Existing LUNs are no longer available after installing the Data ONTAP DSM, or new LUNs do not appear.

What to do: The iSCSI LUNs must be claimed by a DSM. Either configure the Data ONTAP DSM to claim iSCSI LUNs, or install the Microsoft iSCSI DSM on Windows Server 2003. To configure the Data ONTAP DSM to claim iSCSI LUNs, run the Repair option of the DSM installer and choose to claim iSCSI LUNs or both FCP and iSCSI LUNs.

If you want to claim iSCSI LUNs with the Microsoft iSCSI DSM, install the iSCSI DSM by reinstalling the Microsoft iSCSI initiator and selecting the **Microsoft MPIO Multipathing Support for iSCSI** check box during installation.

It is recommended that you install the Microsoft iSCSI DSM even if you claim iSCSI LUNs with the Data ONTAP DSM. When both DSMs are installed, the Data ONTAP DSM has priority in claiming iSCSI LUNs on NetApp storage systems.

Installing SnapDrive 4.1 for Windows after installing the DSM

Problem: The MPIO components installed by the Data ONTAP DSM 3.2 for Windows MPIO are not compatible with SnapDrive 4.1 and earlier. These MPIO components are not normally removed when you uninstall the DSM.

What to do: If you want to install SnapDrive 4.1 or earlier, you must remove the Data ONTAP DSM and force the removal of all MPIO components installed by the DSM. See "Uninstalling the Data ONTAP DSM" in the Data ONTAP DSM for Windows MPIO *Installation and Administration Guide* for complete instructions.

System crash after reverting from DSM 3.2 to DSM 3.0

Problem: If you revert from the Data ONTAP DSM 3.2 to DSM 3.0 without first uninstalling DSM 3.2, your Windows host can crash on reboot. This problem is caused by a registry entry that must be removed for successful revert. The uninstall process in the DSM 3.2 *Installation and Administration Guide* removes this entry and prevents the problem.

What to do: If you have not yet installed DSM 3.0, fully uninstall DSM 3.2 as described in the *Installation and Administration Guide*.

If your system has already crashed, complete the following steps:

1. Offline (use `lun offline` command) all LUNs that are mapped to the Windows host.
2. Boot the Windows host.

3. Edit the Windows registry on the host and delete the following registry key: `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ontapdsm\Parameters\PersistentReservationKey`

4. Reboot the Windows host and then online the LUNs.

Problems reverting from DSM 3.2

Problem: After reverting to Data ONTAP DSM 3.0 for Windows MPIO on a system that previously had DSM 3.2 installed, the GUI fails to run. The error message "A Virtual disk with matching Serial Number not found" is displayed when trying to start the DSM GUI.

What to do: This problem is caused by DSM 3.2 files that are not removed when uninstalling. These files prevent the DSM 3.0 GUI from running correctly.

If you have not yet installed DSM 3.0, delete all files in the DSM installation directory (default is C:\Program Files\NetApp\MPIO) after uninstalling DSM 3.2.

If you have already installed DSM 3.0 and have encountered the problem, complete the following four steps:

1. Stop the Data ONTAP DSM Management Service using the Windows Services applet in Administrative tools, or enter net stop mpiosvc from a Windows command line.

2. Delete the following files in the DSM installation directory (default is C:\Program Files\NetApp\MPIO):

- dsmmgmt.dll (all systems)
- mpgui.dll (64-bit systems only)
- mpiosvc.exe (64-bit systems only)
- mpiosvcps.dll (64-bit systems only)
- dsmcli.exe (64-bit systems only)
- ontap_dsm.chm (64-bit systems only)

3. Run the Repair option of the DSM installer.

4. Reboot the Windows system when prompted, or cancel the reboot and restart the Data ONTAP DSM Management Service manually.

Note: This problem only affects systems that revert from DSM 3.2 to DSM 3.0. Reverting to DSM 3.0 is not recommended.

For information about additional problems

Occasionally, additional problems are reported with the DSM or known bugs are fixed. The problems are listed in an online system called Bugs Online.

For a list of known and fixed bugs, access Bugs Online by completing the following steps.

Step	Action
1	Use a Web browser to go to http://now.netapp.com.
2	Click Service & Support.
3	Click Bugs Online & Release Tools.
4	In the Bug Search Tools section, choose ONTAP DSM from the Bug Type(s) menu.
5	Click Go. **Result:** The Bugs Online - Advanced Search Results lists all bugs for the Data ONTAP DSM for Windows MPIO.

Where to find additional information

Where to go for more information

The following table describes documents with the most current information about host and storage system requirements and additional documentation.

If you want...	Go to...
The most current system requirements for the DSM	The *Compatibility and Configuration Guide for NetApp FCP and iSCSI Products* at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml
The supported storage system models for Data ONTAP licensed with FCP	◆ *Fibre Channel and iSCSI Configuration Guide* at http://now.netapp.com/NOW/knowledge/docs/san/fcp_iscsi_config/index.shtml ◆ *System Configuration Guide* for Data ONTAP at http://now.netapp.com/NOW/knowledge/docs/docs.cgi
Information about how to configure and manage the FCP service on the storage system	The following documents for your Data ONTAP release: ◆ *Data ONTAP Block Access Management Guide* ◆ *Data ONTAP Release Notes*