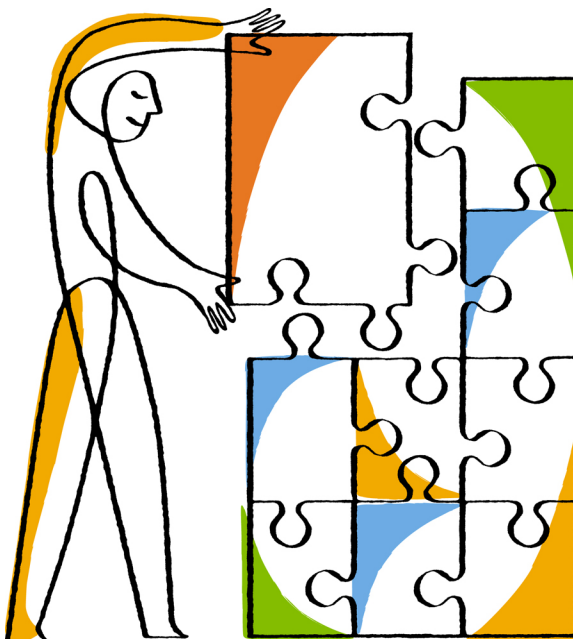




Data ONTAP® DSM 4.1 For Windows® MPIO

Release Notes



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Data ONTAP DSM 4.1 for Windows MPIO Release Notes

These release notes describe new features, enhancements, and known issues for Data ONTAP DSM 4.1 for Windows MPIO.

These release notes apply to the DSM version 4.1. Release notes might be updated between product releases. You should periodically check online for updated release notes.

Release notes are available in .html and .pdf formats. They are optimized for .html viewing and linking.

DSM overview

The Data ONTAP DSM for Windows MPIO enables you to manage multiple Fibre Channel (FC) and iSCSI paths between a NetApp or IBM N series storage system and a Windows host computer.

You can have one or more active paths and zero or more passive paths, depending on the load balance policy. The DSM automatically selects paths for I/O as needed, maximizing throughput and maintaining the host's access to its storage.

The DSM has both graphical and command line management interfaces. You can install the DSM interactively or from a Windows command prompt.

New features in this DSM release

The Data ONTAP DSM 4.1 for Windows MPIO includes several new features and GUI enhancements.

DSM 4.1 includes the following changes from 4.0.1.

- Support for Windows Server 2012 R2
- An enhanced GUI, offering more detailed views of the virtual disks and paths managed by the DSM:
 - New History tab which reports the history of significant errors on each path resulting in either failover or retry exhaustion
 - New detailed events report which displays errors encountered during automatic and manual refreshes along with the timestamp of when the errors occurred
 - Additional parameters associated with I/O statistics for virtual disks, including average write size, average read size, minimum read size, minimum write size, maximum read size, and maximum write size.

Fixed issues in this release

Some known issues were fixed in this release of Data ONTAP DSM.

Bug ID	Description
561947	Limit on number of installed adapters for systems operating in 7-Mode and limit on number of LIFs per Vserver for systems operating in Cluster-Mode.
591952	Windows Server hosts might take a long time to boot.

Information on finding system requirements

NetApp qualifies additional components between releases of the Host Utilities software.

For the latest information about the system requirements, see the Interoperability Matrix, which is available online at support.netapp.com/matrix.

Important cautions

Before deploying this release of Data ONTAP DSM for Windows MPIO, make sure that you read the following items to identify and resolve issues that might affect the operation of your systems.

To request more information about an individual bug and to explore other bug-related tools, see Bugs Online on the NetApp Support Site.

DSM 4.0.1 disables the SCSI UNMAP command on Windows Server 2012 hosts for specific Data ONTAP versions

The SCSI UNMAP command can degrade performance on storage systems connected to Windows Server 2012. To prevent this issue, Data ONTAP DSM 4.0.1 disables the SCSI UNMAP command on Windows Server 2012 hosts for specific Data ONTAP versions.

On Windows Server 2012 hosts, NTFS uses the SCSI UNMAP command to reclaim storage when files are deleted. The UNMAP command can degrade performance on storage systems connected to a Windows Server 2012 host, if that host uses a LUN as an NTFS-formatted disk.

To prevent performance degradation, DSM 4.0.1 periodically checks the version of Data ONTAP on the target system. The DSM disables the SCSI UNMAP command on the Windows Server 2012 host if it detects that any target is running the following:

- Data ONTAP 8.1.2 or earlier operating in 7-Mode
- Data ONTAP 8.1.x or earlier operating in Cluster-Mode

The DSM runs the check when you load the GUI. If you do not use the GUI (for example, if you use Windows Server Core), you can turn off UNMAP by running the `get - sandisk` PowerShell cmdlet with the `-turnOffUnmap` parameter.

Use SnapDrive for Windows to manage storage efficiency in these configurations. See the [NetApp Interoperability Matrix](#) for supported versions.

Note: DSM 4.0.1 re-enables the UNMAP command if all targets are running a 7-Mode version of Data ONTAP later than 8.1.2. or if all targets are running clustered Data ONTAP 8.2 or later.

You should not re-enable the SCSI UNMAP command on the Windows Server 2012 host after it has been disabled by DSM 4.0.1.

Installing Windows Host Utilities after installing the DSM resets the persistent reservation timeout value incorrectly

The persistent reservation timeout value is reset incorrectly to 30 seconds when you install Windows Host Utilities 6.0 or later after installing DSM 4.1. You need to reset this value to 60 seconds.

You can reset the persistent reservation timeout value by repairing the DSM installation using the Windows repair option, or by editing the persistent reservation timeout parameter on the **Data ONTAP DSM** tab of the **Data ONTAP DSM Properties** window.

Note: You should not change the timeout value from 60 seconds unless directed to do so by your storage system support representative.

iSCSI driver parameters not set for the Emulex OCE10102 CNA

The Data ONTAP DSM does not set the iSCSI driver parameters for the Emulex OCE10102 converged network adapter (CNA).

You need to manually set the driver parameters.

For the latest status on this issue, see bug 484444 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Setting the iSCSI driver parameters for the Emulex OCE10102 CNA

The Data ONTAP DSM installer does not set the iSCSI driver parameters for the Emulex OCE10102 CNA. You need to manually set the parameters.

About this task

A reboot is required after you set the parameters.

Steps

1. Load the Windows Registry Editor.
2. Navigate to HKLM\SYSTEM\CurrentControlSet\services\be2iscsi\Parameters\Device\DriverParameters
3. Enter the following value for the **ldto** parameter:
1 (REG_DWORD)

4. Enter the following value for the **eto** parameter:

10 (REG_DWORD)

5. Reboot your Windows host.

Windows Server 2008 R2 upgrade issues

Upgrades to Windows Server 2008 R2 require you to address certain issues.

Be sure to read the upgrade information provided by Microsoft. The following issues are especially important.

- Be sure to upgrade to DSM 3.3.1 or later before upgrading to Windows Server 2008 R2.
- You cannot upgrade to Windows Server 2008 R2 while the host is part of a Windows cluster. Remove the host from the cluster before upgrading.
- After clustering a Windows host running Windows Server 2008 R2, run the **Repair** option of the Data ONTAP DSM for Windows MPIO installation program to set the required value of the \HKLM\Cluster\ClusSvcHangTimeout parameter.
- For iSCSI-booted Windows Server 2008 hosts, there is no way to upgrade to Windows Server 2008 R2. You must do a fresh installation of Windows Server 2008 R2. This is a Microsoft limitation.

Do not manually create files on Windows Server 2008 R2 CSV

Manually creating or copying files to a Windows Server 2008 R2 cluster shared volume (CSV) can corrupt the data on the volume.

The only files allowed on a CSV are the files written by the Hyper-V administrative tools. This includes any user or application data stored under the C:\ClusterStorage directory on every node.

Windows crashes after setting Chelsio 10 Gb NIC MTU to 9000

Enabling jumbo frames (MTU = 9000) on a Chelsio 10 Gb NIC can crash Windows Server 2008 R2.

Do not enable jumbo frames on the Chelsio 10 Gb NIC on Windows Server 2008 R2.

This problem has been reported to Microsoft and Chelsio, and is expected to be fixed in a future version of the Chelsio driver.

For the latest status, see bug 360519 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Enabling ALUA might require a Windows reboot

In some situations, you must reboot Windows after enabling ALUA on LUNs mapped to that Windows host.

A reboot is required if ALUA is enabled on an igroup and the host has already discovered LUNs from that igroup. A disk rescan of the host does not set the load balance policies or the target portal group properties correctly. Rescan does not cause a stack tear-down and rebuild of MPIO LUNs, so the new ALUA property is not detected.

If you enable ALUA on a new igroup and then map LUNs to that igroup, no reboot is needed.

For the latest status, see bug 357739 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Emulex FC HBA timeouts not set by DSM installation program

The DSM installation program runs the fcconfig program to set timeouts for Fibre Channel (FC) host bus adapters (HBAs). However, for some Emulex FC HBAs, the correct timeouts are not set, which can cause failover problems.

After installing or repairing the Data ONTAP DSM, you should use the Emulex OneCommand Manager to verify, and if necessary set, the required LinkTimeOut and NodeTimeOut values.

For DSM, LinkTimeOut must be set to 1 and NodeTimeOut must be set to 10.

For the latest information about this issue, see bug 399738 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Do not mix 10 Gb and 1 Gb iSCSI sessions to a LUN

Mixing 10 Gb and 1 Gb iSCSI sessions to the same LUN is not supported.

To avoid multipathing problems with iSCSI sessions, use either all 10-Gb sessions or all 1-Gb sessions to a given LUN.

Known problems and limitations

Some unexpected and potentially undesired behaviors, as well as, in some cases, workarounds to avoid these behaviors, have been identified in this release.

To request more information about an individual bug and to explore other bug-related tools, see Bugs Online on the NetApp Support Site.

Installation issues

You might encounter the following issues when you install Data ONTAP DSM for Windows MPIO.

Data ONTAP DSM management service pop-up window appears during DSM upgrade

If you use the GUI to upgrade from DSM 3.4 or DSM 3.5 to DSM 4.0, you see a pop-up window that says, "Data ONTAP DSM Management Service file in use."

This message can safely be ignored.

DSM installation failure due to problem with the Windows installer package

For certain versions of Windows Server, the DSM installation will fail if there is a problem enabling the .NET feature. In such cases, you will receive the following error message: "There is a problem with this windows installer package. A program run as part of the setup did not finish as expected, contact the vendor."

You should reboot and re-run the installation.

Error when installing hotfixes

When installing required Windows hotfixes, you might get an error message saying the hotfix does not apply to your system.

Some hotfixes have a dependency on other hotfixes. Install the hotfixes in numerical order to ensure they are accepted.

Many hotfixes prompt you to reboot your system. You can wait until all hotfixes are installed before rebooting. If you are installing Data ONTAP DSM immediately after the hotfixes, you can wait and reboot when prompted by the DSM installation program.

Installing or uninstalling DSM takes a long time in MSCS configurations

Installing or uninstalling the Data ONTAP DSM for Windows MPIO can take a long time on Windows hosts in a Microsoft cluster (MSCS) configuration.

The long install and uninstall times are a result of the way multipathing works with MSCS. In large production environments, times of one hour have been observed.

You can simply choose to let the process run, with the understanding that it might take a long time to complete.

Another option is to shut down one node in the cluster, install or uninstall the DSM software on the running node, shut down the first node, and repeat the process on the second node.

For the latest information, see bug 373412 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Internal Error: Access is Denied during installation

On Windows Server 2008 or later, you might receive an Internal Error: Access is Denied message if User Access Control is enabled and installation is attempted from a user account other than Administrator.

There are two workarounds for this problem: installing from an elevated command prompt or disabling User Access Control.

For the latest information, see bug 312358 at Bugs Online.

For more information about User Access Control, see the Microsoft Technet article *User Account Control Step-by-Step Guide*.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

[Microsoft Technet User Account Control Step-by-Step Guide - technet.microsoft.com/en-us/library/cc709691.aspx](http://technet.microsoft.com/en-us/library/cc709691.aspx)

Installing from an elevated command prompt

Run the installation from an elevated command prompt to avoid the Internal Error: Access is Denied error.

Before you begin

An elevated command prompt is required to install the DSM when User Access Control (UAC) is enabled. The elevated command prompt overrides the UAC restrictions.

Steps

1. Click **Start**.
2. Right-click **Command Prompt** and then click **Run as Administrator**.
3. Run the installation program by navigating to the directory containing the installation package and entering the package name at the command prompt.

Related information

[Microsoft Technet User Account Control Step-by-Step Guide - technet.microsoft.com/en-us/library/cc709691.aspx](http://technet.microsoft.com/en-us/library/cc709691.aspx)

Disabling User Access Control

Disable User Access Control to avoid the Internal Error: Access is Denied error.

Steps

1. Log in as an administrator.
2. Select **Control Panel > User Accounts > Turn User Account Control on or off**.
3. Clear the **Use User Access Control (UAC) to help protect your computer** check box and then click **OK**.
4. Run the installation program again.

Related information

[Microsoft Technet User Account Control Step-by-Step Guide - technet.microsoft.com/en-us/library/cc709691.aspx](http://technet.microsoft.com/en-us/library/cc709691.aspx)

GUI and CLI issues

You might encounter the following issues as you use the Data ONTAP DSM for Windows MPIO GUI and CLI.

“Data ONTAP DSM management service” file in use pop-up message can be safely ignored

When using the GUI to upgrade from DSM 3.4 or DSM 3.5 to DSM 4.0 or later, you get a pop-up message indicating that the "Data ONTAP DSM management service" file is in use. You can safely ignore this message and proceed with the installation.

Initiator name and path information address field displays "Not Available" in Windows Server 2012 or later

In the DSM 4.1 GUI for Windows Server 2012 or later, "Not Available" is displayed in both the initiator name field, and the path information address field. This does not affect multipathing functionality, and can be ignored.

Red-circle icon appears on root node during GUI initialization

When DSM GUI initializations take longer than expected, a red-circle icon appears on the root node indicating that normal operations are blocked until initialization completes. Sometimes, this icon appears even if GUI initializations have not exceeded the expected time. In such cases, the icon can be safely ignored.

Errors when opening GUI and running cmdlets on Windows Server 2012 host with disconnected network drive

The Data ONTAP DSM GUI and cmdlets might display errors on a Windows 2012 host if the host has a disconnected network drive.

For example, you might see the following error messages when you try to load the DSM GUI:

- Failed to get disk information from the driver.
- Failed to get I/O stats information from the driver.
- Snapin is not responding.

You might see an error message similar to the following when you run a cmdlet:

```
Get-sandisk: An unexpected Error occurred while executing Get-Disk.
```

To fix this issue, delete the disconnected network drive and then restart the Microsoft Management Console.

LUN paths remain in Failed state after a communication disruption to the storage system

On Windows Server 2008 hosts, a path can stay in the Failed state when it fails and comes back online, but has not encountered an I/O error. The failed paths are caused by an inconsistency in the LUN path state between the Windows MPIO component and the Data ONTAP DSM.

A path marked as Failed by Data ONTAP DSM is only recovered when the MPIO component performs a successful path verification on that path. Because the MPIO component does not believe that the path is failed (no I/O error), it does not perform the verification and the path is stuck in the failed state.

You can do one of the following to resolve this issue:

- Use the Data ONTAP DSM graphical user interface (GUI) to identify the Fibre Channel or IP network interface that is used for the failed path. Disable that interface for 30 seconds and then enable it. After you enable the interface, the LUN paths are discovered and usable again.
- Reboot the Windows host to recover the failed paths.

For the latest information, see bug 435876 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

DSM does not display virtual disks

A Windows Server 2008 host running Data ONTAP DSM fails to display virtual disks (LUNs) that are created.

The virtual disks work correctly, but cannot be viewed or managed using the DSM GUI or CLI.

Contact Customer Support for assistance with bug 300167.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

DSM GUI displays 0.0.0.0 for initiator address

When you are viewing the paths for a virtual disk in the DSM GUI, 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 retain its default setting in the Microsoft iSCSI initiator.

To avoid the problem, when creating an iSCSI session, manually select the initiator address.

Full DSM feature set not available using Microsoft user interfaces

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

Use the GUI or CLI supplied with the Data ONTAP DSM for management. The DSM GUI is available from Windows Computer Management.

See the *Data ONTAP DSM for Windows MPIO Installation and Administration Guide* for instructions.

New LUNs do not appear in DSM GUI or CLI

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.

Steps

1. On the Windows host, select **Start > Administrative Tools > Computer Management**.
2. Select **Storage > Disk Management** in the navigation pane.
The Initialize and Convert Disk wizard starts.
3. If the wizard does not start, select **Action > Rescan Disks**.
4. Follow the prompts to initialize the disks, but do not convert them to dynamic disks.
5. Partition and format the disks if desired.

After you finish

Refresh the DSM GUI display.

Interoperability issues

You might encounter the following issues with your host's configuration.

Windows iSCSI sessions do not automatically reconnect to the target after a giveback

After a giveback, the Windows iSCSI initiator might not reconnect to the target. The iSCSI initiator GUI lists the connection state as Inactive.

When the iSCSI service on the target is stopped during a giveback, the iSCSI initiator tries to reconnect. This re-login request is incorrectly sent to the partner node, which causes the target to reject the login. The initiator marks the session as Inactive.

The workaround is to manually reconnect the session using the iSCSI initiator GUI.

For the latest status, see bug 605236 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

QLE8240 and QLE8242 adapters not configured automatically

The QLogic converged network adapter (CNA) models QLE8240 and QLE8242 are supported in specific Windows host configurations. You must manually install the QLogic software packages and set the adapter timeouts if you have driver level 9.1.9.19 or later.

The Interoperability Matrix Tool (IMT) lists the supported Windows configurations and required driver and firmware versions for these adapters when using the iSCSI offload and FCoE functionality.

When using the adapter as a simple 10 GbE NIC, special configuration is not needed. The IMT does not list Ethernet NICs. If the adapter is used for standard iSCSI or NAS traffic, then it is supported with NetApp storage.

The Data ONTAP DSM installation program does not automatically configure the required settings for the QLE8240 and QLE8242 if you have driver level 9.1.9.19 or later. The following manual steps are required:

1. Install the QLogic software packages (driver/firmware, host agents, and management CLI).
2. Set the adapter timeouts using the QConvergeConsole CLI.

Installing the QLogic software packages

Download and install the QLogic software packages to load the supported firmware and driver on the adapter. Also download and install the and the management software to configure and manage the adapter.

Steps

1. Check the Interoperability Matrix for the required driver and firmware versions.
2. Download the software packages from the QLogic support page for NetApp.

You need the following packages:

- Windows Superinstaller (x86/x64) package
 - Optional QConvergeConsole (x86/x64) GUI management tool
3. Install the packages according to the QLogic documentation.

Related information

[QLogic support page for NetApp - http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/OEM_Product_List.aspx?oemid=372](http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/OEM_Product_List.aspx?oemid=372)

Setting the adapter timeouts using QConvergeConsole

The adapter requires specific timeout settings that are not set by the current host software.

Before you begin

The QConvergeConsole CLI must already be installed on the Windows host computer.

Steps

1. Using the QConvergeConsole CLI, enter the following command to set the adapter LinkDownTimeout to 1:

```
gauccli -pr fc -n port_number lt 1
```

port_number is the number of the port on a multi-port adapter. The setting must be made to each port of a multi-port adapter.

2. Enter the following command to set the adapter PortDownRetryCount to 10:

```
gauccli -pr fc -n port_number pd 10
```

port_number is the number of the port on a multi-port adapter. The setting must be made to each port of a multi-port adapter.

Raw passthru SCSI disks on a guest OS are not available when running MPIO on the guest

If you run MPIO software on a guest OS (for iSCSI directly from the guest), and you also configure raw passthru disks as SCSI physical disks from the parent, the guest is unable to use the raw disks.

This issue occurs with the Data ONTAP DSM for Windows MPIO and the Veritas DMP DSM.

When you are running MPIO on the guest, map raw drives as IDE physical disks.

Windows Server 2008 cluster node hangs and takeover of disk resources fails when both ISLs are down in MetroCluster configuration

In a MetroCluster storage configuration, when both the front-end and back-end Inter-Switch Links (ISLs) are down and a group move is attempted between local sites, the move is unsuccessful and the Windows cluster nodes hang.

The root cause for this cluster hang is the enumeration of the disks causes a READ command to be sent to the disk that is in the remote storage site. The READ command is attempted across the ISL which is down, but the command fails because there is no path to the remote disk.

Even though the disk from the remote storage site is not part of the resource group being moved, because the remote disk is part of the node's storage resources and is mounted in both the local and remote sites, the disk enumeration tries to access the remote disk to match its device ID.

Before doing a group move in the local site when the MetroCluster ISLs are down, you should manually disable the disks belonging to the remote sites using the Windows Device Manager or Windows Disk Management.

After disabling the remote disks, the group move succeeds. Because the remote disks are disabled, when Windows cluster does a disk enumeration, the READ commands are not sent to the remote site.

It is important to note that the remote disks must be disabled on BOTH the nodes (source and destination) in the LOCAL site before doing the group move.

Windows Server 2008 R2 cluster node takes about 7 minutes to establish persistent reservation during bootstrap

You can reduce the bootstrap time for a Windows Server 2008 R2 host in a failover cluster configuration by changing the cluster service startup setting.

The delay in establishing the persistent reservation is caused by the cluster service terminating unexpectedly while the Data ONTAP DSM is performing device discovery after the reboot. The cluster service recovers automatically by restarting after about 5 minutes and establishes reservations.

To improve bootstrap time, you can set the Cluster service **Startup Type** value to **Automatic (Delayed Start)** in the Windows Services Microsoft Management Console (MMC) snap-in. This reduces the time to establish the persistent reservation to about 1 minute.

I/O errors during repeated connectivity disruptions of iSCSI connections

Windows hosts with fewer than four iSCSI paths to the storage system might experience I/O errors when the iSCSI connections have repeated connectivity disruptions.

Ongoing testing has identified a potential problem when a host running the iSCSI software initiator has a small number of iSCSI paths and the iSCSI connections are repeatedly disrupted. This issue has not been seen with systems that have four or more iSCSI paths.

There are two workarounds for this issue:

- Create additional iSCSI paths to the storage controllers. The best practice is to have multiple subnets using independent Ethernet switches.
- Change the value of the LinkDownTime parameter in the Windows registry. This value is set by the Host Utilities installation program based on your configuration.

The LinkDownTime parameter is set in the HKLM\SYSTEM\CurrentControlSet\Control\Class\{iSCSI_driver_GUID}\instance_ID\Parameters\LinkDownTime parameter.

See bug 409405 at Bugs Online for the recommended value based on the latest test results.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

iSCSI sessions do not reconnect after reboot with mixed IPv4 and IPv6

In a multipath I/O (MPIO) configuration or multiple connections per session (MCS) configuration that has both IPv4 and IPv6 endpoints, some iSCSI sessions might fail to reconnect after rebooting the Windows host.

To ensure that all of your iSCSI paths return after a reboot, use either all IPv4 endpoints or all IPv6. Do not mix IPv4 and IPv6.

For the latest status, see bug 342374 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Configuring pass-through disks for Windows Server 2008 R2 or Windows Server 2012 Hyper-V

There are two procedures for configuring pass-through disks for Windows Server 2008 R2 or Windows Server 2012 Hyper-V virtual machines in an HA configuration.

Select the appropriate configuration depending on whether the virtual machine already belongs to a cluster.

Configuring a pass-through disk for a VM not yet in the cluster

Use this procedure to configure a pass-through disk for a Windows 2008 R2 Hyper-V HA virtual machine (VM) if the VM is not yet added to the failover cluster.

Steps

1. Verify that the disk being added is not configured to be managed by the cluster. If it is a cluster resource, delete it from the cluster.
2. Add the disk as a pass-through disk to the VM, using Hyper-V Manager.
3. After verifying that the pass-through disk is working with the VM, shut down the VM.
4. Add the disk to the failover cluster.

The disk appears in **Available Storage** in Failover Cluster Manager.

5. Add the VM to the cluster using Failover Cluster Manager.

Configuring a pass-through disk for a VM already in the cluster

Use this procedure to configure a pass-through disk for a Windows 2008 R2 Hyper-V HA virtual machine (VM) if the VM is already added to the failover cluster.

Steps

1. In Failover Cluster Manager, verify the disk that will be the pass-through disk is listed in **Available Storage**. Take the disk offline, but do not delete from the cluster.
2. Using Failover Cluster Manager, shut down the VM to which you are adding the disk.
3. Using Hyper-V Manager, add the pass-through disk to the VM.
4. In Failover Cluster Manager, select the VM and then select **Refresh virtual machine configuration** in the Action pane.

The pass-through disk is added to the group that the VM is in and brought online automatically.
5. Start the VM.

The pass-through disk is available.

Cluster Shared Volume not accessible from one node in a Windows Server 2008 failover cluster

From a node in a Windows Server 2008 failover cluster, if a CSV volume is accessed, an error message "CSV Volume not accessible" is displayed.

The event log contains an error message similar to `Cluster service failed to create a cluster identity token for Cluster Shared Volumes`.

This error is caused by a configuration error such as authentication issues, the inability of the node to contact a domain controller, or the cluster IP address being incorrect. If you fix these issues, the volume should be accessible.

Hyper-V live migration and quick migration fail after converting a CSV LUN to non-CSV

Hyper-V live migration and quick migration do not work after converting a cluster shared volume (CSV) LUN to a non-CSV LUN. You need to follow special procedures to convert a CSV to a non-CSV for successful live migration or quick migration.

When a LUN is used as a CSV, you cannot change the Windows drive letter of the virtual hard drive (VHD) to enable live migration or quick migration. Attempting live migration or quick migration with a CSV fails. If you simply remove the LUN from the CSV, the migration also fails.

Follow the special procedure for converting a CSV LUN to enable live and quick migrations.

Converting a Hyper-V CSV LUN to enable live and quick migration

Hyper-V live migration and quick migration do not work after cluster shared volume (CSV) LUNs have been converted to non-CSV. This procedure removes the LUN from the CSV and enables migration of the virtual machine.

Steps

1. Shut down the Hyper-V virtual machine (VM).
2. Export the VM configuration.
This does not copy the virtual hard drive (VHD), just the VM configuration information.
3. Delete the VM from the Windows cluster and from Hyper-V.
Note: Do not import the VM configuration until you are instructed to do so below.
4. Remove the LUN from the CSV and assign an available Windows drive letter.
5. Import the VM you exported. In the VM settings, change the VHD location to point to the drive letter you assigned to the LUN.
6. Add the VM back as an HA resource.

Cannot add SCSI pass-through disk to SUSE Hyper-V guest using IDE controller

If you add a SCSI pass-through disk using the virtual IDE controller to a Hyper-V virtual machine running SLES 10 SP2, you cannot create a filesystem on the disk.

Disk commands such as `fdisk` also fail.

The problem has been observed in both clustered and non-clustered configurations.

The workaround is to use the virtual SCSI controller for pass-through disks on SLES 10 virtual machines.

For the latest status, see bug 365641 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Uninstalling SP2 from SAN-booted Windows Server 2008 prevents host from booting

If you need to remove service pack 2 from a SAN-booted Windows Server 2008 host, remove MPIO first.

When SP2 is removed, the registry entries needed for successful SAN booting in an MPIO configuration are also removed. If you first remove MPIO, you can remove SP2 and still reboot the host successfully.

For more information, see the Microsoft KB article 967752.

For the latest status, see also bug 367810 at Bugs Online.

Related information

[Microsoft KB article 967752 - support.microsoft.com/kb/967752](http://support.microsoft.com/kb/967752)

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Bidirectional CHAP limitation for Itanium hosts

The Microsoft iSCSI initiator cannot create more than one session using bidirectional (mutual) CHAP on Itanium hosts.

On Windows hosts with Itanium (IA64) processors, you cannot use bidirectional (mutual) CHAP with either multipath I/O (MPIO) or multiple connections per session (MCS). The first session or connection is established successfully, but you are unable to create additional sessions or connections.

This problem is fixed in Windows Server 2008R2.

For earlier versions of Windows, do not use CHAP on IA64 systems if you want to create more than one iSCSI session.

For the latest status, see bug 222607 at Bugs Online.

Related information

[Bugs Online - support.netapp.com/NOW/cgi-bin/bol/](http://support.netapp.com/NOW/cgi-bin/bol/)

Raw (pass-through) disks on a guest OS are not available when running MPIO on the guest

If you run MPIO software on a guest OS (for iSCSI directly from the guest), and you also configure raw (pass-through) disks as SCSI physical disks from the parent, the guest is unable to use the raw disks.

This issue occurs with the Data ONTAP DSM for Windows MPIO and the Veritas DMP DSM.

When you are running MPIO on the guest, map raw drives as IDE physical disks.

Guest OS install on SCSI disk fails

You cannot boot a Hyper-V virtual machine from a SCSI-mapped disk.

Use an IDE-mapped disk for the virtual machine boot disk.

Hyper-V virtual machine files do not work on CIFS share

You cannot use a CIFS share on the storage system to store the virtual hard disk (.vhd file) or virtual machine configuration files for a Hyper-V virtual machine.

Store the .vhd file and virtual machine configuration files on a FC or an iSCSI LUN mapped to a drive on the Hyper-V parent system.

Hyper-V guest does not boot or loses pass-through disk

If the disk numbers on the Hyper-V parent change so that they no longer match the virtual machine configuration, the guest operating system can fail to boot or the guest can lose access to a pass-through disk.

The disk number might change if you delete a LUN mapped to the parent and then reboot the parent.

You can fix the problem by modifying the virtual machine configuration to match the new disk identifiers.

SUSE Hyper-V guest loses network when moved to another cluster node

SUSE guest operating systems on Hyper-V systems lose their network connections when the guest is moved to another node in the Windows cluster.

The network loss occurs when the guest uses a dynamic MAC address for its virtual network adapters. Dynamic MAC addresses are the default setting.

The workaround is to always select a static MAC address in the virtual machine **Network Adapter** settings for SUSE guest operating systems.

This problem has been reported to Microsoft.

Configuration fails when attempting to add a virtual machine to a Failover Cluster

Adding a virtual machine to a failover cluster fails because the hidden available storage resource group belongs to a different node in the cluster.

Correcting a failed virtual machine addition

If adding a virtual machine to a failover cluster fails because the hidden available storage resource group belongs to a different node in the cluster, add the new virtual machine's disk to the correct resource group.

Steps

1. Move the disk to the proper node by using the Failover Cluster Management Console.
2. Add the disk to the proper resource group created by the Virtual Machine Resource Wizard.
3. Manually add a dependency of the Virtual Machine on the Virtual Machine Configuration files.
4. Add a dependency of the Virtual Machine Configuration Files on the Physical Disk.
5. Start the Virtual Machine Resource Group.

Ensuring virtual machines can be added to a failover cluster

To ensure new virtual machines can be added to a failover cluster, move the available storage group to the node on which you are creating and adding virtual machines.

Step

1. On the cluster node, enter the following command at a Windows command prompt:

```
C:\cluster group "Available Storage" /move:"node_name"
```

node_name is the host name of the cluster node from which you are adding virtual machines.

After you finish

Run the virtual machine wizard to create the virtual machines and then add them to the failover cluster.

Unable to add another virtual machine to a failover cluster

You can successfully add one virtual machine to a failover cluster, but attempts to add other virtual machines stored in the same LUN fail.

This problem applies only to configurations with more than one virtual machine (configuration files and boot .vhd file) stored on the same LUN.

Move all of the virtual machine resources to the same failover cluster resource group. Then add the virtual machines to the cluster. Be sure that the resources for all virtual machines are configured as dependent on the disk mapped to the LUN.

Virtual machine does not work after being removed from a failover cluster

A Hyper-V virtual machine no longer works after being removed from a failover cluster. Adding a virtual machine to a failover cluster and then removing it from the cluster removes the virtual machine configuration.

Recreate the virtual machine reusing the original boot .vhd file.

Unable to SAN boot with Emulex FC HBA

SAN booting might fail with Emulex Fibre Channel HBAs in one of several ways.

The following symptoms might occur while SAN booting a Windows host with an Emulex Fibre Channel HBA.

- The server boots once, but does not boot on subsequent attempts. The SAN boot is performed from a storage system LUN using FC. The HBA firmware is on the support matrix and the required storeport miniport driver is installed.
- After configuring the Emulex boot BIOS and rebooting the Windows host, the Emulex boot BIOS is not installed. The message “Emulex BIOS is not installed!!!” is displayed during the POST. This prevents configuring SAN booting.

Enable the `Start Unit Command` option in the Emulex HBA BIOS to resolve this issue.

For more information, see NetApp KB article 2012694.

Related information

[NetApp KB article 2012694 - kb.netapp.com/support/index?page=content&id=2012694](http://kb.netapp.com/support/index?page=content&id=2012694)

Microsoft iSCSI SW Initiator takes a long time to reconnect to the storage system after disruption

In a storage system configuration with multiple physical networks or multiple VLANs, the Microsoft iSCSI software Initiator can take several minutes to reconnect to the storage system.

During initial target discovery (Add Target), the Microsoft iSCSI software initiator uses the `iSCSI SendTargets` command to retrieve a list of IP addresses at which the target can be accessed.

In a storage system configuration with multiple physical networks or multiple VLANs, it is possible that some of the storage system’s addresses are not accessible to a given host. In this situation, the `SendTargets` response sent by the storage system will advertise some addresses which are not accessible by that host.

When the Microsoft iSCSI initiator loses connectivity to the target (such as during storage system reboot, takeover, and giveback), the initiator attempts to reestablish connectivity to the target using the following default algorithm, which Microsoft calls “port-hopping”:

- Attempt to reconnect over the same IP address which was being used before the disruption.
- Cycle through the other IP addresses from the SendTargets response, attempting to reconnect, until connectivity is reestablished.

Each inaccessible IP address in the list can add a delay of 15-20 seconds, which is the TCP connection establishment timeout. If there are many inaccessible IP addresses in the list, it may take a long time for the iSCSI initiator to cycle through the list before successfully reconnecting to the target. If the total reconnect time exceeds the timeout configured on the host (PDORemovePeriod for MPIO), the Windows applications experience I/O errors.

This long reconnect time can be minimized by disabling the use of the Microsoft “port-hopping” algorithm by using a specific target IP address for each connection in the iSCSI Initiator.

Disabling the Microsoft iSCSI port-hopping algorithm

Disable the Microsoft iSCSI port-hopping algorithm in the iSCSI Initiator to minimize the recovery time in configurations with many iSCSI target ports.

Steps

1. Open the Microsoft iSCSI initiator applet and select the **Targets** tab.
2. Click **Log On**.
3. In the **Logon to target** dialog box, click **Advanced**.
4. In the **Target Portal** list, change the value from Default to one of the storage system IP addresses specified in the **Target Portals** list on the **Discovery** tab.

Result

After a disruption occurs, the Microsoft initiator uses only the IP address specified to reconnect to the storage system and does not try other IP addresses advertised in the SendTargets response.

Note: If the specified IP address is unreachable, no failover occurs.

LUN identifier range 0-254

The Windows operating system only recognizes LUNs with identifiers from 0 to 254, regardless of the number of LUNs mapped.

Be sure that your LUNs are mapped to identifiers in this range.

Wait between iSCSI logout and login

If you use the iSCSI software initiator GUI to log out the last session with an iSCSI target and then immediately log back in to the target, the Windows host does not connect to the iSCSI LUNs.

Wait at least 150 seconds after logging out of the last session with an iSCSI target before logging back in.

ONTAP DSM does not load balance when using the Least Queue Depth load balance policy

When using ONTAPDSM with the Least Queue Depth load balance policy on any of the Windows Server Operating Systems, I/O is serviced on only one path instead of across all available Active/Optimized paths. This happens only when the mapped LUN is 2 TB or greater.

You should use the Round Robin with Subset load balance policy for LUNs 2 TB or greater. This issue does not apply to LUNs less than 2 TB.

WPP trace file is empty when using the logman command on virtual machine

When you use the logman command on a virtual machine, no data appears in the WPP trace file.

To collect WPP traces, you should enter the logman command as follows from within the Hyper-v guests.

1. **logman create trace ontapdsm -p "ontapdsm_ONTAPDSM_TRACE"**
<flags><level>-bs 64 -o<outputfilename>-ets
2. Enter the following command: **logman stop ontapdsm -ets**

Ways to view current and fixed product bugs

NetApp provides an online tool that enables you to search for the most current information about a known bug. You can also use this tool, which is available on the NetApp Support Site, to get a list of current or fixed bugs for a particular product.

Bugs Online, which is online at support.netapp.com/NOW/cgi-bin/bol, enables you to search for information in the following ways:

- By entering the bug number
- By entering keywords related to the bug
- By selecting a software product from the list in the **Bug Type(s)** field or the **Product Type(s)** field.

Some products are listed in one field and some in the other field. You should check both to find the product you want.

Some keyword combinations and Bug Type(s) that you might want to use include the following:

- ONTAP DSM

NetApp product documentation

You can access documentation for all NetApp products on the NetApp Support Site at support.netapp.com.

In addition to product documentation, NetApp provides other product information, such as technical reports and white papers.

How to search for documentation on the NetApp Support Site

NetApp provides a variety of documentation on the support.netapp.com site that can be helpful in working with Data ONTAP DSM for Windows MPIO.

You can use the Search tool on the support.netapp.com site to search through the following information sources:

- Product documentation
- Knowledgebase articles
- Bugs Online
- The support community
- Tools and other documentation
- Partner knowledgebases

Links to NetApp product documentation

The Product Documentation page contains pointers to the most current NetApp documentation for Host Utilities and storage systems.

Links to specific Host Utilities documents are in the Product Library A-Z page available at support.netapp.com/documentation/productsatoz/index.html for each Host Utilities product.

The following table describes some of the documents on the support.netapp.com site that contain information about host and storage system requirements, supported configurations, and best practices, as well as procedures for installing and managing your storage environment:

If you need more information about...	Go to...
The latest supported configurations	• NetApp Interoperability Matrix • Hardware Universe at hwu.netapp.com

If you need more information about...	Go to...
Configuring and managing your storage system	• The following documents for your Data ONTAP release in the Documentation Library: • The <i>Data ONTAP Software Setup Guide</i> for your version of Data ONTAP. • The <i>Data ONTAP SAN Administration Guide (formerly the Data ONTAP Block Access Management Guide for iSCSI and FC)</i> for your version of Data ONTAP. • The <i>Data ONTAP Release Notes</i> for your version of Data ONTAP.
Supported Fibre Channel SAN topologies	The <i>Data ONTAP SAN Configuration Guide (formerly the FC and iSCSI Configuration Guide)</i> for your version of Data ONTAP.
Configuring your host for Host Utilities	The Host Utilities documents in the Host Utilities Documentation Library

Contact technical support

If you have a question that has not been resolved by these Release Notes, contact NetApp technical support.

Things to check before you call technical support

Before you call technical support, there are several things you can try in effort to solve the problem yourself.

They include:

- Go through these *Release Notes* to see if they contain information about your problem.
- Check all cables to make sure that they are connected properly.
- If you are using switches, check the power to the switches to make sure that the system is turned on.
You should also make sure that the system components were turned on in the correct order.
- Review the troubleshooting information provided in the documentation for this product.

Information you must provide to technical support

Before you contact technical support, you must gather information about your system and your problem.

You should have the following information available when you contact technical support:

- Your contact information
- A list of all the NetApp products you are using
- All the error messages from the system
- Information about your system setup
- Your licensing information

How to contact NetApp technical support

You can contact NetApp technical support by telephone or from the NetApp Support Site.

To contact technical support by telephone, use the following numbers:

- 888 463-8277 (United States and Canada)
- 00.800.44.638277 (EMEA/Europe)
- +800.800.80.800 (Asia/Pacific)

To contact technical support from the web, use the following address:

- support.netapp.com

For a detailed listing of technical support phone numbers, go to the NetApp Support page at [NetApp Support](#).

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You can also contact us in the following ways:

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