



Dell EqualLogic Host Integration Tools for Microsoft Edition Version 5.3 Release Notes

This document contains important product information and restrictions for the Dell EqualLogic Host Integration Tools for Microsoft Edition version 5.3 software kit.

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Revision History

Revision	Date	Description
R1	April 2020	Version 5.3 initial release

Platforms Affected

Affected platforms include software, firmware, and Microsoft Windows operating systems.

Firmware


For all operating systems, use PS Series firmware version 8.x or later.

Hardware

Host Integration Tools for Microsoft Edition (HIT/ME) version 5.3 supports all PS and FS Series hardware platforms.

Supported Applications

Through the ASM/ME, HIT/ME supports backup and restore operations for the following applications:

- SQL Server 2014, SQL Server 2016, and SQL Server 2017
 - System Center Virtual Machine Manager (SCVMM) 2012 R2, SCVMM 2012 R2 SP1, and SCVMM 2016
-  **NOTE:** SCVMM PowerShell should be used for importing EqualLogic SMP provider for SCVMM 2016.
- Hyper-V

- Exchange Server 2013 SP1 and Exchange Server 2016
- SharePoint 2013 SP1 and SharePoint 2016

Microsoft Windows Operating Systems

HIT/ME version 5.3 runs on any of the following Microsoft Windows 32-bit and 64-bit operating systems:

- Windows Client 7 SP1, 8.0, 8.1, and 10
- Windows Server 2012, 2012 R2, and 2016
- Windows Server Core 2012, 2012 R2, and 2016

HIT/ME Components

Host Integration Tools for Microsoft Edition (HIT/ME) includes the user-selectable components described in the following table:

Table 1. HIT/ME Tools Components

Component	Description
Remote Setup Wizard (RSW)	Initializes a PS Series storage array
Remote Setup Command Line Interface (RSWCLI)	Provides a command-line alternative to the Remote Setup Wizard. Also enables you to configure multipath I/O settings and configure access to a PS Series group.
Multipath I/O device-specific module (MPIO/DSM)	Supports redundant network paths between a computer and the PS Series group for high availability and high performance.
Auto-Snapshot Manager/Microsoft Edition (ASM/ME)	Creates and manages Smart Copies (snapshots, clones, and replicas of PS Series iSCSI volumes). Use the alternate command-line interface, ASMCLI, for custom operations and scripting.
VSS Provider	Used by Volume Shadow Copy Service (VSS) to manage application-consistent Smart Copies
Virtual Disk Service Provider (VDS)	Used by VDS version 1.1 and Storage Manager for SANs to create and manage volumes in a group
Storage Management Provider (SMP)	Manages storage groups on Windows 8 or later and Windows Server 2012 or later operating systems
PowerShell Tools	Manages one or many PS Series groups through a comprehensive set of PowerShell Tool cmdlets
EqualLogic MPIO Configuration Tool	EqualLogic MPIO Configuration Tool is a new Graphical User Interface (GUI) application (<code>EqlMPIOConfigurator.exe</code>), which provides same user interface as the HIT/ME MPIO Configuration tab.

Supported Versions of the Windows Operating System

The following tables list supported versions of the Windows operating system and identify Host Integration Tools components that do not support specific operating system versions.


 **NOTE:** If the Host Integration Kit is installed with the capability to import EqualLogic volumes to a PowerStore array, see the *Importing External Storage to PowerStore Guide* for supported operating systems.

Table 2. Windows Desktop Operating System Support

Component	Windows 7 SP1	Windows 8.0 and 8.1	Windows 10
RSW	Yes	Yes	Yes
Remote Setup CLI	Yes	Yes	Yes
MPIO/DSM	No	No	No
ASM/ME	No	No	No
VSS Provider	No	No	No
VDS Provider	No	No	No
PowerShell tools	Yes	Yes	Yes
Storage Management Provider (SMP)	No	Yes	Yes
Rethinning driver	No	No	No
EqualLogic MPIO Configuration Tool	No	No	No

Table 3. Windows Server and Server Core Support

Component	Server 2012 and 2012 R2	Server Core 2012 and 2012 R2	Server 2016	Server Core 2016
RSW	Yes	No	Yes	No
Remote Setup CLI	Yes	Yes	Yes	Yes
MPIO/DSM	Yes	Yes	Yes	Yes
ASM/ME	Yes	No	Yes	No
VSS Provider	Yes	Yes	Yes	Yes
VDS Provider	Yes	Yes	Yes	Yes
PowerShell tools	Yes	Yes	Yes	Yes
Storage Management Provider (SMP)	Yes	Yes	Yes	Yes
Rethinning driver	No	No	No	No
EqualLogic MPIO Configuration Tool	Yes	No	Yes	No

Requirements

To install and use HIT/ME, your environment must meet the firmware and software requirements listed in the following table.

You cannot use an unsupported instance of an application (such as SQL) on the same computer as a supported instance. Doing so might cause HIT/ME to operate incorrectly. HIT/ME supports only the host bus adapters (HBAs) specified in the following table:

i NOTE: During installation, the HIT/ME kit disables the MPIO Path Verification for devices claimed by the Dell EqualLogic MPIO DSM. This step prevents a potential problem that could introduce a delay in reconnecting to iSCSI volumes during a Dell EqualLogic PS Series firmware update or controller failover.

Table 4. Supported software and firmware Versions

Product	Revision
PS Series firmware	For all operating systems, use PS Series firmware version 8.x or later

Table 4. Supported software and firmware Versions (continued)

Product	Revision
PowerShell Tools	Windows PowerShell Tools version 2.0, 3.0, and 4.0
SharePoint	<ul style="list-style-type: none">• SharePoint 2013 SP1• SharePoint 2016 with September update (KB3118289)
Exchange Server	<ul style="list-style-type: none">• Exchange Server 2013 SP1 CU16• Exchange Server 2016
Virtual Disk Service (VDS)	Version 1.1
SQL Server (SQL Express is unsupported)	<ul style="list-style-type: none">• SQL Server 2014 SP1• SQL Server 2017, SQL Server 2016, SQL Server Core 2016
Hyper-V	<ul style="list-style-type: none">• Windows Server 2012• Windows Server 2012 R2• Windows Server 2016 (standard checkpoints only)
System Center Virtual Machine Manager (SCVMM)	<ul style="list-style-type: none">• SCVMM 2012 R2 UR6 or greater• SCVMM 2016
QLogic QLA405x and QLE406x iSCSI initiator HBAs	<ul style="list-style-type: none">• Firmware version 3.0.1.49 and BIOS version 1.14 with Windows driver version 2.1.4.26• On the QLogic driver downloads page, follow the link specific for Dell EqualLogic models
Broadcom NetXtreme II iSCSI initiator HBA	Version 12.8 driver suite

New in This Release

New features in HIT/ME version 5.3 include:

- Support for PS Series firmware version 10.0.3
- Support for importing EqualLogic storage to PowerStore

Usage Constraints

The following usage constraints exist in this release of HIT/ME:

Windows Server 2012 or Later and Windows 8 or Later

This section describes usage constraints that are specific to Windows Server 2012 or later and Windows 8 or later operating systems.

Incorrect Report of a Device as In-Use

Windows Server 2012 might incorrectly notify you that a device is in use when you try to log out from an iSCSI target. This issue can occur even though no application is using files on any volume associated with the iSCSI target.

Consequently, the relevant task wizards in **Auto-Snapshot Manager** (or ASMCLI commands) such as `Unmount`, `Logoff`, or `Delete` might display a `Volume in use` error.

If you encounter this problem and you are certain that no application is using the volume, you can select the Ignore option in Auto-Snapshot Manager or you can set the disk offline on Windows Server 2012 by using the following procedure:

 **CAUTION:** Following this procedure (using either the ASM/ME GUI or the ASMCLI) when one or more files are in use might result in data loss or corruption.

1. Identify the correct iSCSI target.
2. Launch the command prompt by clicking **Start → Run**, then type **cmd**.
3. Enter **diskpart** at the Windows command prompt to display the **DISKPART>** prompt.
4. Enter **list volume** to list all volumes known to Windows.
5. Examine the column headed **Volume ###** and identify the volume (or volumes) associated with the iSCSI target.
6. Enter **select volume *volume_name***, where *volume_name* is the volume that you identified in the previous step.
7. Enter **offline disk** to set the physical disk for the volume offline.
8. Enter **exit** to close the diskpart menu.
9. Enter **exit** to close the command window.

After setting the disk offline, you can successfully log out from the iSCSI target using the iSCSI initiator GUI or CLI.

Unsupported PowerShell Cmdlets for Windows 8 or Later or Windows Server 2012 or Later

The Storage Management Provider (SMP) does not support the following PowerShell cmdlets in Windows Server 2012 or later and Windows 8 or later:

- **New-StoragePool**
- **Remove-StoragePool**
- **Add-PhysicalDisk**
- **Add-VirtualDiskToMaskingSet**
- **Rename-MaskingSet**
- **Repair-VirtualDisk**
- **Set-PhysicalDisk**
- **Set-ResiliencySetting**
- **Reset-PhysicalDisk**
- **Remove-InitiatorId**

HIT Must Be Installed on Each VM in a Windows Server Configuration

In a Windows Server configuration using Cluster Shared Volumes, HIT/ME must be installed on each VM. Installing HIT/ME ensures Smart Copies of VMs will work correctly in all configurations, including Enterprise, Datacenter, Core, or any other Windows Server release configuration.

This requirement applies whether you start the Smart Copy operation or when you create a schedule from the VM or the Volume node in the ASM/ME GUI.

If HIT/ME is not installed on each VM, you can create a Smart Copy, but an error displays stating that ASM/ME could not open a connection to the VM. The Smart Copy will not be file-system consistent, but is crash consistent with respect to the file system in the VM. You might have to run the **chkdsk** utility the next time the VM restarts.

Cluster Shared Volume VSS Writer Does Not Report Remote VMs

Under rare circumstances the Cluster Shared Volume (CSV) VSS Writer in Windows Server 2012 does not report remote VMs. This omission results in remote VMs not being included in Smart Copies of Cluster Shared Volumes.

This issue occurs when multiple requestors query the components at the same time. You might be able to avoid this issue by:

- Closing the ASM/ME GUI windows when they are not in use
- Not allowing the Smart Copy schedules to overlap

Windows Server Core 2012 and Later

All HIT/ME services run in Windows Server Core and the PowerShell Tools are supported. To use ASM/ME, you must add the server to ASM/ME on Full UI OS and manage the Server Core machines.

ASM/ME does not allow use of the GUI to set MPIO parameters. Instead, use the Dell EqualLogic PowerShell Tools.

Operation

The following operational constraints apply in this release for all supported operating systems.

VSS Does Not Allow Backup and Restore Operations on tempdb

Each time the SQL Server is started, a clean copy of the system database `tempdb` is recreated. This database minimally logs operations such as temporary tables and stored procedures. This logging enables transactions to be rolled back.

The VSS does not allow backup and restore operations to work on `tempdb`. After the current SQL Server session disconnects, and no other connections are active at system shutdown, the temporary tables and stored procedures are automatically dropped from the database. Because no type of data is permanently stored in `tempdb` from one SQL Server session to another, the database does not need to be saved.

For more information about the `tempdb` system database, see the Microsoft Knowledge Base article at msdn.microsoft.com/en-IN/library/ms190768.aspx.

VMM — Selective Restore of a Rapid Provisioned HA VM Smart Copy Fails With Error

You cannot perform a selective restore operation on VM components that are on volumes without mount points. The selective restore operation uses file copy operations that requires the volume to have a mount point.

The files are in `\\?\{GUID}` format.

Smart Copy is Disabled for Cluster Shared Volumes

The Smart Copy feature is disabled for Cluster Shared Volumes when:

- Components for Hyper-V writer and SQL writer are on the same CSV.
- SQL components are on the same CSV, but no SQL instance is owned by the current node.

Networking

This section contains information about network and firewall configuration, and general networking constraints.

Using the HPC Server with Broadcom Ethernet NICs

When setting up systems equipped with Broadcom Ethernet NICs to be used as HPC base or compute nodes with iSCSI storage, you might find that the Broadcom card does not accept the IQN string set for it by the HPC server. This failure will cause login failures when the node attempts to boot from its iSCSI volume, because the HPC head node configures the iSCSI boot volumes with IQN-based ACLs.

To resolve this issue, change the BIOS setting on the Broadcom card and use a template string in the HPC settings when you configure the node template, as shown in the following procedure:

1. Start the **HPC iSCSI Settings App** from the **Start Menu**, click **Start** → **All Programs** → **EqualLogic** → **HPC iSCSI Provider Settings**.
2. Click **Create new volumes with open ACLs**.

This option allows any initiator to log in to the volume.

Windows Firewall Settings on Failover Cluster

If you are using the native Windows firewall on your failover cluster and you want to use the Dell EqualLogic Multipath I/O DSM, you must configure your firewall to allow ICMP echo requests (pings) for ICMPv4 and ICMPv6. The installation procedure detects the firewall and gives you the option to amend your firewall configuration automatically.

Use the iSCSI Initiator Properties Page Extension to verify that Multipath I/O is working correctly.

If you do not configure the firewall automatically at installation time but you still want to use multipathing, you must configure your firewall manually to allow ICMP requests. The following command-line examples show typical firewall configuration rules:

```
netsh advfirewall firewall add rule name="Dell EqualLogic MPIO Ping IPv4" dir=in
action=allow description="Dell EqualLogic MultiPath I/O Ping rule" enable=yes profile=any
localip=any remoteip=any protocol=icmpv4
```

```
netsh advfirewall firewall add rule name="Dell EqualLogic MPIO Ping IPv6" dir=in
action=allow description="Dell EqualLogic MultiPath I/O Ping rule" enable=yes profile=any
localip=any remoteip=any protocol=icmpv6
```

Refer to the documentation for your version of the Windows operating system for instructions on how to configure a firewall.

Network Folder Repository for Smart Copy Backup Documents

When you run ASM/ME on a Windows failover cluster, you must specify a shared network folder as a repository for the Smart Copy backup documents. Each node in the cluster must be able to access the folder. In addition, if you are sharing a PS Series group between several failover clusters, each cluster must have its own shared network folder. You cannot use a single shared network folder between multiple clusters for storing backup documents.

iSCSI Initiator

This section contains general constraints pertaining to the iSCSI initiator.

iSCSI Initiator Connection Failure

Under rare conditions, the iSCSI Software Initiator might not connect to storage devices, including PS Series volumes and the vss-control volume, which Microsoft services use to communicate with a PS Series group. Although the login to the volume appears to succeed, the connection is not established.

For example, the iSCSI initiator console will not show any device details for the target, and the volume will not appear in the Windows Disk Management utility.

The iSCSI initiator will automatically attempt to correct the problem. However, if the problem persists, you might be able to correct it using the following procedure:

1. Double-click the **iSCSI initiator** icon to open its properties and click the **Targets** tab.
2. Log out of the affected iSCSI target.
3. From the **Discovery** tab, remove the group IP address from the list of target portals.
4. Specify the group IP address that you removed from the list of target portals in step 3 as a target portal, then start a new discovery session to this address.
5. Log in to the volumes.

You might need to click **Advanced** to specify host bus adapter information or CHAP login credentials.

If you are unable to correct the iSCSI connection failure, try the following steps:

- a. Reboot the computer.
- b. Use the **Windows Device Manager** and look for devices that appear to be having problems.

For those devices, reinstall the existing driver (use the default response **n**o at the prompts) and then reboot the server.

Windows OS Error When iSCSI Session Limit Reached

A maximum limit of 255 iSCSI sessions is permitted by the Windows operating system. When you reach this limit, the operating system displays the following iSCSI error:

```
SDSC_TOO_MANY_SESSIONS: Unspecified Error 0xefff001e
```

Connecting a Host With HBAs to a PS Series Group on a Dedicated Network

If your host system uses HBAs on a dedicated network to access your PS Series groups, configure ASM/ME to register the discovery address using only these HBAs. In the ASM/ME GUI, click **Settings** → **PS Group Access**. Select the checkbox for **Use Host Bus Adapters** when you configure the PS Series group access. This checkbox appears only if the HIT host has HBAs installed, or an initiator other than the default software initiator.

If a HIT host has HBAs and default network interfaces, the iSCSI traffic is restricted to only the HBA network interfaces, and you select the checkbox to verify the connection to the group, you might see the following error:

```
Error saving PS Group group_name: Specified group WKAddress is not reachable.
```

If the **Verify connection** checkbox is not selected, ASM will add the new group entry but subsequent attempts to edit it will fail. With the **Use Host Bus Adapters** option set, if the ping test fails, ASM will ignore the failure and attempt to register the new PS Series group. If one HBA succeeds, the group is added.

General Operational

The following operational usage constraints apply in this release for all supported operating systems.

ASM/ME

ASM/ME does not support Dell Storage Center arrays. Using ASM/ME, you cannot set up a cross-platform replication to a volume on an SC array because ASM/ME does not recognize the SC array as a replication partner.

Remote Verification

- To perform remote verification for clones, the remote verification server must have access to the corresponding volume.
- To perform remote verification for replicas, the remote verification server must have access to the replication partner group. The remote server must not have any access to the source volumes. If the remote server accesses the original volume, data corruption can occur.

Remote Host Settings for Exchange Replica Smart Copy Verification

One of the options to verify a replica Smart Copy of an Exchange component is to promote the replica set to a recovery volume and perform verification. To use this option, the remote host only needs access to the replication partner group. The remote host must not have any access to the source volumes. If the remote host accesses the original volume, data corruption can occur.

Remote Host Settings for Verifying Snapshots and Clones

To verify snapshots and clones on the remote host, the remote host must have access to the corresponding volumes.

Failover and Failback

HIT does not support failover or failback operations using replicas. For information about supported failover or failback operations on PS Series groups, see the *Dell EqualLogic Group Manager Administrator's Guide*.

Dynamic Disks

Dynamic disks are not supported.

Disks Offline After a Reboot

Disks containing iSCSI SAN volumes (located on your PS Series array) might appear as offline after you reboot your computer. Use Windows Disk Manager to set the disks online. If the offline disks are associated with applications, you might also need to restart the associated application services.

Use the following procedure to set the disks online:

1. Open **Server Manager** in **Windows 2012**.
2. Expand the **Storage** object and open **Disk Management**.
3. Look for disks marked as **Offline**.
4. Right-click the offline disks, then select **Reactivate Disk**.
5. (Optional) Assign a drive letter to each disk.
6. (Optional) Restart the application services associated with the disks.

Local Language Support

None of the components are available as local-language variants. You can install and use the English versions under localized variants of supported Windows operating system versions. You might not be able to enter local-language character set glyphs under certain circumstances, such as:

- CHAP user names and passwords
- PS Series group names, member names, administrative passwords, and group membership passwords.

Application Issues

This section describes usage constraints for the applications supported by HIT/ME.

Exchange Server

The following constraints apply when using HIT/ME with Exchange Server:

- When you use ASM/ME to create Smart Copies of Exchange storage groups, the transaction logs are not truncated. See the Exchange documentation for information about how to truncate transaction logs.
- For Exchange volumes, you can only create Smart Copies of type copy.

Exchange Replication Fails After Uninstalling HIT Kit

If you are uninstalling the version 4.5.0, 4.5.1, 4.6.0, 4.7.0, or 4.7.1 HIT/ME kits on a host that has Exchange servers configured and performing replication (using DAGs), the replications can fail due to an issue with the trim driver. The driver is not updated correctly while open handles to the PS Series group volumes are involved in the replication.

To avoid this issue, suspend all Exchange replication before updating or installing the HIT/ME kit.

SQL Server

HIT/ME supports online backup and quick restore of SQL Server databases using the Auto-Snapshot Manager GUI. See [Platforms Affected](#) on page 1 for supported versions of SQL Server.

The following constraints apply when using HIT/ME with SQL Server:

- Auto-Snapshot Manager does not support SQL Server database object recovery (such as recovering table data). This recovery is available only by using the **Restore as New Database** option, and by other manual tasks.

- You cannot use Auto-Snapshot Manager to create Smart Copies of multiple databases that span iSCSI volumes. This procedure might result in torn Smart Copies of any database not selected for the Smart Copy operation. Dell recommends that you create a collection that includes all the database volumes to avoid torn Smart Copies.
- Selective restoration of databases sharing similar PS Series volumes might take a long time. The file system's copy operation replaces only the selected database files.
- If you select the **Apply log** option for a single database in a database collection, all the databases remain in a restoring state when the Auto-Snapshot Manager restore process completes.

Hyper-V

Refer to the *Dell EqualLogic ASM/ME User's Guide* before you attempt any operations using Hyper-V.

Known Issues

This section describes known issues in HIT/ME version 5.3.

Known Issues with PowerStore Import

The following are known issues when the PowerStore import feature is enabled:

- The driver for the PowerStore import capability blocks the ability to create or delete a clone or smart copy using ASMCLI commands. ASMCLI commands are unaffected if the driver for the PowerStore import capability is not installed.
- When you change the load balancing policies in ASM snapshot manager, the MPIO setting updates the driver load balance policy immediately. There is no need to reboot to update MPIO load balancing policy. However, the changes to the load balancing policy are not reflected in the ASM snapshot manager UI.
- When the PowerStore import capability is installed you cannot add or remove the existing components of the package or change the import option. **Workaround:** Uninstall and reinstall the package with the required components.

HIT/ME Online Help link in ASM tool navigates to HIT/ME 5.0 Online Help

When you click **Online Help** in the Auto Snapshot Manager (ASM) tool, the link navigates to HIT/ME 5.0 Online Help.

To view the HIT/ME 5.3 Online Help, go to <http://psonlinehelp.dell.com/HIT/ME-V5.3/>

Importing The SMP Provider by Using SCVMM 2016 Displays an Error Message

When importing the EqualLogic SMP provider by using SCVMM 2016 GUI, the following error message is displayed:

```
Set Storage Provider
```

To resolve this issue, import the SMP provider by using SCVMM PowerShell.

The Change Option is not Available to Add or Remove any Components or Features of HIT/ME

The **Change** option is not available in the **Programs and Features** window. To add or remove the HIT/ME components, run the HIT/ME setup again.

EHCM Might Drop Sessions When Using Broadcom or QLogic HBAs for iSCSI

EHCM service updates the Maxconnections Registry for some of the adapters. This Maxconnections Registry must be a non-zero value when using multiple connections.

Apply the following registry entries to prevent EHCM sessions to volumes from being dropped when using HBAs (iSCSI Offload):

- Host— [HKEY_LOCAL_MACHINE\SOFTWARE\EqualLogic\EHCM\HBA\Broadcom Corporation\Broadcom NetXtreme II C-NIC iSCSI Adapter] `MaxConnections"=dword:00000080`
- QLogic drivers—: [HKEY_LOCAL_MACHINE\SOFTWARE\EqualLogic\EHCM\HBA\QLogic Corporation\QLogic C-NIC iSCSI Adapter] `MaxConnections"=dword:00000080`

Restart EHCM service.

ASM Error When Updating to Window Server 2016 or Windows Server Core 2016

After updating the operating system from Windows Server 2012 R2 to Windows Server 2016 (including Windows Server Core 2012 R2 to Windows Server Core 2016) with HIT/ME version 5.0.0 installed, ASM generates an error message. At this point it is no longer possible to perform any operations from ASM.

To correct this issue, perform the following steps:

1. Run Windows Update and confirm you are running the latest version of the Windows Server 2016 software. If additional updates are available, install them before continuing.
2. Re-run the HIT/ME installation kit to re-register the VSS provider.

Windows 2016 Schedules Not Running When Re-Enabled

After disabling and re-enabling a schedule, the schedule does not perform the scheduled task.

Workaround: When enabling a schedule, change the trigger start date and time to a new date and time when the scheduled task should be performed.

Set-ASMCollection Cmdlet Not Functioning as Designed

When using the **Set-ASMCollection** PowerShell Tools cmdlet to change a collection name and modify its components, **Set-ASMCollection** should replace the existing components with the specified components. Instead, **Set-ASMCollection** appends the new components to the existing components.

Installing SCVMM 2012 R2 UR5 Causes EqualLogic Storage Discovery Issues

When Update Rollup 5 (UR5) is installed for System Center Virtual Machine Manager 2012 R2, SCVMM encounters issues discovering EqualLogic Storage and reports that EqualLogic Storage was already discovered.

To resolve this issue, install Update Rollup 6 (UR6) or the latest available update rollup.

Windows 2016 SharePoint Components Not Enumerated After Fresh Install of HIT Kit

After installing HIT/ME in an environment consisting of a Windows 2016 host with SQL 2016 and a Windows 2016 host with SharePoint 2016, the left panel of the ASM GUI shows the components in a `Warning` state and the farm components are not enumerated.

To correct (or prevent) this issue, download and install **Microsoft update KB3118289** for Microsoft SharePoint Server 2016. You can find this update at: support.microsoft.com/kb/3118289

Exchange Replica Smart Copies Might Require Manual Soft Recovery

Verification and soft recovery of Exchange replica Smart Copies are performed on the replication partner. Verification consists of two steps: the actual verification, and the `soft recovery`, where the database is brought from a `dirty shutdown` state to a `clean shutdown` state. Soft recovery requires read-write access to the database. In the case of replica Smart Copies, this process requires some additional planning.

You can give read-write access to the Smart Copy in the following ways:

- Promote the replica set to a recovery volume
- Clone the replica, which creates a new volume

A promoted replica will remain promoted only while verification is running. As soon as verification completes, the replica is demoted again, and replication can resume. However, any changes made to the replica during the soft recovery phase of replication are discarded when the replica is demoted, because replication for any given volume is one way. No mechanism is available for replicating changes made on the replication partner back to the original volume.

If you want to mount a replica Smart Copy of an Exchange database on your Exchange server (for example, during a Restore as New operation in ASM/ME), you must manually run soft recovery on that Smart Copy first, even though soft recovery was run during the verification process. You can perform a manual soft recovery by using the Exchange Eseutil utility.

This restriction applies only to replica Smart Copies. Snapshots and clones do not require this extra step.

Deleting a VSS Snapshot Occasionally Results in an Error Condition in the Group Manager Due to iSCSI Log Off Failure

Occasionally, when the Microsoft Volume shadow Copy Service (VSS) receives a request to delete a VSS snapshot from the EqualLogic VSS Provider, a `Requested target not found` error is displayed in the Group Manager, even though the snapshot has been deleted. You will most likely see this error message after running backups using third party backup software.

In normal operations, the EqualLogic VSS Provider first logs off the iSCSI session for the snapshot, then offlines and deletes the snapshot. However, when the iSCSI log off fails, VSS continues to delete the snapshot because the iSCSI session log off failure is regarded as insignificant and is ignored.

When an iSCSI logoff session fails, the iSCSI initiator attempts to reconnect to the target. When this occurs, a `Requested target not found` error is displayed in the Group Manager, as shown in the following figure.



Figure 1. Error Message in Group Manager Event Log

Information about this error also appears in the HIT/ME error log file. For example:

```
23-Sep-16 15:31:37.843|VSS|2016|8040||INFO|CEqlVssProvider::OnLunEmpty|645|@@@
IVssHardwareSnapshotProvider::OnLunEmpty, DebugFlag 0x8 @@@

23-Sep-16 15:31:37.843|VSS|2016|8040||INFO|CEqlVssProvider::OnLunEmpty|645|Logging Out
from targetName \\?\mpio#disk&ven_eqlogic&prod_100e-00&rev_8.0_#....

23-Sep-16 15:32:07.421|VSS|2016|8040||ERROR|CEqlVssProvider::OnLunEmpty|672|Error
0xEFFF0040 logging out from \\?\mpio#disk&ven_eqlogic&prod_100e-00&rev_8.0_#....
```

Because this error does not impact the functionality of the storage system, regard the `Requested target not found` error as informational only. No further action is required.

Support Resources

The following resources are available for HIT/ME:

- Installation Kit
- Related Documentation
- Dell Online Services
- Contacting Dell

Installation Kit

When you have set up the support account, download the kit as follows:

1. Go to eqlsupport.dell.com
2. Log in to your support account. If you don't have a support account, create one by clicking the **Create Account** button.
3. On the gray toolbar, click **Downloads**.
4. Scroll down until you see the **Host Integration Tools for Microsoft** link.
5. Click on the latest recommended version displayed in the main panel.
6. Click **Host Integration Tools for Microsoft** in the Download Page area.
7. Select either 32-bit or 64-bit exe.
8. Download and save the software to a location that is accessible to the computer on which you want to install HIT/ME.

You can also contact your Dell EqualLogic PS Series support provider to obtain the HIT/ME software.

For instructions on installing HIT/Microsoft, see the *Dell EqualLogic Host Integration Tools for Microsoft Edition Installation and User's Guide*.

Related Documentation

For detailed information about FS Series appliances, PS Series arrays and host software, log in to the customer support site at eqlsupport.dell.com.

Dell Online Services

To learn more about Dell EqualLogic products and new releases being planned, visit the Dell EqualLogic TechCenter site. Here, you can also see articles, demos, online discussions, and more details about the benefits of our product family.

Contacting Dell

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services might not be available in your area. To contact Dell for sales, technical support, or customer service issues, go to Dell.com/support.

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