Dell EMC PowerStore

Importing External Storage to PowerStore Guide

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Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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Preface

As part of an improvement effort, revisions of the software and hardware are periodically released. Some functions that are described in this document are not supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information about product features. Contact your service provider if a product does not function properly or does not function as described in this document.

Where to get help

Support, product, and licensing information can be obtained as follows:

- **Product information**

  For product and feature documentation or release notes, go to the PowerStore Documentation page at https://www.dell.com/powerstoredocs.

- **Troubleshooting**

  For information about products, software updates, licensing, and service, go to https://www.dell.com/support and locate the appropriate product support page.

- **Technical support**

  For technical support and service requests, go to https://www.dell.com/support and locate the **Service Requests** page. To open a service request, you must have a valid support agreement. Contact your Sales Representative for details about obtaining a valid support agreement or to answer any questions about your account.

1

Introduction

This document describes how to import data from external storage to PowerStore. Only SAN/block imports are included. NAS/file imports are not included.

This chapter contains the following information:

Topics:

- Importing external storage to PowerStore overview
- Import security

Importing external storage to PowerStore overview

PowerStore provides the abilities of a traditional storage appliance and onboard compute to run embedded workloads. PowerStore enables users to respond quickly to changing business requirements and to scale quickly to meet changing needs without excessive business planning and complexity.

Importing external storage to PowerStore is a migration solution that imports data from any of the following Dell-EMC storage platforms to a PowerStore cluster:

- Dell EqualLogic Peer Storage (PS) Series
- Dell Compellent Storage Center (SC) Series
- Dell EMC Unity Series
- Dell EMC VNX2 Series
- Dell EMC XtremIO X1 and XtremIO X2 (agentless import only)

Import of the following block storage resources is supported:

- LUNs and Volumes
- Consistency groups and Volume groups
- Thick and thin clones

NOTE: Import of NAS/file storage resources is not supported.

The following options are available to import external storage to a PowerStore cluster:

- Non-disruptive import
- Agentless import

Non-disruptive import of external storage to PowerStore overview

The software that runs on the PowerStore cluster and manages the entire import process is known as the Orchestrator. In conjunction with the Orchestrator, host multipath input/output (MPIO) software and a host plugin are needed to support the import process. The host plugin is installed on each host that accesses the storage to be imported. The host plugin enables the Orchestrator to communicate with the host multipath software to perform import operations.

The Orchestrator supports three types of host operating systems, that is, Linux, Windows, and VMware. The Orchestrator supports the following host MPIO configurations:

- Linux Native MPIO and DellEMC-PowerStore-Import-Plugin-for-Linux kit
- Linux EqualLogic MPIO - provided through Dell EqualLogic Host Integration Tools (EQL HIT) Kit
- Windows Native MPIO and DellEMC-PowerStore-Import-Plugin-for-Win-1.0.0.0
- Windows EqualLogic MPIO - provided through EQL HIT Kit
- VMware EqualLogic MPIO - provided through EQL MEM Kit

NOTE: If you are currently using native MPIO and do not have the EQL HIT Kit installed on the hosts, an install of the PowerStore ImportKIT is required on the hosts to support import to PowerStore. If EQL HIT Kit is already installed on the

hosts, ensure that the EQL HIT Kit version that is listed in the following table for the given host type is installed. If the version is earlier than the version that is listed in the table, it needs to be upgraded to the version that is listed in the table to support import to PowerStore.

The following table lists the supported combinations of host OS, multipath software, host protocol to the source and to the PowerStore cluster, and the type of source system for non-disruptive import. Dell EMC XtremIO X1 and XtremIO X2 systems are not listed in this table because they are only supported for agentless import.

NOTE: If the version of the operating environment running on your source system does not match what is listed in the following table, you may be able to use agentless import. See Supported source systems and operating environment required for agentless import on page 10 for a list of the supported source systems and required operating environment for agentless import.

Table 1. Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import

Host OS	Host multipath software	Host to storage protocol	
		iSCSI	FC
• Windows Server 2012 R2 or • Windows Server 2016	• Windows Native MPIO and • DellEMC-PowerStore-Import-Plugin-for-Win-1.0.0.0	Dell EMC VNX2 (5.33.021.5.256)	Not applicable
	Windows EqualLogic MPIO provided through EQL HIT Kit, version 5.3.0	Dell EqualLogic PS (10.0.3)	
• ESXi 6.5 Update 2 or • ESXi 6.7 Update 3	VMware EQL MPIO provided through Dell EqualLogic Multipathing Extension Module (MEM) kit (version 1.7)	Dell EqualLogic PS (10.0.3)	Not applicable
Red Hat Enterprise Linux 7.5	• Linux Native MPIO and • DellEMC-PowerStore-Import-Plugin-for-Linux kit (version 1.0)	• Dell EqualLogic PS (10.0.3) or • Dell Compellent SC (7.4.2.103) or • Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)	• Dell EMC VNX2 (5.33.021.5.256) or • Dell EMC Unity (5.0.2.0.5.009)
	Linux EqualLogic MPIO provided through EQL HIT Kit, version 1.7	Dell EqualLogic PS (10.0.3)	Not applicable
• Red Hat Enterprise Linux 7.6 or 7.7 or • SUSE Linux Enterprise Server 15	• Linux Native MPIO and • DellEMC-PowerStore-Import-Plugin-for-Linux kit (version 1.0)	• Dell Compellent SC (7.4.2.103) or • Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)	• Dell EMC VNX2 (5.33.021.5.256) or • Dell EMC Unity (5.0.2.0.5.009)
SUSE Linux Enterprise Server 12 Service Pack 2, or Service Pack 4	• Linux Native MPIO and • DellEMC-PowerStore-Import-Plugin-for-Linux kit (version 1.0)	• Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)	• Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)

Table 1. Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import (continued)

Host OS	Host multipath software	Host to storage protocol	
		iSCSI	FC
SUSE Linux Enterprise Server 12 Service Pack 3	• Linux Native MPIO and • DellEMC-PowerStore-Import-Plugin-for-Linux kit (version 1.0)	• Dell EqualLogic PS (10.0.3) or • Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)	• Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)
	Linux EqualLogic MPIO provided through EQL HIT Kit, version 1.7	Dell EqualLogic PS (10.0.3)	Not applicable
SUSE Linux Enterprise Server 15 Service Pack 1	• Linux Native MPIO and • DellEMC-PowerStore-Import-Plugin-for-Linux kit (version 1.0)	• Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)	• Dell EMC Unity (5.0.2.0.5.009) or • Dell EMC VNX2 (5.33.021.5.256)

NOTE: The connection from the source system to the PowerStore cluster for import is only over iSCSI.

NOTE: For the most up-to-date supported versions of software, see the *Support Matrix*.

Overview of the non-disruptive import process

Before importing the external storage from a source system to a PowerStore cluster, the active path for the host I/O is to the source system. During the setup of import, the host or hosts build an inactive I/O path to the volumes that are created on the PowerStore cluster which match the specified volumes on the source system. When you start import, the active host I/O path to the source system becomes inactive and the inactive host I/O path to the PowerStore cluster becomes active. However, the source system is kept updated through the I/O forwarding from the PowerStore cluster. When the import reaches the `Ready For Cutover` state and you initiate cutover, the host I/O path to the source system is removed and the host I/O is directed only to the PowerStore cluster.

Review the following processes to gain an understanding of the import procedure:

NOTE: You can also see the *Importing External Storage to PowerStore* video at https://www.dell.com/powerstoredocs.

1. Preconfigure – Set up the network connectivity.
   - The connection between an existing Dell or Dell EMC source system and the PowerStore cluster must be over iSCSI.
   - For Dell PS or SC source systems – All the connections between the hosts and the Dell SC or PS source system and between the hosts and the PowerStore cluster must be over iSCSI.
   - For Dell EMC Unity or VNX2 source systems – The connections between the hosts and the Dell EMC Unity or VNX2 source system and between the hosts and the PowerStore cluster must be either all over iSCSI or all over Fibre Channel (FC).

     NOTE: When FC connectivity between the hosts and the source system and the hosts and the PowerStore cluster is used, the administrator must set up FC zoning between the hosts and the PowerStore cluster.
2. Setup import – Install or upgrade the appropriate host plugin as needed on each host that accesses the storage to be imported. Add the source system to the PowerStore cluster, if it is not already listed. Select one or more volumes or consistency groups, or both to be imported. A volume group cannot be combined with any other volumes or volume group. Select to add the hosts that access the storage to be imported, the hosts build inactive I/O paths to the destination volumes. Set the import schedule and assign protection policies.
3. Start import – A destination volume is created for each selected source volume. A volume group is automatically created for each consistency group that is selected for import. The active I/O and inactive I/O paths from the host are switched to redirect the I/O to the PowerStore cluster. However, the source is kept updated through the I/O forwarding from the PowerStore cluster.

4. Cutover import – Cutover can be performed only when the import processing state is `Ready For Cutover`. In other words, cutover is a final confirmation. You can select to cut over automatically without user intervention. After the cutover step, I/O cannot go back to the source system volume.

In addition, the following processes are available during the import procedure:

- Pause import – Pause can be performed when the import processing state is `Copy In Progress`. When an import session is paused, only the background copy is stopped. The forwarding of host I/O to the source system continues to be active.

  NOTE: The Pause import action on a CG only pauses the member volumes that are in the `Copy In Progress` state. The CG remains in the `In Progress` state. Other member volumes that are in other states, such as `Queued` or `In Progress`, are not paused and may proceed to the `Ready For Cutover` state. The other member volumes can be paused when they reach the `Copy In Progress` state by using the Pause import action again on the CG. If any of the member volumes are in the `Paused` state but the overall status of the CG is `In Progress`, both the Pause and Resume import action options are available for the CG.
- Resume import – Resume can be performed when the import processing state is `Paused`.
- Cancel import – Cancel can be performed only when the import processing state is `Copy In Progress` (for volume), `In Progress` (for consistency group), `Ready For Cutover`, `Queued`, `Paused` (for volume), or `Scheduled`, or `Cancel Failed` (for consistency group). Cancel allows you to cancel the import process with the click of a button and change the active path back to the source.

For the Dell EqualLogic PS Series only – The source volume is taken offline after a successful cutover operation.

For the Dell Compellent SC Series, Dell EMC Unity Series, and Dell EMC VNX2 Series – Host access to the source volume is removed after a successful cutover operation.

Agentless import of external storage to PowerStore overview

Unlike non-disruptive import, agentless import of external storage to a PowerStore cluster is independent of the operating system and the multipathing solution on the host, and the front end connectivity between the host and the source system. Agentless import does not require the installation of host plugin software on the host, however, you do need to reconfigure the host application to work with the new PowerStore volumes. Only a one time host application downtime is required prior to the migration. The downtime only includes renaming or reconfiguring the host application, file systems, and datastores to the new PowerStore volumes.

Use the agentless import option to migrate the external storage to a PowerStore cluster when the operating environment running on the source system does not match the respective one listed in Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.

NOTE: When the operating environment running on your source system matches the respective one listed in Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8, you can choose to use the agentless import option instead of the non-disruptive option. However, the host plugin software must not be installed on the associated host or hosts.

The following table lists the supported types of source systems and operating environment required for an agentless import.

Table 2. Supported source systems and operating environment required for agentless import

Source system	Operating environment
Dell EqualLogic PS	10.0.x or later
Dell Compellent SC	7.3 or later
Dell EMC Unity	4.4 or later
Dell EMC VNX2	5.33.008.5.x or later
Dell EMC XtremIO X1	4.0.25 or later
Dell EMC XtremIO X2	6.2 or later

Overview of the agentless import process

Before importing the external storage from a source system to a PowerStore cluster, the active path for the host I/O is to the source system. The host or hosts are not automatically added to the PowerStore cluster and must be added manually before setting up the agentless import. During the setup of an agentless import, volumes are created on the PowerStore cluster that match the specified volumes on the source system. However, unlike non-disruptive import, the host applications that access the source system volume or volumes must be shut down manually and the source volumes brought offline.

NOTE: For host clusters, the source LUNs could have SCSI reservations keys. The SCSI reservations must be removed for imports to be successful.

To start an agentless import, the destination volume must be manually enabled and the host application must be reconfigured to use the destination volume instead of the source volume. The destination volume will be read-only until it is enabled. Once the destination volume has been enabled, the host application has to be reconfigured to access the destination volume. Start the import to copy the source volume data to the destination volume. The source system is kept updated through I/O forwarding from the PowerStore cluster. When the import reaches the `Ready For Cutover` state, you can initiate the cutover. The I/O forwarding from the PowerStore cluster to the source system ends when cutover is initiated.

Review the following processes to gain an understanding of the import procedure:

NOTE: You can also see the *Importing External Storage to PowerStore* video at https://www.dell.com/powerstoredocs.

1. Preconfigure – Set up the network connectivity.
   - The connection between an existing Dell or Dell EMC source system and the PowerStore cluster must be over iSCSI.
   - For Dell PS source systems – All the connections between the hosts and the Dell PS source system and between the hosts and the PowerStore cluster must be over iSCSI.
   - For Dell SC, or Dell EMC Unity, VNX2, XtremIO X1, XtremIO X2 source systems – The connections between the hosts and the Dell SC, or Dell EMC Unity, VNX2, XtremIO X1, XtremIO X2 source system and between the hosts and the PowerStore cluster must be either all over iSCSI or all over Fibre Channel (FC).

     NOTE: When FC connectivity between the host and source system and between the host and PowerStore cluster is used, the administrator must set up FC zoning between the host and the PowerStore cluster.
2. Setup import – If they are not already listed, add the source system and the hosts to the PowerStore cluster. Select one or more volumes or consistency groups, or both to be imported. A volume group cannot be combined with any other volumes or volume group. Select to map the hosts that access the storage to be imported. Set the import schedule and assign a protection policy.
3. Start import – A destination volume is created for each selected source volume. A volume group is automatically created for each consistency group that is selected for import. When the destination volume is in the `Ready To Enable Destination Volume` state, shutdown or take off line the host application on the applicable host or hosts that use the source volume. Also, remove the host mapping to the applicable source system volume. Select and enable the destination volume which is in the `Ready To Enable Destination Volume` state. Reconfigure the host application to use the applicable destination volume. Select and Start Copy for the destination volume which is in the `Ready to Start Copy` state.

   NOTE: It is recommended to remove the host mapping of the source volumes during the enable destination volume process. If the host mapping of the source volumes is not selected for removal by the orchestrator, the mapping should be removed manually. Also, only one agentless import can be processed from the PowerStore cluster at any point in time until the import process reaches the `Ready to Start Copy` state. A second agentless import will start execution only after the previous import reaches the `Copy In Progress` state.
4. Cutover import – Cutover can be performed only when the import processing state is `Ready For Cutover`. In other words, cutover is a final confirmation. You can select to cut over automatically without user intervention.

In addition, the following actions are available during the import procedure:

- Pause import – Pause can be performed when the import processing state is `Copy In Progress`.

  NOTE: The Pause import action on a CG only pauses the member volumes that are in the `Copy In Progress` state. The CG remains in the `In Progress` state. Other member volumes that are in other states, such as `Queued` or `In Progress`, are not paused and may proceed to the `Ready For Cutover` state. The other member volumes can be paused when they reach the `Copy In Progress` state by using the Pause import action again on the CG. If any of the member volumes are in the `Paused` state but the overall status of the CG is `In Progress`, both the Pause and Resume import action options are available for the CG.
- Resume import – Resume can be performed when the import processing state is Paused.

- Cancel import – For volumes, Cancel can be performed only when the import processing state is `Queued`, `Scheduled`, `Ready To Enable Destination Volume`, `Ready to Start Copy`, `Copy In Progress`, `Paused`, `Ready for Cutover`, or `Cancel Required` and the host application that is accessing the volume has been shut down. For volume groups, Cancel can be performed only when the import processing state is `Queued`, `Scheduled`, `In Progress`, `Paused`, `Ready for Cutover`, `Cancel Required`, `Cancel Failed` and the host application that is accessing the volume has been shut down.
- Enable Destination Volume – Ensure the host application on the applicable host or hosts that use the source volume or volumes have been shut down or taken off line before enabling each destination volume in an import session.
- Start Copy – Start Copy can be performed for each of the destination volumes that are in the `Ready to Start Copy` state.

Import security

Communication between the source system, hosts, and the PowerStore cluster is provided by using HTTPS certificates. These certificates are used to establish secure communication between the following import components:

- PowerStore cluster and the source system
- PowerStore cluster and the host systems

PowerStore Manager provides an option to view and accept the remote certificates when adding a host to the PowerStore cluster.

NOTE: PowerStore Manager is a web-based software application that enables you to monitor and manage storage resources, virtual machines, and appliances within a PowerStore cluster.

When the source storage volumes are configured with CHAP, data transfer is secured with CHAP support, Discovery CHAP, and Authentication CHAP. The PowerStore cluster supports both single and mutual CHAP. For more information about CHAP support, see to CHAP restrictions on page 16.

2

Import requirements and restrictions

This chapter contains the following information:

Topics:

- General requirements for importing data
- Dell EqualLogic PS Series specific requirements
- Dell Compellent SC Series specific requirements
- Dell EMC Unity specific requirements
- Dell EMC VNX2 Series specific requirements
- Dell EMC XtremIO XI and X2 specific requirements
- General import restrictions

General requirements for importing data

The following requirements apply to PowerStore before running import:

- The global storage IP address for PowerStore must be configured.
- Verify that PowerStore and its nodes are in a healthy state.

The following requirements apply to all source platforms:

- (For non-disruptive import) You must have the appropriate privileges on the source and its associated hosts to perform an import to a PowerStore cluster.
  - For Windows-based systems, Administrator privilege is required to perform an import to a PowerStore cluster.
  - For Linux-based and VMware-based systems, root privilege is required to perform an import to a PowerStore cluster.
- (For non-disruptive import) A Fibre Channel (FC) or iSCSI connection exists between the source system and each associated host system, and a matching FC or iSCSI connection exists between each associated host system and the PowerStore cluster. These connections to each host system should be of the same type, either all FC or all iSCSI.
- (For agentless import) For Dell PS source systems, all the connections between the hosts and the Dell PS source system and between the hosts and the PowerStore cluster must be over iSCSI. For Dell SC, or Dell EMC Unity, VNX2, XtremIO X1, XtremIO X2 source systems, the connections between the hosts and the Dell SC, or Dell EMC Unity, VNX2, XtremIO X1, XtremIO X2 source system and between the hosts and the PowerStore cluster must be either all over iSCSI or all over Fibre Channel (FC).

  NOTE: When FC connectivity between the host and source system and between the host and PowerStore cluster is used, the administrator needs to set up FC zoning between the host and the PowerStore cluster.
- Only an iSCSI connection is supported between the source system and the PowerStore cluster.
- (For non-disruptive import) Only one instance of MPIO should be running on the host in order to perform an import.
- Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 lists the host OS platforms that are supported for non-disruptive import.

  NOTE: If the operating environment running on the source system does not match what is listed in Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 or the source system is XtremIO X1 or XtremIO X2, use the agentless import option to migrate the external storage to the PowerStore cluster. Supported source systems and operating environment required for agentless import on page 10 lists the supported types of source systems and operating environment required for agentless import. Agentless import can also be used to migrate the external storage from a source system running the operating environment listed in Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.
- When Fibre Channel (FC) connectivity is used between the host and the PowerStore cluster, the administrator needs to set up FC zoning between the host and the PowerStore cluster.
- (For non-disruptive import) Depending on the port number that is selected for the hosts that are added when creating an import session, that port must be open on the firewall. The predefined host ports for Windows and Linux are:

- 8443 (default)
- 50443
- 55443
- 60443

The predefined host port for VMware is 5989.

Dell EqualLogic PS Series specific requirements

(For non-disruptive import) See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for the supported combinations of host OS, host multipath software, and host protocol that apply to Dell EqualLogic Peer Storage (PS) Series systems.

NOTE: (For non-disruptive import) If you are not running the Dell EqualLogic Host Integration Tools Kit, you can use the PowerStore cluster ImportKIT which uses native MPIO.

(For agentless import) See Supported source systems and operating environment required for agentless import on page 10 for the supported types of source systems and the version of operating environment required for the agentless import.

NOTE: All hosts taking part in an import process should have initiator names in the standard IQN format. Although friendly names are supported by PS source systems for the standard IQN format, PowerStore only supports valid standard IQN format. Import will fail when friendly IQN names are used. In this case, the initiator names must be changed to valid full IQN names on all the associated hosts before attempting an import of external storage to PowerStore.

Dell Compellent SC Series specific requirements

(For non-disruptive import) See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for the supported combinations of host OS, host multipath software, and host protocol that apply to Dell Compellent Storage Center (SC) Series systems.

NOTE: While importing external storage from a Dell Compellent SC Series source system, do not delete or place the source resource in the Recycle Bin.

(For agentless import) See Supported source systems and operating environment required for agentless import on page 10 for the supported types of source systems and the version of operating environment required for the agentless import.

Dell EMC Unity specific requirements

(For non-disruptive import) See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for the supported combinations of host OS, host multipath software, and host protocol that apply to Dell EMC Unity systems.

(For agentless import) See Supported source systems and operating environment required for agentless import on page 10 for the supported types of source systems and the version of operating environment required for the agentless import.

Dell EMC VNX2 Series specific requirements

(For non-disruptive import) See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for the supported combinations of host OS, host multipath software, and host protocol that apply to Dell EMC VNX2 Series systems.

NOTE: The supported OE on the Dell EMC VNX2 has to be committed in order to perform an import of its storage resources.

(For agentless import) See Supported source systems and operating environment required for agentless import on page 10 for the supported types of source systems and the version of operating environment required for the agentless import.

Dell EMC XtremIO XI and X2 specific requirements

(For agentless import) See Supported source systems and operating environment required for agentless import on page 10 for the supported types of source systems and the version of operating environment required for the agentless import.

General import restrictions

The following restrictions apply to importing external storage to PowerStore:

- At any given time a maximum of 6 source systems is supported.
- (For non-disruptive import) A maximum of 64 hosts is supported. The applicable host plugin for import must be installed on the host.
- (For agentless import) See the *PowerStore Simple Support Matrix* for the maximum number of hosts that are supported.
- A maximum of 8 parallel import sessions is supported, but they all start sequentially. That is, imports start one by one but, once they reach Copy-In-Progress, the next one is taken for processing.
- A maximum of 16 volumes in a consistency group (CG) is supported.

  NOTE: When a CG has 16 members, a maximum of 8 members is imported in parallel, but they all start sequentially. That is, imports start one by one but, once they reach Copy-In-Progress, the next one is taken for processing. Once any one of them reaches Ready-For-Cutover, the next member is imported in parallel. Once all the members reach Ready-For-Cutover, the CG is Ready-For-Cutover.
- A CG that has volumes that are mapped to hosts running different types of operating systems cannot be imported. For example, a CG having volumes from a Linux host and Windows host cannot be imported.
- NVMe host mapping on PowerStore is not supported for importing a volume or CG.
- A maximum of 16 import sessions is supported in the Ready-For-Cutover state. Sometimes when several dozen import operations are run back-to-back, intermittent failures of alternate import sessions may occur. If this occurs, do the following:
  1. Remove the remote (source) system and then add it again.
  2. Run fewer set of imports (16 or less) at a time. It is recommended to start all these import sessions with automatic cutover turned off.
  3. Once all imports have reached the Ready-For-Cutover state, do a manual cutover.
  4. After one set of imports is completed, run the next set of imports after a delay of 10 minutes. This delay allows enough time for the system to cleanup any connections to the source system.
- You can import only an active volume or LUN. Snapshots are not imported.
- It is not recommended to change a host cluster configuration once the volume is selected for import.
- All the target port IP addresses returned by the PowerStore's iSCSI target portal should be reachable from the host where import is planned.
- Replication relationships are not imported.
- SAN boot disks are not supported.
- IPv6 is not supported.
- Veritas Volume Manager (VxVM) is not supported.
- (For non-disruptive import) Only implicit ALUA mode is supported on source systems.
- The following configuration changes are not supported on the source system during import:
  - Firmware or Operating Environment upgrade
  - System re-configuration, including network configuration and restart of node or members
- When any configuration changes, such as moving a volume between hosts or re-sizing the source system volume capacity, are made to the source or a host system after they have been added to PowerStore, all the affected or involved systems must be refreshed from PowerStore Manager.
- Only an iSCSI connection is supported between the source system and the PowerStore cluster.
- (For non-disruptive import) SCSI-2 clusters are not supported. Only SCSI-3 persistent reservation (PR) clusters are supported.
- Heterogeneous host cluster is not supported.
- Configuration changes must not be made during import, such as resizing a volume during import or adding or removing a host node in a cluster configuration, on either the source system or PowerStore. The following configuration changes are allowed but not supported on either the source system or PowerStore during import for consistency groups:
  - Removing members from consistency group
  - Restoring
  - Cloning

- Snapshot
- Consistency group migration
- Creating replication
- Refreshing volume

  Such operations should be done before starting import.
- Snapshot restore on a volume under import is not supported.
- Only 512b-sector sized devices are supported from the following systems, 4k-sector devices are not supported from these systems:
  - Dell EqualLogic PS
  - Dell Compellent SC
  - Dell EMC Unity
  - Dell EMC VNX2
- Both 512b-sector and 4k-sector resources are supported from XtremIO systems.
- iSCSI hardware initiators are not supported.
- Running in iSCSI Data Center Bridging (DCB) configurations is not supported for Dell EqualLogic PS series and Dell Compellent SC series.

CHAP restrictions

The following describes the CHAP support for importing external storage to a PowerStore cluster:

- For Dell EMC Unity and VNX2 systems, source volumes with single CHAP can be imported, source volumes with mutual CHAP cannot be imported.
- For Dell EqualLogic Peer Storage (PS) series, there are three cases:
  - When Discovery CHAP is disabled, source volumes with both single and mutual CHAP can be imported.
  - If Discovery CHAP is enabled, source volumes with single CHAP can be imported.
  - If Discovery CHAP is enabled, source volumes with mutual CHAP cannot be imported.

  NOTE: If Dell EMC Unity or VNX2 systems are added in CHAP enabled mode and if a Dell EqualLogic PS system is added, ensure that Discovery CHAP is enabled for the Dell EqualLogic PS system.
- For Dell Compellent Storage Center (SC) series, source volumes with both single and mutual CHAP can be imported.
- Each host must be added with unique CHAP credentials.

Source system restrictions

Each source system has its own restrictions, for example, the maximum number of volumes supported and the maximum number of iSCSI sessions allowed. Importing external storage to PowerStore must work within these limitations of the source systems and the limitations of the PowerStore cluster.

For restrictions specific to a source system, see the source-specific documentation. Go to Online Support (registration required) at: https://www.dell.com/support. After logging in, locate the appropriate **Product Support** page.

General restrictions for Hosts

The following restrictions apply to hosts:

- (For non-disruptive import) Applications must be configured to use a given MPIO handle. In other words, the host applications must be actively using either EqualLogic MPIO, or Native MPIO. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8. Use of dynamic multi-pathing (DMP), Secure-Path, and PowerPath MPIOs are not supported.
- (For agentless import) PowerPath is supported.
- (For non-disruptive import) Hosts should have only one MPIO installed that manages both the source and the PowerStore cluster.
- Heterogeneous host cluster is not supported.
- The maximum of a 16 node cluster import is supported.
- During import, following configuration changes are not supported on the host:
  - (For non-disruptive import) Change of MPIO policy during import.

- Changes to the paths (enable or disable) which can impact the import operation.
- Host cluster configuration changes.
- Operating system (OS) upgrades.

Windows-based hosts

The following restrictions apply during a non-disruptive import involving Windows-based hosts:

- The following Windows Dynamic Disk volume types are not supported:
  - Simple volume
  - Spanned volume
  - Mirrored volume
  - Striped volume
  - RAID5 volume
- IDE device and SCSI device under Hyper-V configuration are not supported.
- Modifying the OS disk state after initiating or cancelling an import operation are not supported.
- A LUN having more than 32 paths (sum of source and destination paths) is not supported. This restriction is a Windows MPIO limitation.

NOTE: After a Windows host plugin install, certain `LogScsiPassThroughFailure` error messages may occur during import for Dell EMC VNX2 systems. These messages can be ignored. Also, after the I/O path becomes active toward PowerStore during an import operation, all I/Os are bound to one port of the network adapter.

Linux-based hosts

The following restrictions apply during a non-disruptive import involving Linux-based hosts:

- Change in user-friendly names of volumes being imported is not supported.
  NOTE: Any device policy or user-friendly name on source volume will not be applied to the destination volume after import.
- The `mpathpersist` command fails to get PR information for volumes mapped to clusters after the import. Use `sg_persist`.
- LUNs cannot be removed from the storage group.
- UUID-based mount points with EQL MPIO are not supported.
- Only Linear volume LVM is supported, other LVM types, like striped LVM, are not supported.
- The maximum length of the hostname must be within 56 characters.
- After or during the import of a volume and after reboot, the `mount` command displays the destination mapper name instead of the source mapper name. The same destination mapper name is listed in the `df -h` output.
- Before importing a volume, the mount point entry in `/etc/fstab` should have the `"nofail"` option to avoid boot failures on host reboots. For example: /dev/mapper/364842a249255967294824591aa6e1dac /mnt/364842a249255967294824591aa6e1dac ext3 acl,user_xattr,nofail 0 0
- Import to a PowerStore cluster from a Linux host running Oracle ASM on Dell Compellent SC storage is allowed only when the Oracle configuration uses logical sector size for ASM disk groups. See Setting the Oracle ASM logical block size on page 48 for more details.
- The keyword *blacklist* and curly brace should appear in the same line for imports to be successful. For example, "blacklist { " in the `/etc/multipath.conf` file.
- If the keyword *blacklist* and curly brace are not in the same line, import will fail. If not present already, modify the `multipath.conf` file manually to the "blacklist {" form.
- If the `multipath.conf` file has blacklist keyword, such as *product_blacklist*, before the blacklist section, move that section after the blacklist section for imports to work successfully.

NOTE: Ensure that the disk space on the host is not filled to maximum capacity. Free disk space on the host is needed for import operations.

The following is a known behavior during import on Linux-based hosts:

- After host reboot, during import of the volume, the mount point in `/etc/fstab` points to the source device mapper. However, output of the `mount` or `df -h` command displays the destination device mapper name.

VMware ESXi-based hosts

The following restrictions apply during a non-disruptive import involving VMware ESXi-based hosts:

- Import is supported only for those datastores that have a 1:1 mapping with a back-end volume.
- Linux Raw Device Mapping (RDM) configurations are not supported.
- If RDM LUNs which are exposed to the VM are imported, the enquiry command on those LUNs will report either the source UID or the destination UID depending on the ESXi cache enablement. If the ESXi cache is enabled and upon inquiry, the source UID would be reported, otherwise the destination UID would be reported.
- If xcopy is tried between imported and non-imported volumes, it will fail gracefully and user copy will be initiated instead.
- ESXi supports only dynamic discovery level CHAP.
- Non-disruptive import does not support vVols. If the host has vVols or a Protocol Endpoint mapped, it is recommended not to install the host plugin and to use agentless import instead.

The following restriction applies for an agentless import involving VMware ESXi-based hosts:

- The minimum host operating system version required is ESX 6.7 Update 1.

3

Host plugin installation (non-disruptive import only)

This chapter contains the following information:

Topics:

- Installing the host plugin for import on a Windows-based host
- Installing the host plugin for import on a Linux-based host
- Installing the Dell EqualLogic MEM kit on an ESXi-based host
- Uninstalling the host plugin for import

Installing the host plugin for import on a Windows-based host

See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for a list of the supported source systems and operating environments that are applicable to Windows-based hosts. In addition to single host, cluster configurations are supported. Also, two variants of the host plugin for import are available for Windows:

- Dell EqualLogic Host Integration Tools Kit
- ImportKIT

NOTE: The MSI installer, which is a Windows component and is spawned when `setup64.exe` runs, runs in the context of SYSTEM account (msi server). This process in turn spawns multiple sub processes which are also named `msiexec.exe`. These sub processes by default are provided a security right that is called `Log on as a service`. All installer-related services are usually provided this right by default by the operating system. However, there are specific cases where this right is not provided. In such systems you must use the group policy editor, `gpedit.msc`, and assign this right. See https://docs.microsoft.com/en-us/windows/security/threat-protection/security-policy-settings/log-on-as-a-service for more information.

Dell EqualLogic Host Integration Tools Kit

Both upgrade and fresh install are supported for the Dell EqualLogic Host Integration Tools Kit. For a fresh install, run the install file, `Setup64.exe`, only once. For more information, see *Dell EqualLogic Host Integration Tools for Microsoft Installation and User's Guide* at https://www.dell.com/support.

Upgrade has two steps:

1. Run the install wizard, which upgrades existing components.
2. Run the install wizard a second time and select the **Modify** option on the **Program Maintenance** page that appears after you accept the Dell EULA.

Only a single reboot of the host is required for either an upgrade or fresh install.

ImportKIT

The ImportKIT supports native multipath I/O for Dell EMC VNX2 systems and should be installed on all hosts that are part of the host cluster. Upgrade does not apply to this package since it is the first release of the package. Reboot of the host is required after installation.

NOTE: It is recommended to use the `.EXE` version of the installer. The `.MSI` version of the installer is provided to support administrative installations. To use the `.MSI` file, see Pre-requisites for an install using the .MSI file on page 21.

Install the host plugin for import on a Windows-based host

Prerequisites

Verify the following:

- A supported operating system is running on the host. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.
- No other multipath driver is installed on the host.
- Ensure that MPIO is enabled on the host.

  NOTE: Configuring MPIO on the host during import is not supported.

Ensure you know the management IP address and associated port number to use for import. This network configuration information needs to be provided so that the host gets added to the PowerStore cluster for import.

About this task

To install the host plugin, do the following:

NOTE: By default, the installation runs interactively. To run the installation in the background, accept all defaults, and accept the Dell EULA, enter one of the following commands after downloading the applicable host plugin package to the host.

- For ImportKIT, enter:

```
Setup64.exe /quiet /v/qn
```

- For EQL HIT Kit with import capability, enter:

```
Setup64.exe /v"MIGSELECTION=1" /s /v/qn V"/q ADDLOCAL=ALL /L C:\setup.log
```

NOTE: To avoid application disruption when running the installation on a Windows Cluster, Hyper-V clusters for example, move the host out of the cluster (maintenance mode) before installing the host plugin. After installing the host plugin and rebooting, re-join the host to the cluster. The virtual machines running on the host should be moved out and moved back after the installation is complete. To avoid multiple reboots, the ImportKit or Dell EqualLogic HIT kit install can be planned and combined with any other operating system reboot task.

Steps

1. Download the applicable host plugin package to the host.

   For Dell EqualLogic PS, download the Dell EqualLogic Host Integration Tools Kit from the Dell EqualLogic support site https://eqlsupport.dell.com. For Dell EMC VNX2, download the ImportKIT from the Dell EMC support site, https://www.dell.com/support. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for the applicable host multipath software versions.
2. As administrator, run `Setup64.exe` for the host plugin.

   NOTE: For Dell EQL HIT Kit, ensure the **Host Integration Tools installation (with import capability)** option is selected on the **Installation Type Selection** page. Also, adding or removing additional components to an already installed Dell EQL HIT Kit version is not supported.
3. Reboot the host.

   A reboot of the host is required to complete the installation.

Upgrade the host plugin for import on a Windows-based host

Prerequisites

Verify the host is running an applicable version of the Windows operating system. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8. Also, ensure you know the management IP address and associated port number to use for import. This network configuration information needs to be provided so that the host is added to the PowerStore cluster for import.

About this task

To upgrade the EQL HIT Kit host plugin for Windows, do the following:

NOTE: By default, the upgrade runs interactively. To run the upgrade of the EQL HIT Kit in the background, enter the following command after downloading the host plugin update package to the host:

```
Setup64.exe /v"MIGSELECTION=1" /s /v/qn /V"/q ADDLOCAL=ALL /L C:\setup.log
```

NOTE: To avoid application disruption when running the installation on a Windows Cluster, Hyper-V clusters for example, move the host out of the cluster (maintenance mode) before installing the host plugin. After installing the host plugin and rebooting, re-join the host to the cluster. The virtual machines running on the host should be moved out and moved back after the installation is complete. To avoid multiple reboots, the ImportKit or Dell EqualLogic HIT kit install can be planned and combined with any other operating system reboot task.

Steps

1. Download the host plugin package update for the Dell EQL HIT Kit to the host from the Dell EqualLogic support site https://eqlsupport.dell.com.
2. As administrator, run `Setup64.exe` for the host plugin.

   NOTE: This install upgrades the existing HIT/ME components.

3. As administrator, run the install wizard for the host plugin again.

   Select the **Modify** option on the **Program Maintenance** page that appears after you accept the Dell EULA.

   NOTE: Ensure the **Host Integration Tools installation (with import capability)** option is selected on the **Installation Type Selection** page. If the Dell EQL HIT Kit is installed with import capability, adding or removing additional components to an already installed Dell EQL HIT Kit version is not supported.

4. Reboot the host.

   A reboot of the host is required to complete the installation.

Pre-requisites for an install using the .MSI file

The `.MSI` file must be run with an elevated command prompt, that is, run as Administrator. The following are the pre-requisites for `.MSI` installation for ImportKit and Equallogic HIT Kit:

- Microsoft Visual C++ runtime redistributable 2015 x64
- Microsoft Native MPIO is installed.
- Microsoft .Net 4.0 is installed.

Installing the host plugin for import on a Linux-based host

See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for a list of the supported source systems and operating environments that are applicable to a Linux-based host.

NOTE: Installing the DellEMC-PowerStore-Import-Plugin-for-Linux kit does not require a host reboot and it does not impact ongoing I/O operations.

Install the host plugin for import on a Linux-based host

Prerequisites

Verify the following on the host:

- Open-iscsi (iscsid) is installed and running.
  NOTE: This process is optional in a fibre channel environment.
- sg_utils package is installed.
- For DellEMC-PowerStore-Import-Plugin-for-Linux kit, multipathd is running.

NOTE: Ensure you know the host server port number, host iSCSI IP address that will be used to reach the PowerStore cluster, and the host management IP address. This information must be provided during the host plugin installation.

NOTE: Import to PowerStore from a Linux host running Oracle ASM on Dell Compellent SC storage is allowed only when the Oracle configuration uses logical sector size for ASM disk groups. See Setting the Oracle ASM logical block size on page 48 for more details.

About this task

To install the DellEMC-PowerStore-Import-Plugin-for-Linux kit, do the following:

NOTE: For information about installing the EQL HIT Kit host plugin, see the *Dell EqualLogic Host Integration Tools for Linux Installation and User's Guide*.

Steps

1. Download the host plugin package, DellEMC-PowerStore-Import-Plugin-for-Linux-<*latest version*>.iso, and the associated file for the GNU Privacy Guard (GPG) key to a temporary directory, such as `/temp`, from the Dell EMC download site at: https://www.dell.com/support
2. Copy the downloaded GPG key file and install it.
   For example,

   ```
   #rpm --import <GPG key file name>
   ```

   NOTE: The GPG key is required to install the host plugin and must be installed on the host before attempting to install the host plugin.
3. Run the `mount` command for the host plugin.
   For example,

   ```
   #mount DellEMC-PowerStore-Import-Plugin-for-Linux-<latest version>.iso /mnt
   ```
4. Change to the /mnt directory.
   For example,

   ```
   #cd /mnt
   ```
5. View the items in the /mnt directory for minstall.
   For example,

   ```
   #ls
   EULA LICENSES minstall packages README support
   ```
6. Install the host plugin.

For example,

```
#./minstall
```

NOTE: By default, the installation runs interactively. To run the installation in the background instead, accept all defaults, and accept the Dell EULA, then enter the following command after downloading the host plugin package to the host and installing the certificate key:

```
# ./mnt/minstall --noninteractive --accepted-EULA --fcprotocol (or --
iscsiprotocol) --adapter=<ip_address>
```

Where ip_address = subnet IP address for MPIO. Failing to provide the `--accepted-EULA` option aborts a non-interactive installation. Also, the port for the host or hosts is set to 8443 by default.

NOTE: If a firewall exists, ensure it is enabled to allow the port for the host or hosts to be open. For example:

```
# sudo firewall-cmd --zone=public --add-port=8443/tcp
```

Upgrade the host plugin for import on a Linux-based host

Prerequisites

Verify the following on the host:

- Open-iscsi (iscsid) is installed and running.

  NOTE: This process is optional in a fibre channel environment.
- GPG key has been installed.
- EqualLogic HIT Kit is running.

About this task

NOTE: The upgrade of the EQL HIT Kit host plugin for Linux is pertinent only for import of external storage from the Dell EqualLogic PS version that is listed in Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.

To upgrade the EQL HIT Kit host plugin, do the following:

Steps

1. Download the host plugin package, equallogic-host-tools-<*latest version*>.iso, to a temporary directory, such as `/temp`, from the Dell EqualLogic support site https://eqlsupport.dell.com.
2. Run the mount command for the host plugin.

   For example,

   ```
   #mount  equallogic-host-tools-<latest version>.iso /mnt
   ```

3. Change to the /mnt directory.

   For example,

   ```
   #cd /mnt
   ```

4. View the items in the ./mnt directory for install.

   For example,

   ```
   #ls
   EULA install LICENSES packages README support welcome-to-HIT.pdf
   ```

5. Install the host plugin.

```
#./install
```

NOTE: By default, the installation runs interactively. To run the installation in the background instead, see the latest version of the *Dell EqualLogic Host Integration Tools for Linux Installation and User's Guide*.

Installing the Dell EqualLogic MEM kit on an ESXi-based host

The following methods exist to install the Dell EqualLogic Multipathing Extension Module (MEM) kit on an ESXi host:

- Command line installation using esxcli commands
- Installation using install script on vSphere Management Assistant (VMA) or vSphere Command-Line Interface (VCLI)
- Installation using VMware Upgrade Manager (VUM)

The kit and the associated user guide can be downloaded from the Dell EqualLogic support site https://eqlsupport.dell.com.

For the supported versions of Dell EqualLogic Peer Storage (PS) source system and Dell EqualLogic MEM kit, see Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.

The following configurations are supported:

- Virtual machine file system (VMFS) datastores
- Raw device mapping (RDM) – Windows RDM
  - Clustering Microsoft Clustering Service (MSCS) virtual machines on a single host
  - Clustering virtual machines across physical hosts

NOTE: Linux RDM configurations are not supported.

Install the Dell EqualLogic MEM kit on an ESXi-based host using the vSphere CLI

Prerequisites

Verify that the supported VMware ESXi software is installed and running. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.

About this task

NOTE: To avoid application disruption, move the ESXi host out of the cluster before installing the host plugin. After installing the host plugin and rebooting, re-join the ESXi host with the cluster. Virtual machines should be moved out from the installing host and moved back after the install. Also, to avoid multiple reboots, the Dell EqualLogic MEM kit install can be planned and combined with any other operating system reboot task.

To install the supported Dell EqualLogic MEM kit (see Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8), do the following:

NOTE: To enable only MEM functionality, execute only steps 1, 2 and 6.

Steps

1. Download the latest version of the Dell EqualLogic MEM kit and associated installation guide from the Dell EqualLogic support site https://eqlsupport.dell.com.

   After login, the kit and its associated installation guide can be found under downloads for VMware Integration.
2. Run the install command.

For example,

```
#esxcli software vib install --depot /var/tmp/dell-eql-mem-esx6-<latest version>.zip
```

The following message appears:

```
Operation finished successfully. Reboot Required: true VIBs
Installed: DellEMC_bootbank_dellemc-import-hostagent-provider_1.0-14112019.110359,
DellEMC_bootbank_dellemc-import-satp_1.0-14112019.110359 VIBs Removed: VIBs Skipped:
```

3. Stop hostd.

   For example,

```
#/etc/init.d/hostd stop
Terminating watchdog process with PID 67143 hostd stopped.
```

4. Start hostd.

   For example,

```
#/etc/init.d/hostd start
```

```
hostd started.
```

5. Add import command rules.

   For example,

```
#esxcli import equalRule add
```

   After adding the SATP rules, they can be listed by running the `list` command. For example,

```
#esxcli import equalRule list
```

```
DellEMC_IMPORT_SATP EQLOGIC 100E-00 user VMW_PSP_RR All EQL Arrays DellEMC_IMPORT_SATP
DellEMC PowerStore user VMW_PSP_RR iops=1 All PowerStore Arrays
```

6. Reboot the system.

   NOTE: The system must be rebooted before the Dell EqualLogic Multipathing Extension Module with import becomes active.

Install the Dell EqualLogic MEM kit on an ESXi-based host using setup.pl script on VMA

Prerequisites

Verify that the supported VMware ESXi software is installed and running. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.

About this task

NOTE: To avoid application disruption, move the ESXi host out of the cluster before installing the host plugin. After installing the host plugin and rebooting, re-join the ESXi host with the cluster. Virtual machines should be moved out from the installing host and moved back after the install. Also, to avoid multiple reboots, the Dell EqualLogic MEM kit install can be planned and combined with any other OS reboot task.

To install the supported Dell EqualLogic MEM kit (see Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8), do the following:

NOTE: To enable only MEM functionality, in step 3 when prompted for import, respond with **no**.

Steps

1. Download the latest version of the Dell EqualLogic MEM kit and associated installation guide from the Dell EqualLogic support site https://eqlsupport.dell.com.

   After login, the kit and its associated installation guide can be found under downloads for VMware Integration.
2. Run the `setup.pl` script command on VMA.

   The script prompts to install the bundle, then it prompts to enable import. The command uses the following format:

   `./setup.pl -install --server <server name> --username <user name> --password <password> --bundle <bundle name>.`

   For example,

   ```
    ./setup.pl -install --server 10.118.186.64 --username root --password my$1234 --
   bundle /dell-eql-mem-esx6-<version>.zip
   ```

   The following message appears:

   ```
   Clean install of Dell EqualLogic Multipathing Extension Module.
   Before install_package call Bundle being installed:
   /home/vi-admin/myName/dell-eql-mem-esx6-<latest version>.zip Copying /home/dell-eql-
   mem-esx6-<latest version>.zip
   Do you wish to install the bundle [yes]:
   ```
3. Type yes to continue.
   The following message appears:

   ```
    The install operation may take several minutes. Please do not interrupt it.
    Do you wish to enable import? Enabling import would claim all PS and PowerStore
   volumes by IMPORT SATP and changes the PSP to VMW_PSP_RR [yes]:
   ```
4. Type yes to continue.
   The following message appears:

   ```
    Enabling import functionality. In add_claim_rules Clean install was successful.
   ```
5. Reboot the system.

   NOTE: The system must be rebooted before the Dell EqualLogic Multipathing Extension Module with import becomes active.

Install the Dell EqualLogic MEM kit on an ESXi-based host using VUM

Prerequisites

Verify that the VMware vSphere Upgrade Manager (VUM) is installed on the host. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8 for the supported MEM kit to install.

About this task

To install the supported MEM kit, do the following:

Steps

1. Follow the instructions in the VMware documentation to install the supported MEM kit using the VUM method.
2. After the MEM kit is installed, but before rebooting, do the following on all the hosts where the MEM kit is installed:
   a. Stop hostd.

For example:

```
 #/etc/init.d/hostd stop
Terminating watchdog process with PID 67143 hostd stopped.
```

b. Start hostd.

For example:

```
#/etc/init.d/hostd start
hostd started.
```

c. Add import command rules.

For example:

```
#esxcli import equalRule add
```

3. Reboot the system.

NOTE: The system must be rebooted before the Dell EqualLogic Multipathing Extension Module with import becomes active.

Install the Dell EqualLogic MEM kit during an ESXi-based host upgrade

Prerequisites

Verify whether a version earlier than the supported VMware ESXi software is running on the host. See Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8.

About this task

To install the supported MEM kit (see Supported combinations of host OS, host multipath software, host protocol, and source system for non-disruptive import on page 8) during an upgrade of an earlier version of VMware ESXi software and to avoid multiple reboots, do the following:

Steps

1. Upgrade to the supported VMware ESXi software, but do not reboot the ESXi host.
2. Use one of the following methods to install the supported MEM kit on the prior version of the VMware ESXi software, apply SATP rules, and skip the reboot step in the following methods:
   - Install MEM Using the vSphere CLI Install the Dell EqualLogic MEM kit on an ESXi-based host using the vSphere CLI on page 24
   - Install the Dell EqualLogic MEM kit on an ESXi-based host using setup.pl script on VMA Install the Dell EqualLogic MEM kit on an ESXi-based host using setup.pl script on VMA on page 25
   - Install the Dell EqualLogic MEM kit on an ESXi-based host using VUM Install the Dell EqualLogic MEM kit on an ESXi-based host using VUM on page 26
3. Reboot the host.

NOTE: The system must be rebooted before the Dell EqualLogic Multipathing Extension Module with import becomes active.

Uninstalling the host plugin for import

Uninstalling any of the host plugin software for import is not recommended since it involves host or application down-time and VM/volume re-configuration in some cases. If a host plugin must be uninstalled, contact your service provider.

4

Import workflows

This chapter contains the following information:

Topics:

- Non-disruptive import workflow
- Cutover workflow for non-disruptive import
- Cancel workflow for non-disruptive import
- Agentless import workflow
- Cutover workflow for agentless import
- Cancel workflow for agentless import

Non-disruptive import workflow

As part of the import process, the source volume or consistency group is pre-validated whether it is ready to be imported. An import session is not allowed when either a non-disruptive upgrade or a network reconfiguration is in progress.

NOTE: Only source volumes and consistency groups that have a status of **Ready for Import**, **System cannot determine cluster type**, or **All hosts have not been added** can be imported.

The following steps show the manual import workflow in PowerStore Manager:

1. If the source system does not appear in PowerStore Manager, add the information needed to discover and access the source system.

   NOTE: (For importing storage from a Dell EqualLogic PS series system only) After you attempt to add a PS series system to PowerStore, the initial data connection state will appear as `No Targets Discovered`. However, you can proceed to create the import session and the state will be updated to `OK` after the import session moves to the `In Progress` state. This behavior is only specific to a PS series system and it is expected.
2. Select the volumes or consistency groups, or both to import.
3. (Optional) Assign selected volumes to a PowerStore Volume Group.
4. Select **Add hosts (Host Plugin) for non-disruptive import** and add the information needed to discover and access the host systems.
5. Set the schedule for the import.
6. (Optional) Assign a protection policy for the import sessions.
7. Review the summary of the import configuration information for accuracy and completeness.
8. Begin the import.

   NOTE: The active I/O path between the host and the source system becomes passive and the passive I/O path between the host and the PowerStore cluster becomes active. Also, the background copy of the selected source volumes to the associated PowerStore volumes begins as well as the forwarding of host I/O from the PowerStore cluster to the source system.

You can cutover an import after the background copy operation is complete. After cutover, the source volume is no longer accessible to the associated hosts and the PowerStore cluster.

The states of a single volume import and the manual operations that are allowed for those states are as follows:

- Queued state – Cancel operation
- Scheduled state – Cancel operation
- Copy-In-Progress state – Cancel and Pause operations
- Paused state – Cancel and Resume operations
- Ready-For-Cutover state – Cancel and Cutover operations
- Cleanup-Required state – Cleanup operation
- Import-Completed state – No manual operations available

The states of a consistency group import and the manual operations that are allowed for those states are as follows:

- Queued state – Cancel operation
- Scheduled state – Cancel operation
- In-Progress state – Cancel operation

  NOTE: Once the first volume of a CG is picked up for import, the CG state changes to In-Progress. The CG remains in that state until it reaches Ready-For-Cutover.
- Ready-For-Cutover state – Cancel and Cutover operations
- Cleanup-Required state – Cleanup operation
- Cleanup-In-Progress state – No manual operations available
- Cancel-In-Progress state – No manual operations available
- Cancel-failed – Cancel operation
- Cutover-In-Progress state – No manual operations available
- Import-Cutover-Incomplete state – Cancel and Cutover operations
- Import-Completed-With-Errors – No manual operations available
- Import-Completed – No manual operations available
- Failed – Cancel operation

When an import session is paused, only the background copy is stopped. The forwarding of host I/O to the source system continues to be active on the PowerStore cluster.

NOTE: Any I/O failures or network outages can cause import to fail during any of the states.

When a paused import session is resumed, the following occurs:

- For volumes, the import session state changes to Copy-In-Progress. For consistency groups, the state changes to In-Progress.
- The background copy restarts from the last copied range.
- The forwarding of host I/O to the source system continues to be active on the PowerStore cluster.

If an import session fails, the Orchestrator tries to automatically cancel the import operation to restore host I/O back to the source. If a cancel operation fails, the orchestrator will attempt to continue host I/O to the PowerStore cluster. If a catastrophic failure should occur and host I/O cannot continue, the import session state changes to Cleanup-Required. In this state you can run the Cleanup operation, which is specific to the source system. This action sets the source storage resource to Normal and deletes the associated destination storage resource.

Cutover workflow for non-disruptive import

You can cutover an import when the import session reaches the `Ready For Cutover` state. After cutover, the source volume or consistency group is no longer accessible to the associated hosts and the PowerStore cluster.

The following steps show the manual import workflow in PowerStore Manager:

1. Select the import session to cutover.
2. Select the **Cutover** import action to cutover to the PowerStore cluster. The following cutover processing occurs:
   a. Forwarding of host I/O from the PowerStore cluster to the source system stops.
   b. The volume or volume group status updates to `Import Complete` upon successful cutover.

      NOTE: When all the volumes in a volume group are cutover successfully, the state of the import session is set to `Import Complete`. However, since the status of the volume group depends on the final status of the member volumes, if one or more of the member volumes are in a state other than `Import Complete`, the status of the volume group is set to `Cutover_Failed`. Repeat the cutover operation again until it succeeds and the status for the volume group becomes `Import Complete`.
   c. Hosts and PowerStore cluster access to the source volume or consistency group is removed.

NOTE: Import sessions are not deleted. If you want to delete the import session, use the delete operation that is available only through the REST API. For more information about the REST API, see the *PowerStore REST API Reference Guide*.

Cancel workflow for non-disruptive import

You can cancel an import session that is in any one of the following states:

- Queued
- Scheduled
- For volume, Copy-in-Progress or, for CG, In-Progress
- Paused
- Ready-for-Cutover
- For CG, Import-Cutover-Incomplete
- For CG, Cancel-Required
- For CG, Cancel-Failed
- For CG, Failed

The cancel operation sets the state of the import session to `CANCELLED` and disables access to the destination volume or volume group. It also deletes the destination volume or volume group associated with the import session.

NOTE: After an import session is successfully cancelled, wait five minutes before retrying to import the same volume or consistency group. If you retry the import immediately after the successful cancel operation, the import may fail.

NOTE: A **Force Stop** option is provided in the confirmation popup for Cancel in the case of either a source system or a host is down. Selecting this option terminates the import session without rolling back access to the volumes on the source system. Manual intervention may be required on the source system or host, or both.

The following steps show the manual cancel workflow in PowerStore Manager:

1. Select the import session to cancel.
2. Select the **Cancel** import action to cancel the import session.
3. Click **CANCEL THE IMPORT** in the pop up screen. The following cancel processing occurs:
   a. The destination volume is disabled.
   b. The source volume is enabled.
   c. The state of the import session is set to `CANCELLED` on the successful completion of the operation.
      NOTE: When all the volumes in a volume group are cancelled successfully, the state of the import session is set to `CANCELLED`. However, since the status of the volume group is dependent on the final status of the member volumes, if one or more of the member volumes are in a state other than `CANCELLED`, the status of the volume group is set to `Cancel_Failed`. You must repeat the cancel operation again until it succeeds and the status for the volume group becomes `CANCELLED`.
   d. The destination volume is deleted.

NOTE: Import sessions are not deleted but can be deleted through the REST API.

Agentless import workflow

As part of the import process, the source volume or consistency group is pre-validated whether it is ready to be imported. An import session is not allowed when either a non-disruptive upgrade or a network reconfiguration is in progress.

NOTE: Source volumes and consistency groups can reflect a different status for import that depends on the method of import and the operating environment running on your source system.

- The **Ready for Agentless Import** status is applicable only when the version of the source system is earlier than the version that is supported for non-disruptive import.
- If the version of the source system supports non-disruptive import but the host plugin is not installed, volumes or consistency group member volumes will have the status of **The host or host(s) have not been added.**. In such cases, you can choose to do either a non-disruptive or an agentless import. Depending on the type of import you choose, you need to do one of the following:
  - For a non-disruptive import, install the host plugin.
  - For an agentless import, under **Compute** > **Host & Host Groups**, select **Add Host** as needed and specify the relevant information for the hosts.

The following steps show the manual import workflow in PowerStore Manager:

1. If the host or hosts do not appear in PowerStore Manager, add the information needed to discover and access the hosts.
2. If the remote (source) system does not appear in PowerStore Manager, add the information needed to discover and access the source system.

   NOTE: (For importing storage from a Dell EqualLogic PS series system only) After you attempt to add a PS series system to PowerStore, the initial data connection state will appear as `No Targets Discovered`. However, you can proceed to create the import session and the state will be updated to `OK` after the import session moves to the `In Progress` state. This behavior is only specific to a PS series system and it is expected.
3. Select the volumes or consistency groups, or both to import.

   NOTE: An XtremIO source volume is assigned a World Wide Name (WWN) when it is mapped to a host. Only such volumes with a WWN are discovered by PowerStore for import.
4. (Optional) Assign selected volumes to a PowerStore Volume Group.
5. Select **Map to hosts on PowerStore for agentless import** and map the applicable PowerStore Manager host or hosts to the source volumes.

   NOTE: (Optional) Volumes within a consistency group can be mapped individually to different hosts.
6. Set the schedule for the import.
7. (Optional) Assign a protection policy for the import sessions.
8. Review the summary of the import configuration information for accuracy and completeness.
9. Submit the import job.

   NOTE: Volumes are created on PowerStore Manager and access functions are set up for the source system so that data can be copied from the source volume to the destination volume.
10. After the destination volumes reach the Ready To Enable Destination Volume state, shut down the host application accessing the source volume.
11. Select and enable each destination volume that is in the Ready To Enable Destination Volume state. The destination volumes have to be enabled individually for each member volume of a volume group import session. The import session changes to the Ready to start copy state when the enable destination volume action completes.

    NOTE: It is recommended to remove the source volume's host mapping during the enable destination volume process. If the host mappings from the source volume in the source system are not selected to be removed by the orchestrator, remove them manually. If the source volume's host mappings are not removed either by the orchestrator or manually, those mappings remain even after cutover of the import session. Also, if import fails or is cancelled, these host mappings must be restored to the source volume or volumes manually. They are not restored automatically.
12. Reconfigure the host application to access the applicable destination volumes.
13. When the import session has reached the Ready to start copy state, select **Start Copy** to start copying the source volume data to the destination volume. **Start copy** must be selected individually for each member volume of a volume group in an import session.

You can cutover an import after the copy operation is complete.

The states of a single volume import and the manual operations that are allowed for those states are as follows:

- Queued state – Cancel operation
- Scheduled state – Cancel operation
- Ready To Enable Destination Volume – Enable destination volume and Cancel operations
- Ready-to-Start-Copy – Start copy and Cancel operations
- Copy-In-Progress state – Cancel and Pause operations
- Paused state – Cancel and Resume operations
- Ready-For-Cutover state – Cancel and Cutover operations
- Cancel-Required – Cancel operation (the agentless import has failed during the copy operation)
- Cleanup-Required state – Clean up operation
- Import-Completed state – No manual operations available

NOTE: Before starting a Cancel operation after the host application has been shutdown and reconfigured to use the destination volume in PowerStore, shut down the host application and reconfigure the host application to use the source volume. Shutdown of and reconfiguring the host application to use the source volume are not required when the host application has not been shutdown and reconfigured to use the destination volume in PowerStore.

The states of a consistency group import and the manual operations that are allowed for those states are as follows:

- Queued state – Cancel operation
- Scheduled state – Cancel operation

- In-Progress state – Cancel operation

  NOTE: Once the first volume of a CG is picked up for import, the CG state changes to In-Progress. The CG remains in that state until it reaches Ready-For-Cutover.
- Ready-For-Cutover state – Cancel and Cutover operations
- Cleanup-Required state – Cleanup operation
- Cleanup-In-Progress state – No manual operations available
- Cancel-In-Progress state – No manual operations available
- Cancel-failed – Cancel operation
- Cancel-Required – Cancel operation (the agentless import has failed during the copy operation)
- Cutover-In-Progress state – No manual operations available
- Import-Cutover-Incomplete state – Cancel and Cutover operations
- Import-Completed-With-Errors – No manual operations available
- Import-Completed – No manual operations available
- Failed – Cancel operation

NOTE: Any I/O failures or network outages can cause import to fail during any of the states. Before starting a Cancel operation after the host application has been shutdown and reconfigured to use the destination volume in PowerStore, shut down the host application and reconfigure the host application to use the source volume. Shutdown of and reconfiguring the host application to use the source volume are not required if the host application has not been shutdown and reconfigured to use the destination volume in PowerStore.

When a paused import session is resumed, the following occurs:

- For volumes, the import session state changes to Copy-In-Progress. For consistency groups, the state changes to In-Progress.
- The copy restarts from the last copied range.

NOTE: Any I/O failures or network outages can cause import to fail during any of the states. If agentless import fails due to I/O or network failures, the import session goes into Cancel-Required state. Before starting a Cancel operation after the host application has been shutdown and reconfigured to use the destination volume in PowerStore, shut down the host application and reconfigure the host application to use the source volume. Shutdown of and reconfiguring the host application to use the source volume are not required if the host application has not been shutdown and reconfigured to use the destination volume in PowerStore.

Cutover workflow for agentless import

You can cutover an import when the import session reaches the `Ready For Cutover` state. The following steps show the manual import workflow in PowerStore Manager:

1. Select the import session to cutover.
2. Select the **Cutover** import action to cutover to the PowerStore cluster. The volume or volume group status updates to `Import Complete` upon successful cutover.

   NOTE: When all the volumes in a volume group are cutover successfully, the state of the import session is set to `Import Complete`. However, since the status of the volume group depends on the final status of the member volumes, if one or more of the member volumes are in a state other than `Import Complete`, the status of the volume group is set to `Cutover_Failed`. Repeat the cutover operation again until it succeeds and the status for the volume group becomes `Import Complete`.

NOTE: Import sessions are not deleted. If you want to delete the import session, use the delete operation that is available only through the REST API. For more information about the REST API, see the *PowerStore REST API Reference Guide*.

Cancel workflow for agentless import

For volume, Cancel can be performed only when the import processing state is Queued, Scheduled, Ready To Enable Destination Volume, Ready to Start Copy, Copy-In-Progress, Paused, Ready for Cutover, or Cancel Required. For volume group, Cancel can be performed only when the import processing state is Queued, Scheduled, In-Progress, Paused, Ready for Cutover, Import-Cutover-Incomplete, Cancel Required, Cancel-Failed, or Failed. Before cancelling an agentless import session, shut down the host application and reconfigure the host application that is accessing the import's destination volume or volumes back to

the source volume or volumes. Shutdown of and reconfiguring the host application is applicable only when the import session is being cancelled after the host application has been reconfigured to use the destination volume in PowerStore.

The cancel operation sets the state of the import session to `CANCELLED` and disables access to the destination volume or volume group. It also deletes the destination volume or volume group associated with the import session.

NOTE: A **Force Stop** option is not available for Cancel during an agentless import.

The following steps show the manual cancel workflow in PowerStore Manager:

1. Select the import session to cancel.
2. Select the **Cancel** import action to cancel the import session.
3. Click **CANCEL THE IMPORT** in the pop up screen.

   NOTE: To enable **Cancel The Import**, check the checkbox to confirm that the host application has been shutdown or taken offline.

   The following cancel processing occurs:

   a. The destination volume is disabled.
   b. The state of the import session is set to `CANCELLED` on the successful completion of the operation.

      NOTE: When all the volumes in a volume group are cancelled successfully, the state of the import session is set to `CANCELLED`. However, since the status of the volume group is dependent on the final status of the member volumes, if one or more of the member volumes are in a state other than `CANCELLED`, the status of the volume group is set to `CANCEL_Failed`. You must repeat the cancel operation again until it succeeds and the status for the volume group becomes `CANCELLED`.

   c. The destination volume is deleted.

NOTE: Import sessions are not deleted but can be deleted through the REST API. Manual intervention is required to reconfigure the host to access the source volumes again.

5

Configuring and managing import

This chapter contains the following information:

Topics:

- Configure a non-disruptive import
- Refresh hosts and volumes in a non-disruptive import
- Manage non-disruptive import sessions
- Configure an agentless import
- Manage agentless import sessions

Configure a non-disruptive import

Prerequisites

Ensure the following conditions exist on the PowerStore cluster before running import:

- The global storage IP address for the PowerStore cluster is configured.
- The PowerStore cluster and its nodes are in a healthy state.

Ensure that the following connections exist:

- For either a Dell EMC VNX2 or Dell EMC Unity Series source system, a Fibre Channel (FC) or iSCSI connection between the source system and each associated host system, and a matching FC or iSCSI connection between each associated host system and the PowerStore cluster.

  NOTE: These connections to each host system should be of the same type, either all FC or all iSCSI.
- For either a Dell Compellent Storage Center (SC) or Dell EqualLogic Peer Storage (PS) Series source system, an iSCSI connection between the source system and each associated host system, and a matching iSCSI connection between each associated host system and the PowerStore cluster.
- For all source systems, only an iSCSI connection is supported between the source system and the PowerStore cluster.

Ensure that the applicable host multipath input/output (MPIO) software and host plugin are installed on each host that accesses the storage to be imported. See Non-disruptive import of external storage to PowerStore overview on page 7.

It is recommended that the same NTP server is used on the source system, which hosts the source storage resource, and the destination PowerStore cluster. This configuration should provide the proper time synchronization between the source system and the destination PowerStore cluster.

Determine the following for the source system:

- The type of source system for the import
- The management cluster IP address, which is one of the following:
  - For the Dell EqualLogic PS Series, it is the group management IP address, if the management network is configured. Otherwise, it is the group IP address.
  - For the Dell Compellent SC Series and Dell EMC Unity Series, it is the management IP address of the system.
  - For Dell EMC VNX2 Series, it is the IP address of either SPA or SPB, however, the IP address of SPA is recommended.
- The iSCSI IP address of the source system, which is one of the following:
  - For Dell EqualLogic PS Series, it is the group IP address.
  - For Dell Compellent SC Series, it is the IP address of the fault domain.
  - For Dell EMC VNX2 and Dell EMC Unity Series, it is one of the IP addresses of the iSCSI front-end ports.
- The administrative username and password credentials to access the source system
- The session CHAP mode
- The names of the volumes or consistency groups, or both

NOTE: A volume group is automatically created for each consistency group that is selected for import. They cannot be combined with any other volumes or volume group.

- Which protection policy to use for the volume or volume group, or both.

Determine the following for the hosts connected to the PowerStore cluster:

- The management IP address of the hosts
- Host plugin port configured for import
- The operating system type of the hosts
- The administrative username and password credentials to access the VMware hosts.

NOTE: Username and password credentials are not required to access the Windows and Linux hosts.

Determine the schedule of the import:

- Immediately or set a time and date
- Whether to automatically cutover to the destination after import

Determine which protection policy to assign to the import session.

About this task

To configure an import, do the following:

Steps

1. Log in to PowerStore Manager.
2. Under **Migration**, select **Import External Storage**.
   The **Import External Storage** page appears.
3. If the intended source system does not appear in the list of remote systems, select **Add Remote System** and specify the relevant information for the remote system. Otherwise, go to the next step.

   NOTE: When an invalid, unreachable, or down group management IP address is added to a PowerStore cluster for any Dell EqualLogic PS Series remote system, the following error notification appears: `Addition of PS remote system failed due to error in connecting PS Group as Unknown error 0 returned by the server`.

   Verify that the IP address is correct and reachable.

   NOTE: Also, after you attempt to add a Dell EqualLogic PS Series remote system to the PowerStore cluster, the initial data connection state will appear as `No Targets Discovered`. However, you can proceed to create the import session and the state will be updated to `OK` after the import session moves to the `In Progress` state. This behavior is only specific to a Dell EqualLogic PS Series remote system and it is expected.

   NOTE: While adding a remote system to PowerStore, you must provide the iSCSI IP address of the remote system along with other details. As part of the operation, PowerStore discovers the iSCSI portal of the remote system and tries to log in to all the targets listed in that portal. If anyone of those targets are unreachable, the associated **Data Connection** status appears as `Partial Data Connections Loss` in PowerStore Manager.

4. To configure an import session, select a source system from the list of remote systems on your network that you have previously entered manually in to PowerStore Manager.
5. Select **Import Storage**.
   The **Import Volumes from Source Array** wizard appears.
6. Step through the wizard and specify the relevant information.

   NOTE: Only volumes and consistency groups that have a status of `Ready for import`, `System cannot determine cluster type`, or `Host or Hosts have not been added` can be selected for import. However for a status of `Host or Hosts have not been added`, you must add all hosts in the Add Hosts step in the import wizard before beginning an import session. You cannot begin an import session when the volume or consistency group has a status of `Import is in progress` or `Import has completed`.

   NOTE: Consistency Group is not supported in the Dell EqualLogic PS Series systems; therefore, consistency group import from these systems is not possible.

   Once you have specified the necessary information, the system generates a summary of the import session information.

7. Verify that the import session information in the summary is accurate and complete.
8. Click **Begin Import** to create and start the import session.
   The **Import External Storage** page appears and shows the **Imports** information once the operation is started.
9. To view the progress of ongoing import sessions, under **Migration**, select **Imports**.
10. To view the progress details of a specific ongoing import session, click the state of that import session.
    The **Import Session Progress Details** slide out for that import session appears.

Refresh hosts and volumes in a non-disruptive import

About this task

When any configuration changes, such as moving a volume between hosts or re-sizing the source system volume capacity, are made to the source or a host system after they have been added to PowerStore, all the affected or involved systems must be manually refreshed using PowerStore Manager. Otherwise, when you run import on that volume, the import will fail.

To refresh the source volumes or hosts, or both, do the following:

Steps

1. In PowerStore Manager, do the following to navigate to the **Import Volumes from Source Array** wizard:
   a. Under **Migration**, select **Import External Storage**.
   b. Select the source system from the list of **Remote Systems**.
   c. Select **Import Storage**.
2. To refresh hosts, select **Refresh Hosts** under **Refresh Actions**; otherwise, go to Step 3.
   a. Select **Refresh** for a host that must be refreshed.
   b. When the **Host Refresh** dialog box appears confirming a successful operation, do one of the following as applicable:
      - Click **Close** to return to the **Import Volumes from Source Array** wizard.
      - Click **Refresh Other Hosts** to return to the **Refresh Hosts** slide out panel.
3. To refresh volumes, select **Refresh Volumes**.

Manage non-disruptive import sessions

About this task

An import session runs as a background job and establishes an end-to-end path for an import operation between a source and destination. The data follows the path as it moves from source to destination.

Steps

1. Under **Migration**, select **Imports**.
   The **Import External Storage** page appears and lists information about the existing import sessions.
2. Perform one of the following import actions:

   NOTE: The import actions that can be performed on an import session depend on the current state of the import session.

Action	Description
Cancel	Select an import session and under **Import Actions**, click **Cancel**. You can cancel an import session that is in one of the following states: • Queued • Scheduled • For volume, Copy In Progress, or, for consistency group, In Progress • Paused • Ready For Cutover • For consistency group, Import Cutover Incomplete

Action	Description
	• For consistency group, Cancel Failed • For consistency group, Failed The cancel operation sets the state of the import session to `CANCELLED` and disables access to the destination volume. It also deletes the destination volume or volume group that is associated with the import session. **NOTE:** When all the volumes in a volume group are canceled successfully, the state of the import session is set to `CANCELLED`. However, if one or more of the member volumes are in a state other than `CANCELLED`, the status of the volume group is set to `Cancel Failed`. This action occurs because the status of the volume group depends on the final status of the member volumes. Repeat the cancel operation again until it succeeds and the status for the volume group becomes `CANCELLED`. **NOTE:** Import sessions are not deleted. If you want to delete the import session, use the delete operation that is available only through the REST API. **NOTE:** A **Force Stop** option is provided in the confirmation dialog box for Cancel in the case of either a source system or a host is down. Selecting this option terminates the import session without rolling back access to the volumes on the source system. Manual intervention may be required on the source system or host, or both. **NOTE:** After an import session is successfully cancelled, wait five minutes before retrying to import the same volume or consistency group. If you try the import again immediately after the successful cancel operation, the import may fail.
Cutover	Select an import session and under **Import Actions**, click **Cutover** to commit an import session. You can cut over an import session that is in the Ready For Cutover state. After cutover, the source volume or source consistency group is no longer accessible to the associated hosts and the PowerStore cluster. **NOTE:** When all the volumes in a consistency group are cut over successfully, the state of the import session is set to `Import Complete`. However, if one or more of the member volumes are in a state other than `Import Complete`, the status of the consistency group is set to `Cutover Failed`. This action ocurrs because the status of the consistency group is dependent on the final status of the member volumes. Remove all the failed volumes from the consistency group and try the import again.
Pause	Select an import session and under **Import Actions**, click **Pause**. Use **Pause** to pause an import session that is in the `Copy In Progress` state. **NOTE:** The Pause import action on a CG only pauses the member volumes that are in the `Copy In Progress state`. The CG remains in the `In Progress` state. Other member volumes that are in other states, such as `Queued` or `In Progress`, are not paused and may proceed to the `Ready For Cutover` state. The other member volumes can be paused when they reach the `Copy In Progress` state by using the Pause import action again on the CG. If any of the member volumes are in the `Paused` state but the overall status of the CG is `In Progress`, both the Pause and Resume import action options are available for the CG.
Resume	Select an import session and under **Import Actions**, click **Resume**. Use **Resume** to start an import session that is in the `Paused` state.
Cleanup	Select an import session and under **Import Actions**, click **Cleanup**. Use **Cleanup** to cleanup an import session that is in the `Cleanup Required` state.

NOTE: If import of a source volume is in progress and a disaster occurs making the source system unusable or unreachable, you may need to contact your service provider to recover the source system involved in the import.

NOTE: During an import session with a Dell PS EqualLogic system that has `not shared` volumes, those volumes are changed to `shared` volumes as part of the import processing. If that import session is canceled or fails, the Access Control List of the EqualLogic Group Manager shows that the Multiple access field remains as `shared`. Since the job has failed or has been canceled, it is assumed that the import on the same volume will be retried; therefore, the Multiple access field setting is not automatically reverted to `not shared`.

Configure an agentless import

Prerequisites

Ensure the following conditions exist on the PowerStore cluster before running import:

- The global storage IP address for the PowerStore cluster is configured.
- The PowerStore cluster and its nodes are in a healthy state.

Ensure that the following connections exist:

- For either a Dell Compellent Storage Center (SC), Dell EMC VNX2 or Dell EMC Unity Series, or a Dell EMC XtremIO X1 or Dell EMC XtremIO X2 source system, a Fibre Channel (FC) or iSCSI connection between the source system and each associated host system, and a matching FC or iSCSI connection between each associated host system and the PowerStore cluster.

  NOTE: These connections to each host system should be of the same type, either all FC or all iSCSI.
- For a Dell EqualLogic Peer Storage (PS) Series source system, an iSCSI connection between the source system and each associated host system, and a matching iSCSI connection between each associated host system and the PowerStore cluster.
- For all source systems, only an iSCSI connection is supported between the source system and the PowerStore cluster.

It is recommended that the same NTP server is used on the source system, which hosts the source storage resource, and the destination PowerStore cluster. This configuration should provide the proper time synchronization between the source system and the destination PowerStore cluster.

Determine the following for the source system:

- The type of source system for the import
- (Applicable only to XtremIO X1 and XtremIO X2 systems) The name of the source system.
- The management cluster IP address, which is one of the following:
  - For the Dell EqualLogic PS Series, it is the group management IP address, if the management network is configured. Otherwise, it is the group IP address.
  - For the Dell Compellent SC Series and Dell EMC Unity Series systems, it is the management IP address of the system.
  - For Dell EMC VNX2 Series, it is the IP address of either SPA or SPB, however, the IP address of SPA is recommended.
  - For Dell EMC XtremIO X1 and Dell EMC XtremIO X2 systems, it is the IP address of the XMS.
- The iSCSI IP address of the source system, which is one of the following:
  - For Dell EqualLogic PS Series, it is the group IP address.
  - For Dell Compellent SC Series, it is the IP address of the fault domain.
  - For Dell EMC VNX2 and Dell EMC Unity Series, and Dell EMC XtremIO X1 and Dell EMC XtremIO X2 source systems, it is one of the IP addresses of the iSCSI front-end ports.
- The administrative username and password credentials to access the source system
- The session CHAP mode
- The names of the volumes or consistency groups, or both

  NOTE: A volume group is automatically created for each consistency group that is selected for import. They cannot be combined with any other volumes or volume group.
- Which protection policy to use for the volume or volume group, or both.

Determine which hosts should be mapped to the PowerStore volumes.

Determine the schedule of the import:

- Immediately or set a time and date
- Whether to automatically cutover to the destination after import

Determine which protection policy to assign to the import volume.

About this task

To configure an import, do the following:

Steps

1. Log in to PowerStore Manager.
2. If the intended hosts associated with the import do not appear under **Compute** > **Host & Host Groups**, select **Add Host** as needed and specify the relevant information for the hosts. Otherwise, go to the next step.

3. Under **Migration**, select **Import External Storage**.
   The **Import External Storage** page appears.
4. If the intended source system does not appear in the list of remote systems, select **Add Remote System** and specify the relevant information for the remote system. Otherwise, go to the next step.

   NOTE: When an invalid, unreachable, or down group management IP address is added to a PowerStore cluster for any Dell EqualLogic PS Series remote system, the following error notification appears: `Addition of PS remote system failed due to error in connecting PS Group as Unknown error 0 returned by the server`.

   Verify that the IP address is correct and reachable.

   NOTE: Also, after you attempt to add a Dell EqualLogic PS Series remote system to the PowerStore cluster, the initial data connection state will appear as `No Targets Discovered`. However, you can proceed to create the import session and the state will be updated to `OK` after the import session moves to the `In Progress` state. This behavior is only specific to a Dell EqualLogic PS Series remote system and it is expected.

   NOTE: While adding a remote system to PowerStore, you must provide the iSCSI IP address of the remote system along with other details. As part of the operation, PowerStore discovers the iSCSI portal of the remote system and tries to log in to all the targets listed in that portal. If anyone of those targets are unreachable, the associated **Data Connection** status appears as `Partial Data Connections Loss` in PowerStore Manager.

5. To configure an import session, select a source system from the list of remote systems on your network that you have previously entered manually in to PowerStore Manager.
6. Select **Import Storage**.
   The **Import Volumes from Source Array** wizard appears.
7. Step through the wizard and specify the relevant information.

   NOTE: Only source volumes and consistency groups that have a status of **Ready for Agentless Import** can be imported. **Ready for Agentless Import** is applicable only when the version of the source system is earlier than the version that is supported for non-disruptive import. However, if the version of the source system supports non-disruptive import and the host plugin is not installed, volumes or consistency group member volumes will have status **The host or host(s) have not been added.**. In such cases, you can choose to do non-disruptive or agentless import. Depending on the type of import you choose, you need to either install the host plugin or select the PowerStore host, respectively.

   NOTE: An XtremIO source volume is assigned a World Wide Name (WWN) when it is mapped to a host. Only such volumes with a WWN are discovered by PowerStore for import.

   NOTE: Consistency Group is not supported in the Dell EqualLogic PS Series systems; therefore, consistency group import from these systems is not possible.

   Once you have specified the necessary information, the system generates a summary of the import session information.
8. Verify that the import session information in the summary is accurate and complete.
9. Click **Begin Import** to create and start the import session.
   The **Import External Storage** page appears and shows the **Imports** information once the operation is started.
10. After the destination volume reaches the Ready To Enable Destination Volume state, shut down the host application accessing the source volume.

    NOTE: When importing VMware datastores, do the following from vCenter to unmount the datastore before proceeding to enable the destination:

    a. Power off the Virtual Machines (VMs).
    b. Unregister the VMs by right clicking and selecting **Remove from inventory** on each VM in the datastore.
    c. Right click the datastore and select **Unmount datastore**.

11. When the volume in the import session is in the `Ready To Enable Destination Volume` state, select the volume and then select **Import Actions** > **Enable Destination Volume**.
    The **Enable Destination Volume** dialog box appears.
12. Select the checkbox to confirm that you have shut down or taken offline the host application that is using the source volume.

13. Select whether to have the orchestrator automatically remove the host mappings during the enable destination volume process.

    NOTE: It is recommended to remove the source volume's host mapping during the enable destination volume process to prevent the host from accidentally accessing the source volume. If the host mappings from the source volume in the source system are not selected to be removed by the orchestrator, remove them manually. If the source volume's host mappings are not removed either by the orchestrator or manually, those mappings remain even after cutover of the import session. Also, if import fails or is cancelled, these host mappings must be restored to the source volume manually. They are not restored automatically.

    NOTE: For Dell EqualLogic PS systems, if the source volume is setup using access control lists (ACLs) that are based on Basic Access Point or Access Policy Group, the automated removal of host to source volume mapping does not work. You must manually remove the host mapping and log out. Also, when the Dell EqualLogic PS source volume is setup using ACLs based on Access Policy, the automated removal of host to source volume mapping removes the host mapping from the source volume. However, the iSCSI connections between the host and the source volume must be manually disconnected by logging out.

14. Select **Enable Destination Volume**.
    The volume should progress to the `Ready to start copy` state.
15. Reconfigure the host application to access and use the destination volume in the PowerStore cluster.

    NOTE: When importing VMware datastores, do the following from vCenter:

    a. Rescan the ESX storage adapter on which LUNs are visible.
    b. Add the datastore back and select the **Keep existing Signature for VMFS** option.
    c. Register the VMs by right clicking on the datastore and selecting **Register VM...**. Do this operation for each VM that is in the datastore.
    d. Power on the VMs.

16. When the volume in the import session is in the `Ready to start copy` state, select the volume and then select **Import Actions** > **Start Copy**.
    The volume should progress to the `Copy in progress` state.
17. To view the progress of ongoing import sessions, under **Migration**, select **Imports**.
18. To view the progress details of a specific ongoing import session, click the state of that import session.
    The **Import Session Progress Details** slide out for that import session appears.

Manage agentless import sessions

About this task

An import session runs as a background job and establishes an end-to-end path for an import operation between a source and destination. The data follows the path as it moves from source to destination.

Steps

1. Under **Migration**, select **Imports**.
   The **Import External Storage** page appears and lists information about the existing import sessions.
2. Perform one of the following import actions:

   NOTE: The import actions that can be performed on an import session depend on the current state of the import session.

Action	Description
Cancel	**NOTE:** For volume, Cancel can be performed only when the import processing state is `Queued`, `Scheduled`, `Ready To Enable Destination Volume`, `Ready to Start Copy`, `Copy In Progress`, `Paused`, `Ready For Cutover`, or `Cancel Required` and the host application that is accessing the volume has been shutdown and reconfigured to access the source volume. For volume group, Cancel can be performed only when the import processing state is `Queued`,

Action	Description
	Scheduled, In Progress, Paused, Ready For Cutover, Import Cutover Incomplete, Cancel Required, Cancel Failed, Failed and the host application that is accessing the volume has been shutdown. Before cancelling an agentless import session, reconfigure the host application that is accessing the import's destination volume back to the source volume. This is applicable when the import session is being cancelled after the host application has been reconfigured to use the destination volume in PowerStore. Select an import session and under **Import Actions**, click **Cancel**. The cancel operation sets the state of the import session to CANCELLED and disables access to the destination volume. It also deletes the destination volume or volume group associated with the import session. **NOTE:** When all the volumes in a volume group are cancelled successfully, the state of the import session is set to CANCELLED. However, since the status of the volume group is dependent on the final status of the member volumes, if one or more of the member volumes are in a state other than CANCELLED, the status of the volume group is set to Cancel Failed. Repeat the cancel operation again until it succeeds and the status for the volume group becomes CANCELLED. **NOTE:** Import sessions are not deleted. If you want to delete the import session, use the delete operation that is available only through the REST API. Manual intervention is required to reconfigure the host to access the source volumes again. **NOTE:** A **Force Stop** option is not available for Cancel during an agentless import.
Cutover	Select an import session and under **Import Actions**, click **Cutover** to commit an import session. You can cut over an import session that is in the Ready For Cutover state. **NOTE:** When all the volumes in a consistency group are cut over successfully, the state of the import session is set to Import Complete. However, since the status of the consistency group is dependent on the final status of the member volumes, if one or more of the member volumes are in a state other than Import Complete, the status of the consistency group is set to Cutover_Failed. You must remove all the failed volumes from the consistency group and try the import again.
Pause	Select an import session and under **Import Actions**, click **Pause**. Use **Pause** to pause an import session that is in the Copy In Progress state. **NOTE:** The Pause import action on a CG only pauses the member volumes that are in the Copy In Progress state. The CG remains in the In Progress state. Other member volumes that are in other states, such as Queued or In Progress, are not paused and may proceed to the Ready For Cutover state. The other member volumes can be paused when they reach the Copy In Progress state by using the Pause import action again on the CG. If any of the member volumes are in the Paused state but the overall status of the CG is In Progress, both the Pause and Resume import action options are available for the CG.
Resume	Select an import session and under **Import Actions**, click **Resume**. Use **Resume** to start an import session that is in the Paused state.
Cleanup	Select an import session and under **Import Actions**, click **Cleanup**. Use **Cleanup** to cleanup an import session that is in the Cleanup Required state.
Enable Destination Volume	Select each destination volume in the import session that is in the Ready To Enable Destination Volume state and under **Import Actions**, click **Enable Destination Volume**. **NOTE:** The import session changes to the Ready to Start Copy state when the enable destination volume action completes for all the volumes in the import session.
Start Copy	When the import session has reached the Ready to Start Copy state, select each destination volume in the import session that is in the Ready to Start Copy state and under **Import Actions**, click **Start Copy**.

NOTE: If import of a source volume is in progress and a disaster occurs making the source system unusable or unreachable, you may need to contact your service provider to recover the source system involved in the import.

NOTE: During an import session with a Dell PS EqualLogic system that has `not shared` volumes, those volumes are changed to `shared` volumes as part of the import processing. If that import session is cancelled or fails, the Access Control List of the EqualLogic Group Manager shows the Multiple access field remains as `shared`. Since the job has failed or has been cancelled, it is assumed that the import on the same volume will be retried; therefore, the Multiple access field setting is not automatically reverted back to `not shared`.

A

Import-CLI (Linux)

IMPORT-CLI is a utility provided for the Linux host administrator to check import specific details such as volumes information, logging information, the installed version of host plugin, systems supported in the current host plugin version, and such.

This appendix contains the following information:

Topics:

- Get help
- Status
- Host plugin version
- List supported arrays
- Server port
- Log information
- Microhttpd status
- Restart the Web server
- Recover device

Get help

Get command-specific help.

Format

```
importcli help
```

Example

```
# importcli help
Usage: importcli <command> [options]

Available commands:
help Get command-specific help with '<command> help'

status Dump current multipathing status, if selected --importable, it displays info for
only importable volumes

ha_version Displays the current version of Host plugin installed

list_supported_arrays Displays a list of supported arrays in the current Host plugin
version

server_port Displays the server port that is used for communication and provides the
option to change it to a different port

log_show Displays Log level and location for logs

mhd_status Displays microhttpd status

restart_webServer Restarts webserver in case of microhhtpd failure.
```

Status

Dumps the current multipathing status. If selected --importable, information for only importable volumes appears.

Format

```
importcli status <options>
```

Options

Option	Description
-v|--verbose	Show extra information.
--importable Display	Show information only for importable volumes.

Example

```
# importcli status
Generating diagnostic data, please wait...
============================================================
Volume list
============================================================

Target WWID: 60060160114040000a331505c1bd8223b
 Array Type: UNITY
 Dev mapper name: 360060160114040000a331505c1bd8223b
 DM dev name: /dev/dm-12
 SD devices list:
 /dev/sdab
 /dev/sdad
 /dev/sdae
 /dev/sdaf
 Volume Size: 1.00 GB
 Import Status: READY FOR IMPORT
```

Host plugin version

Shows the current version of the host plugin installed.

Format

```
importcli ha_version
```

Example

```
# importcli ha_version
Generating diagnostic data, please wait...

HA version: 1.0

Build version: 56e9023_558
```

List supported arrays

Shows a list of supported arrays in the current host plugin version.

Format

```
importcli list_supported_arrays
```

Example

```
# importcli list_supported_arrays
Generating diagnostic data, please wait...

============== ===========
 Array Name VID
 ============== ===========
 EQL EQLOGIC
 Compellent COMPELNT
 VNX2 DGC
 UNITY DGC
 PowerStore DellEMC
```

Server port

Shows the server port that is used for communication and provides the option to change it to a different port.

NOTE: The server port should not be changed while import is in progress on the host. When the server port has been changed, delete the associated host on the **Hosts & Host Groups** page under **Compute** in PowerStore Manager, and then add the host again.

Format

```
importcli server_port {change [port_num]}
```

Options

Option	Description
`change` <*port_num*>	Changes the server port to <*port_num*>. Valid values are: • `8443` • `50443` • `55443` • `60443`

Examples

```
# importcli server_port
Generating diagnostic data, please wait...
 Server port : 8443
```

```
#  importcli server_port change 55443
Generating diagnostic data, please wait...
 Changing Server port to : 55443
```

Log information

Shows log level and location for logs.

Format

```
importcli log_show
```

Example

```
# importcli log_show
Generating diagnostic data, please wait...

Log Level: 2
Log Location: /var/log/import
```

Microhttpd status

Shows microhttpd status.

Format

```
importcli mhd_status
```

Example

```
# importcli mhd_status
Generating diagnostic data, please wait...

Microhttpd Status: ACTIVE
```

Restart the Web server

Restarts the Web server in case of microhttpd failure.

NOTE: Use this command only if the Micro-http deamon (MHD) is inactive. Status of the MHD can be verified using the `importcli mhd_status` command. When the `restart_webServer` command runs successfully, MHD becomes active. Also, the Web server should not be restarted while import is in progress on the host. Contact your service provider before using this CLI command.

Format

```
importcli restart_webServer
```

Example

```
# importcli restart_webServer
Generating diagnostic data, please wait...
Server port : 8443
```

Recover device

Recovers the specified device which is stuck in a bad state due to an internal error during the import process.

NOTE: Contact your service provider before using this CLI command.

Format

```
importcli recover_device <device_WWID>
```

Example

```
# importcli recover_device 6006016011404000a331505c1bd8223b
Generating diagnostic data, please wait...

Recovered device successfully!
```

B

Additional tasks related to import for Linux-based hosts

This appendix contains the following information:

Topics:

- Regenerate the host HTTPS certificate
- Setting the Oracle ASM logical block size

Regenerate the host HTTPS certificate

About this task

During installation, the host plug-in generates a self-signed HTTPS certificate and uses it for secure communication. In the following instances this certificate must be regenerated:

- Host IP address has been changed.
- Host name has been changed, or it has been added to a new domain.
- Host HTTPS certificate has expired.

To regenerate a host HTTPS certificate for a Linux-based host, do the following:

Steps

After regenerating the certificate, delete the associated host on the **Hosts & Host Groups** page under **Compute** in PowerStore Manager, and then add the host again.

Setting the Oracle ASM logical block size

Prerequisites

CAUTION: Avoid running anything below when Oracle is already installed. This procedure only applies when the Oracle database has not been created.

Determine whether you need to set the Oracle ASM logical block size before starting import. Check the logical and physical sector size on the Compellent SC LUN by running `fdisk -l`. The following is an example of the command output:

```
Disk /dev/mapper/36000d3100116f2000000000000001484: 53.7 GB, 53687091200 bytes,
104857600 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 2097152 bytes / 2097152 bytes
```

The `Sector size` shown in the command output represents the logical and physical values. You do not need to run the following procedure when the physical sector size is 512 bytes. The physical sector size shown in the example is not supported by PowerStore and would need to be changed. Also note that the logical sector size needs to be 512 bytes.

About this task

Import to PowerStore from a Linux host running Oracle on a Compellent SC appliance is allowed only when the Oracle configuration, ASM or AFD, uses the logical sector size for ASM disk groups. Import of external storage to PowerStore does not support 4096 bytes sector size devices. It supports only 512 bytes sector size devices.

If you are planning to Import external storage to PowerStore from a Linux host running Oracle with ASM on Compellent SC storage and you need to set the Oracle ASM logical block size at the time of creating the database, use the following procedure before getting started with import.

Steps

1. Depending on the Oracle configuration, do one of the following when you create the Oracle database:

   NOTE: PowerStore does not support import an existing database on Compellent SC storage that is created with **ORACLEASM_USE_LOGICAL_BLOCK_SIZE="false"** or **oracleafd_use_logical_block_size** defined with a value of 0.

   - For an ASMLib configuration, set `ORACLEASM_USE_LOGICAL_BLOCK_SIZE="true"`. Use the following standard `oracleasm configure` command to set the parameter to true: **oracleasm configure -b**. This setting allows Oracle ASM to use the logical sector size.
   - For an AFD configuration, create a file in the folder `/sys/module/oracleafd/parameters` by setting **echo 1 > oracleafd_use_logical_block_size** when you create the database. Make the setting permanent by creating a file in the folder `/etc/modprobe.d`, **echo "options oracleafd oracleafd_use_logical_block_size=1" > oracleafd.conf**
2. Before starting import, ensure that the logical sector size is 512 bytes by verifying that the SQL output shows 512 bytes for all the disks in the database.

   SQL> select disk_number, mount_status, header_status, state, sector_size, path from v$asm_disk;

C

ImportKit-CLI (Windows)

The ImportKit-CLI is a utility provided for the Windows host administrator. The ImportKit-CLI commands list information about devices under import or devices ready for import. The commands also provide the following functionality:

- Get list of supported arrays.
- Get list of volumes / single volume.
- Get the version of different components.
- Enable logging level (No Log - 0, Error - 1, Informational - 2, Verbose - 3).
- Change port or IP address.
- Regeneration of certificate.
- Install certificate.
- Restart service

NOTE: The `Install-ImportKit-Certificate` command must be run first to install the host plugin certificate to be able to use all the ImportKit CLI commands.

This appendix contains the following information:

Topics:

- How to run the ImportKit CLI commands
- List supported arrays
- Host plugin log information
- Import kit version
- Restart import kit host plugin service
- Import volumes information
- Get Web server port information
- Install import kit certificate
- Re-generate the import kit certificate
- Set Web server port information
- Set host plugin logging debug log level

How to run the ImportKit CLI commands

To run the ImportKit CLI commands, do the following:

1. Open PowerShell.
2. Run the following command: `Import-Module <path where the ImportKIT-CLI.dll is present>`

Examples

For ImportKit:

```
> Import-Module "C:\Program Files\DELLEMC\ImportKIT\ImportKIT-CLI.dll"
```

For EQL HIT Kit with import capability:

```
Import-Module "C:\Program Files\EqualLogic\ImportKIT-CLI.dll"
```

List supported arrays

Shows all the arrays supported for import.

Format

```
Get-ImportKit-ImDsmSupportedArrays
```

Example

```
> Get-ImportKit-ImDsmSupportedArrays

VendorID  ProductID         ProductName
--------  ---------         -----------
EQLOGIC   100E-00           EqualLogic
DellEMC   PowerStore        PowerStore
DGC       VRAID             VNX2
DGC       RAID 5            VNX2
```

Host plugin log information

Shows the location and log-level of the host plugin log. Valid log-levels are:

- 0 – No log
- 1 – Error
- 2 – Error and Info
- 3 – Error, Info and Verbose

Format

```
Get-ImportKit-LoggingInfo
```

Example

```
> Get-ImportKit-LoggingInfo

LofileLocation                                      Loglevel
--------------                                      --------
C:\ProgramData\DELLEMC\log\ClusterNode-2_DC_ha.log 2 , Error & Informational
```

Import kit version

Shows the version of the different components of the Import Kit.

NOTE: The ImportKit certificate must be installed before running this command.

Format

```
Get-ImportKit-Version
```

Example

```
> Get-ImportKit-Version

HostAgentService HostAgentLibrary HostAgentCLI DSM_MPIODriver
---------------- ---------------- ------------ --------------
 1.0              1.0              1.0          4.5.0.9859
```

Restart import kit host plugin service

Restarts the Windows host plugin service.

NOTE: Do not run this command when an import session is in progress.

Format

```
Restart-ImportKit-HAService
```

Example

```
> Restart-ImportKit-HAService

ResultingString
---------------
ImportKITHAService restarted successfully.
```

Import volumes information

Shows details of a list of volumes or the details of a specific volume associated with the import kit. Valid values are:

- `NOT IN IMPORT`
- `IN IMPORT`
- `IMPORT DONE`

Format

```
Get-ImportKit-Volumes <options>
```

Options

Option	Description
`| Format-Table`	Shows information in table form.
`-VolumeName`	Shows information for a specific volume.

Examples

```
> Get-ImportKit-Volumes

VolumeID     : 64ed2a75990a0d1738cd15b3ff0480eb
```

```
VolumeName   : ps-volumes-20
Size         : 1085276160 Bytes
SourceArray  : PS
ImportStatus : NOT IN IMPORT

VolumeID     : 64ed2a75a96a0d016bc3f52d3ee8491a
VolumeName   : ps-volumes-21
Size         : 1085276160 Bytes
SourceArray  : PS
ImportStatus : NOT IN IMPORT
```

```
> Get-ImportKit-Volumes -VolumeName ps-volumes-21

VolumeID     : 64ed2a75990a1d1738cd35b3ff04f07b
VolumeName   : ps-volumes-21
Size         : 1085276160 Bytes
SourceArray  : PS
ImportStatus : NOT IN IMPORT
```

```
Get-ImportKit-Volumes | Format-Table

VolumeID                         VolumeName    Size           SourceArray ImportStatus
--------                         ----------    ----           ----------- ------------
64ed2a75990a0d1738cd15b3ff0480eb ps-volumes-20 15728640 Bytes PS          NOT IN IMPORT
64ed2a75990a1d1738cd35b3ff04f07b ps-volumes-20 15728640 Bytes PS          NOT IN IMPORT
64ed2a75a96a0d036bc3252e3ee8f99a debperf57     15728640 Bytes PS          NOT IN IMPORT
```

Get Web server port information

Shows the Web server port used, network adapter in use, and list of the available network adapters.

NOTE: The list of available network adapters can be large, Powershell automatically truncates the list in the output. To see the complete list, run the following command in Powershell:

```
$FormatEnumerationList = -1
```

Format

`Get-ImportKit-WebServerPort <options>`

Options

Option	Description
`| Format-List`	Shows information in list form.

Examples

```
> Get-ImportKit-WebServerPort | Format-List

WebServerPortUsed              : 8443
NetworkAdapter                 : *.*
Available_AdaptersORInterfaces : {[ETHERNET] 10.0.0.1 [Microsoft Hyper-V Network
                                 Adapter], [ETHERNET] 10.11.0.117 [Microsoft Hyper-V
                                 Network Adapter #2], [ETHERNET] 10.11.0.118
                                 [Microsoft Hyper-V Network Adapter #3], 10.254.1.113
                                 [Microsoft Failover Cluster Virtual Adapter]}
```

Install import kit certificate

Installs certificate in the host. Certificate installation in the host is required for the import kit CLI to run.

Format

```
Install-ImportKit-Certificate
```

Example

```
> Install-ImportKit-Certificate

ResultString
------------
Certificate installation was done successfully.
```

Re-generate the import kit certificate

During installation, the host plugin generates a self-signed HTTPS certificate and uses it for secure communication. In specific instances, such as host IP address, name, or port changes, or when the certificate expires, the certificate needs to be re-generated using the `Invoke-ImportKit-CertificateRegeneration` command.

NOTE: Do not run this command when an import session is in progress. This command restarts the ImportKit host plugin service. To do a subsequent import operation, you must delete the associated host on the **Hosts & Host Groups** page under **Compute** in PowerStore Manager, and then add the host again.

Format

```
Invoke-ImportKit-CertificateRegeneration
```

Example

```
> Invoke-ImportKit-CertificateRegeneration

ResultString
------------
Certificate Regeneration done successfully.
```

Set Web server port information

Changes the IP address or port number, or both.

NOTE: Do not run this command when an import session is in progress. This command restarts the ImportKit host plugin service.

Format

```
Set-ImportKit-WebServerPort <options>
```

Options

Option	Description
`-IP <IP address>`	The specified IP address must be from the list of available adapters.
`-Port <port number>`	The specified port can be any permissible numeric number (0 - 65536).

Examples

```
> Set-ImportKit-WebServerPort -IP 10.0.0.1

Resultstring
------------
IP is changed successfully.
```

```
> Set-ImportKit-WebServerPort -Port 8443

Resultstring
------------
Port is changed successfully.
```

```
> Set-ImportKit-WebServerPort -IP 10.0.0.1 -Port 8443

Resultstring
------------
IP and Port are changed successfully.
```

Set host plugin logging debug log level

Sets the debug level for the host plugin logging.

Format

`Set-ImportKit-LoggingInfo <options>`

Options

Option	Description
`-debugLevel <log level>`	Valid debug log levels are: • `0` - No log • `1` - Error • `2` - Error and Info • `3` - Error, Info, and Verbose

Example

```
> Set-ImportKit-LoggingInfo -debugLevel 1

ResultString
------------
```

```
Registry Key is updated successfully to value = 1
```

D

Import-CLI (VMware)

The Import-CLI is a set of commands available to list information about devices being imported. It enables Info-level logging to host plugin and Storage Array Type Plugin (SATP) components.

This appendix contains the following information:

Topics:

- List log levels
- List volumes
- Revert SATP, VAAI, and PSP to default settings
- equalRule options

List log levels

Import-CLI command for EQL HIT Kit package. Shows the log level that is set for host plugin and SATP components.

Format

```
esxcli import loglevel list
```

Example

```
# esxcli import loglevel list
SATP Log Level: Error,Warning,Info
Info Log Level: 0
HA Log Level: Warning
```

List volumes

Import-CLI command for EQL HIT Kit package. Shows the volumes claimed by SATP for import.

Format

```
esxcli import {volume list [-d <NAAID_of_source>]}
```

Options

Options	Descriptions
`-d <NAAID_of_source>`	Specifies the NAA ID of the source volume.

Example

```
# esxcli import volume list
```

The following information appears for each volume in the list:

- `SourceVolumeNAAID` – Unique identifier for the source volume considered for import. For example,

  ```
  naa.68fc61066c31fd6e37c28532f36f1de8
  ```

- `SourceVendor` – Vendor identification (VID) of the source array. For example,

  ```
  EQLOGIC
  ```

- `Size` – Appears in GB. For example,
- ```
  11.00G
  ```

- `ImportStatus` – The state of the volume, which can be one of the following:
  - `Not Applicable` (device has not been selected for import)
  - `Import In Progress`
  - `Cancel Completed`
  - `Import Completed`
- `InternalNAAID` – The PowerStore volume NAA ID under import or for volumes whose import is complete.

Revert SATP, VAAI, and PSP to default settings

NOTE: Import-CLI command for EQL HIT Kit package. This command is applicable to the Dell EqualLogic Peer Storage (PS) series and should only be run before the volume is selected for Import.

Reverts the SATP, VAAI, and PSP of Dell EqualLogic PS volumes claimed by DellEMC SATP (DellEMC_IMPORT_SATP, T10 Identification VAAI, and VMW_PSP_RR) to VMW_SATP_EQL, VMW_VAAIP_EQL, and DELL_PSP_EQL_ROUTED, respectively.

Format

```
esxcli import {changeToDefault [-d <NAAID_of_source>]}
```

Options

Options	Descriptions
`-d <NAAID_of_source>`	Specifies the NAA ID of the source volume.

Example

```
# esxcli import changeToDefault -d naa.64ed2a75493a4a1b5abb45508ae779c6

SATP,VAAI and PSP VAAI set to VMW_SATP_EQL,VMW_VAAIP_EQL,DELL_PSP_EQL_ROUTED respectively
Reboot the host to apply the set claimrules
```

equalRule options

The Import-CLI command equalRule options for the EqualLogic SATP rules allow you to do the following:

- Add SATP rules to the host.
```

- List SATP rules.
- Remove SATP rules from the host.

Format

```
esxcli import equalRule add
esxcli import equalRule list
esxcli import equalRule remove
```

Example

```
# esxcli import equalRule list
DellEMC_IMPORT_SATP EQLOGIC 100E-00 user VMW_PSP_RR All EQL ArraysDellEMC_IMPORT_SATP
DellEMC PowerStore user VMW_PSP_RR iops=1 All PowerStore Arrays
```

E

CLI for EQL MPIO

EHCMCLI is an existing utility that is provided for the host administrator to check EQL MPIO specific details. These CLI commands show import specific details such as volume information, logging information, the installed version of the EQL MPIO, and such.

This appendix contains the following information:

Topics:

- Status
- Host plugin version
- Server port information
- Log information
- Microhttpd status
- Restart the Web server
- Recover device

Status

Dumps the current multipathing status. If selected --importable, information for only importable volumes appears.

Format

```
ehcmcli status <options>
```

Options

Option	Description
-v|--verbose	Show extra information.
--importable Display	Show information only for importable volumes.

Example

```
# ehcmcli status
============================================================
Volume list
============================================================

Volume: test
 Target name: iqn.2001-05.com.equallogic:4-52aed6-21665a597-cef220441085da70-test
 Status: Normal: Logging out
 Resolution: If this situation persists, attempt a logout of the target manually
as follows:  iscsiadm -m target -u -T iqn.2001-05.com.equallogic:4-52aed6-21665a597-
cef220441085da70-test
 Volume Size: 0.40 GB
 Import Status: READY FOR IMPORT
 Session: 44    /dev/sdr   10.11.179.40   ->    10.11.181.7   04:17:04
 Session: 45    /dev/sds   10.11.179.39   ->    10.11.181.7   04:17:03
```

Host plugin version

Shows the current version of the host plugin that is installed.

Format

```
ehcmcli version
```

Example

```
ehcmcli version

Version 1.7.0 Build 469794
```

Server port information

Shows the server port that is used for communication and provides the option to change it to a different port.

NOTE: The server port should not be changed while import is in progress on the host. When the server port has been changed, delete the associated host under hosts and host groups on the **Compute** page of the PowerStore Manager and then add the host again.

Format

```
ehcmcli server_port {change [port_num]}
```

Options

Option	Description
`change` *<port number>*	Changes the server port to *<port_num>*. Valid values are: • 8443 • 50443 • 55443 • 60443

Examples

```
Generating diagnostic data, please wait...
    Server port : 8443
```

```
ehcmcli server_port change 55443
    Generating diagnostic data, please wait...
      Server port : 55443
```

Log information

Shows the location and log-level of the host plugin log.

Format

```
ehcmcli log_show
```

Example

```
ehcmcli log_show

Generating diagnostic data, please wait...
     Log Level: 2
     Log Location: /var/log/equallogic
```

Microhttpd status

Shows microhttpd status.

Format

```
ehcmcli mhd_status
```

Example

```
ehcmcli mhd_status
Generating diagnostic data, please wait...

Microhttpd Status: ACTIVE
```

Restart the Web server

Restarts the Web server in case of microhttpd failure.

NOTE: Use this command only if the Micro-http deamon (MHD) is inactive. Status of the MHD can be verified using the `ehcmcli mhd_status` command. When the `restart_webServer` command runs successfully, MHD becomes active. Also, the Web server should not be restarted while import is in progress on the host. Contact Dell support before using this CLI command.

Format

```
ehcmcli restart_webServer
```

Example

```
ehcmcli restart_webServer
Generating diagnostic data, please wait...
Server port : 8443
```

Recover device

Recovers the specified device which remains in a bad state due to an internal error during the import process.

NOTE: Contact Dell support before using this CLI command.

Format

```
ehcmcli recover_device <device_WWID>
```

Example

```
ehcmcli recover_device 6006016011404000a331505c1bd8223b
Generating diagnostic data, please wait...

Recovered device successfully!
```

F

Fault handling by PowerStore import

This appendix contains the following information:

Topics:

- Import processing and fault handling overview
- Import network overview
- Import alerts and error codes
- Failures during non-disruptive import
- Failures during agentless import
- Consistency group handling
- Configuration changes during import
- Application integration software

Import processing and fault handling overview

Import copies the source volume content to PowerStore volumes in the back end while continuing host I/Os. For non-disruptive import, it does this without any interruptions. For agentless import, a one time host application downtime is required prior to the migration. Given the sensitive nature of this operation, a few run-time checks are made before starting the import process. These checks help avoid failures in the import process. If any of these prechecks fail, import fails to start without host I/O impact. You are advised to rectify the issues and retry the import. Sometimes a simple retry may also lead to a successful import but depends on the nature of the failure encountered.

Non-disruptive import fault handling overview

It is still possible that the import runs into a failure during run-time, after the import process starts. If any such failure occurs during import processing, internal cancel of import occurs and the I/Os are redirected back to the source. This action is taken to ensure that host I/Os go on uninterrupted. After resolving the failure reason or reasons, you can retry the import.

You are also given an option to cancel the import and go back to the source. This option is also designed to work without any impact to ongoing host I/O. However, here also, it is expected that all the network connections are live for cancel to succeed. For example, if host loses the SAN path to source volumes midway during import, an ongoing import operation is not impacted. There is no impact because the I/Os are going to the destination (PowerStore) volume. The paths from the host to source volume are not used. However, if you attempt a cancel operation in this situation of the host not having live SAN paths to the source volumes, it will fail.

Depending on the load, the timing of path failure, and configuration, cancel operations can take a long time before timing out. Cancel operations can also cause stop responding like situations that impact host I/O. You are expected to ensure that these connections are up before attempting the cancel. If the connections fail unexpectedly, manual intervention is required to ensure the paths from host to source volumes are working. Based on the duration and nature of these network failures, either retry canceling import or a cleanup operation may be required to fully recover.

Agentless import fault handling overview

If the import runs into a failure during run-time after the import process starts, the import state changes to Cancel Required. Shutdown the host application and reconfigure it to access the source volume and cancel the import. After resolving the failure reason or reasons, you can retry the import.

Import network overview

Import from source volume to PowerStore depends on several components. One of the most important components is network connections. These connections are:

1. SAN path1: The front-end from the host to the PowerStore cluster. The PowerStore cluster is the destination and good and steady network connectivity from the host to the destination is mandatory. Both Fibre Channel (FC) and iSCSI are options for this segment and must be the same as what the host has towards the source system.
2. SAN path2: The back-end from the PowerStore cluster to the source system. This connection is used for data transfer from the source volume to the PowerStore cluster. Here again, good and steady network connectivity is mandatory. Only iSCSI is supported.
3. SAN path3: The front-end connection from the host to the source system. For this segment, both FC and iSCSI are options and the protocol must be the same as what the host has towards the PowerStore cluster. This connection can be removed from the source system once all the volumes for this host have been imported.
4. Control path1 (IP): PowerStore must have a management path connection to the source system for the management commands.
5. (For non-disruptive import only) Control path2 (IP): the PowerStore cluster must have a management path connection to the host or hosts involved. The PowerStore cluster import orchestrator uses this connection to communicate with the host or hosts.

All these network connections must be established before starting the import and they must be working well for import and cancel to be successful. Also, it is highly recommended that the connection from the PowerStore cluster to the source array be a high-speed network with redundant connections. Also, both systems should be within a short distance of each other to minimize network latency issues.

Import alerts and error codes

When an import operation fails, the error message indicates the nature of the problem to help you resolve the issue. If you attempt to recover from a failure and do not succeed, the error messages include a numeric code for reference. This code is provided to help your service provider quickly resolve the issue. In certain types of failures, along with error messages, the PowerStore cluster generates import alerts.

Two categories of alerts are generated: critical and minor. Critical alerts are generated for situations that require manual intervention and, for non-disruptive import, automatic recovery has failed some reason. For example, the source system went down while a background copy from the PowerStore cluster was occurring. The import fails because the PowerStore cluster is not able to reach the source volume in the SAN path. Also, the subsequent automatic cancel does not fully succeed because the host could not reach the source system and the source volume could not restore back to its normal state. To recover, bring the source system back up, do any required cleanup, and try the import again. Minor alerts are generated when user intervention is not required but some operation has failed. For example, the import failed because the host did not have the appropriate connections to the destination volume. However, automatic recovery occurred and I/Os were redirected back to the source volume without I/O impact. Resolve the error, and retry the operation.

Failures during non-disruptive import

Some failures might be intermittent in nature, for example, due to the load of the system or network. Usually, if the import attempt is not successful, the I/Os are not affected and they continue with the source volumes. A simple retry of import suffices for them. Sometimes, the resolution of network or load issues is required before retrying the import. When an import fails, the error message attempts to indicate in simple words to the end user what went wrong without getting too technical. If repeated attempts fail or, if the message is not helping, or both, contact your service provider.

Single fault

Any single fault in the middle of an import is handled without any impact to host I/Os as described in the following examples:

- If the destination loses the back-end connection with the source system in the SAN path during a non-disruptive import, the import is automatically canceled by the PowerStore import orchestrator. I/Os from the host are redirected back to the source. In most situations, this process occurs without any I/O disruption. However, the import fails and must be retried after you fix the SAN paths from the PowerStore cluster to the source system.

- If one of the source SPs reboots but the surviving SP can service the source volume, both import and I/Os continue without any impact.

Depending on the nature of the fault, the import orchestrator handles them so that there is minimum impact on the host I/Os. In all these cases, error messages, or alerts, or both describe the issue to the user.

Based on system load, it is possible that the errors between the PowerStore cluster and the source network result in I/O errors to a user application, even when an automatic cancel occurs. For such rare cases, user intervention may be required to restart the I/Os to the source volumes. If the problem persists, contact your service provider for resolution.

Source disaster recovery

If the source system has a disaster recovery (DR) incident in which it becomes entirely unreachable during import, the following applies:

- If a different host is used in the DR site for recovery, then the existing source system-specific DR procedure should work. The import-specific states are only for the primary site system volume. These states have no bearing on the system volume of the secondary or DR sites.
- If the same host is used to run the applications when the primary system is impacted in a disaster, then the following applies:
  - When the primary (source) system fails, the import process initiates an automatic cancel operation. Check whether the automatic cancel is successful. Once this operation successfully completes, continue with the source-specific DR recovery procedure.
  - If automatic cancel was not successful, for example, it failed due to network connectivity issues, then additional steps might be required based on the failure. The recovery steps are specific to the error. Contact your service provider for more information about recovery.
  - EqualLogic PS system have some limitations which affect DR during import. Contact your service provider for resolution.

Double fault

Double faults are defined as two separate fault events happening around the same time, such as the ones in the following examples:

- Paths from the host to the source go down and, around the same time, the connection between the PowerStore and the source system also go down.
- Both SPs of the source system go down during import.

For such rare case double faults, recovery is not fully automatic and manual intervention is needed. The recovery depends on the specific fault condition. Contact your service provider for resolution.

A single problem may manifest as a double fault where the recovery needs some manual intervention. For example, if the source system or volume goes out-of-service (for example, a source volume goes offline) during import, this problem manifests as a double fault. First, the import fails because PowerStore is not able to reach the source volume in the SAN path. The subsequent automatic cancel does not fully succeed since the host is not able to reach the source volume, it is offline. To recover, repair the source volume state, do any required cleanup, then try the import again.

NOTE: This error, which is due to a source volume going offline, results in data being unavailable temporarily, even when import is not occurring.

PowerStore is a dual-node, multiappliance scale-out cluster. Typically, most failures in data unavailable are not fatal and handled by the inherent PowerStore cluster high availability design. The import orchestrator runs inside the PowerStore appliance and so the orchestrator is as highly available as PowerStore itself.

However, should there be an extreme case where a PowerStore cluster goes down during import before cutover, an option exists to recover and go back to the source system. Until this recovery, data is temporarily unavailable. The general idea is that you must do some manual intervention at the source system to clear the migration-specific states and then run the host platform-specific steps. Contact your service provider for such a recovery.

If an entire appliance is down, both nodes of the appliance are down. However, in a multiappliance cluster, ongoing imports continue in other running appliances. The imports, for which the destination volume is on that specific appliance which is down, get stalled. It is recommended that the appliance be brought up first before trying to cancel this stalled session.

Exception case

Most times, in cases of a single failure, such as a PowerStore node failure during import with host I/O, both import and I/Os are not impacted. The other node takes over. In rare cases, if import is not able to continue due to such failures, automatic cancel occurs and I/Os are redirected back to the source volume.

Sometimes, the node recovery time might be long and host I/Os might experience latency issues. In worst cases, the I/O timeout expires, leading to temporary data unavailability. Recovery for such cases occurs once the node that went down recovers fully.

If the node cannot reboot or the recovery of the node is taking too long, an option exists to go back to the source. Do a **force cancel** of the import. Some manual intervention may be required at the host side that is based on the I/O load and platform. After the host recovery step, I/Os can resume at the source again. Once the PowerStore node has recovered and PowerStore cluster is healthy, you can attempt imports again. If you run into a problem in this procedure, it is recommended that you contact your service provider.

Host reboot during a non-disruptive import

An unplanned host reboot during import is possible. In the case of a non-disruptive import, the import process handles this case. If the import has progressed beyond the cutover step, import continues. If it has not, the import rolls back, which means the import gets automatically canceled and I/Os continue go to the source. These actions apply to both stand alone and host clusters. I/O failures may occur due to the host reboot, which is more likely in the stand-alone host case since, in the host-cluster case, the surviving node takes over. However, I/O failures may occur even without any ongoing import sessions.

It is possible that in some configurations, for example, iSCSI, the automatic login is not enabled. Also, the host to source SAN paths, as described in Import network overview on page 65, are not live after reboot. In such cases, this connection must be set up before cancel can be initiated. However, imports may continue because these SAN paths are not used during import. For example, in a Windows-based host with iSCSI connections, you must enable the **option to add the connection to favorite targets** to ensure that the iSCSI connections are reestablished after any reboot.

Failures during agentless import

Some failures might be intermittent in nature, for example, due to the load of the system or network. Usually, if the import attempt is not successful, the I/Os are not affected and they continue with the source volumes. A simple retry of the import should suffice. Sometimes, the resolution of network or load issues is required before retrying the import. When an import fails, the error message attempts to indicate what went wrong without getting too technical. If repeated attempts to resolve the issue fail, contact your service provider.

If the destination loses back end connection with the source system in the SAN path during an agentless import, the import changes to the `Cancel Required` state. It is possible that the errors between the PowerStore cluster and the source network result in I/O errors to a user application. When import changes to the `Cancel Required` state, an alert is raised to reconfigure the user application to use the source volume. After reconfiguring the user application to use the source volume, cancel the import session manually. Import can be retried after the SAN paths from the PowerStore cluster to the source system issues are resolved.

PowerStore is a dual-node, multi-appliance scale-out cluster. Typically, most failures are not fatal and are handled by the inherent PowerStore high availability design. The import orchestrator runs inside the PowerStore appliance and is as highly available as the PowerStore appliance. However, should there be an extreme case where a PowerStore cluster goes down during import before cutover, reconfigure the user application back to the source system. If the entire appliance is down, both nodes of the appliance are down. However, in a multi-appliance cluster, ongoing imports continue in other running appliances. The imports, for which the destination volume is on that specific appliance which is down, stall. In this case it is recommended that the appliance be brought up first before trying to cancel the stalled session.

In case of a PowerStore node failure during import, both import and I/Os are not impacted. The other node takes over. If import is not able to continue, it changes to the `Cancel Required` state. When import changes to this state, an alert is raised to reconfigure the user application to use the source volume. After reconfiguring the user application to use the source volume, cancel the import session manually.

Sometimes, the node recovery time might be long and host I/Os might experience latency issues. In worst cases, the I/O timeout expires, leading to temporary data unavailability. If the node cannot reboot or the recovery of the node is taking too long, reconfigure the user application back to the source array. Recovery for such cases occurs once the node that went down

recovers fully. Once the PowerStore node has recovered and PowerStore is healthy, try importing again. If the issue persists, contact your service provider.

Consistency group handling

PowerStore import supports import of Consistency Groups (CGs) from the source systems. At a CG level, either the import succeeds for all the volumes in the CG or, if any volume fails, the import fails for all of them. However, in rare situations, it is possible that the rollback fails for one of the volumes. In those situations, CGs end up in a `clean-up required` state. This cleanup of the CG must be done after resolving any faults, such as network issues, and then import can be attempted again. Depending on the fault, a manual host-side recovery may be required.

In extreme cases, such as a source SP reboot or source shutdown around the commit window, it is possible that some volumes are committed and some are not. For such rare cases, the source CG must be split, and the individual volumes imported. After import, the volumes can be added to a PowerStore volume group.

Configuration changes during import

It is not advisable to make any configuration changes to source volumes and the hosts once PowerStore import is set up. For a simple change, such as a volume size change, refresh of the host from the orchestrator is preferred. However for other changes, such as CHAP settings, it is preferred that you make them before setting up the import. If such changes are inevitable, the following steps should be followed:

1. Remove the hosts from the PowerStore cluster. This removal is not the removal of the import host but removal of the generic host from the PowerStore cluster. This removal ensures that the host entry is cleaned up in both the PowerStore cluster and in the import orchestrator.
2. Remove the source system from the import orchestrator.
3. Make the necessary configuration changes in the host, or source system, or both.
4. Based on the platform, a reboot of the host may be required.
5. Add the source system to the import orchestrator.
6. Add the host or hosts to the import orchestrator.

   NOTE: It may be necessary to clear some stale entries in the host.

After these steps, you can start to import volumes or CGs. It is preferred that no configuration changes are made once the import setup is done. Also, these changes should be avoided until after all imports are complete. It is also possible that, based on the type of change, not all the steps may be required. The above procedure is provided to cover all the cases.

If the PowerStore cluster SAN IPs are changed, removing and re-adding the hosts suffices. Removal and re-adding the source systems is not necessary. In this example, it may be essential to clean up some stale entries on the host so that the new IPs are effective without source system impact. If the changes involve some CHAP settings for the source volume, that would impact everything, the host access and the PowerStore cluster access. In this case, you must remove and then re-add both the hosts and the source system. The procedure varies depending on what is changed. If you are unsure, it is recommended to do the entire procedure. As a best practice, any configuration change should be avoided once import has been set up.

Application integration software

It is possible that the source volumes are managed with application integration software, such as VSM for EqualLogic volumes, in VMware environments. It is recommended that once import is done, PowerStore specific plug-ins, for example, VSI plug-in for PowerStore, are used. Users stop managing the source volumes with source system-specific plug-ins.