

Dell EMC PowerStoreOS Release Notes

This document describes the changes in this release of PowerStoreOS.

Current Release Version: 3.2.0.1 (Build: 1860013)

Release Type: Patch (P)

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Revision history

Table 1. Revision history

Document revision	Date	Description
A00	November 2022	Initial release version 3.2.0.1 (Build: 1860013)
A01	January 2023	Added MDT-457645 to Known issues and updated the Installation and upgrade considerations section

Product description

The ground-breaking Dell EMC PowerStore achieves new levels of operational simplicity and agility, utilizing a container-based architecture, advanced storage technologies, and intelligent automation to unlock the power of your data. Based on a scale-out architecture and hardware-accelerated advanced data reduction, PowerStore is designed to deliver enhanced resource utilization and performance that keeps pace with application and system growth. Utilizing the proven capabilities of VMware ESXi, PowerStore X models with AppsON provide the unique ability to host data-intensive and storage applications directly on the PowerStore system with a storage-based virtualization environment, with the flexibility of seamless movement of applications between the storage system and external VMware servers. PowerStore T models provide organizations with all the benefits of an enterprise unified storage platform for block, file and vVol data, while enabling flexible growth with the intelligent scale-up AND scale-out capability of appliance clusters.

Highlighted features include:

- All NVMe Platform:
 - Active-Active architecture
 - Container based PowerStoreOS
 - Block, File, and vVols
 - NVMe Flash and Storage Class Memory (SCM) media support
 - Front End Connectivity:
 - FC: 32 Gb NVMe-FC, 32/16/8 Gb FC
 - Ethernet: 25/10 GbE, NVMe-TCP: 25/10 GbE iSCSI and File
 - Compact 2U starting form factor
- Enterprise Data Services and Data Reduction:
 - Inline dedupe and compression
 - Native async replication
 - Snapshots and space efficient thin clones
 - Advanced drive failure protection and sparing technology
- Simple and intelligent Management and Serviceability:
 - Embedded management
 - Built in AI for simple, autonomous storage administration and proactive health analytics
 - CloudIQ
 - VM Visibility
 - New Anytime Upgrade Program
 - Integration with automation framework
- Flexible and Granular Scalability:
 - Scale up in single drive increments, up to 4.7 PBe per appliance
 - Scale out to four appliances, up to 18.8 PBe per cluster
 - Scale down
- VMware:
 - VMware vVols 2.0/VASA 3.0 support
 - New AppsON hypervisor-based deployment, allowing to run Virtual Machines on the same appliance as storage without the need for an external server

Table 2. PowerStore deployment models and configurations

Deployment model	Model numbers	Supported configurations
PowerStore T	500, 1000, 1200, 3000, 3200, 5000, 5200, 7000, 9000, and 9200	<p>Storage-centric deployments.</p> <p>Both block (storage area networks (SAN)) and file (network attached storage (NAS)) services are supported with PowerStore T deployments.</p> <p>NOTE: Hypervisor deployments are not supported on this model.</p>
PowerStore X	1000, 3000, 5000, 7000, and 9000	<p>Application and storage-centric deployments.</p> <p>Block (SAN-only) storage services with a hypervisor layer installed on the system. The system software is deployed on the hypervisor, which enables deployment of virtual machines (VMs) and customer applications within the hardware.</p> <p>NOTE: File (network attached storage (NAS)) services are not supported on this model.</p>

See the PowerStore product support pages (<https://www.dell.com/support>) for detailed user documentation.

Resolved issues

The following issues have been resolved in this release:

Table 3. Resolved issues in PowerStoreOS 3.2.0.1

Issue ID	Functional area	Description
MDT-470636	Install or Upgrade	The license that is installed on a PowerStore cluster is removed and replaced with a 90-day evaluation license after performing an NDU from PowerStoreOS 3.0.0.1 to PowerStoreOS 3.2.
MDT-470645	Install or Upgrade	If a PowerStore X model appliance running PowerStoreOS 2.1.1 is using a vSphere 7 Enterprise Plus for Embedded OEMs license, performing an NDU to PowerStoreOS 3.2 may cause the appliance to lose that license.
MDT-471078	SupportAssist	Enabling Support Connectivity (SupportAssist) may fail on a PowerStore cluster after it has been reinitialized to factory settings.

Known issues

For a list of the minor issues, see Dell Knowledge Base Article Number 000155626: PowerStore: PowerStore Release Notes - Minor Issues.

The following high severity issues are reported in this release:

Table 4. Known issues in PowerStoreOS 3.2.0.1

Issue ID	Functional area	Description	Workaround/Solution
MDT-431035	Connectivity - Hosts	When users configure a metro host as a uniform host, they must configure the host on both metro clusters. If one host is left partially configured or is already configured on one metro cluster, ESXi may report inconsistent path states.	Complete the configuration of the host on both metro clusters.
MDT-367147	Connectivity - Hosts	When Windows clustered hosts are attached to a multi-appliance PowerStore cluster, if its LUNs are migrated from one appliance to another, do not migrate the LUNs back to the original appliance unless the hosts are rebooted prior to the migration back.	Avoid migrating LUNs back and forth between the appliances.
MDT-273055	Connectivity - Hosts	A user can view internal host and volume mappings using PowerStore Manager but cannot perform mapping/unmapping.	Mapping/unmapping actions can be performed using the REST API interface.
MDT-239230	Connectivity - Hosts	Mounting a Storage Container fails when a host becomes unavailable.	Bring all hosts in the cluster back online and retry mounting the Storage Container. Alternatively, mount the Storage Container manually only to available hosts using the vSphere Client.
MDT-139488	Connectivity - Hosts	XCOPY operations can impact host I/O performance.	None
MDT-430878	Connectivity - Networks	Changing the network IP protocol from IPv4 to IPv6 or IPv6 to IPv4 in the Management Network Reconfiguration (MNR) wizard may fail if an NTP server is configured using a Fully Qualified Domain Name (FQDN). The error message that is displayed is "The following NTP server addresses are invalid: 'NTP_SERVER_FQDN'. (0xE0E400701002)".	NTP servers must be configured using an IP address instead of an FQDN. For further details, see Dell Knowledge Base Article 000201823: PowerStore: Management Network Reconfiguration does not validate NTP server provided as FQDN when changing IP protocol version.
MDT-396403	Connectivity - Networks	vCenter Server connectivity to an ESXi host on a PowerStore X cluster may be lost when the host is rebooted while the management network is reconfigured.	Contact your service provider for instructions to manually restore vCenter Server connectivity to the ESXi host.

Issue ID	Functional area	Description	Workaround/Solution
MDT-386816	Connectivity - Networks	Changing network port mappings may take longer than expected on a PowerStore X cluster running PowerStoreOS 2.1.1 or later after reconfiguring the IP protocol version of the management network.	None
MDT-375772	Connectivity - Networks	Creating a cluster may fail if the internal communication (ICM) port fails on a single node.	Contact your service provider for assistance.
MDT-366353	Connectivity - Networks	In rare cases, adding an appliance to a cluster fails with a "General error in networking vSphere integration service" error, when the appliance being added is only connected to two mezzanine ports and/or the link speed of the ports differs from link speed of the existing appliances in the cluster.	Provide all four mezzanine port connections with links speed equal to the existing appliances and repeat the add appliance procedure.
MDT-348041	Connectivity - Networks	When reconfiguring the default Storage network for a PowerStore X cluster, the operation can fail due to an interference with the vVol access by vSphere services that block the management actions that are performed by the reconfiguration procedure.	<ol style="list-style-type: none"> 1. Disable vCLS (vSphere Cluster Services) on the vSphere cluster. 2. Disable vSphere HA. 3. Unmount the PowerStore vVol datastore from the ESXi hosts. 4. Reconfigure the Storage networks to the correct settings. 5. Create the PowerStore vVol Datastore if missing. 6. Mount the datastore to the cluster hosts. 7. Enable vSphere HA. 8. Enable vCLS. 9. Wait 5 to 10 minutes before doing any other network reconfigurations.
MDT-272385	Connectivity - Networks	Large amounts of external IPv6 traffic exposed to Ethernet ports can cause iSCSI performance degradation.	To avoid the problem, use separate VLANs for Storage networks and networks that contain a lot of non-storage related IPv6 traffic. Also, route management VLANs and other VLANs with large amounts of IPv6 traffic to dedicated storage ports.
MDT-211358	Connectivity - Networks	PowerStore Discovery IP by Zeroconf technology stopped advertising.	<p>Perform one of the following actions to work around this issue:</p> <ul style="list-style-type: none"> • Wait a few minutes for the state of the system to change and try again. • Reset a drive, mezzanine card, or I/O module if available and wait for few minutes and try again, and then reboot the primary node.
MDT-240072	Data Collection	Uploaded data collections can be duplicated on massive file transfers.	Ensure that you take the largest of the duplicated data collections.

Issue ID	Functional area	Description	Workaround/Solution
MDT-455625	Data Protection	An unexpected metro volume configuration may be encountered when using a PowerStore X model cluster as a remote system. PowerStore X model clusters do not support metro volume configurations in PowerStoreOS 3.2.	Contact your service provider for assistance with editing the remote system database table to remove the PowerStore X model cluster.
MDT-438935	Data Protection	When multiple remote systems are connected to a PowerStore cluster, reconfiguring the NAS Mobility Network (NMN) after performing a Management Network Reconfiguration (MNR) might fail with the Data Path (DP) network error "Modify cluster IP of dpNetwork: {dpNetworkID} failed" when one of the remote systems is not responding.	Resolve the issue with the remote system that is not responding or continue to use the other remote systems that are responding.
MDT-416804	Data Protection	An end metro volume operation may take longer to complete when it is issued on the remote end during self-heal sync of a metro session. The session eventually does complete successfully.	Pause the sessions and then perform the end metro volume operation.
MDT-414572	Data Protection	The status of replication sessions may be incorrect on the destination PowerStore cluster if the source PowerStore cluster is down.	See the Remote System related information and alerts on the destination PowerStore cluster for up-to-date details and suggested recovery steps.
MDT-359082	Data Protection	The replication rule filter on the Protection Policies page does not function properly.	Use the sorting option on the Replication Rule column to locate a specific remote protection policy.
MDT-322339	Data Protection	When moving the replication tag from one IP Port to another, existing replication session could enter "System Paused" state and result in an alert.	Follow the related corrective actions in the alert and run the "verify" operation on the associated configured remote systems.
MDT-316424	Data Protection	Customer network environment may drop jumbo frames or block them from being transmitted over the network. As a result, the status of a replication session can change to "System Paused" during the replication session synchronization.	Decrease cluster MTU size to 1500. In PowerStoreOS 2.0 and later, there is an option to configure specific ports for replication and set a dedicated VLAN with a different MTU. It is recommended to separate the replication ports and configure the MTU to 1500 for replication and keep MTU 9000 for the local area network.
MDT-312619	Data Protection	When replication IPs change, they are not automatically detected. As a result, the status of a replication session changes to "System Paused".	Run the "Remote System Verify" operation to update the connectivity matrix. The next synchronization cycle will update the replication IP addresses.

Issue ID	Functional area	Description	Workaround/Solution
MDT-309462	Data Protection	If the user pauses a replication session on the destination cluster during a non-disruptive upgrade (NDU) of the source cluster, a post-NDU state may occur where the source replication session is in "System Paused" state and the destination replication session is in "Paused" state.	Pause the replication session on the source cluster, where the session is in "System Paused" state, and then resume the replication session.
MDT-299182	Data Protection	In a large configuration, pausing or deleting a replication session may take longer when the session is queued for synchronization.	None
MDT-242915	Data Protection	When a replication destination cluster loses connectivity to the source cluster, the system issues specific alerts/events, but the state of the replication session may still display "Operating Normally". Admins should check the alerts that are issued by the remote system and resolve the connectivity issues to recover replication sessions.	None
MDT-220994	Data Protection	The replication session may not be deleted after a Protection Policy is unassigned from the storage resource.	To delete the replication session, do the following: <ol style="list-style-type: none"> 1. If Protection Policy is not assigned to the storage resource, reassign the same Protection Policy that was previously assigned to the storage resource. 2. Unassign the Protection Policy from the storage resource.
MDT-133408	Data Protection	When a volume group is created with member volumes and is protected by a protection policy that includes a replication rule, the volume group members may be delayed in being replicated to the remote system until the next recovery point objective (RPO) cycle. The default replication rule RPO value in PowerStore Manager is one hour, but it can range from five minutes to 24 hours.	If the remote system connection is healthy, the member volumes should automatically be replicated to the destination during the next RPO cycle. To update the member volumes on the destination cluster before the next RPO cycle, navigate to Protection > Replication, select the volume group session and perform a "Synchronize" operation.
MDT-333618	Discovery	In certain network environment configurations, the system is unable to discover unconfigured appliances through the network when using static IP addresses for appliance discovery.	The initial discovery of PowerStore appliances works with either the native Zeroconf-capable browser such as Bonjour or through the PowerStore Discovery Tool.
MDT-451707	Hardware	If a drive is removed and replaced with a new drive in less than 500 seconds, the new drive may fail to appear in PowerStore Manager because it is missing from the Data Path (DP) container.	When replacing a drive, wait 10 minutes after removing a drive before inserting a new drive.

Issue ID	Functional area	Description	Workaround/Solution
MDT-439758	Hardware	A healthy DIMM module in an NVMe expansion enclosure may be marked as missing/failed.	For more information and steps to avoid this issue, see Dell Knowledge Base Article 000204824 : PowerStore: A healthy DIMM module in an NVMe expansion enclosure may be marked as missing/failed.
MDT-362662	Hardware	A node may remain powered down after a reboot and require another reboot.	Reboot the halted node again.
MDT-362070	Hardware	After a dual node reboot, if one node comes up 120 seconds before the other node, the first node may reboot again to start auto-recovery.	None
MDT-289908	Hardware	A newly inserted drive may remain locked, causing the drive rebuild to time out.	Restart the primary node.
MDT-286236	Hardware	In rare cases, a node that has been powered off does not remain powered off.	Power off the node again.
MDT-263147	Hardware	If you add an appliance to a cluster when another appliance in the cluster is powered off, the add appliance operation fails.	None
MDT-190232	Hardware	The “svc_node shutdown” script may reboot the node instead of powering it off.	Run the “svc_node shutdown” script again when the node has finished rebooting.
MDT-117061	Hardware	When beginning cluster creation, the hardware status is incorrectly indicated as not configured for clustering.	Wait a few minutes and try again.
MDT-441856	Import	If text is added to the “Description” field when a Unified VNX system is added as a remote system for block-based import, modifying the remote system properties by changing the “Capability” setting from “Block” to “Unified” fails because of the text in the Description field.	Do not add text to the “Description” field when adding a Unified VNX system as a remote system for block-based import.
MDT-430742	Import	When importing data from PowerMax/VMAX remote systems to PowerStore, the discovery of storage resources on a PowerMax/VMAX remote system may fail if the remote systems have active Symmetrix Remote Data Facility (SRDF) sessions.	If any of the PowerMax/VMAX arrays are in SRDF relation with active SRDF sessions, import data from one array when both the SRDF source and target PowerMax/VMAX arrays are imported to the same PowerStore cluster. Add either the source or the target PowerMax/VMAX array to PowerStore cluster first. Then, complete the import and delete the first PowerMax/VMAX array before attempting to import data from the second array. Contact your service provider if you need assistance.

Issue ID	Functional area	Description	Workaround/Solution
MDT-356233	Import	The Inband Migration Tool (IMT) "Copy Progress Percentage" and "Estimated Completion Time" display an incorrect progress of 0% on the File Imports tab of the Import External Storage page in PowerStore Manager.	Use the REST API command <code>/file_import_session/{id}</code> to view the <code>current_operation_progress_percent</code> and <code>estimated_completion_timestamp</code> for a file import session. If needed, contact your service provider for assistance.
MDT-295614	Import	Performing a non-disruptive import using a Windows host plug-in may fail on a PowerStore cluster with multiple storage networks. If multiple storage networks are configured, all the iSCSI portals are returned on discovery, but iSCSI portal filtering is not supported by PowerStore.	Use one of the following workarounds: <ul style="list-style-type: none"> • If possible, remove all the storage networks except for the storage network on which the Windows host resides. • Perform an agentless import.
MDT-252560	Import	Import of a volume failed with the error "Import failed because the mirror service could not be enabled on the Destination volume".	Run the verify operation on the remote system to recover data connections. When the verify operation on the remote system completes successfully, retry the import operation.
MDT-461643	Install or Upgrade	Performing a Pre-Upgrade Health Check on a PowerStore cluster with NVMe expansion enclosures may fail with the error "pre fw upgrade state is FW_UPGRADED_NEEDED_NOT_AVAILABLE".	Check the status of the Access Modules (AM) on the expansion enclosures. If there are no alerts, retry the Pre-Upgrade Health Check. If the problem persists, contact your service provider for assistance.
MDT-457645	Install or Upgrade	Performing an NDU on a PowerStore cluster running PowerStoreOS 3.0 or later may cause call home alerts to be sent to Support.	Manually disable support notifications before performing the NDU. For instructions, see "Disable support notifications before performing a software upgrade" on page 21.
MDT-418998	Install or Upgrade	The PowerStore Quick Start Guide states that two Mini-SAS HD cables are included with the PowerStore Base Enclosure. As of May 13, 2022, the Mini-SAS HD cables are no longer provided with the PowerStore Base Enclosure.	The expansion enclosure cables are provided with the 25x2.5 SAS expansion enclosure.
MDT-417339	Install or Upgrade	A Pre-Upgrade Health Check on a PowerStore T model 500 appliance can fail with the error "failed_to_get_free_size" even when there is no underlying issue with space on the system	Rerun the Pre-Upgrade Health Checks.
MDT-401600	Install or Upgrade	If the Health Check package was uploaded on the PowerStore cluster before a new appliance was added to the cluster, the Health Check package is unable to run for the newly added appliance.	Install the same Health Check package again.

Issue ID	Functional area	Description	Workaround/Solution
MDT-397046	Install or Upgrade	If the ESXi host is rebooted outside of the Maintenance Mode between the ESXi upgrade and the PowerStoreOS upgrade from 2.0.x.x to 2.1.1.x, the PowerStore X model virtual machine (VM) fails to startup automatically, and the PowerStore X model VM requires manual recovery.	Contact your service provider for assistance.
MDT-346158	Install or Upgrade	If a drive failure occurs and the data path unexpectedly restarts during a failed PowerStore software upgrade, the DRE rebuild feature might become disabled, which prevents the PowerStore software upgrade from being retried.	Contact your service provider for assistance with reenabling the DRE rebuild feature on the PowerStore cluster.
MDT-337169	Install or Upgrade	NAS services might fail to start during the initial installation and configuration of PowerStore appliances or during a PowerStore software upgrade.	<p>If NAS services fail to start during the initial installation and configuration of PowerStore appliances, try to install NAS again as described in step 4 of Dell Knowledge Base Article 000130232: PowerStore: PowerStore Manager displays 'NAS Installation has failed' when trying to configure PowerStore appliance(s).</p> <p>If NAS services fail to start during a PowerStore software upgrade, contact your service provider for assistance.</p>
MDT-265301	Install or Upgrade	When performing a software upgrade on a PowerStore T model appliance running in Unified mode, the inter-node iSCSI connection might fail when one node is rebooted, which can cause the NAS to panic.	Allow NAS-HA to take care of uninterrupted NAS operations during a software upgrade. If data unavailability occurs after the software upgrade is complete, contact your service provider for assistance.
MDT-245165	Install or Upgrade	Each PowerStore appliance is pre-configured with an Administrator user (admin), which has a default factory password. The PowerStore Initial Configuration Wizard requires you to change this password. Once you have changed the admin user password, you must complete the cluster creation process using this appliance as the primary one. This appliance can no longer be configured as a non-primary appliance in a cluster, because only the primary appliance is permitted to have the non-factory default password.	Contact your service provider if you mistakenly change the password on an appliance and want it to be a non-primary appliance in a cluster.
MDT-156905	Install or Upgrade	After performing an NDU, the NAS servers may not fail back automatically to the original node.	Manually fail back the NAS servers using PowerStore Manager.

Issue ID	Functional area	Description	Workaround/Solution
MDT-135505	Install or Upgrade	Drive firmware updates may not get applied to a single drive or multiple drives within the appliance. This may occur because of a timing issue between the nodes of the appliance.	Download and install the drive firmware updates again to ensure it gets updated on the drives that were missed in the previous attempt.
MDT-425715	Internal Migration	Starting concurrent migrations of a virtual machine (VM) and its member virtual volumes (vVols) simultaneously may result in paused migration sessions that cannot be cleaned up.	Allow the VM migration to complete before migrating any of its member vVols. Contact your service provider for assistance if issue occurs.
MDT-447218	Internal Migration	Because of VMware DCPN case number 00105337, vVol migration may fail if a vVol is migrated to an appliance on which it was previously located.	For more information and steps to avoid this issue, see Dell Knowledge Base Article 0000204524: PowerStore: When using PowerStoreOS 3.x, vVol Migration may fail if a vVol is migrated to an appliance on which it was previously located.
MDT-359565	Internal Migration	PowerStore Manager does not prevent a user from clicking the Delete button during a migration cutover. However, deletion during cutover is not supported and the migration session is not deleted. The delete operation results in a backend error.	None
MDT-285903	Internal Migration	If a migration fails due to a High Availability (HA) event, a system snapshot may remain on the migration source object.	Contact your service provider to clean up the remaining snapshot.
MDT-239624	Internal Migration	When a VM is being deployed from a VM template, vSphere uses the clone operation to provision vVols of the newly created VM. PowerStore internally translates it into space-efficient clones (the same technique used for vVol snapshots). When a Data Path (DP) family size limit exists, a base vVol cannot have more than a certain number (1000) of derivatives (snapshots, space-efficient clones). This causes the following limitations: - Cloning from a VM template fails if a base vVol of the VM template has too many derivatives (snapshots or clones, or both) already created (1000). - When the maximum number of family members limit is reached, vVol migration cannot occur as it needs to create an internal vVol snapshot which fails. - All vVols are placed to the same appliance in a multi-appliance cluster, so the load is not balanced between appliances.	Use several VM templates created from the same OVF template so that each VM template is used for a reasonable number of VM clones to avoid hitting the DP family limit. This action allows vVols to be distributed between appliances in a multi-appliance cluster for load balancing.
MDT-140927	Internal Migration	After a volume is migrated, there may be a decrease in capacity and performance metrics reporting for that volume at the end of the migration operation.	None

Issue ID	Functional area	Description	Workaround/Solution
MDT-446066	Monitoring	After migrating a volume to another PowerStore appliance, the first performance metrics, recorded with an interval of five seconds, 20 seconds, five minutes, one hour, or one day, may show negative values. In addition, the maximum metrics in five minute, one hour, and one day rollups may be less than the average metrics.	Ignore the incorrect metrics and use the next set of metrics that were recorded after the migration.
MDT-249810	Monitoring	If the total system capacity is below 10 TB, free page tables are not replenished as this would consume space that might not be required and waste free pages. The lack of free pages in the table causes a performance impact for writes. For better performance, more capacity should be added.	Ensure that the system capacity is higher than 10 TB.
MDT-55667	Monitoring	Storage container capacity metrics are not available until I/O operations have begun.	Look at the capacity metrics again after I/O operations on the storage container have been performed.
MDT-454979	Notifications and Alerts	If a PowerStore cluster has a very large number of initiators, hardware-related alerts may be processed more slowly than normal. This issue does not affect PowerStore Manager operation.	None. A 10 to 30 minute delay may occur when hardware-related alerts are raised and cleared.
MDT-437349	Notifications and Alerts	An alert regarding node failover during an NDU may fail to clear automatically.	Contact your service provider for assistance with manually clearing the alert.
MDT-430105	Notifications and Alerts	Adding multiple new NVMe SSDs to a PowerStore cluster base enclosure in quick succession may cause M.2 boot module alerts to be raised on a PowerStore appliance.	When adding multiple drives to an existing base enclosure, wait one or two minutes between inserting each drive. For further information, see Dell Knowledge Base Article 000201333: PowerStore: Concurrently adding multiple new NVMe SSDs to an existing Base Enclosure may raise M.2 boot module alerts. If M.2 boot module alerts are seen on the appliance after adding NVMe SSDs to an existing base enclosure, contact your service provider for assistance.
MDT-359644	Notifications and Alerts	Sending test SMTP messages can block the connection between PowerStore Manager and the PowerStore cluster if the SMTP server is not accessible.	Ensure that the selected SMTP server is valid and supports the selected port.
MDT-146346	Notifications and Alerts	Some hardware alert states may persist for a short time after the health of the object has been restored. The alert states eventually resolve with the correct state.	None

Issue ID	Functional area	Description	Workaround/Solution
MDT-455951	PowerStore Manager (GUI)	During an NDU to PowerStoreOS 3.2, PowerStore Manager becomes unavailable for approximately 30 minutes if the browser is refreshed or restarted while the first node is rebooting. This issue does not affect the upgrade process, but PowerStore Manager remains unavailable until the node reboot is complete.	Do not refresh or restart the browser during an upgrade. If this issue is encountered, wait approximately 30 minutes for the node reboot to complete.
MDT-450816	PowerStore Manager (GUI)	During an NDU to PowerStoreOS 3.0 or later, PowerStore Manager may be unavailable until the upgrade is complete for all the appliances in the cluster.	None. PowerStore Manager becomes available again after all the appliances in the cluster have completed the upgrade.
MDT-435373	PowerStore Manager (GUI)	Access to PowerStore Manager using the Service LAN port may be unavailable after upgrading to PowerStoreOS 3.0.0.0.	If access to PowerStore Manager through the Service LAN port is required, contact your service provider for assistance.
MDT-419783	PowerStore Manager (GUI)	PowerStore Manager may fail to display metrics correctly after an appliance is removed from the cluster.	Run the service script "svc_container_mgmt restart" to reboot the Control Path (CP) container and reopen PowerStore Manager to view the correct metrics.
MDT-410197	PowerStore Manager (GUI)	An error might occur in PowerStore Manager when you click Apply after modifying the properties of a volume and clearing the Replication Destination check box at the same time.	Clear the Replication Destination check box first, click Apply, and then modify the other properties of the volume.
MDT-362809	PowerStore Manager (GUI)	Some text editors may append line end (\n) at the end of a certificate when opening the certificate file. The certificate is regarded as an invalid certificate due to the trailing space of the certificate.	Use an editor that does not append line end (\n) at the end. For example, using Notepad works fine, but using Notepad++ to open a certificate file would require manual removal of the line end.
MDT-261523	PowerStore Manager (GUI)	If Mozilla Firefox is used to upgrade a PowerStore cluster to PowerStore 2.0, a browser cache issue might occur that causes the names of some buttons and labels to be displayed as object names instead of the correct button or label names.	Use a different browser such as Google Chrome or Microsoft Edge, or clear the browser cache in Firefox. For instructions, see "How to clear the Firefox cache" on the Mozilla Firefox support site.
MDT-245640	PowerStore Manager (GUI)	When rebooting or powering off a node from PowerStore Manager, the system may not display any acknowledgment that the process has begun. The Reboot or Power Down button may still appear clickable. Despite the lack of acknowledgment, the operation will be triggered successfully after a single click of the button.	None
MDT-163489	PowerStore Manager (GUI)	When a node is replaced, the new node hardware information does not immediately appear in PowerStore Manager.	After replacing a node, wait up to 30 minutes for PowerStore Manager to reflect the update.

Issue ID	Functional area	Description	Workaround/Solution
MDT-118394	PowerStore Manager (GUI)	Uploading an upgrade package that is larger than 4 GB with Microsoft Edge or Internet Explorer fails.	Try again with a different browser.
MDT-408571	PowerStore REST API	If the primary appliance fails over to another appliance on a cluster with three appliances, the REST API may become inaccessible for approximately one hour.	None. The REST API becomes accessible again after approximately one hour.
MDT-266683	PowerStore REST API	You cannot issue Swagger UI commands with Operator, Storage Administrator, and VM Administrator roles. You must log in with the higher-level Administrator role if you want to complete tasks such as fetching or reading data from PowerStore.	Customers can log in as administrator to use the swagger panel in PowerStore Manager.
MDT-130894	PowerStore REST API	Two invalid resource types, FEPort and Initiator, may be returned by the event and alert APIs.	Events or alerts with resource type FEPort or Initiator should ignore the resource type values. External OpenAPI clients must disable validation for the event and alert APIs with resource types of FEPort or Initiator.
MDT-153026	Security	When a drive is inserted into an appliance, it takes time for D@RE to unlock it. Most drives take a few minutes. However, it takes more time for an Intel Optane SCM drive to unlock and the time is proportional to the size of the drive. For example, seven minutes for 375 GB, 15 minutes for 750 GB, and 27 minutes for 1.5 TB. If you pull a drive out before it is unlocked, the drive appears as disconnected, but it is not automatically removed from the appliance.	If you intend to use the drive, re-insert the drive, and wait for the drive unlock to complete. If you intend to stop using the drive, re-insert the drive, wait enough time for the unlock to complete (plus approximately one minute for other overhead), and then remove the drive. The drive is disconnected and automatically removed from the system.
MDT-346149	Storage - Block	During system metadata consolidation a rare condition may occur which can cause data services on a single node to restart. The node restart interrupts I/O on the node for approximately two minutes until the service is started. I/O to the other node is not affected.	None
MDT-284475	Storage - Block	After mapping a LUN or creating a VM, the LUN or VM appears correctly, but it is inaccessible to hosts.	Unmap the non-working LUN and map it again. For VMs, delete the non-working VM and recreate it.
MDT-242368	Storage - Block	Unable to delete a volume group after deleting a replication session, due to undeleted replication session system snapshots.	Contact your service provider for the procedure to delete the snapshots.
MDT-458871	Storage - File	A file system replication session may become out of sync because of a missed recovery point objective (RPO).	Pause and resume the replication session.
MDT-458120	Storage - File	A Move NAS Server operation may fail with the error: "0xE0101001000C Message: The system encountered unexpected backend errors".	Retry the Move NAS Server operation.

Issue ID	Functional area	Description	Workaround/Solution
MDT-440218	Storage - File	The maximum size of the audit files for FTP/SFTP auditing on a NAS server can be modified in PowerStore Manager, but the updated value is not displayed in PowerStore Manager.	Use the REST API command /file_ftp to view the updated value.
MDT-361933	Storage - File	File system asynchronous replication may use an existing destination NAS server in non-production mode as replication target if it shares the same name as the source NAS server.	Rename the destination NAS server before setting up remote protection for the new NAS server that has the same name. Also, ensure that a NAS server in non-production mode with the same name does not exist.
MDT-314995	Storage - File	In a Unified appliance cluster, after the system exits from an out of space scenario, some of the NAS Servers will not return to Read-Write mode when the Control Path (CP) restarts.	Contact your service provider for assistance.
MDT-195652	Storage - File	Unable to remove the description from an NFS Export.	To change the description, overwrite the current description with a blank character space. Save the NFS Export with no description, and then go back and update the description.
MDT-147688	Storage - File	SMB clients cannot connect to a NAS server when the NAS server name is more than 15 characters. This is because by default the SMB server computer name takes the NAS server name.	Set the NAS server name with 15 characters or less or set the SMB server name with 15 characters or less. To modify the computer name, select all the characters in PowerStore Manager, and type the new name.
MDT-139095	Storage - File	While trying to create or delete a snapshot the following error message was returned: "Addition [or deletion] of NFS Export failed due to [The path [path_name] was not found on the system and cannot be exported.]"	Wait for some time and try the action again.
MDT-137232	Storage - File	In rare cases, NAS services could be disrupted, if the appliance is close to reaching the maximum used data capacity.	Take one of the following actions on the appliance on which the NAS service is installed: add capacity to the appliance (for example, add drives or expansion enclosures), increase free capacity on the system (for example, deleting unused snapshots, volumes), or migrate data off the system.
MDT-116676	Storage - File	The "NAS node <node name> is down" major alert may be seen after changing the Cluster MTU value. Changing the MTU value may cause degradation or disruption in NAS file services.	Wait for the alert to clear before performing any further NAS file operations.

Issue ID	Functional area	Description	Workaround/Solution
MDT-431126	Support	If an appliance is removed from a multi-appliance cluster and the appliance is added back to same cluster, the migration sessions may enter a "System Paused" state. The same issue may occur if a new appliance is added to the same multi-appliance cluster.	Contact your service provider for assistance.
MDT-430190	Support	If a High Availability (HA) event occurs during an add appliance operation and the add operation fails, a subsequent add operation for that appliance may also fail.	Contact your service provider for assistance.
MDT-345741	Support	The "svc_dc upload" script fails with the error "No path was found for the data collection."	Wait five minutes and retry the "svc_dc upload" script.
MDT-443935	SupportAssist	Attempting to failback the eVE container to original node may cause the eVE container to be marked as "failed".	For more information and steps to avoid this issue, see Dell Knowledge Base Article 000204523: PowerStore: Attempting to failback the eVE container to original node may cause the eVE container to be marked as "failed."
MDT-289213	SupportAssist	While attempting to upload data to SupportAssist, a node failover or node reboot occurred. Because of the node failover or reboot, it was unclear if the data successfully uploaded to SupportAssist.	Upload the data to SupportAssist again after the failover or reboot has completed.
MDT-256673	SupportAssist	Cannot enable the Secure Remote Services (SRS) gateway on an appliance. Version 3.48 of the SRS gateway has an issue with connectivity from some PowerStore systems.	Use a different version of the SRS gateway.
MDT-148608	SupportAssist	Attempts to upload Support Materials fail. SupportAssist is unable to upload files when there is insufficient free space in the system partition.	Delete old data collections to increase the available space in the file system so that SupportAssist can make a copy of the file for upload.
MDT-377648	Virtualization	Because of VMware DCPN case 00091955, vVol migration sessions may go into a "System Paused" state.	In VMware, perform a compute vMotion, or power off and power on the virtual machine to force the ESXi host to bind to the vVols. Resume the migration sessions after you have completed those steps.
MDT-336285	Virtualization	Migrating NSX-T from NSX-T managed Virtual Distributed Switches to vSphere Distributed Switches is not currently supported for PowerStore X cluster environments that are enabled with VMware NSX-T Data Center.	Do not migrate NSX-T from dedicated NSX-T-managed Virtual Distributed Switches until the PowerStore X cluster is upgraded to a software version that supports vSphere Distributed Switches for PowerStore X cluster environments that are enabled with VMware NSX-T Data Center.

Issue ID	Functional area	Description	Workaround/Solution
MDT-156507	Virtualization	In high scale VMware vSphere environments, where the ESXi hosts and vCenter server are highly loaded (for example, simultaneous powering on a large number of VMs), heartbeat messages that are sent by the ESXi hosts to the vCenter server may not be delivered in time. When the heartbeat is not received in the 60-second timeout interval, the host is considered as not responding, and the host is marked as disconnected. This may cause the vSphere High Availability (HA) to trigger VM migrations to other hosts in the cluster.	In vCenter Server, increase the heartbeat timeout interval to 120 seconds. See VMware Knowledge Base article 1005757: ESXi host disconnects intermittently from vCenter Server. In case some VMs appear as invalid or orphaned because of the ESXi host disconnect. For instructions on recovering the VMs, see VMware Knowledge Base article 1003742: Virtual machines appear as invalid or orphaned in vCenter Server.
MDT-152993	Virtualization	A periodic, automatic cleanup process on vSphere that is performed randomly (every few days) deletes empty config vVols (directories). However, this process also deletes the ISOs folder, which is pre-created by the PowerStore cluster, if you have not placed any ISO images into the folder.	Recreate the ISOs folder using the following PowerStore CLI command: pstcli -service storage_container -id <id where to create the folder> create_directory -size 100G -name ISOs By default the PowerStore cluster creates a 500 GB folder, but you can specify another size if necessary.
MDT-151804	Virtualization	In a PowerStore cluster with multiple VMFS datastores that are mapped to multiple hosts, a performance impact might occur if several VMs are powered off or powered on simultaneously.	For more information, see Dell Knowledge Base Article 000126731: PowerStore: Best practices for VMFS datastores - for Bootstorm or Failover with VMware SRM.
MDT-146763	Virtualization	During a vMotion process, some vVols are deleted. If the VASA provider becomes unavailable during a storage vMotion operation, the deletion of the vVols fails. These vVols are left orphaned and may appear as duplicates.	Delete the orphaned vVols using the PowerStore CLI or REST API.

Issue ID	Functional area	Description	Workaround/Solution
MDT-119414	Virtualization	<p>Deploying a VM fails, and checking the vvol.log vCenter Server log file reveals the following messages:</p> <pre> 2019-11-15T05:24:35.161Z info vvol[2112740] [Originator@6876 sub=Default] VVolAbandonedObjectScan::ProcessName space examining namespace /vmfs/volumes/<storage-container- identifier>/<vvol-identifier> and 2019-11-15T05:24:35.318Z warning vvol[2112740] [Originator@6876 sub=Libs] 2112740:VVOLLIB : VVolLib_OpenObjectTrackingFile:11348: VVolLib_OpenObjectTrackingFile: Failed to open object tracking file /vmfs/volumes/<storage-container- identifier>/<vvol-identifier> /.vvolObjList with error 6 where <storage-container-identifier> is the UUID of the storage container and <vvol- identifier> is the alphanumeric identifier of the config-vVol of the VM. </pre>	<p>Try to deploy the VM again. For more information, see Dell Knowledge Base Article 000132277: PowerStore: VM deployment can fail with "A general system error occurred".</p>
MDT-111956	Virtualization	<p>In rare cases, the automated mounting of a user-created PowerStore vVol storage container on an ESXi host could fail with the following error message, which is displayed in vCenter Server: "Timed-out waiting to get datastore information from host".</p>	<p>Manually mount the vVol storage container from the VMware vSphere Client or CLI.</p>
MDT-109970	Virtualization	<p>Unable to create a vVol storage container on PowerStore, after deleting a vVol datastore with the same name from vSphere.</p>	<p>Either create the vVol storage container in PowerStore using a different name or allow some more time before creating the new vVol storage container in PowerStore with the same name that was used in vSphere.</p>

Limitations

For a complete list of PowerStore limitations, see the *PowerStore Simple Support Matrix*, which can be downloaded from <https://www.dell.com/powerstoredocs>.

Table 5. Limitations in PowerStoreOS 3.2.0.1

Functional area	Limitation	Affected platforms/models
Import	File import capability from VNX is not supported for a Fibre Channel backend connection.	PowerStore T
Import	<p>When importing external storage to a PowerStore cluster, a maximum of 16 import sessions is supported in the “Ready-For-Cutover” state. In some cases, when several dozen import operations are run back-to-back, intermittent failures of alternate import sessions may occur. If this issue occurs, do the following:</p> <ul style="list-style-type: none"> • Remove the remote system and then add it again. • 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. • Once all imports have reached the “Ready-For-Cutover” state, do a manual cutover. <p>After one set of imports is completed, run the next set of imports after a delay of ten minutes. This delay allows enough time for the system to cleanup any connections to the source system.</p>	PowerStore T and PowerStore X
Install or Upgrade	For a full list of supported PowerStoreOS upgrade paths, see Dell Knowledge Base Article 000175213: PowerStore: PowerStoreOS Matrix.	PowerStore T and PowerStore X
Install or Upgrade	Performing an NDU is supported with Solaris native MPxIO starting at 11.4 SRU 35. Contact your service provider for upgrade support on earlier Solaris versions or Solaris updates.	PowerStore T and PowerStore X
Internal migration	Before performing an internal migration, see the <i>PowerStore: Supported Host OS for Non-Disruptive migration of Storage</i> resources at https://www.dell.com/support/article/en-us/how17129/ for a list of supported configurations and limitations.	PowerStore T and PowerStore X
Monitoring	Starting a new volume mapping job, while another volume mapping job is still in progress, may cause mapping failure due to duplicate Logical Unit Numbers.	PowerStore T and PowerStore X
PowerStore Manager (GUI) and PowerStore REST API	Use the PowerStore cluster management IP address to access the PowerStore Manager and the PowerStore REST API. The appliance management IPs are intended primarily for service use.	PowerStore T and PowerStore X
Storage - File	<p>Customers that use an SFTP client to access file data on a PowerStore T model cluster may experience access issues after upgrading to PowerStoreOS 3.0 or later because support for the following insecure key exchange (KEX) algorithms have been removed:</p> <ul style="list-style-type: none"> • diffie-hellman-group-exchange-sha1 • diffie-hellman-group14-sha1 <p>The access issue occurs if the customer is using an outdated SFTP client that only supports the KEX algorithms that were removed from the PowerStoreOS. To resolve this issue, the customer must upgrade to a newer version of the SFTP client.</p>	PowerStore T
Storage - File	NAS services are not supported on PowerStore X models.	PowerStore X
Storage - File and Storage - Block	PowerStore T and PowerStore X appliances are not supported in the same cluster.	PowerStore T and PowerStore X

Functional area	Limitation	Affected platforms/models
SupportAssist	SupportAssist cannot be enabled on PowerStore models that are configured with IPv6 for the management network. SupportAssist is not supported over IPv6.	PowerStore T and PowerStore X
Virtualization	Replication of vVols is not supported on PowerStore X models.	PowerStore X

Environment and system requirements

Host configuration requirements

For host connectivity to PowerStore appliances, see the *PowerStore Host Configuration Guide*, which can be downloaded from <https://www.dell.com/powerstoredocs>.

Simple Support Matrix

For compatibility and interoperability information, see the *PowerStore Simple Support Matrix*, which can be downloaded from <https://www.dell.com/powerstoredocs>.

Installation and upgrade considerations

Installation considerations

Before installing a PowerStore cluster, review the *PowerStore Deployment Checklist*, which can be downloaded from <https://www.dell.com/powerstoredocs>. When you have completed all the planning steps in the *PowerStore Deployment Checklist*, you are ready to install your system.

Upgrade considerations

Before upgrading the PowerStore cluster, review the *PowerStore Software Upgrade Guide*, which can be downloaded from <https://www.dell.com/powerstoredocs>. For a full list of supported PowerStore upgrade paths, see Dell Knowledge Base Article 000175213: PowerStore: PowerStoreOS Matrix.

For systems with Support Connectivity enabled, upgrade packages can be automatically downloaded to the system when they become available on Support. The PowerStore upgrade packages are also available for download from the Support site. However, the upgrade packages can only be accessed when you are logged into the Dell Support Site using an account that is associated with the PowerStore cluster.

Download the upgrade package for the PowerStore T model cluster

If automatic download is not enabled, download the PowerStore T upgrade package from the Support site:

1. Access the Support site by opening a browser and going to <https://www.dell.com/support>.
2. Sign into your support account that is associated with the PowerStore cluster.
3. Go to the product page for your PowerStore T model, and then go to Drivers & Download.
4. Identify the PowerStore upgrade package to download by carefully reading the package descriptions.
The PowerStore T upgrade package is named: PowerStore T OS Upgrade 3.2.0.1-1860013
5. Click Download to download the PowerStore upgrade package.
The name of the downloaded PowerStore T upgrade package is:
PowerStoreT-3.2.0.1-1860013-retail.tgz.bin

6. See the steps in the PowerStore T model clusters section of the *PowerStore Software Upgrade Guide* to upgrade your PowerStore T model cluster.

Download the upgrade package for the PowerStore X model cluster

If automatic download is not enabled, download the PowerStore X upgrade package from the Support site:

1. Access the Support site by opening a browser and going to <https://www.dell.com/support>.
2. Sign into your support account that is associated with the PowerStore cluster.
3. Go to the product page for your PowerStore X model, and then go to Drivers & Download.
4. Identify the PowerStore upgrade package to download by carefully reading the package descriptions.
The PowerStore X upgrade package is named: PowerStore X OS Upgrade 3.2.0.1-1860013
5. Click Download to download the PowerStore upgrade package.
The name of the downloaded PowerStore X upgrade package .zip file is:
PowerStoreX-3.2.0.1-1860013.zip
6. Extract the upgrade packages from the .zip file to a folder on your computer.
The extracted .zip file contains the following upgrade packages for a PowerStore X model cluster:

Upgrade package name	Description
PowerStoreX-3.2.0.1-1860013-retail.tgz.bin	PowerStoreOS updates
PowerStoreX-PreUpgrade_Package-3.2.0.1-1860013-retail.tgz.bin	PowerStore node firmware updates Dell EMC custom VMware .VIB files vSphere ESXi 7.0 Update 3e

7. See the steps in the PowerStore X model clusters section of the *PowerStore Software Upgrade Guide* to upgrade your PowerStore X model cluster.

To view a list of compatible PowerStoreOS, ESXi, and vCenter versions for PowerStore X model clusters, see the VMware Licensing and Support for PowerStore X table in the *PowerStore Simple Support Matrix*, which can be downloaded from <https://www.dell.com/powerstoredocs>.

Disable support notifications before performing a software upgrade

Manually disable support notifications to prevent call home alerts from being sent to Support when outages occur during a software upgrade.

NOTE: For upgrades from PowerStoreOS 3.0 and later, the cluster does not automatically disable notifications during the software upgrade. Notifications must be manually disabled on each appliance of the cluster.

1. In PowerStore Manager, click Settings and click Disable Support Notifications in the Support section.
2. Select an appliance on which to suspend notifications and click Modify.
3. In the Modify Maintenance Mode slide-out panel, select the Enable Maintenance Mode check box, and specify the number of hours to suspend notifications in the Maintenance Window Duration field.
 - For a PowerStore T model cluster, specify 2 hours to suspend notifications during the upgrade window.
 - For a PowerStore X model cluster, specify 4 hours to suspend notifications during the upgrade window.Support notifications are automatically re-enabled after the maintenance window ends.
4. Click Apply.
The time that the maintenance window ends is displayed in the table.
5. Repeat this process for any other appliances in the cluster.

Where to get help

The Dell Technologies Support site (<https://www.dell.com/support>) contains important information about products and services including drivers, installation packages, product documentation, knowledge base articles, and advisories.

A valid support contract and account might be required to access all the available information about a specific Dell Technologies product or service.

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 potential for property damage, personal injury, or death.