

# Dell PowerStore T and PowerStore Q

## Software Upgrade Guide

Version 4.1

## 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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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.

 **NOTE:** PowerStore X model customers: For the latest how-to technical manuals and guides for your model, download the *PowerStore 3.2.x Documentation Set* from the PowerStore Documentation page at [dell.com/powerstoredocs](https://dell.com/powerstoredocs).

## 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 [dell.com/powerstoredocs](https://dell.com/powerstoredocs).
- **Troubleshooting**—For information about products, software updates, licensing, and service go to [Dell Support](#) and locate the appropriate product support page.
- **Technical support**—For technical support and service requests, go to [Dell 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.

# PowerStore non-disruptive software upgrades

Upgrade the software, drive firmware, Health Check package, or Language pack on your PowerStore cluster.

This document describes the process for upgrading PowerStore T model and PowerStore Q model clusters. For instructions on upgrading PowerStore X model clusters, see the *PowerStore X Model Software Upgrade Guide* in the *PowerStore 3.2.x Documentation Set* .zip file.

## General upgrade considerations

Before preparing for an upgrade, review the following considerations:

**NOTE:** Not all PowerStoreOS versions can be directly upgraded to the latest PowerStoreOS version. For the latest information about supported upgrade paths for your model, see *KB article 000175213 PowerStore: PowerStoreOS Matrix*

- Performing a non-disruptive upgrade (NDU) on a PowerStore cluster does not stop I/O. The I/O requirements of the PowerStore cluster are met by a single node on each appliance in the cluster. The NDU process ensures that only one node of the cluster is taken offline at any given time. Taking a node offline does not cause host I/O disruptions when the hosts have redundant data access paths present, and the best practices are configured for the host operating system.
- Configuration changes and management operations cannot be performed on a PowerStore cluster during an NDU.
- Some internal system operations, such as snapshot and replication schedules, may be paused during an NDU and resume when the NDU is complete.
- When the PowerStoreOS is upgraded and the PowerStore VASA provider is offline, the I/O and availability of the vVol-based VMs served from the PowerStore cluster are not impacted. However, management operations such as creating VMs, rebooting VMs, migrating VMs to other ESXi hosts, and taking VM snapshots cannot be performed on vVol-based VMs while the VASA provider is offline.
- Review the host connectivity recommendations in the [E-Lab Host Connectivity Guides](#).
- Check the *PowerStore Simple Support Matrix* to ensure your host HBA driver and firmware are supported.
- When the PowerStoreOS upgrade is complete, wait five to ten minutes for the status of the PowerStore VASA provider to change to Online in vCenter Server before creating storage containers or performing management operations on vVol-based VMs.

**NOTE:** Within this document, PowerStore software refers to the software upgrade package for a PowerStore system and PowerStoreOS is the operating system that runs on the nodes of a PowerStore cluster.

### Topics:

- [Types of update packages](#)
- [Upgrade preparation overview](#)
- [Download settings](#)
- [Health Check packages](#)

## Types of update packages

PowerStore has several types of update packages that you can install on the system. Each package serves a different function. It is recommended to always upgrade to the latest PowerStoreOS, drive firmware, and Health Check packages for optimal system health and successful upgrades.

**Table 1. Update Package Types**

Package type	Display Name	Description
PowerStoreOS	Software Release	PowerStoreOS software upgrade package.

**Table 1. Update Package Types (continued)**

Package type	Display Name	Description
Drive firmware	Disk firmware	Drive firmware bundle to be applied to all the system drives.
Health Check package	Health Check	A package of supplemental health checks that identify system issues that could prevent successful non-disruptive upgrades (NDUs) or other maintenance operations.
Rx Definitions	RxDefinitions	A package of additional health checks that identify system issues that could prevent successful NDUs or other maintenance operations. The Dell automated health assessment platform delivers the Rx Definition packages to the PowerStore cluster.
Language packs	Language Pack	A package of localized content that allows users to change the display language of the PowerStore Manager interface.
Hotfix packages	Hotfix	A package of out-of-cycle critical fixes that is typically provided directly by Support Engineering for applicable systems.

**NOTE:** System Checks comprehensively check the overall system health. It is recommended that you run System Checks periodically, including before and between upgrades, to address any overall system issues. **System Checks** can be run from the **Monitoring** page in PowerStore Manager. For more information, see *KB article 000198084 PowerStore: How to use the System Check feature.*

## Upgrade preparation overview

Preparing for a software upgrade requires the following steps:

- Get the latest PowerStoreOS.
  - For systems on which Support Connectivity and automatic download are enabled, the latest packages are automatically downloaded to your system and ready for installation.
  - For systems on which Support Connectivity is enabled, but automatic download is disabled, proactively check for updates by going to **Settings > Upgrades** and selecting **More Actions > Check for updates** in the **Software Packages** section. If a new package is displayed after the check, select the package and click **Download**.
- Review the release notes.
- Run the Pre-Upgrade Health Check and other necessary system health check tools.
- Ensure that host connectivity is redundant for both nodes.
- Complete configuration changes or management operations ahead of the upgrade as these operations are not available while the upgrade is in-progress.

**NOTE:** These management operations include tasks such as creating VMs, rebooting VMs, migrating VMs to other ESXi hosts, and taking VM snapshots.

## Download settings

Customize automatic download preferences for update packages on the **Download Settings** slide-out panel, which can be accessed from the **Settings > Upgrades** page. Support Connectivity must be configured to enable automatic download.

### Automatic download

- Automatic download enables update packages to be automatically downloaded to your system through the Support Connectivity secure tunnel.
- Automatic download applies to PowerStoreOS packages, drive firmware packages, Health Check packages, Rx Definitions, and Language packs.
- When a new compatible package becomes available for each update package type, the latest package overwrites any older packages pending installation under **Software Packages** on the **Upgrades** page. An alert is generated in PowerStore Manager whenever a new update package is available on your system for installation.

**NOTE:** Automatic download does not install any update packages on your system--it downloads them from Dell Support to your system to be installed manually. You must select a specific downloaded package, and then select the **Upgrade** button to install it.

## Software Release package preference

Select whether you want the automatic download feature to always download the latest qualified **Target** code PowerStoreOS package, or the **Latest** PowerStoreOS package.

- **Target:** A PowerStoreOS package that meets specific customer usage metric criteria. The criteria include a minimum number of run-time hours, installs, and upgrades. See the latest *PowerStore Quarterly Support Highlights* newsletter for more detailed information about target code.
- **Latest:** The most recent PowerStoreOS package that is available from Dell Support.

## Health Check packages

Health Check packages are update bundles separate from the PowerStoreOS that are released directly to Dell Support. These packages include the latest set of Pre-Upgrade Health Checks (PUHCs). Some newer checks may not be in your current PowerStoreOS. These checks help identify system issues in advance that may affect successful PowerStoreOS upgrades.

As a best practice, always install the latest Health Check package before upgrading the PowerStoreOS. When the latest Health Check package is installed, run the updated Health Checks using the **Health Check** button on the **Upgrades** page.

**NOTE:** When you upgrade the PowerStoreOS, the Pre-Upgrade Health Checks in that PowerStoreOS replace the health checks from the previously installed Health Check package.

For systems with Support Connectivity enabled, a system alert notifies you when a newer compatible Health Check package is available for installation. If automatic download is enabled, Health Check packages are automatically downloaded to your system for installation.

For systems that do not have Support Connectivity enabled, proactively check Dell Support for the latest Health Check package. For more information, see [Check for newer Health Check packages on Dell Support](#). After you upgrade the PowerStoreOS, check Dell Support for newer Health Check packages that may be available for the new PowerStoreOS. For more information, see *KB article 000192601 PowerStore: How to Check the Health of the Cluster Before Software Upgrade*.

## Check for newer Health Check packages on Dell Support

### Prerequisites

As a best practice, always install the latest available Health Check packages for your current PowerStoreOS version before starting a software upgrade.

If Support Connectivity is enabled, the system notifies you when a new and applicable Health Check package becomes available on Dell Support. If the automatic download option is also enabled, any new Health Check packages are automatically downloaded to your system for you to install.

For systems running PowerStoreOS 3.5 or later, the version of the current installed Health Check package is listed under **Recent Activities** on the **Upgrades** page. For more information about the latest available Health Check packages, see *KB article 000192601 PowerStore: How to Check the Health of the Cluster Before Software Upgrade*.

If Support Connectivity is not enabled, proactively check Dell Support for new Health Check packages by performing the following steps:

### Steps

1. Open a browser and go to [Dell Support](#).
2. Sign in to a support account that is associated with the PowerStore cluster.
3. Go to the product page for your system, and then go to **Drivers & Downloads**.
4. Review the list of downloads for any Health Check packages that have been released recently.  
Each Health Check package bundle on Dell Support includes a description that provides information about the compatible PowerStore models and PowerStoreOS versions.
5. Click **Download** to download the Health Check package.

# PowerStore T and PowerStore Q software upgrades

## Topics:

- [Enable a maintenance window before performing software upgrade](#)
- [PowerStore T and PowerStore Q upgrade overview](#)
- [Upgrade the software on a PowerStore T or PowerStore Q cluster](#)

## Enable a maintenance window before performing software upgrade

To disable support notifications and prevent call home alerts from being sent to Dell Support during a software upgrade, enable a maintenance window before performing the upgrade.

### About this task

 **NOTE:** For upgrades from PowerStoreOS 3.0.x or 3.2.0.x, the system does not automatically enable a maintenance window during the software upgrade. A maintenance window must be manually enabled for each appliance in the cluster.

### Steps

1. On the **Settings** page, select **Maintenance Window** in the **Support** section.
2. Select the appliance for which you want to enable a maintenance window and click **Enable/Modify**.
3. In the **Maintenance Window** slide-out panel, specify the number of days and hours to disable support notifications in the **Maintenance Window Duration** fields.  
Specify a maintenance window of at least two hours when upgrading a PowerStore T model or PowerStore Q model cluster. Support notifications are automatically reenabled after the maintenance window ends.
4. Click **Apply**.  
The **End Time (Cluster Time)** column displays the date and time that the maintenance window ends.
5. Repeat this process for any other appliances in the cluster.

## PowerStore T and PowerStore Q upgrade overview

For the latest PowerStore features and improvements, upgrade the software on the cluster to the latest available version.

### About this task

When upgrading a cluster, use only Dell-qualified upgrade packages that are downloaded from Dell Support. The upgrade package contains the node firmware upgrades and PowerStoreOS upgrade for the cluster.

 **NOTE:** Not all upgrade paths are supported. For the latest information about supported software upgrade paths, see *KB article 000175213 PowerStore: PowerStoreOS Matrix*.

### Steps

1. Download the latest upgrade package from Dell Support.  
For instructions on downloading upgrade packages from Dell Support, see [Download the PowerStore upgrade packages](#).
2. Upload the software upgrade package to PowerStore Manager:

- a. In PowerStore Manager, go to **Settings > Upgrades**.
- b. In the **Software Packages** section, select **Upload Package** or select **More Actions > Upload Package**.
- c. In the file explorer, select the package to upload and select **Open**.

**i** **NOTE:** Do not close or refresh the browser while the software upgrade package is uploaded to PowerStore Manager.

When the software upgrade package finishes uploading, it is displayed in the **Software Packages** table.

3. Carefully review and perform the steps in *KB article 000183630 PowerStore: How to prepare for a PowerStore Non-Disruptive Upgrade (NDU)* before upgrading a cluster.

**i** **NOTE:** Perform the steps that are outlined in *KB article 000183630* at least one week before the planned upgrade date. Allow enough time to correct any system issues that must be addressed before the upgrade.

4. Perform the steps in [Upgrade the software on a PowerStore T or PowerStore Q cluster](#). The software upgrade takes approximately one hour to one and a half hours to complete per appliance.
5. Following a successful PowerStoreOS software upgrade, upgrade the drive firmware if a new firmware bundle is available. See [Drive Firmware upgrades](#) for more details on upgrading the drive firmware.

## Results

If the software upgrade process fails, check for and resolve all critical alerts on the cluster and retry the upgrade.

# Upgrade the software on a PowerStore T or PowerStore Q cluster

Use PowerStore Manager to upgrade the PowerStoreOS and node firmware on the cluster.

## Prerequisites

Ensure that a Pre-Upgrade Health Check has been performed at least seven days before upgrading the PowerStoreOS.

## Steps

1. In PowerStore Manager, go to **Settings > Upgrades**.
2. If the software upgrade package has not yet been uploaded to PowerStore Manager, follow the upload instructions in [PowerStore T and PowerStore Q upgrade overview](#).
3. Select the software upgrade package in the **Software Packages** table, and select **Upgrade**. The software upgrade takes approximately one hour to one and a half hours to complete per appliance.  
**i** **NOTE:** The cluster temporarily stops recording performance metrics when the primary node of the primary appliance reboots during the software upgrade.
4. After the software upgrade completes, close the browser session and open a new session or reload the page in the browser to refresh the UI.  
**i** **NOTE:** If you do not open a new browser session after performing the software upgrade, PowerStore Manager still displays the UI for the previous PowerStoreOS version. New features are not available, and unexpected UI behavior may occur until you start a new browser session.

## Results

During the software upgrade process, the primary node of the primary appliance fails over to the secondary node of the appliance and you are disconnected from PowerStore Manager. You can log back in to PowerStore Manager after the failover process is complete.

When a new version of the PowerStoreOS is installed, the column layout settings in PowerStore Manager tables reset to their default layout. Changes to the column layout settings in PowerStore Manager do not persist when the PowerStoreOS is upgraded.

**i** **NOTE:** Beginning with PowerStoreOS 4.0, if the software upgrade fails and successfully rolls back to the previous operating system version, the system automatically recovers. You can retry the upgrade by selecting the package and then **Upgrade** again. Contact your service provider for further assistance with nondisruptive upgrade (NDU) failures.

# Drive Firmware upgrades

Periodically, new drive firmware becomes available for your PowerStore cluster. As a best practice, upgrade the drive firmware to the latest version following a successful software upgrade, and periodically between software upgrades.

This chapter covers the procedure for upgrading the drive firmware on a PowerStore cluster.

If Support Connectivity and automatic download are enabled, your system automatically downloads any new and applicable drive firmware. It is highly recommended to install this new drive firmware as it becomes available on the **Upgrades** page in PowerStore Manager.

## Topics:

- [Update the drive firmware on the PowerStore cluster](#)

## Update the drive firmware on the PowerStore cluster

Use PowerStore Manager to update the drive firmware on a PowerStore cluster.

### Prerequisites

As a best practice, always update the drive firmware to the latest available version following a software upgrade. Drive firmware updates do not require a node reboot.

**NOTE:** Most drive firmware bundles are backwards-compatible with multiple PowerStoreOS versions. See the detailed description of the drive firmware bundle on Dell Support for more compatibility information. If you attempt to install an incompatible drive firmware bundle, a warning message appears and the installation does not proceed.

### Steps

1. Download the latest drive firmware update package from Dell Support.  
The drive firmware update package contains firmware updates for the drives in the PowerStore cluster. For instructions on downloading PowerStore upgrade packages, see [Download the PowerStore upgrade packages](#).
2. In PowerStore Manager, go to **Settings > Upgrades**.
3. In the **Software Packages** section, select **Upload Package** or **More Actions > Upload Package**.  
**NOTE:** For systems on which Support Connectivity and automatic download are enabled, new applicable drive firmware packages are automatically downloaded to your system and appear in the **Software Upgrades** table.
4. Select the drive firmware update package, and select **Open**.  
The drive firmware update package is uploaded and displayed in the **Software Packages** table.  
**NOTE:** Do not close or refresh the browser while the drive firmware update package is uploaded to PowerStore Manager.
5. Select the drive firmware update package, and select **Upgrade**.

### Results

- To verify the drive firmware version for individual drives in a PowerStore cluster, go to the **Hardware > Appliances > appliance > Components > Drives** page in PowerStore Manager.
- To verify the drive firmware version for all the drives in a PowerStore cluster, run the service command `svc_diag list --show_drives`. For more information, see the *PowerStore Service Scripts Guide*.

# Language Packs

Language packs modify the display language of the PowerStore Manager interface to that of your preferred language, including event, alert, and error messages. Language packs are downloaded and installed the same way as software upgrade packages. PowerStore 3.x and later supports the following languages:

- French
- German
- Latin American Spanish
- Brazilian Portuguese
- Japanese
- Korean
- Simplified Chinese

When you upgrade the PowerStoreOS, your Language Pack settings are preserved, including the selected language and preferred time format. These settings will persist until the next Language Pack is installed on your system.

## Topics:

- [Installing language packs](#)

## Installing language packs

### Prerequisites

Language packs are separate localized software bundles that can be downloaded from Dell Support and uploaded to your PowerStore cluster.

### About this task

The default language for the language pack is set based on the default language preferences in your user preferences. Also, the time and date format and the time zone format for the language pack are set based on your **User Preferences**. The initial **User Preferences** are set based on your browser preferences for the browser that you are using to access PowerStore Manager. These preferences can be changed at any time.

### Steps

1. Download the latest language pack from Dell Support.  
If automatic download is enabled and a language pack is installed on the system, the latest language pack is automatically downloaded to your system.
2. In PowerStore Manager, go to **Settings > Upgrades**.
3. In the **Software Packages** section, select **Upload Package** or **More Actions > Upload Package** to upload the language pack to PowerStore Manager.
4. When the upload is complete, select the language pack software package from the list and click **Upgrade**.
5. Select your preferred language from the drop-down list.
6. Optionally, enable the language to be automatically detected based on the browser settings.
7. Select the preferred date and time format.

# Adding an Appliance to a Cluster

## Syncing the PowerStoreOS

When adding an appliance to a cluster, the cluster and appliance must be on the same PowerStoreOS version.

Clusters on PowerStoreOS 3.0.x and later automatically detect if there is a mismatch between PowerStoreOS versions and provide the option to synchronize during the **Add Appliance** wizard.

- For clusters and appliances on PowerStoreOS 3.0.x or later, the unconfigured appliance PowerStoreOS version is automatically updated to match the PowerStoreOS version of the cluster during the reinitialization step when the appliance is added to the cluster.
- For clusters on PowerStoreOS 2.x and earlier where the appliance is running a later version of the PowerStoreOS than the cluster, upgrade the cluster before adding the new appliance.
- For clusters on PowerStoreOS 2.x and earlier where the cluster is running a later version of the PowerStoreOS than the appliance, the appliance should be installed in the same rack and use the same switches as the existing cluster, and configured into its own separate cluster. Then, upgrade the PowerStoreOS of the separate cluster. For more information, see *KB article 000133192 PowerStore: PowerStore Manager prevents "Add an appliance to an existing cluster" operation from succeeding*.

## Syncing other package types

Some packages must be manually reinstalled on the cluster after adding an appliance, depending on the PowerStoreOS version of the cluster. Upload and install thin packages that may not be correctly installed on the new appliance. For further details, see KB article 000226460.

For more information about adding appliances, see the *PowerStore Manager Online Help* and the *PowerStore Installation and Service Guide* for your model.

# Download the PowerStore upgrade packages

The PowerStore upgrade packages, including PowerStoreOS, drive firmware, Health Check packages, Rx Definitions, and Language packs are available for download from Dell Support. However, the upgrade packages can only be accessed when you are logged into Dell Support using an account that is associated with the PowerStore cluster.

## About this task

This procedure only applies to clusters on which automatic download is not enabled. If Support Connectivity and automatic download are enabled, applicable upgrade packages are automatically downloaded to your system. For more information, see [Download settings](#).

## Steps

1. Open a browser and go to [Dell Support](#).
2. Sign in to a support account that is associated with the PowerStore cluster.
3. Go to the product page for your system, and then go to **Drivers & Downloads**.
4. Identify the PowerStore upgrade package to download by carefully reading the package description.
5. Click **Download** to download the PowerStore upgrade package.