

Send us your feedback about the PowerStore Bulletin. If you have ideas for topics, we would like to hear them.

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# PowerStore Bulletin

Volume 3

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## Welcome

We are pleased to introduce the third edition of the PowerStore Bulletin. This technical newsletter is produced by the PowerStore Engineering Technical Services team. Our goal is to provide the PowerStore community with information about product releases, best practices, and product tips.

## Recommended Code Release

Dell EMC has established recommended code versions for PowerStore to ensure stable and reliable environments. As a best practice, Dell EMC recommends that you operate at the recommended code levels for your PowerStore. There may be features, enhancements or fixes in newer code that may benefit or be required for a specific environment. Dell Technologies Support Services can provide you with guidance. Unless otherwise directed, continue to use the current target code for upgrades.

PowerStoreOS	Release Date	Release Notes	Target Code
1.0.4.0.5.003	Feb. 2021	Release Notes	
1.0.4.0.5.006	Mar. 2021	Release Notes	<b>YES</b>
2.0.0.0-1376722	July 2021	Release Notes	
2.0.0.0-1371720	July 2021	Release Notes	

PowerStore 2.0 has 2 released versions based on the following criteria:

- 2.0.0.0-1376722 used to NDU from 1.0 release
- 2.0.0.0-1371720 used for new factory installations

The following are some of the new features that have been introduced in this version of PowerStore 2.0. Full listing of features and resolved issues can be obtained here [https://PowerStore\\_2.0](https://PowerStore_2.0)

### Product Versioning

- Product releases will be identified as Major and Minor releases. Major releases will be versioned by increasing the first digit of the software version followed by a zero for example the first release is 1.0. Subsequent releases will increase the first digit as follows: 2.0, 3.0. Minor releases will be identified by the second digit of the software version number for example: 1.1, 1.2, 2.1, 2.2.

### Connectivity - Networks

- Support for up to 32 Storage networks can be added to your PowerStore deployment.
- PowerStore T model appliances can be deployed without Top-of-Rack switches when Network Attached Storage, iSCSI Storage networks, clustering, and asynchronous replication are not required.
- I/O modules can be added to deployed PowerStore model clusters to expand the amount of usable front-end ports. Adding I/O modules post deployment must be performed by your service provider.

### Data Protection

- Enables the user to initiate a disaster recovery test that simulates a failover operation. The user can test a target PIT to validate the replicated snapshot.

- Adds the ability to access the PowerStore Metro Node from PowerStore Manager.
- Double Drive failure protection support to PowerStore.

#### Hardware

- Added support for 1.5 TB NVMe SCM drives.
- Automated Intelligent Metadata Tiering provides improved system performance by ensuring that the metadata is prioritized over data and is always placed on the highest available tier.
- The PowerStore 500T model is introduced with this release and serves block and file services, and the software stack is deployed directly on the system. The PowerStore 500T hardware consists of a 2U, two node storage solution. Between the front and rear of the enclosure, a mid-plane distributes power and signals to all the enclosure components. Additionally, PowerStore 500T model appliances also offers dedicated low line power (less than 220V) in a native fashion.

#### Internal Migration

- Provides the ability to non-disruptively move storage resources to another appliance in the cluster. This feature is applicable if you want to evacuate space from an appliance, power off an appliance, or remove an appliance from a cluster.

#### Security

- Provides an additional level of security by implementing a complete security check from the bootloader to the OS.
- Provides the Transport Layer Security (TLS) protocol provides the ability to secure communications across networks. PowerStore supports TLS 1.2 by default but includes the ability to reenforce TLS 1.1 as necessary.

#### Storage-Block

- Provides support for NVMe over Fabrics (NVMe-oF) extends the NVMe protocol from the drive level to the network fabric with NVMe over Fibre Channel (NVMe-FC) support.
- Provides additional Intelligent Data Reduction capabilities with enhancements to inline deduplication and background deduplication.

#### Storage-File

- Provides more flexibility for setting Tree Quotas for File Systems being used for different functions or organizations
- New metrics for performance of file storage operations at the appliance and cluster level with an option to break down by protocol and node.

#### Virtualization

- Provides support up to four PowerStore X model appliances that are running the same version of PowerStore software.
- The PowerStore software upgrade for PowerStore X model clusters includes a required ESXi update for the internal nodes of the clusters. The internal nodes of an existing PowerStore X model cluster must be upgraded to VMware ESXi 6.7 P05, Patch Release ESXi670- 202103001 (Build: 17700523) before the cluster can be upgraded to the latest version of the PowerStore OS. In addition to the ESXi update, other PowerStore X model components must be upgraded as well.
- PowerStore model clusters support online migration of vVols for vVol-based VMs to another appliance in the cluster.
- All PowerStore models now support automatic vCenter Server and VASA Provider registration. PowerStore Manager displays the vCenter Server connection status and VASA Provider status on the vCenter Server Connection page.

## PowerStore Upgrade Readiness

The following should be adhered to when planning for a non-disruptive upgrade (NDU) within the PowerStore environment.

#### Pre-Upgrade Health Check

- Perform a Health Check of the PowerStore appliance(s) being upgraded at least 7 days prior to the scheduled upgrade event.
- Consult the Dell EMC PowerStore Upgrade Guide for procedural details of how to perform a Health Check.
- Review the overall health state for each node in the appliance even if a green check mark is present indicating health of the node is OK. See <https://PowerStoreHealthCheck>

- Review and ERROR and WARNING messages raised during the Pre-Upgrade Health Check and address each accordingly. Consult Dell Technologies Support Services for assistance.

#### Outstanding Alerts

- Log into PowerStore Manager of the appliance being upgraded and review any outstanding alerts present by selecting the Monitoring tab.
- Determine if any alerts are outstanding that require attention. Review alerts with a Critical, Major, or Minor severity. If possible, attempt to rectify any raised alerts reported.
- Consult the Events and Alerts Reference Guide for actions to resolve outstanding alerts.
- If needed, contact Dell Technologies Support Services for assistance with evaluating and addressing any outstanding alerts prior to proceeding with the upgrade.

## Knowledge Base Articles

Knowledge Base articles have been published to address how to, best practices, known issues for specific PowerStore environments. You can access these KB's through the following link and in many cases, these are in multiple languages.

- This article explains how to obtain /activate/troubleshoot licensing on PowerStore products. <https://PowerStoreLicensing>
- This article describes how to remove uplinks on the internal ESXi hosts of PowerStore X appliances for N-VDS deployment and how to add PowerStore X controller VMs to the Distributed Firewall (DFW) Exclusion List in VMware NSX-T 3.1 Data Center. <https://PowerStoreXUplinks>
- This article explains a new feature that was introduced in PowerStore to allow users to log into the system over ssh or PowerStore Manager (UI) using the Service LAN ports. <https://PowerStoreServiceLANPorts>
- This article covers the PowerStore major components LED states, locations, descriptions, and more. Understanding the LED states is critical for troubleshooting. <https://PowerStoreLEDStates>

## PowerStore Simple Support Matrix

Simple Support Matrices are produced through extensive testing by Dell EMC E-Lab.

The PowerStore SSM is a configuration summary. The versions listed represents the supported Platform / Operating Systems, information on Backup & NDMP applications, Limits, Replication, Anti-Virus, Dell Technologies Ecosystem, Third-Party Ecosystem, Migration and VMware licensing / support, Refer to this link for the latest version July. 2021:

<https://PowerStore-Simple-Support-Matrix>

## Host Configuration Guide

This document provides the latest guidelines and best practices on attaching and configuring external hosts to PowerStore systems. It includes information on topics such as multipathing, zoning, and timeouts.

<https://PowerStoreHCG>

## Performance / Best Practices

### Oracle Database Best Practices

This article delivers guidance for using Dell EMC PowerStore T model arrays in an Oracle® 12cR2 (and later versions) Oracle Standalone environment. The document also includes guidance for the Real Application Clusters (RAC) database environment on Linux operating systems.

This paper was developed using the PowerStore 5000T model array, but the information is also applicable to PowerStore 500T through 9000T models. The primary Linux operating system that was used in this paper was Oracle Linux 7.5 with the Unbreakable Enterprise Kernel 7. The content is also applicable to other Unbreakable Enterprise Kernel with Oracle Linux 6 and 7, and Red Hat Enterprise Linux 6 and 7 versions.

PowerStore T models offer a storage solution for Oracle workloads regardless of the application characteristics. This paper discusses the best practices of the PowerStore 5000T model with unified storage

<https://PowerStoreOracle>

## Microsoft SQL Best Practices

This article provides best practices for using Dell EMC PowerStore in a Microsoft SQL Server environment. SQL Server is a robust product that can be used in various solutions. The relative priorities of critical design goals such as performance, manageability, and flexibility depend on the environment. This article provides considerations and recommendations to help meet design goals.

<https://PowerStoreMicroSoftSQL>

## Microsoft Hyper-V Best Practices

Dell EMC PowerStore is a feature-rich, next-generation, enterprise storage appliance. It provides an ideal block-based storage platform for Microsoft Windows Server including the Hyper-V role. PowerStore provides powerful storage integrations, optimizations, and management tools that are well suited to support Microsoft environments. This article provides best-practice guidance for deploying and optimizing the Hyper-V role with PowerStore.

<https://PowerStoreHyper-V>

## From Itzik's Blog

Itzik Reich is Dell EMC VP Technology for PowerStore. In these blogs he focuses on PowerStore technologies and feature rich capabilities.

### What is Dell EMC PowerStore

- <https://PowerStore500Intro>
- <https://Part-13-IntegrationVMwareTanzuKubernetesGrid>
- <https://Part-14-CloudIQ>
- <https://Part-15-CopyDataManagementAppSync>
- <https://Part-16-AutomationWithAnsible>
- <https://Part-17-VMwarevCenterVSI8.4Plugin>
- <https://Part-18-VMwarevRealizeOrchestrator>