DELL Technologies PowerStore

500T

1000T/1000X

3000T/3000X

5000T/5000X

7000T/7000X

9000T/9000X

1200T

3200T

5200T

9200T

Simple Support Matrix

August 14, 2023

Host Servers/ Adapters: All host systems are supported where the host vendor allows the host/OS/adapter combination. All Fibre Channel HBAs branded as Emulex , or QLogic with line speeds 8 Gb/s, 16 Gb/s or 32 Gb/s, including vendor rebranded versions of the same are supported. AIX and HP-UX vendor branded HBAs, also support the 4Gb/s FC link speed. 10 or 25 GbE Cisco, Emulex, or QLogic CNAs (10GbE, 25GbE, iSCSI, FCoE via FC-gateway), including vendor rebranded versions of the same are supported. 10 or 25 GbE NICs for iSCSI connectivity as supported by the server and OS vendor are supported.
Following allowances for Firmware/BIOS, Drivers, and for specific Platforms: Any Dell or vendor-supplied firmware/BIOS that meets the ESM minimum version for specified OS platform are allowed (Newer versions of the Firmware/BIOS higher than the minimum version are allowed). For Solaris, HP-UX and AIX platforms, Dell only supports the Driver/Firmware/BIOS versions supplied by the OS Vendor. For CNA (HBA) drivers refer to ELN, https://elabnavigator.dell.com, for supported versions. For Linux Drivers not listed in the ESM refer to the 'Linux Out of Kernel Drivers Support (LoS)'. *If systems meet these criteria, no further ELN connectivity validation or RPQ is required.*
Switches:
• Visit https://elabnavigator.dell.com/ Simple Support Matrices (Storage) Switch Support for supported switch models and associated switch firmware revisions
• For Dell Switch interoperability, all associated Switch Firmware Revisions, Switch Management Software and other interop settings; See Advanced Query Wizard: Category/Switch/Sub-Category/All *Switched Fabric Topology Parameters* Table.
• All Dell approved FCoE and iSCSI switches are supported as IP stand-alone ethernet switches.

PowerStoreOS: 1.0, 2.0, 2.1, 3.0, 3.2, 3.5
(All released service packs for PowerStoreOS are supported unless otherwise specified by a footnote.)

| PowerStoreOS release	Hardware models
PowerStoreOS 1.0	1000T through 9000T 1000X through 9000X
PowerStoreOS 2.0	500T 1000T through 9000T 1000X through 9000X
PowerStoreOS 2.1	500T 1000T through 9000T 1000X through 9000X*
PowerStoreOS 3.0	500T 1000T through 9000T 1200T through 9200T
PowerStoreOS 3.2	500T 1000T through 9000T 1000X through 9000X 1200T through 9200T
PowerStoreOS 3.5	500T 1000T through 9000T 1200T through 9200T

Notes:

• Tables 2 Through 14 contain additional support information on Backup applications supported, Limits and more.

• Refer to the Virtualization Hosting Server (Parent) Solutions table for supported KVM configurations.

• *PowerPathsupport for AIX on PowerStore requires PowerStoreOS 3.2 or later*

• *PowerStore NDU is supported with Solaris native MPxIO starting from 11.4 SRU 35 and later. NDU support for earlier Solaris versions/updates should go through RPQ*

• *X Models require OS V2.1.1*

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Dell® E-Lab™ qualified versions for PowerStore®

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No.	Platform Support	EMC PowerPath®	Native MPIO & DMP	Symantec / Veritas/ Infoscale/ VxVM	Native Cluster	Symantec/ Veritas/ Infoscale/VCS/ SFRAC/VxCFS/ SFHA	Oracle RAC & 3rd Party Clusters
1	Citrix Systems Inc. Citrix Hypervisor [x86_64] 8.2		DM-MPIO		XenServer HA		
2	HPE HP-UX 11i v3 (HP-UX 11.31)		DMP , HP-UX Native MPIO		MC/Service Guard 11.20		19c RAC
3	IBM AIX 7.2	7.0 P03	AIX-MPIO , DMP	7.4.2 - 8.0		Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
4	IBM AIX 7.3	7.0 P03	AIX-MPIO				19c RAC
5	IBM VIOS 3.1.0.0,IBM VIOS 3.1.0.10,IBM VIOS 3.1.0.11,IBM VIOS 3.1.0.20,IBM VIOS 3.1.0.21,IBM VIOS 3.1.0.30,IBM VIOS 3.1.0.40,IBM VIOS 3.1.0.50,IBM VIOS 3.1.0.60,IBM VIOS 3.1.1.0,IBM VIOS 3.1.1.10,IBM VIOS 3.1.1.20,IBM VIOS 3.1.1.21,IBM VIOS 3.1.1.25,IBM VIOS 3.1.1.30,IBM VIOS 3.1.1.40,IBM VIOS 3.1.1.50,IBM VIOS 3.1.1.60,IBM VIOS 3.1.2.0,IBM VIOS 3.1.2.10,IBM VIOS 3.1.2.20,IBM VIOS 3.1.2.21,IBM VIOS 3.1.2.30,IBM VIOS 3.1.2.40,IBM VIOS 3.1.3.0,IBM VIOS 3.1.3.10,IBM VIOS 3.1.3.14,IBM VIOS 3.1.3.21,IBM VIOS 3.1.4.0,IBM VIOS 3.1.4.10	7.0 P03	AIX-MPIO				
6	Microsoft Windows Server 2012	7.2 - 7.2 P01	DMP , MPIO Framework [default DSM]	7.4.2 - 8.0	Failover Clustering	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	
7	Microsoft Windows Server 2012 R2 ,Microsoft Windows Server 2016 ,Microsoft Windows Server 2019	7.2 - 7.2 P01	DMP , MPIO Framework [default DSM]	7.4.2 - 8.0	Failover Clustering	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
8	Microsoft Windows Server 2022	7.2 - 7.2 P01	MPIO Framework [default DSM]		Failover Clustering		
9	Oracle Linux OL 7.x [x86_64] UEK UEK R5 U2 [4.14.35-1902],Oracle Linux OL 7.x [x86_64] UEK UEK R5 U3 [4.14.35-1902.30*],Oracle Linux OL 7.x [x86_64] UEK UEK R5 U4 [4.14.35-2025.40*]	7.1 - 7.4	DM-MPIO				19c RAC
10	Oracle Linux OL 7.x [x86_64] UEK UEK R5 U5 [4.14.35-2047.500]	7.1 - 7.4	DM-MPIO				
11	Oracle Linux OL 7.x [x86_64] UEK UEK R6 U1 [5.4.17-2036]	7.2 - 8.0 P01	DM-MPIO				
12	Oracle Linux OL 7.x [x86_64] UEK UEK R6 U2 [5.4.17-2102]	7.2 - 8.1	DM-MPIO				
13	Oracle Linux OL 7.x [x86_64] UEK UEK R6 U3 [5.4.17-2136]	7.4 - 8.1	DM-MPIO				
14	Oracle Linux OL 7.x [x86_64] UEK UEK R6 [5.4.17-2011]	7.2 - 7.4	DM-MPIO				19c RAC
15	Oracle Linux OL 8.x [x86_64] UEK UEK R6 U1 [5.4.17-2036]	7.2 - 8.0 P01	DM-MPIO				
16	Oracle Linux OL 8.x [x86_64] UEK UEK R6 U2 [5.4.17-2102]	7.2 - 8.1	DM-MPIO				
17	Oracle Linux OL 8.x [x86_64] UEK UEK R6 U3 [5.4.17-2136]	7.4 - 8.1	DM-MPIO				
18	Oracle Linux OL 8.x [x86_64] UEK UEK R6 [5.4.17-2011]	7.2 - 7.4	DM-MPIO				19c RAC
19	Oracle Linux OL 8.x [x86_64] UEK UEK R7 [5.15.0-0]	7.5 - 8.1	DM-MPIO				
20	Oracle Linux OL 8.x [x86_64] UEK UEK R7U1 [5.15.0-10*]	8.1	DM-MPIO				
21	Oracle Linux OL 9.x [x86_64] UEK UEK R7 [5.15.0-0]	7.5 - 8.1	DM-MPIO				
22	Oracle Linux OL 9.x [x86_64] UEK UEK R7U1 [5.15.0-10*]	8.1	DM-MPIO				

No.	Platform Support	EMC PowerPath®	Native MPIO & DMP	Symantec / Veritas/ Infoscale/ VxVM	Native Cluster	Symantec/ Veritas/ Infoscale/VCS/ SFRAC/VxCFS/ SFHA	Oracle RAC & 3rd Party Clusters
23	Oracle Solaris 10 SPARC,Oracle Solaris 10 x86		DMP , MPxIO		Solaris Cluster 3.3, Solaris Cluster 3.3 05/11 (Update 1), Solaris Cluster 3.3 3/13 (Update 2)		
24	Oracle Solaris 11 SPARC,Oracle Solaris 11 x86		DMP , MPxIO		Solaris Cluster 4.0		
25	Oracle Solaris 11.1 SPARC		DMP , MPxIO		Solaris Cluster 4.1	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	
26	Oracle Solaris 11.1 x86		DMP , MPxIO		Solaris Cluster 4.1		
27	Oracle Solaris 11.2 SPARC		DMP , MPxIO		Solaris Cluster 4.2	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	
28	Oracle Solaris 11.2 x86		DMP , MPxIO		Solaris Cluster 4.2		
29	Oracle Solaris 11.3 SPARC		DMP , MPxIO		Solaris Cluster 4.3	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
30	Oracle Solaris 11.3 x86		DMP , MPxIO		Solaris Cluster 4.3		19c RAC
31	Oracle Solaris 11.4 SPARC		DMP , MPxIO	7.4.2 - 8.0	Solaris Cluster 4.4	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
32	Oracle Solaris 11.4 x86		MPxIO		Solaris Cluster 4.4		19c RAC
33	Red Hat RHEL [x86_64] 7.5,Red Hat RHEL [x86_64] 7.6,Red Hat RHEL [x86_64] 7.7	7.1 - 7.3	DM-MPIO , DMP	7.4.2 - 8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 7.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
34	Red Hat RHEL [x86_64] 7.8	7.1 P02 - 7.4	DM-MPIO , DMP	7.4.2 - 8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 7.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
35	Red Hat RHEL [x86_64] 7.9	7.2 - 8.1	DM-MPIO , DMP	7.4.2 - 8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 7.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
36	Red Hat RHEL [x86_64] 8.0,Red Hat RHEL [x86_64] 8.1	7.1 - 7.4	DM-MPIO , DMP	7.4.2 - 8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
37	Red Hat RHEL [x86_64] 8.2	7.2 - 7.4	DM-MPIO , DMP		GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
38	Red Hat RHEL [x86_64] 8.3	7.2 - 7.5	DM-MPIO		GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0		
39	Red Hat RHEL [x86_64] 8.4	7.3 SP1 - 8.0 P01	DM-MPIO , DMP		GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0	Veritas Cluster Server (VCS) 8.0	19c RAC
40	Red Hat RHEL [x86_64] 8.5	7.4 - 8.0 P01	DM-MPIO , DMP	8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	
41	Red Hat RHEL [x86_64] 8.6	7.5 - 8.1	DM-MPIO , DMP	8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
42	Red Hat RHEL [x86_64] 8.7	8.0 - 8.1	DM-MPIO , DMP	8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0		
43	Red Hat RHEL [x86_64] 8.8	8.0 - 8.1	DM-MPIO		GFS2 (Global File System 2) GFS2, High Availability Add-on 8.0		
44	Red Hat RHEL [x86_64] 9.0	7.5 - 8.1	DM-MPIO , DMP	8.0	GFS2 (Global File System 2) GFS2, High Availability Add-on 9.0	Veritas Cluster Server (VCS) 8.0	
45	Red Hat RHEL [x86_64] 9.1	8.0 - 8.1	DM-MPIO		GFS2 (Global File System 2) GFS2, High Availability Add-on 9.0		
46	Red Hat RHEL [x86_64] 9.2	8.1	DM-MPIO		GFS2 (Global File System 2) GFS2, High Availability Add-on 9.0		
47	SUSE SLES [x86_64] 12 SP5	7.1 - 8.1	DM-MPIO , DMP	7.4.2 - 8.0	High Availability Extension	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
48	SUSE SLES [x86_64] 15 SP1	7.1 - 7.1 P02	DM-MPIO , DMP	7.4.2 - 8.0	High Availability Extension	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
49	SUSE SLES [x86_64] 15 SP2	7.2 - 7.3	DM-MPIO		High Availability Extension		
50	SUSE SLES [x86_64] 15 SP3	7.3 SP1 - 7.4	DM-MPIO , DMP	7.4.2	High Availability Extension	Veritas Cluster Server (VCS) 7.4.2, Veritas Cluster Server (VCS) 8.0	19c RAC
51	SUSE SLES [x86_64] 15 SP4	7.5 - 8.1	DM-MPIO		High Availability Extension		19c RAC
52	SUSE SLES [x86_64] 15 SP5	8.1	DM-MPIO		High Availability Extension		
53	VMware ESXi 7.0 (vSphere 7.0)	7.1 - 8.1	NMP		VMware HA		
54	VMware ESXi 8.0 (vSphere 8.0)	8.0 - 8.1	NMP		VMware HA		

Note: *The information in this ESSM is a configuration summary. The versions listed in the columns represent versions that work with the listed Platform/Operating Systems and Storage Array. Versions listed in the columns for each specific Platform/Operation System may not be interoperable. For more detailed information, refer to the Advanced Query section on the ELN home page at* https://elabnavigator.dell.com.
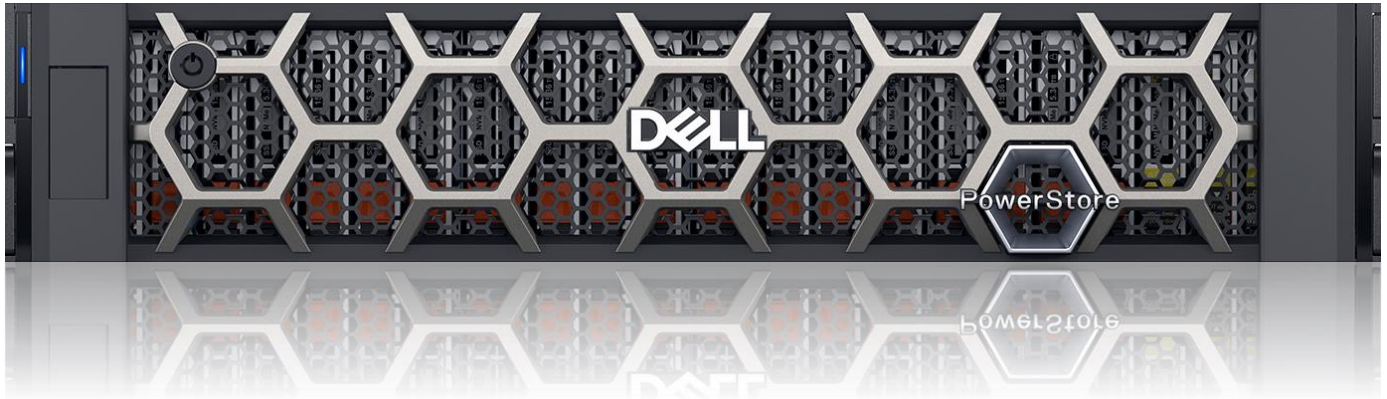
JULY, 2023

POWERSTORE

SIMPLE SUPPORT MATRIX

500/1000/3000/5000/7000/9000
1200/3200/5200/9200

PowerStore OS 3.5

Tables 2-17 of the PowerStore™ Simple Support Matrix provide information on Backup & NDMP applications, Limits, Replication, Metro, Anti-Virus, Dell Ecosystem, Third-Party Ecosystem, Migration, VMware licensing, Switch/SFP support, File Host OS support, NVMe/TCP and SFSS support

TABLE 2. 3-WAY NDMP BACKUP QUALIFIED VENDOR MATRIX

NDMP Vendor/Version	NDMP Capabilities			PowerStore File OS			
	Ver.	Dump/tar	DAR	CORE	DDAR	Filters	Int.Ckpt
Avamar with ADS/DD							
v19.2	4	Avamar Controlled	No	Yes	No	No	Yes
CommVault with NDMP							
v11.28	4	Dump	Yes	Yes	Yes	Yes	Yes
IBM Spectrum Protect							
v8.1.16	4	Dump	Yes	Yes	No	No	Yes
NetWorker with NDMP							
v19.2.1	4	Dump/Tar	Yes	Yes	Yes	Yes	Yes
Micro Focus Data Protector							
v11	4	Dump	Yes	Yes	Yes	No	Yes
Veritas Backup Exec							
v22*	4	Dump	Yes	Yes	Yes	Yes	Yes
Veritas NetBackup with NDMP							
v10.0	4	Dump/Tar	Yes	Yes	Yes	Yes	Yes
Footnote: Yes - Supported No - Not supported N/A - Not Applicable CORE - Base NDMP operation (backup/restore) DDAR - Directory Direct Access Restore Filters - NDMP filters which you can specify Int. Ckpt - internal NDMP checkpoint (SNAPSURE) *Please consult with Veritas Backup Exec for specific BE22.x version which can completely support PowerStore OS3.X for all NDMP topology.							

TABLE 3. POWERSTORE MANAGER BROWSER SUPPORT

Web Browser	Version
	Chrome Latest
	Edge Latest
	Firefox Latest
	Apple Safari v12.1 or later

TABLE 4. POWERSTORE 500/1000/3000/5000/7000/9000 LIMITS

Capacity Limits/ Base Models	500	1000	3000	5000	7000	9000
Physical Limits						
Node CPU Type	2.2GHz Xeon	1.8GHz Xeon	2.1GHz Xeon	2.1GHz Xeon	2.4GHz Xeon	2.1GHz Xeon
Nodes per Appliance	2	2	2	2	2	2
Total Cores per Appliance	24	32	48	64	80	112
Total Memory (GB) per Appliance	192	384	768	1152	1536	2560
Max Appliances per Cluster*	4	4	4	4	4	4
Max No. of Physical Drives (minus NVRAM slots)	25	96	96	96	96	96
10/25/100GbE Ethernet: Max ports per Appliance	24	24	24	24	24	24
16/32G FC: Max ports per Appliance	16	16	16	16	16	16
Max FE Ports per Appliance (all types)	24	24	24	24	24	24
12G SAS BE: Max Ports per Appliance	4	4	4	4	4	4
Max Initiators per Cluster	2000	2000	2000	2000	2000	2000
Max Initiators in a Host or Host Group	1024	1024	1024	1024	1024	1024
Max Initiators per FC port	256	256	256	256	256	256
Max Hosts per Cluster	2000	2000	2000	2000	2000	2000
Max Local and/or LDAP Users per Cluster	100	100	100	100	100	100
Max Concurrent User Logins per Cluster	16	16	16	16	16	16

Notes:
- Frontend protocols supported: iSCSI, FC, NVMe/TCP, NVMe/FC
- Direct attach to a host is supported on traditional FC only, not NVMe/FC
- Direct attach to a host is supported for both iSCSI and NVMe/TCP (w/o SFSS) with both optical and copper cables
- Where direct attach is supported, the host is required to connect to both nodes and must have the required multipath software
- NVMe/FC requires NPIV to be enabled at the switch
- AppsON is not supported with the 500 model

*Can mix and match any model, but all models in a cluster must be either T or X

	500	1000	3000	5000	7000	9000
Volume Limits						
Max Volumes/Clones per Appliance	1000	2000	3000	4000	6000	16000
Shared limit of Volumes,	6700	9600	10600	11600	13600	16000

Clones and vVols per Appliance						
Shared limit of Volumes, Clones and vVols per Cluster	32000	32000	32000	32000	32000	32000
Max Volumes in a Volume Group	75	75	75	75	75	75
Max Volume Size (TB)	256	256	256	256	256	256
Max Volume Groups per Cluster	500	500	500	500	500	500
Max Volume Groups per Appliance	125	125	125	125	125	125
Max Volume mappings per Host or Host Group	4096	4096	4096	4096	4096	4096
Max Volume mappings per Appliance	24000	24000	24000	24000	24000	24000
Max VLANs per Appliance or Cluster	32	32	32	32	32	32
Max VLANs per port	8	8	8	8	8	8
File Limits *(only applicable to T models)*						
Max File System size (TB)	256	256	256	256	256	256
Max File systems per Appliance	1500	1500	1500	1500	1500	1500
Max NAS servers per appliance	50	50	50	250	250	50
Max File systems and snapshots (. snapshots) per Appliance	1500	1500	2000	2000	2000	2000
Maximum File snapshots per Appliance (includes protocol snaps)	25000	25000	25000	25000	25000	25000
Max File systems and snapshots (. snapshots) per NAS Server	1500	1500	1500	1500	1500	1500
Max NAS Server Network Interfaces Per Appliance	500	500	500	500	500	500
Max File systems per NAS Server	125	125	125	125	125	125
Max SMB servers per NAS Server	1	1	1	1	1	1
Max NFS servers per NAS Server	1	1	1	1	1	1
Max SMB servers per appliance	50	50	50	250	250	50
Max NFS servers per appliance	50	50	50	250	250	50
SMB shares per appliance	5000	6000	8000	8000	8000	8000
NFS exports per appliance	5000	6000	8000	8000	8000	8000
SMB shares per File System	3000	3000	3000	3000	3000	3000

NFS exports per File System	1500	1500	1500	1500	1500	1500
Number of SMB shares +NFS exports per appliance	10000	12000	16000	16000	16000	16000
Max tree quotas per FS	8191	8191	8191	8191	8191	8191
Max tree quotas per Appliance / Cluster	200000	200000	200000	200000	200000	200000
Max user quotas per Appliance / Cluster/filesystem	200000	200000	200000	200000	200000	200000
File Names per Directory/Sub-directories /Files per directory (Million)	10	10	10	10	10	10
Number of home directories supported	20000	20000	30000	40000	40000	3000
SMB TCP connections (per system)	128000	128000	128000	128000	128000	128000
NFS TCP connections (per system)	128000	128000	128000	128000	128000	128000
Max TCP Connections per System	153600	153600	153600	153600	153600	153600
Max unique ACLs per File System (Million)	4	4	4	4	4	4
Directories supported per File system (Billion)	>10's of Billions	>10's of Billions	>10's of Billions	>10's of Billions	>10's of Billions	>10's of Billions
Max File size (TB)	256	256	256	256	256	256
Max open Files/Directories	64000	512000	512000	512000	512000	512000
Max SDNAS VLAN per port	32	32	32	32	32	32
Files supported per File System (Billion)	32	32	32	32	32	32
Minimum file system size (GB)	3	3	3	3	3	3
Maximum # of Production Interfaces per NAS Server	50	50	50	50	50	50
Max file Async replication sessions per Appliance (15min RPO)	125	125	125	125	125	125
Max file Async replication sessions per Appliance (5-min RPO)	75	75	75	75	75	75
Max Replicated Filesystem per Appliance	125	125	125	125	125	125

Maximum # of Backup Network Interface per NAS Server	10	10	10	10	10	10

Note:
- NAS services are provided by one of the appliances in a cluster
- Pathname length – 1024 characters (SMB), NFS has no limit
- File system name length – 95 characters
- File /directory name length – 255 bytes for NFS and 255 characters for SMB
- NFS Exports and SMB Shares limits are the advised limits for an optimal system experience. Higher limits may impose visible performance impact during a simultaneous access and may also degrade UI management experience
- Home Directory limit is the tested limit representing the number of entries in homedir config file. Use wild char with rules associated to user names to limit the number of entries in the config file for optimal connectivity response time

Snapshots						
Max Snapshots per Volume/File System	256	256	256	256	256	256
Max Block Volume Snapshots per Appliance	50000	100000	100000	100000	100000	100000
Max User Snapshots per Appliance (Block + File)	75000	125000	125000	125000	125000	125000
Max Snapshots per Family*	1000	1000	1000	1000	1000	1000
Max Clones per Family*	32	32	32	32	32	32
Protection Policies/Snapshot and Replication Rules	64	64	64	64	64	64
Hierarchical Clone Limit	4	4	4	4	4	4

*Definition of Family:

A volume, volume group, or base storage container and all its derivative thin clones and snapshots. This family includes snapshots and thin clones of the storage resource.

Replication & Backup						
Max Replication sessions	125	125	125	125	125	125
Max Replicated at RPO of ≥15min	500	500	500	500	500	500
Max Replicated at RPO of <15min	75	75	75	75	75	75
Max Replicated Volume Groups	125	125	125	125	125	125
Max Metro Replication Sessions	64	64	64	64	64	64
Max Volumes per Async Replication Volume Group	75	75	75	75	75	75
Max Async Replication Target Systems	8	8	8	8	8	8
Max concurrent NDMP Sessions per Node	4	20	20	20	20	20

vVols						
Max vVol size (TB)	62	62	62	62	62	62
Max vVols and vVol snaps per Appliance	14200	19000	24850	28700	33550	38800
Max vVols per Appliance	5700	7600	10600	11600	13600	16000
Max vVol mappings per Host or Host Group	4096	4096	4096	4096	4096	4096
Max vVol mappings per Appliance	24000	24000	24000	24000	24000	24000
Max Storage Containers	50	50	50	75	75	100
Shared limit of Volumes, Clones and vVols per Appliance	6700	9600	10600	11600	13600	16000
Shared limit of Volumes, Clones and vVols per Cluster	32000	32000	32000	32000	32000	32000
Importing data to PowerStore from other arrays (*Block only*)						
Max Import Sessions Copying On-Parallel	16	16	16	16	16	16
Max number of Remote Systems for Import	6	6	6	6	6	6
Max number of Hosts for Import	64	64	64	64	64	64
Max number of Volumes in Ready-to-Cutover State	16	16	16	16	16	16

Note:
- All limits in Table 4 are per Appliance unless otherwise noted
- vVols are supported via FC, iSCSI, and NVMe/FC

TABLE 5. POWERSTORE 1200/3200/5200/9200 LIMITS

Capacity Limits/ Base Models	1200	3200	5200	9200
Physical Limits				
Node CPU Type	2.4GHz Xeon	2.1GHz Xeon	2.2GHz Xeon	2.2GHz Xeon
Nodes per Appliance	2	2	2	2
Total Cores per Appliance	40	64	96	112
Total Memory (GB) per Appliance	384	768	1152	2560
Max Appliances per Cluster*	4	4	4	4
Max No. of Physical Drives (minus NVRAM slots)	93	93	93	93
10/25/100GbE Ethernet: Max ports per Appliance	24	24	24	24
16/32G FC: Max ports per Appliance	16	16	16	16
Max FE Ports per Appliance (all types)	24	24	24	24
Max Initiators per Cluster	2000	2000	2000	2000
Max Initiators in a Host or Host Group	1024	1024	1024	1024
Max Initiators per FC port	256	256	256	256
Max Hosts per Cluster	2000	2000	2000	2000
Max Local and/or LDAP Users per Cluster	100	100	100	100
Max Concurrent User Logins per Cluster	16	16	16	16
Notes: • Frontend protocols supported: iSCSI, FC, NVMe/TCP, NVMe/FC • Direct attach to a host is supported on traditional FC only, not NVMe/FC • Direct attach to a host is supported for both iSCSI and NVMe/TCP (w/o SFSS) with both optical and copper cables • Where direct attach is supported, the host is required to connect to both nodes and must have the required multipath software • NVMe/FC requires NPIV to be enabled at the switch *Can mix and match any model, but all models in a cluster must be either T or X				
Volume Limits				
Max Volumes/Clones per Appliance	3000	4000	6000	16000
Shared limit of Volumes, Clones and vVols per Appliance	10600	11600	13600	16000
Shared limit of Volumes,	32000	32000	32000	32000

Clones and vVols per Cluster				
Max Volumes in a Volume Group	75	75	75	75
Max Volume Size (TB)	256	256	256	256
Max Volume Groups per Cluster	500	500	500	500
Max Volume Groups per Appliance	125	125	125	125
Max Volume mappings per Host or Host Group	4096	4096	4096	4096
Max Volume mappings per Appliance	24000	24000	24000	24000
Max VLANs per Appliance or Cluster	32	32	32	32
Max VLANs per port	8	8	8	8
File Limits *(only applicable to T models)*				
Max File System size (TB)	256	256	256	256
Max File systems per Appliance	2000	2000	2000	2000
Max File systems and snapshots (. snapshots) per Appliance	2000	2000	2000	2000
Maximum File snapshots per Appliance (includes protocol snaps)	25000	25000	25000	25000
Max NAS servers per appliance	50	250	250	250
Max NAS Server Network Interfaces Per Appliance	500	500	500	500
Max File systems per NAS Server	125	125	125	125
Max File systems and snapshots (. snapshots) per NAS Server	1500	1500	1500	1500
Max SMB servers per NAS Server	1	1	1	1
Max NFS servers per NAS Server	1	1	1	1
Max SMB servers per appliance	50	250	250	250
Max NFS servers per appliance	50	250	250	250
SMB shares per appliance	8000	8000	8000	8000
NFS exports per appliance	8000	8000	8000	8000
SMB shares per File	3000	3000	3000	3000

System				
NFS exports per File System	1500	1500	1500	1500
Number of SMB shares +NFS exports per appliance	16000	16000	16000	16000
Max tree quotas per FS	8191	8191	8191	8191
Max tree quotas per Appliance / Cluster	200000	200000	200000	200000
Max user quotas per Appliance / Cluster/filesystem	200000	200000	200000	200000
File Names per Directory/Sub-directories /Files per directory (Million)	10	10	10	10
Number of home directories supported	30000	40000	40000	40000
SMB TCP connections (per system)	128000	128000	128000	128000
NFS TCP connections (per system)	128000	128000	128000	128000
Max TCP Connections per System	153600	153600	153600	153600
Max unique ACLs per File System (Million)	4	4	4	4
Directories supported per File system (Billion)	>10's of Billions	>10's of Billions	>10's of Billions	>10's of Billions
Max File size (TB)	256	256	256	256
Max open Files/Directories	512000	512000	512000	512000
Max SDNAS VLAN per port	32	32	32	32
Files supported per File System (Billion)	32	32	32	32
Minimum file system size (GB)	3	3	3	3
Maximum # of Production Interfaces per NAS Server	50	50	50	50
Maximum # of Backup Network Interface per NAS Server	10	10	10	10

Note:
- NAS services are provided by one of the appliances in a cluster
- Pathname length – 1024 characters (SMB), NFS has no limit
- File system name length – 95 characters
- File /directory name length – 255 bytes for NFS and 255 characters for SMB
- NFS Exports and SMB Shares limits are the advised limits for an optimal system experience. Higher limits may impose visible performance impact during a simultaneous access and may also degrade UI management experience
- Home Directory limit is the tested limit representing the number of entries in homedir config file. Use wild char with rules associated to user names to limit the number of entries in the config file for optimal connectivity response time

Snapshots				
Max Snapshots per Volume/File System	256	256	256	256
Max Block Volume Snapshots per Appliance	100000	100000	100000	100000
Max User Snapshots per Appliance (Block + File)	125000	125000	125000	125000
Max Snapshots per Family*	1000	1000	1000	1000
Max Clones per Family*	32	32	32	32
Protection Policies/Snapshot and Replication Rules	64	64	64	64
Hierarchical Clone Limit	4	4	4	4

*Definition of Family:

A volume, volume group, or base storage container and all its derivative thin clones and snapshots. This family includes snapshots and thin clones of the storage resource.

Replication & Backup				
Max Replication sessions for Block	125	125	125	125
Max Replicated Volumes at RPO of ≥15min	500	500	500	500
Max Replicated Volumes at RPO of <15min	75	75	75	75
Max Replicated Volume Groups	125	125	125	125
Max Volumes per Async Replication Volume Group	75	75	75	75
Max Async Replication Target Systems	8	8	8	8
Max concurrent NDMP Sessions per Node	20	20	20	20
vVols				
Max vVol size (TB)	62	62	62	62
Max vVols and vVol snaps per Appliance	24850	28700	33550	38800
Max vVols per Appliance	10600	11600	13600	16000

Max vVol mappings per Host or Host Group	4096	4096	4096	4096
Max vVol mappings per Appliance	24000	24000	24000	24000
Max Storage Containers	50	75	75	100
Shared limit of Volumes, Clones and vVols per Appliance	10600	11600	13600	16000
Shared limit of Volumes, Clones and vVols per Cluster	32000	32000	32000	32000
Importing data to PowerStore from other arrays (*Block only*)				
Max Import Sessions Copying On-Parallel	16	16	16	16
Max number of Remote Systems for Import	6	6	6	6
Max number of Hosts for Import	64	64	64	64
Max number of Volumes in Ready-to-Cutover State	16	16	16	16

Note:
- All limits in Table 5 are per Appliance unless otherwise noted
- vVols are supported via FC, iSCSI, and NVMe/FC

TABLE 6. REPLICATION SUPPORT

Source/ Destination	Destination /Source	Block		File		vVols		RP4VM
		Sync	Async	Sync	Async	Sync	Async	
PowerStore	PowerStore	✗	✓	✗	✓	✗	✓	✓

Note:
- File support applies to T models only
- vVol async replication is supported both natively and via SRM
- Refer to "TABLE 16. FILE HOST OS SUPPORT" for host OS supported with PowerStore File Async replication

Footnote:
  ✓ – Supported
  ✗ – Not Supported

TABLE 7. METRO SUPPORT

OS	Version(s) Supported	Multipath Software	Cluster Software	Storage OS	Boot From SAN	Supported Connectivity
VMware	6.7, 7.0, 8.0	NMP	vSphere MSC	PowerStore OS 3.0	N	FC, iSCSI

Note:
- Metro is supported only for Volumes – not including Clones, Volumes Groups, NAS File Systems, vVols
- SCSI Reservations are not supported
- Metro Volume resize is only supported when the Metro Volume session is paused
- Remote Protection policy is not supported for Metro Volumes
- PowerStore X is not supported with Metro

TABLE 8. ANTIVIRUS SUPPORT

Please refer to this page for the latest supported CEE and Antivirus versions:

https://elabnavigator.dell.com/vault/pdf/CEE_CAVA_support_matrix.pdf

TABLE 9. I18N SUPPORT

Client Type	Supported
SMB Clients	UCS-2 (Unicode)
UNIX/LINUX Clients	UTF8

TABLE 10. POWERSTORE FEDERAL COMPLIANCE

Features	Version Supported/Status
Data at Rest Encryption (D@RE) in PowerStore utilizes FIPS 140-2 validated Self-Encrypting Drives (SEDs) by respective drive vendors for primary storage (NVMe SSD, NVMe SCM and SAS SSD). The 500T/1200T/3200T/5200T/9200T models are FIPS 140-2 compliant. The 1000T/3000T/5000T/7000T/9000T can be FIPS 140-2 compliant by upgrading to the FIPS-capable NVRAM module.	Available
D@RE supported External Key Managers (KMIP)	▪ Dell CloudLink v7.1.1 ▪ Thales Vormetric DSM v6.3.0 ▪ Thales CipherTrust Manager v2.5 ▪ Thales (Gemalto) KeySecure v8.12.1 ▪ IBM GKLM v4.1.1 ▪ Fornetix VaultCore v2.5
TLS 1.2 support by default, TLS 1.1 and older are disabled by default. TLS 1.1 can be optionally enabled	Included
Native SHA2 certificate	Included
Common Criteria	In process
IPv6	Complete

Note: PowerStore does not support running both IPv4 and IPv6 in the same network at the same time. You can use either IPv4 or IPv6 for the management network, but not both at the same time

TABLE 11. DELL ECOSYSTEM SUPPORT

Solution
Ansible Modules for PowerStore
AppSync
Avamar
CSI Driver for PowerStore
ESA for vRO
metro node
NetWorker
PowerPath Linux
PowerPath Windows
PowerPath VE
PowerProtect Data Manager
PowerShell Module for PowerStore
PowerSwitch
RecoverPoint for VMs
SmartFabric Storage Software for NVMe/TCP
SRA for PowerStore
Storage Resource Manager (SRM) for PowerStore
Terraform
VPLEX
Virtual Storage Integrator (VSI) for vSphere Client
vRO Plugin for PowerStore

TABLE 12. ADVANCED APPS AND THIRD-PARTY ECOSYSTEM SUPPORT

Solution	Version
Commvault IntelliSnap	11.23
IBM SVC	8.3.x.x, 8.4.x.x
OpenStack	Cinder v1.x
Veeam Backup & Replication	11.x
Veeam Plugin for PowerStore	11.x

TABLE 13. IMPORTING DATA TO POWERSTORE FROM OTHER ARRAYS

Supported Combinations for Seamless Migration:

OS	Version(s) Supported	Storage Connectivity	
		iSCSI	FC
Linux	RHEL 7.5	VNX2, Unity, SC, PS, PS EQL (HIT LE 1.9)	VNX2, Unity
	RHEL 7.6-7.9	VNX2, Unity, SC	VNX2, Unity
	RHEL 8.0-8.4	VNX2, Unity, PS EQL, SC	VNX2, Unity
	RHEL 8.0	PS EQL (HIT 1.9)	N/A
	SLES 12 SP2	VNX2, Unity, SC	VNX2, Unity
	SLES 12 SP3	VNX2, Unity, PS, PS EQL (HIT LE 1.9)	VNX2, Unity
	SLES 12 SP4	VNX2, Unity	VNX2, Unity
	SLES 12 SP5	Unity	Unity
	SLES 15	VNX2, Unity, SC, PS EQL (HIT 1.9), PS EQL	VNX2, Unity
	SLES 15 SP1	VNX2, Unity, PS EQL	VNX2, Unity
	SLES 15 SP2	Unity, PS EQL	Unity
VMware	vSphere 6.5U2, 6.7	PS EQL (Mem 1.7)	N/A
Windows	Windows 2012 R2U1, 2016	VNX2, Unity, PS EQL (HIT ME 5.5)	Unity
	Windows 2019	VNX2, Unity, PS EQL (HIT ME 5.5)	Unity

Note: Block-only support

Agentless Migration:

Source System	Operating Environment
Dell EqualLogic PS	10.0.x or later
Dell Compellent SC	7.4.2.103 or later
Dell Unity XT	5.0.2.0.5.009 or later
Dell VNX2	5.33.021.5.256 or later
Dell XtremIO X1	4.0.25 or later
Dell XtremIO X2	6.2 or later
Dell VMAX	5977.1131.1131 or later
Dell PowerMax	5978.479.479 or later

Note: Block-only support with Linux/VMware/Windows/AIX. Solaris is not supported

TABLE 14. VMWARE LICENSING AND SUPPORT FOR POWERSTORE X

Required Licenses:

Product	Licenses
ESXi	vSphere Enterprise Plus or higher* vSphere Remote Office Branch Office (ROBO) Advanced vSphere Remote Office Branch Office (ROBO) Enterprise
vCenter	vCenter Server Standard vCenter Server Foundation (Limited to 4 Hosts)

Note: vSphere and vCenter licenses are tied to VMware major releases
(example: 5.x, 6.x, 7.x – A 6.x license is not compatible with 7.x)

*4 Licenses required per Appliance - 2 CPUs per node x 2 Nodes per Appliance

Supported Versions:

PowerStore Version	ESXi Versions*	vCenter Versions**
OS v1.0, v1.0.1	6.7 EP 10	6.7.x, 7.0A, 7.0B, 7.0C, 7.0D
OS v1.0.2	6.7 EP 10, 6.7 EP 15, 6.7 P03	
OS v1.0.3, v1.0.4	6.7 P03, 6.7 P04, 6.7 EP 18, 6.7 P05	
OS v2.0.x	6.7 P05, 6.7 P06	6.7.x, 7.0.x
OS v2.1.1.x***	7.0 U3C HotFix^, 7.0 U3D	7.0.2.x, 7.0.3.x
OS v3.2.x^^	7.0 U3E, 7.0 U3G, 7.0 U3I, 7.0 U3L	7.0.2.x, 7.0.3.x, 8.0.x

*Refers to vSphere versions running on PowerStore X model internal nodes. Only Dell validated versions of vSphere are supported. ESXi Version Name to Release Name and Build Number relation can be found at https://kb.vmware.com/s/article/2143832

**Requires a version of vCenter that is compatible with the vSphere version. Please check compatibility at https://www.vmware.com/resources/compatibility/sim/interop_matrix.php

***Please note that PowerStore OS v2.1.0 only supports T models in the initial release. PowerStore OS v2.1.1 introduces support for the X models

^This is a Dell PowerStore specific ESXi build number (19295755) – It is included as part of the PowerStore OS 2.1.1 upgrade package available on the Dell support page

^^Please note that PowerStore OS v3.0 only supports T models in the initial release. PowerStore OS v3.2.0 introduces support for the X models and will be the last official release that will support these models.

TABLE 15. SWITCH AND SFP SUPPORT FOR POWERSTORE

Switch Support:

Please refer to the following for a comprehensive list of supported switches:

- o [Dell Networking Switches](#)
- o [Third-Party/Stand-Alone Switches](#)

All ethernet switches support the following traffic:

- o iSCSI
- o NAS
- o Replication
- o Intra-cluster communication
- o PowerStore Import

SFP Support:

The following SFPs have been qualified and considered supported with PowerStore. You may experience issues if you use other non-supported SFPs

Model	Description
P1-SFP-16GB-FC	16G FC MULTIMODE OPTICAL SFP PAIR
P1-SFP-32GB-FC	32G FC MULTIMODE OPTICAL SFP PAIR
P1-SFP-10GB-OPT	10GBE OPTICAL SFP PAIR
P1-SFP-25GB-OPT	25GBE OPTICAL SFP PAIR
P1-SFP-100G-OPT	100GBE OPTICAL SWITCH QSFP QTY 1

Note: For 1Gbps SAN support, an RPQ must be submitted

TABLE 16. FILE HOST OS SUPPORT

Platform	Operating System	SMB/NFS Version(s) Supported
Microsoft	Windows 8.1	SMB 3.02
	Windows 10	SMB 3.1.1
	Windows 11	SMB 3.1.1
	Windows Server 2012	SMB 3.0
	Windows Server 2012 R2	SMB 3.02
	Windows Server 2016	SMB 3.1.1
	Windows Server 2019	SMB 3.1.1
	Windows Server 2022	SMB 3.1.1
RedHat	RHEL 7.5-7.9, 8.0-8.5, 9	NFS v3, NFS v4.0, NFS v4.1, NFS v4.2
SUSE	SLES 12 SP3-SP5	NFS v3, NFS v4.0, NFS v4.1, NFS v4.2
	SLES 15, 15 SP1-SP4	NFS v3, NFS v4.0, NFS v4.1, NFS v4.2
Ubuntu	Ubuntu 18.04, 20.04, 22.04	NFS v3, NFS v4.0, NFS v4.1, NFS v4.2
CentOS	CentOS 7.5-7.9	NFS v3, NFS v4.0, NFS v4.1, NFS v4.2
Oracle	Oracle Linux 7.7-7.9 UEK6, 8.1-8.5 UEK6	NFS v3, NFS v4.0, NFS v4.1, NFS v4.2
Apple	macOS 10.15, 12.4	SMB v3.02, NFS v3, NFS v4.0
VMware	ESXi 6.5, 6.5 U1-U3, 6.7, 6.7 U1-U3	NFS v3, NFS v4.1
	ESXi 7.0, 7.0 U1-U3, 8.0,8,0 U1	NFS v3, NFS v4.1

Notes:
- File services are only available with PowerStore T models
- MAC OS v10.15 does not support the SMB Continuous Availability feature, this fails certain HA

scenarios (e.g, async file replication) which depends on the CA support for continuous IO. Prior to an async file replication planned failover, please quiesce all I/O on the MAC OS client

TABLE 17. NVMe/TCP AND SFSS SUPPORT

Please refer to the following for a comprehensive list of NVMe/TCP and SFSS supported hosts/switches:

- o [NVMe/TCP Host Support Matrix](#)
- o [NVMe/TCP Switch Support Matrix](#)
- o [SFSS Support and Interoperability Matrix](#)

TABLE 18. Storage Direct SUPPORT Table

PPDD	DDVE	DDOS	AWS
DD2200	6.2	6.2	
DD9300	7.11	7.11	
	7.9	7.9	X