Dell Storage with Microsoft Storage Spaces Support Matrix

A Dell Support Matrix

Revisions

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1 Introduction

This document provides information about supported software, firmware, and hardware versions for the Dell Storage with Microsoft Storage Spaces solution (DSMS). The DSMS is a software-defined storage (SDS) platform that uses Microsoft Storage Spaces and Dell servers, storage, and networking to create a scalable file-server solution.

You can use this solution as a Scale-Out File Server (SOFS) or as a Converged solution. The SOFS solution uses the SOFS role with clustered Storage Spaces, in a disaggregated solution, where the compute workloads run on client servers separate from the storage nodes. The client servers use Server Message Block (SMB) to access SOFS file shares on the storage nodes. The Converged solution uses the Hyper-V role with clustered Storage Spaces, where the compute workloads run directly on the server cluster nodes.

This document is intended to support DSMS configurations, which have unique solution SKUs called Solution IDs. These DSMS solution IDs are required when ordering a DSMS configuration, and to access the benefits such as performance and sizing, optimized server and storage components, single-payload updates, and solution-level technical support. If you are in a geographical area outside of the US, the solution IDs are not available at this time. However, you may reference the configuration name instead. For the complete list of configuration solution IDs, see *Dell Storage with Microsoft Storage Spaces Configurations and Solution IDs*.

1.1 What's New

10/25/17 Converted document from HTML to PDF.

02/17/2017 Added new Toshiba drives.

9/12/2016 Removed a restriction on the supported switches.

9/02/2016: Update firmware and drivers, updated boot drive versions, updated RDMA adapter versions, updated host bus adapter version, updated KBs, and updated storage enclosure versions.

8/22/2016: Updated server firmware and drivers, server boot drives, RDMA adapters, SAS host bus adapters, Microsoft KBs, and supported HDD and SSDs.

8/1/2016: Updated KB list and added a configuration update table.

1.2 DSMS rules

Table 1   DSMA rules

Information	Description
Maximum number of storage nodes or servers	4
Maximum number of dual-port SAS HBA cards in a storage node or server	DSMS 630 - 2 (2 x low profile) DSMS 730 -4 (2 x low profile, 2 x full profile)

Information	Description
Maximum SAS cable length	4m
Minimum number of solid state drives (SSDs) in a DSMS 1400 storage enclosure	2
Minimum number of hard disk drives (HDDs) in a DSMS 1400 storage enclosure	4
Minimum number of SSDs in a DSMS 1420 storage enclosure	2
Minimum number of HDDs in a DSMS 1420 storage enclosure	8
Minimum number of SSDs in a DSMS 3060e storage enclosure	6
Maximum number of SSDs in the DSMS 3060e storage enclosure	25
Maximum number of SSDs in the DSMS 3060e storage enclosure per drawer	5
Minimum number of HDDs in a DSMS 3060e storage enclosure	24
Maximum number of storage pools for each cluster	4
Maximum number of physical disks in a clustered storage pool	80
Maximum disk space in a single storage pool	480 TB
Maximum storage spaces created for a single storage pool	64
Required Windows MPIO Load Balancing Policy	Least Blocks (for random and sequential workloads)
SOFS is not supported when running concurrently with Hyper-V. You must not install the SOFS role and Hyper-V role on the same server.	X
Recommended SMB clients are Windows Server 2012 or later to use SOFS features.	X
Each SOFS or Converged configuration must use only one type of storage enclosure. You cannot mix DSMS 1400, DSMS 1420, and DSMS 3060e in the same hardware configuration.	X

1.3 Supported enclosures

Table 2   Supported enclosures

Enclosure model	MIN version
DSMS 3060e	03.99
DSMS 1400	1.07
DSMS 1420	1.07

1.4 Supported configurations

Table 3   Supported configurations

Storage node, storage enclosure solution	2x1	2x2	2x3	2x4	3x3	3x4	4x3	4x4
DSMS 630 or 730 with DSMS 1420 (All Flash Array)	X	X						
DSMS 630 or 730 and DSMS 3060e	X	X	X	X	X	X		X
DSMS 630 or 730 with DSMS 14x0 series	X	X	X	X	X	X	X	X

1.5 Supported SMB client servers

The DSMS solution supports any Dell PowerEdge 12th or 13th generation server as an SMB client server for SOFS configurations.

1.6 Supported hardware, firmware, and software

This chapter provides information about supported software, firmware, and hardware versions for the DSMS.

1.6.1 Supported components

Table 4   Supported components

Dell server model	Component	Minimum version
DSMS 630	BIOS	2.1.7
	Chipset driver	10.1.2.19
	iDRAC with Lifecycle Controller Firmware	2.30.30.30
	Backplane Expander Firmware	3.31

Dell server model	Component	Minimum version
	PERC H330 firmware	25.4.1.0004
	PERC H330 driver	6.603.07.00
	PERC H730P firmware	25.4.0.0017
	PERC H730P driver	6.603.07.00
	PERC H730 firmware	25.4.1.0004
	PERC H730 driver	6.603.07.00
DSMS 730	BIOS	2.1.7
	Chipset driver	10.1.2.19
	Backplane Expander firmware	3.31
	iDRAC with Lifecycle Controller Firmware	2.30.30.30
	PERC H330 firmware	25.4.1.0004
	PERC H330 driver	6.603.07.00
	PERC H730P firmware	25.4.0.0017
	PERC H730P driver	6.603.07.00
	PERC H730 firmware	25.4.1.0004
	PERC H730 Driver	6.603.07.00

1.7 Supported server boot drives

This section provides information about the supported boot drives by the DSMS solution.

Table 5   Supported server boot drives

Form factor	Model	Disk Space	Speed	Interface	Vendor	MIN version
2.5"	HUC101860CSS204	600 GB	10 K	12 Gbps	HGST	FJ11
2.5"	HUC101860CSS204	600 GB	10 K	6 Gbps	HGST	FJ05
2.5"	HUC156060CSS204	600 GB	15 K	12 Gbps	HGST	EJ11
2.5"	HUC109060CSS600	600 GB	10 K	6 Gbps	HGST	N440
2.5"	HUC156030CSS204	300 GB	15 K	12 Gbps	HGST	EJ11
2.5"	HUC101830CSS204	300 GB	10 K	12 Gbps	HGST	FJ11
2.5"	HUC156030CSS204	300 GB	15 K	6 Gbps	HGST	EA01
2.5"	HUC101830CSS204	300 GB	10 K	6 Gbps	HGST	FJ05
2.5"	HUC109030CSS600	300 GB	10 K	6 Gbps	HGST	N440
2.5"	HUC101812CSS204	1.2 TB	10 K	12 Gbps	HGST	FJ11
2.5"	SSDSC2BG200G4R	200 GB	SSD (SATA)	6 Gbps	Intel	DL29
2.5"	ECE-200NAS	200 GB	SSD (SATA)	6 Gbps	LiteOn	11XU
2.5"	ST600MP0005	600 GB	15 K	12 Gbps	Seagate	VT32
2.5"	ST600MM0088	600 GB	10 K	6 Gbps	Seagate	TS04
2.5"	ST600MM0088	600 GB	10 K	12 Gbps	Seagate	TT31
2.5"	ST600MM0006	600 GB	10 K	6 Gbps	Seagate	LS0B
2.5"	ST9500620NS	500 GB	7.2 K (SATA)	3 Gbps	Seagate	AA0D
2.5"	ST9500620SS	500 GB	7.2 K	6 Gbps	Seagate	AS0B
2.5"	ST9300653SS	300 GB	15 K	6 Gbps	Seagate	YS0C
2.5"	ST300MP0005	300 GB	15 K	12 Gbps	Seagate	VT32
2.5"	ST300MP0005	300 GB	15 K	6 Gbps	Seagate	VS0A
2.5"	ST300MM0006	300 GB	10 K	6 Gbps	Seagate	LS0B
2.5"	ST300MM0008	300 GB	10 K	12 Gbps	Seagate	TT31

Form factor	Model	Disk Space	Speed	Interface	Vendor	MIN version
2.5"	ST1200MM0088	1.2 TB	10 K	12 Gbps	Seagate	TT31
2.5"	AL13SXB60EN	600 GB	15 K	12 Gbps	Toshiba	DK02
2.5"	AL13SEB600	600 GB	10 K	6 Gbps	Toshiba	DE11
2.5"	AL14SEB060N	600 GB	10 K	12 Gbps	Toshiba	DM03
2.5"	AL13SXB300N	300 GB	15 K	6 Gbps	Toshiba	DF09
2.5"	AL13SEB300	300 GB	10 K	6 Gbps	Toshiba	DE11
2.5"	AL13SXB30EN	300 GB	15 K	12 Gbps	Toshiba	DK02
2.5"	AL14SEB030N	300 GB	10 K	12 Gbps	Toshiba	DM03
2.5"	AL14SEB120N	1.2 TB	10 K	12 Gbps	Toshiba	DM03
2.5"	WD3002BKTG	300 GB	10 K	6 Gbps	Western Digital	D1P3

1.8   Supported NDCs and NICs

Table 6   Supported NDCs and NICs

Vendor	Model	Type	Component	MIN version
Intel	X520 Dual Port 10 GbE SFP+ & I350 Dual Port 1 GbE 1000Base-T	NDC	Firmware Driver	17.5.10 17.5.0
Intel	X540 Dual Port 10 GbE 10GBase-T & I350 Dual Port 1 GbE 1000Base-T	NDC	Firmware Driver	17.5.10 17.5.0
Intel	X520 Dual Port 10 GbE SFP+	NIC	Firmware Driver	17.5.10 17.5.0
Intel	X540 Dual Port 10 GbE 10GBase-T	NIC	Firmware Driver	17.5.10 17.5.0
Intel	X710 Dual Port 10 GbE SFP+	NIC	Firmware Driver	17.5.11 17.5.0

1.9 Supported RDMA adapters

Table 7   Supported RDMA adapters

Vendor	Model	Component	MIN version	Switches supported
Chelsio	T520-CR (10 GbE)	Package Firmware Driver	5.0.0.57 1.15.35.0 6.1.17.0	Supports all switches listed in section Supported switches.
Mellanox	ConnectX-3 (10 GbE)	Firmware Driver	2.34.50.80 5.10.00	
Mellanox	ConnectX-3 Pro (10 GbE)	Firmware Driver	2.34.50.80 5.10.00	
Mellanox	ConnectX-3 Pro (40 GbE)	Firmware Driver	2.34.50.80 5.10.00	

1.9.1 Supported SAS host bus adapters

Table 8   Supported SAS host bus adapters

Vendor	Model	Supported storage enclosure	Component	MIN version	MIN package version
LSI	9207-8e	DSMS 3060e	Firmware Driver	20.00.04.00 2.00.79.00	N/A N/A
Dell	12 Gb SAS HBA		Firmware Driver	9.00.09 2.51.1.2	9.17.20.07 N/A

1.10 Supported server operating systems

This section provides information about the supported DSMS server node operating systems (OS). DSMS supports the following Full Server and Server Core installations:

- Microsoft Windows Server 2012 R2 Standard (SOFS and Converged configurations)
- Microsoft Windows Server 2012 R2 Datacenter (Converged)

- The associated hotfixes for the following Microsoft Knowledge Base (KB) articles are required for all DSMS installations:
- KB3000483
- KB3000850
- KB3021910
- KB3034344
- KB3014069
- KB3020338
- KB3025091
- KB3045171
- KB3072000
- KB3072380
- KB3073062
- KB3079904
- KB3121261
- KB3123538

Table 9   Configuration changes

Node	Update
Storage	Set-ItemProperty -Path "HKLM:\SYSTEM\CurrentControlSet\Services\spaceport\Parameters" -Name ResetInterval -Type DWord -Value 20000
Storage	Set-ItemProperty -Path "HKLM:\SYSTEM\CurrentControlSet\Services\spaceport\Parameters" -Name ResetUnresponsiveTimeout -Type DWord -Value 10000

1.11   Supported switches

This section provides information about the supported switches by DSMS solution.

- Supported switches for management traffic: Supports any switch with at least 1 GbE-capable port.
- Supported switches for Cluster and SMB client traffic: The following tables provides details about the supported switches

Table 10   Cluster and SMB client network traffic

Vendor	Switch model	MIN version
Dell	S4810	9.5.0.1
Dell	S4820T	9.5.0.1
Dell	S5000	9.5.0.1
Dell	S6000	9.5.0.1

Vendor	Switch model	MIN version
Dell	N4064	6.2.1.6
Dell	N4064F	6.2.1.6
Dell	N4032	6.2.1.6
Dell	N4032F	6.2.1.6
Dell	S4048-ON	3.21.1.1

NOTE: DSMS also supports third party switches with the same requirements.

1.11.1 Requirements for non-dell switches:

- Managed switch
- Layer-3 Ethernet routing capable
- VLAN segmenting
- 802.3x Asymmetric Flow Control (Rx Only) or Data Center Bridging (Mellanox)
- Quality-of-Service, Class-of-Service (Mellanox)
- MTU Frame Size >= 9 KB
- Non-oversubscribed switch backplane fabric

NOTE: Multiple lossless classes are not allowed on the same switch (for example, RoCE and iSCSI).

1.12 Supported HDD and SSD models for storage enclosures

This section provides information about HDD and SSD supported by the DSMS solution.

NOTE: All physical disk I/O must be prior to performing firmware updates for physical disks in the storage enclosures

Table 11   Supported HDD and SSD models for

Form factor	Model	Disk space	Disk sector size	Speed	Interface	Vendor	MIN version
3.5"	HUS726060AL5214	6 TB	512e	7.2 K	12 Gbps	HGST	KK06
2.5"	HUC101860CSS204	600 GB	512n	10 K	6 Gbps	HGST	FJ05
2.5"	HUC101860CSS204	600 GB	512n	10 K	12 Gbps	HGST	FJ23
2.5"	HUC156060CSS204	600 GB	512n	15 K	6 Gbps	HGST	EJ06
2.5"	HUC156060CSS204	600 GB	512n	15 K	12 Gbps	HGST	EJ11
2.5"	HUC109060CSS600	600 GB	512n	10 K	6 Gbps	HGST	N440
2.5"	HUC101830CSS204	300 GB	512n	10 K	6 Gbps	HGST	FJ05
2.5"	HUC101830CSS204	300 GB	512n	10 K	12 Gbps	HGST	FJ23

Form factor	Model	Disk space	Disk sector size	Speed	Interface	Vendor	MIN version
2.5"	HUC156030CSS204	300 GB	512n	15 K	12 Gbps	HGST	EJ11
2.5"	HUC109030CSS600	300 GB	512n	10 K	6 Gbps	HGST	N440
3.5"	HUH728080AL5204	8 TB	512e	7.2 K	12 Gbps	HGST	GK04
3.5"	HUS724040ALS640	4 TB	512n	7.2 K	6 Gbps	HGST	W2F0
3.5"	HUS724020ALS640	2 TB	512n	7.2 K	6 Gbps	HGST	W2F0
3.5"	HUH721008AL5200	8 TB*	LS02	7.2 K	12 Gbps	HGST	LS02
3.5"	HUH721010AL5200	10 TB*	LS02	7.2 K	12 Gbps	HGST	LS02
2.5"	HUC101818CS4204	1.8 TB	512e	10 K	12 Gbps	HGST	FK12
2.5"	HUC101812CSS204	1.2 TB	512n	10 K	6 Gbps	HGST	FJ05
2.5"	HUC101812CSS204	1.2 TB	512n	10 K	12 Gbps	HGST	FJ23
2.5"	HUC101212CSS600	1.2 TB	512n	10 K	6 Gbps	HGST	U5E2
3.5"	HUS726020ALS214	2 TB	512n	7.2 K	12 Gbps	HGST	KJ03
3.5"	HUS726040ALS214	4 TB	512n	7.2 K	12 Gbps	HGST	KJ03
2.5"	LT0800MO	800 GB	512n	SSD	12 Gbps	Sandisk	D40Z
2.5"	LT0400MO	400 GB	512n	SSD	12 Gbps	Sandisk	D40Z
2.5"	LT0200MO	200 GB	512n	SSD	12 Gbps	Sandisk	D40Z
2.5"	LT1600MO	1.6 TB	512n	SSD	12 Gbps	Sandisk	D40Z
2.5"	ST600MP0005	600 GB	512n	15 K	6 Gbps	Seagate	VS0A
2.5"	ST600MP0005	600 GB	512n	15 K	12 Gbps	Seagate	VT32
2.5"	ST600MM0088	600 GB	512n	10 K	6 Gbps	Seagate	TS04
2.5"	ST600MM0088	600 GB	512n	10 K	12 Gbps	Seagate	TT31
2.5"	ST600MM0006	600 GB	512n	10 K	6 Gbps	Seagate	LS0B
2.5"	ST300MP0005	300 GB	512n	15 K	6 Gbps	Seagate	VS0A
2.5"	ST300MP0005	300 GB	512n	15 K	12 Gbps	Seagate	VT32
2.5"	ST300MM0008	300 GB	512n	10 K	12 Gbps	Seagate	TT31
2.5"	ST300MM0006	300 GB	512n	10 K	6 Gbps	Seagate	LS0B
2.5"	ST9300653SS	300 GB	512n	15 K	6 Gbps	Seagate	YS0C
3.5"	ST6000NM0034	6 TB	512e	7.2 K	6 Gbps	Seagate	MS2D
3.5"	ST4000NM0023	4 TB	512n	7.2 K	6 Gbps	Seagate	GS10

Form factor	Model	Disk space	Disk sector size	Speed	Interface	Vendor	MIN version
3.5"	ST2000NM0023	2 TB	512n	7.2 K	6 Gbps	Seagate	GS10
2.5"	ST1800MM0168	1.8 TB	512e	10 K	12 Gbps	Seagate	2S23
2.5"	ST1200MM0088	1.2 TB	512n	10 K	12 Gbps	Seagate	TT31
2.5"	ST1200MM0088	1.2 TB	512n	10 K	6 Gbps	Seagate	TS04
2.5"	ST1200MM0007	1.2 TB	512n	10 K	6 Gbps	Seagate	IS06
3.5"	ST2000NM0005	2 TB	512n	7.2 K	12 Gbps	Seagate	MS05
3.5"	ST4000NM0005	4 TB	512n	7.2 K	12 Gbps	Seagate	MS05
3.5"	ST6000NM0034	6 TB	512e	7.2 K	12 Gbps	Seagate	MS84
3.5"	ST8000NM0075	8 TB	512e	7.2 K	12 Gbps	Seagate	PS25
3.5"	ST2000NM0045	2 TB	DS03	7.2 K	12 Gbps	Seagate	DS03
3.5"	ST4000NM0025	4 TB	DS03	7.2 K	12 Gbps	Seagate	DS03
3.5"	ST6000NM0095	6 TB	DS22	7.2 K	12 Gbps	Seagate	DS22
2.5"	PX05SMB040Y	400 GB	512e	SSD	12 Gbps	Toshiba	AS03
2.5"	PX05SMB080Y	800 GB	512e	SSD	12 Gbps	Toshiba	AS03
2.5"	PX05SMB160Y	1.6 TB	512e	SSD	12 Gbps	Toshiba	AS03
2.5"	PX04SMB040	400 GB	512e	SSD	12 Gbps	Toshiba	AM04
2.5"	PX04SMB080	800 GB	512e	SSD	12 Gbps	Toshiba	AM04
2.5"	PX04SMB160	1.6 TB	512e	SSD	12 Gbps	Toshiba	AM04
2.5"	AL14SEB090N	900 GB	512n	10 K	12 Gbps	Toshiba	DM03
2.5"	PX02SMF080	800 GB	512n	SSD	12 Gbps	Toshiba	A3AF
2.5"	AL13SXB600N	600 GB	512n	15K	6 Gbps	Toshiba	DF09
2.5"	AL14SEB060N	600 GB	512n	10 K	12 Gbps	Toshiba	DM03
2.5"	AL13SXB60EN	600 GB	512n	15K	12 Gbps	Toshiba	DK02
2.5"	AL13SEB600	600 GB	512n	10 K	6 Gbps	Toshiba	DE11
2.5"	PX02SMF040	400 GB	512n	SSD	12 Gbps	Toshiba	A3AF
2.5"	AL13SEB300	300 GB	512n	10 K	6 Gbps	Toshiba	DE11
2.5"	AL13SXB300N	300 GB	512n	15 K	6 Gbps	Toshiba	DF09
2.5"	AL13SXB30EN	300 GB	512n	15 K	12 Gbps	Toshiba	DK02
2.5"	PX02SMF020	200 GB	512n	SSD	12 Gbps	Toshiba	A3AF

Form factor	Model	Disk space	Disk sector size	Speed	Interface	Vendor	MIN version
3.5"	MG03SCA400	4 TB	512n	7.2 K	6 Gbps	Toshiba	DG09
3.5"	MG03SCA200	2 TB	512n	7.2 K	6 Gbps	Toshiba	DG09
2.5"	AL14SEB18EQ	1.8 TB	512e	10 K	12 Gbps	Toshiba	DN01
2.5"	PX02SMB160	1.6 TB	512n	SSD	12 Gbps	Toshiba	A3AF
2.5"	AL14SEB120N	1.2 TB	512n	10 K	12 Gbps	Toshiba	DM03
3.5"	MG04SCA20EN	2 TB	512n	7.2 K	12 Gbps	Toshiba	DS04
3.5"	MG04SCA40EN	4 TB	512n	7.2 K	12 Gbps		

2 Contacting Dell

Dell provides several online and telephone-based support and service options. If you do not have an active internet connection, you can find contact information about your purchase invoice, packing slip, bill, or Dell product catalog. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical assistance, or customer-service issues:

1. Go to **Dell.com/support**.
2. Select your country from the drop-down menu on the lower right corner of the page.
3. For customized support:

   - Enter your system **Service Tag** in the **Enter your Service Tag** text box.
   - Click **Submit**.
   - The support page that lists the various support categories is displayed.

4. For general support:

   - Select your product category.
   - Select your product segment.
   - Select your product. The support page that lists the various support categories is displayed.

5. For contact details of Dell Global Technical Support:

   - Click Global Technical Support.
   - The Contact Technical Support page is displayed with details to call, chat, or email the Dell Global Technical Support team.

3 Quick Resource Locator

Use the Quick Resource Locator (QRL) to get immediate access to DSMS Solution information. This information provides access to reference documentation, a link to the Dell support page, and links to hardware-specific QRL pages, which include how-to videos. You can access this information by visiting www.dell.com/QRL or by using your smartphone or tablet and scanning the QR code below. You can also click the image below to go directly to the DSMS QRL location.

Quick Resource Locator

Dell.com/QRL/Solutions/DSMSStorageSpaces