

Dell PowerVault MD12XX Enclosure Support Matrix

This document outlines support for the Dell Storage MD1200/MD1220.

Dell Engineering
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Revisions

Date	Description
July 2016	A03 – Updated Section 3: Supported storage enclosure firmware
Sept 2016	A04 – Updated Sections 4 and 6

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Notes, Cautions, and Warnings

NOTE: Indicates important information that helps you make better use of your computer.

CAUTION: Indicates potential damage to hardware or loss of data, if instructions are not followed.

WARNING: Indicates a potential for property damage, personal injury, or death.

1 Introduction

When an enclosure is used for server expansion and is connected to servers, RAID array expansions or other enclosures, it is referred to as a storage enclosure. This document provides information about supported software, firmware, and hardware for Dell Storage MD1200 or MD1220 when used as a storage enclosure.

NOTE: This Support Matrix contains the latest compatibility and interoperability information. This document supersedes all other documentation information.

1.1 Changes in revision A04

- Updated document title
- Section 4: Added external reference to supported servers and HBA support
- Section 6: Updated supported drive table
- Removed Supported Dell Servers section

2 Dell Storage enclosure rules

This section contains consideration rules for the Dell Storage enclosures.

Table 1 Dell Storage Enclosure Rule

Components	Dell Storage MD1200	Dell Storage MD1220
Maximum number of servers	2	2
Maximum SAS cable length (mini SAS)	4m	4m
Maximum number of Dell Storage enclosures in a chain	4	4
Maximum number of drives in a storage enclosure	12	24
Maximum number of enclosures for MD34XX/MD38XX RBOD ¹	15	7

¹ Maximum of 192 drives are supported with premium feature key activation. For a system without premium features activation, the physical disk drive limit is 120.

3 Supported storage enclosure firmware

Dell Storage enclosures have two Enclosure Management Modules (EMMs). You must have same firmware versions in both EMMs and you must individually upgrade each EMM. EMMs do not automatically synchronize firmware versions.

Table 2 Storage Enclosure Management Module Firmware Release History

Firmware Version	Release Date	Fixes and Enhancements
1.06, A01	04 FEB 2016	<ul style="list-style-type: none">- Optimize communication between EMMs- Improve two wire interface handling- Modify SES Page 07h response to correct oversize page request boundary case.
1.05, A00	14 APR 2014	<ul style="list-style-type: none">- DUP packaging change
1.01, A00	21 FEB 2013	<ul style="list-style-type: none">- Initial release- Earliest required firmware version

4 Supported controllers

The following controllers are supported with the Dell MD12XX storage enclosures:

- Dell PERC H810 (for Dell PowerEdge 12th generation servers)
- Dell PERC H800 (for Dell PowerEdge 11th generation servers)
- Dell 6Gbps SAS HBA (for Dell PowerEdge 12th generation servers)
- Supported HBA drivers and firmware can be obtained from the Dell support website: www.dell.com/support
- To determine if the above controllers are supported for specific host Servers, go to the Dell PowerEdge RAID Controller website: <http://www.dell.com/learn/us/en/04/campaigns/dell-raid-controllers>

NOTE: Customers who are migrating to a 13th generation server from a 12th generation server with MD1200/MD1220 JBOD enclosure(s) and PERC H810 controller(s) are supported for controller and JBOD data migration purposes and does not have support for Dell's 13G systems and storage management applications. Configuration and management of the H810 controller in 13G servers must rely on the pre-boot utility Ctrl-R and the PERC CLI utility. The PERC H810 is not available at Point-of-Sale for 13th generation servers. The PERC H800 has reached end-of-life and is no longer available for purchase.

5 Supported Dell RBODs

Table 4 Supported Dell RBODs

Model	Maximum Enclosures	Enclosure
Dell Storage MD3400	15 (192 drives)	MD1200
Dell Storage MD3800i	15 (192 drives)	MD1200
Dell Storage MD3800f	15 (192 drives)	MD1200
Dell Storage MD3420	7 (192 drives)	MD1220
Dell Storage MD3820i	7 (192 drives)	MD1220
Dell Storage MD3820f	7 (192 drives)	MD1220

6 Supported physical disk drives

Refer to the specific Dell storage enclosure Drivers and Downloads section on support.dell.com for the latest available physical disk firmware.

NOTE:

- Drives with 12 Gbps interface speed will down-train to 6 Gbps when installed in the enclosure. The following are not supported on MD1200/MD1220 enclosures:
 - 4Kn sector size
 - Encrypted SSD drives (SED-SSD)
- Dell recommends that RAID 10 must not be used with 8 TB drives or larger because of extended rebuild or reconstruct time requirements when dealing with larger drives. RAID 6 is recommended for these very large capacity drives.

Table 5 Supported Physical Disk Drive Models for the Dell PowerVault MD1200/MD1220

Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
3P3DF	2.5	Seagate	Ironman	900 GB	10K	6 Gbps	512n	NO
43N12	2.5	Seagate	Thunderbolt	1.8 TB	10K	6 Gbps	512e	NO
4GN49	2.5	Toshiba	AL13SX	300 GB	15K	6 Gbps	512n	NO
55RMX	2.5	Seagate	Airwalker	500 GB	7.2K	6 Gbps	512n	NO
5Y05N	2.5	SanDisk	Everest RI	800 GB	SSD	6 Gbps	512n	NO
61XPF	2.5	Seagate	Yellowjacket	146 GB	15K	6 Gbps	512n	NO
6DFD8	2.5	Toshiba	AL12SX	146 GB	15K	6 Gbps	512n	NO
6K55X	2.5	Toshiba	Phoenix S1	200 GB	SSD	6 Gbps	512n	NO
6R5R8	2.5	SanDisk	Everest MU	200 GB	SSD	6 Gbps	512n	NO
6WC9D	2.5	Seagate	Valkyrie BP	300 GB	15K	6 Gbps	512n	NO
81N2C	2.5	Seagate	Yellowjacket	300 GB	15K	6 Gbps	512n	YES
8C38W	2.5	SanDisk	Everest MU	400 GB	SSD	6 Gbps	512n	NO
8M97C	2.5	SanDisk	Optimus	2 TB	SSD	6 Gbps	512n	NO
8NW1H	2.5	SanDisk	Everest WI	400 GB	SSD	6 Gbps	512n	NO
F06P1	2.5	SanDisk	Everest RI	1.6 TB	SSD	6 Gbps	512n	NO



Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
DPF1J	2.5	SanDisk	Everest MU	800 GB	SSD	6 Gbps	512n	NO
K9VCF	2.5	HGST	Cobra F	300 GB	10K	6 Gbps	512n	NO
MTV7G	2.5	Toshiba	AL13SE	300 GB	10K	6 Gbps	512n	NO
PGHJG	2.5	Seagate	Lightning	300 GB	10K	6 Gbps	512n	NO
R2PJ7	2.5	Toshiba	Phoenix S1	400 GB	SSD	6 Gbps	512n	NO
TNX32	2.5	Seagate	Lightning	900 GB	10K	6 Gbps	512n	YES
TPWNJ	2.5	SanDisk	Everest WI	200 GB	SSD	6 Gbps	512n	NO
W330K	2.5	HGST	King Cobra C	146 GB	15K	6 Gbps	512n	NO
06VJ7	2.5	Toshiba	Phoenix M3 RI	480 GB	SSD	12 Gbps	512n	NO
0MXR2	2.5	Toshiba	Phoenix M2R RI	1.6 TB	SSD	12 Gbps	512n	NO
0N0T4	2.5	HGST	King Cobra F	300 GB	15K	12 Gbps	512n	NO
0RVDT	2.5	Toshiba	AL13SX MLK	300 GB	15K	12 Gbps	512n	NO
2H9WV	2.5	Toshiba	Phoenix M2 Plus WI	400 GB	SSD	12 Gbps	512n	NO
2M61G	2.5	SanDisk	Kilimanjaro RI	1.6 TB	SSD	12 Gbps	512n	NO
2XR0K	2.5	SanDisk	Kilimanjaro MU	200 GB	SSD	12 Gbps	512n	NO
3NKW7	2.5	Toshiba	AL14SE Lite	300 GB	10K	12 Gbps	512n	NO
453KG	2.5	Toshiba	AL14SE Lite	600 GB	10K	12 Gbps	512n	NO
4HGTJ	2.5	Seagate	Valkyrie BP	600 GB	HDD	12 Gbps	512n	NO
4KG4X	2.5	Toshiba	Phoenix M3 RI	960 GB	15K	12 Gbps	512n	NO
4X0XG	2.5	Seagate	Valkyrie BP	600 GB	HDD	12 Gbps	512n	YES



Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
4XC39	2.5	Toshiba	Phoenix M3 MU3	1.92 TB	SSD	12 Gbps	512e	NO
56M6W	2.5	Seagate	Avenger	1 TB	7.2K	12 Gbps	512n	NO
63GYR	2.5	Toshiba	Phoenix M3 MU	3.2 GB	SSD	12 Gbps	512n	NO
77K16	2.5	Toshiba	Phoenix M3 MU	1.6 TB	SSD	12 Gbps	512n	NO
7FJW4	2.5	Seagate	Valkyrie BP	300 GB	15K	12 Gbps	512n	NO
89D42	2.5	Toshiba	AL14SE Lite	1.2 TB	10K	12 Gbps	512n	NO
989R8	2.5	SanDisk	Kilimanjaro MU	800 GB	SSD	12 Gbps	512n	NO
9XNF6	2.5	HGST	Cobra F	1.2 TB	10K	12 Gbps	512n	NO
C06VX	2.5	SanDisk	Kilimanjaro MU	400 GB	SSD	12 Gbps	512n	NO
CV6W8	2.5	Toshiba	Phoenix M2 Plus WI	200 GB	SSD	12 Gbps	512n	NO
DYDW0	2.5	Toshiba	AL13SX MLK	600 GB	15K	12 Gbps	512n	NO
FHFNJ	2.5	SanDisk	Kilimanjaro WI	800 GB	SSD	12 Gbps	512n	NO
FVX7C	2.5	Seagate	Avenger	2 TB	7.2K	12 Gbps	512n	NO
G4V45	2.5	Toshiba	Phoenix M2 MU	1.6 TB	SSD	12 Gbps	512n	NO
GM5R3	2.5	Toshiba	Phoenix M3 MU	400 GB	SSD	12 Gbps	512n	NO
GYMY9	2.5	Toshiba	Phoenix M3 MU3	3.84 TB	SSD	12 Gbps	512e	NO
HKK8C	2.5	Toshiba	Phoenix M2 MU	400 GB	SSD	12 Gbps	512n	NO
HPNDJ	2.5	Toshiba	Phoenix M3 WI	200 GB	SSD	12 Gbps	512n	NO
J19XM	2.5	SanDisk	Kilimanjaro RI	800 GB	SSD	12 Gbps	512n	NO
JDTGX	2.5	SanDisk	Kilimanjaro MU	1.6 TB	SSD	12 Gbps	512n	NO



Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
K41XJ	2.5	Toshiba	Phoenix M2 MU	200 GB	SSD	12 Gbps	512n	NO
M09K5	2.5	Toshiba	Phoenix M3 RI	3.84 TB	SSD	12 Gbps	512n	NO
M7KYX	2.5	SanDisk	Kilimanjaro WI	200 GB	SSD	12 Gbps	512n	NO
M91TJ	2.5	Toshiba	Phoenix M3 MU	800 GB	SSD	12 Gbps	512n	NO
N5Y85	2.5	Toshiba	Phoenix M3 MU3	480 GB	SSD	12 Gbps	512e	NO
N9PTK	2.5	Toshiba	Phoenix M2R RI	800 GB	SSD	12 Gbps	512n	NO
N9VVV	2.5	Toshiba	AL14SE Lite	900 GB	10K	12 Gbps	512n	NO
P6GJX	2.5	HGST	Cobra F	600 GB	10K	12 Gbps	512n	NO
PG19T	2.5	Toshiba	Phoenix M2 Plus WI	800 GB	SSD	12 Gbps	512n	NO
R87FK	2.5	Toshiba	Phoenix M3 RI	1.92 TB	SSD	12 Gbps	512n	NO
R95FV	2.5	Seagate	Thunderbolt	600 GB	10K	12 Gbps	512n	NO
RDKH0	2.5	HGST	Cobra F	300 GB	10K	12 Gbps	512n	NO
RVCY3	2.5	Toshiba	Phoenix M3 WI	800 GB	SSD	12 Gbps	512n	NO
T2TPF	2.5	SanDisk	Kilimanjaro WI	400 GB	SSD	12 Gbps	512n	NO
TC2MH	2.5	Toshiba	Phoenix M2 MU	800 GB	SSD	12 Gbps	512n	NO
TRCN6	2.5	HGST	King Cobra F	600 GB	15K	12 Gbps	512n	NO
V2KWT	2.5	Seagate	Thunderbolt	1.2 TB	10K	12 Gbps	512n	YES
VJ7CD	2.5	Seagate	Thunderbolt 2	1.8 TB	10K	12 Gbps	512e	NO
VTHDD	2.5	HGST	Cobra F	1.8 TB	10K	12 Gbps	512e	NO
WHR0G	2.5	Seagate	Thunderbolt	1.8 TB	10K	12 Gbps	512e	YES



Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
WXPCX	2.5	Seagate	Thunderbolt	1.2 TB	10K	12 Gbps	512n	NO
XY986	2.5	Seagate	Avenger	2 TB	7.2K	12 Gbps	512e	NO
Y6W8N	2.5	Seagate	Avenger	2 TB	7.2K	12 Gbps	512n	YES
Y9VX5	2.5	Toshiba	Phoenix M3 WI	1.6 TB	SSD	12 Gbps	512n	NO
YJ2KH	2.5	Seagate	Thunderbolt	300 GB	10K	12 Gbps	512n	NO
YT53C	2.5	Toshiba	Phoenix M3 WI	400 GB	SSD	12 Gbps	512n	NO
YYC10	2.5	Toshiba	Phoenix M3 MU3	960 GB	SSD	12 Gbps	512e	NO
202V7	3.5	Western Digital	Verdi	4 TB	7.2K	6 Gbps	512n	NO
37MGT	3.5	Western Digital	Verdi	2 TB	7.2K	6 Gbps	512n	NO
440RW	3.5	Western Digital	Verdi	1 TB	7.2K	6 Gbps	512n	NO
55H49	3.5	Seagate	Megalodon	3 TB	7.2K	6 Gbps	512n	NO
5XTFH	3.5	Seagate	Eagle	600 GB	15K	6 Gbps	512n	YES
698PM	3.5	Seagate	Mantaray	3 TB	7.2K	6 Gbps	512n	YES
6P85J	3.5	Seagate	Megalodon	4 TB	7.2K	6 Gbps	512n	YES
6VNCJ	3.5	Seagate	Muskie Plus	500 GB	7.2K	6 Gbps	512n	NO
DPTW9	3.5	Western Digital	Verdi	3 TB	7.2K	6 Gbps	512n	NO
F617N	3.5	Seagate	Eagle	300 GB	15K	6 Gbps	512n	NO
NWCCG	3.5	Seagate	Makara	6 TB	7.2K	6 Gbps	512e	NO
R749K	3.5	Seagate	Eagle	450 GB	15K	6 Gbps	512n	NO
T857K	3.5	HGST	Viper C	450 GB	15K	6 Gbps	512n	NO



Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
W347K	3.5	Seagate	Eagle	600 GB	15K	6 Gbps	512n	NO
W348K	3.5	HGST	Viper C	600 GB	15K	6 Gbps	512n	NO
W350K	3.5	Seagate	Muskie	2 TB	7.2K	6 Gbps	512n	YES
X150K	3.5	HGST	Viper C	300 GB	15K	6 Gbps	512n	NO
X164K	3.5	Seagate	Muskie	1 TB	7.2K	6 Gbps	512n	YES
07FPR	3.5	HGST	Libra HE10	10 TB	7.2K	12 Gbps	512e	YES
0F9W8	3.5	Toshiba	Tomcat R	4 TB	7.2K	12 Gbps	512n	NO
3PRF0	3.5	Toshiba	Tomcat R	6 TB	7.2K	12 Gbps	512e	NO
DGNTV	3.5	Seagate	Makara BP	1 TB	7.2K	12 Gbps	512n	NO
FCHXF	3.5	Seagate	Makara BP	4 TB	7.2K	12 Gbps	512n	YES
GDM8H	3.5	Toshiba	Tomcat R	2 TB	7.2K	12 Gbps	512n	NO
GKWHP	3.5	Seagate	Makara Plus	8 TB	7.2K	12 Gbps	512e	NO
GWD7D	3.5	Seagate	Makara	1 TB	7.2K	12 Gbps	512n	NO
K7VW5	3.5	Seagate	Makara BP	2 TB	7.2K	12 Gbps	512n	NO
KRDKK	3.5	HGST	Libra HE10	8 TB	7.2K	12 Gbps	512e	YES
PDFHC	3.5	Seagate	Makara Plus	8 TB	7.2K	12 Gbps	512e	YES
PRNR6	3.5	Seagate	Makara MLK	6 TB	7.2K	12 Gbps	512e	NO
PYM8J	3.5	HGST	Aries K Plus MLK	6 TB	7.2K	12 Gbps	512e	NO
R7FKF	3.5	Seagate	Makara	2 TB	7.2K	12 Gbps	512n	NO
RHVWG	3.5	Seagate	Makara BP	6 TB	7.2K	12 Gbps	512e	NO



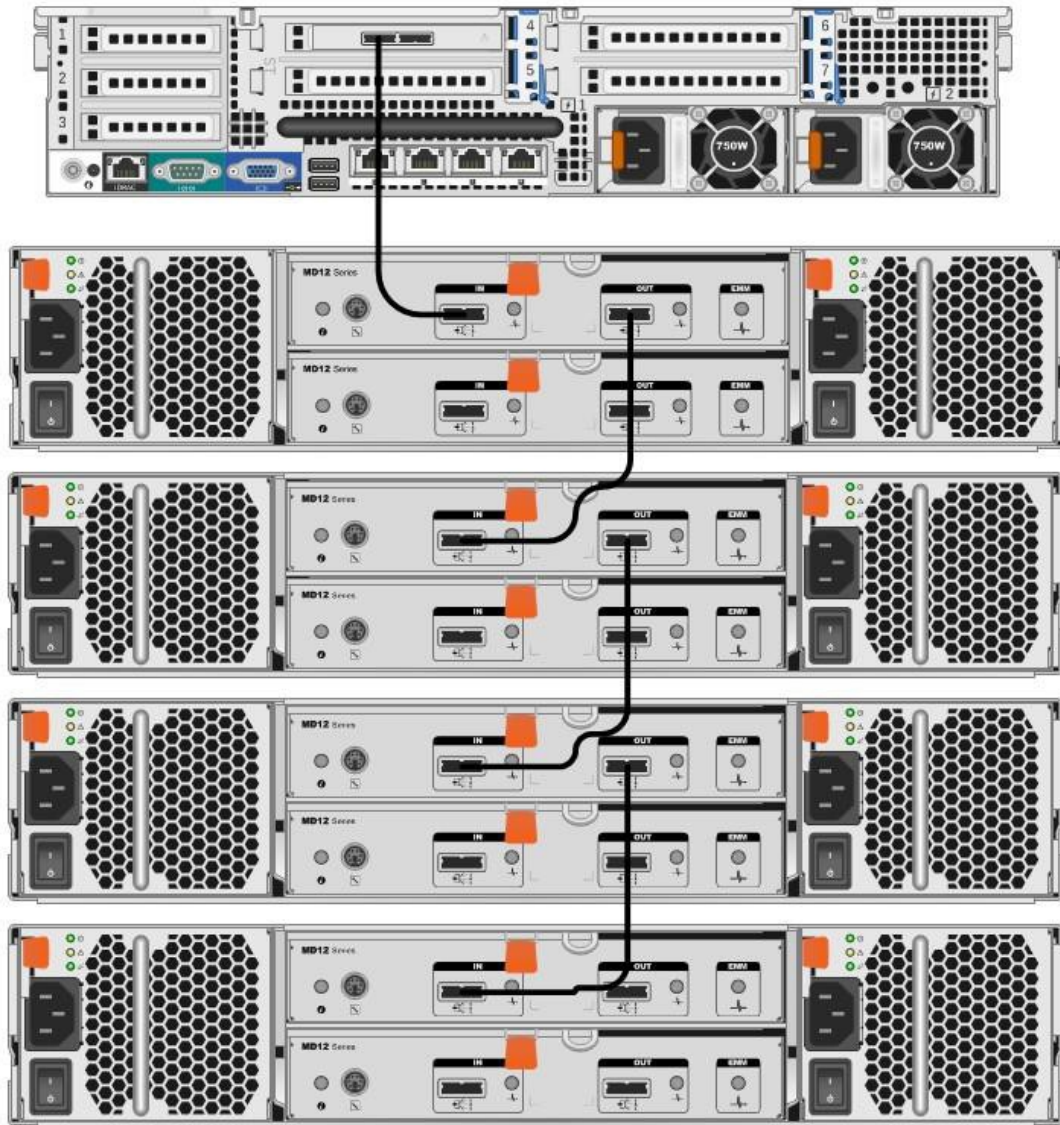
Dell P/N	Form Factor	Vendor	Family Name	Capacity	Type	Interface Speed	Sector Size	SED
TX8WW	3.5	HGST	Aries K Plus	4 TB	7.2K	12 Gbps	512n	NO
XP99D	3.5	HGST	Aries K Plus	2 TB	7.2K	12 Gbps	512n	NO
XWM1W	3.5	Seagate	Makara	4 TB	7.2K	12 Gbps	512n	NO
YXG4K	3.5	Seagate	Makara BP	4 TB	7.2K	12 Gbps	512n	NO



7 Supported cabling configurations

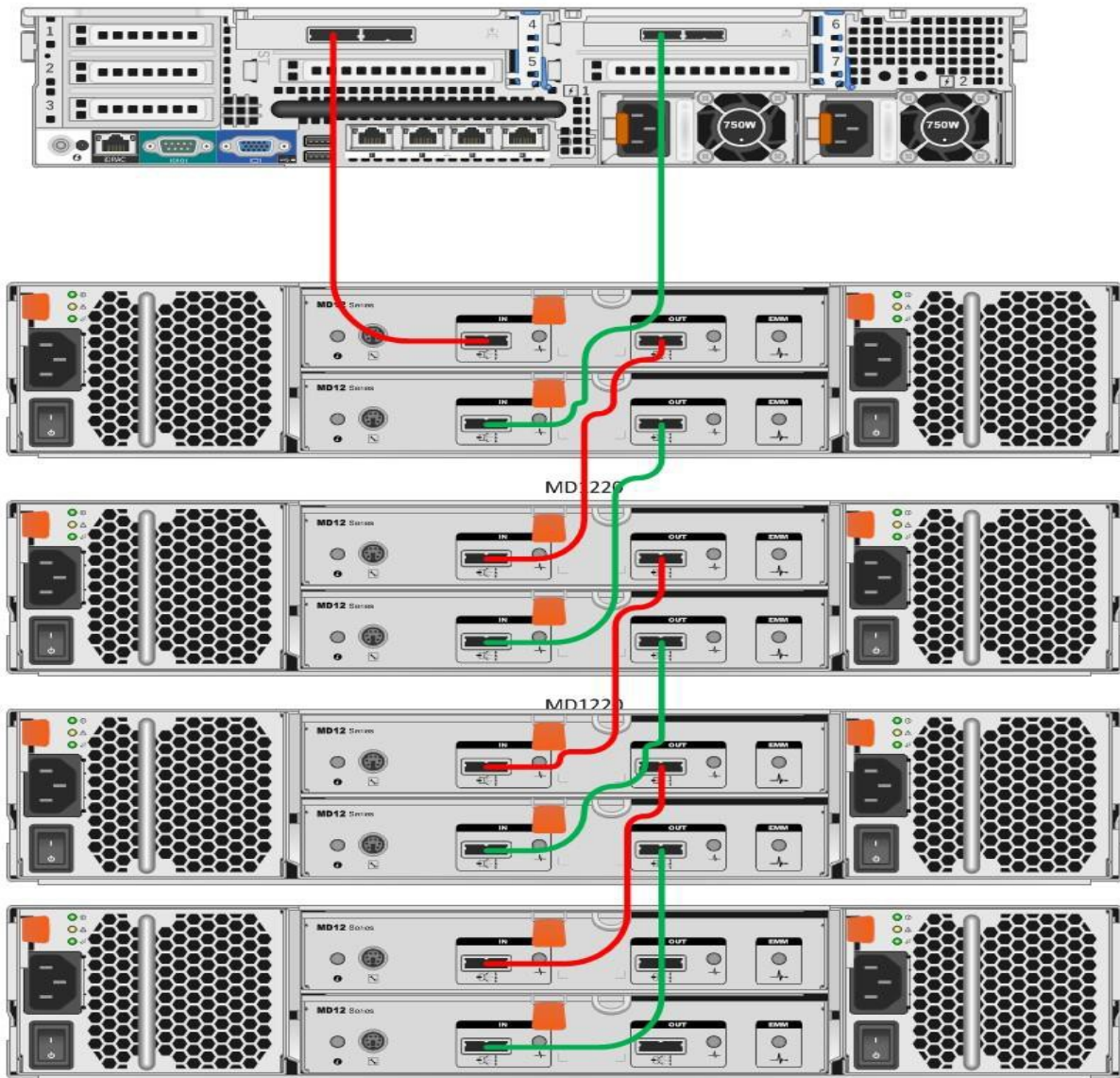
NOTE: Only 0.6 m, 2 m, and 4 m mini-SAS cables are supported.

There are a large number of storage topologies, because servers are capable of hosting multiple PCIe Dell SAS 6 Gbps HBAs and the MD12XX have multiple SAS ports with the ability to daisy-chain the JBODs. Dell has not tested and validated all the combinations. Here are some storage configurations that are supported by Dell.



1 Server , 1 SAS HBA and 4 MD12XX Daisy Chain Configuration

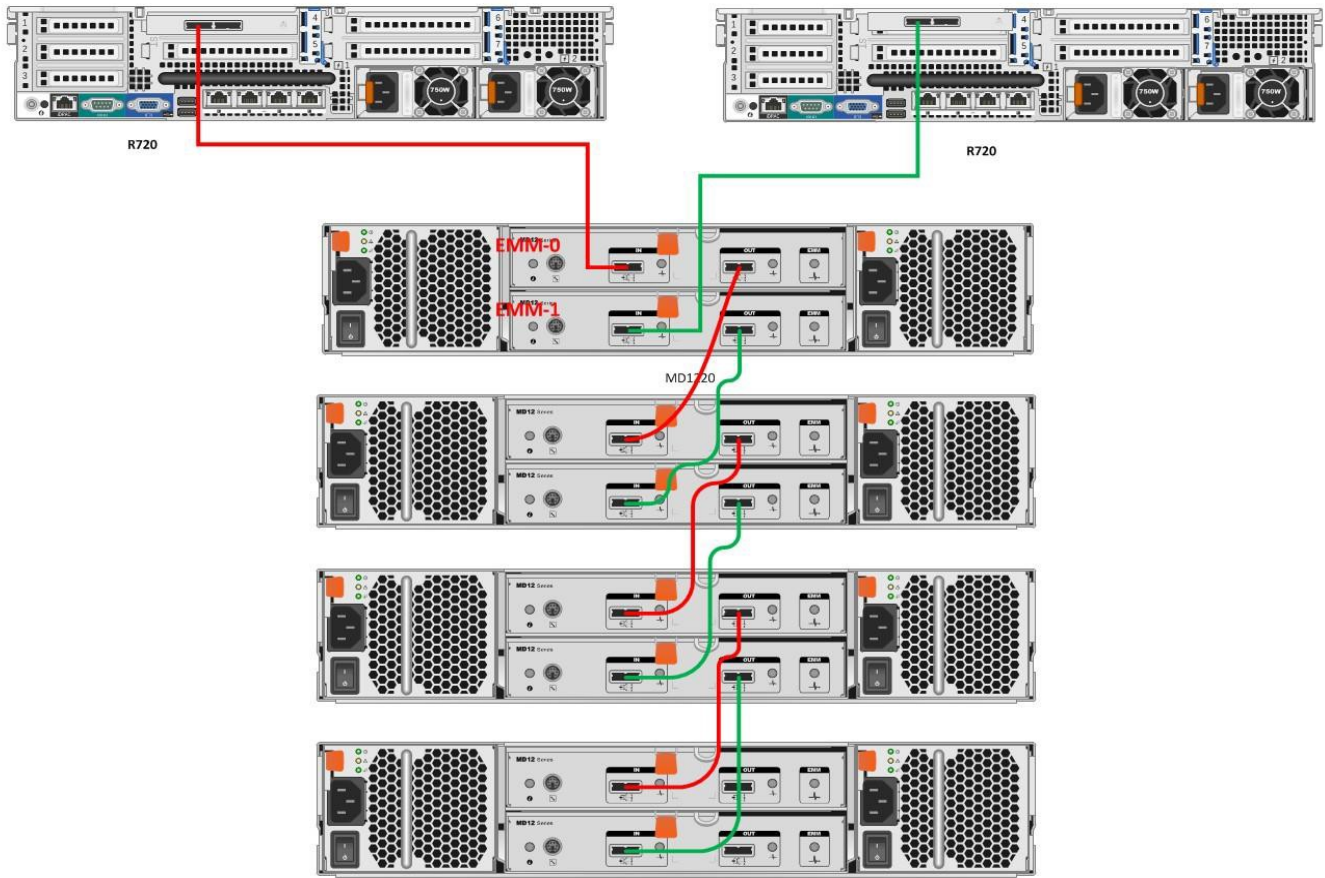
Figure 1 Configuration 1: Standalone server and MD12XX in daisy-chain configuration



1 Server , 2 SAS HBA and 4 MD12XX in MPIO Configuration

Figure 2 Configuration 2: Standalone server with MPIO configuration

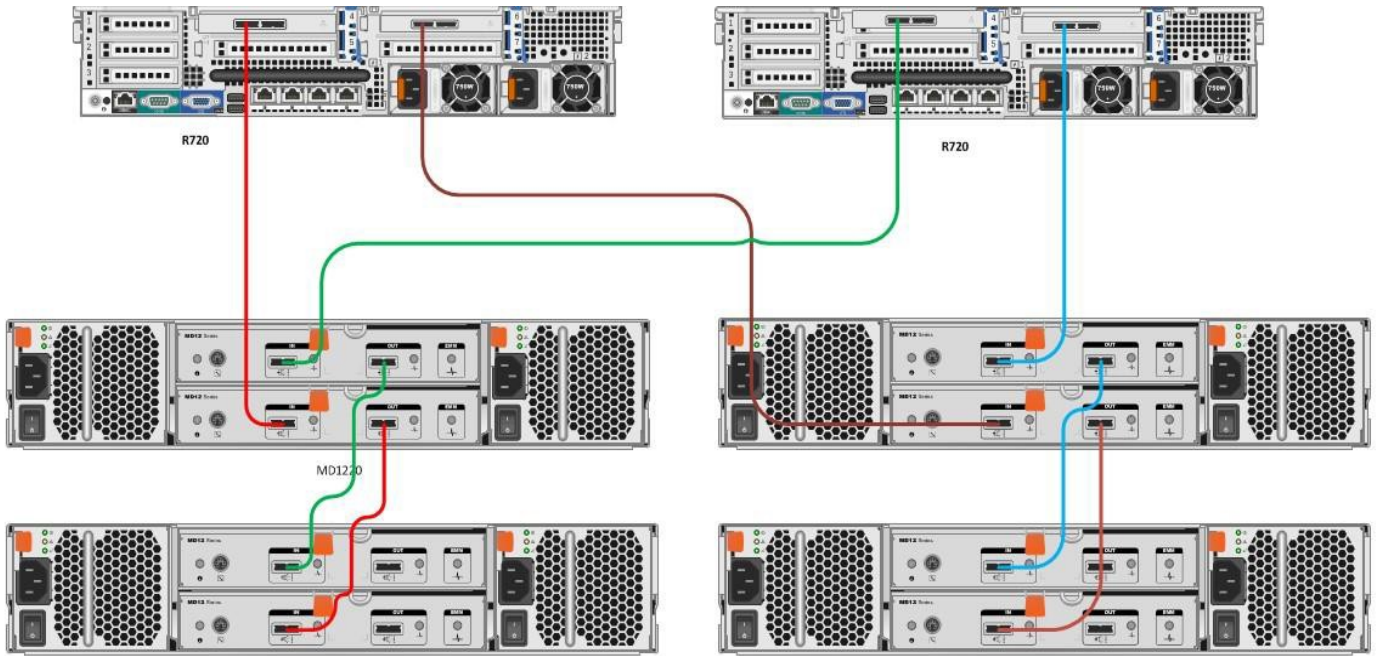




2 Servers each with 1 HBA, 4 MD12XX in 2 node Cluster Configuration

Figure 3 Configuration 3: 2 servers, each with 1 HBA in failover cluster configuration with 4 JBOD daisy-chained





2 Servers each with 2 HBAs, 4 MD12XX in 2 Node Cluster Configuration

Figure 4 Configuration 4: 2 servers, each with 2 HBAs in failover cluster configuration with 4 JBODs



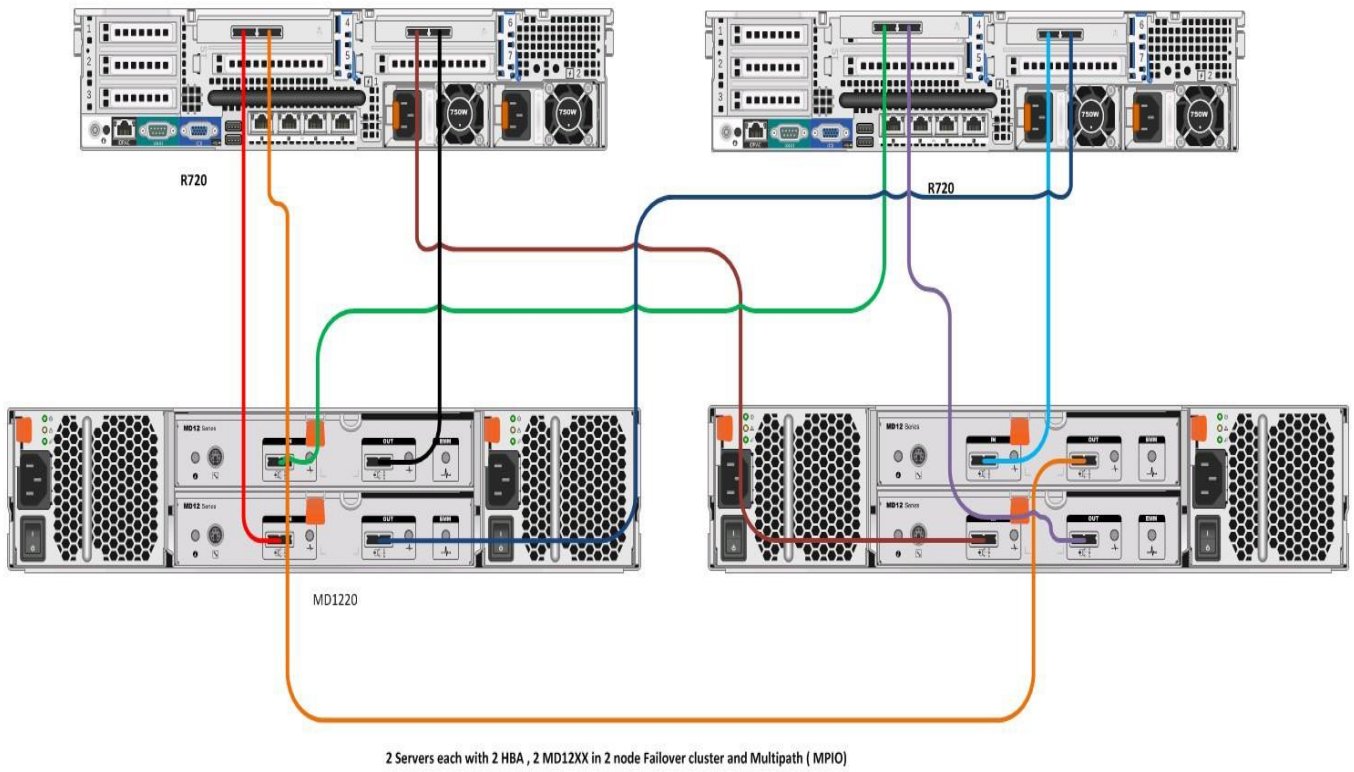


Figure 5 Configuration 5: 2 servers each with 2 HBAs in failover cluster configuration with 2 JBODs and MP

