

Dell EMC Tape Compatibility Matrix

Dell Engineering
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Table of contents

1	Overview.....	4
2	Dell PowerVault Tape Compatibility.....	5
2.1	PowerVault Drives Internal to Servers.....	5
2.2	PowerVault 114X & Desktop Models.....	6
2.3	Dell EMC ML3/ML3E	7
2.4	PowerVault TL1000	8
2.5	PowerVault TL2000/4000	9
2.6	ML6000.....	10
2.7	Dell PowerEdge Server to HBA Compatibility	11
3	Operating System Compatibility	13
4	Backup Software Compatibility.....	14
5	Linear Tape File System Single Drive Edition (LTFS-SDE) Compatibility	15
6	Linear Tape File System Library Edition (LTFS LE) Compatibility	16
7	Dell Encryption Key Manager 3.0 Support	17
8	Media Compatibility	19
9	LTO7 Type M media.....	20
9.1	Using LTO7 Type M media in Dell EMC tape libraries.....	20
9.2	Using LTO7 Type M media in Dell EMC tape drives.....	20
9.3	Formatting an LTO7 Type M tape in a Dell EMC library	20

1

Overview

Dell tape solutions are tested with a wide range of platforms, backup software, and media to help ensure trouble-free, reliable performance. This matrix can help you determine if your tape backup components are compatible. See the Dell Support website at www.dell.com/support for service and warranty related items. Some products listed may no longer be offered for sale; check with your Sales Representative for current portfolio offerings.

NOTE: Dell is providing the information in this matrix as a convenience to our customers. THE INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE AND IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. The limited warranties for Dell products are set forth exclusively in the documentation accompanying such products. Nothing herein should be construed as modifying those limited warranties in any way.

2 Dell PowerVault Tape Compatibility

NOTE: For older Dell PowerEdge or PowerVault systems not listed, see the PDF files attached to this document.

2.1 PowerVault Drives Internal to Servers



Internal PowerVault		Supported HBA's			
Drive Model	Current Firmware	Dell ITA	Dell H330	HBA330	Onbrd SATA
LTO3-080 IBM SAS V2	F991	X			
LTO4-120HH IBM	C7QJ	X			
LTO4-120 IBM SAS	C7QH	X			
LTO4-120HH IBM V2	G9N1	X	X		
LTO5-140 IBM SAS	H971	X	X	X	
LTO6-HH IBM SAS	H991	X	X	X	
LTO7-HH IBM SAS	H9E3	X	X	X	
LTO8-HH IBM SAS	HB83		X	X	
RD1000 SATA2	0056				X

X = Supported

Device Drivers

Dell recommends using the driver supplied with the operating system (INBOX) for proper operation when the backup software does not provide a driver. Always consult the backup software documentation for driver requirements.

NOTE: LTO8 requires a HOTFIX for INBOX device driver recognition with Windows Server 2012 R2 and Windows Server 2016. Visit www.Dell.com/support LTO8 product page for additional information.

2.2 PowerVault 114X & Desktop Models



Internal PowerVault		Supported HBA's		
Drive Model	Current Firmware	Dell 6Gbps SAS HBA	Dell 12Gbps SAS HBA	USB 2.0/3.0
PowerVault LTO3-060 IBM SAS	93GQ	X		
PowerVault LTO3-080 IBM SAS V2	F991	X		
PowerVault LTO4-120HH IBM	C7QH	X		
PowerVault LTO4-120HH IBM V2	G9N1	X	X	
PowerVault LTO5-140 IBM SAS	H971	X	X	
PowerVault LTO6-HH IBM SAS	H991	X	X	
PowerVault LTO7-HH IBM SAS	H9E3	X	X	
PowerVault LTO8-HH IBM SAS	HB83		X	
PowerVault RD1000 USB 3.0	4121			X

X = Supported

Device Drivers
Dell recommends using the driver supplied with the operating system (INBOX) for proper operation when the backup software does not provide a driver. Always consult the backup software documentation for driver requirements.

NOTE: LTO8 requires a HOTFIX for INBOX device driver recognition with Windows Server 2012 R2 and Windows Server 2016. Visit www.Dell.com/support LTO8 product page for additional information.

2.3 Dell EMC ML3/ML3E



Supported HBA's								
Drive Model	Dell 12Gbps SAS HBA	LPe1200x FC HBA	LPe1600x FC HBA	LPe31xxx	QLE246x FC HBA	QLE256x FC HBA	QLE26xx FC HBA	BR8x5 FC HBA
LTO6-FH/HH IBM	X	X	X	X	X	X	X	X
LTO7-FH/HH IBM	X	X	X	X	X	X	X	X
LTO8-FH/HH IBM	X	X		X		X	X	

X= Supported

NOTE: Model BR815, BR825 and LPe31xxx do not support direct attach to tape drive.

Drive Firmware	
LTO6-FH/HH IBM	H990/H991
LTO7-FH/HH IBM	H9E2/H9E3
LTO8-FH/HH IBM	HB82/HB83

Library Firmware	
ML3/ML3e	1.1.1.1-B00

Device Drivers
Dell recommends using the driver supplied with the operating system (INBOX) for proper operation when the backup software does not provide a driver. Always consult the backup software documentation for driver requirements. The IBM device driver is provided for failover purposes and backup applications that do not permit INBOX driver usage. The IBM device driver must be used in the exclusive mode to enable failover.

2.4 PowerVault TL1000



Supported HBA's		
Drive Model	Dell 6Gbps SAS HBA	Dell 12Gbps SAS HBA
PowerVault LTO4-120HH IBM V2	X	X
PowerVault LTO5-140 IBM	X	X
PowerVault LTO6-HH IBM	X	X
PowerVault LTO7-HH IBM	X	X
PowerVault LTO8-HH IBM		X

X = Supported

Drive Firmware	
PowerVault LTO4-120HH IBM V2	G9N1
PowerVault LTO5-140 IBM	H971
PowerVault LTO6-HH IBM	H991
PowerVault LTO7-HH IBM	H9E3
PowerVault LTO8-HH IBM	HB83

Library Firmware	
TL1000	0080-3000

Device Drivers
Dell recommends using the driver supplied with the operating system (INBOX) for proper operation when the backup software does not provide a driver. Always consult the backup software documentation for driver requirements. The IBM device driver is provided for backup applications that do not permit INBOX driver usage.

NOTE: LTO8 requires a HOTFIX for INBOX device driver recognition with Windows Server 2012 R2 and Windows Server 2016. Visit www.Dell.com/support LTO8 product page for additional information.

2.5 PowerVault TL2000/4000



Supported HBA's										
Drive Model	iSCSI Bridge	Dell 6Gbps SAS HBA	Dell 12Gbps SAS HBA	LPe1200x FC HBA	LPe1600x FC HBA	LPe31xxx	QLE246x FC HBA	QLE256x FC HBA	QLE26xx FC HBA	BR8x5 FC HBA
PowerVault LTO3-060 IBM	X	X		X		X	X	X		X
PowerVault LTO3-080 IBM V2	X	X		X		X	X	X		X
PowerVault LTO4-120 IBM	X	X	X	X	X	X	X	X	X	X
PowerVault LTO4-120HH IBM	X	X	X	X	X	X	X	X	X	X
PowerVault LTO4-120HH IBM V2	X	X	X	X	X	X	X	X	X	X
PowerVault LTO5-140 IBM	X	X	X	X	X	X	X	X	X	X
PowerVault LTO6-HH IBM	X	X	X	X	X	X	X	X	X	X
PowerVault LTO7-HH IBM		X	X	X	X	X	X	X	X	X
PowerVault LTO8-HH IBM			X	X		X		X	X	

X = Supported

NOTE: Model BR815, BR825 and LPe31xxx do not support direct attach to tape drive.

Drive Firmware	
PowerVault LTO3-060 IBM	93GQ
PowerVault LTO3-080 IBM V2	F991
PowerVault LTO4-120 IBM	C7QH
PowerVault LTO4-120HH IBM	C7QJ
PowerVault LTO4-120HH IBM V2	G9N1
PowerVault LTO5-140 IBM	H971
PowerVault LTO6-HH IBM	H991
PowerVault LTO7-HH IBM	H9E3
PowerVault LTO8-HH IBM	H9E3

Library Firmware	
TL2000 / TL4000	E.70 / 3.20e

Device Drivers
Dell recommends using the driver supplied with the operating system (INBOX) for proper operation when the backup software does not provide a driver. Always consult the backup software documentation for driver requirements. The IBM device driver is provided for failover purposes and backup applications that do not permit INBOX driver usage. The IBM device driver must be used in the exclusive mode to enable failover.

2.6 ML6000



Supported HBA's									
Drive Model	Dell 6Gbps SAS HBA	Dell 12Gbps SAS HBA	LPE1200x FC HBA	LPE1600x FC HBA	LPe31xxx FC HBA	QLE246x FC HBA	QLE256x FC HBA	QLE26xx FC HBA	BR8x5 FC HBA
PowerVault LTO4-120 IBM	X	X	X	X		X	X	X	X
PowerVault LTO5-140 IBM FH	X	X	X	X	X	X	X	X	X
PowerVault LTO6 IBM	X	X	X	X	X	X	X	X	X
PowerVault LTO7 IBM - FC ONLY			X	X	X	X	X	X	X
PowerVault LTO8 IBM - FC ONLY			X		X		X	X	

X = Supported

NOTE: Model BR815, BR825 and LPe31xxx do not support direct attach to tape drive.

Drive Firmware	
PowerVault LTO4-120 IBM	C7QH
PowerVault LTO5-140 IBM FH	H970
PowerVault LTO6 IBM	H990
PowerVault LTO7 IBM - FC ONLY	H9E2
PowerVault LTO8 IBM - FC ONLY	H9E2

Library Firmware	
ML6000	700G.GS013

Device Drivers
Dell recommends using the driver supplied with the operating system (INBOX) for proper operation when the backup software does not provide a driver. Always consult the backup software documentation for driver requirements.

NOTE: LTO8 requires a HOTFIX for INBOX device driver recognition with Windows Server 2012 R2 and Windows Server 2016. Visit www.Dell.com/support LTO8 product page for additional information.

2.7 Dell PowerEdge Server to HBA Compatibility



Internal SAS Adapters									
Generation	12G			13G			14G		
Model	T320	T420	T620	T330	T430	T630	T330	T430	T630
Adapter	ITA			H330			HBA330		

External SAS Adapters												
Generation	12G											
Model	R220	R320	R420	R520	R620	R720	R820	R920	T320	T420	T620	
Adapter	6Gbps SAS											
Generation	13G											
Model	R230	R330	R430	R530	R630	R730	R830	R930	T330	T430	T630	FX2
Adapter	12Gbps SAS											
Generation	14G											
Model			R440	R540		R740		R940		T440	T640	
Adapter	12Gbps SAS											

NOTE: 6 Gbps and 12 Gbps cards are not interchangeable between the server generations. 13G & 14G servers only support 12Gbps SAS adapters.

Fibre Host Bus Adapters												
Generation	12G											
Model	R920	R820	R720	R720xd	R620	R520	R420	R320	R220	T620	T420	T320
QLE246x		X	X	X	X	X	X	X		X	X	X
QLE256x	X	X	X	X	X	X	X	X	X	X	X	X
QLE266x	X	X	X	X	X	X				X		
LPE1200x	X	X	X	X	X	X	X	X	X	X		
LPE1600x	X	X	X	X	X	X				X		
BR815		X	X		X		X	X		X	X	
BR825		X	X		X		X	X		X	X	
BR1020		X	X		X		X	X				
Generation	13G											
Model	R930	R830	R730	R730XD	R630	R530	R430	R330	R230	T630	T430	T330
QLE256x	X	X	X	X	X	X	X	X		X	X	X
QLE266x	X		X	X	X	X				X		
QLE269x	X	X	X	X	X	X				X		
QLE274x	X	X	X	X	X	X						
LPE1200x	X	X	X	X	X	X	X	X		X	X	X
LPE1600x	X	X	X	X	X	X				X		
Generation	14G											
Model	R940		R740	R740XD	R640	R540	R440			T640	T440	
QLE256x	X		X	X	X	X				X	X	
QLE26xx	X		X	X	X					X		
LPE1200x	X		X	X	X	X				X	X	
LPe31xxx	x		x	x	x	x				x		

X = Supported

NOTE: Model BR815, BR825 and LPe31xxx do not support direct attach to tape drive.

3 Operating System Compatibility

Dell EMC tape products are tested with various operating systems (OS). Compatibility of test tools and general operability has been validated with Windows, RHEL and SLES OS's. Always consult with your ISV application for specific OS version compatibility. A list of supported OS's can be found at www.dell.com/support on the product page for that specific PowerVault and Dell EMC products.

4 Backup Software Compatibility

Dell EMC tape products are tested using various Independent Software Vendor (ISV) applications. Dell tape products are compatible if they are listed in the hardware compatibility list and the ISV is running on a supported OS as called out in the Software compatibility list. For other solutions not listed please contact the ISV for compatibility.

Vendor	Application	Version	Compatibility List
Dell EMC	NetWorker	All	Hardware
			Software
Veritas	Backup Exec	All	Hardware&Software
	Netbackup		Hardware&Software
CommVault	Simpana	All	Hardware
Computer Associates	Arcserve	17.5	Hardware
			Software
		16.5	Hardware
			Software
Microsoft	*Data Protection Manager	2010 2007	Hardware
		2012	Hardware
Quest	NetVault	8/9/10/11	Hardware/Software
Retrospect	Retrospect	8.1.266 10.5.0.110 11.5.0.190	Hardware

*All Dell Tape drives supported in Data Protection Manager 2007 are supported in Data Protection Manager 2010.

5 Linear Tape File System Single Drive Edition (LTFS-SDE) Compatibility

The LTFS SDE software allows the media in the tape drive to be presented to the file system like disk with a drive letter. Users can easily drag and drop data onto the tape media without the need for additional tape backup software.

	LTO3/4	LTO5/6/7/8
PowerVault		SDE
PowerVault 114X		SDE

- Additional Information:
http://www.ibm.com/support/knowledgecenter/STQNYL/com.ibm.storage.hollywood.doc/lfs_sd_ichome.html
- Free Software Download:<http://www.ibm.com/support/fixcentral>
 - Use Find Product tab and enter **IBM Spectrum Archive Single Drive Edition (SDE)** for the Product Selector

NOTE: IBM requires customer registration prior to download.

NOTE: LTO8 requires firmware version HB8x or greater.

6 Linear Tape File System Library Edition (LTFS LE) Compatibility

The IBM® LTFS LE software creates a drive letter in the file system once LTFS is mounted. Each cartridge in the logical library is assigned to a drive letter or mount point and shows up as a directory under the drive letter or mount point. You can drag and drop data to the directories and create directories as needed for your specific needs.

	LTO3	LTO4	LTO5	LTO6	LTO7	LTO8
Dell EMC ML3/ML3E				LE	LE	LE
PowerVault TL1000, TL2000, TL4000	N/A	N/A	LE	LE	LE	LE
PowerVault ML6000	N/A	N/A	LE	LE	LE	LE

- Additional Information: http://www.ibm.com/support/knowledgecenter/STZMZN/com.ibm.storage.hollywood.doc/lfs_le_ichome.html
- Software Purchase: <http://www-03.ibm.com/systems/storage/tape/lfs/index.html>

Other countries and languages can be selected from www.ibm.com. Customers may need to search for “LTFS LE” to locate the local link.

Dell customers will purchase the IBM LTFS LE software directly from IBM. Dell customers with existing IBM sales relationships can purchase through their IBM sales representative.

NOTE: LTO8 requires firmware version HB8x or greater.

7 Dell Encryption Key Manager 3.0 Support

The sales life of the Dell Encryption Key Manager 3.0 software has ended. Customers purchasing library-managed encryption licenses for their PowerVault tape libraries will need to purchase the IBM Security Key Lifecycle Manager software from IBM.

Dell customers currently using Dell Encryption Key Manager 3.0 (EKM 3.0) may use the software through the end of support life of the initial support contract of the PowerVault TL2000, TL4000, and ML6000 tape libraries with which EKM 3.0 was purchased. However, no operating system or hardware updates or fixes will be available for the EKM 3.0 software. Customers needing updates (e.g. Microsoft Windows 2012 and LTO7) will need to purchase the IBM SKLM software.

Dell customers will purchase the IBM SKLM software directly from IBM. US customers can purchase the software at the following link. Non-US customers can access additional countries and languages on the upper right side of the page. These pages only list the purchase requirements for Dell customers using the aforementioned supported PowerVault tape libraries.

<http://www-03.ibm.com/software/products/en/key-lifecycle-manager-dell>

For more information on the IBM SKLM software, please refer to the IBM SKLM Knowledge Center located at <http://www-01.ibm.com/support/knowledgecenter/#/SSWPVP/welcome>.

The latest IBM Tivoli Key Lifecycle Manager Fix Pack (FP7 or greater) is required for migration from the Dell EKM 3.0 to the IBM SKLM software. This must be applied to the Dell EKM 3.0 software installation prior to starting the migration. This fix pack can be obtained at the IBM Fix Central at <http://www-933.ibm.com/support/fixcentral/>. Additional countries and languages can be selected at the upper right of the page. A user account must be created to access Fix Central if one does not already exist.

General encryption background

Dell tape libraries support both Application Managed Encryption and Library Managed Encryption.

Application Managed Encryption –No additional library activation license is needed. AME licensing is handled by the ISV application. Consult with your ISV User Guide for licensing information and requirements.

Library Managed Encryption- Library encryption activation license is required for the PowerVault TL2000, TL4000 and ML60x0 libraries, contact Dell EMC sales. The PowerVault TL1000 is sold as encryption enabled or disabled at the time of purchase; TL1000 units cannot be changed from the original factory configuration of encryption disabled. The Dell EMC ML3/ML3E library has LME feature enabled by Default no further licensing is required.

All Dell EMC tape libraries are compatible with IBM SKLM software. Additional information about SKLM can be found following the above links. Dell EMC ML3/ML3E library supports the KMIP protocol and can communicate with a wider set of key store solutions. Consult your particular solution for compatibility requirements.

8 Media Compatibility

LTO media compatibility can be found in the LTO Media Handbook located at www.dell.com/support

RD1000 is not compatible with cartridges greater than 2TB

9 LTO7 Type M media

The LTO consortium approved a new media format to be used with LTO8 tape drive technologies. The new LTO7 Type M media format will allow an LTO8 drive within a supported Dell EMC library to format a new, unused, LTO7 tape cartridge for 9TB of native data capacity. The media designator for the LTO7 Type M format is M8.

9.1 Using LTO7 Type M media in Dell EMC tape libraries

To utilize the LTO7 Type M format the LTO8 drive, library and tape cartridge must all meet minimum requirements:

- Tape Drive must be at Firmware Revision HB8x or higher.
- Library Firmware must be at Firmware Revision:
 - ML3 – 1.1.1.1-B00 or higher
 - TL1000 – 0080.3000 or higher
 - TL2000/TL4000 – Future release
 - ML6000 – Future release
- LTO7 tape cartridge:
 - Uninitialized and unformatted to LTO7 Type M:
 - Must have an M8 designated barcode.
 - Must be new non formatted cartridge.
 - Initialized and formatted to LTO7 Type M:
 - Must have an M8 designated barcode.

9.2 Using LTO7 Type M media in Dell EMC tape drives

Standalone LTO8 tape drives will write or read to the 9TB format provided the drive is at firmware version of HB8x or higher and the tape has ALREADY been formatted with the LTO7 Type M format. Standalone tape drives do not have a process to format uninitialized LTO7 media into the Type M format.

9.3 Formatting an LTO7 Type M tape in a Dell EMC library

To create Type M media from LTO7 cartridges in a Dell EMC tape library users must only insure all hardware and cartridges meet the requirements from section 12.1. The remaining steps will be transparent to the end user.

When a backup job begins the backup application will signal to the library to move a piece of media from a slot to a drive. The library will scan the barcode, pick the media and signal to the drive the media type prior to inserting it into the drive. The tape cartridge is initialized when it is first loaded into the drive and data is written by the backup application at the beginning of tape (sometimes referred to as "labeling a tape" or "writing from BOT"). The tape drive then establishes the density of the media.

There must be a Write from BOT before the media will format to the 9TB capacity. Simply loading a tape into the drive and ejecting it will not format the media.

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