

# **Application Note**

October 2013

## Configuring a NEO Tape Library using Tivoli Storage Manager





#### Summary

This Application Note describes how to configure a NEO tape library on Windows Server 2008R2 with IBM Tivoli Storage Manager 6.3.3.0. Upon successful completion of these procedures, the reader will have a general understanding on how to configure the NEO using TSM console and how to create a backup and restore job with the NEO library.

#### **Prerequisites**

Prior to performing this procedure, ensure that you have the following:

- The library has already been installed and configured, for more information about basic configuration, please reference the User Guide that came with it.
- In order to configure the NEO E-series library with IBM Tivoli Storage Manager (TSM) 6.3.3, it is required to have the tape device drivers loaded prior to configuring the library in TSM. Use the following link to download the necessary driver files:

http://support.overlandstorage.com/support/neo-series.htm

For explicit installation instructions, review *TB-NEO\_TapeDeviceDriverInstallation.pdf*: http://www.overlandstorage.com/pdfs/TIB-NEO\_Windows-DriverInstallation\_r5.3.pdf

This document assumes the IBM TSM server is already installed and the reader has a general understanding and is familiar with TSM. Any and all additional information can be attained through IBM TSM Redbooks.

#### **Additional Information**

Prior to performing these procedures, the following is a list of items the reader should be aware of:

• IBM TSM supports IBM LTO-6 tape drives with TSM versions 6.2.5.0 and 6.3.3.0 with the latest maintenance release. Any earlier versions of TSM are not supported. Also note, configuring IBM LTO-6 tape drives is supported only through the TSM Console. Configuring the library through Tivoli Admin Center is not currently supported by IBM. Please use the following link for additional information:

http://www-01.ibm.com/support/docview.wss?rs=663&uid=swg21612814

 IBM TSM does not support IBM LTO-6 tape drives on Windows 2003. The LTO-6 is certified for Windows Server 2008 and higher: http://www-01.ibm.com/support/docview.wss?uid=swg21633872

#### Versions

The test environments used for illustration in this document are as follows:

- NEO 4000E (FC) FW 2.01.026 / IBM LTO-6 FW D2DE
- IBM Tivoli Storage Manager Server Version 6.3 Level 3.0
- Windows Server 2008R2SP1 x64
- LTO-6 IBM Driver 6.2.3.6x64/6.2.3.8x64 (ibmtp2k8.sys/ibmtpft2k8.sys)
- Tape Library Driver (TSM) 6.3.3.0 (tsmscsi64.sys)

## Verifying the Tape and Library Devices in Windows Device Manager

After meeting the prerequisites of having the IBM tape driver installed, the following should appear in Windows Device Manager. The devices are an Overland NEO Series Medium Changers and an IBM ULTRIUM 6 Tape Drive.



In order to configure the Overland devices with TSM, the TSM driver must be used for the medium changer device. Use the following steps to install the TSM driver.

1. In the *C:\Program Files\Tivoli\TSM*\device folder, double-click **DPInst.exe**. This will install the TSM drivers.

drivers				
🕤 🕤 🗸 🚺 C:\Progra	m Files\Tivoli\TSM\device\drivers	<b>•</b>	Search drivers	
Organize 👻 🗟 Open	New folder			) 📰 👻 🛄 (
🔆 Favorites	Name *	Date modified	Туре	Size
🧱 Desktop	퉬 x64	10/17/2013 3:31 PM	File folder	
Downloads	ኛ DPInst	10/19/2012 7:43 PM	Application	914 KB
🕍 Recent Places	🥏 tsmlb	10/19/2012 7:43 PM	Security Catalog	65 KB
🔄 Libraries	🗿 tsmlb	10/19/2012 7:43 PM	Setup Information	65 KB
Documents	🥏 tsmmt	10/19/2012 7:43 PM	Security Catalog	65 KB
J Music	ismmt	10/19/2012 7:43 PM	Setup Information	29 KB

**2.** Follow the **wizard** instructions:



**3.** Verify the Overland NEO-Series Medium Changers driver now appears as an *IBM Tivoli* Storage Manager for Medium Changers driver.



#### **Collecting information**

Use the following section to collect the TSM device information for both library and drive. The TSM utility **tsmdlst.exe** is run in DOS and displays the output of the TSM devices known to the TSM backup server. Collect the output displayed as the information will be used in the following sections.

**1.** In a DOS shell, change to the *C*: \*Program Files* \ *Tivoli* \ *TSM* \ *consol*e folder and execute **tsmdlst.exe**.

🕌 console					
G O v 🌗 C:\Program	Files\Tivoli\TSM\console	<ul> <li>✓</li> </ul>	Search console		- <u>P</u>
Organize 🔻 🖬 Open N	lew folder			= -	•
👉 Eavorites	Name *	Date modified	Туре	Size	
Tesktop	🚳 tsmapi.dll	10/19/2012 7:43 PM	Application extension	1,315 KB	
鷆 Downloads	tsmcmds	10/19/2012 7:43 PM	Text Document	2 KB	
🔛 Recent Places	💷 tsmdlst	8/9/2013 3:57 AM	Application	247 KB	
	🚳 tsmfixup	10/19/2012 7:43 PM	Windows Command	5 KB	
Cibraries	🦣 tsmnet64	10/19/2012 7:43 PM	Microsoft Common	187 KB	
	😡 tsmregclus	8/9/2013 3:45 AM	Application	97 KB	
- Hasic	Bellementers	10/10/2012 7-42 PM	A (: L:	FO VD	

2. The following output displays the device names to use.

Make careful note of the device output highlighted here. The LTO-6 device is mt0.0.0.3 and the NEO library is lb0.1.0.3. These will be used during the configuration of the device in TSM.

📾 Administrator: Command Prompt			_ 0
Microsoft Windows [Version 6.1.7601] Copyright (c) 2009 Microsoft Corporation. A:	ll rights rese	erved.	
C:\Users\Administrator>cd C:\Program Files\T:	ivoli\TSM\cons	ole	
C:\Program Files\Tivoli\TSM\console>tsmdlst			
Tivoli Storage Manager — Device List Utility	,		
Licensed Materials - Property of IBM			
5697-TSM (C) Copyright IBM Corporation 2000, U.S. Government Users Restricted Rights - Use restricted by GSA ADP Schedule Contract with	2005. All rig e, duplication IBM Corporati	hts reserved. or disclosure on.	
Computer Name: SD34107W2K8 OS Version: 6.1 OS Build #: 7601 TSM Device Driver: TSMScsi - Running			
2 HBAs were detected.			
Manufacturer Model Driver iption	Version	Firmware	Descr
	7-2.10.211	2.7045	Emule
Emulex Corporation LPe11002-M4 elxstor x LPe11002-M4 4Gb 2port FC: PCIe SFF HBA	7-2.10.211	2.7045	Emule
TSM Name ID LUN Bus Port SSN ype Driver Device Identifier	ł	WN	TSM T
mt0.0.0.3 0 0 0 3 1068005183	-	0050763124D1DB7	LTO
1b0.1.0.3 0 1 0 3 2B84100086 RY TSM OVERLANDNEO Series 0201		0050763124D1DB7	LIBRA
Completed in: 0 days, 0 hours, 0 minutes, 10	seconds.		
C:\Program Files\Tivoli\TSM\console>_			

#### Configuring the NEO with TSM Console

Use these procedures to configure the NEO tape library and LTO-6 tape drive using TSM Console.

- 1. Use these TSM commands to create a library and drive.:
  - def libr neo libt=scsi
  - def drive neo drive1

- **2.** Use these TSM commands to create the **paths** for the new device, using the information gathered from the previous steps to enter as the device path.:
  - def path SD34107W2K8 neo srctype=server desttype=libr device=lb0.1.0.3
  - def path
  - SD34107W2K8 drive1 srctype=server desttype=drive device=mt0.1.0.3 libr=neo

The following is the output of the TSM commands used.

- q libr
- q drive
- q path

#### TSM:SD34107W2K8> Storage Management Server for Windows - Version 6, Release 3, Level 3.0 TSM:SD34107W2K8> def path SD34107W2K8 drive1 srctype=server desttype=drive device=mt0.0.0.3 libr= ANR2017I Administrator SERVER\_CONSOLE issued command: DEFINE PATH SD34107W2K8 drive1 srctype=server desttype=drive device=mt0.0.0.3 libr=neo ANR8955I Drive DRIVE1 in library NEO with serial number is updated with the newly discovered serial number 1068005183. ANR1720I A path from SD34107W2K8 to NEO DRIVE1 has been defined. TSM:SD34107W2K8> g libr ANR2017I Administrator SERVER\_CONSOLE issued command: QUERY LIBRARY Library Name: NEO Library Type: SCS ACS Id: SCSI Private Category: Scratch Category: Scratch Category: WORM Scratch Category: External Manager: RSM Media Type: Shared: No LanFree: ObeyMountRetention: ISM:SD34107W2K8> q drive ANR2017I Administrator SERVER\_CONSOLE issued command: QUERY DRIVE Library Name Drive Name Device Type **On-Line** NEO DRIUE1 LTO Yes TSM:SD34107W2K8> g path ANR2017I Administrator SERVER\_CONSOLE issued command: QUERY PATH Source Name Source Type Destination Destination On-Line Name Туре LIBRARY DRIVE D34107W2K8 SERVER SERVER NEO DRIVE1 Yes Yes D34107W2K8

- **3**. Use this TSM command to create the **device class** for the NEO device.:
  - def devc neoc devtype=lto libr=neo format=drive
- **4.** Use these TSM commands to create the **stagepool** for the NEO device and update the stagepool so that the backups go straight to tape.:
  - def stgpool neop classname maxscratch=100 dataformat=native
  - update stgpool backuppool nextstgpool=neop

Display the new device class and stagepool with the following **commands**:

- q devc
- q stgpool

Device Class Name	Device Access Strategy	Storage Pool Count	Device Type	Form	at	Est/Max Capacity (MB)	Mount Limit
DISK NEOC	Random Sequential	3 Ø	LTO	DRIV	E		DRIVES
rsm:sd34107W	2K8>						
ISM:SD34107W	2K8>	nevtetanno	maan				
ANR20171 Adm	inistrator SI	ERVER_CONSOLI	E issued c	ommand: U	PDATE	STGPOOL ba	ckuppool
nextstgpool=	neop						
コトレックフロショー ちもん	warre nool Rui	WIIPPOOL und:	tod				
INK22021 Sto [SM:SD34107W	rage pool BAG 2K8>	CKUPPOOL upda	ated.				
INK22021 Sto ISM:SD34107W Storage Mana	rage pool BAG 2K8> gement Server	KUPPOOL upda	ated. s - Nersia	un 6. Rele	ase 3	Level 3 0	
HNR22021 Sto ISM:SD34107W Storage Mana	rage pool BAG 2K8> gement Servei	CRUPPOOL upda • for Windows	ated. s - Versio	on 6, Rele	ase 3,	. Level 3.0	
HNR22021 Sto TSM:SD34107W Storage Mana TSM:SD34107W	rage pool BH( 2K8> gement Servei 2K8>	cKUPPOOL upda for Windows	ated. s - Versio	on 6, Rele	ase 3,	. Level 3.0	
HNR22021 Sto TSM:SD34107W Storage Mana ISM:SD34107W I Stgpool	rage pool BH( 2K8> gement Servei 2K8>	ckUPPOOL upda	ated. s - Versio	on 6, Rele	ase 3,	. Level 3.0	
HNR22021 Sto TSM:SD34107W Storage Mana ISM:SD34107W q stgpool ANR2017I Adm	rage pool BH 2K8> gement Servei 2K8> inistrator SI	CRUPPOOL upda • for Windows ERVER_CONSOLI	ated. s — Versio E issued c	on 6, Rele command: 9	ase 3, UERY S	Level 3.0 STGPOOL	
INR22021 Sto ISM:SD34107W Storage Mana ISM:SD34107W I stgpool INR2017I Adm Storage	rage pool BH 2K8> gement Servei 2K8> inistrator SI Device	CKUPPOOL upda • for Windows ERVER_CONSOLI Estimated	ated. s - Versio E issued c	on 6, Rele command: Q Pct High	ase 3, UERY 9 Low	Level 3.0 GTGPOOL Next	
INR22021 Sto ISM:SD34107W Storage Mana ISM:SD34107W I stgpool INR2017I Adm Storage Pool Name	rage pool BH 2K8> gement Server 2K8> inistrator SI Device Class Name	CRUPPOOL upda for Windows ERVER_CONSOLI Estimated Capacity	ated. s - Versio E issued c Pct Util M	on 6, Rele command: 9 Pct High Higr Mig Pct	ase 3, UERY 9 Low Mig Pct	Level 3.0 GTGPOOL Next Storage Pool	
HNK22021 Sto ISM:SD34107W Storage Mana ISM:SD34107W g stgppol ANR2017I Adm Storage Pool Name	rage pool BH 2K8> gement Server 2K8> inistrator SI Device Class Name	For Windows For Windows ERVER_CONSOLI Estimated Capacity	ated. s - Versio E issued c Pct Util M	on 6, Rele command: Q Pct High fig Mig Pct	ase 3, UERY S Low Mig Pct 70	Level 3.0 GTGP00L Next Storage Pool	
HNR22021 Sto TSM:SD34107W Storage Mana ISM:SD34107W g stgppol ANR2017I Adm Storage Pool Name ARCHIUEPOOL BACKUPPOOL	rage pool BH 2K8> gement Server 2K8> inistrator SI Device Class Name DISK DISK DISK	For Windows For Windows ERVER_CONSOLI Estimated Capacity 0.0 M 0.0 M	ated. s - Versio E issued c Pct Util M 	on 6, Rele command: 9 Pet High Hig Pet 0.0 90 0.0 90	ase 3, UERY S Low Mig Pct 	Level 3.0 STGPOOL Next Storage Pool NEOP	

**5.** Use this TSM command to permit the NEO tape library to **label and check-in** the media so that the tapes can be used in it:

• label libv neo search=yes labelsource=barc overwrite=yes checkin=scr Display the tape medias in the NEO:

• q libv

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33	
	33 34

#### Verifying the device in Tivoli Admin Center

Login to Tivoli Admin Center and verify the new library device is shown with a status of Good.

IC // C https://sd34107w2k8:16311/jbm	/console/login.do?action=secure	ror ++ 🗙 🔁 Bing
Favorites		
Tivoli Integrated Portal		🏠 🔹 🔂 🕤 🚍 🌧 🔹 Page 🔹 Safety 🔹 Tools 🔹 🕼
voli. View: All tasks	Welcome administrator	Help Logout TR
•	Manage Servers × Storage Devices × +	Select Action
= Welcome		
<ul> <li>My Startup Pages</li> <li>Users and Groups</li> </ul>		
Settings	Total: 1 Filtered	f: 1
Tivoli Storage Manager     Getting Started		
<ul> <li>Manage Servers</li> </ul>	Librarias for All Convers	
<ul> <li>Health Monitor</li> <li>Enterprise Management</li> </ul>	Libraries for All Servers	
	A Server uses storage devices to store data for client nu	odes. Libraries and drives represent storage devices "
<ul> <li>Storage Devices</li> <li>Client Nodes and Backup Sets</li> </ul>	all server dates storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media US	odes. Libranes and drives represent storage devices t are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its c
Storage Devices     Client Nodes and Backup Sets     Policy Domains     Server Maintenance	all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	odes. Libranes and drives représent storage devices t are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its c
Storage Devices     Client Nodes and Backup Sets     Policy Domains     Server Maintenance     Reporting	all server daes storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	odes. Libraries and drives represent storage devices t are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o
Storage Devices     Client Nodes and Backup Sets     Policy Domains     Server Maintenance     Reporting     Disaster Recovery Management     FastBack Servers	all server daes storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	ades. Libraries and drives represent storage devices t are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o ction
Storage Devices Client Nodes and Backup Sets Policy Domains Server Maintenance Reporting Disaster Recovery Management FastBack Servers	A server daes storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	ades. Libraries and drives represent storage devices are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o ction • Filter ager ^ Library Clients ^ Scratch Volumes ^
Storage Devices Client Nodes and Backup Sets Policy Domains Server Maintenance Reporting Disaster Recovery Management FastBack Servers	A server uses storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	ades. Libraries and drives represent storage devices are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o ection • Filter ager ^ Library Clients ^ Scratch Volumes ^ 8 - 4
Storage Devices     Client Nodes and Backup Sets     Policy Domains     Server Maintenance     Reporting     Disaster Recovery Management     FastBack Servers	A server daes storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	ades. Libraries and drives represent storage devices ' are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o etion • • • • • • • • • • • • • • • • •
Storage Devices Client Nodes and Backup Sets Policy Domains Server Maintenance Reporting Disaster Recovery Management FastBack Servers	A server daes storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	ades. Libraries and drives represent storage devices t are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o ction▼
Storage Devices Client Nodes and Backup Sets Policy Domains Server Maintenance Reporting Disaster Recovery Management FastBack Servers	A server daes storage devices to store data for client in all servers that have been added to the console. There and its drives, create a storage pool, and add media. Us	odes. Libraries and drives represent storage devices 1 are two ways to add a library. Use the Add a Storag e Create a Library to create only the library and its o ction▼

#### Creating a backup job

Use the TSM Backup-Archive GUI applet to configure a backup job.

1. In the Tivoli Storage Manager group, select Backup-Archive GUI.



2. Select the Backup options, choose the source for backup, and click Backup.

👼 Backup				
File Edit View Help				
				P
Backup Options Always backup				
E	Name	Directory	Size	Modified
B B SD34107W2K8	10.	- 10		99
🕀 🔲 📼 \\sd34107w2k8				
🕀 🔲 📼 \\sd34107w2k8\\\$				
🕀 🛄 📼 \\sd34107w2k8\j\$				
The sketter of the second seco				
- System Volum				

The following is the active status report while the backup is running.

D-4-11		
Detail	led Status Report	
Elapsed Time: 00:01:34		
Performance		
Total Bytes Inspected:	2.39 GB	
Bytes Transferred:	2.01 GB	
LanFree Data Bytes:	0.8	101/007
Compressed By:		0%
Total Data Reduction:		15.87%
Subfile Reduction:	]	0%
Transfer Rate		
Network (KB/s):		81,701
Aggregate(KB/s):		22,451
Object Count		
Inspected: 209	Backed Up: 51	
Updated: 0	Rebound: 0	
Marked Inactive: 0	Failed: 0	
Subfile: 0		View

The following active backup can be seen from the TSM Console.

Jolume Name	Storage	Device	Estimated	Pct	Volume
	Pool Name	Class Name	Capacity	Util	Status
AB068L5	NEOP	NEOC	2.9 T	0.2	Filling

### Creating a restore job

Use the TSM Backup-Archive GUI applet to configure a restore job.

- **1.** Use the following steps to configure a restore job.
  - a. Select the source for recovery.
  - **b.** Select the second option to restore to an **alternate location**.
  - c. Select the restore destination.
  - d. Click **Restore** to start the recovery.

<b>⊡</b> * ≔ ⊨ •\ •\					R.
Restore Options Point	In Time				
B B Nodes		Name	Size	Modified	Accessed
Backup Sets					
E E E Wsd34107w2k8ts	Restor	e Destination		×	
Downloads	15+0	Select destination	for restored	objects	
🗉 🗐 🕞 Image		Restore to			
		C Original location			
		· Following location			
		C Reeto Select	Destination Dire	ctory	X
		Resto Select Re	store Destination	Directory	
		C Resto	107W2K8		-
		C Do no	istributed File Sys Iscal	stem	
			0 %sd34107w2k8	Ac\$	
		Restor 🕑 🗨	0 %sd34107w2k8	nis	
			0 %sd34107w2k8 0 %sd34107w2k8	45 Ak\$	
		8.0	Usd34107w2k8	At\$	
			Downloads	DIN	
			Restore De	ctination	
			C Rea Sel	act destination	for restored obje
		0	etwo Re	estore to	
			0	Original location	
				Following location	
			Г	Select Nsd34103	7w2k8\t\$\restore
			0	Restore complete	path
			•	Restore partial path	h
			C	Restore partial path	h without base directo
			0	Do not preserve dir	ectory structure

2. Review the output of Restore Report:



These are an example of the outputs from TSM Console during an active restore:

ANR0403I Session 9 ended for node SD34107W2K8 (WinNT).
ANR11821 Removable volume AAB068L5 is required for a restore request from
session 8. And the second s
ANR11831 Initial determination of removable volumes required for a restore
request from session 8 is complete. Additional volumes may still be required.
ANR05101 Session 8 opened input volume AAB068L5.
ANR0514I Session 8 closed volume AAB068L5.
ANR0403I Session 8 ended for node SD34107W2K8 (WinNT).

**3.** Run **WinDiff** to verify the data is **consistent**.

ile Edit V	iew Expand Options Mark Help	
Comparin	g T:\Downloads : T:\restore\Down	nloads
Select Di	rectories	
Current:	c:\users\administrator\desktop	OK
	Include subdirectories	Cancel
Dir 1:	T:\Downloads	

🔮 WinDiff: scanning		
File Ed	it View Expand Options Mark Help	
Comp	aring T:\Downloads : T:\restore\Downloa	nds
1	.\ibm driver\exctapef.inf	identical
2	.\ibm driver\ibmcg.cat	identical
3	.\ibm driver\ibmcg2k8.sys	identical
4	.\ibm driver\ibmcqbs.cat	identical
5	.\ibm driver\ibmcgbs.inf	identical
6	.\ibm driver\ibmcqbs2k8.sys	identical
7	.\ibm driver\ibmcgft2k8.sys	identical
8	\ibm driver\ibmtape.x64 w08 6238.zip	identical
9	.\ibm driver\ibmtp.cat	identical
10	libm driverlibmtn9k8 ove	identical

#### Additional TSM Console outputs

You can use the TSM console to get further details of the devices:

- q drive f=d
- q libr f=d



Use TSM Console to get further details of the paths for both NEO library and LTO-6 tape drive.

q path f=d

TSM:SD34107W2X8> q path f=d ANR20171 Administrator SERVER\_CONSOLE issued command: QUERY PATH f=d Source Name: SD34107W2X8 Source Type: SERVER Destination Name: NEO Destination Type: LIBRARY Library: Node Name: Device: lb0.1.0.3 External Manager: ZOS Media Server: Comm. Method: LUN: Initiator: 0 Directory: On-Line: Yes Last Update by (administrator>: SERVER\_CONSOLE Last Update Date/Time: 10/17/2013 16:29:43 Source Type: SERVER Destination Name: DRIVE1 Destination Type: SERVER Destination Type: MEO Node Name: Device: mt0.0.3 External Manager: ZOS Media Server: Comm. Method: Library: NEO Node Name: Device: mt0.0.3 External Manager: ZOS Media Server: Comm. Method: LUN: Initiator: 0 Directory: Node Name: ZOS Media Server: Comm. Method: LUN: Initiator: 0 Directory: Node Name: ZOS Media Server: Comm. Method: LUN: Initiator: 0 Directory: Node Name: ZOS Media Server: Comm. Method: LUN: Initiator: 0 Directory: Node Node: LUN: Initiator: 0 Directory: Node: Last Update Date/Time: 10/17/2013 16:32:21 TSM:SD34107W2K8>