

Integrating NEO® Tape Libraries with IBM® Spectrum Protect 8.1 (Windows)

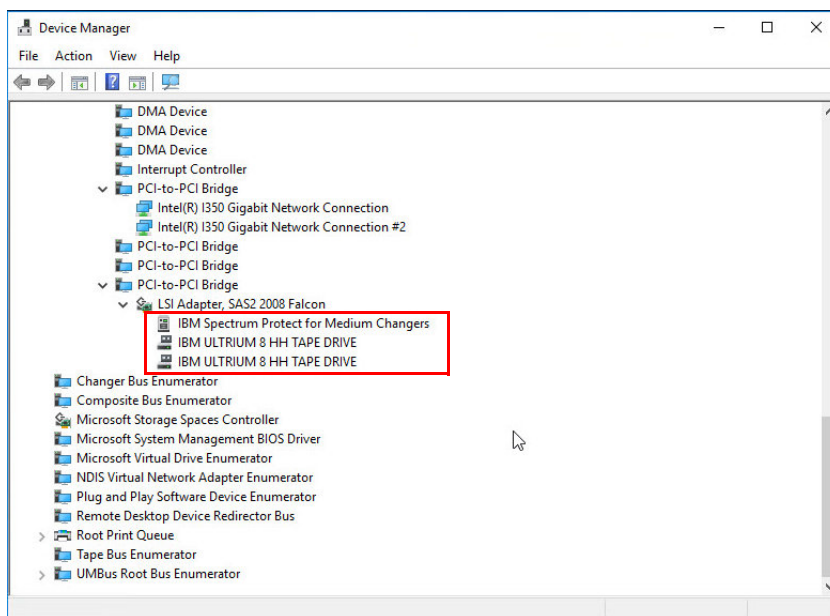


Spectrum Protect 8.1 (formerly Tivoli Storage Manager) from IBM supports many Overland-Tandberg tape libraries including NEOs StorageLoader (1U), NEOs T24 (2U), NEOxl 40 (3U), and NEOxl 80 (6U).

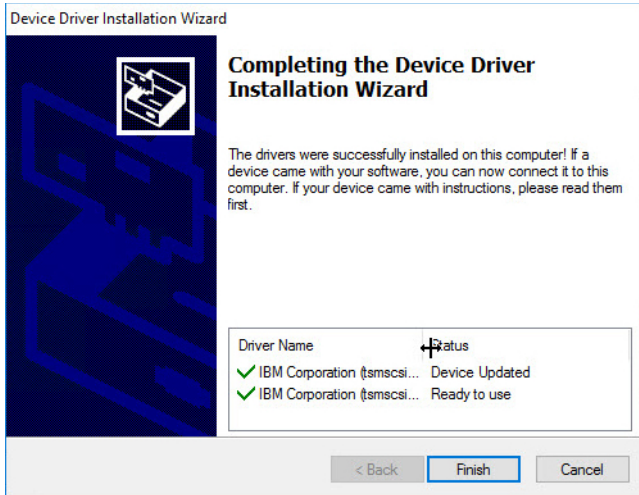
This guide explains how to:

- Configure a NEOxl 40 to work with IBM Spectrum Protect 8.1 in a Windows-centric environment. The process is the same for the other supported NEO tape libraries (NEOs StorageLoader, NEOs T24, and NEOxl 80).
- Configure tape drive encryption.

Integrate NEOxl 40 with Spectrum Protect 8.1



1. Open Windows Device Manager and verify all devices are displayed. In this example, a NEOxl 40 and two LTO-8 drives are shown. The device drivers must be installed for the Medium Changer and Tape Drives. The IBM Spectrum Protect for Medium Changers must be installed and the IBM Tape Device Drivers.



2. If the Medium Changer does not have the recommended driver shown in Windows Device Manager, use the **Spectrum driver utility** to install it:
 - a. Navigate to **C:\Program Files\Tivoli\TSM\device\drivers**
 - b. Double-click **DPIInst.exe** to start the Device Driver Installation Wizard.
 - c. Follow the wizard steps.

```

Adapter Name: com.lsi-SAS9212-414e-0
Adapter Name: com.qlogic-HPA1764A-1
Manufacturer: QLogic Corporation
Serial Number: MYS83023AM
NodeWWN: 5001438002343c29
Model: HPA1764A
Description: QLogic HPA1764A Fibre Channel Adapter
HardwareVer:
DriverVer: 9.1.15.1
FirmwareVer: 8.01.02
DriverName: ql2300.sys

=====
Port #1 Vendor_ID Product_ID Type Serial_Number Port_WWN OS_Dev
Dev Name
=====
IBM ULTRIM-HH8 Tape 11C27E705B 5000e111c27e705d Tape0 mt1.0.0.3
IBM ULTRIM-HH8 Tape 11C27E7065 5000e111c27e7066 Tape1 mt2.0.0.3
BDT MULTISTAK Changer DE56400114 LL01 5000e111c27e705d Changer lb1.1.0.3
=====

Adapter Name: com.qlogic-HPA1764A-2
Manufacturer: QLogic Corporation
Serial Number: MYS83023AM
NodeWWN: 5001438002343c2b
Model: HPA1764A
Description: QLogic HPA1764A Fibre Channel Adapter
HardwareVer:
DriverVer: 9.1.15.1
FirmwareVer: 8.01.02
DriverName: ql2300.sys

```

- d. Open a command prompt and navigate to **C:\Program Files\Tivoli\TSM\server**
- e. Use the Spectrum Device Scan Utility to verify the device paths by typing **tsmdlst.exe** and pressing Enter.

The tape drives are shown as "mtx.x.x.x" and the tape library as "lbx.x.x.x".
- f. Make note of these findings.

They will be used in Step 3 when defining the device paths for the library (lb) and tape drives (mt).

```

Protect: SD32127W16TSM>def libr neo libt=scsi
ANR8400I Library NEO defined.

Protect: SD32127W16TSM>

Protect: SD32127W16TSM>def path SD32127W16TSM neo srctype=server desttype=libr device=lb1.1.0.3
ANR1720I A path from SD32127W16TSM to NEO has been defined.

Protect: SD32127W16TSM>

```

3. Configure the NEO library and drives with Spectrum using the Spectrum Server Console:
 - a. Define the library by typing: **def libr <LibraryName> libt=scsi**
 - b. Define the library's path by typing:


```
def path <TSMserverName>
<LibraryName> srctype=server
desttype=libr device=lbx.x.x.x
```

```
Protect: SD32127W16TSM>
Protect: SD32127W16TSM>def drive neo drive1
ANR8404I Drive DRIVE1 defined in library NEO.
Protect: SD32127W16TSM>def drive neo drive2
ANR8404I Drive DRIVE2 defined in library NEO.
Protect: SD32127W16TSM>def path SD32127W16TSM drive1 srctype=server destype=drive device=mt1.0.0.3 libr=neo
ANR1720I A path from SD32127W16TSM to NEO DRIVE1 has been defined.
Protect: SD32127W16TSM>def path SD32127W16TSM drive2 srctype=server destype=drive device=mt2.0.0.3 libr=neo
ANR1720I A path from SD32127W16TSM to NEO DRIVE2 has been defined.
Protect: SD32127W16TSM>
```

c. Define the drives by typing:
def drive <LibraryName>
<DriveName>
 for each drive.

d. Define each drive's path by typing:
def path <TSMserverName>
<DriveName> srctype=server
destype=drive
device=mtx.x.x.x
libr=<LibraryName>

```
Protect: SD32127W16TSM>def devc neoc devtype=lto libr=neo format=drive
ANR2203I Device class NEOC defined.
Protect: SD32127W16TSM>def stgpool neop neoc_maxscratch=3 dataformat=native
ANR2200I Storage pool NEOP defined (device class NEOC).
Protect: SD32127W16TSM>update stgpool backuppool nextstgpool=neop
ANR2202I Storage pool BACKUPPOOL updated.
Protect: SD32127W16TSM>
Protect: SD32127W16TSM>q devc
Device Class Device Access Storage- Device Format Est/Max Mount
Name Strategy Count Type Type Capacity Limit
-----
DISK Random 3
NEOC Sequential 1 LTO DRIVE
Protect: SD32127W16TSM>q stgpool
Storage Device Storage Estimated Pct Pct Hig- Lo- Next Stora-
Pool Name Class Name Type Capacity Util Migr Pct Pct Mig Next
-----
ARCHIVEPOOL DISK DEVCLASS 0.0 M 0.0 0.0 90 70
BACKUPPOOL DISK DEVCLASS 0.0 M 0.0 0.0 90 70 NEOP
NEOP NEOC DEVCLASS 0.0 M 0.0 0.0 90 70
SPACEMPOOL DISK DEVCLASS 0.0 M 0.0 0.0 90 70
Protect: SD32127W16TSM>
```

e. Define the device class by typing:
def devc <DevClassName>
devtype=lto
libr=<LibraryName>
format=drive

f. Define the stage pool by typing:
def stgpool <StgPoolName>
<DevClassName>
maxscratch=3
dataformat=native
 and then typing:
update stgpool backuppool
nextstgpool= <StgPoolName>

```
Protect: SD32127W16TSM>label libv neo search=yes labelsource=barc overwrite=yes checkin=scr
ANS8003I Process number 2 started.
Protect: SD32127W16TSM>q proc
Process Process Description Process Status
Number
-----
2 LABEL LIBVOLUME ANR8805I Labeling volumes in library NEO; 0
volume(s) labeled.
Protect: SD32127W16TSM>q libv
ANR2034E QUERY LIBVOLUME: No match found using this criteria.
ANS8001I Return code 11.
Protect: SD32127W16TSM>q libv
Library Name Volume Name Status Owner Last Use Home Device
Element Type
-----
NEO AE0512L7 Scratch 1,003 LTO
NEO AG8641L8 Scratch 1,001 LTO
NEO AG8643L8 Scratch 1,002 LTO
Protect: SD32127W16TSM>
```

g. Label and prepare the media by typing:
label libv <LibraryName>
search=yes labelsource=barc
overwrite=yes checkin=scr

```
Protect: SD32127W16TSM>q libr f=d

Library Name: NEO
Library Type: SCSI
ACS Id:
Private Category:
Scratch Category:
WORM Scratch Category:
External Manager:
RSM Media Type:
Shared: No
LanFree:
ObeyMountRetention:
Primary Library Manager:
WWN: 5000E111C27E705E
Serial Number: DE56400114_LL01
AutoLabel: No
Reset Drives: No
Relabel Scratch: No
ZosMedia:
Last Update by (administrator): ADMIN
Last Update Date/Time: 04/12/2019 12:51:40
```

4. Check the status of the library by typing:
q libr f=d

```
Protect: SD32127W16TSM>q drive

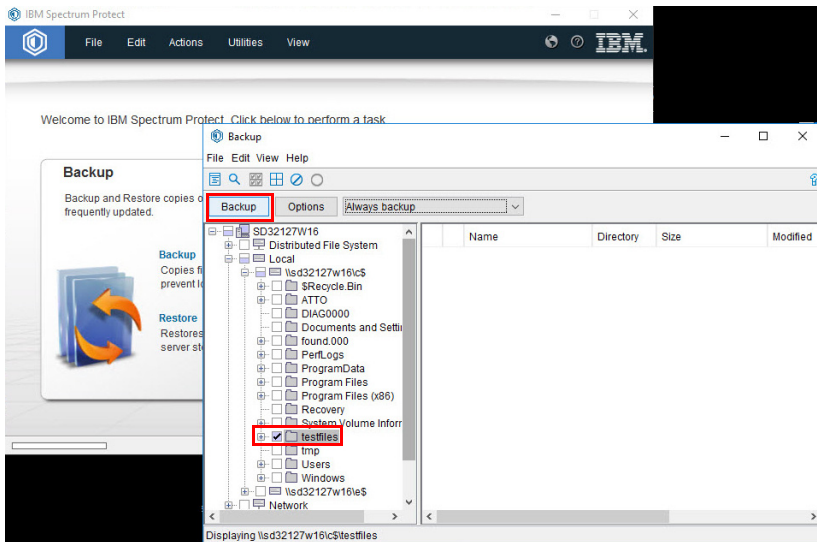
Library Name Drive Name Device Type On-Line
-----
NEO DRIVE1 LTO Yes
NEO DRIVE2 LTO Yes

Protect: SD32127W16TSM>q drive f=d

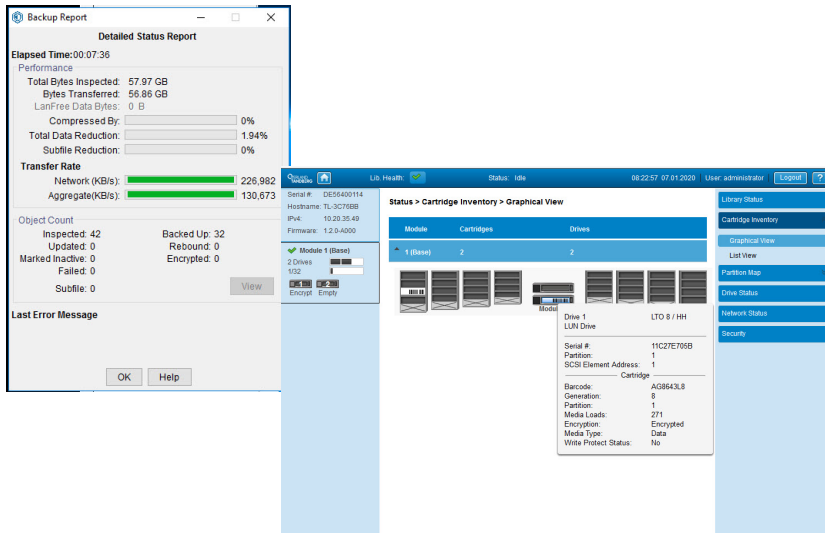
Library Name: NEO
Drive Name: DRIVE1
Device Type: LTO
On-Line: Yes
Read Formats: ULTRIUM8C,ULTRIUM8,ULTRIUM7C,ULTRIUM7
Write Formats: ULTRIUM8C,ULTRIUM8,ULTRIUM7C,ULTRIUM7
Element: 1
Drive State: UNKNOWN
Volume Name:
Allocated to:
WWN: 5000E111C27E705B
Serial Number: 11C27E705B
Last Update by (administrator): ADMIN
Last Update Date/Time: 04/12/2019 12:56:05
Cleaning Frequency (Gigabytes/ASNEEDED/NONE): NONE

Library Name: NEO
Drive Name: DRIVE2
Device Type: LTO
On-Line: Yes
Read Formats: ULTRIUM8C,ULTRIUM8,ULTRIUM7C,ULTRIUM7
Write Formats: ULTRIUM8C,ULTRIUM8,ULTRIUM7C,ULTRIUM7
```

5. Check the status of the library by typing:
q drive f=d



6. To start a backup, in the IBM Spectrum Protect Client GUI, select the **source** for the backup and click **Backup**.



A detailed status report is shown.
The status of the library can be seen using the NEO RMI.

Spectrum Protect 8.1 Encryption

IBM Spectrum Protect 8.1 supports tape drive encryption. Encryption is enabled during the NEO device class creation. Use the following procedure to enable encryption and verify the status of encryption to the NEO device class.

```
Protect: SERVER1>def devc neox140_encr_class libr=neox140 devtype=lto driveencryption=on
ANR2203I Device class neox140_encr_class defined.
```

1. To enable encryption, define the device class by typing:
**def devc <DevClassName>
libr=<LibraryName> devtype=lto
driveencryption=on**

```

Device Class Name: NEOXL40_ENCR_CLASS
Device Access Strategy: Sequential
Storage Pool Count: 1
Device Type: LTO
Format: DRIVE
Est/Max Capacity (MB):
Mount Limit: DRIVES
Mount Wait (min): 60
Mount Retention (min): 60
Label Prefix: AD5M
Library: NEOXL40
Directory:
Server Name:
Retry Period:
Retry Interval:
Shared:
High-level Address:
Minimum Capacity:
WORM: No
Drive Encryption: On
Scaled Capacity:
more... (<ENTER> to continue, 'C' to cancel)

```

2. To verify the status of the encryption, type:
q devc f=d

```

Protect: SERVER1>q vol f=d

Volume Name: AG8643L8
Storage Pool Name: NEOXL40_ENCR_POOL
Device Class Name: NEOXL40_ENCR_CLASS
Estimated Capacity: 27.3 T
Scaled Capacity Applied:
Pct Util: 2.2
Volume Status: Filling
Access: Read/Write
Pct. Reclaimable Space: 0.0
Scratch Volume?: Yes
In Error State?: No
Number of Writable Sides: 1
Number of Times Mounted: 5
Write Pass Number: 1
Approx. Date Last Written: 01/07/2020 08:42:21
Approx. Date Last Read: 01/07/2020 08:49:24
Date Became Pending:
Number of Write Errors: 0
Number of Read Errors: 0
Volume Location:
Volume is MVS Lanfree Capable : No
Last Update by (administrator):
Last Update Date/Time: 01/02/2020 07:09:14
Begin Reclaim Period:
End Reclaim Period:
Drive Encryption Key Manager: IBM Spectrum Protect
Logical Block Protected: No

```

3. Once the encrypted backup is complete, check the volume details to verify the value of Drive Encryption Key Manager is IBM Spectrum Protect. Use the command:
q vol f=d