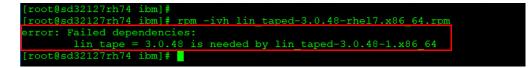


Installing IBM[®] Linux Tape Driver on RHEL with NEO[®] Tape Library Attached

July 2020

Description

This guide describes the installation process for the IBM Linux Tape driver on a Red Hat Enterprise Linux (RHEL) 7.4 system with a NEOxl 80 tape library attached. The IBM tape driver is used primarily with IBM Spectrum Protect backup software for Linux. This document walks the reader on how to properly install the IBM Linux Tape driver properly on RHEL when the following installation error occurs.



This process is the same for the other supported NEO tape libraries (NEO StorageLoader, NEOs T24, and NEOxl 40). The guide also covers some basic troubleshooting.

Prerequisites

Download the following files and versions of the supporting IBM Linux Tape source and device driver:

- lin_tape-3.0.48-1.src.rpm
- lin_taped-3.0.48-rhel7.x86_64.rpm

IBM Linux Tape Driver Installation

The next few steps require a Linux command prompt to verify the NEO library and its tape drives.

- **1.** Verify all devices are present by typing:
 - # cat /proc/scsi/scsi

In this example, a NEOxl 80 and two LTO-8 drives are shown.

<pre>[root@sd32127rh74 /] # cat /proc/scsi/scsi</pre>	
Attached devices:	
Host: scsi0 Channel: 02 Id: 00 Lun: 00	
Vendor: SMC Model: SMC2208	Rev: 3.29
Type: Direct-Access	ANSI SCSI revision: 05
Host: scsill Channel: 00 Id: 00 Lun: 00	
Vendor: HL-DT-ST Model: DVDRAM GP10NB20	Rev: 1.02
Type: CD-ROM	ANSI SCSI revision: 00
Host: scsi9 Channel: 00 Id: 00 Lun: 00	
Vendor: MSCC Model: Smart Adapter	Rev: 1.60
Type: Enclosure	ANSI SCSI revision: 05
Host: scsi9 Channel: 02 Id: 00 Lun: 00	
Vendor: MSCC Model: 3154-8e	Rev: 1.60
Type: RATD	ANST SCST revision: 05
Host: scsil0 Channel: 00 Id: 00 Lun: 00	
Vendor: IBM Model: ULTRIUM-HH8	Rev: KAH1
Type: Sequential-Access	ANSI SCSI revision: 06
Host: scsil0 Channel: 00 Id: 01 Lun: 00	
Vendor: IBM Model: ULTRIUM-HH8	Rev: KAH1
Type: Sequential-Access	ANSI SCSI revision: 06
Host: scsi10 Channel: 00 Id: 01 Lun: 01	
Vendor: BDT Model: MULTISTAK	Rev: 2.80
Type: Medium Changer	ANSI SCSI revision: 05
[root@sd32127rh74 /]#	

- **2.** Type the following:
 - # lsscsi -g

Again, a NEOxl 80 and two LTO-8 drives are shown.

0:2:0:0]	disk	SMC	SMC2208	3.29	/dev/sda	/dev/sg0
9:0:0:0]	enclosu	MSCC	Smart Adapter			/dev/sg1
9:2:0:0]	storage	MSCC	3154-8e	1.60	-	/dev/sg3
10:0:0:0]	tape	IBM	ULTRIUM-HH8	KAH1	/dev/st0	/dev/sg4
10:0:1:0]	tape	IBM	ULTRIUM-HH8	KAH1	/dev/st1	/dev/sg5
10:0:1:1]	mediumx	BDT	MULTISTAK		/dev/sch0	/dev/sg6
[11:0:0:0]	cd/dvd	HL-DT-ST	DVDRAM GP10NB20	1.02	/dev/sr0	/dev/sg2

3. Change to the directory where the supporting IBM Linux Tape drivers are located by typing: # rpmbuild -rebuild lin_tape-3.0.48-1.src.rpm

total 540									
drwxr-xr-x.									
drwxr-xr-x.				28	Dec	11	09:43		
-rwxr-xr-x.				497529	Dec	11	09:54	lin	tape-3.0.48-1.src.rpm
-rwxr-xr-x.		root	root	51432	Dec	11	09:54	lin	taped-3.0.48-rhe17.x86 64.rpm
[root@sd3212	271	rhel74	4 ibm]						
[root@sd3212	271	rhel74	4 ibm]						
[root@sd3212	271	rhel74	4 ibml	# romb	uild		rebuild	i li:	n tape-3.0.48-1.src.rpm

The results are then displayed.



- 4. Install the source rpm driver from the /root/rpmbuild/RPMS/x86_64 directory:
 - **a.** Type:

```
# ls -la /root/rpmbuild/RPMS/x86_64/lin_tape-3.0.48-1.x86_64.rpm
```

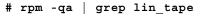
- **b.** Then type:
 - # rpm -ivh /root/rpmbuild/RPMS/x86_64/lin_tape-3.0.48-1.x86_64.rpm



- **5.** To install the downloaded rpm driver, type:
 - # rpm -ivh lin_taped-3.0.48-rhel7.x86_64.rpm

<pre>[root@sd32127rhel74 ibm]# ls - total 540</pre>	-al
drwxr-xr-x. 2 root root 80	Dec 11 09:54 -
drwxr-xr-x. 4 root root 28	
	9 Dec 11 09:54 lin tape-3.0.48-1.src.rpm
	2 Dec 11 09:54 lin taped-3.0.48-rhel7.x86 64.rom
[root@sd32127rhe174 ibm]#	
[root@sd32127rhe174 ibm]#	
	-ivh lin taped-3.0.48-rhe17.x86 64.rpm
Preparing	######################################
Updating / installing	
1:lin taped-3.0.48-1	######################################
Starting lin tape	
	be set to 2147483647 where Tape devices are attached, please read
lin tape.ReadMe for instruction	
	ald be set to 5 where Tape devices are attached, please read lin t
ape.ReadMe for instructions	
lin taped loaded	

6. To verify the driver installed, type:





- **7.** Verify IBM tape device drivers created based on the number of tape drives attached to host and verify the serial number of those tape drives by typing:
 - # ls -la /dev/IBM*

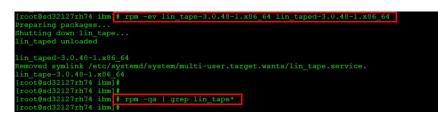
```
# cat /proc/scsi/IBM*
```

NOTE: If the output does not look similar to our example that follows, see the <u>Troubleshooting</u> section at the end of this document.

[root@sd32127rh74 /1#	
[root@sd32127rh74 /]# ls -la /dev/IBM*	
crw 1 root root 239, 3069 Feb 14 09:34 /dev/IBMSpecial	
crw 1 root root 239, 0 Feb 14 09:34 /dev/IBMtape0	
crw 1 root root 239, 1024 Feb 14 09:34 /dev/IBMtapeOn	
crw 1 root root 239, 1 Feb 14 09:34 /dev/IBMtape1	
crw 1 root root 239, 1025 Feb 14 09:34 /dev/IBMtape1n	
[root@sd32127rh74 /]#	
[root@sd32127rh74 /]# cat /proc/scsi/IBM*	
lin_tape version: 3.0.48	
lin_tape major number: 239	
Attached Changer Devices:	
Number model SN HBA	FO Path
lin tape version: 3.0.48	
lin_tape major number: 239	
Attached Tape Devices:	
Number model SN HBA	FO Path
0 ULTRIUM-HH8 11C2A700BF qla2xxx	NA
1 ULTRIUM-HH8 11C2A700B5 qla2xxx	NA
[root@sd32127rh74 /]#	

- **8**. To uninstall the IBM Linux tape driver, type:
 - # rpm -ev lin_tape-3.0.48-1 lin_taped-3.0.48-1.x86_64

```
# rpm -qa | grep lin_tape*
```



Troubleshooting

If the IBM device drivers are not created, verify each step at a time in order to isolate the problem:

1. Make sure the tape library and tape drives are turned on and all cables are connected (SAS or FC) to the host.

If fibre connected, make additional steps to fibre zone the tape library and tape drives to the host.

- **2.** Verify if the devices are seen using the following commands:
 - # cat /proc/scsi/scsi
 - # lsscsi -g
 - # ls -la /dev/IBM*
 - # cat /proc/scsi/IBM*
- 3. Use the following commands to clear the Linux device tree cache and to rebuild it:
 - # rescan-scsi-bus.sh -r (Remove)
 - # rescan-scsi-bus.sh -f (Flush)
 - # rescan-scsi-bus.sh -a (Rescan all)
- 4. Reboot the Linux server.

For more information on compatibility, please visit Overland-Tandberg website:

https://www.tandbergdata.com/us/index.cfm/support/compatibility/compatibility/

For information on NEO tape libraries, tape drives, and other Overland-Tandberg products, visit our Knowledge Base at:

https://www.overlandtandberg.com/knowledgebase/

NEO Applications Team Overland-Tandberg

Overland-Tandberg 4542 Ruffner Street, Suite 250 San Diego, CA 92111 USA TEL 1.858.571.5555 FAX 1.858.571.3664



Tandberg Data Feldstraße 81 44141 Dortmund, Germany TEL +49 231 5436 0 FAX +49 231 5436 111