

# LTFS Implementation using Tandberg Data LTO-5/LTO-6 Stand-Alone LTO Tape Drives

Since the introduction of LTO version 5, LTFS is a standard feature of LTO tape drives. LTFS stands for Linear Tape File System, which is embedded in the LTO tape drive hardware. Backup and long term archiving using LTFS can be easier and more transparent as an LTO cartridge appears as a single, local disk drive on a host computer.

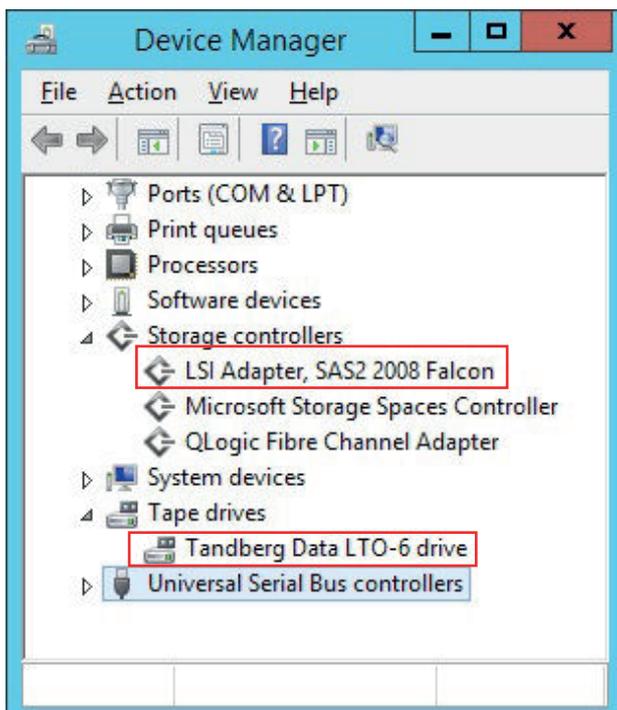
Prior to the release of LTFS, it was required to use backup or archiving software to record data to an LTO tape cartridge. Using LTFS software on a host or computer, the LTO tape drive with an LTFS formatted cartridge shows up as a single disk drive represented by a drive letter. An LTFS formatted cartridge provides similar disk functions such as copy and paste to send data to tape. LTFS enables the file system feature by partitioning the tape cartridge into two sections; a Data partition and an Index partition. The Index partition contains a subset of the data in the data partition and metadata. The Data partition contains all of the data and metadata.

The LTFS software for LTO-5/LTO-6 Tandberg stand-alone or internal tape drives may be downloaded from the [Tandberg Data Website](#). This article will cover basic LTFS integration using Tandberg Data LTO-5/LTO-6 tape drives in Windows 2012 Server. Tandberg LTO-5/LTO-6 tape drives also support LTFS with Windows 8/10, MAC and Linux.

## Prerequisites

The server or host the LTO tape drive connects too must have a FC HBA or SAS HBA which supports the tape drive SCSI command set. (see [Compatibility Matrix](#)).

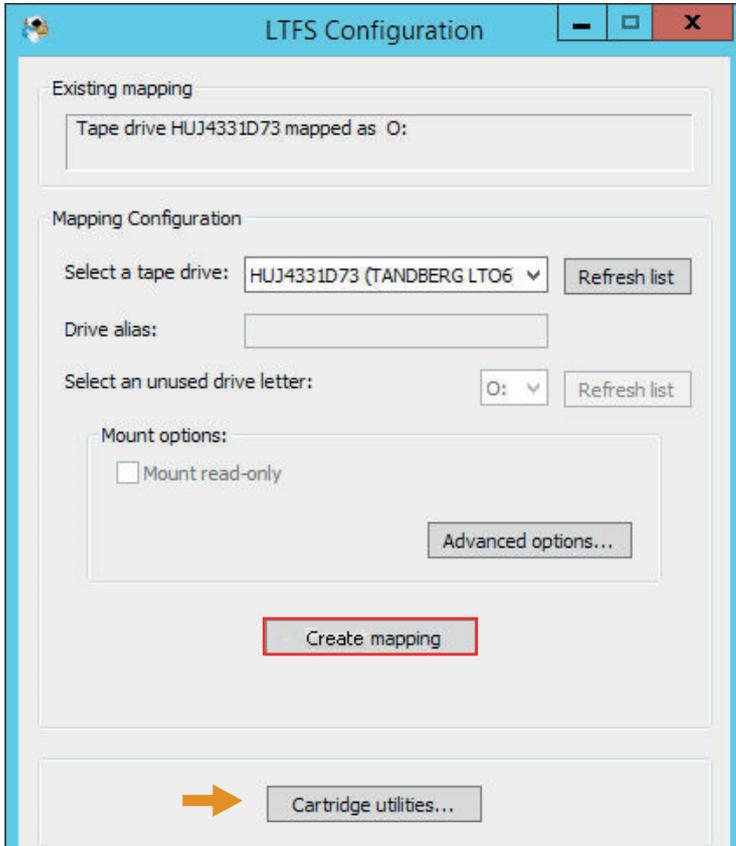
For Windows, the tape drive must show up in Windows device Manager. All other operating systems, the tape drive must show up in their respective device management. The LTFS Console will only connect to Overland Tandberg Data LTO-5/LTO-6 tape drives which are listed in device manager or device management depending on the OS.



Storage adapters and LTO drives must be listed in the device manager window (Screenshot shows SAS adapter as an example).

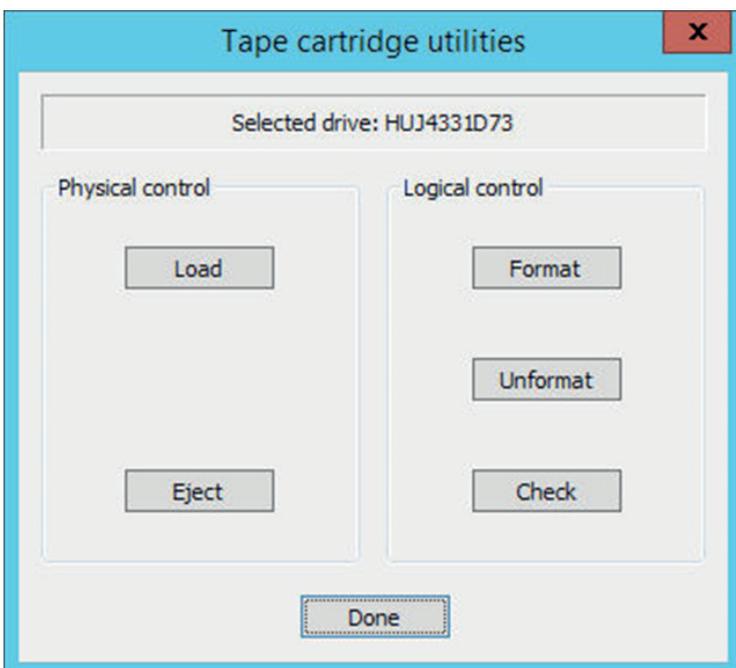
## Implementing LTFS

After the software installation, a few parameters need to be set to implement LTFS on the system. Start the LTFS configurator.



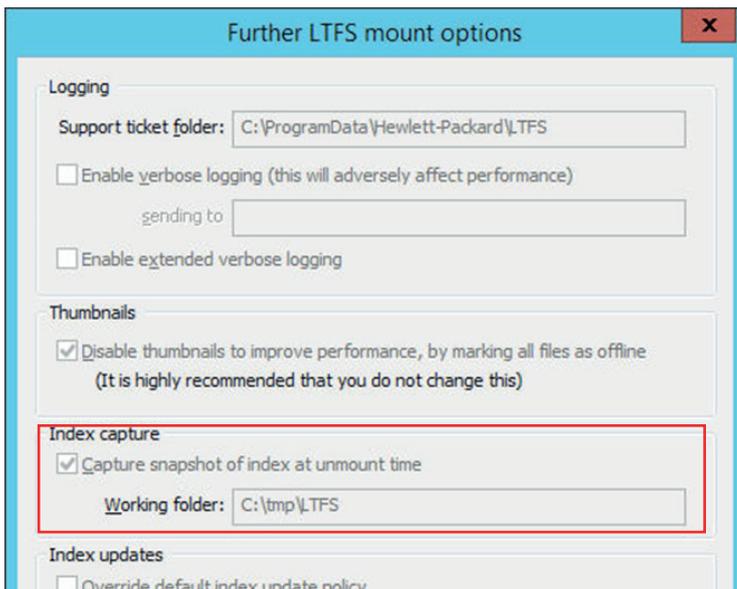
Using the LTFS Configurator, LTO tape drives with a properly formatted tape cartridge will change to LTFS disk devices in the system. Previously configured or mounted LTO LTFS tape cartridges will show cartridge contents whether mounted or not. New tape cartridges may get associated with a disk drive letter in “Select a tape drive”. If desired to associate a specific drive letter, select “Create mapping” to associate the LTO Tape drive with a disk drive letter. New or non-LTFS formatted LTO Cartridges inserted in the tape drive must be formatted LTFS.

Select “Cartridge utilities”.



“Format” prepares the LTO cartridge by creating the index and data partition. “Unformat” deletes the LTFS specific settings, making it available for use as a standard LTO tape cartridge. “Check” runs an LTFS consistency check, meaning it cross references the index partition with the contents of the data partition. “Load” loads the cartridge into the drive, “Eject” unloads it.

With “Done” you get back to the main menu.

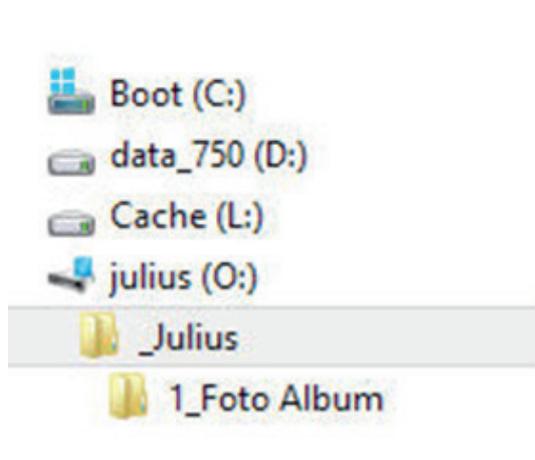


Select “Advanced options” in the main menu.

The menu “Further LTFS mount options” starts up.

Activate “Index capture”, to keep directory information of all LTFS cartridge used by the software online in a flat file data base. With this function, users may browse the directory of all cartridges without having the tape cartridges physically mounted.

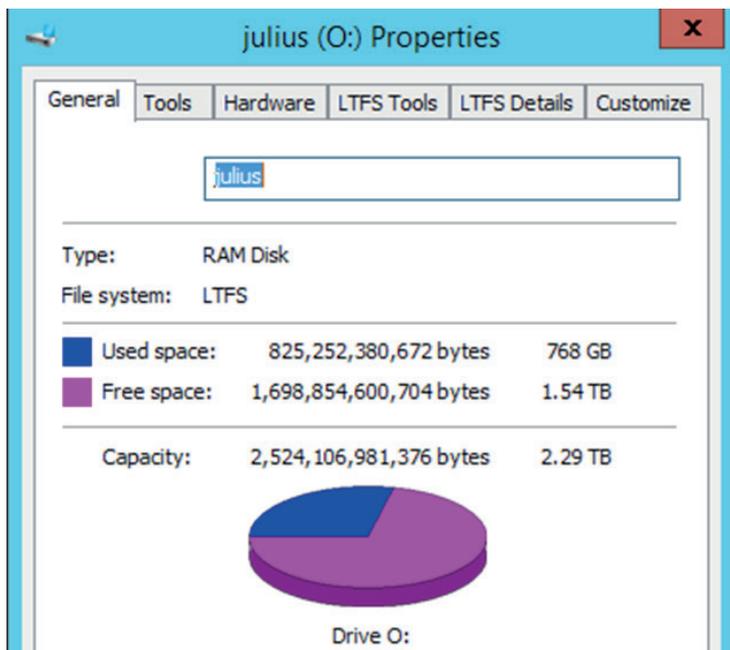
Confirm with “OK”.



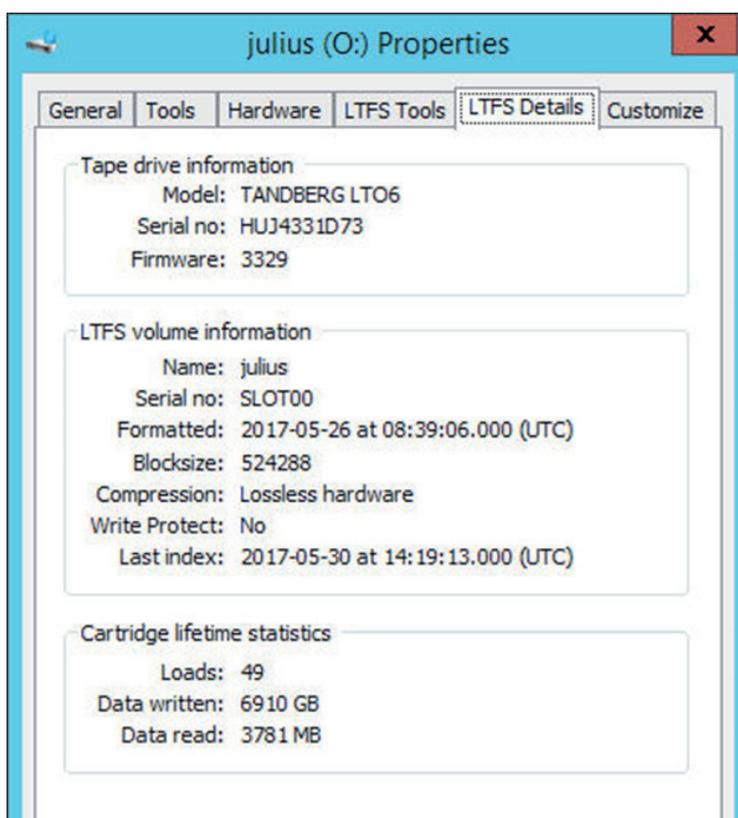
The LTO tape drive / cartridge shows up as a drive letter with a different icon in the Windows data explorer.

## Using LTFS

Using Tandberg LTO-5/LTO-6 tape drives with properly formatted LTFS cartridges, users can create directories, subdirectories, and copy data to and from the LTFS device; similar to disk. As it is still a tape device, it requires minimal data transfer rates to keep streaming. An LTFS best practice is to keep the data transfer speeds between the data source and LTFS cartridge as fast as possible. If not followed, will lead to a shorter life span of the tape drive hardware and or cartridges.



The tape drive can be used like a disk. So, a right mouse click shows the properties of the device and the LTFS specific functions.

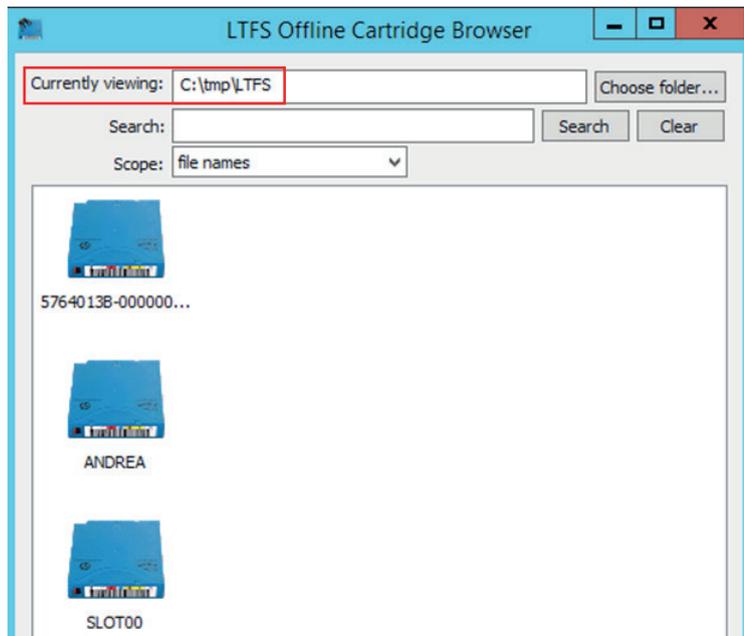


The tab "LTFS Details" displays specific metadata of the LTFS cartridge and tape drive hardware.

## The LTFS Offline Cartridge Browser

If “Index Capture” is checked in “Further LTFS Mount options”, all recorded files on LTFS Cartridges are sent to a cartridge specific list on the host in a flat text file in the specified directory.

All individual cartridges previously used in the LTFS tape drive and no longer mounted may be searched for individual files. Each cartridge represents it-self with the name it was configured during the “Format process”.



After the cartridge browser has been started, all previously used cartridges are displayed. Ensure, that the directory of the flat file is listed in the “Currently viewing” field.

You can search for files or meta-data in the “Search” field across the LTFS tapes. The “Scope” field specifies where you would like to search (e.g. filemane).

## General information

### LTFS Compatibility

Please note, details provided in this document reference LTFS software in use with Windows Server 2012 R2 and Tandberg stand-alone or internal LTO-5/LTO-6 tape drives using HP LTFS software.

Data recorded on LTO-5 / LTO-6 LTFS formatted cartridges may be read on any IBM LTO-7 LTFS installation without conversion.

### Scripting

A list of CLI commands is available for scripting and automation purposes of LTFS tasks.

### Downloads

Software downloads and user Guides are available using the following [link](#).

### Supported LTO Hardware:

Partnumber	Model	Partnumber	Model
3518-LTO	LTO-5 HH Internal Drive, SAS	3533-LTO	LTO-6 HH Internal Drive, SAS
3520-LTO	LTO-5 HH External Drive, SAS	3535-LTO	LTO-6 HH External Drive, SAS
3524-LTO	LTO-5 HH Internal Drive, FC	3536-LTO	LTO-6 HH Internal Drive, FC
3530-LTO	LTO-5 HH External Drive, FC	3537-LTO	LTO-6 HH External Drive, FC

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