

## Application Note

# Installing an SDLT or DLTtape Tape Drive into an HP-UX System

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**Revision History**

Revisions made to this document are listed below in chronological order.

<b>Document Release</b>	<b>Date</b>	<b>Summary of Changes</b>
A	November 26, 2002	Create document.

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# Installing an SDLT or DLTtape Tape Drive into an HP-UX System

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## 1. Introduction

This document provides instructions for integrating a Quantum<sup>®</sup> Super DLTtape<sup>™</sup> or DLTtape<sup>™</sup> tape drive into an HP<sup>®</sup>9000 Series 700, 800 System running HP-UX<sup>®</sup> 10.X or 11.X.

### 1.1 Purpose and Scope

This document pertains to the following products:

- **Tape drives:** DLT 2000, DLT 2000XT, DLT 4000, DLT 7000, DLT 8000, SDLT 220, and SDLT 320. For the DLT 8000, HP-UX permits connectivity on versions 10.20 and above.

**Note:** The Super DLT1 tape drive is currently known as the SDLT 220.

- **Mini-libraries:** DLT 2500, DLT 2500XT, DLT 2700, DLT 2700XT, DLT 4500, and DLT 4700.

**Note:** HP-UX will not recognize DLT 2000 series products, but will attempt to apply generic tape drive parameters. Generic settings are likely to limit drive performance. These models are not supported with an HP-UX fbackup/frecover command.

This document includes the following sections:

- [“Installation” on page 4](#) describes how to install an SDLT or DLTtape drive in an HP9000 system running HP-UX 10.X and 11.X, and how to complete patch installations.
- [“Tape Cartridge Compatibility” on page 9](#) provides information about SDLT and DLTtape cartridge and tape drive compatibility.
- [“Using a DLTtape Mini-Library” on page 10](#) provides information about using a DLTtape mini-library.

## 2. Installation

This section describes how to install the tape drive and how to configure the HP-UX operating system to recognize and communicate with the tape drive.

### 2.1 Before You Begin

Before you install the tape drive, follow these steps:

1. Power down the system.
2. Attach the tape drive to the SCSI interface.
3. Make sure that the hardware has the appropriate SCSI interface for the tape drive. If you have a SCSI single-ended (SE) tape drive, you need a SCSI SE interface; if you have a SCSI low-voltage differential (LVD) or high-voltage differential (HVD) tape drive, you need a SCSI LVD or HVD interface.
4. Obtain the appropriate manual for your tape drive as listed in [Table 1](#). These manuals provide detailed hardware installation instructions, including switch and jumper settings and information about SCSI bus termination.

**Note:** To view these manuals online, go to: <http://www.quantum.com/AM/support/DLTtapeDrivesMedia/Manuals/Default.htm>.

**Table 1.** Part Numbers for Tape Drive Manuals

Manual Title	Order Number
<i>DLT 2000/DLT 2700 Product Manual</i>	81-109132
<i>DLT 2500 Owner's Manual</i>	81-109374
<i>DLT 2000XT/DLT 2500XT/DLT 2700XT Product Manual</i>	81-109253-03
<i>DLT 4000 Product Manual</i>	81-60043-04
<i>DLT 7000 Product Manual</i>	81-60000-06
<i>DLT 8000 Product Manual</i>	81-60118-04
<i>SDLT 220 Product Manual</i>	81-80000-01
<i>SDLT 220 and SDLT 320 Product Manual*</i>	81-85002-01

\*. Preferred over the *SDLT 220 Product Manual*; information is more up-to-date.

## 2.2 Installing the Tape Drive

To install the tape drive, follow these steps:

1. Shut down your workstation or server and remove AC power from the system.
2. Follow instructions in your product manual to install the tape drive and set the SCSI ID.

## 2.3 Enabling Hardware Compression on the SDLT 320 Tape Drive

To enable hardware compression on the SDLT 320 tape drive, follow these steps:

1. Type `ioscan -f` to obtain the instance number from the list for your tape drive, for example, 0 [zero].
2. Type `mksf -d stape -I <instance #> -b <density code(in decimal)> -c <compression code(in decimal)>`, for example:

```
mksf -d stape -I 0 -b 147 -c 16
```

This creates a device file in the format `<c#t#d#D###C###>`, for example:  
`c0t14d0D147C16`.

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**IMPORTANT:** This device node is created with a rewind at the end of backup. To create a node with no rewind capability, and with the Berkley format, type in the following:

n (non-rewind)	add -n
b (Berkley)	add -u
nb (non-rewind Berkley)	add -u -n

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The following is an example of a line of code to enable hardware compression on the SDLT 320 tape drive:

```
tar -cvf /dev/rmt/ c#t#d#D###C## /name of folder  
tar -cvf /dev/rmt/c0t14d0D147C16 /usr
```

Another example (with no rewind and the Berkley format):

```
tar -cvf -u -n /dev/rmt/ c#t#d#D###C## /name of folder
```

## 2.4 Installing a Patch to the Operating System

Patches allow the operating system to recognize your tape drive and utilize every possible feature.

Patches can be one of the following two types: tape driver (PHKL) or fbackup/frecover (PHCO). The tape driver patch is necessary for installation, and the fbackup/frecover patch is required if you intend to use HP's fbackup/frecovery utility with your tape drive. [Table 2](#) specifies the patches for each operating system and hardware.

**Table 2.** Hewlett-Packard (HP) Patches

Operating System and HP Model Number							
HP_UX 10.01		HP_UX 10.10		HP_UX 10.20		HP_UX 11.0	
HP9000/700	HP9000/800	HP9000/700	HP9000/800	HP9000/700	HP9000/800	HP9000/700/ 800	
Patch(es)	PHKL_11521	PHKL_11522 PHKL_14062	PHKL_16167	PHKL_19804 PHKL_14061	PHKL_16750 HPKL_20528	PHKL_16751 PHKL_20063	PHKL_18543 PHKL_20530 PHKL_26784*
	PHCO_8968	PHCO_8968	PHCO_8968	PHCO_8968	PHCO_18135	PHCO_18135	PHCO_19732

\*. Install this patch if you are using an HP-UX Model D370 with an SDLT 220 tape drive.

**Note:** To download the patches from Hewlett-Packard's web site, go to <http://www.hp.com/>. Because of the nature of HP's patch database, patch IDs are subject to change.

To install patches, follow these steps:

1. Download patches from HP.
2. If you haven't already done so, log in as `root`.
3. Copy the patches to the `/tmp` directory.
4. Change the directory to `/tmp`.

5. Unpack the patch. Be sure to use the appropriate command for your operating system version. For example:

```
sh ./<PATCH>
```

Where <PATCH> is the patch name.

6. Follow the instructions in `/tmp/<PATCH>.text`.
7. Reboot your system, if necessary.

Installation complete.

**Note:** After the patches are installed, your system may need the appropriate tape driver included in the HP-UX kernel. D and K class HP9000/800 systems have a High Speed Connect (HSC) bus included in the system. If the DLTtape drive is attached through the HSC, then the `stape` driver must be included in the kernel. In all other cases, attach the tape drive through the Native I/O (NIO) bus; this requires the `tape2` driver. Use HP's SAM utility to install the appropriate driver.

### 3. Tape Cartridge Compatibility

Table 3 provides information about tape cartridge compatibility. Use this matrix when determining tape cartridges to use in your tape drive.

**Note:** The SDLT 220 and SDLT 320 tape drives can read, but not append data to, DLTtape IV tape cartridges that were previously written by a DLT 4000, DLT 7000, or DLT 8000 tape drive.

**Table 3.** Tape Cartridge and Tape Drive Compatibility (Native/Compressed)

Tape Cartridge	Model Number						
	DLT 2000 DLT 2500 DLT 2700	DLT 2000XT DLT 2500XT DLT 2700XT	DLT 4000 DLT 4500 DLT 4700	DLT 7000	DLT 8000	SDLT 220	SDLT 320
DLTtape™ III (CompacTape III™)	10/20 GB	10/20 GB	10/20 GB	10/20 GB	10/20 GB		
DLTtape™ IIIXT (CompacTape IIIXT)		15/30 GB	15/30 GB	15/30 GB	15/30 GB		
DLTtape™ IV (CompacTape IV™)			20/40 GB	20/40 GB 35/70 GB	20/40 GB 35/70 GB 40/80 GB	20/40 GB 35/70 GB 40/80 GB	20/40 GB 35/70 GB 40/80 GB
Super DLTtape I						110/220 GB	110/220 GB 160/320 GB
DLT Cleaning Tape		20 uses	20 uses	20 uses	20 uses		
SDLT Cleaning Tape						20 uses	20 uses

## 4. Using a DLTtape Mini-Library

HP-UX operating system versions below 10.20 do not support SCSI-2 media changer device commands. Therefore, you cannot use a DLT 2500, DLT 2500XT, DLT 2700, DLT 2700XT, DLT 4500, or DLT 4700 in random access mode. You can access the mini-library in sequential mode only.

**Note:** At 10.20 and above, you can use the HP-UX mc media changer commands to operate the mini-library robotics. Refer to HP-UX mc man page for requirements and usage.

For a detailed description of these access modes, refer to the appropriate product manual for your DLTtape mini-library. See [Table 1 on page 5](#).