



Application Note

DLTtape™ TAPE UNIT INSTALLATION

IBM® RISC SYSTEM/6000

AIX® 3.2, 4.X

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NOTE: The information in this document pertains to DLT™2000, DLT™2000XT, DLT™4000, DLT™7000 or DLT™8000 cartridge tape drive or the DLT™2500, DLT™2500XT, DLT™2700, DLT™2700XT, DLT™4500 or DLT™4700 tape mini-library that you are installing.

The following section describes the installation and configuration of a DLTtape tape peripheral on an IBM RISC System/6000 running AIX 3.2 or 4X.. Additionally, information about setting the DLTtape device attributes as well as listing the special device files that can be used to select tape drive options (re-tensioning, rewinding, and density settings) are also included. The DLTtape controller firmware must have OEM-1 controller firmware installed. Controller firmware version must be V10 or greater. Note that DLT7000 or DLT8000 will not work on AIX 3.2.

For the DLT7000 and DLT8000 attachment to AIX 3.2.5 will require a patch from IBM to be installed. The patch ID is PTF U429285 and can be obtained using a web browser at <http://service.software.ibm.com>. The patch allows attachment of wide SCSI devices such as the DLT7000 and the DLT8000 to narrow host adapters on RS6000.

The section following the installation includes information about DLTtape tape cartridge compatibility. The last section describes important information regarding the use of an installed DLTtape mini-library.

Installation

IBM RISC System/6000 must have the appropriate SCSI interface for DLTtape drive to attached to, i.e., a SCSI single-ended DLTtape drive can be attached only to a SCSI single-ended interface. The same is true for SCSI differential attachment. After the DLTtape tape peripheral has been attached, you will need to perform certain system operations that allow the DLTtape tape peripheral to be recognized.

Perform the installation as follows:

1. Shutdown the system and remove ac power from the system. Install the DLTtape tape peripheral and connect it to its SCSI controller. Depending on the DLTtape tape peripheral you are installing, refer to one of the following manuals for switch and jumper settings and SCSI bus termination:
 - DLT2000/DLT2700 product manual (order number 81-109132)
 - DLT2500 owner's manual (order number 81-109374)
 - DLT2000XT/DLT2500XT/DLT2700XT product manual (order number 81-109253)
 - DLT4000/DLT4500/DLT4700 product manual (order number 81-106336)
 - DLT7000 Tape Drive product manual (order number 81-60000)

- DLT8000 Tape Drive product manual (order number 81-60118)

Set the DLT SCSI device address to an unassigned ID.

2. Reboot the system. During the boot sequence, the system adds the DLTape tape peripheral to its customized configuration table as a defined tape drive. The following steps will be used to verify that the system has added the DLTape tape peripheral.
3. At the command line, enter **smit**.
4. Select **Devices**.
5. Select **Tape Drives**.
6. Select **List All Supported Tape Drives**.

The system displays a table similar to the following:

type	subclass	description
1200mb-c	SCSI	1200 MB 1/4-inch Tape Drive
150mb	SCSI	150 MB 1/4-inch Tape Drive
525mb	SCSI	525 MB 1/4-inch Tape Drive
8mm	SCSI	2.3 GB 8mm Tape Drive
8mm5tgb	SCSI	5.0 GB 8mm Tape Drive
9trk	SCSI	1/2-inch 9-trk Tape Drive
ost	SCSI	Other SCSI Tape Drive

7. Select **List All Defined Tape Drives**

The system will display the tape drives connected to SCSI I/O controller(s) as in the example shown below. (Note below that the system may return a status of either **Defined** or **Available**):

name	status	location	description
rmt1	Defined	00-00-0S-50	Other SCSI Tape Drive.

Where:

- name** - the logical name of the DLTape tape peripheral(rmt1)
- status** - whether the peripheral is defined (known, but not ready for use) or available (ready for use)
- location** - the SCSI ID of the DLTape tape peripheral (5 in the sample) and the address of the SCSI I/O controller (the 0 that follows the 5 in the sample above)
- description** - a short description of the tape drive type. In the sample above, the DLTape tape peripheral is described as other SCSI tape drive

8. If the status is reported as **Available** for the device at the SCSI ID address of interest, then the installation is complete, otherwise, go to Step 9.

The DLTape tape peripheral must have available status in order for it to be ready for use. Should the status indicate Defined in Step 7, then the following steps will enable the status to be changed to Available.

9. Under the Devices, Tape Drive selection in smit, select Configure a defined tape drive. The system displays a list of defined tape drives.
10. Select the DLTape device by its logical address and location then select Ok. The system responds by reporting the status of the command.
11. To verify that the system has changed the device status from defined to available, select List All Supported tape Drives. The system display should be similar to the following:

rmt1 Available

The installation is now complete.

Optional Attribute Settings

The following information provides optional DLTape attribute settings. Use the following steps to access and/or modify those attributes of interest.

1. Under the **Devices, Tape Drive** selection in **smit**, select **Select Change/Showcharacteristics of a tape drive**. The system displays a table of the defined tape drives.
2. Select the DLTape device by its logical address and location. The system will display the attributes assigned to the DLTape tape drive. The DLTape attributes may be changed from the table below. Recommended settings are in **bold**.
 - BLOCK size (0 = variable length): **0**
 - BLOCK SIZE for variable length support: **0**
 - Use DEVICE BUFFERS during writes: **yes**
 - The following shows density settings for attached DLTape drives along with a description of the density values.

All DLT2000 series units	DENSITY setting # 1:	128	80h is the vendor-unique density code for 10 GB, 62500 bpi, uncompressed mode
	DENSITY setting # 2:	129	81h is the vendor-unique density code for 20 GB, 62500 bpi, compressed mode
All DLT4000 series units	DENSITY setting # 1:	130	82h is the vendor-unique density code for 20 GB, 81633 bpi, uncompressed mode
	DENSITY setting # 2:	131	83h is the vendor-unique density code for 40 GB, 81633 bpi, compressed mode
DLT7000	DENSITY setting # 1:	132	84h is the vendor-unique density code for 35 GB, 85937 bpi, uncompressed mode
	DENSITY setting # 2:	133	85h is the vendor-unique density code for 70 GB, 85937 bpi, compressed mode
DLT8000	DENSITY setting # 1:	136	88h is the vendor-unique density code for 40 GB, 98250 bpi, uncompressed mode
	DENSITY setting # 2:	137	89h is the vendor-unique density code for 80 GB, 98250 bpi, compressed mode

NOTE: The recommended DLTape device density settings may cause problems with tape drive access when using third party applications. In these cases it is suggested that the density values be set to zero (0).

Special Device Files Available

Special device files, shown below, are located in the **/dev** directory can be used to control specific options associated with an operation to tape. These options include whether or not to retension the tape prior to starting an operation, whether or not to rewind the tape after completing an operation, and selecting the appropriate density setting for the

operation. It should be noted that retensioning is not necessary for cartridges loaded in DLTtape tape drives.

Special File	Rewind On Close	Retension On Open	Density Setting
/dev/rmt1	Yes	No	#1
/dev/rmt1.1	No	No	#1
/dev/rmt1.2	Yes	Yes	#1
/dev/rmt1.3	No	Yes	#1
/dev/rmt1.4	Yes	No	#2
/dev/rmt1.5	No	No	#2
/dev/rmt1.6	Yes	Yes	#2
/dev/rmt1.7	No	No	#2

DLTtape Tape Cartridge Compatibility

The following is a matrix of DLTtape tape cartridge/drive type compatibility. Use this matrix when considering tape cartridge and drive type combinations. Where compatibility is indicated, the capacities are shown as native/compressed values.

Drive Cartridge	DLT2000 DLT2500 DLT2700	DLT2000XT DLT2500XT DLT2700XT	DLT4000 DLT4500 DLT4700	DLT7000	DLT8000
DLTtape™ III (CompacTape III™)	Up to 10/20GB	Up to 10/20GB	Up to 10/20GB	Up to 10/20GB	10/20GB only
DLTtape™ IIIXT (CompacTape IIIXT)	Not Compatible	15/30GB only	15/30GB only	15/30GB only	15/30GB only
DLTtape™ IV (CompacTape IV™)	Not Compatible	Not Compatible	20/40GB only	20/40GB 35/70GB	20/40GB 35/70GB 40/80GB

DLTtape Mini-Library Usage

The IBM AIX operating system does not support DLTtape media changer device commands. Therefore, an installed DLT2500/DLT2500XT/DLT2700/DLT2700XT/DLT4500/DLT4700 mini-library can not be utilized in random access mode and can only be accessed in sequential mode. Refer to either the DLT2000/DLT2700 product manual, DLT2500 owner's manual, DLT2000XT/DLT2500XT/DLT2700XT or the DLT4000/DLT4500/DLT4700 product manual for detailed description of these access modes.