



Product Notes

Updated: May 7, 2004

New and updated items appear in **orange**.

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RLS Configuration Notes:

- RLS libraries and the drives delivered in them are sold with 3-year ARW. Replacement drives are covered by the balance of the library ARW. New drives installed into an existing RLS carry the balance of the library's ARW or the normal 1-year drive ARW, whichever is longer.
- Hot Swap Drive Option is priced per drive slot, HOWEVER, all slots must be hot swap or none can be. x2xx models require two modules; 44xx models require four.
- Hot Swap Drive Option can be added in the field by an experienced technician.
- Hot Swap Power Supply Option is not available on 4221.
- Hot Swap Power Supply Option must also be ordered as a pair.
- Hot Swap Power Supply Option can be easily added in the field.
- 2Gb FCO includes Q-Link.
- RLS-4221 is not expandable to RLS-4445.

RLS Field Upgrades

- All RLS-4445 libraries with serial numbers greater than 2304xxx (manufactured beginning April 1, 2003) are field upgradeable to RLS-4470. RLS-4445s manufactured prior to April 2003 MUST be returned to the factory for upgrade since mounting points for the larger storage array are not present and cannot be added in the field.

-The following items may be added to any RLS library in the field:

- Bar Code Reader
- AIT-2 to AIT-3
- LTO 1 to LTO 2
- Q-Link
- 2Gb FCO
- Rack mount slides

1Gb Fibre Channel:

- 1Gb FCO is no longer available as new build. Refurbed units may be available from time-to-time. Contact Sales for current status and price.

2Gb Fibre Channel: for 412xxx, 68xxx and 88xxx libraries only

- P/N 501375-xx-x 2Gb Dual FCO is a single module containing a single bridge. The bridge contains two 2Gb/sec. fibre channel ports and six SCSI buses and mounts on the top of the 412xxx, 68xxx and 88xxx libraries in an enclosure that replaces the top cover.

- 2Gb FCO can be field installed on existing libraries.

- Q-Link is included with this option. The Price List will be updated to reflect this.

2Gb Fibre Channel: for TLS 42xx, 44xx, 46xxx, 62xx, 64xx, 82xx, and 84xx libraries

- Packaging is very similar to 1Gb FCO: a “wart” added to the rear of the library replacing the controller cover.

- It operates just like the 1Gb only twice as fast. No additional functionality.

- Q-Link is included.

- Field upgrades from 1Gb are supported, but there WILL be exceptions and maybe some “gotchas” so contact Tech Support with the serial number of the library before committing to the upgrade. See below.

- Any 1Gb FCO can be upgraded to 2Gb.

- Simultaneous Q-Link and FC operation is only supported on Exec IV-equipped libraries.

TLS FCO Field Upgrades

- The TLS-4210, 4210A, 4220, 6110, and 8111 can never be upgraded to fibre channel.

- Libraries that have the Executive I or Executive II controller are not field upgradeable to FCO or Q-Link.

- Libraries that have the Executive III are field upgradeable to Q-Link, provided that an FCO is not installed. FCO and Q-Link are mutually exclusive options prior to Exec IV.

- Libraries that have the Executive III or IV controllers are field upgradeable to FCO if the opening in the frame for the handler power supply is 5.5” x 9.25”. The FCO requires the larger opening to accommodate the 150w power supply. Contact Technical Support if the opening is smaller than described above.

- Libraries sold with 1Gb FCO can be field upgraded to 2Gb FCO. If the library has an Executive IV controller, Q-Link can also be connected. Libraries with Executive III controllers will not be able to use Q-Link in conjunction with the 2Gb FCO. Only Executive IV controllers contain the additional serial port that enables concurrent FCO and Q-Link operation.

Adding Drives

- When ordering additional drives for an existing TLS-4000 library, be sure to list the model of the library on the PO to insure that the correct mounting kit is included.

SDLT 320 Upgrade

- Any TLS-6000 library with an Exec II or higher controller can be upgraded to SDLT 320 by changing the drives and updating the library firmware. External SCSI cables will need to be replaced to accommodate the higher data rate.

SDLT 600 Upgrade

- Any TLS-6000 library with an Exec II or higher controller can be upgraded to SDLT 600 by changing the drives and updating the library firmware. External SCSI cables will need to be replaced to accommodate the higher data rate.

Barcode Reader Field Upgrade

- Same part number and price as Option.

I/O Port Field Upgrade

- Adding an I/O Port in the field to a TLS-4xxx requires p/n 500750-03-9, 8mm I/O Port Assembly – Retrofit. See the TLS Spare Parts Price List for cost. Do not order the I/O Port Option; that is only for new build.

- Order the same p/n as used on new library orders to add an I/O Port in the field to a TLS-6xxx or 8xxx.

Q-Link

- Both new build and retrofit orders use the same p/n.

- Q-Link retrofit requires Exec III or Exec IV.

- Q-Link cannot be installed concurrently with 1Gb FCO.

- Q-Link is included with 2Gb FCOs.

- Q-Link and FCO are mutually exclusive on Exec III. Pick one or the other, but not both. If both are required, Exec IV must be added.

LTO, LTO 2

We have selected IBM as our preferred supplier for both technologies, effective with the introduction of LTO 2 in February, 2003.

- Any TLS-8000 library can be upgraded to LTO 2 by changing the drives and updating the library firmware.

- IBM and HP LTO 1 drives can be intermixed in TLS. The LTO Ultrium format assures data interchange between all drives and media. The LTO consortium members all pay an independent third-party testing lab to conduct ongoing tests to monitor compliance. We have also confirmed this interchange.

- IBM LTO 2 drives can upgrade the HP LTO 1 drives in TLS. By definition, any LTO drive will interchange data with any other LTO drive. The LTO 2 specification states that LTO 2 drives are backward read and write compatible using LTO 1 100GB tapes. LTO 1 drives will not, of course, read or write LTO 2, 200GB media.

- IBM LTO 1 drives do not have the variable data rate feature. However, the buffer in the IBM LTO 1 drive is twice the size of the buffer in the HP drive. In most applications the larger buffer will yield the same results for drives capable of 15-16 MB/sec.

- IBM LTO 2 drives do have the variable data rate capability, since the increased performance of these drives places a proportionally higher burden on the system's ability to deliver data fast enough to maintain streaming operation.

- You can mix the different media formats within the same library, however it is not recommended. Applications do not generally support keeping different media types separated. You also need to rely on the person changing tapes in the library not to put the wrong tapes in the wrong slots.

WORM (Write-Once-Read-Many) Tape

- All AIT-3 drives shipped beginning February 11, 2004 are WORM-enabled. There is a nominal charge for a code load tape to update drives shipped prior to this date.
- Any AIT-3 drive can be updated via firmware to support multifunction operation, i.e. WORM and read/write in the same drive.
- Media type controls the drive's function: Insert an SDX100W cartridge and the drive will not erase any previously written data; only appends are allowed. Inserting any other SDX-xxxx tape enables erasure and rewrite operations.

TLS-5000 SAIT Family

- All TLS-5000 cabinets are black.
- All TLS-5000 models include Q-Link.
- All SAIT drives are WORM-capable as shipped.

TLS-4000 Field Upgrade Information

- All TLS-4000 libraries are field upgradeable to AIT-2 tape drives. The library firmware level will need to be updated.
- All TLS-4000 libraries that have the Executive III controller are field upgradeable to AIT-3 tape drives. These units will need to have the firmware upgraded and the SCSI hatch assembly replaced.
- All TLS-4000 libraries that have the Executive IV controller are field upgradeable to AIT-3 tape drives and may only need to have the firmware upgraded to support the drive.
- All TLS-6000 models can be upgraded to SDLT 320 or SDLT 600 regardless of the controller version. The library firmware level must be updated.
- All TLS-8000 libraries can be upgraded to LTO 2 by changing the drives and updating the library controller firmware, if necessary.
- We do not recommend intermixing different generations of drives in the same library, e.g. LTO 1 and LTO 2, DLT 8000 and SDLT, etc. While there are no library hardware or firmware limitations on doing so, media control issues and application setup and administration concerns preclude recommending this action.
- The following items may be added in the field:
 - [I/O Port](#) (not on 6110, 8111)
 - [Bar Code Reader](#) (not on 8111)
 - Capacity upgrade on designated models (see Price List)
 - Tape technology within families as described above
 - [Q-Link](#) as described above
 - [Fiber channel upgrades](#)
- Contact Technical Support if you have any questions about any upgrade.

TLS Direct Fiber Attach (DFA) Tape Drives

- LTO 2 and SAIT DFA drives are now available.
- DFA tape drives individually interface directly to a port in a FC switch or hub using an LC Duplex optical cable. No SFP or GBIC is used at the drive, but may be required at the switch or hub.
- An FCO will be required to connect the library controller to a FC (SAN) network. All models, including dual-sided libraries, use FCO p/n 501420-02-0.
- Connecting the library controller to FC is not mandatory, since customers may chose to interface the library controller to the backup server via SCSI, while using FC to the drives as the data paths.

- Any TLS-5000 or 8000 can be upgraded with DFA drives by installing the drives. If an FCO installation or upgrade is required, the [rules](#) for it must be followed.

SAIT in AIT Emulation Mode

Some confusion exists as to what “emulation” means. When an SAIT drive is set to emulate an AIT-3 drive, it returns a SCSI ID of SDX-700C, i.e. an AIT-3 drive. In all other respects, the drive acts just like an SAIT drive in “native SAIT” mode. The data transfer rate, cartridge capacity, data format, etc. are exactly the same as SAIT drive without the emulation enabled. Cartridges written by a drive in emulation mode are completely indistinguishable from those written by any SAIT drive.

Rumors claim that the capacity of the SAIT cartridge in emulation mode is limited to AIT capacity: not true. Most software packages query the drive to see how much room is left on the tape, so they will just keep writing until EOT is encountered.

LTO Media Recommendation

While the LTO Ultrium standard attempts to assure complete transparency between all suppliers, as you would expect some products comply more completely than others. We strongly recommend using only Maxell or Fuji media in our libraries. We have not had any problems with these brands, to date. We have encountered operability problems with other brands, including Imation and TDK media and do not recommend their use at this time.

Logical Library Partitioning

Logical Library allows any TLS or RLS to be partitioned into up to four logical libraries. Logical Library requires that the library’s controller be interfaced via SCSI. Partitioning is not possible when the library controller is interfaced via Fibre Channel. See the applicable Installation and Operations Manual for other conditions and limitations.

Degaussing Tape Cartridges

Some customers require that data be completely obliterated before the tapes can be reused. Processes exist that can recover data even after it has been overwritten several times. Degaussing subjects tape to an intense magnetic field that removes all traces of data. AIT, SAIT and SDLT tape can be degaussed and reused. SAIT and AIT tapes will need to be reformatted before re-use using Windows-based software tools available from Sony or Qualstar. LTO tape cannot be degaussed because the process destroys the pre-recorded servo information which cannot be rewritten. There is no process for obliterating data on an LTO tape that leaves it reusable.

SDLT 600 Compatibility

SDLT 600 will read tapes written by SDLT 220 and SDLT 320 drives, but will not write them. It will not read or write DLT IV tapes written by DLT x000 drives.