



Highlights

- Increase capacity by storing up to 278 petabytes (PB) of uncompressed data per library with the new Linear Tape-Open (LTO) Ultrium 8 drives or up to 263.25 PB per library using IBM® 3592 cartridges
 - Proactively monitor archived data with policy-based automatic media verification
 - Strengthen security and regulatory compliance with data encryption and write-once-read-many (WORM) media
 - Simplify user access to data stored on tape cartridges via IBM Spectrum Archive, featuring IBM Linear Tape File System (LTFS) technology.
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IBM TS4500 Tape Library

A next-generation cloud storage solution that delivers high storage density and integrated management

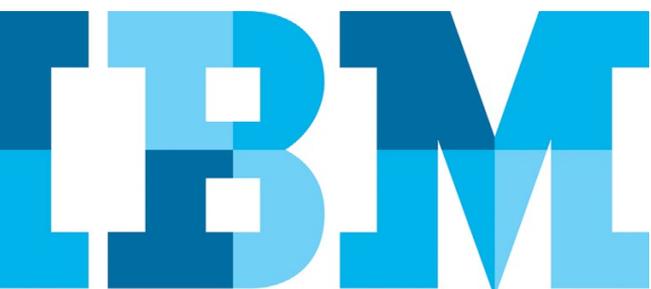
Big data offers vast opportunities for business insight, but you need the right technology to help you manage and use that data. IBM cloud solutions can help you harness the power of big data while reducing costs and enabling a secure environment.

The next-generation IBM TS4500 Tape Library is designed to help midsized and large enterprises meet cloud storage challenges, including data volume growth, rising storage footprint costs, data migration efforts and the increased complexity of IT training and management as staff resources shrink.

TS4500 answers those business needs by incorporating the latest generation of leading-edge LTO technology that will help organisations handle the growing data demands of modern tape use cases like big data, cloud, media and entertainment, ultra high-definition editing, digital video surveillance, Internet of Things (IoT), active file archiving and of course, backup.

TS4500 delivers the density that today's data growth requires – along with the efficiency and manageability to grow with business needs while preserving your existing investments in IBM tape library products. You can achieve both a low per-terabyte (TB) cost and high density, with up to 8.76 PB of data in a single 10 square-foot library using LTO Ultrium 8 cartridges or 8.25 PB with 3592 cartridges.

TS4500 provides advanced capabilities for integrated tape drive and media management, delivered within a single-pane-of-glass management console. The TS4500 graphical user interface (GUI) is based on the unified interface used in other IBM storage solutions. It includes key



features to help guide storage administrators in completing critical tasks. For example, you can monitor a tape library via persistent, at-a-glance library utilisation and health status indicators.

IBM TS4500 features such as automatic control-path and data-path failover, tape-drive encryption, dual robotic accessors and WORM media support improved management and help to reduce risk in the cloud.

In addition, IBM TS4500 now supports IBM z14, the latest generation of IBM Z servers. Mainframe administrators can trust TS4500 to help reduce floorspace costs and increase overall capacity.

Automates solutions for cloud environments

TS4500 is one of the tape drive integration leaders, with features including a persistent worldwide name, multipath architecture, drive/media exception reporting, remote drive/media management and host-based path failover. TS4500 L25, D25 and S25 frames support the IBM TS1155, IBM TS1150 and IBM TS1140 tape drives, while TS4500 L55, D55 and S55 frames support LTO Ultrium 8, 7, 6 and 5 tape drives. LTO Ultrium tape drives and TS1155, TS1150 and TS1140 tape drives can be mixed within the TS4500 library, frame by frame. The L-frame and D-frame models help boost efficiency with improved hot-swappable drive packaging. All of the frames include high-density (HD) slot technology that can greatly increase a library's total capacity.

TS4500 frame models can be placed in any active position, so the library can grow from both the right and the left side of the first L frame for floorspace flexibility. A dual-accessor option can help increase mount performance and overall system reliability and availability. Accessors can be serviced at the ends of the library, eliminating the need for a dedicated service bay frame.

A top-rack offering can also provide 10U of rack space on top of the library for Fibre Channel (FC) switches, tape data movers or IBM Spectrum Archive nodes.



IBM TS4500 Tape Library

Delivers capacity on demand

The TS4500 library frame provides a more flexible upgrade path for users who want to expand their tape storage as their needs grow. Capacity-on-demand (CoD) configurations for TS4500 L-frame models include an entry-level configuration, an intermediate configuration and a base-capacity configuration. All models also support HD CoD configurations.

Includes advanced features

TS4500 is designed with advanced features to deliver cutting-edge performance and long-term value. For example, the Advanced Library Management System (ALMS) feature supports dynamic storage management, enabling you to create and change logical libraries and configure any drive into any logical library. TS4500 also offers automatic control-path and data-path failover to help improve business continuity and disaster recovery (DR) and policy-based automatic media verification can help minimise data risk.

Centralises tape management

IBM offers a wide range of management software options for TS4500. The management software options include:

- **IBM Spectrum Archive** – Allows users and applications to directly access files and directories stored on tape
- **IBM TS4500 command-line interface (CLI)** – Provides access to TS4500 library management commands
- **Rocket Servergraph Professional** – Enables administrators to monitor and report on storage devices
- **IBM Tape System Library Manager** – Allows multi-library environments to be managed as a single system
- **IBM Security Key Lifecycle Manager** – Simplifies encryption key management with an intuitive user interface.



Inside IBM TS4500 Tape Library

IBM TS4500 Tape Library at a glance

Frame definition	<p>L25 – Base frame for TS1155, TS1150 and TS1140 (3592) drives and cartridges – includes 32 input/output (I/O) slots</p> <p>D25 – Drive-capable and storage expansion frame for TS1155, TS1150 and TS1140 (3592) drives and cartridges</p> <p>S25 – Storage-only expansion frame for 3592 cartridges</p> <p>L55 – Base frame for LTO drives and cartridges – includes 36 I/O slots</p> <p>D55 – Drive-capable and storage expansion frame for LTO drives and cartridges</p> <p>S55 – Storage-only expansion frame for LTO cartridges</p>
Tape drive types	TS1155, TS1150 and TS1140 (3592), LTO Ultrium 8, 7, 6 and 5 tape drives
Number of frames per library	One base frame, up to 17 expansion frames with maximum of 7 Dx5 frames
Number of drives	Up to 16 per frame (up to 12 in frame 1) Up to 128 per library
Number of tape cartridges	<p>L25 – up to 660 (up to 550 in frame 1)</p> <p>D25 – up to 740 (up to 590 in frame 1)</p> <p>S25 – up to 1,000 (up to 798 in frame 1)</p> <p>Total supported per library: up to 17,550</p> <p>L55 – up to 882 (up to 730 in frame 1)</p> <p>D55 – up to 970 (up to 774 in frame 1)</p> <p>S55 – up to 1,320 (up to 1,054 in frame 1)</p> <p>Total supported per library: up to 23,170</p>
Capacity*	<p>3592 advanced cartridges: up to 263.25 PB per library (789.75 PB with 3:1 compression)</p> <p>LTO Ultrium 8 cartridges: up to 278 PB per library (up to 695 PB with 2.5:1 compression)</p>
Operating systems (OS) support	See the IBM System Storage Interoperation Centre

Why IBM?

The performance and availability of your storage environment can either enhance or hamper your business processes. That's where IBM comes in. As one of the market leaders in the storage industry, IBM can help you handle the challenges, whether you are a small to midsized company or a large enterprise.

Innovative technology, open standards, excellent performance and a broad portfolio of proven storage software, hardware and solutions offerings are just a few of the reasons you should consider storage solutions from IBM, including IBM TS4500 Tape Library.

For more information

To learn more about IBM TS4500 Tape Library, please contact your IBM representative or IBM Business Partner (BP), or visit: ibm.com/us-en/marketplace/ts4500

Additionally, IBM Global Financing provides numerous payment options to help you acquire the technology you need to grow your business. We provide full lifecycle management of IT products and services, from acquisition to disposition. For more information, visit: ibm.com/financing



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* Capacity depends on drives installed, number and type of cartridges used and compression ratio achieved. Listed capacity is physical. Usable capacity may be less.

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