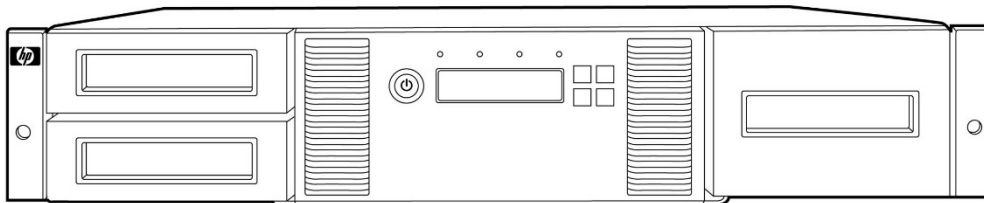


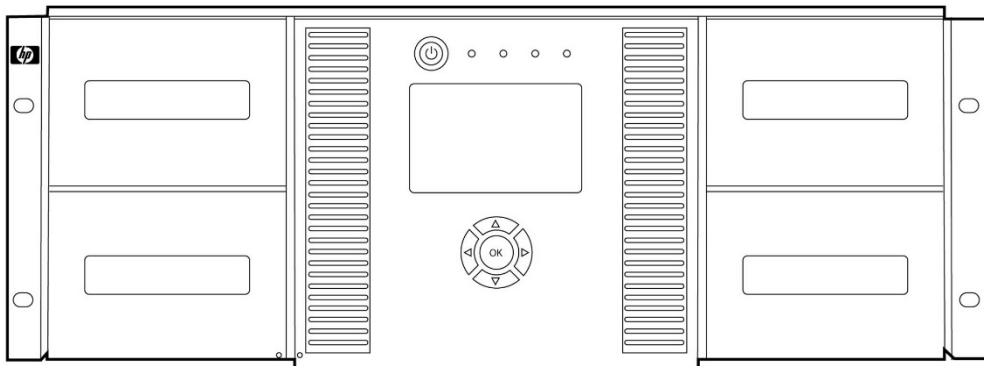
### Product Highlights

### HPE StoreEver MSL2024 and MSL4048 Tape Libraries

The HPE StoreEver MSL Tape Libraries meet demanding storage requirements of businesses needing unattended backup, disaster recovery, or archive capability. The MSL Libraries offer a broad choice of storage capacity and technology including LTO-8, LTO-7, LTO-6 or LTO-5 Ultrium tape drives. Web-based remote management makes the MSL Libraries easily managed from across the room or across the globe, eliminating the need for remote office IT staff. Quickly and simply manage the tape media both in and out of the library with the standard bar code reader, configurable mail slots, and multiple 12-slot removable magazines. If a tape were lost or stolen, protect important business data from unauthorized access with data encryption options. MSL library investment protection and uncertain data growth are easily managed within the MSL library portfolio. Quickly increase capacity and/or performance with tool-free drive upgrades in the MSL2024 or 4048, or move tape drive kits to the MSL3040 or 6480 for library scalability and additional enterprise class features. Proactively receive detailed information about your MSL libraries with TapeAssure Advanced. Information about the library, drives, and media are all monitored for utilization, operational performance, and life and health information. Prevent problems before they occur by proactively receiving notification if any library, drive or tape media parameters fall below Hewlett Packard Enterprise recommended standards.



**HPE StoreEver MSL2024 Tape Library**



**HPE StoreEver MSL4048 Tape Library**

MSL Tape Library Family Comparison	MSL2024	MSL4048
<b>Drive Technology Supported</b>	LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000	LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000
<b>Maximum Number of Drives</b>	2	4
<b>Maximum Capacity (2.5:1 compression)</b>	720TB (LTO-8, 24 slots)	1.44PB (LTO-8, 48 slots)

## Product Highlights

<b>Maximum Data Transfer (Native)</b>	2.16 TB/hr (2 LTO-8 drives)	4.32 TB/hr (4 LTO-8 drives)
<b>Drive Interface</b>	8 Gb Native Fibre Channel 6 Gb/sec SAS	8 Gb Native Fibre Channel 6 Gb/sec SAS

### Key Features

- Exceptional storage density: 720 TB with MSL2024, 1.44 PB with an MSL4048(2.5:1 compression using LTO-8 tape cartridges)
- Easy-to-use web-based remote management
- Integrated bar code reader
- Tool-free tape drive upgrades
- Leverage tape drives in an MSL2024 or 4048 into an MSL3040 or 6480 for investment protection.
- Customer upgradeable redundant power supply in the MSL4048.
- Multiple interface choices available (FC or SAS)
- Removable magazines with user-configurable mail slots
- Easy-to-enable AES 256-bit embedded hardware encryption with compression
- Extensive OS and software compatibility testing
- Proven high reliability
- Achieve the highest level of encryption security to secure confidential business information while meeting compliance guidelines with the HPE 1/8 G2 & MSL Encryption Kit or KMIP 1.2 Encryption Key Manager License.
- Proactively monitor utilization, operational performance, and overall life and health of the drives and media with TapeAssure Advanced.

### HPE Command View for Tape Libraries

HPE Command View for Tape Libraries Software (CVTL) is a single pane of glass management platform which allows users to manage, monitor and configure all of their tape libraries through a single console. It saves time by performing daily management and troubleshooting tasks from one location. CVTL also provides remote management, diagnostics and configuration for all HPE StoreEver Autoloaders & MSL Tape Libraries from across the room or across the globe.

Key features include:

- View health summaries for the entire library environment
- View library & autoloader utilization by slots, media, and drives
- Search for media by barcode label
- Upgrade firmware for all libraries in an entire library environment
- View persistent event logs & drive support tickets for an entire library environment

Command View for Tape Libraries is also the centralized location for TapeAssure Advance.

HPE StoreEver Command View for Tape Libraries can be downloaded for free from:

<http://www.hpe.com/storage/downloads/cvctl>

More information on Command View for Tape Libraries is available at: <http://www.hpe.com/storage/cvctl>

### TapeAssure Advanced

The HPE StoreEver MSL2024 & MSL4048 Tape Libraries are available with HPE StoreEver TapeAssure Advanced - analytics software with automated, predictive monitoring of health and performance of tape drives and cartridges. TapeAssure Advanced reporting and analysis allows users to get the most out of their investment by knowing how their library is being used. HPE StoreEver TapeAssure Advanced Software is fully integrated with HPE StoreEver Command View for Tape Libraries to provide an intuitive, easy to use dashboard for analysis of performance, health and utilization of tape drives and cartridges.

## Product Highlights

TapeAssure Advanced analytics features makes use of predictive forecasting to anticipate the likelihood of bottlenecks, failures and load balancing issues in the tape library environment. Analysis of drive/tape utilization helps users to understand available capacity and performance which helps to plan ahead.

For more information about TapeAssure Advanced, please visit <http://www.hpe.com/storage/tapeassure>

**NOTE:** HPE StoreEver TapeAssure Advanced Software is licensed by tape library; one license is required for each tape library.

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### Easy Installation

The MSL Tape Libraries are shipped as a rack-ready unit. The rack mount hardware included with the library allows installation in a variety of HPE racks. For more information on the HPE rack offerings, please see the following URL:

<https://www.hpe.com/us/en/integrated-systems/rack-power-cooling.html>

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### Partitioning

The MSL Tape Libraries now include the ability to be configured as a partitioned library. MSL Libraries may be configured with up to one partition per drive; four partitions if four drives are installed. Partitioning allows each partitioned library to be presented to the host as an independent library, separate from other partitions in the library. Hosts for each partition own independent sets of media and can use ISV software that is different from the other partitions allowing maximum flexibility and utilization of the MSL library.

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### LTO-7 Type M media

The MSL2024 & MSL4048 Tape Libraries support LTO-7 Type M media. This is the ability of an LTO-8 drive to write 9 TB (native) on a brand new LTO-7 cartridge instead of 6 TB (native) as specified by the LTO-7 format. LTO-7 Type M cartridges will be designated by an automation barcode label ending with the last 2 characters "M8". A standard 6TB LTO-7 cartridge is indicated with an automation barcode label ending in "L7". An LTO-8 cartridge has a capacity of 12 TB (native), and is indicated with an automation barcode label ending in "L8".

Only unused LTO-7 cartridges may be initialized as LTO-7 Type M. Once a cartridge is initialized as Type M, it may not be changed back to a 6TB LTO-7 cartridge. Also, an LTO-7 Type M cartridge can only be written and read in an LTO-8 drive; LTO-7 drives are not capable of reading LTO-7 Type M cartridges.

LTO-7 Type M media supports existing LTO format features including data compression, encryption and partitioning enabling LTFS. LTO-7 Type M media is not supported on WORM cartridges.

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### Proven Reliability

With a rating of 2,000,000 robot load/unload cycles, the MSL Tape Libraries provides necessary high reliability for today's demanding environment. To improve reliability and longevity, all HPE Ultrium products feature Data Rate Matching (DRM). This allows the tape drive to dynamically and continuously adjust the speed of the drive, to match the speed of the host or network. This increases performance, reduces mechanical wear on the tape drive and extends tape life.

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### Disaster Recovery and Security

Removable media also has the advantage that data is held 'offline' which means that archive data on tape has the additional level of protection from the threats to on-line data from viruses, hackers and cyber-attacks. LTO-8, 7 and 6 Ultrium tape drives include hardware based data encryption to prevent unauthorized access to data at rest and cartridges are available with write-once-read-many (WORM) capability to prevent accidental overwriting of data archived on the tape. Both WORM and hardware data encryption features help organizations to comply with increased data security regulations

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### Data Encryption

The HPE MSL Tape Libraries offers multiple options for data encryption, depending on the requirements for policy, regulation, compliance, and centralized key management.

## Product Highlights

- **HPE 1/8 G2 & MSL Encryption Kit**  
The HPE 1/8 G2 & MSL Encryption Kit provides a library-enabled encryption solution that greatly enhances data privacy, confidentiality, and integrity of your critical business data while supporting compliance requirements. While there are a wide range of encryption solutions available, the HPE 1/8 G2 & MSL Encryption Kit is intended to be an easy and affordable library-enabled solution for small businesses.  
The encryption kit includes two USB key server tokens, product documentation, and firmware support. One encryption kit is needed per library and it must be physically accessible so that the USB token can be inserted into the automation device. The second token will be used as a backup token, in case the first one is lost or damaged. The USB key server token will plug into the USB port in the library and will generate and maintain encryption keys for the LTO-4 and later generation drives. The USB key server token uses a hardware random number generator, password authentication, and digital envelopes for strong encryption keys and security operations. The encryption kit provides a self-contained solution for autoloaders and MSL libraries with no additional software, PCs, or servers required or involved.
- **KMIP**  
To meet requirements for larger scale encryption key managers, the HPE MSL Tape Libraries supports KMIP 1.2 compliant key managers. With the purchase of the KMIP Encryption License, the 1/8 G2 Tape Autoloader and MSL libraries will be able to request encryption keys from KMIP 1.2 compliant key managers, for data encryption and key management.

For more information on all supported key management servers, please visit: <http://www.hpe.com/storage/DAPRcompatibility>

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### Serviceability

Modular in design, the MSL Tape Libraries has easily replaceable components minimizing the Mean-Time-to-Repair on the unit. Replaceable components include the tape drive, the magazines, the power supply and the controller board. HPE Library and Tape Tools (L&TT) provides easy access to the MSL error log, generates support tickets, and enables firmware downloads. L&TT can be downloaded for free at: <http://www.hpe.com/support/tapetools>

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### LTO Ultrium Technology

HPE LTO (Linear Tape Open) Ultrium Tape Drives use best of breed technology. By taking the best features from other tape technologies and combining them into a single new technology, Ultrium tape drives are in a league of their own. LTO technology is an open industry standard format; thus data written on HPE Ultrium Tape Drives can be interchanged directly with Ultrium Tape Drives from other vendors.

HPE LTO tape drives and automation products are founded on the LTO open standard and adhere to the published twelve-generation LTO format roadmap.

The LTO standard for backward compatibility up to generation seven is to write back one generation and read back two generations. Eighth-generation LTO Ultrium drives read and write LTO -7 and LTO-8 media.

As part of the LTO open standard, all HPE tape drives and media offer the same standards of compatibility with tape drives and media manufactured by other LTO vendors.

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### Data Rate Matching

Data Rate Matching combines sophisticated buffer management with variable tape drive motor speeds to match the tape drive transfer rate to the host output. This feature ensures that the tape drive continues to stream data regardless of the environment, and brings three big advantages:

## Product Highlights

- It optimizes performance and maximizes overall efficiency, allowing the drive to respond immediately to any data speed changes from the host.
- It minimizes rewinding and repositioning of the tape, significantly reducing physical wear and increasing reliability.
- It minimizes the power requirements for the drive by reducing the number of repositions needed.

LTO Ultrium Tape Drive	ATS data transfer rate range (native)
HPE LTO-8 Ultrium 30750	101 to 300 MB/s
HPE LTO-7 Ultrium 15000	101 to 300 MB/s
HPE LTO-6 Ultrium 6250	54 to 160 MB/s
HPE LTO-5 Ultrium 3000	47 to 140 MB/s

### HPE Ultrium WORM

Critical to the success of data retention policies in highly regulated environments is the ability to store and manage data in an unalterable state. Following stringent guidelines set forth by regulatory agencies such as the SEC and HIPPA, IT organizations must now integrate new solutions and policies that can verify the integrity of stored data for periods that can extend well beyond seven years. Every generation of LTO Ultrium since LTO-3 tape drives feature the ability to archive and store data in a read-only, non-rewriteable format that meets the most stringent regulatory guidelines. Using a combination of integrated fail-safe features in the drive firmware, cartridge memory, and tape formatting, LTO Ultrium provides the ability to archive large amounts of data for periods of up to 30 years in a secure, untampered state. Ultrium tape drives include support for both rewritable and WORM media providing for a secure, long-term archiving solution into any data protection strategy. LTO Ultrium WORM provides the following advantages:

- A single drive to support all backup and archiving needs
- Two distinctive tape cartridges to easily distinguish and manage both rewriteable and WORM data cartridges
- A specially designed WORM data cartridge with multiple integrated fail-safe features to prevent accidental or intentional overwriting of data
- High-capacity, low-cost HPE WORM media that can store up to 6.25 TB (2.5:1 compression) of data on a single data cartridge
- Support from many backup and archiving software vendors, providing the most comprehensive and mainstream support in the industry
- The LTO open standard that offers greater choice and compatibility across all third- and later generation Ultrium products

**NOTE:** While all HPE LTO-3 and later generations Ultrium tape drives support LTO Ultrium WORM media, some LTO Ultrium tape drives from other manufacturers may not include read and write support for LTO Ultrium WORM media. For non-HPE LTO Ultrium tape drives, please check the manufacturers' specifications to ensure this support is provided if you are using your WORM media. If WORM support is not provided, the drive will eject the WORM tape cartridge immediately upon insertion into the tape drive

### Micro Focus Data Protector software

Micro Focus Data Protector software automates high performance backup and recovery, from disk or tape, over unlimited distances, to enable 24x7x365 business continuity and improve IT resource utilization. Data Protector software responds to the pressure for lower IT costs and greater operational efficiency, extensive scalability and features for continuous backup and recovery operations enable growth with a single product. A superb solution, no other software can integrate better with the Hewlett Packard Enterprise market-leading line of disk and tape family of products, as well as with other heterogeneous storage infrastructures. Data Protector software fully integrates with the Hewlett

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## Product Highlights

Packard Enterprise management solutions, allowing managing data protection as an essential element of an overall IT service.

Data Protector software simplifies the use of complex backup and recovery procedures with the fastest installation, automated routine tasks, and easy-to-use features. The centralized multi-site management easily allows implementing multi-site changes, adapting in real time to changing business requirements. Appropriate for medium and large companies in any industry, Data Protector software is the ideal solution to reduce IT costs and complexity while remaining reliable and scalable to grow from single server environments to the largest distributed enterprise infrastructures.

For further information, please visit our web page at:

<https://software.microfocus.com/en-us/software/data-protector>

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### HPE Library and Tape Tools

The MSL2024 & MSL4048 Tape Libraries are supported with HPE Library and Tape Tools (L&TT). L&TT is a free diagnostic tool for all of HPE's tape storage products. This robust diagnostic tool is designed for both the experienced professional and the untrained administrator, and it allows customers to verify the installation, ensure product reliability, perform diagnostics and achieve faster resolution of tape device issues. L&TT performs firmware upgrades, verification of device operation, failure analysis and a range of utility functions. Performance tools assist in troubleshooting issues and system configuration checks warn of common host issues. It also provides seamless integration with HPE support by generating and e-mailing test results and support tickets. HPE Support will require the use of L&TT to troubleshoot most device issues, so it is recommended that a support ticket is pulled and the device assessment test is run before calling.

HPE Library & Tape Tools can be downloaded from the following location:

<http://www.hpe.com/storage/downloads/tapetools>

For more information on L&TT, please visit: <http://www.hpe.com/support/tapetools>.

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### HPE Storage Media

Hewlett Packard Enterprise branded Linear Tape Open (LTO) Ultrium cartridges are designed, manufactured and tested to provide outstanding reliability for backing up, archiving and restoring your data. We continuously monitor the quality of our branded tapes using what we believe is the industry's most comprehensive and forensic specification for quality and reliability. Using real life conditions and both Hewlett Packard Enterprise and non-HPE drives, we supplement extensive in-process QA parametric testing with ongoing drive based scrutiny, to make sure performance is excellent for any combination of device, duty cycle and environment.

Because HPE is a leading supplier of both LTO tape devices and media, we have the ability to re-create many different scenarios mirroring how customers use their cartridges. And many of HPE's protocols are either unique in nature or scale, such as the HPE 'Green Tape', and HPE 'Environmental Interchange' tests, or far surpass industry standards, for example, HPE's 'Locate/Rewind/Append' test. Since the beginning of 2016, almost 700 million meters of media have been pulled and over 40 million gigabytes of data have been written in HPE's demanding GTT protocol. All of these ongoing tests are intended to ensure HPE LTO Ultrium media is the most reliable you can find. Your best choice for ease of support and maximum dependability is to use HPE-branded Ultrium cartridges at all times.

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### Factory Express Portfolio for Servers and Storage

HPE Factory Express offers configuration, customization, integration and deployment services for HPE servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Customization must comply with all relevant product specifications and factory supported configurations. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. Hewlett Packard Enterprise products

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## Product Highlights

supported through Factory Express include a wide array of servers and storage: HPE Integrity, HPE ProLiant, HPE ProLiant Server Blades, HPE BladeSystem, and HPE 9000 servers as well as MSA, VA7xxx, EVA, and XP disk arrays, rackable tape libraries and configurable network switches.

Type of service support varies by platform and product family. For more information on Factory Express services for your specific server model or storage device please contact your sales representative or go to: <http://www.hpe.com/info/factoryexpress>.

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## Compatibility

HPE's extensive compatibility testing program assures that your HPE MSL Tape Libraries work with leading servers, operating systems, and backup applications - and not just those sold by HPE. The MSL libraries work seamlessly in many environments, making them especially suitable if you have a mixed system environment. For the latest list of servers, workstations, operating systems, and backup software that support the MSL tape libraries, check the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) at: <http://www.hpe.com/storage/DAPRcompatibility>.

## Service and Support and Warranty Information

### Warranty

MSL2024: The warranty for this product consists of 1-year parts exchange, next business day

MSL4048: The warranty for this product consists of 1-year parts exchange, next business day

**NOTE:** The HPE MSL Tape Libraries warranty includes support for Customer Self Repair (CSR). The tape library cartridges, terminators, external cables, drives, magazines, controller board and power supplies are mandatory customer self-repair parts. This means both the removal and replacement of the above parts are designed for easy replacement; the on-site warranty does not extend to these parts. However, customers may request HPE Services to replace these replaceable units (RUs) for an additional charge. Also, customers who purchase an HPE Support Agreement have the option to perform CSR or receive onsite support.

Please refer to Hewlett Packard Enterprise's Limited Warranty Statement for further details:  
<http://www.hpe.com/storage/warranty>

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### Protect your business beyond warranty with HPE Support Services

HPE Technology Services delivers confidence, reduces risk and helps customers realize agility and stability. Our integrated portfolio of Services for storage help customers reduce costs, optimize data, streamline storage management, and improve backup and recovery. HPE Support Services enable you to choose the right service level, length of coverage and response time as you purchase your new storage solution, giving you full entitlement for the support you need for your IT and business.

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### Recommended Services **HPE Foundation Care 24x7, three-year Support Service**

HPE Foundation Care 24x7 gives you access to HPE 24 hours a day, seven days a week for assistance on resolving issues. This service includes need based Hardware onsite response within four hours. Simplify your support experience and make HPE your first call to help resolve hardware or software problems.

<https://www.hpe.com/h20195/V2/GetDocument.aspx?docname=4AA4-8876ENW&cc=us&lc=en>

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### Related Services

#### **HPE MSL Tape Libraries Installation and Startup**

Deployment of your HPE Midrange Storage Library (MSL) products in SAN environments:

- System installation and setup by an Hewlett Packard Enterprise technical specialist
- Verification prior to installation that all service prerequisites are met
- Delivery of the service at a mutually scheduled convenient time
- Provides product installation according to the product specifications
- Offers deployment activities that are designed to bring the Fibre Channel-based tape library into operation
- Helps improve performance
- Makes the most of the value of the HPE MSL libraries in an IT environment by leveraging Hewlett Packard Enterprise knowledge in implementing Fibre Channel-based systems and solutions
- Helps reduce implementation-related disruptions in the IT environment
- Helps increase system reliability and provides more effective data management

<https://www.hpe.com/h20195/v2/GetPDF.aspx/4AA6-2765ENN.pdf> **HPE Backup and Recovery**

#### **Solution Service**

Rapid recovery from system downtime can hinge on the efficiency of your backup and recovery management environment - and on how well that environment is integrated with your storage infrastructure. But integration processes can be time-consuming and complex, and your IT resources are already stretched thin. Where can you find the expert help you need?

For fast, effective integration of your backup solution into an existing or new storage infrastructure,



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## Service and Support and Warranty Information

turn to the storage experts at HPE Services. Our Backup and Recovery Solution Service (BRSS) provides end-to-end management of your backup integration process. The BRSS team works with you to analyze your business and IT environment; develop a comprehensive integration plan and timetable; design an architecture that suits your critical requirements; install backup software; implement your solution; and validate your configuration.

- By engaging Hewlett Packard Enterprise to implement HPE Data Protector, customers' IT staff can stay focused on their core tasks and priorities, resulting in less impact to your business
- Professional backup and recovery planning that aligns with customer's business needs and implementation that reduces project execution time and risk to the storage environment
- HPE's expertise with backup and recovery helps ensure issues are avoided

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### eSupport

HPE eSupport is a portfolio of technology-based services that assist you with managing your business environment - from the desktop to the data center.

#### Support Portal

The Hewlett Packard Enterprise support portal provides one-stop access to the information, tools and services you need to manage the daily operations of your IT environment.

Features include:

- Access to self-solve tools (including search technical knowledge base)
- Efficient logging and tracking of support cases
- Collaboration with other business and IT professionals
- Download of patches and drivers
- Access to diagnostic tools
- Proactive notification of relevant information

Access to certain features of the support portal requires a Hewlett Packard Enterprise service agreement. To access the support portal, visit: <http://www.hpe.com/support>

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### Customer Technical Training

Consider education as an integral part of your strategy to get the best return on investment for your HPE storage solution. Hewlett Packard Enterprise offers a variety of training courses on storage software, networking, archiving and disk storage systems. Our classes are available in many delivery modalities from traditional instructor-led courses at one of our 80 training centers worldwide to on-site training customized to your needs or online. <http://www.hpe.com/learn/storage>

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### HPE Services Awards

HPE Services continues to be recognized for service and support excellence by customers, partners, industry organizations and publications around the world. Recent honors and award reflect our services team's dedications, technical expertise, professionalism and uncompromising commitment to customer satisfaction.

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### Additional Services Information

For more information about HPE Pointnext operational services for Storage, please visit: <http://www.hpe.com/services/storage>

If you have specific questions, contact your local Hewlett Packard Enterprise representative. Contact information for a representative in your area can be found at "Contact HPE" <http://www.hpe.com>

## Configuration Information

### Step 1 - Select Base Library

HPE StoreEver MSL Tape Libraries	Description	Part Number
	<b>HPE StoreEver MSL2024 0-drive Tape Library</b> <b>NOTE:</b> Includes 24 slots, zero drives. <b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.	AK379A
	<b>HPE StoreEver MSL4048 0-drive Tape Library</b> <b>NOTE:</b> Includes 48 slots, zero drives. <b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.	AK381A
	<b>Kit Contents</b> (for each library): <ul style="list-style-type: none"> <li>• One 2.5M PDU Power Cord, C13/C14, 10A (part number 142257-002)</li> <li>• One RJ-45 Ethernet cable</li> <li>• Rack-mount hardware</li> <li>• Flyer for Veritas Backup Exec software</li> </ul> <b>NOTE:</b> Customers can download a fully functional 60-day trial of Backup Exec and receive a 50% discount off Veritas MSRP.	
	Visit <a href="http://www.backupexec.com/hpe">http://www.backupexec.com/hpe</a> for full details of the promotion.	

<b>Factory Racking</b>	Factory integrate the MSL2024 & 4048 Tape Libraries with other HPE products such as HPE ProLiant Servers <b>NOTE:</b> #0D1 will appear after the Tape Library part number on the sales order if HPE factory integration is indicated.	#0D1
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### Step 2 - Select Generation & Quantity of Ultrium Tape Drives

Select each option as required with quantities specified:

<b>Tape Drives</b>	HPE StoreEver MSL LTO-8 Ultrium 30750 FC Drive Upgrade Kit <b>NOTE:</b> Half height LTO-8 FC tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation. <b>NOTE:</b> #0D1 will appear after Q6Q67A on the sales order if HPE factory integration is indicated. <b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.	Q6Q67A
	HPE StoreEver MSL LTO-8 Ultrium 30750 SAS Drive Upgrade Kit <b>NOTE:</b> Half height LTO-8 SAS tape drive. For use with the MSL2024, 4048, 3040 or 6480 libraries. Drive kit includes a tape drive and documentation. <b>NOTE:</b> #0D1 will appear after Q6Q68A on the sales order if HPE factory integration is indicated. <b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.	Q6Q68A
	HPE StoreEver MSL LTO-7 Ultrium 15000 FC Drive Upgrade Kit <b>NOTE:</b> Half height LTO-7 Fibre Chanel tape drive. For use with the MSL2024, 4048, 3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation. <b>NOTE:</b> #0D1 will appear after N7P36A on the sales order if HPE factory integration is indicated. <b>NOTE:</b> This product is TAA (Trade Agreements Act) compliant.	N7P36A
	HPE StoreEver MSL LTO-7 Ultrium 15000 SAS Drive Upgrade Kit <b>NOTE:</b> Half height LTO-7 SAS tape drive. For use with the MSL2024, 4048, 3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation. <b>NOTE:</b> #0D1 will appear after N7P37A on the sales order if HPE factory integration is indicated.	N7P37A

## Configuration Information

**NOTE:** This product is TAA (Trade Agreements Act) compliant.

HPE StoreEver MSL LTO-6 Ultrium 6250 SAS Drive Upgrade Kit

COH27A

**NOTE:** Half height LTO-6 SAS tape drive. For use with the MSL2024, 4048, 3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation.

**NOTE:** #OD1 will appear after COH27A on the sales order if HPE factory integration is indicated.

**NOTE:** This product is TAA (Trade Agreements Act) compliant.

HPE StoreEver MSL LTO-6 Ultrium 6250 Fibre Channel Drive Upgrade Kit

COH28A

**NOTE:** Half height LTO-6 FC tape drive. For use with the MSL2024, 4048, 3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation.

**NOTE:** #OD1 will appear after COH28A on the sales order if HPE factory integration is indicated.

**NOTE:** This product is TAA (Trade Agreements Act) compliant.

HPE StoreEver MSL LTO-5 Ultrium 3000 SAS Drive Upgrade Kit

BL540B

**NOTE:** Half height LTO-5 SAS tape drive. For use with the MSL2024, 4048, 3040 or MSL6480 libraries. Drive kit includes a tape drive and documentation.

**NOTE:** #OD1 will appear after BL540B on the sales order if HPE factory integration is indicated.

**NOTE:** This product is TAA (Trade Agreements Act) compliant.

## Step 3 - Select Software Licenses

### TapeAssure Advanced

HPE StoreEver MSL TapeAssure Advanced LTU

TC406A

**NOTE:** Advanced analytics feature makes use of predictive analytics to predict the likelihood of failures, bottlenecks and load balancing issues in the tape infrastructure. It has unique capabilities of analytics around drive health and life as well as cartridge health and life.

**NOTE:** One license needed per library and Command View TL must be installed.

**NOTE:** This is a paper license that will be mailed.

HPE StoreEver MSL TapeAssure Advanced E-LTU

TC406AAE

**NOTE:** HPE StoreEver TapeAssure Advanced Software provides advanced analytics for predictive analysis the likelihood of failures, bottlenecks and load balancing issues in the tape infrastructure. It has unique capabilities of analytics around drive health and life as well as cartridge health and life.

**NOTE:** One license needed per library and Command View TL must be installed.

**NOTE:** This is an electronically delivered License.

### Encryption Options/Licenses

HPE 1/8 G2 Tape Autoloader and MSL Tape Library Encryption Kit

AM495A

**NOTE:** For use with new or installed LTO-8, LTO-7, LTO-6, and LTO-5 drives for MSL2024/4048/3040 or MSL6480 Tape Libraries. The Encryption Kit key server token generates and retains encryption keys for above LTO Tape drives in the library. Does not require support from ISV.

HPE StoreEver MSL2024/4048 KMIP Encryption LTU

TC468A

**NOTE:** For use with MSL2024/4048 Tape libraries using LTO-8, LTO-7, LTO-6 or LTO-5 tape drives. The license will enable secure connectivity with supported KMIP 1.2 compliant key management servers. See the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) for the list of supported servers. <http://www.hpe.com/storage/DAPRcompatibility>

**NOTE:** This license will be delivered via hard copy in the mail.

HPE StoreEver MSL2024/4048 KMIP Encryption E-LTU

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## Configuration Information

KMIP 1.2 compliant key management servers. See the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) for the list of supported servers. <http://www.hpe.com/storage/DAPRcompatibility>

**NOTE:** This license will be delivered electronically.

### Step 4 - Select Additional Accessories

#### Regional Power Cords

**NOTE:** One PDU power cord is shipped per library. IF not using the included PDU cord mentioned above (part number 142257-002) please select the correct power cord for your geographical location below.

Quantity	Description	Part Number
1 each	HPE C13 - Nema 5-15P US/CA 110V 10Amp 1.83m Power Cord	AF556A
1 each	HPE C13 - CEE-VII EU 250V 10Amp 1.83m Power Cord	AF568A
1 each	HPE C13 - BS-1363A UK/HK/SG 250V 10Amp 1.83m Power Cord	AF570A
1 each	HPE C13 - DK-2.5A DK 250V 10Amp 1.83m Power Cord	AF566A
1 each	HPE C13 - SEV 1011 CH 250V 10Amp 1.83m Power Cord	AF565A
1 each	HPE C13 - CEI-23-50 IT/CL 250V 10Amp 1.83m Power Cord	AF571A
1 each	HPE C13 - SABS-164 ZA 250V 10Amp 2.5m Power Cord	AF567A
1 each	HPE C13 - CNS-690 TW 110V 13Amp 1.83m Power Cord	AF561A
1 each	HPE C13 - GB-1002 CN 250V 10Amp 1.83m Power Cord	AF557A
1 each	HPE C13 - JIS C8303 JP 100V 12Amp 2.0m Power Cord	AF572A
1 each	HPE C13 - AS3112-3 AU 250V 10Amp 2.5m Power Cord	AF569A
1 each	HPE C13 - IRAM -2073 AR 250V 10A 2.5m Power Cord	AF558A
1 each	HPE C13 - Nema 5-15P TH/PH 250V 10Amp 1.83m Power Cord	AF559A
1 each	HPE C13 - KSC- 8305 KR 250V 10Amp 1.83m Power Cord	AF560A
1 each	HPE C13 - SI-32 IL 250V 10Amp 1.83m Power Cord	AF564A
1 each	HPE C13 - IS-1293 IN 240V 6Amp LV 2.0m Power Cord	AF562A

**WARNING:** This product can ONLY be used with an HPE approved power cord for your specific geographic region. Use of a non-HPE approved power cord may result in: 1) not meeting individual country specific safety requirements; 2) insufficient conductor ampacity that could result in overheating with potential personal injury and/or property damage; and 3) an unapproved power cord could fracture resulting in the internal contacts being exposed, which potentially could subject the user to a shock hazard. Hewlett Packard Enterprise disclaims all liability in the event a non-HPE approved power cord is used.

## Related Options

<b>Redundant Power Supply Upgrade Kit</b>	<p>HPE StoreEver MSL Redundant Power Supply Upgrade Kit <span style="float: right;">AH220A</span></p> <p><b>NOTE:</b> For use in the MSL4048Tape Library to add a second customer-installable power supply into the unit. HPE MSL Redundant Power Supply ships with PDU power cord (C13/C14, 10A, P/N 142257-002). If a user wishes to connect to HPE MSL Redundant Power Supply to 110V US wall outlet power then the US Power Cord (P/N AF556A) must be ordered separately. If customers require a power cord, they can check the power cord matrix for the appropriate cord. Please see the UPS and PDU cable matrix's on the Power Protection page under Power Cords that lists cable descriptions, requirements, and specifications for UPS and PDU units at the new HPE Power Cord Link @ HPE.com. Use the following new link: <a href="http://www.hpe.com/products/powercords">http://www.hpe.com/products/powercords</a></p>
<b>Magazine Kits</b>	<p>HPE StoreEver MSL2024 Ultrium Left Magazine Kit <span style="float: right;">AG119A</span></p> <p><b>NOTE:</b> For use in the MSL 2024 Tape Libraries in the left position. User-enabled mail slots can be configured at either 0 or 1 slot.</p> <p>HPE StoreEver MSL Ultrium Left Magazine Kit <span style="float: right;">AG330A</span></p> <p><b>NOTE:</b> For use in the MSL 4048tape Libraries in either the upper or lower left position. When used in the lower left position, user-enabled mail slots can be configured at either 0 or 3 slots.</p> <p>HPE StoreEver MSL Ultrium Right Magazine Kit <span style="float: right;">AG120A</span></p> <p><b>NOTE:</b> For use only on the right side of the MSL 4048Tape Libraries; additional 12-slot magazine for either the right upper or lower position.</p> <p><b>NOTE:</b> For use on the right side of the MSL 2024 Tape Libraries; additional 12-slot magazine for the right position.</p>
<b>Rack Cabinets</b>	<p>The MSL libraries are supported in a variety of HPE Rack offerings, including the HPE Intelligent Series Racks and the HPE 10000 G2 Series Racks. For more information on the HPE rack offerings, please see the following URL: <a href="http://www.hpe.com/info/rackandpower">http://www.hpe.com/info/rackandpower</a></p> <p><b>NOTE:</b> The MSL Tape Libraries are certified to ship in HPE racks which include a shock pallet. It is mandatory to use a shock pallet in order to ship racks with equipment installed.</p>
<b>FC Host Bus Adapters</b>	<p>The MSL Libraries are certified with a number of Fibre Channel Host Bus Adapters. For the most current list of supported FC HBAs, please reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: <a href="http://www.hpe.com/go/DAPRcompatibility">http://www.hpe.com/go/DAPRcompatibility</a>.</p> <p>For more information on FC HBAs, see HPE StoreFabric Adapters at: <a href="http://www.hpe.com/storage/san/">http://www.hpe.com/storage/san/</a></p>
<b>SAS Host Bus Adapters</b>	<p>The MSL Libraries are certified with a number of SAS Host Bus Adapters and ProLiant Smart Array Controllers. For the most current list of supported devices, please reference the HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: <a href="http://www.hpe.com/storage/DAPRcompatibility">http://www.hpe.com/storage/DAPRcompatibility</a>.</p> <p>For more information on HPE Smart Array RAID controllers, see Fibre HPE P-class RAID controllers at: <a href="http://www.hpe.com/servers/smartarray/">http://www.hpe.com/servers/smartarray/</a></p> <p>For more information on HPE ProLiant (SAS) host bus adapters, see H-class HBA controllers at: <a href="http://www.hpe.com/servers/smartarray/">http://www.hpe.com/servers/smartarray/</a></p>

## Related Options

### HBA and SAS Controllers

HPE Smart Array P408e-p SR Gen10 (8 external lanes/4GB cache)	804405-B21
<b>NOTE:</b> Recommended for ProLiant Gen10 SAS tape automation connect	
HPE Smart Array E208e-p SR Gen10 (8 external lanes/No cache)	804398-B21
<b>NOTE:</b> Recommended for ProLiant Gen10 SAS tape automation connect	
HPE Smart Array P431/2GB FBWC 12Gb 2-ports Ext SAS Controller	698531-B21
<b>NOTE:</b> Recommended for ProLiant Gen9 SAS tape automation connect	
HPE H241 12Gb 2-ports Ext Smart Host Bus Adapter	726911-B21
<b>NOTE:</b> Recommended for ProLiant Gen9 SAS tape automation connect	

### Media

HPE LTO-8 Ultrium 30TB RW Data Cartridge	Q2078A
HPE LTO-8 Ultrium 30TB WORM Data Cartridge	Q2078W
HPE LTO-7 Ultrium 15TB RW Data Cartridge	C7977A
HPE LTO-7 Ultrium No Case 960 Tape Pallet	C7977AB
HPE LTO-7 Ultrium RW 960 Tape Pallet	C7977AD
HPE LTO-7 Ultrium 15TB Eco Case Data Cartridge 20 Pack	C7977AH
HPE LTO-7 Ultrium 15TB WORM Data Cartridge	C7977W
HPE LTO-6 Ultrium 6.25TB MP RW Data Cartridge	C7976A
HPE LTO-6 Ultrium 6.25TB MP RW 960 Tape Pallet	C7976AD
HPE LTO-6 Ultrium 6.25TB MP WORM Data Cartridge	C7976W
HPE LTO-6 Ultrium 6.25TB BaFe RW Data Cartridge	C7976B
HPE LTO-6 Ultrium 6.25TB BaFe WORM Data Cartridge	C7976BW
HPE LTO-5 Ultrium 3TB RW Data Cartridge	C7975A
HPE LTO-5 Ultrium 3TB WORM Data Cartridge	C7975W
HPE Ultrium Universal Cleaning Cartridge	C7978A

#### Bar Code Labels

HPE LTO-8 Ultrium RW Bar Code Label Pack	Q2015A
HPE LTO-7 Ultrium Type M RW Bar Code Label Pack	Q2016A
HPE LTO-7 Ultrium RW Bar Code Label Pack	Q2014A
HPE LTO-6 Ultrium RW Bar Code Label Pack	Q2013A
HPE LTO-5 Ultrium RW Bar Code Label Pack	Q2011A
HPE LTO-5 Ultrium WORM Bar Code Label Pack	Q2012A

#### Non-Custom Labeled Data Cartridges

**NOTE:** Non-Custom labels will come pre-labeled with a pre-determined number sequence.

HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Non Custom Labeled with Cases	Q2078AN
HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Non Custom Labeled with Cases	Q2078MN
HPE LTO-7 Ultrium RW No Case Custom Labeled Data Cartridge 20 Pack	C7977AC
HPE LTO-7 Ultrium Non Custom Labeled Data Cartridge 20 Pack	C7977AN
HPE LTO-6 Ultrium 6.25TB MP RW Non Custom Labeled Data Cartridge 20 Pack	C7976AN
HPE LTO-6 Ultrium 6.25TB BaFe RW Non Custom Labeled Data Cartridges 20 Pack	C7976BN
HPE LTO-5 Ultrium Non-custom Labeled Data Cartridge 20 Pack	C7975AN

#### Custom labeled Data Cartridges

**NOTE:** Custom labeled products allow customers to customize a specific sequence printed on each label.

## Related Options

HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Custom Labeled with Cases	Q2078AL
HPE LTO-8 Ultrium 30TB WORM 20 Data Cartridges Custom Labeled with Cases	Q2078WL
HPE LTO-8 Ultrium 30TB RW 20 Data Cartridges Custom Labeled Library Pack without Cases	Q2078AC
HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Custom Labeled with Cases	Q2078ML
HPE LTO-7 Ultrium Type M 22.5TB RW 20 Data Cartridges Custom Labeled Library Pack without Cases	Q2078MC
HPE LTO-7 Ultrium 15 TB RW RFID Custom Labeled Data Cartridge (20 pack)	7977AF
HPE LTO-7 Ultrium RW Custom Labeled Data Cartridge 20 Pack	C7977AL
HPE LTO-7 Ultrium WORM Custom Labeled Data Cartridge 20 Pack	C7977WL
HPE LTO-6 Ultrium 6.25TB MP RW Custom Labeled Data Cartridge 20 Pack	C7976AL
HPE LTO-5 RW Custom Labeled Data Cartridge 20 Pack	C7975AL
HPE LTO-5 RW Custom Labeled No Case Data Cartridge 20 Pack	C7975AC
HPE LTO-5 WORM Custom Labeled Cartridge 20 Pack	C7975WL

### FC and SAS Host Bus Adapters

The MSL Libraries are certified with multiple Fibre Channel and SAS Host Bus and Adapters. For the most current list of supported FC and SAS HBAs, please see the HPE Storage HPE Data Agile DAPR Compatibility Matrix (Formerly EBS) and Design Guide located at: <http://www.hpe.com/storage/DAPRcompatibility>.

### Optical cables

#### OM4 LC-LC type cables

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable	QK732A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable	QK733A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable	QK734A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable	QK735A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable	QK736A
HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable	QK737A

Allowed cable lengths:

External Cable type	Drive type	2Gb	4Gb	8Gb
OM2	All drive types	0.5m - 300m	0.5m - 150m	NA
OM3/OM4	All except LTO-5 Ultrium 3000	0.5m - 500m	0.5m - 380m	0.5m - 150m
OM3/OM4	LTO-5 Ultrium 3000	0.5m - 300m	0.5m - 150m	0.5m - 50m

**NOTE:** The HPE MSL LTO-5 Ultrium 3000 Drive contains an internal OM2 optical cable and limits the maximum allowed cable lengths to those as specified for OM2. The lowest OM rating in a path from the drive to the switch or HBA will dictate the maximum length of the connection path.

### Cable Kits (SAS)

HPE StoreEver Mini-SAS High Density to 4-lane Mini-SAS External Fanout 2m Cable	K2R09A
HP 2.0m External Mini SAS High Density to Mini SAS Cable	716191-B21
<b>NOTE:</b> One cable is required for every tape drive. Use this cable to connect HPE MSL SAS Tape Libraries to the HPE H241 Smart Host Bus Adapter.	
HP 4.0m External Mini SAS High Density to Mini SAS Cable	716193-B21
<b>NOTE:</b> One cable is required for every tape drive. Use this cable to connect HPE MSL SAS Tape Libraries to the HPE H241 Smart Host Bus Adapter.	

## Related Options

HP SAS Min-Min 1x-2M Cable Assembly Kit	AE470A
<b>NOTE:</b> One SAS autoloader only. Use this cable to connect HPE SAS external tape devices to HPE SAS controllers with external Mini-SAS (SFF8088) connectors.	
HP SAS MIN-MIN 1X-4M Cable Assembly Kit	AE465A
<b>NOTE:</b> One SAS autoloader only. Use this cable to connect HPE SAS external tape devices to HPE SAS controllers with external Mini-SAS (SFF8088) connectors.	
HPE StoreEver 2m External Mini-SAS to 4x1 Mini-SAS Cable	AN975A
<b>NOTE:</b> One cable is required for every four autoloaders or every four library drives. Use this cable to connect HPE MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.	
HPE StoreEver 4m External Mini-SAS to 4x1 Mini-SAS Cable	AN976A
<b>NOTE:</b> One cable is required for every four autoloaders or every four library drives. Use this cable to connect HPE MSL SAS Tape Libraries to Mini-SAS (SFF8088) ports.	
HPE StoreEver External SAS to Mini-SAS Fanout Cable	AH587A
<b>NOTE:</b> One cable is required for every four drives. Use this cable to connect HPE MSL SAS Tape Libraries to HPE SAS controllers with Infiniband (SFF8470) connectors.	

## HPE Support Services

### Same Day Response

HPE 3 year 4 hour 24x7 MSL 2024 Hardware Support	UE296E
HPE 3 year 4 hour 9x5 MSL 2024 Hardware Support	UG635E
HPE 3 year 4 hour 24x7 MSL4048 Library Hardware Support	UD835E
HPE 3 year 4 hour 9x5 MSL 4048 Library Hardware Support	UE940E

### Next Business Day Response

HPE 3 year Next business day MSL 2024 Hardware Support	UE294E
HPE 3 year Next business day MSL4048 Library Hardware Support	UD833E

**NOTE:** In order to maximize ROI and product uptime, and minimize the cost of ownership, Hewlett-Packard Enterprise recommends the 3-year, 24 x 7 service options. These offerings will ensure that any product issue can be tackled when they occur (most back up issues will occur outside standard business hours) and that the service coverage regarding period, covers the minimum expected life of the host system.



## Technical Specifications

		MSL2024	MSL4048
<b>Drive Technology</b>		LTO-8 Ultrium 30750 LTO-7 Ultrium 15000  LTO-6 Ultrium 6250  LTO-5 Ultrium 3000	LTO-8 ULtrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250  LTO-5 Ultrium 3000
<b>Maximum Number of Drives</b>		Up to 2	Up to 4
<b>Number of Slots</b>		24	48
<b>Drive Interface</b>		8 Gb Native Fibre Channel  6 Gb/sec SAS	8 Gb Native Fibre Channel  6 Gb/sec SAS
<b>Maximum Capacity</b>	<b>Native</b>	288 TB (LTO-8) 144 TB (LTO-7) 60 TB (LTO-6) 36 TB (LTO-5)	576 TB (LTO-8) 288 TB (LTO-7) 120 TB (LTO-6) 72 TB (LTO-5)
	<b>Compressed (2.5:1)</b>	720 TB (LTO-8) 360 TB (LTO-7) 150 TB (LTO-6)	1440 TB (LTO-8) 720 TB (LTO-7) 300 TB (LTO-6)
	<b>Compressed (2:1)</b>	72 TB (LTO-5)	144 TB (LTO-5)
<b>Maximum Transfer Rate</b>	<b>Native</b>	2.16 TB/hr (2x LTO-8) 2.16 TB/hr (2x LTO-7) 1.15 TB/hr (2x LTO-6)  1.0 TB/hr (2x LTO-5)	4.32 TB/hr (4x LTO-8) 4.32 TB/hr (4x LTO-7) 2.3 TB/hr (4x LTO-6)  2.0 TB/hr (4xLTO-5)
		<b>MSL2024</b>	<b>MSL4048</b>
<b>Dimensions</b>	Out-of-Box (HxWxD)	3.4 x 18.9 x 31.7 in (8.7 x 48 x 80.6 cm)	6.9 x 18.9 x 31.7 in (17.5 x 48 x 80.6 cm)
	Shipping (HxWxD)	10.7 x 23.2 x 38.9 in (27.1 x 58.9 x 98.7 cm)	13.7 x 23.2 x 38.9 in (34.8 x 58.9 x 98.7 cm)
<b>Weight</b>	Out of box	32.9 lb (14.9 kg)	47.2 lbs (21.4 kg)
	Shipping	56.9 lb (25.8 kg)	74.7 lbs (33.9 kg)
<b>NOTE:</b> The weight of each library varies somewhat based on the type and number of LTO tape drives contained in the configuration. The weights shown here are for MSL2024/4048 configurations with 1/2 drives respectively per model. Configurations with different numbers of tape drives can be calculated by adding or subtracting the weight of a tape drive. An LTO-6 Ultrium 6250 drive weighs 2.10 kg/4.63 lbs.			
<b>Reliability</b>	MSBF (mean swaps between failures)	2 Million robot load/unload cycles	
	MTBF (mean time between failures)	100,000 hours (based on 1M MSBF)	
<b>Average Cartridge Swap Time</b> (drive to slot, slot to drive)		45 seconds	45 seconds

## Technical Specifications

<b>Initialization Time</b>		80 to 120 seconds	
<b>Inventory Time</b>		1:20 minutes (using bar code labeled cartridges)	2:15 minutes (using bar code labeled cartridges)
<b>Connectors</b>	Mini-SAS (MSL SAS model only)- 68-pin HDTS ( MSL SCSI models only) LC Optical Fibre (MSL FC models only) (1)RJ-45 Ethernet (1) USB port		
<b>LED Indicators</b> (on front panel)		Ready LED (Green): shows ready status information Clean LED (Amber): shows fault status information Attention LED (Amber): shows fault status information Error LED (Amber): shows fault status information	
<b>Management Interface</b>		10/100 Mbits/second, auto-configuring interface. RJ-45 connection. Https configurable.	
<b>Power</b>		MSL2024: 168 Watts (max) MSL4048: : 312 Watts (max)	
<b>Input Requirements</b>		100 to 240 VAC, 50 to 60 Hz, 2.5 Amperes	
<b>Relative Humidity</b> (non-condensing)	Operating	20% to 80%	
	Shipping	20% to 90%	
<b>Temperature Range</b> (wet bulb)	Operating	50° to 95° F (10° to 35° C)	
	Shipping	-22° to 140° F (-30° to 60° C)	
		<b>NOTE: Library operating temperature limits are based on the industry standard tape limit.</b>	
<b>Altitude</b>	Operating	13,000 ft (4000 m)	
	Shipping	35,000 ft (10,675 m)	

## Summary of Changes

Date	Version History	Action	Description of Change
04-June-2018	From Version 59 to 60	Changed	Note for the HPE 1/8 G2 Tape Autoloader and MSL Tape Library Encryption Kit was revised.
05-Mar-2018	From Version 58 to 59	Changed	Product Highlights and Related Options were revised.
05-Feb-2018	From Version 57 to 58	Changed	Product Highlights, Configuration Information, Related Options, and Technical Specifications were revised.
04-Dec-2017	From Version 56 to 57	Changed	LTO-8 updates.
04-Sept-2017	From Version 55 to 56	Changed	Changes made throughout the QuickSpecs.
07-Aug-2017	From Version 54 to 55	Changed	Changes made to the Service and Support and Product Highlights
17-Feb-2017	From Version 53 to 54	Changed	LTO-7 information included
13-Jan-2017	From Version 52 to 53	Changed	Changes to the HPE StoreEver Archive Manager section
18-Nov-2016	From Version 51 to 52	Changed	Added the HPE StoreEver Archive Manager in the Product Highlights section
30-Sept-2016	From Version 50 to 51	Changed	Changes made throughout the QuickSpecs
15-Aug-2016	From Version 49 to 50	Changed	Changes made to the Configuration Info Section
29-Jul-2016	From Version 48 to 49	Changed	Changes made to the Related Options and Configuration Information Sections
31-Mar-2016	From Version 47 to 48	Changed	Updated HPE rebranding, part no corrections and FIPS 140-2 support information for Fusilli launch.
15-Jan-2016	From version 46 to 47	Changed	Updated Links to HPE.com and content edits
01-Dec-2015	From Version 45 to 46	Changed	Changes made throughout the QuickSpecs.
3-Apr-2015	From Version 44 to 45	Changed	Deleted portions related to MSL library Extenders as they are no longer valid.
30-Jan-2015	From Version 43 to 44	Changed	Removed skus that are going EOL. Updated naming on a few skus. Changes made to the Related Options, Config Info, Product Highlights and Overview Sections.
31-Oct-2014	From Version 42 to 43	Changed	Changes made throughout the QuickSpecs.
9-May-2014	From Version 41 to 42	Changed	Recommended Services was revised.
31-Jan-2014	From Version 40 to 41	Changed	Changes made to the QuickSpecs
31-Jan-2014	From Version 39 to 40	Added	MSL Library Extender was added to Related Options
2-Dec-2013	From Version 38 to 39	Changed	Edits were mostly to reflect the removal of the LTO-3 Ultrium 920 and the MSL8048 and MSL8096 and to add the MSL6480 throughout.
30-Sep-2013	From Version 37 to 38	Changed	Product descriptions were revised in Configuration and Related Options.
22-Mar-2013	From Version 36 to 37	Added	Added StoreEver throughout entire QS  Compatibility: Added Compatibility section to section.  Related Options: Added HBAs/Controllers for Tape Automation Connect section.
		Removed	Product Highlights: Removed Ease of Use with LTFS and HPE StoreOpen section
		Changed	Overview: Updated product description and key features sections  Product Highlights: Updated TapeAssure, Included backup and recovery software sections.  Service and Support, HPE CarePack and Warranty Information: Updated Warranty section

## Summary of Changes

			<p>Configuration Information: Updated all section in Step 1 and first section in Step 2</p> <p>Related Options: Updated Optical cables, Cable Kits (SCSI,SAS), Rack Cabinets and Media sections.</p> <p>Technical Specification: Updated Chart sections Maximum Capacity, Average Cartridge Swap Time in Extended Libraries (drive to slot, slot to drive) and Connectors sections.</p>
18-Jan-2013	From Version 35 to 36	Changed	<p>Changes were made in the following sections:</p> <p>Configuration Information: Step 1/HPE StoreEver MSL4048 Tape Library</p> <p>Related Options: Encryption, Table Top Conversion Kit, Media</p>
21-Dec-2012	From Version 34 to 35	Changed	Changes made to the QuickSpecs
19-Dec-2012	From Version 33 to 34	Changed	<p>Changes were made in the following sections:</p> <p>Overview: Family Comparison</p> <p>Related Options: Optical Cables</p>
4-Dec-2012	From Version 32 to 33	Changed	Changes were made throughout the QuickSpecs.
12-Oct-2012	From Version 31 to 32	Changed	Change made to URL in Service and Support, HPE Care Pack, and Warranty Information section.
24-Sep-2012	From Version 30 to 31	Changed	Changes made throughout the QuickSpecs.
7-Sep-2012	From Version 29 to 30	Changed	Changes made to the North America and Canada versions.
17-Aug-2012	From Version 28 to 29	Changed	Changes made to the Related Options section.
10-Aug-2012	From Version 27 to 28	Changed	Changes made to Product Highlights and Related Options.
22-Jun-2012	From Version 26 to 27	Changed	Changes made to Product Highlights and Related Options.
18-Jun-2012	From Version 25 to 26	Changed	Changes made to the QuickSpecs
6-Apr-2012	From Version 24 to 25	Changed	<p>FC Host Bus Adapters were added to Related Options</p> <p>HPE MSL4048 2 LTO-4 Ultrium 1840 and 1760 and 1 LTO-3 Ultrium 920 SCSI Tape Libraries were removed from HPE MSL4048 Tape Library</p> <p>HPE U320e SCSI Host Bus Adapter was removed from SCSI Host Bus Adapters</p>
16-Mar-2012	From Version 23 to 24	Removed	Mentions of LTO-3 Ultrium 960 and PremierFlex OM3+ LC/LC type cables and OM2 LC-LC type cables were removed.
10-Feb-2012	From Version 22 to 23	Added	Added HPE Smart Array P711m and HPE Smart Array P712m adapters to the options section.
13-Jan-2012	From Version 21 to 22	Changed	HPE StoreOpen Automation was revised.
30-Sep-2011	From Version 20 to 21	Added	Linear Tape File System (LTFS) and HPE StoreOpen Automation were added to Product Highlights.
2-Sep-2011	From Version 19 to 20	Changed	<p>Drive interface was updated in the Family Comparison chart</p> <p>Optical cables were revised in Related Options</p> <p>Connectors was completely revised in Technical Specifications</p>

## Summary of Changes

8-Jul-2011	From Version 18 to 19	Changed	Revisions were made in Configuration Information and to Redundant Power Supply Upgrade Kit in Related Options.
17-Jun-2011	From Version 17 to 18	Changed	Changes made to the QuickSpecs
17-Jun-2011	From Version 16 to 17	Changed	OM3 LC-LC type cables were revised and 2m SW LC/SC FC Cable Kit was removed from OM2 LC-LC type cables in Optical Cables.
8-Jun-2011	From Version 15 to 16	Removed	Removed StorageWorks throughout the document.
27-Sep-2010	From Version 14 to 15	Changed	<p>Family Comparison chart was revised</p> <p>Software in the Box was changed to Included backup and recovery software in Product Highlights</p> <p>Tape Libraries were completely revised and mentions of HPE Data Protector Express Basic backup and recovery software was added throughout Step 1</p> <p>Easy and economical upgrade of the included software to Data Protector Express was added to Product Highlights</p> <p>Optical Cables were added to Related Options</p> <p>Upgrade included software to Data Protector Express was added to Related Options</p> <p>Customer Benefits was removed from the Overview</p> <p>2m, 5m and 15m SW LC/SC FC Cable Kits were removed from Cable Kits</p> <p>5642 (42U) Rack Cabinet was removed from Rack Cabinets</p>
21-Jun-2010	From Version 13 to 14	Changed	<p>Revisions were made throughout the Overview and Product Highlights sections</p> <p>Service and Support, HPE Care Pack, and Warranty Information was completely revised</p> <p>HPE LTO-5 Ultrium RW Bar Code Labels and WORM Bar Code Labels were added and Storage Media Kits were removed from Media</p> <p>All mentions of LTO-5 Ultrium 3000 was added</p>
29-Mar-2010	From Version 12 to 13	Changed	LTO-5 Ultrium 3280 Tape Drives were added throughout the QuickSpecs, TapeAssure was added to Product Highlights and Documentation kit including User and Service Guide (CD) and Getting Started Poster was removed throughout Step 1 of the Configuration Information.
15-Jan-2010	From Version 11 to 12	Changed	NOTE for HPE StorageWorks MSL2024 Ultrium Left Magazine Kit was revised in Magazine Kits.
11-Dec-2009	From Version 10 to 11	Changed	PDU Power Cords was revised in Step 2 of the Configuration Information section.
25-Nov-2009	From Version 9 to 10	Changed	SAS and SCSI Host Bus Adapters and Controller/HBA and Cable Recommendation Matrix were modified in Related Options and Native Maximum Transfer Rate was revised

## Summary of Changes

			for LTO-4 Ultrium 1760 in the Technical Specifications section.
9-Oct-2009	From Version 8 to 9	Removed	Removed part number AH219A from Step 1 of Configuration Information.
24-Sep-2009	From Version 7 to 8	Added	Added part numbers AK379A & AK381A to step 1 of the Configuration Information section.
		Removed	Removed part number AH219A from the Recommended Services section.
14-Sep-2009	From Version 6 to 7	Added	MLS8048 Tape Library throughout the QuickSpecs  Slot license upgrade to the Product Highlights and Related Options sections  StorageWorks to Model descriptions throughout the Configuration Information and Related Options sections
		Changed	The title has changed.
29-Jul-2009	From Version 5 to 6	Added	Added pointers to the Library Extender and Data Encryption sections in Product Highlights.
8-Jul-2009	From Version 4 to 5	Changed	Corrected two part numbers in the Related Options section.
19-Jun-2009	From Version 3 to 4	Added	Software in the Box to the Product Highlights section  HPE Data Protector Express Software CD to HPE StorageWorks MSL2024 and MSL 4048 Tape Libraries in Step 1 of the Configuration Information section HPE MSL2024/4048/8096 LTO-4 Ultrium 1760 SCSI Drive Upgrade Kit and HPE MSL 2024/4048/8096 LTO-2 Ultrium 448 SCSI Drive Upgrade Kit to Tape Drives in the Related Options section 2m SFF8088-to-SFF8088 1x SAS Cable Kit and 4m SFF8088-to-SFF8088 1x SAS Cable Kit to Cable Kits in the Related Options section Controller/HBA & Cable Recommendation Matrix to the Related Options section
		Changed	Updated NOTES for HPE SC44Ge SAS Host Bus Adapter in Host Bus Adapters and throughout Cable Kits in the Related Options section  Revised LTO-2 Ultrium 448 Drive Technology for MSL2024 in the Technical Specifications section
12-May-2009	From Version 2 to 3	Changed	The title has changed.
23-Apr-2009	From Version 1 to 2	Changed	Changes made within the Family Comparison, Product Highlights, Related Options and Technical Specifications.



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## Summary of Changes



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For tape drives and media, 1 GB = 1 billion bytes. Actual formatted capacity is less.

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