Overview

HPE Library and Tape Tools

HPE Library and Tape Tools (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 installation, ensure product reliability, perform diagnostics and achieve faster resolution of tape device issues. L&TT performs firmware upgrades, verifies device operations, carries out failure analysis and a range of other 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.

L&TT download location: **http://www.hpe.com/support/tapetools**

Operating systems currently supported include HPE-UX, Microsoft® Windows®, Linux, OpenVMS, Solaris and Mac OS X.

Key Features

- Actively measure the health of your HPE tape hardware.
- Get the most out of your device through access to operational, health and usage data in the support ticket:
  - Drive health, life, usage, utilization, performance
  - Media health, life, usage
  - Backup quality
- Reduce product downtime through firmware updates, preventative maintenance, and fast issue diagnosis with corrective actions.
- Access to comprehensive device analysis and diagnostic tests.
- First level failure analysis of both the device and system without HPE involvement.
- Troubleshoot system performance issues.
- Identify the most common host system configuration issues.
- Easy access to any advisories for your standalone drives and libraries.
- Easy to use and best in class support tool as used by the HPE hardware support organization.
- Generate and e-mail comprehensive support tickets to the support center for faster troubleshooting.
- Free download and install from HPE.com (**http://www.hpe.com/support/tapetools**) in less than five minutes.
- Can run directly from a memory stick without installing on your production server.

L&TT is frequently updated and developed to

- Support all of the Hewlett Packard Enterprise latest tape storage products including virtual tape libraries
- Provide the best in class support and diagnostics for these products in the industry
- Run on the latest versions of the most commonly used operating systems

For details of new features in any particular release, please refer to the release notes located with the L&TT download on the Hewlett Packard Enterprise support web pages or in the L&TT user guide.

It is highly recommended that the latest version of L&TT is used at all times as the support of even older products can benefit from improvements in the latest releases of the tool.

Standard Features

Compatibility Information

HPE Library and Tape Tools

L&TT download location: **http://www.hpe.com/support/tapetools**

Automatic device discovery

L&TT automatically scans the system for supported devices when the tool is started. By default, only the current number of devices found is displayed during the I/O scan. Additional information such as host adapters, drivers, and matching of embedded drives to the associated library can also be shown during the scan process. Scan results can be saved in an event log and attached to a support ticket email if necessary.

Ethernet Device Access

L&TT can communicate with HPE tape Libraries with LTO 5, LTO-6 and LTO-7tape drives over the drive's Ethernet port allowing L&TT functions to be executed without needing to install it on the host server. See the user guide for details.

Device Identification & Listing

L&TT identifies and displays a list of all products connected to the system by product group or by connection. Tabs allow the user to toggle between the following commands in this area of the main screen: scan, by product, by connection, and instructions.

- By product displays four categories: libraries/autoloaders, drives, enclosures/processors, and other devices; all with the specific device address.
- By connection shows all products connect to the system by the HBA they are connected to; aids in understanding system I/O performance issues.

Device Information Screen

All of the main functions of L&TT are displayed in this window. The content of the window depends on the device and tool function selected. Device information may include a visual presentation of the product, compatible media, and cartridge (media) inventory for all the drives and slots. General product information such as product ID, drive technology, mechanism serial number, firmware revision, SCSI target ID, and SCSI LUN will also be displayed.

Firmware from Web

If 'check for updates on Web' is enabled in the preferences menu, L&TT will automatically look for new firmware files for each supported device on the system when the application is run. If files are found, the application will ask the user if they should be downloaded to the application. By default, the latest firmware files for the devices on the system will be shown. L&TT will scan the local firmware folder and if the latest versions are not present, it will automatically select them for download. Users then perform the standard firmware update function to perform the actual update to each device.

Firmware Management

This L&TT functionality allows easy upgrades to the storage product firmware. By default, the tool will select all of the devices that have newer revisions of firmware in the L&TT firmware file folder. L&TT automatically matches the appropriate firmware files to each storage device. If multiple versions of firmware are available, selection boxes can be used to select the desired file. All drives are downloaded in parallel to reduce update time. All firmware update processes provide final results which can be saved in an events log and sent to HPE support if necessary.

Standard Features

Performance Tools

Effects of poor system performance can range from increased mechanical wear to missed backup windows. There may also be increased cleaning requests or reduced media life due to multiple passes of the media over the tape drive head. This all leads to decreased customer satisfaction. L&TT offers users a variety of performance analysis tools to identify where bottlenecks may exist in a system. These tools will help assess the system allowing the user to:

- Verify that the tape drive operates at specified transfer rates
- Verify that the disk subsystem can provide data that fast
- Verify that the disk subsystem can accept restored data at the expected rates

Test Functions

L&TT provides several standard and advanced tests that can be used to check the performance of or to diagnose issues with storage hardware. After each test is run, test results can be reviewed and are included in the application's event log. A user may perform the following tests on libraries and autoloaders:

- Device Self Test (internal self-test of the device)
- Device Analysis Test (analysis of the device logs)
- Library Exerciser Test (exercise the robotics and robot drive hardware)
- Library Read Write Test (exercise the robotics and drives together)
- Media IDs Test (link media cartridge ID to barcode)

A user may perform the following tests on drives:

- Tape Drive Assessment Test (15 minute comprehensive health check)
- Media Assessment Test (comprehensive media health check for Ultrium)
- Device Self Test (internal self-test of the device)
- Device Analysis Test (analysis of the device logs)
- Connectivity (ability of the host to communicate with the device)
- Media Validation (determine quality of the media)
- Read/Write (verify the ability of the drive to read/write data independent of the storage application) - superseded by the Assessment Test

Support Tickets

L&TT will automatically generate a support ticket based on information that the application determines about the system. This information can be used to diagnose the issues with the storage hardware. The tool can automatically email the support ticket to the HPE service and support organization to assist the help desk technician in resolving the issues. Browser links to common HPE Web sites are also provided.

Support tickets can also be used to find out operational and usage information from the device. Ultrium, in particular, has a very useful support ticket categorized into user friendly sections rather than basic device logs.

System Configuration Checking

Checks the configuration of the server that L&TT is running on for services such as RSM (Windows) that should not be running during backups. Also checks driver versions and Insight Manager agents giving warnings if issues are found.

Standard Features

Auxiliary Menu Commands

L&TT uses pull-down menu commands that provide the user with the following access or functionality:

- Load previously generated support ticket
- Retrieve firmware files from the web
- Sign-off and close the application
- Change options that set the behavior and display characteristics for L&TT
- Enable factory overrides when supplied a password from the HPE service and support organization
- Run non-device specific utilities such as system configuration checks
- Run a custom script written by the HPE service and support organization

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Device Support

Notes: This list may include discontinued products and is shown for compatibility purposes only.

Tape Libraries

- ESL G3 series libraries
- HPE MSL2024 tape library
- HPE MSL4048 tape library
- HPE MSL3040 tape library
- HPE MSL6480 tape library

Tape Autoloaders

HPE 1/8 G2 tape autoloader

Virtual Library Systems and D2D and StoreOnce Backup Systems (includes HPE families)

HPE StoreOnce Backup Systems

Removable Disk Backup Systems (Support via hosted RDX utility)

HPE RDX Removable Disk Backup System

Storage Area Network (SAN) (includes HPE Storage & Surestore families)

- HPE Interface Manager
- HPE Network Storage Router E1200 & E2400
- ESL Interface Manager
- HPE Network Storage Router E1200-160 & E2400-160
- HPE Bridge FC 4/2
- HPE Network Storage Router N1200
- HPE Bridge FC 4/1 (HVDS)
- HPE N1200-320 4Gb Network Storage Router
- HPE Bridge FC 2/1 (LVDS)

Tape Drives

- HPE Ultrium 15000 tape drives (LTO-7)
- HPE Ultrium 6650 tape drives (LTO-6)
- HPE Ultrium 6250 tape drives (LTO-6)
- HPE Ultrium 3280 tape drives (LTO-5)
- HPE Ultrium 3000 tape drives (LTO-5)
- HPE Ultrium 1760 tape drives (LTO-4)

Standard Features

Operating System Support

L&TT is supported on the following operating systems:

- Microsoft Windows 2003 (& R2) (x86, x64 & ia64) Editions
- Microsoft Windows 2008 (x86, x64 & ia64) Editions
- Microsoft Windows 2008 R2 SP1 (x86, x64 & ia64) Editions
- Microsoft Windows 2012 (x64) Edition
- Microsoft Windows 2012 R2 (x64) Edition
- Microsoft Windows XP (x86, x64 & ia64) Editions
- Microsoft Windows Vista SP2 (x86, x64, x86_x64) Editions
- Microsoft Windows 7 (& SP1) (x86, x64) Editions
- Microsoft Windows 8 (x86, x64) Editions
- Microsoft Windows 8.1 (x86, x64) Editions
- VMware on Microsoft Windows - (limited support, standalone drives only)
- HPE-UX 11i (PA-RISC)
- HPE-UX 11i v2 (PA-RISC & IPF)
- HPE-UX 11i v3 (PA-RISC & IPF)
- Linux Red Hat 9.0 (x86)
- Linux Red Hat EL 5.0 (x86, x86_64 & ia64) (Update 3, 4, 5 & 7)
- Linux Red Hat EL 6 (x86, x86_64), 6.3 (x86, x86_64), 6.4 (x86, x86_64)
- Linux SUSE SLES 10 SP3 (x86, x86_64 & ia64)
- Linux SUSE SLES 11 SP1, SP2, SP3 (x86, x86_64 & ia64)
- Debian Linux
- OpenVMS 7.3-2 (Alpha)
- OpenVMS 8.2 (Alpha)
- OpenVMS 8.3-1 (IPF)
- OpenVMS 8.4 (Alpha, IPF)
- Oracle Solaris 10 U9 (x86, SPARC, AMD64)
- Oracle Solaris 10 (x86, SPARC, AMD64)
- Mac OS X 10.6 (, x86) – Standalone drives L&TT CSI only
- Mac OS X 10.7 (x86) – Standalone drives L&TT CSI only
- Mac OS X 10.8 (x86) – Standalone drives L&TT CSI only
- Mac OS X 10.9 (x86) – Standalone drives L&TT CSI only

Notes:

- HPE L&TT has not been tested in cluster environments.
- For a list of the last versions of L&TT that support older versions of drive generation & operating systems please see the L&TT user guide.

Summary of Changes

Date	Version History	Action	Description of Change:
17-Aug-2020	Version 36	Changed	QuickSpecs layout was updated and Branding Refresh was applied.
06-Apr-2020	Version 35	Changed	QuickSpecs layout was updated
04-Dec-2017	Version 34	Changed	Overview and Compatibility Information were revised.
04-Sep-2017	Version 33	Changed	Changes made throughout the entire QuickSpecs.
11-Dec-2015	Version 32	Changed	Tape Drives – added HPE Ultrium 16000 and 16750 LTO-7 tape drives.
18-Jul-2014	Version 31	Changed	Updated the following: Overview – completely rewritten; relocated LTT 5.x Features and Benefits section and comparison table between 4.x & 5.x to after What's New; updated What's New; Compatibility information – operating system support – added, removed and updated support and Notes;
28-Jun-2013	Version 30	Changed	Updated the following: Overview; Compatibility Information - Device Support - added MSL6480 tape library; Virtual Library Systems and D2D and StoreOnce Backup Systems (added branding); Tape Drives - added HPE Ultrium 6250 and 6650 LTO-6 tape drives; Operating System Support - added Microsoft Windows 2012 (x64) Edition and Microsoft Windows 8 (x86, x64) Editions, Linus SUSE SLES 11 SP3 (x86, X86_64 & ia64).
06-Jan-2012	Version 29	Changed	Ethernet Device Access was added to Product Highlights and VMware on Microsoft Windows was added to Operating System Support
17-Jun-2011	Version 28	Changed	Updated the following sections: Compatibility Information - Device Support; Operating System Support - added Windows 7 and Mac OS X 10.6.
17-Jun-2011	Version 27	Changed	Changes made to the QuickSpecs
08-Jun-2011	Version 26	Changed	Removed StorageWorks throughout the document.
24-Sep-2010	Version 25	Changed	Updated the following sections: Features and Benefits-added link to TapeAssure; Product Highlights - TapeAssure service integration section added; Compatibility-operating system support
09-Apr-2010	Version 24	Changed	HPE Ultrium 3000 and 3280 tape drives were added to Device Support.
25-Nov-2009	Version 23	Changed	DAT320 Tape Drives was added to Tape Drives and PPC was added to Mac OS X 10.4.11.
05-Jun-2009	Version 22	Changed	Mac OS X 10.4.11 (Intel) and Mac OS X 10.5 (Intel) to the QuickSpecs and HPE MSL G3 libraries using the library extender kit to HPE ESL9322L1 tape library in the Technical Specifications section.
11-Jul-2008	Version 21	Changed	Removable Disk Backup Systems (Support via hosted RDX Utility) and Microsoft Windows 2008 (x86, x64 and ia64) Editions to the Compatibility Information section
18-Apr-2008	Version 20	Changed	Changes were made throughout the QuickSpecs.
29-Feb-2008	Version 19	Changed	System Configuration Checking was added to the Product Highlights section and Compaq was added throughout the Compatibility Information section
04-Jan-2008	Version 18	Changed	Updated the Overview, Customer Benefits and Operating System Supported sections
10-Aug-2007	Version 17	Changed	The Tape Drives object in the Compatibility Information section was rewritten.
22-Jun-2007	Version 16	Changed	Changes made throughout the entire QuickSpecs
06-Jun-2007	Version 15	Changed	Added EMEA version
23-Feb-2007	Version 14	Changed	Changes made throughout the entire QuickSpecs
07-Jul-2006	Version 13	Changed	Made changes to Device Support and Operating System Support in the COMPATIBILITY INFORMATION section.
05-May-2006	Version 12	Changed	Changes made throughout the entire QuickSpecs.

Summary of Changes

Date	Version History	Action	Description of Change:
23-Dec-2005	Version 11	Changed	In the COMPATIBILITY INFORMATION section, added "Virtual Library Systems" (VLS) and a tape library to "Device Support". Removed Microsoft Windows 95, 98, and ME from "Operating System Support" in the COMPATIBILITY INFORMATION section.
28-Oct-2005	Version 10	Changed	Updated Test Functions section; updated Device Support section; updated Tape Backup Storage section; and updated Ultra Density Optical Storage section
22-Apr-2005	Version 9	Changed	Device Support" and "Operating System Support" were updated in the COMPATIBILITY INFORMATION section.
25-Aug-2004	Version 8	Changed	Operating System Support - OpenVMS 7.3-1 and above
28-Jul-2004	Version 7	Changed	Added a note on the Compatibility Information
01-Jul-2004	Version 6	Changed	Updated the Tape Backup Storage (includes HPE StorageWorks & Surestore families) section
02-Jun-2004	Version 5	Changed	Ultra Density Optical Storage (includes HPE StorageWorks families) HPE Optical Disk Drive 30ux HPE Optical Jukebox 2300ux HPE Optical Jukebox 1000ux HPE Optical Jukebox 3800ux HPE Optical Jukebox 1900ux HPE Optical Jukebox 7100ux
30-Sep-2003	Version 4	Changed	Changes occurred in every section of the QuickSpecs for this announcement.
28-Aug-2003	Version 3	Changed	This QuickSpecs has been converted into the new system. Replaced mention of CarePaq with "HPE Pointnext operational". CarePaq links have been updated to HPE URLs.
14-May-2003	Version 2	Changed	Added the HPE StorageWorks Library and Tape Tools on the overview section
01-Feb-2003	Version 1	New	New QuickSpecs

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