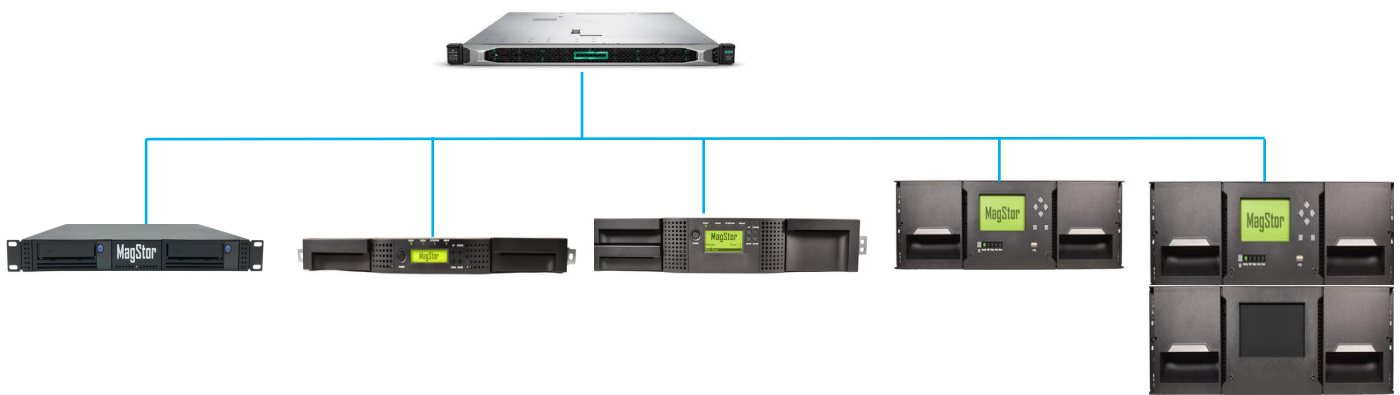




Polar-Arc40 Archive Systems and Appliances

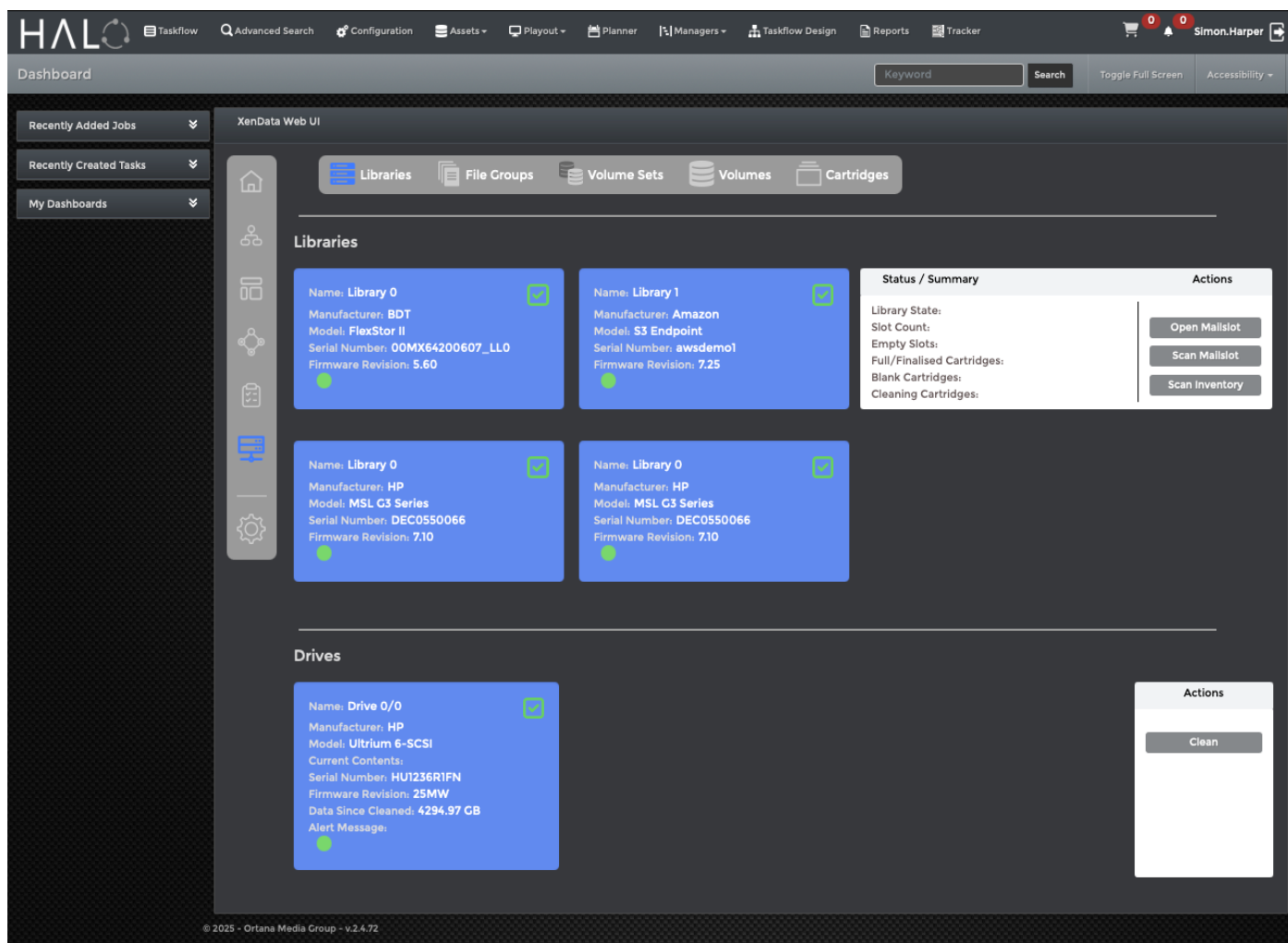
Multi-PetaByte Archive Appliances and TAA Compliant Systems



Polar-Arc40 is a complete LTO archive system with a server, LTO tape drives or tape library and archive management software that is simple, easy to use, extremely robust, very reliable and easily expanded.

The standard Polar-Arc system uses a network shared storage drive to make interacting with applications simple and easy for users. Once set up it is as simple as dragging and dropping files into the shared drive folder structure to archive data, and even easier to restore by simply opening, or copying the file from the shared drive. The built in XenData archive management software does the rest.

Unique to Polar-Arc is a web based management dashboard for the XenData archive software. It allows remote management and control of multiple archive systems even in different locations. While standard XenData management console can still be used, locally or via vpn, the Polar-Arc Library Management GUI allows users to easily create archive workflows without direct access to the archive server. It also provides alert information including off line media status.



All of the Polar-Arc Range can be upgraded by adding the Polar-Arc Professional plug-in (engineered by Ortana). This application has a GUI to manage and perform Browse and Search, Copy and Move, Sync and Migrate jobs in addition to Archiving and Restore workflows. It connects with up to 5 API integrated Nodes such as an Avid NEXIS, Legacy HSM, MAM, Transcoder, as well as managing data on generic none -API driven Nodes. Please refer to the Polar-Arc Professional product brief for more details.

Polar-Arc40 System



8 slots 1 drive

24 slots 1-2 drives

40 slots 2-3 drives

80 slots 2-4 drives

Polar-Arc40 Appliance



Customer supplied LTO
Tape Library (SAS or FC)

Available as either a **Polar-Arc System** or **Polar-Arc Appliance**. Both feature a fast SSD Cache in a 1 RU rack mounted unit that connects to the LTO library via SAS or Fibre Channel cables and connects to the local network via 1 GbE or 10 GbE ports.

The **Polar-Arc System** is available with 8/24/40/80 slot libraries with up to 4 LTO tape drives as a fully configured and tested system. Just plug it in and connect to your network and you are ready to go. The industry standard tape libraries use superior LTO tape drives that are TAA compliant for use in any installation with any Data.

The **Polar-Arc Appliance** supports LTO libraries from a wide range of manufacturers including Dell, HPE, IBM, Magstor, Overland Storage, Qualstar, Quantum and Spectra Logic.

Highlighted Functionality

- ❖ Manages unlimited externalized LTO cartridges
- ❖ Mounts LTO archive as SMB share
- ❖ Automatically replicates LTO Cartridges
- ❖ LTFS or TAR Formats
- ❖ 14 TB or 28 TB internal SSD RAID5 cache
- ❖ Optional redundant power supplies
- ❖ Easy migration to later LTO generations
- ❖ Requires minimal operator intervention

Powered by Xen Data, the **Polar-Arc** Appliances and Systems are feature-rich LTO archives. The appliance is a 1 RU rack mounted unit that connects to the LTO library via SAS or Fibre Channel cables and connects to the local network via 1 GbE or 10 GbE ports. It supports LTO libraries from a wide range of manufacturers including Dell, HPE, IBM, Magstor, Overland Storage, Qualstar, Quantum and Spectra Logic. Please refer to the XenData web site for a list of supported models.

The **Polar-Arc** server runs XenData Archive Series software on a Windows Server 2022 operating system. The managed files and folders are presented as a Windows logical drive letter. You can access the archive locally, as an SMB or NFS share or via FTP. Archiving to and restoring files from the archive is like writing to and reading from disk.

Polar-Arc40-14-8/ Polar-Arc40-28-8

These entry level archive systems are ideal for small post houses with either a 14TB or 28TB SSD cache drive in the server and an 8 slot tape library with 1 tape drive (LTO-7, LTO-8 or LTO-9). They are configured with 1 x mail slot and 7 x data cartridges giving near line capacities of:- 42TB/ 84TB/ 126TB respectively and unlimited managed Offline Archive storage.

Polar-Arc40-14-24 / Polar-Arc40-28-24

These small-medium level archive systems are designed for small to medium post houses with either a 14TB or 28TB SSD cache drive in the server and a 24 slot tape library with either 1 or 2 tape drives (LTO-7, LTO-8 or LTO-9). They are configured with 1x mail slot and 23 x data cartridges giving near line capacities of:- 138TB/ 276TB/ 414 B respectively and unlimited managed Offline Archive storage.

Polar-Arc40-28-40

Medium level archive system that is expandable. The server has a 28TB SSD cache drive and manages a 40 slot tape library with either 2 or 3 tape drives (LTO-, LTO-8 or LTO-9). It is configured with a 5 x mail slot and 35 x data cartridges giving near line capacities of:- 210TB/ 420TB/ 630TB respectively and unlimited managed Offline Archive storage.

An expansion unit can be added at any time to increase nearline storage capacity. The additional expansion chassis simply connects up to the existing tape library in the rack and add an extra 240TB/ 480TB/ 720TB depending on LTO cartridge version (LTO-7, -8, -9).

Polar-Arc40-28-80

Medium-Large archive system that is expandable. The server has a 28TB SSD cache drive and manages an 80 slot tape library with either 2 or 3 tape drives (LTO-7, LTO-8 or LTO-9). They are configured with a 5 x mail slot and 75 x data cartridges giving near line capacities of:- 450TB/ 900TB/ 1.35PB respectively and unlimited managed Offline Archive storage.

Functionality

Standard File System Interface

Polar-Arc accepts all file types. Files are written to and retrieved as though from a standard disk drive.

Standard Network Protocols

Optimized for SMB, NFS and FTP, as well as local file transfers.

LTFS and TAR

May be configured with LTFS or TAR format tape pools.

LTO Cartridge Replication

Automatically generates replica LTO cartridges that may be exported from the library for off-site retention.

Near-line and Offline LTO

Manages LTO cartridges in a library and an unlimited number of cartridges offline.

Alert Module

Provides e-mail and on-screen alerts. tailored to the needs of operators, system administrators and support.

SSD RAID Cache Enhances Performance

User defines disk caching policies can be tailored for different file types and folders.

Easy LTO Migration

Easy system upgrades, going from older to later generations.

LTO End-to-End Verification

Provides an automated check-sum operation for all data written to LTO.

LTO Cartridge Spanning

Can be set to allow or prevent files being spanned across multiple LTO cartridges.

Multiple Tape Pool Support

Allows groups of files to be allocated to specified groups of LTO cartridges.

Metadata Backup and Restore

Provides rapid system restore in case of server upgrade or rebuild.

Auto-Expansion of LTO Pools

Dynamically expands LTO cartridge pools to meet capacity demands, minimizing system administration.

Optimized Restores

Restores a queue of files in the shortest possible time. Restore requests are processed to minimize tape movement.

File Version Control

Provides comprehensive file version control. Deleted files and old file versions may be restored from LTO.

Partial File Restore

An XML interface is available with partial file restore (PFR) based on timecodes.

Cartridge Contents and Search Reports

Files contained on any cartridge, including offline, can be listed in a report. Search reports list all the files and their LTO cartridge barcode locations that match a filter.

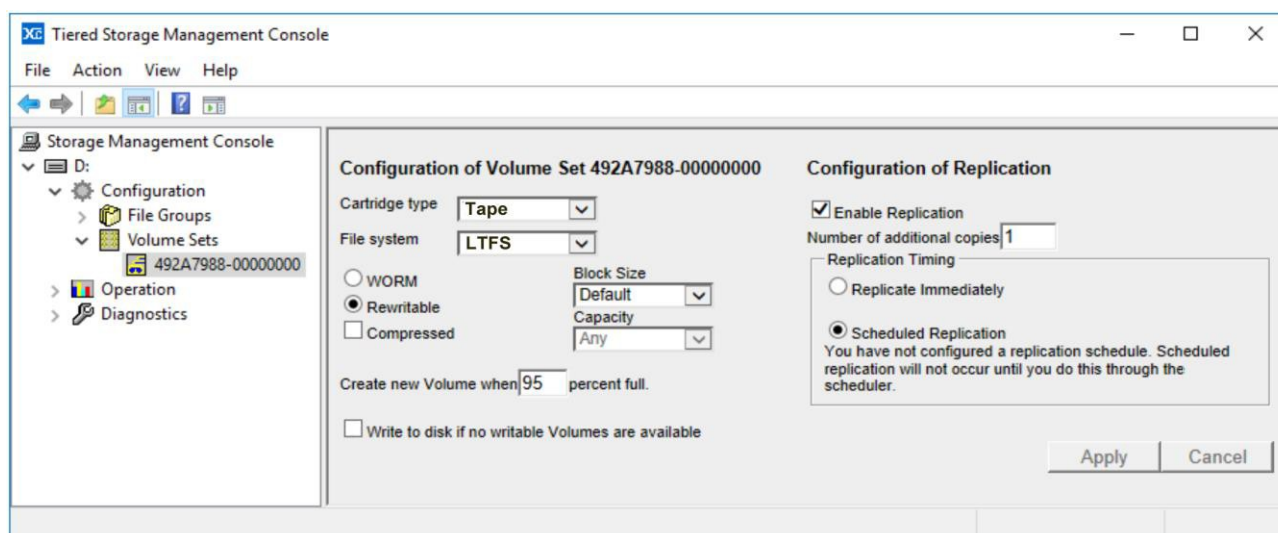
Automated Tiered Storage Management

Polar-Arc Servers support three levels of storage hierarchy:

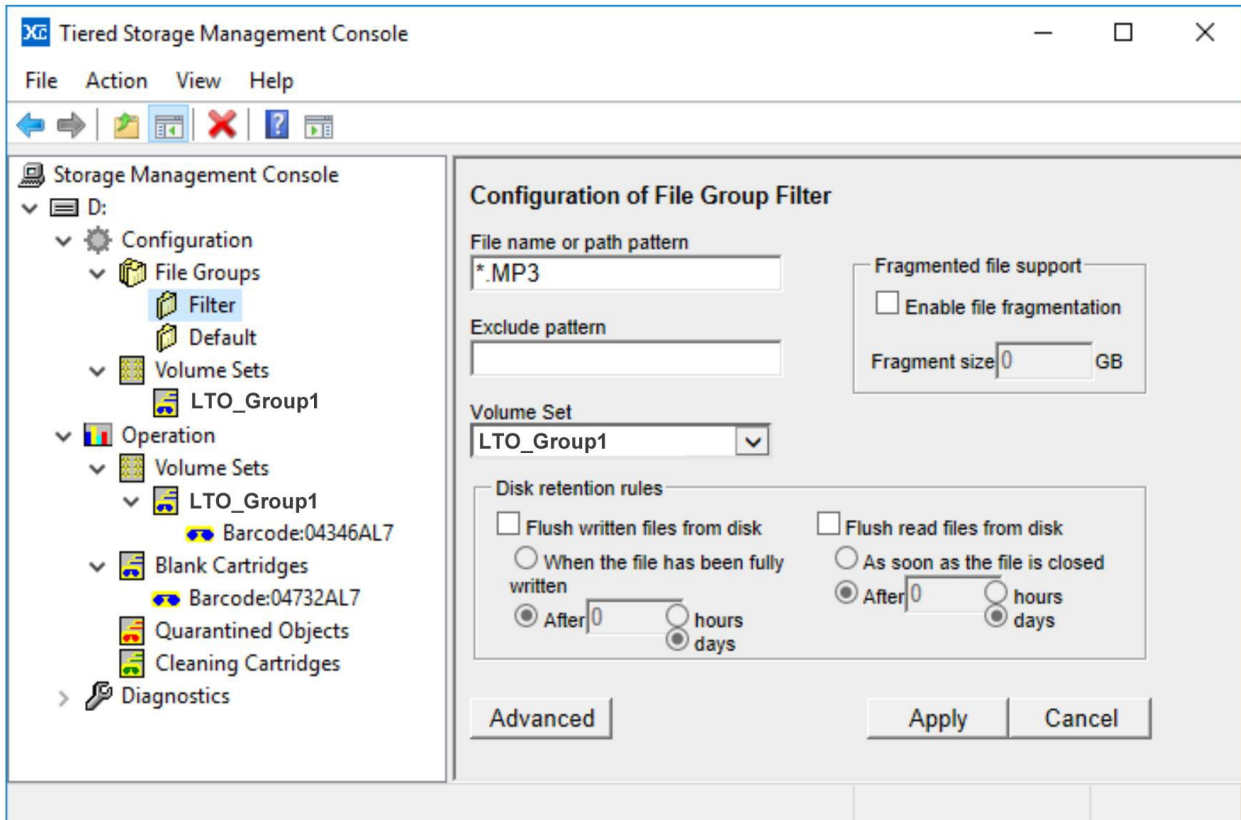
- ❖ **Online disk** with one instance of a file on the managed disk volume and, in addition, there will typically be one or more instances on LTO. In this case, the file will be retrieved from disk when accessed over the network.
- ❖ **Near-line LTO** with at least one instance of a file on an LTO cartridge within the library and no instances on disk. When a file on near-line LTO is accessed over the network, the XenData software automatically transfers the file over the network directly from LTO in response to the network read request.
- ❖ **Offline** with no instances on disk and instances of a file on one or more LTO cartridges, all of which have been exported from the tape library.

Defining Storage Policies

The Archive Series software provides a Tiered Storage Management Console which is used to define storage policies.



The LTO format, LTFS or TAR, is defined for the group of LTO cartridges, together with replication. The system can be configured to replicate LTO cartridges immediately or at a scheduled time.



The Tiered Storage Management Console is also used to perform many LTO cartridge management functions, including:

- ❖ Exporting cartridges from the library
- ❖ Write protecting cartridges
- ❖ Status and cartridge properties
- ❖ Management of cleaning cartridges
- ❖ Repacking cartridge contents, as described below

Migrate to Later LTO Generations

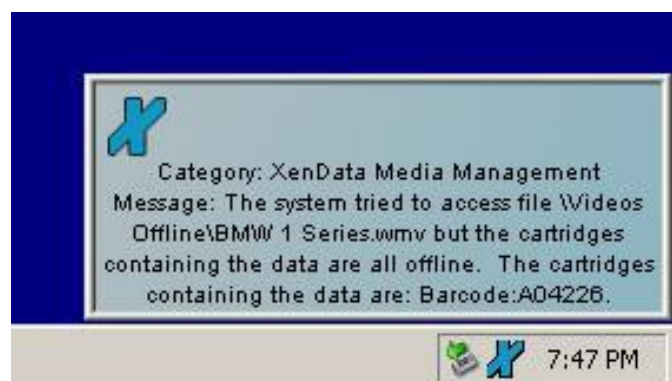
The repack operation may be performed using the Tiered Storage Management Console. This allows the contents of cartridges and groups of cartridges to be moved from one generation of LTO to another, for example from LTO-6 to LTO-9.

Other LTO archive solutions make the job of migrating to a later generation of LTO very difficult. But with XenData Archive Series software, it is a seamless background task.

Externalized LTO Management

The **Polar-Arc** server manages an unlimited number of LTO cartridges that have been externalized by being exported from a library.

The software puts a message in the Windows Event Log and optionally sends an e-mail and/or on-screen message that identifies which LTO cartridges contain the requested file.

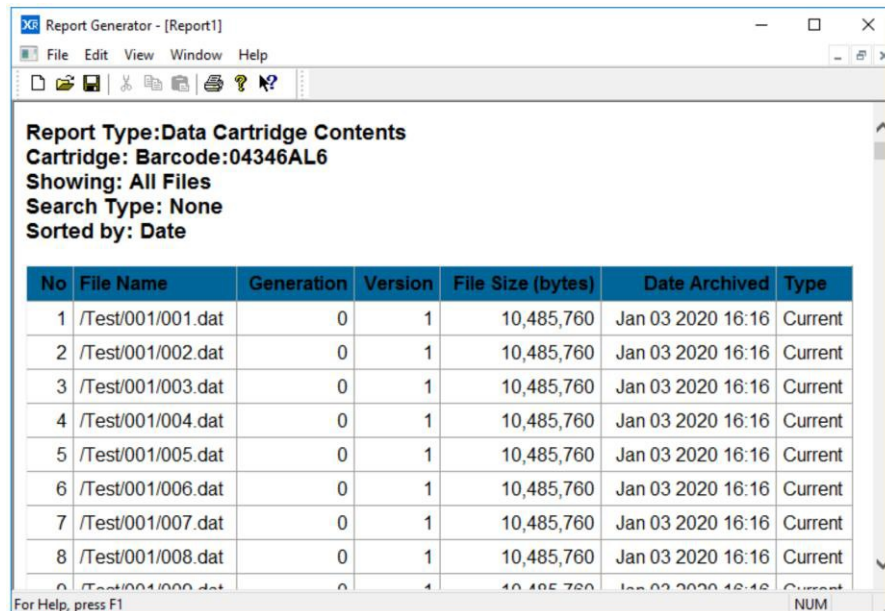


File Version Management

When an archived file is overwritten, the file system interface presents the latest version of the file and when a file is deleted, it is hidden from the file system interface. Unlike standard disk-based file systems, old versions of files and deleted files continue to be retained on LTO. The Polar-Arc software allows access to these deleted files and old file versions.

File Search and Cartridge Contents Reports

The Archive Series software allows the user to run reports including LTO cartridge contents and file search listings. Reports can be saved in different formats including tab delimited plain text (.txt) or XML.



The screenshot shows a window titled "Report Generator - [Report1]" with a menu bar (File, Edit, View, Window, Help) and a toolbar. The report content is as follows:

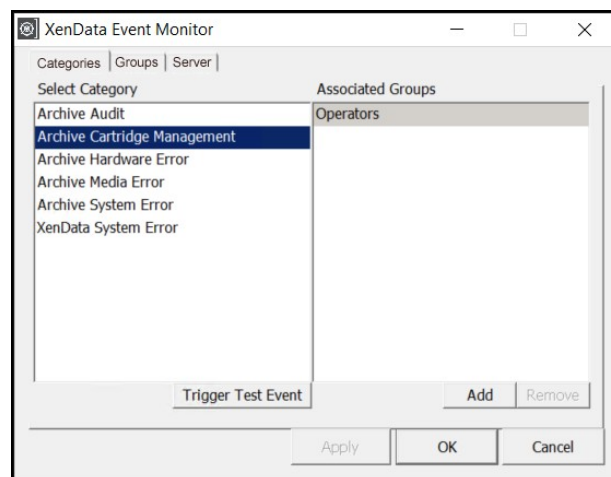
Report Type:Data Cartridge Contents
Cartridge: Barcode:04346AL6
Showing: All Files
Search Type: None
Sorted by: Date

No	File Name	Generation	Version	File Size (bytes)	Date Archived	Type
1	/Test/001/001.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
2	/Test/001/002.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
3	/Test/001/003.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
4	/Test/001/004.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
5	/Test/001/005.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
6	/Test/001/006.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
7	/Test/001/007.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
8	/Test/001/008.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
9	/Test/001/009.dat	0	1	10,485,760	Jan 03 2020 16:16	Current

At the bottom of the window, it says "For Help, press F1" and "NUM".

System Monitoring

The Archive Series software monitors error messages issued by the LTO drives and libraries, creating alerts and notifications which are logged in the Windows Event Log. The software includes an Alert Module which characterizes these alerts and notifications into five categories:



Base Server Specification

Management Software:	XenData Archive Series software, LTO Server Edition XenData Alert Module
Supported LTO library configuration:	A single LTO library with up to 25 active slots and one LTO drive is supported in the base system. It may be upgraded to support additional active slots and up to 4 LTO drives.
Operating System:	Microsoft Windows Server 2022, Standard Edition
Processor:	12-core Xeon
RAM:	32 GB
System Volume:	2 x 480 GB SSDs - mirrored
Managed Local Disk: 40-14 models	8 x 2TB SSDs in RAID5, providing 14 TB usable capacity
Managed Local Disk: 40-28 models	8 x 4TB SSDs in RAID5, providing 28 TB usable capacity
Connections to FC library (Optional)	2 x 16 Gb/s FC ports with LC type connector for direct connection to FC LTO drives within the library
Connections to SAS library	2 x SFF-8644 12 Gb/s SAS ports for direct connection to SAS LTO drives within the library. Optional 2 nd SAS HBA for additional tape drives
Base Model Network Ports:	2 x 10 GbE ports
Network Protocols:	CIFS/SMB and FTP
USB Connections:	Two USB 3.0 in rear One USB 3.0 in front
Number of Power Supplies:	Two – dual redundant
Power (per power supply):	100-240V; 50-60 Hz 800W (at 100 VAC), 800W (at 240 VAC)
19 Inch Rack Form Factor:	1U
Depth	753 mm (29.65 inches)
Weight:	20.44 Kg (45.07 lbs) Maximum
Rack Rails:	Included

Upgrade Options

Hardware Upgrades

Qty	Description
1	PCIe card with 2 x SFF-8644 12 Gb/s SAS ports for direct connection to SAS LTO drives within the library. Adds two additional SAS ports.
1	PCIe card with 2 x 16 Gb/s FC ports for direct connection to FC LTO drives within the library. Adds two additional FC ports.
1	High Performance Kit, adds 2 nd 12 core CPU and mirrored 2x 480 GB NVME SSD OS drives and Larger managed Cache drive with 8x 2TB or 8x 4TB disks in RAID5 for 14TB and 28TB usable capacity respectively.
1	Additional 32GB RAM

Please contact Polar Graphics for other network options up to 100 GbE.

Software Upgrades

Part Number	Description
PA-25/50-LM	Perpetual software license upgrade to increase the number of LTO slots within the managed library from 25 to 50. Includes 12 months support for the upgrade.
PA-UPG-20-LM	Slot license upgrade for appliance to support an additional 20 LTO slots within the managed library. Applicable above 50 slots. Includes 12m support for the upgrade.
PA-2DRIVE-LM	Perpetual software license upgrade increasing the number of supported LTO drives from 1 to 2. Includes 12 months support for the upgrade.
PA-4DRIVE-LM	Perpetual software license upgrade increasing the number of supported LTO drives from 2 to 4. Includes 12 months support for the upgrade.

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