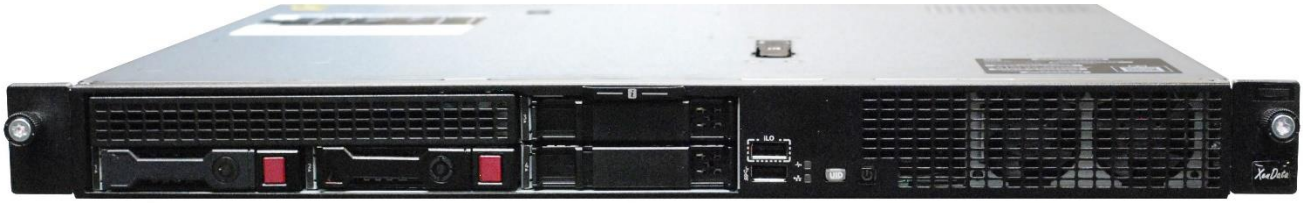
Product Brief

X20-S LTO Archive Appliance



Highlighted Functionality

- ✓ **Manages a library up to 50 slots and 2 LTO SAS drives.**
- ✓ **Manages unlimited externalized LTO cartridges**
- ✓ **Mounts LTO archive as SMB share**
- ✓ **Automatically replicates LTO Cartridges**
- ✓ **LTFS or TAR Formats**
- ✓ **Internal SSD cache**
- ✓ **Easy migration to later LTO generations**
- ✓ **Requires minimal operator intervention**

When combined with an LTO library, the X20-S Appliance creates a feature-rich LTO archive. The X20-S is a 1 RU rack mounted unit that connects to the LTO library via one or two SAS 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, Overland Storage, Qualstar, Quantum and Spectra Logic. Please refer to the XenData web site for a list of supported models.

The X20-S runs XenData Archive Series software on a Windows 10 Pro operating system. The managed files and folders are presented as a Windows logical drive letter. Archiving to and restoring files from the archive is like writing to and reading from disk. You can access the archive locally, as an SMB share or via FTP.

Functionality

Standard File System Interface

The X20-S accepts all file types and presents them in a single Windows file/folder structure. Files are written to and retrieved as though from a standard disk drive.

Standard Network Protocols

The solution is optimized for SMB, NFS and FTP, as well as local file transfers.

LTFS and TAR

May be configured with tape pools using the LTFS or TAR format.

LTO Cartridge Replication

Automatically generates replica LTO cartridges that may be exported from the library for off-site retention. For libraries with one LTO drive, replication may be scheduled to occur overnight.

Near-line and Offline LTO

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

SSD RAID Cache Enhances Performance

The user defines policies for disk caching that can be tailored for different file types and folders.

Easy LTO Migration

XenData archive software makes for easy system upgrades, going from an older to a later generation of LTO.

End-to-End Verification

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

LTO Cartridge Spanning

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

Multiple Tape Pool Support

The software allows groups of files to be allocated to specified groups of LTO cartridges.

Auto-Expansion of LTO Pools

The system will dynamically expand LTO cartridge pools to meet capacity demands, minimizing system administration.

Optimized Restores

The system restores a queue of files in the shortest possible time. The restore requests are processed in an order that minimizes unnecessary tape movement.

File Version Control

The software provides comprehensive file version control. Deleted files and old file versions may be restored from LTO.

Partial File Restore

The XenData XML interface is available with partial file restore (PFR) based on timecodes. In addition, the XenData file system interface supports PFR based on byte offset.

Supports WORM Tape

XenData systems support both standard rewritable cartridges and unalterable WORM cartridges.

Metadata Backup and Restore

Provides rapid system restore in case of rebuild after RAID failure.

Alert Module

A software module is included which provides e-mail and on-screen alerts. These are tailored to the needs of archive system operators, system administrators and IT support personnel.

Cartridge Contents and Search Reports

The files contained on any cartridge, including offline cartridges, can be listed in a report. Additionally, search reports list all the files and their LTO cartridge barcode locations that match a search term.

Industry Standard File Security

The appliance runs a Windows 10 Pro operating system and integrates fully with the Microsoft Windows security model based on Active Directory.

Cloud File Gateway Option

Allows files to be stored on cloud object storage in addition to LTO.

Sync Option

FS Mirror utility provides file synchronization across your local network

XML Interface Option

The Workflow API is used by many complementary applications to move files to and from the archive.

Object Storage Option

This allows secure access to the archive from anywhere.

Multi-Site Sync Option

When you have LTO archives at different facilities, you can use XenData Multi-Site Sync to integrate them in a single global file system accessible from any location.

Automated Tiered Storage Management

The user defines policies that automatically determine where files will be physically stored on the digital archive. These policies support tiered storage management and automatic LTO cartridge replication. The XenData Archive Series software running on the X20-S supports three levels of storage hierarchy:

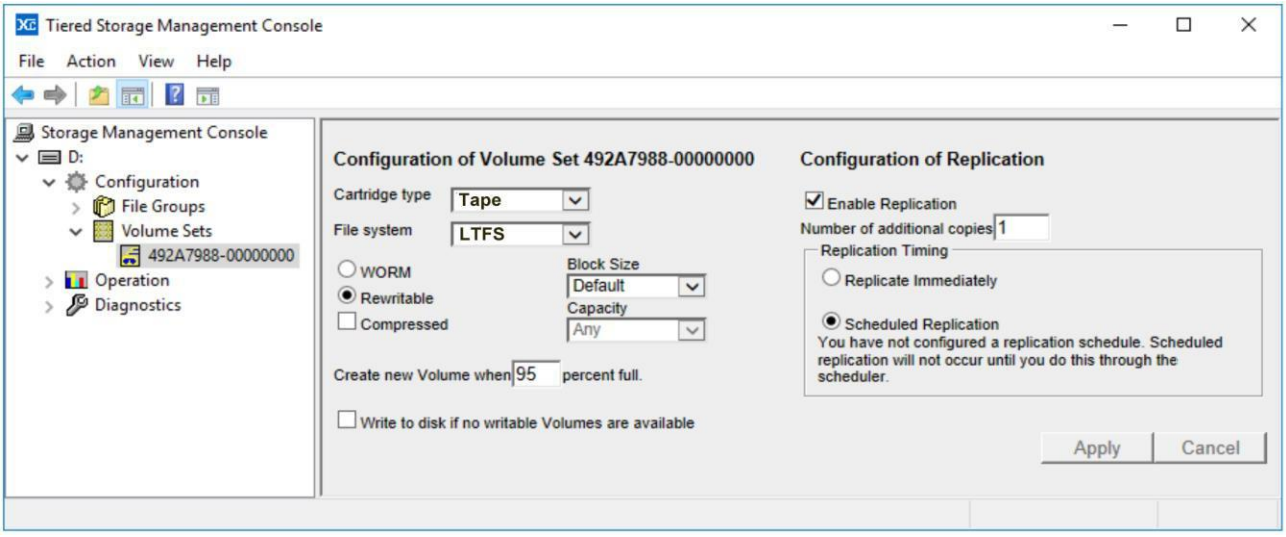
- **Online disk** with one instance of a file on the managed disk volume and, in addition, there will typically be one or more instances on LTO. In this case, the file will be retrieved from disk when accessed over the network.
- **Near-line LTO** with at least one instance of a file on an LTO cartridge 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.

No matter where a file is held in the storage hierarchy, its position in the archive file/folder system does not change. When a file transitions from near-line disk to near-line LTO and to offline LTO, the file path, file name and properties do not change, except the Microsoft offline attribute becomes enabled when the file is no longer on disk.

Defining Storage Policies

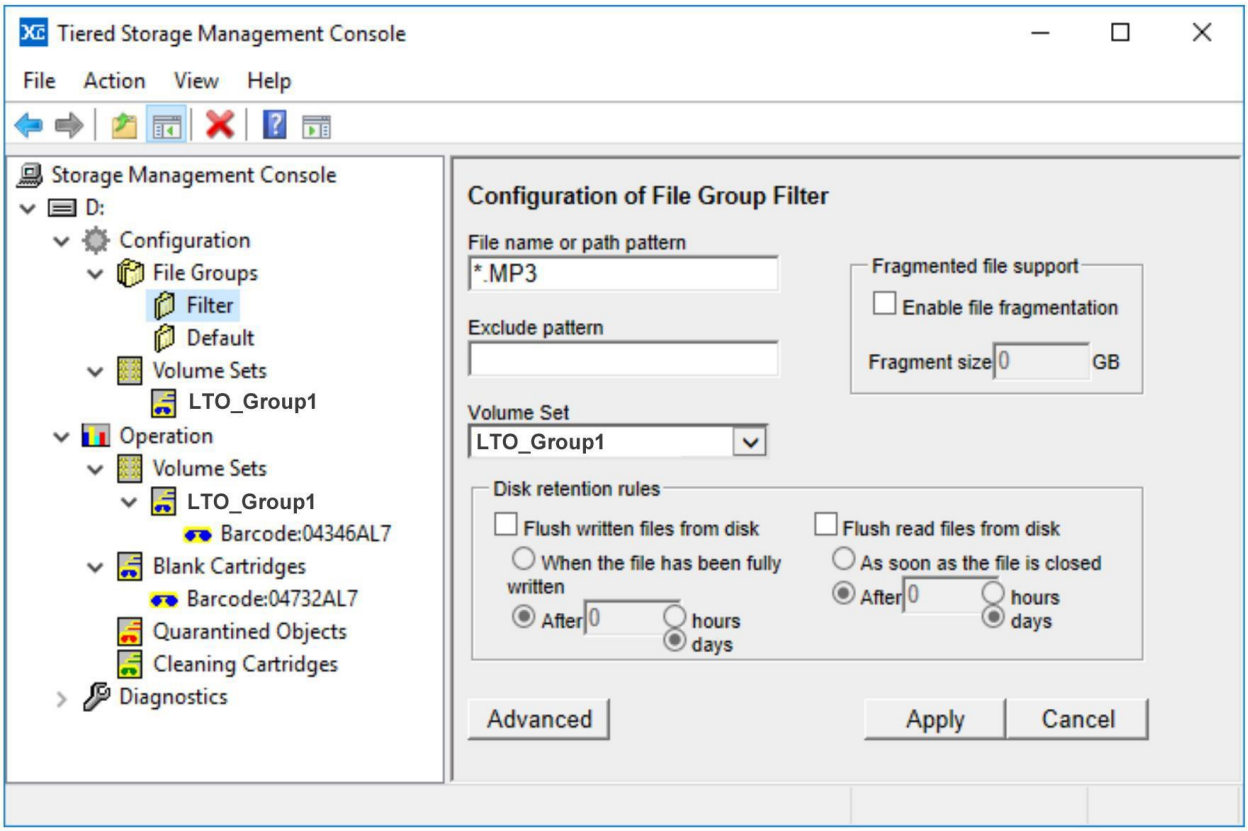
The Archive Series software provides a Tiered Storage Management Console which is used to define storage policies. The console supports configuration of many different policies, tailored to the needs of the different file types and folders within the archive file system.

The user first defines one or more groups of LTO cartridges, as illustrated below.



The LTO format, LTFS or TAR, is defined for the group of LTO cartridges, together with replication. When replication is enabled, the system can be configured to replicate LTO cartridges immediately or at a scheduled time. Scheduled replication delays updating of the replica cartridges until a quiet time, perhaps overnight. This part of the user interface is also used to configure dynamic expansion of LTO cartridge groups: it defines when blank cartridges will be pre-initialized and added to the group of LTO cartridges.

After configuring at least one group of LTO cartridges, the user defines which groups of files will be allocated to which groups of LTO cartridges and how long specific groups of files will be retained on the managed disk volume. The user interface is illustrated below.



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

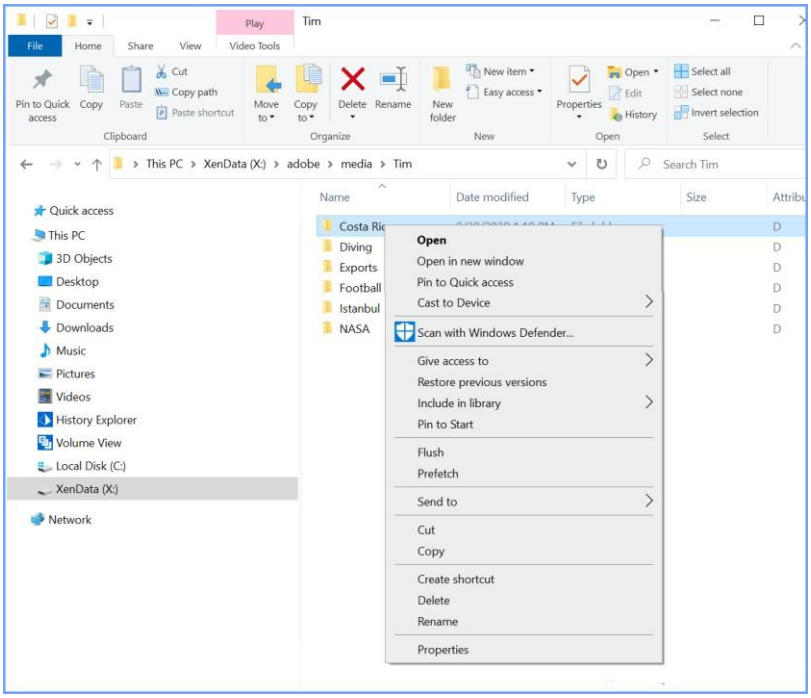
Migrate to Later LTO Generations

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-8 to LTO-9. It is an operation that has zero downtime for the system. All the files stay in the same place in the file system but are moved from one generation of cartridges to another in background.

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.

Manual Over-Ride of Automatic Policies

The storage policies defined using the Tiered Storage Management Console determine the disk retention policy for archived files. They run automatically without need for manual intervention. But sometimes they need to be overridden. For example, when a big project is postponed, there might be a need to temporarily transition the associated files and folders from online disk to near-line LTO. And when the project becomes active again, those files should be prefetched to the managed disk. The disk retention policies may be overwritten using Windows File Explorer. The Archive Series software extends the capabilities of Windows File Explorer and allows manual over-ride of the automatic policies, as illustrated below.

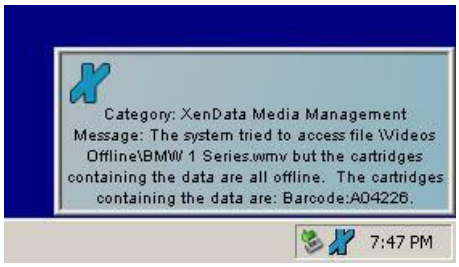


In this example, the entire folder ‘Costa Rica’ can be manually flushed or prefetched. Flushing is a quick operation that transitions all files in the folder and its sub-folders to near-line LTO. Of course, the system checks that all files are securely stored on LTO before flushing. Prefetch reads all the files from LTO and caches them on the managed disk. The prefetch operation reads all the files from LTO in the optimum order to minimize any unnecessary tape movement and cartridge swapping.

Externalized LTO Management

The X20-S Archive Appliance manages an unlimited number of LTO cartridges that have been externalized by being exported from a library. And the Archive Series software is always licensed to support an unlimited number of externalized cartridges.

When a file moves from near-line LTO to being offline because the LTO cartridge on which it is stored is exported from the tape library, the file remains unchanged in the archive file system. However, this is not the complete file; it is a file representation which has the same attributes as the complete file, such as reported size, modification date, etc. When an offline file is accessed by a program, a message is returned immediately that identifies that the file is not available. Also, the XenData 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. This notification allows the correct cartridge to be easily identified and then imported back into the LTO library.

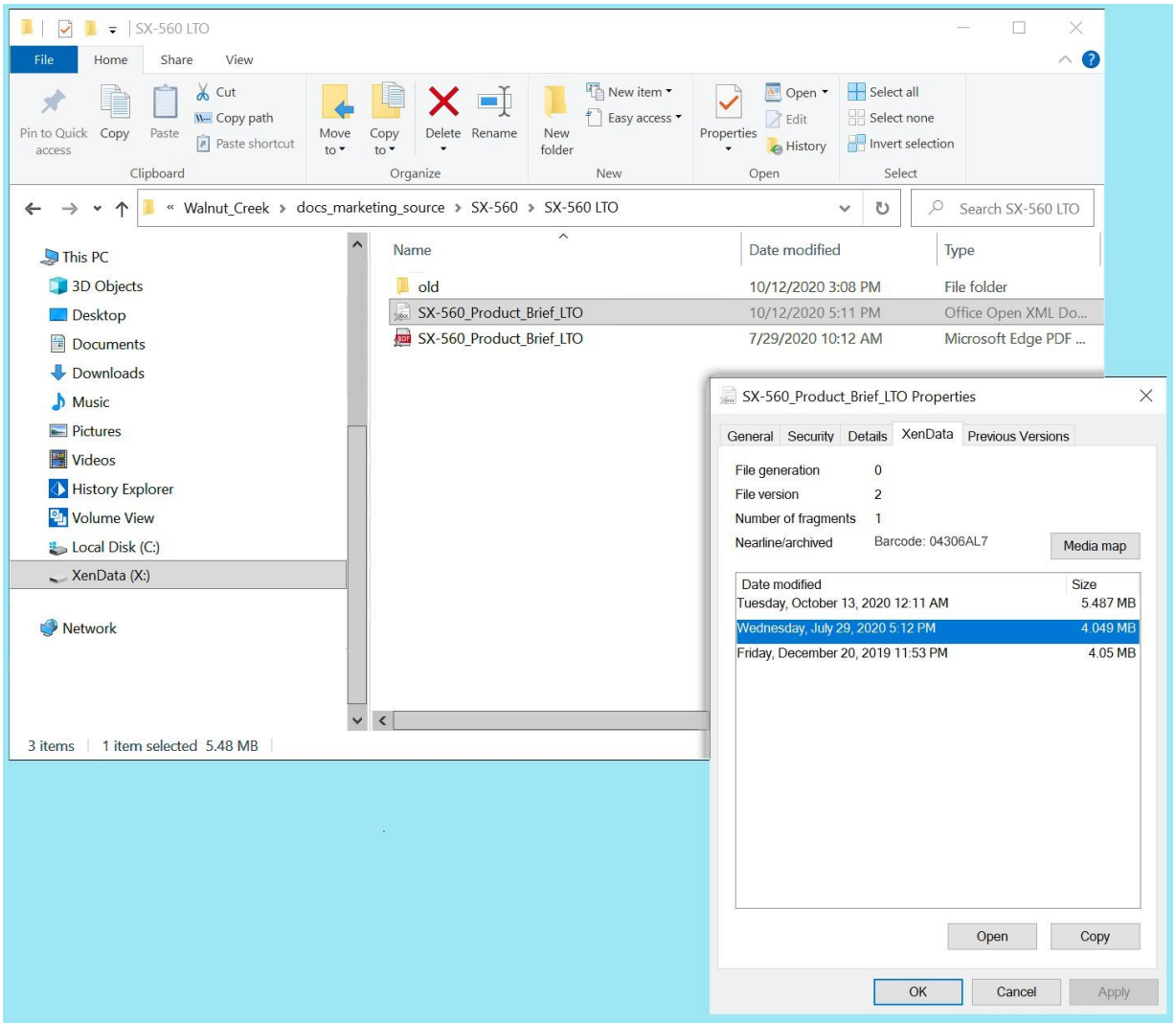


Third party applications that use a XenData API may also access information about offline cartridges and display barcode information within the application user interface.

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 Archive Series software allows access to these deleted files and old file versions using its extension to Windows File Explorer.

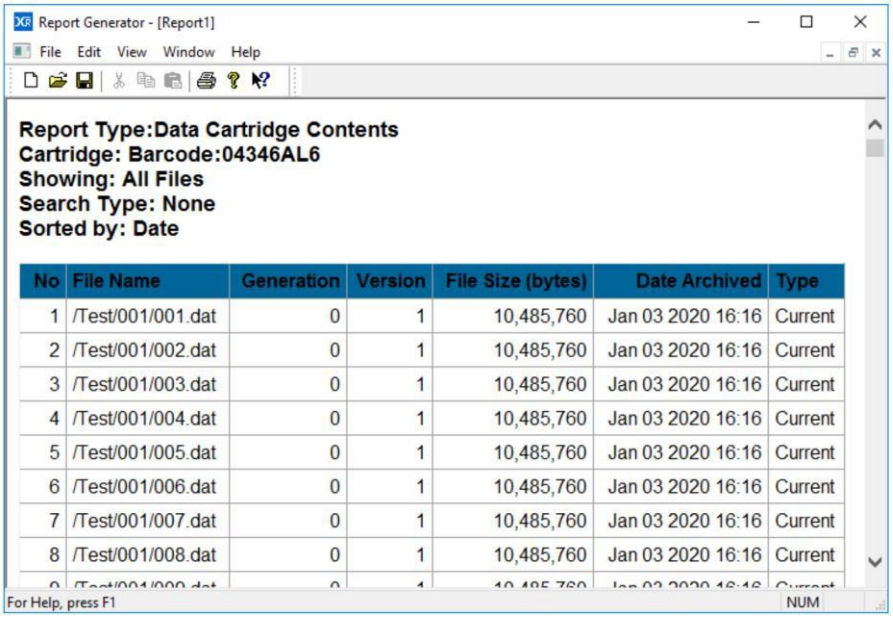
To access old versions of files that have been overwritten, a user can browse to the file using Windows File Explorer, right click, select ‘properties’ and the XenData tab to obtain a list of all file versions. The required old version can then be selected, copied and pasted into the file system.



A similar process is used to restore deleted files, but because they do not appear in the normal file system, Windows File Explorer has been extended to include a History Explorer view of the file system which includes deleted files. History Explorer is launched from the left pane of File Explorer as illustrated above.

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 text format is useful for exporting the results to Microsoft Excel or other applications.



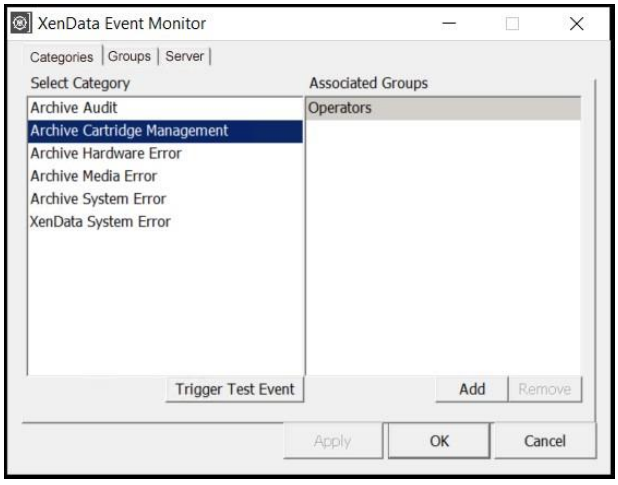
No	File Name	Generation	Version	File Size (bytes)	Date Archived	Type
1	/Test/001/001.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
2	/Test/001/002.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
3	/Test/001/003.dat	0	1	10,485,760	Jan 03 2020 16:16	Current
4	/Test/001/004.dat	0	1	10,485,760	Jan 03 2020 16:16	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

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 XenData software includes an Alert Module which characterizes these alerts and notifications into five categories:

- Archive Audit: This category of event messages describes the successful completion of routine operations.
- Archive Media Management: This category of event messages may require routine action from the archive operators.
- Archive Media Error: This event category consists of error messages associated with LTO cartridges.
- Archive Hardware Error. This event category consists of error messages associated with the LTO library and drives.
- Archive System Error: This event category consists of error messages associated with a system problem.

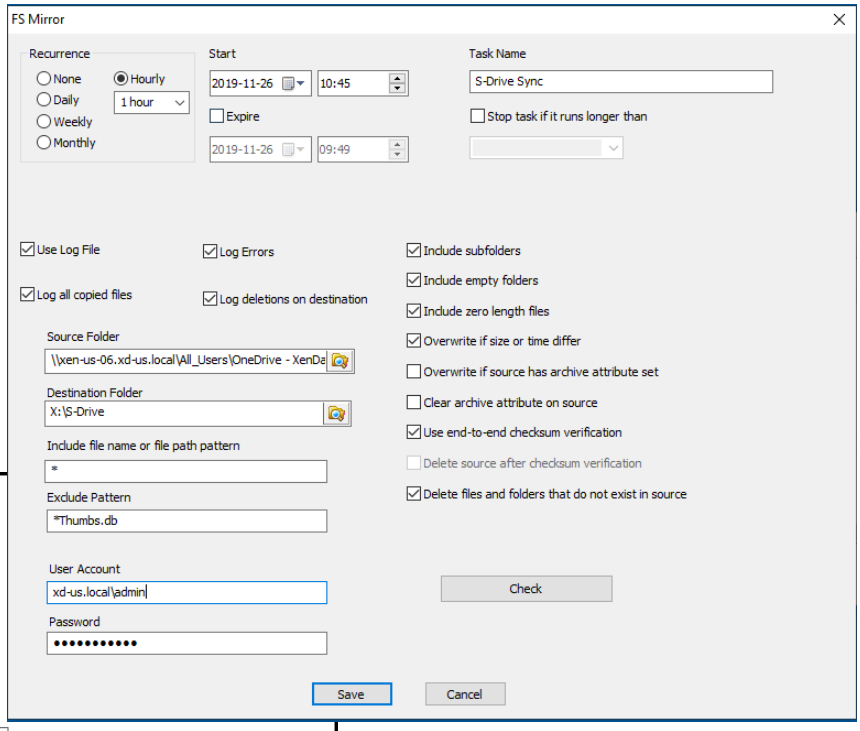
The XenData Alert Module provides email alerts to designated groups of recipients. The messages received by the different groups may be tailored to their specific needs. For example, operators may receive messages related to Archive Media Management, such as notifications related to management of externalized LTO cartridges. Whereas another group of support engineers may receive media, hardware and system error messages. In addition to sending email alerts, the system may be configured to provide on-screen notifications.



FS Mirror Option: Sync Local & Network Storage

FS Mirror, a XenData utility that provides file-folder synchronization and mirroring of any local or network storage, is an optional upgrade. You can schedule tasks to sync any accessible file-folder structure to LTO.

FS Mirror tasks are easily configured using the User Interface illustrated opposite.



Task Performance

Start Time/Date:	9:45:00 AM 11/26/2019
Stop Time/Date:	9:47:39 AM 11/26/2019
Volume of Data Copied:	691 KBytes
Average Transfer Rate:	43 KBytes/s

Task Summary

Total number of files processed on source	50454
Files successfully copied	5
Files skipped due to error	0
Other files skipped	50449
Number of files deleted on destination	1

Errors

None

Files Deleted on Destination

X:\S-Drive\Companies\N-Z\Invoices\Inv US19xxx Oct14-19 - PO 2Checkout.pdf

Files and folders copied

\\xen-us-06.xd-us.local\All_Users\OneDrive - XenData\Shared with Everyone\Sales\Companies\N-Z Services\Invoices_POs\Inv US19555 - Jul15-19 - PO 2Checkout-PAID.pdf

\\xen-us-06.xd-us.local\All_Users\OneDrive - XenData\Shared with Everyone\Sales\Companies\N-Z Foundation\Invoices\Inv US19803 Nov04-19 - PO 2Checkout-PAID.pdf

\\xen-us-06.xd-us.local\All_Users\OneDrive - XenData\Shared with Everyone\Sales\Companies\N-Z Foundation\Invoices\Inv US19803 Nov04-19 - PO 2Checkout.pdf

\\xen-us-06.xd-us.local\All_Users\OneDrive - XenData\Shared with Everyone\Sales\Full_Access\LatinAmerica\Companies\Quotes\LEE191126-1.pdf

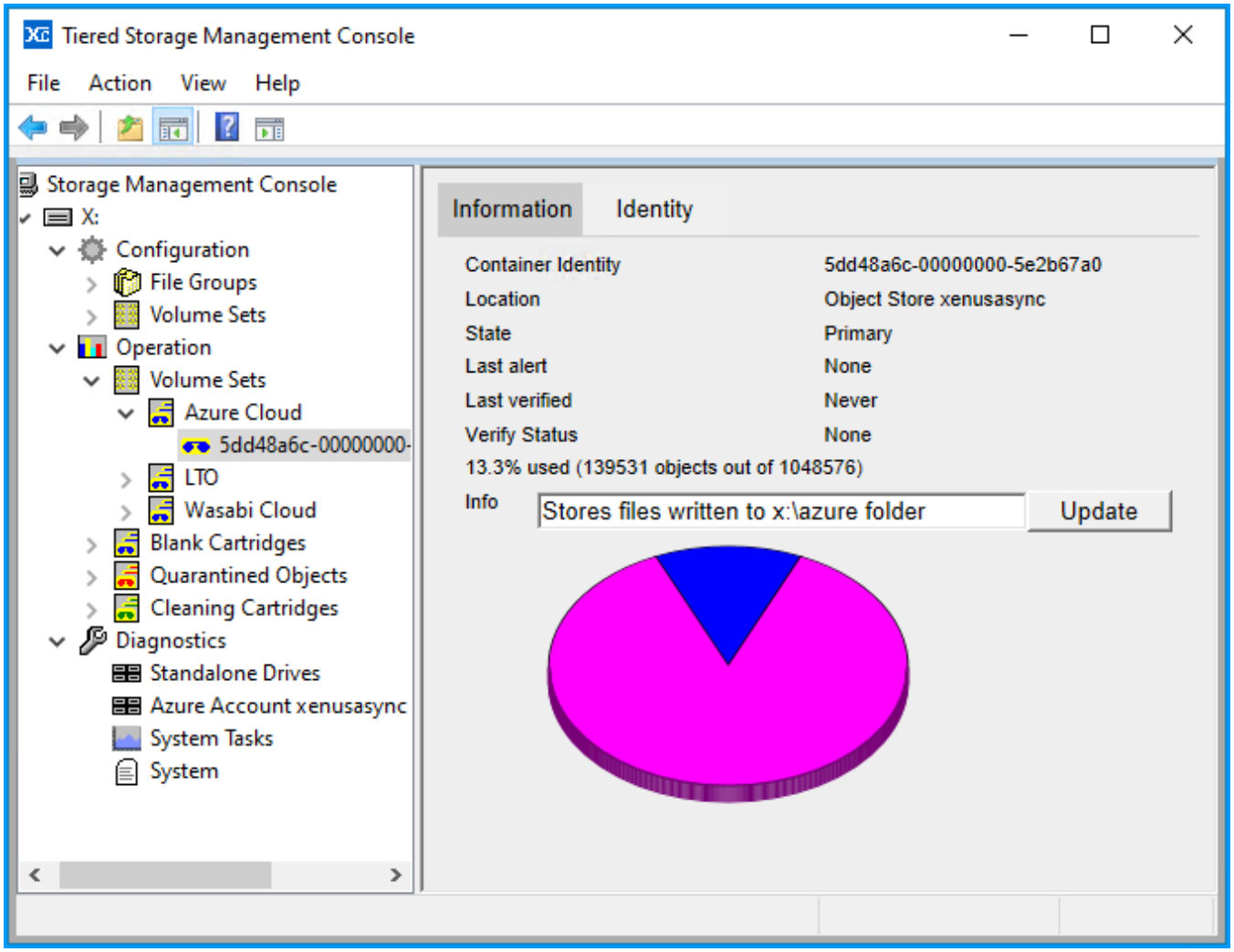
\\xen-us-06.xd-us.local\All_Users\OneDrive - XenData\Shared with Everyone\Sales\Full_Access\LatinAmerica\Companies\Quotes\LEE191126-2.pdf

By enabling logging for an FS Mirror task, a log report is created each time the task is run. This can list all files copied, all deleted files and any files that were skipped due to being open. An example log report is shown above.

Cloud File Gateway Option

The Archive Series software that runs on the X20-S may be extended to manage cloud object storage in addition to an LTO library. The cloud connection is secure, using HTTPs, and fast, using multipart uploads and downloads. It is optimized for video files, supporting partial file restores and video streaming.

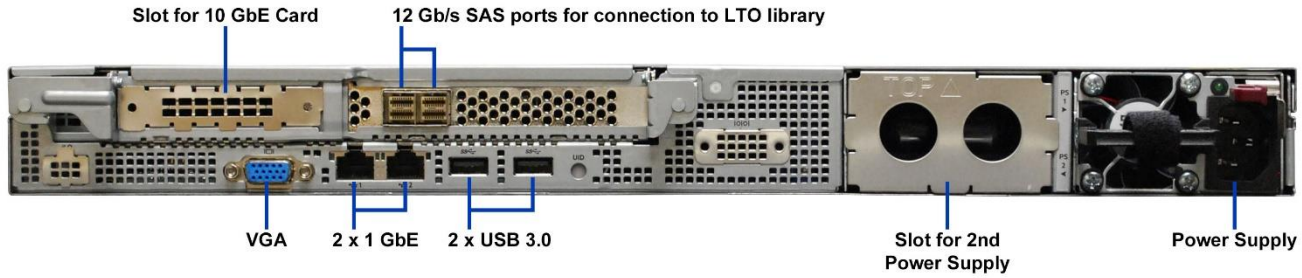
After installing and licensing the Cloud File Gateway Extension software, the tiered storage management policies support archiving to object storage or LTO.



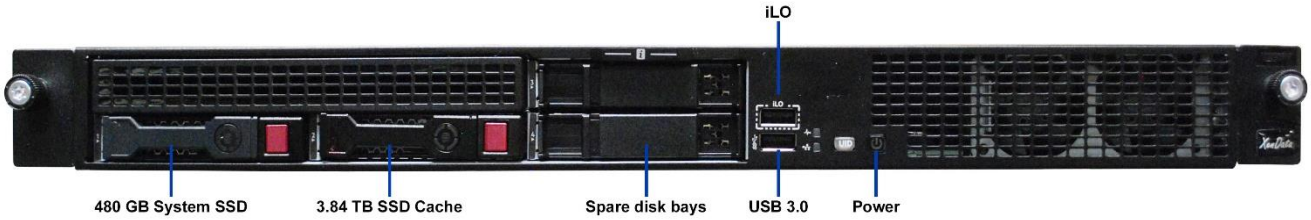
Supported cloud storage includes AWS S3, Azure blob storage and Wasabi S3. The system is multi-cloud, simultaneously supporting multiple cloud object storage accounts from different providers. And by adding FS Mirror, selected files and folders may be replicated across local LTO and one or more cloud object storage accounts. This creates a cloud copy of the content stored locally on LTO. The content copied to the cloud may be part of your disaster recovery strategy or simply a way to share content with remote users.

Connections

Rear



Front



Base System Specification

XenData Part Number: 239008

Management Software:	XenData Archive Series software, LTO Server Edition and XenData Alert Module
Supported LTO library configuration:	A single LTO library with up to 25 active slots and one LTO drive is supported. The XenData software license may be upgraded to support up to two LTO drives and 50 library slots.
Operating System:	Microsoft Windows 10, Professional Edition
Processor:	4-core Xeon E Processor
RAM:	16 GB
Managed Local Disk Cache	3.84 TB SSD
System Disk:	480 GB SSD
Connections to LTO library	2 x SFF-8644 12 Gb/s SAS ports
Base Model Network Ports:	Two 1 GbE ports
Optional Additional Network Ports:	Two 10 GbE ports
Network Protocols:	CIFS/SMB and FTP
USB Connections:	Two USB 3.0 in rear; one USB 3.0 on front
Number of Power Supplies:	One | A second redundant power supply may be added.
Power:	100 – 240 V; 50 – 60 Hz
Peak Power Requirements:	500 Watts
19 Inch Rack Form Factor:	1U
Depth	15.05 inches (382 mm)
Weight:	17.4 lbs. (7.9 Kg) maximum
Rack Rails:	Included

Upgrade Options

Hardware Upgrades

XenData Part Number	Description
107349	Additional 500 W redundant power supply for X20-S.
239009-0	Additional 3.84 TB cache SSD configured in RAID0
239009-1	Additional 3.84 TB cache SSD configured in RAID1 (mirrored)
239010-1	Additional 480 GB system SSD configured in RAID 1 (mirrored)
101049	Dual port 10 GbE SFP+ network adapter pre-installed in the X20-S. Optical transceivers (SKU 101081) not included.
101081	SFP+ 10 Gb/s LC Short Range Transceiver for insertion in SKU 101092. Quantity 2 required to use both 10 GbE ports in the adapter.
101145	Dual port 10 GbE network adapter pre-installed in the X20-S. For use with CAT6 or UTP cabling.

Software Upgrades

XenData Part Number	Description
X20-S-2DRIVE-LM	Perpetual software license upgrade for the X20-S to support a library with two LTO drives. Includes 12 months support for the upgrade.
X20-S-25/50-LM	Perpetual software license upgrade for the X20-S to support a library with up to 50 slots. Includes 12 months support for the upgrade.
X20-S-FSM-LM	FS Mirror perpetual software license and 12m support for use on an X20-S Archive Appliance.
X20-S-WF-LM	Workflow API perpetual software license and 12m support on an X20-S Archive Appliance.
301016	Subscription for XenData Cloud File Gateway Extension for 12m as below. Maximum Cloud Object Storage Capacity: 10 TB Note: an object storage subscription from a cloud storage provider is required in addition. Please refer to the XenData web site for supported cloud storage providers.
301017	Upgrade of subscription for XenData Cloud File Gateway, adding the following: Increase in Max Cloud Object Storage Capacity: 10 TB Term: 12 months

Contact Us

XenData USA: Walnut Creek, California | +1 925 465 4300
XenData Europe: Cambridge, UK | +44 1223 370114
Email: xendata@xendata.com | Web: www.xendata.com

Last Updated: Jan 5, 2022