



# Product Brief

## XQ8 Automated Offline LTO Archive



**Network**

### Highlights

- ✓ Manage unlimited offline LTO cartridges
- ✓ Scale to multiple petabytes – cost-effectively
- ✓ Connect to your network, access as SMB share
- ✓ Obtain excellent ransomware protection
- ✓ Use barcodes to easily keep track of offline cartridges
- ✓ Avoid need for time-critical human intervention
- ✓ Automatically create replica cartridges
- ✓ LTFS interchange format for rewritable LTO cartridges
- ✓ Supports immutable WORM cartridges for compliance



## Introduction

The XQ8 is a turnkey archive system that is licensed to manage an unlimited number of offline cartridges. It includes an intelligent appliance and a small robotic library. It is much easier to use than a system with only an external LTO drive. The main benefits relative to an external drive are:

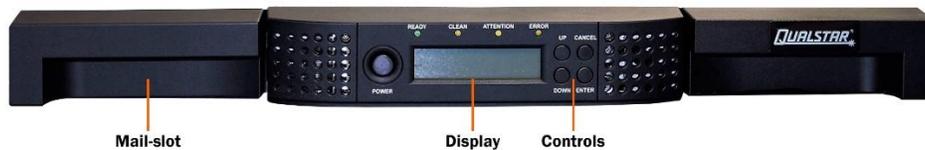
- Full cartridges are unloaded from the LTO drive automatically by the library's robotic mechanism and the system then loads a new cartridge into the drive and continues writing to it. There is no need for an operator to be present for continued operation; the system will jump to the next cartridge without human intervention.
- The robotic library includes a barcode reader which tracks every LTO cartridge. This avoids having to name each cartridge manually and avoids the possibility of human error.
- The system will automatically create replica LTO cartridges. Replicas can be held in a different location, providing very strong data protection.

The system scales very cost-effectively: the archive capacity is increased for the cost of the LTO cartridges. There are no additional license fees to manage additional cartridges.

The XQ8 combines a XenData X20 Appliance and a Qualstar Q8 LTO library which are described below.

## Robotic Library

The Q8 library is a 1RU rack-mount device that contains one LTO drive, seven active slots for LTO cartridges, a mail-slot for importing and exporting cartridges and a robotic mechanism for moving cartridges between the slots and the LTO drive. Additionally, it includes a barcode reader.



The mail-slot is used to import and export cartridges and can be opened using the front panel controls.

## Smart Appliance

The X20 Appliance is also a 1 RU rack-mount device that may be connected to your network and intelligently manages the Q8 library.



## Windows OS and Standard Security

The X20 runs a Windows 11 Pro operating system and is fully compliance with the Microsoft security model based on Active Directory. It may be added to an existing Workgroup or Windows Domain and accessed as a standard SMB network share. It can also be accessed locally.

## Importing and Exporting Cartridges

The Q8 has seven active slots. When the system is first received, we recommend importing six blank LTO cartridges with barcode labels attached and a cleaning cartridge. These are easily imported via the mail-slot which can be opened via the Q8 front panel. The blank LTO cartridges will be automatically recognized by the system and are then ready to be used. The cleaning cartridge will be automatically used by the XQ8 system from time to time when the LTO drive requires cleaning.

When LTO cartridges become full, they should be exported from the system and may be replaced with new blank cartridges as needed. The system will automatically initialize blank cartridges ready for use. Unlike a system which only has an external LTO drive, the timing for manual intervention is not critical. So long as there is available space on the LTO cartridges within the Q8, the system will continue to archive correctly.

## Writing to the Archive

The X20 includes a 20 TB disk cache that streamlines operations and enhances performance. Writing to the archive over a network is just like writing to a disk-based share.

When files are written to the network share, they are first written to the 20 TB cache and then written to LTO when the LTO drive in the Q8 becomes available. This means that you can be restoring files and writing to the archive at the same time. Because written files are buffered on the 20 TB cache, there is no need to wait for the drive to come free to be able to write to the archive. Multiple streams of files can be written simultaneously or simply a single file may be written. As soon as the LTO drive is available, the contents of the cache are written to LTO whether the cache contains one file or many files.

The system is typically configured to convert the full files held on the cache to stub files as soon as they are written to LTO. The stub files have the same file name, path and attributes as the full files, with one exception: the Microsoft offline attribute is set. This tells a Windows network not to timeout if there is ever a long delay in restoring a file.

When an LTO cartridge becomes full, the system will automatically unload it, then load a blank cartridge into the LTO drive and continue writing to it. There is no need for manual intervention when a cartridge becomes full.

## Restoring from the Archive

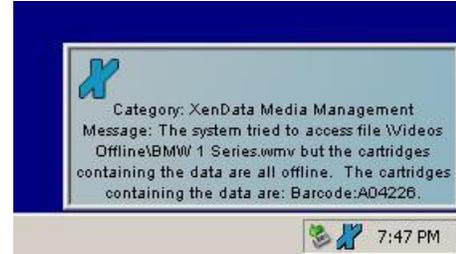
It is easy to restore a file from the archive, no matter where it is stored. There are three possible storage tiers:

- Online - the full file is online on the 20 TB cache.
- Nearline - the 20 TB cache stores a stub-file, and the full file is nearline on an LTO cartridge in the Q8 library.
- Offline - the 20 TB cache stores the stub-file, and the full file is offline on an LTO cartridge that has been exported from the Q8 library. (Note: even when a file is on an offline LTO cartridge, the file appears in the archive network share with the same path and file name. The file is represented by a stub-file in the archive network share.)

The system behaves as follows in these three cases:

- Online – the file is restored immediately from the 20 TB cache
- Nearline – the network read request causes the system to automatically load the LTO cartridge that contains the requested file into the LTO drive and then automatically restore the file. From a user's perspective, this is just like restoring from disk but with a delay of one or two minutes.
- Offline – the archive system responds to the read request with a standard network command identifying that the file is not available. The XQ8 will then issue an email alert and present an on-screen message that identifies the requested file and the barcode label for the LTO cartridge that contains it. An operator can then import the specified LTO cartridge into the Q8 library to bring the file nearline and the read request should then be repeated.

An example of the on-screen message is shown opposite. This identifies the barcode of the LTO cartridge that should be imported into the Q8 library to bring the file online.



## Replicate LTO Cartridges

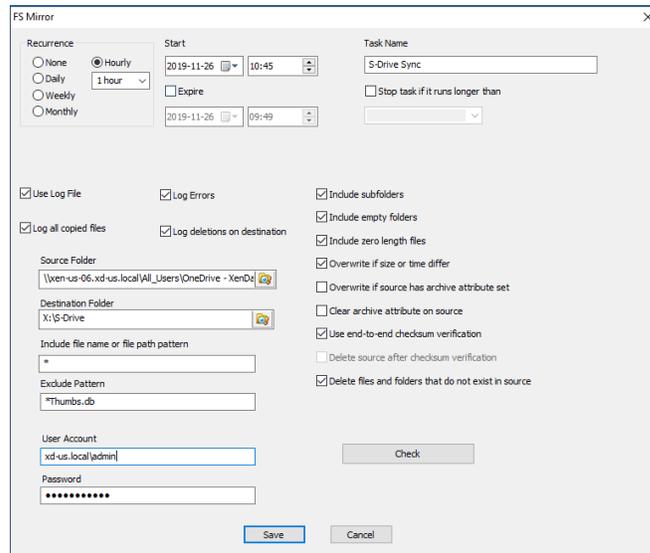
The system may be configured to automatically replicate cartridges using the XenData Management Console. The replica cartridges will be updated on a schedule. After the update, all the cartridge replicas contain the same files.



## FS Mirror Syncs Local & Network Storage

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

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



## Useful Reports

The XQ8 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 X20 monitors error messages issued by the Q8 library, creating alerts and notifications which are logged in the Windows Event Log. 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.

## Strong Ransomware Protection

The XQ8 system maintains all versions of all files on LTO data tape, including for deleted files. If ransomware gets as far as over-writing any file with an encrypted version, the original version is still stored on LTO. The XenData support team is then able to roll back the system to a state just before the attack occurred and make all the original files available, just as they were prior to the attack.

A second level of defense is intrinsic to all the content that is held offline. The offline LTO cartridges are air-gapped and consequently immune from cyber-attack.

## Available Models

The XQ8 is available in two base models with either an LTO-8 or LTO-9 drive.

XenData Part Number	Drive Type	Compatible Cartridges (native capacities without compression)
241119	LTO-9	18TB LTO-9   12TB LTO-8
241118	LTO-8	12TB LTO-8   6TB LTO-7

## Additional Options

Additional options are available for the XQ8 including XenData Media Portal and XenData Cloud File Gateway.

### Media Portal

The XenData Media Portal option is ideal for archives with image or video files. It adds a web interface that can be accessed remotely or on-premises. It allows a user to browse or search the archive file-folder structure and see previews of video and image files within the selected folder. An authorized user can also use the portal's web interface to download any selected file. By previewing files, users can be sure that they are selecting the correct content before restoring.

### Cloud File Gateway

By adding XenData Cloud File Gateway, 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 a disaster recovery strategy or simply a way to share content with remote users.

## Base System Specification

### Library Q8

LTO Drive:	One half-height SAS drive   IBM LTO-7, LTO-8 or LTO-9
Number of Slots:	7 active slots   1 mail-slot
Power Supply:	100-240V; 50-60 Hz   80W
19-inch Rack Form Factor:	1 U
Depth:	740 mm (29.1 inches)
Weight:	11.3 Kg (25 lbs)

### X20 Appliance

Management Software:	XenData Archive Series software, LTO Server Edition, licensed to support an 8-slot LTO library   XenData Alert Module   FS Mirror
Operating System:	Microsoft Windows 11 Pro
Processor:	4-core Xeon
RAM:	16 GB
System Volume:	960 GB SSD
Cache Disk:	20 TB 7,200 rpm HDD
Connections to SAS library:	2 x SFF-8644 12 Gb/s SAS ports for connection to SAS LTO drives within the library.
Base Model Network Ports:	4 x 1 GbE ports
Network expansion slots:	OCP 3 at rear. See hardware upgrade options.
Network Protocols:	CIFS/SMB
USB Connections:	Four USB 3.2 in rear   One USB 3.2 in front
Video Interfaces:	VGA and Display Port on rear
Number of Power Supplies:	One
Power:	Single 290W power supply   100-240V; 50-60 Hz
19 Inch Rack Form Factor:	1U
Depth	387 mm (15.25 inches)
Weight:	9.5 Kg (20.95 lbs)

## Network Upgrade Options for X20

XenData Part Number	Description
239017	Dual port 10 GbE Base-T network adapter for use with CAT6 or UTP cabling. Uses the OCP 3 slot.
239016	Dual port 10/25GbE SFP+ Adapter. Uses the OCP 3 slot. Does not include transceivers. (SKU 101081 or 101172) not included.
101081	SFP+ 10 GbE Transceiver. Quantity 2 required to use both ports in a dual port adapter. Suitable for use with item 239016.
101172	SFP28 25 GbE Transceiver (JL484A Compatible). Quantity 2 required to use both ports in a dual port adapter. Suitable for use with item 239016.

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