



COLDSTORE
SURVEILLANCE STORAGE SYSTEM



The World's First Storage System Designed Specifically for Digital Video Surveillance

- Massive 45TB capacity using only 50 watts
- NAS System incorporating L.A.I.D.™ technology for high disk reliability
- No data loss on disk failure and no rebuild required
- Sequential recording system (SFS™) uses hard disks like video tapes
- Extreme reliability even with the lowest cost disk drives
- Uses any mix of SATA drive make, model and capacity
- Simple and straightforward end-user disk management
- Instant evidence seizure/transport by disk removal at any time
- Individual disks playable on standard PC via USB



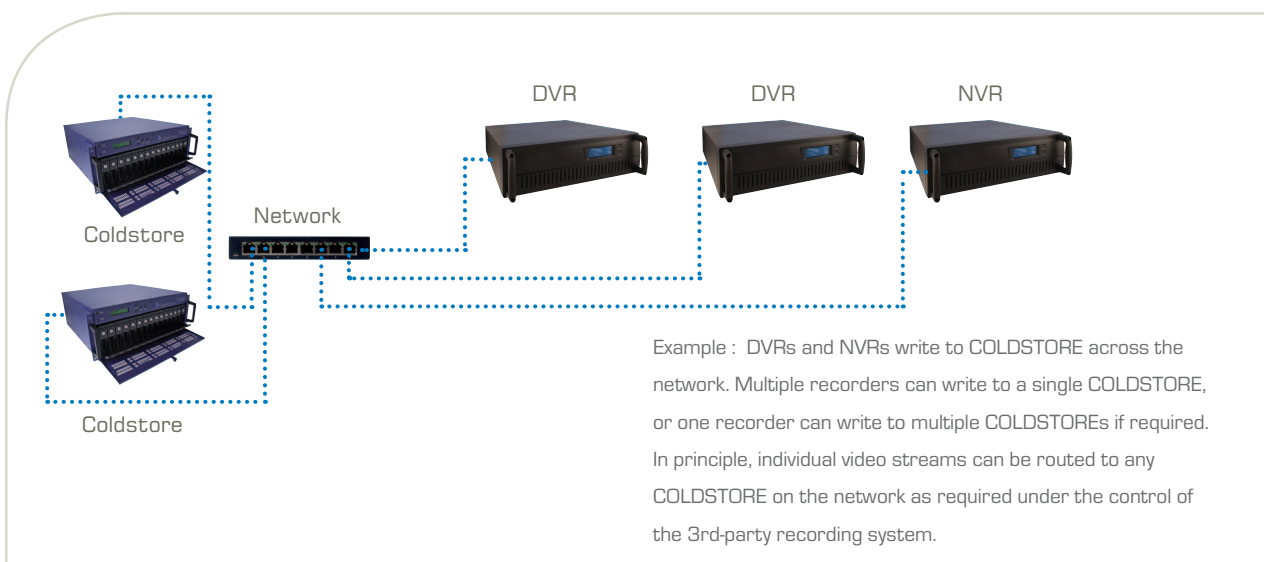
COLDSTORE is a Network Attached Storage (NAS) array which has been designed from the ground up specifically for video surveillance storage, developed using a back-to-basics approach.

Whilst simple in concept, this delivers a highly reliable storage system even when using the lowest cost hard disks available. Our Linear Array of Idle Disks (L.A.I.D™) technology combined with a unique Sequential disk Filing System (SFS™) produces a powerfully simple system which can provide massive capacity at low cost. COLDSTORE uses only one-tenth of the power of comparable systems, is resilient to disk failure, requires no disk rebuild process and dramatically reduces running costs. It provides an easy way to instantly extract and transport critical evidential video data.

Disks are used sequentially, with all disks not in use being switched off, saving power and thus dramatically reducing temperature, vibration and wear – the three primary disk killers. The system uses a unique mirrored overlapping-pair writing pattern to provide full data redundancy during the critical writing process, but not requiring twice the number of drives of fully-mirrored RAID1 systems.

COLDSTORE exploits the fact that only 3% of video data is ever replayed, and so every disk is off (on average) for 87% of the time. SFS™ controls the disk read/write heads, moving them across the disk very much like a vinyl record player, virtually removing disk vibration. Combining LAID™ and SFS™ together with a custom-designed low-power main CPU board results in a disk array which hardly needs any cooling at all, and uses as little as 50 watts even with a fully populated 45TB array.

As there are times when it may be necessary to run all the drives simultaneously for an extended period (e.g. during a mass search, archive and replay process), COLDSTORE is designed to handle this with ease, incorporating a well-specified power supply (with dual hot-swappable PSU option) and temperature-controlled chassis cooling fans.





COLDSTORE can use any make and size of SATA disk and indeed any mix of disks. Disks may be added “on the fly” and will automatically be incorporated into the array. Disks may also be extracted at any time, and due to the strictly sequential writing pattern, the recorded time-span of any disk may be displayed on the front panel. See the example below.

This allows simple physical location (and extraction) of any particular recording for evidential purposes. Such simple, yet powerful features allow the disks in the array to be easily managed by the end users themselves.

In addition to the mirrored overlapping-pair mode, COLDSTORE can also operate in single sequential disk mode and sequential full mirrored-pair mode as required. These modes of operation still benefit from the power-saving, low temperature, low vibration and low wear features of LAID and SFS, including simple disk management and instantaneous extraction of evidence.

Front Panel Menu Example Disk 3 Time Span Display.

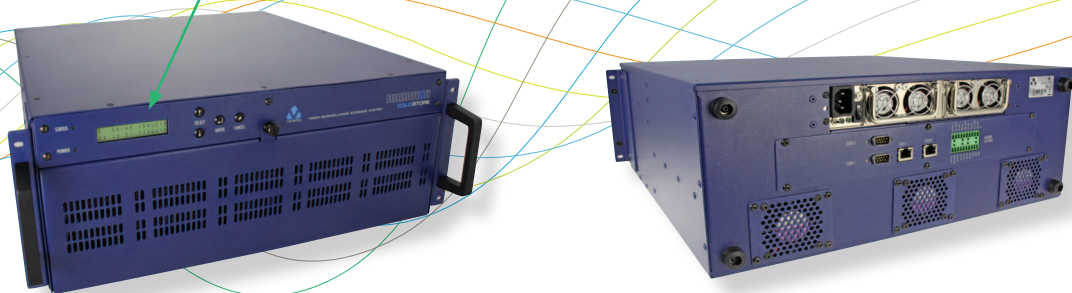
D			0	8	:	4	5		1	5	A	U	G	1	0
0	3		1	9	:	2	1		1	7	A	U	G	1	0

Veracity provides a simple SDK to DVR/NVR manufacturers who wish to provide their end users with the benefits of COLDSTORE. Direct control of COLDSTORE via a defined network protocol is an alternative method of integration. COLDSTORE is supplied with a PC client management application.

Array management may also be done directly via front-panel controls. The front panel is also used to show array status, disk capacities, disk time span and IP address.

Veracity is working with many Video Management System companies to ensure full COLDSTORE integration support. Please check our website for the latest information and for a list of the currently supported partners.

Rear view (below) showing dual Gig-E ports, alarm/relay connections and the dual hot-swap PSU option. Note that the three cooling fans are software controlled and are normally switched off.



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Technical Specification:

Storage Array Type :	NAS server running L.A.I.D.™ with SFS™ disk filing system
Interface :	Dual Gigabit Ethernet
Data throughput :	320Mbit/sec (unlimited scalability with multiple CS units)
O.S. :	Embedded Linux on Compact Flash
System Control :	Direct from 3rd party client application (SDK & network protocols available)
Configuration :	Over LAN via Veracity client application or 3rd party client application
Management :	By front panel, or over LAN via Veracity client app. or 3rd party client app.
Drive Bays :	15 x 3.5" (lockable cradles included)
Max. Capacity (with 3TB disks) :	Raw – 45TB Effective – 39TB (Normal COLDSTORE mode) Effective – 45TB (Single sequential mode) Effective – 21TB (Sequential full mirrored-pair mode)
Alarm Relays :	4 (software configurable – e.g. disk fail, disk inserted, disk extracted, PSU fail, etc.)
Alarm Inputs :	4 (software configurable – e.g. UPS active, power down, start fans, etc.)
Power Consumption :	42 to 62 watts average (single PSU) 59 to 74 watts average (dual hot-swap PSU)
Power Supply Rating :	320W
Time Synchronization :	via NTP (recommended)
Dimensions :	19" rack width, 4U high, 440mm deep
Weight :	22kg
Partcodes :	CSTORE15-4U-S COLDSTORE 15-Bay 4U - single power supply CSTORE15-4U-D COLDSTORE 15-Bay 4U - dual hot-swap power supply



Veracity USA Inc.
Tel/Fax : 1-800-679-1590
www.veracityglobal.com
sales@veracityusa.com

Veracity UK Ltd
Tel +44 1292 264967
Fax +44 1292 263127
www.veracityglobal.com
sales@veracityuk.com