

EMBEDDED VMS STORAGE SYSTEM
COLDSTORE®
4U | 48 DW



Application | COLDSTORE 4U 48 DW delivers enterprise recording performance

COLDSTORE 4U 48 DW with embedded DW Spectrum video management system

The powerful DW Spectrum VMS combined with the massive storage capacity of COLDSTORE 4U 48 DW sequential recording and extreme disk reliability provide a unique CCTV recording solution in a single box.



- | Integrated DW Spectrum server and storage system
- | Up to 256 full HD channels at 30 FPS per channel
- | Up to 1248TB capacity using only 175 watts
- | Incorporates COLDSTORE LAID™ and SFS™
- | Fully-featured, powerful DW Spectrum VMS
- | DW Cloud option for mobile device access

Embedded DW Spectrum transforms COLDSTORE into a fully-featured video management system server

DW Spectrum is one of the most powerful and easy-to-use VMS software solutions available. Combined with COLDSTORE this unbeatable duo offers high performance and low TCO.

Veracity - Digital Watchdog Partnership

Veracity and Digital Watchdog are technology partners and together offer a one box solution for video management and IP video storage. DW Spectrum has developed into one of the most powerful, easy-to-use and cost-effective video management systems available. DW Spectrum embedded in COLDSTORE provides the optimum combination for high performance video surveillance recording and management.

DW Spectrum Architecture

The DW Spectrum system consists of four components - desktop, server, cloud and mobile. The desktop component is the client application which can run on any PC system (Windows, Mac or Linux). The server component is effectively the VMS engine, which in this case runs inside the COLDSTORE storage system.

The cloud component enables simple remote connectivity, streaming, and management of one or an unlimited number of DW Spectrum installations, whilst the mobile application allows users to view, control and playback cameras on tablets or smartphones.

DW Spectrum Desktop Client

The DW Spectrum Desktop application is a rich media player with a flexible GRID interface, unmatched speed and responsiveness, instant notifications, an embedded browser, and a user experience unlike any other video management software.

All features are available on every system, stand-alone or enterprise, providing a consistent user experience on all sites.

DW Spectrum Server

The DW Spectrum server auto-discovers 99% of known IP cameras and is ONVIF S and T compatible, including H.265 support. Dual (hi-res and low-res) streams enable adaptive scaling for DW Spectrum displays using minimum bandwidth. A hive architecture synchronizes user settings and system configurations between all local servers. Combined with automatic failover protection, this ensures a resilient system with no single point of failure in multiple server installations.

DW Spectrum Cloud

Administrators can connect systems to DW Cloud for easy merging and management of remote sites. All video and communications are encrypted for secure access, which can be shared easily with other users. DW systems can be accessed from anywhere, via DW desktop or mobile clients.

DW Spectrum Mobile Client

DW Mobile is a low-latency client application for iOS and Android which provides remote viewing, PTZ control, fisheye dewarping, playback and smart searching from a smartphone or tablet. Connecting with encrypted links via DW Cloud, it provides secure access to an unlimited number of DW systems, with live thumbnails and remote system control.

DW Spectrum Feature Set

- | Flexible grid user interface
- | Advanced EDGE analytics support
- | Easy bookmarking and export
- | Bitrate throttling
- | Camera hotspots
- | Enhanced export
- | Advanced PTZ control
- | Advanced user management
- | Archive integrity check
- | Adaptive video scaling
- | Fast search and smart search
- | Manual event triggers
- | Two-way audio support
- | Event rules engine
- | Optimized update process
- | Universal fisheye dewarping
- | Custom video watermarking
- | Virtual camera support
- | Webcam support
- | Notifications panel
- | IP camera auto-discovery
- | ONVIF S and T support
- | H.265 support
- | Server hive architecture
- | Automatic failover
- | Encrypted video
- | Synchronization of configurations
- | Encrypted cloud connections
- | Mobile device support
- | Unlimited scalability
- | Shared access
- | Cloud client system
- | Low latency
- | Live thumbnails
- | No recurring license fees
- | Analytics object search via mobile
- | Video source SDK
- | DW Server API
- | Metadata SDK

Full integration development tools are available for DW Spectrum

COLDSTORE features combined with DW Spectrum Pro license model deliver the ultimate in low TCO



Rear view (above) showing the 1gigabit and 2.5 gigabit Ethernet ports, dual hot-swap power supplies and mirrored hot-swap solid-state OS disks.

COLDSTORE Technology

Our Linear Array of Idle Disks (LAID™) and vibration-free Sequential Filing System (SFS™) deliver a powerfully simple storage system for resilient video surveillance. This makes COLDSTORE an ideal server/storage platform for DW Spectrum, with up to 1222TB effective storage capacity (using 26TB disks, see capacity table under Technical Specifications).

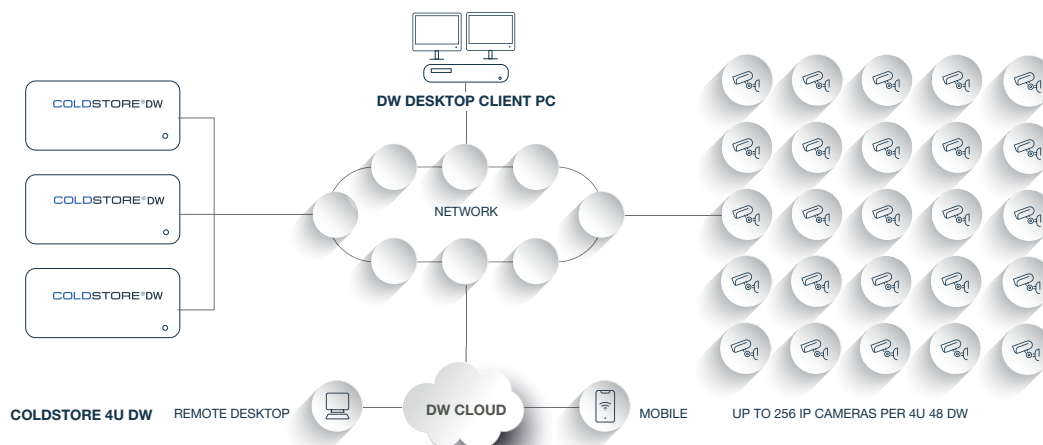
Extended Disk Lifetimes

COLDSTORE disks are used sequentially, saving power and greatly reducing temperature, vibration and wear - the three primary disk killers. Combined with SFS, this greatly extends disk lifetimes. COLDSTORE uses a mirrored overlapping-pair writing pattern which delivers the redundancy of RAID1 on write, but unlike RAID1 does not require twice the number of disks.

Low Power, Low TCO

All COLDSTORE models offer very low power consumption with minimal cooling costs and lower UPS backup power costs. When combined with the one-time license fee model for the embedded DW Spectrum VMS software, the overall Total Cost of Ownership of the COLDSTORE 4U DW 48 Bay solution is dramatically reduced for the end-user.

COLDSTORE 4U 48 DW APPLICATION DIAGRAM



Single or multiple COLDSTORE 4U 48 DW servers may be used with single or multiple client workstations.

Workstations may be Windows, Linux or Mac and may be local or connected remotely through DW Cloud.

DW Cloud also supports access via iOS or Android mobile devices.

STORAGE PERIOD VERSUS CHANNEL COUNT

TB REQUIRED	2Mbps per Channel				4Mbps per Channel				6Mbps per Channel			
Channels	32ch	64ch	100ch	256ch	32ch	64ch	100ch	128ch	32ch	64ch	100ch	120ch
60 days	2U DW	2U DW	2U DW	3U DW	2U DW	2U DW	3U DW	3U DW	2U DW	3U DW	428TB	513TB
90 days	2U DW	2U DW	3U DW	547TB	2U DW	3U DW	428TB	547TB	3U DW	411TB	642TB	770TB
180 days	2U DW	3U DW	428TB	1095TB	3U DW	547TB	855TB	1095TB	411TB	821TB	1219TB*	2x4U DW

Figures define effective storage capacity | Calculations made with 750Mbps maximum bit rate
Highest capacities assume use of 26TB drives *max capacity reached with 5.7Mbps per camera

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TECHNICAL SPECIFICATION

COLDSTORE®
4U | 48 DW**GENERAL**

System Type	Storage server with embedded DW Spectrum video recording system
Storage Array Type	COLDSTORE sequential storage system
Drive Bays	48 x 3.5" removable drive bays
Network Interface	Dual ports, 1 x 1 gigabit, 1 x 2.5 gigabit Ethernet ports
Power Supply	Dual hot-swappable

SYSTEM & SOFTWARE

Operating System	Linux OS on mirrored solid-state disks
Storage System	COLDSTORE firmware running L.A.I.D.™ and S.F.S.™
Embedded VMS	DW Spectrum VMS on solid-state disks
Time Synchronization	Via NTP (Veracity's TIMENET recommended)
Configuration & Management	COLDSTORE via SITESCAPE on Client PC DW Spectrum Server via DW Spectrum Desktop on Client PC

VMS SYSTEM

VMS Server Software	DW Spectrum (Linux version) - licensed per channel - Recording licenses not included Recording licenses are available from all DW Spectrum distributors in North America Integration API available
VMS Client	DW Spectrum (Windows/Linux/Mac for desktop, iOS/Android for mobile) - license free
Camera Channels	Up to 256 channels (including active VMD on secondary streams)
IP Camera Support	Auto-discovery plus manual add and remove
ONVIF	S and T supported in addition to native SDKs. H.265 compatible
Resilience	Server hive system - synchronization of user and configuration data on all units
Failover	Supported (with multiple COLDSTORE DW systems)
Scalability	Up to 100 servers supported

CAPACITY

Disk Type	SATA disks - almost all makes, models and capacities supported (including SMR)
Disk Capacity	Maximum available disk sizes supported
Array Capacity (Raw)	1248TB maximum array capacity (with 26TB disks)
Array Capacity (Effective)	1222TB in normal COLDSTORE mirrored overlapping-pair mode (with 26TB disks)

POWER

Power Supply Type	Dual-redundant hot-swappable PSU
Power Supply Rating	110-240V AC 50/60Hz Input (Auto sensing)
Power Consumption	175 watts typical maximum (PSU rated at dual 1200W)

PHYSICAL/ENVIRONMENTAL

Dimensions	19" rack width, 4U high, (W 447mm x H 176mm x D 818mm)
Weight	38.4kg (84.6lbs) (including mounting rails but without disks)
Operating Temperature	5°C to 40°C (41°F to 104°F)
Relative Humidity	Up to 85%, non-condensing
Compliance	CE, FCC, RoHS, UKCA, NDAA, TAA

PRODUCT CODES

CSTORE48-4U-DW-US	COLDSTORE 48-Bay 4U, embedded DW Spectrum VMS, dual PSU & US power cables
VTN-TN-PRO	TIMENET Pro device, Master GPS-based NTP time server
DW Spectrum Licenses	DW Spectrum VMS Recording Licenses are available from all Digital Watchdog Distributors in North America. *DW Pro License - No recurring annual fees and including free software upgrades (excluding major revisions)

Disk Size	TB	6	8	10	12	16	18	20	24	26
Raw Capacity	TB	288	384	480	576	768	864	960	1152	1248
Effective Capacity	TB	282	376	470	564	752	846	940	1128	1222



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