

XProtect Recording Server

Scalable, high-performance video recording server

The recording server is the foundation of XProtect video management software. It manages communication with cameras, encoders, audio devices, sensors and other security peripherals, handling all live and recorded video, audio, metadata and events. Storage can be extended internally or externally.

Performance and availability

Designed for high-performance

The recording server runs as a high-performance, native 64-bit Microsoft Windows® service. It supports a documented recording capacity of at least 3.1 Gbit/s, which equals about 700 cameras at 1080p using 4.4 Mbit/s each on a single server. Its core database is purpose-built for media storage, optimizing disk read/write operations to ensure fast, reliable video recording at scale.

Pre-buffer in RAM

To enable pre-event recording in conjunction with motion detection, alarms, etc., the recording server operates with a RAM-based pre-buffer. This optimizes the use of the physical disk, which increases the overall recording performance and extends the lifetime of disk drives, keeping maintenance and disk replacement costs low.

High-availability with server failover

High-security installations need uninterrupted access to video. The recording server can run as a failover server, acting as a backup to primary servers. There are two failover modes:

- **Cold standby** – A cost-effective option where one server, or a group of servers, can back up several primaries.
- **Hot standby** – A one-to-one pairing that delivers faster failover with minimal interruption to recording and live video.

Feature availability

These capabilities are fully supported in XProtect Corporate and Expert, and partially available in Professional+ and Express+. For full details, see the product specification sheets.

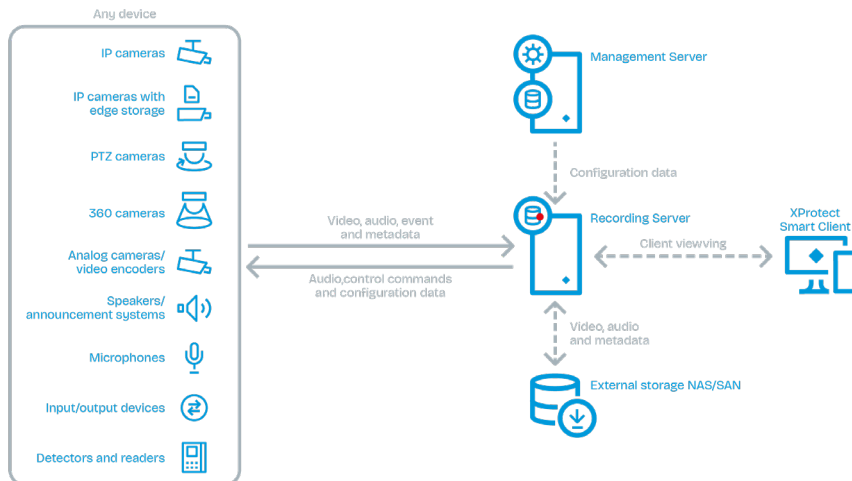
Key features

- Documented capacity of 3.1 Gbit/s means it supports hundreds of cameras.
- Move cameras between servers during live operation to balance workloads without downtime.
- Multistage storage enables low-cost storage media.
- Options to archive and clean up old or unnecessary files to reduce long-term video storage costs.
- Centralized device management reduces costs of daily operations
- Separate driver layer makes it easy to replace or update cameras without system disruption.
- Efficient use of disk drives minimizes maintenance and replacement costs.

Device compatibility

Open platform – supports almost any device

XProtect supports a massive range of cameras, sensors and devices worldwide. This ensures that partners and end customers can always build the video surveillance solution that meets their functionality needs and budget requirements.



Device drivers

The recording server uses device drivers to normalize communication between cameras or security devices and the server's internal logic. Dedicated drivers unlock advanced features, while standard ONVIF and Milestone universal drivers ensure broad compatibility. Drivers can be updated independently, allowing new devices to be added by simply updating the drivers.

Storage and scalability

Server scalability

The XProtect recording server is built for scalability. A single server can connect to hundreds of devices, limited only by system resources like CPU, RAM, and disk performance. By matching each server to its hardware configuration, you get the best performance-to-cost ratio. When more capacity is needed, more servers can be added. Centralized management of devices, storage, user rights, and system settings ensures easy expansion and efficient daily operations.

Device migration

The recording server allows moving individual or multiple devices between two servers while maintaining configuration and access to live and recorded video. This enables you to grow installations with additional cameras and devices, or optimize load distribution without interruption.

Multistage storage

Multistage storage technology allows video to be archived on internal or external platforms, including low-cost, high-density options like network-attached storage (NAS) for long-term video storage. To cut costs further, the system can lower frame rates at each archive stage. This grooming capability makes long-term video retention more affordable without losing critical video.

XProtect supports:

- 14,000+ devices
- Any ONVIF compatible device

For supported cameras and devices, please visit the [support section](#) on our website:

Recording and streaming

Scalable Video Quality Recording™ (SVQR)

SVQR combines edge and server-based storage for efficient, cost-effective video retention. High-quality video is stored at the edge, while a lightweight reference stream is recorded centrally. During investigations, operators can review the low-resolution video first and pull the high-quality recording from the edge when needed.

Dual stream recording

XProtect VMS supports dual stream recording, allowing two different streams from the same camera to be captured. Each stream is stored in its own media database, which provides flexibility but also increases storage load — similar to adding an extra camera to the system.

Adaptive streaming

Adaptive streaming reduces server load by delivering lower-resolution streams when high resolution isn't necessary. The XProtect Smart Client can select the right stream automatically, or users can choose manually. This conserves bandwidth, frees up network resources, ensuring smoother playback, and maintaining efficient server performance.

Security and compliance

End-to-end-video security

In high-security installations, it is critical to protect the integrity of stored video. To prevent undesired access and misuse of the recorded video it is possible to encrypt and password protect the recording.

To guarantee authenticity of the recordings, the recording server provides the option to digitally sign the recorded video. This digital signature also makes it possible to detect attempts to tamper with or manipulate the video recording.

Privacy protection and regulation compliance

Due to privacy or regulatory reasons, video surveillance may require the ability to hide certain regions of the camera view. Authorized personnel can apply individual privacy masks to the cameras in the system, which will be enforced consistently in live and playback video and in exported material.

Restricted video

The restricted video function limits access to selected live or recorded video and audio, ensuring only authorized operators can view sensitive material. Restricted content can still be deleted, and if it needs to be kept beyond the normal retention schedule, it can be preserved with Evidence Lock in XProtect Corporate.

Video processing

Video Motion Detection (VMD)

The recording server includes built-in VMD that works alongside any camera-based VMD. In addition to motion-triggered recording, it generates motion metadata that powers the Smart Search function in XProtect Smart Client. With Smart Search, investigators can instantly find all recordings with movement in a chosen area of the camera view — greatly speeding up tasks like tracing lost or stolen objects.

Video encryption

The recording server offers two levels of video encryption (light/strong).

Self-adjusting VMD

- The VMD in the recording server offers an optional automatic sensitivity control.
- Eliminates the need for manual adjustment both in initial setup and when environmental conditions change permanently.
- More robust and accurate analysis with less false detections, because the VMD adapts to changing light conditions.



About Milestone Systems

Milestone Systems is a world leader in data-driven video technology used in industries as diverse as manufacturing, airports, law enforcement, retail, and traffic management. We provide a clear picture of how to create a safer, better and more prosperous world. Our XProtect video management software, BriefCam AI-powered analytics, and Arcules cloud VSaaS help our customers learn from the past, understand the present, and predict the future. Founded in 1998 and headquartered in Copenhagen, Milestone employs more than 1,500 people worldwide and has been an independent company in the Canon Group since 2014. Visit milestonesys.com for more information.