SONY

HAW-E Series

Network Video Recorder –
Enterprise Edition

Overview

Ready-to-run, featured-packed, network video recorder for monitoring systems with up to 4096 cameras

Scalable from 16 to 100 channels, this versatile, featured-packed network video recorder is used for monitoring systems with up to 4096 cameras, which is ideal for large-scale monitoring and recording applications such as school districts, cities, and transportation. The HAW-E Series is the first 4K-ready NVR appliance from Sony with 4K recording and playback capability. It's ideal for use with Sony 4K cameras, supporting unique image output functions like Intelligent Cropping. Recording 4K image data with four times the resolution of Full HD, the HAW-E Series supports more effective, efficient video monitoring by providing excellent situational awareness plus the ability to recognise fine details in a scene and quick, accurate searches. Multiple users can simultaneously and securely access live or recorded video via their smartphone or tablet from any location. In addition remote PC clients can securely access system functions via a web browser, with no need to install application software. Multi-vendor support allows easy expansion through the addition of a growing choice of third party cameras and other devices to create a powerful, versatile monitoring system. Regular software updates give monitoring professionals the reassurance of top-flight performance and the addition of new features to expand

system capabilities even further. Monitoring workflow is enhanced with support for a wide range of smart analytical and automation functions. With all necessary server functions available, this hardware-based appliance gives integrators and installers the reassurance of guaranteed operational performance and stability, simplifying system design. A redundant disk array (RAID) further assures reliable operation and integrity of recorded data. Note The SOW-S and SOW-E Series network video management software and HAW-S and HAW-E Series network video recorders are not compatible with each other and cannot be used in the same system.

Features

Compatible with Sony 4K cameras

Sony 4K cameras provide powerful new ways to get the whole picture, allowing detailed analysis of specific areas in a scene, together with a wide-area situational overview. They offer a range of video output functions, including Intelligent Cropping and Multi Tracking, plus Evidence Shot, high resolution still image capture that's ideal for evidence. The HAW-E Series supports the video output functions unique to Sony 4K cameras, including a single real-time 4K/30 fps video stream and Intelligent Cropping that provides a Full HD overview video plus up to four VGA close-up video streams at the same time.

Multi-client access via smartphone or PC

Multiple users can simultaneously and securely access live or recorded video via their smartphone or tablet from any location. In addition remote PC clients can securely access system functions via a web browser*, with no need to install application software. Live images captured with a smartphone or tablet by on-site staff can be transferred to the system, shared among users in the operations room and recorded to the central server. This supports timely monitoring of events, even in extreme environments where installing cameras is difficult. * Web browser

supports limited functions, while client application software installed on a PC supports full system functions.

Get a more intelligent viewpoint

Smart Wall integrates a large number of monitors installed on the video wall. This advanced optional add-on video wall product improves operator's response time by displaying all video data to provide a complete overview of large monitoring centres. Operators can focus on the most critical matters and coordinate response activities because multiple users can be shown the same view.

All-round awareness

Interactive, multi-layered maps offer a situational overview plus control of cameras and other integrated systems. Icons are displayed in a map image showing the location of each camera: operators can instantly view live video by clicking on an icon. When an alarm event occurs, the associated camera icon is displayed prominently, helping the operator understand the situation and take appropriate action.

Fail-over data backup with Edge Storage

Video and audio data can be recorded directly onto a SD/microSD card attached to the camera. This can be used for fail-over data backup if the network connection is temporarily disconnected. Recorded data can be transmitted to network video recorders (NVR)/video management software (VMS) and merged with data saved on the NVR/VMS storage.

Highly reliable, redundant RAID HDD system

The HAW-E Series employs a highly resilient RAID disk array, providing excellent system reliability and redundancy.

Specifications	System components (software modules)

Recording Server	Yes
Number of connected cameras per system	4096
Maximum number of cameras per recording server	100
Recording Server manager	Yes
Management Server	Yes
Management Failover Server (redundant cluster)	Yes
Management Client(2) (dedicated client application for local or remote management)	Yes
Event Server (for handling of events and alarms)	Yes
Failover Event Server (redundant cluster)	Yes
NVMS Mobile Client	Yes

Network Video Management System Smart Client	Yes
Network Video Management System Web Client	Yes
Network Video Management System Smart Client - Player (local playback/export)	Yes

Device support

Support for ONVIF™ compliant devices	Yes
Generic device support via universal driver	Yes
Metadata from camera embedded analytics	Yes
Number of IP device brands supported via dedicated device	134

integration

Number of supported IP camera models	4844
Number of supported video encoder models	313
Number of dedicated IP input/output models	14
Number of supported DVRs	72
Number of supported IP audio devices	10
Number of supported perimeter detectors	18
Secure HTTPS camera connectivity (on supported devices)	Yes

Video processing

H.264, MJPEG, MPEG-4, MPEG-4 ASP and MxPEG support	Yes

H.265 support	Yes
Metadata support	Yes
Dual stream (live and recording) per camera	Yes
Multi-live streaming	Yes
Client video stream down sampling (resolution and FPS) option	Yes
Adjustable GOP size (MPEG4/H.264)	Yes
Edge Storage support with flexible retrieval	Yes
Send camera pre-alarm images (pre-recording buffer) to recording server	Yes
Video recording speed up on motion, event or time schedule	Yes
Built-in Video Motion Detection (VMD)	Yes

Auto adjustable VMD sensitivity	Yes
VMD exclusion zones	Yes
Video motion detections per server	All connected cameras

Audio	
One-way audio support	Yes
Two-way audio support	Yes
One-way audio recording	Yes
Two-way audio recording	Yes
Maximum number of supported audio channels	Unlimited

Pan-tilt-zoom (PTZ)	
Preset positions per camera	Unlimited

Go-to preset on event	Yes
Preset patrolling	Yes
Combine patrolling and go-to preset on event	Yes
Scanning/transition speed	Yes
Number of PTZ priority levels for prioritized PTZ control	3

I/O and events

Hardware configurable events (such as I/O input,motion,tampering,temperature,communication failure)	Yes
Motion detection events (VMD in Recording Server)	Yes
System error events (for example disk full)	Yes
Manual / User defined events	Yes
Generic events from external systems	Yes
Event-based device configuration	Yes
Event-based notification	Yes

Event-based output control	Yes
Event-based device start/stop	Yes
Event-based matrix control	Yes
Flexible event rule engine for definition of actions on events	Yes

Alarm Manager	
Alarm description and work instructions	Yes
Ability to assign initial owner of an alarm	Yes
Time profiles for alarms	Yes
View triggered alarms	Yes
Manage alarms (reassign, change status, comment)	Yes
Maximum number of related cameras in alarm preview window	15
Number of alarm priority levels	32000

Customizable alarm priority levels	Yes
Customizable sound notification	Yes
Customizable alarm categories	Yes
Customizable alarm statuses	Yes
Customizable alarm result codes	Yes
Alarm handling reporting	Yes
Alarm logging	Yes
Redundancy option for high availability	Yes

Storage and archiving

Pre-recording buffer in RAM	Yes
Video retention time	Unlimited
Recording capacity per device/day	Unlimited

Archiving of recordings	Yes
Archiving to network drives	Yes
Online access to archives	Yes
Archiving schedules	Hourly
Storage definition and retention time per device	Yes
Storage definition and retention time that can be applied to individual cameras	Yes
Common for multiple devices	Yes
Storage overview (used vs. available space) of available storage drives	Yes
Edge Storage support with flexible retrieval	Yes
Scalable Video Quality Storage™ (merging	

centrally and edge stored video recordings)	Yes

Integration

Plug-in, Protocol, Component integration via MIP SDK	Yes
System Configuration via MIP SDK	Yes
Metadata integration	Yes
Event integration	Yes
Event and action rule engine integration via MIP SDK	Yes

Support for Add-on products

Supports Smart Wall	Option
Supports Screen Recorder	will be supported
Supports ONVIF Bridge	Yes

Management

Configuration wizards for aided system setup	Yes
Device scanning with device model detection	Yes
Automatic camera time syncronization	Yes
Device replacement wizard	Yes
Move device wizard for moving hardware devices (e.g. cameras) between recording servers in runtime	Yes
Centralized device management	Yes
Device group support	Yes
Centralized recording server management	Yes
Centralized management of Smart	

Client application options(Number of supported Smart Client profile)	3
On-the-fly configuration changes	Yes
Run servers as Windows Services	Yes
Scheduled start/stop of devices	Yes
Configuration reporting	Yes
Built-in backup-restore support	Yes
Offline license activation	Yes

System Monitoring

Customizable dashboard for task or component specific live monitoring	Yes
Customizable event	

trigger thresholds for Normal, Warning and Critical levels	Yes
Real-time and historical system status of Management Server	Yes
Real-time and historical system status of Recording Servers	Yes
Real-time and historical system status of other NVMS servers	Yes
Real-time and historical system status of individual cameras	Yes
Dedicated System Monitor tab that can be displayed as floating window	Yes

Viewing clients

Maximum number of clients	Unlimited
Customizable access port with NAT support	Yes
Multicast support	Yes
Single step installer (installs Smart Client together with server)	Yes

Smart Wall	
Supports Smart Wall video wall add-on	Option
Number of Smart Walls and Smart Wall displays	Unlimited
Number of concurrent video streams	Unlimited
Maximum number of content positions per display	100
Presets for display layouts and camera content	Yes

Live video stream content	Yes
Smart Client controlled playback of video	Yes
Support for rich video wall content, including:	Maps, still images, http pages, alarms, texts, bookmarks, system monitor, etc. - Yes
Rule-based control of layout and content (including text messages)	Yes

System Alarms and notification

Email notification	Yes
Multiple notification profiles	Yes
SNMP trap	Yes

User authentication and rights management

Centralized user management	Yes
Basic User (XProtect	Yes

application accounts)	Yes
Windows User (local Windows accounts)	Yes
Microsoft Active Directory User (central Active Directory accounts)	Yes
Dual authorization (Smart Client users)	Yes
Dual authorization (Management Client users)	Yes
Windows NTML (NT LAN Manager) authentication	Yes
Kerberos authentication	Yes

Logging

System logging	Yes
Audit logging	Yes
Rule logging	Yes

Languages (Management Interface)

English	Yes
French	Yes
German	Yes
Japanese	Yes
Spanish	Yes

General view handling (Client)

Number of view layouts	2 (Mobile/Web Client), 41 (Smart Client)
Maximum view Items per view	100 (Smart/Web/Mobile Client)
Optimized view layouts for 4:3 and 16:9 display ratios	Yes (Smart Client)
Corridor optimized view layouts	Yes (Smart Client)
Optimized view layouts for landscape and portrait displays	Yes (Smart/Mobile Client)
Cameras from	Yes (Smart/Web/Mobile Client)

multiple servers	
Support for Shared Views and Private Views	Yes (Smart/Web/Mobile Client)
Smart Wall views	Yes (Smart Client)
Images in views	Yes (Smart Client)
Active HTML pages in views	Yes (Smart Client)
Hotspot in views	Yes (Smart Client)
Carousel in views (controllable)	Yes (Smart Client)
Virtual Matrix in views	Yes (Smart Client)
Display bounding boxes based on metadata	Yes (Smart Client)
Full screen mode	Yes (Smart/Web/Mobile Client)
Display views as floating window	Yes (Smart Client)
Display views on multiple monitors	Yes (Smart Client)
Advanced multi window support with	

synchronized or independent operation	Yes (Smart Client)
Switch to view by number	Yes (Smart Client)
Initial default view	Yes (Mobile/Web Client)
Camera Navigator	Yes (Mobile Client)
Camera search	Yes (Smart/Web/Mobile Client)
Automatic restore views and windows at login	Yes (Smart/Web/Mobile Client)

Live view (Client)	
Update on motion only	Yes (Smart Client)
One-way audio support	Yes (Smart Client)
Two-way audio support	Yes (Smart Client)
Start/stop recording in view	Yes (Smart Client)
Independent playback	Yes (Smart Client)

in live mode	
Replace cameras in view without changing view setup	Yes (Smart Client)
Send camera to Virtual Matrix	Yes (Smart Client)
Share video image	Yes (Smart/Mobile Client)
Switch to camera by number	Yes (Smart Client)

PTZ support (Client)

View who have PTZ control and time to automatic release	Yes (Smart Client)
Go to preset position	Yes (Smart/Web/Mobile Client)
Pause patrolling at manual operation	Yes (Smart/Web/Mobile Client)
Grandeye 360° Quad View	Yes (Smart Client)
Immervision Enables® panomorph lens support	Yes (Smart Client)

Joystick support	Yes (Smart Client)
Assign commands to keyboard shortcuts and joystick buttons	Yes (Smart Client)
Auxiliary commands (wash and wipe)	Yes (Smart Client)

I/O and events control (Client)

Camera overlay buttons	Yes (Smart Client)
Manually activate events and trigger outputs	Yes (Smart/Web/Mobile Client)

Playback (Client)

Maximum view items per view	1 (Mobile/Web Client), 100 (Smart Client)
Playback mode	Multi Camera(Smart/Web Client), Single Camera(Mobile Client)
Recording search	Yes (Smart/Web/Mobile Client)
Recent history of recording sequences per camera	Yes (Mobile Client)

Time/date search	Yes (Smart/Web/Mobile Client)
Independent playback in playback mode	Yes (Smart Client)
Event/alert list in recording	Yes (Smart Client)
Graphical timeline	Yes (Smart Client)
Adjust playback speed	Yes (Smart/Web/Mobile Client)
Single frame step (forward/backward)	Yes (Smart/Web/Mobile Client)
One-way audio support	Yes (Smart Client)
Two-way audio support	Yes (Smart Client)
Digital zoom	Yes (Smart/Web/Mobile Client)
Share video image	Yes (Smart/Web/Mobile Client)
Print report with comments	Yes (Smart Client)
Privacy masking	Yes (Smart/Web/Mobile Client)

Smart Search (Client)

Smart Search based on VMD metadata	Yes (Smart Client)

Sequence Explorer (Client)

Listing of sequences	Yes (Smart Client)
Listing of time intervals	Yes (Smart Client)
Smart Search integrated with Sequence Explorer	Yes (Smart Client)
Dedicated Sequence Explorer tab that can be displayed as floating window	Yes (Smart Client)

Alarm Manager (Client)

Alarm list and alarm preview view items in normal camera views	Yes (Smart Client)
Sort and filtering functions	Yes (Smart/Mobile Client)
Instant preview of primary and related cameras	Yes (Smart Client)

Manage alarms (reassign, change status, comment)	Yes (Smart/Mobile Client)
Integration with map function	Yes (Smart Client)
Alarm description/work instructions	Yes (Smart/Mobile Client)
Escalation and forwarding handling	Yes (Smart Client)
Print alarm report	Yes (Smart Client)
Alarm location maps in alarm list	Yes (Smart Client)
Combined access to live and playback video	Yes (Smart Client)
Audio notification at new alarm (configurable per priority level)	Yes (Smart Client)
Alarm handling reporting	Yes (Smart Client)

| Dedicated Alarm Manager tab that can be displayed as floating window | Yes (Smart Client) |

Map function (Client)

Standard graphical file formats supported for maps	Yes (Smart Client)
Number of linked map layers supported	Unlimited (Smart Client)
Video preview	Yes (Smart Client)
Integrated control of speakers, microphones and I/O devices	Yes (Smart Client)
Drag-and-drop and point-and-click definition of map elements	Yes (Smart Client)
Integrated PTZ control	Yes (Smart Client)
Real-time system	

integrity overview and system performance	Yes (Smart Client)

Smart Wall support (Client)	
User control of layout and content	Yes (Smart Client)
User control playback of video in Smart Wall	Yes (Smart Client)
Local subscription to Smart Wall views for local display	Yes (Smart Client)
Push rich content to Smart Wall, such as maps, still images, http pages, alarms, bookmarks	Yes (Smart Client)
Send manual text messages to Smart Wall	Yes (Smart Client)

Export (Client)	
Export in still image format (JPEG)	Yes (Smart/Web/Mobile Client)
Export in media player	

format (AVI)	Yes (Smart/Web/Mobile Client)
Export with audio in media player format (AVI)	Yes (Smart Client)
Export with audio in media player format (MKV)	Yes (Smart Client)
Export in Network Video Management System format	Yes (Smart Client)
Export in Original format	Yes (Smart/Web Client)
Server side export	Yes (Smart/Web Client)
Encrypted export with password	Yes (Smart Client)
Digital signing of exported video	Yes (Smart Client)
Re-export prevention	Yes (Smart Client)
Auto-export of Smart Client – Player	Yes (Smart Client)
Preserve system defined privacy masks	Yes (Smart/Web/Mobile Client)

Additional export specific privacy masks	Yes (Smart Client)
Direct export to optical media	Yes (Smart Client)
Flexible camera selection for export	Yes (Smart Client)
Bulk export to multiple media formats	Yes (Smart Client)
General and camera specific export comments	Yes (Smart Client)
Pre/post comment slides (media player format only)	Yes (Smart Client)
Verification of digital video signatures in Smart Client – Player	Yes (Smart Client)

Video Push (Client)

Video Push	Yes (Mobile Client)
Include location metadata with Video	Yes (Mobile Client)

Push

System Monitoring (Client)

Access real-time and historical system performance information (refer to System Monitor section for	Yes (Smart Client)

Installation (Client)

Run without installation	Yes (Web Client)
Optional browser plug-ins for enhance viewing performance	Yes (Web Client)
Single step installer (installs client together with server)	Yes (Smart Client)
Initial and update installations from Management Server	Yes (Smart Client)

System access (Client)

Auto-login	Yes (Smart/Mobile Client)
Dual authorization	Yes (Smart Client)
Secure (HTTPS) client-server connection	Yes (Smart/Web Client)
Dynamic bandwidth adaptation	Yes (Smart/Web Client)
Bandwidth threshold	Yes (Smart/Web Client)

Authorization (Client)

Restrict user access by devices (cameras, microphones, I/O devices, etc.)	Yes (Smart/Web/Mobile Client)
Restrict access to live view	Yes (Smart/Web/Mobile Client)
Restrict access to PTZ	Yes (Smart/Web/Mobile Client)
Restrict access to playback	Yes (Smart/Web/Mobile Client)
Restrict access to export	Yes (Smart/Web/Mobile Client)
Restrict access to	Yes (Smart Client)

setup

Personalization (Client)

Application options	Yes (Smart/Mobile Client)
Centralized management of application options	Yes (Smart/Web/Mobile Client)
Application theme support	Yes (Smart Client)
Task oriented tabs	Yes (Smart Client)
Toggle between Advanced mode and Simplified mode. Default mode: A – Advanced, S - Simplified	A

System (Client)

Hardware accelerated video decoding (Intel Quick Sync video)	Yes (Smart Client)

Languages (Installation, UI and help function)

(Client)

Arabic	Yes (Smart/Web/Mobile Client)
English	Yes (Smart/Web/Mobile Client)
French	Yes (Smart/Web/Mobile Client)
German	Yes (Smart/Web/Mobile Client)
Japanese	Yes (Smart/Web/Mobile Client)
Spanish	Yes (Smart/Web/Mobile Client)
Turkish	Yes (Smart/Web/Mobile Client)

System (Hardware)

Form Factor	2U
Dimension (HxWxD)	88.2 x 446 x 410 mm
RAID	RAID0, RAID1, RAID3, RAID5, RAID10, RAID1E, RAID30, RAID50, RAID6, RAID60
Number of HDD Drives	8 Drives (3.5")
Drive Type	SATA (6G/s), Hot Swappable
AC input	100-240V, 50-60Hz

Interface (Hardware)

Ethernets	2x Gigabit Ethernet (RJ45)
Audio	Mic-in, Line-in, Line-out, S/PDIF-out
USB2	2x USB2.0 (2x Rear)
USB3	6x USB3.0 (2x Front, 4x Rear)
HDMI	1x HDMI (max. resolution: 4096x2160)
VGA	1x HD15 (max. resolution: 2048x1536)
Display Port	1x DisplayPort

Software (System Requirements)

Support OS	Windows Embedded Standard 7 Runtime (WS7P)

Computer running Management Client (System Requirements)

CPU	Intel® Core™2 Duo
RAM	Minimum 2 GB
Network	Ethernet 100 Mbit
Graphics Adapter	Onboard GFX, AGP or PCI-Express,

Graphics Adapter	minimum 1024 x 768, 16-bit color
Hard Disk Space	Minimum 50 GB free (depends on number of servers, cameras, rules, and logging settings)
Operating System	Microsoft® Windows® 7 Professional SP1 (64-bit) Microsoft® Windows® 7 Enterprise SP1 (64-bit) Microsoft® Windows® 7 Ultimate SP1 (64-bit) Microsoft® Windows® 8 Pro (64-bit) Microsoft® Windows® 8 Enterprise (64-bit) Microsoft® Windows® 8.1 Pro (64 bit) Microsoft® Windows® 8.1 Enterprise (64 bit) Microsoft® Windows® 10 Pro (64 bit) Microsoft® Windows® 10 Enterprise (64 bit)
	Microsoft® Windows® Server 2008 R2 (64 bit): Standard, Web, High Performance Computing (HPC), Enterprise, and Datacenter Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2012

Operating System	R2 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2016 (64 bit): Standard and Datacenter To run clustering/failover management servers, you need a Microsoft® Windows® Server 2008 R2 Enterprise or Datacenter edition, or a Microsoft® Windows® Server 2012/2012 R2 Standard or Datacenter edition, or a Microsoft® Windows® Server 2016 Standard or Datacenter edition
SQL Versions	Microsoft SQL Server® 2008 SP3 Microsoft SQL Server® 2008 R2 SP2 Microsoft SQL Server® 2012 SP1 Microsoft SQL Server® 2014 Microsoft SQL Server® 2016
Software	Microsoft® .NET 3.5 SP1 and .NET 4.5.1 Framework

Computer running , Event Server, Log Server or Service Channel (System Requirements)

CPU	Intel® Core™2 Duo
RAM	Minimum 2 GB

RAM	Minimum 2 GB
Network	Ethernet 100 Mbit
Graphics Adapter	Onboard GFX, AGP, or PCI-Express, minimum 1024 x 768, 16-bit color
Hard Disk Space	Minimum 10 GB free (depends on number of cameras and recording settings)
Operating System	Microsoft® Windows® 7 Professional SP1 (64-bit) Microsoft® Windows® 7 Enterprise SP1 (64-bit) Microsoft® Windows® 7 Ultimate SP1 (64-bit) Microsoft® Windows® 8 Pro (64-bit) Microsoft® Windows® 8 Enterprise (64-bit) Microsoft® Windows® 8.1 Pro (64 bit) Microsoft® Windows® 8.1 Enterprise (64 bit)
	Microsoft® Windows® 10 Pro (64 bit) Microsoft® Windows® 10 Enterprise (64 bit) Microsoft® Windows® Server 2008 R2 (64 bit): Standard, Web, High Performance Computing (HPC),

Operating System	Enterprise, and Datacenter Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2012 R2 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2016 (64 bit): Standard and Datacenter
Software	Microsoft® .NET 4.5.1 Framework

Computer running Management Client (System Requirements)

CPU	Intel® Core™2 Duo
RAM	Minimum 2 GB
Network	Ethernet 100 Mbit
Graphics Adapter	Onboard GFX, AGP or PCI-Express, minimum 1024 x 768 (1280 x 1024 recommended), 16-bit color
Hard Disk Space	Minimum 1 GB free
	Microsoft® Windows® 7 Professional SP1 (64-bit) Microsoft® Windows® 7 Enterprise SP1 (64-bit) Microsoft® Windows® 7 Ultimate

Operating System	SP1 (64-bit) Microsoft® Windows® 8 Pro (64-bit) Microsoft® Windows® 8 Enterprise (64-bit) Microsoft® Windows® 8.1 Pro (64 bit) Microsoft® Windows® 8.1 Enterprise (64 bit) Microsoft® Windows® 10 Pro (64 bit) Microsoft® Windows® 10 Enterprise (64 bit) Microsoft® Windows® Server 2008 R2 (64 bit): Standard, Web, High Performance Computing (HPC), Enterprise, and Datacenter Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2012 R2 (64 bit): Standard and Datacenter
Software	Microsoft® .Net 4.5.1 Framework DirectX 11 or newer

Computer running Mobile Server - Using software transcoding (System Requirements)		
CPU	Intel® Core™2 Duo
RAM	Minimum 2 GB

RAM	Minimum 2 GB
Network	Ethernet 100 Mbit
Graphics Adapter	Onboard GFX, AGP, or PCI-Express, minimum 1024 x 768, 16-bit color
Hard Disk Space	Minimum 10 GB free (depends on number of cameras and recording settings)
Operating system	Microsoft® Windows® 7 Professional SP1 (64-bit) Microsoft® Windows® 7 Enterprise SP1 (64-bit) Microsoft® Windows® 7 Ultimate SP1 (64-bit) Microsoft® Windows® 8 Pro (64-bit) Microsoft® Windows® 8 Enterprise (64-bit) Microsoft® Windows® 8.1 Pro (64 bit) Microsoft® Windows® 8.1 Enterprise (64 bit) Microsoft® Windows® 10 Pro (64 bit) Microsoft® Windows® 10 Enterprise (64 bit) Microsoft® Windows® Server 2008 R2 (64 bit): Standard, Web, High Performance Computing (HPC), Enterprise, and Datacenter

	Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2012 R2 (64 bit): Standard and Datacenter
Software	Microsoft® .Net 4.5.1 Framework
Note	H.265 requires a computer supporting hardware decoding or 64-bit version of the application XProtect Smart Client, XProtect Smart Wall and XProtect Smart Client - Player.

Computer running Mobile Server - Using hardware transcoding (System Requirements)	
CPU	Intel CPU supporting Intel QuickSync, Intel GPU enabled in BIOS
RAM	Minimum 2 GB
Network	Ethernet 100 Mbit
Graphics Adapter	Onboard GFX, AGP, or PCI-Express, minimum 1024 x 768, 16-bit color
Hard Disk Space	Minimum 10 GB free (depends on number of cameras and recording

Hard Disk Space	number of cameras and recording settings)
Operating system	Microsoft® Windows® 8.1 Pro (64 bit) Microsoft® Windows® 8.1 Enterprise (64 bit) Microsoft® Windows® 10 Pro (64 bit) Microsoft® Windows® 10 Enterprise (64 bit) Microsoft® Windows® Server 2012 (64 bit): Standard and Datacenter Microsoft® Windows® Server 2012 R2 (64 bit): Standard and Datacenter
Software	Microsoft® .Net 4.5.1 Framework DirectX 11 or newer

Computer running Smart Client, Smart Client - Player and Smart Wall - Using Software Decoding (System Requirements)

CPU	Intel® Core™2 Duo
RAM	Minimum 1 GB
Network	Ethernet 100Mbit
Graphics Adapter	Onboard GFX, AGP or PCI-Express, minimum 1280 x 1024, 16-bit

	colors, DirectX 9.0 or newer
Hard Disk Space	1 GB free
Operating System	Microsoft® Windows® 7 Professional SP1 (32-bit or 64-bit) * Microsoft® Windows® 7 Enterprise SP1 (32-bit or 64-bit) * Microsoft® Windows® 7 Ultimate SP1 (32-bit or 64-bit) * Microsoft® Windows® 8 Pro (32-bit or 64-bit) Microsoft® Windows® 8 Enterprise (32-bit or 64-bit) Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) Microsoft® Windows® 8.1 Enterprise (32-bit or 64-bit) Microsoft® Windows® 10 Pro (32-bit or 64-bit) Microsoft® Windows® 10 Enterprise (32-bit or 64-bit)
Operating System	Microsoft® Windows® Server 2008 R2 (32-bit or 64-bit): Standard, Web, High Performance Computing (HPC), Enterprise, and Datacenter Microsoft® Windows® Server 2012 (32-bit or 64-bit): Standard and

Operating System	Datacenter Microsoft® Windows® Server 2012 R2 (32-bit or 64-bit): Standard and Datacenter * Microsoft® Windows® 7 and Server 2008 R2 are only supported on physical PC's not on virtual machines
Software	Microsoft® .Net 4.5.1 Framework Requires Operating System and Graphic Adaptor support for DirectX 9.0 or newer

Computer running Smart Client, Smart Client - Player and Smart Wall - Using Hardware Decoding (System Requirements)

CPU	Intel CPU supporting Intel QuickSync, Intel GPU enabled in BIOS
RAM	Minimum 1 GB
Network	Ethernet 100 Mbit
Graphics Adapter	AGP or PCI-Express, minimum 1280 x 1024, 32-bit colors, DirectX 11.0 or newer
Hard Disk Space	1 GB free

Hard Disk Space	1 GB free
Operating system	Microsoft® Windows® 8.1 Pro (32-bit or 64-bit) Microsoft® Windows® 8.1 Enterprise (32-bit or 64-bit) Microsoft® Windows® 10 Pro (32-bit or 64-bit) Microsoft® Windows® 10 Enterprise (32-bit or 64-bit) Microsoft® Windows® Server 2012 (32-bit or 64-bit): Standard and Datacenter Microsoft® Windows® Server 2012 R2 (32-bit or 64-bit): Standard and Datacenter
Software	Microsoft® .Net 4.5.1 Framework Requires Operating System and Graphic Adaptor support for DirectX 11.0 or newer

Computer running Web Client (System Requirements)

CPU	Intel Core2 Duo, 2.0 GHz Intel Core i3-5010U 2.1 Ghz*
RAM	1 GB 4 GB*

Network	Ethernet 100Mbit / WiFi 2Mbit
Graphics Adapter	AGP or PCI-Express, minimum 1280 x 1024, 16 bit colors
Hard Disk Space	500 MB free
Operating System	Any capable of running the below browsers
Browser	Microsoft Internet Explorer® 9 or later** Safari® 5 or later** Google Chrome™ 16 or later Google Chrome™ 48 or later (recommended)* Mozilla® Firefox® 11 or later Mozilla® Firefox® 43 or later (recommended)*

Device running Mobile Client (System Requirements)		
RAM	2GB*
Operating System	Android 5.0 or higher iOS 9.2 or higher
Network	2G/3G (4G or WiFi)*

Notes	
*	Required for using Direct Streaming
**	Not supported when using Direct Streaming

Gallery