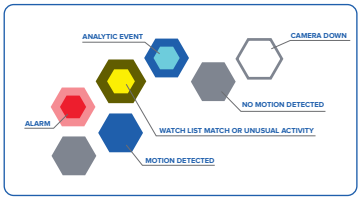
Avigilon Control Center™ 7 Software

Avigilon Control Center (ACC) software is an easy-to-use video management software that is designed to optimize the way security professionals manage and interact with high-definition video. It efficiently captures and stores HD video, while intelligently managing bandwidth and storage using our patented High Definition Stream Management (HDSM) technology. Version 7 of the software introduces an entirely new way to monitor live video through its Focus of Attention interface, enabling operators to see at a glance what is happening across the entire site and more effectively triage and respond to the most important events.



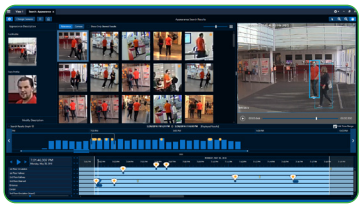
Focus of Attention Interface

Redefining live video monitoring, Focus of Attention helps increase operator effectiveness by providing an overview of events across all cameras in the site, including Avigilon analytic events, face and license plate watch list matches, Unusual Activity Detection (UAD) events, Unusual Motion Detection (UMD) events, motion events, and alarms. Operators can triage the most important events, reviewing associated video to determine if a response is required.



Facial Recognition Technology

Accelerate response times using AI-powered facial recognition technology to detect people of interest based on one or more secure watch lists managed by authorized users at the organization. Populate watch lists by uploading an image or finding a face from recorded video. Robust controls govern the accessibility and retention of watch list data. Avigilon cameras licensed for facial recognition will seek to identify potential matches based on watch lists, and if a match is found, the user is alerted through the Focus of Attention interface. For added security, create watch list alarms that trigger when any individual on the watch list is detected.



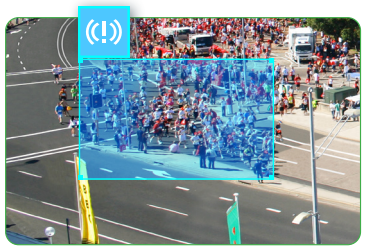
Avigilon Appearance Search™ Technology

A sophisticated AI search engine that enables investigators to sort through hours of recorded video with ease and quickly locate a person or vehicle of interest across an entire site. Search for a person or vehicle of interest by entering a physical description, or by finding an example in recorded video.



Next-Generation Analytics and Self-Learning Video Analytics

ACC™ video management software enables analytic events and alarms to be viewed and searched through an intuitive user interface. Real-time events and forensic capabilities detect and notify operators of scene changes and rules violations.



Unusual Activity and Unusual Motion Detection (UAD & UMD)

Advanced AI technology highlights the unanticipated by automatically flagging unusual activity and motion. Without any configuration, UMD detects atypical movement while UAD is object-aware and detects anomalous behavior (speed and location) of people and vehicles.

UAD H5A

UMD H5SL | H5M | H4A | H4SL | H4 MINI DOME



Preinstalled on Avigilon Recorders and Appliances

ACC software is pre-installed and configured on Avigilon HD Video Appliances, Network Video Recorders (NVRs), NVR Workstations, ACC ES Recorders, ACC ES Analytics Appliances, ACC ES 8-Port Appliances and the H4ES camera line. You can also install the stand-alone ACC software to meet the needs of a wide variety of projects. Our NVRs come pre-installed with the NVR Analytics Kit to enable our patented Avigilon Appearance Search technology.

Avigilon Control Center Advanced Features

HDSM™ Technology
Intelligently manages HD image communications to optimize network bandwidth and workstation performance for even the highest resolution Avigilon cameras.

HDSM SmartCodec™ Technology Support
Automatically adjusts compression levels for regions in a scene, to optimize bandwidth while still maintaining image quality.

Avigilon Appearance Search Technology
Quickly search recorded video to find instances of a person or vehicle across all sites using cameras with Avigilon self-learning analytics. Search for a person by physical description, including clothing color, hair color, gender and age group. Search for a vehicle by physical description, including color and category - car, truck, bus, bicycle, and motorcycle.

Facial Recognition Technology
AI-powered facial recognition algorithms notify operators when a person of interest returns to a facility. Add a person to a face watch list by uploading a photo or from recorded video. Create watch list alarms or monitor the Focus of Attention interface to detect matches.

Intelligent Search
Powerful search tools enable you to quickly search recorded video for motion, the presence of classified objects (people or vehicles), background changes in the scene (thumbnail search), and for events.

Simple Camera and Server Installation
Plug-and-play capabilities for NVRs and cameras that automatically identify themselves on the network, without manual configuration or searching.

License Plate Recognition (LPR) Analytics
Second generation LPR analytics engine with easy configuration and improved accuracy for faster security response. Multiple license watch lists can trigger unique ACC rules when detecting a match.

ACM-ACC Interoperability
The Access Control Manager (ACM) system receives, processes, and acts on ACM™ door events, hardware input events, and access grants, enabling operators to unlock access doors directly from a camera view. Identity Verification enables users to see ACM system credentials dynamically displayed with ACC camera views. Identity Search enables users to visually verify access events, and initiate an Avigilon Appearance Search across the entire site for the same person.

Avigilon Cloud Services Web Client
Securely stream live and recorded video from firewall-protected ACC sites using a Chrome or Safari web browser. With no client installation required, this solution leverages Avigilon Cloud Services to support secure peer-to-peer connections to ACC servers.

ACC Mobile Software
Push alarm notifications, live and recorded video, two-way audio, self-learning video analytics overlays, digital output triggers, and PTZ control for Android™ and iOS mobile devices. Using Avigilon Cloud Services, log in to connected ACC sites without any complicated firewall configuration.

Video Archive
Retain and manage large amounts of video for on-demand retrieval and review. Extend your storage beyond NVRs using the Avigilon Video Archive for reliable and scalable storage.

Detailed Management, Monitoring, and Reporting of System Status and Security
Detailed logs of storage, network, and overall system status to help ensure the highest possible system uptime for critical applications.

Point-of-Sale Transaction Engine
Link HD security recorded video (viewed instantly) with transaction data to address compliance requirements and help reduce shrinkage and theft.

Scalable Integration with External Systems
Distributed architecture features .NET-based and REST-based APIs that can easily be integrated with other systems, such as access control and building management.

ONVIF® Profile S, T and G Compliant VMS
Ensures interoperability between IP based ONVIF conformant security devices regardless of manufacturer. Allows video and audio recovery from SD cards installed in Profile G cameras in case of network failure.

Unusual Activity Detection
UAD technology enables object-level detection of atypical activity. This edge-based intelligence uses advanced AI technology and is designed to be object-aware, enabling operators to know when a person or vehicle is in an unusual location in the scene or moving at an unusual speed.

Unusual Motion Detection
UMD technology enables fast video search and is designed to reduce hours of work to minutes by narrowing potentially thousands of motion events to a handful. This allows operators to focus their attention on recorded video needing further investigation.

Federal Government Compliance with FIPS 140-2 Certified Encryption
To comply with policies, Federal Government and other customers can enable FIPS 140-2 certified cryptography on ACC software and on supported Avigilon cameras. Required camera cryptography licenses are centrally managed in ACC. Within ACC, optionally turn on licensed FIPS cryptography on Avigilon cameras. ACC inventories the number of FIPS camera licenses being used and determines whether customers have the required number of licenses within a facility.

Specialty Devices



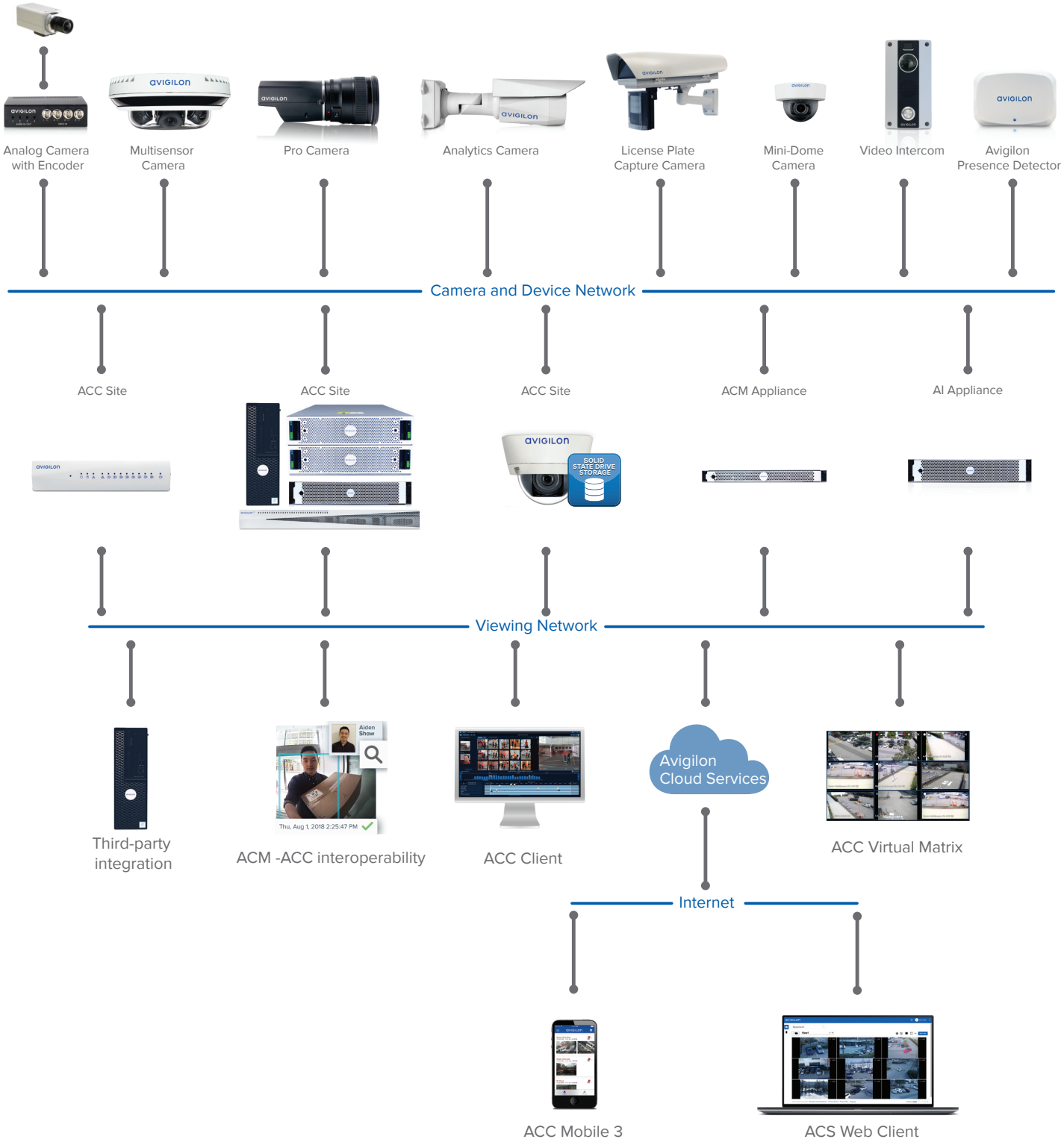
Avigilon Presence Detector Support
The Avigilon Presence Detector™ sensor is a small form factor impulse radar device with self-learning radar analytics that accurately detects the presence of a person even if they have stopped moving or are hidden. It has the ability to detect presence through blankets, cardboard, wood and drywall.



H4 Video Intercom Support
Video Intercom support provides operators with visual and audio verification of visitors. The H4 Video Intercom integration uses wide dynamic range and echo canceling technologies for clear viewing and two-way communication with visitors.

ONVIF is a trademark of Onvif, Inc.

System Architecture



Software Editions

The Avigilon Control Center software is offered in three editions: Core, Standard and Enterprise. The Core edition is an entry-level version of our award-winning software that delivers advanced high definition video security capabilities, ease of use, and superior image quality to smaller implementations. The Standard edition is a cost-effective security solution that meets the vital and focused needs of mid-size operations. The Enterprise edition includes all of the Core and Standard features, plus advanced features to make it a powerful, open platform for large-scale video security needs.

SYSTEM	CORE	STANDARD	ENTERPRISE
Cameras per server	24	75	300+*
Cameras per site	24	75	10 000+*
Servers per site	1	1	100+*
Client licenses per server	2	10	Unlimited
Rule triggers	0	51	Unlimited
HDSM technology support	Yes	Yes	Yes
HDSM SmartCodec technology support	Yes	Yes	Yes
Dual Streaming for ONVIF compliant cameras	Yes	Yes	Yes
H.265, H.264, MPEG4, MJPEG, JPEG2000 video compression	Yes	Yes	Yes

* Actual limits will depend on the hardware environment. Please review Avigilon server and appliance datasheets for applicable limits.

DEVICE SUPPORT	CORE	STANDARD	ENTERPRISE
Automatic device discovery	Yes	Yes	Yes
Third-party IP cameras and encoders	Yes	Yes	Yes
ONVIF compliant cameras and encoders	Yes	Yes	Yes
H5A cameras with Next-Generation Video Analytics	Yes	Yes	Yes
H4A cameras with Self-Learning Video Analytics	Yes	Yes	Yes
H5SL, H5M, H4SL, H4 Multisensor, H4 PTZ, H4 IR PTZ, H4 Fisheye, H4 Mini Dome, H4ES, and H4 Thermal cameras	Yes	Yes	Yes
Avigilon H3, HD and earlier cameras	Yes	Yes	Yes
Avigilon analog video encoder	Yes	Yes	Yes
Avigilon Presence Detector (APD) sensor	No	Yes	Yes
H4 Video Intercom	No	Yes	Yes
H4 Pro cameras	No	No	Yes
H4 Thermal Elevated Temperature Detection (ETD)	Yes	Yes	Yes
Avigilon AI Appliance	No	No	Yes

CLIENT	CORE	STANDARD	ENTERPRISE
Video Analytics overlays *(Next-Generation Video Analytics, Self-Learning Video Analytics, UAD and UMD)*	Yes	Yes	Yes
Joystick support	Yes	Yes	Yes
ACC Mobile 3 app / Web Endpoint including mobile alarm notifications	Yes	Yes	Yes
Avigilon Cloud Services Web Client	Yes	Yes	Yes
FIPS 140-2 Encryption	Yes	Yes	Yes
Certificate management between ACC Client and Server	Yes	Yes	Yes
Emergency privilege override	Yes	Yes	Yes
Two-factor authentication	Yes	Yes	Yes
Password strength meter	Yes	Yes	Yes
Light and dark interface themes	Yes	Yes	Yes
Editable Site View	Yes	Yes	Yes
Multi-camera export with optional password protection	Yes	Yes	Yes
Hourly configurable recording schedule	Yes	Yes	Yes
Saved views	No	Yes	Yes
Maps with configurable icons and camera thumbnail previews	No	Yes	Yes
Integrated web page bookmarking and display	No	Yes	Yes
Focus of Attention interface	No	No	Yes
Active Directory integration	No	No	Yes
Intelligent Virtual Matrix	No	No	Yes
Collaborative investigations	No	No	Yes
Multi-camera privacy blurred export from Avigilon Appearance Search results	No	No	Yes

SEARCH	CORE	STANDARD	ENTERPRISE
UAD and UMD timeline filtering wtih Skip Play	Yes	Yes	Yes
Intelligent motion search	Yes	Yes	Yes
Thumbnail search	Yes	Yes	Yes
Event search	Yes	Yes	Yes
Point-of-sale (POS) transaction search	No	Yes	Yes
Avigilon Appearance Search technology	No	No	Yes
Alarm search	No	No	Yes
License plate event search	No	No	Yes

ACC INTEROPERABILITY WITH ACM SYSTEMS	CORE	STANDARD	ENTERPRISE
Door and panel input event triggers	No	Yes	Yes
Door access grants	No	Yes	Yes
Shared operator access	No	Yes	Yes
ACM Identity Verification	No	Yes	Yes
ACM Identity Search	No	Yes	Yes

ADD-ON MODULES AND INTEGRATIONS	CORE	STANDARD	ENTERPRISE
POS transaction engine	No	Yes	Yes
Avigilon developed and supported integrations	No	Yes*	Yes
Third party system integrations	No	Yes	Yes
License Plate Recognition with multiple match lists	No	No	Yes
Face Recognition with multiple watch lists	No	No	Yes

*CommScope® iPatch®, RS2 Access It!®, DDS Amadeus 5 and DSX only

ADDITIONAL FEATURES	CORE	STANDARD	ENTERPRISE
System and motion event e-mail notifications	Yes	Yes	Yes
Two person authenticated recorded video viewing	Yes	Yes	Yes
Camera replacement	Yes	Yes	Yes
Central station notifications including ANSI/SIA DC-09-2013	No	Yes	Yes
Digital input email trigger	No	Yes	Yes
Manual digital output trigger	No	Yes	Yes
Audio recording and output	No	Yes	Yes
APD™ event trigger	No	Yes	Yes
Next-Generation Video Analytics and Self-Learning Video Analytics event configuration	No	Yes	Yes
Camera standby / privacy mode	No	Yes	Yes
Avigilon AI Appliance analytics configuration	No	No	Yes
Redundant recording	No	No	Yes
Failover connections	No	No	Yes
ACC Client alarm notifications and escalation	No	No	Yes
One-time Video Archive	No	Yes	Yes
Tiered Storage Management with Continuous Archive	No	No	Yes

For the latest list of integrations and add-ons supported by Avigilon Control Center software, visit avigilon.com.

System Requirements

Note:

- Run Windows Update before launching Avigilon Control Center (ACC) software.
- NVR recording throughput and retention times can vary according to the number of cameras, camera resolution, estimated percent of motion, continuous recording settings and predefined retention period.
- For best-in-class performance, choose an **Avigilon Certified Solution**.

ACC Client Software

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
2 Monitor Professional High Performance Remote Monitoring Workstation	RM5-WKS-2MN	• Preloaded with ACC Client software. • Supports high resolution monitors. • Includes the adapters and accessories for quick deployment. • Avigilon warranty and support included.
4 Monitor Professional High Performance Remote Monitoring Workstation	RM5-WKS-4MN	

SYSTEM REQUIREMENTS	MINIMUM	RECOMMENDED
Operating System	Windows 8.1 (64-bit) or Windows 10 (64-bit) Microsoft .NET 4.6.2	Windows 10 (64-bit) Microsoft .NET 4.6.2
Processor	Intel® dual-core CPU (2.0 GHz)	8th Generation Intel Celeron® CPU or higher
System RAM	4 GB DDR3	8 GB DDR4
Video Card	PCI Express, DirectX 10.0 compliant with 256 MB RAM	NVIDIA® Quadro P620
Network Interface	1 Gbps	1 Gbps
Hard Disk Space	500 GB	500 GB

ACC Server Software

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
NVR Premium	HD-NVR4-PRM-64TB / 96TB / 128TB / 157TB / 192TB	• Optimized for video security applications in a 24/7/365 environment • ACC Server software is preinstalled, configured and enhanced for optimal system compatibility • Certified for the Avigilon video security environment - ACC software, LPR, Web Endpoint, Analytics, HDSM and 1-30MP cameras • High throughputs of up to 1800 Mbps • Documented network architecture for a wide variety of applications • Avigilon warranty and support included • Access to Avigilon System Design Tool (SDT) to calculate storage requirements
NVR Standard	HD-NVR4-STD-16TB / 24TB / 32TB / 48TB	
NVR Value	NVR4-VAL-6TB / 12TB / 18TB / 24TB	

SYSTEM REQUIREMENTS	MINIMUM	RECOMMENDED
Operating System	Windows Server 2012 R2, Windows 8.1 (64-bit) or Windows 10 (64-bit), Windows Server 2016, Windows Server 2019	Windows Server 2016 or Windows 10
Processor	x86 64 bit dual-core (1.9 GHz)	Intel® Xeon® E5 v3 (6 cores, 1.9GHz)
System RAM	4 GB DDR3	16 GB DDR4
Network Interface	1 Gbps	4 x 1 Gbps
Hard Drives	SATA-II 7200 RPM Enterprise Class Hard Drives	SATA-III 7200 RPM Enterprise Class Hard Drives

ACC Server Workstation

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
HD Video Appliance	VMA-AS3-8P2 / VMA-AS3-8P4 / VMA-AS3-8P8 / VMA-AS3-16P06 VMA-AS3-16P09 / VMA-AS3-16P12 / VMA-AS3-24P12 VMA-AS3-24P18 / VMA-AS3-24P24	• Preloaded and configured with ACC software • High-performance recording capacity • Throughputs of up to 400 Mbps • Avigilon warranty and support included • Access to Avigilon System Design Tool (SDT) to calculate storage requirements
ACC ES HD Recorder	VMA-RPO-4P2 / VMA-RPO-4P4	
ACC ES Analytics Appliance	VMA-RPA-4P2 / VMA-RPA-4P4	
ACC ES 8-Port Appliance	VMA-ENVR1-8P4 / VMA-ENVR1-8P8	
NVR4 Workstation	NVR4-WKS-4TB / NVR4-WKS-8TB	

SYSTEM REQUIREMENTS	MINIMUM	RECOMMENDED
Operating System	Windows 8.1 (64-bit) or Windows 10 (64-bit)	Windows 10 (64-bit)
Processor	Intel Quad-core CPU (2.0 GHz)	8th Generation Intel Celeron CPU or higher
System RAM	4 GB DDR3	8 GB DDR4
Network Interface	1 Gbps	1 Gbps
Video Card	PCI Express, DirectX 10.0 compliant with 256 MB RAM	NVIDIA Quadro P620
Hard Drives	SATA-II 7200 RPM Hard Drives	SATA-III 7200 RPM Hard Drives

Avigilon Appearance Search Technology and Face Recognition

Avigilon Appearance Search technology and Face Recognition require the ACC Analytics Service to be installed on the same computer as the ACC Server software and must meet the listed system requirements:

AVIGILON CERTIFIED SOLUTIONS

	DISPLAY MODEL NUMBER	KEY FEATURES
Analytics Kit for Avigilon Appearance Search Software	HD-NVR-ANK2-1	Tested and verified to provide enough processing power to run Avigilon Appearance Search feature.

SOFTWARE SYSTEM REQUIREMENTS	APPEARANCE SEARCH ONLY	APPEARANCE SEARCH AND FACE RECOGNITION
NVIDIA GPU Requirements	- 4 GB RAM - NVIDIA Pascal™ or NVIDIA Maxwell™ architecture - CUDA compute capability 5.2 or 6.1 - Windows x86_64 Driver Version 418.39 or above	- 4 GB RAM - NVIDIA Pascal™ architecture - CUDA compute capability 6.1 - Windows x86_64 Driver Version 418.39 or above

ACC Mobile 3 Software

ACC Mobile version 3 is available for the listed device platforms and requires the ACC Web Endpoint service. The ACC Web Endpoint service comes pre-installed on ACC ES HD Recorder, ACC ES Analytics Appliance and ACC ES 8-Port Appliance. For NVR systems and HD Video Appliances, it should be installed on the same server as the ACC Server software.

	ANDROID	IOS
Platforms	Android version 5.0 or later	iPad with iOS 10 or later iPhone with iOS 10 or later iPod touch with iOS 10 or later
Procesesor	n/a	64-bit (Apple A7 or later)

Some images of the product interface have been simulated for illustrative purposes.

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