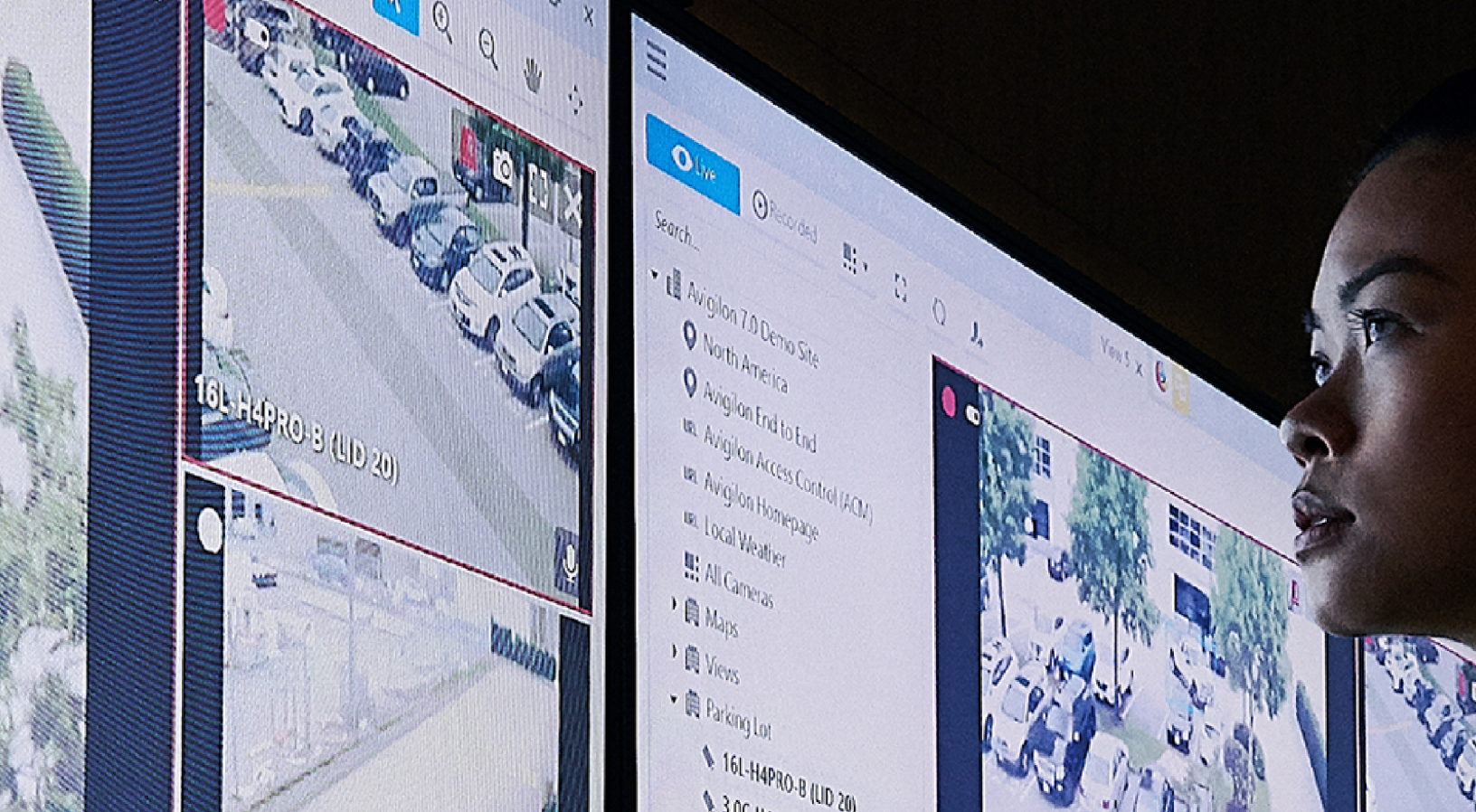


# MINING



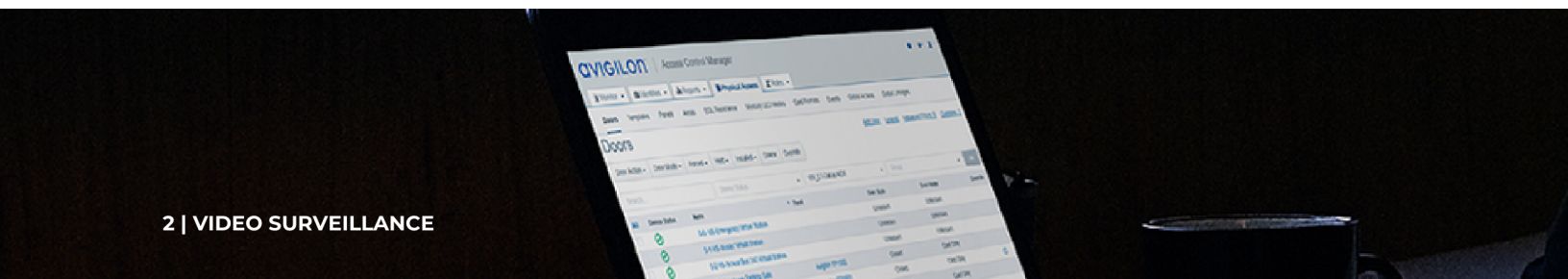
FS Systems International Ltd, provides end-to-end fire & electronic security solutions including Fire Protection, Access Control and Video Surveillance. We unlock business value for our key focus industry - Mining - through best product, people & processes.



# VIDEO SURVEILLANCE

In the dynamic landscape of the mining industry, the need for swift investigations and rapid response times has become paramount. To stay ahead, proactive detection has emerged as a strategic imperative. Avigilon offers a comprehensive fixed video security ecosystem tailored to the distinct security and incident response workflow requirements of mining operations. Our solution addresses both mission-critical and business-critical applications, empowering your company with a robust defense mechanism that safeguards your facility, assets, and personnel.

With a video security ecosystem, you gain coverage across vast mining sites and an intuitive video management software that empowers you to manage security permissions effectively for your workforce, including employees and contractors.





**AI-Powered Solutions:** Harness the power of cutting-edge artificial intelligence (AI) technologies to swiftly detect events and expedite search operations. This enables you to focus on precise verification and proactive response strategies.

**Efficient Bandwidth Management:** Utilize Avigilon's High Definition Stream Management (HDSM)<sup>™</sup> and HDSM SmartCodec<sup>™</sup> technologies to streamline bandwidth usage and storage requirements without compromising image quality.

**Centralized Monitoring:** Seamlessly oversee and perform system-wide updates from a single location, even executing remote firmware upgrades to maintain system security and optimal performance.

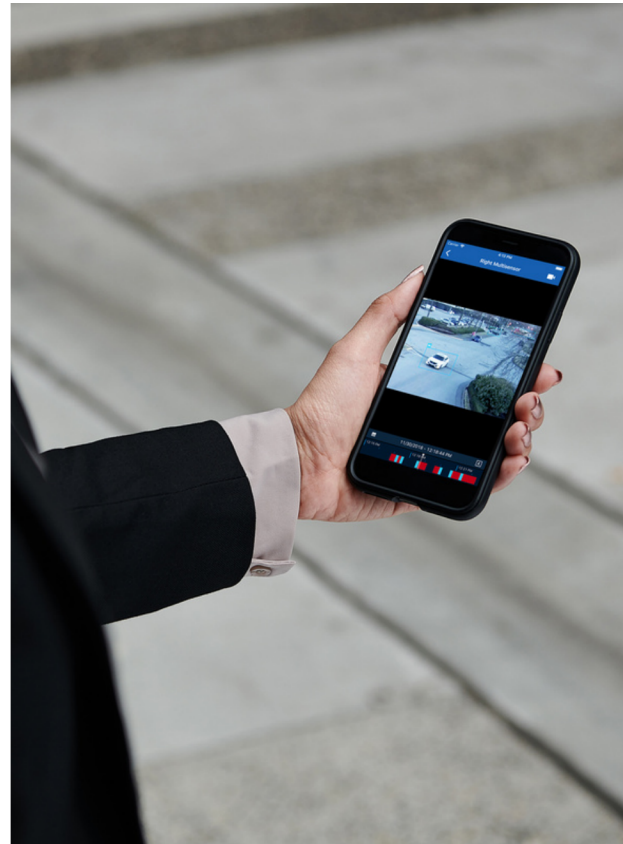
**Easy Integration:** Avigilon's solutions are constructed on an open platform, allowing you to capitalize on prior investments in third-party systems that adhere to ONVIF<sup>®</sup> compliance.

In the ever-evolving mining landscape, where security and operational excellence are inseparable, a video security ecosystem emerges as the pivotal tool to fortify your operations. Gain an operational advantage through intelligent video security that empowers proactive decision-making and ensures the safety and resilience of your mining enterprise.



## Video Management Software

Avigilon Control Center (ACC) 7 is the latest and most advanced version of Avigilon's Video Management Software (VMS). ACC 7 provides an easy-to-use, AI enabled user interface designed to bring the right information at the right time to ensure timely actions are taken and also help ensure critical events do not go unnoticed.



Some of the most important baseline features of the VMS are:

- Resilient enterprise server management offering centralized system administration of NVRs, cameras, Clients, etc.
- Patented HDSM bandwidth management and remote viewing,
- Multi-megapixel recording and display of multiple image sources,
- Protected export of video evidence,
- Multiple failover/redundancy possibilities as per required site configuration,
- Advanced user management,
- Smart alarm management and event notification by email,
- Available on IOS and Android for access via smartphones, and
- Third-party system integration.



The ACC software comes embedded on the Avigilon NVRs and do not therefore require a separate server instance for installation. The video management software also brings unique advantages such as:

### **24/7 Awareness**

Superior situational awareness - secure, scalable and easy to use, Avigilon's video management systems provide an enterprise-grade, AI-enabled solution, equipped with integrated machine learning capabilities.

Prevent information overload - focus on what matters most with AI video analytics that alert operators to security events that need immediate attention, when and where they happen.  
Proactive security powered by AI - using perimeter and behavior data to detect, identify and classify anomalies involving vehicles, people of interest and objects in real-time.

Intuitive video management - extend visibility across any number of sites and locations, with the ability to customize video views to see the most relevant footage.

### **Find what you're looking for faster**

When every minute counts, video management software with advanced search technology speeds your investigations without sacrificing any level of detail.

Accelerated video search - search vast amounts of recorded video in minutes with appearance and image detection powered by machine learning capabilities.

Expanded object classification - intuitive video management software differentiates between people, objects and vehicle types to help security teams identify potential security threats.

AI-powered notifications - improve response time with rule-based notifications that help security teams efficiently prioritize events by level of importance.

### **Flexible video management software**

Avigilon gives you the flexibility to deploy an advanced video management system that fits your unique security needs.

Powerful on-premise VMS appliances - gain an end-to-end video analytics solution by integrating with Avigilon's Unity Video, cameras and Network Video Recorders (NVRs).

Always secure, accessible and up to date - receive automatic software updates, with end-to-end encrypted data and secure remote access from anywhere in the world.





### Facial Recognition

Enrich fixed video feeds with the ability to efficiently detect faces. Create, edit and control watch lists to always have timely and accurate searches.

AI-powered facial recognition technology helps organizations accelerate response times by identifying people of interest. People of interest are identified based on one or more secure watch lists managed by authorized users at the organization. Populate watch lists easily by either uploading images or finding a face from recorded video.

A set of configurable controls are available to support the management of the various watch lists. Avigilon cameras will search the configured face watch lists for potential matches. If a match is found, operators can be notified either using the FoA interface or through ACC alarms using armed panels or the alarm view. ACC will display the video image that triggered the alarm along with the reference image from the watch list, enabling operators to verify the match and act quickly.

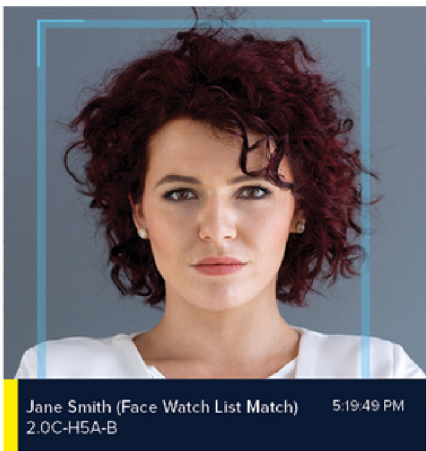


License Plate:  ➔ Search

### License Plate Recognition

Enable security operators to search and quickly find specific captured license plate videos for verification and investigation.

This feature automatically reads license plate information from vehicles, linking it to both live and recorded video. Operators can create and import multiple vehicle license plate watch lists for instant alarm notification when a license plate match is detected, or search and quickly find specific captured license plate video for verification and investigation.



### Watch List Creation and Alerts

Watch List Alerting is a key safeguard for mining facilities. Whether it is a visitor with a history of disruption or abuse or a former employee who left on bad terms, it is imperative to be alerted to that individual's presence as soon as possible.

Avigilon Control Center software's appearance alerts feature detects threats earlier, notifying staff when people or vehicles appear in video footage. Watch list entries can be configured for facial matching as well as license plate recognition. Through the appearance alerts capability, people of interest are identified based on a secure, controlled watch list. The watch list is created and maintained by authorized users.

**Avigilon Appearance Search**

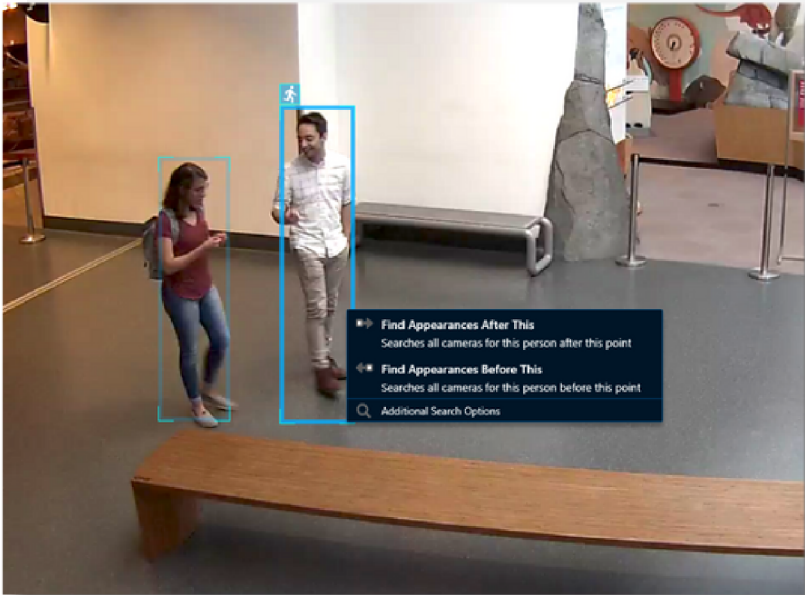
Quickly locate a person or vehicle over vast amounts of recorded video with ease.

Avigilon Appearance Search™ technology reviews hours of video in minutes to find a person or vehicle based on appearance characteristics. This saves time for staff members, reduces response times, and reduces the potential for human error.

Criteria for finding people include: clothing color, gender, hair color, and age category, with categories for adults and children. Criteria for vehicles include: color, model, and type of vehicle. Available vehicle type categories include: car, bus, truck, motorcycle, and bicycle.

Whether searching for a specific individual or an unknown person based on a partial description, staff can narrow results down to relevant video. Equipped with this technology, personnel can zero in on a person or vehicle of interest and follow their activities as long as they are in the building.

After locating relevant video, staff can play and bookmark it, building a narrative related to persons of interest. If needed, staff can export and share video, images, search results, or bookmarked narratives from ACC software.

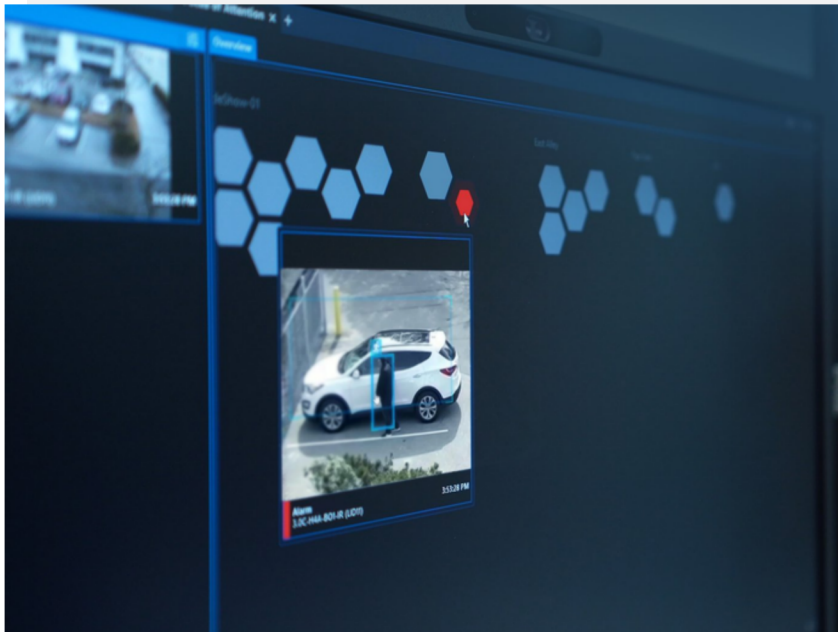


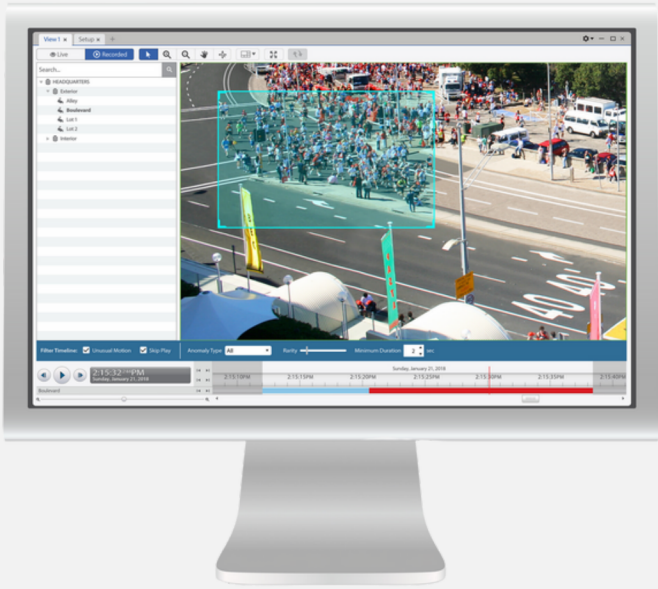
**Focus of Attention**

Bring the user a more intuitive way to consume information about potential security events.

With a flood of video footage from parking areas, entryways, corridors, and common areas, security staff and safety officers cannot watch and analyze video from every camera. ACC's interface uses AI analysis to filter out camera feeds showing routine activity and direct your staff's focus to areas where their evaluation of events is crucial.

The ACC interface uses color-coded camera tags to direct staff members' attention to the most pressing ongoing events. Each camera's detection status is displayed on the "Overview" screen of ACC, providing staff members with a clear picture of the state of events across sites. When a camera reports an event, staff can select it in the interface to actively view video from it. Events use a specific color to let staff know what a camera detected, helping them determine what camera video feeds to actively view.





**Unusual Motion Detection**

With hourly personnel and shift-based workforces, mining facilities operate based on rigidly timed schedules. Well-defined traffic patterns develop in all areas of a site or building.

Knowing what to expect helps to identify irregular activity, and may offer insight into developing threats or hazards.

With ACC software's Unusual Motion Detection (UMD) technology, artificial intelligence takes on the mind-numbing task of monitoring areas for abnormal activity. UMD filters out video feeds of routine footage, focusing staff on potential threats or abnormal activity. This feature uses recorded video to establish a typical motion pattern in an area without user input. UMD then alerts staff members if it detects motion that does not fit that pattern. Pattern recognition develops over a period of up to two weeks and, once established, flags areas based on abnormal movement. ACC software logs events based on detected movement anomalies, and tags video of an event for later reference.

Staff can search for events based on type, as well as event rarity and duration.

**Unusual Activity Detection**

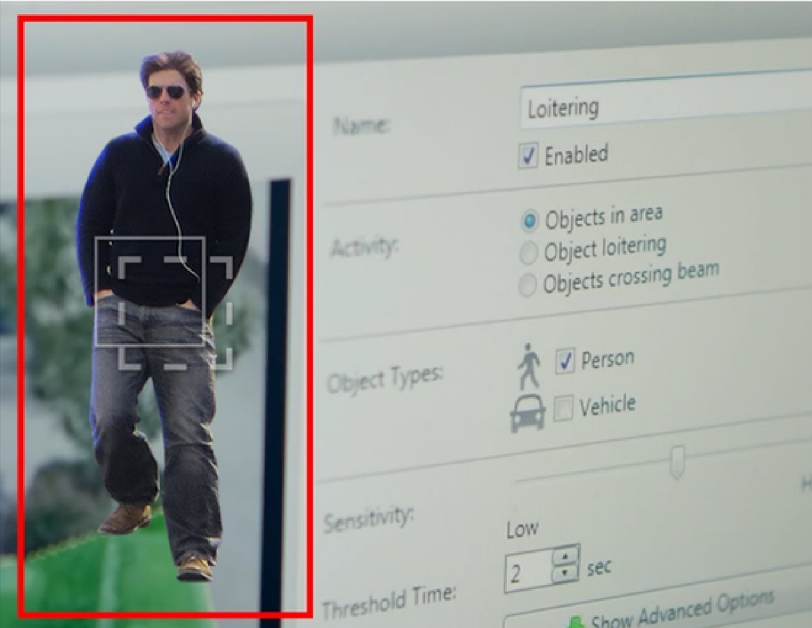
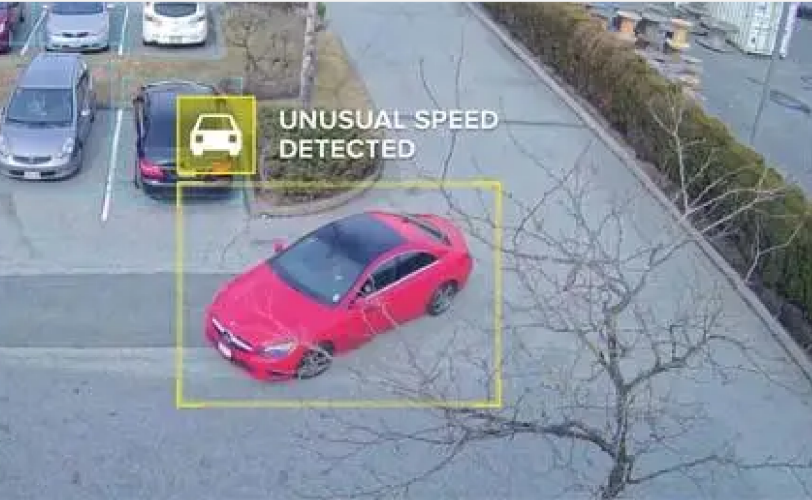
The Unusual Activity Detection algorithm continuously learns and adapts to the camera's field of view and flags people or vehicles behaving unusually. This is separate than the self-learning of the camera and analyses unusual events performed by detected people or vehicles.

**Self-Learning**

Artificial intelligence can enhance your team's surveillance capabilities by reviewing hours of video input to "learn" what to expect and identify pattern disruptions that may indicate a developing threat or hazard.

The self-learning feature supports Avigilon video analytics, better recognizing people and vehicle movement patterns over time without user input to provide more accurate alerts. Video analytics review past motion detection events to build up patterns that indicate whether a person or vehicle is in motion. Video analytics use those patterns to filter out background movement.

In addition to reducing false alarms, self-learning analytics simplify searching archived video. Video analytics highlight videos with moving people or vehicles, filtering out video of unimportant background movement.

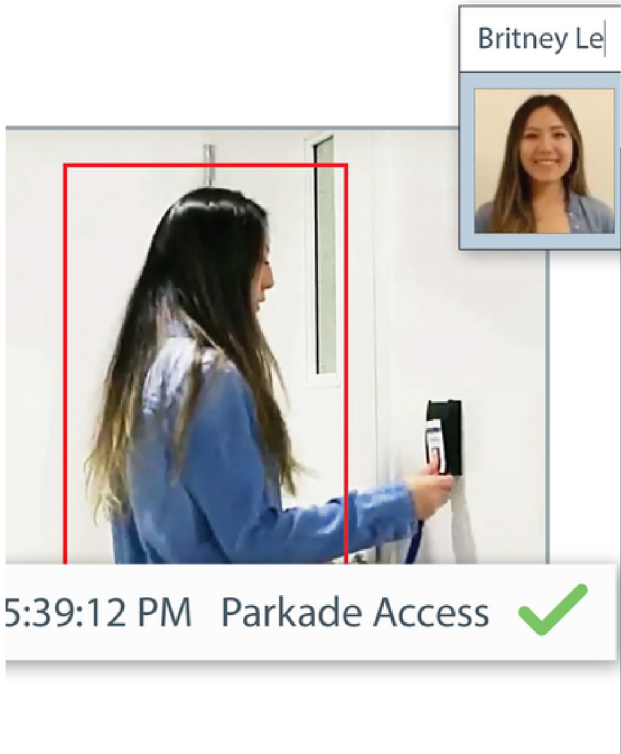




**Teach by Example**

Though Avigilon video analytics learns patterns without input, staff can help speed the learning process and improve object classification using the Teach By Example function.

With this function, staff apply markers to recorded video of a moving person or vehicle so that video analytics can compare that footage with live video. As more markers are added in different environmental conditions, video analytics becomes increasingly accurate in classifying people or objects in motion.



**Identity Search**

To effectively control access to high security areas, your staff needs to be able to verify the identity of cardholders and quickly locate any imposters. Linking facility access attempts with recorded video makes it easy for staff to determine if a badge has been stolen or if an abnormal access attempt represents a developing threat.

Identity Search combines the facility protection capabilities of ACM with video analytics included with ACC software. Using a person's name or badge ID, staff can retrieve a record of a person's movements within the facilities based on what doors they attempted to open. Staff can refine results by changing what doors to include results for and setting a date range for access events.



### **Video Infrastructure**

Simplify asset management, streamline video security servers and experience high-performance recording with Avigilon Video Infrastructure solutions.

Avigilon's video infrastructure and NVR camera security solutions provide high-quality and reliable performance, with scalable storage and preconfigured software for efficient deployment. Minimize server maintenance and optimize business needs with cloud-connected health monitoring.

### **Network Video Recorder**

The Avigilon Network Video Recorders deliver unparalleled, high performance recording, throughput, data availability, and protection for your Avigilon video security system.

Featuring the densest storage capacity Avigilon has to offer on a single NVR, security teams can scale up to petabytes of storage at a single location, with up to 432 TB in storage per NVR.

All NVR models come optimized with RAID technology, hot swappable drives, and a five-year Avigilon warranty, with dedicated support to increase system uptime and availability.

### **AI Appliance**

The AI Appliance enhances the security of your site by incorporating Avigilon Next-Generation Video Analytics on non-analytic cameras.

The AI Appliance comes in two models to support up to 60 cameras for site scalability and performance. With its Next-Generation Video Analytic capabilities, the AI Appliance can support expanded object detection classification, Unusual Activity Detection (UAD), Facial Recognition technology, Avigilon Appearance Search technology, and COVID-19 response technologies.

The Avigilon Rugged Appliance is purpose-built to meet the challenges that are commonly faced in mining and critical infrastructure applications. As a rugged device, it incorporates a fan-less design, solid-state storage and an 8-port PoE switch, all packaged in a heavy-duty enclosure. As a result, it is designed to provide a reliable solution that is suited for harsh environmental conditions such as extreme temperatures, without requiring the addition of expensive heating or air conditioning systems.





## Cameras

No matter the size of your organization, our on-premise video security solutions give you complete control over your video data, coupled with robust cybersecurity to ensure your site is always protected.

As your organization grows, your situational awareness needs to grow with it. Avigilon on-premise video security can support anywhere from one to 10,000+ cameras per site.

The fixed camera portfolio includes cameras and technologies for any application, from 1-61 MP resolution in fixed, moving and multisensor options, to infrared (IR) and LightCatcher™ technology to help you see more in dark environments, to a 360-degree view for broad coverage with fewer cameras.

Depending on the location, function and image details requirements, various camera models are available.



**Bullet and Box IP Security Cameras - See Far and Wide**

Utilise custom deployments that meet the unique monitoring needs of your site. Instantly be alerted of potentially critical events and easily see what’s happening, even at a great distance.

See your site with greater clarity at longer distances with Avigilon’s high-definition indoor and outdoor bullet security cameras and achieve a high level of imaging detail with multiple lens options with our box security cameras.

**H6SL Bullet Camera**

Proactively protect your sites and gain superior situational awareness with the H6SL Bullet camera. Versatility meets high-performance in this analytics-enabled camera. See your site with clarity in low-light with adaptive IR options and sharp imaging of up to 5 MP. Take on the harsh elements of the outdoors with the H6SL Bullet’s sturdy exterior.



**H5A Thermal**

Secure sites that have poor visibility with long-range perimeter protection from the H5A Thermal camera. Detect people and vehicles in complete darkness, smoke, mist, foliage and more with the camera’s powerful heat-sensing technology. Keep people safe and prevent operational disruptions with optional radiometric capabilities to detect hot spots and overheating equipment.

**H5 Pro**

The H5 Pro camera is Avigilons’ most powerful and highest resolution camera yet. It captures stunning image detail up to 10K (61 MP) over vast areas, providing maximum scene coverage, while minimizing bandwidth and storage consumption through patented High Definition Stream Management (HDSM) 2.0 technology.



**H5A Box**

Accelerate your response times with the H5A Box camera from the H5A camera line, featuring Next-Generation Video Analytics. Using AI, the camera can detect up to 50 people or vehicles in a scene, even if they are stationary, providing you with greater accuracy for perimeter protection and in crowded environments.

**H5A Bullet**

Accelerate your response times with the H5A Bullet camera from the flagship H5A camera line, featuring Next-Generation Video Analytics. Using AI, the camera can detect up to 50 people or vehicles in a scene, even if they are stationary, providing you with greater accuracy for perimeter protection and in crowded environments.



**PTZ IP security cameras**

Monitor large sites with a single pan, tilt and zoom security camera that lets you get the level of detail required for investigations.

Take control of an incident anytime, anywhere with HD indoor and outdoor PTZ IP camera systems that make it possible for you to proactively detect for critical events and verify evidentiary details.

**H5A PTZ**

Monitor large areas with ease with the H5A-PTZ camera. It combines 360-degree views, up to 36 – 40x zoom and Next-Generation Video Analytics so you never miss a moment. Available in 2, 4 and 8 MP resolutions, this camera delivers high-quality image detail, making it an ideal solution for critical infrastructure, parking lots and more.



**H5A IR PTZ**

Empowering you to see more in the dark, the H5A IR PTZ offers an automated IR illumination range of up to 300 meters and the ability to look 20 degrees above the horizon. Available in 2, 4 and 8 MP, the H5A IR PTZ delivers 360-degree views, up to 40x zoom and high-resolution imaging for superior visibility of vast sites in the most challenging lighting.

**H5A Rugged PTZ**

Built to last in the extremes, the H5A Rugged PTZ provides you with continuous reliability even in the harshest outdoor environments. It combines high-resolution imaging, 360-degree views and up to a powerful 36x zoom with an extremely strong and durable design that is backed by industry-leading protection ratings and standards.



**Panoramic IP Security Cameras**

Be covered from every angle with panoramic security cameras that provide up to 360-degree views from a single vantage point.

Blind spots are a challenge for wide areas. Obtain complete situational awareness with up to 360-degree panoramic security cameras that can proactively alert you of critical events through the power of AI.

**H5A Multisensor**

Secure your sites with superior 180, 270 or 360-degree views, so you're covered from all angles. Combining Next-Generation Video Analytics with three or four adjustable sensors provides you with one powerful solution. The Avigilon H5A Multisensor camera can monitor virtually any area in all lighting conditions to protect building corners, parking lots, intersections and more.



**H5A Fisheye**

The Avigilon H5A Fisheye Camera provides you with 360-degree coverage from a single vantage point, bringing superior situational awareness with zero blind spots and a simple install. Leverage the camera's high-resolution video and Next-Generation Video Analytics to proactively detect and alert you of critical events and enhance the security of your site.

**H5A Dual Head**

The Avigilon H5A Dual Head camera is a low-profile, dual-sensor security camera that increases your visibility of blind spots and hard to secure places such as hallways, stairwells, corner intersections and entry and exit points. Respond swiftly to critical events with built-in IR illumination and Next-Generation Video Analytics.



**Specialty IP security cameras**

Meet the security and safety needs of unique sites and applications with specially designed fixed IP cameras and sensors.

**H4 License Plate Capture (LPC) Camera**

Accurately identify license plate characters on vehicles going up to 100 km/h (62 mph) from a range of distances with the H4 LPC.

The H4 LPC camera can capture license plates on vehicles going up to 100 km/h (62 mph) in the most challenging lighting conditions. Using IR illumination and visible light filtering, the H4 LPC camera enables Avigilon License Plate Recognition (LPR) analytics to accurately identify license plate characters from a range of distances.



**H5A Corner Camera, Stainless Steel**

The H5A Corner security camera is an anti-ligature, no-grip and vandal-resistant solution that can handle the harshest attempts to destroy, detach, attach to or disable it. The stainless steel model provides an ideal solution for areas that require a camera with a wide field of view and a tough exterior that can protect against water and corrosion.

**H5A Modular Camera**

Protect tight spaces and areas that require an unobtrusive monitoring solution with our smallest camera yet. Its distributed design allows it to be installed in almost any environment. The Right Angle imager module can be installed behind false walls and ceilings for discreet applications.





## Drone Surveillance

Are you searching for a game-changing solution that combines unparalleled aerial imaging capabilities with unmatched efficiency?

This innovative payload brings together a high-resolution 20 MP zoom camera, a thermal camera, and a laser rangefinder, all in one compact unit. With these integrated sensors, it empowers professionals in industries such as mining to capture highly detailed and precise data from the sky.

Enhance your visual inspection capabilities with the 20 MP zoom camera. From inspecting infrastructure and buildings to monitoring open areas, this drone delivers sharp and detailed visuals, allowing you to identify even the smallest details from a safe distance. Gain unparalleled situational awareness and make informed decisions with confidence.

Unleash the power of thermal imaging for enhanced inspection and analysis. The thermal camera provides precise temperature measurements and reveals hidden heat signatures. This enables professionals to identify potential issues, such as energy inefficiencies or structural anomalies, that may not be visible to the naked eye. Expand your capabilities and improve the accuracy of your inspections with thermal imaging.

Accurate measurements made easy with the integrated laser rangefinder. The laser rangefinder enables precise distance measurements, enhancing your mapping and surveying workflows. With its reliable and accurate measurements, you can confidently generate detailed 3D models, volumetric calculations, and accurate mapping data.





## Body Worn Cameras

Body-worn cameras provide an invaluable first-person perspective. And now, these insights aren't just after the fact; equipped with multiple ways to connect, the VB400 gives you crucial insights when you need them most.



The VB400 body camera is designed to make it easy for your team to capture high-quality, first-person video. Body-worn cameras have become almost as important as two-way radios.

To improve accountability, discourage frivolous lawsuits and maintain the trust of the community, it's critical that your security capture video records of their interactions with citizens and people on site. The VB400 is a high-performance ruggedized camera that offers multiple options for connection and customization.

Both WiFi- and Bluetooth-enabled, the VB400 is optimized to perform when it matters most. The VB400 seamlessly fits around your existing workflows. All configuration and maintenance can be done ahead of time with our easy-to-use backend software, VideoManager – so your workers can grab their cameras and get to work with minimal training and disruption.

In the field, features including dual microphones, a wide-angle lens and intuitive buttons ensure that every interaction can be captured in high-definition from start to finish. All footage is stored and encrypted on the VB400 until it is redocked, at which point it is offloaded securely and automatically.

Your body-worn cameras should fit around your organization's routine operations – which means accommodating a variety of shift patterns, environments, and uniforms.

Use Peer-Assisted Recording to ensure every angle is being documented, stream over Wi-Fi to the Video Management System (VMS) that handles your fixed CCTV cameras, and use built-in GPS to keep track of your team's locations.

# WE PROTECT LIVES AND ASSETS ON SITE THROUGH TECHNOLOGY



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