Panasonic BUSINESS

i-PRO

i-PRO Active Guard System

Ver. 1.01

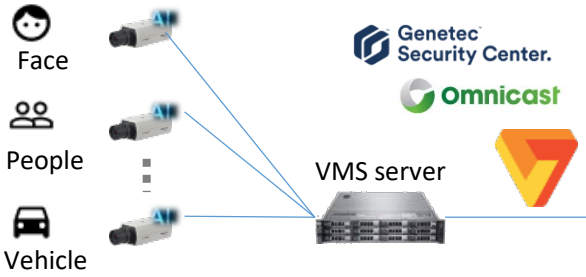
Panasonic i-PRO Sensing Solutions Co., Ltd.

Cutting edge intelligent search application by i-PRO

- **Easy and quick search**
  for images based on the external characteristics (attribute information) of people and vehicles.
- **Top class number of attributions to detect**
  in the surveillance industry to detect person and vehicle
- **No need for expensive analysis servers**
  as detection and attribute analysis is running on i-PRO AI network cameras and video management operation is available by VMS.

i-PRO Active Guard System - Overview

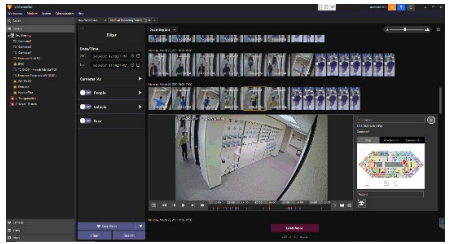
- ✓ With the combination of i-PRO camera and deep learning technology, you can quickly search for images from attribute information of people and vehicles.
- ✓ It supports the number of attributes of people and vehicles in the top class of the surveillance industry.
- ✓ Edge analytics eliminates the need for expensive analysis servers and provides low cost.



EDGE ANALYTICS

i-PRO Active Guard server on VMS server

- Receive and Store Metadata
- Provide the Ability to Search Event and Objects



i-PRO Active Guard Plug-in with VMS client

- Object (Face, People, Vehicle) Search
- Event Monitor and Search (AI-VMD, Sounds, Face)

Video Insight only

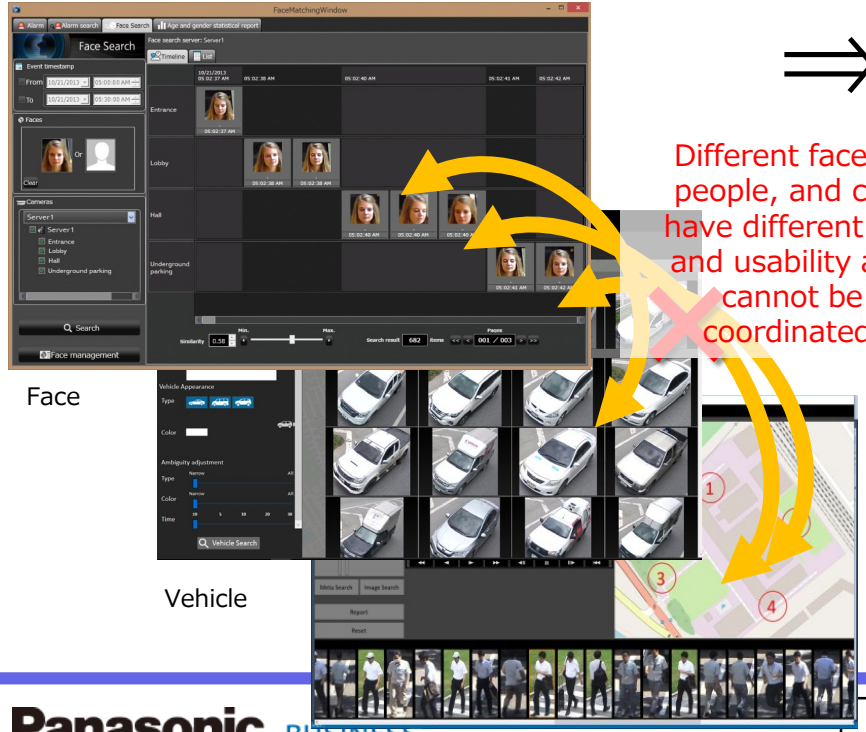
VI Guard

- Receive Notification
- Search Event and Objects

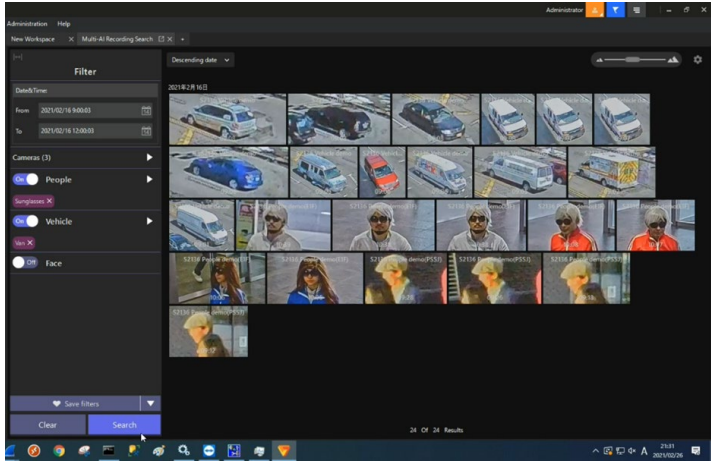
Integrated management by AI plug-in with VMS

AI plug-in provides valuable user experience which integrates multi AI function such as people/vehicle attribute and face then enables operator to find suspect conveniently

Before



After



Integrated management of multiple AIs for face, person, vehicle, etc.

i-PRO Active Guard System: line-ups

i-PRO AI Network camera function
AI Sound Classification

Apps for i-PRO AI network camera
AI Video Motion Detection (AI-VMD)
AI Face Detection
AI People Detection
AI Vehicle Detection

i-PRO Active Guard server/VMS Plug-in
i-PRO Active Guard server
i-PRO Active Guard Plug-in for Video Insight
i-PRO Active Guard Plug-in for Genetec*

*Plug-in for Genetec supports AI Face/People/Vehicle detection only. Sound Classification and AI-VMD are supported by Genetec VMS.

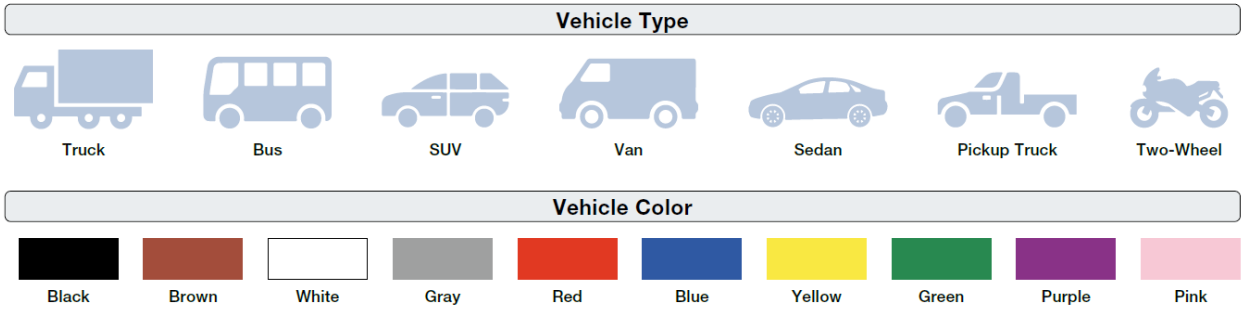
Object attributions to detect by AI applications

■ People attribution

Classifying characteristics of the human face and clothing into useful categories such as gender, age, clothing color, and wearing etc.

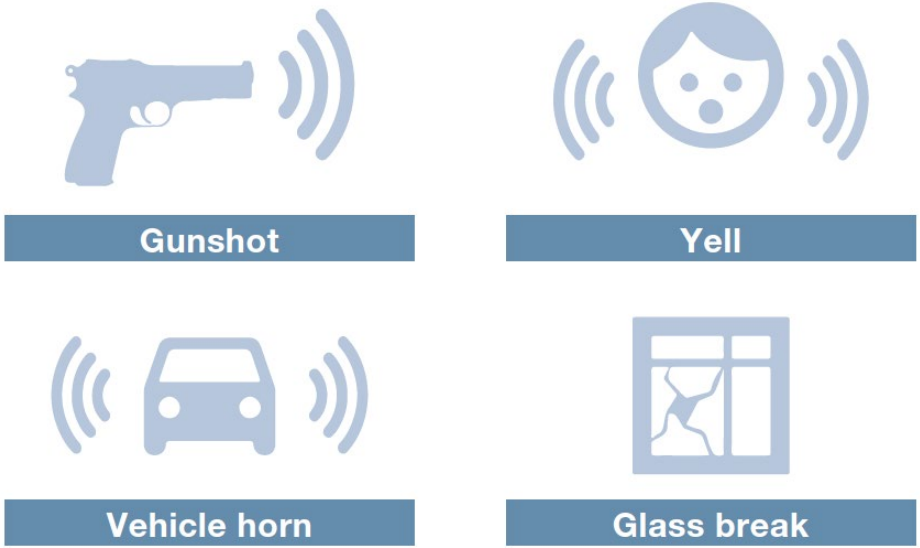
■ Vehicle/Motorcycle attribution

Classifying vehicle characteristics into useful categories such as types and color.



■ Detecting and classifying suspicious sound

Detecting and classifying suspicious sound as Gunshot, Yell, Vehicle horn, and Glass break. Requires external microphones.



Function

By combining Edge AI app. and i-PRO Active Guard server, post search and tracking& detection is enabled

Recording Search

1. Attribute Search
Enable to search* people or vehicle by attribute** information

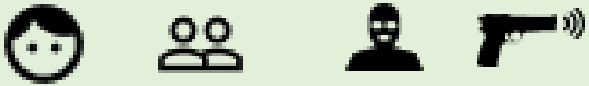
2. Similar search
Enable to search similar object based on previous search result

People Attribution | Vehicle Motor cycle Attribution | People Attribution | Vehicle Motor cycle Attribution

Event Monitor

3. Watch list alert
Enable to detect same person by facial watch list or people attribute watch list

4. Event alert
Enable to detect event with classified information and search event alarm



Face *** | People Attribution | AI-VMD | Sound detection

* People, vehicle and face best shot can be searched by date & camera
**Attribute information examples
- People: age, gender, hair type/color, top type/color, bottom type/color ..etc. - Vehicle : type, color
***It doesn't require FacePRO server or any GPU server

Recording Search - People search

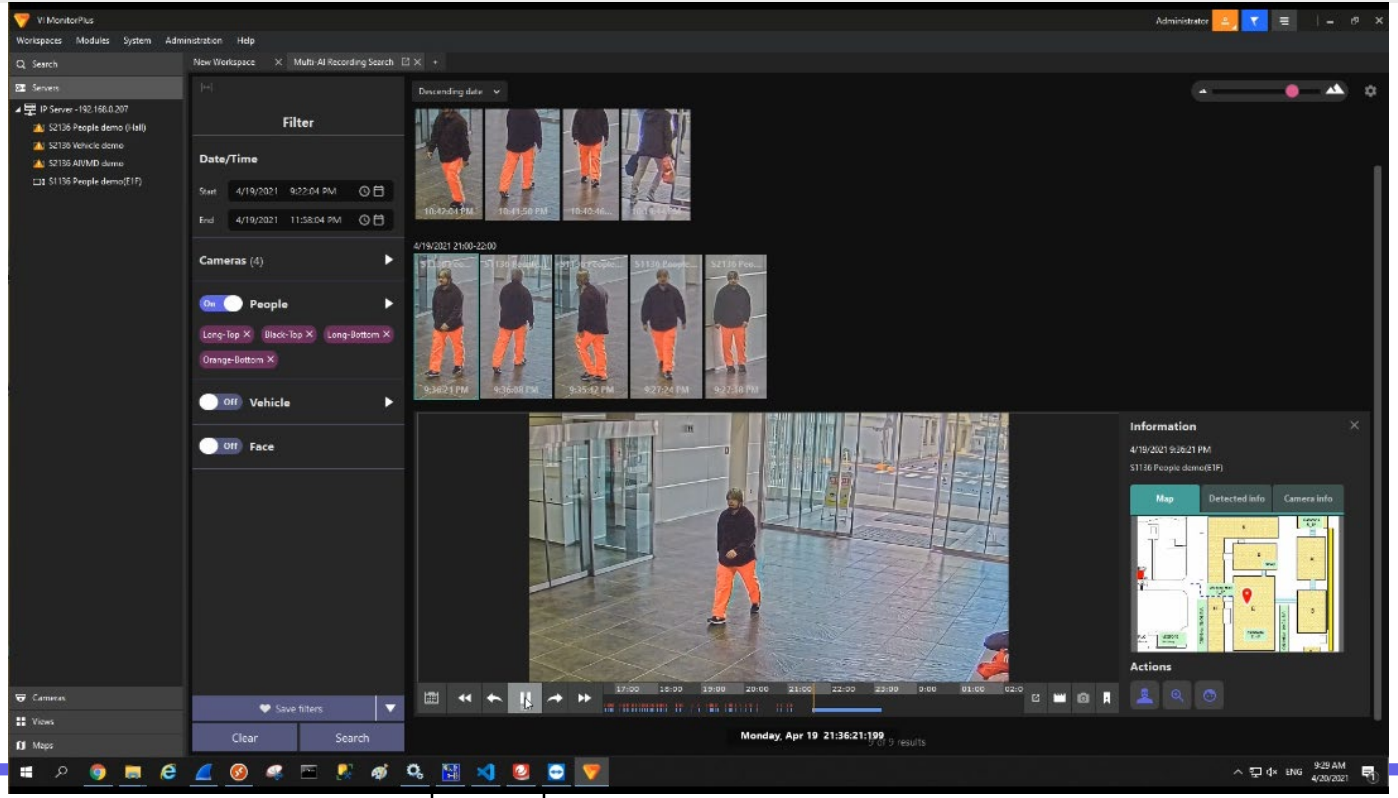
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Recording Search

1. Attribute Search
Enable to search people or vehicle by attribute information

People Attribution

Vehicle Motor cycle Attribution



Recording Search - People search - Similar search

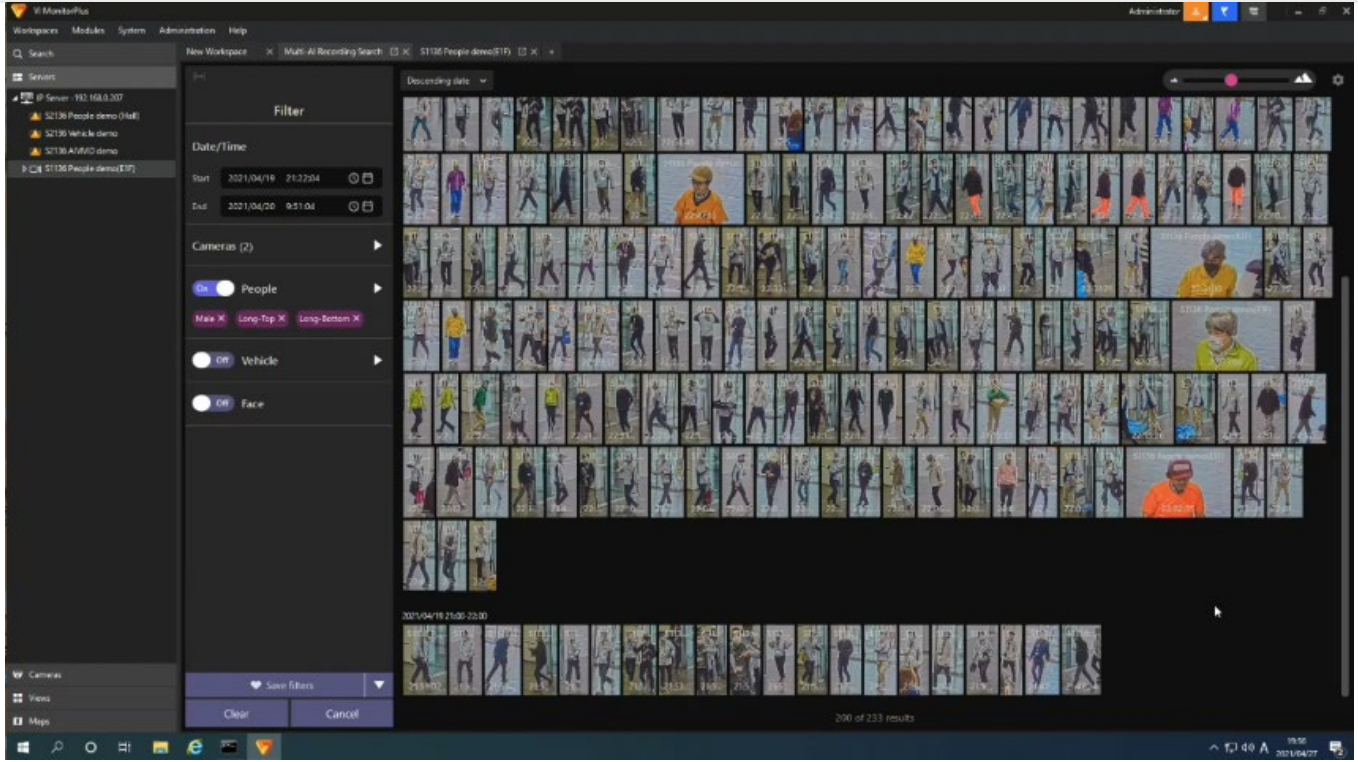
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Recording Search

2. Similar search
Enable to search similar object based on previous search result

People Attribution

Vehicle Motor cycle Attribution



Recording Search - Vehicle search

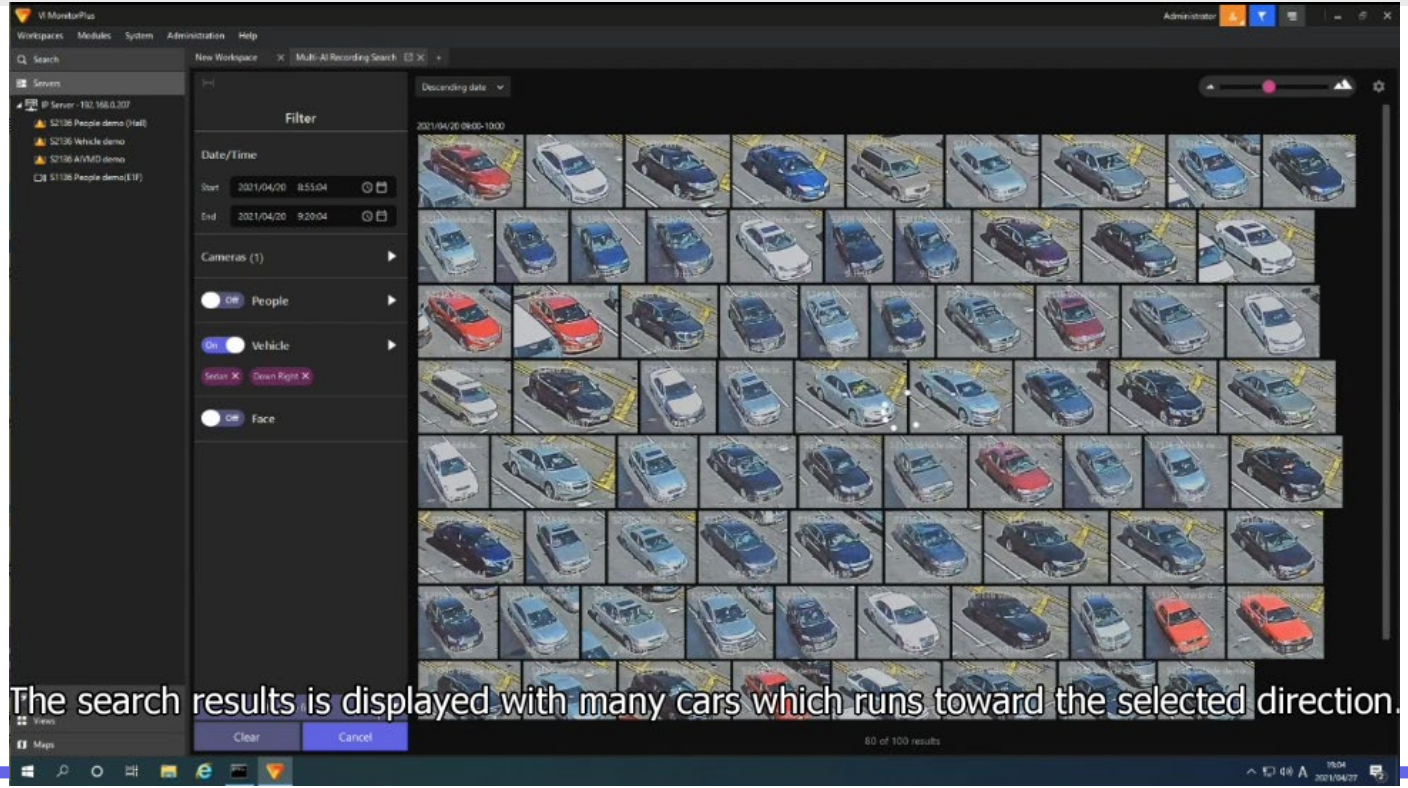
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Recording Search

1. Attribute Search
Enable to search people or vehicle by attribute information

People Attribution

Vehicle Motor cycle Attribution



Recording Search - Vehicle search - Similar search

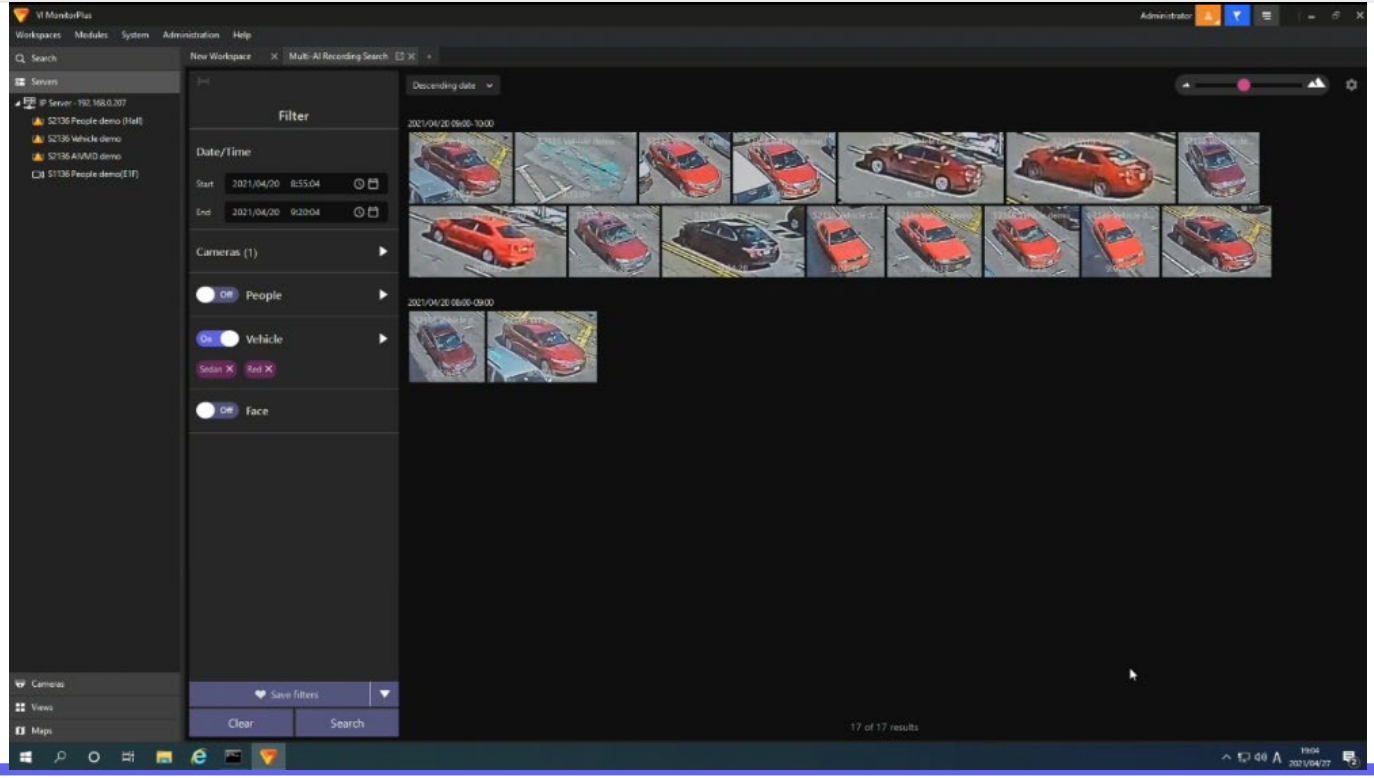
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Recording Search

2. Similar search
Enable to search similar object based on previous search result

People Attribution

Vehicle Motor cycle Attribution



Recording Search - People & Vehicle search

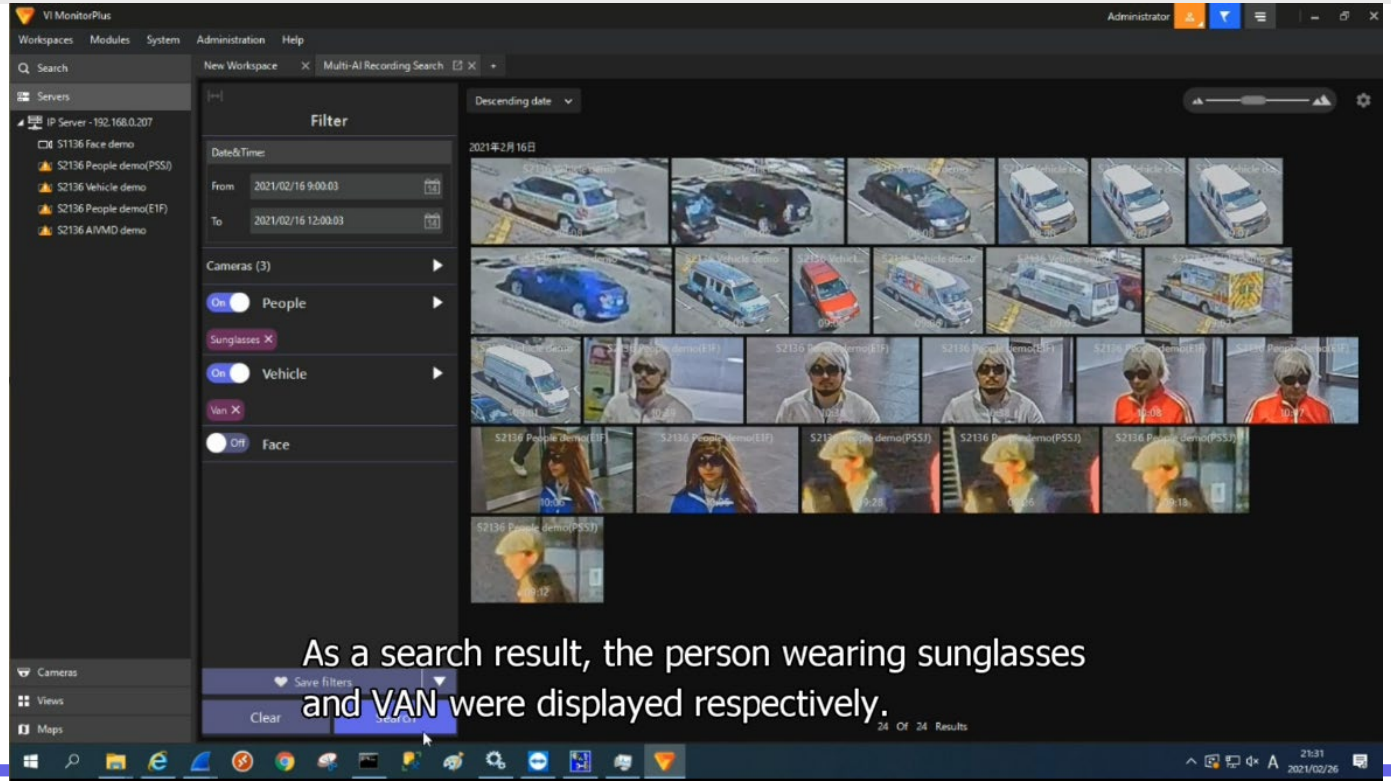
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Recording Search

2. Similar search
Enable to search similar object based on previous search result

People Attribution

Vehicle Motor cycle Attribution



Event Monitor - Face watch list 1)

By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Event Monitor

3. Watch list alert
Enable to detect same person by facial watch list or people attribute watch list

Face

People Attribution

Event Monitor - Face watch list 2)

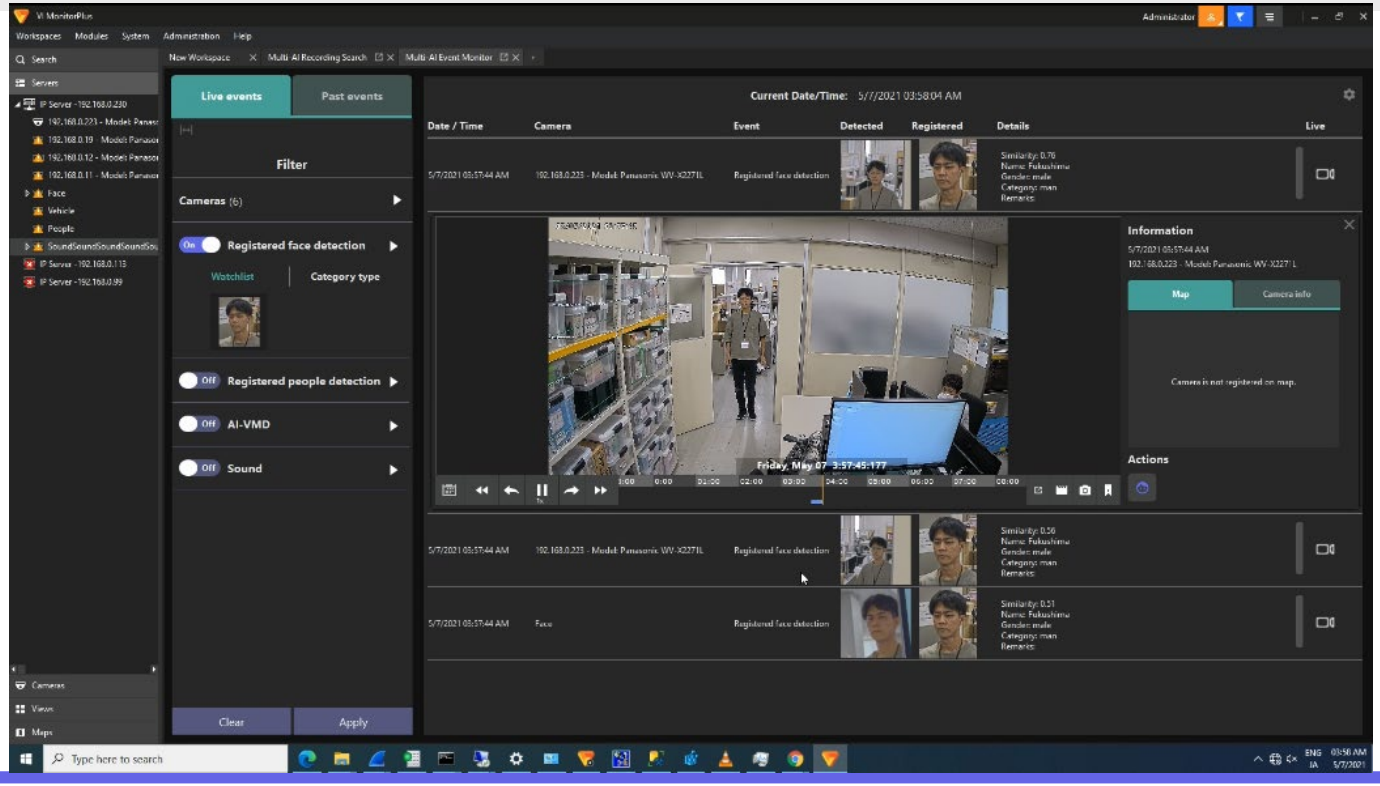
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Event Monitor

3. Watch list alert
Enable to detect same person by facial watch list or people attribute watch list

Face

People Attribution



Event Monitor - Face watch list 3)

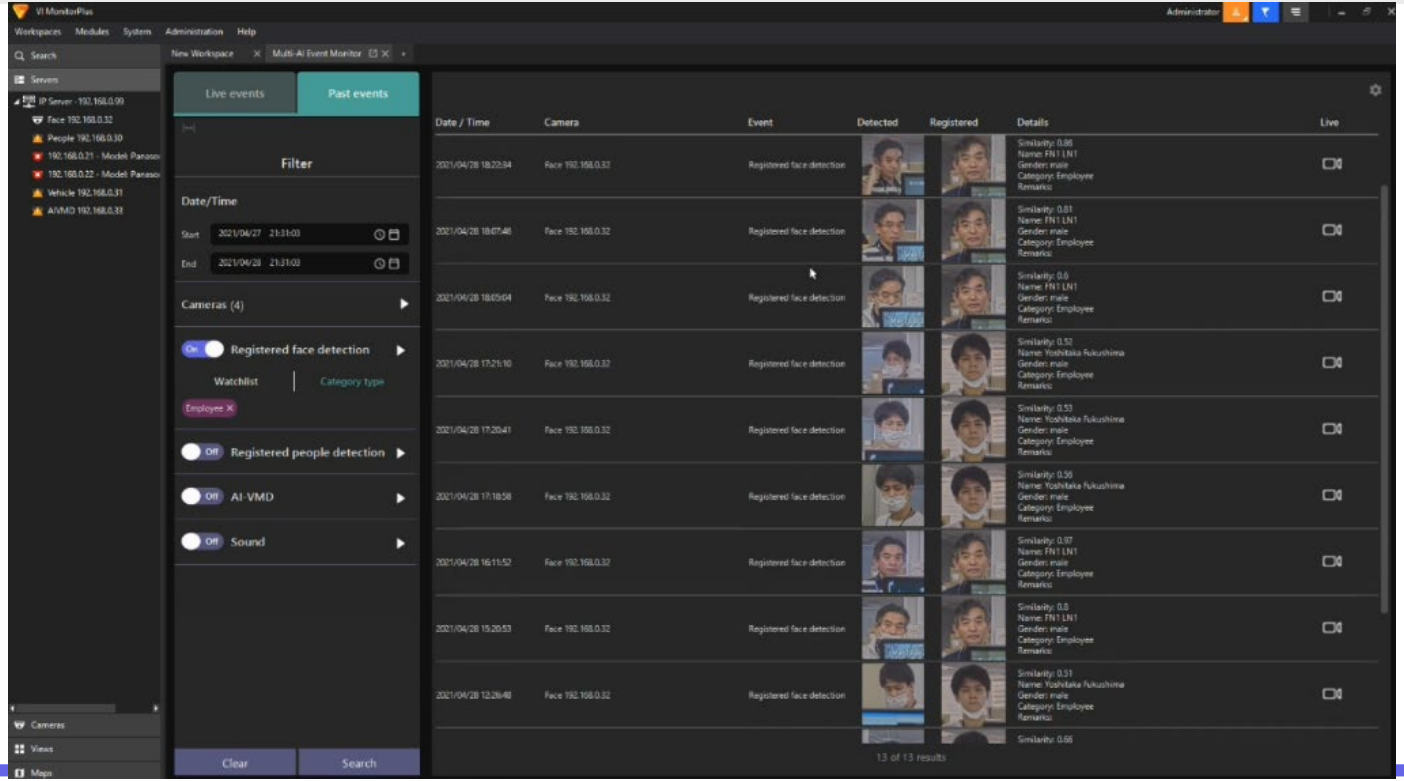
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Event Monitor

3. Watch list alert
Enable to detect same person by facial watch list or people attribute watch list

Face

People Attribution



Event Monitor - People watch list

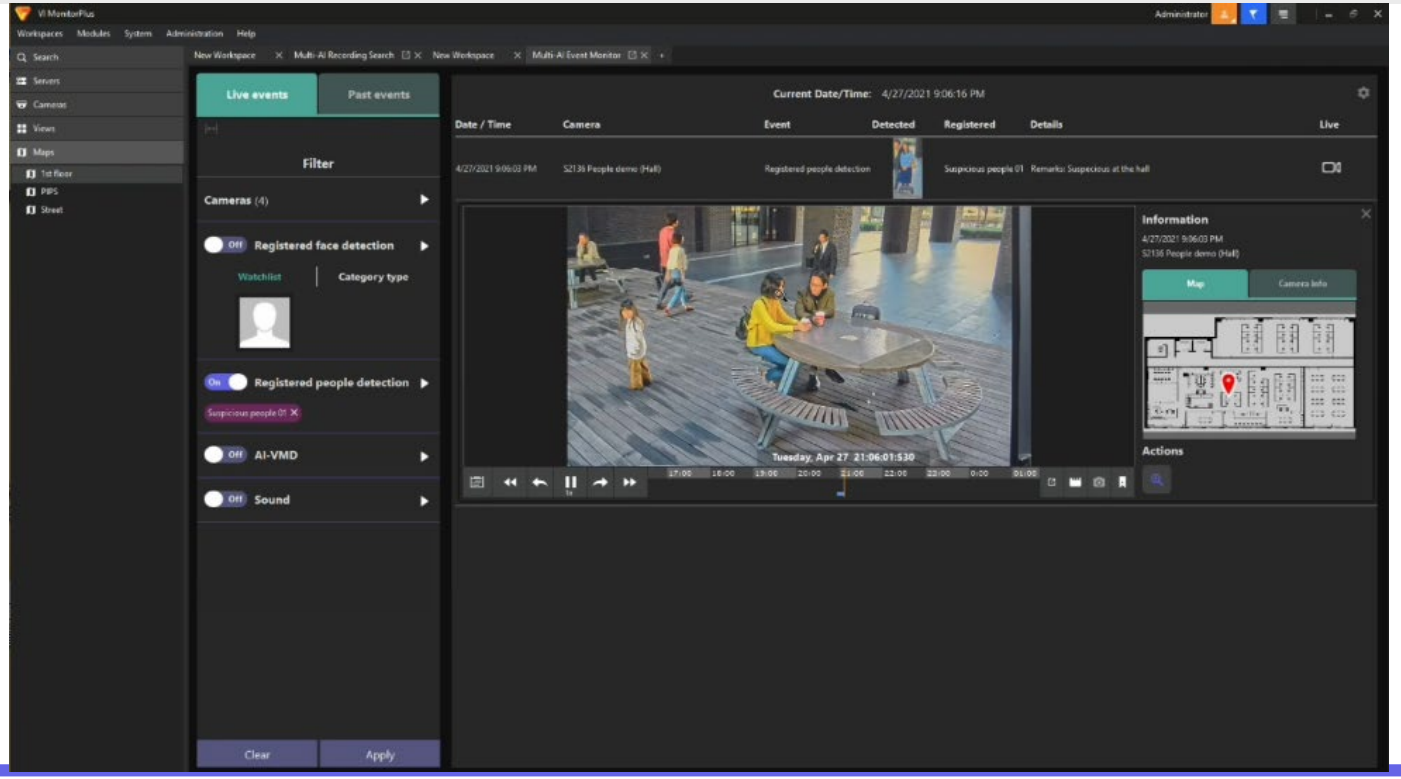
By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Event Monitor

3. Watch list alert
Enable to detect same person by facial watch list or people attribute watch list

Face

People Attribution



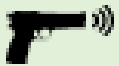
Event Monitor - AI-VMD, Sound detection

By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

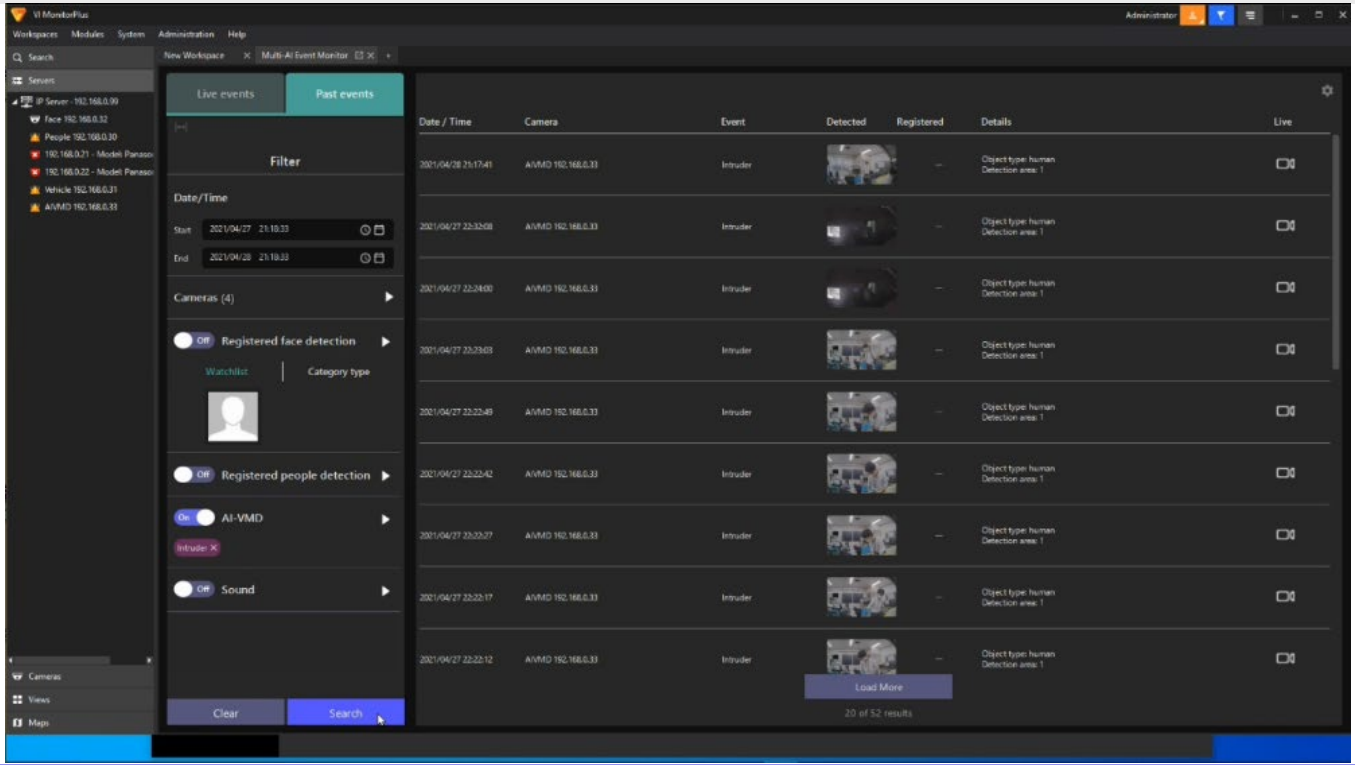
Event Monitor

5. Event alert
Enable to detect event with classified information and search event alarm

AI-VMD



Sound detection

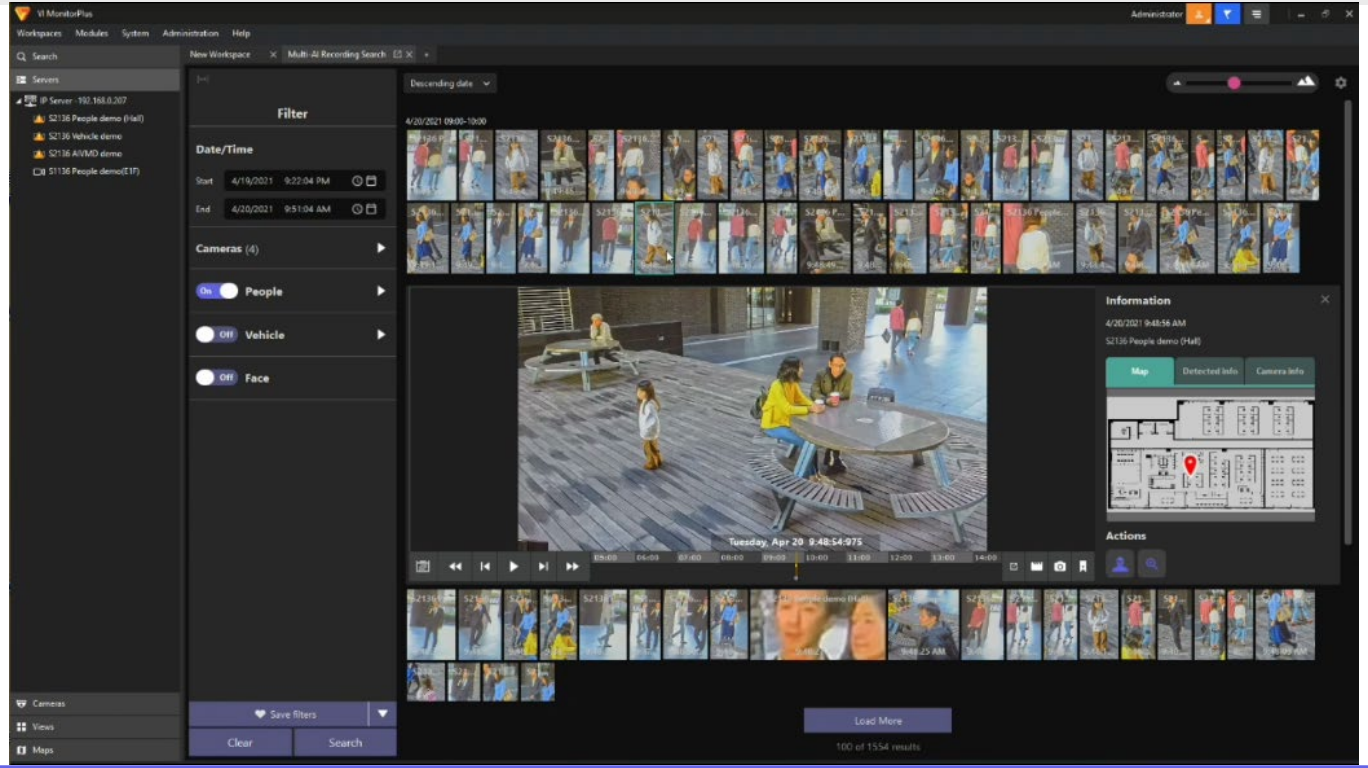


Function: Export & save

By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

Export and save

6. Export and bookmark
Enable to save video & thumbnail, taking snapshot, add bookmark and send mobile app.(VI only)



Attributes to detect by i-PRO Active Guard System

People	Gender	Male / Female
	Age	Child(0-10) / Young adult(11-20) / Adult(21-60) / Senior(61+)
	Hair type	long-hair/ short-hair / hat
	Hair color	5 (Black/Brown/White/Gray/Gold)
	Sunglasses	Sunglass / No Sunglasses
	Beard	Beard / No Beard
	Top type	long-sleeves / short-sleeves
	Top color	11 (Black/Brown/White/Gray/Green/Red/Blue/Yellow/Orange/Purple/Pink)
	Bottom type	short / long
	Bottom color	11 (Black/Brown/White/Gray/Green/Red/Blue/Yellow/Orange/Purple/Pink)
	Mask	Mask / No Mask
Vehicle	Type	7 (Truck/Bus/SUV/Van/Sedan/Pick-up/Two wheels)
	Color	10 (black / brown / white / gray / red / blue / yellow / green / purple / pink)
Sound	Type	Gunshot / Yell / Vehicle Horn / Glass break

Supported i-PRO camera

As of May 2021

Camera type	X series (*1)	New S series
Indoor Box		S1136 (Recommended model for AI Face Detection)
Outdoor BOX, Vandal resistance	X1571LN, X1551LN	S1536L(*2), S1536LN(*2)
Outdoor BOX, Vandal resistance, Long focal lens		S1536LTN (*2)
Indoor Dome		S2136, S2136L
Indoor Dome, Vandal resistance	X2271L, X2251L	S2236L
Outdoor Dome, Vandal resistance	X2551LN, X2571LN	S2536L(*2), S2536LN(*2)
Outdoor Dome, Vandal resistance, Long focal lens		S2536LTN (*2)

(*1) To be supported by Firmware V1.5.
(*2) To be launched

Specification of AI apps – Face, People

Face **(AI face detection app.)**	Conditions	Range of angle	Horizontal : 0° - 45°, Vertical: 0° - 30°
		Detection number at the same time	Max. 8 faces
		Size of face image	Recommended size : 60pix
		Min. illumination level	40 lux (TBD)
		Detect face with sunglasses	Yes
		Detect face with surgical mask	Yes
	Mask Area (non-detection area)		Max. 8 areas (polygonal) can be set
People **(AI people detection app.)**	Conditions	Range of angle	Vertical: 0° - 45°
		Detection number at the same time	Max. 20 people
		Size of people image * shoulder width@ Full HD	Min. size for detection: 30pix Min. size for analyzing attribute: 60pix Recommended size : 100pix
		illumination level	Min. 10lux 50 lux is required for analyzing age and gender attribute.
	Mask Area (non-detection area)		Max. 8 areas (polygonal) can be set

Specification of AI apps – Vehicle, Sound

Vehicle **(AI vehicle detection app.)**	Conditions	Range of angle	Vertical:0° - 90°
		Detection number at the same time	Max. 20 vehicle
		Size of vehicle image	Min. size :70pix for the shorter axis (about 15-20m ahead) Recommended size :112pix for the shorter axis
		Min. illumination level	5lux
	Mask Area (non-detection area)		Max. 8 areas (polygonal) can be set
Sound **(AI sound classification func.)**	Conditions	Sound detection	yes
		AI Sound classification	Gunshot/Yell/Vehicle Horn/Glass break Target sound is 6dB louder than crowd. Target sound continues more than a second.(except for gunshot)
		Detective distance	Yell/ Grass break : 8m Gunshot/ Vehicle horn : 30m @ambient noise level 60dB
		Requirements for external microphone	1. Frequency characteristics: support 200Hz to 8kHz 2. Omnidirectional microphone Confirmed microphone (may not be available in your region) ECM-CS3 (SONY), AT9904 (audio-technica)
		SD card recording	No

Specification of i-PRO Active Guard server software

System (i-PRO Active Guard server software)	Scale	Supported camera	AI camera *X series(4K or 5MP) and New S-Series (2MP) * The recommended camera for face matching will be presented separately.
		Number of camera (Channels)	1 to 100 cameras when AI soft is installed inside of VMS server (face application is up to 20) 1 to 300 cameras when AI soft is installed to dedicated server (face application is up to 60) * From the point of matching processing, the number of face matching functions is limited.
		Number of client connections	Unlimited (up to 64 for VI Monitor plus)
		Number of connectable VMS servers (VI)	12 units (VI server)
	Store	Retention period	Max. 31 day limitation
	Recording Search	Filter	People , Vehicle (attribute*, date&time, camera, moving direction**) Face (only for specific date&time, camera) *Moving direction : Up / Right / Down / Left / UpRight / UpLeft / DownRight / DownLeft **Search exclusive color search (other than selected color) **Search color image only (exclude result of B/W mode)
		Similar search	People, Vehicle : Yes (by same attribute information) / Face: No Search option : Search for exactly similar characteristics (less false alert) / Search for similar characteristics (less missing result)
		Sort	In order of date, in order of relevance
	Alarm	Watch list alarm	Up to 1,000 face Up to 12 people attributes
		Detection alarm	AI sound classification (Gunshot, Glass break, Vehicle horn, Yell) AI-VMD (Intruder / loitering / moving direction / line cross)
		Related function	Show alarm on real-time, alarm search, VMS's Rules configuration, Map overlay (VI only), Notification to mobile app (VI only)
	Playback	Playback	Playback when thumbnail is clicked, full screen playback
		Save thumbnail	Yes
		Export video clip	Yes

Specification of i-PRO Active Guard server software

	VMS		Product	Product
System (i-PRO Active Guard server software)	Supported VI software	Server	VI IP server • VI Express is not supported	V7.8.3 or later
		Client	VI MonitorPlus	
	Supported Genetec software	Server	Security Center	V5.10.1 or later
		Client	Security Desk	

i-PRO