

# 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.

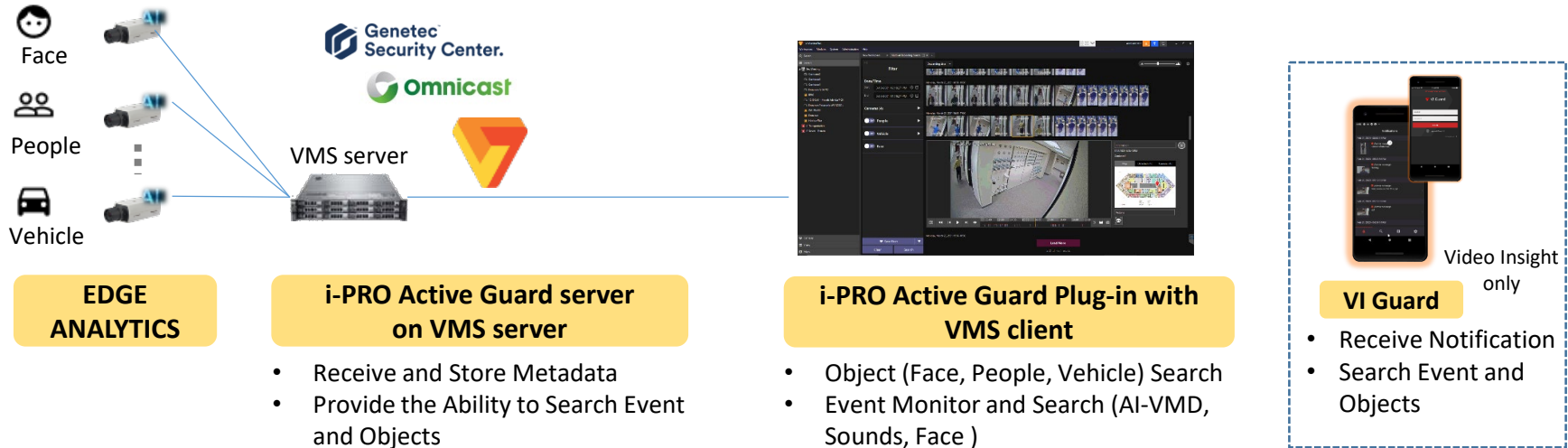
- **Top class number of attributions to detect**

in the surveillance industry to detect person and vehicle

- **No need for expensive analysis servers**

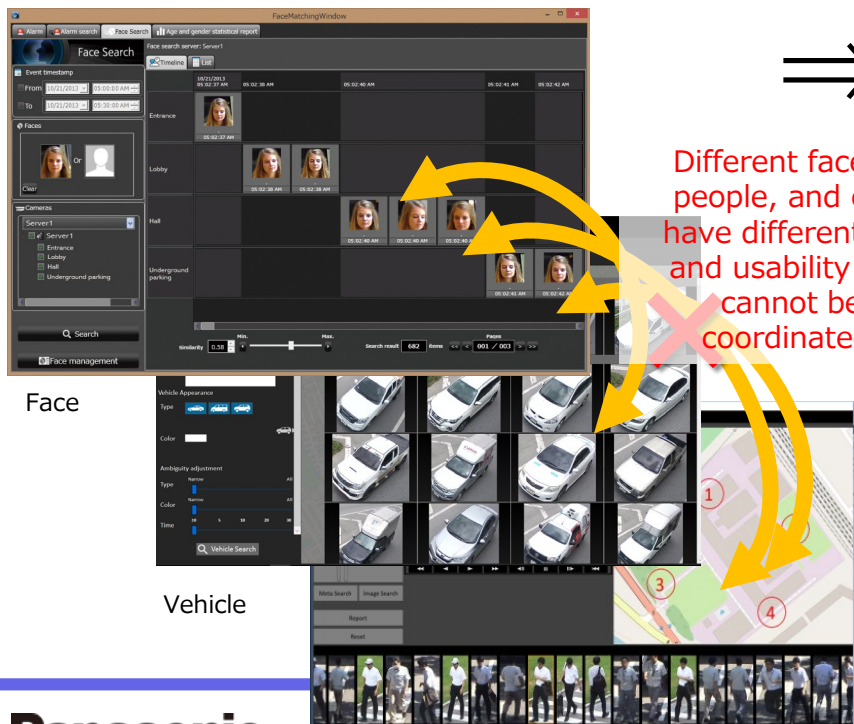
as detection and attribute analysis is running on i-PRO AI network cameras and video management operation is available by VMS.

- ✓ 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.



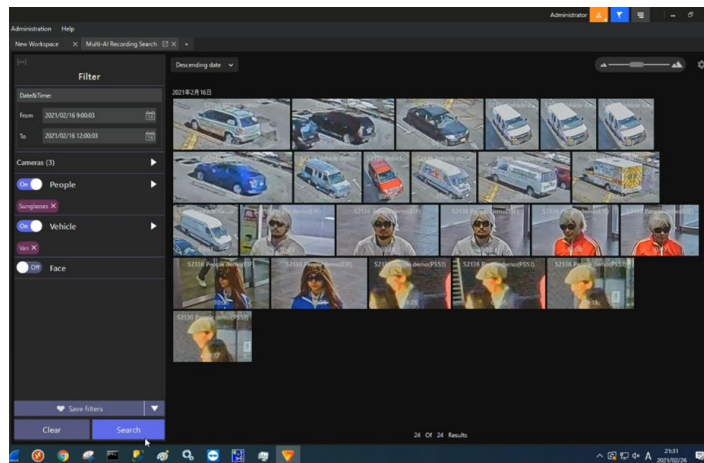
AI plug-in provides valuable user experience which integrates multi AI function such as people/vehicle attribute and face then enables operator to find suspect conveniently

Before



Different faces, people, and cars have different UIs and usability and cannot be coordinated.

After



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

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\*



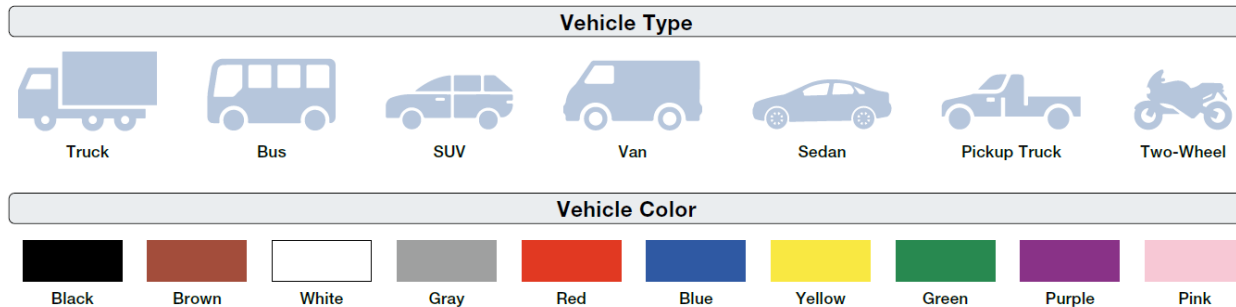
\*Plug-in for Genetec supports AI Face/People/Vehicle detection only. Sound Classification and AI-VMD are supported by Genetec VMS.

## ■ 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.



Gunshot



Yell



Vehicle horn



Glass break

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



People Attribution



Vehicle Attribution  
Motor cycle Attribution



People Attribution



Vehicle Attribution  
Motor cycle Attribution

### 2. Similar search

Enable to search similar object based on previous search result

## Event Monitor

### 3. Watch list alert

Enable to detect same person by facial watch list or people attribute watch list



Face \*\*\*



People Attribution



AI-VMD



Sound detection

### 4. Event alert

Enable to detect event with classified information and search event alarm

\* 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



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 Attribution  
Motor cycle Attribution

The screenshot shows the V-MonitorPlus software interface. The search results are filtered for 'People' with attributes: 'Long-top', 'Black-top', 'Long-Bottom', and 'Orange-Bottom'. The search criteria are: Start: 4/19/2021 9:22:04 PM, End: 4/19/2021 11:58:04 PM. The search results show a video player displaying a person in a hallway, and an information panel displaying details about the detected person: 4/19/2021 9:26:21 PM, S1136 People demo(E1F).

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

## Recording Search

### 2. Similar search

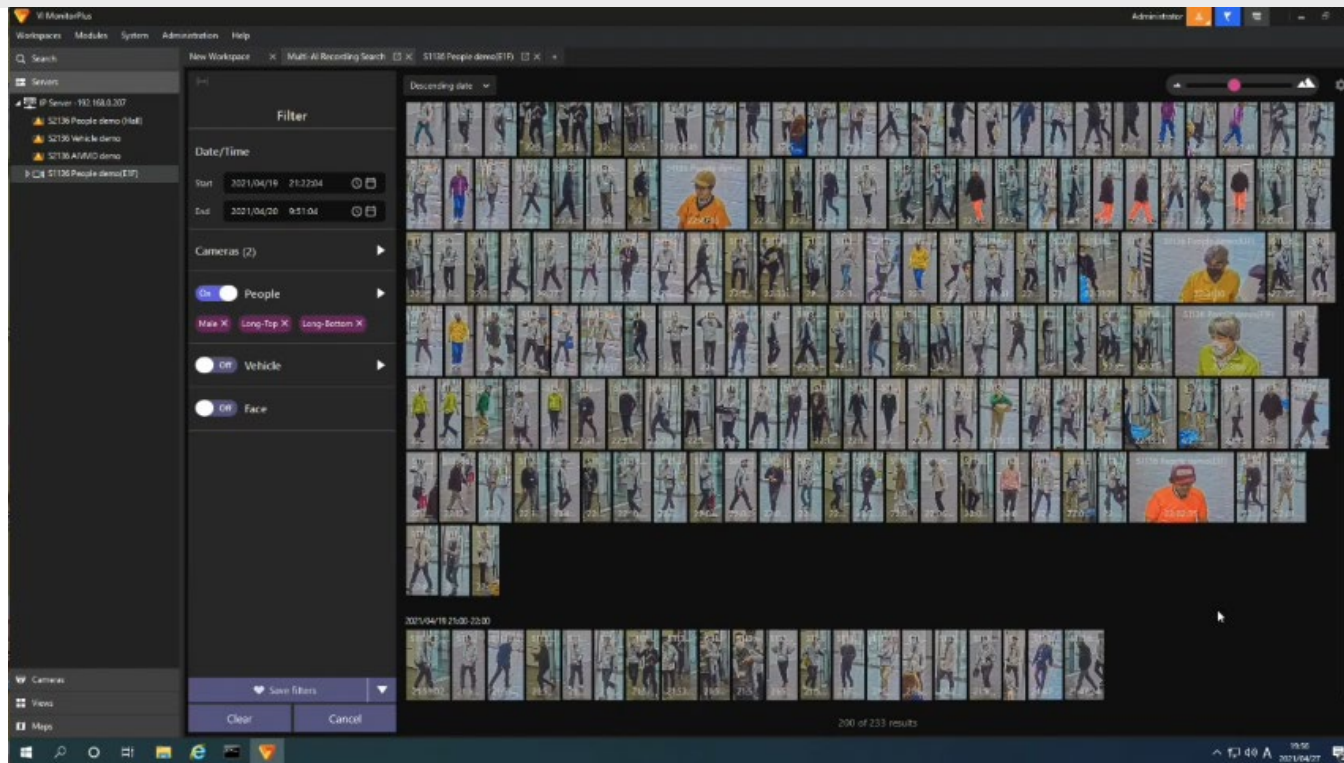
Enable to search similar object based on previous search result



People Attribution



Vehicle  
Motor cycle  
Attribution



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

## Recording Search

### 1. Attribute Search

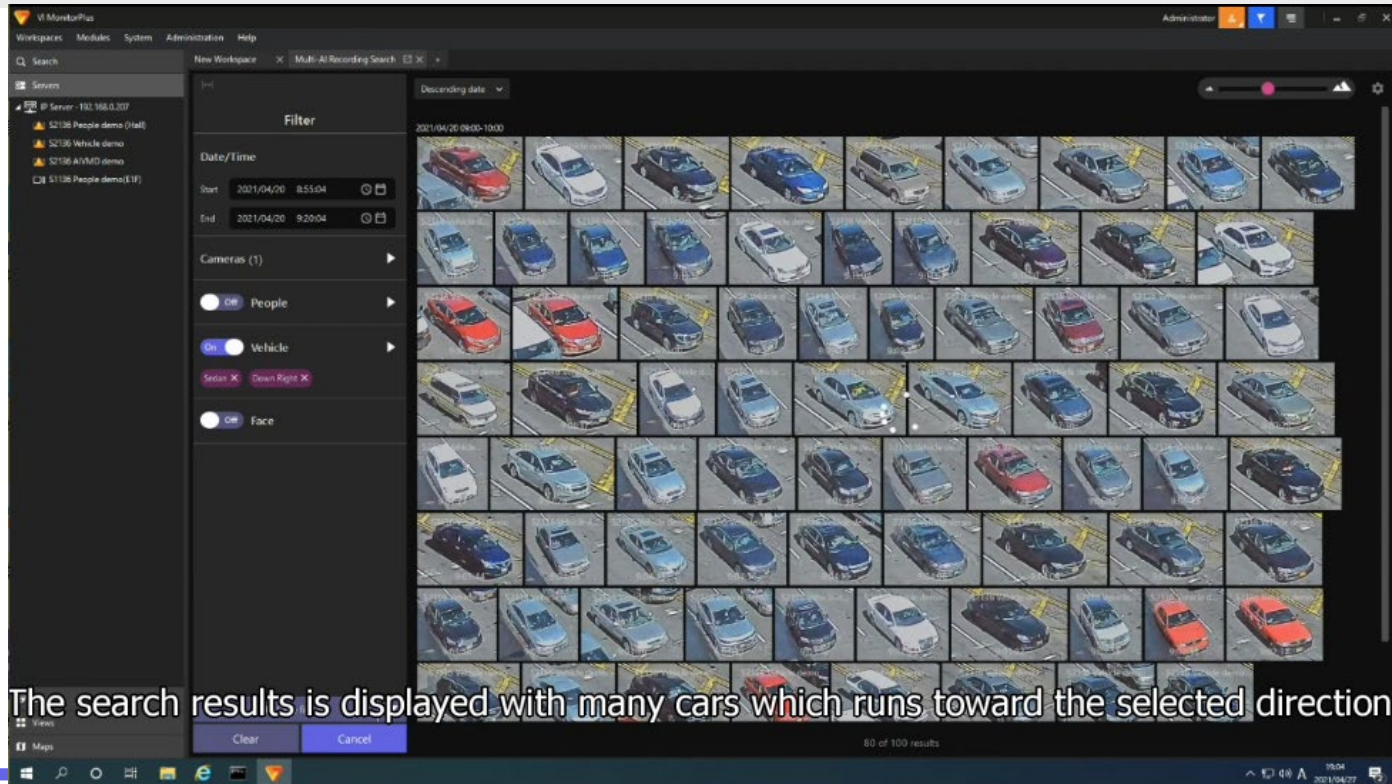
Enable to search people or vehicle by attribute information



People Attribution



Vehicle Attribution  
Motor cycle Attribution



The search results is displayed with many cars which runs toward the selected direction.

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

## Recording Search

### 2. Similar search

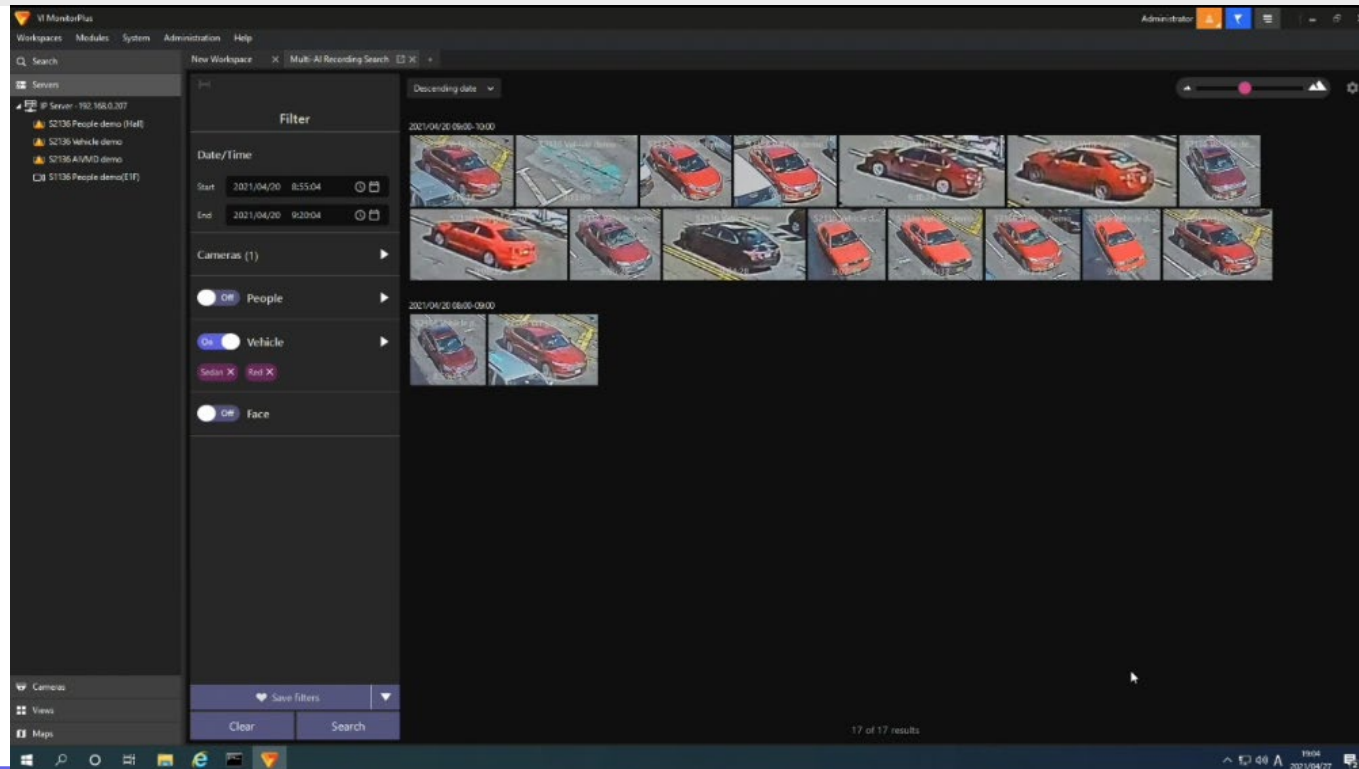
Enable to search similar object based on previous search result



People Attribution



Vehicle Attribution  
Motor cycle Attribution



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 Attribution  
Motor cycle Attribution

The screenshot displays the VI MonitorPlus software interface. On the left, a sidebar lists servers and cameras. The main area is divided into a 'Filter' panel and a grid of video thumbnails. The 'Filter' panel shows 'Date&Time' from 2021/02/16 9:00:03 to 12:00:03, and 'Cameras (3)' with 'People' and 'Vehicle' toggled on. The 'Filter' panel also shows 'Sunglasses' and 'Van' selected. The video thumbnails show various scenes with detected objects highlighted in red bounding boxes. A text overlay at the bottom of the screenshot reads: 'As a search result, the person wearing sunglasses and VAN were displayed respectively.'

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

The screenshot displays the i-PRO Event Monitor software interface. On the left, a sidebar contains a 'Filter' section with 'Date/Time' (Start: 2021/05/20 13:41:45, End: 2021/05/21 13:41:45), 'Cameras (4)', and detection categories: 'People' (OFF), 'Vehicle' (OFF), and 'Face' (ON). The main area features a grid of camera feeds with face detection overlays. A central video player shows a larger view of a person. On the right, an 'Information' panel displays a map, 'Detection info', and 'Camera info'. At the bottom, a 'Load More' button and '100 of 243 results' are visible.

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

The screenshot displays the i-PRO Event Monitor software interface. On the left, a sidebar shows a list of servers and cameras. The main area is divided into a 'Filter' panel and a 'Live events' table. The 'Filter' panel includes options for 'Registered face detection' (checked), 'Registered people detection' (unchecked), 'AI-VMD' (checked), and 'Sound' (unchecked). The 'Live events' table shows a table with columns for Date/Time, Camera, Event, Detected, Registered, Details, and Live. A video player in the center shows a live feed from a camera. Below the video, there are three rows of event details, each showing a 'Registered face detection' event with a 'Watchlist' alert. The first row shows a similarity score of 0.70 for Name: Fukushima, Gender: male, Category: man. The second row shows a similarity score of 0.56 for Name: Fukushima, Gender: male, Category: man. The third row shows a similarity score of 0.51 for Name: Fukushima, Gender: male, Category: man. An 'Information' panel on the right shows the camera's location on a map and provides details about the event.

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

The screenshot displays the 'Event Monitor' interface. On the left, there are settings for 'Live events' and 'Past events', a 'Filter' section with 'Date/Time' (Start: 2021/04/27 21:31:03, End: 2021/04/28 21:31:03), 'Cameras (4)', and detection options for 'Registered face detection' (On), 'Registered people detection' (Off), 'AI-VMD' (Off), and 'Sound' (Off). The 'Watchlist' is set to 'Employee X'. The main area shows a table of detected faces with columns for Date/Time, Camera, Event, Detected, Registered, and Details. The table lists 13 entries, all for 'Registered face detection' events on 2021/04/28 from camera 'Face 192.168.0.32'. Each entry includes a 'Detected' image, a 'Registered' image, and a 'Details' column with fields for Similarity, Name, FN, LN, Gender, Category, and Remarks. The bottom right of the table indicates '13 of 13 results'.

Date / Time	Camera	Event	Detected	Registered	Details	Live
2021/04/28 18:29:34	Face 192.168.0.32	Registered face detection			Similarity: 0.85 Name: FN   LN1 Gender: male Category: Employee Remarks:	
2021/04/28 18:07:46	Face 192.168.0.32	Registered face detection			Similarity: 0.81 Name: FN   LN1 Gender: male Category: Employee Remarks:	
2021/04/28 18:05:04	Face 192.168.0.32	Registered face detection			Similarity: 0.8 Name: FN   LN1 Gender: male Category: Employee Remarks:	
2021/04/28 17:21:10	Face 192.168.0.32	Registered face detection			Similarity: 0.52 Name: Toshikata Fukuzhima Gender: male Category: Employee Remarks:	
2021/04/28 17:20:41	Face 192.168.0.32	Registered face detection			Similarity: 0.53 Name: Toshikata Fukuzhima Gender: male Category: Employee Remarks:	
2021/04/28 17:18:56	Face 192.168.0.32	Registered face detection			Similarity: 0.50 Name: Toshikata Fukuzhima Gender: male Category: Employee Remarks:	
2021/04/28 16:11:52	Face 192.168.0.32	Registered face detection			Similarity: 0.87 Name: FN   LN1 Gender: male Category: Employee Remarks:	
2021/04/28 15:20:53	Face 192.168.0.32	Registered face detection			Similarity: 0.8 Name: FN   LN1 Gender: male Category: Employee Remarks:	
2021/04/28 12:26:46	Face 192.168.0.32	Registered face detection			Similarity: 0.51 Name: Toshikata Fukuzhima Gender: male Category: Employee Remarks:	
					Similarity: 0.66	



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

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

The screenshot displays the i-PRO Event Monitor interface. On the left, there is a sidebar with a 'Filter' section containing 'Date/Time' (Start: 2021/04/27 21:10:33, End: 2021/04/28 21:10:33), 'Cameras (4)', and 'Watchlist' (Registered face detection, Registered people detection, AI-VMD, Sound). The main area shows a table of detected events:

Date / Time	Camera	Event	Detected	Registered	Details	Live
2021/04/28 21:17:41	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:32:08	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:24:08	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:23:03	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:22:48	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:22:42	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:22:37	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:22:17	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	
2021/04/27 22:22:12	AI-VMD 192.168.0.33	Intruder		—	Object type: human Detection area: 1	

At the bottom of the table, there is a 'Load More' button and the text '20 of 52 results'.

# Function: Export & save

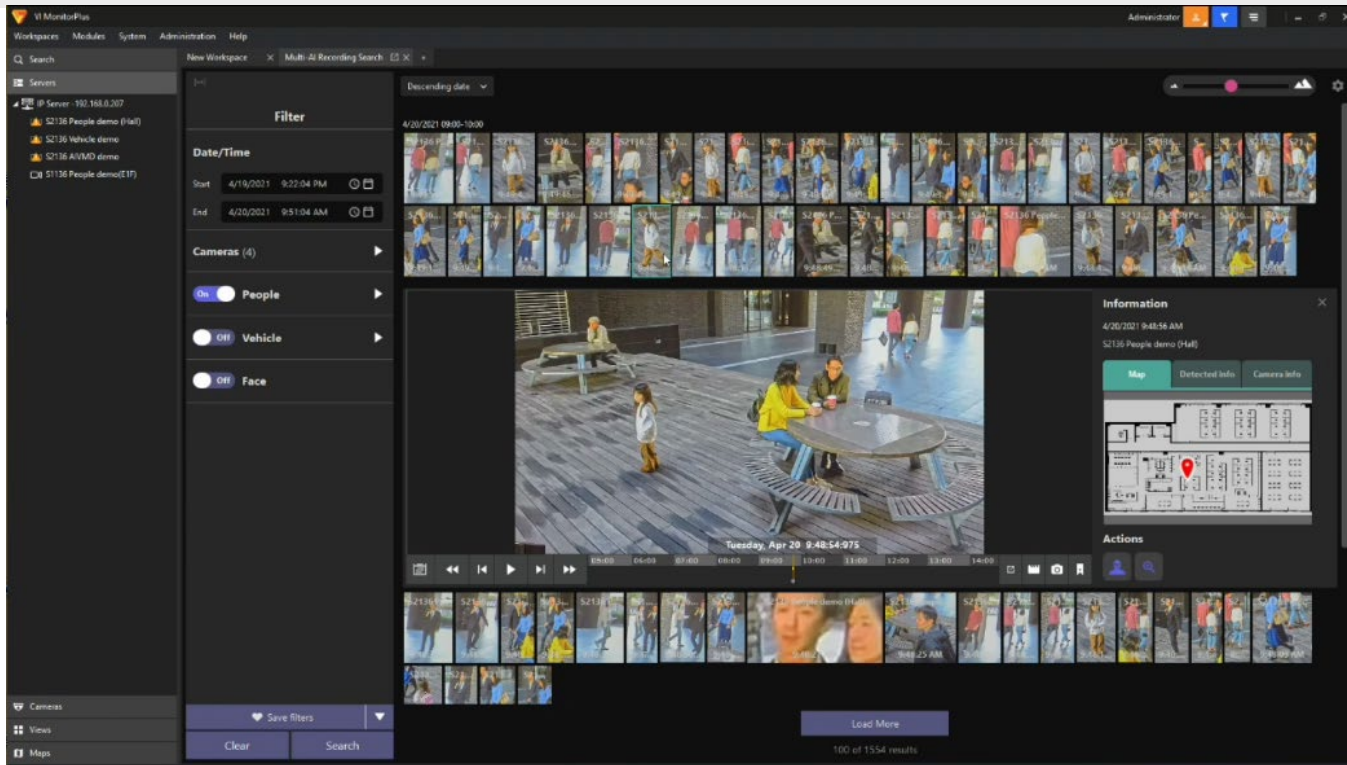


By combining Edge AI app. and i-PRO Active Guard server, Recording Search and Event Monitor is enabled

## 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



<b>People</b>	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
<b>Vehicle</b>	Type	7 (Truck/Bus/SUV/Van/Sedan/Pick-up/Two wheels)
	Color	10 (black / brown / white / gray / red / blue / yellow / green / purple / pink)
<b>Sound</b>	Type	Gunshot / Yell / Vehicle Horn / Glass break

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

<b>Face</b> (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	
<b>People</b> (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	

<b>Vehicle</b> (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
<b>Sound</b> (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



<b>System (i-PRO Active Guard server software)</b>	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	



	VMS		Product	Product
<b>System (i-PRO Active Guard server software)</b>	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	

-PRO