



# Built-in Video Analytics Guide

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**ACTi**  
Connecting Vision

## Copyright

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## Trademark Acknowledgement

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The manufacturer's trademarks and logos are the property of the manufacturer. Other trademarks, company names and product names contained in this manual are the property of their respective owners.

## Disclaimer

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**CAUTION:** The default password is used for your first login. To ensure account security, please change the password after your first login. You are recommended to set a strong password.

To the maximum extent permitted by applicable law, the product described, with its hardware, software, firmware and documents, is provided on an "as is" basis.

Best effort has been made to verify the integrity and correctness of the contents in this manual, but no statement, information, or recommendation in this manual shall constitute formal guarantee of any kind, expressed or implied. We shall not be held responsible for any technical or typographical errors in this manual. The contents of this manual are subject to change without prior notice. Update will be added to the new version of this manual.

Use of this manual and the subsequent result shall be entirely on the user's own responsibility. In no event shall we be liable to you for any special, consequential, incidental, or indirect damages, including, among others, damages for loss of business profits, business interruption, or loss of data or documentation in connection with the use of this product.

Video and audio surveillance can be regulated by laws that vary from country to country. Check the law in your local region before using this product for surveillance purposes. We shall not be held responsible for any consequences resulting from illegal operations of the device.

The illustrations in this manual are for reference only and may vary depending on the version or model. The screenshots in this manual may have been customized to meet specific requirements and user preferences. As a result, some of the examples and functions featured may differ from those displayed on your monitor.

This manual is a guide for multiple product models and so it is not intended for any specific

product.

Due to uncertainties such as physical environment, discrepancy may exist between the actual values and reference values provided in this manual. The ultimate right to interpretation resides in our company.

## Environmental Protection

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This product has been designed to comply with the requirements on environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

### Symbols

The symbols in the following table may be found in this manual. Carefully follow the instructions indicated by the symbols to avoid hazardous situations and use the product properly.

Symbol	Description
WARNING	Indicates a hazardous situation which, if not avoided, could result in bodily injury or death.
CAUTION	Indicates a situation which, if not avoided, could result in damage, data loss or malfunction to product.
NOTE	Indicates useful or supplemental information about the use of product.

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# Overview

Video Analytics (VA) provides an intelligent detection system for network surveillance cameras. With advanced image processing algorithms, especially for people or vehicle counting, it is an optimal solution for a variety of applications, such as moving object recognition and tracking. Besides, the diversity of VA functions offers thorough monitoring almost in any kind of circumstances or environment.

## Key Features

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- Abandoned Object
- Intrusion Detection
- Camera Sabotage
- Wrong Direction
- Loitering Detection
- Object Counting
- Object Removal
- Stopped Vehicle
- Face Detection
- Face Recognition
- License Plate Recognition

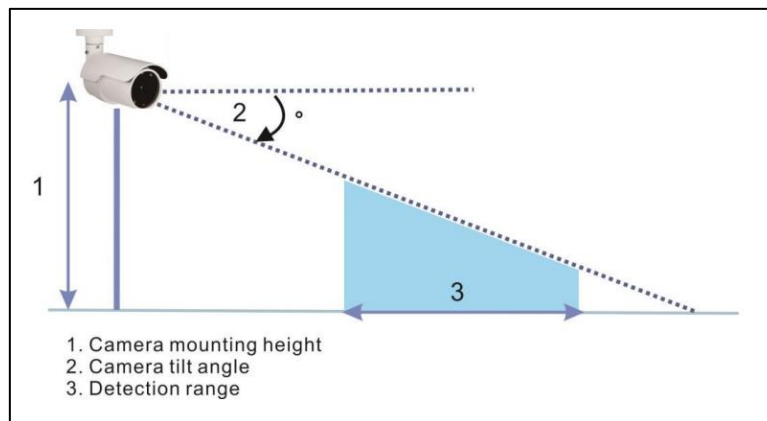
Availability of these features vary depending on the camera model.

# Installation

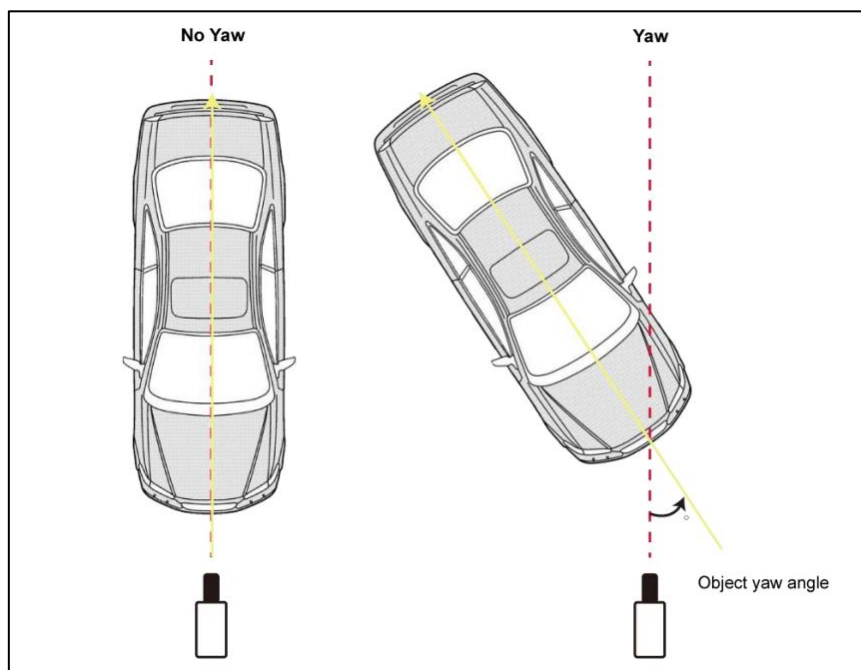
## Recommendation for Camera Installation

Below are the following factors that must be considered when installing the camera to be used for video analytics.

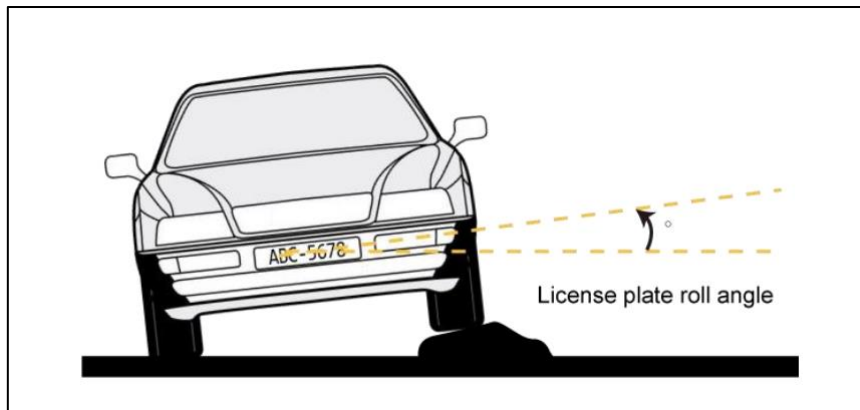
- **Target Size:** The suggested target size that can be detected
- **Effective field of view:** Due to the possibility of lens distortion, it is suggested to set the detection zone within the FOV
- **Camera mounting height:** The suggested mounting height for camera
- **Detection range:** The detectable distance range between camera and target object
- **Camera tilt angle:** The included angle between camera and ceiling



- **Object yaw angle:** The angle between the camera direction and the direction where the object is facing.



**Roll angle:** Rotation angle of the object



## Scene Requirement


- Keep the camera lens clean and free from rain and water drops. Protect the camera from condensation.
- Position the camera in a place where the scene will not cause any reflection.
- To eliminate camera shake, the camera must be placed and installed in a sturdy and secured location, e.g., on a pole. Incorrect camera installation may cause poor camera performance.
- The distinction of the target object from the background must be clear and obvious, e.g., color and texture. The color and texture of the target object must not be similar to the background.
- Good video analytics performance requires steady and sufficient illumination.
- With the installation of external illuminators, low light conditions can be avoided, and the target object can be distinguished under both natural and artificial lighting conditions. Note that the effect of shadow should be considered when planning the illumination. For the best performance, white light mode is preferable compared to IR mode.
- Avoid backlight scenes and unexpected light sources (e.g., from vehicles, streetlights) projecting in the detection zone.
- Make sure that the target object can be seen clearly, and there are no obstructions, e.g., trees, pillars, buildings and furniture.
- Poor camera performance may occur if there are clouds, fog or other moving objects with similar appearance to the target object in the detection zone.
- Bad weather conditions, e.g., heavy rain, fog or snow, might affect and reduce detection range and accuracy.
- It is suggested to turn on WDR function in high dynamic range scene for sufficient image details.
- To improve the camera performance, turn on noise reduction to prevent the image from flickering noise and artifacts.
- As long as the target object does not move fast, the following functions of PTZ cameras that can work properly when the camera is moving (pan/ tilt) are LPR, Face Detection and

Face Recognition. Once the PTZ camera moves (pan/tilt), the configuration of the detection zone in the original scene might not be applicable to the new scene. The configuration of the detection zone in the new scene should be reconfigured.

# Standard Setting

The standard setting for built-in video analytics includes zone and behavior setting. The availability of the built-in video analytics and its parameters may vary depending on the camera model.

Video Analytics



**Video Analytics**

Video Analytics 1 Selected Behaviors Abandoned Object

Off  
 On  
 By schedule  
Please select ... v

**Note :**  
Please wait 10 seconds for VA system to restart after resolution change or image rotation.

---

**Streaming Status**

Streaming Status:

Stream: Stream 1

Dewarping Type: Front End - 360

Source: Ceiling

---

**Behavior Specific Settings**

Sensitivity: 50

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**Triggered Action**

Enable alarm output high
 Send HTTP notification  
 Send alarm message by FTP
  Record video clip  
 Send alarm message by E-mail  
 Upload image by FTP  
 Upload image by E-Mail

---

**File name**

File Name : image.jpg







Add date/time suffix  
 Add sequence number suffix (no maximum value)  
 Add sequence number suffix up to 0 and then start over  
 Overwrite

The video analytics functions that support people/face or vehicle recognition are **Intrusion Detection**, **Wrong Direction**, **Loitering Detection**, **Object Counting**, **Stopped Vehicle**, **Face Detection** and **Face Recognition**.

## Zone

A zone is defined as the region of interest or detection area. This is where users want to monitor and check for any intrusion or abandoned object, etc. A zone can be defined by a polygon or line, among others. Select a drawing tool and click on the video pane to draw the zone.

The definition of each drawing tool is as below:

Item		Description
	<b>Box</b>	Detection zone. Objects in the defined zone will trigger the alarm if the objects move in the same direction or behave as defined.
	<b>Polygon</b>	
	<b>Line</b>	Detection zone. The line is a detection zone. Set lines to trigger the alarm as when objects cross that line or move in the same direction.
	<b>Exclude Zone Box Tool</b>	Set zones in which objects in the zone will be ignored.
	<b>Exclude Polygon Tool</b>	
	<b>Object Size Filter</b>	Set the minimum and maximum size of objects. To prevent incorrect detection setting, the short side of the Max Object Size must be longer than any side of the Min Object Size.

**NOTE:** Zone drawing tools vary depending on the selected built-in analytics function and its behavior.

**NOTE:** The number of detection zones is 8. A warning message window will pop up if the number of zones exceeds 8.

## Behavior Setting

After setting the detection zone, configure the behavior or response action to take once the event is triggered. A **Zone Settings** section appears when a detection zone is configured. This allows you to configure the conditions of the event.

**NOTE:** Zone setting parameters vary depending on the type of analytics being configured.

### Zone Settings

Zone Settings

<b>Zone Settings:</b>		<b>Zone List:</b>
Name:	<input type="text" value="Zone 1"/>	<span style="background-color: #007bff; color: white; padding: 2px 5px; border: 1px solid #007bff;">Zone 1</span> <span style="border: 1px solid #007bff; padding: 0 2px;">✕</span>
Dwell time:	<input type="text" value="5"/> <small>seconds</small>	
Delay before alarm:	<input type="text" value="30"/> <small>seconds</small>	

Below are the zone settings parameters commonly available from all the video analytics:

- **Name:** Name of the detection zone
- **Directions:** Set the motion direction that the camera will track. Alarms will only be triggered when the camera detects motion in the specified direction.
- **Dwell time:** Set the amount of time that the alarm will continue to sound when triggered. Dwell time ranges from 1 to 1000 seconds. Default is 5 seconds.
- **Delay before alarm:** Define the amount of time that the defined behavior will last before an alarm is triggered. The time range is 20 to 1800 seconds. Default is 30 seconds.
- **Alarm at:** Set the number of objects to trigger the alarm. When the number of the counted objects reaches that number, the alarm will be triggered
- **Reset counter on alarm:** Check or un-check to reset or keep object counting.

### Triggered Action

On this section, select the response or actions to take when the event is triggered. Multiple options can be selected.

Triggered Action

<input type="checkbox"/> Enable alarm output <span style="border: 1px solid #ccc; padding: 0 5px;">high</span> <small>▼</small>	<input type="checkbox"/> Send HTTP notification
<input type="checkbox"/> Send alarm message by FTP	<input type="checkbox"/> Record video clip
<input type="checkbox"/> Send alarm message by E-mail	
<input type="checkbox"/> Upload image by FTP	
<input type="checkbox"/> Upload image by E-Mail	

- **Enable Alarm Output:** Select the item to enable alarm relay output.
- **Send Message by FTP:** Select to send an alarm message by FTP.
- **Send Message by E-Mail:** Send an alarm message by E-mail.

- **Upload Image by FTP:** Users can assign an FTP site and configure various parameters. When the alarm is triggered, event images will be uploaded to the appointed FTP site.
- **Upload Image by E-Mail:** Users can assign an E-mail address and configure various parameters. When the alarm input is triggered, event images will be sent to the appointed E-mail address.
- **Send HTTP Notification:** Check this item and select the destination HTTP address. Then specify the parameters for event notifications by <Alarm> triggered. When an alarm is triggered, the HTTP notification will be sent to the specified HTTP server.
- **Record Video Clip:** Check this item and select a video recording storage type, <SD Card> or <NAS> (Network-Attached Storage). The alarm-triggered recording will be saved into the memory card or the NAS.

### File Name

On this section, the file format and file name of the images to be uploaded are configured.

**File name**

File Name :

Add date/time suffix  
 Add sequence number suffix (no maximum value)  
 Add sequence number suffix up to  and then start over  
 Overwrite

- **Add date/time suffix**  
 File name: imageYYMMDD\_HHNNSS\_XX.jpg  
 Y: Year, M: Month, D: Day  
 H: Hour, N: Minute, S: Second  
 X: Sequence Number
- **Add sequence number suffix (no maximum value)**  
 File name: imageXXXXXXXXX.jpg  
 X: Sequence Number
- **Add sequence number suffix up to # and then start over**  
 File Name: imageXX.jp  
 X: Sequence Number  
 The file name suffix will end at the number being set. For example, if the setting is up to "10", the file name will start from 00, end at 10, and then start all over again.
- **Overwrite**  
 The original image in the FTP site will be overwritten by the new uploaded file with a static filename.

### Save

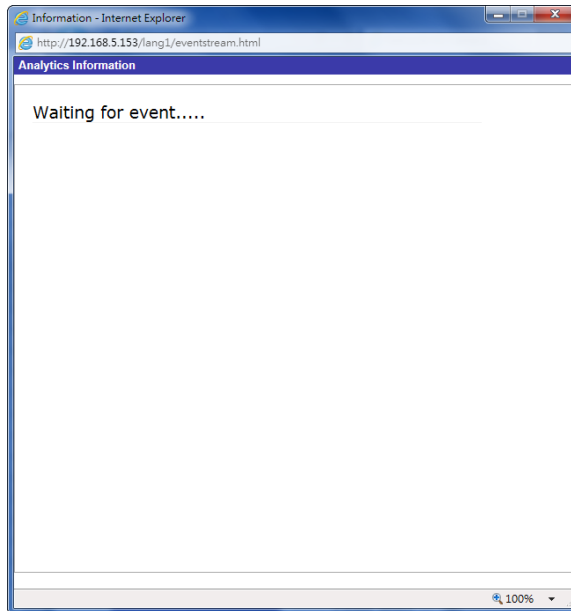
After completing all the settings mentioned above, click **Save** to save all the settings in this page.

**Show Analytics Info**

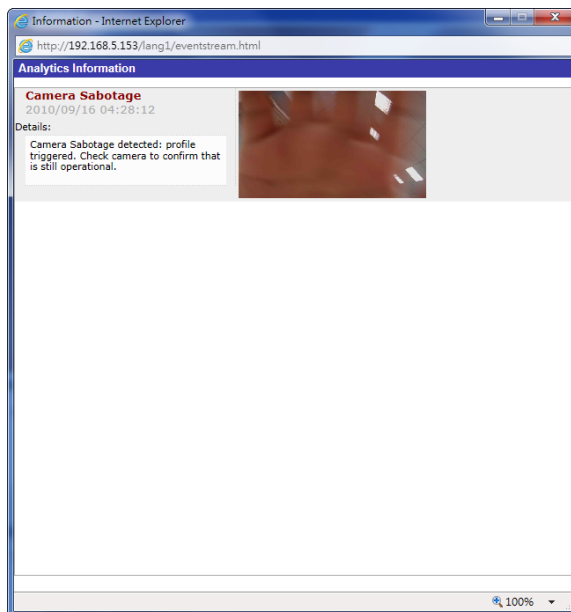
Click **Show Analytics Info** and the “Analytics Information” window will pop up. Whenever an event occurs, “Analytics Information” will update and post the occurring event to notify users.

**NOTE:** Set at least one Video Stream to MJPEG format to show the snapshot of the occurring event. Go to **Streaming > Video Configuration** and then set at least one Video Stream to **MJPEG** under **Encode Type**.

When no event occurs, the “Analytics Information” window will be shown as below.



When an event occurs, the related information and the snapshot will be updated in this window as shown below.



# Built-in Video Analytics

There are eleven built-in video analytics for users to implement. These functions include:

- Unattended Object Detection / Abandoned Object
- Forbidden Area Detection / Intrusion Detection
- Tampering Detection / Camera Sabotage
- Vehicle Incorrect Direction / Wrong Direction
- Object Loitering Detection
- Object Counting
- Missing Object Detection / Object Removal
- Stopped Vehicle Detection
- Face Detection
- Face Recognition
- Automatic License Plate Recognition

## Abandoned Object (Unattended Object Detection)

Unattended Object or abandoned object detection detects objects placed within a defined zone and triggers the alarm if the object remains in the zone longer than the user-defined time allows.

### Installation Requirement

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the following requirements.

Installation Requirements	
<b>Suggested Target Size</b>	50x50 ~ 500 x 500 (@1080p)
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone or Region of Interest (ROI)</b>	The detection zone should be greater than the maximum size of the object to be detected.
<b>Maximum Object Size</b>	Should be larger than the object.
<b>Minimum Object Size</b>	Should be smaller than the object
<b>Sensitivity</b>	Adjust according to the on-site environment
<b>Delay before alarm</b>	The alarm trigger is delayed until the set number of seconds passed.

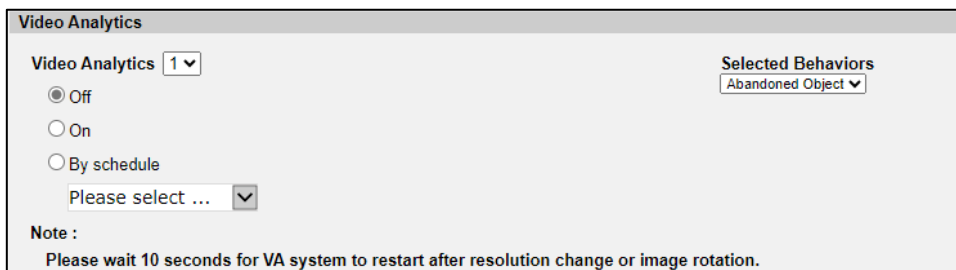
### Scene Requirement



- Stationary or slow-moving irrelevant objects should not stay within the scene for a long time.
- The background should be simple and plain.
- If the background is a dynamic scenario, monitoring zones should be placed in a stable area.
- Note that swinging objects, like tall grass, tree leaves, and sliding doors, etc., or any distracting motions cause continuous modification of the images in the zone area, and thus may reduce analytics performance.
- Severe illumination changes, like turning on/off lights) or camera tampering might trigger false alarm.

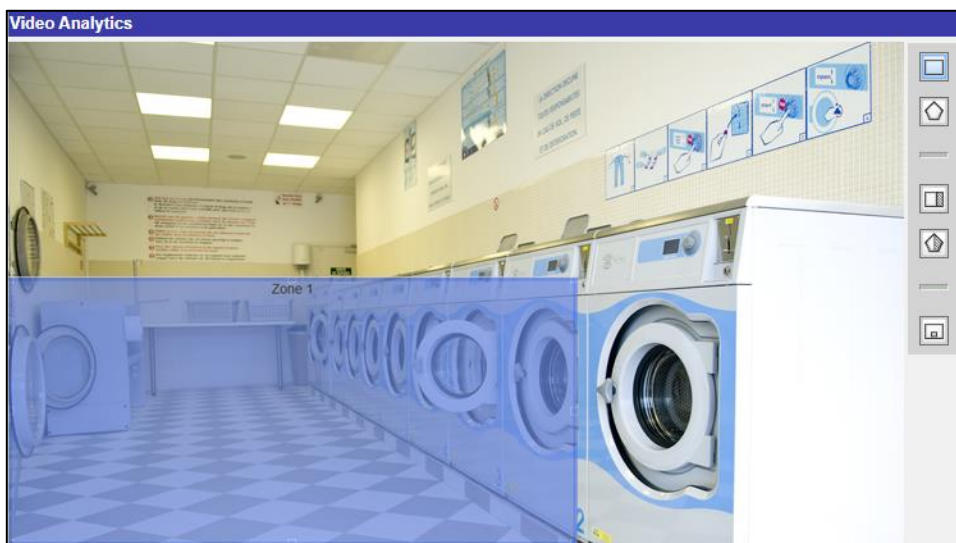
## Configuration

When an unknown object is left in the detection zone over a specific period of time, the camera will trigger the alarm and/or send notification to users according to the configured behavior below.

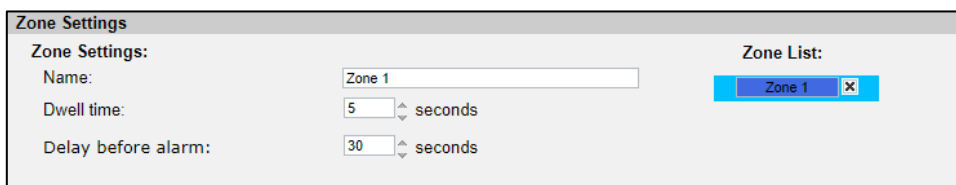
Go to **System > Events > Video Analytics**. Then follow the steps below to configure Unattended Object Detection.




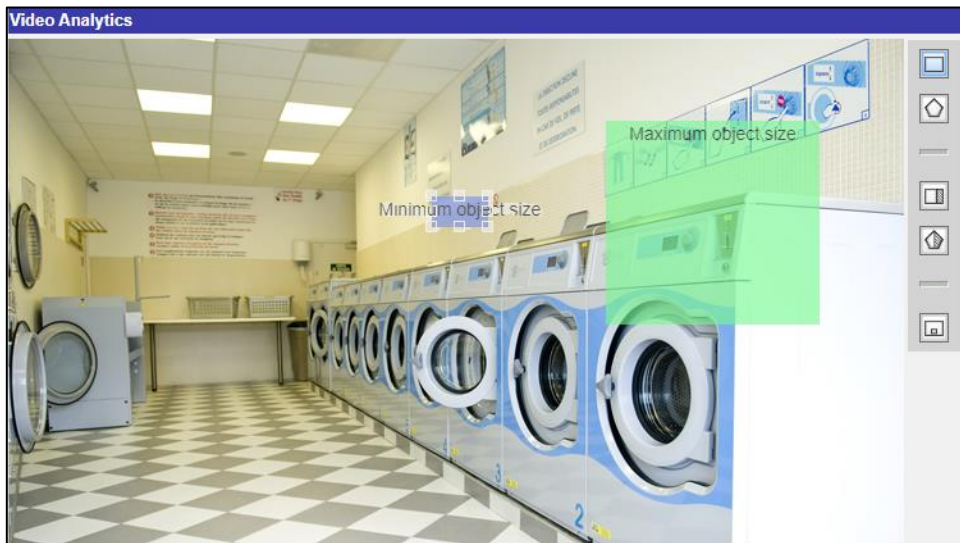
1. On **Video Analytics**, select stream **1** or **2**.
2. On **Selected Behaviors**, select **Abandoned Object**.
3. Click  or  to select a drawing tool and then draw the detection zone on the video panel.





4. Once a detection zone is drawn, the **Zone Settings** section appears. Define the zone and setup **Dwell time** and **Delay before alarm**.



5. Click  and define the minimum and maximum size of objects.



6. If needed, click  or  to draw areas where the objects will be ignored.
7. On the **Triggered Action** and **File Name** sections, configure the actions to take when the event occurs.
8. Click **Save** to apply and save the settings.

## Intrusion Detection

Intrusion Detection detects and tracks objects that enter the user-defined zone of a scene, like a forbidden area, which triggers an alarm. It is suitable for both indoors and outdoors to track a few moving objects in broad areas. Note that the behavior will gradually adapt to the change of the monitoring environments like snow, fog, wind, and rain. Refer to the following to configure this function.

### Installation Requirement

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the following requirements.

Installation Requirements	
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone Size or Region of Interest (ROI)</b>	The detection zone size should be greater than the maximum size of the object to be detected.
<b>Maximum Object Size</b>	Should be larger than the object.
<b>Minimum Object Size</b>	Should be smaller than the object
<b>Detectable Items</b>	Human and Vehicle
<b>Detection Direction</b>	Up, down, left, right, top left, bottom left, top right, bottom right, all directions

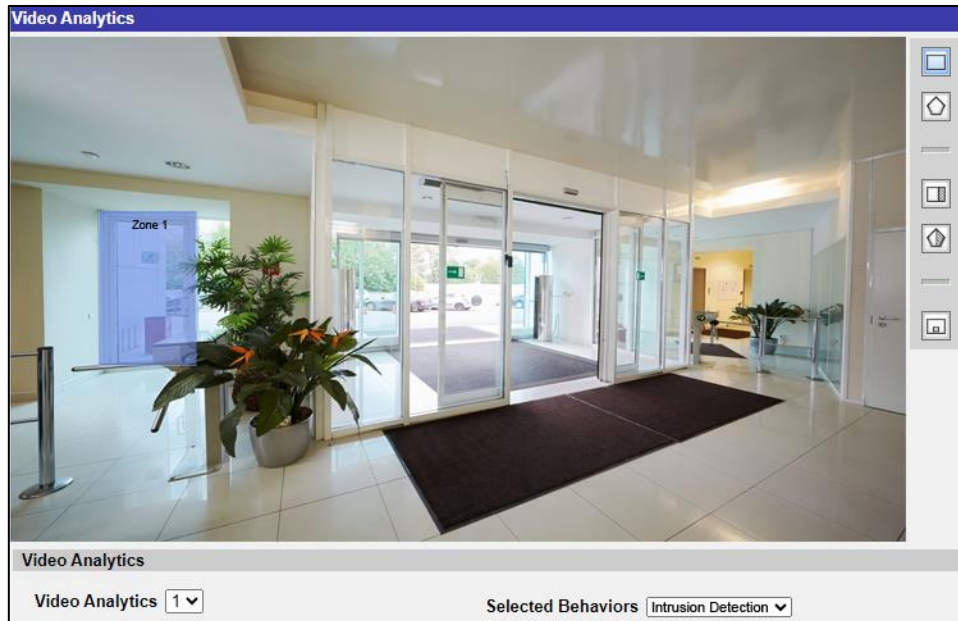
### Scene Requirement




- There should be a sufficient distinction between the object and the background in order to make the object stand out from the scene.
- Postures other than upright position (e.g. crawling, crouching) would reduce the accuracy of human detection.
- Avoid overlapping objects in the scene. Otherwise, the object trajectory might be mixed up which will then cause inaccurate results.
- Obstruction on the image being detected will cause inaccurate detection results.

## Configuration

When unknown objects enter the detection zone from a specified direction, the camera will trigger the alarm and/or send notifications to users.

To configure the camera configuration settings, go to **System > Events > Video Analytics**. Then follow the steps below to configure Intrusion Detection.



1. On **Video Analytics**, select stream **1** or **2**.
2. On **Selected Behaviors**, choose **Intrusion Detection**.
3. Click  or  and then draw the detection zone on the video panel.
4. Click  and then define the minimum and maximum size of objects.
5. Set the **Direction** from which the object will be coming from to trigger an intrusion.
6. Name the zone and configure **Dwell Time**.
7. On **Triggered Action** and **File Name** sections, select the event response or actions to take when intrusion detection is triggered.
8. Click **Save** to apply the settings.

## Camera Sabotage

Camera sabotage detects obvious changes in the field of view, and triggers an alarm if the camera lens is obstructed by spray paint, a cloth, and the likes. Moreover, any unauthorized repositioning of the camera will also trigger an alarm.

### Installation Requirement

Consider the following when installing the camera for analytics functions.

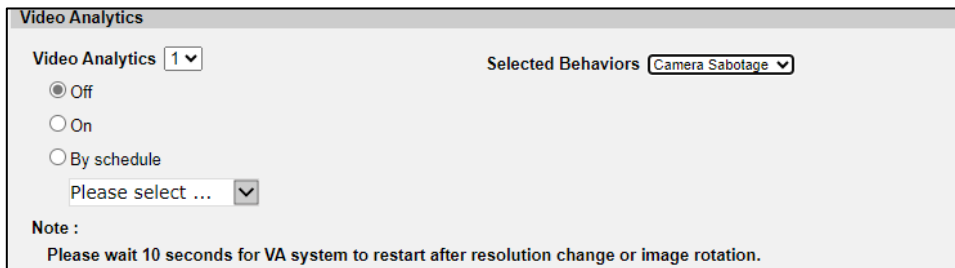
Installation Requirements	
<b>Camera Mounting Height</b>	No required installation height
<b>Detection Zone Size</b>	No required detection zone
<b>Environment Illumination</b>	Minimum environment illumination is 10 lux.

### Scene Requirement

- There should be an obvious change before and after the camera is tampered with.
- Sudden illumination changes might trigger a false alarm.
- Constant scene changes might trigger a false alarm.

### Configuration

When there is a deliberate attempt to damage the camera lens or something similar, the camera will trigger the alarm according to what behaviors are configured.



1. Go to **System > Events > Video Analytics**.
2. On **Video Analytics**, select stream **1** or **2**.
3. On **Selected Behaviors**, choose **Camera Sabotage**.
4. Set **Sensitivity**, **Dwell Time** and **Delay Before Alarm**.
5. On **Triggered Action** and **File Name** sections, select the event response or actions to take when camera sabotage occurs.
6. Click **Save** to apply the settings.

## Wrong Direction

Wrong Detection triggers an event alarm when a person or vehicle moves in a particular direction. The ideal applications include airports, entrance/exit doors, fences, etc.

### Installation and Configuration Requirements

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the following requirements.

Installation Requirements	
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone Size or Region of Interest (ROI)</b>	The detection zone size should be greater than the maximum size of the object to be detected.

Below are the settings that must be configured in order to ensure detection.

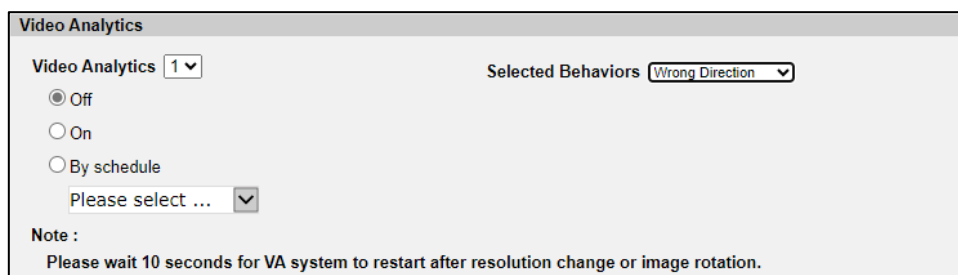
Configuration Requirements	
<b>Detectable Items</b>	Human and Vehicle
<b>Detection Direction</b>	Up, down, left, right, top left, bottom left, top right, bottom right, all directions



### Scene Requirement

- There should be an obvious change before and after the camera is tampered.
- Sudden illumination changes might trigger a false alarm.
- Constant scene changes might trigger a false alarm.

### Configuration

When there is a deliberate attempt to damage the camera lens or the likes, the camera will trigger the alarm according to what behaviors are configured.



1. Go to **System > Events > Video Analytics**.
2. On **Video Analytics**, select stream **1** or **2**.
3. On **Selected Behaviors**, choose **Wrong Direction**.
4. Click  or  to select a drawing tool and then draw the detection zone.

5. Name the zone and set up **Dwell Time**.
6. On **Zone Settings**, select the direction to forbid entering. Based on the direction selected, once a person goes to that direction, the alarm will be triggered.
5. On **Triggered Action** and **File Name** sections, select the event response or actions to take when this event is triggered.
6. Click **Save** to apply the settings.

## Loitering Detection

Loitering detection is an event that identifies people or vehicle that stay or loiter in a defined zone longer than the specified time. This event is effective in real-time notifications of suspicious persons hanging around ATMs, stairwells, and school grounds.

### Installation and Configuration Requirements

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the requirements and configure the settings as below:

Installation Requirements	
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone Size or Region of Interest (ROI)</b>	The detection zone size should be greater than the maximum size of the object to be detected.
<b>Maximum Object Size</b>	Should be larger than the object.
<b>Minimum Object Size</b>	Should be smaller than the object

Below are the settings that must be configured in order to ensure detection.

Configuration Requirements	
<b>Detectable Items</b>	Human and Vehicle
<b>Sensitivity</b>	Adjust settings according to the actual environment
<b>Detection Direction</b>	Up, down, left, right, top left, bottom left, top right, bottom right, all directions
<b>Delay Before Alarm</b>	Set this to trigger the alarm after a specified delay (in seconds)

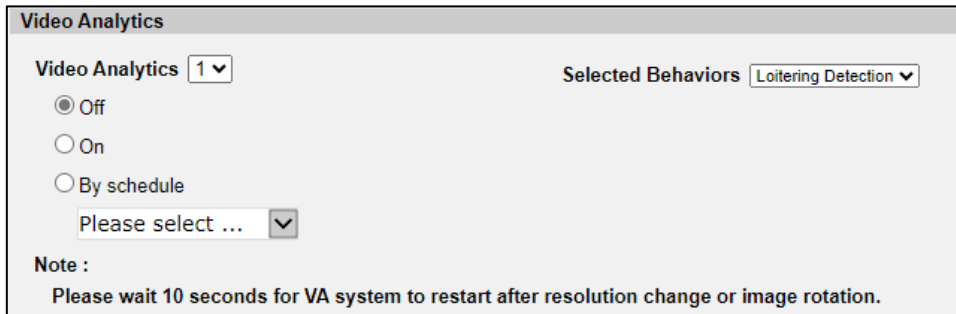
### Scene Requirement




- There should be sufficient difference between the object and the background in order to make the object stand out from the scene.
- Postures other than upright position (e.g. crawling, crouching, etc.) would reduce the accuracy of human detection.

- Avoid overlapping of objects. Otherwise, the trajectory might be mixed up which may reduce accuracy.
- Blocked objects may reduce accuracy.

## Configuration

When there is a suspicious person or vehicle within the detection zone for longer than the defined time, the camera will trigger the alarm and send a notification according to the configured event response.



1. Go to **System > Events > Video Analytics**.
2. On **Video Analytics**, select stream **1** or **2**.
3. On **Selected Behaviors**, choose **Loitering Detection**.
4. Click  or  to select a drawing tool and then draw the detection zone.
5. Name the zone and set up **Dwell Time** and **Delay before alarm**.
6. Click  and then define the minimum and maximum size of objects.
7. On **Triggered Action** and **File Name** sections, select the event response or actions to take when this event is triggered.
6. Click **Save** to apply the settings.

## Object Counting

Object Counting counts the number of objects that enter a user-defined zone. This feature can be used to count people at a store entrance or exit. It is also suitable to monitor vehicle traffic on highways, streets, parking lots, etc. Object counting can detect persons and vehicles.

### Installation and Configuration Requirement

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the requirements and configure the settings as below:

Installation Requirements	
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone Size or Region of Interest (ROI)</b>	The detection zone size should be greater than the maximum size of the object to be detected.
<b>Maximum Object Size</b>	Should be larger than the object.
<b>Minimum Object Size</b>	Should be smaller than the object

Below are the settings that must be configured in order to ensure detection.

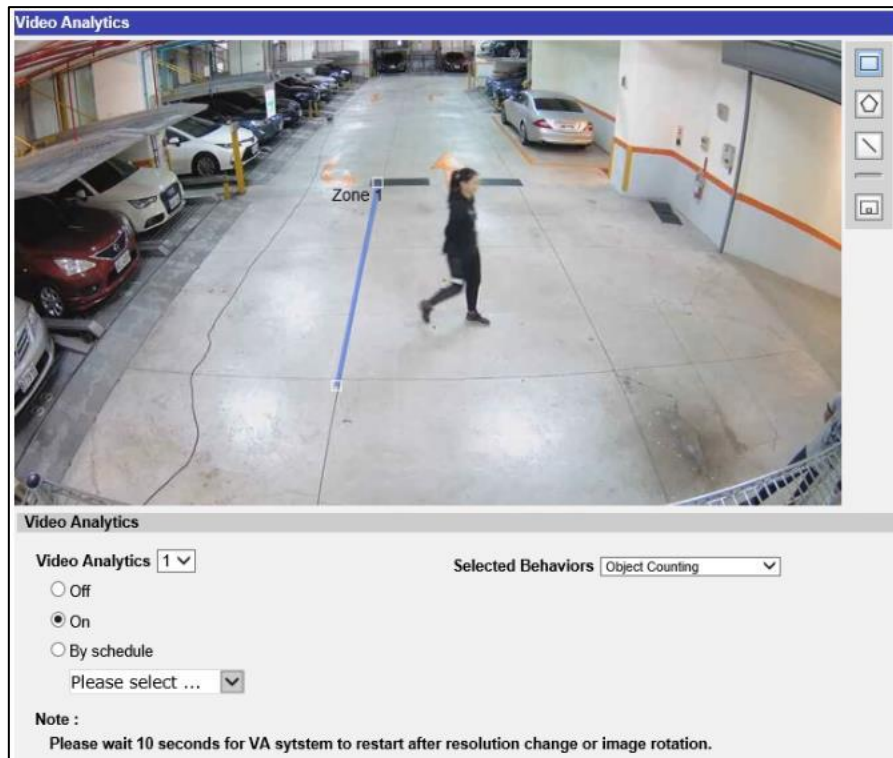
Configuration Requirements	
<b>Detectable Items</b>	Human and Vehicle
<b>Detection Direction</b>	Up, down, left, right, top left, bottom left, top right, bottom right, all directions





### Scene Requirement

- There should be a sufficient distinction between the object and the background in order to make the object stand out from the scene.
- Postures other than upright position (e.g. crawling, crouching) would reduce the accuracy of human detection.
- Avoid overlapping objects in the scene. Otherwise, the object trajectory might be mixed up which will then cause inaccurate results.
- Obstruction to the image being detected will cause inaccurate detection results.

## Configuration

To configure the camera settings, go to **System > Events > Video Analytics**. Then follow the steps below to configure Object Counting.



1. On **Video Analytics**, select stream **1** or **2**.
2. On **Selected Behaviors**, choose **Object Counting**.
3. Click  or  or  and then draw the detection zone or line on the video panel.
4. Click  and then define the minimum and maximum size of objects (for person).
5. Name the zone.
6. Set the **Direction** from which the object will be coming from to trigger an intrusion.
7. On **Alarm at**, configure the number of objects. When this number is reached, the alarm will be triggered.
8. Configure **Dwell Time**.
9. Check **Reset counter on alarm** to reset the object counting once an alarm is triggered. Or, uncheck this box to disable this function.
7. On **Triggered Action** and **File Name** sections, select the event response or actions to take when the alarm is triggered.
8. Click **Save** to apply the settings.

## Object Removal

Object Removal triggers an alarm when a monitored object is removed from a user-defined zone. The ideal size of the object to be monitored should occupy a major proportion of the detection zone, such as a painting from a wall or a statue on a pedestal, etc.

### Installation and Configuration Requirement

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the requirements and configure the settings as below:

Installation Requirements	
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone Size or Region of Interest (ROI)</b>	The detection zone size should be the same or slightly greater than the size of the object to be monitored.

Below are the settings that must be configured in order to ensure detection.

Configuration Requirements	
<b>Detectable Items</b>	Human, Vehicle, Object
<b>Sensitivity</b>	At least 70% (recommended)



### Scene Requirement

- Three-dimensional objects are considered better targets for detection compared to flat objects.
- Other objects unrelated to the scene passing in front of the target might trigger false alarm.
- Camera tampering or severe illumination changes might trigger false alarm.

## Configuration

To configure the camera settings, go to **System > Events > Video Analytics**. Then follow the steps below to configure Object Removal.



1. On **Video Analytics**, select stream **1** or **2**.
2. On **Selected Behaviors**, choose **Object Removal**.
3. Click  or  and then draw the detection zone on the video panel.
4. Name the zone, set **Dwell Time** and **Delay before alarm**.
5. On **Triggered Action** and **File Name** sections, select the event response or actions to take when the alarm is triggered.
6. Click **Save** to apply the settings.

## Stopped Vehicle

Stopped Vehicle detects vehicles which are occupying a specific area, such as a “no parking zone”. When a vehicle stays inside the area for longer than the user-defined period of time, the alarm is triggered. This function is ideal for parking enforcement, identifying suspicious parking, finding traffic lane breakdowns, and spotting vehicles waiting at gates.

### Installation and Configuration Requirement

Consider the following when installing the camera for analytics functions. Once the installation height is determined, zoom in or out the camera lens to meet the requirements and configure the settings as below:

Installation Requirements	
<b>Camera Mounting Height</b>	The suggested camera installation height is 2 ~ 3 meters from the ground.
<b>Detection Zone Size or Region of Interest (ROI)</b>	The detection zone size should be the same or slightly greater than the size of the object to be monitored.
<b>Maximum Object Size</b>	Should be larger than the object.
<b>Minimum Object Size</b>	Should be smaller than the object

Below are the settings that must be configured in order to ensure detection.

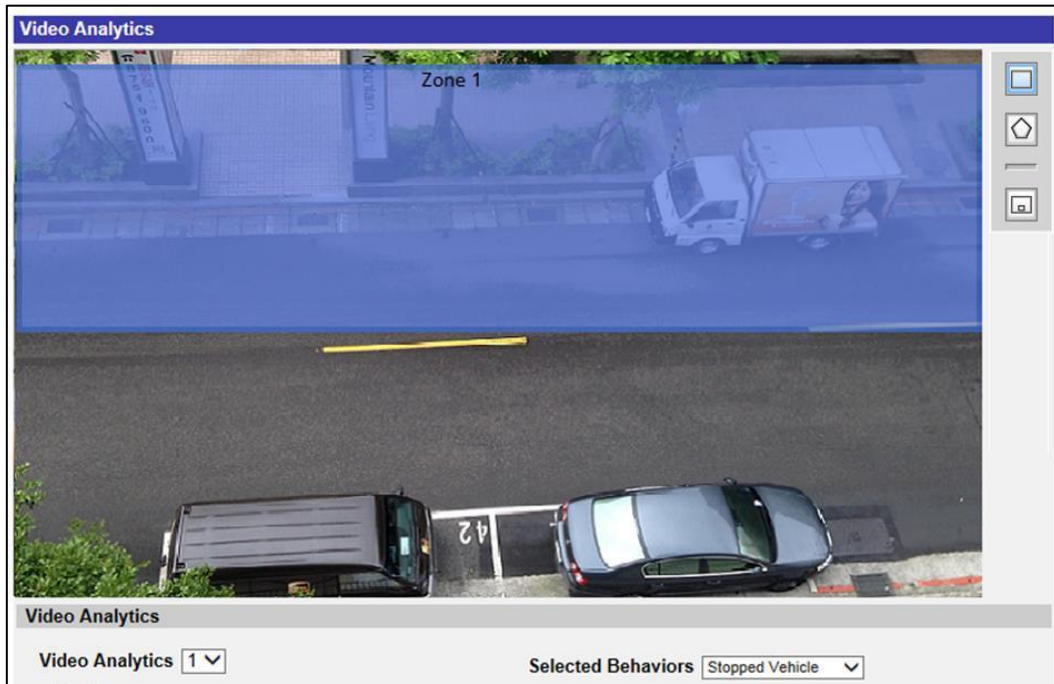
Configuration Requirements	
<b>Detectable Items</b>	Vehicle
<b>Delay Before Alarm</b>	Set this to trigger the alarm after a specified delay (in seconds)



### Scene Requirement

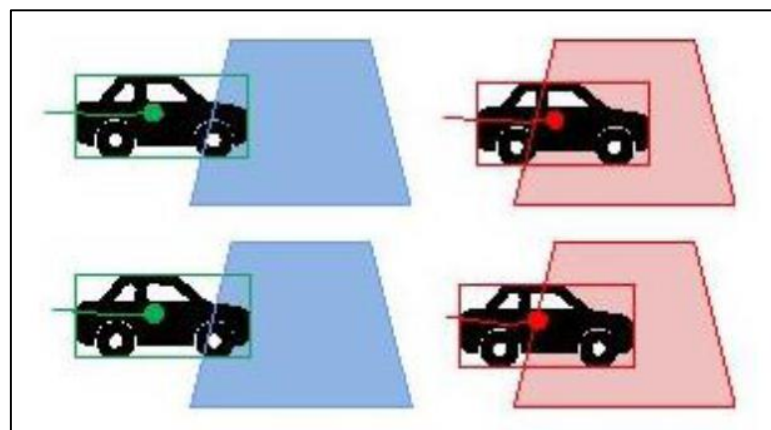
- There should be a sufficient distinction between the object and the background in order to make the object stand out from the scene.
- Avoid overlapping objects in the scene. Otherwise, the object trajectory might be mixed up which will then cause inaccurate results.
- Obstruction to the image being detected will cause inaccurate detection results.

### Configuration

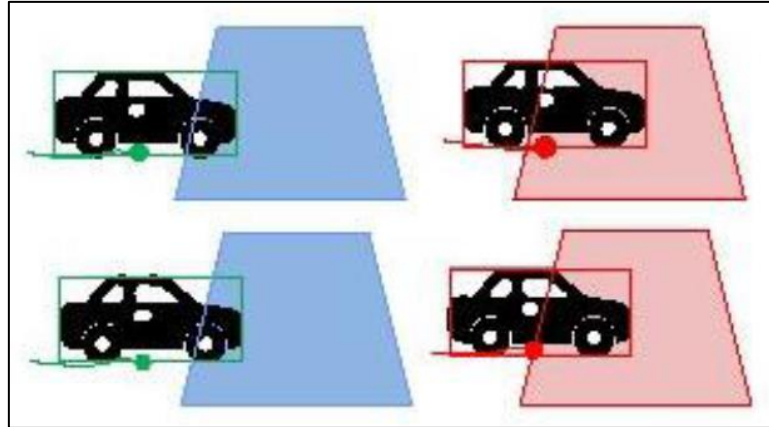
To configure the camera settings, go to **System > Events > Video Analytics**. Then follow the steps below to configure Stopped Vehicle.



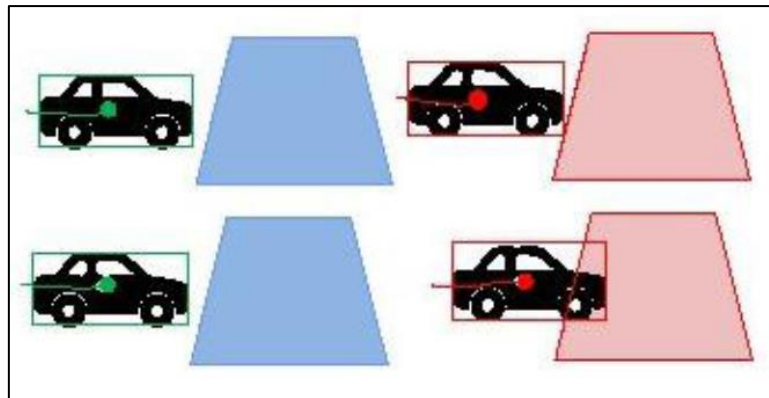
1. On **Video Analytics**, select stream **1** or **2**.
2. On **Selected Behaviors**, choose **Stopped Vehicle**.
3. Click  or  and then draw the detection zone on the video panel.
4. On **Zone Settings** section, name the zone, set **Dwell Time** and **Delay before alarm**.
5. Select one of the five (5) the **Trigger type** options:
  - a. **Center**: The camera will trigger the alarm when the center point of the vehicle touches or goes within the detection zone.



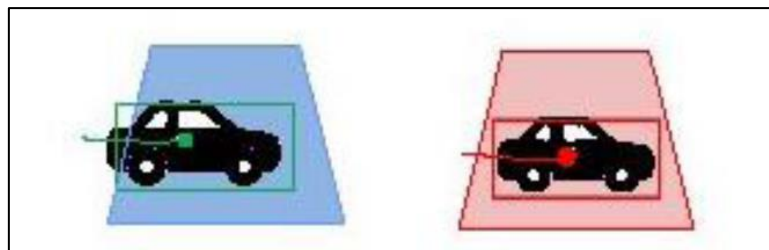
- b. **Bottom center**: The camera will trigger the alarm when the bottom center point of the vehicle touches or goes within the detection zone.



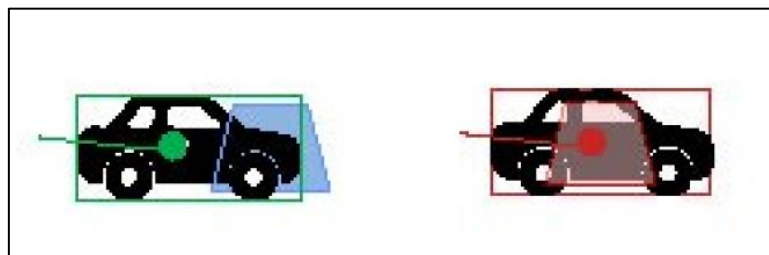
c. **Edge:** The camera will trigger the alarm when the edge of the vehicle touches touches or goes within the detection zone.




d. **Fully inside:** The camera will trigger the alarm when the vehicle goes fully within the detection zone.



e. **Fully cover:** The camera will trigger the alarm when the vehicle fully covers the detection zone.



6. Click  and then define the minimum and maximum size of objects (for person).
7. On **Triggered Action** and **File Name** sections, select the event response or actions to take when the alarm is triggered.
8. Click **Save** to apply the settings.



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