Video Analytics

with MOBOTIX MOVE Cameras

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HEVCAdvance™

MOBOTIX EverClear

BeyondHumanVision

MOBOTIX MOVE

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Before You Start

This section contains the following information:

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Support

If you need technical support, please contact your MOBOTIX dealer. If your dealer cannot help you, he will contact the support channel to get an answer for you as quickly as possible.

If you have internet access, you can open the MOBOTIX help desk to find additional information and software updates. Please visit:

www.mobotix.com > Support > Help Desk

Legal Notes

Legal Aspects of Video and Sound Recording

You must comply with all data protection regulations for video and sound monitoring when using MOBOTIX AG products. Depending on national laws and the installation location of the cameras, the recording of video and sound data may be subject to special documentation or it may be prohibited. All users of MOBOTIX products are therefore required to familiarize themselves with all applicable regulations and to comply with these laws. MOBOTIX AG is not liable for any illegal use of its products.

Declaration of Conformity

The products of MOBOTIX AG are certified according to the applicable regulations of the EC and other countries. You can find the declarations of conformity for the products of MOBOTIX AG on www.mobotix.com under **Support > Download Center > Certificates & Declarations of Conformity**.

RoHS Declaration

The products of MOBOTIX AG are in full compliance with European Unions Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive 2011/65/EC) as far as they are subject to these regulations (for the RoHS Declaration of MOBOTIX, please see www.mobotix.com, **Support > Download Center > Documentation > Brochures & Guides > Certificates**).

Disposal

Electrical and electronic products contain many valuable materials. For this reason, we recommend that you dispose of MOBOTIX products at the end of their service life in accordance with all legal requirements and regulations (or deposit these products at a municipal collection center). MOBOTIX products must not be disposed of in household waste! If the product contains a battery, please dispose of the battery separately (the corresponding product manuals contain specific directions if the product contains a battery).

Disclaimer

MOBOTIX AG does not assume any responsibility for damages, which are the result of improper use or failure to comply to the manuals or the applicable rules and regulations. Our General Terms and Conditions apply. You can download the current version of the **General Terms and Conditions** from our website at www.mobotix.com by clicking on the corresponding link at the bottom of every page.

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Overview

This section contains the following information:

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Introduction

The Video Analytics (VA) is provided with intelligent detection system for surveillance network camera. With advanced image processing algorithms, especially for people / 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

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

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Video Analytics

This section contains the following information:

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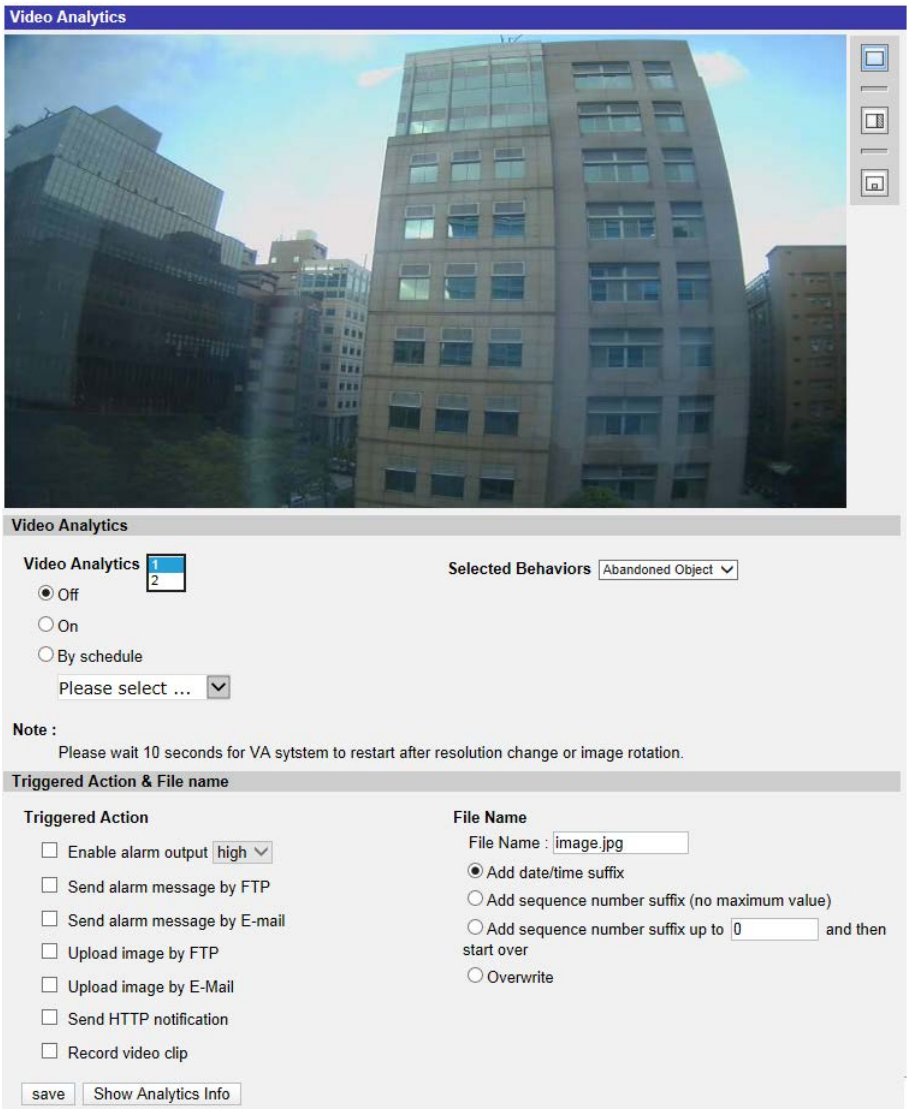
Video Analytics Functions

The following video analytics functions are provided for users to implement:

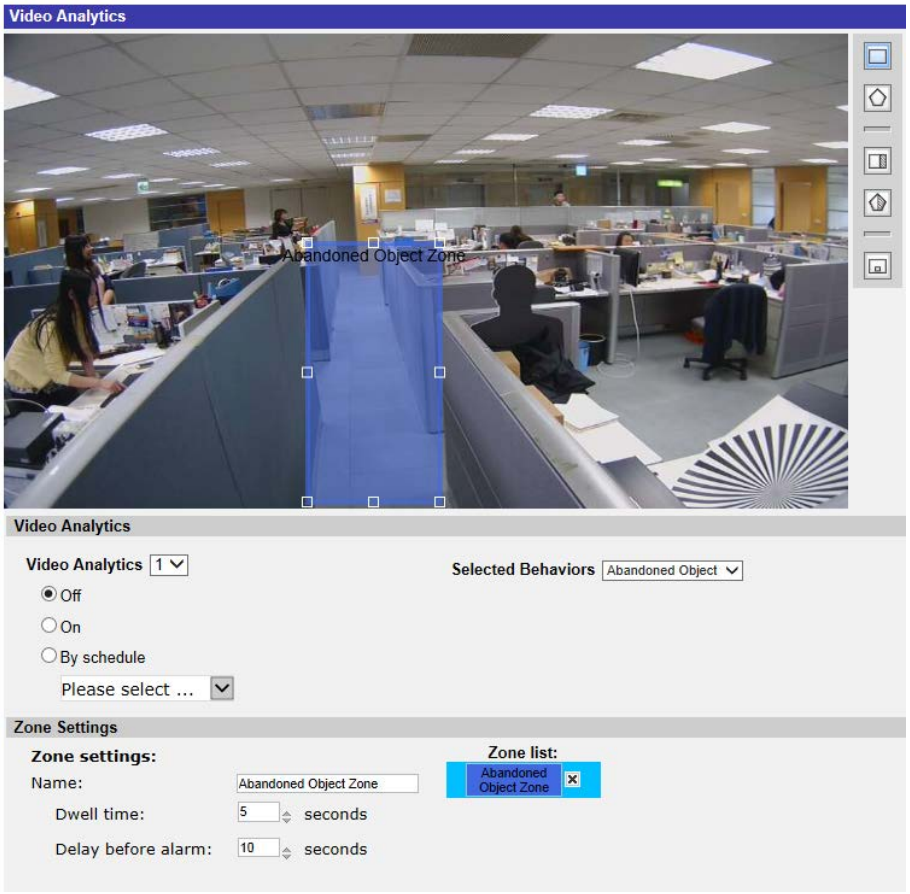
- **Abandoned Object**
- **Intrusion Detection**
- **Camera Sabotage**
- **Wrong Direction**
- **Loitering Detection**
- **Object Counting**
- **Object Removal**
- **Stopped Vehicle**
- **Face Detection**
- **Face Recognition**
- **License Plate Recognition**



Abandoned Object

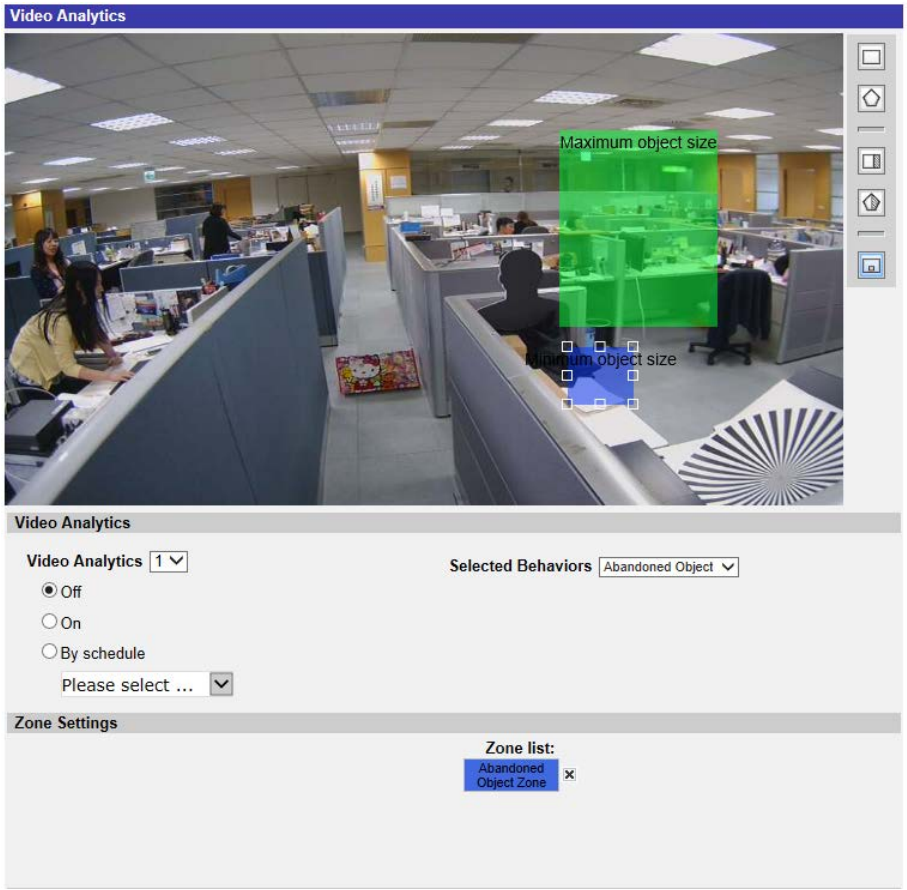
Abandoned Object detects objects placed within a defined zone and triggers an alarm if objects remain in the zone longer than the user-defined time allows. The following steps introduce how to configure this function.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Abandoned Object** from “Selected Behaviors”.
3. Click ▭ / ⬠ and draw a zone of interest.



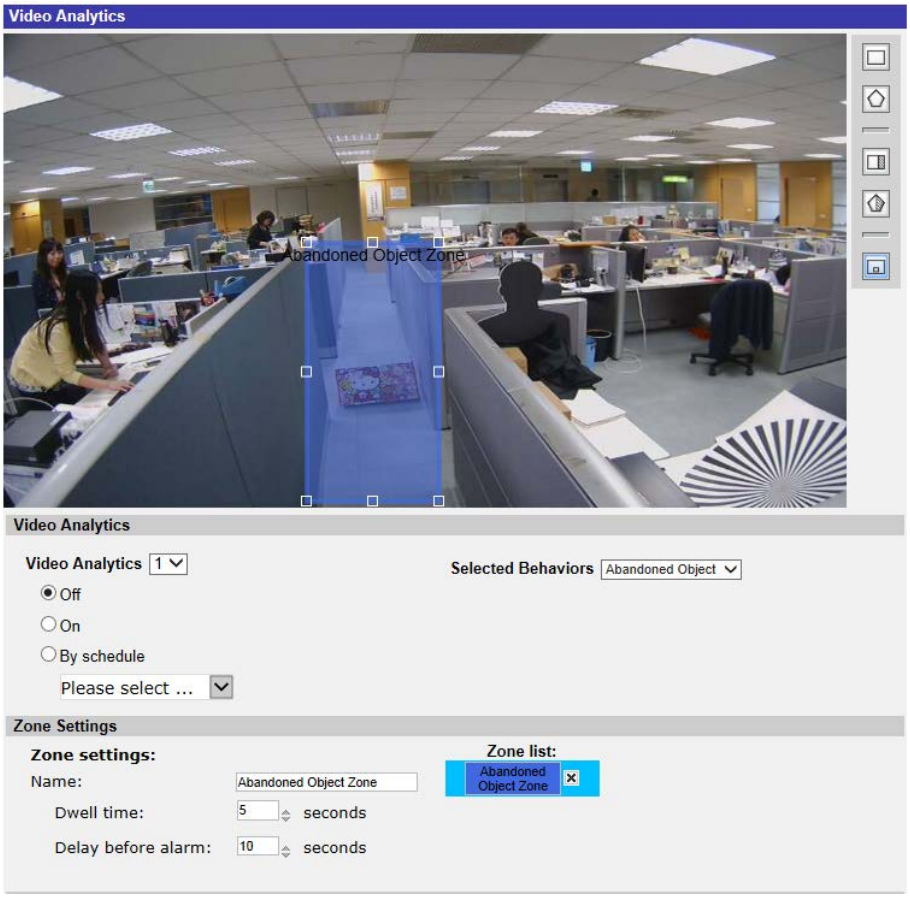
4. Name the zone; setup “Dwell time” and “Delay before alarm.”

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



6. If needed, click / to draw areas that objects will be ignored.
7. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
8. Click save to apply the setting.

When an unknown object is left in the defined zone over the specified time, the camera will trigger the alarm and/or send notification to users according to what behaviors users previously set.



Intrusion Detection

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

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Intrusion Detection** from “Selected Behaviors”.
3. Click ▭ / ⬠ and draw a zone of interest.
4. Click ▣ and set the maximum / minimum size of the objects.
5. Assign “Direction” for the proceeding direction of the unknown object / person.
6. Name the zone and setup “Dwell time”.
7. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
8. Step 8: Click save to apply the setting.

When an unknown object enters the defined zone in certain direction, the camera will trigger the alarm and / or send notification to users according to what behaviors users previously set.

Camera Sabotage

“Camera Sabotage” detects contrast changes in the field of view, and triggers an alarm if the camera lens is obstructed by spray paint, a cloth, or if it is covered with a lens cap. Moreover, any unauthorized repositioning of the camera will also trigger an alarm.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Camera Sabotage** from “Selected Behaviors”.
3. Setup **Sensitivity**, **Dwell Time** and **Delay Before Alarm**.
4. Step 4: Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
5. Step 5: Click save to apply the setting.

When an unknown deliberately damages e.g. the camera lens, the camera will trigger the alarm and / or send notification to users according to what behaviors users previously set.

Wrong Direction

“Wrong Direction” generates an alarm in a high traffic area when a person or object moves in a specific direction. The ideal applications for this behavior include airports, entrances/exits, and fences.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Wrong Direction** from “Selected Behaviors”.
3. Click or and draw a zone of interest.
4. Name the zone and setup “Dwell time.”
5. Assign the direction that is wished to forbid entering.

   Take the snapshot above as example, direction is set , meaning the alarm will be triggered when a person goes this direction . There will be no alarm when the person goes this direction (as below) or any direction other than .
6. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
7. Click save to apply the setting.

If any person / object moves in the direction set as the defined zone, the camera will trigger the alarm and / or send notification to users according to what behaviors users previously set.

Loitering Detection

“Loitering Detection” identifies people or vehicles that stay and loiter in a defined zone longer than the user-defined time. This behavior is more effective in real-time notification of suspicious behavior around ATMs, stairwells and school grounds.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Loitering Detection** from “Selected Behaviors”.
3. Click and draw a zone of interest.
4. Name the zone; setup “Dwell time” and “Delay before alarm.”
5. Click and set the maximum / minimum size of the objects.
6. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
7. Click save to apply the setting.

If any suspicious person or vehicle stays in the specified zone longer than the user-defined time, the camera will trigger the alarm and / or send notification to users according to what behaviors users previously set.

Object Counting

“Object Counting” counts the number of objects that enter a user-defined zone. This behavior can be used to count people at a store entrance/exit. On the hand, it is also suitable to monitor vehicle traffic on highways, local streets/roads, parking lots and garages.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Object Counting** from “Selected Behaviors”.
3. Click and draw a block or line for the scene.
4. Name the zone setup “Dwell time.”
5. Click and set the maximum / minimum size of the objects (people).
6. Assign “Direction” for the proceeding direction of the objects and “Dwell time” for the event.
7. Set the amount of objects to trigger the alarm in “Alarm at __ objects”. When the number of the counted objects reaches the setting number, the alarm will be triggered.
8. Check the “Reset counter on alarm” box to reset the object counting once an alarm is triggered. Or, uncheck to disable this function.
9. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
10. Click save to apply the setting.

If the amount of entering objects exceeds the user-defined number, the camera will trigger the alarm and/or send notification to users according to what behaviors users previously set.

Object Removal

“Object Removal” triggers an alarm if the monitored object is removed from a user-defined zone. The ideal size of the object to be monitored is to occupy major proportion of ROI, such as a painting from a wall or a statue from a pedestal.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Object Removal** from “Selected Behaviors”.
3. Click and draw a zone of interest.
4. Name the zone; setup “Dwell time” and “Delay before alarm.”
5. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
6. Click to apply the setting.

When the monitored object is removed from the defined zone, an alarm will be triggered and/or a notification will be sent, or other actions will be taken according to what behaviors users previously set.

Stopped Vehicle

“Stopped Vehicle” detects vehicles stopped near a specific area (e.g. no parking zone), and sets an alarm if the vehicle stays inside the area for longer than user-defined period of time. This behavior is ideal for parking enforcement, identifying suspicious parking, finding traffic lane break-downs, and spotting vehicles waiting at gates.

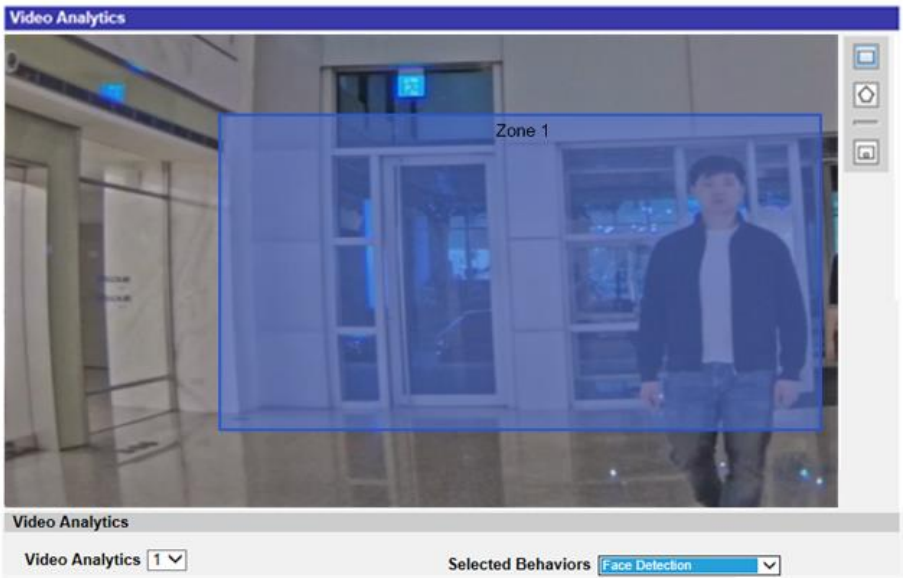
1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Stopped Vehicle** from “Selected Behaviors”.
3. Click and draw a zone of interest. Name the defined zone; setup “Dwell time” and “Delay before alarm.”
4. Click and define the minimum and maximum size of objects.
5. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
6. Click to apply the setting.

When any vehicle stops near the specified zone and stays in the zone longer than the defined time period, an alarm will be triggered and / or a notification will be sent, or other actions will be taken according to what behaviors users previously set.

Face Detection

NOTE! This feature is only available on specific camera models; please check the corresponding **Technical Specifications** document of your camera if it supports the ***DNN Features***.

"Face Detection" applies to target marketing efforts on demographic segmentation. This function identifies the gender of the visitors and their approximate age range by detecting and analyzing their faces. The information shown by this function can be used for targeted merchandising and campaign evaluation.



1. Select this behavior as "VA1" or "VA2" from "Video Analytics".
2. Select **Face Detection** from "Selected Behaviors".
3. Click ▢ / ⬠ and draw a zone of interest. Name the defined zone; setup "Dwell time".
4. Click ▣ and define the minimum and maximum size of objects.
5. Setup what behaviors to take when an event occurs under "Triggered Action & File name" section.
6. Click save to apply the setting.

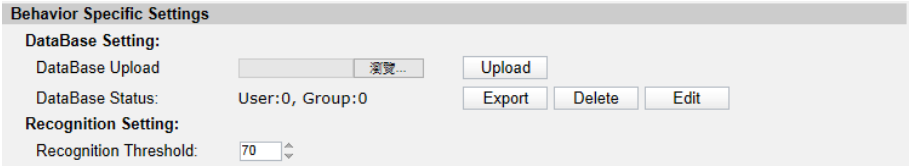
When the visitor enters the specified zone, an alarm will be triggered and / or a notification will be sent, or other actions will be taken according to what behaviors users previously set.

Face Recognition

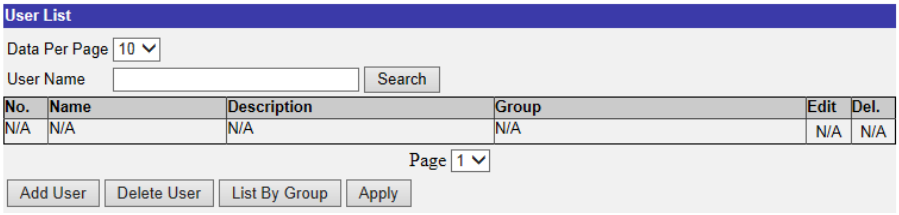
NOTE! This feature is only available on specific camera models; please check the corresponding **Technical Specifications** document of your camera if it supports the ***DNN Features***.

“Face Recognition” is designed for access control and personnel identification. To enable this function, it is necessary to create a database. Once the person’s facial images and the related information have been entered into the database, he/she can be detected. The name of the person detected and the confidence rate will be shown under this function.

1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **Face Recognition** from “Selected Behaviors”.
3. Click Edit from “Behavior Specific Settings”.



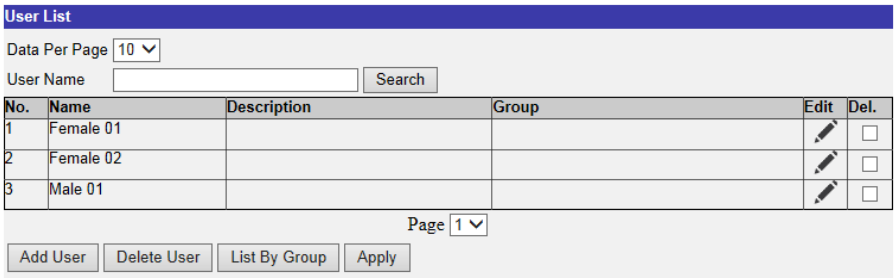
4. Click Add User from “User List”.



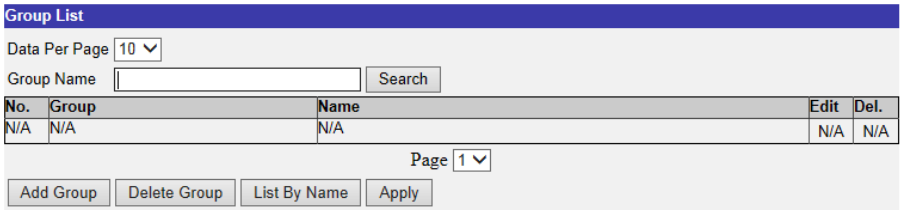
5. Enter the user’s name into **Name**. Fill in **Description** if needed.

6. Click from **Face Image List**. Choose the image files of the user. Upload at least three images of the user's face. The face must take up 20 % of the image. More images with multiple angles (both eyes should be revealed) or various looks of the user, e.g., with/without glasses, with different hairstyles, are preferred. Supported image formats are JPEG/PNG/BMP. Recommended image size is between 200x200 to 1920x1080 pixels.

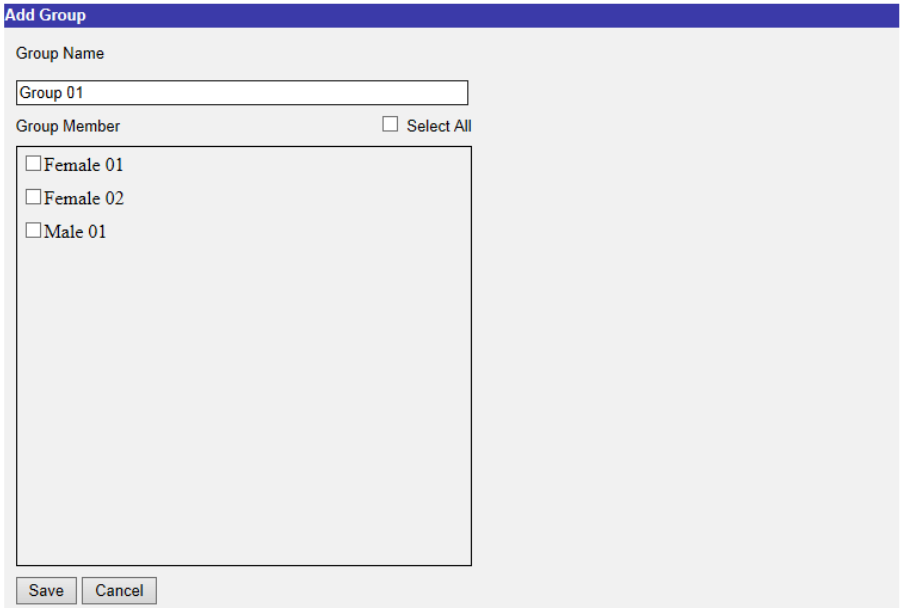
7. Click save to apply the setting.
8. Click List By Group from "User List" after finishing adding the users.



9. Click Add Group from "Group List".

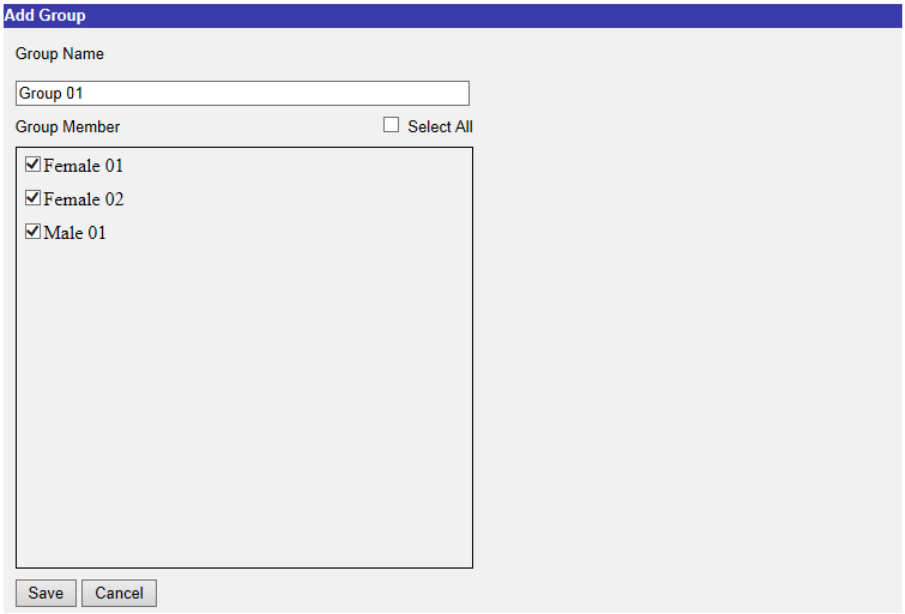


10. Enter the name of the group into "Group Name".

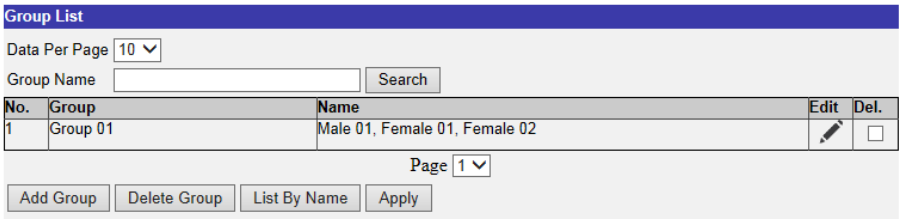


11. Select the group member(s) into the group.

12. Click save to apply the setting.



13. Step 13: Click Apply from “Group List” to save the setting.



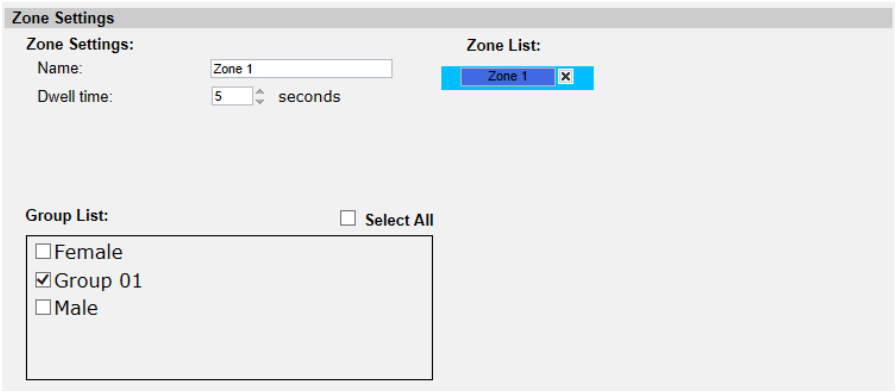
NOTE!
The user and group data can be imported into other cameras. For those who need to export the data into a database file or to upload a database file, please refer to Export the Database/Upload the Database. If not, proceed to Step 14.

14. Select **Recognition Threshold** from Behavior Specific Settings. The default setting is 70. The value range is 1 to 100.

NOTE!
Recognition Threshold is a set value to be compared with the face data value. If the value of the scanned face is higher than the threshold, the verification passes, and the scanned person’s name will 28 be shown. If not, the status will be **UNKNOWN**. For further information about the face image requirements, please refer to Step 6.

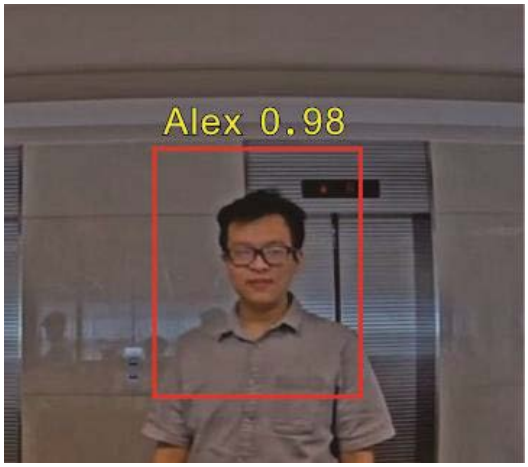
15. Click ▭ / ⬠ and draw a zone of interest.

16. Setup **Dwell Time** from Zone Settings.
17. Click ▣ and define the minimum and maximum size of objects.
18. Select the group(s) from “Group List”.



19. Setup what behaviors to take when an event occurs under “Triggered Action & File name” section.
20. Click save to apply the setting.

After the zone of interest & group list are set up, and the group member entered the zone, an alarm will be triggered and / or a notification will be sent, or other actions will be taken according to what behaviors users previously set. When the alarm is triggered successfully, the detection frame will be red.



License Plate Recognition

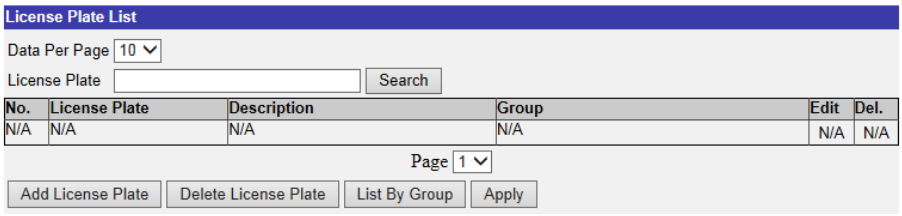
NOTE! This feature is only available on specific camera models; please check the corresponding **Technical Specifications** document of your camera if it supports the ***DNN Features***.

“License Plate Recognition” captures the license plate in real time. To enable this function, it is necessary to create a database. Once the license plate number has been entered into the database, it can be detected and the confidence rate will be shown under this function. The information can be further used for purposes like generating alerts, opening the gate, or adding costs.

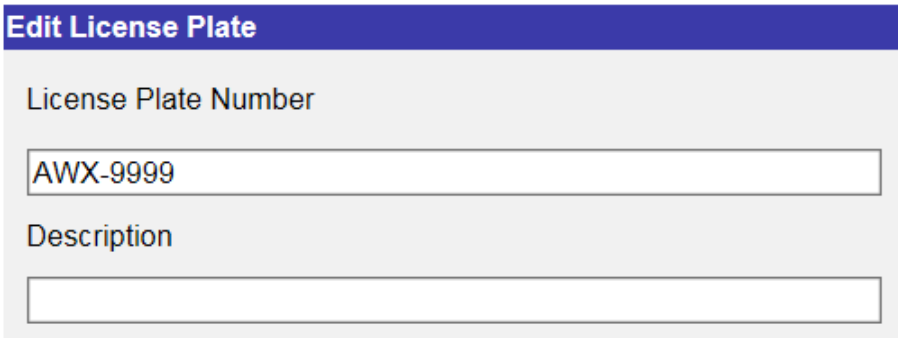
1. Select this behavior as “VA1” or “VA2” from “Video Analytics”.
2. Select **License Plate Recognition** from “Selected Behaviors”.

3. Click Edit from “Behavior Specific Settings”.

4. Click Add License Plate from “License Plate List”.



5. Enter the license plate number into **License Plate Number**. Fill in **Description** if needed.

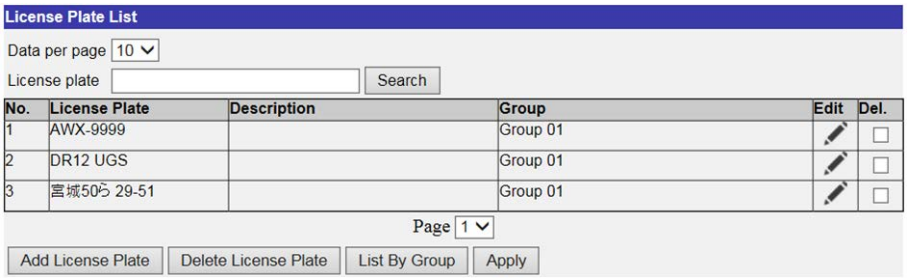


NOTE!
Three recognition regions are **General**, **Japan** and **Taiwan**. When entering Taiwanese license plate number, note that hyphens (“–”) in the plate number is required. License plate number of other countries can be recognized with and without hyphens and spaces. See examples below.

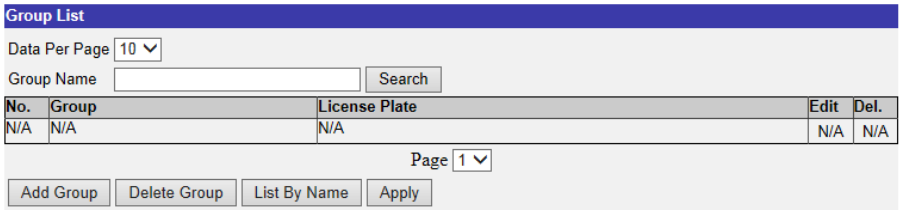
Recognition region	License plate	Correct input
General		

Recognition region	License plate	Correct input
Japan		
Taiwan		

6. Click save to apply the setting.
7. Click List By Group from “License Plate List” after finishing adding the license plate numbers.



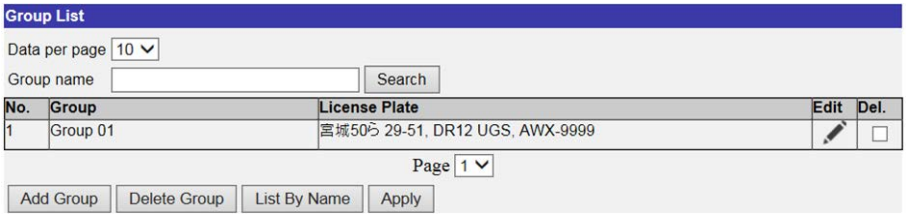
8. Click Add Group from “Group List”.



9. Enter the name of the group into "Group Name".
10. Select the group member(s) into the group.

11. Click save to apply the setting.

12. Click Apply from “Group List”.



NOTE!
The group data can be imported into other cameras. For those who need to export the data into a database file or to upload a database file, please refer to Export the Database/Upload the Database.

13. Select **Recognition Threshold** from "Behavior Specific Settings". The default setting is 70. The value range is 1 to 100.

NOTE!
Recognition Threshold is a set value to be compared with the license plate data value. If the value of the scanned license plate is higher than the threshold, the verification passes, and the license plate will be shown.

Example: The verification passes when the license plate data value (0.95) is higher than the "Recognition Threshold" value (70).

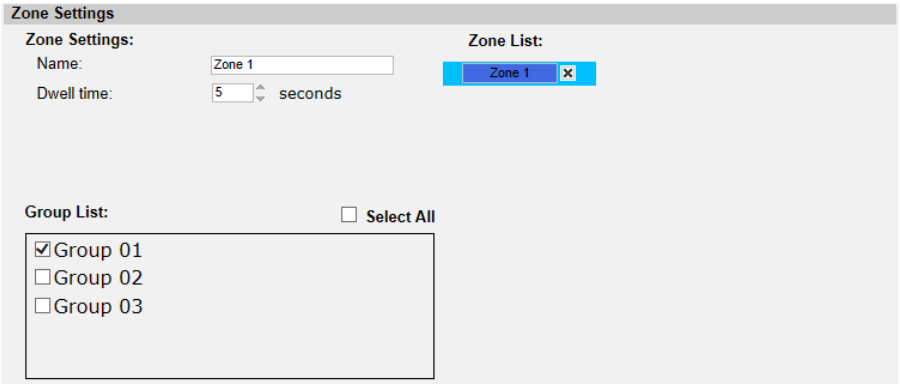
14. Select **Recognition Region** from "Behavior Specific Settings". Available region options are **General**, **Japan** and **Taiwan**.

> **NOTE!**
> Note that **General** contains several European countries and some Asian countries. For further information, contact the manufacturer.

15. Click ▭ or ⬠ and draw a zone of interest.

16. Set **Dwell Time** from Zone Settings.
17. Click ▣ and define the minimum and maximum size of objects.

18. Select the group(s) from "Group List".



19. Define the behaviors to take when an event occurs in the Triggered Action & File name section.
20. Step 20: Click save to apply the setting.

After the zone of interest & group list are set up, and the group member entered the zone, an alarm will be triggered and / or a notification will be sent, or other actions will be taken according to what behaviors users previously set. When the alarm is triggered successfully, the detection frame will be red.

Export the Database

To export the database, follow the steps below after the user and group setup.

1. Click Export from “Behavior Specific Settings Settings” to export the database into a CSV file.

2. When prompted, click **Save** to save the database file.

Upload the Database

To import and upload a database file, please follow the steps below after the user and group setup.

1. Click **Browse** and select the database file.
2. Click Upload to finish the setting.

3. Click **Yes** in the pop pop-up window after the database file is uploaded successfully.

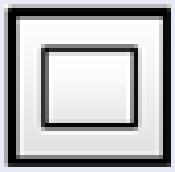
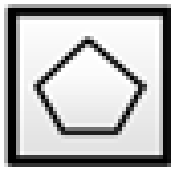
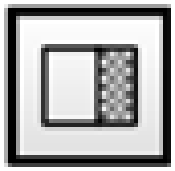
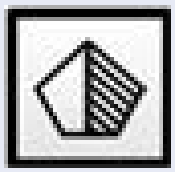
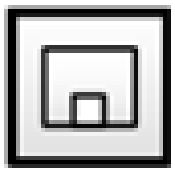
Standard Setting

The standard setting for video analytics behavior includes zone setting and behavior setting.

Zone Setting

Some analytics behaviors require zone setting. A zone is where users want to monitor and check whether there is intrusion, object misplaced / removed, etc. A zone can be set by a polygon or line. When setting a zone-based analytic behavior, select a zone-drawing tool and click in the video pane to draw the zone.

The definition of each zone drawing tools is as below:

Zone Drawing Tools	Definition
 Box	Detection zones. Define a region of interest. Objects in the defined zone will trigger alarm if the objects move in the same direction as defined.
 Polygon	
Line	Detection zones. Set lines when objects cross and move in the same direction as defined which triggers alarm.
 Exclude Zone Box Tool	Set zones in which objects will be ignored.
 Exclude Zone Polygon Tool	
 Object Size Filter	Set the minimum and maximum size of objects. To prevent incorrect detection object setting, the short side of Max Object Size must be longer than any side of Min Object Size.

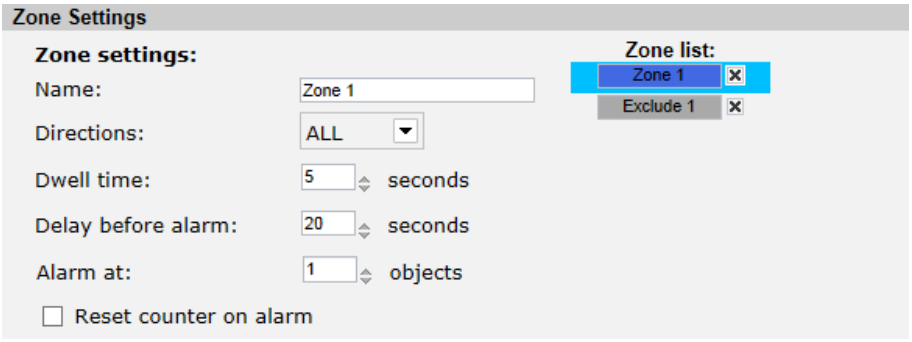
NOTE!
Zone drawing tools will vary by different analytics behaviors.

NOTE!
The amount of detection zones is 8. A warning message window is displayed when the amount of zones exceeds 8.

Behavior Setting

Here is to set the definition of an event and what actions to take when an event occurs. The following describes the definition of each setting item.

Zone Settings

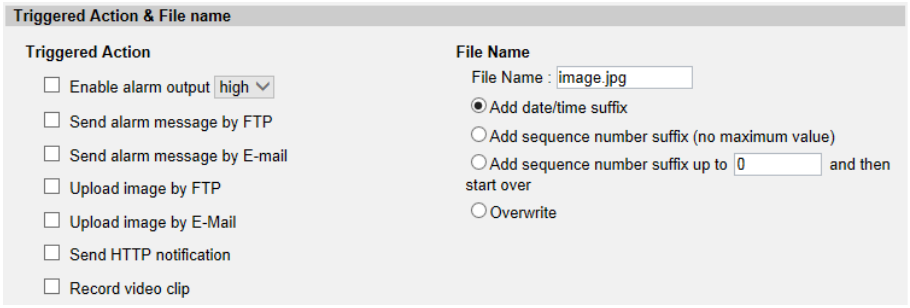


- Name: Name of the detection zone.
- Directions: Set the direction of motion the camera should track. Alarms will only be triggered when the camera detects motion in the specified direction.
- Dwell time: Set the amount of time that an alarm continues when the alarm is triggered. Dwell time ranges from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

  Zone setting items will vary by the analytics behavior being configured.

Triggered Action (Multi-option)

Users can specify alarm actions when an event occurs. All options are listed as follows.



- Enable Alarm Output: Select the item to enable alarm relay output.
- Send Message by FTP/E-Mail: The administrator can select whether to send an alarm message by FTP and/or E-mail when an alarm is triggered.

- 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 microSD/SDXC card or the NAS.

File Name

Enter a file name in the blank, e.g. image.jpg. The file name format of the uploaded image can be set in this section. Please select the one that meets the requirements.

- 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: imageXXXXXXX.jpg
  - X: Sequence Number
- Add sequence number suffix up to # and then start over
  - File Name: imageXX.jpg
  - 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 file name.

Save

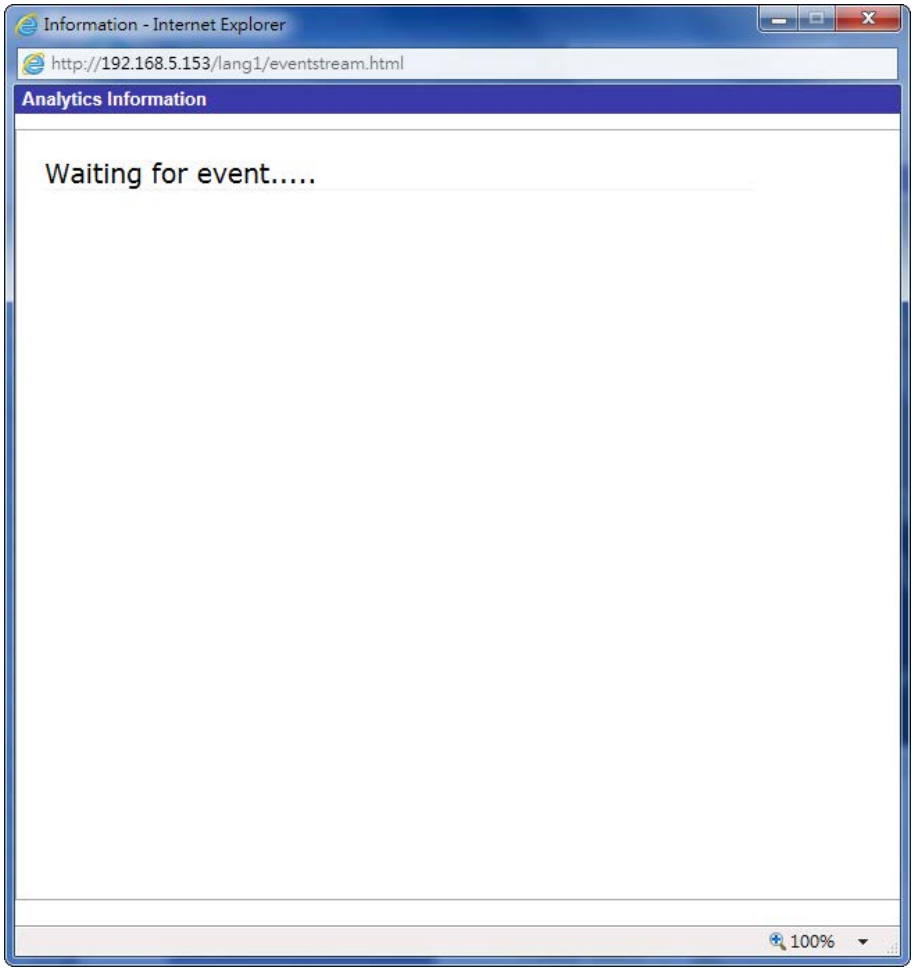
After complete all the settings mentions above, click save to save all the settings in this page.

Show Analytics Info

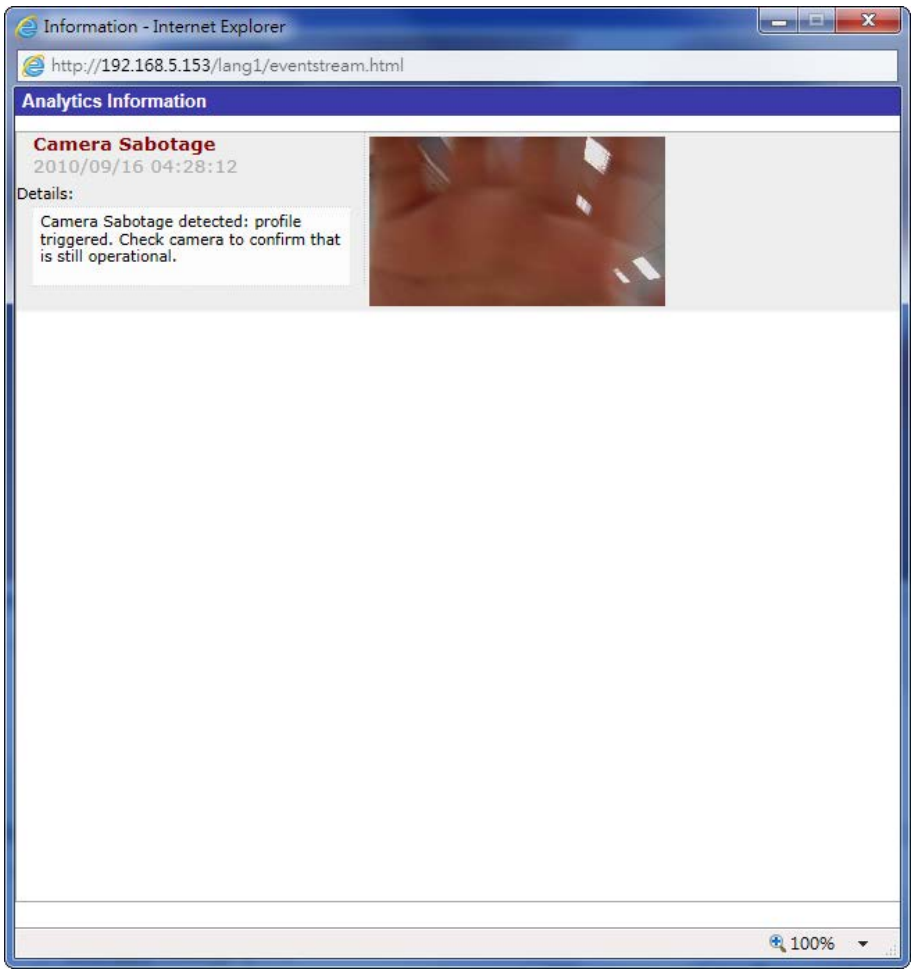
Click Show Analytics Info and the “Analytics Information” window will pop up. Whenever an event occurs, “Analytics Information” will update and post the occurring event to notify users.

NOTE!
For MJPEG format to show the snapshot of the occurring event. Go to **Streaming > Video** and set to **MJPEG**.

When no event occurs, the “Analytics Information” window is displayed as below.



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


Information - Internet Explorer
http://192.168.5.153/lang1/eventstream.html
Analytics Information
Camera Sabotage
2010/09/16 04:28:12
Details:
Camera Sabotage detected: profile triggered. Check camera to confirm that is still operational.
100%

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EN_12/21
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