videoNEXT®

JetStreamVS

Quick Start Guide

Analytics

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Introduction

Video analytics describes a computer algorithm that automatically detects situations that occur in a video stream. Having a person watch a video stream 24/7 is usually impractical and prone to the viewer getting distracted and possibly missing something. Video analytics is a tool that is used to assist an operator in identifying the important video.

There are, broadly speaking, two categories of video analytics: first, analytics looking to detect certain behavior (like motion detection, or intrusion); second, analytics used to provide an automatically-enriched description of the video (facial recognition, or automated license plate recognition).

This document describes how to configure the five analytics offered:

Motion Detection - A simple engine to detect things moving in the video, or a section of the video

Intrusion detection - A more advanced engine that can be used to only detect specific behaviors, while ignoring others (e.g. detect only people entering, not exiting; detecting only people, not cars)

Facial recognition - This engine will extract demographic information from detected faces, like age and gender. It can also compare detected faces against a list of known subjects

Motion Automatic License Plate Recognition - This engine will analyze the video to find vehicle license plates, and extract the plate number. It can also provide a description of the detected vehicles (like car type, manufacturer). Finally, detected license plates can be compared against a list of known plates

Triggered License Plate Recognition - Similar to the ALPR, except it needs some sort of trigger to detect plates. Can be set to trigger on motion

Motion Detection Analytics

Where to find Motion Detection Analytics

1. Start by going to the **Devices** on the Navigation Panel
2. Press on the camera to open its details
3. Toggle the **Motion Detector** switch to activate Motion Detection
4. Press Configure to enter Motion Detection analytical preferences

Using Motion Detection Analytics

1. Common Configurations

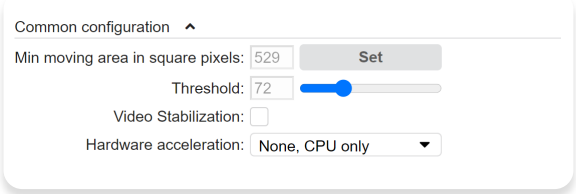
Minimum Moving Area

Press the Set button to configure the minimum number of moving pixels that the system will report. This will lower the amount of spammed detections that may come from birds or small objects moving

> Use mouse cursor to draw the minimum size square in the snapshot view

Threshold

Set the threshold for how much an object should move before the system records a motion detection



Video Stabilization

Enable this feature if the camera itself has slight movement in its feed. It prevents camera shaking from triggering a detection

Hardware Acceleration

Select if the Avatar is equipped with the hardware which may accelerate processing

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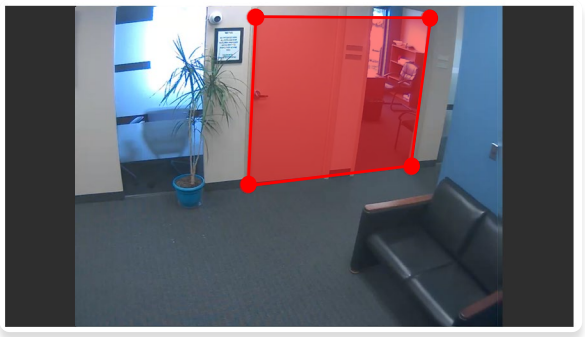
Motion Detection Analytics

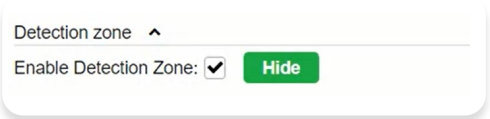
Using Motion Detection Analytics Calibration

2. Detection Zone
Enabling a Detection Zone allows for only certain areas of the camera frame to sense motion



Zone Adjustments:
Adjust the shape to the desired area using the Red points at each corner of the shape. Double click in the snapshot area to add more points to the shape.

> Press the **Hide** button hide the detection zone from the snapshot view



3. Save
Be sure to press the Save button after finishing and making any changes

Face Recognition Analytics

Where to find Face Recognition Analytics

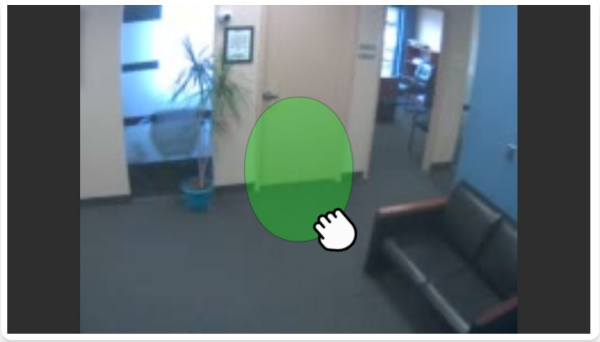
1. Start by going to the **Devices** on the Navigation Panel
2. Press on the camera to open its details
3. Toggle the **Face Recognizer** switch to activate Face Recognition
4. Press Configure to enter Face Recognition analytical preferences

Using Face Recognition Analytics

1. Adjusting Face Size
Minimum Face Size: Press the Set button to configure the minimum face size that the system should register

Maximum Face Size: Press the Set button to configure the maximum face size that the system should register

Use mouse cursor to draw minimum / maximum size ellipse in the view



2. Consecutive Counting
The count of consecutive match samples of the same person to consider the match correct. Increasing the value will improve accuracy but can lead to missing detections

3. Single Match Mode
After a track is matched once, it will never produce a template or be rematched until subject ages out from the currently observed scene

4. Features
Select from multiple togglable features that will collect different types of analytics from the camera video feed

- **Age / Gender** - Age group and gender estimation for the recognized faces
- **Emotions** – Recognizes emotions of different faces
- **Quality**
- **Person Search** - allows post-detection search for the suspect over the long time-span
- **Liveliness** - the analyzer will perform the "liveness check", safeguarding against the printed picture presented instead of the live subject

Intrusion Detection Analytics

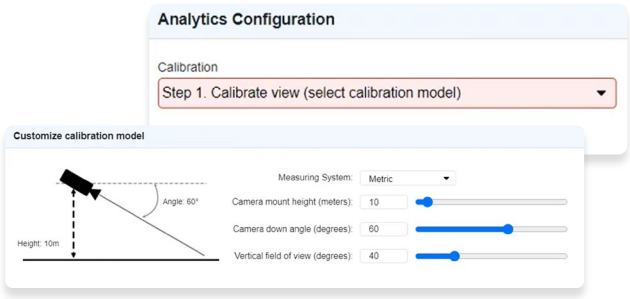
Where to find Intrusion Detection Analytics

1. Start by going to the **Devices** on the Navigation Panel
2. Press on the camera to open its details
3. Toggle the **Intrusion Detector** switch to activate Intrusion Detection
4. Press Configure to enter Intrusion Detection analytical preferences

Using Intrusion Detection Analytics Calibration

1. Calibration

Select the angle in which the camera is set to in its actual environment
After an angle is selected press the Icon to set custom calibration settings



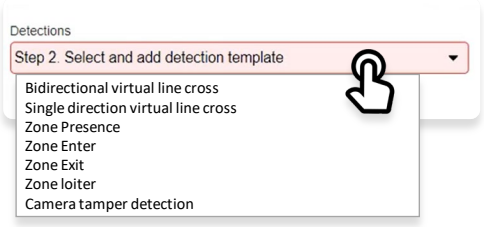
2. Detections

a. Select and add a detection template. Each template has different types of ways to trigger an intrusion event

b. After selecting the detection template type press Save

c. Once saved, press + to add the selected detection template to the video snapshot view

d. A new menu will appear called Detection Configuration



Intrusion Detection Analytics

3. Detection Configuration (Line & Zone Detection)

Enter the Detection Name. Name it something specific, so that if there are many detections of the same type it will be easy to distinguish.
e.g. 'Entered building' has more meaning than "Line 1 cross"

Select the Types of Objects that should be detected. Choose the corresponding objects that are expected to be in the area that the camera placed in

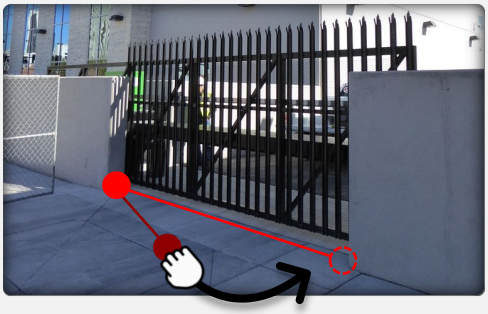
(**Zone Detection Only**) Select the Types of Behavior that should be detected. Based on the type of area that the detector is placed, choose the types of behavior that should be included

Flip the direction flow of detected traffic flow to the desired side

Select any Additional Characteristics that should be included in the detection analytics

5. Setting Detection Lines

A colored line with two rounded points will be visible on the Camera Snapshot. Click and Drag each point to the desired location.
If it is a single direction line detector be sure that the arrow is pointing the correct direction.



5. Setting Detection Zones

A colored square will first appear after adding the new zone. Move each point to make a perimeter
To add more points, double click anywhere in the snapshot. A new point will appear, and the shape will change

Motion ALPR Analytics

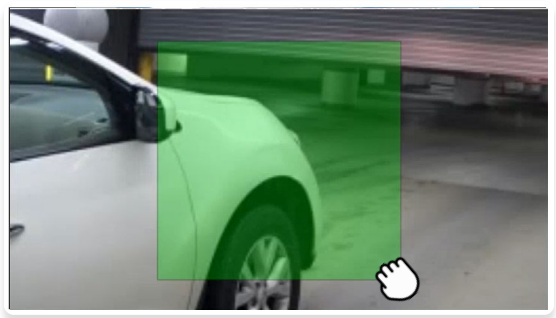
Where to find Motion ALPR Analytics

1. Start by going to the **Devices** on the Navigation Panel
2. Press on the camera to open its details
3. Toggle the **Motion ALPR** switch to activate Motion ALPR
4. Press Configure to enter Motion ALPR analytical preferences

Using Motion ALPR Analytics Calibration

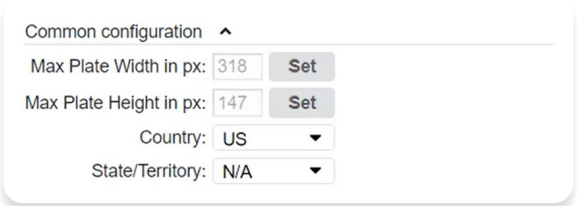
1. Common LP Configuration

Minimum/Maximum LP Size:
Press the Set button to configure the minimum/maximum License Plate size that the system should register



> Click and drag the rectangle in the snapshot viewer to adjust the size

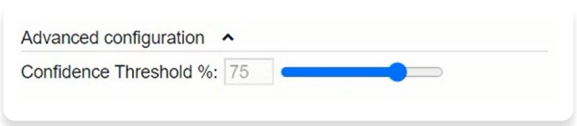
Country & State/Territory:
Select the Country then the State/Territory so that the system may recognize license plates better



> Leaving the setting blank will record every type of plate the system sees

2. Advanced LP Configuration

Confidence Threshold:
Gives each plate that is scanned a confidence rating of what the system thinks it read. Set the minimum rating that the system should report



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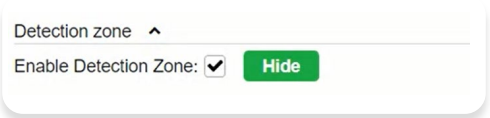
Motion ALPR Analytics

Using Motion ALPR Analytics Calibration

3. Detection Zone

Enabling a Detection Zone allows for only certain areas of the camera frame to sense license plates



Zone Adjustments:
Adjust the shape to the desired area using the Red points at each corner of the shape. Double click in the snapshot area to add more points to the shape.

> Press the **Hide** button hide the detection zone from the snapshot view

4. Features

Select from multiple togglable features that will collect different types of analytics from the camera video feed

- **Detect Motion** - it is using Motion detection engine to avoid computational-heavy ALPR analysis on the videos having no vehicles in the field of view, it helps saving CPU resources when multiple LPr channels are processed on the same avatar hardware/box
- **Classify Vehicles** - Adds type / make / model estimations to the reads
- **HW Acceleration** - Allows processing of higher framerates and more channels on the same hardware

5. Save

Be sure to press the Save button after finishing and making any changes

Triggered ALPR Analytics

Where to find Triggered ALPR Analytics

1. Start by going to the **Devices** on the Navigation Panel
2. Press on the camera to open its details
3. Toggle the **Triggered ALPR** switch to activate Triggered ALPR
4. Press Configure to enter Triggered ALPR analytical preferences

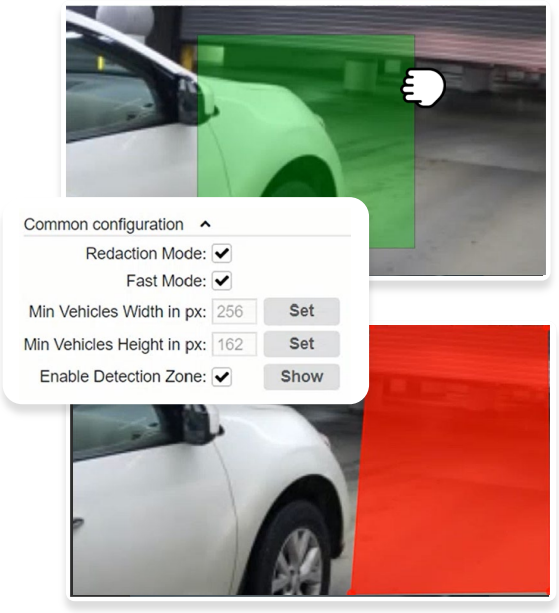
Using Triggered ALPR Analytics Calibration

1. Common LP Configuration

Redaction Mode:
Used for license plate redaction. It includes more candidates during plate detection. This setting will miss fewer plates but will increase the number of false positives

Fast Mode:
Gives 30% speedup at expense of lower accuracy for smaller vehicles

Minimum/Maximum LP Size:
Press the Set button to configure the minimum/maximum License Plate size that the system should register



> Click and drag the rectangle in the snapshot viewer to adjust the size

Detection Zone:
Enabling a Detection Zone allows for only certain areas of the camera frame to sense license plates

Adjust the shape to the desired area using the Red points at each corner of the shape. Double click in the snapshot area to add more points to the shape.

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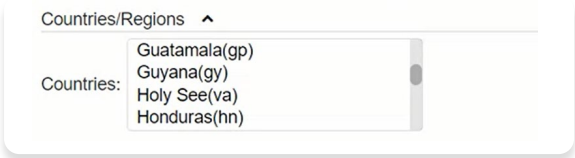
Triggered ALPR Analytics

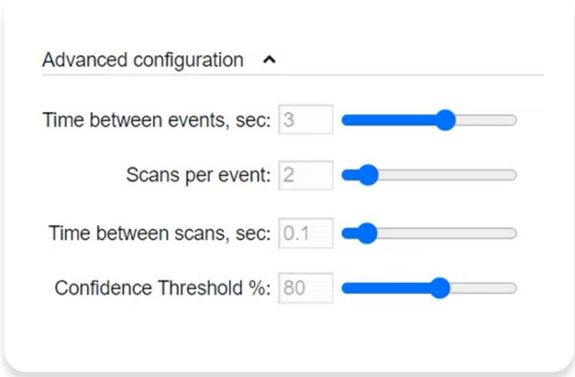
Using Triggered ALPR Analytics Calibration

2. Countries/Regions
Select the Countries or Regions that system should recognize. Multiple may be chosen in the list



3. Advanced Configuration
To set these configurations click and drag the slider to the desired digit

Time Between Events:
Set the amount of time that goes by before the system records a new event
Scan Per Event:
Set the number of scans that the plate recognizer will scan per event. It is recommended to use multiple reads to have a better chances of capturing the license plate and reading it
Time Between Scans:
Set the amount of time that goes by before the system performs a new scan
Confidence Threshold:
Gives each plate that is scanned a confidence rating of what the system thinks it read. Setting threshold too low will result in inaccurate reads. setting threshold too high will result in missed good reads, where plate captured on video was lesser than ideal. The default setting is adequate in most cases



5. Save
Be sure to press the Save button after finishing and after making any changes afterwards

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