VIVOTEK

A Delta Group Company

VIVOTEK

ANPR Software User Manual

V3.1

2022/7/7

ANPR Version: v4.1.1.18 or later

Outline

History

Date	Ver.	Author	Details	Remarks
2019/6/29	V1.0	Austen	Initial version	
2019/7/12	V1.1	Vito	2nd version	
2019/7/17	V1.2	Austen	Modify title and bookmark link	Based on v2.4.7
2020/1/16	V1.3	Austen	LPR configuration page: • Modify Resolution options • Modify Free-flow/Motion options • Add the description for Minimum characters difference & motion queue General Configuration: • Add description for view type	based on v2.7.17
2020/2/10	V1.4	Austen	Add notice for review search limit	Based on v2.7.17
2020/3/5	V1.5	Austen	• Add package upgrade flow • Add purge interval “MINUTES” description	Based on v2.x.x.x
2020/4/1	V1.6	Austen	• Remove purge interval “MINUTES description” • Correct the typo of resolution description • Add figure for common scenario description • Add more List action: - VAST2/Trigger server/Wiegand VIVOTEK - FTP JPG MTT / Email	Based on v3.0.2.0
2020/07/15	V1.7	Aaron	• Resolution options • Add Reset Database feature • Update Customized Options	Based on v3.0.2.0
2020/11/23	V1.8	Aaron	• Remove old information	Based on v3.0.2.0

2021/02/17	V1.9	Aaron	• Add Trigger mode API trigger period limitation, Maximum enabled actions and Maximum Master-slave camera connection	Based on v3.0.2.0
2021/06/01	V2.0	Aaron	• Update Maintenance Options, remove change logo and background	Based on v3.0.2.0
2021/07/23	V2.1	Aaron	• Update UM to v4.0	Based on v4.0.1.0
2021/08/26	V2.2	Aaron.L	• Correction & Rearrangement	Based on v4.0.1.0
2022/04/15	V3.0	Aaron.L	• Unified Stop&Go with Urban ANPR Package • Update “ANPR Supported Regions” • Update the “Storage Space” • Remove “Cross Line Detection” • Update “Trigger Option” • Update “List Export” • Add “Action time explanation“ • Add “ANPR Performance Index” chapter • Add “Evidence” • Add “Abnormal UI or UI reaction after ANPR upgrade”	Based on v4.1.1.18
2022/07/07	V3.1	Aaron.L	• Correct Chapter 4.1	

1. Overview

VIVOTEK ANPR software a powerful LPR application embedded in VIVOTEK cameras. VIVOTEK ANPR software is the all in one product to plug and play, ready to read plates just out of the box. It includes an interface web application that allows you to manage different scenarios, avoiding extra hardware and software installation.

1.1 LPR Analytics Supported Regions

Region	Countries
North America	Canada, USA*
South America & Central	Argentina, Bermuda, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela, Saint Lucia, Barbados, Jamaica
Europe	Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland (ROI), Italy, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland, Ukraine, United Kingdom Great Britain, Albania, Lithuania Latvia, Malta, Serbia, Kosovo, Montenegro Macedonia, San Marino, Iceland
Asia*2	Abu Dhabi, Azerbaijan, Bahrain, Dubai, Hong-Kong, India, Indonesia, Israel, Lebanon, Macau, Malaysia, Philippines, Russia, Singapore, Taiwan, Turkey, Vietnam, Oman, Kuwait、Qatar、Saudi Arabia、Uzbekistan
Africa	Angola, Burkina Faso, Kenya, Morocco, Nigeria, Senegal, South Africa, Tanzania, Tunisia, Uganda, Botswana, Ghana, Cameroon, Ethiopia, Djibouti, Mozambique
Oceania	Australia, New Zealand

*: Small stacked characters on license plate are not supported.
*2: Arabic alphabets are not supported.

2. Installation Requirement

2.1 Camera requirements

Compatible Camera

Model	IB9387-LPR IB9387-LPR-W	IB9365-LPR IB9365-LPR-W	IP9165-LPR
Minimum Firmware Requirement	0125c	0125c	0119g

Storage Space

The ANPR recognition and action record will be saved in the micro SD card. The preset values suppose a 40% of JPEG compression (default system value). In the following table we can find storage consumption reference.

Model	IB9387-LPR(-W) IB9365-LPR(-W)	IP9165-LPR
Micro SD Card Size	16 GB	32 GB
Notice: The micro SD should be formatted in EXT4 format.		

Storage Requirement Table - ANPR Record

Size / Registers	1	1,000	5,000	10,000	100,000
1280 x 720	150 KB	146 MB	732 MB	1,464 MB	14.3 GB
1920 x 1080	300 KB	292 MB	1,464 MB	2,928 MB	28.6 GB
1280 x 960	200 KB	195 MB	977 MB	1,953 MB	19 GB
1920 x 1440	400 KB	390 MB	1,954 MB	3,906 MB	38 GB

> ⚠ Notice
>
> The image size varies with the scene complexity. Therefore, the table is only for reference.

Storage Requirement - Action Record

There are 3 type of action for ANPR integration. There will lead to different micro SD storage consumption. For each action, it will be logged on camera. But if there are data transition included, the content will record on micro SD. It will lead to additional storage consumption for each action.

	Action Type	Action LOG on Camera	Data Log On micro SD	Example
1	Simple reaction without data transition	Yes	No	DO trigger
2	Action with ANPR metadata transition.	Yes	Yes About 2 KB	Onvif Event HTTP (XML / JSON)
3	Action with ANPR metadata & image record transition	Yes	Yes Image Size + 2 KB	VAST2 HTTP(XML_IMG/JSON_IMG)

⚠ Notice

1. If you set 1 “action” with image transition for backend integration, the micro SD space consumption will doubled.
2. If your set 2 “action” with image transition, the micro SD space consumption will tripled.

16 GB Storage Consumption vs. Traffic Flow Level

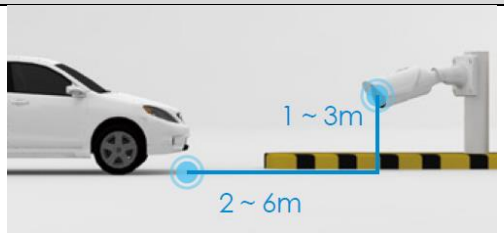
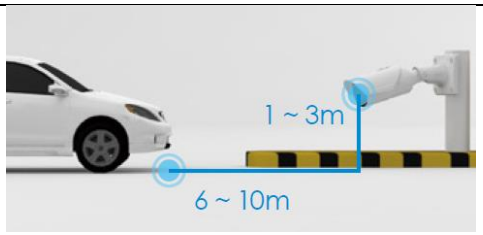
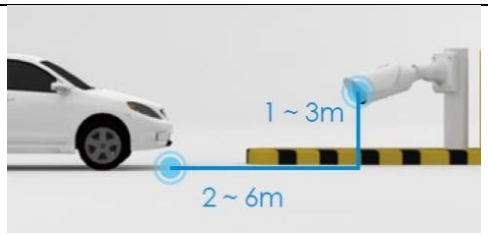
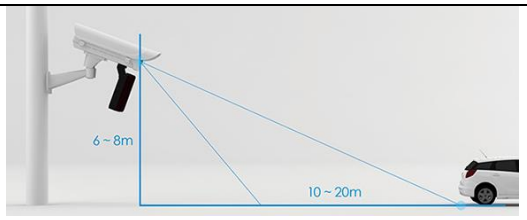
This table is for the fundamental scenario like parking access control with only simple “DO” trigger for gate open action, no additional action record required.

16 GB / Traffic Flow	Traffic Level (Cars per Day)				
	100	500	1,000	5,000	10,000
1280 x 720	3.1 years	7.4 months	3.7 months	22 days	11days
1920 x 1080	1.5 years	3.7 months	1.8 months	11 days	6 days
1280 x 960	2.3 years	5.5 months	2.8 months	17 days	8 days
1920 x 1440	1.2 years	2.8 months	1.4 months	8 days	4 days

2.2 Camera Positioning

Suggest Installation

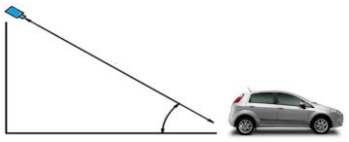
User should select the correct model fitting your site and application. Here's the suggest installation for all model as reference.

Model	Installation Reference	Distance (m)	Height (m)	Lane
IB9365-LPR-W (f = 4~9 mm)		2 ~ 6	1 ~ 3	Recommand: 1 Maximum: 2
IB9365-LPR (f = 12~40 mm) IB9365-LPR-W (f = 12~40 mm)		6 ~ 10	1 ~ 3	Recommand: 1 Maximum: 2
IB9387-LPR IB9387-LPR-W		2 ~ 6	1 ~ 3	Recommand: 1 Maximum: 2
IP9165-LPR Kit (Street)		10~20	6~8	2

Notice:

The recommendations are general and may vary depending on the selected camera and the site & country they are to be installed.

Installation Limitation

Tilt Angle (Vertical)		- Recommend: ~ Approximately 20° - Maximum: 35°.
Pan Angle (Horizontal)		- Recommend: ~ Approximately 20° - Maximum: 35°.
Plate Angle (Rotation)		- Recommend: 0° (Parallel to Ground) - Maximum: 25°

2.3 License Plate Character Size

Characters in license plates must have an average height between 20 to 80 pixels, being 25 pixels a good reference value. Less resolution may lead character confusion in some countries. In addition, camera sensitivity affects too. For countries in which there are different character sizes on their license plates, this fact must be kept in mind, so the small characters are included in the detection range.

Figure 1, License Plate Pixel Requirement

⚠ Notice
1. Characters height: 20 to 80 pixels 2. Recommend: 25 Pixels

3. ANPR Function Management

3.1 Start ANPR Service

Access the network Camera

User can access the network camera main page through web browser. VIVOTEK provide a camera management tool, “Shepherd” for discovering the network camera. Please refer the camera manual for detail instruction.

Figure 2, Camera Main Page

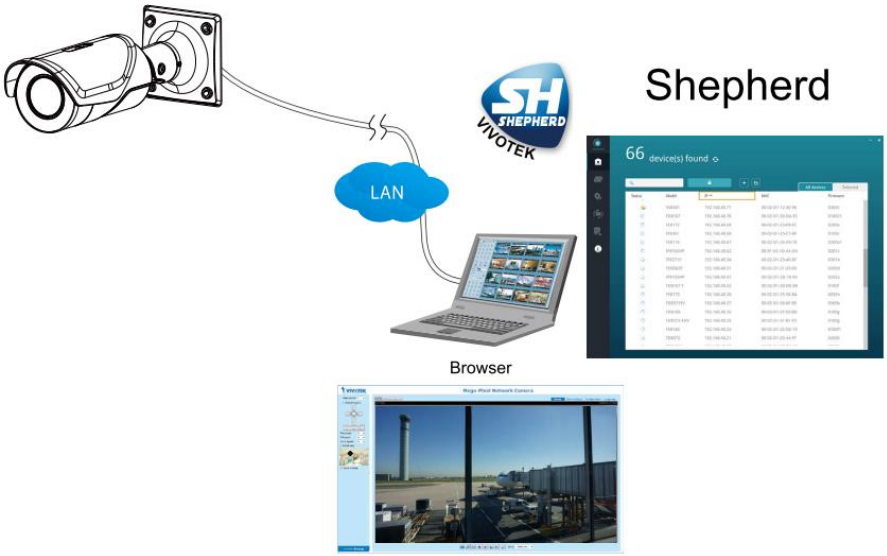
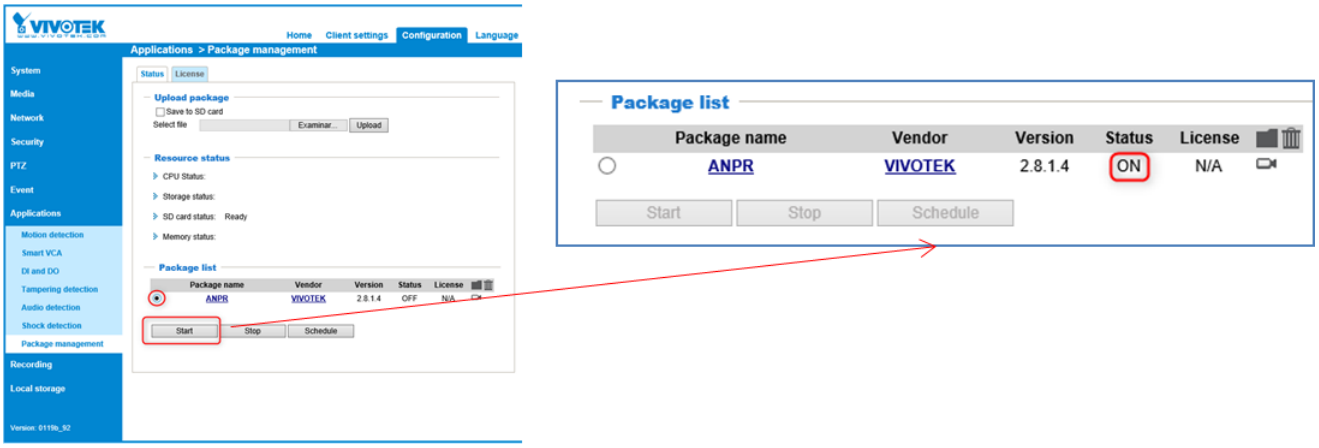


Figure 3, VIVOTEK Camera Management Tool

Start the Edge LPR Service

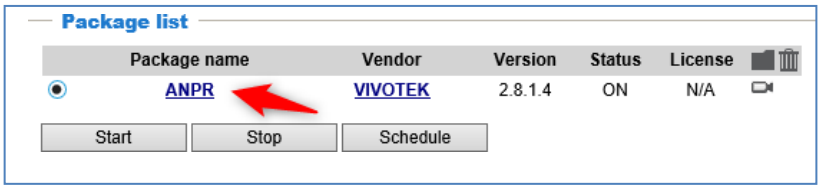
To start service, click on Package Management, select the ANPR and click on “START”. The service status should change from “OFF” to “ON”.



3.2 ANPR Software Management Page

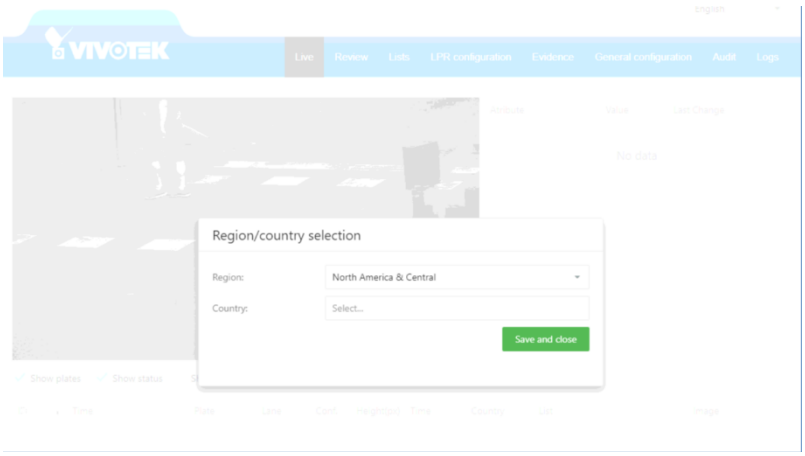
Enter the ANPR management page

Open the VIVOTEK camera main page through web browser. Go to “application”, click on “Package Management” and double click on ANPR service.

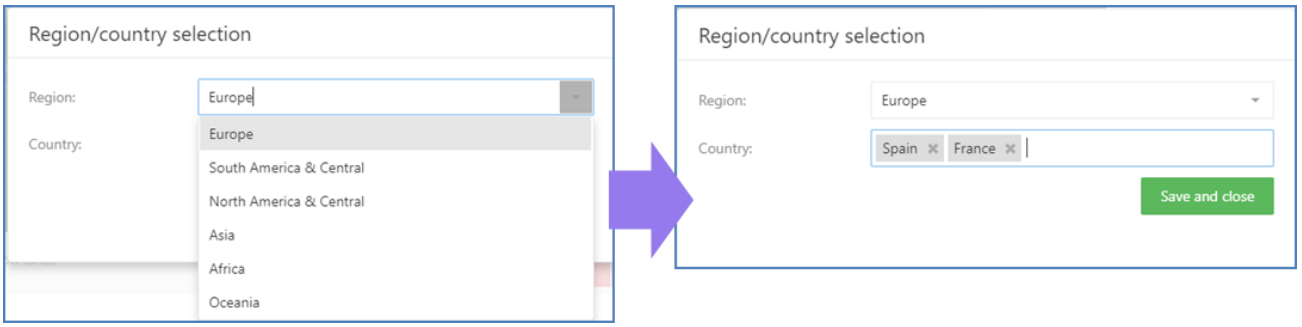


First Access

Upon the first access to the web Edge the system will ask us for the region and country. The country selection is mandatory to define the country(s) of license plate to read.

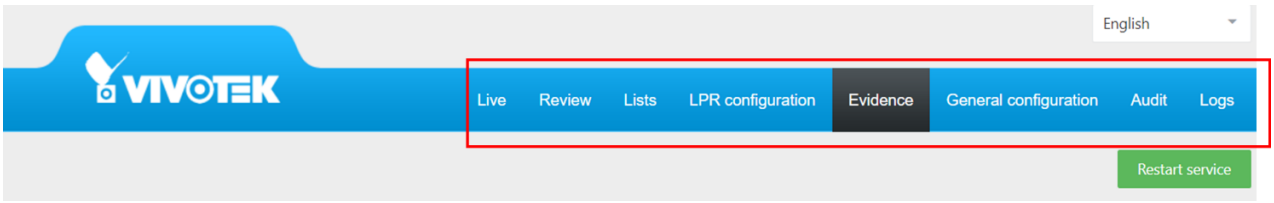


First, select the Region and select the countries in the region. Multi-selections is available. Please refer Chapter 3.4 for detail explanation.



> ⚠ Notice
>
> - Country order indicate the priority.
> - Make sure to list country where the ANPR camera installed 1st.

3.3 ANPR Management Page - Tab

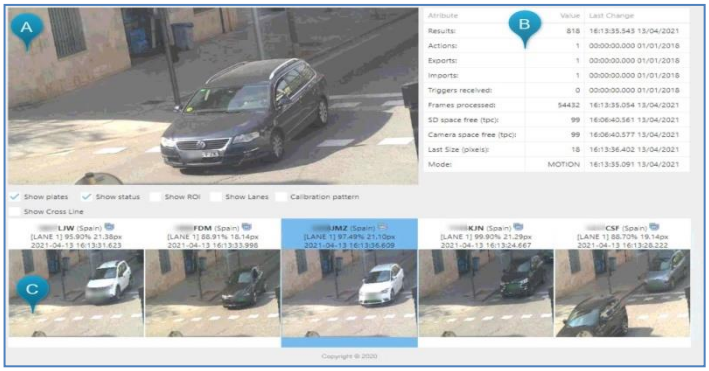


The top of the screen has a tab menu, it is marked with a red rectangle is the MENU toolbarwith all the available options.

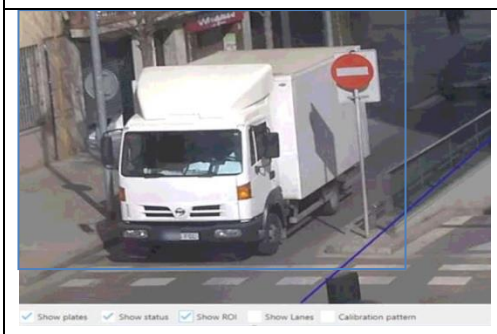
3.4 ANPR - Live Tab

The live tab shows the cameras live view. (this tab is divided into 3 different areas) We have divided it into 3 parts:

A. Monitor Panel
B. Info Panel
C. Result Panel



ANPR - Live Tab - Monitor Panel

	Show ROI The red square indicating the ROI (Region of Interest) defined in the parameters if set. This area is the only section of the image where engine will try to find plates.
	Show lanes The blue line defining the lanes line configured in the parameters if set. ➢ The plates in the left side of the line are in "lane 1" ➢ The plates in the right side of the line are in "lane 2".
	Calibration pattern These white lines indicating the 25 pixels vertical space between lines. This function help user to identify whether the camera setting fulfill the minimum character size requirement.

ANPR - Live Tab - Info Panel

Overall information on the system status and last change.

- Results: Number of license plates recognized.
- Actions: Number of actions executed.
- Exports: Number of automatic exports executed.
- Imports: Number of automatic imports executed.
- Triggers received: Number of triggers received.
- Frames processed: Number of total frames processed.
- SD space free (%): Free Space Percentage in the SD card.
- Camera free space (%): Free Space Percentage in the camera.
- Last Size (pixels): Pixel size in the last result license plate captured.
- Mode: Mode of functionality
    A. NO LICENSE: There is no ANPR license in the system.
    B. STOPPED: The service stopped.
    C. MOTION: The service is working in Motion Detection mode.
    D. FREEFLOW: The service is working in Free-flow mode.
    E. TRIGGER: The service is working in Trigger mode.

ANPR - Live Tab - Result Panel

Show the latest results in the blue outline. These results will be included:

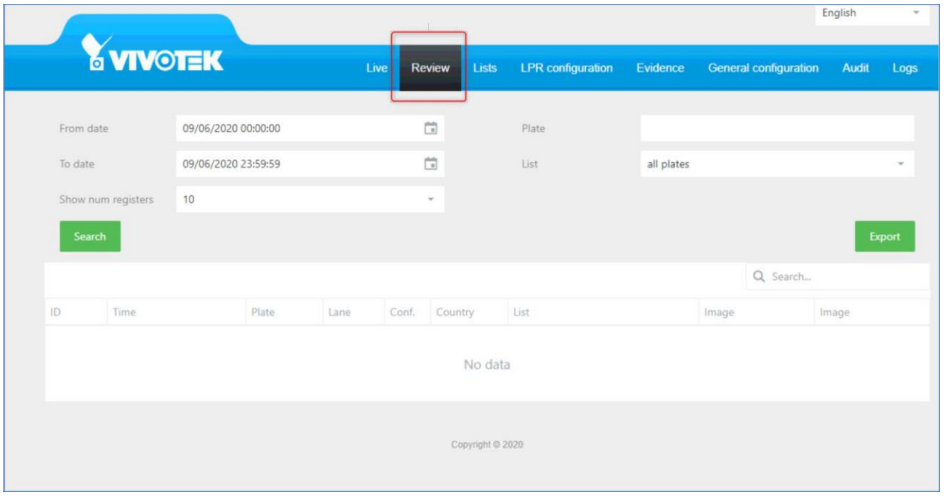
- Plate Number
- Country
- Confidence Level
- Character High
- Time
- Image

3.5 ANPR - Review Tab

The review tab allows us to search, filter and consult the results.

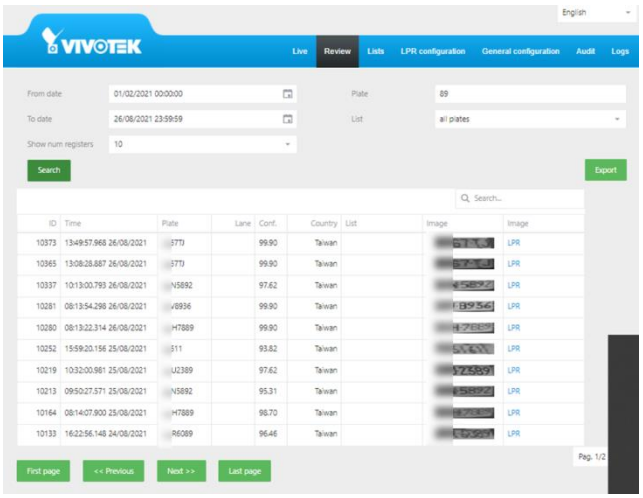
It provides following function to filter out the result in log.

From Date	Set the beginning of target tome period
To Date	Set the end of target time period
Plate	Search plates containing these “characters” or “number”.
Llst	Only show the all plates that belong to the list.

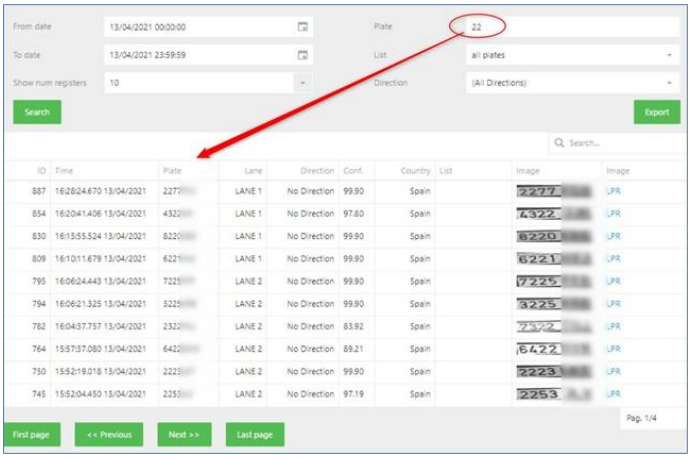


ANPR - Review Result

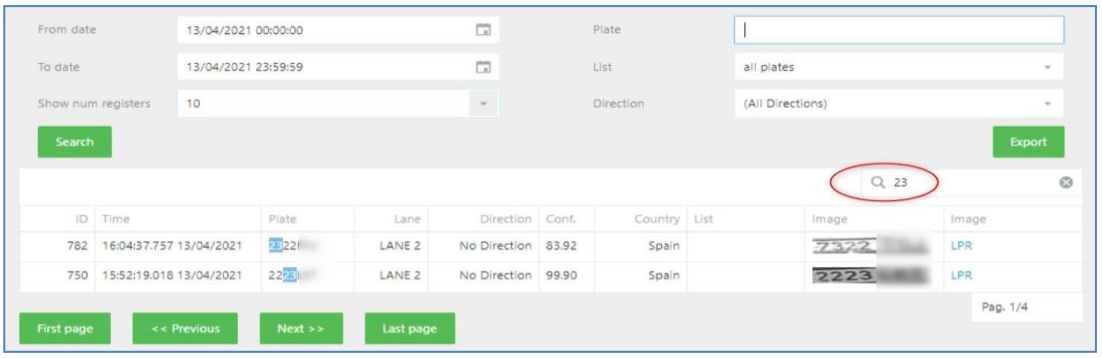
According to your condition, system will filter out the record in the table. If you move your cursor to plate snapshot, the larger image will show. User can clip the “LPR” link for downloading the image.



Example 1, Filter the License Plate with “22” in all result.



Example 2, Use the result “Search” to find the target inside the table



3.6 ANPR-List Tab

VIVOTEK provide intuitive GUI for user to manage the access control. User can create & maintain the vehicle list and set reaction accordingly. According to user's application, user can utilize the list function to fulfill functions like access control, suspect vehicle location, or VIP customer recognition.

By default, there are 4 lists already, "all plates", "not in list", "BLACKLIST, and "WHITELIST". You can edit, delete, or add more lists.

List Tab Functions	
List	Show all the list created in table
Action	Response and action design for the vehicle in the specific list
Export	Export the selected list from this device by file with all the licenses plates that belong to that list. It supports direct CSV/XML file download or regular export arrangement through FTP.
Import	Import or sync a license plate list externally by file or network. It supports direct CSV/XML file import or regular update from FTP station or synchronization within VIVOTEK LPR camera.

ANPR- List Management

Function	Description
	Add a new list
	Export the lists table

Note

Levenshtein Distance (Character Difference)

This value establishes the comparison precision for the listed license matching.

Value = 0 (Default Setting): All character should be identical for matching.

Value = 1: Allow 1 character difference for the listed license matching

Value = N, Allow N character difference for the listed license matching

Example:

- "9059NWF" listed in WHITELIST.
- "9059NWP" will be regarded as "WHITELIST" license, too

ANPR Action Function Table

VIVOTEK provides following action: network action, device interaction, & VMS/CMS integration.

Type	Action	Description
Network	Socket Client	Enable a socket connection to send messages as XML or JSON
	Socket Server	Open a port in the camera to listen to hosts to send messages as XML or JSON
	FTP	Store the results in an FTP server
	HTTP	Send a request using this protocol to a server
	Trigger Server	Enable a port that sends the read response when a triggermessage arrives.
	EMAIL	Send an email.
Devic	IO	Enable inbound and outbound digital signals in the camera.

	WIEGAND	Send a signal to Wiegand middleware board.
	WIEGAND VIVOTEK	Sends the full card ID of an RFID card associated witha license plate to a Wiegand converter.
VMS/CMS	Onvif Event	Enable the Onvif event to send the license plate information using this protocol.
	MILESTONE	Send an analytic event to Milestone VMS.
	VAST2	Capture from magnet data the XML.
	Meypar Server	Send a meypar protocol message.

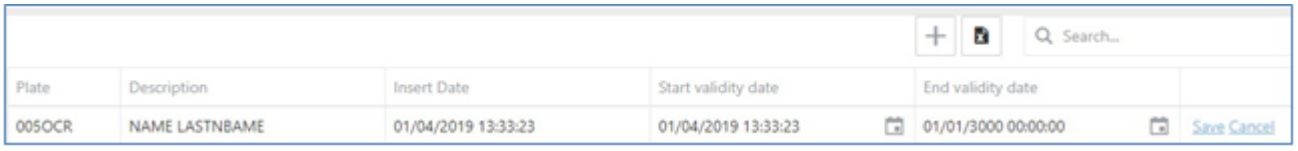
⚠	Notice Recommend the actions number is less than 4 for stable processing.

List& Action Example

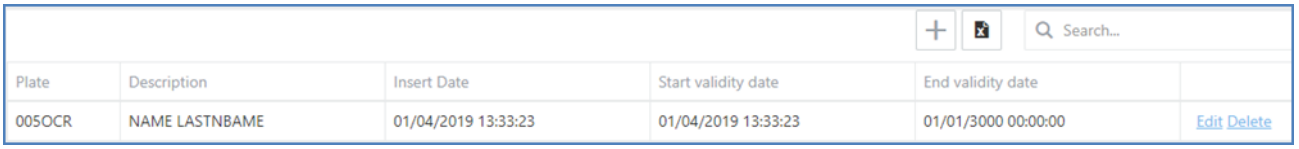
Step 1, Create a “EMPLOYEE” List

Step 2, Add and Manage License Plates to “EMPLOYEE” List

Expand “List” section and click on the “+” button to add a new plate.

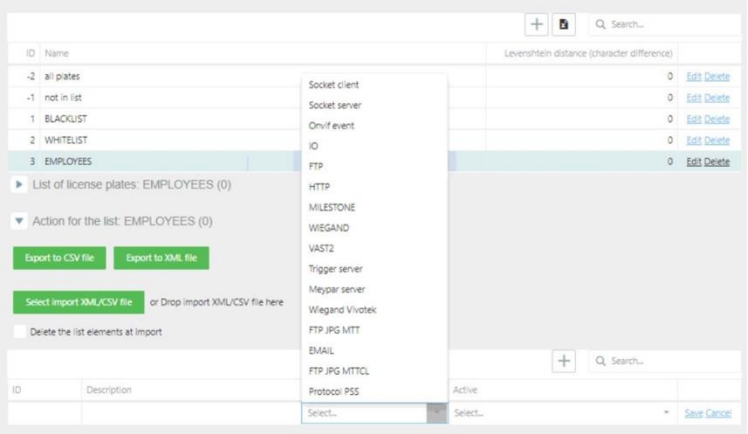


To edit or delete a license plate in that list, just click on the plate for management.



Step 3, Configure Action for vehicle in “EMPLOYEE” List

For example, user wants to send the license recognition info to another device through socket. Using the EMPLOYEES list, click on “Action for the list” and add anew action pressing “+” and then select in “Action type = Socket Client”.



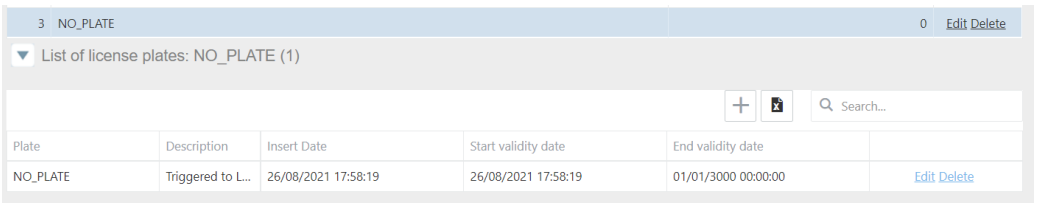
User can set detail plan for this action.

	TIPS

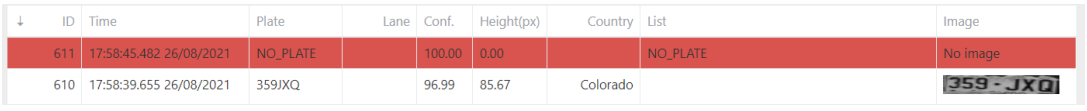
If user want to set unique action to “no license plate” recognition in external trigger mode, user should add a unique list for the “no license plate” scenario.

HOW TO:

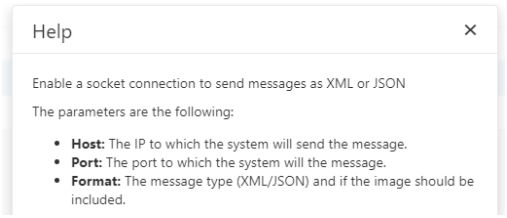
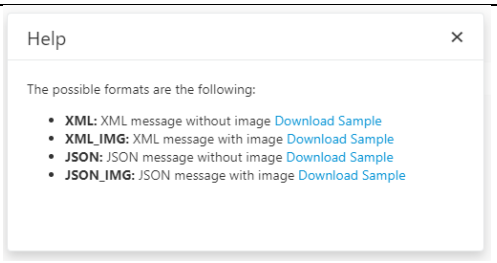
Create a list call “NO_Plate” containing only one item which the plate attribute is “NO_PLATE”.



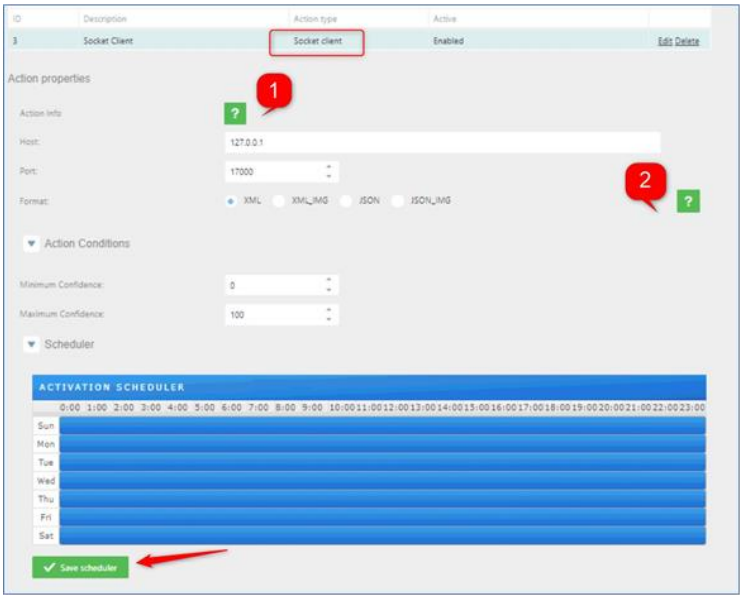
Result:



- Action Property: Please utilize the “Action Info” help ? for detail explanation on this action. For the network communication, user can access the formats sample in format help wizard.

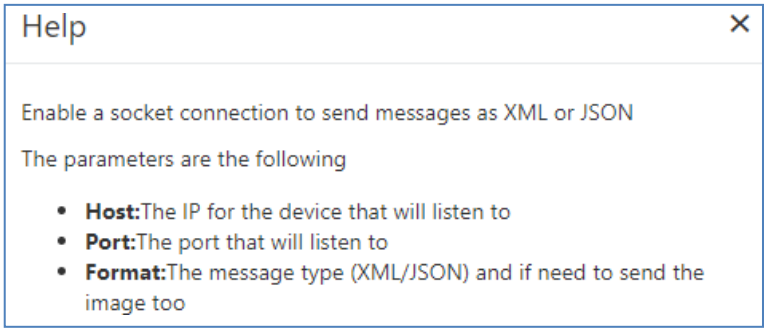
“Action Info” of Socket Client Action	“Format” info of Socket Client Action
	

- Action Conditions: Set the min and Max confidence threshold for the action trigger.
- Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.



Note

Please utilize the “Action Info” wizard ? for detail explanation on this action. Here’s the info for “socket client” action Property.



List Management Tips, Add extra label for plate

For access control, vehicle license plate number is often bounded with specific person. In order to provide sufficient information in, ANPR list management provide a specific grammar to set the CardID label for each license plate.

HOW TO USE

In the "description" column, use the "#" to define the label info for the plate.

EXAMPLE
Description : The text "Austen #1234567#"

Plate	Description
ABC1234	Austen #1234567#

Result

```
36    <PlateDescription>Austen</PlateDescription>
37    <CardID>1234567</CardID>
```

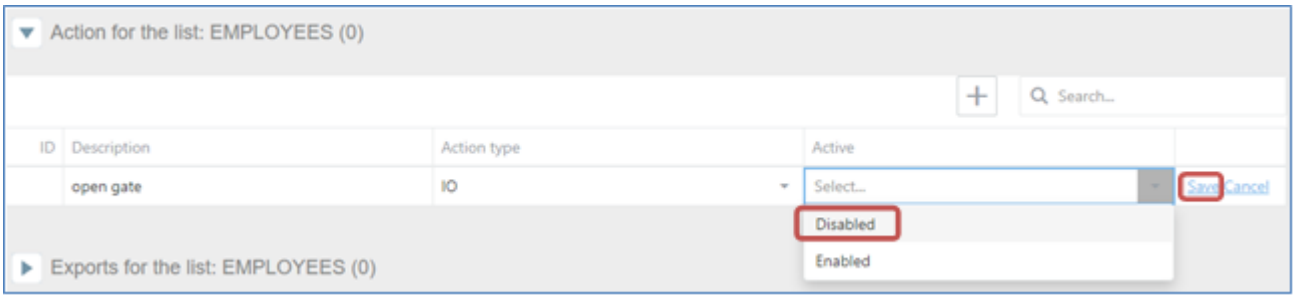
The ANPR metadata will separate the description into two items, "PlateDescription" & "CardID".

Action Management

In case, you do not want to continue using an action in a list you can modify able to disableor delete the action.

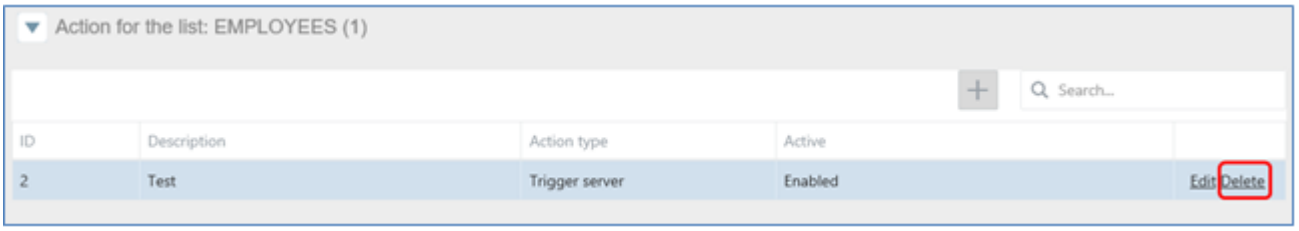
Enable / Disable Action

To disable click on the list, select the action, and then click on edit option.In Active change to Disabled and then click on Save.



Delete Action

To delete an action, click on the action and click on the DELETE button and then YES.



List Export

Manual Export

You can also download the selected list pressing the button “Export to XML file” or “Exportto CSV file”

TIPS on CSV list Export / Import

If you found the CSV list export is mixed like below, this is due to regional Excel settings that have default list separator options where files will either be read with a comma separator or semicolon separator. For correction, the default is for the semicolon to be a delimiter (European Standard) instead of a comma.

	A	B	C	D	E	F	G	H	I
1	nllist-id;description;color;levenshteindist								
2	2;WHITELIST;#000000;0								
3	nlelemlist-id;numberplate;listid;timestamp;description;startvaliditydate;endvaliditydate								
4	2;ABC-123;2;2022-03-29T15:07:53.791;des;2022-03-31T15:07:00.000;2022-04-06T15:07:00.000								
5	6;ABC-456;2;2022-03-29T15:07:53.791;des2;2022-03-31T15:07:00.000;2022-04-06T15:07:00.000								
6									
7									

HOW to FIX (Windows 10 Version as reference)

1. Open the Windows Start Menu and click Control Panel
2. Open the “Time and Language” Options dialog box
3. Click the “Region” tab
4. Click “Additional date, time & regional settings” (Windows 10)
5. Click “Change date, time, or number formats”
6. Click “Additional Settings”
7. Type a delimiter (;) into the 'List separator' box (;)
8. Click 'OK' twice to confirm the change

After setting, you should find the CSV file show in manageable form.

	A	B	C	D	E	F	G	H	I
1	nllist-id	descriptio	color	levenshteindist					
2	2	WHITELIST	#000000	0					
3	nlelemlist	numberpl	listid	timestamp	descriptio	startvalidi	endvaliditydate		
4	2	ABC-123	2	2022-03-2	des	2022-03-3	2022-04-06T15:07:00.000		
5	6	ABC-456	2	2022-03-2	des2	2022-03-3	2022-04-06T15:07:00.000		
6									

Auto Export

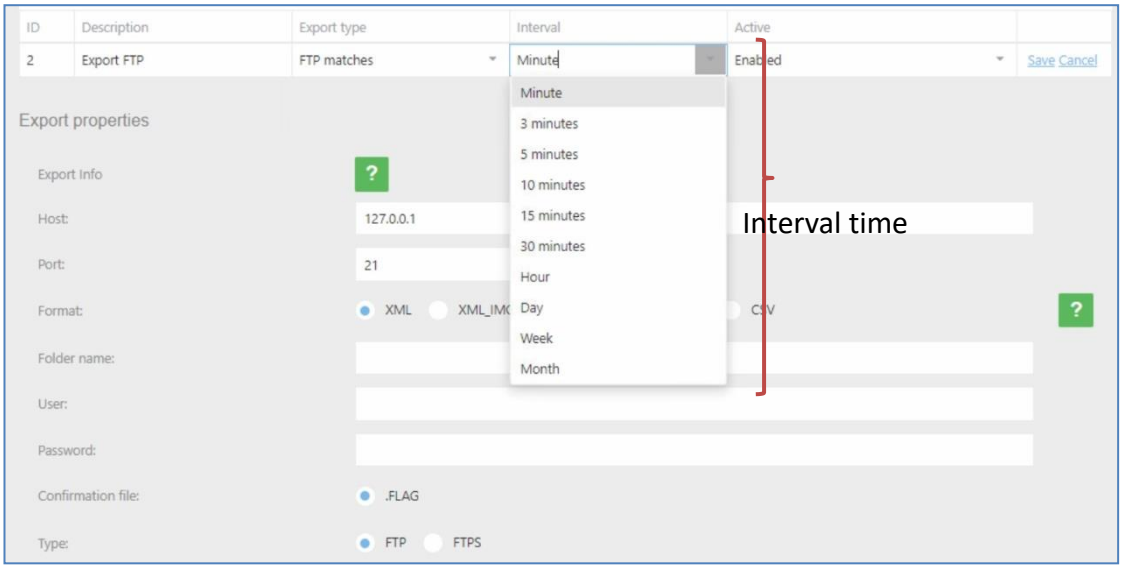
Exports for the list: Here are all the automatic exports we can configure for each list.

- FTP matches: Exports the matches of the to an FTP server
- FTP list: Export the list to an FTP server

A list can perform several exports, depending on the scenario and needs.

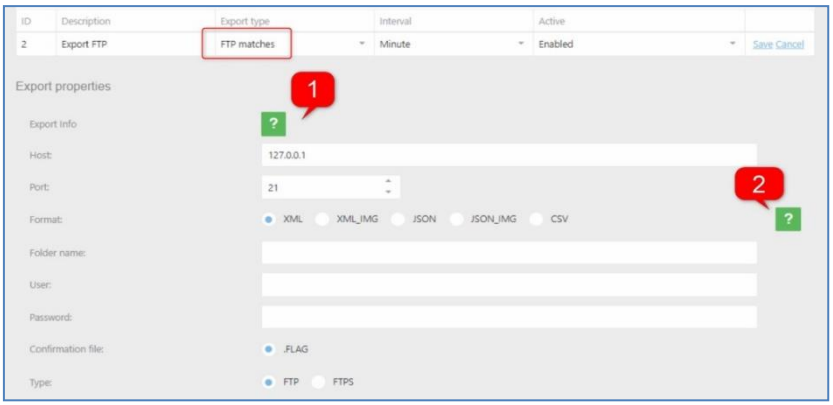
Having the Employees list selected, click on “Exports for the list” and then click on the + button and define the type and interval. The interval can be set as:

- Minute: Will execute the task every minute.
- Hour: Will execute the task every hour.
- Day: Will execute the task once a day at 23:59:59.
- Week: Will execute the task once a week, every Monday at 00:00:00.
- Month: Will execute the task once a month, the first day of the month at23:59:59.

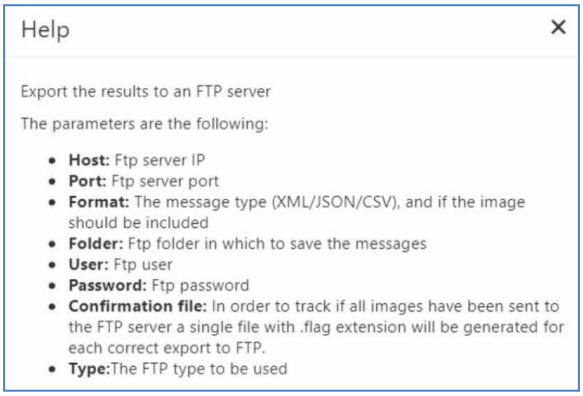


FTP matches

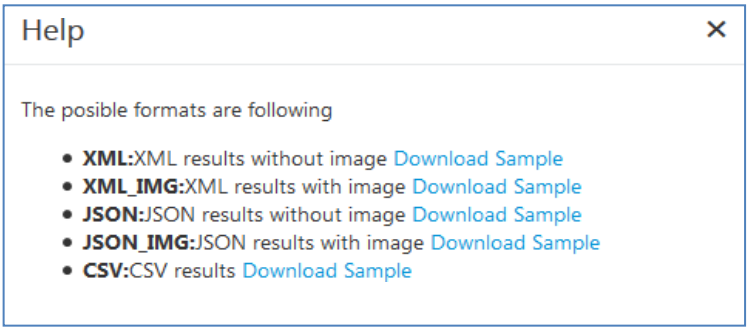
1. Configuring the export FTP matches to export the results to an ftp result, using theEMPLOYEES list, click on “Export for the list” and add a new export pressing “+” and then select in “Export type = FTP matches”.



Click on  for more information about how to configure.

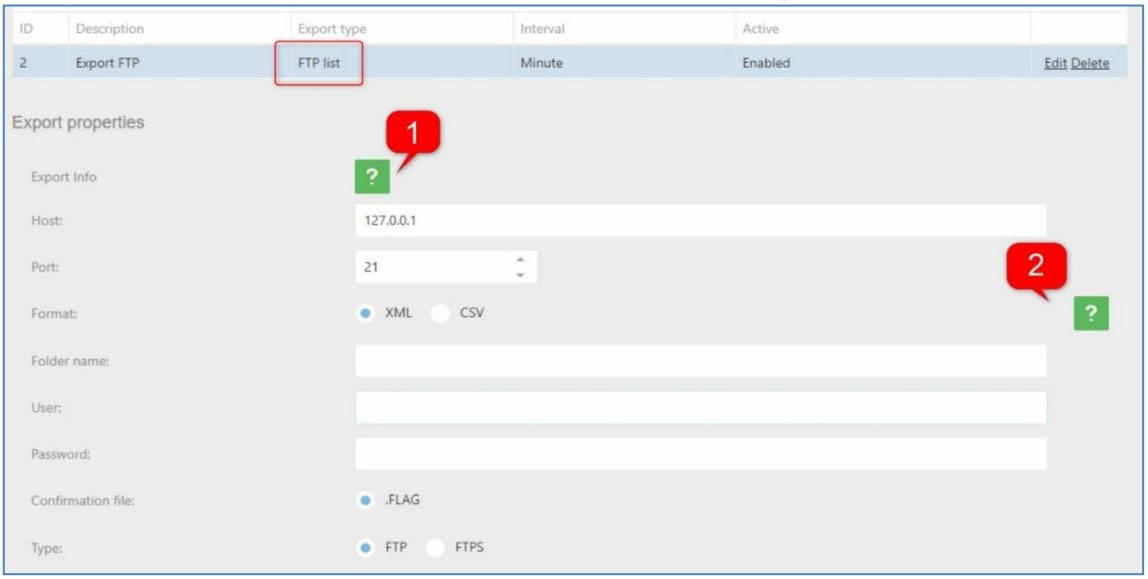


Click on  for more information about format type.



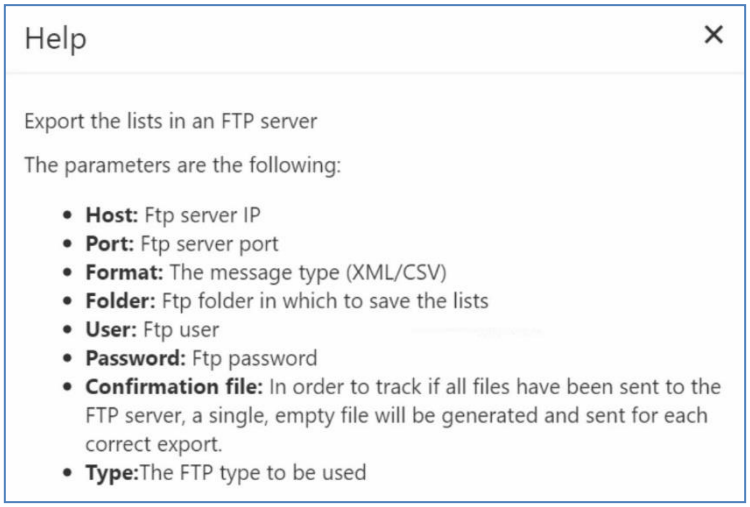
FTP

Configuring the export FTP lists to export the list locally, using the EMPLOYEES list, click



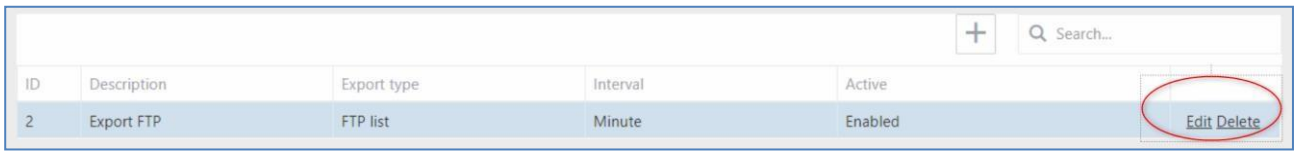
on “Export for the list” and add a new export pressing “+” and then selectin “Export type = FTP list”.

Click on  for more information about how to configure.

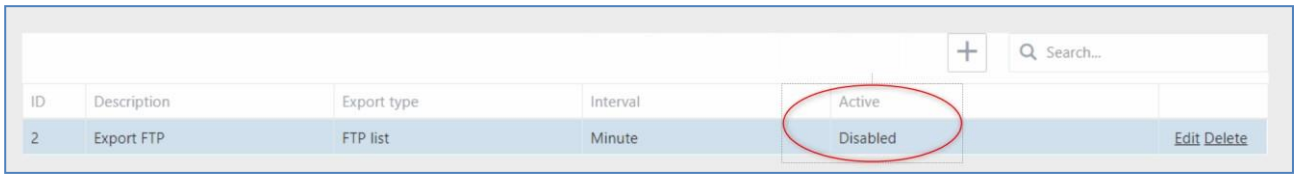


Click on  for more information about format type

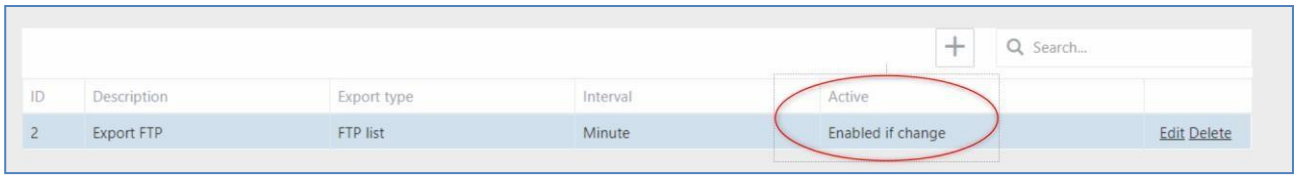
In case, you don’t want to continue to use export in a list you are able to disable or delete the action. To delete click on the list, select the export and then click on delete option.



To disable click on the list, select the action, and then click on edit option.In Active change to Disabled and then click on Save.

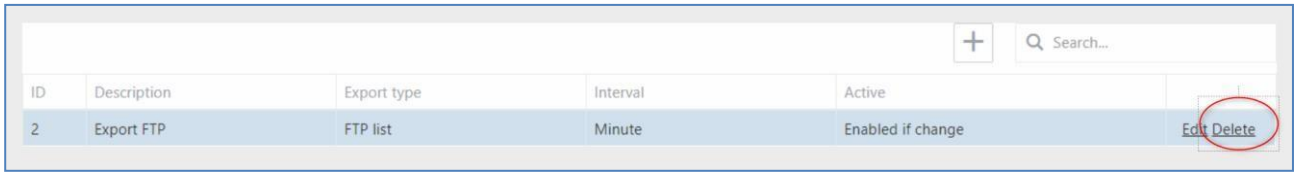


After this change, the action disabled in case you need to use it later.



The “Enable if change” state, only do the export if the export type is “Local list” or “FTPlist” and export the list only if exits any change.

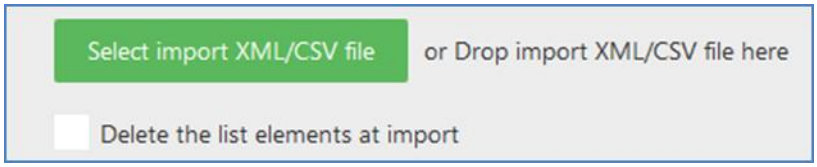
To delete an action, click on the action and click on the DELETE button and then YES.



Import for the list: Here are all the automatic imports we can configure for each list.

- FTP list: Import the list to an FTP server
- SINCRO camera: Import the list from another camera

You can also import the list manually uploading an xml list file.



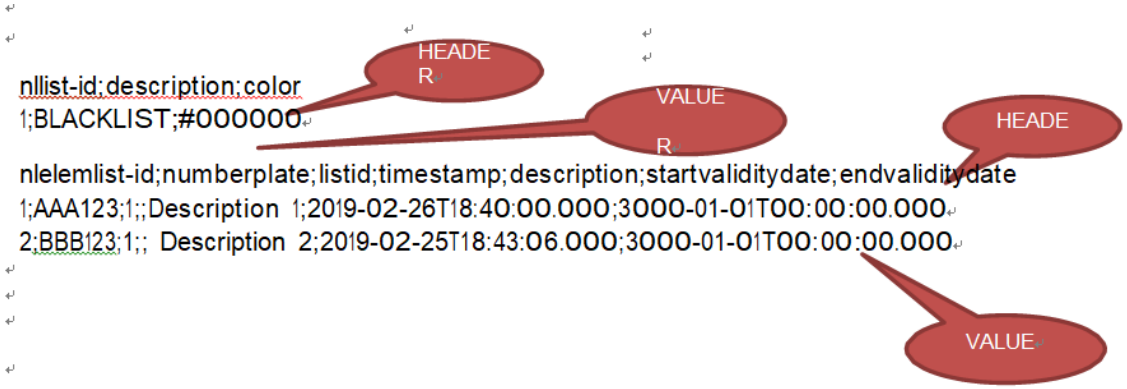
The format of the XML is the following:

```
<?xml version = "1.0" encoding = "utf-8" ?>
<grouplist>
<nllists>
        <nllist id="3" sendserver="0" dateserver="" reserve=""
description="EMPLOYEES"color=""/>
</nllists>
<nlelemlists>
<nlelemlist id="1" sendserver="0" dateserver="" reserve="" numberplate="AAA123"
listid="3" timestamp="" description="EMP 1" startvaliditydate="2000-01-
01T00:00:00.000" endvaliditydate="3000-01-01T00:00:00.000"/>

<nlelemlist id="2" sendserver="0" dateserver="" reserve=""
numberplate="BBB321" listid="3" timestamp="" description="EMP 2"
startvaliditydate="2000-01- 01T00:00:00.000" endvaliditydate="3000-01-
01T00:00:00.000"/>

</nlelemlists>
</grouplist>
```

Explanation

- Grouplist: the main element of the xml
- Nllists: The group of type of lists
- Nlist: The list type element, on:
    - Id= Id of the list
    - Sendserver = Always 0
    - Dateserver= Always “”
    - Reserve = Always “”
    - Description= The name of the list
    - Color = Always “”
- Nlelemlists: the group of the elements of the list
- Nlelemlist: the element in list, on:
    - Id= Id of the element
    - Sendserver = Always 0
    - Dateserver= Always “”
    - Reserve = Always “”
    - Numberplate= Plate number of the element
    - Listid= Id of the list
    - Timestamp= Always “”
    - Description= Description of the plate number
    - Startvaliditydate= Start date of validity period
    - Endvaliditydate=

      End date of validity periodThe format of CSV is the following:



nllist-id;description;color
1;BLACKLIST;#000000

nlelemlist-id;numberplate;listid;timestamp;description;startvaliditydate;endvaliditydate
1;AAA123;1;;Description 1;2019-02-26T18:40:00.000;3000-01-01T00:00:00.000
2;BBB123;1;; Description 2;2019-02-25T18:43:06.000;3000-01-01T00:00:00.000

The first block of HEADER-VALUE is the type of list which values are:

- nllist-id: Id of the list
- description: Description of the list
- color: Color of the list (NOT IN USE)

The second block of HEADER-VALUE are the elements of list which values are:

- nlelemlist-id: Id of the list element
- numberplate: Plate number
- listid: Id of list type
- timestamp: Always “”
- description: Description of the number plate.
- Startvaliditydate: Start validity date of the number plate.
- Endvaliditydate End validity date of the number plate

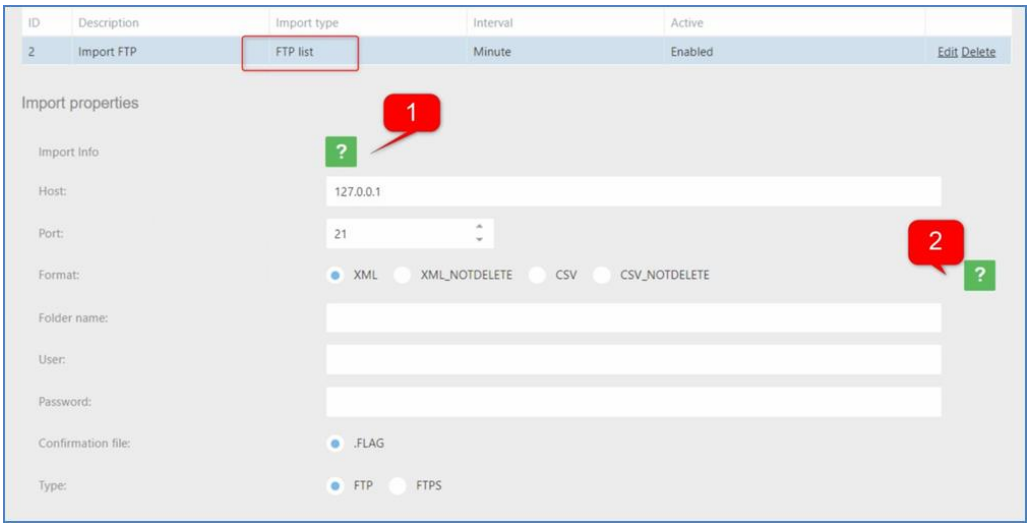
A list can perform several imports, depending on the scenario and needs.

Having the Employees list selected, click on “Imports for the list” and then click on the +button and define the type and interval. The interval can be set as:

- Minute: Will execute the task every minute.
- Hour: Will execute the task every hour.
- Day: Will execute the task once a day at 23:59:59.
- Week: Will execute the task once a week, every Monday at 00:00:00.
- Month: Will execute the task once a month, the first day of the month at23:59:59.

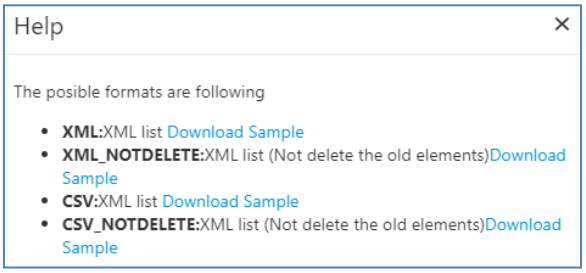
Import FTP list

Configuring the import FTP list to import the list from an ftp result, using the EMPLOYEES list, click on “Import for the list” and add a new import pressing “+”and then select in “Import type = FTP list”.



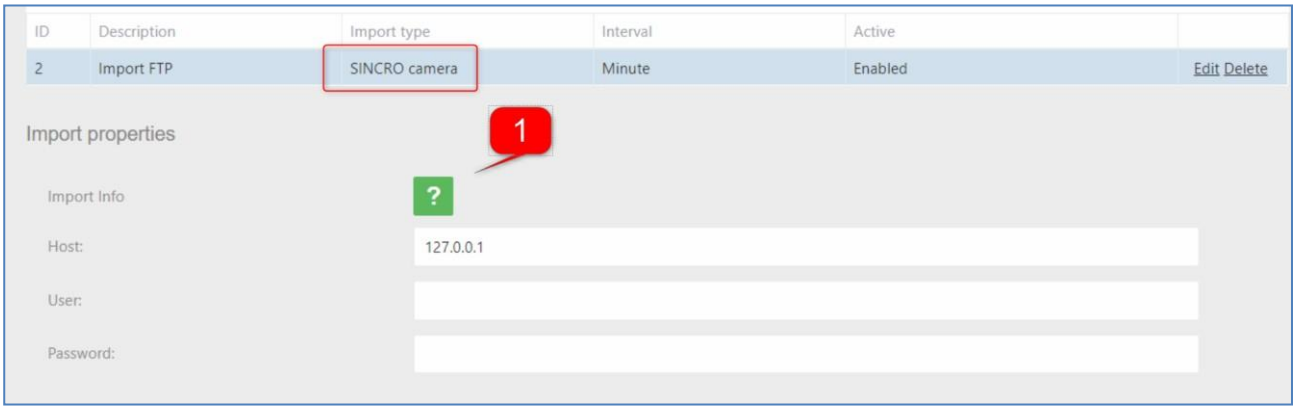
Click on  for more information about how to configure.

Click on  for more information about format type.

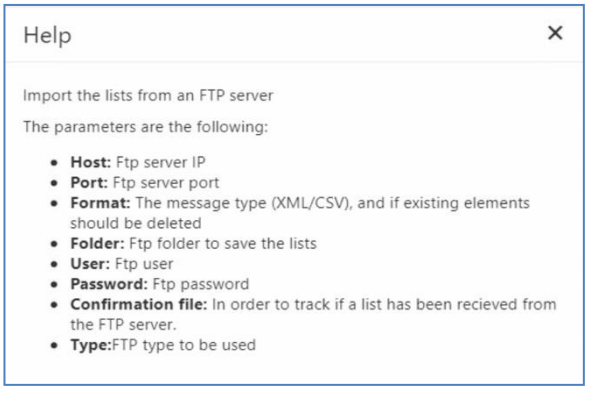


Import SINCRO camera

Configuring the import SINCRO camera to import the list from another camera,using the EMPLOYEES list, click on “Import for the list” and add a new import pressing “+” and then select in “Import type = SINCRO Camera”.

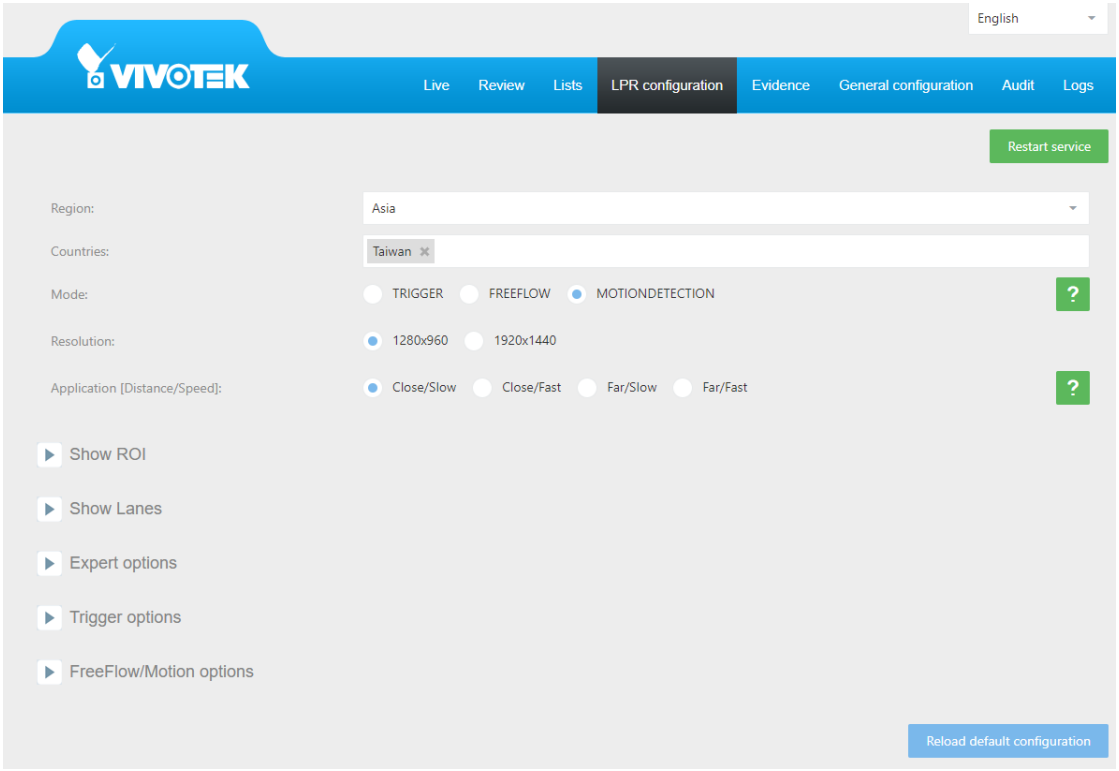


Click on  for more information about how to configure.



3.7 ANPR - LPR Configuration Tab

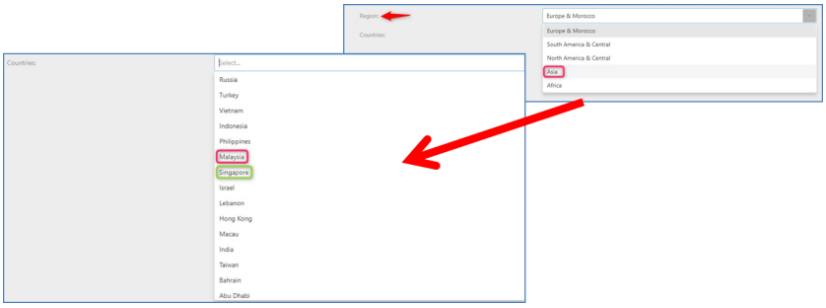
According to application and site environment, we will set the proper configuration for the camera depending on where will be located (indoor, outdoor) and the necessity (parking, control of access points, security, tolls, road offenses, etc.).



⚠	Notice
All modification in LPR configuration requires a service restart Restart service to take effect.	

Region/Country Setting

Choose region and the countries for license plate recognition. The order of supported countries indicates the recognition priority. After country selection, click the “restart service” to enable.



⚠	Notice

- The maximum countries number is 25, a software limitation.

But VIVOTEK recommends users only add the site location and major close counties in order to secure the ANPR performance. Please refer the TIPS below for detail.

💡	TIPS, Country Priority / Number Control

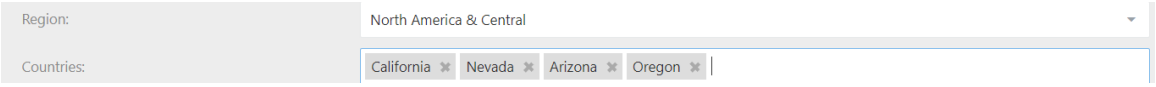
VIVOTEK ANPR supports multi-country license plate recognition, but the length of country list will affect the recognition accuracy and speed. Here are two tips to balance the support area and performance.

1. Priority: Select your location country 1st and add the adjacent countries.
2. Only add countries in your major traffic sources.

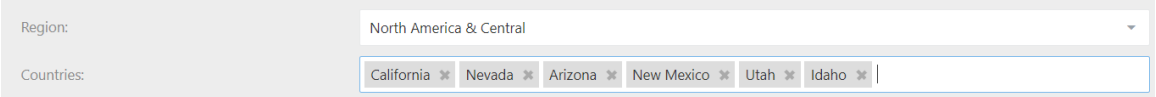
- Rule of Thumb: Only add countries in one-day driving range.

Let's use a site in California (US) as example.

- Select "California" 1st and add the nearby states, Nevada, Arizona, and Oregon.



- Add extra countries in "1-day driving range", New Mexico, Utah, Idaho, & Oregon.



- To minimize performance impact, avoid selecting all states in USA for LPR.

ANPR Function Mode

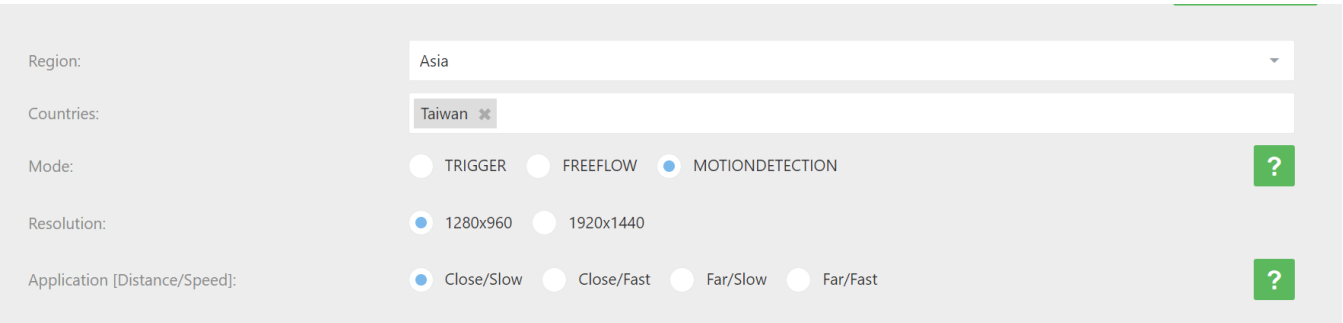
Mode	Description
Trigger	External ANPR Recognition trigger by device like induction loop or software trigger by http command.
Freeflow	The camera is continuously processing all the images.
Motion Detection (Default Setting)	The camera will read if detect any change in the image.

⚠	Notice

VIVOTEK does not recommend user use “freeflow” mode as daily operation setting.

Freeflow mode is for function test & debugging. VIVOTEK does not recommend user use this mode as daily operation setting. Since the continuous ANPR recognition process on scene without vehicle will keep system full-loading and low recognition rate.

Resolution Setting



User can select the camera resolution for ANPR recognition. VIVOTEK recommend user use the default setting 1st. If user needs to recognize motorcycle (motorbike), please select high resolution option.

Application [Distance/Speed]

There are 4 types of setting for different application or scenario

- Close/Slow: The camera is close to the vehicles and they are moving at slow speed. This installation is suitable for Stop&Go scenarios like parking entrance.
- Close/Fast: The camera is close to the vehicles and they are moving at fast speed. This installation is suitable for entrances to locations where vehicles have to enter without complete stopping.
- Far/Slow: The camera is installed on the gantry or roadside for entrance monitoring. The setting is for scenario like border checkpoints that camera is far from the vehicles moving at slow speed.
- Far/Fast: The camera is installed on the gantry or roadside for traffic monitoring. The setting is for scenario like toll collection that camera is far from the vehicles moving normally on the street.

	TIPS, Reference index for selection the correct application mode

FAST or SLOW ?

- Fast: Most traffic flow is over 15 km/h speed.

Far or Close ?

- Close: Character height of License character change significantly with car entering and leaving the view.
- Character px size change is over 2.5 times.
  - Example:
    - Coming: 15 px in the beginning and 40 px before leaving.
    - Going : 40 px in the beginning and 15 px before leaving.

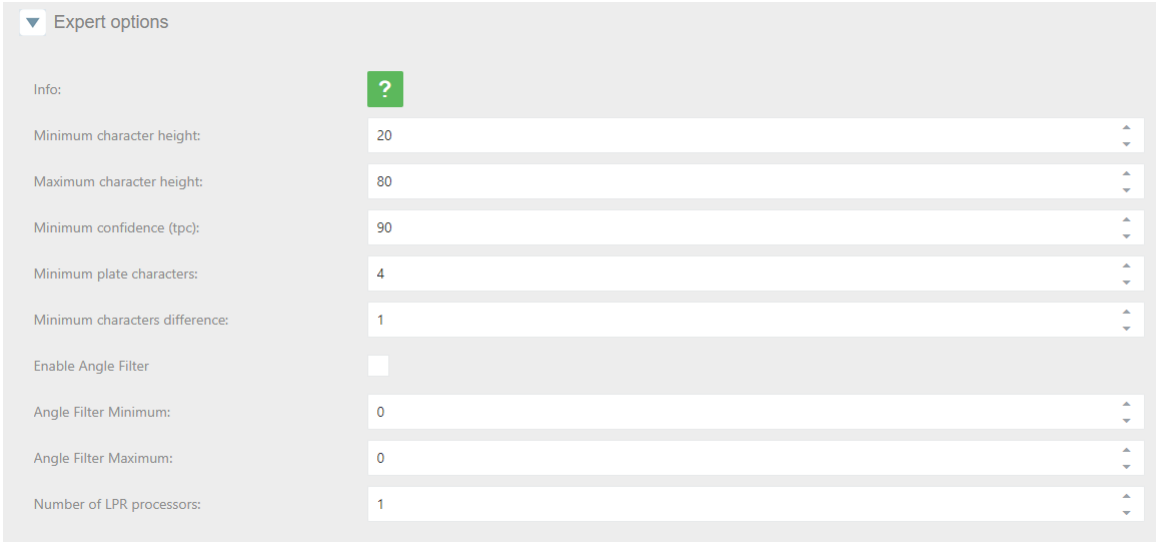
Show ROI

User can define the region of interest (ROI) for license plate recognition for focus the computing on most possible area. Click the “Show ROI” and the wizard will demonstrate how you can define the ROI in live view with two diagonal corners. If user wants to dismiss the ROI or redraw, press the “RESET ROI” button. Once ROI set, please click on the “Restart service” Restart service button to take effect.

Show Lanes

User can configure two lanes for license plate recognition and ANPR software will the “Lane” attribute to each recognition. Click the “Show Lane” and the wizard will demonstrate how you can define the ROI in live view with two end potins. If user wants to dismiss the setting or redraw, press the “RESET ROI” button. Once set, please click on the “Restart service” Restart service button to take effect. ANPR software will read the license plate and indicate on which lane they were detected.

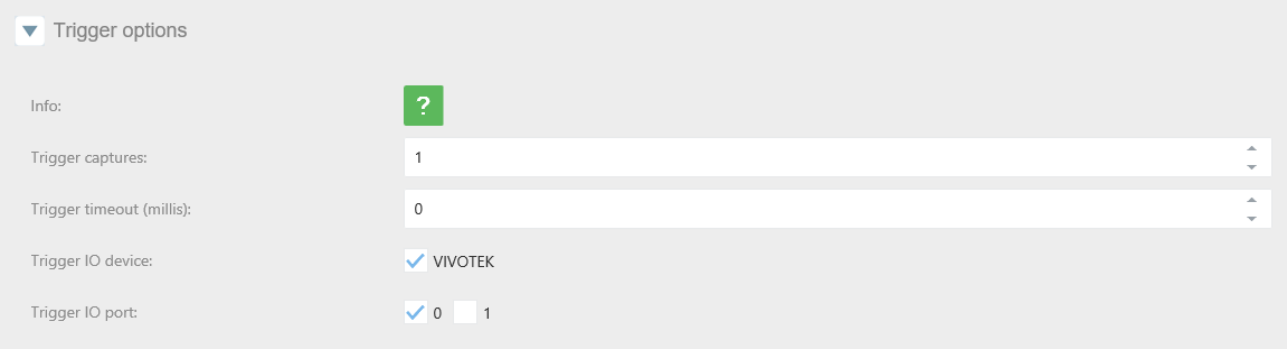
Expert Options



The configuration is for best performance tuning of “Motion Detection” (default configuration) mode. Once set, please click on the “Restart service” button to take effect.

Parameter	Description
Minimum character height	Minimum character size in the reading of a license plate to consider it valid.
Maximum character height	Maximum character size in the reading of a license plate to consider it valid.
Minimum confidence (tpc)	• Minimum reliability in the reading of a license plate to consider it valid. Reliability is a parameter returned by the engine for recognizing license plates (value of 1-100, where 100 is the most reliable). • Default / Recommend Threshold Setting : 80
Minimum plate characters	Minimum number of characters in the reading of a license plate to consider it valid.
Minimum characters difference:	The number of different characters to consider two plates different. ➢ Example: AAAA to AAAB is 1 different character.
Enable Angle Filter	Turn on or off result filtering by angle.
Angle Filter Minimum	The minimum number plate angle to be considered a valid result (-90/+90).
Angle Filter Maximum	The maximum number plate angle to be considered a valid result (-90/+90).

Trigger Options



If the camera is set as “TRIGGER”, ANPR software is normally in an idle state. When a trigger command is received, it performs a variable number of captures, depending on configuration, and returns a result. Results from different triggering

events are independent of one another,that is, if the same vehicle, is still present on a second trigger command, the same license plate will be returned a second time. On every trigger, it performs captures until the number exceeds N Captures, or the time exceeds Timeout. Once set, please click on the “Restart service” Restart service button to take effect.

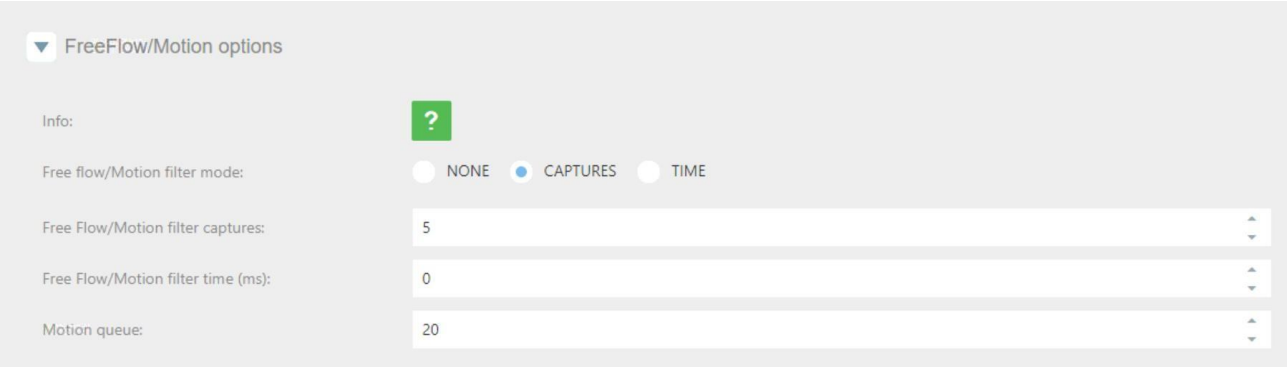
Parameter	Description
Trigger Captures	The number images that you want to process and read license plates before stop. ※ Note: If set, the trigger timeout must be “0”.
Trigger Timeout	The number second that you want to process and read license plates before stop. ※ Note: If set, the trigger capture must be “50”.
Trigger IO Device	If selected, the Digital Input ports will activate.
Trigger IO Port	Choose which digital input port you will use.

⚠	Notice
If you are using socket Trigger API, the trigger period shall no less 4 seconds.	

⚠	Notice
Increasing the “Captures Number” or “Timeout” might lead to better or more reliable recognition accuracy since ANPR can select the result with best confidence. As a cost, the process time will delay the following action. But it will only deliver 1 ANPR result for each trigger.	

FreeFlow/Motion Option

In the FreeFlow/Motion option you can define repetition filters.



Parameter	Description
Freeflow/Motion filter captures	For a result to be considered valid, the last license plate read must not be among the last N recognized as valid. This filter is useful for traffic jams, where the cameras may be reading N license plates continually in a closed cycle.
Freeflow/Motion filter time (ms)	Minimum time elapsed from the detection of the samelicense plate to it being accepted again in the system.
Motion queue	Is the number of images stored in a queue to process in MOTION mode . Increasing the motion queue might increasing the vehicle detection rate.

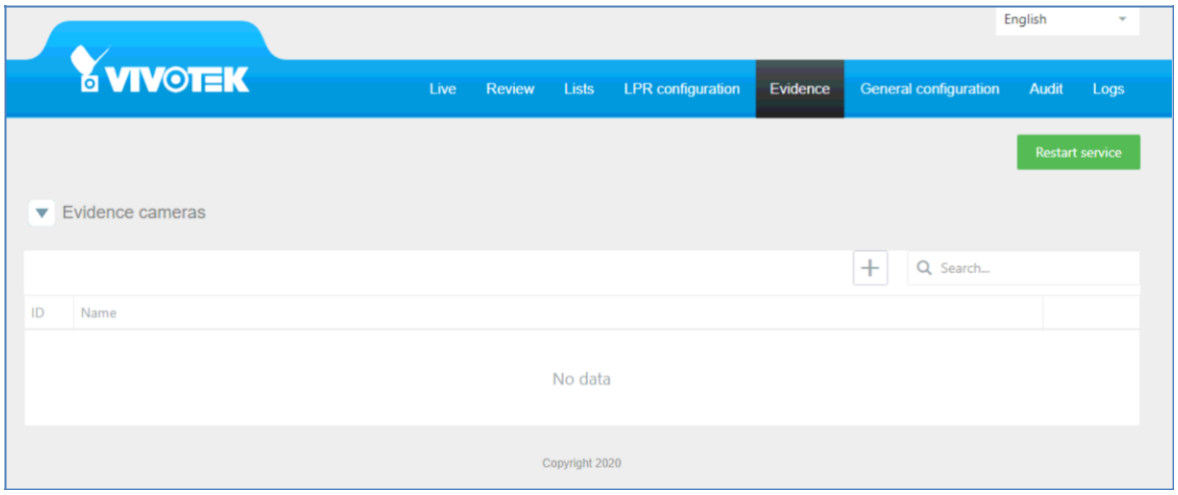
For example, you have the camera in a Parking and there is a traffic jam, you don't want to read the same license plate over and over, in that case, the best filter is for captures, With this configuration, once a license plate is read, won't be read again until another 5 different license plates have been read. Once set, please click on the "Restart service" Restart service button to take effect.

3.8 Evidence Tab

⚠ Notice
For ANPR version before 4.1.1.18, the “evidence” function only exists on the urban ANPR package. After 4.1.1.18, it become a general ANPR function.

This feature allows the user to capture evidence images in addition to the LPR image. There is no limit in the number of evidence cameras that the user can setup.
So, the camera will capture 1 synchronized evidence snapshot for each evidence camera when a license plate is captured.

In this tab, configure the Evidence Camera:



How it works

The LPR camera keeps capturing snapshots from the evidence camera. When the LPR camera reads a license plate, it will log the latest captured image from each evidence camera. Then, this evidence images are synchronized with the LPR image.

Real scenarios

1. Access control
   - Capture the state of a car when entering a car park to avoid fraud. By adding several evidence cameras in both sides of the entrance.
   - Capture the face of the driver for security reasons.
   - Capture the number of wheels in tooling for auditing.

2. Traffic
   - Evidence Snapshot for Red-light Violation
   - Capture color image of the full car to record the color, make, etc .

Add a new evidence camera

Click on the “+” button, text the evidence camera name and click on “Save”.

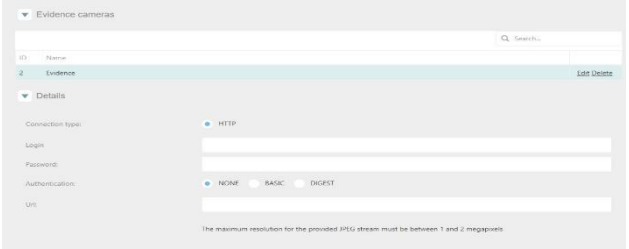
Setting

Detail Setting	Description
Connection type	only support HTTP connection
Login / Password	Camera login setting
Authentication	None, basic Digest **! INFO** Depending on your network security requirements, the Network Camera provides two types of security settings for an HTTP transaction: basic and digest. If basic authentication is selected, the password is sent in plain text format and there can be potential risks of being intercepted. If digest authentication is selected, user credentials are encrypted using MD5 algorithm and thus provide better protection against unauthorized accesses.
URL	URL in jpg format of the camera.

SETUP

The user may evidence cameras by typing:

1) URL of the snapshot CGI of a reachable camera.
    - Any camera support JPG snapshot URL protocol.
2) User with permissions on the evidence camera to capture a snapshot
3) Password of this user
4) Click on the “RESTART SERVICE” button to take effect.



! Notice

1. Recommend: reduce “Evidence jpeg stream” to 1 megapixel.
2. Limit the size of the snapshot image in the evidence camera setup. NOT in the URL withparameters.
3. Maximum Evidence cameras: 1

3.9 ANPR-General Configure Tab

Expert option

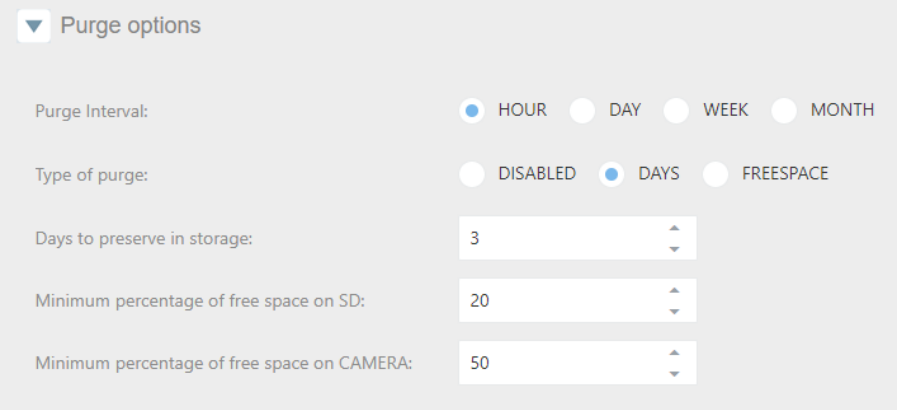
Parameter	Description
View type	The type of display for detected vehicles.
Save the image	If selected, will store in the complete image.
Save the plate image	If selected, will store only the license plate image.
Image quality	Will store the image with the configured compression.
Store image on	Will store data on an SD or in the camera (it is strongly recommended to add an SD card to the camera).
Trigger Socket Port	Will enter the port to be used for receiving trigger messages.
Action time	"IMMEDIATE": ● Suitable Application: Parking & Access Control ● Execute the Action immediately. The retry mechanism is based on the communication protocol. "PERSISTNE": ● Suitable Application: City Surveillance & Toll Collection ● ANPR database will set a "Flag" on each action to indicate whether it success or not. If not, ANPR system will try the action in presetting period until success. It's designed for securing the record on backend system even when the network is unstable.
Retry period for failed actions (hours)	The period of time in hours to retry the execution of a failed action.

Log Option

Parameter	Description
Log Level	Let you determine the log level of the service. By default it is set to 3. Level 4 and 5 are for experts and the debugging team.

Enable Engine Log	Select only if debugging mode is necessary, only for expert technicians.
Log Level CGI	Let you determine the log level of the CGI. By default is set to 3. Level 4 and 5 are for experts and the debugging team.

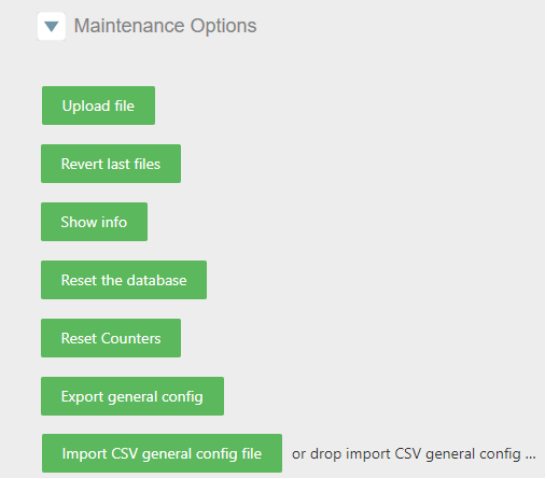
Purge options



Parameter	Description
Purge Interval	Schedule when you want to execute the purge. ※ Hour: execute the task every hour. ※ Day: execute the task once a day at 23:59:59. ※ Week: execute the task once a week, every Monday at 00:00:00. ※ Month: execute the task once a month, the first day of the month at 23:59:59.
Type of Purge	■ Disabled: Won't execute any purge. ■ Days: Will purge by days, keeping data for the last days. ■ Freespace: Will purge depending on the free space in the SD or in the camera.
Day to preserve in storage	Parameter of "Purge by Days" Mode ■ Delete database & files before (days): Will keep data of the last (XX) days and purge therest.

Minimum percentage of free space on SD	Will delete data in database andfiles stored until free space on the SD is lower than configured.
Minimum percentage of free space on Camera	Will delete data in databaseand files stored until free space in the camera is lower than configured.

Maintenance Option

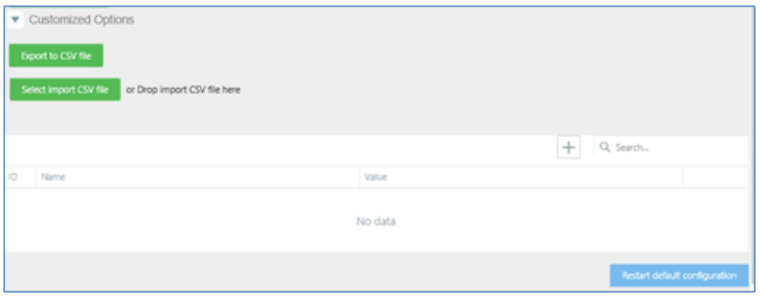


In this section you can upload files for camera configuration, licensing, update VIVOTEK ANPR software version for the path option showed in the Camera Configuration tab.

- Upload File: Let you upload a file.
- Revert last files: If after applying changes with the uploaded files, it doesn't work correctly, you can revert changes.
- Show Info: Show you information about the version and camera MAC ADDRESS.
- Reset the database: If you want to delete and clear all ANPR results including number plate readings, actions, exports, imports from the camera.
- Reset Counters: Resets the counters on the "Live" screen.
- Export general configuration: Export in a CSV file configuration.
- Import CSV general configuration file: Import in a CSV file configuration.

In case you want to revert all changes and want to get back to the default configuration, click Restart default configuration for restore default.

Customized Option



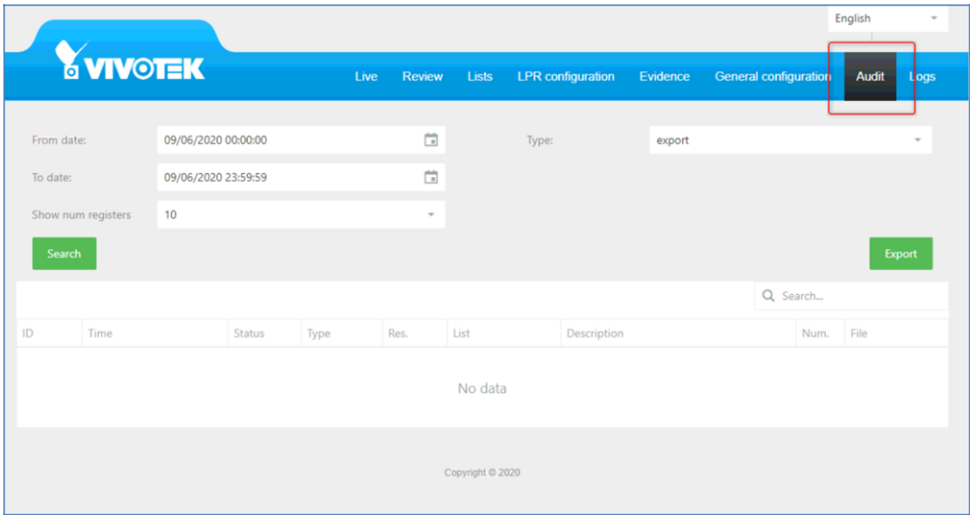
In this section you can add new fields, export and import lists (The maximum fields it is 10). You can search by date information the field you want. In case you want to revert all changes and want to get back to the defaultconfiguration, click Restart default configuration for restore default.

※ Note:

1. Cannot add only number as name.
2. Cannot add field with space ascharacter.

3.10 ANPR - Audit Tab

The camera registers actions like export and import lists and actions executed depending on the list configurations. In the Audit tab, you can search by dates information related to these actions.

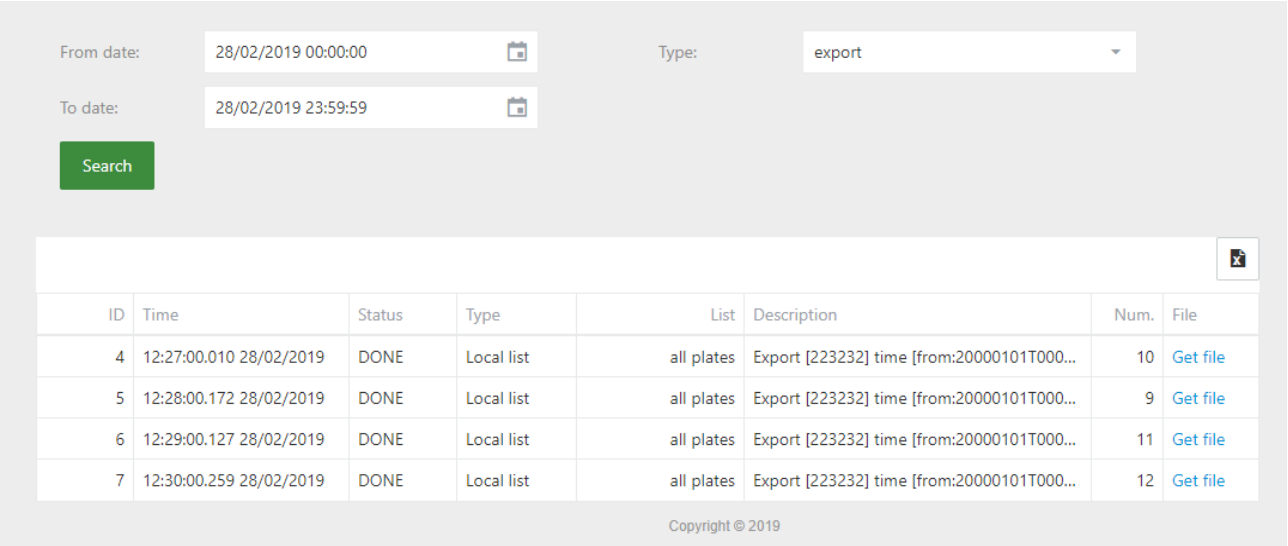


You can search in the stored actions by dates and by type of action.

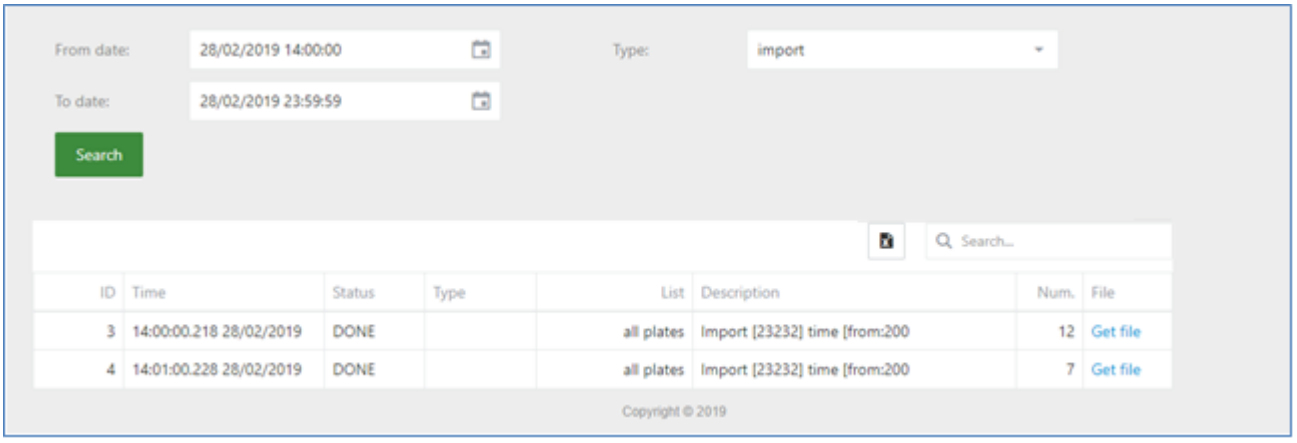
- Export: show you automatic exports done
- Import: show you automatic imports done.
- Action: show you automatic actions triggered on the lists.

The result of the search can be exported and downloaded.

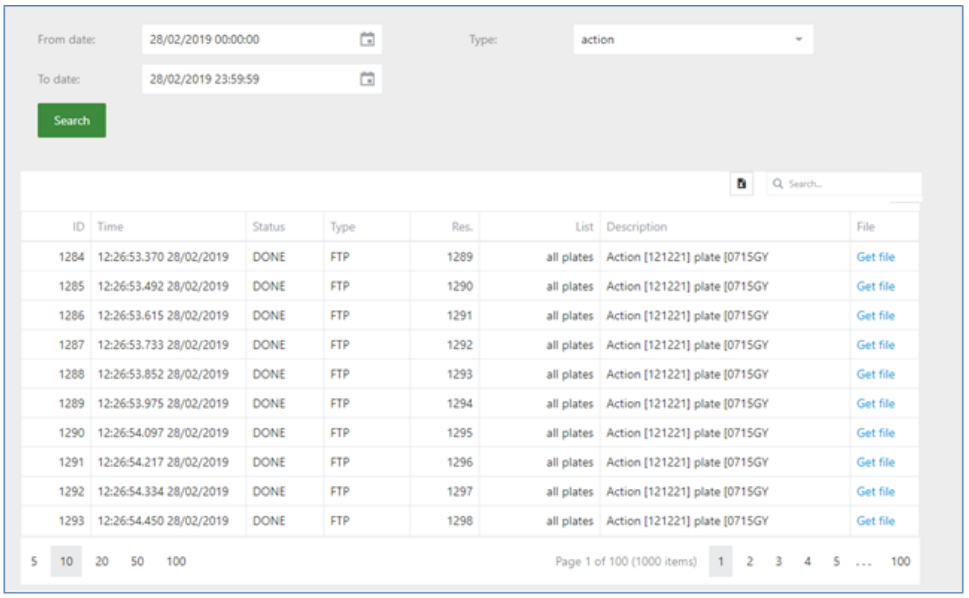
Exports example:



Import Example:

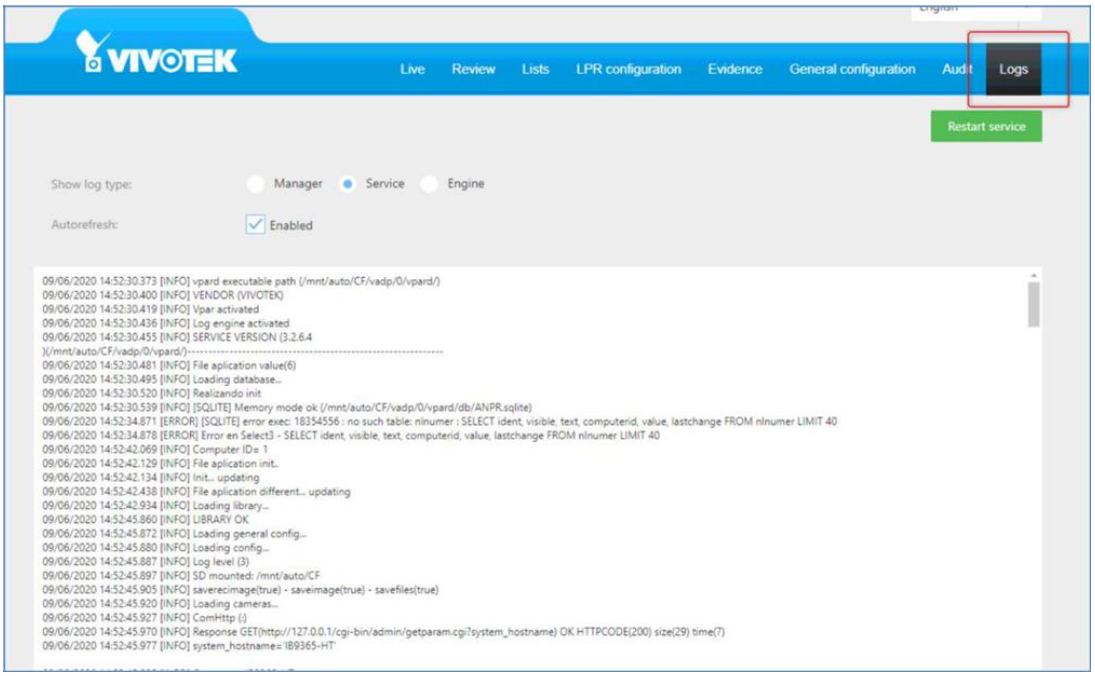


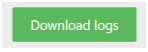
Action Example



3.11 ANPR - Logs Tab

In this TAB the user can see /download different logs. Logs are activated and setup in General Configuration TAB. These logs can be useful to help our technical team to diagnose and solve application problems.



The type of the log that the user wants to see must be selected by either manager, Service or Engine. Checking auto update the application will refresh the selected log type. Sending logs to technical support may be needed. To do that, click  in the bottom of the page.

Selected logs will be downloaded in compressed txt format.

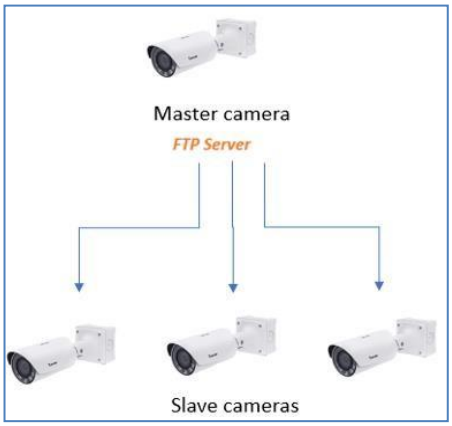
4. Camera list synchronization

The VIVOTEK ANPR software system allows a list system synchronized. One of the cameras works like a master and the other cameras works like a slave. The master camera uploads the file with the list content and the slave cameras download the file. All the list and elements must be modified in the master camera, the changes will be updated automatically in the slave following the next instructions to configure the master and the slaves.

We recommend <10 slave cameras connect to master camera at the same time; The maximum number of connections is depending on the FTP server (master camera). Can be synchronized all the lists or only one list.

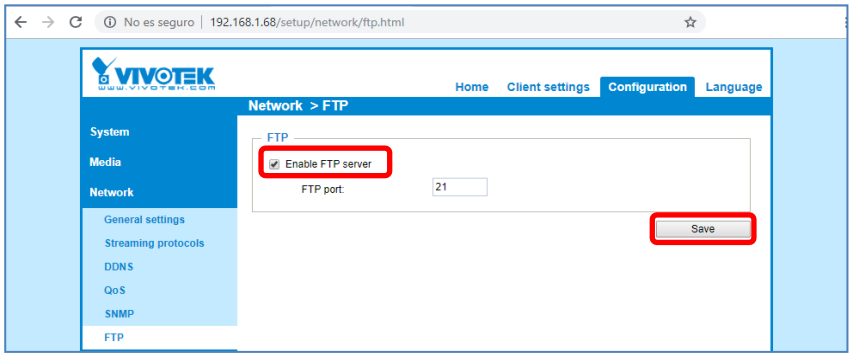
4.1 Architecture 1

The camera is the FTP server. Must be activated (by default is disable the FTP server)



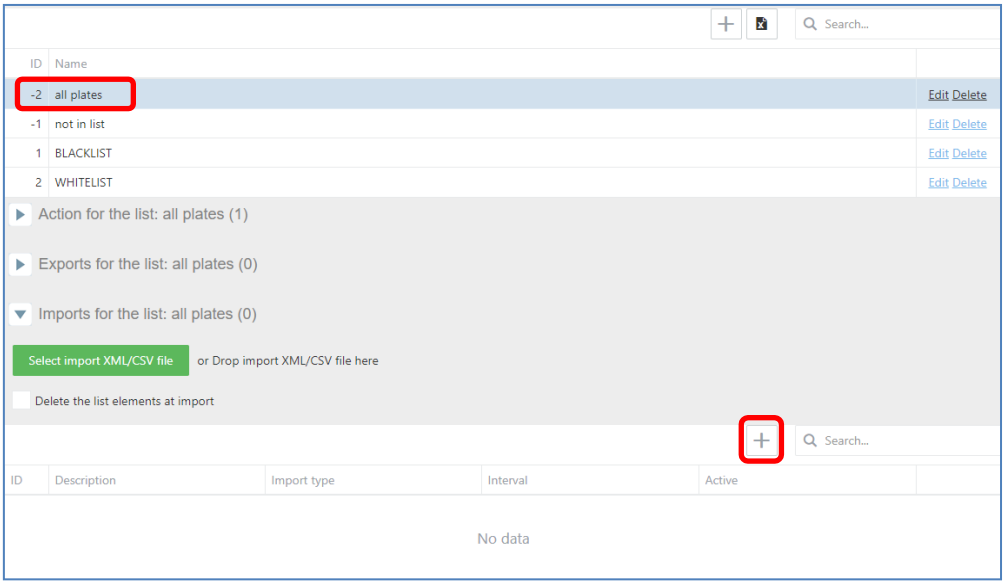
Master configuration

- Step1, Activate the FTP server.
- Step 2, Access to the camera web interface: Configuration/Network/FTP
- Step 3, Check “Enable FTP server” and click Save.

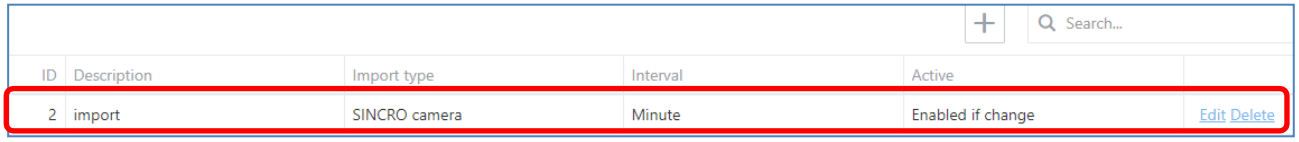


Slave configuration

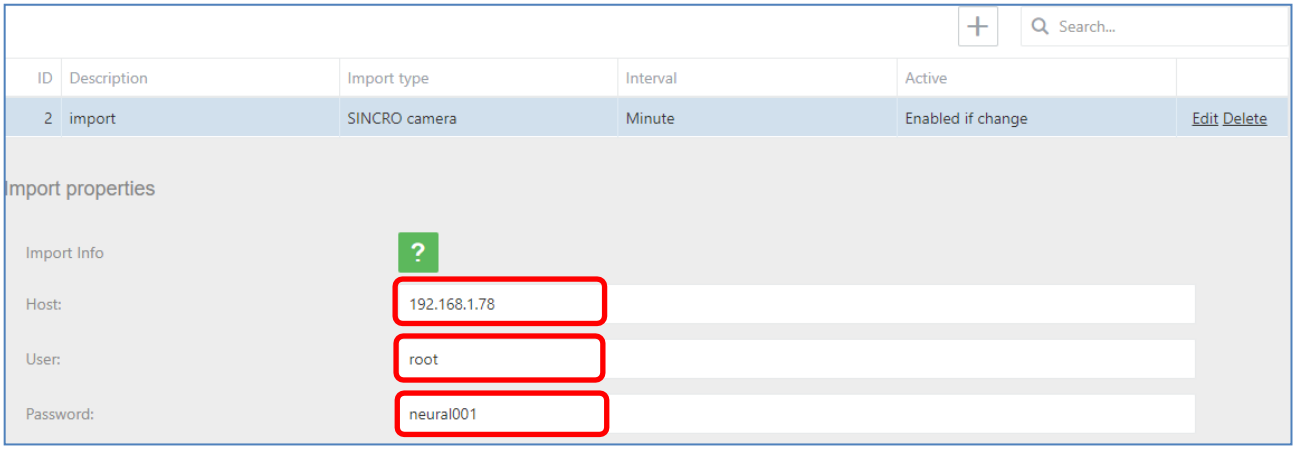
- Step 1, Access to the List Tab. To configure only one list selects the list and make the import in the list. To configure all the list selects all plates.



- Step2, Create an import each minute (or desirable time) the time enabled if change with thetype SINCRO Camera and click Save.

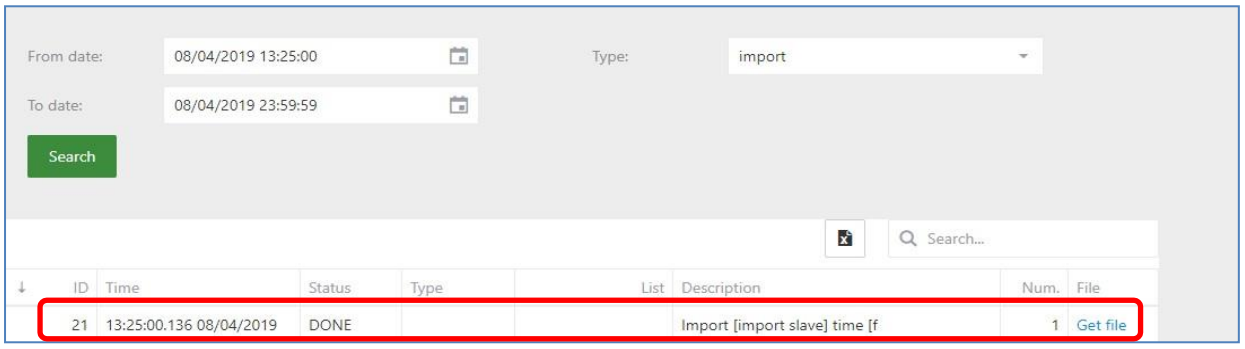


Step 3, configure the master camera credentials.



- Host: Camera master IP
- User: Camera master user
- Password: Camera master password can be checked in the Audit Tab.

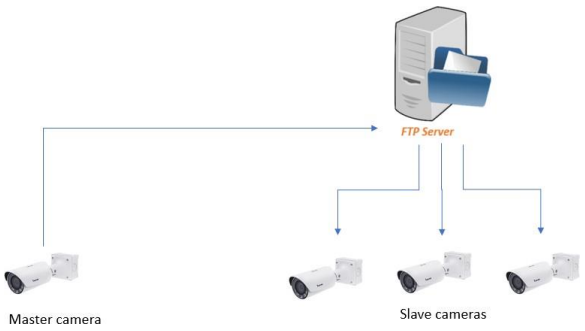
The import setting can be verified in the “Audit Tab”.



I

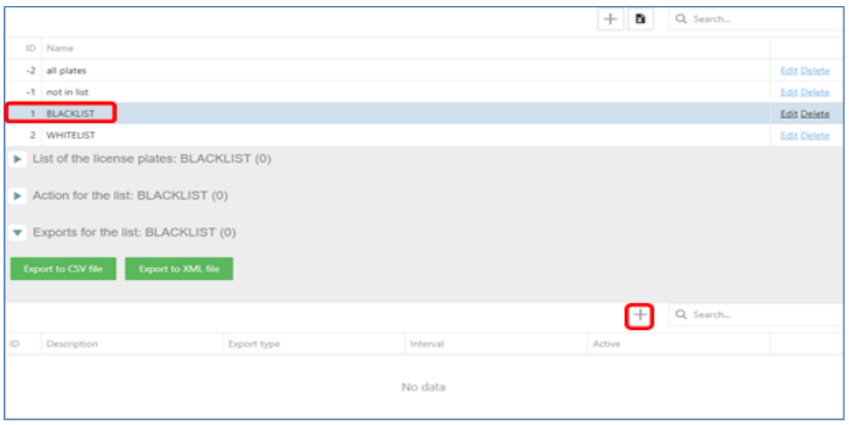
4.2 Architecture 2

Using FTP server where store the list.

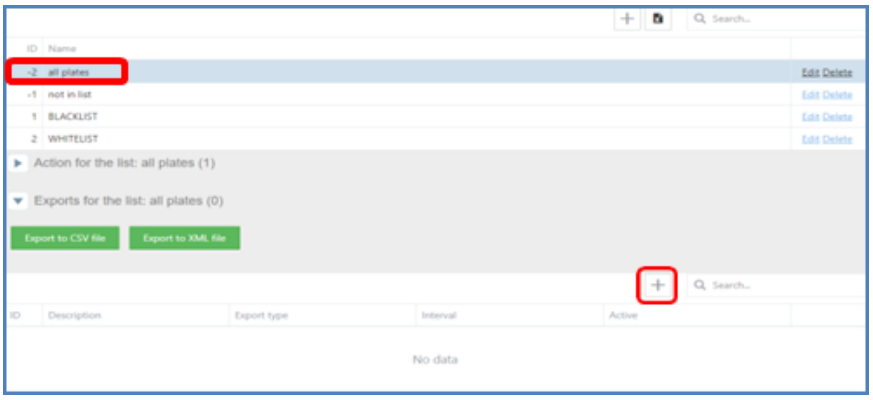


Master configuration

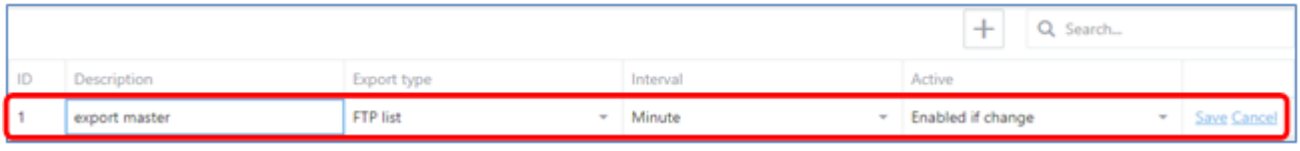
- Step1, Access to the List Tab.
  - To configure only one list, selects the list and make the export in the list.



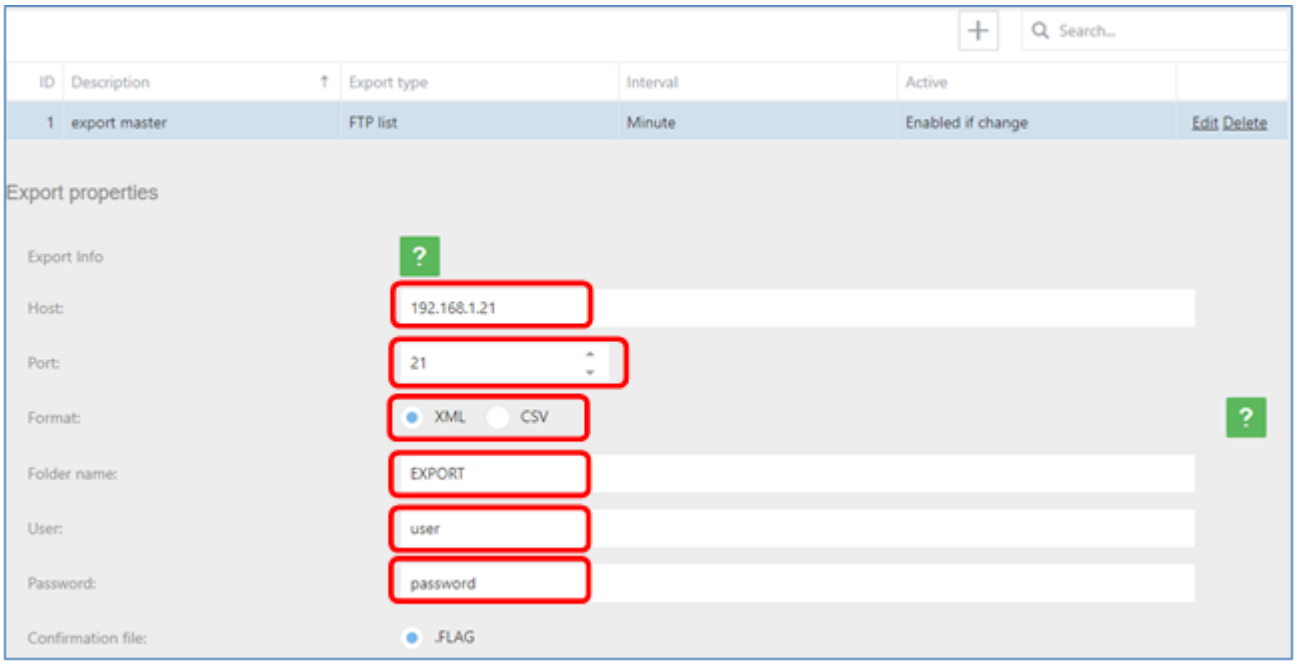
  - To configure all the list, selects all plates.



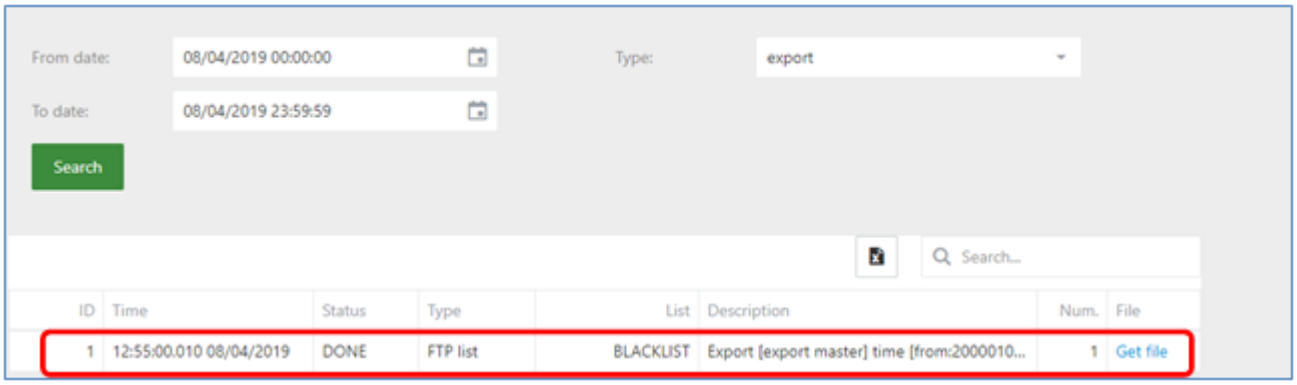
- Step 2, Create an export each minute enabled if change with the type FTP list and click Save.



- Step 3, Configure the credentials of the FTP server and the format CSV or XML, can be the both but must be the same in the slaves. Just configured the camera master is sending the file to the FTP server.

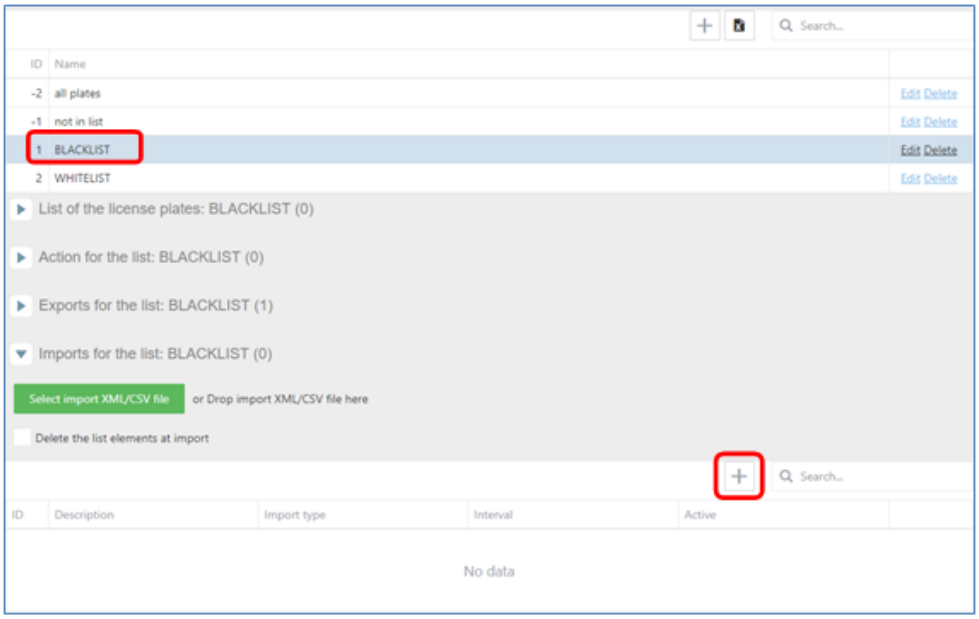


- Step 4, Check: These actions can be checked in the Audit Tab.

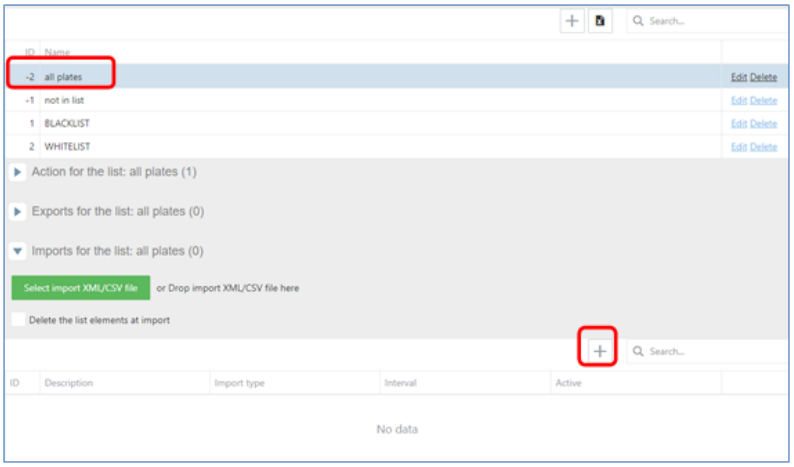


Slave configuration

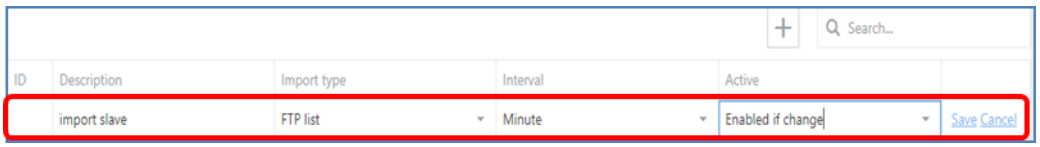
- Step 1, Access to the List Tab.
- Step 2, To configure only one list selects the list and make the import in the list.



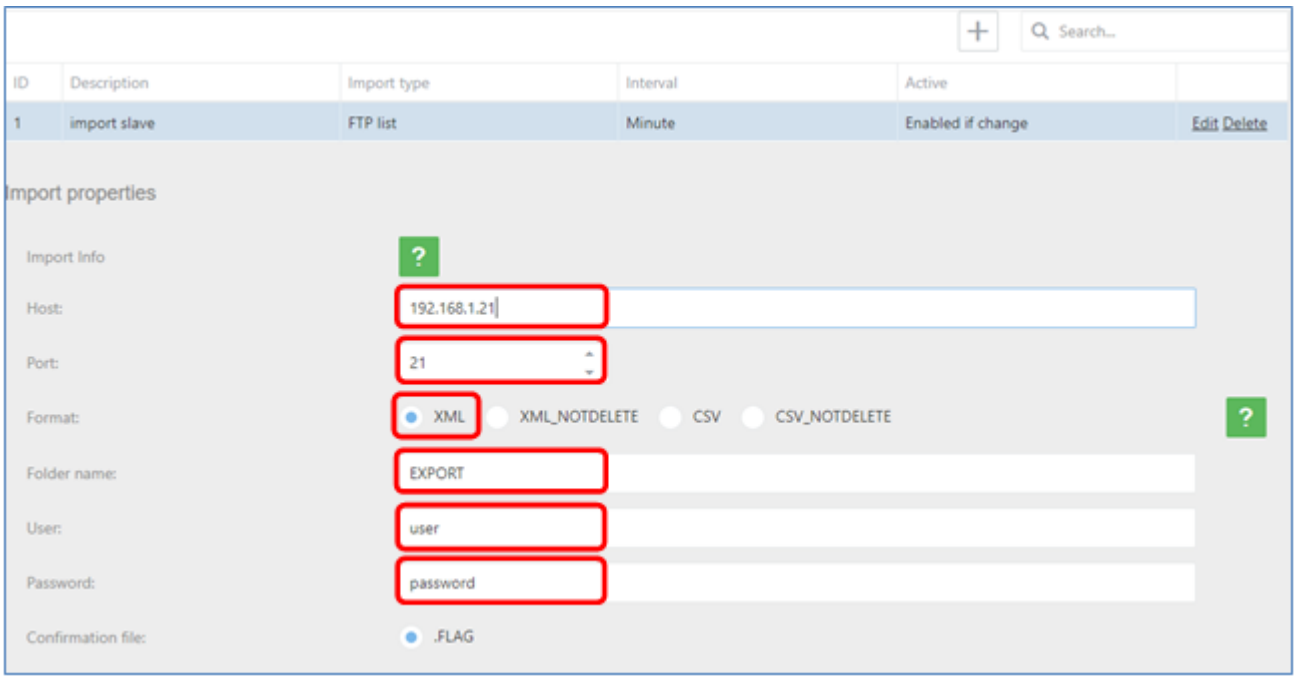
Note: To configure all the list selects all plates.



- Step 3, Create an import each minute (or desirable time) the time enabled if change with the type FTP list and click Save.



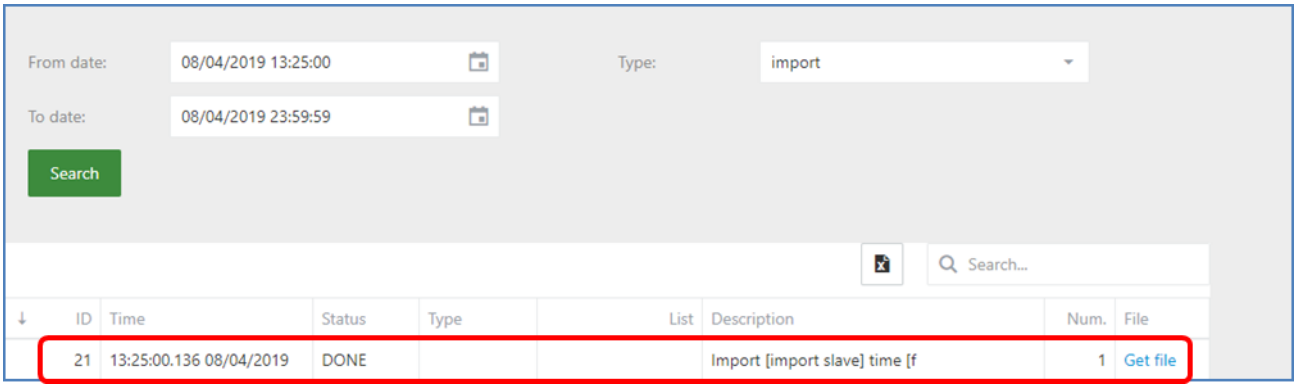
- Step 4, Configure the same credentials of the FTP server and the same format CSV or XML than the master configuration.



If the master selection type format is XML can be selected XML or XML_NOTDELETE, if your selection is XML all the elements not included in each file downloaded will be deleted.

Just configured the camera master is downloading the file from the FTP server.

- Step 5, Check, The action can be checked in the Audit Tab.

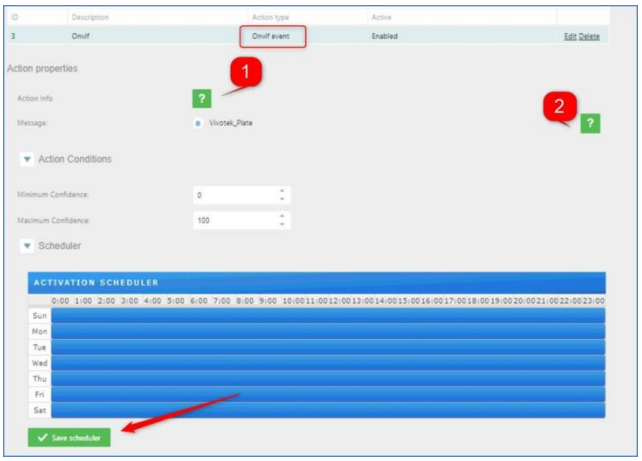


5. List and Action Examples

A list can perform several actions, depending on the scenario and needs. Having the a list selected, click on “Action for the list” and then click on the “+”button.

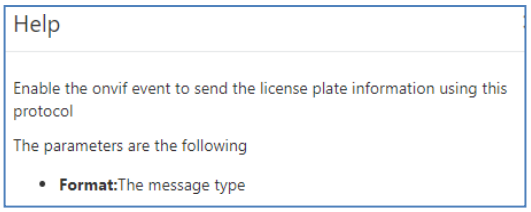
5.1 Onvif Eve

Configuring the action Onvif Event to send the license plate using this protocol.

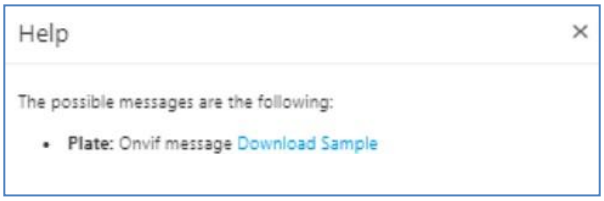


- Action Conditions: Set the minimum and maximum confidence filter to do the action Onvif.
- Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on  for more information.



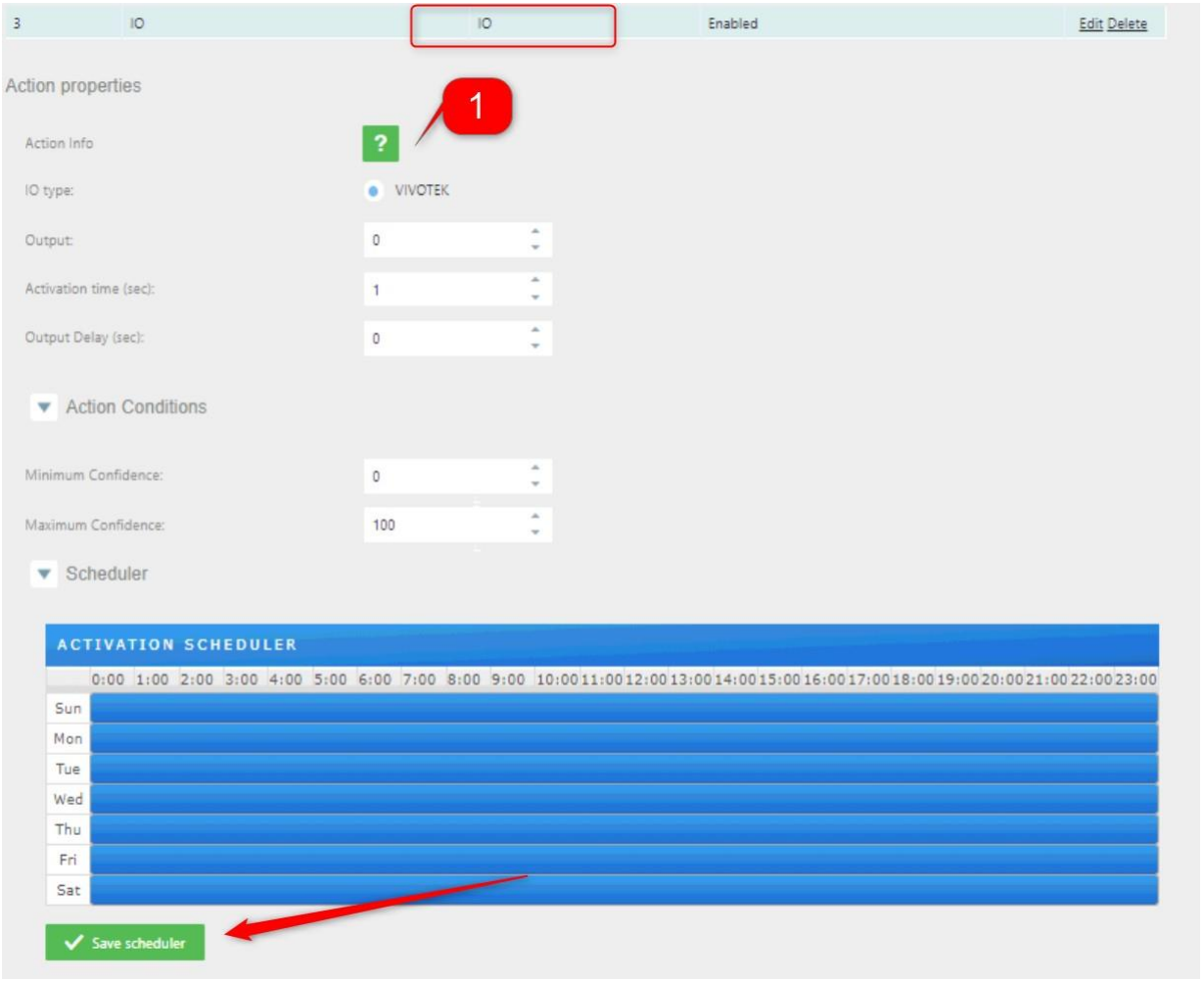
Click on  for more information.



5.2 IO

Configuring the action IO to open a gate for those plates that belong to the list EMPLOYEES.

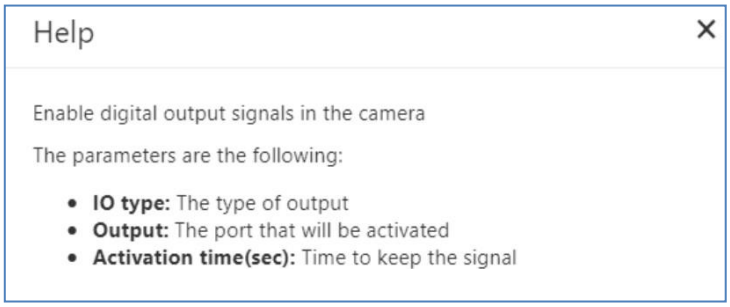
Step 1, Click on “Action for the list” and add a new action pressing “+” andthen select in “Action type = IO”



Action Conditions: Set the minimum and maximum confidence filter to do the action IO.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on ? for more information.

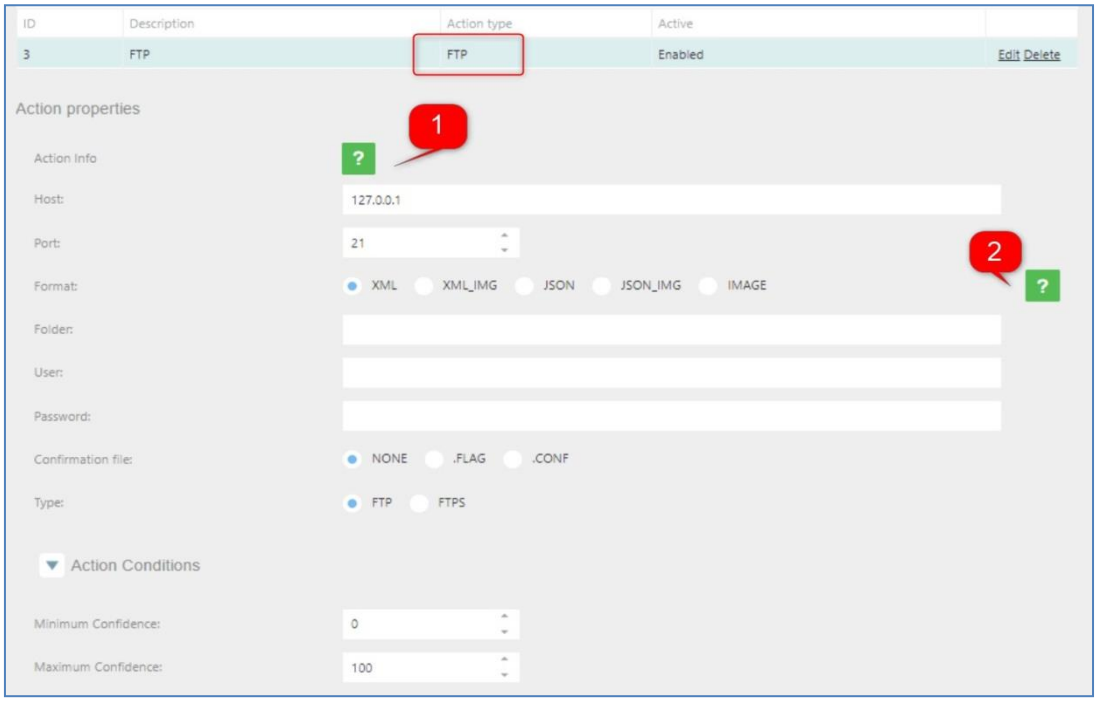


In this case, every time we read a license plate that is in the EMPLOYEES list, we send a signal to the camera I/O to open the gate.

5.3 FTP

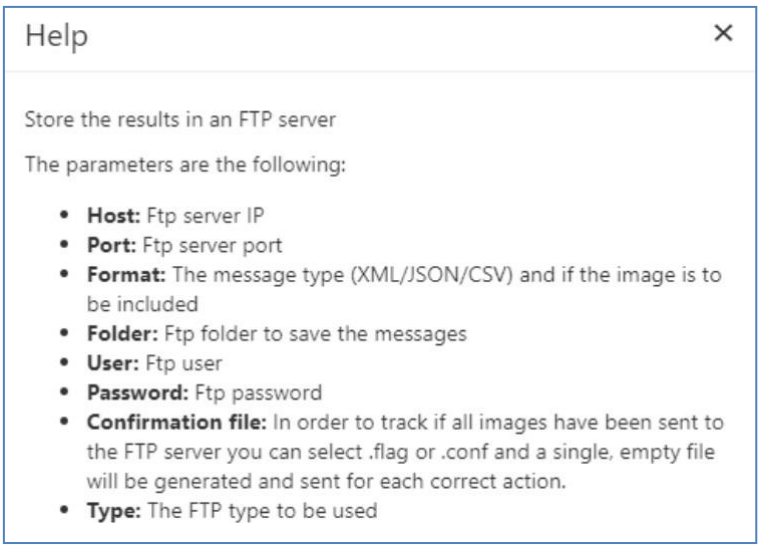
Configuring the action FTP to send an XML, JSON or image to an FTP server.

Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = FTP”



Action Conditions: Set the minimum and maximum confidence filter to do theaction FTP.

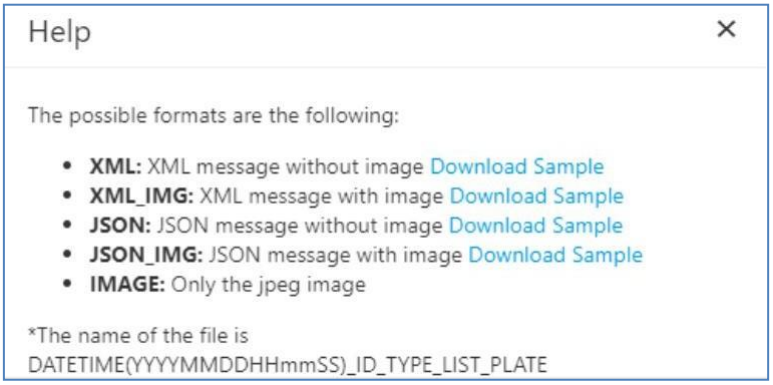
Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.



Click on  for more information about how to configure.

Select which message format you will use to send the information.

Click on  for more information about format type.



5.4 HTTP

Configuring the action HTTP to send analytic events to a VMS.

Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” andthen select in “Action type = HTTP”

You can use wildcards in the “Url” param to include some information in the http petition:

#DTE# Time stamp of the image captured.

#IDCAM# Camera identifier

#PLT# Plate number

#CNF# Global confidence

#IDLAN# Lane identifier (1 or 2)

#IDLIST# List of list identifiers separated by []. [-1] not in list

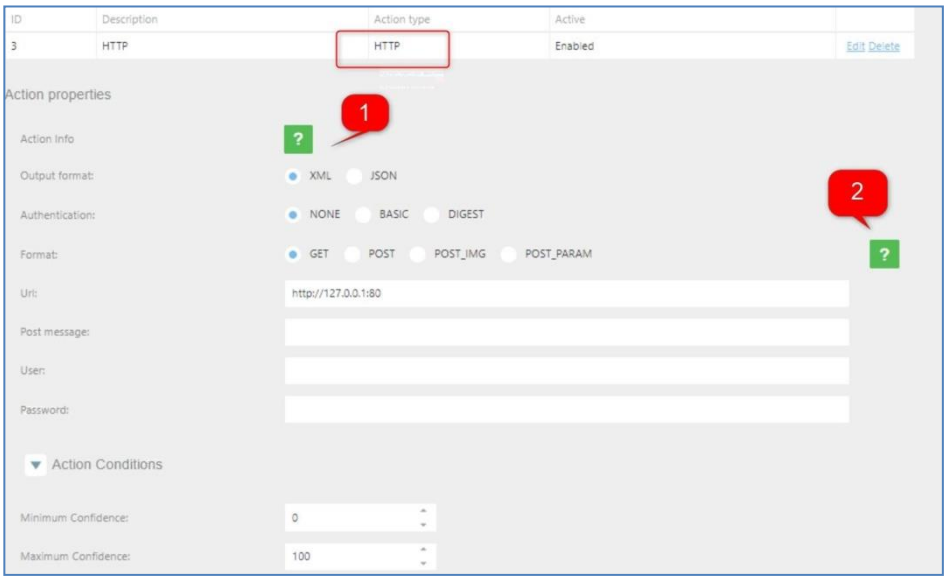
Examples:

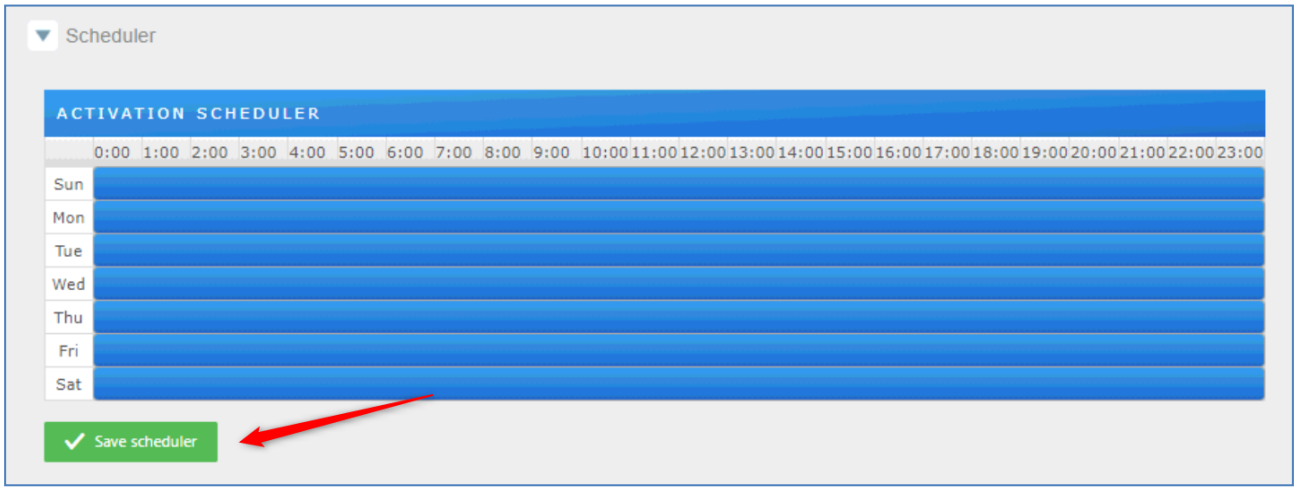
http://192.168.1.23:80?plate=#PLT#&time=#DTE#

http://192.168.1.23:80?plate=0715GYC&time=2019-09-27T18:49:19.912

http://192.168.1.34:8090?plate=#PLT#&cam=#IDCAM#&time=#DTE#&conf=#CNF#&lane=#IDLAN#&list=#IDLIST#

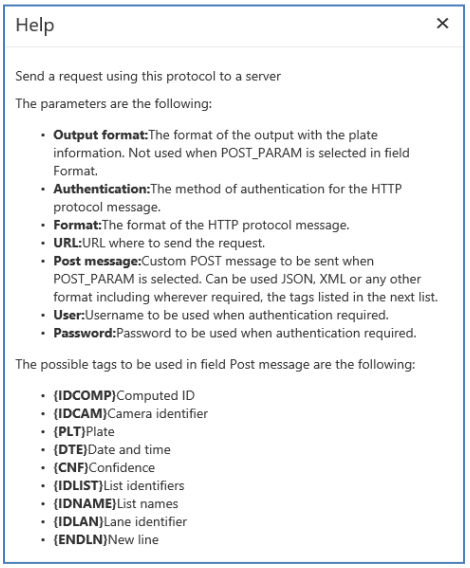
http://192.168.1.34:8090?plate=0715GYC&cam=1&time=2019-09-27T18:52:49.929&conf=99.90&lane=2&list=[-1]


ID
Description
Action type
Active
3
HTTP
HTTP
Enabled
Edit Delete
Action properties
1
Action Info
?
Output format:
XML
JSON
Authentication:
NONE
BASIC
DIGEST
2
Format:
GET
POST
POST_IMG
POST_PARAM
?
Url:
http://127.0.0.1:80
Post message:
User:
Password:
Action Conditions
Minimum Confidence:
0
Maximum Confidence:
100



Action Conditions: Set the minimum and maximum confidence filter to do the action HTTP.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.



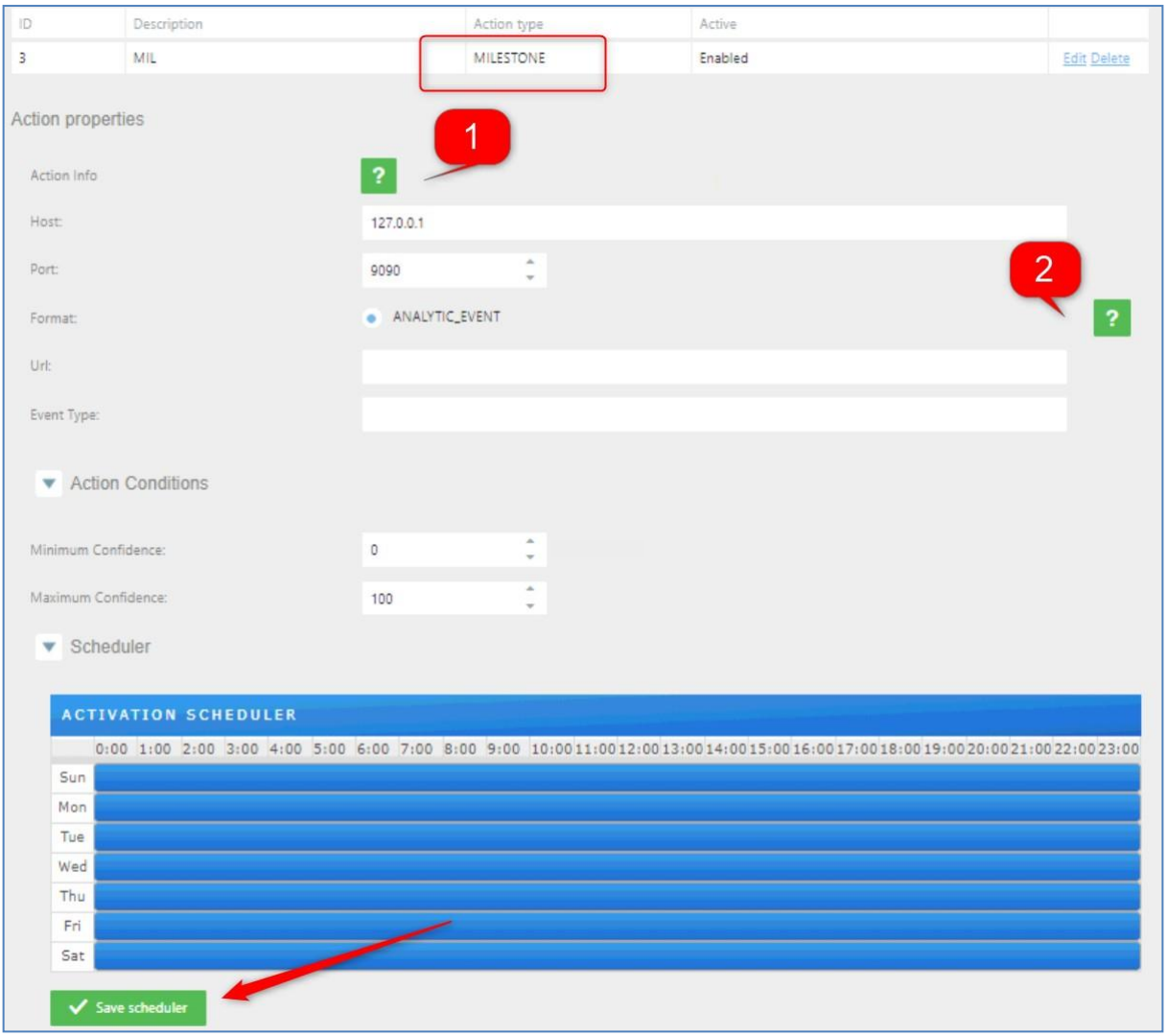
Click on  for more information about how to configure.

Click on  for more information about format type.

5.5 MILESTONE

Configuring the action MILESTONE to send analytic events to a Milestone VMS.

Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = MILESTONE”

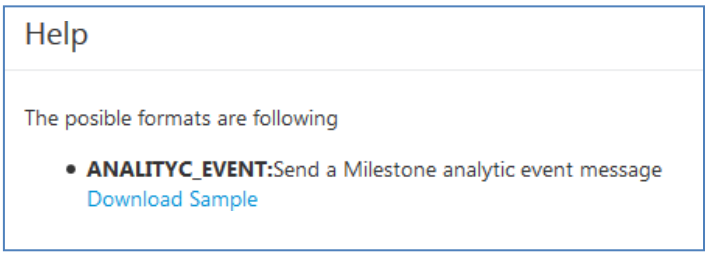


Action Conditions: Set the minimum and maximum confidence filter to do the action Milestone.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on  for more information about how to configure.

Click on  for more information about format type.

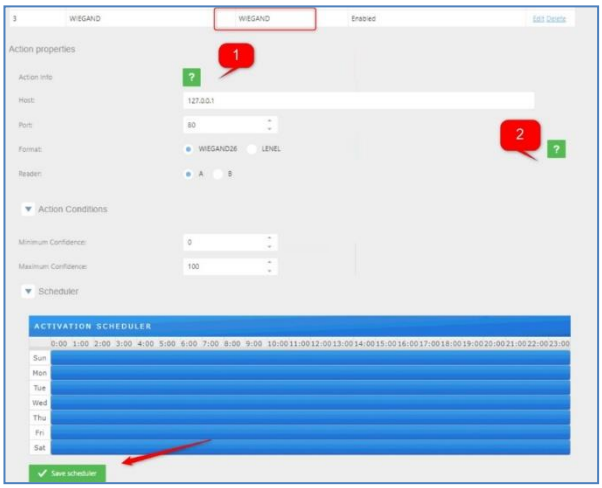


See chapter 4.4.1 to know more information to how configure Milestone.

5.6 WIEGAND

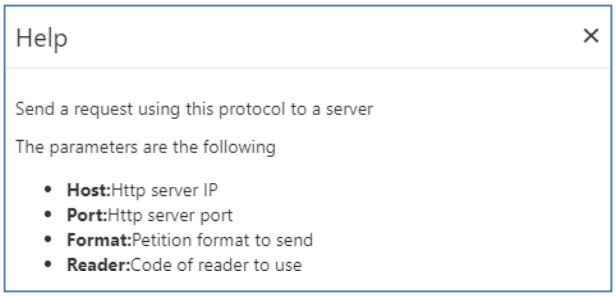
Configuring the action WIEGAND to send analytic events to a Wiegand middleware board.

Using the EMPLOYEES list, click on “Action for the list” and add a new actionpressing “+” and then select in “Action type = WIEGAND”.



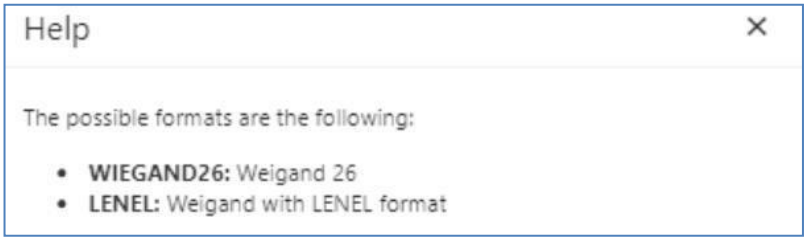
Action Conditions: Set the minimum and maximum confidence filter to do theaction Wiegand.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.



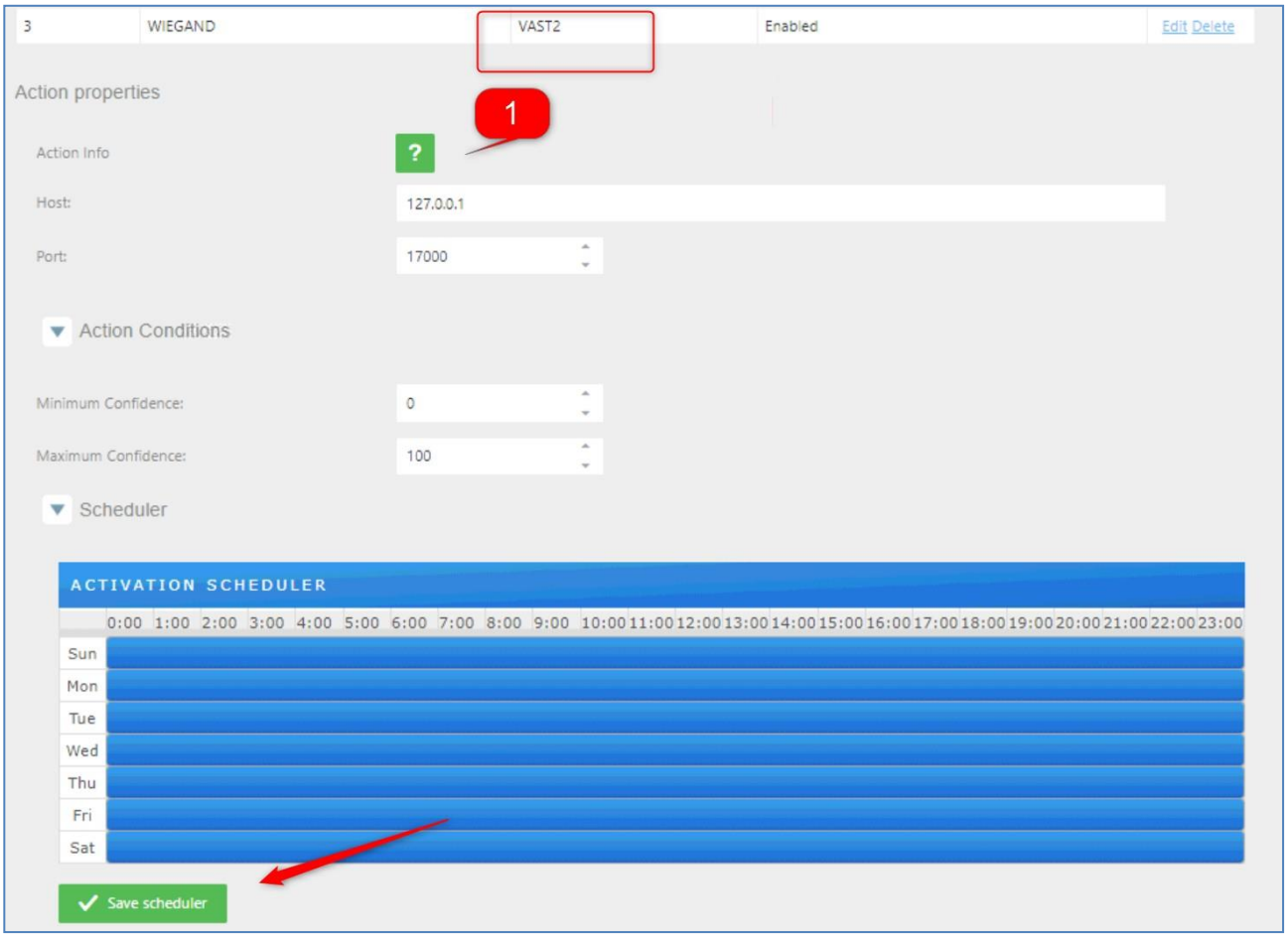
Click on  for more information about how to configure.

Click on  for more information about format type.



5.7 VAST2

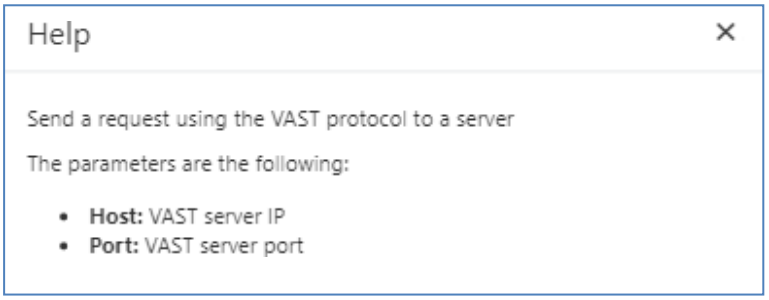
Configuring the action VAST2 to send analytic events to the software VAST2. Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = Vast2”.



Action Conditions: Set the minimum and maximum confidence filter to do theaction Trigger Server.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on  for more information about how to configure.

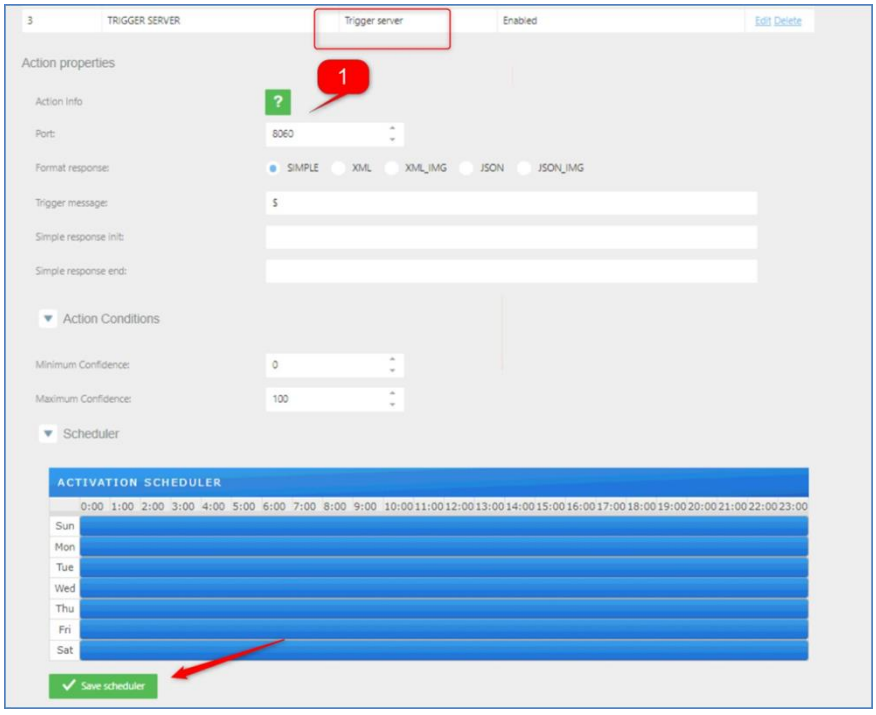


5.8 Trigger Server

Configuring the action Trigger Server will use the camera to receive triggers from other devices and send a message. Using the EMPLOYEES list, click on “Action forthe list” and add a new action pressing “+” and then select in “Action type = Trigger Server”.

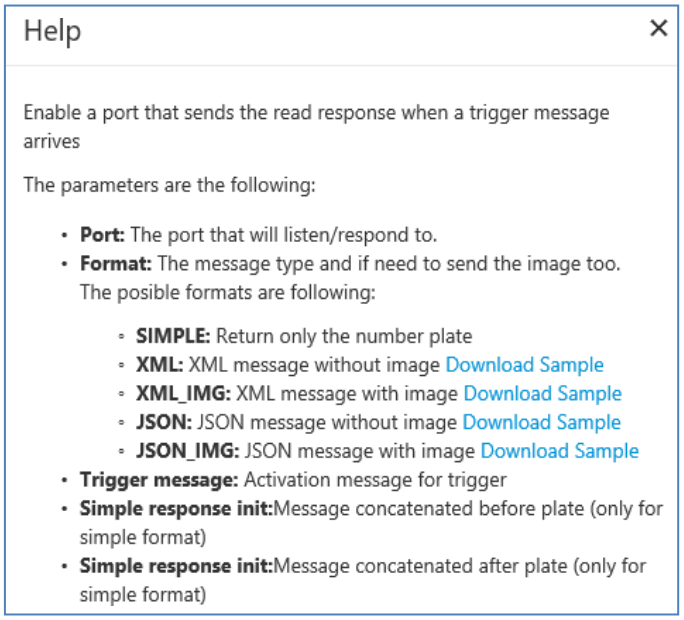
This mode is designed to work with trigger mode, the client connect to the server socket and send the message specified tin the “Trigger mode”, received this message (another message is discarded) make a trigger to the camera an take apicture to process the engine. After engine processed send a message with theformat specified in the “Format response”

- SIMPLE: Just the plate numberXML a message in format XML
- XML_IMG a message in XML format including the image in base64 formatJSON a message in format JSON
- JSON_IMG a message in JSON format including the image in base64 format



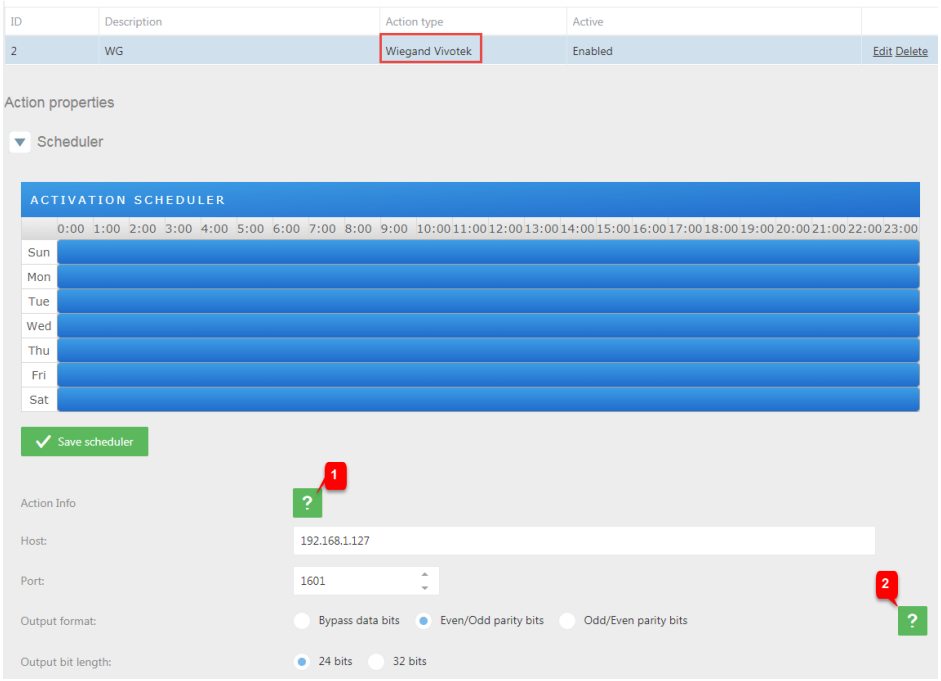
- Action Conditions: Set the minimum and maximum confidence filter to do the action Trigger Server.
- Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on  for more information about how to configure.



5.9 WIEGAND VIVOTEK

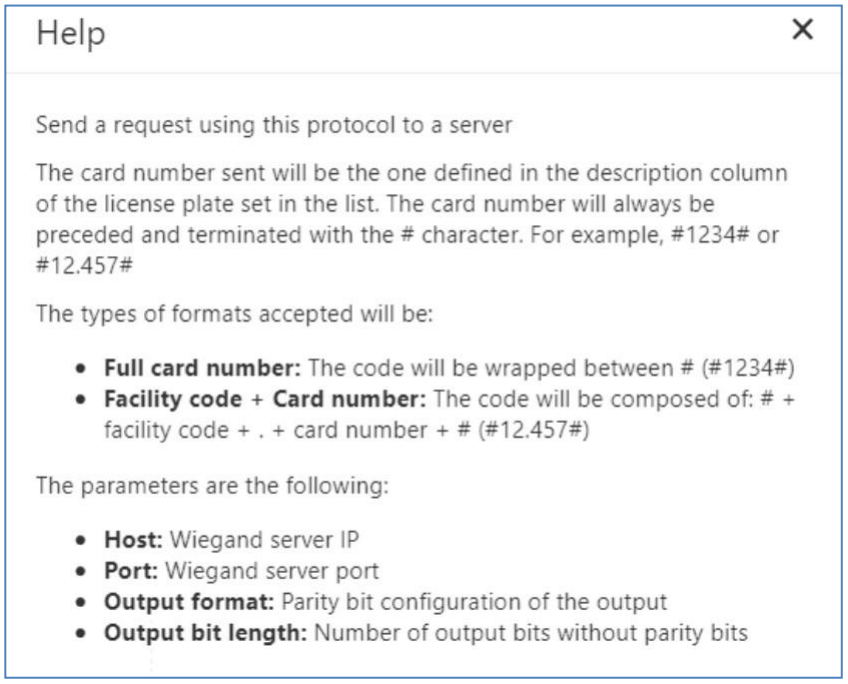
Configuring the action WIEGAND VIVOTEK to send analytic events to a Wiegand middleware board. Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = WIEGAND”.

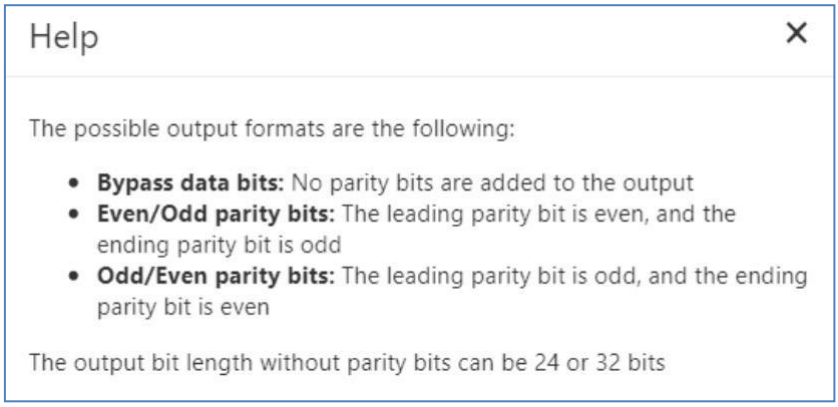


Action Conditions: Set the minimum and maximum confidence filter to do the action Wiegand.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on  for more information about how to configure.



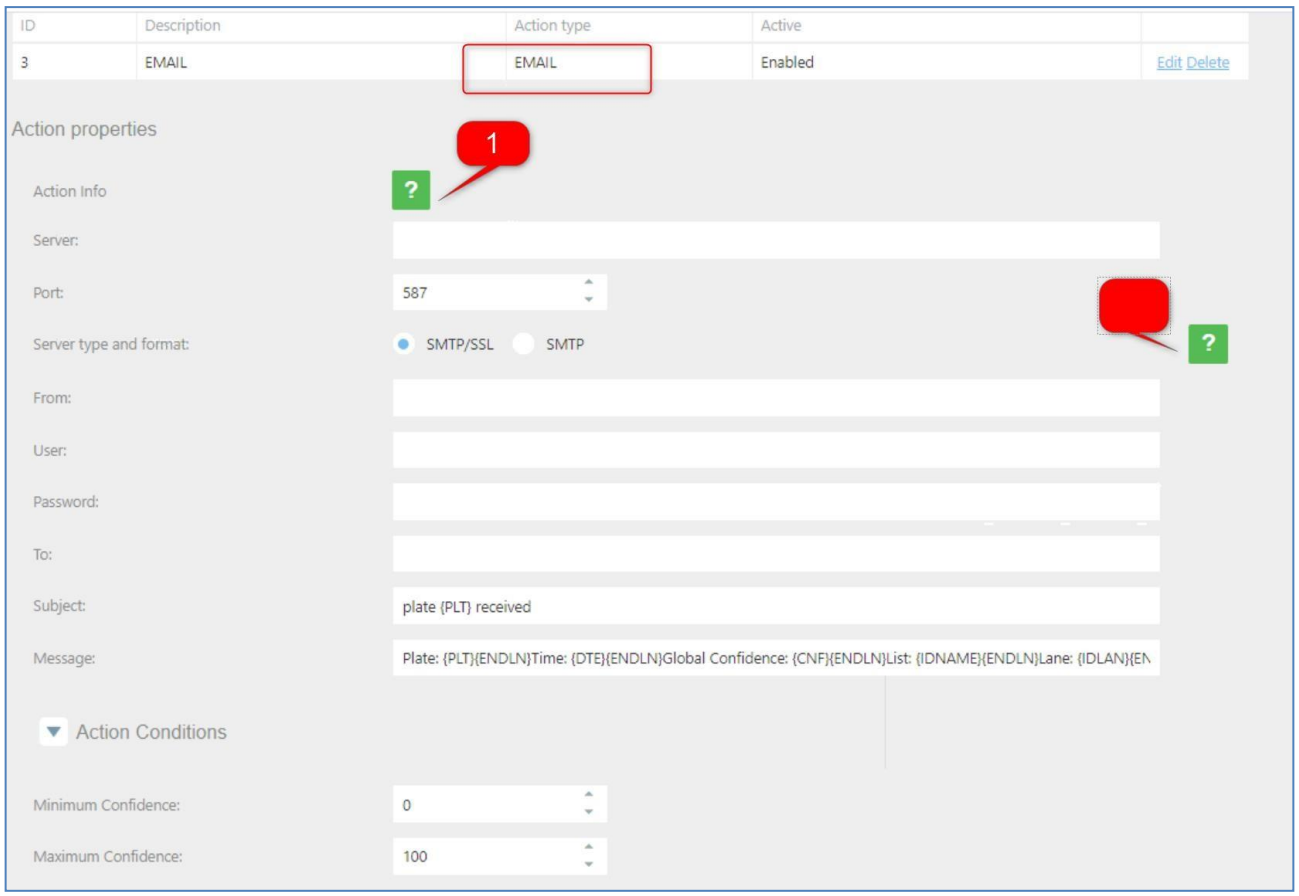


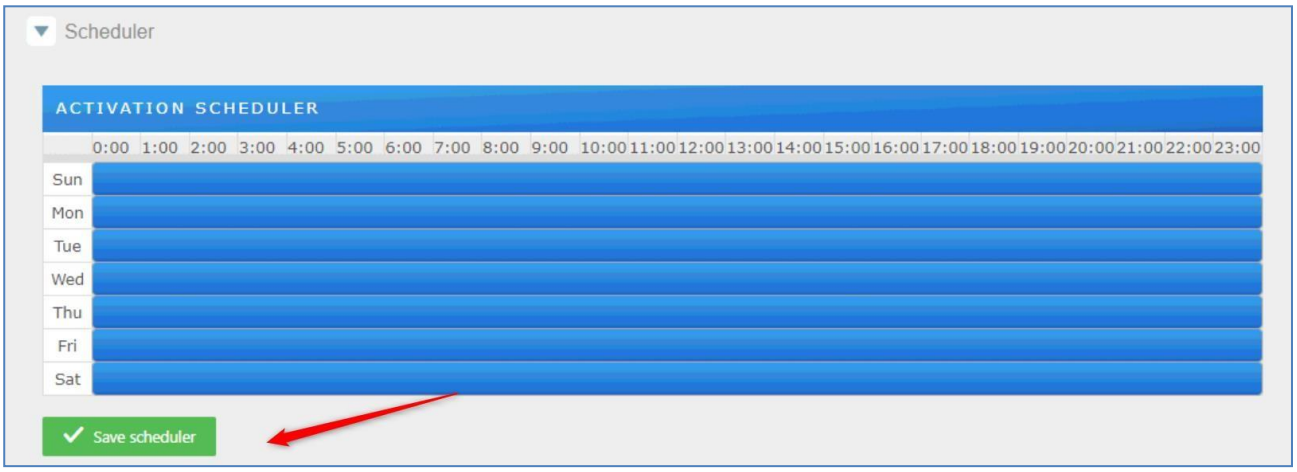
Click on  for more information about format type

5.10 Email

Configuring the action EMAIL to send messages

Using the EMPLOYEES list, clickon “Action for the list” and add a new action pressing “+” and then select in “Action type = EMAIL”.

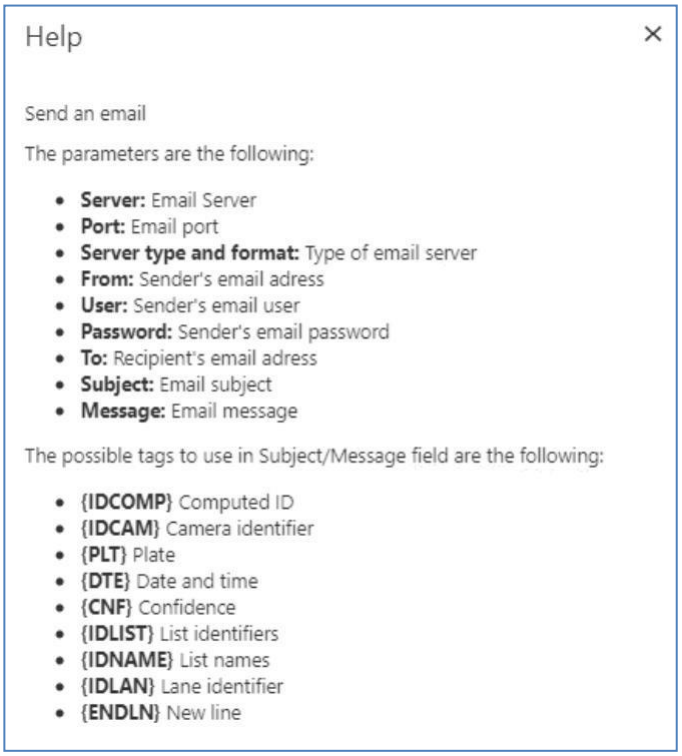




Action Conditions: Set the minimum and maximum confidence filter to do the action email.

Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

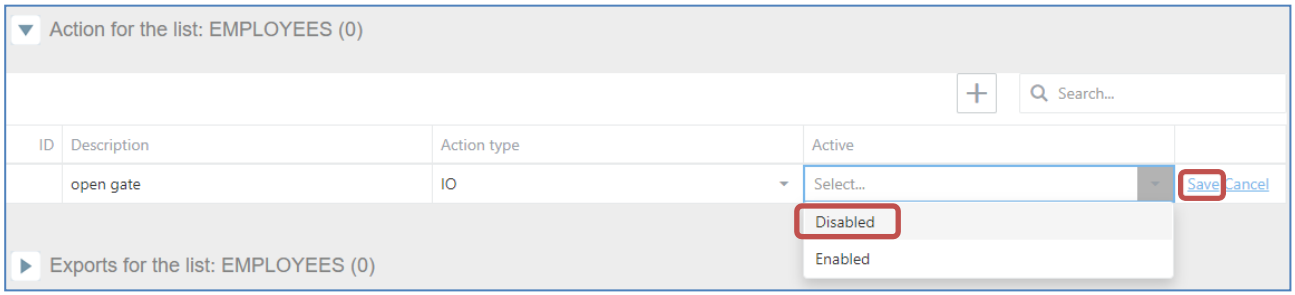
Click on  for more information about how to configure.



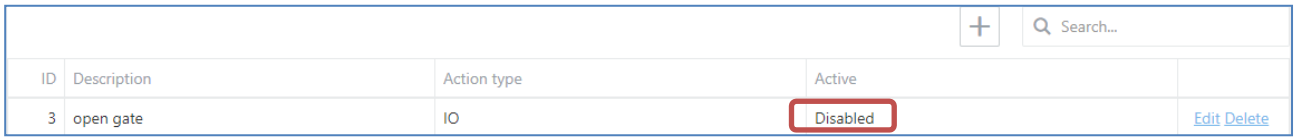
Click on  for more information about format type.

In case, you do not want to continue using an action in a list you can modify able to disableor delete the action.

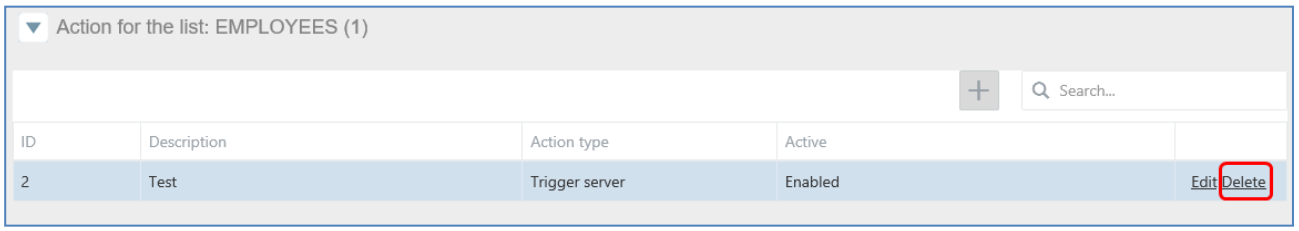
To disable click on the list, select the action, and then click on edit option.In Active change to Disabled and then click on Save.



After this change, you will have the action disabled in case you need to use it later.



To delete an action, click on the action and click on the DELETE button and then YES.



5.11 Meypar

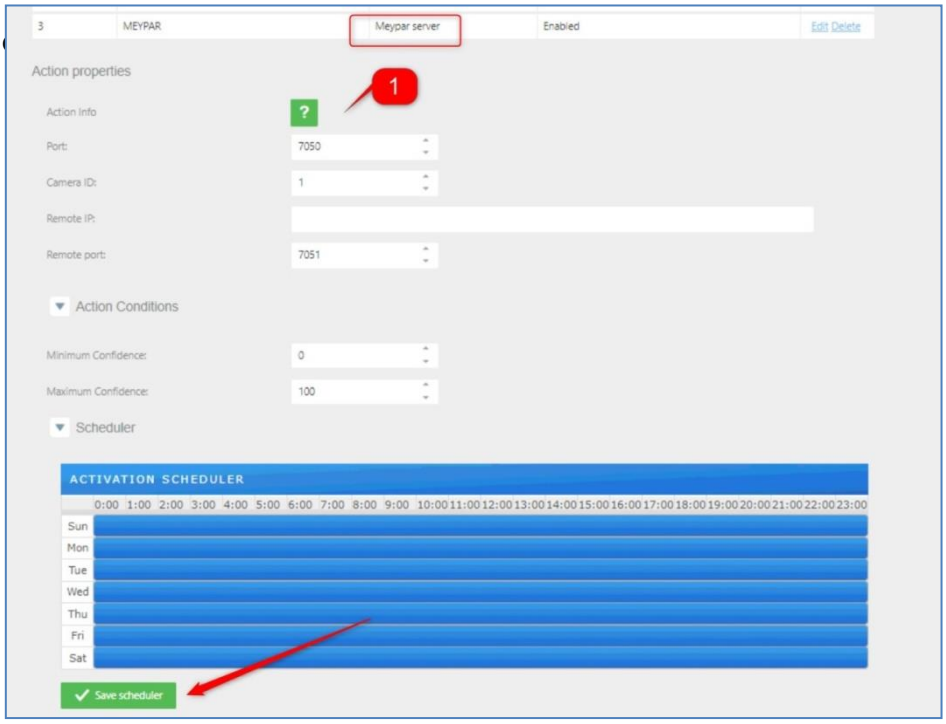
1. Configuring the action Meypar Server: Using the EMPLOYEES list, click on “Actionfor the list” and add a new action pressing “+” and then select in “Action type = Meypar Server”.

   Port: UDP local camera port

   Camera ID: Camera identifier

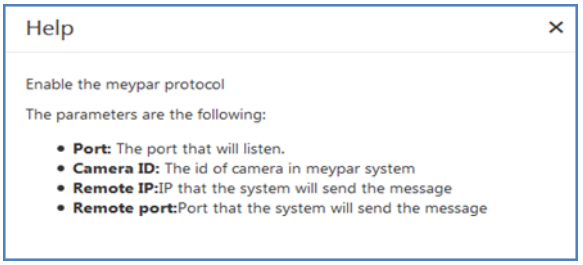
   Remote IP: IP for the client UDP (If the IP remote is empty use the IP from the first message received)

   Remote Port: Port for the client UDP (If the port is empty use the same UDP lo



- Action Conditions: Set the minimum and maximum confidence filter to do the action Meypar Server.
- Schedule: Set the scheduler as needed and click on “SAVE SCHEDULER”.

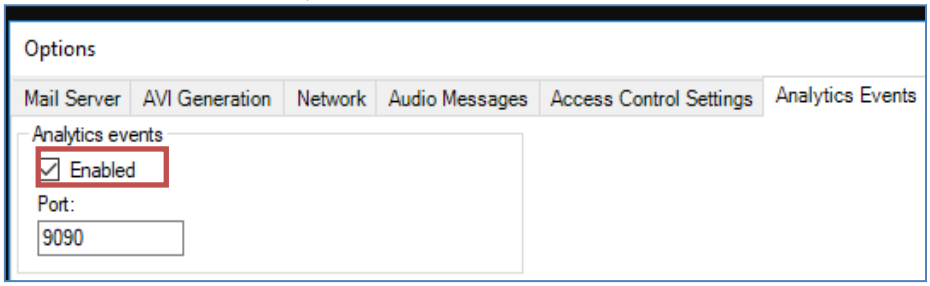
  Click on  for more information about how to configure.



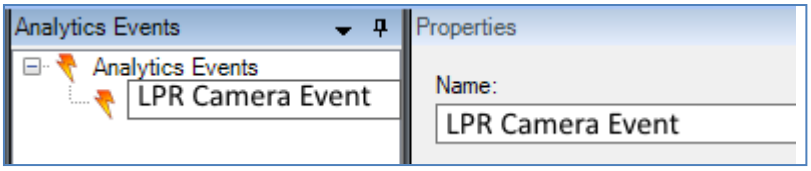
5.12 Milestone

Once the Milestone action is configured, we need set up Milestone server to process ouraction. To do this, we follow the next steps:

1. Enable analytic events.
    a. We click to Tool -> Options and select the “Analytics Event” tab. At this tab we will active the Analytics events.

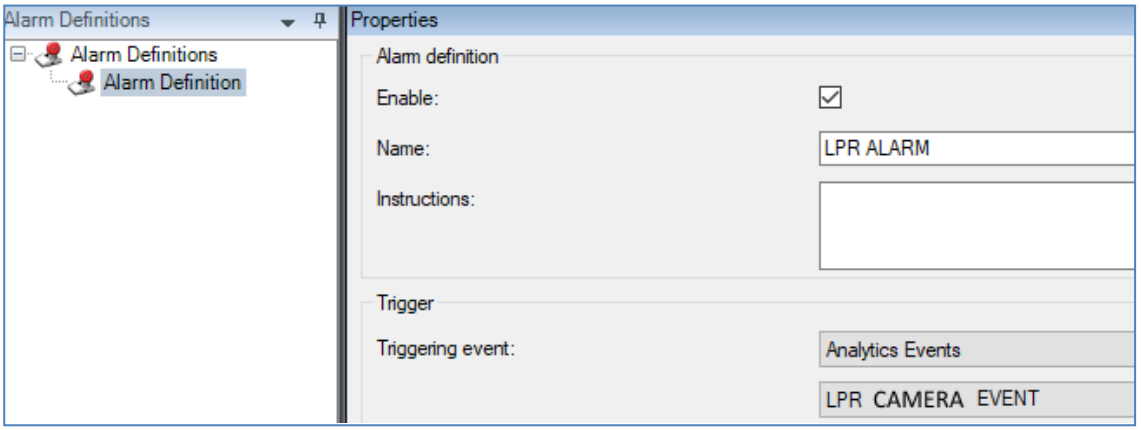


2. Create the analytic event.
    a. We do a click at Rules and Events -> Analytics Events. And then right button to create a new analytic event. The name must be the same thatdefined at Event type of action.



Create an alarm definition.

    b. We do a right click at Alarm definition and we create a new alarm definitionon:
        i. Enable: This alarm is enabled at system
        ii. Name: The alarm name
        iii. Triggering event: We must select Analytic Events
        iv. Triggering event source: We must select the before created analyticevent
        v. Source: We must select the camera at milestone system


Alarm Definitions
Alarm Definitions
Alarm Definition
Properties
Alarm definition
Enable:
Name:
LPR ALARM
Instructions:
Trigger
Triggering event:
Analytics Events
LPR CAMERA EVENT

6. ANPR Performance Index

This performance standards apply for license plates that comply with correctly represented and readable plates in ANPR camera FOV. The suggested processes discussed here are intended for gathering data and analyzing performance.

6.1 ANPR performance measurements

The measurements used to describe the ANPR system performance are:

- Capture rate: the number of license plates detected and logged by an ANPR device in comparison with the total number of license plates passing through the field of view that are visible to a human. This is expressed as a percentage irrespective of whether they are correctly read or not.
- Read rate: the number of license plates captured by an ANPR device that are accurately read in comparison with the total number captured expressed as a percentage.

It is desirable for all of the capture and read rates to be as high as possible.
Details for any license plate that is not captured or read correctly should be noted and reported. This may provide information to enable the performance of the device to be improved or define the countermeasures.

6.2 Minimum evaluation sample

The evaluation sample is no fewer than 250 consecutive vehicles displaying clear license plate within the field of view of an ANPR camera. This number of vehicles is suggested as the result gives a reasonable confidence and accurate representation.

If the traffic flow is too low to be impractical to collect 250 vehicle, measurement on all vehicles that pass the camera within a two-hour time span can take as alternative. However, it should be noted that the results will not be as robust.

6.3 Calculate the performance

Capture Rate

$$\textbf{Capture rate} = \frac{\textbf{number of LPs captured in the ANPR log}}{\textbf{number of LPs known to pass the ANPR camera}} \times 100$$

Read Rate

$$\textbf{Rapture rate} = \frac{\textbf{number of LPs correctly read}}{\textbf{number of LPs captured in the ANPR log}} \times 100$$

Accuracy Rate

$$\textbf{Accuracy rate} = \textbf{Capture Rate} \times \textbf{Read Rate}$$

Performance Calculation Example:

5 cars passing the LPR camera FoV with clear license plate images. 5 ANPR record in the log. But 5th car is not included in the ANPR record image. 3rd car shows twice in the record but 1st recognition is wrong.

<table>
<tr><th></th><th>Number</th><th>Example</th></tr>
<tr><td>Number of LPs known to pass the ANPR</td><td>5</td><td>Five cars
<table>
<tr><td>1st Car</td><td>ABC1234</td></tr>
<tr><td>2nd Car</td><td>BCD1234</td></tr>
<tr><td>3rd Car</td><td>CDE1234</td></tr>
<tr><td>4th Car</td><td>DEF1234</td></tr>
<tr><td>5th Car</td><td>EFG1234</td></tr>
</table></td></tr>
<tr><td>Number of LPs captured in the ANPR log</td><td>4</td><td>5 LPs record. One is wrong reading.
<table>
<tr><th></th><th>License</th><th>ANPR Reading</th></tr>
<tr><td>1st Car</td><td>ABC1234</td><td>ABC1234</td></tr>
<tr><td>2nd Car</td><td>BCD1234</td><td>BCD1234</td></tr>
<tr><td>3rd Car</td><td>CDE1234</td><td>CDE1234
C0E1234</td></tr>
<tr><td>4th Car</td><td>DEF1234</td><td>DEF1234</td></tr>
<tr><td>5th Car</td><td>EFG1234</td><td>-</td></tr>
</table></td></tr>
<tr><td>Capture Rate</td><td colspan="2">= 4 / 5 = 80%</td></tr>
<tr><td>Read Rate</td><td colspan="2">= 3 /4 = 75 %</td></tr>
<tr><td>Accuracy Rate</td><td colspan="2">= 80 % x 75 % = 60%</td></tr>
</table>

6.4 ANPR Accuracy Support Policy

As a basic ANPR support principle, accuracy fine-tune request should be based on the performance evaluation on real traffic flow with minimum evaluation sample size at least. This policy can secure the evaluation result is robust without small sample size bias and sufficient record to train.

However, there are two specific cases that we recommend customer to contact the VIVOTEK support, new license plate grammar and special case for specific plate.

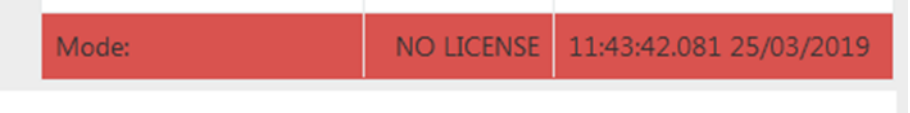
<table>
<tr><th colspan="3">New License Plate Grammar</th></tr>
<tr><td>Explanation</td><td colspan="2">Authority add a new rule on license plate and the new license plate form or grammar is not recognizable for current ANPR engine.</td></tr>
<tr><td rowspan="2">Example</td><td colspan="2">The Europe license set 1st section as city(region) code. User report that ANPR can not recognize these plates with “J” region code.</td></tr>
<tr><td>Recognizable
  </td><td>Not Recognizable
  </td></tr>
<tr><td>Support Policy</td><td colspan="2">User provides at least 1 image for grammar confirmation.</td></tr>
</table>

<table>
<tr><th colspan="3">Special case for specific plate</th></tr>
<tr><td>Explanation</td><td colspan="2">Some specific character will be mistaken recognized often.</td></tr>
<tr><td rowspan="4">Example</td><td colspan="2">The last digit with number is easily being recognized as a letter, ex 2 become Z; 4 become A.</td></tr>
<tr><td>ANPR Result</td><td>License Plate</td></tr>
<tr><td>339AGZ</td><td>  </td></tr>
<tr><td>778EAA</td><td>  </td></tr>
<tr><td>Support Policy</td><td colspan="2">User provides at least 10 image for training.</td></tr>
</table>

7. Troubleshooting

7.1 Mode: NO LICENSE

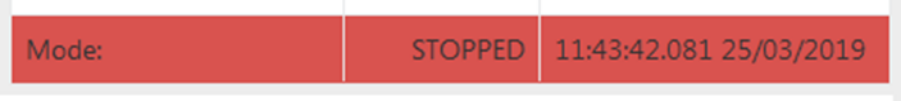
If the camera is not licensed, we find that the mode will be “NO LICENSE” in live page.



To solve this problem, please get in touch with support.

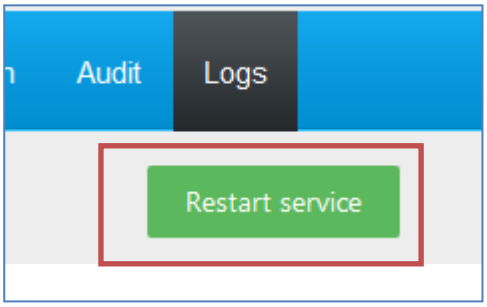
7.2 Mode: STOPPED

If the LPR service is stopped, we find that the mode will be “STOPPED” in live page.

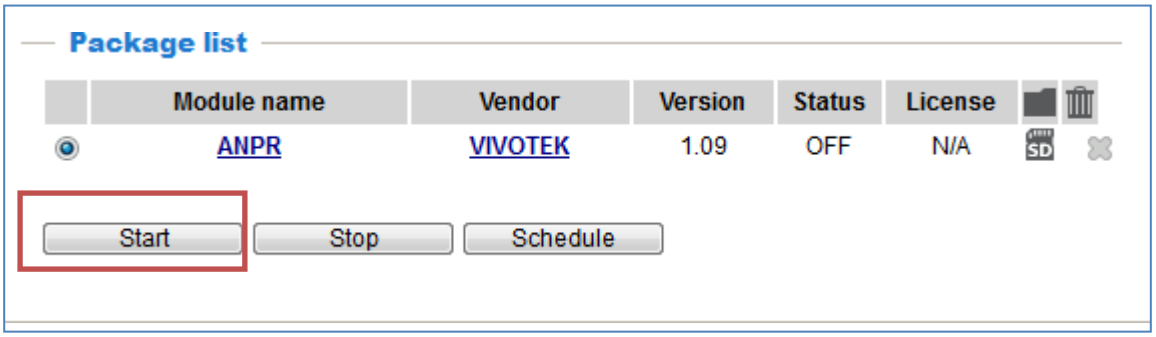


To solve this problem, we will have to reboot the service. You can reboot the service at:

- Logs page:

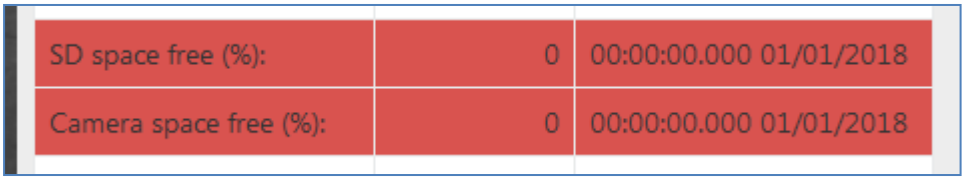


- Package management (http://CAMERA_IP/setup/application/vadp.html):



7.3 No enough space at Camera or SD

If the camera or SD card has not enough space, the system could fail.



If the space is below 20%, please review the purge option section

7.4 The system does not recognize license plates

If the system does not recognize license plate, please verify the following steps:

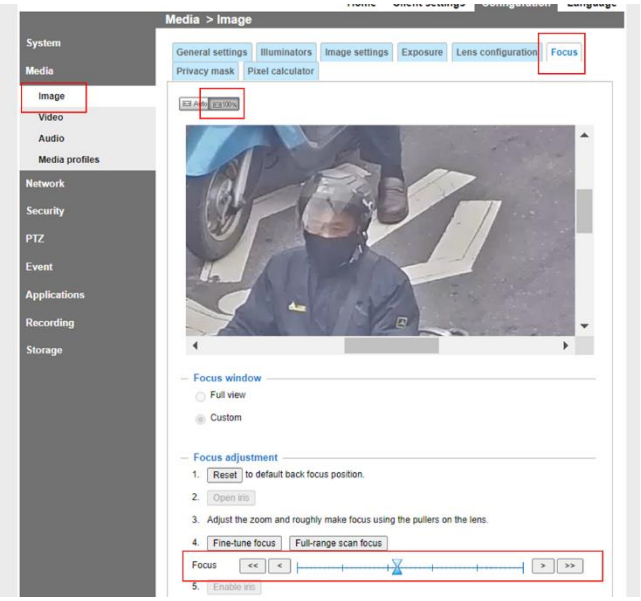
1. The region and country are the right ones. You can check this configuration at LPR configuration.
2. Check the camera Setting

   a. Zoom, License Plate Character Height > 25 px

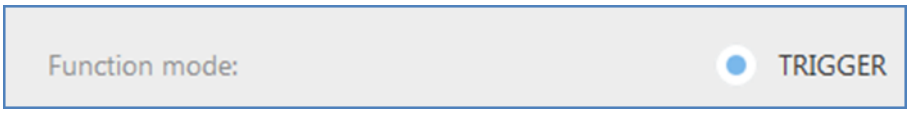
      The license plate has a minimum size of 25 pixels. The user can use the calibration pattern at live page to adjust the size of the license plate. The licenseplate must be between 2 lines.

   b. Focus for clear image

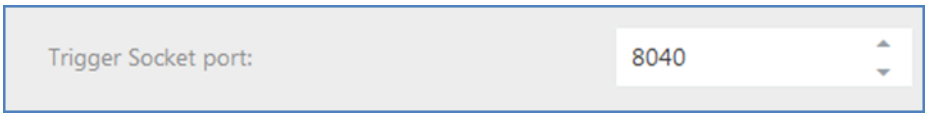
      User must check the image in 100% view in focus tab instead of “Auto”.



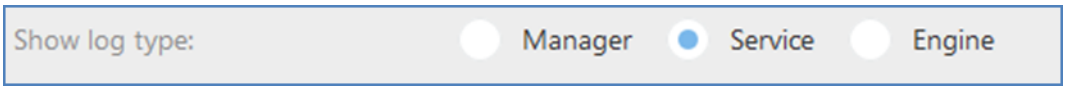
3. If you the system has a defined ROI, verify that license plate is inside ROI area.
4. If the system is configured at motion detection mode, please be sure have a movement inside the image.
5. If the system has read a license plate and it do not read anymore, check the filters.
6. If the system is configured at trigger mode, please check the following points:
   a. Check the mode of in camera (LPR CONFIGURATION):



   b. Check the trigger socket port (GENERAL CONFIGURATION):



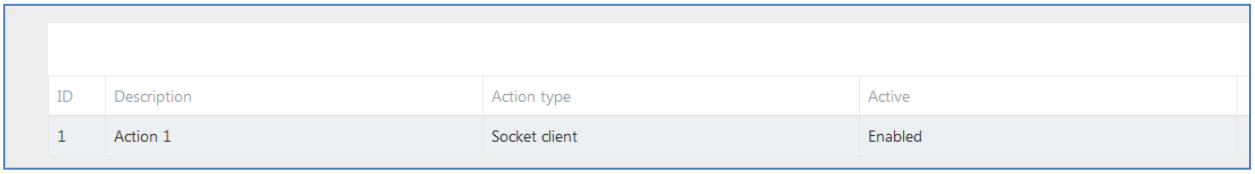
   c. Check that the sender device has connection TCP/IP to the camera atdefined port. It can be checked via telnet.
   d. If the message is received correctly, the system log must show the line:



7.5 Problem with ACTIONS

If the action does not execute, verify the following points:

1) The action is enabled.



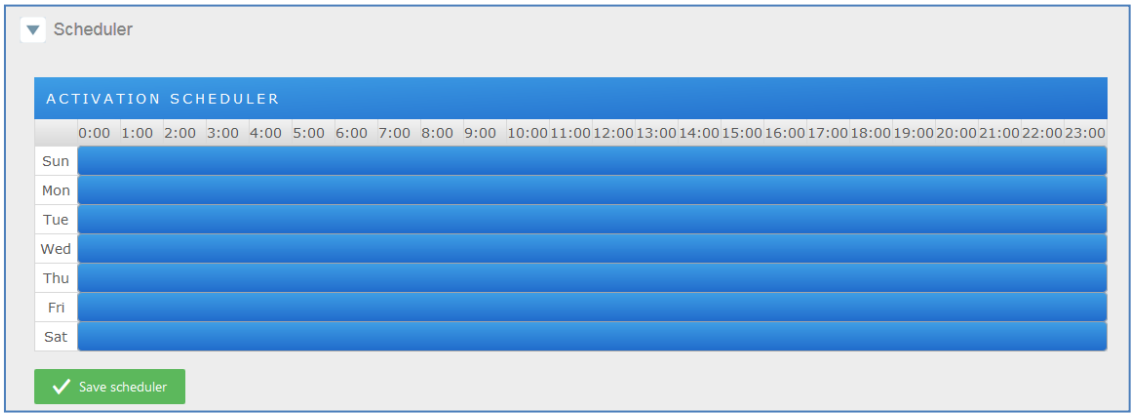
ID	Description	Action type	Active
1	Action 1	Socket client	Enabled

2) The detected plate is in the list that is defined the action.

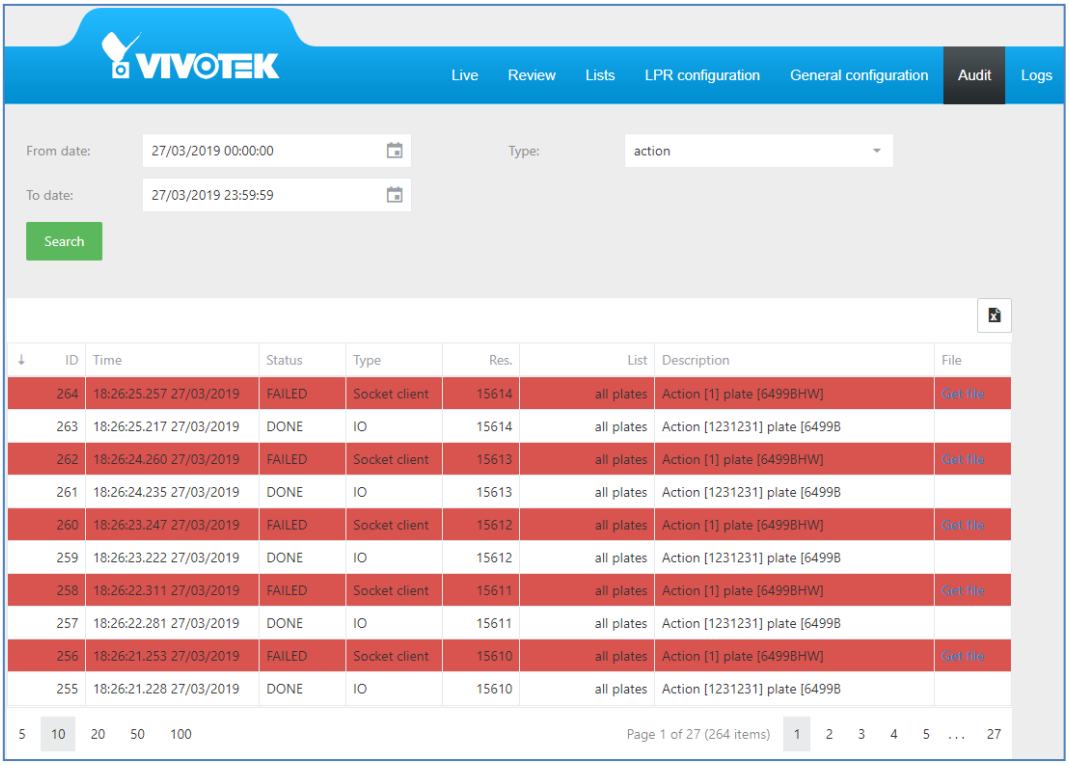
3) There is a defined action to “all plate” list.

4) The detected plate is not in any list, there is an action defined in “not in list” list.

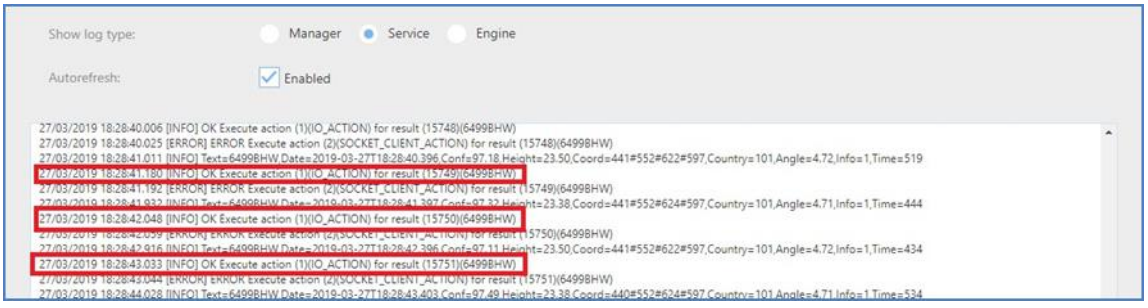
5) The date of the detection corresponds on a valid time defined in the scheduler.



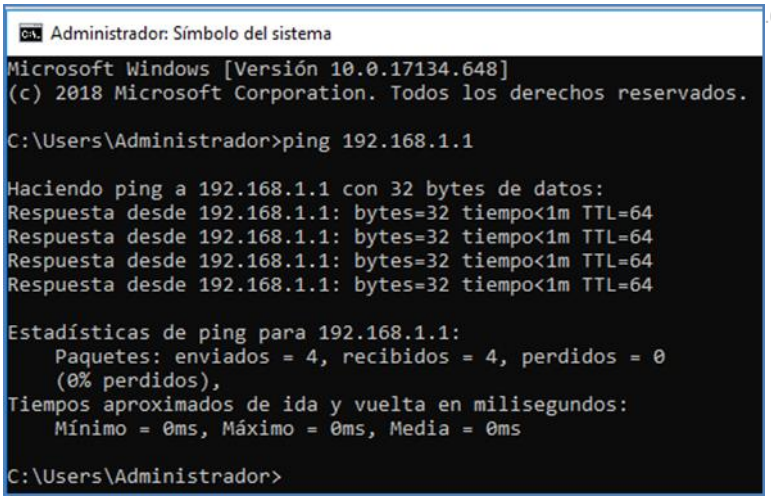
6) Check in Tab Audit if the action has been executed. In red error sent.



7) Check in the logs if the action has been executed. Active Service and Enabled.



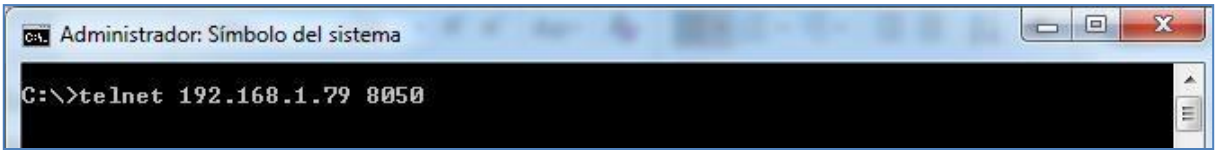
8) Check the connection with the host with a ping command.

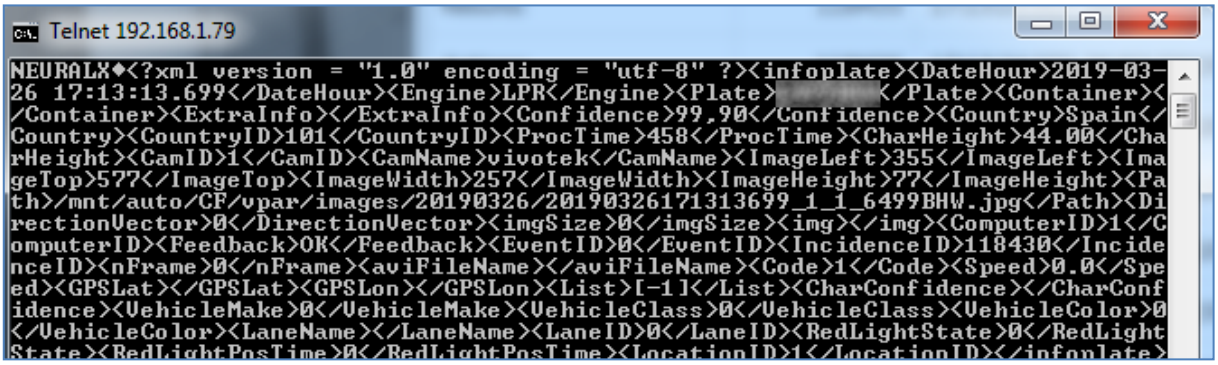

Administrador: Símbolo del sistema
Microsoft Windows [Versión 10.0.17134.648]
(c) 2018 Microsoft Corporation. Todos los derechos reservados.
C:\Users\Administrador>ping 192.168.1.1
Haciendo ping a 192.168.1.1 con 32 bytes de datos:
Respuesta desde 192.168.1.1: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.1.1: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.1.1: bytes=32 tiempo<1m TTL=64
Respuesta desde 192.168.1.1: bytes=32 tiempo<1m TTL=64
Estadísticas de ping para 192.168.1.1:
Paquetes: enviados = 4, recibidos = 4, perdidos = 0
(0% perdidos),
Tiempos aproximados de ida y vuelta en milisegundos:
Mínimo = 0ms, Máximo = 0ms, Media = 0ms
C:\Users\Administrador>

Socket server / Trigger server

If the socket server action does not send the message, please check the following points:

1) Check the defined port
2) Reboot the service if you have defined a new socket server action
3) Open a telnet client to Camera IP and defined port and check that the message isreceived.

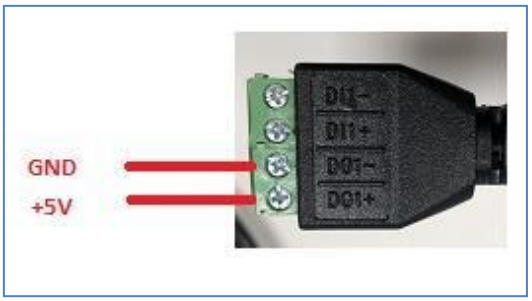




IO

If the IO action does not send the message, please check the following points:

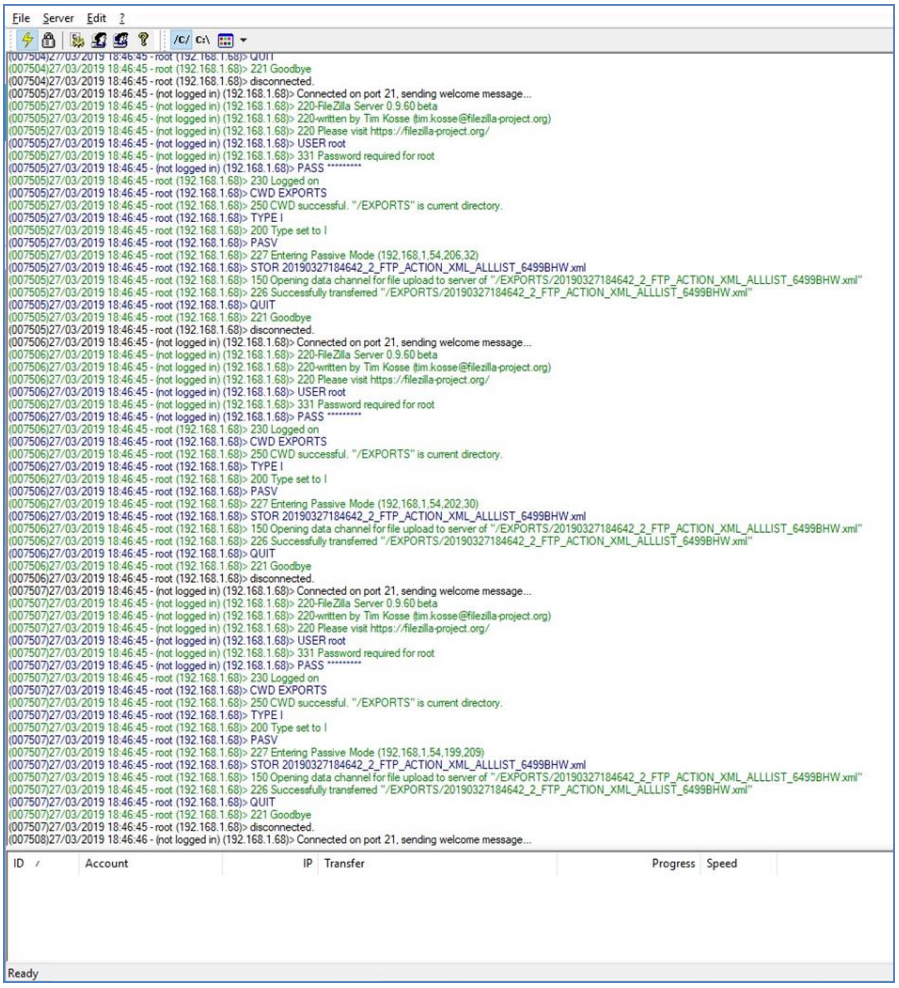
1) Check the defined port
2) Check the defined time
3) With a multimeter, connect to selected port and check that the voltage changesfrom 0 to 5 V.



FTP

If the FTP action does not send the message, please check the following points:

1) Check the defined parameter
2) Check the credentials and access with FTP client
    - https://filezilla-project.org/download.php?type=client
3) Install FTP server like the FileZilla server and check the logs
    - https://dl2.cdn.filezilla-project.org/server/FileZilla_Server-0_9_60_2.exe?h=Fjvi4wvvZmA-MDcp3K9v0Q&x=1553712290

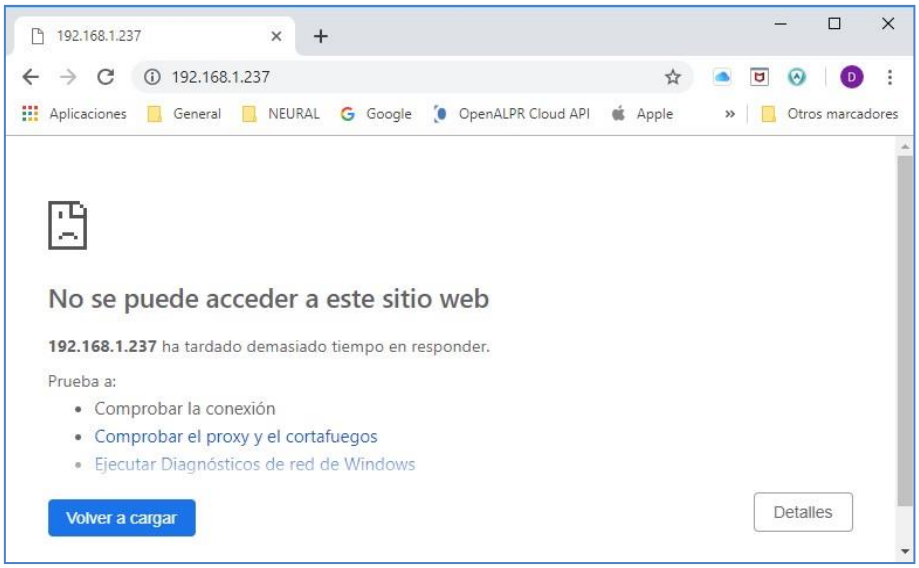


HTTP/MILESTONE/WIEGAND

If the HTTP action does not send the message, please check the following points:

1) Check the defined parameter
2) With an explorer (Internet explorer, Firefox, Chrome) do a request to defined URLand check that the URL respond.

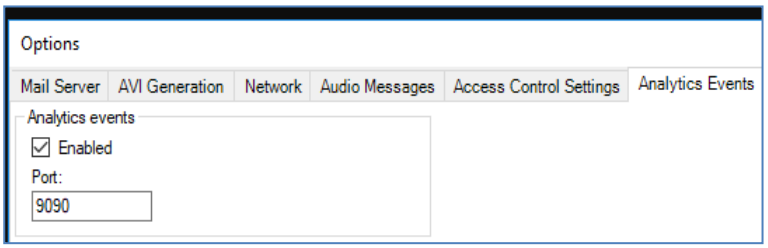
   In this case not responds



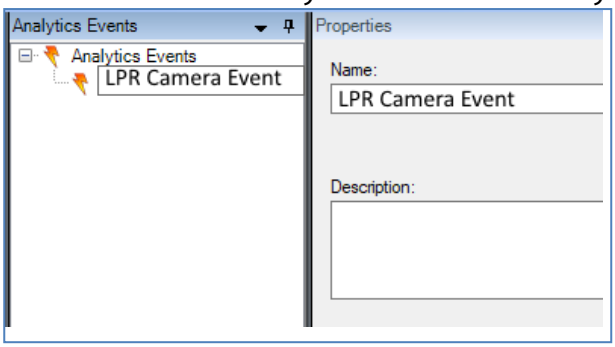
MILESTONE

If the MILESTONE action does not send the message, please check the following points:

1) Check the defined parameter
2) Check in Milestone system that the analytics events are enabled.



3) Check in Milestone system that the analytic event name is “LPR Camera Event”



4) Check in Milestone system that the created alarm uses the before analytic event and related camera.

7.6 Abnormal UI or UI reaction after ANPR upgrade.

Issue

1. Abnormal UI like empty row in “Live” tab
2. Unable to modify the list

Potential Cause:

Conflict on browsers cache

How to check

- Change a browser on whether same issue occurs.
  - If yes, it’s a browser cache issue.

How to Fix

1. Hard Refresh on you browser. (EX: Chrome CLTR + F5 / CLTR +  ICON)
2. Manual Delete the browser cache & cookies

HOW to manual delete Chrome browsers cache	
I.	On your computer, open “Chrome”.
II.	At the top right, click “More”.
III.	Click “More tools”. Clear browsing data.
IV.	At the top, choose a time range. To delete everything, select All time.
V.	Next to "Cookies and other site data" and "Cached images and files," check the boxes.
VI.	Click Clear data.