NEURAL EDGE

User Manual
V1.7

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History:

Date	Creator	Details
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22.02.2019	Elias Valcarcel	Finish doc and review
23.02.2019	Miguel Angel Rubia	New elements and adjustment
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04.03.2019	Elias Valcarcel	Check
04.03.2019	David Del Olmo	Checks in live screen
26.03.2019	Miguel Angel Rubia	Trouble shooting. Version 1.4
29.03.2019	David Del Olmo	Check. Version 1.5
08.04.2019	David Del Olmo	Synchronization chapter
16.04.2019	Miguel Angel Rubia	Milestone configuration chap.
25.04.2019	David Del Olmo	New sincro method. Version 1.15

1. Overview

Neural Edge is a powerful LPR application developed by Neural Labs embedded in Vivotek cameras.

Neural Edge 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 installations.

2. Installation Requirements

2.1. Camera requirements

It is recommended a minimum size of 2GB of free space in the camera.
If this space is not available, it must be completed with a Micro SD.
The micro SD should be formatted in **EXT4 format.**

List of compatible cameras:

IB9387
IB9365
IB9165

Minimum firmware 0106b

General compatibility: Cameras with processor Hisilicon Hi3519 and Linux System

2.2. Storage requirement

The preset values suppose a **40% of JPEG compression** (default system value)

In the following table we can find ***estimation of size*** requirements:

Size/Registers	1	1000	5000	10000	100000
640x480	13KB	12.7 MB	63.5 MB	127 MB	1.24 GB
800x600	20KB	19.5 MB	97.7 MB	195.3 MB	1.9 GB
1280x720	25KB	24.4 MB	122 MB	244.14 MB	2.38 GB
1600x904	70KB	68.35 MB	341.8 MB	683.6 MB	6.68 GB
1920x1080	110KB	107.4 MB	537,1 MB	1.05 GB	10.5 GB

Estimation with an affluence of 100 cars per day.

Size/GB	2	8	16	32	64
640x480	4.4 years	17.6 years	30.53 years	70 years	140 years
800x600	2.8 years	11.5 years	20.3 years	40.5 years	90 years
1280x720	2.27 years	9.1 years	10.8 years	30.7 years	70.3 years
1600x904	290 days	3.2 years	6.5 years	10.3 years	20.6 years
1920x1080	190 days	2 years	4.16 years	8.3 years	10.6 years

Estimation with an affluence of 1000 cars per day.

Size/GB	2	8	16	32	64
640x480	161 days	645 days	3.53 years	7 years	14 years
800x600	105 days	420 days	2.3 years	4.5 years	9 years
1280x720	83 days	335 days	1.8 years	3.7 years	7.3 years
1600x904	29 days	119 days	239 days	1.3 years	2.6 years
1920x1080	19 days	76 days	152 days	305 days	1.6 years

Estimation with an affluence of 10000 cars per day.

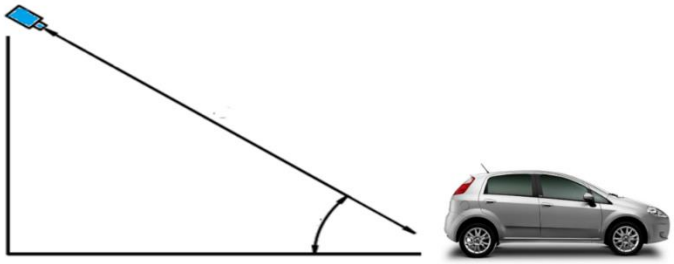
Size/GB	2	8	16	32	64
640x480	16 days	64 days	128 days	256 days	512 days
800x600	10 days	42 days	84 days	168 days	336 days
1280x720	8 days	33 days	66 days	132 days	264 days
1600x904	2 days	11 days	23 days	46 days	92 days
1920x1080	1 days	7 days	15 days	30 days	60 days

2.3. License Plate Character size

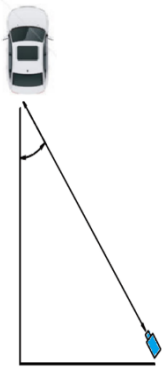
Characters in license plates must have an average height between 20 to 80 pixels, being 25 pixels a good reference value. Less resolution may lead character confusion in some countries. In addition, camera sensitivity affects too. For countries in which there are different character sizes on their license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

2.4. Camera Positioning

Recommended vertical angles are approximately 20º. The maximum recommended value is 35º.



Recommended horizontal angles are approximately 20º. The maximum recommended value is 35º.



The angle between the plates and the X axis of the scene must be inferior to 25º.

Recommended Parametrization

It should be mentioned that the following recommendations and specifications, are general and may vary depending on the brand and model of the selected camera and the country they are to be installed.

Common *Scenario*

Common scenario: 1 lane

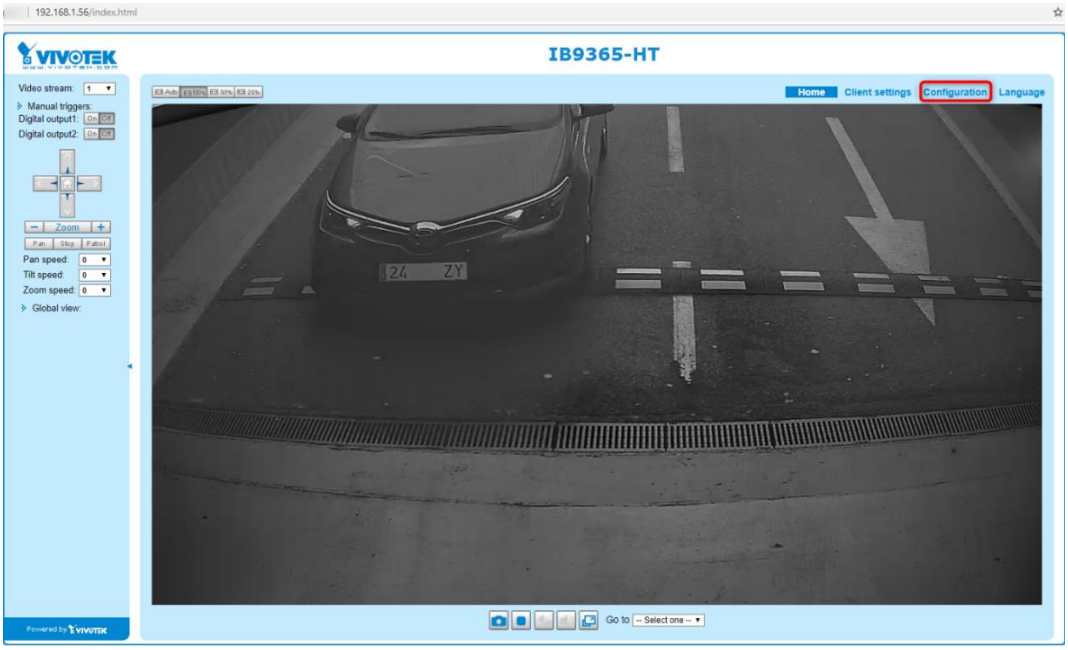
Sensor size: VGA o 1 MP

Height of camera on pole: 1 - 1.5 metros

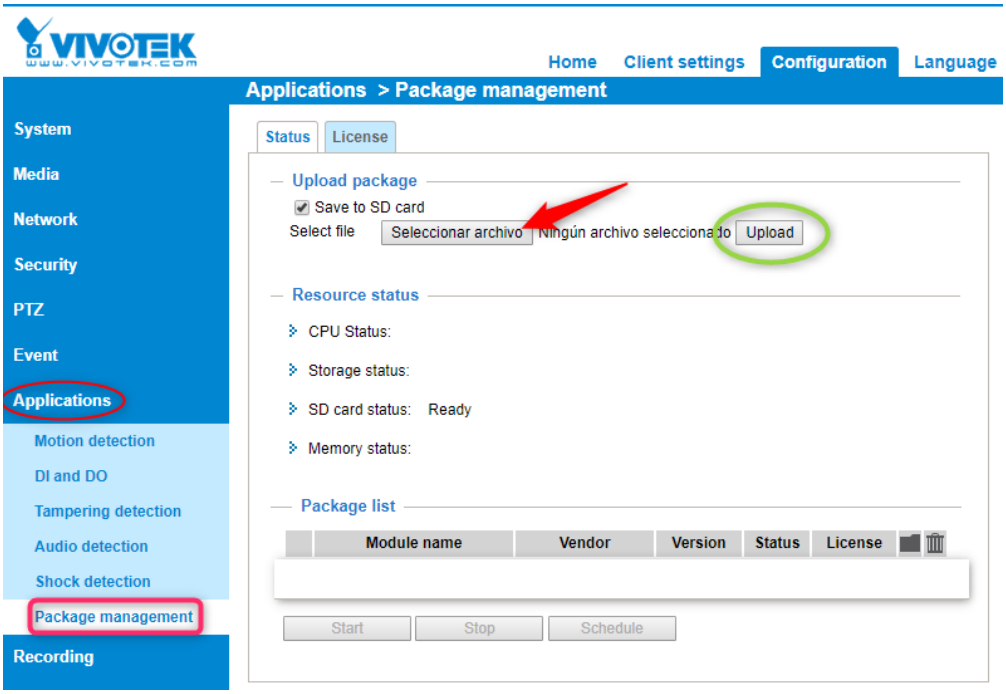
3. Installation Process

3.1. Package upload

Open a web browser and enter the camera IP you want to install Neural Edge. In this example, we will access to 192.168.1.56 camera model IB9365-HT.

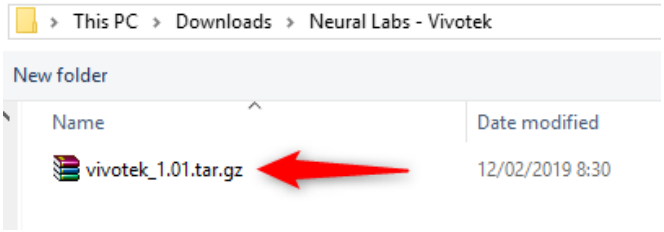


Click on “Configuration” to access to camera settings.

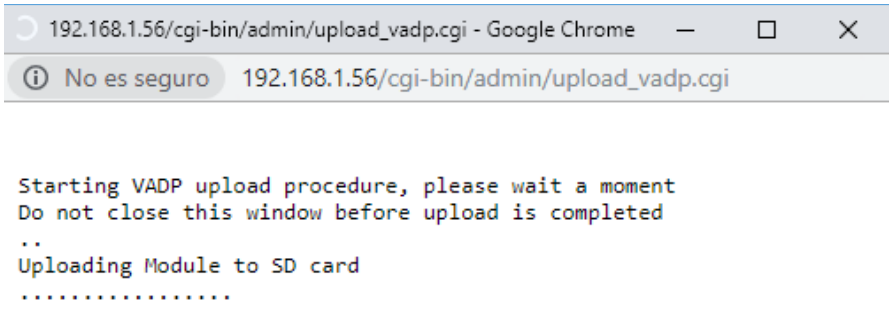


Go to “Applications” tab, click on “Package Management”.

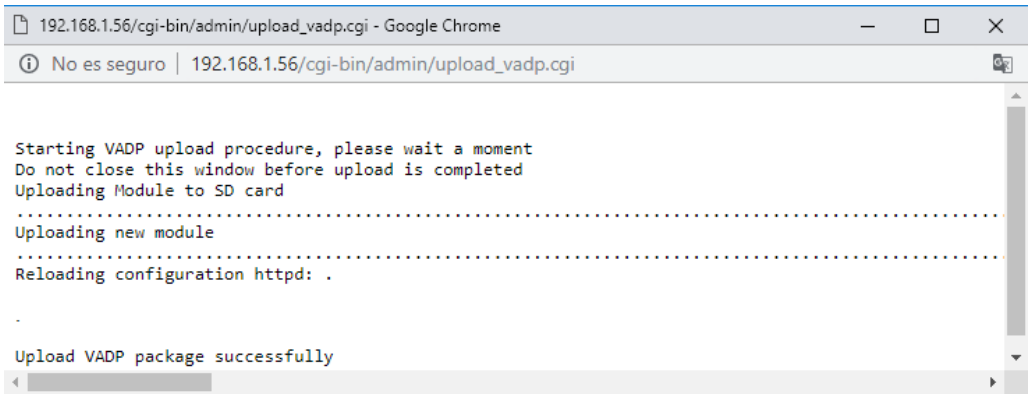
Go to “Upload package” select “Save to SD card” if a card is plugged and then click on “Select File”. A new window will open; please select the file vivotek_1.01.tar.gz



Then click on UPLOAD button marked in green to start the installation.



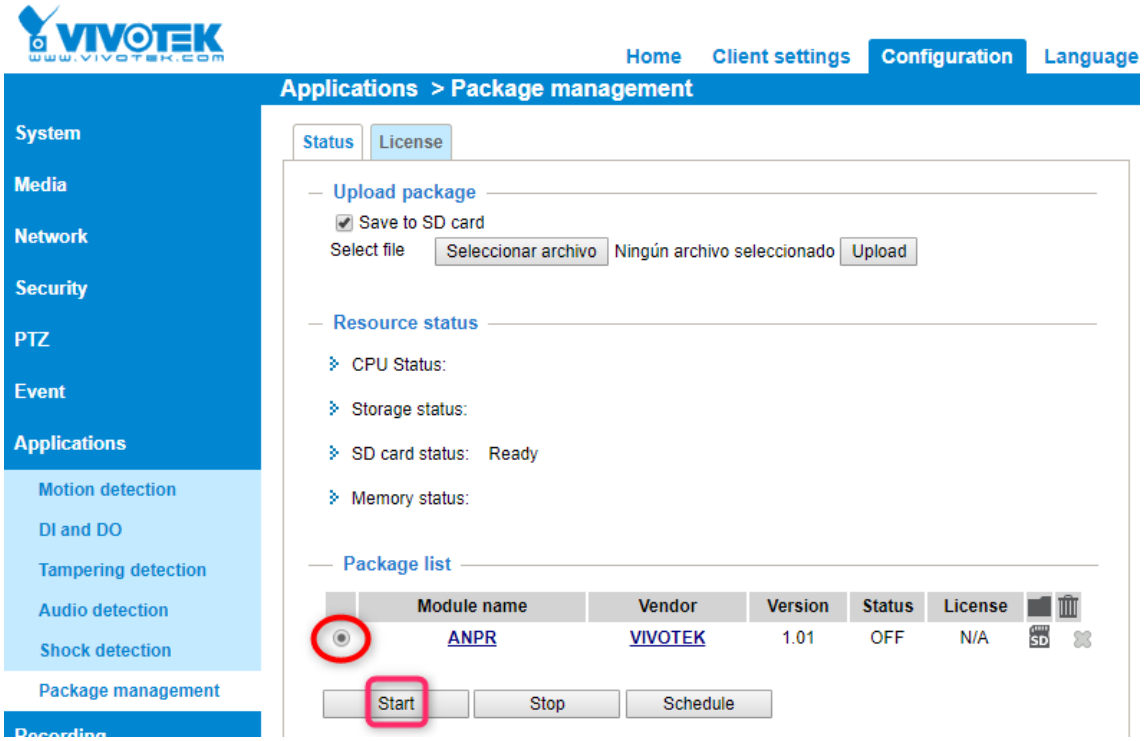
The upload process should finish within a few minutes and the installation will be done.



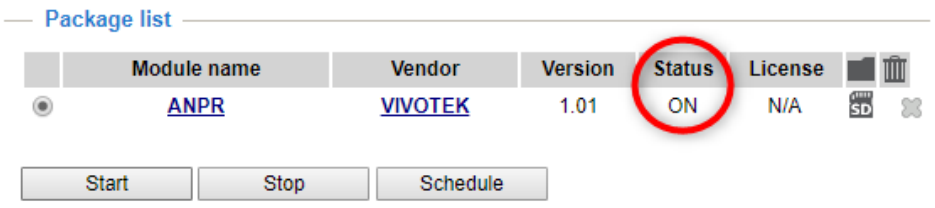
At this point the Neural Edge is installed.

3.2. Starting Service ANPR

To start service, click on Package Management, select the ANPR and click on “START”.

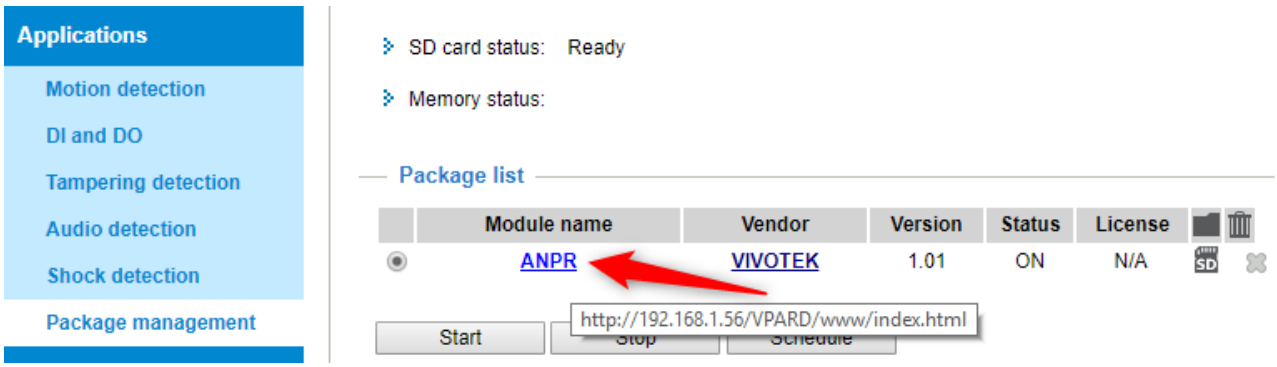


The service status should change as shown in the picture.



3.3. Neural Edge Management Browser

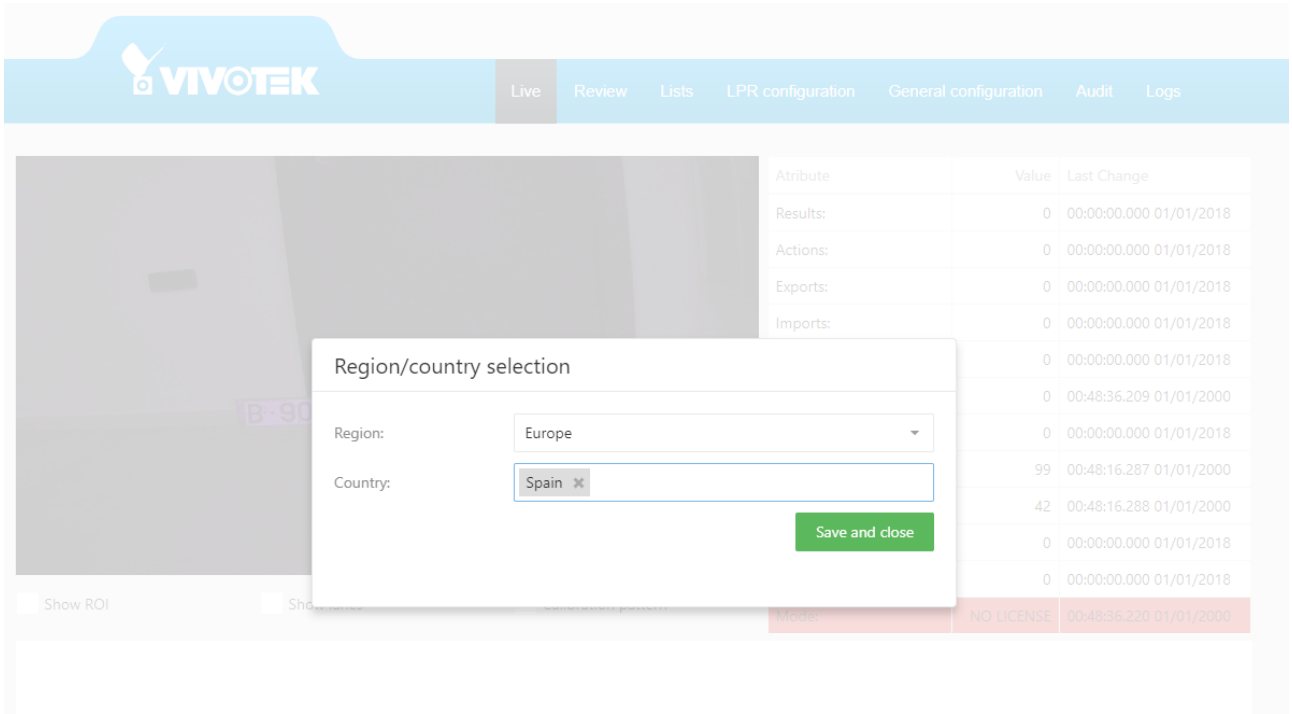
Open a web browser and enter the camera IP. Go to “Applications”, click on “Package management” and double click on ANPR service.



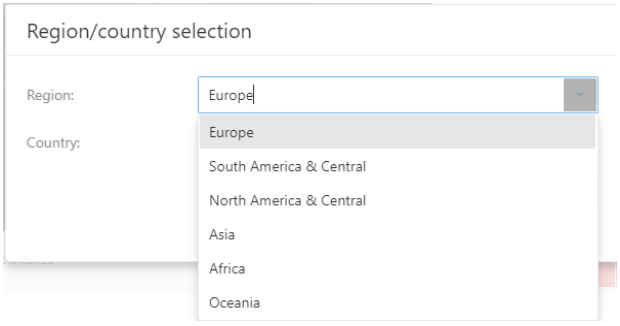
After this, you will access to Neural Edge Management Browser

3.4. First access (selection country)

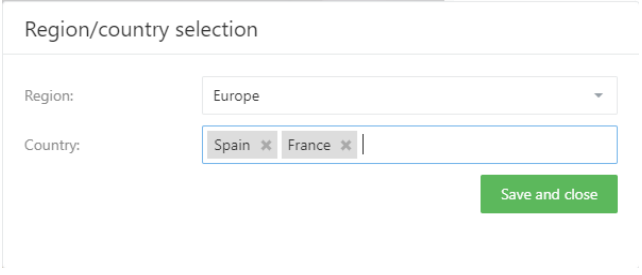
Upon the first access to the web Edge the system will ask us for the region and country.
The country selection is mandatory to define the country(s) of license plate to read.



First select the Region:



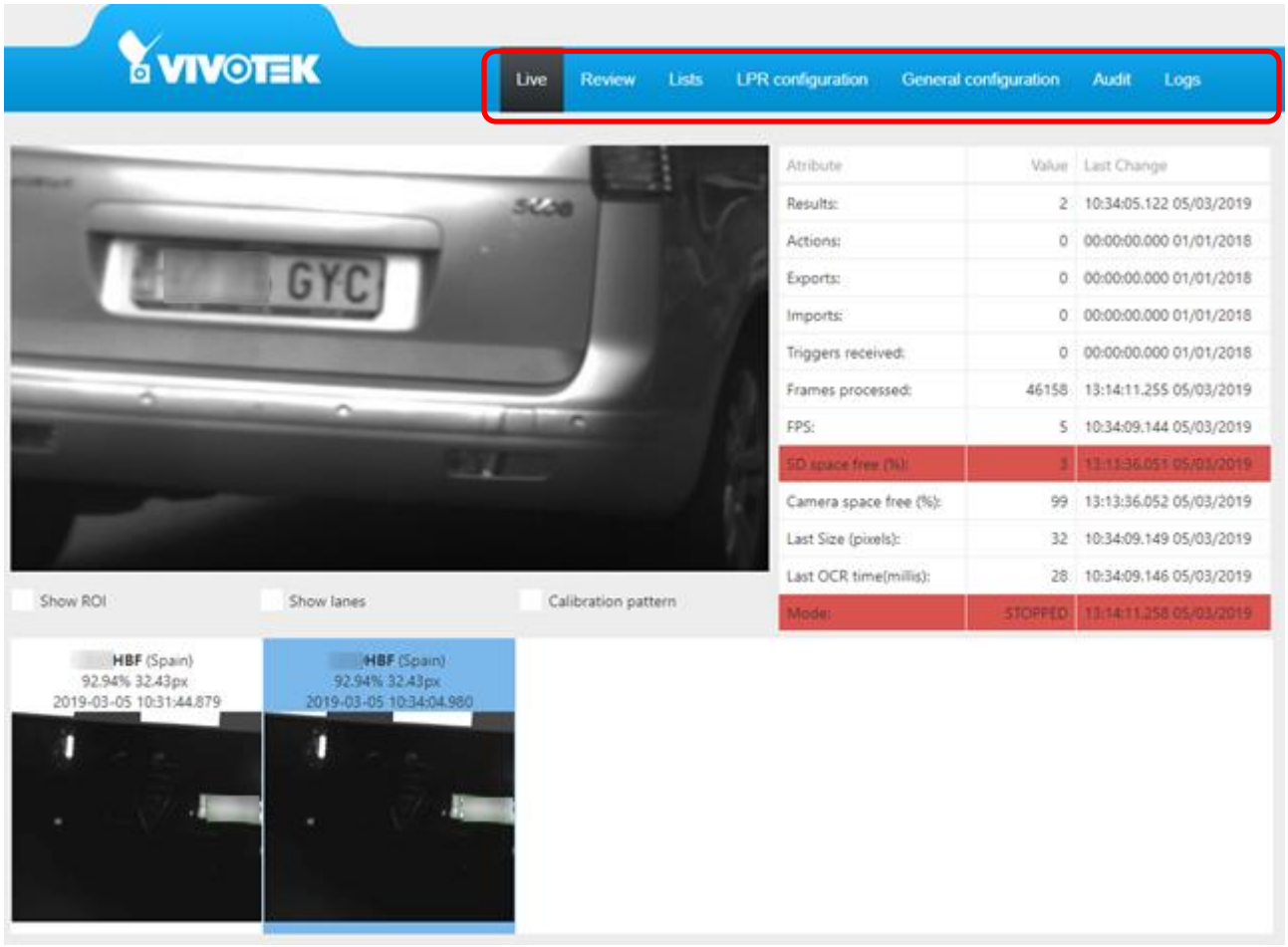
Now select the countries in the region. Multiple selection is available.



4. Web View

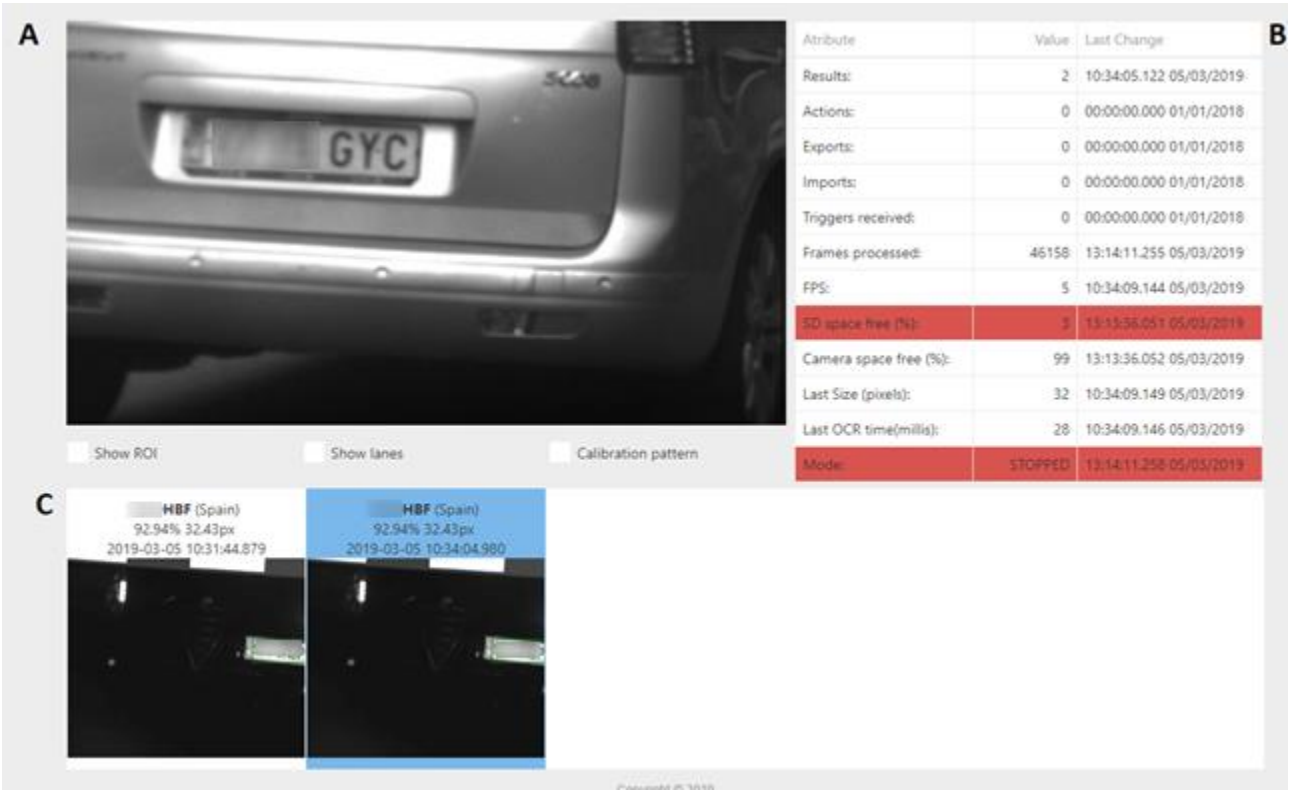
4.1. Tab

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



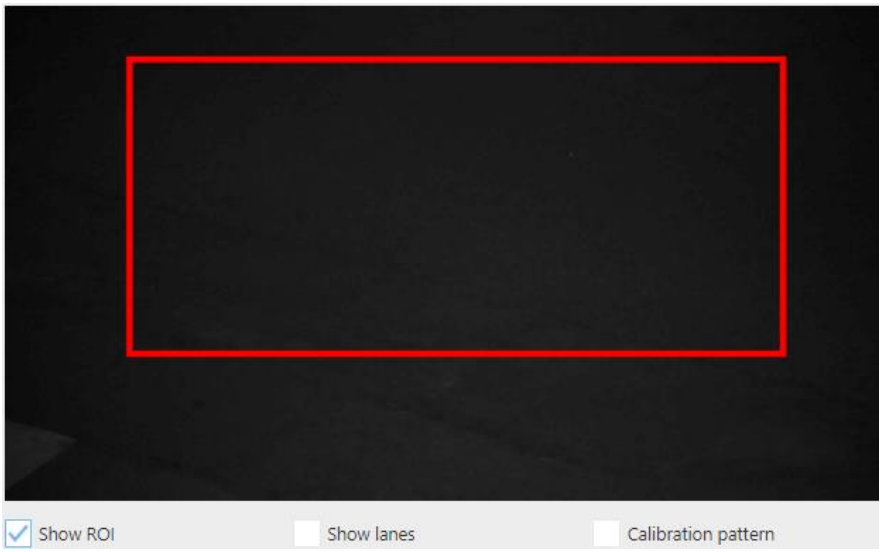
4.2. Live Tab

The live tab shows the cameras live view. (this tab is divided into 3 different areas) We have divided it into 3 parts: The Monitor Panel (labeled A), The Results Panel (labeled B) and the Info Panel (labeled C).

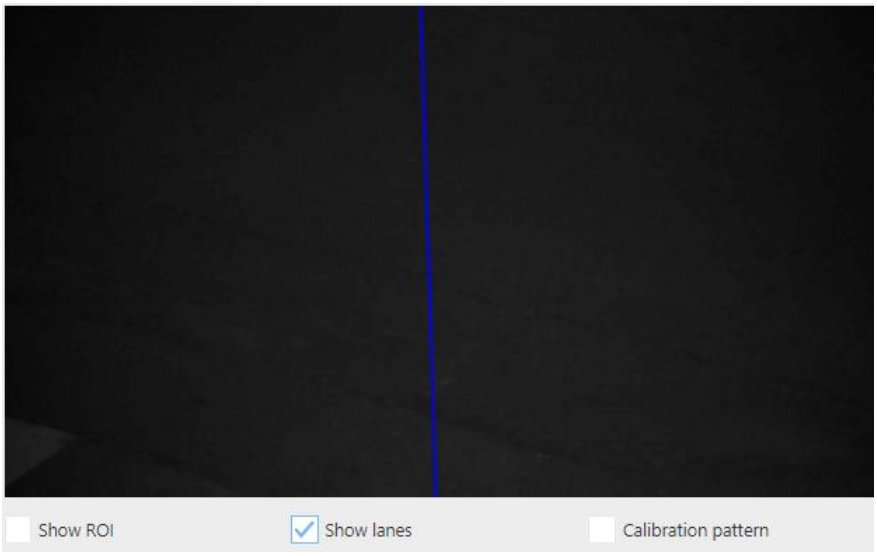


Monitor Panel: Live image what the camera is streaming.
Under the live there is three checks:

Show ROI: Checking you can see a red square indicating the ROI (Region of interest) defined in the parameters, this area is the only section of the image where engine will try to find plates.

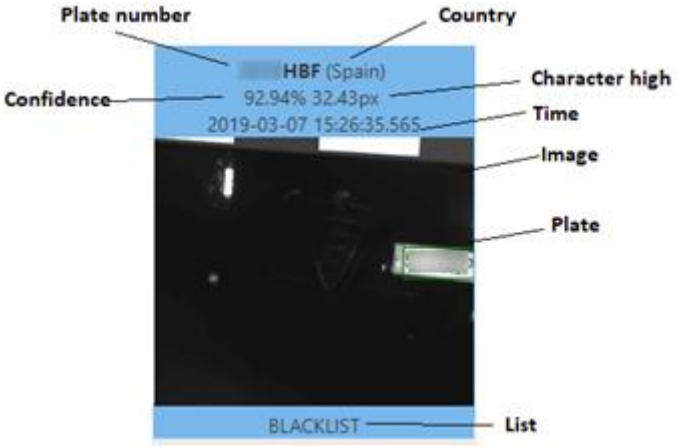


Show lanes: Checking you can see a blue line defining the lanes we have configured in the parameters, the plates in the left side of the screen are plates captured in lane 1, the plates in the right side of the screen in lane 2.



Calibration pattern: Checking you can see white lines indicating the minimum character size. The vertical space between lines is 25 pixels, the plate number must be higher this space.

Results Panel: Shows the latest results, we highlight the last result with a Blue outline. The results will provide:

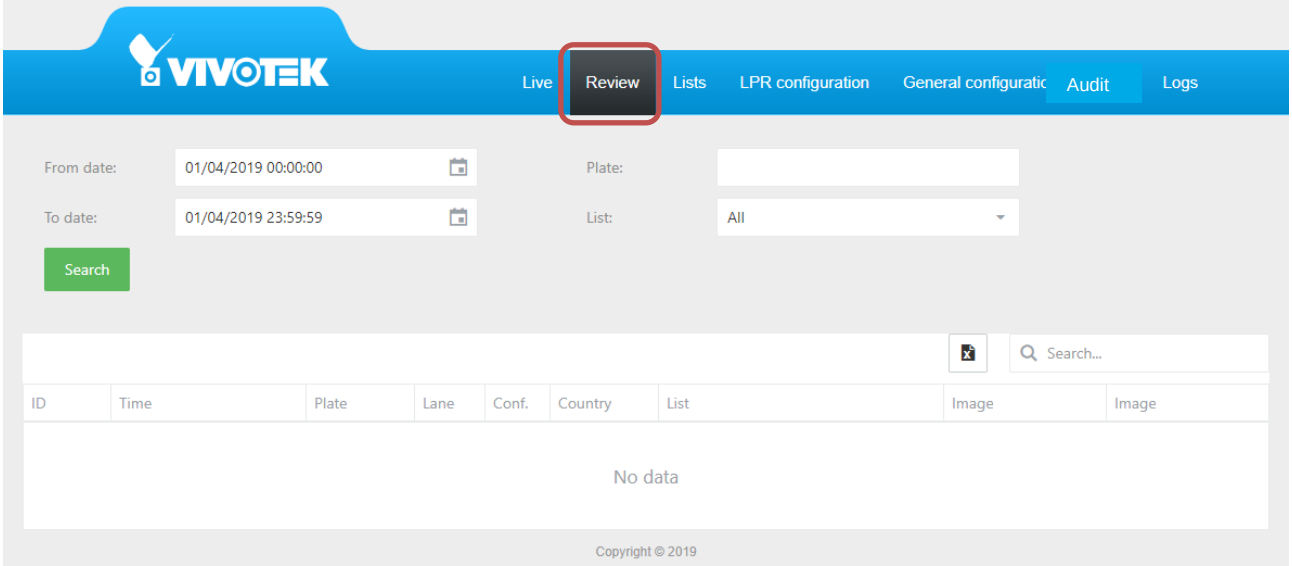


Info Panel: Information on the system status. The columns with the last change are with the last updated value.

Results: Number of license plates registered.
Actions: Number of actions executed.
Exports: Number of automatic exports executed.
Imports: Number of automatic imports executed.
Trigger received: Number of triggers received.
Frames processed: Number of total frames processed.
FPS: Frames per second processed in the register.
SD space free (%): Percent of space free in the SD card.
Camera free space (%): Percentage of free space in the camera.
Last Size (pixels): Pixel size in the last result license plate captured.
Last OCR time (milliseconds): Engine time spent on the last result plate processed.
Mode: Mode of functionality. Values:
- NO LICENSE: There is no license plate in the system.
- STOPPED: The service is stopped.
- MOTION: The service is working in Motion Detection mode.
- FREEFLOW: The service is working in Free flow mode.
- TRIGGER: The service is working in Trigger mode.

4.3. Review Tab

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



From Date: Select the date when do you want to initiate the search

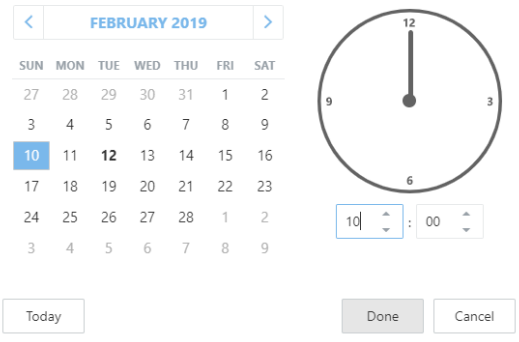
To Date: Select the date until you wish to search.

Plate: Allows you to search partially, entering a few numbers or letters of the license plate. This option will search all plates that coincide will the desired query.

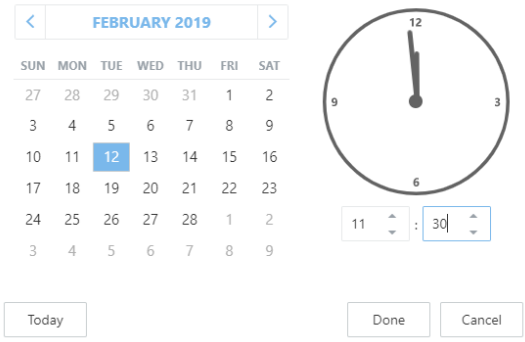
List: Allows you to filter by lists, meaning it will show you all plates that belong to a list.

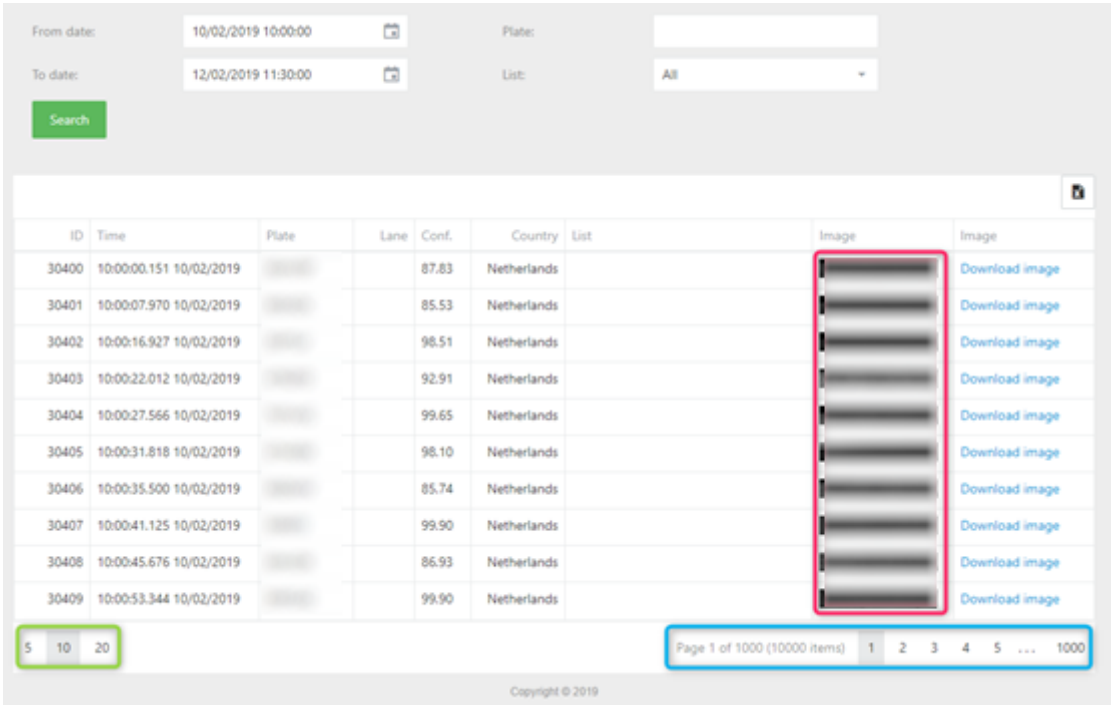
For example, if you wish to search for a specific plate by date, from 02/10 to 02/12.

From Date:



To Date:



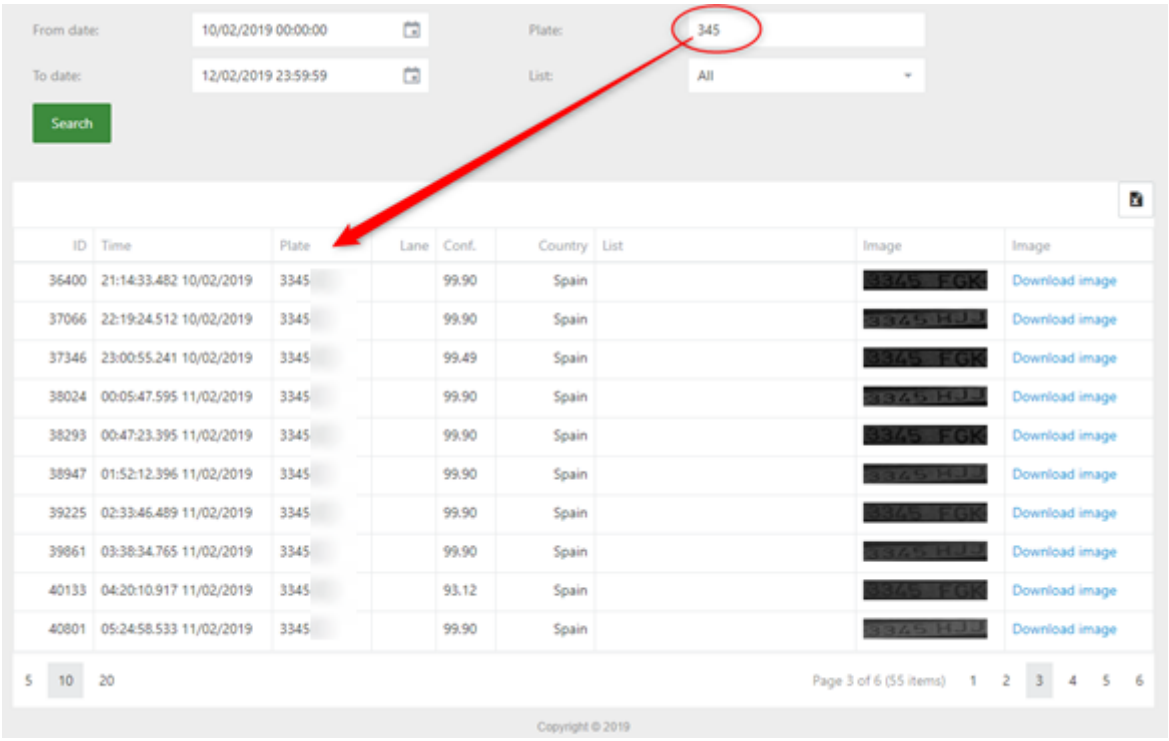


The green box corresponds to the amount of results do you want to view per page.

The Blue Box indicates the numbers of pages you must check the results.

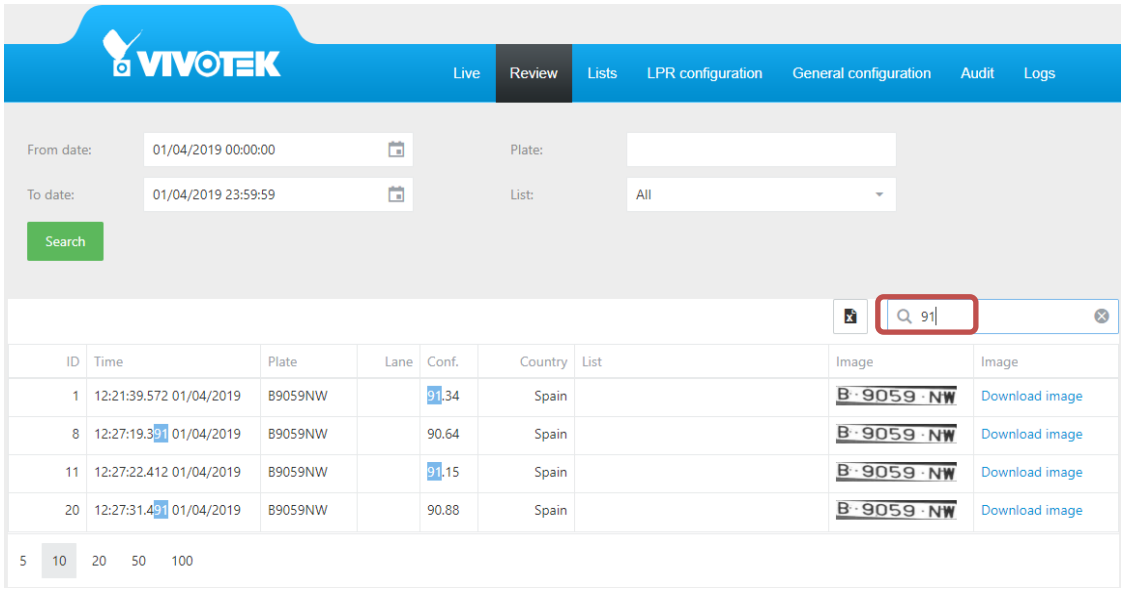
The Red Box shows the license plate number images. If you move the mouse cursor over any image you will obtain a larger image.

There is a download image option.
Searching for a license plate which we only remember a few letters or numbers. In this case, all you need to do is enter a part of the plate in the PLATE filter and search.



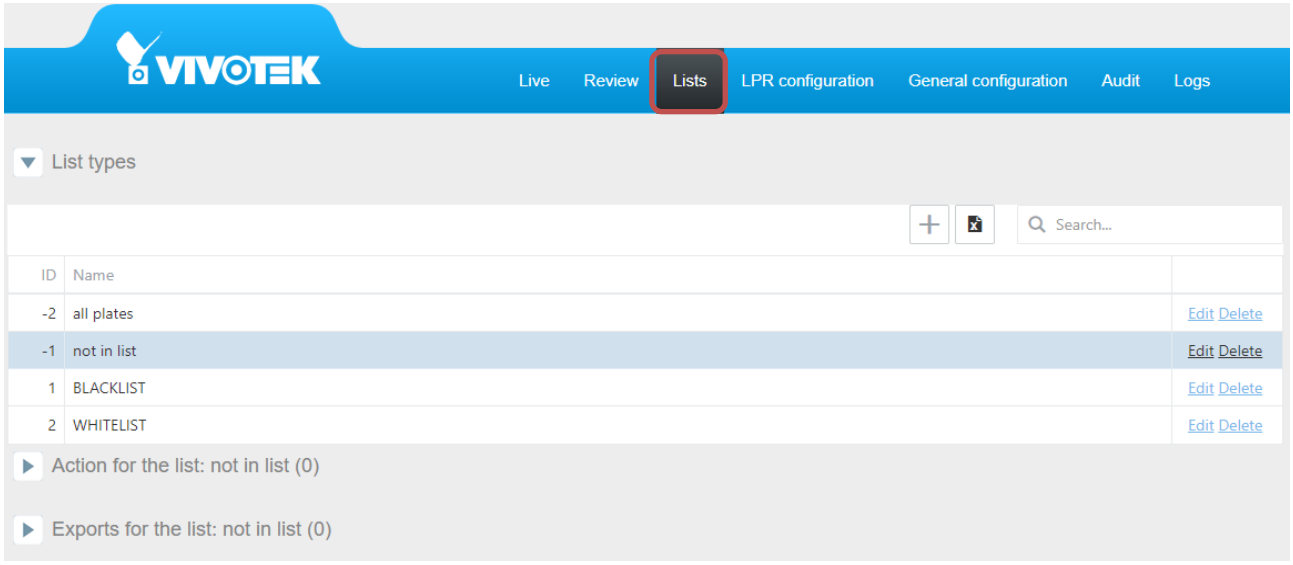
You also can search for license plates that are in a list.

You can use the Search filter to find a value inside the table:



4.4. List Tab

In this tab you can create lists, a list is a group of license plates that will trigger an action, Neural Edge allows you perform different actions to any list.
By default, there are 4 lists created, ALL PLATES, NOT IN LIST, BLACKLIST, and WHITELIST. You can edit, delete or add more lists.

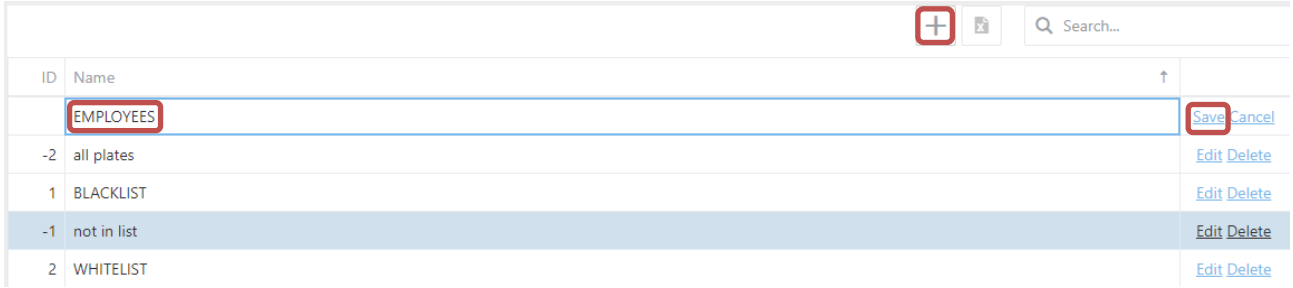


In the lists tab we have the following options:

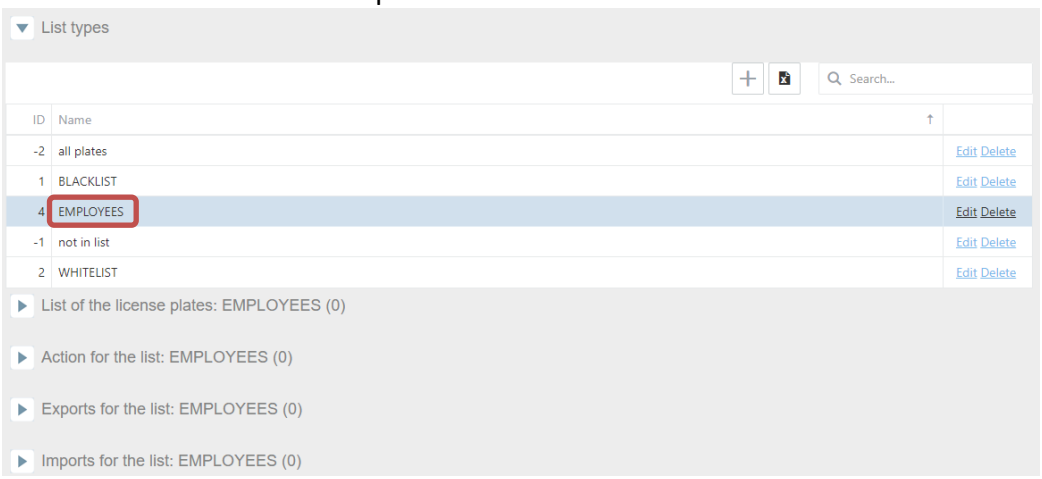
List: Will show all the lists created
Action: Will show all the actions created by list.
Export: Allows you export a single list or if all plates are selected it will create a unique file with all the licenses plates that belong to that list.
Import: Allows you import a single list or if all plates are selected it will create a unique file with all the licenses plates that belong to that list.

Let's create a new list and call it “EMPLOYEES”

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

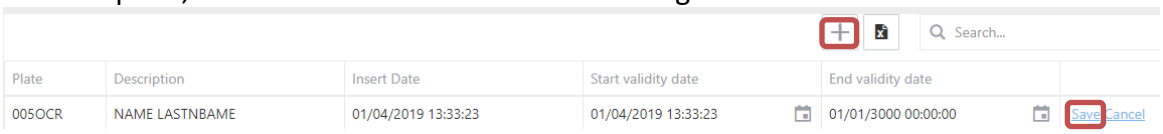


Now we are going to configure an action for this list, in other words, what we expect to happen if we read a license plate.
Click on “EMPLOYEES” list to see the options.

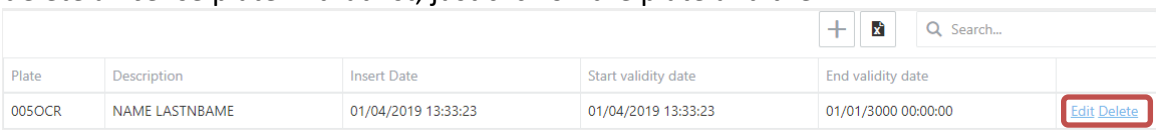


List of the license plates: EMPLOYEES

Add a new license plate, click on the “+” button and fill in the grid.



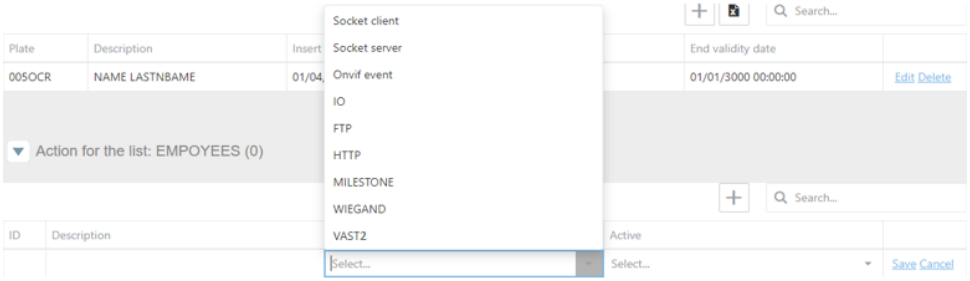
To edit or delete a license plate in that list, just click on the plate and then:



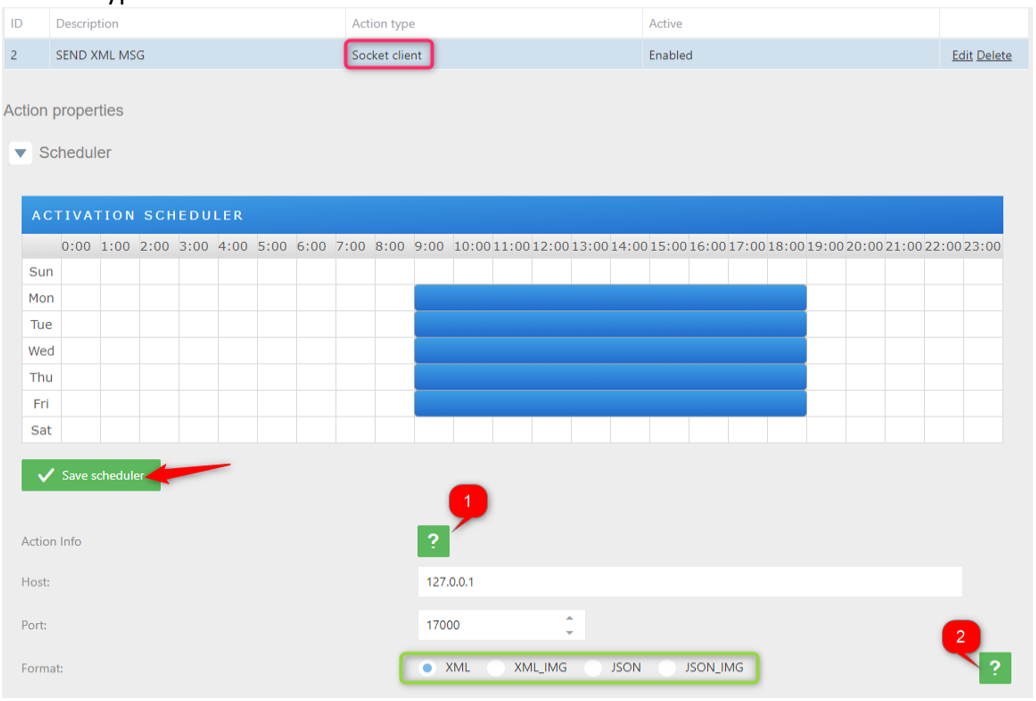
Action for the list: Here are all the actions we can configure for each list.

- 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.
- Onvif Event: Enable the Onvif event to send the license plate information using this protocol.
- IO: Enable inbound and outbound digital signals in the camera.
- FTP: store the results in an FTP server.
- HTTP: send a request using this protocol to a server.
- MILESTONE: send an analytic event to Milestone VMS.
- WIEGAND: send a signal to Wiegand middleware board.
- VAST2: send the plate to the VAST2 video server.

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

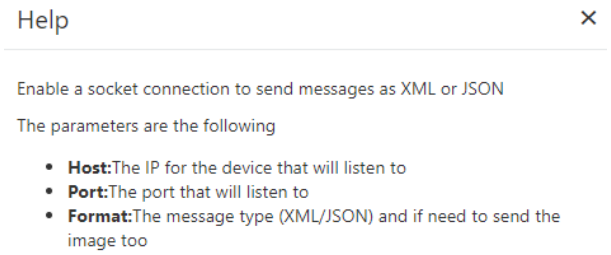


1. Configuring the action ***Socket Client*** because you want to send the results to another device, using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = Socket Client”



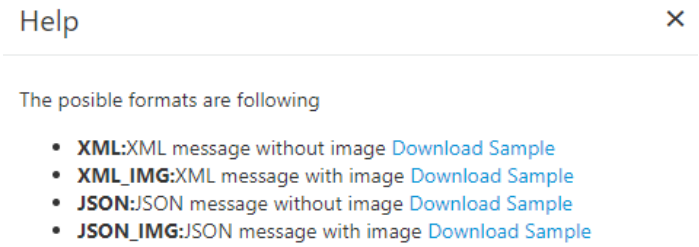
Set the scheduler as needed and click on “SAVE SCHEDULER”.

Action Info: Click on for more information.

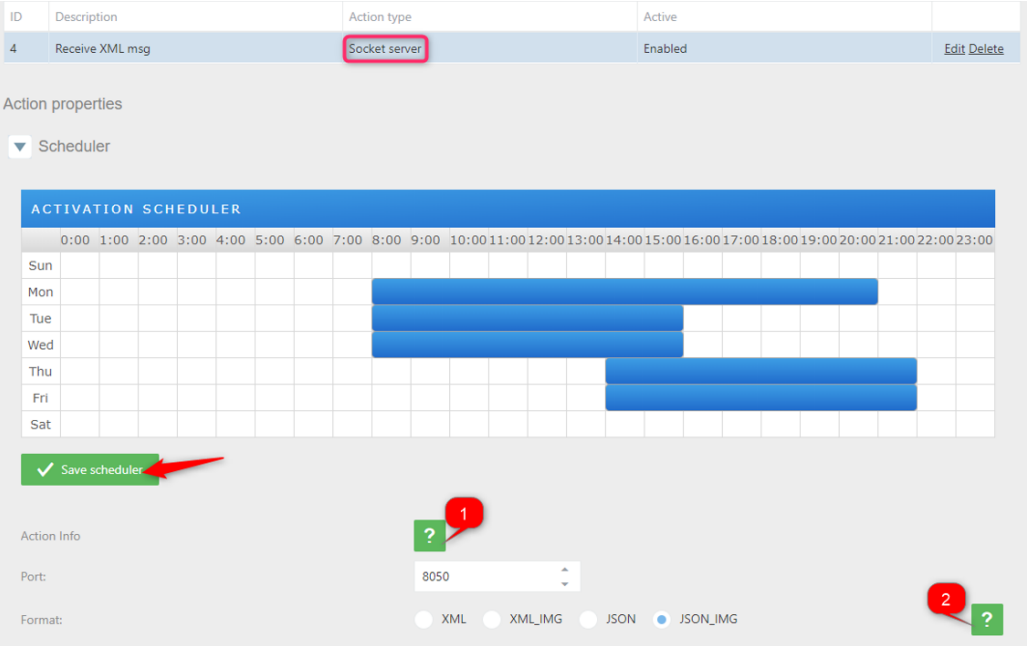


Select which message format you will use to send the information.

Click on for more information.

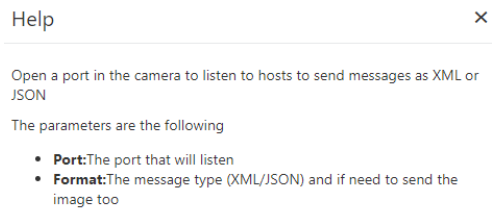


2. Configuring the action ***Socket Server*** will use the camera to receive messages from other devices.

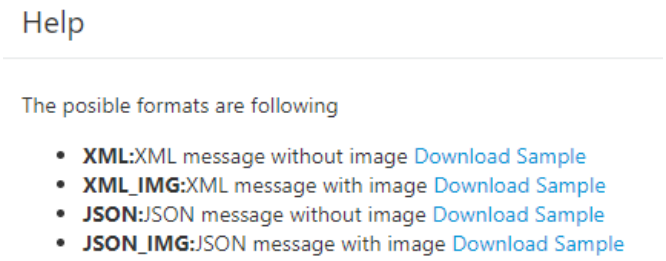


Set the scheduler as needed and click on “SAVE SCHEDULER”.

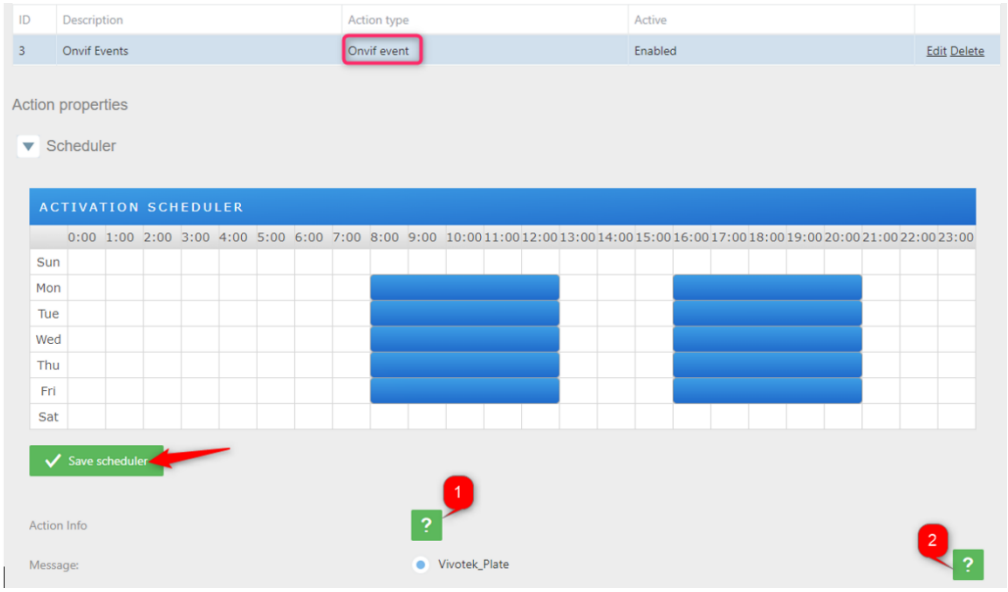
Action Info: Click on for more information.



Click on for more information.

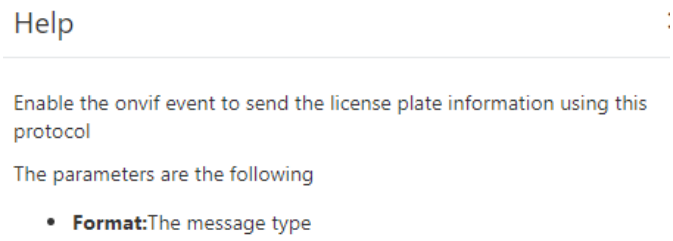


3. Configuring the action ***Onvif Event*** to send the license plate using this protocol.

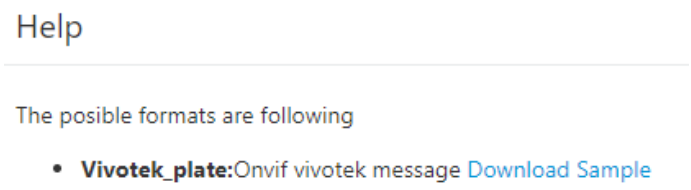


Set the scheduler as needed and click on “SAVE SCHEDULER”.

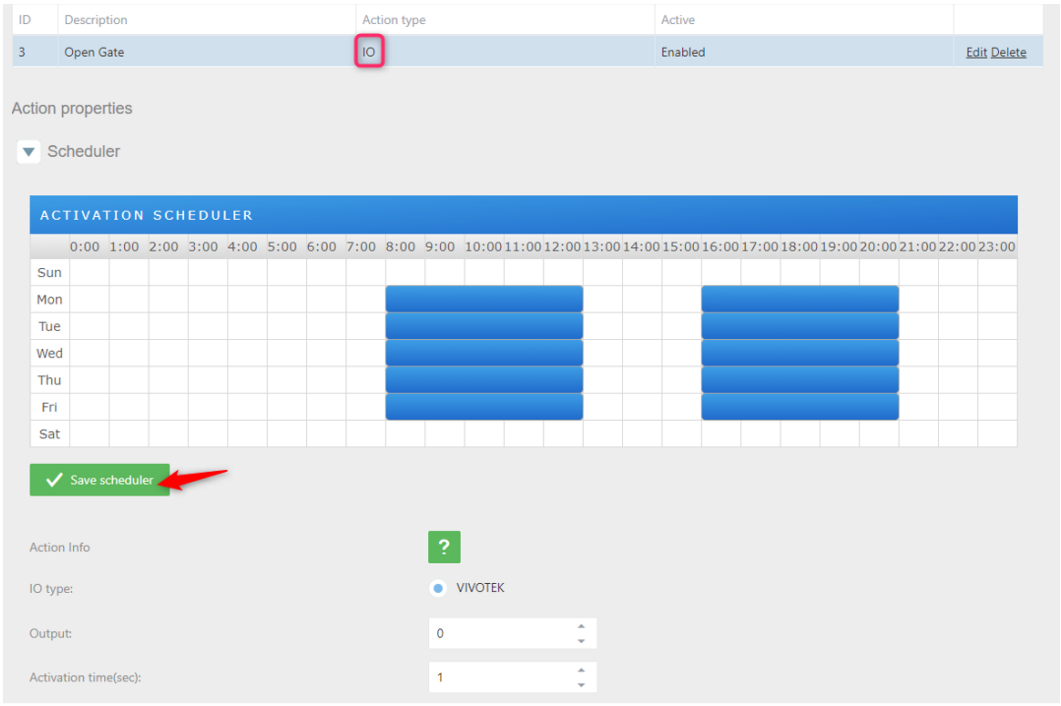
Click on for more information.



Click on for more information.

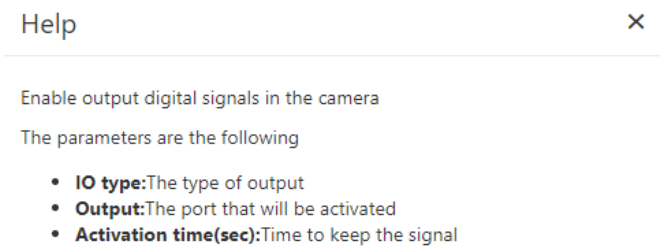


4. Configuring the action ***IO*** to open a gate for those plates that belong to the list EMPLOYEES. Click on “Action for the list” and add a new action pressing “+” and then select in “Action type = IO”



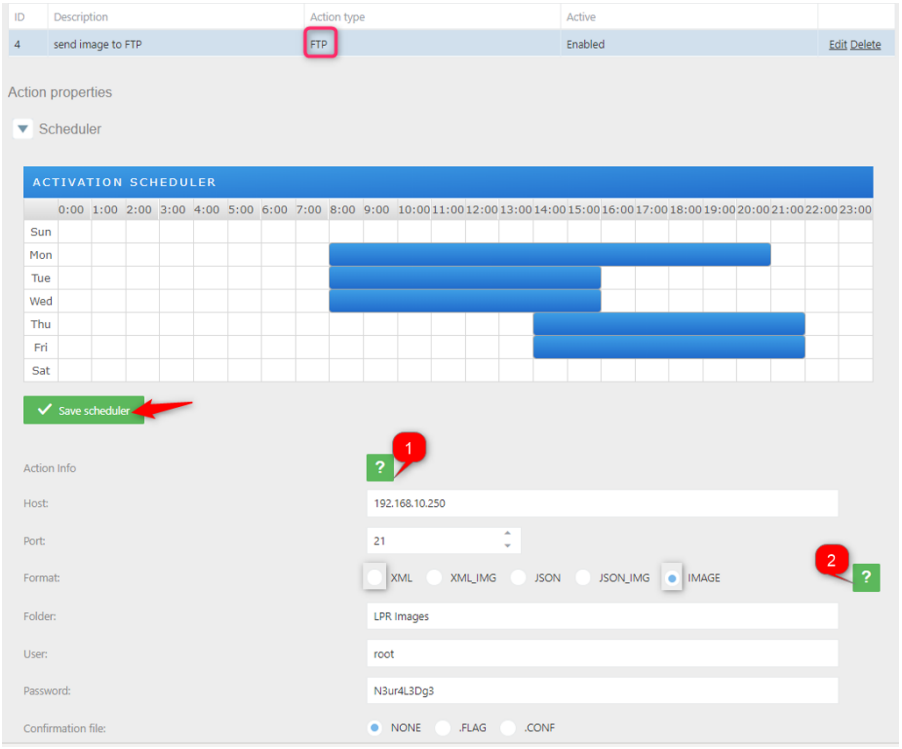
Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on ? for more information.



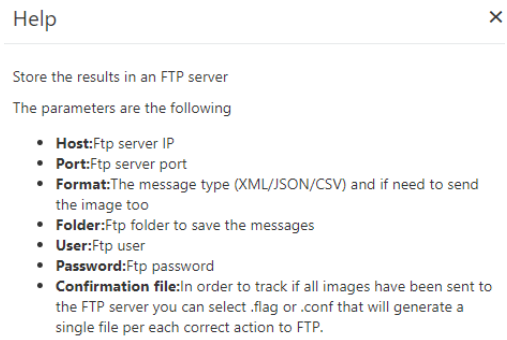
In this case, every time we read a license plate that is in the EMPLOYEES list, we send a signal to the camera I/O to open the gate.

5. 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”

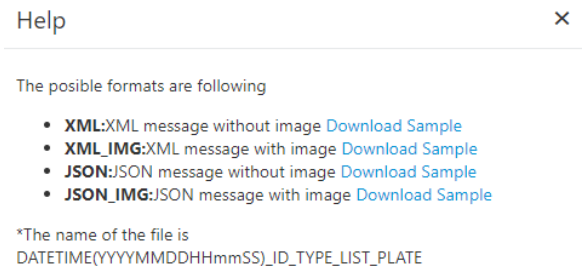


Set the scheduler as needed and click on “SAVE SCHEDULER”.

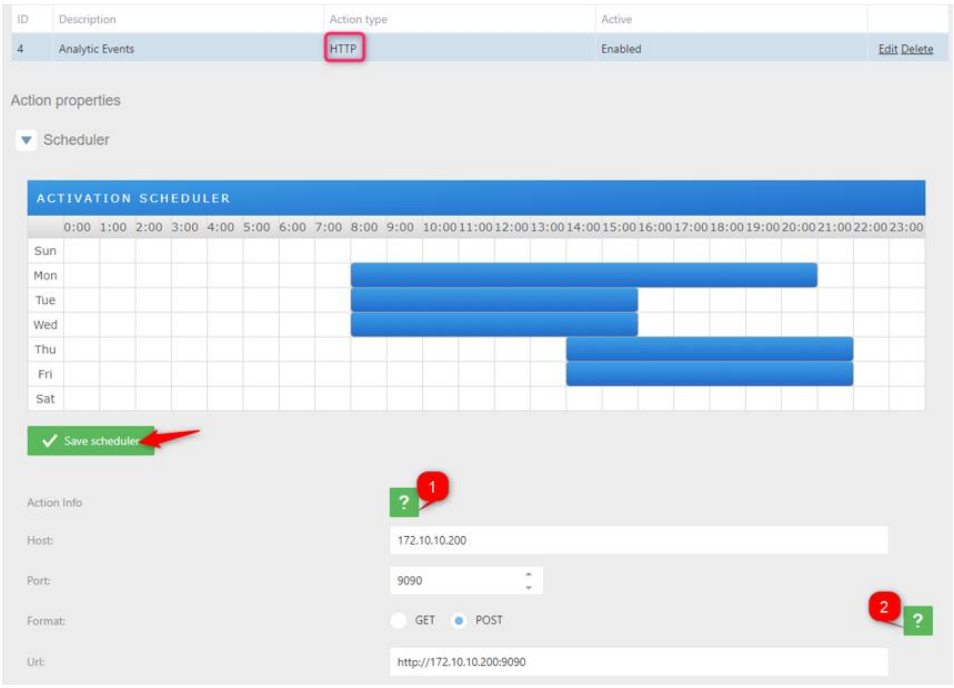
Click on for more information about how to configure.



Click on for more information about format type.

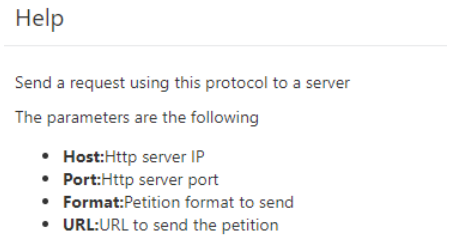


6. Configuring the action ***HTTP*** to send analytic events to a VMS. Using the EMPLOYEES list, click on "Action for the list" and add a new action pressing "+" and then select in "Action type = HTTP"

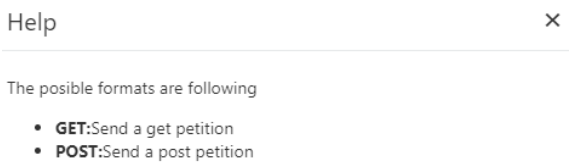


Set the scheduler as needed and click on "SAVE SCHEDULER".

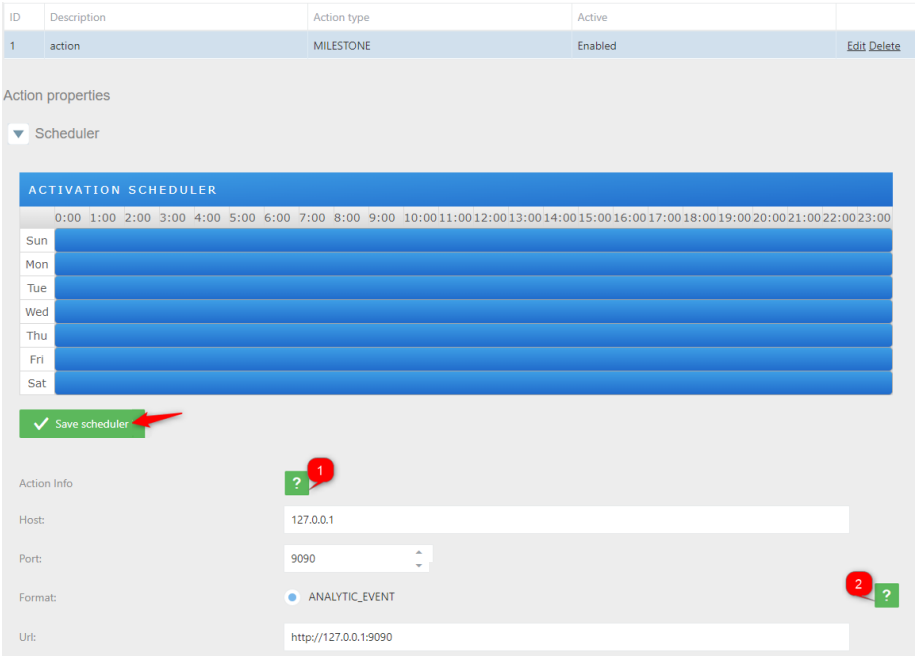
Click on for more information about how to configure.



Click on for more information about format type.

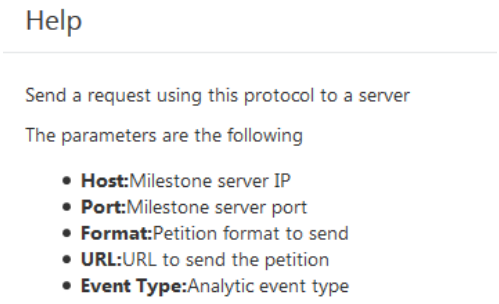


7. Configuring the action ***MILESTONE*** to send analytic events to a Milestone VMS. Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = MILESTONE”

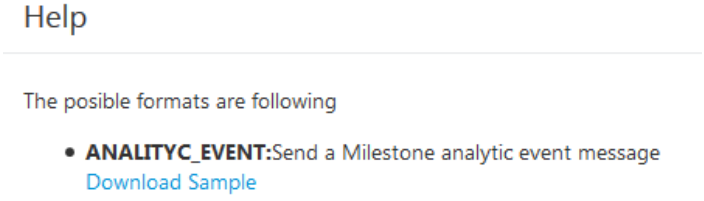


Set the scheduler as needed and click on “SAVE SCHEDULER”.

Click on for more information about how to configure.

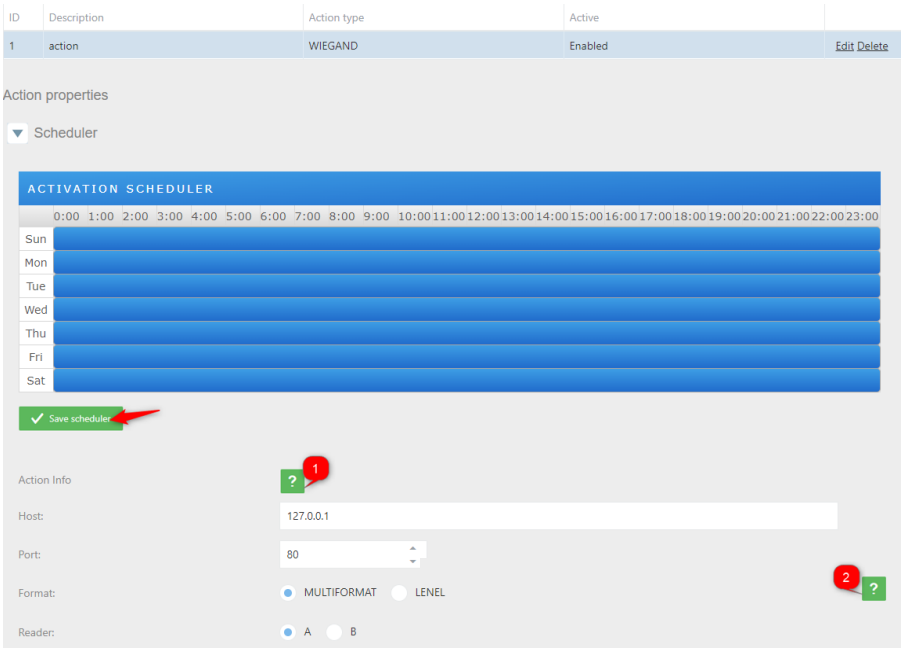


Click on for more information about format type.



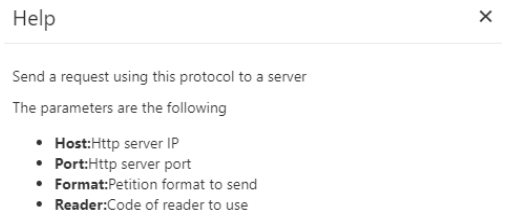
See chapter 4.4.1 to know more information to how configure Milestone.

8. 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 action pressing “+” and then select in “Action type = WIEGAND”

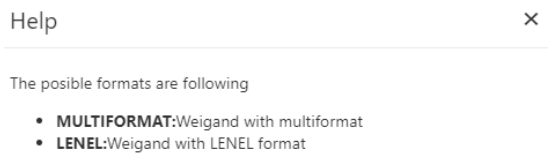


Set the scheduler as needed and click on “SAVE SCHEDULER”.

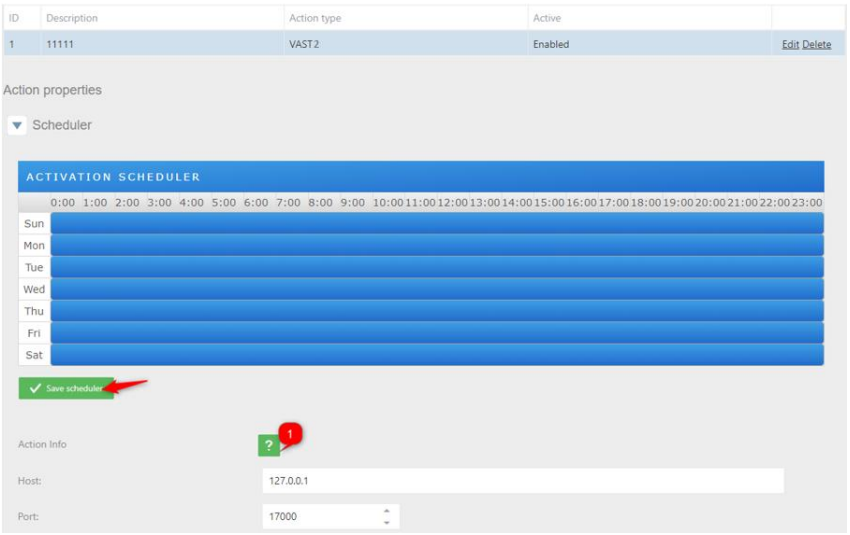
Click on for more information about how to configure.



Click on for more information about format type.

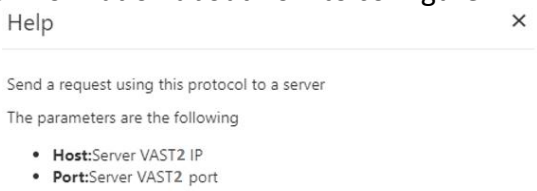


9. Configuring the action VAST2 to send analytic events to a VAST2 video server. Using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = VAST2”



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

Click on for more information about how to configure.

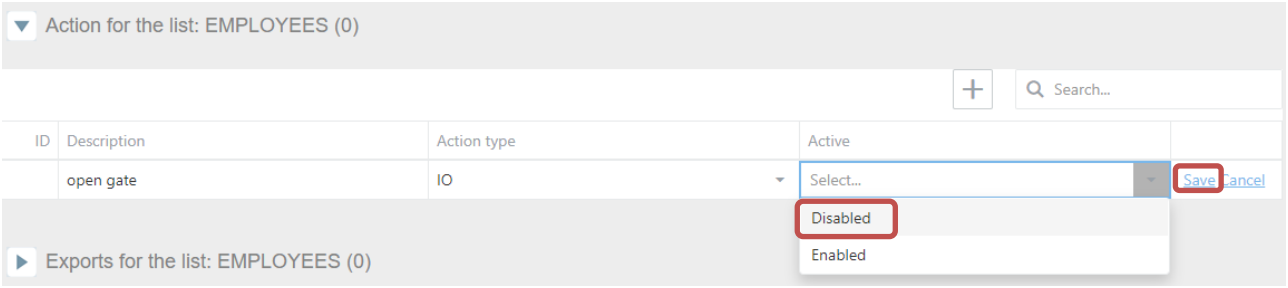


See chapter 4.4.2 to know more information to how configure Milestone.

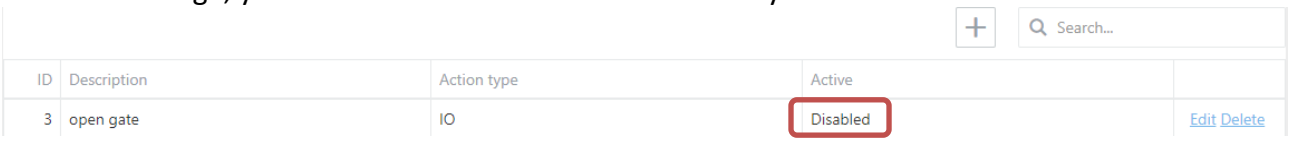
In case, you don't want to continue using an action in a list you are able to disable or delete the action.

To delete click on the list, select the action and then click on delete option.

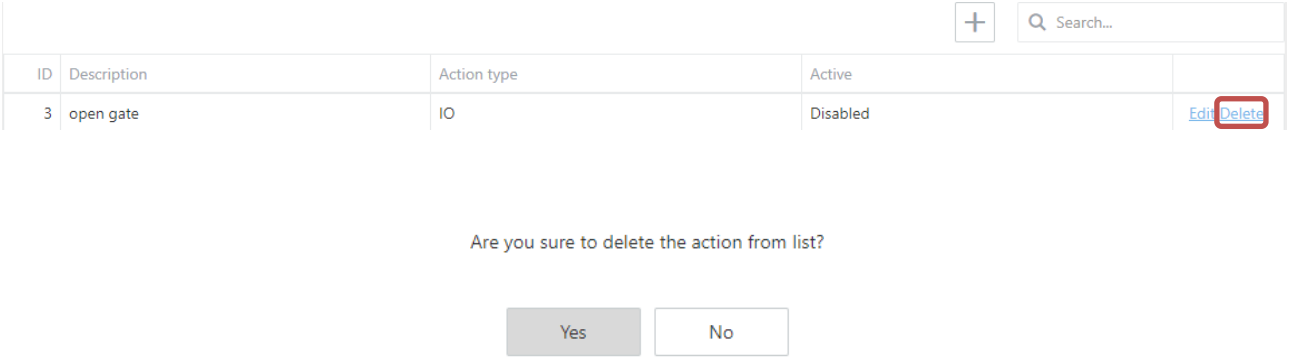
To disable click on the list, select the action and then click on edit option.
In Active change to Disabled and then click on Save.



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



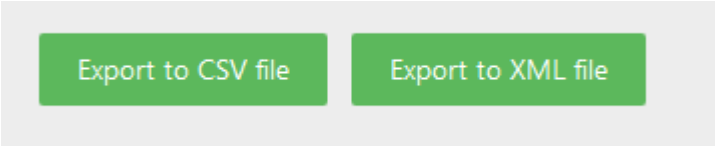
To delete an action, click on the action and click on the DELETE button and then YES.



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

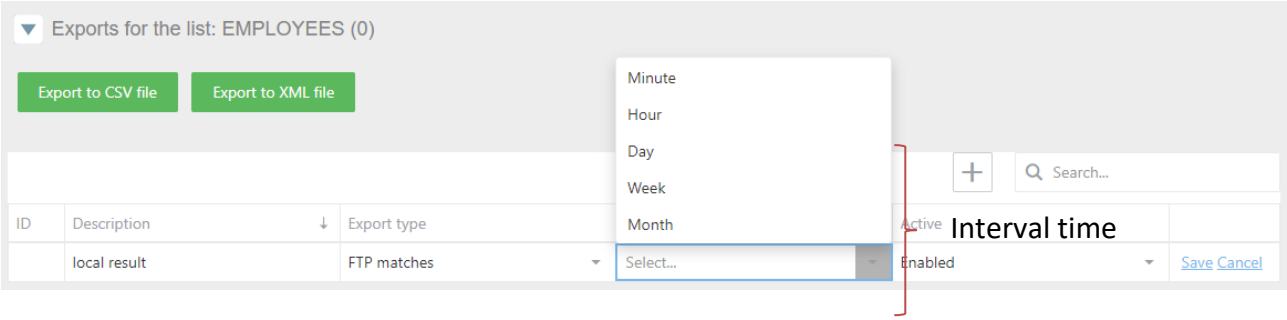
- Local matches: Exports the matches of the list locally
- FTP matches: Exports the matches of the to an FTP server
- Local list: Exports the list locally
- FTP list: Export the list to an FTP server

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

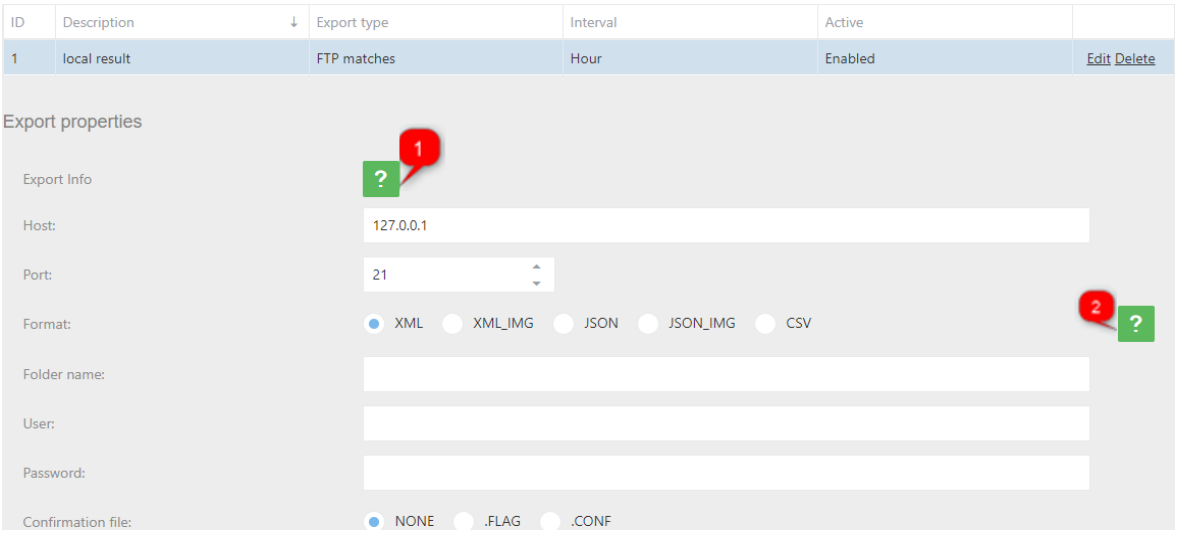


A list can perform several exports, depending on the scenario and needs.
Having the Employees list selected, click on “Exports for the list” and then click on the + button and define the type and interval. The interval can be set as:

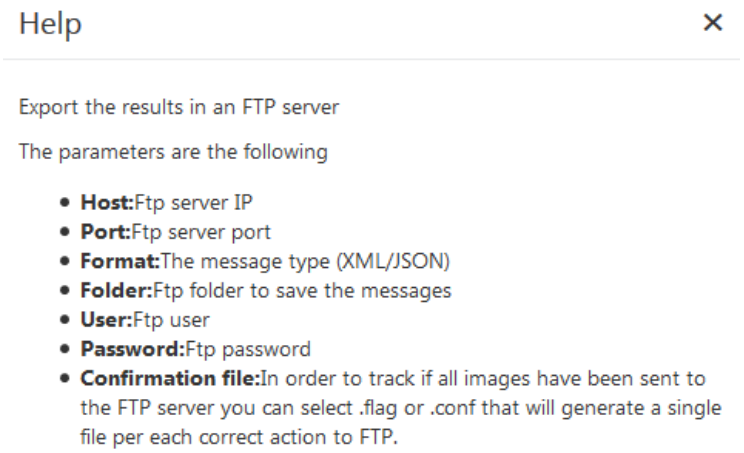
- *Minute:* Will execute the task every minute.
- *Hour:* Will execute the task every hour.
- *Day:* Will execute the task once a day at 23:59:59.
- *Week:* Will execute the task once a week, every Monday at 00:00:00.
- *Month:* Will execute the task once a month, the first day of the month at 23:59:59.



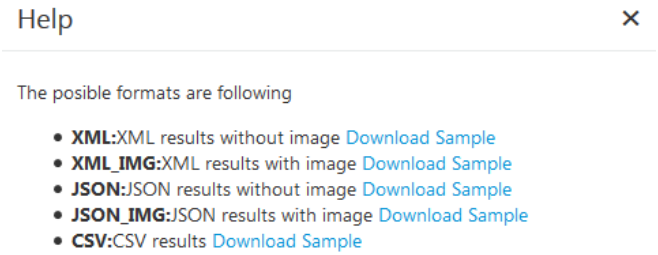
1. Configuring the export ***FTP matches*** to export the results to an ftp result, using the EMPLOYEES list, click on “Export for the list” and add a new export pressing “+” and then select in “Export type = FTP matches”.



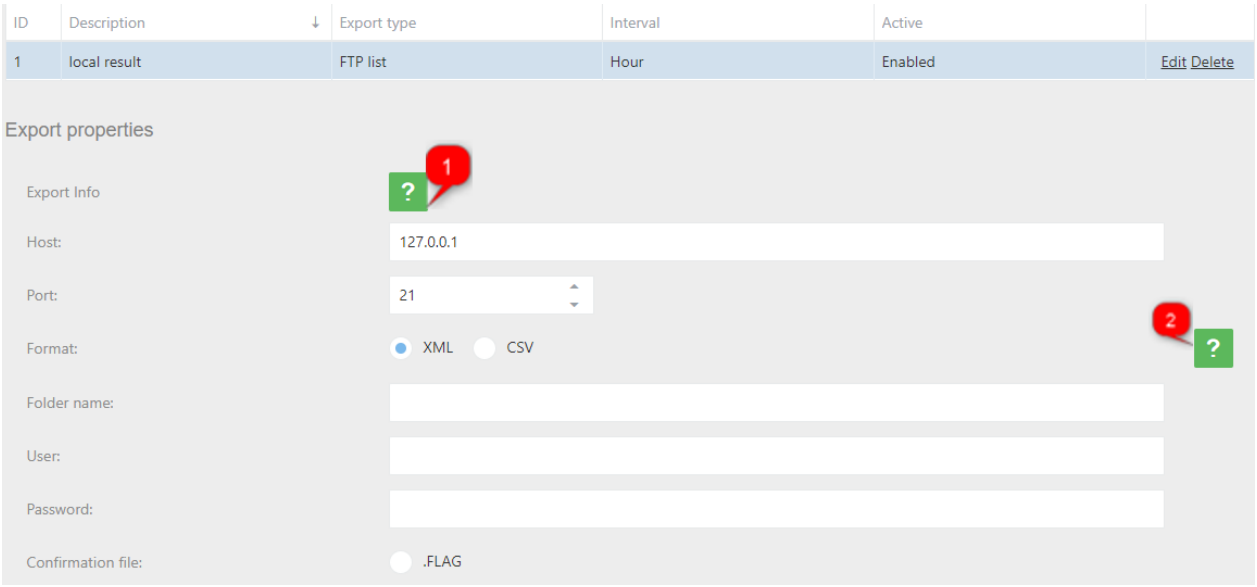
Click on for more information about how to configure.



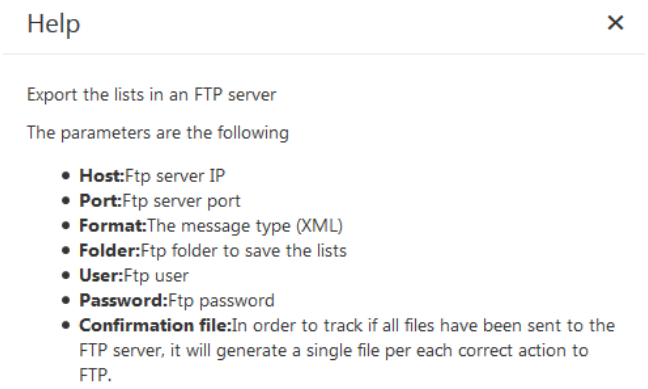
Click on for more information about format type.



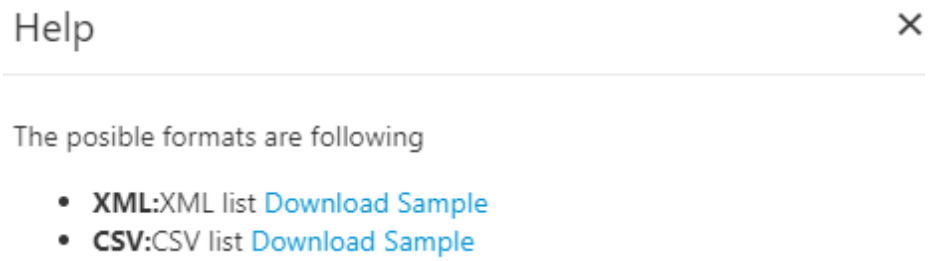
2. Configuring the export ***FTP lists*** to export the list locally, using the EMPLOYEES list, click on "Export for the list" and add a new export pressing "+" and then select in "Export type = FTP list".



Click on for more information about how to configure.

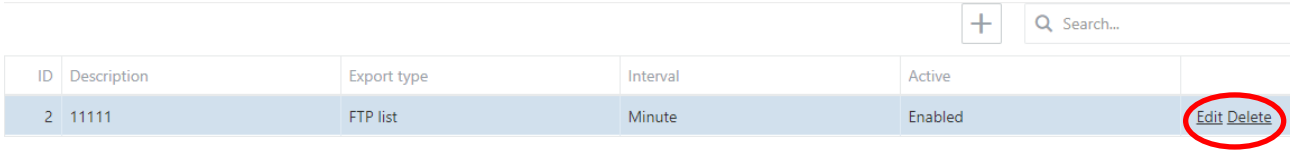


Click on for more information about format type.

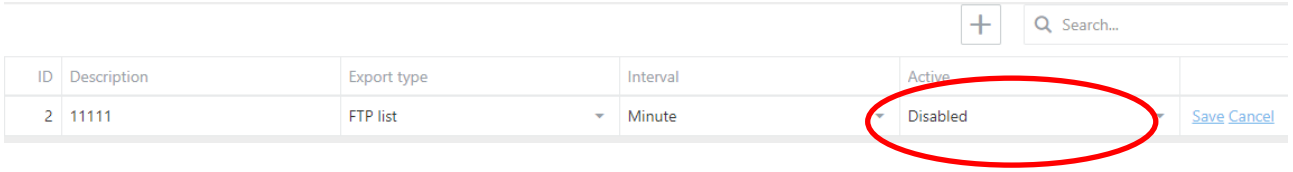


In case, you don't want to continue to use export in a list you are able to disable or delete the action.

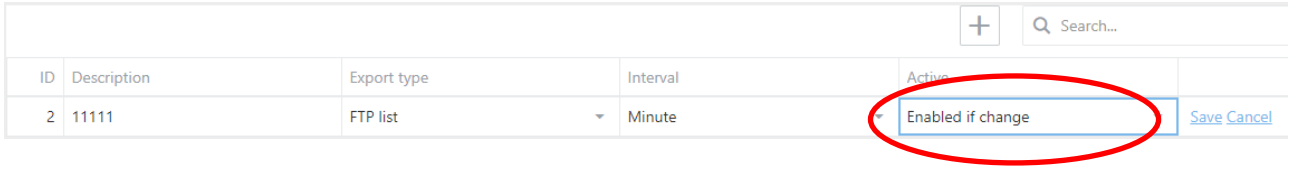
To delete click on the list, select the export and then click on delete option.



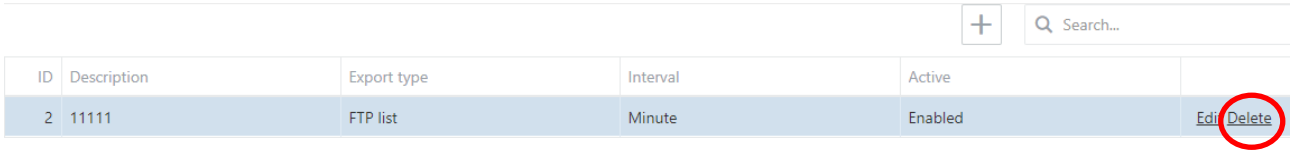
To disable click on the list, select the action and then click on edit option.
In *Active* change to *Disabled* and then click on Save.



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 "FTP list" and export the list only if exits any change.



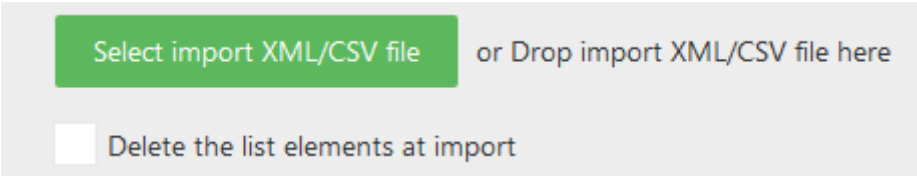
To delete an action, click on the action and click on the DELETE button and then YES.



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.



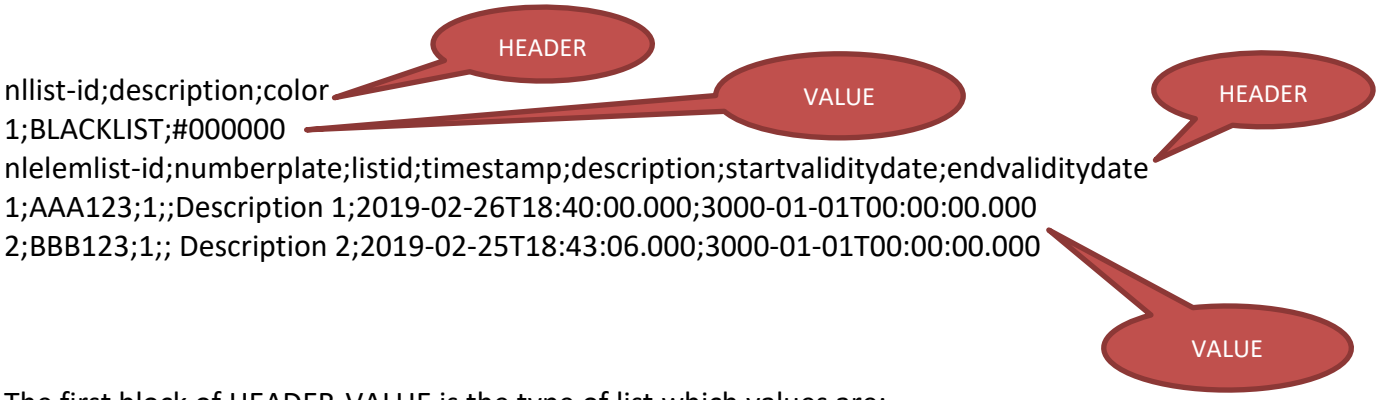
The format of the XML is the following:

```
<?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>
```

- 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 period

The format of CSV is the following:



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)

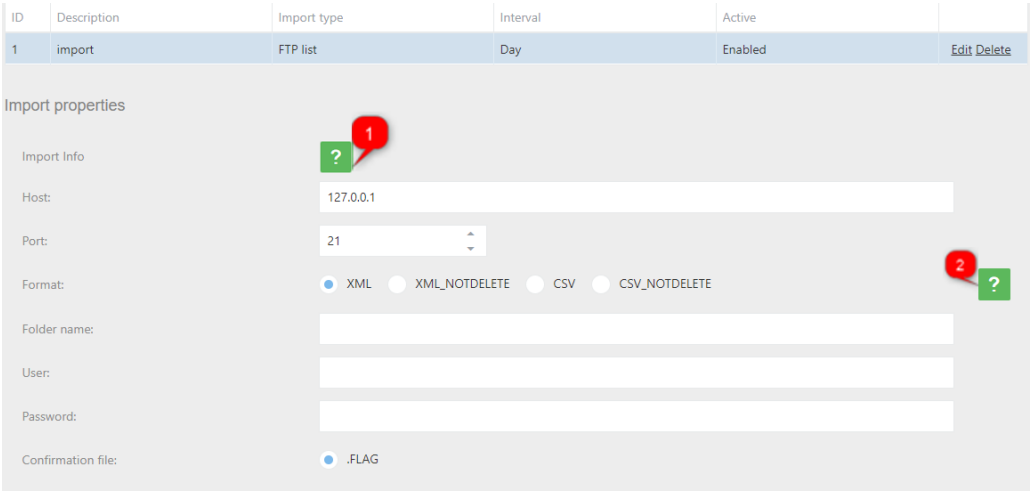
The second block of HEADER-VALUE are the elements of list which values are:

- 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.

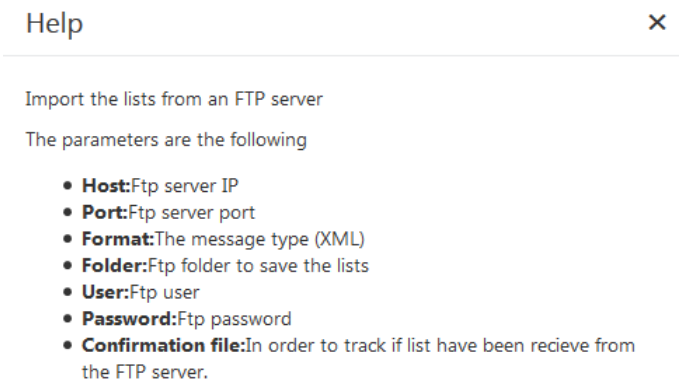
A list can perform several imports, depending on the scenario and needs.
Having the Employees list selected, click on “Imports for the list” and then click on the + button and define the type and interval. The interval can be set as:

- *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 at 23:59:59.

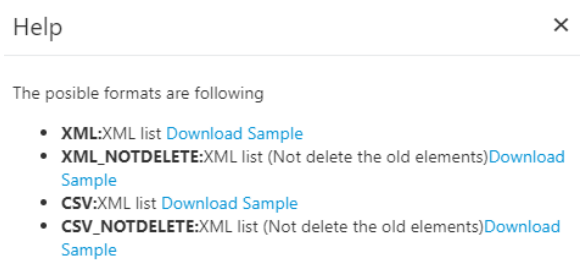
1. Configuring the import ***FTP list*** to import the list from an ftp result, using the EMPLOYEES list, click on “Import for the list” and add a new import pressing “+” and then select in “Import type = FTP list”.



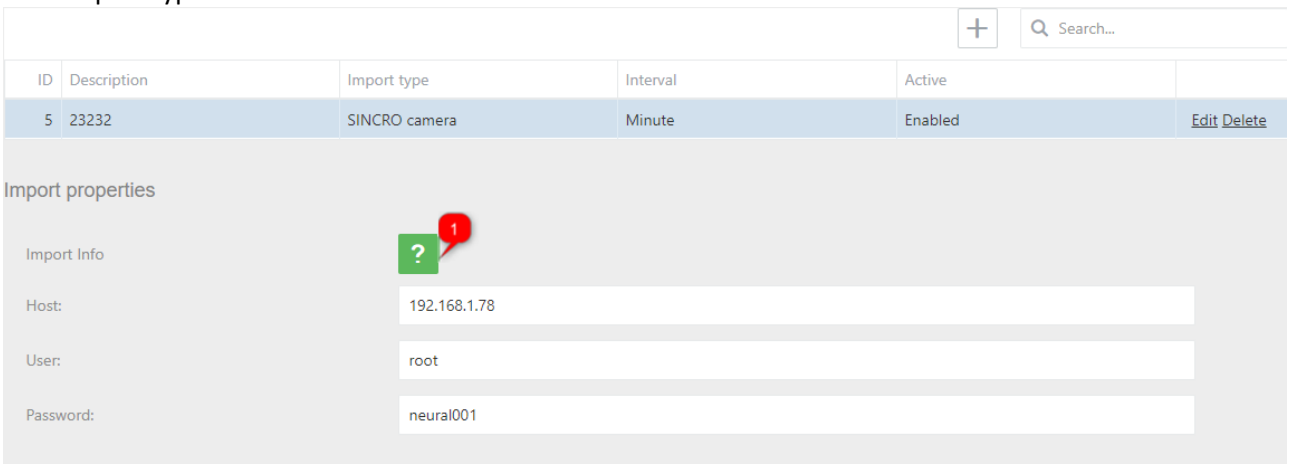
Click on for more information about how to configure.



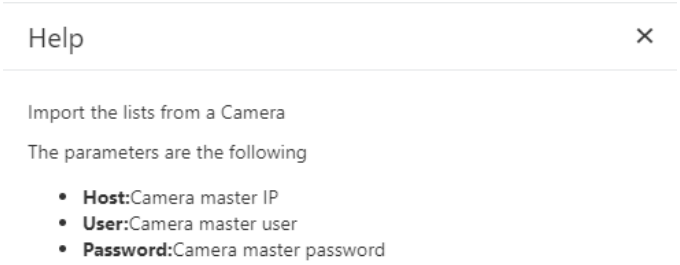
Click on for more information about format type.



2. 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”.



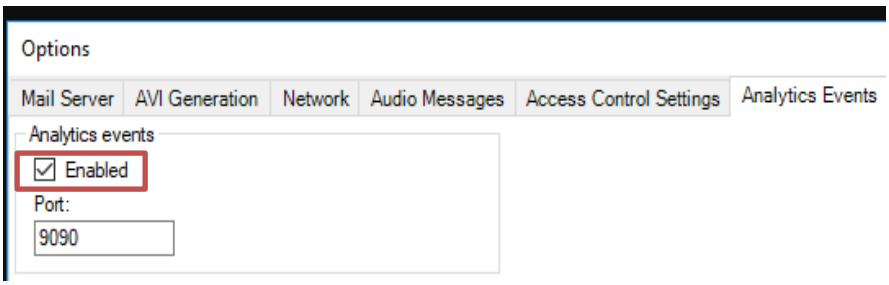
Click on for more information about how to configure.



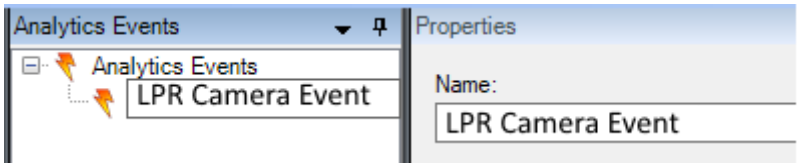
4.4.1 Configure Milestone

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

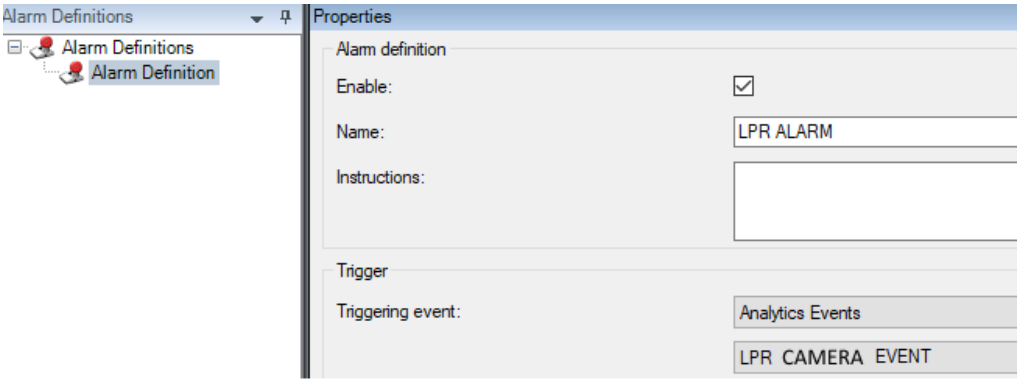
1- Enable analytic events.
   a. We click to Tool -> Options and select the “Analytics Event” tab. At this tab we will active the Analytics events.



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 that defined at Event type of action.



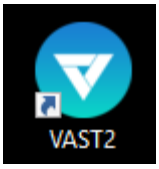
3- Create an alarm definition.
   a. We do a right click at Alarm definition and we create a new alarm definition on:
      i. Enable: This alarm is enabled at system
      ii. Name: The alarm name
      iii. Triggering event: We must select Analytic Events
      iv. Triggering event source: We must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

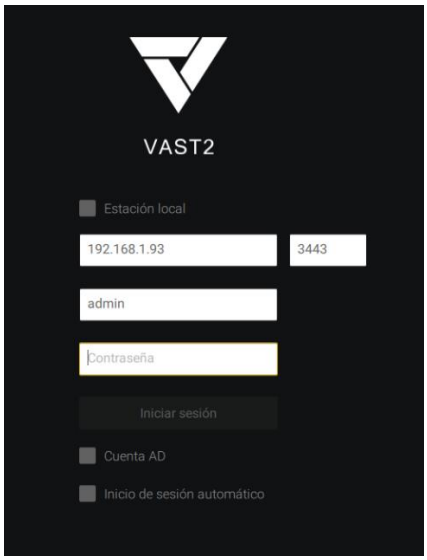


4.4.2 Configure VAST2

Once the VAST2 action is configured, we need set up VAST2 server to process our action.
Minimum VAST2 version 2_5_0_3000
To do this, we follow the next steps:

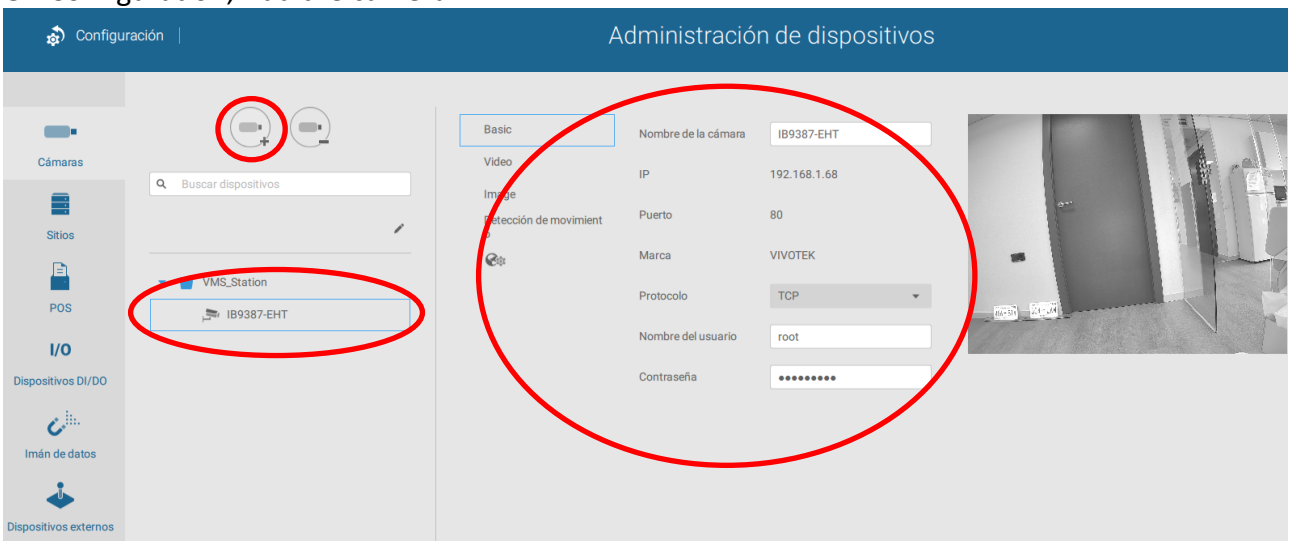
1- Access to the client tool





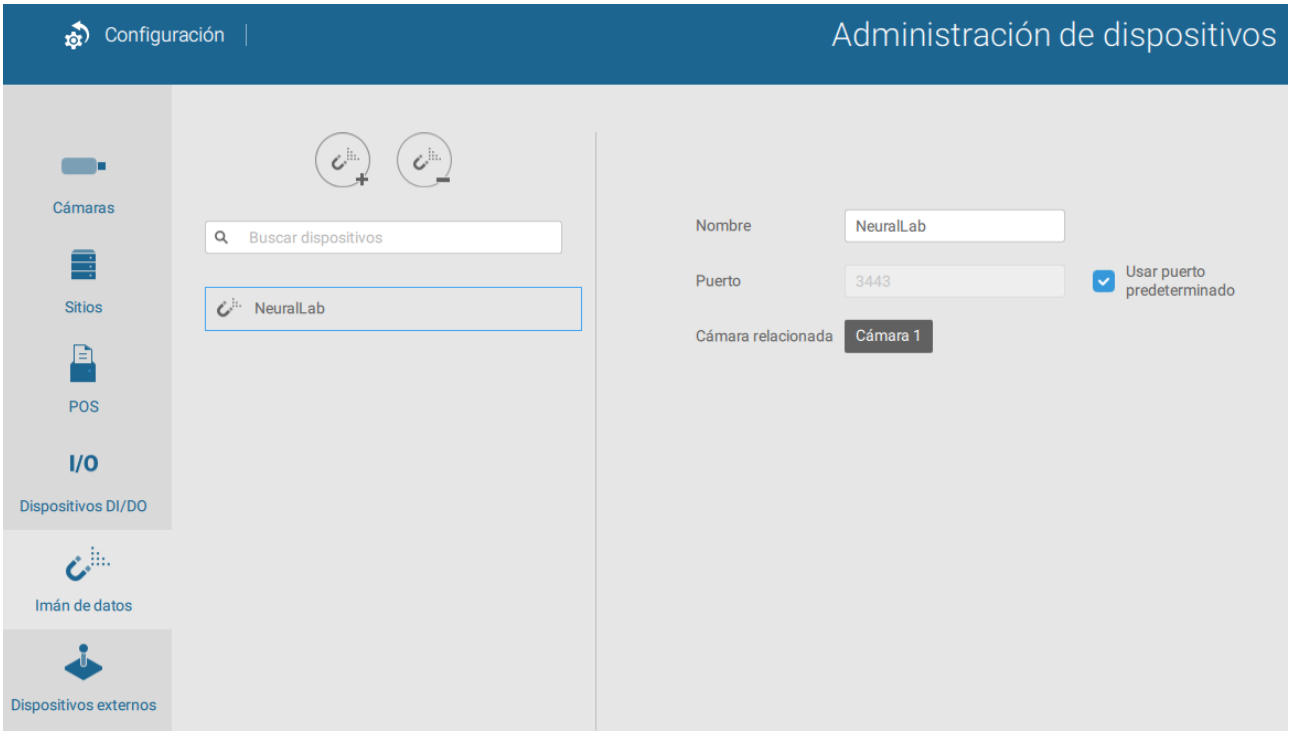
2- Include the camera

On Configuration, Add the camera.



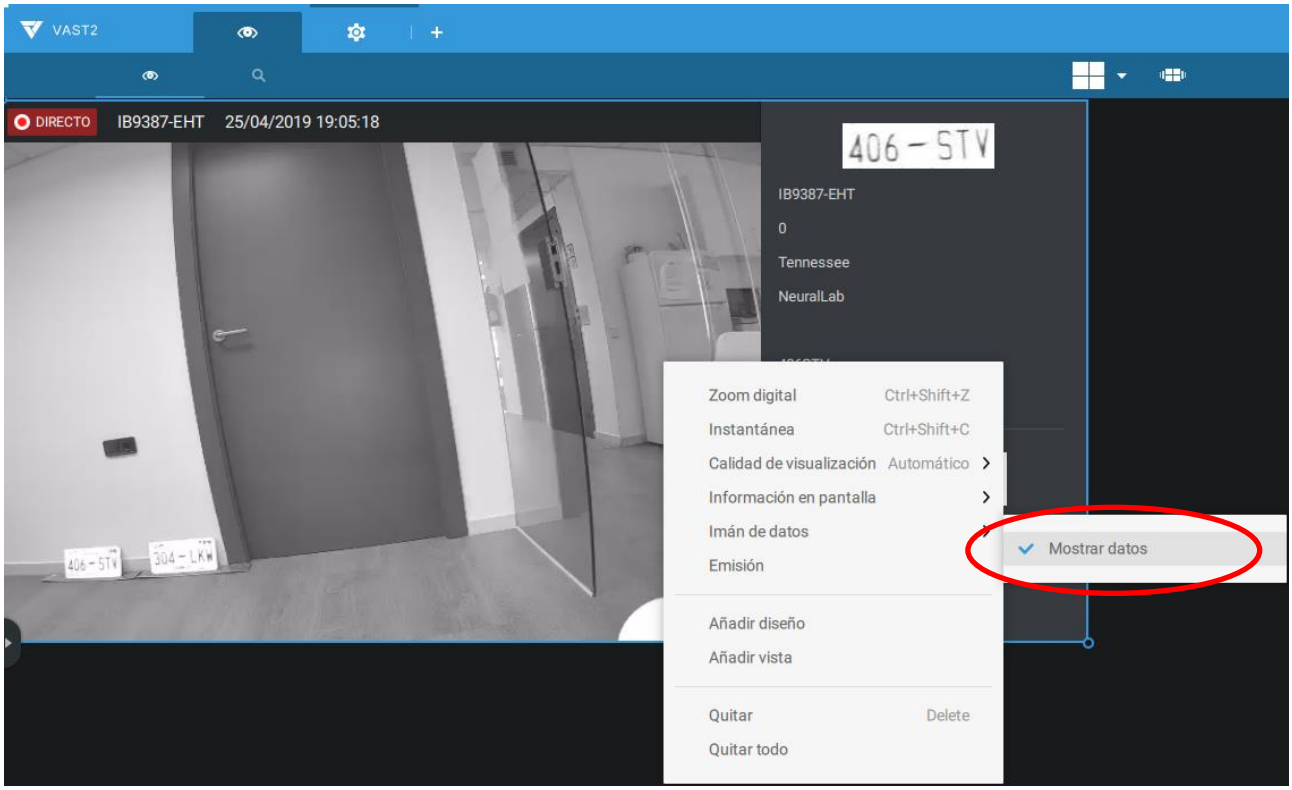
3- Create a Magnet Data

On Configuration Magnet Data create a magnet data labeled ***NeuralLab***

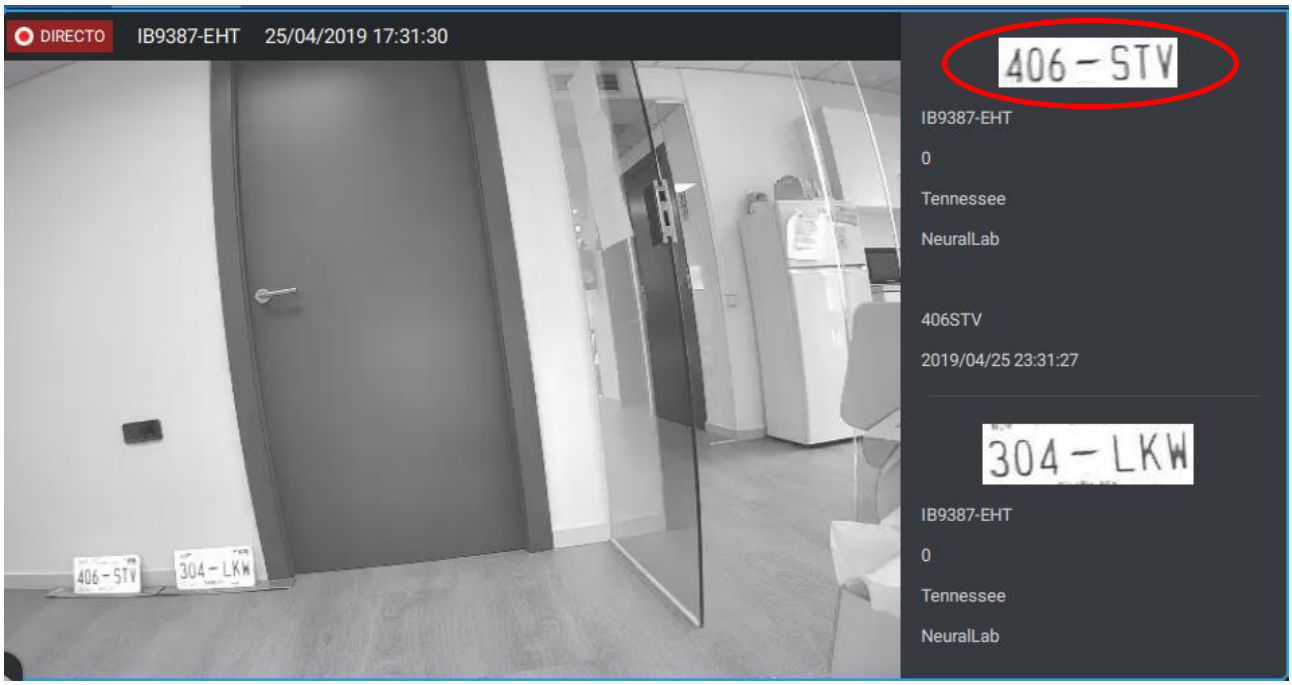


4- Check if arrive information

On View image right click Data Magnet / Show data



Each plate received will appear on the right:



4.5. LPR Configuration Tab

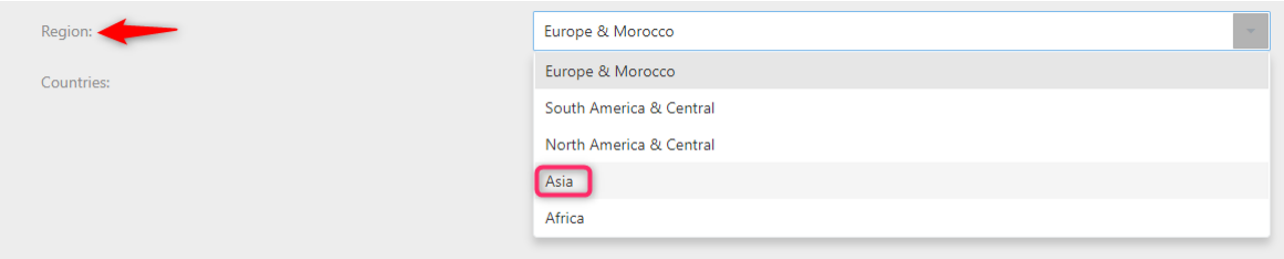
In this tab, we will set the proper configuration for the camera depending on the scenario where will be located (indoor, outdoor) and the necessity (parking, control of access points, security, tolls, road offenses, etc.).

All the options after modified requires a service reset. Restart service

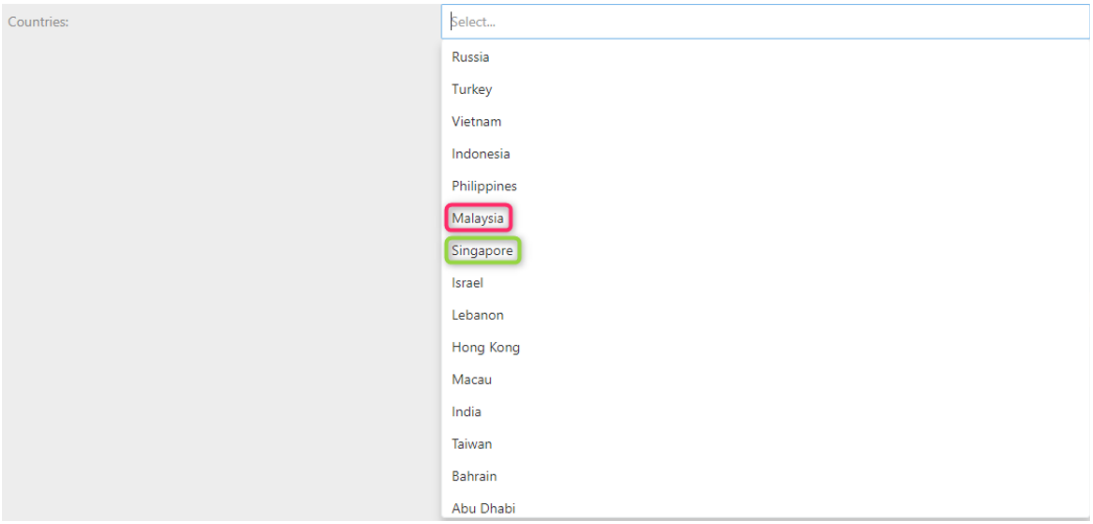
Depending on which region you select it will list the countries in that region. In case the country you are searching for isn't listed please contact Neural Labs.

Let's configure Neural Edge to read plates from Malaysia and Singapore.

In Region, list and select ASIA

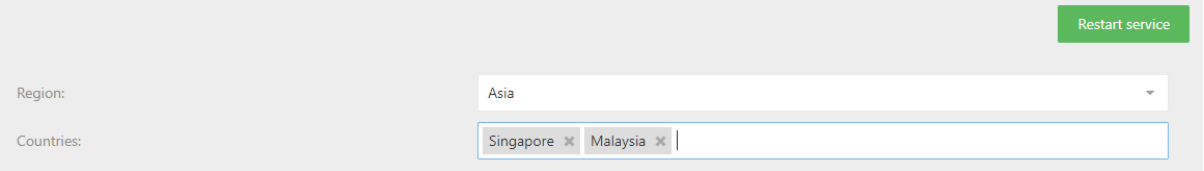


In countries, search and select one by one the countries.



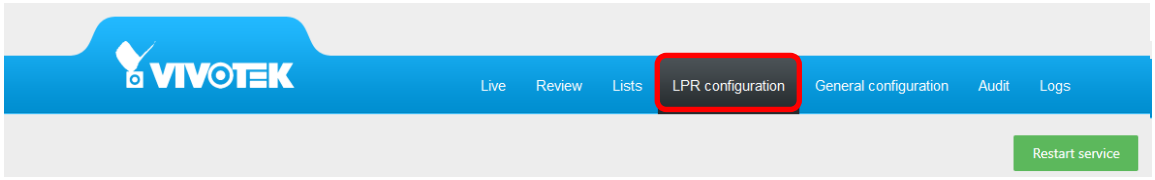
After selecting the countries, restart service clicking on Restart service button.

Now you are ready to read license plates for these two countries.

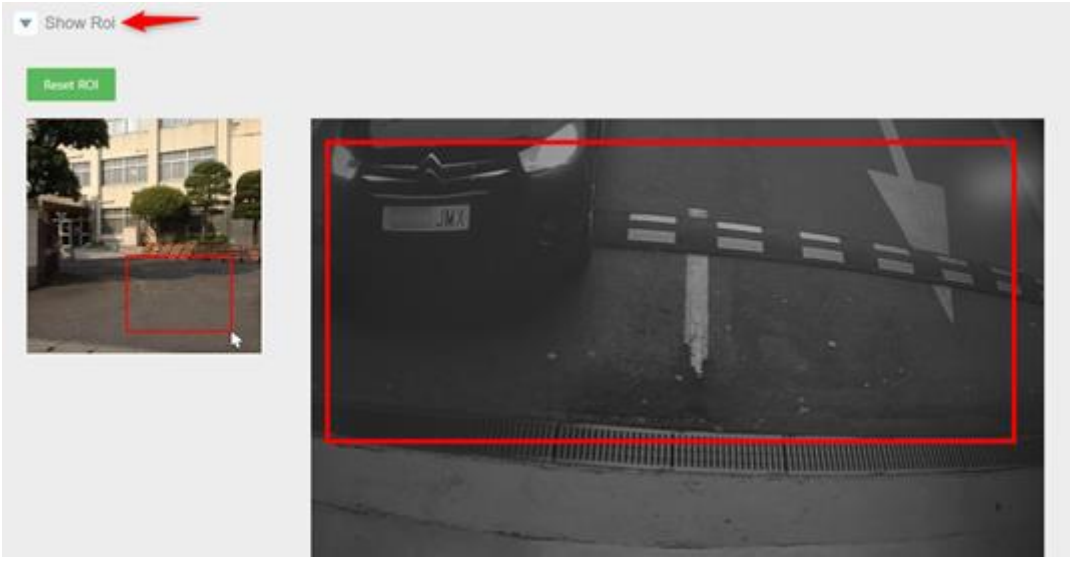


Next you need to select the camera function mode:
Trigger: The camera will read if a trigger is active such as induction loop, laser, etc.
Free Flow: The camera is continuously processing all the images, is not recommended unless there is a constant flow of vehicles.
Motion Detection (Set by default): The camera will read if detect any change in the image.

You also need to configure the camera resolution, which image size do you need to process, this will depend on the distance where you will read the license plate. This set up doesn't affect the camera resolution configuration because are independent one from each other.
*Camera resolution set by default is: 1280*720*

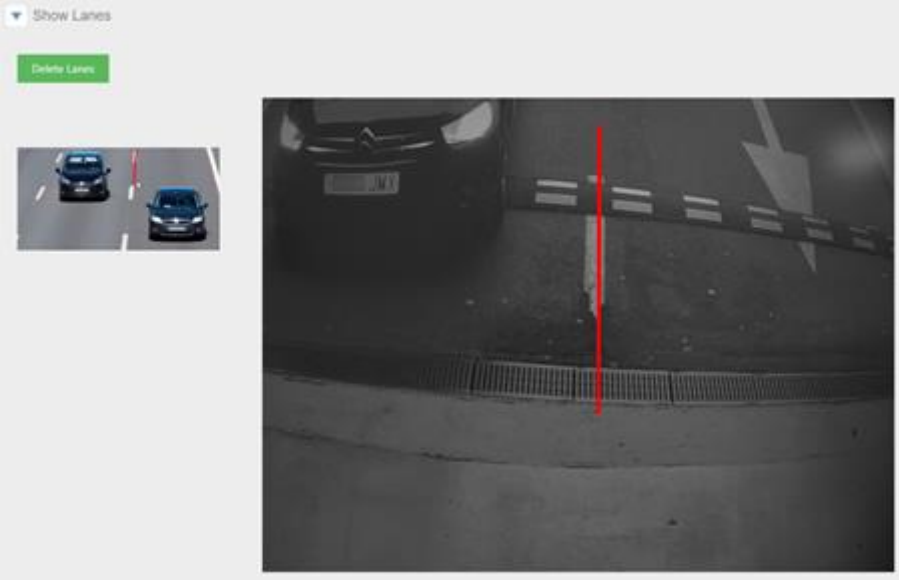


Show ROI: Let you draw a *region of interest* in the image, which part of the image do you want to process and read.



Click on "Show ROI", the wizard will guide you on how to draw it.
Draw 2 points into the road following the steps:
1.- Draw top left point.
2.- Draw bottom right point.
To reset ROI, click on "RESET ROI" button.
Click on the "RESTART SERVICE" button to take effect. Restart service

Show Lanes: Let you draw a line to configure 2 lanes, depending on how you draw the line Neural Edge will consider which lanes are going to be.



Click on “Show Lanes”, the wizard will guide you on how to draw it.
Draw 2 points into the road following the steps:
1.- Draw top point.
2.- Draw bottom point.
To reset ROI, click on “Delete Lanes” button.
Click on the “RESTART SERVICE” button to take effect. Restart service

Neural Edge will read the license plate and indicate on which lane they were detected.

Expert Options: Here is the recommended configuration for best performance if Motion Detection (default configuration) is selected.

Minimum character height: Minimum character size. Very useful for cases where you want to ensure a minimum character size. 25 being the recommendation

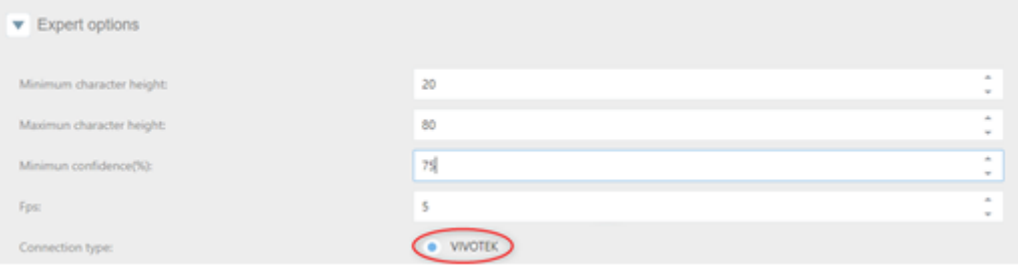
Maximum character height: Maximum character size. Very useful for cases where you want to ensure a maximum character size.

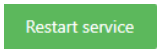
Minimum Confidence (%): Minimum reliability in the reading of a license plate to consider it valid. Reliability is a parameter returned by the engine for recognizing license plates (value of 1-100, where 100 is the most reliable). 80 being the recommendation

FPS: Maximum frames per second to process. 5 being the recommendation

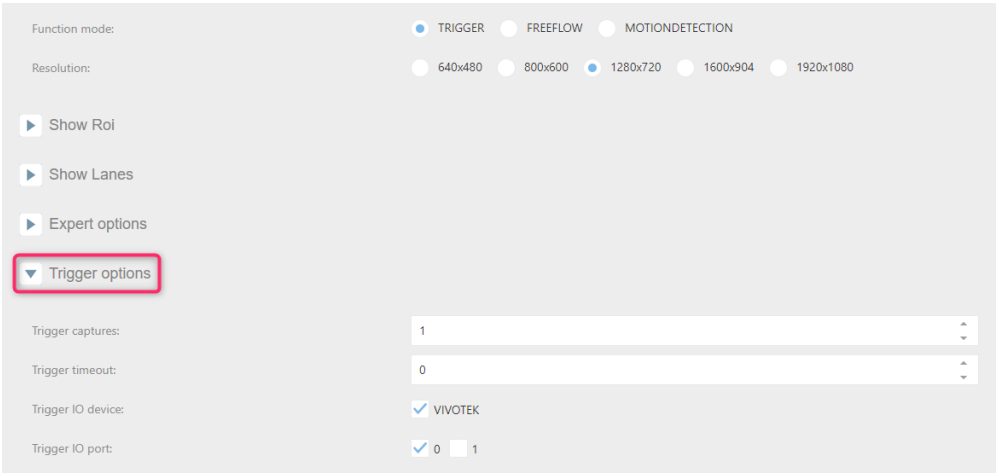
Connection Type: You need to select the option, how you will get the image to process

Vivotek: Camera streaming.



Click on the "RESTART SERVICE" button to take effect. 

Trigger Mode: Neural Edge 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 NCaptures, or the time exceeds Timeout.

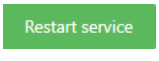


Trigger Captures: How many images do you want to process and read license plates to stop.

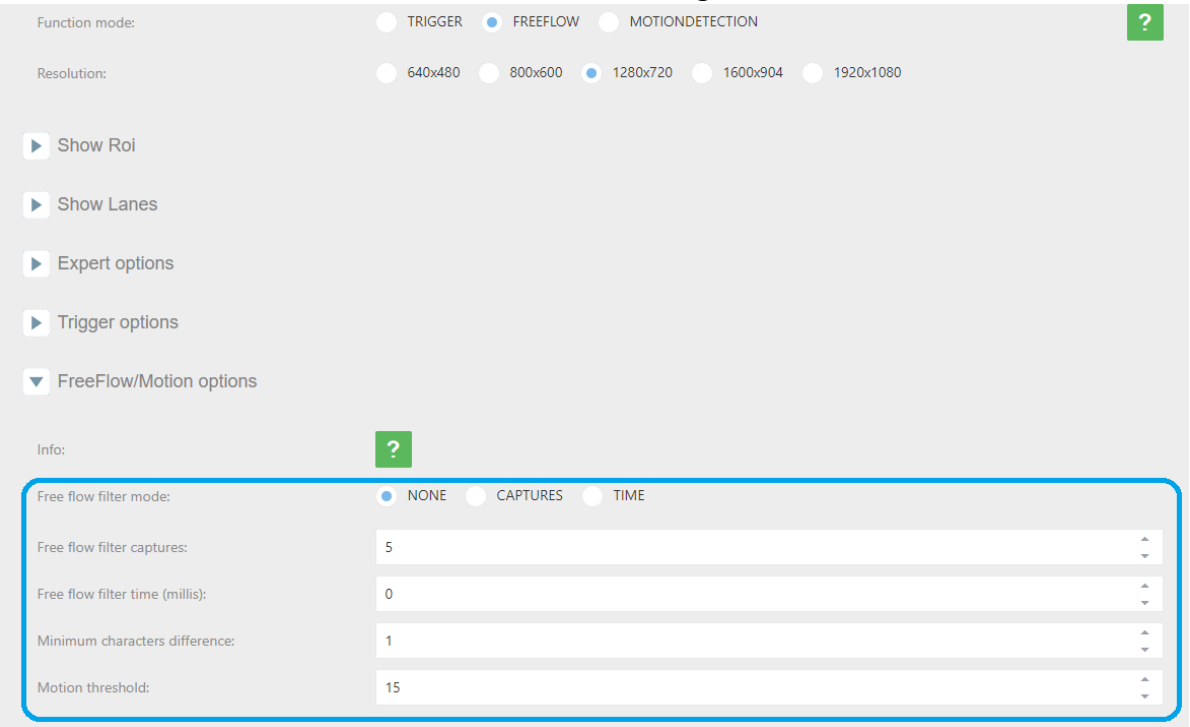
Trigger Timeout: How many seconds do you want to process and read license plates to stop.

Trigger IO Device: If selected, the Digital Input ports will activate.

Trigger IO Port: Choose which digital input port you will use.

Click on the "RESTART SERVICE" button to take effect. 

FreeFlow/Motion options: Neural Edge continuously runs OCR on the receiving frames. Whenever a new vehicle enters the scene, a new result is sent through the notification socket.



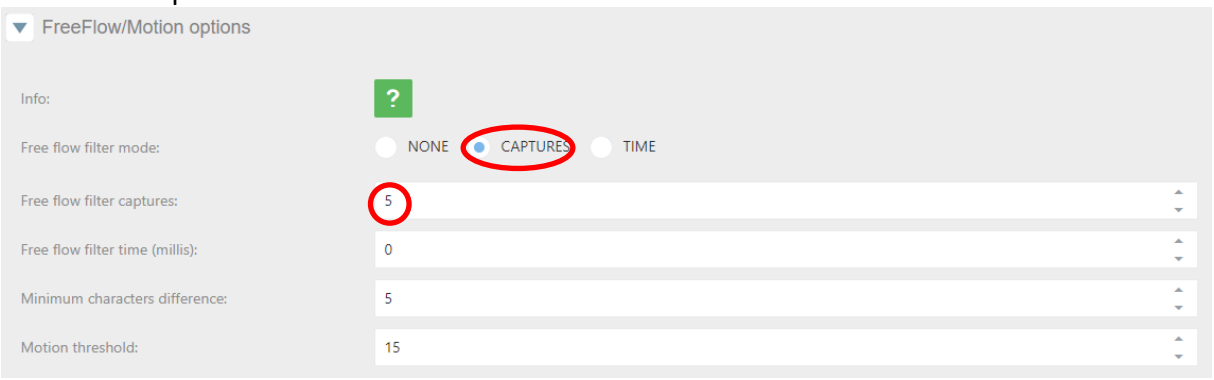
In the blue square, you can define repetition filters.

Free Flow 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.

Free Flow filter time (millis): Minimum time elapsed from the detection of the same license plate to it being accepted again in the system.

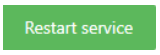
For example, you have the camera in a Parking and there is a traffic jam, you don't want to read the same license plate over and over, in that case, the best filter is for captures, please do the following.

Having selected, Free Flow mode, click on "Free Flow options", click on "Free Flow filter mode" and select the filter "captures"

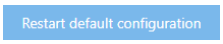


With this configuration, once a license plate is read, won't be read again until another 5 different license plates have been read.

The motion threshold is the threshold to consider an image different from other image, for the motion mode. Value from 0 to 100.

After all, changes are done, remember always to restart service, clicking on 

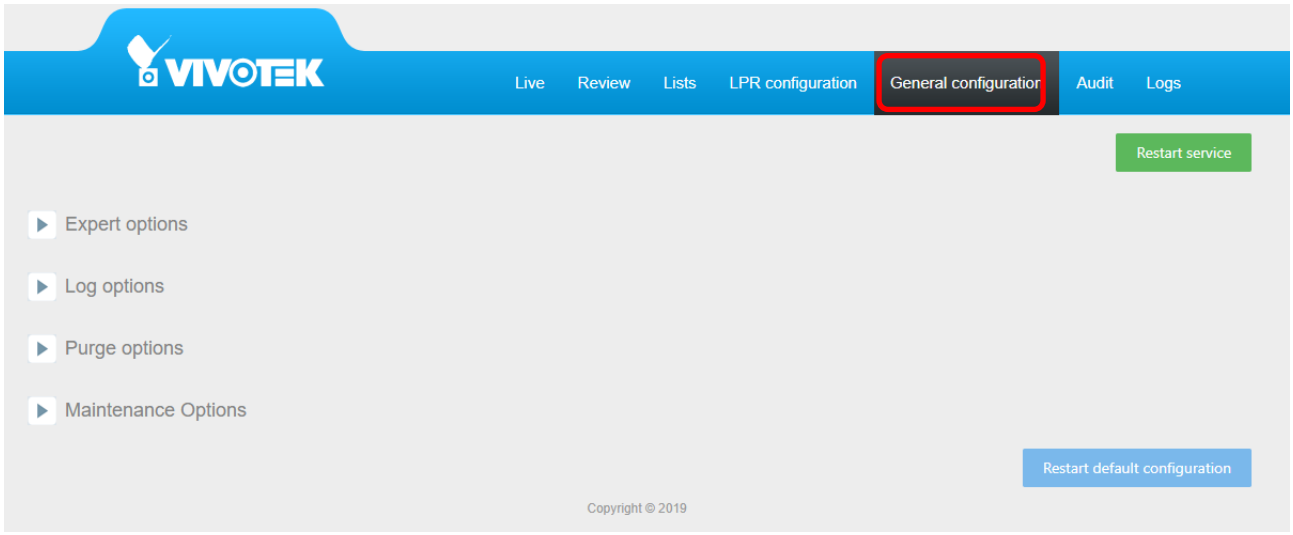
button.

If you need to restart all configuration for this section, click on 

button.

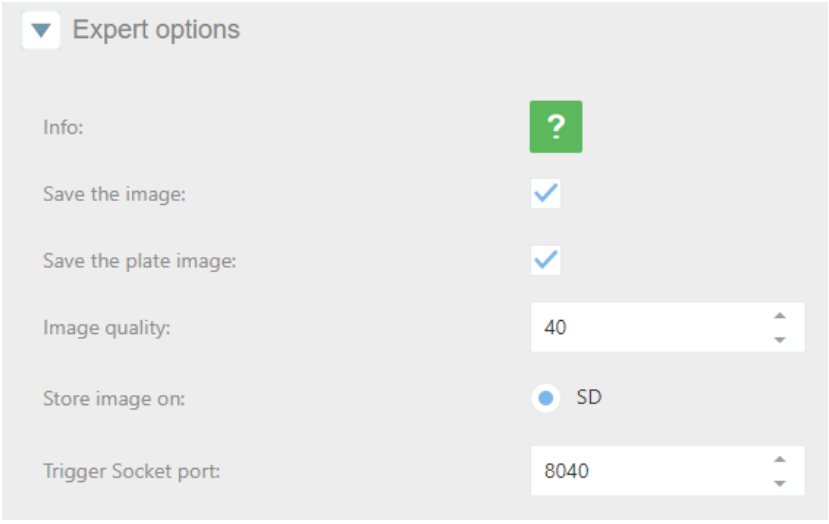
4.6. General Configuration Tab

In this tab, configure general parameters:



Expert Options:

Save the image: If selected, will store in a folder the complete image.
Save the plate image: If selected, will store in a folder only the license plate image.
Image quality: will store the image with the compression configured here.
Store image on: will store data on an SD or in the camera. We strongly recommend adding an SD card in the camera.
Trigger Socket Port: Will enter the port we want to use for sending XML/JSON messages.

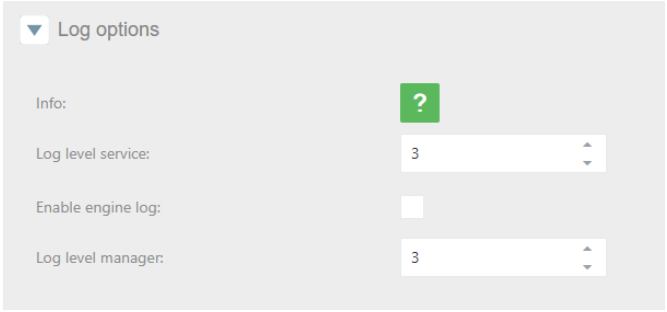


Log Options:

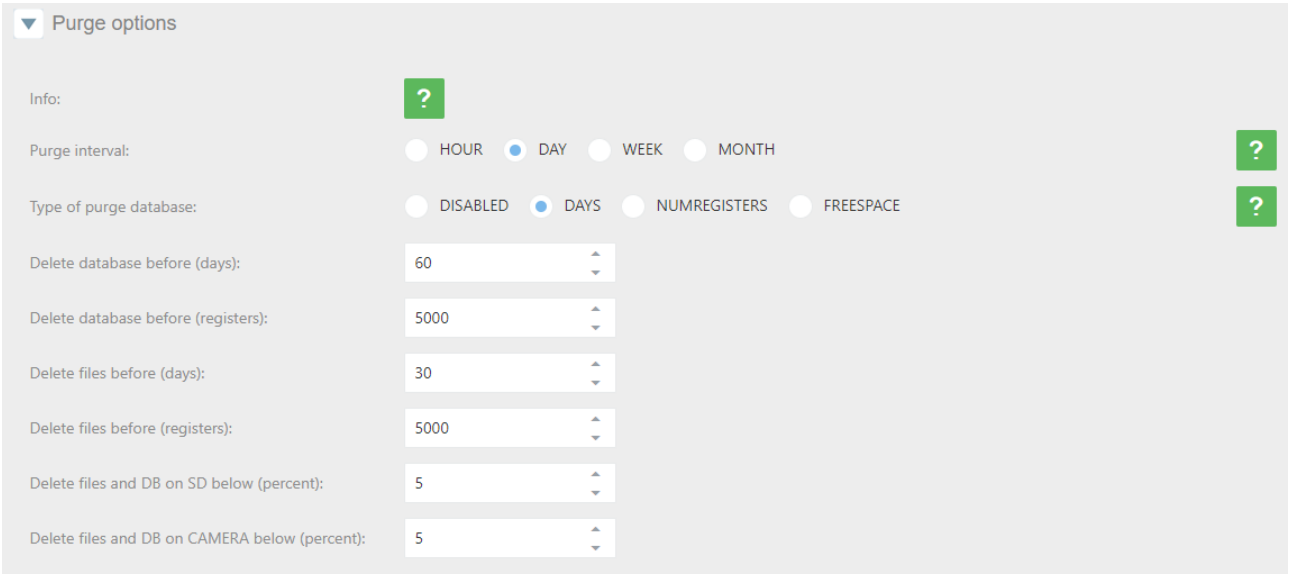
Log Level: Let you determine the log level to register what is going on with Neural Edge. By default, is set to 3. Level 4 and 5 are for experts and debugging team.

Activate log engine: Select only if debugging mode is necessary, only for expert technicians.

Log Level CGI (manager): Let you determine the log level to register what is going on with the CGI. By default, is set to 3. Level 4 and 5 are for experts and debugging team.



Purge Options: Here we will determine how many days or register of data we need to keep.



Purge Interval: Schedule when do you want to execute the purge.

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 at 23:59:59.

Type of purge in database: Set how and what do you want to purge.

Disabled: Won't execute any purge.
Days: Will purge by days, keeping data for the last days.
NumRegisters: Will purge by several registers in the database.
Freespace: Will purge depending on the free space in the SD or in the camera.

Once you have defined when and what do you want to purge, you need to set the variables to execute the task.

Purge by days:

Delete database before (days): Will keep data of the last (XX) days and purge the rest.
Delete files before (days): Will keep files of the last (XX) days and purge the rest.

Purge by NumRegisters:

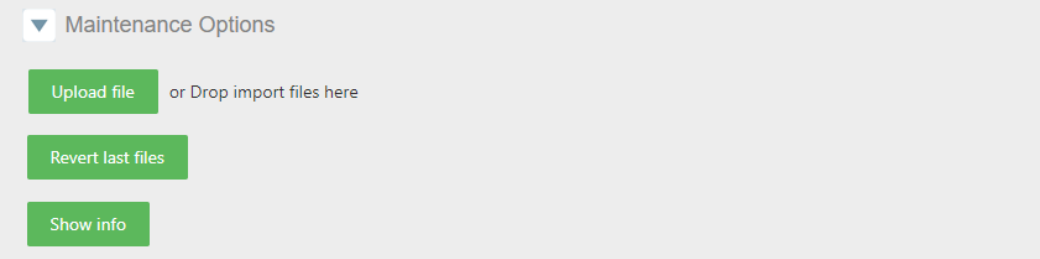
Delete database before (registers): Will delete the first (XX) registers in the database.
Delete files before (registers): Will delete the oldest (XX) files stored in the SD or camera.

Purge by Free Space:

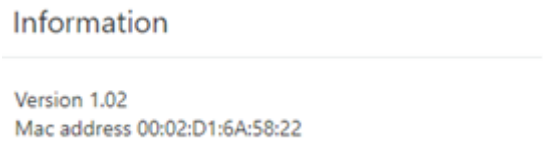
Delete files and database on SD below (percent): Will delete data in database and files stored until free space on the SD is lower than configured.
Delete files and database on CAMERA below (percent): Will delete data in database and files stored until free space in the camera is lower than configured.

Maintenance Options:

In this section you can upload files for camera configuration, licensing, update Neural Edge version, change the logo and upload images for the path option showed in the Camera Configuration tab.



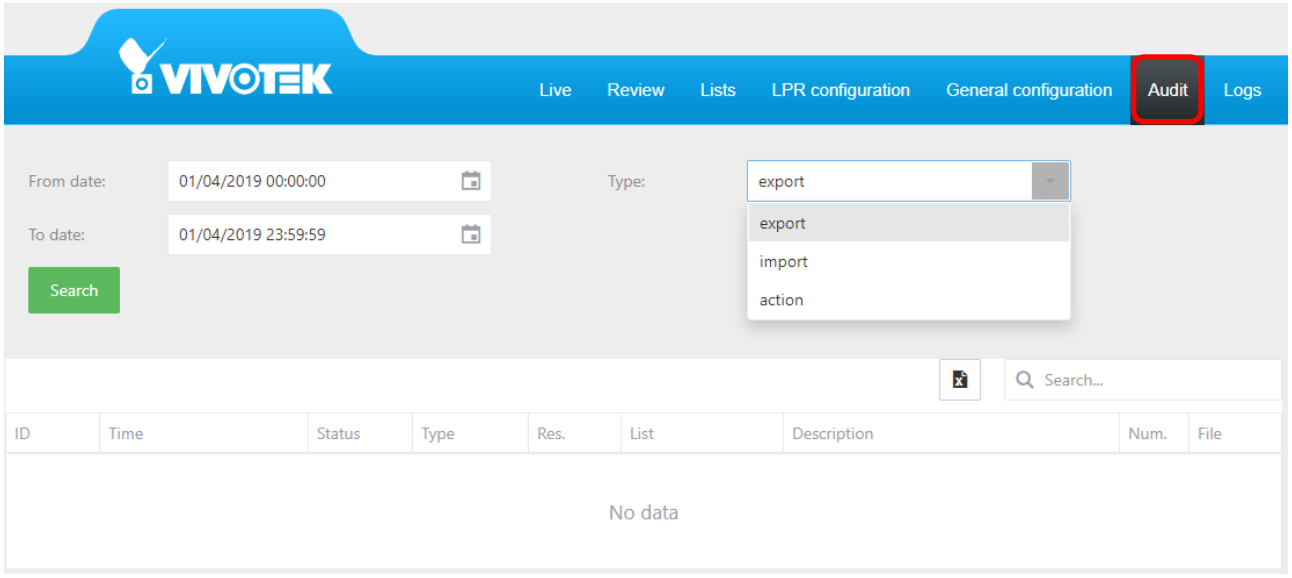
Upload File: Let you upload a file.
Revert last files: If after applying changes with the uploaded files, it doesn't work correctly you can revert changes.
Show Info: Show you information about the version and camera MAC ADDRESS.



In case you want to revert, all changes done and want to get back to the default configuration, click on Restart default configuration button.

4.7. Audit Tab

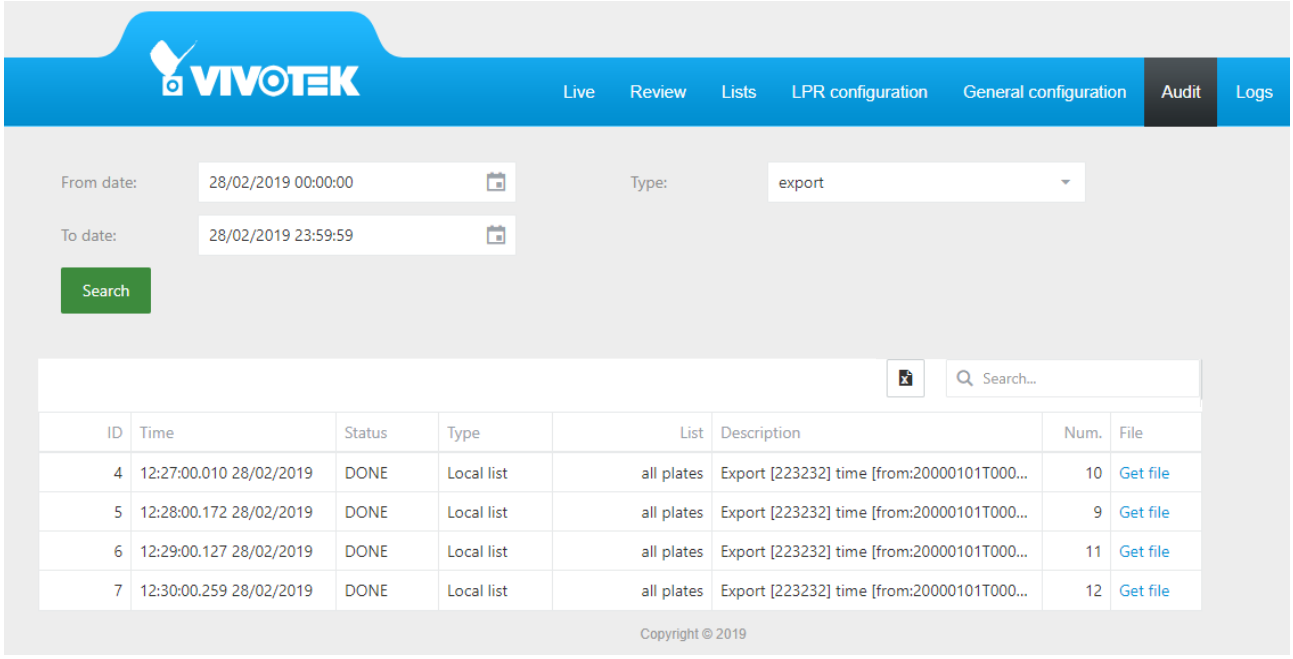
The camera registers actions like export and import lists and actions executed depending on the list configurations.
In the Audit tab, you can search by dates information related to these actions.



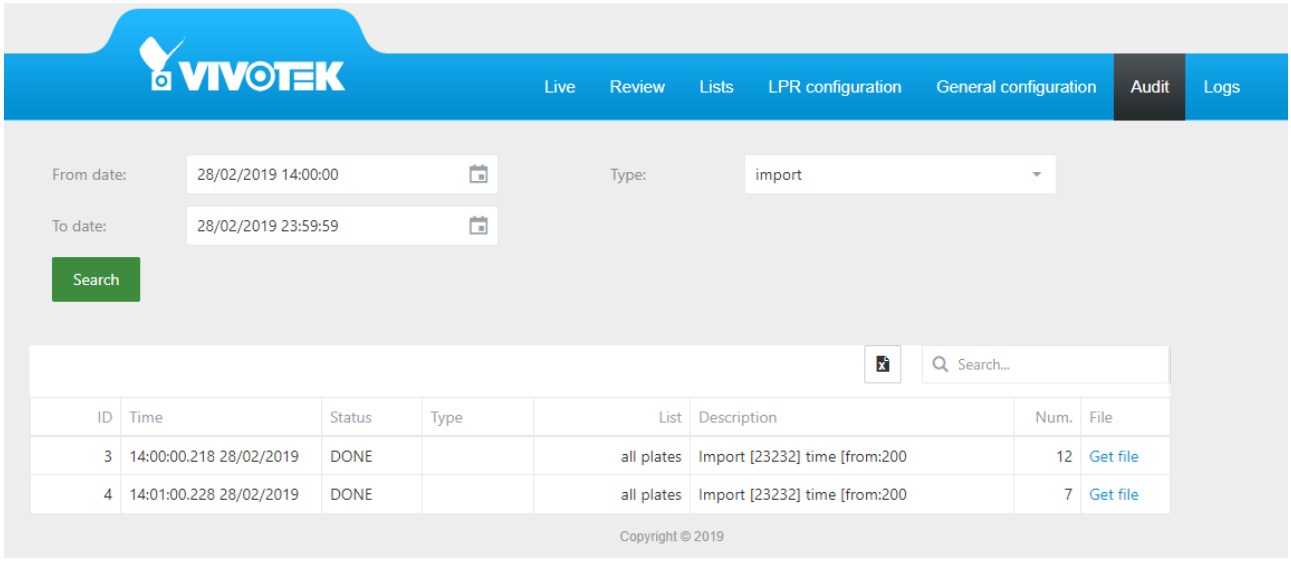
You can search in the stored actions by dates and by type of action.
Export: Will show you automatic exports done
Import: Will show you automatic imports done.
Action: Will show you automatic actions triggered on the lists.

The result of the search can be exported and downloaded.

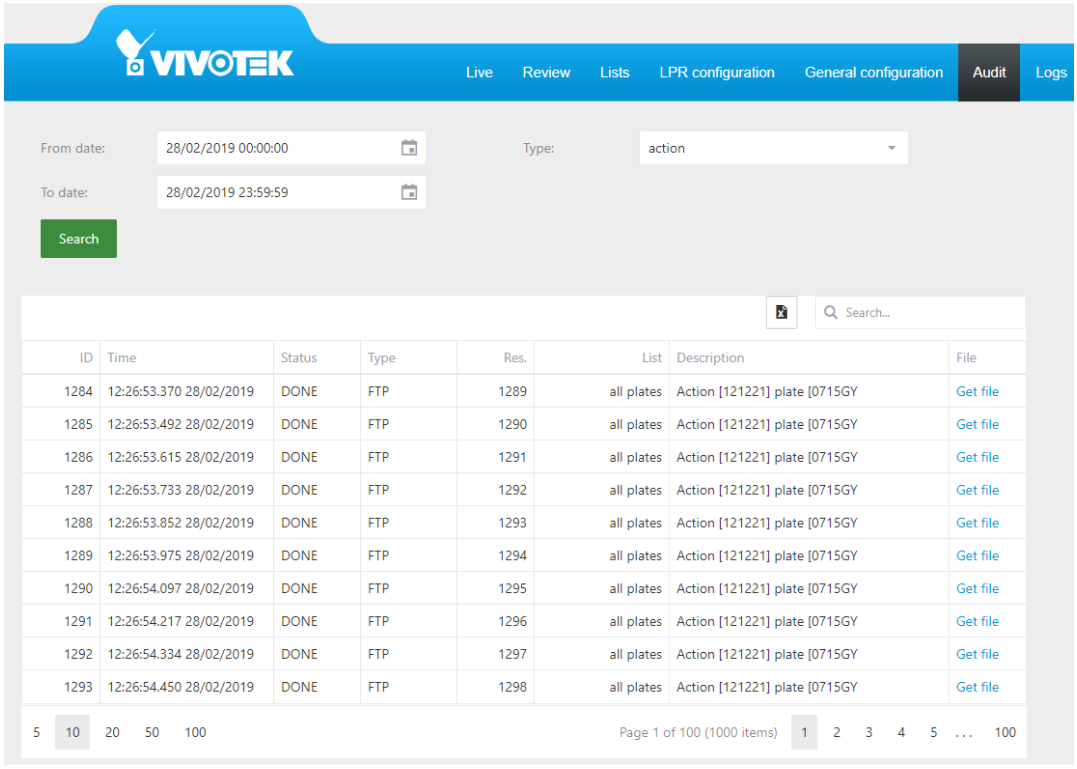
Exports example:



Imports example:



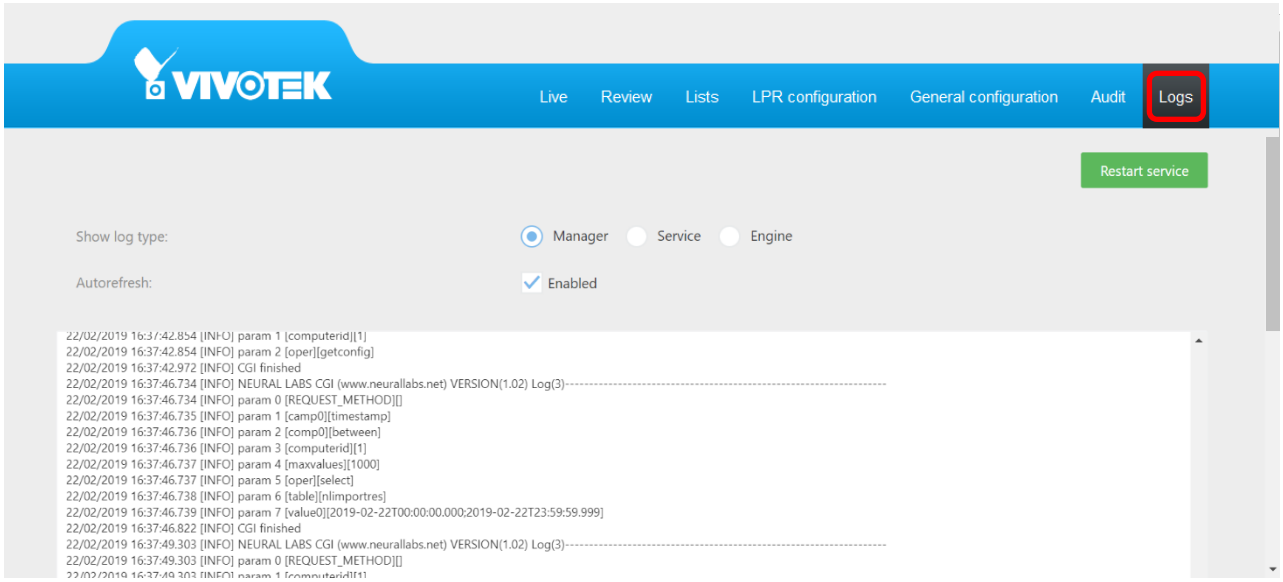
Actions example:



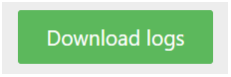
4.8. Logs Tab

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.

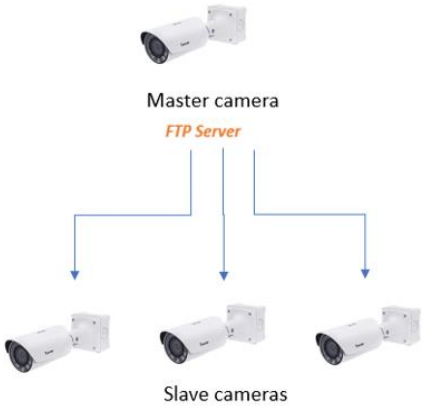
Sending logs to technical support may be needed. To do that click  in the bottom of the page.
Selected logs will be downloaded in compressed txt format.

5. Camera list synchronization

The Neural Edge 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 downloads 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.
There is no limit for the number of the cameras slave, the limit is on the FTP server, depends of the number of connections.
Can be synchronized all the lists or only one list.

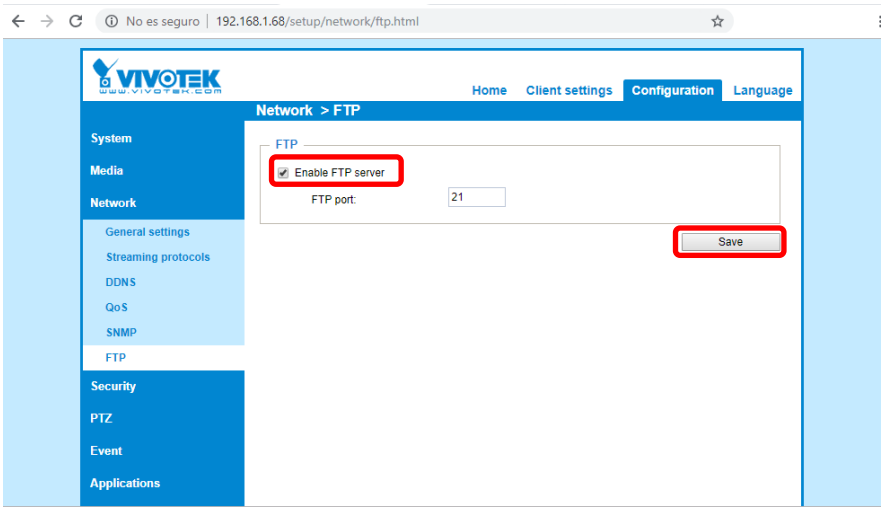
5.1. Architecture 1

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



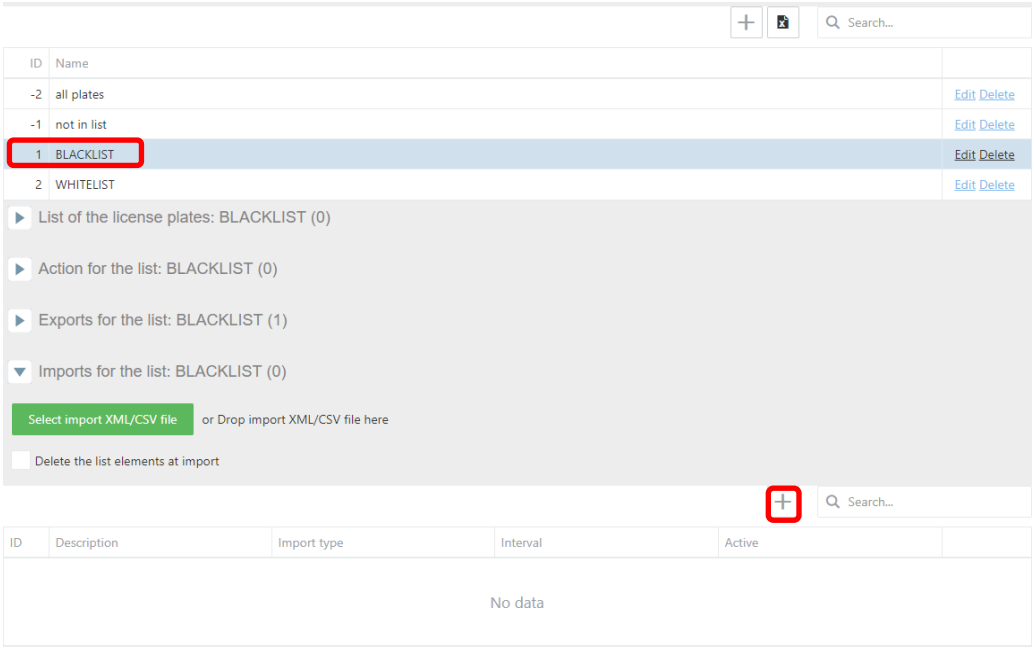
5.1.1. Master configuration

Activate the FTP server.
Access to the camera web interface:
Configuration/Network/FTP
Check “Enable FTP server” and click Save.

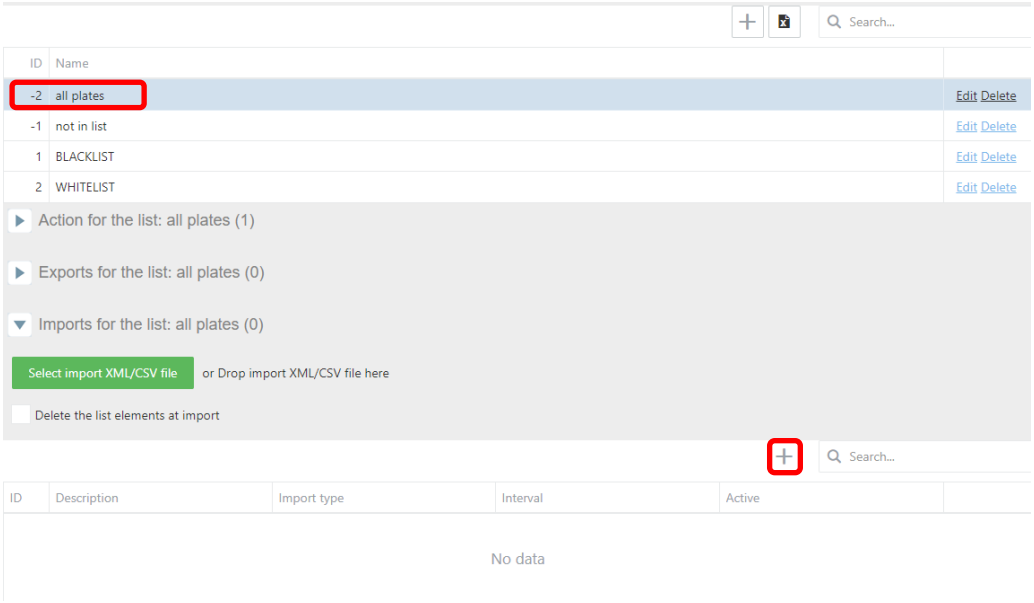


5.1.2. Slave configuration

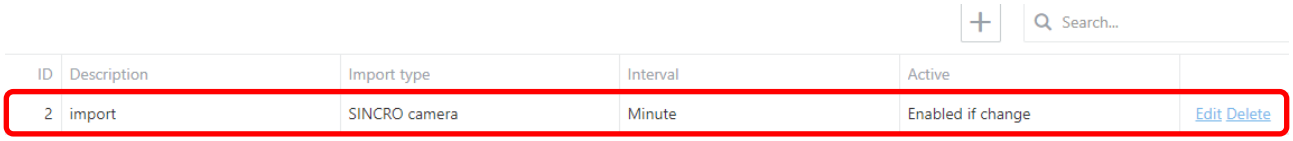
Access to the List Tab.
To configure only one list selects the list and make the import in the list.



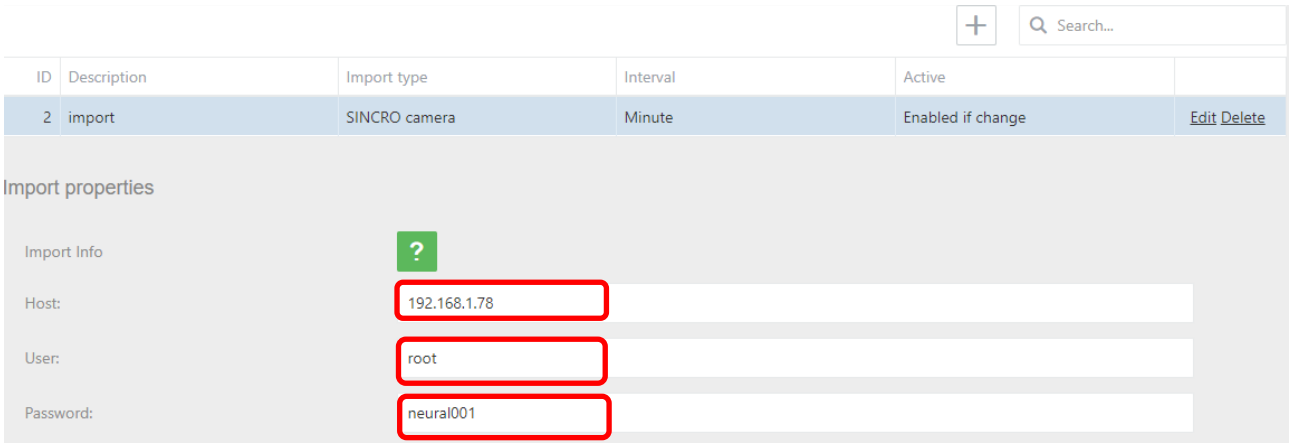
To configure all the list selects all plates.



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

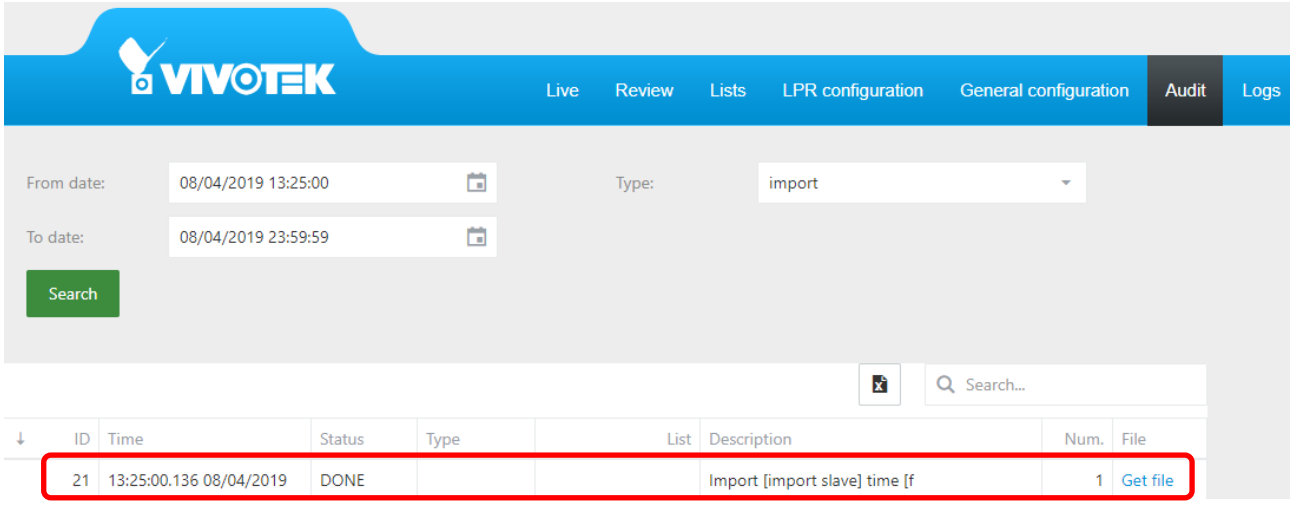


Configure the master camera credentials.



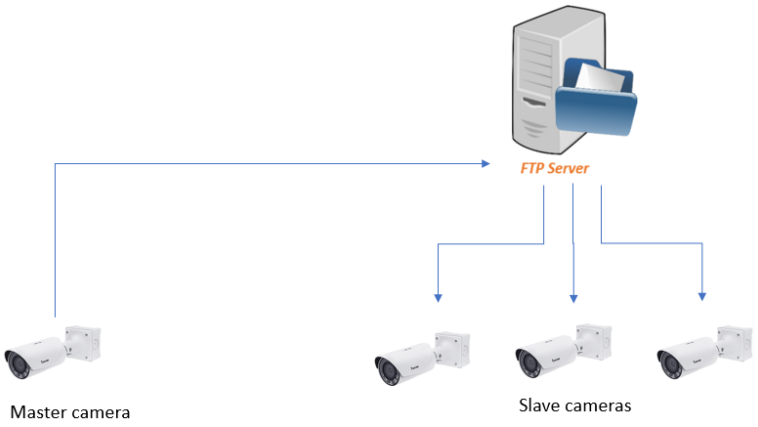
Host: Camera master IP
User: Camera master user
Password: Camera master password

Can be checked in the Audit Tab.



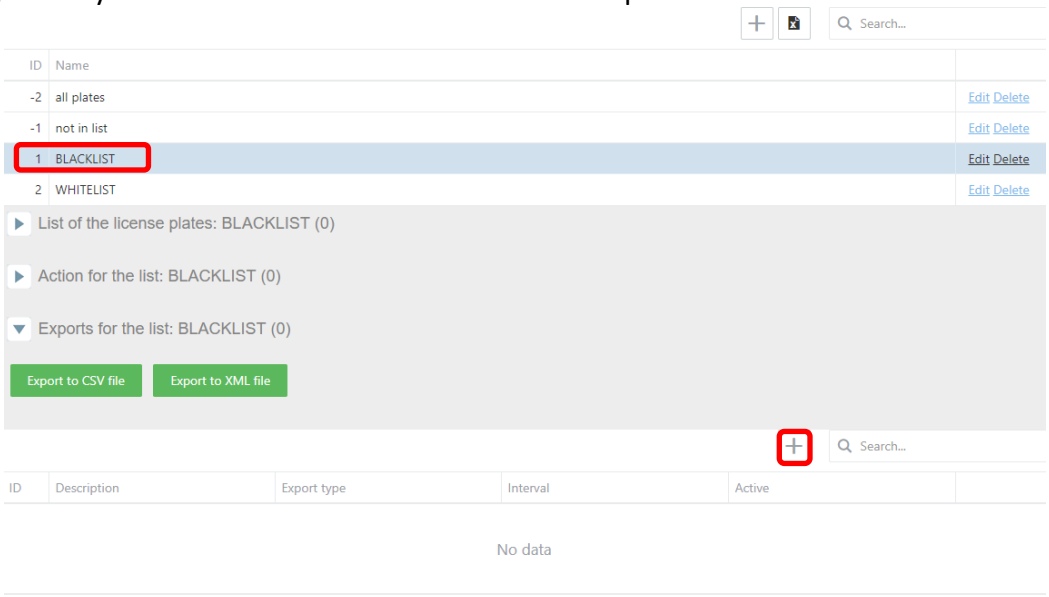
5.2. Architecture 2

Using FTP server where store the list.

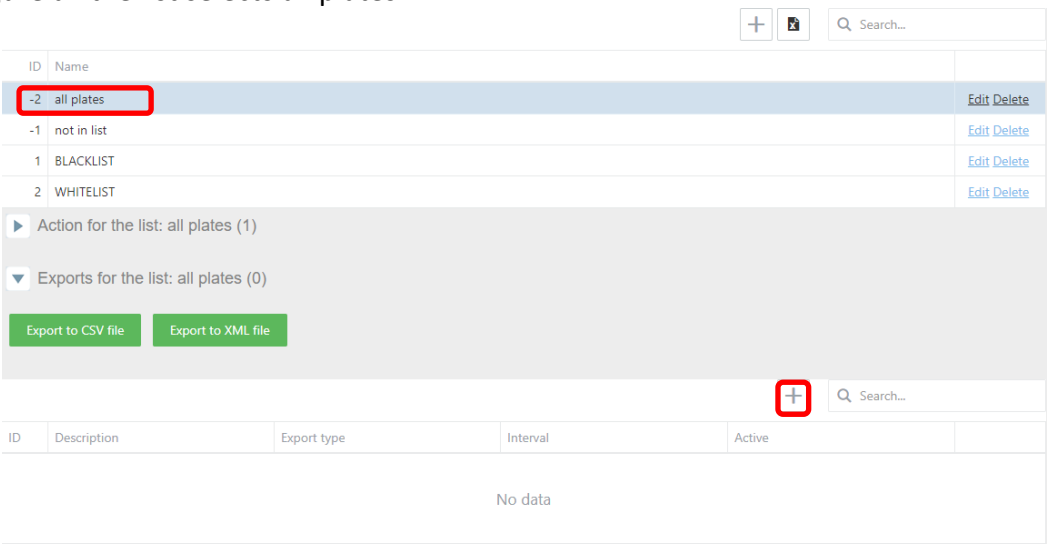


5.2.1. Master configuration

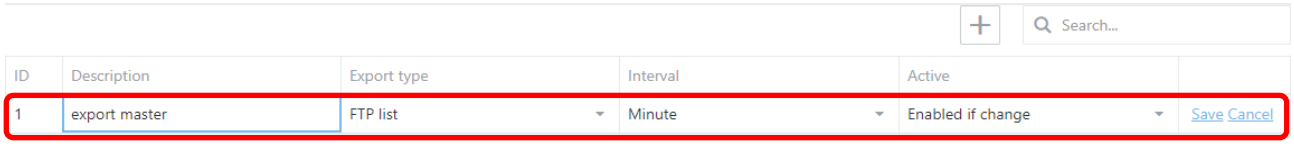
Access to the List Tab.
To configure only one list selects the list and make the export in the list.



To configure all the list selects all plates.

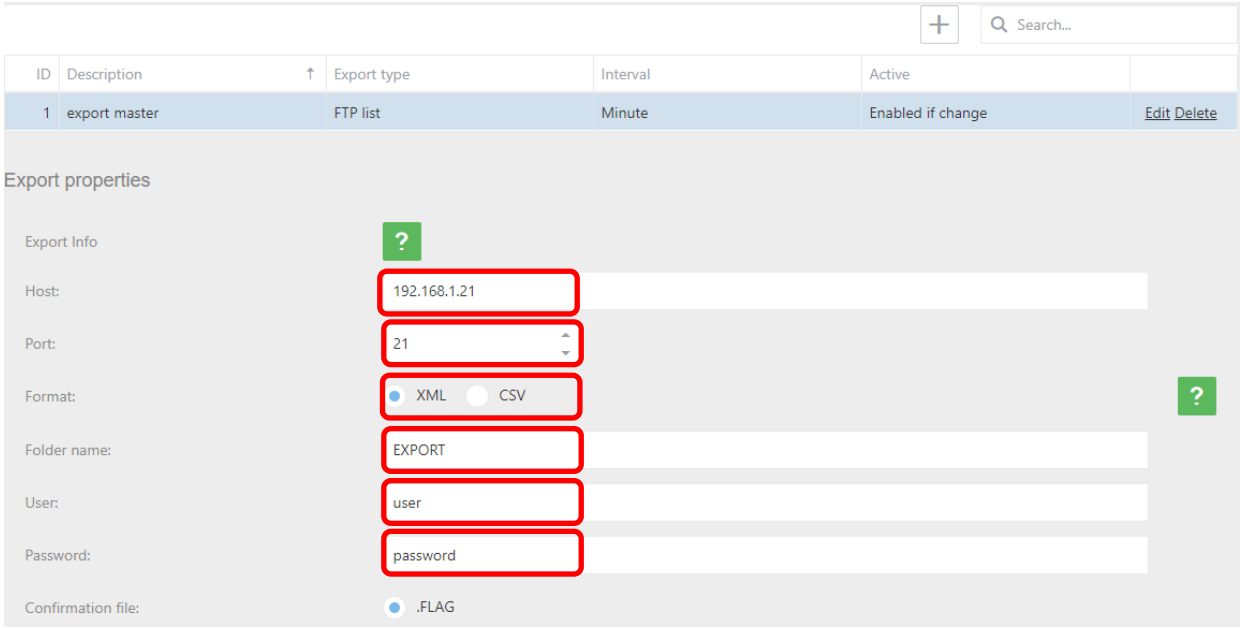


Create an export each minute enabled if change with the type FTP list and click Save.

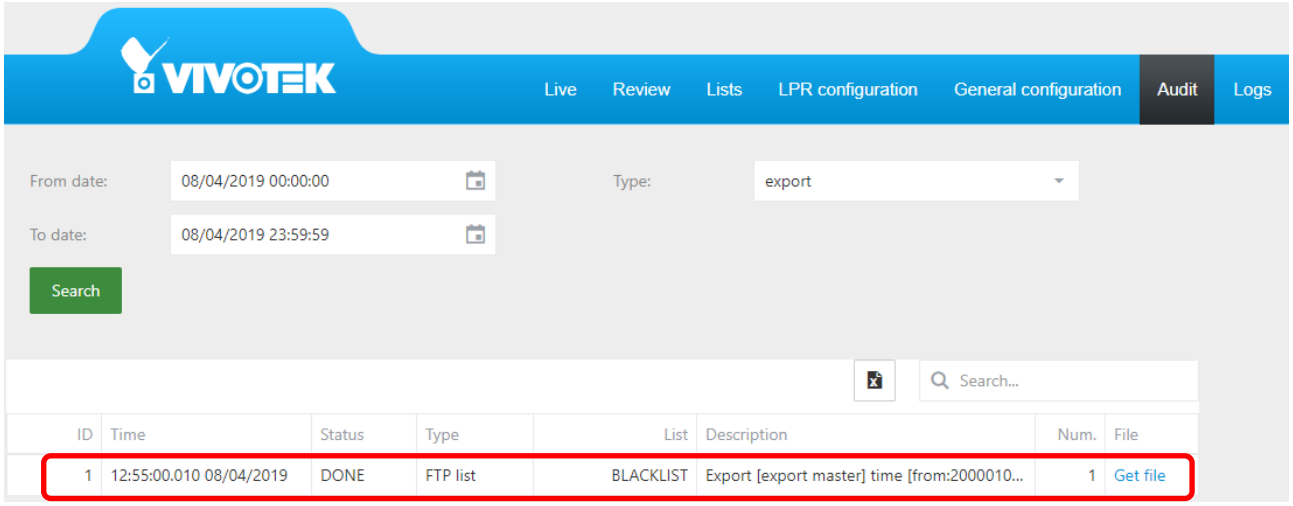


Configure the credentials of the FTP server and the format CSV or XML, can be the booth but must be the same in the slaves.

Just configured the camera master is sending the file to the FTP server.

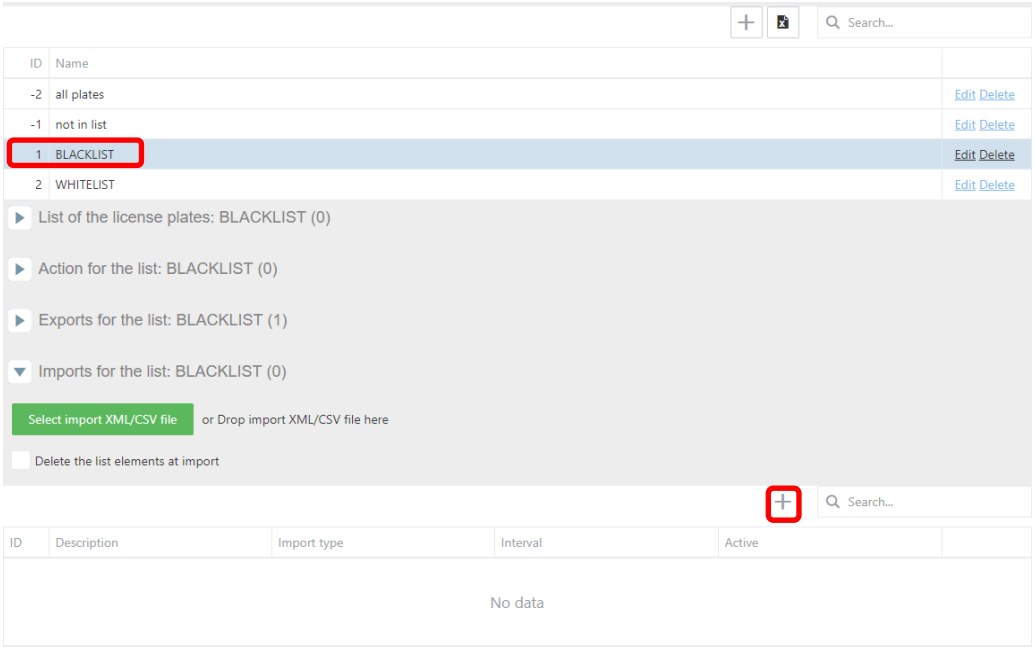


Can be checked in the Audit Tab.

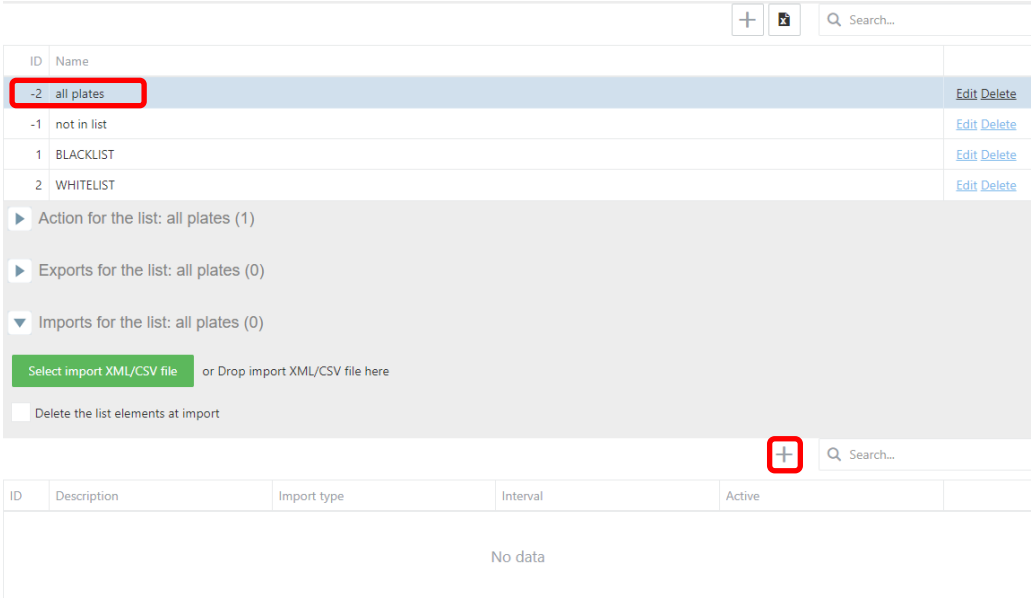


5.2.2. Slave configuration

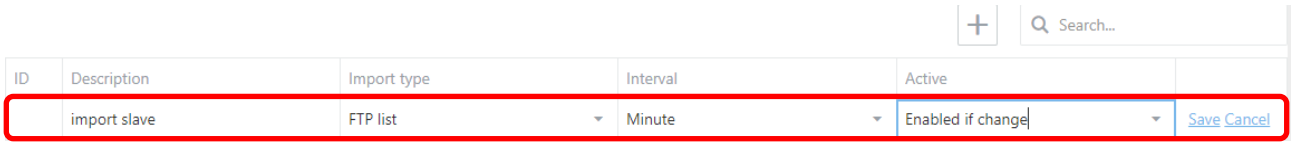
Access to the List Tab.
To configure only one list selects the list and make the import in the list.



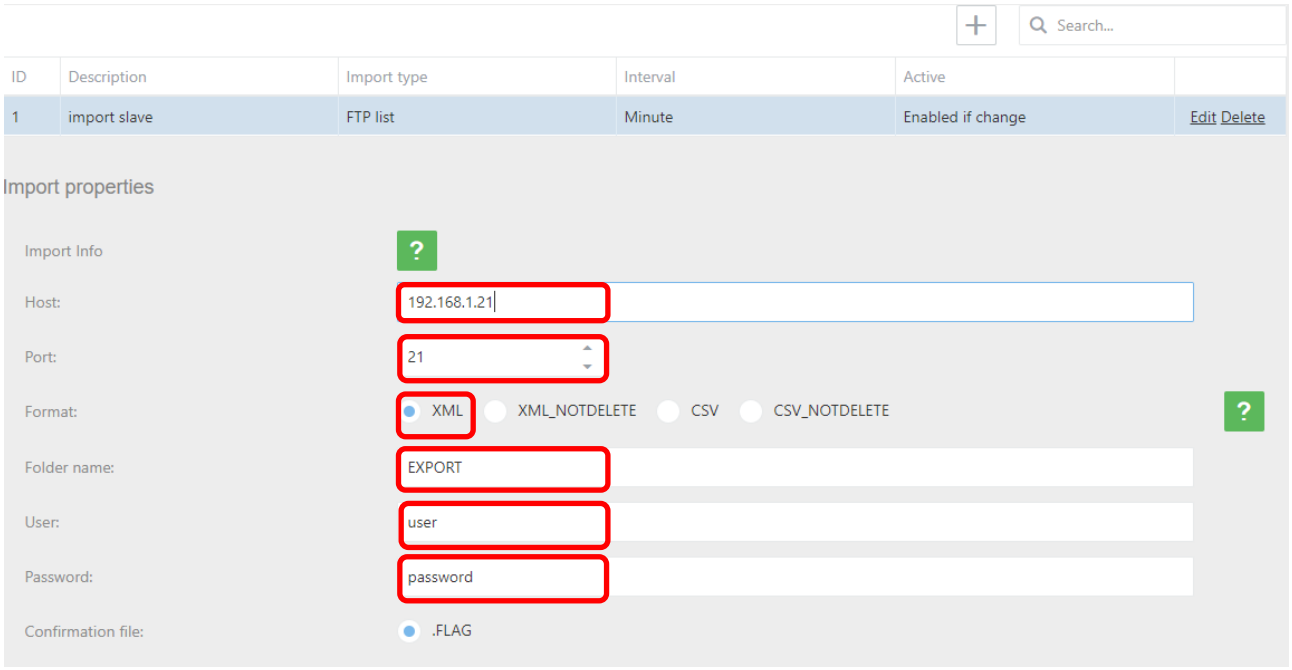
To configure all the list selects all plates.



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

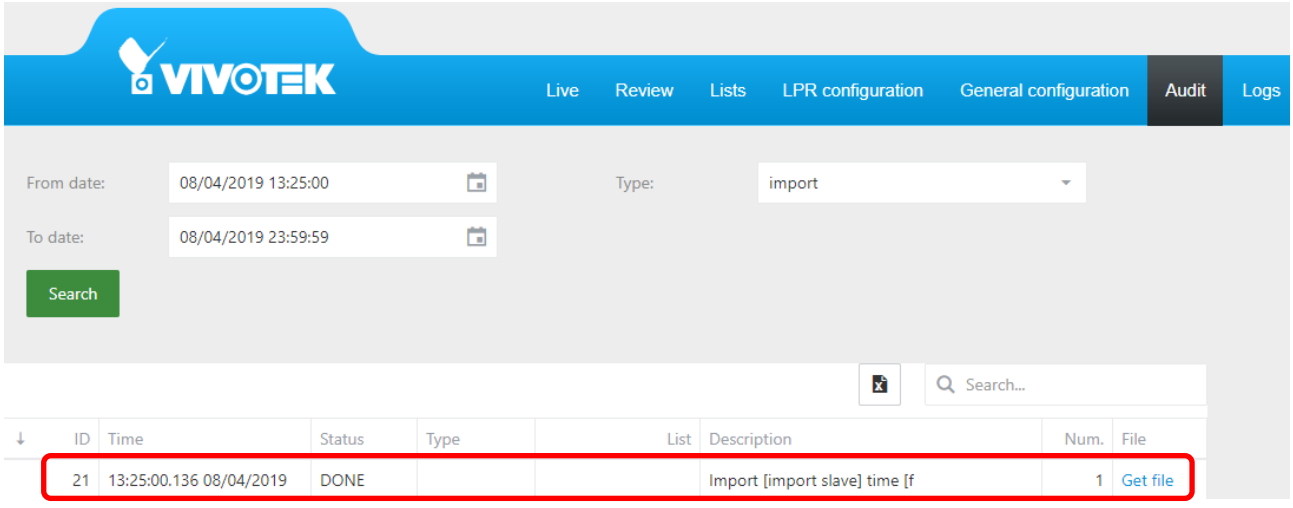


Configure the same credentials of the FTP server and the same format CSV or XML than the master configuration.



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.

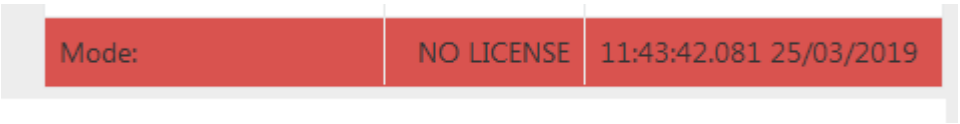
Can be checked in the Audit Tab.



6 Troubleshooting

6.1 Mode: NO LICENSE

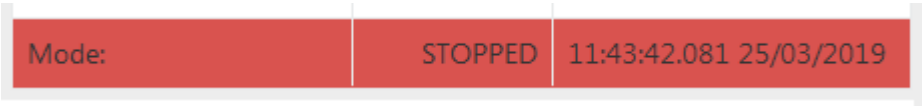
If the camera is not licensed, we find that the mode will be “NO LICENSE” in live page.



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

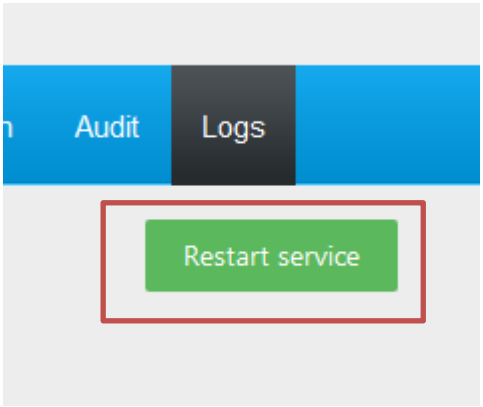
6.2 Mode: STOPPED

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

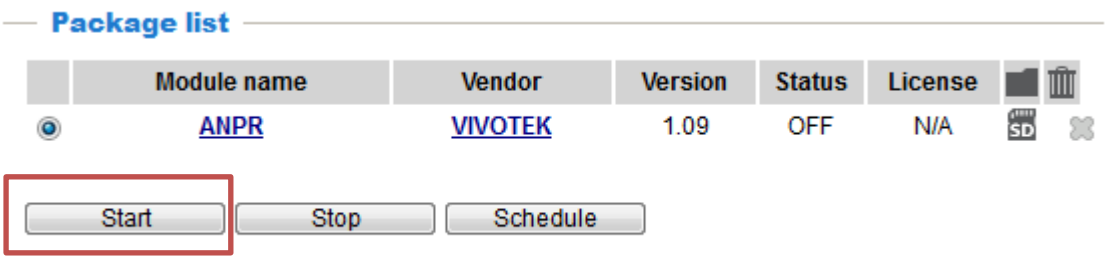


To solve this problem, we will have to reboot the service. You can reboot the service at:

- Logs page:



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



6.3 No enough space at Camera or SD

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

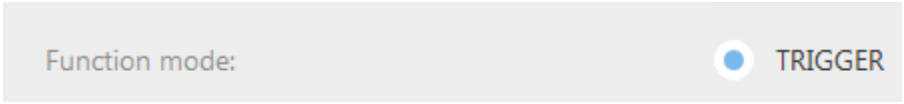
SD space free (%):	0	00:00:00.000 01/01/2018
Camera space free (%):	0	00:00:00.000 01/01/2018

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

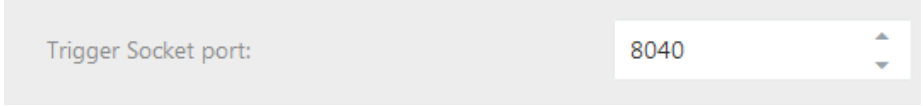
6.4 The system does not recognize license plates

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. 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 license plate must be between 2 lines.
3. If you the system has a defined ROI, verify that license plate is inside ROI area.
4. If the system is configurated 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 configurated 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):

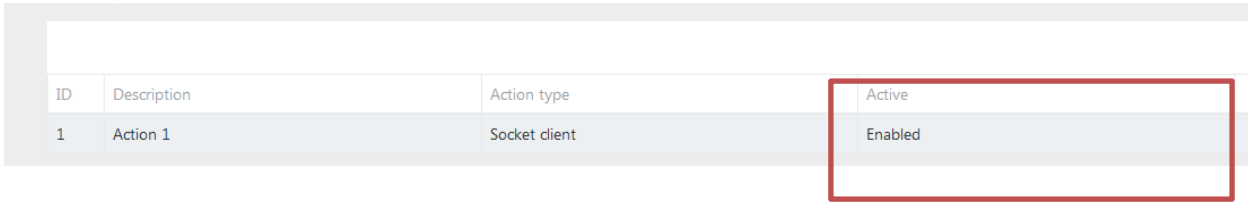


    c. Check that the sender device has connection TCP/IP to the camera at defined port. It can be checked via telnet.
    d. If the message is received correctly, the system log must show the line:

6.5 Problem with ACTIONS

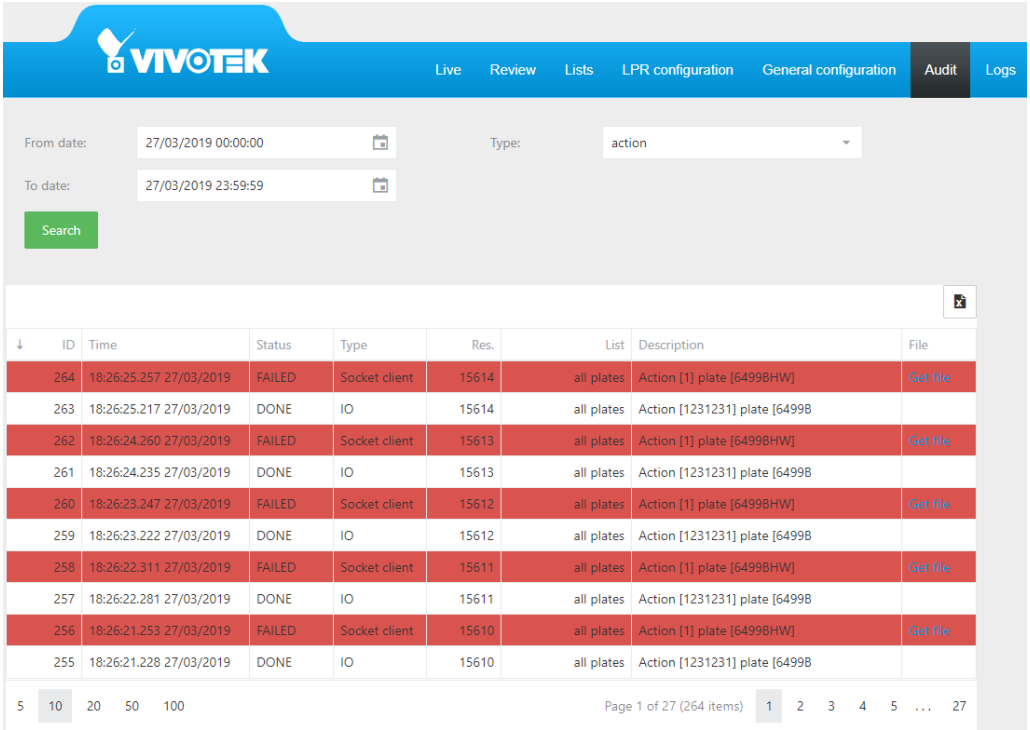
If the action does not execute, verify the following points:

1) The action is enabled.

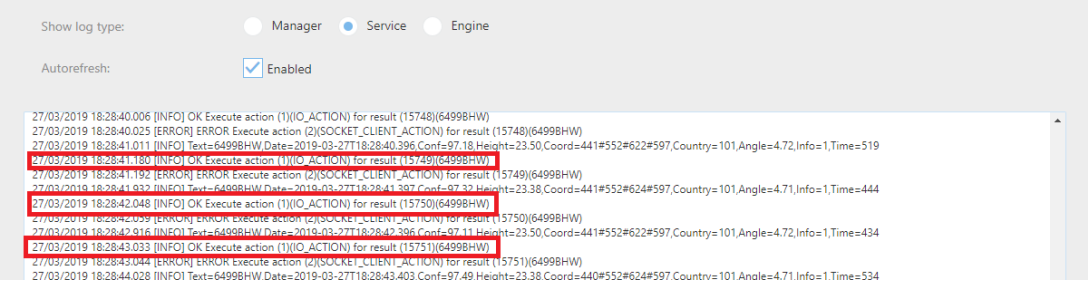


2) The detected plate is in the list that is defined the action.
3) There is a defined action to “all plate” list.
4) The detected plate is not in any list, there is an action defined in “not in list” list.
5) The date of the detection corresponds on a valid time defined in the scheduler.

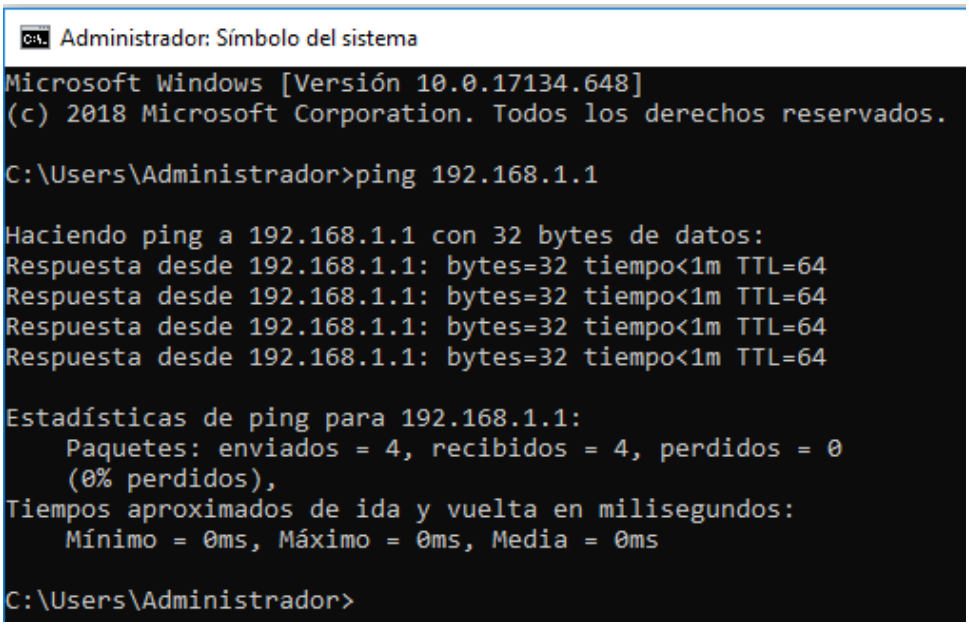
6) Check in Tab Audit if the action has been executed. In red error sent.



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



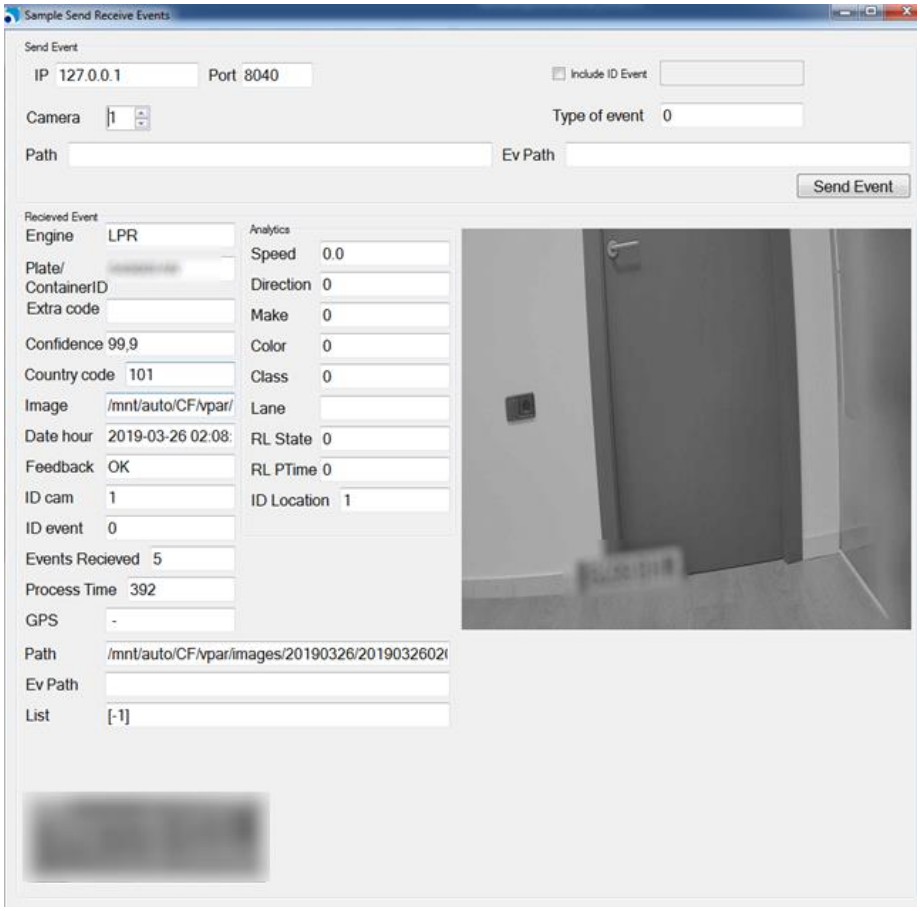
8) Check the connection with the host with a ping command.



6.5.1 Socket client

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

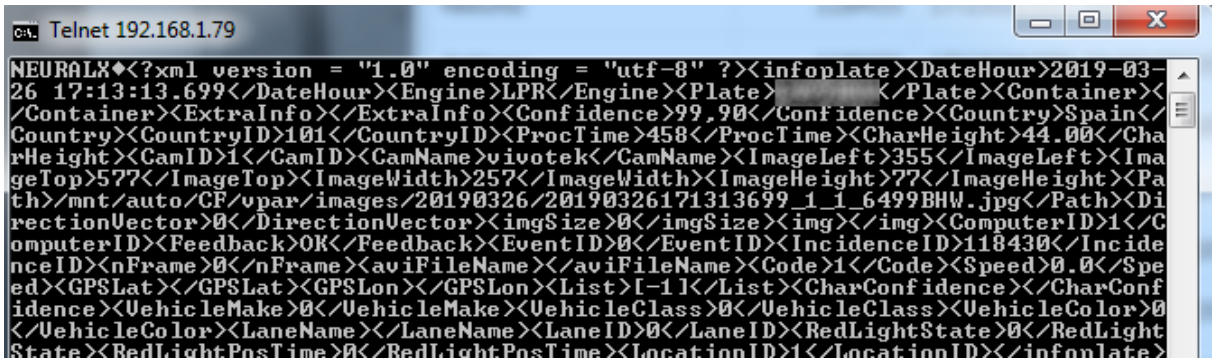
1) Check HOST and Port of defined action.
2) Check the connection that the camera has connection to the HOST/PORT.
3) Download, install and open the sample test program on client computer.
    - www.neurallabs.net/SendReceiveEvents/SendReceiveEvents_x64.zip
    - www.neurallabs.net/SendReceiveEvents/SendReceiveEvents_x86.zip
4) Check the IP from client computer, set port 17000 and read a plate.



6.5.2 Socket server or VAST2

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

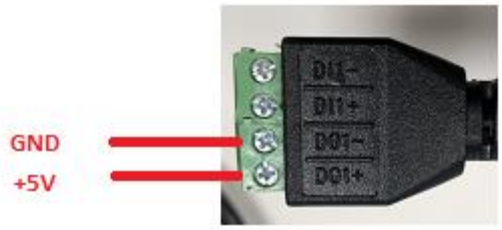
1) Check the defined port
2) Reboot the service if you have defined a new socket server action
3) Open a telnet client to Camera IP and defined port and check that the message is received.



6.5.3 IO

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

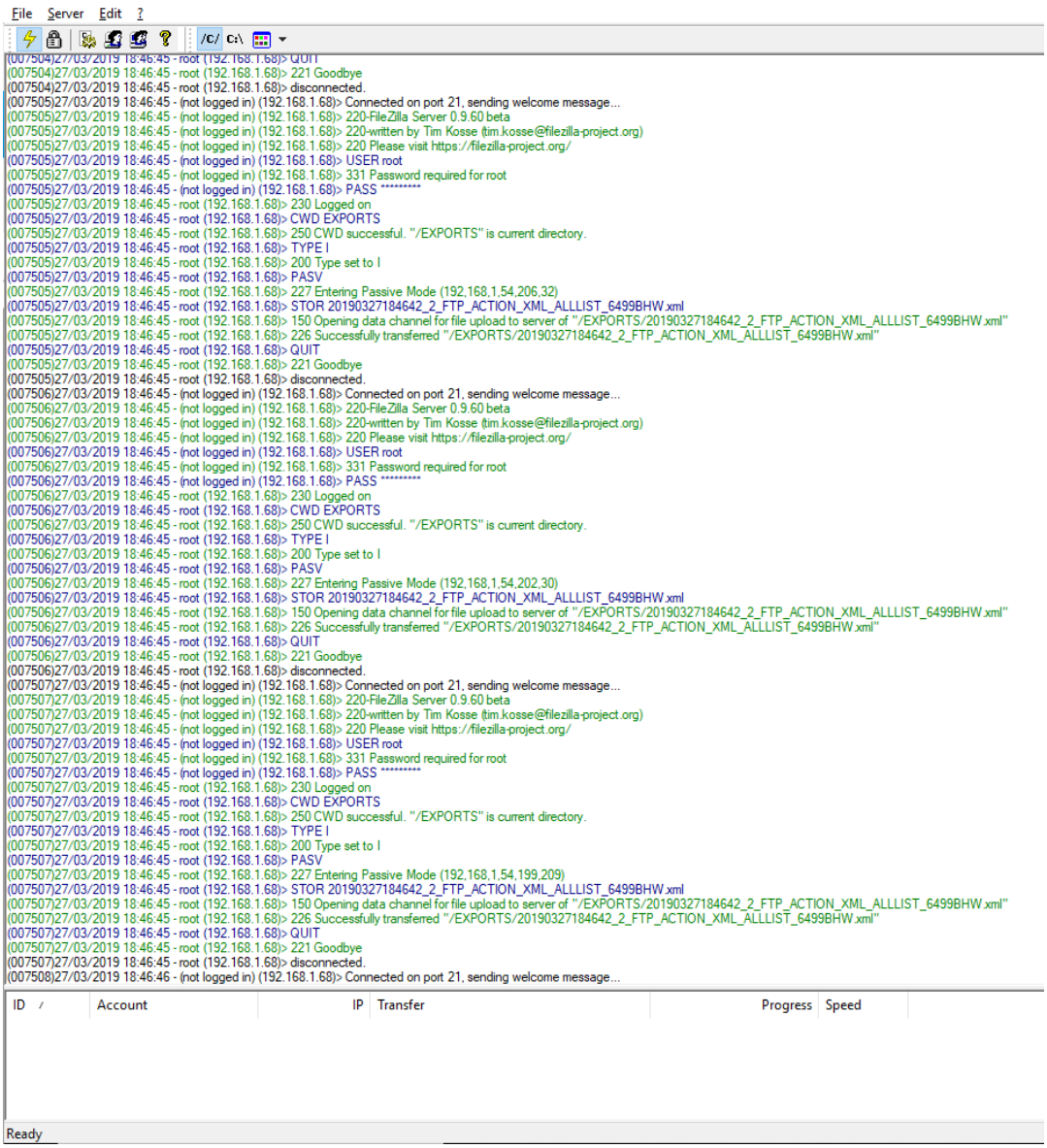
1) Check the defined port
2) Check the defined time
3) With a multimeter, connect to selected port and check that the voltage changes from 0 to 5 V.



6.5.4 FTP

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

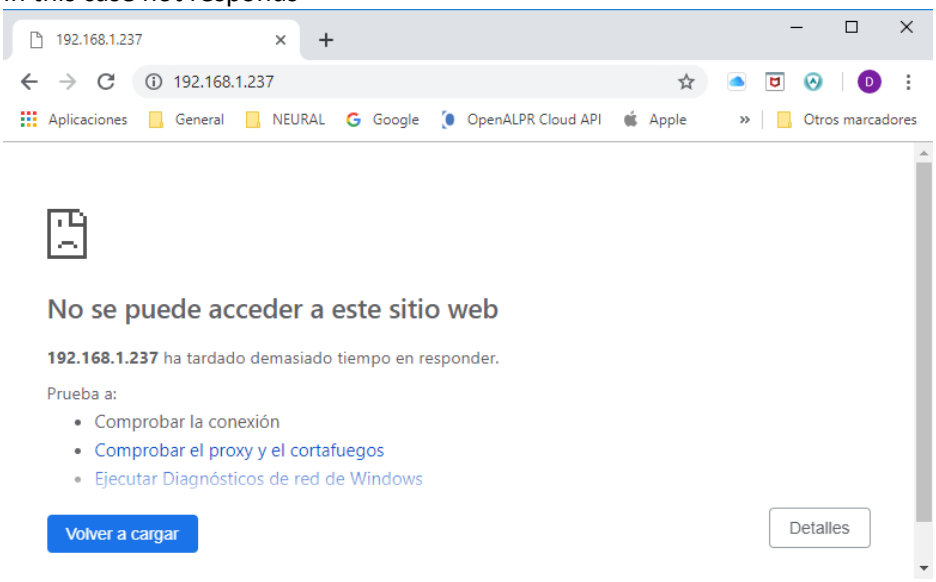
1) Check the defined parameter
2) Check the credentials and access with FTP client
    - https://filezilla-project.org/download.php?type=client
3) Install FTP server like the FileZilla server and check the logs
    - https://dl2.cdn.filezilla-project.org/server/FileZilla_Server-0_9_60_2.exe?h=Fjvi4wvvZmA-MDcp3K9v0Q&x=1553712290



6.5.5 HTTP/MILESTONE/WIEGAND

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

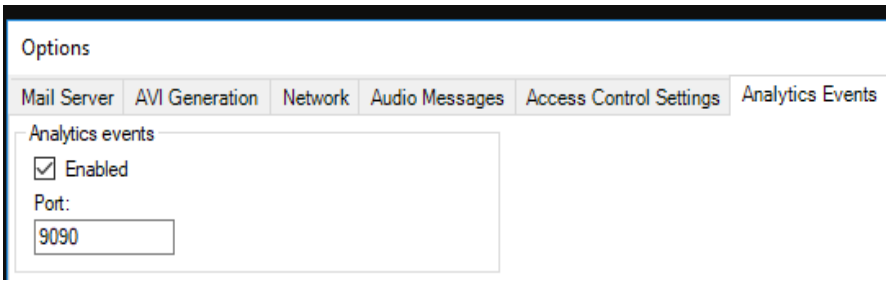
1) Check the defined parameter
2) With an explorer (Internet explorer, Firefox, Chrome) do a request to defined URL and check that the URL respond.
   In this case not responds



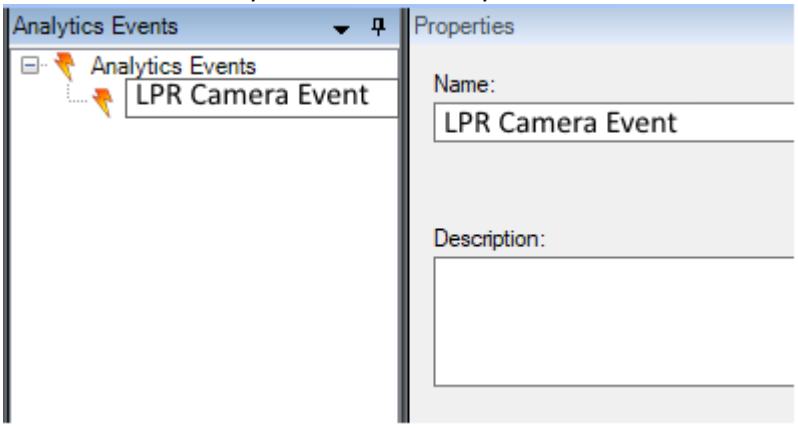
6.5.5 MILESTONE

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

3) Check the defined parameter
4) Check in Milestone system that the analytics events are enabled.



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



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