

ZKTeco

**ZK-LPR Car ID
S.I. Guidance**

ZKTeco

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History:

Date	Creator	Details
20.03.2020	Luis Rodríguez	Initial Document
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1. Scope of the document

ZKTeco (ZK-LPR Car ID) is a powerful LPR application developed, embedded in the cameras.

ZKTeco 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.

This guidance shows System Integrators (SI) how to deal with the different interfaces supported (3rd party integration – Action for List)

2. ZK-LPR Overview

2.1. Main

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.

The screenshot displays the main interface of the ZK-LPR software. It is divided into three main sections:

- Monitor Panel (A):** Shows a live camera feed of a vehicle with license plate 6499 BHW.
- Results Panel (B):** A table showing search results for the license plate 6499 BHW. The table includes columns for ID, Time(ms), Plate, Lane, Conf., Country, and Image.
- Info Panel (C):** A gallery of detected license plates with their respective detection metrics.

ID	Time(ms)	Plate	Lane	Conf.	Country	Image
47602	18:04:53.102	6499BHW		79.03	Spain	
47603	18:04:53.836	6499BHW		79.19	Spain	
47604	18:04:54.498	6499BHW		79.76	Spain	
47605	18:04:56.875	6499BHW		81.39	Spain	
47606	18:05:01.133	6499BHW		81.24	Spain	

Plate	Conf.	Time
6499BHW (Spain)	82.19%	20.30px
6499BHW (Spain)	82.85%	20.09px
6499BHW (Spain)	82.85%	19.82px
6499BHW (Spain)	79.99%	19.64px
6499BHW (Spain)	99.90%	20.56px

At the bottom, there are status indicators: SD space free (tpc): 6, Camera space free (tpc): 90, Last Size (pixels): 19, Last OCR time (millis): 679, FREEFLOW, and 18:39:07.956 28/02/2020.

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

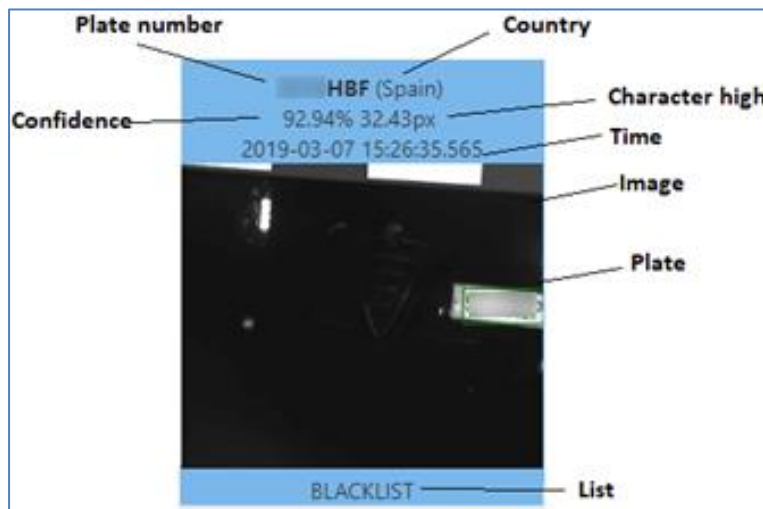
Monitor Panel: Live image what the camera is streaming.

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.



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

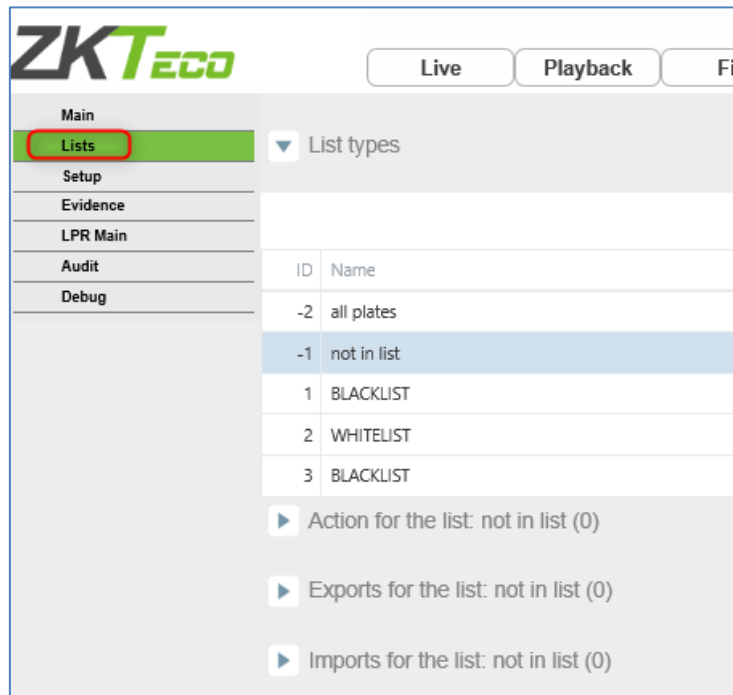


- ID
- TIME
- PLATE
- LANE
- CONFIDENCE
- COUNTRY
- IMAGE

2.2. List Tab

In this tab you can create lists, a list is a group of license plates that will trigger an action, ZKTeco 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

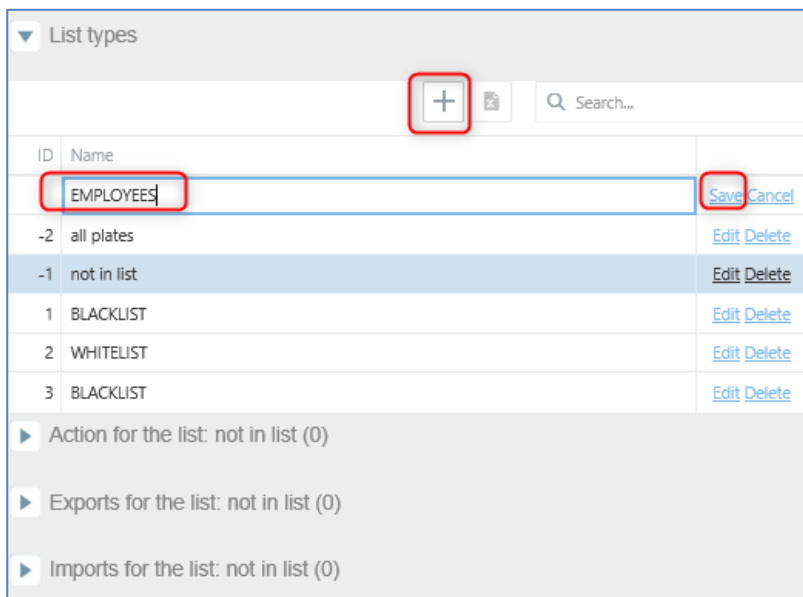
Action: Will show all the actions created by list.

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 types

+
🗑️

ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete
4	EMPLOYEES	Edit Delete

▶ List of the license plates: EMPLOYEES (0)

▶ Action for the list: EMPLOYEES (0)

▶ Exports for the list: EMPLOYEES (0)

▶ Imports for the list: EMPLOYEES (0)

Copyright © 2019

List of the license plates: EMPLOYEES

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

+
🗑️

Plate	Description	Insert Date	Start validity date	End validity date	
005OCR	NAME LASTNBAME	01/04/2019 13:33:23	01/04/2019 13:33:23	01/01/3000 00:00:00	Save Cancel

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

+
🗑️

Plate	Description	Insert Date	Start validity date	End validity date	
005OCR	NAME LASTNBAME	01/04/2019 13:33:23	01/04/2019 13:33:23	01/01/3000 00:00:00	Edit Delete

*In case if the system works in trigger mode and we want to execute a no plate action, we have to add NO_PLATE to the list.

3.3RD PARTY INTEGRATION (Action for the list)

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



- **IO:** Enable inbound and outbound digital signals in the camera.
- **WIEGAND SOYAL:** send a signal to Wiegand middleware board (Same action than Wiegand).
- **HTTP:** send a request using this protocol to a server.
- **FTP:** store the results in an FTP server.
- **FTP JPG MTT:** the functionality it's the same one realized with FTP, with a few differences because with this one you can create a structure of subfolders, contains information like camera, year, month and day.
- **MILESTONE:** send an analytic event to Milestone VMS.
- **EMAIL:** send an email.
- **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.
- **Trigger Server:** Enable a port that sends the read response when a trigger message arrives.

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.

The screenshot displays the software interface for managing license plate lists. The top section, titled 'List types', contains a table with the following data:

ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete
3	BLACKLIST	Edit Delete
4	EMPLOYEES	Edit Delete

The 'EMPLOYEES' list is selected, and a dropdown menu is open, showing the following options:

- Socket client
- Socket server
- IO
- FTP
- HTTP
- MILESTONE
- Trigger server
- Meypar server
- WIEGAND SOYAL
- FTP JPG MTT
- EMAIL

Below the dropdown, the 'Action for the list: EMPLOYEES (0)' section is visible, containing a table with the following data:

ID	Description	
1		Select...

The interface also includes search bars and '+', 'x', and 'Save/Cancel' buttons for various sections.

3.1. IO (aux. relay)

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”

ID	Description	Action type	Active	
2	1	IO	Enabled	Edit Delete

ACTIVATION SCHEDULER

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Sun																								
Mon																								
Tue																								
Wed																								
Thu																								
Fri																								
Sat																								

Save scheduler

Action Info

IO type: ZKTECO

Output: 0

Activation time(sec): 1

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

Click on for more information about how to configure.

Help

Enable output digital signals in the camera

The parameters are the following

- **IO type:** The type of output
- **Output:** The port that will be activated
- **Activation time(sec):** Time to keep the signal

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.

3.2. Wiegand Soyal

Configuring the action **WIEGAND SOYAL** 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”.

(Refer to **ANEX. 2: Wiegand output** for a detailed information)

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.

Help ×

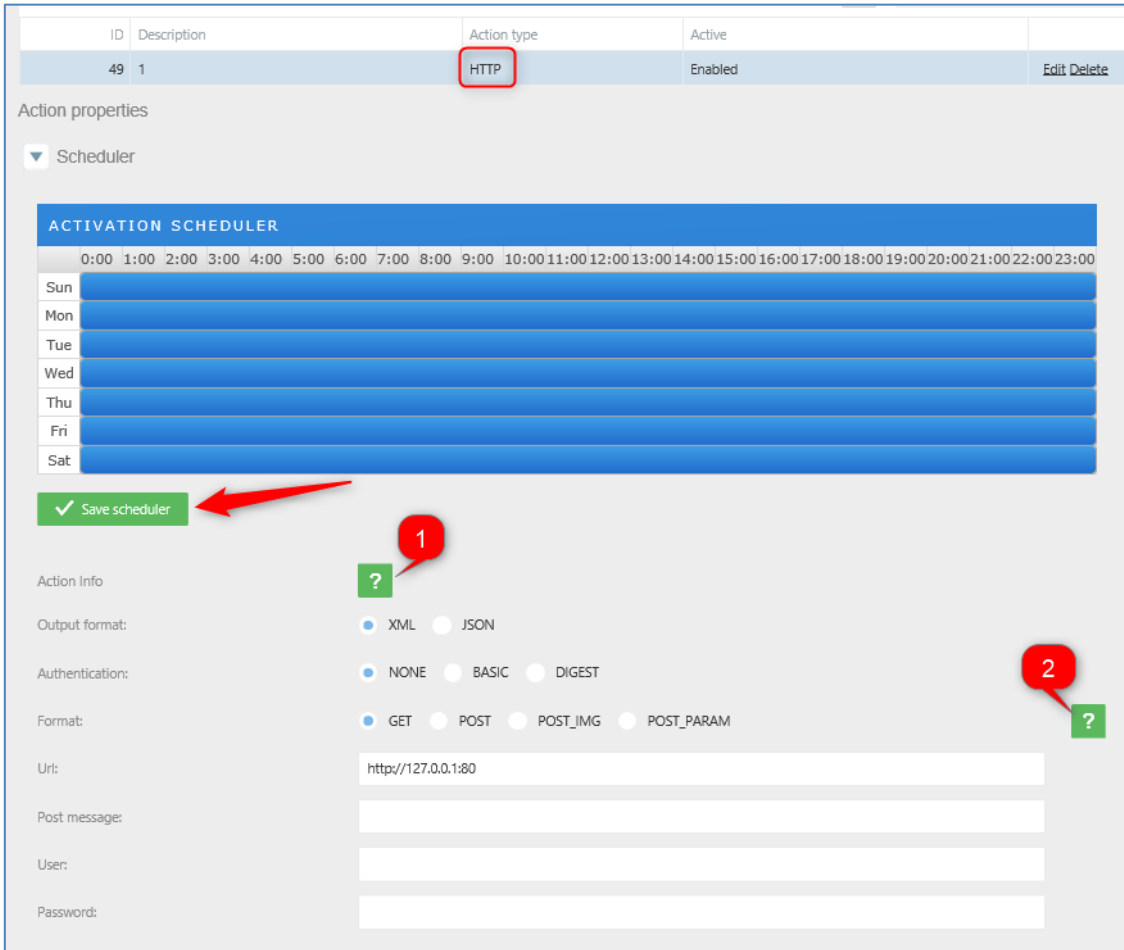
The possible output formats are the following:

- **Bypass data bits:**No parity bits are added to the output
- **Even/Odd parity bits:**The leading parity bit is even, and the ending parity bit is odd
- **Odd/Even parity bits:**The leading parity bit is odd, and the ending parity bit is even

The output bit length without parity bits can be 24 or 32 bits

3.3. 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 “+” and then 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:

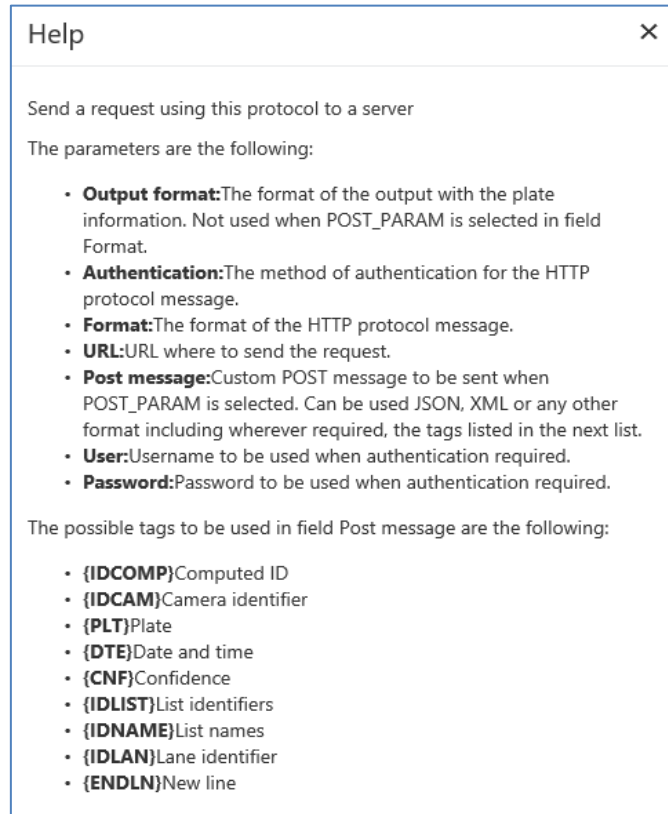
```
http://192.168.1.23:80?plate=#PLT#&time=#DTE#
http://192.168.1.23:80?plate=0715GYC&time=2019-09-27T18:49:19.912
```

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

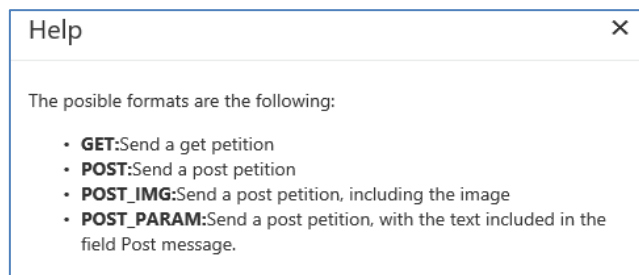
```
http://192.168.1.34:8090?plate=0715GYC&cam=1&time=2019-09-
27T18:52:49.929&conf=99.90&lane=2&list=[-1]
```

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.



3.4. 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”

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

Click on  for more information about how to configure.


Help ×

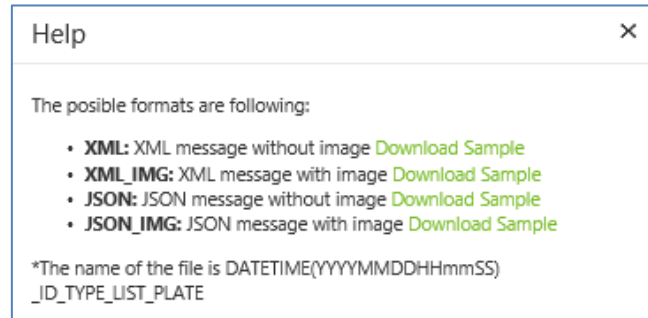
Store the results in an FTP server

The parameters are the following

- **Host:**Ftp server IP
- **Port:**Ftp server port
- **Format:**The message type (XML/JSON/CSV) and if need to send the image too
- **Folder:**Ftp folder to save the messages
- **User:**Ftp user
- **Password:**Ftp password
- **Confirmation file:**In order to track if all images have been sent to the FTP server you can select .flag or .conf that will generate a single file per each correct action to FTP.

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

Click on  for more information about format type.



3.5. FTP JPG MTT

Configuring the action **FTP JPG MTT** using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = FTP JPG MTT”.

ID	Description	Action type	Active	
11	1	FTP JPG MTT	Enabled	Edit Delete

Action properties

Scheduler

ACTIVATION SCHEDULER

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

Sun
Mon
Tue
Wed
Thu
Fri
Sat

Save scheduler

Action Info

Host: 127.0.0.1

Port: 21

Format: JPG

Folder: _____

User: _____

Password: _____

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


Click on for more information about how to configure.

Help

Store the JPG image of the result in a FTP server by camera ID, year, month and day

The parameters are the following

- **Host:**Ftp server IP
- **Port:**Ftp server port
- **Format:**The image format (JPG)
- **Folder:**Ftp folder where to save the image files
- **User:**Ftp user
- **Password:**Ftp password

Click on  for more information about format type.

Help ×

The only supported format is JPG

The image files will be stored in the following folders structure:
cameraID/year/month/day

The image file name will follow the layout: YYYYMMDD-
hhmmss_cameraID_plate.jpg

3.6. 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”.

ID	Description	Action type	Active	
1	action	MILESTONE	Enabled	Edit Delete

Action properties

▼ Scheduler

ACTIVATION SCHEDULER

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

Sun
Mon
Tue
Wed
Thu
Fri
Sat

✓ Save scheduler

Action Info

Host: 127.0.0.1

Port: 9090

Format: ANALYTIC_EVENT

Url: http://127.0.0.1:9090

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


Click on for more information about how to configure.

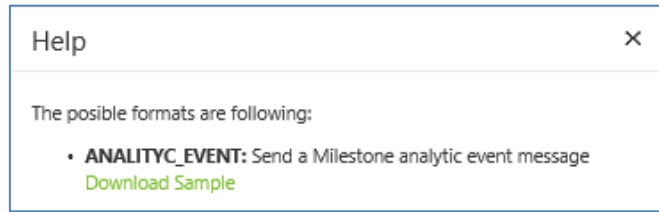
Help

Send a request using this protocol to a server

The parameters are the following

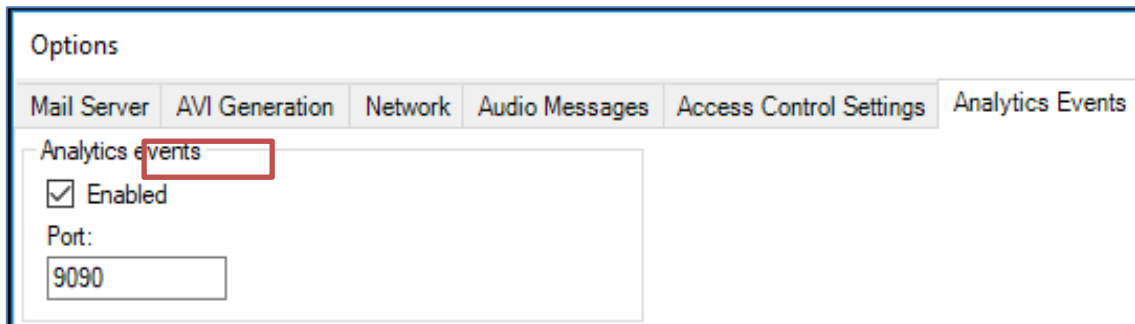
- **Host:**Milestone server IP
- **Port:**Milestone server port
- **Format:**Petition format to send
- **URL:**URL to send the petition
- **Event Type:**Analytic event type

Click on  for more information about format type.

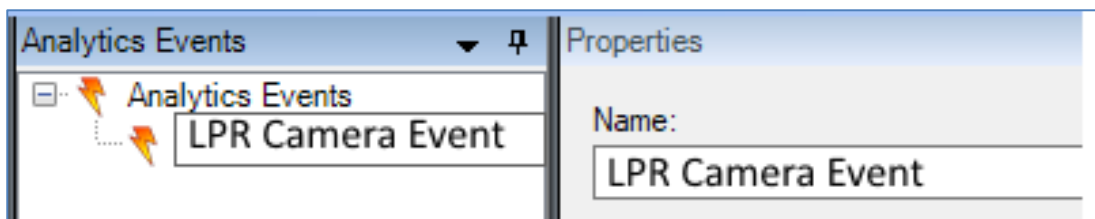


Once the Milestone action is configured, we need set up Milestone server to process our action. To do this, we follow the next steps:

- 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

The screenshot displays the 'Alarm Definitions' window. On the left, a tree view shows 'Alarm Definitions' with a sub-item 'Alarm Definition' highlighted. The right pane, titled 'Properties', is divided into two sections: 'Alarm definition' and 'Trigger'. In the 'Alarm definition' section, the 'Enable' checkbox is checked, the 'Name' field contains 'LPR ALARM', and the 'Instructions' field is empty. In the 'Trigger' section, the 'Triggering event' dropdown menu is open, showing 'Analytics Events' and 'LPR CAMERA EVENT' as options.

3.7. EMAIL

Configuring the action **EMAIL** to send messages, using the EMPLOYEES list, click on “Action for the list” and add a new action pressing “+” and then select in “Action type = EMAIL”.

ID	Description	Action type	Active	
14	1	EMAIL	Enabled	Edit Delete

Action properties

Scheduler

ACTIVATION SCHEDULER

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

Sun
Mon
Tue
Wed
Thu
Fri
Sat

Save scheduler

Action Info

Server: [?]

Port: 587

Server type and format: SMTP/SSL SMTP [?]

From: [?]

User: [?]


Password: [?]

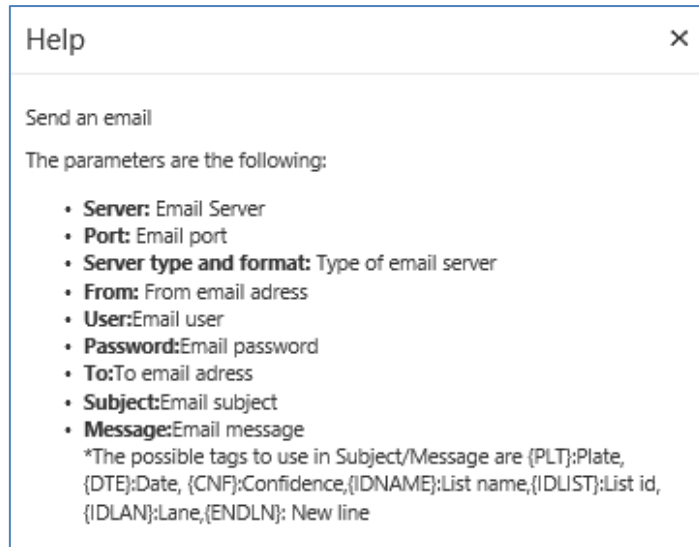
To: [?]


Subject: plate {PLT} received

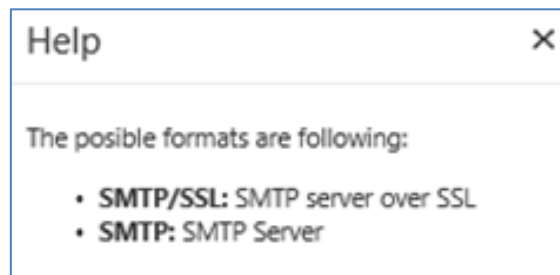
Message: Plate: {PLT};ENDLN)Time: {DTE};ENDLN)Global Confidence: {CNF};ENDLN)List: {IDNAME};ENDLN)Lane: {IDLAN};EN

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.



3.8. Socket client

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”.

ID	Description	Action type	Active	
2	SEND XML MSG	Socket client	Enabled	Edit Delete

Action properties

▼ Scheduler

ACTIVATION SCHEDULER

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Sun																								
Mon																								
Tue																								
Wed																								
Thu																								
Fri																								
Sat																								

✓ Save scheduler

Action Info

Host: 127.0.0.1

Port: 17000

Format: XML XML_IMG JSON JSON_IMG

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

Action Info: Click on for more information.

Help

Enable a socket connection to send messages as XML or JSON

The parameters are the following

- **Host:**The IP for the device that will listen to
- **Port:**The port that will listen to
- **Format:**The message type (XML/JSON) and if need to send the image too

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

Click on  for more information about format type.

Help ✕

The possible formats are following:

- **XML:** XML message without image [Download Sample](#)
- **XML_IMG:** XML message with image [Download Sample](#)
- **JSON:** JSON message without image [Download Sample](#)
- **JSON_IMG:** JSON message with image [Download Sample](#)

3.9. Socket server

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

ID	Description	Action type	Active	
4	Receive XML msg	Socket server	Enabled	Edit Delete

Action properties

Scheduler

ACTIVATION SCHEDULER

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Sun																								
Mon																								
Tue																								
Wed																								
Thu																								
Fri																								
Sat																								

Save scheduler

Action Info

Port: 8050

Format: XML XML_IMG JSON JSON_IMG

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

Action Info: Click on for more information.

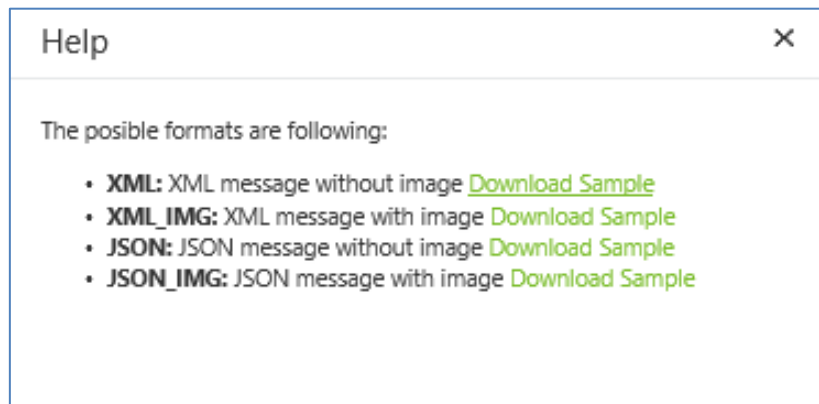
Help

Open a port in the camera to listen to hosts to send messages as XML or JSON

The parameters are the following

- **Port:**The port that will listen
- **Format:**The message type (XML/JSON) and if need to send the image too

Click on  for more information about format type.



3.10. 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 for the 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 in the “Trigger mode”, received this message (another message is discarded) make a trigger to the camera and take a picture to process the engine. After engine processed send a message with the format specified in the “Format response”

SIMPLE: Just the plate number

XML a message in format XML

XML_IMG a message in XML format including the image in base64 format

JSON a message in format JSON

JSON_IMG a message in JSON format including the image in base64 format

▼ Action for the list: EMPLOYEES (1)

ID	Description	Action type	Active	
10	1	Trigger server	Enabled	Edit Delete

Action properties

▼ Scheduler

ACTIVATION SCHEDULER

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

Sun
Mon
Tue
Wed
Thu
Fri
Sat

✓ Save scheduler

Action Info

Port: 8060


Format response: SIMPLE XML XML_IMG JSON JSON_IMG

Trigger message: \$

Simple response init:

Simple response end:

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

Click on  for more information about how to configure.

Help

Enable a port that sends the read response when a trigger message arrives

The parameters are the following:

- **Port:** The port that will listen/respond to.
- **Format:** The message type and if need to send the image too.
The possible formats are following:
 - **SIMPLE:** Return only the number plate
 - **XML:** XML message without image [Download Sample](#)
 - **XML_IMG:** XML message with image [Download Sample](#)
 - **JSON:** JSON message without image [Download Sample](#)
 - **JSON_IMG:** JSON message with image [Download Sample](#)
- **Trigger message:** Activation message for trigger
- **Simple response init:**Message concatenated before plate (only for simple format)
- **Simple response end:**Message concatenated after plate (only for simple format)

4. ANEX. 1: Camera list synchronization

The ZKTeco 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.

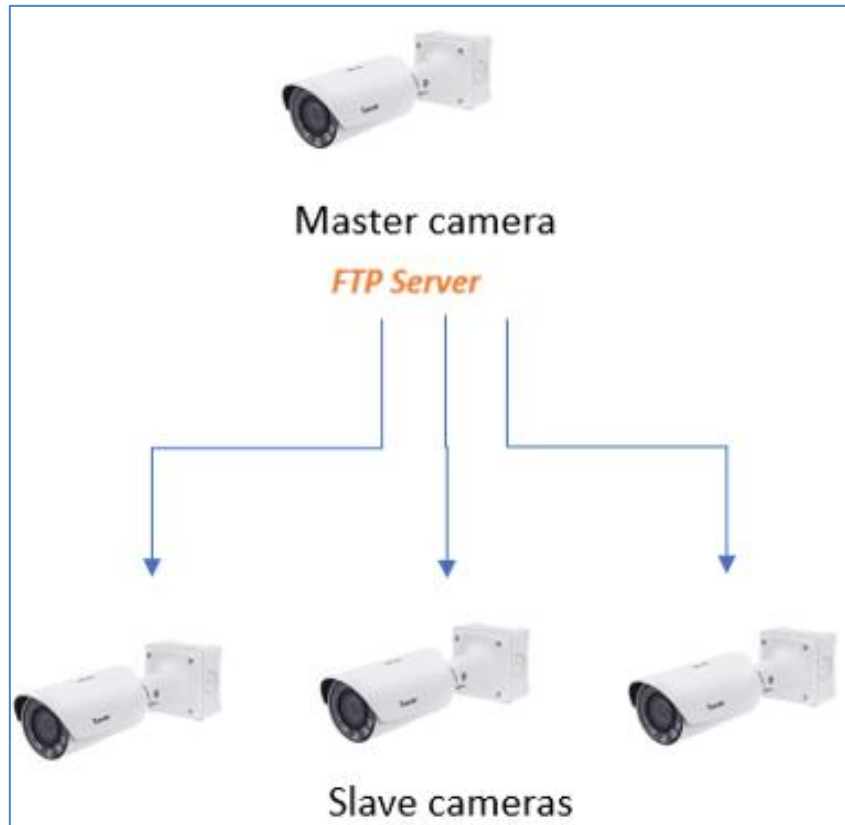
All the list and elements must be modified in the master camera, the changes will be updated automatically in the slave following the next instructions to configure the master and the slaves.

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.

4.1. Architecture 1

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



4.1.1. Master configuration

Activation FTP server will do by script.

4.1.2. Slave configuration

Access to the List Tab.

To configure only one list selects the list and make the import in the list.

ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete

▶ List of the license plates: BLACKLIST (0)

▶ Action for the list: BLACKLIST (0)

▶ Exports for the list: BLACKLIST (1)

▼ Imports for the list: BLACKLIST (0)

or Drop import XML/CSV file here

Delete the list elements at import

ID	Description	Import type	Interval	Active
No data				

To configure all the list selects all plates.

ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete

▶ Action for the list: all plates (1)

▶ Exports for the list: all plates (0)

▼ Imports for the list: all plates (0)

Select import XML/CSV file or Drop import XML/CSV file here

Delete the list elements at import

ID	Description	Import type	Interval	Active	
No data					

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

ID	Description	Import type	Interval	Active	
2	import	SINCRO camera	Minute	Enabled if change	Edit Delete

Configure the master camera credentials.

Import properties

Import Info

Host: 192.168.1.78

User: root

Password: neural001

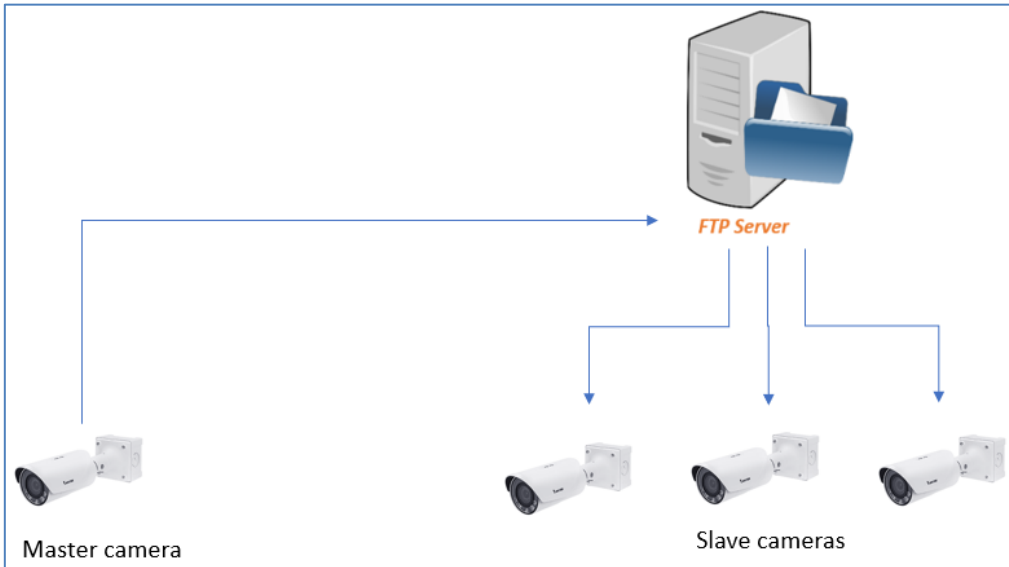
Host: Camera master IP

User: <empty>

Password: <empty>

4.2. Architecture 2

Using FTP server where store the list.



4.2.1. Master configuration

Access to the List Tab.

To configure only one list selects the list and make the export in the list.

The screenshot shows a software interface for managing license plate lists. At the top, there is a search bar and a '+' icon. Below it is a table with the following data:

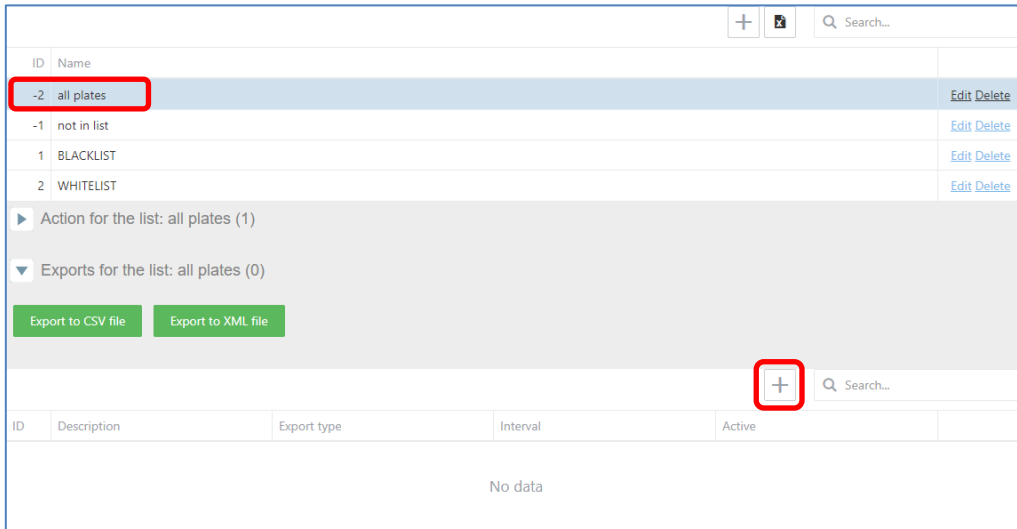
ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete

Below the table, there are expandable sections for the selected 'BLACKLIST' (ID 1):

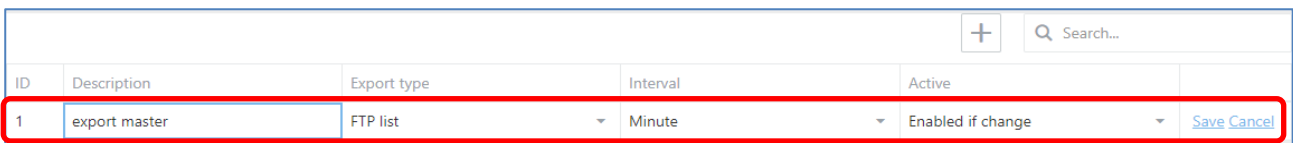
- ▶ List of the license plates: BLACKLIST (0)
- ▶ Action for the list: BLACKLIST (0)
- ▼ Exports for the list: BLACKLIST (0)

Under the 'Exports' section, there are two green buttons: 'Export to CSV file' and 'Export to XML file'. At the bottom of the interface, there is another search bar and a '+' icon.

To configure all the list selects all plates.

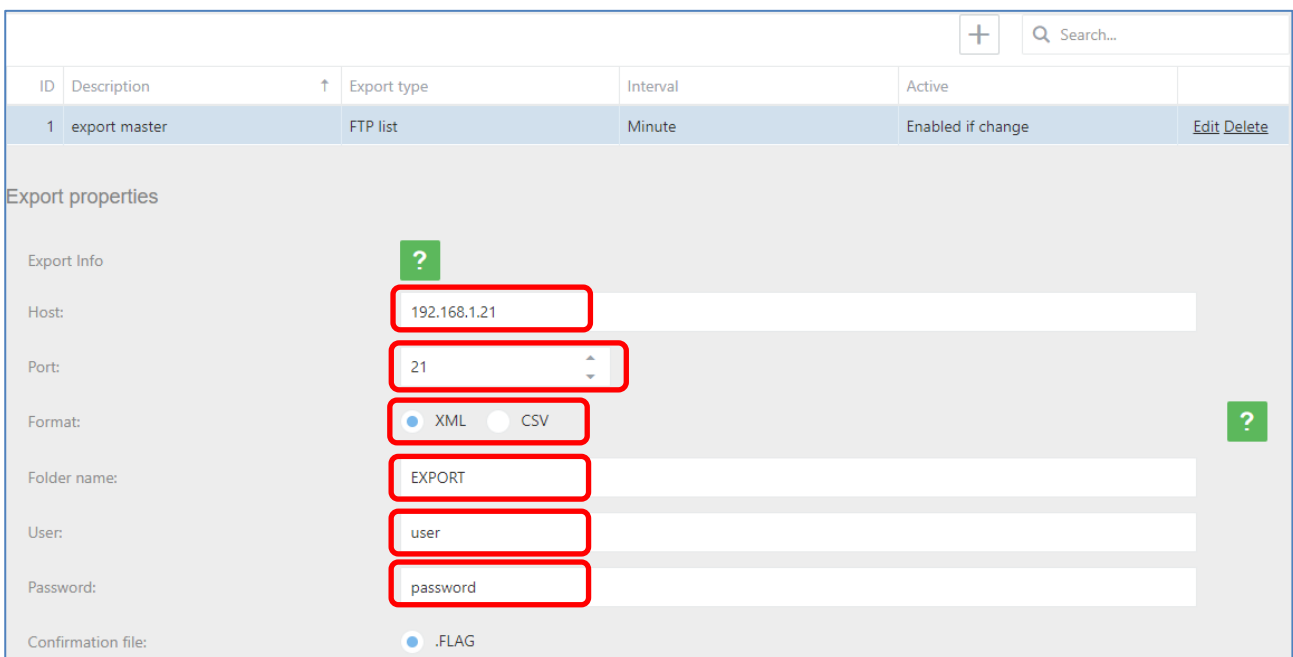


Create an export each minute enabled if change with the type FTP list and click Save.



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.

From date: 08/04/2019 00:00:00 Type: export

To date: 08/04/2019 23:59:59

[Search](#)

ID	Time	Status	Type	List	Description	Num.	File
1	12:55:00.010 08/04/2019	DONE	FTP list	BLACKLIST	Export [export master] time [from:2000010...	1	Get file

4.2.2. Slave configuration

Access to the List Tab.

To configure only one list selects the list and make the import in the list.

ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete

▶ List of the license plates: BLACKLIST (0)

▶ Action for the list: BLACKLIST (0)

▶ Exports for the list: BLACKLIST (1)

▼ Imports for the list: BLACKLIST (0)

[Select import XML/CSV file](#) or Drop import XML/CSV file here

Delete the list elements at import

ID	Description	Import type	Interval	Active
No data				

To configure all the list selects all plates.

ID	Name	
-2	all plates	Edit Delete
-1	not in list	Edit Delete
1	BLACKLIST	Edit Delete
2	WHITELIST	Edit Delete

▶ Action for the list: all plates (1)

▶ Exports for the list: all plates (0)

▼ Imports for the list: all plates (0)

Select import XML/CSV file or Drop import XML/CSV file here

Delete the list elements at import

+

ID	Description	Import type	Interval	Active
No data				

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

ID	Description	Import type	Interval	Active	
1	import slave	FTP list	Minute	Enabled if change	Save Cancel

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

Import properties

Import Info

Host: 192.168.1.21

Port: 21

Format: XML XML_NOTDELETE CSV CSV_NOTDELETE

Folder name: EXPORT

User: user

Password: password

Confirmation file: .FLAG

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.

The screenshot shows a web interface for an audit log. At the top, there are search filters: 'From date' set to '08/04/2019 13:25:00', 'To date' set to '08/04/2019 23:59:59', and 'Type' set to 'import'. A green 'Search' button is located below the filters. Below the filters is a search bar with a magnifying glass icon and the text 'Search...'. Below the search bar is a table with the following columns: ID, Time, Status, Type, List, Description, Num., and File. The table contains one row with the following data: ID: 21, Time: 13:25:00.136 08/04/2019, Status: DONE, Type: (empty), List: (empty), Description: Import [import slave] time [f, Num.: 1, File: [Get file](#). The first row of the table is highlighted with a red border.

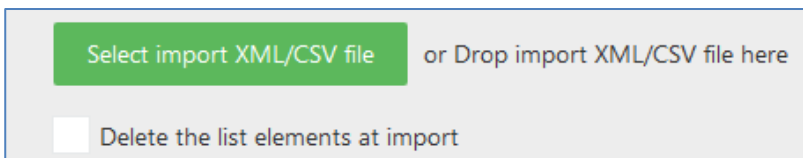
ID	Time	Status	Type	List	Description	Num.	File
21	13:25:00.136 08/04/2019	DONE			Import [import slave] time [f	1	Get file

4.3. Import for the list

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"/>

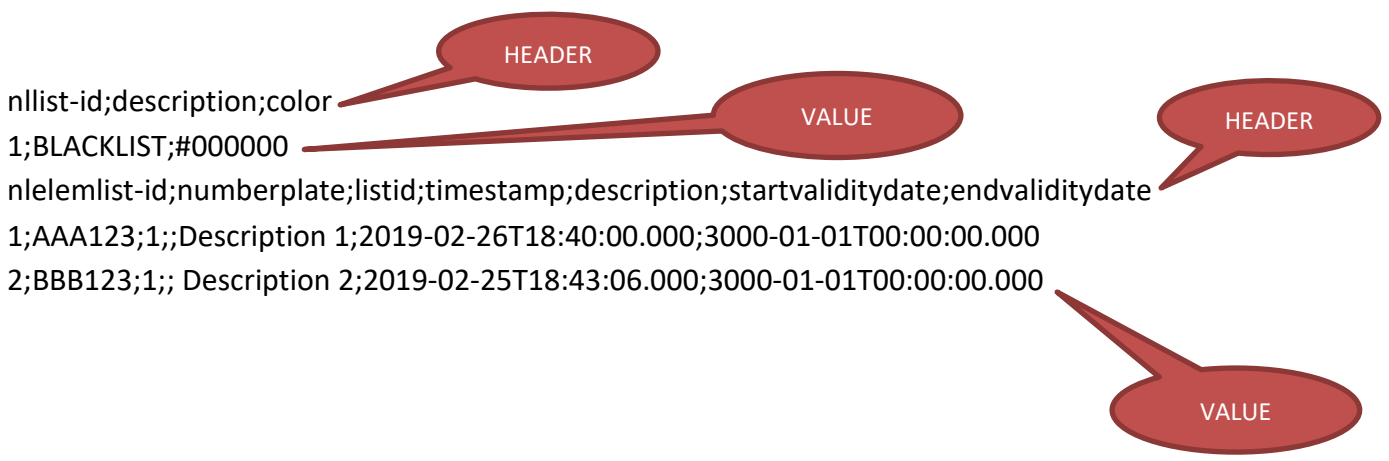
<nlelemlist id="2" sendserver="0" dateserver="" reserve="" numberplate="BBB321" listid="3" timestamp=""
description="EMP 2" startvaliditydate="2000-01-01T00:00:00.000" endvaliditydate="3000-01-01T00:00:00.000"/>

</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”.

ID	Description	Import type	Interval	Active	
1	import	FTP list	Day	Enabled	Edit Delete

Import properties

Import Info

Host: 127.0.0.1

Port: 21

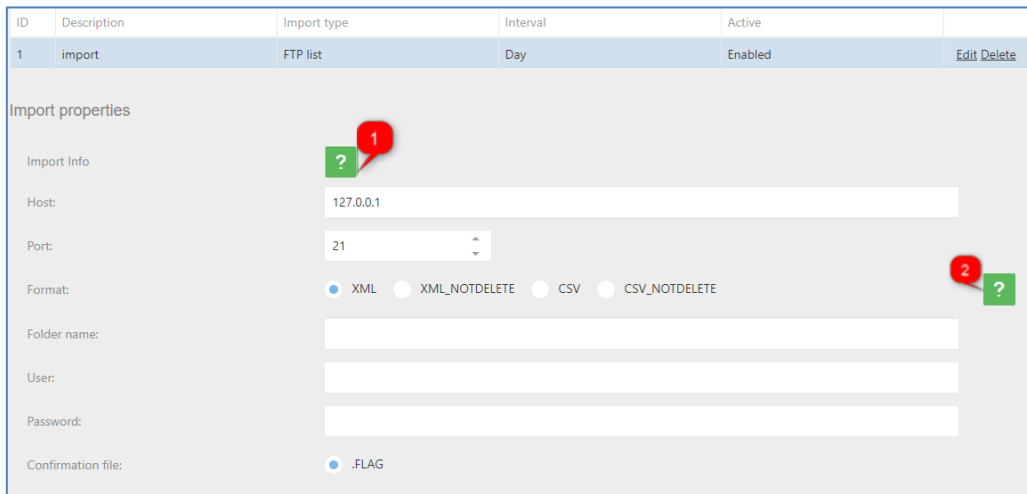
Format: XML XML_NOTDELETE CSV CSV_NOTDELETE

Folder name:

User:

Password:

Confirmation file: .FLAG



Click on  for more information about how to configure.

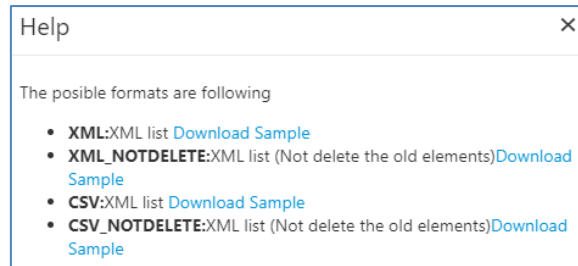
Help

Import the lists from an FTP server

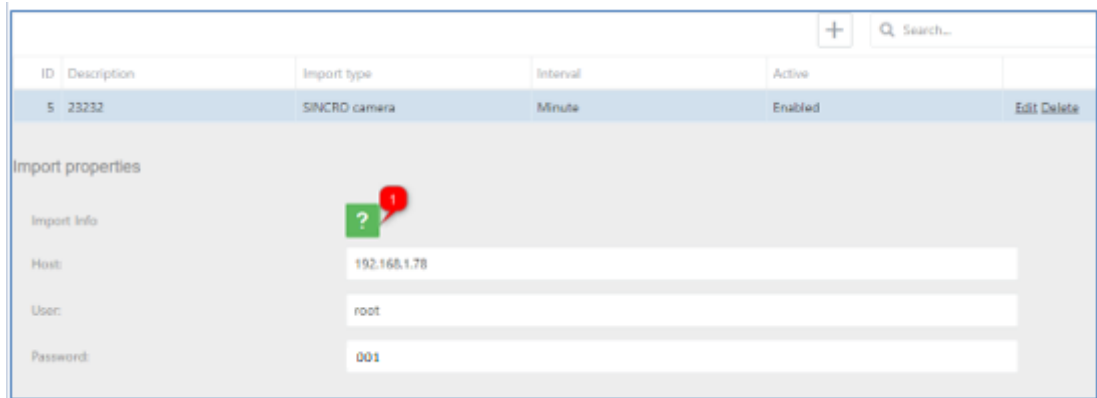
The parameters are the following


- **Host**:Ftp server IP
- **Port**:Ftp server port
- **Format**:The message type (XML)
- **Folder**:Ftp folder to save the lists
- **User**:Ftp user
- **Password**:Ftp password
- **Confirmation file**:In order to track if list have been receive from the FTP server.

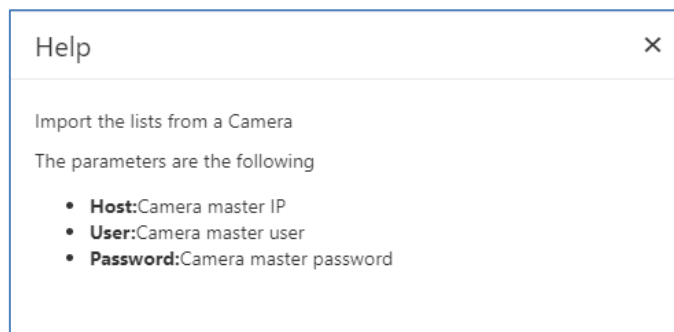
Click on  for more information about format type.



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.

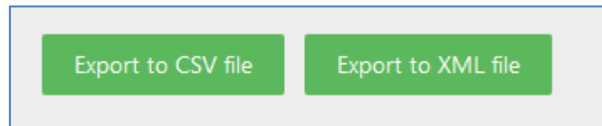


4.4. Exports for the list

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.

ID	Description	Export type	Active
	local result	FTP matches	Enabled

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”.

ID	Description	Export type	Interval	Active	
1	local result	FTP matches	Hour	Enabled	Edit Delete

Export properties

Export Info

Host:

Port:

Format: XML XML_IMG JSON JSON_IMG CSV

Folder name:

User:

Password:

Confirmation file: NONE .FLAG .CONF

Click on for more information about how to configure.

Help ✕

Export the results in an FTP server

The parameters are the following

- **Host:**Ftp server IP
- **Port:**Ftp server port
- **Format:**The message type (XML/JSON)
- **Folder:**Ftp folder to save the messages
- **User:**Ftp user
- **Password:**Ftp password
- **Confirmation file:**In order to track if all images have been sent to the FTP server you can select .flag or .conf that will generate a single file per each correct action to FTP.

Click on for more information about format type.

Help ✕

The possible formats are following

- **XML:**XML results without image [Download Sample](#)
- **XML_IMG:**XML results with image [Download Sample](#)
- **JSON:**JSON results without image [Download Sample](#)
- **JSON_IMG:**JSON results with image [Download Sample](#)
- **CSV:**CSV results [Download Sample](#)

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”.

ID	Description	Export type	Interval	Active	
1	local result	FTP list	Hour	Enabled	Edit Delete

Export properties

Export Info

Host:

Port:

Format: XML CSV

Folder name:

User:

Password:

Confirmation file: .FLAG

Click on for more information about how to configure.

Help

Export the lists in an FTP server

The parameters are the following

- **Host:**Ftp server IP
- **Port:**Ftp server port
- **Format:**The message type (XML)
- **Folder:**Ftp folder to save the lists
- **User:**Ftp user
- **Password:**Ftp password
- **Confirmation file:**In order to track if all files have been sent to the FTP server, it will generate a single file per each correct action to FTP.

Click on for more information about format type.

Help

The possible formats are following

- **XML:**XML list [Download Sample](#)
- **CSV:**CSV list [Download Sample](#)

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.

ID	Description	Export type	Interval	Active	
2	11111	FTP list	Minute	Enabled	Edit Delete

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.

ID	Description	Export type	Interval	Active	
2	11111	FTP list	Minute	Disabled	Save Cancel

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.

ID	Description	Export type	Interval	Active	
2	11111	FTP list	Minute	Enabled if change	Save Cancel

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

ID	Description	Export type	Interval	Active	
2	11111	FTP list	Minute	Enabled	Edit Delete

5. ANEX. 2: Wiegand output

This guide aims to describe the necessary steps to integrate the ZKTeco BL-852Q38A-LP cameras to any access control platform with Wiegand 26 interface.

The integration between both platforms allows LPR to serve as a "Reader" to any access controller with Wiegand 26 interface.

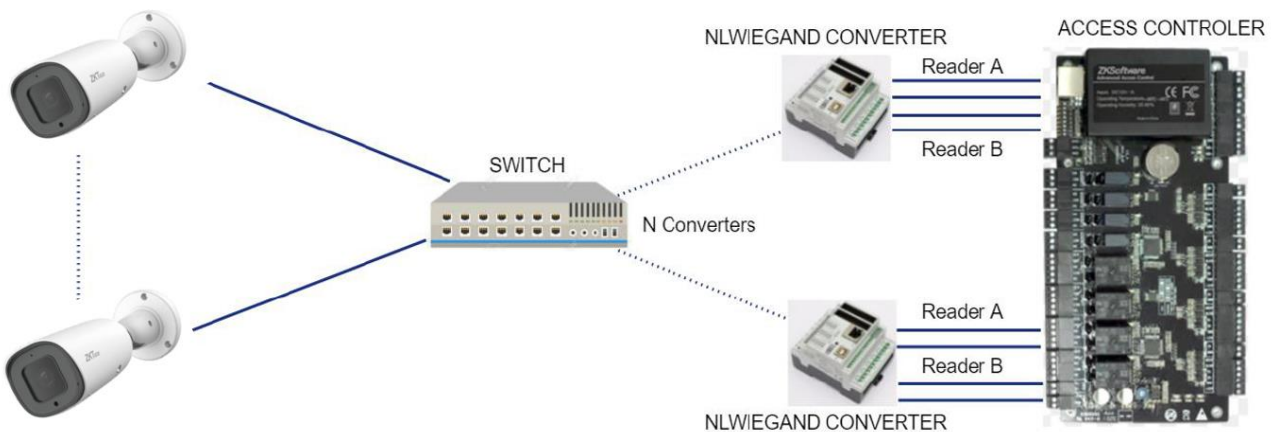
5.1. Requirements

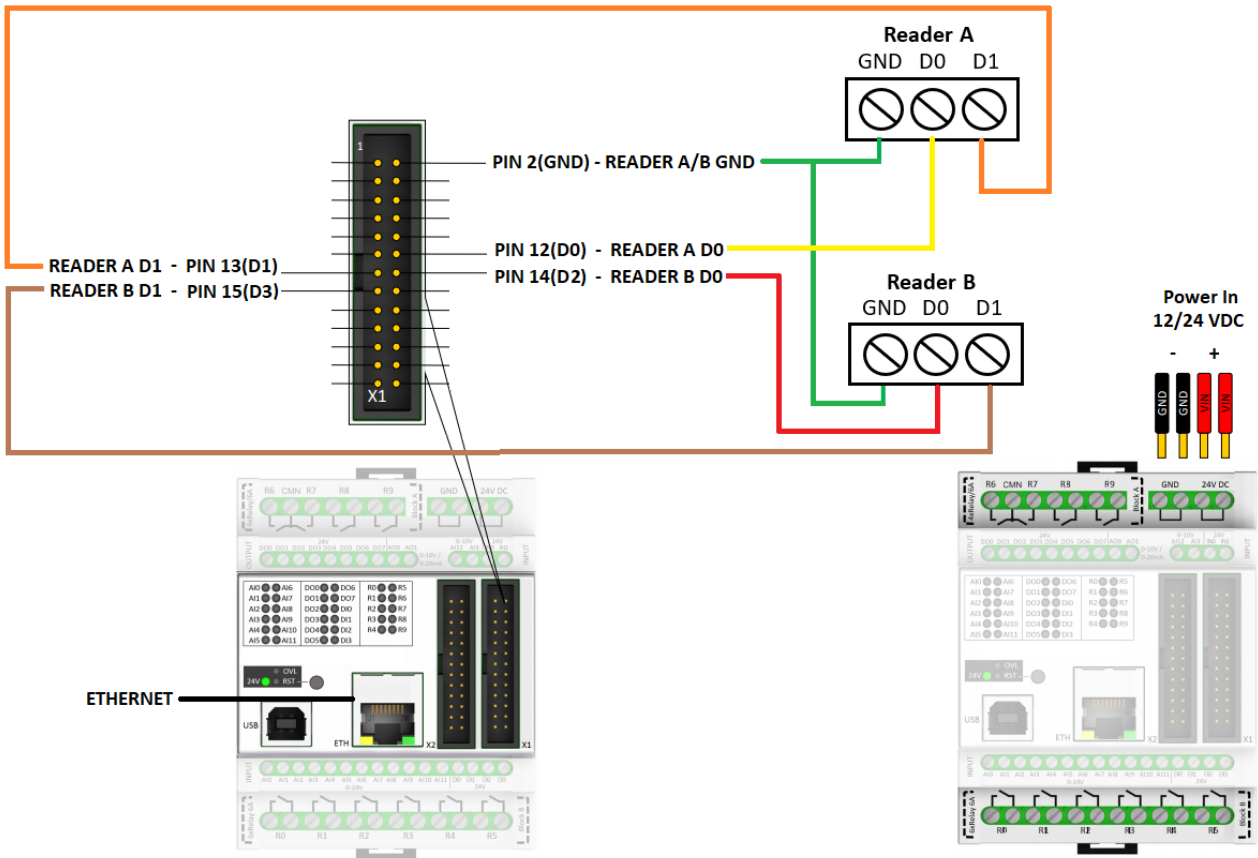
- ZKteco BL-852Q38A-LP camera
- NL2WIEGAND OEM CONVERTER OR NL2WIEGAND INDUSTRIAL CONVERTER.

5.2. Architecture

The cameras must be in the same logical network to command the NL2WIEGAND converters. Each camera will be able to command a single reader (A or B) of a NL2WIENGAND converter. In this way each converter can manage up to 2 READERS of the access controller.

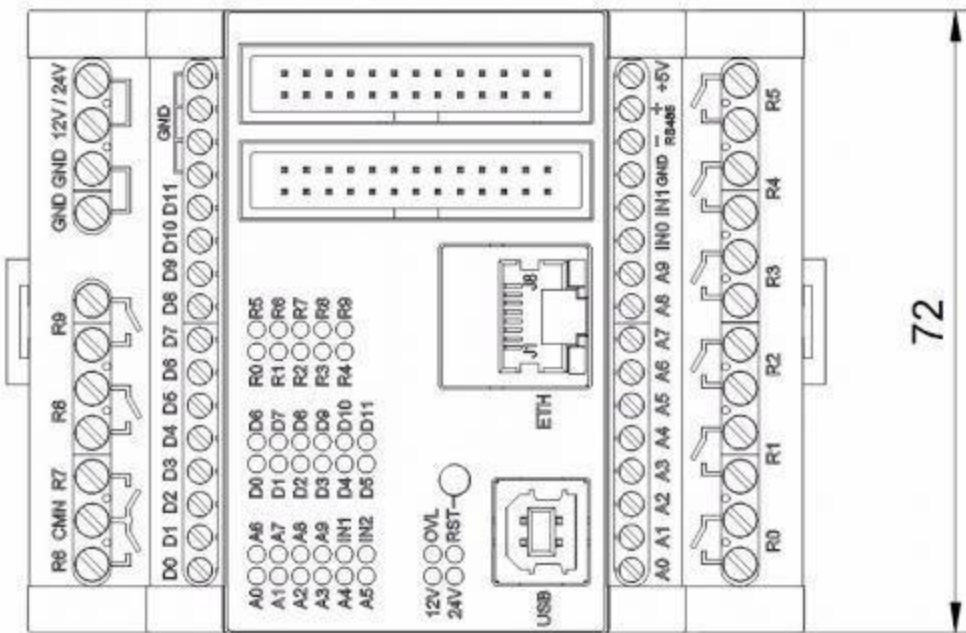
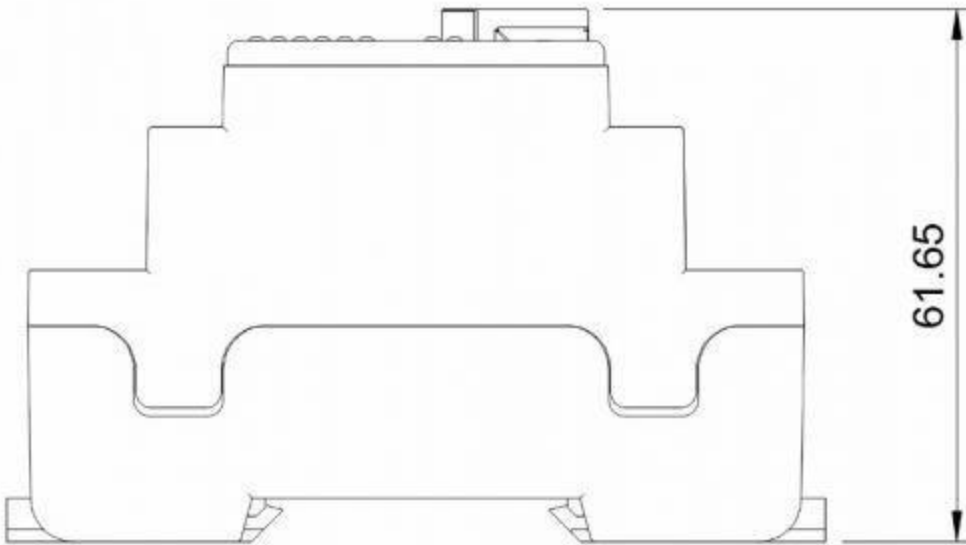
5.2.1. Industrial converter





Technical specifications of the motherboard:

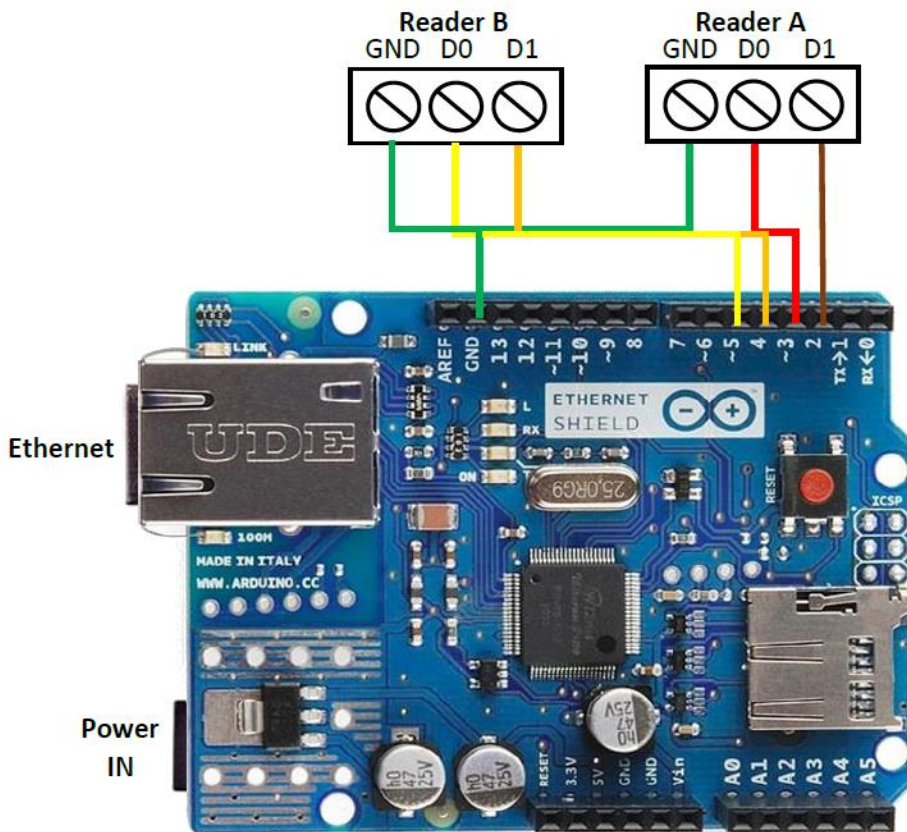
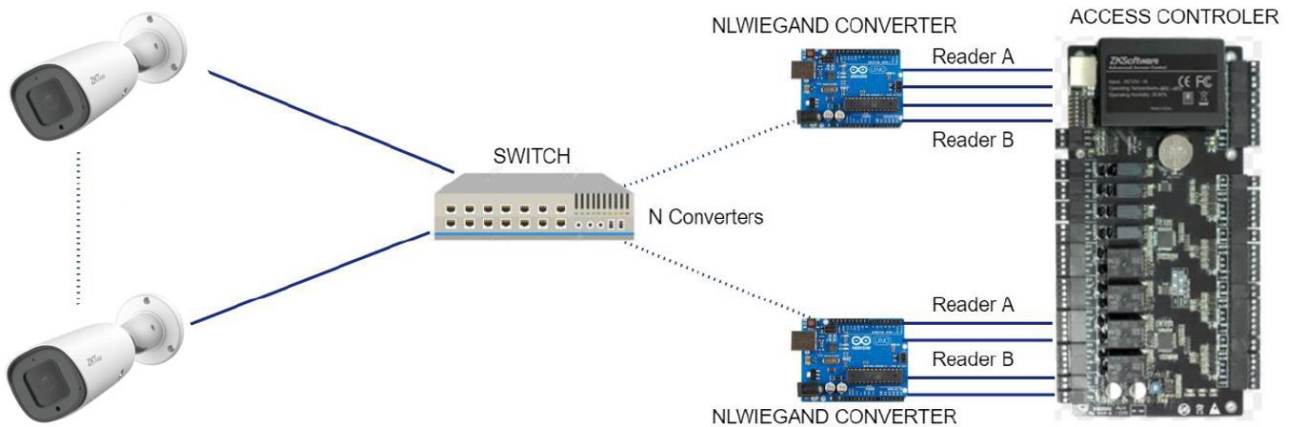
CPU Clock Speed	16 MHz
Current Max	20 Ampere
RTC support	YES
LAN Interface	1x
SERIAL Interface	2x
RS485 Interface	1x
SPI Interface	1x
I2C Interface	1x
Digital Inputs	2x (IN0, IN1)
Analog Inputs	-
Digital/Analog Inputs	10x (A0-A9)
Digital Outputs	12x High Side Switch – 2A @12V or 24V (D0-D11)
Relay Outputs	10x – 230V / 6A
Analog Outputs	12x PWM (D0-D11)



Weight 310 g

Dimensions 135 x 90 x 85 mm

5.2.2. OEM converter



Technical specifications of the motherboard:

Operating Voltage	5V
Input Voltage (recommended)	7-12V
Input Voltage (limit)	6-20V
Digital I/O Pins	14 (of which 6 provide PWM output)
PWM Digital I/O Pins	6
Analog Input Pins	6
DC Current per I/O Pin	20 mA
DC Current for 3.3V Pin	50 mA

Converter methods :

The converter has two preset methods, they are the “Set” method and the “Info” method. The info method is responsible for bringing the converter information while the set method allows us to modify it.

To use the info method, you must enter the following URL from a browser:

[http://\[IP\]/info](http://[IP]/info)

The IP is configured as the source IP. This will return the configuration of the board, for example:

- MAC=de:ad:be:ef:fe:ed
- IP=192.168.1.254
- RIP=255.255.255.255
- GTW=192.168.1.1
- MASK=255.255.255.0
- WNG=26,13,0,13,13

In order to use the set method, the following URL must be entered:

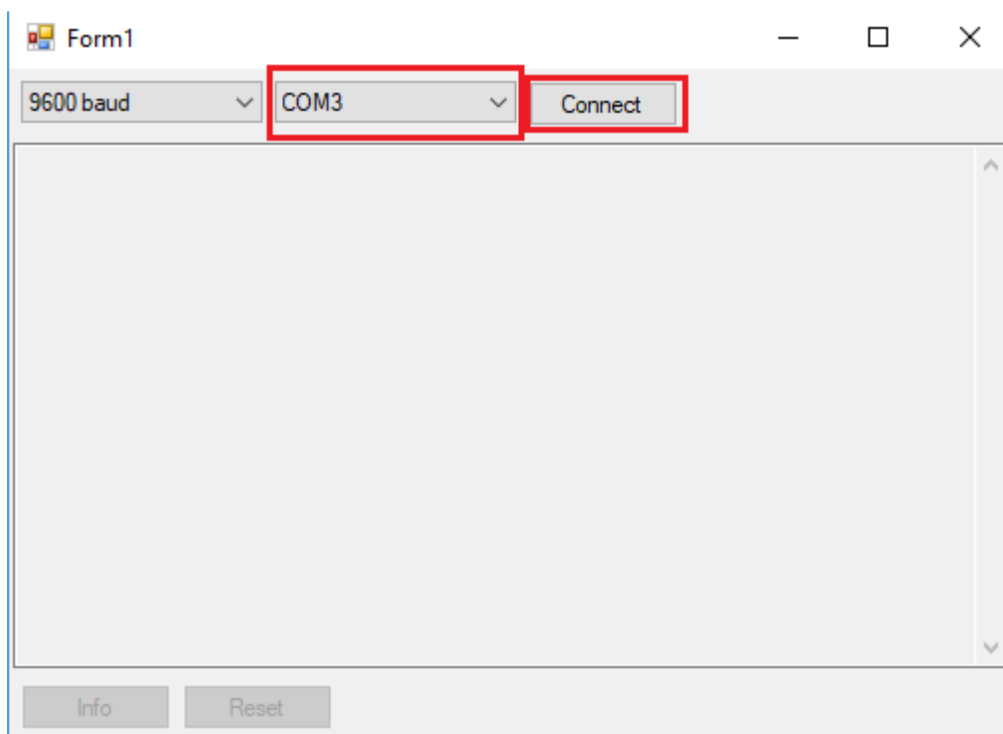
http://[IP]/set?[parametro]=[valor]

You Will be able to configure the IP, RIP, Gateway and assign a network mask. In the case of IP, RIP, GTW and MASK they are 4 decimal numbers separated by points. In order for the changes to take effect, the plate must be restarted.

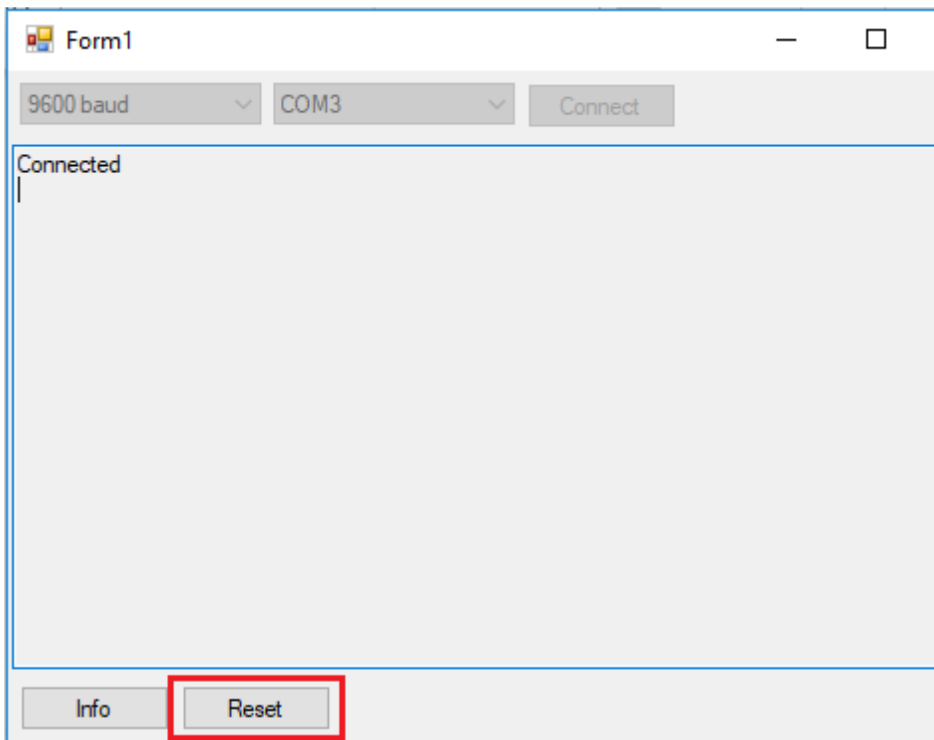
Examples:

- <http://192.168.1.254/set?ip=192.168.1.11>
- <http://192.168.1.254/set?rip=192.168.1.100>
- <http://192.168.1.254/set?gtw=192.168.1.1>
- <http://192.168.1.254/set?mask=255.255.255.0>

In case the converter breaks and you want to perform a factory reset. You must run AdminConverter.exe, select the COM to which the converter is connected and click on "connect".



You will see a confirmation message telling that the converter is connected and then click on reset.



The converter must be restarted for the changes to take effect.

The default values are:

- MAC = de:ad:be:ef:fe:ed
- IP = 192.168.1.254
- RIP = 255.255.255.255
- GTW = 192.168.1.1
- MASK = 255.255.255.0
- Wiegand bits = 26
- Wiegand even parity bits = 13
- Wiegand even parity bits start= 0
- Wiegand odd parity bits = 13
- Wiegand odd parity bits start= 13