

INSTALLATION MANUAL

RF SERIES - ANPR IP CAMERAS WITH OCR

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IP cameras reading license plates

RF Series - ANPR cameras with OCR



Installation manual

How to install the camera How to connect to the network

How to configure and manage cameras with the included software



Contents of the manual

The range of RF series cameras is a range of IP cameras for legible recording of license plates and reading of license plate characters (OCR). These cameras are designed to allow the filming of license plates of stationary or slow-moving vehicles and are normally mounted near gates in order to open a barrier or a gate based on the plate being filmed. They can operate in any light condition thanks to the built-in IR illuminators and special glare suppression systems.

The camera is equipped with software to configure the camera and manage elementary gate control functions with blacklist and whitelist management. SDKs are provided to develop specific software in relation to the specific application

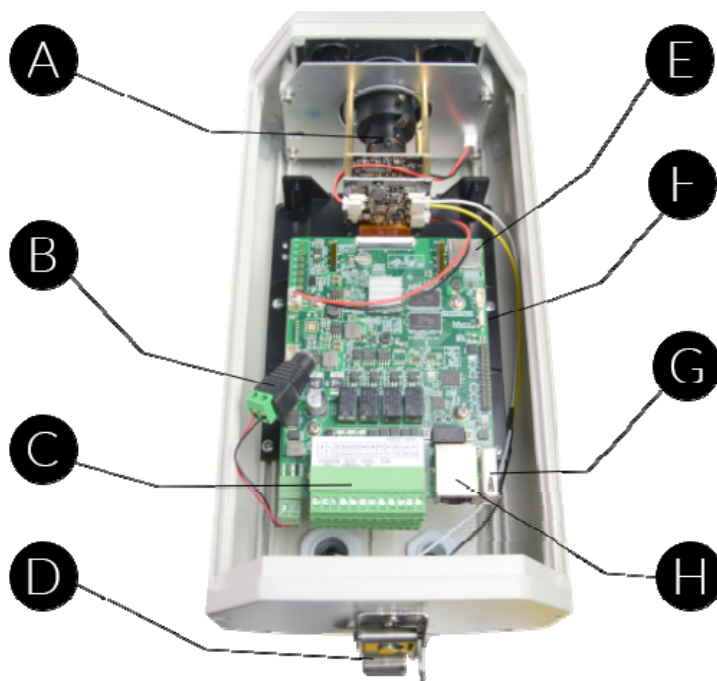
This manual explains how to connect the camera, how to configure the parameters for the network connection and how to use the management software

Installation

CONNECTIONS

The RF series cameras have a watertight container for outdoor use, with rear closure and spring opening. On the bottom of the container there are two cable glands: one occupied by the ambient light sensor and one available for cable entry.

All connections are placed inside the container.



A - Varifocal lens

The camera is equipped with an adjustable lens to be able to frame the vehicle transit passage well. How to properly adjust the lens is explained below.

B - 12VDC power supply

Connector B is used to connect a 12VDC power supply (not included). These cameras do not support POE power.

C - Terminal block

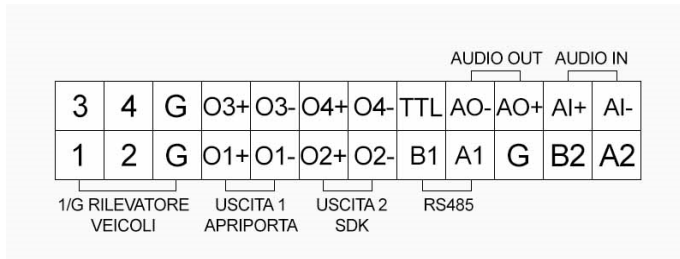
Terminal block C contains the following auxiliary connections:

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AO - / + AUDIO OUT - A speaker can be connected for bidirectional dialogue which can be used via SDK

AI +/- AUDIO IN - A microphone can be connected for bidirectional dialogue which can be used via the SDK

1-G GROUND COIL - INPUT 1 - Between these two terminals it is possible to connect a vehicle detector placed in the roadway (Ground Sensor Coil) which signals the presence of a vehicle in the detection position. This detector is not essential because the camera is able to detect by itself the presence of the license plate in the detection area. 2-G - INPUT 2 - Second input for accessory functions via SDK

O1 +/- OUTPUT 1 - Relay output programmable with software to open the bar or gate O2 +/- OUTPUT 2 - Auxiliary relay output for closing the bar / gate that can be controlled via SDK but not normally used

A1 / B1 RS485 - Serial port for dialogue with other equipment, normally not used

A2 / B2 RS485 secondary - Second serial port for dialogue with other equipment, normally not used

D - Closing

Container lid closure **E - Micro SD card slot**

You can insert a micro SD card for local recording on the camera **F - Reset button**

To restore the factory parameters, press the button 3 times within 15 seconds, holding down 1-2 seconds at a time

G - USB port

Available for dialogue with external equipment **H - RJ45 network port**

RJ45 FEMALE connector to connect the LAN network. This connector connects to the network, such as a switch port or router, using a straight-through network cable.

MOUNTING THE CAMERA



The cameras are equipped with a wall mounting bracket designed to allow the passage of cables inside it. The bracket is usually mounted at the cable exit. The fixing base has 4 holes for wall fixing with plugs. The case is watertight and can be installed outdoors without protection.

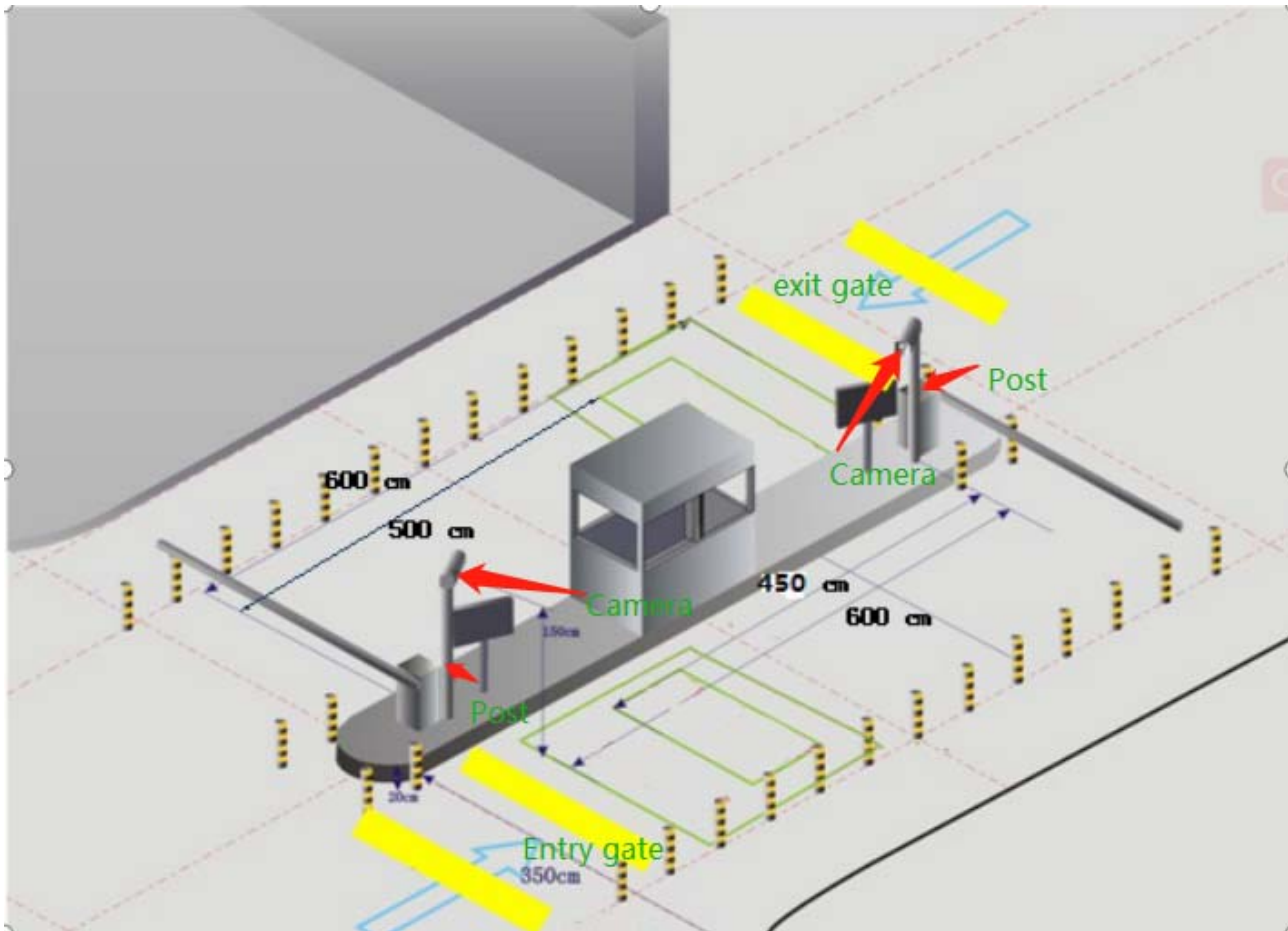
If you need to install the ceiling camera you can buy the ceiling bracket on our website.

POSITIONING THE CAMERA

These cameras are designed to be installed near an opening where vehicles move slowly or stop. The camera has a relay output to control a gate opener or a bar.

The positioning of the camera is very important for a good performance of the license plate reading. Optimal registration of the license plate is carried out when the license plate is located at a distance of 4-4.5 meters from the camera. The adjustable lens, however, allows you to zoom the shot and place the camera even at a greater distance.

The camera is placed on a pole at the side of the carriageway in order to maintain an angle of approximately 25 ° between the camera and the direction of travel of the vehicles. For example, if shooting takes place at 4.5 meters, the camera can be installed on a pole at a height of about 1.5 meters, as in the example below. The camera is designed to shoot a lane and works indifferently by framing the rear or front license plates.



GOAL ADJUSTMENT

During the installation it is necessary to dedicate the necessary time to adjust the lens because this is essential in order to obtain a good reading of the plates. The lens has two levers for adjusting zoom and focus. They are adjusted in the factory, but their position can be changed by slightly unscrewing the retaining screw and then retightening it at the end of the adjustment. The adjustment is performed by placing a vehicle in the reading position and first adjusting the zoom to bring the size of the license plate within the references indicated on the screen (see below). Then the focus is adjusted so that the characters are best seen.

BRIGHTNESS SENSOR

The camera is equipped with a CDS sensor that allows to detect the ambient brightness and is placed on the back of the camera to avoid incorrect detections due to car headlights. The sensor is located in the rear cable gland of the housing.

It is absolutely necessary to avoid that light sources go to distort the detection of this sensor, because in this case the camera will not work correctly at night. Above all, it is necessary to avoid the presence of lighting headlights in the vicinity of the camera that would prevent

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the lighting of the LEDs.

For proper operation, make sure that the front camera LEDs light up at night.

Network connection

The camera has an RJ45 network port that must be connected with a network cable to a switch on the network. Remember that the camera does not support POE power supply so you also need to connect a 12V power supply.



As soon as the mains and power supply are connected, check that the switch port LEDs start flashing. This means that the camera is working and you can continue to configure the IP address.



Network configuration

After connecting the camera to the network and supplying power with an external power supply, it is necessary to configure the network parameters in order to make the cameras accessible from a computer. The cameras come with **factory address 192.168.1.109**

User name: admin

Password: admin

ALPR CLIENT CAMERA SOFTWARE

To assign the correct IP address to the camera, use the configuration and management software ALPR CAMERA CLIENT which can be downloaded from our website in the SOFTWARE | IP CAMERAS | RF SERIES. Among the functions of this software there is that of detecting the presence of the camera on the network, whatever its address, and allowing the camera address to be changed in order to be consistent with the local network. In fact, remember that for the camera to be visible to the other PCs on the network, the first 3 parts of the IP address must be the same as the other PCs on the network and the subnet mask must also be the same. It is advisable to connect one camera to the network at a time and insert new ones only after having configured the previous ones.

PRELIMINARY CHECKS

Before proceeding, you need to get some information from your network administrator about the IP address management used in your network. It is necessary to know an IP address that can be assigned to the camera that is not the same as any other device already present on the network. If you are unsure about how your network works, you can use some commands in the DOS PROMPT.

On a network PC, launch a DOS window available in the windows accessory programs. Type IPCONFIG in the command prompt and press ENTER. The TCP / IP parameters will appear. The second line is the IP address assigned to your computer.

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```

C:\ Prompt dei comandi
Microsoft Windows XP [Versione 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\DSE>ipconfig

Configurazione IP di Windows

Scheda Ethernet Connessione alla rete locale (LAN):

    Suffisso DNS specifico per connessione: fastwebnet.it
    Indirizzo IP. . . . . : 192.168.2.3
    Subnet mask . . . . . : 255.255.255.0
    Gateway predefinito . . . . . : 192.168.2.1
C:\Documents and Settings\DSE>_

```

In the example above, the address of the PC you are working on is 192.168.2.3 and the subnet mask used is the classic 255.255.255.0. You can therefore assign an address of your choice to the camera such as 192.168.2.XXX, where XXX stands for a number between 0 and 255. It is important **choose an address that is not already used by other equipment** of network. To verify that the chosen address is free, try to perform a PING from the same DOS window by typing PING followed by a space and the IP you wish to assign to the camera. If there is no device corresponding to that address, you will receive 4 REQUEST TIME OUT as in the following example:

```

C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\WINDOWS\system32\cmd.exe>ping 192.168.1.6

Pinging 192.168.1.6 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.6:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\WINDOWS\system32\cmd.exe>

```

All cameras support automatic IP address assignment by a DHCP server. However, this mode is not recommended as in case of network failure or equipment restart it is possible that the cameras change IP address making it necessary to reconfigure the NVR.

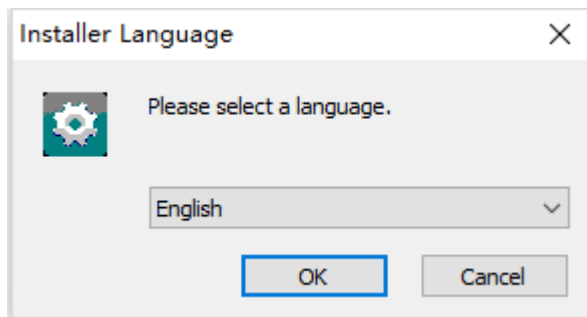
USE OF ALPR CAMERA CLIENT TO ASSIGN THE IP ADDRESS

All RF series cameras are preset with the factory IP address: 192.168.1.109

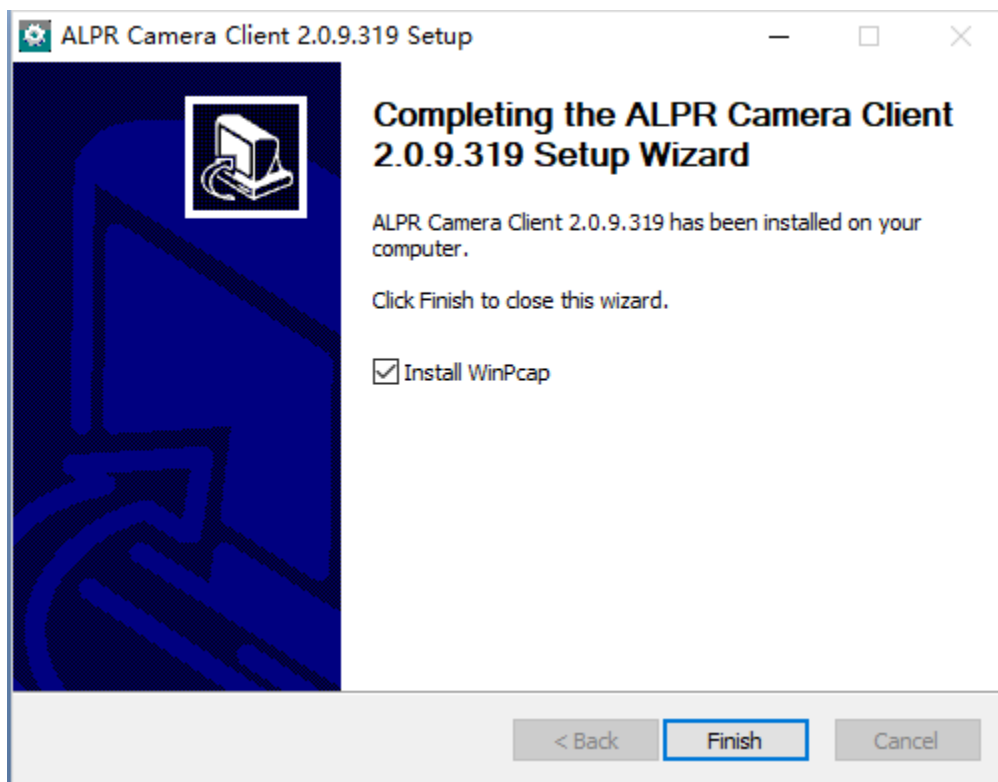
After connecting the camera, you need to change the camera address to assign one that is consistent with your network (first 3 parts of the address common to all equipment on the network).

Proceed as follows:

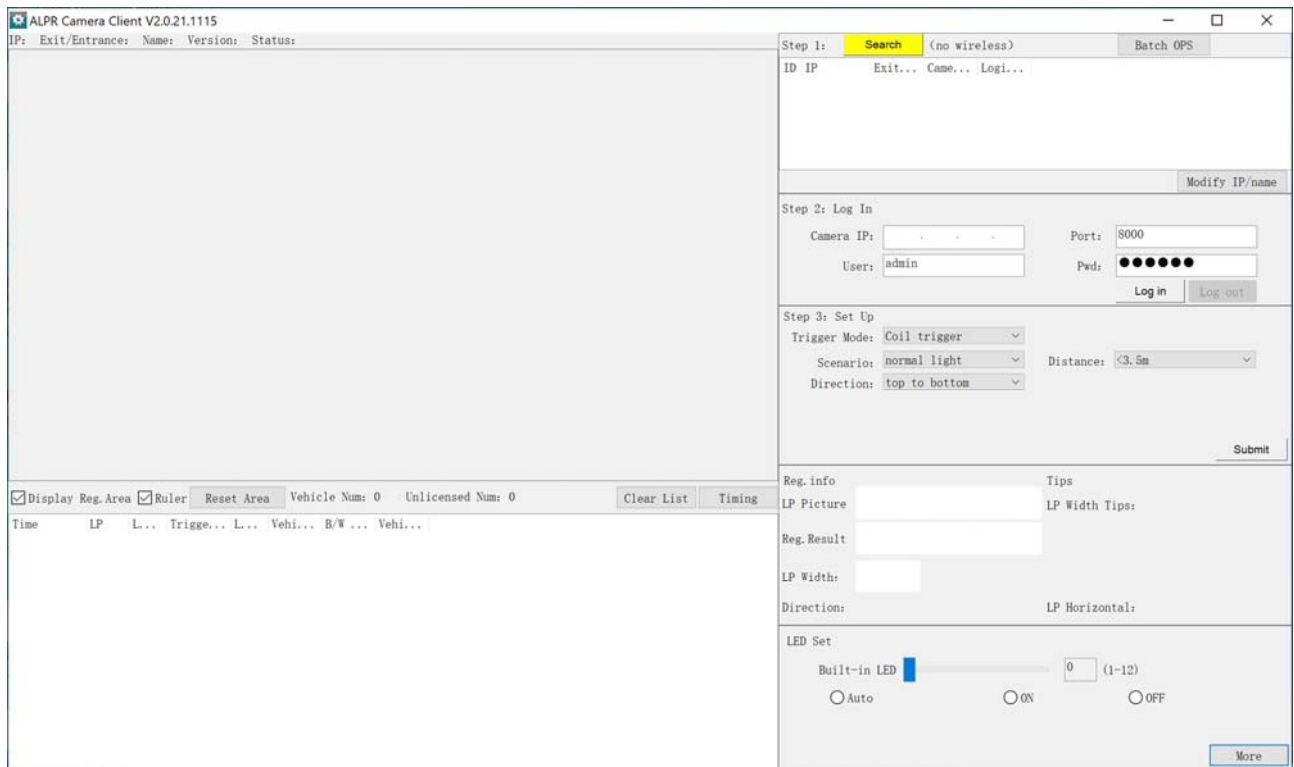
1. Download and install the setup program on your PC.



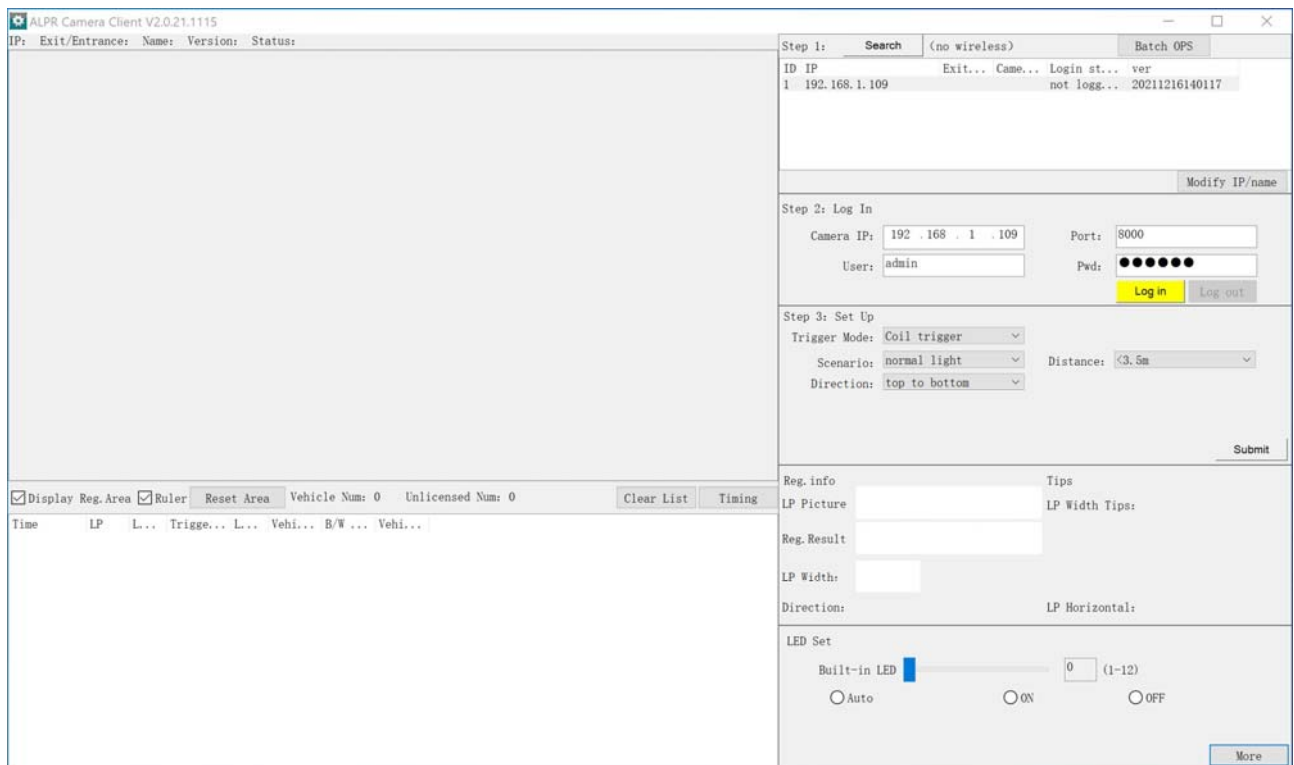
2. At the end of the installation install WinPcap, unless it is already installed on your PC



3. Launch the program



4. Press the SEARCH button at the top, highlighted in yellow. The program searches for the RF cameras present on the network and lists the new camera in the table at the top right with its factory IP address.



5. Now select the camera and click the MODIFY IP / NAME button to open the address configuration page

A screenshot of a web-based configuration interface for a camera. It features several input fields and two buttons. The fields are: IP (192 . 168 . 2 . 180), Netmask (255 . 255 . 255 . 0), Gateway (192 . 168 . 2 . 1), User (admin), and Pwd (represented by six black dots). Below the fields are two buttons: 'Submit' and 'Cancel'.

6. Enter the correct network parameters you want to assign to the camera. **The IP address** must be entered in the IP box. It must have the first 3 digits the same as those used by your network and not be used by other equipment, as we have explained extensively in the previous chapter. There **SUBNET MASK** must be the one used by your network (usually 255.255.255.0). The **gateway** is the address of the network device that allows access to the Internet (usually a router with the xxx.xxx.xxx. 1 address of the network). You can edit the network parameters as you like by writing in the boxes. In the USER-PASSWORD boxes you will already find the access credentials of the camera which are factory default

USER: admin

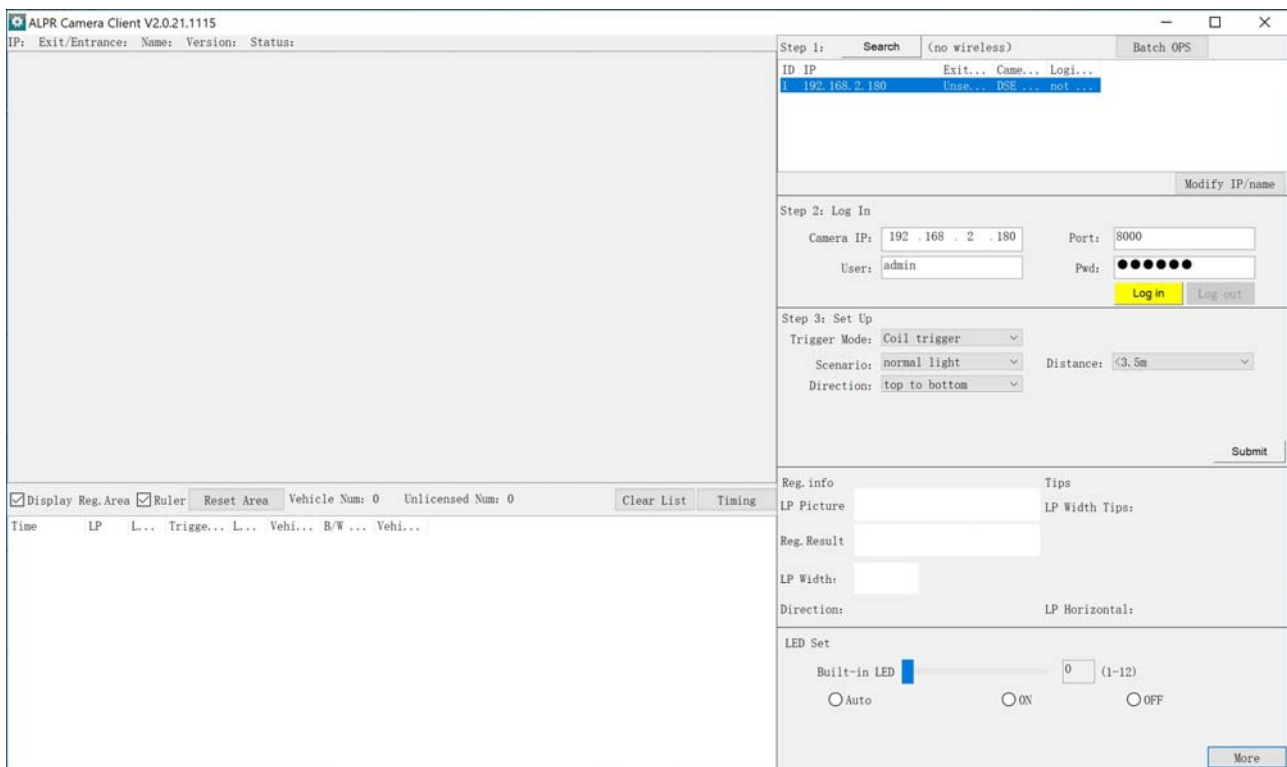
PASSWORD: 123456

7. Press SUBMIT to transfer the configuration to the camera.
8. You are done. Now the camera has the right configuration to communicate with your network and you are ready to connect with the software. Wait a few minutes and press the SEARCH button again to check the new camera address. If you have other cameras, connect them one at a time and assign different addresses to each of them.

Access with ALPR camera client

The cameras for reading plates always work in conjunction with a PC and a software for managing and storing the detections. To control the RF cameras from a computer you can use the ALPR CAMERA CLIENT software that we have already used to change the IP address of the camera. To access the camera proceed as follows:

1 - Launch the software. For full functionality it is advisable to start it as an administrator. You will find the camera at the top right, configured with the IP assigned in the previous chapter. Select it with the mouse.



2 - In the window named STEP 2: Login you must enter the access credentials to the camera. You have already entered the factory credentials admin / 123456 and the factory port 8000. Click LOGIN to access the camera that will appear in the viewing box

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ALPR Camera Client V2.0.21.1115
 IP: 192.168.2.100 Exit/Entrance: Unattended Name: DSE Test Version: RCF08-12001C-ST-2021121014017 Status: offline
 2022/08/26 08:39:40

Step 1: Search (no wireless) [Batch OPS]

Step 2: Log In
 Camera IP: 192.168.2.100 Port: 8080
 User: admin Pass: *****
 Log in Log out

Step 3: Set Up
 Trigger Mode: Video trigger
 Scenario: Normal light Distance: 8.0-5m
 Direction: Bidirection

Reg. Info
 IP Picture: CH449RW IP Width Type: Suitable
 Reg. Result: CH449RW
 IP Width: 102
 Direction: head and tail IP Horizontal: Suitable

LED Set
 Built-in LED: 10 (1-10)
 Auto ON OFF

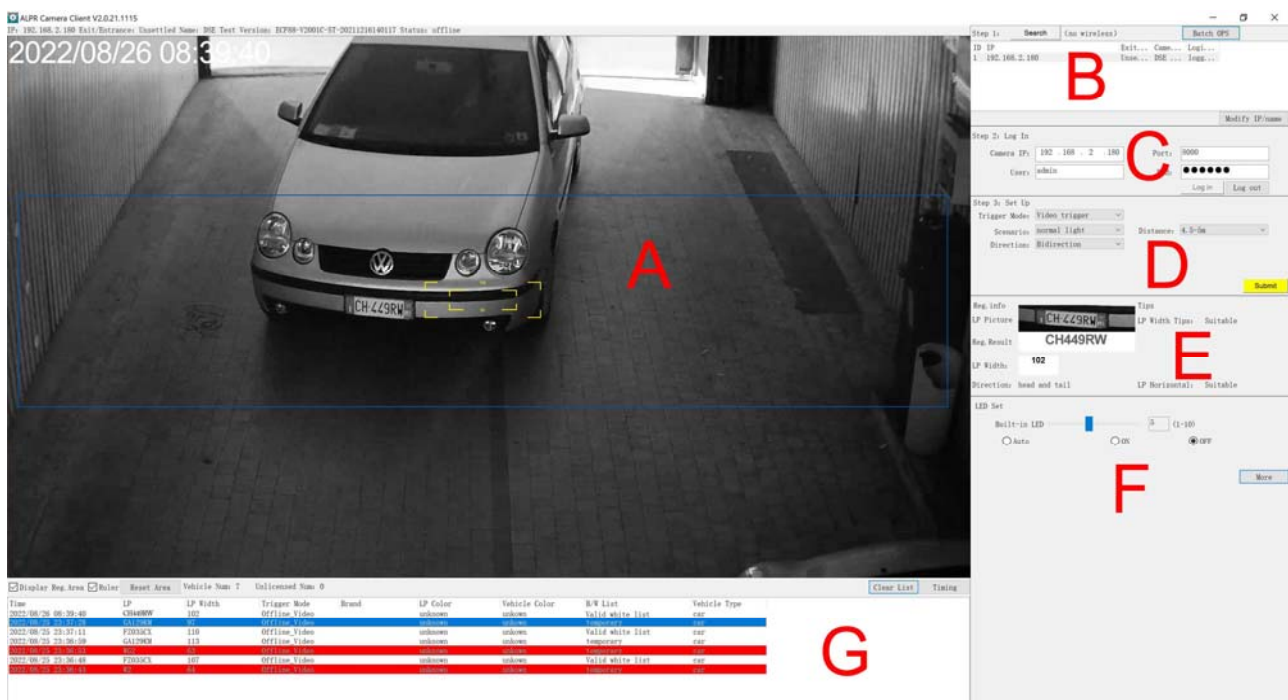
Time	IP	IP Width	Trigger Mode	Brand	IP Color	Vehicle Color	B/W List	Vehicle Type
2022/08/26 08:39:40	CH449RW	102	Offline Video		unknown	unknown	Valid white list	car
2022/08/26 08:39:40	CH449RW	102	Offline Video		unknown	unknown	Valid white list	car
2022/08/26 08:39:40	CH449RW	102	Offline Video		unknown	unknown	Valid white list	car
2022/08/26 08:39:40	CH449RW	102	Offline Video		unknown	unknown	Valid white list	car
2022/08/26 08:39:40	CH449RW	102	Offline Video		unknown	unknown	Valid white list	car



Configuration and management with ALPR Camera Client

the ALPR camera client program already used previously allows, in addition to configuring the IP address and live viewing, also the configuration of the camera functions and the management of the license plate database with the most common management functions.

The program window consists of several sections



- A - Live view of the camera
- B - Network search of cameras and change IP address
- C - Login to access the camera
- D - Setting the essential parameters for reading the plates
- E - Photo and Data of the last plate detected
- F - Night light settings and other advanced settings (MORE button)
- G - List of detected license plates

SECTION A - Live viewing

In section A you can see the live image of the camera. There are some commands available



DISPLAY REG. AREA - Overlay the blue rectangle defining the area of



detection. The camera detects license plates only within this area. You can change the detection area by dragging the vertices of the rectangle with the mouse.

RULER - Overlays two yellow rectangles 90 and 150 pixels wide which are useful as a reference for adjusting the lens. As a rule, it is a good idea to adjust the zoom so that the size of the license plate in the live image is between these two minimum and maximum dimensions. Note that these are only two dimensional references, as the actual minimum and maximum dimensions of the plate are set in the algorithm adjustments, as illustrated below.

RESET AREA - Restores the factory detection area (blue rectangle) VEHICLE NUM -

Number of vehicles transited with recognized license plates

UNLICENSED NUM - Number of vehicles transited with license plates not present or not detected

Clear List

Timing

CLEAR LIST - Clears all transit data in the table. TIMING - Synchronize the camera clock with the computer CAPTURE - Manually force the capture of the license plate

SECTIONS BC - Access data

These sections are used for assigning the IP address and for access credentials and have already been explained in the previous chapters.

The BATCH OPS button allows you to perform maintenance operations on multiple cameras simultaneously and will be described later in the manual.

SECTION D - License plate reading settings

TRIGGER MODE - Sets the license plate recognition mode. VIDEO TRIGGER = Detection occurs when the license plate enters the blue detection area. COIL TRIGGER = The detection occurs when a vehicle detector placed in the carriageway and connected to the camera detects the presence of the vehicle.

SCENARIO - Sets the ambient brightness. NORMAL = Medium brightness. BASEMENT = Low brightness indoors. FRONT AND BACKLIGHT = High brightness. ULTRA FRONT = Shooting against the light.

DIRECTION - Sets the direction of the means to be detected. TOP TO BOTTOM = Detects only the vehicles moving from the top to the bottom of the shot. BOTTOM TO TOP = Detects only the vehicles moving from the bottom to the top of the shot. BIDIRECTION = Detect all media regardless of their direction.

DISTANCE - Sets the distance between the camera and the license plate at the reading point where the vehicle stops. <3.5 m / 3.5-4.5 m./4.5-5 m./5-6 m./>6 m.



SUBMIT - Sends the settings to the camera

SECTION E - Last plate detected LP PICTURE -

Photo of the last plate detected REG.RESULT -

Last plate detected

LP WIDTH - Width of the license plate in pixels

DIRECTION - Direction of the vehicle if detected

LP WIDTH TIPS - Suggestions on the detected license plate width (SUITABLE = normal, TOO BIG = license plate too large it is necessary to zoom out, TOO SMALL = license plate too small it is necessary to zoom in)

LP HORIZONTAL ANGLE TIP - Tips on the horizontal angle of the camera (SUITABLE = normal, TOO BIG = reduce the angle between the camera and the direction of the medium).

SECTION F - LED setting



AUTO - The illuminator switches on automatically based on the rear light sensor OFF - The illuminator switches on based on the back light sensor only within the time bands set in the configuration menu, PERIPHERAL / LED section. Outside the defined time bands, the illuminator remains off.

ON - The always on illuminator is not enabled at this time.

BRIGHTNESS LED - Adjusts the brightness of the LEDs from 1 to 10. Adjusts according to the distance of the vehicle. If the license plate is dark at night, it is necessary to increase the power, while if the plate is bleached and overexposed, it is necessary to reduce the power of the LEDs.

MORE - Accesses advanced settings which will be explained in the next chapter.

SECTION G - List of detected plates

This table shows the list of detections that the camera has sent to the management program.

Time	LP	Al...	LP Width	Trigger Mode	B. LP Color	Vehicle C...	B/W List	Vehicle Type
2022/08/30 06:53:22	EZ035CX		122	Offline_Video	unknown	unkown	temporary	car
2022/08/30 06:53:01	FZ035CX		123	Offline_Video	unknown	unkown	Valid white ...	car
2022/08/30 06:01:25	GA129KM		109	Offline_Video	unknown	unkown	temporary	car
2022/08/30 06:01:17	FZ035CX		103	Offline_Video	unknown	unkown	Valid white ...	car
2022/08/30 06:01:10	A129KM		89	Offline_Video	unknown	unkown	temporary	car

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TIME - Date and time of transit

LP - Plate detected

LP WIDTH - License plate width. If the license plate has an out-of-limit size, it is indicated in red

TRIGGER MODE - Vehicle detection method (Video / Coil)

BRAND - Car brand not active at the moment LP COLOR - License

plate color not active at the moment VEHICLE COLOR - Vehicle

color not active at the moment

B / W LIST - Indicates whether the detected plate belongs to the white or black list. A license plate not included in any list is indicated as TEMPORARY.

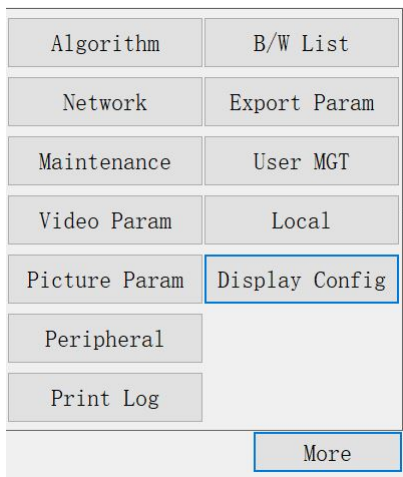
VEHICLE TYPE - Type of vehicle (Car, Truck etc)

With **adouble click** on each event in the list you can see the photo of the passage of the vehicle



Advanced configuration

the ALPR camera client program allows you to program all the advanced camera options that are accessible in the MORE button



ALGORITHM

This section allows you to set the parameters of the license plate reading algorithm. There are 2 folders: Basic and Advanced

Algorithm

Basic **Advanced**

Trigger Mode: Video trigger

Distance: 4.5-5m

Direction: Bidirection

Submit Cancel Reset



The Basic tab has already been described in the previous chapter, as it is included among the essential options.

In the Advanced tab there are all the advanced parameters of the reading algorithm

Algorithm ×

Basic **Advanced**

Detection

Daytime Alarm: (5-50) Threshold: (1-100)

Sensitiveness: (0-5) Interval: (3-500)

Recognition

Threshold: (0-28) Repeat Character

Min LP: (60-120)

Max LP: (120-400)

Same LP Output: S(1-3600) Vehicle Color

Filter Non-motor

Filtrate Character Threshold: (15-28)

Output Unlicensed Brand of Unlicensed

Brand of Licensed

DETECTION - In this section there are the vehicle detection settings

DAYTIME ALARM - Not active, keep default 25.

THRESHOLD - Represents the level of recognition you want to detect a vehicle. A high value, close to 100, means that a vehicle will only be identified if the shape is unambiguously detected. A low value, on the other hand, tolerates a greater margin of error and therefore can also lead to recording movements not due to a vehicle, but prevents some vehicles from being undetected because they are not perfectly visible. .

SENSITIVNESS - Adjusts the sensitivity of vehicle detection. Normally set to 5. **INTERVAL** - Not active, keep default 40

RECOGNITION - In this section there are the license plate recognition OCR settings

THRESHOLD - Represents the level of recognition you want to identify a license plate. A high value, close to 100, means that a plaque will be transcribed only if perfectly



readable. A low value, on the other hand, tolerates a greater margin of error and therefore can also lead to the transcription of plates incorrectly if not perfectly legible, on the other hand it prevents slightly imperfect plates from being ignored.

REPEAT CHARACTER - Not active with this algorithm

MIN./MAX. LP - The minimum and maximum width that the license plate must have to be recognized (in pixels). Larger or smaller license plates, so presumably at an incorrect distance from the camera will be ignored

SAME LP OUTPUT - This is a delay in seconds between two consecutive door openings (activation of output 1) generated by the same entrance panel that can be set to prevent the same panel from carrying multiple opening contact operations

VEHICLE COLOR - Activates vehicle color detection Black, Blue, Gray, Brown, Green, Purple, Red, White, Yellow, Dark color at night.

FILTER NON MOTOR - Excludes from the survey vehicles that are not vehicles, such as tractors, forklifts or other

FILTRATE CHARACTERS - Excludes the detection of characters found on clothing or objects that do not constitute a license plate. On the side, in the THRESHOLD box you can set the filtering threshold, the higher the threshold the more you avoid the detection of external disturbance writings.

OUTPUT UNLICENSED - Enables the detection of vehicles that do not show a legible license plate. For these vehicles it is possible to enable the vehicle brand detection attempt by enabling the box alongside BRAND OF UNLICENSED

BRAND OF LICENSED - Enables the detection of the vehicle brand together with the license plate. If recognition from the photo analysis is possible, the brand of the vehicle is displayed in the event list and superimposed on the photo.

NETWORK

This section sets all the network parameters

IP - In this tab, you can set the IP address, subnet mask, Gateway and DNS of the camera for network connection



Network

IP	FTP	HTTP POST	Net Diagr
----	-----	-----------	-----------

IP:

Netmask:

Gateway:

Preferred DNS:

Alternate DNS:

FTP - Here you can set the access data to an FTP server (address, credentials and save folder) on which to save the photo of the license plate detected with the license plate number in the file name. You can also upload an XML file with all the event data in addition to the photo. With the TEST button you can test the good connection with the server.

Network

IP	FTP	HTTP POST	Net Diagr
----	-----	-----------	-----------

Enable FTP

FTP Address:

User:

Pwd:

Heartbeat Cycle: S

Save Path: <ip>can generate the device
<date>can generate the date

File Name + LP

Upload the XML File

HTTP POST - Here you can set up communication to an external server using the HTTP POST protocol (Mode5 recommended)

Network

IP FTP HTTP POST Net Diagr

Enable HTTP POST

Operating Mode: Mode5

Parking Lot ID: 0

Server Address, port, path: 0.0.0.0:80/ Sample: 192.168.55.223:8200/ais

ssl connect

Max Send Cnt: 3 (1-3)

Auto Opening at the Entrance Need feedback

Send Panorama Send License Plate Picture

Enable Alternative Server

Alternative Server Adress: 0.0.0.0

Host and Standby Server Push: Host priority

Resume Broken Downloads

Heartbeat Cycle: 10 S (0-30)

IO Incident Reporting

IO mode: input1

camId mode: MAC

Submit Cancel Reset

OPERATING MODE - Only mode 5 can be used

PARKING LOT ID - Set a number that identifies the monitored site
SERVER ADDRESS - Set server address, port and save path
SSL - Enable OPENSSL encryption

MAX SEND CNT - You can set every how many detections to send data (1-3)
AUTO OPENING AT ENTRANCE - You can set the door opening in 3 modes:
AFTER RECOGNITION: after a successfully completed license plate detection,
ALL TIME after a detection of a vehicle even with an unrecognized license plate
NEED FEEDBACK only after the consent received from the server

SEND PANORAMA - Enable the sending of the general photo of the vehicle to the server

SEND LICENSE PLATE PICTURE - Enable the sending of the photo of the license plate

ALTERNATIVE SERVER - You can enable and set up an alternative server

RESUME BROKEN DOWNLOAD - If the camera disconnects from the server, the camera saves the data on the SD card and then sends it to the server when the connection is restored

HEARTBEAT CYCLE - Establishes the cadence in seconds of the presence signal in life to be sent to the



server

IO INCIDENT REPORTING - Notifies the activation of output 1 or 2 CAM ID -

The camera identifies itself with the Mac address

VIDEO

This section sets the video encoding parameters, image adjustments, exposure and overlays

Video Param

Encoding Image Exposure OSD

Resolution: 1080P (1920 x 1080) ▾

Encoding: H.264 ▾

FPS: 25 ▾

VBR CBR

Rate limit: 1024 ▾ kbps

Submit Cancel Reset

Resolution, Encoding, Frames per second, VBR / CBR flow management with maximum occupied bandwidth limit



Video Param

Encoding Image Exposure OSD

Brightness: 50 (0-100)

Contrast: 50 (0-100)

Tone: 50 (0-100)

Saturation: 50 (0-100)

Adjustments brightness, contrast, tones, saturation

Video Param

Encoding Image Exposure OSD

Min Exposure time: Max Exposure time:

Min Analogue gain: Max Analogue gain:

Min Digit gain: Max Digit gain:

Automatic Exposure

Min and Max exposure time (shutter). Min and Max analog and digital gain. It is recommended to enable automatic exposure

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Video Param

Encoding Image Exposure OSD

Location:

Font size:

Date

Customized Info

^

v

<

>



Choose the position of the superimposed data (Location), the font size (Font size), and the data to display (date or text of your choice to type in the box)

PICTURE PARAM

This section sets the parameters of the saved photos

Picture Param

Picture OSD

Picture Size: 1080P (1920*1080) ▾

Encoding Quality: 90% ▾

Output Panorama

Panorama Overlay Plate

LP Picture

Submit

Cancel

Reset

PICTURE SIZE - The resolution of the photos saved by the camera

ENCODING QUALITY - Establishes image compression. Higher quality means less compression and larger files.

OUTPUT PANORAMA - If enabled, the image of the entire vehicle is saved PANORAMA OVERLAY PLATE -

If enabled, the license plate is superimposed in the photo of the vehicle LP PICTURE - If enabled, the

foreground photo of the license plate is saved

Picture Param

Picture OSD

Location: Info Display:

OSD background color: Date Display:

Font Size:

Date

Reg. Result

Customized Info

LOCATION - Establishes the position of the overlay in the photo

INFO DISPLAY - Sets whether to show the overlay on a single line or on multiple lines. OSD

BACKGROUND - Sets the background color of the overlay. If you use the transparent background, consider that white characters on a light background may not look good.

DATE DISPLAY - Set the date format, year / month / day only

FONT SIZE - Set the characters of the overlay SMALL / MEDIUM / LARGE DATE - Show the date and time superimposed on the photos

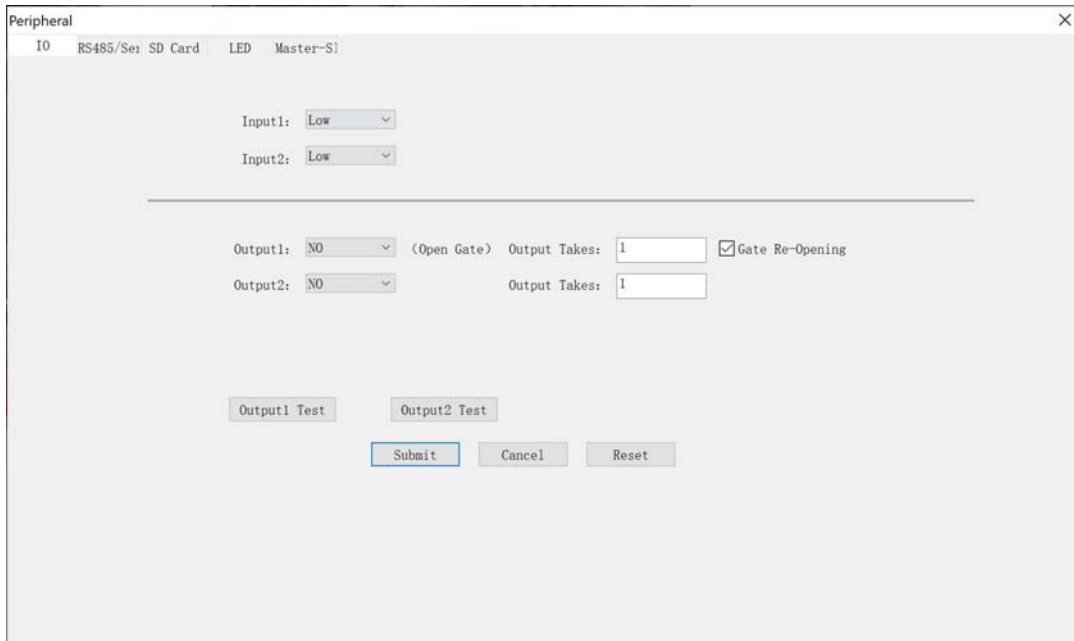
REG.RESULT - Shows the detected license plate as an overlay

CUSTOMIZED INFO - Overlay the custom text that you can type in the space below

PERIPHERAL

This section allows you to configure the external connections of the camera

This **section IO** programs the operation of the relay inputs and outputs on the camera



The screenshot shows a web interface titled "Peripheral" with a close button (X) in the top right corner. Below the title bar, there are tabs for "IO", "RS485/Sei", "SD Card", "LED", and "Master-S1". The main content area contains the following configuration options:

- Input1: Low (dropdown menu)
- Input2: Low (dropdown menu)
- Output1: NO (dropdown menu) (Open Gate) Output Takes: 1 (text input) Gate Re-Opening
- Output2: NO (dropdown menu) Output Takes: 1 (text input)
- Output1 Test (button)
- Output2 Test (button)
- Submit (button)
- Cancel (button)
- Reset (button)

INPUT 1 (VEHICLE DETECTOR) - Sets the operation of input 1 in the camera terminal block which can be used to connect a vehicle detector in the roadway (Low / High digital input)

INPUT 2 - Sets the input 2 which is available for accessory functions

OUTPUT 1 (door opener) - Defines if the output 1 contact will work as Normally Open (NO) or Normally Closed (NC)

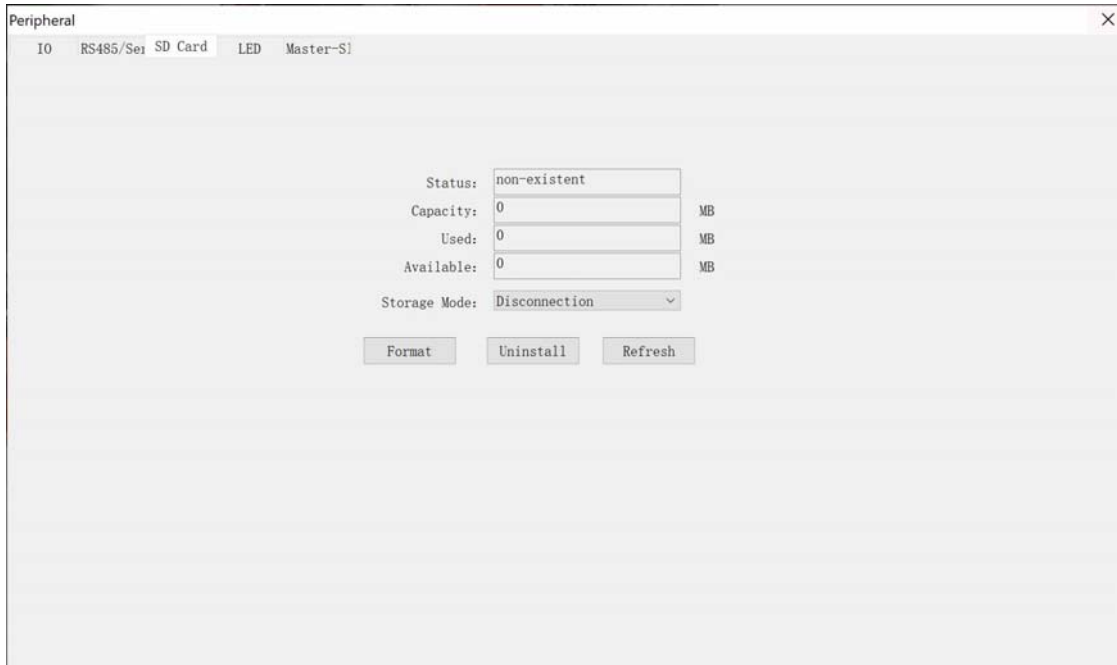
OUTPUT 2 - Defines the operation of output 2, available via SDK OUTPUT TAKES - Defines the activation time of the output contact in seconds GATE REOPENING - This function is used to prevent the gate from closing again before the vehicle has passed through and requires that the vehicle detector is connected in the carriageway. If the software works in Ground Coil Trigger mode, the vehicle sensor connects to input 1 and the door opener activates when the vehicle is detected. In this mode, by enabling this function, the software continues to activate the door opener output until the vehicle has left the detector. If the software works in Video Trigger mode, the software activates the door opener when it detects a plate.

OUTPUT TEST 1/2 - With these buttons you can test the operation of the outputs in real time

THERERS485 SECTION programs the protocol of the two serial outputs available via SDK

There **SECTION SDCard** controls the microSD memory card that you can insert into the internal slot. You can record photos of passing vehicles on the card, regardless of the link

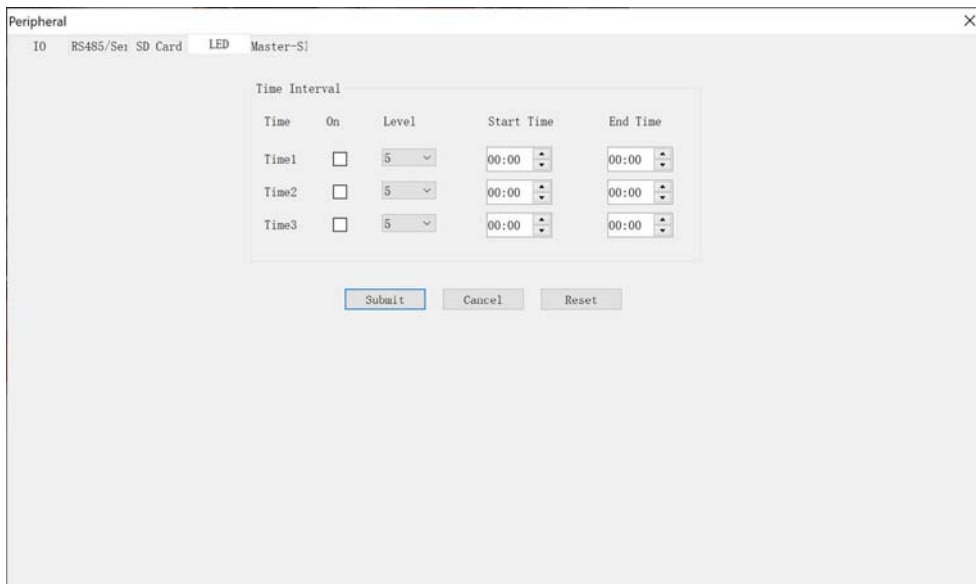
of network. You can download the contents of the card from a computer with an FTP client, as shown later in the manual.



STATUS / CAPACITY / USED / AVAILABLE - Situation on the memory status STORAGE MODE - Here you define how the SD memory is used. DISCONNECTION = SD memory is used to save photos when the camera is disconnected from the network and then send the information to the server when the network is restored. ALL TIME = The camera saves all the photos on the SD card in any network condition. NOT STORED = SD card is not used to save photos.

FORMAT - Click to format the memory by deleting its contents UNINSTALL - Before removing the SD card, press the Uninstall button

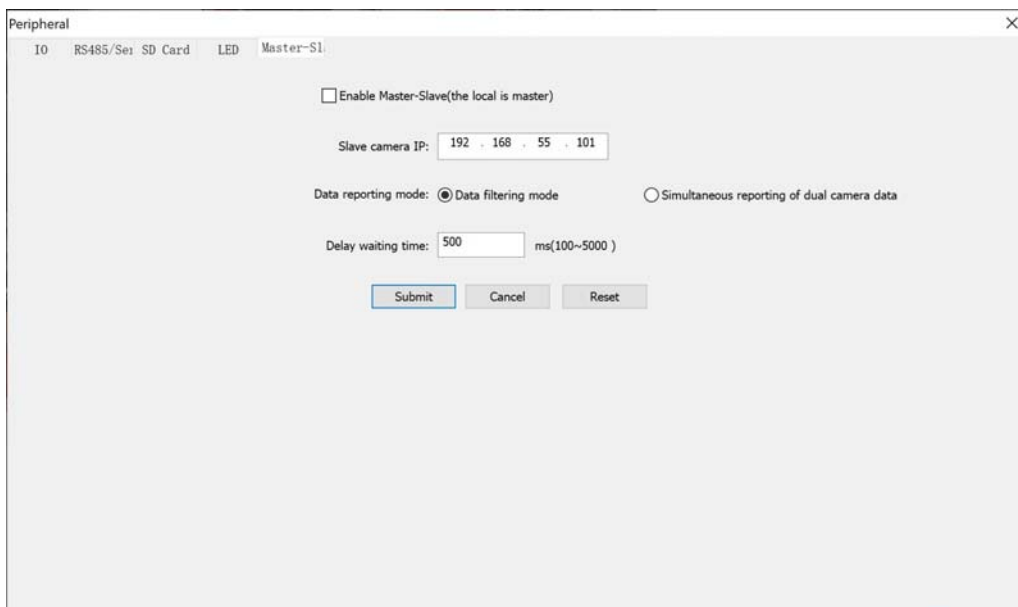
The **LED SECTION** allows you to set time bands for switching on the lighting LEDs. If you enable time bands here and set the LED operation to OFF, the LEDs will light up on the basis of the camera's brightness sensor, but only during these times. For each time slot you can set the power of the LEDs to be activated.



Time	On	Level	Start Time	End Time
Time1	<input type="checkbox"/>	5	00:00	00:00
Time2	<input type="checkbox"/>	5	00:00	00:00
Time3	<input type="checkbox"/>	5	00:00	00:00

Submit Cancel Reset

The **MASTER SLAVE SECTION** allows you to use the local camera as a MASTER and a second camera as a SLAVE to confirm the detection



Enable Master-Slave(the local is master)

Slave camera IP: 192 . 168 . 55 . 101

Data reporting mode: Data filtering mode Simultaneous reporting of dual camera data

Delay waiting time: 500 ms(100~5000)

Submit Cancel Reset

You can use two ways

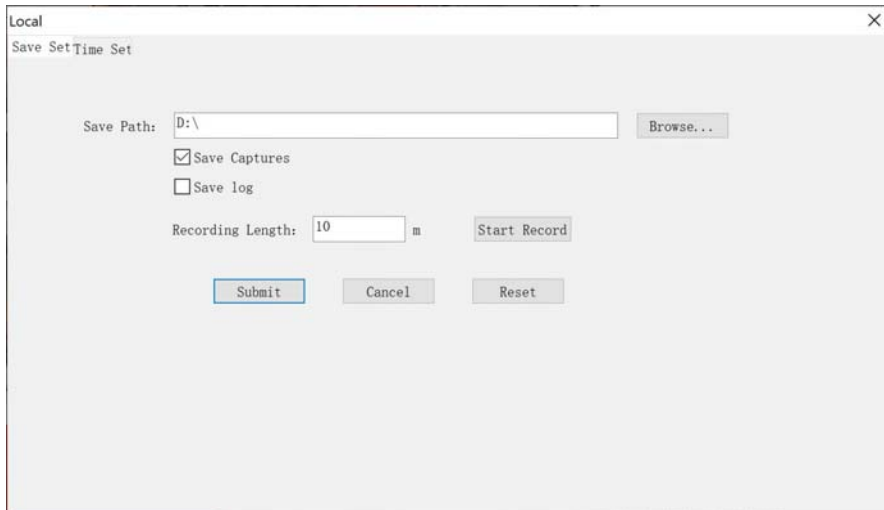
DATA FILTERING - The two cameras must perform the same detection in the DELAY time set for the signal to be sent to the control software.

SIMULTANEOUS REPORTING - Both measurements are sent to the control software

LOCAL

This section sets the software and local PC options

The SAVE SET SECTION sets the saving of the files



Local Save Set Time Set

Save Path: D:\ Browse...

Save Captures
 Save log

Recording Length: 10 m Start Record

Submit Cancel Reset

SAVE PATH - Set the folder where to save the photo, video and log files

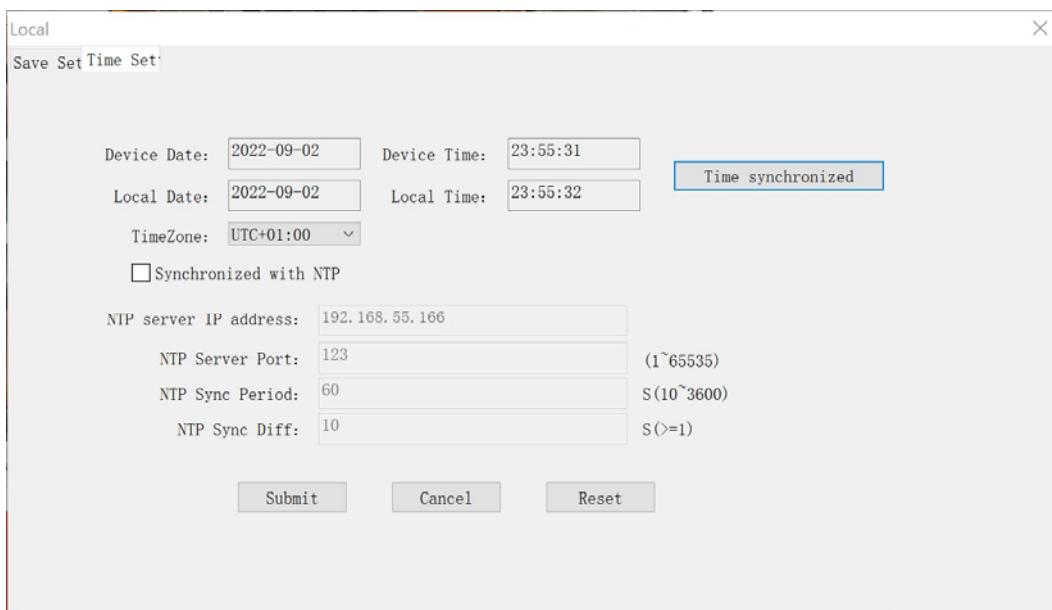
SAVE CAPTURE - Select to save the photos and videos captured by the software

SAVE LOG - Select to save the event log

RECORDING LENGTH - Sets the duration of the files in video recording

START RECORD - Starts recording

The TIME SECTION sets the time



Local Save Set Time Set

Device Date: 2022-09-02 Device Time: 23:55:31

Local Date: 2022-09-02 Local Time: 23:55:32 Time synchronized

TimeZone: UTC+01:00

Synchronized with NTP

NTP server IP address: 192.168.55.166

NTP Server Port: 123 (1~65535)

NTP Sync Period: 60 S(10~3600)

NTP Sync Diff: 10 S(>=1)

Submit Cancel Reset

DEVICE DATE / TIME - Camera time LOCAL

DATE / TIME - Computer time

TIME SYNC - You can synchronize the time of the camera with the computer



TIME ZONE - You can set the time zone, in Italy GMT + 1.

SYNC WITH NTP - You can enable automatic synchronization with an NTP server on the web by entering its connection data

B / W LIST

This section allows you to manage a list of allowed plates (Whitelist), which is normally allowed access, and a list of disallowed plates (Blacklist).

In the upper section of this window you can program different camera behaviors depending on whether the plate is in the whitelist, in the blacklist or is not yet in any of the lists (TEMP List).

The list of license plates does not reside in the software, but in the camera. You can download the lists that reside in the camera and that you have loaded previously with the REFRESH button and send the modified data with the SUBMIT button

CONTROL GATE OFFLINE - This option is only available for the white list. If you have external software to control the barrier based on the license plate, you can use this setting. In this case, the camera will normally leave the door opener management to the software and will open the door on the basis of its internal white list only if there is no connection with the server. CONTROL GATE ALL TIME - The camera operates the door opener (output 1) if the entrance panel is included in the



his list (White / Black / Temp). This is most often the configuration to use for whitelisting (authorized vehicles)

UNCONTROL GATE - - The camera does not operate the door opener (output 1) if the entrance panel is included in the list (White / Black / Temp). This is most often the configuration to use for Black List and Temp List.

100% MATCH - All license plate numbers must match to perform the FUZZY MATCH action - You can set how many license plate numbers are allowed not matching, normally 1, max. 2), in order to tolerate situations where license plates are not perfectly legible .

To add a license plate to the list, press the ADD button

PLATE - The license plate number without spaces

NOTES - Identification notes of the plate (example vehicle or owner)

START DATE - END DATE - Sets the start and end of the license plate validity in the WHITE / BLACK lists - Insert the license plate into the whitelist or blacklist

REFRESH - With the REFRESH button you download the list of entrance panels already configured and currently stored in the camera

With the EDIT, DELETE, DELETE ALL buttons you can modify the list of plates

With the COVER ADD button you can add plates by simultaneously deleting all previously memorized plates

The SEARCH button allows you to search for a license plate in the list, or all the plates that have expired (EXPIRED) or that will soon expire (EXPIRE IN ..)

OVERRIDE - Deletes all the plates included in the list

DOWNLOAD - Saves the plate list in CSV format



USER MGT

This section allows you to set other users to access the camera, in addition to the default admin. The users created in this section can be used to access the camera from both software and browser.

User	Perm...	Edit	Delete
admin	Administ:	Edit	

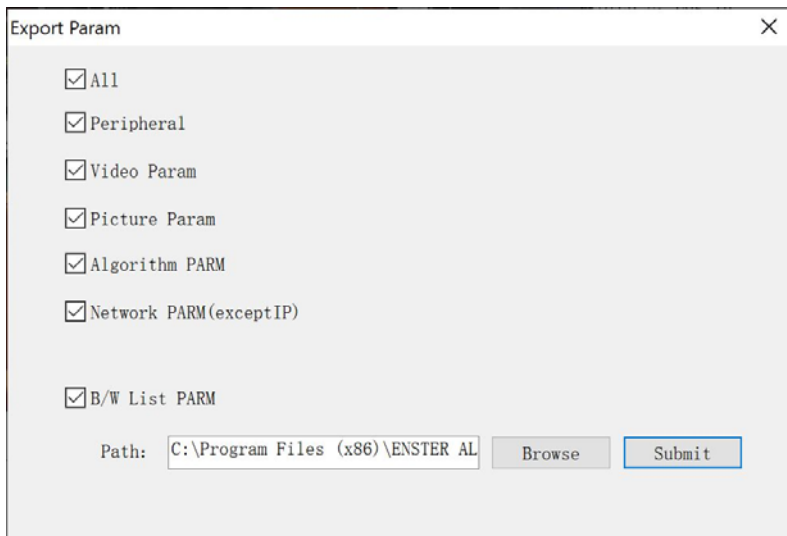
USER - Username to access the camera

PW / CONFIRM PW - Enter twice the access password to be assigned to the user PERMISSION -

Establishes the user's access level: ADMINISTRATOR = all functions, OPERATOR, All functions except users, OBSERVER: live viewing only

EXPORT PARAM

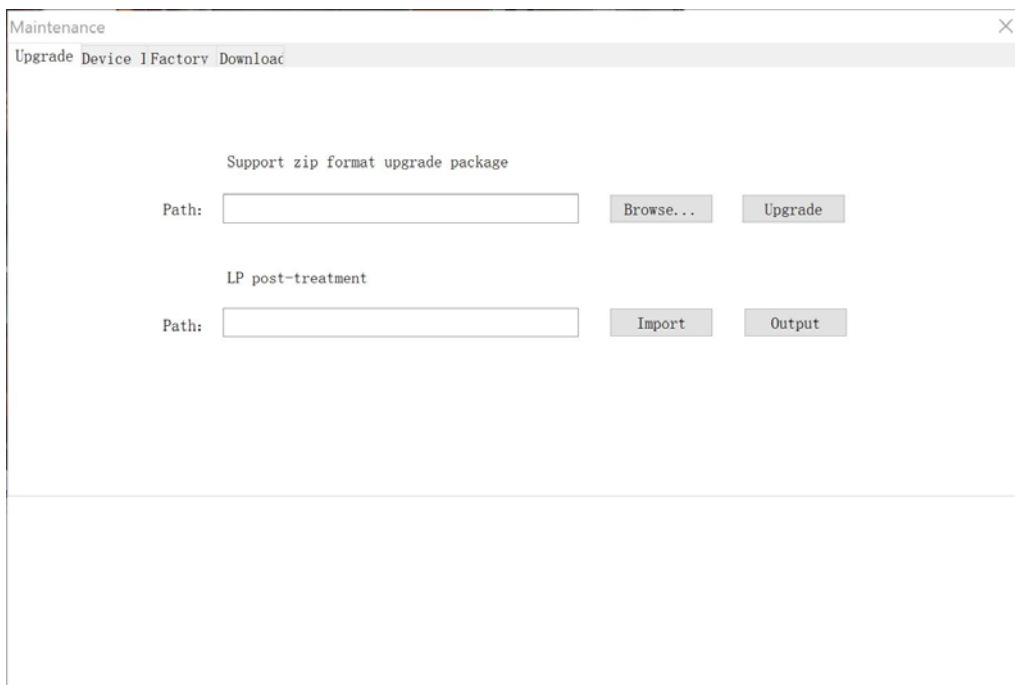
This section allows you to export the camera configuration to an external .TXT file



The saved configuration can be imported into a new camera, or into multiple cameras at the same time, using the BATCH OPT button in the live view which is described later in the manual.

MAINTANANCE

This section is for maintenance operations



UPGRADE - To update the camera

DEVICE - Gives information about the camera version

FACTORY - Allows you to restore the factory parameters either totally or partially (excluding network configuration and access credentials)



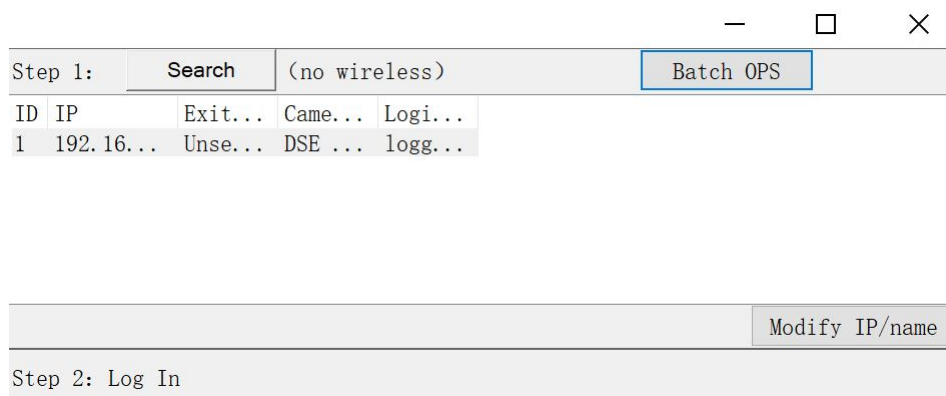
DOWNLOAD - Download the setup to install the program on another computer

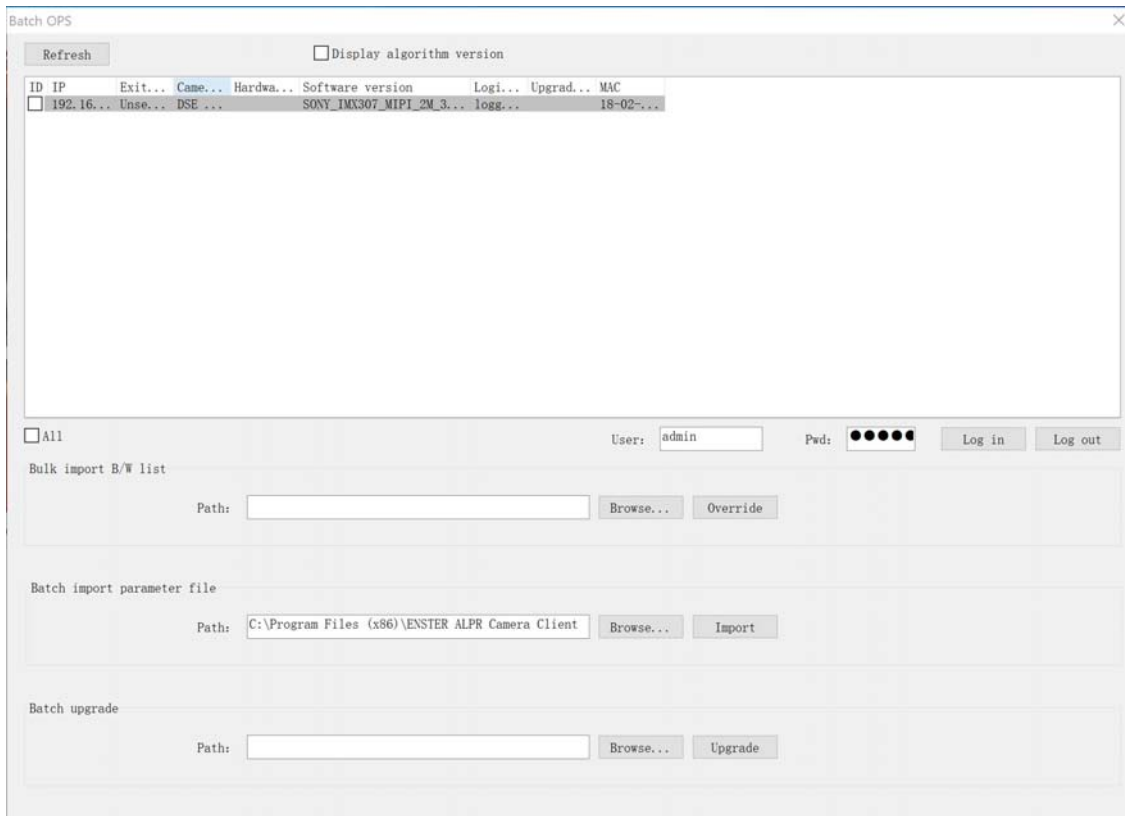
PRINT LOG

This section is for saving the log of the operations performed by the camera

Operations on multiple cameras (BATCH OPS)

the program allows you to perform some maintenance operations on multiple cameras simultaneously using the BATCH OPS button.





BULK IMPORT B / W LIST - Loads the whitelist and blacklist exported from a camera to all selected cameras (see data export)

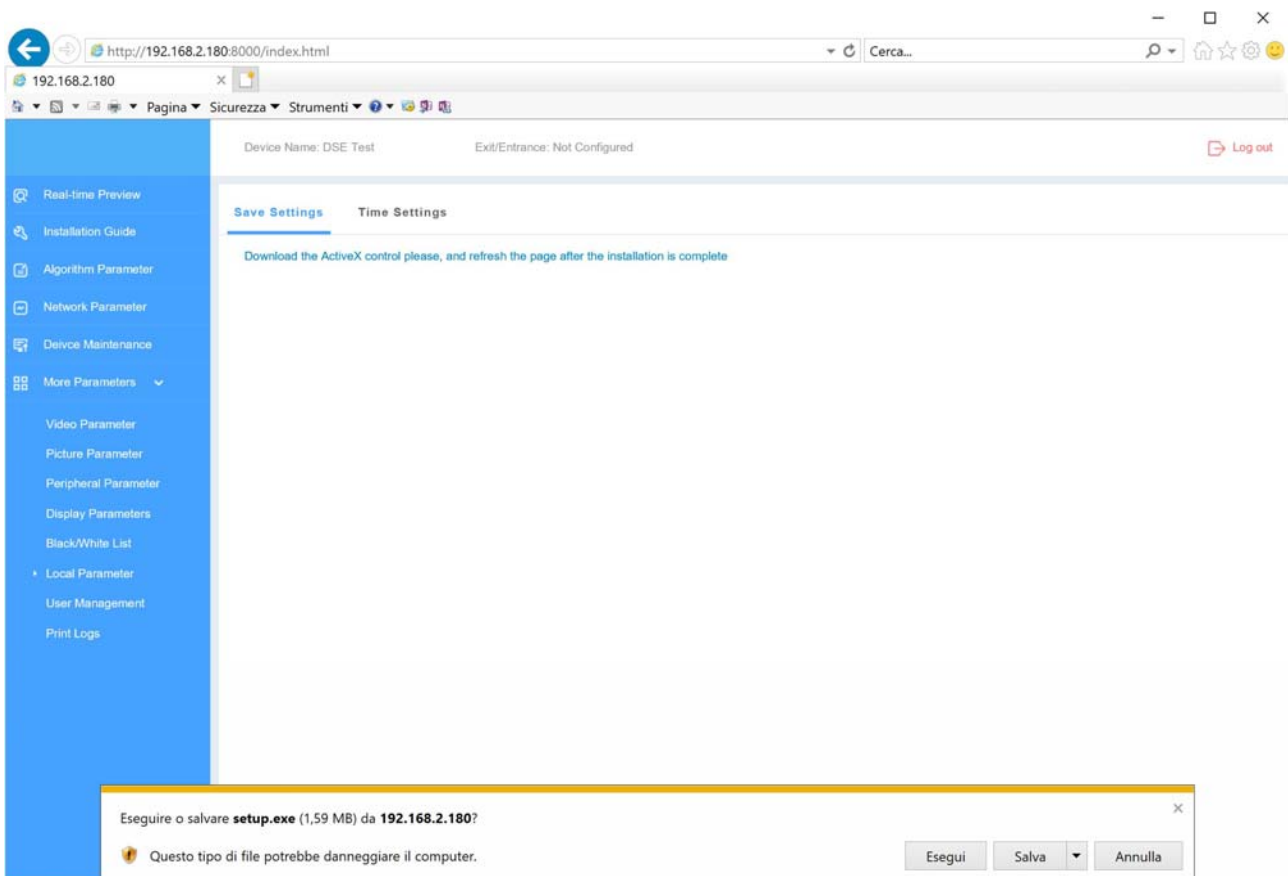
BATCH IMPORT PARAMETER FILE - Uploads the configuration exported from a camera to all selected cameras (see data export)

BATCH UPGRADE - Updates the firmware of all selected cameras

Access with browser

To control and configure these cameras you can also use common Internet browsers, such as Chrome, Firefox etc.

Only a few specific functions necessarily require the use of the Internet Explorer browser which at the first access will require you to download and install a plugin, enabling its execution in the security settings.



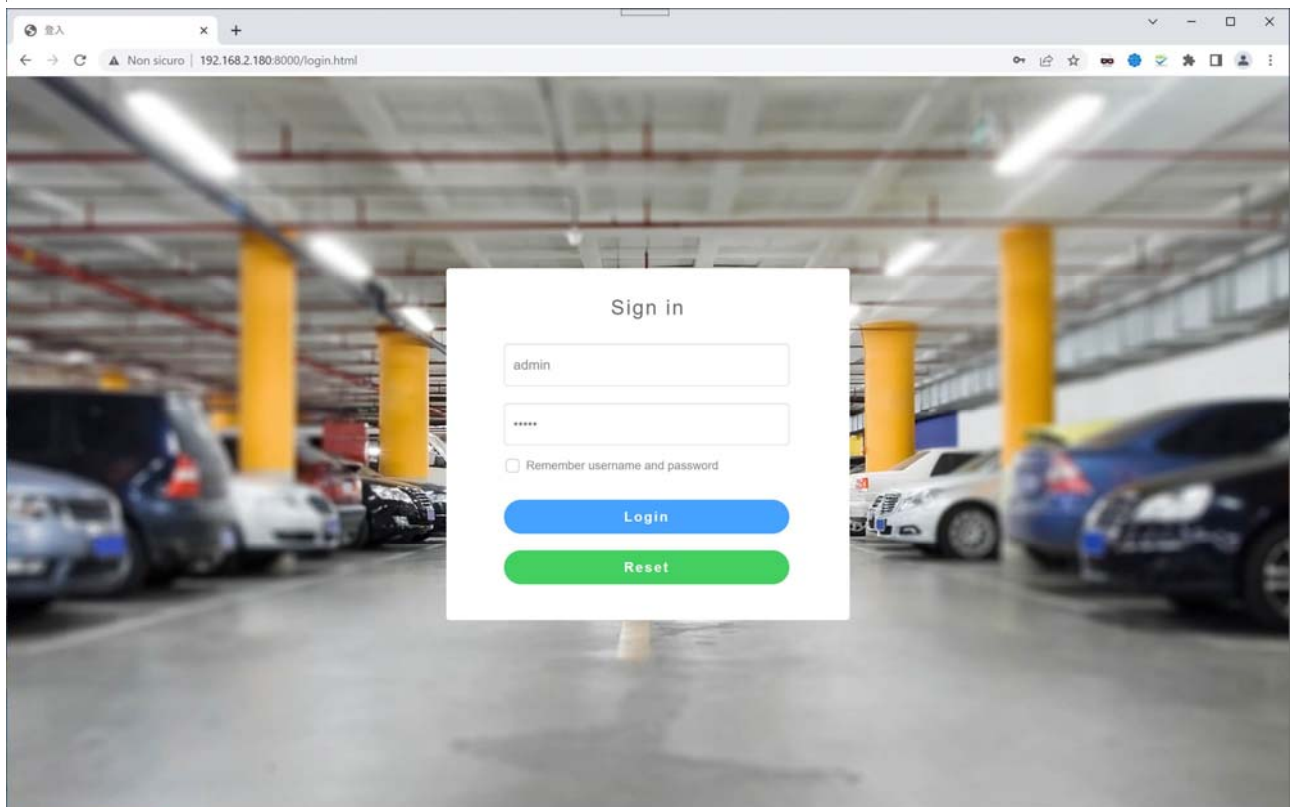
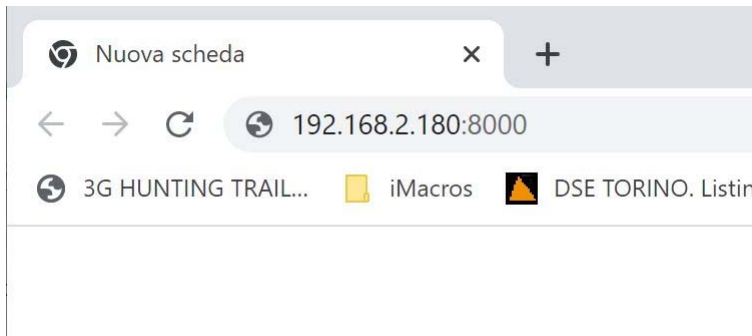
The communication port that these cameras use to communicate with browsers is the **PORT 8000**. You must then type in the address bar, the IP address of the camera followed by “: 8000”, as in the following example

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The factory password to use to access the browser is:

USER: admin

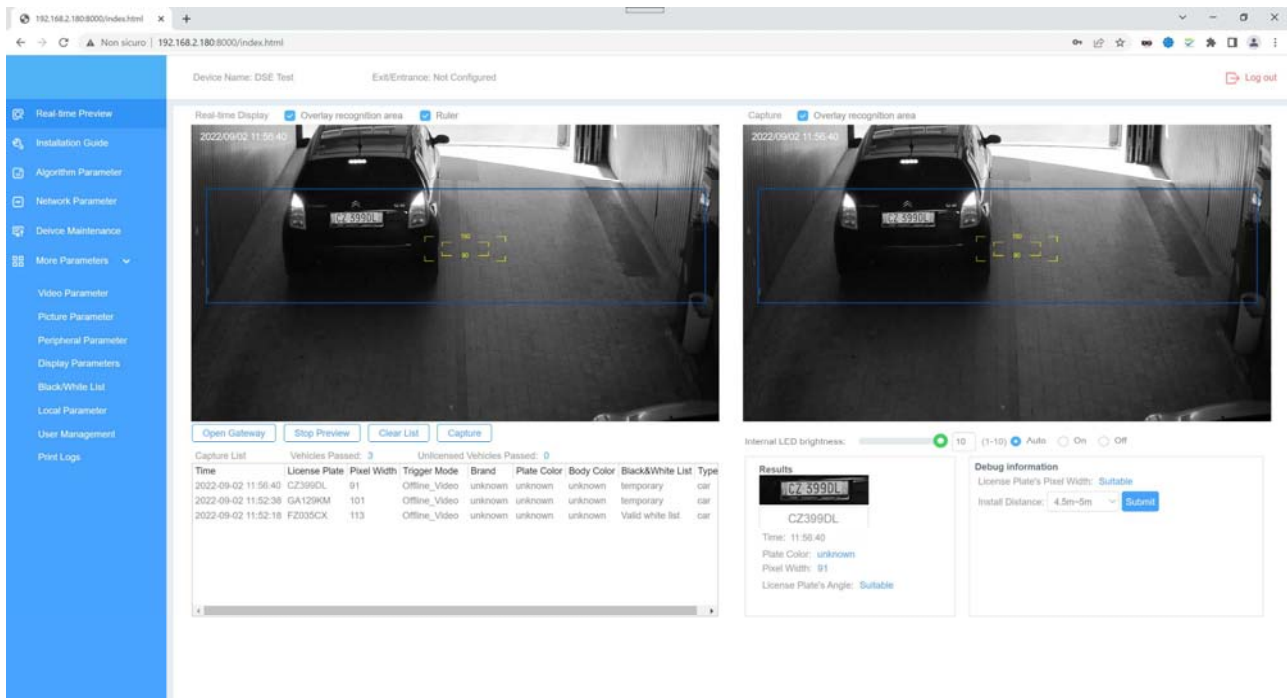
PW: 123456

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You can use the browser for all the configuration and control functions that have been explained for the ALPR CAMERA CLIENT software. Only some specific functions, such as the insertion of the plates in the B / W list, are not executable from the browser and necessarily require ALPR Camera Client.

Connection with RTSP player

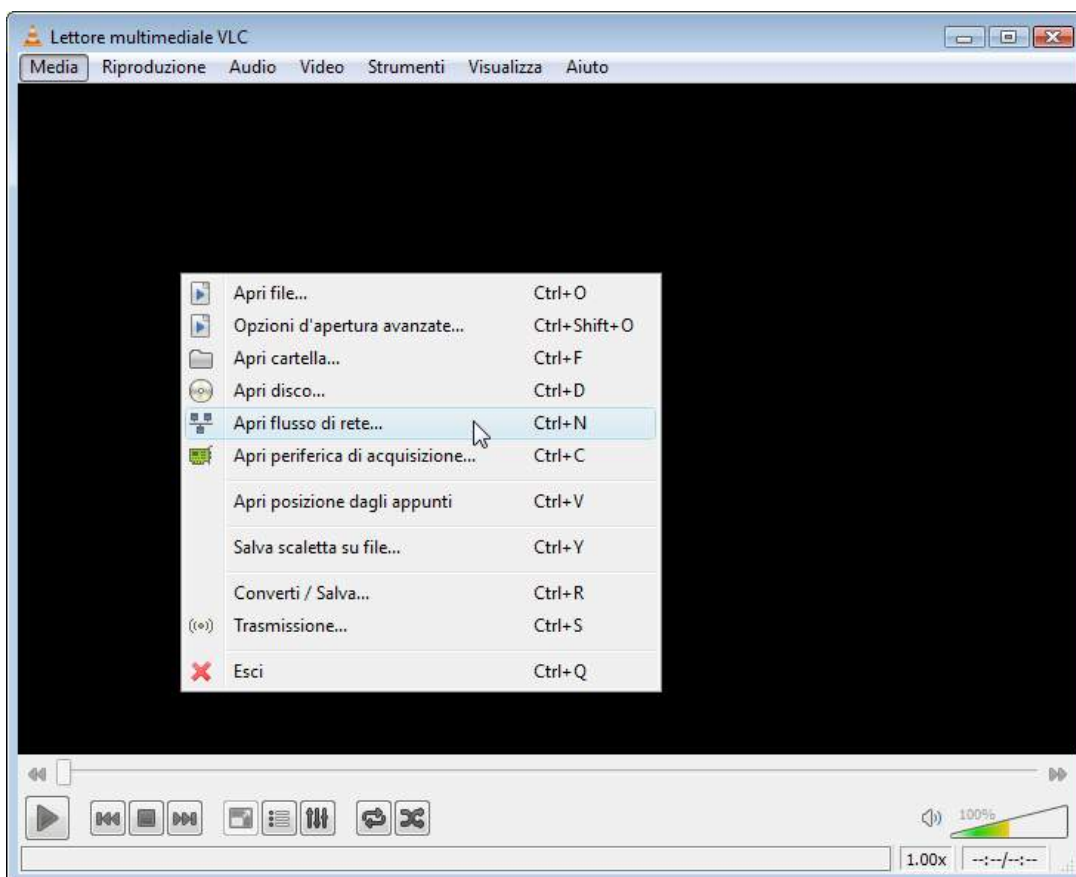
The cameras support the RTSP protocol which is factory set to use port 554. It is possible to connect to the camera using any RTSP player such as VLC.

The address to call must have the following syntax: RTSP: // IP / 11 to receive the main stream RTSP: // IP / 12 to receive the secondary stream

Here is an example:

rtsp://192.168.2.90/11

Right away how operate for example with the VLC player:

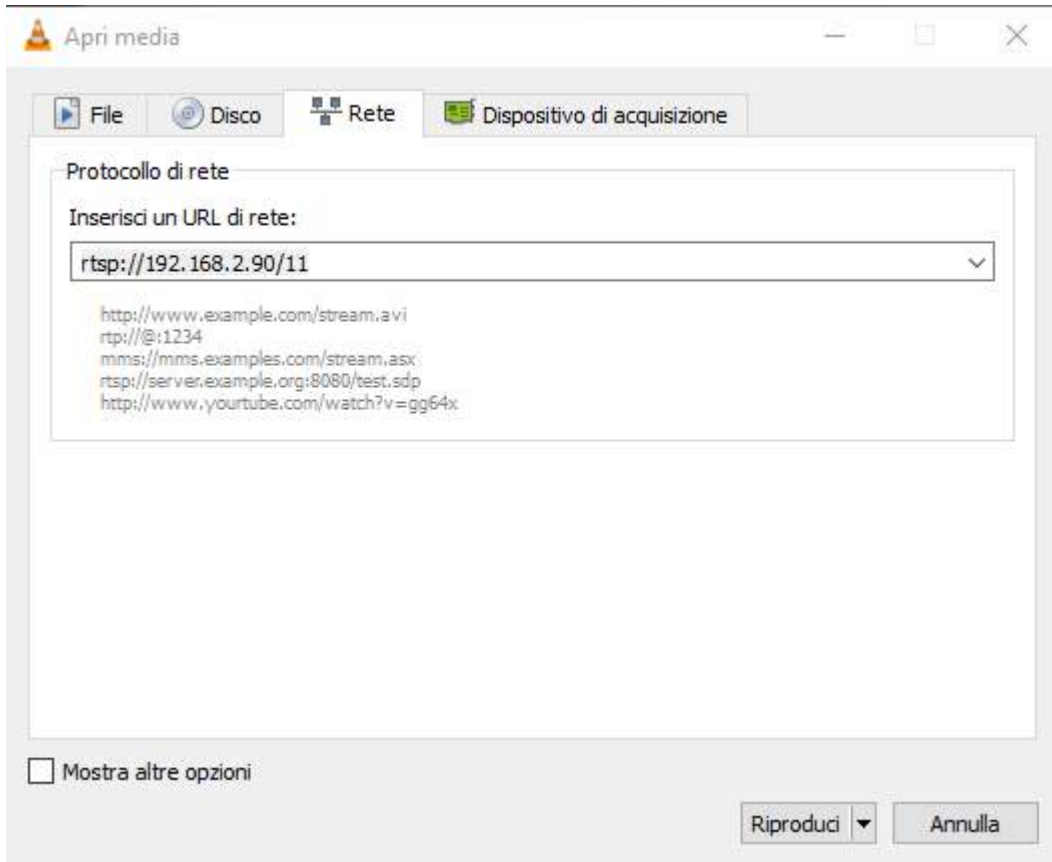


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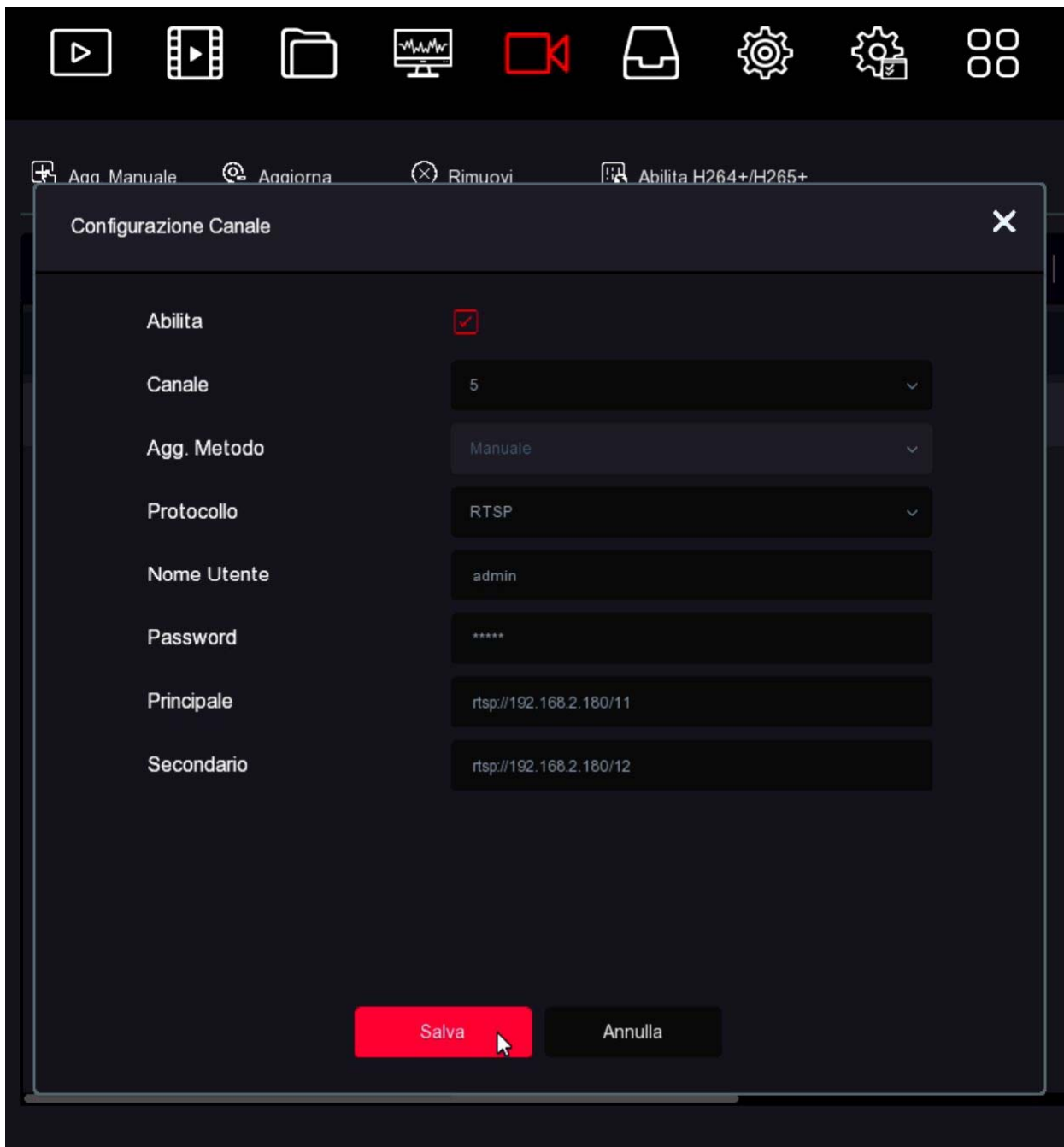


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Connection to NVR via RTSP

The RF series IP cameras are designed to work in conjunction with license plate management software such as ALPR Camera Client or with dedicated software developed using the SDKs. If you want to connect them to an NVR you can use the RTSP protocol, inserting the strings illustrated in the previous chapter. Here you have an example of how to connect the camera to one of our NVRs.



Connection to SD card

The cameras can accommodate an on-board SD memory and record photos of license plates and vehicles.

To download the photos you can use an FTP client and connect to the camera.

The data for the FTP connection are:

PORT: 21

USER: root

PASSWORD: hxtech

Here is an example with CUTEFTP.

