Hanwha Techwin

WISENET Road AI **application**

USER GUIDE

Color ● **GRAY**

Model **HT230C**

Brand **HTV**

Type **SUV**

LPN **HT-777-WS**

CONTENTS

INTRO

This document contains tips and recommendations on how to use WisenetRoadAI application running on Hanwha AI cameras.

This document describes the following application sections:

● Live view of the recognitions in **Events** tab.

● Work with **Notifications**

● Look for the stored events in **Search** tab

● Review historical data in **Statistics**

● Configure the application in **Settings**

● App status and recovery options in **About** tab

1

EVENTS TAB FEATURES

1.1 Full Screen Mode / Windowed Mode
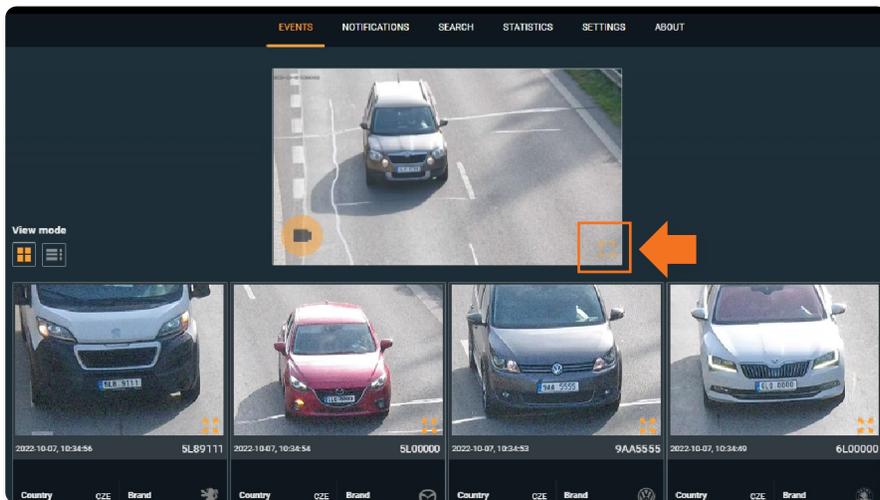
Full-screen mode allows you to use the entire screen area but not a small window.

To view the live image from the camera in full-screen mode, click on the full-screen mode icon.

To exit full-screen mode back to windowed mode, click anywhere.

1.2 List Mode
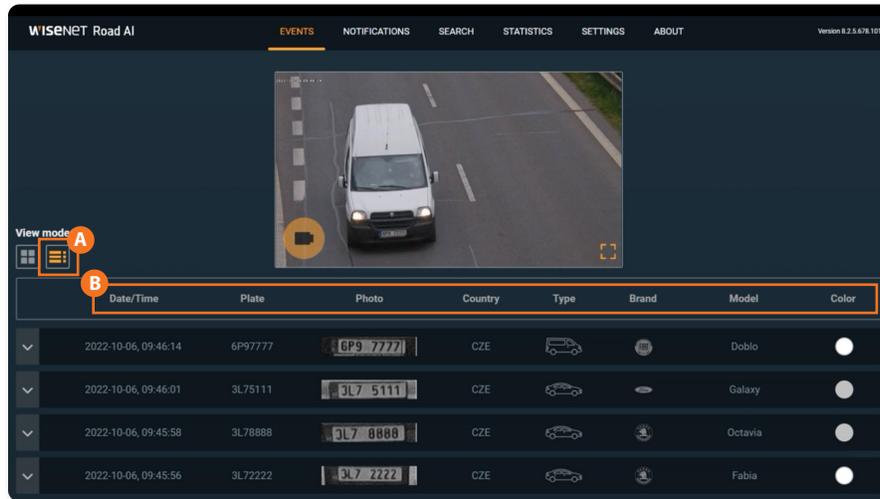
To enable the list display of events, click on the **A** corresponding button. Such event parameters **B** as **Date/Time**, **Plate**, **Photo**, **Country**, **Type**, **Brand**, **Model** and **Color** are displayed as a table. The events are displayed in a list from the newest to the oldest.

After moving the cursor over the Country, Type, and Brand icons, a popup window demonstrates the required field's value.

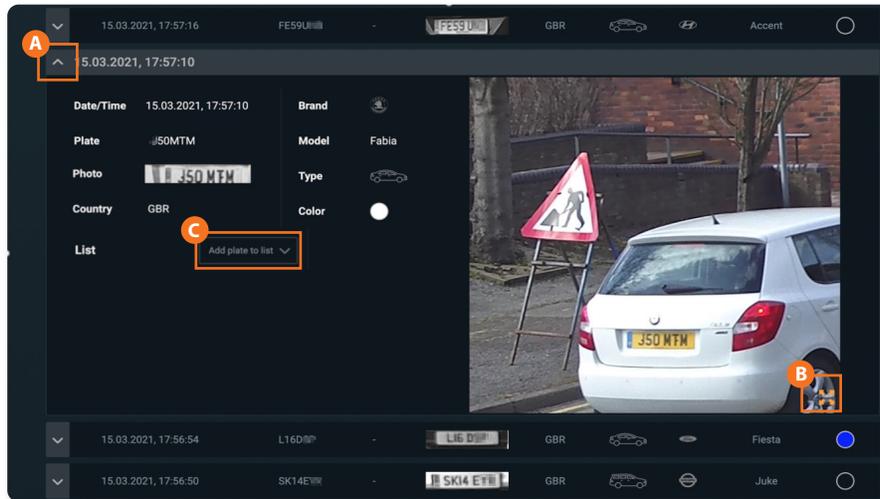## 1.3 List display mode

A **To display full event data** in List mode and enable image viewing, it is needed to expand the selected event data.

This menu allows viewing images in full screen mode (click on the **B** button in the right bottom corner of a photo), as well as **C** **to add the selected plate number** to the white or black list.

The display of the new events will be paused until the list is collapsed. After collapsing, the list will be updated with past events. If the list isn't collapsed manually, it will be updated automatically in a minute.

1.4 Table display mode
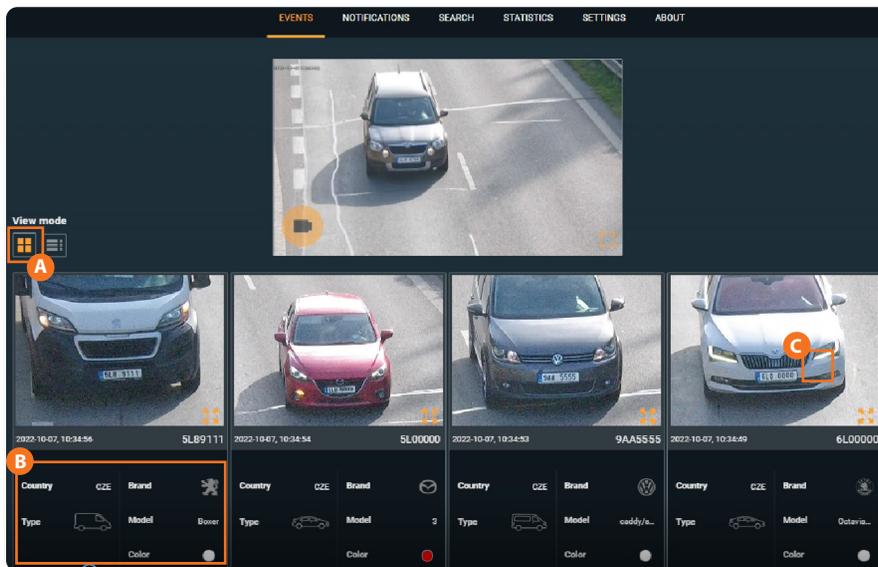
To enable the display of events as a table, click on the Ⓐ corresponding button. In this mode events and their parameters (**Date/Time**, **Plate**, **Direction**, **Photo**, **Country**, **Type**, **Brand**, **Model** и **Color**) are displayed in blocks.

After moving the cursor over the Ⓑ **Country**, **Type** and **Brand** buttons, a popup window demonstrates the value of the required field.

This menu allows viewing images in full-screen mode (click on the Ⓒ button in the right bottom corner of a photo). However, you can not add the selected plate number either to the white or black list.

1.5 Navigation
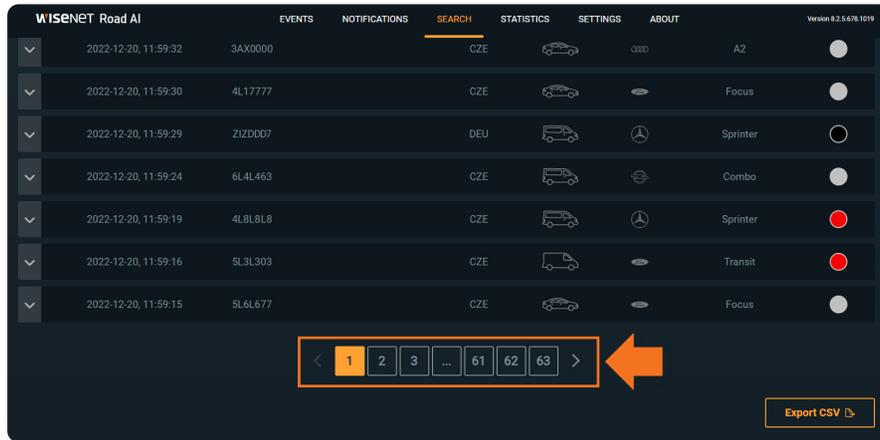
Navigation through the events tab is done using the left and right arrows below the events list. You can also use numbered buttons pointing to the page.

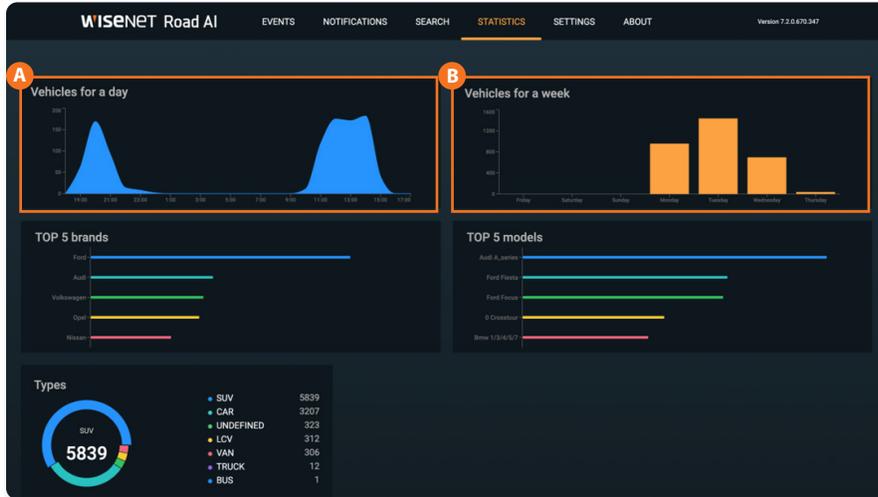The events are displayed from the newest on the first page to the oldest on the thirteenth page.

The number of displayed items is limited to **500**.

2 STATISTICS TAB FEATURES

2.1 Vehicles for a day and vehicles for a week widgets

On the **Statistics** tab, users can familiarize themselves with the statistics on different parameters displayed on the widgets.

A The **Vehicles widget** displays the statistics on the number of cars for the last 24 hours. After moving the cursor over a certain place on the widget, the user will be able to see the number of cars for the specified hour.

B The **Vehicles for a week widget** displays the statistics on the number of cars for the last week. After moving the cursor over a certain date on the widget, the user will be able to see the number of cars for the specified 24 hours.

2.2 Top-5 brands and Top-5 models widgets

A The **Top-5 brands widget** shows the car brands statistics based on their statistical distribution (no more than 10,000 latest cars are taken into account, due to the limitation of the database size).

B The **Top-5 models widget** shows the car models statistics based on their statistical distribution (no more than 10,000 latest cars are taken into account, due to the limitation of the database size).

2.3 Vehicles types
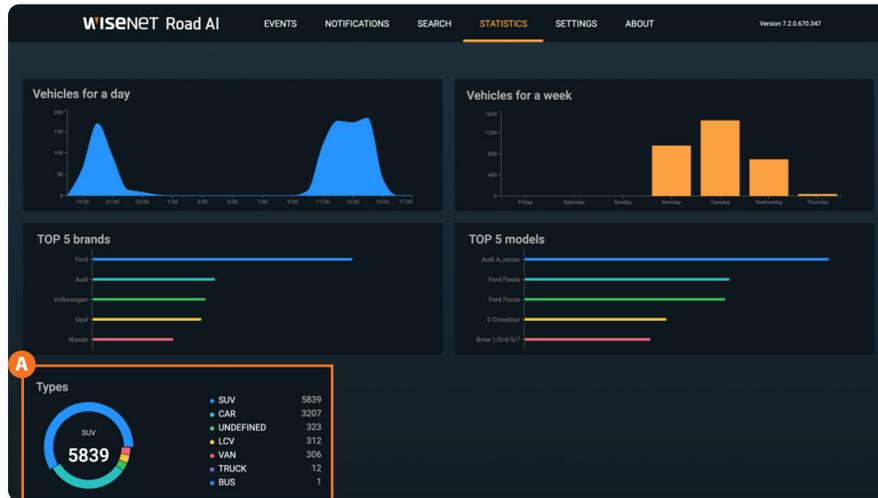
The **Types widget** shows the car brands statistics based on their statistical distribution (no more than 10,000 latest cars are taken into account, due to the limitation of the database size).

3

ABOUT TAB FEATURES

3.1 Data on the About page
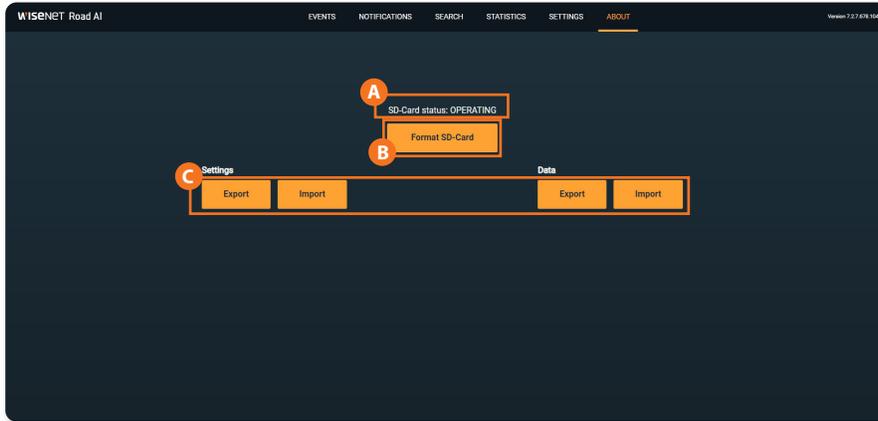
The **A** **status of the SD card** are shown on the **ABOUT** page.

B **SD Card format** option

C **Export**/**Import** buttons allow user to store current configuration and database for later re-use.

NOTE: *Please be aware that the event images are stored on the SD-card and will not be exported.*

4 NOTIFICATION TAB FEATURES
4.1 Notification feature
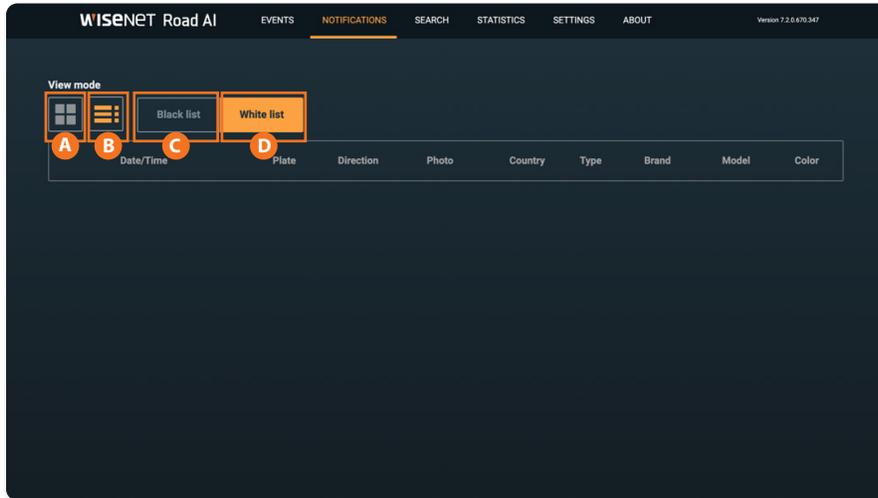
The **notification** tab allows the user to see license plate numbers that were added either to the white or black list in real-time.

The user can choose the display mode: Table mode Ⓐ, List mode Ⓑ, similar to the Events tab.

Display by the black and white list is switched by the corresponding buttons (Ⓒ,Ⓓ).

5

SEARCH TAB FEATURES

5.1 Search by plate and color
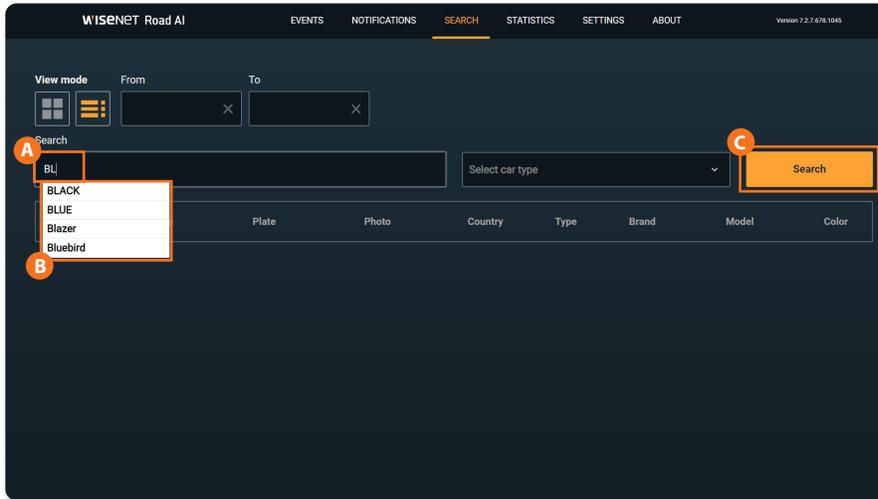
The **Search** tab allows searching by plate, country, make, model, color, date, car type and a combination of these criteria.

A **To search by color**, the user must select the search string and start entering the color. **B** After that, the user must select the desired color from the list and **C** click the Search button.

License plate search can be partial plate numbers or any characters that contains with in the plate.

5.2 Search by country, make and model
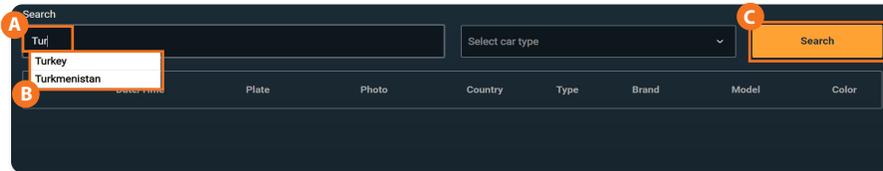
A **To search by country**, **Make** or **model** the user must select the search string and start entering the first letters. **B** After that, the user must select the desired country, make or model from the list and **C** click the search button.

Search results can always be saved to the user's device by clicking the **Export CSV** button.

5.3 Search by date and date range
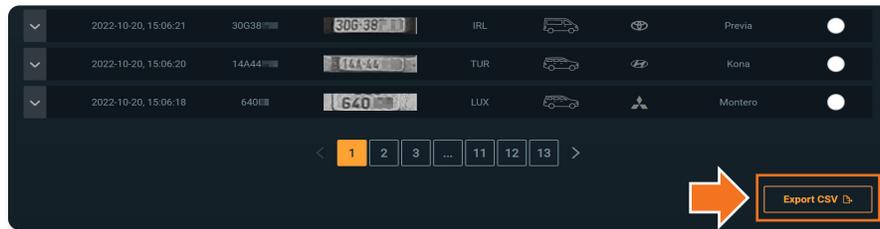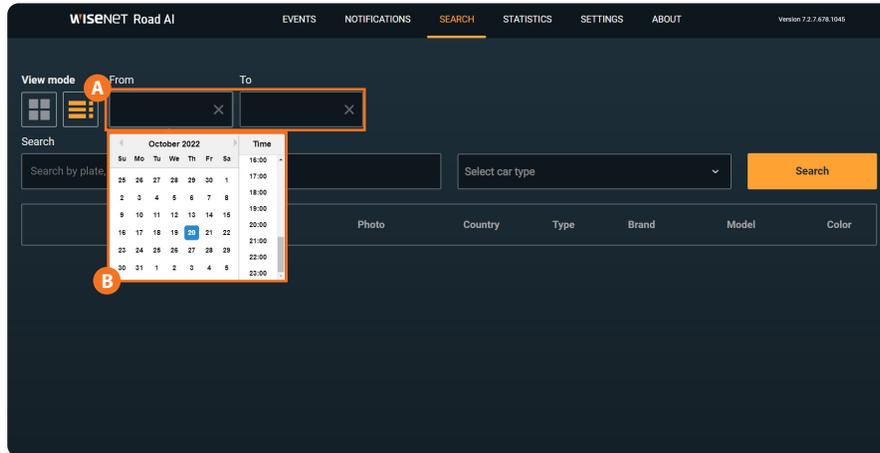

To search by date, (A) click **From** or **To** box and (B) select the start or end date of the search.

The user can search with or without the start / end date. The user can also combine search by date with search by license plate and / or color.

The depth of the search results database is **10000**.

5.4 Search by car type
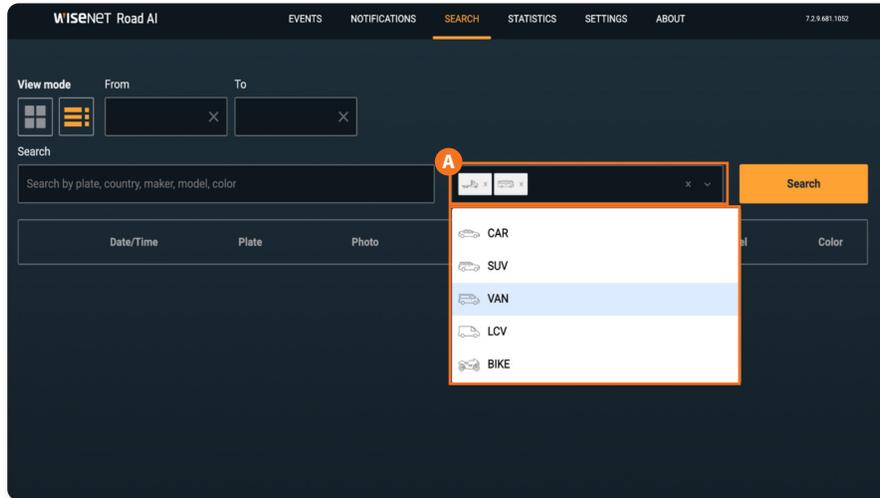
To search by car type, (A) click the tab to choose vehicle type. User can select mutiple types to display results.

6 SETTINGS TAB FEATURES

6.1 Setting up WisenetRoadAI

(A) The first option should be to define the **Region**.

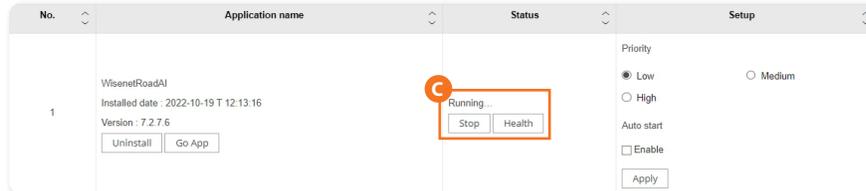1) As you go in to the settings menu, choose the correct region that matches your country/region. The default region given is Europe. If you are in any other region or country, use the pull down menu to choose the region/country that matches your geographical area.

2) **(B)** Save the settings.
Click the **Save settings**.
And you need to stop and start the application for the regions to take effect. It can be done from the web interface of the camera uder open platform settings.

3) Once you restart the application and come to the settings page continue with other settings as given next page.

NOTE: *You would need to go to the web menu of the camera →Open Platform Area to* **(C)** *Stop and Re-start the application to take the Regional setting changes to be effective.*

NOTE: *When searching, GCC regions can provide additional information.*

6.1 Setting up WisenetRoadAI (Continued)
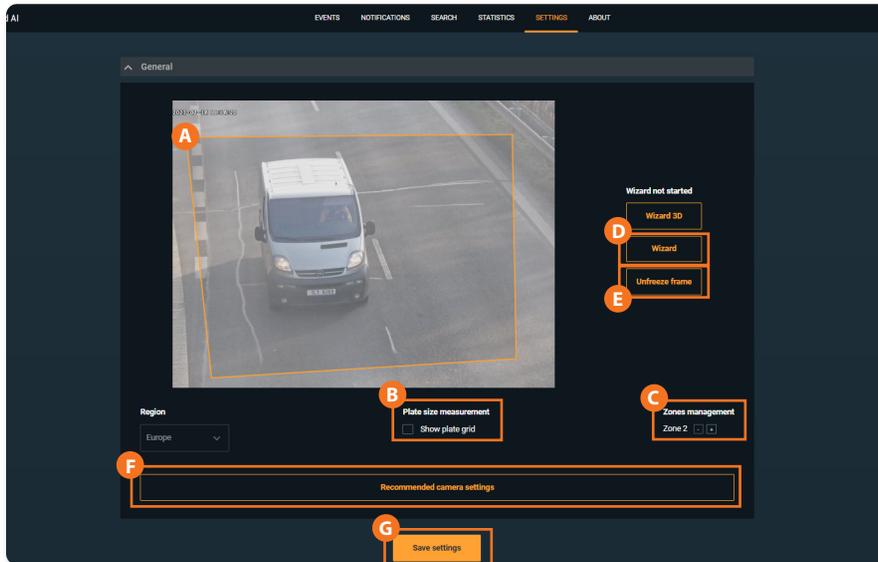
A The application settings allow the user to move the or resize the frame with in which the reading takes place.

B Switch on/off the Plate size measurement.

C Add License Plate Recognition Area.

D Set up with **Wizard** option

E Freeze the frame.

F Save the corresponding sections by clicking the **Recommended camera settings** button.

G Click **Save settings**.

H Please set the upper border of **A** the recognition area further from the edge of the frame.
This allows vehicle being fully visible during detection and improve MMCR results.

6.1 Setting up WisenetRoadAI (Continued)
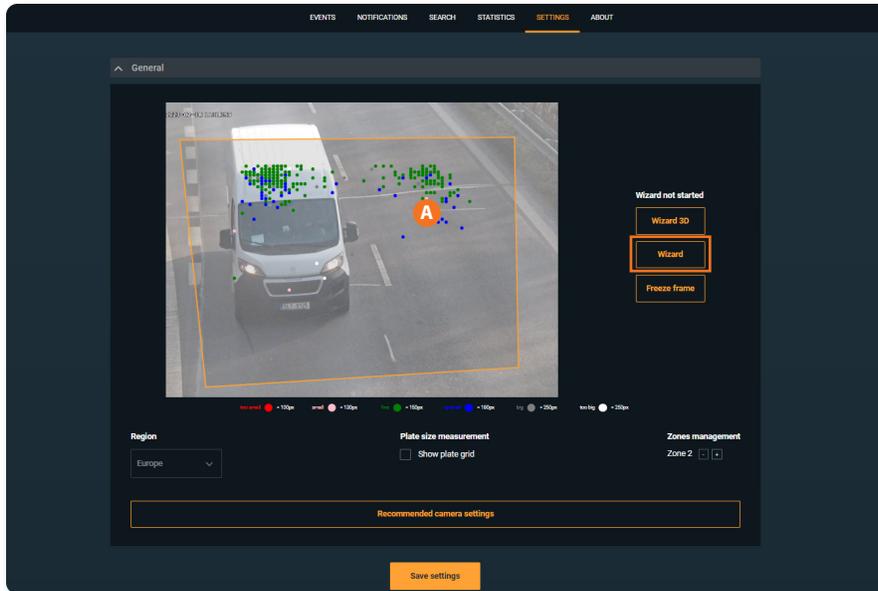
A **Wizard** tool displays the statistic of the latest 1000 recognized plates sizes.

Use it to adjust camera zooming and recognition area configuration.

Try to keep plates in **green** and **blue** range.

Users need to have at least **100** events to make feature displaying data.

6.2 Setting up Events
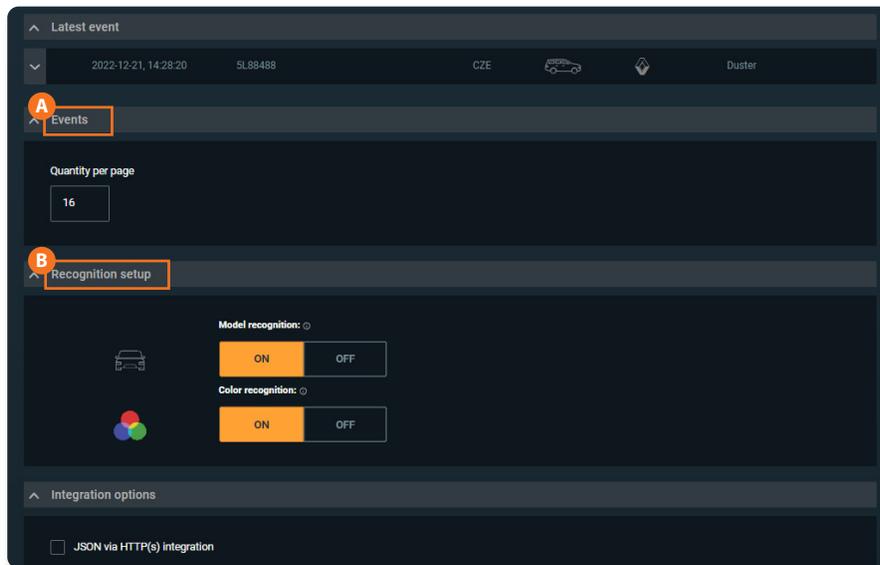
A In the Events settings, the user can specify the number of events displayed on a page.

Changing this parameter will lead to changes on the **Event**, **Notification** and **Search** pages.

Event quantity per page should be with in **10** to **50**.

B You can enable/disable **model recognition** and **color recognition** features in the app.

Please, keep in mind the app will be restarted automatically after saving the settings.

Corresponding columns will be hidden in the UI after set as **OFF**.

6.3 Integration options

In the Integration options section, the user can select one or several options from the proposed variants: **A** **JSON via HTTP(s) integration** **B** **NVR integration** **C** **Wave integration**

A: Refer to the additional guide in next page (23p) on the supported options and commands.

B: Should have the target NVR IP address and port.
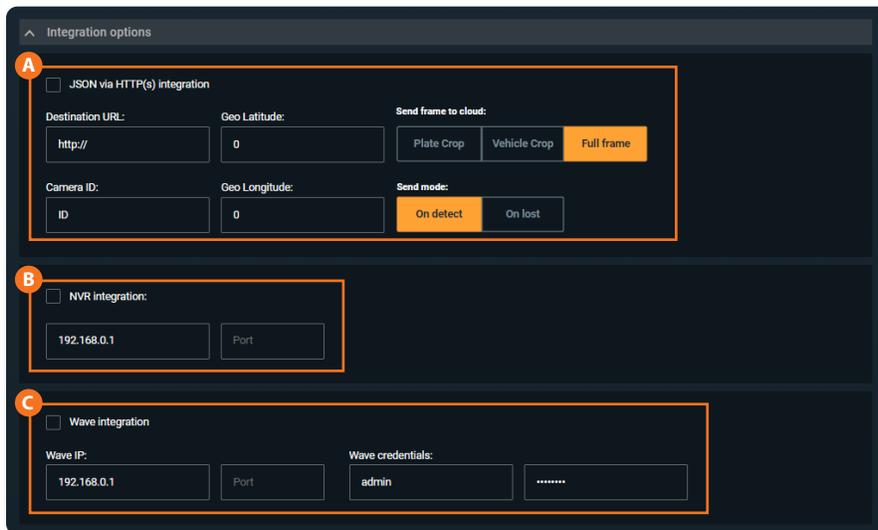**NOTE:** *On the NVR side, you need to configure the events to be received preperly.*

C: Make sure you have the target Wave server credentials.
NOTE: *Configuring this will get you only the generic events in the Wave server. For full integration in to Wave with the AI meta data, use the Wave version that supports the full meta data.*

To select the integration, the user must check the box next to the selected method.

To ensure the correct work/operation of each method, the user must fill in all the fields displayed in this method and save the changes.

6.3 Integration options (Continued)
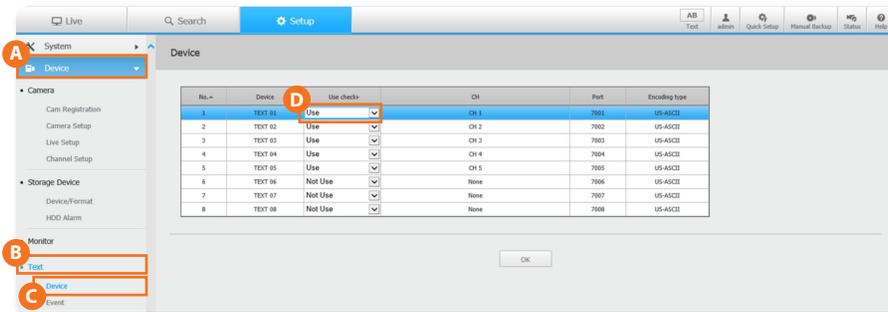
Check the NVR settings to obtain corresponding Port number in **(A) Device** ➞ **(B) Text** ➞ **(C) Device** setting

(by default port 7001 for CH 1, 7002 for CH 2, etc.)

Set **(D) Use** per channels as appropriate.

6.3 Integration options (Continued)
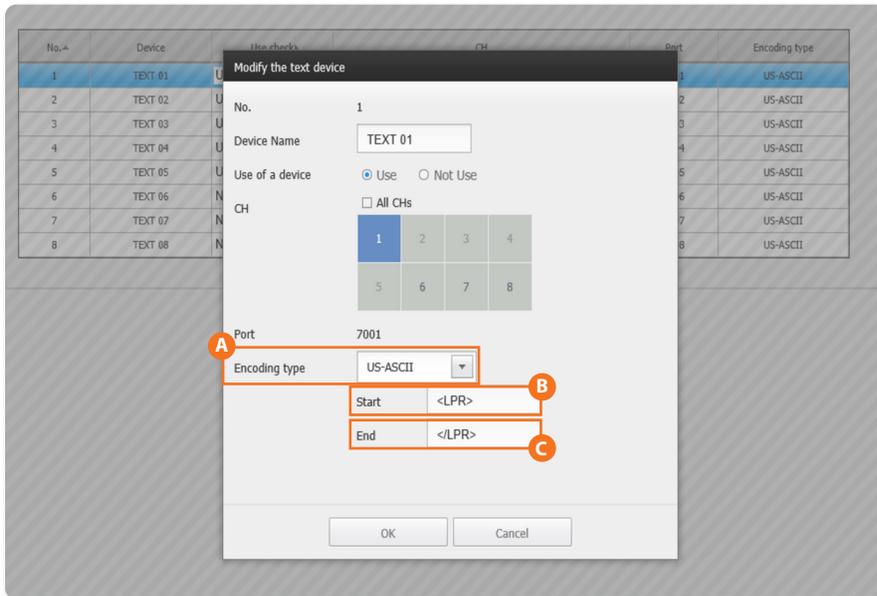
Click the channel row to open channel settings.

Set
Ⓐ Encoding type : **US-ASCII**
Ⓑ Start string : **<LPR>**
Ⓒ End string : **</LPR>**

NOTE: *NVR may not show LPR events if there is no video stream bound to the same channel.*

6.4 List settings
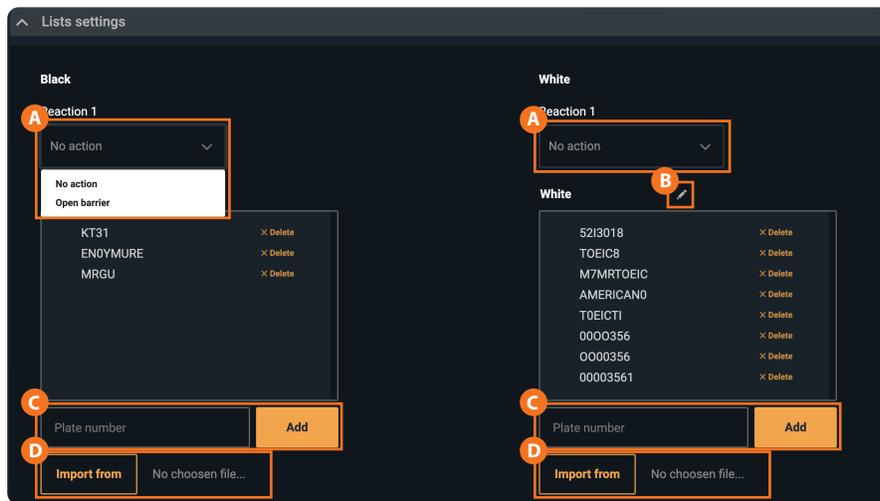
In the **List settings** section, the user can set reactions to events from the white and black list.

A To select a reaction, the user must click drop-down list button.

Two reactions are available: **No reaction** and **Open barrier**.

You can also rename the title of the list. By default it is know an Black /white list, but you can edit the name. It can be done in the following ways:

Click **B** **Edit** icon on the top of the list. It allows editing already added plates.

C Enter a number and then click the **Add** button.

D Import the list in the .csv format

You can also add white list and black list from the Events menu directly by right clicking on any of the plate events.

6.5 Updating App

To update App, the user need to go back to camera web viewer.
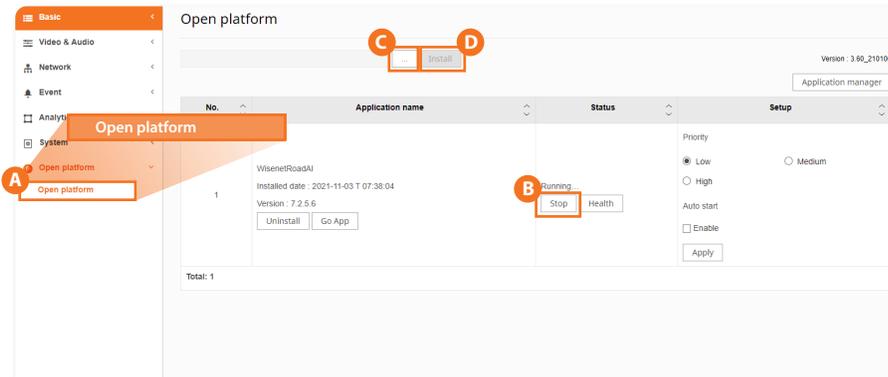
A Go to **Open platform** section in camera web viewer.

B Click **Stop** box to stop Wisenet Road AI App
It is very important process to stop App before updating App.

C Click "**....**" box to select App file to update.

D Click **Intall** box to update App.

6.6 DB Export & Import

Go to Wisenet Road AI application tab and select **ABOUT** from the pull down menu.
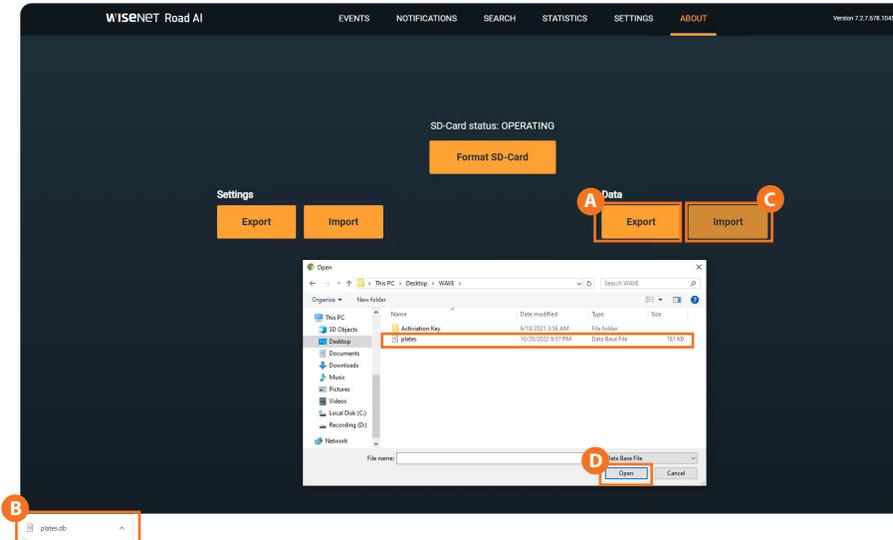
Select **A** to export current stored DB to another place in connected PC.

It is highly recommended to export DB after all of settings have been finalized.

B Check the file to be downloaded.

Select **C** to import DB and select **D** for the place that DB is placed.

Restart App.

Please, do not edit the database file manually, as it will be corrupted.

Keep in mind, database does not contain event's images. They are stored in the SD card.
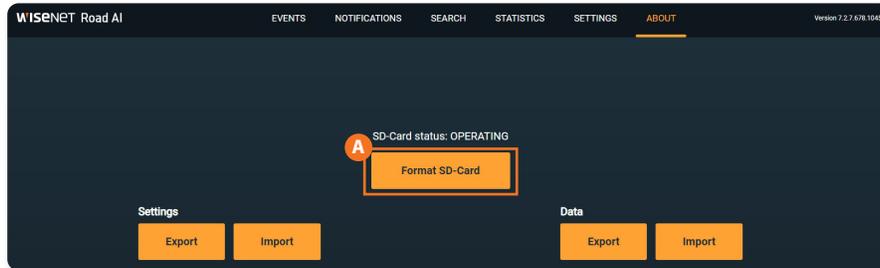
You can format in-camera SD-card by clicking (A) Format SD-Card button, Please keep in mind it will result in losing images.

Please perform this action **only if necessary.** Formatting SD-card may take few minutes and will force the app to restart automatically.

Performing this action will result in losing all data on the SD card including images, logs, and backups. Wisenet RoadAI app will restart to perform the procedure. Are you sure?

Cancel   Proceed
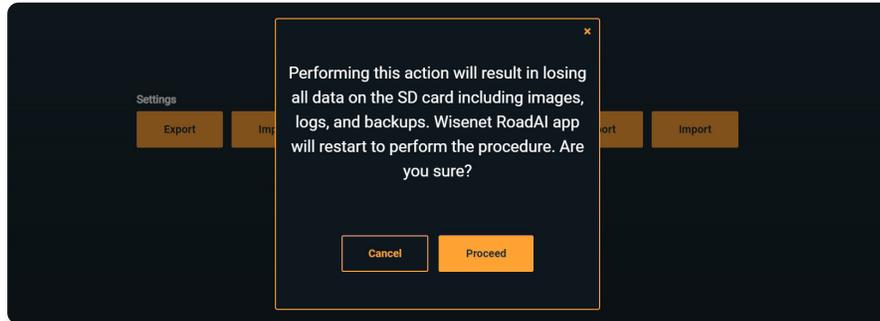
WARNING: DO NOT INSERT OR REMOVE SDCARD WHILE CAMERA IS RUNNING

TROUBLE SHOOTING

● **How to install the application**

You will have Wisenet RoadAI application pre-installed. In case you need to manually install the app (e.g. update app with the latest version) the installation package is required from Hanwha Techwin website.

If you are upgrading the existing application it is recomended to stop the app before installing the newer version.

Check the compatible firmware version and upgrade the camera if necessary. Check that you have one of the supported camera models: TNO-7180RLP

Please keep in mind that the latest firmware version support could lag for a few weeks, so do not rush to upgrade the camera without confirmation of compatibility.

DO NOT REMOVE SD CARD PREINSTALLED. you must have SD card before running the RoadAI Application pre-installed.

● **Applications restarts from time to time - is that normal?**

Both your camera and the application have protective mechanisms to avoid crashes and stalling. Those watchdogs could restart the application. Please contact the support if the situation happens too often.

Check that built-in video-analytics are disabled, as they consume camera's resources and affect application performance; micro SD-card health; camera's firmware version is compatible.

● **Do I need an micro SD-card?**

The micro SD-card is needed to store the images of the events.

Also, it is mandatory to have micro SD-card installed and operational to send data via HTTP(s) integration and store application's logs.

Your camera have an micro SD-card(32Gb) pre-inserted. In case you need to change it, please select a compatible option (32Gb at least, class 10).

(CONTINUED)

● **I do not see event's images in the application**

Please check the following:

- Micro SD-card is inserted in the camera

- Micro SD-card status is OPERATING in the About tab

- Micro SD-card is class 10

Format microSD-card from Road-AI menu and try to restart the camera to re-initialize the microSD-card if all the above are OK.

● **How to obtain logs?**

In some cases additional information needed to check the issues with the application.

There are two types of logs: 1) in-camera, 2) in-application ones.

In-camera logs are accessible through camera configuration in **System**>**Log** section.

In-application logs could be downloaded via your browser after hitting this combination, while on the app's page:

Ctrl +Alt+ Shift+ L

Also, you can change the log-level (the amount of stored data) with Ctrl +Alt+ Shift+ <number>, where <number> is in range 1..7.

The default level is 4.

Please keep in mind that micro SD-card is needed to store and download logs.

Also, log-levels higher than 4 provide massive amounts of data, so would both increase the log size, micro SD-card usage and could affect application's performance.

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● **How to obtain logs? (continued)**

Alternative method to access logs if camera is hidden bedding the router is to use the following link

http://<CameraIP>/home/setup/opensdk/html/WisenetRoadAI/logs/WisenetRoadAI_logs.log?AppName=WisenetRoadAI

In some cases more details could be requested.

Useful links to check application status:

http://<CameraIP>/home/setup/opensdk/html/WisenetRoadAI/IPCameraManifest.xml

The application configuration is stored here

http://<CameraIP>/stw-cgi/opensdk.cgi?msubmenu=metaframeschema&action=view

Check if integration with VMS (SSM, Milestone, Genetec) is enabled

http://<CameraIP>/home/setup/opensdk/html/WisenetRoadAI/metadata.log

Check the latest integration event

http://<CameraIP>/home/setup/opensdk/html/WisenetRoadAI/schema.log

Check the integration message schema

http://<CameraIP>/stw-cgi/debugcgi?msubmenu=data&action=view

Check internal camera debug information

● **How can I delete all Number Plates from the SD Card to have an empty database?**

You can format the micro SD-card after removing it from a camera. That will remove stored images without removing the events from the database. Re-installing the app would clear the database. Also, you can import empty database in the About tab.

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● **How many events can be stored?**

The application stores up to 10.000 events in the camera. You can increase the number of events by saving them on the back-end side via different integration types available.

● **Bad recognition at night. How to fix that?**

This might be result of:

1. Improper focusing. Consider that the area with sharp details varies during daytime and nighttime. You can even configure two setups for day and night recognition with different focus.

2. AGC (automatic gain control) is set to Normal or High, which results in noise and affects recognition performance.

3. Shutter speed is low (slower than recommended 1/300)

4. IR power is not configured properly (either vehicle is too far and IR is not enough or too close that plates are over-exposed; also closer to frame borders a vignette effect is strong). Consider using external IR for longer distances or higher vehicle speeds.

5. Camera does not switch to the B/W mode during nighttime, as in case of high illumination it can stay in Color mode, but the conditions would be poor for plates reading and IR would not affect the image.
   Application does not recognize Make, Model and color at night. This is normal. With the help of IR, it can read only the plate numbers. Occasionally it gives the make and model but it may not be the exact match due to poor lighting conditions.

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● **Do I need to activate the application after installation?**

You do not need to activate the application in any way - you can install it on any of the supported camera models and use it right away.

● **Application does not recognize licence plates, vehicle models**

Check if the application is installed. Follow the installation guides to configure the whole setup properly.

Check whether the application is running.

Check the Image requirements in case you have a video in a preview, but do not have recognition.

Do you use a supported browser? Recommended browsers.

Use Plate Size checker and Freeze Frame tools in the settings tab to check if the plate size, roll angle, positioning are valid.

Change the application resolution to FullHD if plates are too big or to 4K if they are too small. Adjust plate's size with camera's zoom.

Make sure to start the application. It is recommended to use the 'Enable Auto Start" function for convenience.

If you go in to the Wisent Road AI app with out actually starting the app, you only get a black screen with Wisenet Road AI.

● **Image requirements**

Plates should fit the following restrictions for better recognition :

- Clearly visible and readable by human
- Plate roll angle is less than 5°

- Plate width should be in range of 130-350 pixels on a picture
- Plate pitch and yaw angles are less than 30°

Check for details in Installation Guide.

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● **Recommended browsers**

We recommend using Chrome, Firefox, Safari. Check details in the Installation Guide, section Camera Settings > Important note on web browsers

● **False recognitions: grass / asphalt / textures detected**

1. Configure the recognition area in the Settings tab to avoid appearance of unnecessary texture and limit it only to plates appearance zone.
2. Use manual focusing in camera settings and adjust focus to provide a sharp picture of license plates in the area they appear.

● **False recognition: low picture quality**

Try improving picture quality through camera settings: Sharpness, focus, exposure

● **False recognition: small objects detected**

Change Area of Interest in the Settings tab to avoid detecting small plates. Use zoom or in-app resolution to adjust.

● **Can't see video in browser**

1. Check whether you use supported browser if you are in the same network with camera.
2. Port 6162 from camera should be forwarded through router to view video from remote network.

● **Recommended Settings does not apply**

Some of the camera's settings are interconnected. Try to reset Video setting to default and use Recommended Settings button, or just follow the Installation Guide to set the camera manually.

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● **Region selection, resolution selection does not apply**

Changing region and resolution will apply to GUI firstly. You need to restart the application in the Open Platform section of camera setting to fully apply changes.

● **Not all search results are displayed**

The search results are currently limited by transmitting buffer size providing approximately 800 latest results. Please specify your search parameters to narrow down the result by using date/time filter or other vehicle criterias.

● **How can I integrate with Milestone/Genetec**

Please use Hanwha Techwin's AI plug-ins for your VMS to obtain vehicle recognition events from Wisenet RoadAI. No additional settings needed on the application side.

● **What happens if I reset camera**

You will not lose the application setup or data if you reset camera keeping Network & OpenPlatform parameters.

Otherwise, the application will be removed with only event images stored on the SD-card. The only way to obtain images is to remove card from the camera in that case.

We strongly recommend export application settings and database in the About tab prior reset or application reinstallation/update.

If you hard reset the camera through the physical reset button, you have to re-install the application.

For more information visit us at

Hanwha-Security.com

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