

Wisenet Road AI application USER GUIDE



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Color RED

Brand HTV

Model HT230C

LPN HT-777-WS

Type
SUV

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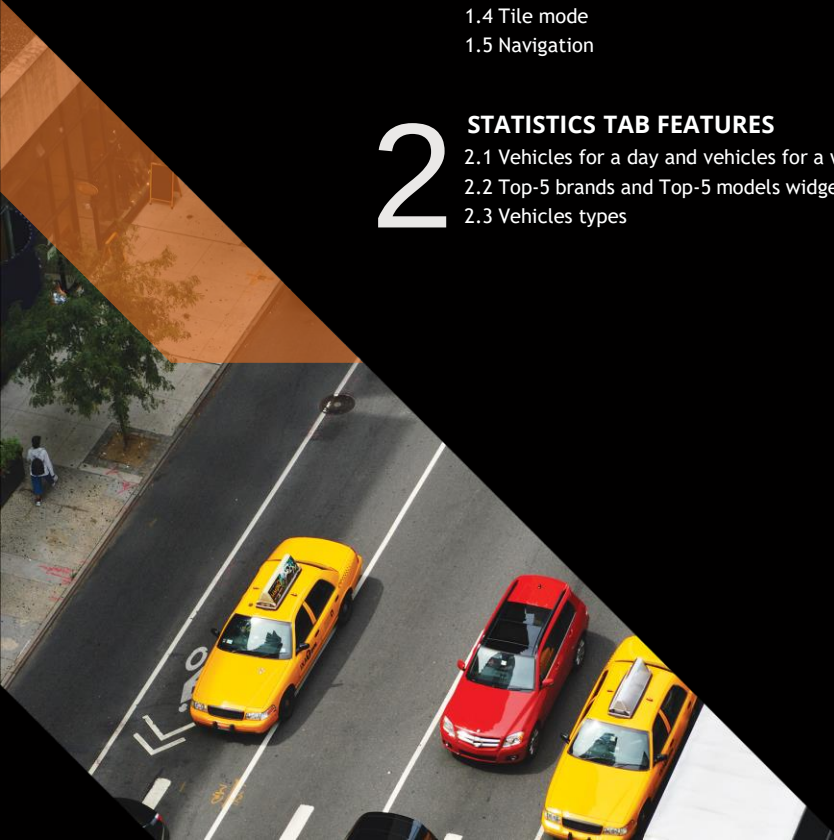
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TROUBLESHOOTING



INTRO

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

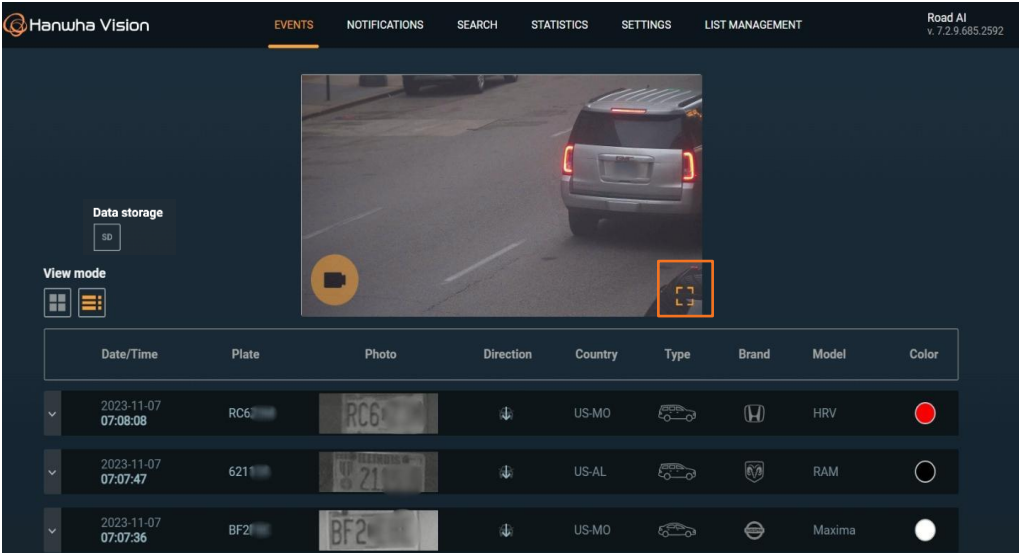
This document describes the following application sections:

- Live view of the recognitions in the **Events** tab.
- Work with the **Notifications**.
- Look for the stored events in the **Search** tab.
- Review historical data in the **Statistics** tab.
- Configure the application in the **Settings** tab.
- Manage the black and white lists in the **List Management** tab.

1

EVENTS TAB FEATURES

1.1 Full Screen Mode / Window Mode



Full-screen mode allows using the entire screen area.

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

To exit full screen mode, click anywhere on the screen.

1.2 List Mode

View mode A

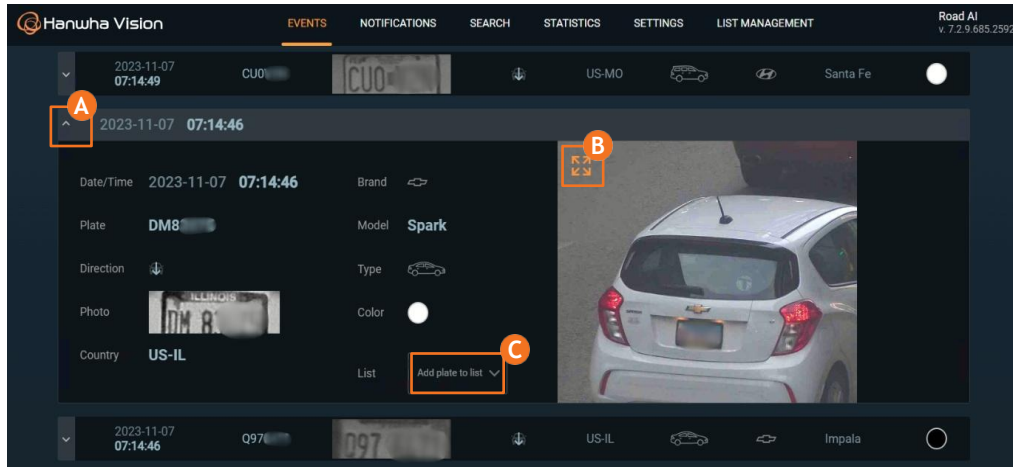
B

Date/Time	Plate	Photo	Direction	Country	Type	Brand	Model	Color
2023-11-07 07:08:08	RC6		↓	US-MO			HRV	
2023-11-07 07:07:47	621		↓	US-AL			RAM	
2023-11-07 07:07:36	BF2		↓	US-MO			Maxima	

To enable the list display of events, click the **A** corresponding button. Event parameters **B** such as Date/Time, Plate, Photo, Direction, 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 hovering the cursor over the **Country**, **Type**, and **Brand** fields, a hint with the field value pops up.

1.3 Preview in the List Mode

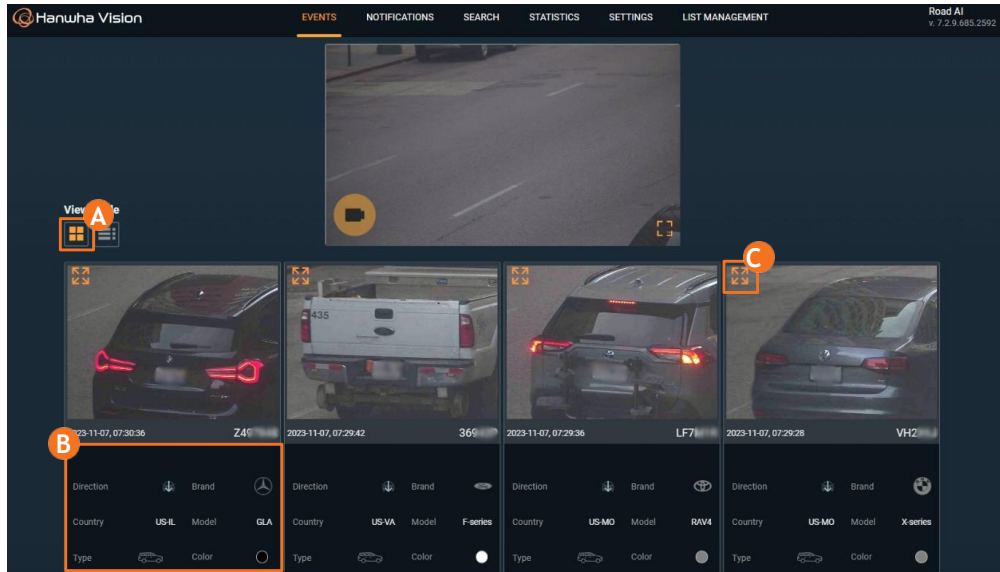


A To display full event data in the List mode, expand the selected event data.

This menu allows viewing images in full screen mode (click the **B** icon in the left upper corner of the preview), and **C** adding or removing the selected plate number to/from 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 the past events. If the list isn't collapsed manually, it will be collapsed and updated automatically in one minute.

1.4 Tile mode



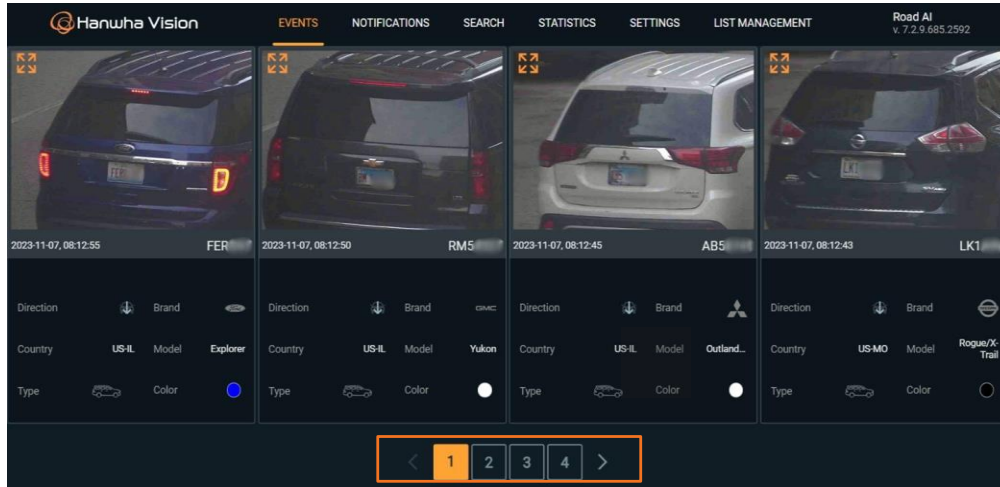
To activate the display of the events as tiles, click **A** button. In this mode events and their parameters (Date/Time, Plate, Direction, Photo, Country, Type, Brand, Model and Color) are displayed in tiles.

After hovering the cursor over the **B** Country, Type and Brand fields, a hint with the field value pops up.

This menu allows **viewing images in full screen mode** (click the **C** icon in the right bottom corner of the preview).

NOTE: *Adding/removing the selected plate number to/from the white or black list is only available in the list mode or in the Search and List Management tab.*

1.5 Navigation



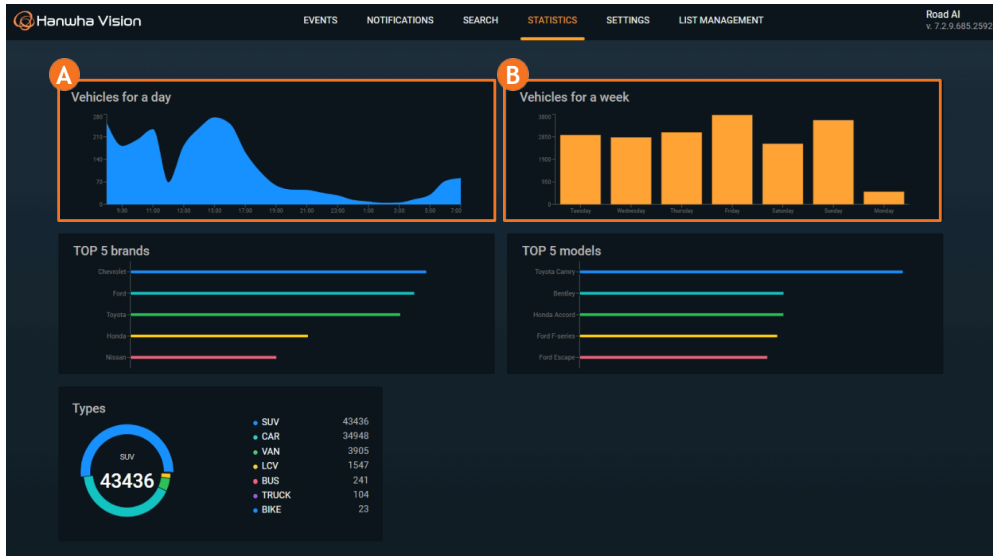
You can navigate through the events tab using left and right arrows or page buttons below the events list.

The events are displayed from the newest ones to the oldest ones.

2

STATISTICS TAB FEATURES

2.1 Vehicles for a day and vehicles for a week widgets



In the **Statistics** tab you can find dashboard with visualized statistics on different parameters.

A The **Vehicles** widget displays the statistics on the number of cars registered for the last 24 hours. Hovering the cursor over a certain place on the widget, you can see the number of cars for the specified hour.

B The **Vehicles for a week** widget displays the statistics on the number of cars registered for the last week. Hovering the cursor over a certain date on the widget, you can see the number of cars for the specified 24 hours.

Up to 100,000 latest cars are taken into account due to the limitation of the database size.

2.2 Top-5 brands, models and vehicle types widgets



A The **Top-5 brands widget** displays the car brands statistics.

B The **Top-5 models widget** displays the car models statistics.

C The **Types widget** displays the vehicle types statistics.

Up to 100,000 latest cars are taken into account due to the limitation of the database size.

3 LIST MANAGEMENT TAB FEATURES

3.1 Black and white list management

The screenshot displays the 'Lists settings' interface with two main sections: 'Black' and 'White'. The 'Black' section on the left features a dropdown menu (labeled 'A') currently set to 'No action', which is open to show options: 'No action', 'Open barrier on any vehicle', and 'Open barrier'. Below this is a large empty list area, a 'Plate number' input field, an 'Add' button, and 'Import' and 'Export' buttons. The 'White' section on the right has a similar layout but includes an 'Edit' icon (labeled 'B') next to the 'No action' dropdown. Both sections include a 'No file chosen' message next to the 'Import' button.

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

A To select a reaction, open the drop-down list. Three options are available: **No action**, **Open barrier** and **Open barrier for any vehicle**.

Open barrier sets a trigger to open barrier, connected to the camera. (The barrier opening feature may be set up in the firmware UI (Event/Alarm I/O submenu))

You can edit the title of the Black / White list by clicking **B Edit** icon on the top of the list.

3 LIST MANAGEMENT TAB FEATURES

3.1 Black and white list management

The screenshot shows the 'Lists settings' interface. It is divided into two main sections: 'Black' and 'White'. Each section has a dropdown menu at the top, a large empty box in the middle, and a row of buttons at the bottom. The 'Black' section's dropdown menu is open, showing options: 'No action', 'Open barrier on any vehicle', and 'Open barrier'. The 'White' section's dropdown menu is closed, showing 'No action'. The buttons at the bottom of each section are 'Plate number', 'Add', 'Import', and 'Export'. Callout letters C, D, and E are placed over the 'Add', 'Import', and 'Export' buttons respectively.

C To add an item to the list, enter a number and then click the **Add** button. It should contain from 3 to 12 symbols.

D Import the list in the .csv format. It should have items of 3-12 symbols long, divided only by ␣,;, or space.

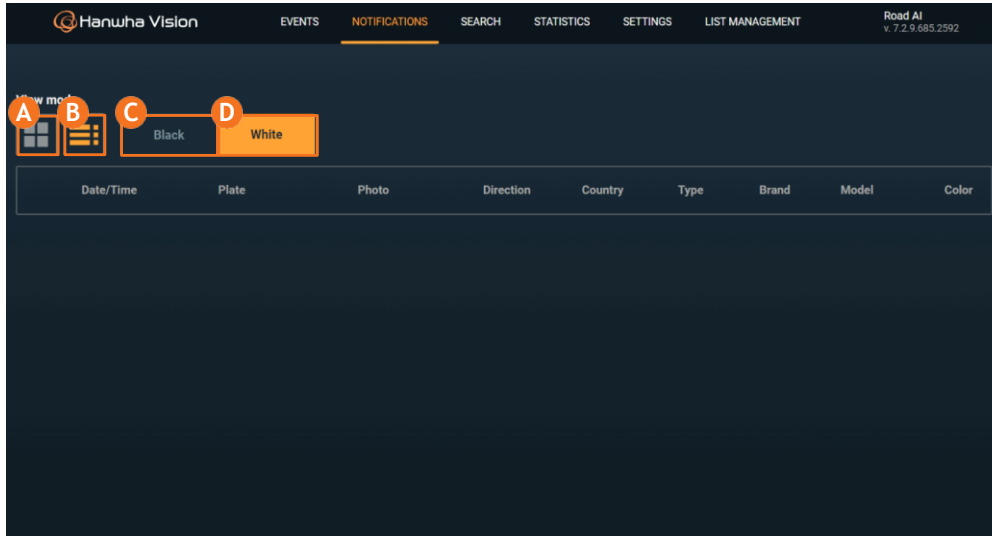
E You can export plate list in the.csv format

You can also add plate numbers to the white or black list from the expanded List menu in the Events tab.

NOTE: You may add up to 4000 plate numbers per list. Make sure there are no duplicated plate numbers in the imported list.

4 NOTIFICATIONS TAB FEATURES

4.1 Notifications feature



The **Notifications** tab allows to see the registered license plate numbers that were added either to the white or black list.

You can choose the display mode: Tile mode **A**, List mode **B**, similar to the Events tab.

You can switch between Black and White lists using corresponding buttons (**C**, **D**).

5 SEARCH TAB FEATURES

5.1 Search by plate and color

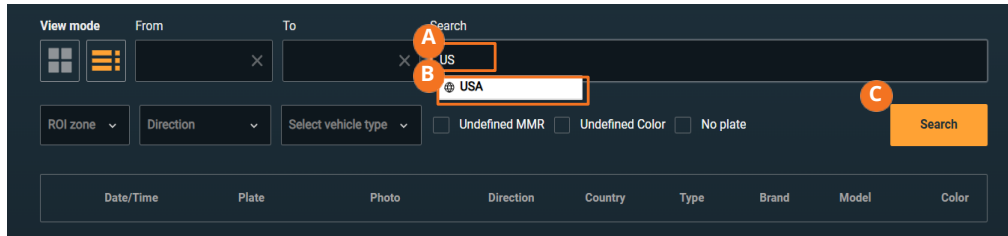
The screenshot shows the 'Search' tab interface. At the top, there's a navigation bar with tabs: EVENTS, NOTIFICATIONS, SEARCH (active), STATISTICS, SETTINGS, and LIST MANAGEMENT. Below this, there are search filters. On the left, 'View mode' has a grid and list icon. Next to it are 'From' and 'To' date pickers. A 'Search' input field is in the center, with a dropdown showing 'wh' and 'WHITE'. To the right of the input field are checkboxes for 'Undefined MMR', 'Undefined Color', and 'No plate'. A 'Search' button is on the far right. Below the filters is a table with columns: Date/Time, Plate, Photo, Direction, Country, Type, Brand, Model, and Color. Annotations A, B, and C are present: A points to the 'Search' input field, B points to the 'WHITE' option in the dropdown, and C points to the 'Search' button.

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, start entering the first letters. **B** Then select the desired color from the list and click **C** Search button.

You can search by partial plate number or any characters present on the plate.

5.2 Search by country, make and model



The screenshot shows the search interface with the following elements:

- View mode:** Grid and List icons.
- From:** Input field with a clear button (X).
- To:** Input field with a clear button (X).
- Search:** A dropdown menu showing "US" (callout A) and "USA" (callout B).
- Search button:** An orange button labeled "Search" (callout C).
- Filters:** ROI zone, Direction, Select vehicle type, Undefined MMR, Undefined Color, No plate.
- Table Headers:** Date/Time, Plate, Photo, Direction, Country, Type, Brand, Model, Color.

- A** To search by Country, Brand or Model, start entering the first letters.
- B** After that select the desired country, brand or model from the list and click
- C** Search button.



The screenshot shows the search results table with the following data:

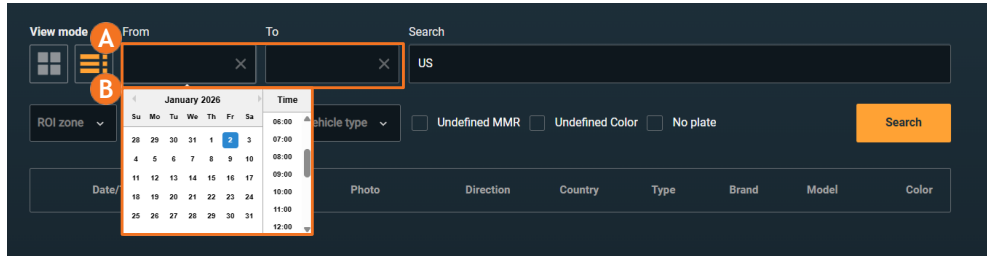
	Date/Time	Plate	Photo	Direction	Country	Type	Brand	Model	
▼	2023-11-07 09:03:45	JD		↓	US-MO			Equinox	●
▼	2023-11-07 09:03:40	BD1		↓	US-MO			Optima	●
▼	2023-11-07 09:03:25	GJ7		↓	US-MO			Town and Country	●

Page navigation: < 1 2 ... 445 446 447 448 >

Export CSV

Search results can be exported by clicking **Export CSV** button.

5.3 Search by date and date range



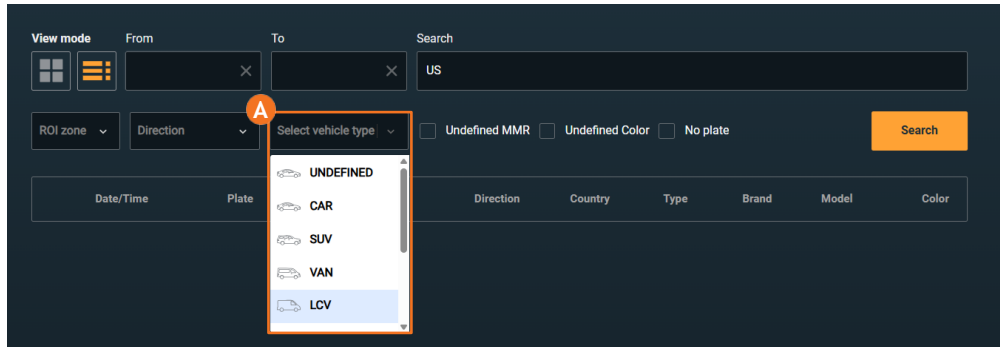
To search by date, **A** click From or To box and **B** select the start or end date of the search.

You can search the events within a date range. You can also combine search by date with search by license plate and other parameters.

The depth of the search results database is 100,000 events.

NOTE: In RAM mode, the event images are being stored in the camera memory for the optimized performance, so images for the latest 300~500 events would be available for the review. We strongly recommend to set up the integration with the VMS to store all the events images history.

5.4 Search by vehicle type



The screenshot shows the search interface of the Wisenet Road AI application. At the top, there are fields for 'View mode' (with grid and list icons), 'From' and 'To' location fields, and a 'Search' field containing 'US'. Below these are 'ROI zone' and 'Direction' dropdowns. A red circle with the letter 'A' highlights the 'Select vehicle type' dropdown menu, which is open and shows a list of vehicle types: 'UNDEFINED', 'CAR', 'SUV', 'VAN', and 'LCV'. The 'LCV' option is currently selected and highlighted in blue. To the right of the dropdown are three checkboxes: 'Undefined MMR', 'Undefined Color', and 'No plate'. A yellow 'Search' button is located to the right of these checkboxes. Below the search fields is a table with columns: 'Date/Time', 'Plate', 'Direction', 'Country', 'Type', 'Brand', 'Model', and 'Color'.

To search by vehicle type, ^A click the tab to choose vehicle type. You can select multiple types to display results.

5.5 Search by vehicle direction and ROI zone

View mode From To Search

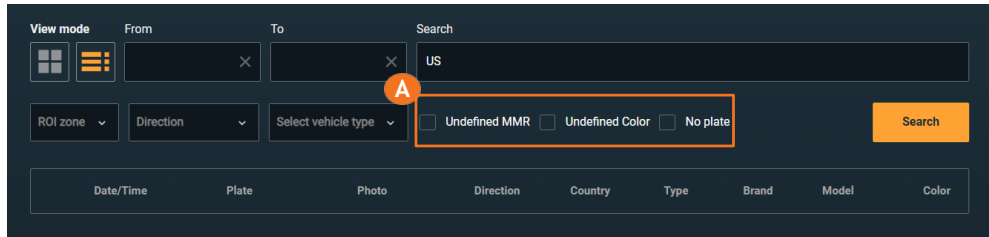
ROI zone Direction Select vehicle type Undefined MMR Undefined Color No plate Search

UP DOWN UNKNOWN

Date/T Photo Direction Country Type Brand Model Color

To search by ROI zone **A** or vehicle direction **B**, choose the option needed. You can configure a combination of multiple filters.

5.6 Special filters in the Search Tab

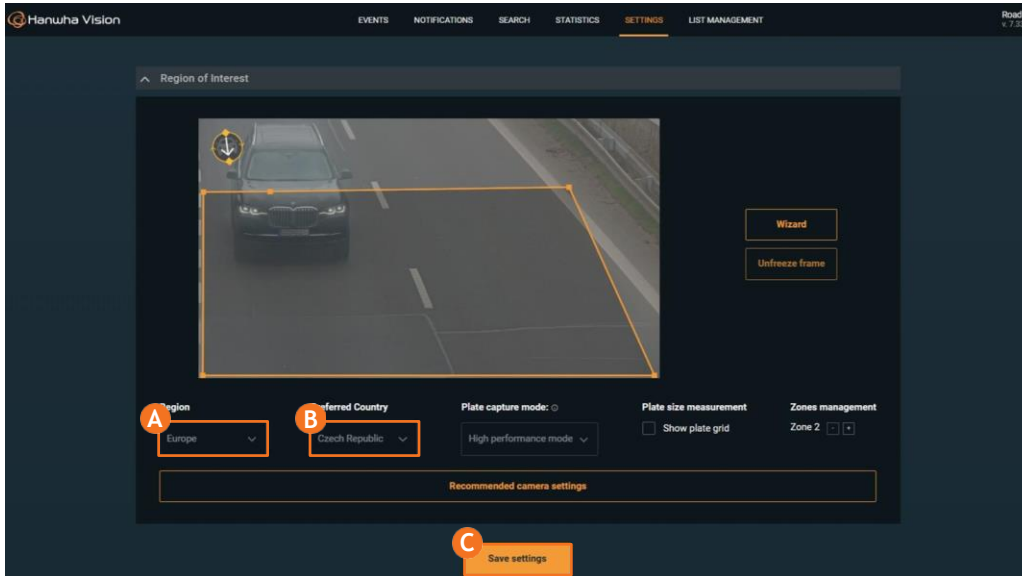


The screenshot shows a search interface with a dark theme. At the top, there's a 'View mode' section with two icons (a grid and a list). To the right are 'From' and 'To' date pickers, each with a close button (X). Further right is a 'Search' input field containing the text 'US'. Below these are three dropdown menus: 'ROI zone', 'Direction', and 'Select vehicle type'. To the right of these dropdowns is a group of three checkboxes: 'Undefined MMR', 'Undefined Color', and 'No plate'. This group of checkboxes is highlighted with an orange rectangle, and an orange circle with the letter 'A' is placed above it. To the right of the checkboxes is an orange 'Search' button. At the bottom, there's a table header with the following columns: 'Date/Time', 'Plate', 'Photo', 'Direction', 'Country', 'Type', 'Brand', 'Model', and 'Color'.

You can use special filters for search: events with Undefined MMR, Undefined Color or vehicles without detected license plate **A**

6 SETTINGS TAB FEATURES

6.1 Setting up Wisenet Road AI



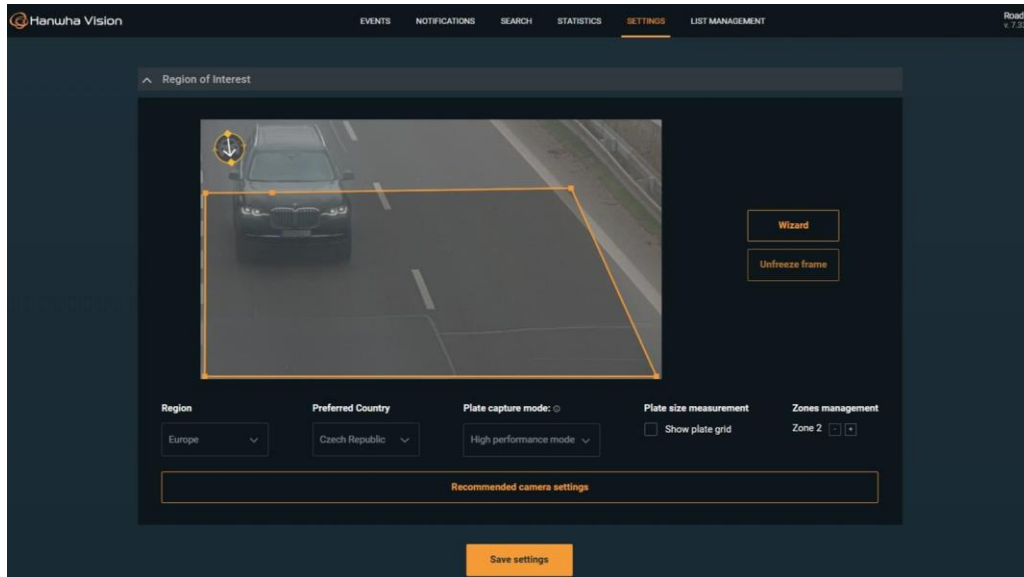
A First, choose the **Region**.

Choose the correct region that matches your country/region (Europe is set by default).

For Europe/US region specify B the **Preferred country/state** to improve the ANPR accuracy. This feature gives preference to the candidates from the regions geographically closer to the selected one.

Save the settings. Click C **Save settings**. The application will restart for the selected region to take effect. After clicking Reload, wait for several seconds and reload the browser page.

6.1 Setting up Wisenet Road AI (continued)



Set up the **Region of Interest (ROI)**, a 5-point region that frames the recognition zone.

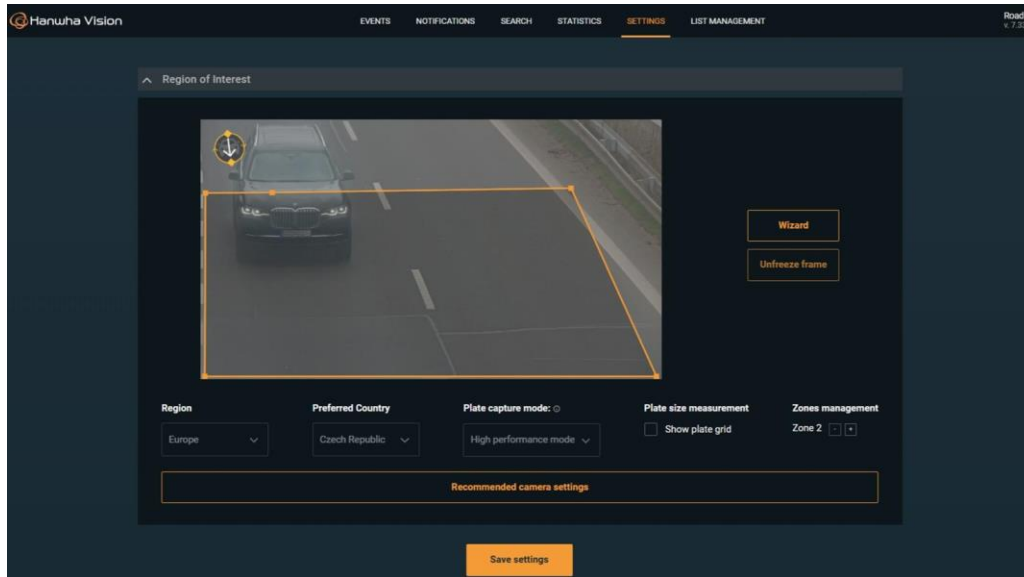
When setting the ROI, follow the principles below:

1) Make enough space between the ROI and the side where the vehicle enters the camera field of view - to make sure the vehicle being fully visible during detection, and MMCR results would be the best.

2) Keep ROI just a bit wider than the vehicle path to make sure it fits the ROI fully at some point - to assure there will be no vehicles lost.

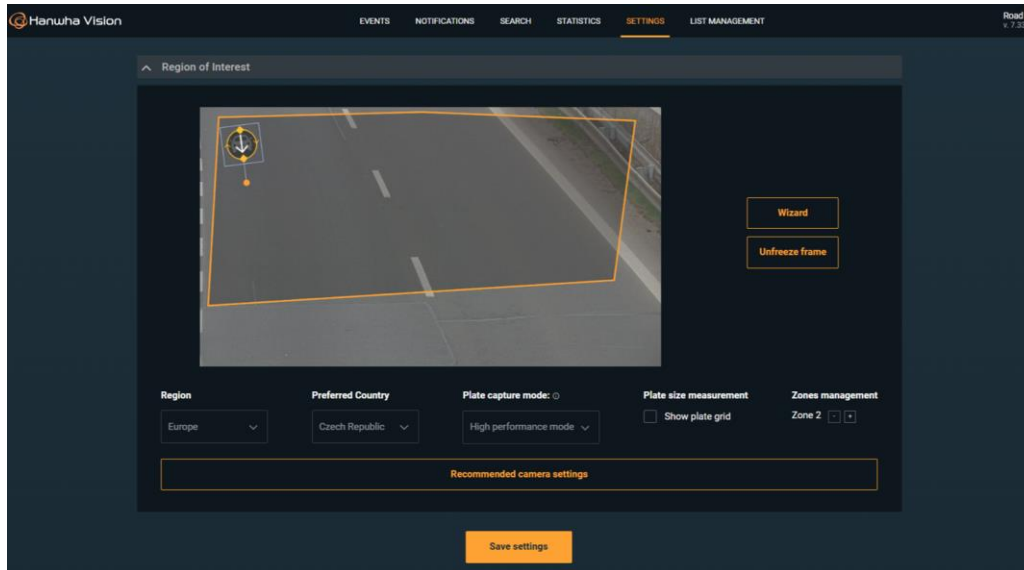
3) Keep the ROI the way to cover the longest vehicle travel possible, taking into account point 1) - to ensure the best ANPR and MMR performance.

6.1 Setting up Wisenet Road AI (continued)



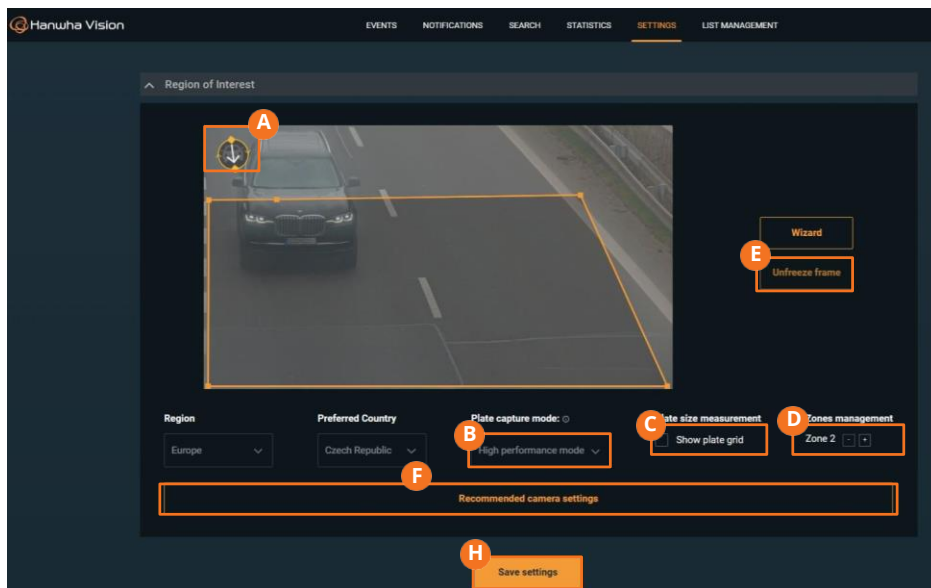
Example of correctly configured Region Of Interest (ROI).

6.1 Setting up Wisenet Road AI (continued)



Example of incorrectly configured Region of Interest (ROI).

6.1 Setting up Wisenet Road AI (continued)



A Set the **vehicle direction**: align the arrow in parallel to the vehicle direction vector, pointing the arrow towards the chosen standard vehicle direction.

B Select the Plate capture mode: **High Performance mode** with Full HD resolution. **Low speed mode** with 4K resolution. Currently in beta, with 4K mode try to keep the license plates wider than 120px to assure the best capture rate.

C Show/hide the Plate size measurement tool.

D Add License Plate Recognition Zone.

E Freeze frame button.

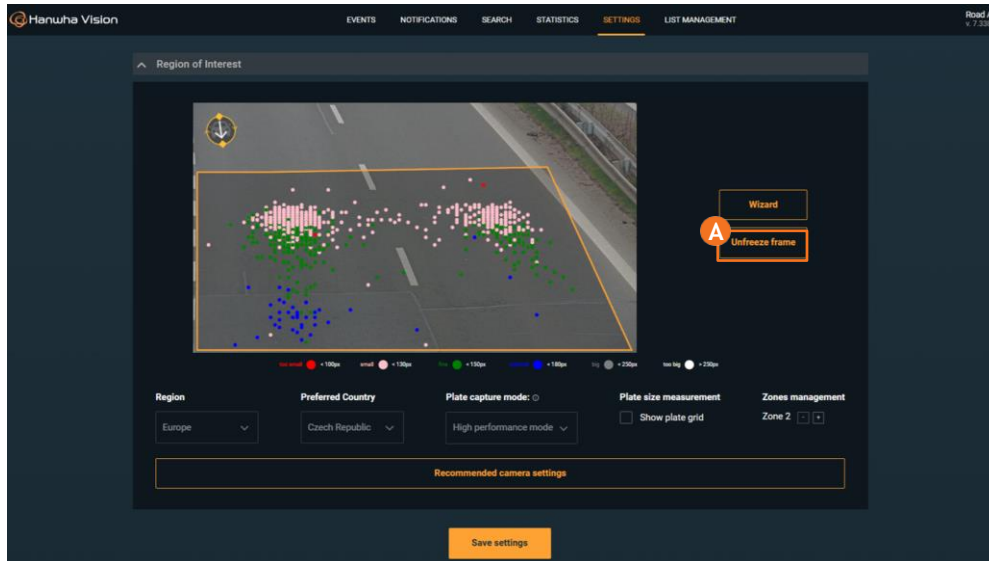
F Apply the **Recommended camera settings**.

H Click **Save settings**.

***NOTE:** The Recommended camera settings are a starting point for the camera setup. Please, adjust the settings up to your installation conditions.*

Make sure the number plates are well visible both in day and night.

6.1 Setting up Wisenet Road AI (continued)



A Wizard tool displays the statistic on location and sizes of the latest 1,000 recognized plates.

Use it to adjust the camera zoom and the recognition zone.

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

At least **100** plates should be registered to display the data.

6.2 General Settings

General

A Events per page ⓘ

16

B Geo Latitude: ⓘ

Latitude

B Geo Longitude: ⓘ

Longitude

C Metadata format: ⓘ

Bestshots ▼

D Metadata send mode: ⓘ

On detect On update On reliable On lost

Open source license

View

A In the Events settings, you can change the number of events displayed on a page (16 by default).

Changing this parameter will lead to changes in the **Events**, **Notifications** and **Search** tabs.

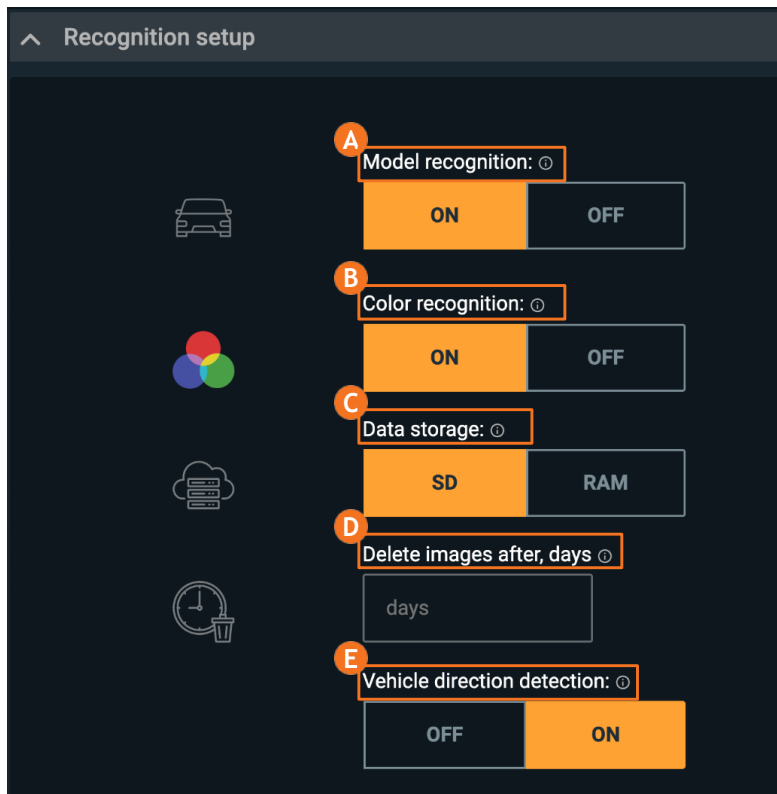
Event quantity per page should be between **8** to **100**.

B You can indicate the camera location coordinates (will be used in integrations where supported).

C Road AI application always sends metadata when operating. Metadata in Bestshots, ONVIF or Extended Dynamic Event format is supported.

D You can specify moment of sending the metadata (see p.51).

6.3 Recognition Setup



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

C Road AI supports two modes of storing images:
SD card - a conventional mode, images are being overwritten when the SD card capacity is exhausted.
RAM - assures productivity with installations with high intensity traffic. Only images for the latest 300-500 events would be available for the review.

Please set up the integration with the data management system to store all the events images history.

After switching the file mode from SD to RAM, images for the previous events will not be seen. When back to SD mode, the images for the previous events written to SD mode become accessible for the events that are still in the database.

D You can limit on-camera events storage in time. The events and images will be deleted for those images older than the specified period (in days). To turn off the feature, indicate the 0 value.

E You can turn on/off the vehicle direction display.

6.4 Integration options

Send recognition events:

Basic Event ▼

Destination URL:

http://

Camera ID:

Status:

Pending...

Username:

Username

Password:

Password

Send frame to cloud:

Plate Crop Vehicle Crop Full frame

Send mode:

On detect On update On reliable On lost

Send test event

In the **Integration options** section, you can set up to two different integrations.

*In the settings for each integration, you can view the status of integrations (Pending, Event delivered, Event delivery error) and send a test event with mock data.

Available options are:

Basic Event (JSON over HTTP)

You may also use a basic authentication option with this type of integration.

NOTE: Learn more about *On detect*, *On update*, *On lost* and *On reliable* settings on p.51.

6.4 Integration options (continued)

Send recognition events:

UTMC 1 ▼

URL: Login: Password: Sensor ID:

Status: ⓘ

Event delivery error

Send frame to cloud:

Plate Crop Vehicle Crop Full frame

Send mode:

On detect On update On reliable On lost

Send test event

UTMC 1 and UTMC 2

6.4 Integration options (continued)

Send recognition events:

NVR 

IP Address

Port

Status: ⓘ

Event delivery error

Send mode:

On detect On update On reliable On lost

Send test event

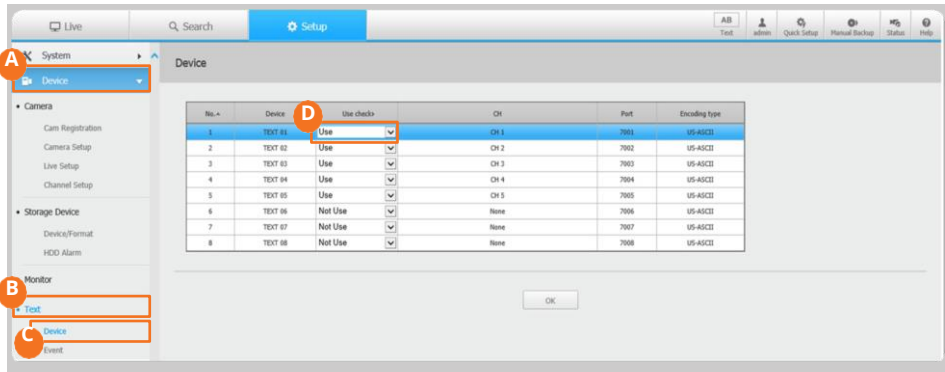
NVR

On the NVR side, you need to configure the events to be received properly.

Refer to the additional guide on page 31 on the supported options and commands.

NOTE: To ensure the correct integration, fill in all the fields requested for selected option and save the changes.

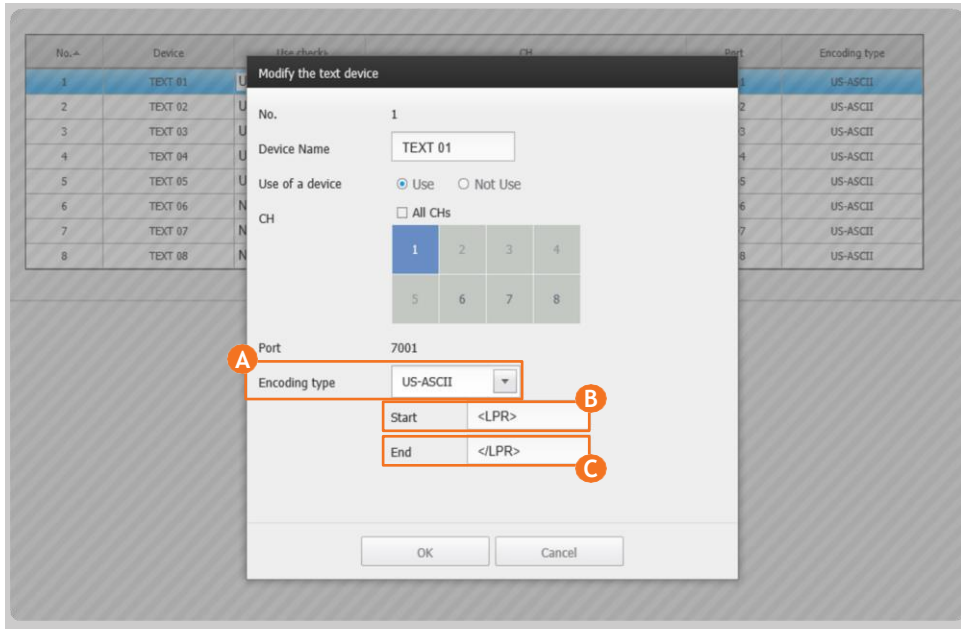
6.4 Integration options (continued)



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.

6.4 Integration options (continued)



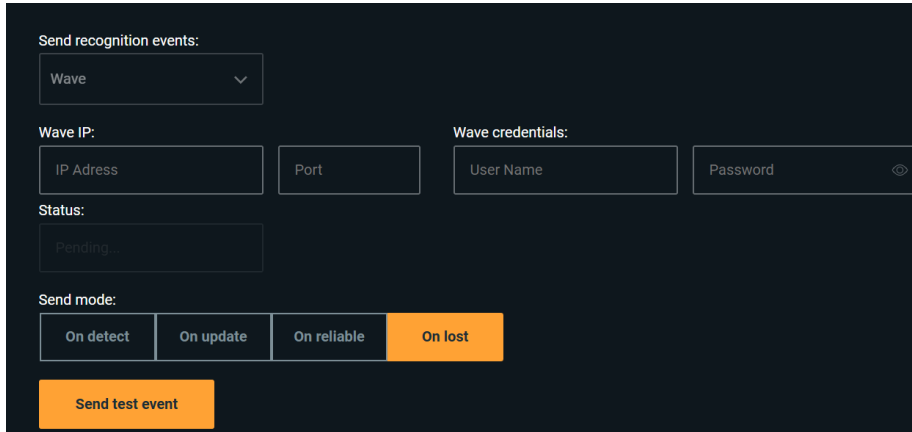
Click the channel row to open channel settings.

Set

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

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

6.4 Integration options (continued)



Send recognition events:

Wave

Wave IP:

IP Address Port

Wave credentials:

User Name Password

Status:

Pending...

Send mode:

On detect On update On reliable On lost

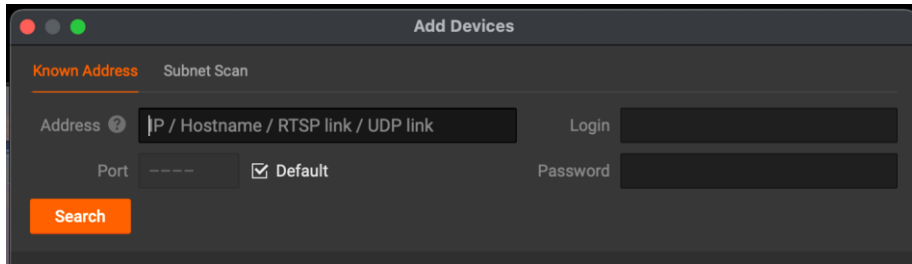
Send test event

Wave

Configuring this integration will set sending the the Generic Events and Bookmarks to the Wave server.

Wave supports Bestshots metadata, which is available with Road AI right after adding the camera to Wave, no settings in the application required (see p.26).

NOTE: To ensure the correct integration, fill in all the fields requested for selected option and save the changes.



Add Devices

Known Address Subnet Scan

Address ? IP / Hostname / RTSP link / UDP link Login

Port ---- ☒ Default Password

Search

Connecting Road AI to Wave

Add camera to Wave

6.4 Integration options (continued)

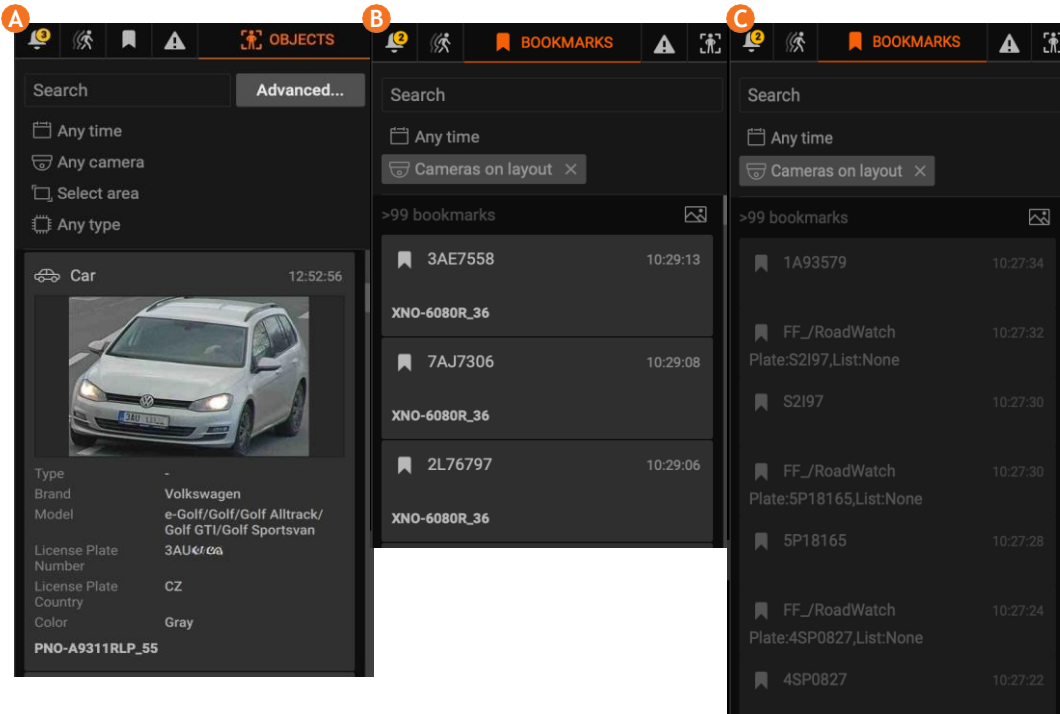
The screenshot shows the 'Event Rules' configuration window. At the top, there is a search bar with the text '01aa3a90-2951-f5d2-3490-a934fdd540fc'. Below the search bar is a table with columns: #, On, Event, Source, Action, Target, and Interval of Action. The table contains one rule: 'On Generic Event' with source '<System>' and action 'Bookmark'. The target is 'Recording is disabled for XNO-6080R_36' and the interval is 'N/A'. Below the table is a configuration panel for the selected rule. The 'Event' section has 'When' set to 'Generic Event' and 'Occurs' set to 'Occurs'. The 'Source contains' field is 'XNO-6080R_36'. The 'Caption contains' field is 'Keywords separated by space'. The 'Description contains' field is 'Keywords separated by space'. The 'Omit Logging' checkbox is unchecked. The 'Action' section has 'Do' set to 'Bookmark' and 'at' set to 'XNO-6080R_36'. The 'Fixed duration' is 5 seconds. The 'Pre-recording' is 1 second. The 'Post-recording' is 0 seconds. The 'Tags' field is empty. At the bottom, there is a 'Comments' field and buttons for 'Restore All Rules to Default', 'OK', 'Apply', and 'Cancel'.

Setting up rules for Generic Events

This is an example of setting up rules for bookmarking the Generic Events on the camera stream.

NOTE: Specify the camera name as you named it in Wave in the Source filter to refer to Generic Events from a particular camera only.

6.4 Integration options (continued)



Viewing Bestshots, Bookmarks and Generic events

- A** Bestshots are available right after adding camera to Wave, without additional settings in Road AI.

NOTE: Metadata mode should be Bestshots. It is possible to rename the camera in Wave menu.

- B** Bookmarks are already affiliated to the camera set up.

NOTE It is possible to rename the camera in Wave menu.

- C** If set up to be bookmarked on the stream, Generic Events will be coming in parallel to the Wave Bookmarks.

6.4 Integration options (continued)

Send recognition events:

Genetec ▼

URL/IP:

http://

Camera ID:

User:

Password:

Status: ⓘ

Event delivery error

Send mode:

On detect On update On reliable On lost

Send test event

Genetec

Road AI supports integration with Genetec AutoVu plugin.

6.4 Integration options (continued)

Send recognition events:

SIRA

URL: Username: Password: Site ID:

URL Username Password Site ID

Integrator name: Lane name: Lane type: Camera name:

Integrator name Lane name Entry Exit Camera name

Public IP: Port: Update interval, min: Status:

Public IP Port 30 Pending...

Send mode:

On detect On update On reliable On lost

Send test event

SIRA*

***NOTE:** Available only in GCC region.

6.4 Integration options (continued)

Send recognition events:

ADMCC

Primary Server URL: Secondary Server URL: Client Id: Client Secret:

Primary Server URL Secondary Server URL Client Id Client Secret

Delivery attempt timer, s: 0

Delivery attempt timer, s

Lane 1

Name: Latitude: Longitude:

Name Latitude Longitude

Height: Azimuth: Physical Id: Status:

Height Azimuth Physical Id Pending...

☒ Enable second lane

Lane 2

Name: Latitude: Longitude:

Name Latitude Longitude

Height: Azimuth: Physical Id: Status:

Height Azimuth Physical Id Pending...

Send mode:

On detect On update On reliable On lost

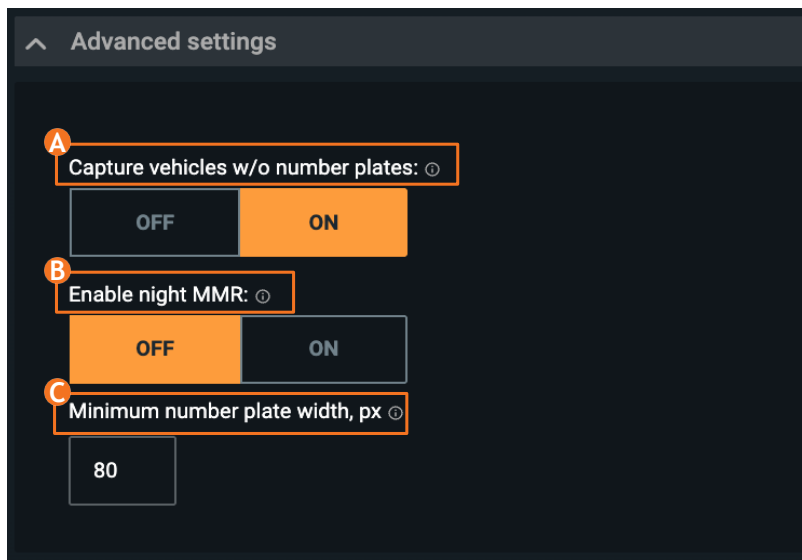
Send test event

ADMCC*

This integration can be configured for a single or for two lanes at the same time. For two lanes option, two different ROI zones must be configured.

**NOTE: Available only in GCC region.*

6.5 Advanced settings



A You can turn on/off detection of the vehicles without license plates.

B You can turn on/off registering the MMR results for the nighttime. Note that MMR is not supported for the nighttime, the results may not be reliable.

C You can adjust the license plate filter indicating the minimum license plate size to be recognized.

6.6 Statistics report

Report #1

Statistics Preset:

Vehicles for the past 24 hours ▾

- Vehicles for the past 24 hours
- Vehicles for the past 7 days
- Top Brands
- Top Models
- Top Vehicle Types

Schedule:

Frequency:

Daily Weekly Custom days

Time:

0 : 0

Every day at 00:00

Send to:

FTP EMAIL

FTP Server Address:

Username:

Password:

Directory:

Save and Close

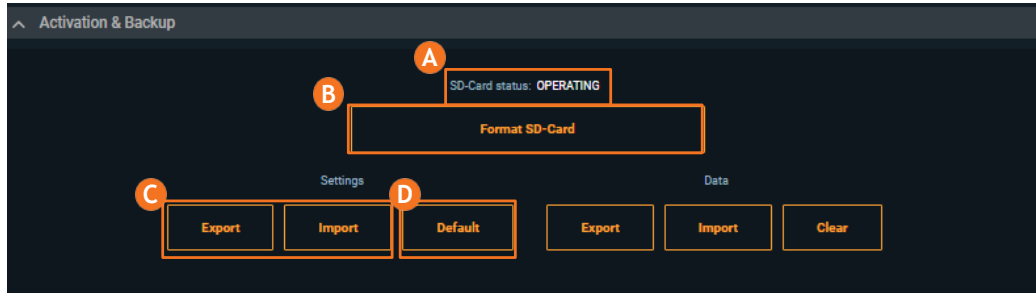
You can set up sending scheduled reports to an FTP server or email in CSV format.

You can choose between daily, weekly, or custom number of days for the report.

The following report presets are available:

- vehicle count for the last 24 hours,
- vehicle count for the last 7 days,
- top brands,
- top models, and
- top vehicle types.

6.7 SD card and Backup



A SD card status

B SD card formatting option

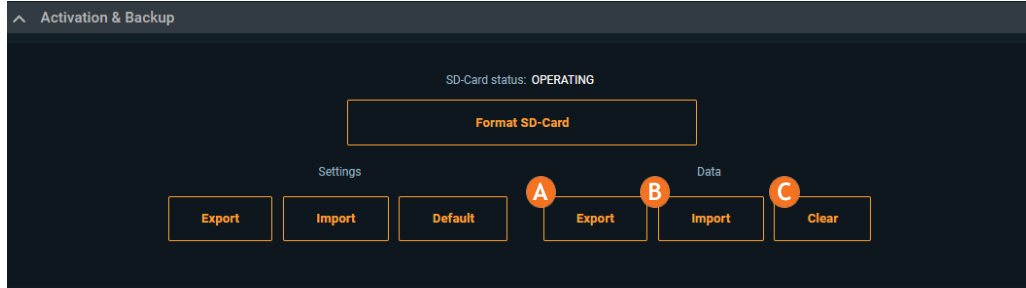
Please keep in mind it will result in losing images in SD storage mode. Perform this action **only if necessary**. Formatting SD-card may take **few minutes** and will force the app to restart automatically.

C **Export/Import*** buttons allow storing current configuration for later re-use.

D You can load default settings. Road AI restarts afterwards.

***NOTE:** When switching from the previous RoadAI generation (builds 3283 and earlier), we recommend to set up the application from scratch. If you still need to use the settings import, follow the instructions on p.52

6.8 DB Export & Import



Select **A** to export the database (DB) on device.

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

Select **B** to import DB and specify the file for importing. Road AI restarts afterwards.

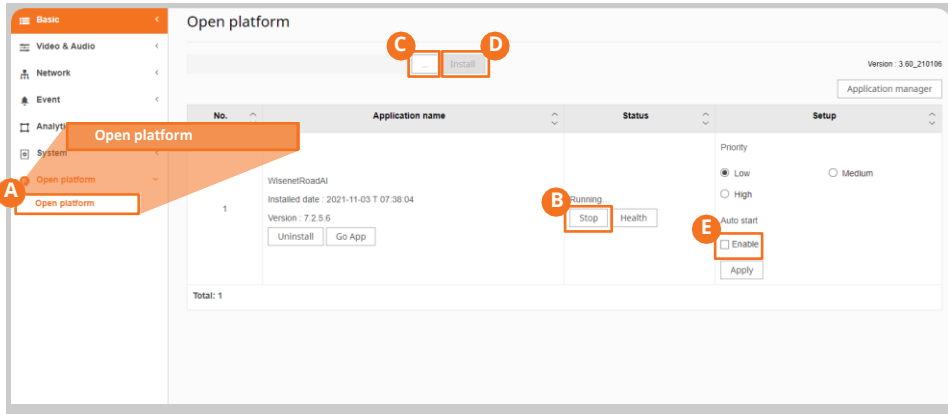
Select **C** to clear DB. Road AI restarts afterwards.

NOTE: Please be aware that database does not contain event images.

Please do not edit the database file manually, as it might not be imported afterward.

6.8 Updating the App

To update the App, go to the 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 **Install** box to update the App.

E Make sure to **Enable** the Application autostart.

TROUBLESHOOTING

● **How to install the application**

You will have Wisenet Road AI application pre-installed. In case you need to manually install or update the app, you may find it at the Hanwha Vision website.

If you are upgrading the existing application, make sure you stop the app before installing the newer version.

Check the compatible firmware version and upgrade the camera if necessary. Make sure your camera model is supported: PNO-A9081RLP, PNV-A9081RLP, PNB-A9001LP, PNO-A9311RLP

Please keep in mind that the latest firmware version support could come in some time, so do not rush to upgrade the camera without confirmation of compatibility.

● **Application 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 support if the situation happens too often.

Check that built-in video-analytics is disabled, as it consumes the camera resources and affects application performance; micro SD card health; camera's firmware version is compatible.

● **Do I need a micro SD-card?**

Camera is shipped with 32GB micro SD-card is already pre-installed. License plate events are stored on the camera internal storage however micro SD-card is needed to store the images, application logs and send data via HTTP(s) integration. In case you need to change it, please select a compatible option (32Gb at least, class 10, U3). Camera can also operate, storing a more limited number of images in RAM (see p.27).

TROUBLESHOOTING (CONTINUED)

● I do not see event images in the application

Please check the following:

- Micro SD-card is inserted in the camera
- Micro SD-card status is OPERATING in the Settings tab
- Micro SD-card is class 10 and above

Try to restart the camera to re-initialize the microSD-card if all the above is 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 by following the addresses below.

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

● Recommended Settings do not apply

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

TROUBLESHOOTING (CONTINUED)

● How to obtain logs? (continued)

Accessing camera logs:

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

Turning on the app logs Ctrl+Alt+Shift+7

Turning off the app logs Ctrl+Alt+Shift+1

High-level log:

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

Please note that in RAM mode AppErrors located at:

<http://<CameraIP>/home/setup/opensdk/apps/WisenetRoadAI/AppErrors.log>

Useful links to check application status:

<http://<CameraIP>/home/setup/opensdk/apps/WisenetRoadAI/AppConfig.json>

The application configuration is stored here

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

Check the latest integration event

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

Check the latest integration event

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

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

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

Check internal camera debug information

TROUBLESHOOTING (CONTINUED)

● **How many events can be stored?**

Currently Wisenet Road AI supports 100,000 events in the database, with the images for all the events on SD card or images for about 500 latest events in RAM mode. It's possible to increase the number of events stored by saving on the back-end side through multiple integrations 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 minimum 1/700)
4. The SSNR level is too low, and the resulting images is too grainy, or too high, and the image has too many artifacts.
5. IR power is not configured properly (either a vehicle is too far and IR does not illuminate enough, or is too close that plates are over-exposed; also the closer the plate to the frame borders, the stronger is a vignette effect). Consider using external IR for longer distances or higher vehicle speeds.
6. 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.
7. Application does not perform Make, Model and Color recognition at night by default. This is normal. With the help of IR, it can only read the plate numbers. Due to poor lighting conditions, MMR results might be inaccurate.

TROUBLESHOOTING (CONTINUED)

● **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 if application is running.

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

Make sure your browser is supported.

Use Plate Size checker and Freeze Frame tools in the settings tab to check if the plate size, tilt angle, positioning are valid. Adjust the plate size with the camera zoom.

Make sure to start the application and opt-in the “Enable Auto Start” setting. If you go to the Wisenet Road AI app address without actually starting the app, you will only see a dark screen with the logo.

● **Image requirements**

Plates should fit the following restrictions for better recognition :

- Clearly visible and readable by human

- Plate tilt angle is less than 15°

Check the Installation Guide for details.

- Plate width should be in range of 80-350 pixels on a frame

- Plate vertical angle is less than 30°, and horizontal angle is less than 45°

TROUBLESHOOTING (CONTINUED)

● **Recommended browsers**

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

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

1. Configure the Region of Interest 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 Region of Interest in the Settings tab to avoid detecting small plates. Use zoom or in-app resolution to adjust.

● **Skipping the vehicles detection**

Detection confidence threshold, that filters low-confidence detection results, can be changed in the app configuration file. The optimal value by default is 0.4, however, might be adjusted in some peculiar scenarios. To change it, export the Settings JSON, find the “threshold” parameter, change its value, save the file, and import it to the application.

● **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.

TROUBLESHOOTING (CONTINUED)

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

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

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

You can use Hanwha Vision AI plug-ins for your VMS to obtain vehicle recognition events from Wisenet Road AI. No additional settings needed on the application side.

- **What happens if I reset the 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 exporting application settings and database in the Settings 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.

- **Does Make, Model, Colour Recognition AI engine support front and back of vehicle?**

Both front and back is supported, although it is recommended for most accurate results is to use front of the vehicle. Also note that the AI engine will be constantly improving and updating.

TROUBLESHOOTING (CONTINUED)

● What is the send mode: On detect, On update, On reliable and On lost

When Wisenet Road AI performs recognition of a vehicle, it actually performs several recognitions, tracking the vehicle path through the time, and refining the number plate recognition result.

There are three milestones of the vehicle recognition:

New - first detected event

Update - second detected event, issued if the country, license plate text, or a vehicle direction has been refined

Reliable - an update event, that comes after several recognition cycles, ensuring that the license plate has been registered (if available). We recommend using this mode if the integration is used for any logic that requires balance between fast event sending and data reliability.

Lost - last detected event of a given vehicle in the camera view.

During each recognition cycle, Wisenet Road AI refines the recognition result. On detect - is the fastest way to get the recognition results, with On lost setting the recognition result would be the most refined.

If chosen in the settings:

On detect - only *New* event will be sent

On update - both new and updated events would be sent

On reliable - only *Reliable* event will be sent

On lost - only the latest registered update (or new if there were not updates) event would be sent.

TROUBLESHOOTING (CONTINUED)

● What happens if camera is reset?

The camera will default to the factory pre-installed Wisenet Road AI application and may require updating, the download will be hosted on the Hanwha Vision website under each product. To keep data safe and current version of the application it is recommended during the reset is to enable 'keep Network & Open Platform parameters'. It is also strongly recommend export application settings and database in the 'About' tab of Wisenet Road AI application prior to the reset or re-installation/update.

● I am switching multiple cameras from the previous generation RoadAI and I don't want to set up applications manually.

To use the Settings import functionality when switching from the previous generation RoadAI (before ver. 7.3532), perform the following:

- 1) Export settings.json
- 2) In the file, find the line "LIBRARY_ACTIVATION_KEY": "ACTIVATION_KEY",
- 3) Substitute the ACTIVATION_KEY with the following key
69E0B6DCAE10198A99A4B8AD31881C34696C2441D735E4EF431497ADDBBE40D65E03B6E6B6CF8A0A6FC61
069C0ADBC8C3C5127DE1DD4E9D4
- 4) Import the settings.

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