

# ANPR Application Integration

NVR; WAVE, SSM, JSON over HTTP  
NumberOK Meta; WebAPI

# Intro

This document introduces **ANPR integration features**:

- send LP to **NVR** on recognition
- send every ANPR event as a bookmark to **Wave VMS**
- send every ANPR event as a dynamic event to **SSM VMS**
- send every ANPR event to **NumberOK SMB Meta**
- send every ANPR event as a **JSON** document along with an LP snapshot over HTTP(s)
- native **WebAPI** to manage the app

Latest edition always available as [PDF](#) and [Power Point](#)

Last updated **2021-04-21**

*(Latest update: Slide #6 - Wisenet Wave Integration)*

[Other useful resources](#)

# Application Integration

## Reactions

The screenshot shows the 'Settings' page for the NumberOK EDGE application. The page is titled 'NumberOK EDGE License Plate Recognition application Version 5.1.xx'. It features a navigation bar with 'Events', 'Search', and 'Settings' tabs. The main content area is divided into three sections: 'Any license plate', 'Black list', and 'White list'. Each section has two 'Reaction' dropdown menus. The 'White list' section has a red box around the first 'Reaction 1' dropdown, which is open, showing options: 'No action', 'Save to SD card', 'Send to NVR', and 'Open barrier'. Below these sections are two 'Black list' panels, each with an 'Input Plate Number' field, an 'Input' button, and a 'Delete' button. At the bottom, there is a 'Save setting' button.

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EDGE  
NumberOK EDGE  
License Plate Recognition application Version 5.1.xx

Events Search Settings

Any license plate Reaction 1 No action Reaction 2 No action

Black list Reaction 1 No action Reaction 2 No action

White list Reaction 1 No action Reaction 2 No action

Black list

NZ158DA Delete

AA1239AA Delete  
AA1241AA Delete  
AA1243AA Delete  
AA1250AA Delete  
AA1250AB Delete  
AA1250AC Delete  
AA1250AE Delete  
AA1250AH Delete  
AA1250AI Delete  
AA1250AK Delete  
AA1250AM Delete  
AA1250AO Delete

Input Plate Number Input

Import from

Input Plate Number Input

Import from

Save setting

Recognized license plate text is sent over to NVR only if a reaction set up.

You may opt to sending LPs to NVR on either or each of

- every LP occurrence
- blacklisted LP occurrence
- whitelisted LP occurrence

Setting up NVR is required to enable receiving data from the app.

# Application Integration

## Send LP to NVR - NVR settings

No.→	Device	Use check→	CH	Port	Encoding type
1	TEXT 01	Use	CH 1	7001	US-ASCII
2	TEXT 02	Use	CH 2	7002	US-ASCII
3	TEXT 03	Use	CH 3	7003	US-ASCII
4	TEXT 04	Use	CH 4	7004	US-ASCII
5	TEXT 05	Use	CH 5	7005	US-ASCII
6	TEXT 06	Not Use	None	7006	US-ASCII
7	TEXT 07	Not Use	None	7007	US-ASCII
8	TEXT 08	Not Use	None	7008	US-ASCII

OK

Check the NVR settings to obtain corresponding Port number in **Device > Text > Device setting** (by default port 7001 for CH 1, 7002 for CH 2, etc.)

Set **Use** per channels as appropriate.

Modify the text device

No. 1

Device Name TEXT 01

Use of a device  Use  Not Use

All CHs

CH

Port 7001

Encoding type US-ASCII

Start <LPR>

End </LPR>

OK Cancel

Click the channel row to open channel settings.

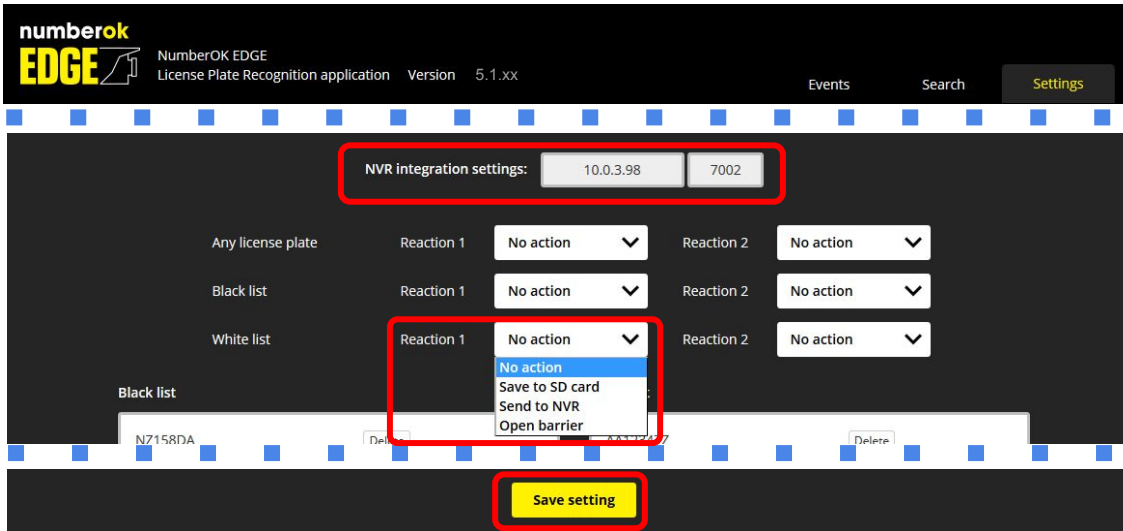
Set

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

**NB! NVR may not show LPR events if there is no video stream bound to the same channel!**

# Application Integration

## Send LP to NVR - App settings



numberok  
**EDGE** NumberOK EDGE  
License Plate Recognition application Version 5.1.xx

Events Search Settings

NVR integration settings: 10.0.3.98 7002

Category	Reaction 1	Reaction 2
Any license plate	No action	No action
Black list	No action	No action
White list	No action	No action
Black list	No action	No action

White list Reaction 1 dropdown options:  
 No action  
 Save to SD card  
 Send to NVR  
 Open barrier

Save setting

Set NVR IP/port as appropriate.

Assign **Send to NVR** reaction for either ANPR event.

**Save settings.**

**Restart Application via Web Viewer whenever NVR settings being changed:**

Go to **Setup > Open Platform > Open Platform**

Click **Stop**

Wait for 10 seconds

Click **Start**

Navigate back to the app and **reload** the page.

**Incorrect NVR settings or bad connectivity may affect overall performance and result in timeouts.**

# Application Integration

## Integrations - Wave VMS (available since v.5.1.21)

The screenshot shows the 'Settings' page of the NumberOK EDGE application. The top navigation bar includes 'numberok EDGE', 'NumberOK EDGE License Plate Recognition application', 'Version 5.1.xx', 'Events', 'Search', and 'Settings'. The main content area is titled 'Wave integration' and features a checked checkbox. Below the checkbox are two rows of input fields: 'Wave IP' with values '10.0.4.17' and '7001', and 'Wave credentials' with values 'admin' and '\*\*\*\*'. A 'Save setting' button is highlighted with a red box at the bottom of the form.

This method is intended for integration with Wave VMS.

Recognition events from camera will appear in Wave VMS as browsable and searchable bookmarks.

You will also see license plates on a timeline in bookmark view mode.

We send Generic Events as well, so you can create various reactions based on these events

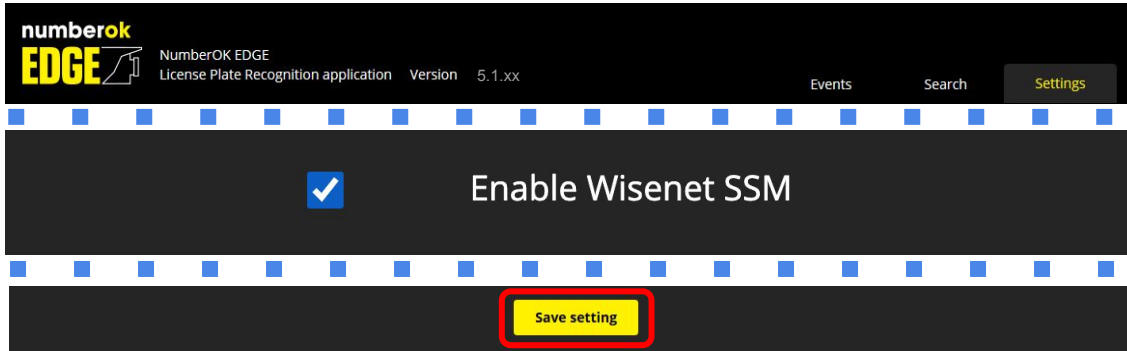
Tick **Wave settings** check-box.

Input Wave server IP address and port, and Wave credentials and click **Save settings**. Please refer to Wave VMS user manual for further details on working with bookmarks.

Integration demo video (02:12): [https://youtu.be/SoxNkp7\\_G-g](https://youtu.be/SoxNkp7_G-g)

# Application Integration

## Integrations - Wisenet SSM (available since v.5.1.24)



This method is intended for integration with Wisenet SSM video management system. Our edge application generate Dynamic events inside of the camera, which are available via SUNAPI protocol. SSM ANPR plugin allows to manage vehicle access, generate alerts and overview the recognition results from Hanwha cameras.

Tick **Enable Wisenet SSM** check-box.

Receiving and processing ANPR events is available in SSM starting from 2.10.7 version.

Please contact your Hanwha representative to receive additional patch for NumberOk Edge support.

Follow the ANPR configuration Guide for Wisenet SSM configuration. Please ensure you have ANPR license enabled in SSM

# Application Integration

## Integrations - NumberOk SMB Meta

The screenshot shows the 'Settings' page for the NumberOk EDGE application. At the top, the 'numberok EDGE' logo is on the left, and 'NumberOK EDGE License Plate Recognition application Version 5.1.xx' is on the right. Below this, there are tabs for 'Events', 'Search', and 'Settings'. The main content area is titled 'NumberOk Meta integration' and features a checked checkbox on the left. Below the checkbox, the text 'Connection key :' is followed by a text input field containing the alphanumeric string '47336957505E61322AFF995586A0858170630BA3FF1C'. At the bottom of the form, a yellow 'Save setting' button is highlighted with a red rectangular border.

This method is intended for integration with NumberOk SMB Meta server solution, which offers business solutions like car park access control with multiple ANPR cameras.

Recognition events from camera will appear in NumberOk Meta and can be used to manage access.

Tick **NumberOk-cloud settings** check-box.

Insert generated key from NumberOk SMB Meta. The key is used to identify and register the camera as a source of ANPR data with NumberOk SMB Meta.

Please refer to NumberOk SMB Meta user manual for further details.



# Application Integration

## JSON over HTTP(s) - App settings

The screenshot shows the 'Settings' page for the NumberOK EDGE application. The page title is 'NumberOK EDGE License Plate Recognition application' with version '5.1.xx'. The 'JSON via HTTP(s) integration' checkbox is checked. Below it are input fields for 'Geo Latitude', 'Geo Longitude', 'Destination URL', and 'Camera ID'. There are two buttons for 'Send frame to cloud': 'Full frame' and 'Crop frame'. There are two buttons for 'Send mode': 'On Detect' and 'On Lost'. A 'Save setting' button is at the bottom.

numberok  
EDGE

NumberOK EDGE  
License Plate Recognition application Version 5.1.xx

Events Search Settings

JSON via HTTP(s) integration

Geo Latitude :

Geo Longitude :

Destination URL :

Camera ID :

Send frame to cloud :

Send mode:

This integration is intended for integration with FF Limbio cloud solution.

However any system that is able to receive data via HTTP(s) POST and parse JSON can benefit from this method.

Tick **JSON via HTTP(s) integration** check-box.

Assign **Geo Latitude** and **Geo Longitude**; these values will be sent along with each ANPR event.

While values above are optional these will help visualize results on a map correctly when required.

Put data receiver URL to **Cloud URL** if different from default. Assign **Camera ID Provider**; this value will be sent along with ANPR event data and used to identify camera at FF Limbio cloud. **Please, make it unique e.g. by adding MAC address or other unique identifier to distinguish event sources on receiving party.**

Select **type of image** to be sent along with event data - **full frame** or **license plate crop**.

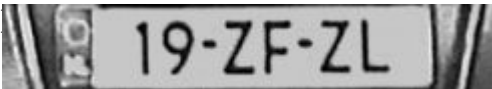
Select the moment camera sends event - **On Detect** or **On Lost**. **Save settings**

# Application Integration

## JSON over HTTP(s) - Event Data Example

Multipart HTTP(s) POST payload contains JSON data and associated image.

```
{
  "packetCounter": "25523",
  "datetime": "20181212 163419000",
  "plateText": "\u0031\u0039\u005a\u0046\u005a\u004c",
  "plateCountry": "NLD",
  "plateConfidence": "0.719640",
  "carState": "new",
  "geotag": {"lat": 50.418114, "lon": 30.476213},
  "imageType": "plate",
  "plateImageType": "png",
  "plateImageSize": "0",
  "carMoveDirection": "in",
  "timeProcessing": "411",
  "timeDetection": "20181212 163419000",
  "plateCoordinates": [480, 270, 216, 30],
  "carID": "72006",
  "GEOtarget": "",
  "datettimezone": "2018-12-12T16:34:19+0200",
  "carVerticalDirection": "up",
  "recognitionZone": "1",
  "imagesURI": ["/home/setup/opensdk/html/NumberOkEdgeHanwha/images/images/20181210171447...", ...],
  "plateASCII": "19ZFZL",
  "plateUnicode": "\u0031\u0039\u005a\u0046\u005a\u004c",
  "sensorProviderID": "CAM_00166CC39D44"
}
```



Not receiving event images?  
Check the [troubleshooting guide](#).

# Application Integration

## JSON over HTTP(s) - Structure

JSON field	Value type	Content value description
sensorProviderID	string	Device ID ("Camera ID Provider")
geotag	dictionary	Coordinates from camera JSON Integration settings { "lat":float, "lon":float }
datetime	string	Plate recognition UTC time, format "YYYYMMDD HHMMSS00" <i>to be deprecated</i>
datetimezone	string	Plate recognition UTC time, format "YYYYMMDD HHMMSS00+HHMM"
timeProcessing	integer	Frame processing time, ms
plateText	string	Plate number, alpha-numeric escaped Unicode ("\\u0000") <i>to be deprecated</i>
plateUnicode	string	Plate number, alpha-numeric escaped Unicode ("\\u0000")
plateASCII	string	Plate number, alpha-numeric
plateCountry	string	<u>ISO 3166-1 alpha-3</u> country code
imageType	string enum	"plate" for cropped image, "frame" for frame part with vehicle

JSON field	Value type	Content value description
imagesURI	[string...]	List of available event images' URIs
plateCoordinates	[integer...]	Plate coordinates on the sent frame [upper left x, upper left y, width, height]
plateImageSize	integer	<i>to be deprecated</i>
plateImageType	string	<i>to be deprecated</i>
plateConfidence	string(float)	Confidence of plate recognition
packetCounter	integer	Number of events sent from application start
carState	string	Reserved for future use
carMoveDirection	string	"unknown", "in", "out"
carVerticalDirection	string	"unknown", "up", "down"
carID	integer	Reserved for future use
GEOtarget	string	<i>to be deprecated</i>
recognitionZone	integer	Reserved for future use
timeDetection	integer	Plate frame UTC time, format "YYYYMMDD HHMMSS00"

# Application Integration

## Web API

Web-API allows to:

- search and retrieve events
- populate lists in bulk or one-by-one
- remove particular plate numbers
- export lists
- export and update app settings

Command	Description
<b>SEARCH</b>	Search by criteria
<b>EXPORT</b>	Export last search data
<b>IMPORT</b>	Import 1 to 2000 Number Plates (comma-separated text strings) to a particular (Black or White) list
<b>ADD</b>	Add 1 NP (text string) to a particular (Black or White) list
<b>REMOVE</b>	Remove particular NP (text string) from a particular (Black or White) list

Please, refer to [Web API Specifications and Guide \( https://goo.gl/3QZM9c \)](https://goo.gl/3QZM9c) for further details.

# Useful resources

API Exploration	Tools to explore Web API and JSON over HTTP: <a href="#">PDF</a> , <a href="#">Power Point</a>
Product page	<a href="https://www.hanwha-security.eu/business-security-products/xno-6120rfnp/">https://www.hanwha-security.eu/business-security-products/xno-6120rfnp/</a>
Product wiki	<a href="http://ff-group.org/hanwha">ff-group.org/hanwha</a>
Installation Checklist	PDF: <a href="https://goo.gl/v29ZTW">https://goo.gl/v29ZTW</a>
ANPR Application quick access link template	<a href="http://&lt;IP&gt;/home/setup/opensdk/html/NumberOkEdgeHanwha/index.html?AppName=NumberOkEdgeHanwha">http://&lt;IP&gt;/home/setup/opensdk/html/NumberOkEdgeHanwha/index.html?AppName=NumberOkEdgeHanwha</a>
Tech support contacts	<a href="https://www.hanwha-security.eu/support/support-faqs/">https://www.hanwha-security.eu/support/support-faqs/</a>
More resources	<a href="https://www.hanwha-security.eu/support/">https://www.hanwha-security.eu/support/</a>