

Chapter 1 Solution Combinations	4
1.1 ANRP Camera + NVR.....	4
1.1.1 Topology.....	4
1.1.2 Models and software version requirement:.....	4
1.2 ANPR Camera + VMS	4
1.2.1 Topology.....	5
1.3 ANPR Camera + NVR + VMS	5
1.3.1 Topology.....	5
1.3.2 Models and software version requirement:.....	6
Chapter 2 7xxx ANPR Camera Installation Specifications	6
2.1 Camera Installation Angle	9
2.2 Camera Installation Height.....	10
2.3 Camera Lens Selection.....	11
2.4 License plate tilt angle	11
2.5 Bullet Camera Installation	11
2.5.1 Camera accessories.....	12
2.5.2 Installation Steps	13
Chapter 3 Configurations.....	15
3.1 Set ANRP Function via Camera Web Configuration Interface.....	16
Steps:.....	16
3.2 Set ANRP Function via NVR Web Configuration Interface	22
3.3 Set ANRP Function via NVR Local Configuration Interface with GUI 3.0	22
Preparations:.....	22
Steps:.....	22
3.4 Set ANRP Function via NVR Local Configuration Interface with GUI 4.0	23
Preparations:.....	23
Steps:.....	23
3.5 Method to check ANPR picture pixels.....	24
Steps:.....	24
Chapter 4 Performance.....	26
4.1 Search ANRP pictures & videos via Camera Web Configuration Interface.....	26

Steps:.....	26
4.2 Search ANRP pictures & videos via iVMS-4200	27
Steps:.....	27
4.3 Search ANRP pictures & videos via NVR Local Configuration Interface with GUI 3.0	29
Steps:.....	29
4.4 Search ANRP pictures & videos via NVR Local Configuration Interface with GUI 4.0	31
Steps:.....	31

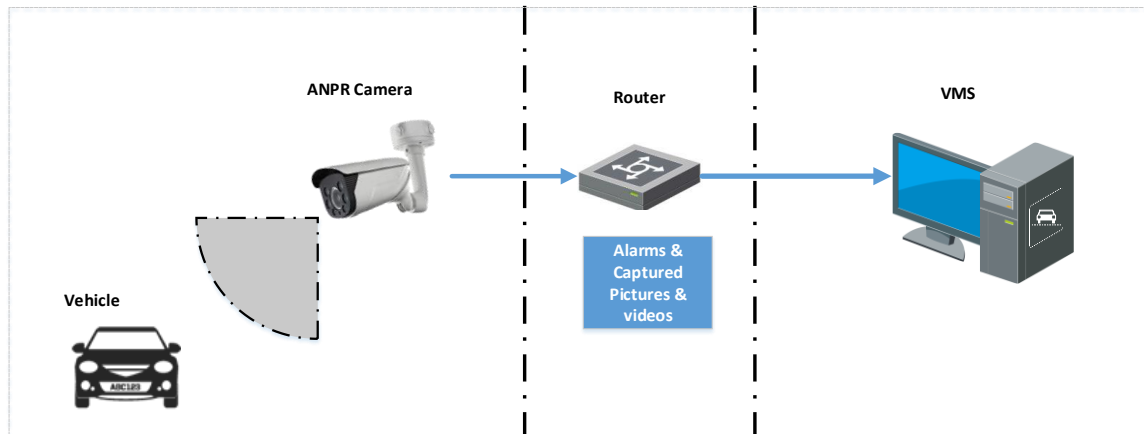
7xxx ANPR Installation & Configuration Guidance

Chapter 1 Solution Combinations

1.1 ANRP Camera + NVR

In this solution, we can use the ANPR camera to capture & save the license plate pictures, and use the NVR to save both the license plate pictures & videos.

1.1.1 Topology



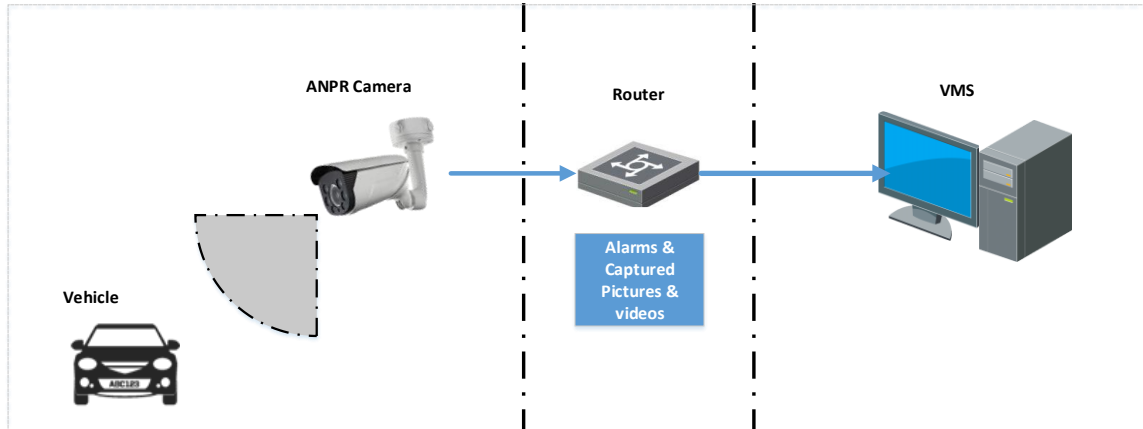
1.1.2 Models and software version requirement:

	Model	Version
CAMERA	DS-2CD7A26G0/P-IZ(H)S DS-2CD7026G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)SY [Y → the Wiegand model] iDS-2CD7026G0/P-IZ(H)S	Latest baseline version
NVR	–E/-K/-I series	Latest baseline version
AI NVR	All series	Latest baseline version

1.2 ANPR Camera + VMS

In this solution, we can use the ANPR camera to capture & save the license plate pictures, and use the VMS to save both the license plate pictures & videos.

1.2.1 Topology



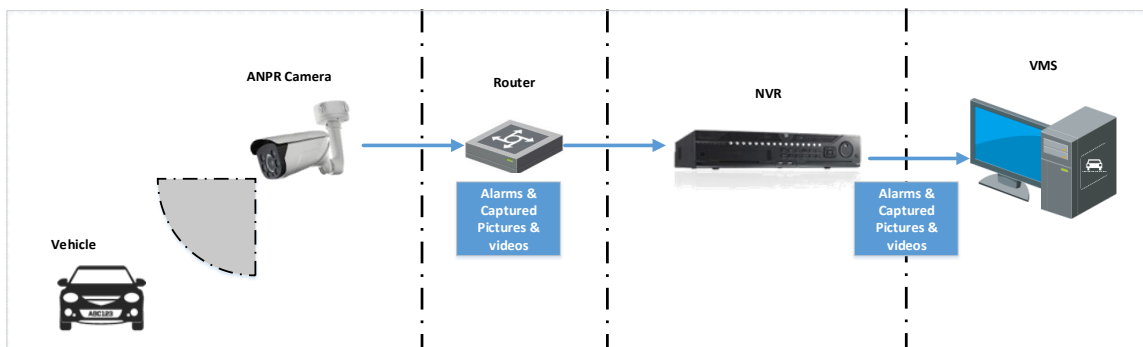
1.2.2 Models and software version requirement:

	Model	Version
Camera	DS-2CD7A26G0/P-IZ(H)S DS-2CD7026G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)SY [Y → the Wiegand model] iDS-2CD7026G0/P-IZ(H)S	Latest baseline version
VMS	iVMS-4200	Latest baseline version

1.3 ANPR Camera + NVR + VMS

In this solution, we can use the ANPR camera to capture & save the license plate pictures, and use either the NVR or VMS to save both the license plate pictures & videos.

1.3.1 Topology



1.3.2 Models and software version requirement:

	Model	Version
Camera	DS-2CD7A26G0/P-IZ(H)S DS-2CD7026G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)SY [Y → the Wiegand model] iDS-2CD7026G0/P-IZ(H)S	Latest baseline version
NVR	–E/-K/-I series	Latest baseline version
AI NVR	All series	Latest baseline version
VMS	iVMS-4200	Latest baseline version

Chapter 2 7xxx ANPR Camera Installation Specifications

In order to have a better ANPR performance, please refer to this chapter for camera installation.

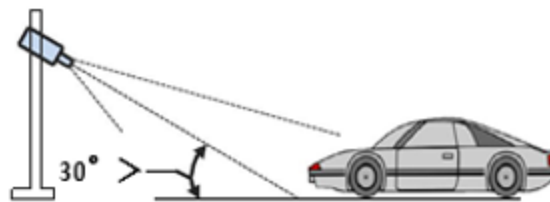
Note:

- It's recommended to cover one lane for each 2MP camera;
- It's recommended the min height of a license plate **characters** should be 20 to 30 pixels and the width of the license plate **characters** should be more than 100 and less than 200 pixels in the image captured by a 2MP resolution camera.

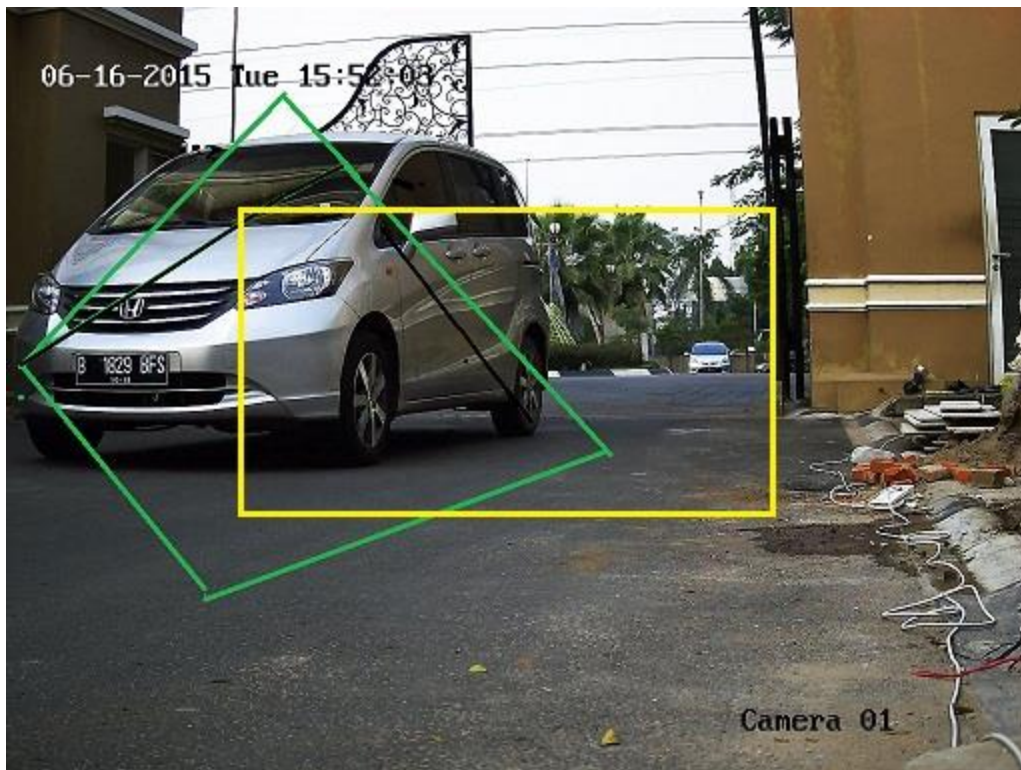
7 series camera is different from the 4 series camera. 7 series need to recognize **with the looking down full scale of the vehicle** first, then recognize the vehicle plate. This mechanics will significantly improve the recognition rate and filter the false plate recognition. And you can configure the settings to switch the camera recognize the vehicle and plate in order, or recognize the vehicle and plate simultaneously.

Vertical angle

The angle between lens direction and horizontal should be less than 30 degrees.



Normal 7 series ANPR monitoring scenario (**Looking down is Important**)



Normal 4 series ANPR monitoring scenario



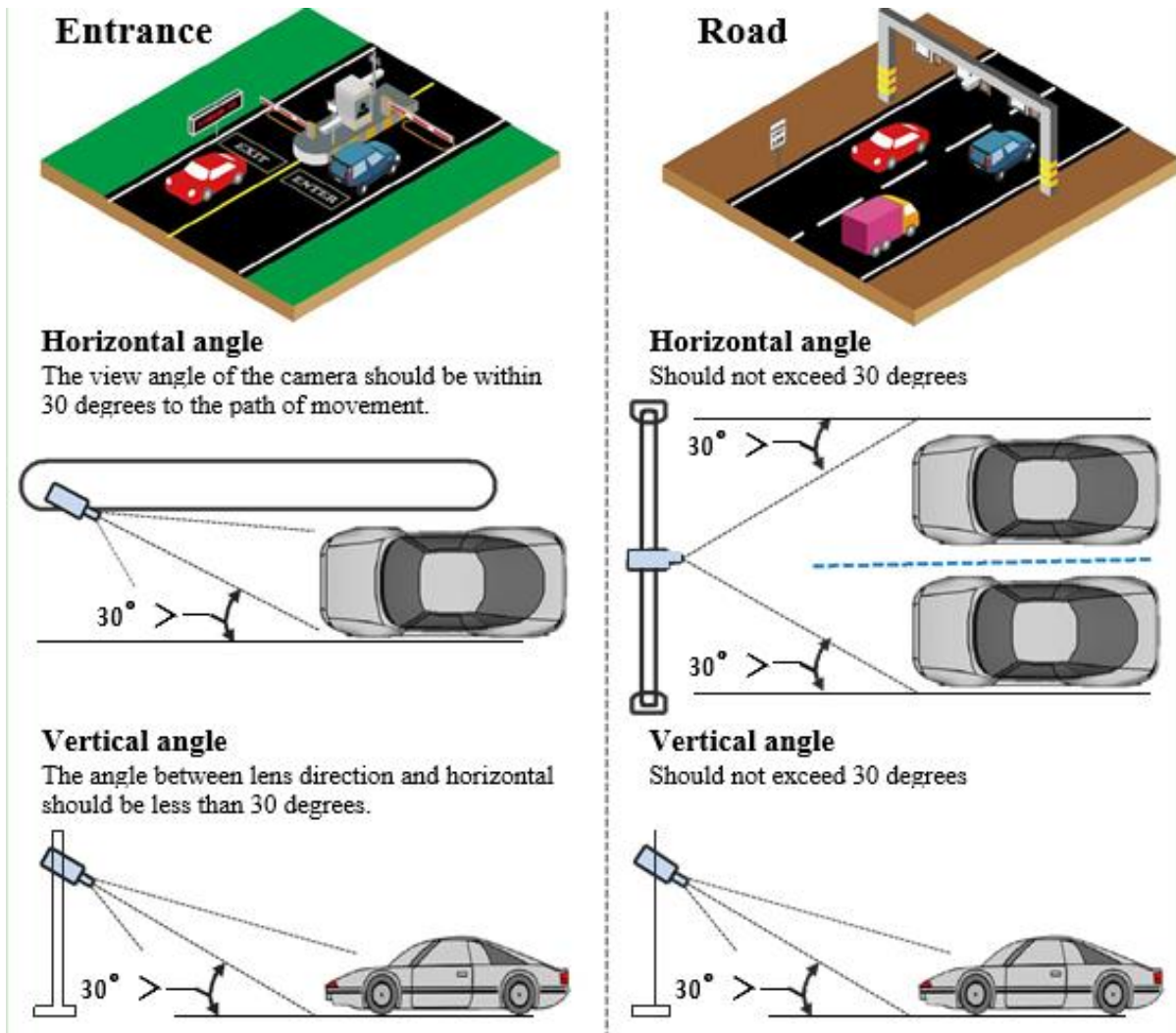
The ANPR scenario that 4 series CAN'T handle with but 7 series CAN do



The ANPR scenario that 7 series CAN'T handle with because of the **incomplete vehicle scale**

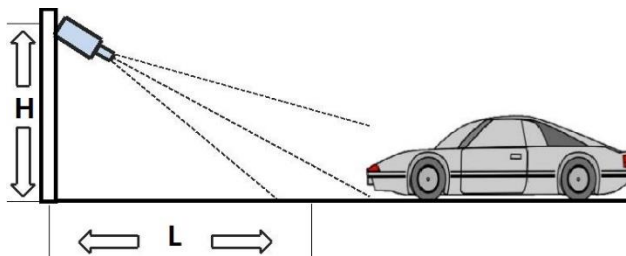
2.1 Camera Installation Angle

Hikvision Automatic Number Plate Recognition cameras help users detect passing vehicles and capture the license plates. To obtain the maximum license plate recognition accuracy, you need to install the ANPR camera in a proper way to get a clear image.



2.2 Camera Installation Height

The installation height (H) needs to be fixed firstly, and then the detection range (L) could be calculated by a simple equation $L = \cot 30^\circ \cdot H$.



$$L = \cot 30^\circ \cdot H = 1.7 \cdot H$$

Height(m)	Min L (m)
1.5	4
2	4
3	5.1
3.5	6
4	6.8

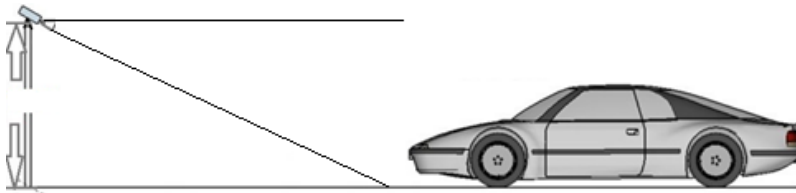
Note:

For entrance application, it's better to install the camera between the height 1.5m and 4m, and ensure the detection range is no longer than 4m.

For checkpoint application, it's better to install the camera with height 6 m.

2.3 Camera Lens Selection

The recognition distance is based on the camera focal length. You should select a proper lens in order to get enough pixels in the frame.



The table below is for your reference:

Camera	Lens(mm)	Min recognition distance (m)	Max recognition distance (m)
DS-2CD7A26G0/P-IZ(H)S DS-2CD7026G0/P-IZ(H)S iDS-2CD7A26G0/P-IZ(H)S	2.8~12	2.5	12
iDS-2CD7A26G0/P-IZ(H)SY [Y → the Wiegand model] iDS-2CD7026G0/P-IZ(H)S	8~32	7.2	28.9

2.4 License plate tilt angle

The license plate should be as horizontal as possible and the recommended tilt angle is within +/-5 degrees.



Also, the vehicles in the detection area should go as straight as possible instead of turning left or right.

2.5 Bullet Camera Installation

2.5.1 Camera accessories

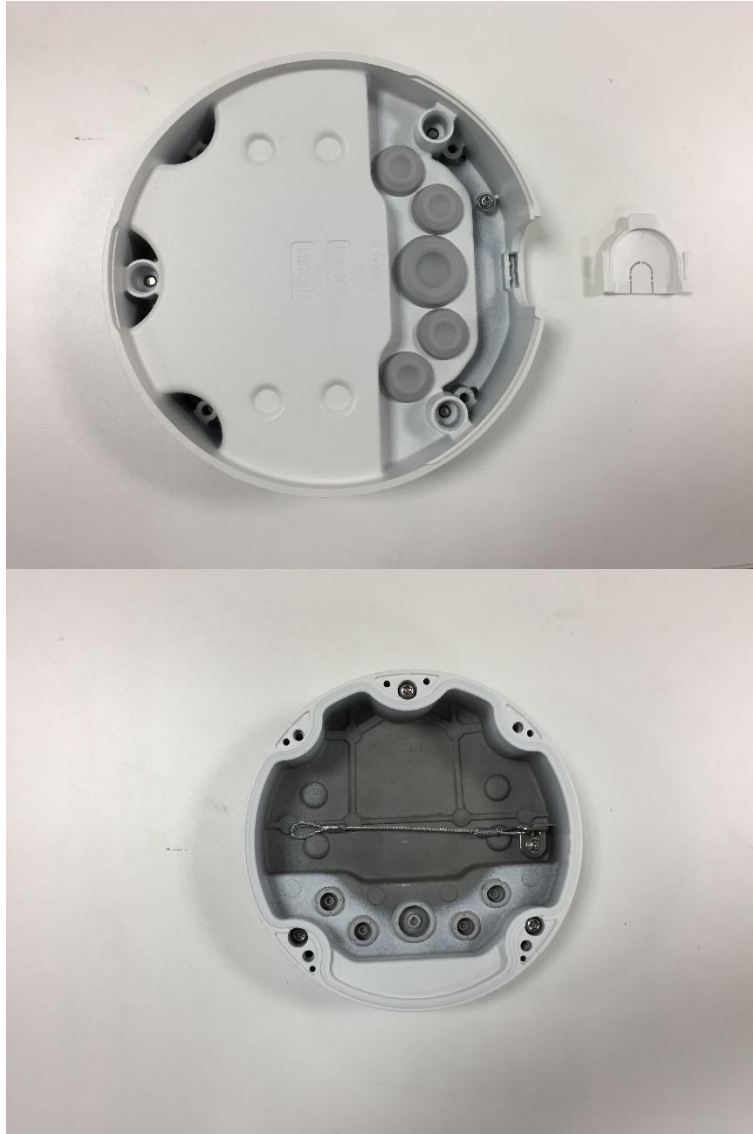
		Bullet Camera Body and Sun Shield
		Power Adaptor
		Mounting Base
		Junction Box
		One Wiring Clamp, One Bag of Screws, One Perforator One Inner Hexagon Spanner

2.5.2 Installation Steps

Step1: Use four expandable screws to fix the mounting base on the wall:



Step2: Tidy cables, including the power line of the camera, reticle as well as other cables and do the insulation of the power line. If the cables need to be connected from the side during the actual use, please remove the side outlet block first before connecting cables such as power line through this hole and fix them on the wall; If the cables are connected from the rear, please pass them through the circular hole in the mounting base. After arranging the cables, pierce the waterproof silica gel with a perforator, and then cross the reticle and power line from different holes to the junction box. Next, the FRONT end of the junction box is fixed forward to the mounting base. Finally, tighten the three screws.



Step3: fixed camera: Hook up the bullet camera' s cramp ring use anti stripping cable from junction box to prevent the camera from falling off during installation, after connecting the reticle and power line, use four screws to fix the camera to the junction box.



Step4: Unscrewing the screws to adjust the lens angle in order to adjust the image to the required monitoring site.



Chapter 3 Configurations

You can set the ANRP function via camera or NVR from web configuration interface, local configuration interface or iVMS client.

The steps are similar.

3.1 Set ANRP Function via Camera Web Configuration Interface

Steps:

1. Go to **Image>Display Settings>Day/Night Switch** and set the Day/Night Switch to the “Triggered by Video” ;

^ Day/Night Switch

Day/Night Switch	Triggered by Video	▼
Sensitivity	4	▼
Filtering Time	<input type="range"/>	5
Smart Supplement Light	OFF	▼
Supplement Light Mode	IRlight Supplement Light	▼
Light Brightness Control	Auto	▼

2. Go to **Image Display Settings** to change **Exposure Time** and **Gain** according to the standard below (the Gain control can be operated only after step 1 is finished):

Speed < 30km/h — Exposure Time : **1/150-1/200**;

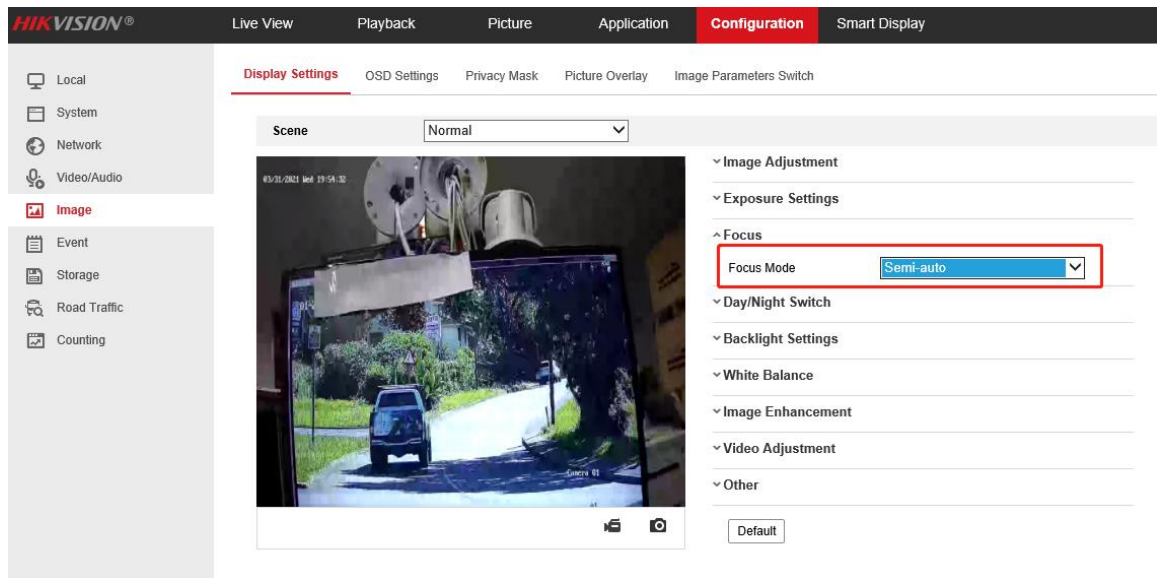
30km/h < Speed < 60km/h — Exposure Time : **1/250-1/500**;

60km/h < Speed — Exposure Time : **1/500-1/1000**

Gain : Generally set as **20** and we usually don't change this.

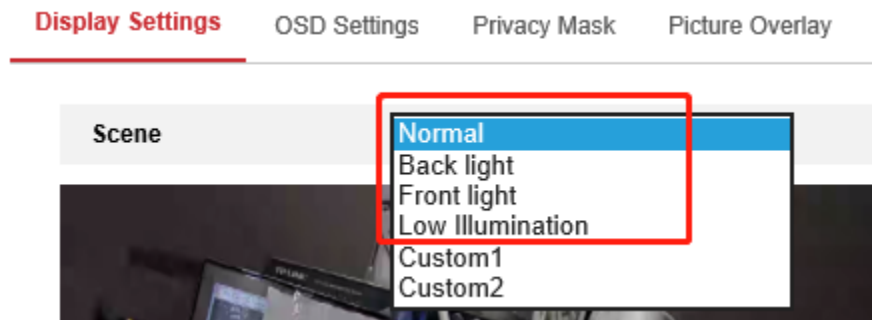
The screenshot displays the Hikvision camera web configuration interface. The top navigation bar includes 'Live View', 'Playback', 'Picture', 'Application', 'Configuration' (highlighted), and 'Smart Display'. The left sidebar lists various system settings: Local, System, Network, Video/Audio, Image (highlighted), Event, Storage, Road Traffic, and Counting. The main content area is titled 'Display Settings' and includes tabs for 'OSD Settings', 'Privacy Mask', 'Picture Overlay', and 'Image Parameters Switch'. Under 'Image Adjustment', the 'Exposure Settings' section is expanded, showing 'Iris Mode' set to 'Auto', 'Auto Iris Level' at 50, 'Exposure Time' set to '1/300', and 'Gain' set to '20'. The 'Exposure Time' and 'Gain' settings are highlighted with a red box. Below this, other settings like 'Focus', 'Day/Night Switch', 'Backlight Settings', 'White Balance', 'Image Enhancement', 'Video Adjustment', and 'Other' are listed.

3. Make sure the **Focus Mode** is semi-auto.



4. If the image effect is not satisfied:

- a. Choose the pre-settings Scene and the referring using scenario to try whether the effect is getting better.



- b. WDR or HLC will make the image easier to perform the “ghost image” or detail lost. So if the strong light can be solved by the exposure and gain settings, we don’t recommend you enable these to counter strong lights.

^ Backlight Settings

BLC Area	OFF	▼
WDR	OFF	▼
HLC	OFF	▼

▼ White Balance

- c. Double check whether the installation angle is smaller than 30° and the installation height satisfy the full observation of full scale of vehicle.
5. Go to **Picture** to choose the text overlay on the picture as the scenario needs;

The screenshot shows the Hikvision Configuration interface with the 'Picture' tab selected. The left sidebar lists various configuration categories, with 'Road Traffic' and 'Counting' highlighted. The main area displays settings for 'Picture Quality', 'Picture Size', 'License Plate Enhancement', and 'Overlay'. The 'Text Overlay' section includes checkboxes for various data fields and a table for selecting the type and sorting of the overlay text. The 'FTP Picture Name' section shows 'Default' selected.

Text Overlay

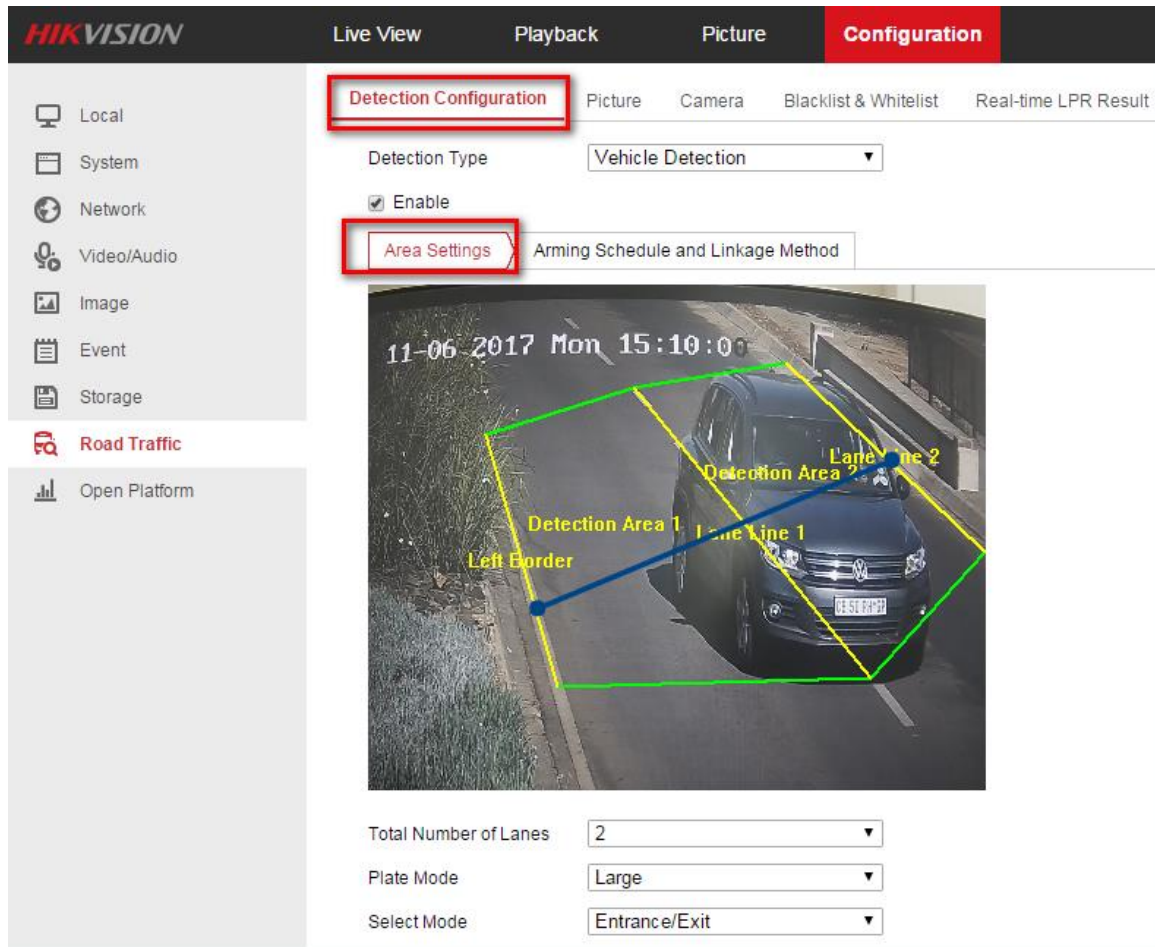
Type	Sorting
Camera No.	↑ ↓
Camera Info.	↑ ↓
Device No.	↑ ↓
Capture Time	↑ ↓
Plate No.	↑ ↓
Vehicle Color	↑ ↓
Vehicle Type	↑ ↓
Vehicle Brand	↑ ↓

FTP Picture Name

☒ Default ☐ Custom

Example: IP_Channel No._Time_Type.jpg

6. Go to **Road Traffic** to select detection type;
- Detection type can be set as Vehicle detection or Mixed-traffic Detection.
- Vehicle detection: the passed vehicle can be detected and the picture of its license plate can be captured.
- Mixed-traffic Detection: motor vehicle and non-motor vehicle can be detected, and the picture of the object or license plate can be captured
- Note: Only one lane supported at mixed-traffic detection type.
7. Go to **Road Traffic** to select lane numbers (1~2) and traffic mode;

**Note:**

- **Blue Detection Line:** Mainly used for Entrance/Exit with a purpose of improving the capture efficiency. The line is the trigger line of license plate and we highly recommend you put it middle-lower of the screen to make sure the car can pass it with the plate and the full scale.
- **Detect Area:** The Actual detect area is the 2 yellow lane and the square they seized.
- **Entrance & Exit:** It means the camera is set to monitor the Entrance & Exit and will get a better performance at this scenario. Also, E&E mode only supports 1 lane.
- **City Street:** It means the license plate information of the detected vehicle will be uploaded when the vehicle passes the detection area and triggers

the detection. City Street can support 2 lanes.

- **Alarm Input:** It means the input alarm will trigger a license plate capture and recognition action.

- **Detection Mode:** Vehicle priority and License plate & Vehicle mode:

Vehicle priority mode: the classic mode of the ANPR camera, it will detect the vehicle scale first, then catch the plate out to make the analysis. It will get the better accuracy but sometimes it will lose some results in the not-satisfied installation scenario.

License plate & Vehicle mode: this mode will allow the ANPR camera to capture the vehicle plate simultaneously with the scale of vehicle is detected. This mode will greatly improve the recognition at some not-satisfied installation scenario.

So we recommend you to use **Vehicle priority mode first** if there is no issues on installation and filling lights. After the issues of plate recognition is carried out, you can **switch the mode to License plate & Vehicle mode.**

8. Go to **Arming Schedule** and **Linkage Method** to continue; here you can set the arming schedule and linkage action **independently** for white list, black list and other list, so you need to set them one by one;

Local
System
Network
Video/Audio
Image
Event
Storage

Road Traffic

☒ Enable

Area Settings: **Arming Schedule and Linkage Method**

White List | Black List | Other List

Arming Schedule

☒ Delete ☒ Delete All

Day	0	2	4	6	8	10	12	14	16	18	20	22	24
Mon	0	2	4	6	8	10	12	14	16	18	20	22	24
Tue	0	2	4	6	8	10	12	14	16	18	20	22	24
Wed	0	2	4	6	8	10	12	14	16	18	20	22	24
Thu	0	2	4	6	8	10	12	14	16	18	20	22	24
Fri	0	2	4	6	8	10	12	14	16	18	20	22	24
Sat	0	2	4	6	8	10	12	14	16	18	20	22	24
Sun	0	2	4	6	8	10	12	14	16	18	20	22	24

Linkage Method

Direction: ☒ All ☐ Forward ☐ Reverse

<input checked="" type="checkbox"/> Normal Linkage	<input checked="" type="checkbox"/> Trigger Alarm Output
<input checked="" type="checkbox"/> Notify Surveillance Center	<input checked="" type="checkbox"/> A->1
<input checked="" type="checkbox"/> Upload to FTP/Memory Card/...	

7. Select a direction here. The **Forward** means vehicle moves toward the camera; **Reverse** means vehicle moves away from the camera. Only the vehicles moving as the selected direction can trigger selected linkage methods. **We highly recommend you choose All if there is no special use;**

Linkage Method

Direction: ☒ All ☐ Forward ☐ Reverse

<input checked="" type="checkbox"/> Normal Linkage	<input checked="" type="checkbox"/> Trigger Alarm Output
<input checked="" type="checkbox"/> Notify Surveillance Center	<input checked="" type="checkbox"/> A->1
<input checked="" type="checkbox"/> Upload to FTP/Memory Card/...	

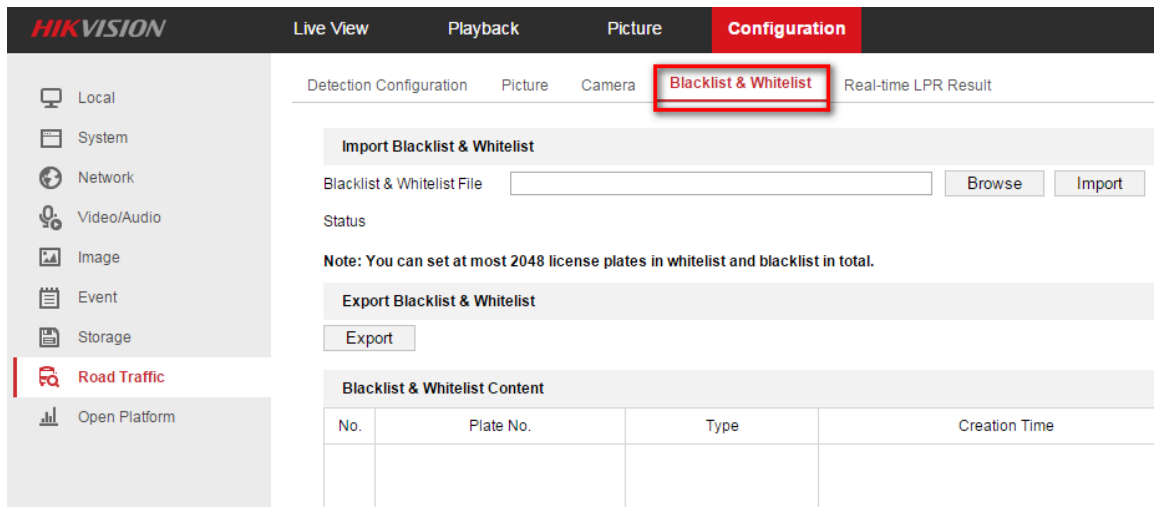
8. Remember to enable **Notify Surveillance Center** and Upload to FTP/xxxx;

Linkage Method

Direction: ☒ All ☐ Forward ☐ Reverse

<input checked="" type="checkbox"/> Normal Linkage	<input checked="" type="checkbox"/> Trigger Alarm Output
<input checked="" type="checkbox"/> Notify Surveillance Center	<input checked="" type="checkbox"/> A->1
<input checked="" type="checkbox"/> Upload to FTP/Memory Card/...	

9. The last part is to import the **Blacklist & Whitelist**. If you don't have such a list in advance, export the template first to make one;



The template looks like this:

(when inputting the plate number, input several consecutive numbers/letters with no blank included.)

D8	:	X ✓ fx	
	A	B	C
1	No.	Plate Num	Group(0 black list, 1 white list)
2			
3			
4			
5			

3.2 Set ANRP Function via NVR Web Configuration Interface

Please refer to Chapter 3.1;

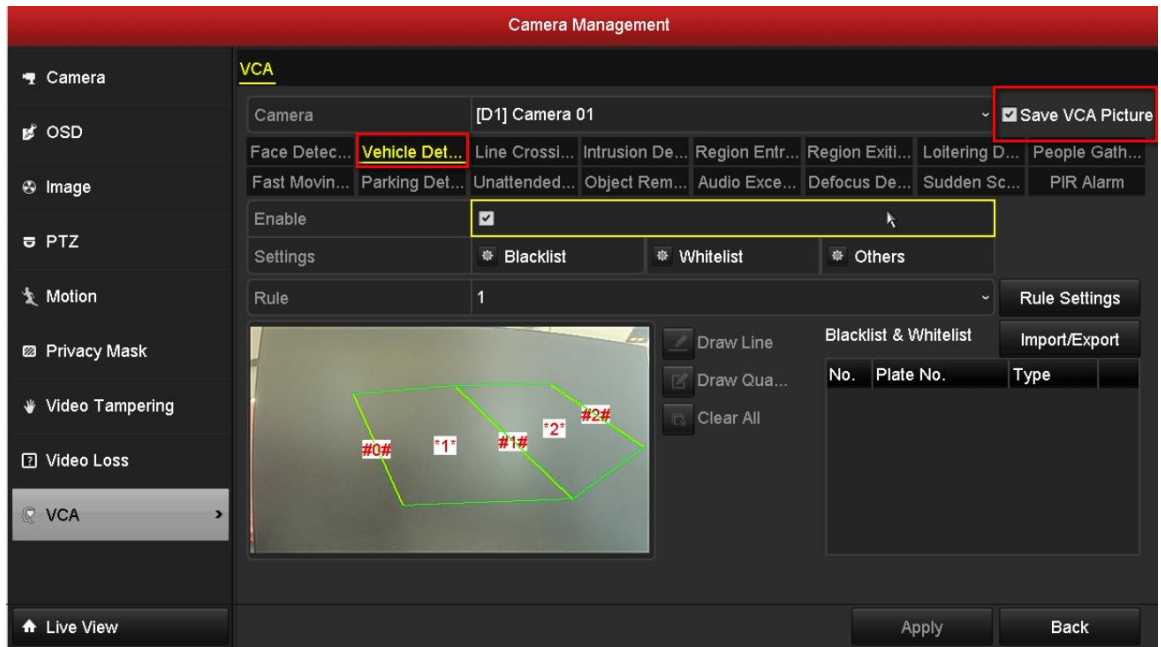
3.3 Set ANRP Function via NVR Local Configuration Interface with GUI 3.0

Preparations:

Please refer to chapter 3.1 & chapter 3.3;

Steps:

1. Go to **Menu->Camera Management->VCA->** select the camera channel->Vehicle Detection to enable ANPR function. Remember to check Save VCA Picture.
2. For detailed steps, please refer to chapter 3.1 & chapter 3.3;



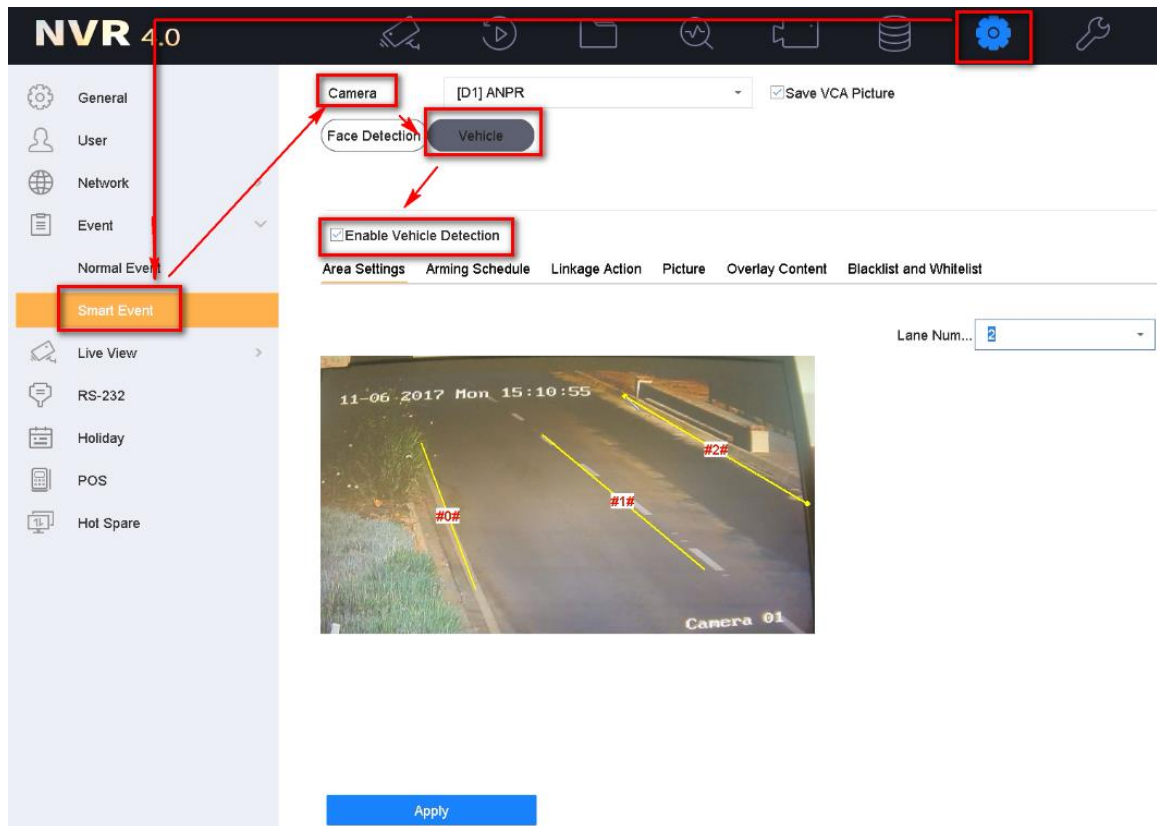
3.4 Set ANRP Function via NVR Local Configuration Interface with GUI 4.0

Preparations:

Please refer to chapter 3.1 & chapter 3.3;

Steps:

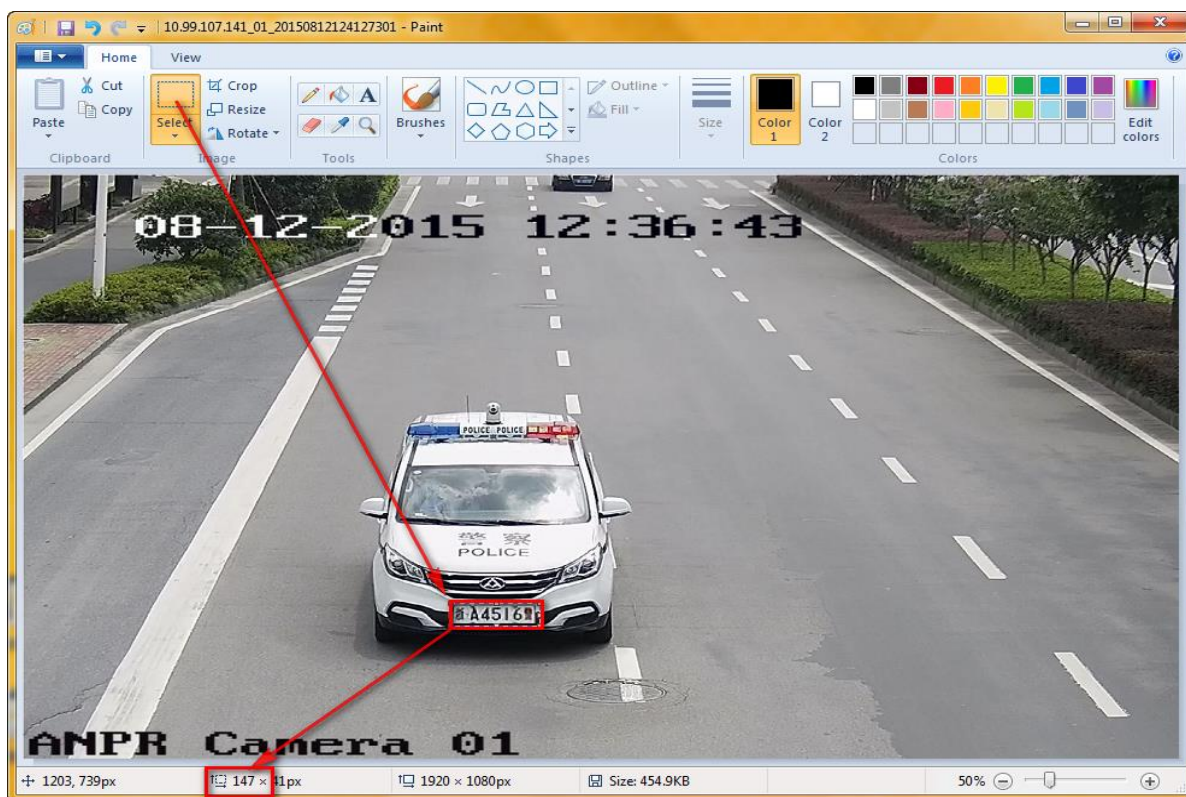
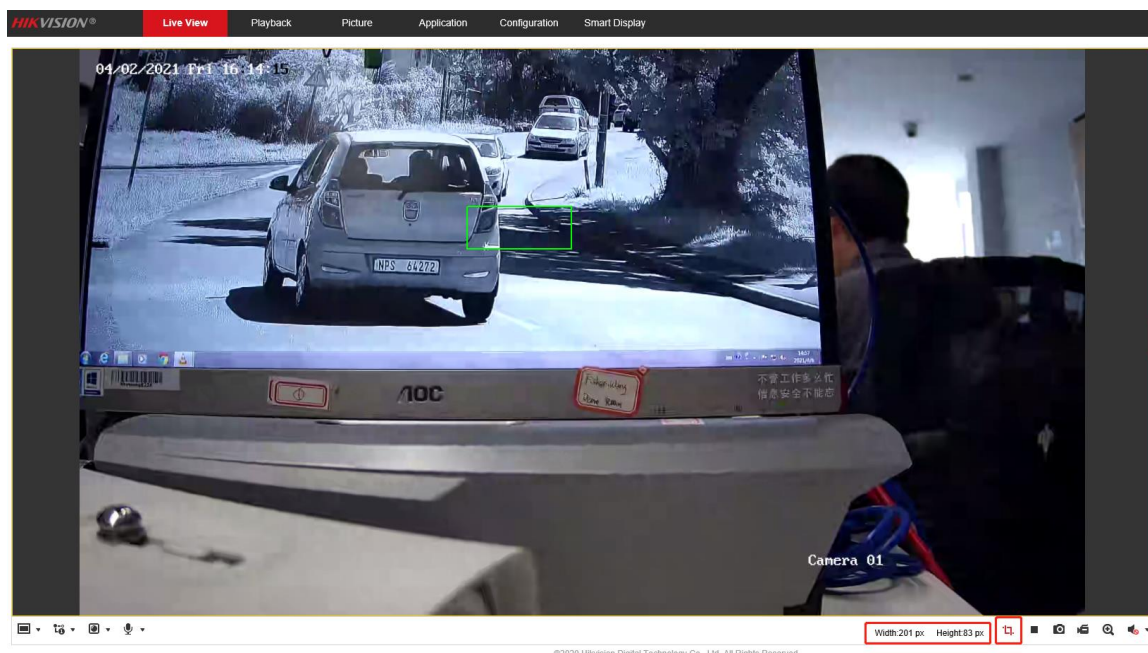
1. Go to **System->Event->Smart Event->** select the camera channel->Vehicle to enable ANPR function. Remember to check Save VCA Picture;
2. For detailed steps, please refer to chapter 3.1 & chapter 3.3.



3.5 Method to check ANPR picture pixels

Steps:

1. Save a picture with vehicle license plate information to PC, then open it with paint tool;
2. Click Select, draw a rectangle to cover the vehicle license plate;
3. Check the pixel at the bottom of the picture.



Chapter 4 Performance

4.1 Search ANRP pictures & videos via Camera Web Configuration Interface

Steps:

1. You can search or download the pictures in Picture interface by selecting the File Type as Vehicle Detection.

Note:

Make sure the SD card in camera is working.

The screenshot shows the Hikvision Camera Web Configuration Interface. The 'Picture' tab is selected and highlighted with a red box. Below the tab, there is a 'Download by File' section. On the left, under 'Search Conditions', the 'File Type' dropdown is set to 'Vehicle Detection' and is also highlighted with a red box. Below this are fields for 'Plate No.', 'Start Time' (2018-04-09 00:00:00), and 'End Time' (2018-04-09 23:59:59). There are 'Search' and 'Export' buttons. On the right, a 'File List' table displays 11 entries with columns for No., File Name, Time, File Size, and Progress. At the top right of the file list, there are 'Download' and 'Stop Downloading' buttons.

No.	File Name	Time	File Size	Progress
1	20180409095913_TFTPUP4T	2018-04-09 09:59:13	364 KB	
2	20180409095922_C6HFGX8	2018-04-09 09:59:22	404 KB	
3	20180409095925_VYS420S69	2018-04-09 09:59:25	504 KB	
4	20180409095926_TFTPUP18	2018-04-09 09:59:26	491 KB	
5	20180409095927_1617	2018-04-09 09:59:27	504 KB	
6	20180409095927_VMS4200	2018-04-09 09:59:27	509 KB	
7	20180409095931_1617	2018-04-09 09:59:31	483 KB	
8	20180409095950_H1617	2018-04-09 09:59:50	463 KB	
9	20180409101422_1617	2018-04-09 10:14:22	482 KB	
10	20180409101441_HG4400	2018-04-09 10:14:41	468 KB	
11	20180409101441_VMS4200VNS	2018-04-09 10:14:41	469 KB	

2. You can also check the real-time captured license plate in **Real-time LPR Result** interface;

11-06-2017 Mon 15:10:00

No.	Capture Time	Plate No.	Captured Picture	Lane No.	Direction	Matching Result
22	04-08-2018 18:41:50	CB50PHGP		2	Unknown	Other List

4.2 Search ANRP pictures & videos via iVMS-4200

Steps:

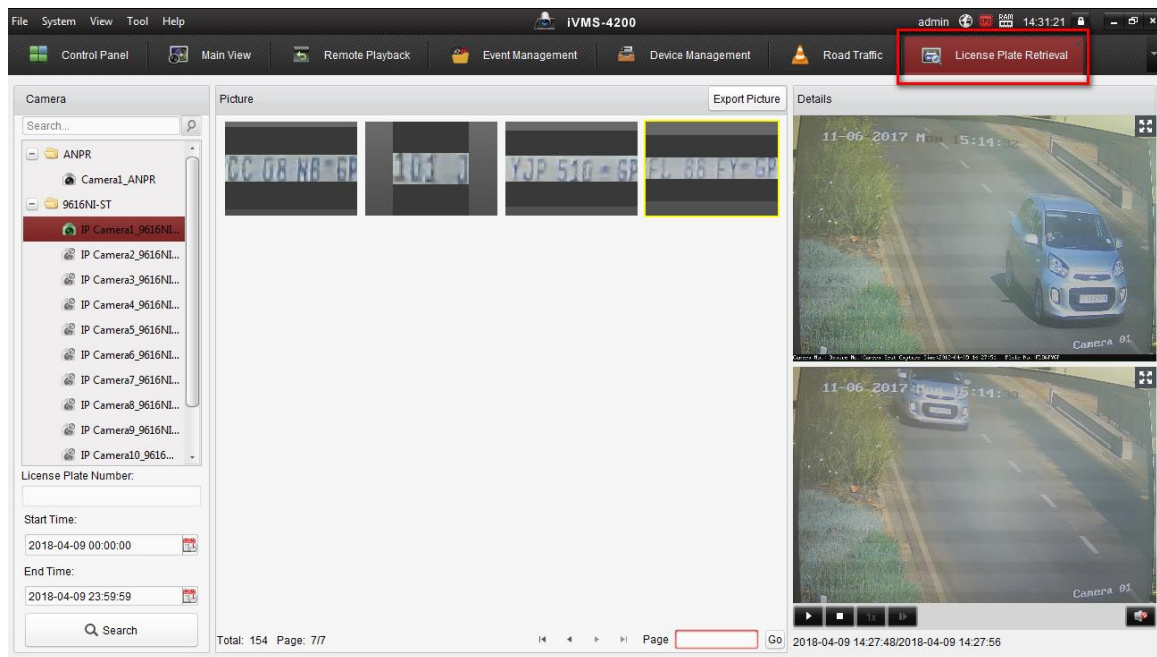
1. You can search or download the captured pictures in Road Traffic interface.
Vehicle Information could also be exported here;

Note:

Make sure the SD card in camera is working, or you have set up storage server for iVMS-4200;

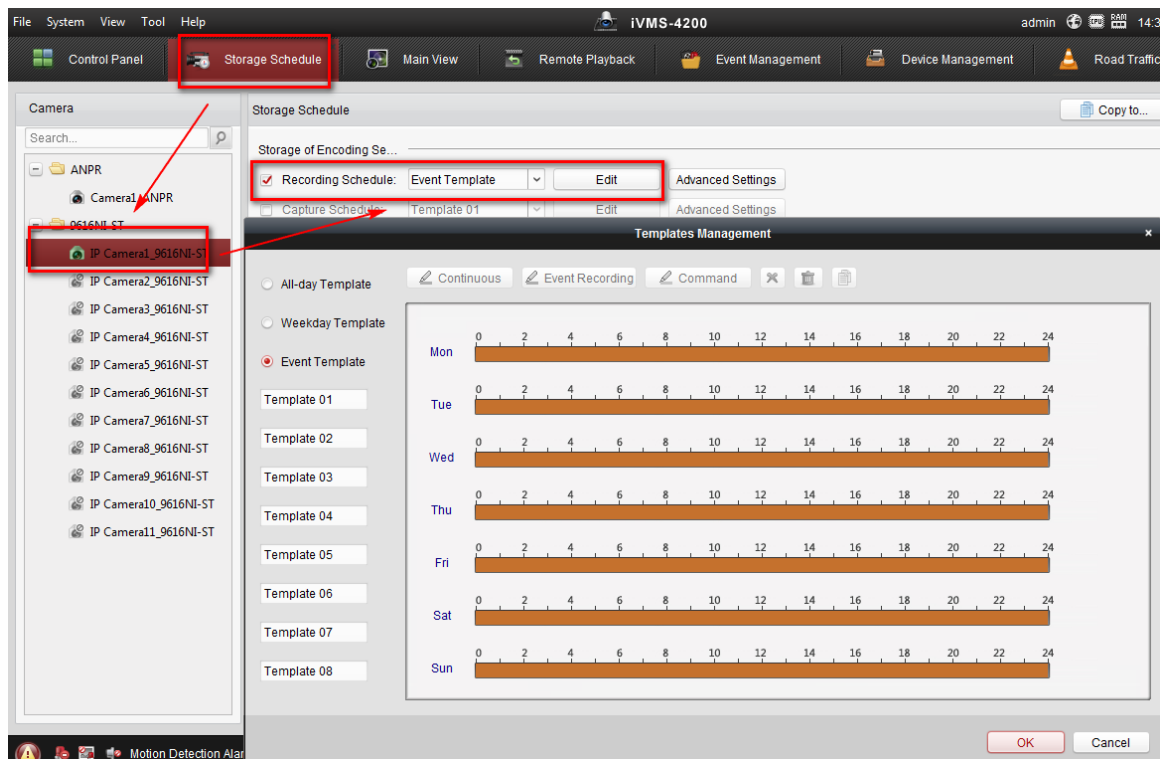
Index	Time	License Plate Number	Picture
37	2018-04-08 17:13:44	D10UC	
38	2018-04-08 17:13:47	OPEN	
39	2018-04-08 17:13:50	RESET	
40	2018-04-08 17:13:51	LANP6E	
41	2018-04-08 17:13:51	DC12V	
42	2018-04-08 17:13:55	CB50PHGP	

2. If the camera is also added into NVR, you can search or download the captured pictures in **License Plate Retrieval** interface;



3. You need to set an EVENT recording schedule in NVR in advance.

Otherwise there will be only pictures;



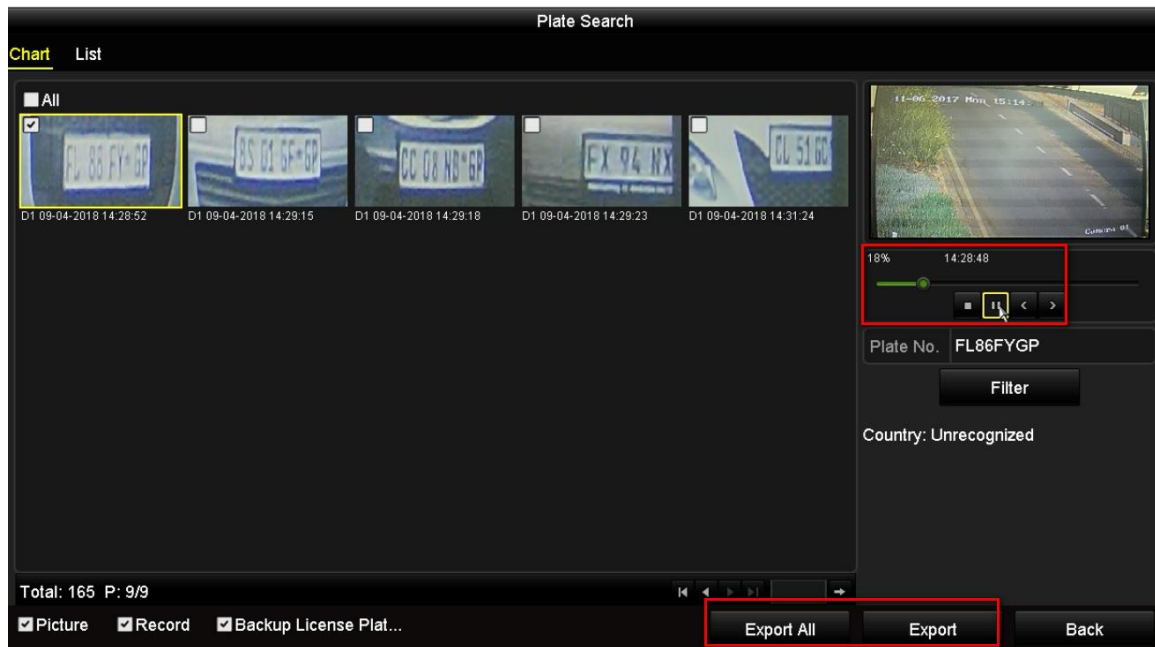
4.3 Search ANRP pictures & videos via NVR Local Configuration Interface with GUI 3.0

Steps:

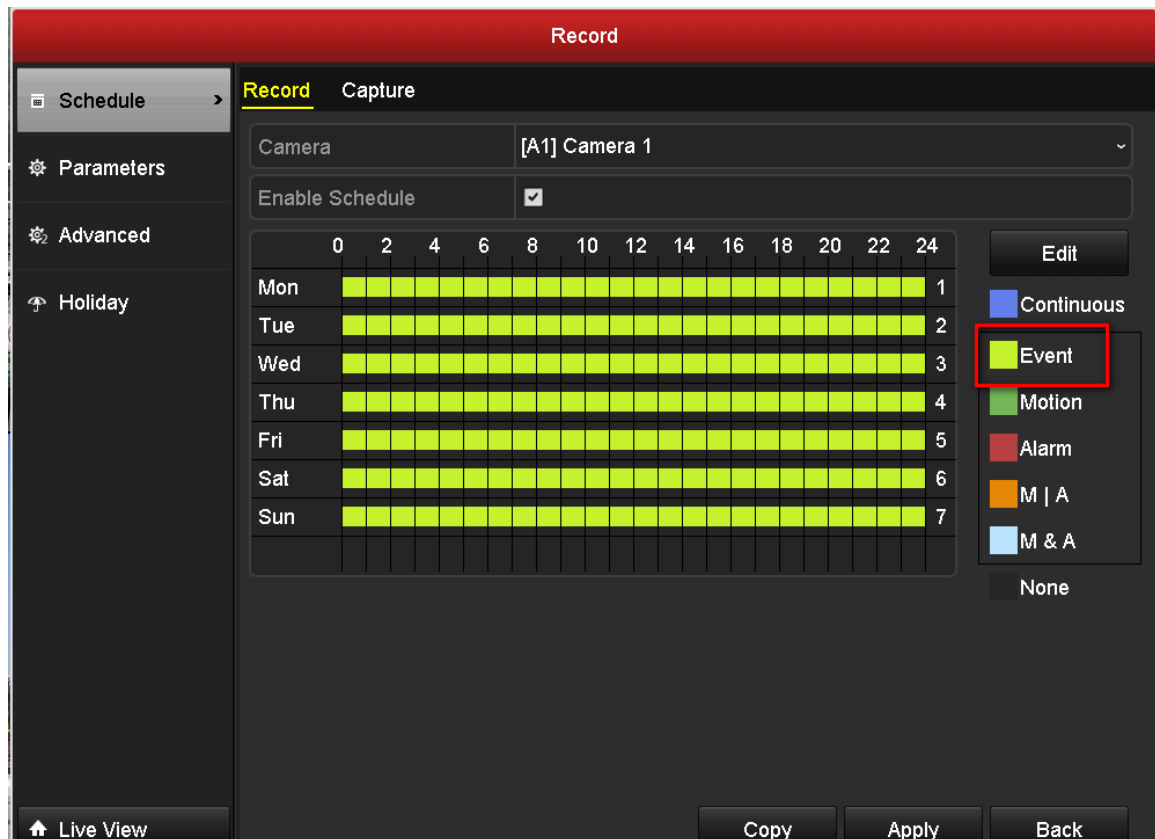
1. Go to **Menu->VCA Search->Plate Search** to search & export the captured license plate pictures & videos;



2. After clicking Search button, all the captured license plate pictures & videos would be displayed;



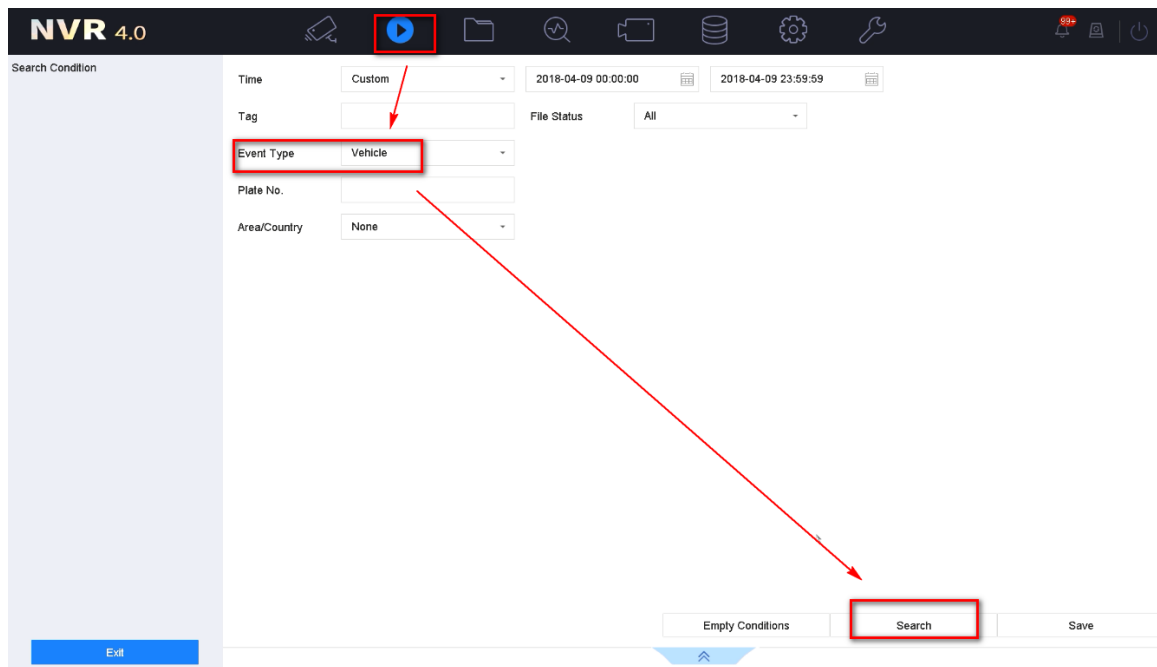
3. You need to set an **EVENT** recording schedule in NVR in advance. Otherwise there will be only pictures;



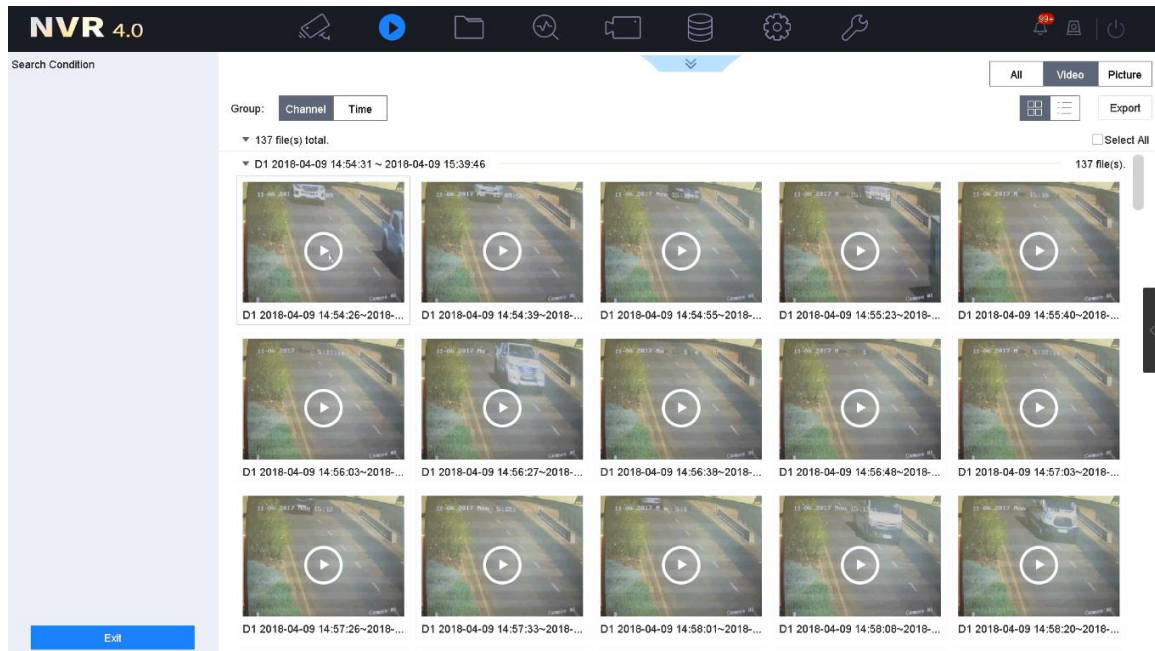
4.4 Search ANRP pictures & videos via NVR Local Configuration Interface with GUI 4.0

Steps:

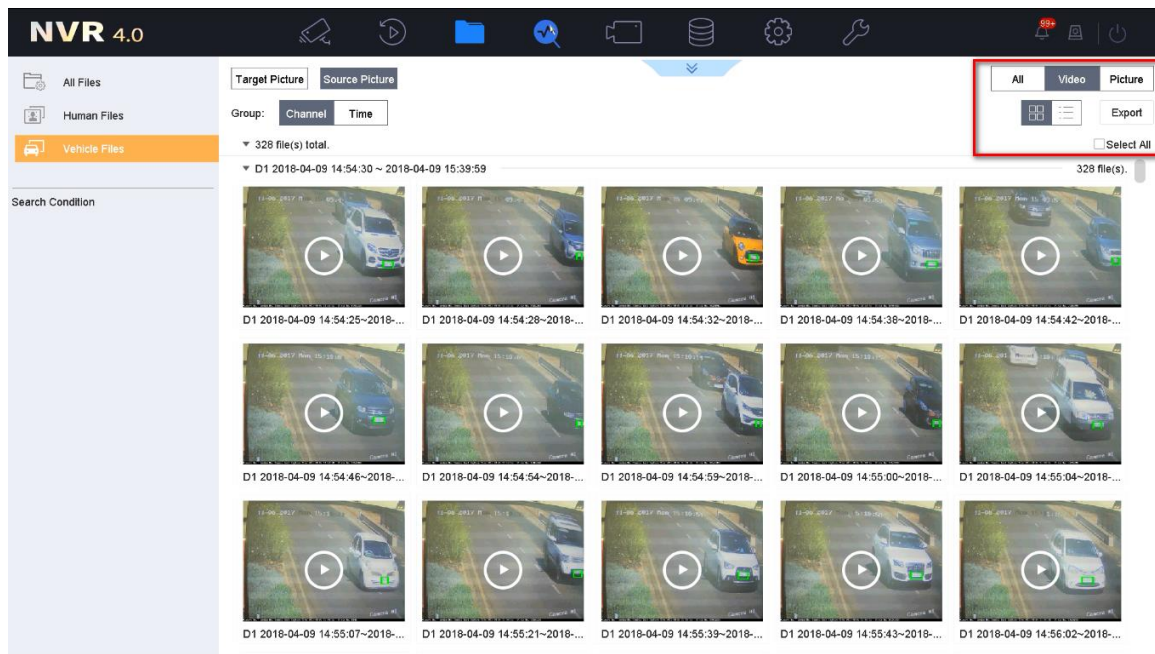
1. You can go to **Playback-> Custom Search->** select the Event Type as Vehicle to search & export the captured license plate pictures & videos;



2. After clicking Search button, all the captured license plate pictures & videos would be displayed. You can click any of these to watch the video;



3. You can also go to **File Management->Vehicle Files** ->click Search button, then all the captured license plate pictures & videos would be displayed. You can click any of these to watch the video;



4. Vehicle detailed information could also be exported later if you enable the **Backup License Plate Statistics Info**, which would be included in an .excel file;

NVR 4.0

Time: Custom 2018-04-09 00:00:00 2018-04-09 23:59:59

Camera: [D1] ANPR

Plate No.:

Area/Country: All

Search Condition

Backup License ... ☐ Empty Conditions Search Save

vehicleinfo_20180510134800.xls

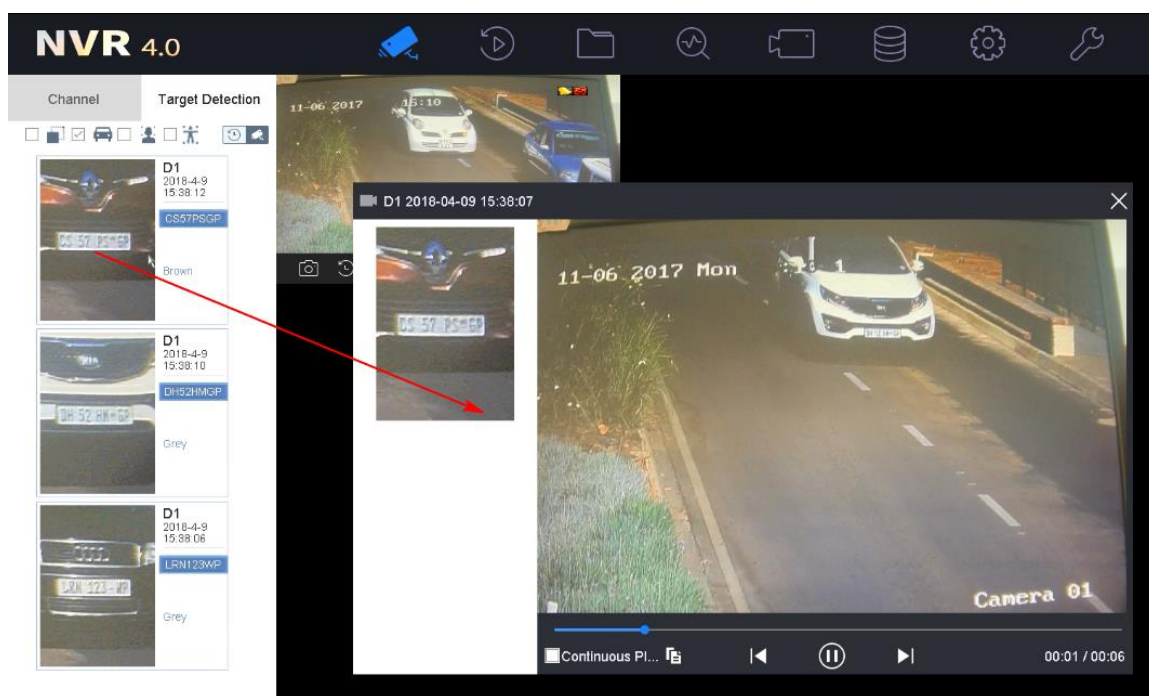
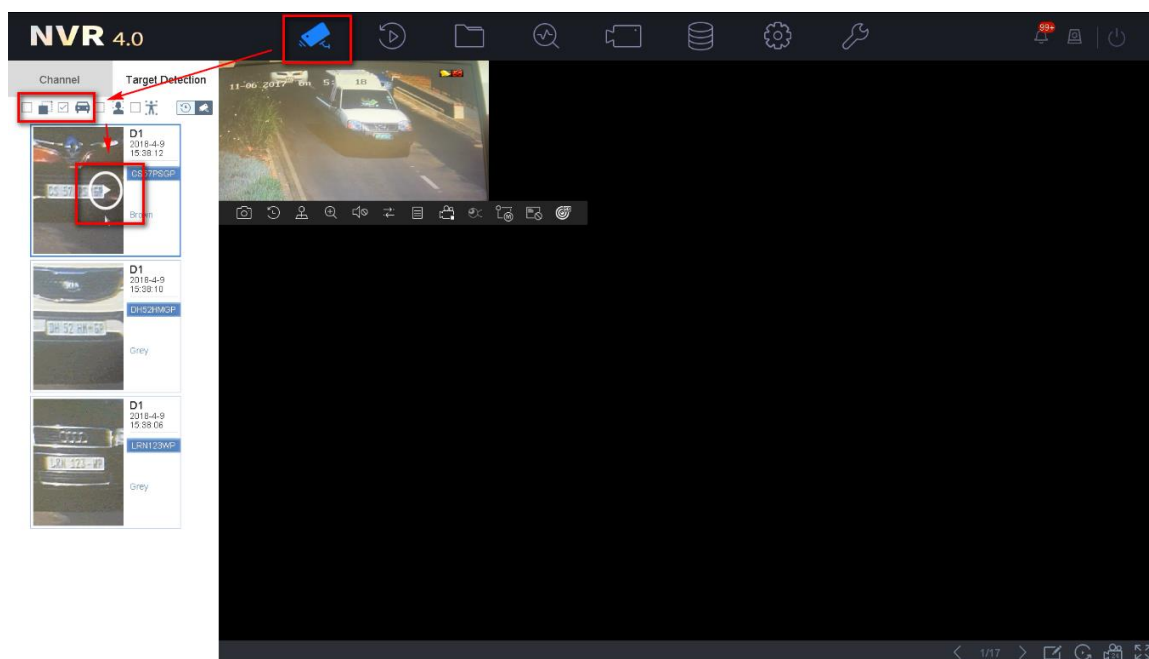
5/10/2018 1:48 ...

Microsoft Excel ...

66 KB

	A	B	C	D	E
1	Sequence Number	Plate Number	Chan Name	Date(Year/Month/Day)	Time(Hour:Minute:Second)
2	1	D7S1411	-	2018/05/10	12:30:03
3	2	D7A1411	-	2018/05/10	12:30:21
4	3	D71411	-	2018/05/10	12:30:28
5	4	D7Q1411	-	2018/05/10	12:30:33
6	5	D71411	-	2018/05/10	12:30:42
7	6	D7R1411	-	2018/05/10	12:30:47
8	7	D7Q1411	-	2018/05/10	12:30:52
9	8	D741411	-	2018/05/10	12:31:01
10	9	D7961411	-	2018/05/10	12:31:13
11	10	D71411	-	2018/05/10	12:31:25

5. Go to **Live view->Target Detection->** Select Vehicle Detection to watch the real-time captured license plate pictures & videos;



6. You need to set an EVENT recording schedule in NVR->Storage->Recording Schedule in advance. Otherwise there will be only pictures.

NVR 4.0

Recording Schedule

Camera No. [D1] ANPR

Enable Schedule ☒

Advanced

Continuous Event Motion Alarm M | A M & A POS Event None Edit

	0	2	4	6	8	10	12	14	16	18	20	22	24	
Mon														1
Tue														2
Wed														3
Thu														4
Fri														5
Sat														6
Sun														7

First Choice for Security Professionals
***HIK*VISION Technical Support**