Network Traffic Camera

User Manual

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The symbols that may be found in this document are defined as follows.

Symbol	Description
Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
Note	Provides additional information to emphasize or supplement important points of the main text.

Contents

Chapter 1 Activation and Login

1.1 Activation

For the first-time access, you need to activate the device by setting an admin password. No operation is allowed before activation. The device supports multiple activation methods, such as activation via SADP software, web browser, and iVMS-4200 Client.

Note

Refer to the user manual of iVMS-4200 Client for the activation via client software.

1.1.1 Default Information

The device default information is shown as below.

- Default IP address: 192.168.1.64
- Default user name: admin

1.1.2 Activate via SADP

SADP is a tool to detect, activate, and modify the IP address of the device over the LAN.

Before You Start

- Get the SADP software from the supplied disk or the official website (***http://www.hikvision.com/***), and install it according to the prompts.
- The device and the computer that runs the SADP tool should belong to the same network segment.

The following steps show how to activate one device and modify its IP address. For batch activation and IP address modification, refer to *User Manual of SADP* for details.

Steps

1. Run the SADP software and search the online devices.
2. Find and select your device in online device list.
3. Enter a new password (admin password) and confirm the password.

   Caution

   STRONG PASSWORD RECOMMENDED-We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.
4. Click **Activate** to start activation.

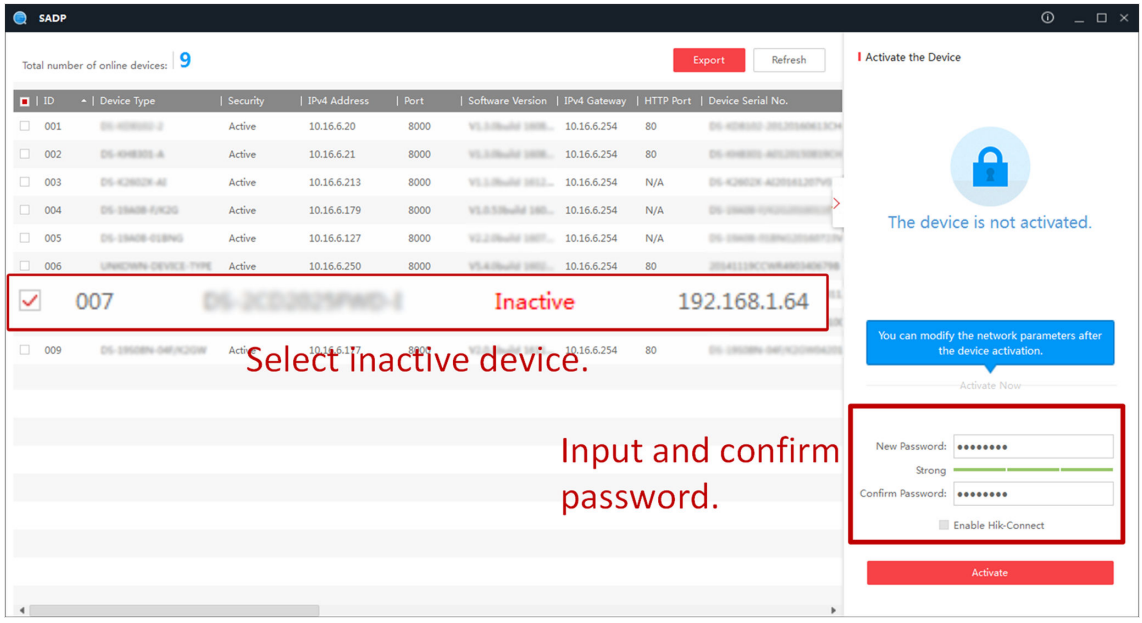

Figure 1-1 Activate via SADP

Status of the device becomes **Active** after successful activation.

5. Modify IP address of the device.
   1) Select the device.
   2) Change the device IP address to the same network segment as your computer by either modifying the IP address manually or checking **Enable DHCP** (Dynamic Host Configuration Protocol).
   3) Enter the admin password and click **Modify** to activate your IP address modification.

1.1.3 Activate via Web Browser

Use web browser to activate the device. For the device with the DHCP enabled by default, use SADP software or client software to activate the device.

Before You Start

Ensure the device and the computer are in the LAN with the same network segment.

Steps

1. Change the IP address of your computer to the same network segment as the device.
2. Open the web browser, and enter the default IP address of the device to enter the activation interface.
3. Create and confirm the admin password.

Caution

STRONG PASSWORD RECOMMENDED-We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

4. Click **OK** to complete activation.
5. Go to the network settings interface to modify IP address of the device.

1.2 Login

You can log in to the device via web browser for further operations such as live view and local configuration.

Before You Start

Connect the device to the network directly, or via a switch or a router.

Steps

1. Open the web browser, and enter the IP address of the device to enter the login interface.
2. Enter **User Name** and **Password**.
3. Click **Login**.
4. Download and install appropriate plug-in for your web browser. Follow the installation prompts to install the plug-in.
5. Reopen the web browser after the installation of the plug-in and repeat steps 1 to 3 to login.
6. **Optional:** Click **Logout** on the upper right corner of the interface to log out of the device.

Chapter 2 Application Mode Configuration

Note

- The supported application modes vary with different models. The actual device prevails.
- When you draw lane lines or detection areas on **Application Mode** interface:
  - You can enable **Display All Areas** to display all the lines and areas, convenient to view the effect of all the lines and areas. If you uncheck it, only the current selected lane will be displayed, convenient to draw the current lane.
  - You can enable **Small Target Detection** and draw the small target detection areas which are always set at the road distance to raise the detection effect of the distant targets.
  - The system will capture a picture and use it as the background. You can also enable **Video Background** to use the live view as the background.

Caution

You can click **Default** on **Application Mode** interface to restore all the set parameters to the default settings. Please operate with care.

2.1 Set Checkpoint Single I/O

Set checkpoint single I/O if capture is triggered by external I/O signal (digital signal). In this mode, the information including the vehicle passing time, vehicle overview, license plate number, license plate color, vehicle color (only supported for the Middle East version), the facial features of the driver and the front passenger, etc. will be recorded.

Before You Start

Connect F+ of the I/O signal to the T interface of the device, and F- to the GND of the device.

Steps

1. Go to **Configuration → Capture → Application Mode** .
2. Select **Application Mode** as **Checkpoint Single I/O**.
3. Set the parameters according to the configuration instructions, and click **Save**.

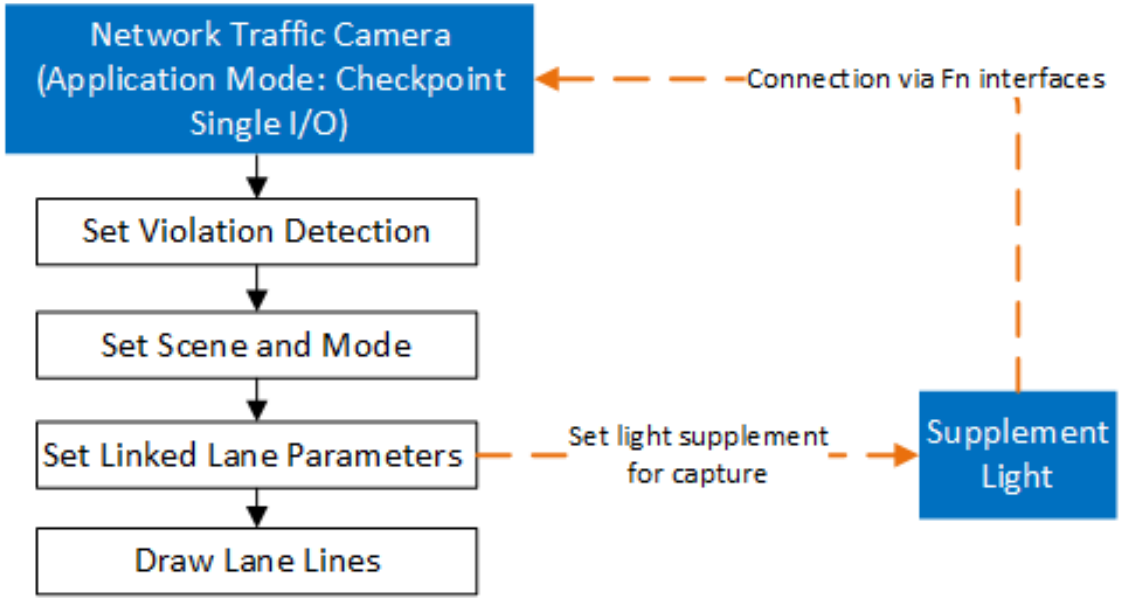

Figure 2-1 Configuration Instruction (Checkpoint Single I/O)

2.1.1 Set Violation Detection

Check the capture types and set the corresponding parameters.

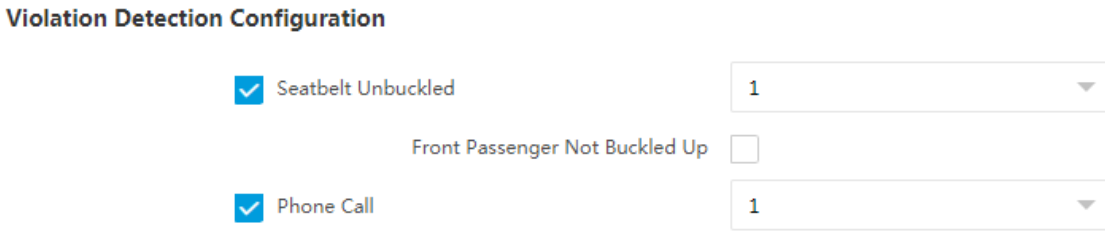

Figure 2-2 Capture Type

Table 2-1 Capture Type Description

Capture Type	Parameters Description
Seatbelt Unbuckled	The driver of a motor vehicle does not buckle the seatbelt during driving. Check it and select the number of captured picture(s). You can also

Capture Type	Parameters Description
	enable **Front Passenger Not Buckled Up** to capture if the front passenger has not buckled up.
Phone Call	The driver of a motor vehicle uses the mobile phone to make or receive calls during driving. Check it and select the number of captured picture(s).

2.1.2 Set Scene and Mode

Select **Capture Mode**.

Flash

It adopts the separate exposure, and is applicable to the condition of viewing face pictures clearly at night.

Strobe

It adopts the frame extracting, and the captured pictures share the same exposure parameters with the video image. It is applicable to the condition of capturing license plates only.

2.1.3 Set Linked Lane Parameters

You can set the properties and parameters of the linked lanes.

Steps

Note

The linked lane parameters vary with different models. The actual device prevails.

1. Check the corresponding **External Input** according to the connected I/O signal.

   Note

   Each input corresponds to one lane.

2. Set the lane capture parameters.

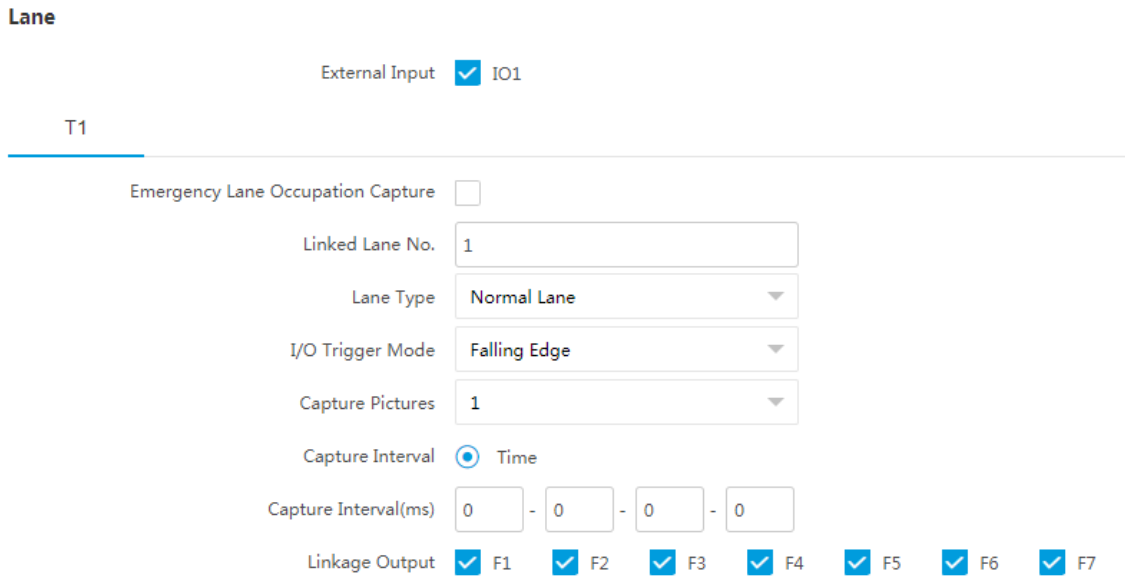

Figure 2-3 Lane Configuration of Checkpoint Single I/O

Emergency Lane Occupation Capture

When the lane type is **Highway Emergency Lane**, check it to detect the violation of occupying emergency lane.

Linked Lane No.

The corresponding lane No. linked with the current lane. The lane No. will be overlaid on the captured picture.

Lane Type

If you select **Highway Emergency Lane**, set the period, during which the lane is used as the highway emergency lane and the violation of emergency lane occupation will be captured, and outside which the lane is used as a normal lane.

I/O Trigger Mode

Capture is triggered according to the level signal status. If you select **Falling Edge**, the device will trigger capture at the moment that the high level falls to low level. If you select **Rising Edge**, the device will trigger capture at the moment that the low level rises to high level.

Capture Pictures

The number of captured picture(s).

Capture Interval

Select **Time**, and set **Capture Interval** (the time between the adjacent captures).

3. **Optional:** Check capture **Linkage Output** to link supplement light channel(s). Fn corresponds to the device output interface to connect to the supplement light.
4. Draw lane lines.
   1) Click **Draw Lane Line**.

2) Select the default lane line and right border line, and drag the two end points of the line or drag the whole line to adjust its position according to the actual scene.
3) Click **OK**.

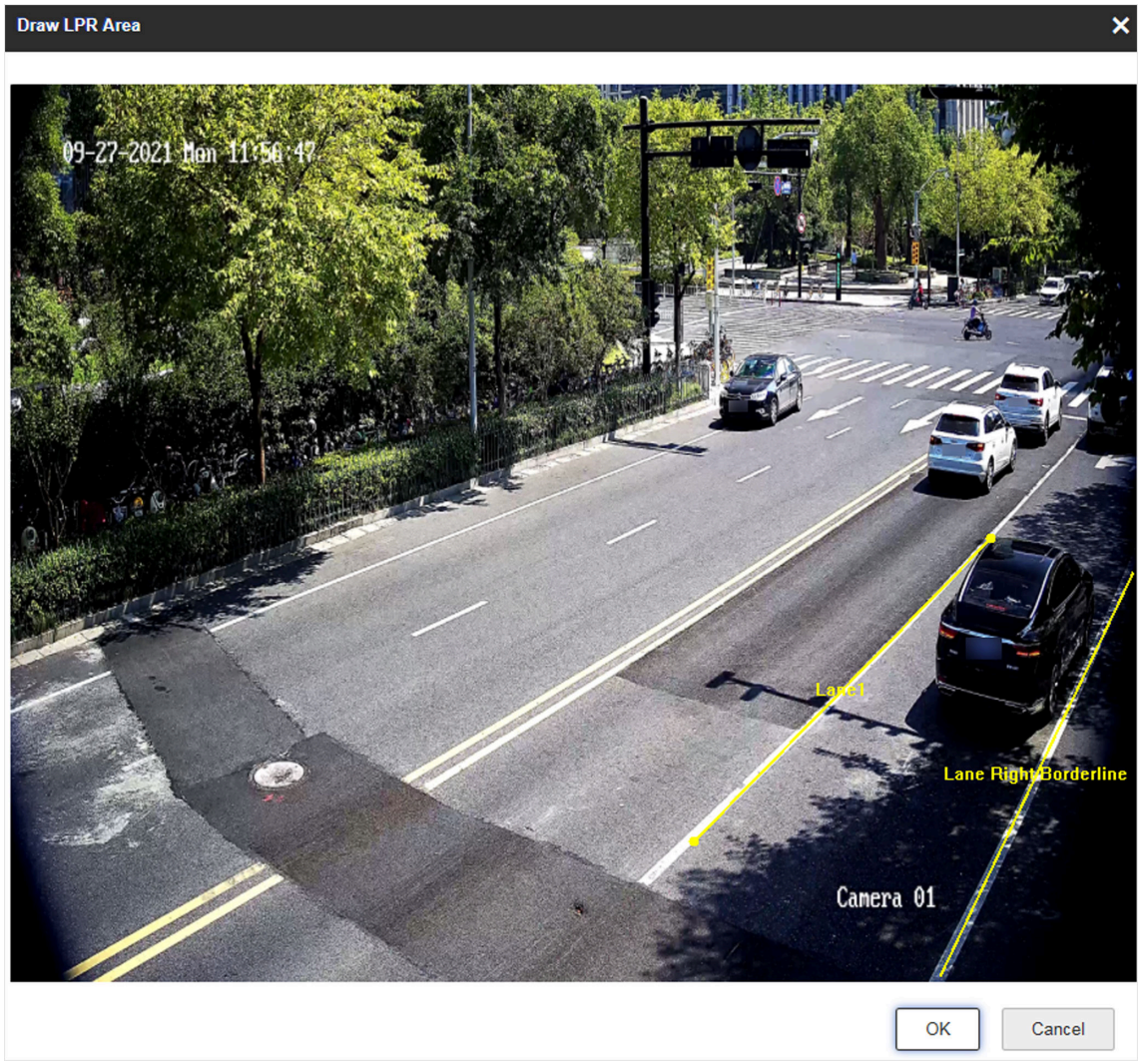

Figure 2-4 Draw Lane Lines

2.2 Set RS-485 Radar

Set RS-485 radar if RS-485 signal (speed detection or capture via radar) is connected, and capture is triggered by radar. In this mode, the information including the vehicle speed, vehicle passing time, vehicle overview, license plate number, license plate color, vehicle color, the facial features of the driver and the front passenger, etc. will be recorded.

Before You Start

- Install the radar.
- Connect the D+ and D- of the radar RS-485 interface to the D+ and D- of the device RS-485 interface.

Steps

1. Go to **Configuration → Capture → Application Mode** .
2. Select **Application Mode** as **RS-485 Radar**.
3. Set the parameters according to the configuration instructions, and click **Save**.

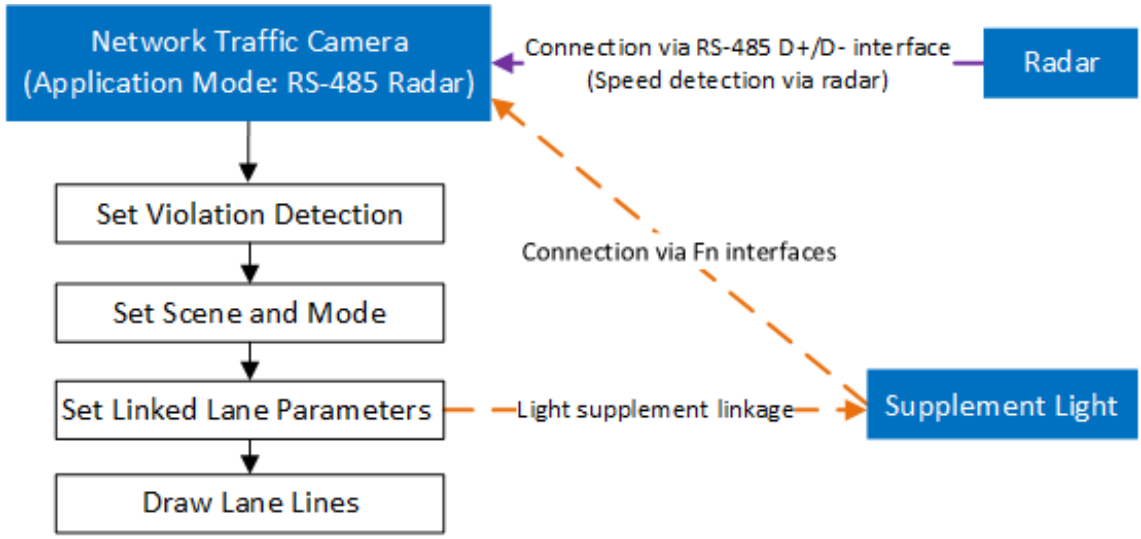

Figure 2-5 Configuration Instruction (RS-485 Radar)

2.2.1 Set Violation Detection

Check the capture types and set the corresponding parameters.

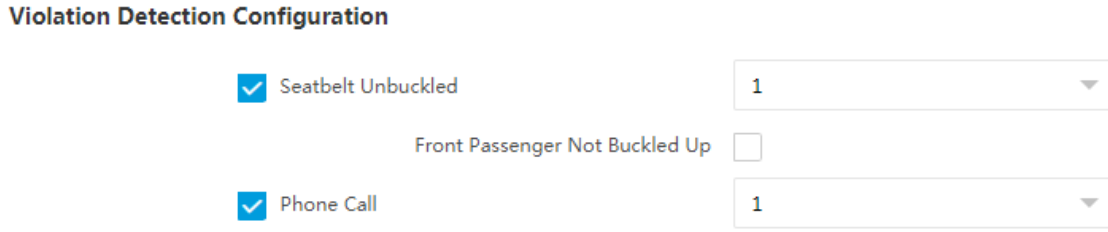

Figure 2-6 Capture Type

Table 2-2 Capture Type Description

Capture Type	Parameters Description
Seatbelt Unbuckled	The driver of a motor vehicle does not buckle the seatbelt during driving. Check it and select the number of captured picture(s). You can also enable **Front Passenger Not Buckled Up** to capture if the front passenger has not buckled up.
Phone Call	The driver of a motor vehicle uses the mobile phone to make or receive calls during driving. Check it and select the number of captured picture(s).

2.2.2 Set Scene and Mode

Select **Capture Mode**.

Flash

It adopts the separate exposure, and is applicable to the condition of viewing face pictures clearly at night.

Strobe

It adopts the frame extracting, and the captured pictures share the same exposure parameters with the video image. It is applicable to the condition of capturing license plates only.

2.2.3 Set Linked Lane Parameters

You can set the properties and parameters of the linked lanes.

Steps

Note

The linked lane parameters vary with different models. The actual device prevails.

1. Select **Total Lanes**.
2. Set the lane capture parameters.

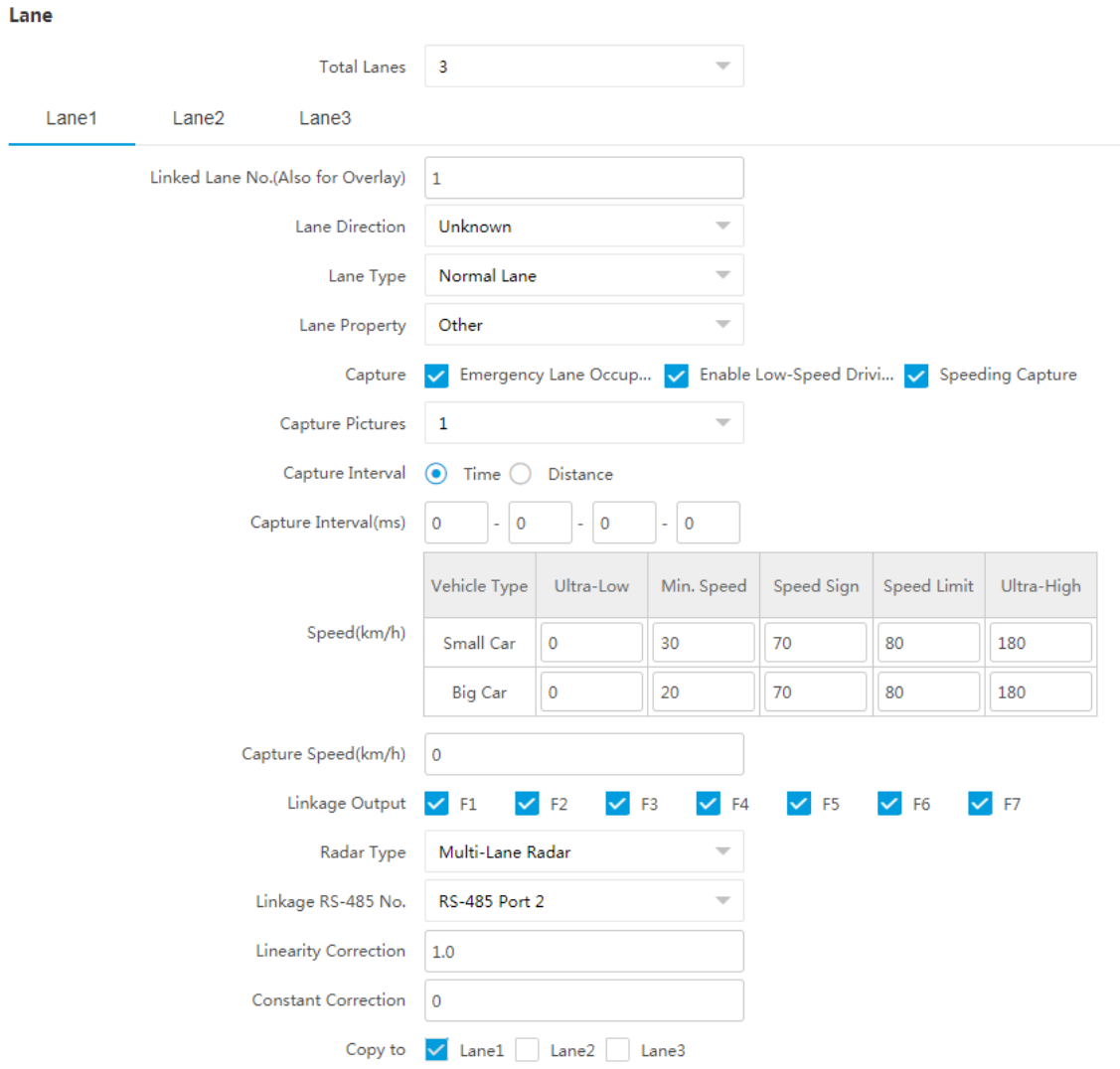

Figure 2-7 Lane Configuration of RS-485 Radar

Linked Lane No.

The corresponding lane No. linked with the current lane. The lane No. will be overlaid on the captured picture.

Lane Direction

The guidance direction of the lane.

Lane Type

If you select **Highway Emergency Lane**, set the period, during which the lane is used as the highway emergency lane and the violation of emergency lane occupation will be captured, and outside which the lane is used as a normal lane.

Lane Property

Select the lane type for speeding capture. The violation rules vary with different lane types.

Capture

Emergency Lane Occupation Capture

Check it to capture emergency lane occupation violation. One more picture will be captured beyond the set number of captured picture(s).

Enable Low-Speed Driving Capture

Check it to capture the violation of driving in the speed lower than **Min. Speed**.

Speeding Capture

Check it to capture the violation of driving in the speed higher than **Speed Limit**. One more picture will be captured beyond the set number of captured picture(s).

Capture Pictures

The number of captured picture(s).

Capture Interval

Set **Interval (dm)** (the distance between the adjacent captures) if you select **Distance**, and set **Capture Interval (ms)** (the time between the adjacent captures) if you select **Time**.

Speed

Ultra-Low

When the detected speed of the vehicle is lower than the value, the detection is regarded as abnormal and will be filtered, A normal speed will be provided randomly.

Min. Speed

The actual allowed min. speed for the vehicles. When the vehicle speed is lower than the value, low-speed driving capture will be triggered.

Note

The min. speed of large-sized vehicles should be smaller than that of the small-sized vehicles.

Speed Sign

The speed limit on the sign for the vehicles. The value will be overlaid on the captured pictures.

Speed Limit

The actual speed limit for the vehicles. When the vehicle speed exceeds the value, speeding capture will be triggered.

Note

The speed limit of large-sized vehicles should be smaller than that of the small-sized vehicles.

Ultra-High

When the detected speed of the vehicle exceeds the value, the detection is regarded as abnormal and will be filtered. A normal speed will be provided randomly.

Capture Speed

The vehicle speed of the first capture. When the speed of the vehicle on the lane (except the emergency lane) is lower than the set value, no capture will be triggered.

3. **Optional:** Check capture **Linkage Output** to link supplement light channel(s). Fn corresponds to the device output interface to connect to the supplement light.
4. Set radar parameters.

Radar Type

Select the connected radar type.

Linkage RS-485 No.

Select the radar connected RS-485 port No. of the device.

Linearity Correction

Adjust the radar output result according to the actual speed.

Constant Correction

The constant correction is to improve the accuracy of the detection speed. It is the extra added/minus speed value.

Note

The final speed is calculated according to the radar output speed, the linearity correction, and constant correction together. E.g., the detected speed is 80 km/h, and you set the linearity correction as 1.2, and the constant correction as 5, then the final speed is 80 km/h × 1.2 + 5 = 101 km/h. And if you do not want to make any change to the detected speed, you can set the linearity correction as 1, and the constant correction as 0.

5. **Optional:** Check the other lane(s) to copy the same settings.
6. Draw lane lines.
   1) Click **Draw Lane Line**.
   2) Select the default lane lines and right border line, and drag the two end points of the line or drag the whole line to adjust its position according to the actual scene.
   3) Click **OK**.

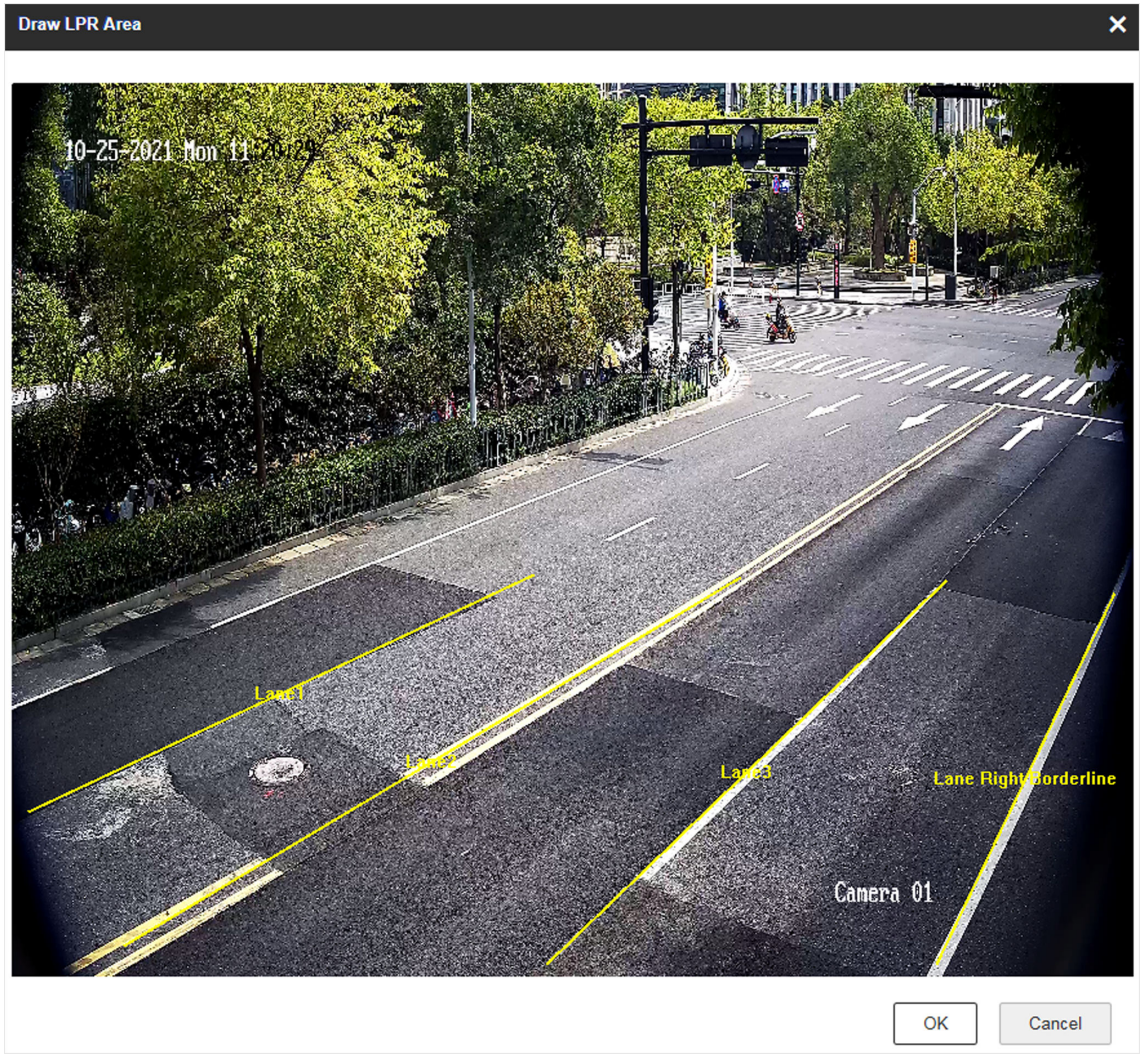

Figure 2-8 Draw Lane Lines

2.3 Set Mixed-Traffic Lane

Set mix-traffic lane if capture is triggered by virtual coils (video or radar detection). In this mode, the information including the vehicle speed, vehicle passing time, vehicle overview, license plate number, license plate color, vehicle color, the facial features of the driver and the front passenger, etc. will be recorded.

Before You Start

- Install the radar if speed detection is needed.
- Connect the D+ and D- of the radar RS-485 interface to the D+ and D- of the device RS-485 interface.

Steps

1. Go to **Configuration → Capture → Application Mode** .
2. Select **Application Mode** as **Mixed-Traffic Lane**.
3. Set the parameters according to the configuration instructions, and click **Save**.

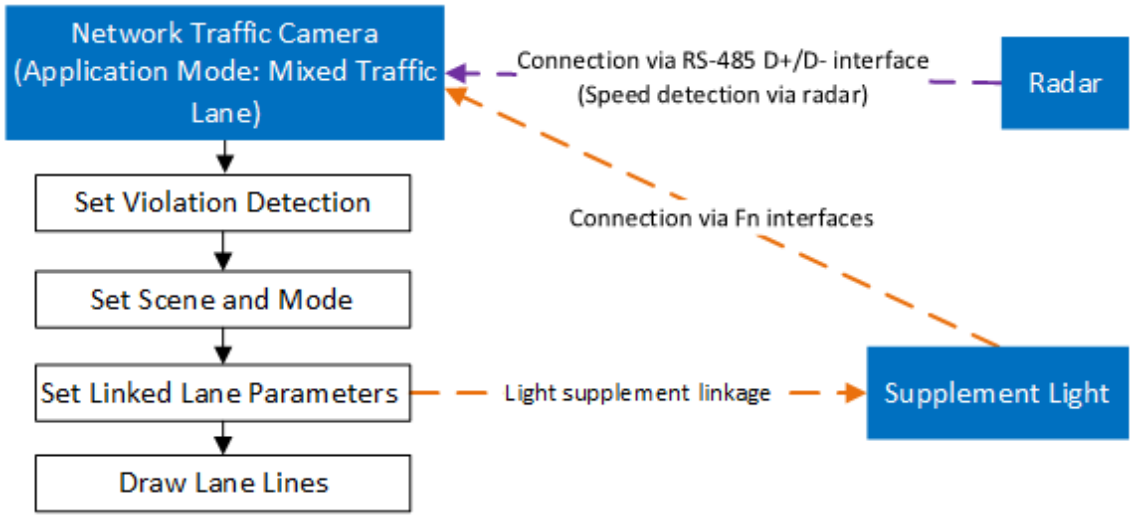

Figure 2-9 Configuration Instruction (Mixed-Traffic Lane)

2.3.1 Set Violation Detection

Check the capture types and set the corresponding parameters.

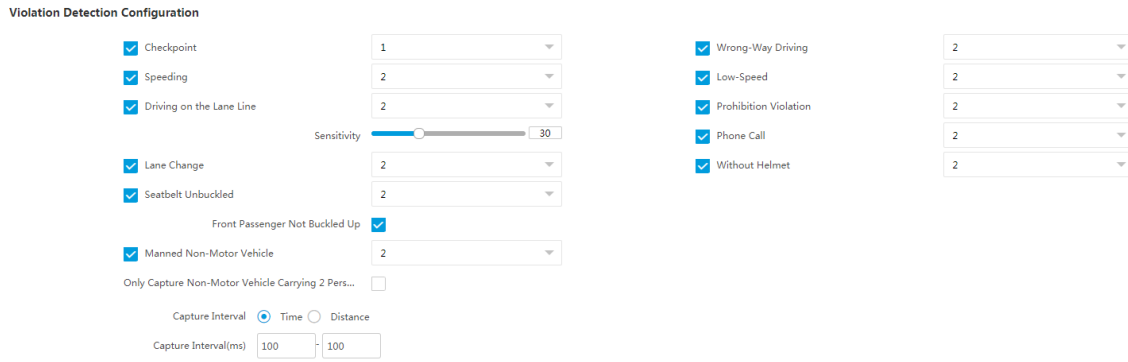

Figure 2-10 Capture Type

Table 2-3 Capture Type Description

Capture Type	Parameters Description
Checkpoint	Check it and select the number of captured picture(s).
Wrong-Way Driving	The vehicle is driven in the direction opposite to the guidance direction of the lane. Check it and select the number of captured picture(s).
Speeding	The motor vehicle is driven in the speed larger than the max. speed limit of the lane. Check it and select the number of captured picture(s).
Low-Speed	The motor vehicle is driven in the speed lower than the min. speed limit. Check it and select the number of captured picture(s).
Driving on the Lane Line	The motor vehicle is driven out of the lane and over the solid lane line. Check it, select the number of captured picture(s), and set the sensitivity.
Prohibition Violation	Left-turn violation, right-turn violation, emergency lane occupation, large-sized vehicle passing violation, bus lane occupation, etc. Check it and select the number of captured picture(s). **Note** If **Prohibition Violation** is enabled, and **Lane Type** is set as **Highway Emergency Lane**, the violation of occupying emergency lane will be captured.
Lane Change	Most part of the vehicle body crosses over the lane line and enters into another lane. Check it and select the number of captured picture(s).
Phone Call	The driver of a motor vehicle uses the mobile phone to make or receive calls during driving. Check it and select the number of captured picture(s).
Seatbelt Unbuckled	The driver of a motor vehicle does not buckle the seatbelt during driving. Check it and select the number of captured picture(s). You can also enable **Front Passenger Not Buckled Up** to capture if the front passenger has not buckled up.
Without Helmet	The driver of a non-motor vehicle does not wear the helmet. Check it and select the number of captured picture(s).
Manned Non-Motor Vehicle	The non-motor vehicle carries a person illegally. Check it and select the number of captured picture(s). You can also enable **Only Capture Non-Motor Vehicle Carrying 2 Persons or More** to capture the violation that the non-motor vehicle carries 2 persons or more.

Select **Capture Interval**. Set **Interval (dm)** (the distance between the adjacent captures) if you select **Distance**, and set **Capture Interval (ms)** (the time between the adjacent captures) if you select **Time**.

2.3.2 Set Scene and Mode

Steps

1. Select **Scene Mode** according to the actual scene.

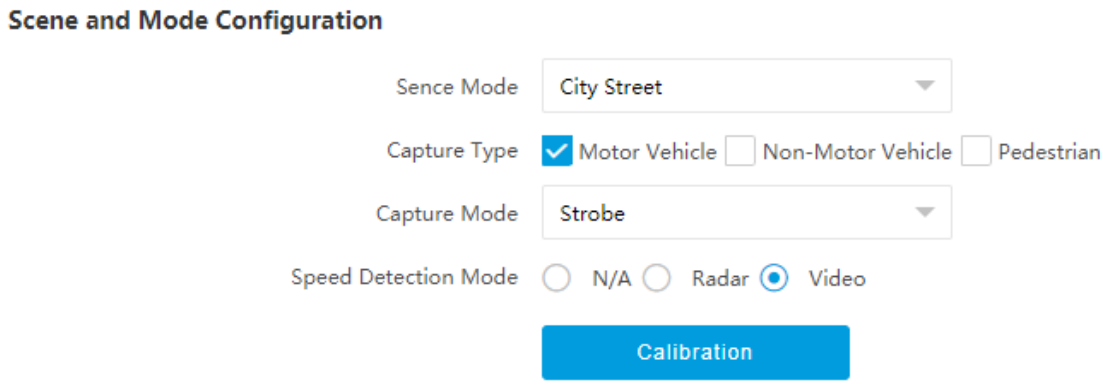

Figure 2-11 Set Scene and Mode (Mixed Traffic Lane)

2. Select **Capture Type**.
3. Set **Capture Mode**.

Flash

It adopts the separate exposure, and is applicable to the condition of viewing face pictures clearly at night.

Note

In flash mode, if you enable driving on the lane and lane change detection, the flash light will not on, but captures will be triggered normally.

Strobe

It adopts the frame extracting, and the captured pictures share the same exposure parameters with the video image. It is applicable to the condition of capturing license plates only.

4. Set **Speed Detection Mode**.

N/A

If you select N/A, the speed related violation capture is not supported.

Radar

Speed detection via radar.

Video

Speed detection via video. Click **Calibration** to calibrate speed via video. Refer to ***Calibrate Speed via Video*** for details.

2.3.3 Calibrate Speed via Video

In mixed-traffic lane mode, if you select speed detection mode as video, you need to calibrate speed via video.

Before You Start

In mixed-traffic lane mode, select **Speed Detection Mode** as **Video**.

Steps

1. Click **Calibration**.

Figure 2-12 Calibrate Speed via Video

2. Draw the calibration area.
   1) Select **Calibration Point**.
   2) Click **Calibration**.
   3) Click the left button of the mouse to locate the vertexes of the calibration area on the live view image, and click the right button of the mouse to finish the drawing.

   Note

   The number of vertexes should be consistent with the selected number of **Calibration Point**.

   4) Drag the vertexes of the calibration area to align it to the lanes.

Note

- If the lanes cannot be aligned, ensure the calibration area can contain the detection area.
- You can refer to the schematic diagram and top view description to draw the calibration area.

5) **Optional:** Click **Clear** to clear the drawn calibration area.

3. Measure the world coordinates of the vertexes, and enter the values in the corresponding coordinate text fields.

Note

The origin (0, 0) of the world coordinates locates in the middle of the whole lanes detected by the radar. You can refer to the top view of the diagram for the positions.

4. Enter **Linearity Correction** and **Constant Correction**.

Linearity Correction

Enter the value to adjust the speed detection result via video according to the actual speed.

Constant Correction

The constant correction is to improve the accuracy of the detection speed. It is the extra added/minus speed value.

Note

The final speed is calculated according to the video output speed, the linearity correction, and constant correction together. E.g., the detected speed is 80 km/h, and you set the linearity correction as 1.2, and the constant correction as 5, then the final speed is 80 km/h × 1.2 + 5 = 101 km/h. And if you do not want to make any change to the detected speed, you can set the linearity correction as 1, and the constant correction as 0.

5. **Optional:** Check **Hide Calibration Lines** to hide the lines on the live view image.
6. Click **OK**.

2.3.4 Set Linked Lane Parameters

You can set the properties and parameters of the linked lanes.

Steps

1. Select **Total Lanes**.
2. Set the lane capture parameters.

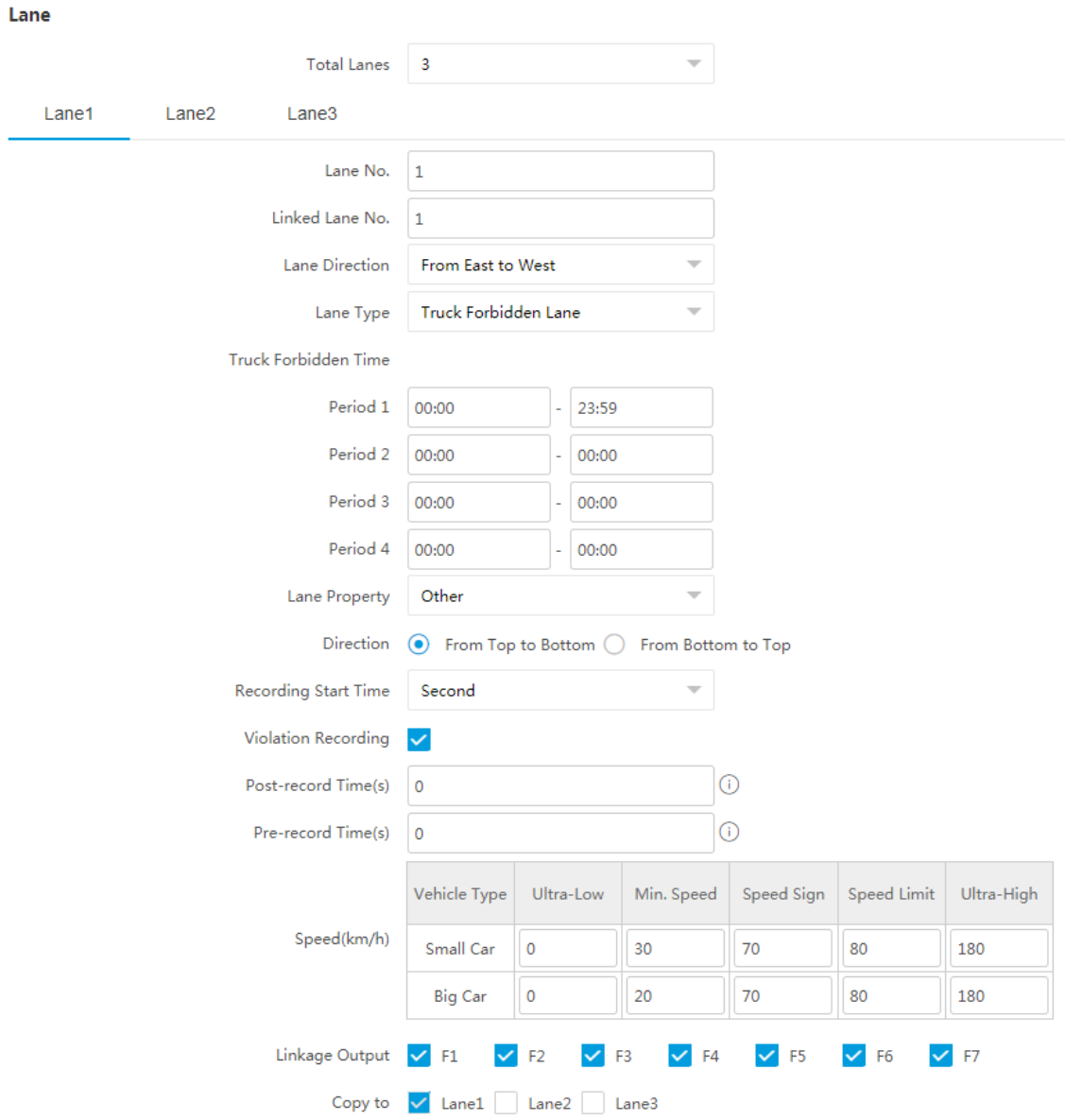

Figure 2-13 Lane Configuration of Mixed Traffic Lane

Lane No.

The No. of the selected lane.

Linked Lane No.

The corresponding lane No. linked with the current lane. The lane No. will be overlaid on the captured picture.

Lane Direction

The guidance direction of the lane.

Lane Type

If you select **Highway Emergency Lane**, set the period, during which the lane is used as the highway emergency lane and the violation of emergency lane occupation will be captured, and outside which the lane is used as a normal lane.

If you select **Truck Forbidden Lane**, set the period, during which trucks are forbidden to pass and the violation of prohibition violation will be captured, and outside which trucks can pass.

If you select **Bus Lane**, set the period, during which the lane is used as the bus lane, and outside which the lane is used as a normal lane.

If you select **Non-Motor Vehicle Lane**, the lane is used as a non-motor vehicle lane.

Lane Property

Select the lane type for speeding capture. The violation rules vary with different lane types.

Direction

Select **From Top to Bottom** when the vehicle is driven towards the camera. Select **From Bottom to Top** when the vehicle is driven far away from the camera.

Recording Start Time

Select the number of captured picture(s). Violation recording will start after the set number of picture(s) captured.

Violation Recording

Enable it to start recording automatically when the violations are recognized.

Pre-record Time

The time before the violation recording starts.

Post-record Time

The time after the violation recording ends.

Note

The pre-record or post-record times is self-adaptive to the current bit rate. If the set value is too large, it will be automatically adjusted to an appropriate range.

Speed

Ultra-Low

When the detected speed of the vehicle is lower than the value, the detection is regarded as abnormal and will be filtered, A normal speed will be provided randomly.

Min. Speed

The actual allowed min. speed for the vehicles. When the vehicle speed is lower than the value, low-speed driving capture will be triggered.

Note

The min. speed of large-sized vehicles should be smaller than that of the small-sized vehicles.

Speed Sign

The speed limit on the sign for the vehicles. The value will be overlaid on the captured pictures.

Speed Limit

The actual speed limit for the vehicles. When the vehicle speed exceeds the value, speeding capture will be triggered.

Note

The speed limit of large-sized vehicles should be smaller than that of the small-sized vehicles.

Ultra-High

When the detected speed of the vehicle exceeds the value, the detection is regarded as abnormal and will be filtered. A normal speed will be provided randomly.

Capture Speed

The vehicle speed of the first capture. When the speed of the vehicle on the lane (except the emergency lane) is lower than the set value, no capture will be triggered.

3. **Optional:** Check capture **Linkage Output** to link supplement light channel(s). Fn corresponds to the device output interface to connect to the supplement light.
4. **Optional:** Check the other lane(s) to copy the same settings.
5. Draw lane lines.
   1) Click **Draw Lane Line**.
   2) Set the property of the lane lines.
   3) Select the default lane lines, right border line, and trigger line, and drag the two end points of the line or drag the whole line to adjust its position according to the actual scene.
   4) Click **OK**.

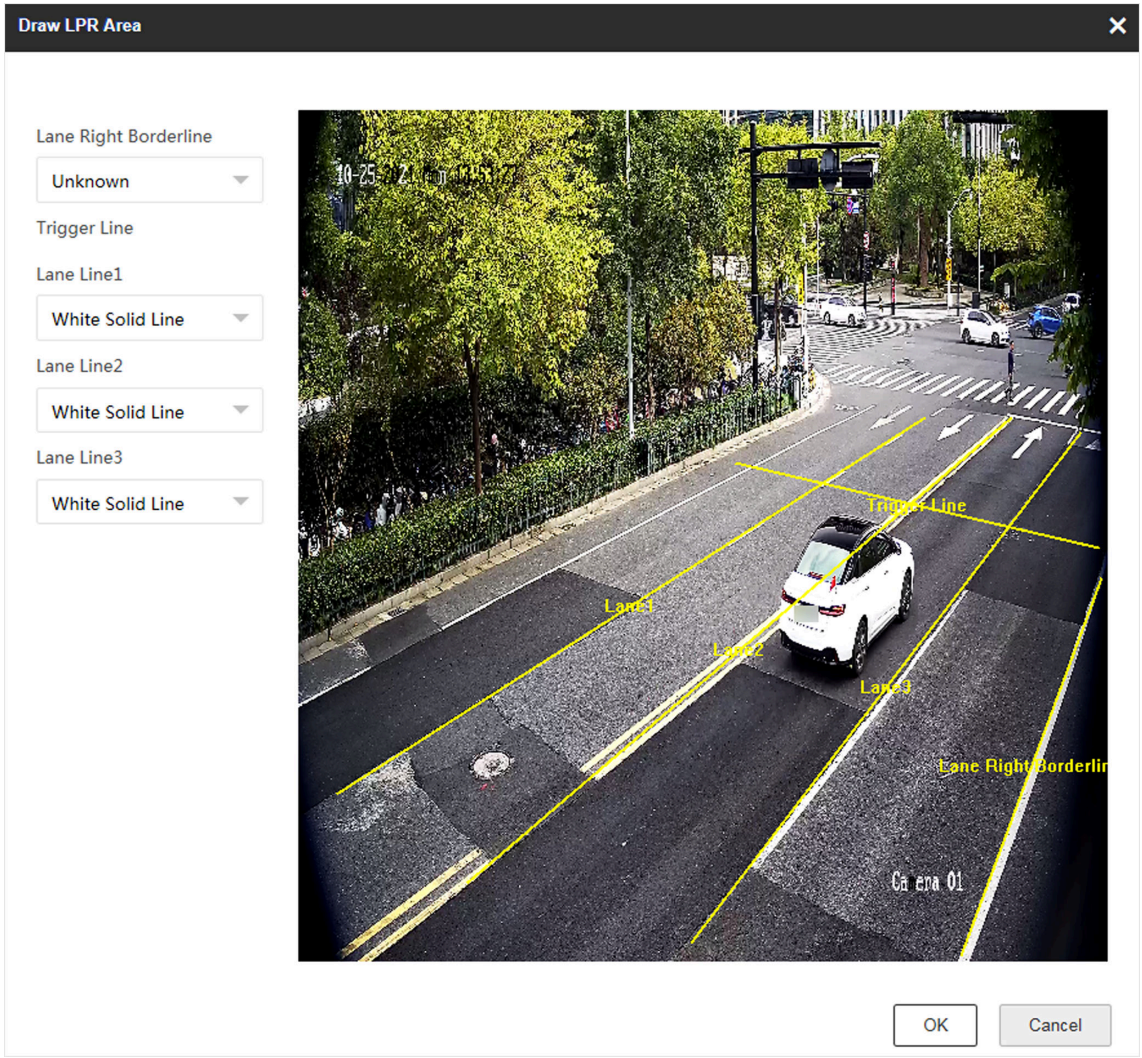

Figure 2-14 Draw Lane Lines

2.4 Set Intersection Violation System Capture

Set video analysis intersection violation system if capture is triggered by virtual coils. In this mode, the information including the violation information, vehicle passing time, vehicle overview, license plate number, license plate color, vehicle color, etc. will be recorded.

Steps

1. Go to **Configuration → Capture → Application Mode** .
2. Select **Application Mode** as **Video Analysis E-Police**.
3. Set the parameters according to the configuration instructions, and click **Save**.

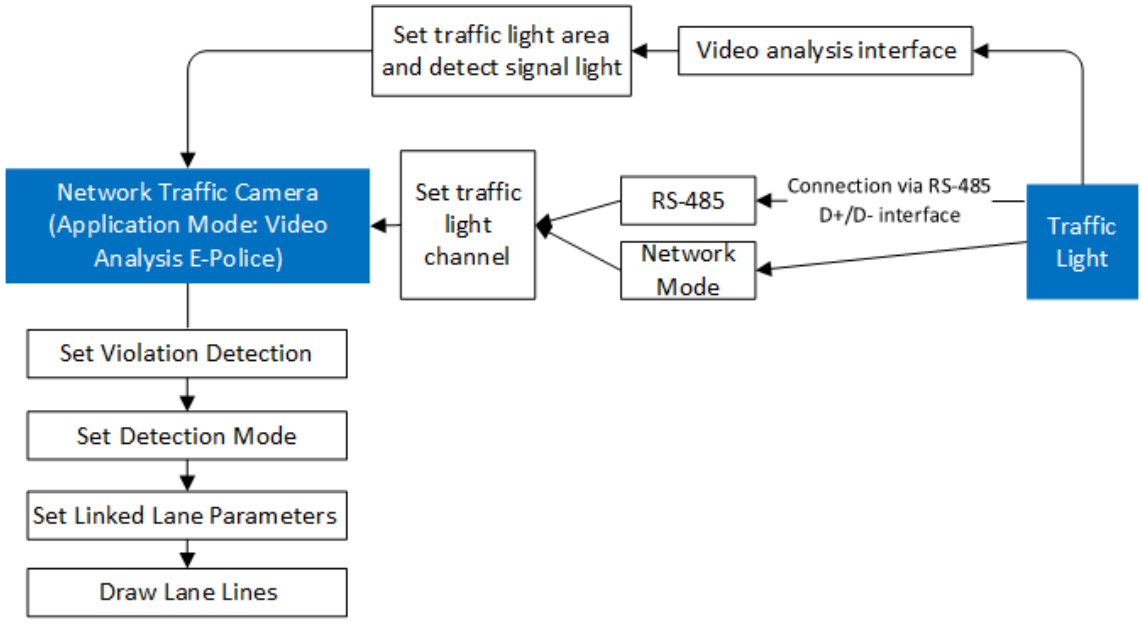

Figure 2-15 Configuration Instruction (Video Analysis E-Police)

2.4.1 Set Violation Detection

Check the capture types and set the corresponding parameters.

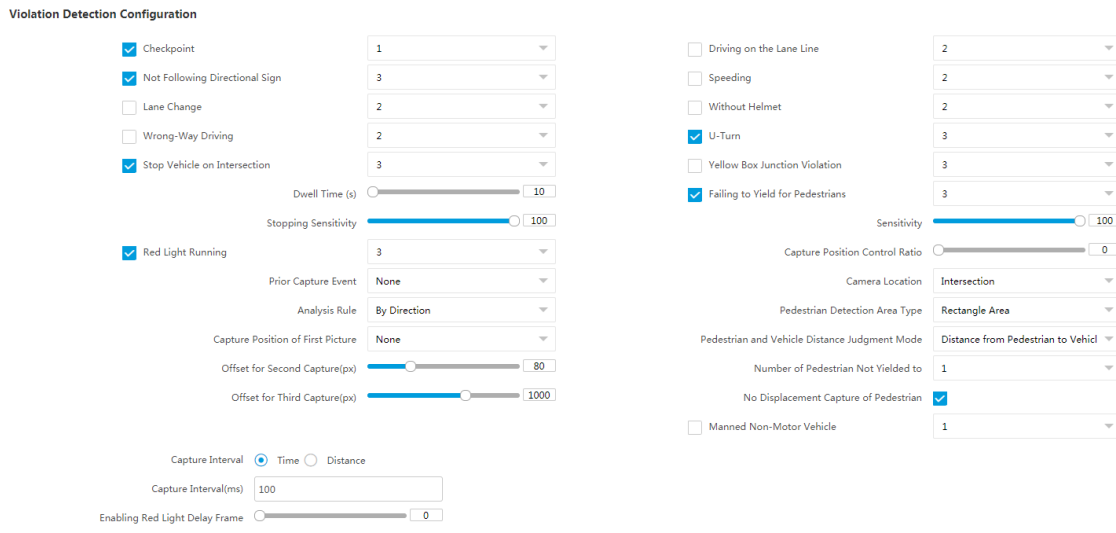

Figure 2-16 Capture Type

Table 2-4 Capture Type Description

Capture Type	Parameters Description
Checkpoint	Check it and select the number of captured picture(s).
Driving on the Lane Line	The motor vehicle is driven out of the lane and over the solid lane line. Check it, select the number of captured picture(s), and set the sensitivity.
Not Following Directional Sign	The moving direction of the motor vehicle is not consistent with the guidance direction at the intersection. Check it and select the number of captured picture(s).
Speeding	The motor vehicle is driven in the speed larger than the max. speed limit of the lane. Check it and select the number of captured picture(s).
Lane Change	Most part of the vehicle body crosses over the lane line and enters into another lane. Check it and select the number of captured picture(s).
Without Helmet	The driver of a non-motor vehicle does not wear the helmet. Check it and select the number of captured picture(s).
Wrong-Way Driving	The vehicle is driven in the direction opposite to the guidance direction of the lane. Check it and select the number of captured picture(s).
U-Turn	The motor vehicle makes a U-turn at the intersection where U-turn or left turn is forbidden. Check it and select the number of captured picture(s).
Stop Vehicle on Intersection	It refers to the violation behavior that when the vehicle is waiting for the red light at intersection, it crosses over the stop line and stops at the intersection. Check it and set the dwell time and sensitivity. • **Dwell Time**: If the vehicle stops at the intersection for more than the dwell time, capture will be triggered. • **Stopping Sensitivity**: It is used to judge if the vehicle is in the stopping status. If the displacement of the vehicle is smaller than the set sensitivity, then the vehicle is regarded as stopping at the intersection.
Yellow Box Junction Violation	The motor vehicle stops at the yellow box junction where parking is forbidden. Check it and set the parameters. When the vehicle parks at the lane, and the parking duration exceeds the set **Dwell Time**, capture will be triggered. When the congestion caused by the stopped vehicle exceeds the set **Congestion Threshold**, the lane is regarded as congested.
Red Light Running	Check it, select the number of captured picture(s), and set the parameters below.

Capture Type	Parameters Description
	• **Prior Capture Event**: If you select **Red Light Running**, the violation will be captured in priority when other violations are also detected. • **Analysis Rule**: You can enable video analysis by direction or lane, and draw the corresponding trigger line. ◦ **By Direction**: Red light running is judged by the corresponding traffic light status gotten according to the driven direction of the target vehicle. For example, when the vehicle is driven straight when passing through the intersection, if the straight traffic light is always red during the process of passing through the intersection, then the vehicle is judged as running the red light. ◦ **By Lane**: Red light running is judged by the corresponding traffic light status gotten according to the lane direction on which the target vehicle is driven. For example, when the vehicle is driven on the left-turn lane at the intersection, if the left-turn traffic light is always red during the process of turning left at the intersection, then the vehicle is judged as running the red light. • **Capture Position of First Picture**: The vehicle position of the firstly captured picture. • **Offset for Second Capture**: The offset pixel of the second captured picture of the vehicle running the red light to the stop line. • **Offset for Third Capture**: The min. offset pixel of the third captured picture of the vehicle running the red light to the second captured picture. It is recommended to remain the default value. • **Enabling Red Light Delay Frame**: Due to the gotten traffic light status is not consistent with the actual status, the vehicles running when the light is yellow may be captured as running the red light. Set the delay frame, then the captured pictures of running the red light during the set frame will be regarded as invalid.
Failing to Yield for Pedestrians	The motor vehicle does not yield for the pedestrians or let them go first. Check it to enable the violation capture of not yielding to pedestrian. Click **Draw Lane Line** to adjust the upper and lower border of triggering lines of not yielding to pedestrian. Set the corresponding parameters. • **Sensitivity**: The higher the sensitivity is, the more easily the violation will be captured. • **Capture Position Control Ratio**: When the length of the target vehicle body beyond the stop line exceeds the ratio, the vehicle is regarded as failing to yield for pedestrians, and capture will be triggered. • **Camera Location**: If the camera is installed at the intersection, the device can judge the intersection condition according to the traffic light connected via the RS-485 serial port.

Capture Type	Parameters Description
	• **Pedestrian Detection Area Type**: Select the type according to the actual scene. • **Pedestrian and Vehicle Distance Judgment Mode**: ◦ **Distance from Pedestrian to Vehicle Center**: The violation of failing to yield for pedestrians is judged according to the distance from the horizontal coordinate of the pedestrian to the horizontal coordinate of the vehicle target center. ◦ **Distance from Pedestrian to Lane Center**: The violation of failing to yield for pedestrians is judged according to the distance from the horizontal coordinate of the pedestrian to the horizontal coordinate of the lane line center. • **Number of Pedestrian Not Yielded to**: When the number of pedestrians not yielded to reaches the set value, capture will be triggered. • **No Displacement Capture of Pedestrian**: If you check it, when the pedestrian is standing still and the vehicle is passing by, it is regarded as not yielding to pedestrian, and capture will be triggered. If you do not check it, only when the pedestrian is moving and the vehicle is passing by, it is regarded as not yielding to pedestrian, and capture will be triggered.
Manned Non-Motor Vehicle	The non-motor vehicle carries a person illegally. Check it and select the number of captured picture(s). You can also enable **Only Capture Non-Motor Vehicle Carrying 2 Persons or More** to capture the violation that the non-motor vehicle carries 2 persons or more.

Select **Capture Interval**. Set **Interval (dm)** (the distance between the adjacent captures) if you select **Distance**, and set **Capture Interval (ms)** (the time between the adjacent captures) if you select **Time**.

2.4.2 Set Detection Mode

Steps

1. Select **Capture Type**.

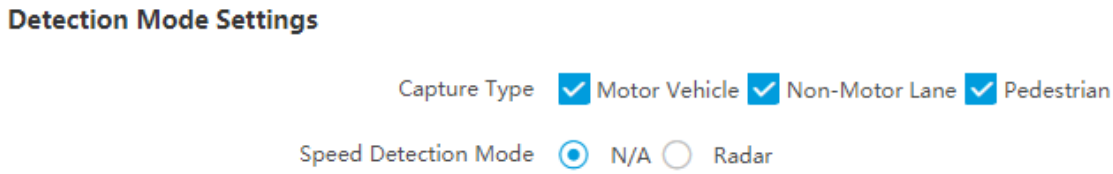

Figure 2-17 Set Detection Mode

2. Set **Speed Detection Mode**.

   Radar

   Speed detection via radar.

2.4.3 Set Linked Lane Parameters

You can set the properties and parameters of the linked lanes.

Steps

1. Select **Total Lanes**.
2. Set the lane capture parameters.

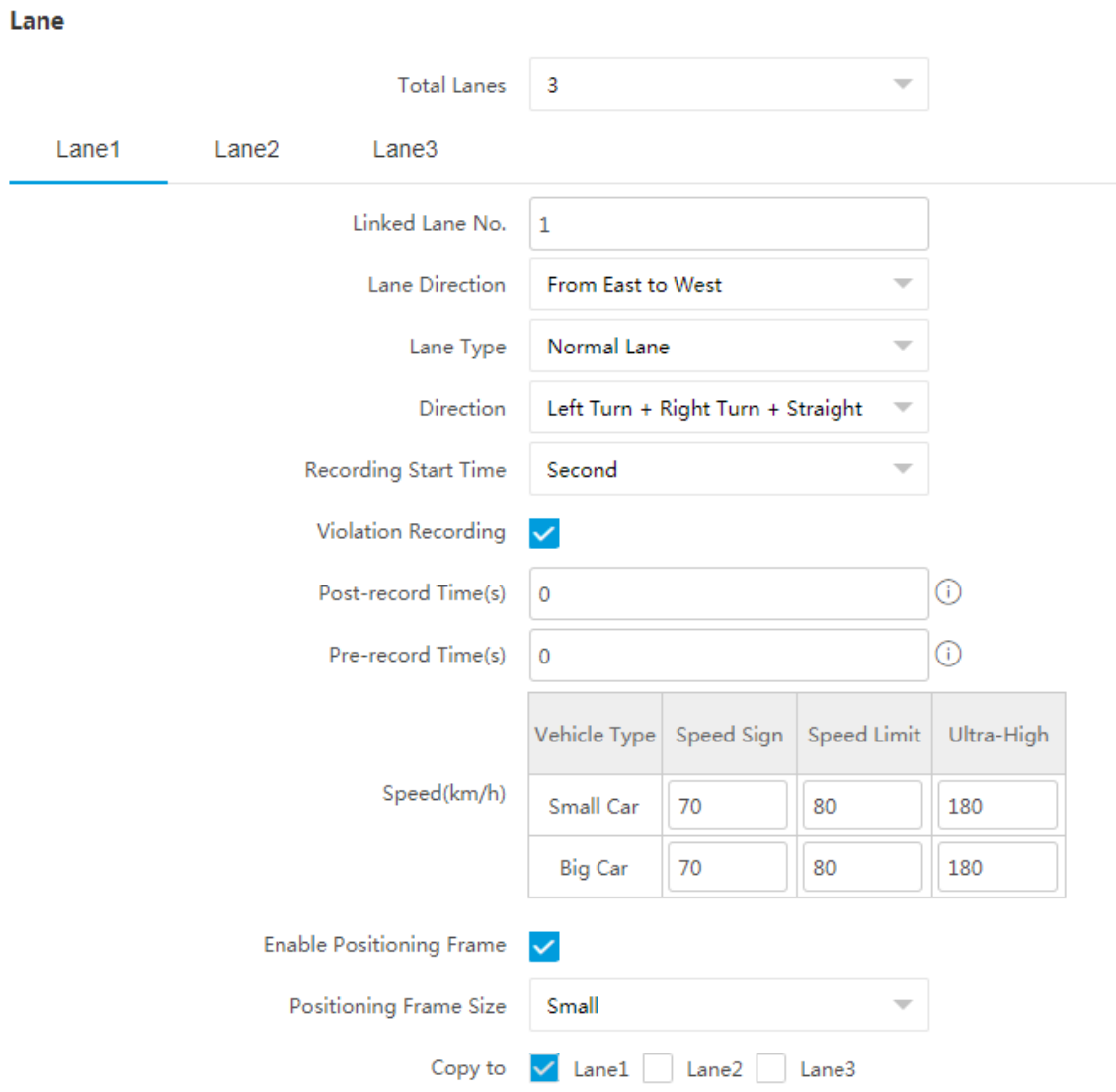

Figure 2-18 Lane Configuration of Intersection Violation System Capture

Linked Lane No.

The corresponding lane No. linked with the current lane. The lane No. will be overlaid on the captured picture.

Lane Direction

The guidance direction of the lane.

Lane Type

If you select **Opposite Lane**, the lane direction will be opposite from the current direction.

Direction

Select according to the actual direction of the lane.

Recording Start Time

Select the number of captured picture(s). Violation recording will start after the set number of picture(s) captured.

Violation Recording

Enable it to start recording automatically when the violations are recognized.

Pre-record Time

The time before the violation recording starts.

Post-record Time

The time after the violation recording ends.

Note

The pre-record or post-record times is self-adaptive to the current bit rate. If the set value is too large, it will be automatically adjusted to an appropriate range.

Speed

Speed Sign

The speed limit on the sign for the vehicles. The value will be overlaid on the captured pictures.

Speed Limit

The actual speed limit for the vehicles. When the vehicle speed exceeds the value, speeding capture will be triggered.

Note

The speed limit of large-sized vehicles should be smaller than that of the small-sized vehicles.

Ultra-High

When the detected speed of the vehicle exceeds the value, the detection is regarded as abnormal and will be filtered. A normal speed will be provided randomly.

Enable Positioning Frame

Check it and select **Positioning Frame Size**. The positioning frames of vehicle bodies and license plates will be overlaid on the captured pictures.

3. **Optional:** Check the other lane(s) to copy the same settings.
4. Draw the lane lines and other lines.
   1) Click **Draw Lane Line**.
   2) Set the property of the lane lines.
   3) Select **Stop Line**, **Borderline of Turning Left**, **Borderline of Turning Right**, or **Trigger Line of Going Straight** according to the actual scene.
   4) Select the default lane lines and other lines, and drag the two end points of the line or drag the whole line to adjust its position according to the actual scene.
   5) Click **OK**.

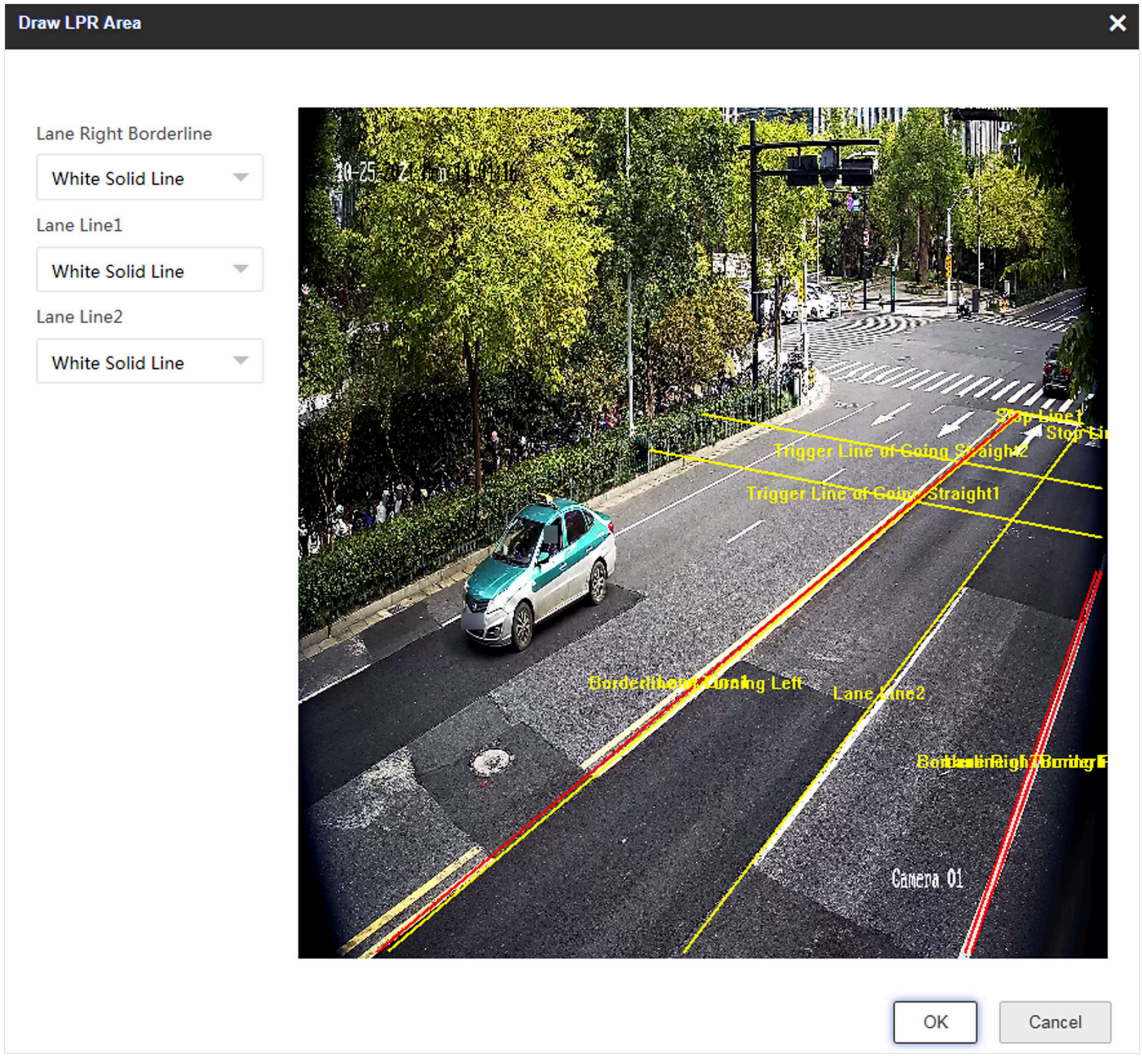

Figure 2-19 Draw Lane Lines

2.4.4 Set Traffic Light Detection Parameters

Steps

1. Select **Traffic Light Signal Input** and set the corresponding parameters.
   - **RS-485**: Set **Linked Red Light Channel** and **Yellow Light Related Channel No.** according to the actual wiring.
   - **Video Analysis Interface**:

     Click **Set** to set the video analysis area.

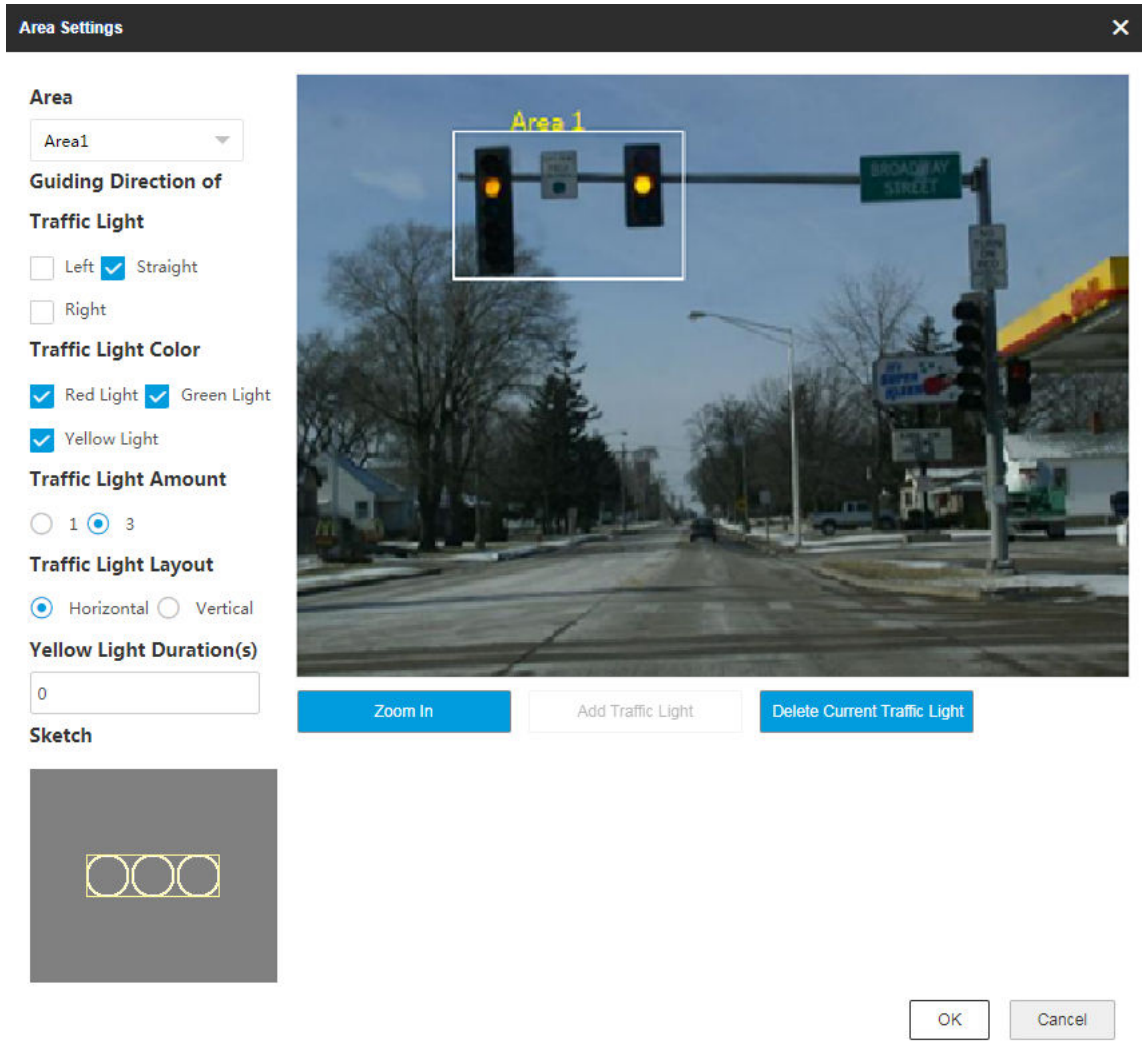

Figure 2-20 Set Video Analysis Area

a. Select the area.
b. Set the parameters.
   - **Guiding Direction of Traffic Light**: The direction guided by the traffic light.
   - **Traffic Light Color**: The color of the traffic light.
   - **Traffic Light Amount**: The number of the traffic light(s).
   - **Traffic Light Layout**: The arrangement of the traffic light(s).
c. Click **Zoom In** to zoom in the live view image.
d. Click **Add Traffic Light** to add the traffic light.
e. Drag the four points of the region to adjust the size or drag the whole region to adjust its position according to the actual scene.
f. Click **Delete Current Traffic Light** to delete the area.
g. Click **OK**.

You can click **Detect** to test the traffic light.

- **Network Mode**: Set **Linked Red Light Channel** and **Yellow Light Related Channel No.** according to the actual wiring.

2. **Optional:** Go to **Live View → Traffic Light Status** to view the traffic light status.

Chapter 3 Radar Detection

In RS-485 radar application mode, single-lane radar and multi-lane radar are supported. For single-lane radar type, the vehicle speed can be detected via the radar. For multi-lane radar type, the vehicle speed can be detected via the radar and video fusion mode.

Note

The function varies with different models. The actual device prevails.

3.1 Speed Detection via Radar

For single-lane radar type in RS-485 radar application mode, the vehicle speed can be detected via the radar.

Before You Start

Select the application mode as **RS-485 Radar**, and select **Radar Type** as **Single-Lane Radar**.

Steps

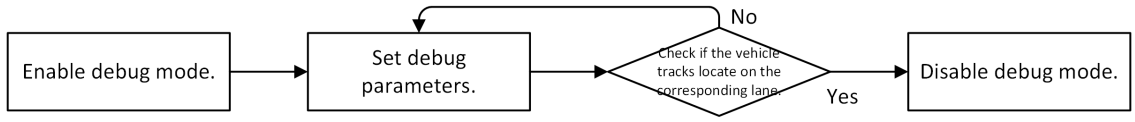

Figure 3-1 Configuration Flow of Speed Detection via Radar

1. Click **Radar**.
2. Set basic parameters.
   1) Click **Basic Settings**.

Figure 3-2 Basic Settings

2) View the radar information.

Radar Status

The current radar status. The radar can be normally used in normal status. If the radar is in upgrading status, do not reboot the device. Refresh the interface every one minute, and the status can be restored to normal.

Software Version

The software version of the radar. Part of models support hovering the cursor on the software version content to show radar details.

3) Enable **Debug Mode** to set the radar debug parameters.

4) **Optional:** Enable **Display Track**, and the target track will be displayed on the interface according to the detected coordinates.

5) **Optional:** If you need to upgrade the radar, click **Browse** to select the upgrade package from the computer and click **Upgrade** to upgrade it.

3. Set debug parameters.

1) Enable **Debug Mode**.

2) Click **Debug Parameters**.

Figure 3-3 Debug Parameters for Speed Detection via Radar

3) Set construction parameters.

Construction Height

Set the construction height of the radar according to construction at the actual scene.

Angle Deviation

It is the angle deviation between the radar detected lane and the actual lane. Rotate the angle of the detected lane in the diagram to overlap it with the actual lane to correct the difference.

Auto Angle Correction

Check it to get the radar deviation angle according to the moving path of vehicle.

Horizontal Deviation

It is the horizontal position deviation between the radar detected lane and the actual lane. You can set it in two ways.

- Method 1: Move the detected lane in the diagram leftwards or rightwards to overlap it with the actual lane to correct the difference.
- Method 2: Enter the horizontal distance(m) from the radar installation position to the middle line of the actual lane to correct the difference.

Speed Lower Limit

The min. speed below which the radar cannot detect.

Speed Upper Limit

The max. speed beyond which the radar cannot detect. The radar can detect the speed higher than 255 km/h in double-byte protocol.

Speed Bytes in Protocol

It refers to how many bytes are occupied for transmitting speed data in a speed detection message. Select **Single-Byte** if the speed is under 255 km/h. Select **Double-Byte** if the speed exceeds 255 km/h.

Application Mode

Select the radar trigger mode.

Sensitivity

The recommended sensitivity is approx. 0.4. The lower the value, the higher the sensitivity. If the speed for the non-motor vehicle cannot be detected, lower the sensitivity properly.

4) Set radar parameters.

Radar Wi-Fi

You can set radar parameters via Wi-Fi after enabling it.

Frequency Band Configuration

Set it to avoid interferences that caused by multiple radars in the same frequency band. The radar will reboot automatically after editing the frequency band.

4. Click **Save**.
5. **Optional:** Click **Reboot Radar** to reboot the radar.
6. **Optional:** Click **Restore Defaults** to restore all the parameters to the default settings.
7. After debug, view the track diagram to guarantee that the vehicle tracks locate on the corresponding lane. Then disable **Debug Mode** to switch to the normal mode.

3.2 Speed Detection via Radar and Video

For speed detection via radar, there is no strong relationship between the detected speed results and vehicle targets, which may result in the consequence that the speed result is linked to incorrect target or the speed result is lost. To solve the problems, speed detection via both radar and video is recommended. In this mode, the radar not only outputs the speed result of the target, but also outputs the coordinates of the position relationship between the target and radar. You can create the relationship between the radar position coordinates and vehicle pixel coordinates in the video via calibration to realize the linkage of the speed result and the vehicle target. Speed detection via both radar and video is only supported for multi-lane radar type in RS-485 radar application mode.

Before You Start

Select the application mode as **RS-485 Radar**, and select **Radar Type** as **Multi-Lane Radar**.

Steps

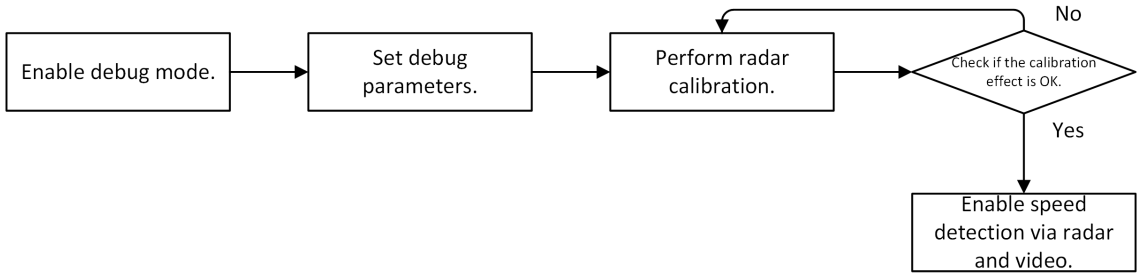

Figure 3-4 Configuration Flow of Speed Detection via Radar and Video

1. Click **Radar**.
2. Click **Basic Settings**. Enable **Debug Mode** and set debug parameters. Refer to ***Set Detection Parameters*** for details.
3. Perform radar calibration. Refer to ***Set Radar Calibration*** for details.
4. Click **Debug Parameters → Fusion Parameters** , and enable **Speed Detection via Radar and Video**.
5. Click **Save**.

Note

Do not disable debug mode for speed detection via the radar and video fusion mode.

3.2.1 Set Detection Parameters

Set basic parameters and debug parameters for the speed detection via radar and video.

Steps

1. Set basic parameters.
   1) Click **Basic Settings**.

Figure 3-5 Basic Settings

2) View the radar information.

Radar Status

The current radar status. The radar can be normally used in normal status. If the radar is in upgrading status, do not reboot the device. Refresh the interface every one minute, and the status can be restored to normal.

Software Version

The software version of the radar. Part of models support hovering the cursor on the software version content to show radar details.

3) Enable **Debug Mode** to set the radar debug parameters.

4) **Optional:** Enable **Display Track**, and the target track will be displayed on the interface according to the detected coordinates.

5) **Optional:** If you need to upgrade the radar, click **Browse** to select the upgrade package from the computer and click **Upgrade** to upgrade it.

2. Set debug parameters.

1) Enable **Debug Mode**.

2) Click **Debug Parameters**.

Figure 3-6 Debug Parameters for Speed Detection via Radar and Video

3) Set construction parameters.

Construction Height

Set the construction height of the radar according to construction at the actual scene.

Angle Deviation

It is the angle deviation between the radar detected lane and the actual lane. Rotate the angle of the detected lane in the diagram to overlap it with the actual lane to correct the difference.

Auto Angle Correction

Check it to get the radar deviation angle according to the moving path of vehicle.

Horizontal Deviation

It is the horizontal position deviation between the radar detected lane and the actual lane. You can set it in two ways.

- Method 1: Move the detected lane in the diagram leftwards or rightwards to overlap it with the actual lane to correct the difference.
- Method 2: Enter the horizontal distance(m) from the radar installation position to the middle line of the actual lane to correct the difference.

Application Mode

Select the radar trigger mode.

Sensitivity

The recommended sensitivity is approx. 0.4. The lower the value, the higher the sensitivity. If the speed for the non-motor vehicle cannot be detected, lower the sensitivity properly.

4) Perform coordinate calibration and enable **Speed Detection via Radar and Video**. Refer to ***Set Radar Calibration*** for details.

5) Set radar parameters.

Radar Wi-Fi

You can set radar parameters via Wi-Fi after enabling it.

Frequency Band Configuration

Set it to avoid interferences that caused by multiple radars in the same frequency band. The radar will reboot automatically after editing the frequency band.

3. Click **Save**.
4. **Optional:** Click **Reboot Radar** to reboot the radar.
5. **Optional:** Click **Restore Defaults** to restore all the parameters to the default settings.

3.2.2 Set Radar Calibration

Calibrate radar in order to transfer the detected vehicle actual distance into the positions in the video.

Before You Start

Enable **Rules Information** and **Feature Information** in **Configuration → Local** to display the recognized license plate number, red speed frames, and green target frames in the live view image to make it convenient for calibration.

Steps

1. After enabling debug mode, click **Debug Parameters → Fusion Parameters** .
2. Click **Coordinate Calibration**.
3. Set the radar calibration.
   - Set manual calibration. Refer to ***Manual Calibration*** for details.
   - Set auto calibration. Refer to ***Auto Calibration*** for details.

Manual Calibration

Steps

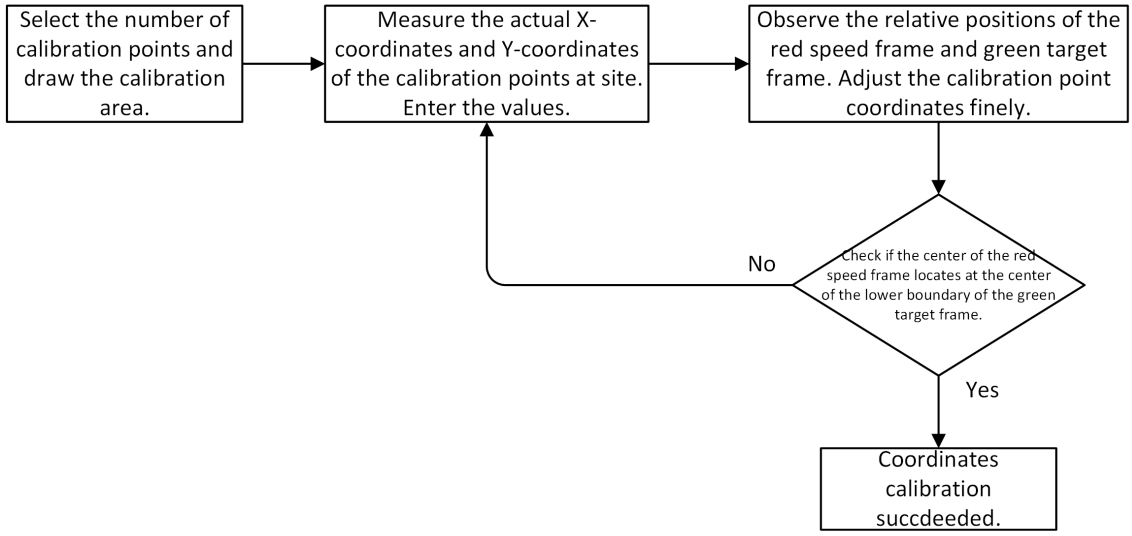

Figure 3-7 Manual Calibration Flow

1. Click **Coordinate Calibration**.
2. Select **Calibration Mode** as **Manual Calibration**.

Figure 3-8 Manual Calibration

3. Draw the lane lines.
   1) Select the lane sum.
   2) Select the lane line No.

3) Click **Draw Lane Line**.

The selected lane line will be displayed on the live view picture.

4) Drag the two end points of the line or drag the whole line to adjust its position according to the actual scene.

5) Repeat the steps above to draw more lane lines.

4. Draw the calibration area.

1) Select **Calibration Point**.

Note

4-point calibration by default.

2) Click **Calibration**.

3) Click the left button of the mouse to locate the vertexes of the calibration area on the live view image clockwise, and click the right button of the mouse to finish the drawing.

Note

The number of vertexes should be consistent with the selected number of **Calibration Point**.

4) Measure the X-coordinates and Y-coordinates of the calibration points with measurement tool at site accurately, and enter the values in the corresponding coordinate text fields.

Note

- X-coordinate stands for the horizontal distance from the calibration point to the origin of the radar coordinates. Y-coordinate stands for the vertical distance from the calibration point to the origin of the radar coordinates. The origin (0, 0) of the radar coordinates locates in the middle of the whole lanes detected by the radar. You can refer to the schematic diagram on the right of the interface.
- If there are 4 points for the calibration area, the X-coordinates of point 1 and 2 should be negative values.
- If the speed displayed on the live view image is 0, you need to calibrate again. The best calibration effect is that the center of the red speed frame locates at the center of the lower boundary of the green target frame.

5) **Optional:** Click **Clear** to clear the drawn calibration area.

5. **Optional:** If there is no condition to measure the coordinates of the calibration points accurately at site, you can draw a calibration area and estimate the coordinates of the calibration points first, and then perform fine adjustment to the coordinates as the steps below.

1) Find a vehicle passing the calibration point in the live view image, and observe the relative position relationship between the vehicle target and the red speed frame. The distance between the position of the red speed frame and that of the green target frame may be large before calibration. You need to observe the moving tendency of the target frame and the speed frame. As shown below, you can see that the red speed frames and the green target frames are moving relatively.

Figure 3-9 Fine Adjustment Example

2) According to the relative positions, if the red speed frame is in front of the green target frame, decrease the Y-coordinate value. If the red speed frame is behind the green target frame, increase the Y-coordinate value. Adjust the values until the lower boundaries of the red speed frame and the green target frame are on the same horizontal line.
3) According to the relative positions, if the red speed frame is in the left position of the lower boundary center of the green target frame, decrease the X-coordinate value. If the red speed frame is in the right position of the lower boundary center of the green target frame, increase the X-coordinate value. Adjust the values until the lower boundaries of the red speed frame and the green target frame are on the same vertical line.
4) Adjust the other calibration points according to the methods above until all the vehicles in the detection area satisfy the requirement.

6. **Optional:** Check **Hide Calibration Lines** to hide the lines on the live view image.
7. Click **OK**.

Auto Calibration

Steps

1. Click **Coordinate Calibration**.
2. Select **Calibration Mode** as **Auto Calibration**.

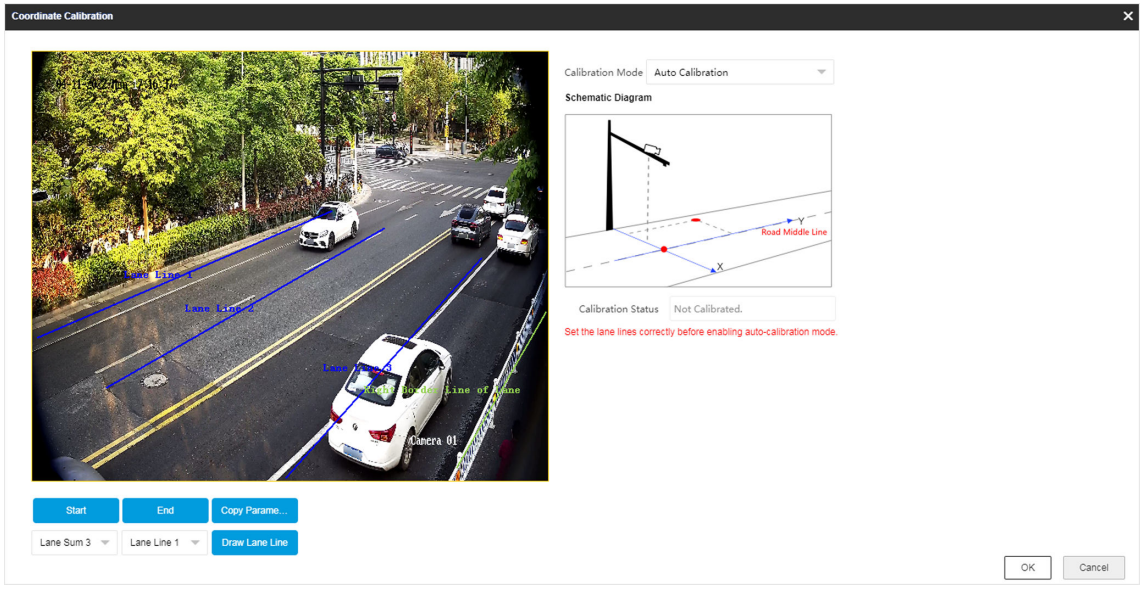

Figure 3-10 Auto Calibration

3. Draw the lane lines.
   1) Select the lane sum.
   2) Select the lane line No.
   3) Click **Draw Lane Line**.

      The selected lane line will be displayed on the live view picture.
   4) Drag the two end points of the line or drag the whole line to adjust its position according to the actual scene.
   5) Repeat the steps above to draw more lane lines.

Note

The lane lines must be set accurately before auto calibration. For the scenes to which auto calibration is not applicable, like congestion, vehicles are waiting for the red traffic light, there are too few vehicles passing, etc., manual calibration is recommended.

4. Click **Start**.

   The auto calibration starts, and you can view the calibration status and progress. 100% means the auto calibration is finished.
5. **Optional:** Click **End** if the speed detection effect via radar and video fusion mode has met the requirement during the process.
6. **Optional:** Click **Copy Parameters to Coordinate Mode** to copy the auto calibrated coordinates to the coordinate mode.
7. Click **OK**.

What to do next

- After auto calibration, exit from the interface. Observe the calibration effect after a period of time. As shown below, if the red speed frame locates at the lower boundary center of the green

target frame, that is, the red speed frame locates at the license plate position, the calibration effect satisfies the requirements. Otherwise, you need to calibrate again, or perform fine adjustment to the coordinates by the methods for the manual calibration. Refer to step 5 of ***Manual Calibration*** for details.

Figure 3-11 Good Calibration Effect Example

- For the scene with multiple lanes and congestion, observe the auto calibration effect. If the fusion effect is not good after the auto calibration is finished, you need to calibrate again manually. Refer to ***Manual Calibration*** for details.

3.3 Search Detected Vehicles

You can search the radar detected vehicles and export the information.

Steps

1. Click **Radar**.
2. View the vehicle information in the vehicle list.
3. Enter the vehicle No. in the text field, and press **Enter** to search the vehicle information.
4. **Optional:** Export the vehicle information.
   - Search the vehicle first, and click **Export** to export the searched vehicle information to the computer.
   - Click **Export** directly to export the information of all the detected vehicles to the computer.

Chapter 4 Capture Parameters Configuration

4.1 Set License Plate Recognition Parameters

When there are vehicles of different types passing from different directions, set the license plate recognition parameters.

Steps

1. Go to **Configuration → Capture → Capture Parameters → License Parameters** .

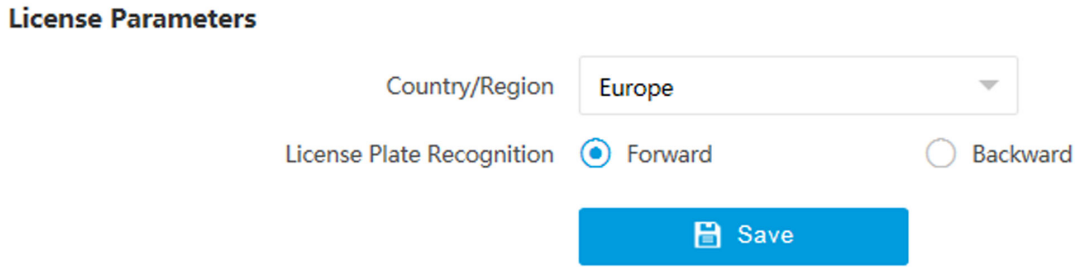

Figure 4-1 Set License Plate Recognition Parameters

2. Set **Country/Region** according to the actual needs.
3. Select **License Plate Recognition**.
   - Select **Forward** when license plates of vehicles from the approaching direction need to be recognized.
   - Select **Backward** when license plates of vehicles from the leaving direction need to be recognized.
4. Click **Save**.

4.2 Set Supplement Light Parameters

Supplement light can enhance the image stabilization and adjust the brightness and color temperature.

Steps

Note

The supported parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Supplement Light Parameters** .

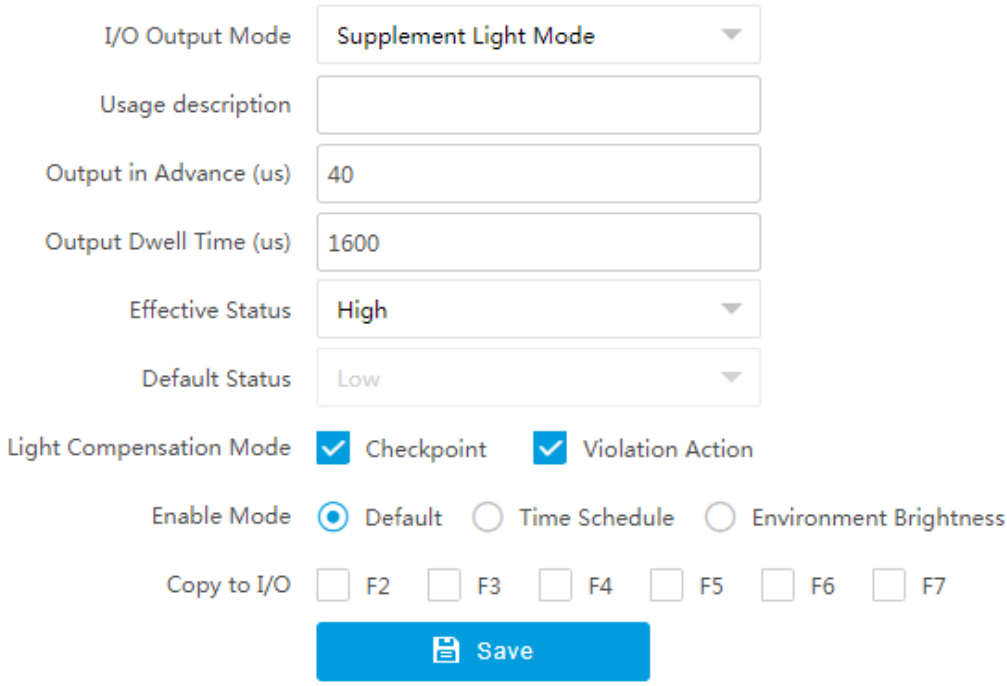

Figure 4-2 Set Supplement Light Parameters

2. Select the I/O and set the supplement light parameters.

I/O Output Mode

Supplement Light Mode

The flash light will be triggered by the signals and output high intensity illumination instantaneously. The light can pass through the windshield and help to capture the details.

Usage Description

Enter the usage description of the supplement light.

Output in Advance

It is the preact time [0 to 1000 μs] of the flash light, to ensure that the flash light is on when capture is triggered.

Output Dwell Time

It is the dwell time [0 to 10000 μs] after the flash light responds. The actual flash light supplement time is the result of the dwell time minus advanced time.

Effective Status

Select the effective status of the supplement light according to the actual condition.

High/Low

When high/low level signal is output to the supplement light, the light will flash.

The effective status should stay different with the default status for I/O to take effect. And the default status changes according to the selection of the effective status. If you set the effective status as high level, the default level goes to low level.

Pulse

When pulse signal is output to the supplement light, the light will flash.

If you set the effective status as pulse, you can select the default status as high level or low level, and set **Frequency Coefficient** which is the frequency multiplication of 25 of output pulse by flash light, to keep the flash light as constant. You can set it as default value.

Light Compensation Mode

Select **Checkpoint** to enable checkpoint capture light supplement. Select **Violation Action** to enable violation capture light supplement.

3. Set the supplement light control mode.
   - Select **Default** to disable the supplement light.
   - Select **Time Schedule** when you want the supplement light to be enabled during a fixed time period. Set the start time and end time.
   - Select **Environment Brightness** when you want the supplement light to be controlled by detecting the surroundings brightness automatically. Set the brightness threshold. The higher the threshold is, the harder the supplement light can be enabled.
4. **Optional:** Select other I/O(s) to copy the same settings.
5. Click **Save**.

4.3 Set Vehicle Feature Parameters

Set vehicle feature parameters if you need to detect the vehicle features of the passing vehicle.

Steps

Note

The parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Vehicle Feature → Vehicle Feature** .

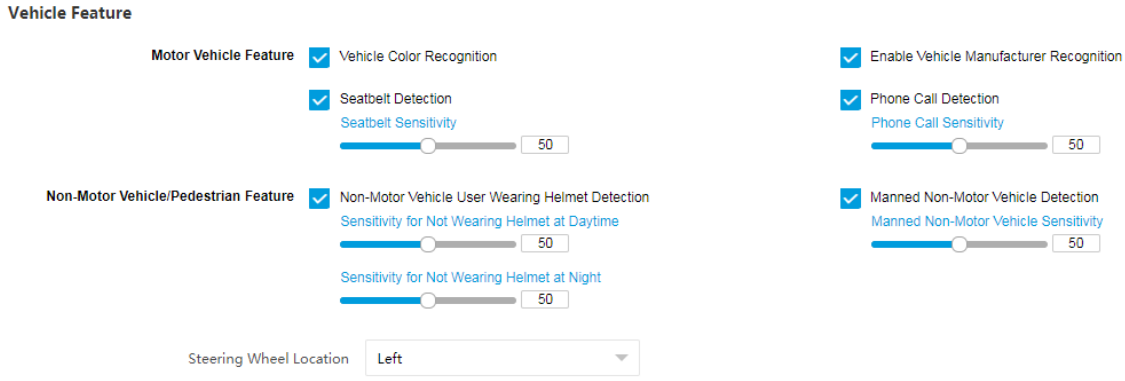

Figure 4-3 Set Vehicle Feature Parameters

2. Check the motor and non-motor vehicle features that needed to be detected, and set the corresponding sensitivity.
3. Select **Steering Wheel Location** according to the actual condition.
4. Click **Save**.

4.4 Set Face Picture Matting

You can enable driver's, passenger's, or non-motor vehicle user's face picture matting on the capture violation pictures and set corresponding parameters.

Steps

Note

Some models do not support face picture matting. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Vehicle Feature → Face Picture Matting** .
2. Check **Enable Face Picture Matting**.

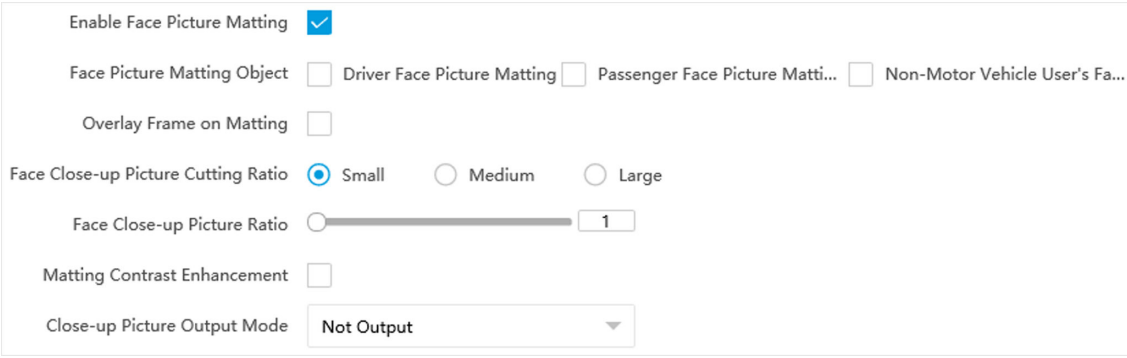

Figure 4-4 Set Face Picture Matting

3. Set corresponding parameters.

Face Picture Matting Object

Driver Face Picture Matting

Check it when you need to detect the driver's face picture. You can also check **Face Picture Matting of Violation Picture** to detect the driver's face in the violation picture.

Passenger Face Picture Matting

Check it when you need to detect the passenger's face picture.

- Check **Face Picture Matting of Violation Picture** to detect the passenger's face in the violation picture.
- Check **Check out Front Passenger Forcedly** to mat the front passenger's picture no matter there is someone in the seat or not.

Non-Motor Vehicle User's Face Picture Matting

Check it when you need to detect the non-motor vehicle user's face picture.

Overlay Frame on Matting

Check it to overlay frame on the matted picture.

Face Close-up Picture Cutting Ratio

Select the cutting ratio of the face close-up picture to be small, middle, or large.

Face Close-up Picture Ratio

Adjust the zooming ratio of the face close-up picture.

Matting Contrast Enhancement

Check it to enable the function and set the level. The higher the level is, the stronger the contrast between the matting and the overlaid picture will be.

Close-up Picture Output Mode

Overlay on Picture

The driver's face close-up picture will be overlaid on the upper right corner of the picture, and the passenger's face close-up picture will be overlaid on the upper left corner of the picture.

Upload Arm

The face close-up pictures will be uploaded to the arming host or listening host.

Overlay and Upload Arm

The face close-up pictures will both be overlaid on the pictures and uploaded to the arming host or listening host.

4. Click **Save**.

Result

If level 1 arming is set for the camera, the face close-up pictures will be uploaded to the level 1 arming device. If only level 2 arming is set for the camera, the face close-up pictures will both be stored in the local storage and uploaded to the level 2 arming device.

4.5 Set Picture Composition

You can enable the picture composition to composite several pictures into one to make it convenient to view the violation captured pictures.

Steps

Note

Functions and parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Image Encoding and Composition → Checkpoint Image Composition/Violation Picture Composition** .

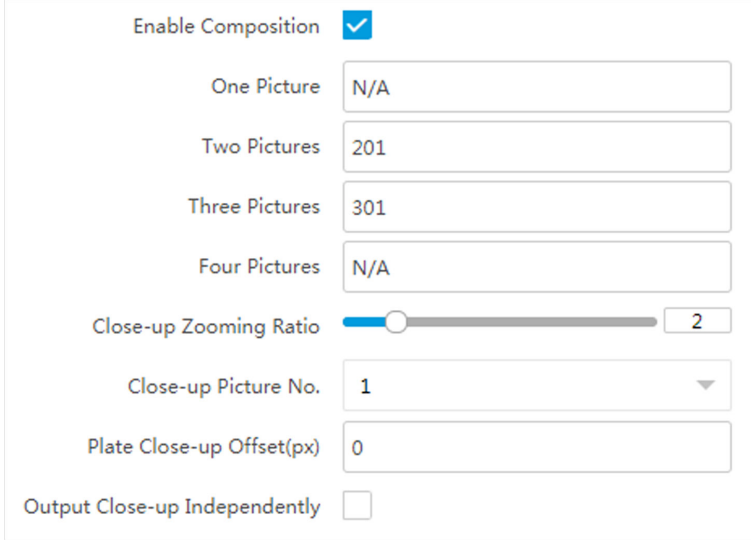

Figure 4-5 Set Picture Composition

2. Check **Enable Composition**.
3. Set composition types for different picture quantities.
4. Set other composition parameters.

   Close-up Zooming Ratio

   The higher the value is, the larger the close-up is.

   Close-up Picture No.

   It is the picture where the close-up comes from.

   Plate Close-up Offset

   The default value is 0, which is recommended to be adopted. The device can capture close-up pictures according to the set offset when no license plate is recognized.
5. **Optional:** Check **Output Close-up Independently** to output close-up pictures independently when the picture composition is not enabled.

Note

Enabling composition and outputting close-up independently functions conflict with each other. You can only enable one.

6. Click **Save**.

4.6 Set Information Overlay

4.6.1 Set Single Picture Overlay

If you want to overlay information on the captured single pictures, set capture overlay.

Steps

Note

The supported parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Text Overlay** .
2. Select single picture channel.
3. Check **Capture Picture Overlay**.

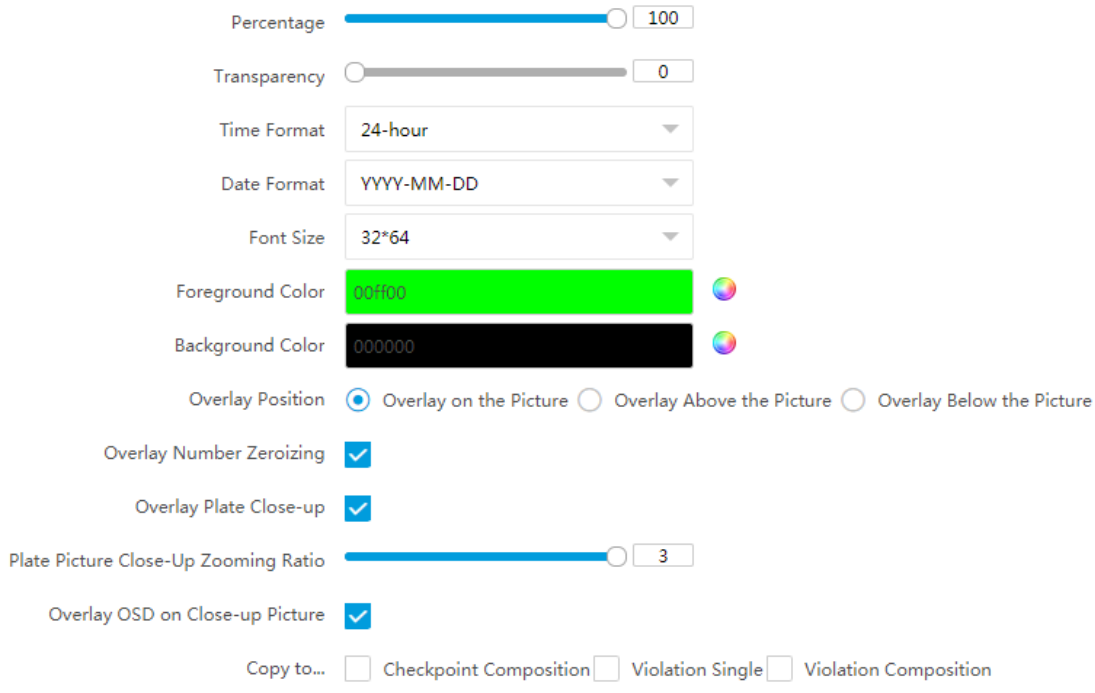

Figure 4-6 Set Single Picture Overlay

4. Set the percentage, front size, color, overlay position, etc.

Percentage

It is the percentage that the overlaid information occupies on the picture. For example, if you set the percentage to 50, the overlaid information in a row will occupy up to half of the image width, and the excess content will be overlaid from a new line.

Transparency

It is the condition of viewing the live view image through the overlaid information.

Overlay Number Zeroizing

When the overlaid number digits are smaller than the fixed digits, 0 will be overlaid before the overlaid number. E.g., the fixed digits for lane No. is 2. If the lane No. is 1, 01 will be overlaid on the picture.

Overlay Plate Close-up

Check it to overlay license plate close-up pictures on the captured pictures. Set **Plate Picture Close-Up Zooming Ratio** to adjust the close-up picture size.

Overlay OSD on Close-up Picture

Check it to overlay the OSD information on the close-up pictures.

5. **Optional:** Check the other channel(s) to copy the same settings.
6. Select the overlay information from the list.

Note

The overlay information varies with different models. The actual device prevails.

7. Set the overlay information.

View Default Type	You can view the default overlay information.
Set Type	You can edit the type.
Set Overlay Information	For some information types, you can edit the detailed information.
Set Overlay Position	If you check it, the current information will be displayed from a new line.
Set Space	Edit the number of space between the current information and the next one from 0 to 255. 0 means there is no space.
Set Line Break Characters	Edit the number of characters from 0 to 100 between the current information line and the previous information line. 0 means no line break.
Adjust overlay sequence	Click ^ / v to adjust the display sequence of the overlay information.

8. Click **Save**.

4.6.2 Set Composite Picture Overlay

If you want to overlay information on the composite pictures, set composite picture overlay.

Steps

Note

The supported parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Text Overlay** .
2. Select composite picture channel.
3. Check **Capture Picture Overlay**.

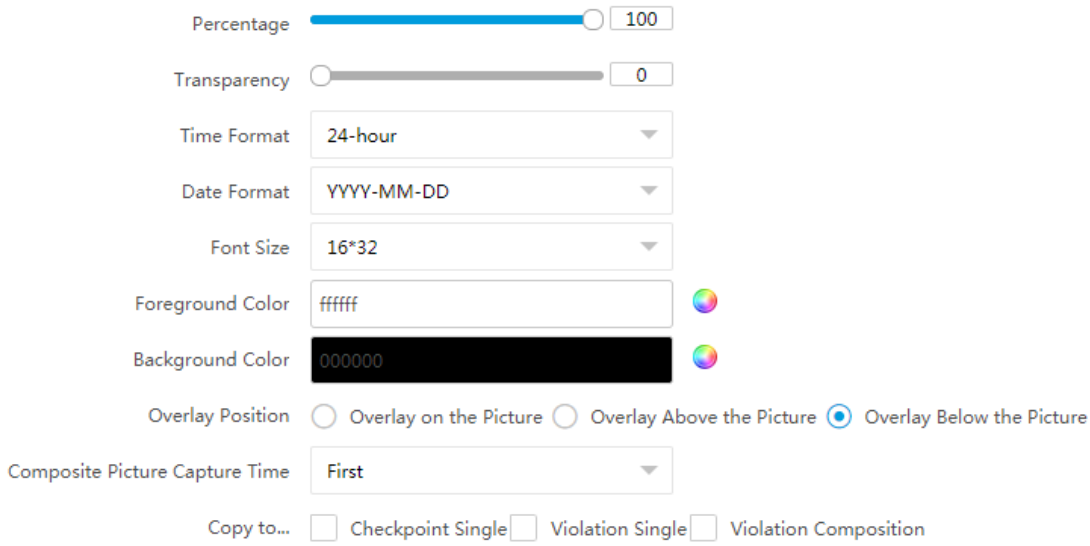

Figure 4-7 Set Composite Picture Overlay

4. Set the font size, color, overlay position, etc.

   Percentage

   It is the percentage that the overlaid information occupies on the picture. For example, if you set the percentage to 50, the overlaid information in a row will occupy up to half of the image width, and the excess content will be overlaid from a new line.

   Transparency

   It is the condition of viewing the live view image through the overlaid information.

   Composite Picture Capture Time

   The capture time of the selected picture sequence will be overlaid on the composite picture.
5. **Optional:** Check the other channel(s) to copy the same settings.
6. Select the overlay information from the list.

Note

The overlay information varies with different models. The actual device prevails.

7. Set the overlay information.

View Default Type	You can view the default overlay information.
Set Type	You can edit the type.
Set Overlay Information	For some information types, you can edit the detailed information.
Set Overlay Position	If you check it, the current information will be displayed from a new line.
Set Space	Edit the number of space between the current information and the next one from 0 to 255. 0 means there is no space.
Set Line Break Characters	Edit the number of characters from 0 to 100 between the current information line and the previous information line. 0 means no line break.
Adjust overlay sequence	Click ^ / v to adjust the display sequence of the overlay information.

8. Click **Save**.

4.7 Set Image Encoding Parameters

If the captured pictures are not clear, set the resolution of the captured pictures and the picture size.

Steps

1. Go to **Configuration → Capture → Capture Parameters → Image Encoding and Composition → Image Encoding** .

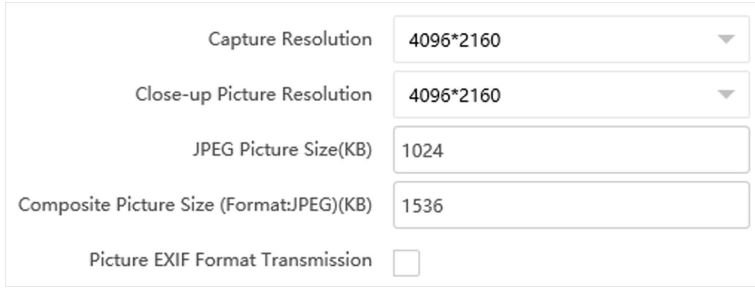

Figure 4-8 Set Image Encoding Parameters

2. Select **Capture Resolution**.
3. Select **Close-up Picture Resolution**.
4. Enter the picture size.

JPEG Picture Size

The size of the compressed captured picture. The actual size is related to the scene complexity.

Composite Picture Size

The size of the compressed composite picture. The actual size is related to the scene complexity.

Note

Only the device supporting picture composition supports composite picture size settings. The actual device prevails.

Picture EXIF Format Transmission

The captured pictures will be transmitted in the EXIF format.

5. Click **Save**.

4.8 Set Capture Schedule

You can set the schedule for the violation behavior capture or checkpoint capture if needed.

Steps

Note

The function varies with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Parameters → Capture Schedule** .
2. **Optional:** Check **Violation Priority**.

   You can set the priority level of each violation type.

   Note

   - The function is only valid when **Trigger Mode** is **Mixed-Traffic Lane** or **Video Analysis E-Police**.
   - **0** represents no priority requirement.

3. Click ✎ to set the capture schedule according to the actual needs.

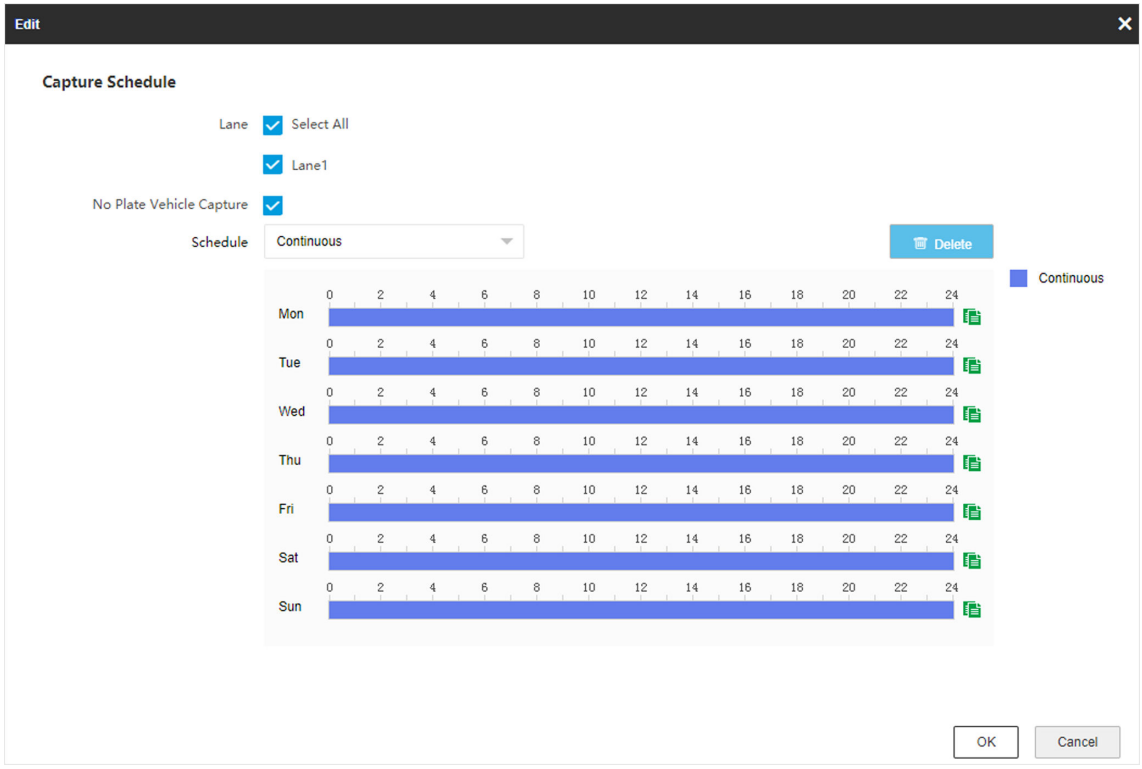

Figure 4-9 Set Capture Schedule

4. Select **Lane**.
5. **Optional:** Check **No Plate Vehicle Capture** according to the actual needs.
6. Adjust the time period.
   - Click on the selected time period, and enter the desired value. Click **Save**.
   - Click on the selected time period. Drag the both ends to adjust the time period.
7. **Optional:** Click to copy the same settings to other days.
8. Click **OK**.
9. **Optional:** Check **Upload to Mailbox** to email the capture schedule to the user.
10. Click **Save**.

4.9 Set Captured Image Parameters

Set the parameters of captured images to raise the image quality.

Steps

Note

The function varies with different models. The actual device prevails.

1. Go to **Configuration → Capture → Capture Images → Image Parameters** .

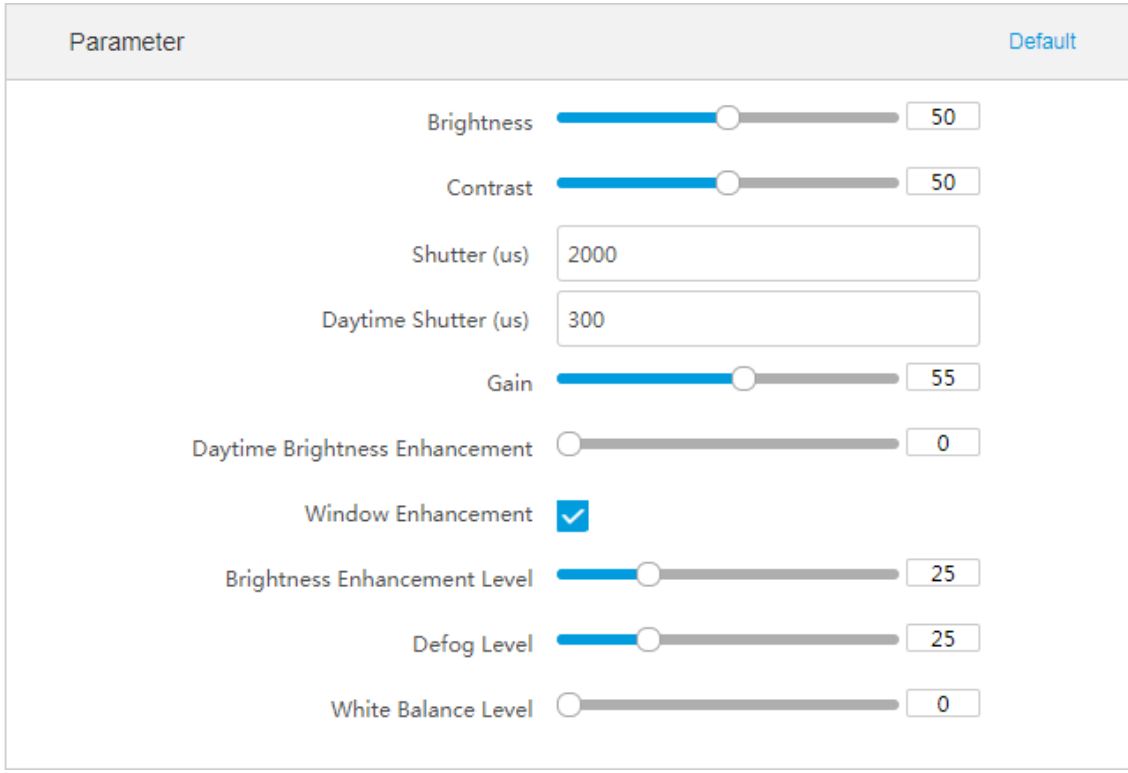

Figure 4-10 Set Captured Image Parameters

2. Set the captured image parameters.

Note

You can click **Default** to restore all the set parameters to the default settings.

Brightness

It refers to the max. brightness of the image.

Contrast

It refers to the contrast of the image. Set it to adjust the levels and permeability of the image.

Shutter

If the shutter speed is quick, the details of the moving objects can be displayed better. If the shutter speed is slow, the outline of the moving objects will be fuzzy and trailing will appear.

Daytime Shutter

The shutter speed at the daytime.

Gain

It refers to the upper limit value of limiting image signal amplification. It is recommended to set a high gain if the illumination is not enough, and set a low gain if the illumination is enough.

Daytime Brightness Enhancement

It refers to the brightness of the image in the daytime. Higher value stands for brighter image.

Window Enhancement

In front light or back light scene, the flash light may not pass through the vehicle window, or the image effect of the window is bad caused by the light. In this condition, you can check **Window Enhancement**. The higher the **Brightness Enhancement Level** is, the brighter the window image is. The higher the **Defog Level** is, the better the permeability of the window image is.

White Balance Level

It is the white rendition function of the device used to adjust the color temperature according to the environment.

4.10 Set ICR

ICR adopts mechanical IR filter to filter IR in the day to guarantee the image effect, and to remove the IR filter at night to guarantee full-spectrum rays can get through the device.

Steps

Note

For the device supporting black and white mode at night, when the day-night mode is night, and **Black and White Mode at Night** has been enabled in **Configuration → Video → Camera Parameter → Camera Parameter → General Parameter** , the image displays as black and white. When **Black and White Mode at Night** is disabled, the image displays as color.

1. Go to **Configuration → Capture → Capture Images → ICR** .
2. Select **ICR Mode**.

Auto Switch	The ICR mode will switch to day or night mode automatically according to the surrounding light conditions. When the surrounding light is sufficient and higher than the set **Threshold**, the ICR mode will switch to day. When the surrounding light is insufficient and lower than the set **Threshold**, the ICR mode will switch to night.
Manual Switch	Select **Day-night Mode** to switch to the day or night manually.
Schedule Switch	Set **Day-night Mode**, **Start Time**, and **End Time** to switch to the day or night mode only during the set time period.

3. Click **Save**.

4.11 Debug

Note

The debug configurations below are only provided to debug the device by the professionals.

4.11.1 Debug Device

You can enable the functions to debug the device.

Steps

1. Go to **Configuration → Capture → Advanced → System Service** .
2. Check the debug information according to your needs.

Note

The supported parameters vary with different models. The actual device prevails.

Enable Algorithm POS Information Debug

The algorithm POS information will be overlaid on the playback image when you play back the video with the dedicated tool.

Enable Positioning Frame Debug

The positioning frames of vehicle bodies and license plates will be overlaid on the captured pictures.

Enable Closed Positioning Frame

The bottom lines of the positioning frames on the captured pictures will be displayed. The frames will be closed.

Enable LPR Area Frame

The LPR area frames on the captured pictures will be displayed.

Note

The function is only valid in the trigger modes of checkpoint single I/O and RS-485 radar, and manual capture. In these modes, the license plate may not be included in the LPR area, and the LPR rate is low. To solve the problem, you can enable the function to add a green frame on the captured picture to check whether the license plate is included in the LPR area.

LPR Area Frame Y-Direction Deviation

If the license plate is not included in the LPR area frame, adjust the LPR area frame position in the Y-direction by pixel. Enter the deviation pixel in the text field. The value = image height × (deviation distance/100). Set the value according to the actual needs. Range: -100% to 100%. The LPR area frame moves up if the value is negative, and it moves down if the value is positive.

Enable License Plate Frame

The license plate frames will be overlaid on the captured pictures.

Enable Multi-Way Upload

Data will be uploaded in multiple set ways simultaneously.

Enable Lane Line Debug

Check it to overlay lane lines on a captured picture.

3. Click **Save**.

4.11.2 Vehicle Capture and Recognition Service

Set the vehicle capture and recognition service to debug the device.

Steps

Note

The function varies with different models. The actual device prevails.

1. Go to **Configuration → Capture → Advanced → Vehicle Capture and Recognition Service** .
2. Click **Checkpoint Parameters** or **Violation Parameters** to set the corresponding parameters.
3. Check the service(s) according to your needs.

Note

The supported services vary with different models. The actual device prevails.

Filter Checkpoint Capture of Same Vehicle

It is used to debug the device with the same vehicle. When the same vehicle is triggered many times during a short period in the scene, the checkpoint pictures of the vehicle will not be captured. Set **Effective Time of Filtering** to filter the vehicle during the set time.

Capture Frame Priority Mode

Check it to adopt license plate recognition results that processed by the single frame recognition algorithm.

Enable License Plate Supplementary Recognition

Check it and the device will enable license plate recognition algorithm again to re-recognize the unrecognized license plates.

Do Not Capture Reverse-driving Vehicle

The reverse-driving vehicles will not be captured. For example, if you need to capture the vehicles driven from the west to the east, enable the function and the vehicles driven from the east to the west will not be captured.

Enable SIRA Protocol

For the device supporting Middle East SIRA protocol, check it to enable the protocol. Then the license plates will be overlaid on the captured pictures according to the license plate types of the Middle East license plate recognition library.

Enable Video Electric Alarm Steering Flow

In video analysis E-police application mode, you can enable the function to make statistics about the traffic flow of left turn and right turn at the intersection and upload the statistics data to the connected platform.

Enable Non-Motor Vehicle Flow Statistics

Check it to enable the non-motor vehicle flow statistics.

Enable Statistics Integral Upload

The device will upload data at every integral minute according to the set time interval under the collection mode. For example, if the set time interval is 2, the device will upload data at 8:00:00, 8:02:00, 8:04:00, etc.

Filter Two-Wheelers Without License

Check it to not capture the two-wheelers without license plates.

Enable ANR

Enable ANR (Automatic Network Replenishment) to save the videos in the condition of network disconnection, and synchronize data after the network is recovered.

Add No. After Violation Type

The No. of the captured pictures will be added after the overlaid violation type on the pictures.

Filter Violation Capture of Motorcycle

The violation pictures of motorcycles will not be captured.

Disable Non-Motor Vehicle Speed Detection

The speeds of non-motor vehicles will not be detected.

4. Click **Save**.

4.11.3 Set Image Format

You can enable smartJPEG which can save the storage space without influencing the resolution.

Steps

1. Go to **Configuration → Capture → Advanced → Image Service** .
2. Check **smartJPEG**.
3. Set image quality according to your needs.

Note

The higher the value is, the better the image quality is.

4. **Optional:** Set **Expansion Ratio of License Plate Image** to expand the cutout scale of license plate image.
5. Click **Save**.

Chapter 5 View Real-Time Picture

You can view the real-time captured pictures and license plate information.

Steps

Note

The supported parameters vary with different models. The actual device prevails.

1. Go to **Live View → Real-Time Capture** .
2. Click **Arming**.
3. Select an item from the list, and you can view the capture scene picture and recognized license plate information.

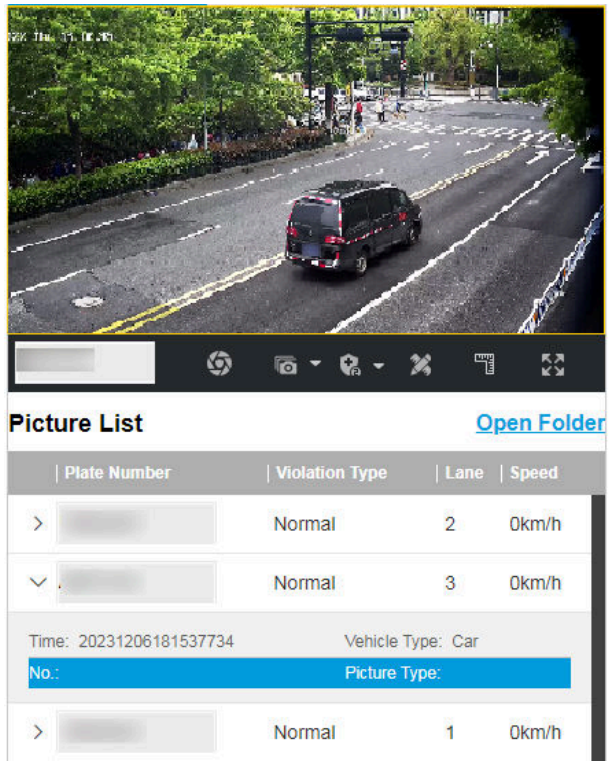

Figure 5-1 Real-Time Picture

4. **Optional:** You can also do the following operations.

/ /

- **Level 1 Arming** can only connect one client or web. The uploaded pictures will not be stored in the storage card. The pictures in the storage card will be uploaded to the level 1 arming.
- **Level 2 Arming** can connect three clients or webs. The pictures will be uploaded to the client/web, and stored in the storage card.
- **Disarming** is to cancel the alarm status or real-time picture.

	Click it to measure the license plate pixel. Click it again to disable the measurement.
	Click it to enable the ruler to measure the license plate.
	Click it to enable manual capture.
	Click it to set continuous capture parameters and the device will capture pictures according to the set interval. • **Capture Times**: Up to five pictures can be captured per continuous capture. • **Interval**: Up to four intervals can be set, and the default interval is 100 ms.
	Display the images in full screen mode.
Open Folder	Open the saving path of captured pictures.

Chapter 6 View Traffic Statistics

6.1 View Real-Time Traffic Statistics

You can view the real-time traffic statistics if the device supports this function.

Steps

Note

This function varies with different models. The actual device prevails.

1. Go to **Configuration → Capture → Advanced → Traffic Parameters → Traffic Parameters** .
2. Check **Enable**.
3. Set **Interval**.
4. Go to **Live View → Traffic Statistics** to view real-time data.

6.2 View Traffic Flow Statistics

The device supports counting and uploading traffic follow data.

Steps

Note

This function varies with different models. The actual device prevails.

1. Go to **Configuration → Capture → Advanced → Traffic Parameters → TPS Parameters** .
2. Check **Enable**.
3. Set **Interval**.
4. Click **Save**.

Chapter 7 View Traffic Light Status

For the device supporting traffic light detection, you can go to **Live View → Traffic Light Status** to check real-time traffic light status after the traffic light detection mode is set.

Chapter 8 Live View and Local Configuration

8.1 Live View

8.1.1 Start/Stop Live View

Click ▶ to start live view. Click ■ to stop live view.

8.1.2 Select Image Display Mode

Click to select an image display mode.

8.1.3 Select Window Division Mode

Click to select a window division mode.

8.1.4 Select Stream Type

Click to select the stream type. It is recommended to select the main stream to get the high-quality image when the network condition is good, and select the sub-stream to get the fluent image when the network condition is not good enough. The third stream is custom.

Note

The third stream varies with different models. The actual device prevails.

8.1.5 Capture Picture Manually

You can capture pictures manually on the live view image and save them to the computer.

Steps

1. Click to capture a picture.
2. **Optional:** Click **Configuration → Local → Live View Parameters** and select **Image Format**.
3. **Optional:** Click **Configuration → Local → Picture and Clip Settings** to view the saving path of snapshots in live view.

8.1.6 Record Manually

You can record videos manually on the live view image and save them to the computer.

Steps

1. Click to start live view.
2. Click to start recording.
3. Click to stop recording.
4. **Optional:** Click **Configuration → Local → Record File Settings** to view the saving path of record files.

8.1.7 Enable Digital Zoom

You can enable digital zoom to zoom in a certain part of the live view image.

Steps

1. Click to start live view.
2. Click to enable digital zoom.
3. Place the cursor on the live view image position which needs to be zoomed in. Drag the mouse rightwards and downwards to draw an area.

   The area will be zoomed in.
4. Click any position of the image to restore to normal image.
5. Click to disable digital zoom.

8.1.8 Enable Regional Focus

Steps

Note

The function varies with different models. The actual device prevails.

1. Click .
2. Drag the cursor from the upper left corner to the lower right corner to select the area that needs to be focused.

Result

The selected area is focused.

8.1.9 Select Video Mode

Set the video mode when adjusting the device focus during construction.

Click and select when the device is running normally.

8.2 PTZ Operation

Click **Live View**. Click and click to show the PTZ control panel.

Note

- The PTZ supports power-off memory. When the device is suddenly cut off power or restarted normally, it can automatically return to the position before the power cut or reboot.
- The PTZ function varies with different models. The actual device prevails.
- Other unmentioned buttons are reserved buttons.

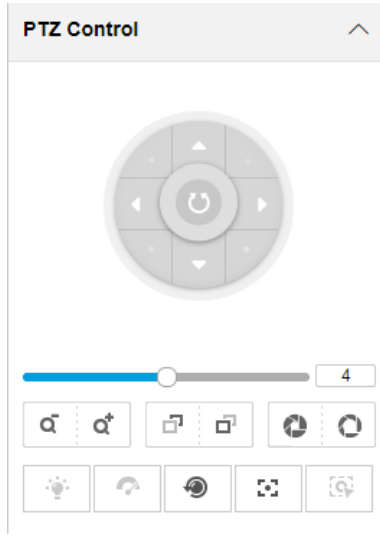

Figure 8-1 PTZ Control Panel

Table 8-1 Button Description

Button	Description
4	Adjust the PTZ speed.
/	Zoom + and Zoom - • Hold to zoom in the scene. • Hold to zoom out the scene.
/	Focus + and Focus - • Hold under the manual focus mode to make near objects become clear and distant objects become vague. • Hold to make distant objects become clear and near objects become vague.
/	Iris + and Iris –

Button	Description
	• Hold to increase the iris diameter when in a dark environment. • Hold to decrease the iris diameter when in a bright environment.
	Lens Initialization It is applicable to devices with motorized lenses. You can use this function when overcoming image blurs caused by overtime zooming or focusing.
	Auxiliary Focus It is applicable to devices with motorized lenses. Use this function to focus the lens automatically and make images become clear.

8.3 Local Configuration

Go to **Configuration → Local** to set the live view parameters and change the saving paths of videos, captured pictures, scene pictures, etc.

Note

The parameters vary with different models. The actual device prevails.

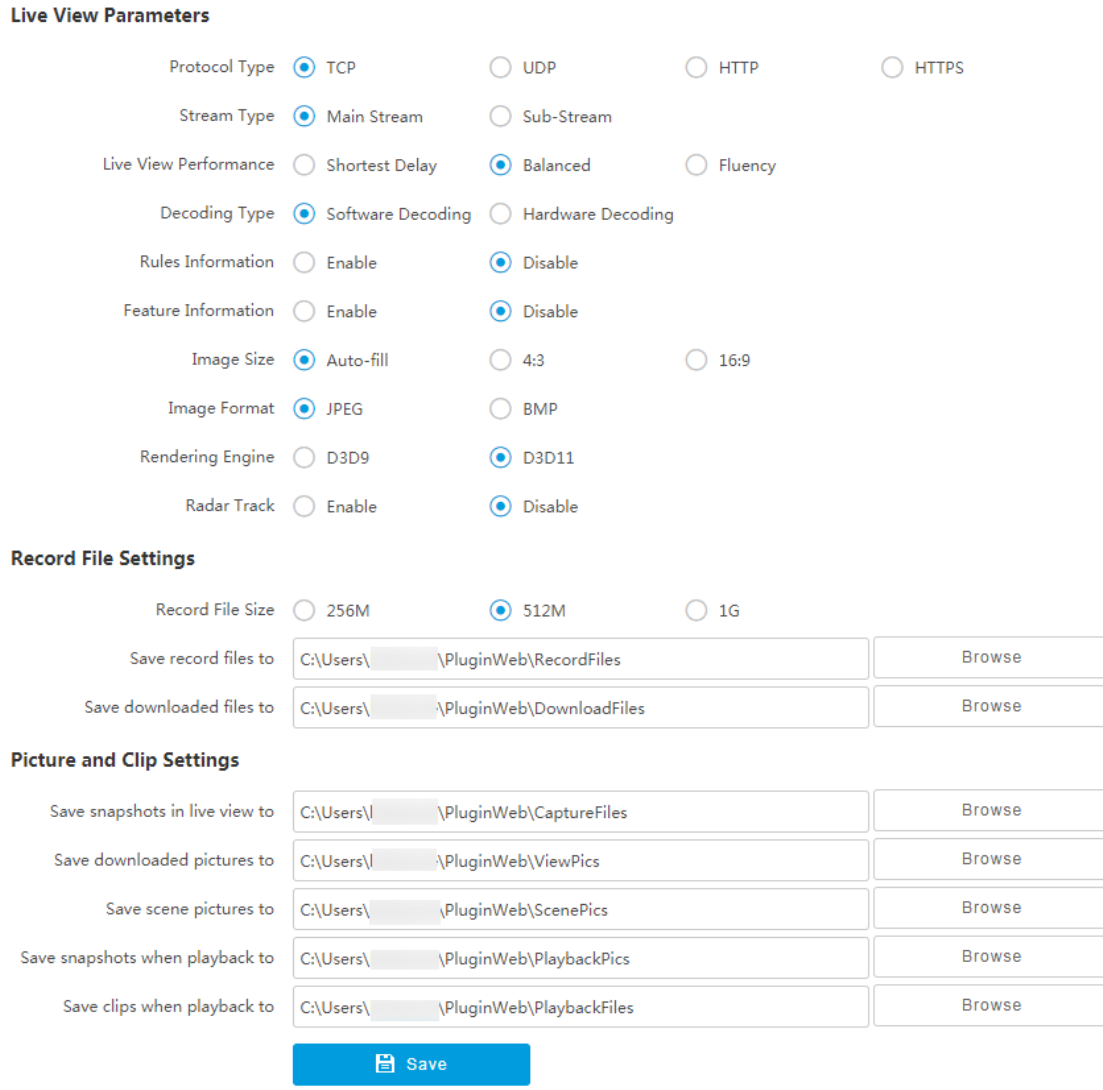

Figure 8-2 Local Configuration

Protocol Type

Select the network transmission protocol according to the actual needs.

TCP

Ensures complete delivery of streaming data and better video quality, but the real-time transmission will be affected.

UDP

Provides real-time audio and video streams.

HTTP

Gets streams from the device by a third party client.

HTTPS

Gets streams in https format.

Stream Type

Main Stream

Select it to get the high-quality image when the network condition is good.

Sub-Stream

Select it to get the fluent image when the network condition is not good enough.

Live View Performance

Shortest Delay

The video is real-time, but its fluency may be affected.

Balanced

Balanced mode considers both the real time and fluency of the video.

Fluency

When the network condition is good, the video is fluent.

Decoding Type

Software Decoding

Decode via software. It takes up more CPU resources but provides images with better quality when it compares to the hardware decoding.

Hardware Decoding

Decode via GPU. It takes up less CPU resources but provides images with worse quality when it compares to the software decoding.

Rules Information

If you enable this function, tracking frames will be displayed on the live view interface when there are vehicles passing.

Feature Information

Enable it to display feature information of the target on the live view image.

Image Size

The display ratio of the live view image.

Image Format

The saving format of manually captured images.

Rendering Engine

Select the rendering API of the browser. D3D9 uses fixed rendering pipeline. D3D11 uses programmable graphics pipeline, in which the shader replaces the traditional fixed rendering pipeline to improve visual effects and enhance the picture quality.

Radar Track

When the radar is connected, enable it to generate and overlay the radar tracks.

Record File Size

Select the packed size of the manually recorded video files. After the selection, the max. record file size is the value you selected.

Save record files to

Set the saving path of the manually recorded video files.

Save downloaded files to

Set the saving path of the download files.

Save snapshots in live view to

Set the saving path of the manually captured pictures in live view mode.

Save downloaded pictures to

Set the saving path of the downloaded pictures.

Save scene picture to

Set the saving path of the captured pictures in **Live View → Real-Time Capture** .

Save snapshots when playback to

Set the saving path of the manually captured pictures in playback mode.

Save clips when playback to

Set the saving path of the clips in playback mode.

Chapter 9 Record and Capture

9.1 Set Storage Path

9.1.1 Set Storage Card

If you want to store the files to the storage card, make sure you insert and format the storage card in advance.

Before You Start
Insert the storage card to the device.

Steps
1. Go to **Configuration → Storage → Storage Management → HDD Management → HDD Storage** .

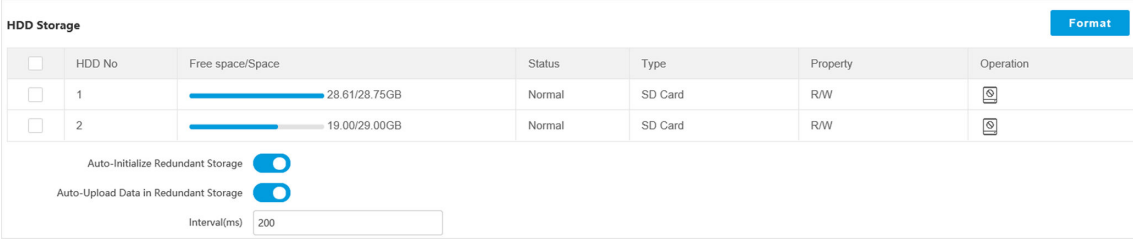

Figure 9-1 Set Storage Card

2. Format the storage card in two ways.
   - Check the storage card, and click **Format** to format it manually.

     Note

     For the newly installed storage card, you need to format it manually before using it normally.
   - If you want to format the storage card automatically when the card is abnormal, enable **Auto-Initialize Redundant Storage**.

     Note

     If you enable **Auto-Initialize Redundant Storage**, reboot the device to take the settings into effect.
3. **Optional:** If the device has been connected to the platform, and you want to upload the storage card information automatically, enable **Auto-Upload Data in Redundant Storage** and set the interval.
4. Click **Save**.

9.1.2 Set Quota

Set the video and picture ratio in the storage.

Before You Start
Install the storage card.

Steps
1. Go to **Configuration → Storage → Storage Management → HDD Management → HDD Quota** .

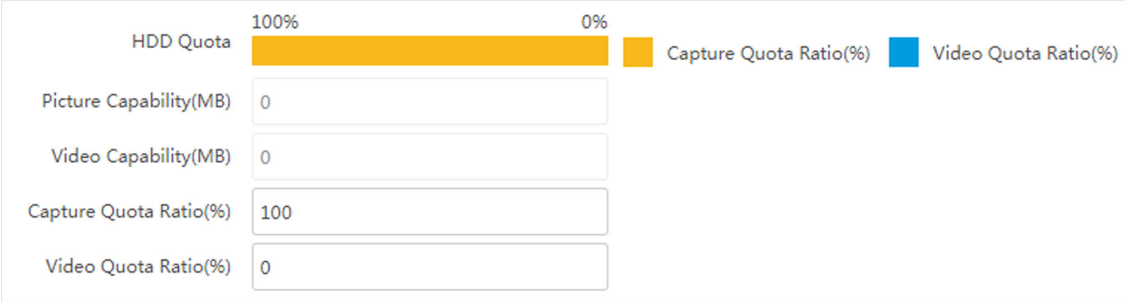

Figure 9-2 Set Quota

2. Set **Capture Quota Ratio** and **Video Quota Ratio** according to the actual needs.

Note
The percentage sum of the capture and video quota ratio should be 100 %.

3. Click **Save**.

What to do next
Format the storage card after the settings.

9.1.3 Set FTP

Set FTP parameters if you want to upload the captured pictures to the FTP server.

Before You Start
Set the FTP server, and ensure the device can communicate normally with the server.

Steps
1. Go to **Configuration → Network → Data Connection → FTP** .

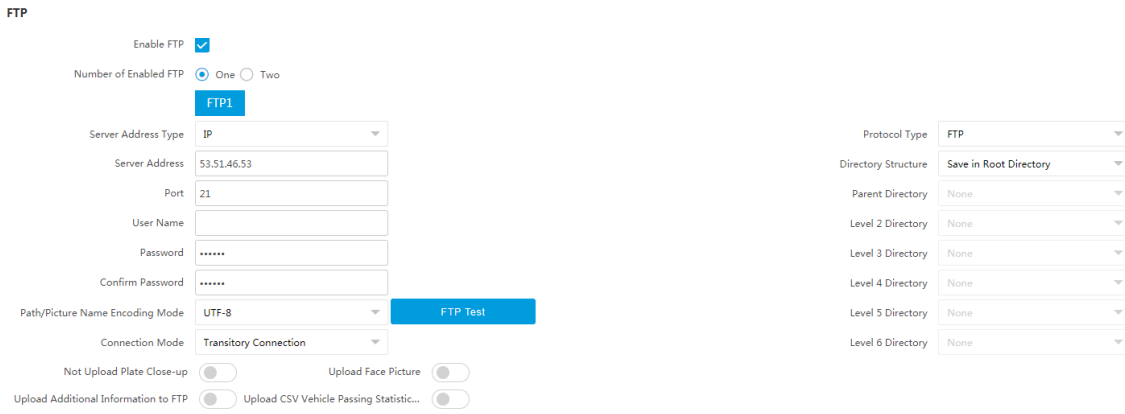

Figure 9-3 Set FTP

2. Check **Enable FTP**.
3. Select **Number of Enabled FTP**.

Note

You can only enable one FTP if the device does not support the violation capture. If more than one FTP is enabled, you should set upload data type for each FTP according to your needs.

4. Set FTP parameters.
   1) Select **Sever Address Type** and enter corresponding information.
   2) Enter **Port**.
   3) Enter **User Name** and **Password**, and confirm the password.
   4) Select **Protocol Type**.

Note

If you select **SFTP**, the files will be transmitted via encryption mode to guarantee security.

   5) Select **Directory Structure**.

Note

You can customize the directory structure according to your needs.

   6) Select **Path/Picture Name Encoding Mode**.

UTF-8

UNICODE encoding.

   7) Select **Connection Mode**.

Transitory Connection

The connection is temporarily made for one data transmission task. After this task, the connection will be broken.

Persistent Connection

The connection is made for long-term data transmission, which will be broken only when the device is disconnected from the FTP server.

5. **Optional:** Enable upload functions.

Note

Supported functions vary with different models. The actual device prevails.

Not Upload Plate Close-up

The close-up pictures of a license plate will not be uploaded.

Upload Face Picture

Upload face close-up pictures to the FTP server.

Upload Additional Information to FTP

Add related information when uploading data to the FTP server.

Upload CSV Vehicle Passing Statistics Information to FTP

Upload the CSV vehicle passing statistics information to the FTP server.

6. **Optional:** Click **FTP Test** to check the FTP server.
7. Set naming rules and separators according to the actual needs.

Note

For the European version, select **Custom** and enter ***adr*** or ***ADR*** in the text field, and the ADR (Autorisation Dangerous Road) vehicle plate number will be added in the corresponding vehicle picture name.

8. **Optional:** Edit **OSD Information** which can be uploaded to the FTP server with the pictures to make it convenient to view and distinguish the data.
9. Click **Save**.

9.1.4 Set Cloud Storage

Cloud storage is a kind of network storage. It can be used as the extended storage to save the captured pictures.

Before You Start

- Arrange the cloud storage server.
- You have enabled level 1 arming in **Live View → Real-Time Capture** .

Note

The real-time capture should be used with dedicated platform.

Steps

1. Go to **Configuration → Storage → Storage Management → Cloud Storage** .

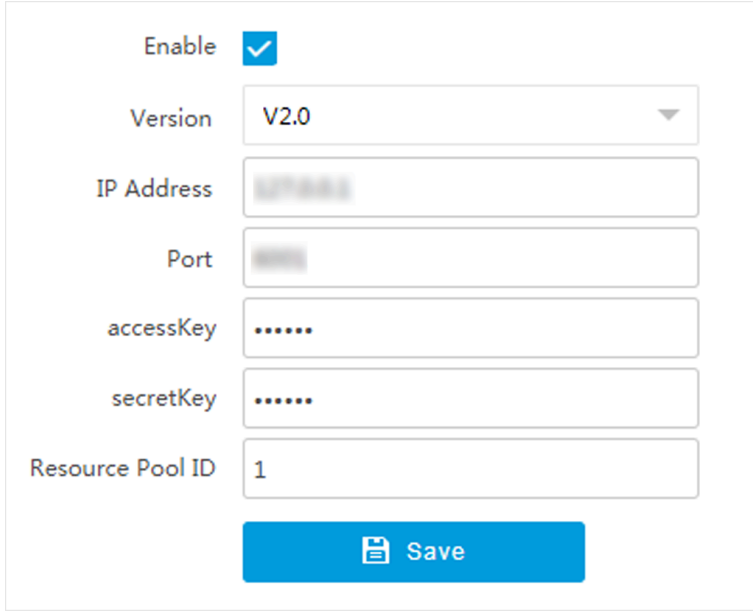

Figure 9-4 Set Cloud Storage

2. Check **Enable**.
3. Select **Version**.

V1.0
a. Enter **IP Address** and **Port**
b. Enter **User Name** and **Password**.
c. Enter **Cloud Storage ID** and **Violation Cloud Storage ID** according to the server storage area No.

V2.0
a. Enter **IP Address** and **Port**
b. Enter **accessKey** and **secretKey**.
c. Enter **Resource Pool ID** according to the server storage area No. of uploading pictures.

4. Click **Save**.

9.2 Set Record Schedule

Set record schedule to record video automatically during configured time periods.

Before You Start
Install the storage card.

Steps
1. Go to **Configuration → Storage → Schedule Settings → Record Schedule** .
2. **Optional:** Enable the functions below according to your needs.

Enable Recording Overwriting

When the storage is full, the earliest videos will be overwritten.

Enable Storing Expiration

Enable the function and set **Expired Time** for the recorded videos stored in the storage card. Beyond the time, the files will be overwritten.

3. Enable the record schedule.

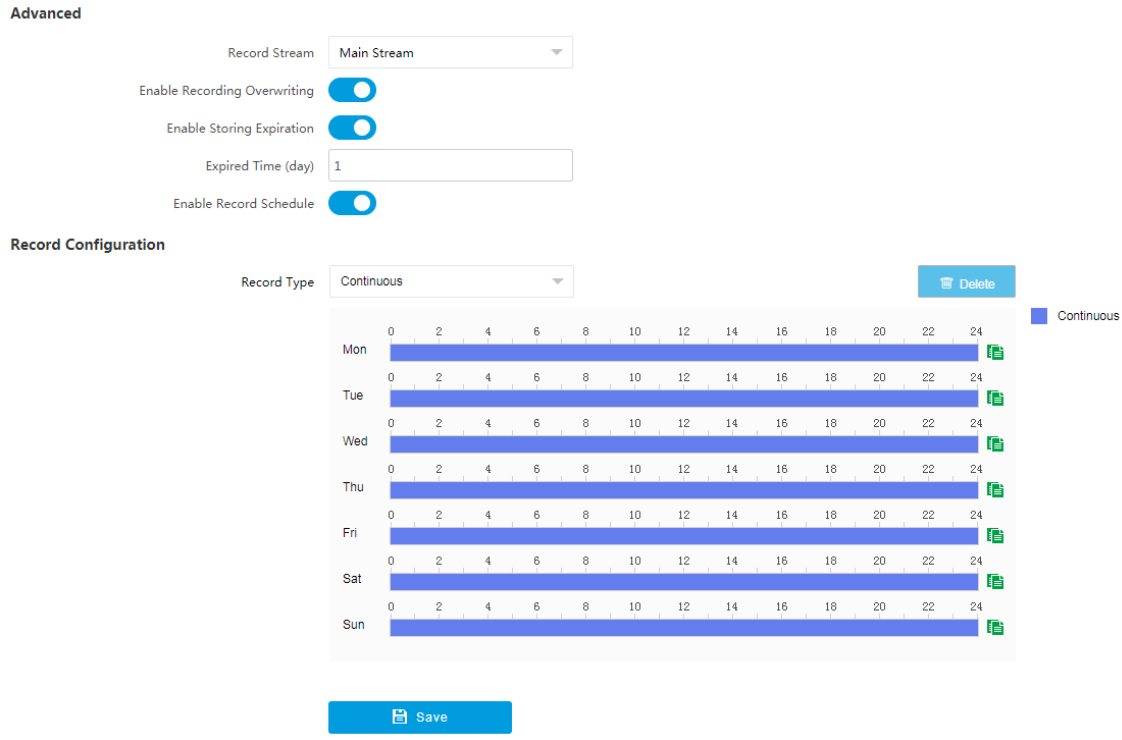

Figure 9-5 Set Record Schedule

4. Select **Record Type**.
5. Drag the cursor on the time bar to set a recording time.

Note

Up to 8 time periods can be set on a time bar.

6. Adjust the recording time.
   - Click a set recording period and enter the start time and end time in the pop-up window.
   - Drag two ends of the set recording period bar to adjust the length.
   - Drag the whole set recording period bar and relocate it.
7. **Optional:** Delete recording periods.
   - Click a set recording period and click **Delete** in the pop-up window.
   - Click a set recording period and click **Delete** on the record configuration interface.
8. **Optional:** Click to copy set recordings to other days.
9. Click **Save**.

Result

The device will only record at the set periods.

9.3 Set Snapshot Schedule

You can enable storage expiration of the snapshots saved in the storage card.

Before You Start
Install the storage card.

Steps
1. Go to **Configuration → Storage → Schedule Settings → Snapshot Schedule** .

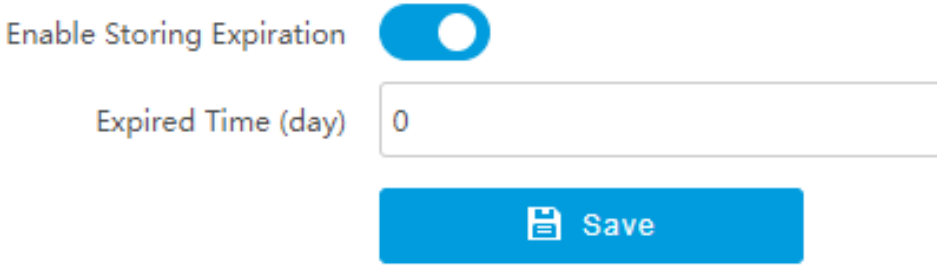

Figure 9-6 Set Snapshot Schedule

2. Enable storing expiration.
3. Set **Expired Time**.
4. Click **Save**.

Result

Beyond the set expired time, the snapshots saved in the storage card will be overwritten.

9.4 Search Picture

You can search the captured pictures stored in the storage card and export the pictures you need.

Before You Start
Install the storage card, and ensure the storage status is normal.

Steps
1. Click **Picture**.
2. Set search conditions.

Note
Search conditions vary with different models. The actual device prevails.

3. Click **Search**.

   The searched pictures information will be displayed in the picture list.

   Note

   If you have set level 1 arming for the device, the captured pictures will not be saved in the storage card. Go to the saving path of scene pictures to view them. You can go to **Configuration → Local** to check the saving path.

4. **Optional:** Check picture(s) and click **Download** to save them to local.

   The downloaded picture(s) will be marked as "Downloaded". You can go to **Configuration → Local** to check the saving path.

9.5 Playback

You can search, play back, and download videos that stored on the storage card.

Steps

1. Click **Playback**.
2. Select a channel.
3. Select a date.
4. Click **Search**.
5. Click ▶ to start playback.
6. **Optional:** You can also do the following operations.

Set playback time	• Drag the time bar to the target time and click ▶ to play the video. • Click the current time point showed above the time bar and enter the target time point in the popup window. Click **OK** and click ▶ to play the video.
Capture image	Click 📷 to capture an image.
Clip record	Click ✂ / ✂ to start/stop clipping the record.
Play back in single frame	Click ⏭ once to play back the video in one frame.
Download record	a. Click ⬇ . b. Select the start time and end time. c. Click **Search**. d. Check record files that need to be downloaded. e. Click **Download**.
Stop playback	Click ■ to stop playback.
Slow forward	Click « to slow down the playback.
Fast forward	Click » to speed up the playback.
Digital zoom	Click 🔍 to enable digital zoom.

	Click  to disable digital zoom.
Adjust volume	Click  to enable volume.

Chapter 10 Encoding and Display

10.1 Set Video Encoding Parameters

Set video encoding parameters to adjust the live view and recording effect.

- When the network signal is good and the speed is fast, you can set high resolution and bitrate to raise the image quality.
- When the network signal is bad and the speed is slow, you can set low resolution, bitrate, and frame rate to guarantee the image fluency.
- When the network signal is bad, but the resolution should be guaranteed, you can set low bitrate and frame rate to guarantee the image fluency.
- Main stream stands for the best stream performance the device supports. It usually offers the best resolution and frame rate the device can do. But high resolution and frame rate usually means larger storage space and higher bandwidth requirements in transmission. Sub-stream usually offers comparatively low resolution options, which consumes less bandwidth and storage space. Third stream is offered for customized usage.

Steps

Note

The supported parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Video → Video Encoding → Video Encoding** .
2. Set the parameters for different streams.

Stream Type

Select the stream type according to your needs.

Note

The supported stream types vary with different models. The actual device prevails.

Bitrate

Select relatively large bitrate if you need good image quality and effect, but more storage spaces will be consumed. Select relatively small bitrate if storage requirement is in priority.

Frame Rate

It is to describe the frequency at which the video stream is updated and it is measured by frames per second (fps). A higher frame rate is advantageous when there is movement in the video stream, as it maintains image quality throughout.

Resolution

The higher the resolution is, the clearer the image will be. Meanwhile, the network bandwidth requirement is higher.

SVC

Scalable Video Coding (SVC) is an extension of the H.264/AVC and H.265 standard. Enable the function and the device will automatically extract frames from the original video when the network bandwidth is insufficient.

Bitrate Type

Select the bitrate type to constant or variable.

Video Quality

When bitrate type is variable, 6 levels of video quality are selectable. The higher the video quality is, the higher requirements of the network bandwidth.

Profile

When you select H.264 or H.265 as video encoding, you can set the profile. Selectable profiles vary according to device models.

I Frame Interval

It refers to the number of frames between two key frames. The larger the I frame interval is, the smaller the stream fluctuation is, but the image quality is not that good.

Video Encoding

The device supports multiple video encoding types, such as H.264, H.265, and MJPEG. Supported encoding types for different stream types may differ. H.265 is a new encoding technology. Compared with H.264, it reduces the transmission bitrate under the same resolution, frame rate, and image quality.

3. Click **Save**.

10.2 Set Image Parameters

You can adjust the image parameters to get clear image.

Steps

Note

The supported parameters may vary with different models. The actual device prevails.

1. Go to **Configuration → Video → Camera Parameter → Camera Parameter** .

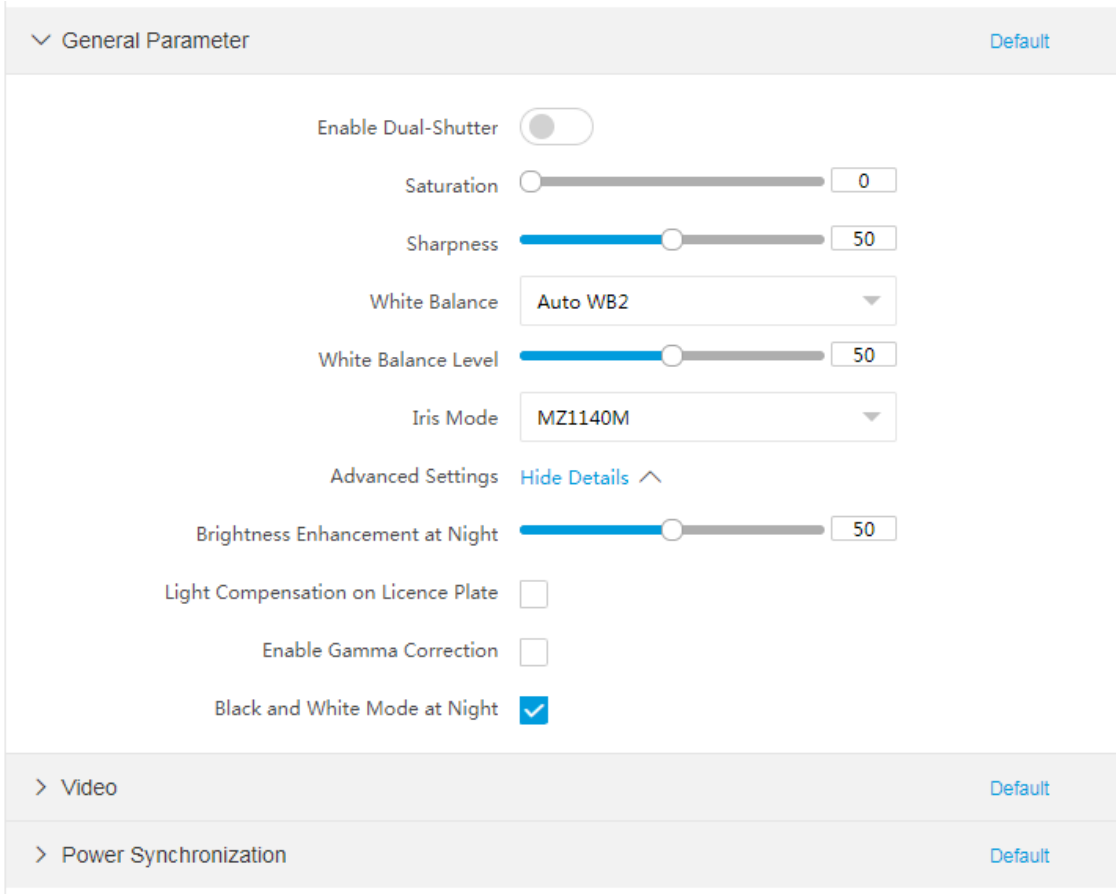

Figure 10-1 Set Image Parameters

2. Set the camera parameters.

Note

- The supported parameters vary with different models. The actual device prevails.
- You can click **Default** to restore the parameters to default settings.

General Parameter

Enable Dual-Shutter

Set the stream type after enabling it.

Saturation

It refers to the colorfulness of the image color.

Sharpness

It refers to the edge contrast of the image.

White Balance

It is the white rendition function of the device used to adjust the color temperature according to the environment.

Iris Mode

Select the iris mode according to your needs.

Brightness Enhancement at Night

The scene brightness will be enhanced at night automatically.

Light Compensation on License Plate

Check it. The plate brightness compensation can be realized, and various light supplement conditions can be adapted via setting license plate expectant brightness and supplement light correction coefficient. The higher the sensitivity is, the easier this function can be enabled.

Enable Gamma Correction

The higher the gamma correction value is, the stronger the correction strength is.

Black and White Mode at Night

When ICR is in night mode, you can check it to keep the video in black and white mode at night.

Video

Brightness

It refers to the brightness the image.

Contrast

It refers to the contrast of the image. Set it to adjust the levels and permeability of the image.

Shutter

If the shutter speed is quick, the details of the moving objects can be displayed better. If the shutter speed is slow, the outline of the moving objects will be fuzzy and trailing will appear.

Gain

It refers to the upper limit value of limiting image signal amplification. It is recommended to set a high gain if the illumination is not enough, and set a low gain if the illumination is enough.

Hue Range

Select the range to adapt to the display.

3D DNR

Digital Noise Reduction (DNR) reduces the noise in the video stream.

In **Normal Mode**, the higher the **3D DNR Level** is, the stronger the noise will be reduced. But if it is too high, the image may become fuzzy.

In **Expert Mode**, set **Spatial Intensity** and **Time Intensity**. If the space domain intensity is too high, the outline of the image may become fuzzy and the details may lose. If the time domain intensity is too high, trailing may appear.

2D DNR

The higher the **2D DNR Level** is, the stronger the noise will be reduced. But if it is too high, the image may become fuzzy.

Video Standard

Select the video standard according to the actual power supply frequency.

Power Synchronization

The street lights or traffic signal lights will cause the live view image flashing. Check **Power Synchronization** and set **Phase Position** and **Signal Frequency** to synchronize the shutter with the street lights or traffic signal lights to avoid the flashing.

3. **Optional:** You can click under the live view image to enable digital zoom. Refer to ***Enable Digital Zoom*** for details.
4. **Optional:** Click **Capture Test** to check the image effect.

10.3 Set ROI

ROI (Region of Interest) encoding helps to assign more encoding resources to the region of interest, thus to increase the quality of the ROI whereas the background information is less focused.

Before You Start

Please check the video encoding type. ROI is supported when the video encoding type is H.264 or H.265.

Steps

1. Go to **Configuration → Video → Video Encoding → ROI** .

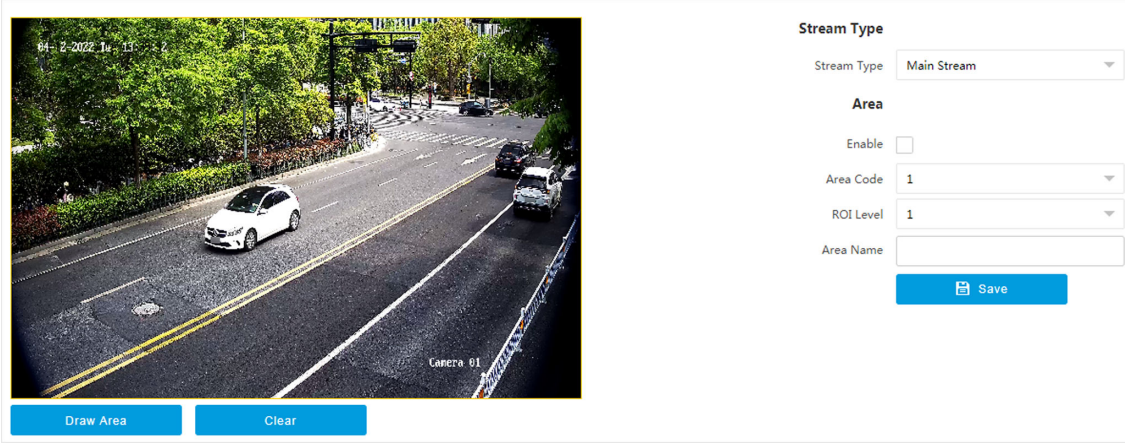

Figure 10-2 Set ROI

2. Select **Stream Type**.
3. Set ROI region.
   1) Check **Enable**.
   2) Select **Area Code**.
   3) Click **Draw Area**.
   4) Drag the mouse on the live view image to draw a fixed area.
   5) Select the fixed area that needs to be adjusted and drag the mouse to adjust its position.
4. Select **ROI Level** and enter **Area Name**.

Note

The higher the ROI level is, the clearer the image of the detected area is.

5. Click **Save**.
6. **Optional:** Select other area codes and repeat the steps above if you need to draw multiple fixed areas.

10.4 Set Privacy Mask

The privacy mask can be used to protect personal privacy by concealing parts of the image from view or recording with a masked area.

Steps

1. Go to **Configuration → Video → Video Encoding → Privacy Mask** .

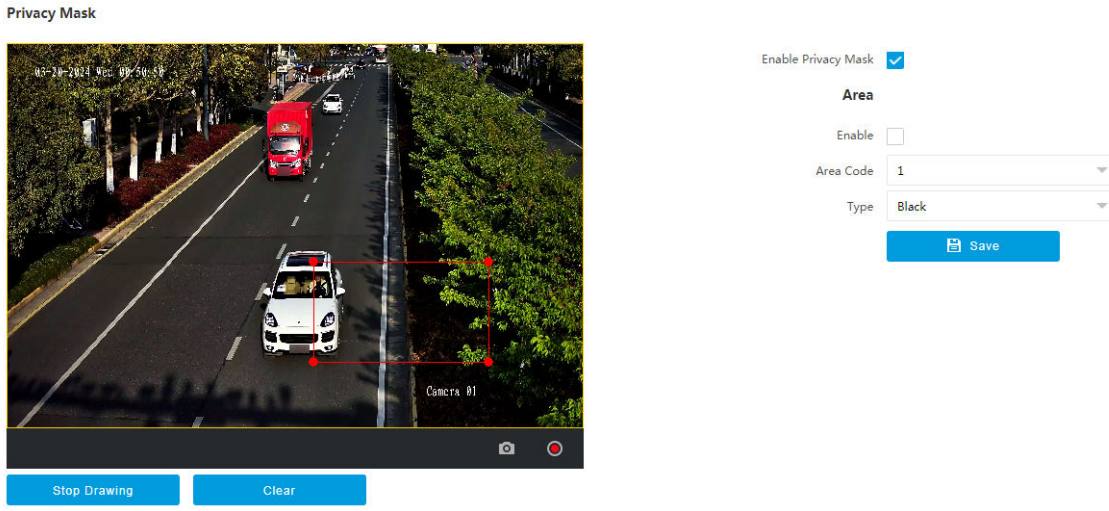

Figure 10-3 Set Privacy Mask

2. Check **Enable Privacy Mask**.
3. Enable the privacy mask area(s).
   1) Check **Enable**.
   2) Select **Area Code**.
   3) Select **Type**.

4. Draw the privacy mask area.
   1) Click **Draw Area**.
   2) In the live view image, drag the mouse to draw the privacy mask area of the selected area code.
   3) Click **Stop Drawing**.
   4) **Optional:** Click **Clear** to clear all the drawn areas.
5. **Optional:** Repeat step 3 and 4 to draw more privacy mask areas.

Note

Up to four privacy mask areas are supported.

6. Click **Save**.

10.5 Enable Regional Exposure

Enable regional exposure to adjust the brightness of the whole live view image according to the drawn partial area.

Steps

1. Go to **Configuration → Video → Video Encoding → BLC** .
2. Check **Enable**.
3. Drag the mouse to draw an area.

   The brightness of the whole live view image will be adjusted according to the drawn area.

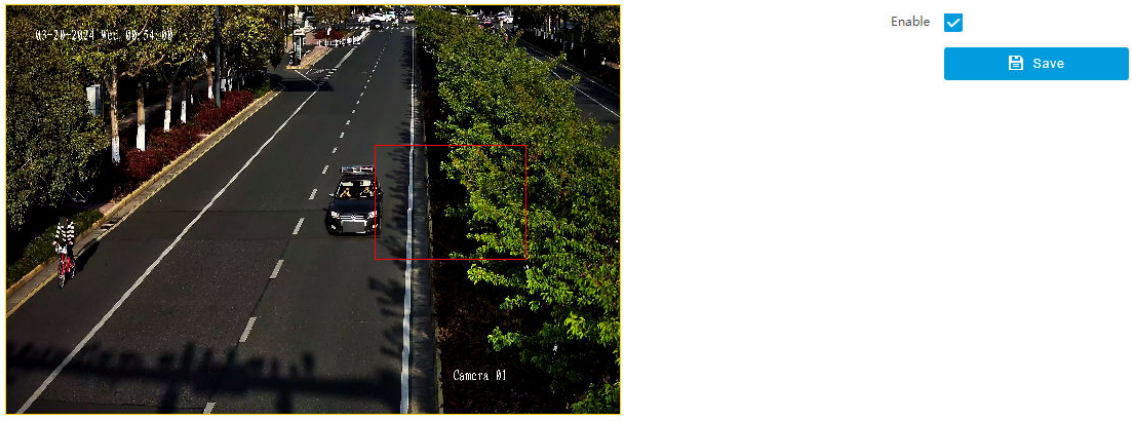

Figure 10-4 Enable Regional Exposure

4. Click **Save**.

10.6 Set OSD

You can customize OSD information on the live view.

Steps

1. Go to **Configuration → Video → Text Overlay on Video → Text Overlay on Video** .

Note

The supported functions vary with different models. The actual device prevails.

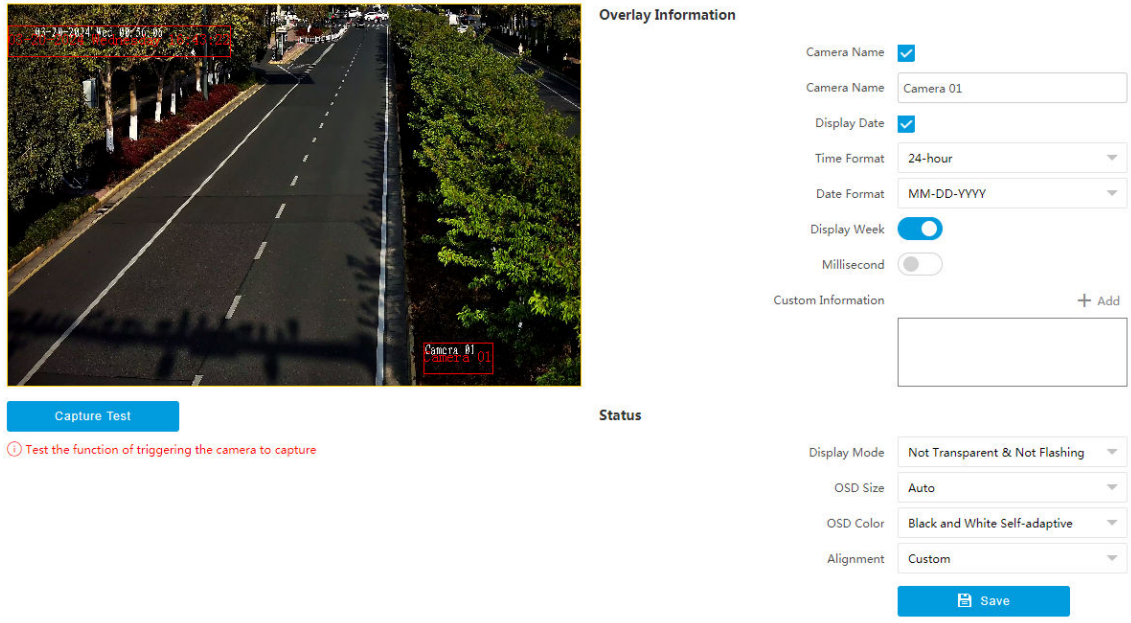

Figure 10-5 Set OSD

2. Set display contents.
   1) Check **Camera Name**.
   2) Enter **Camera Name**.
   3) Check **Display Date**, and set the time and date format.
   4) Enable **Display Week** or **Millisecond** according to your needs.
3. **Optional:** Click **Add** and enter information if you want to add custom information.

Note

Up to 6 items of custom information can be added.

4. Set display properties (size, color, etc.).
5. Select **Alignment**.

Note

If you select **Align Left** or **Align Right**, set **Min. Horizontal Margin** and **Min. Vertical Margin**.

6. Drag the red frames on the live view image to adjust their positions.
7. Click **Save**.

Result

The set OSD will be displayed in live view image and recorded videos.

10.7 Set Traffic Light Enhancement

Adjust the traffic light enhancement parameters to restore true colors of the traffic lights.

Before You Start

Select **Application Mode** as **Video Analysis E-Police**.

Steps

Note

The function varies with different models. The actual device prevails.

1. Go to **Configuration → Video → Traffic Light Enhancement** .
2. Check **Traffic Light Enhancement**.

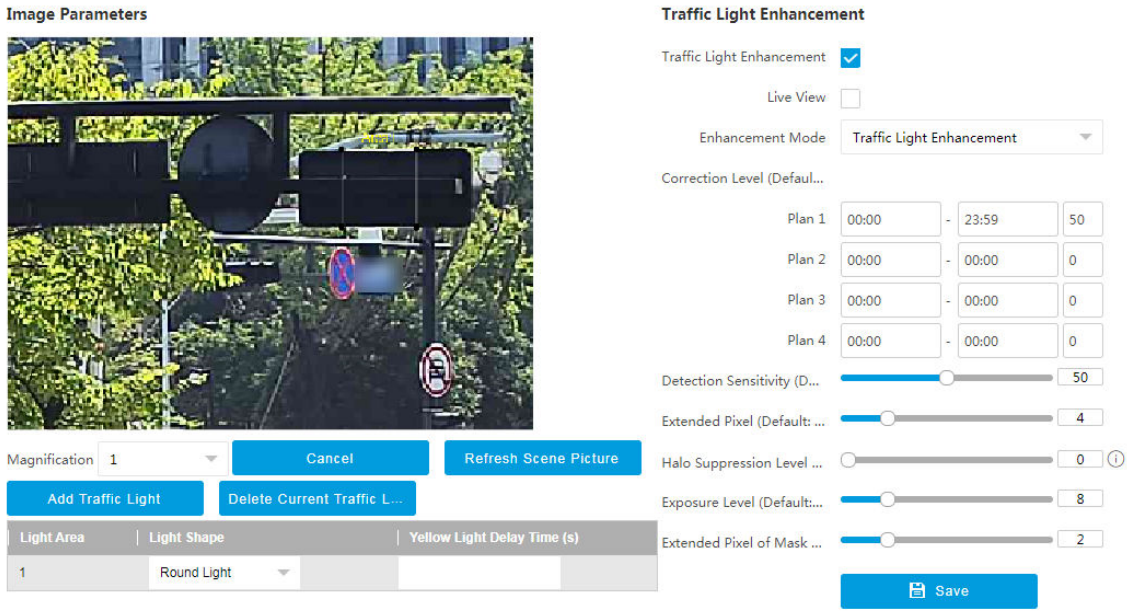

Figure 10-6 Set Traffic Light Enhancement

3. Select **Enhancement Mode**.

Note

Select **Smart Traffic Light Enhancement** if the device supports this mode.

4. Draw traffic light areas.
   1) Select **Magnification**.
   2) Click **Zoom In**.

3) Click **Add Traffic Light**.
4) Adjust the drawn areas according to the actual scene.

Note

You need to cover the whole scene where the traffic lights locate if you select **Smart Traffic Light Enhancement**. Draw areas according to each traffic light location if you select **Traffic Light Enhancement**.

Figure 10-7 Sample

5) **Optional:** Select **Light Shape**.
6) **Optional:** Set **Yellow Light Delay Time**.

5. Set traffic light enhancement parameters according to the actual needs.

Note

Keep default settings if the device supports smart traffic light enhancement mode.

Correction Level

You can set different correction levels for different periods. The higher the value is, the brighter the traffic image color will be.

Detection Sensitivity

It is recommended to adjust by 5 once. This function is valid during daytime. The higher the value is, the less enhancement exception is.

Extended Pixel

It is recommended to adjust by 5 once. The higher the value is, the clearer the enhanced area is.

Halo Suppression Level

It is recommended to adjust by 10 once. This function is valid during night. The higher the value is, the lighter the halo is.

Exposure Level

The higher the exposure level is, the brighter the image is.

Extended Pixel of Mask

It is recommended to adjust by 1 once. The higher the value is, the less possibility to get exceptional image edges of the traffic lights. However, the traffic lights will be easily enhanced.

Night/Day Extended Pixel of Mask

It is recommended to adjust by 1 once. The higher the value is, the less possibility to get exceptional image edges of the traffic lights. However, the traffic lights will be easily enhanced.

Make Traffic Signal Light Outline Clear

The higher the value is, the clearer the traffic signal light outline will be.

Short Frame Brightness Threshold

The higher the value is, the more incomplete the displayed traffic signal light shape will be.

6. **Optional:** Check **Live View** to view the real-time effect.
7. Click **Save**.

Chapter 11 Network Configuration

11.1 Set IP Address

IP address must be properly configured before you operate the device over network. IPv4 and IPv6 are both supported. Both versions can be configured simultaneously without conflicting to each other.

Steps

Note

The supported parameters vary with different models. The actual device prevails.

1. Go to **Configuration → Network → Network Parameters → Network Interface** .

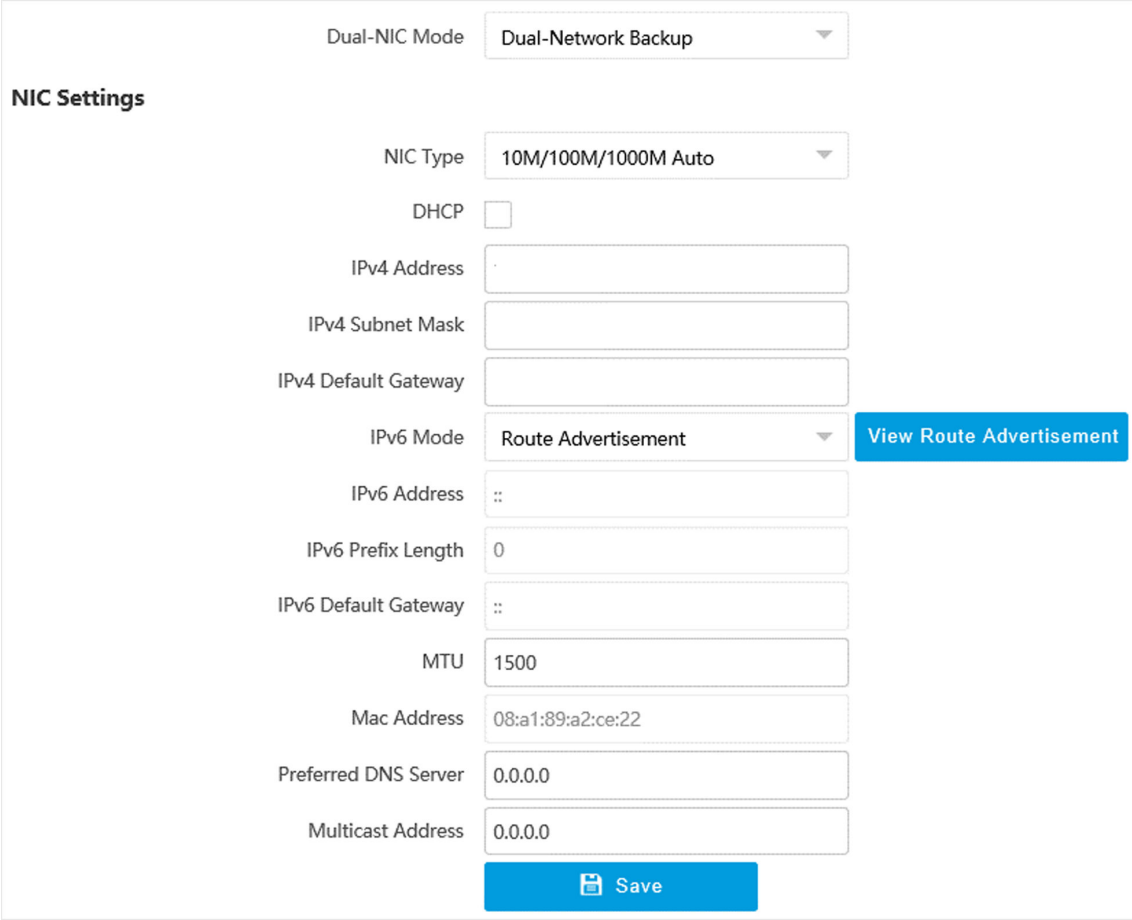

Figure 11-1 Set IP Address

2. Select **Dual-NIC Mode**.

   Dual-Network Backup

Select it when the two network interfaces are connected to two network cables respectively. When one network interface fails, the other network interface will be employed automatically without influencing the data transmission.

Multi-Network Isolation

Select it when different LANs are connected. Set the IP addresses of different network segments.

Note

The dual-NIC mode varies with different models. The actual device prevails.

3. Set network parameters.

NIC Type

Select a NIC (Network Interface Card) type according to your network condition.

IPv4

Two modes are available.

DHCP

The device automatically gets the IP parameters from the network if you check **DHCP**. The device IP address is changed after enabling the function. You can use SADP to get the device IP address.

Note

The network that the device is connected to should support DHCP (Dynamic Host Configuration Protocol).

Manual

You can set the device IP parameters manually. Enter **IPv4 Address**, **IPv4 Subnet Mask**, and **IPv4 Default Gateway**.

IPv6

Three IPv6 modes are available.

Route Advertisement

The IPv6 address is generated by combining the route advertisement and the device Mac address.

Note

Route advertisement mode requires the support from the router that the device is connected to.

DHCP

The IPv6 address is assigned by the server, router, or gateway.

Manual

Enter **IPv6 Address**, **IPv6 Subnet Mask**, and **IPv6 Default Gateway**. Consult the network administrator for required information.

MTU

It stands for maximum transmission unit. It is the size of the largest protocol data unit that can be communicated in a single network layer transaction.

The valid value range of MTU is 1280 to 1500.

Multicast

Multicast is group communication where data transmission is addressed to a group of destination devices simultaneously. After setting the IP address of the multicast host, you can send the source data efficiently to multiple receivers.

Router

Enter **Route Address** and **Subnet Mask** if the device is connected to a router in multi-network isolation mode.

DNS

It stands for domain name server. It is required if you need to visit the device with domain name. And it is also required for some applications (e.g., sending email). Set **Preferred DNS Address** properly if needed.

4. Click **Save**.

11.2 Set Port

The device port can be modified when the device cannot access the network due to port conflicts.

Go to **Configuration → Network → Network Parameters → Port** for port settings.

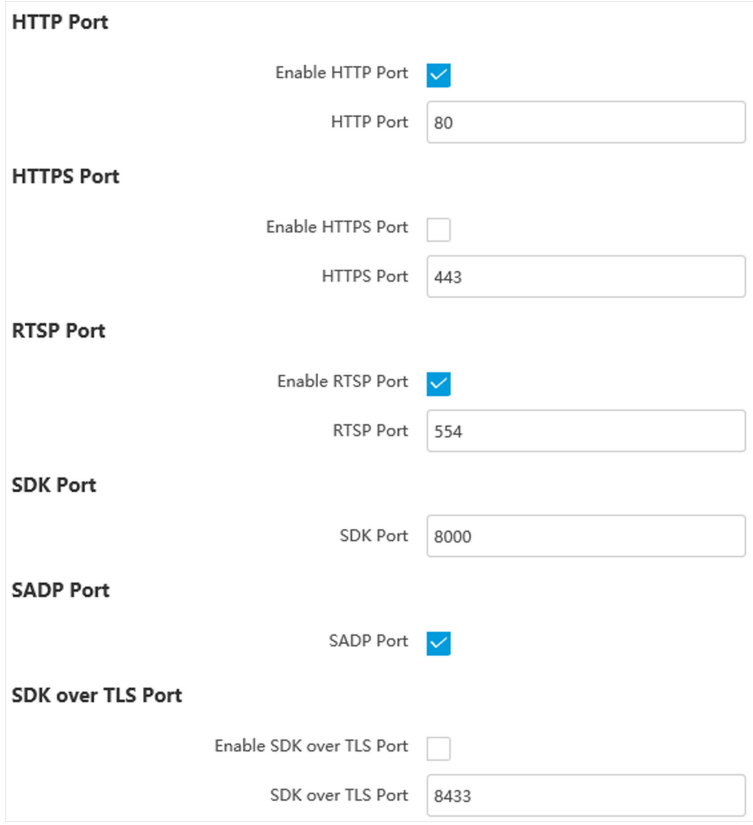

Figure 11-2 Set Port

HTTP Port

It refers to the port through which the browser accesses the device. For example, when the **HTTP Port** is modified to 81, you need to enter ***http://192.168.1.64:81*** in the browser for login.

HTTPS Port

It refers to the port through which the browser accesses the device, but certificate verification is needed.

RTSP Port

It refers to the port of real-time streaming protocol.

SDK Port

It refers to the port through which the client adds the device.

SADP Port

It refers to the port through which the SADP software searches the device.

SDK over TLS Port

It refers to the port that adopts TLS protocol over the SDK service, to provide safer data transmission.

Note

- After editing the port, access to the device via the new port.
- Reboot the device to bring the new settings into effect.
- The supported ports vary with different models. The actual device prevails.

11.3 Set IEEE 802.1X

IEEE 802.1X is a port-based network access control. It enhances the security level of the LAN/WLAN. When devices connect to the network with IEEE 802.1X standard, the authentication is needed.

Steps

1. Go to **Configuration → Network → Network Parameters → 802.1X** .

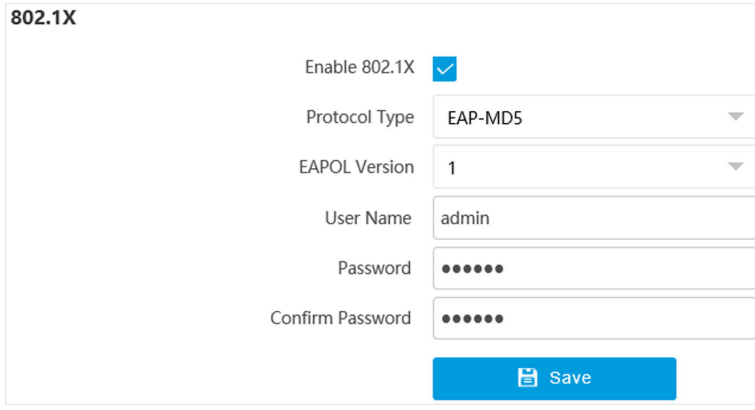

Figure 11-3 Set IEEE 802.1X

2. Check **Enable 802.1X**.
3. Select **Protocol Type** and **EAPOL Version**.

   Protocol Type

   The authentication server must be configured. Register a user name and password for 802.1X in the server in advance. Enter the user name and password for authentication.

   EAPOL Version

   The EAPOL version must be identical with that of the router or the switch.
4. Enter **User Name** and **Password** registered in the server.
5. Confirm the password.
6. Click **Save**.

11.4 Set DDNS

You can use the Dynamic DNS (DDNS) for network access. The dynamic IP address of the device can be mapped to a domain name resolution server to realize the network access via domain name.

Before You Start

- Register the domain name on the DDNS server.
- Set the LAN IP address, subnet mask, gateway, and DNS server parameters. Refer to ***Set IP Address*** for details.
- Complete port mapping. The default ports are 80, 8000, and 554.

Steps

1. Go to **Configuration → Network → Network Parameters → DDNS** .

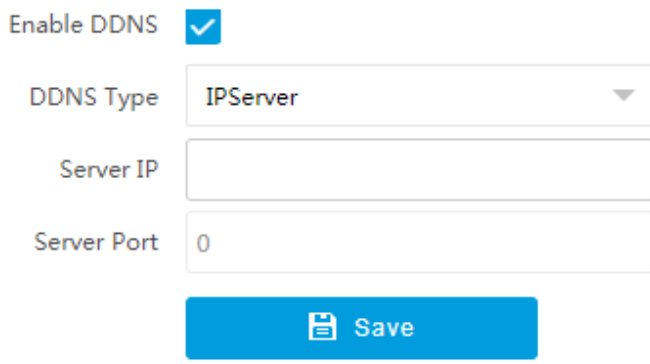

Figure 11-4 Set DDNS

2. Check **Enable DDNS**.
3. Enter the server address and other information.

Note

You can select **IPServer**, **DynDNS**, and **NO-IP** for the DDNS type.

4. Click **Save**.
5. Access the device.

By Browsers	Enter the domain name in the browser address bar to access the device.
By Client Software	Add domain name to the client software. Refer to the client software manual for specific adding methods.

11.5 Set SNMP

You can set the SNMP network management protocol to get the alarm event and exception messages in network transmission.

Before You Start

Download the SNMP software and manage to receive the device information via SNMP port.

Steps

1. Go to **Configuration → Network → Network Parameters → SNMP** .

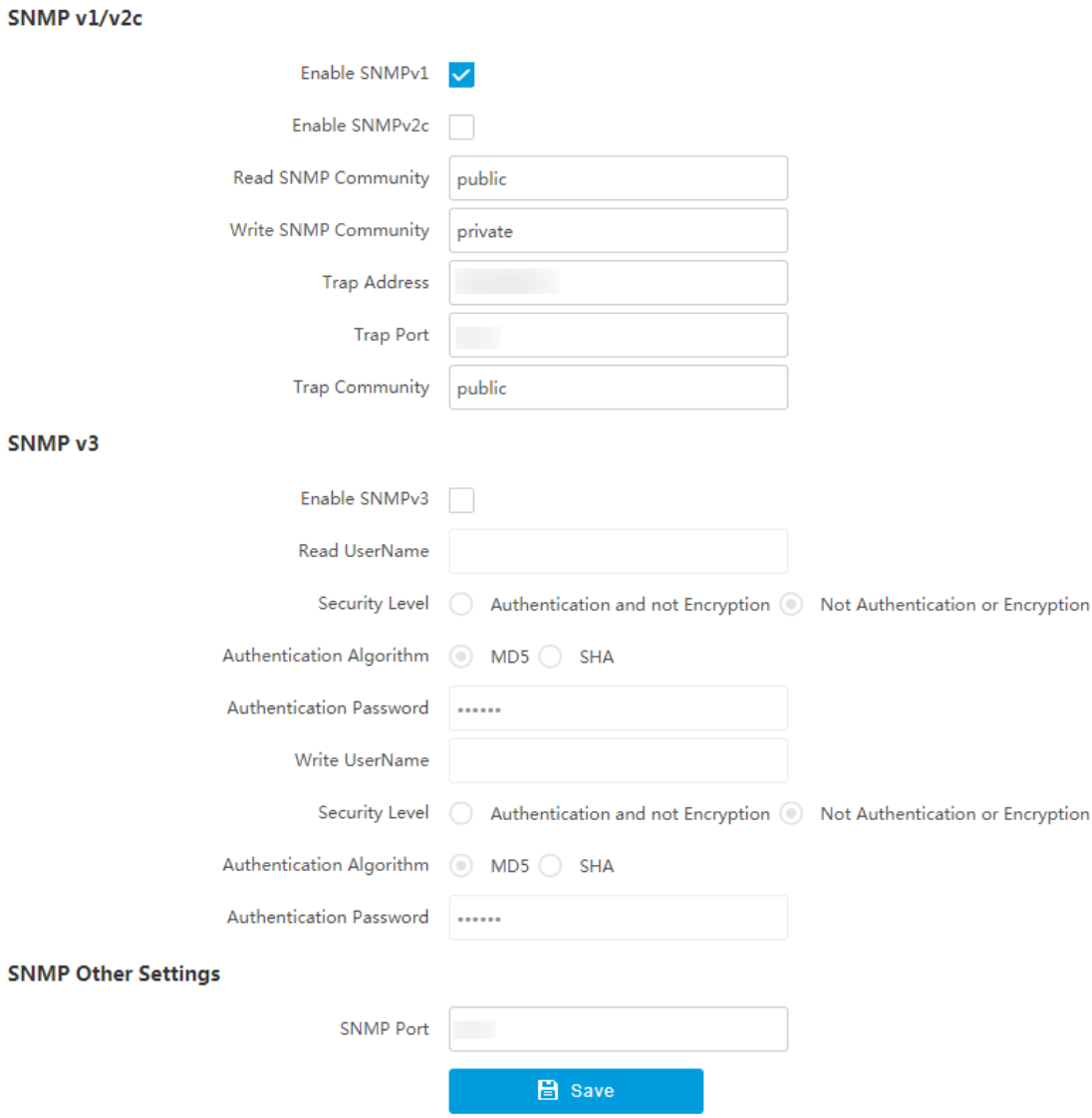

Figure 11-5 Set SNMP

2. Check **Enable SNMPv1/Enable SNMP v2c/Enable SNMPv3**.

Note

- The SNMP version you select should be the same as that of the SNMP software.
- Use different versions according to the security levels required. SNMP v1 is not secure and SNMP v2 requires password for access. SNMP v3 provides encryption and if you use the third version, HTTPS protocol must be enabled.

3. Set the SNMP parameters.
4. Click **Save**.

11.6 Set QoS

QoS (Quality of Service) can help improve the network delay and network congestion by setting the priority of data sending.

Note

QoS needs support from network devices such as routers and switches.

Steps

1. Go to **Configuration → Network → Network Parameters → QoS** .
2. Enable DSCP according to the actual needs and set the value.

   Note

   Network can identify the priority of data transmission. The bigger the DSCP value is, the higher the priority is. Same settings need to be set in the router for configuration.

3. Click **Save**.

11.7 Connect to Platform

11.7.1 Set Arm Host

The device can upload the captured pictures via the arm host.

Steps

Note

For level 1 arm, the pictures can be uploaded normally. If uploading failed, the device will upload again. For level 2 arm, the pictures will be uploaded once. No more upload if uploading failed. For level 3 arm, pictures will not be uploaded.

1. Go to **Configuration → Network → Data Connection → Arm Upload** .

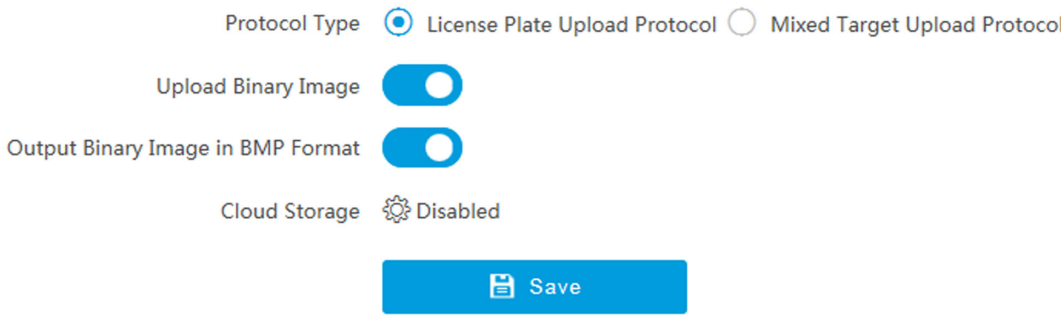

Figure 11-6 Set Arm Host

2. Select **Protocol Type**.

Note

Supported functions vary with different models. The actual device prevails.

License Plate Upload Protocol

Uploads arming alarm images of the license plate. You can enable **Upload Binary Image** if you need to upload binary images full of black or white pixel points. Enable **Output Binary Image in BMP Format** if you want to output images in this format.

Mixed Target Upload Protocol

Uploads images of multiple targets such as humans and vehicles. You can enable the body property to recognize clothes, bags, and other properties.

3. **Optional:** If you want to save the alarm information and pictures to the cloud storage, click ⚙ to set **Cloud Storage**. Refer to ***Set Cloud Storage*** for details.
4. Click **Save**.

11.7.2 Set SDK Listening

The SDK listening can be used to receive the uploaded information and pictures of the device arming alarm.

Before You Start

The listening service has been enabled for the SDK listening, and the network communication with the device is normal.

Steps

1. Go to **Configuration → Network → Data Connection → SDK Listening** .

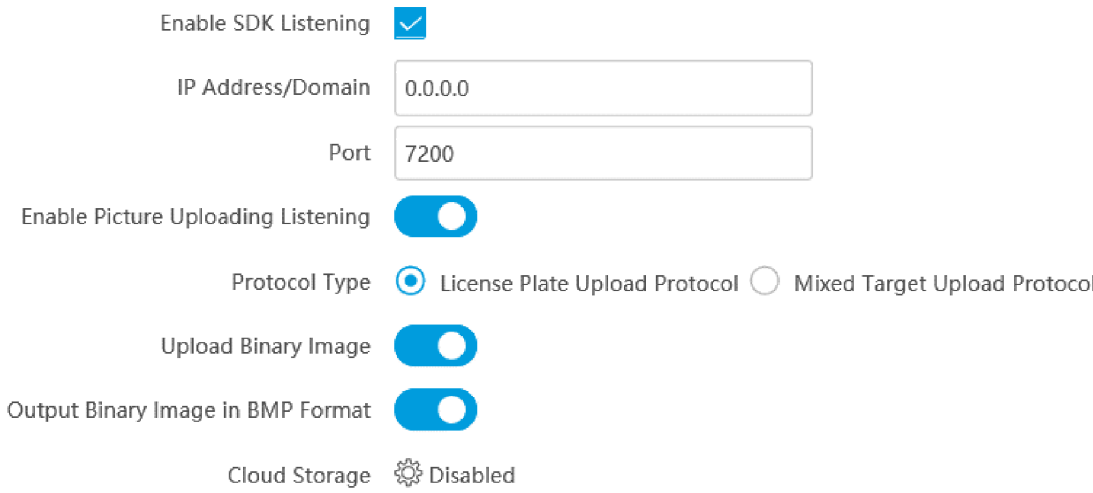

Figure 11-7 Set SDK Listening

2. Enable SDK listening.
3. Set **IP Address/Domain** and **Port** if you need to upload the alarm information and pictures.
4. **Optional:** The device will transmit images via the SDK listening if you enable the picture uploading listening.
5. Select **Protocol Type**.

Note

Supported functions vary with different models. The actual device prevails.

License Plate Upload Protocol

Uploads arming alarm images of the license plate. You can enable **Upload Binary Image** if you need to upload images which are full of black or white pixel points. Enable **Output Binary Image in BMP Format** if you want to output images in this format.

Mixed Target Upload Protocol

Uploads images of multiple targets such as humans and vehicles. You can enable the body property to recognize clothes, bags, and other properties.

6. **Optional:** If you want to save the alarm information and pictures to the cloud storage, click ⚙ to set **Cloud Storage**. Refer to ***Set Cloud Storage*** for details.
7. Click **Save**.

11.7.3 Set ISAPI Listening

ISAPI listening and SDK listening are mutually exclusive protocols. If you enable the picture uploading listening, the device will transmit images via the SDK listening. If not, the device will upload images via ISAPI protocol after the ISAPI parameters are set.

Before You Start

The listening service has been enabled for the ISAPI host, and the network communication with the device is normal.

Steps

1. Go to **Configuration → Network → Data Connection → ISAPI Listening** .
2. Enable the ISAPI listening.

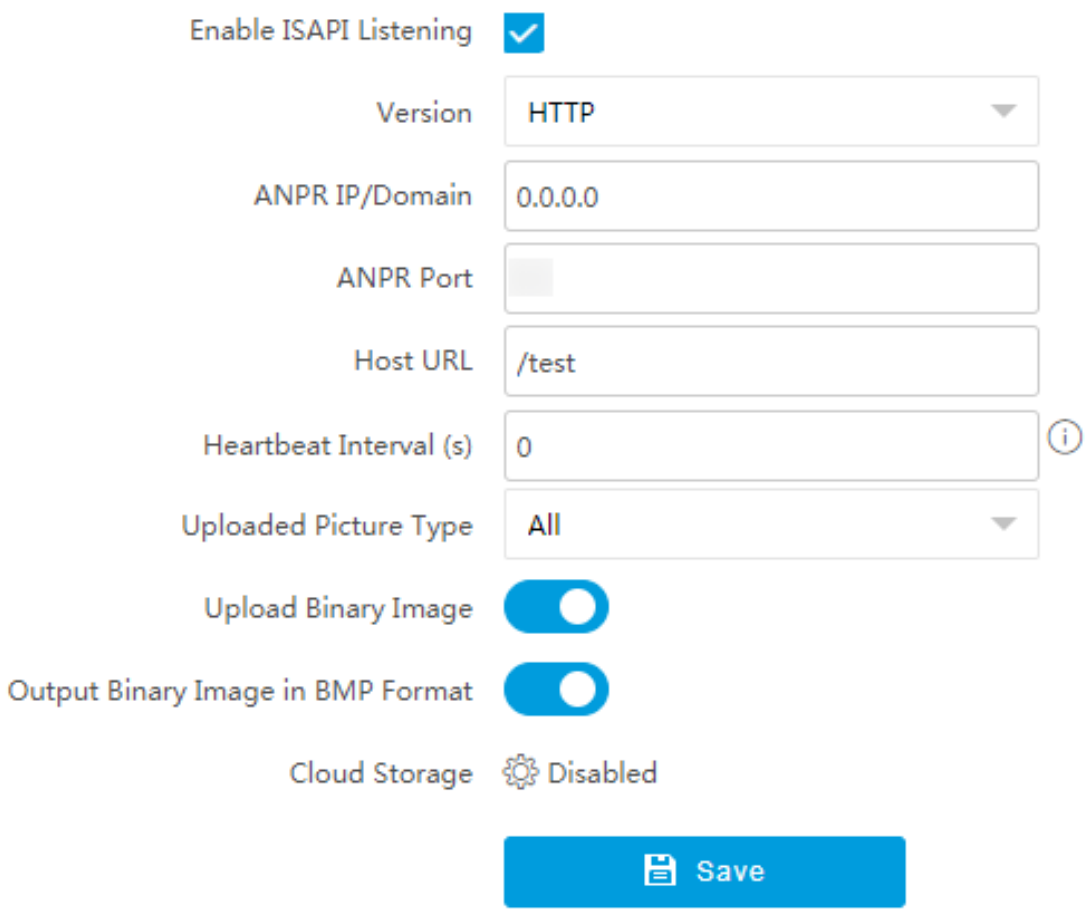

Figure 11-8 Set ISAPI Listening

3. Set **ANPR IP/Domain**, **ANPR Port**, and **Host URL**.
4. Enter **Heartbeat Interval**.

Note

If you set it as 0, the heartbeat is disabled.

5. Set **Uploaded Picture Type**.
6. **Optional:** Enable **Upload Binary Image** if you need to upload images which are full of black or white pixel points.

Note

Enable **Output Binary Image in BMP Format** if you want to output images in this format.

7. **Optional:** If you want to save the alarm information and pictures to the cloud storage, click ⚙ to set **Cloud Storage**. Refer to ***Set Cloud Storage*** for details.
8. Click **Save**.

11.7.4 Connect to ISUP Platform

ISUP is a platform access protocol. The device can be remotely accessed via this platform.

Before You Start

- Create the device ID on ISUP platform.
- Ensure the device can communicate with the platform normally.

Steps

1. Go to **Configuration → Network → Data Connection → ISUP** .

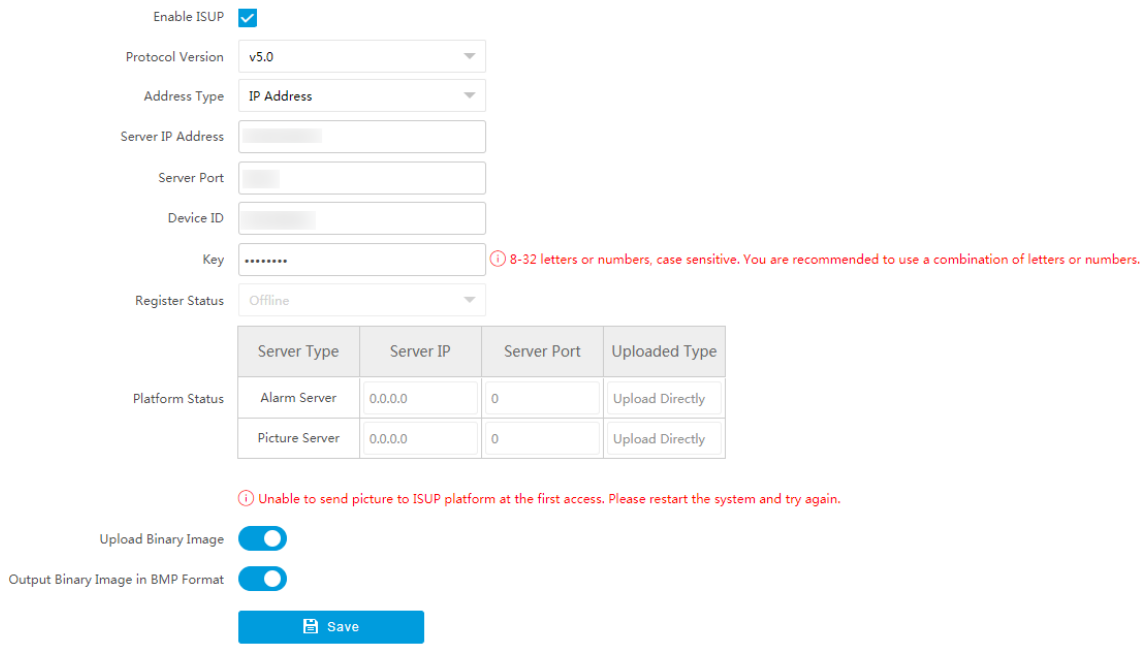

Figure 11-9 Connect to ISUP Platform

2. Check **Enable ISUP**.
3. Select **Protocol Version**.
4. Select **Address Type**.
5. Enter **Sever IP Address**, **Server Port**, and **Device ID**.

Note

You need to enter **Key** if you select **Protocol Version** as **v5.0**.

6. **Optional:** For protocol **v5.0**, you can enable **Upload Binary Image** if you need to upload images which are full of black or white pixel points.

Note

Enable **Output Binary Image in BMP Format** if you want to output images in this format.

7. Click **Save**.

What to do next

When the registration status is online, you can manage the device via the platform or server.

11.7.5 Connect to OTAP

The device can be accessed to the ISC platform via OTAP protocol to realize live view, view incident information, manage the devices, etc. via the platform.

Before You Start

- Ensure the device can communicate with the platform normally.
- Disable the other platform accesses conflicting with OTAP.

Steps

1. Go to **Configuration → Network → Data Connection → OTAP** .
2. Select **Platform Access Mode** as **Private Deployment**.
3. Check **Enable**.

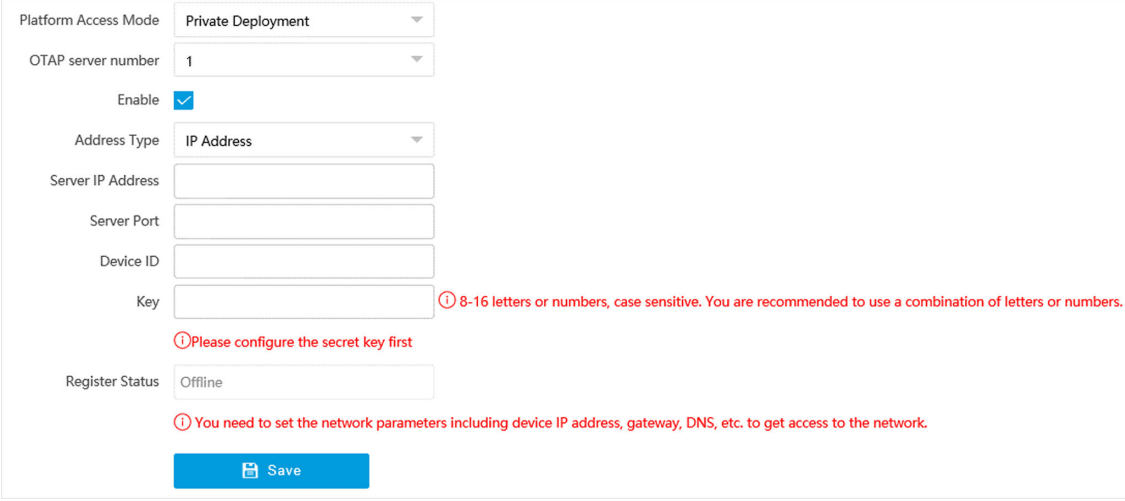

Figure 11-10 Connect to OTAP

4. Set corresponding parameters.

Address Type

Select the address type of the connected platform or server.

Server IP Address/Server Domain Name

The IP address or domain name of the connected platform or server.

Server Port

The port of the connected platform or server.

Device ID

The device ID should be the same with the added one on the OTAP platform.

Key

Set a custom key to encrypt the data connection between the device and the platform or server.

5. Click **Save**.

What to do next

When the registration status is online, you can manage the device via the platform or server.

11.7.6 Connect to Hik-Connect

The device can be remotely accessed via Hik-Connect.

Before You Start

- Connect the device to the Internet.
- Set the IP address, subnet mask, gateway, and DNS server of the LAN.

Steps

Note

This function varies with different models. The actual device prevails.

1. Go to **Configuration → Network → Data Connection → OTAP** .
2. Select **Platform Access Mode** as **Hik-Connect**.
3. Check **Enable**.

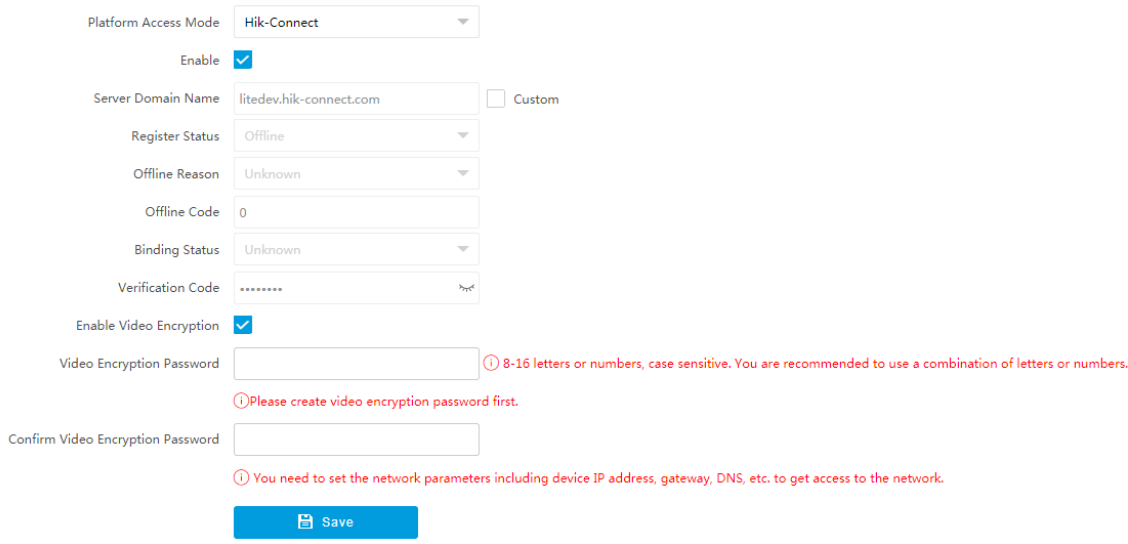

Figure 11-11 Connect to Hik-Connect

4. **Optional:** If you have allocated a custom server, check **Custom** and enter the custom **Server Domain Name**.
5. Enter a custom **Verification Code** used to add the device via Guarding Vision.

Caution

The verification code should be 6 letters or numbers, case sensitive. You are recommended to use a combination of letters or numbers.

6. **Optional:** Check **Enable Video Encryption** and set **Video Encryption Password** to encrypt the videos transmission. Confirm the password.
7. Click **Save**.
8. Add the device to Hik-Connect.
   1) Get and install Hik-Connect application by the following ways.
      - Visit ***https://appstore.hikvision.com*** to download the application according to your mobile phone system.
      - Visit the official site of our company. Then go to **Support → Tools → Hikvision App Store** .
      - Scan the QR code below to download the application.

Figure 11-12 Hik-Connect

Note

If errors like "Unknown app" occur during the installation, solve the problem in two ways.

- Visit ***https://appstore.hikvision.com/static/help/index.html*** to refer to the troubleshooting.
- Visit ***https://appstore.hikvision.com/*** , and click **Installation Help** at the upper right corner of the interface to refer to the troubleshooting.

2) Start the application and register a user account to log in.

3) Add device by the serial No. on the device body and the verification code.

Note

Refer to the user manual of Hik-Connect application for details.

11.8 Set Integration Protocol

You can connect the device via ONVIF protocol.

Steps

1. Go to **Configuration → Network → Data Connection → Integration Protocol** .
2. Check **Enable**.
3. Add a user.
   1) Click **Add**.
   2) Set user name, password, and user level, and confirm the password.
   3) Click **OK**.
   4) **Optional:** You can select the added user and click **Modify** to edit the user information, or click **Delete** to delete the user.
4. Click **Save**.

Result

Only the added users can access the device via ONVIF protocol.

Chapter 12 Serial Port Configuration

12.1 Set RS-485

Set RS-485 parameters if the device needs to be connected to other peripheral devices controlled by RS-485 serial port.

Before You Start

The corresponding device has been connected via the RS-485 serial port.

Steps

Note

The number of available RS-485 serial port varies with different models.

1. Go to **Configuration → System → System Settings → Serial Port → RS-485** .

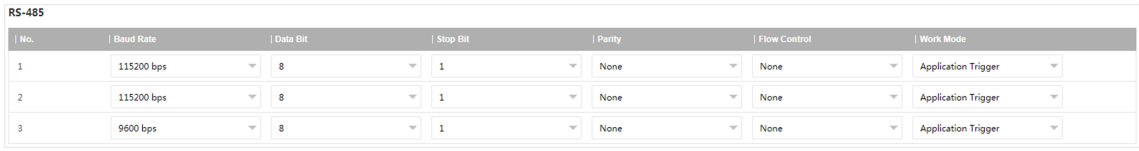

Figure 12-1 Set RS-485

2. Set **Baud Rate**, **Data Bit**, **Stop Bit**, etc.

Note

The parameters should be same with those of the connected device.

3. Set **Work Mode**.

Note

- The supported work modes vary with different models. The actual device prevails.
- You need to reboot the device after editing the work mode to take effect.

Application Trigger

Select it when a signal trigger device (such as a radar) is connected to the RS-485 serial port of the device.

Transparent Channel

Select it when the other peripheral device is connected to the RS-485 serial port of the device for communication transmission.

GPS

Select it when a GPS device is connected to the RS-485 serial port of the device to receive positioning information.

4. Click **Save**.

12.2 Set RS-232

Set RS-232 parameters if you need to debug the device via RS-232 serial port.

Before You Start

The debugging device has been connected via the RS-232 serial port.

Steps

1. Go to **Configuration → System → System Settings → Serial Port → RS-232** .

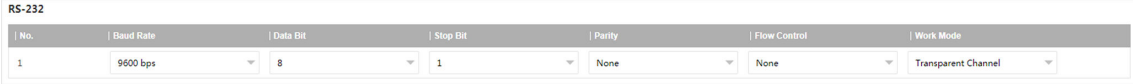

Figure 12-2 Set RS-232

2. Set **Baud Rate**, **Data Bit**, **Stop Bit**, etc.

Note

The parameters should be same with those of the connected device.

3. Select **Work Mode**.

Note

- The supported work modes vary with different models. The actual device prevails.
- You need to reboot the device after editing the work mode to take effect.

Console

Select it when you need to debug the device via RS-232 serial port.

Transparent Channel

Select it, and the network command can be transmitted to RS-232 control command via the RS-232 serial port.

Narrow Bandwidth Transmission

Reserved.

4. Click **Save**.

Chapter 13 Event and Alarm

13.1 Exception Alarm

Set exception alarm when the network is disconnected, the IP address is conflicted, etc.

Steps

Note

The supported exception types vary with different models. The actual device prevails.

1. Go to **Configuration → Event → Alarm Linkage → Exception** .
2. Select the exception type(s) and the linkage method.
3. Click **Save**.

13.2 Set Email

When the email is enabled and set, the device will send an email notification to all designated receivers if an alarm event is detected.

Before You Start

Set the DNS server before using the email function. Go to **Configuration → Network → Network Parameters → Network Interface** for DNS settings.

Steps

1. Go to **Configuration → Network → Data Connection → Email** .
2. Check **Enable Email**.

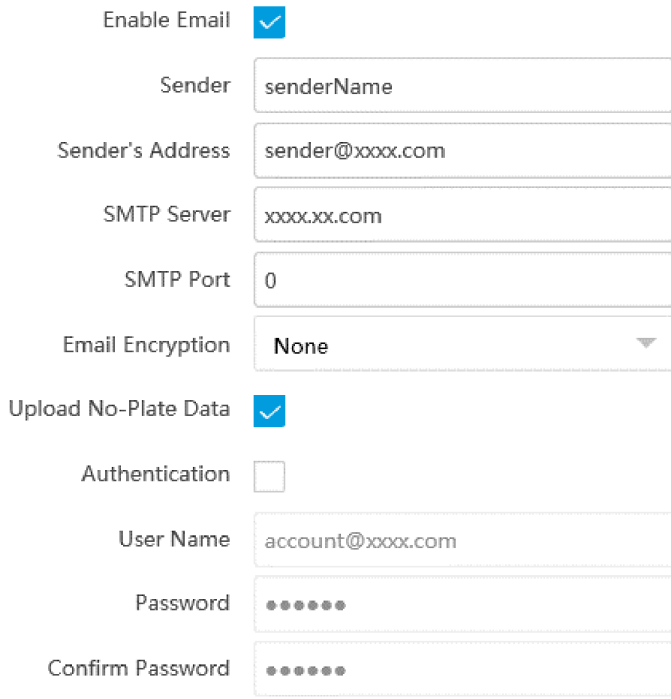

Figure 13-1 Set Email

3. Set email parameters.
   1) Enter the sender's email information, including **Sender**, **Sender's Address**, **SMTP Server**, and **SMTP Port**.
   2) Select **Email Encryption**.

      None

      Emails are sent without encryption.

      TLS

      Emails are sent after being encrypted by TLS.
   3) **Optional:** If you want to upload no-plate data, check **Upload No-Plate Data**.
   4) **Optional:** If your email server requires authentication, check **Authentication** and enter your user name and password to log in to the server.
   5) Enter the receiver's information, including the receiver's name and address.
   6) **Optional:** Click **Test** to see if the function is well configured.
4. Click **Save**.

13.3 Set Email Event

When the set event occurs, the device can be set to send an email with alarm information to the user.

Before You Start

The email has been enabled and related email parameters have been configured.

Steps

1. Go to **Configuration → Event → Alarm Linkage → Email Event** .
2. Check **Enable** to trigger an email alarm.
3. Click **Save**.

13.4 Set Linked Capture

The device supports to run the linked camera to capture from different angles.

Before You Start

Select **Application Mode** as **Video Analysis E-Police** and check violation detection types.

Steps

Note

The function varies with different models. The actual device prevails.

1. Go to **Configuration → Event → Alarm Linkage → Linked Capture** .
2. Check **Enable**.

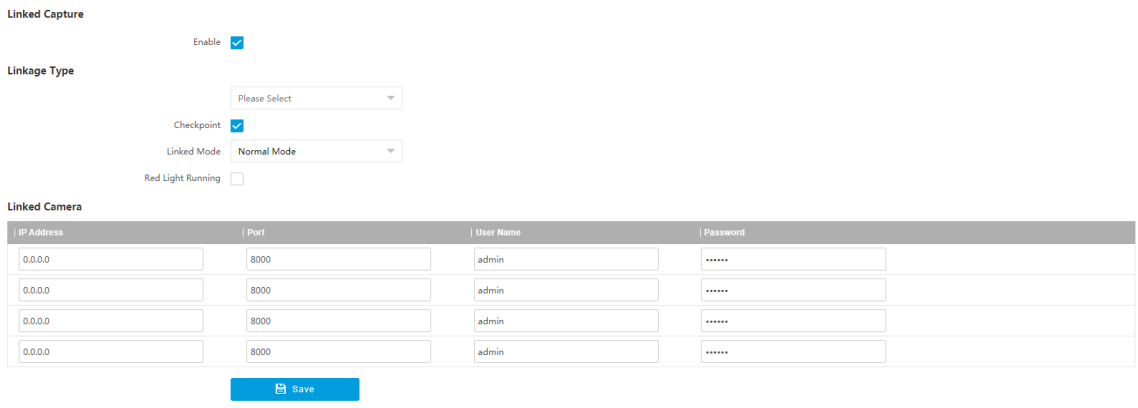

Figure 13-2 Set Linked Capture

3. Check **Linkage Type** and set corresponding parameters.

Note

The supported linkage types vary with different violation types. The actual device prevails.

Example

If you have enabled red light running detection for the application mode, check **Red Light Running** here and set the IP address, port, user name, and password of the linked camera. Then the current camera will link the linked camera to capture.

4. Set the IP address, port, user name, and password of the linked camera.
5. Click **Save**.

Chapter 14 Safety Management

14.1 Manage User

The administrator can add, modify, or delete other accounts, and grant different permissions to different user levels.

Steps

1. Go to **Configuration → System → User Management → User List** .
2. Select **Password Level**.

   The password level of the added user should conform to the selected level.
3. Add a user.
   1) Click **Add**.
   2) Enter **User Name** and select **Type**.
   3) Enter **Admin Password**, **New Password**, and confirm the password.

   Caution

   To increase security of using the device on the network, please change the password of your account regularly. Changing the password every 3 months is recommended. If the device is used in high-risk environment, it is recommended that the password should be changed every month or week.

   4) Assign remote permission to users based on needs.

   User

   Users can be assigned permission of viewing live video and changing their own passwords, but no permission for other operations.

   Operator

   Operators can be assigned all permission except for operations on the administrator and creating accounts.

   5) Click **OK**.
4. **Optional:** You can do the following operations.

Change the password and permission	Click ✎ to change the password and permission.
Delete the user	Click 🗑 to delete the user.

14.2 Enable User Lock

To raise the data security, you are recommended to lock the current IP address.

Steps

1. Go to **Configuration → System → Security → Security Service → Software** .
2. Check **Enable User Lock**.

3. Click **Save**.

Result

When the times you entered incorrect passwords have reached the limit, the current IP address will be locked automatically.

14.3 Set SSH

To raise network security, you are recommended to disable SSH service. The configuration is only used to debug the device for the professionals.

Steps

1. Go to **Configuration → System → Security → Security Service → Software** .
2. Enable or disable **SSH Service**, and set **SSH Port** if you enable the function.
3. Click **Save**.

14.4 Prohibit PING

You can prohibit the external devices to operate network connection volume test to the current device.

Steps

1. Go to **Configuration → System → Security → Security Service → Software**
2. Enable **Prohibit PING**.
3. Click **Save**.

14.5 Enable System Log Service

The security audit logs refer to the security operation logs. You can search and analyze the security log files of the device so as to find out the illegal intrusion and troubleshoot the security events. Security audit logs can be saved on device internal storage. The log will be saved every half hour after device booting. Due to limited storage space, you are recommended to save the logs on a log server.

Steps

1. Go to **Configuration → System → Security → Security Service → Log Audit Service** .
2. Enable system log service.
3. Enter **IP Address** and **Port** of the log server.
4. Click **Save**.

Result

The device will upload the security audit logs to the log server regularly.

14.6 Set Timeout Logout

You can improve network access security by setting timeout logout.

Steps

1. Go to **Configuration → System → Security → Security Service → Timeout Logout** .
2. Enable timeout logout for static page.
3. Set **Max. Timeout**.
4. Click **Save**.

Result

When the page static time exceeds the set time, the device will automatically log out.

14.7 Set Password Validity Period

You can improve network access security by setting password validity period.

Steps

1. Go to **Configuration → System → Security → Security Service → Password Validity Period** .
2. Select **Validity Type**.
   - Select **Permanent**. The password will be permanently valid.
   - Select **Daily** and set **Password Expiry Time**. It will prompt you that the password is expired according to the set password expiry time, and you need to set the new password.
3. Click **Save**.

14.8 Set SDK Protocol Authentication Mode

When you need to operate development integration or data collection via SDK protocol, you are recommended to enable SDK protocol authentication to enhance the information security.

Steps

1. Go to **Configuration → System → Security → Security Service → SDK Service Module** .
2. Select **SDK Protocol Authentication Mode**.

Note

You are recommended to select **Safety Mode**. In this mode, the device cannot be logged in via an invertible password of SDK protocol, which can enhance the information security.

3. Click **Save**.

14.9 Set RTSP Authentication

You can improve network access security by setting RTSP authentication.

Steps

1. Go to **Configuration → System → Security → Security Settings** .
2. Select **RTSP Authentication**.

   digest

   The device only supports digest authentication.
3. Click **Save**.

14.10 Set IP Address Filtering

You can set the IP addresses allowable and not allowable to access the device.

Steps

1. Go to **Configuration → System → Security → Security Settings** .
2. Check **Enable IP Address Filtering**.
3. Set **Filtering Mode**.

   Blocklist Mode

   The added IP addresses are not allowed to access the device.

   Allowlist Mode

   The added IP addresses are allowed to access the device.
4. Click **Add**, enter the IP address, and click **OK**.

   Note

   The IP address only refers to the IPv4 address.
5. **Optional:** Edit, delete, or clear the added IP addresses.
6. Click **Save**.

14.11 Set HTTPS

14.11.1 Create and Install Self-signed Certificate

HTTPS is a network protocol that enables encrypted transmission and identity authentication, which improves the security of remote access.

Steps

1. Go to **Configuration → Network → Network Parameters → HTTPS** .
2. Select **Create Self-signed Certificate**.

3. Click **Create**.
4. Follow the prompt to enter **Country/Region**, **Domain/IP**, **Validity**, and other parameters.
5. Click **OK**.

Result

The device will install the self-signed certificate by default.

14.11.2 Install Authorized Certificate

If the demand for external access security is high, you can create and install authorized certificate via HTTPS protocol to ensure the data transmission security.

Steps

1. Go to **Configuration → Network → Network Parameters → HTTPS** .
2. Select **Create certificate request first and continue the installation**.
3. Click **Create**.
4. Follow the prompt to enter **Country/Region**, **Domain/IP**, **Validity**, and other parameters.
5. Click **Download** to download the certificate request and submit it to the trusted authority for signature.
6. Import certificate to the device.
   - Select **Signed certificate is available, start the installation directly**. Click **Browse** and **Install** to import the certificate to the device.
   - Select **Create the certificate request first and continue the installation**. Click **Browse** and **Install** to import the certificate to the device.
7. Click **Save**.

Chapter 15 Maintenance

15.1 View Device Information

Basic Information and Algorithms Library Version

Go to **Configuration → System → System Settings → Basic Information** to view the basic information and algorithms library version of the device.
You can edit **Device Name** and **Device No.** The device No. is used to control the device. It is recommended to reserve the default value.

Device Status

Go to **Configuration → System → System Settings → Device Status** to view the device status.

15.2 Synchronize Time

Synchronize the device time when it is inconsistent with the actual time.

Steps

1. Go to **Configuration → System → System Settings → Time Settings** .
2. Select **Time Zone**.
3. Select **Sync Mode**.

NTP Synchronization

Select it to synchronize the device time with that of the NTP server. Set **Server IP**, **NTP Port**, and **Interval**. Click **NTP Test** to test if the connection between the device and the server is normal.

Manual Synchronization

Select it to synchronize the device time with that of the computer. Set time manually, or check **Sync. with computer time**.

Satellite Time

Select it to synchronize the device time with that of the satellite. Set **Interval**.

SDK

If the remote host has been set for the device, select it to synchronize time via the remote host.

ONVIF

Select it to synchronize time via the third-party device.

PTP

Select it to synchronize time more accurately. Precision Time Protocol (PTP) is a protocol to synchronize clocks in a computer network, similar to NTP. NTP is accurate, under ten milliseconds. PTP, however, is accurate up to less than a microsecond and is measured in nanoseconds.

No

Select it to disable time synchronization.

All

Select it, and you can select any mode above.

Note

The time synchronization modes vary with different models. The actual device prevails.

4. Click **Save**.

15.3 Set DST

If the region where the device is located adopts Daylight Saving Time (DST), you can set this function.

Steps

1. Go to **Configuration → System → System Settings → DST** .
2. Check **Enable DST**.
3. Set **Start Time**, **End Time**, and **DST Bias**.
4. Click **Save**.

15.4 Reboot

When the device needs to be rebooted, reboot it via the software instead of cutting off the power directly.

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Device Maintenance** .
2. Click **Reboot**.
3. Click **OK** to reboot the device.

Note

You can also click **Reboot** on the upper right corner of the page to reboot the device.

15.5 Restore Parameters

When the device is abnormal caused by the incorrect set parameters, you can restore the parameters.

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Device Maintenance** .
2. Select the restoration mode.
   - Click **Restore**, and select the parameters to be saved instead of being restored. Click **OK**. Then the parameters except the IP parameters, user parameters, and the saved parameters will be restored to the default settings.
   - Click **Restore Factory Settings** and click **OK** to restore all the parameters to the factory settings.
3. Click **OK**.

15.6 Export Parameters

You can export the parameters of one device, and import them to another device to set the two devices with the same parameters.

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Data Export** .
2. Click **Export** after **Configuring Parameters**.
3. Set an encryption password, confirm the password, and click **OK**.

   Note

   The password is used for importing the configuration file of the current device to other devices.
4. Select the saving path, and enter the file name.
5. Click **Save**.

15.7 Export Debug File

The technicians can export the debug file to troubleshoot and maintain the device.

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Data Export** .
2. Click **Export** after **Debug File**.
3. Select the saving path, and enter the file name.
4. Click **Save**.

15.8 Export Diagnosis Information

The technicians can export the diagnosis information to troubleshoot and maintain the device.

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Data Export** .
2. Click **Export** after **Diagnosis Information**.
3. Select the saving path, and enter the file name.
4. Click **Save**.

15.9 Upgrade

Upgrade the system when you need to update the device version.

Before You Start

Prepare the upgrade file. If the upgrade file is a compressed package, it needs to be decompressed into the .dav format.

Steps

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Upgrade** .
2. Click **Browse** to select the upgrade file.
3. Click **Upgrade**.
4. Click **OK** in the popup window.

Note

The upgrade process will take 1 to 10 minutes. Do not cut off the power supply.

Result

The device will reboot automatically after upgrade.

15.10 Import Configuration File

Import the configuration file of another device to the current device to set the same parameters.

Before You Start

Save the configuration file to the computer.

Steps

Caution

Importing configuration file is only available to the devices of the same model and same version.

1. Go to **Configuration → System → Maintenance → Upgrade & Maintenance → Advanced Settings → Data Import** .

2. Select **Importing Method**.

Note

If you select **Import Part**, check the parameters to be imported.

3. Click **Browse** to select the configuration file.
4. Click **Import**.
5. Enter the password which is set when the configuration file is exported, and click **OK**.
6. Click **OK** on the popup window.

Result

The parameters will be imported, and the device will reboot.

15.11 Log

15.11.1 Enable Log According to Module

You can enable the log according to the module for debugging.

Steps

Note

The function varies with different models. The actual device prevails.

1. Go to **Configuration → System → Maintenance → Debug → Log** .
2. Check the module(s) according to your needs.

Note

If you want to disable the log automatically, you can enable auto close log and set close time.

3. Click **Save**.

15.11.2 Search Log

Log helps to locate and troubleshoot problems.

Steps

1. Go to **Configuration → System → Maintenance → Log Search** .
2. Set search conditions.
3. Click **Search**.

   The matched log files will be displayed on the log list.
4. **Optional:** Click **Export** to save the log files to your computer.

15.12 Enable Maintenance Service

If you want to realize remote camera maintenance and debug via the platform server, enable maintenance service and set the access mode.

Steps

1. Go to **Configuration → System → Maintenance → Maintenance Service** .
2. Enable maintenance service.

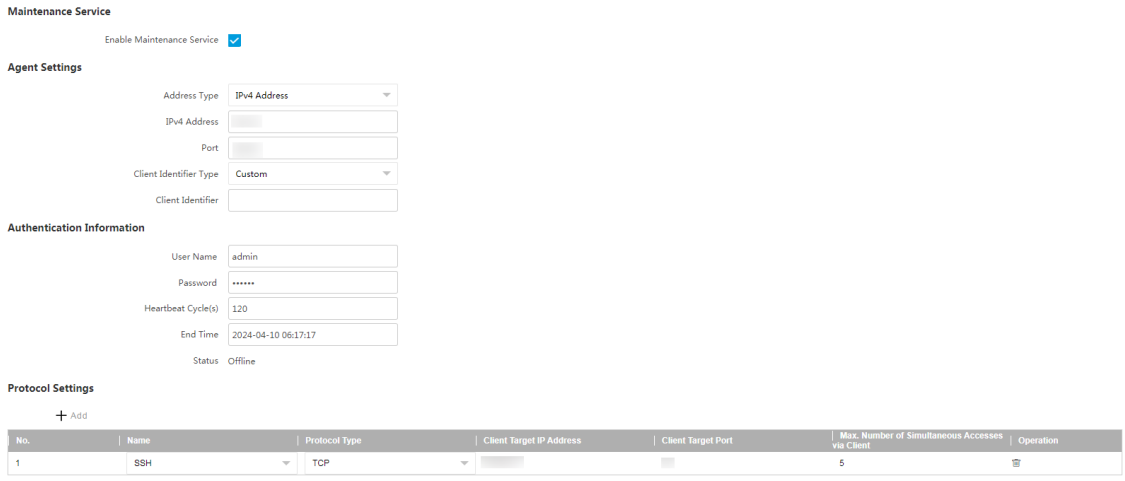

Figure 15-1 Maintenance Service

3. Set agent parameters.
   1) Select **Address Type**.
   2) Set the IP address/domain name and port of the agent.
   3) Select **Client Identifier Type** and set **Client Identifier** according to the actual supporting conditions of the camera. The identifier serves as a unique mark of the camera.
4. Set the authentication information.

   User Name/Password

   The user name and password of the camera for the authentication via the platform server access.

   Heartbeat Cycle(s)

   You are recommended to keep the default value.

   End Time

   The camera will disconnect with the platform server when reaching the set end time.
5. Set protocol parameters.
   1) Click **Add** to add a protocol.
   2) Set the corresponding parameters of the protocol.

Note

You can login and access up to 5 cameras (clients) simultaneously via HTTP or SSH protocol.

6. Click **Save**.

What to do next

After settings, refresh the interface and check the authentication status of the camera. If the status is online, you can access and debug the camera via the platform server.


See Far, Go Further