



Dahua HD Intelligent Traffic Camera

User's Manual

V1.0.1

ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.

Regulatory Information

FCC Information



Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC conditions:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

FCC compliance:

This equipment has been tested and found to comply with the limits for a digital device, pursuant to Part 15 of the FCC Rules. This equipment generates, uses and radiates radio frequency energy and, if not installed and used in accordance with the guide, may cause harmful interference to radio communication.

- For Class A device, these limits are designed to provide reasonable protection against harmful interference in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his or her own expense.
- For Class B device, these limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
 - Reorient or relocate the receiving antenna.
 - Increase the separation between the equipment and receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.

Foreword

General







This User's Manual (hereinafter referred to as "the Manual") introduces the functions and features, structure, installation, system networking, network access, quick configuration method, and FAQ of intelligent traffic HD camera (hereinafter referred to as "the Camera").



Models

Model	Pixel
DHI-ITC952-RF2D	9 MP
DHI-ITC952-RF2D-IR	
DHI-ITC352-RF2D	3 MP
DHI-ITC352-RF2D-IR	

Safety Instructions

The following categorized signal words with defined meaning might appear in the Manual.

Signal Words	Meaning
 DANGER	Indicates a high potential hazard which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a medium or low potential hazard which, if not avoided, could result in slight or moderate injury.
 CAUTION	Indicates a potential risk which, if not avoided, may result in property damage, data loss, lower performance, or unpredictable
 ELECTRICITY	Indicates dangerous high voltage. Take care to avoid coming into contact with electricity.
 LASER BEAM	Indicates a laser radiation hazard. Take care to avoid exposure to a laser beam.
 ESD	Electrostatic sensitive devices. Indicates a device that is sensitive to electrostatic discharge.

Signal Words	Meaning
 TIPS	Provides methods to help you solve a problem or save you time.
 NOTE	Provides additional information as the emphasis and supplement to the text.

Revision History

No.	Version	Revision Content	Release Time
1	V1.0.1	Update	April 2019
2	V1.0.0	First release	January 2019

Important Safeguards and Warnings

Operation Requirement

- Do not place or install the Camera in a place exposed to sunlight or near the heat source.
- Keep the Camera away from dampness, dust or soot.
- Keep the Camera installed horizontally on the stable place to prevent it from falling.
- Do not drop or splash liquid onto the Camera, and make sure there is no object filled with liquid on the Camera to prevent liquid from flowing into the Camera.
- Install the Camera in a well-ventilated place, and do not block the ventilation of the Camera.
- Operate the Camera within the rated range of power input and output.
- Do not disassemble the Camera.
- Transport, use and store the Camera under the allowed humidity and temperature conditions.

Electrical Safety

- Improper battery use might result in fire, explosion, or inflammation.
- When replacing battery, make sure the same model is used.
- Use the recommended power cables in the region and conform to the rated power specification.
- Use the power adapter provided with the Camera; otherwise, it might result in people injury and device damage.
- The power source shall conform to the requirement of the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC60950-1. Please note that the power supply requirement is subject to the device label.
- Connect the device (I-type structure) to the power socket with protective earthing.
- The appliance coupler is a disconnection device. When using the coupler, keep the angle for easy operation.

Maintenance Requirement

- Do not try to disassemble the Camera yourself.
- Do not touch charge-coupled device (CCD) or complementary metal oxide semiconductor (CMOS) directly. Use a blower to remove dust or dirt from the sensor surface.
- Use a soft, dry and clean cloth soaked with a small amount of neutral detergent to clean the Camera.

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1 Overview

1.1 Introduction

The Camera uses embedded operating system and advanced video technology of H.264 encoding (some models support H.265 encoding) to realize flexible capture.

It can record videos of different surveillance scenes, and transmit video data to controller, central server or storage device through network.

The Camera is extensively applied to traffic surveillance system of highways and city roads. It can effectively monitor violations such as speeding, wrong-way driving, unfastened safety belt, running a red light, etc. It provides effective ways for modern traffic management.

1.2 Functions



This section introduces some of the functions for your reference. The functions may vary according to the model, and the actual functions of the model shall prevail.

Picture Composition

Composites several pictures of violations into one picture, and the composition way is flexible.

Picture Cutout

With sufficient light supplement of flashing light, when capturing one vehicle, the Camera can also cut out the plate number part of the snapshot. Camera in ANPR mode can even cut out the face picture of people in the front.

Intelligent Recognition

- Recognizing license plate, logo, series, color, model, sun visor, safe belt, face of driver, etc.
- Detecting violations such as speeding, unfasten safety belt, etc.

User Management

- Configuring multiple user groups and users, and each user groups and user can be configured with different authorities.
- Querying information of online users.

Log Management

- Storing up to 1,792 log records.

- User permission control.

Storage

- Stores the record data on central server according to the storage policy configured by user.
- After recording according to user needs and by web recording mode, video files are stored on the client computer.
- TF card local storage, hot swapping, and ANR (automatic network replenishment). When storage space is insufficient, it automatically overlays the stored files.

Alarm

- Sending alarm of camera abnormality (such as storage damage) through network.
- Connecting to external alarm devices through alarm inputs, and real-time response to external alarm inputs within 200ms.
- Processing alarm information and sending voice prompt according to predefined alarm settings by user.

Network Surveillance

- Through network, single-channel record data compressed by the Camera is transmitted to the network terminal for decompression and reconstruction. 400ms delay at most if bandwidth allows.
- Max supports 10 connections.
- Adopts the following A/V transmission protocol: HTTP, TCP, UDP, MULTICAST, RTP/RTCP, etc.
- Supports web access, widely used in WAN.

Traffic Flow Statistics

Traffic flow statistics of lane is realized through connection to traffic signal controller or camera. Uploading statistics data to corresponding platform server.

Snapshot

- Snapshot and coding of images.
- Supports watermark encryption to prevent tampering.
- You can configure the speed limit and interval of snapshot.
- The captured picture displays the time, place, speed, speed limit, and lane of vehicle, as well as picture number, violation type, etc.
- Snapshot of traffic violations.

Record Linkage

Recording the violations of vehicles, and linking snapshots to the record.

OSD Settings

You can configure the OSD information and location of video channel, picture, and composite picture.

Network Management

- Configuration and permission management through Ethernet.
- Managing the Camera by web.

Peripheral Device Control

- Peripheral device management. The control protocol and interface of such device can be configured freely.
- Supports connection to peripheral devices such as flashlight, strobe light, vehicle detector, signal detector, radar, etc.

Power Supply

AC synchronization. 12V DC power supply.

White Balance

- Automatic white balance: Accurately reflecting the color balance when the illumination source changes.
- Partial white balance: Adjusting the color balance according to the surrounding environment.

Automatic Exposure

Automatically determines the correct exposure for captured pictures, and the shutter speed based on the factory settings of aperture and shutter speed.

Automatic Gain

Automatically increases the sensitivity of camera when the illumination is weak, and enhances image signal output for clear, bright images.

Auxiliary Functions

- Watermark encryption of video image coding to prevent tampering.
- Real-time display of system resource information and running status. Supports log function.
- Signal control and output of strobe light, flashing light, and continuous light.
- GPS positioning.

2 Structure

2.1 Rear Panel

Figure 2-1 Rear panel

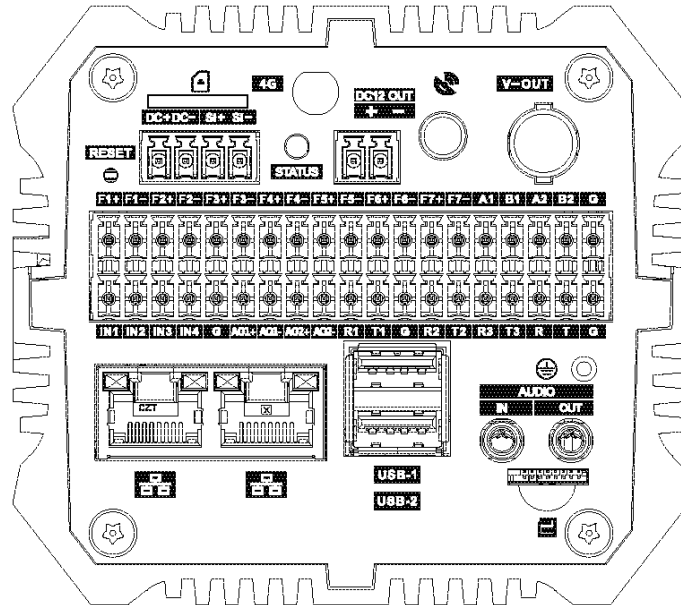









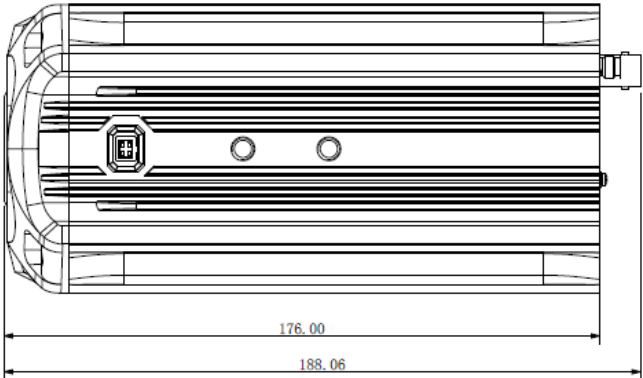
Table 2-1 Rear panel interfaces

Interface		Function
DC 12 IN	Power input interface	12V DC input.
SI+, SI-	Synchronous input interface of external frequency source	The camera synchronizes with external signal source (automatically works after selecting external synchronous. Voltage range: 12 Vp-p–36 Vp-p, or AC 12V–AC 24V).
RESET	Reset button	Restore to factory default settings. When system runs normally (the power indicator light is blue), press and hold the RESET button for at least 5 seconds, and the system restores to factory default settings.
STATUS	Indicator light	Displays the activity status of the camera. The status of indicator light is as follows: <ul style="list-style-type: none"> The blue light keeps on when the system runs normally. The red light flashes when the system is updating. The red light keeps on in safety mode.
DC 12 OUT	Power output interface	12V DC output.
	GPS	Used for connecting GPS antenna.

Interface		Function
V-OUT	Video output CVBS	CVBS (1.0Vp-p, 75Ω).
F1+, F1-, F2+, F2-, F3+, F3-, F4+, F4-, F5+, F5-, F6+, F6-, F7+, F7-	7-channel ports	Connect flashing light and strobe.  The configuration must be consistent with the light actually connected, otherwise it is prone to burn out the light.
A1	RS-485 ports	RS485-A1 port, connecting to signal detector, vehicle detector, radar, etc.
B1		TRS485-B1 port, connecting to signal detector, vehicle detector, radar, etc.
A2		RS485-A2 port, connecting to motorized varifocal lens.
B2		RS485-B2 port, connecting to motorized varifocal lens.
G	GND	Ground terminal.
IN1, IN2, IN3, IN4	Input port	4 snapshot ports or 4 alarm input ports.
AO1, AO2	2-channel alarm output	Can be configured respectively as alarm output port and wiper output port.
R1 T1 G R2 T2 G R3 T3 G	3-channel radar port	Simultaneous connection of 3 radars.
R	RS-232 ports	RS232_RX, RS232 port receiving terminal.
T		RS232_TX, RS232 port transmitting terminal.
	2 network ports	Connect standard Ethernet cable.
USB-1/USB-2	2 USB ports	Used for accessing 3G, 4G, and Wi-Fi.
	GND	Ground this port to improve reliability of the Camera, otherwise the Camera might be exposed to lightning strikes.
AUDIO IN/OUT	Audio input/output	Audio input/output interface.
	TF card port	Connect TF card. Instructions for using TF card: <ul style="list-style-type: none"> • Before inserting the TF card into the slot, make sure write protection is disabled in the card. • When removing the TF card, make sure the card is not in read/write status; otherwise, it might cause data loss and TF card damage. • When hot swapping the TF card, stop recording first.
	SIM card slot	Preserved interface.
	Antenna slot	4G antenna.

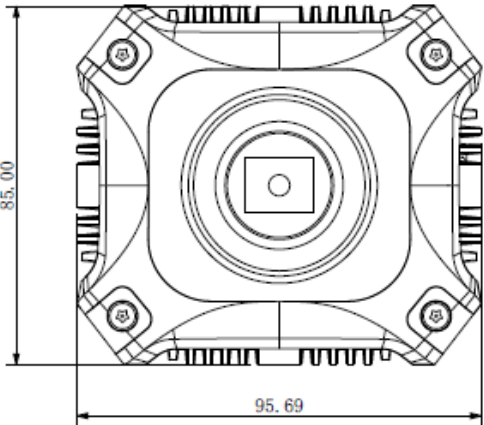
2.2 Side Panel

Figure 2-2 Side panel dimensions (mm)



2.3 Front Panel

Figure 2-3 Front panel dimensions (mm)



3 Installation




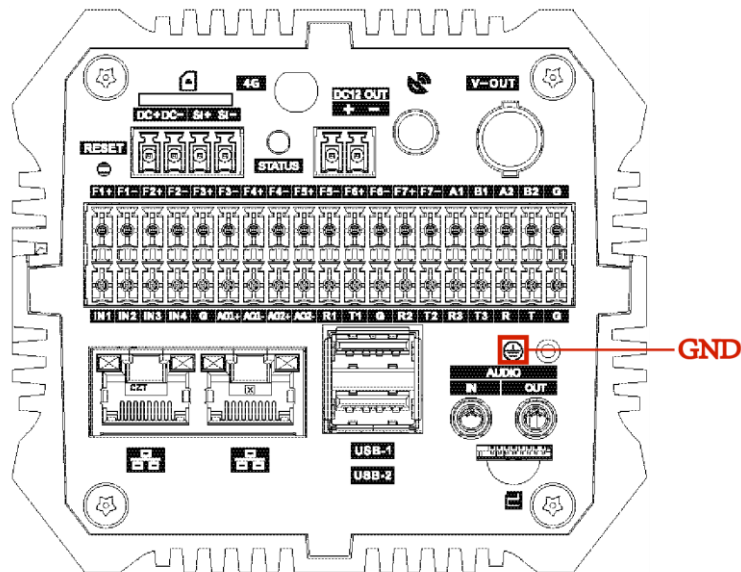
To ensure proper grounding of the Camera and improve device reliability, connect the Camera interface  to the ground.

Figure 3-1 GND



3.1 Motorized Varifocal Lens

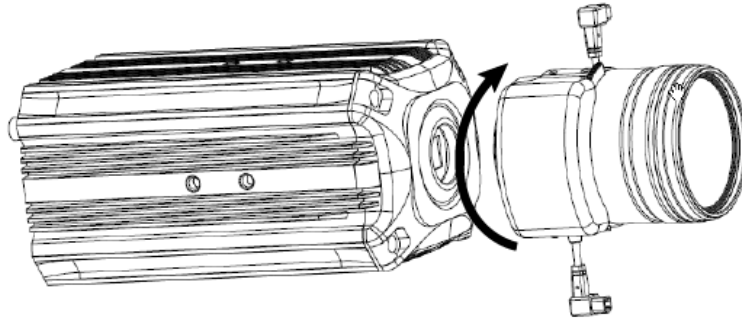


This section takes some models as the example, and the actual model shall prevail.

3.1.1 Installing the Lens

- Step 1** Remove the protective covers of sensor and lens. Insert the spacer in between the lens and the camera.
- Step 2** Align the lens to the lens mount position on the camera, and turn the lens clockwise until it is securely mounted. See Figure 3-2.

Figure 3-2 Installing the lens

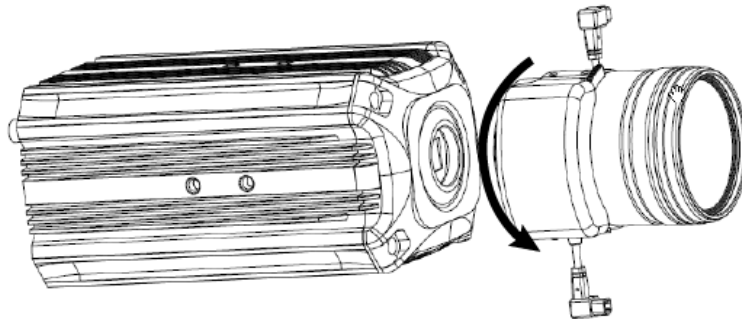


Step 3 Insert the cable plug of lens into the auto iris lens connector on the side panel of camera.

Step 4 Correct the focus to make the images clear.

3.1.2 Removing the Lens

Figure 3-3 Removing the lens



Step 1 Unplug the cable from the lens mount.

Step 2 Turn the lens to counter-clockwise until the lens is removed. See Figure 3-3.

Step 3 Install the protective covers of sensor and lens to prevent them from being spotted.

3.2 TF Card

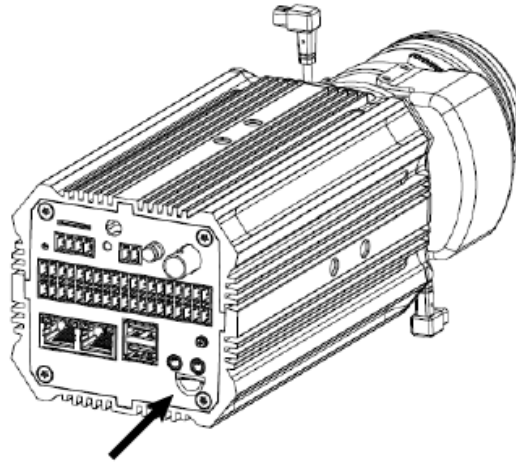


This section takes some models as the example, and the actual model shall prevail.

3.2.1 Installing TF Card

Insert the TF card according to the direction shown by the arrow. See Figure 3-4.

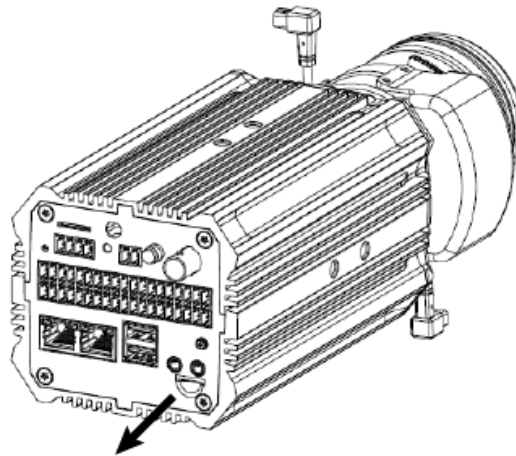
Figure 3-4 Installing TF card



3.2.2 Removing TF Card

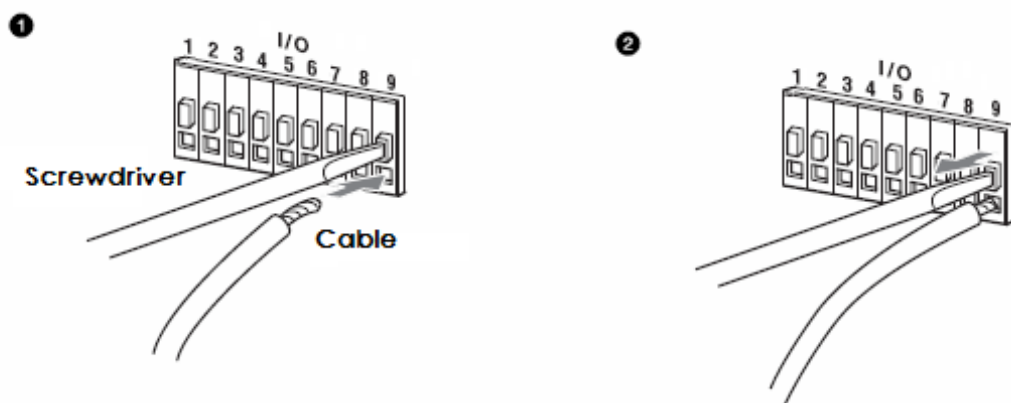
Remove the TF card according to the direction shown by the arrow. See Figure 3-5.

Figure 3-5 Removing TF card



3.3 I/O Interface

Figure 3-6 I/O interface



3.3.1 Installing the Cable

Step 1 Insert the screwdriver into the square slot corresponding to the connecting cable. Press the screwdriver vertically to loosen and expose the metal sheet of the circular slot.

Step 2 Insert the cable into the circular slot.

Step 3 Remove the screwdriver, and the cable installation is finished.

3.3.2 Removing the Cable

Step 1 Insert the screwdriver into the square slot corresponding to the connecting cable. Press the screwdriver vertically to loosen and expose the metal sheet of the circular slot.

Step 2 Pull the cable out of the circular slot.

Step 3 Remove the screwdriver, and the cable is disassembled.

3.4 Corrugated Pipe

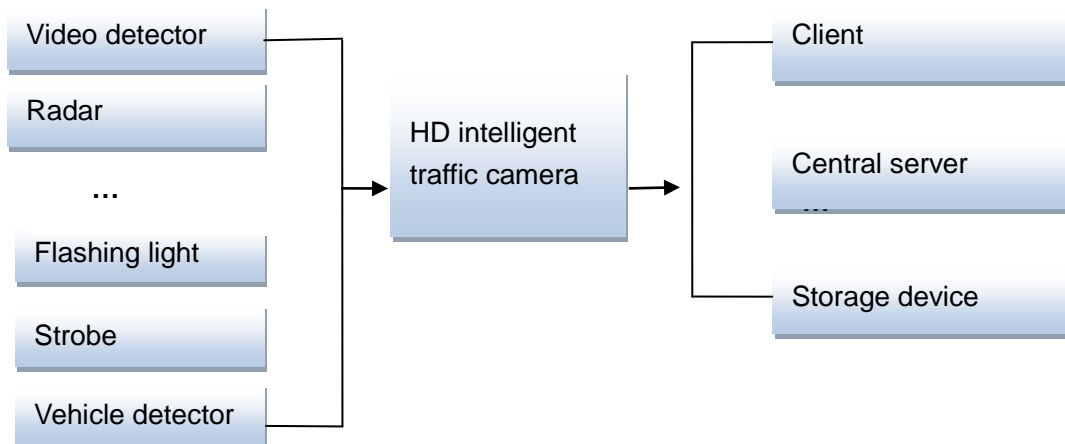
The corrugated pipe helps protect the cable.

Pull the cable into the corrugated pipe, and then pass the cable through the hole at the bottom of the device. After the cable is properly placed, insert the corrugated pipe into the hole until it is securely clamped.

4 System Network

As the center of traffic surveillance system, the Camera can record videos of different surveillance scenes, and transmit video data to controller, central server or back-end storage device through network. See Figure 4-1.

Figure 4-1 System network



5 ConfigTool

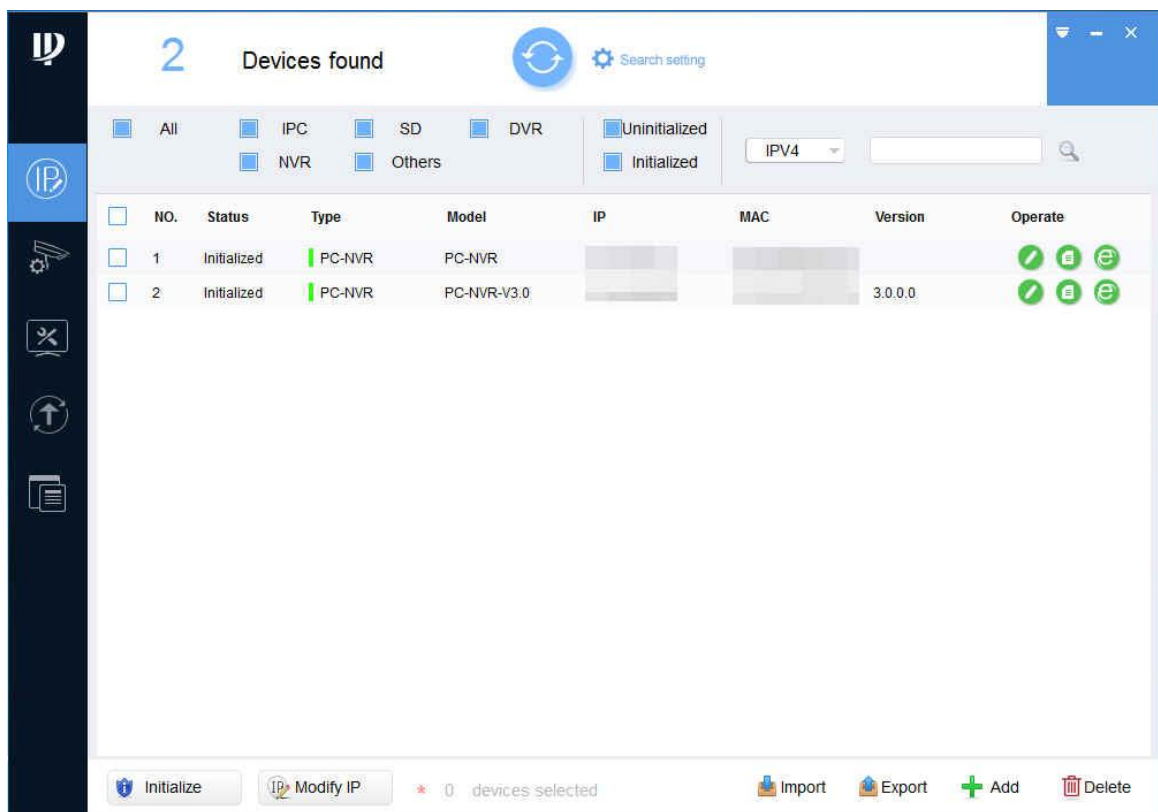
Get the quick configuration tool by downloading and registering ConfigTool. You can use ConfigTool to search device IP, modify the IP, and upgrade the system.



This section takes ConfigTool 4.07.0 as the example. Different versions may have different interfaces, and the actually downloaded ConfigTool shall prevail.

Open ConfigTool, and on the **Devices found** page, you can see the device information, such as status, type, model, IP, MAC, and version. See Figure 5-1.

Figure 5-1 Main interface



5.1 Modifying IP Address

Step 1 Open ConfigTool.

Step 2 Click .

The **Modify IP** interface is displayed. See Figure 5-1.

Step 3 Click the device that you want to modify the IP.

- Modify one device: Click  corresponding to the device.
- Batch modify: Select the devices, and click **Modify IP**.

Step 4 Configure mode, IP, subnet mask and gateway. See Figure 5-2.



For batch modify, selecting **Same IP** means setting the selected devices as the same IP.

Figure 5-2 Batch modify

Modify IP Address

Mode Static DHCP

Start IP Same IP

Subnet Mask

Gateway

Selected number of devices: 2

Step 5 Click **OK**.


5.2 Upgrading the Camera

Supports upgrading one device or batch upgrade.



Step 1 Open ConfigTool.

Step 2 Click , and the **Upgrade** interface is displayed. See Figure 5-3.

Figure 5-3 Upgrade

2 Devices found  Search setting

All IPC SD DVR NVR Others

NO.	Model	IP	Version	Upgrade File Path	Browse	Operate
<input type="checkbox"/> 1	PC-NVR				<input type="button" value="Browse"/>	<input type="button" value="Upgrade"/>
<input type="checkbox"/> 2	PC-NVR-V3.0		3.0.0.0		<input type="button" value="Browse"/>	<input type="button" value="Upgrade"/>

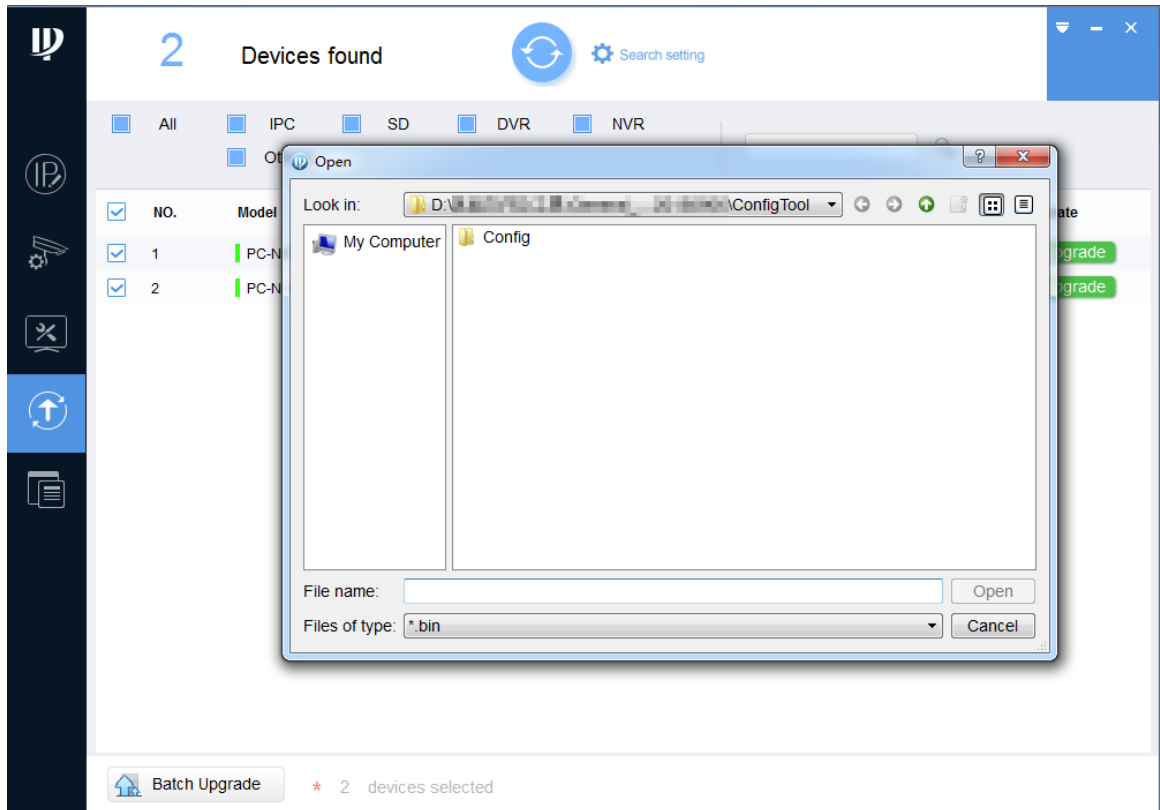
* 0 devices selected

Step 3 Select the device you want to upgrade.

- Upgrade one device: Click **Browse** corresponding to the device to be upgraded.
- Batch upgrade: Select the device to upgrade, and then click **Batch Upgrade**.

Step 4 Select the upgrade file. See Figure 5-4.

Figure 5-4 Select the upgrade file



Step 5 Upgrade the device.

- Upgrade one device: Click **Upgrade**, and the system starts upgrading. You can see the upgrade progress.
- Batch upgrade: Click **OK**, and the system starts upgrading.



If the device is disconnected during upgrading, as long as the ConfigTool stays on the upgrade interface, the upgrade will resume when the connection is restored.

5.3 Logging in Web


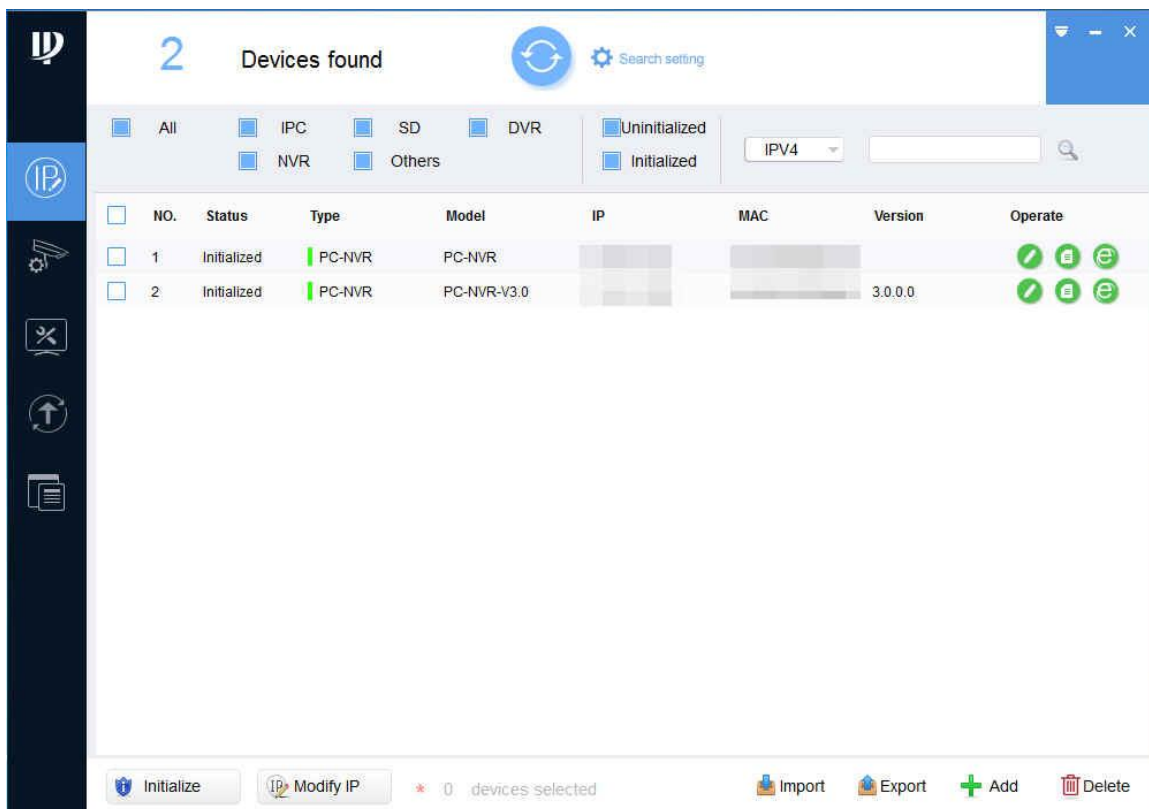
You can login to web by clicking  corresponding to the device. See Figure 5-5.

Figure 5-5 Devices found

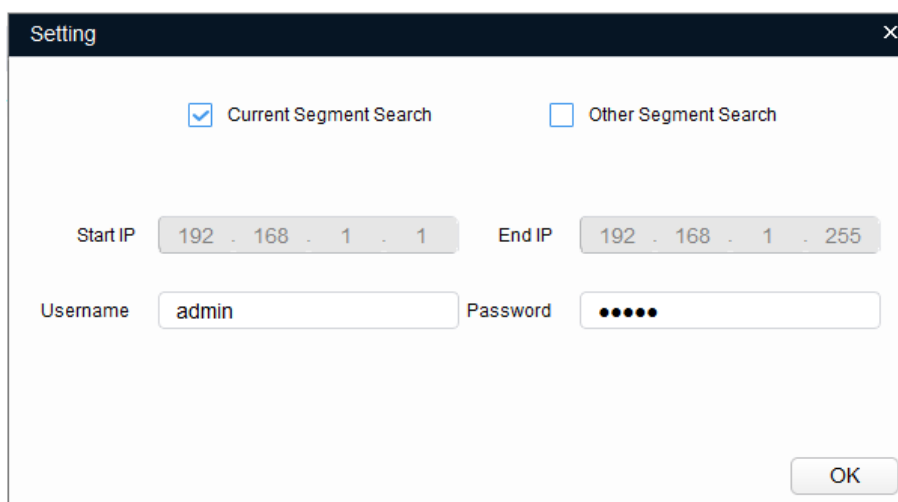


5.4 Setting Search

Click  **Search setting** to search device.

The **Setting** interface is displayed. See Figure 5-6.

Figure 5-6 Setting



- Current segment search: Search devices in the same network segment with the PC.
- Other segment search: Search devices according to the start IP and end IP.

6 Web Configuration

6.1 Web Introduction



The actual interface might be different dependent on the model you purchased and the version of software. The figures in the Manual are only for reference, and the actual product shall prevail.

6.1.1 First-time Login

Step 1 Connect the Camera to network.

- 1) Connect the Camera to PC over the Ethernet cable.
- 2) Keep the IP address of the PC and the camera on the same network segment.
The network segment can be set as 192.168.1.X, but cannot be the same with the factory default IP of the Camera (192.168.1.108).
- 3) Execute ping `***.***.***.***` (device IP) command on PC to check network connection.

Step 2 Enter the IP address of the Camera (192.168.1.108) in the browser address bar, and press Enter on the keyboard to login the web interface of the Camera.

The **Device Initialization** interface is displayed. See Figure 6-1.

Figure 6-1 Device initialization

The screenshot shows the 'Device Initialization' web interface. It features a form with the following elements:

- User Name:** A text input field containing 'admin'.
- Password:** A text input field with a red warning message: 'The minimum length of password is 8'. Below the field are three buttons labeled 'Weak', 'Middle', and 'Strong'.
- Confirm Password:** A text input field.
- Instructions:** Below the password fields, it says: 'Use a password that has 8 to 32 characters, it can be a combination of letter(s), number(s) and symbol (s) with at least two kinds of them.'
- Email Address:** A checkbox labeled 'Email Address' followed by a text input field.
- Instructions:** Below the email field, it says: 'To reset password, please input properly or update in time.'
- OK Button:** A button at the bottom center of the form.

Step 3 Enter the new password. Select the Email Address check box, and then enter your email address.

Step 4 Click **OK**.

The **Login** interface is displayed. See Figure 6-2.

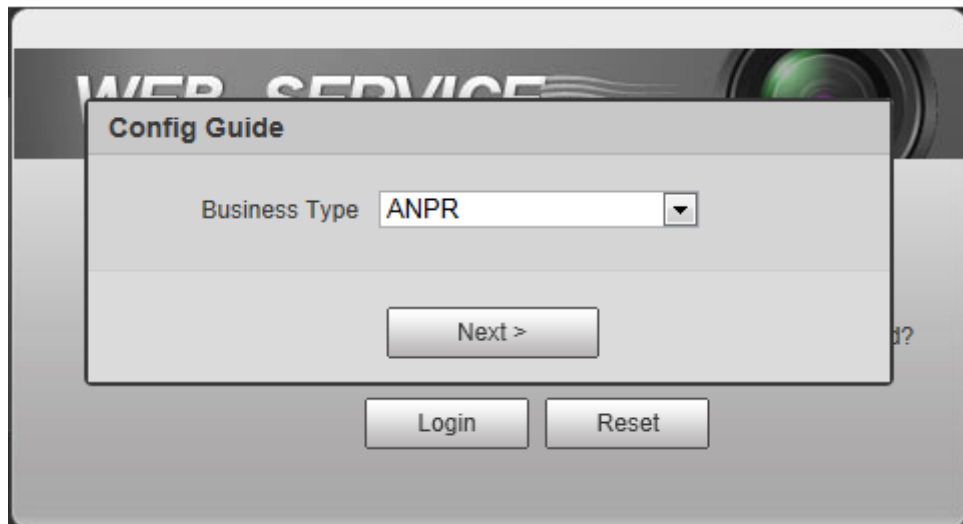
Figure 6-2 Login



The screenshot shows the login page for 'WEB SERVICE v3.0'. It features a header with the service name and a camera lens icon. Below the header, there are two input fields: 'User Name:' and 'Password:'. To the right of the password field is a link that says 'Forgot password?'. At the bottom of the form are two buttons: 'Login' and 'Reset'.

Step 5 On the login interface, enter the user name and password.
The **Config Guide** interface is displayed. See Figure 6-3.

Figure 6-3 Config guide (1)

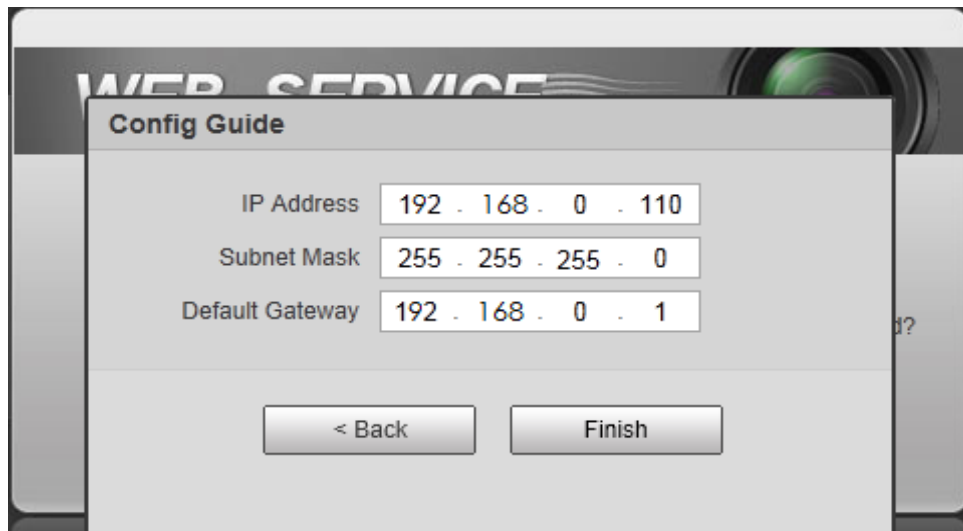


The screenshot shows the 'Config Guide' dialog box. It has a title bar that says 'Config Guide'. Inside, there is a 'Business Type' label followed by a dropdown menu showing 'ANPR'. Below this is a 'Next >' button. At the bottom of the dialog are 'Login' and 'Reset' buttons.

Step 6 Click **Next**.

The interface for configuring IP address, subnet mask and default gateway is displayed.
See Figure 6-4.

Figure 6-4 Config guide (2)



The screenshot shows the 'Config Guide' dialog box at the second step. It has a title bar that says 'Config Guide'. It contains three rows of configuration fields: 'IP Address' with the value '192 . 168 . 0 . 110', 'Subnet Mask' with '255 . 255 . 255 . 0', and 'Default Gateway' with '192 . 168 . 0 . 1'. At the bottom are '< Back' and 'Finish' buttons.

Step 7 Configure the IP address, subnet mask, and Default gateway. Click **Finish**.

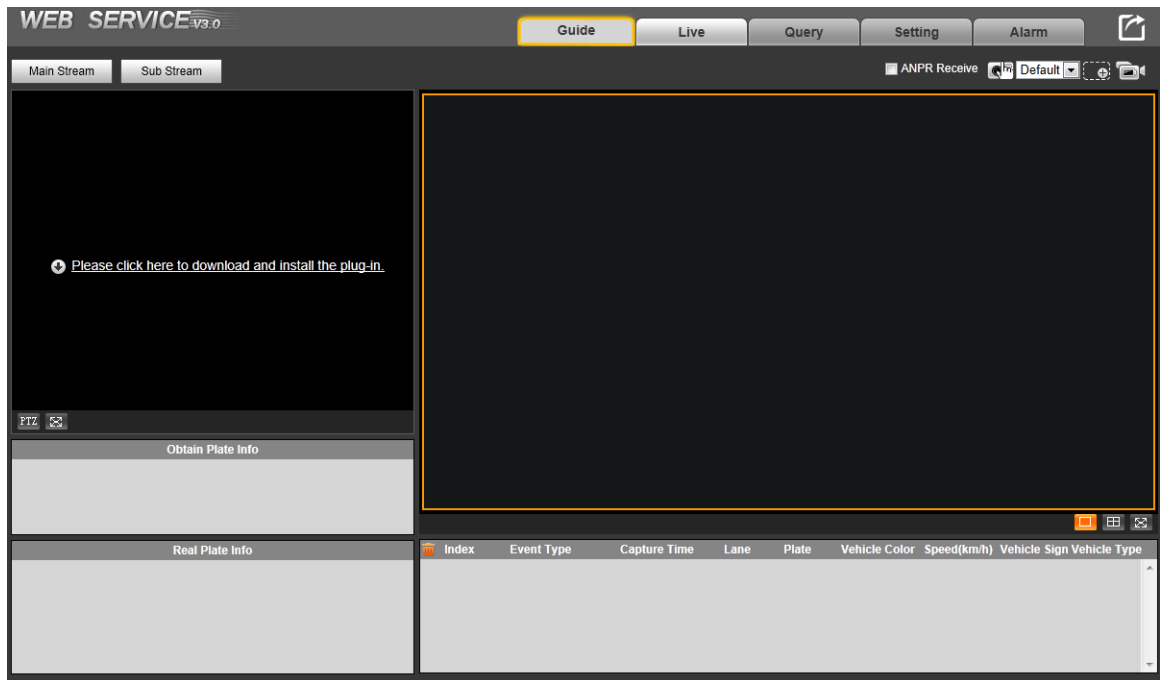
The **Live** interface is displayed. See Figure 6-5.



After configuring the IP address of the Camera, you need to modify the IP address, subnet mask and default gateway of the PC accordingly.

- If no routing device is used, configure an IP address on the same network segment with the IP address of the Camera.
- If routing device is used, then enter the corresponding gateway and subnet mask.

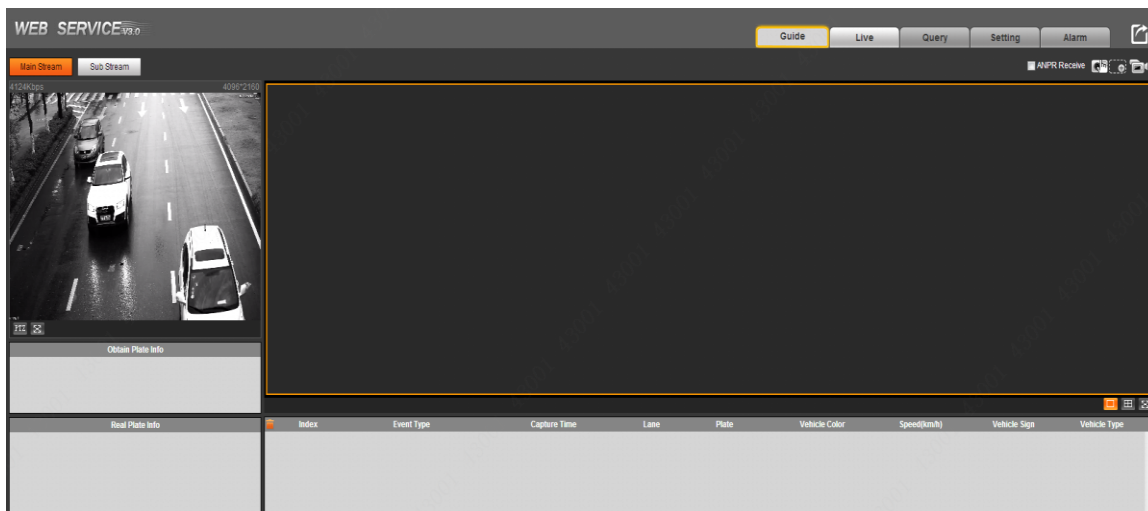
Figure 6-5 Live interface



- Before installing the plug-in, make sure ActiveX controls (in Internet Explorer) from **Tools > Internet Options > Security > Custom Level** is enabled.
- For first-time login, click **Please click here to download and install the plug-in**, and then install the plug-in according to system prompt.

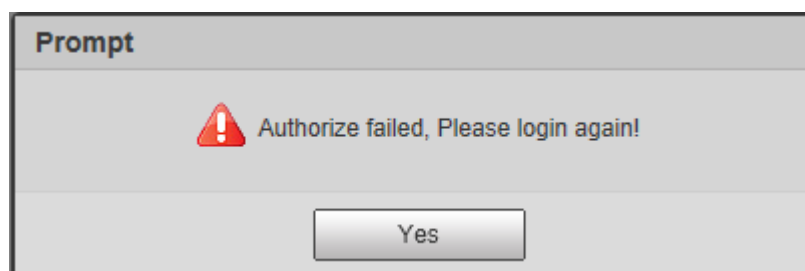
Step 8 After successfully installing the plug-in, the web page is displayed as Figure 6-6.

Figure 6-6 Web page



If there is no operation for a long time, the system prompts **Authorized failed, Please login again!** See Figure 6-7. In this case, you need to log in again.

Figure 6-7 Prompt



6.1.2 Login

You can login to the web by following the steps below. For first-time login, see "6.1.1 First-time Login."

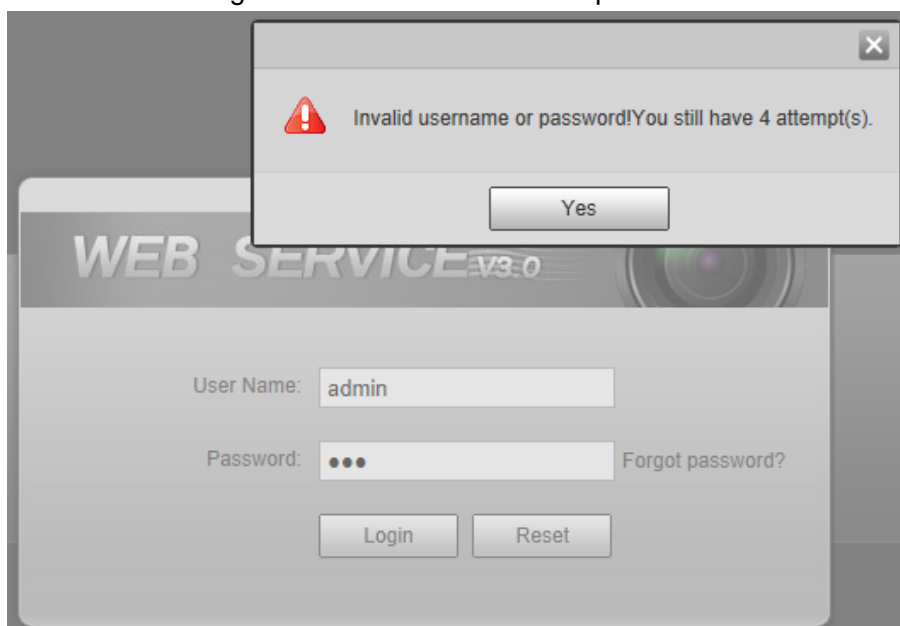
Step 1 Enter the IP address of the Camera in the browser address bar, and press Enter.

Step 2 Enter user name and password on the interface displayed, and then click **Login**.



- A box pops up when the user name or password is incorrect. See Figure 6-8.
- If you enter invalid user name or password for five times, the account will be locked for five minutes.

Figure 6-8 Invalid username or password




6.1.3 Functions

This section introduces the web operations listed in Table 6-1.


It takes DHI-ITC952-RF1D as the example.

Table 6-1 Web functions

Operation	Description
Guide	Provides guide for fast configuration of the Camera.
Live	Displays real-time video and picture. You can record video and capture pictures, and configure video play and picture settings.
Query	You can search pictures, flow and record on this interface.
Setting	You can configure settings, such as basic properties, business type, internet protocol, alarm time, and storage. You can also check information of the Camera.
Alarm	You can configure alarm settings, such as alarm type, alarm tone, etc.
	Log out the web.

6.2 Guide

It provides guide for fast configuration of the Camera. You can quickly configure major functions of the Camera, including work mode, PTZ, plate-pixel check, trigger mode, lamp config, and lane property.

If you want to configure detailed functions and operations, click  to skip the Guide part, and configure the parameters in Live, Query, Setting and Alarm.

6.2.1 Work Mode

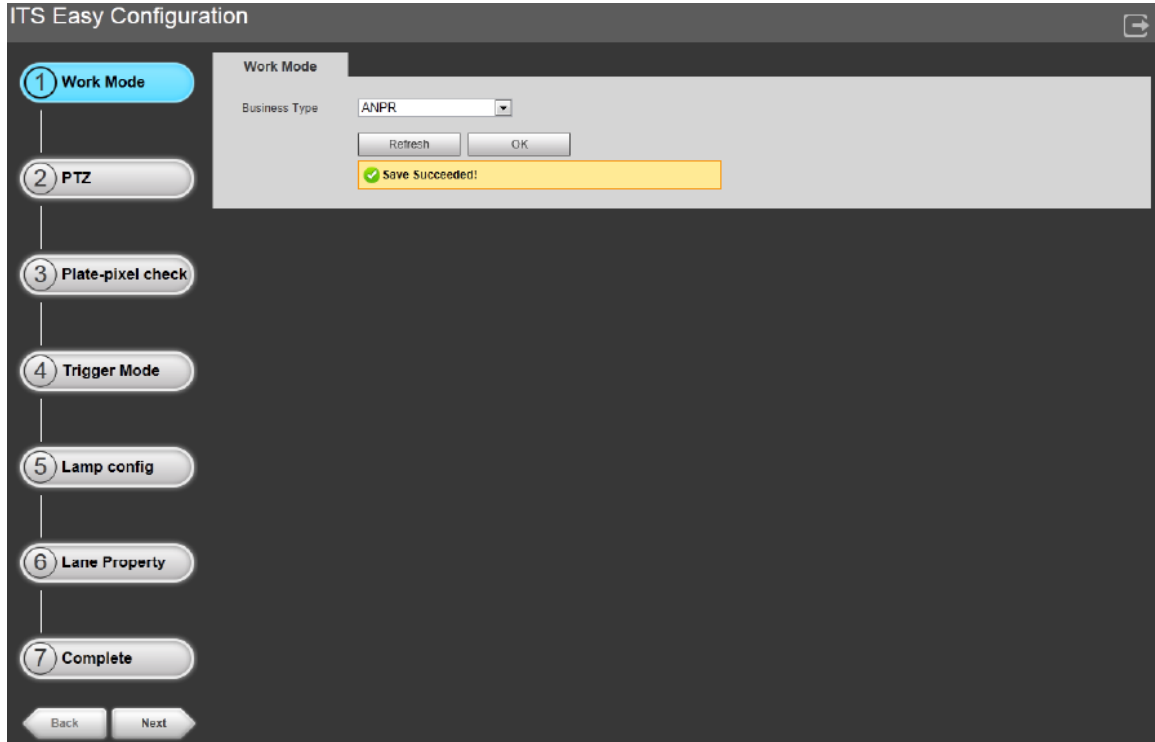
Two business types are available: ANPR and E-Police.



- E-police: Applicable to intersections with signal lights.
- ANPR: Applicable to road sections without signal lights.

After selecting the business type, click **OK**. The system prompts **Save succeeded!** See Figure 6-9.

Figure 6-9 Work mode



- If you change the business type, a box which prompts you to reboot pops up. See Figure 6-10.
Click **Yes**. The rebooting interface is displayed. See Figure 6-11.
After rebooting, click **Refresh**, and the operation will be saved. See Figure 6-12.

Figure 6-10 Manual reboot

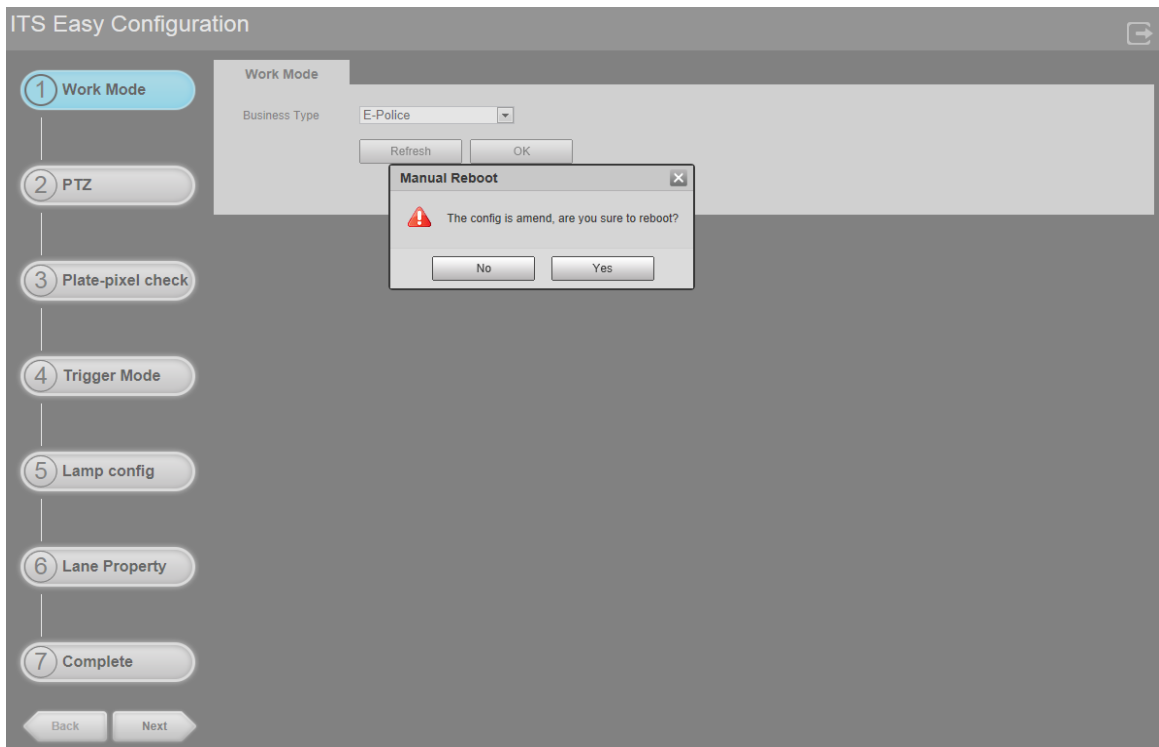


Figure 6-11 Rebooting

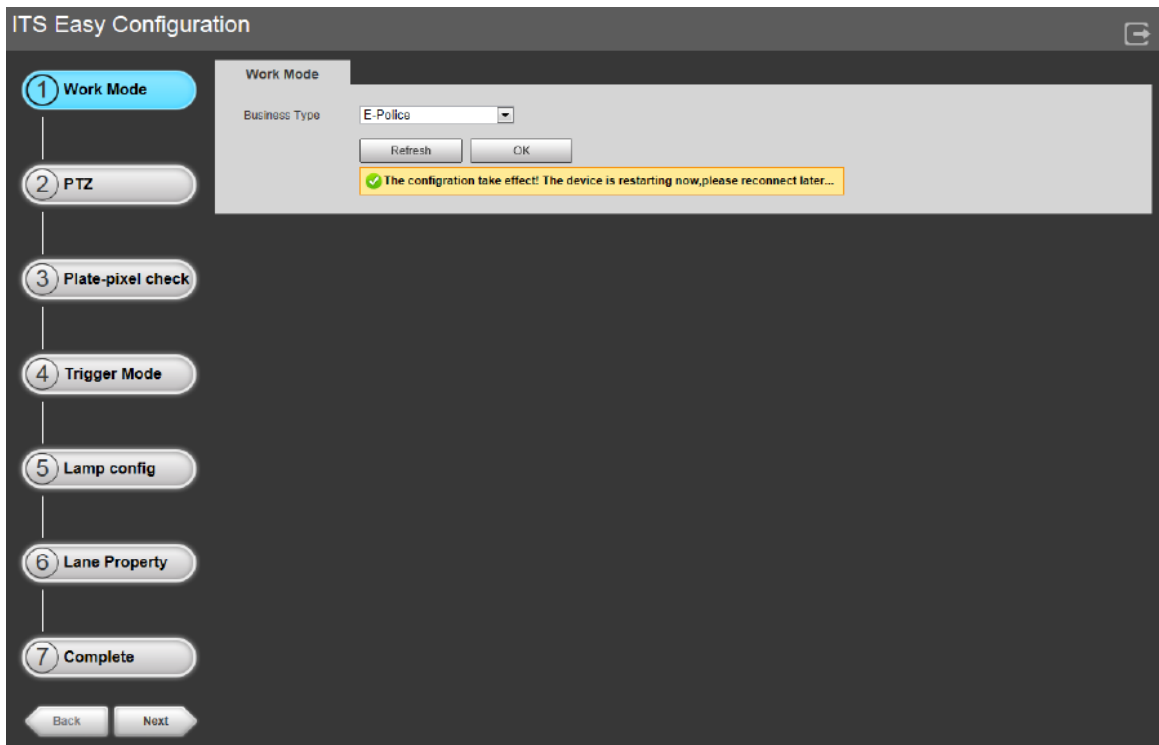
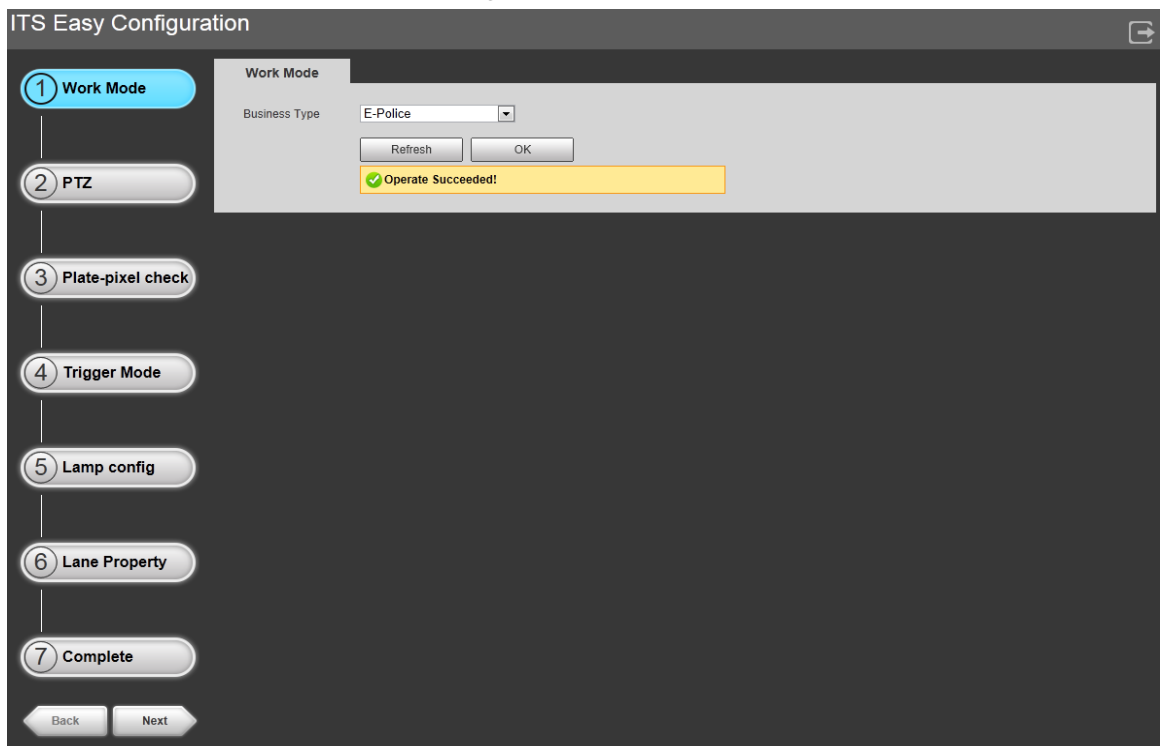


Figure 6-12 Refresh



6.2.2 PTZ

You need to zoom in/out and focus the video image to get clear image. The Camera automatically zooms in/out and focuses at preset points in different modes (day/night). The following steps provide guides in respect of zoom in/out and focus as well as configuring preset points.

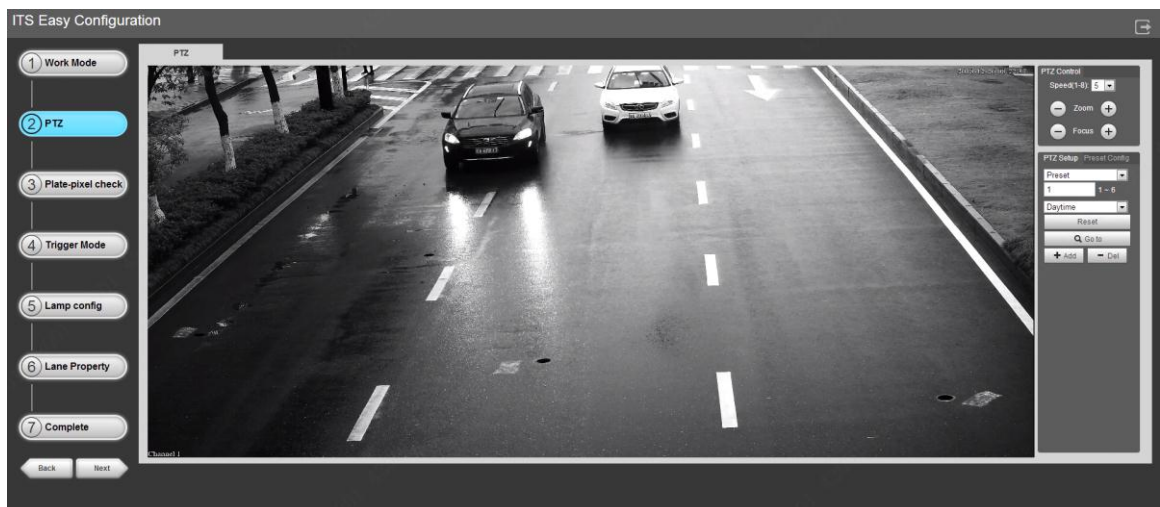
Step 1 Click **Next** after configuring the work mode, or click **PTZ**.

The **PTZ** interface is displayed. See Figure 6-13.







Click **Back** and you can return to configure the **Work Mode**.

Figure 6-13 PTZ



Step 2 Click **Reset** to clear all the previous operations (if any) to the PTZ.

Step 3 Click  or  corresponding to **Zoom** to adjust the video image, then click  or  corresponding to **Focus** for focusing. For details, see Table 6-2.

Step 4 Enter in to configure the preset point. You can configure 6 preset points at most.

Step 5 Click to select the work mode of corresponding preset point. You can select Daytime, Night, Dawn/Dusk, and Other.

Step 6 Click **Add**, and the preset point will be added. You can check the preset point information in **Preset Config**.

Figure 6-14 PTZ settings

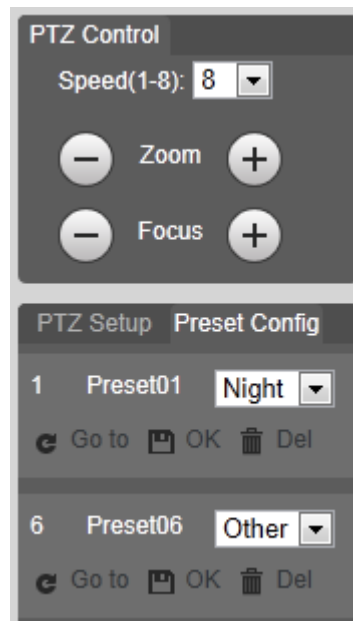









Table 6-2 PTZ

Operation	Description
PTZ Control	<ul style="list-style-type: none"> Speed: The zoom and focus speed of PTZ. It can be configured from 1 to 8. The larger the number, the faster the speed. Zoom: Click  to zoom in, and click  to zoom out. Focus: Click  or  to focus.

Operation	Description
PTZ Setup	<ul style="list-style-type: none"> ● Preset: Enter in <input type="text" value="1 ~ 6"/> to configure the preset point. You can configure 6 preset points at most. ● Daytime: Click the drop-down list to select the work mode of corresponding preset point. You can select Daytime, Night, Dawn/Dusk, and Other.  <p>You cannot configure the same work mode for different present points.</p> <ul style="list-style-type: none"> ● Reset: Click Reset, and the PTZ will restore to the state when it is not zoomed and focused. ● Go to: Click Go to, and it will go to the preset point you set in <input type="text" value="1 ~ 6"/>. ●  : Click this icon to add a preset point. ●  : Click this icon to delete a preset point.
Preset Config	<p>You can view and change the settings in PTZ setup. See Figure 6-14.</p> <ul style="list-style-type: none"> ● Go to: Click Go to, and it will go to the corresponding preset point. ● OK: Select the work mode you want to change, and click OK. The system prompts Operate Succeeded! ● Del: Click it to delete the corresponding preset point.

6.2.3 Plate-pixel Check

You can check whether the Camera is properly zoomed and focused by capturing vehicle plate and analyzing plate width pixel.

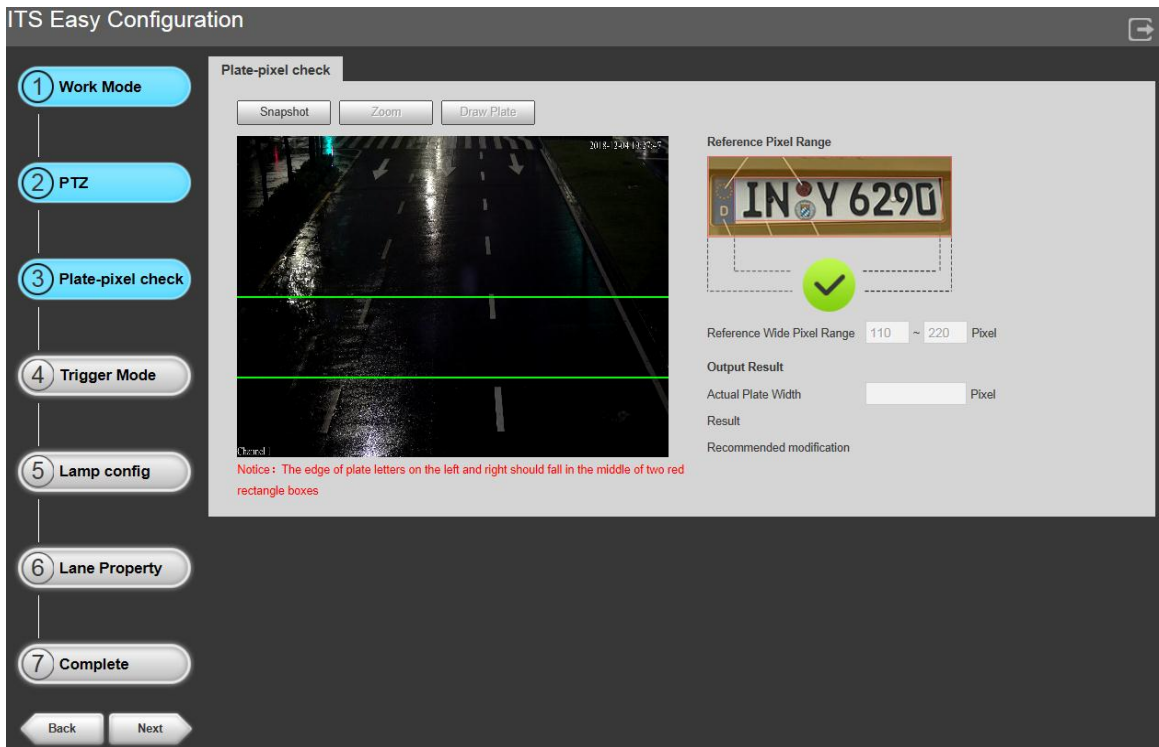
Step 1 Click **Next** after configuring PTZ, or click **Plate-pixel check**.

The **Plate-pixel check** interface is displayed. See Figure 6-15.



Click **Back** and you can return to configure the **PTZ**.

Figure 6-15 Plate-pixel check

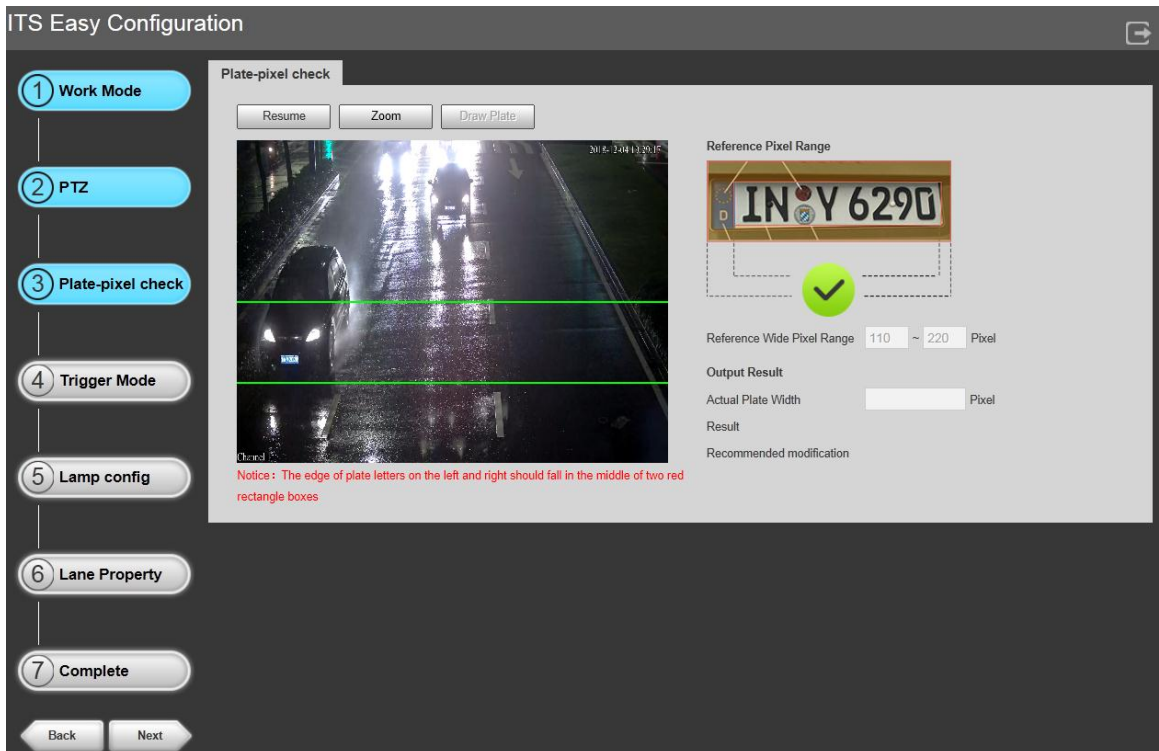


Step 2 When the plate number of vehicle comes into the green line area, click **Snapshot**, and the icon changes into **Resume**. See Figure 6-16.



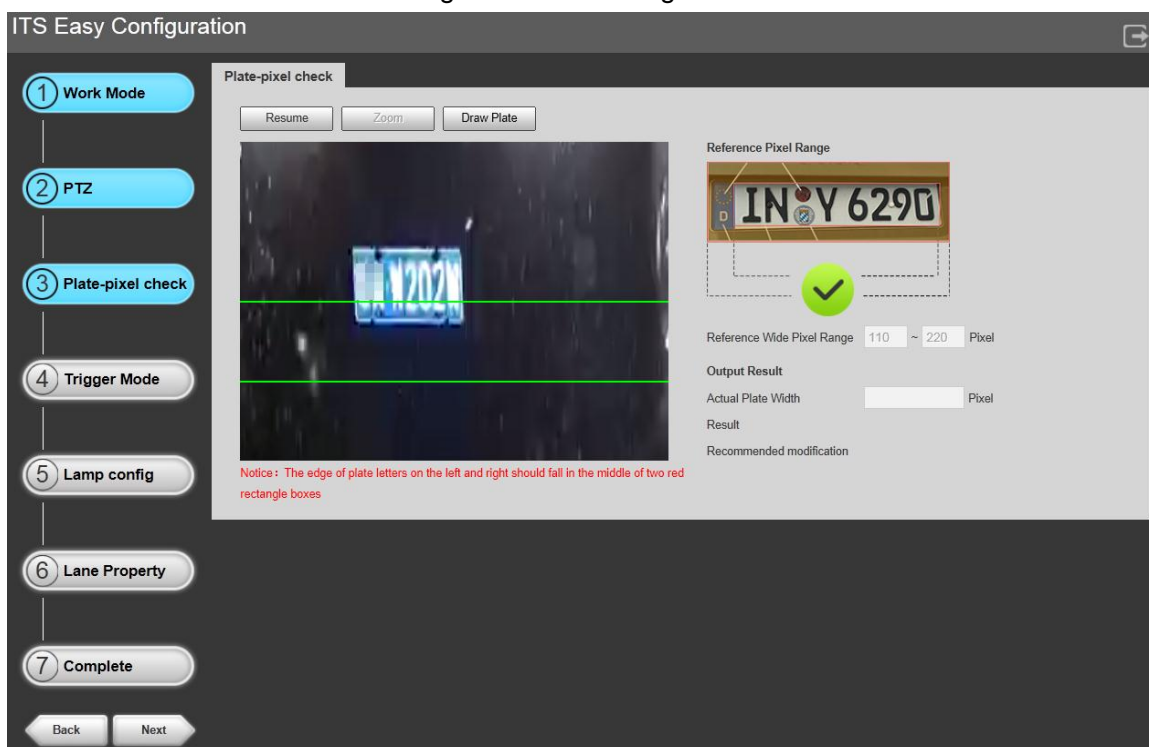
The green line area is defined by the system.

Figure 6-16 Snapshot



Step 3 Click **Zoom**, and draw a box around the plate in the snapshot for partial zooming. The zooming result is displayed. See Figure 6-17.

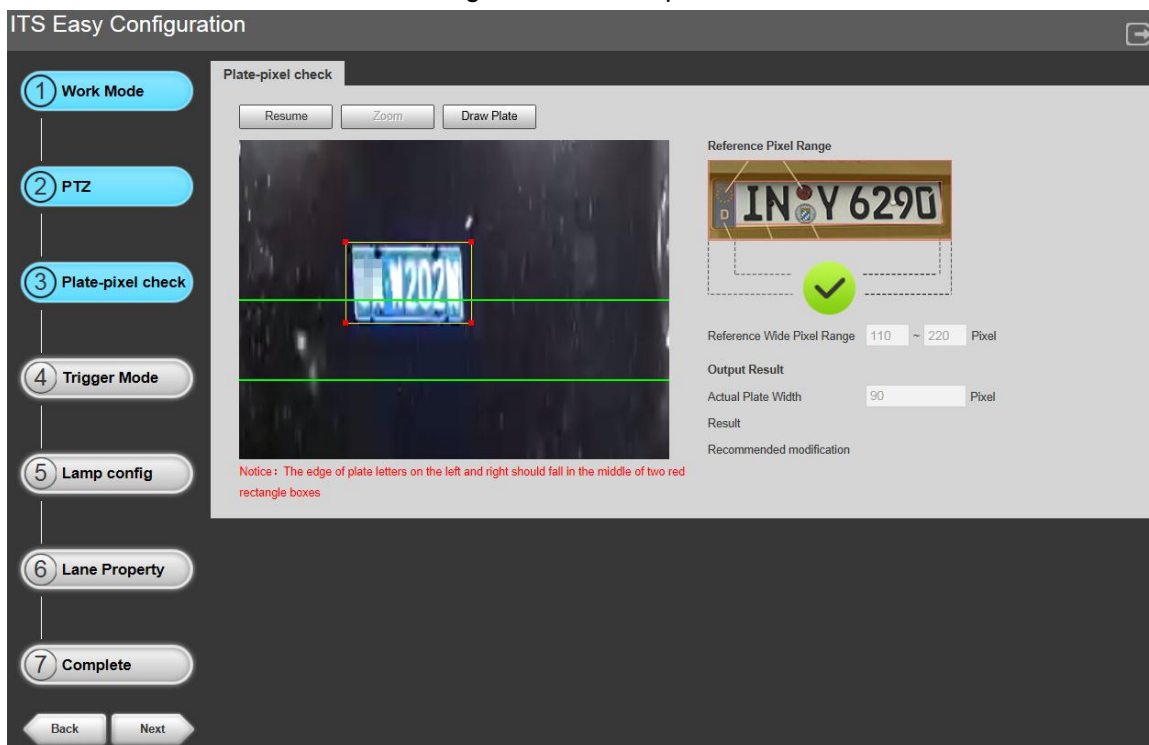
Figure 6-17 Zooming result



Step 4 Click **Draw Plate**, and draw a box for plate pixel checking. See Figure 6-18.

In this case, the actual width of this plate is 90 pixel, and the reference wide pixel range is 110 pixel to 220 pixel. You need to zoom in and focus the lens through PTZ setup. If the actual plate width pixel is bigger than the reference pixel, then zoom out and focus the lens. See "6.2.2 PTZ."

Figure 6-18 Draw plate



Step 5 Click **Resume** to restore to take snapshots.

Repeat the steps above until the the pixel of actual plate width is within the reference wide pixel range. If so, it means the Camera is properly zoomed and focused.

6.2.4 Trigger Mode

This section guides you to configure the trigger mode of snapshot, which covers Radar + Video, Radar, and Video.

6.2.4.1 ANPR

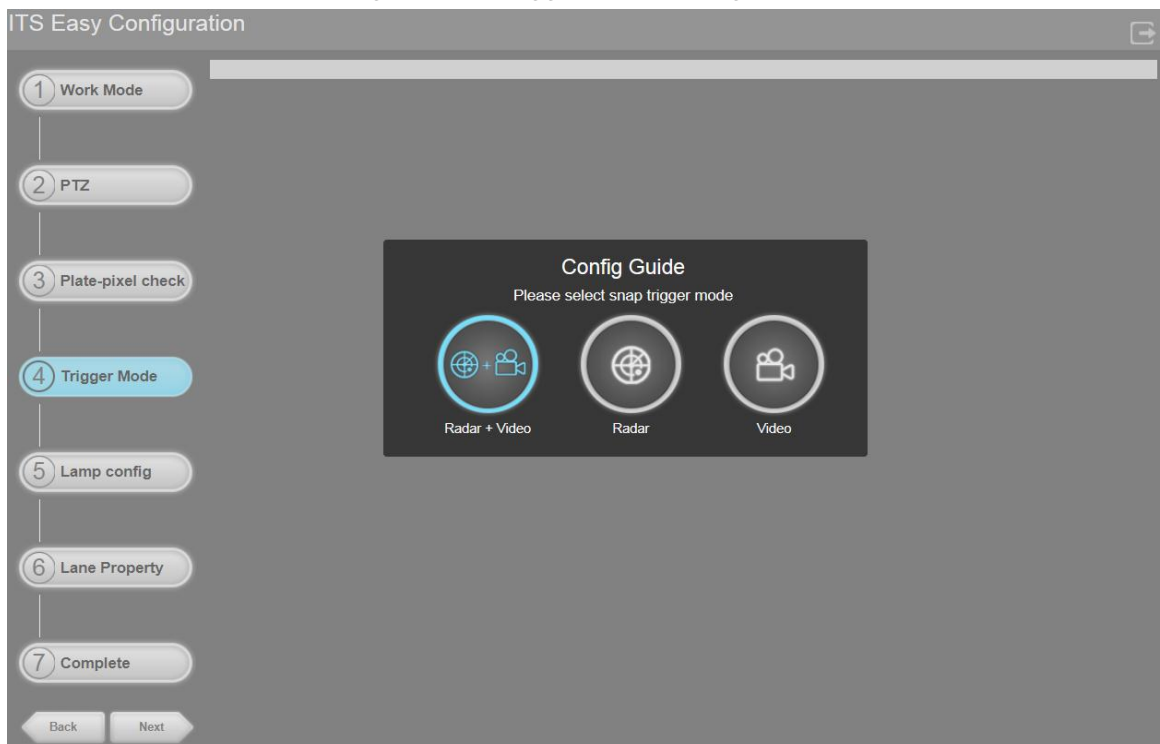


This section is applicable when **ANPR** is selected as the **Business Type** (see "6.2.1 Work Mode").

Step 1 Click **Next** after setting Plate-pixel check, or click **Trigger Mode**.

The **Config Guide** interface is displayed. See Figure 6-19.

Figure 6-19 Trigger mode config mode



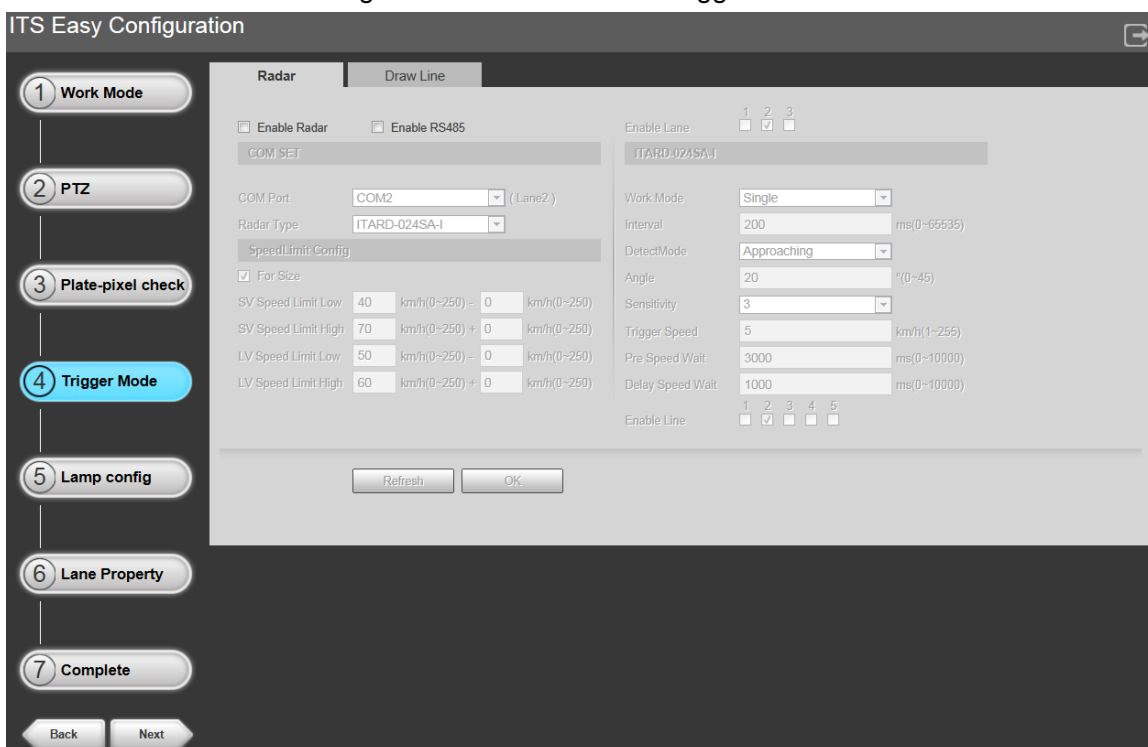
Step 2 Double-click the mode you want to select.

The **Radar** interface is displayed. See Figure 6-20.



- This section takes **Radar + Video** mode as the example. To configure Radar and Video modes, see the settings of Radar + Video mode.

Figure 6-20 Radar + Video trigger mode



Step 3 Select **Enable Radar** or **Enable RS485**.



- Radar is applicable to single-lane capture. If **Enable Radar** is selected, see Figure 6-21. To configure the parameters, see "6.5.1.4.1 Radar (ANPR)".
- RS485 is applicable to multi-lane capture. If **Enable RS485** is selected, see Figure 6-22. To configure the parameters, see "6.5.1.4.2 RS485 (ANPR)".

Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

Figure 6-21 Interface of enable radar

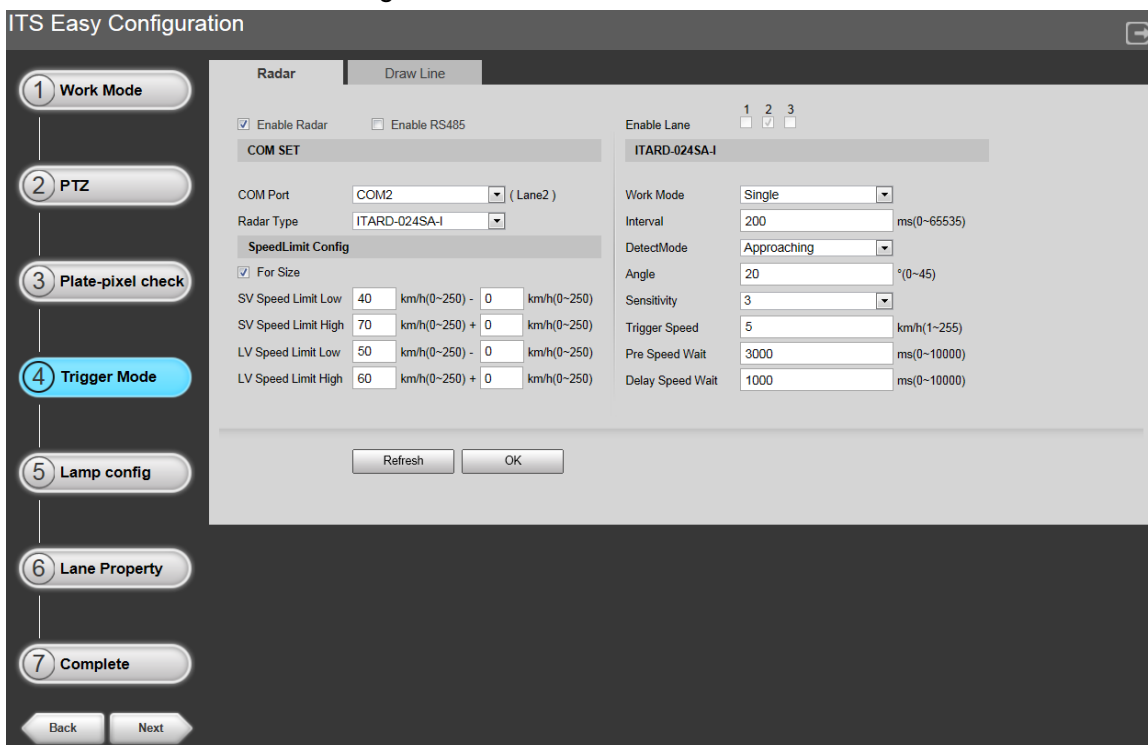
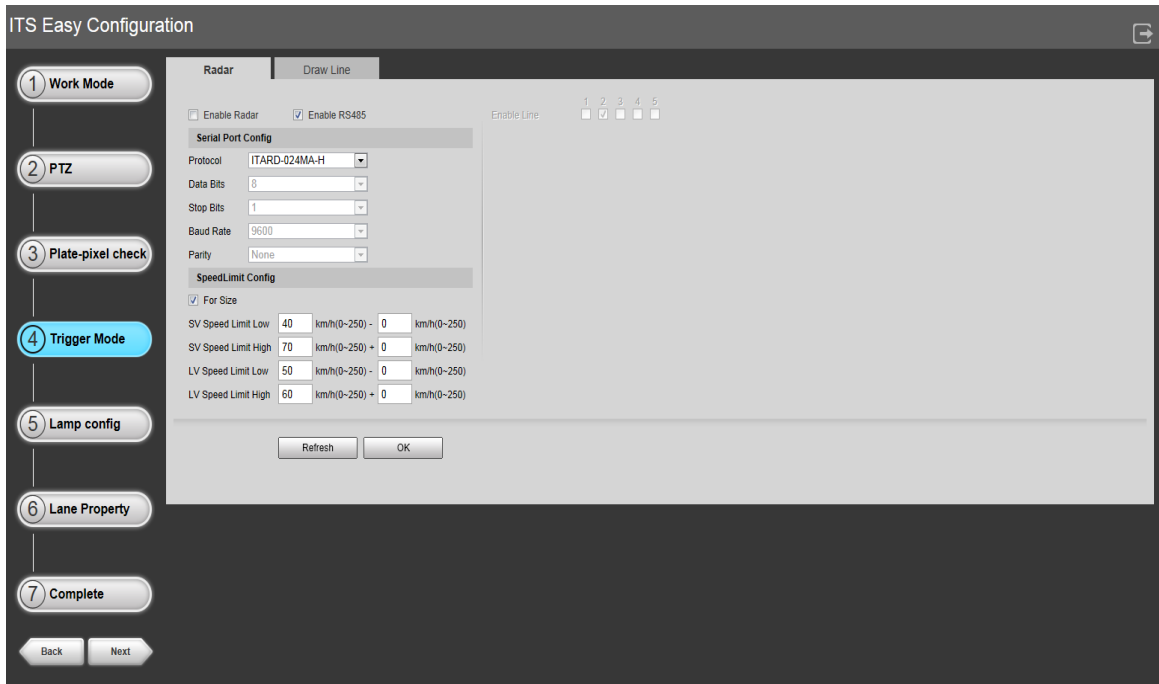
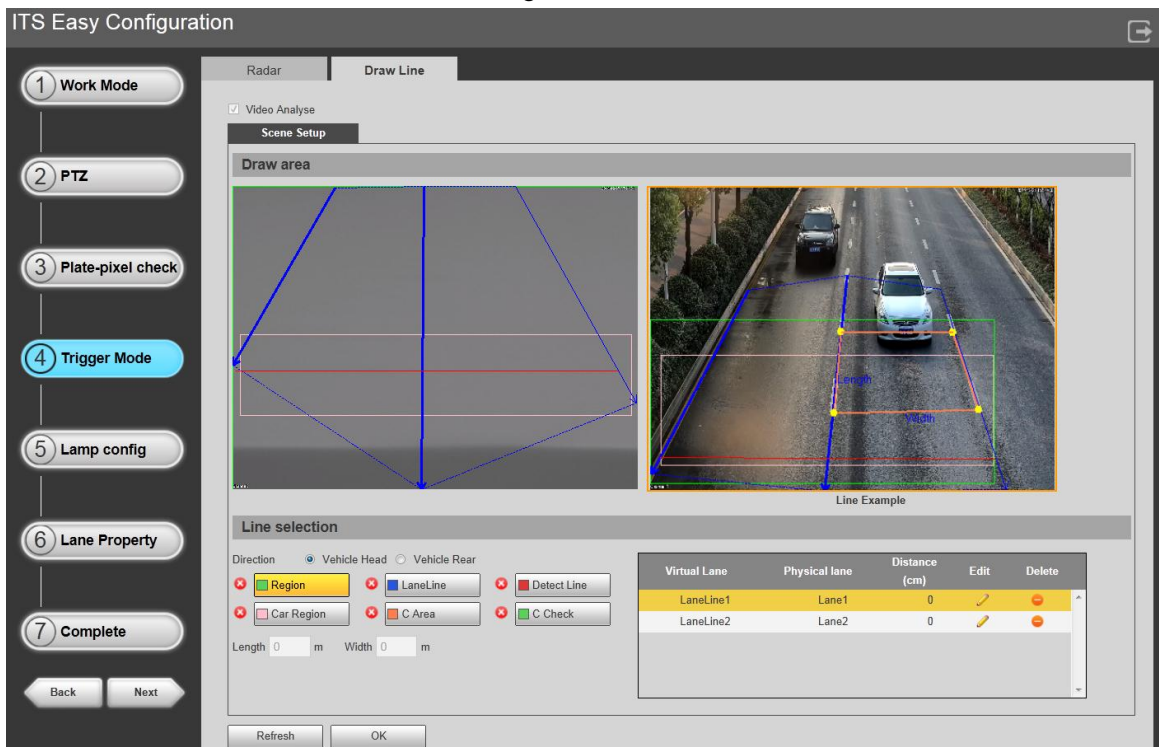


Figure 6-22 Interface of enable RS485



Step 4 Click **Draw Line** to draw lines of region, lane, etc. for detection. See Figure 6-23. To configure the parameters, see "6.5.1.4.4 Video Analyse–Scene Setup". Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

Figure 6-23 Draw line



Step 5 Click **Next** to configure the **Lamp config**.
Click **Back** and you can return to configure the **Plate-pixel check**.

6.2.4.2 E-Police



This section is applicable when **E-Police** is selected as the **Business Type** (see "6.2.1 Work Mode").

Step 1 Click **Next** after configuring Plate-pixel check, or click **Trigger Mode**.

The **Config Guide** is displayed. See Figure 6-24.

Figure 6-24 Trigger mode config mode



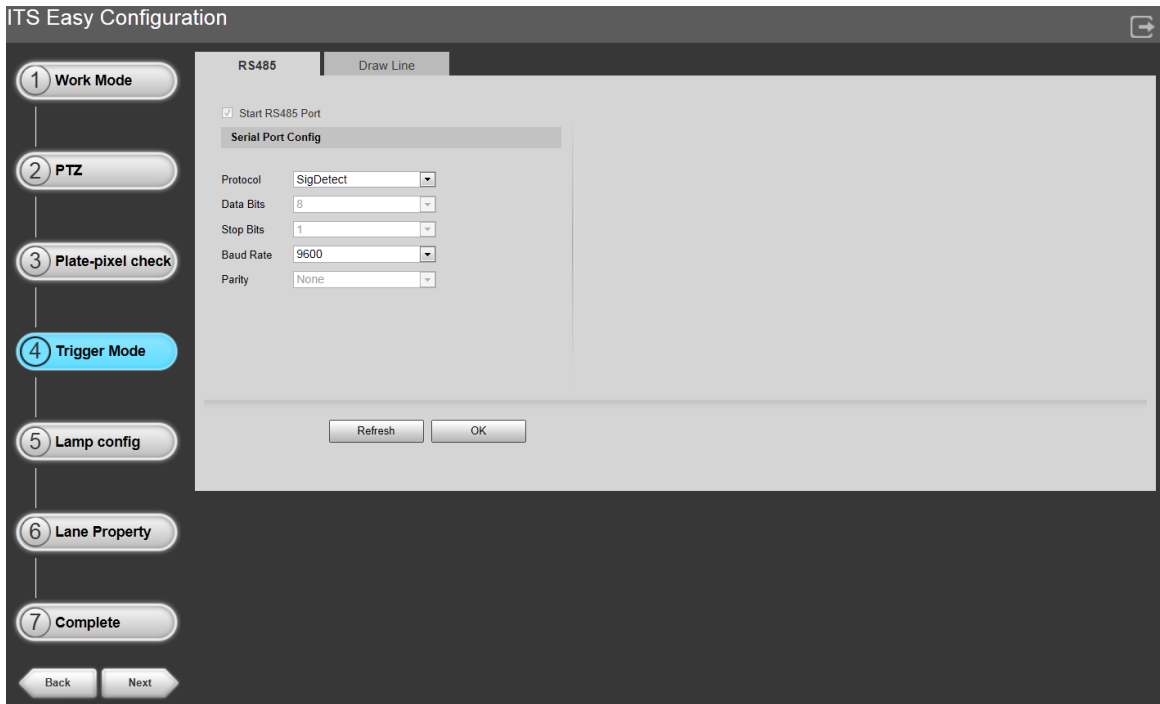
Step 2 Double-click the mode you want to select.

The **RS485** interface is displayed. See Figure 6-25. To configure the parameters, see "6.5.1.4.3 RS485 (E-Police)".



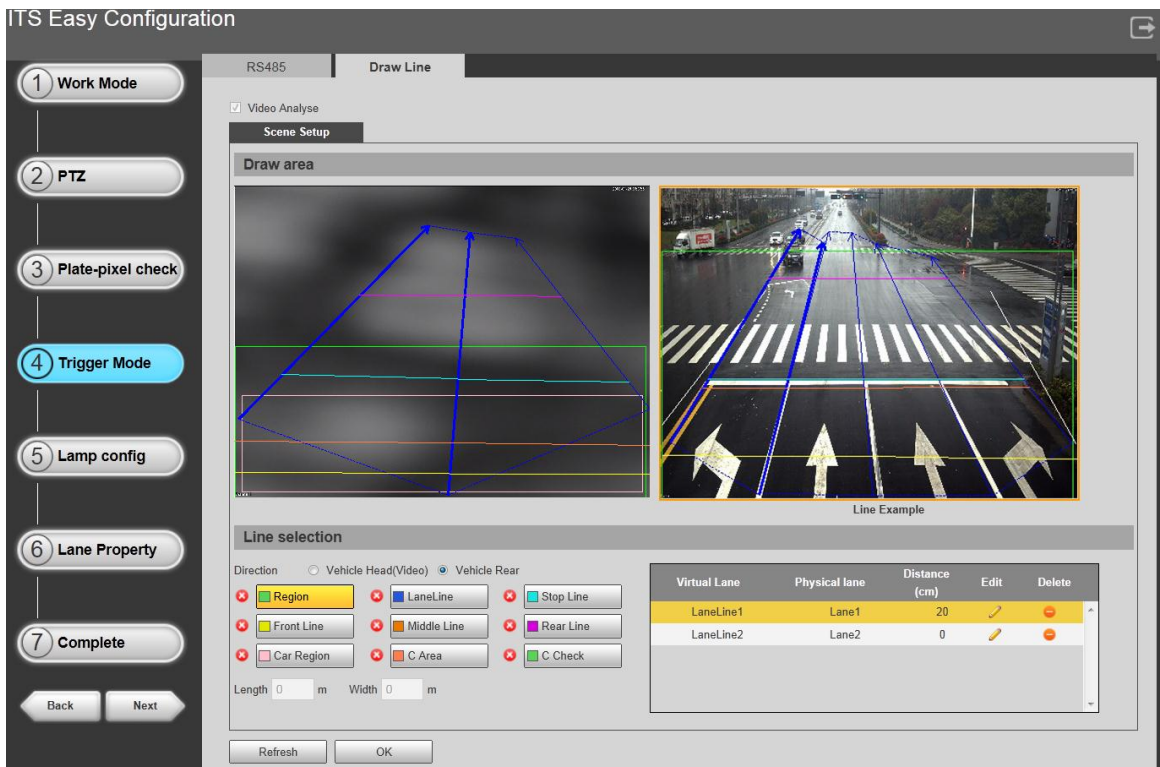
- This section takes **RS485 + Video** mode as the example. To configure RS485 and Video modes, see the settings of RS485 + Video mode.

Figure 6-25 RS485



Step 3 Click **Draw Line** to draw lines of region, lane, etc. for detection. See Figure 6-26. To configure the parameters, see "6.5.1.4.4 Video Analyse–Scene Setup". Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

Figure 6-26 Draw line



Step 4 Click **Next** to configure the **Lamp config**. Click **Back** and you can return to configure the **Plate-pixel check**.

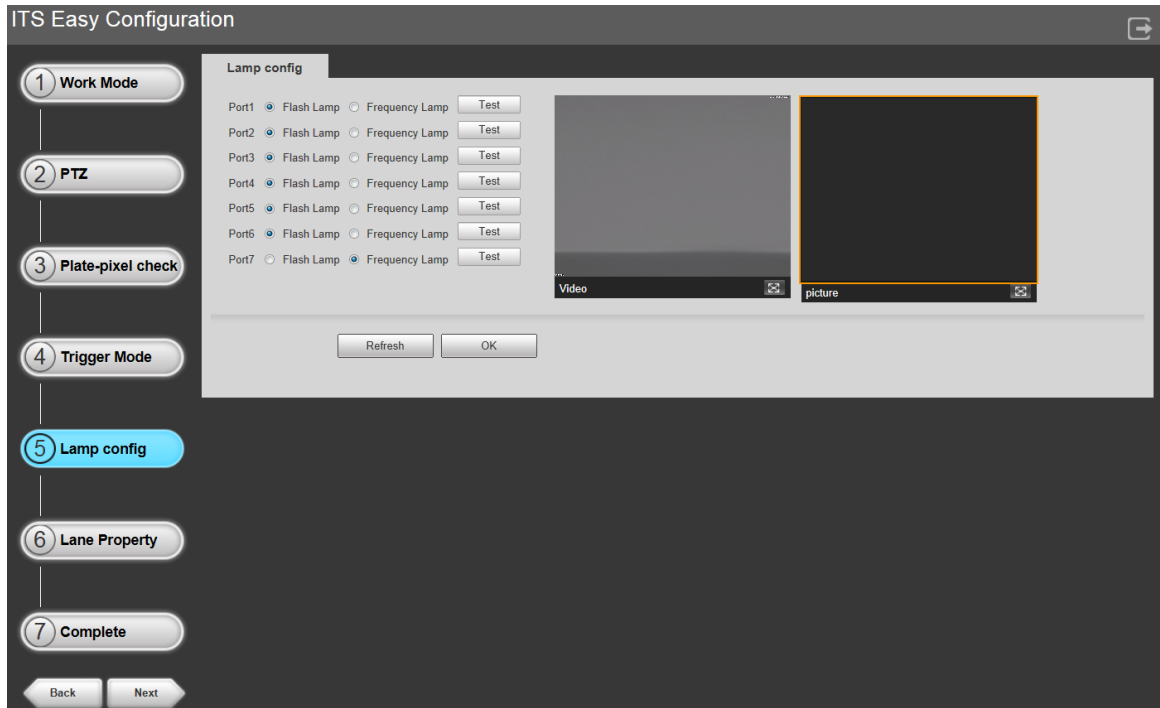
6.2.5 Lamp Config

The Camera is designed with 7 ports that can be connected to different types of lights. You can select the type of light connected to each port.

Step 1 Click **Next** after configuring Trigger Mode, or click **Lamp Config**.

The **Lamp Config** interface is displayed. See Figure 6-27.

Figure 6-27 Lamp Config



Step 2 Select the type of light connected to each port.

Step 3 Click **Test** to test whether the light is successfully connected.

After clicking **Test**, check whether the light is successfully connected in the video image at the right side.

Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

Step 5 Click **Next** to configure the **Lane Property**.

Click **Back** and you can return to configure the **Trigger Mode**.

6.2.6 Lane Property

You can configure the event type of each lane. Different work modes (ANPR and E-Police) support different event types, and the actual product shall prevail.

Step 1 Click **Next** after configuring Lamp Config, or click **Lane Property**.

The **Lane Property** interface is displayed. See Figure 6-28 and Figure 6-29.

Figure 6-28 Lane property (ANPR)

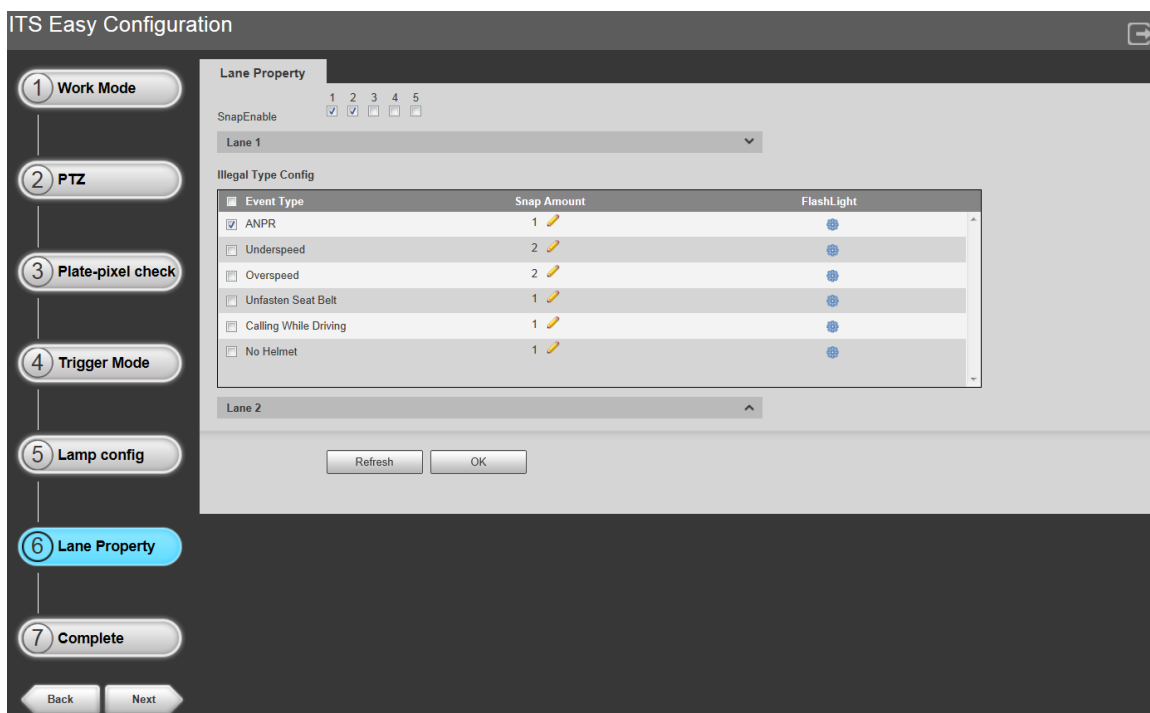
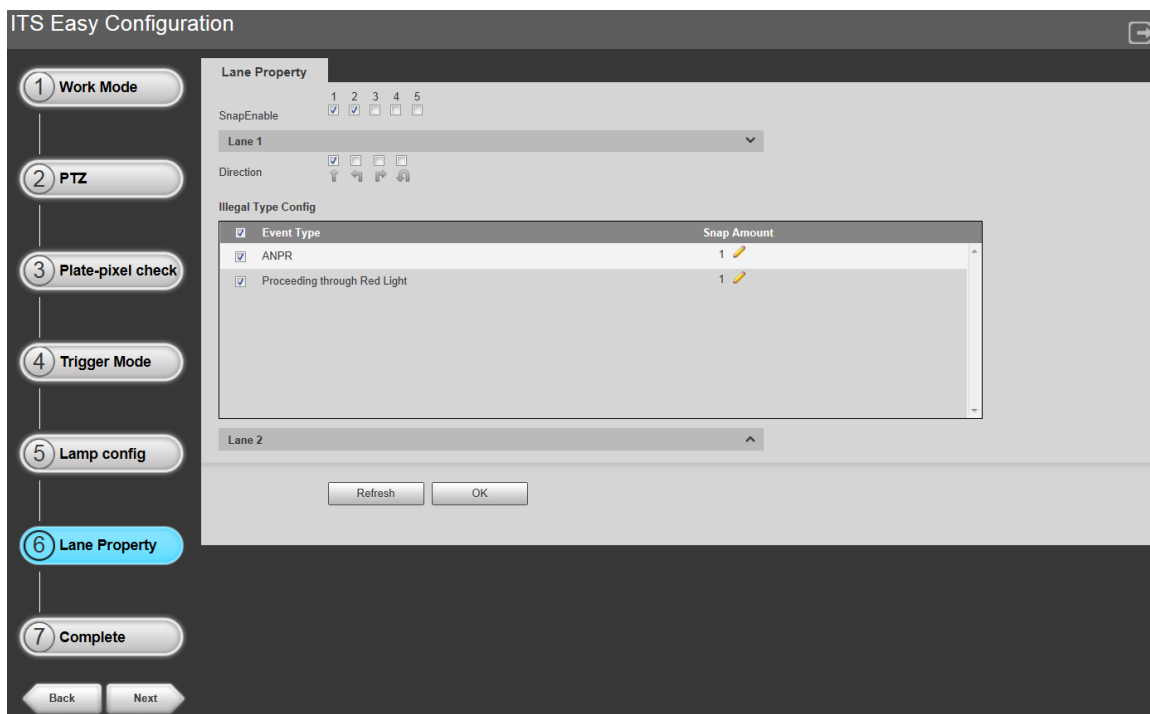


Figure 6-29 Lane property (E-Police)



Step 2 Configure the parameters. See "6.5.1.2 Lane Property".

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

Step 4 Click **Next** to Complete.

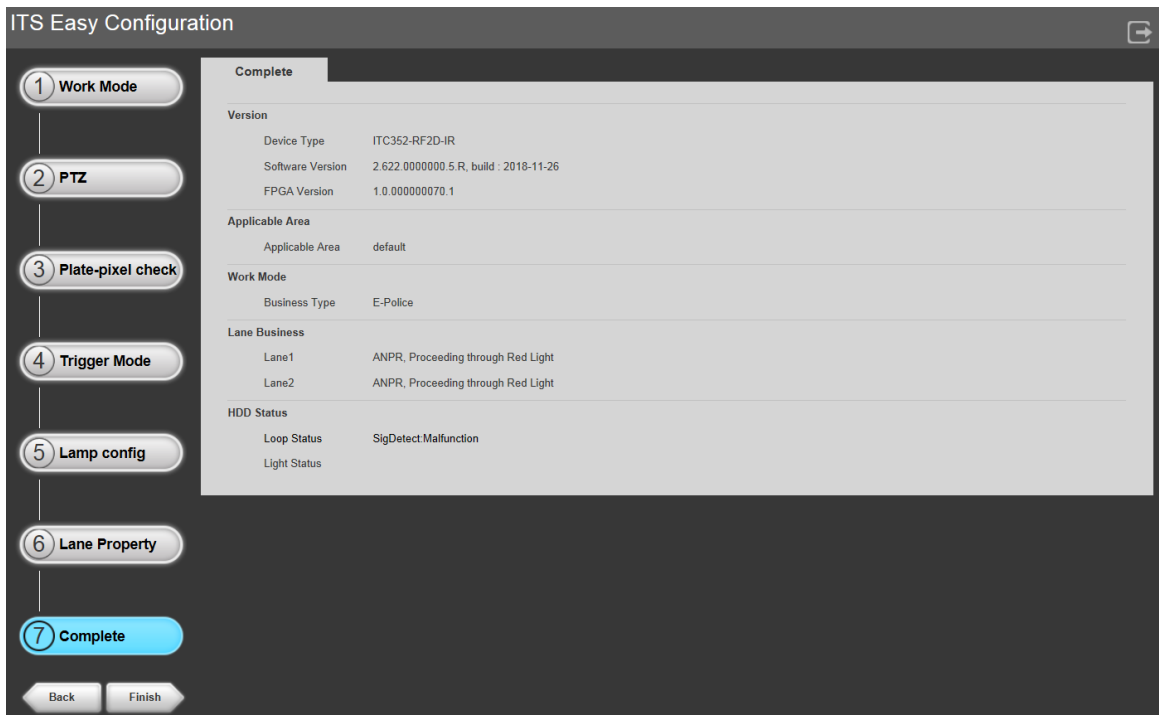
Click **Back** and you can return to configure the **Lamp config**.

6.2.7 Complete

You can view the device information and check the configuration results after following the guide.

Step 1 Click **Next** after configuring Lane Property, or click **Complete**.
The **Complete** interface is displayed. See Figure 6-30.

Figure 6-30 Complete



Step 2 Click **Finish** to complete guide setting.
Click **Back** and you can return to configure the **Lane Property**.

6.3 Live

The **Live** interface is displayed after successfully log in to web. See Figure 6-31 and Table 6-3. On this interface, you can check the live video image, take snapshots, view the vehicle information, etc.

Figure 6-31 Live

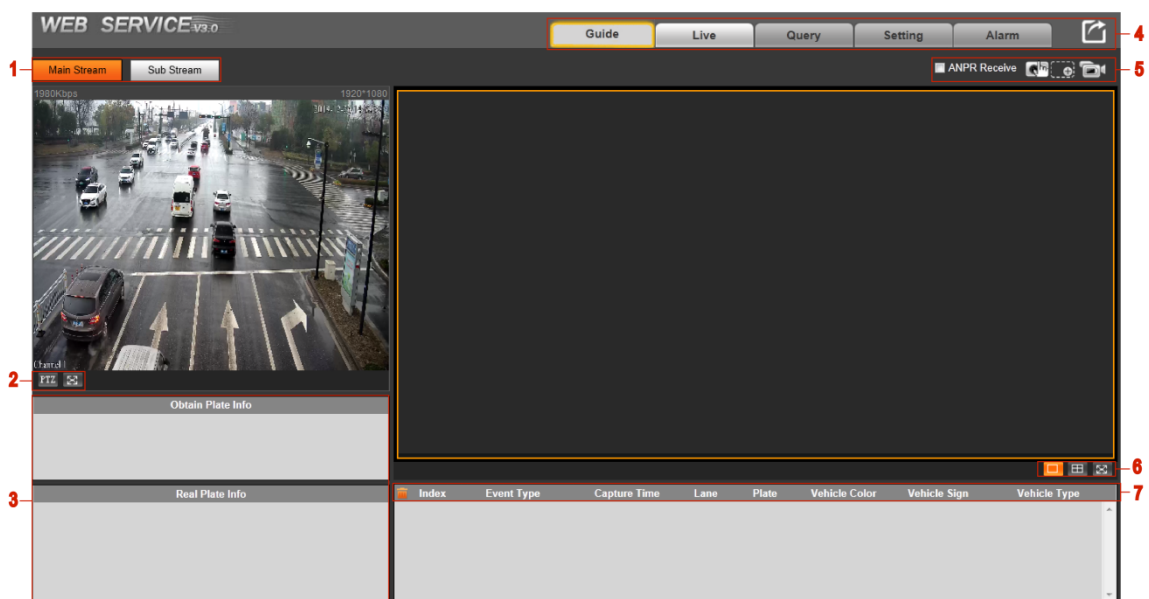




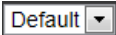








Table 6-3 Live interface

No.	Description
1	<p>Video stream bar</p> <ul style="list-style-type: none"> ● Main Stream: Make sure the Camera can record video and carry out network surveillance when the network is normal. You can configure main stream resolution within the supported range of the Camera. ● Sub Stream: Replace main stream under insufficient bandwidth.
2	<p>Play setting bar.</p> <p> : PTZ control. For settings, See "6.2.2 PTZ".</p> <p> : Click on the button or double-click for full screen display. Double-click again or press Esc to exit full screen.</p>
3	<p>Plate information.</p> <p>You can compare the plate information obtained with the real plate information.</p> <p></p> <p>The plate information will be displayed when ANPR Receive is enabled.</p>
4	<p>System menu.</p> <p>It includes Guide, Live, Query, Setting, and Alarm.</p>
5	<p>Operation bar.</p> <ul style="list-style-type: none"> ● ANPR Receive: Check it to automatically receive pictures by snapshot, radar and video detect. Information such as event type, capture time, lane, plate, vehicle color, speed, vehicle sign, and vehicle type are displayed. ●  : Click on the button to snapshot. Snapshots are saved based on the setup in Setting > Storage > Destination > Path. ●  : In Three Shutter mode (Snap Shutter, Recognition Shutter, and Video Shutter), the picture is captured by Snap Shutter by default, and captured by Recognition Shutter when debugging. <p></p> <p>This function is only available in Three Shutter mode.</p> <ul style="list-style-type: none"> ●  : Click on the button, and then drag your left mouse to select any area of the video screen to zoom in. Right-click to exit. ●  : Click on the button to record video. Record file is saved based on the setup in Setting > Storage > Destination > Path.
6	<p>Multi-screen display.</p> <ul style="list-style-type: none"> ●  : Single screen. ●  : Four screens. ●  : Full screen.
7	<p>Displays the information of ANPR Receive, including index, event type, capture time, lane, plate, vehicle color, speed, vehicle sign, and vehicle type.</p>

6.4 Query

You can search picture, flow and video information on the **Query** interface.

6.4.1 Picture Query

6.4.1.1 SD Picture

You can search and download the pictures you need.

Step 1 Select **Query > Picture Query > SD Picture**.

The **SD Picture** interface is displayed. See Figure 6-32 and Table 6-4.

Figure 6-32 SD Picture

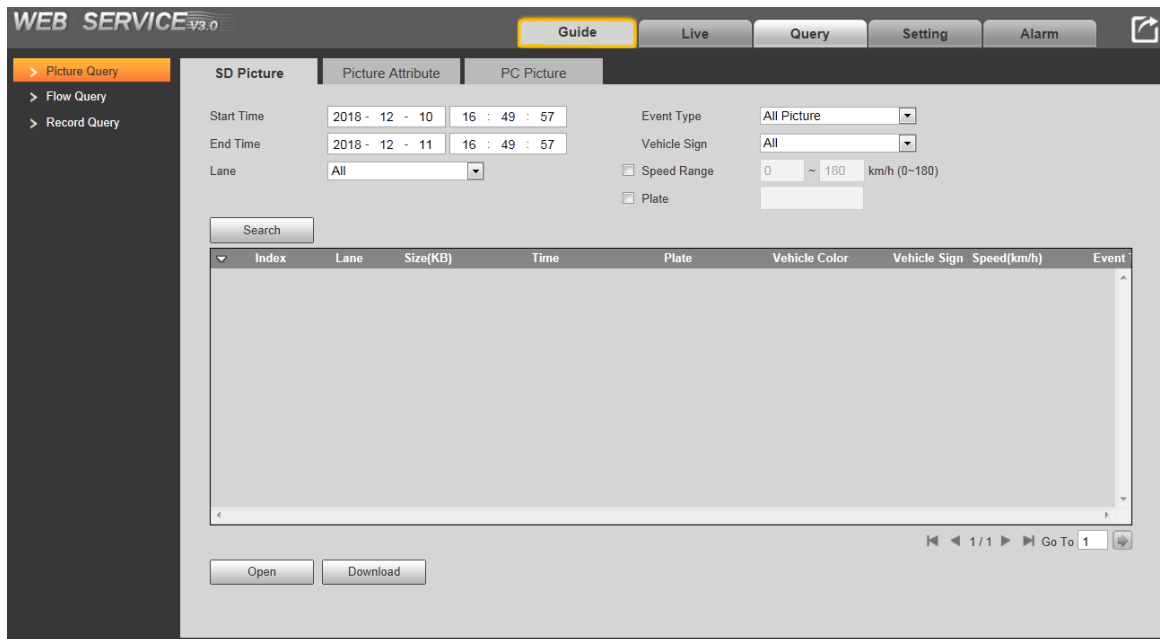


Table 6-4 SD picture parameters

Parameter	Description
Start Time	Configure the start time of picture to search.
End Time	Configure the end time of picture to search.
Event Type	<ul style="list-style-type: none"> All Picture: Search all pictures. Mix Events: Include ANPR, Underspeed, Overspeed, Manual Snap, Unfasten Seat Belt, Calling While Driving and No Helmet.
Vehicle Sign	Search pictures by the selected vehicle sign. You can select All, Unknown or a specific vehicle sign.
Lane	Select the snapshot lane.
Speed Range	Check the box to search pictures by Speed Range. The speed range can be configured between 0km/h and 180km/h.
Plate	Check the box to search pictures by Plate.

Step 2 Configure the parameters mentioned above, and then click **Search**.

Step 3 Select the picture(s) you need, and click **Open** to check the picture(s).

Step 4 Select the picture(s) you want to download, and click **Download**.

Step 5 Select the path to save the picture(s), and the system starts downloading the picture(s) to your PC.

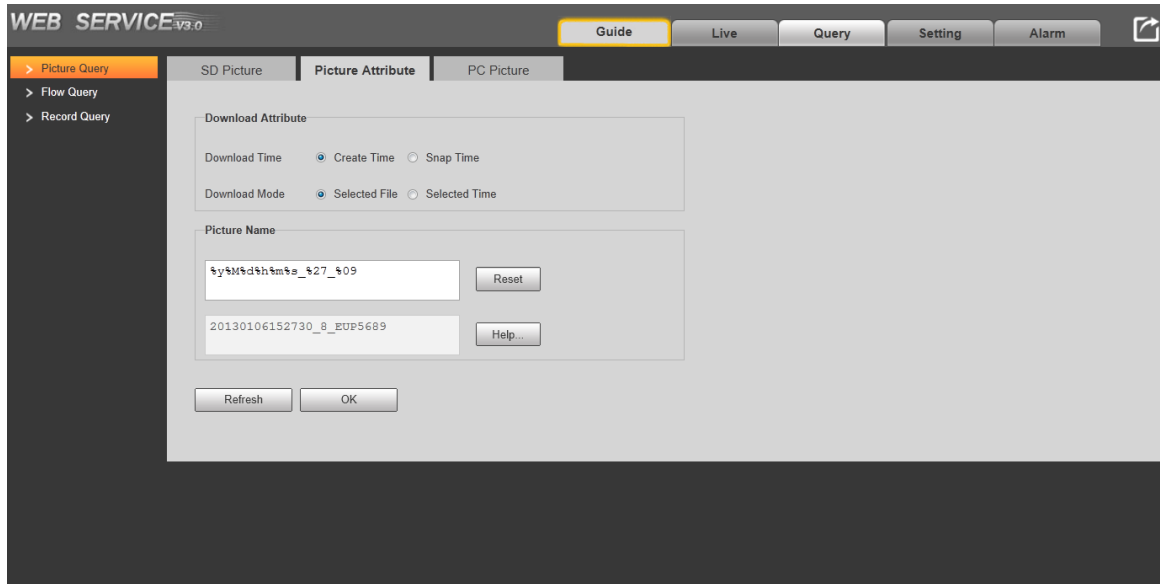
6.4.1.2 Picture Attribute

You can configure the picture information according to your download need.

Step 1 Select **Query > Picture Query > Picture Attribute**.

The **Picture Attribute** interface is displayed. See Figure 6-33.

Figure 6-33 Picture attribute



Step 2 Configure the parameters. See Table 6-5.

Table 6-5 Picture attribute

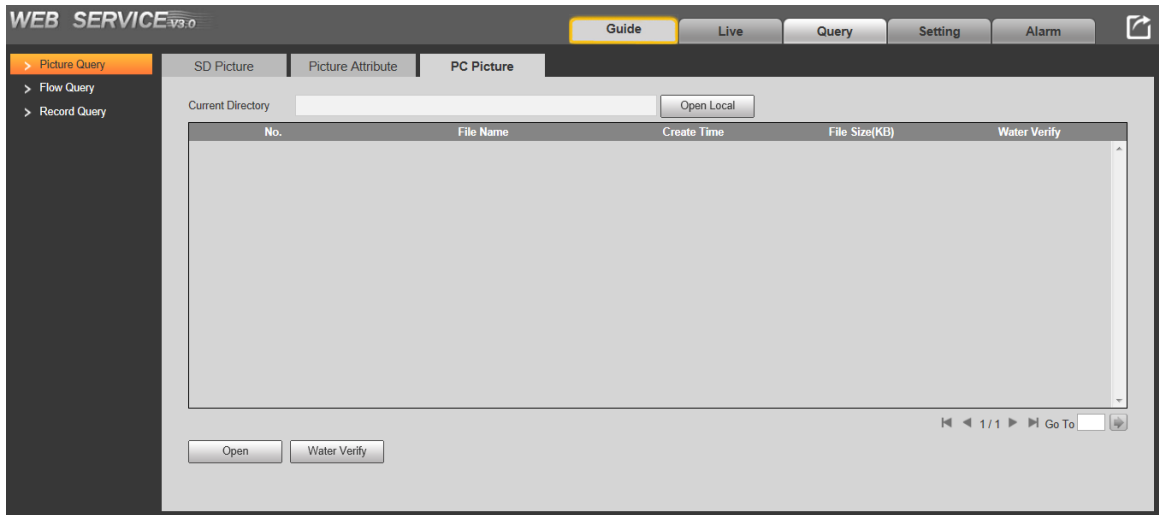
Parameter	Description
Download Time	<ul style="list-style-type: none"> ● Create Time: When downloading pictures to PC, use the time on the PC. ● Snap Time: When downloading pictures to PC, use the snapshot time.
Download Mode	<ul style="list-style-type: none"> ● Selected File: Download selected pictures. ● Selected Time: Download all pictures captured between start time and end time.
Reset	Click to restore the name of downloaded picture to system default name.
Help...	Click to check Picture Naming Help .

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.4.1.3 PC Picture

You can check local pictures and verify watermark.

Figure 6-34 PC picture



- Step 1 Click **Open Local** to select the file that includes the picture to be verified.
- Step 2 Select the picture to be verified, and click **Water Verify**. The verify result can be viewed.
- Step 3 Select a picture and click **Open**, or double-click a picture to check the picture.

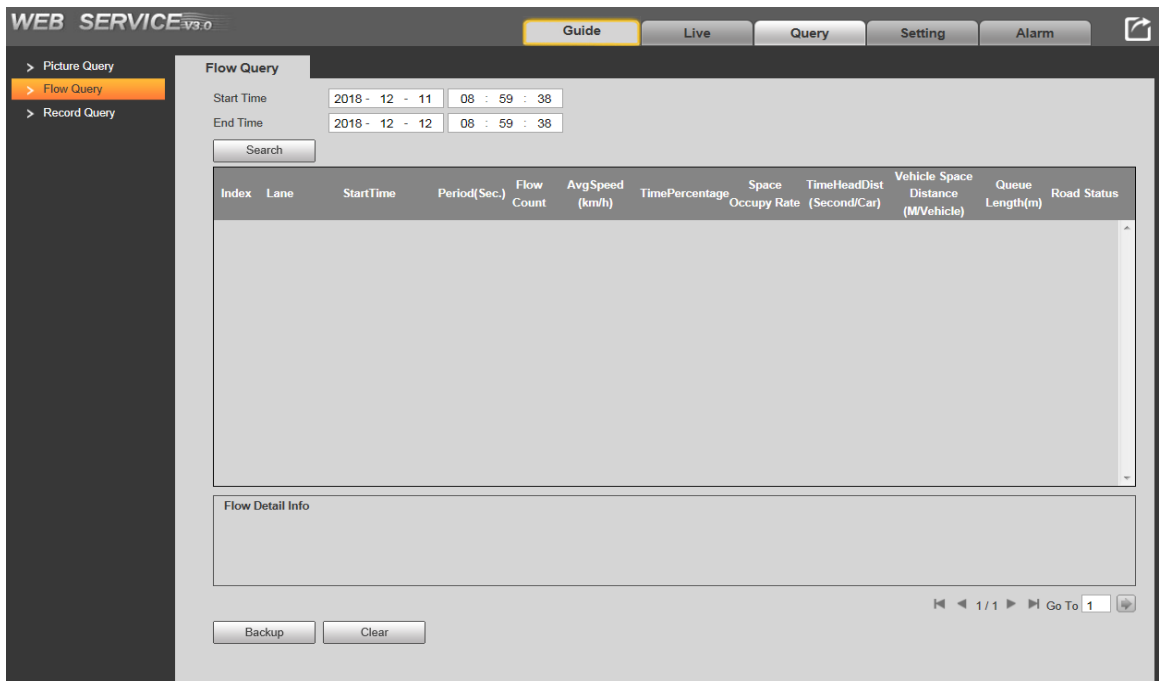
6.4.2 Flow Query

You can check the traffic flow of selected time.



The function is available on select models, and the actual product shall prevail.

Figure 6-35 Flow Query



- Step 1 Configure **Start Time** and **End Time**.
- Step 2 Click **Search** to check the traffic flow within configured time period.
- Step 3 Select the search results, and click **Backup** to save the results to PC.
- Step 4 Click **Clear** to delete all the current search results.

6.4.3 Record Query

6.4.3.1 Record

You can search the record on your PC and play the record.

Step 1 Select **Query > Record Query > Record**.

The **Record** interface is displayed. See Figure 6-36.

Step 2 Click **Open Record** to select the record on the PC, and then you can play back the record. See Table 6-6.

Figure 6-36 Record

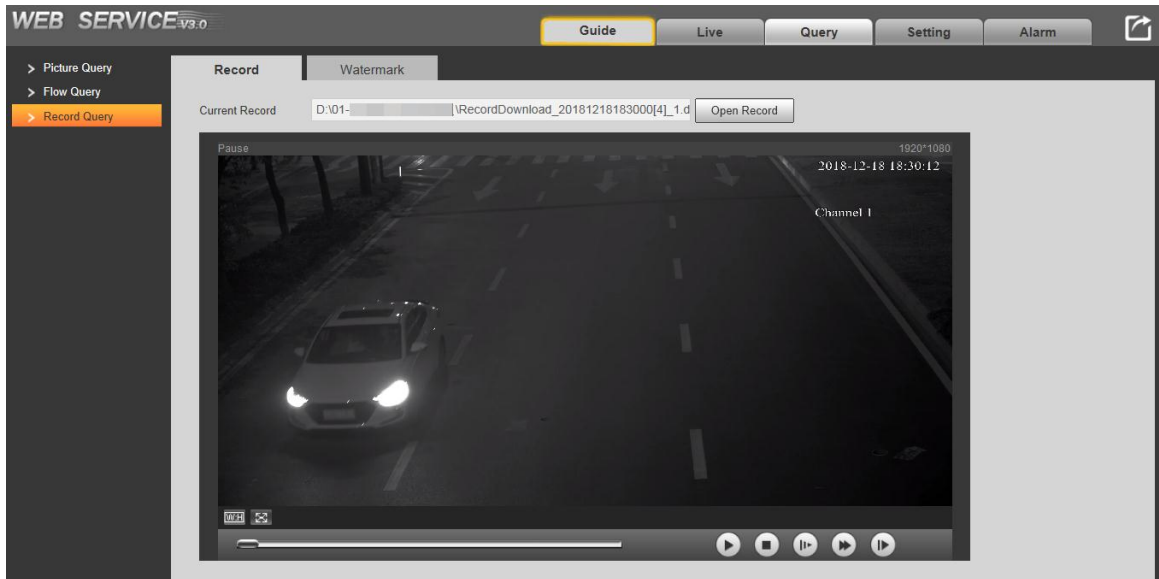












Table 6-6 Play parameters

Parameter	Description
	Click it, and then you can select Original or Adaptive playback.
	Click to enter full screen. Double-click the video image or press Esc to exit full screen.
	Click to play back the video record. Click  to pause.
	Click to stop playing back the current video record.
	Click for slow playback by x(1/2), x(1/4) or x(1/8). Click  to restore normal playback.
	Click for quick playback by x2, x4, or x8. Click  to restore normal playback.
	Click to play back next frame.

6.4.3.2 Watermark

Verify the watermark of selected video record. Only .dav record is supported.

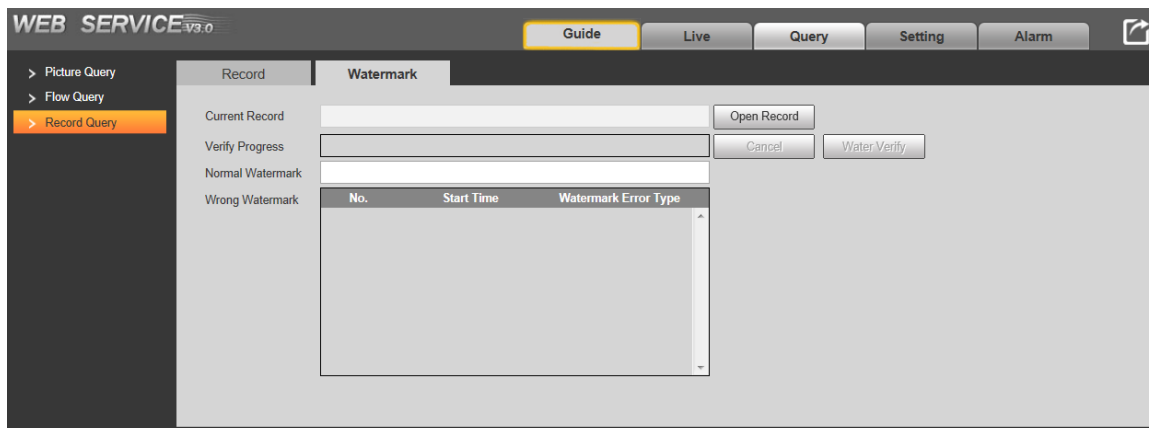


Before verifying the watermark, you need to check **Water Settings** and configure **Watermark Character** from **Setting > Camera > Video > Video > Main Stream**. The watermark character is DigitalCCTV by default.

Step 1 Select **Query > Record Query > Watermark**.

The **Watermark** interface is displayed. See Figure 6-37.

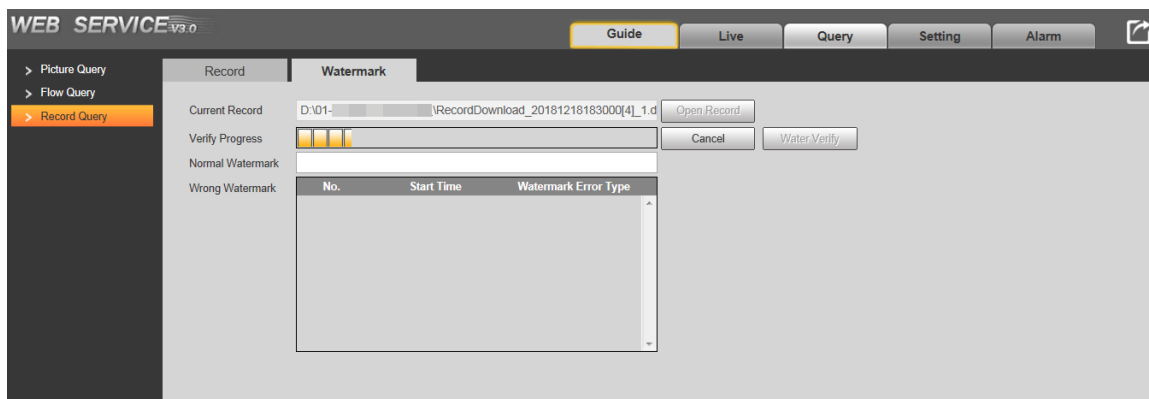
Figure 6-37 Watermark



Step 2 Click **Open Record** to select the record.

Step 3 Click **Water Verify**. The system will display the verify progress and normal watermark information. See Figure 6-38.

Figure 6-38 Verifying watermark



6.5 Setting

You can configure various parameters and check system information.

6.5.1 ITC (Intelligent Traffic Camera)

This section guides you to configure the business type of ITC, configure lane information and configure event, configure snapshot parameters, connect extra device, etc.

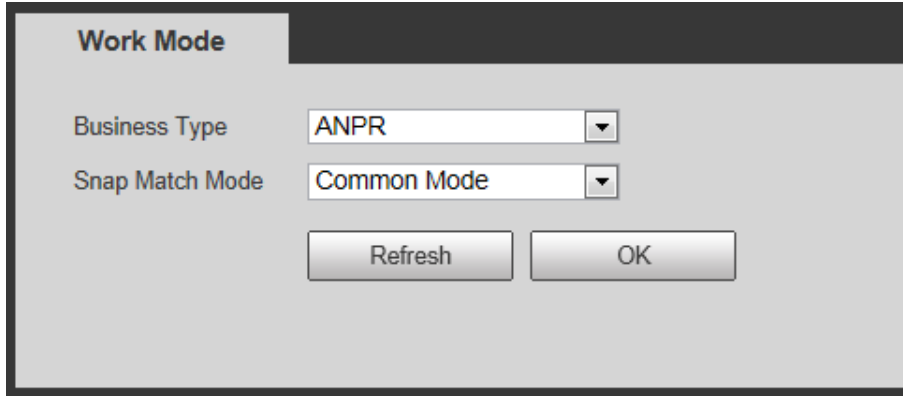
6.5.1.1 Work Mode

It is to configure the work mode of ITC according to the scenario.

Step 1 Select **Setting > ITC > Work Mode**.



The **Work Mode** interface is displayed. See Figure 6-39.

Figure 6-39 Work mode



Step 2 Configure the parameters. See Table 6-7.

Table 6-7 Work mode parameters

Parameter	Description
Business Type	<p>Select the work mode of ITC.</p> <ul style="list-style-type: none"> • E-police: Applicable to intersections with signal lights. • ANPR: Applicable to road sections without signal lights. <p></p> <p>When changing the business type, the system prompts The config is amend, are you sure to reboot? Click Yes, and the ITC reboots. In this way, the work mode will be successfully changed.</p>
Snap Match Mode	<ul style="list-style-type: none"> • Common Mode: It is recommended when ANPR is selected as the Business Type. • Priority Mode: It is recommended when E-Police is selected as the Business Type. <p></p> <p>In Priority Mode, video snapshot will not be linked to flashing light.</p>

6.5.1.2 Lane Property

It is to configure lane information and configure events. ANPR and E-Police support different event types.

Step 1 Select **Setting > ITC > Lane Property**.

The **Lane Property** interface is displayed. See Figure 6-40 and Figure 6-41.

Figure 6-40 Lane property (ANPR)

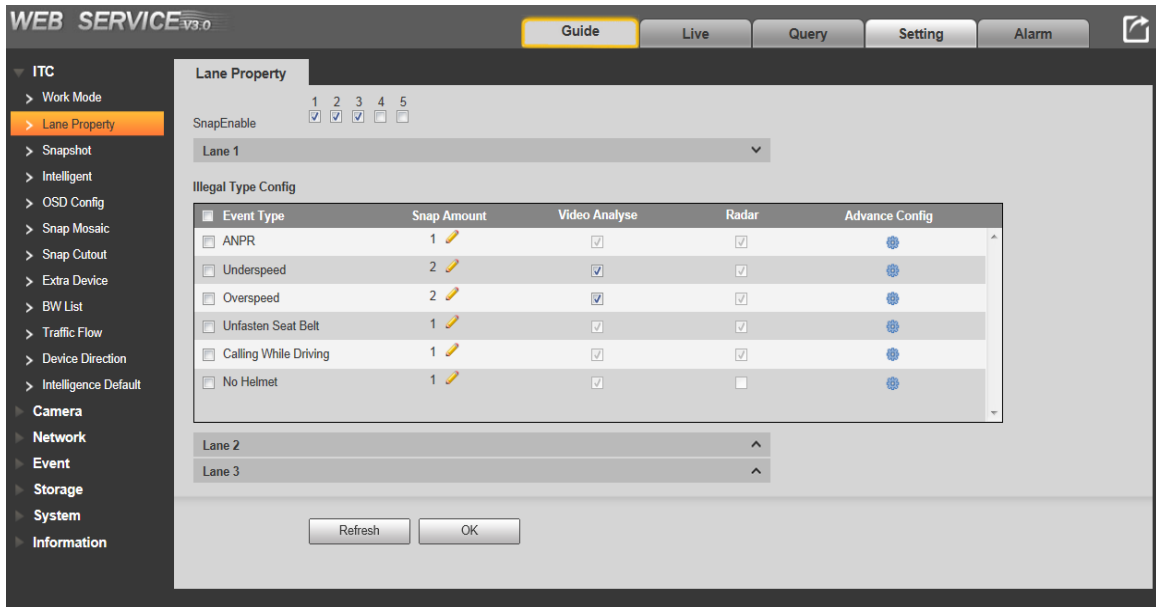
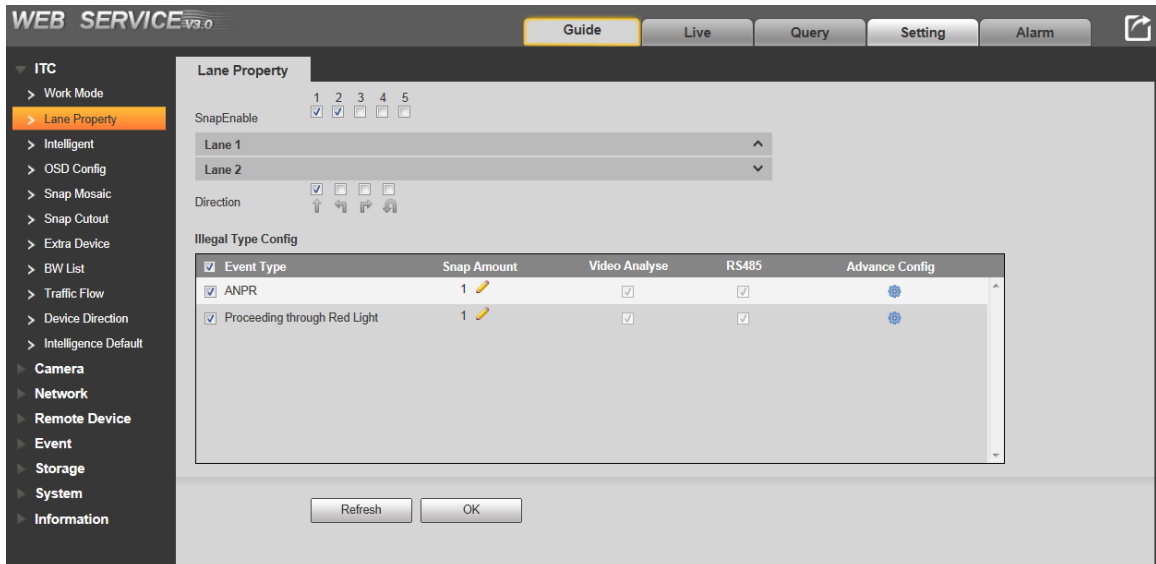




Figure 6-41 Lane property (E-Police)



Step 2 Configure the parameters. See Table 6-8.

Table 6-8 Lane property parameters

Parameter	Description
Lane Property	
SnapEnable	Select the lane(s) to enable snapshot. The lane No. corresponds to lanes on roads.
Illegal Type Config	
Video Analyse	Select according to actual needs. The Camera analyzes violations according to the corresponding event type.
RS485	
Radar	
ANPR	Select to snapshot numer plates.
Proceeding through Red Light	Select to snapshot vehicles running a red light.  This event is only applicable to E-Police.

Parameter	Description	
Underspeed	Select to snapshot underspeed vehicles.	 These events are only applicable to ANPR.
Overspeed	Select to snapshot speeding vehicles.	
Unfasten Seat Belt	Select to snapshot unfasten seat belt event.	
Calling While Driving	Select to snapshot driver who is calling while driving.	
No Helmet	Select to snapshot driver of non-motor vehicle not wearing helmet.	

Step 3 Click , and then the **Advance Config** interface is displayed. See Figure 6-42.



Different event types correspond to different advance configuration items. The following description takes Overspeed as the example. For other events, refer to this example.

Figure 6-42 Advance config of overspeed

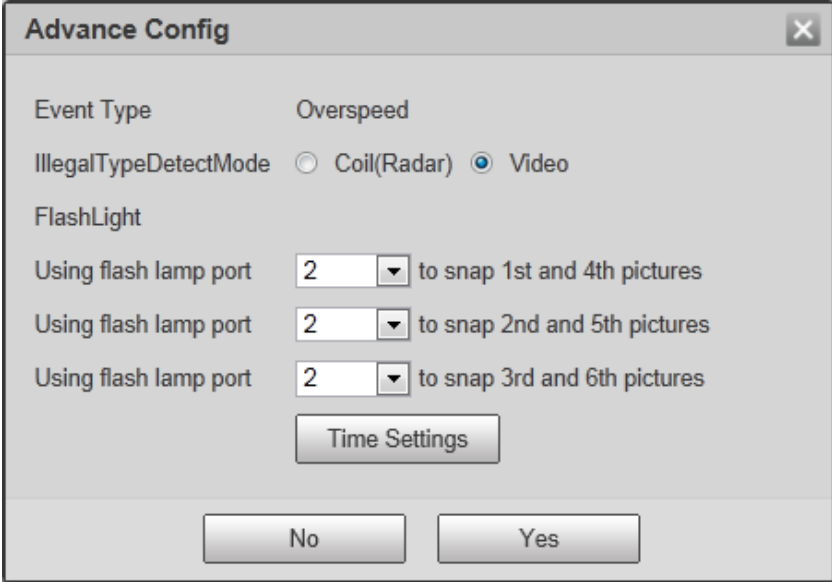


Table 6-9 Advance config of overspeed

Parameter	Description
Illegal Type Detect Mode	Select the mode of triggering snapshot.
FlashLight	Configure the flashing light for snapshot. A snapshot can be associated with up to 5 flashing lights.
Time Settings	Configure the time period of snapshot. You can configure 6 snapshot periods for each day.

Step 4 Click **Time Settings**, and then the **Period Setup** interface is displayed. See Figure 6-43.

Figure 6-43 Period setup

- 1) Check the day you want to configure, or click **Setting** corresponding to the day.
- 2) Select the period(s), and enter the start time and end time.
- 3) Click **Yes** to save the configuration.

Step 5 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.3 Snapshot

You can configure the max speed, work mode, etc. of snapshot.

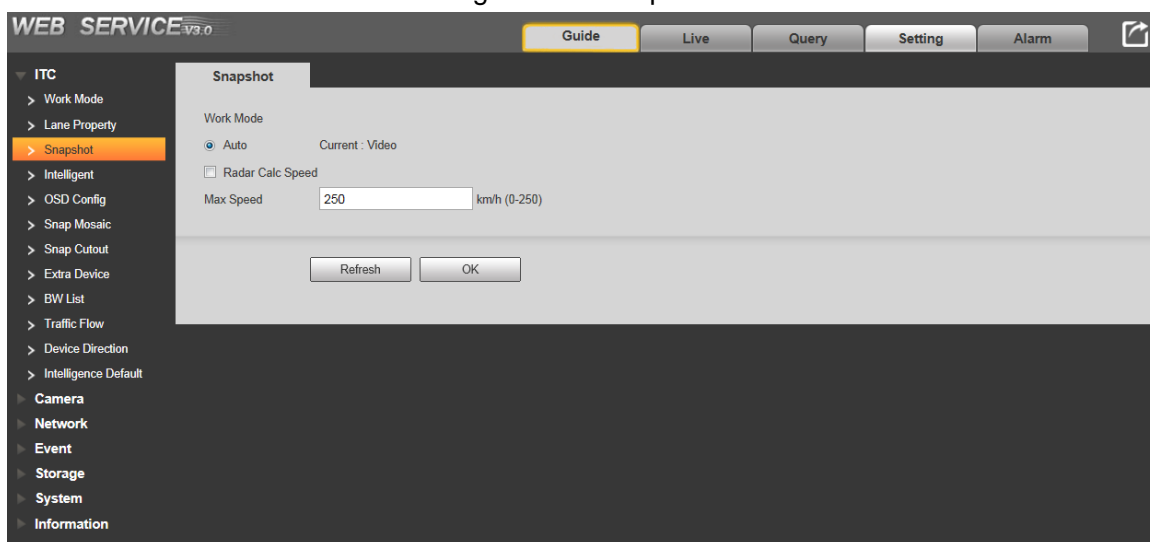


Snapshot by radar is only available in ANPR mode.

Step 1 Select **Setting > ITC > Snapshot**.


The **Snapshot** interface is displayed. See Figure 6-44.

Figure 6-44 Snapshot



Step 2 Configure the parameters. See Table 6-10.

Table 6-10 Snapshot parameters

Parameter	Description
Work Mode	Auto. Radar is preferred when taking snapshots. When the radar is abnormal, it will switch to snapshot by video.
Radar Calc Speed	The system automatically checks the speed to prevent abnormal data.  This function is only available in ANPR mode and when Enable Radar or Enable RS485 is enabled from Setting > ITC > Intelligent > Radar .
Max Speed	The max speed that snapshots can be taken.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.4 Intelligent

Different models with different work modes may support different intelligent functions, and the actual product shall prevail.

- In ANPR mode, it supports radar, RS485, and video analyse (which supports scene setup, speed measuring, recognition and advance config).
- In E-Police mode, it supports RS485 and video analyse (which supports scene setup, light group, recognition, kill halo and advance config).

6.5.1.4.1 Radar (ANPR)

It is to configure the radar parameters in ANPR work mode.

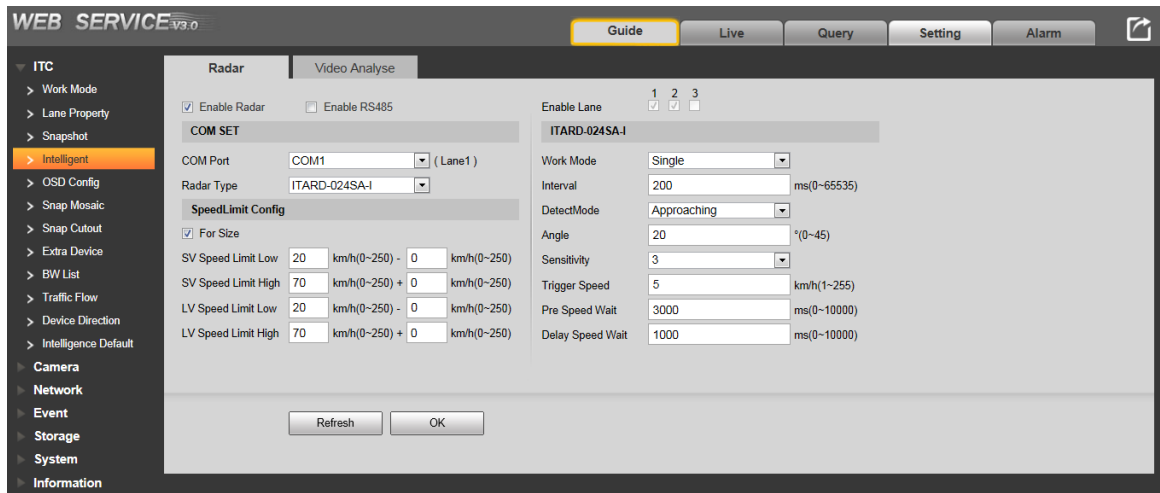


You can either check **Enable Radar** or **Enable RS485**.

- Radar: Applicable to single-lane capture.
- RS485: Applicable to multi-lane capture.



Step 1 Select **Setting > ITC > Intelligent > Radar**. The **Radar** interface is displayed. See Figure 6-45.

Figure 6-45 Radar (ANPR)



Step 2 Check **Enable Radar**, and then you can configure the parameters. See Table 6-11.

Table 6-11 Radar (ANPR)

Parameter		Description
Enable Radar		Check to to enable radar function.
COM SET	COM Port	Select the corresponding COM port. COM1/2/3 corresponds to Lane1/2/3 respectively.
	Radar Type	Select the radar type. The parameters of selected radar need to be configured at the right side of the interface.
Speed Limit Config		<ul style="list-style-type: none"> ● For Size disabled You can configure the low/high speed limit. ● For Size enabled You can configure the low/high speed limit by vehicle size (small vehicles (SV) and large vehicles (LV)).
ITARD-024 SA-I	Work Mode	<p>The way of sending information captured by Radar. You can select Single, Continuous or Manual.</p>  <p>Currently, the Camera supports only Single. Special program is required if you want to send the information in continuous or manual way.</p>
	Interval	<p>The radar will recognize only one subject within the interval.</p>  <p>This function is available with the support of special program.</p>
	Detect Mode	The detection direction of radar.
	Angle	The angle between the directions of the radar beam and the vehicle.
	Sensitivity	You can select the sensitivity of snapshot by radar. The larger the value, the more sensitive the radar.
	Trigger Speed	Snapshot will be triggered when the vehicle speed reaches the trigger speed.
	Pre Speed Wait	Recognizing the vehicle speed. By video analyse and radar detection, the Camera can detect the vehicle speed. If the

Parameter		Description
	Delay Speed Wait	speed is detected within the range of Pre Speed Wait and Delay Speed Wait, then such speed will be the detected speed; if out of such range, then the speed will be a random value within speed limit.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.4.2 RS485 (ANPR)

It is to configure the RS485 parameters in ANPR work mode.

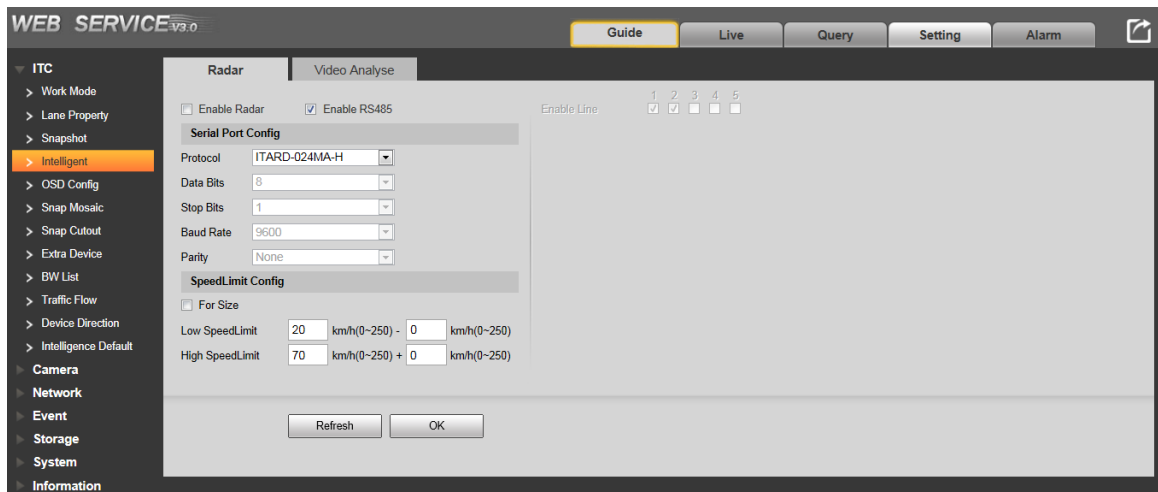


You can either check **Enable Radar** or **Enable RS485**.

- **Radar**: Applicable to single-lane capture.
- **RS485**: Applicable to multi-lane capture.

Step 1 Select **Setting > ITC > Intelligent > Radar**. The Radar interface is displayed. See Figure 6-46.

Figure 6-46 RS485 (ANPR)



Step 2 Configure the parameters, see Table 6-12.

Table 6-12 RS485 (ANPR)

Parameter		Description
	Enable RS485	Check to enable RS485.
Serial Port Config	Protocol	ITARD-024MA-H.
	Data Bits	The value is 8 by default.
	Stop Bits	The value is 1 by default.
	Baud Rate	The value is 9600 by default.
	Parity	The value is None by default.
Speed Limit Config	<ul style="list-style-type: none"> ● For Size disabled You can configure the low/high speed limit.	
	<ul style="list-style-type: none"> ● For Size enabled You can configure the low/high speed limit by vehicle size (small vehicles (SV) and large vehicles (LV)).	

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

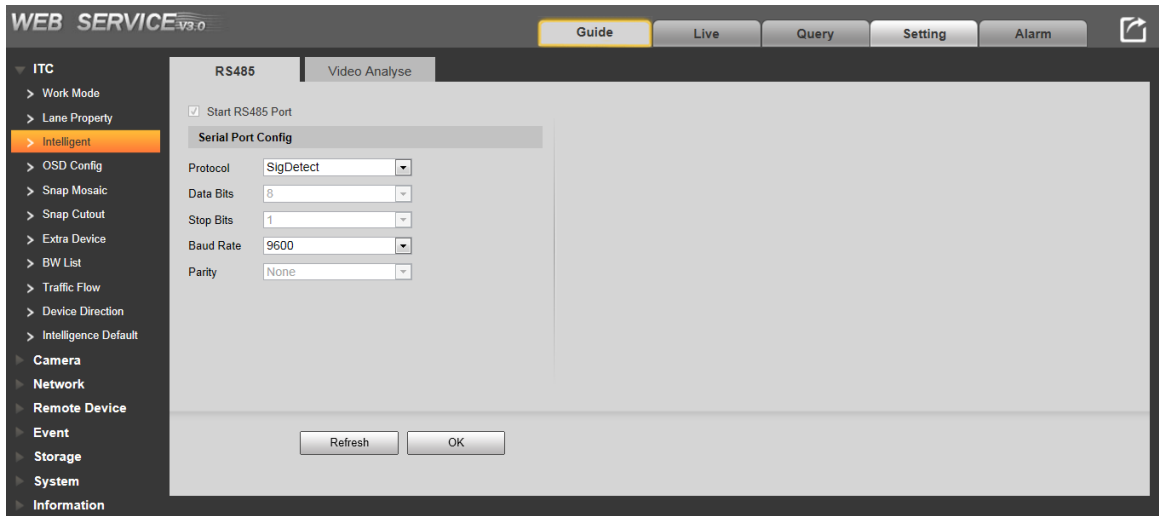
6.5.1.4.3 RS485 (E-Police)

It is to configure the RS485 parameters in E-Police work mode.

Step 1 Select **Setting > ITC > Intelligent > RS485**.

The **RS485** interface is displayed. See Figure 6-47.

Figure 6-47 RS485 (E-Police)



Step 2 Configure the parameters, see Table 6-13.

Table 6-13 RS485 (E-Police)

Parameter	Description	
Start RS485 Port	Check to enable RS485.	
Serial Port Config	Protocol	Three protocols are available: SigDetect, RedLightSigDetect, and RedLightSigDetect-2.0.
	Data Bits	The value is 8 by default.
	Stop Bits	The value is 1 by default.
	Baud Rate	The value is 9600 by default.
	Parity	The value is None by default.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.4.4 Video Analyse–Scene Setup

You can draw lines of region, lane, etc. to configure events of video analysis.

Step 1 Select **Setting > ITC > Intelligent > Video Analyse > Scene Setup**.

The **Scene Setup** interface is displayed. See Figure 6-48 and Figure 6-49.

Figure 6-48 Scene setup (ANPR)

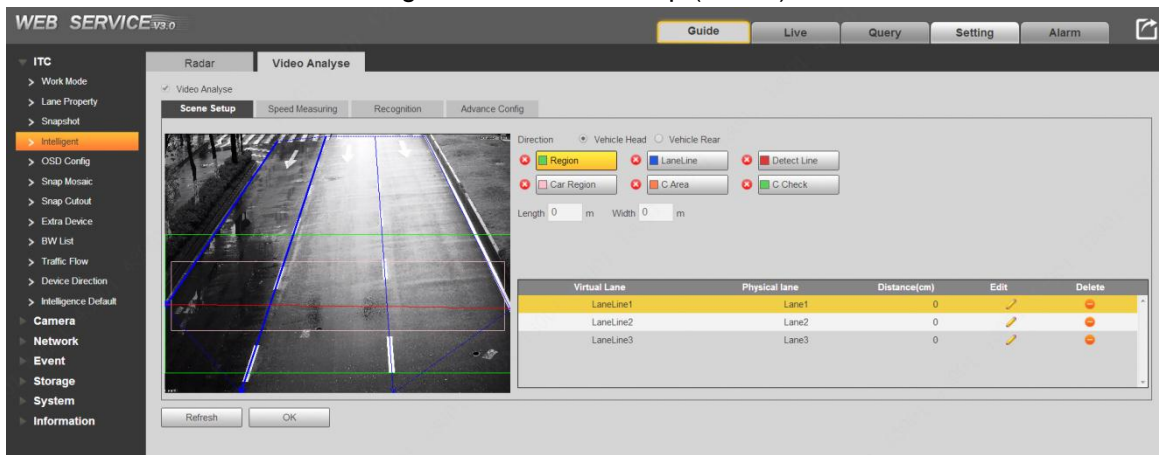
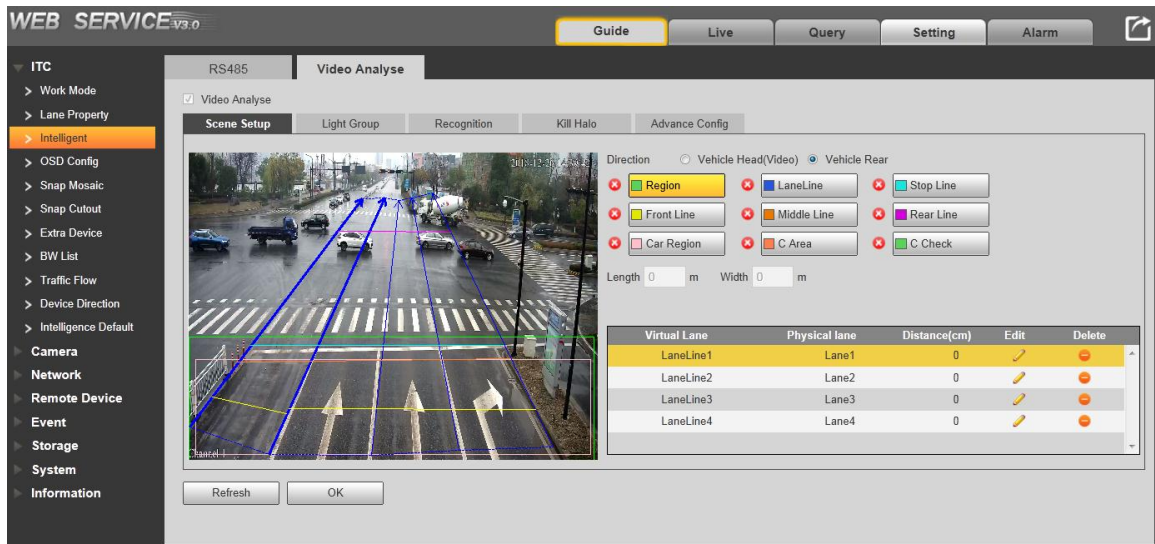



Figure 6-49 Scene setup (E-Police)



Step 2 Select the type of line you want to draw.


Step 3 Draw lines on the video image.



- ANPR and E-Police modes support different types of lines, and the actual interface shall prevail.
- Click  to delete the line of corresponding color.
- You can select **Vehicle Head** or **Vehicle Rear** to change the direction of lane lines.

Step 4 Configure the parameters. See Table 6-14.

Table 6-14 Scene setup parameters

Parameter	Description
Direction	The direction of the vehicle. <ul style="list-style-type: none"> • If Vehicle Head is selected, downwards arrow will be displayed when drawing the lane line. • If Vehicle Rear is selected, upwards arrow will be displayed when drawing the lane line.
Region	The region to be detected. A green box will be displayed when drawing region line.
Lane Line	Draw lines of the lanes to be detected. Two lane lines are required for each lane. The arrow direction of lane line is the direction of the vehicle. A blue line with arrow will be displayed when drawing a lane line.
Detect Line	When a vehicle crosses the detect line, snapshot will be triggered. Detect line only displays within the range of lane lines. The detect line is in red.  This function is only available in ANPR mode.
Car Region	A region drawn to detect the traffic flow.

Parameter	Description
C Area	A region drawn to detect the vehicle speed.
C Check	A line drawn to check whether the speed detected matches the actual speed of the vehicle.
The following functions are only available in E-Police mode.	
Stop Line	The stop line on a physical lane.
Front Line	Front line is recommended to be drawn at one-vehicle-position away from the stop line at the bottom.
Middle Line	The middle line is recommended to be drawn below the stop line to ensure that when the vehicle crosses the middle line, the vehicle front wheel has crossed the stop line.
Rear Line	The rear line is recommended to be drawn above the area. If there is no waiting area, draw it near the top 1/3 of screen.

Step 5 Lane information will be displayed after lane lines are drawn. You can edit or delete lane lines.



- Click  to delete the current lane line.
- Click  to configure the corresponding lane. See Figure 6-50 and Figure 6-51. Click **Yes** to save the configuration.

Figure 6-50 Editing lane line

Virtual Lane	Physical lane	Distance(cm)	Edit	Delete
LaneLine1	Lane1	0	Yes	No

Figure 6-51 Lane line parameters

Parameter	Description
Virtual Lane	Enter the name of virtual lane you have drawn.
Physical Lane	Select the lane according to the actual road conditions.
Distance	The distance from the lower edge of video image to the stop line.

Step 6 Click **Yes** to save the configuration.

Step 7 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.4.5 Video Analyse–Speed Measuring

You can configure the installation parameters of the camera to realize speed measuring.

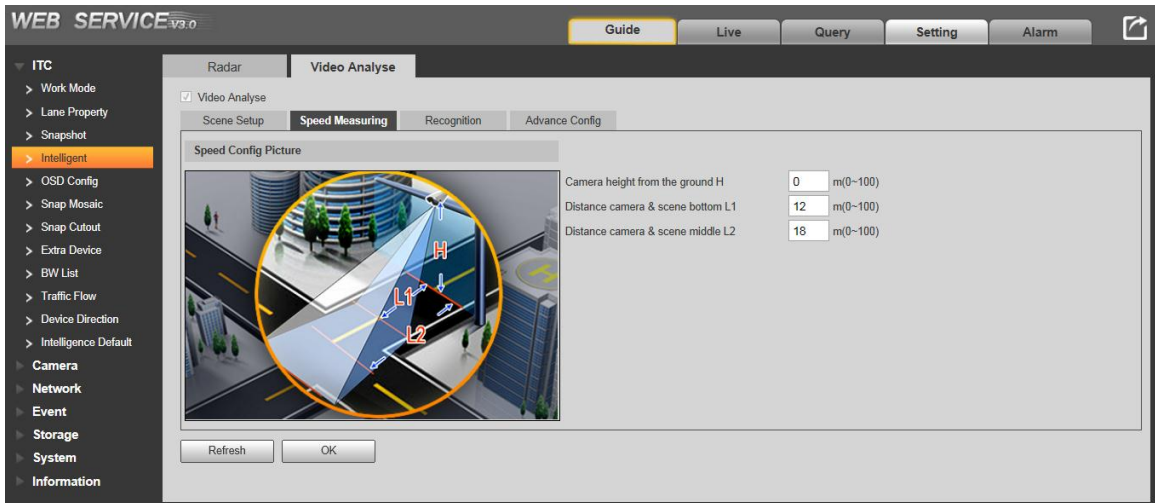
Step 1 Select **Setting > ITC > Intelligent > Video Analyse > Speed Measuring**.

The **Speed Measuring** interface is displayed. See Figure 6-52.



- This function is only available in ANPR mode.
- The value configured must be the same as the actual installation, otherwise, it may influence the precision of speed measuring.

Figure 6-52 Speed measuring



Step 2 Configure the parameters. See Table 6-15.

Table 6-15 Speed measuring parameters

Parameter	Description
Camera height from the ground H	The height of the camera from the ground.
Distance camera & scene bottom L1	The distance from the lower bottom of snapshot range to the pole.
Distance camera & scene middle L2	The distance from the middle bottom of snapshot range to the pole.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.4.6 Video Analyse–Light Group

You can configure the location of traffic lights for snapshot.

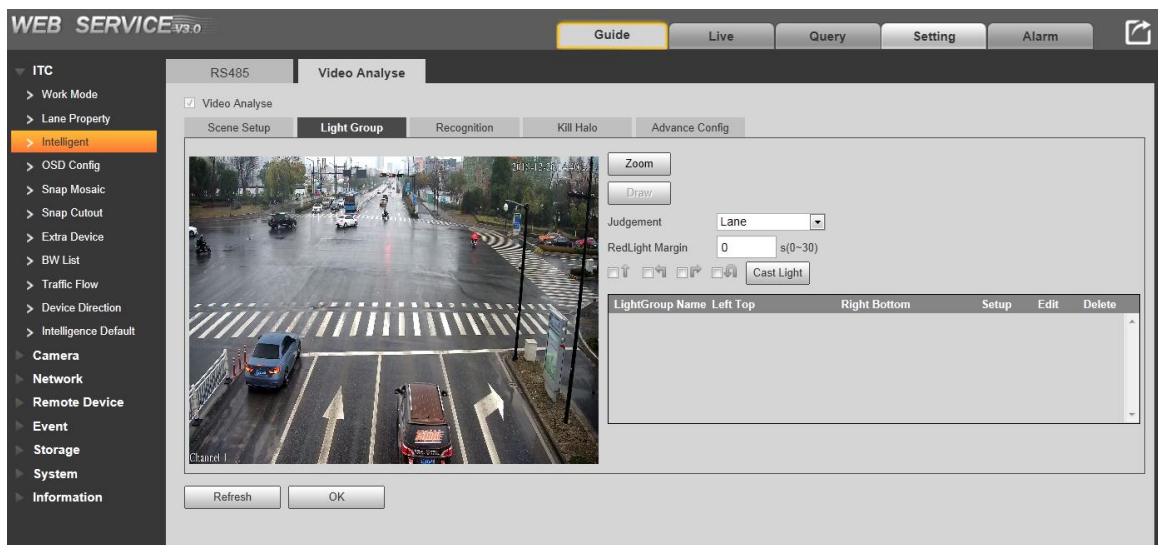


This function is only available in E-Police mode.

Step 1 Select **Setting > ITC > Intelligent > Video Analyse > Light Group**.

The **Light Group** interface is displayed. See Figure 6-53.

Figure 6-53 Light group




Step 2 Find the location of traffic lights, and click **Zoom**. Drag the mouse to select the traffic light area on the video image to zoom in.

Step 3 Click **Draw**, and then drag the mouse to draw the traffic light area.

Step 4 Configure the parameters of light group. See Table 6-16.


Table 6-16 Light group parameters


Parameter	Description
Judgement	Take snapshots of running a red light according to lane.
Red Light Margin	The Camera will not capture running a red light within the defined time after the light turns red.
Cast Light	Change the traffic light of corresponding lane into red.

Step 5 Click  to configure the coordinates of light group. See Figure 6-54 and Table 6-17.

Click **Yes** to save the configuration. Click  to delete the corresponding light group.

Figure 6-54 Editing light group information

LightGroup Name	Left Top	Right Bottom	Setup	Edit	Delete
Red Light1	4229	1313	4743	1567	 Yes No

Step 6 Select the light group, and then click .

The **Light Group Info Config** interface is displayed. See Figure 6-55.

Figure 6-55 Configuring light group information

LightGroup Info Config ✕

Current LightGroup: Red Light1

Proceeding through: Red On Green Off

Red Light Mode

LightGroup Signal: External Signal Swing Detect

LightGroup Number:


LightGroup Attribute

Light	Turn on	Type	Direction	Yellowtime (ms)
Light1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text" value="0"/>
Light2	<input checked="" type="checkbox"/>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text" value="0"/>
Light3	<input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="text" value="0"/>

Step 7 Configure the parameters. See Table 6-17.

Table 6-17 Light group parameters

Parameter	Description
Light Group Name	Select the light group you have drawn.

Parameter	Description
Left Top	Configure the X and Y coordinates of light group.
Right Bottom	
Proceeding through	<ul style="list-style-type: none"> Red On: Detect running a red light on the basis that the red light is on. For example: When crossing an intersection, a vehicle goes straight on red will be detected as running a red light. Green Off: Detect running a red light on the basis that the green light is off. For example: When crossing an intersection, a vehicle goes straight when the green light is off will be detected as running a red light.  <p>It is available only when Swing Detect is selected as the Light Group Signal.</p>
Light Group Signal	<ul style="list-style-type: none"> External Signal: Signals from a signal detector connected to traffic light. Swing Detect: When the position of traffic light changes slightly, the video detection area will be enlarged.
Light Group Number	You can configure the number according to the actual condition of traffic lights.
Type	Red, yellow, green, and countdown lights are available.
Direction	The direction indicated by the light.
Yellow time	The time (ms) the yellow light lasts.

Step 8 Click **Yes** to save the configuration.

Step 9 Click **OK** to save the configuration of Light Group interface. Click **Refresh** to refresh the interface.

6.5.1.4.7 Video Analyse–Recognition

It is to recognize the vehicle according to the vehicle plate, series, sign, type, etc.

Step 1 Select **Setting > ITC > Intelligent > Video Analyse > Recognition**.

The **Recognition** interface is displayed. See Figure 6-57 and Figure 6-57.



Different models with different work modes may support different intelligent functions, and the actual product shall prevail.

Figure 6-56 Recognition (ANPR)

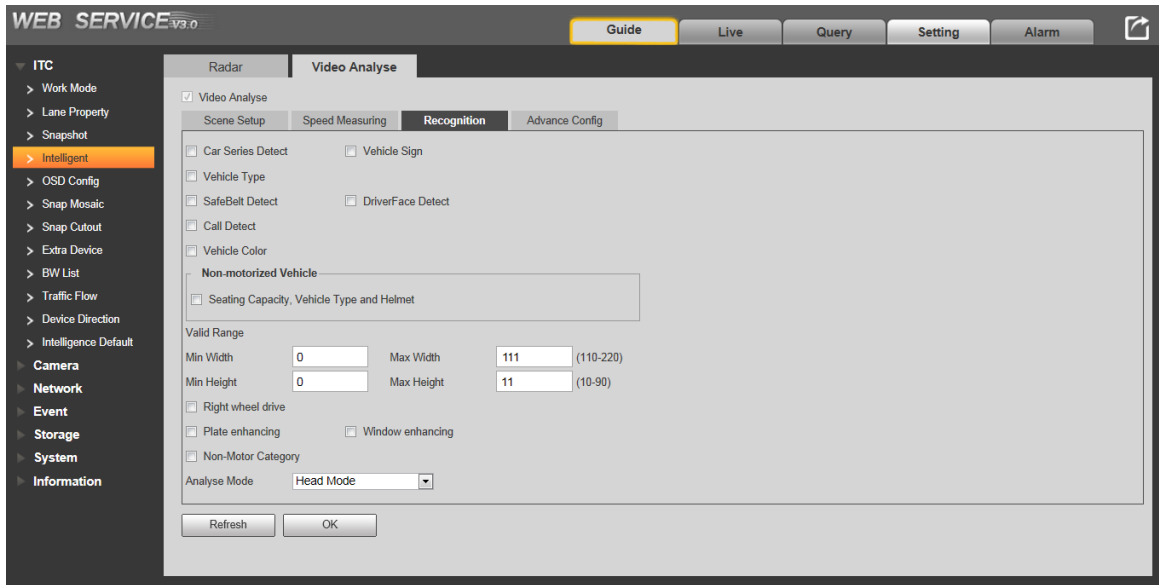
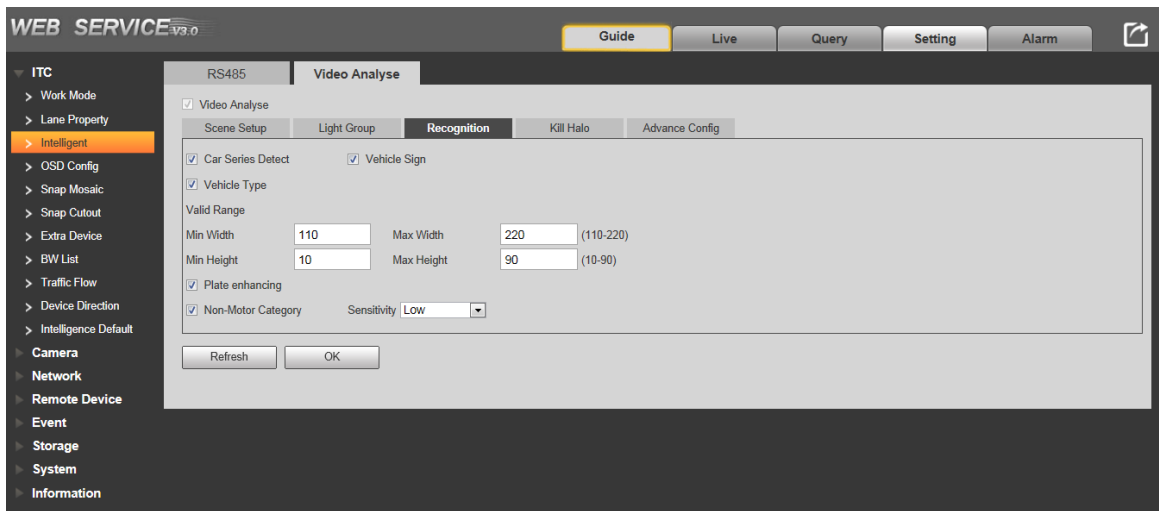



Figure 6-57 Recognition (E-Police)



Step 2 Configure the parameters. See Figure 6-58.

Figure 6-58 Recognition parameters

Parameter	Description	
Car Series Detect	Detect the car series of different brands.	
Vehicle Sign	Detect the sign of vehicle.	
Vehicle Type	Detect the vehicle type.	
Safe Belt Detect	Detect whether the safe belt is fastened.	 <p>These functions are only available in ANPR mode.</p>
Driver Face Detect	Detect the face of the driver.	
Call Detect	Detect whether the driver calls while driving.	
Vehicle Color	Detect the color of vehicle.	
Seating Capacity, Vehicle Type and Helmet	Detect the seating capacity and vehicle type of non-motorized vehicle, and helmet wearing of the driver.	
Window enhancing	Optimize snapshot effect for faces behind the car window.	
Right Wheel Drive	Detect right-hand drive. This is applicable to countries and regions with right-hand drive system.	
Analyse Mode	The mode of detecting number plate. Four modes are available: Head Mode, Tail Mode, Head Prior Mode, and Tail Prior Mode.	
Valid Range	Configure the min and max width, as well as the min and max height of vehicle.	
Plate enhancing	Optimize snapshot effect for number plate.	
Non-Motor Category	Snapshot non-motor vehicles and pedestrians. After enabling Non-Motor Category , you can configure the sensitivity. Three sensitivity levels are available: Low, Medium, and High.	

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.4.8 Video Analyse–Kill Halo

You can configure the halo zone, and time and level of halo control to get the snapshot you need.

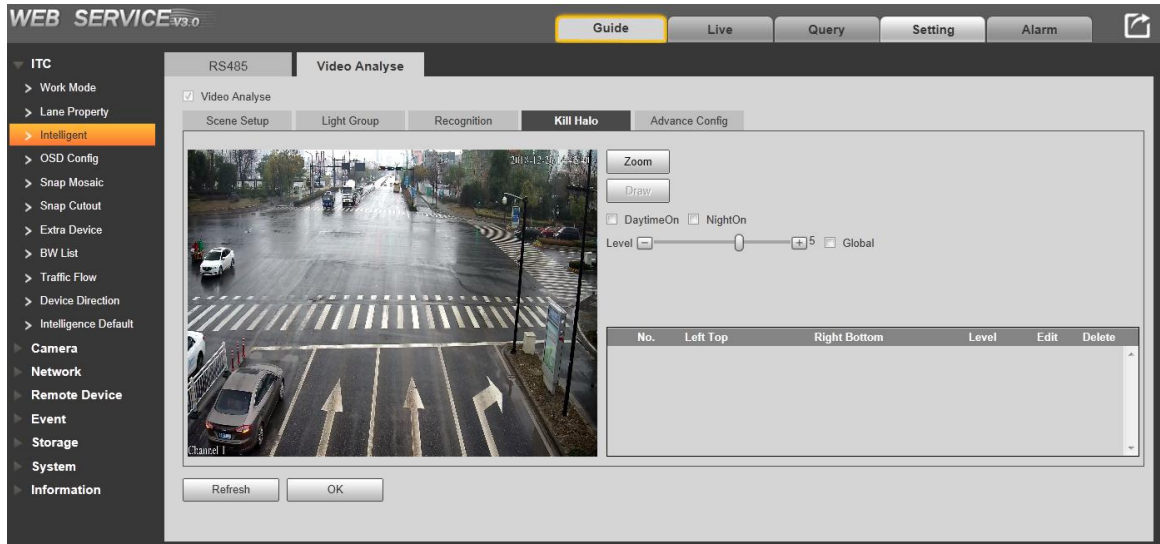


This function is only available in E-Police mode.



Step 1 Select **Setting > ITC > Intelligent > Video Analyse > Kill Halo**.

The **Kill Halo** interface is displayed. See Figure 6-59.

Figure 6-59 Kill Halo



Step 2 Select the location of halo in the video image, and click **Zoom**. Drag the mouse to select the halo zone on the video image to zoom in.

Step 3 Click **Draw**, and then drag the mouse to draw the halo zone. You can also click  to configure the coordinates of the halo zone. Click  to delete the corresponding halo zone.

Step 4 Configure the time and level of halo control. See Table 6-18.

Table 6-18 Kill halo parameters

Parameter	Description
DaytimeOn	Halo control works at daytime.
NightOn	Halo control works at night.
Global	When configuring multiple areas, each area shares the same level of halo control.
Level	The smaller the value, the more obvious the halo control effect.

Step 5 Click **Yes** to save the configuration. You can right-click on the halo zone to delete it.

Step 6 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

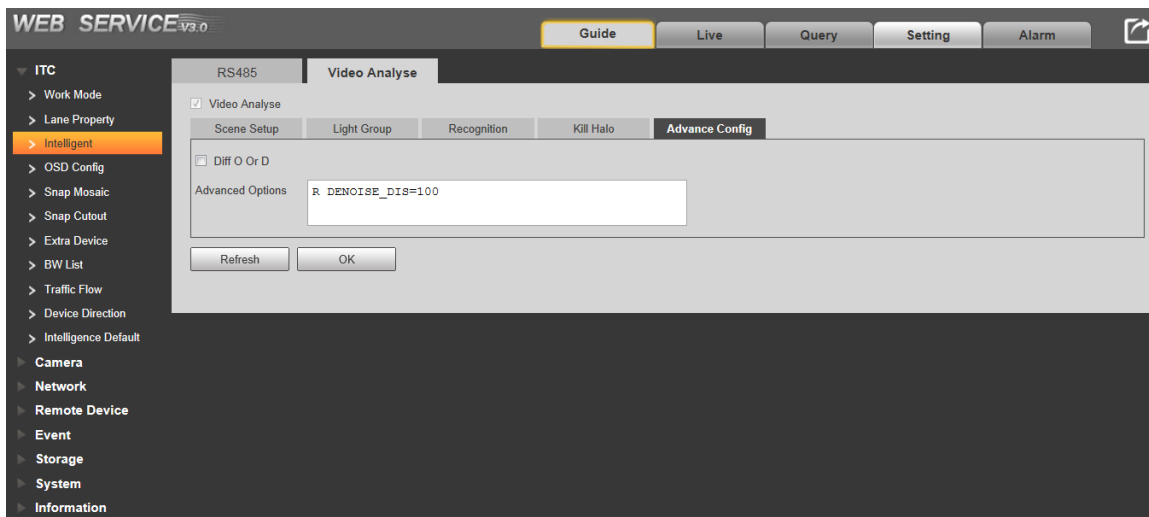
6.5.1.4.9 Video Analyse–Advance Config

You can configure other video analyse functions.

Step 1 Select **Setting > ITC > Intelligent > Video Analyse > Advance Config**.

The **Advance Config** interface is displayed. See Figure 6-60.

Figure 6-60 Advance config



Step 2 Configure the parameters. See Table 6-19.

Table 6-19 Advance config parameters

Parameter	Description
Diff O Or D	Enable it to differentiate O from D in detection.
Advanced Options	You can enter custom algorithm expressions for custom functions.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.1.5 OSD Config

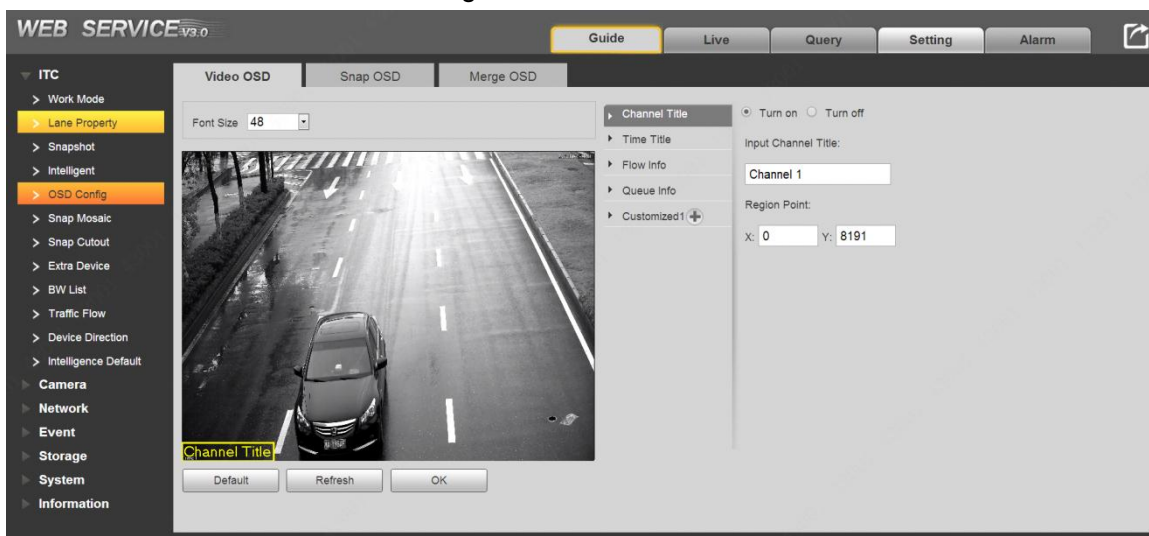
6.5.1.5.1 Video OSD

It is to configure OSD information of video channel, including channel title, time title, etc.

Step 1 Select **Setting > ITC > OSD Config > Video OSD**.

The **Video OSD** interface is displayed. See Figure 6-61.

Figure 6-61 Video OSD



Step 2 Configure the font size.

Step 3 Configure channel title and position of the title.

- 1) Click **Channel Title**, and check **Turn on**.

- 2) Enter channel title.
- 3) Drag the yellow box in the video image, or enter the coordinates to configure the position of the channel title.

Step 4 Configure the time title and the position of title.

- 1) Click **Time Title**, and check **Turn on**.
- 2) Enable **Week Display**.
- 3) Drag the yellow box in the video image, or enter the coordinates to configure the position of the time title.

Step 5 Configure flow information.


- 1) Click **Flow Info**, and check **Turn on**.
- 2) Drag the yellow box in the video image, or enter the coordinates to configure the position of the flow information.

Step 6 Configure queue information.

Click **Queue Info**, check **Turn on**, and then click **OK**. A white line will be displayed at the back of the last vehicle in the queue.



This function is only available when **Traffic Flow** from **Setting > ITC > Traffic Flow** is enabled.

Step 7 Click  to add customized title. You can configure OSD information and its position according to your needs.

The system supports up to 5 customized titles.

Step 8 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** to restore to default settings.

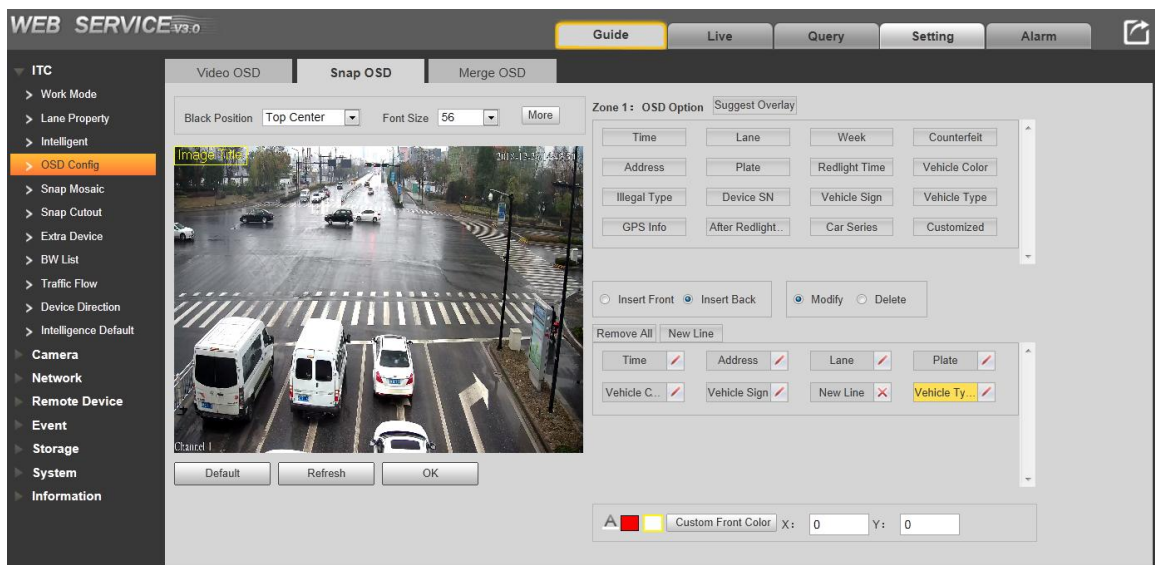
6.5.1.5.2 Snap OSD

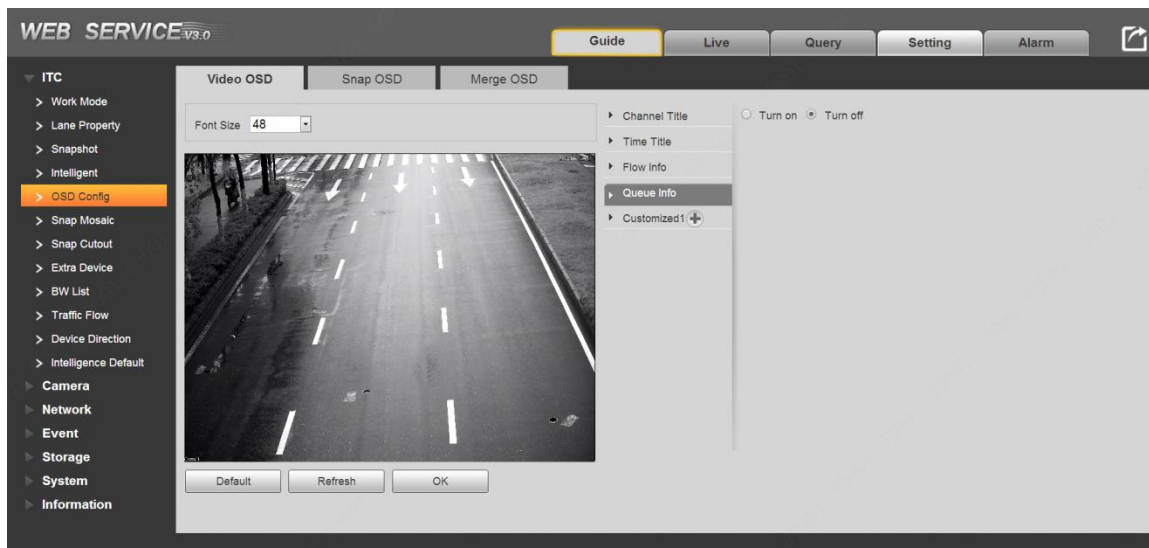
It is to configure the OSD information and position of image.

Step 1 Select **Setting > ITC > OSD Config > Snap OSD**.

The **Snap OSD** interface is displayed. See Figure 6-62.

Figure 6-62 Snap OSD





Step 2 Drag the mouse to select any area in the image to add image title. Drag the box to the position you want, or enter the value in X/Y boxes at the right bottom side.



- The system supports up to 8 image titles. You can customize OSD options of each image title.
- Right-click an image title to delete it.

Step 3 Select the Black Position, which includes Top Center, Bottom Center, and None.

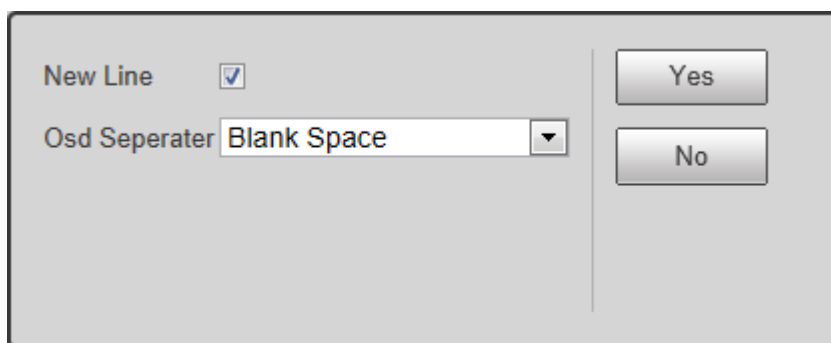
Step 4 Configure the font size and font color of OSD information.

You can configure the font color at the bottom right side.

Step 5 Click **More**, and the box of configuring new line and separator is displayed. See Figure 6-63.

- 1) You can check **New Line** according to your actual needs.
- 2) You can configure the OSD separator, which includes **Blank Space**, **Vertical Line** and **Customized**. By selecting **Customized**, you can enter other separator.
- 3) Click **Yes** to save the configuration.

Figure 6-63 New line and separator







Step 6 Configure **OSD Option**.



Click **Suggest Overlay** to quickly configure general overlay OSD options.

Table 6-20 Snap OSD parameters

Parameter	Description
-----------	-------------

Parameter	Description
Insert Front	Select an OSD option, and then click Insert Front before selecting another OSD option, the new OSD option will be shown before the original OSD option.
Insert Back	Select an OSD option, and then click Insert Back before selecting another OSD option, the new OSD option will be shown after the original OSD option.
Modify	Click Modify , and the status of OSD information (New Line excluded) will change to  . Click  to modify the prefix, postfix, content and separator of corresponding OSD option.
Delete	Click Delete , and the status of all selected OSD information will change to  . Click  to delete the corresponding OSD option.
Remove All	Delete all the OSD information.
New Line	Select one OSD information, and then click New Line . The option next to the selected OSD information will be shown in a new line in the snapshot (captured by clicking ANPR Receive on Live interface).

Step 7 Click **Yes** to save the configuration. You can right-click on the halo zone to delete the zone.

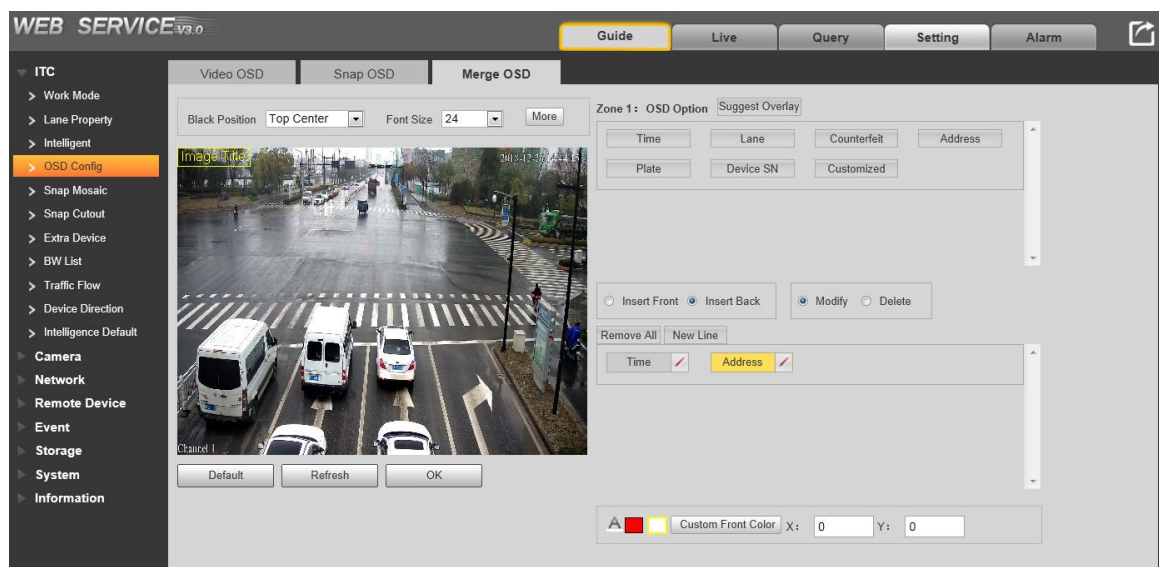
Step 8 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** to restore to default settings.

6.5.1.5.3 Merge OSD

It is to configure the OSD information and location of composite picture.

Select **Setting > ITC > OSD Config > Merge OSD**. The **Merge OSD** interface is displayed. See Figure 6-64.

Figure 6-64 Merge OSD



The setting of Merge OSD is similar to Snap OSD. See "6.5.1.5.2 Snap OSD".

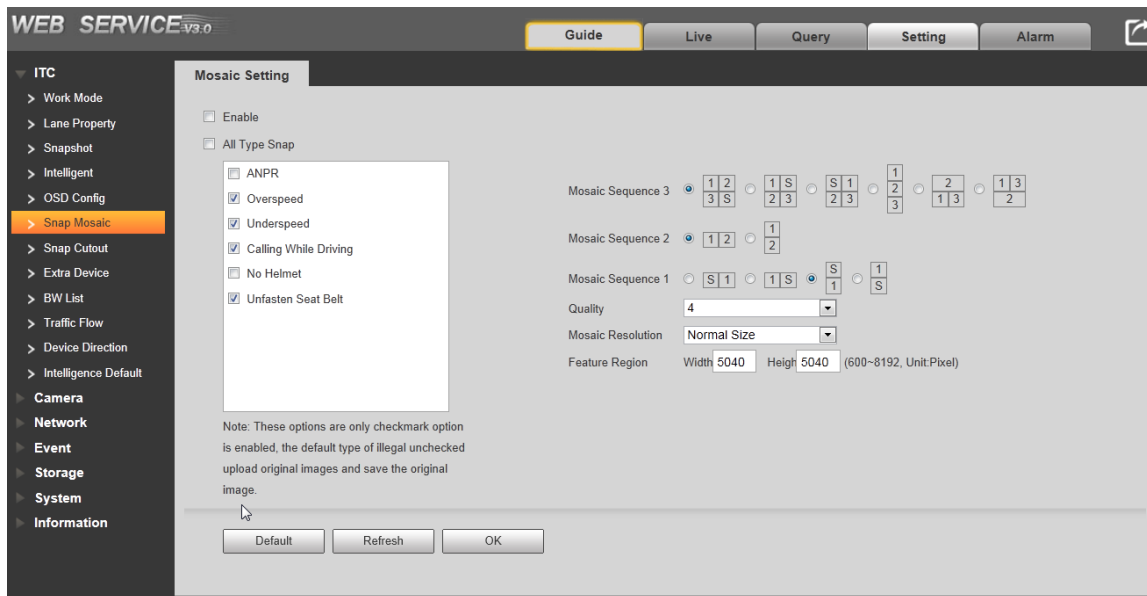
6.5.1.6 Snap Mosaic

It is to configure the snapshot parameters such as mosaic sequence, quality, etc.

Step 1 Select **Setting > ITC > Snap Mosaic**.

The **Mosaic Setting** interface is displayed. See Figure 6-65.

Figure 6-65 Snap mosaic






Step 2 Check **Enable** to enable snap mosaic. Select types of violations as needed.

After enabling this function, no single snapshot will be displayed. The system will composite snapshots according to the selected mosaic sequence. Snapshots not composited will be uploaded and saved in their original forms.

Step 3 Select the way of compositing snapshots.

Step 4 Configure the parameters. See Table 6-21.

Table 6-21 Snap mosaic parameters

Parameter	Description
All Type Snap	Includes ANPR, Overspeed, Underspeed, Calling While Driving, No Helmet, and Unfasten Seat Belt.  In E-Police mode, includes only ANPR.
Mosaic Sequence	Select the way and sequence of compositing snapshots.  <ul style="list-style-type: none"> •  means the image consists of four snapshots. These snapshots are composited in the sequence as this icon shows. • S refers to the feature image obtained from zooming in the first snapshot of the composite image.
Quality	You can choose the image quality. 4 levels are available. The larger the value, the higher the quality.
Mosaic Resolution	You can configure the resolution of composite image as needed.
Feature Region	You can configure the width and height of feature image as needed.

Step 5 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** to restore to default settings.

6.5.1.7 Snap Cutout

6.5.1.7.1 Snap Cutout

Select **Setting > ITC > Snap Cutout > Snap Cutout**. The **Snap Cutout** interface is displayed. See Figure 6-66 and Figure 6-67.

The Camera can recognize and cut out pictures of Plate, Driver Face and Passenger Face. Cutouts will be saved in the storage path. See **Setting > Storage > Destination > Path**.

Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** to restore to default settings.



- The interface and function may vary in ANPR and E-Police modes, and the actual interface and function shall prevail.
- Face cutout is available only when face recognition is enabled. To enable face recognition, check **Driver Face**, **Passenger Face** or **Face**.

Figure 6-66 Snap cutout (ANPR)

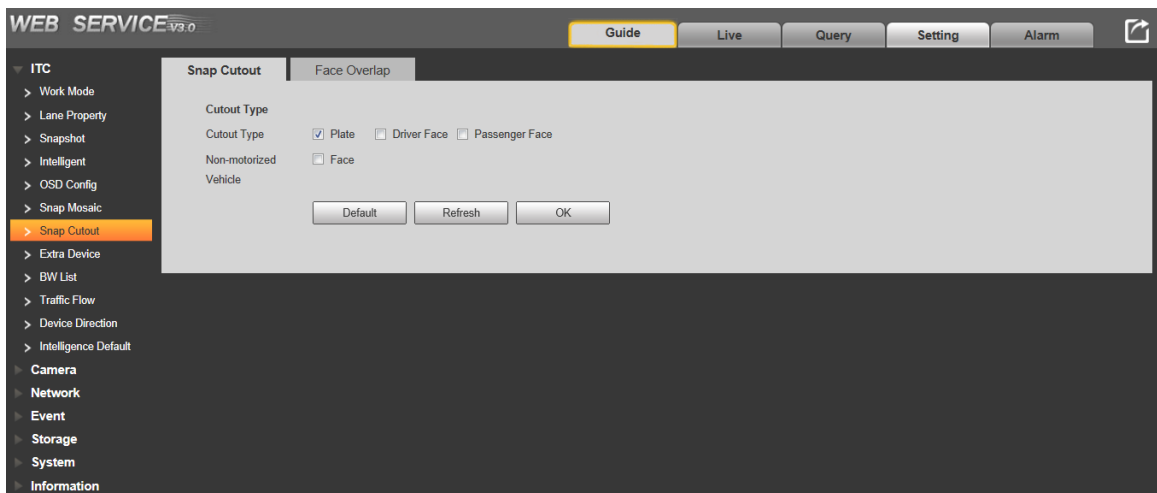
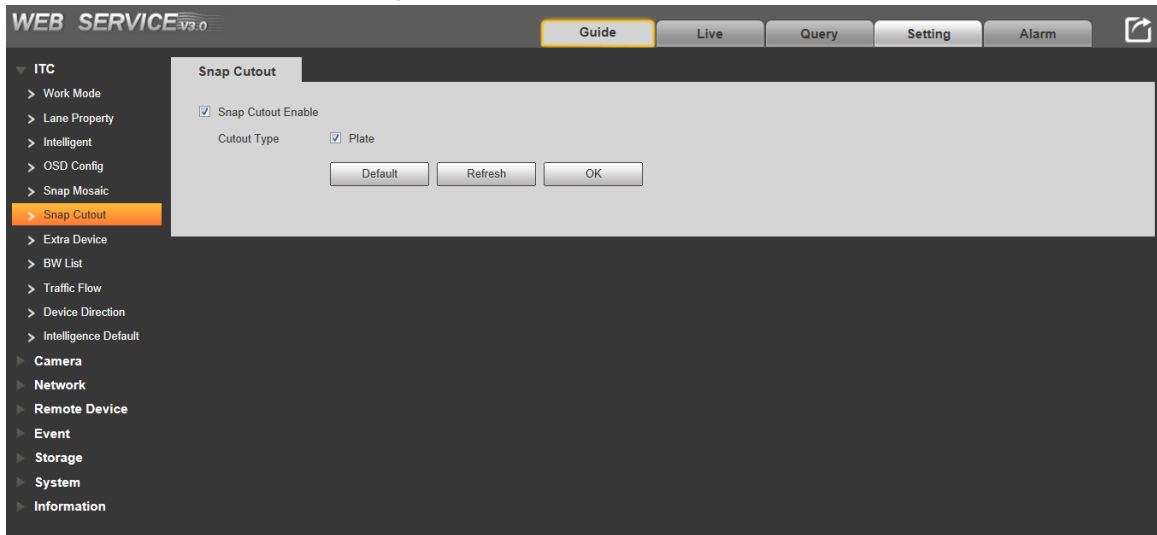


Figure 6-67 Snap cutout (E-Police)



6.5.1.7.2 Face Overlap

It is to configure whether enable driver face overlap, and if overlap, the overlap position and size of driver and assistant driver.

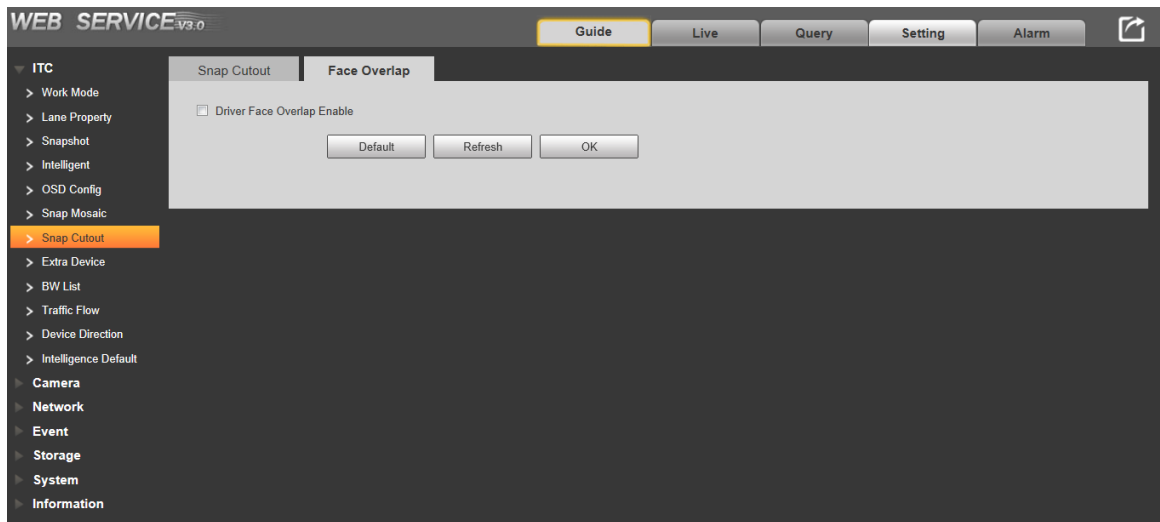


This function is only available in ANPR mode.

Step 1 Select **Setting > ITC > Snap Cutout > Face Overlap**.

The **Face Overlap** interface is displayed. See Figure 6-68.

Figure 6-68 Face overlap



Step 2 Check Driver Face Overlap Enable.

Step 3 You can enable face overlap of driver and assistant driver.

Step 4 Configure the overlap position and size of driver and assistant driver.

Step 5 Click **OK** to save the configuration.

6.5.1.8 Extra Device

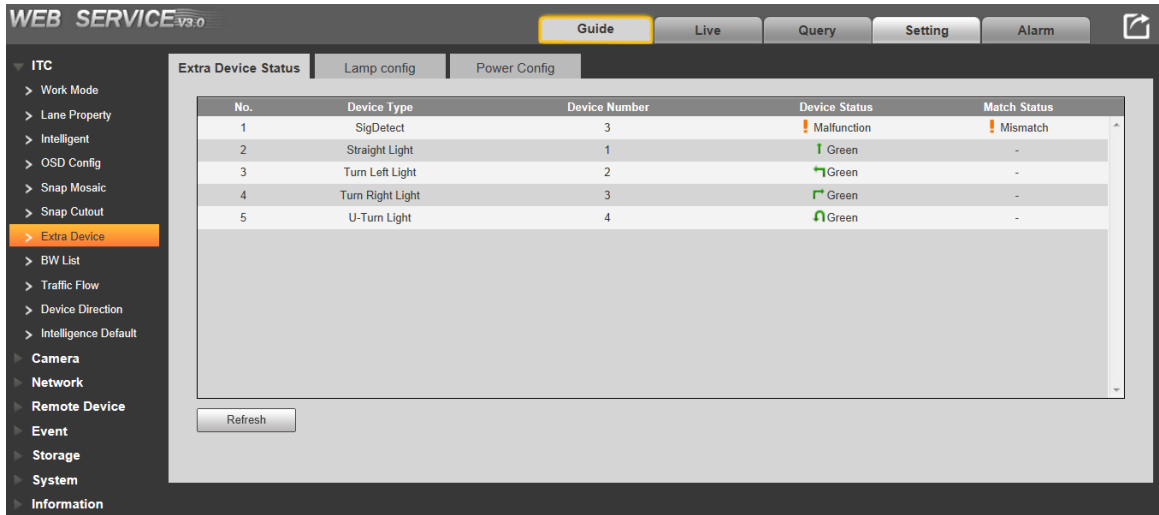
6.5.1.8.1 Extra Device Status

Select **Setting > ITC > Extra Device > Extra Device Status**.

The **Extra Device Status** interface is displayed. See Figure 6-69.

You can check the information relating to the extra device.

Figure 6-69 Extra device status



6.5.1.8.2 Lamp Config

It is to configure the parameters of flash lamp and frequency lamp connected to the Camera.

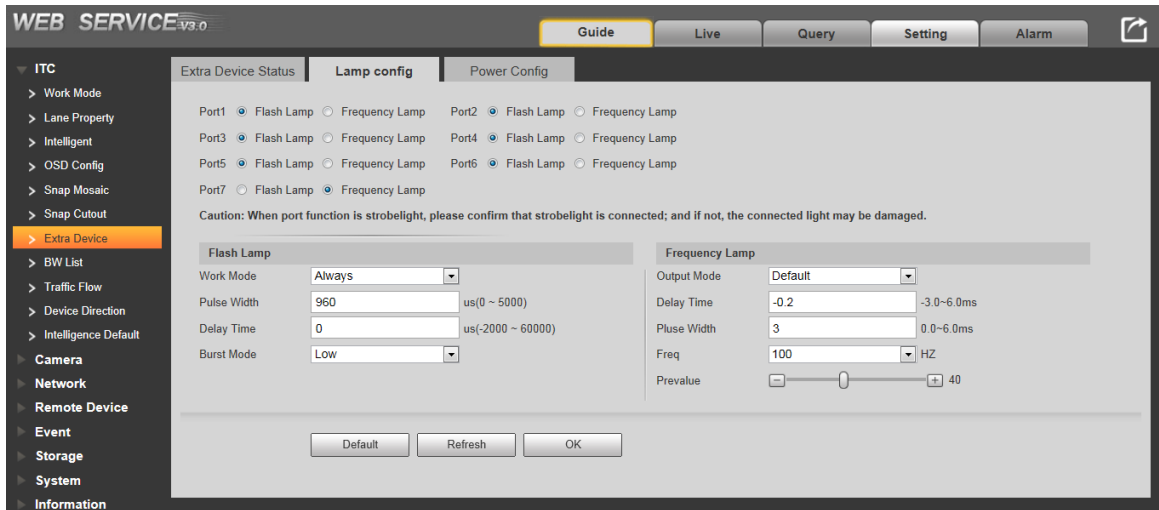
Step 1 Select **Setting > ITC > Extra Device > Lamp Config**.

The **Lamp Config** interface is displayed. See Figure 6-70.



The lamp type selected must be the same as the lamp type actually connected. If a port is set as flash lamp port, make sure a flash lamp is connected; otherwise, it may cause lamp damage.

Figure 6-70 Lamp config



Step 2 Select the lamp type of each port. For parameter setting, see Table 6-22.

Table 6-22 Lamp parameters

Parameter	Description
Port	Select the light type connected to each port.
Flash Lamp	<p>Work Mode</p> <ul style="list-style-type: none"> Forbidden: The light is normally off. Always: The light is normally on. Default: Configure the prevalue of brightness. When the actual brightness is lower than this value, the light automatically turns on.

Parameter		Description
	Pulse Width	Configure the pulse width of flash lamp. The higher the value, the brighter the light.
	Delay Time	Configure the delay time of the light to keep the snapshot in sync with the flash.
	Burst Mode	You can select the level that activates the flashing light. Currently, only Low level is supported.
Frequency Lamp	Output Mode	<ul style="list-style-type: none"> • Forbidden: The light is normally off. • Always: The light is normally on. • Default: Configure the Prevalue of brightness. When the actual brightness is lower than this value, the light automatically turns on.
	Delay Time	Configure the delay time of the light to keep the snapshot in sync with the flash.
	Pulse Width	Configure the pulse width of the light. The higher the value, the brighter the light.
	Freq	Configure the flash frequency of the light. The higher the value, the more frequent the light flashes.
	Prevalue	Prevalue of brightness. You can drag the slider to adjust the value. The higher the value, the brighter the light.

6.5.1.8.3 Power Config

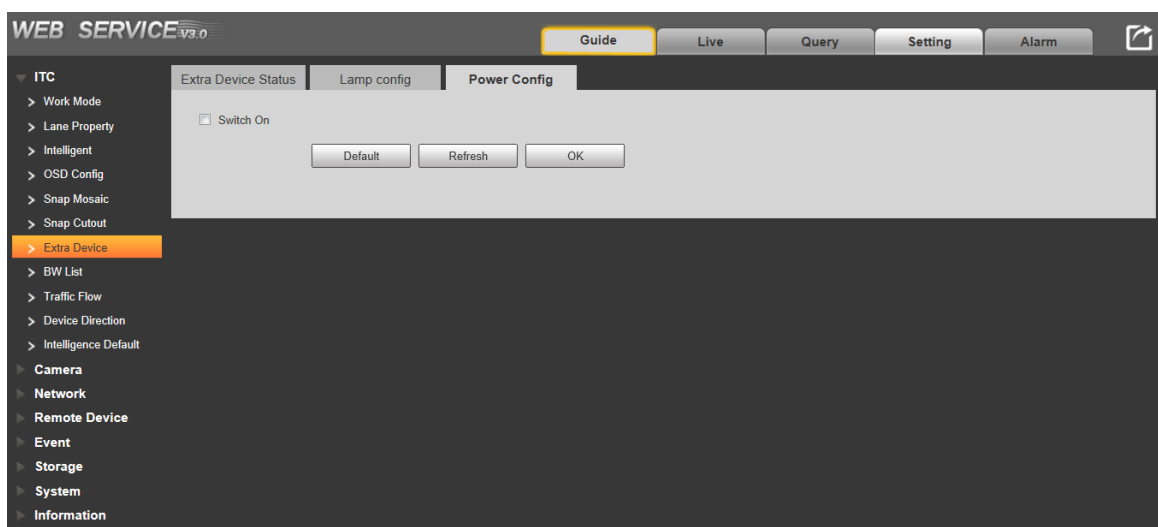
The Camera can output DC12V power when the power switch is on.

Step 1 Select **Setting > ITC > Extra Device > Power Config**, the **Power Config** interface is displayed. See Figure 6-71.

Step 2 Check **Switch On**, and the camera can supply DC12V power.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

Figure 6-71 Power config

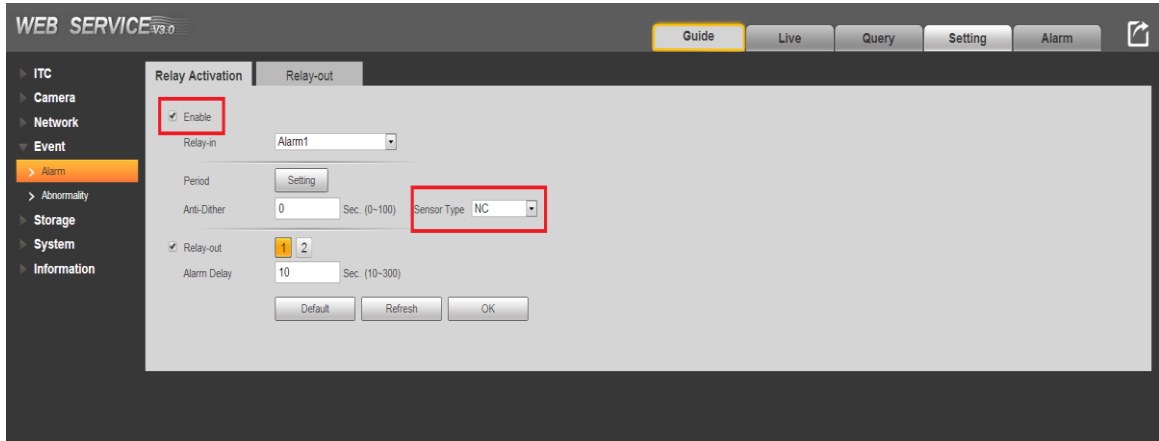


6.5.1.8.4 Anti-fog Function

You can enable anti-fog function if there is any droplet that may condense on the surface of glasses and influence the quality of captured images.

- Step 1** Select the **Switch On** tickbox from **Setting > ITC > Extra Device > Power Config**, and then click **OK**.
- Step 2** Select **Setting > Event > Alarm > Relay Activation**, select the **Enable** tickbox to enable alarm linkage, and then select Sensor Type as **NC**. See Figure 6-72.
- Step 3** Click **OK** to save the configuration.
Anti-fog function is enabled.

Figure 6-72 Enable anti-fog function



6.5.1.9 Black/White List

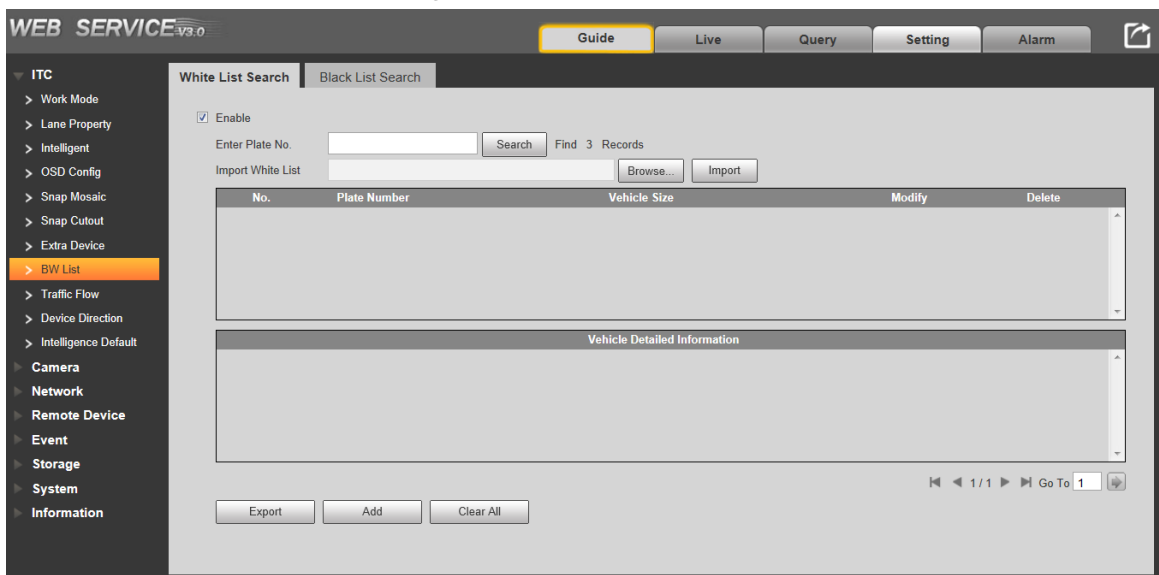
6.5.1.9.1 White List Search

You can search whether a plate number is included in the white list, or you can import or export plate number in the white list.


Step 1 Select **Setting > ITC > BW List > White List Search**.

The **White List Search** interface is displayed. See Figure 6-73.


Figure 6-73 White list search



On this interface, you can:

- Search plate number: Enter the plate number (or part of it) you want to search, and then click Search to check whether it is included in the white list.
- Modify plate information: Click  to modify the detail information of corresponding plate

number. Click **Yes** to save the configuration.

- Delete a plate number: Click  to delete the corresponding plate number.
- Clear All: Click **Clear All**, and then click **Yes** in the pop-up box to delete all the information in the white list.
- Batch import: Click **Browse**, and then select the path of import file. Click **Import** to import the white list information to the system.

The system supports file in the format of .csv. An example of the import file information is listed below:

Figure 6-74 Import file example

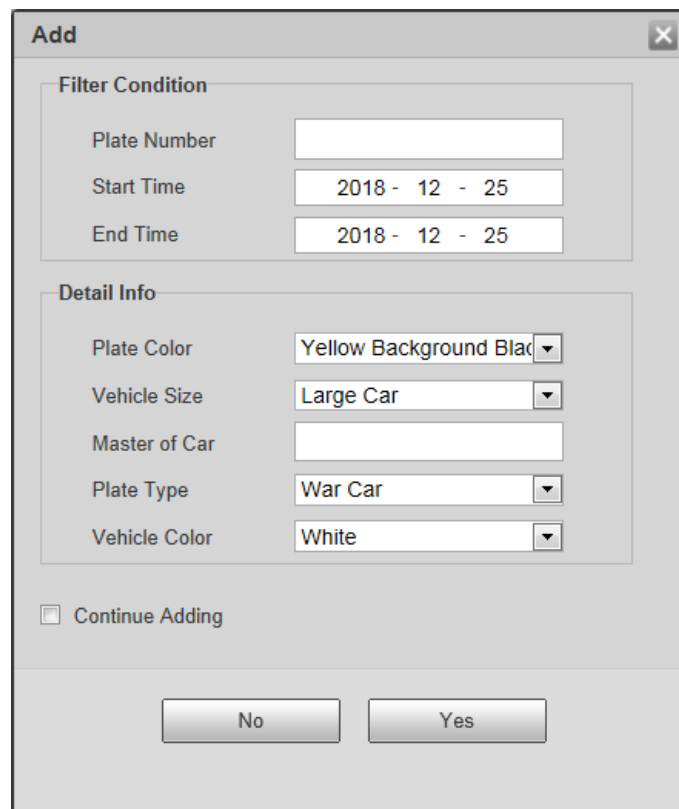
BeginTime	CancelTime	Master	OfPlateColc	PlateNumt	PlateType	VehicleCc	VehicleType
2018-12-19 0:00	2018-12-20 23:59	ABC	1	123	3 A		1
2018-12-19 0:00	2018-12-20 23:59	Abc	1	123456	3 A		1
2018-12-20 0:00	2018-12-20 23:59	ABc	1	123789	3 A		1



For plate color, plate type, vehicle color and vehicle type, the number depends on the sequence of them in the corresponding drop-down list.

- Import one by one:
 - 1) Click **Add**, and the **Add** box is displayed. See Figure 6-75.

Figure 6-75 Add

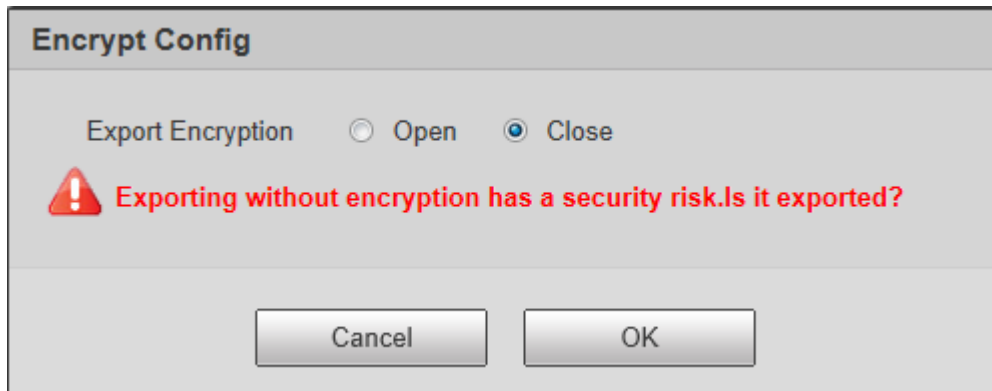


- 2) Enter the entire plate number.
- 3) Configure the start time and end time of adding the plate number to the white list. The plate number will not be included in the white list beyond this time period.
- 4) Select the plate color, vehicle size, plate type and vehicle color. Enter the owner of car.
- 5) Click **Yes** to save the configuration. Check **Continue Adding**, and then click **Yes**. The system will save the current plate information, and stay on the Add interface to

continue adding.

- Batch export: Click **Export**, and the **Encrypt Config** box is displayed. See Figure 6-76. Select **Open** or **Close** as needed, and then click **OK**. Select the save path of export file, and then click **OK** to export the file to local PC.

Figure 6-76 Encrypt config



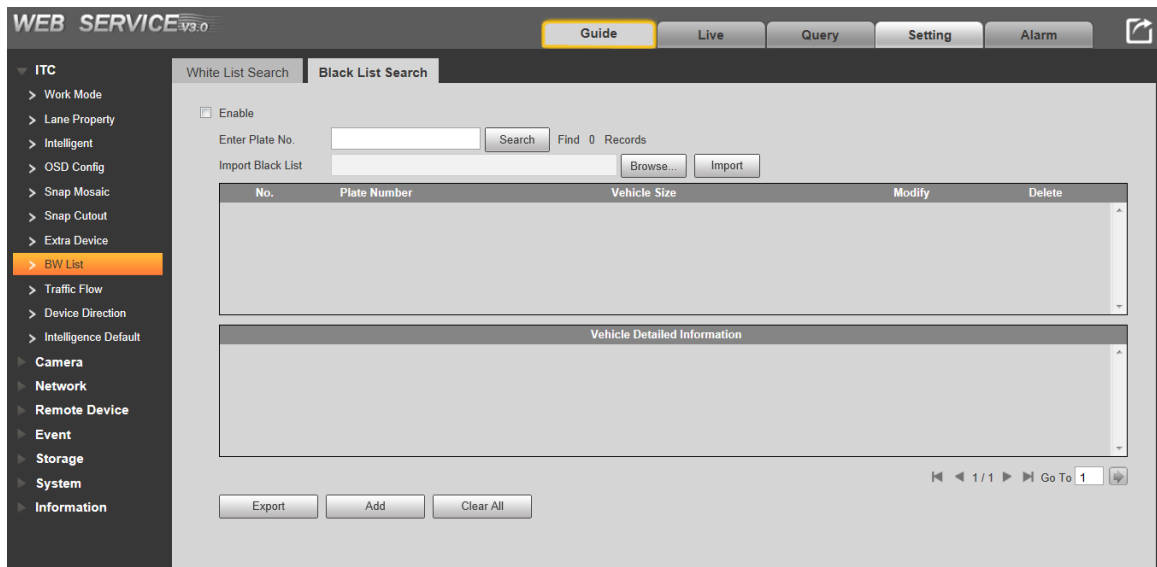
6.5.1.9.2 Black List Search

An alarm will be triggered when a vehicle in the Black List is detected.

Select **Setting > ITC > BW List > Black List Search**. The **Black List Search** interface is displayed. See Figure 6-77.

Check **Enable** to enable black list function.

Figure 6-77 Black list search



The search, import and export of black list are similar to that of white list. See "6.5.1.9.1 White List Search".

6.5.1.10 Traffic Flow

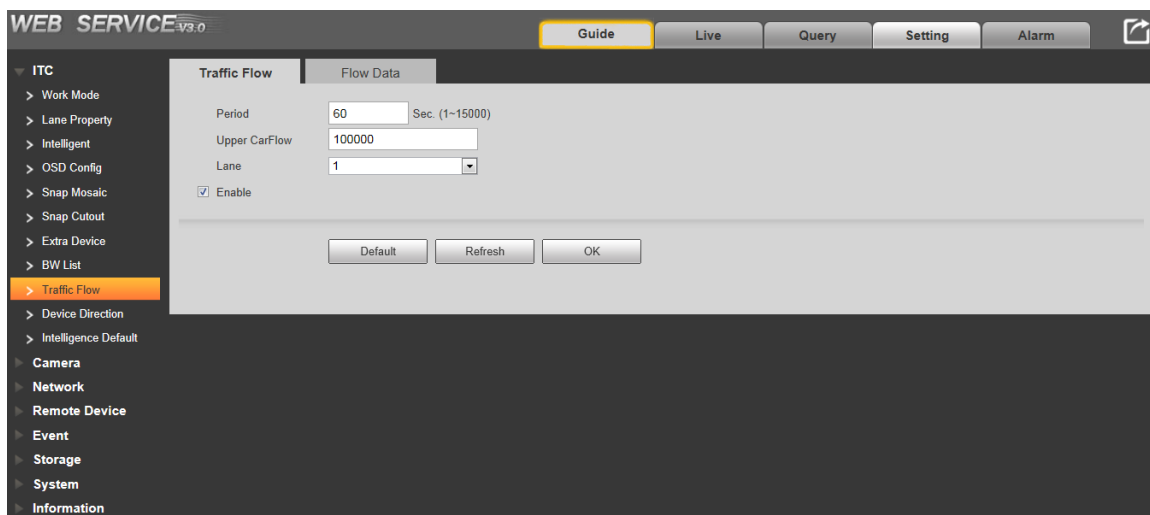
6.5.1.10.1 Traffic Flow

It is to configure the lane and the period of traffic flow statistics.

Step 1 Select **Setting > ITC > Traffic Flow > Traffic Flow**.

The **Traffic Flow** interface is displayed. See Figure 6-78.

Figure 6-78 Traffic flow



Step 2 Configure the period, upper car flow and lane.

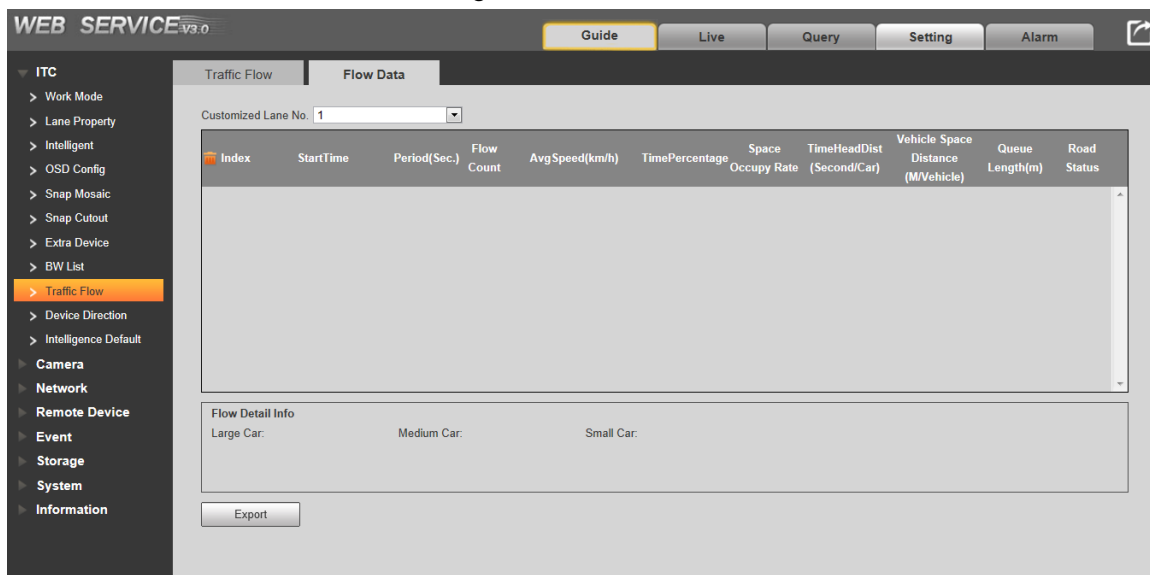
Step 3 Check **Enable** to enable traffic flow statistics of the selected lane.


Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.1.10.2 Flow Data

Select **Setting > ITC > Traffic Flow > Flow Data** to check the flow data of each lane within the period. The flow data will automatically update when a period ends. It supports a maximum of 1,000 data.

Figure 6-79 Flow data



- You can check the flow detail information of corresponding lane within the defined period.
- Click  to clear the flow information.
- Click **Export** to export the flow information to local PC.

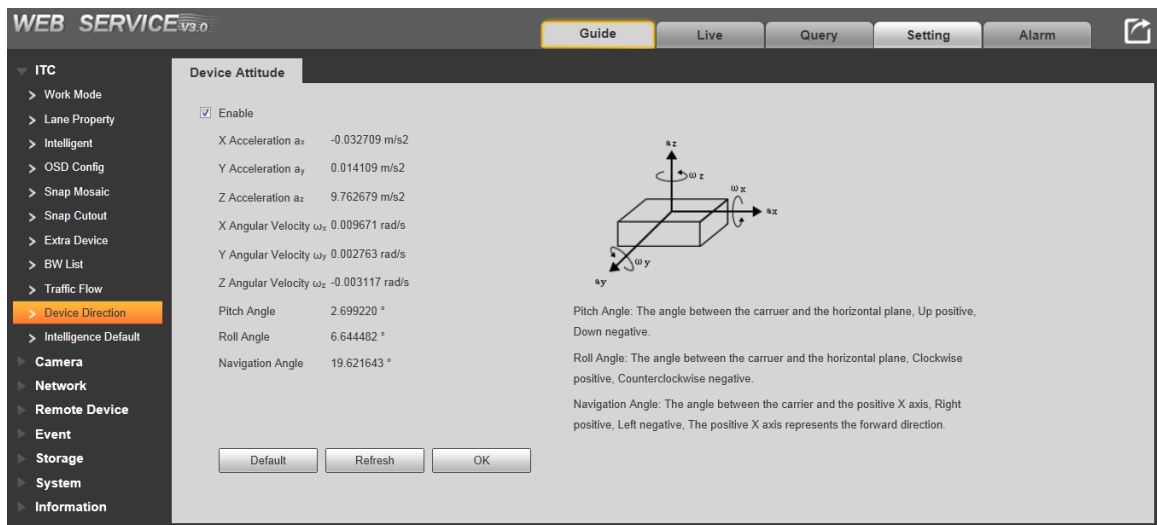
6.5.1.11 Device Attitude

You can view the device information such as acceleration, angular velocity, pitch angle, roll angle, navigation angle, etc.

Select **Setting > ITC > Device Direction**. The **Device Attitude** interface is displayed. See Figure 6-80.

Check **Enable**, and then click **OK**. Click **Refresh** to refresh the interface. Click **Default**, and then **OK** to restore to default settings.

Figure 6-80 Device attitude

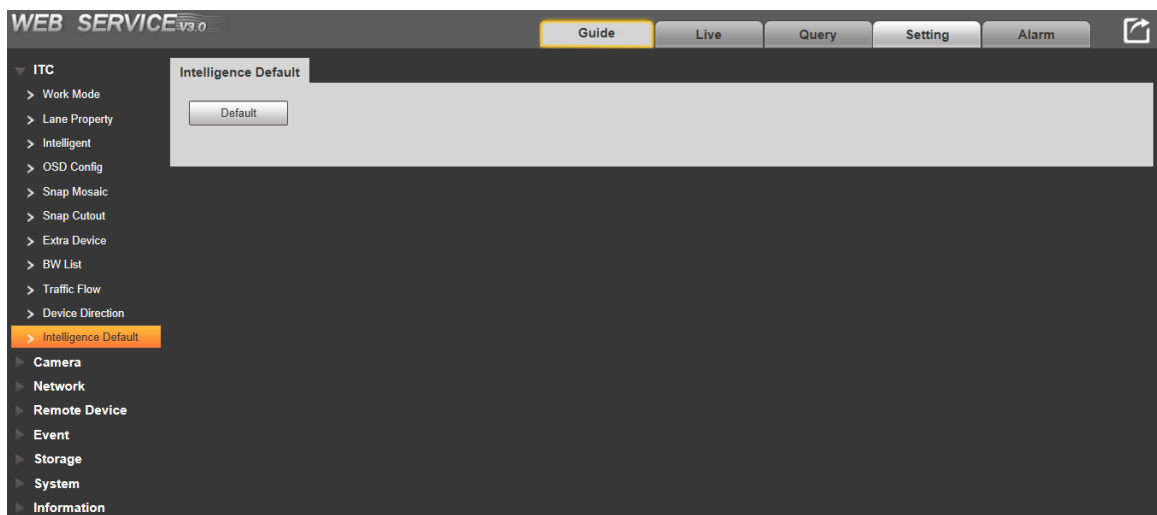


6.5.1.12 Intelligence Default

Select **Setting > ITC > Intelligence Default**. The **Intelligence Default** interface is displayed. See Figure 6-81.

Click **Default**, and then a prompt box pops up. Click **Yes**, and the settings of **Lane Property**, **Snapshot** and **Intelligent** will be restored to factory settings.

Figure 6-81 Intelligence default



6.5.2 Camera

You can configure the camera attributes, and configure the parameters of shutter, iris and metering zone.

6.5.2.1 Attributes

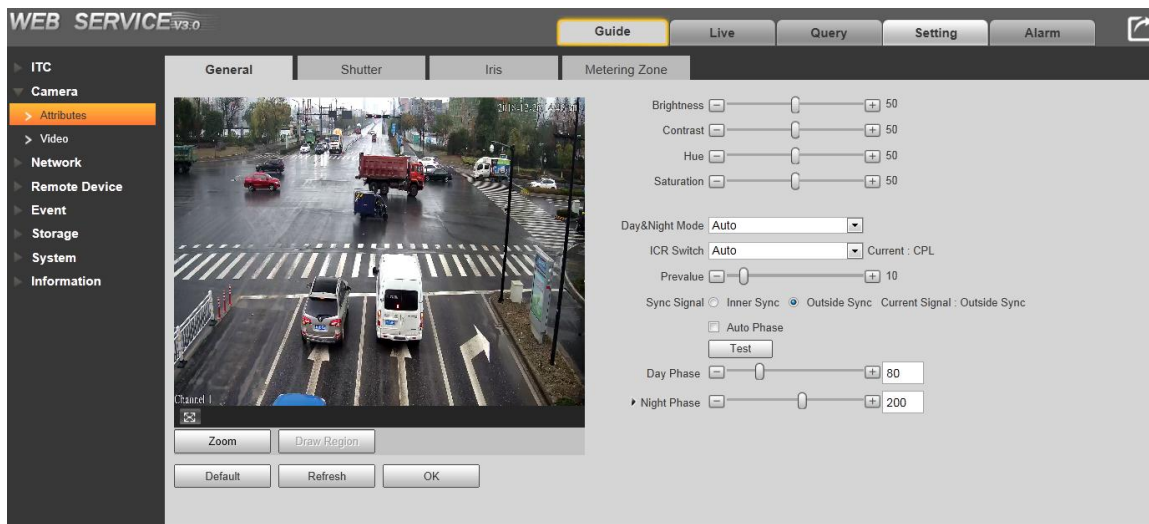
6.5.2.1.1 General

You can configure the brightness, contrast, hue, saturation, mode, etc. of snapshots.

Step 1 Select **Setting > Camera > Attributes > General**.

The **General** interface is displayed. See Figure 6-82.


Figure 6-82 General



Step 2 Configure the parameters. See Table 6-23.

Table 6-23 General parameters

Parameter	Description
Brightness	<p>You can adjust the overall image brightness. Change the value when the image is too bright or too dark.</p> <ul style="list-style-type: none"> Both the darker area and the brighter area will have same changes when adjusting the brightness. The image may become blurry when the value gets bigger. The recommended range is 40–60, and the available range is 0–100. The value is 50 by default. The larger the value, the brighter the image.
Contrast	<p>You can adjust the contrast when the image brightness is proper but contrast is not enough.</p> <ul style="list-style-type: none"> The larger the value, the darker the dark area, and the more exposed the bright area. The image may become blurry when the value gets smaller. The recommended range is 40–60, and the available range is 0–100. The value is 50 by default. The larger the value, the bigger the contrast.
Hue	<p>You can adjust the hue. For example, change red into blue.</p> <ul style="list-style-type: none"> The default value is made by light sensor and is recommended. The recommended range is 40–60, and the available range is 0–100. The value is 50 by default. The hue value does not change the overall image brightness.

Parameter	Description
Saturation	<p>You can adjust the image saturation. Saturation value does not change overall image brightness.</p> <ul style="list-style-type: none"> • The larger the value, the more saturated the image. • The smaller the value, the more unsaturated the image. The recommended range is 40–60, and the available range is 0–100. The value is 50 by default.
Day&Night Mode	<p>Three modes are available: color, Auto and B/W.</p> <ul style="list-style-type: none"> • Color: The image is always colored. • Auto: When the brightness is higher than the threshold, the image automatically changes to color; when it is below the threshold, the image changes to black and white. • B/W: The image is always black and white.
ICR Switch	<ul style="list-style-type: none"> • Auto: You need to pre-set the brightness in this mode. When the ambient brightness is higher than the pre-set value, the CPL will start to work. • CPL: The CPL is always running. Applicable to scenarios with high brightness. • IR: Applicable to scenarios with low brightness.
Sync Signal	<p>Includes Inner Sync and Outside Sync. Current Signal shows the actual sync signal.</p> <p>When selecting Outside Sync, you can drag the slider to configure the Day Phase and Night Phase.</p> <ol style="list-style-type: none"> 1. Check Auto Phase. 2. Click on Setting to configure the shutter value and phase value. The Auto Phase range can only be within the range of Day Phase and Night Phase. 3. Click Test, and then draw on the video image, and a yellow box will be displayed. 4. Click Test to test whether the flashing light is synchronized with the camera. The system provides reference values of shutter and phase, and you can make minor adjustments.  <p>The test may need several minutes. When test succeeded, the system prompts Autophase Test Success!</p> <ol style="list-style-type: none"> 5. Click OK to save the configuration.
Day Phase	Manually adjust phase of synchronization signal at daytime.
Night Phase	Manually adjust phase of synchronization signal at night.

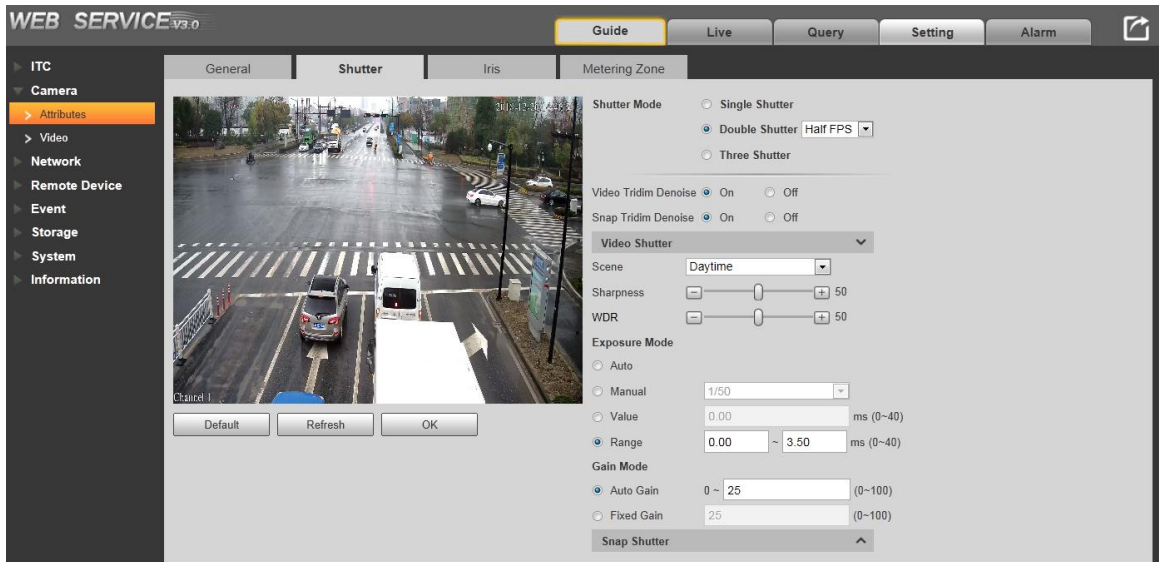
6.5.2.1.2 Shutter

You can configure shutter mode, exposure mode, and gain mode.

Step 1 Select **Setting > Camera > Attributes > Shutter**.


The **Shutter** interface is displayed. See Figure 6-83.

Figure 6-83 Shutter



Step 2 Configure the parameters. See Table 6-24.

Table 6-24 Shutter parameters

Parameter	Description
Shutter Mode	<ul style="list-style-type: none"> Single Shutter: Video recording and snapshot share the same exposure mode. Double Shutter: Video Shutter and Snap Shutter can be separately configured. <ul style="list-style-type: none"> Half FPS: Video and image take half of the frame respectively. Full FPS: Image takes 1FPS, and video takes the rest FPS. Three Shutter: Video Shutter and Snap Shutter can be separately configured, and a Recognition Shutter is added.  <p>Three Shutter mode is available only when Common Mode is selected as Snap Match Mode from Setting > ITC > Work Mode.</p>
Snap Tridim Denoise	When it is On , 3D digital noise reduction (DNR) is enabled to reduce noise of snapshots.
Video Tridim Denoise	When it is On , 3D DNR is enabled to reduce noise of video.
Scene	You can change the scene and adjust the sharpness of corresponding scene. Three scenes can be selected: Daytime, Dawn/Dusk, and Night.
Sharpness	You can configure the sharpness of corresponding scene. The higher the value, the more clear the image. But there will be noise if sharpness is too high.
Exposure Mode	Two exposure modes are available: Auto and Manual. <ul style="list-style-type: none"> Auto: Automatic exposure. Manual: You need to physically configure the exposure, and the camera remains the settings. You need to configure the interval of manual exposure. 8 options ranging from 1/50 to 1/10000 are available. You can also configure customized value and range.

Parameter	Description
Gain Mode	<ul style="list-style-type: none"> Auto Gain: Configure the range of auto gain. Fixed Gain: Configure the fixed gain of camera.

Step 3 Click **Snap Shutter** or **Recognition Shutter** to show the parameters relating to the shutter. To configure the parameters, refer to the table above.



Recognition shutter is only available in **Three Shutter** mode.

Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

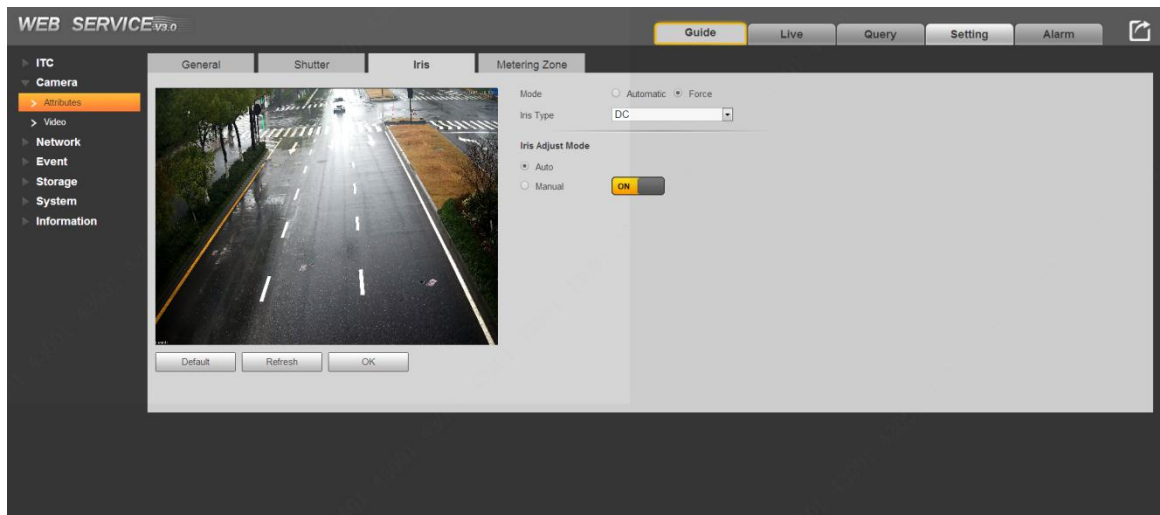
6.5.2.1.3 Iris

You can adjust the aperture and configure the adjustment mode.

Step 1 Select **Setting > Camera > Attributes > Iris**.


The **Iris** interface is displayed. See Figure 6-84.

Figure 6-84 Iris



Step 2 Configure the parameters. See Table 6-25.

Table 6-25 Iris parameters

Parameter	Description
Mode	Two modes are available: Automatic and Force.
Iris Type	Select the type of lens currently used. <ul style="list-style-type: none"> In Automatic mode, only Manual iris type is available. In Force mode, several iris types are available.
Iris Adjust Mode	If you select iris type in Force mode, you need to configure the Iris Adjust Mode , which includes: Auto and Manual . If Manual is selected, you can manually drag the slider to adjust the value or click  to turn on/off the lens, depends on the Iris Type you select.

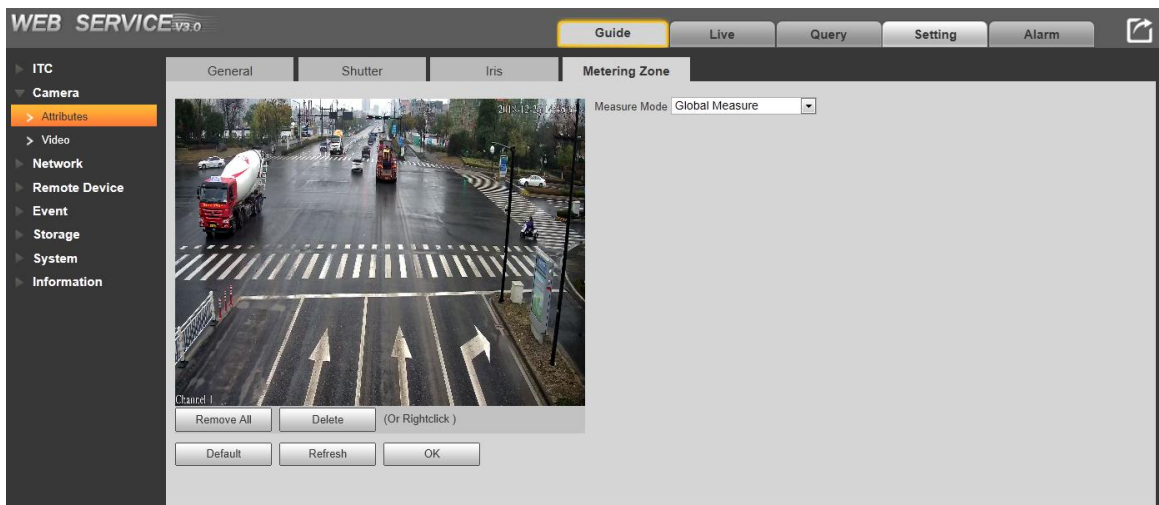
6.5.2.1.4 Metering Zone

You can configure measure mode and light compensation mode.

Step 1 Select **Setting > Camera > Attributes > Metering Zone**.



The **Metering Zone** interface is displayed. See Figure 6-85.

Figure 6-85 Metering zone



Step 2 Configure the parameters. See Table 6-26.

Table 6-26 Metering zone parameters

Parameter	Description
Measure Mode	<p>The following three modes are available:</p> <ul style="list-style-type: none"> ● Spot Measure: Measure the brightness of a moving vehicle, and then adjust the overall brightness. ● Global Measure: Measure the brightness of the whole video image, and then adjust the overall brightness. ● Partial Measure: Measure the brightness of zones configured, and then adjust the overall brightness. If the measured zone is bright, then the overall image will be darkened, and vice versa. <p></p> <p>When Partial Measure is selected, you can draw metering zone(s) in the video image. Click Remove All to delete all the metering zones, and click Delete or right-click to delete the current metering zone.</p>
Light compensation	<p>Select Backlight or Frontlight according to actual requirement of scenario.</p> <p></p> <p>You need to check Backlight or Frontlight only in Spot Measure mode.</p>

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

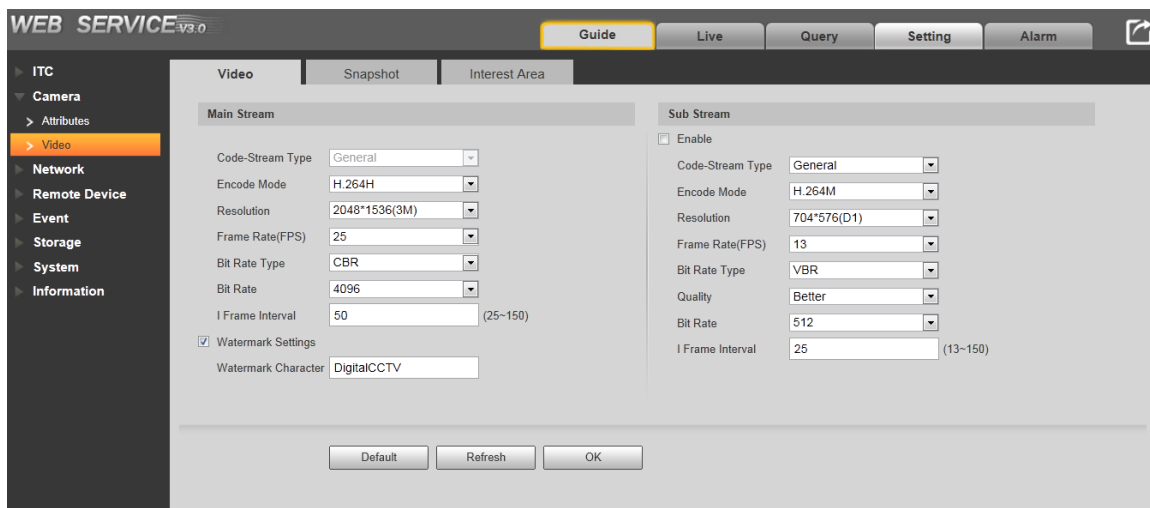
6.5.2.2 Video

6.5.2.2.1 Video

You can configure the parameters of video stream.

Step 1 Select **Setting > Camera > Video > Video**, and the **Video** interface is displayed. See Figure 6-86.


Figure 6-86 Video stream



Step 2 Configure the parameters. See Table 6-27.

Table 6-27 Video stream parameter

Parameter	Description	
Main Stream	Code-Stream Type	Currently, only General stream is supported.
	Encode Mode	Modes of H.264B, H.264M, H.264H, MJPEG, and H.265 can be selected.
	Resolution	Different cameras support different resolutions.
	Frame Rate (FPS)	Different cameras support different frame rates.
	Bit Rate Type	Supports CBR (constant bit rate) and VBR (variable bit rate). You can only configure the image quality in VBR.
	Quality	6 quality levels are available. The higher the value, the better the quality.
	Max. Bit Rate	It is the upper limit of stream in VBR. In CBR, the value is fixed.
	I Frame Interval	The number of P-frame between two I-frames. The number varies according to the bit rate. The range is 25–150. It is recommended to configure the number as twice of the bit rate.
Watermark Settings	You can verify the watermark to check whether the video has been tampered. Check Watermark Settings to enable watermark verification. The watermark character is DigitalCCTV by default. Watermark character consists of up to 85 characters from numbers, letters and underlines.	
Sub Stream	Enable	Enable sub stream as needed.
	Code-Stream Type	Currently, only General stream is supported.
	Encode Mode	Modes of H.264B, H.264M, H.264H, MJPEG, and H.265 can be selected.

Parameter	Description
Resolution	Currently, only UXGA, 720P, D1, and CIF are supported.  The resolution of sub stream can not be greater than that of main stream.
Frame Rate (FPS)	Different cameras support different frame rates.
Bit Rate Type	Supports CBR (constant bit rate) and VBR (variable bit rate). You can only configure the image quality in VBR.
Quality	6 quality levels are available. The higher the value, the better the quality.
Bit Rate	It is the upper limit of stream in VBR. In CBR, the value is fixed.
I Frame Interval	The number of P-frame between two I-frames. The number varies according to the bit rate. The range is 25–150. It is recommended to configure the number as twice of the bit rate.

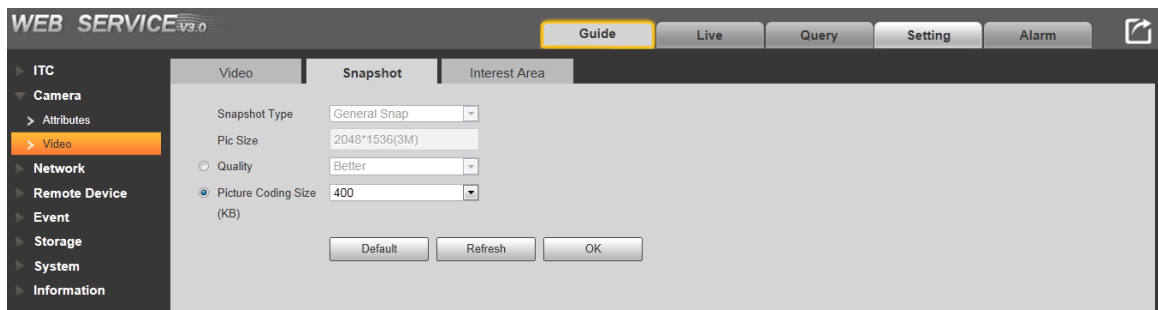
Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.2.2.2 Snapshot

It is to configure the snapshot size, quality, and coding size.


Step 1 Select **Setting > Camera > Video > Snapshot**, and the **Snapshot** interface is displayed. See Figure 6-87.

Figure 6-87 Snapshot



Step 2 Configure the parameters. See Table 6-28.

Table 6-28 Snapshot parameters

Parameter	Description
Snapshot type	Currently, only General Snap is supported.
Pic Size	The same as the maximum resolution of main stream.
Quality	6 quality levels are available. The higher the value, the better the quality.
Picture Coding Size	Configure the coding size of picture.  You can either configure Quality or Picture Coding Size .

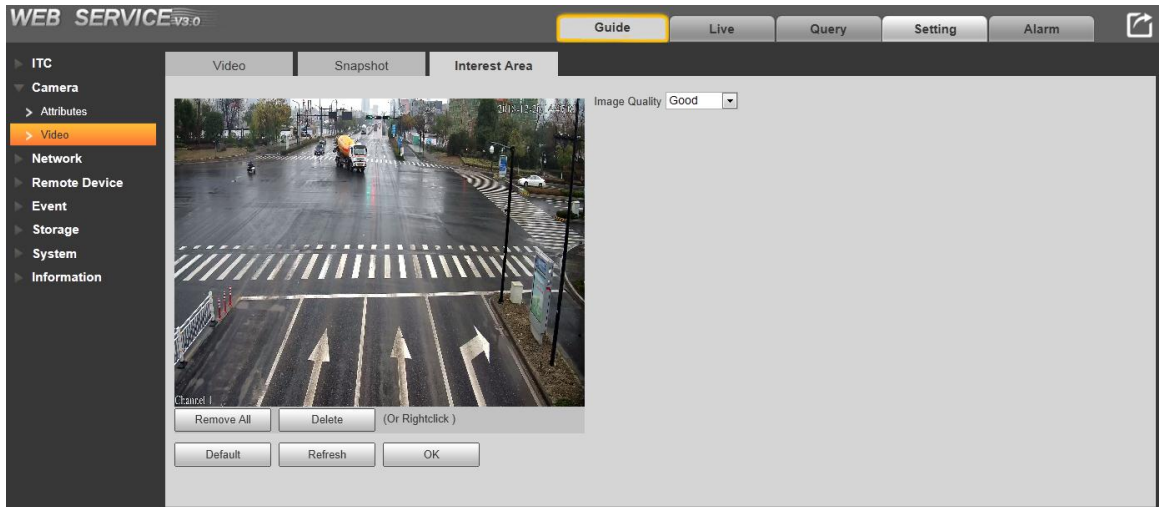
Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.2.2.3 Interest Area

Step 1 Select **Setting > Camera > Video > Interest Area**.

The **Interest Area** interface is displayed. See Figure 6-88.

Figure 6-88 Interest area



Step 2 Drag the mouse in the video image to configure the interest area. It is shown in a yellow box.

Step 3 Configure the parameters. See Table 6-29.

Table 6-29 Parameters of interest area

Parameter	Description
Image Quality	6 quality levels are available. The higher the value, the better the quality.
Remove All	Click to delete all the interest areas.
Delete	Click to delete the most recently configured interest area. You can click several times to delete more than one area. You can also right-click on the video image to delete interest area.

Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.3 Network

You can configure network parameters such as IP address, MAC address, subnet mask, default gateway, etc.

6.5.3.1 TCP/IP

You can configure host name, IP address, etc.

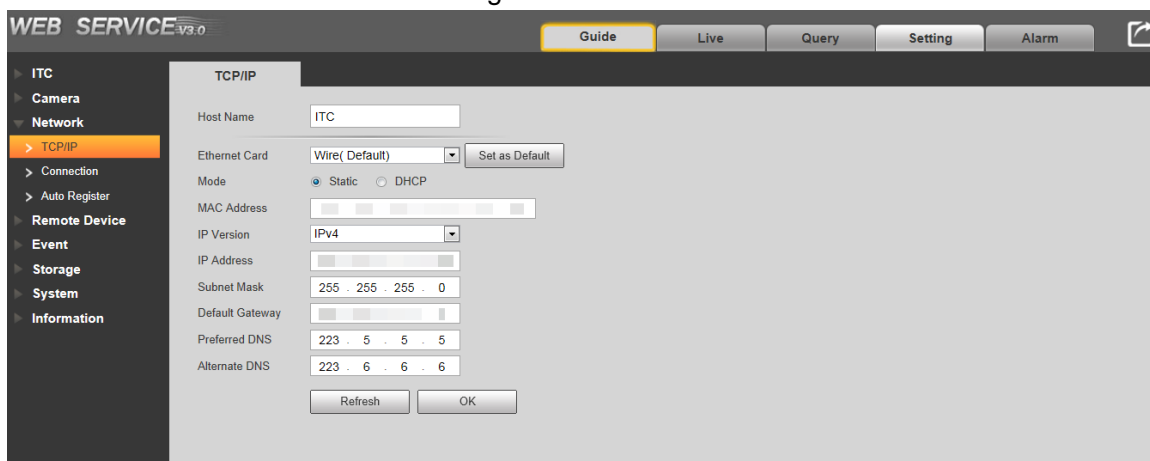
Step 1 Select **Setting > Network > TCP/IP**.

The **TCP/IP** interface is displayed. See Figure 6-89.



Some models are designed with two network ports. Do not configure the ports in the same network segment; otherwise, the network may fail.

Figure 6-89 TCP/IP



Step 2 Configure the parameters. See Table 6-30.

Table 6-30 TCP/IP parameters

Parameter	Description
Host Name	Configure the host name (not exceeding 32 characters).
Ethernet Card	Supports wire and wireless cards. Click Set as Default . The current network card will be set as default card.
Mode	Static and DHCP modes are available. <ul style="list-style-type: none"> When DHCP is selected, the camera automatically searches IP. In this case, the IP Address, Subnet Mask, and Default Gateway cannot be configured. When Static is selected, the IP Address, Subnet Mask, and Default Gateway need to be manually configured.
MAC address	Displays host MAC address.
IP Version	IPv4 and IPv6 are available. Both IP versions can be accessed.
IP Address	IP address of the camera.
Subnet Mask	The subnet mask that masks the IP address of camera.
Default Gateway	The default gateway corresponding to IP address of camera.
Preferred DNS	IP address of preferred DNS.
Alternate DNS	IP address of alternate DNS.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

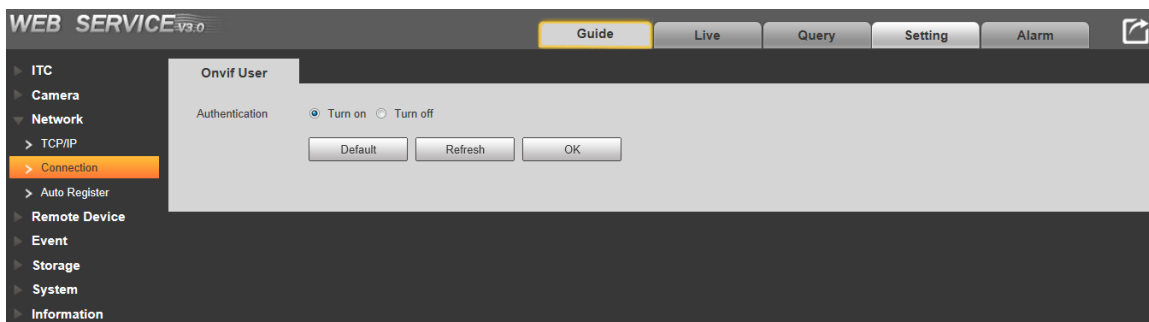
6.5.3.2 Connection

Open Network Video Interface Forum (ONVIF) is an open industry forum with the goal of providing and promoting standardized interfaces for interoperability of physical IP-based security products, such as IP camera, network recorder, etc.

Select **Setting > Network > Connection**. The **Onvif User** interface is displayed. See Figure 6-90.

Verification of user name and password will be required for logging in ONVIF when ONVIF authentication is turned on. If it is turned off, then no verification is required.

Figure 6-90 Onvif user

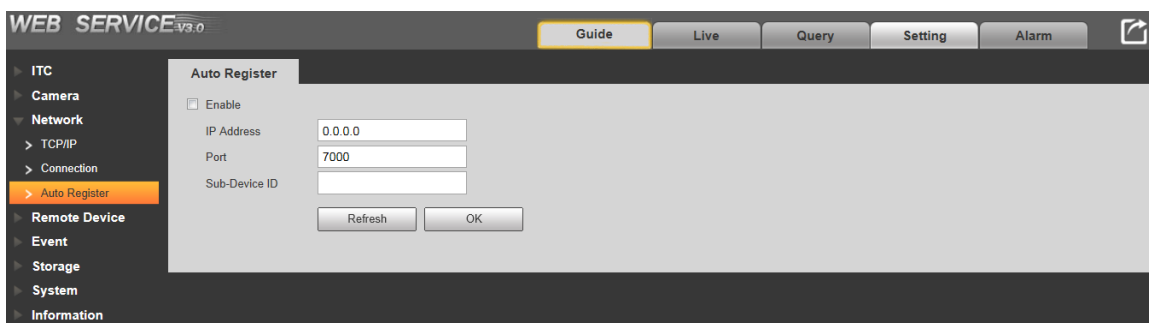


6.5.3.3 Auto Register

Step 1 Select **Setting > Network > Auto Register**. The **Auto Register** interface is displayed. See Figure 6-91.

Step 2 Check **Enable**, and then the camera will automatically report its location to the server designated by user when it is connected to network. This helps client software to access the camera through the server for checking live video and monitoring.

Figure 6-91 Auto register



Step 3 Configure the parameters. See Table 6-31.

Table 6-31 Auto register parameters

Parameter	Description
Enable	Check to enable auto register.
Server IP	The IP address of server that needs to be registered.
Port	The port for auto register.
Sub-Device ID	ID designated by the server for auto register device. Make sure there is no same device ID.

Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.4 Remote Device

The remote device can help the Device recognize signal lights when **IR** is selected as **ICR Switch** from **Setting > Camera > Attributes > General**.

You can enable remote device and configure its parameters.

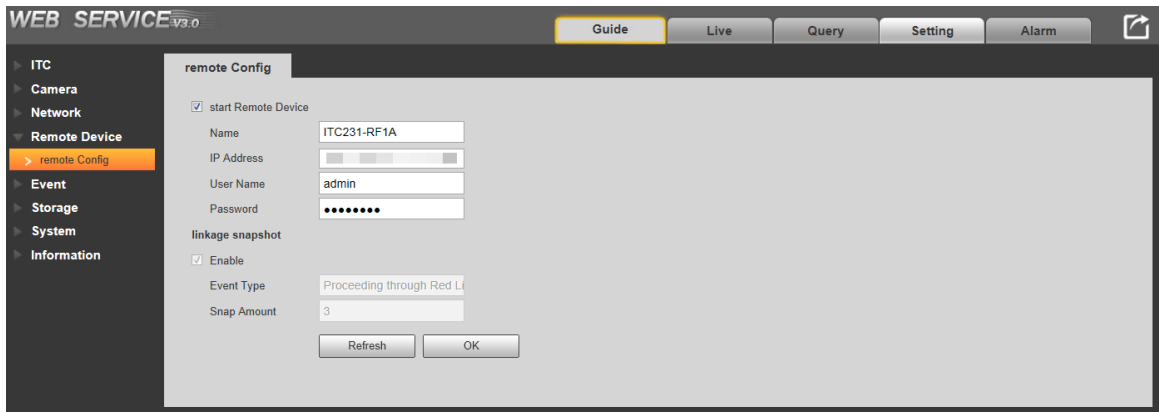


This function is available only in **E-Police** mode.

Step 1 Select **Setting > Remote Device > remote Config**.

The **remote Config** interface is displayed. See Figure 6-92.

Figure 6-92 Remote config



Step 2 Check **start Remote Device**, and configure the parameters, including name, IP address, user name and password of the remote device.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.



Linkage snapshot is enabled by default. The **Event Type** and the **Snap Amount** are also set by default.

6.5.5 Event

It is to configure alarm and abnormality.

6.5.5.1 Alarm

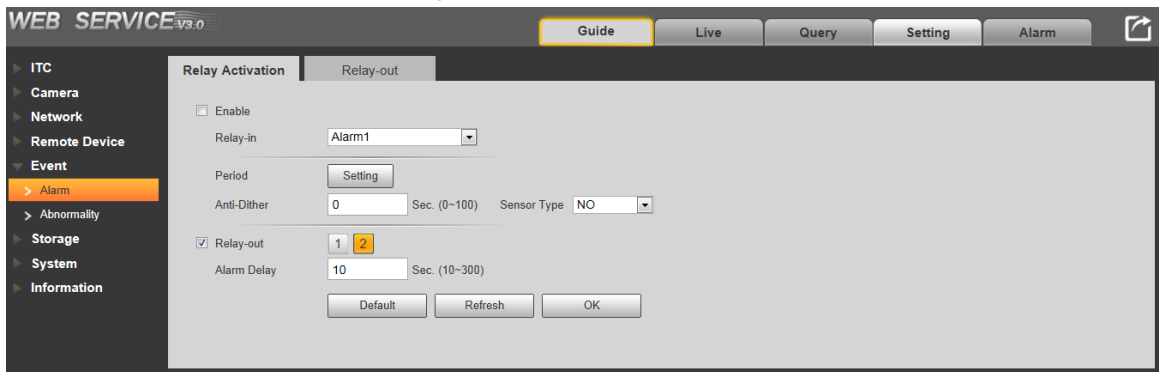
6.5.5.1.1 Relay Activation

You can connect the alarm output device to corresponding I/O port.

Step 1 Select **Setting > Event > Alarm > Relay Activation**.

The **Relay Activation** interface is displayed. See Figure 6-93.

Figure 6-93 Relay activation



Step 2 Check **Enable**.

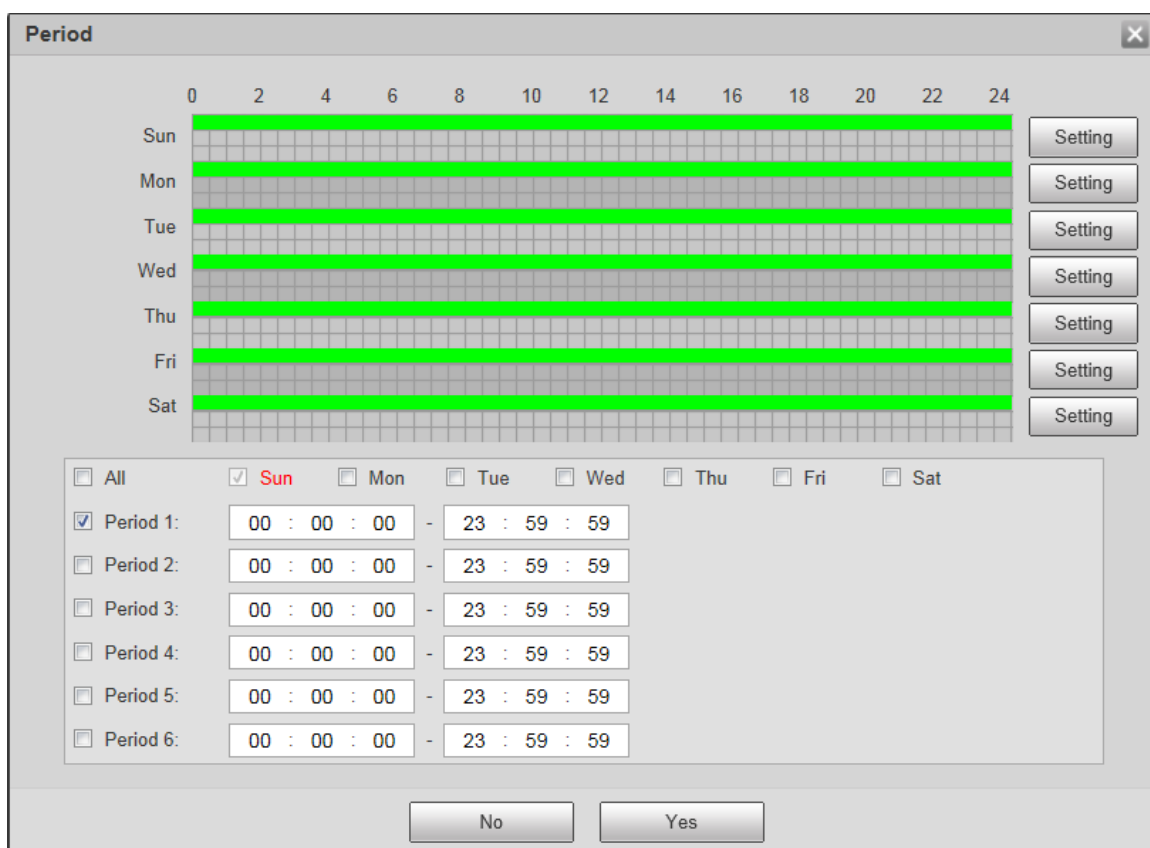
Step 3 Configure the parameters. See Table 6-32.

Table 6-32 Relay activation parameters

Parameter	Description
Relay-in	Current, only 4 channels support alarm input.
Period	Configure the time of arming and disarming.

Parameter	Description
	Click Setting , and the Period interface is displayed. See Figure 6-94. Configure the day and period of arming. Click Yes to save the period settings.
Anti-Dither	The system records only one alarm event within the set time, and the time range is 0s–100s.
Sensor Type	Normally open (NO) and normally closed (NC) are available.
Relay-out	Select the alarm output port.
Alarm Delay	The delay time of alarm after it is triggered.

Figure 6-94 Period setting



Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

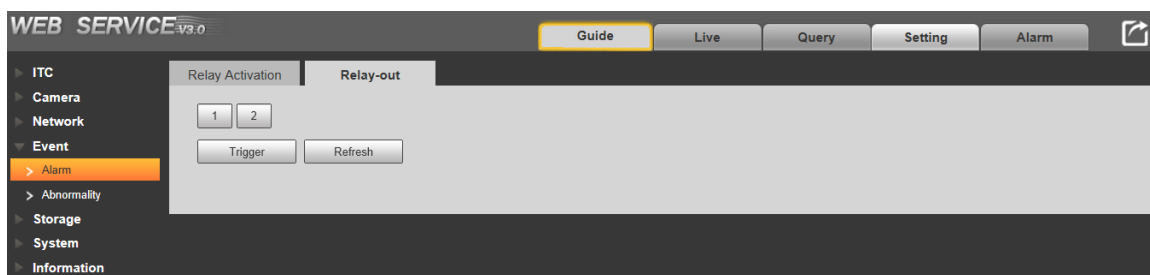
6.5.5.1.2 Relay-out

You can simulate to trigger alarm output signal.

Step 1 Select **Setting > Event > Alarm > Relay-out**.

The **Relay-out** interface is displayed. See Figure 6-95.

Figure 6-95 Relay-out



Step 2 Click **1** or **2** to configure one-channel alarm output.

Step 3 Click **Trigger** to trigger alarm output.

Step 4 Click **Refresh** to check the state of alarm output.

6.5.5.2 Abnormality

An alarm will be triggered when the camera has abnormality.

Step 1 Select **Setting > Event > Abnormality**.

The **No Storage** interface is displayed. See Figure 6-96.

You can view other abnormality events, see Figure 6-97, Figure 6-98, Figure 6-99, Figure 6-100, Figure 6-101, Figure 6-102, and Figure 6-103.



Traffic Light Fault is only available in E-Police mode.

Figure 6-96 No storage

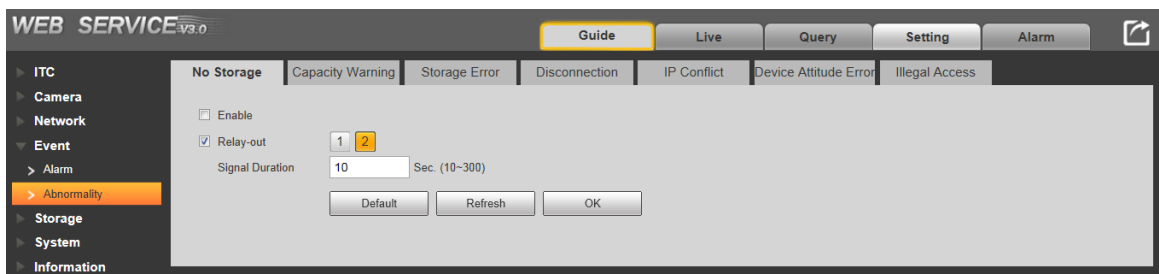


Figure 6-97 Capacity warning

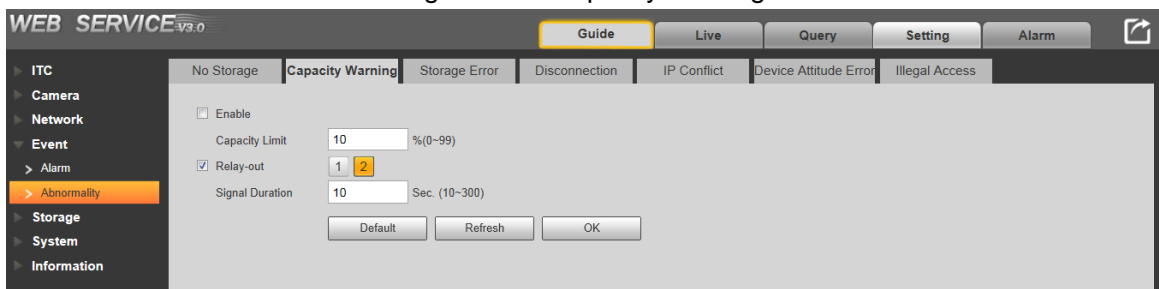


Figure 6-98 Storage error

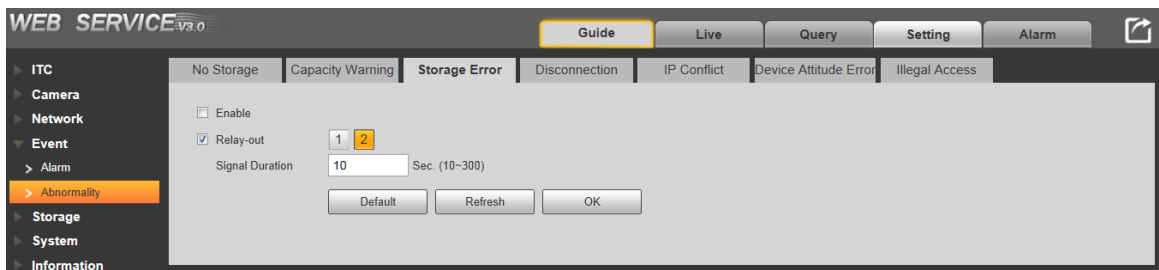


Figure 6-99 Disconnection

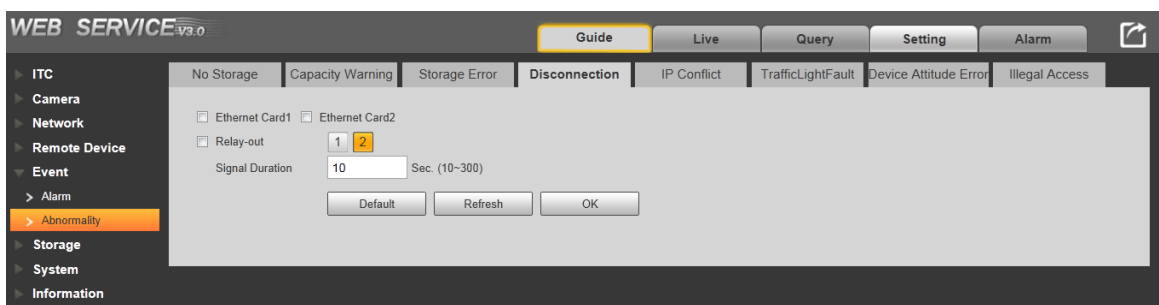


Figure 6-100 IP conflict

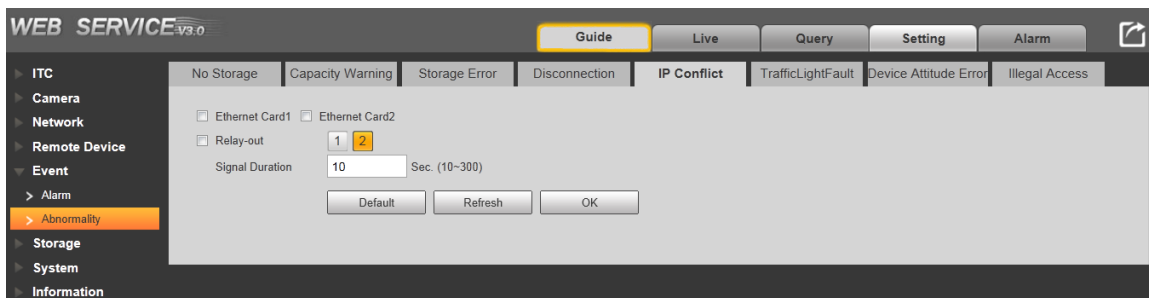


Figure 6-101 Traffic light fault

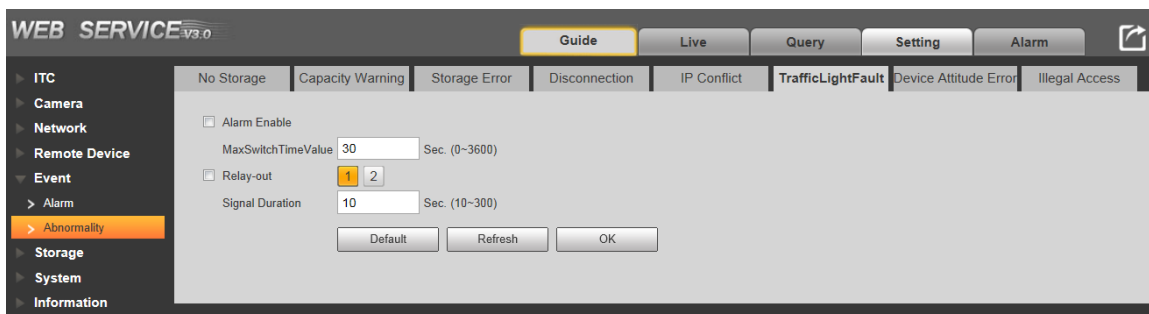


Figure 6-102 Illegal access

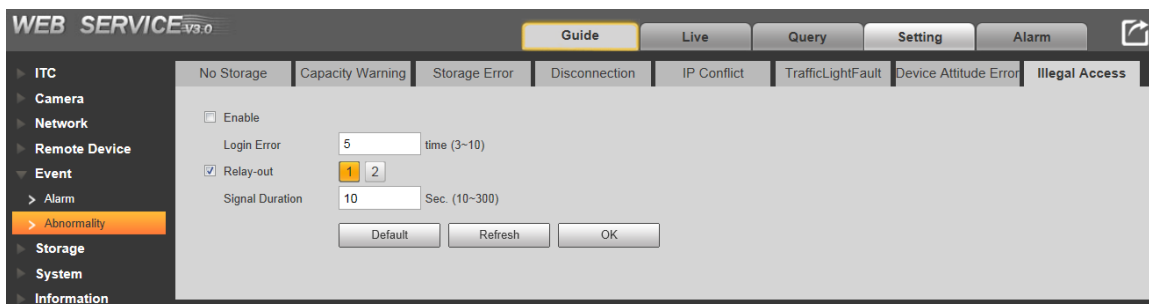
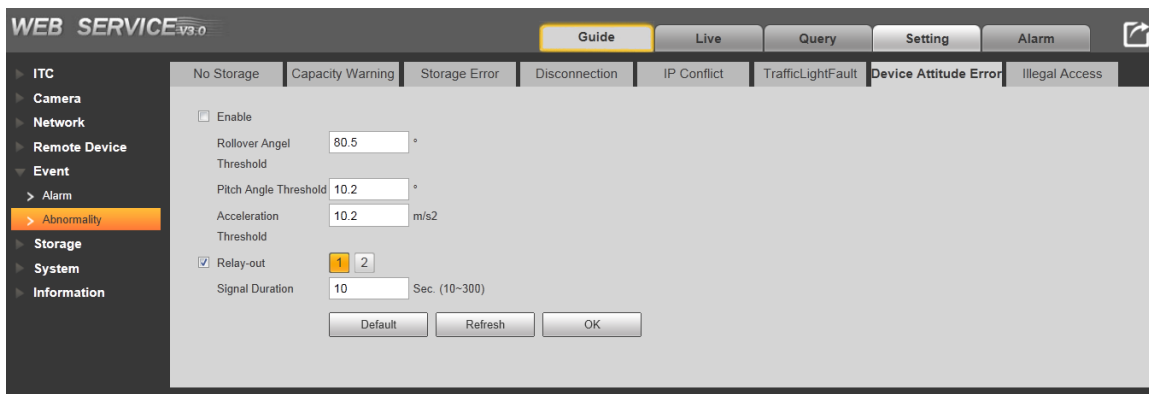


Figure 6-103 Device attitude error




Step 2 Check **Enable** and **Relay-out** for each abnormality event as needed.

Step 3 Configure the parameters. See Table 6-33.

Table 6-33 Parameters of abnormality events

Parameter	Description
Enable	Check to enable corresponding abnormality event.
Relay-out	Check to enable the corresponding alarm output of abnormality event, and select the corresponding port.
Signal Duration	The alarm linkage keeps running for the set time after alarm ends. The time range is 10s–300s.

Parameter	Description
Capacity Limit	Configure the storage available for triggering abnormality.
Ethernet Card1, Ethernet Card2	Select the Ethernet card that triggers alarm output.
Max Switch Time Value	Configure the max time that traffic light remains unchanged.  This function is only available in E-Police mode.
Login Error	Configure the number of login error allowed. The range is 3–10 times.
Rollover Angel Threshold	Configure the threshold of rollover angle.
Pitch Angle Threshold	Configure the threshold of pitch angle.
Acceleration Threshold	Configure the threshold of acceleration.

Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.6 Storage

You can configure information related to storage and record.

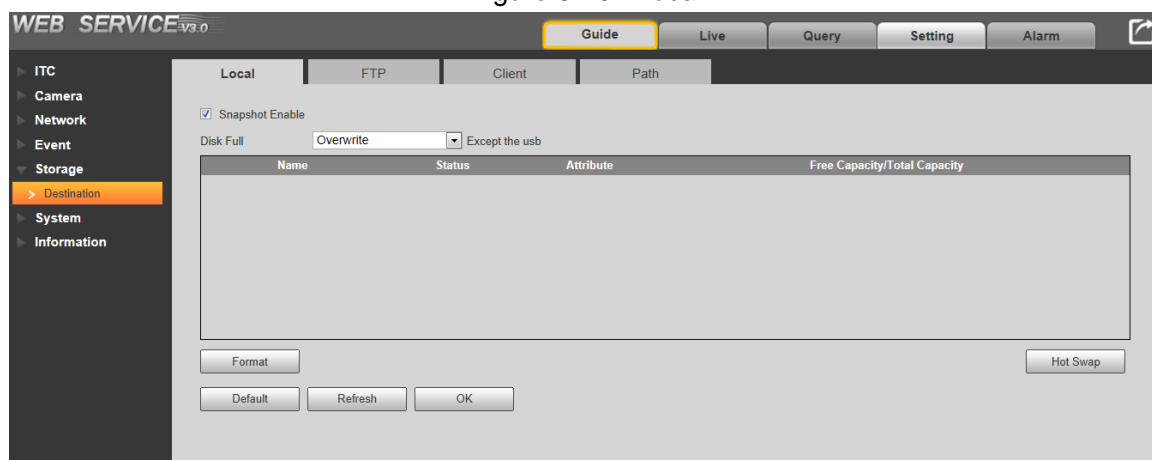
6.5.6.1.1 Local

Displays the information of TF card. You can format the card, or select to overwrite or stop storage when the disk is full.

Select **Setting > Storage > Destination > Local**. The **Local** interface is displayed. See Figure 6-104.

You can select to overwrite or stop storage when the disk is full. You can also format or hot swap the card.

Figure 6-104 Local



6.5.6.1.2 FTP

FTP function can be enabled only when **Snapshot Enable** is checked and **Enable** of server is selected.

You can configure the snapshot name. Click **Help...** to check the **Picture Naming Help**.



Encode Mode refers to the encode mode of Chinese characters when naming pictures. Two modes are available: UTF-8 and GB2312. After configuring **Server IP** and **Port**, click **Test** to check whether the FTP server works.

Step 1 Select **Setting > Storage > Destination > FTP**.

The **FTP** interface is displayed. See Figure 6-105.

Figure 6-105 FTP

Step 2 Configure the parameters. See Table 6-34.

Table 6-34 FTP parameters

Parameter	Description
Offline Transfer	When the network disconnects or fails, snapshots will be stored in TF card. After the network is restored, the snapshots will be uploaded from the TF card to FTP or client.
Server1, Server2, Server3	Supports uploading to multiple servers. Different types of pictures can be uploaded to different servers.
Enable	Enable FTP server storage.
Protocol Type	SFTP: Secure File Transfer Protocol, a network protocol allows file access and transfer over a secure data stream. FTP: File Transfer Protocol, a network protocol implemented to exchange files over a TCP/IP network. Anonymous user access is also available through an FTP server.
Server IP	The IP address of FTP server.

Parameter	Description
Encode Mode	Encode Mode refers to the encode mode of Chinese characters when naming pictures. Two modes are available: UTF-8 and GB2312. After configuring Server IP and Port , click Test to check whether the FTP server works.
Port	The port number of FTP server.
Username, Password	The user name and password of FTP server.
Upload Type	Select event(s) and picture type(s) to be uploaded to each FTP server.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.6.1.3 Client

You can configure the parameters of client.

Select **Setting > Storage > Destination > Client**. The **Client** interface is displayed. See Figure 6-106.

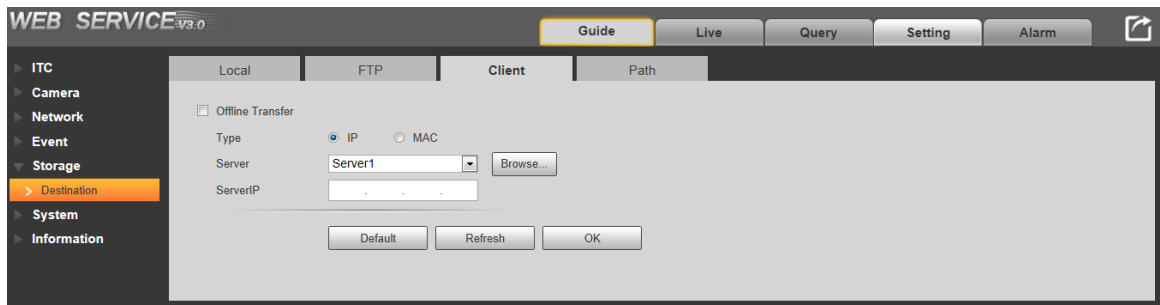
Offline Transfer:

- When the network disconnects or fails, snapshots will be stored in TF card. After the network is restored, the snapshots will be uploaded from the TF card to client.
- It supports uploading to client by IP address or by MAC address.
- Up to two client servers can be supported.

Add client server: Click **Browse** to check the IP and MAC address of all online servers. Select one server, and then click **OK**. The server will be added.

Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

Figure 6-106 Client

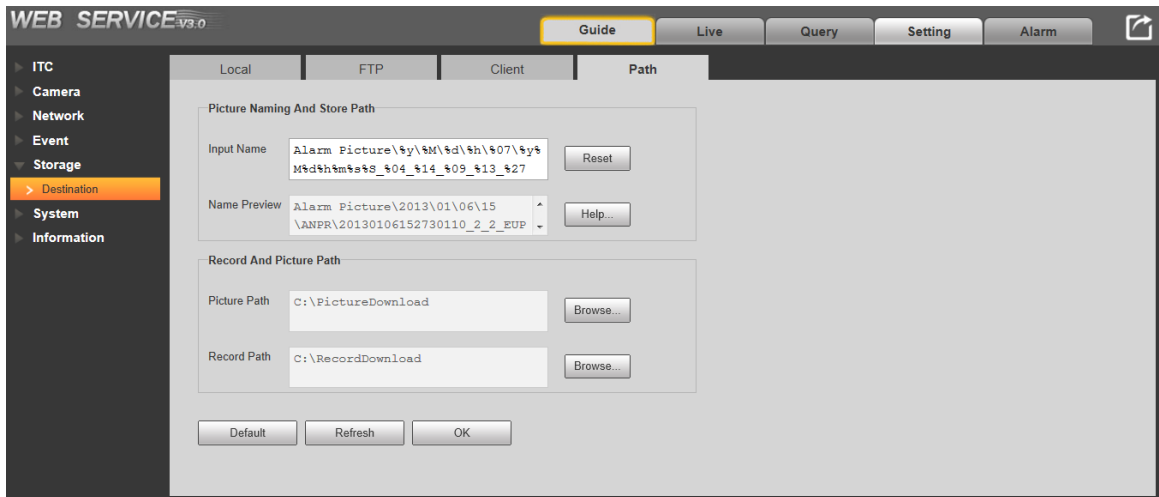


6.5.6.1.4 Path

You can configure the names and storage paths of picture and video record.

Step 1 Select **Setting > Storage > Destination > Path**. The **Path** interface is displayed. See Table 6-35.

Table 6-35 Path



Step 2 Configure the parameters. See Table 6-36.

Table 6-36 Path setting

Parameter	Description
Input Name	You can enter the name of storage path. Click Reset to reset the storage path name.
Name Preview	You can preview of name you have entered. Click Help... to check the Picture Naming Help .
Picture Path	Click Browse and select the path you want to save the picture.
Record Path	Click Browse and select the path you want to save the record.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.7 System

You can configure system information, add users, restore to factory settings, import and export system configuration files, etc.

6.5.7.1 General

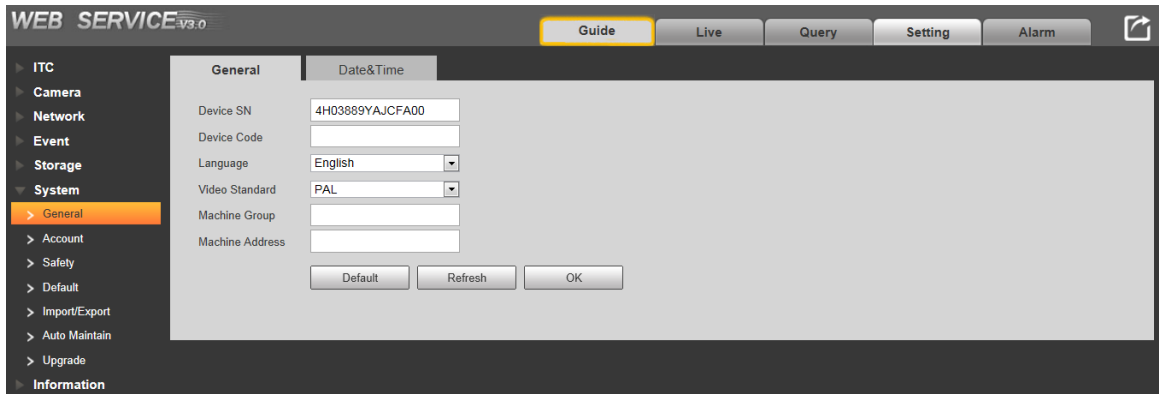
6.5.7.1.1 General

It is to configure the device code, system, video standard, etc.

Step 1 Select **Setting > System > General > General**.

The **General** interface is displayed. See Figure 6-107.

Figure 6-107 General



Step 2 Configure the parameters. See Table 6-37.

Table 6-37 General setting parameters

Parameter	Description
Device SN	The device No. consisting of letters, numbers, underlines and strikethroughs.
Device Code	Code of the Camera. Do not support overlaying in OSD information.
Language	Language of web. You need to log in again when switching to another language. Currently, only English is supported.
Video Standard	PAL and NTSC are available. PAL: Much more common around the world, and can be found in most of Western Europe, Australia, China, and elsewhere. NTSC: Mostly limited to North America, parts of South America, Japan, the Philippines and South Korea.
Machine Group	The group or company that uses the Camera.
Machine Address	The snapshot places of the Camera.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

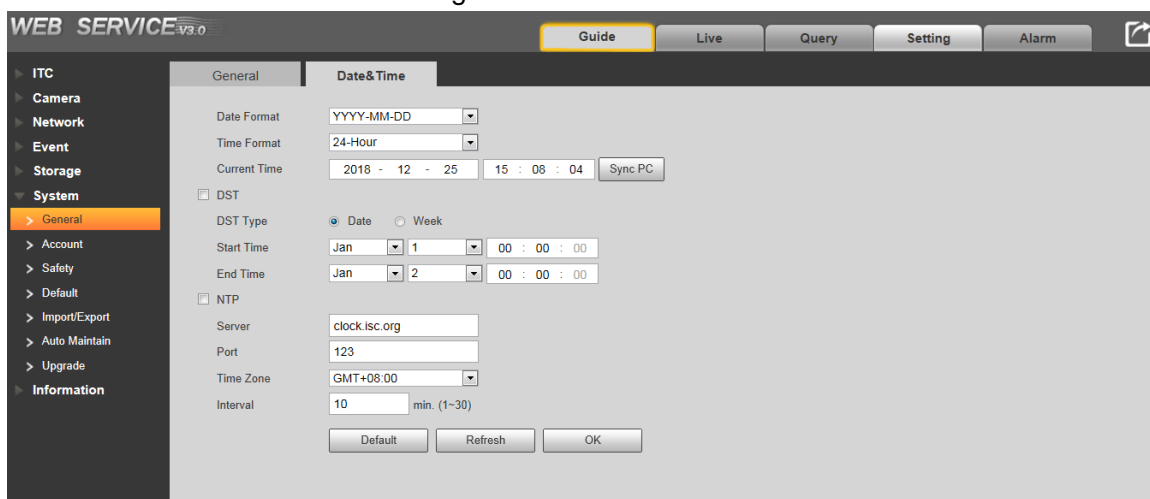
6.5.7.1.2 Date&Time

You can configure information such as date, time, etc.

Step 1 Select **Setting > System > General > Date&Time**.

The **Date&Time** interface is displayed. See Figure 6-108.

Figure 6-108 Date & time



Step 2 Configure the parameters. See Table 6-38.

Table 6-38 Date & time parameters

Parameter	Description
Date Format	Select the date format. Three formats are available: YYYY-MM-DD, MM-DD-YYYY and DD-MM-YYYY.
Time Format	Select the time format. Two formats are available: 24-Hour and 12-Hour.
Current Time	The current time of the Camera.
Sync PC	Configure the time of the Camera as the time of PC. Settings will immediately take effect.
DST	Check DST , select the DST Type , and configure the Start Time and End Time of DST.
Server	The IP address of time setting server.
Port	The port number of time setting server.
Time Zone	The time zone where the Camera locates.
Interval	The synchronization interval of the Camera and the time setting server.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.7.2 Account

6.5.7.2.1 Account

Management Rules

- The system manages both users and user groups. You can set up to 8 user groups and 18 users. The factory settings cover two groups: user and admin.
- Group name can not be repeated, so is the user name. Each user must belong to a group, and can only belong to one group. You can add, delete or set user group(s).
- The user name can be 31 characters at most, consisting of letters, numbers, “_”, “@” and “.”.

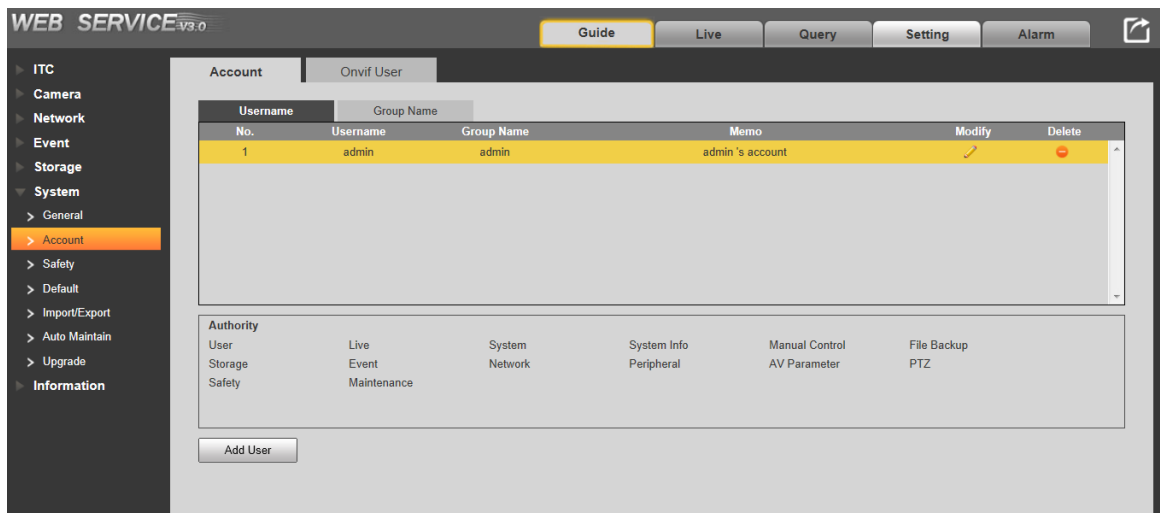
- The name of user group can be 15 characters at most, and contains characters from at least two of the following categories: letters, numbers, underlines and hyphens.
- The default user is admin. The password is the same as the user name. There is one admin by default which has highest authority.
- It is recommended to give fewer authorities to normal users than premium users.

User Management

You can view user information, add or delete user(s), and modify user password.

Select **Setting > System > Account > Account > Username**. The **Username** interface is displayed. See Figure 6-109.

Figure 6-109 Account



- Add a user: Click **Add User**. The **Add User** box pops up. See Figure 6-110. You can configure the information including username, password, group name, memo and authority. Click **OK** to save the configuration.

Figure 6-110 Add user

The 'Add User' dialog box contains the following fields and options:

- Username:** Text input field.
- Password:** Text input field with three buttons below it: **Weak**, **Middle**, and **Strong**.
- Confirm Password:** Text input field.
- Group Name:** Dropdown menu with 'admin' selected.
- Memo:** Text input field.
- Authority:** A checked checkbox for **All** and a list box containing:
 - User**
 - Live**
 - System**
 - System Info**

Buttons at the bottom: **No** and **OK**.



- Delete a user: Click  to delete the corresponding user.
You can configure the information such as username, password, group name, memo and authority. Click **OK** to save the configuration.
- Modify user information: Click  corresponding to the user. The **Modify User** box pops up. See Figure 6-111.
You can modify the information such as username, password, email address, group name, and memo. Click **OK** to save the configuration.

Figure 6-111 Modify user

- **Modify password:** In the **Modify User** box, check **Modify Password**. Enter the old and new passwords, and confirm password. Click **OK** to save the configuration. Configure the password according to the password strength prompt. The new password can be set from 8 characters through 32 characters, and contains at least two categories of characters, including numbers, upper case letters, lower case letters and special characters, but not including single quotation marks, double quotation marks, semicolon, colon and “&”.



Password strength prompts will be made according to the points obtained from password length, letters, numbers, characters and combination. See Table 6-39.

Table 6-39 Password strength evaluation

Item	Evaluation
Length	<ul style="list-style-type: none"> • 5 points: Not more than 4 characters. • 10 points: 5–7 characters. • 25 points: 8 characters or more.
Letter	<ul style="list-style-type: none"> • 0: No letter. • 10 points: Only upper or lower case letters. • 20 points: A combination of upper and lower case letters.
Number	<ul style="list-style-type: none"> • 0: No number. • 10 points: 1 number. • 20 points: 3 numbers or more.
Special character	<ul style="list-style-type: none"> • 0: No special character. • 10 points: 1 special character. • 25 points: More than 1 special character.

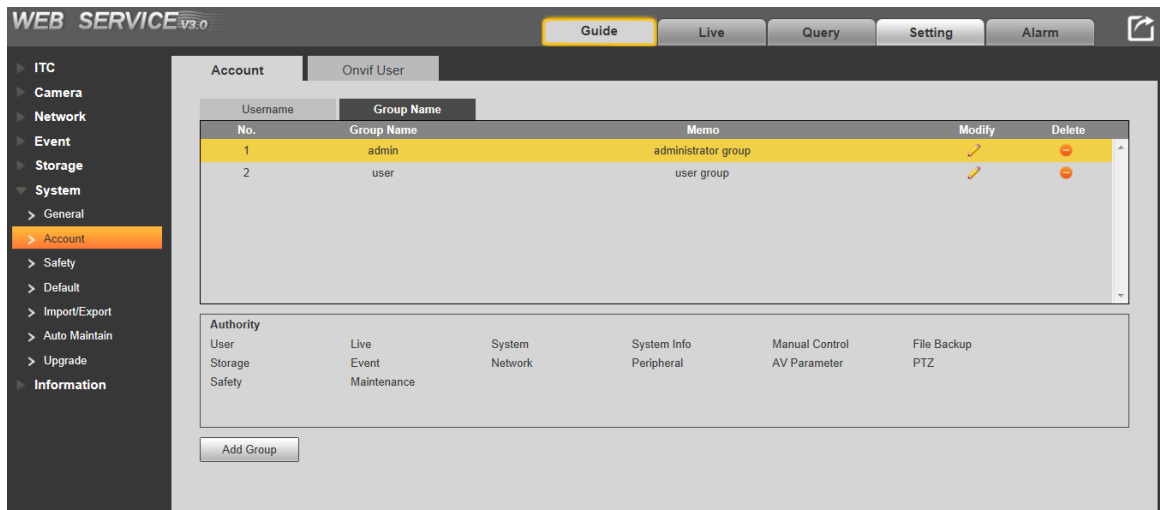
Item	Evaluation
Combination	Categories: upper case letters, lower case letters, numbers and special characters. <ul style="list-style-type: none"> • 2 points: A combination of two categories. • 3 points: A combination of three categories. • 5 points: A combination of four categories.
Strength	<ul style="list-style-type: none"> • ≥ 70 points: Strong. • ≥ 50 points: Middle. • ≥ 0 points: Weak.

User Group Management

You can view user group information, add or delete user group(s), and modify user group password.

Select **Setting > System > Account > Account > Group Name**. The **Group Name** interface is displayed. See Figure 6-112.

Figure 6-112 User group



- Add a group: Click **Add Group**. The **Add Group** box pops up. See Figure 6-113. You can configure the group name, memo and authority. Click **OK** to save the configuration.

Figure 6-113 Add group

The 'Add Group' dialog box features a title bar with a close button. Below the title bar, there are three main sections: 'Group Name' with a text input field, 'Memo' with a text input field, and 'Authority' with a list of radio buttons. The 'Authority' list includes 'All', 'Live', 'System', 'System Info', and 'Manual Control'. The 'All' option is selected. At the bottom of the dialog, there are two buttons: 'No' and 'OK'.



- Delete a group: Click  to delete the corresponding group.
- Modify group information: Click  corresponding to the group. The **Modify User** box pops up. See Figure 6-114.
You can modify the memo and authority of the group. Click **OK** to save the configuration.

Figure 6-114 Modify group

The 'Modify Group' dialog box features a title bar with a close button. Below the title bar, there are three main sections: 'Group Name' with a dropdown menu showing 'admin', 'Memo' with a text input field containing 'administrator group', and 'Authority' with a list of checkboxes. The 'Authority' list includes 'All', 'User', 'Live', 'System', and 'System Info'. The 'All' option is selected, and 'User', 'Live', 'System', and 'System Info' are also checked. At the bottom of the dialog, there are two buttons: 'No' and 'OK'.



- The admin and user groups can not be deleted.
- A group can not be deleted if the group has user(s).

6.5.7.2.2 Onvif User

Onvif user can be separately managed with account users and user groups.

Management Rules

- The system manages both Onvif users and user groups. The factory settings cover one

group: admin. You can set up to 18 Onvif users.

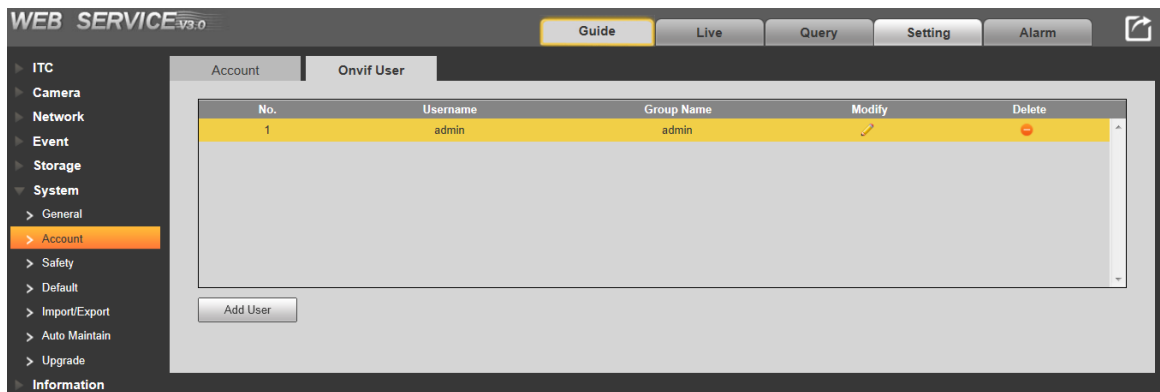
- Onvif user name can not be repeated. Each Onvif user must belong to a group, and can only belong to one group. The user name can be 31 characters at most, consisting of letters, numbers, “_”, “@” and “.”.
- The default user is admin. The password is the same as the user name. There is one admin by default which has highest authority.

Onvif User Management

You can view Onvif user information, add or delete user(s), and modify user password.

Select **Setting > System > Account > Onvif User**. The **Onvif User** interface is displayed. See Figure 6-115.

Figure 6-115 Onvif user



- Add Onvif user: Click **Add User**. The **Add User** box pops up. See Figure 6-116. You can configure the information such as username, password, and group name. Click **OK** to save the configuration.

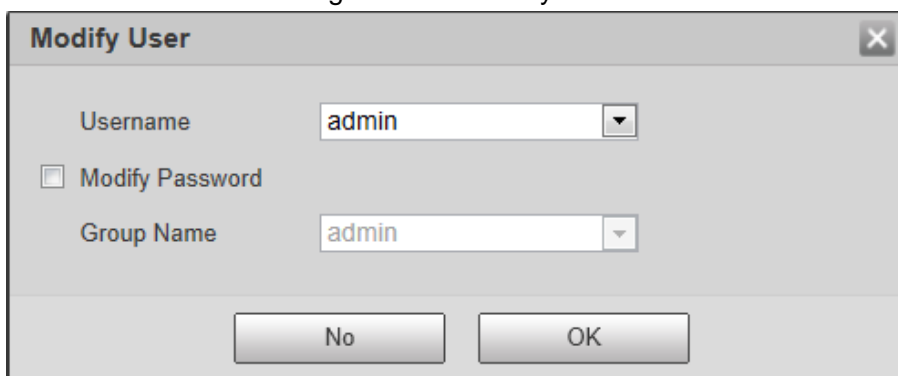
Figure 6-116 Add User

The 'Add User' dialog box contains the following fields and controls:

- Username:
- Password:
- Weak | Middle | Strong: Password strength selection buttons
- Confirm Password:
- Group Name: (dropdown menu)
- No | OK: Action buttons at the bottom

- Modify user: Click corresponding to the user. The **Modify User** box pops up. See Figure 6-117. You can modify the information such as username, password, and group name. Click **OK** to save the configuration.

Figure 6-117 Modify user



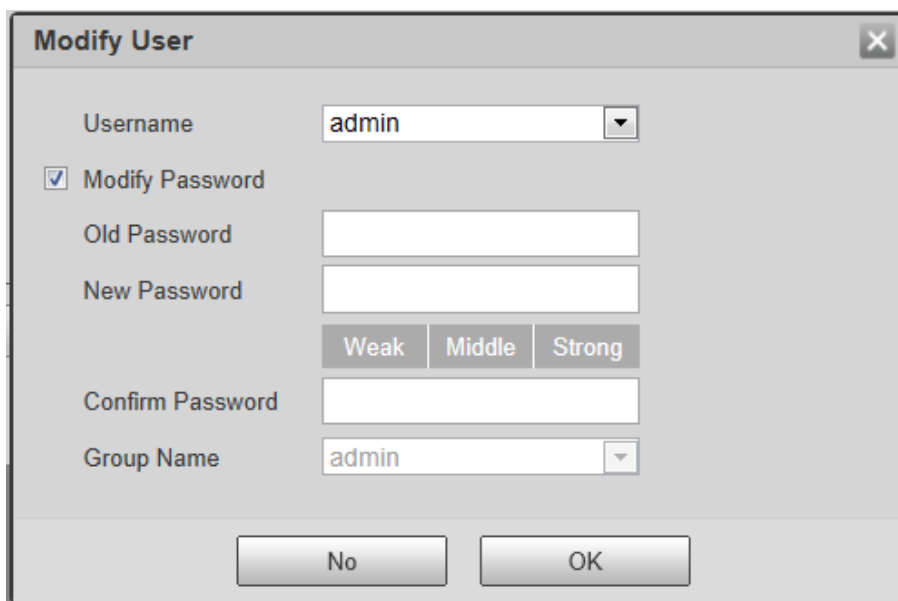
The screenshot shows a dialog box titled "Modify User". It contains a "Username" dropdown menu with "admin" selected. Below it is a checkbox labeled "Modify Password" which is currently unchecked. Underneath the checkbox is a "Group Name" dropdown menu, also with "admin" selected. At the bottom of the dialog are two buttons: "No" and "OK".

- **Modify password:** In the **Modify User** box, check **Modify Password**. See Figure 6-118. Enter the old and new passwords, and confirm password. Click **OK** to save the configuration. You can set the password according to password strength prompt. The new password can be set from 8 characters through 32 characters, and contains at least two categories of characters, including numbers, upper case letters, lower case letters and special characters, but not including single quotation marks, double quotation marks, semicolon, colon and "&".



For password strength evaluation, see Table 6-39.

Figure 6-118 Modify password



The screenshot shows the "Modify User" dialog box with the "Modify Password" checkbox checked. It includes fields for "Old Password", "New Password", and "Confirm Password". Below the "New Password" field are three buttons labeled "Weak", "Middle", and "Strong" for password strength selection. The "Group Name" dropdown is set to "admin". "No" and "OK" buttons are at the bottom.

6.5.7.3 Safety

6.5.7.3.1 IP Filter

The system manages authorities by setting trusted list and banned list.

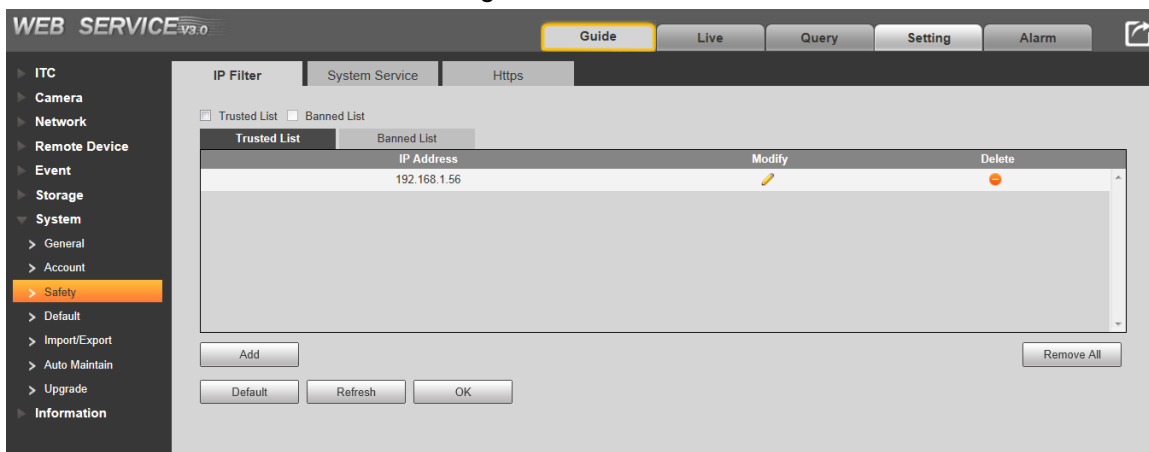
- Users with the IP and MAC address in the trusted list can log in to the Camera.
- Users with the IP and MAC address in the banned list can not log in to the Camera.

This section takes adding IP address to the trusted list as the example.

Step 1 Select **Setting > System > Safety > IP Filter**.

The **IP Filter** interface is displayed. See Figure 6-119.

Figure 6-119 IP filter

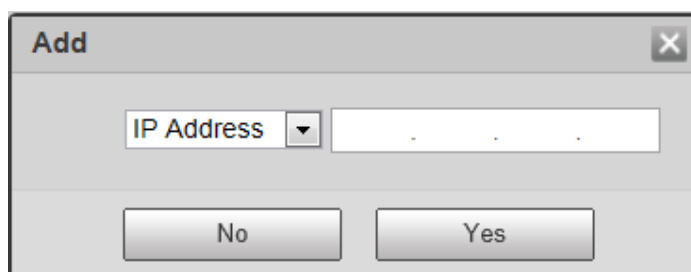


Step 2 Check **Trusted List**.

Step 3 Click **Add**.

The **Add** interface is displayed. See Figure 6-120.

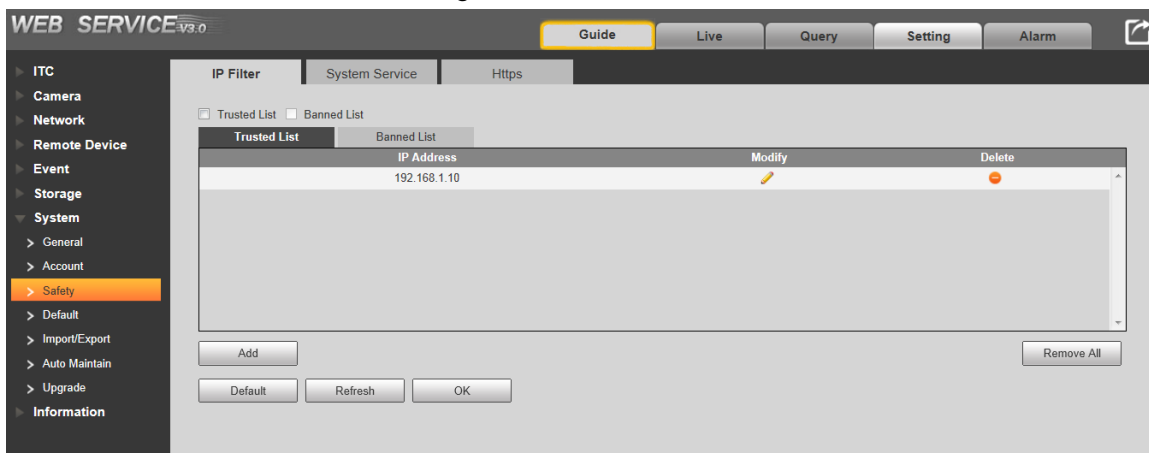
Figure 6-120 Add trusted IP address



Step 4 Configure the IP address, IP segment, MAC address, or IPv6, and then click **Yes**.



The newly-added address is displayed. See Figure 6-121.

Figure 6-121 Trusted list



Step 5 Click **OK**, and the system prompts **Save succeeded!**

On the **Trusted List** tab, you can also:

- Click  to modify the IP address, IP segment, MAC address or IPv6 you have added.
- Click  to delete the IP address, IP segment, MAC address or IPv6 you have added.
- Click **Remove All** to clear all the addresses in the trusted list.



To configure the **Banned List**, refer to the operations of configuring **Trusted List**.

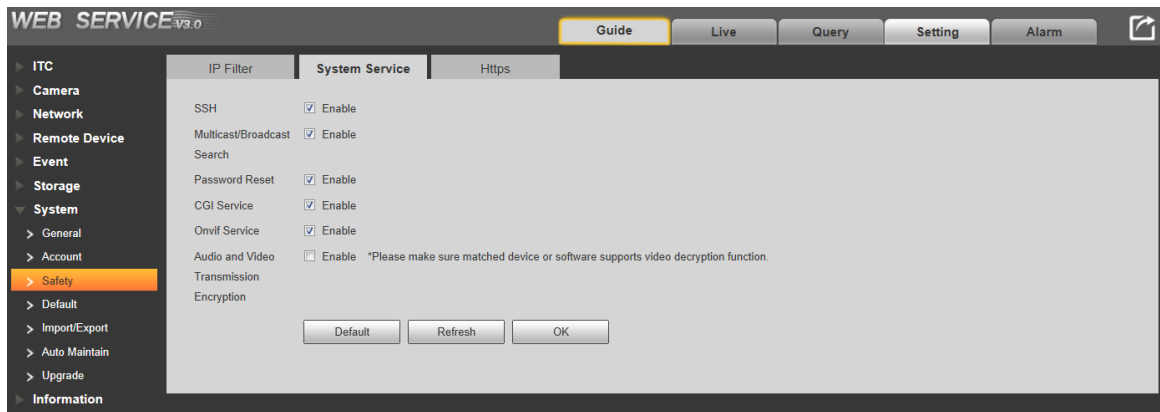
6.5.7.3.2 System Service

You can enable multiple system services to secure network safety.

Step 1 Select **Setting > System > Safety > System Service**.

The **System Service** interface is displayed. See Figure 6-122.

Figure 6-122 System service



Step 2 Enable the service(s). For details, see Table 6-40.

Table 6-40 System service

Parameter	Description
SSH	Secure Shell (SSH) is a cryptographic network protocol for operating network services securely over an unsecured network. It is a method for secure remote login, providing secure access users.
Multicast/Broadcast Search	Multicast identifies logical groups of computers group members. This allows a single message to be sent to the group. Broadcast allows all devices on the same network segment will see the same message.
Password Reset	Enable it so you can reset the password.
CGI Service	Check to enable Common Gateway Interface (CGI) service.
Onvif Service	Check to enable Open Network Video Interface Forum (ONVIF) service.
Audio and Video Transmission Encryption	Check to enable encryptin during audio and video transmission.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

6.5.7.3.3 HTTPS

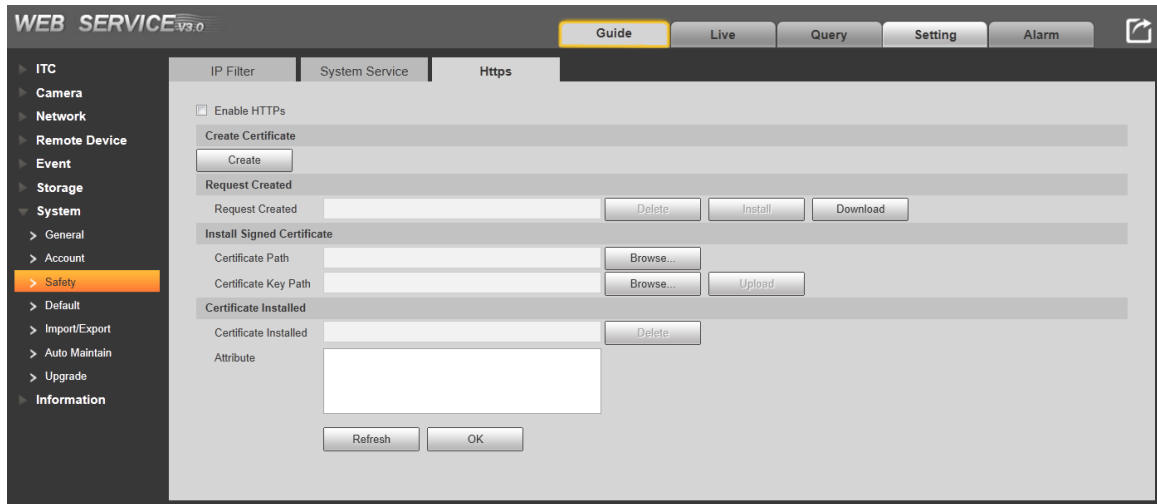
On the **Https** interface, you can create certificate or install signed certificate, so that you can login to the web page by HTTPS. This helps ensure the security of data and the Camera.

Create Certificate

Step 1 Select **Setting > System > Safety > Https**.

The **Https** interface is displayed. See Figure 6-123.

Figure 6-123 HTTPS



Step 2 Click **Create**, and then the **Https** box pops up. See Figure 6-124.

Figure 6-124 HTTPS setting

Step 3 Configure the country, and IP or domain name, and then click **Create**.
The system prompts **Operation succeeded!** when it is done successfully.

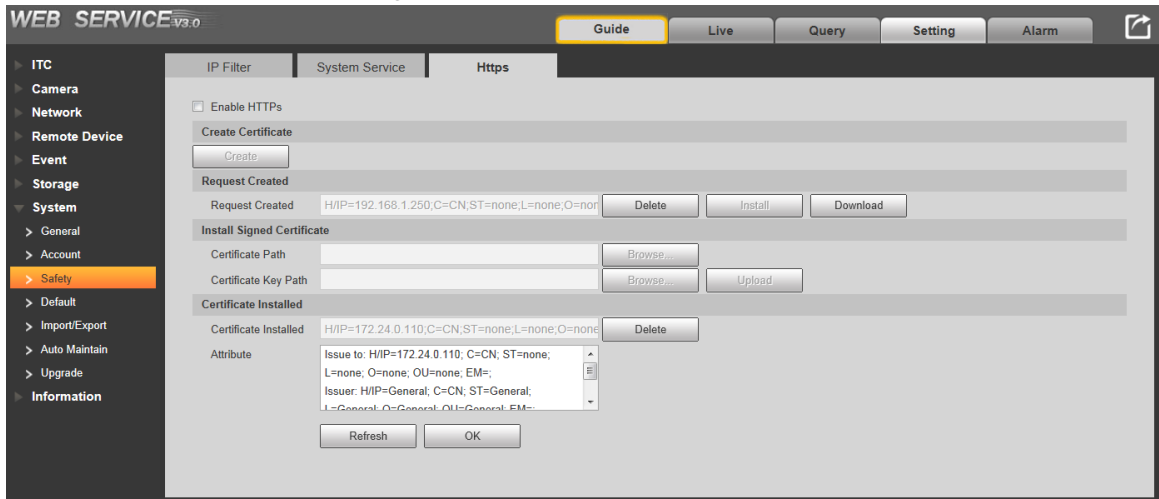


The IP or Domain name must be the same as the IP or domain name of the Camera.

Step 4 Click **Install** to install the certificate.
The system prompts **Operation succeeded!** after installation.

Step 5 Configure the country, and IP or domain name, and then click **Create**.
The information of the HTTPS certificate is displayed in **Attribute**. See Figure 6-125.

Figure 6-125 Certificate installation



Step 6 Click **Download**, and then select the path to save the certificate.

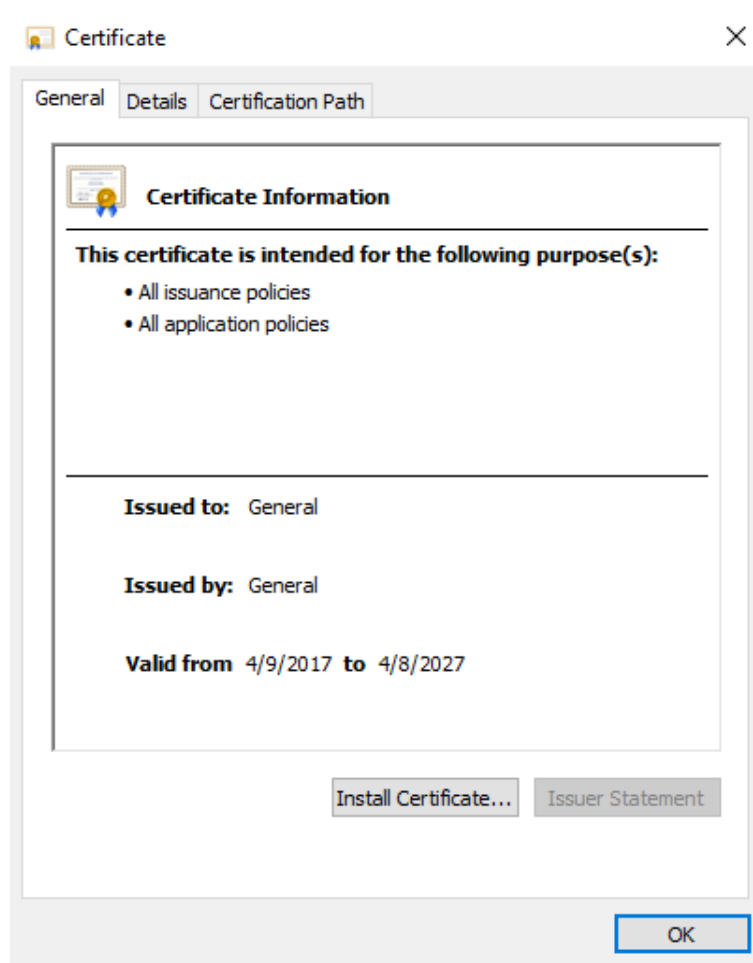
Step 7 Import the certificate to the browser.



- The following steps take Internet Explorer as the example.
- Different browsers support different ways of importing the certificate, and the actual browser shall prevail.

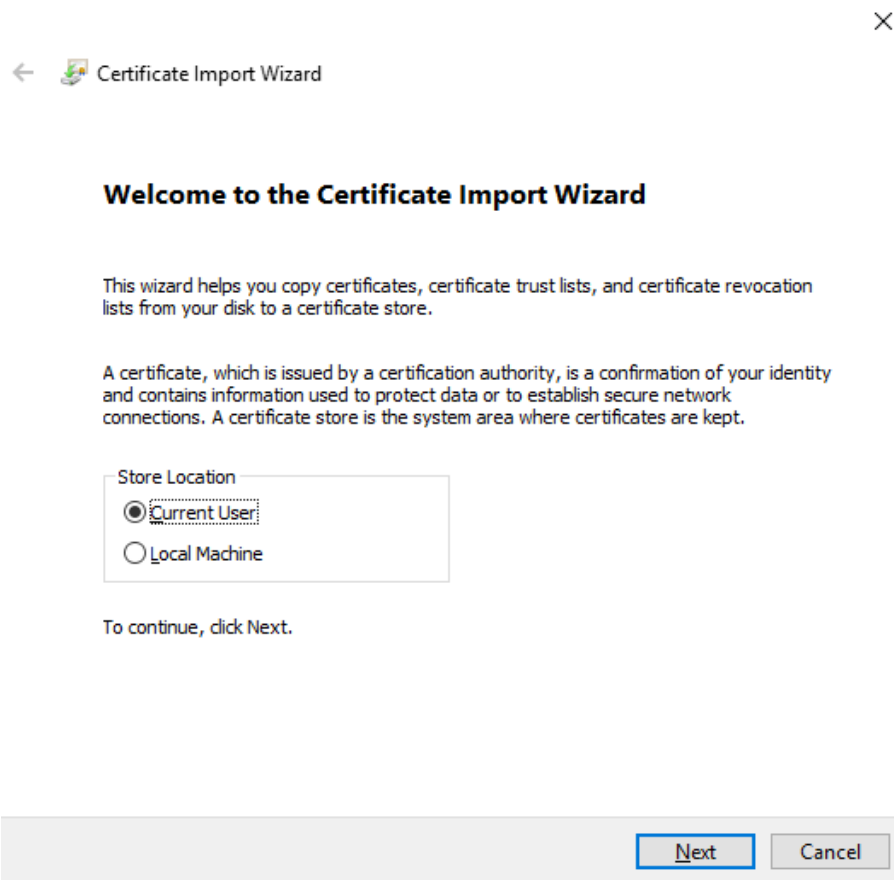
1) Double-click the certificate, and then the **Certificate** interface is displayed. See Figure 6-126.

Figure 6-126 Certificate



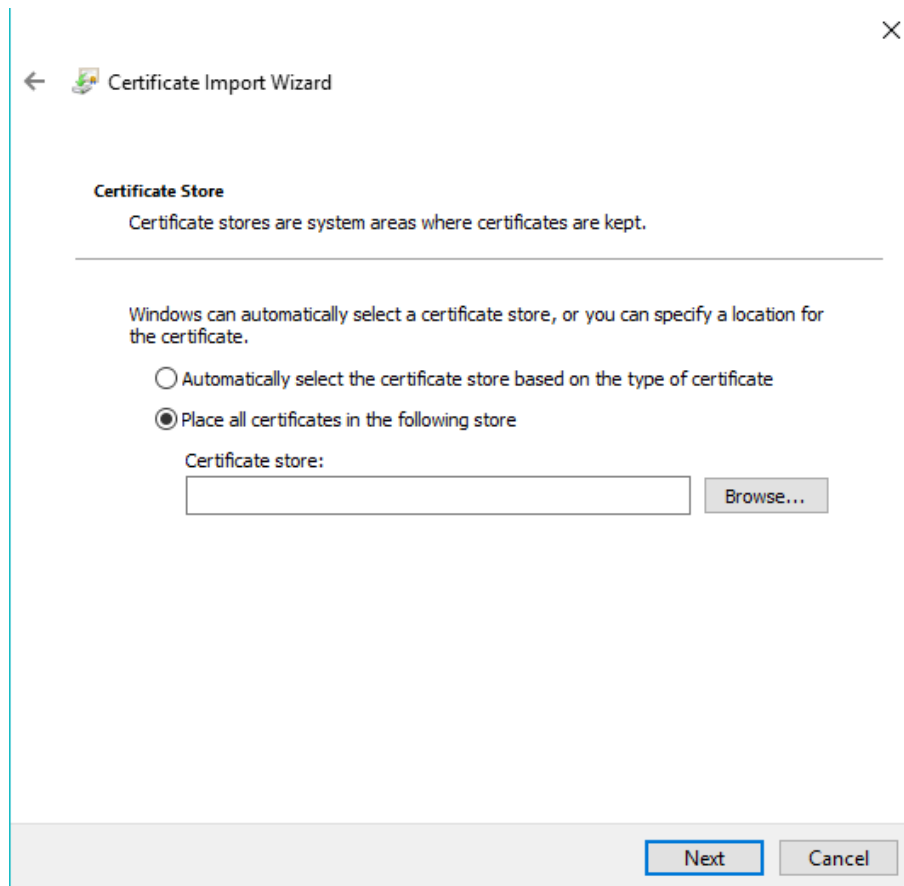
- 2) Click **Install Certificate...**, and then the **Certificate Import Wizard** interface is displayed. See Figure 6-127.

Figure 6-127 Certificate import wizard



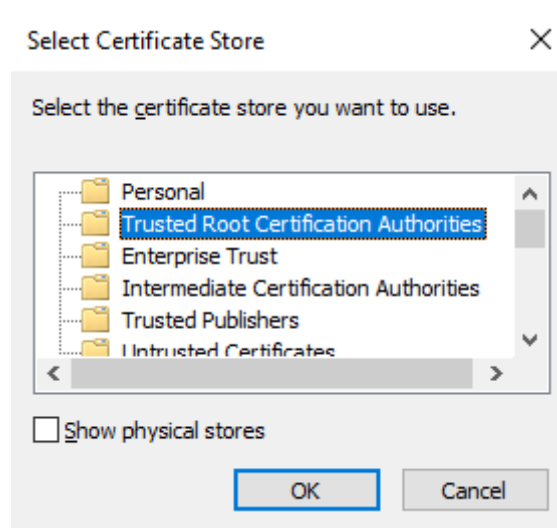
- 3) Click **Next**, and then the **Certificate Store** interface is displayed. See Figure 6-128.

Figure 6-128 Certificate store



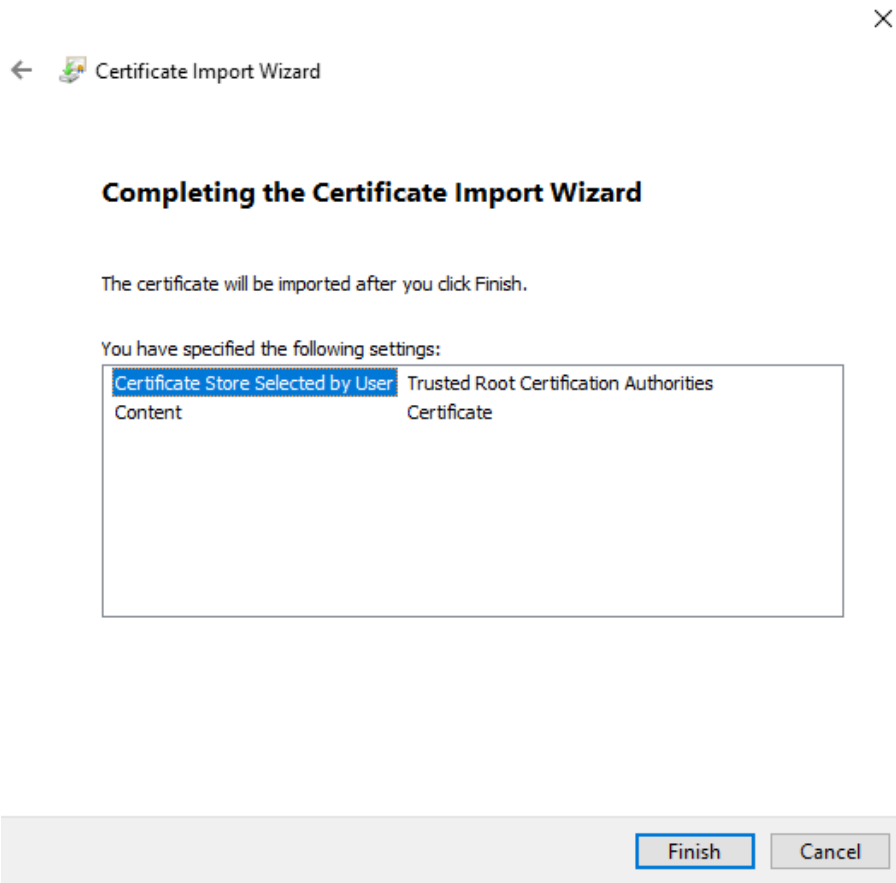
- 4) Click **Next**, and then the **Select Certificate Store** interface is displayed. See Figure 6-128.

Figure 6-129 Select certificate store



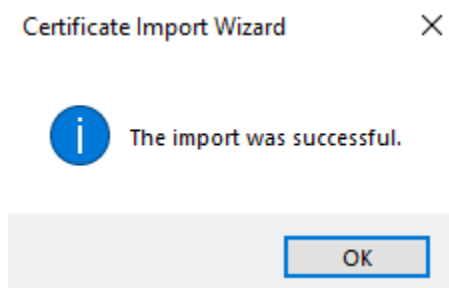
- 5) Select **Trusted Root Certification Authorities**, and then click **OK**. The **Completing the Certificate Import Wizard** interface is displayed. See Figure 6-130.

Figure 6-130 Completing the certificate import wizard



- 6) Click **Finish**, and then it prompts **The import was successful**. See Figure 6-131.

Figure 6-131 Certificate import finished

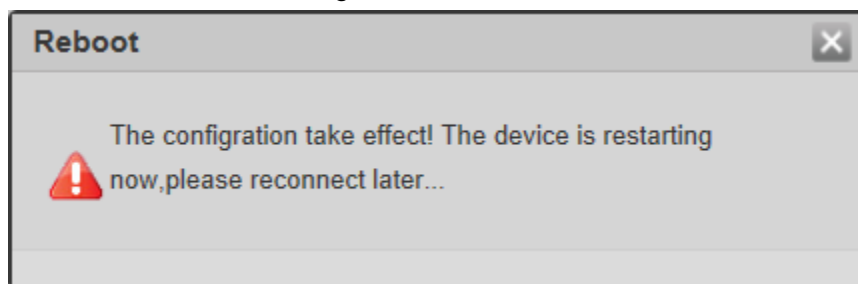


- 7) Click **OK** to finish certificate import.

Step 8 Select the **Enable HTTPS** check box, and then click **OK**.

The **Reboot** interface is displayed. See Figure 6-132.

Figure 6-132 Reboot



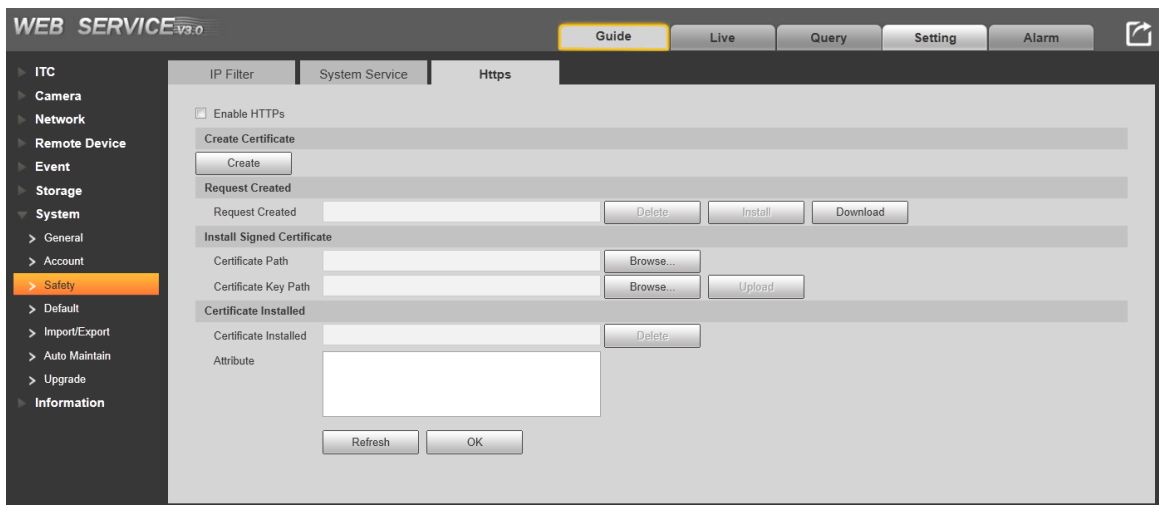
Step 9 Wait for a few minutes, and then login again.

Install Signed Certificate

Step 1 Select **Setting > System > Safety > Https**.

The **Https** interface is displayed. See Figure 6-133.

Figure 6-133 HTTPS



Step 2 Click **Browse** corresponding to **Certificate Path** to select the signed certificate.

Step 3 Click **Browse** corresponding to **Certificate Key Path** to select the private key file of certificate.

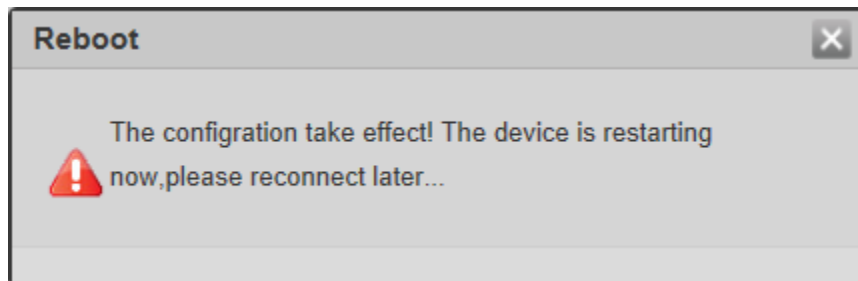
Step 4 Click **Browse** corresponding to **Certificate Key Path** to select the private key file of certificate.

Step 5 Install the root certificate. For details, see Step 7 from **Create Certificate**.

Step 6 Select the **Enable HTTPs** check box, and then click **OK**.

The **Reboot** interface is displayed. See Figure 6-134.

Figure 6-134 Reboot



Step 7 Wait for a few minutes, and then login again.

6.5.7.4 Default

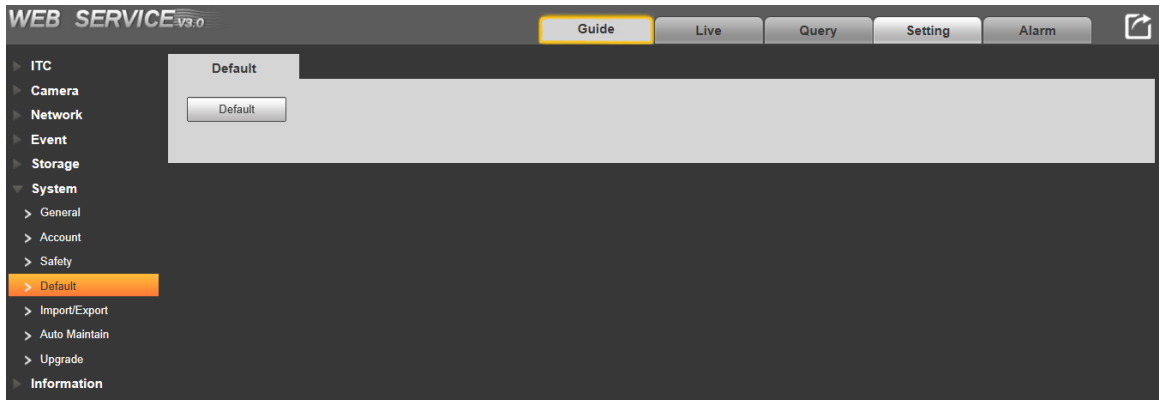
Select **Setting > System > Default**, and then the **Default** interface is displayed. See Figure 6-135.

Click **Default** to restore to default settings.



Configurations of the Camera will restore to factory settings. Information such as IP address, account and log will not be restored.

Figure 6-135 Default



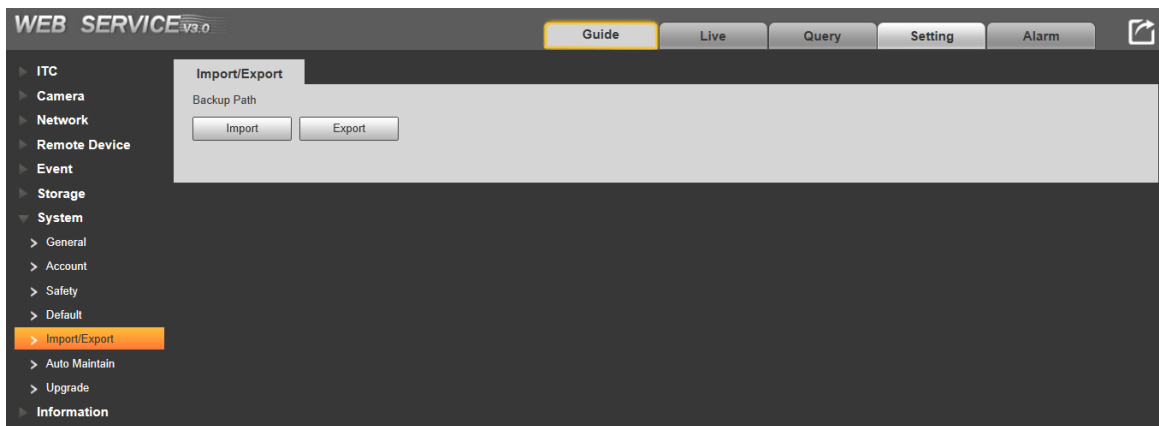
6.5.7.5 Import/Export

The system supports exporting the configurations on web to local PC, and importing the configuration files from local backup.

Step 1 Select **Setting > System > Import/Export**.

The Import/Export interface is displayed. See Figure 6-136.

Figure 6-136 Import/Export



Step 2 Click **Import** or **Export**.

- Import: Import the configuration files from local backup.
- Export: Export the configuration on web to local PC.



The imported and exported files should be in the format of .backup.

Step 3 Select the path of file to import, or the path of file to export.

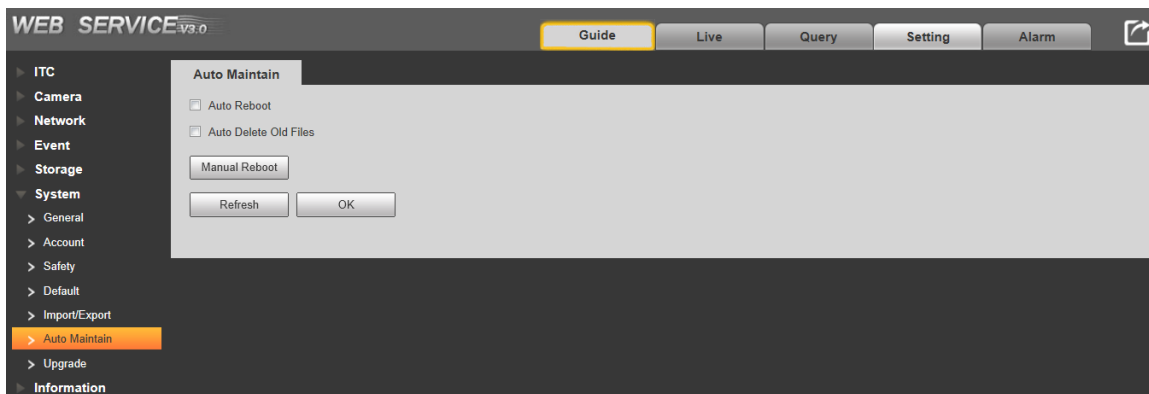
6.5.7.6 Auto Maintain

You can select either auto reboot the Camera at the set day and time, or manually reboot the Camera.

Step 1 Select **Setting > System > Auto Maintain**.

The **Auto Maintain** interface is displayed. See Figure 6-137 and Table 6-41.

Figure 6-137 Auto maintain



Step 2 Select reboot mode and configure the parameters. See Table 6-41.

Table 6-41 Auto maintain parameters

Parameter	Description
Auto Reboot	Check Auto Reboot , and configure the day and time. The system will automatically reboot at the set day and time.
Auto Delete Old File	Check Auto Delete Old File , and the system will automatically delete the old files.
Manual Reboot	Click to manually reboot the Camera.

Step 3 Click **OK** to save the configuration. Click **Refresh** to refresh the interface.

6.5.7.7 Upgrade

Import the update file in the format of .bin to the system, and then update the system.

Select **Setting > System > Upgrade**. The **Upgrade** interface is displayed. See Figure 6-138.

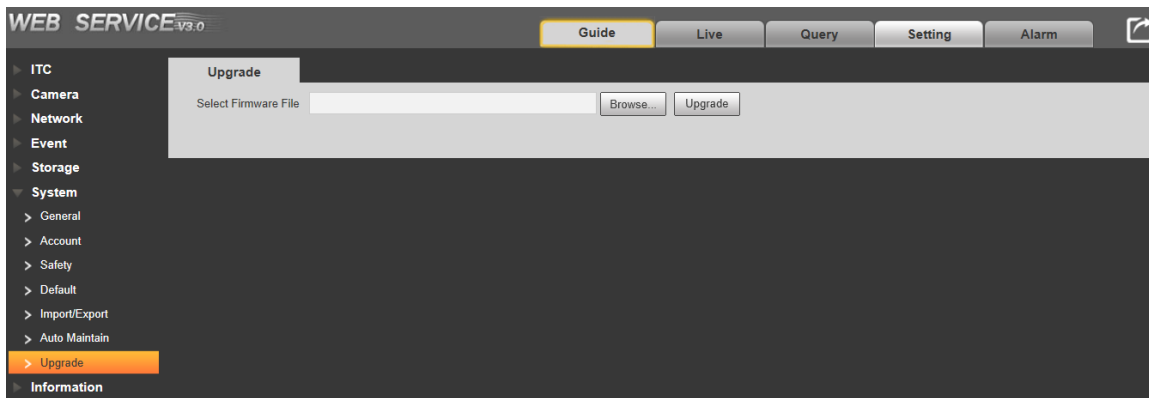
Click **Browse** to select the update file, and then click **Upgrade** to update the system.



Do not disconnect the power or network, or reboot or shutdown the Camera during update.

Incorrect update programs might result in the Camera unable to work.

Figure 6-138 Upgrade



6.5.8 Information

You can check information such as version, log, online user and work state.

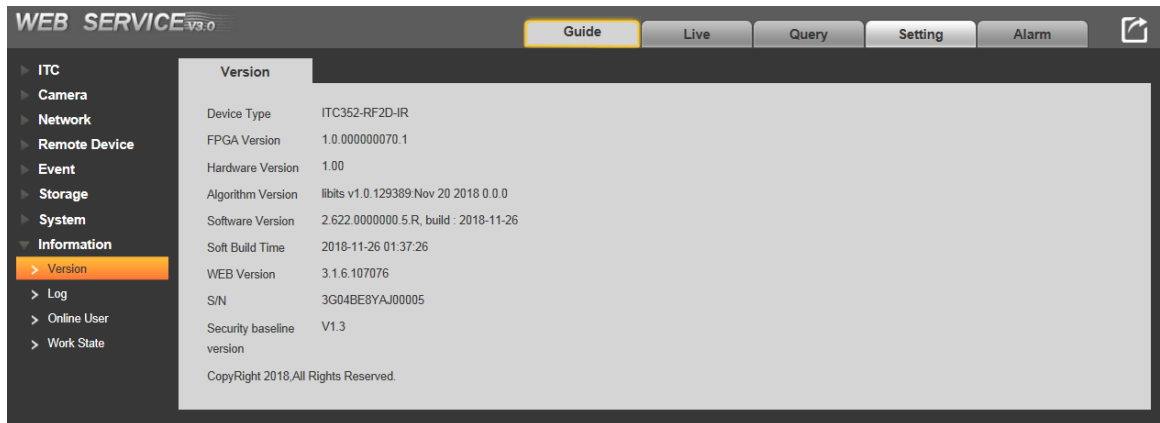
6.5.8.1 Version

Select **Setting > Information > Version** to check the version information of the web.



Versions of different devices might vary, and the actual product shall prevail.

Figure 6-139 Version



6.5.8.2 Log

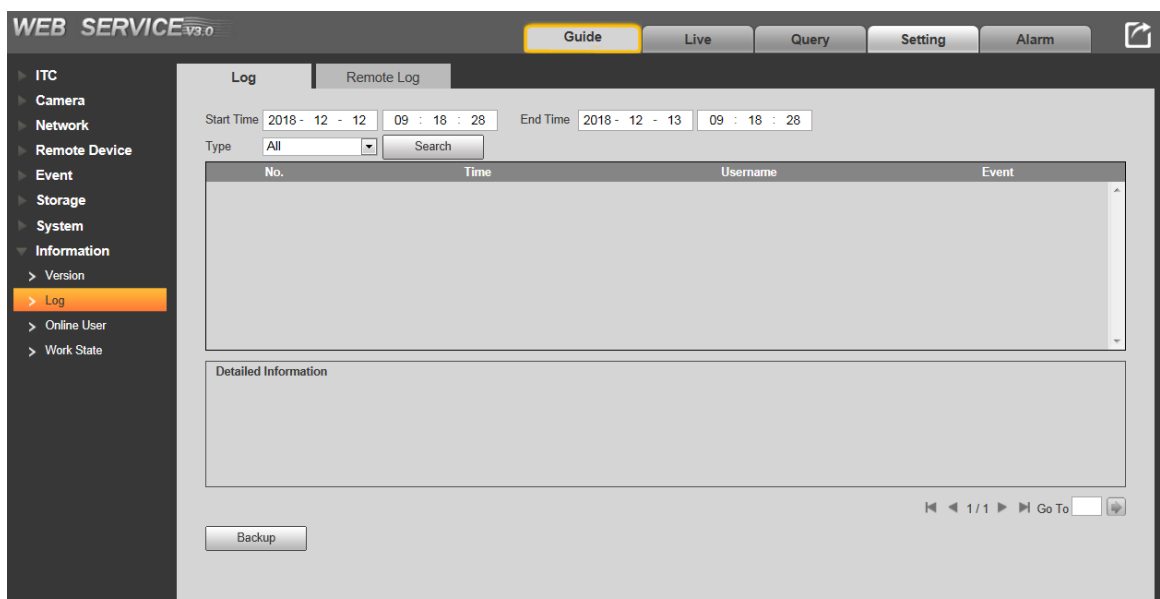
6.5.8.2.1 Log

You can search and check log by the time and type, and backup the log. The log type includes All, System, Setting, Data, Event, Record, Account, and Safety.

Step 1 Select **Setting > Information > Log > Log**.

The **Log** interface is displayed. See.

Figure 6-140 Log



Step 2 Configure **Start Time** and **End Time**, and then select log type.

Step 3 Click **Search**. You can stop searching according to your need.

Step 4 Check and backup the search results.

You can save the search results to your PC in a .txt file.

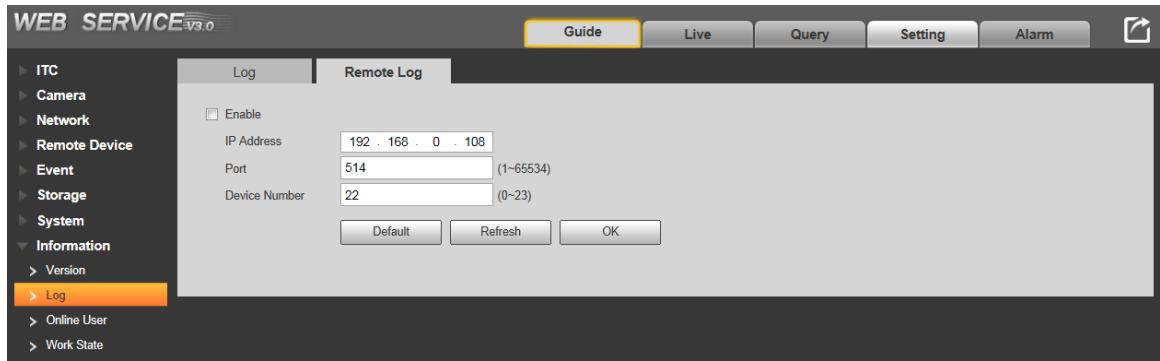
6.5.8.2 Remote log

Critical logs can be saved to log server. This helps provide important clues to the source of security incidents. Log server needs to be deployed in advance by a professional or system administrator.

Step 1 Select **Setting > Information > Log > Remote Log**.

The **Remote Log** interface is displayed. See Figure 6-141.

Figure 6-141 Remote log



Step 2 Select **Enable** to enable Remote Log.

Step 3 Configure the IP address, port and device number.

Step 4 Click **OK** to save the configuration. Click **Refresh** to refresh the interface. Click **Default** and then **OK** to restore to default settings.

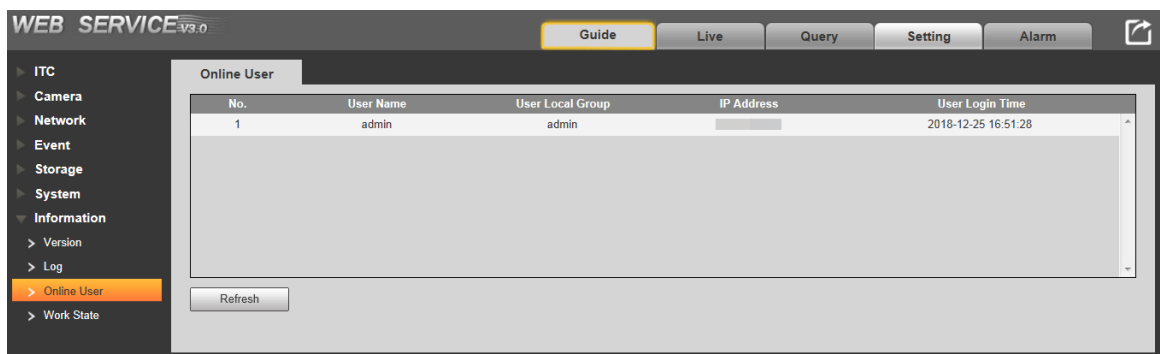
6.5.8.3 Online User

You can view online users.

Select **Setting > Information > Online User**. The **Online User** interface is displayed. See Figure 6-142.

You can view information such as user name, user local group, IP address, user login time, etc.

Figure 6-142 Online user

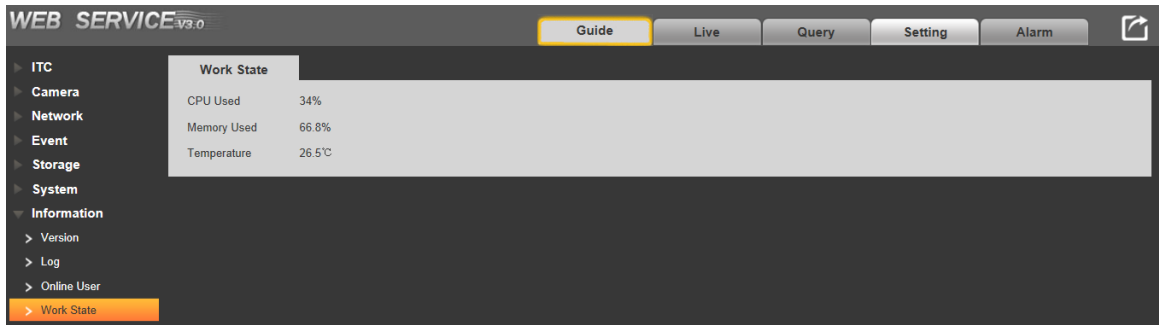


6.5.8.4 Work state

You can view device work state, including CPU used, memory used, and temperature.

Select **Setting > Information > Work State**. The **Work State** interface is displayed. See Figure 6-143.

Figure 6-143 Work state



6.6 Alarm

You can select the event type of triggering an alarm. You can also configure the operation and tone of alarm.

Select **Alarm** on the web interface, and the **Alarm** interface is displayed. See Figure 6-144, Figure 6-145 and Table 6-42.

Figure 6-144 Alarm (ANPR)

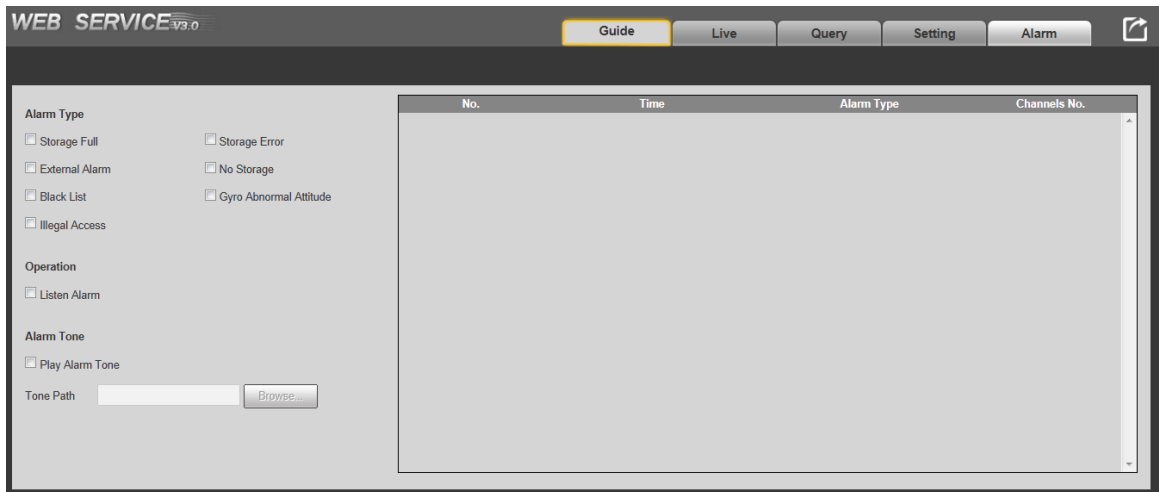


Figure 6-145 Alarm (E-Police)

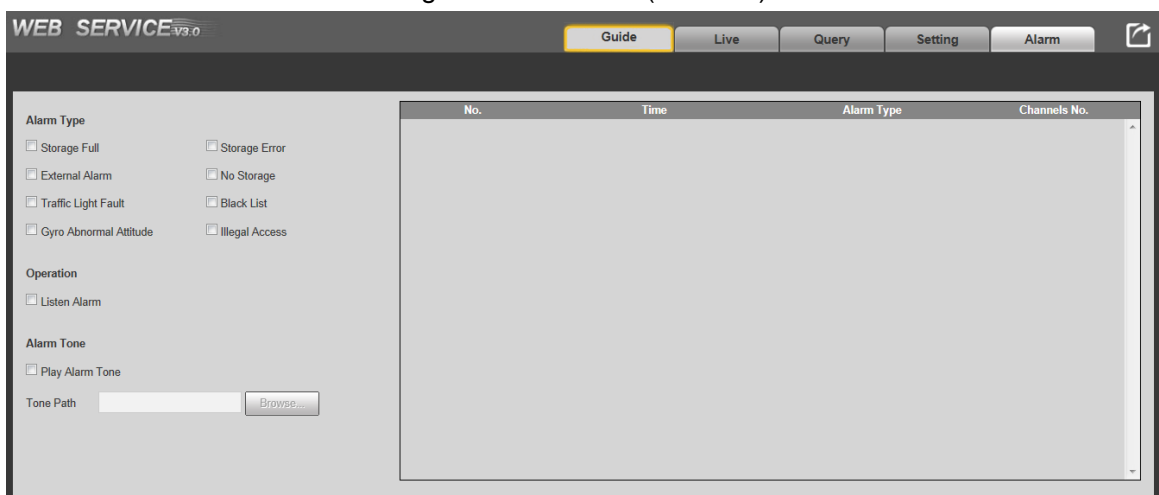



Table 6-42 Alarm parameter

Name	Parameter	Description
Alarm Type	Storage Full	Alarm when storage is full.
	Storage Error	Alarm when storage error occurs.

Name	Parameter	Description
	External Alarm	Alarm triggered by alarm input device.
	No Storage	Alarm when there is no storage.
	Traffic Light Fault	Alarm when a traffic light fails.  This function is only available in E-Police mode.
	Black List	Alarm when license plate in the black list is detected.
	Gyro Abnormal Attitude	Alarm when unusual attitude of device is detected, such as tilt.
	Illegal Access	Alarm when illegal access is detected.
Operation	Listen Alarm	When there is alarm, the device will inform users by web.
Alarm Tone	Play Alarm Tone	Alarm with tone. You can customize it.
	Tone Path	Select tone path.

6.7 Logout


Click  to log out, and the **Login** interface is displayed. See Figure 6-146. Enter the User Name and Password to log in again.

Figure 6-146 Logout



WEB SERVICE v3.0

User Name:

Password: [Forgot password?](#)

Appendix 1 FAQ

Issue	Solution
Device error, unable to start or operate normally	Press and hold Reset button for 5 seconds to restore the Camera to factory default settings.
TF card hot swapping	Stop recording and image capturing, and then wait for at least 15 seconds before removing the TF card. This helps ensure data integrity and avoid losing all the data of the card.
TF card read/write limit	Do not set the TF card as the storage media of pre-set recording. It may damage the TF card duration.
TF card cannot be used as storage media	When the TF card hibernates or its capacity is null, format the card through web first.
Recommended TF card	It is recommended to use TF card of 16 GB or above. This helps avoid data loss arising from insufficient capacity. You can use card of 16 GB, 32 GB, 64 GB, and 128 GB.

Appendix 2 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations on how to create a more secured security system.

Mandatory actions to be taken for basic equipment network security:

1. Use Strong Passwords

Please refer to the following suggestions to set passwords:

- The length should not be less than 8 characters;
- Include at least two types of characters; character types include upper and lower case letters, numbers and symbols;
- Do not contain the account name or the account name in reverse order;
- Do not use continuous characters, such as 123, abc, etc.;
- Do not use overlapped characters, such as 111, aaa, etc.;

2. Update Firmware and Client Software in Time

- According to the standard procedure in Tech-industry, we recommend to keep your equipment (such as NVR, DVR, IP camera, etc.) firmware up-to-date to ensure the system is equipped with the latest security patches and fixes. When the equipment is connected to the public network, it is recommended to enable the "auto-check for updates" function to obtain timely information of firmware updates released by the manufacturer.
- We suggest that you download and use the latest version of client software.

"Nice to have" recommendations to improve your equipment network security:

1. Physical Protection

We suggest that you perform physical protection to equipment, especially storage devices. For example, place the equipment in a special computer room and cabinet, and implement well-done access control permission and key management to prevent unauthorized personnel from carrying out physical contacts such as damaging hardware, unauthorized connection of removable equipment (such as USB flash disk, serial port), etc.

2. Change Passwords Regularly

We suggest that you change passwords regularly to reduce the risk of being guessed or cracked.

3. Set and Update Passwords Reset Information Timely

The equipment supports password reset function. Please set up related information for password reset in time, including the end user's mailbox and password protection questions. If the information changes, please modify it in time. When setting password protection questions, it is suggested not to use those that can be easily guessed.

4. Enable Account Lock

The account lock feature is enabled by default, and we recommend you to keep it on to guarantee the account security. If an attacker attempts to log in with the wrong password several times, the corresponding account and the source IP address will be locked.

5. Change Default HTTP and Other Service Ports

We suggest you to change default HTTP and other service ports into any set of numbers between 1024~65535, reducing the risk of outsiders being able to guess which ports you are using.

6. Enable HTTPS

We suggest you to enable HTTPS, so that you visit Web service through a secure communication channel.

7. Enable Whitelist

We suggest you to enable whitelist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the whitelist.

8. MAC Address Binding

We recommend you to bind the IP and MAC address of the gateway to the equipment, thus reducing the risk of ARP spoofing.

9. Assign Accounts and Privileges Reasonably

According to business and management requirements, reasonably add users and assign a minimum set of permissions to them.

10. Disable Unnecessary Services and Choose Secure Modes

If not needed, it is recommended to turn off some services such as SNMP, SMTP, UPnP, etc., to reduce risks.

If necessary, it is highly recommended that you use safe modes, including but not limited to the following services:

- SNMP: Choose SNMP v3, and set up strong encryption passwords and authentication passwords.
- SMTP: Choose TLS to access mailbox server.
- FTP: Choose SFTP, and set up strong passwords.
- AP hotspot: Choose WPA2-PSK encryption mode, and set up strong passwords.

11. Audio and Video Encrypted Transmission

If your audio and video data contents are very important or sensitive, we recommend that you use encrypted transmission function, to reduce the risk of audio and video data being stolen during transmission.

Reminder: encrypted transmission will cause some loss in transmission efficiency.

12. Secure Auditing

- Check online users: we suggest that you check online users regularly to see if the device is logged in without authorization.
- Check equipment log: By viewing the logs, you can know the IP addresses that were used to log in to your devices and their key operations.

13. Network Log

Due to the limited storage capacity of the equipment, the stored log is limited. If you need to save the log for a long time, it is recommended that you enable the network log function to ensure that the critical logs are synchronized to the network log server for tracing.

14. Construct a Safe Network Environment

In order to better ensure the safety of equipment and reduce potential cyber risks, we recommend:

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.

- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private networks.

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