KEDACOM

User Manual for HD Mini Dome Camera

V2.1 (December, 2020)

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Target Audience

Administrators and Operators of Video Surveillance Products

Document Version

V2.1

Applicable Models

IPC4X2 series

Software Version

V7R3B3

Related Document

Quick Start Guide

Convention

Icon/Sign	Convention
(i)	Notes and warning: necessary supplement of operations
BOLD	Menu, e.g. **Drag to Zoom**
""	Interface quote, e.g. "Save"
>	Connector between menus of differe nt level, e.g. **Settings > Camera**

Safety Instruction

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss. Please read this Guide carefully before using the product, and keep it properly for future reference. If the product cannot work normally or is damaged because the user does not follow the safety instructions, we shall not assume any responsibility.

Before installation, please follow the instructions below:

Instructions

1. Please adopt power supply in the safety voltage range.
2. If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble or repair the product yourself in any way.
3. Do not drop the camera or subject it to physical shock.
4. When cleaning the lens, please use a rubber dust blower to remove dust on the lens or filter, and use dry soft cleaning cloth to remove the dirt on camera surface. For some hard dirt, user can apply some detergent to the cleaning cloth and wipe gently. Never apply any volatile solvent, such as ethanol, benzene and diluents, to avoid damage to surface coating.
5. Do not focus the camera lens on strong light such as the sun or incandescent lamp. The strong light can cause overexposure or light leak (not camera malfunction), which may shorten camera lifetime.
6. Do not expose the camera in the environment not defined in the Manual. Maintenance and fee due to exposure of product in the wrong conditions will be user's responsibility.

7. Indoor Dome Camera cannot be installed at rainy or wet places. If the Indoor Dome Camera has a connecting rod on the bracket, make sure there is no hole on the rod to avoid water.

8. Outdoor Dome Camera must be completely sealed to avoid dampness. Make sure there is no hole on the connecting rod of bracket to avoid water.

9. While shipping the camera, pack it in the factory packing or use materials with equivalent quality.

10. When it is necessary to replace a part, please contact your dealer in advance and replace the part with specified model or part of the same features. We shall not assume any responsibility for problems caused by unauthorized replacement.

11. Do not shield the sensor at front of the lens housing.

12. When power off the camera, reboot it after 30 seconds.

Anti-thunder and Anti-surge

The camera adopts built-in anti-thunder technology and can withstand instant 4KV thunder when it is well grounded. To prevent damage caused by thunders exceeding the built-in anti-thunder level, an independent anti-thunder engineering must be carried out. When installing it outdoor, please note the following tips to reduce damage efficiently such as thunder.

1. The distance between the signal wire and the high-tension apparatus or high voltage cable should be at least 50m.

2. Try to route cables along the eave when installing outdoor.

3. When installing camera in an open field, route cables inside sealed steel pipes under the earth and ground the pipes with one point. Never route cables in aerial way.

4. In heavy thunderstorm area or high-tension zone (such as high voltage transformer substation), an extra superpower anti-thunder apparatus and lightning rod must be installed.

5. The anti-thunder and grounding design of outdoor apparatus and wires must consider the anti-thunder requirements of the building and conform to the requests of national and industrial standards.

6. The system must be grounded with equipotential. The grounding apparatus must be anti-interference and electrically safe. It cannot be short-circuited or hybrid connected to the null line of high-voltage power grid. When it is grounded independently, the ground impedance is ≤4Ω and the earth lead section surface must be ≥25mm^2.

7. The anti-thunder grounding wire of the dome camera uses multi-strand copper cable with section surface ≥4mm^2 (strand diameter about ≥2.3mm).

Contents

# 1. Product Brief

IPC4X2 series are HD mini dome cameras for indoor installation. Small in size and designed with dome structure, it supports multiple installation methods; it supports 5 times and 12 times zooming to satisfy different field angles and distances; it also supports ultra-low starlight illumination and IR light, which ensures image sharpness at night.


Picture 1-1 Product Appearance

2. Startup

ⓘ Note: User should be responsible for all risks of accessing the camera to the Internet, including but not limited

to possible cyber-attack, hacking attack, virus infection and etc. This company is not responsible for product failures and information disclosure caused thereby, but will provide timely technical support for the camera.

For device installation and wiring, please refer to the *Quick Start Guide*.

After the camera is installed, configure parameters and functions through the web client. Please ensure the mutual network communication between the camera and the PC before configuring.

Requirements of PC for installing the client:

➤ Processor: 3.3 GHz Intel CORE®i3 series and later version or other equivalent processors

➤ RAM Memory: 4GB or above

➤ Operating System: Windows 7 or higher versions

➤ Browser: Suggest using IE Kernel browser, otherwise it will affect some functions of the client

➤ DirectX：9.0c

2.1 Activate Camera

When the camera is first used, user should activate it and set the login password for normal use.

There are 2 methods to activate the camera: though IPCSearch or through browser.

➤ Activate through IPCSearch

1) Download IPCSearch from our website (address: https://www.kedacom.com/cn/softtools/index.jhtml), and install it according to the prompts.

2) After finishing installation, run IPCsearch and the system will search the cameras in LAN and display the list as shown below.

Picture 2-1 IPCSearch

ⓘ Note: Camera name is subject to the search result.

3) Select the camera to be activated, right click and select "Activate". On the popup interface, configure admin user password and email for claiming password. Click "Activate" to activate the device.

Note: When there are more than one non-activated devices, select the device and click "**Batch processing**". On the popup interface, set admin user's password and the email address to claiming password. Click "**Activate**" and wait for rebooting.
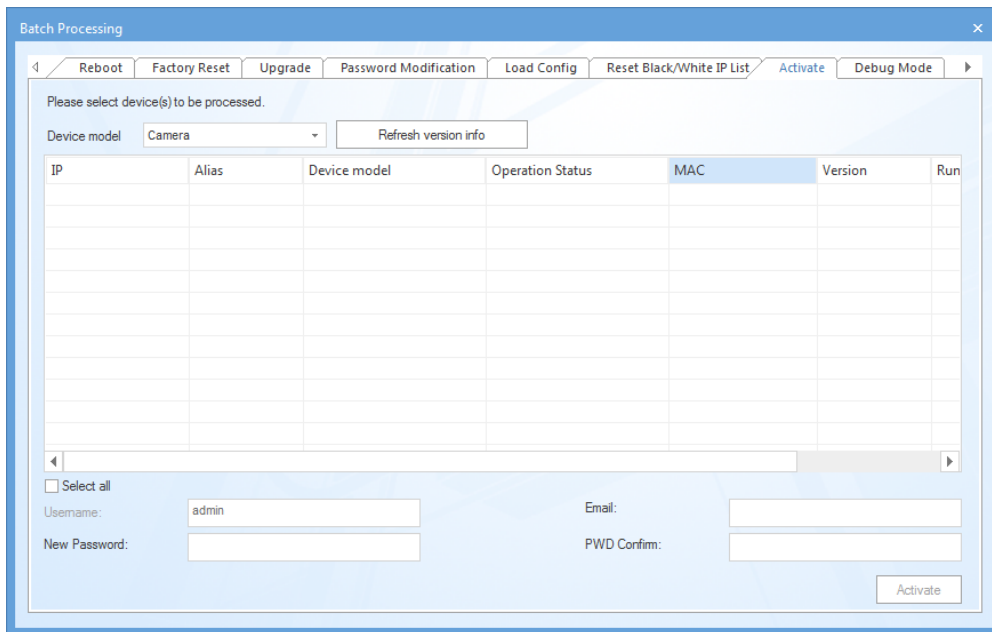
Picture 2-2 Batch Processing

➢ Activate through browser

a) Configure the IP address of PC in the same network segment as that of the camera and input the camera address in browser. The device activation interface will pop up, as shown below:
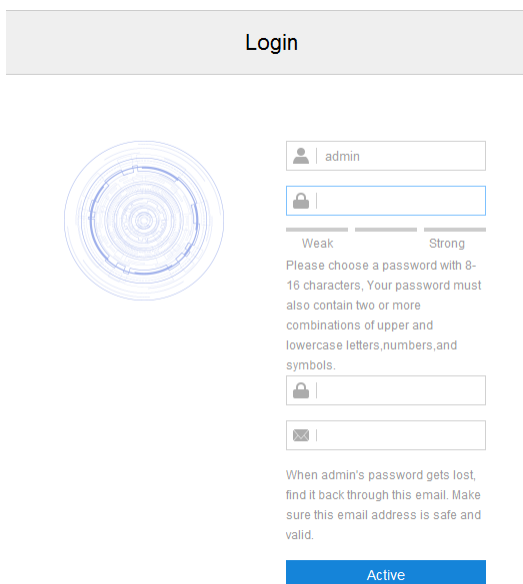
Picture 2-3 Activate through browser

b) Configure admin user password and email for claiming password. Click "Activate" to activate the device.

Note:

◆ To ensure the safety of device on internet, it is strongly recommended that you set a strong password composed of at least 2 kinds of the following, numbers, upper-case letters, lower-case letters or specific symbols with length of 8 to 16 characters.

◆ Please modify the password periodically such as once every 3 months. If the device is used in highly risky environment, suggest modifying the password monthly or weekly.

◆ Please keep your username and password safe.

2.2 Configure Network Parameters

After activating the camera, modify camera network parameters through IPCSearch, such as IP address, subnet mask and gateway.

1) Run IPCSearch and the system will search the cameras in LAN automatically and display the result on the list;

2) Select a camera whose network parameters should be modified. Click "**Modify Params**" or right click the mouse. Modify parameters and fill admin user name (admin) and the password set when activating the device.
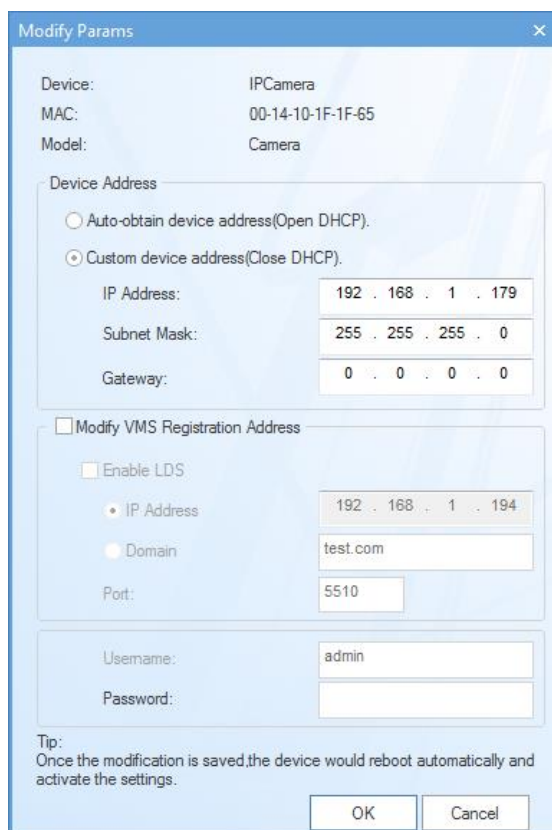
Picture 2-4 Modify Parameter

3) Click "OK" and the following window will pop up. Click "OK" and wait for the camera rebooting.
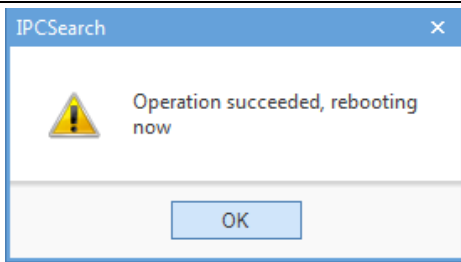
Picture 2-5 Camera Reboot

(i) Note: For more network parameters of the camera, login to the web client and configure. Please refer to chapter 4 for details.

2.3 Login and Log Out of the Web Client

➢ Login

After activating the camera and modifying its network parameters, the camera will reboot automatically. After rebooting, select either of the following methods to login:

■ Select the device from IPCSearch and click "Login" or double-click the line which the device is in to enter the web client. Input username and the password set during activation and click "**Login**".

■ Input camera IP address in the browser to enter the login interface. Input username and the password set during activation and click "**Login**".
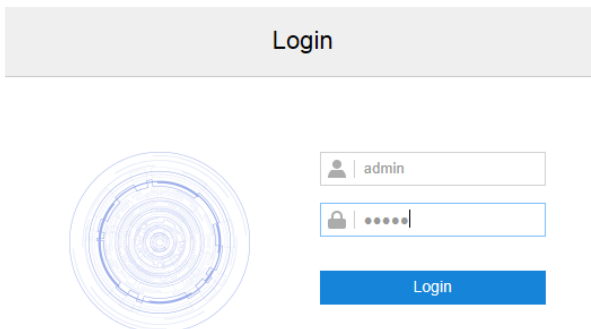
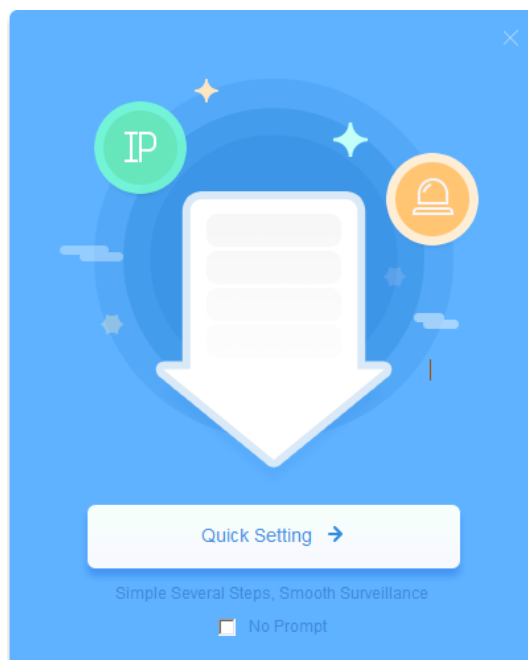Picture 2-6 Web Client Login Interface

After login successfully for the first time, download and install the plug-in according to the prompts. Close the browser when installing the plug-in. After finishing, re-login and enter the following interface.

(i) Note: Suggest using IE Kernel browser, otherwise it might affect some functions of the web client.
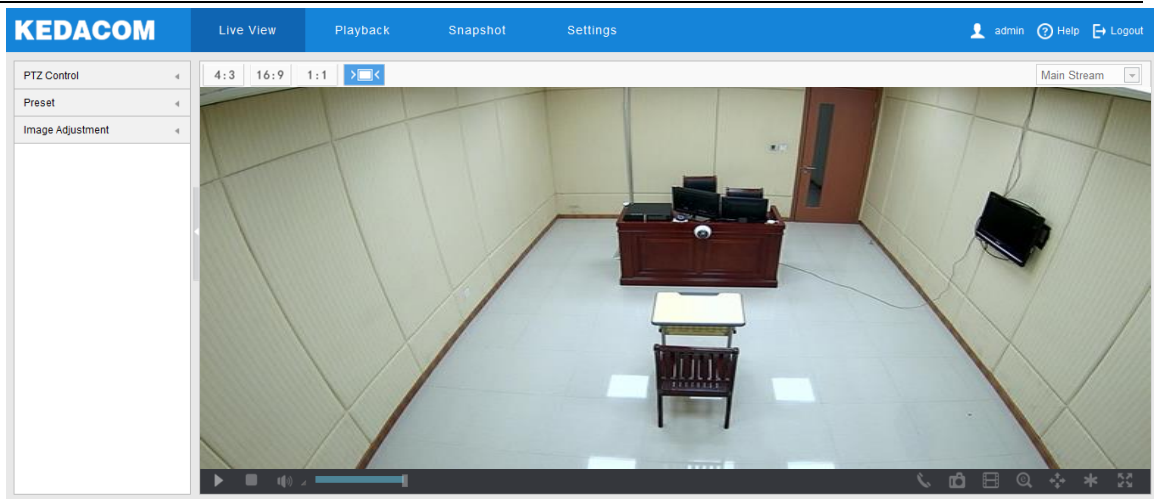
Picture 2-7 Web Client Interface

(i) Note: After login to the web client successfully for the first time, it will pop up the quick setting interface. Click "Quick Setting" to perform simple settings to the camera. User can go to **Settings > Local Setting** and unselect "Enable Configuration Guide", or select "No Prompt" to cancel the prompt window.

Picture 2-8 Quick setting guide

Picture 2-9 Quick setting

➢ Log Out

Click the icon 🡒 Logout at the top right corner of the interface to log out of the web client.

➢ Help

Click the icon ⊘ Help at the top right corner of the interface to view the help file.
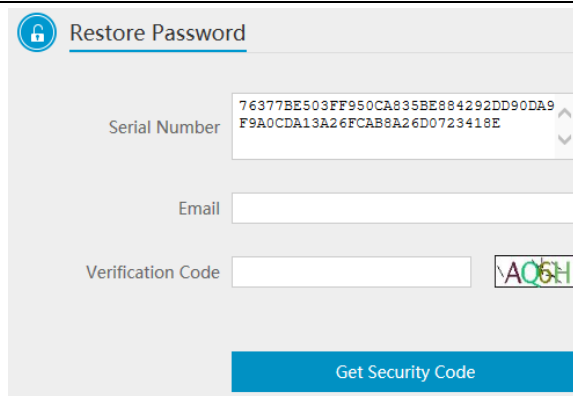
2.4 Password Reset

If user enters a wrong username or password for 6 times, the camera IP will be locked up for 10 minutes, during which user cannot login to this camera. If user forgets the password, reset the password.

1) Open IPCSearch and select the device whose password should be reset. Click "**Password Reset**" and a window will pop up, as shown below:
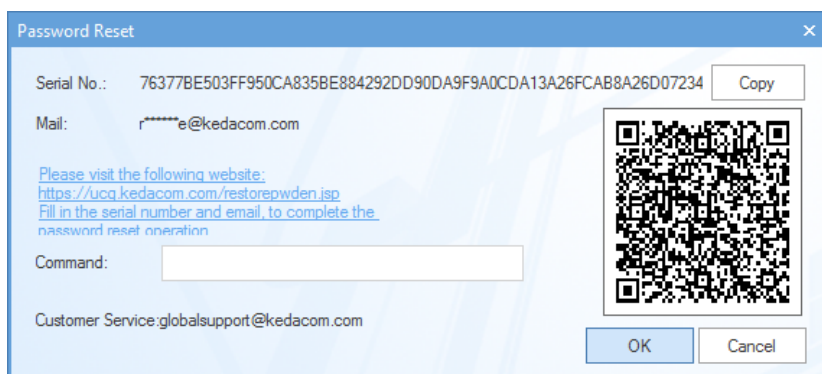
Picture 2-10 Password Reset

2) Click the password reset link or scan the QR code in the above picture with a mobile device and fill in the Serial Number and Email address in the following picture. Click "Get Security Code";

Picture 2-11 Password Reset

3) Login to the email address to get a security code and fill in "**Command**" blank in Picture 2-10 and click "**OK**". Please remember the new password on the popup window and click "OK". The device will reboot.

2.5 Main Interface

On the main interface of the client, you can view live video, playback video records, manage snapshots and configure settings.

■ Live View: preview camera live video and adjust parameters;

■ Playback: search, playback and download video records by timeline or record types;

■ Snapshot: search, view and download snapshots by picture type;

■ Settings: configure camera functions and system parameters.

3. Basic Functions

By web client, user can not only view live video, but also perform local snapshot and recording, configure

alarm linkage and etc. Some models may not support some of the following functions. Please subject to

actual devices and the client.

ⓘ Note:

◆   Functions of different models may differ somewhat, and the disabled button in the client means

    the device does not support the function. Function described in this manual with "*" means only

    some models support this function.

◆   Different models may differ a little in some functions. Please subject to actual interface.

3.1 Live View
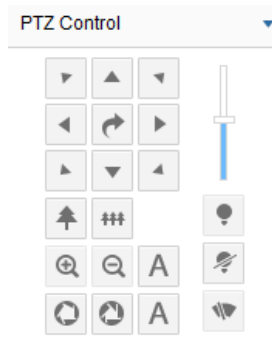
Click "Live View" to enter the preview interface.
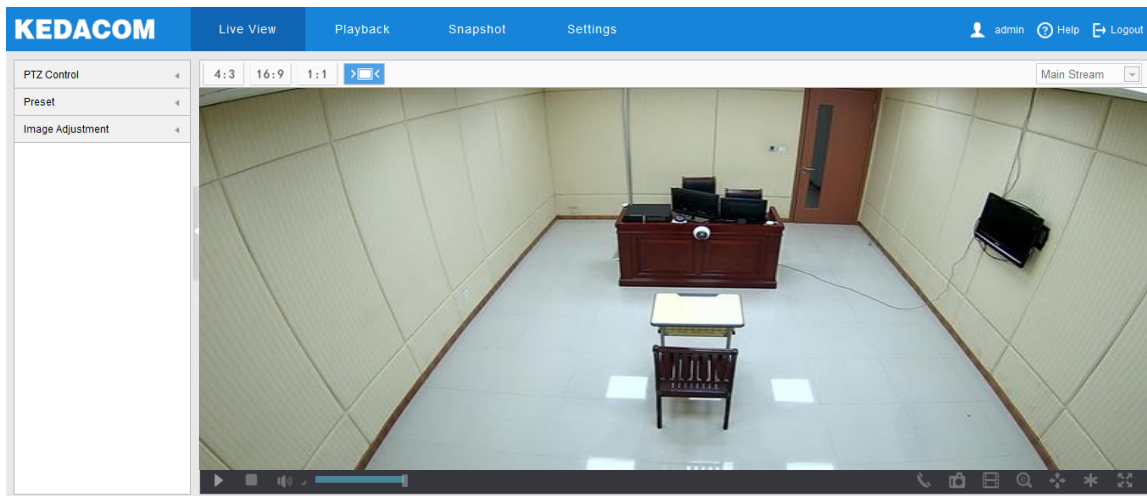
Picture 3-1 Live View

Click the hide button on the left to hide "PTZ Control", "Preset" and "Image Adjustment". Click again

to unfold them.

3.1.1   PTZ Control

Click PTZ Control to show the following interface:

Picture 3-2 PTZ Control

Icon	Note
	The 8 direction buttons control the pan and tilt rotation of the PTZ. Click them to adjust the direction of image; Click and the camera will patrol in pan; click again to stop.
	Step length adjustment button, the step length means the rotation speed of the image on each click of the direction button. Drag the slide bar to adjust. The larger the step length is, the faster the image will rotate.
	Buttons to adjust the camera's field of view. Field of view is the surveillance scope of the camera. The larger the field of view is, the broader the scope will be. Click to zoom in and the object is magnified; click to zoom out and object is narrowed.
	Buttons to adjust the sharpness of focused object. Click to focus nearby object clear and distant object will become misty; click to focus distant object and nearby object will become misty; click A to focus automatically.
	Buttons to adjust the size of aperture. Click to enlarge aperture and the image becomes bright; click to narrow aperture and the image becomes dark; click A to adjust aperture automatically.

⚫ / ⚫	*Light on/off button, click ⚫ to enable IR light detection. When the light condition turns dark, enable the IR light for lighting. Click ⚫ to disable IR light, and even the light condition turns dark, the IR light will not be on.

3.1.2   Preset

Click Preset to show the following interface：

Picture 3-3 Preset

After setting and saving presets, you can load, edit or delete the presets anytime. Alternatively, go to **Settings > Camera > PTZ > Preset** and configure. Please refer to chapter 5.5.3 for details.

💾 Save: Select a position and adjust lens direction and field of view to the requirements. Then select a preset from the list and click the icon to save the position as a preset.

▶ Load: Click this icon to load a preset and the PTZ camera will rotate to the preset and display the image according to the set parameters.

🗑 Delete: Click this icon to delete a preset.

3.1.3   Special Presets

Special presets are presets having been set with default PTZ functions and on the live view interface, user can load special presets to realize corresponding functions. The corresponding relationship between special presets and their functions are shown in the following table:

ⓘ Note: The special presets are non-editable.

Preset No.	Function	Preset No.	Function
33	Auto Flip	34	Return to Zero Position
35~38	Patrol Scanning 1~4	39	Day Mode
40	Night Mode	41~44	Mixed Scanning 1~4
45	One-Click Patrol	46	Auto Night Cut
92	Configure Manually Restricted Patrol	93	Confirm Manually Restricted Patrol
94	Remote Reboot	95	Main Menu
96	Stop Scanning	97	Random Scanning
98	Frame Scanning	99	Auto Scanning
100	Tilt Scanning	101	Panoramic Scanning
102~105	Patrol Scanning 5~8		

3.1.4 Image Adjustment

Click Image Adjustment to show the following interface:
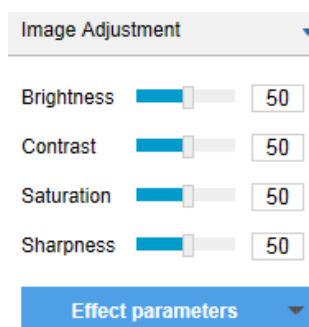
Picture 3-4 Image adjustment

Drag the slide bar to adjust the brightness, contrast, saturation and sharpness of the preview image, or configure the values beside the slide bar.

■ **Brightness:** Drag Brightness slide bar to adjust image brightness by request. The higher the value is, the brighter the image will be.

■ **Contrast:** Drag Contrast slide bar to adjust image contrast by request. The higher the value is, the clearer contrast between the dark and the bright of the image there will be.

■ **Saturation:** Drag Saturation slide bar to adjust image saturation by request. The higher the value is, the fresher the image will be.

■ **Sharpness:** Drag Sharpness slide bar to adjust image sharpness by request. The higher the value is, the more distinct the objects on the image will look.

■ **Effect Parameters:** Load preset image effects according to actual request.

Configure in **Settings > Camera > Image**. Please refer to chapter 5.1.11 for details.

3.1.5   Live View Setting

➢   Aspect Ratio

Icon	Function
4:3	It means the live view window displays image in standard screen ratio 4:3.
16:9	It means the live view window displays image in wide screen ratio of 16:9.
1:1	It means the live view window displays image in actual size 1:1.
>■<	It makes the image window adaptive to your PC resolution.

➢   Stream Selection

Menu	Function
Main Stream	Display HD images. The encoding format of live view, can be set in **Settings > Camera > Video > Encoding Format**.
Secondary Stream	Display SD images. The encoding format of live view, can be set in **Settings > Camera > Video > Encoding Format**.
Third Stream	Display SD images. The encoding format of live view, can be set in **Settings > Camera > Video > Encoding Format**.

➢   Live View Toolbar

Icon	Function
▶/❚❚	Play/ Pause, click this button to play or pause a viewing.
□	Stop, click this button to stop live view.
🔊 ◢	Volume, it is the local decoding volume. Click 🔊 to enable or disable voice; click ◢ to select audio channel.
▬▬▬▬▬	Drag the slide bar to adjust volume.
☎	Click this button to call and talk to camera. Click again to stop talking.
📷 ◢	Snapshot, click 📷 to capture current image; click ◢ to select camera

	snapshot or local snapshot. The former means the camera captures an image and sends it to local client; the latter means the web client captures an image and saves it locally.
🎞	Start/ Stop recording, click this button to start recording and click again to stop recording.
@	Click this icon to enable the e-PTZ function. Left click and drag toward lower right to draw an area. The pixels of this area will be amplified and will cover the whole screen. Left click and drag toward upper left to draw an area, then image will recover.
✛	PTZ, click the icon to zoom. Left click and drag toward lower right to draw an area. The pixels of this area will be amplified and will cover the whole screen. Left click and drag toward upper left to draw an area, then the image will recover. Double click a point in the image and the point will be centered.
⌇	Status, click this button to display the frame rate and bitrate of the live video, and click again to hide. This button is hidden by default. To enable this function, go to Settings > Local Setting > Play, select "**Display Status Info**" and click "Save".
✳	Video freeze, click this button and the image will freeze at the last frame before clicking. Click again to recover image. During video freeze, the PTZ function is disabled.
⛶	Full screen, click this button to display in full screen. Double click in full screen or press Esc to exit.

3.2 Playback

Click "**Playback**" to enter the interface of recording management. User can search, view and download video records in SD card.
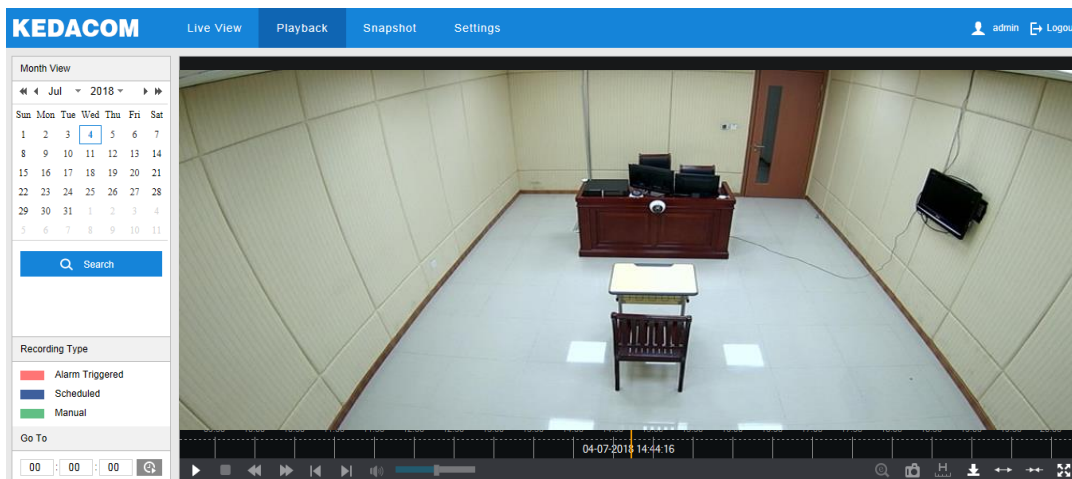
Picture 3-5 Playback

Operation steps:

1) Select recording duration from the calendar. If there is background color on a date, it means there is recording on that day.

2) Click "**Search**" and the video will be displayed directly in the timeline on the right (the highlight parts on the timeline).

Note: Red means alarm video recordings, blue meaning scheduled video recordings and green meaning manual video recordings.

♦ Alarm recording: Enable video recording when an alarm event occurs such as motion detection triggered video recording. Go to **Settings > Event > Intelligent Function > Motion Detection**, and select "Recording Linkage".

♦ Scheduled recording: Enable video recording automatically during certain durations. Configure on the interface of **Settings > Storage > Recording**.

♦ Manual recording: When the network is disconnected from VMS or NVR, video recording will be enabled by default.

3) Click the "Play" button on the interface to playback the video recording. During the playback, user can perform operations such as clipping, accelerating and downloading the video recording;

4) Put the cursor of the mouse on the timeline to show the time of the video. Double-click or press the left button of the mouse and drag the timeline to the left or right to skip playing. Alternatively, enter a time under "Go To" and click   .

Buttons on the playback interface:

Icon	Function
▶/❙❙	Play/ Pause, click the icon to play the video and click again to pause.
◼	Stop, click the icon to stop playing the video.

◀◀	Decelerate playing speed; click the icon to decelerate the speed of playing the video, one-click to decelerate by 1/2x and one more click by 1/4x, max by 1/8x.
▶▶	Accelerate playing speed; click the icon to accelerate the speed of playing the video, one-click to accelerate by one time, max 8 times.
◀▌	Previous video section, click the icon to play the previous video section and user can click it continuously. The default skipping time in a continuous video is 1 hour.
▌▶	Next video section, click the icon to play the next video section and user can click it continuously. The default skipping time in a continuous video is 1 hour.
🔊	Volume, click the button to enable sound and click again to disable sound. Drag the slide bar to adjust volume.
🔍	ePTZ, click this icon to enable the ePTZ function. Left click and drag toward lower right to draw an area. The pixels of this area will be amplified and will cover the whole screen. Left click and drag toward upper left to draw an area, then image will recover.
📷	Snapshot, click the icon to capture current playback image. Save path for playback snapshots can be set in Settings > Local Setting.
H	Clip, click this icon to start clipping current video and click again to stop clipping. Save path for clipped playback videos can be set in Settings > Local Setting.
⬇	Download, click the icon to pop up the download interface. On the popup interface, configure the start time, end time and select video type(s) to download. Click "**Search**" to display expected videos on the list below. Select the files to be downloaded and click "**Download**". User can view the download progress on the list. Save path for downloaded videos can be set in Settings > Local Setting.
↔/→	Zoom in/ Zoom out timeline, adjust the scale interval on the timeline. Click the icons to zoom in or zoom out the timeline. The scale intervals on the timeline include 5 min, 10 min, 30 min, 1 hour and 2 hours. Zooming of the timeline will not affect the playback of current video.
⛶	Full screen, click this button to display the video in full screen. Double-click on the screen or press Esc to exit.

3.3 Snapshot

Click **"Snapshot"** to enter the interface of snapshot management. User can view or download snapshots in SD card.
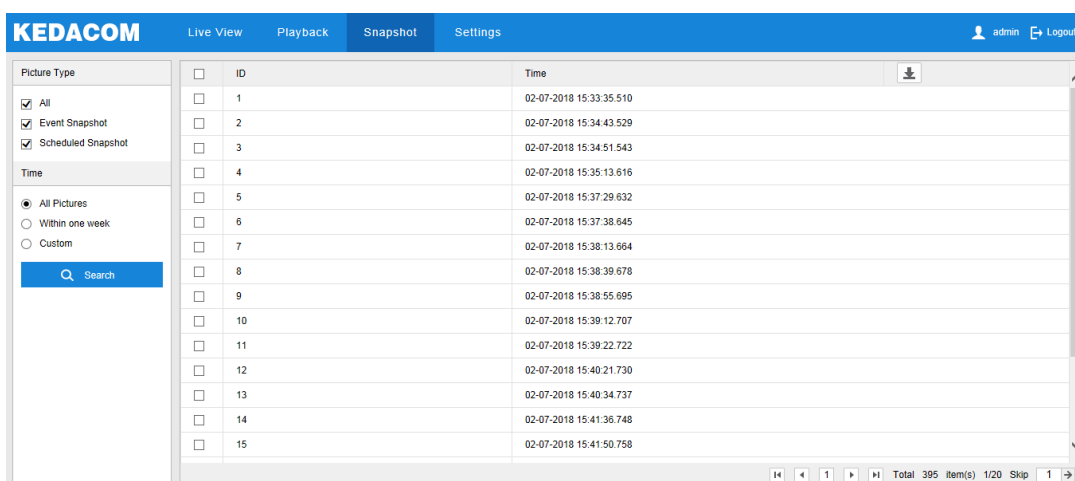
Picture 3-6 Snapshot

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Snapshot search and download steps:

1) Select required picture type(s) on the left checkboxes;

2) Select duration of snapshots from "Time". If selecting "Custom", specify the Start Time and End Time;

3) Click "**Search**" and the search result will show on the right list, from which you can see picture ID and snapshot time;

4) Select pictures and click "**Download**" icon to download the selected pictures. Snapshot save path can be set in **Settings > Local Setting > Camera Snapshot Save Path**.

3.4 Local Setting

On the interface of "**Settings > Local Setting**", user can configure parameters of video playing, the size and save path of video records and snapshots on local PC, as shown in the following picture.
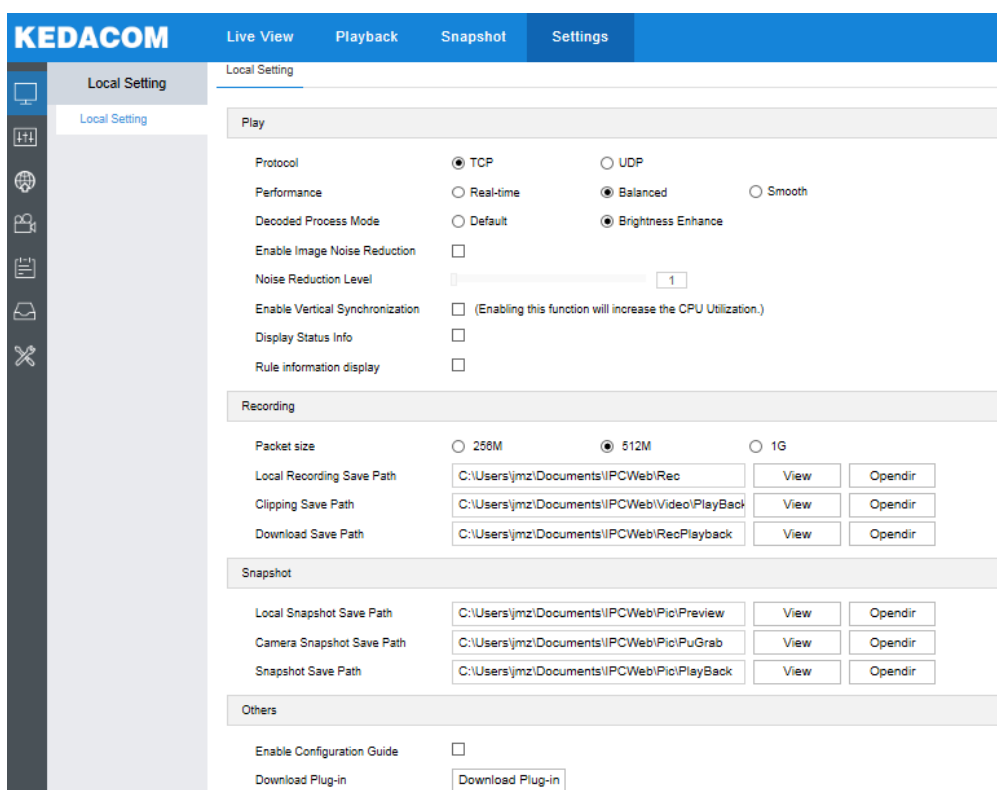
Picture 3-7 Local setting

➤ Play

■ Protocol: Select the stream output protocol, options including UDP and TCP, default being TCP; UDP is applicable when the request for image quality is not high and the network is unstable.

■ Performance: Select playing level from "Real-time", "Balanced" and "Smooth", default being "**Balanced**". "Balanced" mode gives consideration of both real-time playing and smooth playing; "real-time" ensures the shortest latency of video playing but affects the smoothness of the video; "smooth" ensures smooth playing of the video but affects the real-time performance of the video.

■ Decoded Process Mode: Select the process mode after decoding, options including "Default" and "Brightness Enhance".

■ Enable Image Noise Reduction: Image noise reduction is decoding noise reduction. Select this option to enable image noise reduction and it only changes the viewing effect of current user. After selecting it, drag the slide bar below to adjust the noise reduction level, including 4 levels. The higher the level is, the more obvious the noise reduction will be. Usually it's unnecessary to enable this option as it will cause streaking on moving objects.

■ Enable Vertical Synchronization: When there is image tearing, enable vertical synchronization to improve image quality. Usually it's unnecessary to enable this option as it will increase CPU utilization.

■ Display Status Info: After enabling this function, there will be a status icon on the menu bar at the bottom of the live view window. Click it to view frame rate, bitrate and packet loss rate.

■ Rule Information Display: If a device supports intelligent functions, when this option is selected, the settings on **Settings > Event > Intelligent Function** interfaces and on **Settings > Camera >Video > Video Info Overlay** interface will be shown in the intelligent zone on live view window such as the rule box and target box of guard line alarming, on which user can perform operations if necessary.

■ Hard Decode Preferred: After enabling this function, the video will be decoded by PC hardware first so as to save CPU consumption.

➢ Recording

■ Packet Size: Configure the size of single recording saved locally, options including 256M, 512M and 1G.

■ Local Recording Save Path: Configure the local save path for recordings recorded during live viewing. Click the button of "**View**" to customize the save path. Click "**Opendir**" to open the folder where the recordings are saved currently.

■ Clipping Save Path: Configure the local save path for video clippings clipped during playback. Click the button of "**View**" to customize the save path. Click "**Opendir**" to open the folder where the clippings are saved currently.

■ Download Save Path: Configure the local save path for recordings downloaded during playback. Click the button of "**View**" to customize the save path. Click "**Opendir**" to open the folder where the recordings are saved currently.

➢ Snapshot

■ Local Snapshot Save Path: Configure the local save path for snapshots captured during live viewing. Click the button of "**View**" to customize the save path. Click "**Opendir**" to open the folder where the recordings are saved currently.

■ Camera Snapshot Save Path: Configure the local save path for snapshots downloaded from "Snapshot" interface. Click the button of "**View**" to customize the save path. Click "**Opendir**" to open the folder where the recordings are saved currently.

ⓘNote:

◆ Camera Snapshot: Camera captures an image and sends it to local client. The image quality is good, but there is some time delay caused by network.

◆ Local Snapshot: Client captures an image and saves it locally. The image quality is ordinary, but there is no time delay.

■ Snapshot Save Path: Configure the local save path for snapshots captured during playback. Click the button of "**View**" to customize the save path. Click "**Opendir**" to open the folder where the recordings are saved currently.

➢ Others

■ Enable Configuration Guide: When it is selected, the configuration guide will pop up during login to lead the user to the Quick Settings interface. It is selected by default.

■ Download Plug-in: Click the button of "**Download Plug-in**" to download the video plug-in. When logging into the web client for the first time, download and install the plug-in to view the live video normally.

4.   Network

Go to **Settings > Network** to configure IP and Port, Access Protocol and Other Protocols.

4.1 IP and Port

4.1.1   LAN

Go to **Settings > Network > IP and Port > LAN** and configure network parameters, including IP address, subnet mask, default gateway and etc.

<div align="center">Picture 4-1 LAN</div>

➢ IP Address Configuration

If selecting "IPV4", the mode includes "Static" or "DHCP". When selecting static mode, you need to configure IP Address, Subnet Mask and Default Gateway manually; when selecting DHCP mode, the system obtains IP address automatically;

ⓘ Note: When filling the IPV4 IP address, click "Test" to confirm if the address is available.

If selecting "IPV6", the mode includes "Manual" and "Automatically obtain". Under the "Automatically obtain" mode, the IPV6 address is distributed from server, gateway or router. Under "Manual" mode, enter the IP address, subnet mask and default gateway according to actual conditions.

MTU: Maximum transmission unit, the maximum size of data packet transmitted through TCP/UDP protocol, ranging 500 ~ 1500, by default 1500.

ⓘ Note: The larger the MTU is, the higher the communication efficiency will be and the longer the transmission latency will be. Please enter according to actual conditions.

➤ DNS Server Setting

When camera accesses to external platform in form of domain name, user needs to configure the right DNS server. You can select "Automatically Obtain DNS" or enter the IP address behind "Preferred DNS Server" manually. If selecting the former, the camera will obtain the configuration parameters of DNS server from the gateway automatically.

After finishing configuration, click "Save".

4.1.2   Port

Go to **Settings > Network > IP and Port > Port** and configure the ports.

HTTP Port	80	1~65535
HTTPS Port	5544	1~65535
RTSP Port	554	1~65535

Save

Picture 4-2 Port

■ **HTTP Port:** Hypertext Transport Protocol Port. When login through browser, you need to add a port number behind camera IP address. For example, if HTTP port is edited as 83, when you login through browser, you need to input "http://camera IP address:83". The number is 80 by default, ranging 1 ~ 65535.

■ **HTTPS Port:** Hypertext Transport Protocol Secure Port based on SSL. When login through browser, you need to add a port number behind camera IP address. For example, if HTTPS port is edited as 5545, when you login through browser, you need to input "http://camera IP address:5545". The number is 5544 by default, ranging 1 ~ 65535.

■ **RTSP Port:** Real Time Streaming Protocol Port. When login through browser, you need to add a port number behind camera IP address. For example, if RTSP port is edited as 555, when you login through browser, you need to input "rtsp://camera IP address:555/id=0 (id=0 play main stream, id=1 play secondary stream)". RTSP port number is 554 by default, ranging 1 ~ 65535.

After finishing configuration, click "Save".

4.1.3   Multicast

Go to **Settings > Network > IP and Port > Multicast** and configure multicast parameters such as Stream Type, Media Type and Multicast Address.

(i) Note: Multicast is a method of data packet transmission. The source host can send the data packets to every host in the group by sending a datagram only. It also depends on the group relationship maintenance and selection by the router.

Stream Type	Main Stream	
Media Type	Video	
Multicast Address	0.0.0.0	
Multicast Port	61000	1~65535
Send Mode	Passive	
TTL	64	0~255

Save

Picture 4-3 Multicast

- Stream Type: the stream to be sent, the default being "Main Stream".

- Media Type: the media type of the stream to be sent, the default being "Video".

- Multicast Address: the address to send the stream, fill it according to the actual conditions.

- Multicast Port: the multicast port of the multicast address, the default being 61000, ranging 1 ~ 65535.

- Send Mode: options include "Passive" and "Initiative". Under "Initiative" mode, if the multicast addres is normal and valid, the default setting is to send stream to this multicast address; under "Passive" mode, only when receiving the request of multicast can the system send stream to the multicast address. If the address is set 0.0.0.0, the system will send stream to 239.2.2.2 by default.

- TTL: Time to Live, ranging 0~255.

(i) Note: TTL means the maximum number of network segments allowed to pass through IP data packet before it is discarded by the router. It is used to avoid endless loop of sending and receiving the data packet in the network so as to save network resources.

4.2 Access Protocol

Go to **Settings > Network > Access Protocol**, and access the camera to different platforms by configuring different access protocols.

4.2.1   VSIP

The web client supports accessing to back-end platform through VSIP protocol. Configuration steps:

1) Go to **Settings > Network > Access Protocol > VSIP**;

Picture 4-4 VSIP

2) Input VMS IP address or domain name in "VMS Address";

3) Input "VMS Port Number", 5510 by default;

4) Input "Camera UUID" and "Camera Password". Camera UUID is distributed by back-end platform and the password needs no edition as it requires no verification;

5) When the camera is in NAT and needs cross-segment access to VMS, select "Send NAT Probe Packets";

6) Select "Auto Networking" to enable auto networking. When NVR adds devices automatically, the camera will be added automatically;

7) Click "Save" to validate setting.

Note:

♦   Please refer to the User Manual for PMC Client for adding cameras to the VMS;

♦   VSIP protocol only supports registering to VMS of this company or other SDK-integrated back-end platforms.

4.2.2   ONVIF

The client supports adding device to the back-end platform through ONVIF protocol, which enables different network video products such as cameras and recorders from different manufacturers to communicate with each other. Configuration steps are as follows:

1) Go to **Settings > Network > Access Protocol > ONVIF**;

Picture 4-5 ONVIF

2) Select "Enable". Afterwards, the device will generate a server address (URL) automatically, default port number being 80;

3) Set authentication method for ONVIF login. When selecting "N/A", user can login freely; when selecting "WS-Username token", user needs to verify username and password before login;

4) Click "Save" to validate settings.

4.2.3   SIP

On SIP interface, add the camera to GB platform according to the requirements of GB/T28181. Configuration steps are as follows:

1) Go to **Settings > Network > Access Protocol > SIP;**

2) Select the "Registered VMS" (Registered VMS 1 or Registered VMS 2). The camera supports registered to 2 different VMS;

3) Select "Enable";

4) Enter Network Access ID, VMS ID, VMS Port Number, User Name/ Password and Video Encoding Channel ID, which are all provided by VMS;

5) Click "**Save**" to validate settings.

Picture 4-6 SIP

4.2.4   *VIID

The camera can upload the captured snapshots to VIID platform for future data analysis
and comparison. Configuration steps are as follows:

1)   Go to **Settings > Network > Access Protocol > VIID.**

VIID	VIID ▼	
Enable	☐	
Network Access ID	00000000000000000000	
VIID Address	0.0.0.0	
VIID Port	8080	1~65535
User Name	admin	
Password	•••••	
Heartbeat Time	60	30~300
Installation Address	1	
Regionalism	1	
What to Send	Picture Set ▼	(If this option is not supported, contents to be sent are subject to actual conditions.)
Transmit Pictures Preferentially	☐	
Auto Time Correction	☐	
Time Correction Interval	60	1~65535

Save

Picture 4-7 VIID

2)   Select "Enable" to enable VIID access.

3)   Enter VIID platform ID in "Network Access ID".

4)   Enter VIID platform IP address and port number in "VIID Address" and "VIID Port".

5)   Enter VIID platform user name and password in "User Name" and "Password".

6)   Heartbeat time is used to detect abnormal disconnection of TCP. Usually it sends simple communication packets periodically. If the system does not receive any response from the other side in the configured interval, it will judge the other side has been disconnected. For example, if the parameter is set 30, the system will send the packet once every 30 s.

7)   Enter installation address and regionalism if necessary for facilitating device positioning.

8)   Select "Transmit Pictures Preferentially" if necessary.

9)   Select "Auto Time Correction" if necessary.

10) Click "Save" to validate settings.

4.3 Other Protocol

4.3.1   DDNS

DDNS (Dynamic Domain Name Server) is to connect the camera to various servers so that user can login to the camera through servers. Apply domain names at different server websites and then visit the device by domain names directly even if the IP address has been modified. Configuration steps are as follows:

1)   Go to **Settings > Network > Other Protocols > DDNS;**

Picture 4-8 DDNS

2) Select "Enable";

3) Select DDNS Server type from the dropdown list, options including "ORAY", "DYNDS" and "NOIP". When selecting "DYNDS" or "NOIP", the domain name should be filled;

4) Enter username and password according to the selected DDNS server;

5) Click "Save" to validate setting.

4.3.2 FTP

File Transfer Protocol, the web client supports FTP protocol and user can upload the pictures of the camera to specific FTP server. Configuration steps are as follows:

1) Go to **Settings > Network > Other Protocols > FTP;**

Picture 4-9 FTP

2) Enter FTP server address and port;

3) Enter FTP server username and password, and you can select "Anonymous" to visit FTP server anonymously;

4) Configure directory structure, i.e. file save path. Select from the dropdown list by actual request, options including "Using root directory", "Using level one directory" and "Using level two directory";

- Level one directory options include "Use device name", "Use device IP" and "Custom".

- Level two directory options include "Use channel number" and "Custom".

5) Select pictures to be uploaded by request;

6) Click "**Test**" to verify if current FTP is available, and the result will show on the dialogue box;

7) Click "**Save**" to validate setting.

4.3.3   PPPoE

PPPoE (Point-to-Point Protocol over Ethernet) function is to access camera to the internet by dialing the account provided by ISP (Telecom, Unicom and CMCC). Configuration steps are as follows:

1) Go to **Settings > Network > Other Protocols > PPPoE;**

NIC	GLAN1
IP Version	IPV4
Enable	☐
DHCP	0.0.0.0
User Name	root
Password	••••

Save

Picture 4-10 PPPoE

2) Select IP version from the dropdown list;

3) Select "Enable" to enable PPPoE function;

4) Input user name and password provided by ISP;

5) Click "**Save**" to validate setting. It will show dynamic IP after dialing succeeds.

4.3.4   K-SNMP

K-SNMP means KEDACOM private network management protocol. Configuration steps are as follows:

1) Go to **Settings > Network > Other Protocols > K-SNMP;**

Network Management Server IP Address	0.0.0.0	
Network Management Server Port Number	1727	
Device Location	0	
CPU Utilization Threshold	100	1~100
Memory Utilization Threshold	100	1~100
Packet Loss Rate Threshold	100	1~100

Save

Picture 4-11 K-SNMP

2) Input "Network Management Server IP Address" and "Device Location";

3) Configure "CPU Utilization Threshold", "Memory Utilization Threshold" and "Packet Loss Rate Threshold". The default values are all 100, ranging 1 ~ 100;

4) Click "**Save**" to validate setting.

4.3.5   802.1X

802.1X is a port based network access control protocol. User can select "Protocol Type" manually to control if the device connected to the LAN can access to the LAN, which will support the requirements of network authentication, charging, safety and management well. Configuration steps are as follows:

1) Go to **Settings > Network > Other Protocols > 802.1X;**

Picture 4-12 802.1X

2) Select "Enable" to enable IEEE 802.1X protocol;

3) Select "Protocol Type" from the dropdown list and the default is "EAP-MD5".

4) Select version from the list of "EAPOL Version";

5) Input user name and password;

6) Click "Save" to validate setting.

4.3.6   QoS

QoS stands for Quality of Service, which can solve the problem of network delay and network congestion efficiently. Configuration steps are as follows:

Note: QoS function needs the support from network transmission device such as a router or a switch.

1) Go to **Settings > Network > Other Protocols > QoS**, and it is enabled by default and non-editable;

Picture 4-13 QoS

2) Configure "DSCP for Audio/Video" and "DSCP Management", ranging 0 ~ 63;

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Note: There are 64 DSCP priority levels (0-63), which identify different priority levels of packets, 0 with the lowest priority and 63 with the highest. Select and keep packets according to their priority levels. Different levels occupy different bandwidths with different packet loss rates during network congestion, thus the quality of service is ensured.

Attention: You need to configure the same value on the router.

3) Click "**Save**" to validate setting.

4.3.7   UPnP

By UPnP protocol, it is able to set up mapping relation between private network and the internet. Internal port is camera port while external port is router port. User can visit camera when accessing to the external port. Configuration steps are as follows:

Note: For a camera in an Ethernet, UPnP function can make gateway or router perform auto-port-mapping which maps the camera monitor port from gateway or router to the Ethernet device, thus the firewall module on the gateway or router starts to open this port to other PCs on the internet.

1) Go to **Settings > Network > Other Protocols > UPnP;**

| Enable | ☑ |
| Alias | IPC442-F205-N0014107BB77E |

Port Mapping

| Mapping Mode | Auto ▼ |

Mapping Port Table

Select	Protocol	IP	External Port Number	Status
☑	HTTP	0.0.0.0	0	Not Take Effect
☑	RTSP	0.0.0.0	0	Not Take Effect
☑	SDK	0.0.0.0	0	Not Take Effect

Save

Picture 4-14 UPnP

2) Select "Enable" to enable UPnP function;

3) Set alias, then user can search the alias directly from the network on PCs which have enabled UPnP protocol in the broadcast domain of the same Ethernet. Double-click the icon and the system will pop up a page automatically for user to visit current IP address;

4) Select "Auto" or "Manual" for Mapping Mode. When selecting "Manual", enter external port number manually;

5) Click "Save" to validate setting.

4.3.8   SNMP

SNMP means Simple Network Management Protocol. It is an application level protocol consisting of a set of network management standards that support a network

management system for monitoring devices connected to the network for any management concerns. Configuration steps are as follows:

1) Go to **Settings > Network > Other Protocols > SNMP;**

Picture 4-15 SNMP

2) Select "SNMP Version" to enable SNMP;

3) Enter "Read community" and "Write community" names;

4) Configure "Trap Address" and "Trap Port" (default being 162). The camera can send exception alarm to the management base;

5) Configure "Trap Group Name";

6) Enter "Camera ID", "Read-only User Name", "Authentication Method", "Authentication Password", "Encryption Mode" and "Encryption Password";

7) Enter "Read/Write User Name", "Authentication Method", "Authentication Password", "Encryption Mode" and "Encryption Password";

8) Click "Save" to validate settings.

4.3.9 SMTP

SMTP means Simple Message Transfer Protocol. When an alarm is triggered, the system will send email notification automatically through SMTP protocol. Configuration steps are as follows:

1) Go to **Settings > Network > Other Protocols > SMTP;**

Picture 4-16 SMTP

2) Input SMTP server IP address and port number, which ranges 1 ~ 65535, 25 by default;

3) Input "Sender" and "Sender Address"; optionally select "Server Authentication" and input correct user name and password;

4) Input email topic; optionally select "Attachment" and choose attached file format, then the email sent will attach the relative file;

5) Add receiver email address. Input the receiver's email address and click the symbol "+" behind it and the address will be saved to the list below. Select an address from the list and click the symbol "-" to remove the email address;

6) Click "Save" to validate setting.

Note: After finishing configuration and enabling email notification, it will send alarm emails normally.

5. Camera

Go to **Settings > Camera** to configure camera parameters, including Image, OSD, Video, Audio and PTZ

interfaces.

5.1 Image

Go to **Settings > Camera > Image**, and configure image adjustment, exposure, focus and etc.
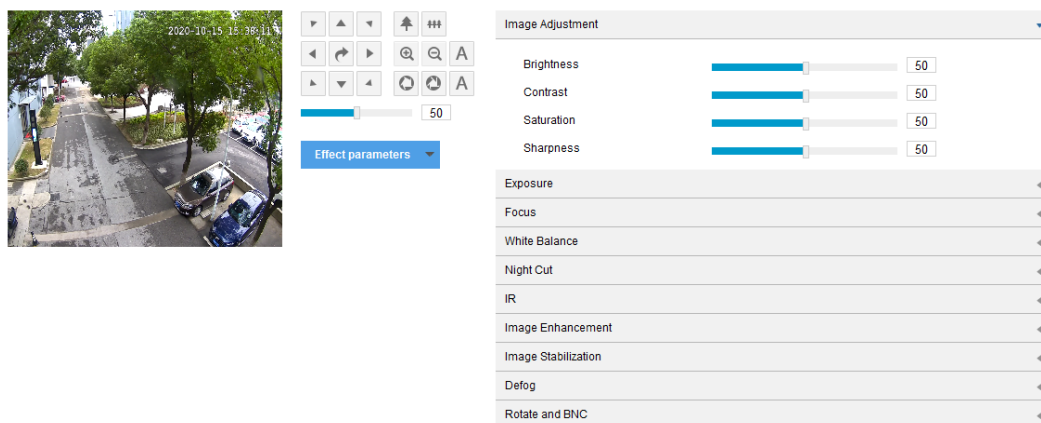
Picture 5-1 Image

5.1.1 Image Adjustment

The image adjustment in this part is the same as that on the Live View interface, which can be referred to in the chapter 3.1.3 Special Preset.

Special presets are presets having been set with default PTZ functions and on the live view interface, user can load special presets to realize corresponding functions. The corresponding relationship between special presets and their functions are shown in the following table:

 Note: The special presets are non-editable.

Preset No.	Function	Preset No.	Function
33	Auto Flip	34	Return to Zero Position
35~38	Patrol Scanning 1~4	39	Day Mode
40	Night Mode	41~44	Mixed Scanning 1~4
45	One-Click Patrol	46	Auto Night Cut
92	Configure Manually Restricted Patrol	93	Confirm Manually Restricted Patrol
94	Remote Reboot	95	Main Menu
96	Stop Scanning	97	Random Scanning
98	Frame Scanning	99	Auto Scanning

100	Tilt Scanning	101	Panoramic Scanning
102~105	Patrol Scanning 5~8		

5.1.2   Exposure
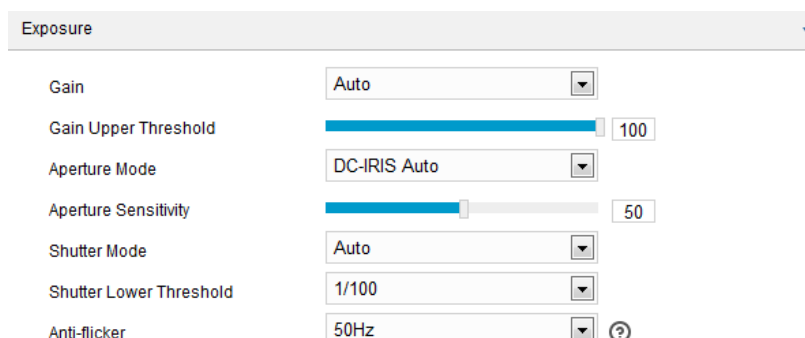
Picture 5-2 Exposure

- Gain: A higher gain will make the image look brighter. However, meanwhile there will be more noise points on the image. Auto mode is suggested.

  - When selecting "Auto" mode, drag the slide bar below to set Gain Upper Threshold. Then the value of gain can only be adjusted automatically within the range of 0 to the set upper threshold.

  - When selecting "Manual" mode, drag the slide bar below to set Gain Level and the value will remain.

- Aperture Mode: Aperture controls the light input through the lens. A large aperture allows more light input and the image looks bright. Options including "DC-IRIS Auto" and "DC-IRIS-Manual". Auto mode is suggested.

  - If selecting "DC-IRIS Auto", drag the slide bar of Aperture Size and Aperture Sensitivity. The aperture will adjust the size of itself automatically according to the environment. The higher the sensitivity is, the stronger the self-adjustment ability it will have.

  - If selecting "DC-IRIS Manual", drag the slide bar of Aperture Size to set the value and the aperture will remain as the set value.

- Shutter Mode: Camera shutter means the exposure shutter speed of image pixels. The smaller the value is, the darker the image will look. Options include "Auto" and "Manual". Suggest "Auto".

  - When selecting "Auto", you can select Shutter Lower Threshold from the dropdown list below. Then the shutter will be adjusted within the range from the lower threshold to the minimum shutter value automatically;

  - When selecting "Manual", you can select Shutter Level from the dropdown list below. Then the value of shutter will remain.

- Anti-flicker: When there are floating cross stripes on the image, select the correct anti-flicker frequency (50Hz or 60Hz or natural light) to solve the problem. The frequency should be in accordance with that of the nation's AC frequency and light frequency.

5.1.3 Focus

Focusing is the process of controlling a beam of light or particle flow and trying to gather it to a point. It is necessary to form images. Adjustment of focus mode will help obtaining optimum and clear target images.

Focus

Focus Mode	Single Focus ▼
Min Focus Distance	5m ▼
Focus Area	1/2 from bottom ▼
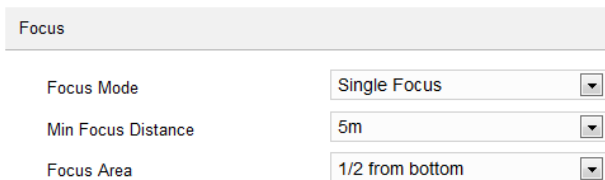
Picture 5-3 Focus

■ Focus Mode: Select a mode from the dropdown list by request. The default mode is "Single Focus".

  ● Manual: On the live view interface, click focus icons to perform manual focusing;

  ● Continuous Focus: The camera will trigger auto focus once there is moving object in the image.

  ● Single Focus: The camera will trigger auto focus once the PTZ changes.

■ Min Focus Distance: It is the minimum focus distance. When the distance is shorter than this, the lens will be unable to focus automatically and clearly. Select a value from the dropdown list.

■ Focus Area: Select focus area manually, options including "Center", "2/3 from bottom", "1/2 from bottom", "1/3 from bottom" and "Custom". If selecting "Custom", edit focus area manually.

5.1.4 White Balance

Under different light conditions, there will be color cast in different images. White balance adjustment can restore white objects to be white regardless of the color temperature of the light source.

White Balance   ▼

White Balance	Manual ▼
	Manual
White Balance R Gain	Auto 1	50
	Auto 2
White Balance B Gain	Lock White Balance	50
	Fluorescent Lamp
Night Cut	Incandescent Lamp	◄
	Warm Light
IR	Natural Light	◄
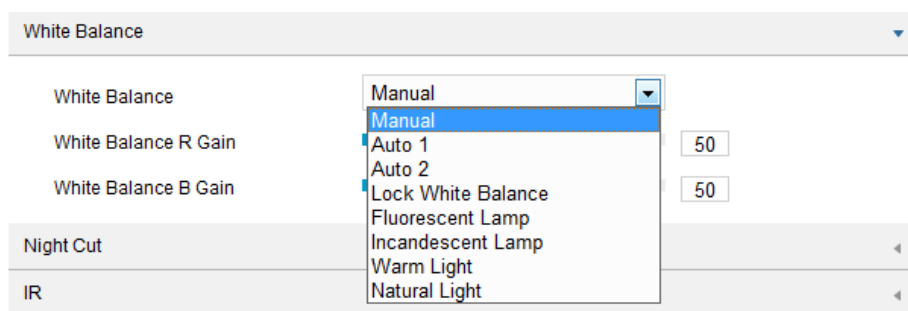
Picture 5-4 White Balance

Select an option from the dropdown list of white balance mode. Suggest "Auto".

■ Manual: support R Gain and B Gain adjustment.

■ Auto 2: have a larger white balance range than "Auto 1", though both are auto mode.

■ Lock White Balance: lock current color correction matrix.

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If the camera works under light which provides fixed light condition, select according to actual environment.

■ Fluorescent Lamp: for color temperature of 6500K.

■ Incandescent Lamp: for color temperature of 3000K.

■ Warm Light: for color temperature of 4000K.

■ Natural Light: for color temperature of 5500K.

5.1.5   Night Cut
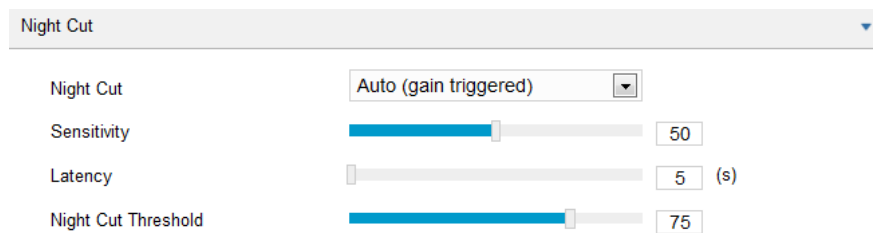
Picture 5-5 Night Cut

Select night cut mode from the dropdown list up to request. Explanation of different modes is as follows:

■ Day: Under "Day" mode, the image keeps colored all the time.

■ Night: Under "Night" mode, the image keeps black and white all the time.

■ Auto (gain triggered): The camera switches day/night mode automatically according to the gain values. When selecting this mode, configure Sensitivity, Latency and Night Cut Threshold according to actual request.

   ● Sensitivity: The switching sensitivity from night mode to day mode. The lower the sensitivity is the higher brightness in the condition the camera needs to switch to day mode; the higher the sensitivity is the lower brightness in the condition the camera needs.

   ● Latency: When the camera detects that the light condition is satisfactory to trigger night cut and the time lasts longer than the preset latency, the camera will switch night cut automatically. The range of it is 5 s to 120 s.

   ● Night Cut Threshold: The switch threshold from day mode to night mode. The lower the value is, the easier it is to switch from day mode to night mode.

■ Auto (photosensor triggered): IR camera supports this mode. The camera detects light strength with photo-conductive resistance and triggers night cut according to the returned value. When selecting this mode, configure Photosensitivity, Latency and Night Cut Threshold according to actual request.

   ● Photosensitivity: The switching sensitivity from night mode to day mode. The lower the sensitivity is the brighter environment the camera requires switching to day mode; the higher the sensitivity is the darker environment the camera requires.

● Latency: When it detects the light brightness in the environment meets the night cut condition and lasts for a period of time longer than the preset latency, the camera will trigger night cut automatically. The range of it is 5s ~ 120s.

● Night Cut Threshold: The threshold from day mode to night mode. The lower the value is, the easier it will trigger night cut.

■ Scheduled Day/Night: Under "Scheduled Day/Night" mode, click "Edit Time" and configure "Day Mode Start Time" and "Day Mode End Time" on the popup interface. The camera will switch day and night modes according to the scheduled durations.

Edit Time		
	Day Mode Start Time	Day Mode End Time
☑ Everyday	07:00:00	18:00:00
☑ Sunday	07:00:00	18:00:00
☑ Monday	07:00:00	18:00:00
☑ Tuesday	07:00:00	18:00:00
☑ Wednesday	07:00:00	18:00:00
☑ Thursday	07:00:00	18:00:00
☑ Friday	07:00:00	18:00:00
☑ Saturday	07:00:00	18:00:00

Confirm   Cancel
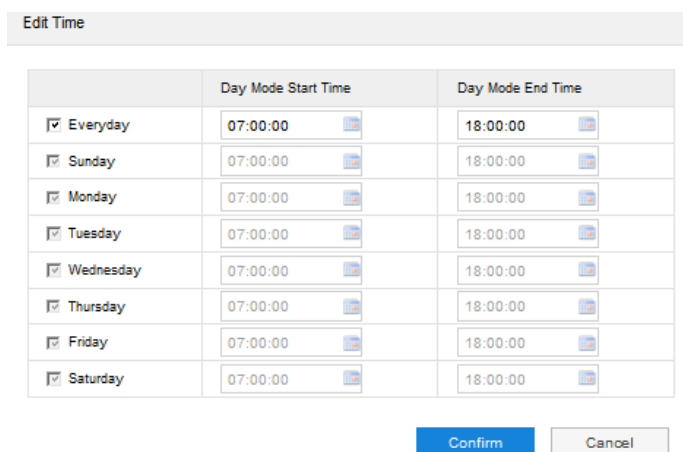
Picture 5-6 Edit time

5.1.6   *IR

Select "Disable" or "Auto" from the dropdown list of IR mode, and the default mode is "Auto". In low light situation, the camera will enable IR lamp automatically to get better surveillance images.

IR	▼
Mode	Auto ▾
	Disable
	Auto
Image Enhancement	◂
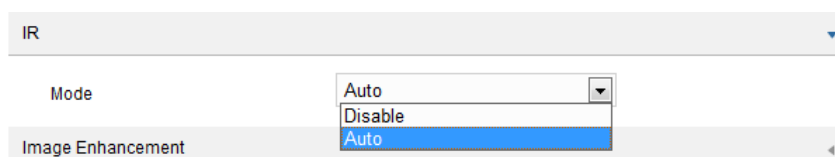
Picture 5-7 IR

5.1.7   Image Enhancement

When there are many noise points caused by environment and camera lens, noise reduction function can be enabled to correct images. Images processed by 2D noise reduction will look softer; while those processed by 3D noise reduction will have obviously fewer noise points and will look much clearer.
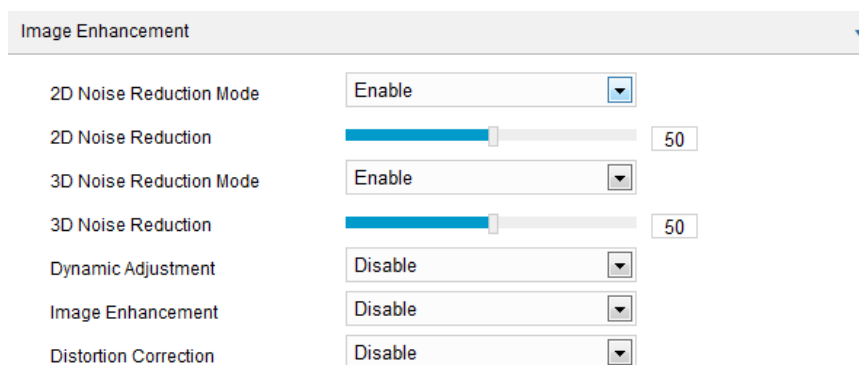
Picture 5-8 Image Enhancement

■ 2D Noise Reduction: You can select "Enable" or "Disable". After enabling, you can drag the slide bar to adjust 2D noise reduction level.

■ 3D Noise Reduction: You can select "Enable" or "Disable". After enabling, you can drag the slide bar to adjust 3D noise reduction level.

Note: When the 3D noise reduction level is too high, there will be hauling tail on moving objects. Usually, it's unnecessary to edit this parameter.

■ Dynamic Adjustment: When there is strong light background, which causes sharp contrast between the light and the dark part of the image, you can adjust and optimize images through dynamic adjustment. Select a mode from the dropdown list according to actual requirements.

● Disable: the default option is "Disable", which disables dynamic adjustment.

● Backlight compensation: Backlight compensation can provide optimal exposure of the object under rather strong background lighting. When selecting "Backlight Auto", drag the slide bar to adjust "Backlight Sensitivity". When selecting "Backlight Manual", drag the slide bar to adjust "Backlight Sensitivity" and select an option from the dropdown list of "Backlight Area". If selecting "Custom", click "**Edit**" below the image window and drag mouse to draw a backlight compensation area, and click "**Setting**" to finish. Click "Delete All" to delete backlight area setting.

● HLC: The HLC function can avoid unclear image caused by strong light interference. Select "HLC" from the drop-down list of Dynamic Adjustment and drag the slide bar of "HLC Level".

● SmartIR: SmartIR can adjust IR light illumination automatically. Select "SmartIR" and drag the slide bar of SmartIR sensitivity.

● WDR: WDR can provide optimal exposure when there is sharp contrast between the background and foreground light (the former being too bright while the latter being too dark). Select "WDR" from the drop-down list of Dynamic Adjustment and drag the slide bar of "WDR Sensitivity".

■ Image Enhancement: It is disabled by default. When there is fog in the scene, select "Defog" from the dropdown list to enable image enhancement and drag the slide bar to adjust the sensitivity.

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■ *Distortion Correction: It is disabled by default. When the radian of camera lens is too large and the image is distorted, enable this function to correct the image and reduce image distortion. Enabling this function will cause some loss of the image.

5.1.8   Image Stabilization

When the camera is installed in unstable environment, enable image stabilization to improve the stability of images.
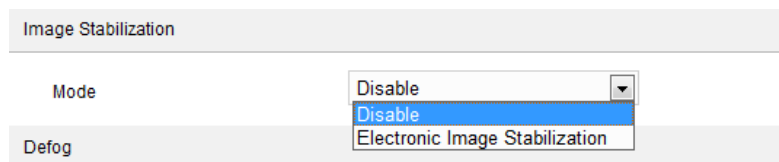
Picture 5-9 Image stabilization

On the dropdown list of Mode, select "Electronic Image Stabilization" or "Disable" and drag the slide bar of EIS Level.

Note: After enabling EIS, the field of view of the camera will be narrowed and the higher the EIS level is, the smaller the field of view will become.

5.1.9   *Defog

When there is fog on the lens of PTZ camera, enable defogging with fan to improve image resolution.
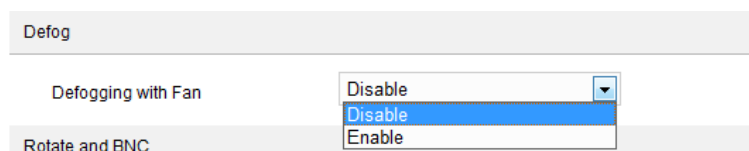
Picture 5-10 Defog

On the dropdown list of "Defogging with fan", select "Enable" or "Disable". The default is "Disable".

5.1.10   Rotate and BNC
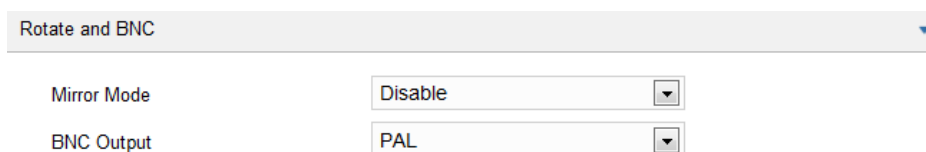
Picture 5-11 Rotate and BNC

Mirror Mode: When camera is installed upside-down, correct the image upright by this function without re-installing the camera.

- Disable: default option, image will not rotate.

- Left and Right: image will be reversed horizontally but the vertical is the same.

- Up and Down: image will be reversed vertically but the horizontal is the same.

- Center: image will rotate by 180°.

BNC Output: For cameras supporting BNC output, it can be enabled to output analog image directly to the local output port.

- PAL: Progressive scanning to output analog image, with high definition.

- NTSC: Interlaced scanning to output analog image, with low definition.

(i) Note: The BNC resolution of IPC422-F112-H can be the same as the main stream.

Rotate and BNC	▼
Mirror Mode	Disable ▼
BNC Output	Progressive (same as main st ▼

Picture 5-12 Rotate and BNC (SDI)

5.1.11   Effect Parameters

Effect parameters include "Auto Mode", "Standard Mode", "Indoor Mode" and "Save Parameters".
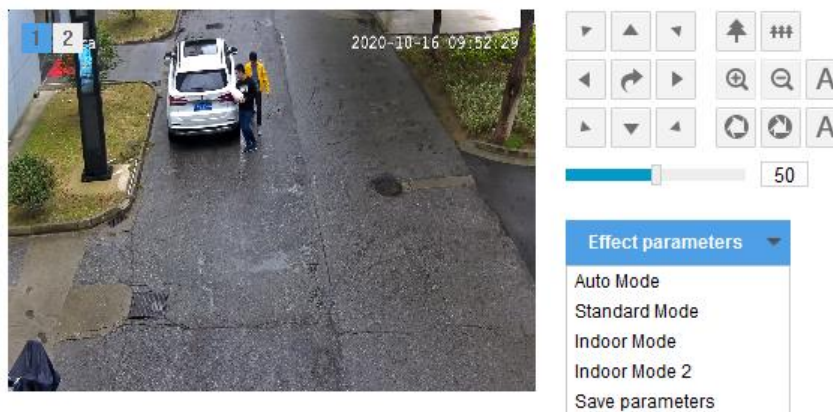
Picture 5-13 Effect parameters

- Auto Mode: Select "Auto Mode" and configure the switch conditions on the popup interface, options including "Night Cut" and "Time Schedule". If selecting the former, configure day scene mode and night scene mode; if selecting the latter, configure the start time and end time of switching.
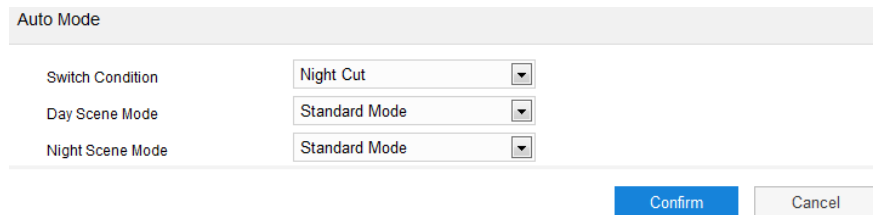
Picture 5-14 Auto mode

- Standard Mode: Select "Standard Mode" and all parameters will restore to defaults.

- Indoor Mode: Select "Indoor Mode" and the image brightness and noise reduction will become more suitable to indoor environment.

- Indoor Mode 2: Select "Indoor Mode 2" and the image effects are suitable for most courts.

- Save Parameters: Select "Save Parameters" and enter "Scene Name" on the popup interface and click "OK". Then all the configured parameters will be saved under the scene name and will show as a mode option on the dropdown list of "Effect Parameters" for future use.

5.2 OSD

On OSD interface, you can configure OSD text on the surveillance window, such as time, label, alarm, PTZ and video info. Configuration steps are as follows:

1) Go to **Settings > Camera > OSD**;
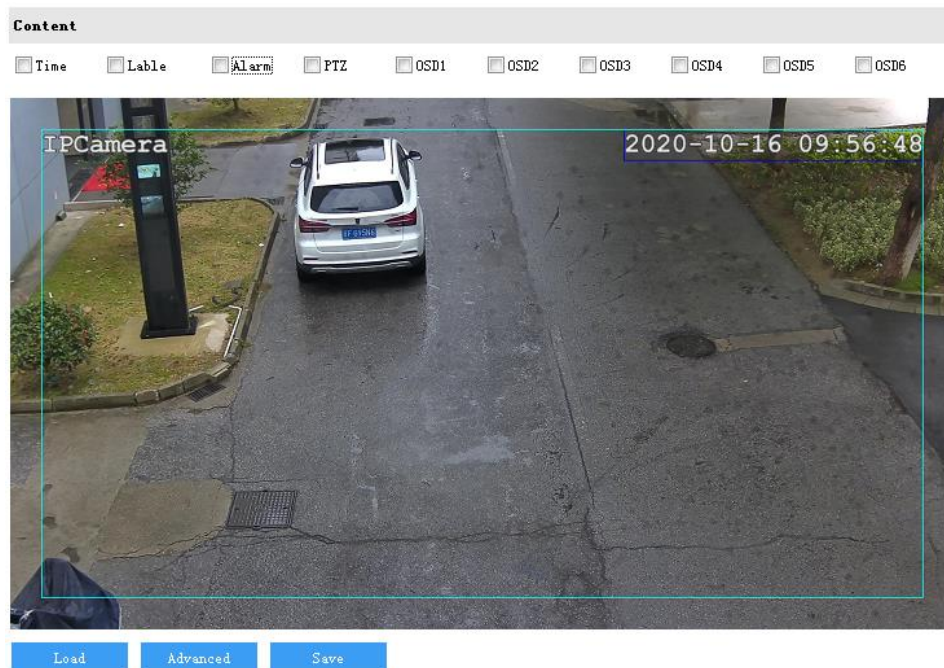
Picture 5-15 OSD

2) Select options in "Content" according to requirements and preview the effect in the window below, options including "Time", "Label", "Alarm", "PTZ" and "OSD";

3) Configure format. Click "**Advanced**" to set "Format", "Font" and "Margin";

■ In format, you can set "Time Format", "Display time in 2 lines" and "Alarm in front of tag";

■ In font, you can set font "Type", "Size" and "Color";

■ In margin, you can adjust the distance between OSD border and image border, i.e. the distance from the yellow frame to the image border;
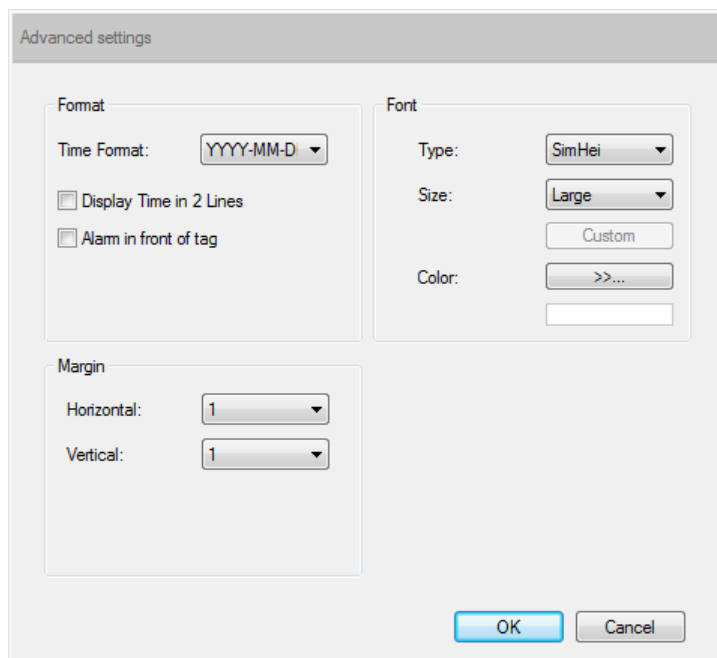
Picture 5-16 Advanced setting

4) Edit OSD texts: select the checkbox to show the content, double click the OSD textbox and input characters on the popup interface. In "Content Type", select "Static", "Magnification" or "Dynamic";

Attention: The default content type is static and cannot be edited. Go to Settings > System > System Maintenance > Advanced, and select "Enable" to enable dynamic plug-in to display option of "Magnification".

■ When selecting "Static", enter the characters in the textbox below and click "OK" to show it on the image.
■ When selecting "Magnification", click "OK" and the image will display in the set magnification times.
■ When selecting "Dynamic", click "OK" and the image will display according to the enabled dynamic plug-in in **Settings > System > Dynamic Plug-in**.
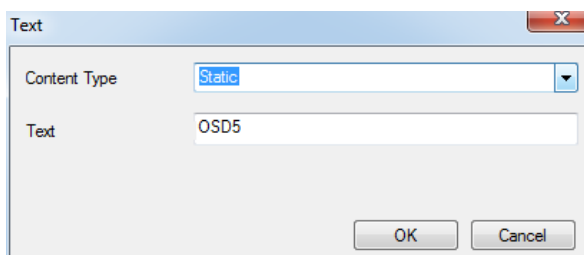
Picture 5-17 Text setting

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5) Edit OSD positions: select the OSD in the window with mouse and drag to change its position. The dark blue box and the light blue box (displayed in full screen by default) can move freely in the yellow box and they can even overlap with each other. The time, label and alarm OSDs in the dark blue box move with the box; while the custom OSDs and PTZ OSD in the light blue box move freely in the light blue box and the light blue box can be downsized within the yellow box up to actual request;

6) Load font: Click "**Load**" to configure the OSD font conveniently. Options include "Default Font", "Large Font", "Medium Font" and "Small Font";

7) Click "**Save**" to validate setting.

ⓘ Note:

♦ The OSD box size changes with the font size, and the sizes of dark blue and light blue boxes change with the sizes of OSD boxes.

♦ PTZ OSD displays the content according to the "PTZ Position Display Format" set in **Settings > Camera > PTZ > Basic Config**.

♦ A number, an English letter or a punctuation mark occupies one character.

♦ You can load "Default Font", "Large Font", "Medium Font" or "Small Font". Then edit content and position according to the above steps.

5.3 Video

Go to **Settings > Camera > Video** and configure Encoding Format, ROI, Privacy Mask and Video Info Overlay.

5.3.1 Encoding Format

Go to **Settings > Camera > Video > Encoding Format** and configure parameters of stream type, resolution, bit rate type and etc.

Encoding Format		
Multi-Stream	Dual-Stream	Effective after reboot
Stream Type	Main Stream	
Resolution	3840*2160	
Bit Rate Type	CBR	
Image Quality	Middle	
Frame Rate	25	1~25 Upper Limit
Average Bit Rate	6144	64~32768 (Kbps)
Encoding Format	H.265	
Encoding Complexity	Middle	
Max Key Frame Interval	25	1~250
	Save	

Picture 5-18 Encoding Format

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- Multi-Stream: It means the same video source is encoded in several streams with different resolutions. This parameter can be configured according to actual request and the setting will be validated after reboot.

- Stream Type: Configure the resolution and bitrate of main or secondary stream.

- Resolution: According to the requirements of image quality by user, select resolution from the dropdown list.

- Bit Rate Type: Options include CBR and VBR.

- Image Quality: When selecting "VBR", select image quality level from the dropdown list according to actual requirements.

- Frame Rate: Set the encoding frames per second.

- Average Bit Rate: Set the average bit rate for CBR.

- Encoding Format: Select according to actual requirements, options including H.264, H.265 and MJPEG.

- Encoding Complexity: Select encoding complexity level according to actual request. Under the same bitrate, the higher the complexity level is, the better quality the image will have and the more bandwidth it will require. When the encoding format is MJPEG, the encoding complexity is certain to be low while when the encoding format is H.265, the encoding complexity is certain to be middle.

- Max Key Frame Interval: Configure the interval frames between two key frames, ranging 1 ~ 250. Suggest applying the default value 75.

- Smart Encoding: Enabling "Smart Encoding" will reduce the frame rate. When enabling Smart Encoding under low bit rate, the image quality will be improved. Please select according to actual request. It takes effect after reboot.

- Stream Smoothing Factor: Drag the slide bar or enter a number to set the value. The smaller the value is, the clearer the image will be; the larger the value is, the smoother the stream transmission will be.

Note:

♦ When the bit rate type is "VBR", the parameter "Average Bit Rate" will turn to "Bit Rate Upper Limit", whose range is 32 ~ 16384 (Kbps) and the default being 4096.

♦ The parameter of Image Quality is enabled only when "VBR" is selected and it will remain "Middle" when "CBR" is selected.

♦ Different encoding formats have different levels of encoding complexity.

♦ The higher the Encoding Complexity is, the more the stream will be compressed. In this way it will relieve bandwidth restriction somehow, but meanwhile it will also occupy the CPU resource of more devices. Suggest using the default level.

♦ After enabling Smart Encoding, some functions will be disabled, such as ROI and Max Key Frame Interval.

5.3.2   ROI

ROI means Region of Interest. The camera only encodes specific area of interest to improve image quality of this area while at the cost of decreasing the image quality outside this area. It not only ensures the image quality of ROI area, but also reduces the bit rate. Configuration steps are as follows:

1)   Go to **Settings > Camera > Video > ROI**;
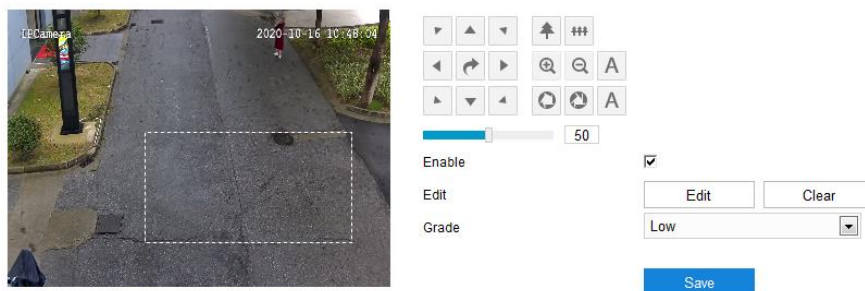
Picture 5-19 ROI

2)   Adjust PTZ control if necessary to select the scene;

3)   Select "Enable" to enable ROI function;

4)   Click "**Edit**" and drag an area from the left window as the clipping area. Select encoding grade from the dropdown list. Click "**Clear**" to clear edition and reset area;

5)   Click "**Save**" to validate setting.

5.3.3   Privacy Mask

Privacy mask is to mask sensitive and private part of the image so as to keep sensitive information private. Configuration steps are as follows:

1)   Go to **Settings > Camera > Video > Privacy Mask**;
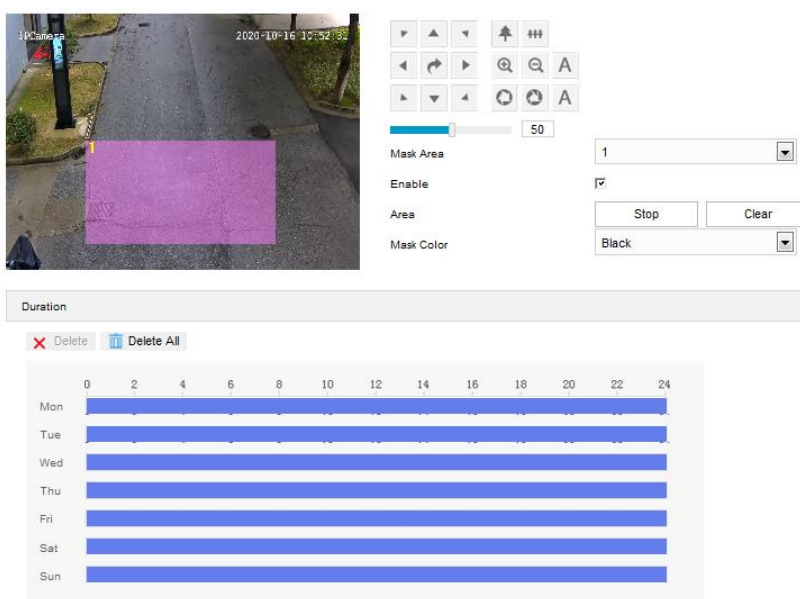
Picture 5-20 Privacy mask

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2) Adjust PTZ control if necessary to select the scene;

3) Select "Mask Area" from the dropdown list;

4) Select "Enable" to enable privacy mask;

5) Click "**Edit**", and the image is divided into 16 columns and 12 rows of small squares. Click any square and drag an area toward lower right, then this area is the privacy mask detection area. Click "**Clear**" to reset the area;

6) Select a color from the dropdown list of "Mask Color";

7) Configure arming duration. The default arming duration is 24 hours in blue bars, or you can customize the durations;

Picture 5-21 Arming durations

■ Set duration: Select a day of the week and click the white bar behind it and drag mouse to make a blue bar as the task duration of the day. Select the duration and there will be a window showing the start time and end time of the duration, and you can edit the time duration more accurate. Click "**Save**" to validate setting. There can be multiple durations (max 10) on one day and different durations cannot overlap with each other.

■ Copy: Click the copy icon behind the duration to copy the duration setting of that day to another day or many other days.

■ Delete: Click "**Delete All**" on the top of the duration bars to clear all durations. Click one and click "**Delete**" on the popup window or on the top of the duration bars to remove this duration.

8) Click "**Save**" to validate the settings.

5.3.4   Video Info Overlay

Go to **Settings > Camera > Video > Video Info Overlay**, and composite basic intelligent feature and digital watermarking into the surveillance image.

Picture 5-22 Video info overlay

- **GPS:** Select it to show camera coordinates in the image.

- **Lens Direction:** Select it to display lens direction on live view interface.

- **Basic Intelligent Feature:** After configuring intelligent functions (on the interface of **Settings > Event > Intelligent Function**), select this option and select "Rule Information Display" in **Settings > Local Setting**, then the intelligent area(s) will be displayed in the live view window.

- **Digital Watermarking:** Select it to show digital watermarking in the videos. It is used to protect the video recordings and avoid tampering.

Click "Save" to validate settings.

5.4 Audio

Go to **Settings > Camera > Audio**, and configure audio encoding and audio decoding.

5.4.1   Audio Encoding

Go to **Settings > Camera > Audio > Audio Encoding**, and configure audio source and audio encoding.

Picture 5-23 Audio encoding

➢   *Audio Source Setting

- Audio Source Type: the audio input method, options including "LINE-IN" and "MIC-IN". You can select according to actual requests. "LINE-IN" means interphone input while "MIC-IN" means microphone input.

➢   Audio Encoding Setting

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- Sampling Rate: It means the sampling times to sound signals by the audio-recording device in 1 second. The higher the sampling rate is, the more real and natural the sound reproduction will be.

- Encoding Volume: Drag the slide bar to adjust audio encoding volume, i.e. audio input volume. The larger the value is, the higher the voice will be.

- Encoding Format: Select audio encoding format from the dropdown list, by default G.711 a (PCMA).

- Echo Cancellation: Select the checkbox to cancel noises in the input audio and to improve the audio quality.

ⓘ Note: When the encoding format is AACLC, you can configure the sampling rate; under other encoding formats, the sampling rate is certain.

Click "Save" to validate settings.

5.4.2   Audio Decoding

Go to **Settings > Camera > Audio > Audio Decoding**, and configure audio decoding.
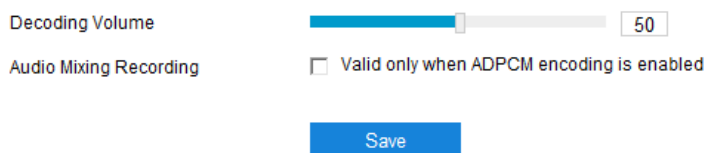
Picture 5-24 Audio decoding

- Decoding Volume: i.e. audio output volume, drag the slide bar to adjust audio decoding volume.

- Audio Mixing Recording: Select the checkbox to enable audio mixing recording function, which is valid only when "ADPCM" is selected.

ⓘ Note: When "Audio Mixing Recording" is disabled, there will be only heard sound without calling sound during video recording; when it is enabled, there will be both heard and calling sound during video recording.

Click "Save" to validate settings.

5.5 PTZ

The camera is equipped with digital PTZ, which is suitable for wide range surveillance and enlarges the field of view. User can control PTZ via web client. In the PTZ control part of the **Live View** interface, user can control PTZ manually, as introduced in chapter 3.1.1.

ⓘ Note: The PTZ holder will stop rotation when reaching its pan limits. Please strictly follow the *Quick Start Guide* during installation so that the functions of preset loading and path patrol will not be affected.

5.5.1   Basic Configuration

Go to **Settings > Camera > PTZ > Basic Config**, and configure basic parameters of the PTZ, as shown in the following picture.

Picture 5-25 Basic Configuration

➢   Basic Config

■   PT Version: Display the version of current PT.

■   Patrol Speed Level: Configure speed level during patrol. The larger the value is, the faster it patrols, vice versa.

■   Preset Point Speed Level: The speed level of loading presets. The larger the value is, the faster it turns to the preset, vice versa.

■   Zoom Speed Level: Select zoom speed level, i.e. the speed level during zooming in or out. Options include "low", "middle" and "high".

■   Enable Auto PT Speed: Select the checkbox to enable. Under different fields of view, the PT will rotate by the same linear speed. When it is zoomed out, the PT will reduce its linear speed; zoomed in, increase.

■   Preset Video Freeze: Select the checkbox to enable. When the PT rotates from one preset to another, the video freezes at the image of the first preset and switches to that of the second preset when arriving at it without showing the images during the move.

■   PTZ Position Display Format: Options include "According to azimuth" and "Display According to PT position". Go to **Settings > Camera > OSD** and select PTZ; then select "According to azimuth" on this interface, and the PT position will show on the live view interface in azimuth format; when selecting "Display

According to PT position", the PT position will show on the live view interface in PT position format.

■ Tilt Angle Range: Configure the PT scanning range in tilt, i.e. the PT rotation angle range in tilt.

Note: The tilt angle range of different PTZ cameras differs. Please subject to actual devices.

♦ The default tilt angle range of IPC422-F112-N/NP is 15° ~ 90°.

♦ The default tilt angle range of IPC422-F105-N/NP is 19° ~ 90°.

♦ The default tilt angle range of IPC442-F205-N/NP is 20° ~ 90°.

♦ The default tilt angle range of IPC422-F112-H is 8° ~ 90°.

➢ Last Spot Recovery

Configure the rotation position of the PTZ after recovering from power-off. Configuration steps are as follows:

1) Select the chechbox to enable "Last Spot Recovery";

2) Select recovery mode. Options include "Last Spot Recovery" and "Load Preset When Power On";

■ If selecting "Last Spot Recovery", the PT will load to the last position before powering off automatically when it is powered again. Configure recovery time;

■ If selecting "Load Preset When Power On", the PT will load to the selected preset directly. Configure preset No.

Note:

♦ When the time for which the PT stops at a position before powering off exceeds the set Recovery Time, it will return to this position automatically after powering on again. If the time is shorter than the set Recovery Time, the PT will return to the previous position of the one when it is powered off.

♦ When selecting "Load Preset When Power On" as the recovery mode, "Recovery Time" will change into "Preset". Select a preset number from the dropdown list for the PT to load to when it recovers from power-off.

Click "Save" to validate settings.

5.5.2   Guard Tour

Guard Tour means the dome camera can perform preset operations if not receiving any command in a specific period of time (i.e. the Waiting Time on the interface). Configuration steps are as follows:

1) Go to **Settings > Camera > PTZ > Guard Tour**;

Enable	☑
Guard Tour	Load Preset ▼
Waiting Time	1 (min) 1~255
Preset No.	1 ▼

Save

Picture 5-26 Guard Tour

2) Select "**Enable**";

3) Select a mode from the dropdown list of "Guard Tour";

- Pan Mode: Camera rotates in pan direction from 0° to 360° automatically. The Waiting Time is configurable.

- Tilt Mode: Camera rotates in tilt direction from 0° to 90° automatically. The Waiting Time is configurable.

- Load Preset: After user stops operating on the camera for a certain period of time, the camera will return to a preset position automatically. The Waiting Time and Preset No. are configurable. Please refer to the chapter of preset.

- Path Mode: After user stops operating on the camera for a certain period of time, camera will enable Path Mode automatically. The Waiting Time is configurable. Please refer to the chapter of patrol.

- Frame Mode: In every key frame interval, camera rotates automatically in pan direction by 90°. The Waiting Time is configurable.

- Random Mode: Camera patrols automatically and randomly in pan direction. The Waiting Time is configurable.

- Panoramic Mode: Camera patrols panoramically from 0° to 90° in tilt direction and from 0° to 360° in pan direction. The Waiting Time is configurable.

- Mixed Mode: Camera patrols automatically by the recorded patrol paths in a certain period of time. The waiting time is configurable and the patrol path is selectable. Please refer to the part of mixed mode for setting steps.

4) Set "Waiting Time" according to the mode.

5) Click "**Save**" to validate setting.

5.5.3   Preset Position

Preset position includes information of PT position and lens focal length. It is set by user and can be loaded, edited or deleted anytime. The maximum number of presets allowed to be set is 512. Configuration steps are as follows:

1) Go to **Settings > Camera > PTZ > Preset**;
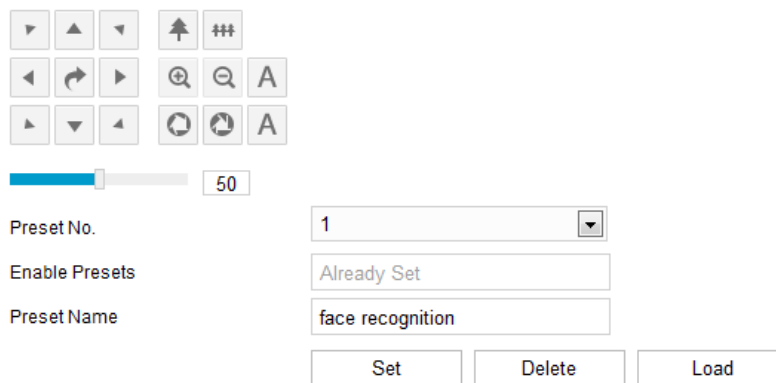
Picture 5-27 Preset

2) Adjust PTZ to expected position, and configure the focal length, aperture and etc.;

3) Select **Preset No.** from the drop-down list and input **Preset Name;**

4) Click **"Set"** to finish preset setting. User can set different preset positions;

5) Click "**Load**" to load the expected preset;

6) Click "**Delete**" to remove a preset;

7) In the preset part of the **Live View** interface, user can also select a preset

 to load, save or delete. Details can be referred to in chapter 3.1.2.

5.5.4   Restricted Patrol

Restricted Patrol includes "Manual" and "Auto" modes. After enabling this function, user can define borders of PTZ patrol. Configuration steps are as follows:

1) Go to **Settings > Camera > PTZ > Restricted Patrol**;
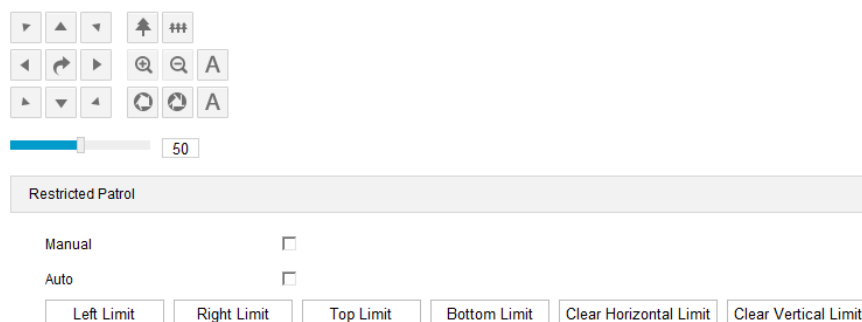
Picture 5-28 Restricted Patrol

2) Select "Manual" or "Auto", adjust the PTZ to a proper position and set it as the Left Limit. Adjust the PTZ again to another position and set it as the Right Limit**.**

3) The setting takes effect immediately. To clear limits, set one position both as the left and the right limit, then the limits will be cleared.

4) When enabling manual mode, user can control the PTZ manually and rotate it only between the left and the right limits; when enabling auto mode, the PTZ will patrol horizontally only between the left and the right limits.

5.5.5   Path Mode

Path Mode means the camera patrols around all the valid presets on a path. After enabling this function, click any button on PTZ control to disable it. Currently, the camera supports 8 paths and the maximum allowed number of patrol spots on each path is 32 which can be selected from the 512 presets. Configuration steps are as follows:
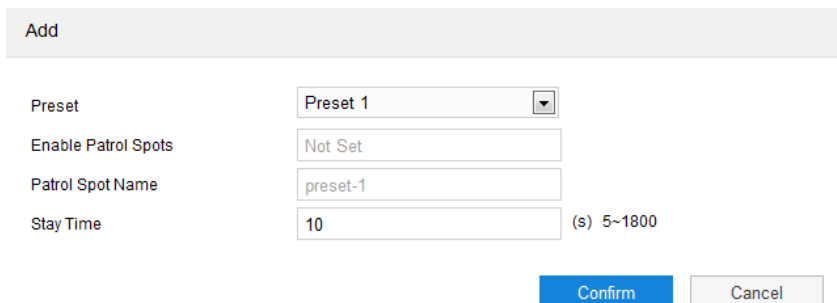
1)   Go to **Settings > Camera > PTZ > Path Mode.**
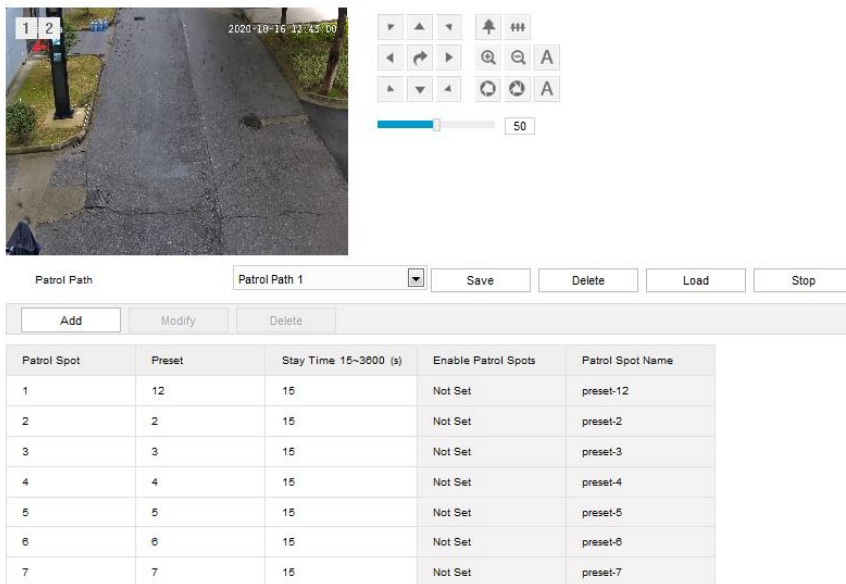
Picture 5-29 Path mode

2)   Select path from the dropdown list of **Patrol Path.**

3)   Click "**Add**". Set Patrol Spots and Stay Time in the popup interface. The maximum allowed number of patrol spots on each path is 32 which can be selected from the 512 presets.
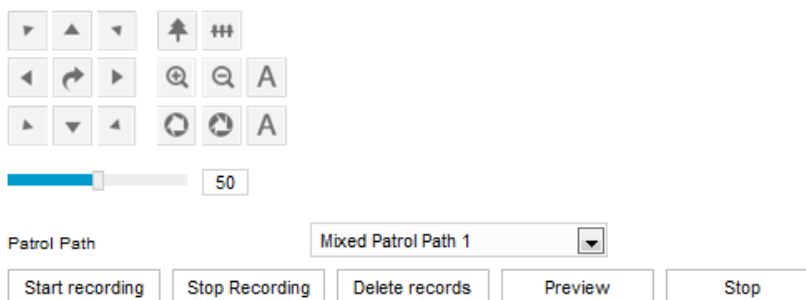

Picture 5-30 Add patrol point

4)   Click "**Save**".

5)   Click "**Delete**", "**Load**" or "**Stop**" to perform respective operations if necessary.

5.5.6   Mixed Mode

Mixed Mode means camera patrols automatically by the recorded PTZ patrol paths in a period of time. At most 4 paths can be configured. Configuration steps are as follows:

1) Go to **Settings > Camera > PTZ > Mixed Mode;**

Picture 5-31 Mixed mode

2) Select mixed patrol path from the dropdown list of "Patrol Path";

3) Click "**Start Recording**" and adjust PTZ to record PTZ rotation speed, increment and zooming operations. Click "**Stop Recording**" to stop recording. The maximum recording time of each path is 10 minutes;

4) Click "**Preview**" to browse all PTZ operations;

5) Click "**Stop**" to stop browsing;

6) Select a path and click "**Delete Records**" to delete all recorded PTZ operations under this path.

5.5.7   Scheduled Task

Enable scheduled task and set durations and tasks. Camera will complete the tasks within the set durations. Configuration steps are as follows:
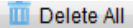
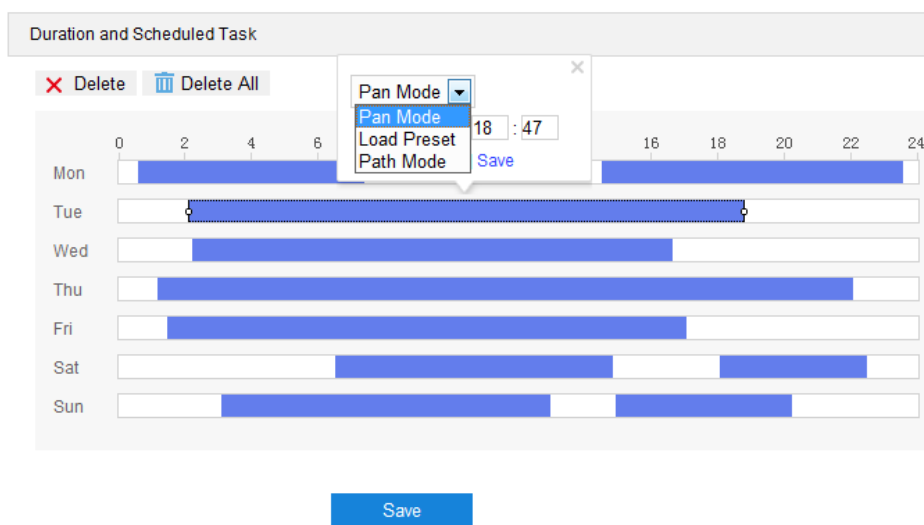1) Go to **Settings > Camera > PTZ > Scheduled Task;**
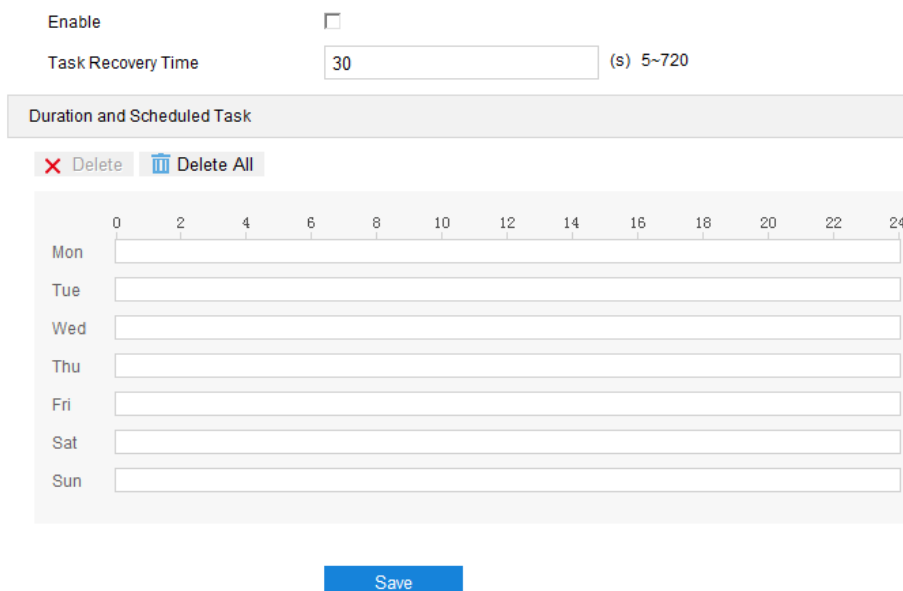
Picture 5-32 Scheduled Task

2) Select "Enable" to enable scheduled task;

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3) Enter "Task Recovery Time" (5~720s). Take 5s as example, if user performs other PTZ operations during the task, camera will recover the scheduled task in 5 seconds.

4) Configure scheduled tasks and arming durations: the default task durations are 24 hours displaying in blue bar, or user can define durations up to request. It allows maximum 10 durations on one day.

    a) Click any point on the timeline on any day and drag mouse rightward to make a blue bar as task duration on that day;

    b) Click the duration and a window will pop up for editing the scheduled task. Select the scheduled task from the dropdown list. Or you can edit the start time and end time otherwise. Click "Save" to finish configuration of scheduled task;

    c) Click any free point on the timeline and configure the next duration. Different durations cannot overlap;

    d) Click the icon [icon] behind the timeline and the copy window will pop up. Select several weekdays or "**Select All**" and click "**Copy**" to copy the scheduled task of the duration to the selected weekdays.

    e) Click "Delete" on the window of editing scheduled task or click [X Delete] below "Duration and Scheduled Task" to cancel the scheduled task. Click [Delete All] below "Duration and Scheduled Task" to cancel all the scheduled tasks in one week.
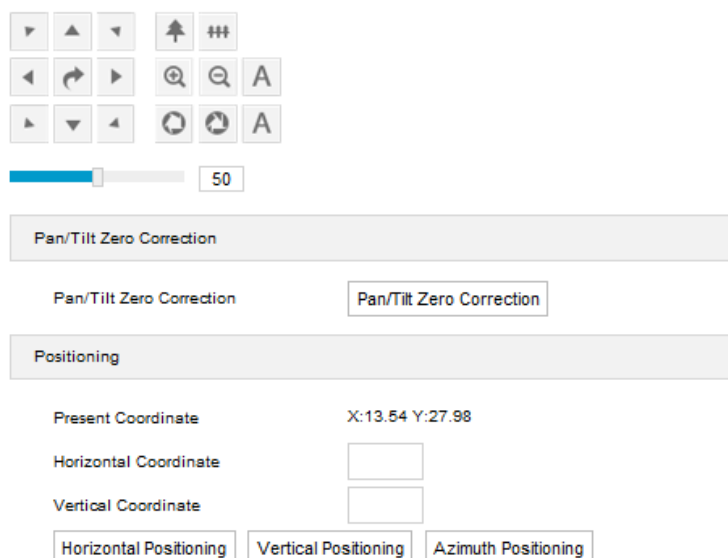

Picture 5-33 Edit scheduled task

5) Click "Save" to validate settings.

5.5.8   Positioning

Go to **Settings > Camera > PTZ > Positioning**, and configure camera positioning. Positioning means to configure the location of the camera, including its pan/tilt zero correction and positioning.

Picture 5-34 Positioning

Configuration steps are as follows:

➢ Zero Correction

When the PTZ position fails to synchronize with the positioning or user wants it to return to the zero position, zero correction can be performed. After zero correction, camera will return to the mechanical zero position automatically. Click "Pan/Tilt Zero Correction" to perform.

➢ Positioning

■ Present Coordinates: show the coordinates of current PTZ position.

■ Horizontal Coordinate: fill the target horizontal coordinate and click "Horizontal Positioning", then the PTZ will rotate to the target pan position.

■ Vertical Coordinate: fill the target vertical coordinate and click "Vertical Positioning", then the PTZ will rotate to the target tilt position.

■ Azimuth Positioning: it means the PTZ camera faces to the due north. Rotate the camera to a specific position and click "Azimuth Positioning". Save this position and set it as the due north direction.

Note: After azimuth positioning is set, the live direction of the camera can display on live view interface. Go to **Settings > Camera > OSD**, and select "PTZ".

6.   Event

6.1 Intelligent Function

Go to **Settings > Event > Intelligent Function**, and configure the intelligent functions of the camera.

The intelligent functions of a camera include motion detection, video blocked, guard line and etc. In this chapter, we will introduce the configuration steps of each event one by one.

6.1.1   Motion Detection

Motion detection is to detect if there is any moving object in specific areas during certain periods of time. Once the moving object exceeds the defined sensitivity, the system will start video recording or trigger an alarm according to the linkage method set by user. Configuration steps are as follows:

1)   Go to **Settings > Event > Intelligent Function > Motion Detection;**
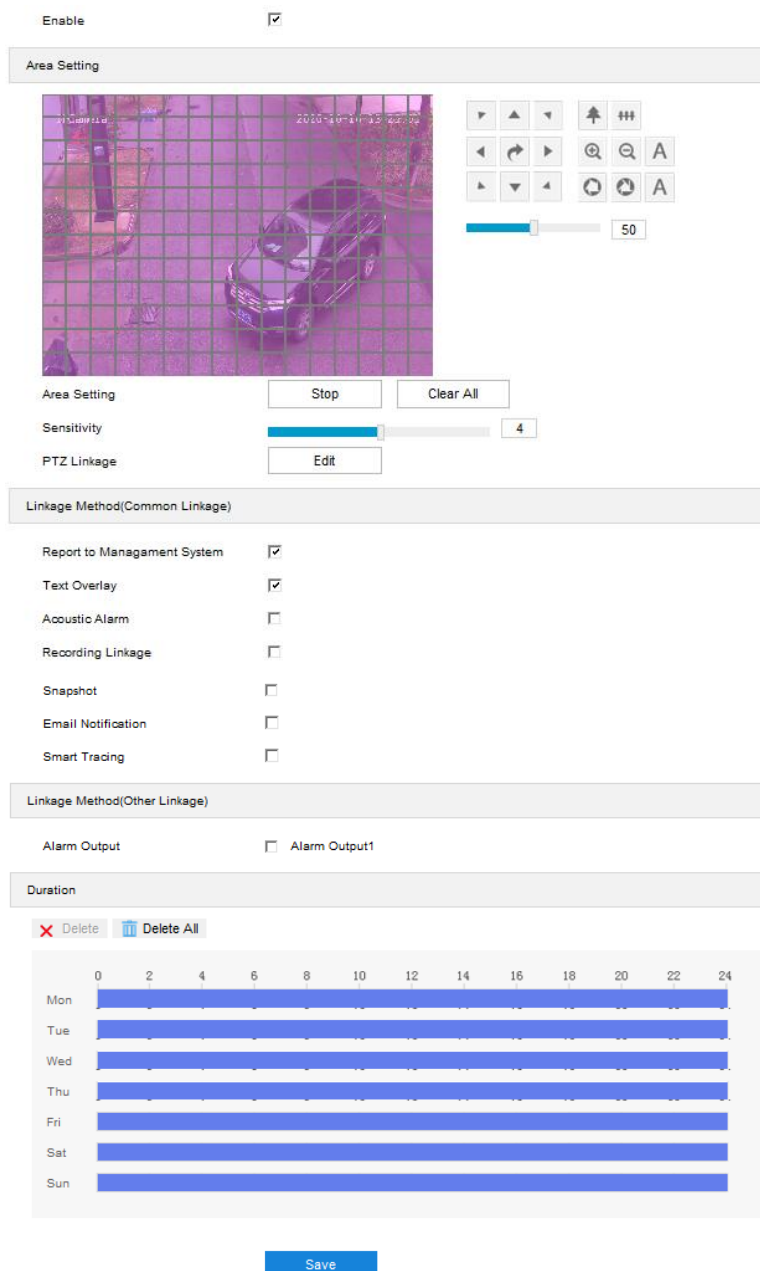
Picture 6-1 Motion detection

2) Select "**Enable**";

3) Adjust the surveillance scene through the PTZ;

4) Set motion detection area, the default being full area detection. Click "**Clear All**" and then "**Edit**" and the image will be divided into 16 columns and 12 lines of small squares. Click a square, drag toward lower right and click "**Stop**". Then the area is the detected area and it turns purple red. A camera can support max 4 motion detection areas at the same time. Draw an area toward upper left that contains the defined area, or click the defined squares one by one to clear setting, or click "Clear All" to clear setting;

5) Drag the slide bar to adjust the "**Sensitivity"** of motion detection. The higher the sensitivity is, the easier it will trigger an alarm;

6) Click "Edit" to configure PTZ linkage (if the device supports). On the popup window, configure the detection time and position when PTZ rotation stops;
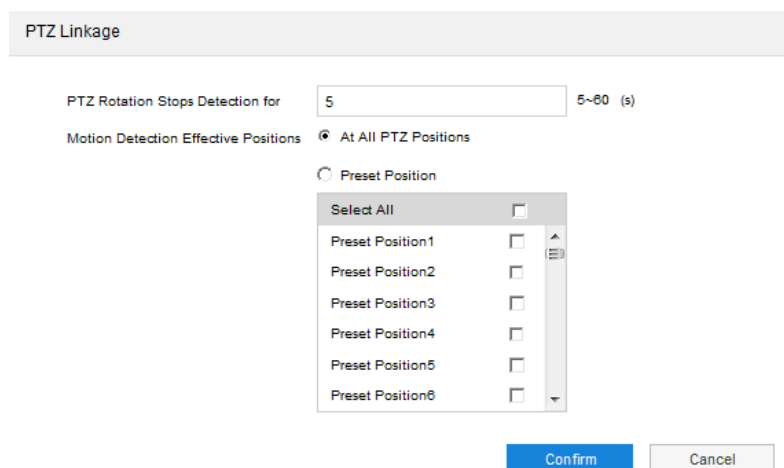
Picture 6-2 PTZ linkage

7) Select linkage type(s), which is/are the alarm output method(s) when motion detection triggers an alarm;

8) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations; the maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;

Picture 6-3 Arming durations

■ Set duration: configure arming durations according to actual requirements.

● Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

● Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

● Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon behind the timeline and copy the durations on the day to one or several other days.

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■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

9) Click "**Save**" to validate settings.

6.1.2   Video Blocked

When the preset area is blocked intentionally and affects normal surveillance of this area, an alarm will be triggered. After receiving the alarm, user can find the cause of video blocked quickly and recover the surveillance scene. Configuration steps are as follows:

1) Go to **Settings > Event > Intelligent Function > Video Blocked;**
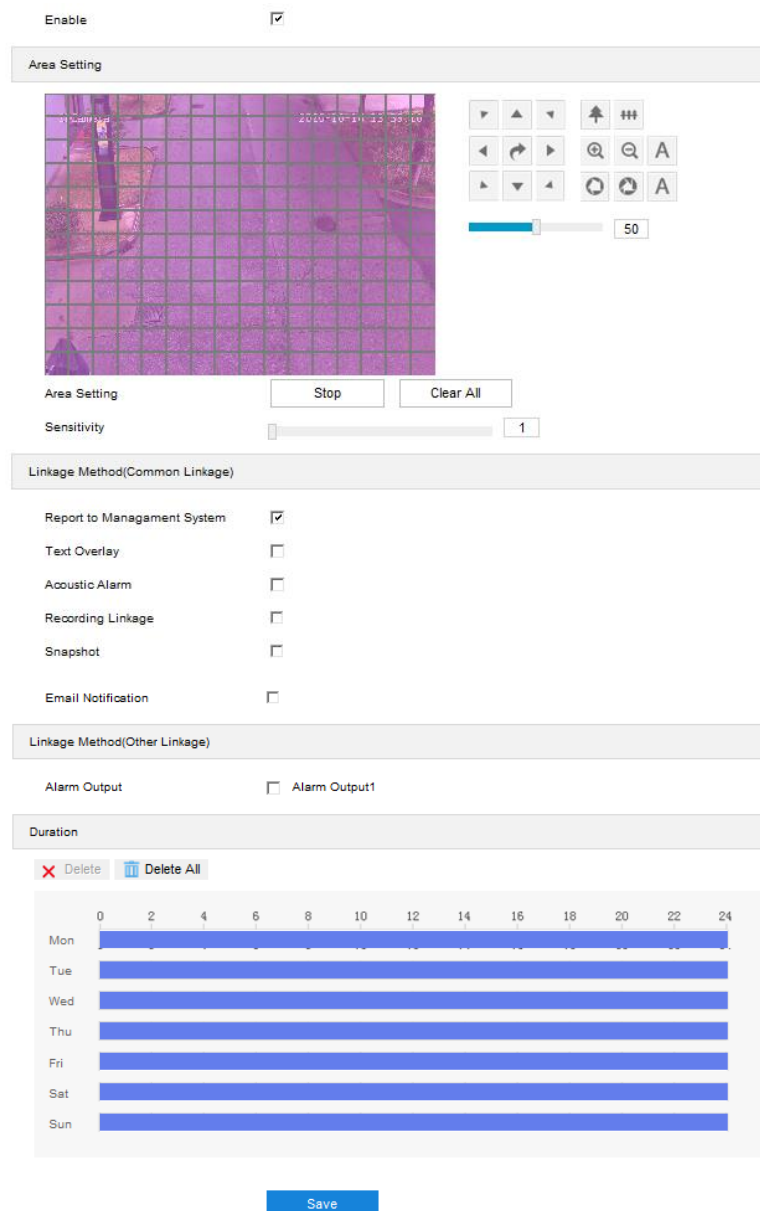
Picture 6-4 Video blocked

2) Select "**Enable**";

3) Adjust the surveillance scene through the PTZ;

4) Set video blocked area, the default being full area detection. Click "**Clear All**" and then "**Edit**" and the image will be divided into 16 columns and 12 lines of small squares. Click a square, drag toward lower right and click "**Stop**". Then the area is the detected area and it turns purple red. A camera can support max 1 video blocked area at the same time;

5) Drag the slide bar to adjust **Sensitivity**; the higher the sensitivity is, the easier it will trigger an alarm;

6) Select linkage type(s), which is/are the alarm output method(s) when video blocked triggers an alarm;

7) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations; the maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;
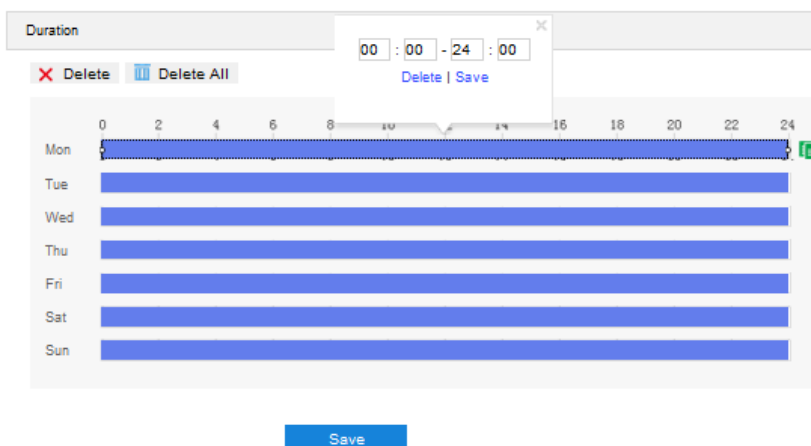
Picture 6-5 Arming durations

■   Set duration: configure arming durations according to actual requirements.

●   Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

●   Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

●   Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■   Copy duration: click the copy icon 🖺 behind the timeline and copy the durations on the day to one or several other days.

■   Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

Note: Select any duration with a mouse, and drag the blue bar on the timeline as a

whole without changing the length of recording duration.

8) Click "**Save**" to validate settings.

6.1.3   Guard Line

Guard line is to trigger an alarm once the camera detects any object entering the guard
line in the set direction. Configuration steps are as follows:

1) Go to **Settings > Event > Intelligent Function > Guard Line;**
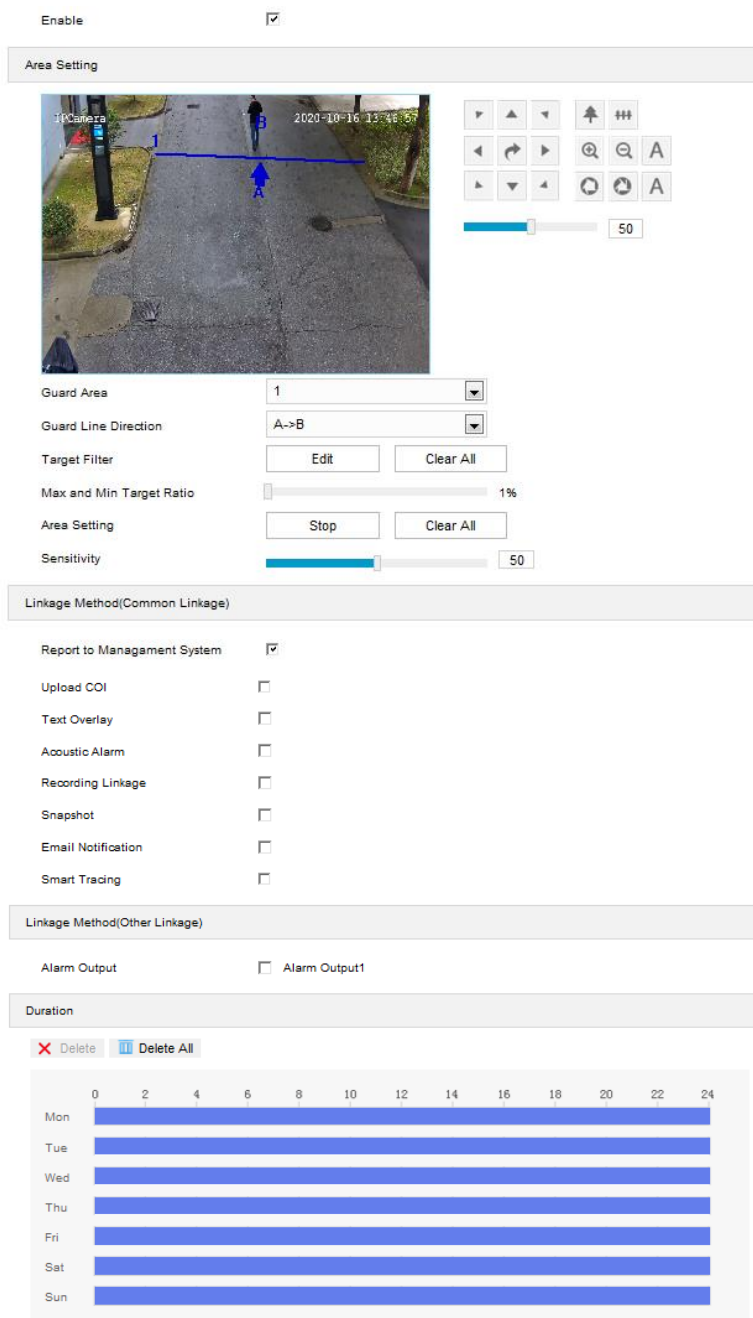
Picture 6-6 Guard line

2) Select "**Enable**";

3) Adjust the surveillance scene through the PTZ;

4) Select a number from the dropdown list of Guard Area, which can be set one by one and takes effect after each time of saving. It supports max 4 guard lines;

5) Select a direction from the dropdown list of Guard Line Direction, options including "A->", "B->" and "A->&&B->"; "A->" means only when the object moves from A to B the system will trigger an alarm, "B->" meaning only when objects move from B to A the system will trigger an alarm, while "A->&&B->" meaning the system will trigger an alarm when object move from A to B and B to A;

6) Set "Target Filter", i.e. target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard line(s);

7) Area Setting: to set guard lines. Click "**Edit**" and drag the mouse in the scene to draw a guard line. User can click its starting or end point to adjust its length and angle, click "**Stop**" to stop editing;

8) Drag the slide bar of "Sensitivity" to set the guard line's sensitivity to moving objects; the higher the sensitivity is, the easier it will trigger an alarm;

9) Select linkage type(s), which is/are the alarm output method(s) when guard line triggers an alarm;

10) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;
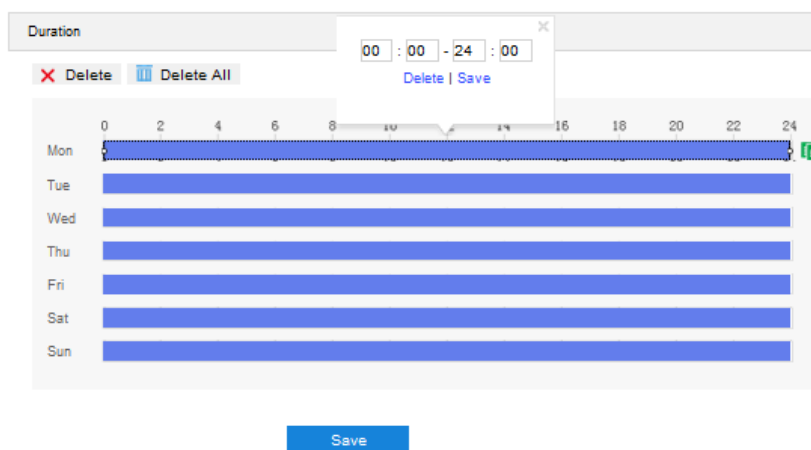
Picture 6-7 Arming durations

■ Set duration: configure arming durations according to actual requirements.

- Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

- Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

- Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

Note: Select any duration with a mouse, and drag the blue bar on the timeline as a

whole without changing the length of recording duration.

11) Click "**Save**" to validate settings.

6.1.4   Entry Guard Area

The function is to detect if there is anything entering the set guard area, and the camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

1)   Go to **Settings > Event > Intelligent Function > Entry Guard Area;**
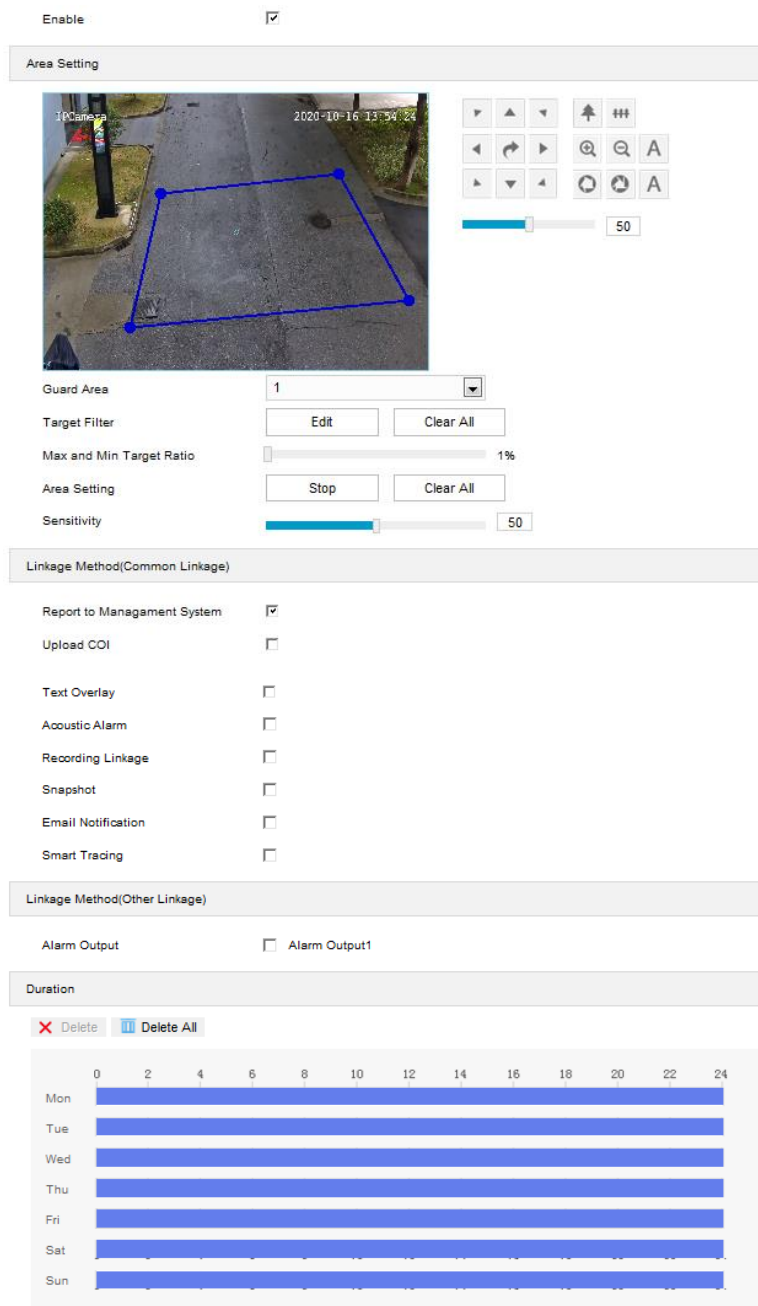
Picture 6-8 Entry guard area

2) Select "Enable";

3) Adjust the surveillance scene through the PTZ;

4) Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 guard areas can be set;

5) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

6) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or ending point to close the area. Click "Stop" to finish editing;

7) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm;

8) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

9) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;

Picture 6-9 Arming durations

■ Set duration: configure arming durations according to actual requirements.

● Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

● Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

● Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon 📋 behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘ Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

10) Click "**Save**" to validate settings.

6.1.5   Exit Guard Area

The function is to detect if there is anything leaving the set guard area, and the camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:
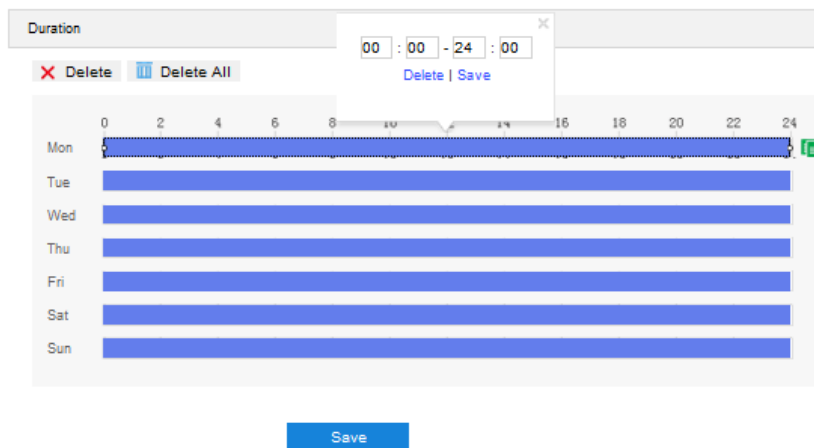
1)   Go to **Settings > Event > Intelligent Function > Exit Guard Area;**
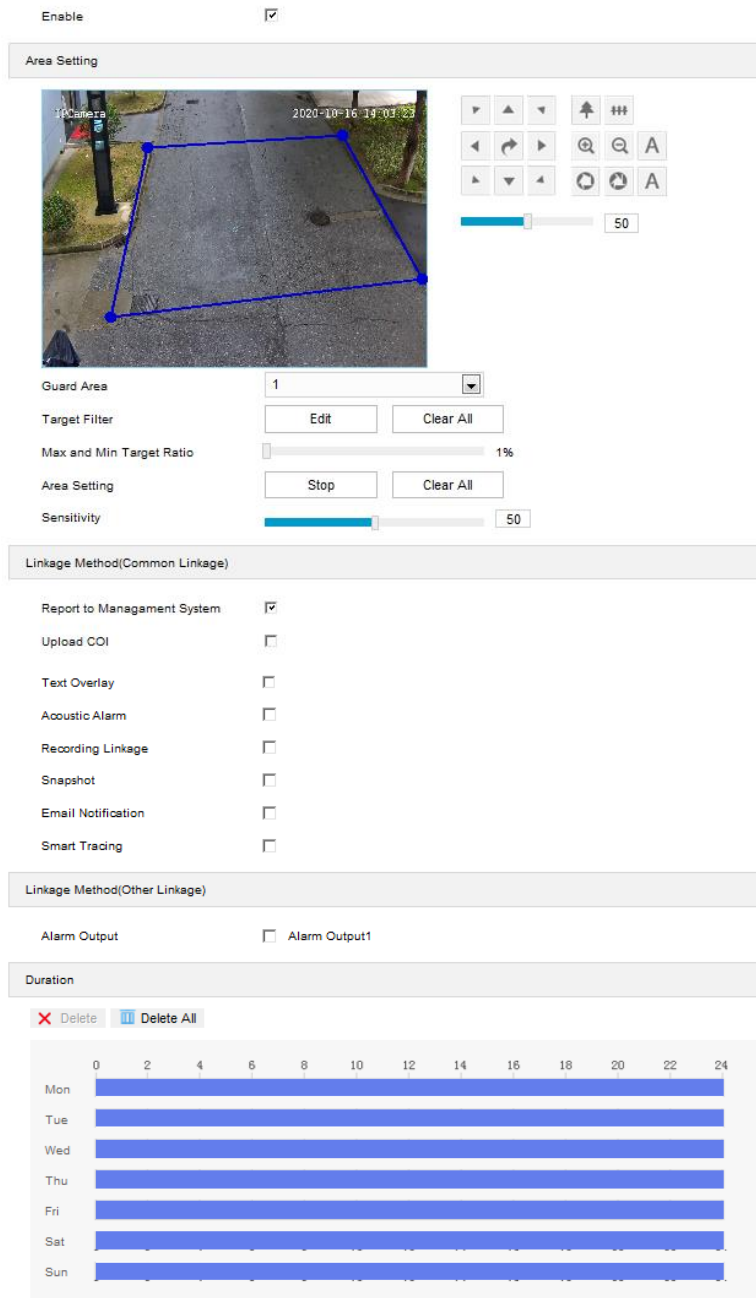
Picture 6-10 Exit guard area

2)   Select "Enable";

3)   Adjust the surveillance scene through the PTZ;

4)   Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 guard areas can be set;

5) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

6) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or ending point to close the area. Click "Stop" to finish editing;

7) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm;

8) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

9) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;

Picture 6-11 Arming durations

■ Set duration: configure arming durations according to actual requirements.

● Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

● Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

● Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.
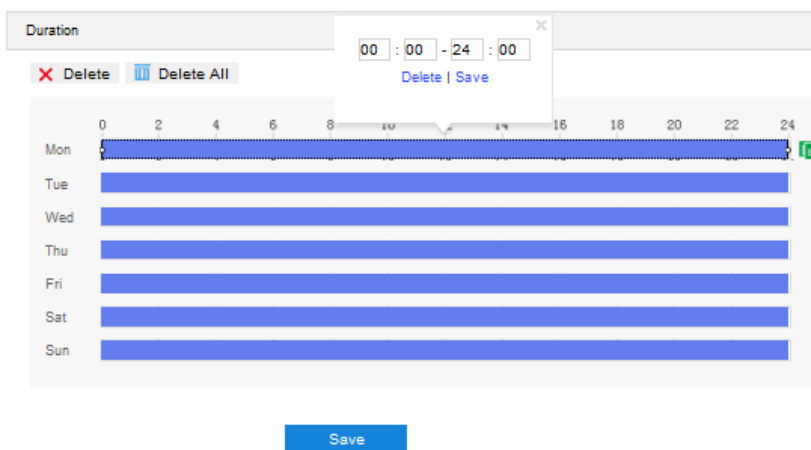
Ⓘ Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

10) Click "**Save**" to validate settings.

6.1.6   Enter Guard Area

The function is to detect if there is anything entering the set guard area and staying for a period of time reaching the set threshold. The camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

1)   Go to **Settings > Event > Intelligent Function > Enter Guard Area;**
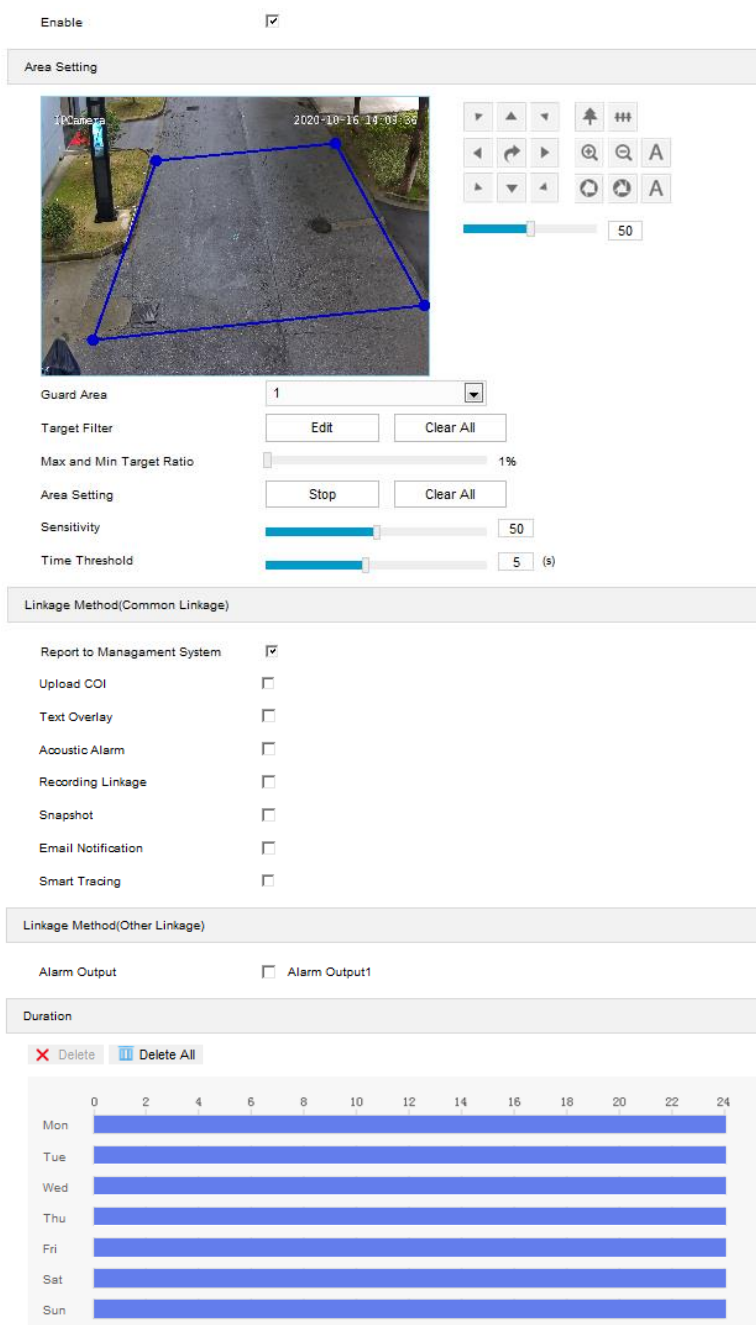
Picture 6-12 Enter guard area

2) Select "Enable";

3) Adjust the surveillance scene through the PTZ;

4) Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 areas can be set;

5) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

6) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area. Click "Stop" to finish editing;

7) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm

8) Drag the slide bar of "Time Threshold", i.e. the maximum allowed time for the object to stay in the area. For example, if it is set 5 s, when there is an object entering the guard area and stays for 5 s, it will trigger an alarm;

9) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

10) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;

Picture 6-13 Arming durations

■   Set duration: configure arming durations according to actual requirements.

● Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

● Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

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● Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.
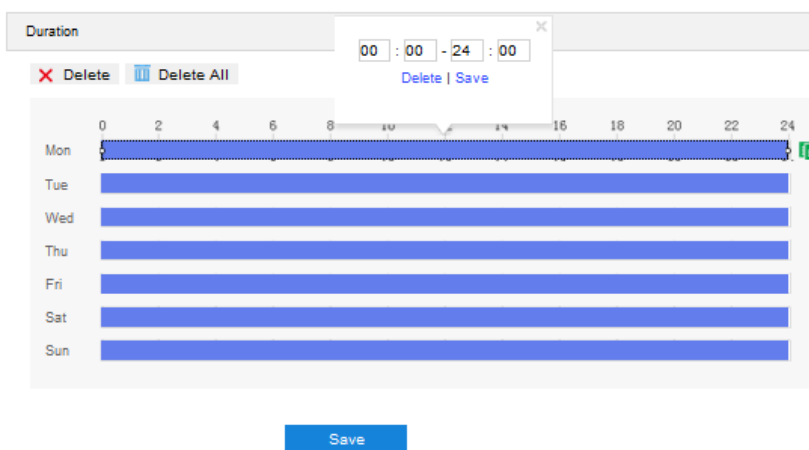
 Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

11) Click "**Save**" to validate settings

6.1.7   *Object Left

The function is to detect if there is any object being left in the set guard area and staying for a period of time reaching the set threshold. The camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

1)   Go to **Settings > Event > Intelligent Function > Object Left;**
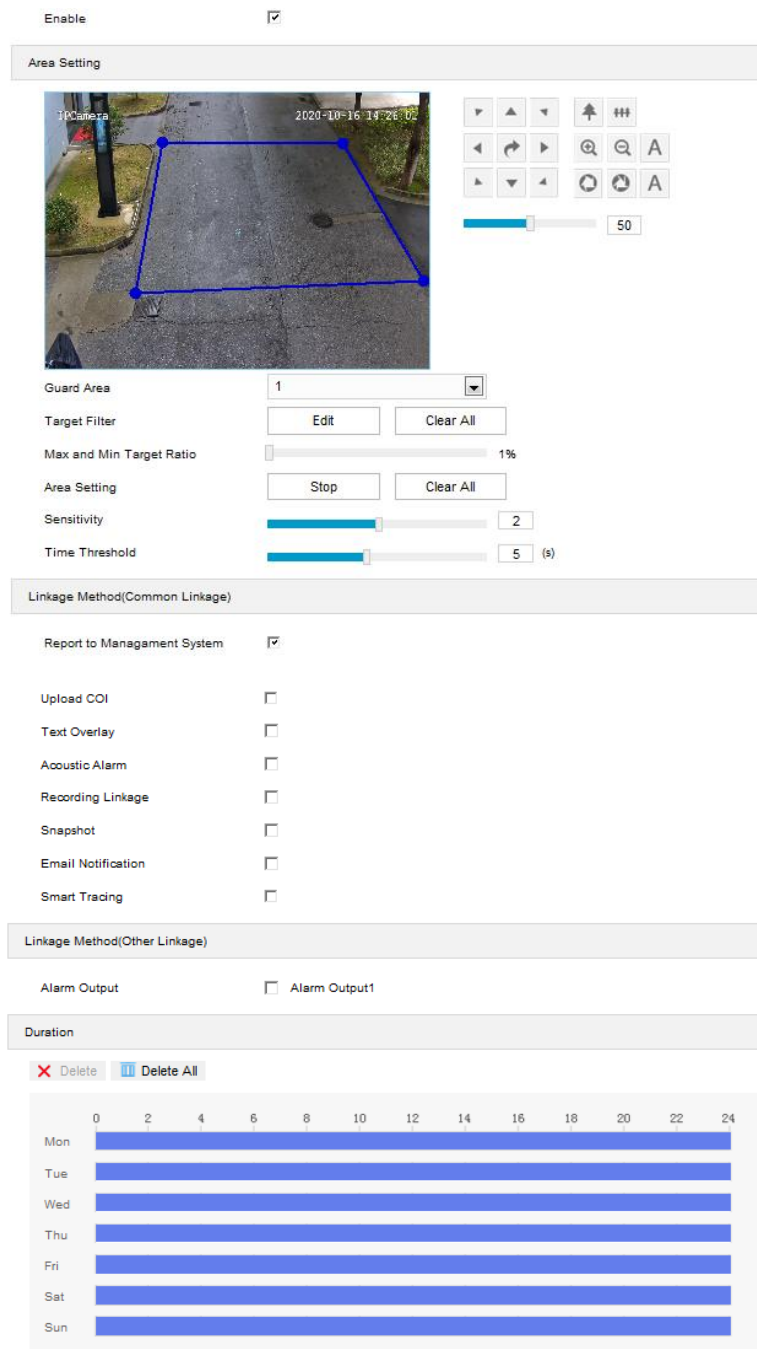
Picture 6-14 Object Left

2) Select "Enable";

3) Adjust the surveillance scene through the PTZ;

4) Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 areas can be set;

5) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

6) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area. Click "Stop" to finish editing;

7) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm;

8) Drag the slide bar of "Time Threshold", i.e. the maximum allowed time for the object to stay in the area. For example, if it is set 5 s, when there is an object entering the guard area and stays for 5 s, it will trigger an alarm;

9) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

10) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;

Picture 6-15 Arming durations

■ Set duration: configure arming durations according to actual requirements.

- Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

- Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

- Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon 📋 behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘNote: Select any duration with a mouse, and drag the blue bar on the timeline as a

whole without changing the length of recording duration.

11) Click "**Save**" to validate settings.

6.1.8   *Object Removal

The function is to detect if there is any object disappearing from the set guard area reaching the set time threshold. The camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:
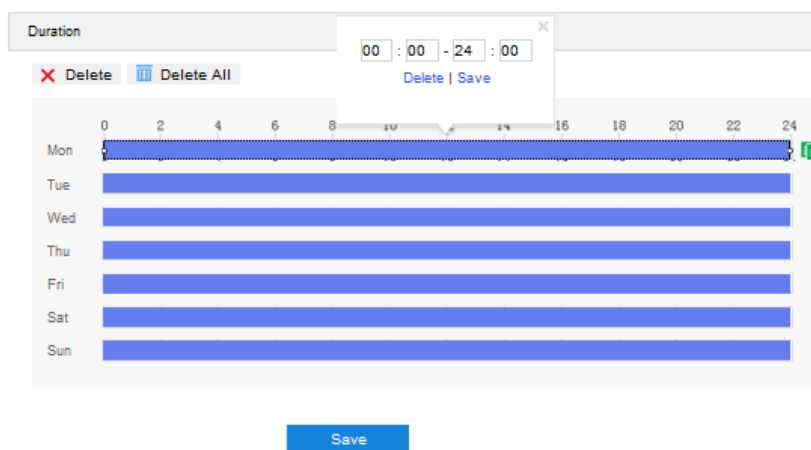
1)   Go to **Settings > Event > Intelligent Function > Object Removal;**
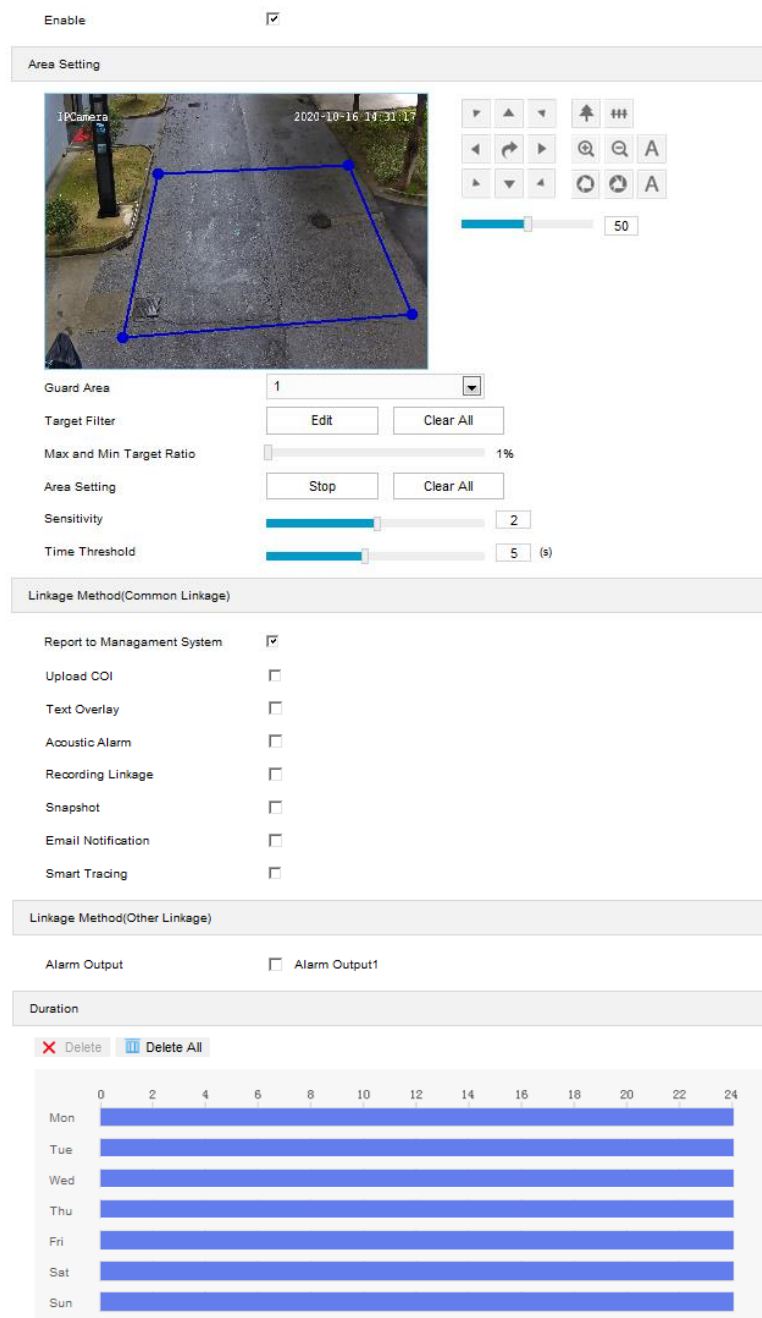
Picture 6-16 Object removal

2)   Select "Enable";

3) Adjust the surveillance scene through the PTZ;

4) Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 areas can be set;

5) **Target Filter**: to set target area. Click "**Edit**" and drag the mouse in the scene to draw a rectangle. Click "**Stop**" after finishing and drag the slide bar of "Max and Min Target Ratio" (1% by default). Moving objects over max or below min will not trigger an alarm when they enter the guard area(s);

6) **Area Setting**: to set guard area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area. Click "Stop" to finish editing;

7) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm

8) Drag the slide bar of "Time Threshold", i.e. the maximum allowed time for the object to disappear from the area. For example, if it is set 5 s, when the object disappears from the guard area for 5 s, it will trigger an alarm;

9) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

10) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;
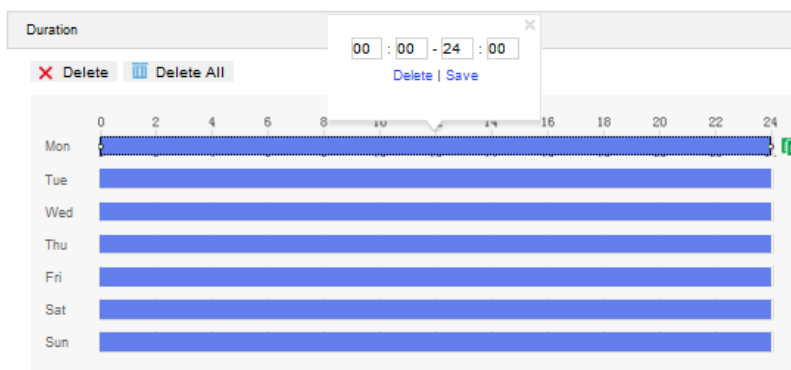
Picture 6-17 Arming durations

■   Set duration: configure arming durations according to actual requirements.

●   Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

●   Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

●   Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■   Copy duration: click the copy icon 📋 behind the timeline and copy the durations on the day to one or several other days.

■   Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘ Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

11) Click "**Save**" to validate settings.

6.1.9   Gathering

When the coverage of people in the guard area exceeds a set ratio, the camera will judge if it is necessary to trigger an alarm. For example, if the ratio is set 50%, when more than 50% of the area is covered by people, an alarm will be triggered. Configuration steps are as follows:

1)   Go to **Settings > Event > Intelligent Function > Gathering;**
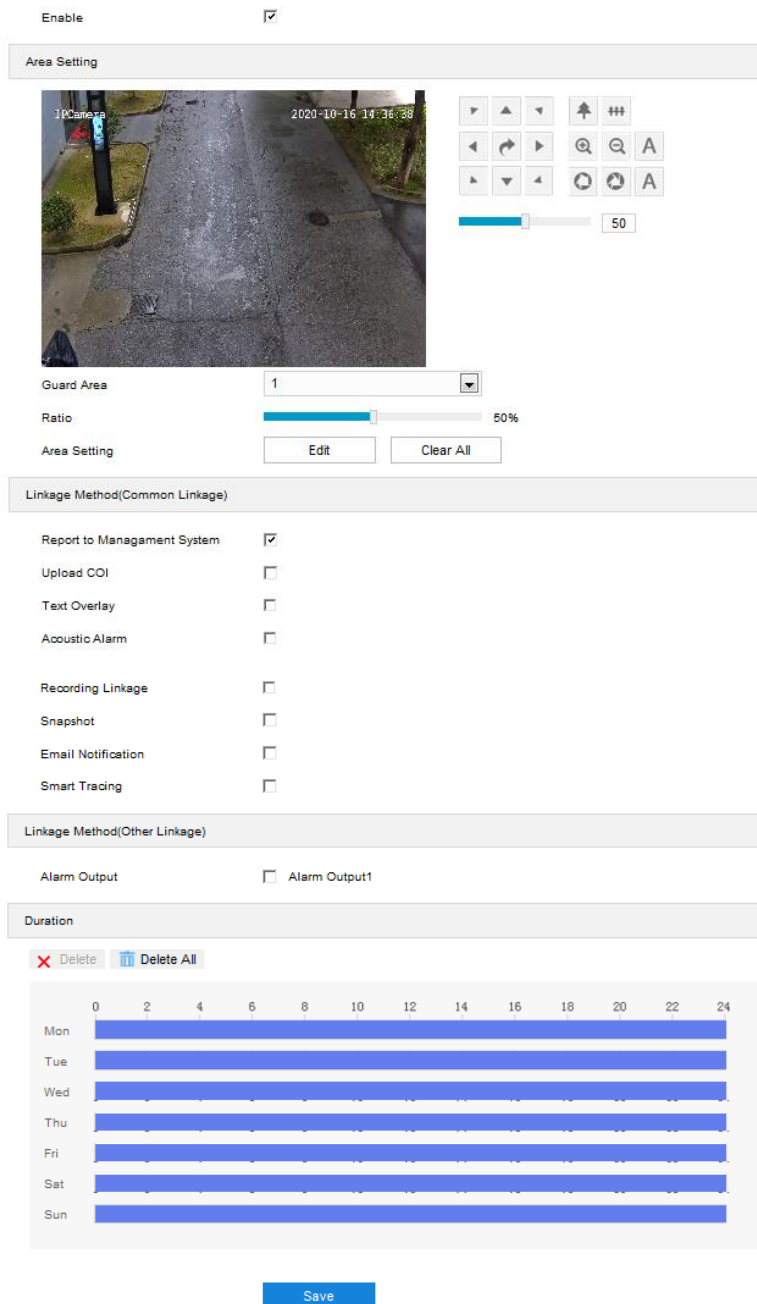
Picture 6-18 Gathering

2)   Select "**Enable**";

3)   Adjust the surveillance scene through the PTZ;

4)   Select a number from the dropdown list of **Guard Area** and user can set only one area at one time. After saving it, user can set another and max 4 areas can be set;

5)   Drag the slide bar of "Ratio" to set the coverage of people in the set area;

6)   **Area Setting**: to set area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area, and click "**Stop**" to finish;

7)   Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

8)   Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;
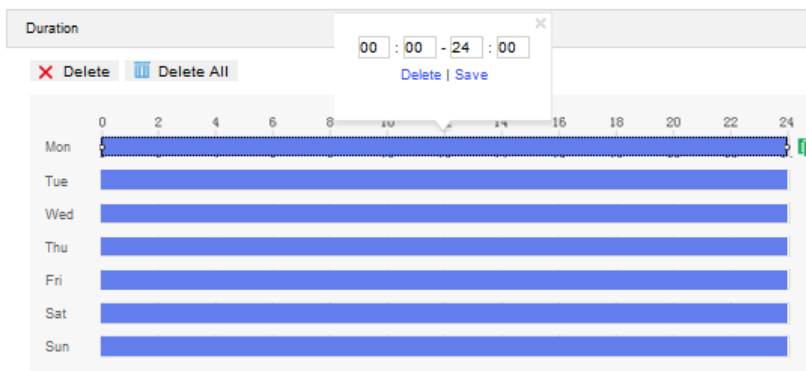
Picture 6-19 Arming durations

■   Set duration: configure arming durations according to actual requirements.

●   Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

●   Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

●   Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■   Copy duration: click the copy icon 📋 behind the timeline and copy the durations on the day to one or several other days.

■   Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘNote: Select any duration with a mouse, and drag the blue bar on the timeline as a
whole without changing the length of recording duration.

9)   Click "**Save**" to validate settings.

6.1.10   Audio Surge

When there is audio surge, the camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

ⓘNote: Audio surge detection is only available when the PTZ camera is connected to
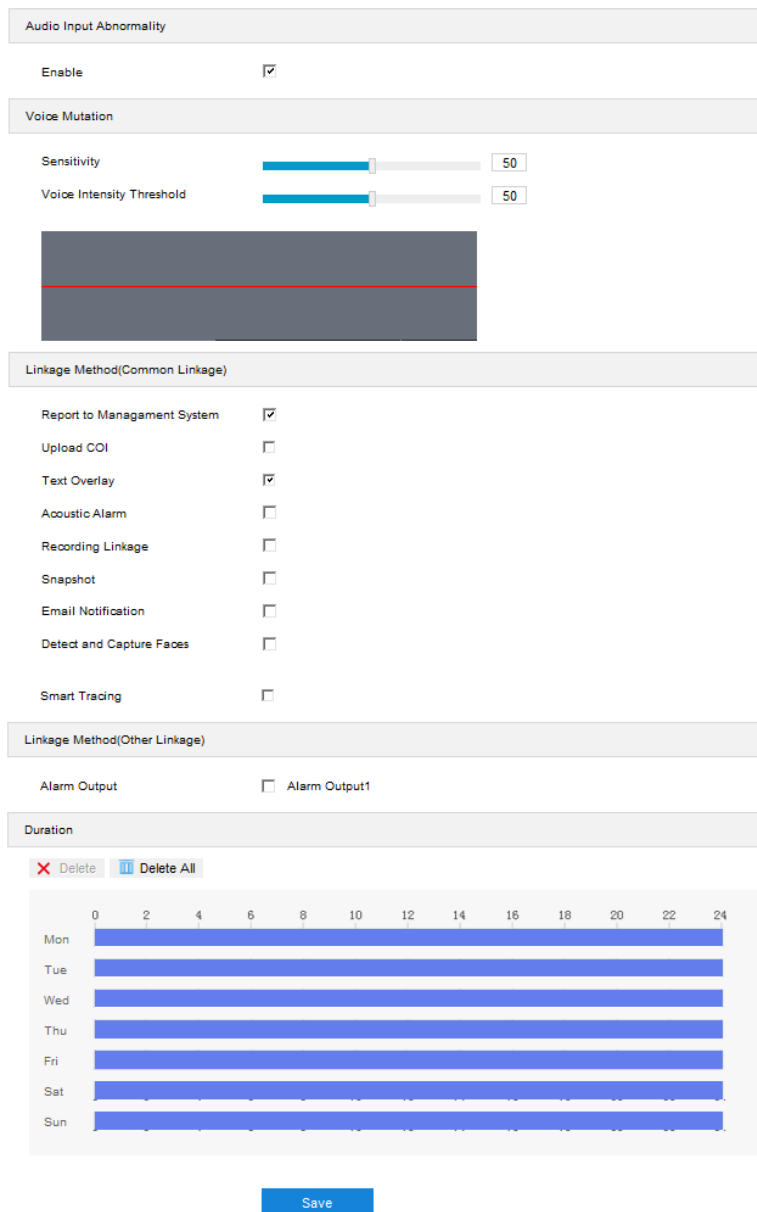an external sound pick-up.

1)   Go to **Settings > Event > Intelligent Function > Audio Surge;**

Picture 6-20 Audio surge

2) Select "Enable";

3) Drag the slide bar of **Voice Intensity Threshold** to adjust the detection sensitivity to voice mutation. The higher the Voice Intensity Threshold is, the more sensitive it is to Voice Mutation and the more easier it is to trigger an alarm;

4) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

5) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;
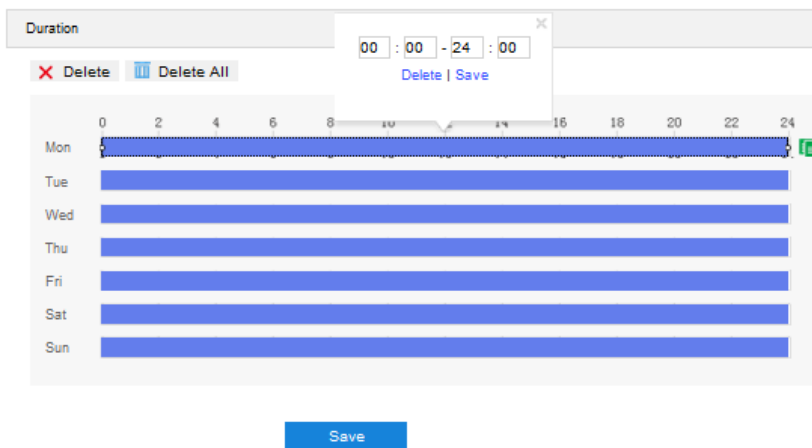
Picture 6-21 Arming durations

■ Set duration: configure arming durations according to actual requirements.

• Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

• Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

• Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon 🗐 behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘ Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

6) Click "**Save**" to validate settings.

6.1.11 *Face Detection

Face detection is to detect if there is human face appearing in the image and the camera will judge by the result if it's necessary to capture snapshots. Configuration steps are as follows:

1) Go to **Settings > Event > Intelligent Function > Face Detection**;
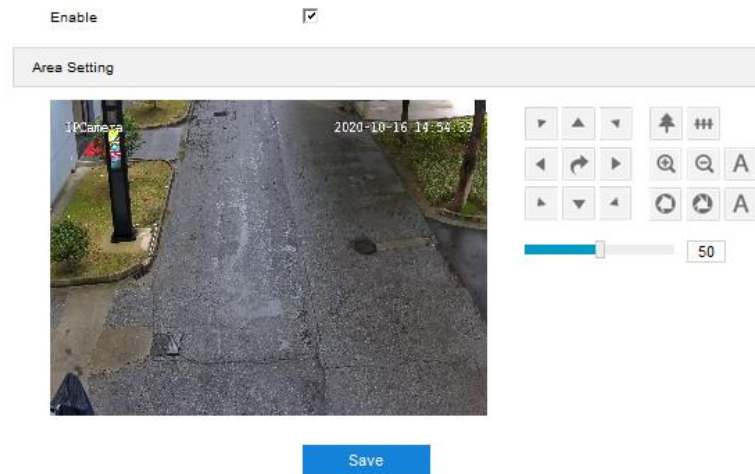
Picture 6-22 Face detection

2) Select "Enable";

3) Adjust the surveillance scene through the PTZ;

4) Click "**Save**" to validate settings.

6.1.12   *Auto Human Tracking

Auto human tracking is to detect if there is any person moving in the image conforming to the set target and the camera will judge by the result if it's necessary to track the person. Configuration steps are as follows:

1) Go to **Settings > Event > Intelligent Function > Auto Human Tracking**;

Picture 6-23 Auto human tracking
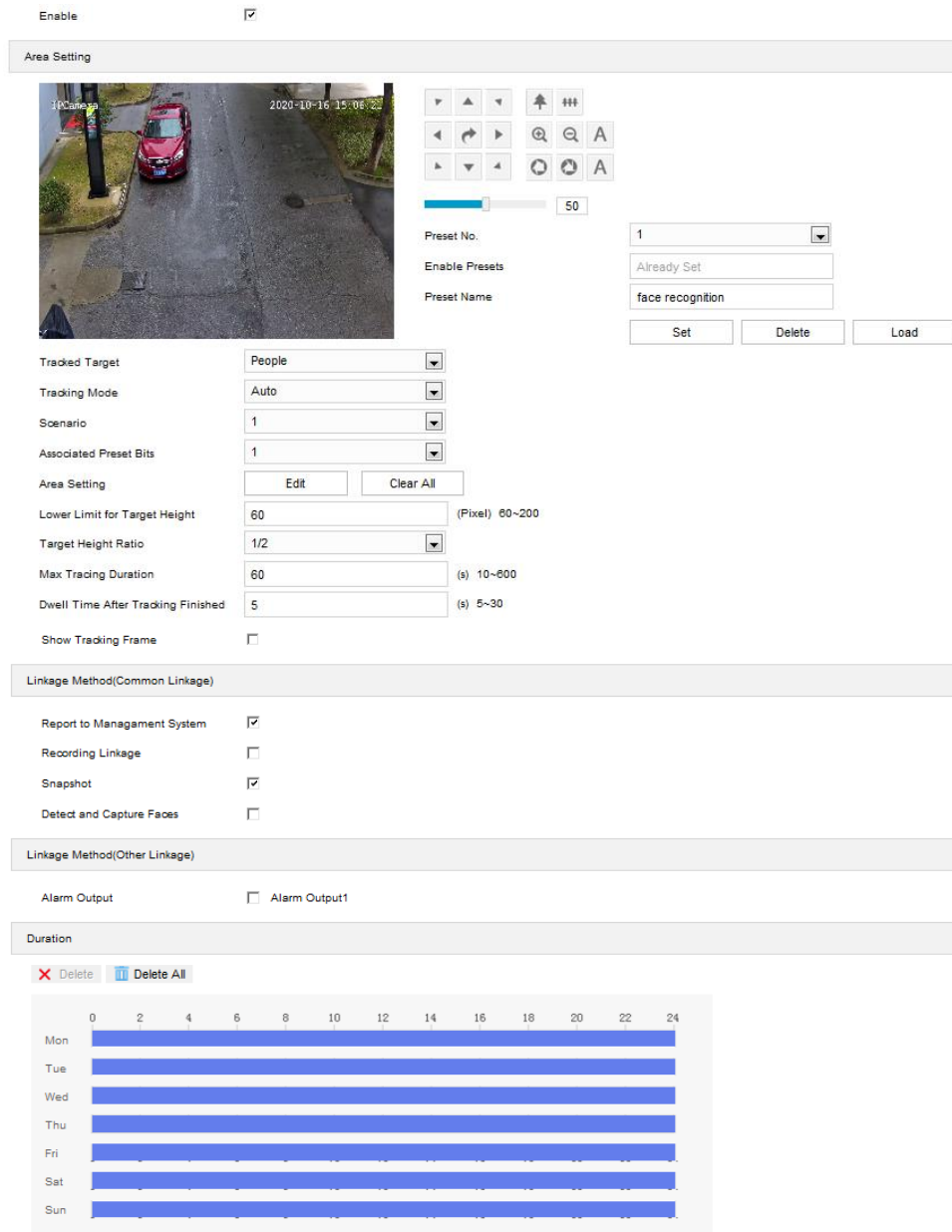
2) Select "Enable";

3) Adjust the surveillance scene through the PTZ, or set and load presets;

4) On the dropdown list of "Tracking Mode", select "Auto" or "Smart tracing";

ⓘ Note: If selecting "Smart tracing", on "Motion Detection" and "Guard Line" interfaces, select "Smart tracking" in the linkage method part, and when these events occur, smart tracing will be triggered.

5) On the dropdown list of "Scenario", select a scenario number. Once only one can be selected and it supports maximum 31 scenarios;

6) On the dropdown list of "Associated Preset Bits", select a preset number;

7) Area Setting: to set tracking area. Click "**Edit**" and click mouse to draw a closed area made up of 3 to 6 points in the scene. Right click or click the starting or end point to close the area. Click "Stop" to finish editing and click "Clear All" to clear setting;

8) Lower Limit for Target Height: Configure the minimum target height, range being 60 ~ 200 pixels;

9) Target Height Ratio: Select a ratio from the dropdown list;

10) Max Tracing Duration: Configure the tracking time on moving people, range being 10 ~ 600s;

11) Dwell Time After Tracking Finished: Configure the interval between tracking different moving people, range being 5 ~ 30s;

12) Show Tracking Frame: Select if necessary;

13) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

14) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 10 on one day and different durations cannot overlap with each other;

Picture 6-24 Arming durations

■ Set duration: configure arming durations according to actual requirements.

● Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

● Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

● Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon [icon] behind the timeline and copy the durations on the day to one or several other days.

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■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘ Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

15) Click "**Save**" to validate settings.

6.2 *Alarm Input

Before starting configuration, make sure that the camera has connected to alarm input devices such as smoke-detector, alarm bell or sprayer through the parallel port. Configure parameters for each alarm input devices and the camera will judge by the received alarm signal if it is necessary to trigger an alarm. Configuration steps are as follows:

1) Go to **Settings > Event > Alarm Input**;

Picture 6-25 Alarm Input

2) Select "**Enable**";

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3)   Select a number from the dropdown list of **Alarm Input ID**;

ⓘ Note: Alarm input ID corresponds to the tags on the buttcock line. Please refer to the Quick

Start Guide for details.

4)   Enter alarm name, i.e. the name of alarm input device such as "front door smoke-detector";

5)   Select alarm type from the dropdown list. If the alarm input device is always disabled, which
means the circuit is usually open, user must select "**Always Disabled**". If the alarm input
device is always enabled, which means the circuit is usually loop, user must select "**Always
Enabled**";

6)   Select linkage method to trigger actions when an alarm is triggered;

ⓘ Note: If select "PTZ Linkage", it's necessary to select a preset number from the dropdown list of

"Preset ID" and the preset ID must be valid. When the alarm is output, the PTZ will rotate

to this preset.

7)   Set arming duration: the default is 24 hours displaying in blue bar, or user can customize
durations. The maximum allowed number of durations is 10 on one day and different durations
cannot overlap with each other;

Picture 6-26 Arming durations

■   Set duration: configure arming durations according to actual requirements.

●   Click the blue bar to pop up a window for editing the accurate start time and end
time; click "**Save**" to validate setting.

●   Click any duration and there will be small white squares on the 2 ends of it. Put
the mouse on any whit square, left-click and drag the edit the start time and end
time.

●   Select the timeline of any day and delete the default blue bar. Left click on the
mouse and drag on the timeline from left to right to form a blue bar, above which
it shows the start time and end time.

■   Copy duration: click the copy icon 🗐 behind the timeline and copy the durations on
the day to one or several other days.

■   Delete duration: click "**Delete All**" above the timeline to delete all the durations.
Select any duration and click "**Delete**" on the popup window or above the timeline to
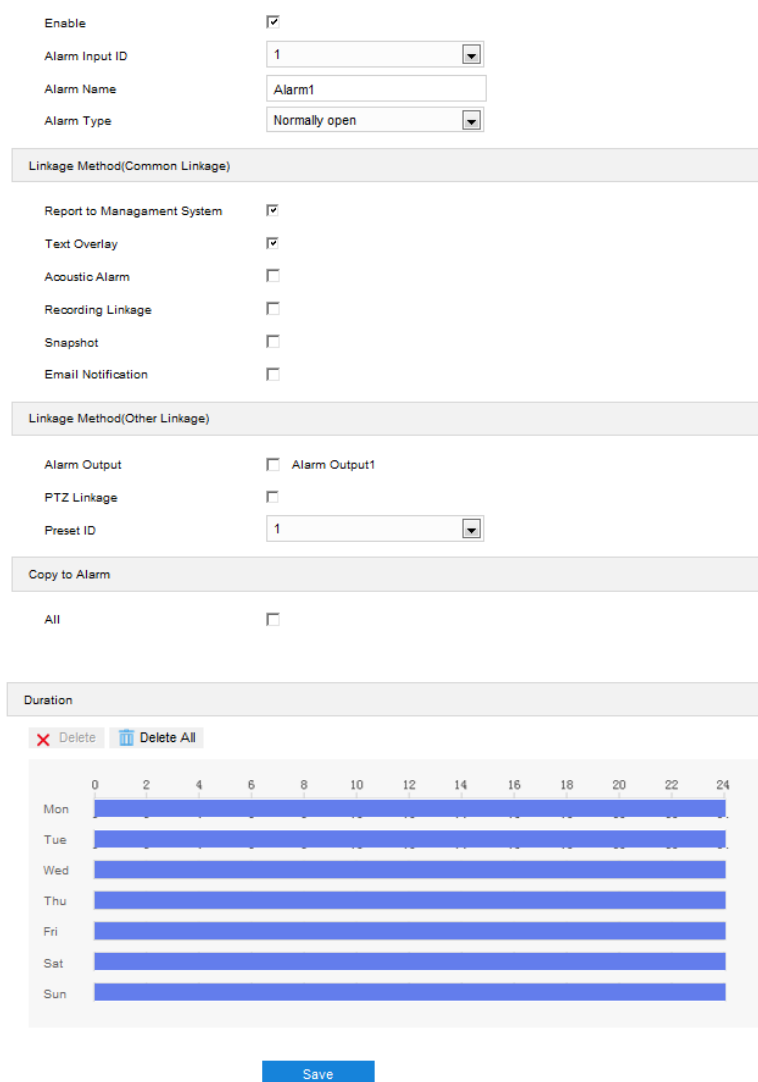delete the duration.

ⓘNote: Select any duration with a mouse, and drag the blue bar on the timeline as a whole

without changing the length of recording duration

8)   If user sets several alarm input ports, select "All" under "Copy to Alarm" to copy all
configurations of current alarm input to other alarm input ports;

9)   Click "Save" to validate setting.

6.3 *Alarm Output

Before starting configuration, make sure that the camera has connected to alarm output devices
such as alarm bell. The camera will transfer the received alarm signal to the alarm output device to
trigger an alarm. Configuration steps are as follows:

1)   Go to **Settings > Event > Alarm Output;**
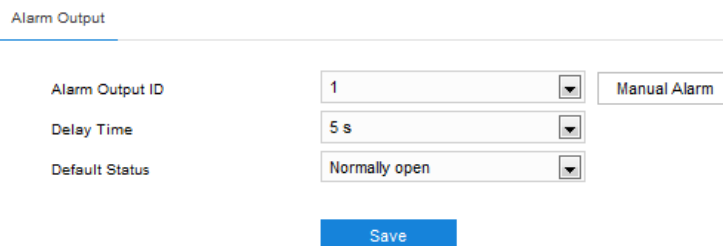
Picture 6-27 Alarm output

2)   Please select an option from the dropdown list according to actual request. Options vary from
"Without Delay" to "10 min", and the default is 5s. After the "Delay Time", the alarm will be
cancelled automatically;

ⓘ Note: The default duration of alarm output is 5s, and the delay time means the prolonged

period of time after the default 5s.

3)   Click "**Save**" to validate setting.

6.4 Abnormality Linkage

Configure the alarm linkage method for abnormal events, and the camera will judge if it is
necessary to trigger an alarm. Configuration steps are as follows:

1)   Go to **Settings > Event > Abnormality Linkage;**

Picture 6-28 Abnormality Linkage

2)   Select "Enable";

3)   Select an option from the dropdown list of Abnormality Type;

Note:

♦   Disk Full: when the disk storage is insufficient.

♦   Disk Error: when the disk cannot be recognized.

♦   Internet Disconnected: when the device isn't connected to the network cable.

4)   Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;

5)   Click "**Save**" to validate settings.

7.   Storage

7.1 Storage Management

Go to **Settings > Storage > Storage Management** to configure strategy for disk full, view storage device list, format the storage card, and configure the save path for snapshots.

ⓘ Note: When the camera is installed with a storage card and works normally, you can configure scheduled recording and scheduled snapshot.

<p style="text-align:center;">Picture 7-1 Storage Management</p>

➢ Disk Full Strategy: Configure the video recording strategy when there is insufficient storage space.

- ■ Overwrite earlier data: when there is insufficient storage space, overwrite the oldest videos;

- ■ Stop: when there is insufficient storage space, stop video recording automatically.

   Go to **Settings > Event > Abnormality Linkage** and select "Disk Full" as Abnormality Type to remind user that local video recording has stopped.

➢ Storage Device List: Display the status, capacity, progress and other information of all storage devices.

- ■ Disk ID: display the serial number of the storage device.

- ■ Capacity: display the storage space of the storage device.

- ■ Remaining Space: display the remaining space of the storage device.

- ■ Status: show the status of storage devices such as "Normal" (with a storage card which can read and write normally), "Does not Exist" (without a storage card), "Not Formatted" (need to be formatted when first inserted) and etc.

- ■ Type: show the installation method of the storage device.

- ■ Attribute: display the read and write attributes of the storage device, Read-only, Write-only or Read-write.

<p style="text-align:center;">90</p>

- ■ Progress: show the percentage of the formatting progress of the storage card. Select the disk and click "**Formatting**" to format the selected disk.

- ➢ Snapshot: Configure the save path for the snapshots. According to actual requirements, select "Local storage" (TF card in the camera) or "FTP" (server) to save the scheduled snapshots and alarm snapshots.

ⓘ Note: The storage card is installed in the camera when going out of the factory. When using the local storage card for the first time, please click "Formatting" first.

7.2 Recording

After configuring scheduled recording, the camera will perform different video recording tasks automatically in the configured durations and save the videos in the storage card. Configuration steps are shown below:

1) Go to **Settings > Storage > Storage Management** to configure disk full strategy and format the storage card recognized by the camera. If formatting is successful, the Status will turn "Normal" which means the storage card can be used normally;

2) Go to **Settings > Storage > Recording** to configure video recording;

- ■ Recording Type: Select the stream to be recorded. If none is selected, it will not be able to record videos.

- ■ Code Stream Format: Select a video packaging format according to the type of access protocol.

- ■ Prerecord: Select prerecord duration, i.e. the prerecord duration before recording starts. It is certain to be 30s.

- ■ Recording Delay: Select recording delay time, i.e. the prolonged recording duration after the configured duration.
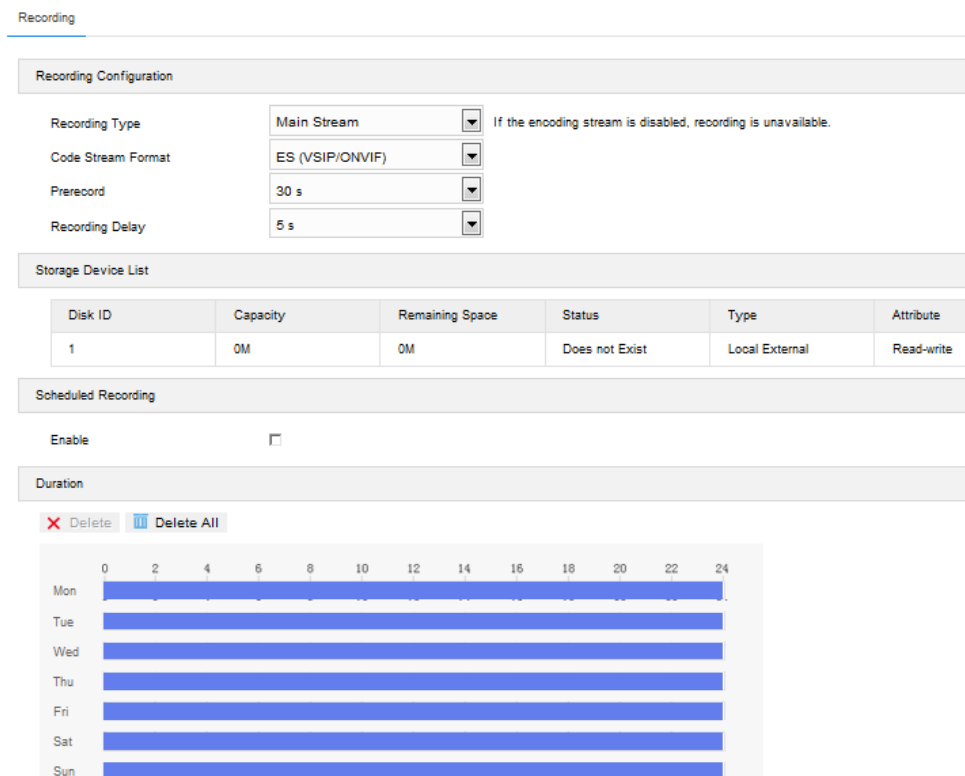
Picture 7-2 Scheduled recording

3) Select "Enable" to enable Scheduled Recording;

4) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations. The maximum allowed number of durations is 4 on one day and different durations cannot overlap with each other;
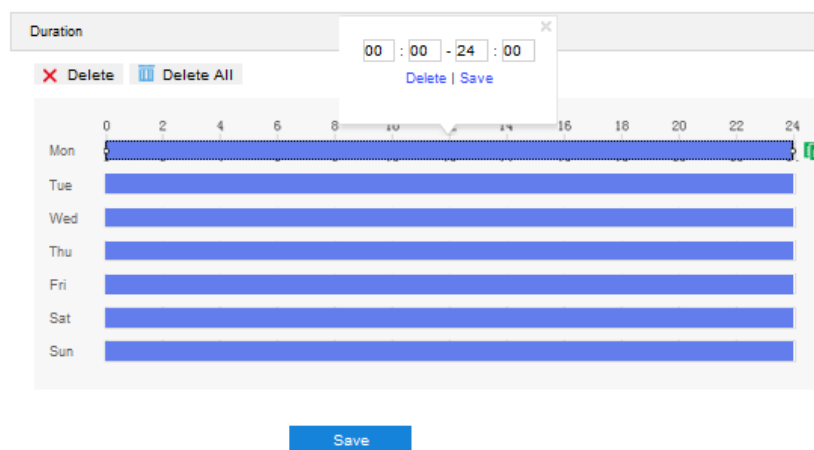
Picture 7-3 Arming durations

■   Set duration: configure arming durations according to actual requirements.

   ●   Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

- Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

- Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon 📄 behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘNote: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration

5) Click "**Save**" to validate setting.

7.3 Snapshot

After configuring scheduled snapshot, the camera will perform different snapshot tasks automatically in the configured durations and save the pictures in the storage card. Configuration steps are shown below:

1) Go to **Settings > Storage > Storage Management** to configure disk full strategy and format the storage card recognized by the camera. If formatting is successful, the Status will turn "Normal" which means the storage card can be used normally;

2) Go to **Settings > Storage > Snapshot** to configure;

■ Format: only support .jpeg format.

■ Resolution: same as that of current main stream.

■ Quality: the quality of captured image.

Picture 7-4 Scheduled snapshot

3) Configure scheduled snapshot:

   a) Select "Enable" enable scheduled snapshot;

   b) Snapshot Type: select "According to the time" or "According to the number";

   c) Time Interval: select the interval between snapshots;

   d) Configure durations for scheduled recording. The default setting is 24 hours in bright blue bar, or you can customize the durations;

■ Set duration: configure arming durations according to actual requirements.

● Click the blue bar to pop up a window for editing the accurate start time and end time; click "**Save**" to validate setting.

● Click any duration and there will be small white squares on the 2 ends of it. Put the mouse on any whit square, left-click and drag the edit the start time and end time.

● Select the timeline of any day and delete the default blue bar. Left click on the mouse and drag on the timeline from left to right to form a blue bar, above which it shows the start time and end time.

■ Copy duration: click the copy icon behind the timeline and copy the durations on the day to one or several other days.

■ Delete duration: click "**Delete All**" above the timeline to delete all the durations. Select any duration and click "**Delete**" on the popup window or above the timeline to delete the duration.

ⓘNote: Select any duration with a mouse, and drag the blue bar on the timeline as a whole

without changing the length of recording duration.

4) Configure event snapshot:

a) Select "Enable" to enable event snapshot;

b) Configure time interval;

c) Configure the number of snapshots captured at each event.

5) Click "**Save**" to validate settings.

8.   System

8.1 Device Info

Go to **Settings > System > Device Info**.

Device info includes device name, device model, device serial No. and etc. User can customize device name and select "Set as OSD text". Device name doesn't support specific symbols. If "Set as OSD text" is selected, click "Save" and the device name will be synchronized to the OSD, interface shown below:

Picture 8-1 Device info

8.2 User Security
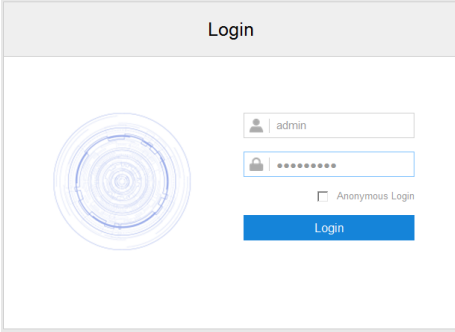
Go to **Settings > System > User Security**, and configure user information, RTSP authorization, IP filter and security service.

8.2.1   User

Go to **Settings > System > User Security > User**, you can add user, delete user, edit username and password, configure user authorizations and etc.

■   Anonymous Access: After selecting the checkbox, you will be able to select "Anonymous Login" on the login interface.

Picture 8-2 Anonymous login

ⓘNote: Anonymous user has the authorization of live view only.

■   Add user: Click "**Add**", and enter user name and password on the popup
    interface. Select user type from the dropdown list, and assign operation rights
    to newly added user from the Authorization List. After setting, click "**Confirm**".

Picture 8-3 Add user

ⓘNote:

♦   By default, all options are available to administrator users; Live View,
    Playback/ Snapshot, and PTZ Control options are available to operator
    users; a browser can only view the live video from the camera.

♦   Some settings take effect after rebooting the camera, which requires user
    with both the authorizations of configuration and reboot.

■   Modify user: Select user and click "**Modify**" to modify on the popup interface.

Picture 8-4 Modify user

■ Delete user: Select user and click "**Delete**" to delete the user.

Picture 8-5 Delete user

ⓘ Attention: "admin" user cannot be deleted, nor its username be modified.

8.2.2   RTSP Authorization

Go to **Settings > System > User Security > RTSP Authorization**, and select authorization type from the dropdown list, options including "none", "basic/digest" and "digest". By default, it is "basic/digest".

ⓘ Note: "basic" means basic authorization, which transfers messages without encryption and has a severe safety risk; "digest" means digest authentication, which transfers information through MD5 Hash conversion and has a higher level of safety.

Picture 8-6 RTSP Authorization

8.2.3   **IP Filter**

By setting IP filter, user can manage access limitation to the web client. Configuration steps are as follows:

1) Go to **Settings > System > User Security > IP Filter**;

Picture 8-7 IP Filter

2) Select IP filter from the dropdown list up to request, options including "Disable", "Black List" and "White List";

■   Disable: IP filter is disabled.

■   White List: IP list allowed visiting the device.

■   Black List: IP list not allowed visiting the device.

3) Configure IP address list;

■   Add Black/ White List: Select filter method, click "**Add**" and input IP address on the popup interface, and click "**Confirm**".

■   Modify Black/ White List: Select IP address from the black/ white list and click "**Modify**" to modify the IP address, and click "**Confirm**".

■   Delete Black/ White List: Select IP address from the black/ white list and click "**Delete**" to delete the IP address. Click "**Delete All**" to clear all the added IP addresses.

4) Click "**Save**" to validate settings.

8.2.4   **Security Service**

Go to **Settings > System > User Security > Security Service**, and configure the parameters to protect user safety.

Picture 8-8 Security Service

> Enable SSH Login: Select the checkbox to enable SSH login, which means SSH service is enabled and you can login by SSH mode. Usually it's unnecessary to enable when the camera works normally.

> Enable HTTPS Login: Select the checkbox to enable HTTPS login, which means HTTPS service is enabled and you can login by HTTPS mode.

> Enable Unauthorized Login Locking: Select the checkbox to enable unauthorized login locking, and configure illegal login retry times and illegal login lock time.

■ Illegal Login Retry Times: Configure illegal login retry times, default being 6 times.

■ Illegal Login Lock Time: Configure illegal login lock time, default being 10 minutes.

Note: After enabling unauthorized login locking, when the configured locking conditions occur, the user IP will be locked up.

Click "Save" to validate settings.

8.3 Time

Go to **Settings > System > Time**, and configure Device Time Zone, Device Time, Auto Time Correction, NTP Clock Synchronization and DST. Configure parameters by actual requests and click "**Save**" to validate setting.

Device Timezone	(GMT+08:00) Beijing, Urumq ▾	
Device Time	19-01-2020 11:04:50	Manual Setting
Auto Time Correction		
Auto Timing	☑	
Timing Scheme	Adaptive ▾	
Timing Priority	☑ NTP Server	Up
	☑ VSIP VMS	Down
	☑ ONVIF Protocol ⊙	
	☑ GB28181-1 VMS	Default
	☑ GB28181-2 VMS	
Current Timing Protection Time	60	(min) 0~65535
NTP Clock Synchronization		
Enable	☐	
Server Address	0.0.0.0	
NTP Port	123	
Time Correction Interval	1440	(min) 1~65535
DST		
Enable DST	☐	
Start Time	April ▾ First ▾ Sunday ▾ 02 ▾	(o'clock)
End Time	October ▾ Last ▾ Sunday ▾ 02 ▾	(o'clock)
Time Deviation	30 min ▾	

Picture 8-9 Time setting

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■ Set device time zone and device time: Click "**Manual Setting**", select time zone and set time on the popup interface. You can select "Synchronize time with PC" and click "**Save**" to validate setting.

Manual Time Setting	
Device Timezone	(GMT+08:00) Beijing, Urumq ▾
Device Time	19-01-2020 11:05:42
Set Time	19-01-2020 11:03:09 ▢ Synchronize time with PC
	Save Cancel

Picture 8-10 Manual setting of time

■ Auto Time Correction: Select "Auto Timing" and the system will correct time automatically according to the selected access protocol (including NTP server, VSIP, ONVIF, GB28181) or adaptive. Configure the timing protection time.

● Adaptive: When selecting "Adaptive", select necessary adaptive protocols, set the Timing Priority sequence and enter current Timing Protection Time (i.e. the save time during protocol switching).

● Access protocol: the protocol of the device accessing to t platform or a server. When selecting a protocol, the system will correct time automatically according to the protocol.

ⓘNote:

♦ In the box of "Timing Priority", the priority level decreases from top to bottom.

♦ Select a protocol and click "Up" to improve its priority and "Down" to decrease its priority; click "Default" to apply the default priority levels.

♦ If selecting "NTP Server", configure the parameters thereof.

■ NTP Clock Synchronization: Select "Enable" and configure "Server Address", "NTP Port" (certain to be "123") and "Time Correction Interval". When it is enabled, the camera will correct time on a time basis of the configured interval.

ⓘNote: NTP stands for Network Time Protocol, and it is an Internet protocol used to synchronize the clocks of computers to time reference. It could synchronize PC to its server or the clock source such as quartz clock and GPS; it could provide highly precise time correction (compared with the standard, time difference is less than 1 ms on LAN and decades ms on WAN), and could prevent vicious protocol attack by means of encryption confirmation.

■ DST: DST (daylight saving time) is the practice of advancing clocks during summer months so that evening daylight lasts longer, while sacrificing normal sunrise times and the time applied during DST is called DST time. Select "Enable DST" and set "Start Time", "End Time" and "Time Deviation".

8.4 Serial Port

Go to **Settings > System > Serial Port**, and configure the serial port.

Serial port is used to control camera rotation, extended alarm input or device adjustment (subject to devices). Usually serial port is identified as RS485 A/B. Pair the ports by configuring RS485 port parameters. Please configure the parameters such as "Baud Rate", "Data Bits" and "Address Code" according to the actual conditions. Click "Save" to validate settings.

ⓘAttention: Serial Port 2 is internal parameter of the PTZ and is forbitten to be edited.

Picture 8-11 Serial port

8.5 Log

Go to **Settings > System > Log** to manage logs and view system health and service status.

8.5.1   Logs

Go to **Settings > System > Log > Logs**, and select "Enable Log Record" to enable log record. Then you can search, view and download logs by request.

Picture 8-12 Log management

Operation steps are as follows:

1)   On the dropdown list of Log Type, select a log type, otherwise the default is "Search All";

2)   Select Start Time and End Time, and click "**Search**". The search result will show on the list below;

3)   Click "**Save Logs**" to download all logs locally; click "**Delete logs**" to clear all logs.

Note:

- ♦   When selecting "User Operation" or "Alarm Info" for Log Type, you need to select a "Secondary Type" to narrow the search scope.

- ♦   The system can save maximum 2,000 entries of logs. When it is full, the latest one will overwrite the oldest one automatically.

8.5.2   System Health

Go to **Settings > System > Log > System Health**, and select a duration from the dropdown list to view the camera health status in this duration. Click "Details" behind each item to view the detailed logs of each item.
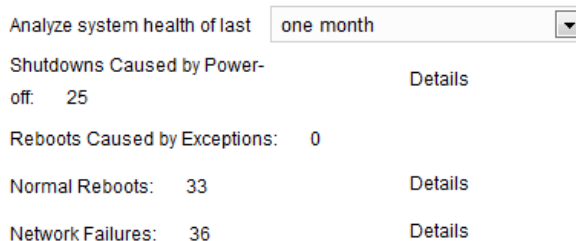
Picture 8-13 System status

8.6 System Maintenance

8.6.1   System Maintenance

Go to **Settings > System > System Maintenance > System Maintenance**, and perform operations of reboot, upgrade and etc.

Picture 8-14 System maintenance

■ Reboot: Click "**Reboot**" to reboot the camera.

- Auto Maintenance: Select "**Enable**", and configure Maintenance Cycle and Maintenance Time. Click "**Save**" to validate setting.
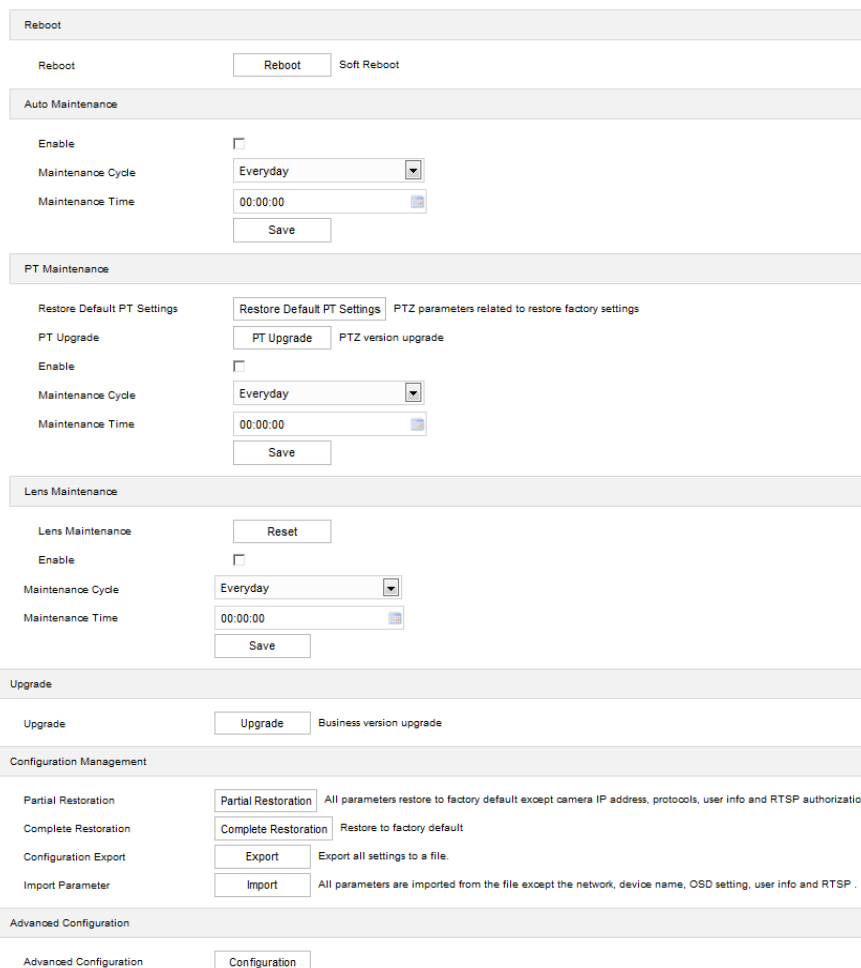
- PT Maintenance: including restore default PT settings, PT upgrade and PT maintenance.

  - Restore Default PT Settings: Restore PT settings to factory default.

  - PT Upgrade: Upgrade the PT version.

  - PT Maintenance: Select "Enable" to enable PT maintenance, and configure "Maintenance Cycle" and "Maintenance Time". Click "Save" to validate settings.

- Lens Maintenance: correct defocused and obscure images caused by out-of-step problem of lens motor.

  - Reset: Click "Reset" to start lens self-examination and the image will restore to be clear.

  - Maintenance: Select "Enable" to enable self-examination and reset. Configure maintenance cycle and maintenance time. Click "Save" to validate settings.

Note: When the lens is resetting, it will zoom in and out. Before it completes zooming, the lens will display obscure images.

- Upgrade: Upgrade business version. Click "**Upgrade**" and open local upgrade file in <*.pkg> format. During upgrading, please do nothing but waiting. After upgrading, re-login to the web client.

- Configuration Management: including partial restoration, complete restoration, and configuration export and import.

  - Partial Restoration: Click this button and all parameters will restore to factory default except network setting, access protocol, user info and RTSP authorization.

  - Complete Restoration: Click this button and all parameters will restore to factory default.

  - Configuration Export: After configuring camera parameters, you can export the configurations to local PC for copying. Click "**Export**" and select a local save path to export.

  - Import Parameter: You can import local configuration file from local PC without manual setting. Click "**Import**" and select local configuration file to import.

- Advanced Configuration: Only "admin" user can perform advanced configuration. Click "**Configuration**", input the right password for advanced user and click "**Confirm**" to enter the configuration interface.
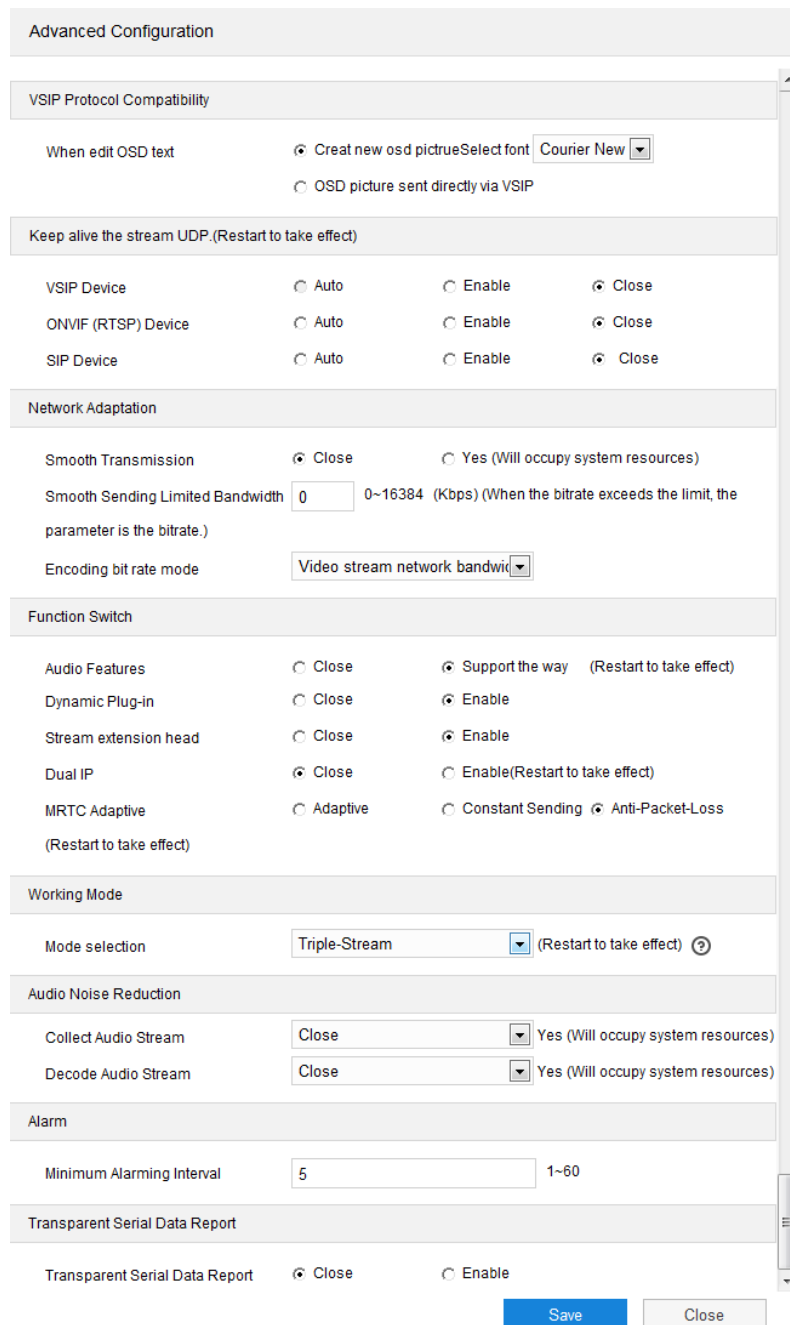
Picture 8-15 Advanced configuration

● VSIP Protocol Compatibility: select the OSD picture obtaining method for the camera when configuring OSD through VSIP; generate a new OSD picture through text and location, and change OSD font, Black or Song; or use the OSD picture sent by VSIP directly.

● Keep Alive the Stream UDP: configure VSIP, ONVIP (RTSP) and SIP applications separately, options including "Enable", "Close" and "Auto".

● Network Adaptation: enable "Smooth Transmission", which will occupy some system resources; configure "Smooth Sending Limited Bandwidth", subject to actual bitrate when the bitrate exceeds the limit; select "Encoding Bit Rate Mode", options including video stream network bandwidth, video data bandwidth and audio-video stream network bandwidth.

● Function Switch: including Audio Features, Dynamic Plug-in, Stream Extension Head, Dual IP and etc.

● Working Mode: configure the stream working mode. It takes effect after reboot.

● Audio Noise Reduction: configure "Collect Audio Stream" and "Decode Audio Stream". Options including "Close", "Low", "Middle" and "High"; enabling this function will occupy some system resources.

● Alarm: configure "Minimum Alarming Interval", value range being 1~60 s.

● Transparent Serial Data Report: After enabling this function, the system will report exceptions of serial port (the serial port of PTZ camera is connected to peripheral device but the dynamic plug-in is not enabled) to the platform.
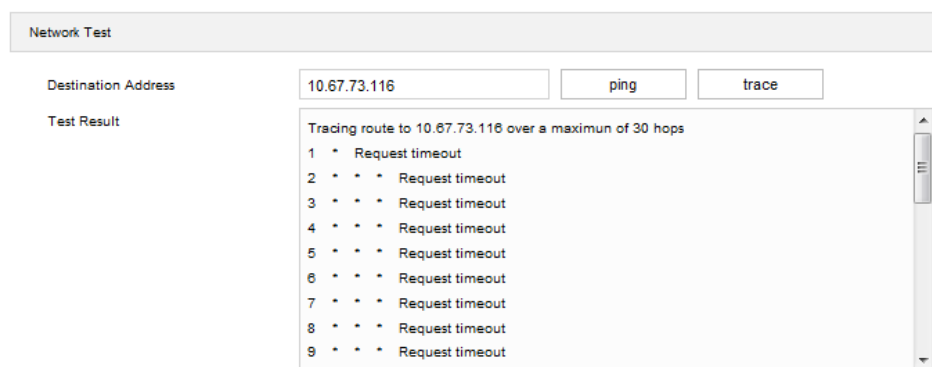
8.6.2   Network Test

Go to **Settings > System > System Maintenance > Network Test**, and test the network connectivity between the device and the destination address.

■   Enter an IP address in "Destination Address" and click "ping". The test result will show on the list below;
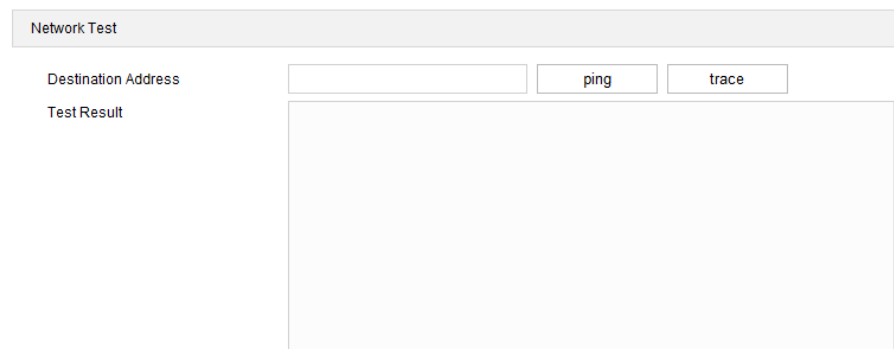
Picture 8-16 Network test- ping

■   Enter an IP address in "Destination Address" and click "trace". The test result will show the routing entries visiting the destination address. It is used to test the network routing information between the device and the destination address.

Picture 8-17 Network test- trace

8.6.3   Lifetime

Go to **Settings > System > System Maintenance > Lifetime** to view the running status of the device.

Total Runtime	118Day16Hour0Minute
Total Runtime under High Temperature	0Day0Hour0Minute
Total Runtime under Low Temperature	0Day0Hour0Minute
IR_CUT Switch Times	2354 (times)
PTZ Rotation Times in Pan	1083462 (times)
PTZ Rotation Times in Tilt	1083435 (times)
Zoom Motor Direction Switch Times	95382 (times)

Picture 8-18 Lifetime

9.   Appendix: Glossary of Terms

Term	Explanation
HD	High Definition
QXGA	Resolution of 2048*1536 pixels (4:3)
UXGA	Resolution of 1600*1200 pixels (4:3)
1080P	Resolution of 1920*1080 pixels (16:9)
720P	Resolution of 1280*720 pixels (16:9)
CIF	Resolution of 352*288 pixels
QCIF	Resolution of 176*144 pixels
PC	Personal Computer
IP	Internet Protocol
MPEG4	Moving Pictures Experts Group
NAT	Network Address Translation
DHCP	Dynamic Host Configuration Protocol
DDNS	Dynamic Domain Name Server
PPPoE	Point to Point Protocol over Ethernet
H.265	HEVC/H.265 standard, High Efficiency Video Coding, a new digital video compression format put forward by ITU-T VCEG after H.264
H.264	AVC/H.264 standard, a new digital video compression format put forward by ISO and ITU after MPEG4
MJPEG	Motion Joint Photographic Experts Group
SVAC	Surveillance Video and Audio Coding
GB28181	Technical requirements about information transmission, exchange and control over security and surveillance networking
ROI	Region of Interest
ONVIF	Open Network Video Interface Forum
NTP	Network Time Protocol