

KEDACOM

User Manual for Intelligent Tracking System

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Target Audience

Administrators and Operators of Video Surveillance Products


Document Version

V1.1

Related Document

Quick Start Guide

Convention

Icon	Convention
	Notes and warning: necessary supplement of operations
Sign	Convention
BOLD	Menu, e.g. Drag to Zoom
>	Connector between menus of different 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 $\leq 4\Omega$ and the earth lead section surface must be $\geq 25\text{mm}^2$.
7. The anti-thunder grounding wire of the dome camera uses multi-strand copper cable with section surface $\geq 4\text{mm}^2$ (strand diameter about $\geq 2.3\text{mm}$).

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1. Product Brief

The intelligent tracking system is composed of one box camera and 1~3 dome cameras. It could track multiple targets in broad scenarios. It could recognize faces, people, motor vehicles and non-motor vehicles; and it could detect, track, and capture targets by classifications, and analyze and extract their attributes. Starlight ultra-low illumination imaging and IR light compensation enable the camera to track all day and to form images clearly without missing.

System features:

- **Reliable:** Apply the cutting-edge motion detection and multi-target tracking technology to track and lock multiple fast-moving targets.
- **Comprehensive:** Composed of a panorama box camera and 1~3 intelligent tracking dome cameras, it records both the panorama and the close-up videos.
- **Optimum snapshot:** Support capturing optimum snapshots of faces, people, non-motor vehicles and motor vehicles automatically.
- **Face attribute:** Support recognition of age, sex, face mask, glasses, expression, gesture, hair style, hair color, hat and etc.
- **Person attribute:** Support recognition of top and bottom clothes, color, texture, style, knapsack, riding and etc.
- **Vehicle attribute:** Support recognition of vehicle plate, plate color, vehicle color, vehicle type, color shade, manufacturer, sub-brand, model year and etc.
- **Performance index:** The surveillance distance is up to 120 m; analyze and track up to 60 moving targets; target switch interval is short to be 1 s.
- **Configuration:** The system supports alarming, guard tour and periodic surveillance of 3 levels of guard areas.
- **Tracking mode:** The system supports 3 tracking modes, automatic, semi-automatic and manual.
- **Back-stage management:** the back-end accesses to the platform for uniform management. Support video wall, video storage and remote configuration.

1.1 Product Appearance



Picture 1-1 Box camera

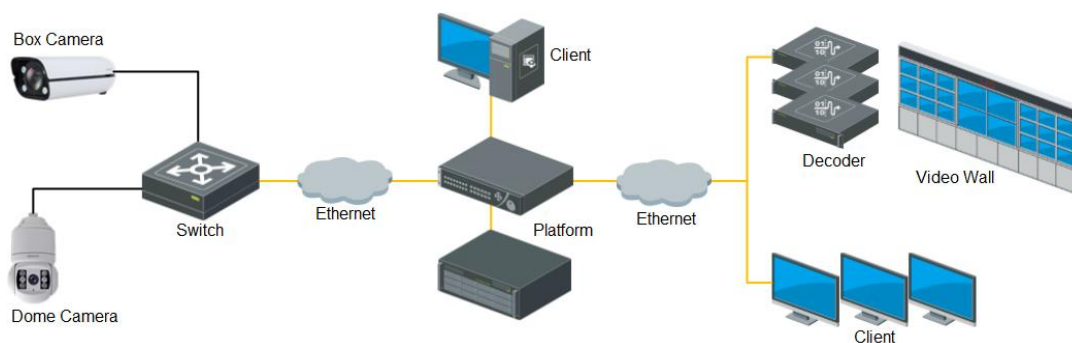


Picture 1-2 Dome cameras

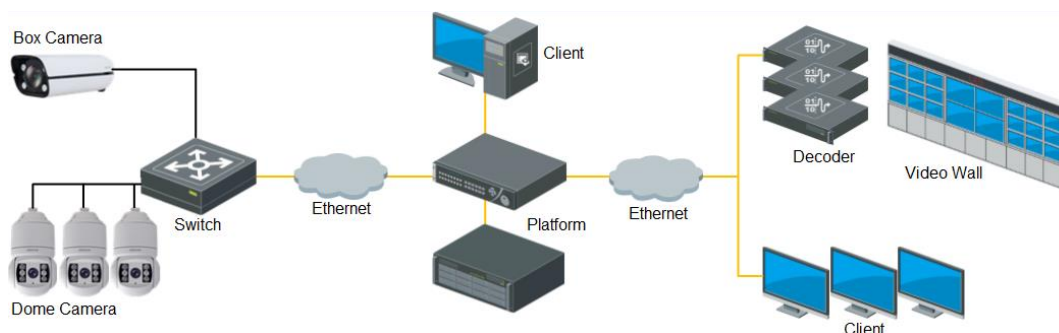
1.2 Applicable Scenarios

The intelligent tracking system is mainly used in broad scenarios for multi-point tracking so as to greatly improve the efficiency of videos. It suits to be applied in important and key areas such as government institutions, prison perimeter, airport, parking lot, school, commercial plaza or traffic hotspot where the people and vehicles are not too crowded.

1.3 Topology



Picture 1-3 Box camera + one dome camera




Picture 1-4 Box camera + three dome cameras

2. Start Up

Please refer to the Quick Start Guide for installation and wiring of the system.

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

 **Note:** You are responsible for risks of accessing cameras to the Internet, including but not limited to possible cyber-attack, hacking attack, virus infection and etc. This company is not responsible for the product failures and information disclosure caused thereby, but will provide timely technical support for the cameras.

Requirements of PC for installing the client of 2.0MP/4.0MP Dome Camera:

- Processor: 3.3 GHz CORE®i3 series and later version or other equivalent processors
- RAM Memory: 4GB or above
- Operating System: Windows 7 or higher versions
- Browser: Browser (32 bits): 360 browser, IE11.0 or newer, Firefox (51.0 and lower versions), Google Chrome (41.0 and lower versions)
- DirectX: 9.0 C

Requirements of PC for installing the client of 8.0MP Dome Camera:

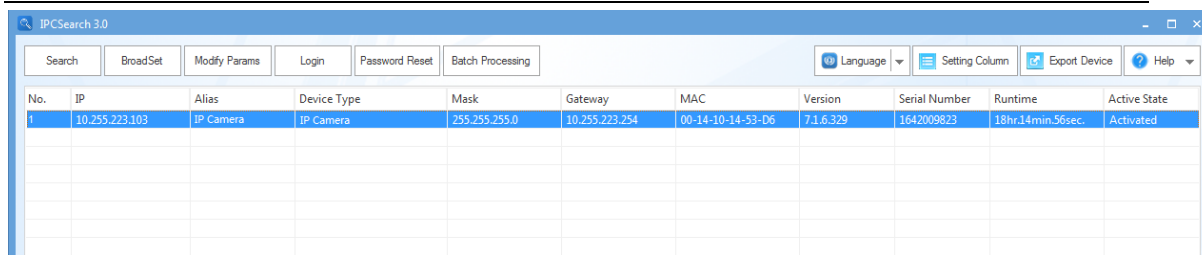
- Processor: CORE®i5-7500 and higher
- Display Card: HD-630 GPU or above
- RAM Memory: 8GB or above
- Operating System: Windows 7 or higher version
- Browser (32 bits): 360 browser, IE11.0 or newer, Firefox (51.0 and lower versions), Google Chrome (41.0 and lower versions)
- WEB Plug-in: Hardware decoding plug-in
- 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
 - a) Get IPCSearch from our website (<https://www.kedacom.com/cn/softtools/index.jhtml>) and install it according to the prompts.
 - b) After finishing installation, open IPCsearch and the system will search the cameras in LAN and display the list as shown below.

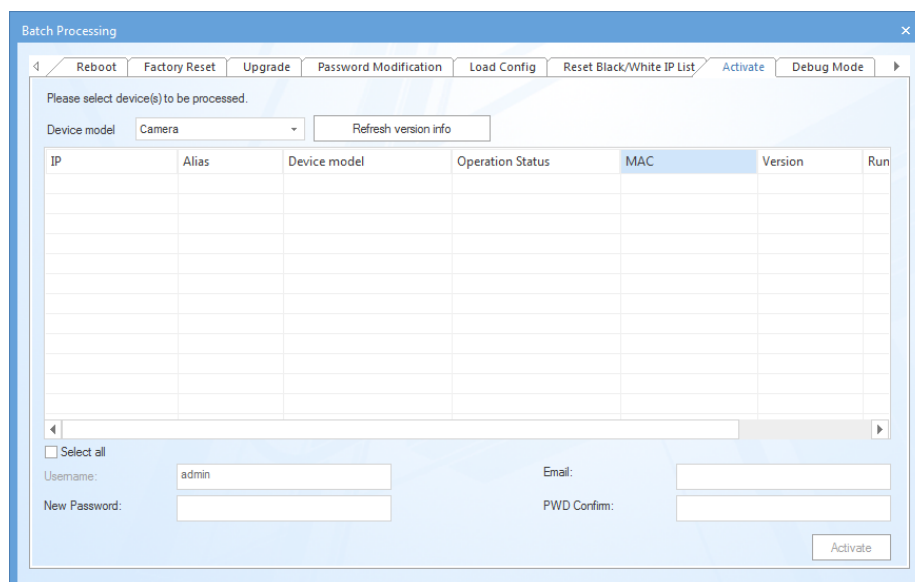


Picture 2-1 IPCSearch

i Note: Device type and alias is subject to the search result.

- c) 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”.

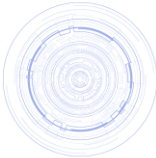
i Note: When there are more than one non-activated devices, select the devices and click “Batch processing”. On the popup interface, set admin user’s password and the email address to claim password. Click “Activate” and wait for rebooting.



Picture 2-2 Batch Processing

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

Login



WeakStrong

Please choose a password with 8-16 characters. Your password must also contain two or more combinations of upper and lowercase letters, numbers, and symbols.

When admin's password gets lost, find it back through this email. Make sure this email address is safe and valid.

Active

Picture 2-3 Activate through browser

- b) Configure admin user password and email for claiming password. Click “Activate”.

i 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 Quick Setting of Network Parameters

After activating the device, user can quickly modify the network parameters of the camera through IPCSearch, including IP address, subnet mask, gateway and etc.

i Attention: The IP camera of this company goes out with DHCP service enabled by default and it will obtain IP address automatically. For the intelligent tracking system, user should configure static IP address for the cameras and ensure the box and the dome cameras are set in the same network segment and could communicate mutually.

- 1) Open IPCSearch and the system will search the cameras in LAN automatically and display the results on the list;
- 2) Select a camera to be configured, click “**Modify Params**” or right click the mouse. Modify parameters and fill the password set during activation.

Modify Params

Device: Camera
MAC: 00-14-10-0F-56-7D
Type: Camera

Device Address

Auto-obtain device address(Open DHCP).
 Custom device address(Close DHCP).

IP Address: 10 . 255 . 236 . 51
Subnet Mask: 255 . 255 . 248 . 0
Gateway: 10 . 255 . 232 . 254

Modify VMS Registration Address

Enable LDS

IP Address 10 . 255 . 232 . 241
 Domain www.example.com
Port: 5510

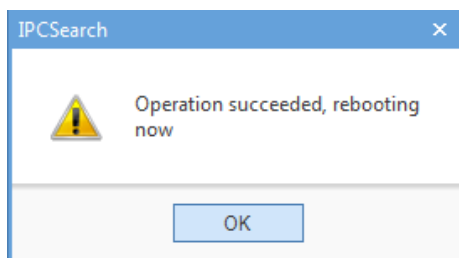
Username: admin
Password:

Tip:
Once the modification is saved,the device would reboot automatically and activate the settings.


OK Cancel

Picture 2-4 Modify Parameter

- 3) Click “OK” and in the popup window click “OK”. Wait for rebooting.



Picture 2-5 Reboot device

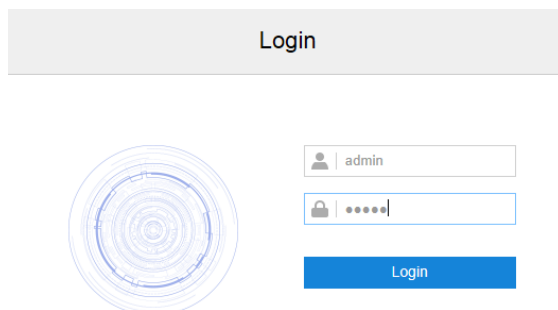
 Note: To configure more parameters, login to the web client and modify. Please refer to Chapter 5 for details.

2.3 Login and Log Out

➤ Login

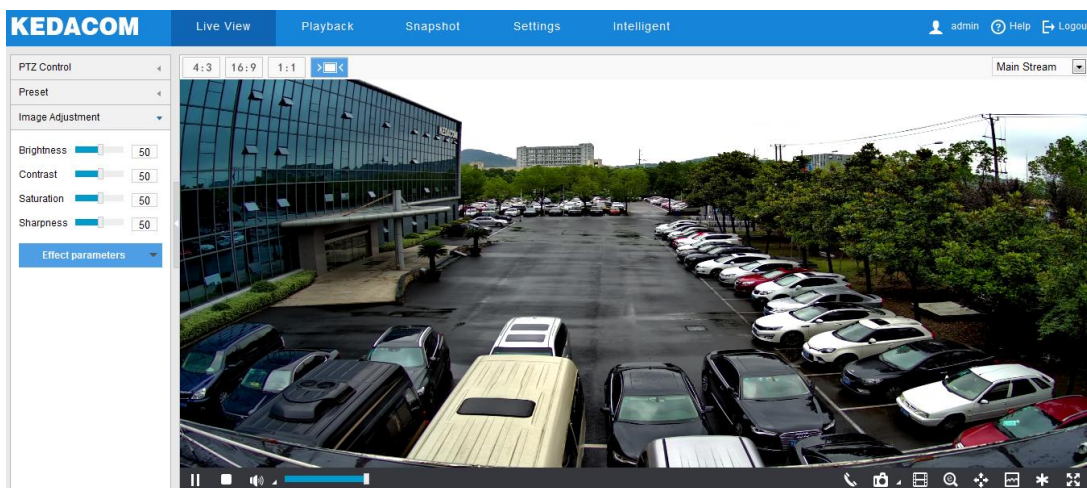
After activating the camera and modifying the parameters, the device will reboot. After reboot, the button will be enabled again. Select either of the following methods to login to the web client.

- Please select the device from IPCSearch and click “**Login**” or double click the line the device is in to enter web client. Input username and the password set during activation and click “**Login**” to enter the client.
- Enter camera IP address in the address bar of the browser to login to the web client. Input username and the password set during activation and click “**Login**” to enter the client.



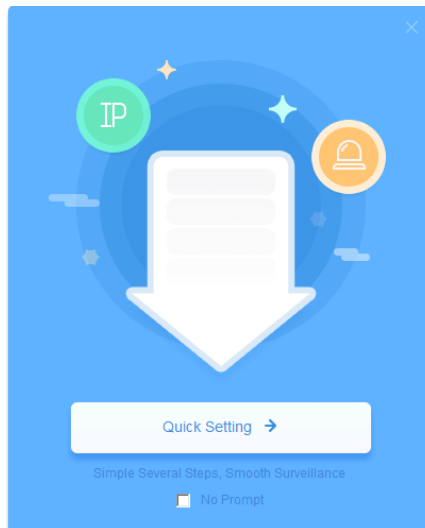
Picture 2-6 Login Interface

When login successfully for the first time, please download and install the plug-in. Close browser during installation. After finishing, re-login to the web client. Interface after login is shown below.



Picture 2-7 Web Client Interface

i Note: After logging into the web client successfully for the first time, the “Quick Setting” window will pop up. Click “Quick Setting ->” to enter quick setting interface and perform simple settings. To disable quick setting, go to **Settings > Local Setting** and unselect “Enable Configuration Guide” checkbox; or select “No Prompt” under “Quick Setting ->” on the quick setting interface.



Picture 2-8 Quick setting interface

LAN

IP Address Configuration

NIC	GLAN1	
IP Version	IPV4	
Mode	Static	
IP Address	10.255.248.52	Test
Subnet Mask	255.255.255.0	
Default Gateway	10.255.248.254	
MAC Address	00-14-10-13-2A-42	
MTU	1500	1280~1500


DNS Server Setting

Automatically Obtain DNS	<input type="checkbox"/>
Preferred DNS Server	<input type="text"/>
Alternate DNS Server	<input type="text"/>


Skip Next

Picture 2-9 Quick setting

➤ Log Out

On the live view interface, click  Logout to log out.

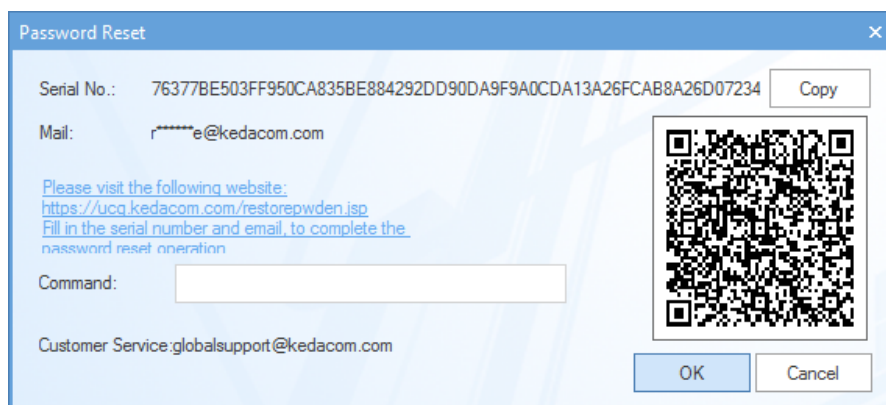
➤ Help

Click the icon  Help at the top right corner of the window and the help file interface will pop up. User can view the help file of the device.

2.4 Password Reset

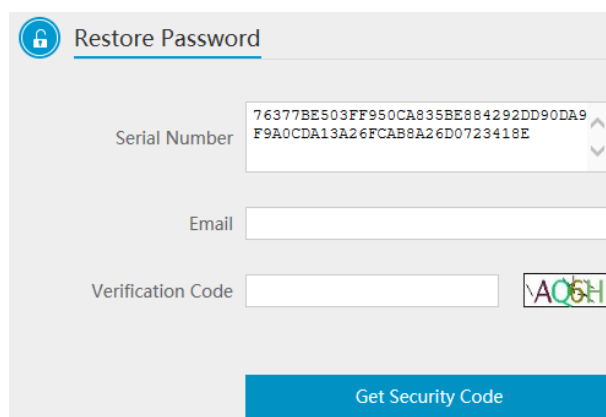
If user enters a wrong username or password for 6 times, the camera IP will be locked up for 10 minutes, during which user cannot login to this camera. If user forgets the password, reset the password.

- 1) Open IPCSearch and select the device whose password needs to 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 camera, you can view live video, playback video records, manage snapshots and configure settings.

- Live View: preview camera live video and adjust camera parameters;
- Playback: search, playback and download video records by timeline;

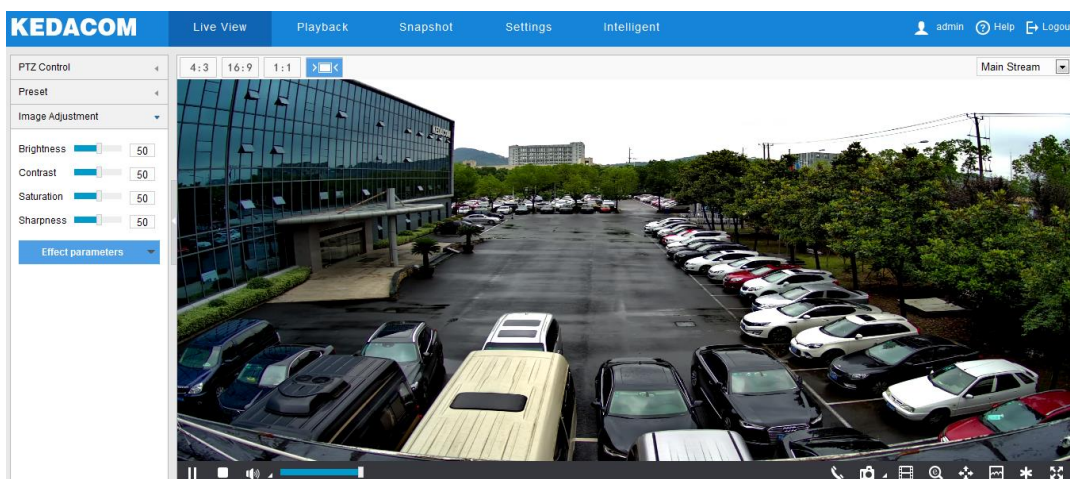
- Snapshot: view, search and download snapshots by picture types;
- Settings: configure camera functions and system parameters.
- Intelligent: configure the intelligent tracking system and browse the live view thereof.

3. Basic Functions

By the web client, user can not only view live images, but also capture snapshots and record videos and configure alarm linkage.

3.1 Live View

Click “Live View” to enter the preview interface.

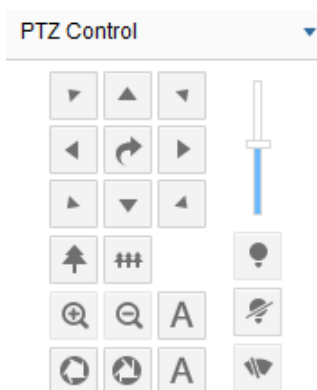


Picture 3-1 Live View







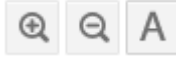











Click the hidden button on the left of the interface to hide PTZ control, Preset and Image Adjustment interfaces. Click it again to show the interfaces.

3.1.1 PTZ Control

Click **PTZ Control** to show the following interface:

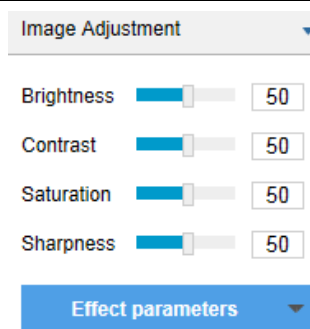


Picture 3-2 PTZ Control

Icon	Note
	<p>The 8 direction buttons control the pan and tilt rotation of the PTZ. Click them to adjust the direction of image;</p> <p>Click  and the camera will patrol in pan; click again to stop.</p>
	<p>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.</p>
	<p>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.</p>
	<p>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  to focus automatically.</p>
	<p>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  to adjust aperture automatically.</p>
	<p>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.</p>
	<p>Wiper is used to clean the glass dome. Click the icon to enable wiper and click again to disable. The wiper will stop automatically after 10 brushes. Click it to enable it again if necessary.</p>

3.1.2 Image Adjustment

Click **Image Adjustment** to show the following interface:







Picture 3-3 Image adjustment

Adjust image brightness, contrast, saturation and sharpness if necessary by dragging the slide bars or enter a value behind the slide bars.

- **Brightness:** Adjust current image brightness by actual request. The higher the value is, the brighter the image will be.
- **Contrast:** Adjust current image contrast by actual request. The higher the value is, the clearer the contrast between the dark and the bright of the image will be.
- **Saturation:** Adjust current image saturation by actual request. The higher the value is, the fresher the image will be.
- **Sharpness:** Adjust current image sharpness by actual request. The higher the value is, the more distinct the objects on the image will look.
- **Effect parameters:** Load set image parameters by request. Go to **Settings > Camera > Image > Image Quality > Effect Parameters**, and refer to **Effect Parameters** in Chapter 6 for details.


3.1.3 Live View Window

➤ Aspect Ratio

















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

➤ Stream Selection

- **Main Stream:** Display the HD image. It is the encoding format of live view, and can be set in **Settings > Camera > Video > Encoding Format**.
- **Secondary Stream:** Display the SD image. It is the encoding format of live view, and can be set in **Settings > Camera > Video > Encoding Format**.
- **Third Stream:** Display the SD image. It is the encoding format of live view, and can be set in **Settings > Camera > Video > Encoding Format**.

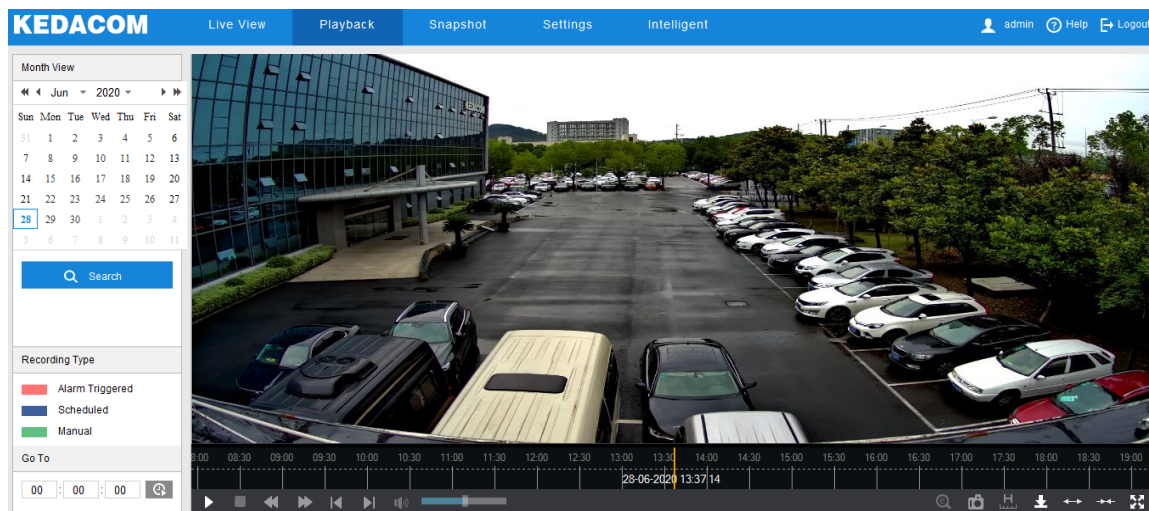
 Note: After enabling third stream in **Settings > Camera > Video > Encoding Format**, the live view interface will show the display option of third stream.

➤ **Toolbar**

-  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 full screen.

3.2 Playback

Click **“Playback”** to enter the interface of recording management. User can search, view and download video records saved in the SD card.




Picture 3-4 Playback

Operation steps:


- 1) Select recording duration from the calendar. If there is a blue triangle 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).











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



- ◆ Alarm video 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 video recording: Enable video recording automatically during certain durations. Configure on the interface of **Settings > Storage > Recording**.
- ◆ Manual video recording: When the camera is disconnected from VMS or NVR, the 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 skip playing. Also, user can set playback time under **“Go To”** and click  to select playback time.

Buttons on the playback interface:

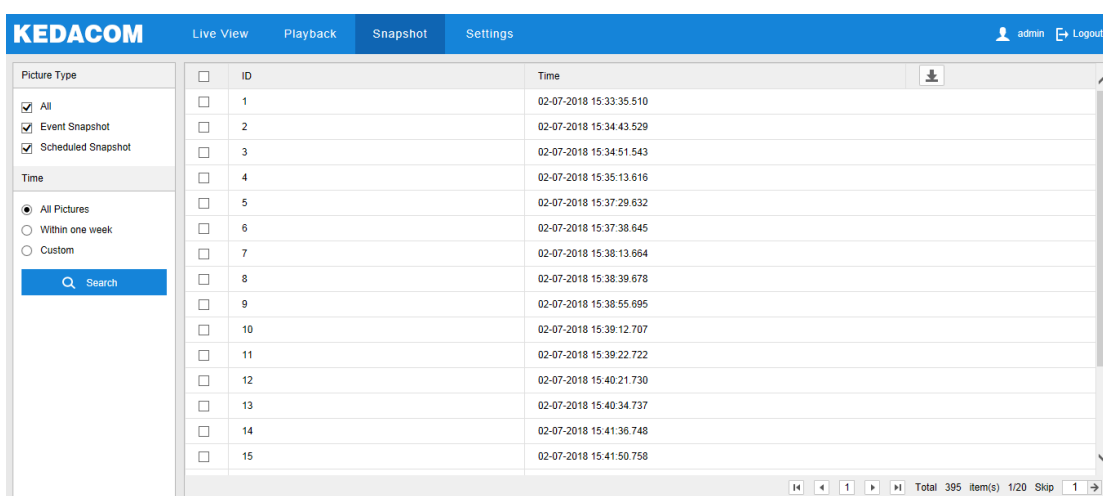
Icon	Note
	Play/ Pause, click the icon to play the video and click again to pause.

	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. Click it in continuous video and it skips 1 hour by default.
	Next video section, click the icon to play the next video section and user can click it continuously. Click it in continuous video and it skips 1 hour by default.
	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. The save path for playback snapshots can be set in Chapter 3.4 Settings > Local Setting.
	Clip, click this icon to start clipping current video and click again to stop clipping. The save path for clipped playback videos can be set in Chapter 3.4 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. Select the files to be downloaded and click " Download ". User can view the download progress on the list. Save path can be set in Chapter 3.4 Settings > Local Setting.

	<p>Zoom in/ Zoom out timeline, adjust the scale interval on the timeline.</p> <p>Click the icons to zoom in or zoom out the timeline. The scale intervals on the timeline include 5 min, 10 min and 30 min. Zooming of the timeline will not affect the playback of current video.</p>
	<p>Full screen, click this button to display the video in full screen.</p> <p>Double-click on the screen or press Esc to exit.</p>


3.3 Snapshot

Click **“Snapshot”** to enter the interface of snapshot management. User can view or download snapshots in SD card.



Picture 3-5 Snapshot

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  to download the selected pictures. Snapshot save path can be set in **Local Setting > Camera Snapshot Save Path**.

3.4 Local Setting

Go to **Settings > Local Setting**, and configure parameters of video playing, the size and save path of video records and snapshots on local PC, as shown in the following picture.

Local Setting

Play	
Protocol	<input checked="" type="radio"/> TCP <input type="radio"/> UDP
Performance	<input type="radio"/> Real-time <input checked="" type="radio"/> Balanced <input type="radio"/> Smooth
Decoded Process Mode	<input type="radio"/> Default <input checked="" type="radio"/> Brightness Enhance
Enable Image Noise Reduction	<input type="checkbox"/>
Noise Reduction Level	<input type="range" value="1"/> 1
Enable Vertical Synchronization	<input type="checkbox"/> (Enabling this function will increase the CPU Utilization.)
Display Status Info	<input checked="" type="checkbox"/>
Rule information display	<input checked="" type="checkbox"/>
Hard Decode Perferred	<input type="checkbox"/>

Recording	
Packet size	<input type="radio"/> 256M <input checked="" type="radio"/> 512M <input type="radio"/> 1G
Local Recording Save Path	<input type="text" value="C:\Users\j mz\Documents\IPCWeb\Rec"/> <input type="button" value="View"/> <input type="button" value="Opendir"/>
Clipping Save Path	<input type="text" value="C:\Users\j mz\Documents\IPCWeb\Video\PlayBack"/> <input type="button" value="View"/> <input type="button" value="Opendir"/>
Download Save Path	<input type="text" value="C:\Users\j mz\Documents\IPCWeb\RecPlayback"/> <input type="button" value="View"/> <input type="button" value="Opendir"/>

Snapshot	
Local Snapshot Save Path	<input type="text" value="C:\Users\j mz\Documents\IPCWeb\Pic\Preview"/> <input type="button" value="View"/> <input type="button" value="Opendir"/>
Camera Snapshot Save Path	<input type="text" value="C:\Users\j mz\Documents\IPCWeb\Pic\PuGrab"/> <input type="button" value="View"/> <input type="button" value="Opendir"/>
Snapshot Save Path	<input type="text" value="C:\Users\j mz\Documents\IPCWeb\Pic\PlayBack"/> <input type="button" value="View"/> <input type="button" value="Opendir"/>

Others	
Enable Configuration Guide	<input checked="" type="checkbox"/>
Download Plug-in	<input type="button" value="Download Plug-in"/>

Picture 3-6 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: After selecting it, drag the slide bar below to adjust the noise reduction level, including 4 levels. Enabling image noise reduction will change the resolution of current image. When the level is too high, it will cause tailing effect on moving objects. Usually it's unnecessary to enable it.
 - 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 in 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 decoding will select hardware decoding first.
- Recording
- Packet Size: Configure the size of single local recording, 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 and lead user to the Quick Settings interface. It is selected by default.
- Download Plug-in: Use IE kernel browser to log into the web client. 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.

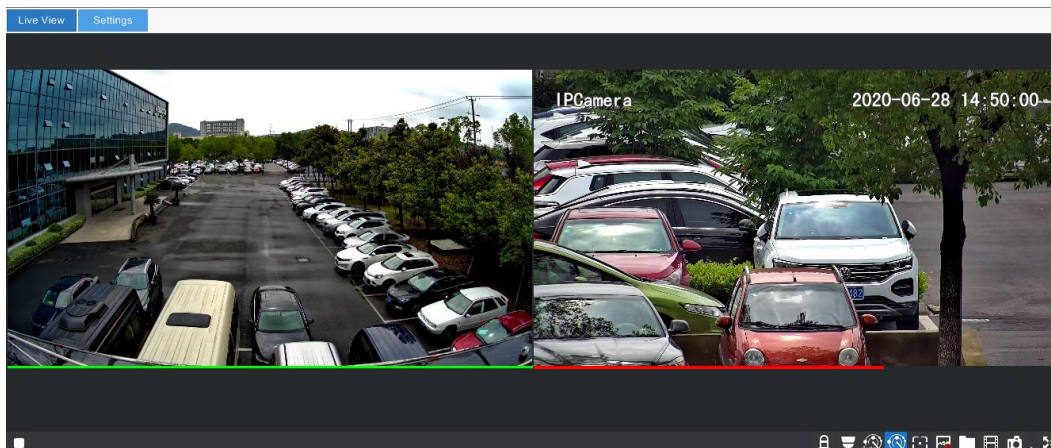


Note: Please follow the Quick Start Guide strictly during installation; ensure the normal working of functions such as preset loading and path patrol.













4. Intelligent Functions







4.1 Intelligent Live View


Click “Intelligent” to enter the intelligent live view interface, as shown below.

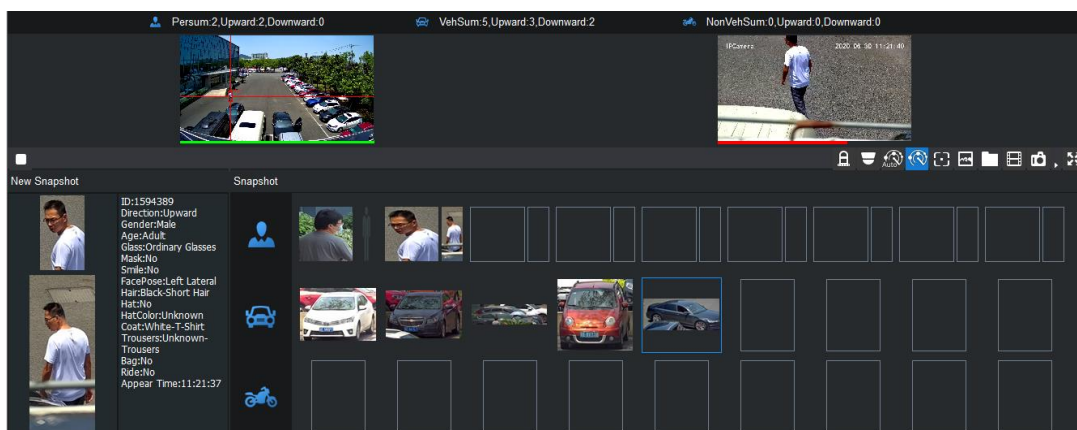


Picture 4-1 Intelligent live view

Icon	Function
 	Live view/Stop. Select a live view window and click this button to play the live video of the channel, and click again to stop viewing the selected channel.
 	Display alarm text or not. Click this button and when there is tracking target in the image of box camera, it will display the alarm text; click this button again to hide alarm text. For alarm text configuration, please refer to Chapter 4.2.2 Alarm Text.
 	Display dome camera video or not. Click this button to display the live view video of dome camera in intelligent live view window; click it again to close live view video of dome camera.
	Auto-tracking. Click this button and the system will track targets automatically according to the tracking configurations. For auto-tracking configuration, please refer to Chapter 4.2.2 Tracking.
	Semi-auto tracking. Click this button and the system will track targets automatically according to the tracking configurations, but during auto-tracking, user can select other target manually to track. For auto-tracking configuration, please refer to Chapter 4.2.2 Tracking.
 	Show tracking box or not. Click this button and the image of the box camera will show the target box and tracking box of all targets entering the guard area during arming durations; click this button again to stop showing the tracking boxes.
 	Capture and display snapshot or not. Click this button and the system will capture and filter people, motor vehicles, and non-motor vehicles according to configurations and display the qualified snapshots in “New Snapshot” area; click this button again to disable capturing function and hide snapshots. For snapshot configuration, please refer to Chapter 4.2.2 Dome Camera.

Icon	Function
	Open directory of snapshot. Click this button to open the file folder of snapshots from local PC.
	Video recording. Click this button to start video recording and click again to stop video recording. Go to Intelligent > Settings > Tracking , and configure the save path.
	Capture snapshot. Click  to capture current image. Click  to select local snapshot or camera snapshot. Local snapshot means to capture images through web client while camera snapshot means through front-end camera.
	Full screen. Select a viewing window and click this button to display the image in full screen. In the full screen image, double-click the left button of the mouse or press Esc to exit full screen.


Click  “Capture and display snapshot or not” to view real-time statistics, latest snapshots and snapshot display.



Picture 4-2 Capture and display snapshot or not

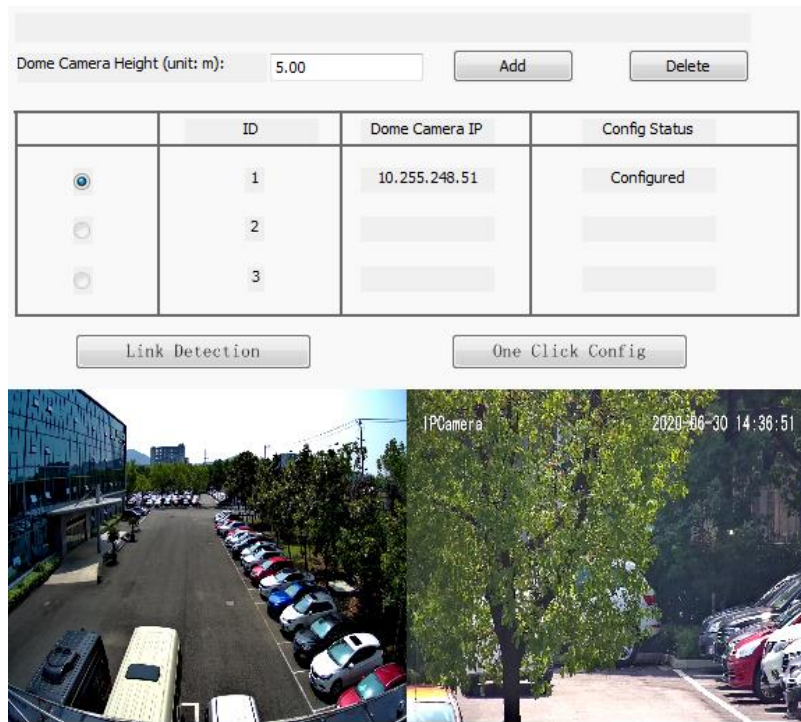
- Real-time statistics: It shows the real-time statistic information on the top of the live view window, including people sum, vehicle sum and non-motor vehicle sum and the target sum of different directions.
- New Snapshot: It shows the snapshot result of latest person, vehicle or non-motor vehicle, including target close-up picture, corresponding panoramic picture and intelligent analysis information.
- Snapshot display: It shows the recent snapshots of people, vehicles and non-motor vehicles, including both the close-up and the panoramic snapshots.

4.2 Intelligent Settings

 Note: The web interface differs a little up to the dome camera connected to the box camera. Please subject to actual devices.

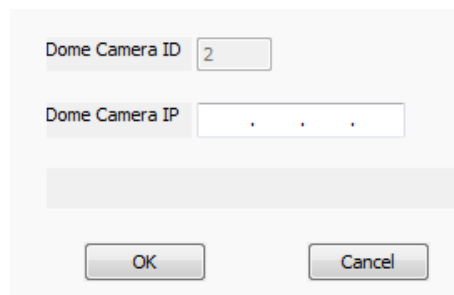
4.2.1 Initial Setting

Go to **Intelligent > Settings > Initial Setting** to add dome camera and build up the communication between the box and the dome cameras. Operation steps are as follows:



Picture 4-3 Initial setting

- 1) Input dome camera height according to the actual installation of the dome camera.
- 2) Click **"Add"** and on the popup window enter the IP address of the dome camera. Click **"OK"** to finish adding.



Picture 4-4 Fill IP address of dome camera

- 3) Select the added dome camera and click **"Link Detection"** to detect if the communication between the box camera and dome camera(s) is smooth. If the communication is fine, the live view of dome camera will rotate after clicking **"Link Detection"**.
- 4) Select the added dome camera and click **"One Click Config"** for auto calibration. After auto calibration is finished, when the **"Config Status"** is **"Configured"**, it means the configuration is done successfully. Meanwhile, the live view image of the dome camera will display in the following window.



Picture 4-5 Auto calibration

i Note:

- ◆ Before entering the IP address of the dome camera, it must have been powered on and been working normally.
- ◆ The added dome and box cameras must be the specific models for the intelligent tracking system and they must be configured in the same network segment. The address of the dome camera must be configured during installation and adjustment.
- ◆ Only when the admin passwords of the box camera and the dome camera are the same can the IP address be added.
- ◆ When the box camera co-works with 2 or 3 dome cameras, repeat the above steps.

i Attention:

- ◆ Before calibration, check if the system has disarmed.
- ◆ Auto calibration should be done at day time or when there is sufficient sunlight. Auto calibration at night may fail.
- ◆ If auto calibration at day time or when there is sufficient sunlight fails after all, please try some more times; if it still fails, please try to put some objects such as roadblocks in the tracking area to help calibration.
- ◆ If it indicates failure of auto calibration or its effect is not good, it's necessary to calibrate again. Go to **Intelligent > Settings > Initial Setting** and remove the dome camera. Then add the dome camera again and perform manual calibration; otherwise the calibration effect may be affected.

4.2.2 Custom Setting

4.2.2.1 Calibration

After adding dome camera(s), user needs to match the points in the image of box camera precisely with those in the image of dome camera, the process of which is called calibration. There are auto and manual calibrations, and click “One Click Config” for auto calibration. If auto calibration fails or the effect of it is less satisfactory, calibrate manually. The operation steps of manual calibration are as follows:

 Attention: When it is necessary to calibrate again, go to **Intelligent > Settings >**

Initial Setting and remove the dome camera. Then add the dome camera again and perform manual calibration.


- 1) Go to **Intelligent > Settings > Custom Setting > Calibration**, and select a dome camera.



Picture 4-6 Manual calibration

- 2) Operate on the image of the dome camera through PTZ control and zoom buttons, and select a clear, sharp and distinguishable point in the image as calibration reference. Double-click this point to make it centered and meanwhile the red cross mark in the image of dome camera will switch to this point, which means this point has been selected.
- 3) Click “Add Point” and the point where the mouse locates in the image of the box camera will be amplified and displayed at the top left corner with a red cross mark. After finding the calibration point corresponding to that in the image of dome camera, left click on the mouse and this point will be calibrated with red cross mark and be added successfully. To remove the added calibration point, select “Edit Point” and select the point to be removed, and click “Delete Point” to remove the point.
- 4) After adding the calibration points to the images of the box and the dome cameras, click “Build” to establish the corresponding relationship of the calibration point between the box and the dome cameras.
- 5) Repeat the above steps to add multiple pairs of calibration points if necessary. Each time at least 4 pairs of calibration points are necessary and usually the optimum is 4 to 8 pairs. It supports maximum 30 pairs of calibration points. The distribution of calibration points should be as scattered as possible and be better cover the whole surveillance area. At least, make sure that no 3 calibration points are on the same straight line.

- 6) After all calibration points are added, click "Manual Calibration". If it indicates that calibration fails, repeat operations by the above steps until it prompts calibration is successful.
- 7) After calibration succeeds, click "Verify Calibration". Left click on any point in the image of box camera to verify, and if the dome camera can rotate to the point precisely, it means the calibration is accurate; otherwise, the calibration is inaccurate. User can add, delete or adjust calibration points until the calibration is accurate. During the verification, if the deviation gap is too large, try some more times until the calibration is accurate.

 Note: When the verification point is in purple frame, it means the calibration is accurate while when in red frame, it means the calibration is relatively accurate.

- 8) When the calibration points are verified accurate, click "Stop" to finish manual calibration.

 Note:

- ◆ Try to select clear, sharp and distinguishable points as the calibration points, such as crossroad, tree root, house corners and etc.

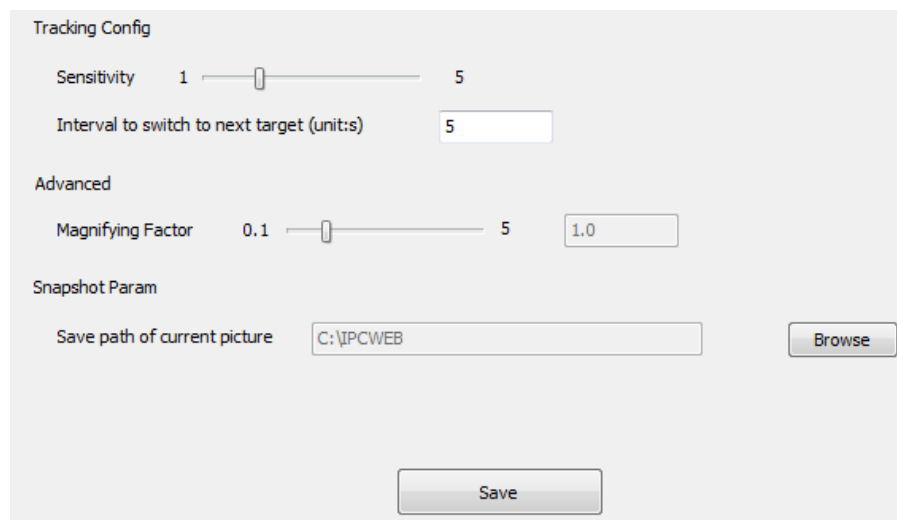


Picture 4-7 Select calibration points

- ◆ The calibration points should be as scattered as possible and avoid selecting all points on the same straight line.
- ◆ If the surveillance area is flat without bulges, put some objects such as roadblocks in the area to help calibration.

4.2.2.2 Tracking

Go to **Intelligent > Settings > Custom Setting > Tracking**, and configure the parameters according to the actual installation and scenes of the cameras so as to get satisfactory tracking and snapshot results. Operation steps are as follows:



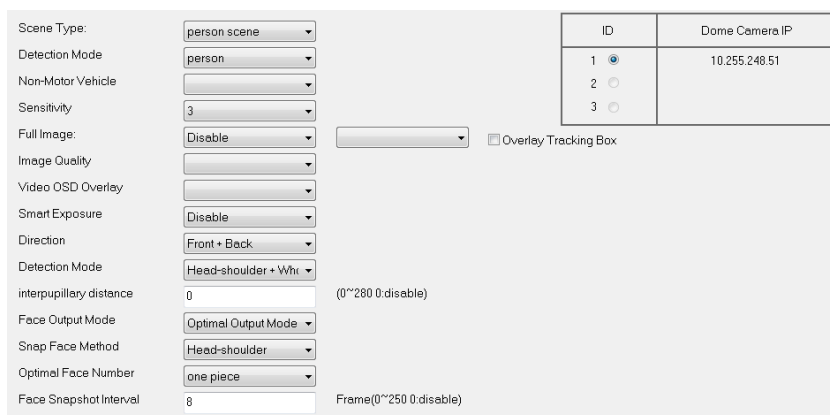
Picture 4-8 Tracking

- 1) Drag the slide bar to configure the sensitivity of the moving target. The value range is 1~5. The smaller the value is, the fewer false alarms there will be and the more serious the small targets are missed, and vice versa. Please adjust according to the actual scene.
- 2) Configure “Interval to switch to next target”, i.e. the maximum duration to track the moving target in the guard area. When the tracking duration exceeds the configured interval, the system will switch to the next target and continue to track.
- 3) Drag the slide bar of “Magnifying Factor” to adjust the magnifying times of dome camera. The larger the value is, the smaller the field of view will be and the larger the target will be.
- 4) Click “Browse” to configure the save path of snapshots.
- 5) Click “Save” to validate setting.

4.2.2.3 Dome Camera


Go to **Intelligent > Settings > Custom Setting > Dome Camera**, and configure the intelligent detection parameters of the dome camera(s). Operation steps are as follows:

- 1) On the “Dome Camera” interface, select a dome camera.




Picture 4-9 Dome camera

- 2) On the dropdown list of “Scene Type”, select a detection scene, options including “Person scene”, “Vehicle scene” and “Person + Vehicle scene”.
- 3) On the dropdown list of “Detection Mode”, select a detection mode, options including “Person”, “Vehicle” and “Person + Vehicle”.


 Note: The configuration parameters of different detection modes are different. Please subject to the actual interfaces. This manual will take “Person + Vehicle” mode as an example.

- 4) On the dropdown list of “Non-Motor Vehicle”, select “Enable” or “Disable” to output or not output non-motor vehicles.
- 5) Select a level from the dropdown list of “Sensitivity”, the range being 1~5. The lower the sensitivity is, the lower the recognition rate and the false alarm rate there will be; and vice versa.
- 6) Select “Enable” or “Disable” from the dropdown list of “Full Image”. If selecting “Enable”, you can configure the resolution of panoramic image. Select “Overlay Tracking Box” to overlay the tracking box on the panoramic image. Select a level from the dropdown list of “Image Quality”. Select “Enable” or “Disable” from the dropdown list of “Video OSD Overlay”. If selecting “Enable”, the OSD will be overlaid on the panoramic image.
- 7) Select “Enable” or “Disable” from the dropdown list of “Smart Exposure”.
- 8) On the dropdown list of “Direction”, select “Front + Back”, “Front” or “Back” to filter the output targets according to the direction (the direction facing the lens is front side).
 - Select “Front + Back” to output detected targets in front and back directions.
 - Select “Front” to output detected targets in front direction.
 - Select “Back” to output detected targets in back direction.
- 9) On the dropdown list of “Vehicle Output Mode”, select “Vehicle”, “Plate” or “Vehicle + Plate”.

 Note: When selecting “Plate” as the vehicle output mode, the panoramic image is enabled by default.

- 10) On the dropdown list of “Detection Mode”, select “Head-shoulder + Whole Person”, “Face + Whole Person”, “Head-shoulder”, “Whole Person” or “Face”. The default is “Head-shoulder + Whole Person”.
 - If selecting “Head-shoulder” or “Head-shoulder + Whole Person”, the “Face Output Mode” is “Optimal Output Mode” by default, and the default “Optimal Face Number” is 1, or you can select “Several pieces”.
 - If selecting “Whole Person”, the face-related parameters will all be disabled, such as “Face Output Mode”, “Snap Face Method”, “Optimal Face Number” and “Face Snapshot Interval”.

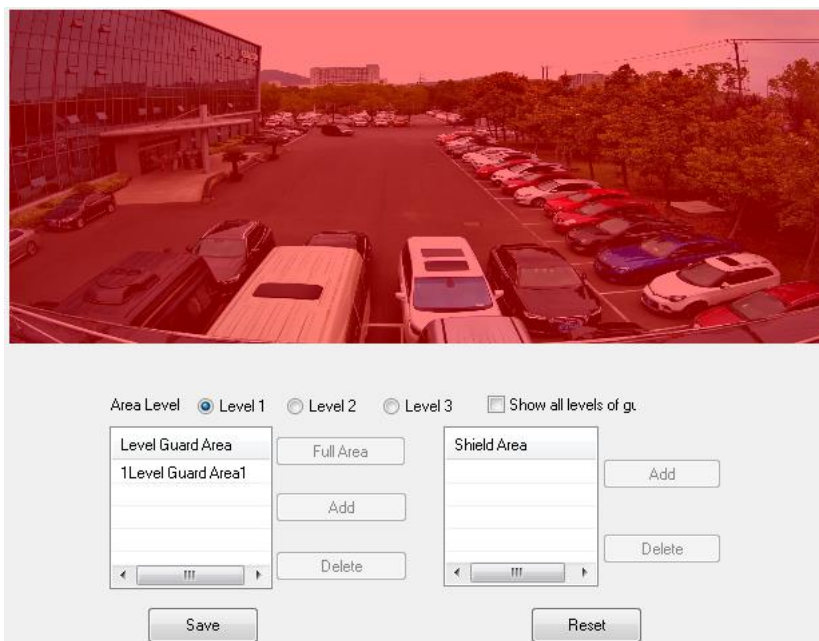
- If selecting “Face” or “Face + Whole Person”, the “Face Output Mode” can be “Optimal Output Mode” or “Continuous Output Mode”. The default “Optimal Face Number” is 1, or you can select “Several pieces”. Options for “Snap Face Method” include head-shoulder, upper body and upper shoulder. Configure “Interpupillary Distance” by actual condition. “Face Snapshot Interval” is 0 frame by default, or you can configure by request.
- 11) Click “Save” to validate settings. Click “Reset” to restore to previous configurations.
 - 12) To configure other dome cameras, repeat the above steps.

 **Attention:** The configurations should conform to that on the web client of dome camera.

4.2.2.4 Guard Area

Guard area means one or several areas defined in the image of box camera. Any moving targets entering the area(s), the system will lock them automatically and display the close-up pictures in the image of the dome camera. Configuration steps are as follows:

- 1) Go to **Intelligent > Settings > Custom Setting > Arming**, select “Disable” and click “Save”.
- 2) Go to **Intelligent > Settings > Custom Setting > Guard Area**.



Picture 4-10 Guard area setting

- 3) Select “Area Level” by request. Level 1 has the top priority to be guarded, Level 2 inferior and Level 3 the least.
- 4) The default setting is full area guard at Level 1. To clear full area guard, select the area from the list of “Level Guard Area” and click “Delete”. Click “Add” and left click by request on the image to determine the vertexes to form a guard area.

- 5) Click "Save" and the guard area will be added successfully. Select this area from the list of "Level Guard Area" and click "Delete" to clear this area. Click "Reset" to restore to previously saved configuration.
- 6) Click "Add" in Shield Area column and left click by request on the image to determine the vertexes to form a shield area.
- 7) Click "Save" and the shield area will be added successfully. Select this area from the list of "Shield Area" and click "Delete" to clear this area. Click "Reset" to restore to previously saved configuration.



Note:

- ◆ The guard area can be edited only when the arming is disabled.
- ◆ Guard area of Level 1 is marked in red, Level 2 in purple and Level 3 in green.
- ◆ When editing the guard area or shield area, the number of vertexes should be in 3~20.
- ◆ The number of guard area or shield area on each level is maximum 8.
- ◆ The guard area must be set larger than the expected guarded area to avoid missing targets.
- ◆ To avoid false alarm, do not set trees, flags and other moving objects inside the guard areas.
- ◆ Guard areas of different levels can overlap and targets in higher level guard area in the overlapped area will be tracked by priority.
- ◆ It's better to overlap adjacent guard areas to make sure there is no gap between them which further ensures continuous tracking.
- ◆ The system tracks targets in the guard areas only, and doesn't track those in the shield areas.

4.2.2.5 Guard Tour

If there is no target showing in a specified period of time (Interval to return to watch position), the dome camera will rotate back to the watch position automatically.

Configuration steps are as follows:

- 1) Go to **Intelligent > Settings > Custom Setting > Arming**, select "Disable" and click "Save".
- 2) Go to **Intelligent > Settings > Custom Setting > Guard Tour** and select a dome camera.



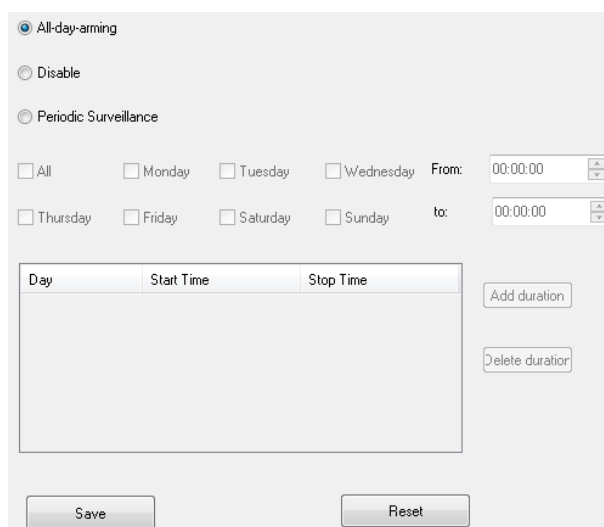
Picture 4-11 Guard tour

- 3) Adjust the field of view of the dome camera to a proper watch position through PTZ control and zoom buttons.
- 4) In the box of “Interval to return to watch position”, enter a time for the dome camera to rotate to the watch position.
- 5) Click “Add Watch Position” to finish. Click “Delete Watch Position” to delete the saved watch position. Click “Return to Watch Position” and the dome camera will rotate to the watch position.

4.2.2.6 Arming

The dome camera in the intelligent tracking system will track the moving targets entering the guard areas in the set arming durations automatically. Configuration steps are as follows:

- 1) Go to **Intelligent > Settings > Custom Setting > Arming**.



Picture 4-12 Arming

- 2) Select arming method, options including “All-day-arming”, “Disable” and “Periodic Surveillance”.
 - **All-day-arming:** The system is arming round the clock, and the dome camera tracks moving targets in the guard areas all the time.
 - **Disable:** The system does not arm at all, and the dome camera will not track any moving targets in the guard areas.
 - **Periodic Surveillance:** The system arms in the set durations and the dome camera will track moving targets in the guard areas. Configuration steps are as follows:
 - a) Select “All” or weekdays one by one.
 - b) Set the start time (“From”) and end time (“to”).
 - c) Click “Add duration” and the arming duration will display in the box. Select the added duration and click “Delete duration” to delete the duration.
 - d) Repeat the above steps to configure different arming durations.
- 3) Click “Save” to validate setting. Click “Reset” to restore to default values.

4.2.2.7 Alarm Text Overlay

When the system tracks moving targets, the image of the box camera will display the alarm text as configured. Configuration steps are as follows:

- 1) Go to **Intelligent > Settings > Custom Setting > Alarm Text Overlay**.

The screenshot shows a configuration window for 'Alarm Text Overlay'. It contains the following elements:

- Alarm Text Length:** A text input field with the value '5' and a unit 's'.
- Alarm Text Position:** Two text input fields: 'X(0~1200): 32' and 'Y(0~720): 64'.
- Font Color:** A dropdown menu currently set to 'Red'.
- Text of Level 1 Alarm:** A text input field containing 'Target entering Level 1area'.
- Text of Level 2 Alarm:** A text input field containing 'Target entering Level 2 area'.
- Text of Level 3 Alarm:** A text input field containing 'Target entering Level 3 area'.
- Buttons:** 'Save' and 'Reset' buttons at the bottom.

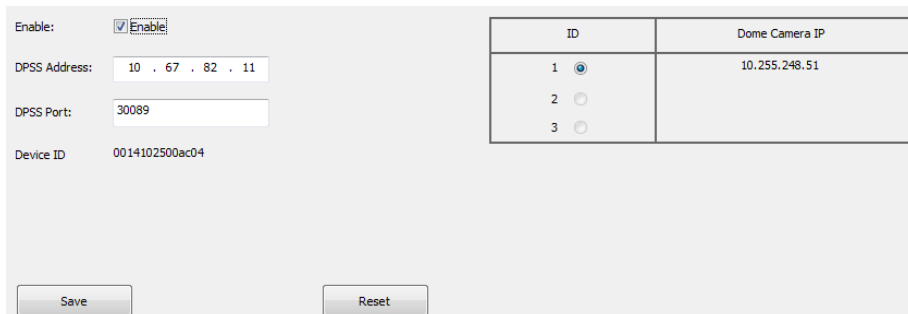
Picture 4-13 Alarm text overlay

- 2) Configure alarm text duration.
- 3) Configure alarm text position.
- 4) Select a color from the dropdown list of “Font Color”.
- 5) Configure the alarm texts for different levels of alarm.
- 6) Click “Save” to validate setting. Click “Reset” to restore to default values.

4.2.2.8 DPSS

The camera obtains the MAC address of wireless front-end device such as a cellphone through Wi-Fi, and transfers the MAC address to back-end platform through DPSS protocol.

- 1) Go to **Intelligent > Settings > Custom Setting > DPSS** and select a dome camera.



Picture 4-14 DPSS

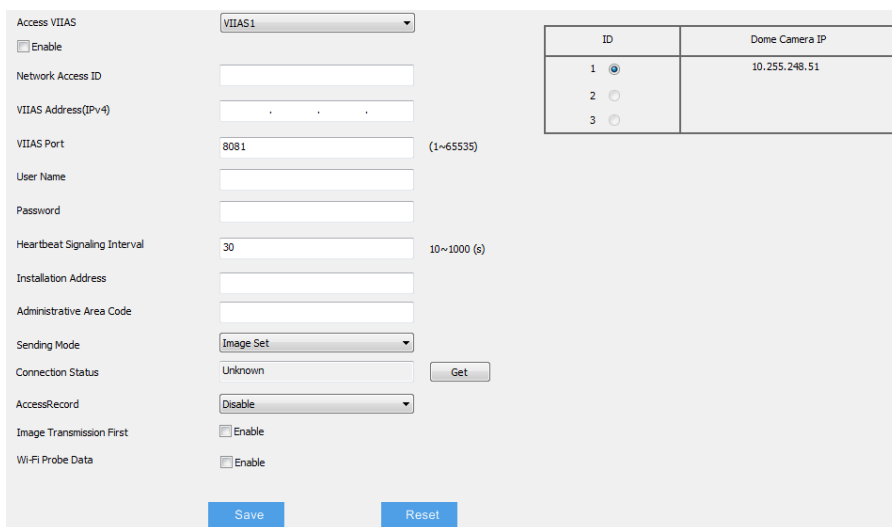
- 2) Select "Enable" to enable DPSS service.
- 3) Enter DPSS server address and port number.
- 4) Click "Save" to validate setting. Click "Reset" to restore to default values.
- 5) To configure DPSS parameters of other dome cameras, repeat the above steps.

i Attention: The configuration of DPSS should conform to that on the web client of dome camera.

4.2.2.9 VIAS


The camera could upload captured snapshots to VIAS platform as materials for future data analysis and comparison. Configuration steps are as follows:

- 1) Go to **Intelligent > Settings > Custom Setting > VIAS**, and select a dome camera.




Picture 4-15 VIAS

- 2) Select a VIIAS from the dropdown list of "Access VIIAS". The system supports multiple VIIAS platforms.
- 3) Select "Enable" to enable VIIAS access function.
- 4) Enter ID of device to access to the VIIAS platform.
- 5) Enter IP address and port number of VIIAS platform.
- 6) Enter user name and password of VIIAS platform.
- 7) Enter heartbeat signaling interval.

 **Note:** The heartbeat signaling interval is used to detect TCP disconnection. 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.

- 8) Enter "Installation Address" and "Administrative Area Code" by request for positioning the device.
- 9) Select sending mode from the dropdown list.
- 10) Click "Get" behind "Connection Status" to obtain the connection status between the device and the VIIAS platform and display in the text box.
- 11) Select a method from the dropdown list of "Access Record".
- 12) Select "Image Transmission First" and "Wi-Fi Probe Data" by request.
- 13) Click "Save" to validate settings. Click "Reset" to restore to previously saved configuration.
- 14) To configure VIIAS parameters of other dome cameras, repeat the above steps.

 **Attention:** The configuration of VIIAS platform should conform to that on the web client of dome camera.

4.2.2.10 Protocol Setting


The camera could upload snapshots and other data to platform server by configuring platform protocol. Configuration steps are as follows:

- 1) Go to **Intelligent > Settings > Custom Setting > Protocol Setting**, and select a dome camera.

ID	Dome Camera IP
1	10.255.248.51
2	
3	

Picture 4-16 Protocol setting

- 2) Select a platform from the dropdown list of "Platform".
- 3) Select "Enable" to enable platform service.
- 4) Enter platform IP address and port number.
- 5) Select a data transmission protocol from the dropdown list of "Protocol".
- 6) Select data to upload to the platform.
- 7) Enter UUID address and platform user name and password.
- 8) Configure data upload directory by request.
- 9) Configure naming rule of directory folder by selecting the options by requirements.
- 10) Click "Save" to validate setting. Click "Reset" to restore to default values.
- 11) To configure platform protocol of other dome cameras, repeat the above steps.

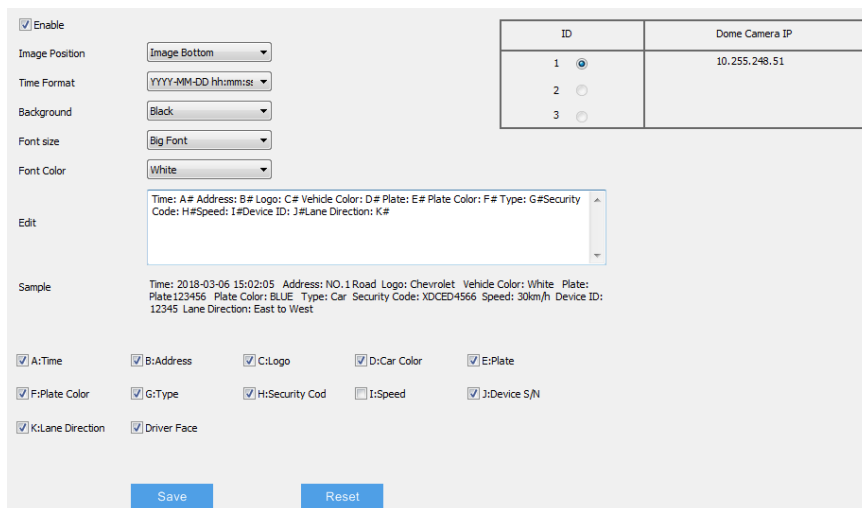
 **Attention:** The configuration of platform protocol should conform to that on the web client of dome camera.

4.2.2.11 OSD

When the system detects moving vehicles in the guard areas, it will display vehicle information according to the configured OSD. Configuration steps are as follows:

 **Note:**

- ◆ Human recognition cameras do not support OSD configuration.
 - ◆ Select "Enable", and when the panoramic image on the dome camera interface is enabled, the OSD text will be overlaid on the panoramic image.
- 1) Go to **Intelligent > Settings > Custom Setting > OSD**, and select a dome camera.



Picture 4-17 OSD setting

- 2) Select “Enable” to enable OSD on vehicle panoramic image.
- 3) Select a position where the OSD will display.
- 4) Select a time format from the dropdown list of “Time Format”.
- 5) Select a color from the dropdown list as the background color.
- 6) Select font size and font color from the dropdown lists.
- 7) Select the information to display and it will show in the text box. Adjust the OSD content sequence by the selection sequence. You can edit the text box according to the example below, such as address and lane direction.

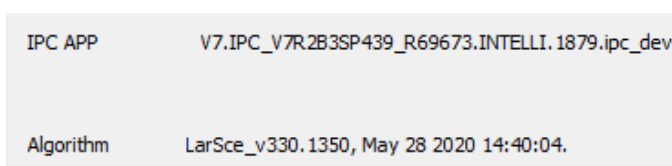
Note: After selecting “B: Address” and “K: Lane Direction”, edit in the text box according to the example below. For example, “Address: B#” can be edited as “Address: Jinshan Road B#”.

- 8) Click “Save” to validate setting. Click “Reset” to restore to previously saved configurations.
- 9) To configure OSD parameters of other dome cameras, repeat the above steps.

Attention: The configuration of OSD parameters should conform to that on the web client of dome camera.

4.2.2.12 Version

Go to **Intelligent > Settings > Custom Setting > Version** to view the versions of the intelligent tracing system.



Picture 4-18 Version

5. Network

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

5.1 IP and Port

5.1.1 LAN

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

IP Address Configuration	
NIC	GLAN1
IP Version	IPV4
Mode	Static
IP Address	10.255.32.117 Test
Subnet Mask	255.255.224.0
Default Gateway	10.255.63.254
MAC Address	00-14-10-1E-9C-60
MTU	1500 1280~1500
Default Route	GLAN1

DNS Server Setting	
Automatically Obtain DNS	<input type="checkbox"/>
Preferred DNS Server	<input type="text"/>
Alternate DNS Server	<input type="text"/>

Picture 5-1 LAN

➤ 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”.

5.1.2 Port

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

HTTP Port	<input type="text" value="80"/>	1~65535
HTTPS Port	<input type="text" value="5544"/>	1~65535
RTSP Port	<input type="text" value="554"/>	1~65535

Picture 5-2 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”.

5.1.3 Positioning

Go to **Settings > Network > IP and Port > Positioning** and configure the GPS, view current location and etc.

Enable	<input checked="" type="checkbox"/>
System	Beidou&GPS
Speed unit	km/h
Current Location	Positioning Failed <input type="button" value="Refresh"/>
<input type="button" value="Save"/>	

Picture 5-3 Positioning

Operation steps:

- 1) Select “**Enable**” to enable positioning function;
- 2) The default system is “**GPS**”;
- 3) Select speed unit, options including “km/h” and “mile/h”;
- 4) After finishing configuration, click “**Save**” and view current location below.

5.1.4 Multicast

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



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
<input type="button" value="Save"/>		

Picture 5-4 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 address 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.



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.

5.2 Access Protocol

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

5.2.1 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**;

The screenshot shows the ONVIF configuration page. Under the 'Basic' tab, the 'Enable' checkbox is checked. The 'Server Address (URL)' field contains the text 'http://10.255.32.117:80/onvif/device_service'. Under the 'Authentication' tab, the 'Authentication Method' section has two radio buttons: 'N/A' and 'WS-Username token'. The 'WS-Username token' radio button is selected. A blue 'Save' button is located at the bottom of the form.

Picture 5-5 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.

5.2.2 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.

Registered VMS	<input type="text" value="Registered VMS 1"/>	
Enable	<input checked="" type="checkbox"/>	
Local Port Number	<input type="text" value="5060"/>	1024~65535
Network Access ID	<input type="text" value="31000000001120000195"/>	
Camera Name	<input type="text" value="IPCAMERA"/>	
VMS ID	<input type="text" value="31000000002000000000"/>	
VMS Address	<input type="text" value="10.67.36.11"/>	
VMS Port Number	<input type="text" value="5511"/>	1024~65535
User Name	<input type="text" value="31000000001120000026"/>	
Password	<input type="password" value="•••••"/>	
Renewal Time	<input type="text" value="60"/>	(s) 30~999999
Heartbeat Signaling Interval	<input type="text" value="30"/>	(s) 10~1000
Camera Ownership	<input type="text" value="owner"/>	
Administrative Region	<input type="text"/>	
Guard Area	<input type="text"/>	
Installation Address	<input type="text"/>	

Video Encoding Channel ID	Video Encoding Channel Name	IPC Stream Type
31000000001320000196	enc	Main Stream
31000000001320000197	enc-2	Secondary Stream
31000000001320000198	enc-3	Third Stream
31000000001320000199	enc-4	Fourth Stream

Alarm ID	Alarm Name	Validity
Chinese GB Standard Compatibility Order		
Chinese GB Standard-->Chinese GB Standard Extension(2014)-->Chinese GB Standard Extension(2016)		
<input type="button" value="Modify Chinese GB Standard Compatibility Order"/>		
<input type="button" value="More Setting-->"/>		

Picture 5-6 SIP

5.2.3 PDNS

When camera accesses to PDNS platform, it supports logging in the web client through the platform. Configuration steps are as follows:

- 1) Go to **Settings > Network > Access Protocol > PDNS.**

Enable	<input type="checkbox"/>
Serial No.	<input type="text" value="489646"/>
Name	<input type="text" value="name"/>
APPID	<input type="text" value="appid"/>
APPKEY	<input type="password" value="•••••"/>
PDNS Server	<input type="text" value="pdns.bestkunlun.com"/>
PDNS Port	<input type="text" value="4502"/> 1~65535
Connection Status	Initial

Picture 5-7 PDNS

- 2) Select “Enable” to enable PDNS access.
- 3) Enter camera serial number and name in “Serial No.” and “Name” respectively.
- 4) Enter APP ID and password in “APPID” and “APPKEY” respectively.
- 5) Enter PDNS platform IP address and port number in “PDNS Server” and “PDNS Port” respectively.
- 6) Click “Save” to validate setting. The “Connection Status” shows the connection status.

5.3 Other Protocol

5.3.1 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;**

Enable	<input type="checkbox"/>
DDNS Server	<input type="text" value="ORAY"/> <input type="button" value="v"/>
Domain	<input type="text"/>
User Name	<input type="text" value="admin"/>
Password	<input type="password" value="•••••"/>
Status	

Picture 5-8 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.

5.3.2 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**;

Server Address	<input type="text" value="192.168.1.1"/>	
Port	<input type="text" value="21"/>	1~65535
User Name	<input type="text" value="admin"/>	<input type="checkbox"/> Anonymous
Password	<input type="password"/>	
Directory Structure	<input type="text" value="Using root directory"/>	▼
<input type="button" value="Test"/> <input type="button" value="Save"/>		

Picture 5-9 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) Click "**Test**" to verify if current FTP is available, and the result will show on the dialogue box;
- 6) Click "**Save**" to validate setting.

5.3.3 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**;

Enable	<input checked="" type="checkbox"/>
DHCP	<input type="text" value="0.0.0.0"/>
User Name	<input type="text" value="root"/>
Password	<input type="password" value="••••"/>

Picture 5-10 PPPoE

- 2) Select "Enable" to enable PPPoE function;
- 3) Input user name and password provided by ISP;
- 4) Click "**Save**" to validate setting. It will show dynamic IP after dialing succeeds.

5.3.4 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	<input type="text" value="0.0.0.0"/>	
Network Management Server Port Number	<input type="text" value="1727"/>	
Device Location	<input type="text" value="0"/>	
CPU Utilization Threshold	<input type="text" value="100"/>	1~100
Memory Utilization Threshold	<input type="text" value="100"/>	1~100
Packet Loss Rate Threshold	<input type="text" value="100"/>	1~100

Picture 5-11 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.

5.3.5 802.1X

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**;

Enable	<input checked="" type="checkbox"/>
Protocol Type	EAP-MD5
EAPOL Version	1
User Name	root
Password	••••

[Save](#)

Picture 5-12 802.1X

- 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.

5.3.6 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**;

Enable	<input checked="" type="checkbox"/>
DSCP for Audio/Video	0 0~63
DSCP Management	0 0~63

[Save](#)

Picture 5-13 QoS

- 2) Select "Enable" to enable QoS function;
- 3) Configure "DSCP for Audio/Video" and "DSCP Management", ranging 0 ~ 63;



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.

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

5.3.7 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

Port Mapping

Mapping Mode

Mapping Port Table

Select	Protocol	IP	External Port Number	Status
<input checked="" type="checkbox"/>	HTTP	0.0.0.0	0	Not Take Effect
<input checked="" type="checkbox"/>	RTSP	0.0.0.0	0	Not Take Effect
<input checked="" type="checkbox"/>	SDK	0.0.0.0	0	Not Take Effect

Picture 5-14 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.

5.3.8 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**;

SNMP Version	<input type="checkbox"/> SNMP v1 <input type="checkbox"/> SNMP v2 <input checked="" type="checkbox"/> SNMP v3	
SNMP Port	<input type="text" value="161"/>	1-65535
Read community	<input type="text" value="public"/>	
Write community	<input type="text" value="private"/>	
Trap Address	<input type="text" value="0.0.0.0"/>	
Trap Port	<input type="text" value="162"/>	1-65535
Trap Group name	<input type="text" value="public"/>	
Camera ID	<input type="text" value="00000000000000000000000000000000"/>	
Read only user name	<input type="text" value="admin"/>	
Authentication Method	<input type="text" value="md5"/>	
Authentication password	<input type="text" value="....."/>	
Encryption mode	<input type="text" value="des"/>	
Encrypted password	<input type="text" value="....."/>	
Read/write user name	<input type="text" value="admin"/>	
Authentication Method	<input type="text" value="md5"/>	
Authentication password	<input type="text" value="....."/>	
Encryption mode	<input type="text" value="des"/>	
Encrypted password	<input type="text" value="....."/>	
<input type="button" value="Save"/>		

Picture 5-15 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.

5.3.9 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:

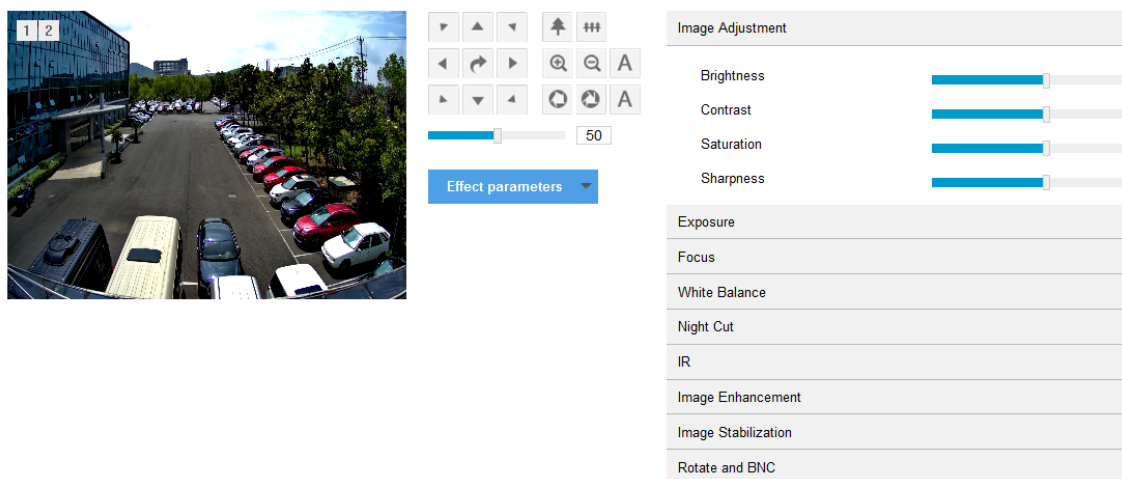
- 1) Go to **Settings > Network > Other Protocols > SMTP**;

6. Camera

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

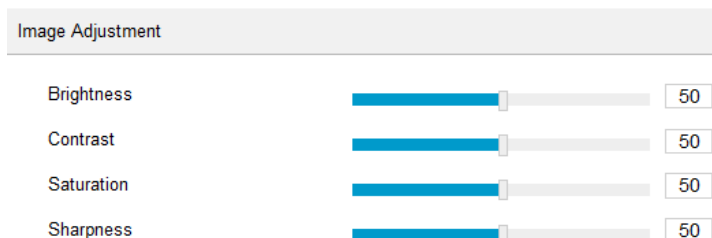
6.1 Image

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



Picture 6-1 Image

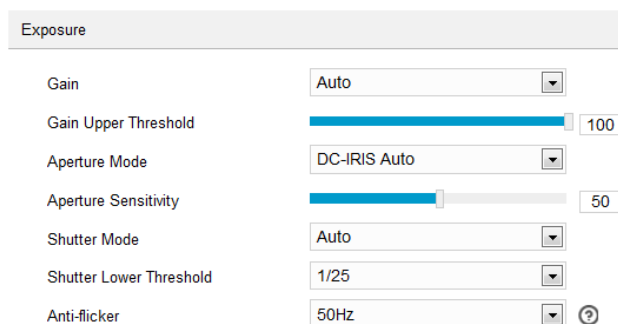
6.1.1 Image Adjustment



Picture 6-2 Image adjustment

The image adjustment in this part is the same as that on the Live View interface, which can be referred to in Chapter 3 of Image Adjustment.

6.1.2 Exposure



Picture 6-3 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.
 - 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.

6.1.3 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

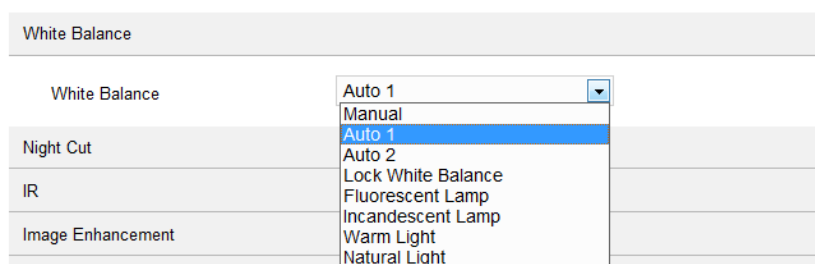
Picture 6-4 Focus

- 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.
- Camera Lock: Lock parameters of current lens. On live view interface, the zoom and focus buttons will be invalid.
- Manual Focus (Day/Night): On live view interface, click focus buttons for manual focusing and save focus parameters under day mode and night mode for future loading if necessary.
- 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.

6.1.4 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.



Picture 6-5 White Balance

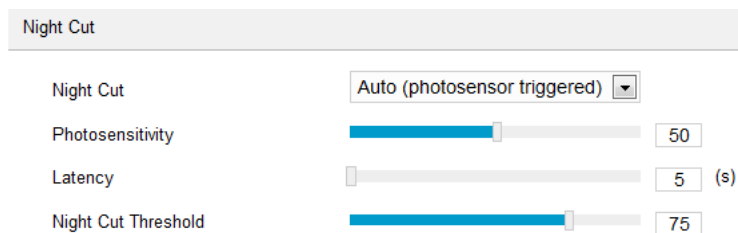
Select an option from the dropdown list of white balance mode. Suggest "Auto".

- 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.

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.

6.1.5 Night Cut



Picture 6-6 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 (photo-sensor triggered): The camera detects light strength 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 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 harder it is to switch from day mode to night mode.
- 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
<input checked="" type="checkbox"/> Everyday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Sunday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Monday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Tuesday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Wednesday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Thursday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Friday	07:00:00	18:00:00
<input checked="" type="checkbox"/> Saturday	07:00:00	18:00:00

Confirm
Cancel

Picture 6-7 Edit time

- Alarm Triggered Cut: It is the night cut triggered by alarm input. After selecting "Alarm Triggered Cut" mode, select day or night from the dropdown list. If selecting "Day", it will switch to day mode after alarm triggered.

6.1.6 IR

Select mode from the dropdown list, options including "Disable", "Manual" and "Auto", and the default is "Auto". When there is insufficient light in the scene, the camera will enable IR light automatically to obtain clear images. Drag the slide bars to adjust IR light strength.

IR

Mode Auto

Dipped Headlamp 100

High-Beam Headlamp 100

Picture 6-8 IR

6.1.7 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.

Image Enhancement

2D Noise Reduction Mode Enable

2D Noise Reduction 50

3D Noise Reduction Mode Enable

3D Noise Reduction 50

Dynamic Adjustment Disable

Image Enhancement Disable

Distortion Correction Disable

Picture 6-9 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.

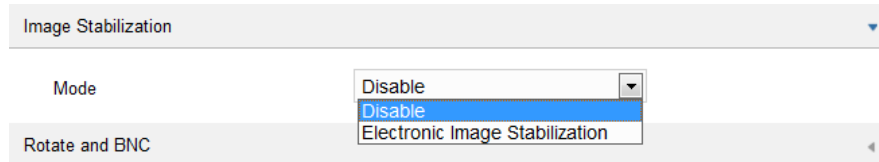


Note: When the 3D noise reduction level is too high, there will be hauling tail on moving objects. Usually, it's unnecessary to edit this parameter.

- 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 target when there is strong background light. 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.
 - 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". It is usually used under night conditions to obtain clear plate number.
 - 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".
 - Auto WDR: The camera will adjust exposure automatically according to the light conditions.
- Image Enhancement: When there is fog in the scene, select "Gamma" or "Defog" from the dropdown list to enable image enhancement and drag the slide bar to adjust the sensitivity.
- 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.

6.1.8 Image Stabilization

When the camera is installed in unstable environment, enable image stabilization to improve the stability of images.



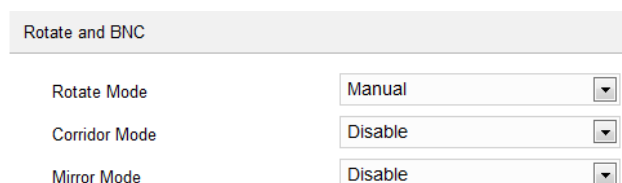
Picture 6-10 Image Stabilization

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.

6.1.9 Rotate and BNC



Picture 6-11 Rotate and BNC

Select “Auto” or “Manual” from the dropdown list of “Rotate Mode”. If selecting “Manual”, configure corridor mode and mirror mode.

- Corridor Mode: When the camera is installed side mounted, rotate the image through this function to make the image upright.
 - Disable: It is disabled by default, and the image will not rotate.
 - Left: The image will rotate anti-clockwise by 90°.
 - Right: The image will rotate clockwise by 90°.
- Mirror Mode
 - Disable: It is disabled by default, and the image will not flip.
 - Left and Right: The image will flip horizontally but vertically remains unchanged.
 - Up and Down: The image will flip vertically but horizontally remains unchanged.
 - Center: The image will flip by 180°.

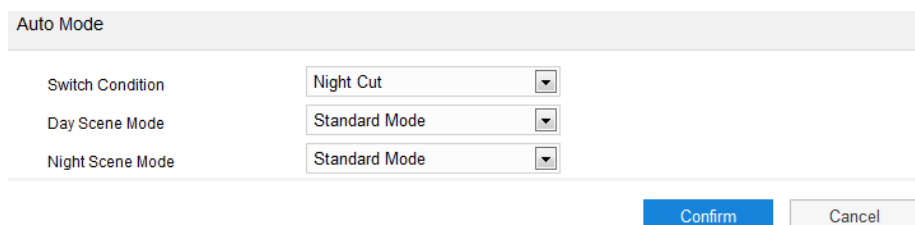
6.1.10 Effect Parameters

Effect parameters include “Auto Mode”, “Standard Mode”, “Indoor Mode” and “Save Parameters”.



Picture 6-12 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.



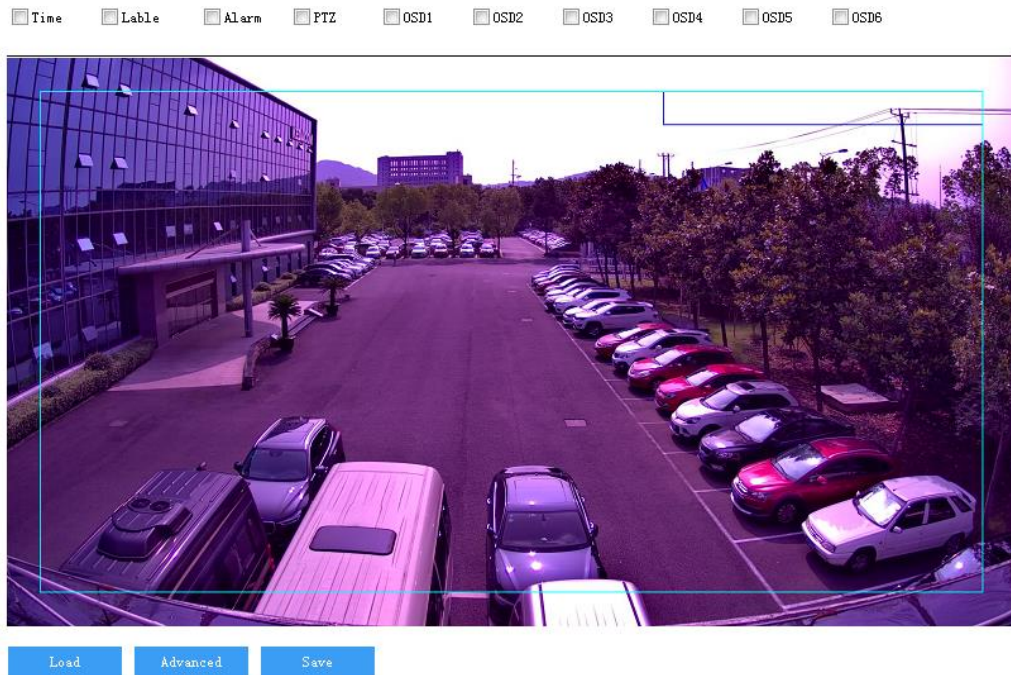
Picture 6-13 Auto mode

- 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.
- 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.

6.2 OSD

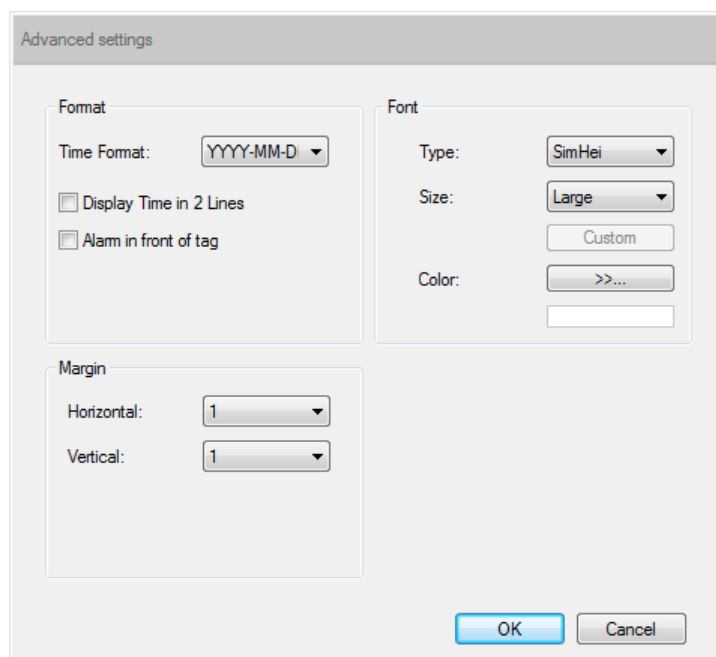
On OSD interface, you can configure OSD text on the surveillance window. Configuration steps are as follows:

- 1) Go to **Settings > Camera > OSD**;



Picture 6-14 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) 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;



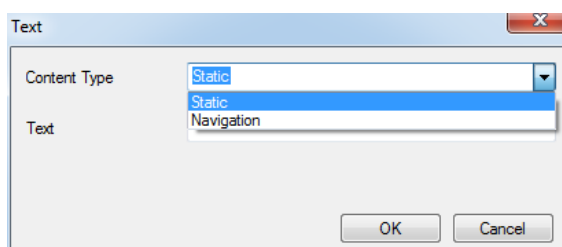
Picture 6-15 Advanced setting

- 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” or “Navigation”;



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 “Navigation”, click “OK” and the image will display the real-time location of the camera.



Picture 6-16 Text setting

- 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 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;



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.

- 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:

- ◆ 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.

6.3 Video

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

6.3.1 Encoding Format

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

The screenshot shows the 'Encoding Format' configuration interface. It includes the following settings:

- Multi-Stream:** Dual-Stream (dropdown), Effective after reboot
- Stream Type:** Main Stream (dropdown)
- Resolution:** 1280*720 (dropdown)
- Bit Rate Type:** CBR (dropdown)
- Image Quality:** Middle (dropdown)
- Frame Rate:** 25 (input), 1~25 Upper Limit
- Average Bit Rate:** 2048 (input), 32~16384 (Kbps)
- Encoding Format:** H.265 (dropdown)
- Encoding Complexity:** Middle (dropdown)
- Max Key Frame Interval:** 75 (input), 1~250
- Smart Encoding:** Close (dropdown), Effective after reboot
- Stream Smoothing Factor:** 50 (slider), (The higher factor, the lower image clarity.)

A blue 'Save' button is positioned below the settings.

Picture 6-17 Encoding Format

- **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. The higher the resolution is, the more bandwidth it requires.
- **Bit Rate Type:** Options include CBR and VBR, by which you can control stream rate. CBR is fixed bit rate while VBR means the bit rate is adaptive within the upper limit. CBR transfers stream by average bitrate with high speed compressing, but there may be mosaic on the images; while VBR adjusts bitrate automatically with slow compressing, but could ensure image sharpness under complex conditions.
- **Image Quality:** When selecting “VBR”, select image quality level from the dropdown list according to actual requirements. The higher the level is, the clearer the image will look.
- **Frame Rate:** Set the encoding frames per second. The higher the frame rate is, the more bandwidth is required and the more storage it will take.
- **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. The larger the value is, the less fluctuation of the stream there will be and the worse the image will be, vice versa.
- **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.



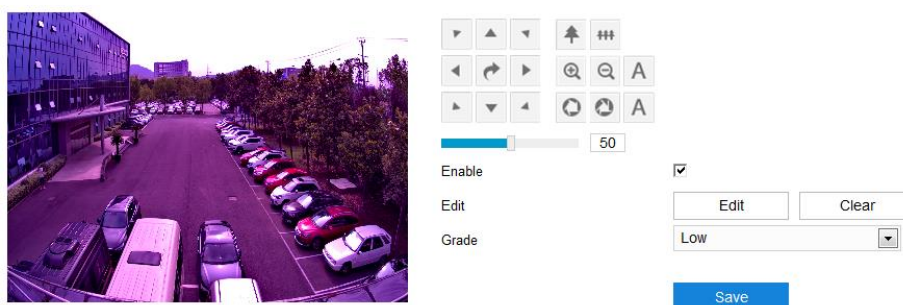
Note:

- ◆ 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.

6.3.2 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**;



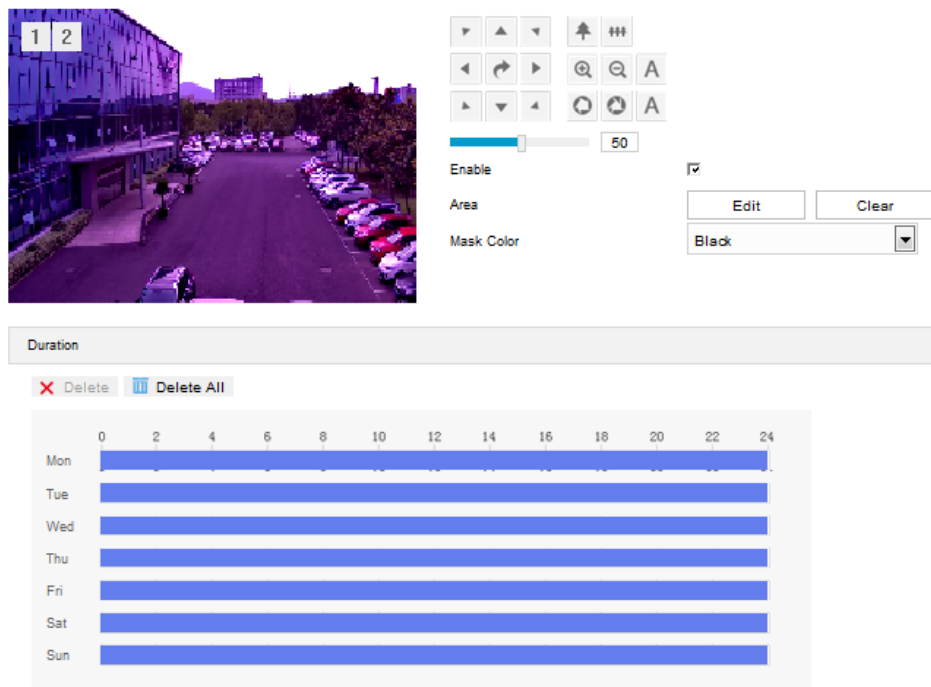
Picture 6-18 ROI

- 2) Select “Enable” to enable ROI function;
- 3) 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;
- 4) Click "**Save**" to validate setting.

6.3.3 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 6-19 Privacy mask


- 2) Select "Enable" to enable privacy mask;
- 3) 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;
- 4) Select a color from the dropdown list of "Mask Color";
- 5) Configure arming duration. The default arming duration is 24 hours in blue bars, or you can customize the durations;



Picture 6-20 Arming durations

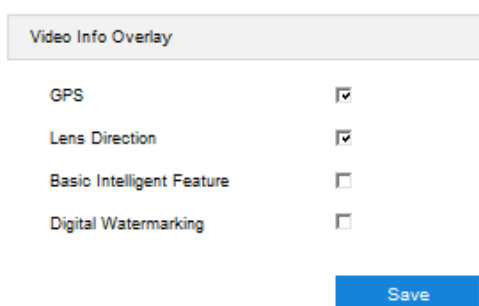
- Set duration: Select a day of the week and click the white bar behind it and drag mouse to make a blue bar as the task duration of the day. Select the duration and there will be a window showing the start time and end time of the duration, and you can edit the time duration more accurate. Click "Save" 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.
- 6) Click "**Save**" to validate the settings.

6.3.4 Video Info Overlay

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



Picture 6-21 Video info overlay

- **GPS:** Select it to show camera coordinates in the image.
- **Lens Direction:** Select it to show lens direction in the image.
- **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.

6.4 Audio

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

6.4.1 Audio Encoding

Go to **Settings > Camera > Audio > Audio Encoding**, and configure Audio Source Setting and Audio Encoding Setting.

The screenshot shows two configuration panels. The top panel, titled 'Audio Encoding Setting', includes:

- 'Encoding Channel' set to '1'.
- 'Sampling Rate' set to '8k'.
- 'Encoding Volume' represented by a slider bar at the 50 mark.
- 'Encoding Format' set to 'G.711a(PCMA)'.
- 'Echo Cancellation' with an unchecked checkbox.

 The bottom panel, titled 'Video Encoding Binding', includes:

- 'Video Encoding Channel' set to 'Main Stream'.
- 'Bound Channel' with two checkboxes: 'Audio Encoding Channel1' (checked) and 'Audio Encoding Channel2' (unchecked).

 A blue 'Save' button is located at the bottom center of the interface.

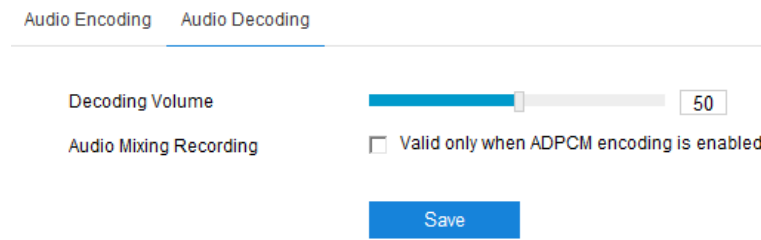
Picture 6-22 Audio encoding

- Audio Encoding Setting
 - Encoding Channel: Select an audio encoding channel and configure its sampling rate, encoding volume and encoding format.
 - 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. To enable this function, go to the advanced configuration interface, referring to chapter 8.6.1.
- Video Encoding Binding
 - Video Encoding Channel: Select video encoding channel from the dropdown list according to the supported streams of the device.
 - Bound Channel: Bind the audio encoding channel with corresponding video encoding channel and select according to the capacity of the device. When selecting one channel, you can hear the sound of this channel through the platform; when selecting both channels at the same time, you will hear mixed sound.

Click "Save" to validate settings.

6.4.2 Audio Decoding

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



Picture 6-23 Audio decoding

➤ Audio Decoding Setting

- 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.

7. Event

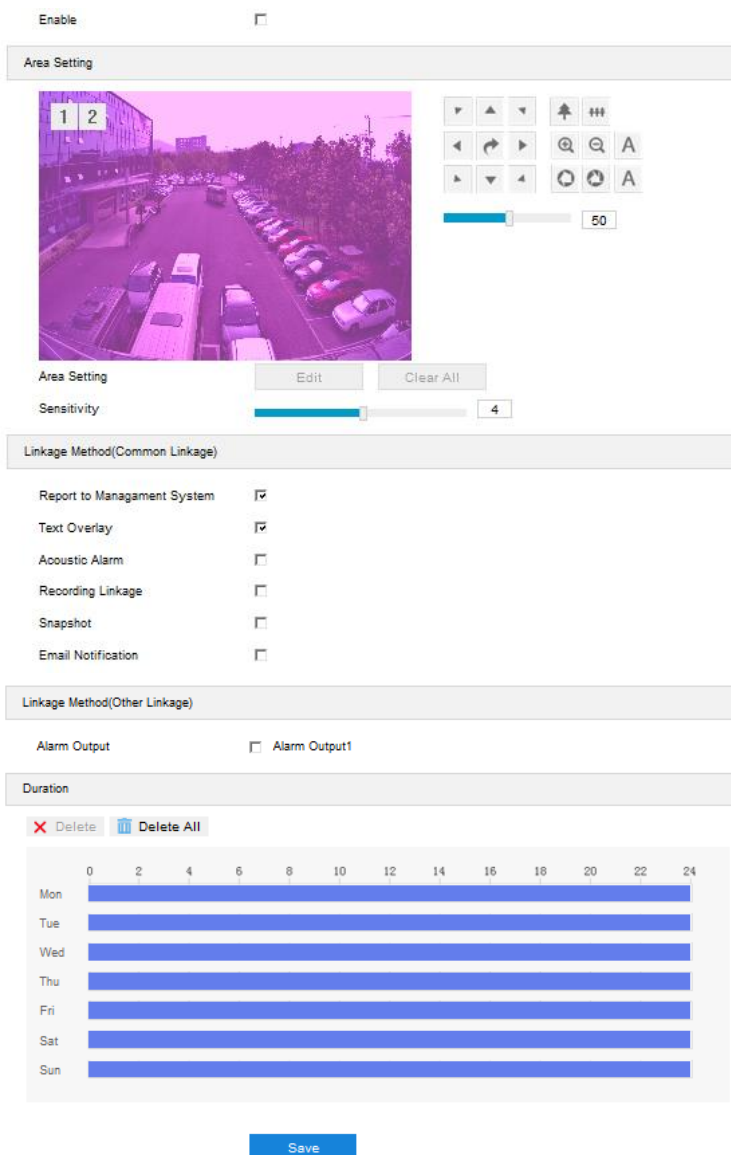
7.1 Intelligent Function

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. This chapter will introduce the configuration steps of each event.

7.1.1 Motion Detection

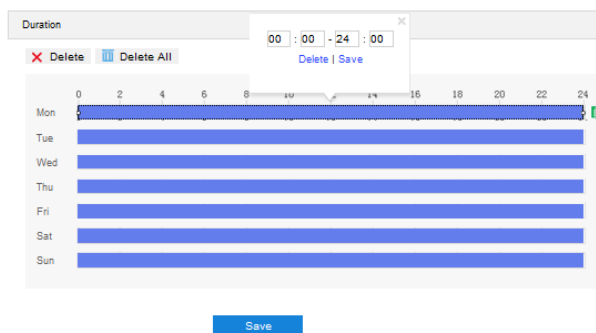
Motion detection is to detect if there is any moving object in specific areas during certain periods of time. Once the moving object exceeds the defined sensitivity, the system will start video recording or trigger an alarm according to the linkage method set by user. Configuration steps are as follows:

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




Picture 7-1 Motion detection

- 2) Select **"Enable"**;
- 3) 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;
- 4) Drag the slide bar to adjust the **"Sensitivity"** of motion detection. The higher the sensitivity is, the easier it will trigger an alarm;
- 5) Select linkage type(s), which is/are the alarm output method(s) when motion detection triggers an alarm;
- 6) 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 7-2 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.

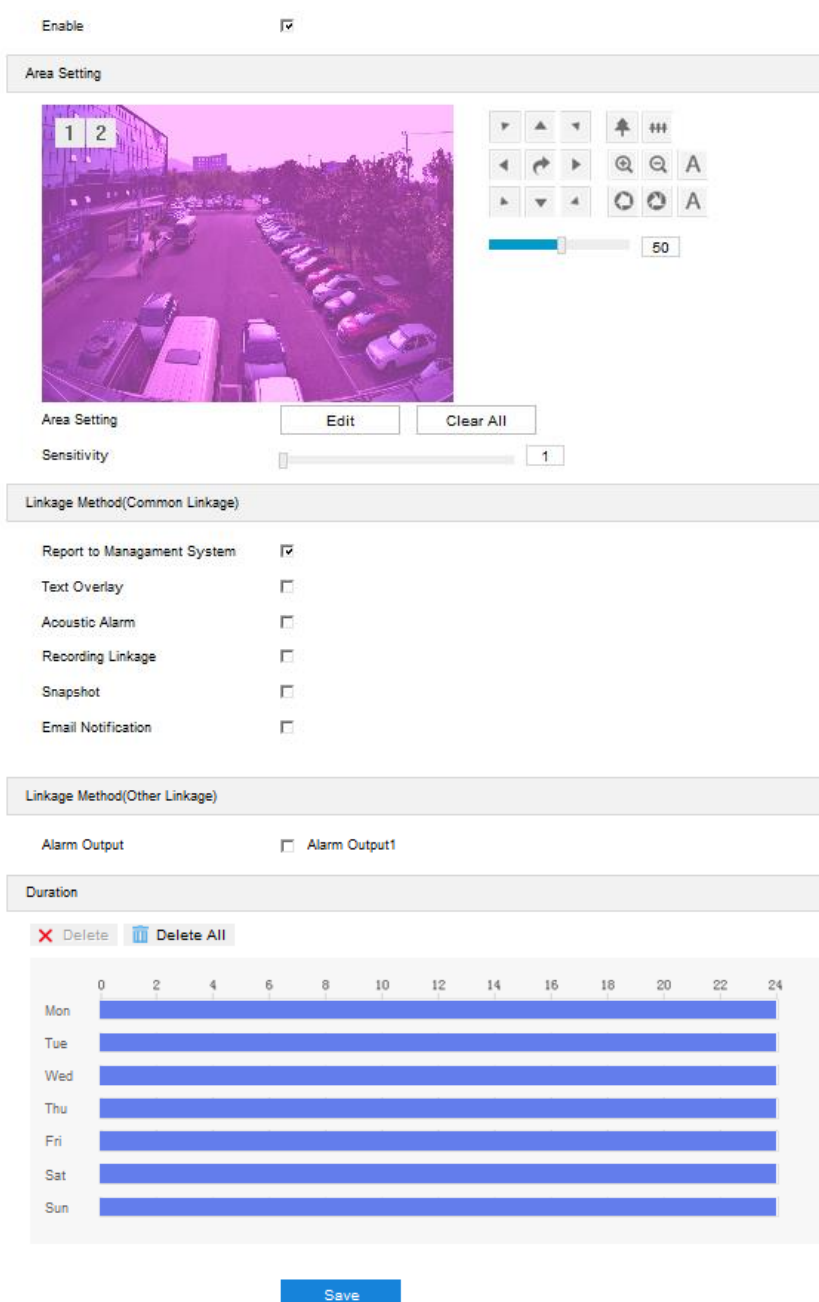
i Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.2 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 7-3 Video blocked


2) Select **"Enable"**;

- 3) 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;
- 4) Drag the slide bar to adjust **Sensitivity**; the higher the sensitivity is, the easier it will trigger an alarm;
- 5) Select linkage type(s), which is/are the alarm output method(s) when video blocked triggers an alarm;
- 6) 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 7-4 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.

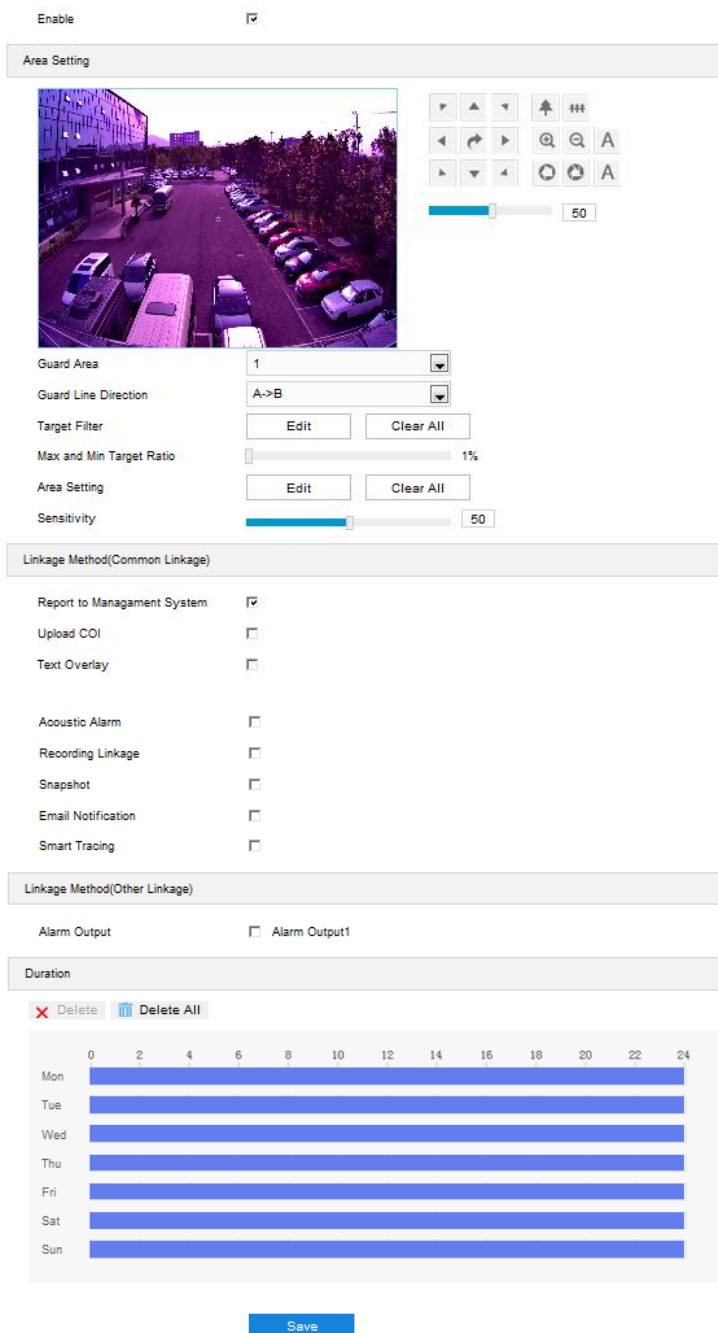
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

- 7) Click **“Save”** to validate settings.

7.1.3 Guard Line

Guard line is to trigger an alarm once there is any object entering the guard line. Configuration steps are as follows:

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

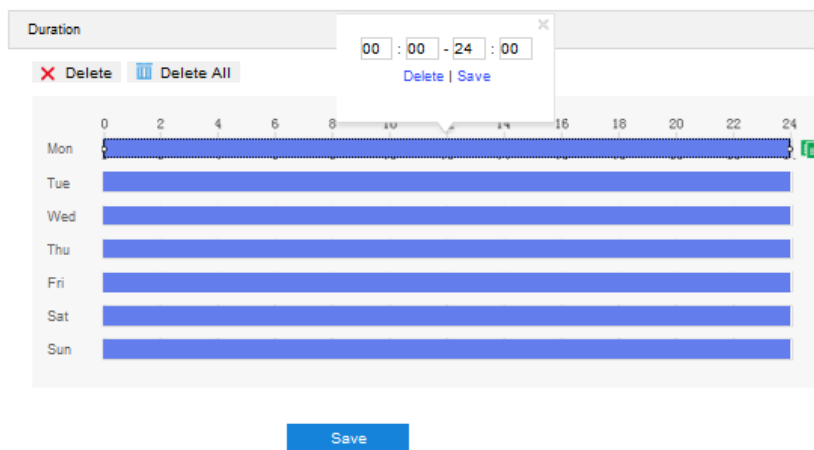


Picture 7-5 Guard line


- 2) Select **“Enable”**;
- 3) 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;
- 4) 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;


- 5) 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);
- 6) 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;
- 7) 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;
- 8) Select linkage type(s), which is/are the alarm output method(s) when guard line 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 7-6 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.

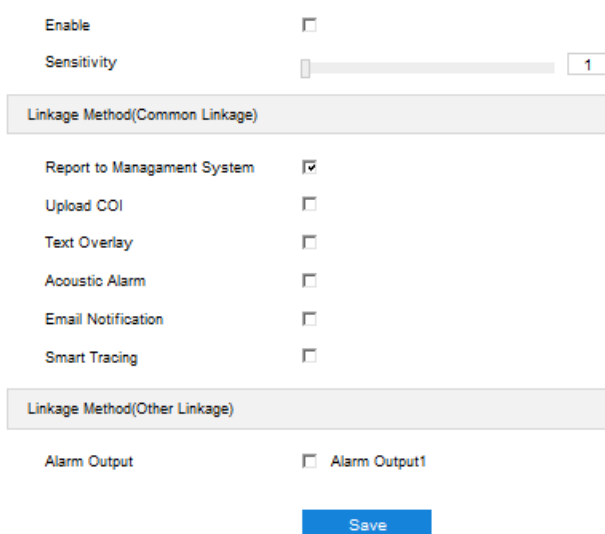
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.4 Defocus

Defocus detection is to detect if the surveillance image is out of focus. The camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

1) Go to **Settings > Event > Intelligent Function > Defocus**;



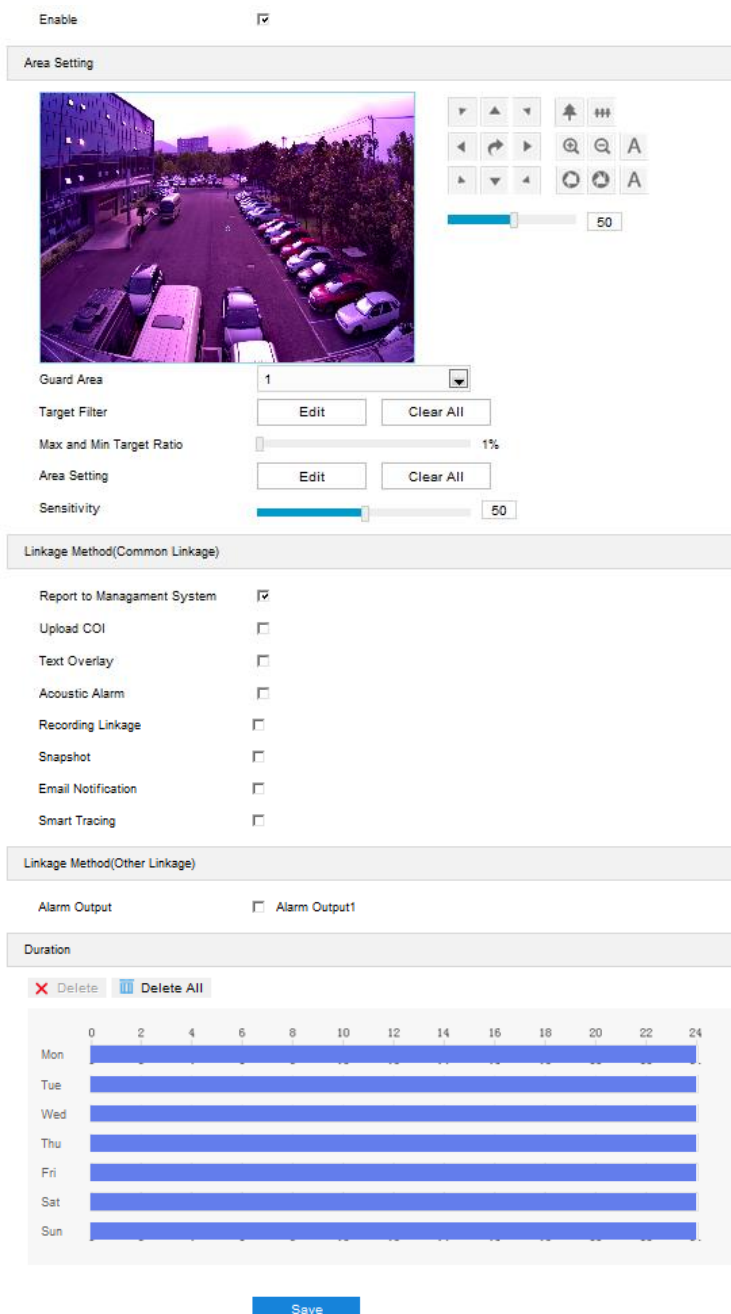
Picture 7-7 Defocus

- 2) Select "Enable";
- 3) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm;
- 4) Select linkage type(s), which is/are the alarm output method(s) when defocus triggers an alarm;
- 5) Click "**Save**" to validate settings.

7.1.5 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 7-8 Entry guard area


- 2) Select "Enable";
- 3) 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;
- 4) **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);
- 5) **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;

- 6) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm;
- 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 7-9 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 white square, left-click and drag to 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.

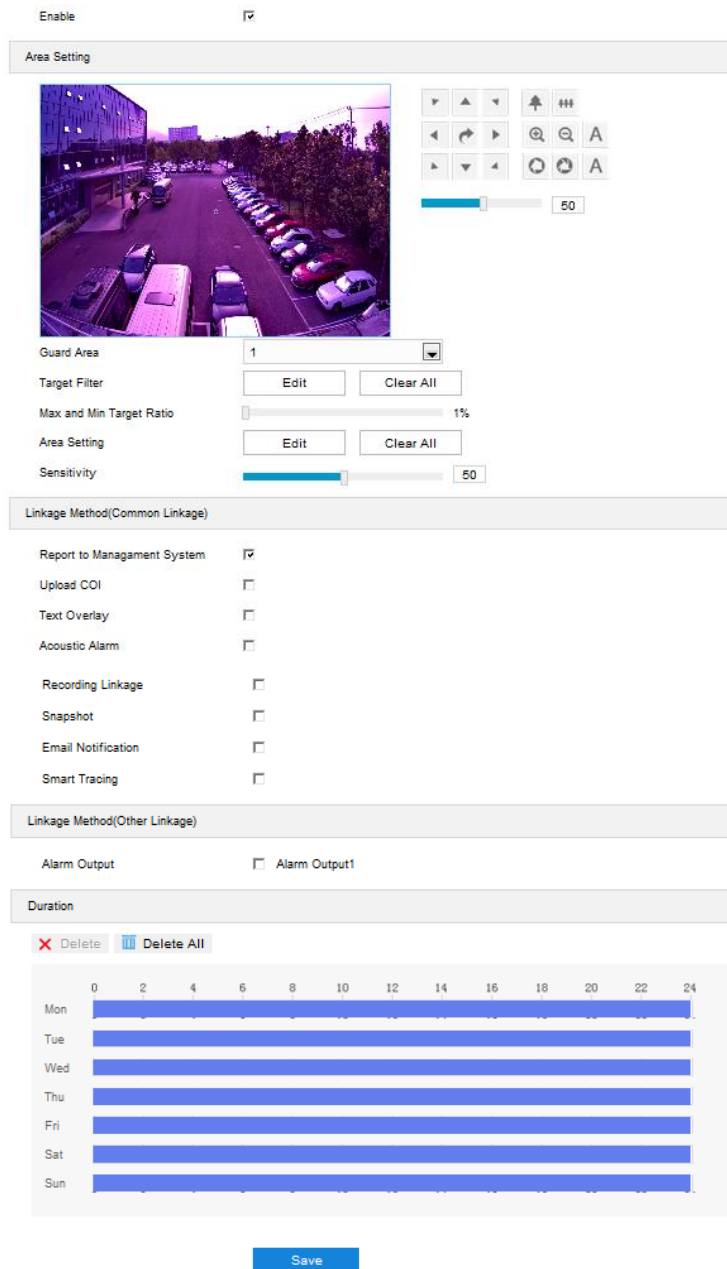
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.6 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:

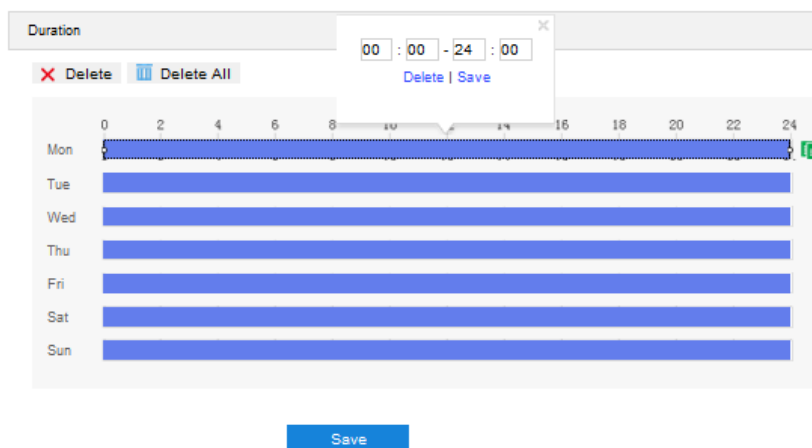
- 1) Go to **Settings > Event > Intelligent Function > Exit Guard Area**;




Picture 7-10 Exit guard area


- 2) Select "Enable";
- 3) 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;
- 4) **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);
- 5) **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;

- 6) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm;
- 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 7-11 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 white 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.

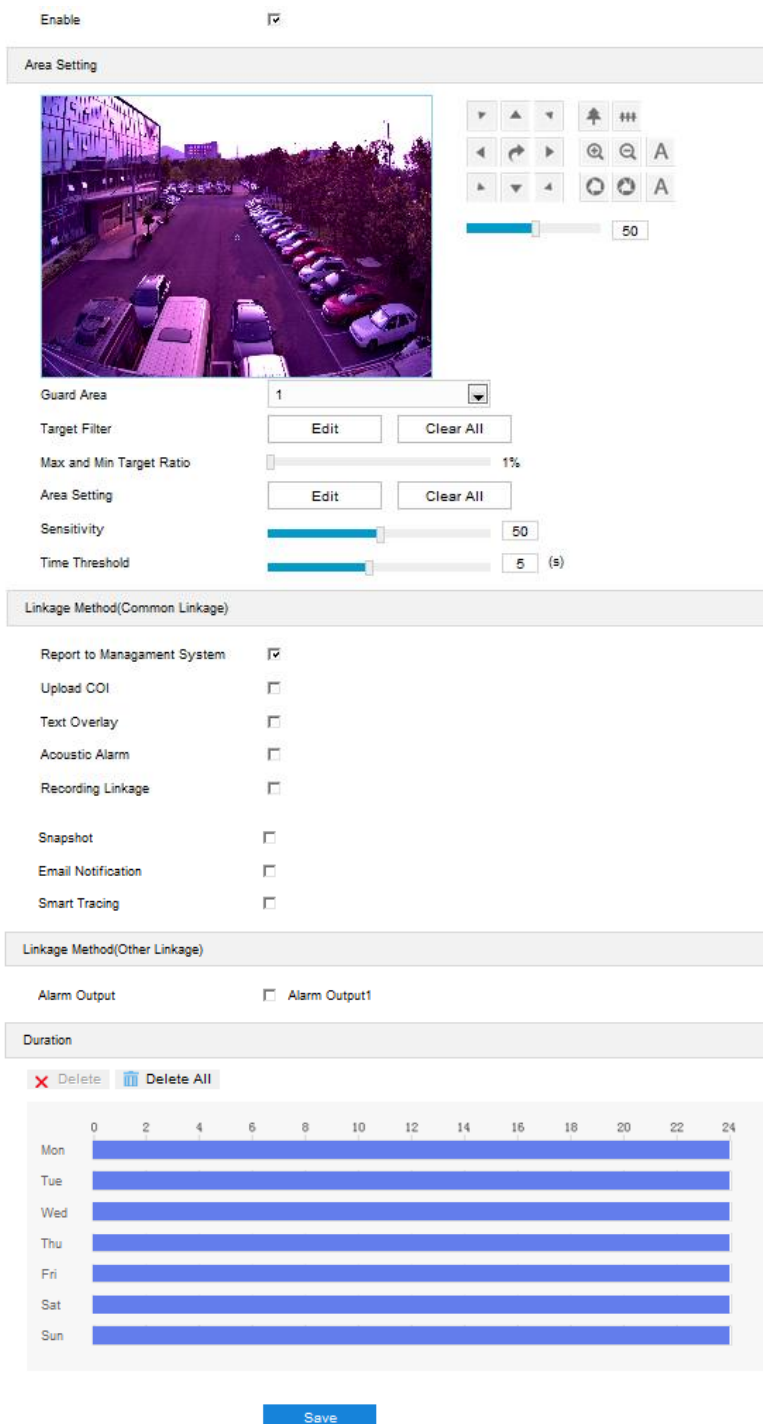
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.7 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 7-12 Enter guard area

- 2) Select "Enable";


- 3) 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;
- 4) **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);
- 5) **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;
- 6) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm
- 7) 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;
- 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 7-13 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 white 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.

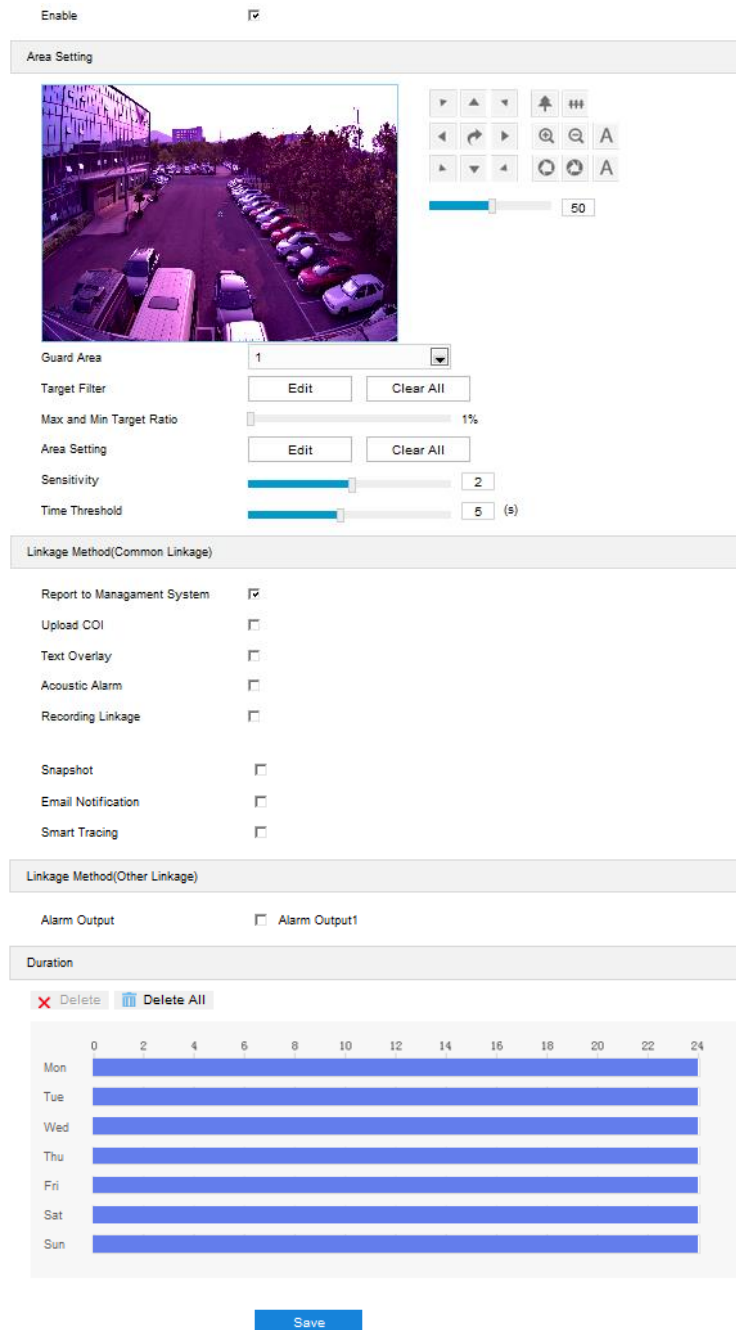
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.8 Object Left

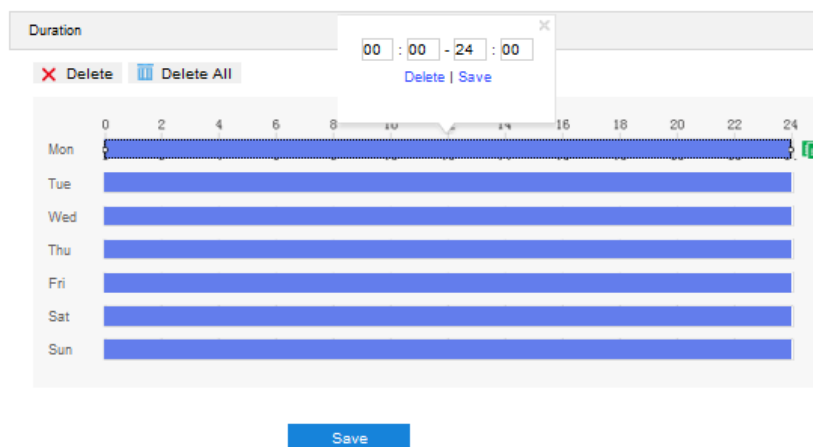
The function is to detect if there is any object being left in the set guard area and staying for a period of time reaching the set threshold. The camera will judge if it is necessary to trigger an alarm. Configuration steps are as follows:

- 1) Go to **Settings > Event > Intelligent Function > Object Left**;
- 2) Select "Enable";
- 3) 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;
- 4) **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);
- 5) **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;
- 6) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm
- 7) 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;





Picture 7-14 Object Left

- 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 7-15 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 white square, left-click and drag to 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.

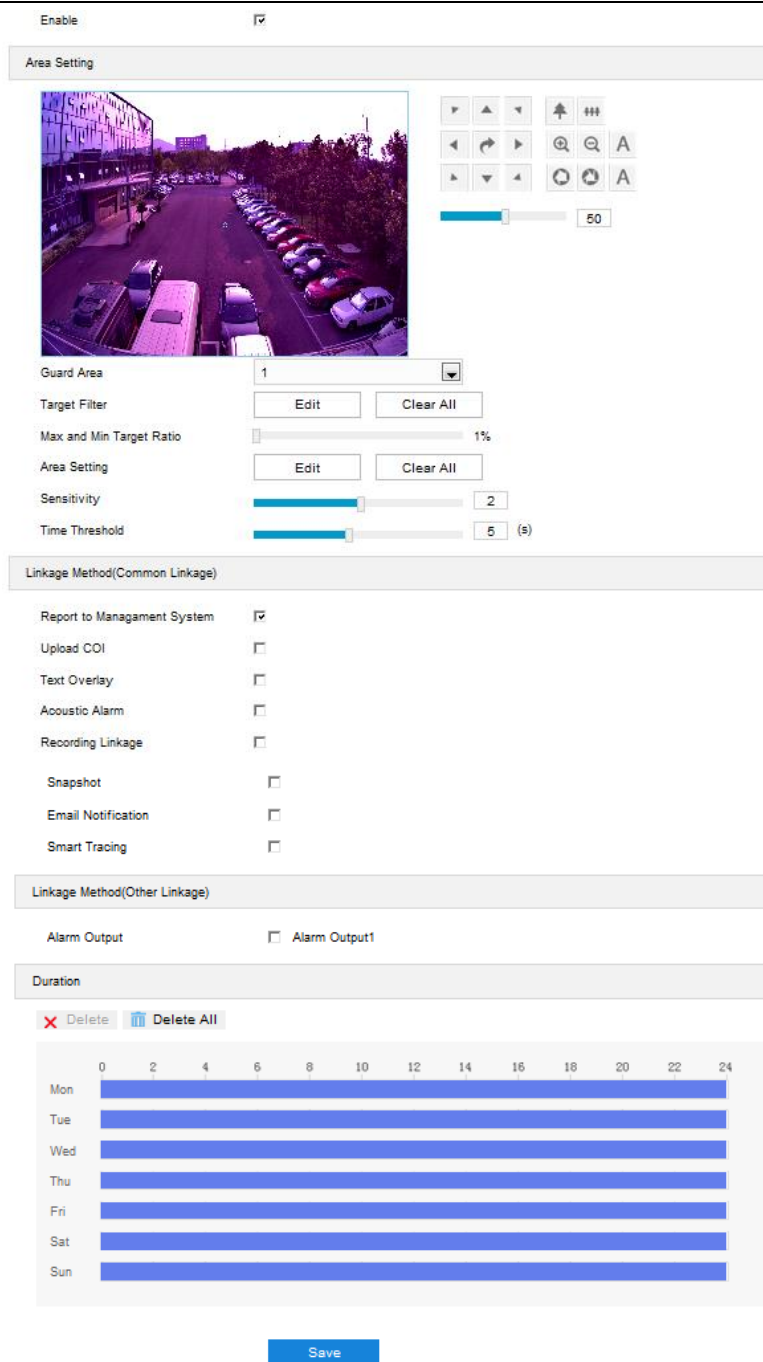
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.9 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 7-16 Object removal

- 2) Select "Enable";
- 3) 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;
- 4) **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);
- 5) **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;

- 6) Drag the slide bar of "Sensitivity"; the higher the sensitivity is, the easier it will trigger an alarm
- 7) 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;
- 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 7-17 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 white square, left-click and drag to 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.



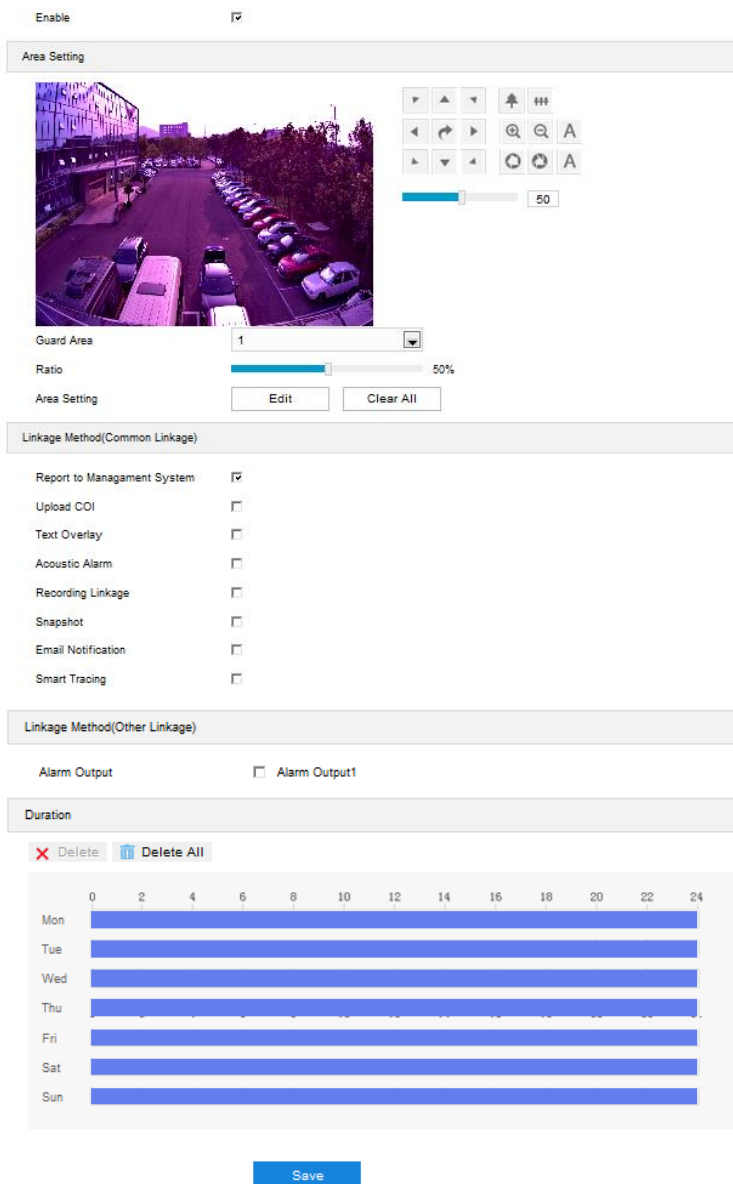
Note: Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration.

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

7.1.10 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 50% or more 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 7-18 Gathering


- 2) Select **“Enable”**;
- 3) 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;
- 4) Drag the slide bar of "Ratio" to set the coverage of people in the set area;

- 5) **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;
- 6) Select linkage type(s), which is/are the alarm output method(s) when an event 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 7-19 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 white square, left-click and drag to 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.

7.1.11 Audio Surge

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

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

Audio Input Abnormality

Enable

Voice Mutation

Sensitivity 50

Voice Intensity Threshold 50

Linkage Method(Common Linkage)

Report to Management System

Upload COI

Text Overlay

Acoustic Alarm

Recording Linkage

Snapshot

Email Notification

Detect and Capture Faces

Smart Tracing

Linkage Method(Other Linkage)

Alarm Output Alarm Output1

Duration

✘ Delete ☰ Delete All


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


Picture 7-20 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 7-21 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 white 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.

7.1.12 Brightness Detection

Brightness detection means to detect the brightness in the scene and the camera will make judgment and trigger alarm linkage. Configuration steps are as follows:

- 1) Go to **Settings > Event > Intelligent Function > Brightness Detection**;

Enable

Sensitivity 2

Linkage Method(Common Linkage)

Report to Management System

Upload COI

Text Overlay

Acoustic Alarm

Email Notification

Smart Tracing

Linkage Method(Other Linkage)

Alarm Output Alarm Output1

Save


Picture 7-22 Brightness detection

- 2) Select "Enable";
- 3) Drag the slide bar of "Sensitivity" to adjust brightness. The lower the value is, the easier it will trigger an alarm;
- 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.

7.2 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**;
- 2) Select "Enable";
- 3) Select "Parallel Port Extension", and the default is 0, i.e. not connected to alarm extension device;
- 4) Select a number from the dropdown list of "Alarm Input ID";

 **Note:** The alarm input ID corresponds to the buttcock line ID. Please refer to the [Quick Start Guide for the sequence](#).

- 5) Enter alarm name, i.e. the name of alarm input device such as "front door smoke-detector";
- 6) Select alarm type from the dropdown list. If the alarm input device is normally closed, which means the circuit is usually open, user must select "Normally closed". If the alarm input device is normally open, which means the circuit is usually loop, user must select "Normally open";
- 7) Select linkage method to trigger actions when an alarm is triggered;

Alarm Input

Enable

Parallel Port Extension 0

Alarm Input ID 1

Alarm Name Alarm1

Alarm Type Always Enabled

Linkage Method(Common Linkage)

Report to Management System

Text Overlay

Acoustic Alarm

Recording Linkage

Snapshot

Email Notification

Linkage Method(Other Linkage)

Duration

Delete Delete All

0 2 4 6 8 10 12 14 16 18 20 22 24

Mon

Tue

Wed

Thu

Fri

Sat

Sun

Save

Picture 7-23 Alarm Input

- 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;

Duration

00 : 00 - 24 : 00

Delete Delete All

Delete | Save

0 2 4 6 8 10 12 14 16 18 20 22 24

Mon

Tue

Wed

Thu

Fri


Sat


Sun

Save

Picture 7-24 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  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.

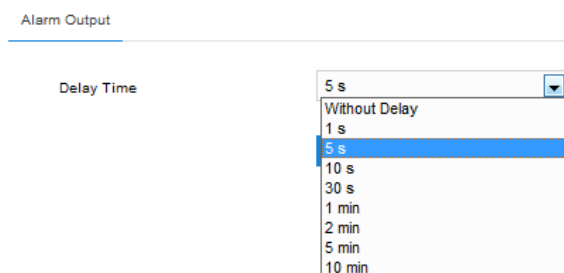
 **Note:** Select any duration with a mouse, and drag the blue bar on the timeline as a whole without changing the length of recording duration

- 9) 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;
- 10) Click **"Save"** to validate setting.

7.3 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 7-25 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.

7.4 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**;

Abnormality Linkage

Enable	<input checked="" type="checkbox"/>
Abnormality Type	Disk Full
Linkage Method(Common Linkage)	
Report to Management System	<input checked="" type="checkbox"/>
Text Overlay	<input type="checkbox"/>
Acoustic Alarm	<input type="checkbox"/>
Email Notification	<input type="checkbox"/>

Save

Picture 7-26 Abnormality Linkage

- 2) Select "Enable";
- 3) Select an option from the dropdown list of Abnormality Type;



Note:

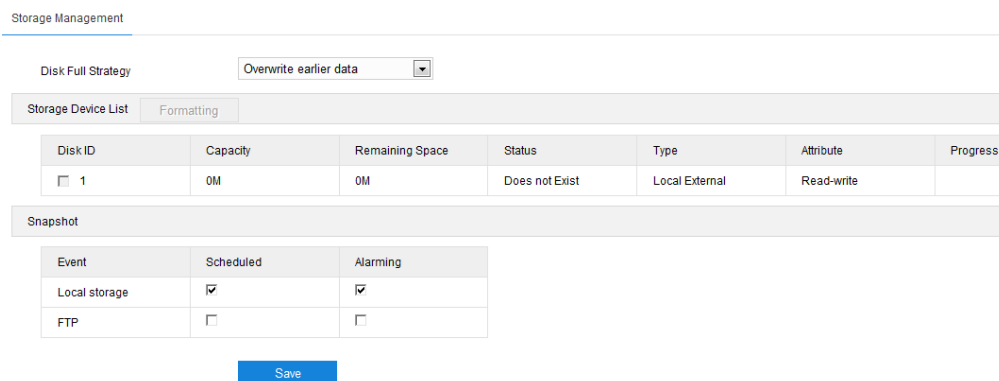
- ◆ Disk Full: when the disk storage is insufficient.
 - ◆ Disk Error: when the disk cannot be recognized.
 - ◆ Internet Disconnected: when the device isn't connected to the internet normally.
- 4) Select linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;
 - 5) Click "**Save**" to validate settings.

8. Storage

8.1 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.



Picture 8-1 Storage Management

- **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.
 - **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.

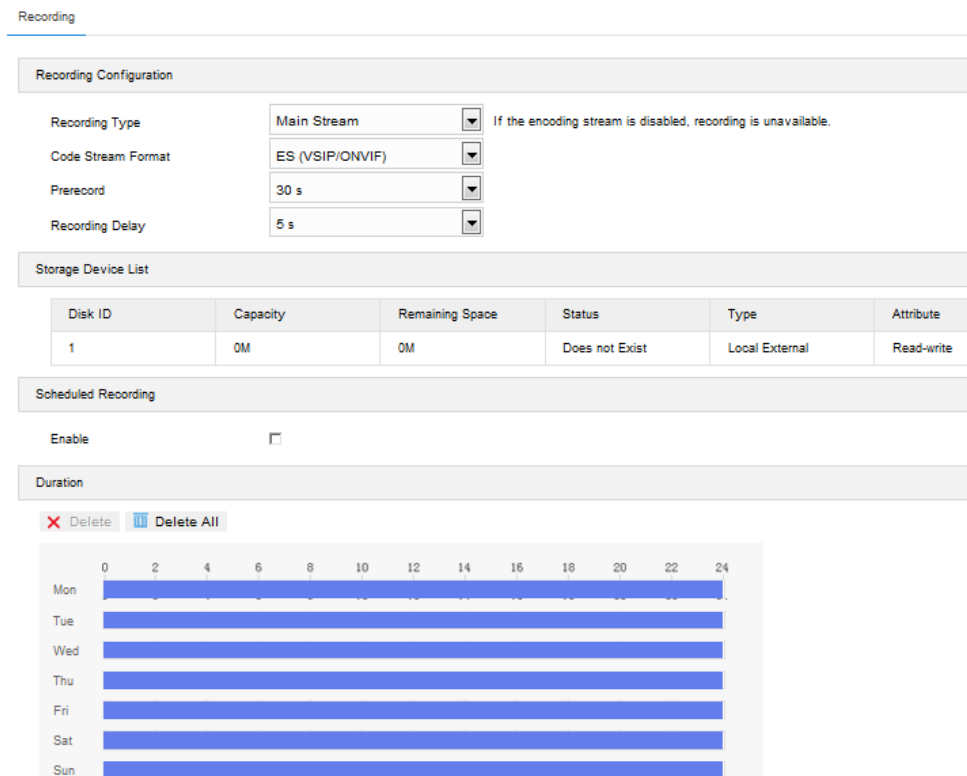
Note: The storage card is installed in the camera when going out of the factory. When using the local storage card for the first time, please click "Formatting" first.

8.2 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 8-2 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 8-3 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.

8.3 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.

Snapshot

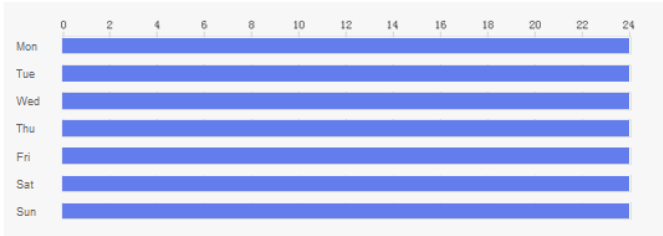
Format:
 Resolution:
 Quality:

Storage Device List

Disk ID	Capacity	Remaining Space	Status	Type	Attribute
1	0M	0M	Does not Exist	Local External	Read-write

Scheduled Snapshot

Enable:
 Snapshot Type:
 Time Interval: (s) 1~3600



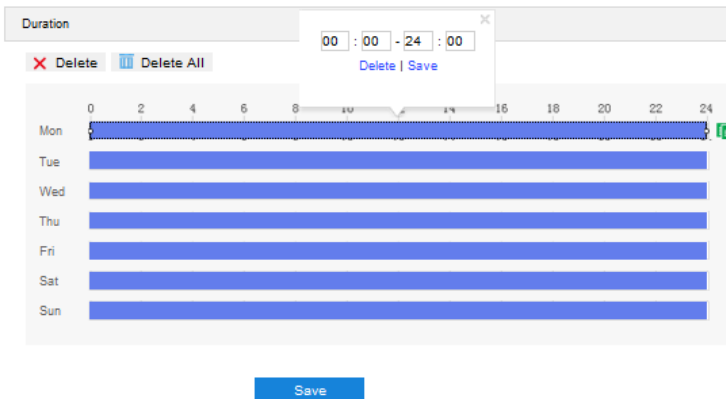
Event Snapshot

Enable:
 Time Interval: (s) 1~3600
 Number of Snapshots: 1~65535


Picture 8-4 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". The latter requires configuration of "Number of Snapshots";
 - 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;



Picture 8-5 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 white 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.

9. System

9.1 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:

Device Name	<input type="text" value="IPCamera"/>	<input type="checkbox"/> Set as OSD text.
Device Model	IPC2855-Fi5N(VER.A)	
Device Serial No.	123456783	
Hardware Version	1.0.0	
Software Version	7.2.3.439(IT.1879) Feb 11 2020 07:29:12	
Web Version	28-06-2020	
Web Plugin Version	7.3.3.618620(19-06-2020)	
ISP Version	2.5.0.5427a203.20200210	
Number of Video Sources	1	

Picture 9-1 Device info

9.2 User Security

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

9.2.1 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 ✔ Save success

User list	<input type="button" value="Add"/>	<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
Serial No.	User Name	User Type	
1	admin	Administrator	

Picture 9-2 User information

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

Login

Anonymous Login

Picture 9-3 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**”.

Add User

User Name:

Password:

Weak Strong

A password can be 8-16 characters long and must consist of digits, upper/lower-case letters, and special characters.

Password Confirm:

User Type:

Authorization List	
<input checked="" type="checkbox"/> View	
<input checked="" type="checkbox"/> Playback/Picture	
<input checked="" type="checkbox"/> PTZ Control	
<input type="checkbox"/> Parameter Configuration	
<input type="checkbox"/> Storage	
<input type="checkbox"/> Reboot, Discover, Auto maintenance	
<input type="checkbox"/> System Maintenance	

Confirm Cancel

Picture 9-4 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.

Modify User

User Name:

Old Password:

Password:

Weak Strong

A password can be 8-16 characters long and must consist of digits, upper/lower-case letters, and special characters.

Password Confirm:

User Type:

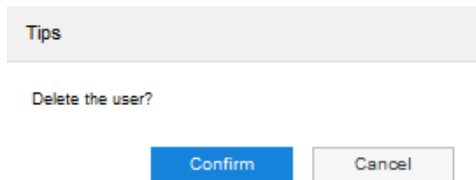
Email:

Authorization List	
<input checked="" type="checkbox"/> View	
<input checked="" type="checkbox"/> Playback/Picture	
<input checked="" type="checkbox"/> PTZ Control	
<input checked="" type="checkbox"/> Parameter Configuration	
<input checked="" type="checkbox"/> Storage	
<input checked="" type="checkbox"/> Reboot, Discover, Auto maintenance	
<input checked="" type="checkbox"/> System Maintenance	

Confirm Cancel

Picture 9-5 Modify user

- Delete user: Select user and click “Delete” to delete the user.



Picture 9-6 Delete user

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

9.2.2 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”.

i 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.



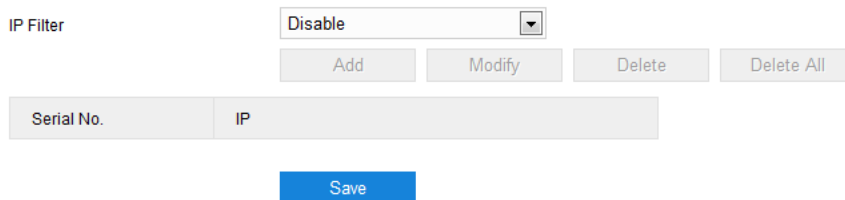
Note: Some protocol will modify the safety level by force automatically.

Picture 9-7 RTSP Authorization

9.2.3 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 9-8 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.


9.2.4 Security Service

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

Enable SSH Login	<input checked="" type="checkbox"/>
Enable HTTPS Login	<input type="checkbox"/>
Enable Unauthorized Login Locking	<input checked="" type="checkbox"/>
Illegal Login Retry Times	<input type="text" value="6"/> 3~10
Illegal Login Lock Time	<input type="text" value="10"/> (min) 10~60

Picture 9-9 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.

9.3 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	<input type="text" value="(GMT+08:00) Beijing, Urumq"/>
Device Time	<input type="text" value="19-01-2020 11:04:50"/> <input type="button" value="Manual Setting"/>

Auto Time Correction	
Auto Timing	<input checked="" type="checkbox"/>
Timing Scheme	<input type="text" value="Adaptive"/>
Timing Priority	<input checked="" type="checkbox"/> NTP Server <input type="button" value="Up"/> <input checked="" type="checkbox"/> VSIP VMS <input type="button" value="Down"/> <input checked="" type="checkbox"/> ONVIF Protocol <input type="button" value="Default"/> <input checked="" type="checkbox"/> GB28181-1 VMS <input checked="" type="checkbox"/> GB28181-2 VMS
Current Timing Protection Time	<input type="text" value="60"/> (min) 0~85535

NTP Clock Synchronization	
Enable	<input type="checkbox"/>
Server Address	<input type="text" value="0.0.0.0"/>
NTP Port	<input type="text" value="123"/>
Time Correction Interval	<input type="text" value="1440"/> (min) 1~85535

DST	
Enable DST	<input type="checkbox"/>
Start Time	<input type="text" value="April"/> <input type="text" value="First"/> <input type="text" value="Sunday"/> <input type="text" value="02"/> (o'clock)
End Time	<input type="text" value="October"/> <input type="text" value="Last"/> <input type="text" value="Sunday"/> <input type="text" value="02"/> (o'clock)
Time Deviation	<input type="text" value="30 min"/>

Picture 9-10 Time setting

- 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	<input type="text" value="(GMT+08:00) Beijing, Urumq"/>	
Device Time	<input type="text" value="19-01-2020 11:05:42"/>	
Set Time	<input type="text" value="19-01-2020 11:03:09"/>	<input type="checkbox"/> Synchronize time with PC

Picture 9-11 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.
- 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".

9.4 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.

Serial Port

Type	<input type="text" value="RS485"/>	
Serial Post Number	<input type="text" value="1"/>	
Name	<input type="text" value="com1"/>	
Baud Rate	<input type="text" value="9600"/>	
Data Bits	<input type="text" value="8"/>	
Stop Bits	<input type="text" value="1"/>	
Correction	<input type="text" value="None"/>	
Stream Control	<input type="text" value="None"/>	
Address Code	<input type="text" value="1"/>	1~255
Control Protocol	<input type="text" value="PELCO_D_K"/>	

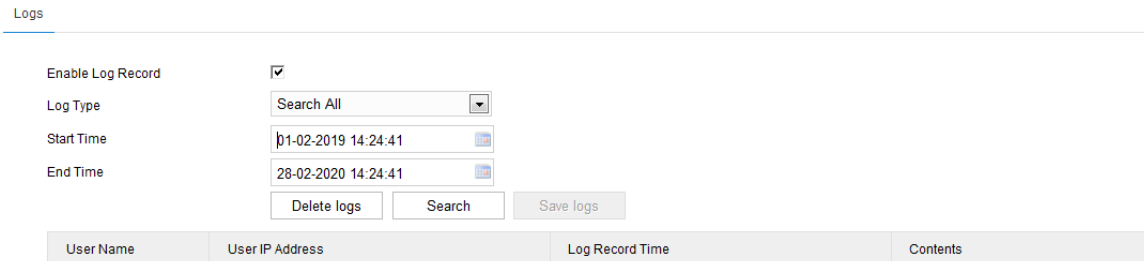
Picture 9-12 Serial port

9.5 Log

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

9.5.1 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 9-13 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.

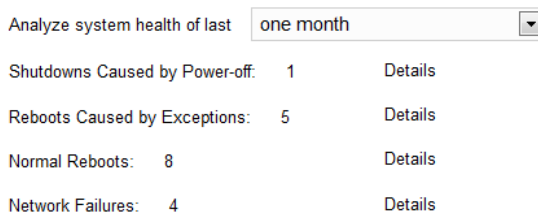


Note:

- ◆ 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.

9.5.2 System Health

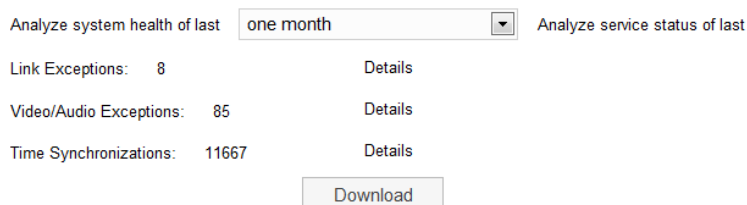
Go to **Settings > System > Log > System Health**, and select a duration from the dropdown list to view the camera health status in this duration. Click "Details" behind each item to view the detailed logs of each item.



Picture 9-14 System status

9.5.3 Service Status

Go to **Settings > System > Log > Service Status**, and select a duration from the dropdown list to view the camera running status in this duration. Click "Details" behind each item to view the detailed logs of each item; click "Download" to download logs.



Picture 9-15 Service status

9.6 System Maintenance

9.6.1 System Maintenance

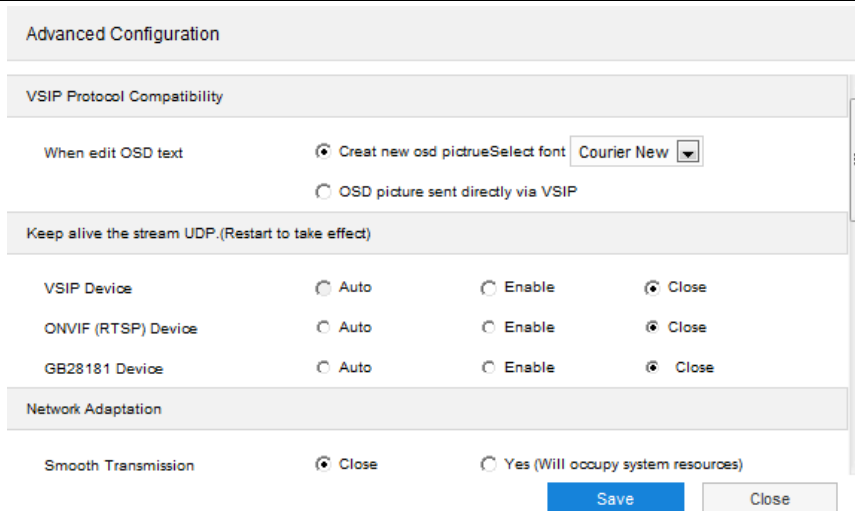
Go to **Settings > System > System Maintenance > System Maintenance**, and perform operations of reboot, upgrade and etc.

The screenshot displays the 'System Maintenance' web interface. It is organized into several sections:

- Reboot:** Contains a 'Reboot' button and a 'Soft Reboot' link.
- Auto Maintenance:** Includes an 'Enable' checkbox, a 'Maintenance Cycle' dropdown menu set to 'Everyday', a 'Maintenance Time' input field set to '00:00:00', and a 'Save' button.
- Upgrade:** Features an 'Upgrade' button and a 'Business version upgrade' link.
- Configuration Management:** Contains four rows of options:
 - Partial Restoration:** A button labeled 'Partial Restoration' with a tooltip: 'All parameters restore to factory default except camera IP address, protocols, user info and RTSP authorization.'
 - Complete Restoration:** A button labeled 'Complete Restoration' with a tooltip: 'Restore to factory default.'
 - Configuration Export:** A button labeled 'Export' with a tooltip: 'Export all settings to a file.'
 - Import Parameter:** A button labeled 'Import' with a tooltip: 'All parameters are imported from the file except the network, device name, OSD setting, user info and RTSP.'
- Advanced Configuration:** Includes a 'Configuration' button.

Picture 9-16 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.
- 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: including "VSIP Protocol Compatibility", "Keep Alive the Stream UDP", "Network Adaptation", "Function Switch", "Working Mode" and "Audio Noise Reduction". Only "admin" user can perform advanced configuration. Click "**Configuration**", input the right password for advanced user and click "**Confirm**" to enter the configuration interface.

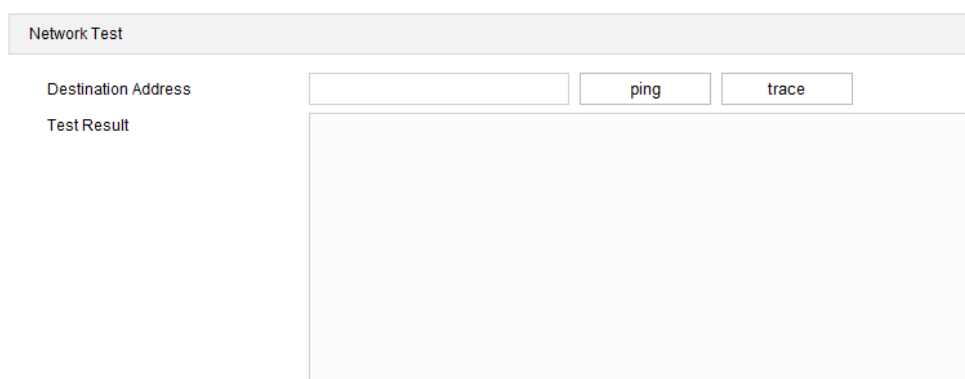


Picture 9-17 Advanced configuration

- 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, ONVIF (RTSP) and SIP devices 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”, “Audio Mix Mode”, “Dynamic Plug-in”, “Stream Extension Head” and “MRTC Adaptive”.
- Working Mode: options including “Ultra wide dynamic range”, “60 frames mode”, “Triple-Stream Mode” and “Four split screen 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”, range being 1~60s.

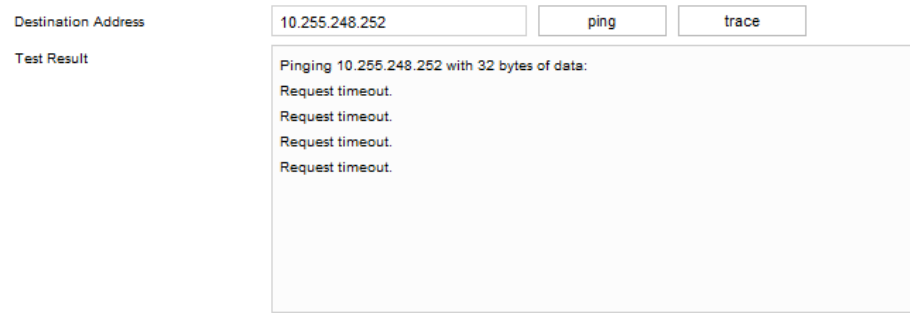
9.6.2 Network Test

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



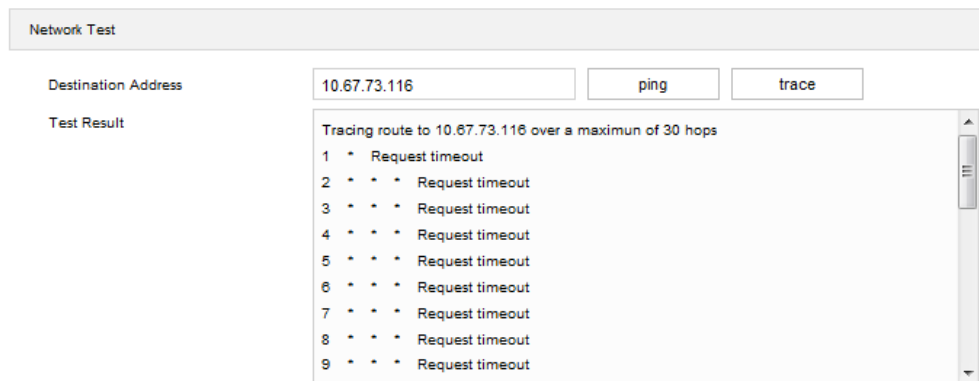
Picture 9-18 Network test

- Enter an IP address in “Destination Address” and click “ping”. The test result will show on the list below;



Picture 9-19 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 9-20 trace

10. Appendix: Glossary of Terms

1080p	Resolution of 1920*1080 pixels (16:9)
720p	Resolution of 1280*720 pixels (16:9)
ADPCM	Adaptive Differential Pulse Code Modulation
CIF	Common Intermediate Format, Resolution of 352*288 pixels
4CIF	4 Common Intermediate Format, Resolution of 704*576 pixels
DDNS	Dynamic Domain Name Server
DHCP	Dynamic Host Configuration Protocol
G.711	Pulse code modulation (PCM) of voice frequencies
G.722.1 Annex C	Low-complexity coding at 24 and 32 kbit/s for hands-free operation in systems with low frame loss
G.726	Audio coding algorithm
H.264	Advanced video coding for generic audiovisual services
H.265	High Efficiency Video Coding
HD	High-definition
IP	Internet Protocol
MPEG4	Moving Pictures Experts Group
MJPEG	Motion Joint Photographic Experts Group
NAT	Network Address Translation
NTSC	National Television Standards Committee
PAL	Phase Alternation Line
PC	Personal Computer
PPPoE	Point to Point Protocol over Ethernet
QCIF	Quarter common intermediate format, Resolution of 176*144 pixels
QXGA	Resolution of 2048*1536 pixels (4:3)
RTCP	Real-Time Transport Control Protocol
RTP	Real-time Transport Protocol
SVAC	Surveillance Video and Audio Coding
TCP	Transport Control Protocol
UDP	User Datagram Protocol
UXGA	Resolution of 1600*1200 pixels (4:3)