KEDACOM

User Manual for
HD Network Camera

V1R1 (February, 2019)

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Target Audience

Administrators and Operators of Video Surveillance Products

Document Version

V1R1

Applicable Models

IPC2X11 series

IPC2X52 series

Related Document

Quick Start Guide

Convention

Icon	Convention
ⓘ	Notes
italic	Book or document name; Filling content
>	Connector between menus of different level
BOLD	Menu; Button; Option

UL Safety Instruction

CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions.

Suitable for Mounting on Concrete or Other Non-Combustible Surface Only.

This product is intended to be supplied by a Listed Power Unit, output rated minimum 24Vac, 50/60HZ, 0.5A or 12Vdc, 0.8A or POE,0.5A,non-energy hazards and Tma=60Deg.C. complied with LPS.

a.   the function of the ITE being investigated to IEC 60950-1 is considered not likely to require connection to an Ethernet network with outside plant routing, including campus environment; and

b.   the installation instructions clearly state that the ITE is to be connected only to PoE networks without routing to the outside plant.

Contents

1.   Product Brief

HD IP Camera (hereinafter referred to as Camera) is a remote video surveillance device based on IP network technology. It encodes and transmits HD moving video, and can be deployed in the surveillance system, transmitting videos and images through public or private network.

Some features of the fisheye network camera:

Preview Modes

Apply high-performance progressive scan sensor, with clear image and vivid color;

High-performance video processing chip and efficient video encoding, providing HD video image;

Dual-stream to fit different network bandwidths;

Configurable text overlay on video image;

Alarm

With audio and alarm ports, realize functions of talkback and alarming;

Motion detection and alarm linkage, make video surveillance intelligent;

Support alarm linkage edition: alarm text overlay, device output, live view display and etc.;

Networking

Support static address, DHCP or PPPoE;

Support NAT traversal, DNS and multicast technology;

Storage

With storage card slot, when the network breaks down, video can be stored in local storage card;

Support local snapshot, default format is .JPG;

Support local recording, user can query and playback recording on PC.

2.   Appearance

Picture 2-1 IPC2X11 series

Picture 2-2 IPC2X52 series

3.   Start Up

3.1 Network Connection

ⓘ 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.

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

Requirements of PC for installing the client:

➢ Processor: 3.3GHz Intel CORE®i3 series and later version or other equivalent processors
➢ RAM Memory: 4GB or above
➢ Operating System: Windows XP or higher versions
➢ Browser: IE7.0 and newer version (excluding Microsoft Edge), Firefox (51 and lower), Google Chrome (41 and lower)
➢ DirectX：9.0c

3.2 Activate Camera

When the camera is first used, user should activate it and set the login password for normal use. There are 2 methods to activate the camera: though IPCSearch or through browser.

➢ Activate through IPCSearch

1) Get IPCSearch from the attached CD and install it according to the prompts.

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

No.	IP	Alias	Device Type	Mask	Gateway	MAC	Version	Serial Number	Runtime	Active State
1	10.255.223.103	IP Camera	IP Camera	255.255.255.0	10.255.223.254	00-14-10-14-53-D6	7.1.6.329	1642009823	18hr.14min.56sec.	Activated

Picture 3-1 IPCSearch

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

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

4)   When there are more than one non-activated devices, select the device and click "**Batch processing**". In the popup interface, set admin user's password and the email address to claiming password. Click "**Activate**" and wait for rebooting, as shown in Picture 3-2.
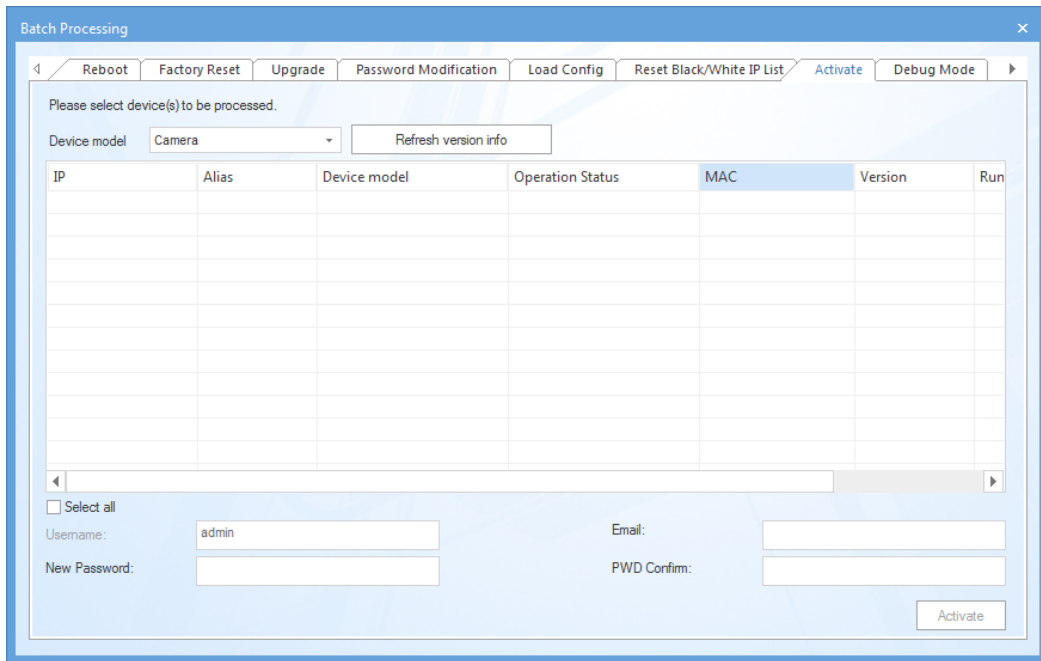
Picture 3-2 Activate through IPCSearch

➢   Activate through browser

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, ass shown below:
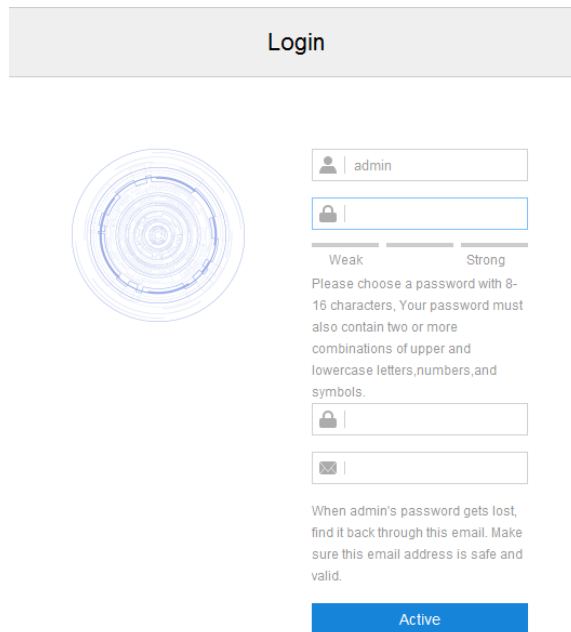
Picture 3-3 Activate through browser

Note:

1) 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.

2) 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.

3) Please keep your username and password safe.

3.3 Configure Camera

After logging into the camera, go to **Settings > Network > IP and Port > LAN**, and modify camera network parameters such as IP address, subnet mask and gateway.
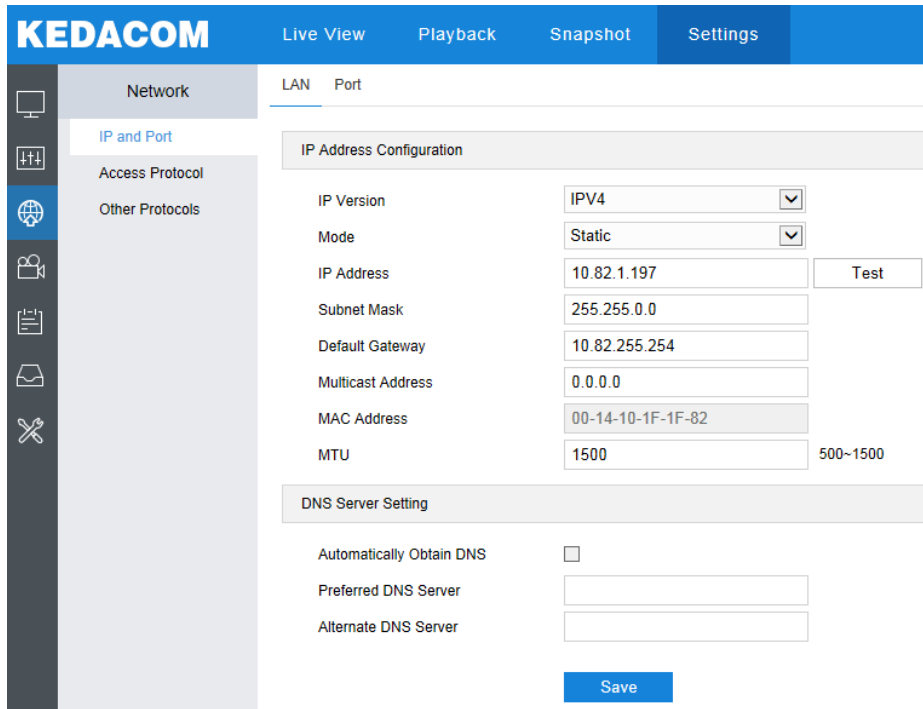
Picture 3-4 Network settings

Alternatively, run IPCSearch and select an activated camera whose network parameters should be modified. Click "**Modify Params**" or right click the mouse, as shown in Picture 3-5. Modify parameters and fill admin user name (admin) and the password set when activating the device.
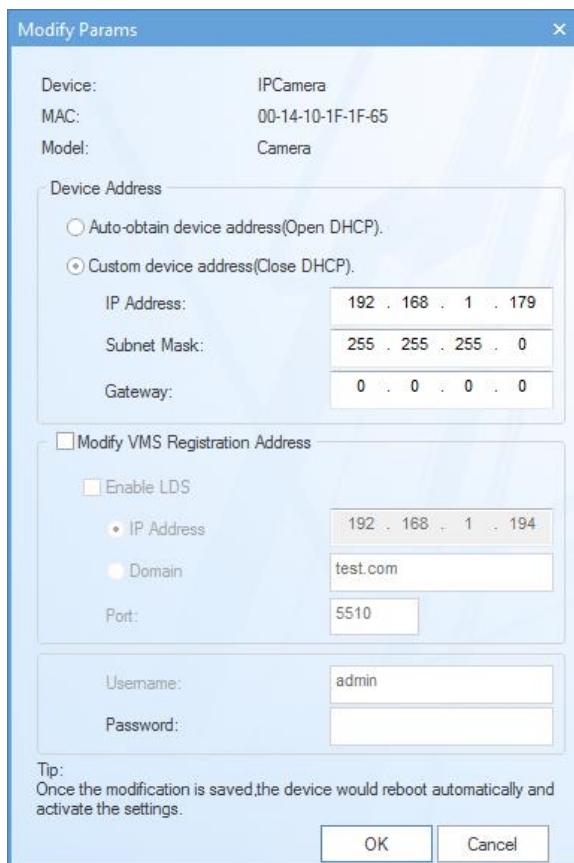
Picture 3-5 Modify Parameter

3.4 Login and Log Out of the Web Client

➤   Login to the Web Client

After activation, input camera IP address in the browser to enter the login interface. Input username

and the password set during activation and click "**Login**", as shown in Picture 3-6.
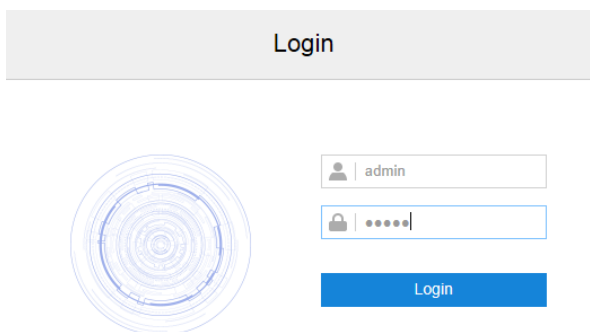
Picture 3-6 Web Client Login Interface
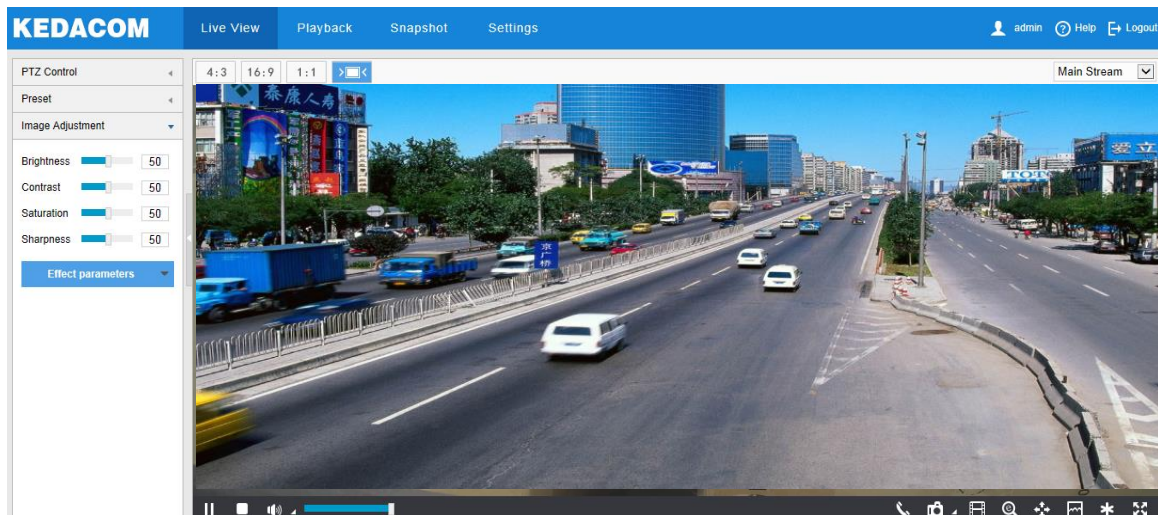
Picture 3-7 Setting interface of web client

➢   Log Out of the Web Client

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

3.5 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 parameters;

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

*   Snapshot: view, search and download snapshots;

*   Settings: configure camera functions and system parameters.

4.   Basic Functions

4.1 Live View

Click "Live View" to enter the preview interface.

4.1.1   Image Adjustment

Click Image Adjustment to show the following interface.
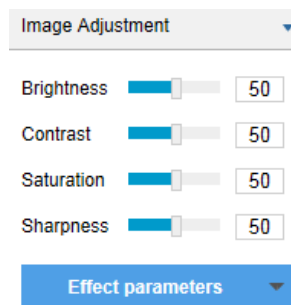
Picture 4-1 Image adjustment

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

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

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

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

4.1.2   Live View Window

➤   Aspect Ratio

■   4:3 means the live view window displays image in standard screen ratio 4:3.

■   16:9 means the live view window displays image in wide screen ratio of 16:9.

■   1:1 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: the main stream is HD stream.
■   Secondary Stream: the secondary stream is SD 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 the white triangle icon 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 this button to capture current image. Snapshot includes Camera

Snapshot and 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.

■ ✳ Video freeze, click this button and the image will freeze at the last frame before

clicking. Click again to recover image.

■ ⛶ Full screen, click this button to display in full screen. Double click in full screen or

press Esc to exit.

4.2 Playback

Click **"Playback"** to enter the interface of recording management. User can search, view and

download video records in SD card.
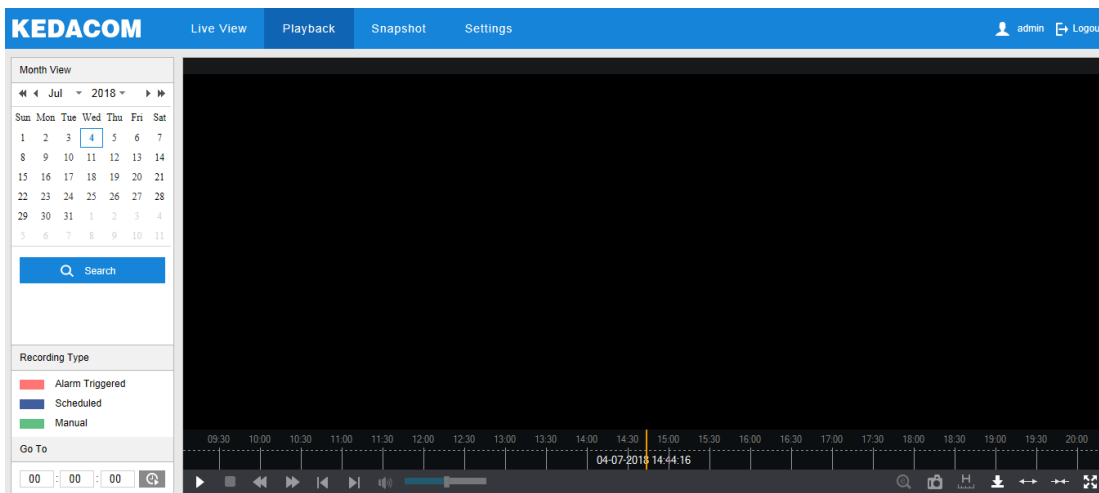
Picture 4-2 Playback

Operation steps:

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

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

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

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

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

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

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

4) Put the cursor of the mouse on the timeline to show the time of the video. Left-click or press the left button of the mouse and drag the timeline to the left or right to skip playing.

ⓘ Note:

1) Press the left button of the mouse and drag to the left or right to slide on the timeline.

2) When the mouse moves on the timeline, the time of the video is displayed on the top of the timeline.

3) Click a point on the timeline to show the time of the point in the middle of the timeline.

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Buttons on the playback interface:

Button	Note
▶/❚❚	Play/ Pause, click the button to play the video and click again to pause.
◼	Stop, click the button to stop playing the video.
◀◀	Decelerate playing speed; click the button to decelerate the speed of playing the video, one-click to decelerate by 1/2x and double-click by 1/4x, max by 1/8x.
▶▶	Accelerate playing speed; click the button to accelerate the speed of playing the video, one-click to accelerate one time, max 8 times.
◀❙	Previous video section, click the button to play the previous video section and user can click it continuously.
❙▶	Next video section, click the button to play the next video section and user can click it continuously.
🔊	Volume, click the button to enable sound and click again to disable sound. Drag the slide bar to adjust volume.
⊕	ePTZ, click this button 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 button to capture current playback image. Save path for playback snapshots can be set in Settings > Local Setting.
ᴴ	Clip, click this button to start clipping current video and click again to stop clipping. Save path for clipped playback videos can be set in Settings > Local Setting.
⬇	Download, click the button to pop up the download interface. On the popup interface, configure the start time, end time and select video type(s) to download. Click "**Search**" to display expected videos on the list below. Select the files to be downloaded and click "**Download**". User can view the download progress on the list. Save path for downloaded videos can be set in Settings > Local Setting.
↔/→←	Zoom in/ Zoom out timeline, adjust the scale interval on the timeline. Click the buttons to zoom in or zoom out the timeline. The scale intervals on the timeline include 5 min, 10 min, 30 min, 1 hour and 2 hours. Zooming of the timeline will not affect the playback of current video.
⛶	Full screen, click this button to display the video in full screen. Double-click on the screen or press Esc to exit.

4.3 Snapshot

Click **"Snapshot"** to enter the interface of snapshot management. User can view or download snapshots in SD card.
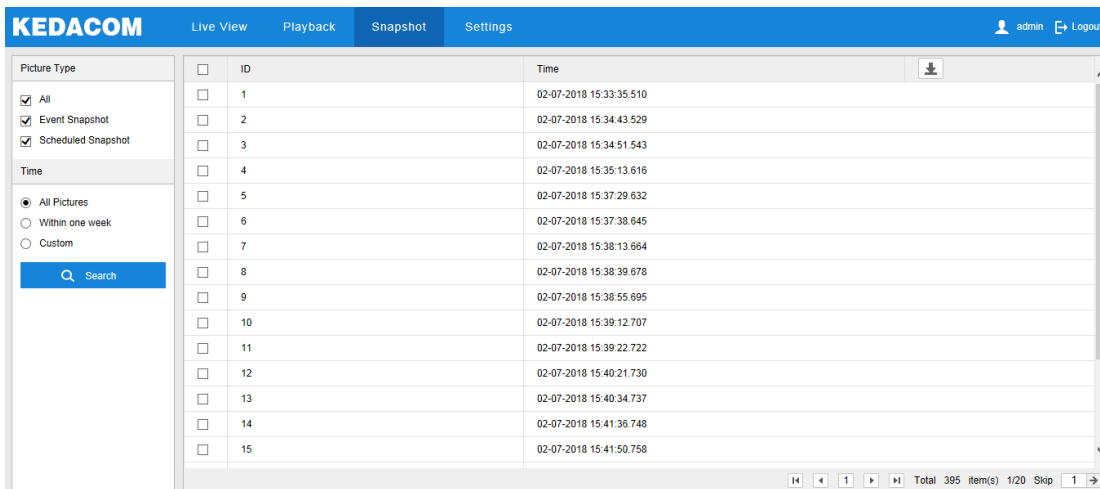
Picture 4-3 Snapshot

Snapshot search and download steps:

1) Check required picture type(s) on the left;

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

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

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

4.4 Local Setting

On the interface of "Local Setting", user can configure parameters of video playing, the size and save path of video records and snapshots on local PC, as shown in the following picture.
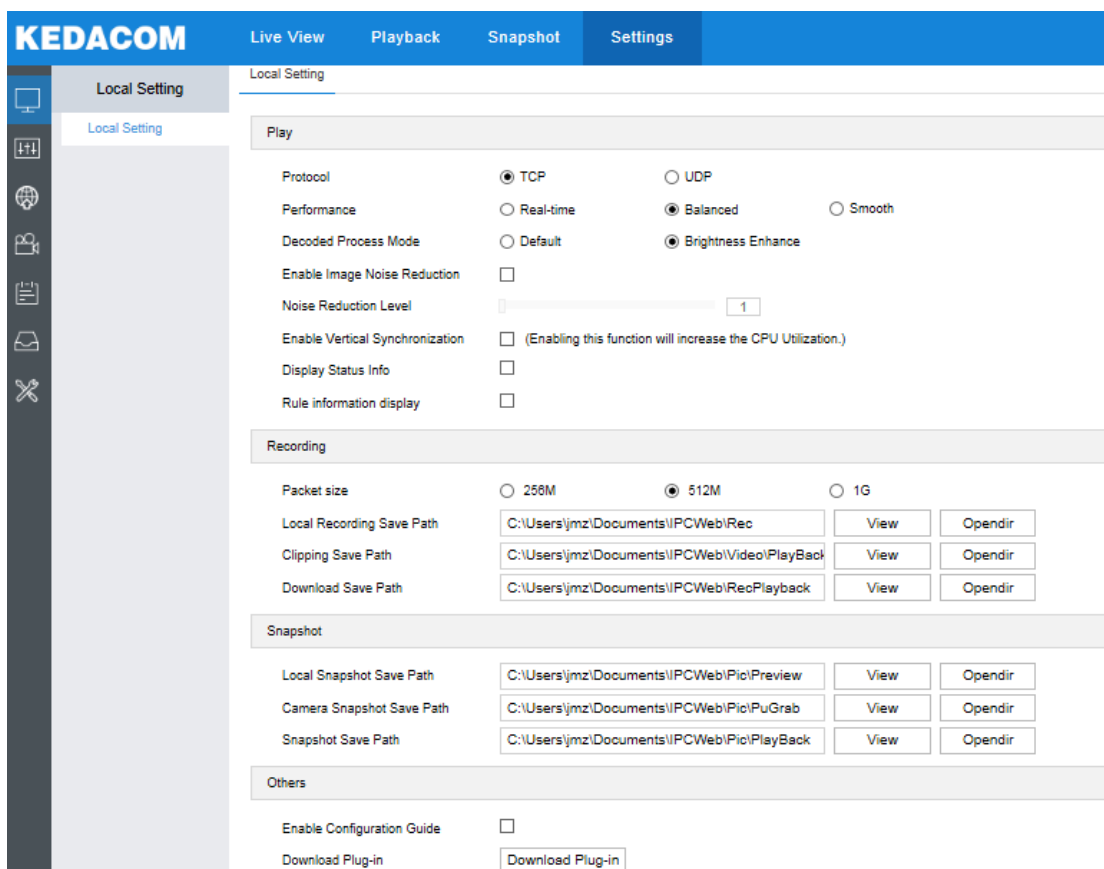
Picture 4-4 Local setting

➢ Play

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

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

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

■ Enable Image Noise Reduction: Image noise reduction is decoding noise reduction. Check this option to enable image noise reduction and it only changes the viewing effect of current user. After checking it, drag the slide bar below to adjust the noise reduction level, including 4 levels. The higher the level is, the more obvious the noise reduction will be.

■ 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 checked, 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.

➢ Recording

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

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

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

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

➢ Snapshot

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

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

ⓘNote:

♦ Camera Snapshot: Camera captures an image and sends it to local client. The image quality is good, but there is some time delay caused by network.
♦ Local Snapshot: Client captures an image and saves it locally. The image quality is ordinary, but there is no time delay.

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

➢ Others

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

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

5.   System Functions

5.1 Recording

When the camera is installed with a storage card and works normally, user can configure scheduled recording. When scheduled recording is enabled, the camera will record videos automatically in the configured duration 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, it means the storage card can be used normally;

2) Go to **Settings > Storage > Recording** to configure recording parameters;
   - Recording Type: select the stream to be recorded;
   - Code Stream Format: select according to the type of access protocol;
   - Prerecord: select prerecord duration, i.e. the prerecord duration before recording starts;
   - Recording Delay: select recording delay time. i.e. the prolonged recording duration plus to the configured duration;
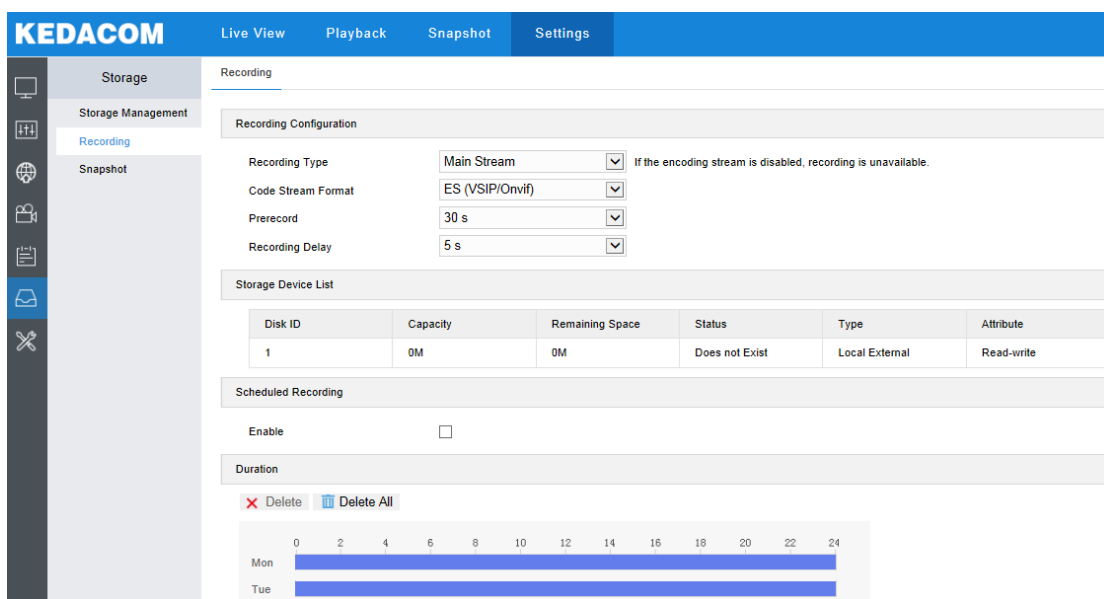
Picture 5-1 Scheduled recording

3) Check "Enable" under Scheduled Recording;

4) Configure durations for scheduled recording. The default setting is 24 hours in bright blue color bars, or you can customize the durations;
   - Set durations: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 4) durations on one day and the durations cannot overlap with each other;

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- Copy: click the green icon behind the timeline and copy the durations on the day to one or several other days;
- Delete: click "**Delete All**" on the top of the timeline to delete all the durations. Select a duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration;

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

5.2 Snapshot

After configuring snapshot parameters, the camera will capture images automatically.

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, it means the storage card can be used normally;

2) Go to **Settings > Storage > Snapshot** to configure snapshot parameters;
- Format: only support .jpeg format;
- Resolution: same as the resolution of the main stream;
- Quality: the quality of captured image;

3) Configure parameters of scheduled snapshot:
- Enable: check it to enable scheduled snapshot;
- Snapshot Type: select "according to the time" or "according to the number";
- Time Interval: select the interval between snapshots;
- Number of Snapshots: set the number of snapshots captured at each event;

4) Configure durations for scheduled recording. The default setting is 24 hours in bright blue color bars, or you can customize the durations;
- Set durations: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 4) durations on one day and the durations cannot overlap with each other;
- Copy: click the green icon behind the timeline and copy the durations on the day to one or several other days;
- Delete: click "**Delete All**" on the top of the timeline to delete all the durations. Select a duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration;

5) Check "Enable" under Event Snapshot, and configure time interval and number of snapshots.

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

5.3 Intelligent Function

Go to **Settings > Event > Intelligent Function**.

The intelligent functions of a camera include motion detection, video blocked, guard line, defocus, scene change, entry guard area, exit guard area, enter guard area, object left, object removal, gathering and audio surge. This chapter will introduce the configuration steps of them one by one.

5.3.1   Motion Detection
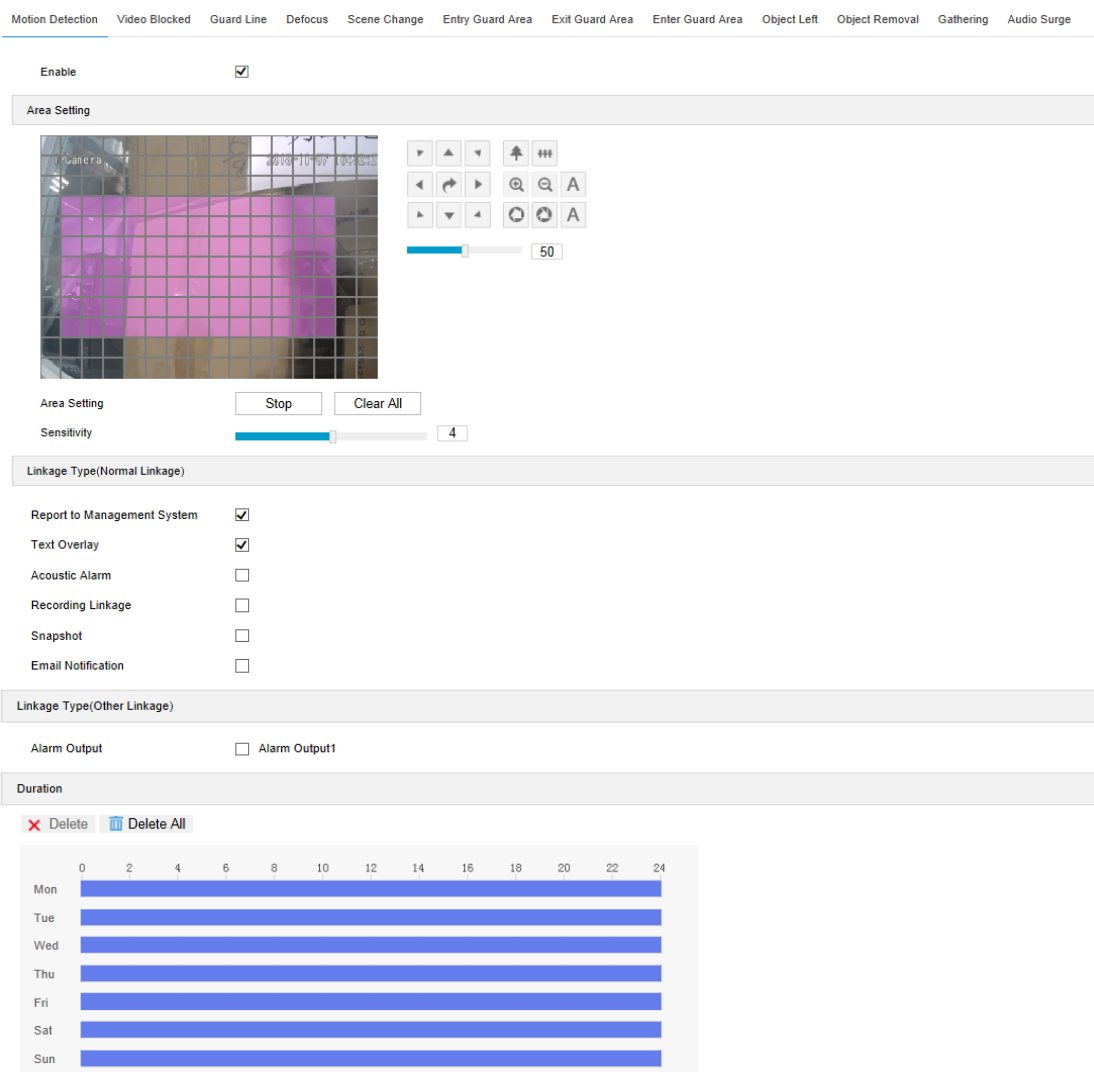
Picture 5-2 Motion detection

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 of motion detection are as follows:

1) Check "**Enable**";

2) 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;

3) Drag the slide bar to adjust **Sensitivity**;

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

5) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.
- Copy duration: click the green icon behind the timeline and copy the durations on the day to one or several other days.
- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.3.2   Video Blocked
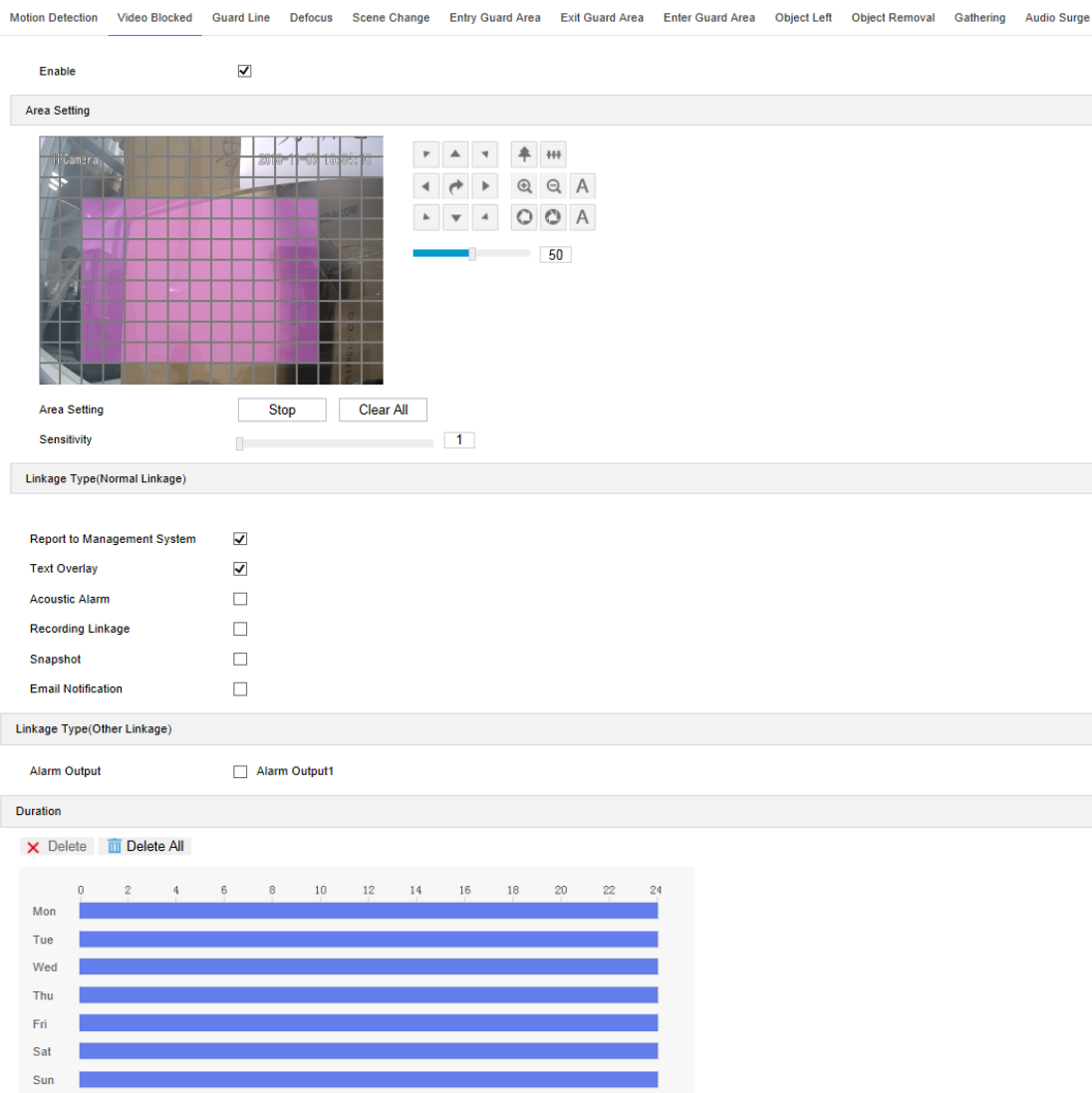
Picture 5-3 Video blocked

When the preset video blocked area is blocked intentionally which disables 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 of video blocked are as follows:

1) Check "**Enable**";
2) 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;
3) Drag the slide bar to adjust **Sensitivity**;
4) Check linkage type(s), which is/are the alarm output method(s) when video blocked triggers an alarm;
5) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations;
   - Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.
   - Copy duration: click the green icon behind the timeline and copy the durations on the day to one or several other days.
   - Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.
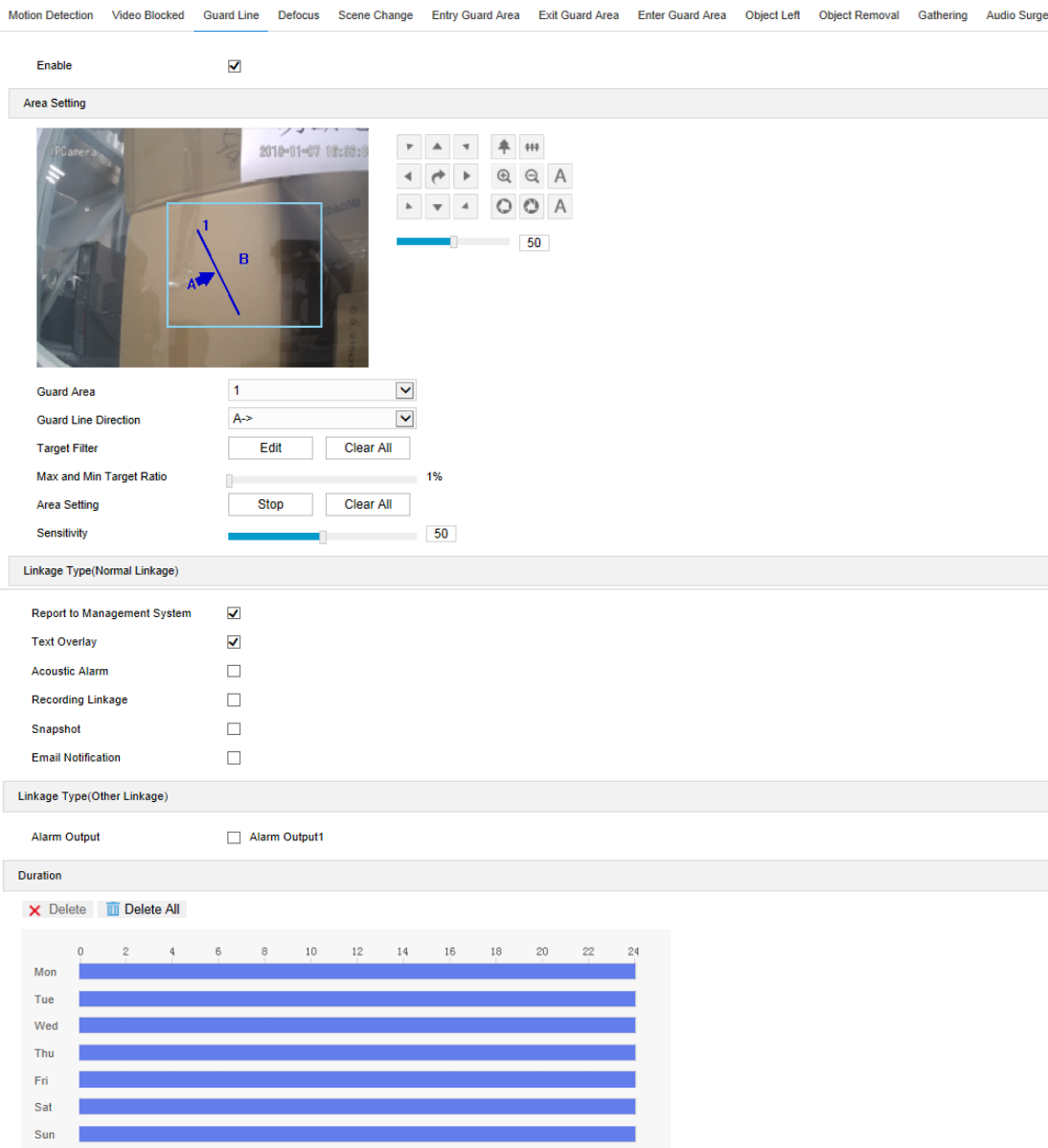6) Click "**Save**" to validate settings.

5.3.3   Guard Line

| Motion Detection | Video Blocked | Guard Line | Defocus | Scene Change | Entry Guard Area | Exit Guard Area | Enter Guard Area | Object Left | Object Removal | Gathering | Audio Surge |

Enable ☑

Area Setting

Guard Area	1 ▾
Guard Line Direction	A-> ▾
Target Filter	Edit Clear All
Max and Min Target Ratio	1%
Area Setting	Stop Clear All
Sensitivity	50

Linkage Type(Normal Linkage)

Report to Management System	☑
Text Overlay	☑
Acoustic Alarm	☐
Recording Linkage	☐
Snapshot	☐
Email Notification	☐

Linkage Type(Other Linkage)

Alarm Output   ☐ Alarm Output1

Duration

✕ Delete   🗑 Delete All

Picture 5-4 Guard line

Guard line is to trigger an alarm once there is any object entering the set guard line.

Configuration steps of guard line are as follows:

1) Check "**Enable**"; select a guard line 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;

2) Select a direction from the dropdown list of Guard Line Direction, options including "A->", "B->" and "A->&&B->"; take "A->" as an example, when selecting this direction, only when objects move from A to B the system will detect and trigger an alarm;

3) 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);

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4) **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 and drag the slide bar of "Sensitivity" to set the guard line's sensitivity to moving objects;

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

6) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.
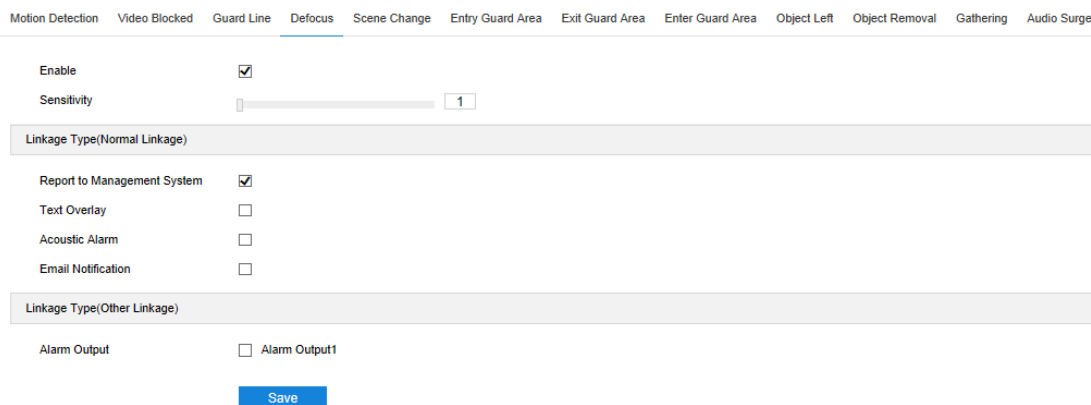
7) Click "**Save**" to validate settings.

5.3.4   Defocus

| Motion Detection | Video Blocked | Guard Line | Defocus | Scene Change | Entry Guard Area | Exit Guard Area | Enter Guard Area | Object Left | Object Removal | Gathering | Audio Surge |

Enable   ☑
Sensitivity |————————| 1 |

Linkage Type(Normal Linkage)

Report to Management System   ☑
Text Overlay   ☐
Acoustic Alarm   ☐
Email Notification   ☐

Linkage Type(Other Linkage)

Alarm Output   ☐ Alarm Output1

                    [Save]

Picture 5-5 Defocus

Enable this function to detect if the image is clear and to trigger some alarm linkages.

Configuration steps of defocus are as follows:

1) Check "**Enable**" and drag the slide bar of "**Sensitivity**". The higher the value is, the more sensitive it is;

2) Check linkage type(s), which is/are the alarm output method(s) when defocus triggers an alarm;

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

5.3.5   Scene Change

Motion Detection   Video Blocked   Guard Line   Defocus   Scene Change   Entry Guard Area   Exit Guard Area   Enter Guard Area   Object Left   Object Removal   Gathering   Audio Surge

Enable	☑
Detection Mode	Software detection ▾
Sensitivity	─── 1

Linkage Type(Normal Linkage)

Report to Management System	☑
Text Overlay	☐
Acoustic Alarm	☐
Recording Linkage	☐
Snapshot	☐
Email Notification	☐

Linkage Type(Other Linkage)

Alarm Output	☐ Alarm Output1

Duration

✕ Delete   🗑 Delete All

Save

Picture 5-6 Scene change

Enable this function to detect if the image scene is changed and to trigger some alarm linkages.

Configuration steps of defocus are as follows:

1) Check "**Enable**";
2) Select a detection mode from the dropdown list and drag the slide bar of Sensitivity. The higher the value is, the more sensitive it is to the scene change;
3) Check linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;
4) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations;

   • Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.
   • Copy duration: click the green icon behind the timeline and copy the durations on the day to one or several other days.

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- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.3.6   Entry Guard Area
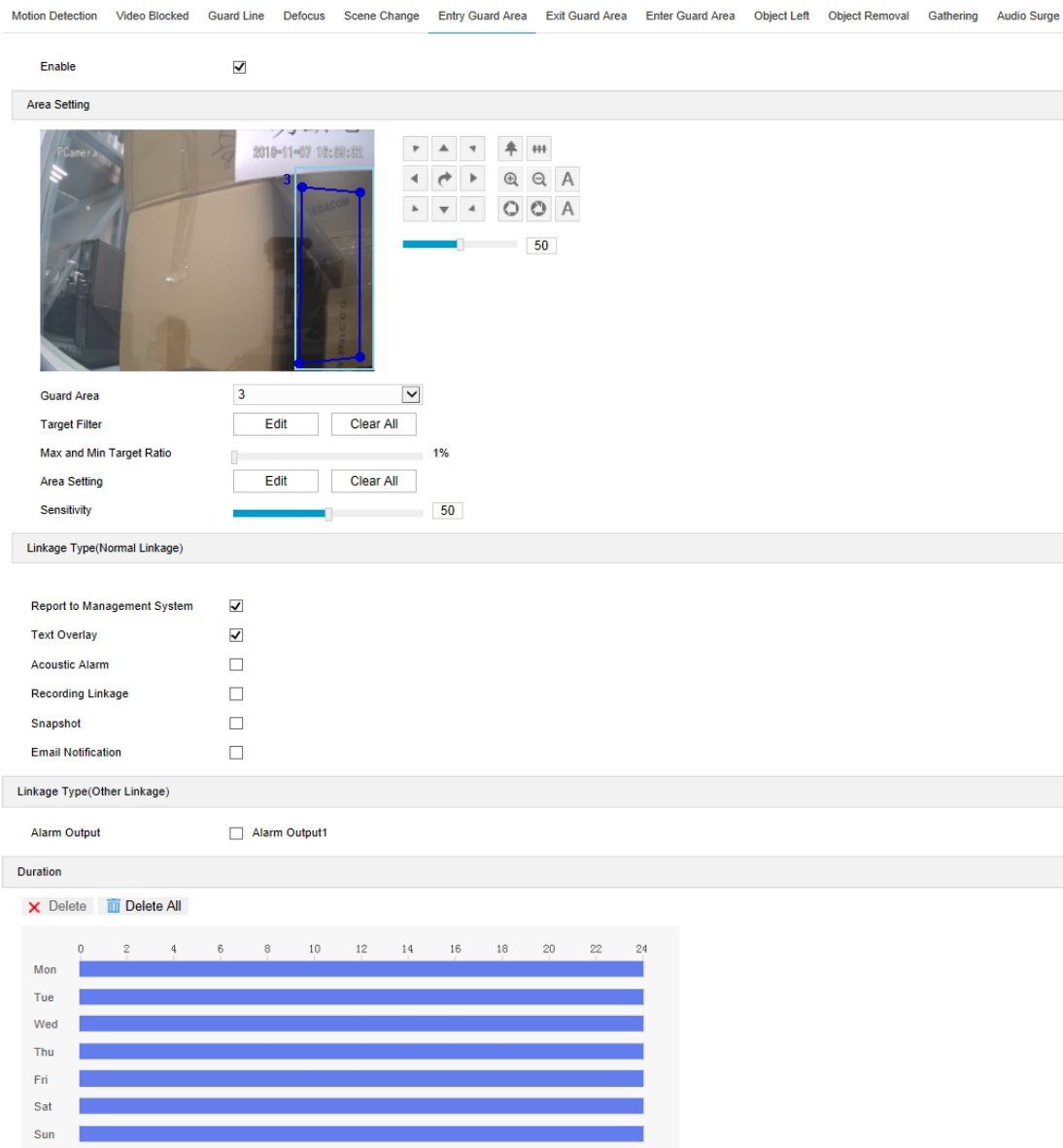

Picture 5-7 Entry guard area

Enable this function in the interface and set the guard area. Once there is anything entering this area, an alarm will be triggered.

Configuration steps of defocus are as follows:

1) Check "Enable" and 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;

2) **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);

3) **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, and drag the slide bar of "Sensitivity" to set the sensitivity of the guard area to moving objects;

4) Check 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;

   - Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

   - Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.3.7   Exit Guard Area
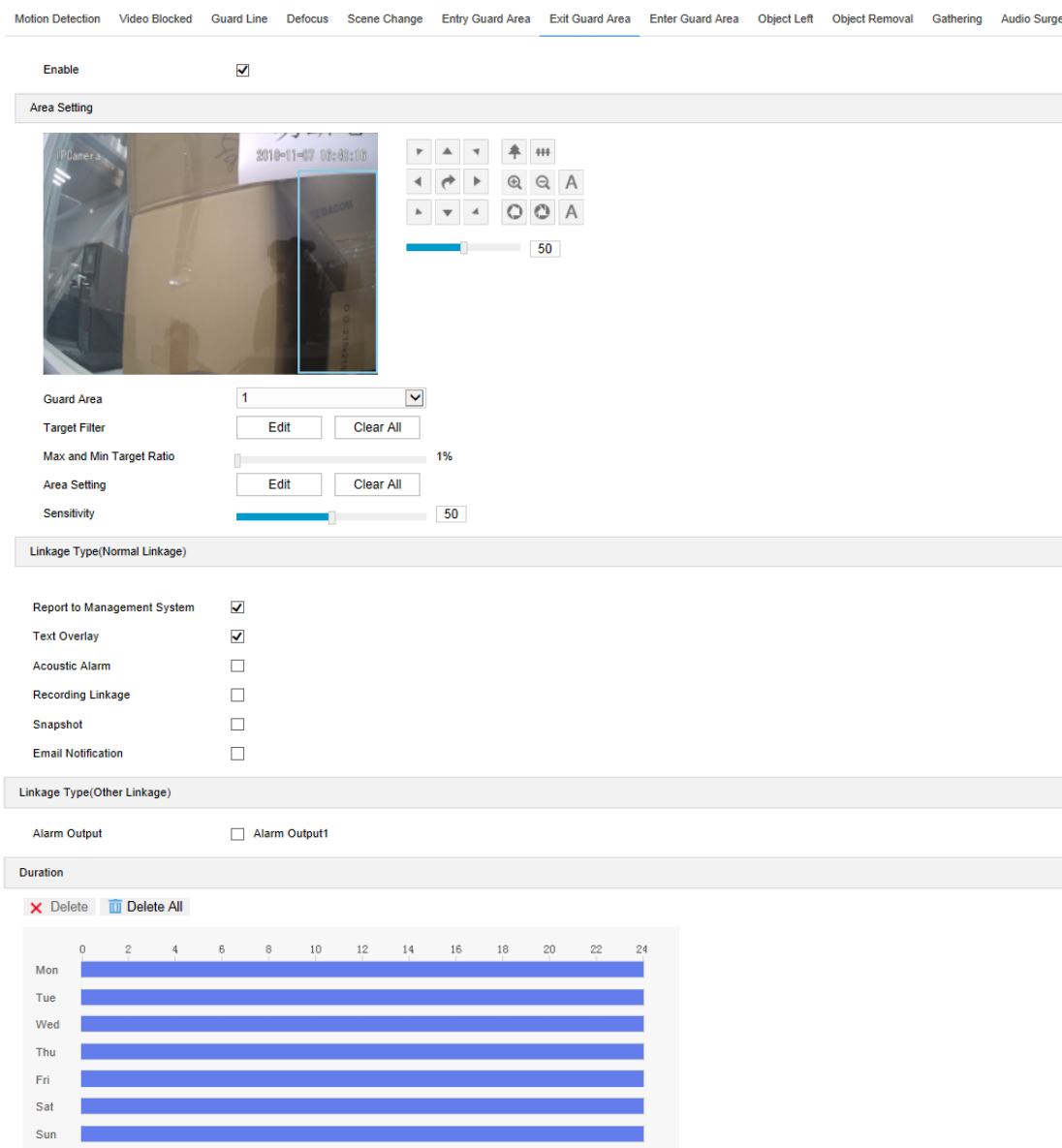
Picture 5-8 Exit guard area

Enable this function in the interface and set guard area. Once any moving object leaves the guard area, an alarm will be triggered.

Operation steps are as follows:

1) Check "**Enable**" and 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;

2) **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);

3) **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, and drag the slide bar of "Sensitivity" to set the sensitivity of the guard area to moving objects;

4) Check 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;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

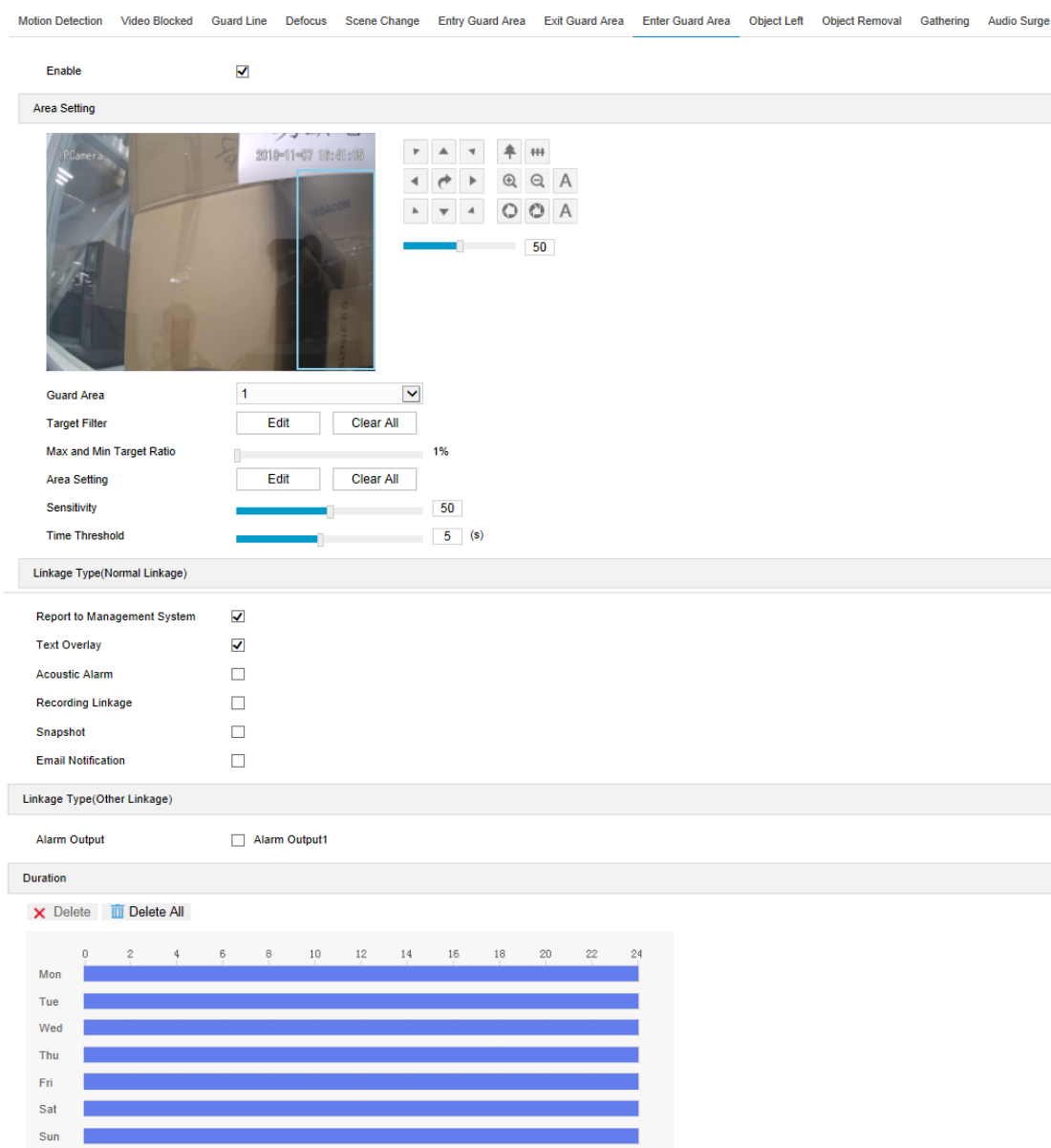### 5.3.8   Enter Guard Area
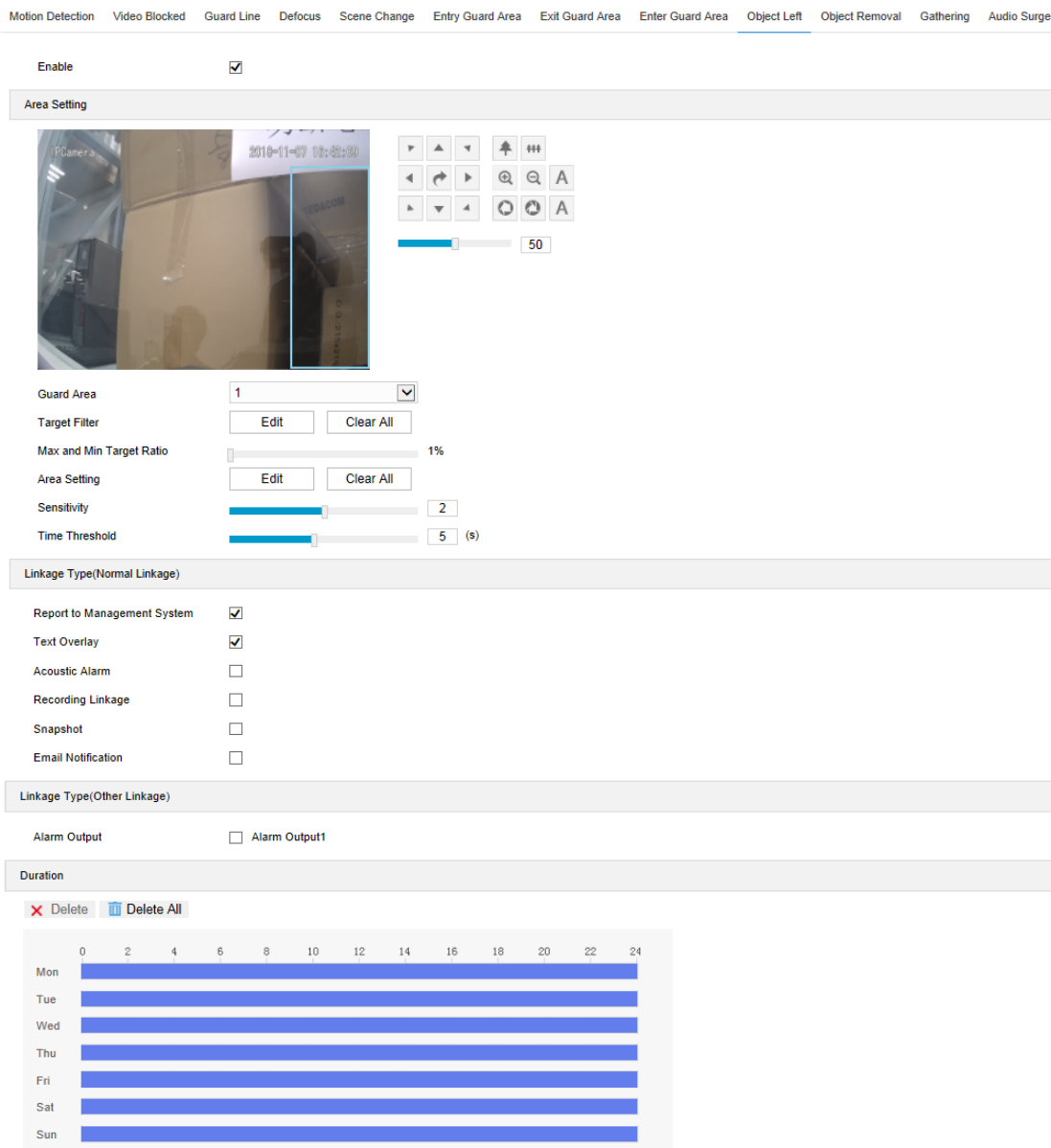

Picture 5-9 Enter guard area

Enable this function in the interface and set the guard area. Once any moving object enters the guard area and stays for a period of time reaching the set threshold, an alarm will be triggered.

Operation steps are as follows:

1) Check "**Enable**" and 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;

2) **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);

3) **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, and drag the slide bar of "Sensitivity" and "Time Threshold";

4) Check 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;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.3.9   Object Left

Picture 5-10 Object left

Enable this function in the interface and set guard area. When any object is left in the area for a period of time reaching the time threshold, an alarm will be triggered.

Operation steps are as follows:

1) Check "**Enable**" and 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;

2) **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);

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3) **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 drag the slide bar of "Sensitivity" and "Time Threshold";

4) Check 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;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.3.10   Object Removal

Picture 5-11 Object removal

Enable this function in the interface and set the area. When any object is taken from the area for a period of time reaching the time threshold, an alarm will be triggered.

Operation steps are as follows:

1) Check "**Enable**" and 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;

2) **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);

3) **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 drag the slide bar of "Sensitivity" and "Time Threshold";

4) Check 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;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.3.11   Gathering

Picture 5-12 Gathering

Enable this function in the interface and set guard area. When the coverage of people exceeds the set ratio, an alarm will be triggered. For example, if setting the ratio 50%, when 50% or more of the area is covered by people, an alarm will be triggered.
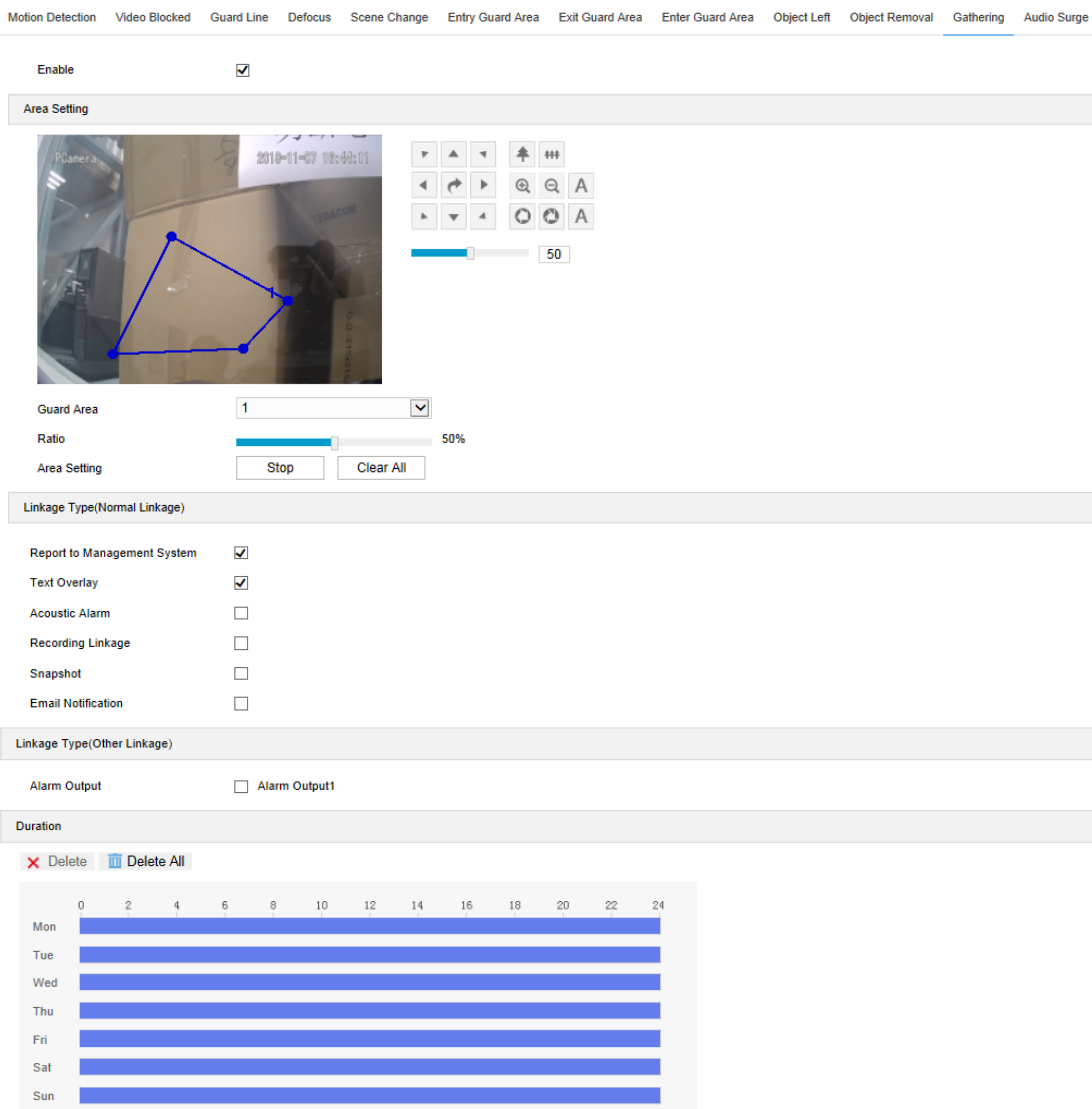
Operation steps are as follows:

1) Check "**Enable**" and 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;

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

3) **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;

4) Check 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;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

6) Click "**Save**" to validate settings.
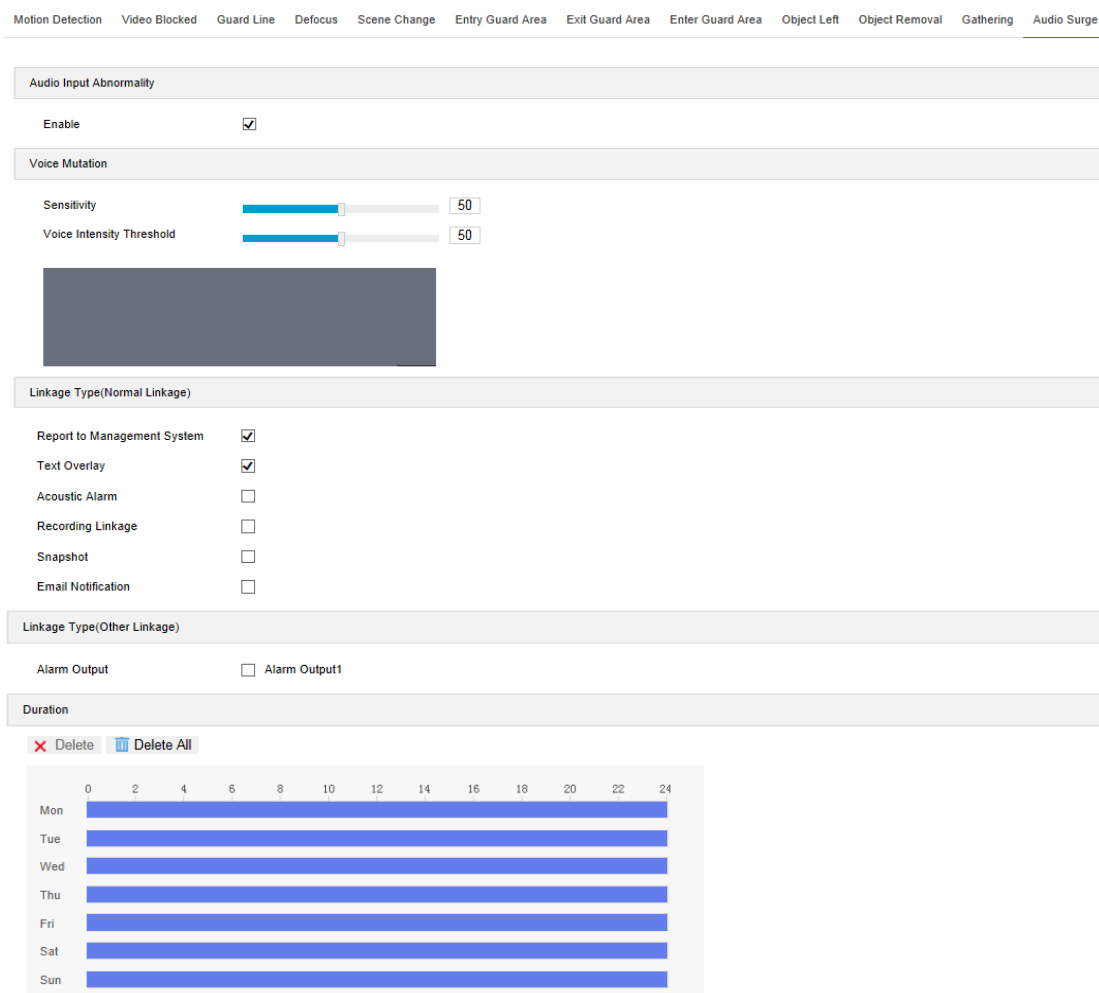
5.3.12   Audio Surge

Picture 5-13 Audio surge

After enabling this function, when there is audio surge, an alarm is triggered.

Operation steps are as follows:

1) Check "**Enable**" and 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;

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

3) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations;

- Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

- Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

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

5.4 Alarm Input
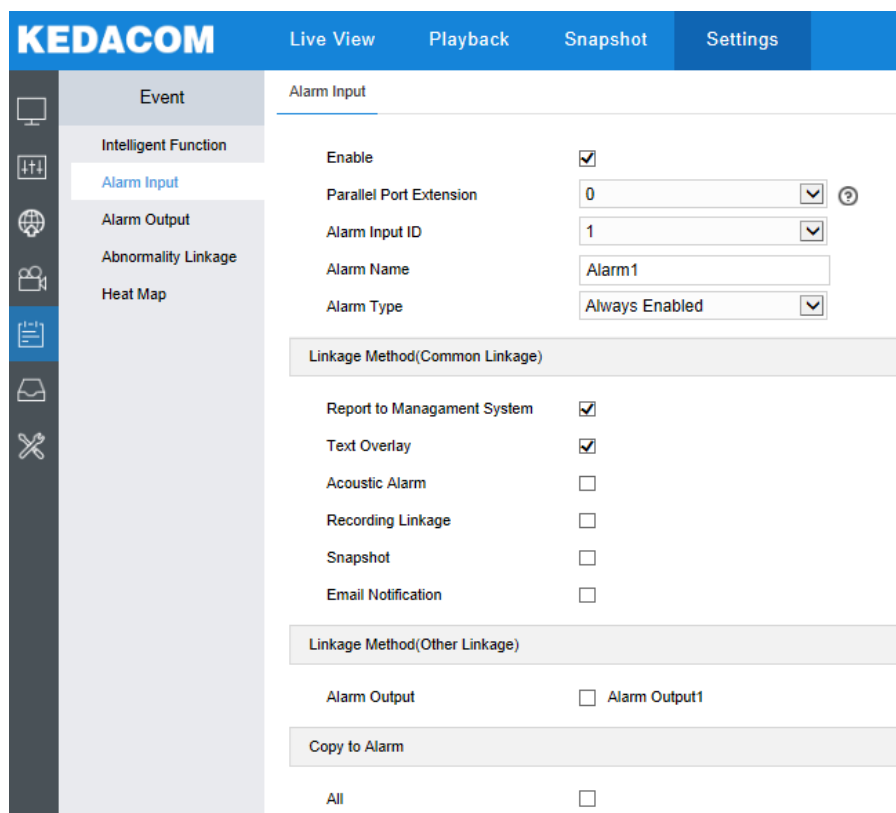
Picture 5-14 Alarm input

The camera connects to alarm input devices such as smoke detector, alarm bell or spray thrower through parallel ports. User needs to configure parameters for each parallel port respectively. Operation steps are as follows:

1) Check "Enable". Select a number from the dropdown list of Parallel Port Extention (default being 0, i.e. not connected to an alarm extention device) and Alarm Input ID;

2) Enter alarm name, i.e. the name of the alarm input device such as the smoke sensor at front door;

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

4) Check linkage method(s), i.e. the linkage method(s) when an alarm is triggered within the arming duration;

5) Set arming duration: the default is 24 hours displaying in blue bar, or user can customize durations;

   - Set duration: select a day and put the mouse on a point of the timeline, left-click and drag the mouse to the right to draw a bright blue color bar, on the top of which shows the start time and end time; click the color bar to pop up a window for editing the accurate start time and end time; click "**Save**" on the window to validate setting. It allows several (max 10) durations on one day and the durations cannot overlap with each other.

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

   - Delete duration: click "**Delete All**" on the top of the timeline to delete all the durations. Select duration and click "**Delete**" on the popup window or on the top of the timeline to delete the duration.

6) Check "All" under Copy to Alarm, to copy the alarm input setting of this port to all the other alarm input ports. Click "**Save**" to validate settings.
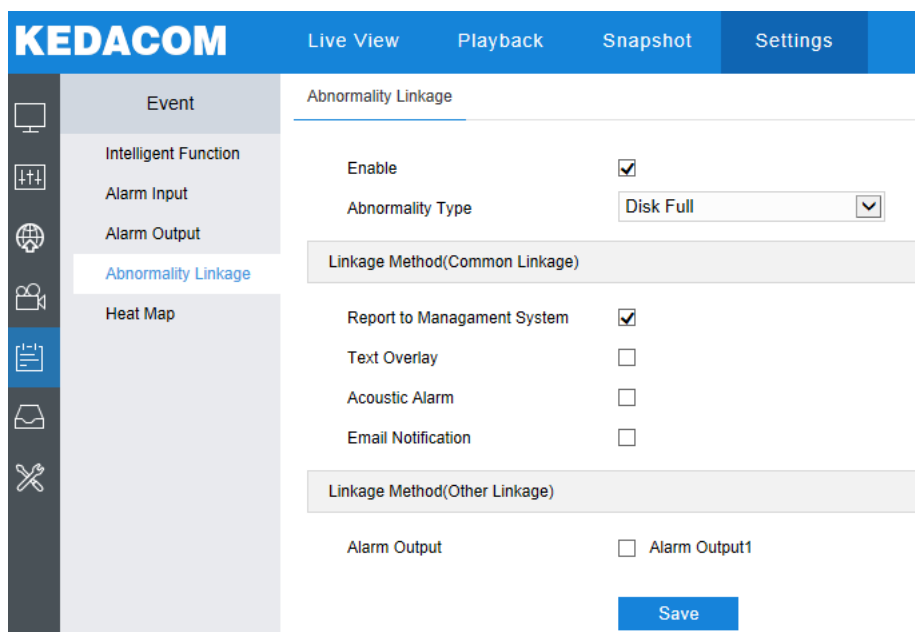
5.5 Alarm Output

The default duration of alarm output is 5s, and the delay time means the prolonged period of time after the default 5s. Please select an option from the dropdown list according to actual request and click "**Save**" to validate setting.
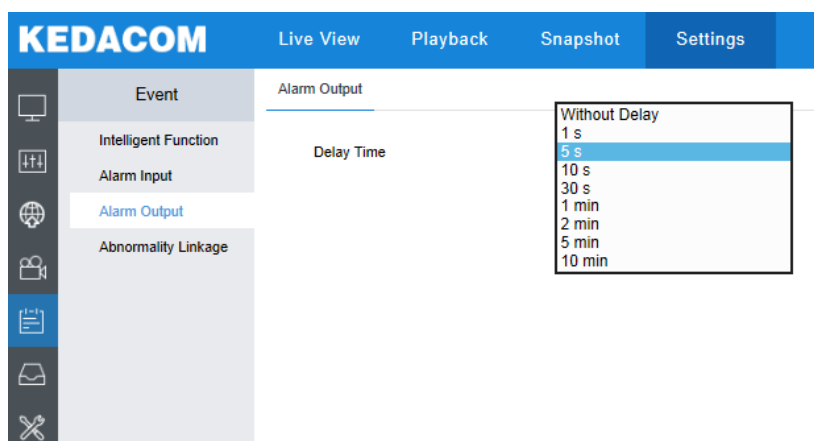
Picture 5-15 Alarm Output

5.6 Abnormality Linkage

Picture 5-16 Abnormality linkage

Configure the alarm linkage for abnormal events. Operation steps are as follows:

1) Check "Enable" and 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.

2) Check linkage type(s), which is/are the alarm output method(s) when an event triggers an alarm;
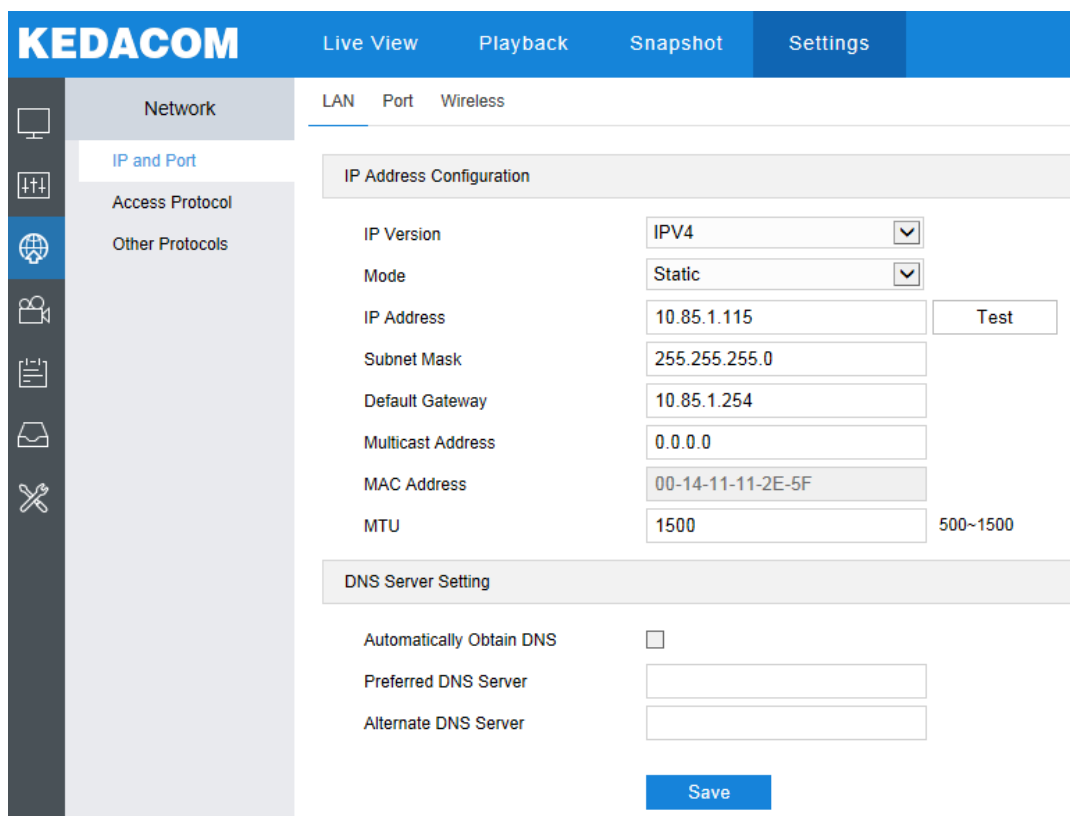
3) Click "**Save**" to validate settings.

6.   Network

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

6.1 IP and Port

6.1.1   LAN

Configure network parameters on the interface of LAN.

Picture 6-1 LAN

IP Version: Select IPV4.

Mode: Select Static or DHCP mode. 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;

Multicast Address: Multicast address for sending streams. Input according to actual request.

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.

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

DNS Server Setting: When camera accesses to external platform in form of domain name, user needs to configure DNS server.

6.1.2   Port

On the interface of Port, configure HTTP Port, RTSP Port and Multicast Port. When logging in through network, configure corresponding ports by request.
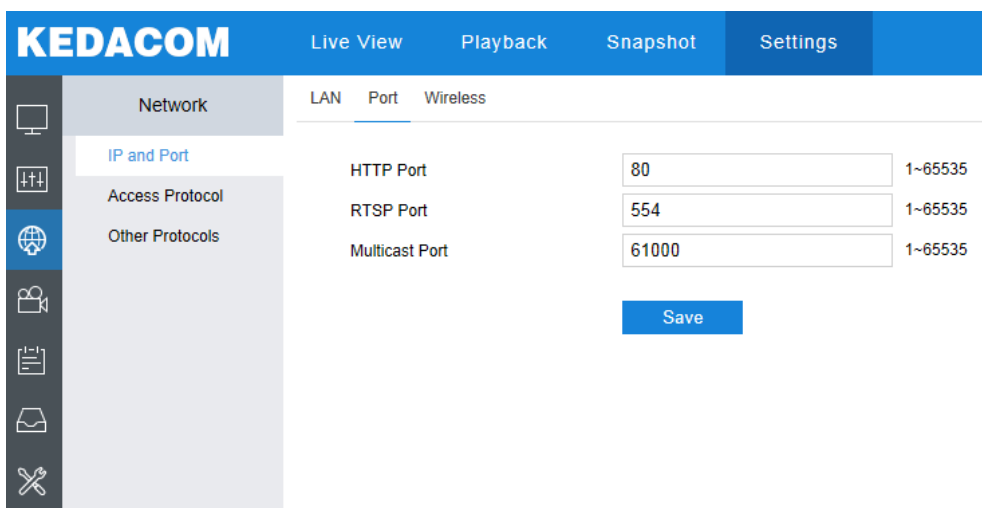
Picture 6-2 Port

HTTP 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.

RTSP Port: Real Time Streaming Protocol port, make sure that the port you are editing is available. RTSP port number is 554 by default, ranging 1 ~ 65535. When login by RTSP port, rtsp://camera IP address/id=0 (id=0 play main stream, id=1 play secondary stream).

Multicast Port: Configure multicast port up to actual request, 61000 by default, ranging 1 ~ 65535.

6.1.3   Wireless

On the interface of "Wireless", configure wireless connection setting.
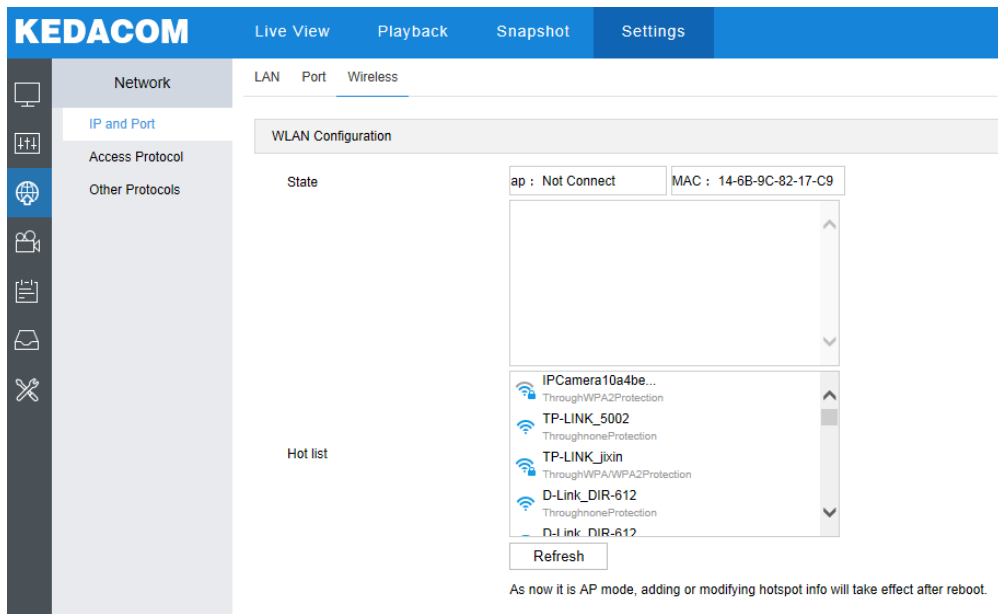
Picture 6-3 Wireless

The default mode is AP and user can access to the camera through mobile phone.

Accessing to the camera needs to select WiFi ID and input password:

Default WiFi name: device type + device S/N

Password: default initial password "admin123"

After accessing to the device, input device IP in browser to login to the web client.

Alternatively, user can access to the camera to the WiFi network. Click "Refresh" and select the WiFi name to connect to; click the icon "+" on the right and input password to connect to the network. When the "State" displays connected, it's connected successfully.

6.2 Access Protocol

6.2.1   VSIP

The web client supports accessing to back-end platform through VSIP protocol. Configuration steps:
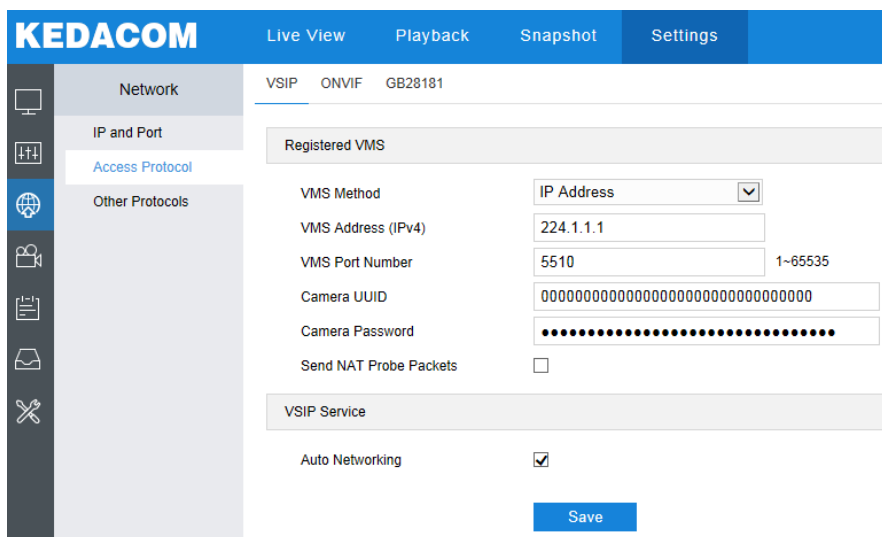
Picture 6-4 VSIP

1) Select a method from the dropdown list of VMS Method, "IP Address" or "Domain". If selecting "IP Address", input VMS address in "VMS Address (IPv4)"; if selecting "Domain", input VMS domain name in "Registered VMS Domain";

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

3) Input "Camera UUID" and "Camera Password". Camera UUID is distributed by VMS and the password needs no verification so you don't have to input;

4) When the camera is in NAT, check "Send NAT Probe Packets"; you can check "Auto Networking" to enable function of auto networking;

5) After finish, click "**Save**" to validate setting.

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

6.2.2   ONVIF
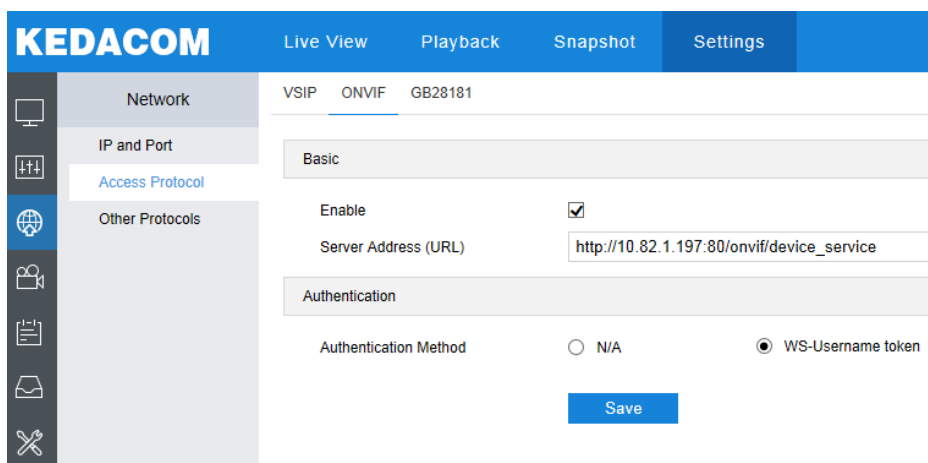
Picture 6-5 ONVIF

**Basic**: ONVIF protocol is enabled by default. User can register camera to ONVIF-supported VMS, VMS port being 80 by default. The camera will generate "Server Address (URL)" automatically.

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

6.2.3   GB28181

On GB28181 interface, add the camera to GB platform according to the requirements of GB/T28181. Configuration steps:
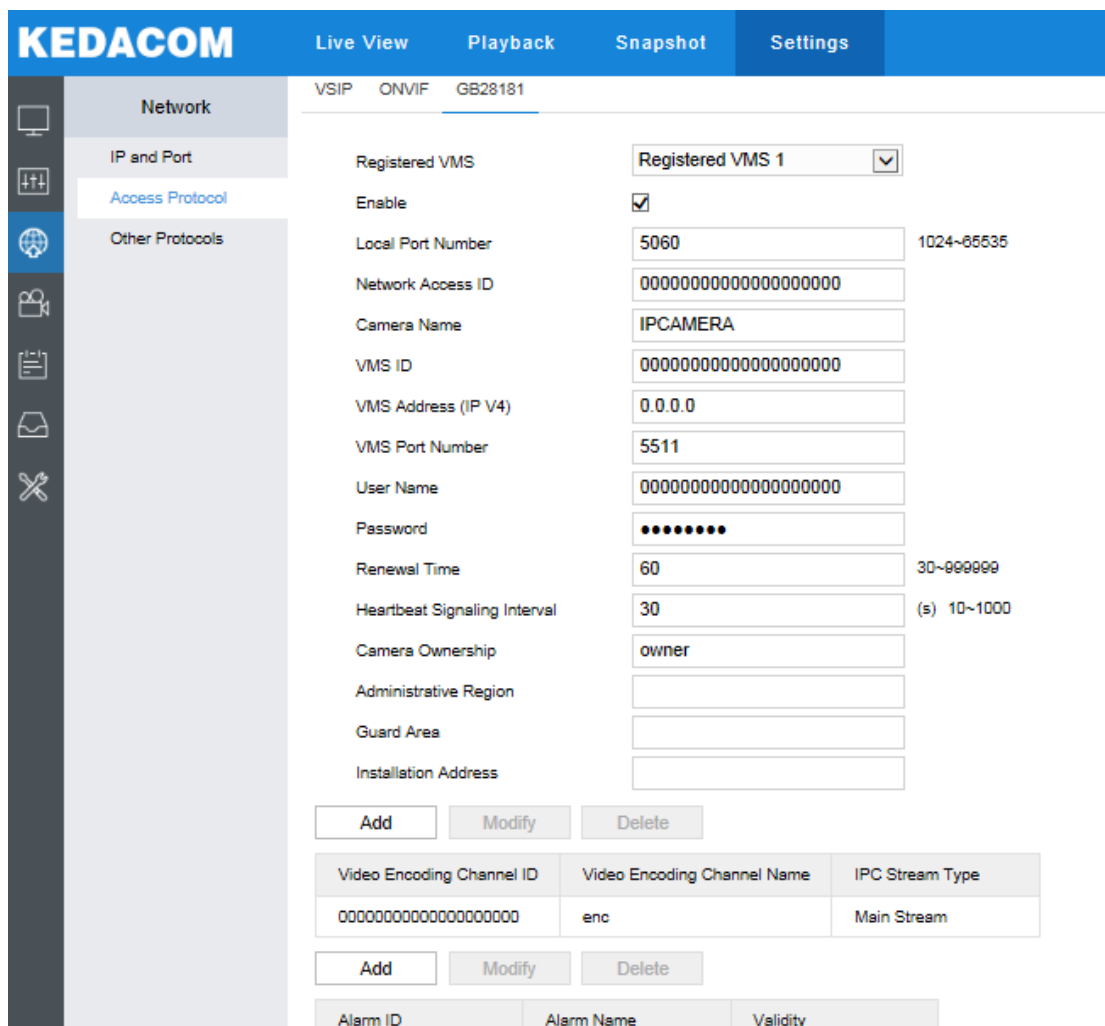

Picture 6-6 GB28181

1)   Check "Enable" and select the "Registered VMS" (Registered VMS 1 or Registered VMS 2). The camera supports registered to 2 different VMS;

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

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

6.3 Other Protocol

6.3.1   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.
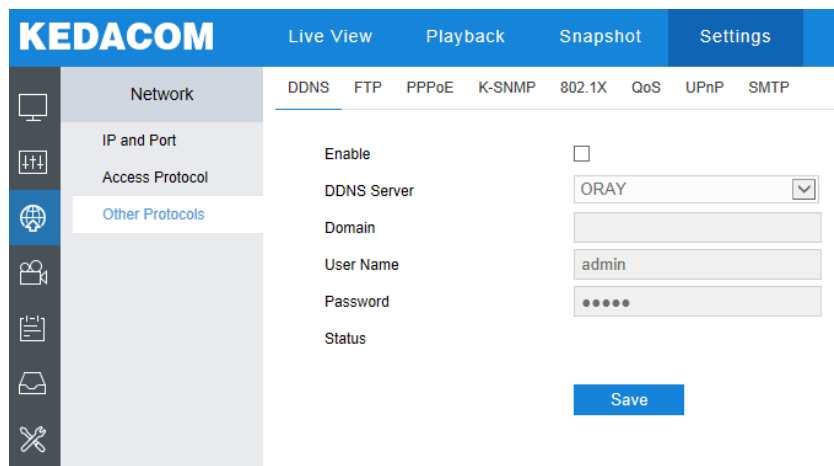
Picture 6-7 DDNS

1)   Check "Enable";

2)   Input the domain login information according to the selected DDNS server;

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

6.3.2   FTP

The web client supports FTP protocol and user can upload the pictures of the camera to specific FTP server.
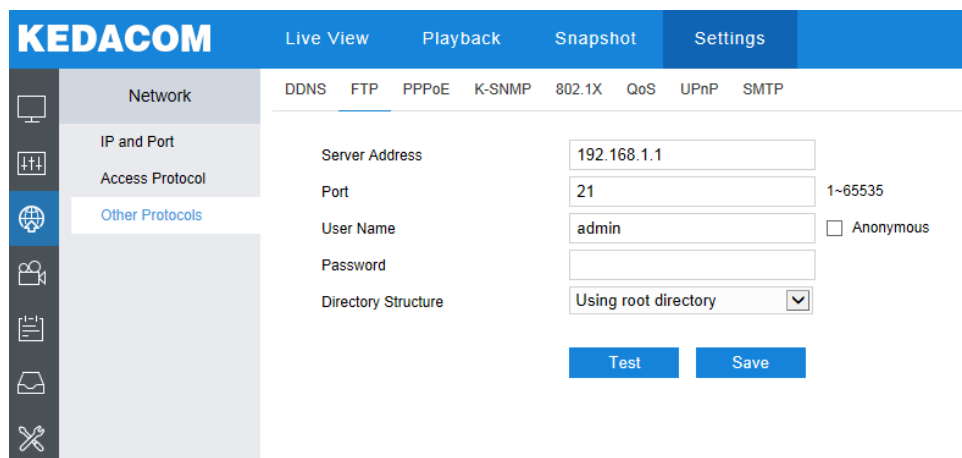
Picture 6-8 FTP

1)   Input FTP server address and port;

2)   Input FTP server username and password, and check "Anonymous" to visit FTP server anonymously;

3) Configure directory structure, i.e. file save path. Select from the dropdown list by actual request;

4) Click "**Test**" to verify if current FTP is available, and click "**Save**" to validate setting.

6.3.3   PPPoE

PPPoE function is to access camera to the internet by dialing the account provided by ISP (Telecom, Unicom and CMCC).
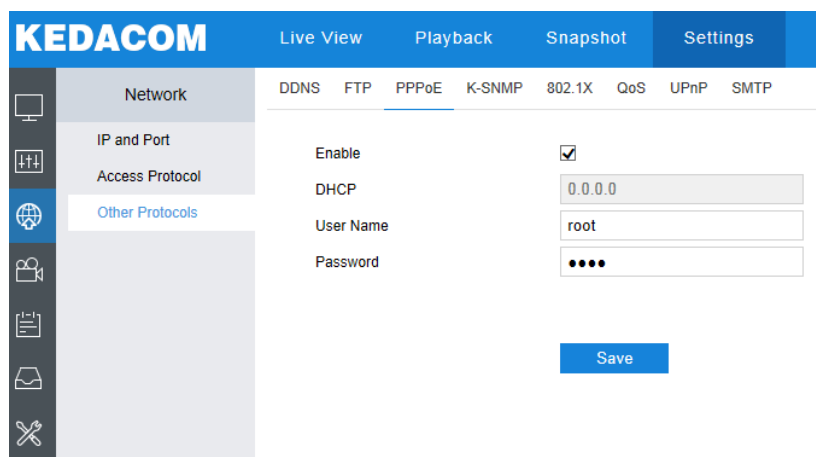
Picture 6-9 PPPoE

1) Check "Enable" to enable PPPoE function;

2) Input user name and password provided by ISP;

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

6.3.4   K-SNMP
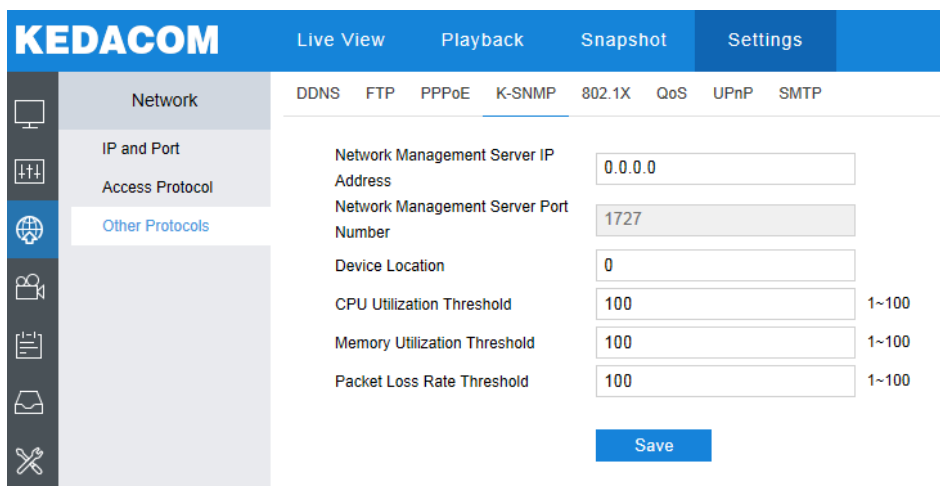
Picture 6-10 K-SNMP

The camera supports KEDACOM private network management protocol. Configuration steps are as follows:

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

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

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

6.3.5   802.1X
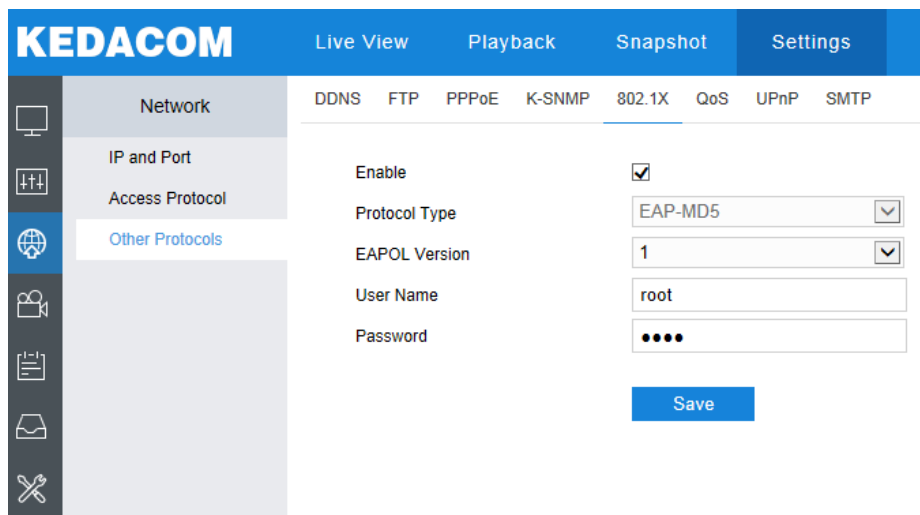
Picture 6-11 802.1X

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) Check "Enable" to enable IEEE 802.1X protocol;

2) Select "Protocol Type" from the dropdown list and select version from the list of "EAPOL Version";

3) Input user name and password;

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

6.3.6   QoS

ⓘ Note: QoS function needs support of network transmission device such as a router.
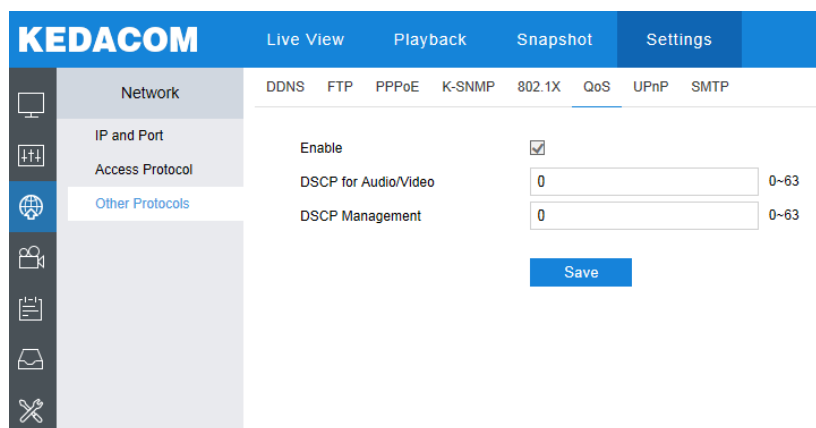
Picture 6-12 QoS

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

1) Check "Enable" to enable QoS function;

2) 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.

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

6.3.7 UPnP
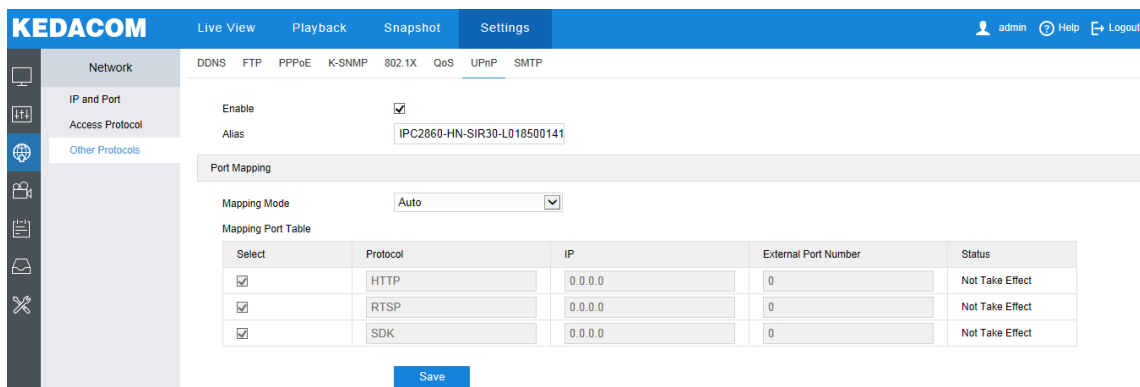
Picture 6-13 UPnP

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.

By UPnP protocol, it's able to set up mapping relation between Ethernet and 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:

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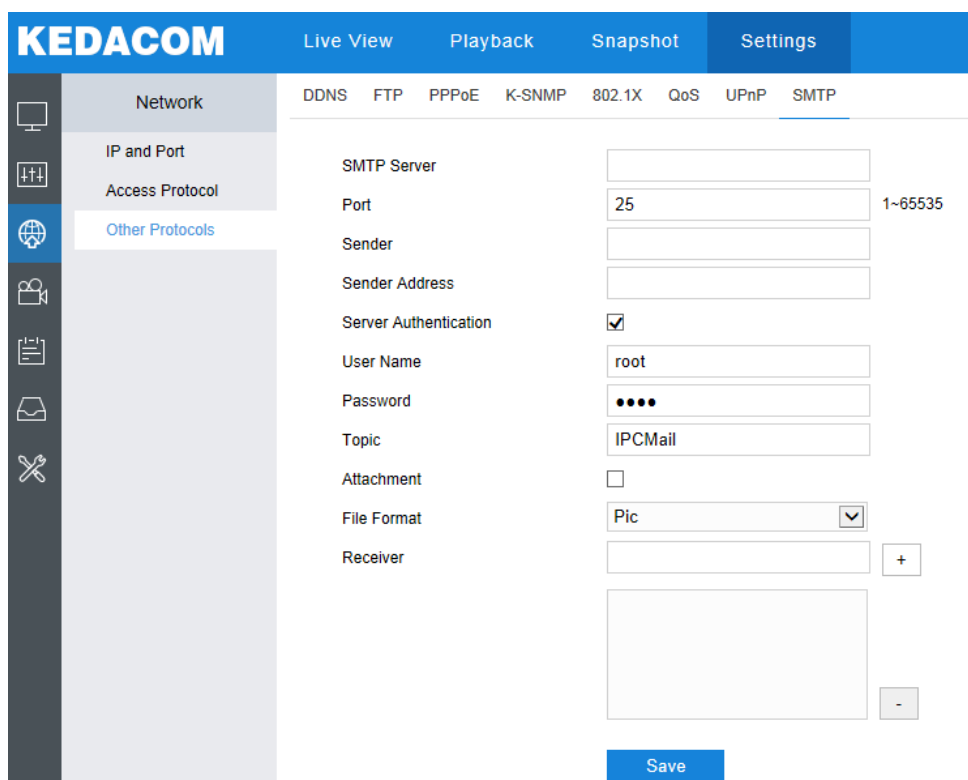
2) Set alias, then user can search the alias directly from the network on PCs which have enabled UPnP protocol in the broadcast domain of the same Ethernet. Double-click the icon and the system will pop up a page automatically for user to visit current IP address;

3) Select "Auto" or "Manual" for Mapping Mode;

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

6.3.8   SMTP

Picture 6-14 SMTP

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

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

2) Input "Sender" and "Sender Address"; optionally check "Server Authentication" and input correct user name and password;

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

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

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

Note: This function is available only when Email Notification is enabled. Method to enable Email Notification can be referred to in the chapter of Intelligent Function.

7.   Image Settings

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

7.1 Image

Go to Settings > Camera > Image, as shown below.
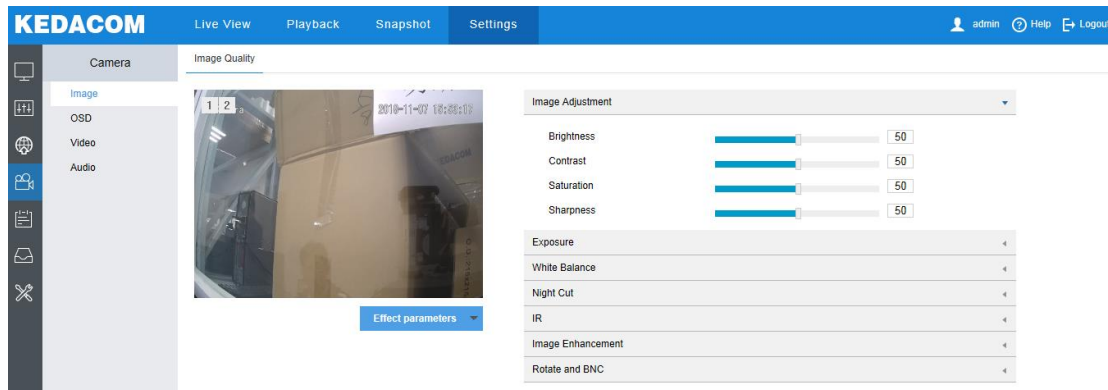
Picture 7-1 Image

7.1.1   Image Adjustment

The image adjustment in this part is the same as that on the Live View interface, which can be referred to in the chapter of *4.1.11 Image Adjustment*.

7.1.2   Exposure

■   Gain: A higher gain requires less light exposure thus the image will 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. Then the value of gain will remain.

■   Shutter: 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 under indoor fluorescent lamp, select the correct anti-flicker frequency (50Hz or 60Hz) to solve the problem. The frequency should be in accordance with that of the nation's AC and light frequency.

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

- Manual white balance: support R Gain and B Gain adjustment.
- "Auto 2" mode has 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 from the following 4 options 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.

7.1.4   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.
- Auto (photo-sensor triggered): IR camera supports this mode. The camera detects light strength with photo-conductive resistance and triggers night cut according to the returned value. When selecting this mode, configure Photosensitivity, Latency and Night Cut Threshold according to actual request.
- 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.
- Alarm Triggered Cut (some models support): It is the night cut triggered by alarm input. After selecting this mode, select day or night from the dropdown list. If selecting "Day", it will switch to day mode after alarm triggered.

7.1.5   IR

In low light situation, IR lamp can be enabled to get better surveillance images. You can select "Disable", "Manual Mode" or "Auto" mode.

7.1.6   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.

- ■ 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 image streaking on moving objects. Usually, you needn't 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".
  - • SmartIR: SmartIR can adjust IR lamp automatically. Select "SmartIR" from the drop-down list of Dynamic Adjustment and drag the slide bar of "SmartIR Sensitivity".
  - • WDR: WDR can provide optimal exposure when there is strong background light. Select "WDR" from the drop-down list of Dynamic Adjustment and drag the slide bar of "WDR Sensitivity".
- ■ Image Enhancement: "Defog" is disabled by default. When there is fog in the scene, enable "Defog".

7.1.7   Rotate and BNC

Corridor Mode: When camera is installed sideway, correct the image upright by this function.

- ■ Disable: default option, image will not rotate.
- ■ Left: image will rotate anticlockwise by 90°.
- ■ Right: image will rotate clockwise by 90°.

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

- ■ Disable: default option, image will not rotate.
- ■ Left and Right: image will be reversed horizontally but the vertical is the same.
- ■ Up and Down: image will be reversed vertically but the horizontal is the same.

■ Center: image will rotate by 180°.

BNC Output: When this function is enabled, the system will output analog image directly to the local output port.

7.2 OSD
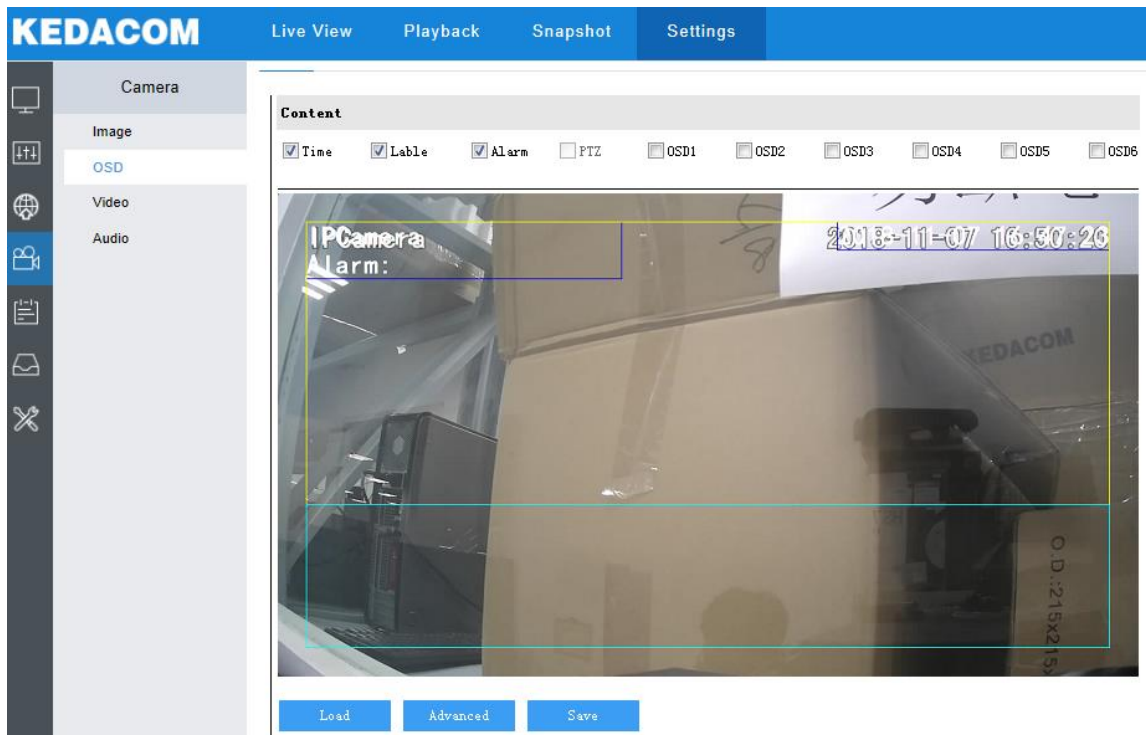
Picture 7-2 OSD

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

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

2) Click "**Advanced**" to set "Format", "Font" and "Margin". In the part of format, you can set "Time Format", "Display time in 2 lines" and "Alarm in front of tag"; in the part of font, you can set font "Type", "Size" and "Color"; in the part of margin, you can adjust the distance between OSD and border both horizontal and vertical;

3) Edit OSD texts: double click the OSD textbox and input characters in the popup interface. Click "**OK**". Each OSD can be set maximum 32 characters and so is the label;

4) Edit OSD positions: drag the OSD in the window with mouse to change its position. Each OSD can be dragged within the blue box only. If you want to drag it out of the blue box, move the blue box first;

5) Load font: Click "**Load**" to load "Default Font", "Large Font", "Medium Font" or "Small Font". Then edit content and position according to the above steps;

6) 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.

7.3 Video Parameters

Video parameters include Encoding Format, ROI, Privacy Mask and Video Info Overlay.

7.3.1   Encoding Format

On the interface of "Encoding Format", configure parameters of stream type, resolution, bit rate type and etc., as shown below.
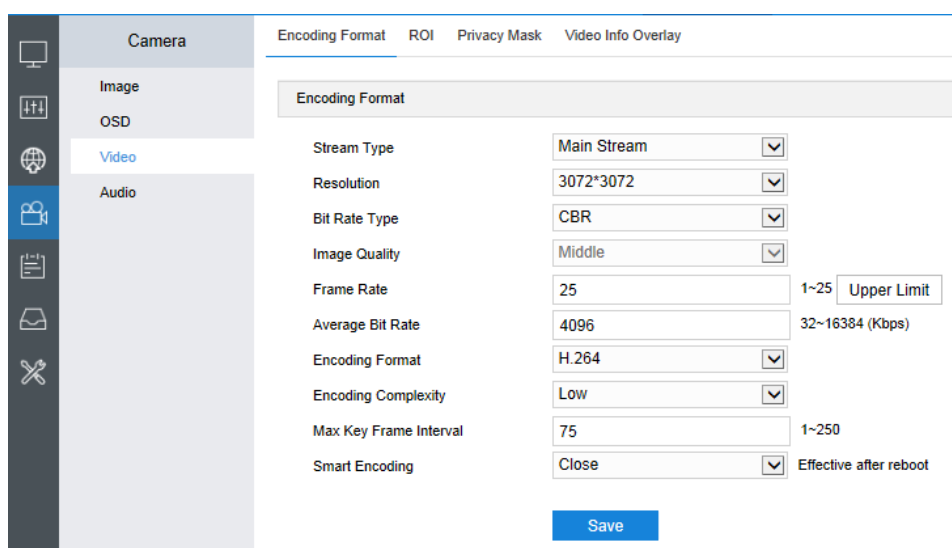

Picture 7-3 Encoding Format

■ Stream Type: Configure the resolution and bit rate of main or secondary stream. The main stream is used for HD storage and viewing while the secondary or third stream is for SD storage and viewing.

■ 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.

■ Image Quality: According to actual requirements, select image quality level from the dropdown list. The higher the level is, the clearer the image will look.

■ Frame Rate: Set the encoding frames per second.

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

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

■ Encoding Complexity: Select encoding complexity level according to actual request.

(i) Note: The higher the complexity level is, the more the stream will be compressed. Thus it will relieve bandwidth restriction to some extent, but meanwhile it will also occupy the CPU resource of more devices. Suggest using the default level.

■ Max Key Frame Interval: Ranging 1 ~ 250, suggest applying the default value 75.
■ Smart Encoding: Disabled by default. When enabling smart encoding, it takes effect after rebooting the camera. It will reduce video frame rate when enabling "Smart Encoding" in static scenes; it will improve image quality when enabling it under low bit rate.

7.3.2   ROI
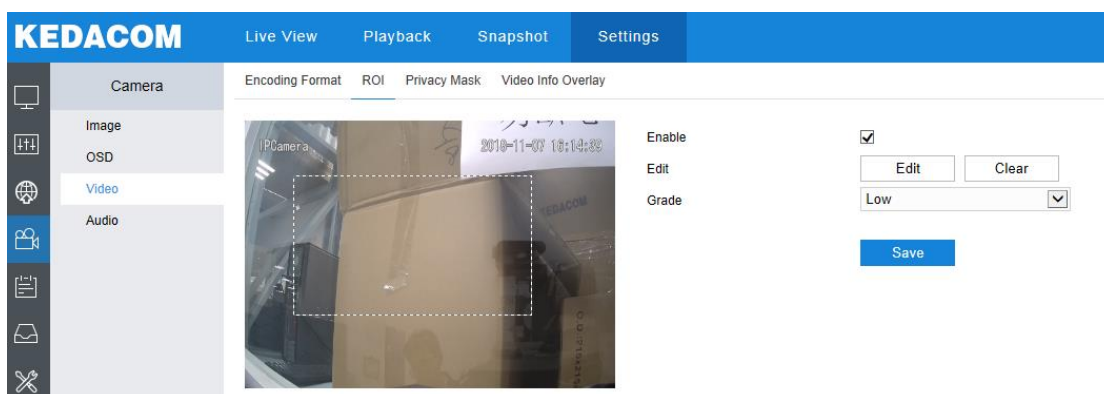
Picture 7-4 ROI

Only encode 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 bit rate. Configuration steps are as follows:

1) Check "Enable" to enable ROI function;

2) 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;

3) After finish setting, click "**Save**".

7.3.3   Privacy Mask
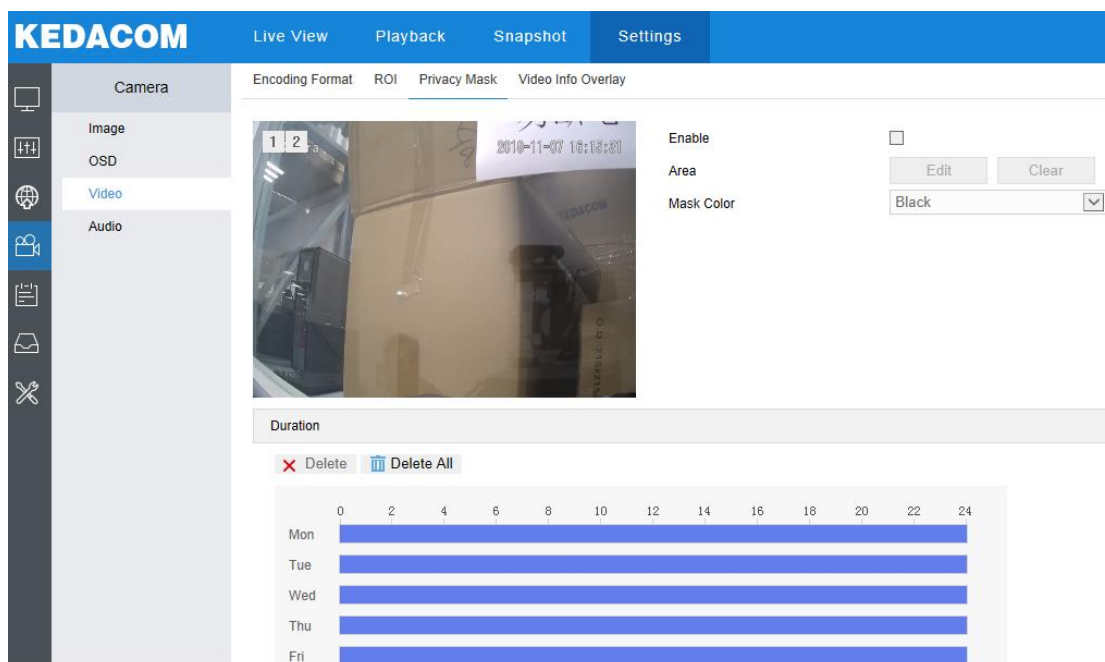

Picture 7-5 Privacy Mask

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

1) Check "**Enable**" to enable privacy mask;

2) 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;

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

4) Configure arming duration. The default arming duration is 24 hours in blue bars, or you can customize the 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**" on the window to validate setting. There can be multiple durations (max 10) on one day and different durations cannot overlap with each other.

   • Copy: Click the green 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.

5) Click "**Save**" to make settings effective.

7.3.4   Video Info Overlay
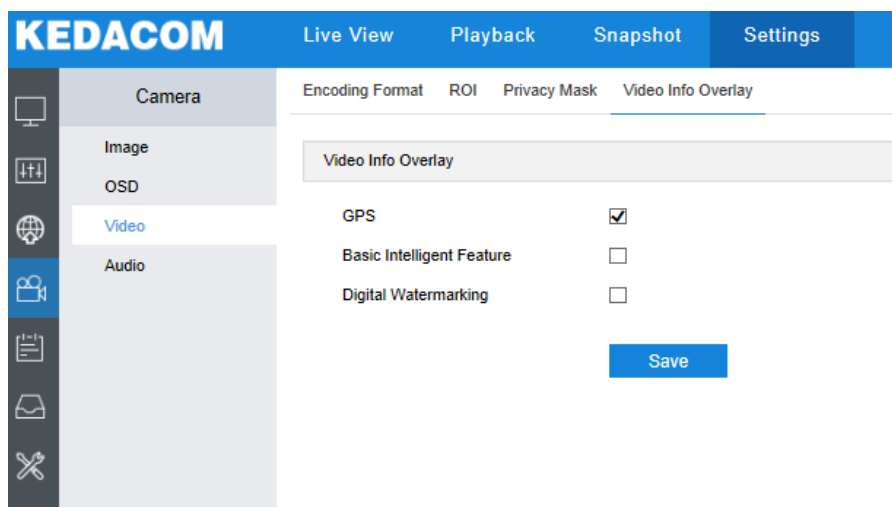
Picture 7-6 Video info overlay

- ■ **GPS:** Check **GPS** to show camera coordinates.
- ■ **Basic Intelligent Feature:** After configuring intelligent functions (on the interface of Settings > Event > Intelligent Function), check this option and check "Rule Information Display" in Settings > Local Setting, then the intelligent area will be displayed in live view window.
- ■ **Digital Watermarking:** Check **Digital Watermarking** to show digital watermarking.

7.4 Audio Parameters

7.4.1   Audio Encoding
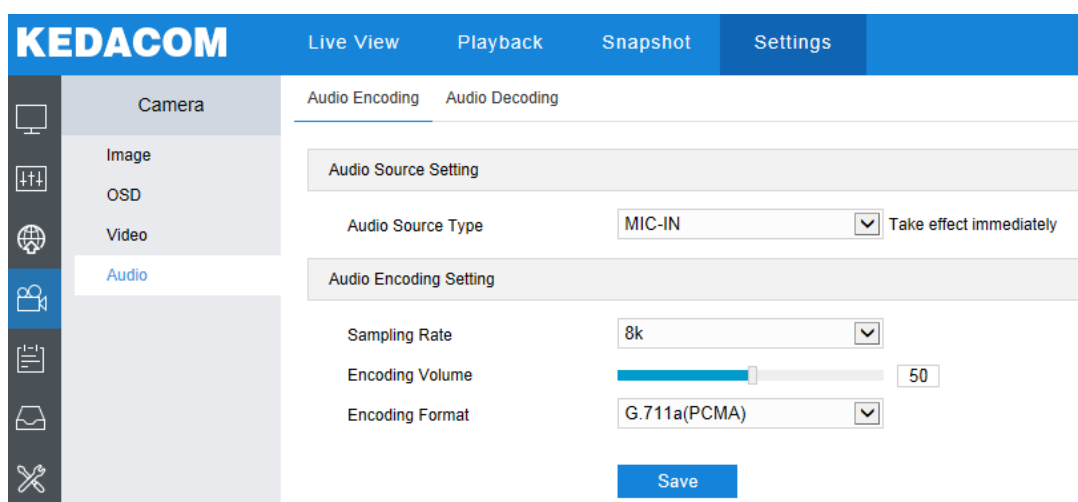
Picture 7-7 Audio encoding

- ■ Audio Source Type: Select audio source type from the dropdown list according to actual request. LINE-IN means talk-back device input while MIC-IN means microphone input.
- ■ Encoding Volume: Drag the slide bar to adjust audio encoding volume, i.e. audio input volume.

■   Encoding Format: Select audio encoding format from the dropdown list.

7.4.2   Audio Decoding
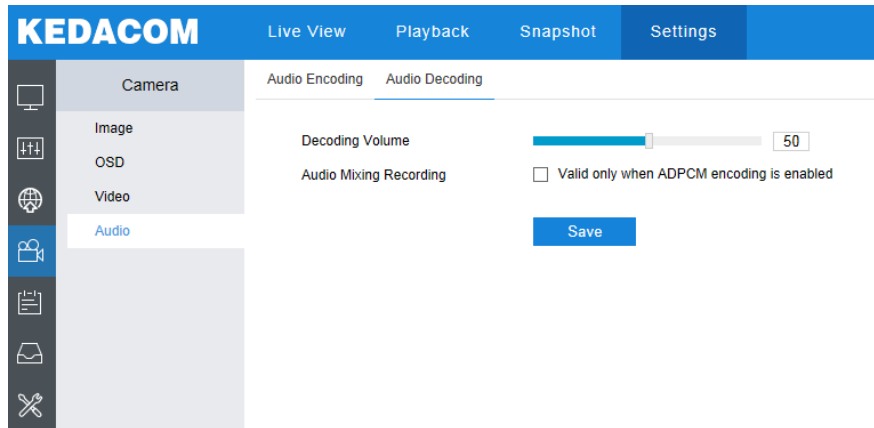

Picture 7-8 Audio decoding

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

■   Audio Mixing Recording: Check it to enable audio mixing recording function.

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

8.   System

8.1 Device Info

Device info includes device name, device model, device serial No. and etc. User can customize device name and check "Set as OSD text". Device name doesn't support specific symbols. If "Set as OSD text" is checked, the device name will be synchronized to the OSD, interface shown below:
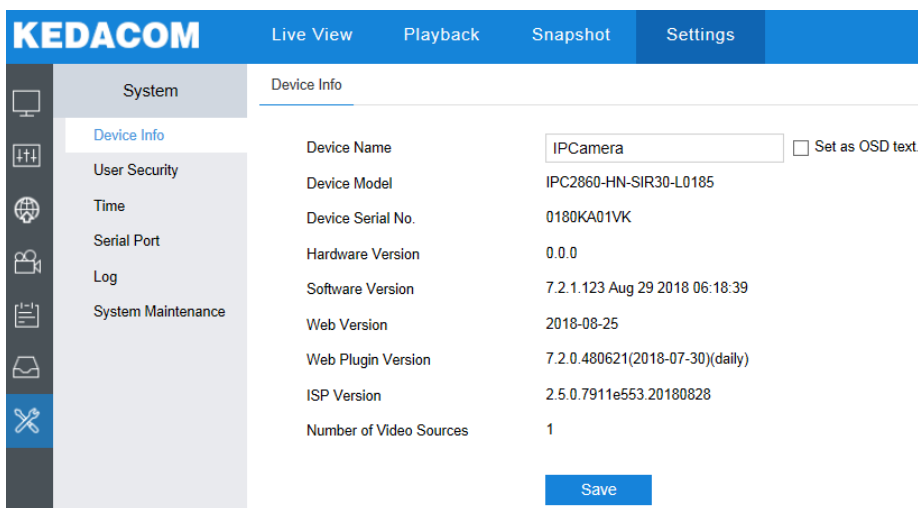
Picture 8-1 Device info

8.2 User Security

8.2.1   User

On "User" interface, you can add or delete user, modify user and password, set user authorities and etc.

■   Anonymous Access: After check it, on the login interface, you can check "Anonymous Login" and log in.

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

■   Add user: Click "**Add**", and enter user name and password in 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**".

ⓘ 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 setting takes effect after rebooting the camera, which requires user with both the authorities of configuration and reboot.

- Delete user: Select user IP and click "**Delete**" to delete the user.
- Modify user: Select user IP and click "**Modify**". Modify on the popup interface.

8.2.2   RTSP Authorization

Select authorization type from the dropdown list, options including none, basic and digest. By default, the type is "digest".
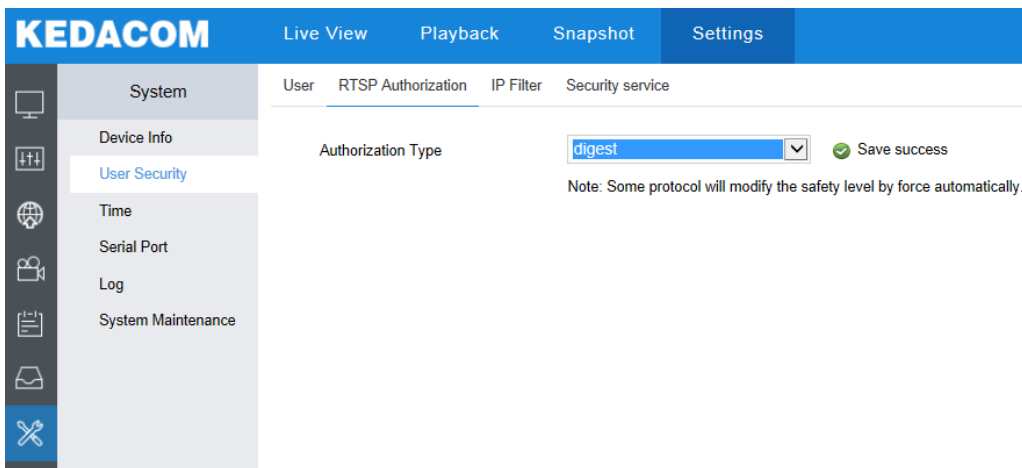
Picture 8-2 RTSP authorization

8.2.3   IP Filter

By setting IP filter, user can manage access limitation to the web client. White List includes IP addresses able to access to the client while Black List includes IP addresses unable to access to the client.
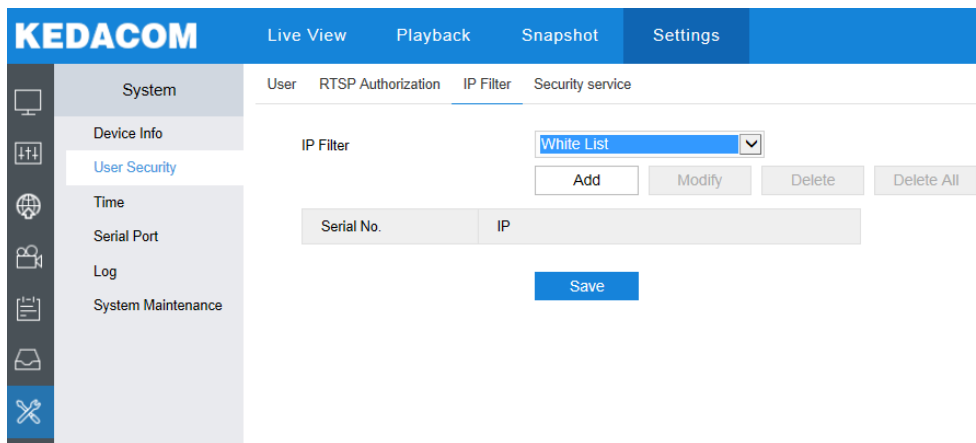

Picture 8-3 IP filter

Configuration steps are as follows:

1)   Select filter method from the dropdown list up to request, options including Disable, Black List and White List;

ⓘ Note: If selecting "Disable", IP filter is disabled.

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2) After selecting filter method, click "**Add**" and input IP address on the popup interface, and click "**Confirm**";

3) After finish setting, click "**Save**" to validate setting.

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

■ Delete Black/ White List: Select the 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.

8.2.4   Security Service
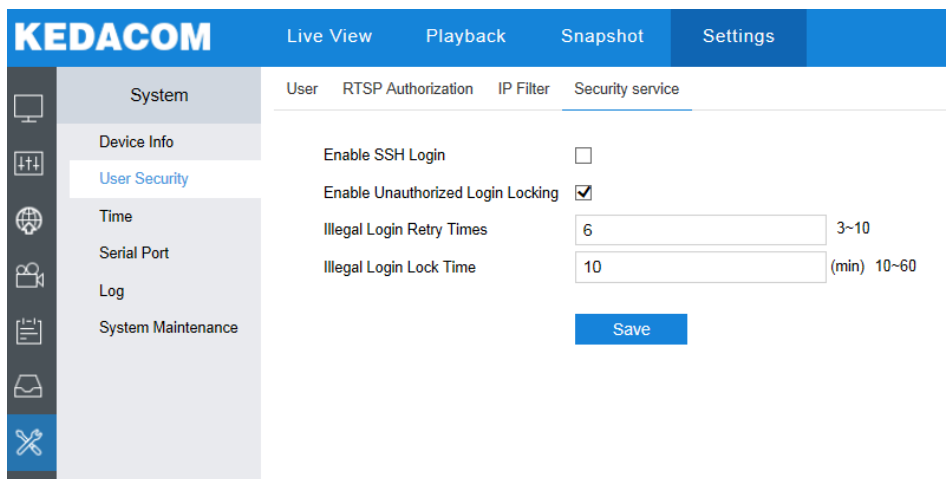
Picture 8-4 Security service

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

■ Enable Unauthorized Login Locking: Check it to enable unauthorized login locking.

■ Illegal Login Retry Times: Configure illegal login retry times.

■ Illegal Login Lock Time: Configure illegal login lock time.

ⓘ Note: Check "Enable Unauthorized Login Locking" and configure Illegal Login Retry Times and Illegal Login Lock Time. Click "Save". When user logs in and input wrong user name or password for the configured times (3 ~ 10, configurable), the user IP will be locked up for a certain period of time (10 ~ 60 minutes, configurable), during which the user cannot log in.

8.3 Time

Time setting includes Device Timezone, Device Time, Auto Time Correction and DST. Configure parameters by request and click "**Save**" to validate setting.
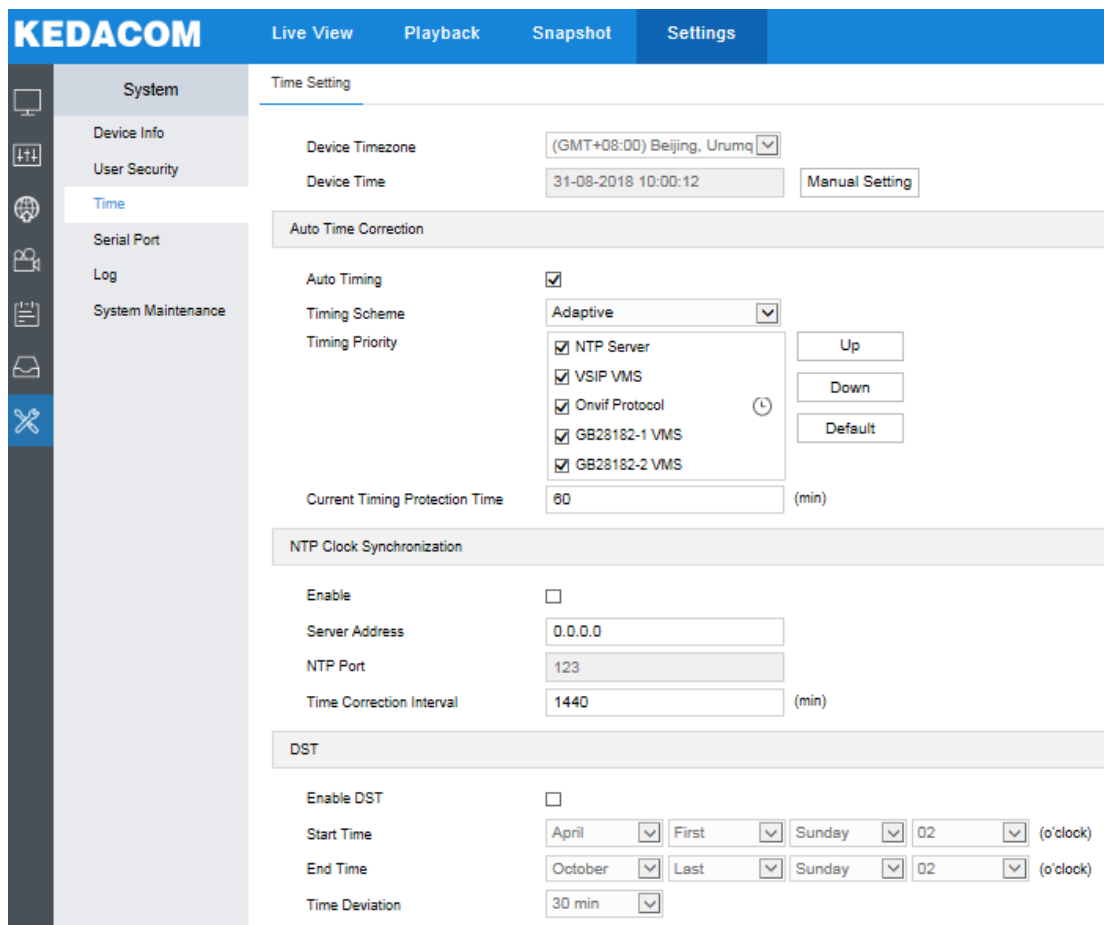
Picture 8-5 Time setting

- Time Setting: Set Device timezone and time. Click "**Manual Setting**", select timezone and set time on the popup interface. You can check "Synchronize time with PC" and click "**Save**" to validate setting.

- Auto Time Correction: Check "Auto Timing" and system will correct time automatically according to access protocol or NTP server or adaptive. When selecting a protocol, the system will correct time automatically according to the protocol; when selecting "NTP server", you need to fill NTP Server Address and NTP Port and configure Time Correction Interval; when selecting "Adaptive", check adaptive protocols by request, set the timing priority and current timing protection time (i.e. the save time during protocol switching).

ⓘ Note: Access protocol means the platform protocol that the camera connects to; NTP means Network Time Protocol. It is a networking protocol for clock synchronization between computer systems.

- NTP Clock Synchronization: Check "Enable" and configure "Server Address", "NTP Port" and "Time Correction 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. Check "Enable DST" and set "Start Time", "End Time" and "Time Deviation".
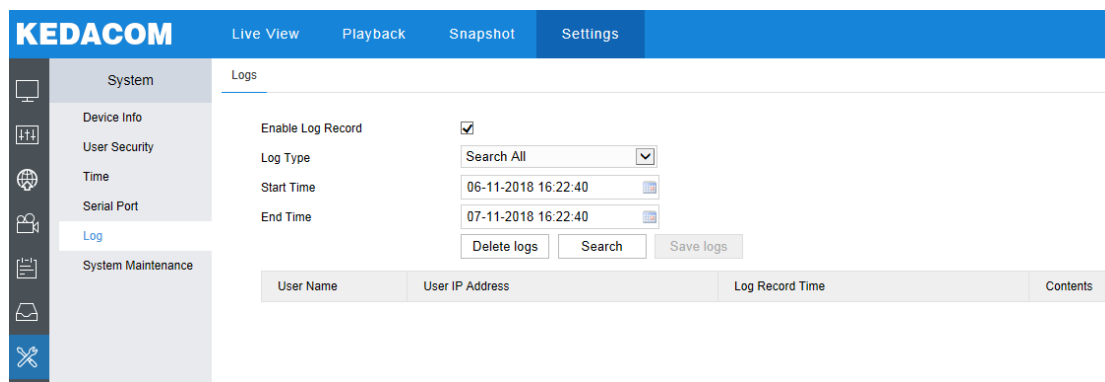
8.4 Serial Port

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. Parameters such as "Type", "Baud Rate", "Control Protocol" and "Address Code" should conform to the device connected to the camera.
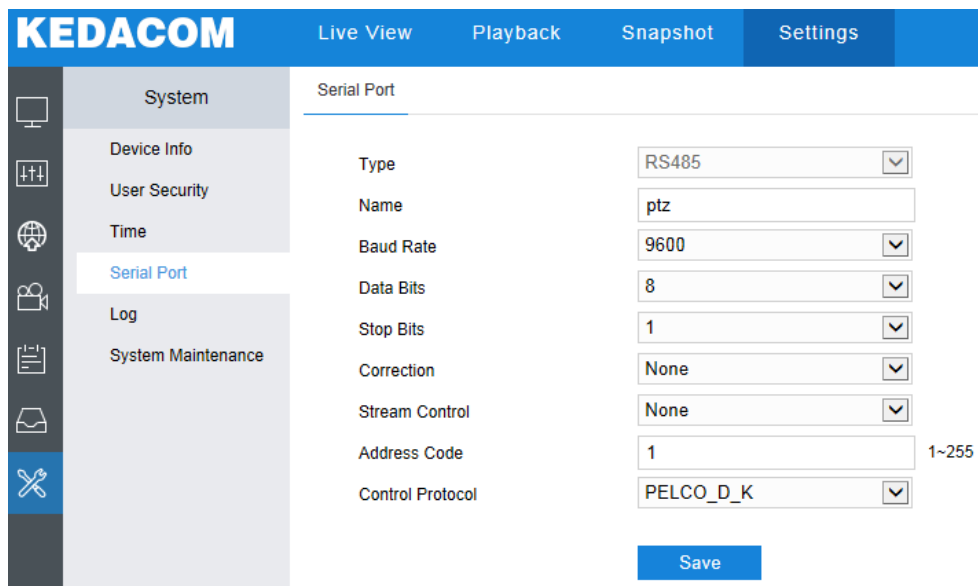
Picture 8-6 Serial port

8.5 Log

Picture 8-7 Log

On "Log" interface, you can check "Enable Log Record", then you can search, view and download logs. Operation steps are as follows:
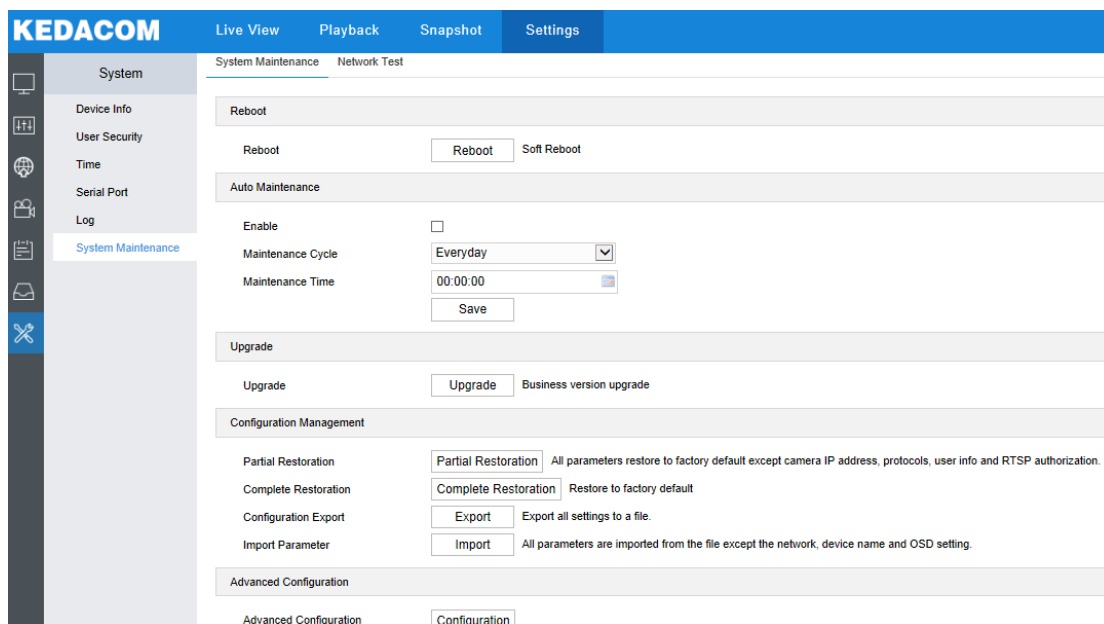
1) On the dropdown list of Log Type, select a log type, otherwise the default is "Search All";

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; click "**Delete logs**" to clear all logs.

ⓘ Note: The system can save maximum 2,000 entries of logs.

8.6 System Maintenance

Picture 8-8 System maintenance

On the interface of "System Maintenance", you can reboot and upgrade cameras or perform other maintenance over the device.

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

■ Auto Maintenance: Check "**Enable**" to enable auto maintenance, and configure Maintenance Cycle and Maintenance Time. Click "**Save**" to validate setting.

■ Upgrade: Upgrade system 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. If it is necessary to upgrade the web client, the system will prompt to download the plug-in.

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

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

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

• Configuration Export: After configuring camera mode, you can export the configuration to local PC. Click "**Export**" to select a local save path.

• Import Parameter: You can import local configuration file, no need of manual setting. Click "**Import**" to select local configuration file.

■ Advanced Configuration: Only "admin" user can perform advanced configuration. Click "**Configuration**", input the right password for advanced user on the popup interface and click "**Confirm**" to enter the configuration interface. You can configure parameters such as VSIP Protocol Compatibility, Keep Alive the Stream UDP and Network Adaptation if necessary.

9.　　Appendix: Glossary of Terms

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