User Manual for HD Explosion-Proof Dome Camera

V3R1 (Jan., 2018)

Notice

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Target Audience

Administrators and Operators of Video Surveillance Products

Document Version

V3R1

Applicable Models

IPC421-FB

Related Document

Quick Start Guide

Convention

Icon	Convention
	Notices 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
2. Wire and the high-tension apparatus or high voltage cable should be at least 50m.
3. Try to route cables along the eave when installing outdoor.
4. 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.
5. 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.
6. 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.
7. The system must be grounded with equipotential. The grounding apparatus must be anti-interference and electrically safe. It cannot be short-circuited or hybrid connected to the null line of high-voltage power grid. When it is grounded independently, the ground impedance is ≤4Ω and the earth lead section surface must be ≥25mm^2.
8. The anti-thunder grounding wire of the dome camera uses multi-strand copper cable with section surface ≥4mm^2 (strand diameter about ≥2.3mm).

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1. Product Brief

High Speed Dome Camera (hereinafter referred to as Camera) is remote HD IP Camera based on IP network technology. It encodes and transmits HD video. Also, it can be deployed at any point of a surveillance network and transmits videos via public or private IP network.

There are indoor dome and outdoor dome cameras.

Picture 1-1 HD Explosion-Proof Dome Camera

2. Startup

Device installation and wiring can be referred to in the Quick Start Guide.

2.1 Client Installation Conditions

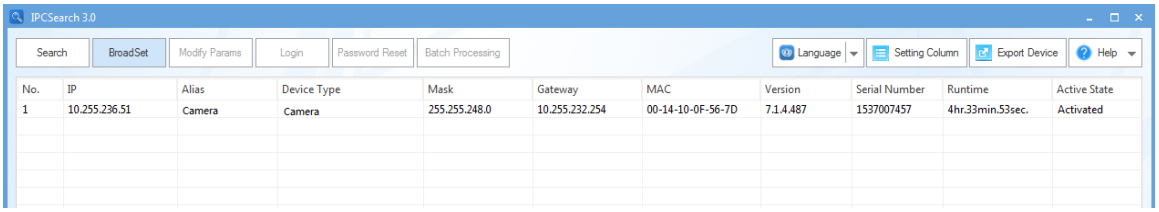
- Operating System: Windows XP or newer versions
- Browser: IE7.0 or later versions, Firefox, Google Chrome (41 and below versions)
- Processor: 3.3 GHz CORE®i3 series and later version or other equivalent processors
- RAM Memory: 4GB or above
- DirectX：9.0c

This manual will take IE7.0 as an example.

2.2 Initial Configuration

2.2.1 Modify Parameter

1) Get IPCSearch from the attached CD.

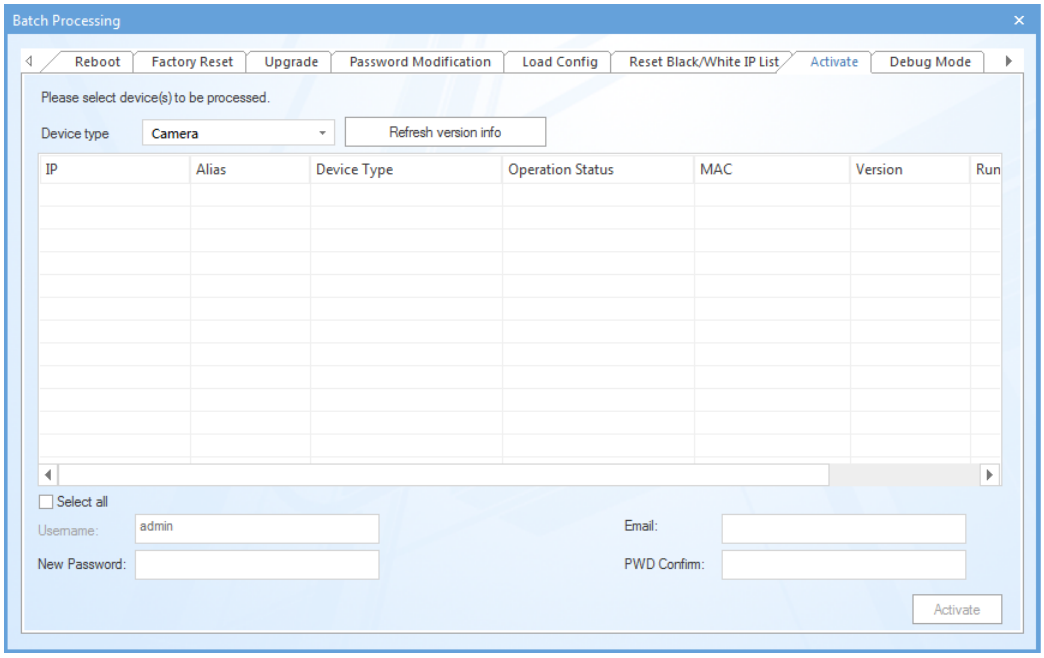


Picture 2-1 IPCSearch

Notice: Camera name is subject to the search result.

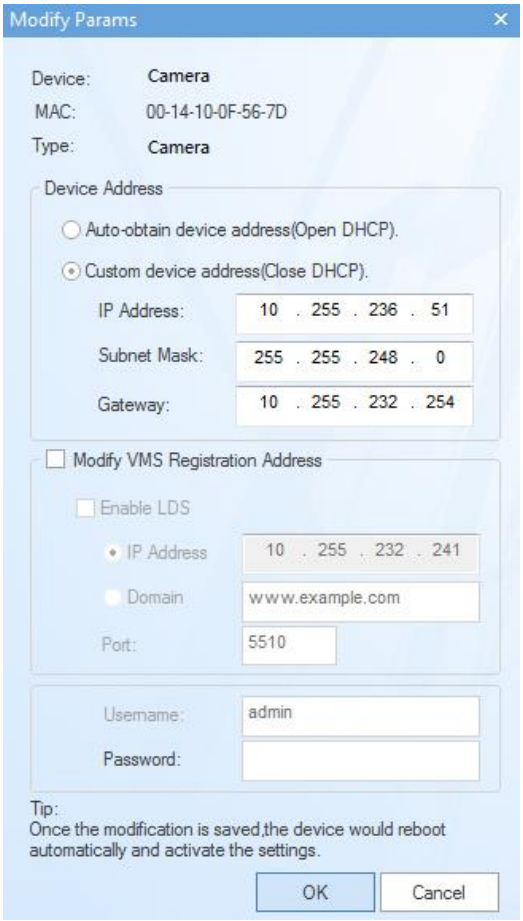
2) Run IPCSearch: it will search devices in LAN automatically and display the list as shown in Picture 2-1.

3) When login to a non-activated camera for the first time, activate it first. Select the device and click "**Batch processing**". In the popup interface, set admin user's password and the email address to find back the password. Click "**Activate**" and wait for rebooting, as shown in Picture 2-2.



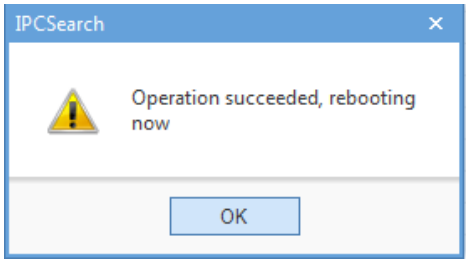
Picture 2-2 Activate camera

4) Select a camera to be configured, click "**Modify Params**" or right click the mouse. Interface is shown in Picture 2-3. Modify parameters and fill admin user name (admin) and the password set when activating the device.



Picture 2-3 Modify Parameter

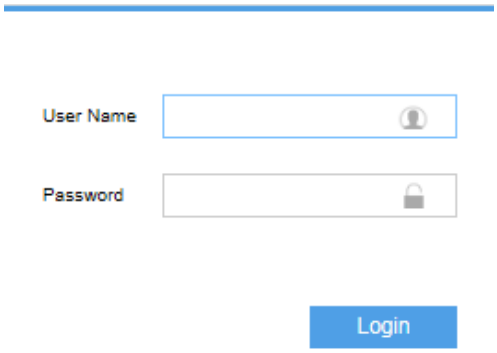
5) Click "OK" and in the popup window click "OK". Wait for rebooting.



Picture 2-4 Reboot device

2.2.2 Login Web Client

1) After modification, the device will reboot automatically and please wait patiently. After reboot, the button will be enabled again. Please select this device again and click "**Login**" or double click device name to enter web client. Interface is shown in Picture 2-5.

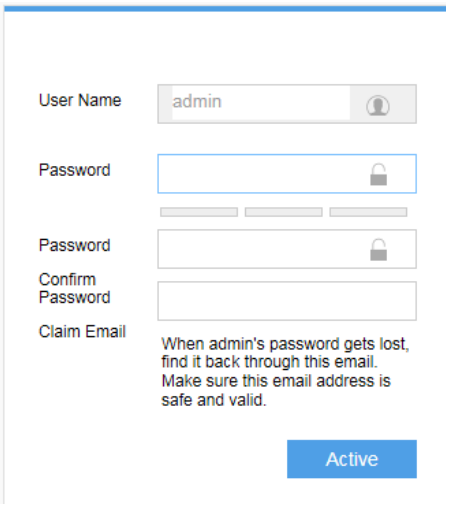


Picture 2-5 Web Client Login

Notice: If log in the non-activated device through web client for the first time, user can set admin password and activate the device in the login interface, as shown below.

Notice:

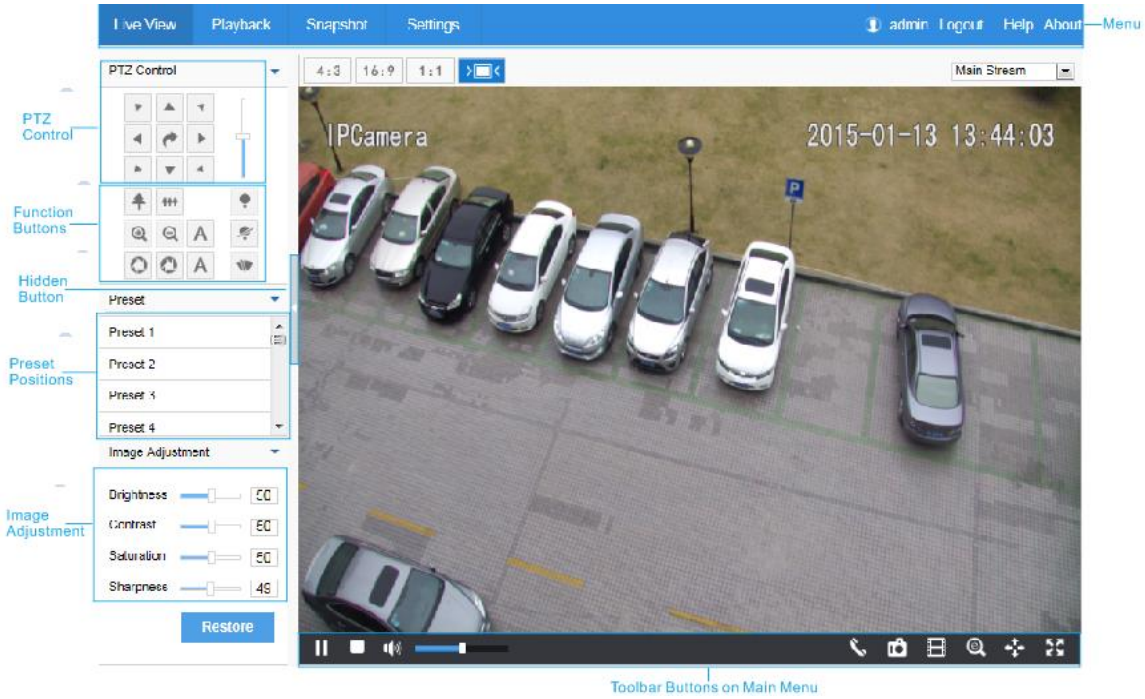
1) To ensure the safety of device on internet, it is strongly recommended that you set a strong password which is composed of at least 2 kinds of the following, digits, case-sensitive letters or specific symbols, and whose length ranges from 8 to 16 bits.
2) Please modify the password periodically and once every 3 months is recommended. If the device is used in highly risky environment, suggest modifying the password monthly or weekly.
3) Please keep your user name and password safe.



Picture 2-6 First login through web client

2.2.3 Login to the Web Client Interface

Enter user name and password: when login successfully for the first time, download and install the plug-in. Close browser when installing. After finishing, double-click the device in IPCSearch to open browser and enter user name and password. Interface after login is shown below.



Picture 2-7 Web Client Interface

3. Product Functions

By web client, user can not only view live video, but also perform local snapshot and recording, and set alarm linkage.

Notice: Disabled button in the web client means the model doesn't support the function. Function with * in this Manual means only some models support this function.

3.1 Live View

The default interface after user login is live view, or user can click Live View to enter the interface.

3.1.1 Toolbar Buttons

Picture 3-1 Toolbar Buttons

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. Drag the slide bar to adjust volume. Click this button to disable voice and click again to enable voice.

Call

Click this button to call camera and the volume slide bar appears. Click again to stop calling. Not all cameras support this function.

Snapshot

Click this button to capture current image.

Snapshot includes Camera Snapshot and Local Snapshot. User can set picture saving path in **Settings > Local Setting**.

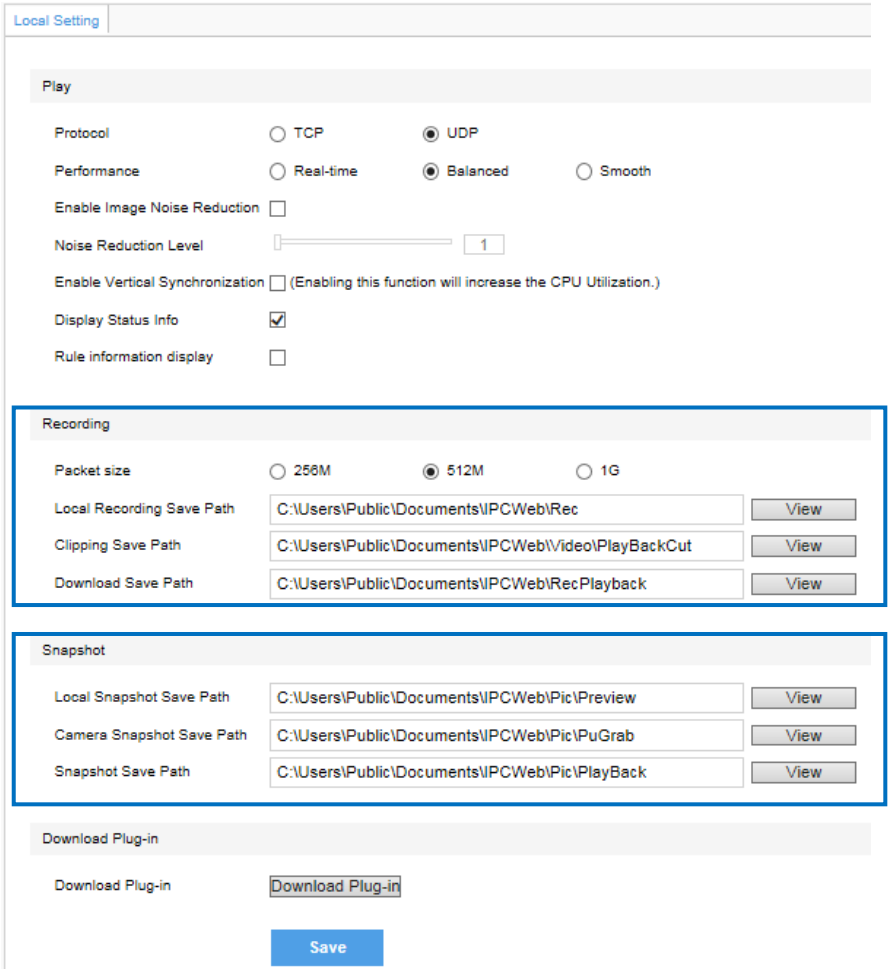
Notice:

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 save it locally. The image quality is ordinary, but there is no time delay.

Recording

Click this button to start recording and click again to stop recording. Recording is saved on local PC. User can set recording file saving size and saving path in **Settings > Local Setting**.



Picture 3-2 Snapshot and recording setting

EPTZ

Click this button 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 button 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 Info

Click this button to display the frame rate and bit rate of the live video. This button is hidden by default. To enable this function, go to Settings > Local Setting > Play, check “**Display Status Info**” and click “Save”.

Full Screen

Click this button to display full screen. Double click or press Esc to exit.

3.1.2 Image Adjustment

3.1.2.1 Focus

The function of focusing is to make image clear.

In the interface of **Live View**, click (Focus Near), (Focus Far) or (Auto Focus). Alternatively, go to **Settings > Camera > Image > Focus**, and select "**Manual**" for Focus Mode.
Go to **Settings > Camera > Image > Focus**, select **"Continuous Focus"** and the camera will focus automatically every time the system triggers focusing.
Go to **Settings > Camera > Image > Focus**, select **"Single Focus"** and the camera will focus automatically only once when the system triggers focusing.
Go to **Settings > Camera > Image > Focus**, select "30cm/ 1m/ 2m/ 5m/ 10m" from the dropdown list of Min Focus Distance (i.e. the min. focus distance for the lens, the lens will be unable to focus automatically when the distance is less than the selected distance).

3.1.2.2 Aperture

The function of aperture is to control the amount of input light. A large aperture allows more light and thus the image is brighter.

In the interface of **Live View**, click (Aperture+)/ (Aperture-) and adjust aperture.
Go to **Settings > Camera > Image > Exposure**, select "DC-IRIS Auto/ DC-IRIS Manual" for **Aperture Mode** and drag the slide bar of **Aperture Sensitivity** to adjust aperture. Auto mode is suggested.

3.1.2.3 Brightness

The image will look completely or partially dark and hard to recognize in low light condition. Web client provides the following methods to increase image brightness and ensure surveillance quality.

***Enable IR Light or Laser**

In low light situation, IR lamp can be started to get better surveillance images. Click to enable and to disable.

Increase Image Brightness

In the interface of **Live View**, click **Image Adjustment** and show the parameters, or go to **Settings > Camera > Image > Image Adjustment** and drag the slide bar of brightness.

Longer Time of Shutter

Camera shutter time means the cycle of the sensor calculating light input amount. Therefore, the longer the shutter is, the brighter the image will be.

Notice: If the target object is moving fast, this method is not applicable.

Go to **Settings > Camera > Image > Exposure**, user can set Shutter Mode (Auto/ Manual) and Shutter Lower Threshold or Shutter Level.

Increase Gain

Camera gain means photo-sensibility, the sensitivity level of a sensor to light. A high gain requires less light exposure for low light condition.

Notice: However, the higher the gain is, the more noise points there will be and the worse the image will be. Auto mode is suggested.

Apply default values, or select “Auto” and set Gain Upper Threshold in **Settings > Camera > Image > Exposure**. If selecting “Manual”, drag the slide bar to adjust gain level.

Enable WDR

WDR can provide optimal exposure when there is strong background light.
Go to **Settings > Camera > Image > Image Enhancement**, select “WDR” in the drop-down list of Dynamic Adjustment and drag the slide bar of WDR Sensitivity.

Enable HLC

The HLC function can avoid unclear image caused by strong light interference.
Go to **Settings > Camera > Image > Image Enhancement**, select “HLC” in the drop-down list of Dynamic Adjustment and drag the slide bar of HLC Level.

E**nable Backlight**

Backlight compensation can also provide optimal exposure when there is strong background light, but it may cause whitening of the bright part of the image.
Go to **Settings > Camera > Image > Image Enhancement**, select “Backlight Auto/ Backlight Manual” in the drop-down list of Dynamic Adjustment and drag the slide bar of Backlight Sensitivity. When selecting “Backlight Manual”, user can set or select Backlight Area in the live view image and the system will refer to the brightness of this area.

Anti-flicker

When there are floating cross stripes on the image under indoor fluorescent lamp, select the correct anti-flicker frequency (50Hz/ 60Hz/ Natural Light) in **Settings > Camera > Image > Exposure** to solve the problem.

3.1.2.4 White Balance

The basic concept of white balance is “to restore white objects to be white regardless of the color temperature of the light source”. It can compensate color cast in pictures taken in specific light source.
Go to **Settings > Camera > Image > White Balance**, select white balance mode from the drop-down list.
When selecting “**Manual**”, drag the slide bar of White Balance R (red) Gain and White Balance B (blue).

3.1.2.5 Night Cut

Day (Night) mode means the image switches to color (B/W), thus to get optimal images for day (sufficient light source) and night (insufficient light source) conditions.
Go to **Settings > Camera > Image > Night Cut**, select night cut mode.

Day

Select Day from the dropdown list of Night Cut mode and disable IR lamp (only some models support), and the image will become colored.

Night

Select Night from the dropdown list of Night Cut mode and enable IR lamp (only some models support), and the image will become black and white.

Auto

Select Auto (gain triggered) or Auto (photosensor triggered) from the dropdown list of Night Cut mode and configure Sensitivity / Photosensitivity, Latency and Night Cut Threshold. The system will switch day/night mode automatically.

Scheduled Day / Night

In this mode, camera switches to day/night mode automatically in the preset period of time.
When selecting Scheduled Day/Night from the dropdown list, click Edit Time, and edit Day Mode Start Time and Day Mode End Time in the popup interface.

3.1.2.6 Noise Reduction

When there are many noise points caused by environment and camera lens, Noise Reduction function can be enabled to adjust images.
Go to **Settings > Camera > Image > Image Enhancement**, enable 2D/ 3D Noise Reduction and drag the slide bar to adjust 2D/ 3D Noise Reduction level. When selecting “Disable”, this function will be disabled.

3.1.2.7 Defog

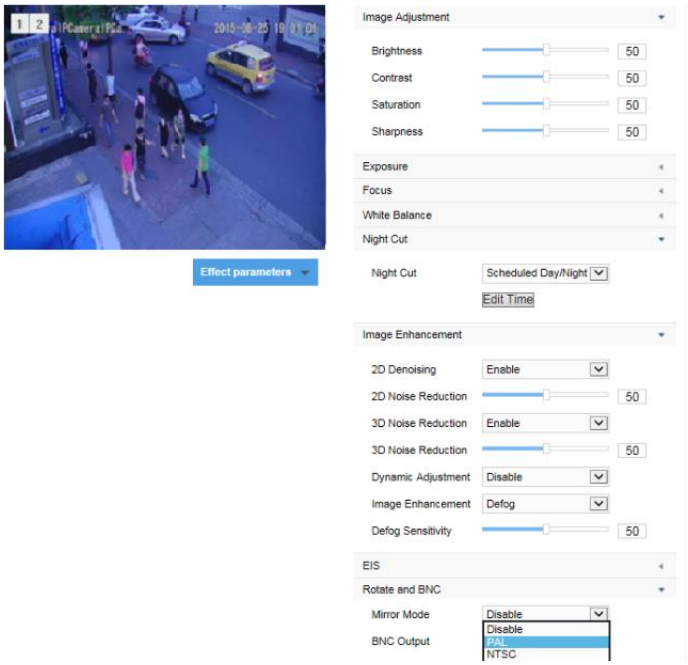
This function is suitable for outdoor foggy scene and after enabling it, the camera is able to see through the fog.
Go to **Settings > Camera > Image > Image Enhancement**, select “Defog” from the dropdown list of Image Enhancement and drag the slide bar of Defog Sensitivity.

3.1.2.8 EIS

EIS function is to prevent image flicker when the camera is zoomed in too much.
Go to **Settings > Camera > Image > EIS**, select “Enable” from the dropdown list of Mode and drag the slide bar of EIS Level.

3.1.2.9 Rotate and BNC

Go to **Settings > Camera > Image > Rotate and BNC**, select Mirror Mode from the drop-down list, options including Left and Right, Up and Down, Center and Disable. When the image is reverse, set through this menu.
Cameras with BNC output ports will be able to output analog images directly after enabling BNC output.
Select BNC output mode from the dropdown list of BNC output, options including PAL (25 frames) and NTSC (30 frames).



Picture 3-3 Rotate and BNC

3.1.3 Auxiliary Function

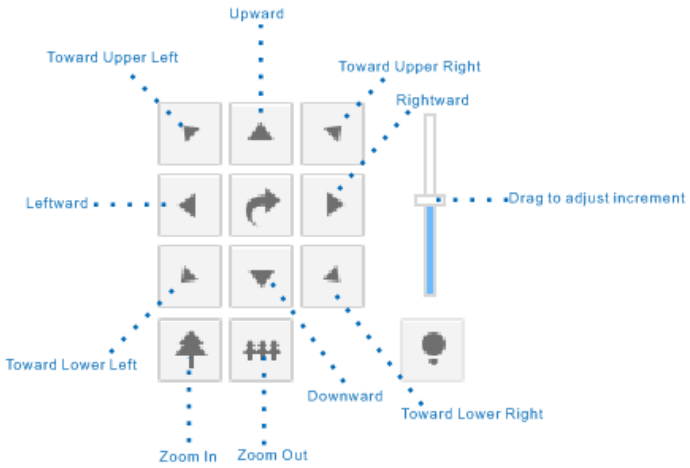
Wiper

Wiper is used to clean the glass dome. In the PTZ control part of the Live View interface, Click to enable wiper and click again to disable it.

The wiper will stop automatically after 10 brushes. Click to enable it again if necessary.

3.2 PTZ Control

The camera is equipped with digital PTZ, which is suitable for wide range monitoring and enlarges the field of view. User can control PTZ via web client. In the PTZ control part of the **Live View** interface, user can control PTZ manually, as is shown below:



Picture 3-4 PTZ Control

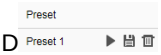
Notice: The pan range of IPC421-B230-H0 is 0~358°. The PTZ holder will stop rotation when reaching its pan limits. Please strictly follow the Quick Start Guide during installation. The functions of preset position loading and path patrol won't be affected.

3.2.1 Preset Position

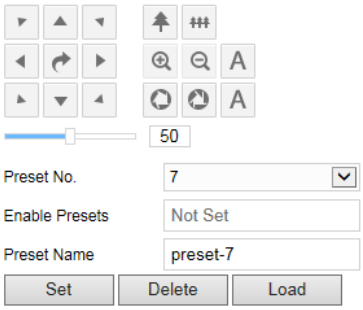
Preset position includes information of PT position and lens focal length. It is set by user and can be loaded, modified or cancelled anytime.

Setting steps:

1) Go to **Settings > Camera > PTZ > Preset**, adjust PTZ to expected position.
2) Select **Preset No.** from the drop-down list and input **Preset Name**.
3) Click **"Set"** to finish preset setting. User can define different preset positions.
   Click "**Load**" to load the expected Preset No. and click "**Delete**" to remove the preset ID.

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

to load, set or clear.



Picture 3-5 Preset Position

3.2.2 Guard Tour

Guard Tour means the dome camera can perform preset operations if not receiving any command in a specific period of time (i.e. the Waiting Time in the setting interface). After stopping PTZ operations for a certain period of time, user can enable the Guard Tour function.

Pan Mode: Camera rotates in pan direction from 0° to 360° automatically. The Waiting Time is 1 minute by default (configurable).

Tilt Mode: Camera patrols vertically from -15° to 90° automatically within its limits. The Waiting Time is 1 minute by default (configurable).

Load Preset: After user stops operating on the camera for a certain period of time, the camera will return to a preset position automatically. The Waiting Time is 3 minutes by default (configurable). Please refer to the part of preset position for setting steps.

Path Mode: After user stops operating on the camera for a certain period of time, camera will enable Path Mode automatically. The Waiting Time is 1 minute by default (configurable). Please refer to the part of path mode for setting steps.

Frame Mode: In every key frame interval, camera rotates automatically in pan direction by 90°. The Waiting Time is 1 minute by default (configurable).

Random Mode

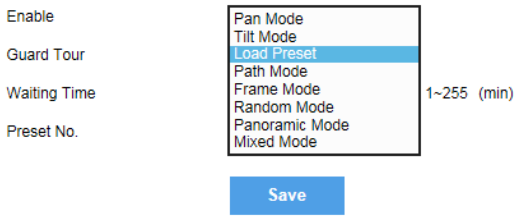
Camera patrols automatically and randomly in pan direction. The Waiting Time is 1 minute by default (configurable).

Panoramic Mode

Camera patrols panoramically from -15° to 90° in tilt direction and from 0° to 360° in pan direction. The Waiting Time is 1 minute by default (configurable).

Mixed Mode

Camera patrols automatically following the historical PTZ patrol paths in a certain period of time. The Waiting Time is 1 minute by default (configurable). Please refer to the part of mixed mode for setting steps.



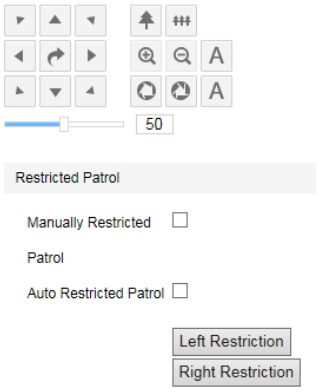
Picture 3-6 Guard Tour

Setting steps:

1) Go to **Settings > Camera > PTZ > Guard Tour.**
2) Check “Enable” and select mode from the drop-down list.
3) Set Waiting Time according to the mode.

3.2.3 Restricted Patrol

Restricted Patrol includes Manually Restricted Patrol and Auto Restricted Patrol. After enabling this function, user can define borders of PTZ patrol.



Picture 3-7 Restricted Patrol

Setting steps:

1) Go to **Settings > Camera > PTZ > Restricted Patrol.**

2) Check “**Manually Restricted Patrol**” or “**Auto Restricted Patrol**”, adjust the PTZ to a proper position and set it as the **Left Restriction**. Adjust the PTZ again to another position and set it as the **Right Restriction.**

3) Settings take effect right after configuration. To clear restrictions, set one position both as the left and the right restriction, then the restrictions will be cleared.

4) When enable **Manually Restricted Patrol**, user can control the PTZ manually to make it rotate between the left and right restrictions only; when enable **Auto Restricted Patrol**, the PTZ can patrol horizontally between the left and right restrictions only.

3.2.4 Path Mode

Path Mode means the camera patrols around all the valid preset patrol spots on a path. After enabling this function, click any PTZ control button to disable this function. Currently, the camera supports 8 paths and the max allowed number of patrol spot on each path is 32 which can be selected from the 256 preset positions.

Patrol Spot	Preset	Stay Time 5~1800 (s)	Enable Patrol Spots	Patrol Spot Name
1	1	10	Already Set	preset-1
2	2	10	Already Set	preset-2
3	3	10	Not Set	preset-3
4	4	10	Not Set	preset-4
5	5	10	Not Set	preset-5
6	6	10	Not Set	preset-6
7	7	10	Not Set	preset-7
8	8	10	Not Set	preset-8

Picture 3-8 Path mode

Setting steps:

1) Go to **Settings > Camera > PTZ > Path Mode.**

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

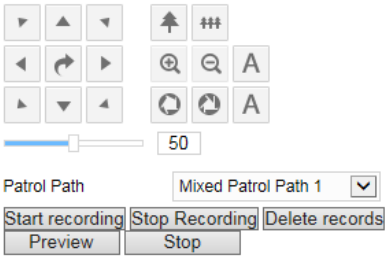
3) Click "**Add**". Set Patrol Spots and Stay Time in the popup interface. The max allowed number of patrol spots on each path is 32 which can be selected from the 256 preset positions.

4) Click "**Save**".

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

3.2.5 Mixed Mode

Mixed Mode means camera patrols automatically following the historical PTZ patrol paths in a period of time. At most 4 paths can be configured.



Picture 3-9 Mixed mode

Setting steps:

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

2) Select Mixed Mode from the dropdown list. Click "**Start Recording**" and adjust PTZ, then it will record PTZ rotation speed, increment and zooming operations. Click "**Stop Recording**" to stop recording. Each path can record for at most 10 minutes.

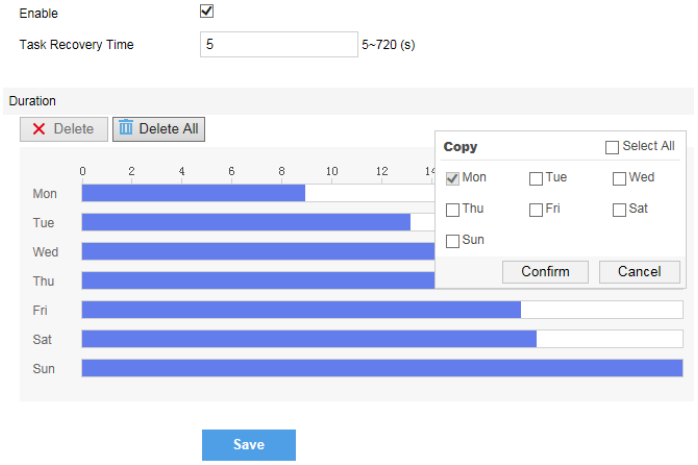
3) Click "**Preview**" to browse all PTZ operations.

4) Click "**Stop**" to stop browsing.

5) Select a path and click "**Delete Records**" to delete all records of PTZ operations under this path.

3.2.6 Scheduled Task

Enable Scheduled Task. Set durations and tasks. Camera will complete the tasks within the set durations.



Picture 3-10 Scheduled Task

Setting steps:

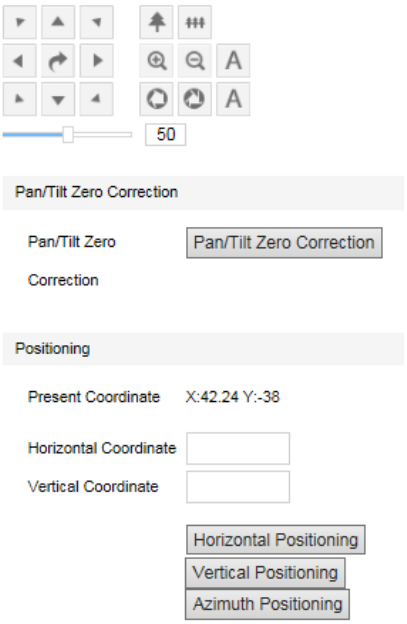
1) Go to **Settings > Camera > PTZ > Scheduled Task**.
2) Check "**Enable**".
3) Input "Task Recovery Time" (5~720s). Take 5s as example. If user performs other PTZ operations during the task, camera will recover the scheduled task in 5 seconds.
4) Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select the blue bar and adjust or delete duration by mouse.
5) Check several weekdays or "**Select All**" and click "**Copy**" to copy task durations to the weekdays.
6) Click "**Save**".

3.2.7 Positioning

Go to **Settings > Camera > PTZ > Positioning.**

Zero Correction

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



Picture 3-11 Positioning

Positioning

Present Coordinates: show the coordinates of current PTZ position.

Horizontal Positioning: fill the target Horizontal Coordinate and click “Horizontal Positioning”, then the PTZ will rotate to the target pan position.

Vertical Positioning: fill the target Vertical Coordinate and click “Vertical Positioning”, then the PTZ will rotate to the target tilt position.

***Azimuth Positioning**

Azimuth means the PTZ camera faces to the due north. If azimuth positioning is done, when user enables “PTZ” OSD, it will show the live direction of the PTZ camera.

Rotate the PTZ camera to a specific position and click “**Azimuth Positioning**”. Save this position and set it as the due north direction.

To display the compass on Live View interface: go to **Settings > Camera > OSD**, and check “**PTZ**”.

3.3 Alarm Linkage

Alarm linkage is the system reaction after an alarm signal is received. It is to raise watch man’s attention to handle the event.

The alarm signal comes from the alarms triggered in the set surveillance areas such as motion detection and tampering or alarm input devices such as smoke detector.

Alarm linkage reaction includes Alarm Text Overlay, Snapshot or triggering alarm output device (such as alarm bell). Explanations are as follows:

Acoustic Alarm: when an alarm is triggered, generate sound alarming (it requires the IP camera to connect with an audio output device).

Report to Management System: when an alarm is triggered, report it to the VMS (it requires the VMS to support this function).

Recording Linkage: when an alarm is triggered, start video recording automatically. Need to install a storage card.

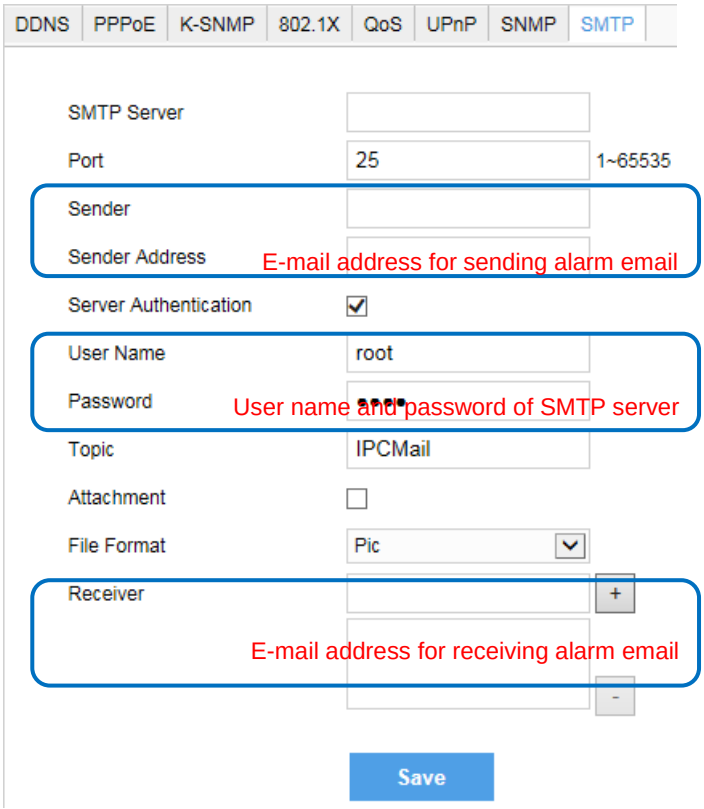
Text Overlay: when an alarm is triggered, display alarm text on the screen.

Snapshot: when an alarm is triggered, capture the image automatically. Need to install a storage card.

Alarm Output: it means linking to an alarm output device. It requires the camera to support alarm output function and has connected with an alarm output device.

Email Notice: when an alarm is triggered, send an e-mail to the e-mail address automatically.

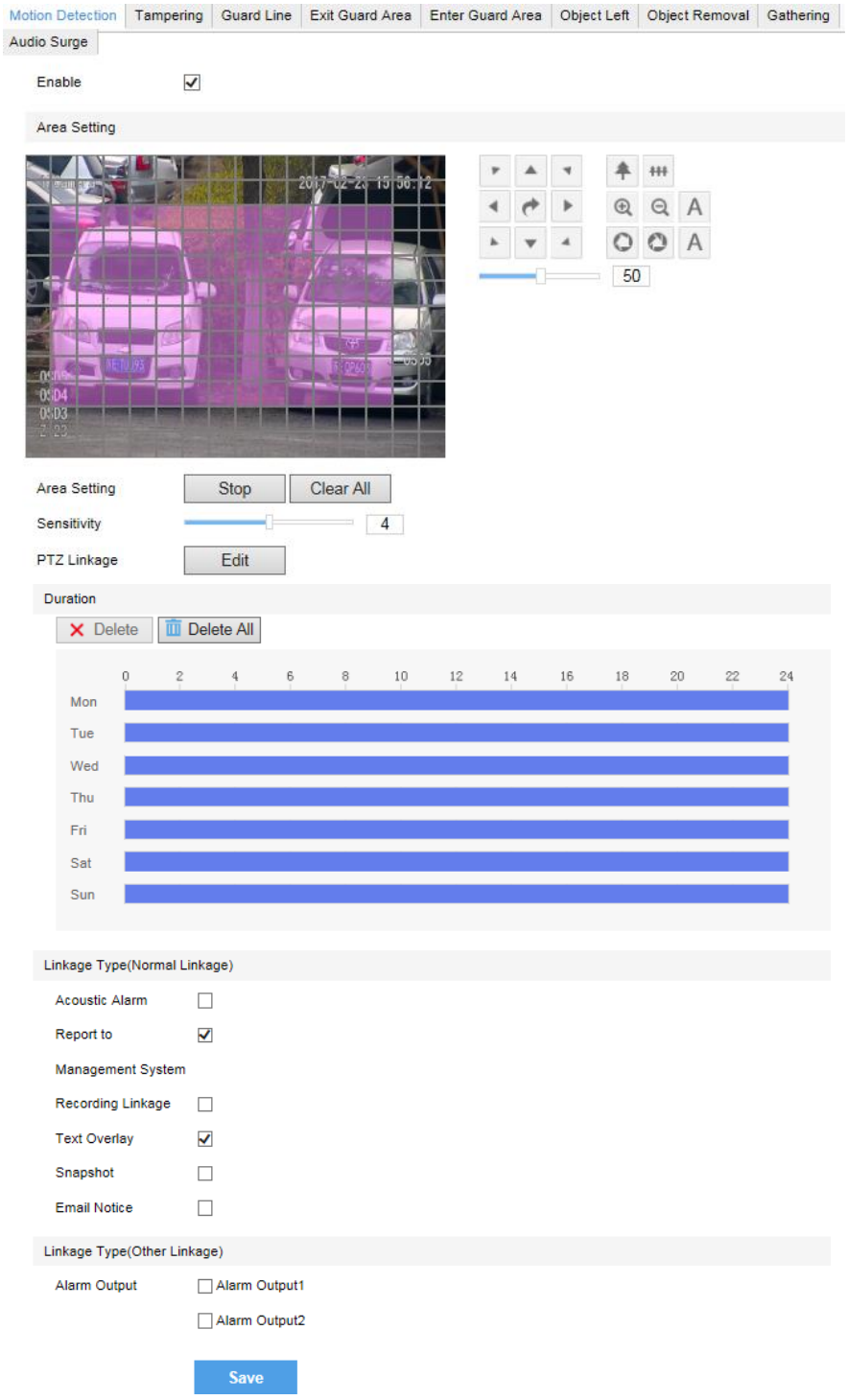
Notice: Go to **Settings > Network > Other Protocols > SMTP** to set the e-mail address. SMTP (Simple Mail Transfer Protocol) is a group of rules for sending email from source address to target address and it determines the transition method of email.



Picture 3-12 SMTP

3.3.1 Motion Detection

Detect movement features in the defined area. Once the movement exceeds the defined sensitivity, an alarm will be triggered.



Picture 3-13 Motion Detection

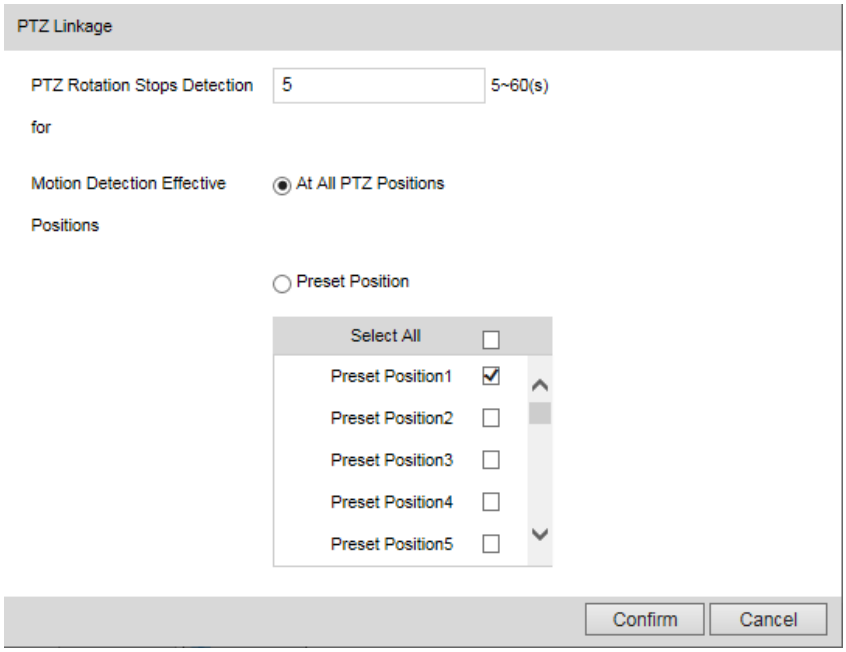
Motion detection supports full area detection and max 4 user-defined areas. The default is full area detection.

1) Go to **Settings > Event > Intelligent Function > Motion Detection**, and check "**Enable**".

2) 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) Set PTZ linkage. Click "**Edit**" and a window of **PTZ linkage** will pop up. User can set **PTZ Rotation Stops Detection** time. For example, if it is set 10s, when the PTZ rotation stops for 10s, motion detection will start and will stop when the PTZ is rotating. The default setting of Motion Detection Effective Positions is **At All PTZ Positions**, i.e. when the PTZ rotates to any position and stops for 10s, the motion detection will start. Alternatively, select preset positions, such as checking one or multiple preset positions and motion detection will start only when the PTZ rotation stops for 10s at these positions.



Picture 3-14 PTZ Linkage

5) Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select the blue bar and adjust or delete duration by mouse.

6) Check several weekdays or "**Select All**" and click "**Copy**" to copy the defined motion detection durations to the days.

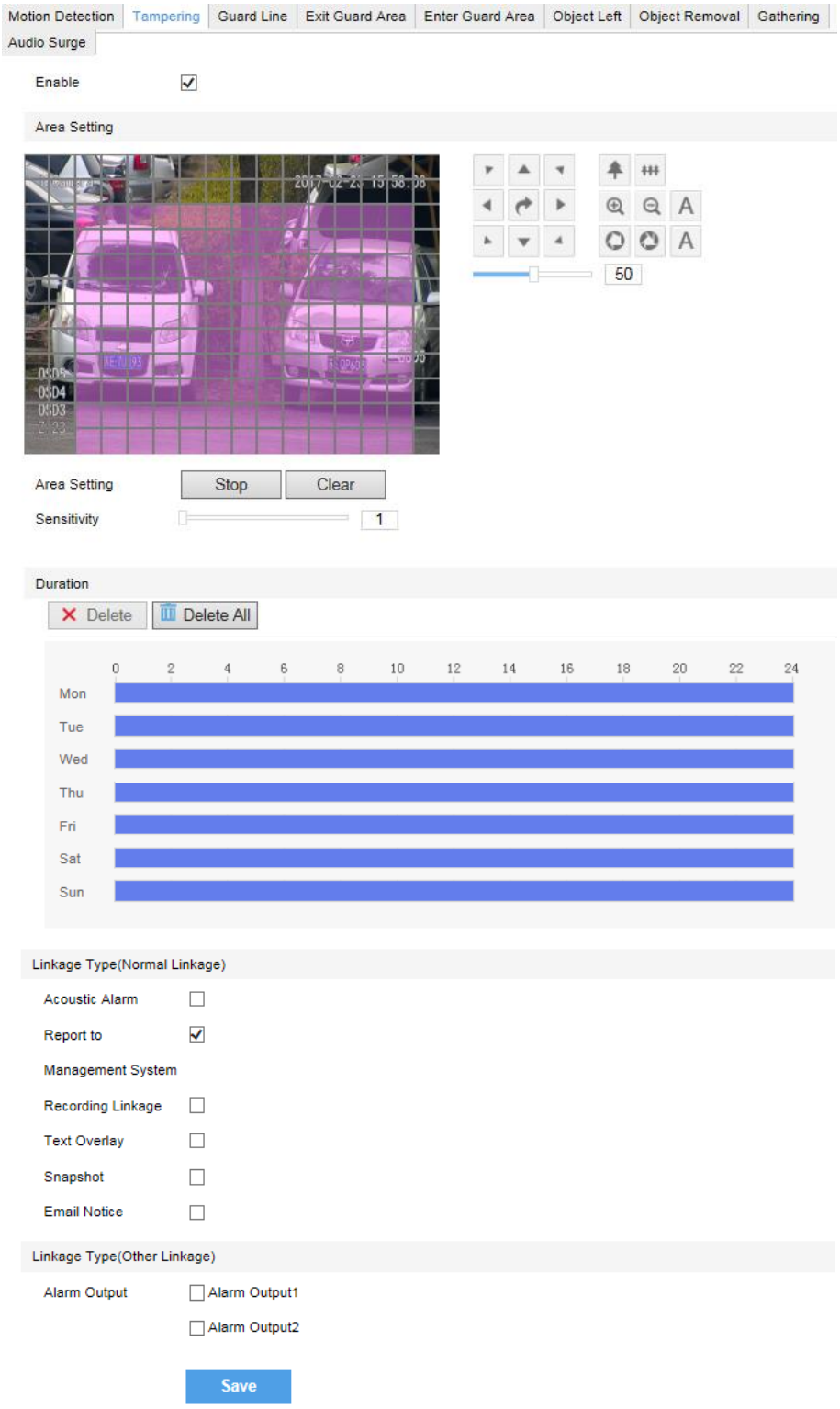
7) Check "Linkage Type". It is the alarm output method when motion detection triggers an alarm. If checking snapshot, when motion detection triggers an alarm, the system will capture an image. Go to **Settings > Storage > Snapshot** to set image format, resolution and quality, and enable "Event Snapshot" and set Time Interval and Number of Snapshots.

8) Click "**Save**".

3.3.2 Tampering

In the surveillance scene, if the camera's field of view is blocked by something, it will be unable to monitor normally. At this time, the tampering detection algorithm can detect that the camera lens has been blocked and will trigger an alarm. It supports max 1 detection area.

Go to **Settings > Event > Intelligent Function > Tampering** and configure. Please refer to **Motion Detection** part for setting steps.

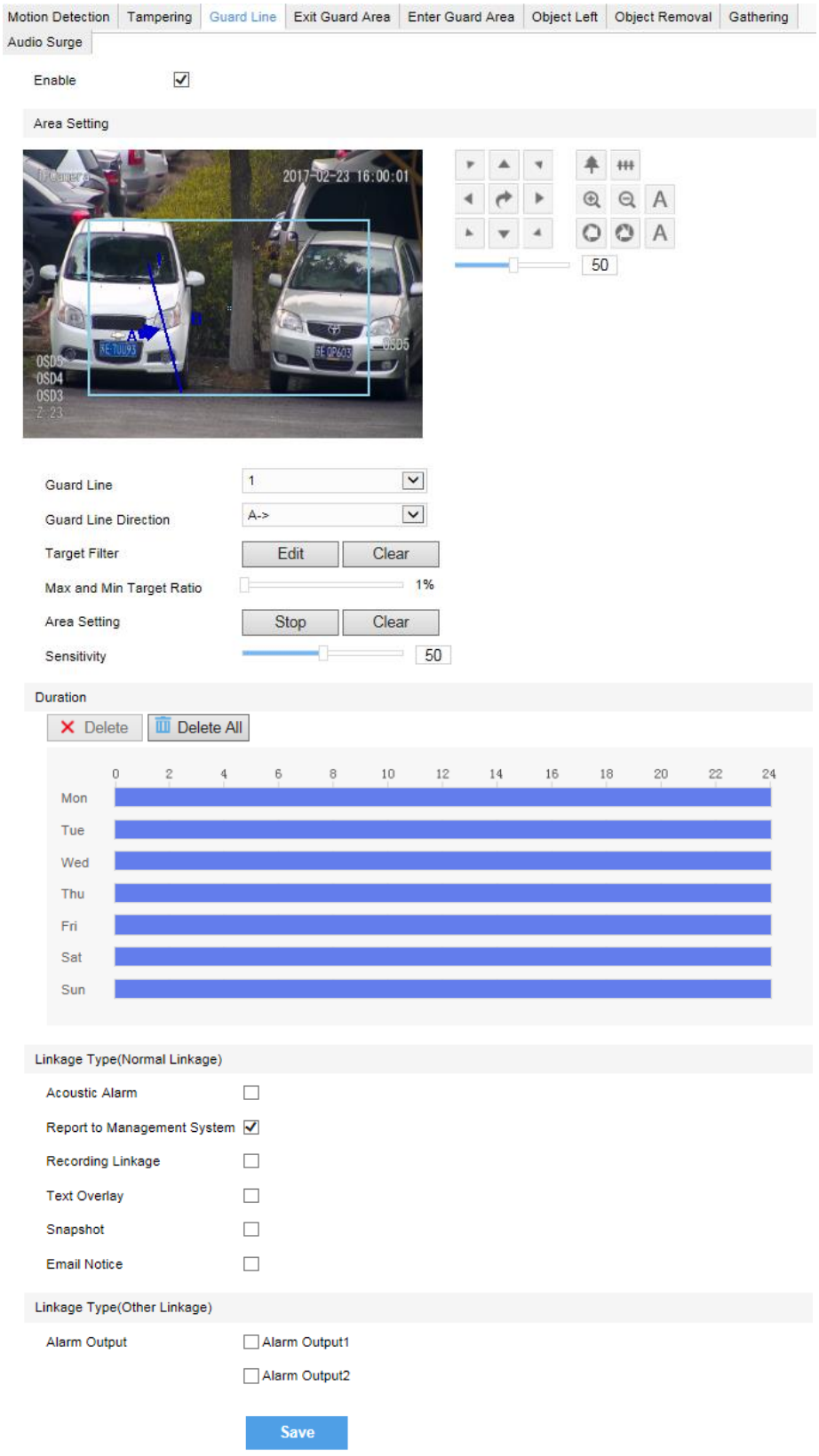


Picture 3-15 Tampering

3.3.3 Guard Line

Enable this function in the interface to detect specific area at real time. Once any object enters the guard line, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Guard Line** and configure.



Picture 3-16 Guard Line

Setting steps:

1) Check "**Enable**";

2) Select a number from the dropdown list of **Guard Line** and once only one number is allowed. After saving it, user can set another and max 4 guard lines can be set;
3) Select a direction from the dropdown list of **Guard Line Direction,** "A→", "B→" or "A→&&B→". Take "A→" as an example, when selecting this direction, only when objects move from A to B the system will detect it and trigger an alarm;
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 exceeding max and less than min will not trigger an alarm when they enter the guard line(s);
5) 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 point or end point to adjust its length and angle, and drag the slide bar of "Sensitivity" to set the guard line's sensitivity to moving objects;
6) Duration: Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select the blue bar and adjust or delete duration by mouse. Check several weekdays or "**Select All**" and click "**Copy**" to copy the defined motion detection durations to the days.
7) Check **"Linkage Type"** and **"Save"** to make settings take effect.

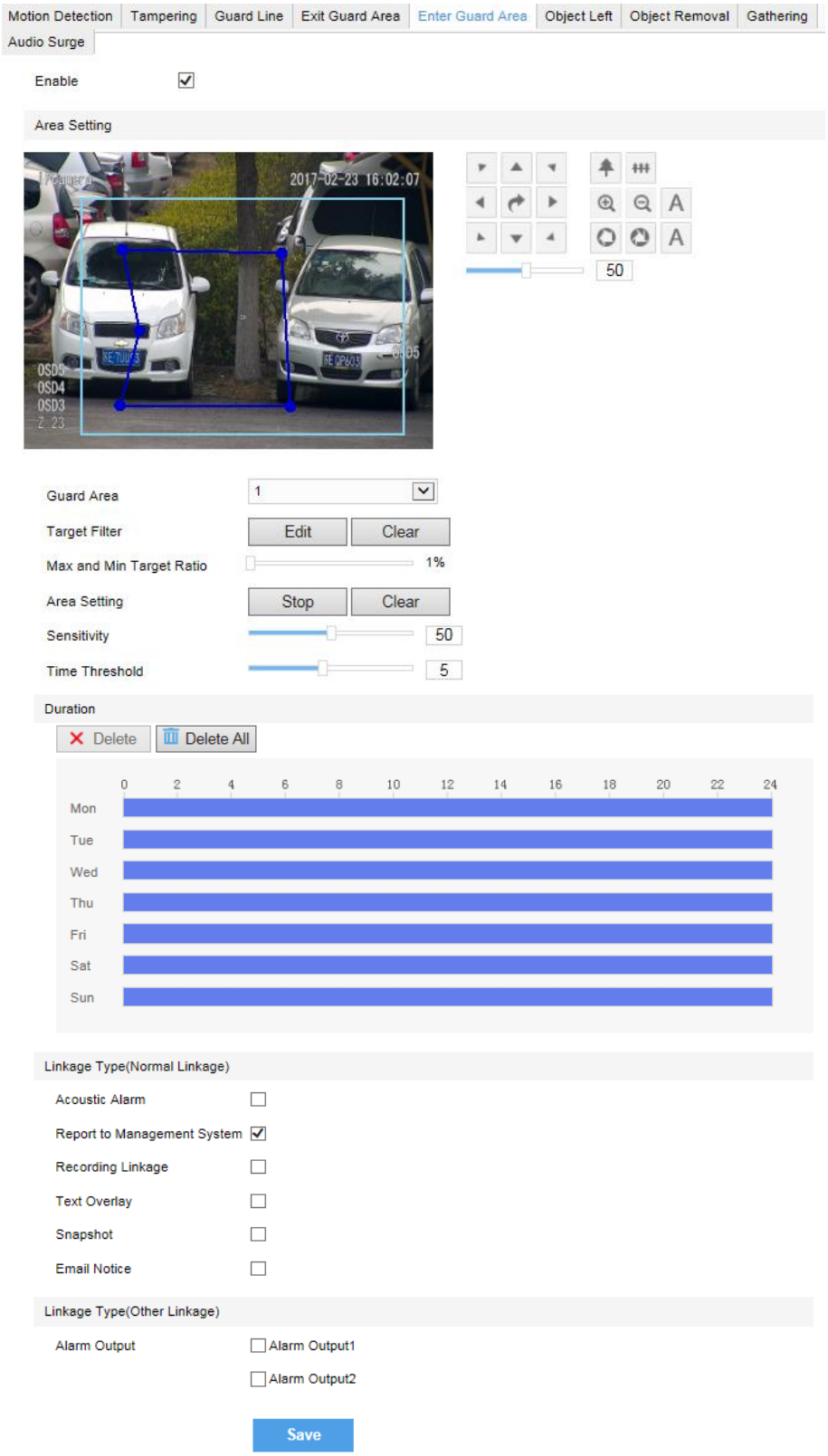
3.3.4 Enter Guard Area

Enable this function in the interface to detect specific area at real time. Once any moving object enters the guard area, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Enter Guard Area** and configure.

Setting steps:

1) Check "**Enable**";
2) Select a number from the dropdown list of **Guard Area** and once only one area is allowed. After saving it, user can set another and max 4 guard areas can be set;
3) 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 exceeding max and less than min will not trigger an alarm when they enter the guard area(s);
4) 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 point 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;
5) **Time Threshold**: The system will trigger an alarm after the target entering the guard area for a certain period of time, for example 5s. Time threshold can be configured and the default is 5s;
6) **Duration**: Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select the blue bar and adjust or delete duration by mouse. Check several weekdays or "**Select All**" and click "**Copy**" to copy the defined motion detection durations to the days;
7) Check **"Linkage Type"** and **"Save"** to make settings take effect.



Picture 3-17 Enter guard area

3.3.5 Exit Guard Area

Enable this function in the interface to detect specific area at real time. Once any moving object leaves the area, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Exit Guard Area** and configure. Setting steps can be referred to in **Enter Guard Area**.

3.3.6 Object Left

Enable this function in the interface to detect specific area at real time. When any object is left in the area, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Object Left** and configure. Setting steps can be referred to in **Enter Guard Area.**

3.3.7 Object Removal

Enable this function in the interface to detect specific area at real time. When any object is taken from the area, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Object Removal** and configure. Setting steps can be referred to in **Enter Guard Area.**

3.3.8 Gathering

Enable this function in the interface to detect specific area at real time. When moving objects exceed the sensitivity, an alarm will be triggered. After setting the area and the sensitivity is set 50%, when 50% or more of the area is covered by moving objects, an alarm will be triggered.

Go to **Settings > Event > Intelligent Function > Gathering** and configure. Setting steps can be referred to in **Enter Guard Area.**

3.3.9 Audio Surge

After enabling this function, when there is audio surge, an alarm is triggered. The higher the Voice Intensity Threshold is, the more sensitive it is to voice mutation.

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

Setting steps:

1) Check “**Enable**”;
2) 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;
3) **Duration**: Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select the blue bar and adjust or delete duration by mouse. Check several weekdays or “**Select All**” and click “**Copy**” to copy the defined motion detection durations to the days;
4) Check **Linkage Type** and click “**Save**”.

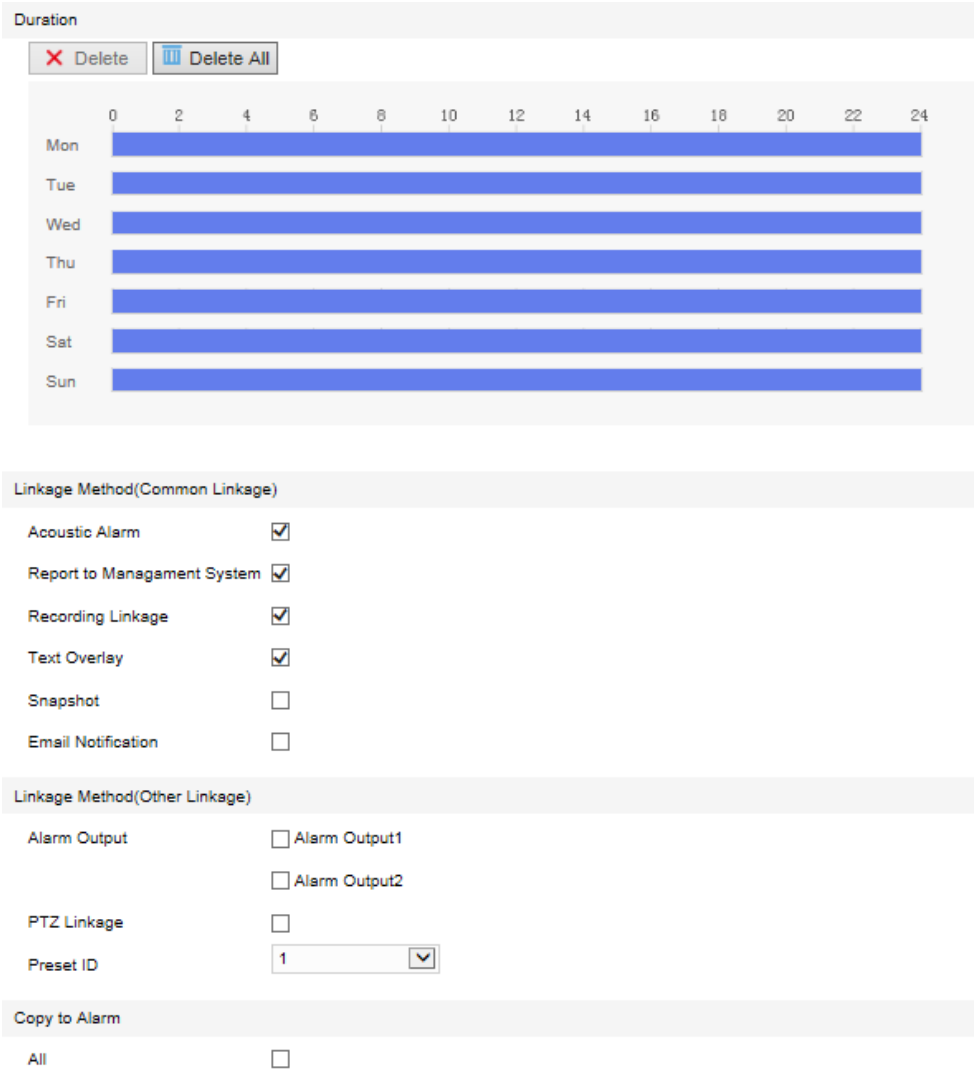
3.3.10 Alarm Input

Camera supports connecting with on-off alarm devices. If the alarm input device is always disabled, when it alarms, the circuit will become a loop and the camera will trigger alarm output by the set alarm linkage type. If the alarm input device is always enabled, when it alarms, the circuit will become open and the camera will trigger alarm output by the set alarm linkage type.

Setting steps:

1) Confirm that the alarm input device is always enabled or always disabled and has been rightly connected with the alarm input port of camera.
2) Go to **Settings > Event > Alarm Input**, and select a number from the dropdown list of Alarm Input ID (corresponding to the connected input ID).

3) Enter alarm name. If the alarm input device is always disabled, which means the circuit is usually open, user must select "**Always Disabled**" from the dropdown list of Alarm Type. If the alarm input device is always enabled, which means the circuit is usually loop, user must select "**Always Enabled**" from the dropdown list of Alarm Type. The default setting is "Always Disabled".
4) Duration: Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select the blue bar and adjust or delete duration by mouse. Check several weekdays or "**Select All**" and click "**Copy**" to copy the defined motion detection durations to the days;
5) Check "**Linkage Method"**.
6) Click "**Save**".



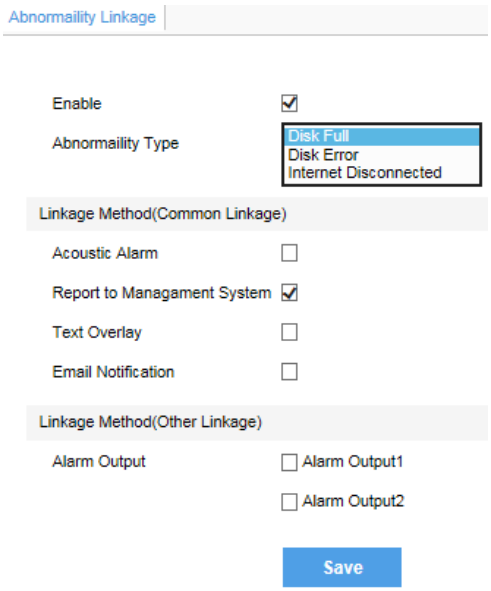
Picture 3-18 Alarm input

3.3.11 Abnormality Linkage

Abnormality linkage means the linkage triggered when abnormality occurs. Abnormality type includes Disk Full, Disk Error and Internet Disconnected.

Setting steps:

1) Go to **Settings > Event > Abnormality Linkage**, and check "**Enable**".
2) Select type from the dropdown list of Abnormality Type.
3) Check **Linkage Type**.
4) Click "**Save**".



Picture 3-19 Abnormality linkage

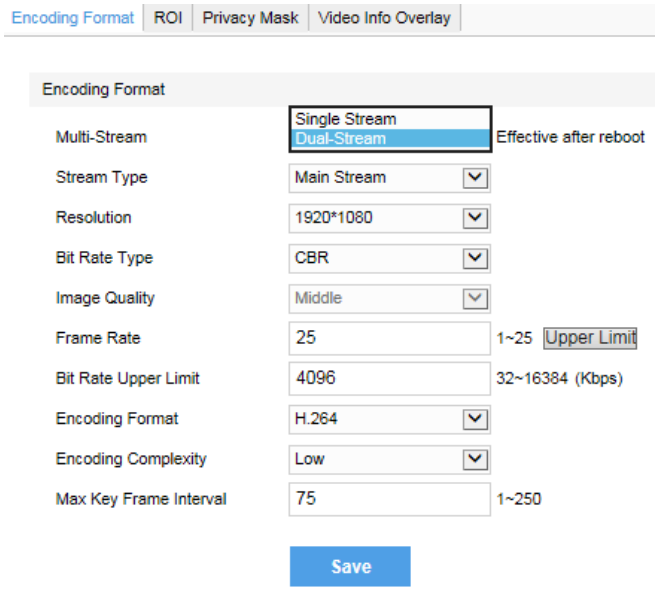
Notice: Abnormalities of disk full and disk error are prompted in live view window in the format of icons, which display in the same line of system time.

3.4 Video Parameters

3.4.1 Video Encoding

Camera supports multiple streams encoding and decoding. Multi-stream means the same video source is encoded into different streams of videos with different resolutions. User can select proper resolution to view or record according to the network bandwidth.

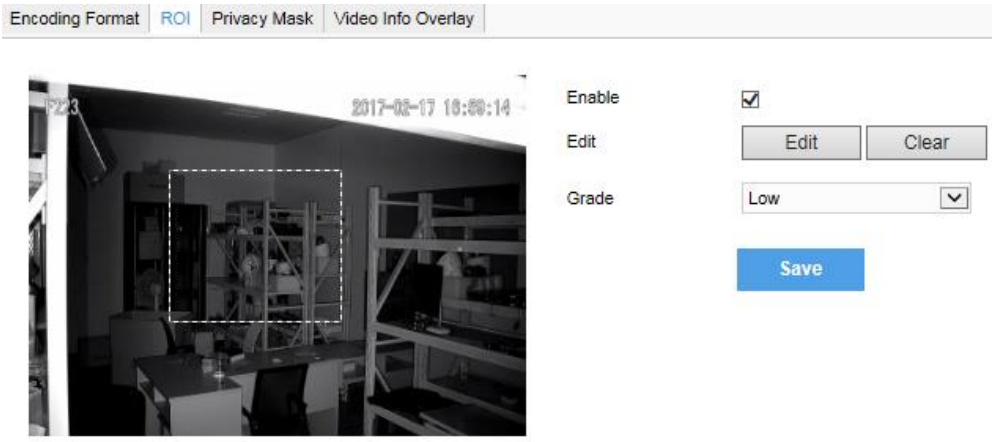
Go to **Settings > Camera > Video > Encoding Format**, as shown in the following picture. In the dropdown list of “Multi-Stream”, select Single Stream or Dual-Stream, and the setting takes effect after rebooting.



Picture 3-20 Main Stream Encoding

3.4.2 ROI

Only encode specific area to ensure normal surveillance and constant resolution of the specific area under poor network.



Picture 3-21 ROI

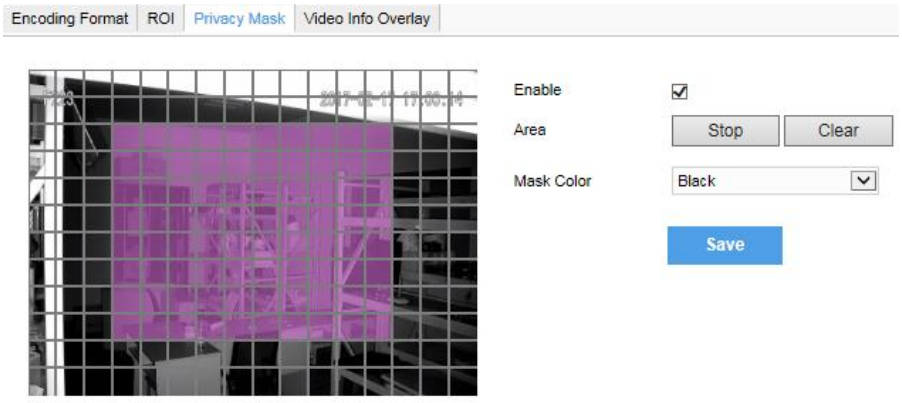
Setting steps for ROI:

1) Go to **Settings > Camera > Video > ROI**, and check "**Enable**".
2) Click "**Edit**", and drag a rectangle area with mouse as the specific area. Click "Clear" to cancel setting and reset.
3) Select encoding "**Grade**" from the dropdown list.
4) Click "**Save**".

Notice: When ROI is enabled, if user modifies image resolution or aspect ratio (standard screen/widescreen), the device will quit ROI automatically.

3.4.3 Privacy Mask

Mask sensitive and private part of the image so as to keep sensitive information private.



Picture 3-22 Privacy Mask

The image is divided into 16 columns and 12 rows of small squares. The max supported number of Privacy Mask area is 4. Setting steps for privacy mask areas:

1) Go to **Settings > Camera > Video > Privacy Mask**, and check "**Enable**".
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, which turns purple red. Start from an undefined square and 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**" directly.

3) User can select “**Mask Color”** from the drop-down list.

4) Click “**Save**”.

3.4.4 Video Info Overlay

Go to **Settings > Camera > Video > Video Info Overlay** and configure OSD info on video.

GPS

Check **GPS** and camera coordinates will be displayed.

Lens Direction

Check **Lens Direction** and the lens direction will be displayed.

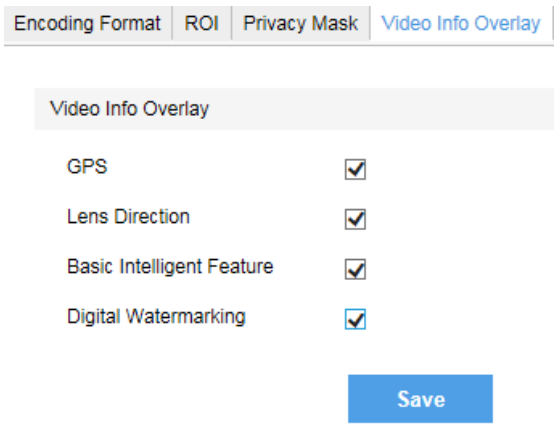
Basic Intelligent Feature

After configuring basic intelligent info (e.g. In the interface of **Settings > Event > Intelligent Function > Guard Line**, check and configure guard line function) and checking "**Basic Intelligent Feature**" and check **Rule Information Display** in Settings > Local Setting, the intelligent area will be displayed in live view video.

Digital Watermarking

Check **Digital Watermarking**, digital watermarking will be displayed.

Click “**Save**”.



Picture 3-23 Video info overlay

3.5 Snapshot

Click **“Snapshot”** on the menu bar to enter snapshot management interface. User can view or download snapshots in SD card (An SD card must be inserted in the camera).

Operation steps:

Search snapshots: search snapshots in accordance with the duration and format from the SD card.

On the snapshot list, check searched pictures and click to download.

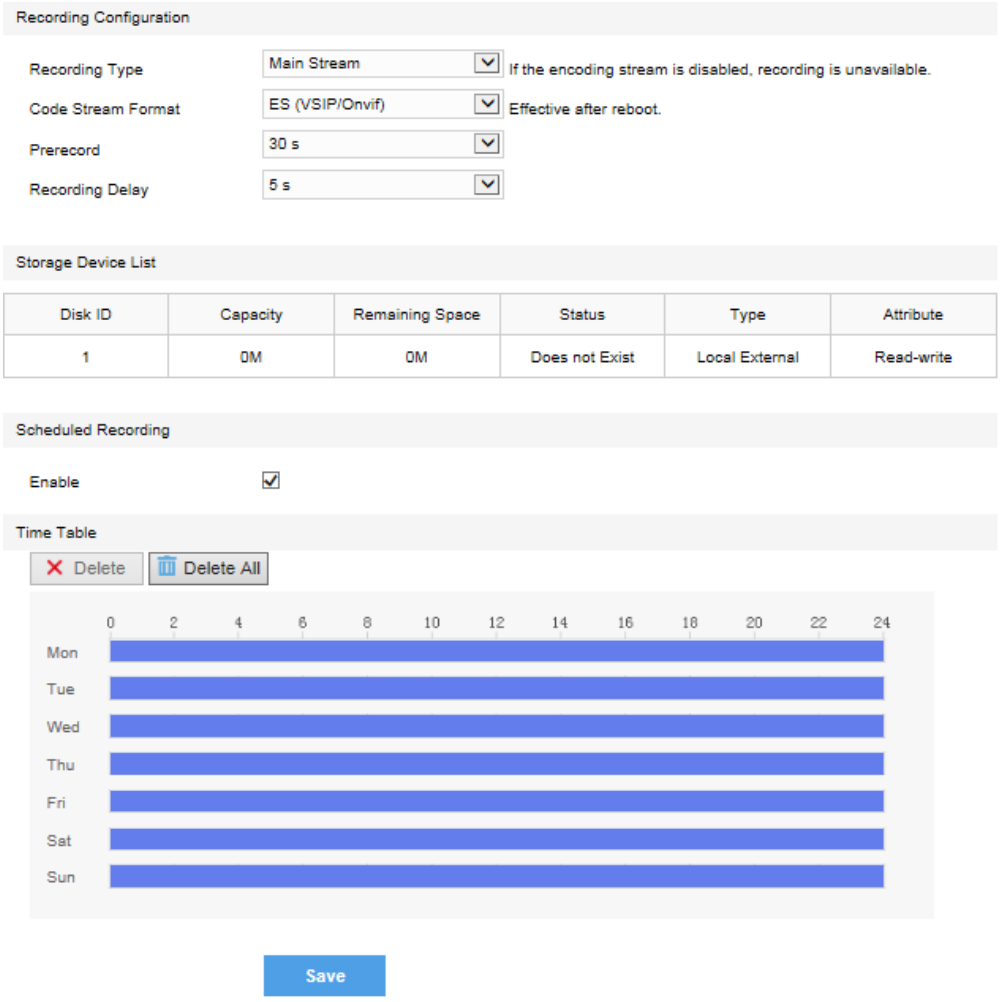
3.6 Playback

Click **“Playback”** on the menu to enter recording management interface. User can playback, clip and download recordings in SD card (An SD card must be inserted in the camera).

Notice:

User can set scheduled recording durations in **Settings > Storage > Recording**. Check “Enable”. Click the white bar behind each weekday and drag mouse to make a blue bar as the task duration for that day. Select

the blue bar and adjust or delete duration by mouse. Check several weekdays or “Select All” and click “Copy” to copy the defined motion detection durations to the days.



Picture 3-24 Recording

Notice: After setting “Code Stream Format” as PS (GB28181), the video encoding format is H.264 only.

3.6.1 Playback

1) Select recording duration from the calendar.

2) If there is background color on a date, it means there is recording on that day. Select duration of the date and the video will be displayed directly in the window on the right.

3.6.2 Download

Select recording duration from calendar and download recording to local PC. Download path can be configured in **Settings > Local Setting > Local Setting**.

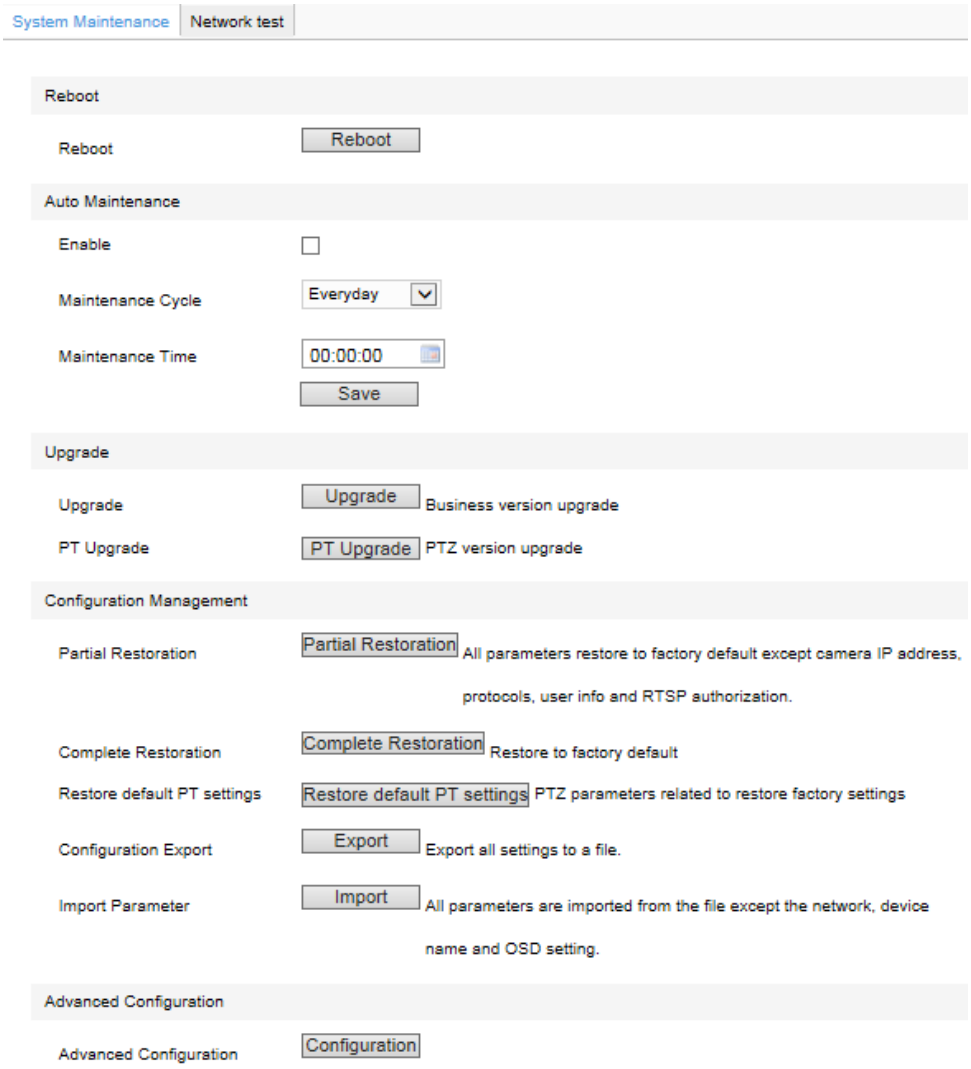
3.7 Upgrade

3.7.1 Firmware Upgrade

Contact dealer for upgrade file.

Method 1

1) Go to **Settings > System > System Maintenance > Upgrade**, as shown in the picture.



Picture 3-25 Firmware Upgrade

2) Click "**Upgrade**" and open local upgrade file (<*.pkg> format).
3) During upgrading, please do nothing but waiting.
4) After upgrading, if it is necessary to upgrade the web client, the system will prompt to download the plug-in. Please refer to the **Web Client Upgrade** for details.

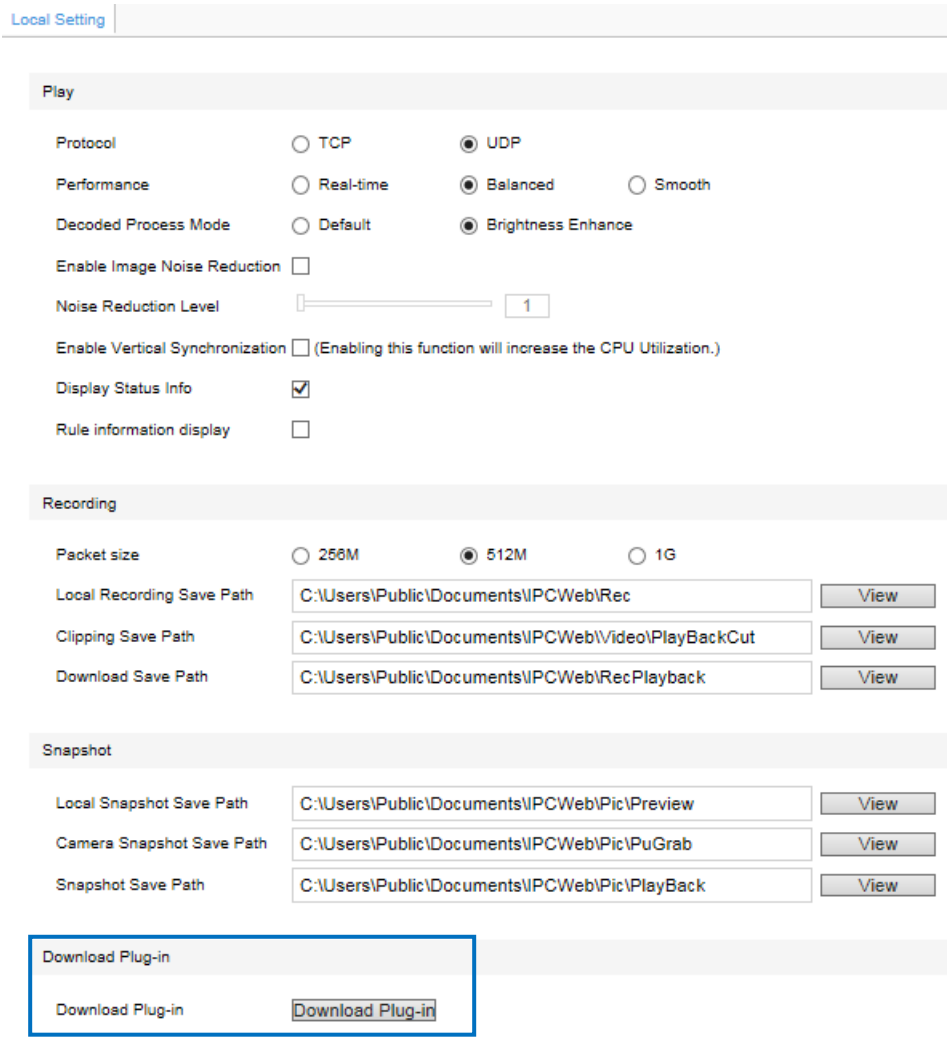
Method 2

1) Run IPCSearch and select the device from the list.
2) Click **Batch Processing > Upgrade** to upgrade firmware of cameras for the same models simultaneously.

3.7.2 Web Client Upgrade

Method 1

Go to **Settings > Local Setting > Local Setting > Download Plug-in.** Click "**Download Plug-in**" and follow the prompts to finish upgrade.



Picture 3-26 Download Plug-in

Method 2

After firmware upgrade, please re-login web client. The page will prompt to download a new plug-in control. After downloading, the upgrade is completed. Re-login to enter the latest web client.

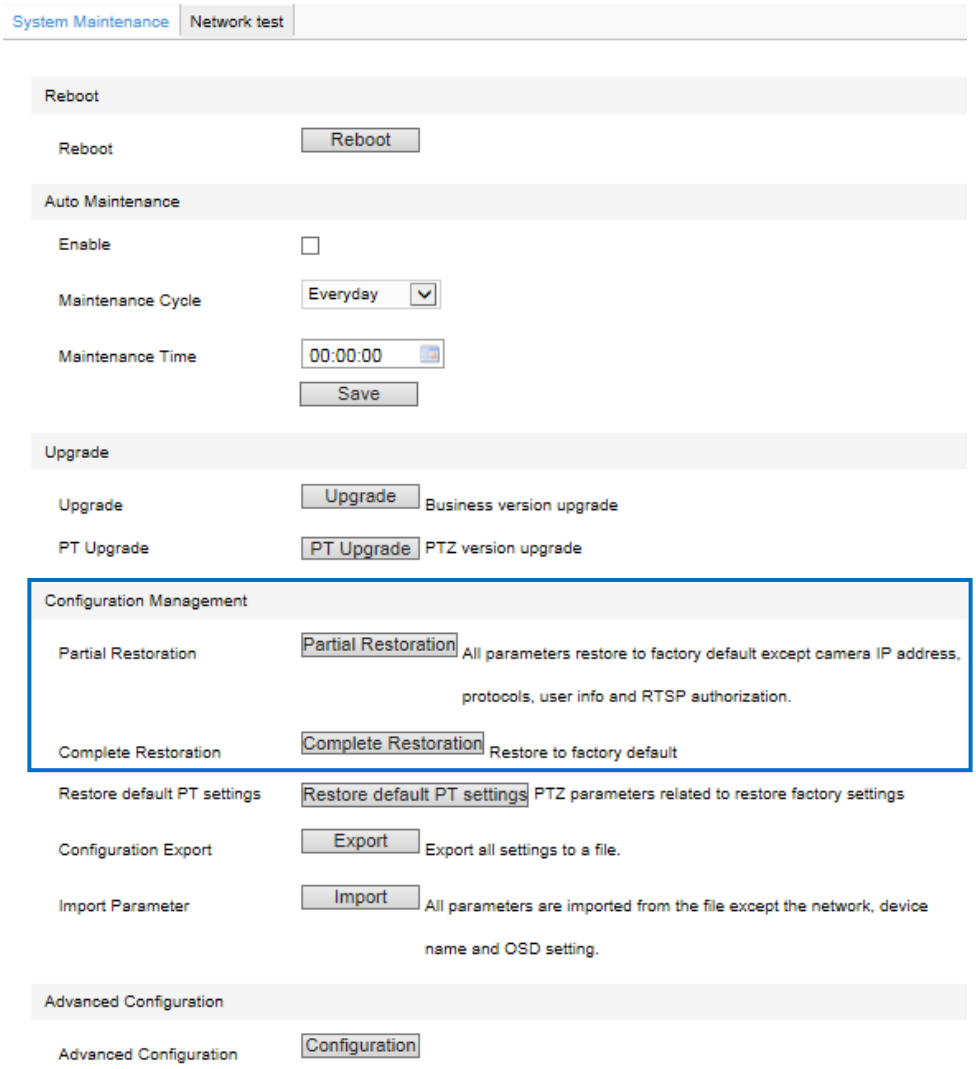
Notice: For detailed operations on the web client, please refer to the “Help” document.

3.7.3 Restoration

Go **to Settings > System > System Maintenance** and in the configuration management part, there are options of Partial Restoration and Complete Restoration.

Partial Restoration: click this button and all parameters will restore to factory default except camera IP address, protocols, user info and RTSP authorization.

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



Picture 3-27 Restoration

4. Settings

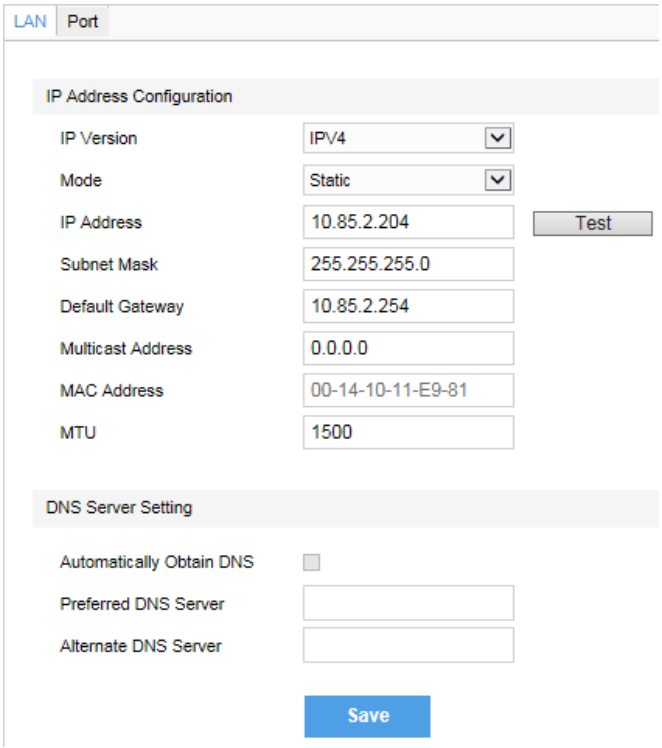
Some models may not support some of the functions stated below. User operation is subject to the actual models and clients.

4.1 Network Access

The Initial Configuration part has introduced how to modify parameters via IPCSearch to make camera access to network. Camera accepts multiple methods (via Ethernet and PPPoE) to access to network. The following will introduce how to configure camera network parameters through the web client.

4.1.1 Ethernet

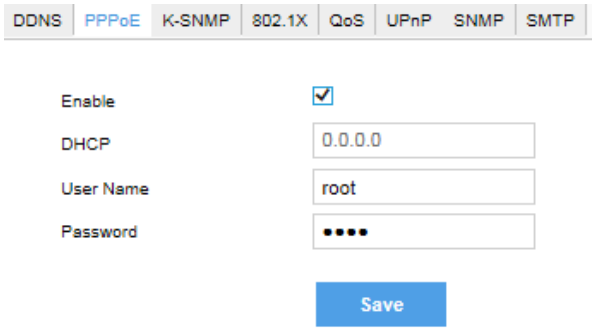
Go to **Settings > Network > IP and Port > LAN,** as shown in the picture to configure IP Address, Subnet Mask and Default Gateway.



Picture 4-1 LAN

4.1.2 PPPoE

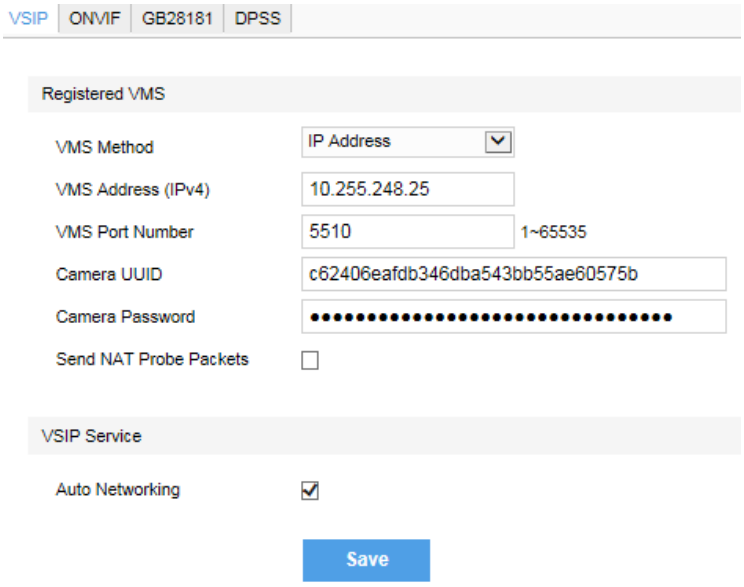
Go to **Settings > Network > Other Protocols > PPPoE**, as shown in the picture. Input user name and password, and click “Save”.



Picture 4-2 PPPoE

4.2 Register to VMS

Go to **Settings > Network > Access Protocol > VSIP**, as shown in the picture. Enter “VMS Address” and “VMS Port Number”. Click “Save” and reboot device.



Picture 4-3 Register to VMS

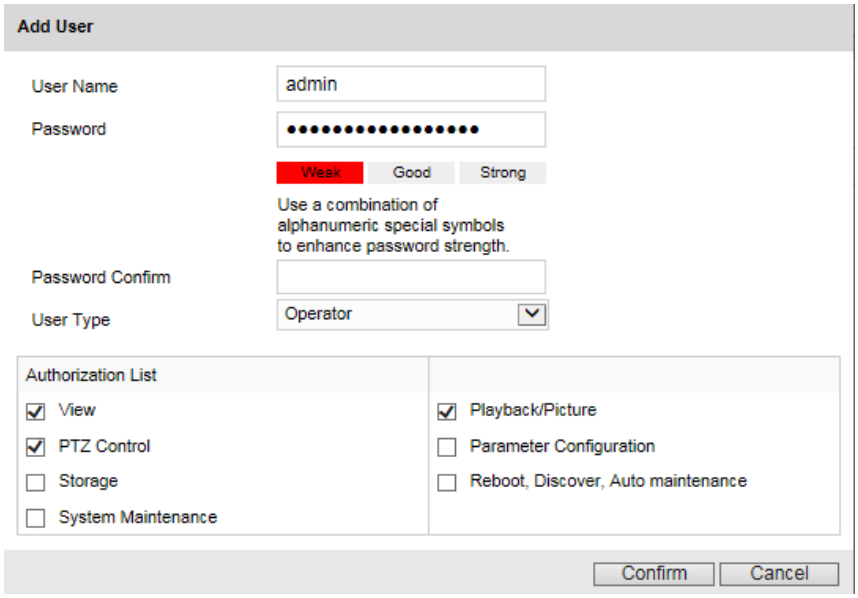
4.3 User Security

4.3.1 User Management

Go to **Settings > System > User Security > User**.

Add:

Click “**Add**”, and enter “User Name” and “Password” in the popup interface. Select user type from the dropdown list of “User Type”, and assign operation authority to newly added user from the “Authorization List”. Click “Confirm”.



Picture 4-4 Add user

Notice: It is suggested to set complicated password in the form of combination of 8~16 digits,

case-sensitive letters or special symbols. The system will judge the password strength according to the complexity of the password. Only when the password strength being “Good” or “Strong” can the setting be successful.

Delete:

Select user IP and click “Delete” to delete the user.

Modify:

Select user IP and click “Modify” to modify in the popup interface.

4.3.2 IP Filter

By setting IP address filtering, user can manage access authentication to the web client.

White List means the IP addresses able to access to the client while Black List means the IP addresses unable to access to the client.

Enable:

Select filter method from the dropdown list, Black List, White List, or “**Disable**”.

Add:

After select filter method, click “**Add**” and input IP address in the popup interface, and click “**Confirm**”.

Modify:

Select the IP address from the list and click “**Modify**” to modify the IP address, and click “**Confirm**”.

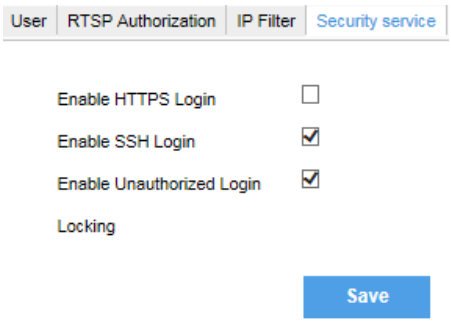
Delete:

Select the IP address from the list and click “**Delete**”. Click “**Delete All**” to clear all the IP addresses.

4.3.3 Security Service

Go to **Settings > System > User Security > Security Service**, and configure function of unauthorized login.

Check “Enable Unauthorized Login”. When user logs in and input wrong password for 3 times, the user IP will be locked up for 10 minutes, during which the user cannot log in.

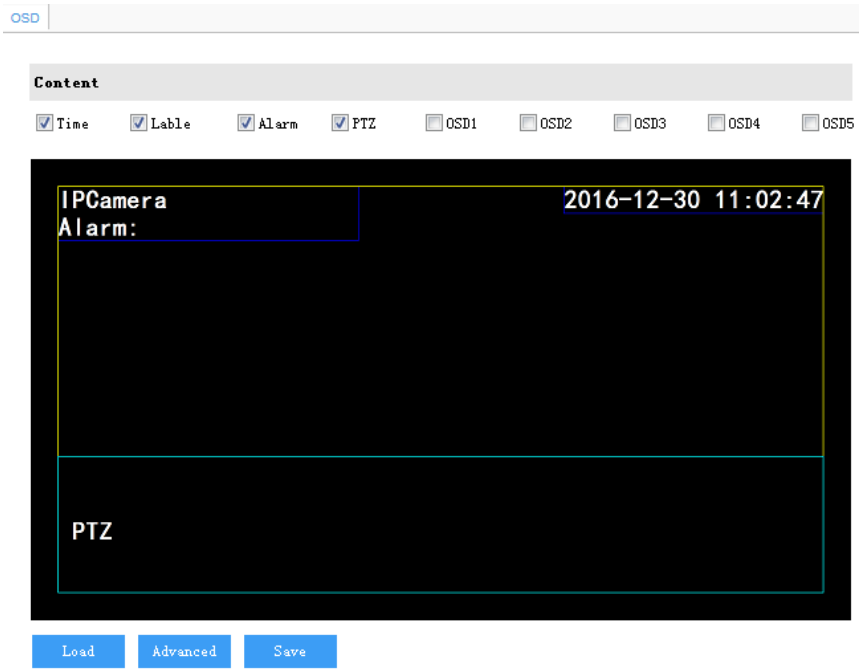


Picture 4-5 Security service

4.4 Text Overlay

Display preset text on the surveillance window, configuration steps as follows:

1) Go to **Settings > Camera > OSD**, as shown in the picture.



Picture 4-6 OSD

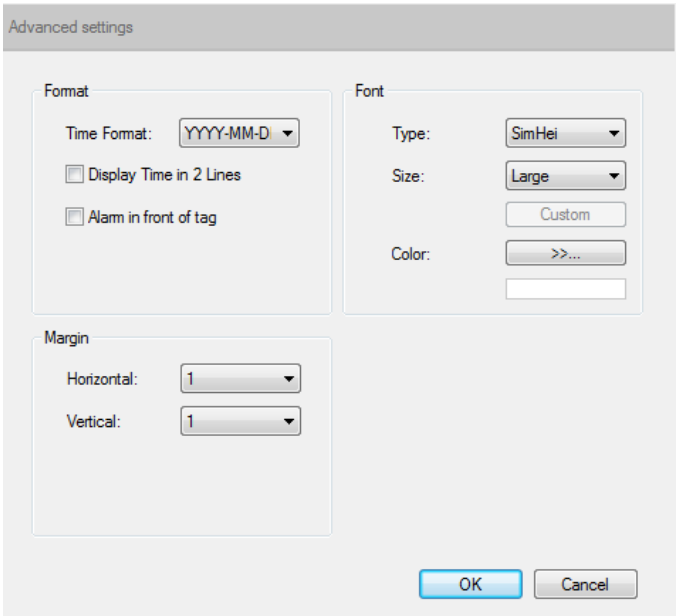
2) Check the options in "**Content**" and preview the result in the window below. For example, if user checks "**Time**", time will be displayed in the window.

3) Load font: Click "**Load**" to load "Default Font" or other fonts. Then edit content and position according to the above steps.

   Edit positions: drag the items in the window with mouse to change their positions.

   Edit OSD texts: for example, if user checks OSD2, double click OSD2 textbox and input characters in the popup interface. Click "**OK**".

4) Click "**Advanced**" to set "Format", "Font" and "Margin".



Picture 4-7 Advanced setting

5) Click "**Save**" to save OSD setting.

5. Appendix: Glossary of Terms

1080p	Resolution of 1920*1080 pixels (16:9)
720p	Resolution of 1280*720 pixels (16:9)
QXGA	Resolution of 2048*1536 pixels (4:3)
UXGA	Resolution of 1600*1200 pixels (4:3）
CIF	Resolution of 352*288 pixels
QCIF	Resolution of 176*144 pixels
HD	High-definition
NAT	Network Address Translation
DHCP	Dynamic Host Configuration Protocol
DDNS	Dynamic Domain Name Server
IP	Internet Protocol
MPEG4	Moving Pictures Experts Group
PC	Personal Computer
PPPoE	Point to Point Protocol over Ethernet