Comelit CCTV IP CAMERAS

Please read this manual thoroughly before use and keep it for future reference

COMELIT.

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WARNING

- This product is intended to be supplied by a Listed Power Unit, marked with 'Limited Power Source', 'LPS' on unit, output rated minimum 12VDC/2 A or POE 48VDC/ 350mA or 24VAC (depending on models), no more than 2000m altitude of operation and Tma= 60°C.
- Do not attempt to disassemble the camera; in order to prevent electric shock, do not remove screws or covers.
- There are no user-serviceable parts inside. Please contact the nearest service center as soon as possible if there is any failure.
- Avoid incorrect operation, shock vibration, heavy pressing which can cause damage to product.
- Do not use corrosive detergent to clean main body of the camera. If necessary, please use soft dry cloth; for hard contamination, use neutral detergent.
- Avoid aiming the camera directly towards extremely bright objects, such as sun, because this may damage the image sensor.
- Please follow the instructions to install the camera.
- Do not operate if temperature, humidity and power supply are beyond the limits.
- Keep away from heat sources such as radiators, heat registers, etc.
- Do not expose the product to the direct airflow from air conditioner.
- This manual is for using and managing the product. We reserve the rights of amending the errors, software upgrades and product improvements, interpretation and modification. These changes will be published in the latest version without special notification.
- All pictures, charts, images in this manual are only for description and explanation of our products. The ownerships of trademarks, logos and other intellectual properties related to Microsoft, Apple and Google belong to the above-mentioned companies.
- **The instruction is for guidance only. Detailed information is in accordance with the product**.
- **Screenshots used in the instruction are only for indications and explanations.**
- **<u>Some features are only available on certain camera models</u>**

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1 Network connection

Connect the IP Camera (IPC) via LAN / WAN / PoE

Access through Comelit Advance IP Tool
Network connection:
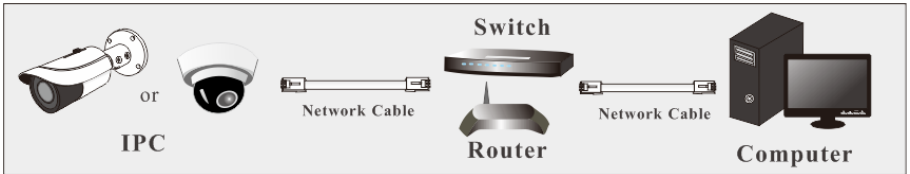
① Make sure the PC and IPC are connected to the LAN and the Comelit Advance IP Tool is installed in the PC.
② Double click the Comelit Advance IP Tool icon on the desktop to run this software as shown below:
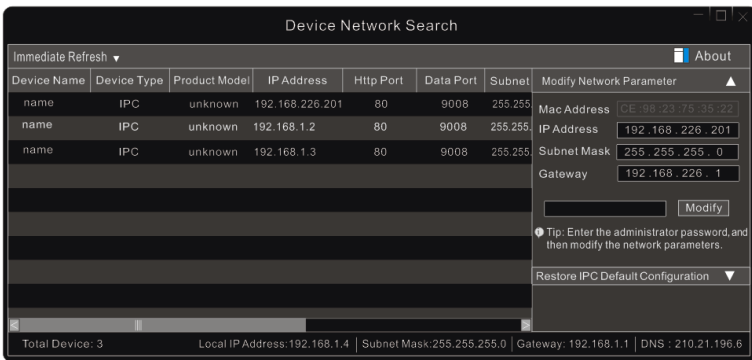
③ Modify the IP address. The default **IP address** of the camera is **192.168.1.150**. Click the information of the camera listed in the above table to show the network information on the right hand. Modify the IP address and gateway of the camera and make sure that its network address is in the same local network segment as the computer's.

Poe: Password change not required
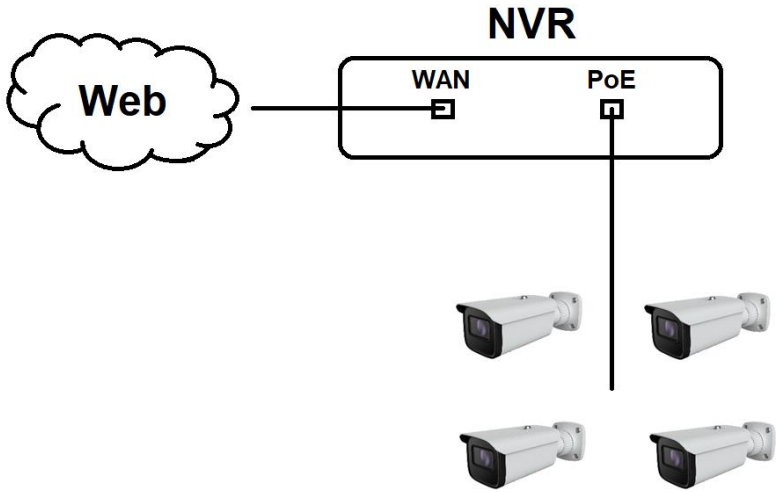
LAN: Password change required
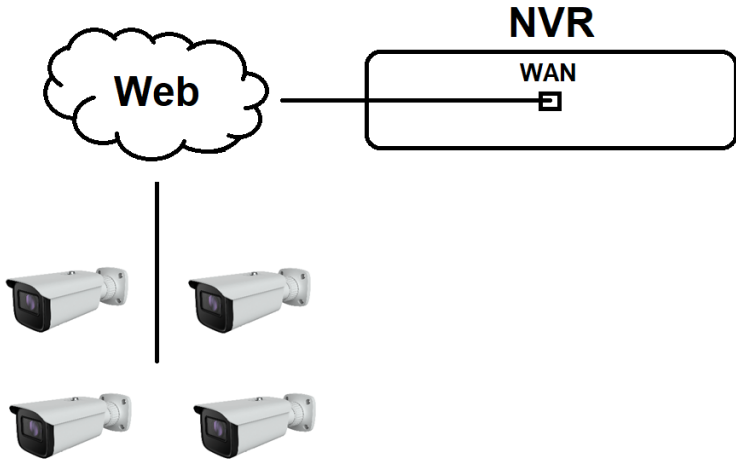
2 Live view

Browser:

After logging in, the following window will be shown.
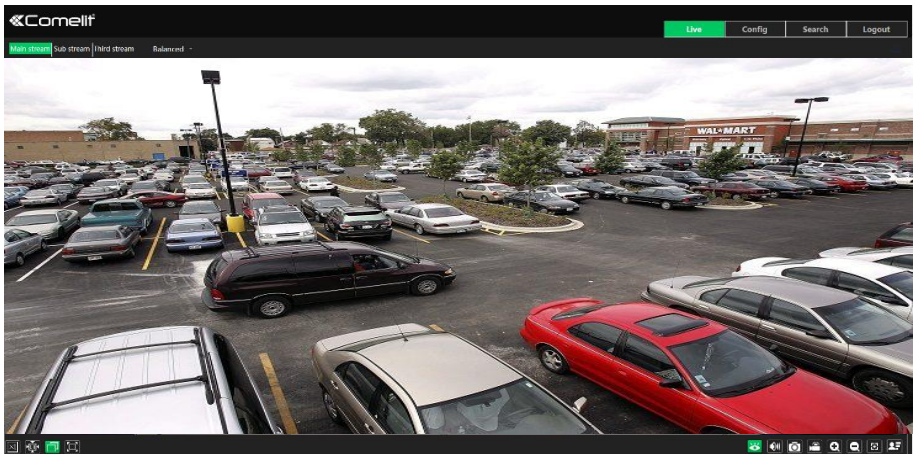
The following table show the icons on the live view interface.

Icon	Description	Icon	Description
×1	Original size		AZ control (only available for the model with motorized zoom lens)
1:1	Fit correct scale	SD	SD card recording indicator
	Auto (fill the window)		Color abnormal indicator
	Full screen		Abnormal clarity indicator
	Start/stop live view		Scene change indicator
	Start/stop two-way audio (only available for the model with audio input connector)		Line crossing indicator

Icon	Description	Icon	Description
🔊	Enable/disable audio	📍	Intrusion indicator
📷	Snapshot	((•))	Sensor alarm indicator
🎥	Start/stop local recording	🏃	Motion alarm indicator
➕	Zoom in	👤	Face detection indicator
➖	Zoom out	👥	Face capture
		🔔	PTZ control

Those smart alarm indicators will flash only if the camera supports those functions and the corresponding events are enabled.

In full screen mode, double click with the mouse to exit or press the ESC key on the keyboard.

Click AZ control button to show AZ control panel. The descriptions of the control panel are as follows:

Icon	Description	Icon	Description
🌲🌲🌲	Zoom -	🌲	Zoom +
👤	Focus -	⛰️	Focus +
↻	One key focus (used when image is out of focus after manual adjustment		

Face Capture View

① Go to Config→Event→Face Detection interface. Check "Enable".

② Return to the live view interface. Click 👥 to go to the following interface. When there are faces detected, the face pictures will be listed on the right.
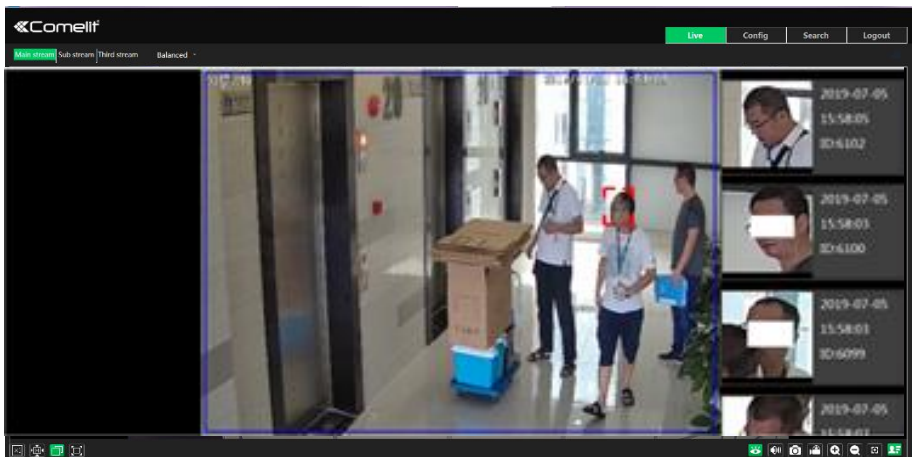
3 Network camera configuration

In the client, choose "Config" to go to the configuration interface.
Note: click the "Save" button to save the settings.

3.1 System Configuration

3.1.1 Basic Information

In the "Basic Information" interface, the information of the device are listed.

3.1.2 Date and Time

Go to Config→System→Date and Time. Please refer to the following interface.

Zone	Date and Time		
Zone	GMT+01 (Amsterdam, Berlin, Rome, Stockholm, Warsaw)		
☑ DST			
○ Auto DST			
● Manual DST			
Start Time	January First Sunday 00		Hour
End Time	February First Monday 00		Hour
Time Offset	120 Minutes		
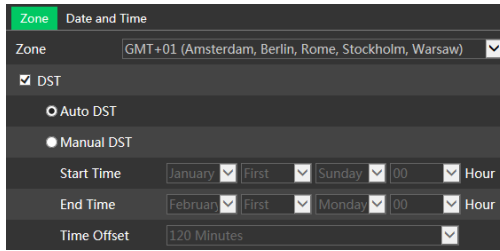
Select the time zone and DST as required.
Click the "Date and Time" tab to set the time mode.

Zone	Date and Time	
Time Mode:		
○ Synchronize with NTP server		
NTP server: time.windows.com	Update period: 1440	Minutes
● Synchronize with computer time		
Date 2019-11-12	Time 12:32:28	
● Set manually		
Date 2019-11-12	Time 12:32:20	
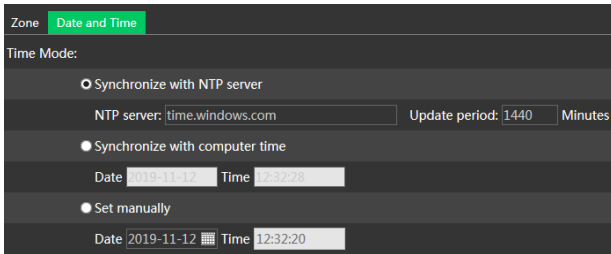
3.1.3 Local Configuration

Go to Config→System→Local Config to set up the storage path of captured pictures and recorded videos on the local PC. There is also an option to enable or disable the bitrate display in the recorded files.

Save snapshots to	C:\Program Files\NetAIIPCamera		Browse
Save recording files to	C:\Program Files\NetAIIPCamera		Browse
Audio Recording	● Open	○ Close	
Bitrate Overlay	● Open	○ Close	
Local Smart Snapshot Storage	● Open	○ Close	
		Save	
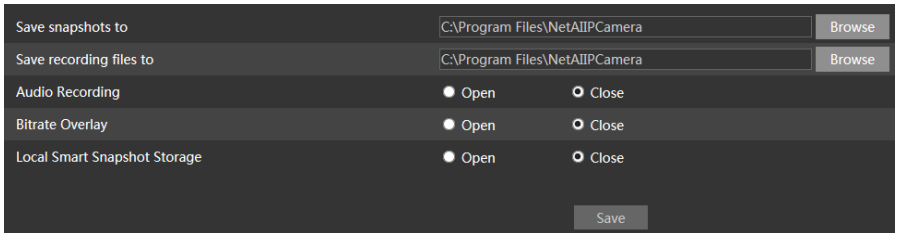
Additionally, the snapshots triggered by smart events (including face detection, line crossing detection and intrusion detection) can be selected to save to the local PC.

3.1.4 Storage

This feature is only available for the models with micro-SD card slot.
Go to Config→System→Storage to go to the interface as shown below.
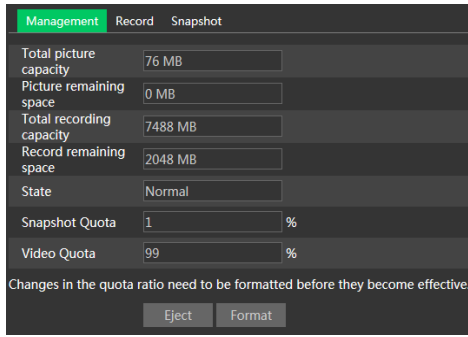
- **Micro-SD card management**

Click the "Format" button to format the micro-SD card. All data will be erased by clicking this button.

Click the "Eject" button to stop writing data to micro-SD card. Then the micro-SD card can be removed safely.

Snapshot Quota: set the capacity of captured pictures on the micro-SD card.

Video Quota: set the capacity of record files on the micro-SD card.

- **Schedule Recording Settings**
1. Go to Config→System→Storage→Record to go to the interface as shown below.
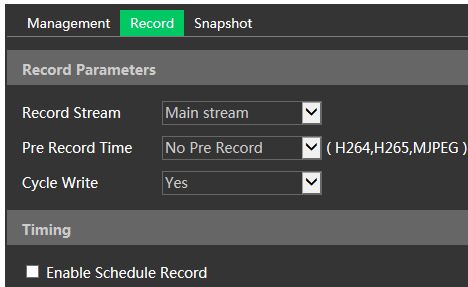
2. Set record stream, pre-record time, cycle writing.

Pre Record Time: set the time to record before the event recording begins.

3. Enable schedule record. Check "Enable Schedule Record" and set the schedule.
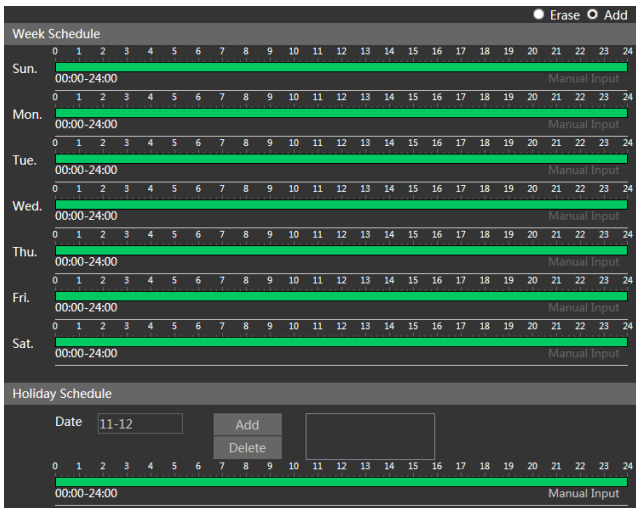
Weekly schedule

Set the alarm record time from Monday to Sunday for a single week. Each day is divided in one hour. Green means scheduled. Blank means unscheduled.

"Add": add the schedule for a specific day. Drag the mouse to set the time on the timeline.

"Erase": delete the schedule. Drag the mouse to delete the time on the timeline.

Manual Input: click it on a specific day to enter specific start and end time.

Holiday schedule

Set the alarm record time for a specific day, such as a holiday.

Note: Holiday schedule takes priority over weekly schedule.

● **Snapshot settings**

Go to Config→System→Storage→Snapshot to go to the interface as shown below.

Set the format, resolution and quality of the image saved on the micro-SD card, the snapshot interval and quantity and the timing snapshot here.

Snapshot Quantity: is the maximum quantity of snapshots. The actual quantity of snapshots may be less than this number. Supposing the occurrence time of an alarm event is less than the time of capturing pictures, the actual quantity of snapshots is less than the set quantity of snapshots.

Enable Timing Snapshot: enable timing snapshot first and then set the snapshot interval and schedule. The setup steps of schedule are the same as the schedule recording.

3.2 Thermal functions

3.2.1 Fire detection

Fire Detection: Alarms will be triggered when the camera detects the fire source.

Click Config → Fire Detection to enter the following interface.

Detection Config	Schedule

☐ Enable

Alarm Holding Time [20 Seconds ▾]

Trigger Alarm Out

☐ Alarm Out

☐ Trigger Audio Alarm [Fire detected, please checl ▾]

☐ Trigger Light Alarm

☐ Trigger SD Card Snapshot

☐ Trigger SD Recording

☐ Trigger Email

☐ Trigger FTP

[Save]

1. Click "Enable" and set the alarm holding time.
2. Set alarm trigger options.

Alarm Out: If selected, this would trigger an external relay output that is connected to the camera when the fire source is detected.

Trigger Audio Alarm: If selected, the warning voice will be uttered when the fire source is detected. (Please set the warning voice first. See Audio Alarm for details).

Trigger Light Alarm: If selected, the light of the camera will flash when the fire source is detected. (Please set the light flashing time and frequency first. See Light Alarm for details).

Trigger SD Card Snapshot: If selected, the system will capture images when the fire source is detected and save the images on an SD card.

Trigger SD Recording: If selected, video will be recorded on an SD card when the fire source is detected.

Trigger Email: If "Trigger Email" and "Attach Picture" are checked (email address must be 12 set first in the Email configuration interface), the captured pictures and triggered event will be sent into those addresses.

Trigger FTP: If "Trigger FTP" and "Attach Picture" are checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

3. Click "Save" button to save the settings.
4. Set the schedule of the fire detection. The setup steps of the schedule are the same as the schedule recording setup.

3.2.2 Temperature measurement

Temperature Measurement: When the IPC detects that the temperature of the pre-defined point/line/area exceeds the temperature threshold value, alarms will be triggered.

Click → Config Temperature measurement to enter the following interface.

1. Click "Enable" and set the alarm holding time.
Display Max. Temperature: Max. Temperature in the set area/line will be displayed in real time.
Display Min. Temperature: Min. Temperature in the set area/line will be displayed in real time.
Enable Point Temp Reading: you can read the real-time temperature of any point you click on the thermal image in the live interface.
Emissivity: Set the emissivity of the target. The emissivity of each object is different. Please refer to Common Material Emissivity for details (appendix 3).
Distance: The distance between the target and the camera.
Reflective: If there is any object with high emissivity in the scene, set the reflective temperature to correct the ambient temperature. The reflective temperature should be set the same as the temperature of the high emissivity object.

2. Set alarm trigger options. Please refer to Fire Detection chapter for details.
3. Set thermography rule. Click the "Area" tab to go to the following interface.
The thermography rule type includes Point, Line Area.
Point setting: After the type is set to "Point", click "Draw Area" and then drag the mouse in the image on the left side to move the point. Click the "Stop Draw" button to
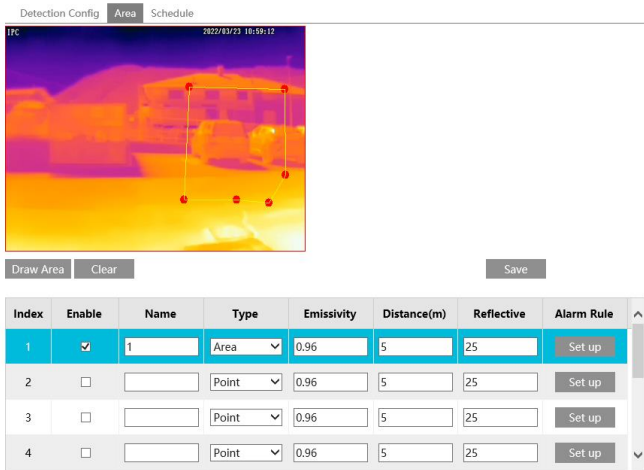
stop drawing. Up to 10 points can be set in the above interface.

Line setting: After the type is set to "Line", click "Draw Area" and then drag the mouse in the image on the left side to draw a line. Click the "Stop Draw" button to stop drawing. To ensure the accuracy of temperature measurement, it is recommended to set not more than two lines at the same time.

Area setting: Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area).
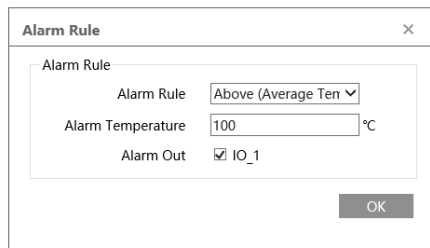
Click the "Stop Draw" button to stop drawing. Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings. To ensure the accuracy of temperature measurement, it is recommended to set not more than two areas at the same time.

4. Click "Set up" to set the alarm rule.

Set the alarm rule, alarm temperature and alarm output. For example, select Alarm Rule as Above (Average Temperature), set the alarm temperature to 100°C and check alarm output.

Then alarms will be triggered when the average temperature of the target is higher

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than 100°C
Click the "Save" button to save the settings

5. Click "Live" to view the temperature and rule information.

Requirements of Fire detection and temperature measurement

Thermal cameras allow instant temperature response based on the infrared radiation that each body emits.

1- It is necessary that the lenses of thermal cameras are always kept clean, otherwise their operation will be compromised.

2- The correctness of this data depends on:
- Measurement of the detected object
- Environmental temperature
- Distance of the object from the camera (the detected temperature is inversely proportional to the distance).
- Object emissivity (appendix 3).

These factors must be taken into account for a precise result.

3.3 Image configuration

Image Configuration includes Display, Video/Audio, OSD, Video Mask and ROI Config. The lens control function is available for the models with motorized zoom lens.

3.3.1 Display Configuration

Go to Image→Display Settings interface as shown below. The image's brightness, contrast, hue and saturation and so on for common, day and night mode can be set

up separately. The image effect can be quickly seen by switching the configuration file.
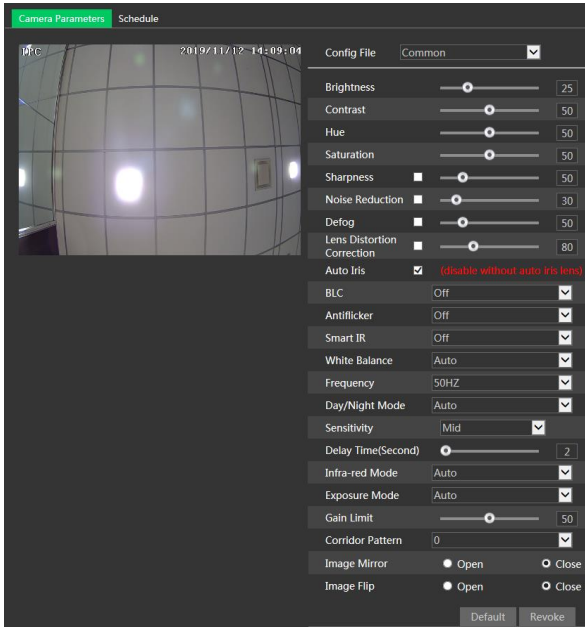
Brightness: set the brightness level.

Contrast: set the contrast.

Hue: set the hue.

Saturation: set the saturation.

WDR: see HWDR below.

Sharpness: set the sharpness.

Noise Reduction: decrease the noise to make the image more thorough. Increasing the value will make the noise reduction effect better but it will reduce the image resolution.

Defog: activate this function and set an appropriate value as needed in foggy, dusty, smoggy or rainy environment to get clear images.

Auto Iris: if your camera have the auto Iris feature, please enable it.

Backlight Compensation (BLC):

● Off: disables the backlight compensation function (default).

● HWDR: WDR can adjust the camera to provide a better image when there are both very bright and very dark areas simultaneously in the field of the view by lowering the brightness of the bright area and increasing the brightness of the dark area.

Recording will be stopped for a few seconds while the mode is changing from non-WDR to WDR mode.

● HLC: lowers the brightness of the entire image by suppressing the brightness of

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the image's bright area and reducing the size of the halo area.

● BLC: if enabled, the auto exposure will activate according to the scene so that the object of the image in the darkest area will be seen clearly.

HFR: High Frame Rate. If "ON" is selected, the system will restart and then the maximum value of the frame rate of the main stream can be set to 60 fps /50fps

Antiflicker:

● Off: disables the anti-flicker function. This is used in outdoor installations.

● 50Hz: reduces flicker in 50Hz lighting conditions.

● 60Hz: reduces flicker in 60Hz lighting conditions.

Smart IR: choose "ON" or "OFF". This function can effectively avoid image overexposure and underexposure by controlling the brightness of the IR lights according to the conditions.

White Balance: adjust the color temperature according to the environment automatically.

Frequency: 50Hz or 60Hz.

Day/Night Mode: choose "Auto", "Day", "Night" or "Timing".

Infra-red Mode: choose "Auto", "ON" or "Off".

Gain Limit: the higher the gain value is, the higher the brightness of the image is and the more noises of the image are.

Exposure Mode: choose "Auto" or "Manual". If manual is chosen, the digital shutter speed can be adjusted.

Corridor Pattern: corridor viewing modes can be used for situations such as long hallways. 0°, 90°, 180° and 270° are available. The default value is 0°. The video resolution should be 1080p or below if this function is used.

Image Mirror: turn the current video image horizontally.

Image Flip: turn the current video image vertically.

Schedule Settings of Image Parameters.

Click the "Schedule" tab as shown below.
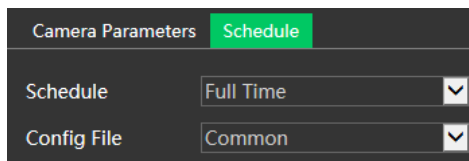
Set full time schedule for common, day, night mode and specific time schedule for day and night mode. Choose "Schedule" in the drop-down box as shown below.
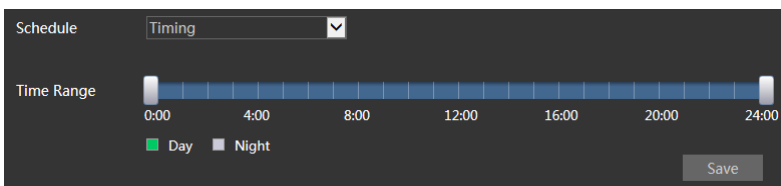
Drag " " icons to set the time of day and night. Blue means day time and blank means

night time. If the current mode of camera parameters is set to schedule, the image configuration mode will automatically switch between day and night according to the schedule.

3.3.2 Video / Audio Configuration

Go to Image→Video / Audio interface as shown below. In this interface, set the resolution, frame rate, bitrate type, video quality and so on.

Index	Stream Name	Resolution	Frame Rate	Bitrate Type	Bitrate(Kbps)	Video Quality	I Frame Interval	Video Compression	Profile
1	Main stream	1920x1080	25	CBR	3072	Highest	100	H264	High Profile
2	Sub stream	704x576	25	CBR	768	Highest	100	H264	High Profile
3	Third stream	352x288	25	CBR	512	Higher	100	H264	High Profile

Send Snapshot Sub stream Size: (704x576)
■ Video encode slice split
■ Watermark (H264 , H265)   Watermark content:

Click the "Audio" tab to go to the interface as shown below.

Video **Audio**
☑ Enable
Audio Encoding   G711A   Audio Type   LIN
Save
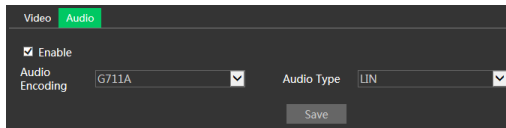
Three video streams can be adjustable.
Resolution: image resolution.
Frame rate: the higher the frame rate, the video is smoother.
Bitrate type: CBR or VBR. Bitrate is related to image quality. CBR means that no matter how much change is seen in the video scene, the bitrate will be kept constant. VBR means that the bitrate will be adjusted according to scene changes.
Bitrate: it can be adjusted when the mode is set to CBR. The higher the bitrate, the better the image quality will be.
Video Quality: it can be adjusted when the mode is set to VBR. The higher the image quality, more bitrate will be required.
I Frame interval: it determines how many frames are allowed between a "group of pictures". When a new scene begins in a video, until that scene ends, the entire group of frames (or pictures) can be considered as a group of pictures. If there is not much movement in the scene, setting the value higher than the frame rate is fine, potentially resulting in less bandwidth usage. However, if the value is set too high, and there is a high frequency of movement in the video, there is a risk of frame skipping.
**Video Compression:** MJPEG**,** H264+, H264, H265+ or H265. If H.265/H.265+ is chosen, make sure the client system is able to decode H.265/H.265+.
Profile: for H.264, Baseline, Main and High profiles are selectable.
Send Snapshot: set how many snapshots to generate for an event.
Video encode slice split: if this function is enabled, smooth image can be gotten

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even though using the low-performance PC.

Watermark: when playing back the local recorded video in the search interface, the watermark can be displayed. To enable it, check the watermark box and enter the watermark text.

Audio Encoding: G711A or G711U.

Audio Type: LIN or MIC.

3.3.3 OSD Configuration

Go to Image→OSD interface as shown below.
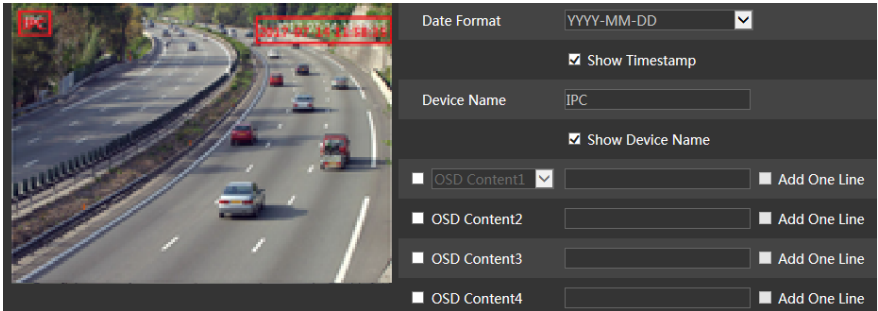
Set timestamp, device name, OSD content and picture overlap here. After enabling, entering the content and drag them to change their position. Then click the "Save" button to save the settings.
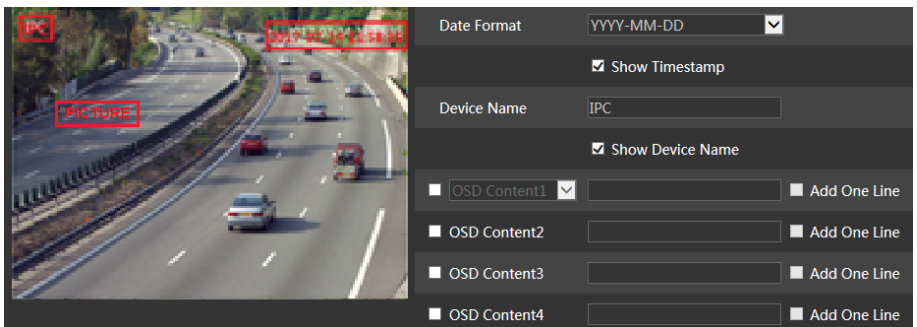
Picture Overlap settings (some models only):

Check "OSD Content1", choose "Picture Overlay" and click "Browse" to select the overlap picture. Then click "Upload" to upload the overlap picture. The size of the image shall not exceed 200x200 pixels or it cannot be uploaded.

3.3.4 Video Mask

Go to Image→Video Mask interface as shown below. A maximum of 4 zones can be

setup.
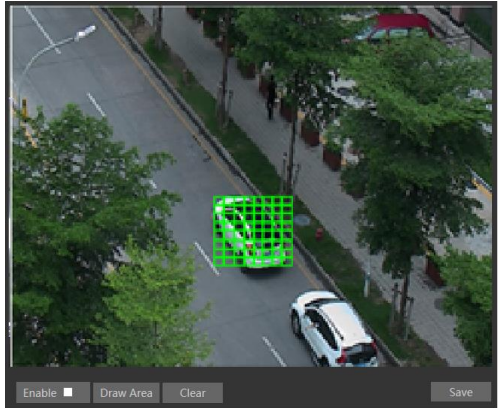
To set up video mask:
1. Enable video mask.
2. Click the "Draw Area" button and then drag the mouse to draw the area.
3. Click the "Save" button to save the settings.
4. Return to the live to verify the area.
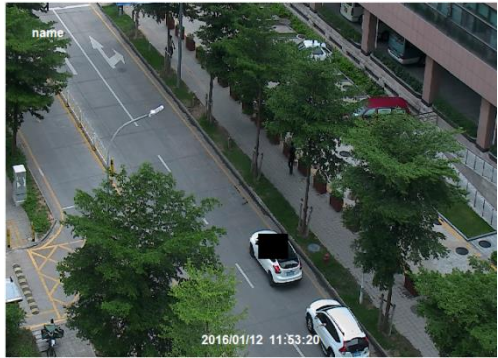
Click the "Clear" button to delete the current video mask area.

3.3.5 ROI Configuration

Go to Image→ROI Config interface as shown below. An area in the image can be set as a Region Of Interest. This area will have a higher bitrate than the rest of the image, resulting in better image quality for the identified area.
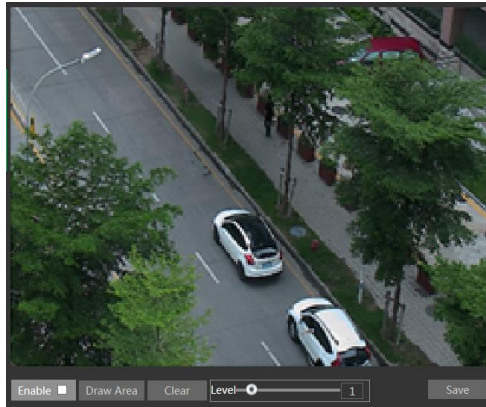
1. Check "Enable" and then click the "Draw Area" button.
2. Drag the mouse to set the ROI area.
3. Set the level.
4. Click the "Save" button to save the settings.
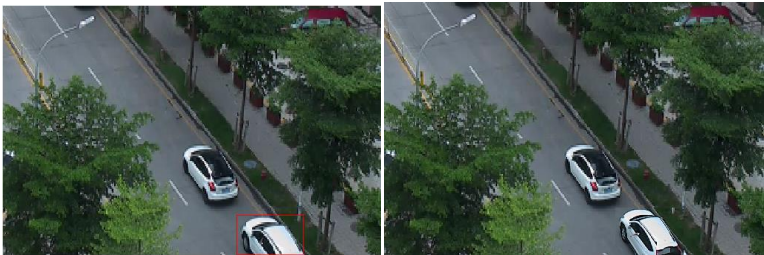
3.3.6 Lens Control

This function is only available for the models with motorized zoom lens. In this section, zoom and focus can be controlled. If the image is out of focus after a manual adjustment, one key focus can be used to set the focus automatically. Go to Config→Image→ Zoom/Focus interface to set.

Day and night switching Focus ■ One Key Focus   Reset
Zoom -   Zoom +
Focus -   Focus +
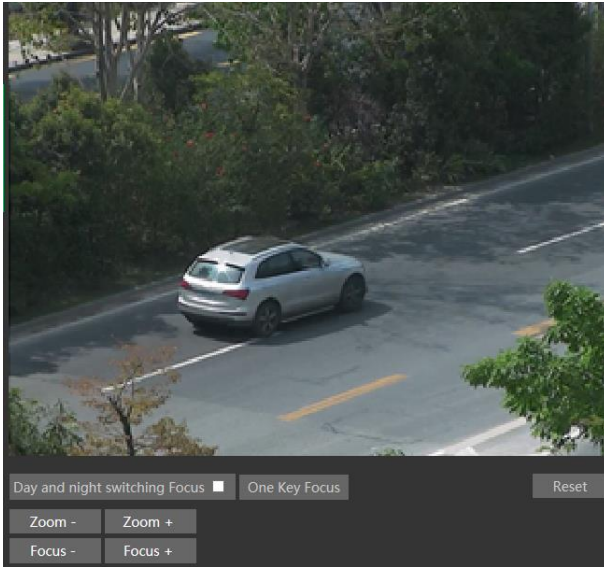
3.4 Alarm Configuration

3.4.1 Motion Detection

Go to Alarm→Motion Detection to set motion detection alarm.
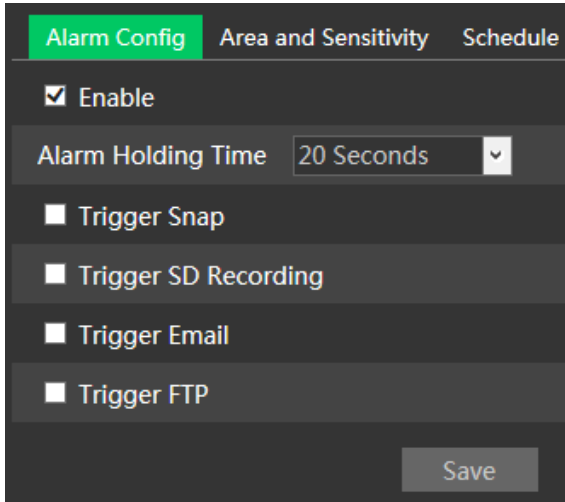
1. Check "Enable" check box to activate the function.

Alarm Out: if selected, this would trigger an external relay output that is connected to the camera on detecting a motion based alarm.

Trigger Snap: if selected, the system will capture images on motion detection and save the images on the micro-SD card.

Trigger SD Recording: if selected, video will be recorded on the micro-SD card on motion detection.

Trigger Email: if "Trigger Email" and "Attach Picture" are checked (email address must be set first in the Email configuration interface), the captured pictures and triggered event will be sent via e-mail.

Trigger FTP: if "Trigger FTP" and "Attach Picture" are checked, the captured pictures will be sent into FTP server address. Please refer to FTP configuration chapter for more details.

2. Set motion detection area and sensitivity. Click the "Area and Sensitivity" tab to go to the interface as shown below.
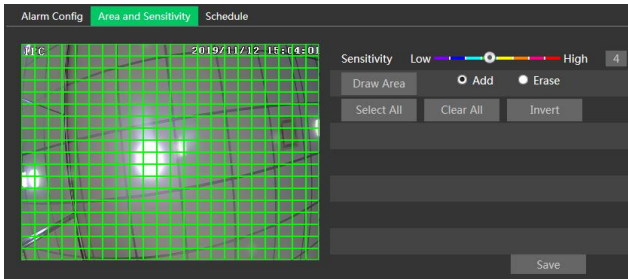
Move the "Sensitivity" scroll bar to set the sensitivity. Higher sensitivity value means that motion alarm will be triggered more easily.

Select "Add" and click "Draw Area". Drag the mouse to draw the motion detection area; Select "Erase" and drag the mouse to clear motion detection area.

After that, click the "Save" to save the settings.

3. Set the "Schedule" for motion detection. The schedule setup steps of the motion detection are the same as the schedule recording setup.

3.4.2 Other Alarms

● **Micro-SD card full**

1. Go to Config→Alarm→Anomaly→SD Card Full.
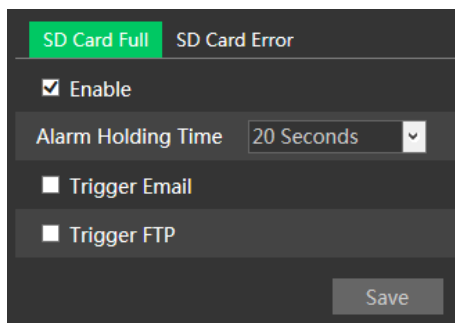
2. Click "Enable" and set the Alarm Holding Time.

3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

● **Micro-SD card error**

When there are some errors in writing the micro-SD card, the corresponding alarms will be triggered.

1. Go to Config→Alarm→Anomaly→SD Card Error as shown below.
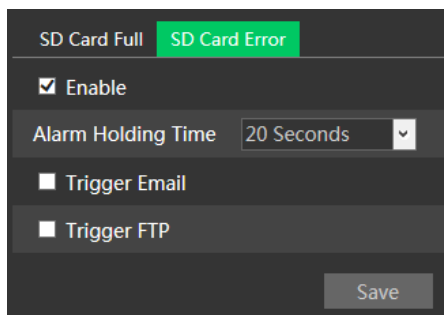
2. Click "Enable" and set the Alarm Holding Time.

3. Set alarm trigger options. Trigger alarm out, Email and FTP. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

● **IP address conflict**

This function is only available for some models.

1. Go to Config→Alarm→Anomaly→IP Address Collision as shown below.
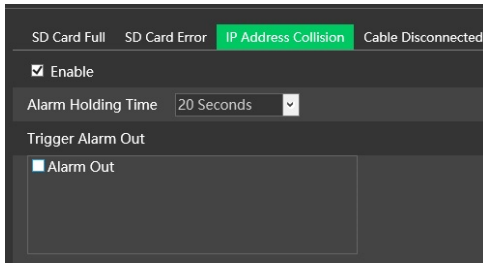
2. Click "Enable" and set the Alarm Holding Time.

3. Trigger Alarm Out. When the IP address of the camera is in conflict with the IP address of other devices, the system will trigger the alarm out.

● **Cable disconnected**

This function is only available for some models.

1. Go to Config→Alarm→Anomaly→Cable Disconnected as shown below.
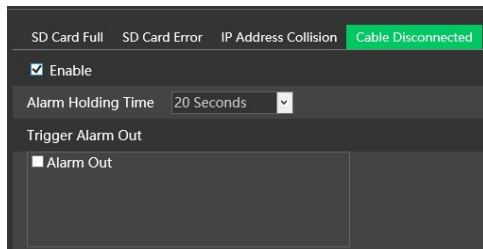
2. Click "Enable" and set the Alarm Holding Time.

3. Trigger Alarm Out. When the camera is disconnected, the system will trigger the alarm out.

3.4.3 Alarm In

This function is only available for some models.

To set sensor alarm (Alarm In): go to Config→Alarm→Alarm In interface as shown below.

1. Click "Enable" and set the Alarm Type, Alarm Holding Time and Sensor Name.
2. Set alarm trigger options. The setup steps are the same as motion detection.
Please refer to motion detection chapter for details.
3. Click "Save" button to save the settings.
4. Set the Schedule of the sensor alarm. The setup steps of the schedule are the same as the schedule recording setup.

3.4.4 Alarm Out

This function is only available for some models.
Go to Config→Alarm→Alarm Out.

Alarm Out Mode: Alarm linkage, Manual Operation, Day/Night Switch Linkage or Timing.
  - **Alarm Linkage**: after selecting this mode, set the Alarm Out Name, the Alarm Holding Time in the "Alarm Holding Time" pull down list box and the Alarm Type.

- **Manual Operation**: after selecting this mode, set the Alarm Type and click "Open" to trigger the alarm out immediately. Click "Close" to stop alarm output.

- **Day/Night Switch Linkage**: after selecting this mode, set the Alarm Type and then choose to Open or Close the alarm output when the camera switches to day mode or night mode.

- **Timing**: select the alarm type. Select "Add" and drag the mouse on the timeline to set the schedule of alarm out. Select "Erase" and drag the mouse on the timeline to delete the set time schedule. After the schedule is saved, the alarm out will be triggered in the specified time.

3.4.5 Alarm Server

Go to Alarm→Alarm Server interface as shown below.

Set the server address, port, heartbeat and heartbeat interval. When an alarm occurs, the camera will transfer the alarm event to the alarm server.

3.5 Event configuration

For more accuracy, here there are some recommendations for installation.
- Camera should be installed on stable surface, the vibrations can affect the accuracy of detection.
- Avoid pointing the camera at the reflective surfaces (like shiny floors, mirrors, glass, lake surfaces and so on).
- Avoid places that are narrow or have too much shadowing.
- Avoid scenario where the object's color is similar to the background color.
- At any time of day or night, please make sure the image of the camera is clear and with adequate light, avoiding overexposure or too much darkness on both sides.

For thermal models, the user must choose in the events menu "optical or thermal", to select on which sensor apply the function.
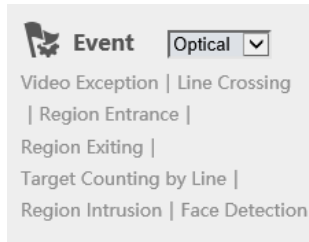
3.5.1 Exception

This function can detect changes in the surveillance environment affected by the external factors.
To set exception detection:
Go to Config→Event→Exception interface as shown below.
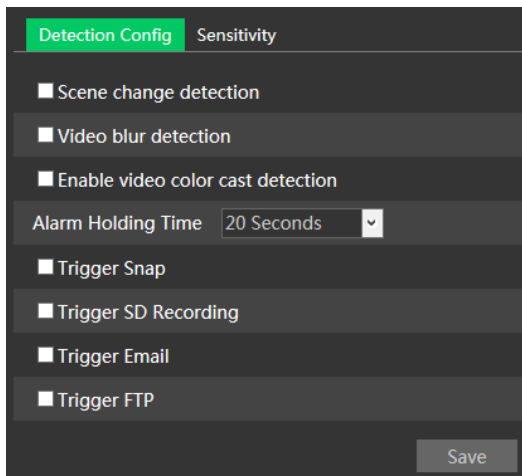
1. Enable the detection desired.

Scene Change Detection: alarm will be triggered if the scene change.

Video Blur Detection: alarm will be triggered if the video becomes blurry.

Enable Video Color Cast Detection: alarm will be triggered if the video becomes obscured.

2. Set the alarm holding time and alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

3. Click "Save" button to save the settings.

4. Set the sensitivity of the exception detection. Click "Sensitivity" tab to go to the interface as shown below.
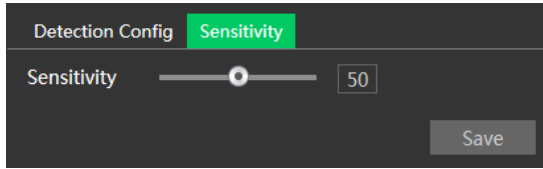
Drag the slider to set the sensitivity value or directly enter the sensitivity value in the textbox. Click "Save" button to save the settings.

※ **Camera configuration and surrounding area**

1. Auto-focus function should not been enabled for exception detection.

2. Not enable exception detection when light changes greatly in the scene.

3.5.2 Line Crossing

This function is only available for some models.

Line Crossing: alarm will be triggered if the target crosses the pre-defined alarm lines.

Go to Config→Event→Line Crossing interface as shown below.
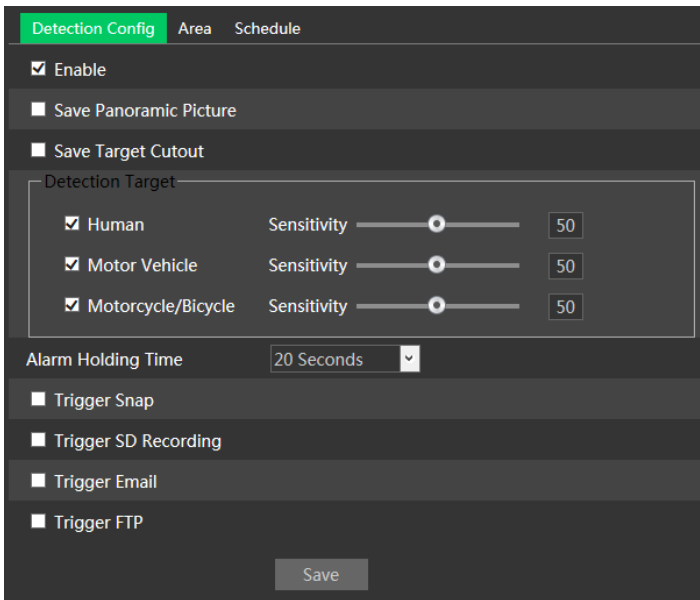
1. Enable line crossing alarm and select the snapshot type and the detection target.

Save Panoramic Picture: if it is enabled, the detected panoramic pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.

Save Target Cutout: if it is enabled, the detected target cutout pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.

Note: saving snapshots to the local PC shall enable "Local Smart Snapshot Storage" in the local config interface first. Saving snapshots to the micro-SD card shall install a micro-SD card and enable "Trigger Snap" first.

Detection Target

Human: select it and the alarm will be triggered if someone crosses the pre-defined alarm lines.

Motor Vehicle: select it and the alarm will be triggered if a vehicle with four or more wheels (eg. a car, bus or truck) cross the pre-defined alarm lines.

Motorcycle/Bicycle: select it and the alarm will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) cross the pre-defined alarm lines.

All of the three types of objects can be selected simultaneously. If no object/target is selected, alarm will not be triggered even if line crossing detection is enabled.

2. Set the alarm holding time.
3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.
4. Click "Save" button to save the settings.
5. Set the area and the sensitivity of the line crossing alarm. Click the "Area" tab to go

to the interface as shown below.

Set the alarm line number and direction. Up to 4 lines can be added.

Direction：A←→B, A→B or A←B. This indicates the direction of the intruder/vehicle that crossover the alarm line.

A←→B: the alarm will be triggered when the intruder/vehicle crossover the alarm line from B to A or from A to B.

A→B: the alarm will be triggered when the intruder/vehicle crossover the alarm line from A to B.

A←B: the alarm will be triggered when the intruder/vehicle crossover the alarm line from B to A.

Click the "Draw Area" button and then drag the mouse to draw a line in the image. Click the "Stop Draw" button to stop drawing. Click the "Clear" button to delete the lines. Click the "Save" button to save the settings.

6. Set the schedule of the line crossing alarm. The setup steps of the schedule are the same as the schedule recording setup.

※ **Camera configuration and surrounding area**

1. Auto-focus function should not be enabled for line crossing detection.

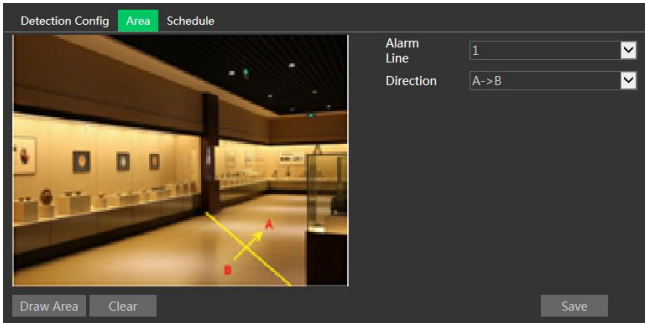2. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The environment brightness of the scenes shouldn't be too low.

3. Cameras should be mounted at a height of 2.8 meters or above.

6. Keep the mounting angle of the camera at about 45°.

7. The detected objects should not be less than 1% of the entire image and the largest sizes of the detected objects should not be more than 1/8 of the entire image.

6. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.

7. Adequate light and clear scenery are crucial for line crossing detection.

3.5.3 Region entrance

This function is only available for some models.
Region Entrance: alarms will be triggered if the target enters into the pre-defined areas.
Go to Config→Event→Region Entrance interface as shown below.
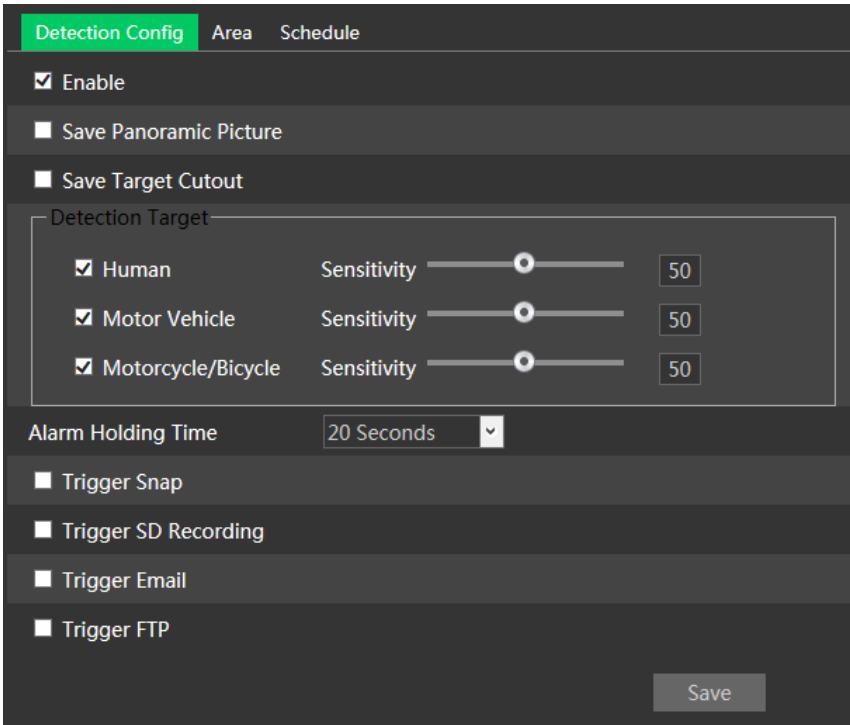
1. Enable region entrance detection and select the snapshot type and the detection target.
Save Panoramic Picture: if it is enabled, the detected panoramic pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.
Save Target Cutout: if it is enabled, the detected target cutout pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.
Note: saving snapshots to the local PC shall enable "Local Smart Snapshot Storage" in the local config interface first. Saving snapshots to the micro-SD card shall install a micro-SD card and enable "Trigger Snap" first.

Detection Target
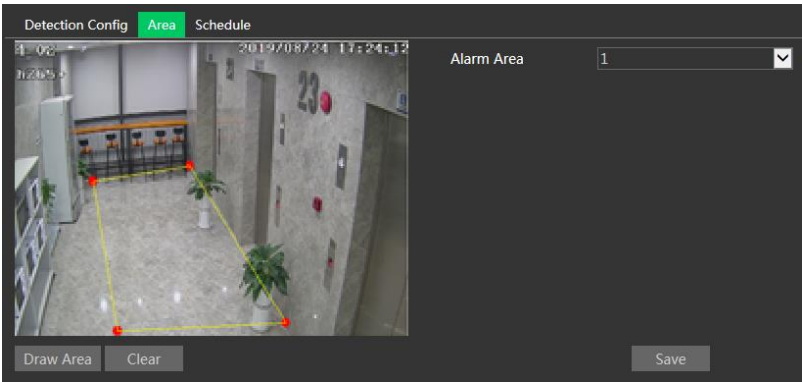**Human:** select it and the alarm will be triggered if someone crosses the pre-defined alarm lines.

Motor Vehicle: select it and the alarm will be triggered if a vehicle with four or more wheels (eg. a car, bus or truck) cross the pre-defined alarm lines.

Motorcycle/Bicycle: select it and the alarm will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) cross the pre-defined alarm lines.

All of the three types of objects can be selected simultaneously. If no object/target is selected, alarm will not be triggered even if line crossing detection is enabled.

2. Set the alarm holding time.

3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

4. Click "Save" button to save the settings.

5. Set the area and the sensitivity of the line crossing alarm. Click the "Area" tab to go to the interface as shown below.

Set the alarm area number on the right side. Up to 4 alarm areas can be added.

Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the "Stop Draw" button to stop drawing. Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings.

8. Set the schedule of the region entrance detection. The setup steps of the schedule are the same as schedule recording setup.
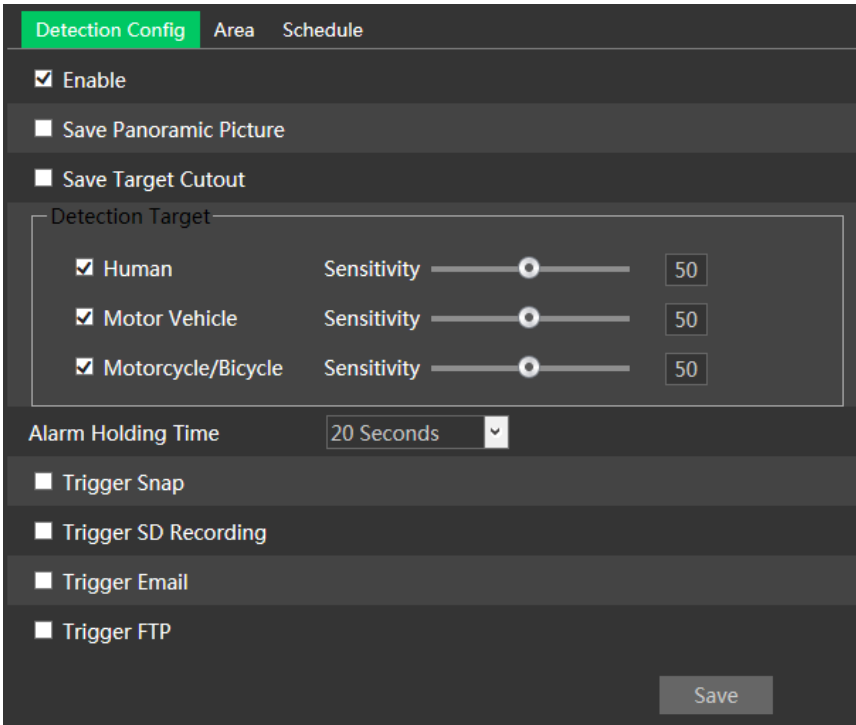
※ Camera configuration and surrounding area

The camera configuration and surrounding area are the same as Intrusion detection.

3.5.4 Region exiting

This function is only available for some models.

Region Exiting: alarms will be triggered if the target exits from the pre-defined areas.

Go to Config→Event→Region Exiting interface as shown below.

1. Enable region exiting detection and select the snapshot type and the detection target.

Save Panoramic Picture: if it is enabled, the detected panoramic pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.

Save Target Cutout: if it is enabled, the detected target cutout pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.

Note: saving snapshots to the local PC shall enable "Local Smart Snapshot Storage" in the local config interface first. Saving snapshots to the micro-SD card shall install a micro-SD card and enable "Trigger Snap" first.

Detection Target

Human: select it and the alarm will be triggered if someone crosses the pre-defined alarm lines.

Motor Vehicle: select it and the alarm will be triggered if a vehicle with four or more wheels (eg. a car, bus or truck) cross the pre-defined alarm lines.

Motorcycle/Bicycle: select it and the alarm will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) cross the pre-defined alarm lines.

All of the three types of objects can be selected simultaneously. If no object/target is selected, alarm will not be triggered even if line crossing detection is enabled.

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2. Set the alarm holding time.

3. Set alarm trigger options. The setup steps are the same as motion detection.
Please refer to motion detection chapter for details.

4. Click "Save" button to save the settings.

5. Set the area and the sensitivity of the line crossing alarm. Click the "Area" tab to go to the interface as shown below.

Set the alarm area number on the right side. Up to 4 alarm areas can be added.
Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the "Stop Draw" button to stop drawing. Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings.

6. Set the schedule of the region exiting detection. The setup steps of the schedule are the same as schedule recording setup.

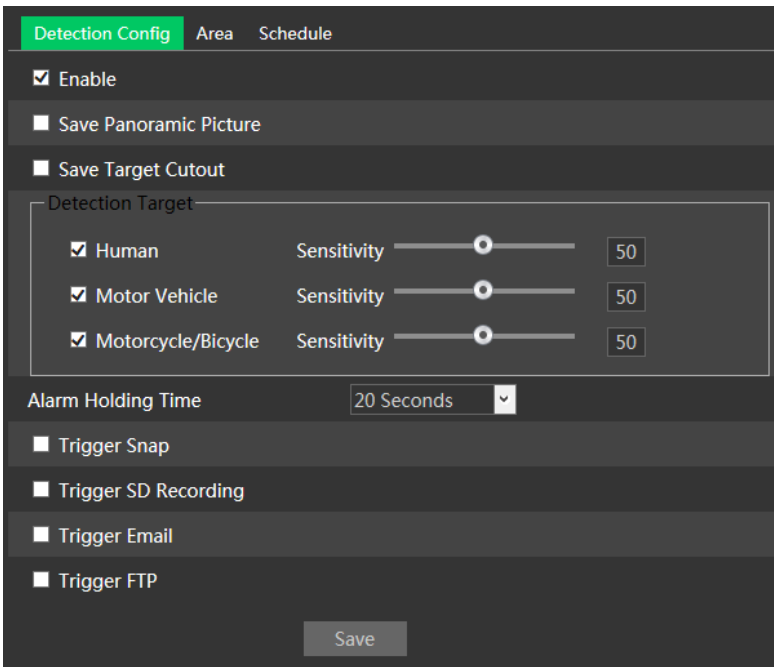### ※ **Camera configuration and surrounding area**

The camera configuration and surrounding area are the same as Intrusion detection.

3.5.5 Intrusion

This function is only available for some models.

Intrusion: alarm will be triggered if the target intrudes and loiters into the pre-defined areas.

Go to Config→Event→Intrusion interface as shown below.

1. Enable intrusion alarm and select the snapshot type and the detection target.

Save Panoramic Picture: if it is enabled, the detected panoramic pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.

Save Target Cutout: if it is enabled, the detected target cutout pictures will be captured and saved to the local PC or micro-SD card when there are targets detected.

Note: saving snapshots to the local PC shall enable "Local Smart Snapshot Storage" in the local config interface first. Saving snapshots to the micro-SD card shall install a micro-SD card and enable "Trigger Snap" first.

Detection Target

Human: select it and the alarm will be triggered if someone crosses the pre-defined alarm lines.

Motor Vehicle: select it and the alarm will be triggered if a vehicle with four or more wheels (eg. a car, bus or truck) cross the pre-defined alarm lines.

Motorcycle/Bicycle: select it and the alarm will be triggered if a vehicle with two wheels (eg. a motorcycle or bicycle) cross the pre-defined alarm lines.

All of the three types of objects can be selected simultaneously. If no object/target is selected, alarm will not be triggered even if line crossing detection is enabled.

2. Set the alarm holding time.
3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection chapter for details.

4. Click "Save" button to save the settings.

5. Set the area and the sensitivity of the line crossing alarm. Click the "Area" tab to go to the interface as shown below.

Set the alarm area number on the right side. Up to 4 alarm areas can be added. Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the "Stop Draw" button to stop drawing. Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings.

6. Set the schedule of the intrusion detection. The setup steps of the schedule are the same as schedule recording setup.

※ Camera configuration and surrounding area

1. Auto-focus function should not be enabled for Intrusion detection.

2. Avoid the scenes with many trees or the scenes with various light changes (like many flashing headlights). The environment brightness of the scenes shouldn't be too low.

3. Cameras should be mounted at a height of 2.8 meters or above.

9.   Keep the mounting angle of the camera at about 45°.

10. The detected objects should not be less than 1% of the entire image and the largest sizes of the detected objects should not be more than 1/8 of the entire image.

6. Make sure cameras can view objects for at least 2 seconds in the detected area for accurate detection.

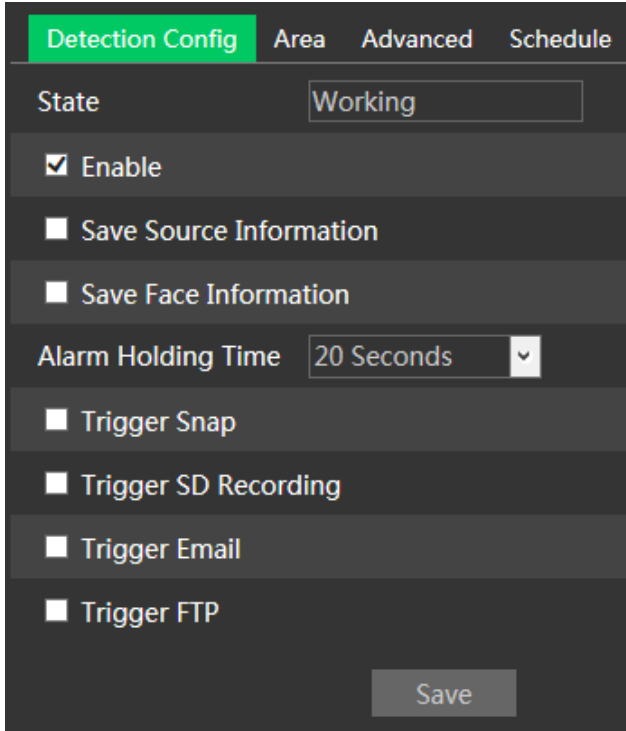7. Adequate light and clear scenery are crucial for intrusion detection.

3.5.6 Face detection

This function is only available for some models.

Face detection function detect the face appearing in the surveillance scene. Alarm will be triggered when a face is detected.

The setting steps are as follows:

1. Go to Config→Event→Face Detection as shown below.


2. Enable the face detection function.

Save Source Information: if checked, the whole picture will be saved to the local PC or micro-SD card when detecting a face.

Save Face Information: if checked, the captured face picture will be saved to the local PC or micro-SD card when detecting a face.

Note: to save images to the local PC, please enable the local smart snapshot storage first (Config→System→Local Config). To save images to the micro-SD card, please install a micro-SD card and enable "Trigger Snap" first.

3. Set the alarm holding time and the alarm trigger options. The alarm trigger setup steps are the same as motion detection setup.

4. Set the alarm detection area.
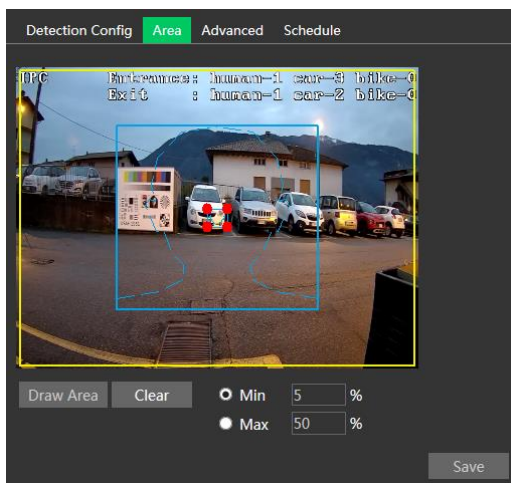
Click "Draw Area" and drag the border lines of the rectangle to modify its size. Move the rectangle to change its position. Click "Stop Draw" to stop drawing the area. Click "Clear" to clear the area. Then set the detectable face size by defining the maximum value and the minimum value (the default size range of a single face image occupies from 3% to 50% of the entire image).

5.   Advanced settings. Choose the Snapshot Interval and the Snapshot Number as needed to avoid capturing multiple similar pictures in a very short period of time.
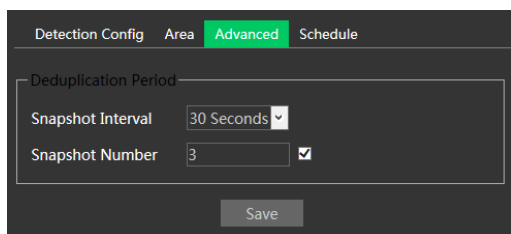

Snapshot Interval: if eg. 5 seconds is selected, the camera will capture the same target once every 5 seconds during its continuous tracking period.
Snapshot Number: if the snapshot number is enabled and set (eg. 3), the camera will capture the same target once every 5 seconds and it will capture this target 3 times at most during its continuous tracking period. If the snapshot number is disabled, the camera will capture the same target once every 5 seconds until the target disappears in the detected area.

6.   Set the schedule of the face detection. The setup steps of the schedule are the same as schedule recording setup.

※ Camera configuration and surrounding area

1. Cameras must be installed in the area with stable and adequate light sources.

2. The installation height ranges from 2.0m to 3.5m, adjustable according to the focal-length and object distances.

3. The mounting angle of the camera shall be less than or equal to 15°.
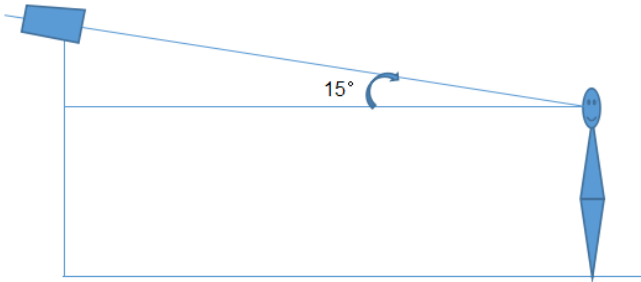

4. The object distance depends on the focal-length of the lens mounted in the camera.

5. To ensure the accuracy of face detection, the captured faces are only allowed to deviate less than 30° leftward or rightward or 20° upward or downward.

6. The following scenes are not applicable, like crowded scenes (airport, railway station, square, etc), backlight scenes, crossroads and so on.

3.5.7 Object removal

Alarms will be triggered when the objects removed from or left in the pre-defined area. To set object removal:

Go to Config→Event→Object Removal interface as shown below.
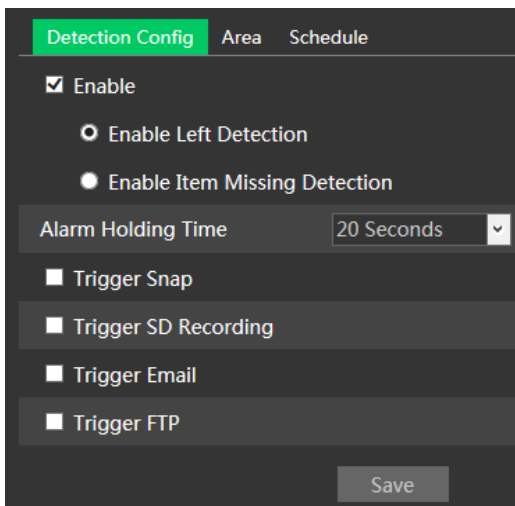
1. Enable object removal detection and then select the detection type.

Enable Left Detection: alarm will be triggered if there are items left in the pre-defined area.

Enable Item Missing Detection: alarm will be triggered if there are items missing in the pre-defined area.

2. Set the alarm holding time and alarm trigger options. The setup steps are the same as motion detection.

3. Click "Save" to save the settings.

4. Set the alarm area of the object removal detection. Click the "Area" tab to go to the interface as shown below.
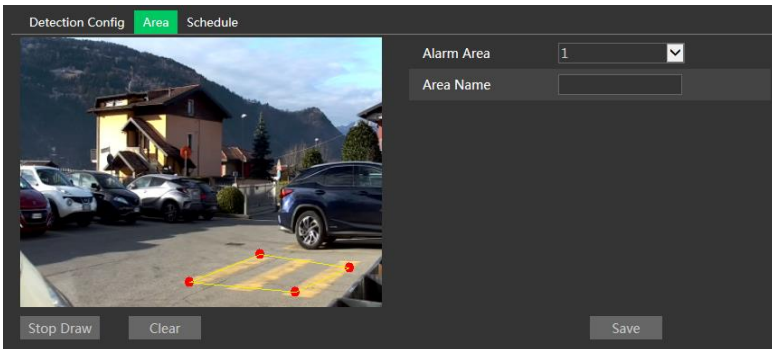
Set the alarm area number and then enter the desired alarm area name. Up to 4 alarm areas can be added. Click "Draw Area" and then select the area where you want to set as the alarm area in the image (the alarm area should be a closed area). Click "Stop Draw" to stop drawing. Click "Clear" to delete the alarm area. Click "Save" to save the settings.

5. Set the schedule of the object removal detection. The setup steps of the schedule are the same as the schedule recording setup.

※ Camera configuration and surrounding area

1. The detected objects should not be less than 1/20 to 1/3 of the entire image.

2. Make sure cameras can view objects for at least from 3 to 5 seconds.

3. The defined area cannot be covered frequently and continuously (i.e. people and traffic).

4. The drawn frame must be very close to the margin of the object to enhancing the sensitivity and accuracy of the detection.

5. Not enable object removal detection with scenes with various light changes.

6.Not enable object removal detection if there are complex and dynamic environments in the scene.

8. Adequate light and clear scenery are crucial for object removal detection.

3.5.8 **Heat Map**

This function allows you to monitor the passage of a selected area and consult the areas with more movement.

1. Enable the function and draw the area
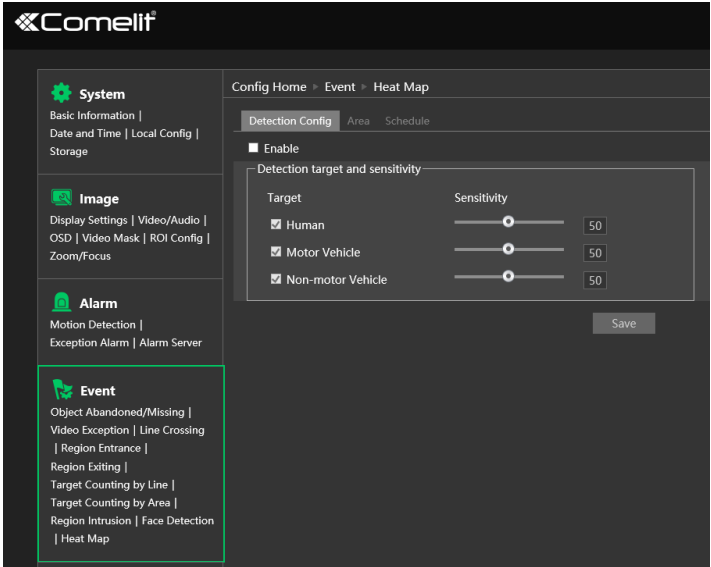
2. Consult the result in the statistics menu

3.5.9 **People counting**

This function is to calculate the number of the people entering or exiting from the detected area through detecting, tracking and counting the head shapes of the people. The setup steps are as follows.
1. Go to Config→Event→People Counting.
2. Enable the people counting detection.
3. Set "Detection Sensitivity", "Entrancing Threshold", "Departing Threshold", "Staying Threshold", "Counting Period", "Alarm Holding Time" and so on.

Counting Period: all, daily, weekly or monthly.

Counting Reset: the number of people counting will be cleared and the counting period will restart by clicking "Reset" button.

If the number of people exceeds the pre-defined threshold value (the default value is 500; the maximum value is 655350), alarm will be triggered.

When someone passes the detected area, it will take 1 ~5 seconds to complete the detection of people counting according to different scenes.
4. Set alarm trigger options. The setup steps are the same as motion detection.

Alarm Config | Area

☑ Enable

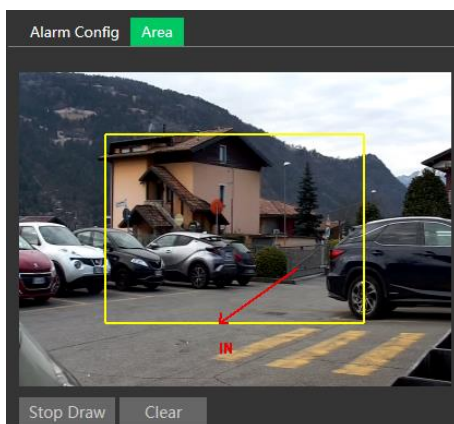| Detection Sensitivity | Mid |
Entrancing Threshold	1000
Departing Threshold	1000
Staying Threshold	500
Counting Period	Always
Counting Reset	Reset
Alarm Holding Time	20 Seconds

■ Trigger Snap
■ Trigger SD Recording
■ Trigger Email
■ Trigger FTP

Save

5.   Set the area of the people counting. Click the "Area" tab to go to the area setting interface.

Click "Draw Area" and drag the mouse to draw a rectangle area. Drag the four border lines or the four corners of the rectangle to modify its size. Click "Stop Draw" to stop drawing the area. Click "Clear" to clear the area. Click and drag the arrow or the other end of the arrow line to change the people entrance direction. The size range of the image (width or height) shall occupy from 1/5 to 1/2 of the drawn detection area. The direction of the red arrow is entrance.

After the people counting detection is set successfully, go back to the live view interface to view the counting results. Please refer to the following picture.

※ Camera configuration and surrounding area

1. Cameras must be installed in the area with stable and adequate light sources.
2. The background color (i.e. floor color) should be light color.
3. The lens of the camera should be adjusted straight down to ensure that the whole head of the people can be captured.
4. The installation height of the camera depends of the focal length of the lens. The entrance/exit in the image should take up over a half of the width of the entire image and the head of a single person should occupy about 1/5 of the height of the entire image. Remember keeping a certain space on both sides to let the entrance/exit lie in the center of the entire image.

The recommending height of installation as shown below:

Lens	Mounting height
2.8mm	2.6 ~ 3.2m
3.3mm	3.0 ~ 4.0m
3.6mm	3.3 ~ 5.0m

5. Various changeable lights will disturb the people counting and the dark scenes will reduce the accuracy of counting.
6. If someone is moving at a high speed (passing the detected area within 2 seconds), it may result in detection failure. However, if someone is moving at a low speed, staying more than 15 seconds in the detected area, the camera will give up tracing.
7. If the cloth colors of people are similar with the color of the background, it may cause detection failure.
8. More headwear which probably conceal the head features will lead to detection failure.

3.5.10 Audio Exception

Alarms will be triggered when the abnormal sound is detected in the surveillance scene, such as the sudden increase/decrease of the sound intensity.

To set audio exception detection:

1. Go to *Alarm→Audio Exception* interface as shown below.

2. Enable audio exception.

3. Select the audio exception detection types.

Sudden Increase of Sound Intensity Detection: Detect sudden increase of sound intensity. If enabled, sensitivity and sound intensity threshold are configurable. Alarms will be triggered when the detected sound intensity exceeds the sound threshold.

Sensitivity: The higher the value is, the easier the alarm will be triggered.

Sound Intensity Threshold: It is the sound intensity reference for the detection. The lower the value is, the easier the alarm will be triggered. It is recommended to set as the average sound intensity in the environment. The louder the environment sound, the higher the value should be. Please adjust it according to the actual environment condition.

Sudden Decrease of Sound Intensity Detection: Detect sudden decrease of sound intensity. Please set the sensitivity as needed. The higher the value is, the easier the alarm will be triggered.

Real-time audio graphic:

Red wavy line stands for the current detected sound intensity.

Navy blue line stands for the environment (background) sound intensity.

Green line stands for the sound intensity threshold.

In order to reduce false alarm, it is recommended to set the sensitivity and sound intensity threshold according to the real-time audio graphic.

Real Time Audio

858
Sound Intensity: 74
Background Sound Intensity: 68
Sound Intensity Threshold: 50
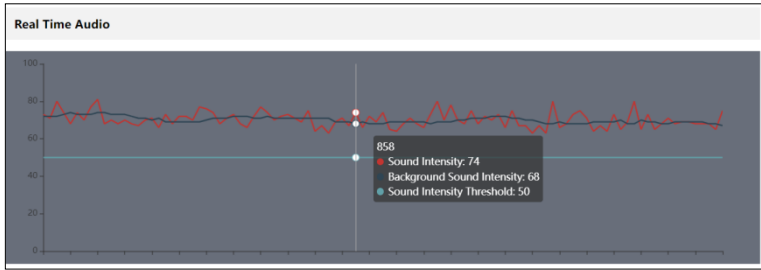
4. Set the alarm holding time and alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection section for details.
5. Set the schedule of the audio exception detection. The setup steps of schedule are the same as the schedule recording (See Schedule Recording).
Note: The alarm recording type triggered by audio exception event is "Common". In the search interface, you can search the recorded files of audio exception by selecting the "Common" event.

3.5.11 Loitering Detection

Loitering Detection: when someone entering and loitering in a pre-defined area exceeds the threshold, alarms will be triggered until the object leaves this area.
Go to *Event→Loitering Detection* interface as shown below. The setting steps are as follows:
1. Enable loitering detection and select the snapshot type.

2. Set sensitivity, time threshold and alarm holding time.

Sensitivity: The higher the value is, the easier the alarm can be triggered.

Time Threshold: the time that a person is allowed to stay in the area. If a person staying and moving in the specified area exceeds the threshold, alarms will be triggered until this person leaves or stops moving.
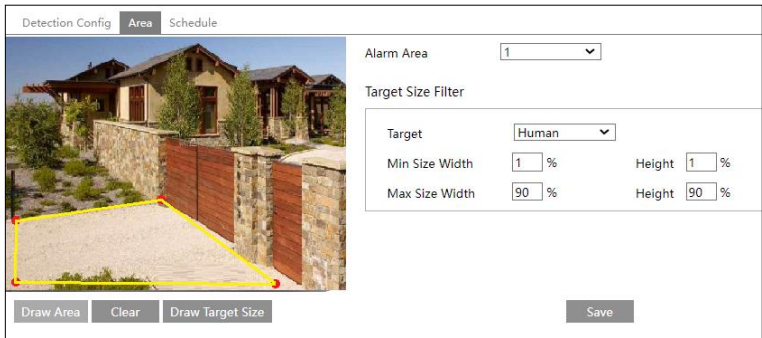
For example: Set the threshold to "60seconds; when a person staying and moving in the specified area exceeds 60seconds, an alarm is triggered and continues. 2 minutes later, this person stops moving in the specified area, and then the alarm stops. However, the alarm will continue once this person moves again in the specified area unless the person leaves this area.

Alarm Holding Time: it is the time that the alarm extends for after an alarm ends.

3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection section for details.

4. Click the "Save" button to save the settings.

5. Set alarm areas and target size filter. Click the "Area" tab to go to the interface as shown below.

Select the alarm area number on the right side. Four alarm areas can be added. Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings.

Target size filter setup: The setup steps of the target size filter are the same as line crossing target size filter setup (See Line Crossing for details).

6. Set the schedule of loitering detection. The setup steps of the schedule are the same as schedule recording setup (See Schedule Recording).

※ **Configuration requirements of camera and surrounding area**

1. Avoid enabling this function in complex scenes, such as a scene with a large flow of people and vehicles.

2. Other requirements are similar to line crossing detection. Please refer to Configuration requirements of camera and surrounding area of line crossing detection for details.

3.5.12 Illegal Parking Detection

Illegal Parking Detection: when a vehicle (like a car, truck, motorcycle, etc.) staying in a no-parking zone exceeds the threshold, alarms will be triggered until the vehicle is driven away.

Go to *Event→Illegal Parking Detection*. The setting steps are as follows:

1. Enable illegal parking detection and select the snapshot type.

2. Set the detection target, sensitivity, time threshold and alarm holding time.

Motor Vehicle: a vehicle with four or more wheels

Motorcycle/Bicycle Vehicle: a vehicle with two wheels (eg. a motorcycle or bicycle)

Sensitivity: the higher the value is, the easier the alarm can be triggered.

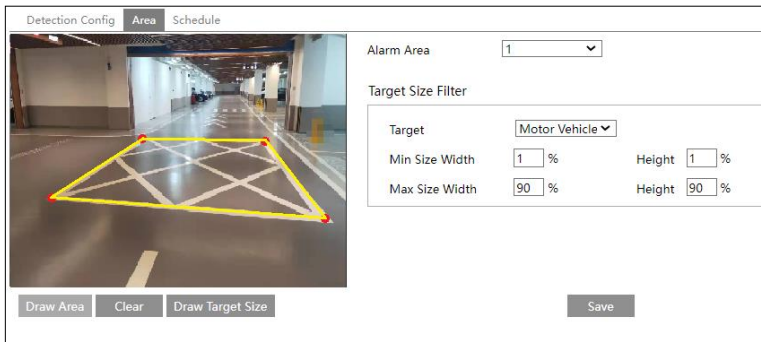**Time Threshold:** the time that a vehicle is allowed to stay in the specified area. If a vehicle staying in the area exceeds the threshold, alarms will be triggered until it is driven away. For example, the time threshold is set to 30s. When the system detects a vehicle stopping in the set no-parking zone, it will start counting. Alarms will be triggered after it stays for more than 30s. And the illegal parking alarm will not stop until the vehicle is driven away from the non-parking zone.

Alarm Holding Time: it is the time that the alarm extends for after the overstaying vehicle leaves.

3. Set alarm trigger options. The setup steps are the same as motion detection. Please refer to motion detection section for details.

4. Click the "Save" button to save the settings.

5. Set alarm areas and target size filter. Click the "Area" tab to go to the interface as shown below.

Select the alarm area number on the right side. Four alarm areas can be added. Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings.

Target size filter setup: The setup steps of the target size filter are the same as line crossing target size filter setup (See Line Crossing for details).

6. Set the schedule of loitering detection. The setup steps of the schedule are the same as schedule recording setup (See Schedule Recording).

※ **Configuration requirements of camera and surrounding area**

1. Avoid enabling this function in complex scenes, such as the scene with a large flow of people and vehicles.

2. Other requirements are similar to line crossing detection. Please refer to Configuration requirements of camera and surrounding area of line crossing detection for details.

3.5.13 Video Metadata

Video Metadata: Human, motor vehicle and motorcycle/bicycle in the video can be classified, counted and captured and the relevant features can be extracted and displayed on the live interface.

Click *Config→Event→Enable Event*. Select the attribute analysis event and then save the setting. After the camera restarts successfully, you can view the video metadata menu.

Go to *Config→Event→Video Metadata* interface. The setting steps are as follows:

1. Enable video metadata and select the snapshot type and the detection target.
   Save Original Picture to SD Card: If it is enabled, the detected original pictures will be captured and saved to the SD card when the targets enter the pre-defined areas.

   Save Target Picture to SD Card: If it is enabled, the detected target cutout pictures will be captured and saved to the SD card when the targets enter the pre-defined areas.

   Detection target: Human, motor vehicle and motorcycle/bicycle. All of the three types of objects can be selected simultaneously.

   Counting Reset: You can choose to reset the counting daily, weekly or monthly. The current number of people/cars/bikes counted will be cleared immediately when you click the "Reset" button.

2. Check "Trigger FTP" as needed
3. Set the detection area, blocked area and target size filter.
   Detection Area: 4 detection areas can be set. Targets that enter the pre-defined detection area will be counted and captured.

   Blocked Area: 4 blocked areas can be set. Targets that enter the pre-defined blocked area will not be counted and captured.
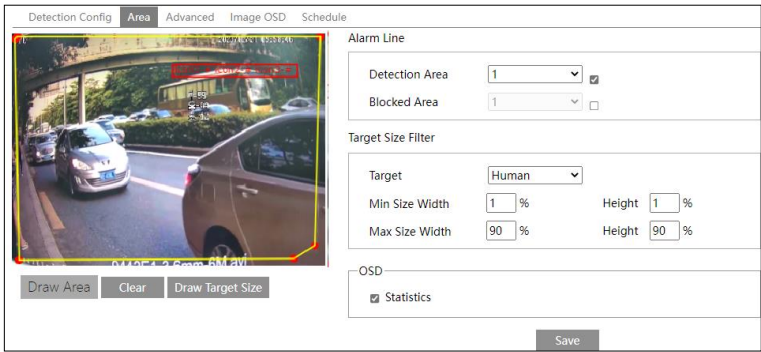
You need to set the detection area and blocked area separately.

To set detection area:

Check the checkbox of detection area and select the number and to set the detection area.

Click the "Draw Area" button and then click around the area where you want to set as the alarm area in the image on the left side (the alarm area should be a closed area). Click the "Clear" button to delete the alarm area. Click the "Save" button to save the settings.

To set blocked area:

Check the checkbox of blocked area and select the number and to set the blocked area. The setting steps are the same as detection area settings.

Target size filter setup: The setup steps of the target size filter are the same as line crossing target size filter setup (See Line Crossing for details).

Statistics: If enabled, you can see the statistical information of human, motor vehicle and motorcycle/bicycle in the live view interface.

The statistical OSD information can be customized as needed.

4.   Advanced settings. Click the "Advanced" tab to enter the advanced setting interface. Select the recognition mode as needed. Interval mode and instant mode can be selectable.

   Interval mode: the system will push the captured picture to the live interface according to the set interval time.

   Instant mode: the system will push the captured picture immediately once a target is detected.

5.   Select the attribute information of the target. Click "Image OSD" and then select the relevant attribute information. When the target is detected, the information you select will be displayed in the attribute display area. See Video Metadata View for details.

6.   Set the schedule of video metadata function. The setup steps of the schedule

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are the same as schedule recording setup (See Schedule Recording).

After all settings above are configured, return to the live interface to view the captured pictures and features.

➢ **Video Metadata View**

In the live interface, click to view the following smart snapshots.

Human information will be shown on the right panel.

Motor vehicle and motorcycle/bicycle information will be shown on the left panel.

Click the captured human picture to view the detailed information as shown below.
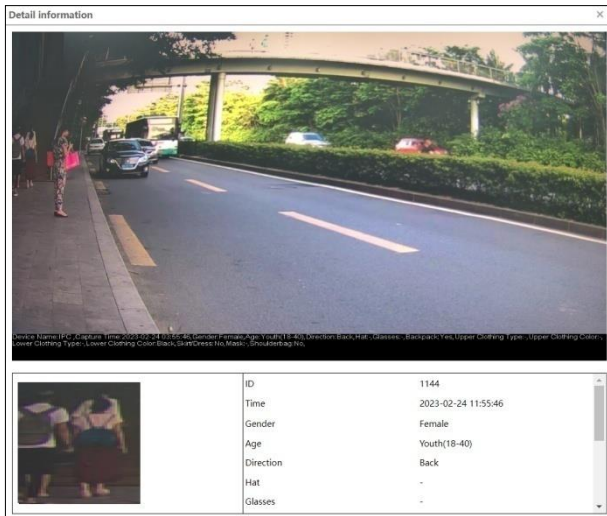
Click the captured vehicle picture to view the detailed information as shown below.
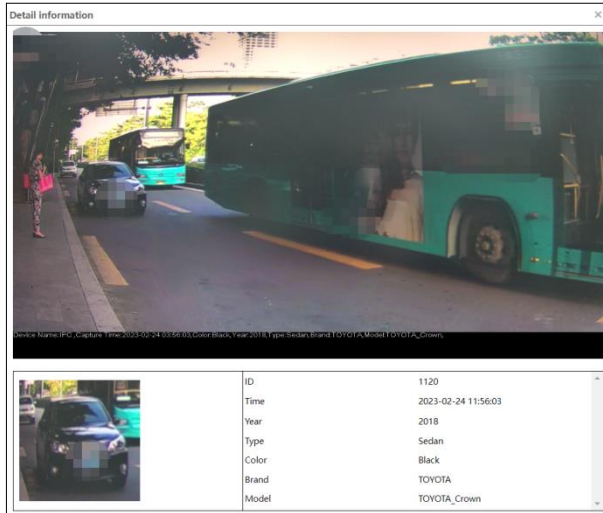
A maximum of 1,000 captured pictures can be shown on the live interface. If exceeded, the previous captured pictures will be overwritten.

3.6 Network Configuration

3.6.1 TCP/IP

Go to Config→Network→TCP/IP interface as shown below.

Use IP address (IPv4 for example). There are two options for IP setup: "Obtain an IP address automatically" (by DHCP) and "Use the following IP address".
Test: test the effectiveness of the IP address by clicking the button.
Use PPPoE. Click the "PPPoE Config" tab to go to the interface as shown below.
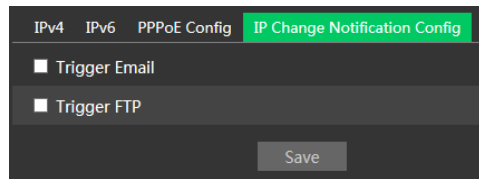
Enable PPPoE and then enter the user name and password from your ISP.

Either methods of network connection can be used. If PPPoE is used to connect internet, the camera will get a dynamic WAN IP address. This IP address will change frequently. To be notified, the IP change notification function can be used.

Click "IP Change Notification Config" to go to the interface as shown below.

Trigger Email: when the IP address of the device change, the new IP address will be sent to the email address that has been set up.

Trigger FTP: when the IP address of the device change, the new IP address will be sent to FTP server that has been set up.

3.6.2 Port

Go to Config→Network→Port interface as shown below. HTTP port, Data port and RTSP port can be set.
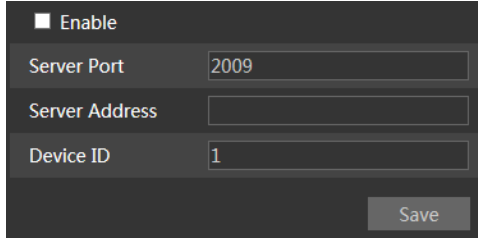
HTTP Port: default is 80.
HTTPS Port: default is 443.
Data Port: default is 9008.
RTSP Port: default is 554.

3.6.3 Server

This function is used for connecting the Comelit Advance VMS.
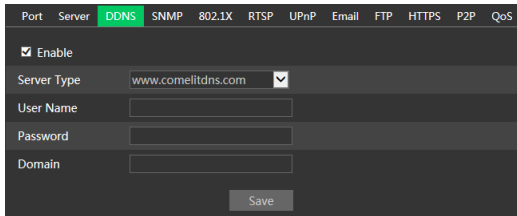
1. Check "Enable".
2. Check the IP address and port of the transfer media server in the Comelit Advance VMS. Then enable the auto report in the Comelit Advance VMS when adding a new device. Next, enter the remaining information of the device in the Comelit Advance VMS. After that, the system will automatically allot a device ID. Please check it in the Comelit Advance VMS.
3. Enter the above-mentioned server address, server port and device ID in the corresponding boxes. Click the "Save" button to save the settings.

3.6.4 DDNS

If the camera is set up with a DHCP connection, DDNS should be set.
1. Go to Config→Network→ DDNS.

2. Apply for a domain name. Take www.comelitdns.com for example.
Enter www.comelitdns.com in the IE address bar to visit its website. Choose your language and then click the "Register product" button.

3.6.5 SNMP

This function is only available for some models.
To get camera status, parameters and alarm information and remotely manage the camera, the SNMP function can be used. Before using SNMP, please install an SNMP management tool and set the parameters of the SNMP, such as SNMP port, trap address.

1. Go to Config→Network→SNMP.

SNMP v1/v2	
■ Enable SNMPv1	
■ Enable SNMPv2	
Read SNMP Community	public
Write SNMP Community	private
Trap Address	192.168.226.201
Trap Port	162
Trap community	public

SNMP v3	
■ Enable SNMPv3	
Read User Name	public
Security Level	auth, priv
Authentication Algorithm	⦿ MD5 ○ SHA
Authentication Password	••••••••
Private-key Algorithm	⦿ DES ○ AES
Private-key Algorithm	••••••••
Write User Name	private
Security Level	auth, priv
Authentication Algorithm	⦿ MD5 ○ SHA
Authentication Password	••••••••
Private-key Algorithm	⦿ DES ○ AES
Private-key Algorithm	••••••••

Other Settings	
SNMP Port	161

2. Check the corresponding version checkbox (Enable SNMPv1, Enable SNMPv2, Enable SNMPv3) according to the version of the SNMP software that will be used.
3. Set the values for "Read SNMP Community", "Write SNMP Community", "Trap Address", "Trap Port" and so on. Please make sure the settings are the same as that of the SNMP software.
Note: please use the different version in accordance with the security level you required. The higher the version is, the higher level of the security is.

3.6.6 802.1x

If it is enabled, the camera's data can be protected. When the camera is connected to the network protected by the IEE802.1x, user authentication is needed.

To use this function, the camera shall be connected to a switch supporting 802.1x protocol. The switch can be reckoned as an authentication system to identify the device in a local network. If the camera connected to the network interface of the switch has passed the authentication of the switch, it can be accessed via the local network.

Protocol Type and EAPOL Version: please use the default settings.

Username and Password: the Username and the Password must be the same with the username and password applied for and registered in the authentication server.

3.6.7 RTSP

Go to Config→Network→RTSP.

Select "Enable" to enable the RTSP function.

Port: access port of the streaming media (default is 554).

Address: the RTSP address (unicast) format that can be used to play the stream in a media player.

Multicast Address

Main stream: the address format is

  rtsp://IP address: rtsp port/profile1?transportmode=mcast

Sub stream: the address format is

  rtsp://IP address: rtsp port/profile2?transportmode=mcast

Third stream: the address format is

  rtsp://IP address: rtsp port/profile3?transportmode=mcast

Audio: by entering the main/sub stream address in the VLC player, the video and audio will play automatically.

If "Allow anonymous login…" is checked, there is no need to enter the username and password to view the video.

If "auto start" is enabled, the multicast received data should be added into a VLC player to play the video.

Note:1. This camera support local play through a VLC player. Enter the RTSP address (unicast or multicast, eg. rtsp://192.168.226.201:554/profile1?transportmode=mcast) in the VLC player to realize the simultaneous play with the web client.

2. The IP address mentioned above cannot be IPv6.
3. Avoid the use of the same multicast address in the same local network.
4. When playing the video through the multicast streams in a VLC player, please pay attention to the mode of the VLC player. If it is set to TCP mode, the video cannot be played.
5. If the coding format of the video of the main stream is MJPEG, the video may be disordered at some resolutions.

3.6.8 UPNP

If this function is enabled, the camera can be quickly accessed through the LAN.
Go to Config→Network→UPnP. Enable UPNP and then enter UPnP name.

Enable	
UPnP Name	
	Save
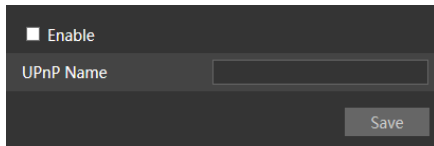
3.6.9 Email

If you need to trigger Email when an alarm happens or IP address is changed, please set the Email here first.
Go to Config→Network →Email.

Sender Address: sender's e-mail address.

Username and Password: sender's username and password.

Server Address: SMTP IP address or hostname.

Select the secure connection type at the "Secure Connection" pull-down list according to what's required.

SMTP Port: SMTP port.

Send Interval(S): time interval of sending email. For example, if it is set to 60 seconds and multiple motion detection alarms are triggered within 60 seconds, they will be considered as only one alarm event and only one email will be sent. If one motion alarm event is triggered and then another motion detection alarm event is triggered after 60 seconds, two emails will be sent. When different alarms are triggered at the same time, multiple emails will be sent separately.

Click the "Test" button to test the connection of the account.

Recipient Address: receiver's e-mail address.

3.6.10 FTP

After an FTP server is set up, captured pictures from events will be uploaded to the FTP server.

Go to Config→Network →FTP.
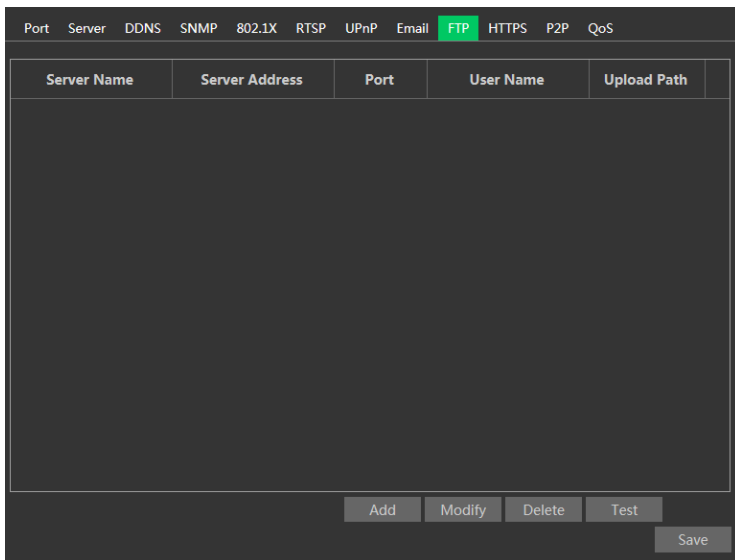
Server Name: name of the FTP server.
Server Address: IP address or domain name of the FTP server.
Upload Path: directory where files will be uploaded.
Port: port of the FTP server.
Use Name and Password: Username and Password that are used to login into the FTP server.

3.6.11 HTTPS

HTTPs provides authentication of the web site and protects user privacy.
Go to Config Config→Network→HTTPS as shown below.
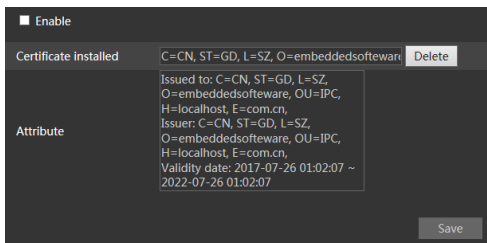
There is a certificate installed by default as shown above. Enable this function and save it. Then the camera can be accessed by entering **https://IP address:https port** via the web browser (eg. https://192.168.1.150:443).
A private certificate can be created if users don't want to use the default one. Click "Delete" to erase the default certificate. Then the following interface will be displayed.
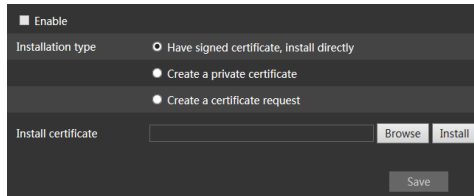
* If there is a signed certificate, click "Browse" to select it and then click "Install" to install it.
* Click "Create a private certificate" to enter into the following creation interface.
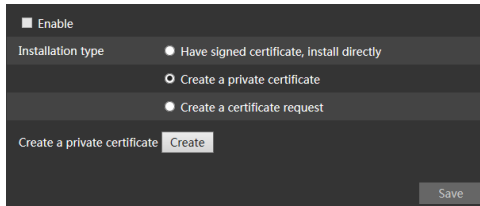
Click the "Create" button to create a private certificate. Enter the country (only two letters available), domain (camera's IP address/domain), validity date, password, province/state, region and so on. Then click "OK" to save the settings.
* Click "Create a certificate request" to enter into the following interface.
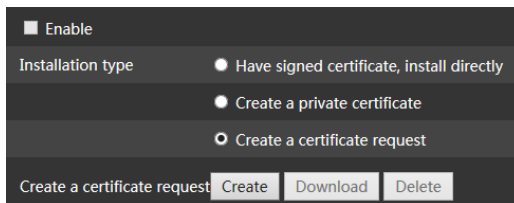
Click "Create" to create the certificate request. Then download the certificate request and submit it to the trusted certificate authority for signature. After receiving the signed certificate, import the certificate to the device.

3.6.12 QoS

QoS (Quality of Service) function is used to provide different quality of services for different network applications. With insufficient bandwidth, the router or switch will sort the data streams and transfer them according to their priority to solve the network delay and network congestion by using this function.
Go to Config→Network→QoS.

Video/Audio DSCP: the range is from 0 to 63.
Alarm DSCP: the range is from 0 to 63.
Manager DSCP: the range is from 0 to 63.
The higher the number is, the higher the priority is.

3.7 Security configuration

3.7.1 User configuration

Go to Config→Security→User interface as shown below.

Add user:
1. Click the "Add" button to pop up the following textbox.

2. Enter user name in "User Name" textbox.
3. Enter letters or numbers in "Password" and "Confirm Password" textbox.
4. Choose the user type. Administrator has all permissions. Normal user can only view the live video. Advanced user has the same permissions as an Administrator except for user management, backup settings, factory reset, and upgrading the firmware.
5. Enter the MAC address of the PC in "Bind MAC" textbox.
If this option is enabled, only the PC with the specified MAC address can access the camera for that user.
6. Click the "OK" button and then the new added user will be displayed in the user list.

Modify user:
1. Select a user to modify password and MAC address if necessary in the user

configuration list box.

2. The "Edit user" dialog box pops up by clicking the "Modify" button.
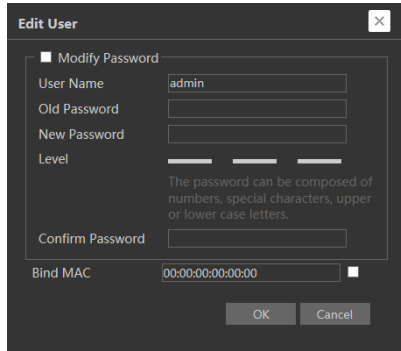
3. Enter the old password of the user in the "Old Password" text box.

4. Enter the new password in the "New password" and "Confirm Password" text box.

5. Enter computer's MAC address as necessary.

6. Click the "OK" button to save the settings.

Note: to change the access level of a user, the user must be deleted and added again with the new access level.

Delete user:

1. Select the user to be deleted in the user configuration list box.

2. Click the "Delete" button to delete the user.

Note: the default administrator account cannot be deleted.

3.7.2 Online User

Go to Config→Security→Online User to view the user who is viewing the live video.

Index	Client Address	Port	User Name	User Type	
1	172.25.150.98	18158	admin	Administrator	Kick-off

An administrator user can kick out all the other users (including other administrators).

3.7.3 Block and Allow lists

Go to Config→Security→Block and Allow Lists as shown below.
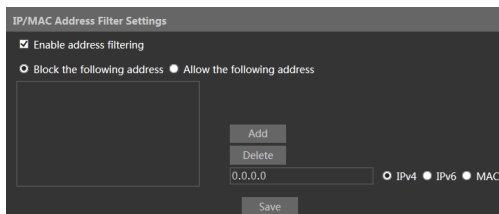
The setup steps are as follows:

Check the "Enable address filtering" check box.

Select "Block/Allow the following address", IPv4/IPv6/MAC and then enter IP address or MAC address in the address box and click the "Add" button.

3.7.4 Security Management

Go to Config→Security→Security Management as shown below.
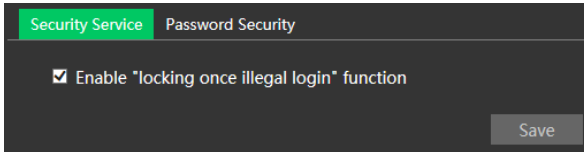
In order to prevent malicious password unlocking, "locking once illegal login" function can be enabled. If this function is enabled, login failure after trying six times will make the login interface locked. The camera can be logged in again after a half hour or after the camera reboots.

For some specified versions, anonymous login with a private protocol can be enabled here. If this function is enabled, enter http://host:port/Anonymous/1[2/3] (eg. http://192.168.1.150:80/Anonymous/1) via web browser to access the camera. 1 indicates main stream; 2 indicates sub stream; 3 indicates third stream. Only video can be viewed, no other operations can be done.

3.8 Maintenance configuration

3.8.1 Backup and Restore

Go to Config→Maintenance→Backup & Restore.
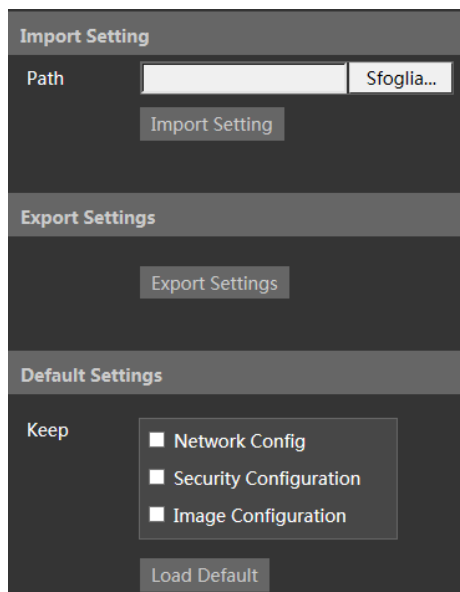
● **Import & Export Settings**
Configuration settings of the camera can be exported form a camera into another camera.
1. Click "Browse" to select the save path for import or export information on the PC.
2. Click the "Import Setting" or "Export Setting" button.

● **Default Settings**
Click the "Load Default" button to restore all system settings to the default factory settings except those you want to keep.

3.8.2 Reboot

Go to Config→Maintenance→Reboot.
Click the "Reboot" button to reboot the device.
Timed Reboot setting
If necessary, the camera can be set up to reboot on a time interval. Enable "Time Settings", set the date and time and then click the "Save" button to save the settings.

3.8.3 Upgrade

Go to Config→Maintenance→Upgrade. In this interface, the camera firmware can be updated.

Local upgrade			
Path		Browse	Upgrade

1. Click the "Browse" button to select the path of the upgrade file
2. Click the "Upgrade" button to start upgrading the firmware.
3. The device will restart automatically
Caution! Do not close the browser or disconnect the camera from the network during the upgrade.

For some specified models, online upgrade is available. The setting steps are as follows.
1.　　Create the upgrade file location and save it.
2.　　Check the latest version by clicking "Check version".
3.　　Click "Upgrade" to update the firmware online.

3.8.4 Operation Log

To query and export log:
1. Go to Config→Maintenance→Operation Log.

Index	Time	Main Type	Sub Type	User Name	Login IP
1	2019-11-12 17:40:00	Alarm			
2	2019-11-12 17:38:46	Operation	System config modify		
3	2019-11-12 17:36:46	Alarm			

2. Select the main type, sub type, start and end time.
3. Click "Search" to view the operation log.
4. Click "Export" to export the operation log.

4 Search

4.1 Image search

Click Search to go to the interface as shown below. The images saved on the micro-SD card can be found here.
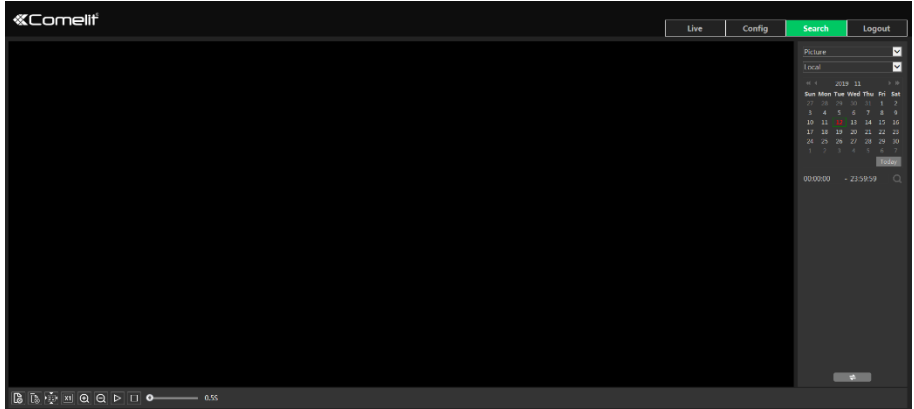
- **Local image search**
1. Choose "Picture"—"Local".
2. Set time: select the date and choose the start and end time.
3. Click 🔍 to search the images.
4. Double click on the file name in the list to view the snapshots as shown above.
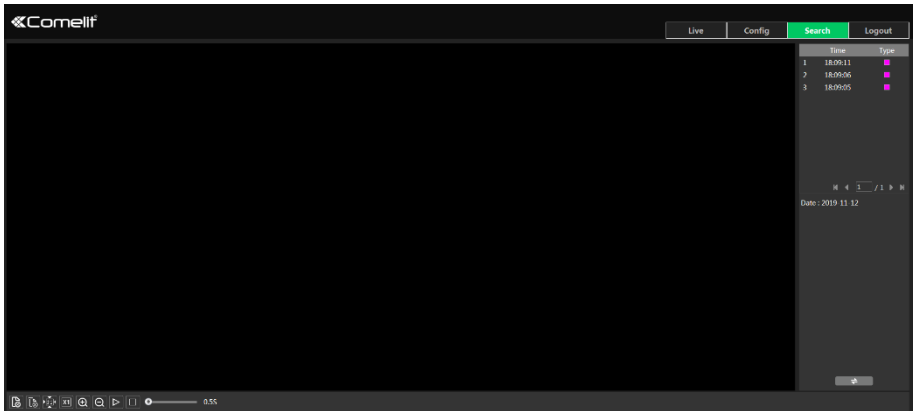

Click ⇌ to return to the previous interface.

- **Micro-SD card image search**
1. Choose "Picture"—"SD Card".
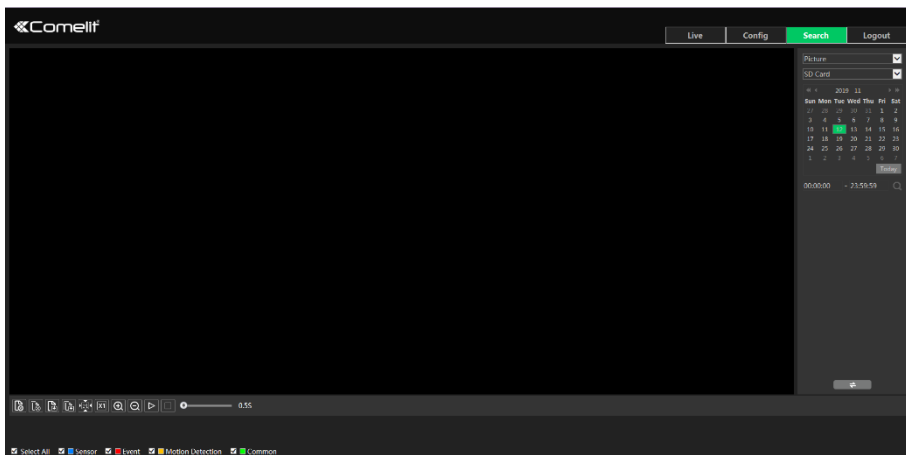
2. Set time: select the date and choose the start and end time.
3. Choose the alarm events at the bottom of the interface.
4. Click ⌕ to search the images.
5. Double click on the file name in the list to view the snapshots.

Click ⇌ to return to the previous interface.

The descriptions of the buttons are shown as follows:

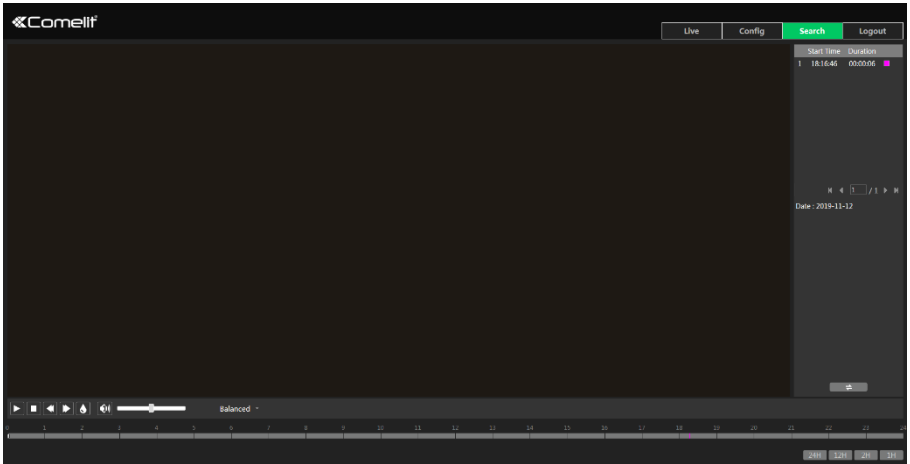| Icon	Description	Icon	Description
🗋⊗	Close: select an image and click this button to close the image.	🗋⊗	Close all: click this button to close all images.
🗋⤓	Save: click this button to select the path for saving the image on the PC.	🗋⤓	Save all: click this button to select the path for saving all pictures on the PC.
↕1:1↕	Fit size: click to fit the image on the screen.	×1	Normal size: click this button to display the normal size of the image.
⊕	Zoom in: click this button to digitally zoom in.	⊖	Zoom out: click this button to digitally zoom out.
▷	Slide show play: click this button to start the slide show mode.	□	Stop: click this button to stop the slide show.
⚬ 5.5S	Play speed: set the play speed of the slide show.		

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4.2 Video Search

4.2.1 Local video search

Click Search to go to the interface as shown below. Videos were recorded locally to the PC can be played in this interface.
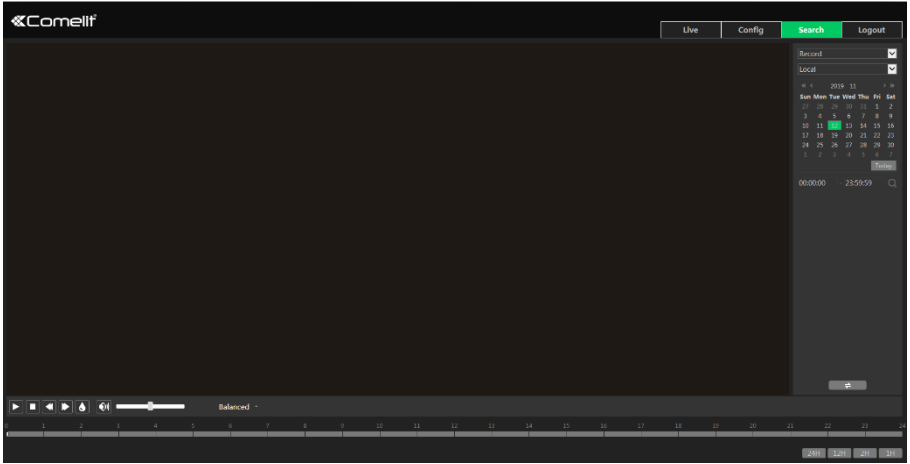
1. Choose "Record"—"Local".
2. Set search time: select the date and choose the start and end time.
3. Click Q to search the images.
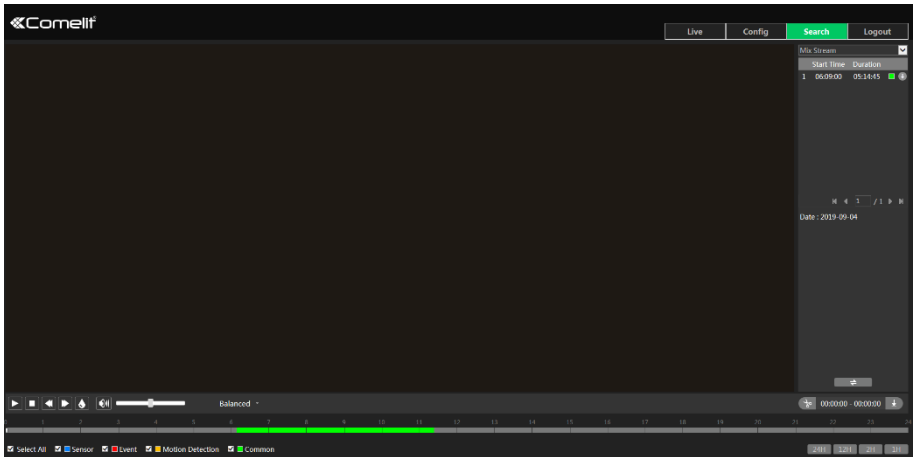4. Double click on a file name in the list to start playback.

| Icon	Description	Icon	Description
▶	Play button. After pausing the video, click this button to continue playing.	‖	Pause button
■	Stop button	◀◀	Speed down
▶▶	Speed up	◆	Watermark display
🔊 ▬▬▬▬▬▬▬	Enable / disable audio; drag the slider to adjust the volume after enabling audio.		

4.2.2 Micro-SD card video search

Click Search to go to the interface as shown below. Videos that were recorded on the micro-SD card can be played in this interface.

1. Choose "Record"—"SD Card".
2. Set search time: select the date and choose the start and end time.
3. Click 🔍 to search the images.

4. Select the alarm events at the bottom of the interface.
5. Select mix stream (video and audio stream) or video stream as needed.
6. Double click on a file name in the list to start playback.
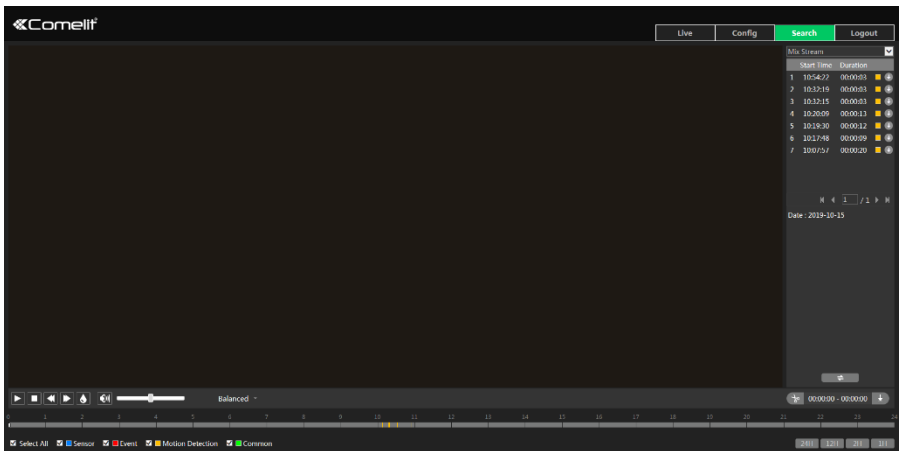
The timetable can be shown in 24h/12h/2h/1h format by clicking the corresponding buttons.

Video clip and downloading operations:

1. Search the video files according to the above mentioned steps.
2. Select the start time by clicking on the timetable.
3. Click ✂ to set the start time and then this button turns green (✂).
4. Select the end time by clicking on the timetable. Then click ✂ to set the end time.
5. Click ⬇ to download the video file in the PC.

Index	Process	Record	Start Time	End Time	Path	Operate
1	100%	Cut	2019-10-15 11:28:55	2019-10-15 11:30:24	Desktop	Cancel

| Set up | C:\Users_____\Desktop | | | Clear List | Close |

Click "Set up" to set the storage directory of the video files.
Click "Open" to play the video.
Click "Clear List" to clear the downloading list.
Click "Close" to close the downloading window.

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Appendix

Appendix 1 - Troubleshooting

Password forgot
A：Reset the device to the default factory settings.
Default IP: 192.168.1.150; Username: admin; Password: admin

Fail to connect devices through the browser
A: Network is not well connected. Check the connection.
B: IP address is not available. Change the IP address.
C: Web port number has been changed: contact administrator to get the correct port number.
D: Exclude the above reasons. Restore to default setting by Comelit Advance IP Tool.

Comelit Advance IP tool cannot search devices.
The anti-virus software in your computer may cause it. Please stop it and try to search device again.

The browser cannot download ActiveX control.
A. The browser may be setup to block ActiveX. Follow the steps below.
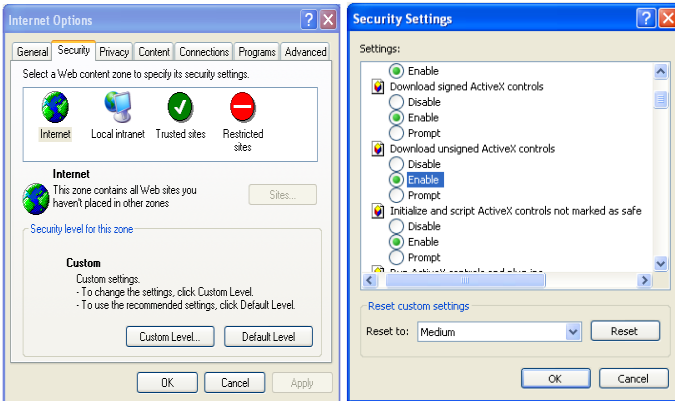① Open the browser and then click Tools → Internet Options.
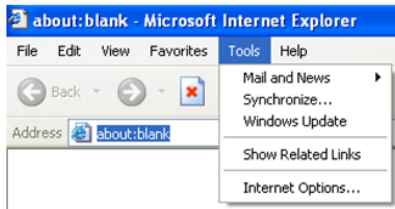
② Select Security → Custom Level….
③ Enable all the options under "ActiveX controls and plug-ins".
④ Click OK to finish setup.

B. Other plug-ins or anti-virus blocks ActiveX. Please uninstall or close them.

No sound can be heard.

A：Audio input device is not connected. Please connect and try again.

B: Audio function is not enabled at the corresponding channel. Please enable this function.

Appendix 2 - Installation of waterproof rubber plug

In order to improve the water-proof effect, the rubber plugs are attached to some network bullet cameras. You may mount the rubber plugs to the mounting base of the camera as requried when installing. The installation instructions are as follows.
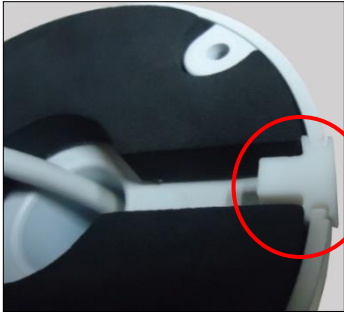
Please mount the rubber plug into the gap of the mounting base
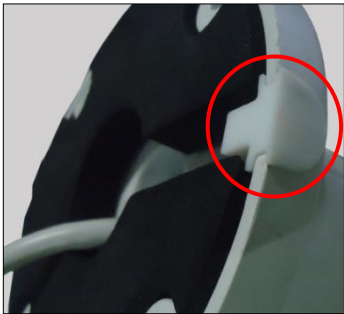
Please let the camber surface of the rubber plug mount outside.

Appendix 3 – Materials emissivity

*The material emissivity is also affected by the surface of the material.

METALS	Emissivity
cold rolled steel	0.7 to 0.9
sheet steel	0.4 to 0.6
polished steel	0.1
oxidised steel	0.7 to 0.9
polished stainless steel	0.16

oxidised stainless steel	0.7 to 0.8
polished aluminium	0.05
oxidised aluminium	0.2 to 0.4
oxidised cast iron	0.6 to 0.95
non-oxidised cast iron	0.2
oxidised inconel	0.7 to 0.95
sanded inconel	0.3 to 0.6
oxidised molybdenum	0.2 to 0.6
polished nickel	0.05
oxidised nickel	0.2 to 0.5
burnished brass	0.3
oxidised brass	0.5
polished copper	0.05
oxidised copper	0.4 to 0.8
oxidised titanium	0.5 to 0.6
NON-METALS	**Emissivity**
water	0.93
clay	0.95
tarmac	0.95
basalt	0.7
limestone	0.98
paper	0.95
cement	0.95
ceramic	0.95
plaster	0.8 to 0.95
ice	0.98
gravel	0.95
rubber	0.95
wood	0.9 to 0.95
snow	0.9

matt plastic	0.95
sand	0.9
soil	0.9 to 0.98
fabric	0.95
painted surfaces (except aluminium)	0.8 to 0.95
glass	0.85

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