User's Guide

TRENDnet®

Indoor/Outdoor 3MP Motorized PTZ Dome Mira IP Camera

TV-IP420P

Contents

Product Overview

Features

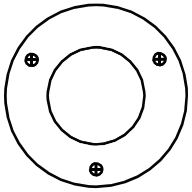
TRENDnet's Indoor/Outdoor 3MP Motorized PTZ Dome Mira IP Camera, model TV-IP420P, provides PTZ and powerful 3MP resolution in low-light environments. This PTZ IP camera delivers year-round surveillance with an IP66 weather rated housing to withstand harsh outdoor environments. Use the included complimentary Mira software and mobile apps to view live video up to 350° with the motorized pan tilt function.

Package Contents

TV-IP420P package includes:

- TV-IP420P
- Quick Installation Guide
- Camera mounting hardware

(Optional power adapter not included)



Drilling Template

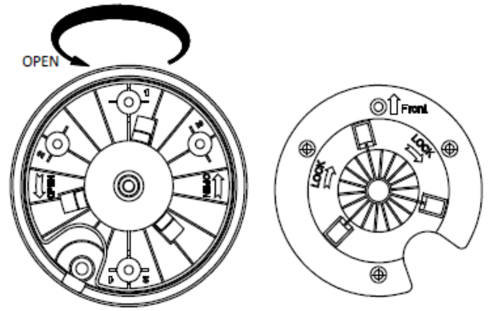
Mounting Screws

Network Cable
Waterproof Accessories

If any package content is missing or damaged, please contact the retail store, online retailer, or reseller/distributor from which the product was purchased.

Open the cover

Loosen the mounting plate screws and base screws, twist the bottom housing to open.

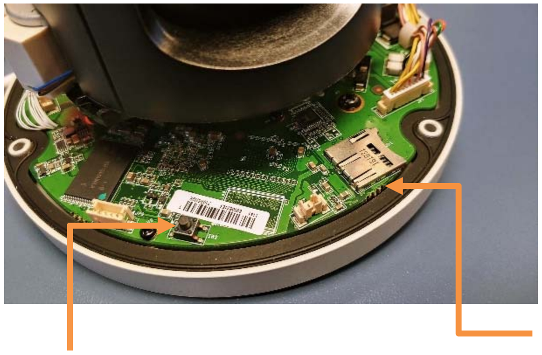


Base Plate on the Bottom of the Dome

Front View of Base Plate

Reset Button

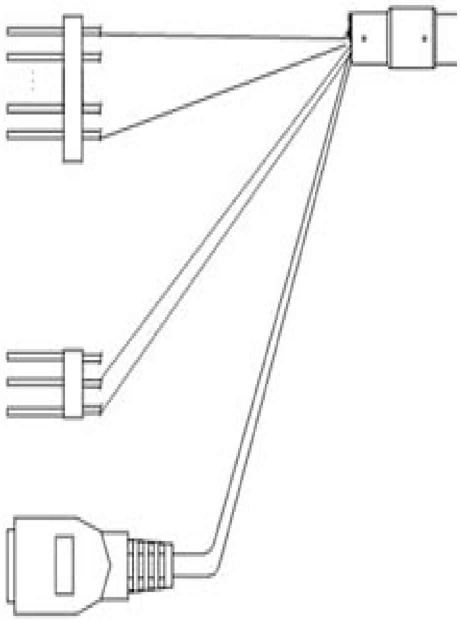
Push and hold the reset button then power on the camera. Keep holding the reset button for more than 10 seconds to reset configuration to factory default.



SD card slot

Reset Button

Cables



Alarm line in, line out and grounding wires

RS-485 wires

Network cable connection

SD Card Slot

SC Card slot is located on the other side from the reset button. Insert a SD card up to 128G for local storage.

Warnings

Serious injury or death may be caused if any of these warnings are neglected. Follow these safety guards to prevent serious injury or death.

- If using the power adapter, please choose the power adapter that meets the safety extra low voltage (SELV) standard or IEC60950-1 and Limited Power Source standard.
- If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the camera yourself. Disassembling the product will void the warranty and may cause harm or injury.
- To reduce the risk of fire or electrical shock, do not expose this product to rain or water.
- The installation should be done by a qualified service person and should conform to all construction and electric regulations and other local codes.

Cautions

Injury or equipment damage may be caused if any of these cautions are neglected. Follow these precautions to prevent potential injury or material damage.

- Make sure the power supply voltage is correct before using the Camera.
- Do not drop the camera or subject to physical shock.
- Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensor from dirt.
- Do not aim the camera lens at the strong light such as the Sun or an incandescent lamp. Strong light can damage the camera sensor.
- The sensor may be burned out by a laser beam, so when any laser equipment is being used, make sure that the surface of the sensor will not be exposed to the laser beam.
- Do not place the camera in extremely hot, cold temperatures (the operating temperature should be between -10°C to 60°C), dusty or damp environment, and do not expose it to high electromagnetic radiation.
- To avoid heat accumulation, good ventilation is required for a proper operating environment.
- Keep out of water and any liquid.
- While shipping, the camera should be packed in its original packing.

Plan for installation location

Viewing angle

The TV-IP420P is a dome camera with varifocal lens that provides non-distorted and detailed images. Choose the location where has good angle to shoot the image you expect to see. The motion detection area should also be considered when installing the camera.

Weather Conditions

The TV-IP420P is a dome camera, which fits most installations indoor and outdoor**.** The camera can work under a wide range of weather conditions. For severe weather conditions, a camera housing with temperature and moisture control is recommended. Using the camera in milder weather conditions will help extend the camera's product life and preserve the quality of the video image.

- **Moisture:** Avoid damp or moist environments whenever you can**.** The TV-IP420P is an IP66 grade, IK10 water proof camera, and it will work in moist environments. However, rain may affect the picture quality, especially at night, water may reflect the light from the infra-red illumination and degrade picture quality.

- **Temperature:** TV-IP420P works within a specified temperature range. Areas with severe temperatures should be avoided when installing the camera. It's recommended that you use an enclosure with a heater and blower if you plan on using this camera outside of the specified temperature range.

- **Sunlight:** Avoid direct sun light exposure. Direct sun light will damage the image sensor. If sunlight is necessary for your viewing purposes, provide protection for the image sensor.

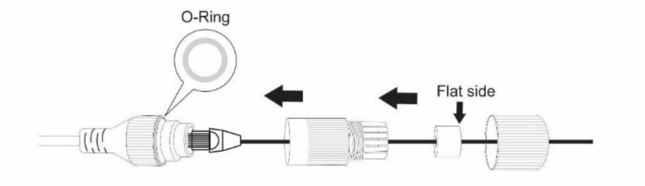
- **Lighting:** Consider installing your camera faces the same direction of the light sources. Shooting images with top-down position outdoor or next to the existing light source are good choices. Avoid the light source if it creates a shade that darkens the viewing area.

Cabling

It's recommended that the wiring the cable in your home or office by a professional. If you already have the cable deployed, make sure the cable and the connectors meet the category 5 Ethernet cable standards. At least 2 pairs of twisted lines are required for power and data. Poor cable quality may cause unexpected problems. Testing your cable or running a new cable is suggested for new camera installation.

Waterproof cap

The camera itself is IP66 grade water and dust proof. There is a set of network cable water proof caps that comes with the package as well. Run your cable going through the accessories, and then crimp the cable with an RJ45 module. Plug in the network cable and then tighten the waterproof cap to prevent water running into camera through the cable.

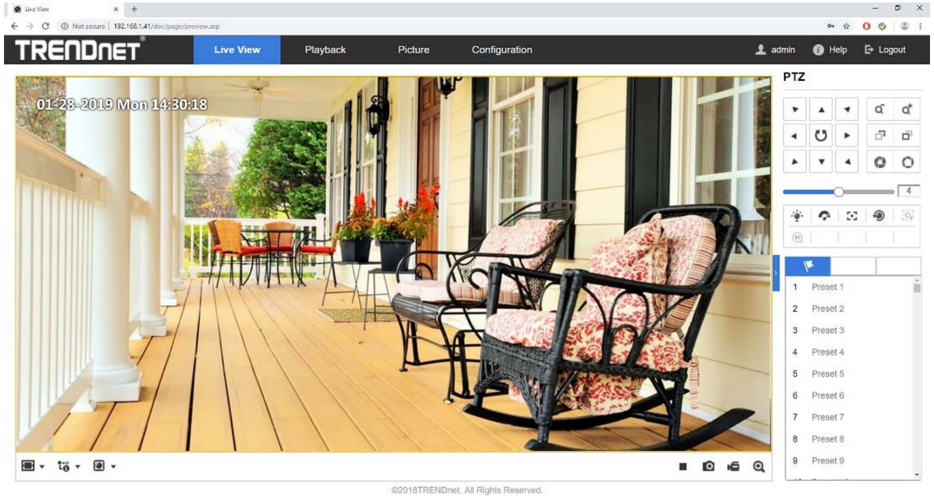


Live View

Use Mira app or VMS to activate and setup the camera, if you would like to access camera's configuration page, please find the camera IP from Camera Utility or Mira VMS to access it.

Live View

The live view page allows you to view the real-time video, capture images, and configure video parameters. Log in the network camera to enter the live view page, or you can click **Live View** on the menu bar of the main page to enter the live view page.



Menu Bar:

Click each tab to enter Live View, Playback, Picture, and Configuration page respectively.

Live View Window:

Display the live video.

Toolbar

Toolbar allows you to adjust the live view window size, the stream type, and the plug-ins. It also allows you to process the operations on the live view page, e.g., start/stop live view, capture, record, audio on/off, two-way audio, start/stop digital zoom, etc.

For IE (Internet Explorer) users, plug-ins as webcomponents and quick time are selectable. And for Non-IE users, webcomponents, quick time, VLC or MJPEG is selectable if they are supported by the web browser.

Note:

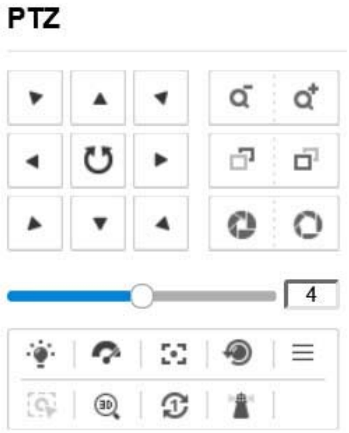
For camera that supports plug-in free live view, when Google Chrome 45 and its above version or Mozilla Firefox 52 and its above version are used, plug-in installation is not required. But **Picture** and **Playback** functions are hidden. To use mentioned function via web browser, change to their lower versions, or change to Internet Explorer 8.0 and its above version.

▶/■	Start/Stop live view.
4:3	4:3 window size.
16:9	16:9 window size.
1×	Original widow size.
▣	Self-adaptive window size.
▣	Original ratio window size.
❶, ❷, etc.	Live view with the different video streams.
●	Click to select the third-party plug-in.
📷	Manually capture the picture.
🎥	Manually start/stop recording.

PTZ

On the live view page, click › next to the right side of the live view window to show the PTZ control panel and click › to hide it.

Click the direction buttons to control the pan/tilt movements.



Click the zoom/focus/iris buttons to realize lens control.

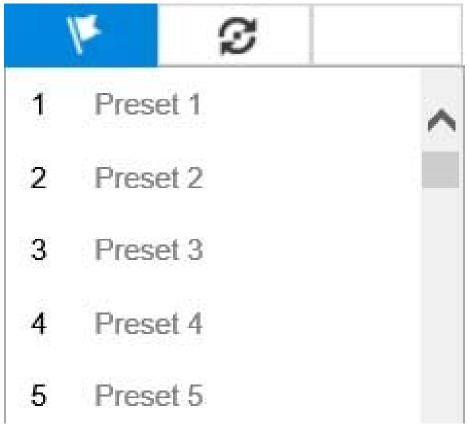
1. There are eight direction arrows (△, ▽, ◁, ▷, ◸, ◿, ◹, ◺) in the control panel. Click the arrows to realize adjustment in the relative positions.

2. For the cameras which support lens movements only, the direction buttons are invalid.

Icon	Description
🔍 🔍⁺	Zoom in/out
⧉ ⧉	Focus near/far
◕ ○	Iris **+/-**
━━●━━ 4	PTZ speed adjustment
💡	Light on/off
◠	Wiper on/off
⛶	Auxiliary focus
◉	Initialize lens
☰	Adjust speed of pan/tilt movements
⛶	Start Manual Tracking
🔍	Start 3D Zoom

3. Setting a Preset

Use the PTZ control buttons to move the lens to the desired position



1 Preset 1

2 Preset 2

3 Preset 3

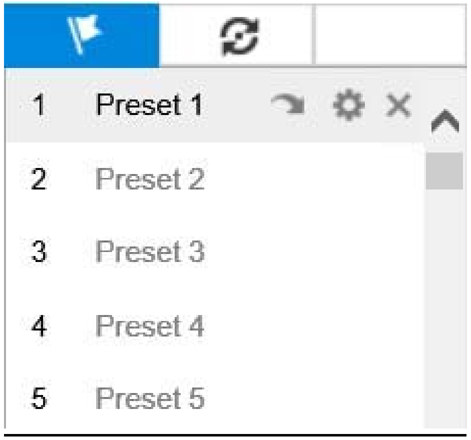
4 Preset 4

5 Preset 5

- Pan the camera to the right or left
- Tilt the camera up or down
- Zoom in or out
- Refocus the lens
- Click ⚙ to finish the setting of the current preset.
- You can click ✕ to delete the preset.

4. Calling a Preset

- This feature enables the camera to point to a specified preset scene manually or when an event takes place.
- For the defined preset, you can call it at any time to the desired preset scene.
- In the PTZ control panel, select a defined preset from the list and click ↷ to call the preset.
- Or you can place the mouse on the presets interface, and call the preset by typing the preset No. to call the corresponding presets.



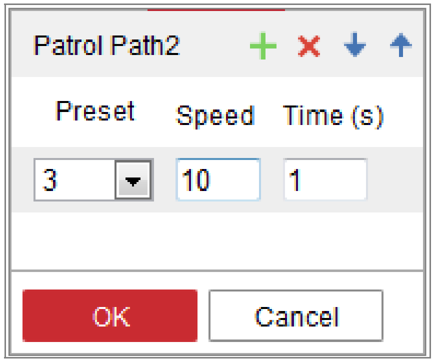
1	Preset 1
2	Preset 2
3	Preset 3
4	Preset 4
5	Preset 5

5. Setting / Calling a Patrol

Please setup at least 2 presets before setting up a patrol.

Steps:

- Click ↻ to enter the patrol configuration interface.
- Select a path No., and click + to add the configured presets.
- Select the preset, and input the patrol duration and patrol speed.
- Click OK to save the first preset.
- Follow the steps above to add the other presets.
- Click **OK** to save a patrol.
- Click ▶ to start the patrol, and click ■ to stop it.
- (Optional) Click ✕ to delete a patrol.



Patrol Path2

Preset	Speed	Time (s)
3	10	1

Live View Quick Setup

It allows quick setup of image/video related parameters on live view page.

Steps:

1. Click button on the right of the live view window to show the PTZ control panel. Click to hide it.
2. Specify PTZ, Display, OSD and Video/Audio and VCA resource parameters. For more settings, go to **Configuration** > **Image** and **Configuration** > **Video/Audio**.

- **Display Settings**
  - **Scene:** Select a scene according to actual installation environment. (Only certain camera models support.)
  - **WDR:** The WDR (Wide Dynamic Range) function helps the camera provide clear images even under back light circumstances. When there are both very bright and very dark areas simultaneously in the field of view, WDR balances the brightness level of the whole image and provide clear images with details. You can enable or disable the WDR function and set the level.
  - **HLC:** High Light Compensation makes the camera identify and suppress the strong light sources that usually flare across a scene. This makes it possible to see the detail of the image that would normally be hidden.
- **OSD**

  Set text information displayed on screen. Alignment adjustment is available for Text Overlay. Save the settings after configuration.
- **Video/Audio**

  Resolution and Max. Bit rate are adjustable. Click to change stream.
- **VCA Resource**

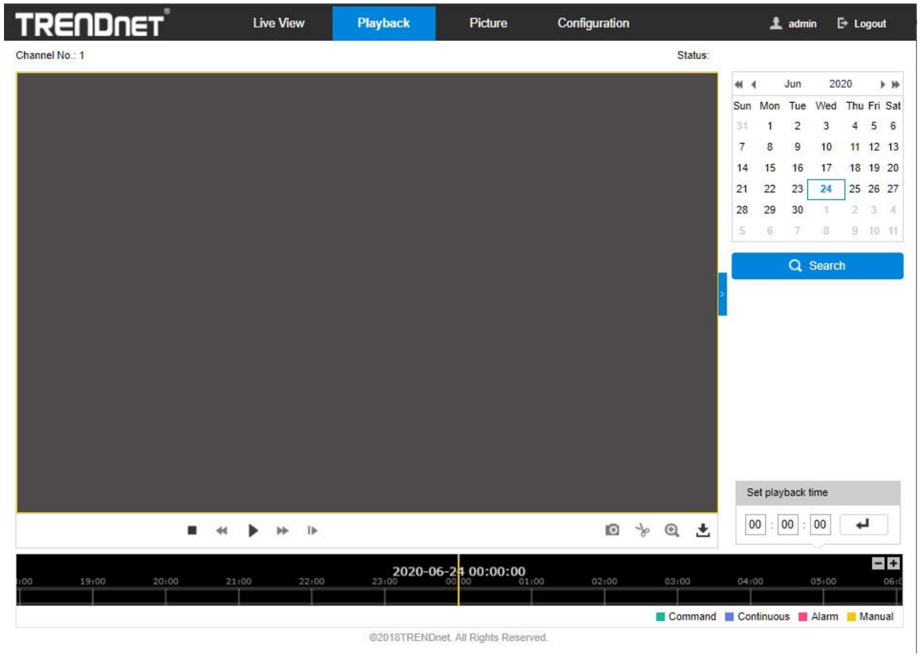
  VCA Resource offers options to enable certain VCA functions and hide others. It helps allocate more resources to the wanted functions. A reboot is required after setting the VCA Resource.

  Note:

  - VCA Resource function varies according to different camera models.
  - VCA options are mutually exclusive.
  - The function may not be supported by some camera models.

Playback

You can playback the video recording on the network storage and download the video clip and snapshots to your local computer.



Channel No.: 1

Status:

Jun 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	1	2	3	4
5	6	7	8	9	10	11

Set playback time 00 : 00 : 00

2020-06-24 00:00:00

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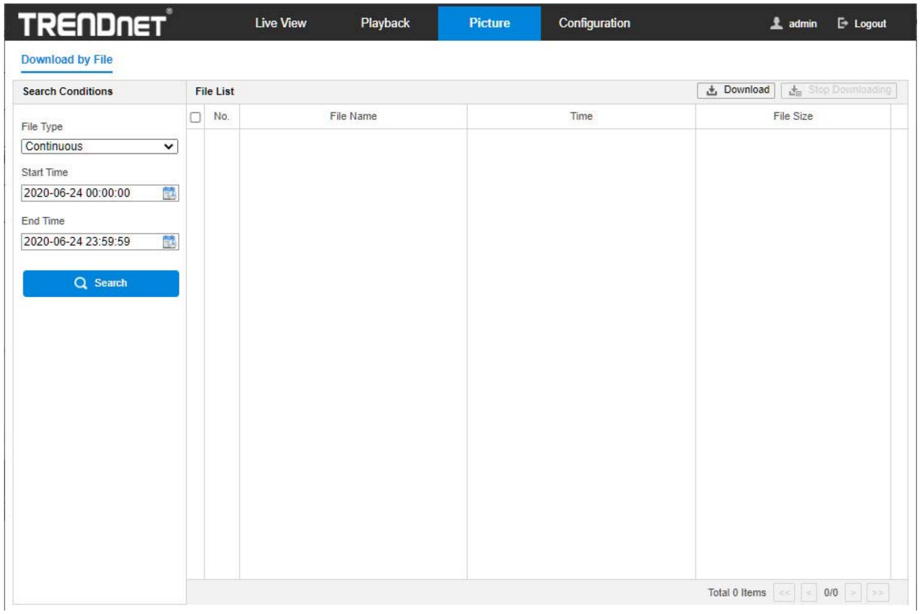
Picture

You can playback the snapshots on the network storage and download the images to your local computer.



Search Conditions

File Type: Continuous

Start Time: 2020-06-24 00:00:00

End Time: 2020-06-24 23:59:59

File List

□	No.	File Name	Time	File Size

Total 0 Items 0/0

Configuration

Local

The local configuration refers to the parameters of the live view, record files and captured pictures. The record files and captured pictures are the ones you record and capture using the web browser and thus the saving paths of them are on the PC running the browser.

Steps:

1. Enter the Local Configuration interface: **Configuration** > **Local**.
2. Configure the following settings:

- **Live View Parameters:** Set the protocol type and live view performance.
  - ♦ **Protocol Type:** TCP, UDP, MULTICAST and HTTP are selectable.

    TCP: Ensures complete delivery of streaming data and better video quality, yet the real-time transmission will be affected.

    UDP: Provides real-time audio and video streams.

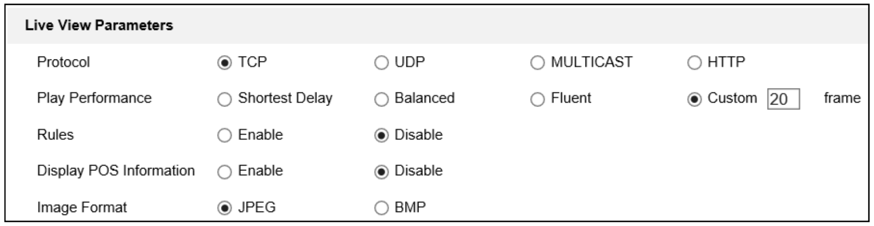
    HTTP: Allows the same quality as of TCP without setting specific ports for streaming under some network environments.

    MULTICAST: It's recommended to select MCAST type when using the Multicast function. For detailed information about Multicast, refer to *Section 7.1.1* ***Configuring TCP/IP Settings***.
  - ♦ **Play Performance:** Set the live view performance to Shortest Delay, Balanced, Fluent or Custom. For Custom, you can set the frame rate for live view.
  - ♦ **Rules:** It refers to the rules on your local browser, select enable or disable to display or not display the colored marks when the motion detection, face detection, or intrusion detection is triggered. E.g., enabled as the rules are, and the face detection is enabled as well, when a face is detected, it will be marked with a green rectangle on the live view.
  - ♦ **Display POS Information:** Enable the function, feature information of the detected target is dynamically displayed near the target in the live image.

    The feature information of different functions is different. For example, ID and waiting time for Queue Management, height for People Counting, etc.

    Note:

    Display POS Information is only available for certain camera models.
  - ♦ **Image Format:** Choose the image format for picture capture.



Live View Parameters

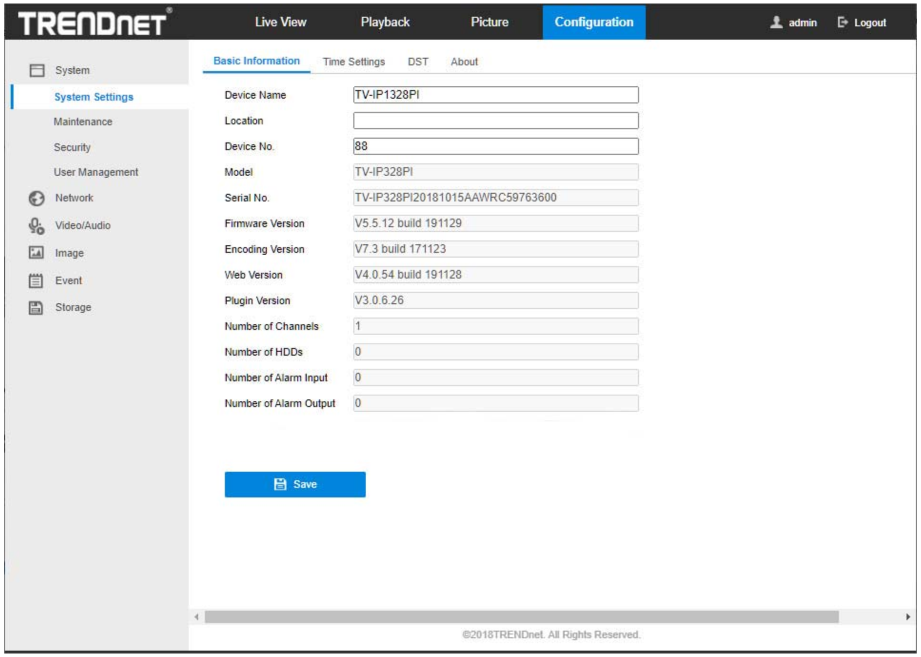
Protocol	● TCP	○ UDP	○ MULTICAST	○ HTTP	
Play Performance	○ Shortest Delay	○ Balanced	○ Fluent	● Custom 20	frame
Rules	○ Enable	● Disable			
Display POS Information	○ Enable	● Disable			
Image Format	● JPEG	○ BMP			

- **Record File Settings:** Set the saving path of the recorded video files. Valid for the record files you recorded with the web browser.
  - ♦ **Record File Size:** Select the packed size of the manually recorded and downloaded video files to 256M, 512M or 1G. After the selection, the maximum record file size is the value you selected.
  - ♦ **Save record files to:** Set the saving path for the manually recorded video files.
  - ♦ **Save downloaded files to:** Set the saving path for the downloaded video files in playback mode.
- **Picture and Clip Settings:** Set the saving paths of the captured pictures and clipped video files. Valid for the pictures you capture with the web browser.
  - ♦ **Save snapshots in live view to:** Set the saving path of the manually captured pictures in live view mode.
  - ♦ **Save snapshots when playback to:** Set the saving path of the captured pictures in playback mode.
  - ♦ **Save clips to:** Set the saving path of the clipped video files in playback mode.
  - ♦ ***Note***: You can click **Browse** to change the directory for saving the clips and pictures, and click Open to open the set folder of clips and picture saving.

3. Click **Save** to save the settings.

System – System Settings

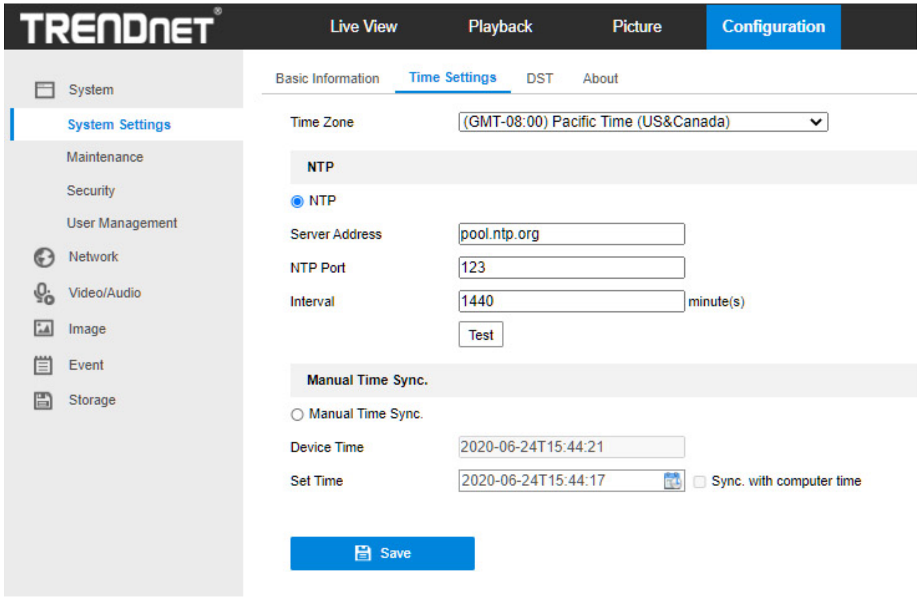
Basic Information



Device Name	TV-IP1328PI
Location	
Device No.	88
Model	TV-IP328PI
Serial No.	TV-IP328PI20181015AAWRC59763600
Firmware Version	V5.5.12 build 191129
Encoding Version	V7.3 build 171123
Web Version	V4.0.54 build 191128
Plugin Version	V3.0.6.26
Number of Channels	1
Number of HDDs	0
Number of Alarm Input	0
Number of Alarm Output	0

In the **System Settings**, you can edit the Device Name and Device No. Other information of the network camera, such as Model, Serial No., Firmware Version, Encoding Version, Number of Channels, Number of HDDs, Number of Alarm Input and Number of Alarm Output are displayed. The information cannot be changed in this menu. It is the reference for maintenance or modification in future.

Time Settings



Time Zone: (GMT-08:00) Pacific Time (US&Canada)

NTP

● NTP

Server Address: pool.ntp.org

NTP Port: 123

Interval: 1440 minute(s)

Manual Time Sync.

○ Manual Time Sync.

Device Time: 2020-06-24T15:44:21

Set Time: 2020-06-24T15:44:17 □ Sync. with computer time

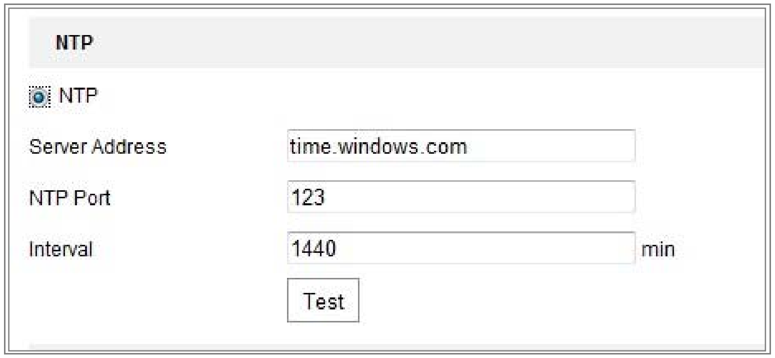
1. Select the Time Zone of your location from the drop-down menu.
2. Configure the NTP settings.
   (1) Click to enable the **NTP** function.
   (2) Configure the following settings:

   Server Address: IP address of NTP server.

   NTP Port: Port of NTP server.

   Interval: The time interval between the two synchronizing actions with NTP server.

   (3) (Optional) You can click the **Test** button to test the time synchronization function via NTP server.



NTP

● NTP

Server Address: time.windows.com

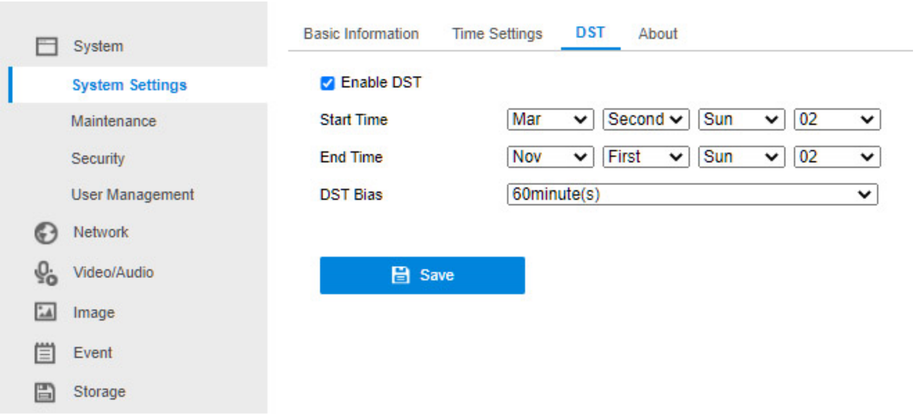
NTP Port: 123

Interval: 1440 min

***Note*:** If the camera is connected to a public network, you should use a NTP server that has a time synchronization function, such as the server at the National Time Center (IP Address: 210.72.145.44). If the camera is set in a customized network, NTP software can be used to establish a NTP server for time synchronization.

- Configure the manual time synchronization.
  (1) Check the **Manual Time Sync.** to enable the manual time synchronization function.
  (2) Click the icon 📅 to select the date, time from the pop-up calendar.
  (3) (Optional) You can check **Sync. with computer time** item to synchronize the time of the device with that of the local PC.
- Click **Save** to save the settings.

DST



☑ Enable DST

Start Time	Mar	Second	Sun	02
End Time	Nov	First	Sun	02
DST Bias	60minute(s)			

Daylight Saving Time (DST) is a way of making better use of the natural daylight by setting your clock forward one hour during the summer months, and back again in the fall.

Configure the DST according to your actual demand.

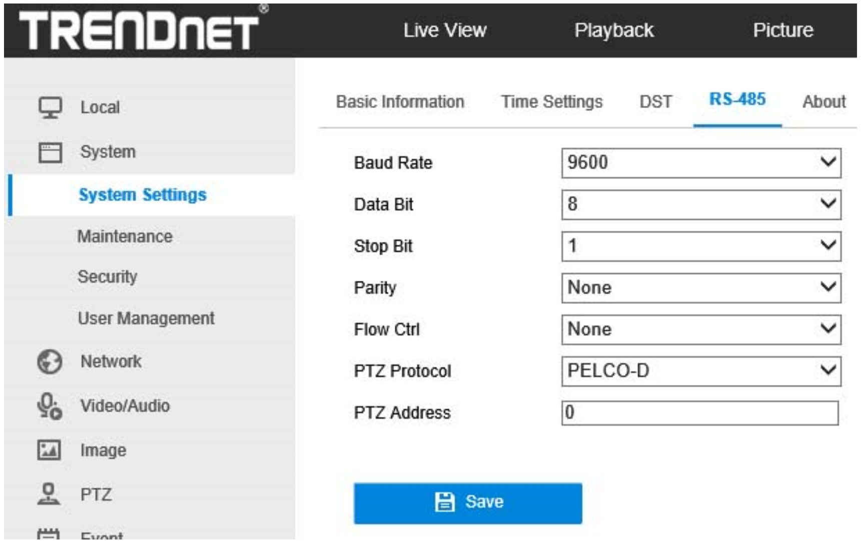
Steps:

1. Enter the DST configuration interface.

   Configuration > **System** > **System Settings** > **DST**

2. Select the start time and the end time.
3. Select the DST Bias.
4. Click **Save** to activate the settings.

Configuring RS-485



Baud Rate	9600
Data Bit	8
Stop Bit	1
Parity	None
Flow Ctrl	None
PTZ Protocol	PELCO-D
PTZ Address	0

The RS-485 serial port is used to control the PTZ of the camera. The configuring of the PTZ parameters should be done before you control the PTZ unit.

Steps:

1. Enter RS-485 Port Setting interface:

   Configuration> **Advanced Configuration**> **System** > **RS-485**

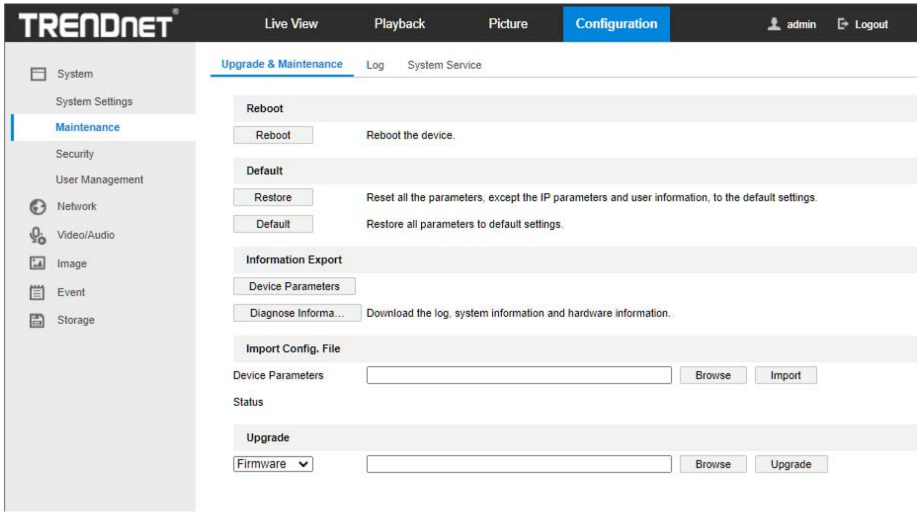
2. Set the RS-485 parameters and click **SAVE** to save the settings.

Note:

The Baud rate, PTZ Protocol and PTZ Address parameters of the speed dome should be exactly the same as those of the control device.

System – Maintenance

Upgrade & Maintenance



Reboot

Reboot — Reboot the device.

Default

Restore — Reset all the parameters, except the IP parameters and user information, to the default settings.

Default — Restore all parameters to default settings.

Information Export

Device Parameters

Diagnose Informa... — Download the log, system information and hardware information.

Import Config. File

Device Parameters — Browse — Import

Status

Upgrade

Firmware — Browse — Upgrade

The upgrade & maintenance interface allows you to process the operations, including reboot, partly restore, restore to default, export/import the configuration files, and upgrade the device.

- **Reboot**: Restart the device.
- **Restore:** Reset all the parameters, except the IP parameters and user information, to the default settings.
- **Default**: Restore all the parameters to the factory default.
- **Information Export**

  Device Parameters: click to export the current configuration file of the camera.

  This operation requires admin password to proceed.

  For the exported file, you also have to create an encryption password. The encryption password is required when you import the file to other cameras.

  Diagnose Information: click to download log and system information.

- **Import Config. File**

  Configuration file is used for the batch configuration of the cameras.

  Steps:

  1. Click **Browse** to select the saved configuration file.
  2. Click **Import** and input the encryption password that you set during exporting.

  Note: You need to reboot the camera after importing configuration file.

- **Upgrade**: Upgrade the device to a certain version.

  Steps:

  1. Select firmware or firmware directory to locate the upgrade file.

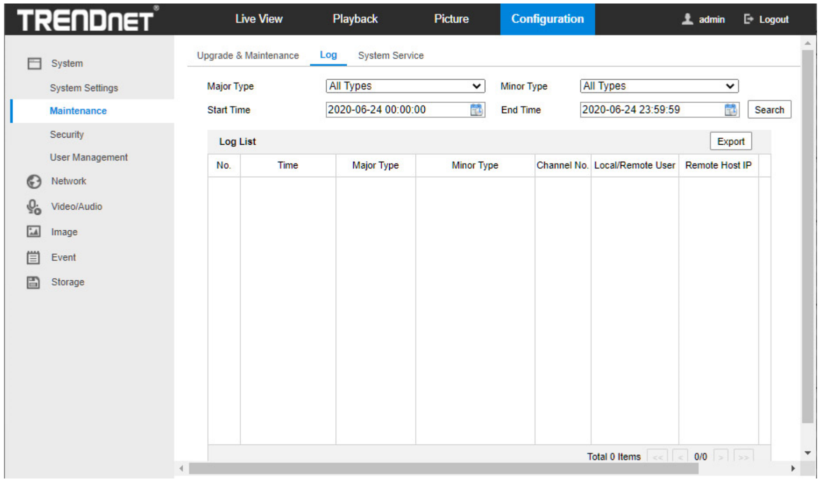
     Firmware: Locate the exact path of the upgrade file.

     Firmware Directory: Only the directory the upgrade file belongs to is required.

2. Click **Browse** to select the local upgrade file and then click **Upgrade** to start remote upgrade.

Note: The upgrading process will take 1 to 10 minutes. Please don't disconnect power of the camera during the process, and the camera reboots automatically after upgrade.

Log



Major Type: All Types
Minor Type: All Types
Start Time: 2020-06-24 00:00:00
End Time: 2020-06-24 23:59:59

Log List

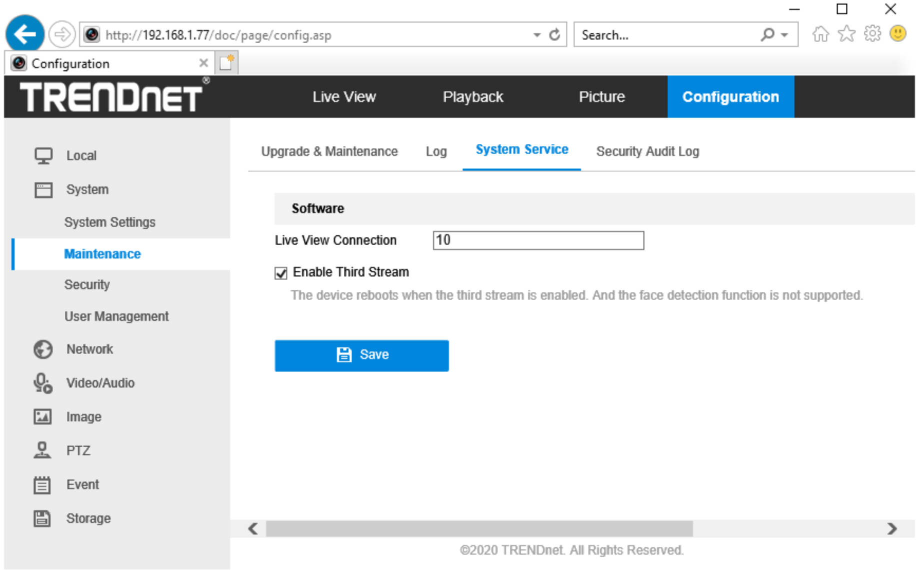
No.	Time	Major Type	Minor Type	Channel No.	Local/Remote User	Remote Host IP

Total 0 Items 0/0

The operation, alarm, exception and information of the camera can be stored in log files. You can also export the log files on your demand.

1. Set the log search conditions to specify the search, including the Major Type, Minor Type, Start Time and End Time.
2. Click **Search** to search log files. The matched log files will be displayed on the log list interface.
3. To export the log files, click **Export** to save the log files.

System Service



Software

Live View Connection: 10

☑ Enable Third Stream

The device reboots when the third stream is enabled. And the face detection function is not supported.

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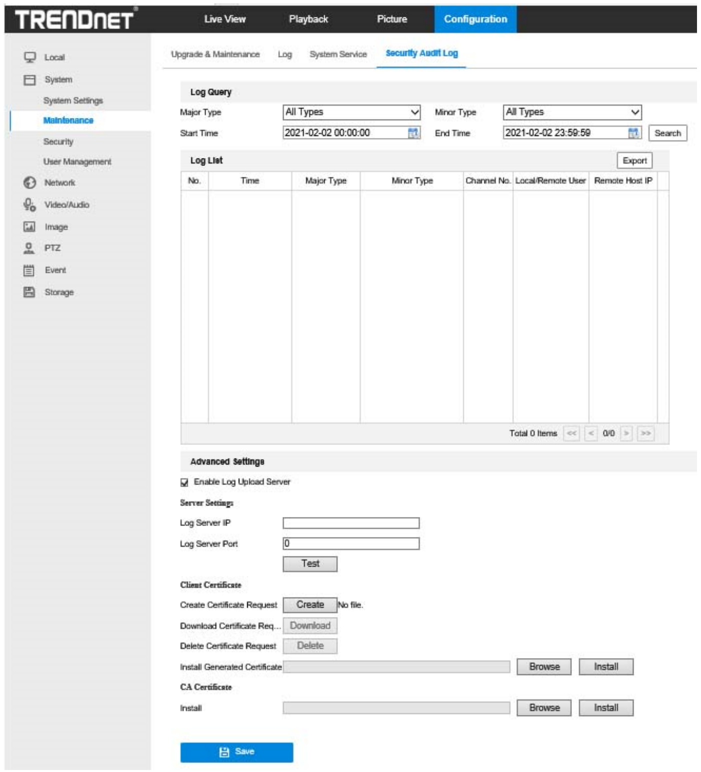
System service settings refer to the software and hardware service the camera supports. Supported functions vary according to the different cameras. For the cameras support IR LED, ABF (Auto Back Focus), Auto Defog, or Status LED, you can select to enable or disable the corresponding service according to the actual demands.

Security Audio Log

The Security Audit Log refers to the security operation logs. You can search and analyze the security log files of the camera so that to find out the illegal intrusion and troubleshooting the security events.

Security audit logs can be saved on device flash. The log will be saved every half hour after device booting.

Due to limited saving space of the flash, you can also save the logs on a log server. Configure the server settings at Advanced Settings.



Log Query

Major Type: All Types
Minor Type: All Types
Start Time: 2021-02-02 00:00:00
End Time: 2021-02-02 23:59:59

Log List

No.	Time	Major Type	Minor Type	Channel No.	Local/Remote User	Remote Host IP

Total 0 Items << < 0/0 > >>

Advanced Settings

☑ Enable Log Upload Server

Server Settings

Log Server IP:
Log Server Port: 0

Client Certificate

Create Certificate Request: No file.
Download Certificate Req...
Delete Certificate Request
Install Generated Certificate

CA Certificate

Install

- **Searching Logs**

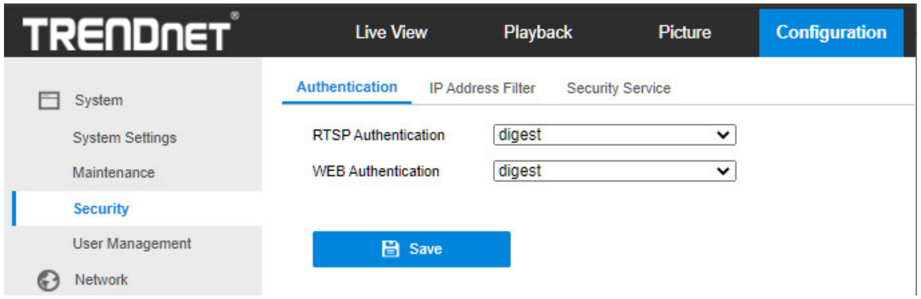
1. Enter the Security Audit Log interface:
   Configuration > System > Maintenance > Security Audit Log
2. Set the log search conditions to specify the search, including the Major Type, Minor Type, Start Time and End Time.
3. Click Search to search log files. The matched log files will be displayed on the Log list interface.
4. To export the log files, click Export to save the log files in your computer.

- **Setting Log Server**

1. Check Enable Log Upload Server.
2. Input Log Server IP and Log Server Port.
3. Click Test to test settings.
4. Install certificates. Client certificate and CA certificate are required.
   - Client Certificate
     (1) Click Create button to create the certificate request. Fill in the required information in the popup window.
     (2) Click Download to download the certificate request and submit it to the trusted certificate authority for signature.
     (3) Install the signed certificate to the device.
   - CA Certificate
     (1) Install the CA certificate to the device.

System – Security

Authentication



RTSP Authentication: digest

WEB Authentication: digest

You can specifically secure the stream data of live view.

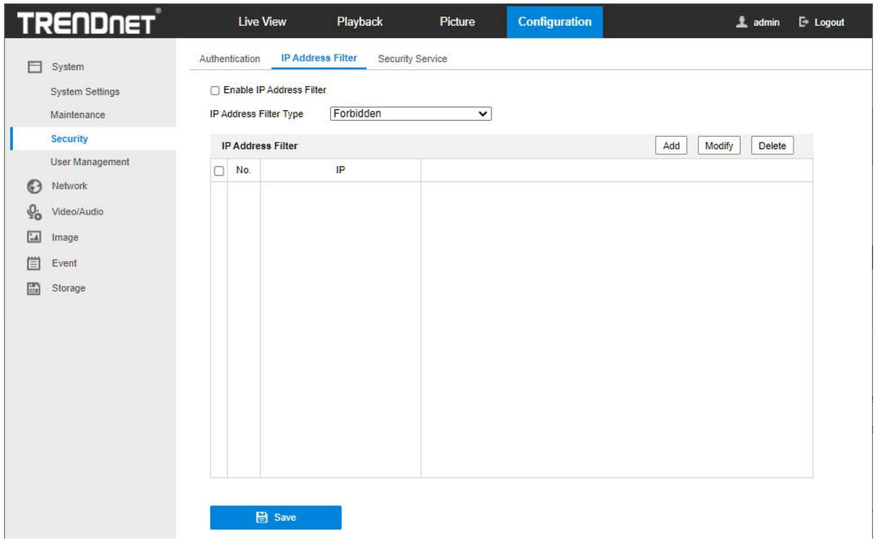
1. Set up authentication method for RTSP authentication and WEB authentication.

   Caution:

   Digest is the recommended authentication method for better data security. You must be aware of the risk if you adopt basic as the authentication method.

2. Click **Save** to save the settings.

IP Filter



□ Enable IP Address Filter

IP Address Filter Type: Forbidden

IP Address Filter

□	No.	IP

1. Check the checkbox of **Enable IP Address Filter**.
2. Select the type of IP Address Filter in the drop-down list, **Forbidden** and **Allowed** are selectable.
3. Set the IP Address Filter list.
   - Add an IP Address

     Steps:

     (1) Click the **Add** to add an IP.
     (2) Input the IP Adreess.
     (3) Click the **OK** to finish adding.

- Modify an IP Address

  Steps:

(1) Left-click an IP address from filter list and click **Modify**.

(2) Modify the IP address in the text filed.

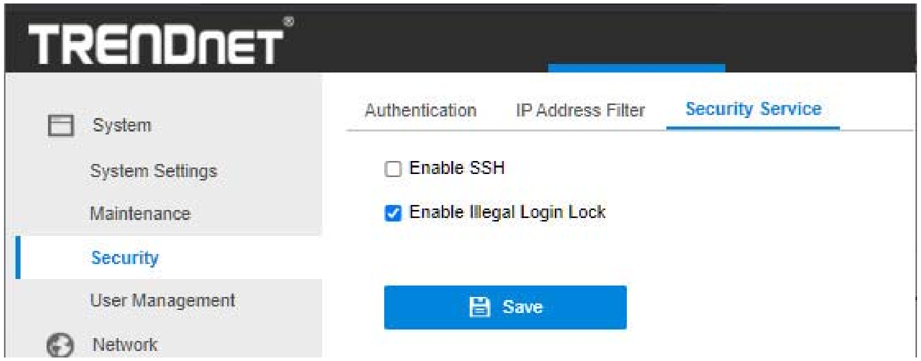
(3) Click the **OK** to finish modifying.

- Delete an IP Address or IP Addresses.

  Select the IP address (es) and click **Delete**.

4. Click **Save** to save the settings.

Security Service



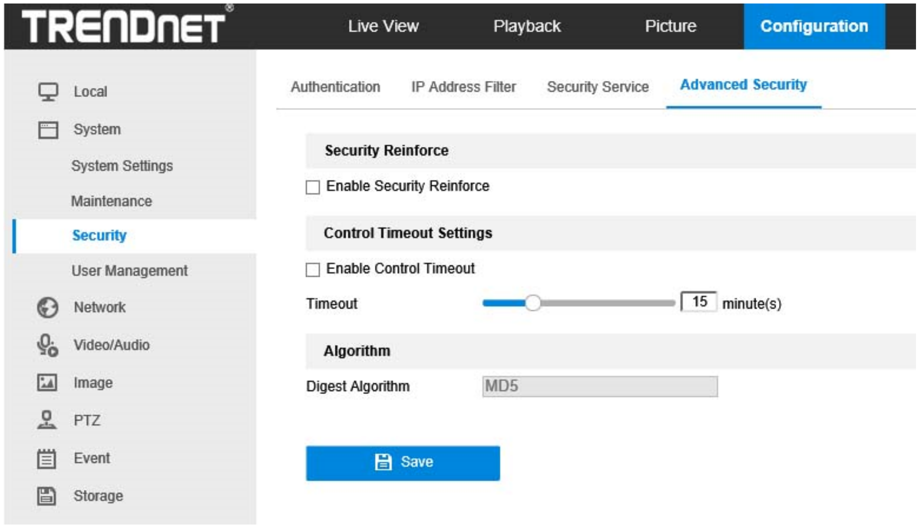
☐ Enable SSH

☑ Enable Illegal Login Lock

Illegal Login Lock: it is used to limit the user login attempts. Login attempt from the IP address is rejected if admin user performs 7 failed user name/password attempts (5 times for the operator/user).

Note: If the IP address is rejected, you can try to login the device after 30 minutes.

Advanced Security



Security Reinforce

☐ Enable Security Reinforce

Control Timeout Settings

☐ Enable Control Timeout

Timeout 15 minute(s)

Algorithm

Digest Algorithm MD5

Advanced security offers options to manage more network security settings of the device.

- **Security Reinforce**
  Security reinforce is a solution to enhance network security. With the function enabled, risky functions, protocols, ports of the device are disabled and more secured alternative functions, protocols and ports are enabled.

Function	Status
Control Timeout Settings	Enabled
Digest Algorithm	MD5 is disabled. SHA256 is enabled

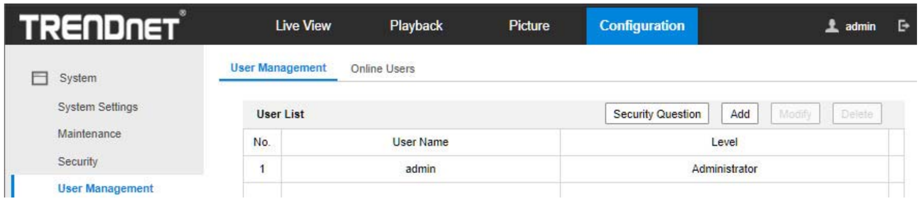
ONVIF	Disabled
TLS	TLS1.1 is disabled. TLS1.2 is enabled
SDK	SDK Service is disabled. Enhanced SDK Service is enabled
SNMP	Disabled
RTSP Authentication and HTTP Authentication	Only digest is supported
HTTPS	Enabled
HTTPS Browsing	Enabled. Accessing the device can only use HTTPS protocol
IEEE 802.1X	Only EAP-TLS (TLS1.2) is supported. The function is disabled

- **Control Timeout Settings**
  If you enable the function and set timeout period, you will be logged out when you make no operation to the device via web browser (Viewing live image and playback are not included.) for the set timeout period.

- **Algorithm**
  Displays the currently active digest algorithm. If Security Reinforce is enabled, MD5 is disabled and SHA256 is enabled instead.

System – User Management

User Management



No.	User Name	Level
1	admin	Administrator

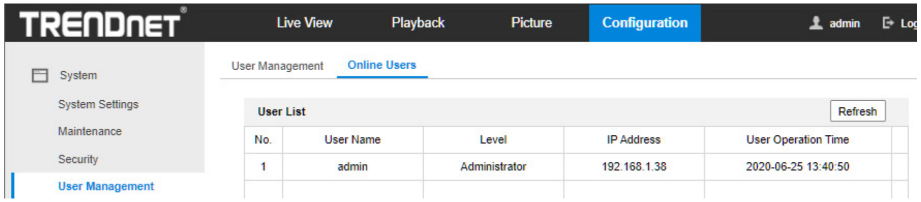
The *admin* user has all permissions by default and can create/modify/delete other accounts.

The *admin* user cannot be deleted and you can only change the *admin* password.

Notes:

- Up to 31 user accounts can be created.
- Users of different levels own different default permissions. Operator and user are selectable.

Online Users

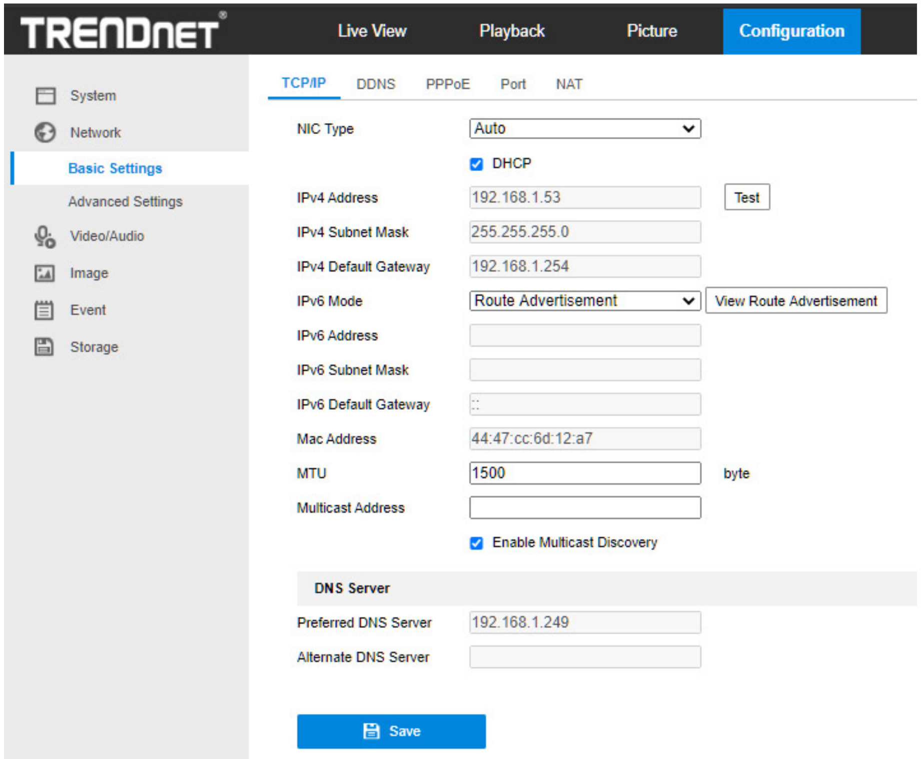


No.	User Name	Level	IP Address	User Operation Time
1	admin	Administrator	192.168.1.38	2020-06-25 13:40:50

You can see the current users who are visiting the device through this interface. User information, such as user name, level, IP address, and operation time, is displayed in the User List.

Network – Basic Settings

TCP/IP



NIC Type: Auto

☑ DHCP

IPv4 Address: 192.168.1.53

IPv4 Subnet Mask: 255.255.255.0

IPv4 Default Gateway: 192.168.1.254

IPv6 Mode: Route Advertisement

IPv6 Address:

IPv6 Subnet Mask:

IPv6 Default Gateway: ::

Mac Address: 44:47:cc:6d:12:a7

MTU: 1500 byte

Multicast Address:

☑ Enable Multicast Discovery

DNS Server

Preferred DNS Server: 192.168.1.249

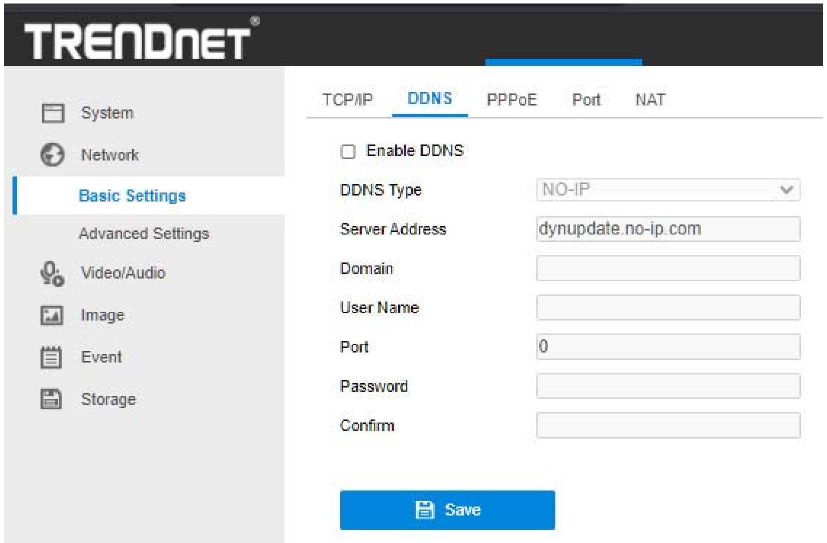
Alternate DNS Server:

1. Configure the basic network settings, including the NIC Type, IPv4 or IPv6 Address, IPv4 or IPv6 Subnet Mask, IPv4 or IPv6 Default Gateway, MTU settings and Multicast Address.
2. (Optional) Check the checkbox of **Enable Multicast Discovery**, and then the online network camera can be automatically detected by client software via private multicast protocol in the LAN.
3. Configure the DNS server. Input the preferred DNS server, and alternate DNS server.
4. Click **Save** to save the above settings.

***Notes*:**

- The valid value range of MTU is 1280 to 1500.
- The Multicast sends a stream to the multicast group address and allows multiple clients to acquire the stream at the same time by requesting a copy from the multicast group address. Before utilizing this function, you have to enable the Multicast function of your router.
- A reboot is required for the settings to take effect.

DDNS



☐ Enable DDNS

DDNS Type: NO-IP

Server Address: dynupdate.no-ip.com

Domain:

User Name:

Port: 0

Password:

Confirm:

1. Check the **Enable DDNS** checkbox to enable this feature.
2. Select **DDNS Type**. NO-IP.

Steps:

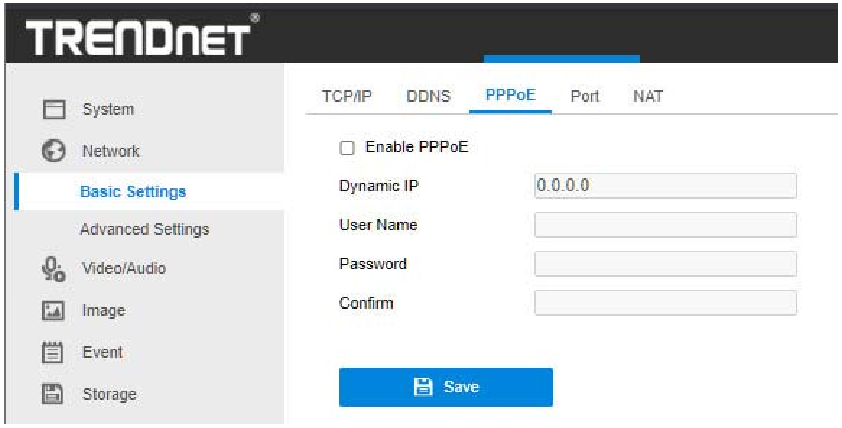
(1) Enter the Server Address as www.noip.com

(2) Enter the Domain name you registered.

(3) Enter the User Name and Password.

(4) Click **Save** and then you can view the camera with the domain name.

PPPoE



☐ Enable PPPoE

Dynamic IP: 0.0.0.0

User Name:

Password:

Confirm:

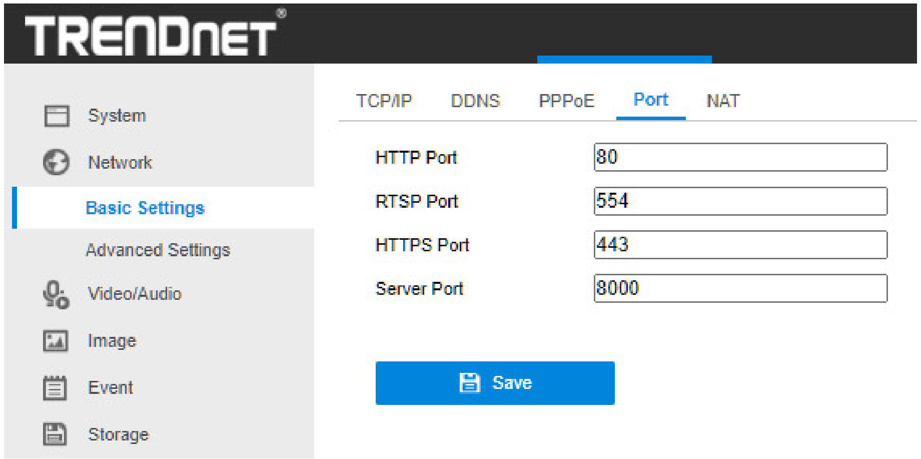
1. Check the **Enable PPPoE** checkbox to enable this feature.
2. Enter **User Name**, **Password**, and **Confirm** password for PPPoE access.

Note: The User Name and Password should be assigned by your ISP.

- *For your privacy and to better protect your system against security risks, we strongly recommend the use of strong passwords for all functions and network devices. The password should be something of your own choosing (using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers and special characters) in order to increase the security of your product.*
- *Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.*

3. Click **Save** to save and exit the interface.

Port



HTTP Port	80
RTSP Port	554
HTTPS Port	443
Server Port	8000

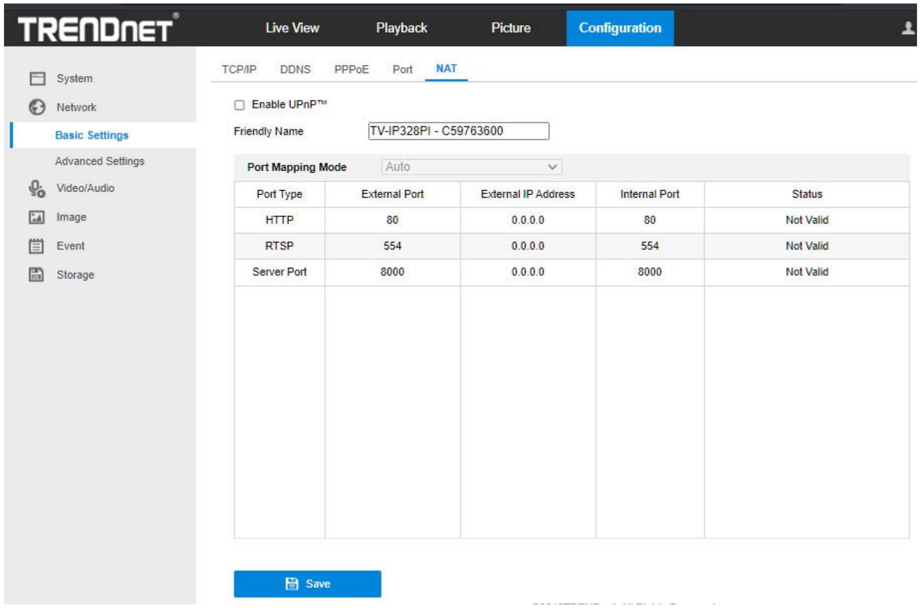
HTTP Port: The default port number is 80, and it can be changed to any port No. which is not occupied.

RTSP Port: The default port number is 554 and it can be changed to any port No. ranges from 1 to 65535.

HTTPS Port: The default port number is 443, and it can be changed to any port No. which is not occupied.

Server Port: The default server port number is 8000, and it can be changed to any port No. ranges from 2000 to 65535.

NAT



☐ Enable UPnP™

Friendly Name: TV-IP328PI - C59763600

Port Mapping Mode: Auto

Port Type	External Port	External IP Address	Internal Port	Status
HTTP	80	0.0.0.0	80	Not Valid
RTSP	554	0.0.0.0	554	Not Valid
Server Port	8000	0.0.0.0	8000	Not Valid

NAT interface allows you to configure the UPnP™ parameters.

Universal Plug and Play (UPnP™) is a networking architecture that provides compatibility among networking equipment, software and other hardware devices. The UPnP protocol allows devices to connect seamlessly and to simplify the implementation of networks in the home and corporate environments.

With the function enabled, you don't need to configure the port mapping for each port, and the camera is connected to the Wide Area Network via the router.

1. Check the checkbox to enable the UPnP™ function.

   Note:

   Only when the UPnP™ function is enabled, ports of the camera are active.

2. Choose a friendly name for the camera, or you can use the default name.
3. Select the port mapping mode. Manual and Auto are selectable.

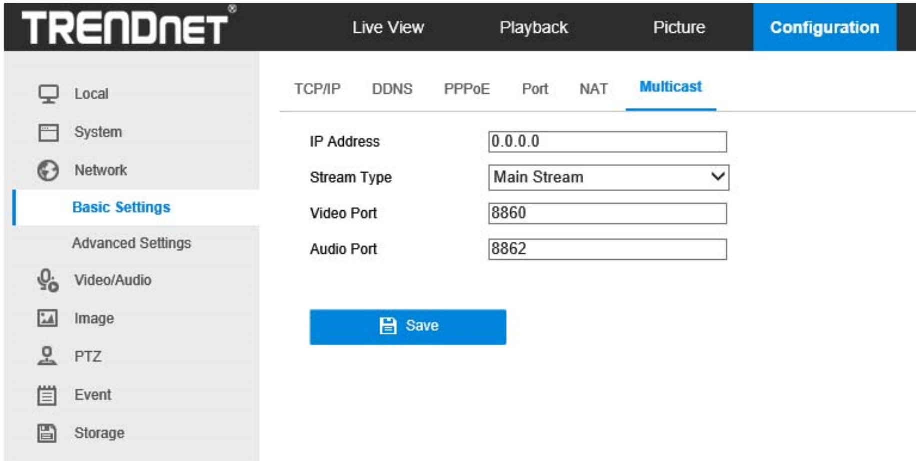
   Note:

   If you select Auto, you should enable UPnP™ function on the router.

   If you select Manual, you can customize the value of the external port and complete port mapping settings on router manually.

4. Click **Save** to save the settings.

Multicast



IP Address: 0.0.0.0
Stream Type: Main Stream
Video Port: 8860
Audio Port: 8862

Multicast is group communication where data transmission is addressed to a group of destination devices simultaneously. After setting up active multicast, you can send the source efficiently to multiple devices.

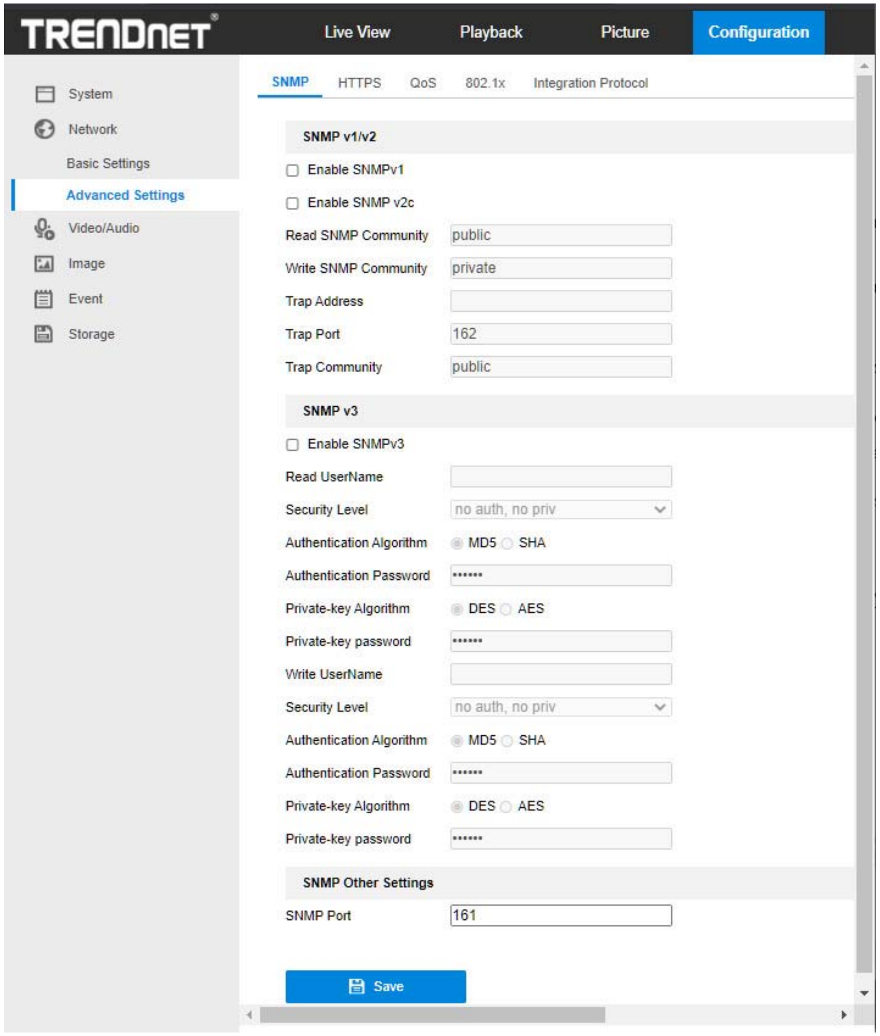
1. Enter the Multicast setting interface.

   Configuration >Network > Basic Settings > Multicast

2. Set IP Address, Stream Type, Video Port, and Audio Port of the camera.
   - IP Address stands for the address of multicast.
   - Video port and audio port of each video stream of each camera channel can be specified by selecting a stream in Video Stream and inputting port number in Video Port and Audio Port.
3. Click **Save** to save the settings.

Network – Advanced Settings

SNMP



SNMP v1/v2

□ Enable SNMPv1

□ Enable SNMP v2c

Read SNMP Community	public
Write SNMP Community	private
Trap Address	
Trap Port	162
Trap Community	public

SNMP v3

□ Enable SNMPv3

Read UserName	
Security Level	no auth, no priv
Authentication Algorithm	● MD5 ○ SHA
Authentication Password	••••••
Private-key Algorithm	● DES ○ AES
Private-key password	••••••
Write UserName	
Security Level	no auth, no priv
Authentication Algorithm	● MD5 ○ SHA
Authentication Password	••••••
Private-key Algorithm	● DES ○ AES
Private-key password	••••••

SNMP Other Settings

SNMP Port	161

You can set the SNMP function to get camera status, parameters and alarm related information, and manage the camera remotely when it is connected to the network.

Before you start:

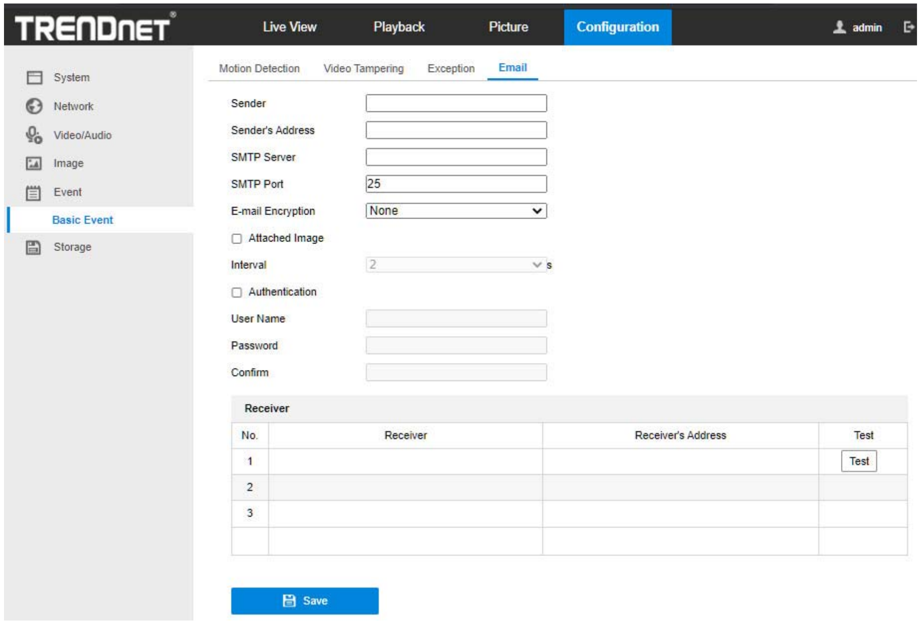
Before setting the SNMP, please download the SNMP software and manage to receive the camera information via SNMP port. By setting the Trap Address, the camera can send the alarm event and exception messages to the surveillance center.

Note: The SNMP version you select should be the same as that of the SNMP software. And you also need to use the different version according to the security level you required. SNMP v1 provides no security and SNMP v2 requires password for access. And SNMP v3 provides encryption and if you use the third version, HTTPS protocol must be enabled.

Notes:

- A reboot is required for the settings to take effect.
- To lower the risk of information leakage, you are suggested to enable SNMP v3 instead of SNMP v1 or v2.

Email



Sender	
Sender's Address	
SMTP Server	
SMTP Port	25
E-mail Encryption	None
□ Attached Image	
Interval	2 s
□ Authentication	
User Name	
Password	
Confirm	

Receiver

No.	Receiver	Receiver's Address	Test
1			Test
2			
3			

Steps:

1. Enter the Email Settings interface: **Configuration** > **Network** >**Advanced Settings** > **Email**.
2. Configure the following settings:

   Sender: The name of the email sender.

   Sender's Address: The email address of the sender.

   SMTP Server: IP address or host name (e.g., smtp.263xmail.com) of the SMTP Server.

   SMTP Port: The SMTP port. The default TCP/IP port for SMTP is 25 (not secured). And the SSL SMTP port is 465.

   Email Encryption: None, SSL, and TLS are selectable. When you select SSL or TLS and disable STARTTLS, e-mails will be sent after encrypted by SSL or TLS. The SMTP port should be set as 465 for this encryption method. When you select SSL or TLS and enable STARTTLS, emails will be sent after encrypted by STARTTLS, and the SMTP port should be set as 25.

   Note: If you want to use STARTTLS, make sure that the protocol is supported by your e-mail server. If you check the Enable STARTTLS checkbox when the protocol is not supported by your e-mail sever, your e-mail will not be encrypted.

   Attached Image: Check the checkbox of Attached Image if you want to send emails with attached alarm images.

   Interval: The interval refers to the time between two actions of sending attached pictures.

   Authentication (optional): If your email server requires authentication, check this checkbox to use authentication to log in to this server and input the login user name and password.

- *For your privacy and to better protect your system against security risks, we strongly recommend the use of strong passwords for all functions and network devices. The password should be something of your own choosing (using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower* *case letters, numbers and special characters) in order to increase the security of your product.*

- *Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.*

The **Receiver** table**:** Select the receiver to which the email is sent. Up to 3 receivers can be configured.

Receiver: The name of the user to be notified.

Receiver's Address: The email address of user to be notified.

3. Click **Save** to save the settings.

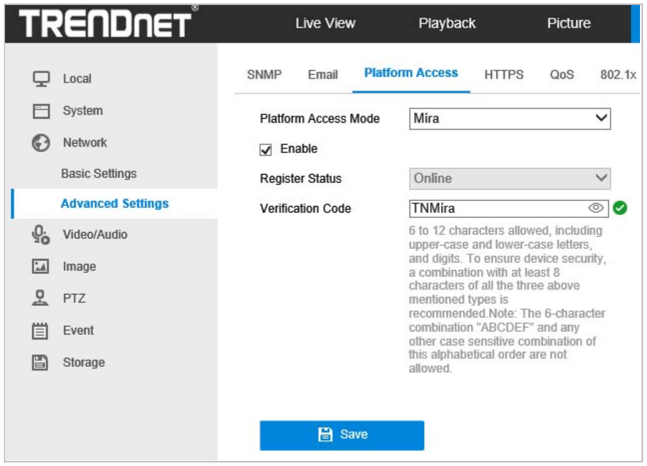
Platform Access

Platform access provides you an option to manage the devices via platform.

Steps:

1. Enter the Platform Access interface.

   Configuration > Network > Advanced Settings > Platform Access



Platform Access Mode: Mira

☑ Enable

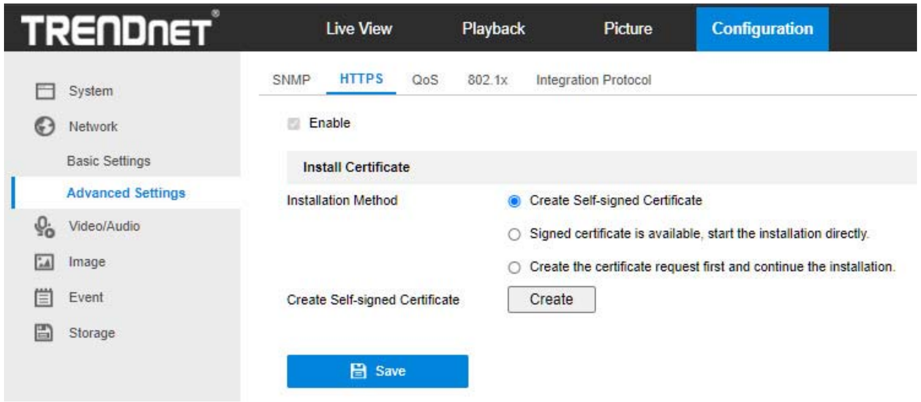
Register Status: Online

Verification Code: TNMira

6 to 12 characters allowed, including upper-case and lower-case letters, and digits. To ensure device security, a combination with at least 8 characters of all the three above mentioned types is recommended.Note: The 6-character combination "ABCDEF" and any other case sensitive combination of this alphabetical order are not allowed.

2. Check the checkbox of **Enable** to enable the platform access function of the device.
3. Select the Platform Access Mode from the dropdown list.
4. Set the Server IP.
5. Click **SAV**E to save the settings

HTTPS



☐ Enable

Install Certificate

Installation Method: ● Create Self-signed Certificate
○ Signed certificate is available, start the installation directly.
○ Create the certificate request first and continue the installation.

Create Self-signed Certificate: Create

HTTPS provides authentication of the web site and its associated web server, which protects against Man-in-the-middle attacks.

Note:

- For the camera that supports plug-in free live view, when you use HTTPS to visit the camera, you should enable **Websockets** for live view. Go to **Configuration > Network > Advanced Settings > Network Service**.
- If HTTPS is enable d by default, the camera creates an unsigned certificate automatically. When you visit the camera via HTTPS, the web browser will send a notification about the certificate issue. Install a signed-certificate to the camera to cancel the notification.

1. Check **Enable** to access the camera via HTTP or HTTPS protocol.
2. Check **Enable HTTPS Browsing** to access the camera only via HTTPS protocol.
3. Create the self-signed certificate or authorized certificate.

- Create the self-signed certificate

(1) Select **Create Self-signed Certificate** as the Installation Method.

(2) Click **Create** button to enter the creation interface.

(3) Enter the country, host name/IP, validity and other information.

(4) Click **OK** to save the settings.

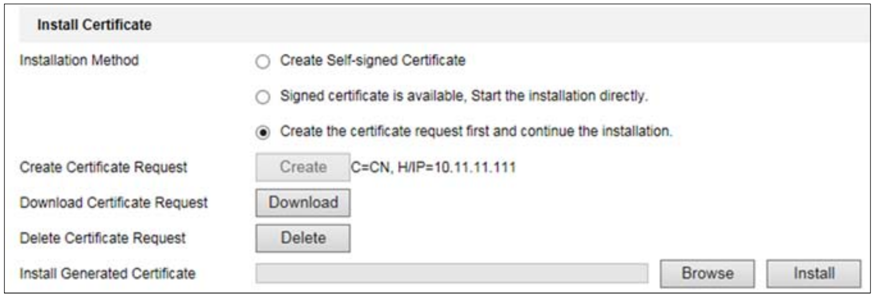
Note: If you already had a certificate installed, the Create Self-signed Certificate is grayed out.

- Create the request and import the authorized certificate

  - Select **Create the certificate request first and continue the installation** as the Installation Method.
  - Click **Create** button to create the certificate request. Fill in the required information in the popup window.
  - Click **Download** to download the certificate request and submit it to the trusted certificate authority for signature.
  - After receiving the signed valid certificate, you can import the certificate in two ways:

.4 Select **Signed certificate is available, Start the installation directly**. Click **Browse** and **Install** to import the certificate to the device.

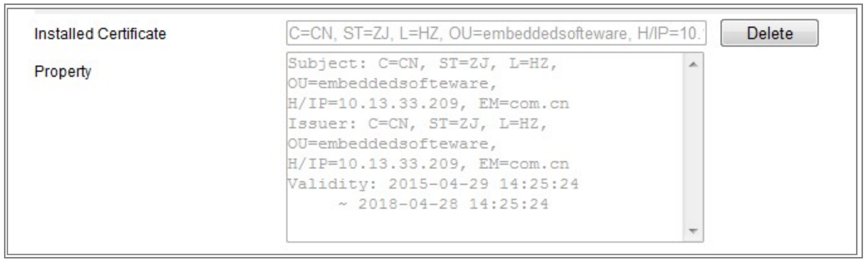
.5 Select **Create the certificate request first and continue the installation**. Click **Browse** and **Install** to import the certificate to the device.



Install Certificate

Installation Method	○ Create Self-signed Certificate ○ Signed certificate is available, Start the installation directly. ● Create the certificate request first and continue the installation.
Create Certificate Request	Create C=CN, H/IP=10.11.11.111
Download Certificate Request	Download
Delete Certificate Request	Delete
Install Generated Certificate	Browse Install

4. There will be the certificate information after your successfully creating and installing the certificate.



Installed Certificate: C=CN, ST=ZJ, L=HZ, OU=embeddedsofteware, H/IP=10. Delete

Property:

```
Subject: C=CN, ST=ZJ, L=HZ,
OU=embeddedsofteware,
H/IP=10.13.33.209, EM=com.cn
Issuer: C=CN, ST=ZJ, L=HZ,
OU=embeddedsofteware,
H/IP=10.13.33.209, EM=com.cn
Validity: 2015-04-29 14:25:24
      ~ 2018-04-28 14:25:24
```

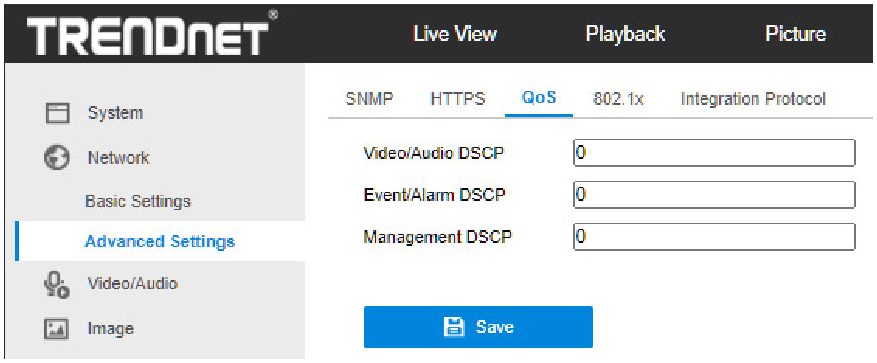
5. Export and save the certificate for verification when adding the device to client software.

   Note:

   The exported certificate should be saved in the certificate folder of your client software before adding the device to your PC client.

6. Click the **Save** button to save the settings.

QoS



Video/Audio DSCP: 0

Event/Alarm DSCP: 0

Management DSCP: 0

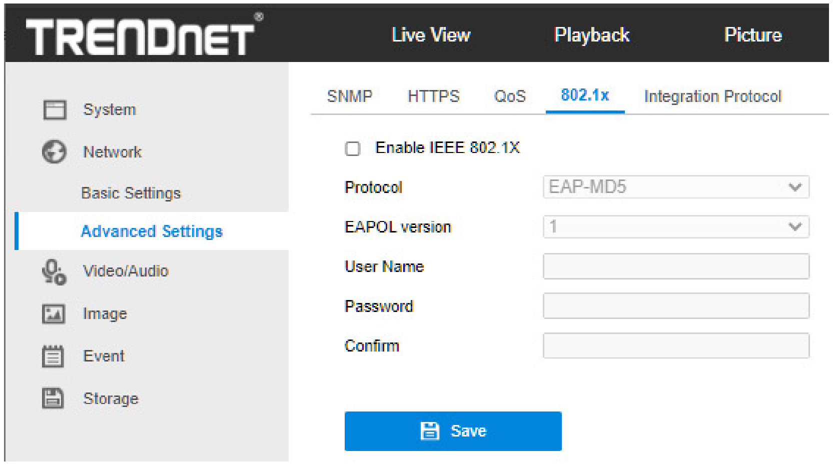
1. Configure the QoS settings, including Video/Audio DSCP, Event/Alarm DSCP and Management DSCP.

   The valid value range of the DSCP is 0 to 63. The bigger the DSCP value is, the higher the priority is.

   Note: DSCP refers to the Differentiated Service Code Point; and the DSCP value is used in the IP header to indicate the priority of the data.

2. Click **Save** to save the settings.

802.1x



☐ Enable IEEE 802.1X

Protocol: EAP-MD5

EAPOL version: 1

User Name:

Password:

Confirm:

The IEEE 802.1X standard is supported by the network cameras, and when the feature is enabled, the camera data is secured and user authentication is needed when connecting the camera to the network protected by the IEEE 802.1X.

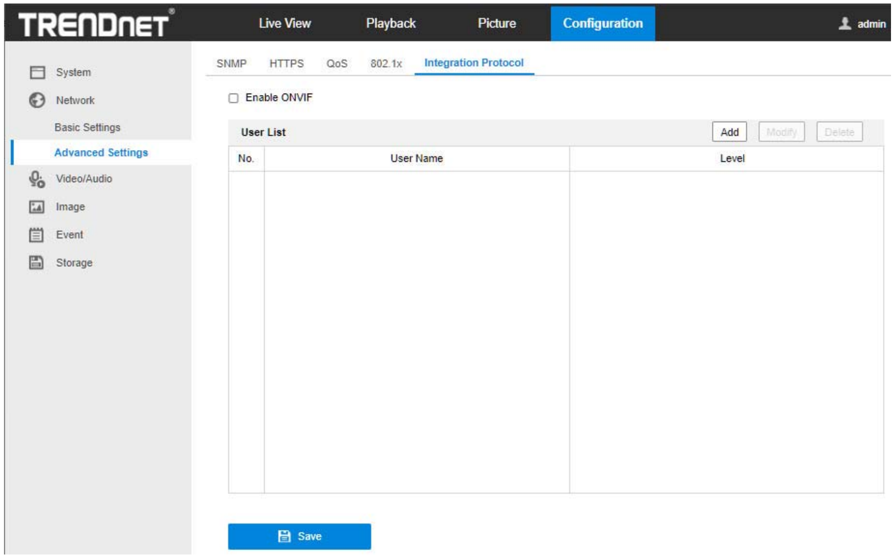
Before you start:

The authentication server must be configured. Please apply and register a user name and password for 802.1X in the server.

1. Check the **Enable IEEE 802.1X** checkbox to enable the feature.
2. Configure the 802.1X settings, including Protocol, EAPOL version, User Name, Password and Confirm.

   Note: The **EAPOL version** must be identical with that of the router or the switch.
3. Enter the user name and password to access the server.
4. Click **Save** to finish the settings.

Integration Protocol



☐ Enable ONVIF

User List

No.	User Name	Level

If you need to access to the device through ONVIF protocol, you can configure ONVIF user in this interface. Refer to ONVIF standard for detailed configuration rules.

1. Check the Enable ONVIF checkbox to enable the function.
2. Add ONVIF users. Up to 32 users are allowed.

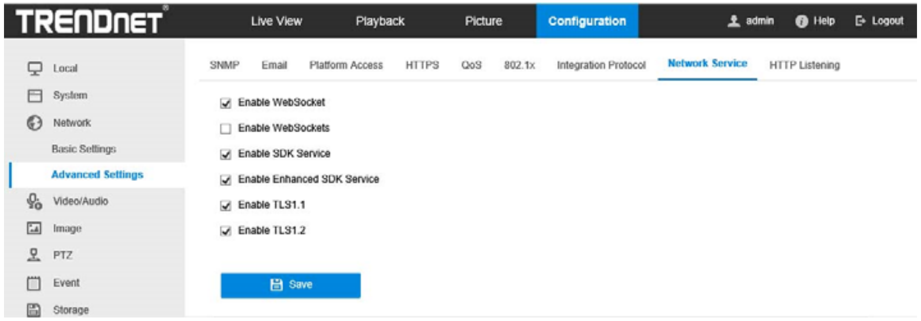
   Set the user name and password, and confirm the password. You can set the user as media user, operator, and administrator.

Note: ONVIF user account is different from the camera user account. You have set ONVIF user account independently.

3. Save the settings.

Note: User settings of ONVIF are cleared when you restore the camera.

Network Service



☑ Enable WebSocket
☐ Enable WebSockets
☑ Enable SDK Service
☑ Enable Enhanced SDK Service
☑ Enable TLS1.1
☑ Enable TLS1.2

You can control the ON/OFF status of certain protocol that the camera supports.

Supported services vary according to camera models.

Keep unused function OFF for security concern.

- **SDK Service** and **Enhanced SDK Service**

  If you want to add the device to the client software, you should enable SDK Service or Enhanced SDK Service.

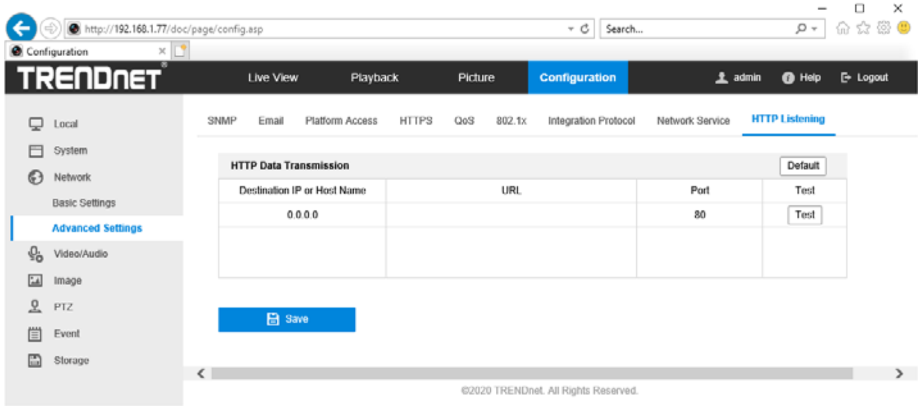
  SDK Service: SDK protocol is used.

  Enhanced SDK Service: SDK over TLS protocol is used. Communication between the device and the client software is secured by using TLS (Transport Layer Security) protocol.

- **TLS (Transport** Layer **Security)**

  The device offers TLS 1.1 and TLS 1.2. Enable one or more protocol versions according to your need.

HTTP Listening



HTTP Data Transmission

Destination IP or Host Name	URL	Port	Test
0.0.0.0		80	Test

Alarm information can be sent to destination IP or Host via HTTP protocol.

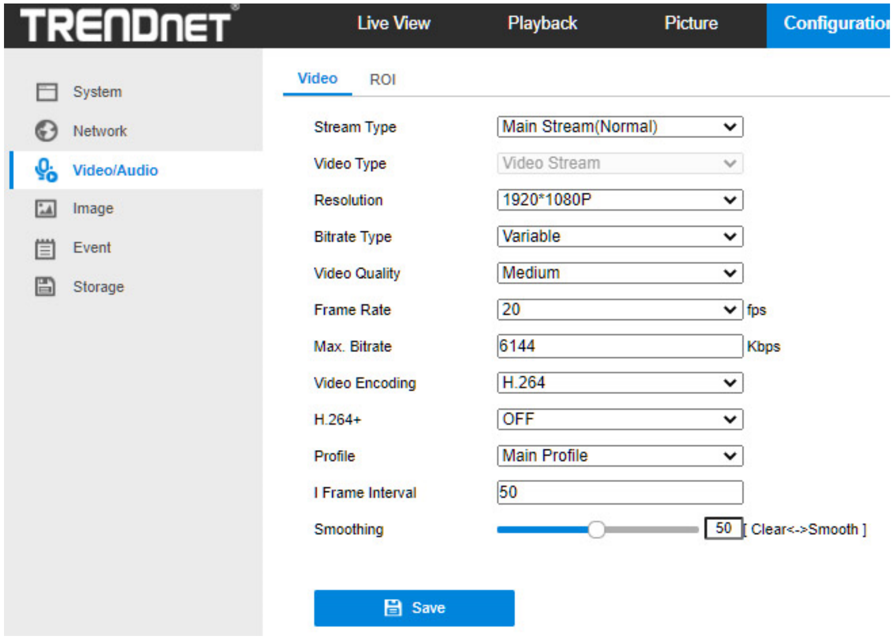
Steps:

1. Input destination IP or host name, URL, and port number.
2. Click Test to see if the service is available.

HTTP data transmission should be supported by the destination IP or Host.

Video/Audio

Video



Stream Type: Main Stream(Normal)
Video Type: Video Stream
Resolution: 1920*1080P
Bitrate Type: Variable
Video Quality: Medium
Frame Rate: 20 fps
Max. Bitrate: 6144 Kbps
Video Encoding: H.264
H.264+: OFF
Profile: Main Profile
I Frame Interval: 50
Smoothing: 50 [Clear<->Smooth]

Video Type:

Select the stream type to video stream, or video & audio composite stream. The audio signal will be recorded only when the **Video Type** is **Video & Audio**.

Resolution:

Select the resolution of the video output.

Bitrate Type:

Select the bitrate type to constant or variable.

Video Quality:

When bitrate type is selected as Variable, 6 levels of video quality are selectable.

Frame Rate:

Set the frame rate. The frame rate is to describe the frequency at which the video stream is updated and it is measured by frames per second (fps). A higher frame rate is advantageous when there is movement in the video stream, as it maintains image quality throughout.

Max. Bitrate:

Set the max. bitrate from 32 to 16384 Kbps. The higher value corresponds to the higher video quality, but the better bandwidth is required.

Note: The maximum limit of the max. bitrate value varies according to different camera platforms. For certain cameras, the maximum limit is 8192 Kbps or 12288 Kbps.

Video Encoding:

The camera supports multiple video encodings types, such as H.264, H.265, MJPEG, and MPEG4. Supported encoding type for different stream types may differ. H.265 is a new encoding technology. Compared with H.264, it reduces the transmission bitrate under the same resolution, frame rate and image quality.

Note: Selectable video encoding types may vary according to different camera modes.

H.264+ and H.265+:

- **H.264+:** If you set the main stream as the stream type, and H.264 as the video encoding, you can see H.264+ available. H.264+ is an improved compression coding technology based on H.264. By enabling H.264+, users can estimate the HDD consumption by its maximum average bitrate. Compared to H.264, H.264+ reduces storage by up to 50% with the same maximum bitrate in most scenes.
- **H.265+:** If you set the main stream as the stream type, and H.265 as the video encoding, you can see H.265+ available. H.265+ is an improved compression coding technology based on H.265. By enabling H.265+, users can estimate the HDD consumption by its maximum average bitrate. Compared to H.265, H.265+ reduces storage by up to 50% with the same maximum bitrate in most scenes.

You need to reboot the camera if you want to turn on or turn off the H.264+/H.265+. If you switch from H.264+ to H.265+ directly, and vice versa, a reboot is not required by the system.

Notes:

- Upgrade your video player to the latest version if live view or playback does not work properly due to compatibility.
- With H.264+/H.265+ enabled, the parameters such as profile, I frame interval, video quality, and SVC are greyed out.
- With H.264+/H.265+ enabled, some functions are not supported. For those functions, corresponding interfaces will be hidden.
- H.264+/H.265+ can spontaneously adjust the bitrate distribution according the requirements of the actual scene in order to realize the set maximum average bitrate in the long term. The camera needs at least 24 hours to adapt to a fixed monitoring scene.

Max. Average Bitrate:

When you set a maximum bitrate, its corresponding recommended maximum average bitrate will be shown in the Max. Average Bitrate box. You can also set the maximum average bitrate manually from 32 Kbps to the value of the set maximum bitrate.

Profile:

When you select H.264 or H.265 as video encoding, you can set the profile. Selectable profiles vary according to camera models.

I Frame Interval:

Set I Frame Interval from 1 to 400.

SVC:

Scalable Video Coding is an extension of the H.264/AVC and H.265 standard. Select OFF/ON to disable/enable the SVC function. Select Auto and the device will automatically extract frames from the original video when the network bandwidth is insufficient.

Smoothing:

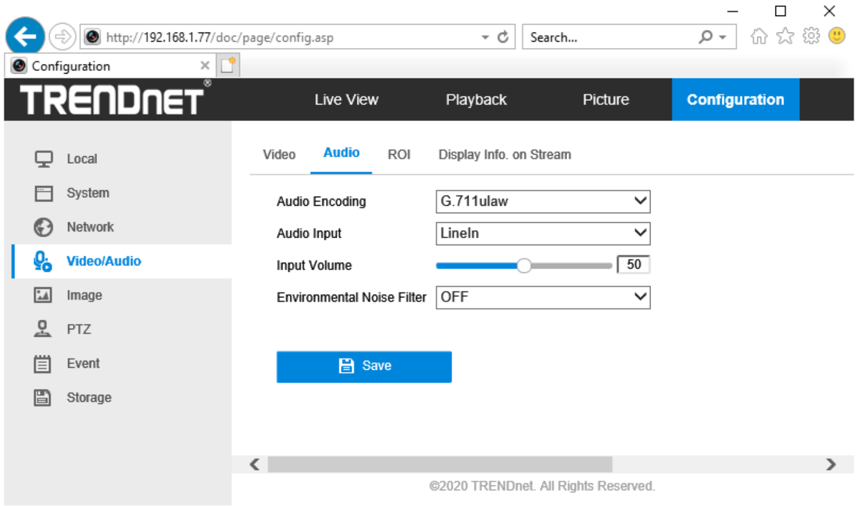
It refers to the smoothness of the stream. The higher value of the smoothing is, the better fluency of the stream will be, though, the video quality may not be so satisfactory. The lower value of the smoothing is, the higher quality of the stream will be, though it may appear not fluent.

1. Click **Save** to save the settings.

   Note:

   The video parameters vary according to different camera models. Refer to the actual display page for camera functions.

Audio



Audio Encoding: G.711ulaw

Audio Input: LineIn

Input Volume: 50

Environmental Noise Filter: OFF

1. Enter the Audio settings interface

   Configuration > Video/Audio > Audio

2. Configure the following settings.

   Audio Encoding: G.722.1, G.711ulaw, G.711alaw, MP2L2, G.726 and PCM are selectable.

   Audio Input: When an intercom is connected to the speed dome, you need to set this option to **LineIn**. When a microphone is connected to the speed dome, you need to set this option to **MicIn**.

   Audio Stream Bitrate: When the Audio Encoding is selected as MP2L2, you can configure the Audio Stream Bitrate in the dropdown list. The greater the value is, the better the audio quality will be.

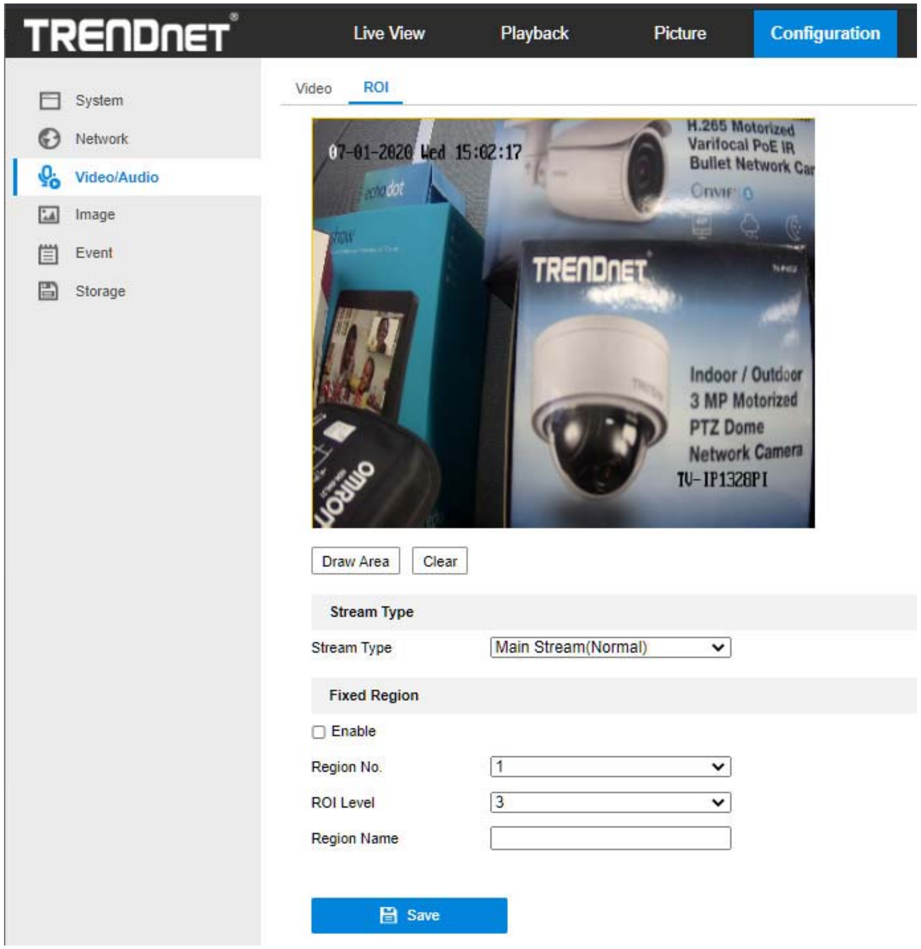
   Sampling Rate: When the Audio Encoding is selected as MP2L2, you can configure the Sampling Rate in the dropdown list. The greater the value is, the better the audio quality will be.

   Input Volume: Slid the **bar** to turn up/down the volume. The value ranges from 0 to 100.

   Environmental Noise Filter: Select ON or OFF in the dropdown list to enable or disable the function. It's recommended to enable the function when the sampling rate is lower than 32 kHz.

3. Click **SAVE** to save the settings.

ROI



Stream Type

Stream Type: Main Stream(Normal)

Fixed Region

☐ Enable

Region No.: 1

ROI Level: 3

Region Name:

ROI (Region of Interest) encoding helps to discriminate the ROI and background information in video compression, which means, the technology assigns more encoding resource to the region of interest, thus to increase the quality of the ROI whereas the background information is less focused.

Note: ROI function varies according to different camera models.

Steps:

1. Enter the ROI settings interface: **Configuration > Video/Audio > ROI**.
2. Select the Stream Type for ROI encoding.
3. Check the checkbox of **Enable** under Fixed Region item.
4. Set **Fixed Region** for ROI.
   (1) Select the Region No. from the drop-down list.
   (2) Check the **Enable** checkbox to enable ROI function for the chosen region.
   (3) Click **Drawing**. Click and drag the mouse on the view screen to draw a red rectangle as the ROI region. You can click **Clear** to cancel former drawing. Click **Stop Drawing** when you finish.
   (4) Select the ROI level.
   (5) Enter a region name for the chosen region.
   (6) Click **Save** the save the settings of ROI settings for chosen fixed region.
   (7) Repeat steps (1) to (6) to setup other fixed regions.
5. Set **Dynamic Region** for ROI.
   (1) Check the checkbox to enable **Face Tracking**.

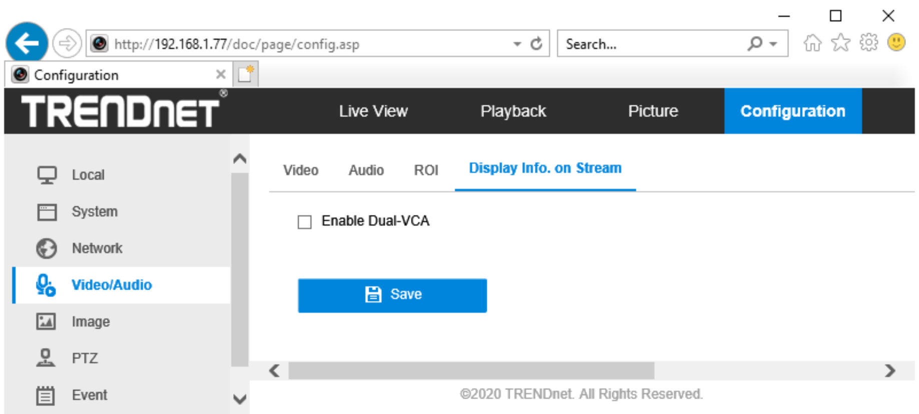
   Note: To enable face tracking function, the face detection function should be supported and enabled.

   (2) Select the ROI level.

6. Click **Save** to save the settings.

Note: ROI level means the image quality enhancing level. The larger the value is, the better the image quality would be.

Display Info on Stream



□ Enable Dual-VCA

1. Enter the Dual-VCA settings interface:

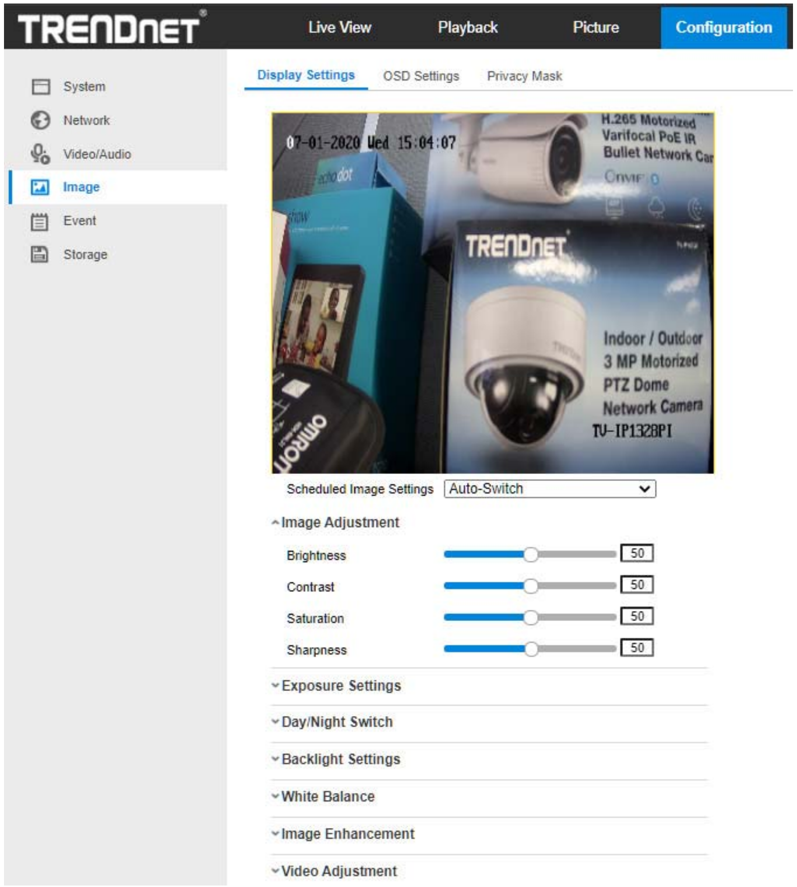
   Configuration > Video/Audio > Display Info. on Stream

2. Check the checkbox to enable the function of Dual-VCA which can be used cooperatively with NVR to implement dual-VCA retrieval during playback.

3. Click **Save** to save the settings.

Image

Display Settings



Scheduled Image Settings: Auto-Switch

Brightness: 50
Contrast: 50
Saturation: 50
Sharpness: 50

- **Image Adjustment**

  Brightness describes bright of the image, which ranges from 1 to 100.

  Contrast describes the contrast of the image, which ranges from 1 to 100.

Saturation describes the colorfulness of the image color, which ranges from 1 to 100.

Sharpness describes the edge contrast of the image, which ranges from 1 to 100.

- **Exposure Settings**

If the camera is equipped with the fixed lens, only **Manual** is selectable, and the iris mode is not configurable.

If **Auto** is selected, you can set the auto iris level from 0 to 100.

The **Exposure Time** refers to the electronic shutter time, which ranges from 1 to 1/100,000s. Adjust it according to the actual luminance condition.

Gain of image can also be manually configured from 0 to 100. The bigger the value is, the brighter would the image be, and the noise would also be amplified to a larger extent.

- **Day/Night Switch**

Select the Day/Night Switch mode according to different surveillance demand.

Day, Night, Auto, Scheduled-Switch, and Triggered by alarm input are selectable for day/night switch.

Day: the camera stays at day mode.

Night: the camera stays at night mode.

Auto: the camera switches between the day mode and the night mode according to the illumination automatically. The sensitivity ranges from 0 to 7, the higher the value is, the easier the mode switches. The filtering time refers to the interval time between the day/night switch. You can set it from 5s to 120s.

Scheduled-Switch: Set the start time and the end time to define the duration for day/night mode.

Triggered by alarm input: The switch is triggered by alarm input. You can set the triggered mode to day or night.

Smart Supplement Light: Set the supplement light as ON, and Auto and Manual are selectable for light mode.

Select Auto, and the supplement light changes according to the actual luminance. E.g., if the current scene is bright enough, then the supplement light adjusts itself to lower power; and if the scene is not bright enough, the light adjusts itself to higher power.

Select Manual, and you can adjust the supplement by adjusting the distance. E.g., if the object is near the camera, the device adjusts the supplement light to lower power, and the light is in higher power if the object is far away.

- **Backlight Settings**

BLC Area: If you focus on an object against strong backlight, the object will be too dark to be seen clearly. BLC compensates light to the object in the front to make it clear. OFF, Up, Down, Left, Right, Center, Auto, and Custom are selectable.

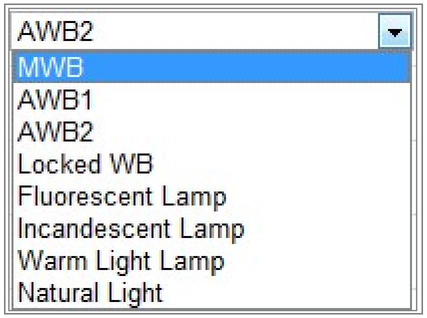
Note: If BLC mode is set as Custom, you can draw a red rectangle on the live view image as the BLC area.

D-WDR: Wide Dynamic Range can be used when there is a high contrast of the bright area and the dark area of the scene.

HLC: High Light Compression function can be used when there are strong lights in the scene affecting the image quality.

- **White Balance**

White balance is the white rendition function of the camera used to adjust the color temperature according to the environment.



- **Image Enhancement**

Digital Noise Reduction: DNR reduces the noise in the video stream. OFF, Normal and Expert are selectable. Set the DNR level from 0 to 100 in Normal Mode. Set the DNR level from both space DNR level [0-100] and time DNR level [0-100] in Expert Mode.

Defog Mode: You can enable the defog function when the environment is foggy and the image is misty. It enhances the subtle details so that the image appears clearer.

EIS (Electrical Image Stabilizer): EIS reduces the effects of vibration in a video.

Grey Scale: You can choose the range of the grey scale as [0-255] or [16-235].

- **Video Adjustment**

Mirror: It mirrors the image so you can see it inversed. Left/Right, Up/Down, Center, and OFF are selectable.

Rotate: To make a complete use of the 16:9 aspect ratio, you can enable the rotate function when you use the camera in a narrow view scene.

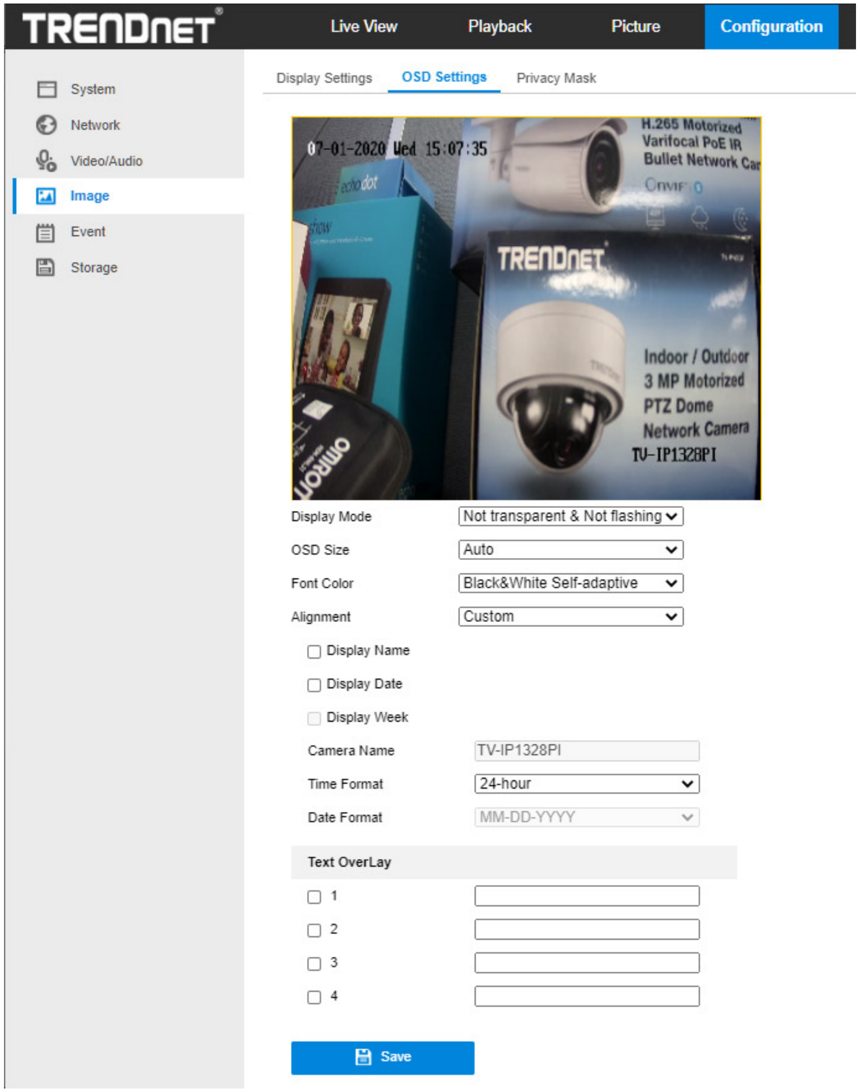
When installing, turn the camera to the 90 degrees or rotate the 3-axis lens to 90 degrees, and set the rotate mode as on, you will get a normal view of the scene with 9:16 aspect ratio to ignore the needless information such as the wall, and get more meaningful information of the scene.

Scene Mode: Choose the scene as indoor or outdoor according to the real environment.

Video Standard: 50 Hz and 60 Hz are selectable. Choose according to the different video standards; normally 50 Hz for PAL standard and 60 Hz for NTSC standard.

Lens Distortion Correction: For cameras equipped with motor-driven lens, image may appear distorted to some extent. Turn on this function to correct the distortion.

OSD Settings



Display Mode: Not transparent & Not flashing

OSD Size: Auto

Font Color: Black&White Self-adaptive

Alignment: Custom

☐ Display Name

☐ Display Date

☐ Display Week

Camera Name: TV-IP1328PI

Time Format: 24-hour

Date Format: MM-DD-YYYY

Text OverLay

☐ 1

☐ 2

☐ 3

☐ 4

1. Check the corresponding checkbox to select the display of camera name, date or week if required.
2. Edit the camera name in the text field of **Camera Name**.
3. Select from the drop-down list to set the time format and date format.
4. Select from the drop-down list to set the time format, date format, display mode, OSD size and OSD color.
5. Configure the text overlay settings.

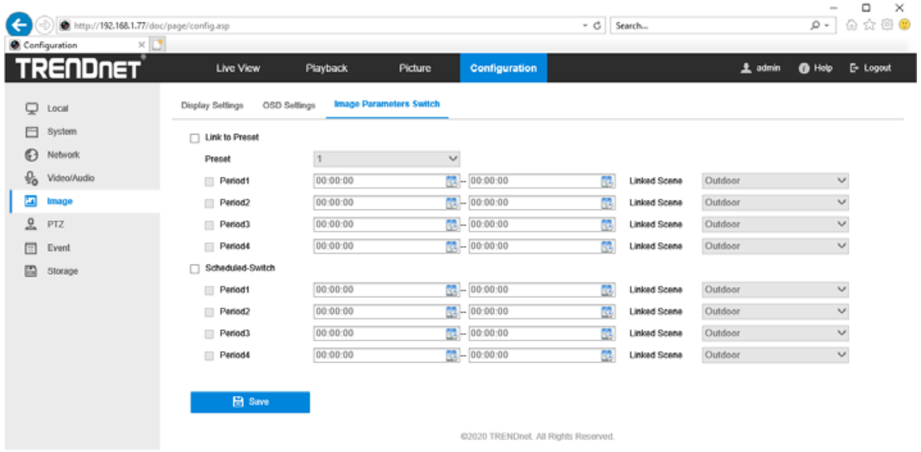
    (1) Check the checkbox in front of the textbox to enable the on-screen display.

    (2) Input the characters in the textbox.

    Note: Up to 8 text overlays are configurable.

6. Adjust the OSD position and alignment.
7. Character align right, character align left, all align right, all align left and custom are selectable. If you select character align right, character align left, all align left or all align right, you can set the left and right margins and up and down margins. 1 Character, 2 character and none are available. If you select custom, you can use the mouse to click and drag text frames in the live view window to adjust their positions.
8. Click **Save** to save the settings.

Image Parameters Switch



□ Link to Preset

Preset: 1

□ Period1	00:00:00	00:00:00	Linked Scene	Outdoor
□ Period2	00:00:00	00:00:00	Linked Scene	Outdoor
□ Period3	00:00:00	00:00:00	Linked Scene	Outdoor
□ Period4	00:00:00	00:00:00	Linked Scene	Outdoor

□ Scheduled-Switch

□ Period1	00:00:00	00:00:00	Linked Scene	Outdoor
□ Period2	00:00:00	00:00:00	Linked Scene	Outdoor
□ Period3	00:00:00	00:00:00	Linked Scene	Outdoor
□ Period4	00:00:00	00:00:00	Linked Scene	Outdoor

You can configure **Link to Preset** or **Scheduled-Switch** in order to switch to linked scene in certain time.

- **Link to Preset:** Set the time period and linked scene for the preset and check the corresponding checkbox to go to the linked scene in the configured time period.
- **Scheduled-Switch:** Set the time period and linked scene and it will go to the linked scene in the configured time period when you check the corresponding checkbox.

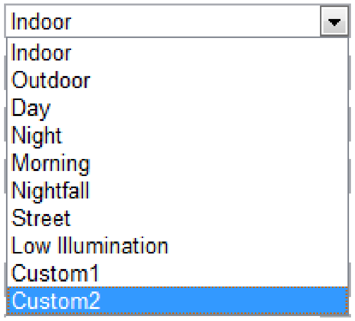
This function varies depending on different camera models

1. Enter the Image Parameters Switch interface:

   Configuration > Image > Image Parameters Switch

2. Check the checkbox of **Link to Preset** or **Scheduled-Switch** to enable the function. (Only one function can be enabled in the same time.)
3. When you enable the function of **Link to Preset**, select one preset from the dropdown list, check the corresponding checkbox, set the time period

and the linked scene for the selected preset. (Up to 4 periods can be configured for one preset.)



4. When you enable the function of **Scheduled-Switch**, check the corresponding checkbox, set the time period and the linked scene.
5. Click **Save** to save the settings.

The two functions are not enabled by default.

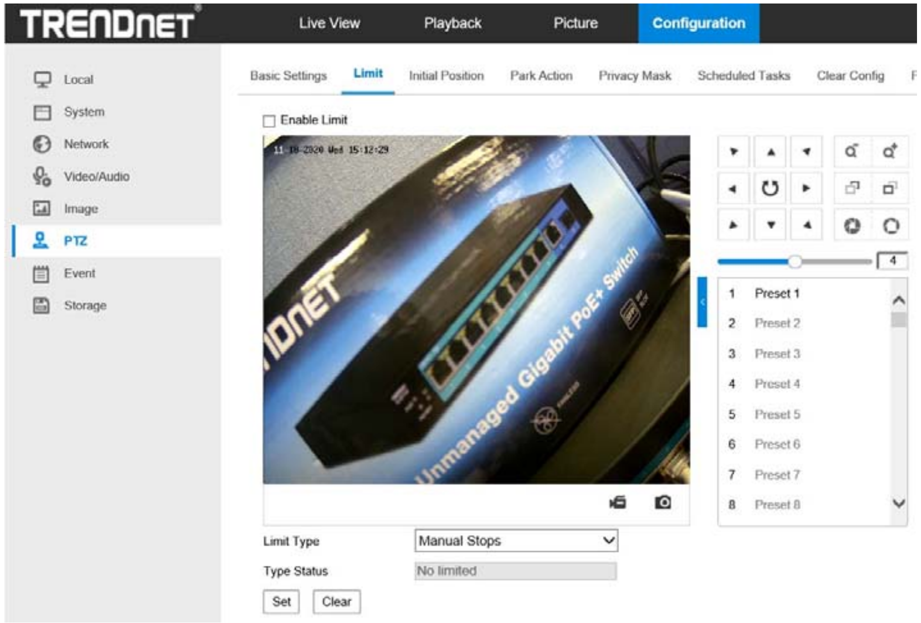
PTZ

Basic Settings

Basic Parameters	
Enable PTZ Control:	Enable this function to use PTZ fucntion
Enable Proportional Pan:	If you enable this function, the pan/tilt speeds change according to the amount of zoom.
Enable Preset Freezing:	This function enables the live view to switch directly from one scene defined by a preset to another, without showing the middle areas between these two, to ensure the surveillance efficiency. It can also reduce the use of bandwidth in a digital network system.
Preset Speed:	You can set the speed of defined preset from 1 to 8.
Manual Control Speed:	This function enables the live view to switch directly from one scene defined by a preset to another, without showing the middle areas between these two, to ensure the surveillance efficiency. It can also reduce the use of bandwidth in a digital network system.
Keyboard Control Speed:	Define the speed of PTZ control by a keyboard as Low, Medium or High.
Zooming Speed:	The speed of zooming is adjustable.
PTZ OSD	
Zoom Status:	Set the OSD duration of zooming status as 2 seconds to 10 seconds, always on or off.
PT Status:	Set the angle display duration white panning and tilting as 2 seconds to 10 seconds, always on or off.

Preset Status:	Set the preset name display duration as 2 seconds to 10 seconds, always on or off.
POWER OFF MEMORY	
Set Resume Time Point:	The camera can resume its previous PTZ status or actions after it is restarted from a power-off. You can set the time point of which the camera resumes its PTZ status from 30 seconds up to 600 seconds before power-off.
Click Save to save the changes	

Limit



☐ Enable Limit

Limit Type: Manual Stops

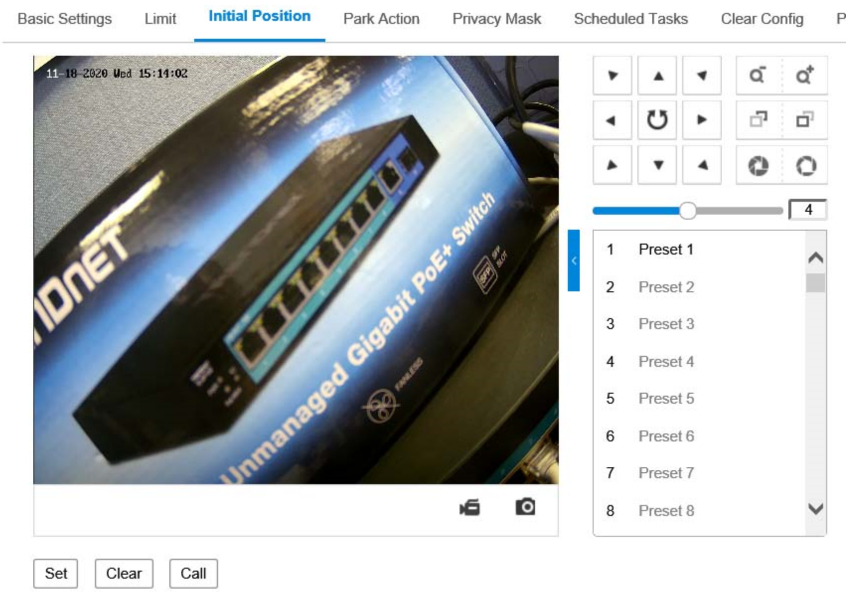
Type Status: No limited

Steps

1. Check the **Enable Limit** box and select Manual Stops or Scan Stops from the Limit Type list.
   a. When manual limit stops re set, you can operate the PTZ control panel manually only in the limited area.
   b. When scan limit stops are set, all the scan actions are performed only in the limited area.
2. Click the PTL control buttons to find the left/right/up/down stop limits, you can also call the presets and set them as the limits for the camera.
3. Click **Set** to save the limits and Clear to clear the limits.

Initial Position

Set the camera initial position, you can also call a preset for the position. Click Set to save the limits and Clear to clear the limits.



Steps:

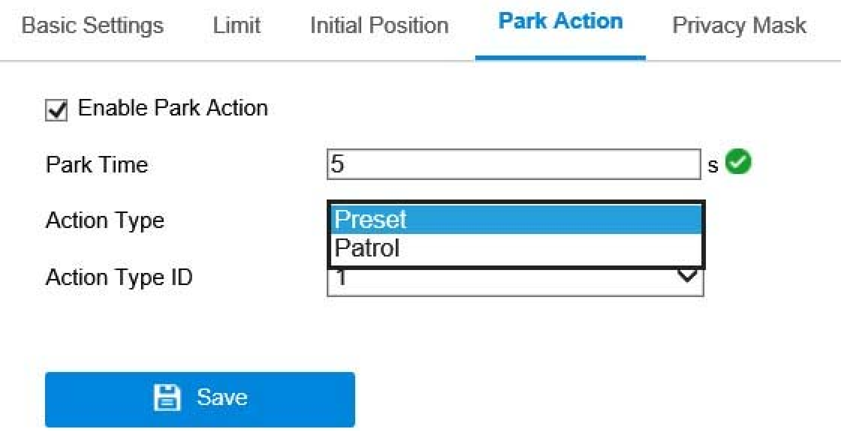
1. Click the PTZ control buttons to find a position as the initial position of the speed dome; you can also call a defined preset and set it as the initial position of the speed dome.
2. Click **Set** to save the position.
3. **Call/delete an Initial Position:**

You can click ↷ to call the initial position. You can click ✕ to delete the initial position and restore the factory default initial position.

Park Action

The feature allows the camera to start at a predefined park action. (scan, preset, pattern) automatically after a period of inactivity (park time).

Scheduled Tasks function has higher priority over Park Action function therefore when two functions are set at the same time, Scheduled Tasks function takes effect.

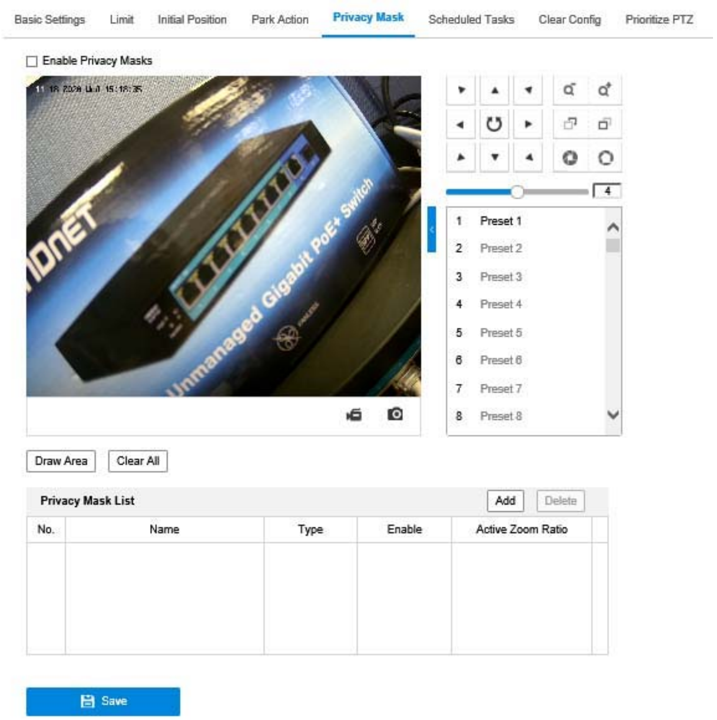


☑ Enable Park Action

Park Time	5 s ✓
Action Type	Preset Patrol
Action Type ID	1

Privacy Mask

Create masking area to keep your privacy. You can create up to four independent masking areas by clicking and dragging on the screen.



□ Enable Privacy Masks

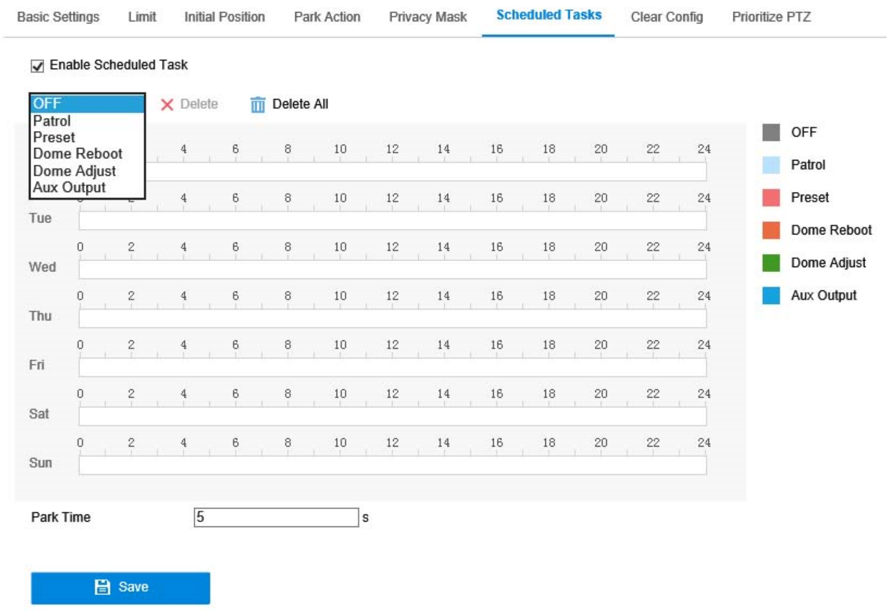
Privacy Mask List

No.	Name	Type	Enable	Active Zoom Ratio

Private Mask	
Enable Privacy Mask:	Check this box to enable privacy masking.
Draw Area:	Click this button to start drawing.
Stop Drawing:	Click this button to stop drawing.
Clear All:	Click this button to clear all the masking areas.
Add:	Click this button to add the mask.
Delete:	Click this button to delete the mask.
Click Save to save the changes	

Schedule Tasks

You can configure the camera to perform a certain action automatically in a user-defined time period.



☑ Enable Scheduled Task

Park Time 5 s

Enable the Scheduled Task, select the task(s) that you would like to perform at certain time.

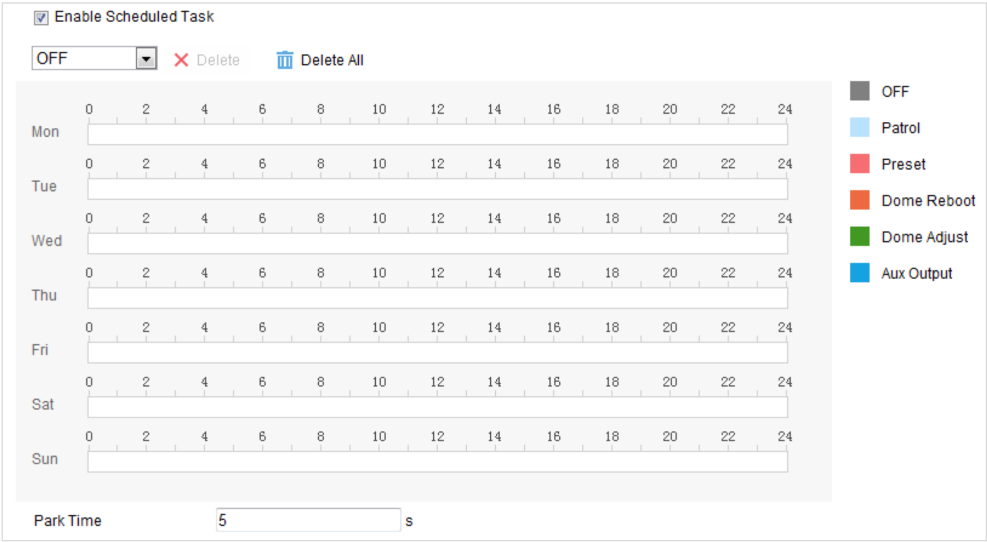
1. Choose the day you would like to set the task schedule
2. Click All Day or Customize to enter the Start Time and End Time for each task.
3. Choose the task type from the drop down list.
4. Click OK to save the settings.

Note: The time for each task cannot be overlapped, up to 10 tasks can be configured for each day.

Scheduled Tasks

You can configure the network speed dome to perform a certain action automatically in a user-defined time period.

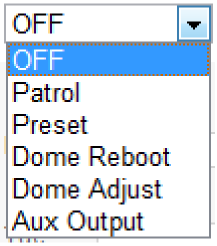
1. Enter the Scheduled Task settings interface: **Configuration**> **PTZ** > **Scheduled Tasks**



☑ Enable Scheduled Task

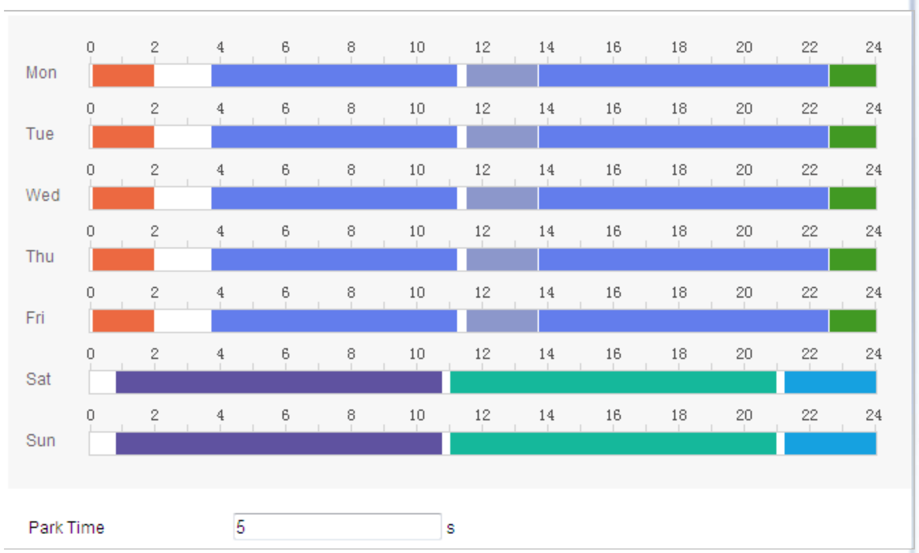
Park Time 5 s

2. Check the checkbox of **Enable Scheduled Task**.
3. Set the **Park Time**. You can set the park time (a period of inactivity) before the speed dome starts the scheduled tasks.
4. Select the task type from the dropdown list. You can choose scan, preset, pattern and etc.



5. Select the timeline of a certain day, click and drag the the mouse to set the recording schedule (the start time and end time of the recording task).

6. After you set the scheduled task, you can click and copy the task to other days (optional).



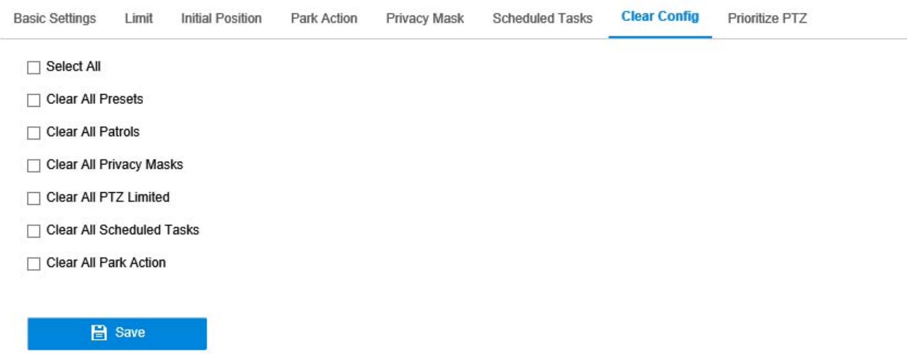
Park Time 5 s

The time of each task cannot be overlapped. Up to 10 tasks can be configured for each day.

7. Click Save to save the settings

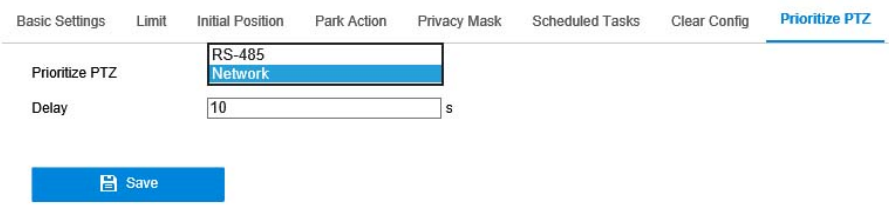
Clear Config

You can clear PTZ configurations all at once in this section, select the desire function and click **Save** to clear.



☐ Select All
☐ Clear All Presets
☐ Clear All Patrols
☐ Clear All Privacy Masks
☐ Clear All PTZ Limited
☐ Clear All Scheduled Tasks
☐ Clear All Park Action

Prioritize PTZ



Prioritize PTZ Network

Delay 10 s

1. Select Network or RS-485 from the dropdown list
2. Set the delay time (Range 2-200s)
3. Click Save to save the settings

Event – Basic Event

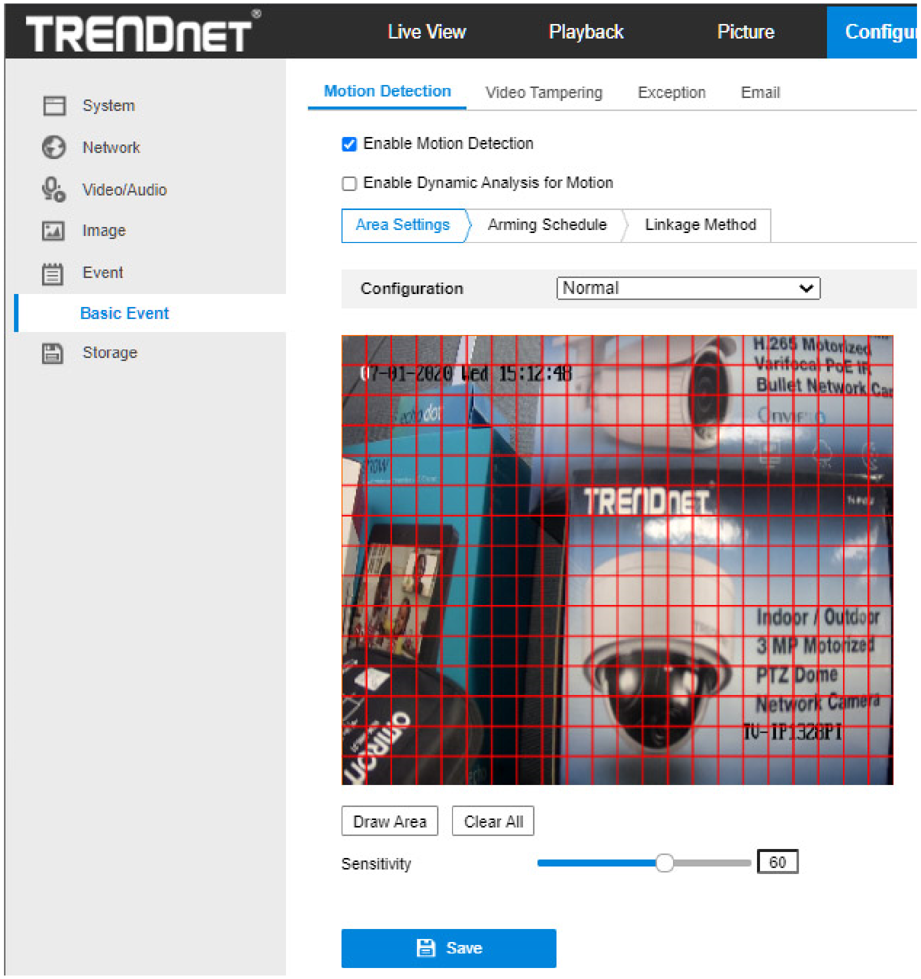
You can configure the basic events by following the instructions in this section, including motion detection, video tampering, alarm input, alarm output, and exception, etc. These events can trigger the linkage methods, such as Notify Surveillance Center, Send Email, etc.

Note**:** Check the checkbox of Notify Surveillance Center if you want the alarm information to be pushed to PC or mobile client software as soon as the alarm is triggered.

Motion Detection

Motion detection detects the moving objects in the configured surveillance area, and a series of actions can be taken when the alarm is triggered.

In order to detect the moving objects accurately and reduce the false alarm rate, normal configuration and expert configuration are selectable for different motion detection environment.



☑ Enable Motion Detection

□ Enable Dynamic Analysis for Motion

Configuration: Normal

Sensitivity: 60

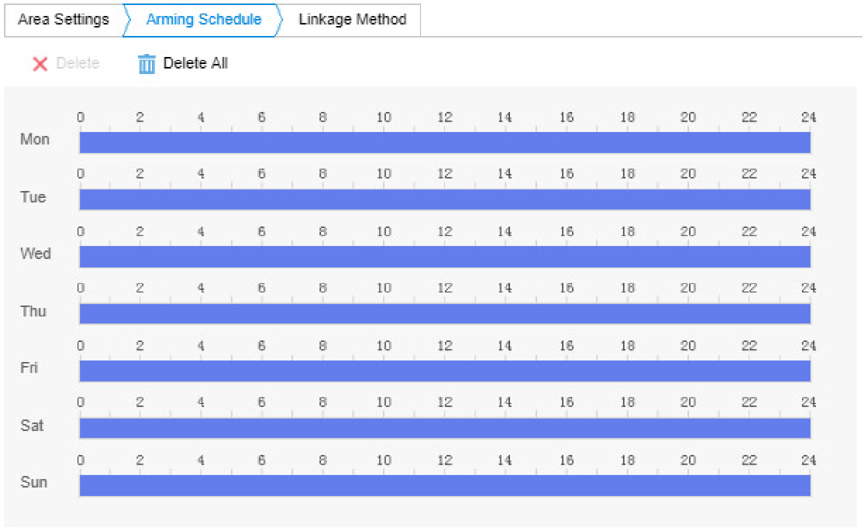
1. Check the checkbox of **Enable Motion Detection**.
2. Check the checkbox of **Enable Dynamic Analysis for Motion** if you want to mark the detected objects with green rectangles.

Note: Select Disable for rules if you don't want the detected objected displayed with the green rectangles. Select disable rules from **Configuration > Local Configuration > Live View Parameters-rules**.

3. Click **Draw Area**. Click and drag the mouse on the live video to draw a motion detection area. Click **Stop Drawing** to finish drawing one area.
4. (Optional) Click **Clear All** to clear all of the areas.
5. (Optional) Move the slider to set the sensitivity of the detection.

Steps:

1. Click **Arming Schedule** to edit the arming schedule.
2. Click on the time bar and drag the mouse to select the time period.



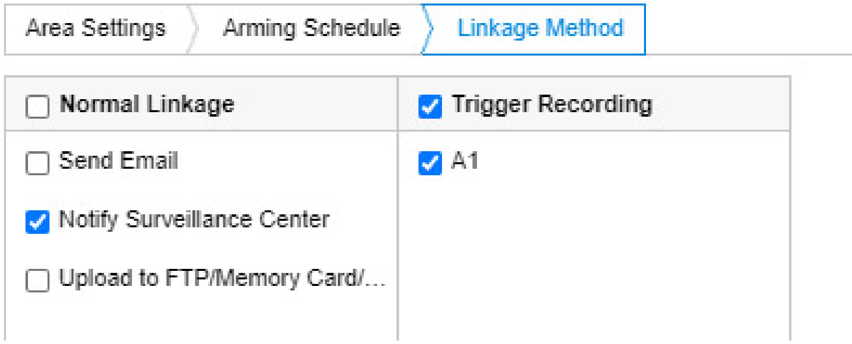
Note: Click on the selected time period, you can adjust the time period to the desired time by either moving the time bar or input the exact time period.

3. (Optional) Click Delete to delete the current arming schedule, or click Save to save the settings.
4. Move the mouse to the end of each day, a copy dialogue box pops up, and you can copy the current settings to other days.
5. Click **Save** to save the settings.

Note: The time of each period can't be overlapped. Up to 8 periods can be configured for each day.

Task 3: Set the Linkage Method for Motion Detection

Check the checkbox to select the linkage method. Audible Warning, Send Email, Notify Surveillance Center, Upload to FTP/Memory Card/NAS, Trigger Channel and Trigger Alarm Output are selectable. You can specify the linkage method when an event occurs.



☐ Normal Linkage	☑ Trigger Recording
☐ Send Email	☑ A1
☑ Notify Surveillance Center	
☐ Upload to FTP/Memory Card/...	

Note: The linkage methods vary according to the different camera models.

- **Send Email**

  Send an email with alarm information to a user or users when an event occurs.

- **Notify Surveillance Center**

  Send an exception or alarm signal to remote management software when an event occurs.

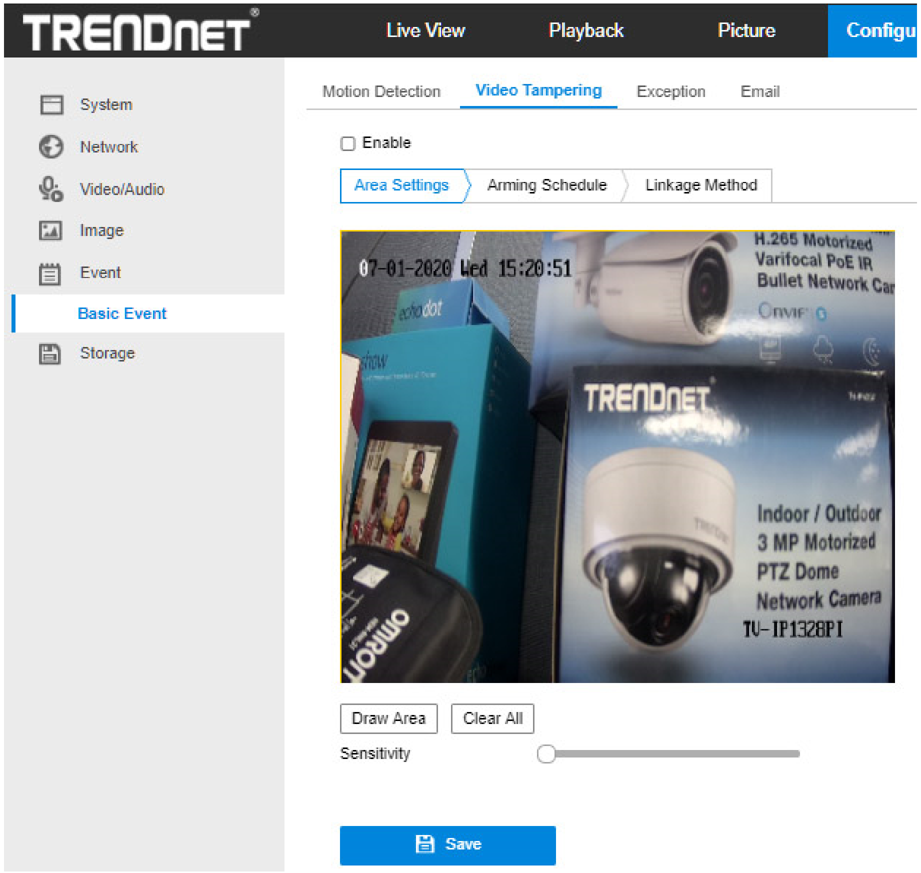
- **Upload to FTP/ NAS**

  Capture the image when an alarm is triggered and upload the picture to a FTP server.

Notes:

- Set the FTP address and the remote FTP server first
- Go to **Configuration > Storage > Schedule Settings> Capture > Capture Parameters** page, enable the event-triggered snapshot, and set the capture interval and capture number.
- The captured image can also be uploaded to the available SD card or network disk.

Video Tampering



□ Enable

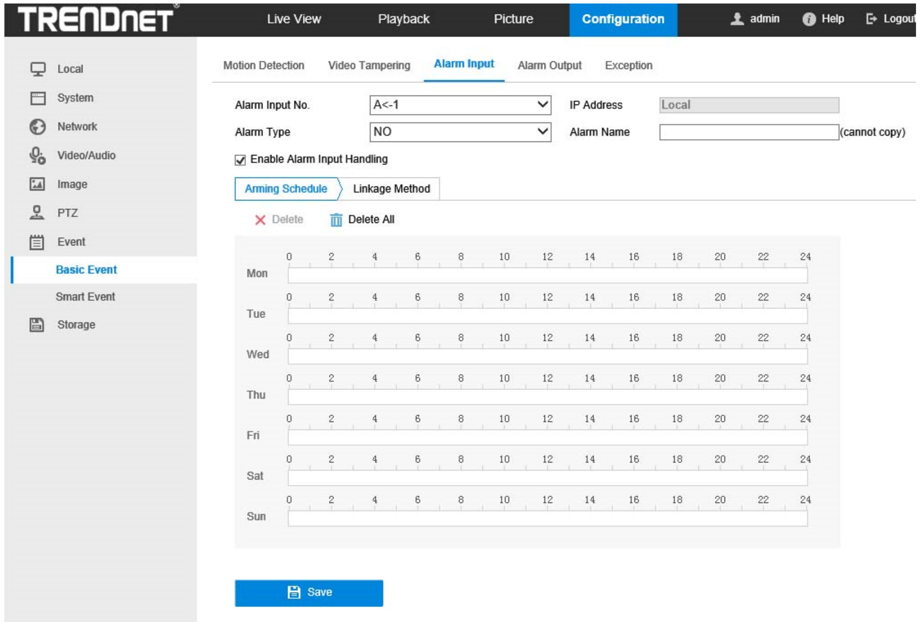
Sensitivity

You can configure the camera to trigger the alarm when the lens is covered and take certain alarm response actions.

Detection area for this alarm is the whole screen.

1. Check **Enable Video Tampering** checkbox to enable the video tampering detection.
2. Click **Edit** to edit the arming schedule for video tampering. The arming schedule configuration is the same as the setting of the arming schedule for motion detection. Check the checkbox to select the linkage method taken for the video tampering.
3. Click **Save** to save the settings.

Configuring Alarm Input



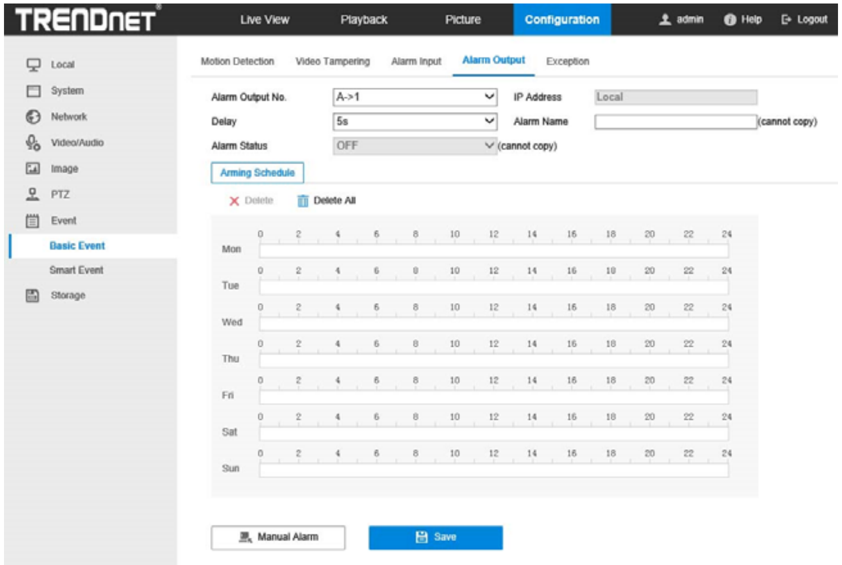
Alarm Input No. A<-1
IP Address Local
Alarm Type NO
Alarm Name (cannot copy)
☑ Enable Alarm Input Handling

1. Enter the Alarm Input settings interface:

   Configuration > Event > Basic Event > Alarm Input

2. Choose the alarm input No. and the Alarm Type. The alarm type can be NO (Normally Open) and NC (Normally Closed).
3. Edit the name in Alarm Name (cannot copy) to set a name for the alarm input (optional).
4. Click Arming Schedule tab to enter the arming schedule setting interface. The arming schedule configuration is the same as the setting of the arming schedule for motion detection.
5. Click Linkage Method tab to select the linkage method taken for alarm input, including Notify Surveillance Center, Send Email, Upload to FTP/Memory, Trigger Alarm Output and Trigger Recording.
6. You can also choose the PTZ linking for the alarm input. Check the relative checkbox and select the No. to enable Preset Calling, Patrol Calling or Pattern Calling.
7. You can copy your settings to other alarm inputs.
8. Click **Save** to save the settings.

Configuring Alarm Output



Alarm Output No. A->1

IP Address Local

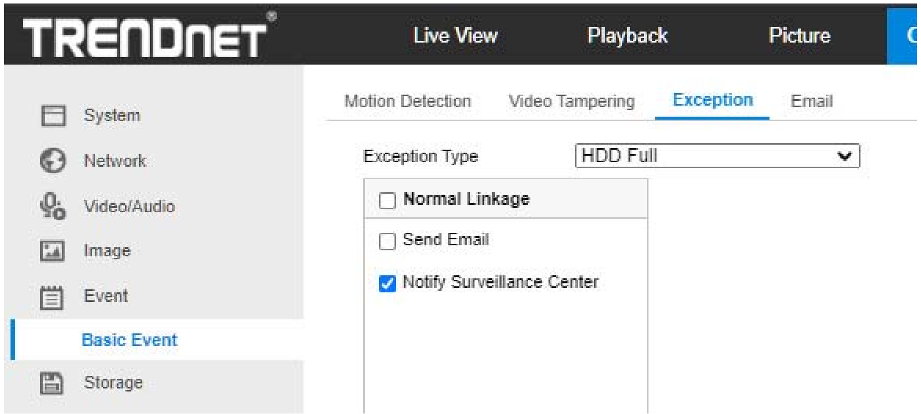
Delay 5s

Alarm Name (cannot copy)

Alarm Status OFF (cannot copy)

1. Enter the Alarm Output settings interface:
   Configuration> Event > Basic Event > Alarm Output
2. Select one alarm output channel in the **Alarm Output** dropdown list.
3. Set a name in Alarm Name for the alarm output (optional).
4. The **Delay** time can be set to **5sec**, **10sec**, **30sec**, **1min**, **2min**, **5min, 10min** or **Manual**. The delay time refers to the time duration that the alarm output remains in effect after alarm occurs.
5. Click Arming Schedule tab to enter the arming schedule setting interface. The time schedule configuration is the same as the settings of the arming schedule for motion detection.
6. You can copy the settings to other alarm outputs.
7. Click **Save** to save the settings.

Exceptions



Exception Type HDD Full

□ Normal Linkage

□ Send Email

☑ Notify Surveillance Center

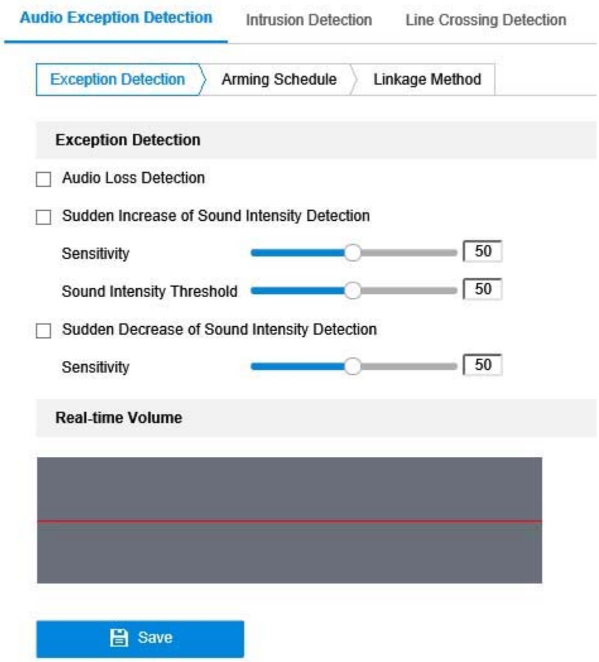
The exception type can be HDD full, HDD error, network disconnected, IP address conflicted and illegal login to the cameras.

Event – Smart Event

Audio Exception Detection

Audio exception detection function detects the abnormal sounds in the surveillance scene, such as the sudden increase/decrease of the sound intensity, and some certain actions can be taken when the alarm is triggered.

Note: Audio exception detection function varies according to different camera models.



Exception Detection

□ Audio Loss Detection

□ Sudden Increase of Sound Intensity Detection

Sensitivity 50

Sound Intensity Threshold 50

□ Sudden Decrease of Sound Intensity Detection

Sensitivity 50

Real-time Volume

Steps:

1. Check the checkbox of **Audio Loss Exception** to enable the audio loss detection function.
2. Check the checkbox of **Sudden Increase of Sound Intensity Detection** to detect the sound steep rise in the surveillance scene. You can set the detection sensitivity and threshold for sound steep rise.
3. Check the checkbox of **Sudden Decrease of Sound Intensity Detection** to detect the sound steep drop in the surveillance scene. You can set the detection sensitivity and threshold for sound steep drop.

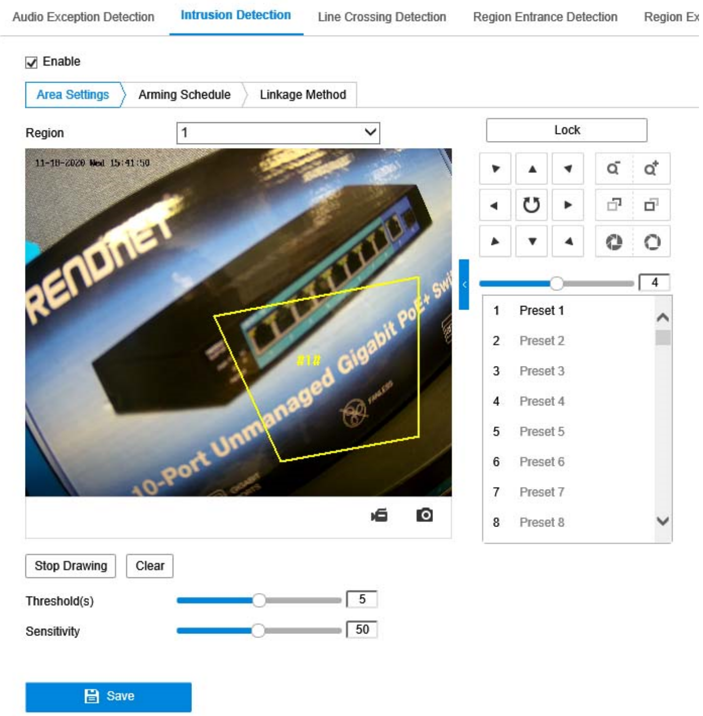
   Notes:

   - Sensitivity: Range [1-100], the smaller the value is, the more severe the change should be to trigger the detection.
   - Sound Intensity Threshold: Range [1-100], it can filter the sound in the environment, the louder the environment sound, the higher the value should be. You can adjust it according to the real environment.
   - You can view the real-time volume of the sound on the interface.
4. Click **Arming Schedule** to set the arming schedule.
5. Click **Linkage Method** and select the linkage methods for audio exception, including Notify Surveillance Center, Send Email, Trigger Channel for recording and Trigger Alarm Output.
6. Click **Save** to save the settings.

Intrusion Detection

Intrusion detection function detects people, vehicle or other objects which enter and loiter in a pre-defined virtual region, and some certain actions can be taken when the alarm is triggered.

Note: Intrusion detection function varies according to different camera models.



☑ Enable

Region: 1

Threshold(s): 5

Sensitivity: 50

Steps:

1. Check the checkbox of **Enable** to enable the function.

2. Select a region number from the drop-down list of **Region**.

   Region: A pre-defined vertexes area on the live view image. Targets, such as, people, vehicle or other objects, who enter and loiter in the region will be detected and trigger the set alarm.

3. Set the Max. Size and Min. Size for valid targets. Targets smaller or larger than the valid target size are not able to trigger detection. Select a point in the live image as the start to draw a rectangle as the max. size or min. size.

   Max. Size: The maximum size of a valid target. Targets with larger sizes would not trigger detection.

   Min. Size: The minimum size of a valid target. Targets with smaller sizes would not trigger detection.

4. Set the Detection Area. Click on the live video to specify the four vertexes of the detection region, and right click to complete drawing.
5. Select the detection target. Human and vehicle are available. If the detection target is not selected, all the detected targets will be reported, including the human and vehicle.
6. Set the time threshold for intrusion detection.

Threshold: Range [0s-10s], the threshold for the time of the object loitering in the region. If you set the value as 0, alarm is triggered immediately after the object entering the region.

7. Drag the slider to set the sensitivity value.

   Sensitivity: Range [1-100]. Sensitivity stands for the percentage of the body part of an acceptable target that enters the pre-defined region.

   Sensitivity = $100 – S_1/S_T*100$

   S_1 stands for the target body part that goes across the pre-defined region. S_T stands for the complete target body.

   Example: if you set the value as 60, the action can be counted as an intrusion only when 40 percent body part enters the region.

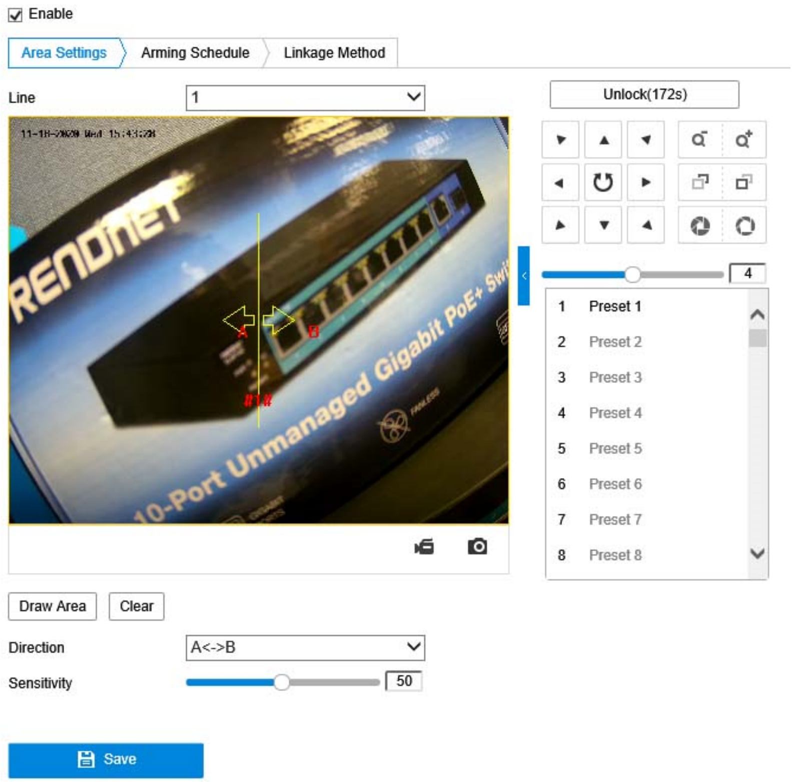
   Note: The **Sensitivity** of the detection is supported by certain models. Refer to actual display for details.

8. Repeat the above steps to configure other regions. Up to 4 regions can be set. You can click the **Clear** button to clear all pre-defined regions.
9. Click **Arming Schedule** to set the arming schedule.
10. Click **Linkage Method** to select the linkage methods for intrusion detection, including Notify Surveillance Center, Send Email, Upload to FTP/Memory Card/NAS, Trigger Alarm Output.
11. Click **Save** to save the settings.

Line Crossing Detection

Line crossing detection function detects people, vehicle or other objects which cross a pre-defined virtual line, and some certain actions can be taken when the alarm is triggered.

Note: Line crossing detection function varies according to different camera models.



☑ Enable

Line: 1

Direction: A<->B

Sensitivity: 50

Steps:

1. Check the checkbox of **Enable** to enable the function.
2. Select the line from the drop-down list.
3. Set the Max. Size and Min. Size for valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

   Max. Size: The maximum size of a valid target. Targets with larger sizes would not trigger detection.

   Min. Size: The minimum size of a valid target. Targets with smaller sizes would not trigger detection.

4. Set the detection area. Drag the line, and you can locate it on the live video as desired.
5. Select the detection target. Human and vehicle are available. If the detection target is not selected, all the detected targets will be reported, including the human and vehicle.
6. Select the direction for line crossing detection. And you can select the directions as A<->B, A ->B, and B->A.

   A<->B: The object going across the plane with both directions can be detected and alarms are triggered.

   A->B: Only the object crossing the configured line from the A side to the B side can be detected.

   B->A: Only the object crossing the configured line from the B side to the A side can be detected.

7. Drag the slider to set the sensitivity value.

   Sensitivity: Range [1-100]. It stands for the percentage of the body part of an acceptable target that goes across the pre-defined line.

   Sensitivity = 100 – S_1/S_T*100

   S_1 stands for the target body part that goes across the pre-defined line. S_T stands for the complete target body.

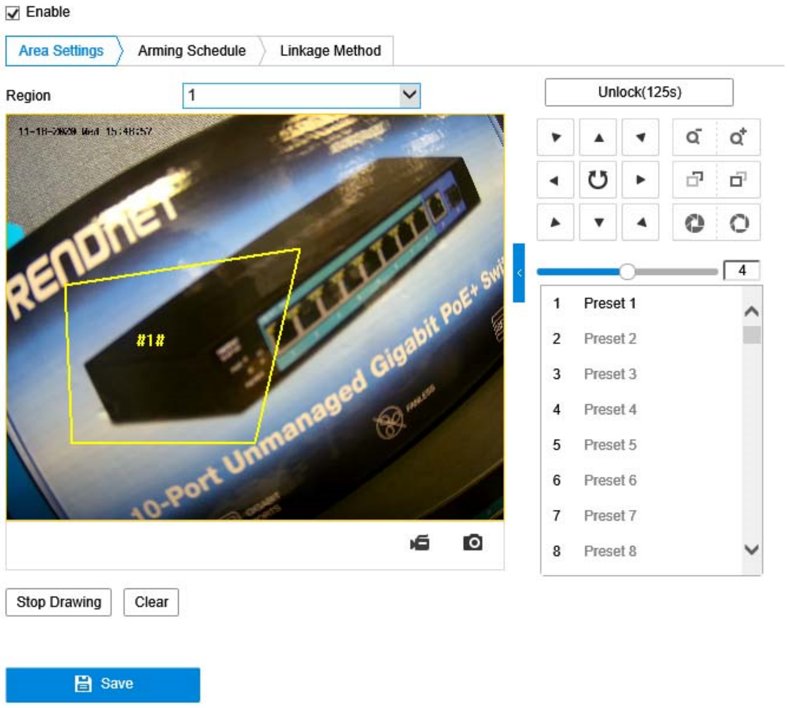
   Example: if you set the value as 60, the action can be counted as a line crossing action only when 40 percent or more body part goes across the line.

   Note: The **Sensitivity** of the detection is supported by certain models. Refer to actual display for details.

8. Repeat the above steps to configure other lines. Up to 4 lines can be set. You can click the **Clear** button to clear all pre-defined lines.
9. Click the **Arming Schedule** to set the arming schedule.
10. Click **Linkage Method** to select the linkage methods for intrusion detection, including Notify Surveillance Center, Send Email, Upload to FTP/Memory Card/NAS, and Trigger Alarm Output
11. Click **Save** to save the settings.

Region Entrance Detection

Region entrance detection function detects people, vehicle or other objects which enter a pre-defined virtual region from the outside place, and some certain actions can be taken when the alarm is triggered.



☑ Enable

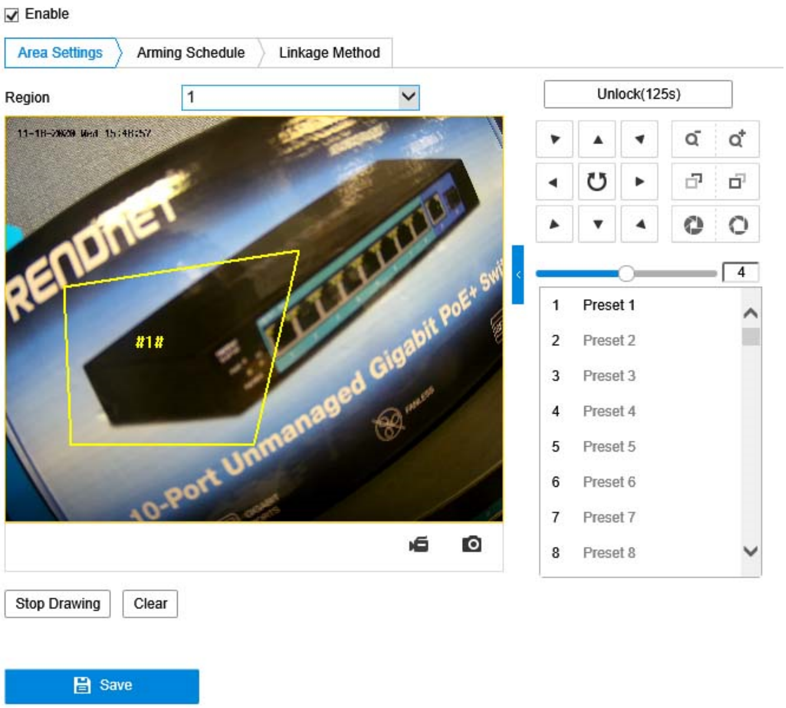
Region: 1

Steps:

1. Check the **Enable** checkbox to enable the function.
2. Select the **Region** from the drop-down list for detection settings.
3. Set the detection area. Click on the live video to specify the four vertexes of the detection region, and right click to complete drawing.
4. Select the detection target. Human and vehicle are available. If the detection target is not selected, all the detected targets will be reported, including the human and vehicle.
5. Repeat the above steps to configure other regions. Up to 4 regions can be set. You can click the **Clear** button to clear all pre-defined regions.
6. Click **Arming Schedule** to set the arming schedule.
7. Click **Linkage Method** to select the linkage methods for intrusion detection, including Notify Surveillance Center, Send Email, and Upload to FTP/Memory Card/NAS
8. Click **Save** to save the settings.

Region Exist Detection

Region Exist detection function detects people, vehicle or other objects which exit a pre-defined virtual region from the outside place, and some certain actions can be taken when the alarm is triggered.



☑ Enable

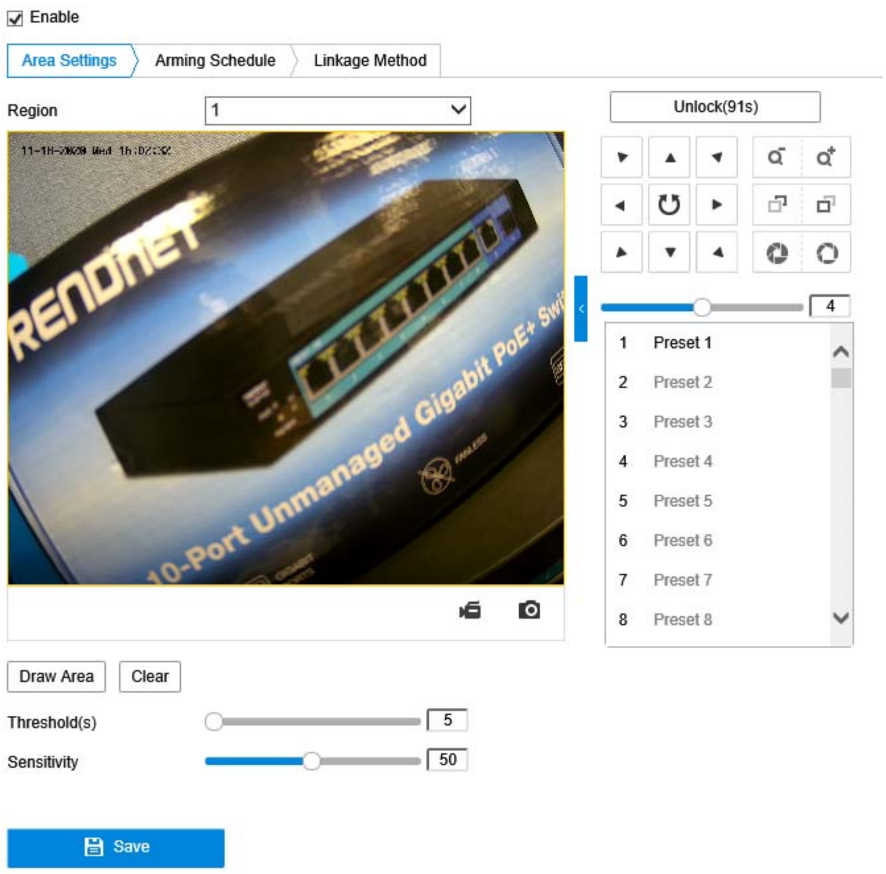
Region: 1

Steps:

9. Check the **Enable** checkbox to enable the function.
10. Select the **Region** from the drop-down list for detection settings.
11. Set the detection area. Click on the live video to specify the four vertexes of the detection region, and right click to complete drawing.
12. Select the detection target. Human and vehicle are available. If the detection target is not selected, all the detected targets will be reported, including the human and vehicle.
13. Repeat the above steps to configure other regions. Up to 4 regions can be set. You can click the **Clear** button to clear all pre-defined regions.
14. Click **Arming Schedule** to set the arming schedule.
15. Click **Linkage Method** to select the linkage methods for intrusion detection, including Notify Surveillance Center, Send Email, and Upload to FTP/Memory Card/NAS
16. Click **Save** to save the settings.

Unattended Baggage Detection

Unattended baggage detection function detects the objects left over in the pre-defined region such as the baggage, purse, dangerous materials, etc. A series of actions can be taken when the alarm is triggered.



☑ Enable

Region: 1

Threshold(s): 5

Sensitivity: 50

Steps:

1. Check **Enable** checkbox to enable the function.
2. Select the **Region** from the drop-down list for detection settings.
3. Click **Area Settings** and click **Draw Area** to start the area drawing.
4. Click on the live video to specify the four vertexes of the detection region, and right click to complete drawing.
5. Set the Max. Size and Min. Size for valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

   Max. Size: The maximum size of a valid target. Targets with larger sizes would not trigger detection.

   Min. Size: The minimum size of a valid target. Targets with smaller sizes would not trigger detection.

6. Click **Stop Drawing** when finish drawing.
7. Set the time threshold and detection sensitivity for unattended baggage detection.

   Threshold: Range [5-100s], the threshold for the time of the objects left over in the region. If you set the value as 10, alarm is triggered after the object is left and stay in the region for 10s.

8. Drag the slider to set the sensitivity value.

   Sensitivity: Range [1-100]. Sensitivity stands for the percentage of the body part of an acceptable target that enters the pre-defined region.

   Sensitivity = $100 – S_1/S_T*100$

   S_1 stands for target body part that enters the pre-defined region. S_T stands for the complete target body.

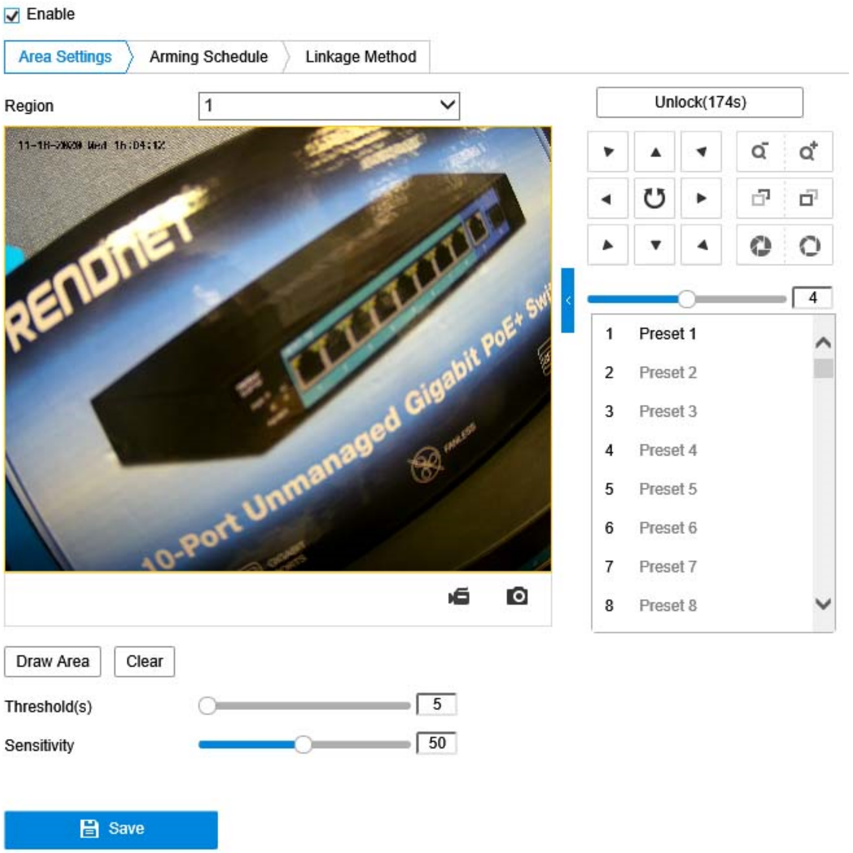
   Example: if you set the value as 60, a target is possible to be counted as an unattended baggage only when 40 percent body part of the target enters the region.

Note: The **Sensitivity** of the detection is supported by certain models. Refer to actual display for details.

9. Repeat the above steps to configure other regions. Up to 4 regions can be set. You can click the **Clear** button to clear all pre-defined regions.
10. Click **Arming Schedule** to set the arming schedule.
11. Click **Linkage Method** to select the linkage methods.
12. Click **Save** to save the settings.

Object Removal Detection

Object removal detection function detects the objects removed from the pre-defined region, such as the exhibits on display, and a series of actions can be taken when the alarm is triggered.



☑ Enable

Region: 1

Threshold(s): 5

Sensitivity: 50

Steps:

1. Check **Enable** checkbox to enable the function.
2. Select the **Region** from the drop-down list for detection settings.
3. Click **Area Settings** and click **Draw Area** button to start the area drawing.
4. Click on the live video to specify the four vertexes of the detection region, and right click to complete drawing.

5. Set the Max. Size and Min. Size for valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

   Max. Size: The maximum size of a valid target. Targets with larger sizes would not trigger detection.

   Min. Size: The minimum size of a valid target. Targets with smaller sizes would not trigger detection.

6. Click **Stop Drawing** when finish drawing.
7. Set the time threshold for object removal detection.

   Threshold: Range [5-100s], the threshold for the time of the objects removed from the region. If you set the value as 10, alarm is triggered after the object disappears from the region for 10s.

8. Drag the slider to set the sensitivity value.

   Sensitivity: Range [1-100]. It stands for the percentage of the body part of an acceptable target that leaves the pre-defined region.

   Sensitivity = 100 – S_1/S_T*100

   S_1 stands for the target body part that leaves the pre-defined region. S_T stands for the complete target body.

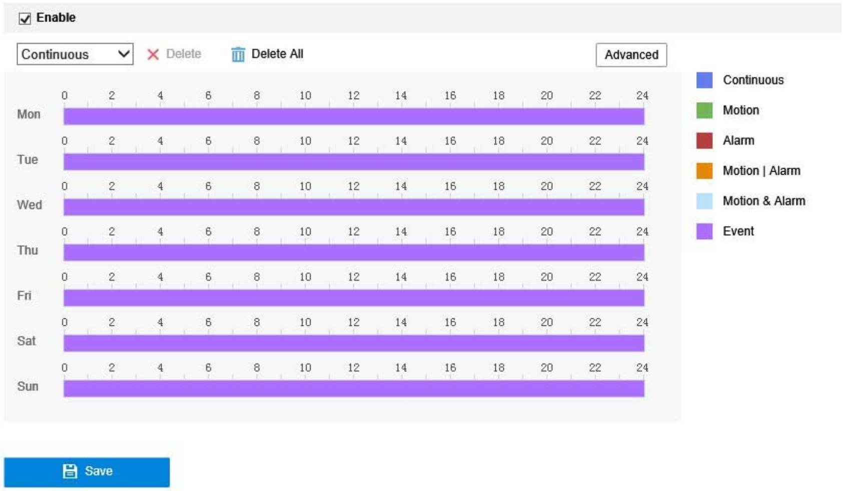
   Example: if you set the value as 60, a target is possible to be counted as a removed object only when 40 percent body part of the target leaves the region.

   Note: The **Sensitivity** of the detection is supported by certain models. Refer to actual display for details.

9. Repeat the above steps to configure other regions. Up to 4 regions can be set. You can click the **Clear** button to clear all pre-defined regions.
10. Click **Arming Schedule** to set the arming schedule.
11. Click **Linkage Method** to select the linkage methods.
12. Click **Save** to save the settings.

Storage – Schedule Settings

Record Schedule



Steps:

1. Check the checkbox of **Enable** to enable scheduled recording.

2. Click **Advanced** to set the camera record parameters.
    - Pre-record: The time you set to start recording before the scheduled time or the event. For example, if an alarm triggers recording at 10:00, and the pre-record time is set as 5 seconds, the camera starts to record at 9:59:55.
      The Pre-record time can be configured as No Pre-record, 5s, 10s, 15s, 20s, 25s, 30s or not limited.
    - Post-record: The time you set to stop recording after the scheduled time or the event. For example, if an alarm triggered recording ends at 11:00, and the post-record time is set as 5 seconds, the camera records until 11:00:05.
      The Post-record time can be configured as 5s, 10s, 30s, 1 min, 2 min, 5 min or 10 min.
    - Stream Type: Select the stream type for recording.

Note: The record parameter configurations vary depending on the camera model.

3. Select a **Record Type**. The record type can be Continuous, Motion Detection, Alarm, Motion | Alarm, Motion & Alarm, and Event.
    - **Continuous**
      If you select **Continuous**, the video will be recorded automatically according to the time of the schedule.
    - **Record Triggered by Motion Detection**
      If you select **Motion Detection**, the video will be recorded when the motion is detected.

      Besides configuring the recording schedule, you have to set the motion detection area and check the checkbox of Trigger Channel in the Linkage Method of Motion Detection Settings interface. For detailed information.
    - **Record Triggered by Alarm**
      If you select **Alarm**, the video will be recorded when the alarm is triggered via the external alarm input channels.

      Besides configuring the recording schedule, you have to set the **Alarm Type** and check the checkbox of **Trigger Channel** in the **Linkage Method** of **Alarm Input Settings** interface. **Record Triggered by Motion & Alarm**

      If you select **Motion & Alarm**, the video will be recorded when the motion and alarm are triggered at the same time.

      Besides configuring the recording schedule, you have to configure the settings on the **Motion Detection** and **Alarm Input Settings** interfaces. **Record Triggered by Motion | Alarm**

      If you select **Motion | Alarm**, the video will be recorded when the external alarm is triggered or the motion is detected.

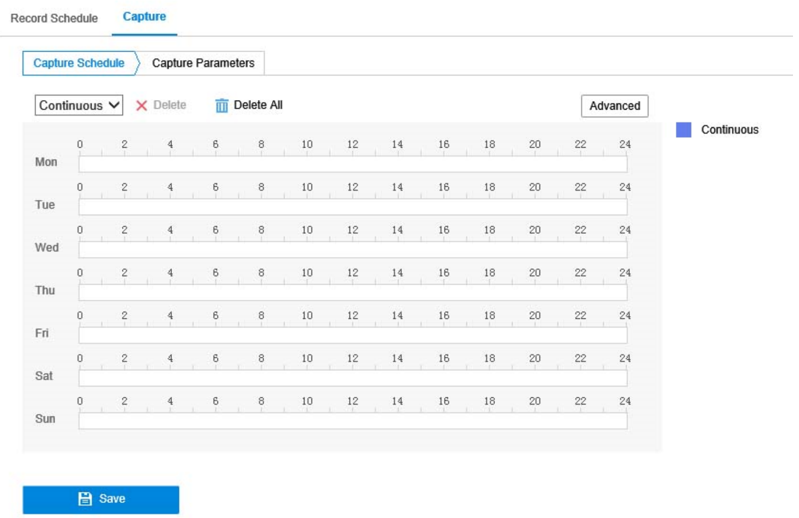
Besides configuring the recording schedule, you have to configure the settings on the **Motion Detection** and **Alarm Input Settings** interfaces. **Record Triggered by Events**

If you select **Event**, the video will be recorded if any of the events is triggered. Besides configuring the recording schedule, you have to configure the event settings.

4. Select the record type, and click-and-drag the mouse on the time bar to set the record schedule.

5. Click **Save** to save the settings.

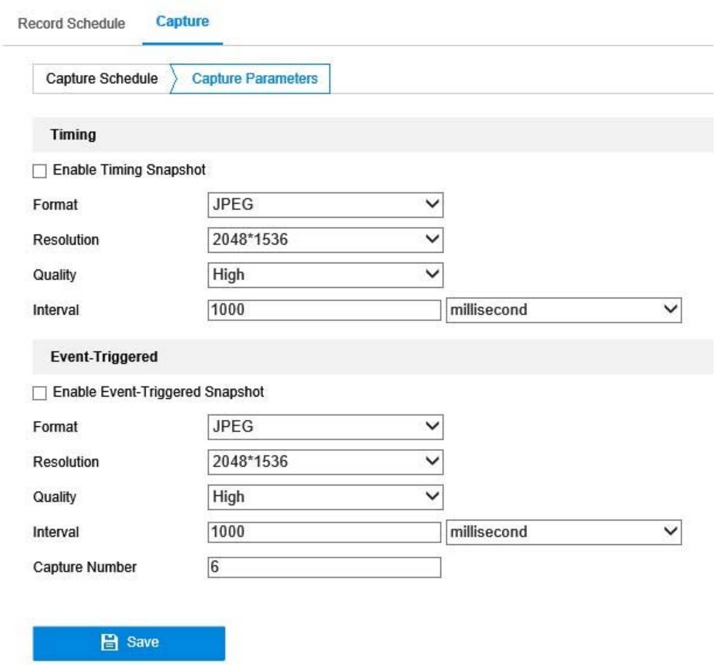
Capture



You can configure the scheduled snapshot and event-triggered snapshot. The captured picture can be stored in the local storage or network storage.

Steps:

1. Enter the Capture Settings interface: **Configuration** > **Storage** > **Storage Settings** > **Capture**.
2. Go to **Capture Schedule** tab to configure the capture schedule by click-and-drag the mouse on the time bar. You can copy the record schedule to other days by clicking the green copy icon on the right of each time bar.
3. Click **Advanced** to select stream type.
4. Click **Save** to save the settings.
5. Go to **Capture Parameters** tab to configure the capture parameters.
   (1) Check the **Enable Timing Snapshot** checkbox to enable continuous snapshot.
   (2) Select the picture format, resolution, quality and capture interval.
   (3) Check the **Enable Event-triggered Snapshot** checkbox to enable event-triggered snapshot.
   (4) Select the picture format, resolution, quality, capture interval, and capture number.



Timing

□ Enable Timing Snapshot

Format	JPEG	
Resolution	2048*1536	
Quality	High	
Interval	1000	millisecond

Event-Triggered

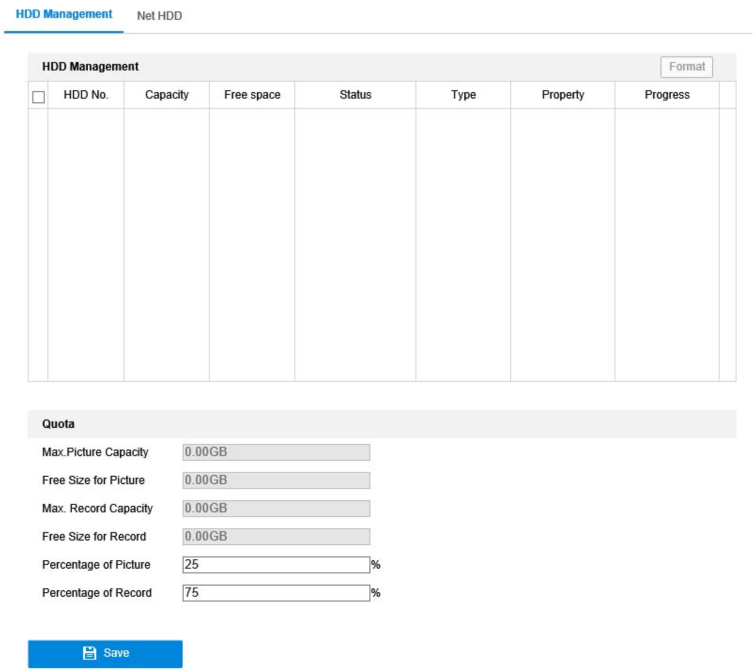
□ Enable Event-Triggered Snapshot

Format	JPEG	
Resolution	2048*1536	
Quality	High	
Interval	1000	millisecond
Capture Number	6	

6. Set the time interval between two snapshots.
7. Click **Save** to save the settings.

Storage – Storage Management

HDD Management



HDD Management

□	HDD No.	Capacity	Free space	Status	Type	Property	Progress

Quota

Max.Picture Capacity	0.00GB	
Free Size for Picture	0.00GB	
Max. Record Capacity	0.00GB	
Free Size for Record	0.00GB	
Percentage of Picture	25	%
Percentage of Record	75	%

Net HDD (NAS)

The network disk should be available within the network and properly configured to store the recorded files, log files, pictures, etc.

1. Add Net HDD.
   (1) Enter the Net HDD settings interface, **Configuration** > **Storage** > **Storage Management** > **Net HDD**.

(2) Enter the IP address of the network disk, and enter the file path.

(3) Select the mounting type. NFS and SMB/CIFS are selectable. And you can set the user name and password to guarantee the security if SMB/CIFS is selected.

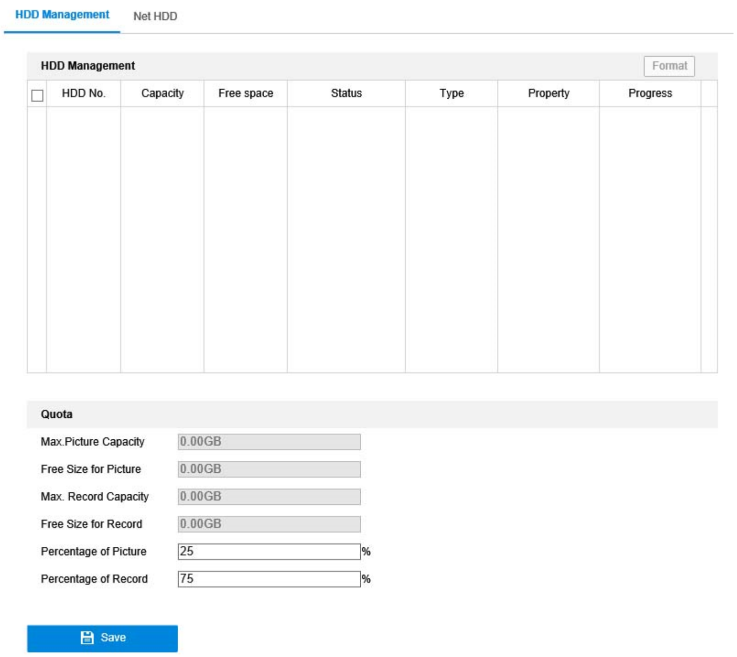
Note: Please refer to the *NAS User Manual* for creating the file path.

- *For your privacy and to better protect your system against security risks, we strongly recommend the use of strong passwords for all functions and network devices. The password should be something of your own choosing (using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers and special characters) in order to increase the security of your product.*
- *Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.*

(4) Click **Save** to add the network disk.

2. Initialize the added network disk.

(1) Enter the HDD Settings interface, **Configuration > Storage > Storage Management > HDD Management**, in which you can view the capacity, free space, status, type and property of the disk.



HDD Management

□	HDD No.	Capacity	Free space	Status	Type	Property	Progress

Quota

Max.Picture Capacity 0.00GB

Free Size for Picture 0.00GB

Max. Record Capacity 0.00GB

Free Size for Record 0.00GB

Percentage of Picture 25 %

Percentage of Record 75 %

(2) If the status of the disk is **Uninitialized**, check the corresponding checkbox to select the disk and click **Format** to start initializing the disk.

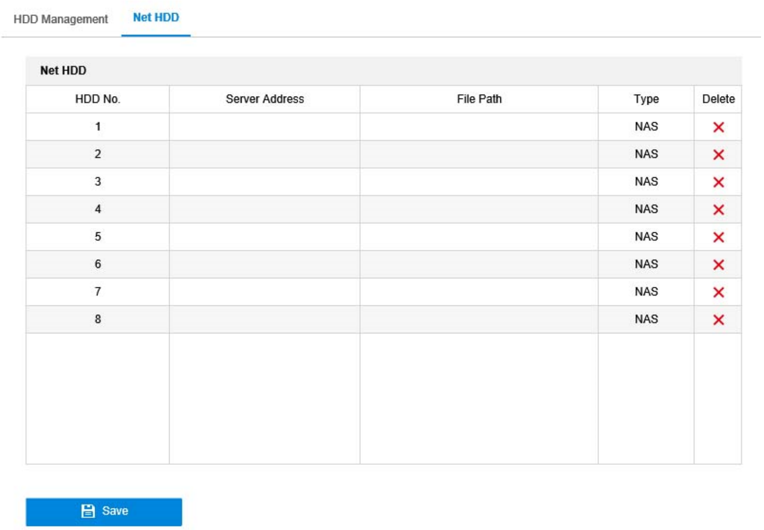
When the initialization completed, the status of disk will become **Normal.**

3. Define the quota for record and pictures.

(1) Input the quota percentage for picture and for record.

(2) Click **Save** and refresh the browser page to activate the settings.

Note:
Up to 8 NAS disks can be connected to the camera.

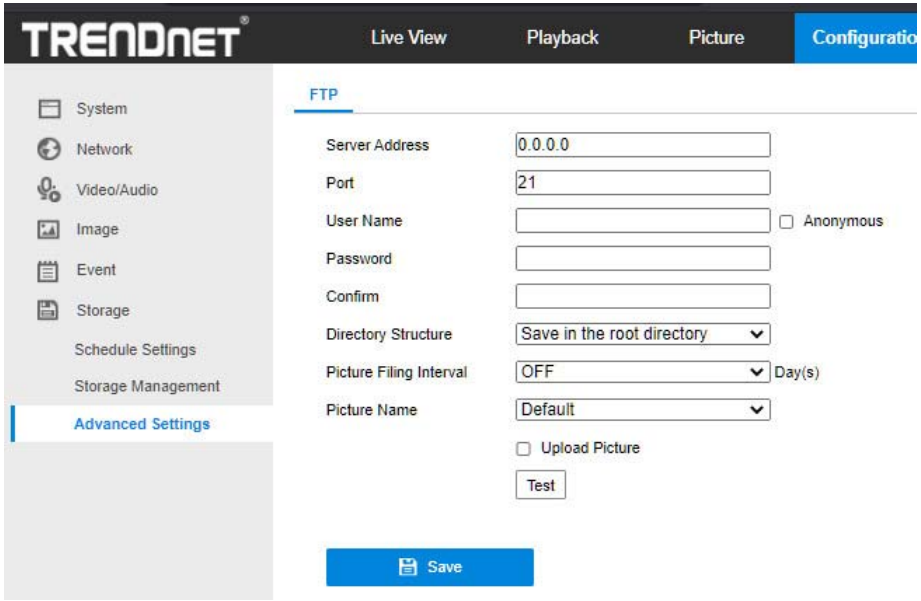


Net HDD

HDD No.	Server Address	File Path	Type	Delete
1			NAS	✗
2			NAS	✗
3			NAS	✗
4			NAS	✗
5			NAS	✗
6			NAS	✗
7			NAS	✗
8			NAS	✗

Storage – Advanced Settings

FTP



Server Address	0.0.0.0
Port	21
User Name	☐ Anonymous
Password	
Confirm	
Directory Structure	Save in the root directory
Picture Filing Interval	OFF Day(s)
Picture Name	Default
	☐ Upload Picture

You can configure the FTP/SFTP server related information to enable the uploading of the captured pictures to the FTP/SFTP server. The captured pictures can be triggered by events or a timing snapshot task.

1. Select the FTP protocol.
2. Input the server address and port.
3. Configure the FTP/SFTP settings; and the user name and password are required for the FTP server login.

- *For your privacy and to better protect your system against security risks, we strongly recommend the use of strong passwords for all functions and network devices. The password should be something of your own choosing (using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers and special characters) in order to increase the security of your product.*
- *Proper configuration of all passwords and other security settings is the responsibility of the installer and/or end-user.*

4. Set the directory structure and picture filing interval.

   Directory: In the **Directory Structure** field, you can select the root directory, parent directory and child directory. When the parent directory is selected, you have the option to use the Device Name, Device Number or Device IP for the name of the directory; and when the Child Directory is selected, you can use the Camera Name or Camera No. as the name of the directory.

   Picture Filing Interval: For better picture management, you can set the picture filing interval from 1 day to 30 days. Pictures captured in the same time interval will be saved in one folder named after the beginning date and ending date of the time interval.

   Picture Name: Set the naming rule for captured picture files. You can choose **Default** in the drop-down list to use the default rule, that is,

   IP address_channel number_capture time_event type.jpg

   Or you can customize it by adding a **Custom Prefix** to the default naming rule.

5. Check the Upload Picture checkbox to enable the function.

   Upload Picture: To enable uploading the captured picture to the FTP server.

   Anonymous Access to the FTP Server (in which case the user name and password won’t be required.): Check the **Anonymous** checkbox to enable the anonymous access to the FTP server.

   Note: The anonymous access function must be supported by the FTP server.

6. Click **Save** to save the settings.

Appendix

Direct video access - RTSP

To access the video directly through RTSP, just visit the camera IP address on port 554 by default.

Regulations

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

RoHS

This product is RoHS compliant.

Europe – EU Declaration of Conformity

This device complies with the essential requirements of the Directive 2004/108/EC and 2006/95/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the Directive 2004/108/EC and 2006/95/EC:

Safety：EN60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013
EMC: EN 55022:2010 CLASS B
EN50130-4:2011
EN 61000-3-2:2014
EN 61000-3-3:2013
Directive： EMC Directive 2004/108/EC, RoHS Directive 2011/65/EU
WEEE Directive 2012/19/EU, REACH Regulation No.1907/2006

Česky [Czech]	TRENDnet tímto prohlašuje, že tento TV-IP420P je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2004/108/ES a 2006/95/ES.
Dansk [Danish]	Undertegnede TRENDnet erklærer herved, at følgende udstyr TV-IP420P overholder de væsentlige krav og øvrige relevante krav i direktiv 2004/108/EF og 2006/95/EF.
Deutsch [German]	Hiermit erklärt TRENDnet, dass sich das Gerät TV-IP420P in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 2004/108/EG und 2006/95/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab TRENDnet seadme TV-IP420P vastavust direktiivi 2004/108/EÜ ja 2006/95/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, TRENDnet, declares that this TV-IP420P is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC and 2006/95/EC.
Español [Spanish]	Por medio de la presente TRENDnet declara que el TV-IP420P cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2004/108/CE y 2006/95/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑTRENDnet ΔΗΛΩΝΕΙ ΟΤΙ TV-IP420P ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2004/108/ΕΚ, 2006/95/ΕΚ και.
Français [French]	Par la présente TRENDnet déclare que l'appareil TV-IP420P est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2004/108/CE, 2006/95/CE et.
Italiano[Italian]	Con la presente TRENDnet dichiara che questo TV-IP420P è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2004/108/CE e 2006/95/CE.
Latviski [Latvian]	AršoTRENDnetdeklarē, ka TV-IP420P atbilstDirektīvas 2004/108/EK un 2006/95/EK būtiskajāmprasībām un citiemar to saistītajiemnoteikumiem.
Lietuvių [Lithuanian]	Šiuo TRENDnet deklaruoja, kad šis TV-IP420P atitinka esminius reikalavimus ir kitas 2004/108/EB ir 2006/95/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart TRENDnet dat het toestel TV-IP420P in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2004/108/EG en 2006/95/EG.
Malti [Maltese]	Hawnhekk, TRENDnet, jiddikjara li dan TV-IP420P jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 2004/108/KE u 2006/95/KE.
Magyar [Hungarian]	Alulírott, TRENDnet nyilatkozom, hogy a TV-IP420P megfelel a vonatkozó alapvetõ követelményeknek és az 2004/108/EK és a 2006/95/EK irányelv egyéb elõírásainak.
Polski [Polish]	Niniejszym TRENDnet oświadcza, że TV-IP420P jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2004/108/WE i 2006/95/.
Português [Portuguese]	TRENDnet declara que este TV-IP420P está conforme com os requisitos essenciais e outras disposições da Directiva2004/108/CE e 2006/95/CE.
Slovensko [Slovenian]	TRENDnet izjavlja, da je ta TV-IP420P v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive2004/108/ES in 2006/95/ES.
Slovensky [Slovak]	TRENDnettýmtovyhlasuje, že TV-IP420P spĺňazákladnépožiadavky a všetkypríslušnéustanoveniaSmernice 2004/108/ES a 2006/95/ES.
Suomi [Finnish]	TRENDnet vakuuttaa täten että TV-IP420P tyyppinen laite on direktiivin2004/108/EY ja 2006/95/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar TRENDnet att denna TV-IP420P står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2004/108/EG och 2006/95/EG.

Limited Warranty

TRENDnet warrants its products against defects in material and workmanship, under normal use and service, for the following lengths of time from the date of purchase.

TV-IP420P – 3 Years Warranty

If a product does not operate as warranted during the applicable warranty period, TRENDnet shall reserve the right, at its expense, to repair or replace the defective product or part and deliver an equivalent product or part to the customer. The repair/replacement unit's warranty continues from the original date of purchase. All products that are replaced become the property of TRENDnet. Replacement products may be new or reconditioned. TRENDnet does not issue refunds or credit. Please contact the point-of purchase for their return policies.

TRENDnet shall not be responsible for any software, firmware, information, or memory data of customer contained in, stored on, or integrated with any products returned to TRENDnet pursuant to any warranty.

There are no user serviceable parts inside the product. Do not remove or attempt to service the product by any unauthorized service center. This warranty is voided if (i) the product has been modified or repaired by any unauthorized service center, (ii) the product was subject to accident, abuse, or improper use (iii) the product was subject to conditions more severe than those specified in the manual.

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2.2.2021 TV-IP420P 2.0

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