Milesight

Network Camera User Manual

AI Outdoor Parking Management Pro Bullet Plus Camera

Version: V1.1
Date: 2022-09-19

Chapter 1. Introduction

Thank you for purchasing our product. If there is any questions or requests, please do not hesitate to contact your dealer.

This Manual explains how to use and manage Milesight network cameras on your network. Previous experience of networking will be of use when using the products. Please read this manual carefully before operation and retain it for future reference.

This manual may contain several technically incorrect places or printing errors, and the content is subject to change without notice. The updates will be added into the new version of this manual. We will readily improve or update the products or procedures described in the manual.

1.1 Copyright Statement

1.2 Industry Canada ICES-003 Compliance

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada.

1.3 Safety Instruction

These instructions are intended to ensure that user can use the product correctly to avoid danger or property loss. The precaution measures are divided into “Warnings” and “Cautions”

Warnings: Serious injury or death may be caused if any of these warnings is neglected.

- This installation must be conducted by a qualified service person and should strictly comply with the electrical safety regulations of the local region

- To avoid risk of fire and electric shock, do keep the product away from rain and moisture before installed.
- Do not touch components such as heat sinks, power regulators, and processors, which may be hot
- Source with DC/AC 12V or PoE
- Please make sure the plug is firmly inserted into the power socket
- When the product is installed on a wall or ceiling, the device should be firmly fixed
- If the product does not work properly, please contact your dealer. Never attempt to disassemble the camera by yourself

Cautions: Injury or equipment damage may be caused if any of these cautions are neglected.

- Make sure that the power supply voltage is correct before using the camera
- Do not store or install the device in extremely hot or cold temperatures, dusty or damp locations, and do not expose it to high electromagnetic radiation
- Only use components and parts recommended by manufacturer
- Do not drop the camera or subject it to physical shock
- To prevent heat accumulation, do not block air circulation around the camera
- Laser beams may damage image sensors. The surface of image sensors should not be exposed to where a laser beam equipment is used
- Use a blower to remove dust from the lens cover
- Use a soft, dry cloth to clean the surface of the camera. Stubborn stains can be removed using a soft cloth dampened with a small quantity of detergent solution, then wipe dry
- Do not use volatile solvents such as alcohol, benzene or thinners as they may damage the surface finishes
- Save the package to ensure availability of shipping containers for future transportation

1.4 EU Conformity Statement

2012/19/EU (WEEE directive): Products marked with this symbol cannot be disposed of as unsorted municipal waste in the European Union. For proper recycling, return this product to your local supplier upon the purchase of equivalent new equipment, or dispose of it at designated collection points. For more information see:www.recyclethis.info.

2006/66/EC (battery directive): This product contains a battery that cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The battery is marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury(Hg). For proper recycling, return the battery to your supplier or to a designated collection point. For more information see:www.recyclethis.info.

1.5 Revision History

Table 1.

Version	Revision Content	Release Date
V1.0	First release	September 2022

Chapter 2. Product Description

2.1 Product Overview

Milesight AI Outdoor Parking Management Pro Bullet Plus Camera is designed for outdoor parking management. High-accuracy outdoor parking space detection based on AI algorithm enables simultaneous detection and management of up to 100 parking spaces. Besides, excellent scene adaptability realizes 24/7 parking management surveillance to help guide parking for more efficient and intelligent parking management. Make parking easy and smart!

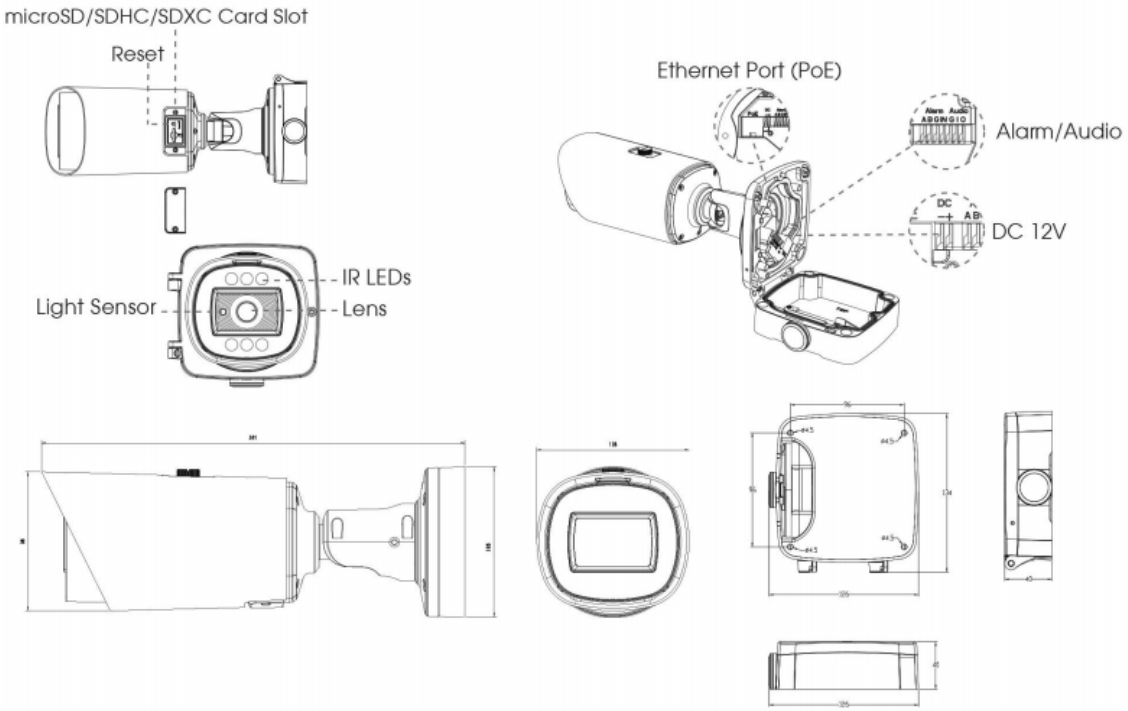
2.2 Related Product

Table 2.

Product	Name
	AI Outdoor Parking Management Pro Bullet Plus Camera

2.3 Hardware Overview

- AI Outdoor Parking Management Pro Bullet Plus Camera



2.4 Benefits of the Camera

- **Intelligent AI Parking Space Detection Algorithm**

  High-accuracy outdoor parking space detection based on AI algorithm can realize simultaneous detection and management of up to 100 parking spaces with up to 98% detection accuracy, which greatly helps guide parking and realizes more efficient and intelligent parking management.

- **Excellent Scene Adaptability**

  With a series of cutting-edge image technologies, AI Outdoor Parking Management Pro Bullet Plus Camera has excellent scene adaptability. The wide field of view of the motorized zoom lens allows for a wider monitoring range, while the 4K resolution ensures that the images are sharp enough. In addition, under the 1/1.8" STARVIS starlight sensor and image-based frame accumulation technology, it also ensures the detection of parking lots at night, providing 24/7 surveillance monitoring.

- **High compatibility**

To maximize the usability and compatibility, the AI Outdoor Parking Management Pro Bullet Plus Camera supports CGI/APIs, which allows the easy open integration with third-party platforms. The network protocol such as HTTP(s) offers a wide range of options for data processing. The parking information is transmitted to the third-party parking system to help form a complete set of solutions, guide the driver to find the parking space quickly and realize intelligent management.

- **Unique Structure Design**

The unique structure design of the camera enlarges the space and greatly saves efforts for installers, such as the integrated cable management bracket. And the IP67-rated weather proofing and IK10-rated vandal proofing allow to protect the camera against adverse impacts to ensure the robust performance.

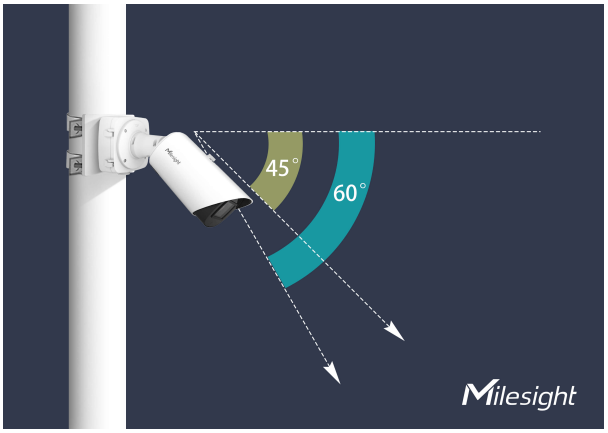
- **Flexible Configuration**

The configuration of Parking Space Detection is very flexible and convenient. Area Name, Planned Spaces of Area, Distribution and Numbering Scheme of the detection area can be customized, which provides a easy detection area configuration method and conforms to user habits. And the red overlay of the occupied parking space provides a more intuitive interface.

2.5 Installation Guide

Installation Suggestions

1. The installation angle should not be too small, otherwise the cars will obscure each other. Recommended angle range: 45°~60°.



2. The camera should not be installed to shoot against the wide side of the car, or the car will be badly blocked between each other. If it can not be avoided, a very high installation height is needed to prevent obscuring.

3. Recommended installation height: 3.5m~10m. The higher the height, the less obscuring and the better the algorithm accuracy will be.
    - **Example 1:**

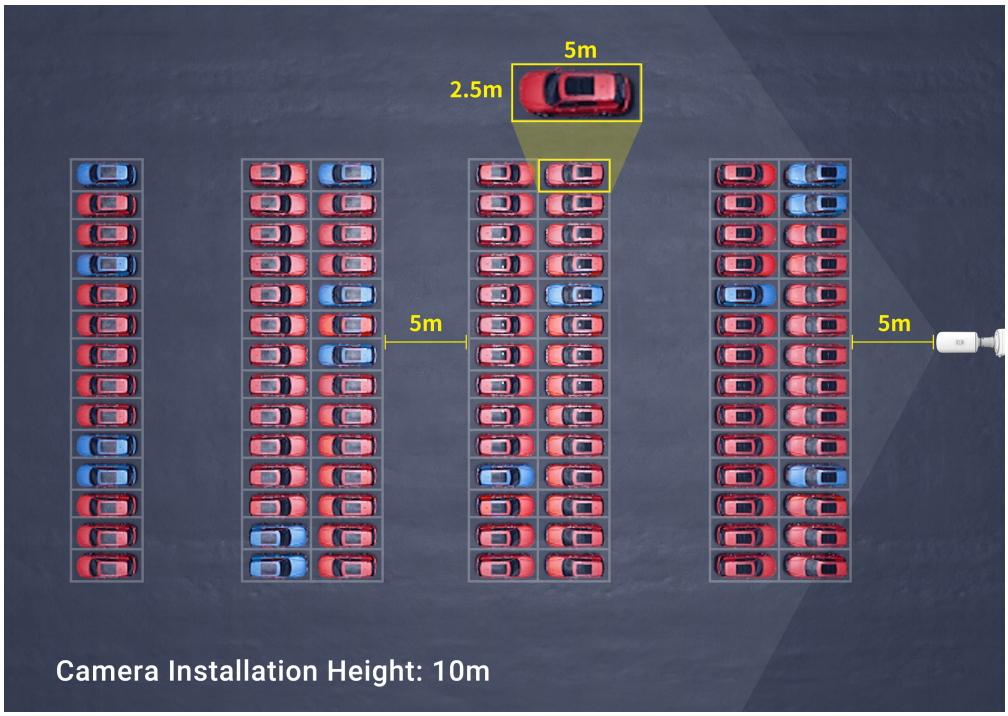


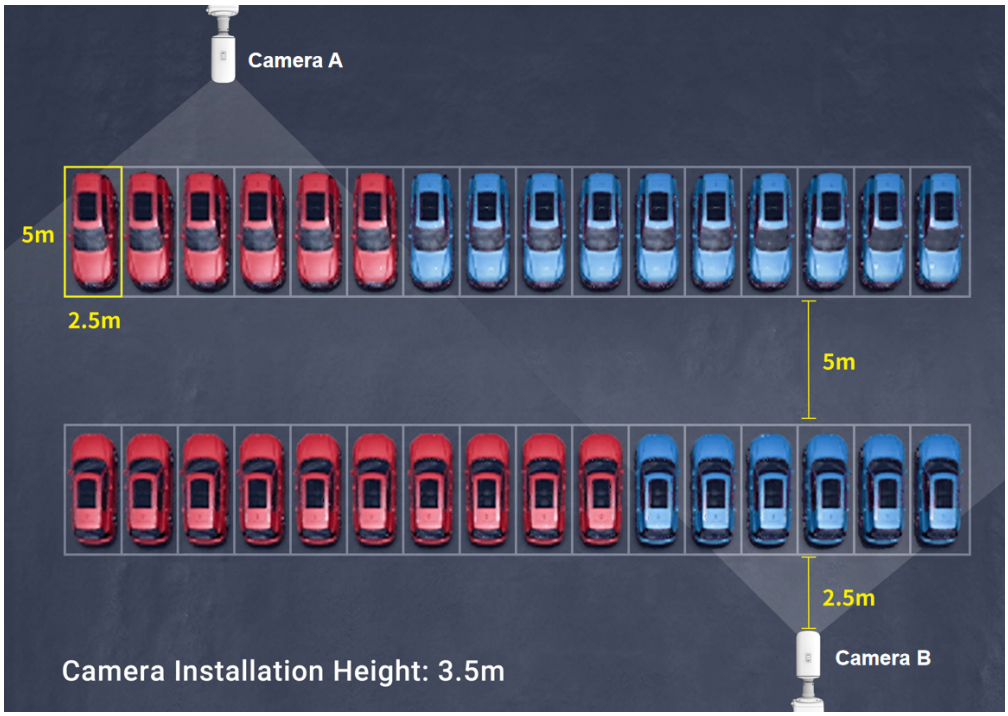
Table 3. Parking Space Information

Parking Space Size	Lane Width	Number of Parking Spaces
2.5mx5m	5m	7x14=98

Table 4. Camera Information

Number of Cameras	Installation Height	Installation Angle	Min. Distance to Parking Space
1	10m	45°	5m

- **Example 2:**



Note: The red car area is detected by Camera A, and the blue car area is detected by Camera B.

Table 5. Parking Space Information

Parking Space Size	Lane Width	Number of Parking Spaces
2.5mx5m	5m	2x16=32

Table 6. Camera Information

Number of Cameras	Installation Height	Installation Angle	Min. Distance to Parking Space
2	3.5m	48°	2.5m

2.6 Related Documents

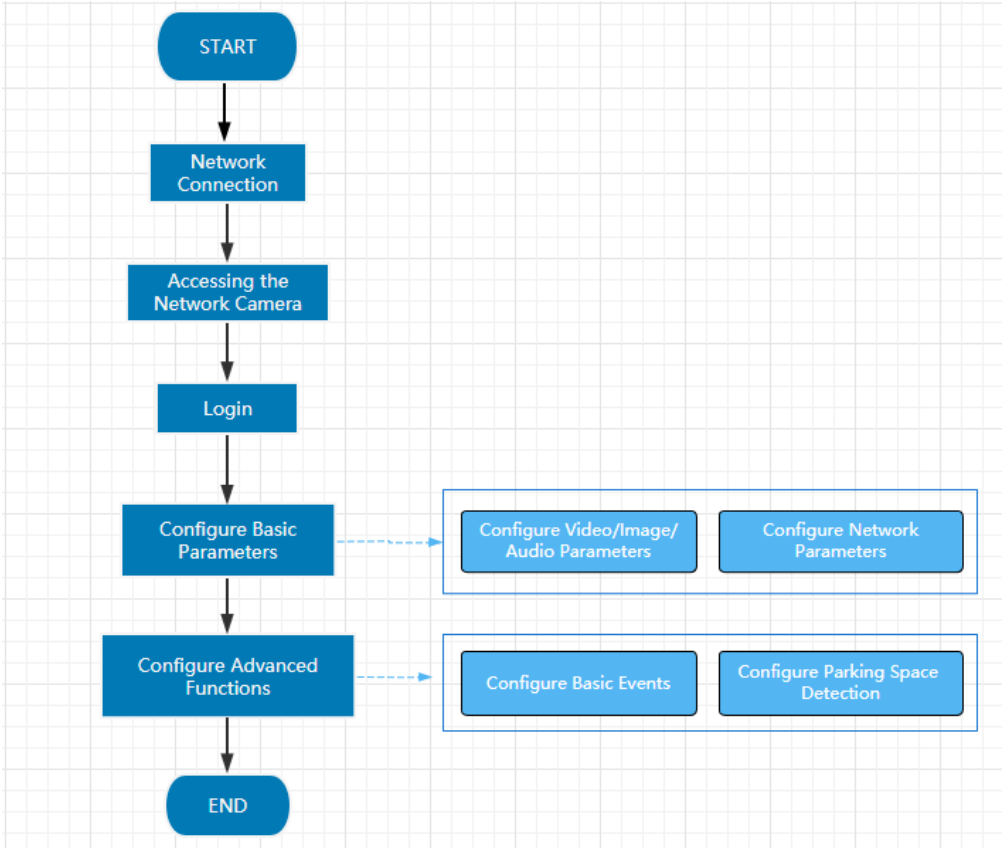
Table 7.

Document Type	Link
AI Outdoor Parking Management Camera	

Document Type	Link
Datasheet	https://www.milesight.com/static/file/en/download/datasheet/ipc/Milesight-AI-Outdoor-Parking-Management-Pro-Bullet-Plus-Camera-Datasheet-en.pdf
Quick Start Guide	https://www.milesight.com/static/file/en/download/user-manual/ipc/Milesight-Network-Camera-Quick-Start-Guide.pdf

Chapter 3. Configuration Flow

The configuration flow of AI Outdoor Parking Management Camera is shown in the following figure.



More configuration details is shown in the following table.

Table 8. Description of flow

Configuration	Description	Reference
Network Connection	Connect the network camera. You can set the camera over the LAN or dynamic IP connection.	Network Connection *(page 16)*
Accessing the Network Camera	Accessing from IP address, web browser are available.	Accessing the Network Camera *(page 18)*
Configure Basic Parameters	After login the camera, you can adjust the video/image/audio/network parameters as needed.	8.1 Media *(page 36)* 8.2 Network *(page 57)*

Configuration	Description	Reference
Configure Advanced Functions	Configure the Basic Event and Parking Space Detection.	8.4 Event *(page 83)* 8.4.2 Parking Management *(page 91)*

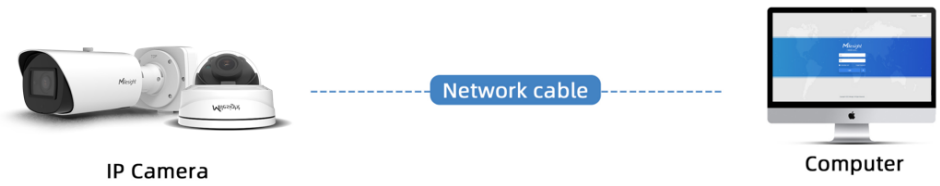
Chapter 4. Network Connection

4.1 Setting the Camera over the LAN

Connecting the camera to a switch or a router is the most common connection method. The camera must be assigned an IP address that is compatible with its LAN.

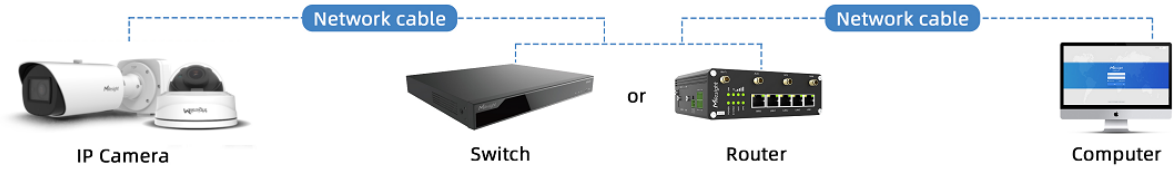
4.1.1 Connect the Camera to the PC Directly

In this method, only the computer connected to the camera will be able to view the camera. The camera must be assigned a compatible IP address to the computer. Details are shown as the following figure.



4.1.2 Connect via a Switch or a Router

Refer to the following figure to set network camera over the LAN via the switch or router.



4.2 Dynamic IP Connection

Step1: Connect the network camera to a router;

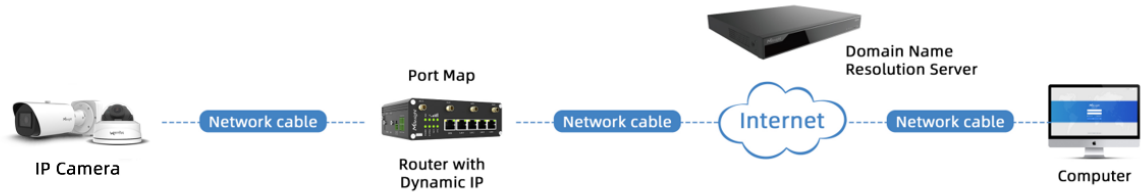
Step2: On the camera, assign a LAN IP address, the Subnet mask and the Gateway;

Step3: On the router, set port forwarding. E.g. 80, 8000 and 554 ports. The steps for port forwarding vary depending on different routers. Please look up the router's user manual for assistance with port forwarding;

Step4: Apply a domain name from a domain name provider;

Step5: Configure the DDNS settings in the setting interface of the router;

Step6: Visit the camera via the domain name.



Chapter 5. Accessing the Network Camera

The camera must be assigned an IP address to be accessible.

5.1 Assigning An IP Address

The Network Camera must be assigned an IP address to be accessible. The default IP address of Milesight network cameras is 192.168.5.190.

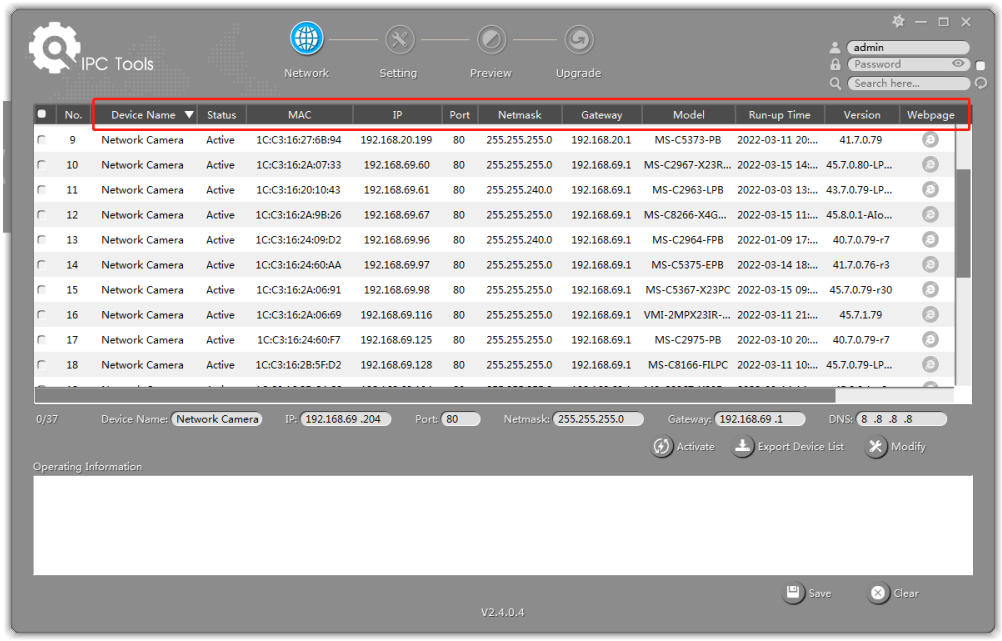
You can either change the IP address of the camera via Smart Tools or browser. Please connect the camera in the same LAN of your computer.

5.1.1 Assigning An IP Address Using Smart Tools

Smart Tools is a software tool which can automatically detect multiple online Milesight network cameras in the LAN, set IP addresses, and manage firmware upgrades. It's recommended to use when assigning IP addresses for multiple cameras.

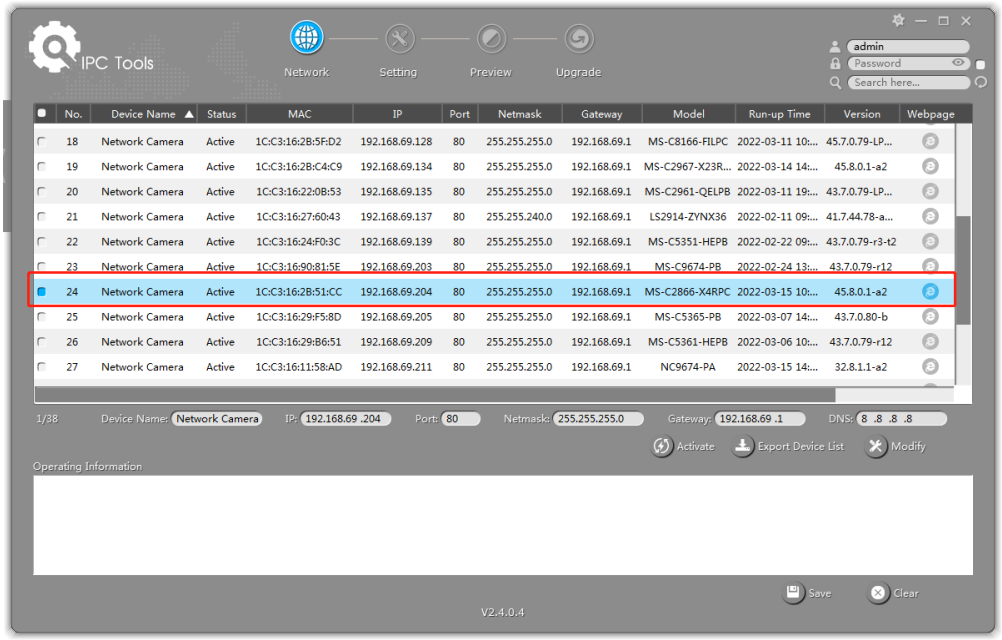
Step1: Install Smart Tools (The software could be downloaded from our website);

Step2: Start Smart Tools, click the IPC Tools page, then enter the device information, such as IP address, MAC address, Status, Port number, Netmask, and Gateway, then all related Milesight network camera in the same network will be displayed. Details are shown as the figure below;

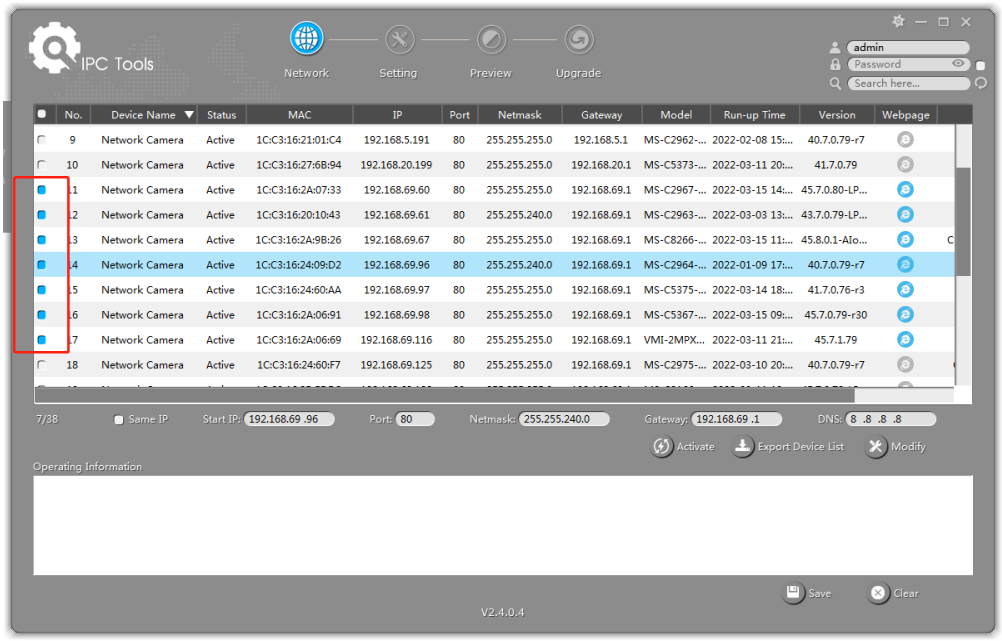


Step3: Select a camera or multiple cameras according to the MAC addresses;

Select single camera:



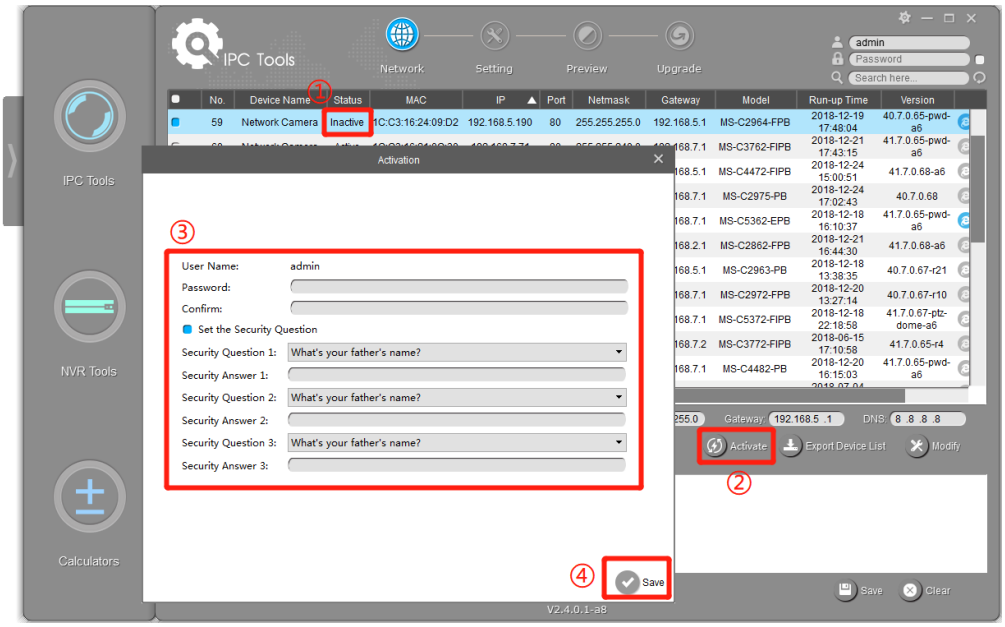
Select multiple cameras:



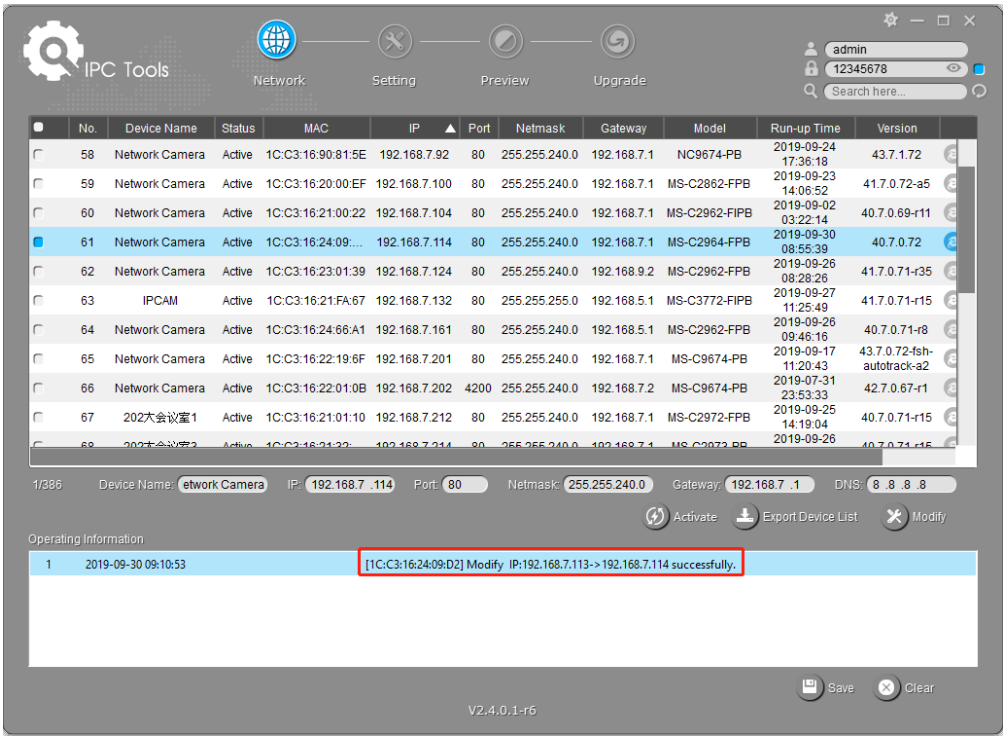
Step4: If the selected camera shows "Inactive" in the status bar, click "Activate" to set the password when using it for the first time. You can also set the security questions when activating the camera in case that you forget the password (You can reset the password by answering three security questions correctly). Click ‘Save’ and it will show that the activation was successful.

Note:

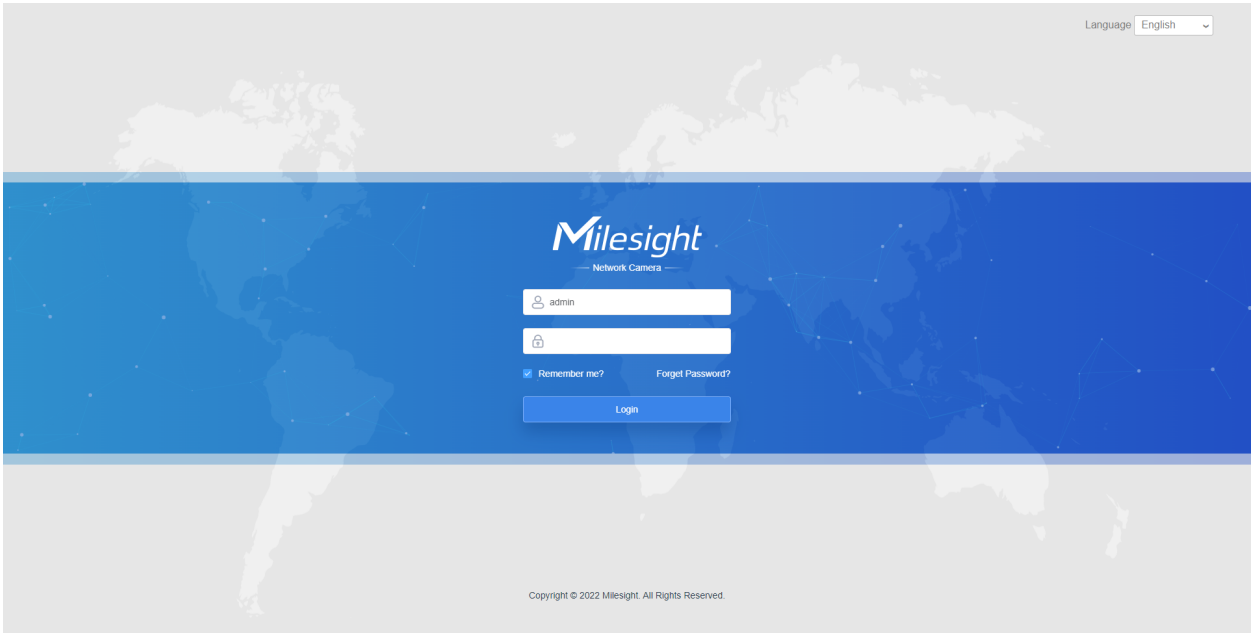
- Password must be 8 to 32 characters long, contain at least one number and one letter.
- You need to upgrade Smart Tools version to V2.4.0.1 or above to activate the camera.



Step5: After activation, you can change the IP address or other network values, and then click "Modify" button.



Step6: By double clicking the selected camera or the browser of interested camera, you can access the camera via web browser directly. The Internet Explorer window will pop up.



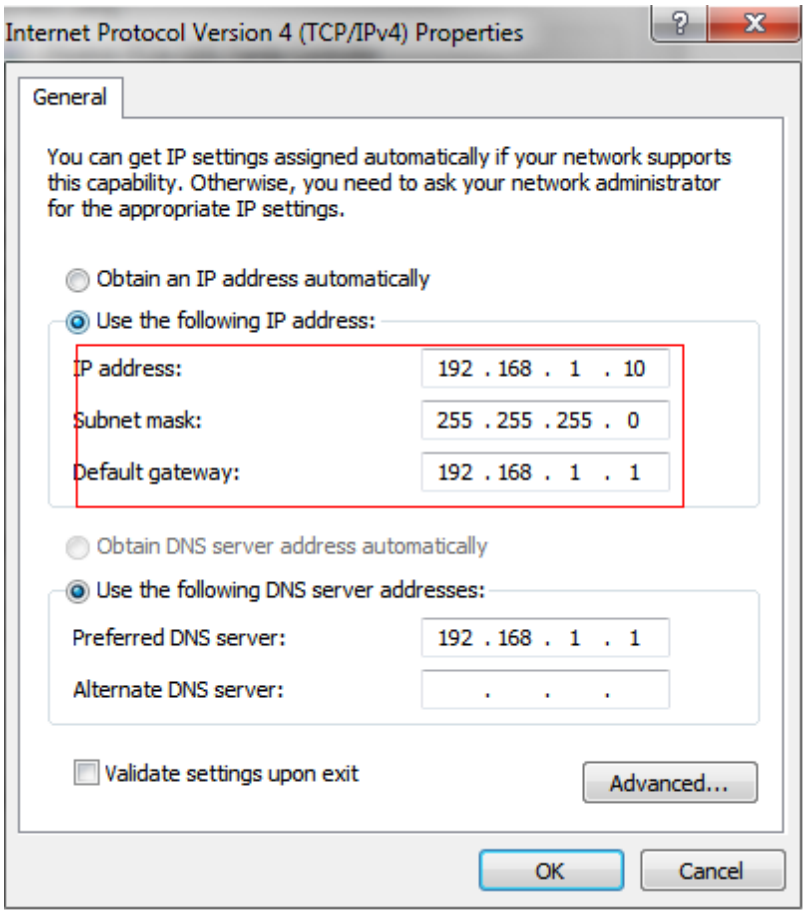
More usage of Smart Tools, please refer to the ***Smart Tools User Manual***.

5.1.2 Assign An IP Address via Browser

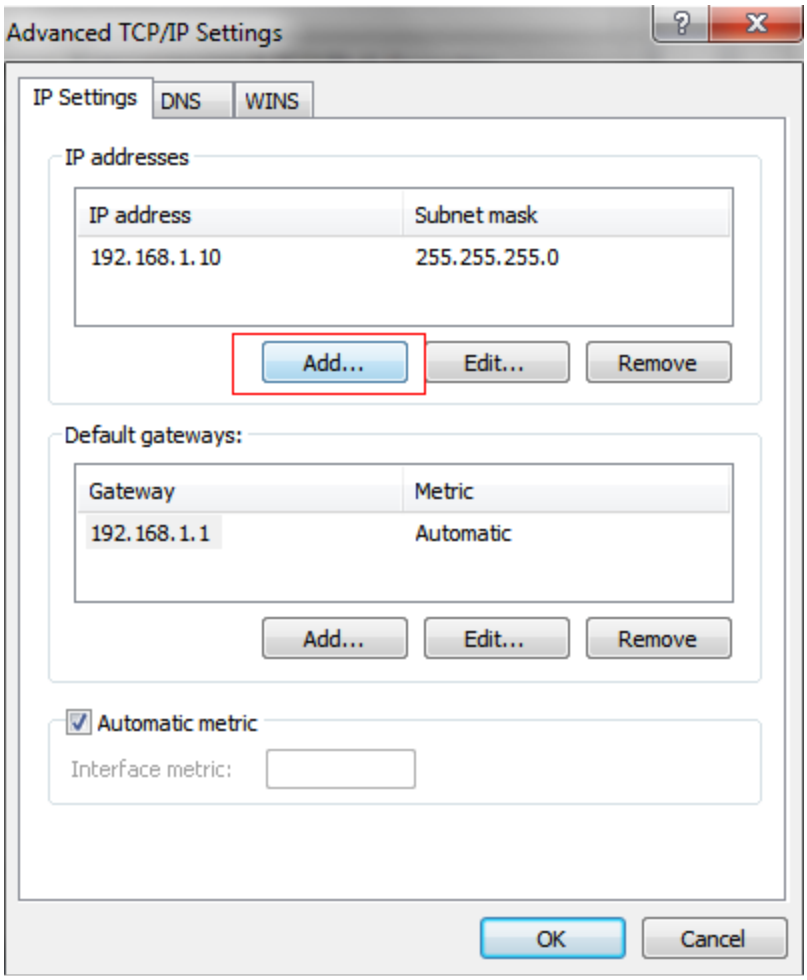
If the network segment of the computer and that of the camera are different, please follow the steps to change the IP address:

Step1: Change the IP address of computer to 192.168.5.0 segment, here are two ways as below:

a. Start→Control Panel→Network and Internet Connection→Network Connection→Local Area Connection, and double click it;



b. Click “Advanced”, and then click “IP settings”--> “IP address”--> “Add”. In the pop-up window, enter an IP address that in the same segment with Milesight network camera (e.g. 192.168.5.61, but please note that this IP address shall not conflict with the IP address on the existing network);



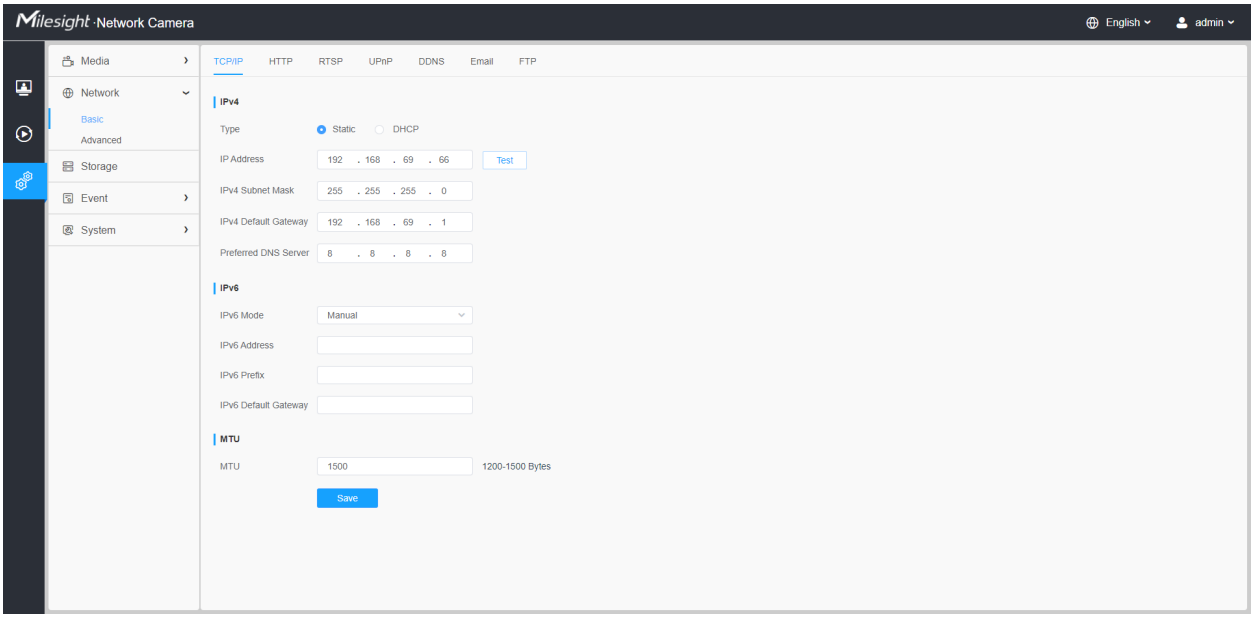
Step2: Start the browser. In the address bar, enter the default IP address of the camera:http://192.168.5.190;

Step3: You need to set the password first when using it for the first time. And you can also set three security questions for your device after activation. Then you can log in to the camera with the user name (admin) and a custom password.

Note:

- Password must be 8 to 32 characters long, contain at least one number and one letter.
- You can click the “forget password” in login page to reset the password by answering three security questions when you forget the password, if you set the security questions in advance.

Step4: After login, please select “Settings” → “Network” → “Basic” → “TCP/IP”. The Network Settings page appears (Shown as below Figure);



Step5: Change the IP address or other network values. Then click “Save” button;

Step6: The change of default IP address is completed.

5.2 Accessing from the Web Browser

The camera can be used with the most standard operating systems and browsers. And the camera was upgraded to support Plugin-Free Mode. In Plugin-Free Mode, you can preview the video on the browser without plugin. Currently Plugin-Free Mode is supported in Firefox & Google Chrome & Safari & Edge browser for Windows system, MAC system, iOS system and Android system. Both H.265&H.264 video codec are supported in Plugin-Free Mode for camera, and it will play the secondary stream by default.

Note:

- For the firmware which below V4x.7.0.74, please upgrade the Network Camera to V4x.7.0.74 or above (Please upgrade the browser to the latest version).

- For V4x.7.0.74 or above, you can enjoy Plugin-Free Mode without any configuration about the browser (Please upgrade the browser to the latest version).
- For more details about set plugin-free mode of Milesight camera, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000643388.

Chapter 6. Live View

6.1 Live Video

After logging in the network camera web GUI successfully, user is allowed to view live video as follows.

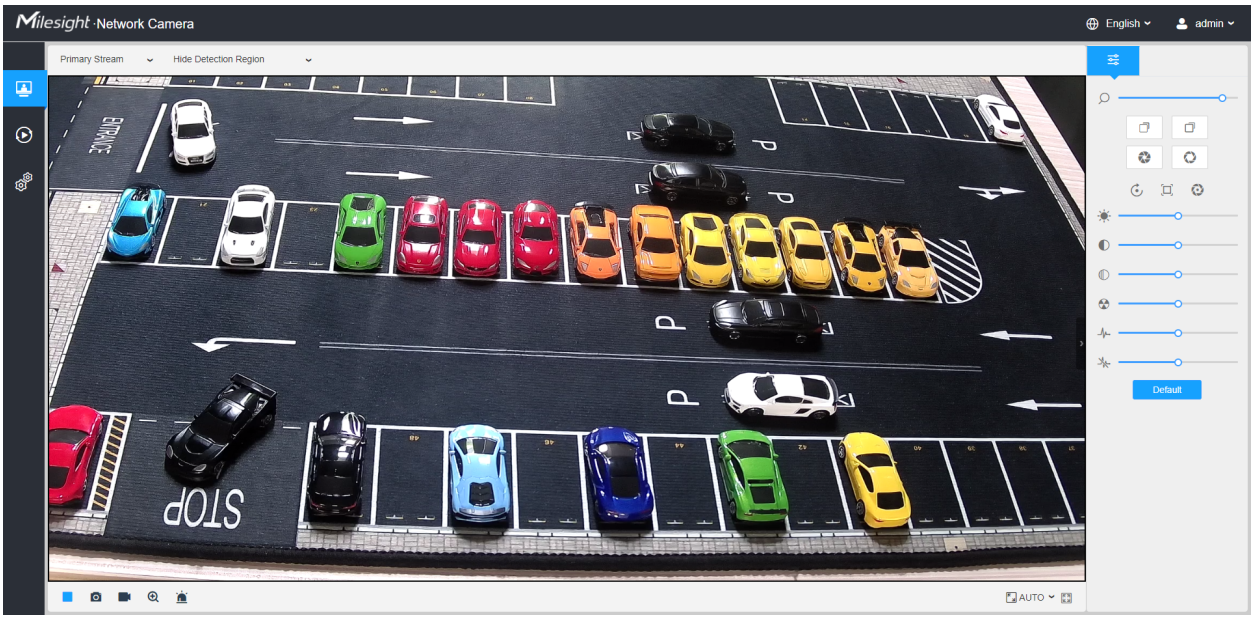
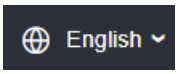
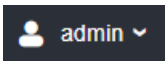
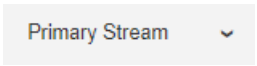
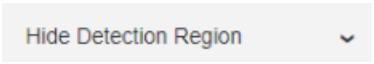
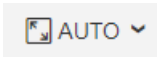
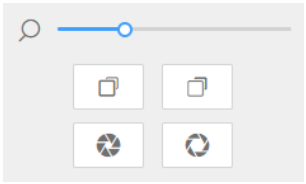


Table 9. Description of the buttons

No.	Parameter	Description
1	Live Video	Click to access the live view page.
2	Playback	Click to access the playback page.
3	Settings	Click to access the configuration page.

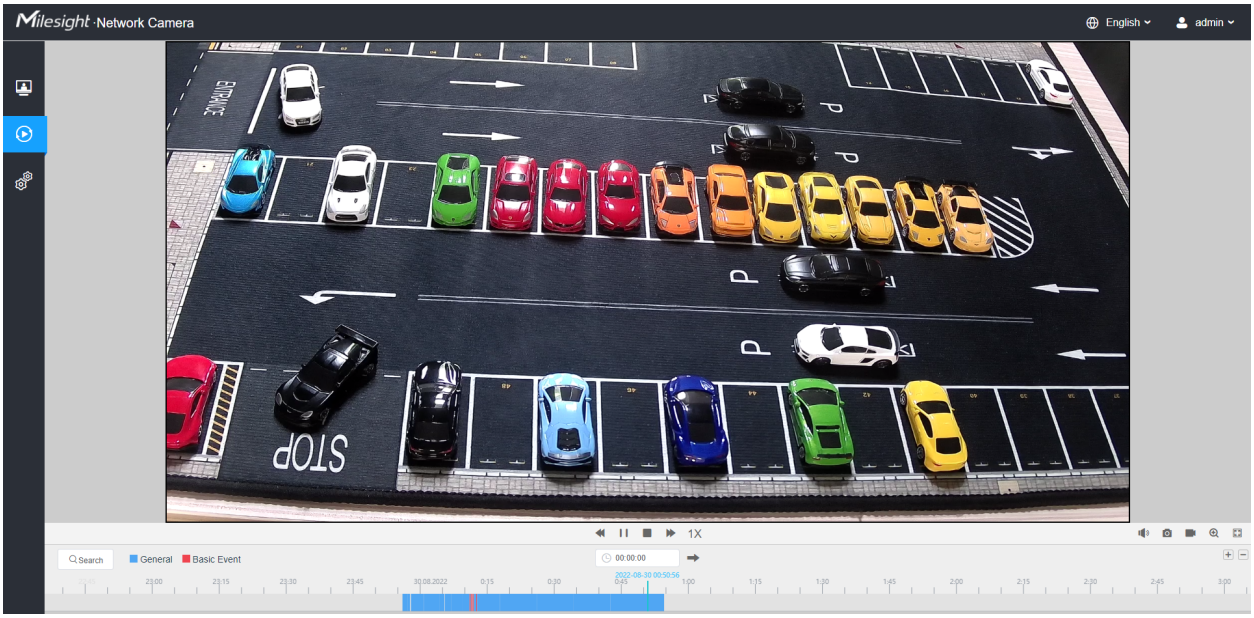
No.	Parameter	Description
4		Click to select system language.
5		Display the user name and click to logout.
6		Choose the stream (**Primary/Secondary/Tertiary**) to show on the current video window.
7		Choose the options (**Hide Detection Region/Parking Space Detection**) to hide/display detection region on the current video window. 
8	 Recording	When recording, the icon appears.
11	 Alarm	When an alarm of Motion Detection was triggered, the icon appears.
12	 Alarm	Except for the kinds of alarms above, when other alarms were triggered, the icon appears.
13	 Stop/Play	**Stop/Play** live view.
14	 Snapshot	Click to capture the current image and save to the configured path. The default path is: C:VMS\+-1\ IMAGE-MANUAL.
15	 Start/Stop Recording	Click to **Start Recording** video and save to the configured path. The default path is C:VMS\+-1\MS_Record. Click again to **Stop Recording**.

No.	Parameter	Description
16	 Digital Zoom	When enabled, you can zoom in a specific area of video image with your mouse wheel.
17	 Manual Output	Manually trigger Camera Alarm Output.
18	 Window Size	Click to display images at a window size.
19	 Full Screen	Click to display images at full-screen.
		**Zoom:** Adjust the Zoom length of the lens. **Note:** Only work when your camera is equipped with motorized lens.
		Focus-/Focus+: Adjust focus of the lens. **Note:** Only work when your camera is equipped with motorized lens.
		Iris-/Iris+: Adjust Iris of the lens. **Note:** Only work when your camera is equipped with motorized lens.
		Lens Initialization, Auxiliary Focus and Auto Iris. **Note:** • The Auto Iris is turned on by default when your camera is equipped with auto focus lens. • The Auto Iris support turn on/off when your camera is equipped with P-Iris.

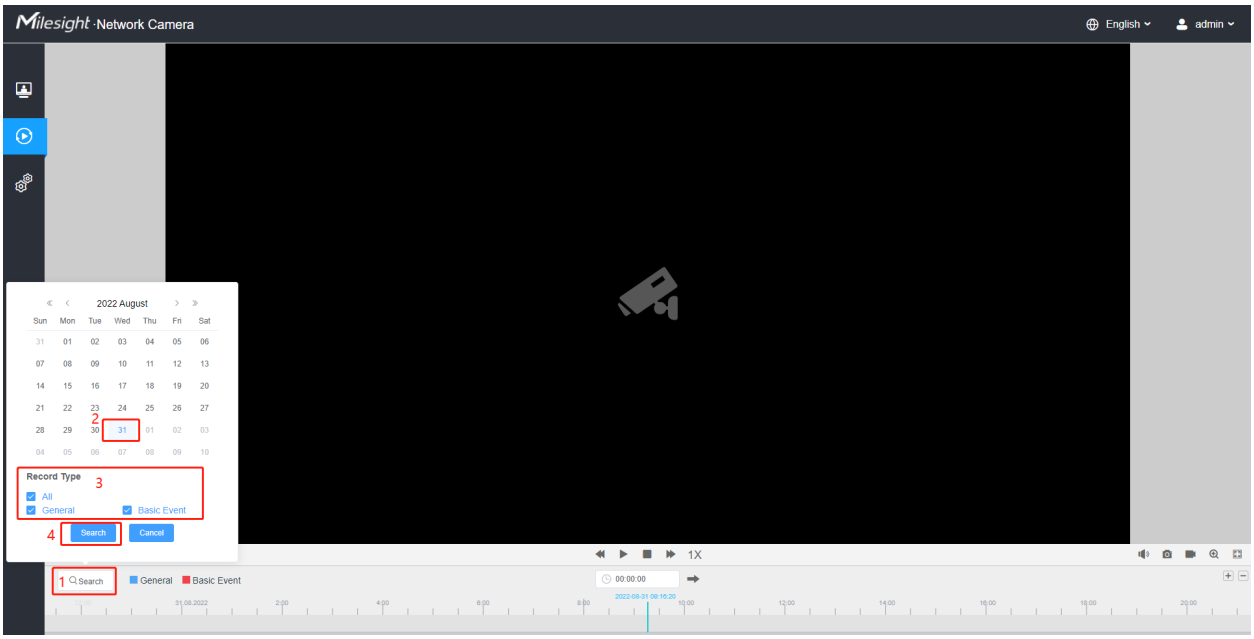
No.	Parameter	Description
		**Brightness**: Adjust the Brightness of the scene.
		Contrast: Adjust the color and light contrast.
		Saturation: Adjust the Saturation of the image. Higher Saturation makes colors appear more "pure" while lower one appears more “wash-out”.
		Sharpness: Adjust the Sharpness of image. Higher Sharpness sharps the pixel boundary and makes the image looks “more clear”.
		2D DNR/3D DNR: Adjust the noise reduction level.
		Default: Restore brightness, contrast and saturation to default settings.

Chapter 7. Playback

Click  to enter playback interface. In this part, you can search and playback the recorded video files stored in SD cards or NAS. The Playback interface is as below:

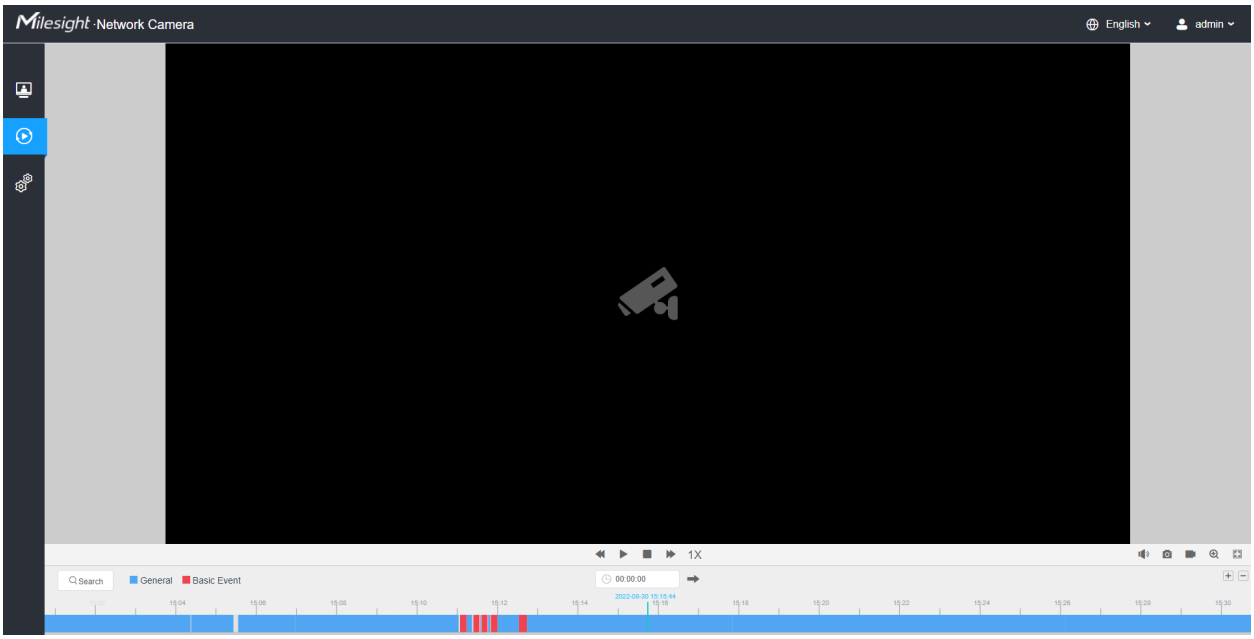


Step1: Click the "**Search**" botton, choose the data and record type when the window pops up.



Step2: The timeline displays the video files for the day and show different colors according to selected record type. Drag the progress bar with the mouse to locate the exact playback point as needed.

Note: You can also input the time and click to locate the playback point in the 00:00:00 filed. You can also click to zoom out/in the progress bar.



Step3: Click ▶ to play the video files found on this date. The toolbar on the button of playback interface can be used to control playing progress.

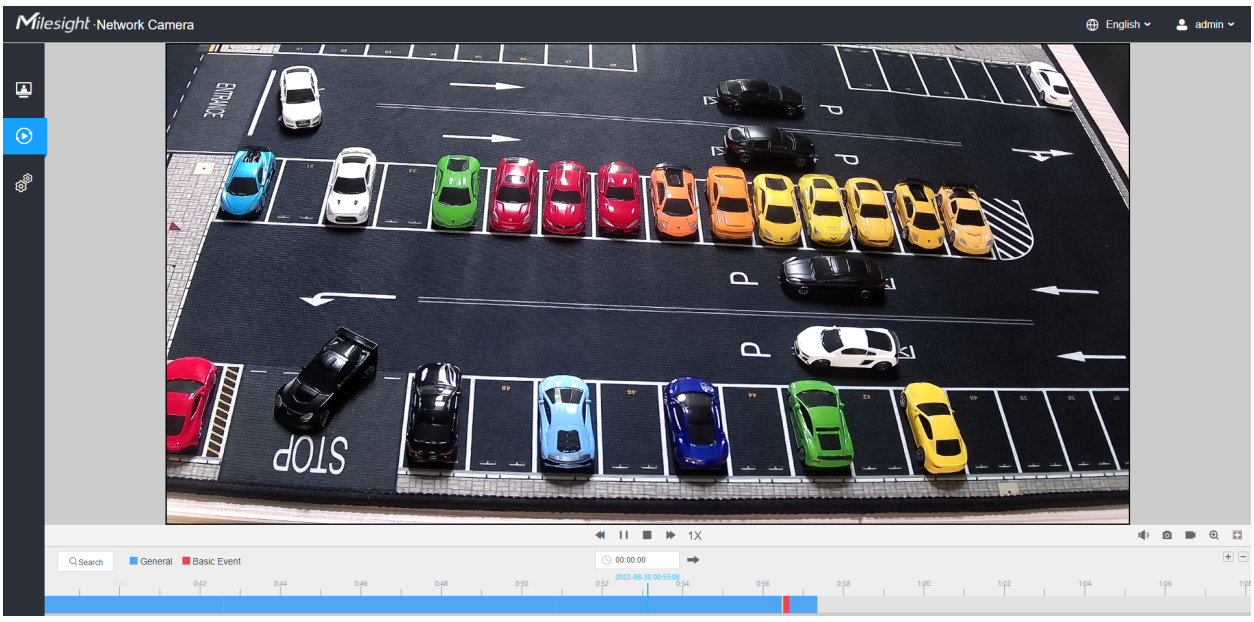


Table 10. Description of the buttons

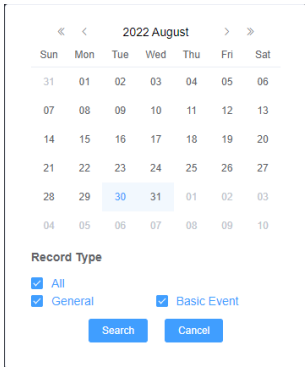
No.	Parameter	Description
Search		Choose date to search recorded videos. Search the recorded videos by record type (**All/General/ Basic Event**). The timeline will show different colors according to selected record type as below: General Basic Event
1	/ / 1X Speed Down/Speed Up/Speed	Adjust the speed of video playback. **Speed Down:** Includes 0.5X and 0.25X for Play. **Speed Up:** Includes 2X and 4X for Play. **Speed:** The default playback speed is 1X
2	/ Play/Pause	Play/Pause the video.
3	 Stop	Stop the video.
4	00:00:00 Search Time	Select the time that want to locate.
5	 Jump	Go To.

Table 11. Description of the buttons

No.	Parameter	Description
1	 Mute	Click to enable the audio.
2	 Snapshot	Click to take a snapshot.

No.	Parameter	Description
3	 Start/Stop recording	Click to start/stop recording.
4	 Digital Zoom	Click to zoom on/off .
5	 Full Screen	Full Screen.
6	 Time Expand/Narrow	Time narrow/expand.

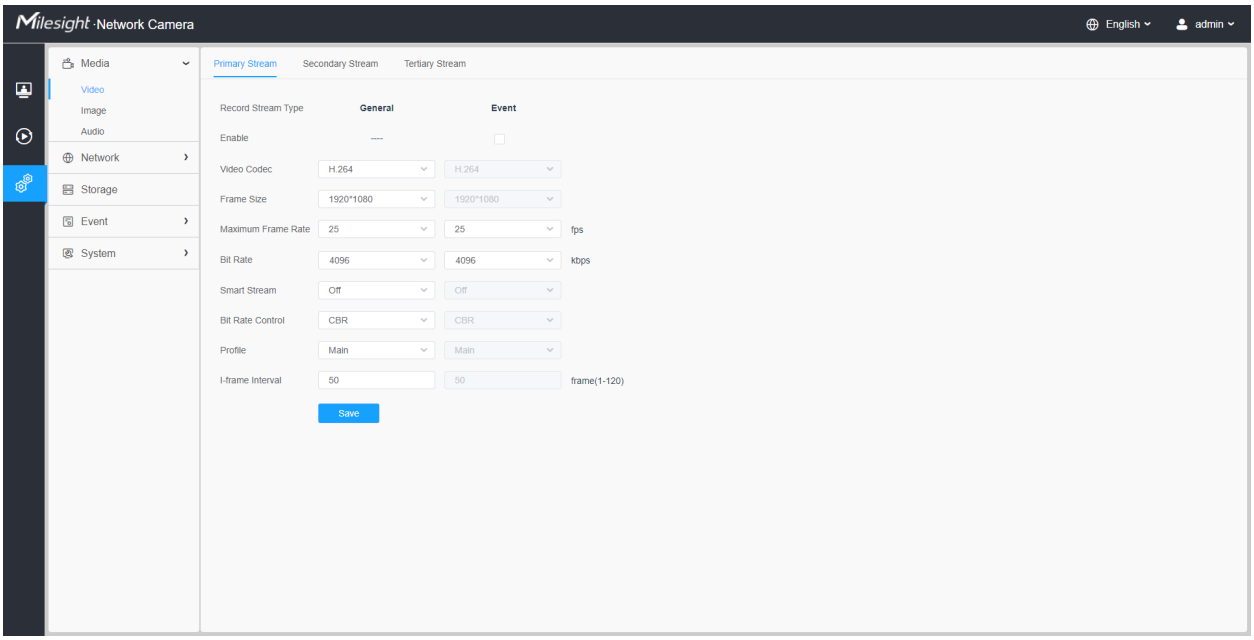
Chapter 8. Settings

8.1 Media

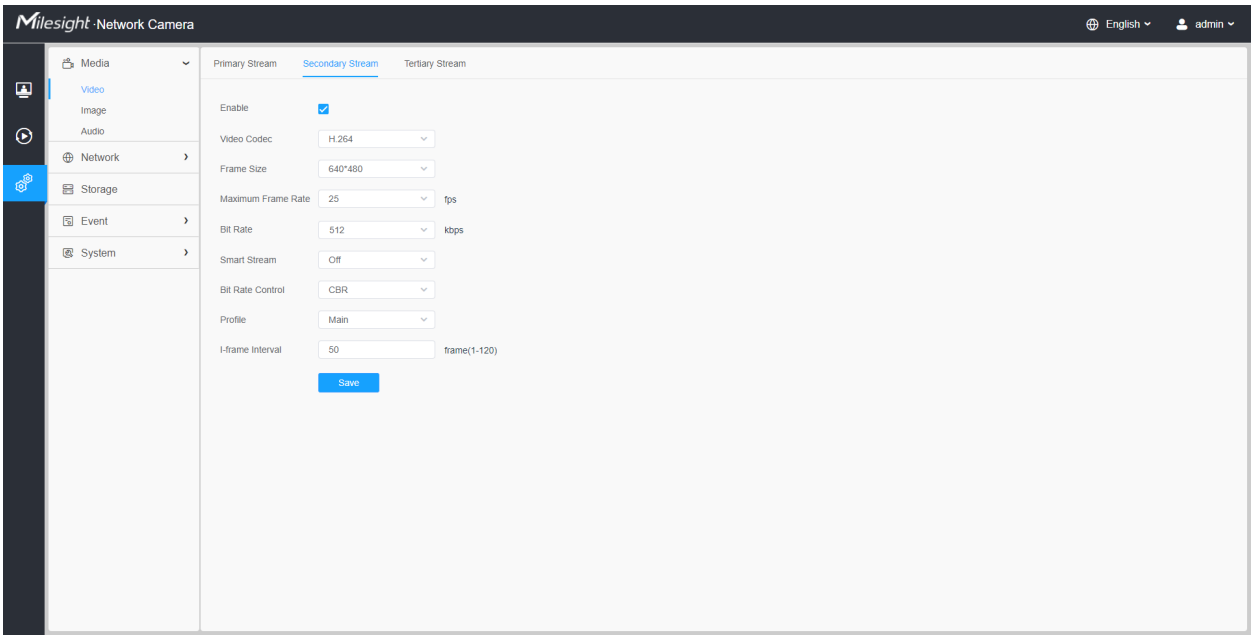
8.1.1 Video

Stream parameters can be set in this module, adapting to different network environments and demands.

Primary Stream Settings



Secondary Stream Settings



Tertiary Stream Settings

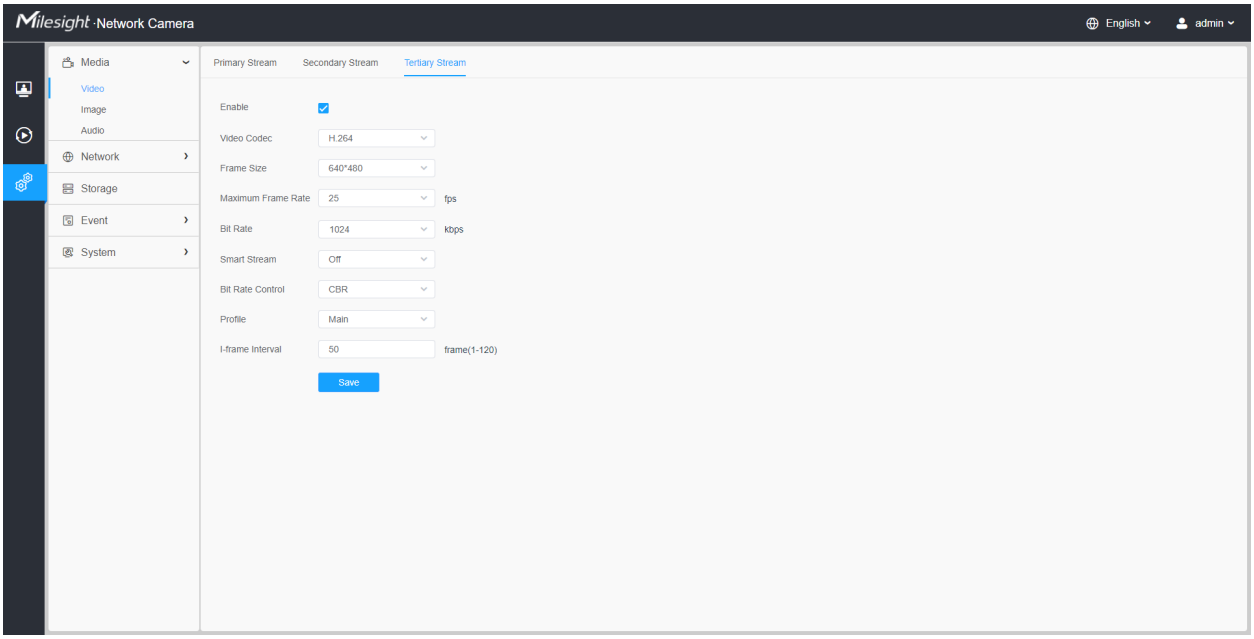


Table 12. Description of the buttons

Parameters	Function Introduction
Record Stream Type	**General** & **Event** are available only for **Primary Stream**. **General** refers to continuous record video, while **Event** includes events that can trigger alarms, such as Motion, Exception, LPR and so on. This item can separately set different bit rate and frame rate for different Recording Stream Types. If user chooses **Event**, video will be recorded according to the configuration of video stream type when an event happens, thereby greatly reducing the recording storage space.
Enable Event Stream	This item is optional only if you selected the Event.
Video Codec	H.265/H.264/MJPEG are available.
Frame Size	Options include 8M(3840×2160), 6M(3072×2048), 5M(2592*1944), 5M(2560*1920), 5M(2560*1440), 4M(2592*1520), 3M(2304*1296), 3M(2048*1536), 1080P(1920*1080), 2M(1600 *1200), 1.3M(1280*960), 720P(1280*720), D1(704*576). For **Secondary Stream**, it includes 704*576, 640*480, 640*360, 352*288, 320*240, 320*192, 320*176. For **Tertiary Stream**, it include 1920*1080, 1280*720, 704*576, 640*480, 640*360, 352*288, 320*240, 320*192, 320*176. **Note:** The options of **Frame Size** are variable according to the model.
Maximum Frame Rate	Maximum refresh frame rate of per second and it is variable according to the mode.
Bit Rate	Transmitting bits of data per second, this item is optional only if you select the H.265/ H.264 Set the bitrate to 32~16384 Kbps. The higher value corresponds to the higher video quality, and the higher bandwidth is required as well.
Smart Stream	Optional to turn On/Off Smart Stream mode. Smart Stream mode remarkably reduces the bandwidth and the data storage requirements for network cameras while ensuring the high quality of images, and it is a 10-level adjustable codec. **Level**: Level 1~10 are available as needed.
Bit Rate Control	**CBR**: Constant Bitrate. The rate of CBR output is constant.
Bit Rate Control	**VBR**: Variable Bitrate. VBR files vary the amount of output data per time segment.
Image Quality	**Low**/**Medium**/**High** are available, this item is optional only if you select VBR.

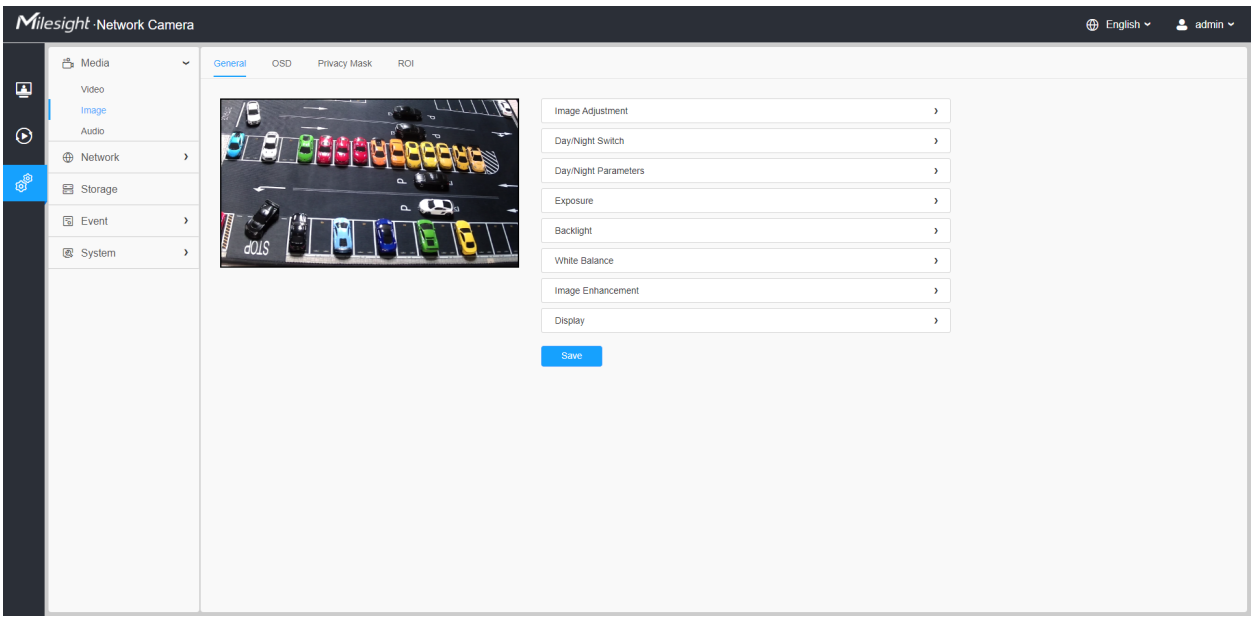
Parameters	Function Introduction
Profile	The option is for H.264, Main/High/Base can be selected as needed.
I-frame Interval	Set the I-frame interval to 1~120, 50 for the default. This item is optional only if you select the H.265/H.264. The number must be a multiple of the number of frames.

8.1.2 Image

General settings of image including the image adjustment, day/night setting and image enhancement can be set in this module. OSD (On Screen Display) content, privacy mask and video time can be displayed to rich the image information.

8.1.2.1 General

General settings of image including the Image Adjustment, Day/Night Switch, Day/Night Parameters, Exposure, Backlight, White Balance, Image Enhancement and Display can be set in this module.



[Image Adjustment]

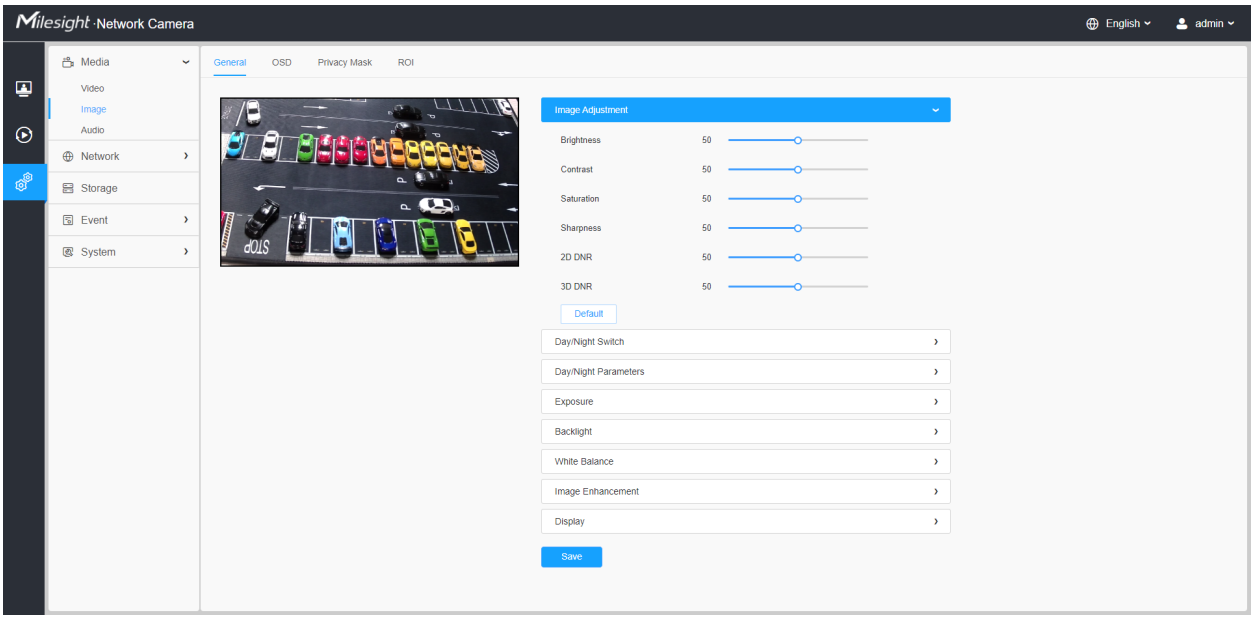


Table 13. Description of the buttons

Parameters	Function Introduction
Brightness	Adjust the Brightness of the scene.
Contrast	Adjust the color and light contrast.
Saturation	Adjust the Saturation of the image. Higher Saturation makes colors appear more "pure" while lower one appears more “wash-out”.
Sharpness	: Adjust the Sharpness of image. Higher Sharpness sharps the pixel boundary and makes the image looks “more clear”.
2D DNR	Adjust the noise reduction level.
3D DNR	Restore brightness, contrast and saturation to default settings.
Default	Adjust the Brightness of the scene.

[Day/Night Switch]

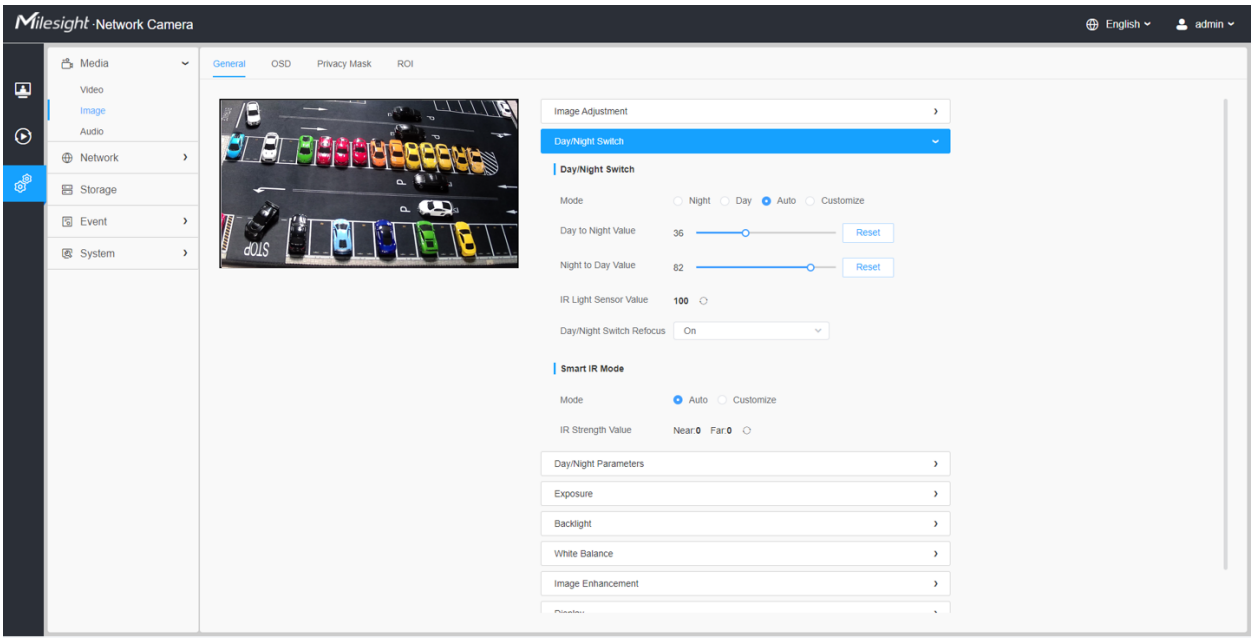


Table 14. Description of the buttons

Parameters	Function Introduction
Day/Night Switch	**Night Mode:** Shown in live view based on Night Mode settings. **Day Mode:** Shown in live view based on Day Mode settings. **Auto Mode:** Shown in live view based on environment, set the sensitivity for switching Day Mode to Night Mode, or Night Mode to Day Mode. **Customize:** Shown in live view based on your own settings' time to start/end Night Mode. **Note:** There are several parameters such as Exposure Level, Maximum Exposure Time and IR-CUT Interval, etc, associated with the modes.
Day/Night Switch	**Day/Night Switch Refocus:** With this option enabled, the camera will refocus when switching between day mode and night mode.

Parameters	Function Introduction
Day/Night Switch	**Day to Night Value:** You can set the sensitivity for switching Day Mode to Night Mode. When IR Light Sensor Current Value is lower than this value, it will switch Day Mode to Night Mode. You can click Reset to reset the value to 36. **Night to Day Value:** This is the sensitivity for switching Night Mode to Day Mode. When IR Light Sensor Current Value is higher than this value, it will switch Night Mode to Day Mode. You can click Reset to reset the value to 82. **IR Light Sensor Value:** The current value of the IR light sensor. **Note:** The three buttons are optional only if you select Auto Mode.
Day/Night Switch	**Start Time of Night:** You can set the time for start the Night Mode. **End Time of Night:** You can set the time for start the Day Mode. **Note:** Start/End Time of Night are optional only if you select Customize Mode.
Smart IR Mode	Support to set the strength of the IR to **Auto Mode** or **Customize** to achieve the best effect.
	Near View IR Level: Adjust the light strength of Low-Beams LED light level from 0 to 100. **Far View IR Level:** Adjust the light strength of High-Beams LED light level from 0 to 100. **Note:** • Near/Far View IR Level are only available in . • Near/Far View IR Level are optional only if you select Customize Mode of Smart IR. • Click Reset to reset the light strength to 50.
	IR Strength Value: The current value of Low-Beams LED and High-Beams LED light value.

[Day/Night Parameters]

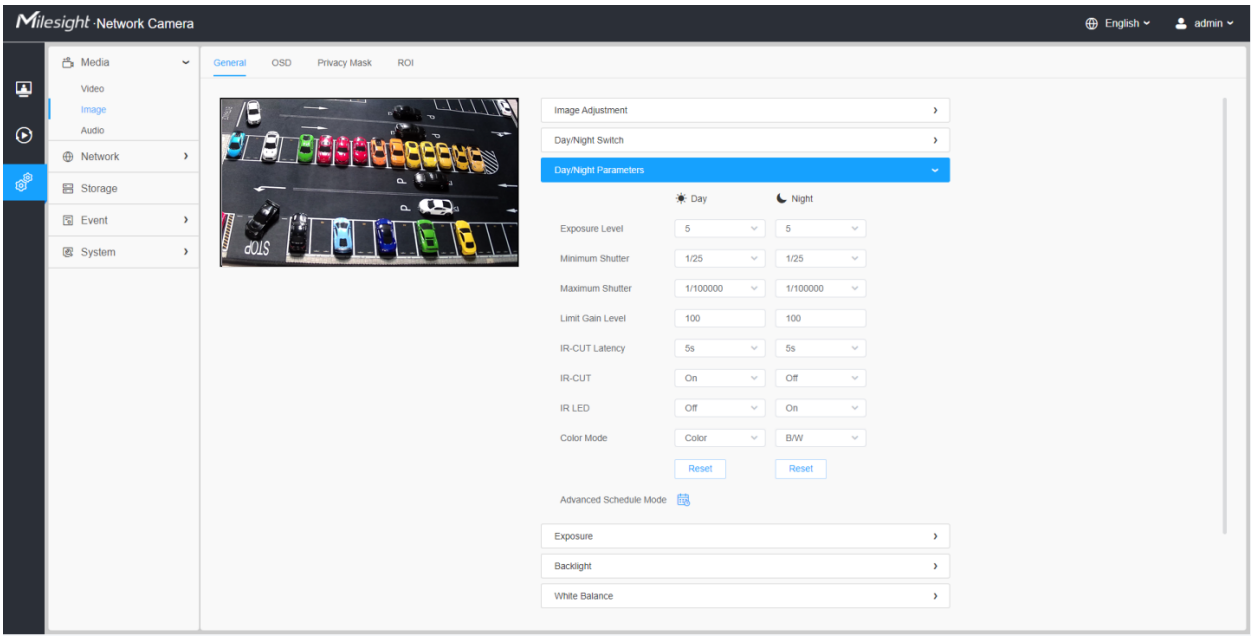
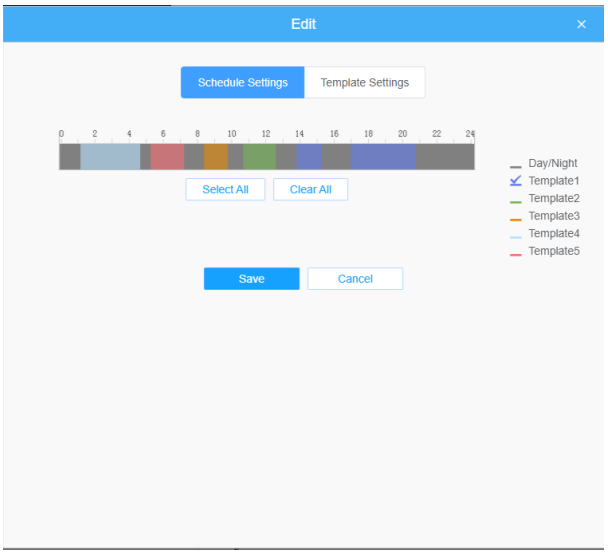


Table 15. Description of the buttons

Parameters	Function Introduction
Exposure Level	Level 0~10 are available to meet your need.
Minimum Shutter	Minimum Shutter is the same as Maximum Exposure Time. Set the minimum Shutter to 1~1/100000s.
Maximum Shutter	Maximum Shutter is the same as Minimum Exposure Time. Set the maximum Shutter to 1~1/100000s.
IR-CUT Latency	The interval time of switching one mode to another.
Limit Gain Level	Set the Limit Gain Level to 1~100.
IR-CUT	Turn on/off IR-CUT.
IR LED	Turn on/off IR-LED.
Color Mode	Select B/W or Color mode.

Parameters	Function Introduction
Advanced Schedule Mode	Here you can customize your special demands for different time, then the Day mode and Night mode will switch automatically according to your settings. 

[Exposure]

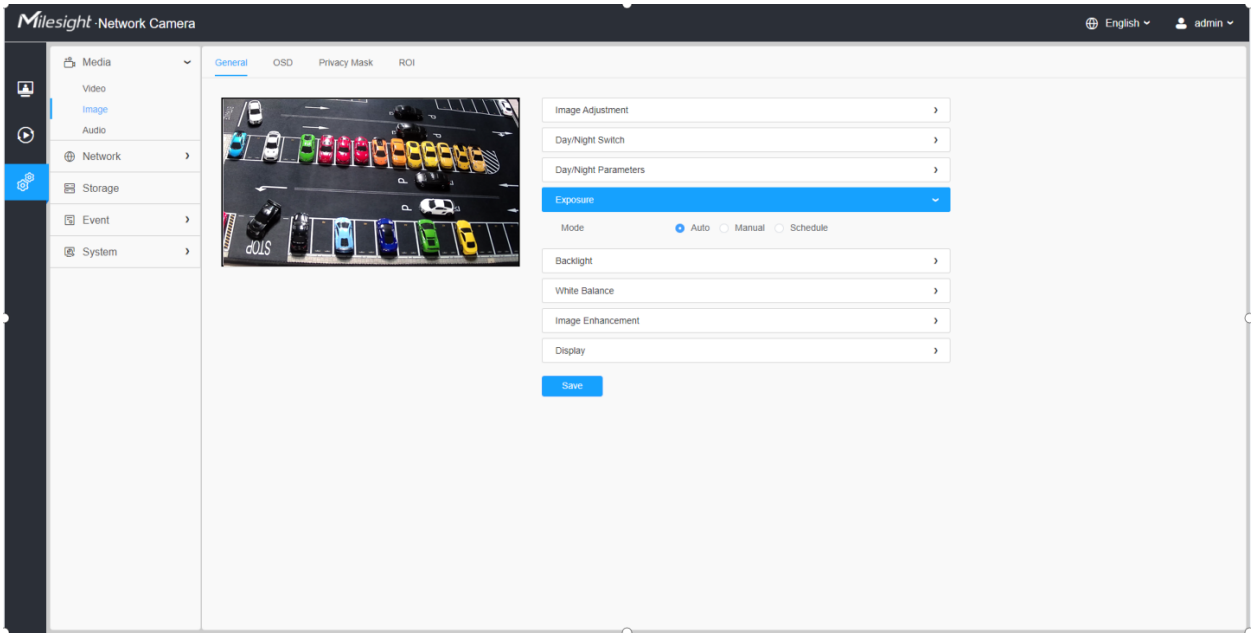
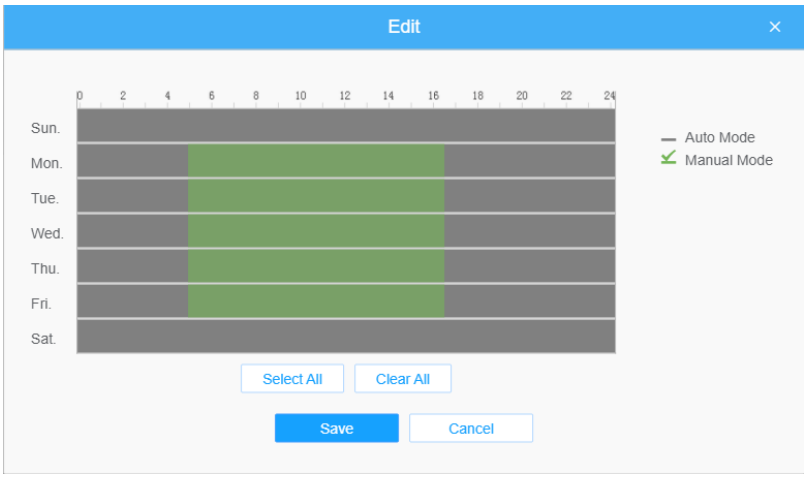


Table 16. Description of the buttons

Parameters	Function Introduction
Exposure Mode	Auto Mode, Manual Mode and Schedule Mode are available. **Auto Mode:** The camera will adjust the brightness according to the light environment automatically. **Manual Mode:** The camera will adjust the brightness according to the value you set, you can set the exposure time from 1~1/100000s, the higher the value is, the brighter the image is. **Schedule Mode:** You can customize the schedule to enable/disable Auto Mode and Manual Mode. 

[Backlight]

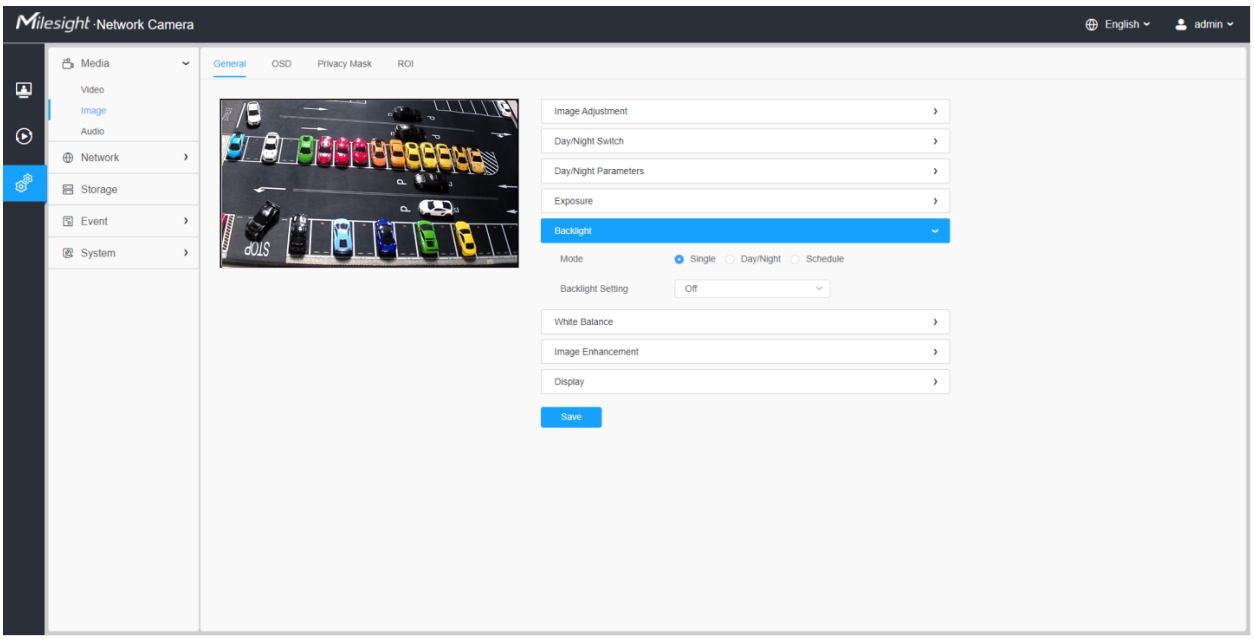
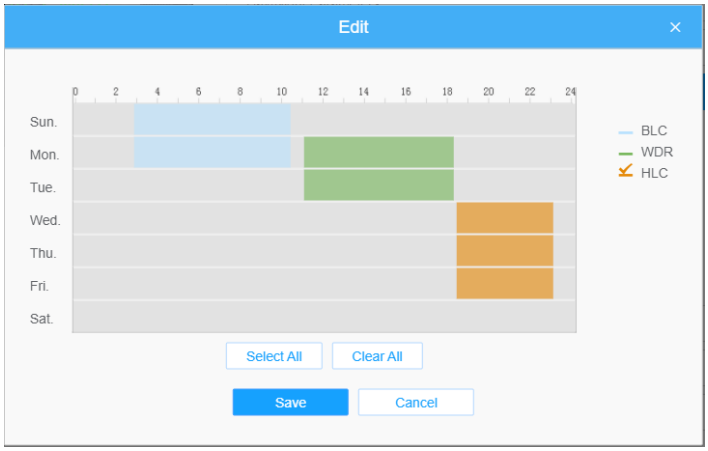


Table 17. Description of the buttons

Parameters	Function Introduction
Backlight Mode	**Single Mode:** Set single mode for BLC/WDR/HLC. **Note:** Do not support WDR and General HLC while High Frame Rate is enabled. **Day/Night Mode:** Support BLC/WDR/HLC on Day Enhancement Mode/Night Enhancement Mode separately. **Schedule Mode:** Set schedule mode for BLC/WDR/HLC. You can customize the schedule to enable/disable BLC/WDR/HLC mode. 

[White Balance]

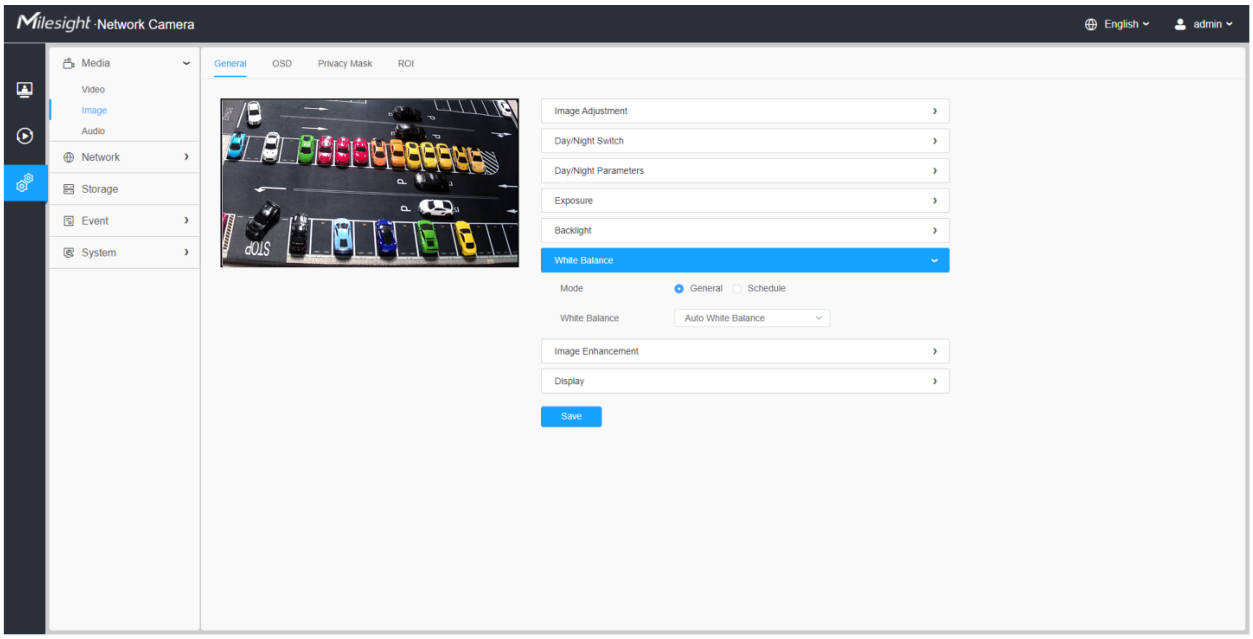
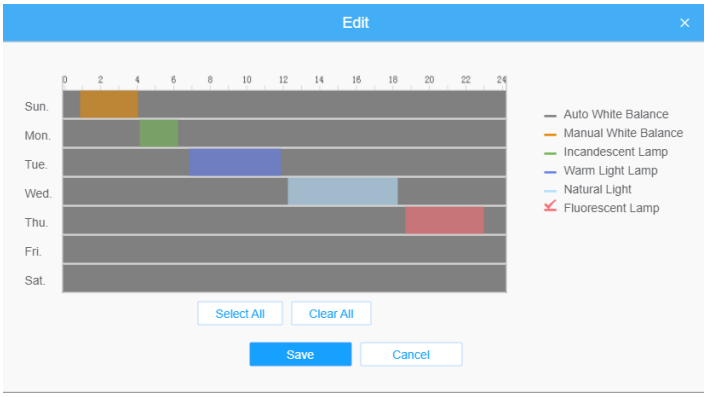


Table 18. Description of the buttons

Parameters	Function Introduction
White Balance	To restore white objects, removed color distortion caused by the light of the environment. **Mode:** General and Schedule are available.
	General Mode: Select a white balance mode as required • **Auto White Balance:**This option will automatically enable the White Balance function. • **Manual White Balance:** Set Red Gain Level and Blue Gain Level manually. • **Incandescent Lamp:** Select this option when light is similar with incandescent lamp. • **Warm Light Lamp:** Select this option when light is similar with warm light lamp. • **Natural Light**: Select this option when there is no other light but natural light. • **Fluorescent Lamp:** Select this option when light is similar with Fluorescent Lamp.

Parameters	Function Introduction
	Schedule Mode: Select this option that you can customize the schedule to enable/ disable above modes. 

[Image Enhancement]

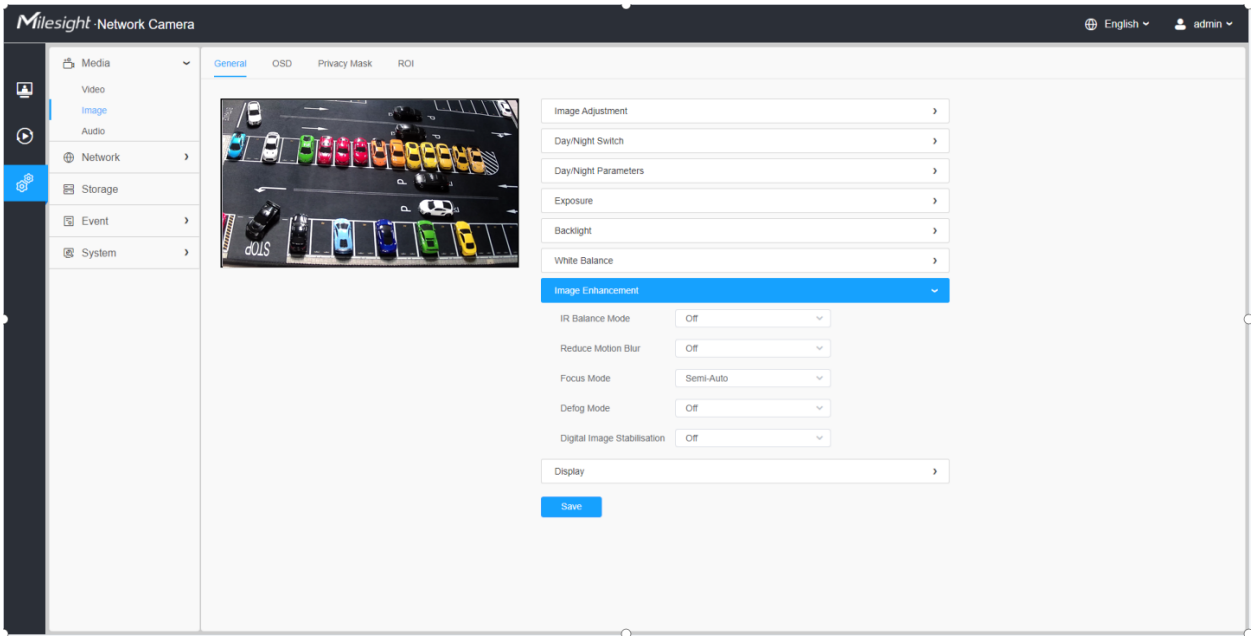


Table 19. Description of the buttons

Parameters	Function Introduction
IR Balance Mode	There is an option to turn On/Off the IR LED. IR Balance Mode would avoid the problem of overexposure and darkness, and the IR LED will change according to the actual illumination.
Reduce Motion Blur	Enable this function to reduce the motion blur of objects effectively. You can adjust the deblur level from 1 to 100. **Note:** For more details about **Milesight Deblur**, you can click to the YouTube: https://www.youtube.com/watch?v=-vynrami51s
Defog Mode	Better image effect in foggy weather. **Note:** • Defog Mode is not supported for the . • For more details about **Milesight Defog**, you can click to the YouTube: https://www.youtube.com/watch?v=a9od7Trao4U
Digital Image Stabilisation	Decrease the blur and shakiness of the image.

[Display]

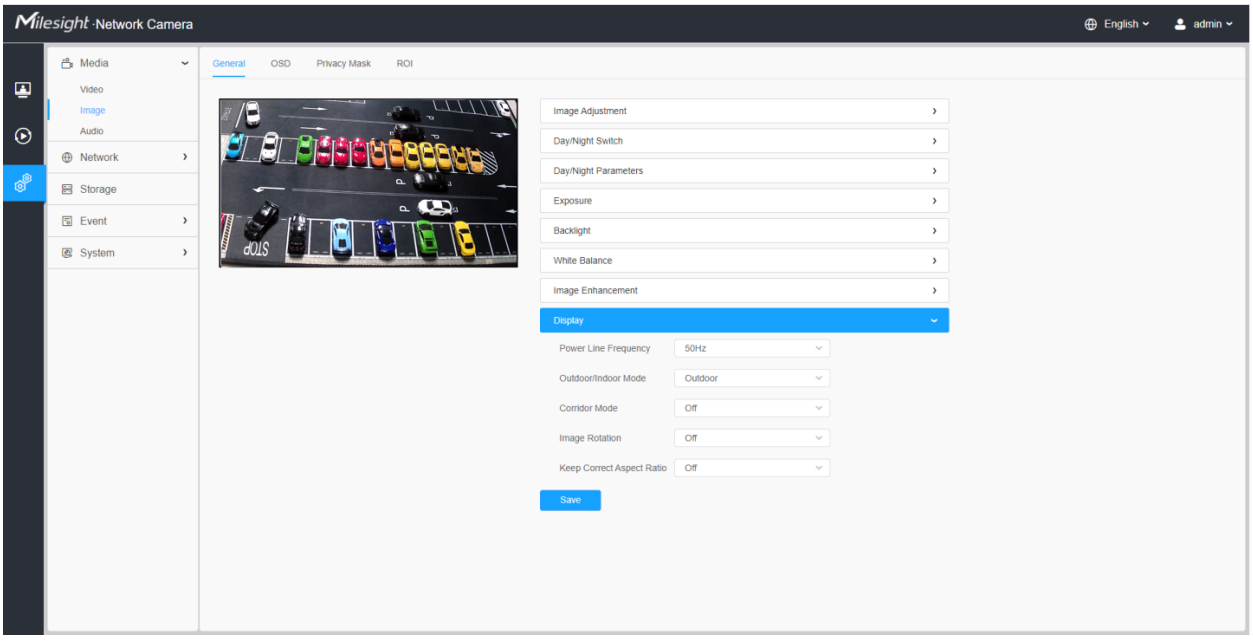


Table 20. Description of the buttons

Parameters	Function Introduction
Power Line Frequency	60Hz and 50Hz are available.
Outdoor/Indoor Mode	Select indoor or outdoor mode to meet your needs.
Corridor Mode	There are three options available, you can select one to meet your need. **Off:** Keep the image in normal direction. **Clockwise 90°:** Rotate the image by 90° clockwise. **Anticlockwise90°:** Rotate the image by 90° anticlockwise.
Image Rotation	There are four options available, you can select one to meet your need. **Off:** Keep the image in normal direction. **Rotating 180°:** Upside down the image. **Flip Horizontal:** Flip the image horizontally. **Flip vertical:** Flip the image vertically.
Keep Correct Aspect Ratio	With this option enabled, the camera will prevent the image from distortion when resolution ratio is changed.

8.1.2.2 OSD

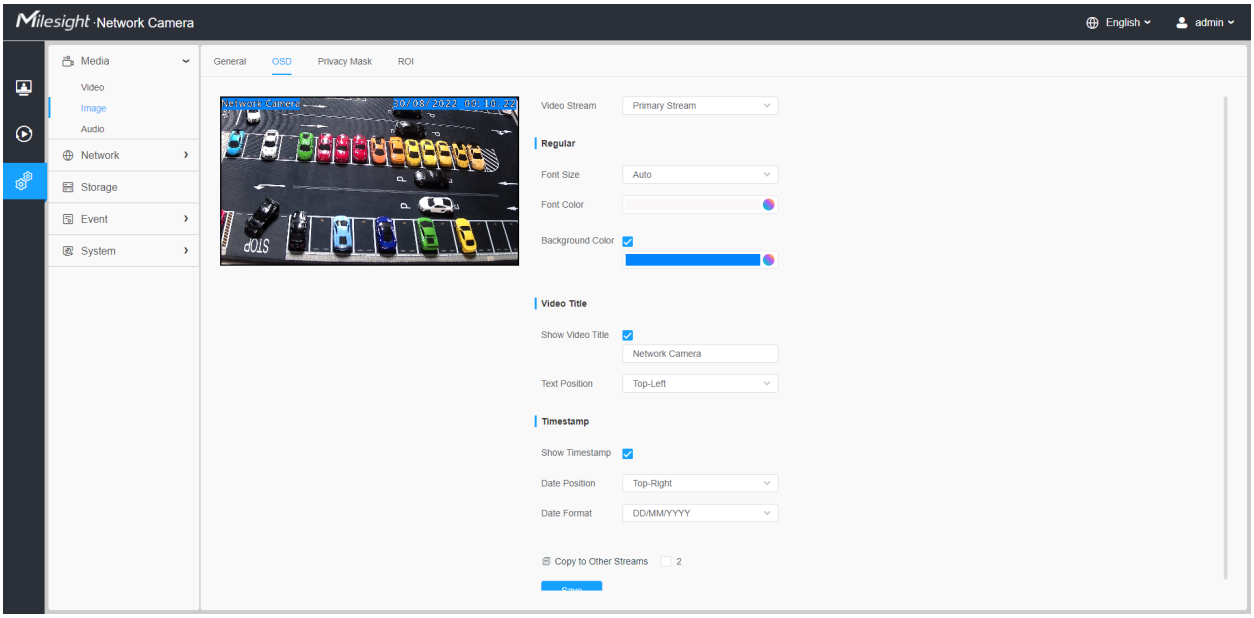


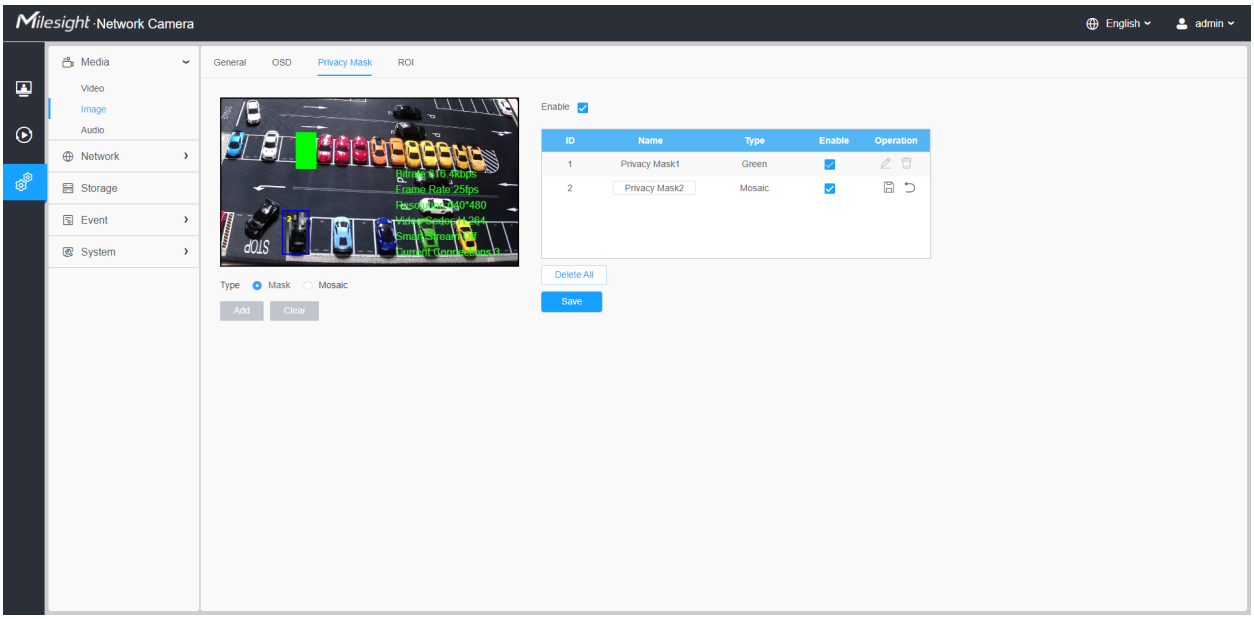
Table 21. Description of the buttons

Parameters	Function Introduction
Video Stream	Enable to set OSD for primary stream and secondary stream.
Font Size	Smallest/Small/Medium/Large/Largest/Auto are available for title and date.
Font Color	Enable to set different color for title and date.
Background Color	Enable to set different colors for display information background on screen. You can set different colors for font and background of image , then the image OSD will show as below: 
Show Video Title	Check the check box to show video title.
Video Title	Customize the OSD content.
Text Position	OSD display position on the image.
Show Timestamp	Check the checkbox to display date on the image.
Date Position	Date display position on the image.
Date Format	The format of date.
Copy to Other Streams	Copy the settings to other streams.

8.1.2.3 Privacy Mask

Privacy mask enables to cover certain areas on the live video to prevent certain spots in the surveillance area from being viewed and recorded.

[Privacy Mask]



You can select the color to use for the cover certain areas on the live video.

Note:

- For the PMCxxxx-xPC model, up to 24 mask areas and 4 mosaic areas are supported.

Table 22. Description of the buttons

Parameters	Function Introduction
Enable	Check the check box to enable the Privacy Mask function.
Type	Select the color to use for the privacy areas, there are eight colors available: White, Black, Blue, Yellow, Green, Brown, Red and Purple.
Add	Drew a privacy area on the live video as needed.
Clear	Clear the area you drew on the live video.
Delete All	Clear all areas you drew before.

[Mosaic type of Privacy Mask]

You can select the color type and mosaic type to use for the cover certain areas on the live video. The mosaic type can maintain the continuity of the picture and improve the visual effect. Up to 28 mask areas are supported, which includes 24 mask areas and 4 mosaic areas.

Note: Make sure your camera model is PMxxxx-xPC

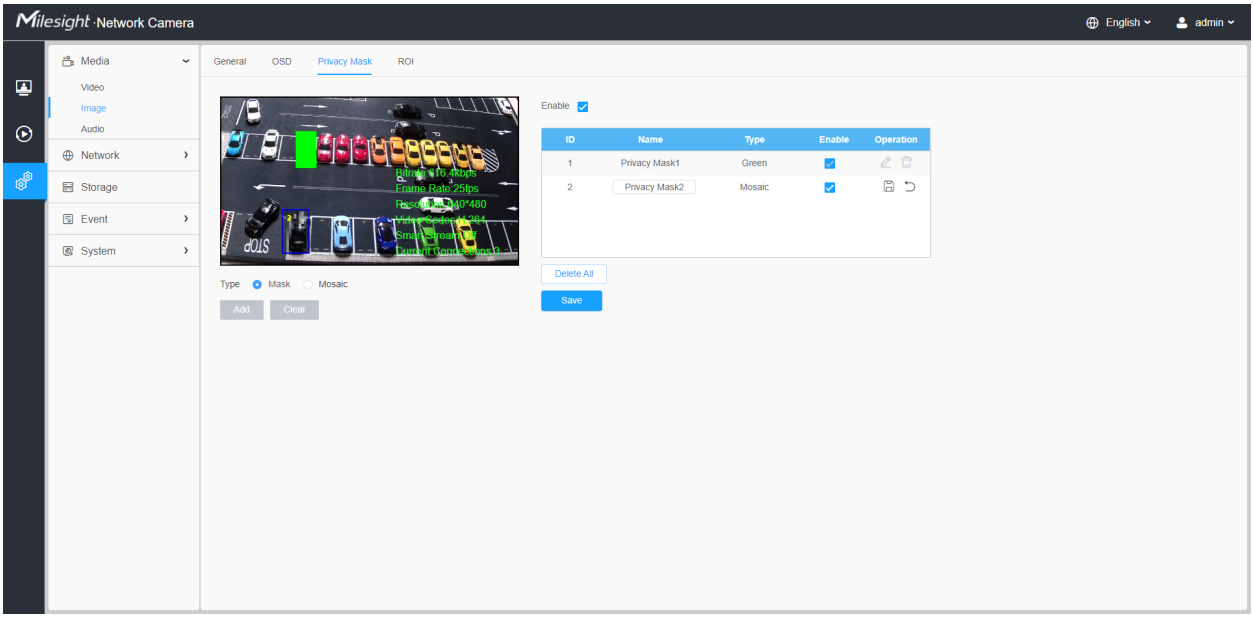


Table 23. Description of the buttons

Parameters	Function Introduction	
Enable	Check the check box to enable the Privacy Mask function.	
Type	Select the type to use for the privacy areas, there are two types available: Mask and Mosaic.	
Add	Drew an privacy area on the live video as needed.	
Clear	Clear the area you drew on the live video.	
Operation	/	Enable/disable the selected ROI areas.
		Change the color of Mask area, there are eight colors available: White, Black, Blue, Yellow, Green, Brown, Red and Purple
		Delete the privacy mask area

8.1.2.4 ROI

Region of interest (often abbreviate ROI), is a selected subset of samples within a dataset identified for a particular purpose. Users can select up to 8 key regions of a scene to transmit through separate streams for targeted preview and recording.

By using Milesight ROI technology, more than 50% of bit rate can be saved and therefore less bandwidth demanded and the storage usage reduced. So according to this, you can set a small bit rate for high resolution.

Note: For more details about how to set ROI, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000643441.

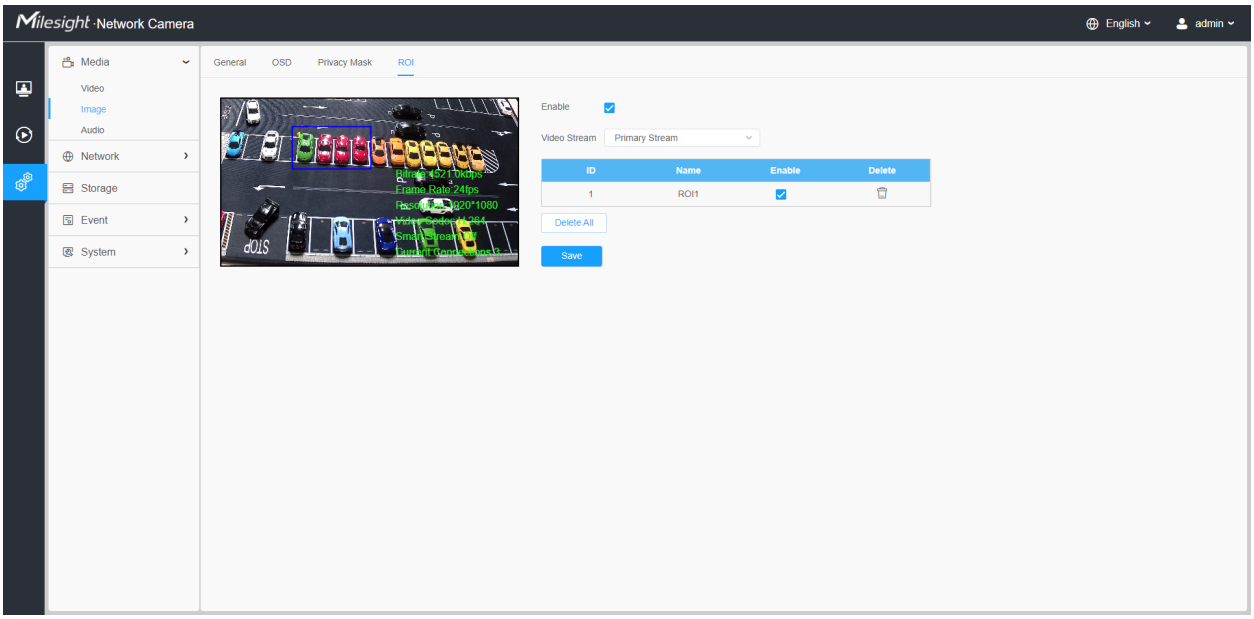


Table 24. Description of the buttons

Parameters	Function Introduction	
Enable	Check the checkbox to enable the ROI function.	
Video Stream	Choose the Video Stream.	
ROI	/	Enable/disable the selected ROI areas.

Parameters	Function Introduction	
		Delete the selected ROI areas.
Delete All	Clear all areas you drew before.	

Note:

- You can set a low bit rate. For example, you can set a bit rate with 512Kbps and a resolution with 1080P, then you can see the image quality of ROI is more clear and fluent than the other region.

8.1.3 Audio

8.1.3.1 Audio

This audio function allows you to hear the sound from the camera or transmit your sound to the camera side. A two-way communication is also possible to be achieved with this feature. Alarm can be triggered when the audio input is above a certain alarm level you set, and configured audio can be played when an alarm occurs.

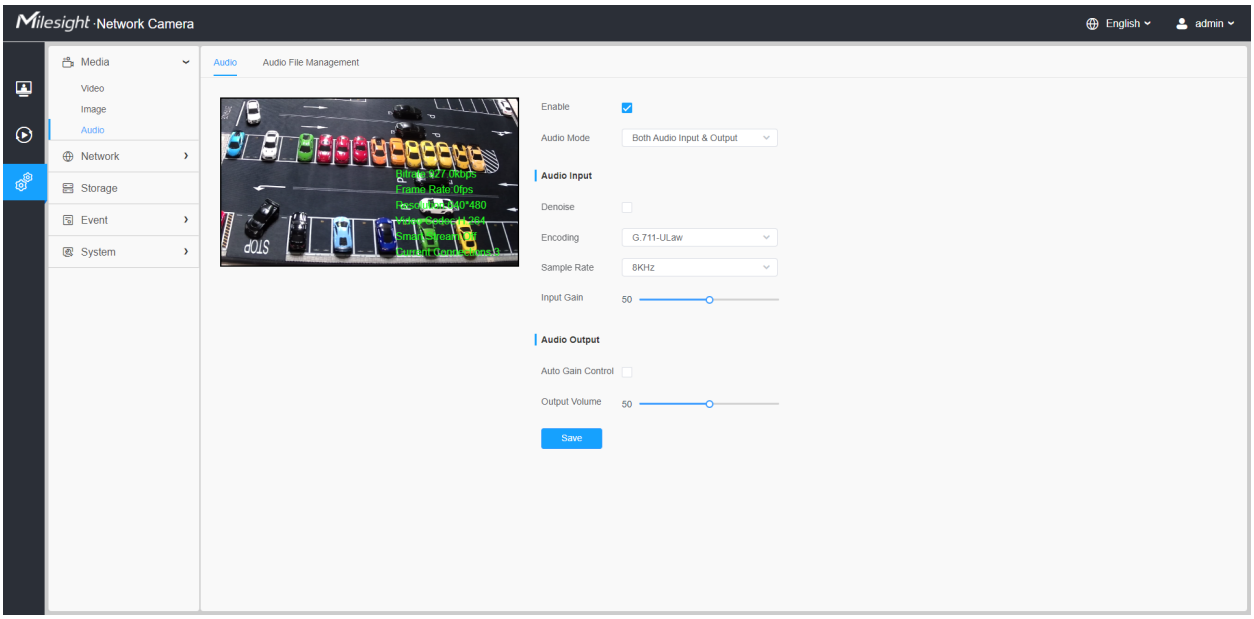
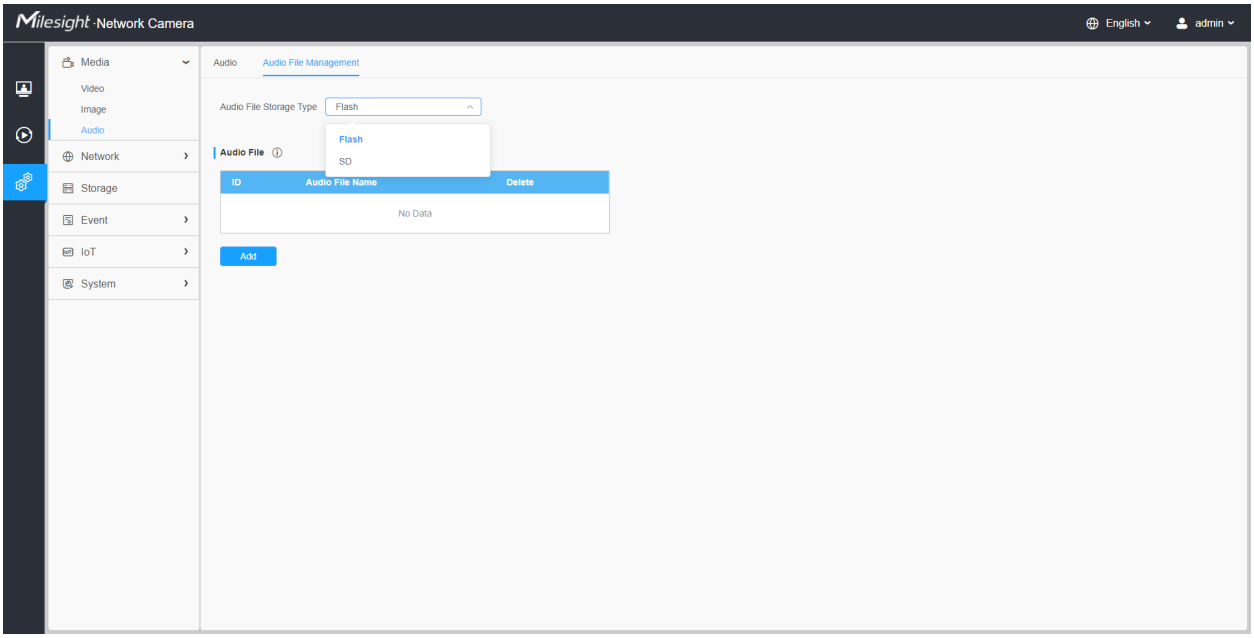


Table 25. Description of the buttons

Parameters	Function Introduction
Enable	Check on the checkbox to enable audio feature.
Audio Mode	**Audio Input/Audio Output/Both Audio Input & Output** are optional.
Audio Input	**Denoise:** Set it as On/Off. When you set the function on, the noise detected can be filtered. **Encoding:** G.711-ULaw, G.711-ALaw, AAC LC, G.722 and G.726 are available **Audio Bit Rate:** The function is available only for AAC LC, and supports up to 48kbps. **Sample Rate:** 8KHz, 16KHz, 32KHz, 44.1KHz, and 48KHz are available. **Input Gain:** Input audio gain level, 0-100. **Alarm Level:** Alarm will be triggered if voice alarm is enabled and input gained volume is higher than the alarm level, 1-100.
Audio Output	**Auto Gain Control:** This function is only for H.265 series, improve the quality of audio **Output Volume:** Adjust volume of output

8.1.3.2 Auto File Management

You can upload up to 5 audio files manually to Flash or SD Card on the Audio web page and you can also edit the audio file's name when upload.



Note:

- The Audio mode and Audio Output are only for certain modules.
- Only support '.wav' audio files with codec type PCM/PCMU/PCMA, 64kbps or 128 kbps and no more than 500k.

Note: Only support '.wav' audio files with codec type PCM/PCMU/PCMA, 64kbps or 128kbps bitrate and no more than 500k!

8.2 Network

8.2.1 Basic

8.2.1.1 TCP/IP

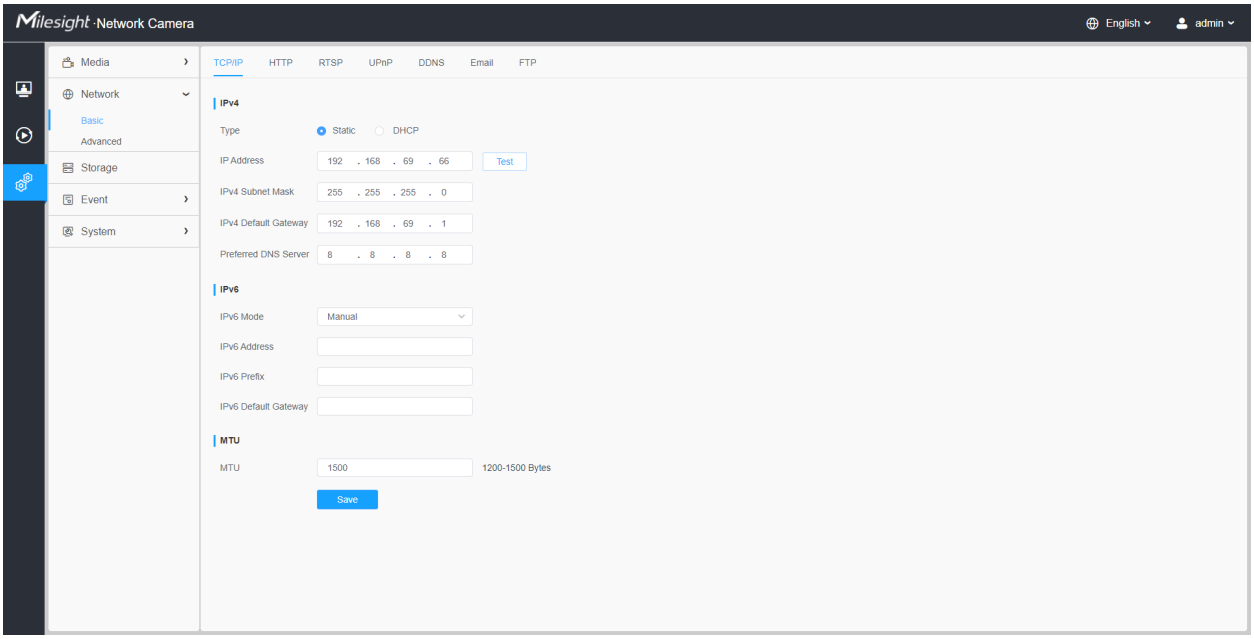


Table 26. Description of the buttons

Parameters	Function Introduction
IPv4	**Type:** Static Type and DHCP Type are optional for user to get IPv4 address automatically or use fixed IP address. **IPv4 Address:** An address that used to identify a network camera on the network. **Note:** The **Test** button is used to test if the IP is conflicting. **IPv4 Subnet Mask:** It is used to identify the subnet where the network camera is located. **IPv4 Default Gateway:** The default router address. **Preferred DNS Server:** The DNS Server translates the domain name to IP address.
IPv6	**IPv6 Mode:** Choose different modes for IPv6: Manual/Route Advertisement/ DHCPv6 **IPv6 Address:** IPv6 Address used to identify a network camera on the network **IPv6 Prefix:** Define the prefix length of IPv6 address **IPv6 Default Gateway:** The default router IPv6 address
MTU	Maximum Transmission Unit. The default value is 1500. You can customize the value from 1200 to 1500 as needed.
Save	Save the configuration.

8.2.1.2 HTTP

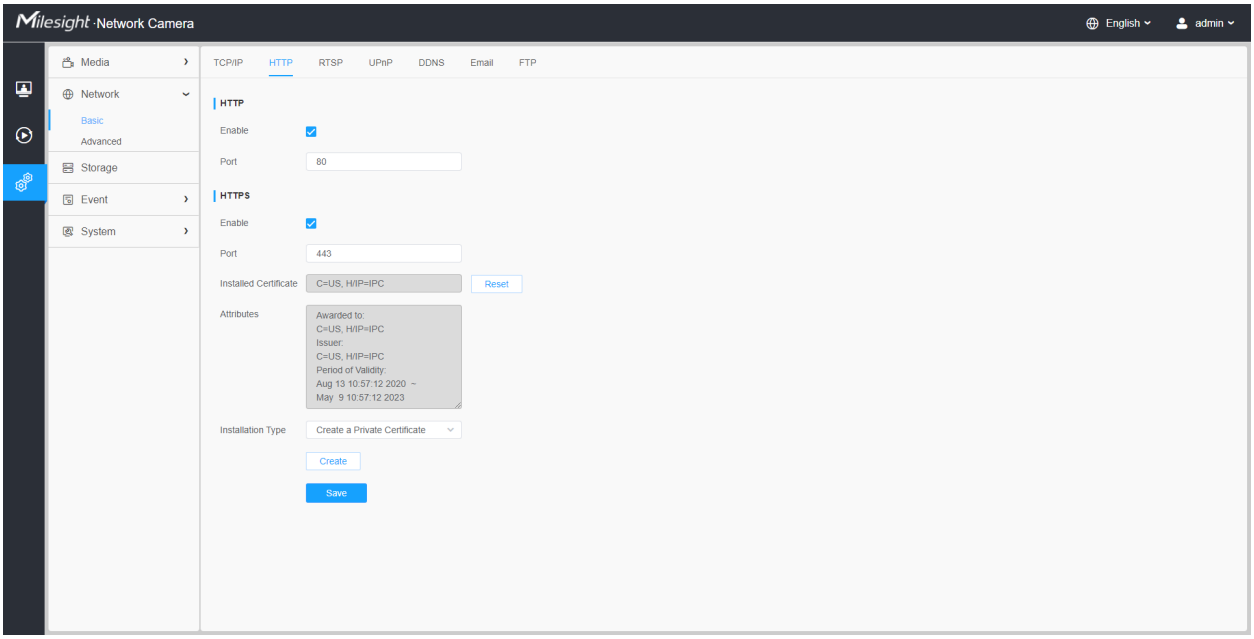


Table 27. Description of the buttons

Parameters	Function Introduction
HTTP	**Enable:** Start or stop using HTTP. **Port:** Web GUI login port, the default is 80, the same with ONVIF port.
HTTPs	**Enable:** Start or stop using HTTPs. **Port:** Web GUI login port via HTTPS, the default is 443. **Note:** For more details about how to use enable HTTPS access, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000797384.
Installed Certificate	Upload and set the SSL certificate.
Attributes	
Installation Type	
Save	Save the configuration.

Table 28. HTTP URL are as below:

Stream	URL
Main Stream	http://username:password@IP:port/ipcam/mjpeg.cgi
Secondary Stream	http://username:password@IP:port/ipcam/mjpegcif.cgi
Tertiary Stream	http://username:password@IP:port/ipcam/mjpegthird.cgi

Note: You need to change the codec type of streams to MJPEG except the main stream of H.264 cameras whose models with “-A”.

8.2.1.3 RTSP

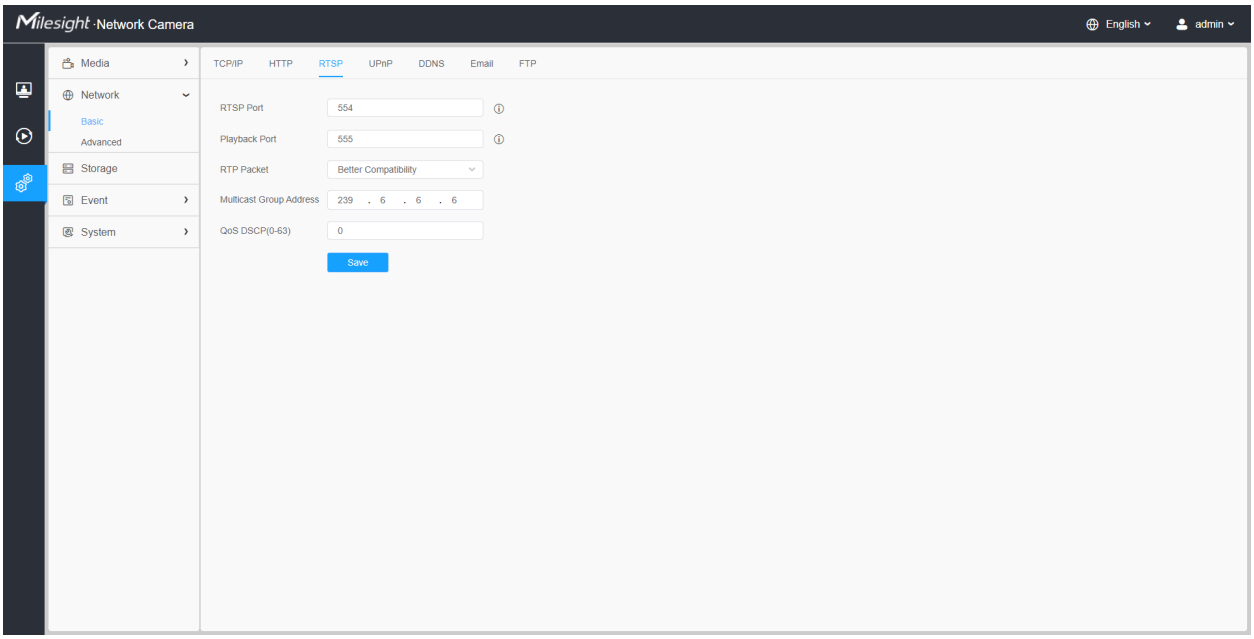


Table 29. Description of the buttons

Parameters	Function Introduction
RTSP Port	The port of RTSP, the default is 554.
Playback Port	Playback Port The port of playback, the default is 555. **Note:** Port 0 means closing playback function.
RTP Packet	There are Better Compatibility and Better Performance two options, if your camera's image mess up, please switch this option.
Multicast Group Address	Support multicast function.
QoS DSCP	The valid value range of the DSCP is 0-63.
Save	Save the configuration.

Table 30. RTSP URL are as below:

Stream	URL
Primary Stream	rtsp://IP:RTSP Port/main
Secondary Stream	rtsp://IP:RTSP Port/sub

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.
- A reboot is required for the settings to take effect.

8.2.1.4 UPnP

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.

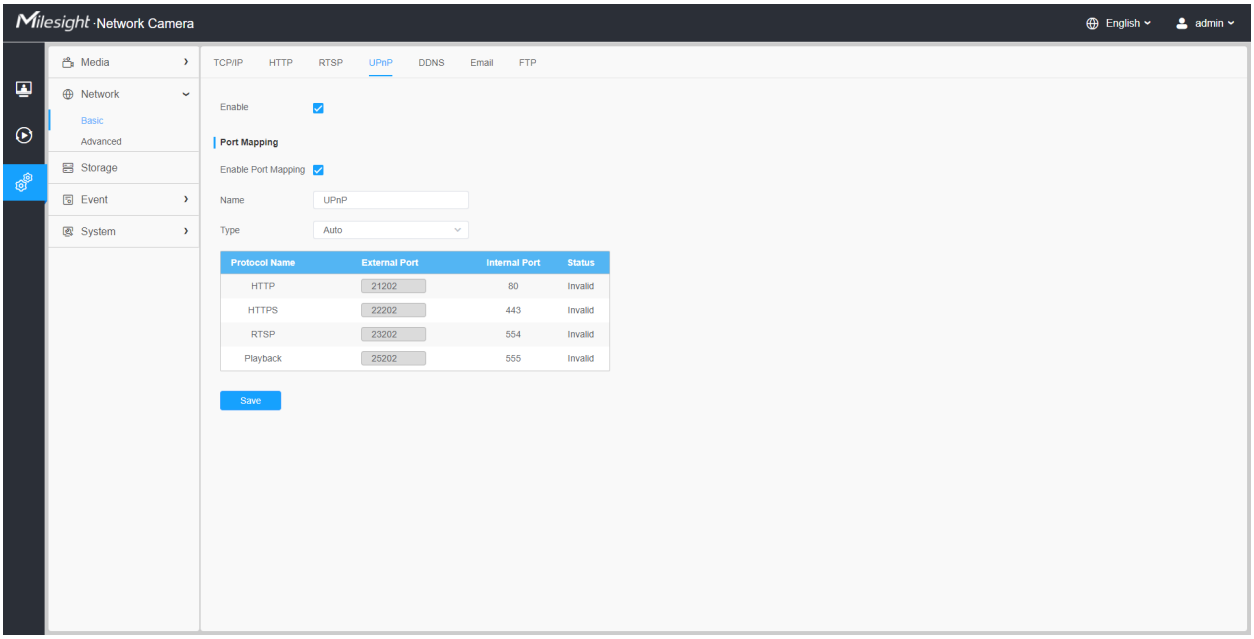


Table 31. Description of the buttons

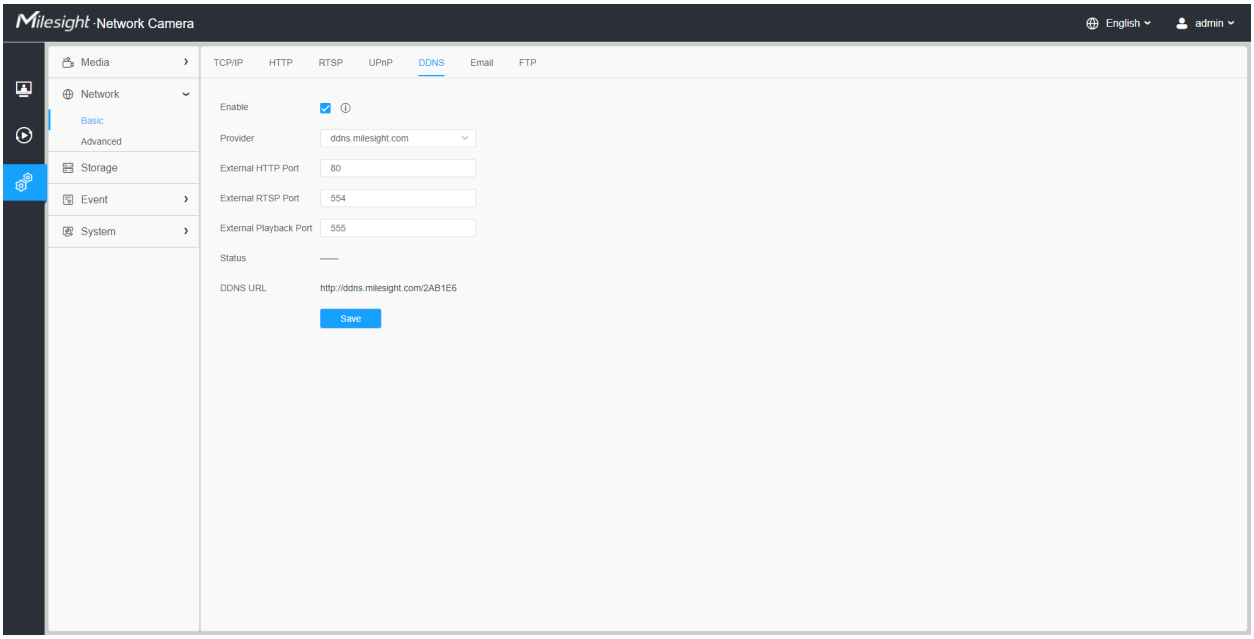
Parameters	Function Introduction
Enable	Check the checkbox to enable the UPnP function.
Enable Port Mapping	Check the checkbox to enable the Port Mapping
Name	The name of the device detected online can be edited

Parameters	Function Introduction
Type	**Auto:** Automatically obtain the corresponding HTTP and RTSP port, without any settings **Manual:** Need to manually set the appropriate HTTP port and RTSP Port. When choose Manual, you can customize the value of the port number by yourself
Save	Save the configuration.

8.2.1.5 DDNS

DDNS allows you to access the camera via domain names instead of IP address. It manages to change IP address and update your domain information dynamically. You need to register an account from a provider.

Note: For more details about how to set DDNS, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000643406.



You can choose “ddns.milesight.com” as provider for DDNS. After enabling it, you can access the device via the URL “http://ddns.milesight.com/MAC address”.

Table 32. Description of the buttons

Parameters	Function Introduction
Enable DDNS	Check the checkbox to enable DDNS service. **Note:** Recommend to enable and configure UPnP ports which can be used directly in DDNS.
Provider	Get support from DDNS provider: ddns.milesight.com, freedns.afraid.org, dyndns.org, www.no-ip.com, www.zoneedit.com. You can also customize the provider for DDNS.
Hash	A string used for verifying, only for "freedns.afraid.org".
User name	Account name from the DDNS provider, unavailable for "freedns.afraid.org".
Password	Account password, unavailable for "freedns.afraid.org".
Host name	DDNS name enabled in the account.
Status	Display DDNS running status.
Save	Save the configuration.

Note:

- Please do the Port Forwarding of HTTP Port and RTSP Port before you use Milesight DDNS.
- Make sure that the internal and the external port number of RTSP are the same.

8.2.1.6 Email

Alarm video files can be sent to specific mail account through SMTP server. You must configure the email settings correctly before using it.

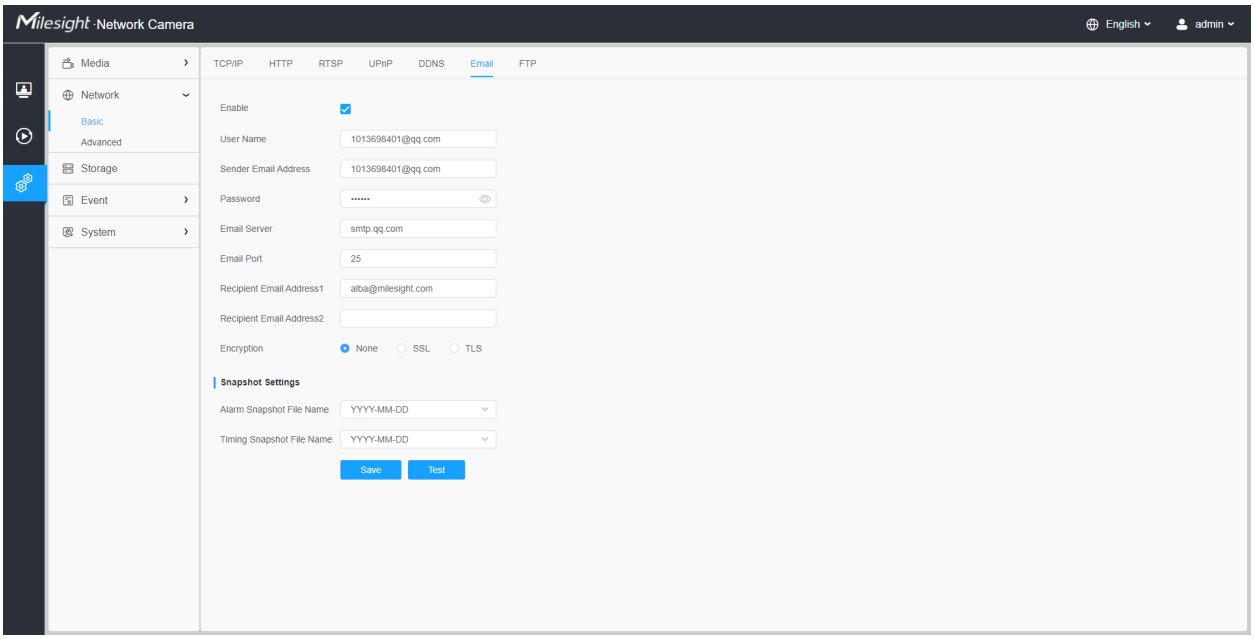


Table 33. Description of the buttons

Parameters	Function Introduction
Enable	Check the checkbox to enable Email function.
User Name	The sender's name. It is usually the same as the account name.
Sender Email Address	Email address to send video files attached emails.
Password	The password of the sender.
Email Server	The email server IP address or host name(e.g. smtp.gmail.com).
Email Port	The default TCP/IP port for SMTP is 25(not secured). For SSL/TLS port, it depends on the mail you use.
Recipient Email Address1	Email address to receive video files.
Recipient Email Address2	Email address to receive video files.
Encryption	Check the checkbox to enable SSL or TLS if it is required by the SMTP server.

Parameters	Function Introduction
Snapshot Settings	**Alarm Snapshot File Name:** Default(YYYY-MM-DD) /MM-DD-YYYY/ DD-MM-YYYY/ Add prefix/ Overwrite with the base file name/ Customize are available. **Timing Snapshot File Name:** Default(YYYY-MM-DD) /MM-DD-YYYY/ DD-MM-YYYY/ Add prefix/ Overwrite with the base file name/ Customize are available.
Save	Save the configuration.
Test	Test whether the configuration is successful.

Note: You can refer to the following file name tip to customize the file name.

File Name Tip
&Device - Device Name
&Y - Year
&M - Month
&D - Day
&h - hour
&m - minute
&s - second
&ms - millisecond
&& - &

8.2.1.7 FTP

Alarm video files can be sent to specific FTP server. You must configure the FTP settings correctly before using it.

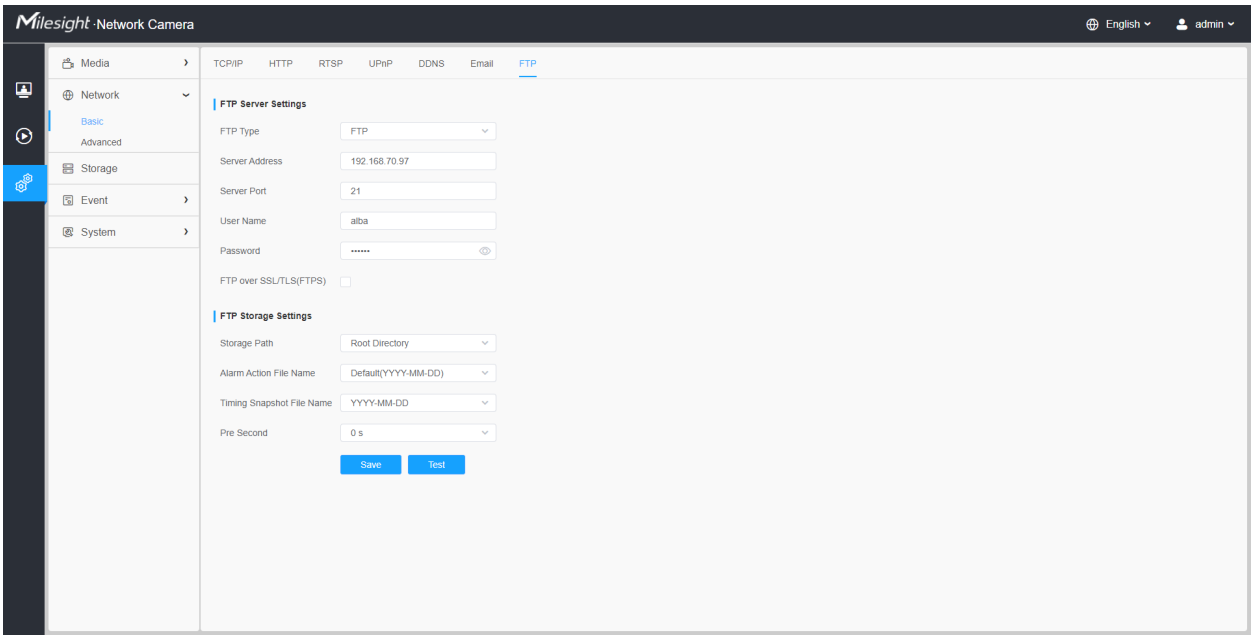


Table 34. Description of the buttons

Parameters		Function Introduction
FTP Server Settings	**FTP Type**	FTP and SFTP are optional.
	Server Address	FTP/SFTP server address.
	Server Port	The port of the FTP server. Generally it is 21. The port of the SFTP server. Generally it is 22.
	User Name	User name used to log in to the FTP/SFTP sever.
	Password	User password.
FTP Storage Settings	**Storage Path**	Storage Path where video and image will be uploaded to the FTP server. Four FTP storage path types are available, including Root Directory, Parent Directory, Child Directory and Customize.
	Parent Directory	Choose IP Address/ Device Name/ Date as the folder name of Parent Directory, or customize the folder name.
	Child Directory	Choose IP Address/ Device Name/ Date as the folder name of Child Directory, or customize the folder name.

Parameters		Function Introduction
FTP Storage Settings	Multilevel Folder Name	If the storage path is more than two levels, enter Multilevel FTP storage path here manually.
	Alarm Action File Name	Choose the default(YYYY-MM-DD) or customize the alarm action file name.
	Video File Name	If you choose to customize the alarm action file name, YYYY-MM-DD/ MM-DD-YYYY/ DD-MM-YYYY/ Add prefix are available.
	Image File Name	If you choose to customize the alarm action file name, YYYY-MM-DD/ MM-DD-YYYY/ DD-MM-YYYY/ Add prefix are available.
	Timing Snapshot File Name	Default(YYYY-MM-DD) /MM-DD-YYYY/ DD-MM-YYYY/ Add prefix/ Overwrite with the base file name are available.
	Pre Second	Reserve the record time before alarm, 0~10 sec.
Save		Save the configuration, 0s ~ 10s are optional.
Test		Test whether the configuration is successful.

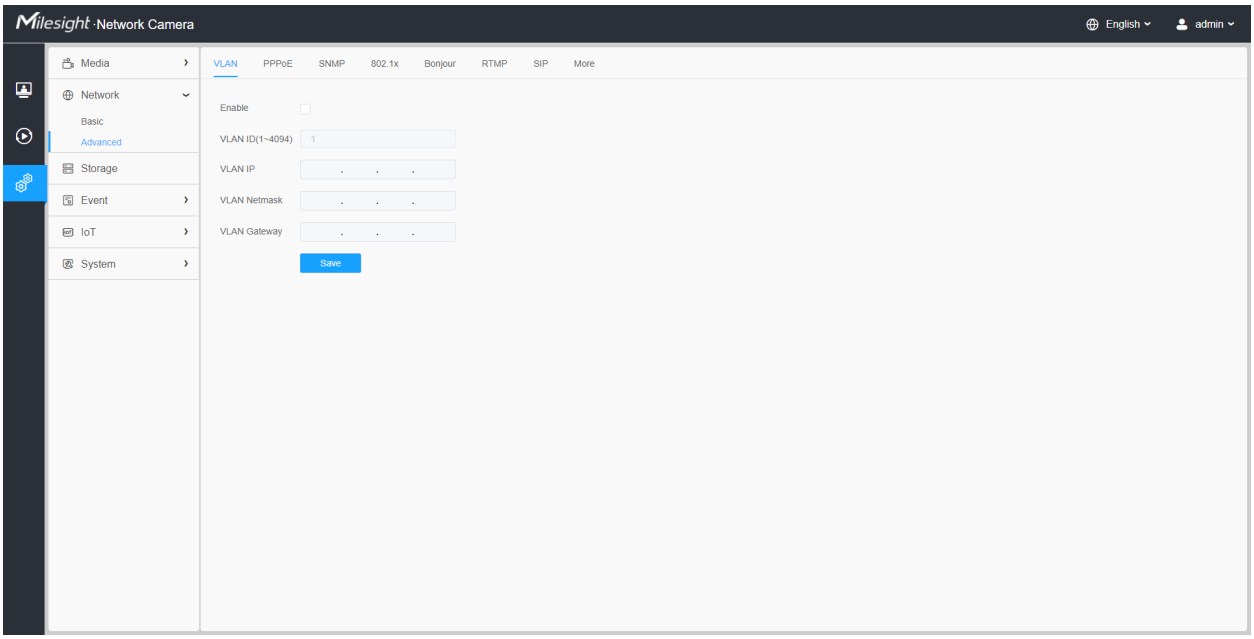
Note:

- Parent Directory will be under Root Directory, and Child Directory will be under Parent Directory.
- You can refer to the following file name tip to customize the file name.

8.2.2 Advanced

8.2.2.1 VLAN

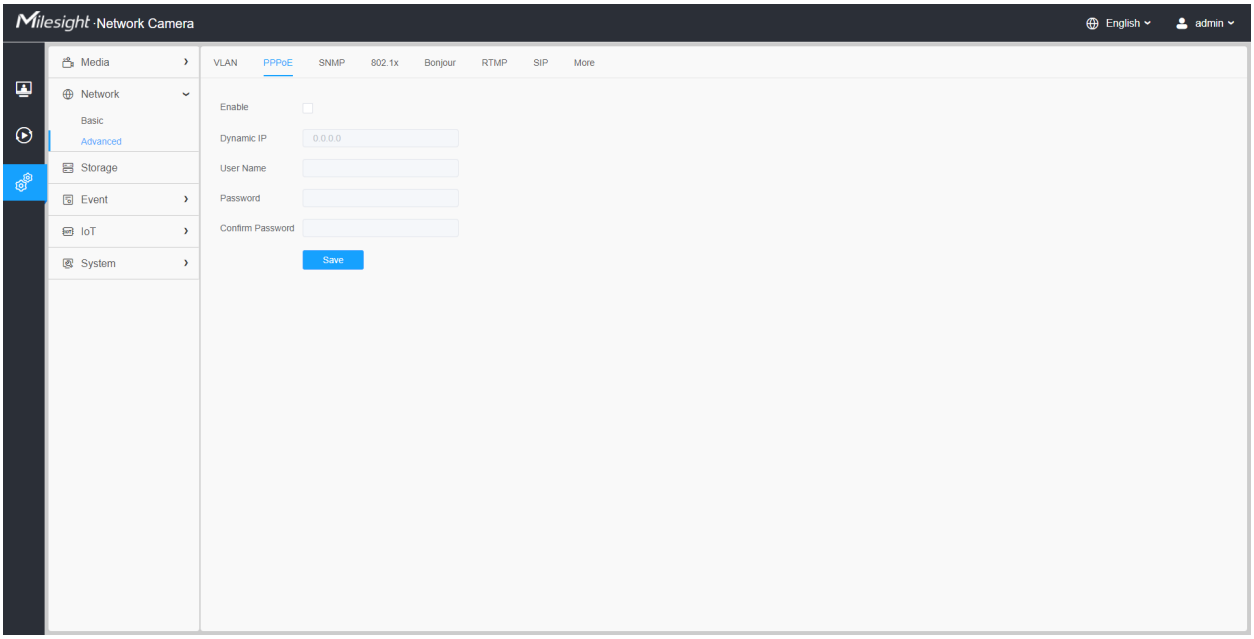
A virtual LAN (VLAN) is any broadcast domain that is partitioned and isolated in a computer network at the data link layer (OSI layer 2). LAN is an abbreviation of local area network. VLANs allow network administrators to group hosts together even if the hosts are not on the same network switch. This can greatly simplify network design and deployment, because VLAN membership can be configured through software. Without VLANs, grouping hosts according to their resource needs necessitates the labour of relocating nodes or rewiring data links.



Note: About how to set up VLAN in switches, please refers to your switches user manual.

8.2.2.2 PPPoE

This camera supports the PPPoE auto dial-up function. The camera gets a public IP address by ADSL dial-up after the camera is connected to a modem. You need to configure the PPPoE parameters of the network camera.



Note:

- The obtained IP address is dynamically assigned via PPPoE, so the IP address always changes after rebooting the camera. To solve the inconvenience of the dynamic IP, you need to get a domain name from the DDNS provider (e.g. DynDns.com).
- The user name and password should be assigned by your ISP.

8.2.2.3 SNMP

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 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.

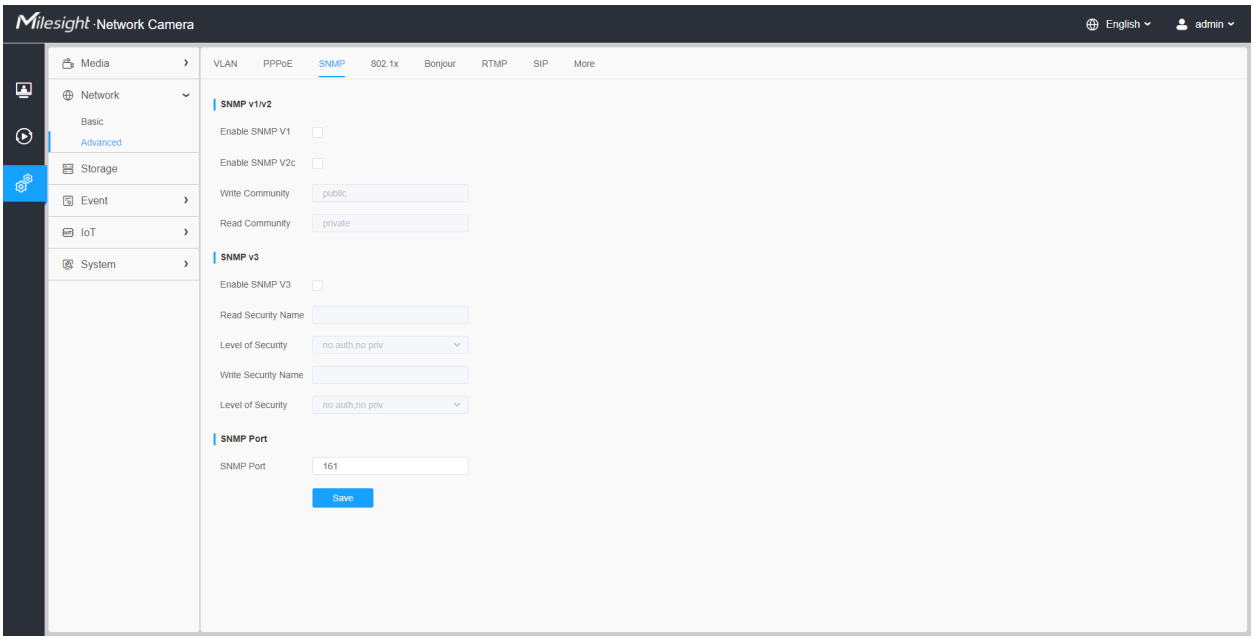


Table 35. Description of the buttons

Parameters	Function Introduction
SNMP v1/v2	The version of SNMP, please select the version of your SNMP software. **Enable SNMP v1:** Provide no security. **Enable SNMP v2:** Require password for access. **Write Community:** Input the name of Write Community. **Read Community:** Input the name of Read Community

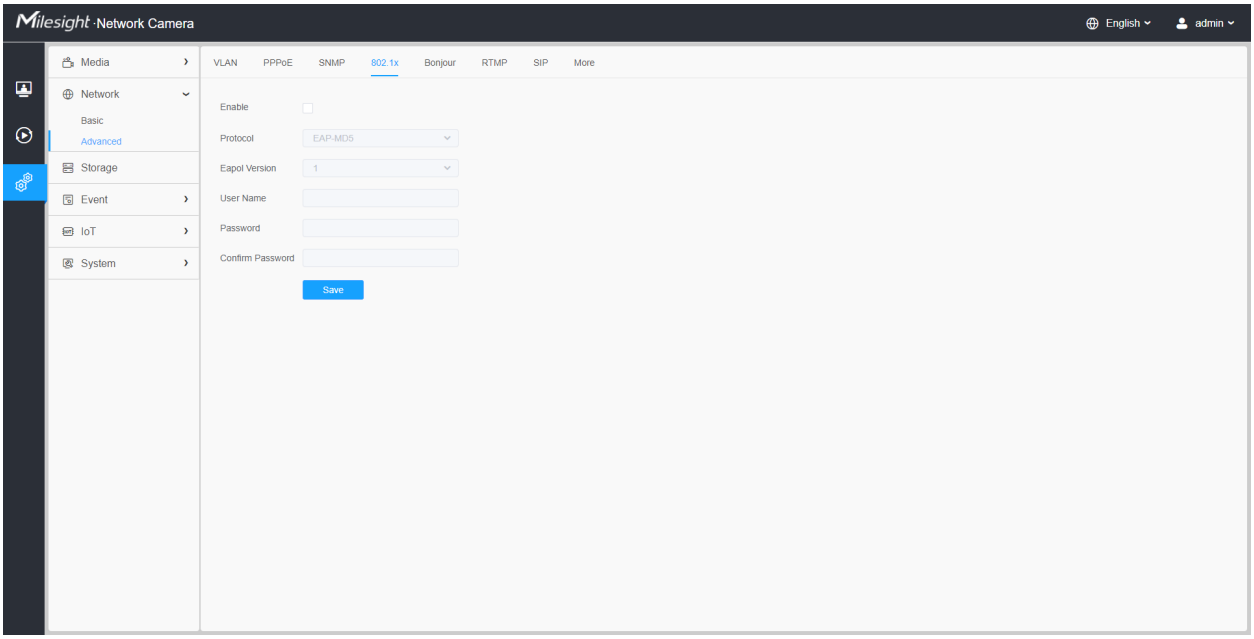
Parameters	Function Introduction
SNMP v3	**Enable SNMP v3:** Provide encryption and the HTTPS protocol must be enabled. **Read Security Name:** Input the name of Read Security Community. **Level of Security:** There are three levels available: (auth, priv), (auth, no priv) and (no auth, no priv). **Write Security Name:** Input the name of Write Security Community. **Level of Security:** There are three levels available: (auth, priv), (auth, no priv) and (no auth, no priv).
SNMP Port	The port of SNMP, the default is 161.
Save	Save the configuration.

Note:

- The settings of SNMP software should be the same as the settings you configure here;
- A reboot is required for the settings to take effect.

8.2.2.4 802.1x

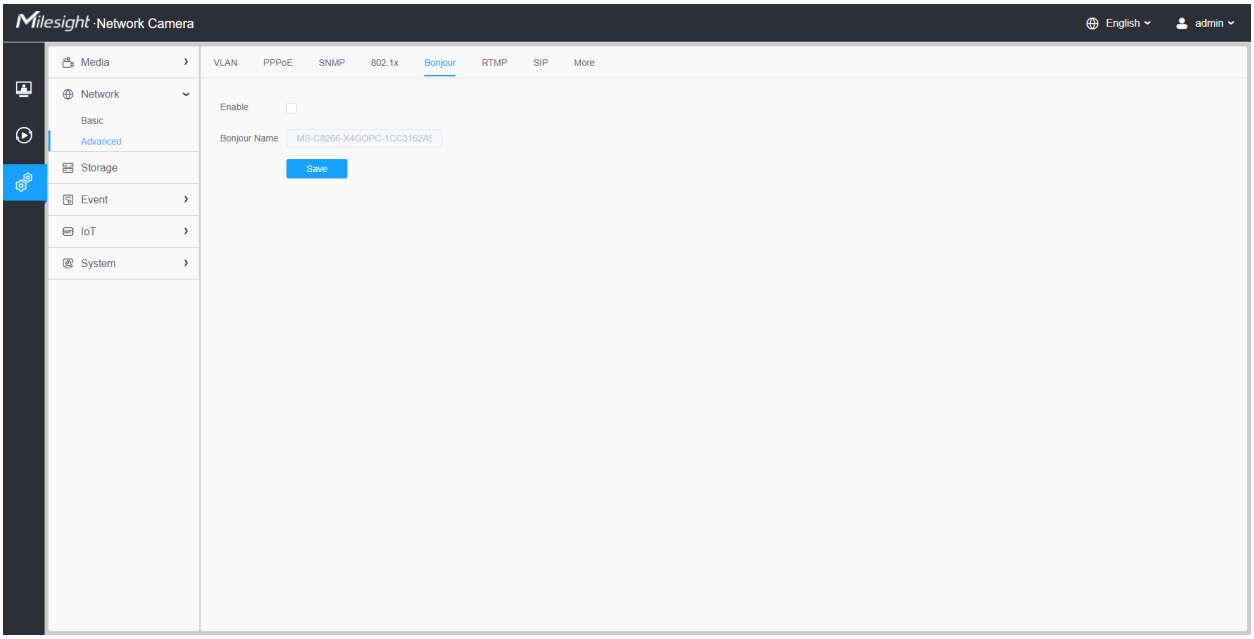
The IEEE 802.1X standard is supported by the network cameras, and when the feature is enabled, the camera data is secured and user authentication is needed when connecting the camera to the network protected by the IEEE 802.1X.



8.2.2.5 Bonjour

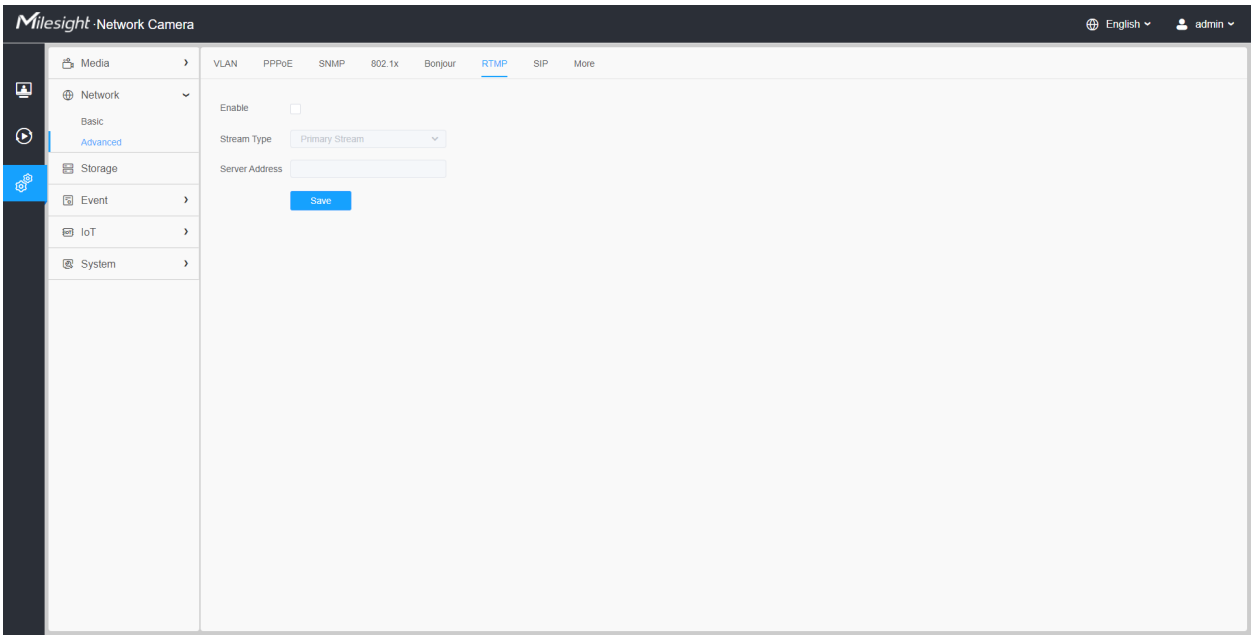
Bonjour is based on Apple's multicast DNS service. Bonjour devices can automatically broadcast their service information and listen to the service information of other devices.

If you don't know the camera information, you can use the Bonjour service on the same LAN to search for network camera devices and then to access the devices.



8.2.2.6 RTMP

Real-Time Messaging Protocol (RTMP) was initially a proprietary protocol for streaming audio, video and data over the Internet, between a Flash player and a server. RTMP is a TCP-based protocol which maintains persistent connections and allows low-latency communication. It can realize the function of live broadcast so that customers can log in to the camera wherever there is a network.



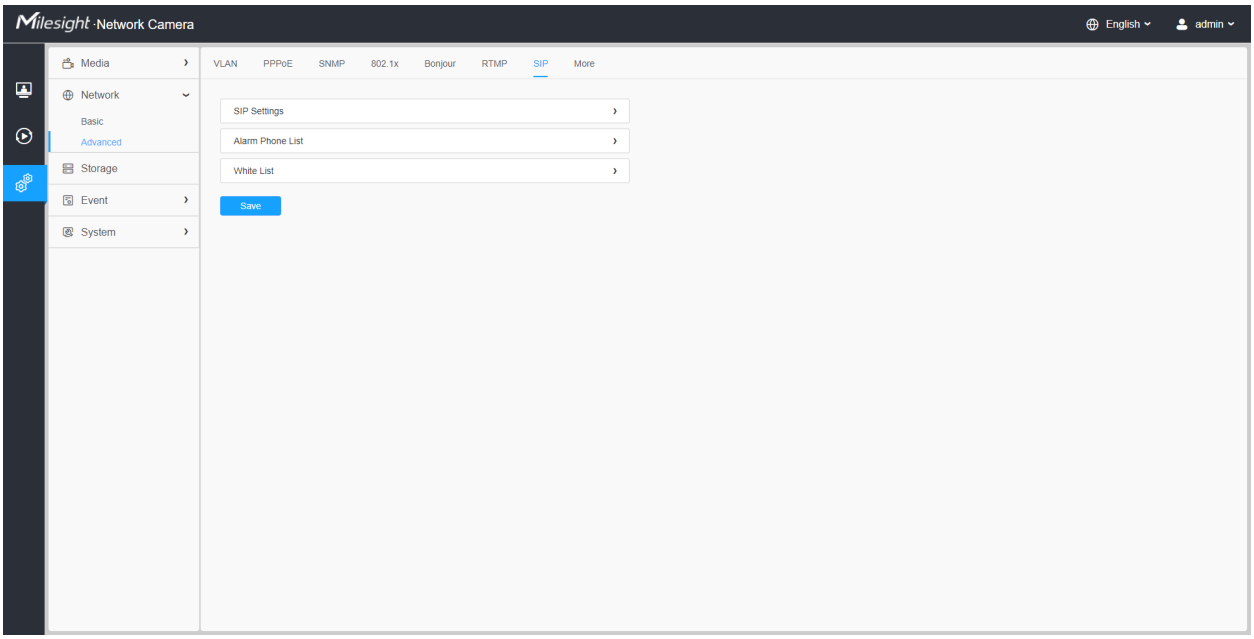
Note:

- For YouTube live broadcast, if you use a newly created account to live broadcast, you need to wait for 24hrs to activate the account for using live function.
- For RTMP, since G.711 is not available for YouTube, so you can only play video from Milesight Network Camera with H.264 video coding and AAC audio coding on YouTube.
- Server Address in Network Camera RTMP interface needs to be filled with the format: rtmp://< Server URL >/< Stream key >, remember it needs '/'to connect between < Server URL > and < Stream key >.
- For more details about how to use RTMP for live broadcast, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000643313.

8.2.2.7 SIP

The Session Initiation Protocol(SIP) is a signaling communications protocol, widely used for controlling multimedia communication sessions such as voice and video calls over Internet Protocol (IP) networks. This page allows user to configure SIP related parameters. Milesight can be configured as SIP endpoint to call out when alarm triggered; or allow permitted number to call in to check the video if the video IP phone is used.

Note: For more details about how to use SIP, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000643391.



To use this function, the settings in SIP page must be configured properly. There are two ways to get video through SIP, one is to dial the IP address directly, the other is account registration mode. the details are as follows:

Method 1: IP Direct mode

Dial on the camera's IP address directly through SIP phone, so you can see the video.

Note: SIP phone and the camera should in the same network segment.

Method2: Account registration mode

- Before using the SIP, you need to register an account for the camera from the SIP server;
- Register another user account for the SIP device from the same SIP server;
- Call the camera User ID from the SIP device, you will get the video on the SIP device.

[SIP Settings]

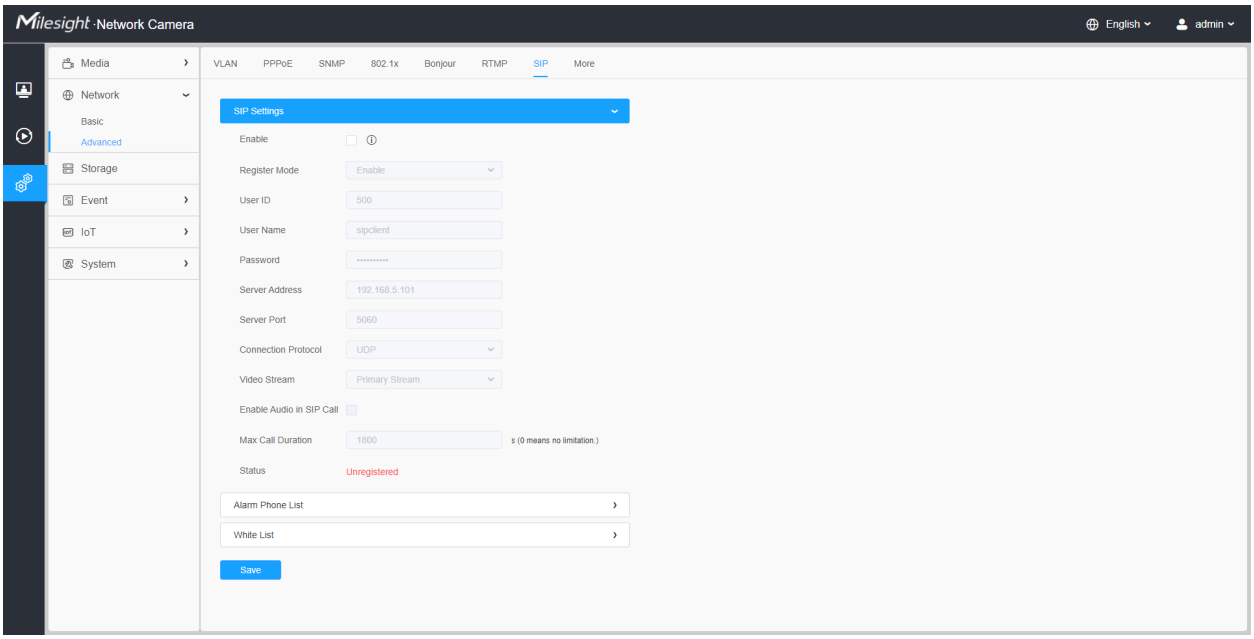


Table 36. Description of the buttons

Parameters	Function Introduction
Enable	Start or stop using SIP. **Note:** SIP supports Direct IP call.
Register Mode	Choose to use Enable mode or Disable mode. Enable mode means to use SIP with register account. Disable mode refers to use SIP without register account, just use the IP address to call.
User ID	SIP ID.
User Name	SIP account name.
Password	SIP account password.
Server Address	Server IP address.
Server Port	Server port.
Connection Protocol	UDP/TCP.
Video Stream	Choose the video stream.

Parameters	Function Introduction
Enable Audio in SIP Call	Enable/disable audio in SIP call.
Max Call Duration	The max call duration when use SIP.
Status	SIP registration status. Display “Unregistered” or “Registered” .

[Alarm Phone List]

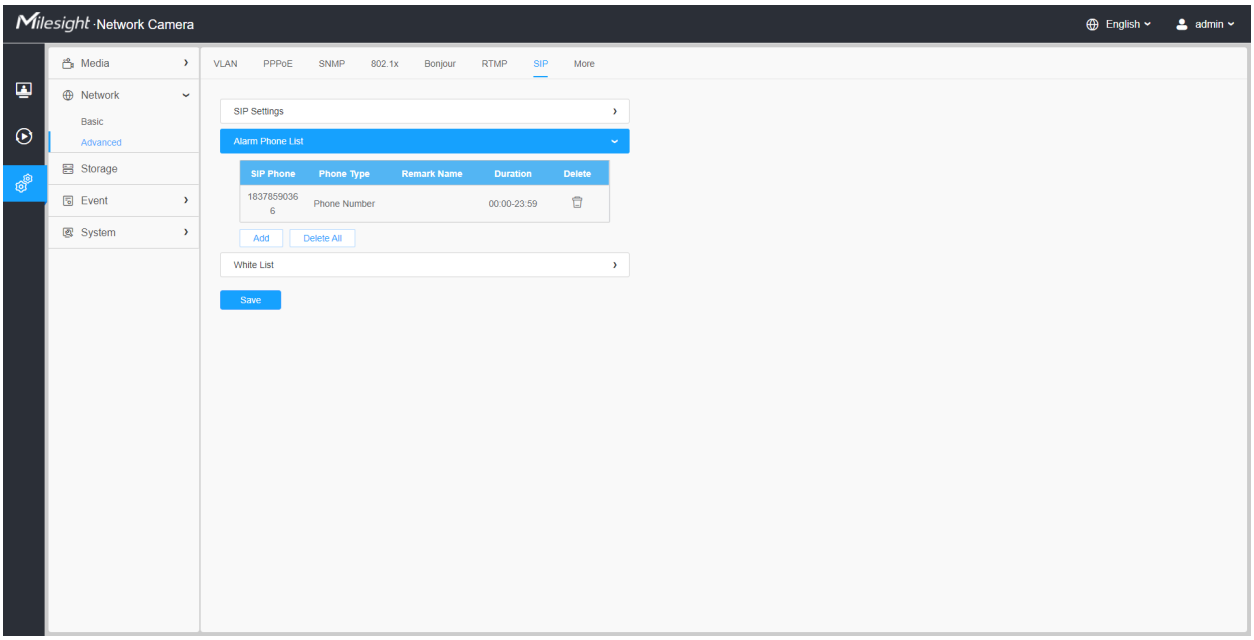


Table 37. Description of the buttons

Parameters	Function Introduction
Add	Add alarm phone to the camera. **Phone Type:** Phone Number(Call by phone number) & Direct IP Call(Check to accept peer to peer IP call). **To Phone Number/IP Address:** Call by phone number or IP address. **Remark Name:** Display name. **Duration:** The time schedule to use SIP.
	Delete the selected alarm phone.
Delete All	Delete all added alarm phone.

[White List]

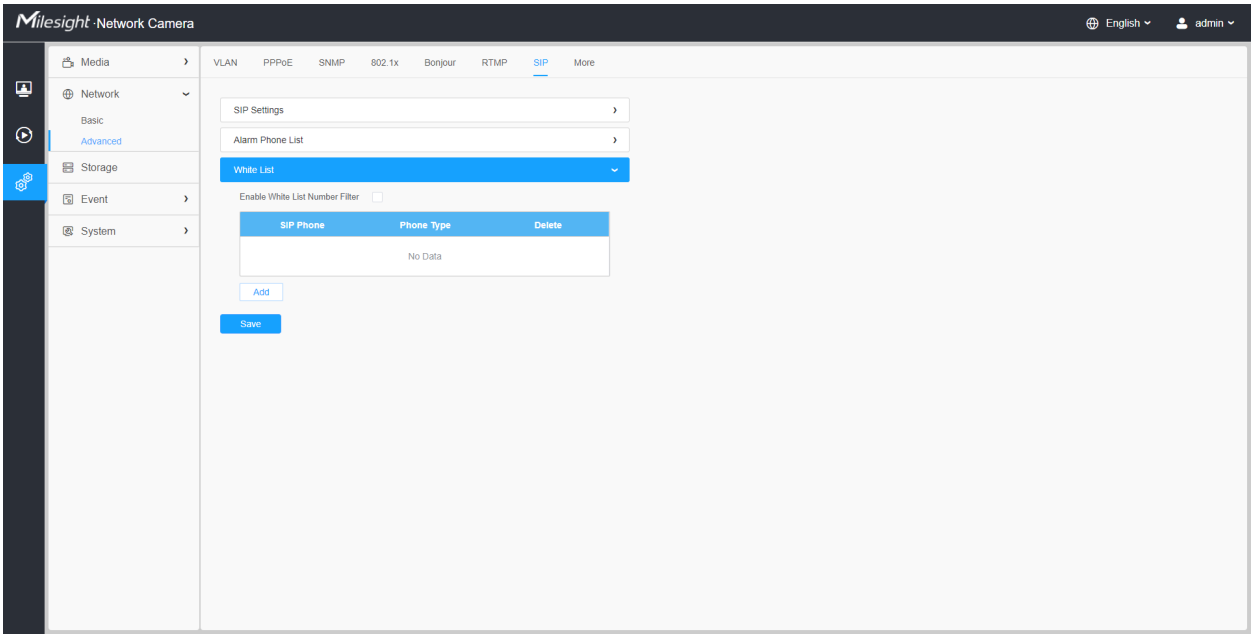


Table 38. Description of the buttons

Parameters	Function Introduction
Enable White List Number Filter	When enabled, only the designated phone number or IP address can visit
Add	**Phone Type:** Phone Number(Call by phone number) & Direct IP Call. **Phone Number/IP Address:** Including the phone number or IP address on the white list.

8.2.2.8 More

Here you can set more functions, like Push Message Settings and ONVIF Settings.

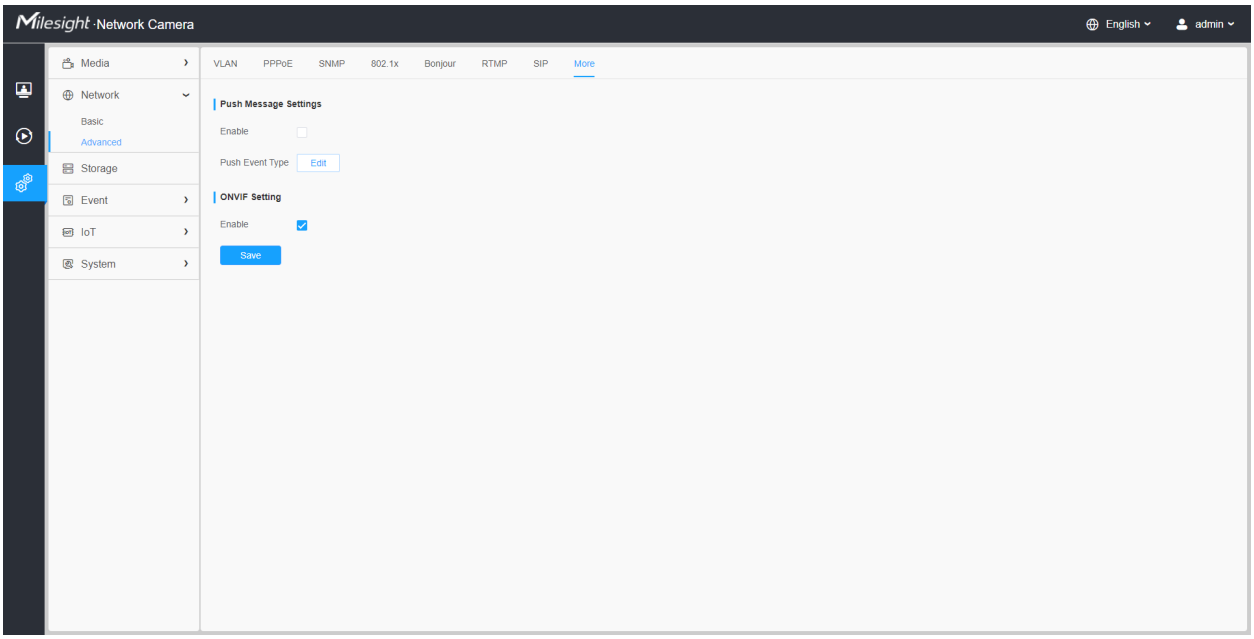
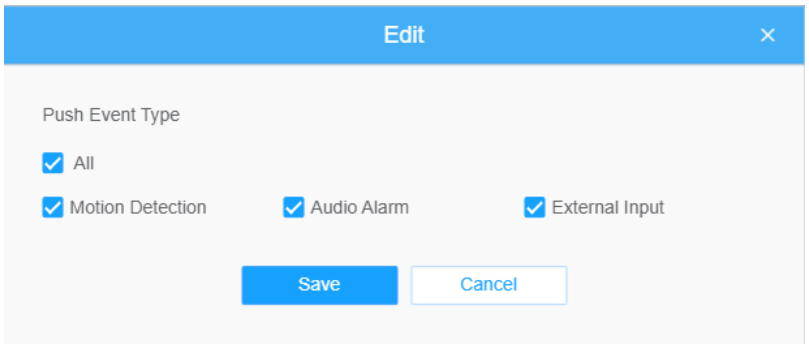


Table 39. Description of the buttons

Parameters	Function Introduction
Push Message Settings	**Enable:** Enable/disable the Push Message function **Push Event Type:** You can click Edit to choose the types of Events' message which will be pushed to M-sight Pro App as shown below: 
ONVIF Setting	Here you can choose whether to enable or disable camera ONVIF function. If camera ONVIF function is enabled, it can be searched out, added and connected by third-party software through ONVIF protocols. Generally, the default status of ONVIF function is enabled.

8.3 Storage

Note: Before you start:

- To configure record settings, please make sure that you have the network storage device within the network or the SD card inserted in your camera.
- Choose the storage mode according to your needs.

8.3.1 Storage Management

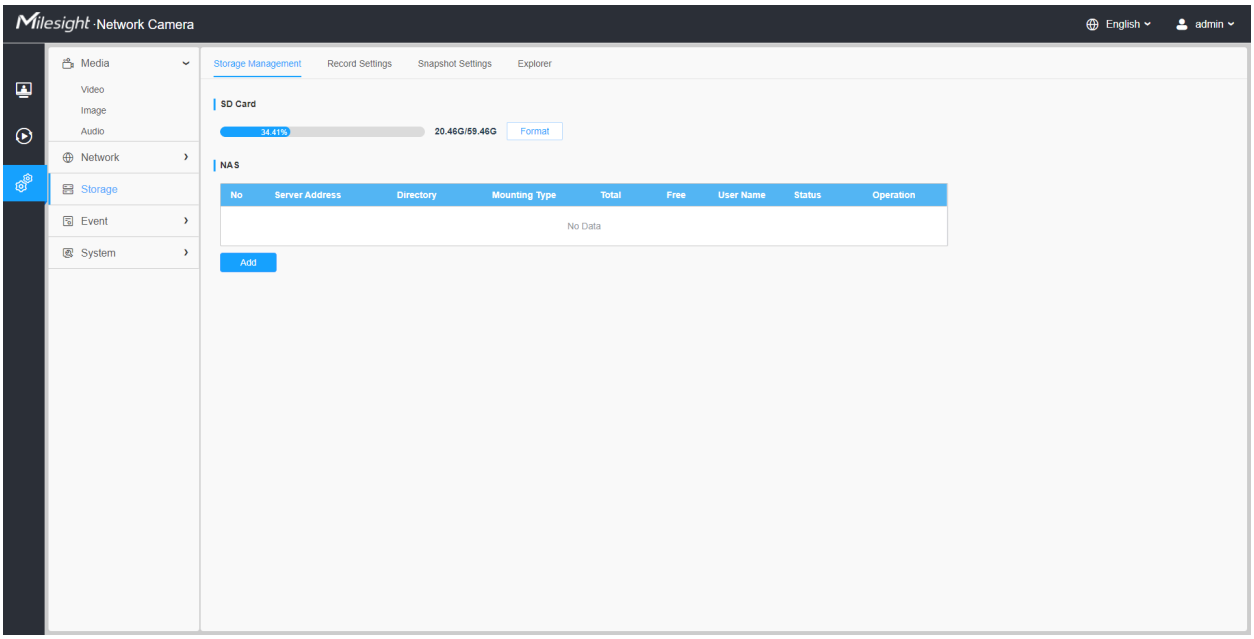
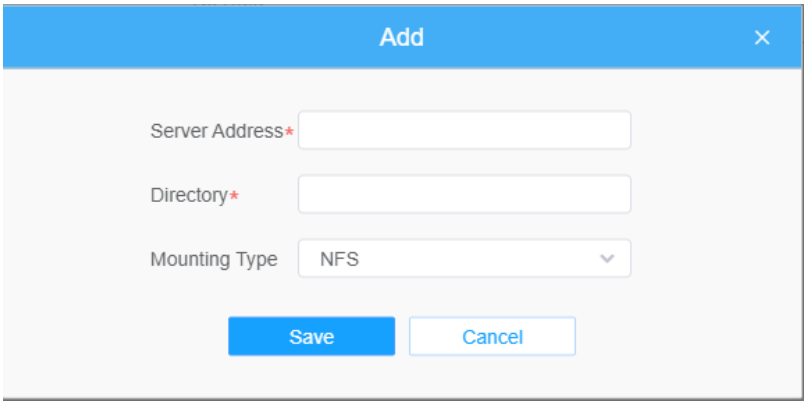


Table 40. Description of the buttons

Parameters	Function Introduction
SD Card	**Format:** Format SD card, the files in SD card will be removed. **Mount/UnMount:** Mount/Dismount SD card. **Delete:** Enable cyclic storage, when the free disk space reach at a certain value, it will automatically delete the files at certain percentage according to your settings.

Parameters	Function Introduction
Nas	The network disk should be available within the network and properly configured to store the recorded files, etc. NAS (Network-Attached Storage), connecting the storage devices to the existing network, provides data and files services.  **Server Address:** IP address of NAS server. **Directory:** Input the NAS directory, e.g. “\path”. **Mounting Type:** NFS and SMB/CIFS are available. And you can set the user name and password to guarantee the security if SMB/CIFS is selected. **Note:** • Up to 5 NAS disks can be connected to the camera. • For more details about how to use NAS on Milesight Network Camera, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000797902.

8.3.2 Record Settings

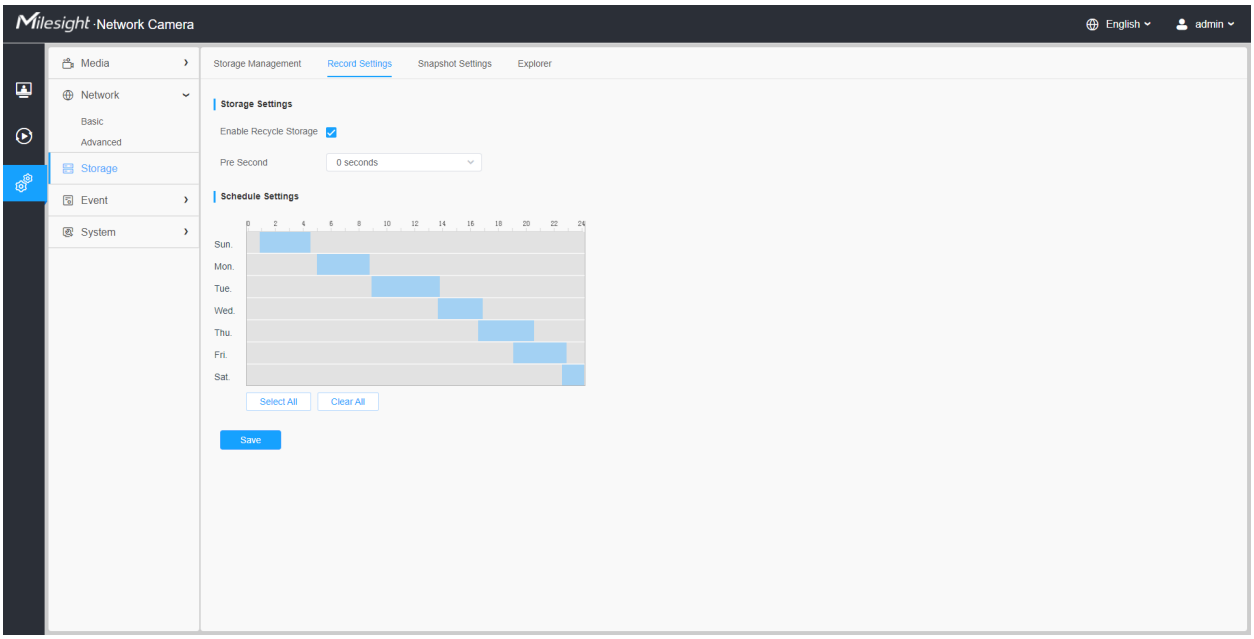
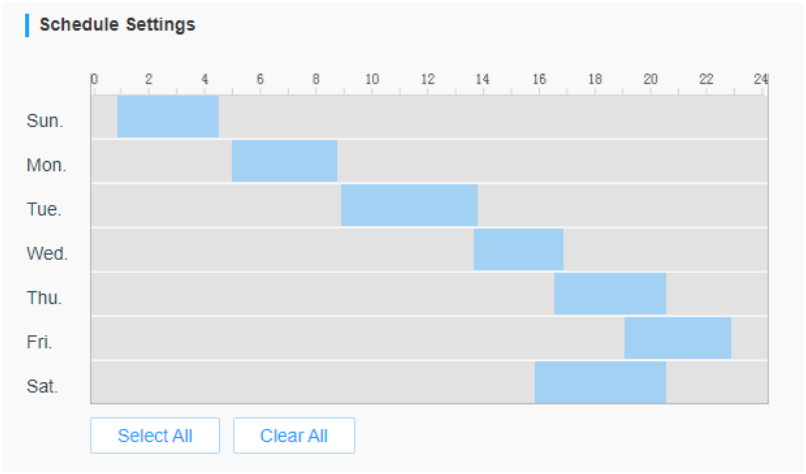
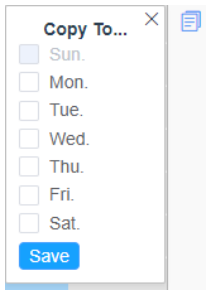
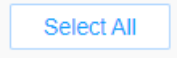
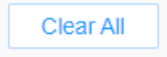
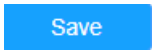


Table 41. Description of the buttons

Parameters	Function Introduction
Enable Recycle Storage	Enable/Disable Recycle Storage, if you enable this option, it will delete the files when the free disk space reaches a certain value.
Pre Second	Reserve the record time before alarm, 0~10 sec.
Schedule Settings	Edit record schedule as needed. Intuitive scheduling by drawing the time bar directly. 

Parameters	Function Introduction	
Schedule Settings		Copy the schedule area to another date.
		Select all schedule.
		Clear all schedule.
	Save the configuration.	

Note: SD Card or NAS are available.

8.3.3 Snapshot Settings

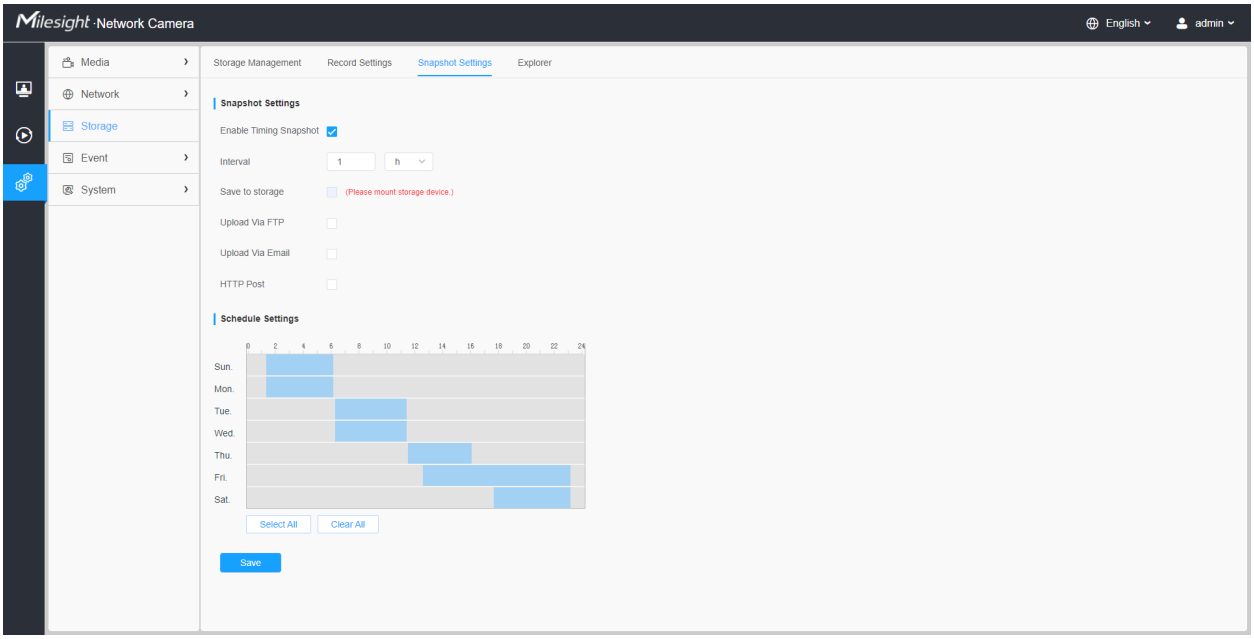


Table 42. Description of the buttons

<table>
<tr><th>Parameters</th><th colspan="2">Function Introduction</th></tr>
<tr><td>Snapshot Settings</td><td colspan="2">Enable Timing Snapshot: Check the checkbox to enable the Timing Snapshot function

Interval: Set the snapshots interval, input the number and choose the unit(millisecond, second, minute, hour, day).

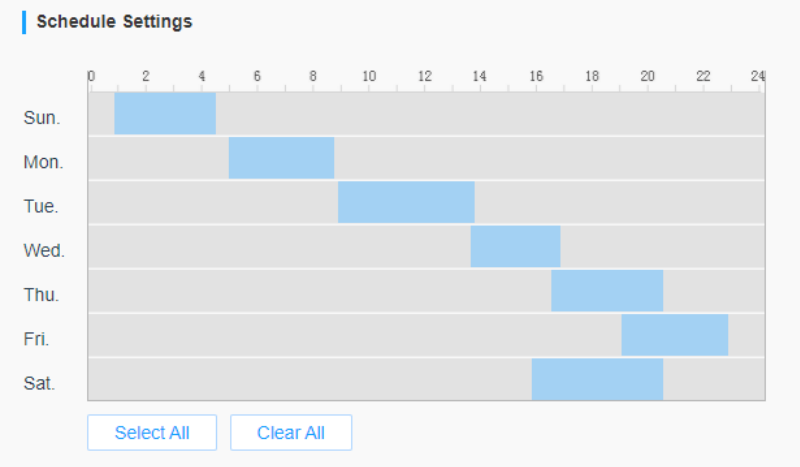
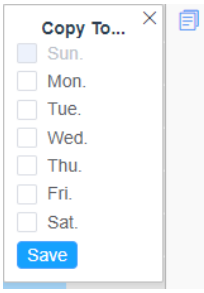
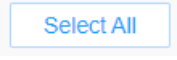
Save Into Storage: Save the snapshots into SD card or NAS, and choose the file name to add time suffix or overwrite the base file name.

Save Into NAS: Save the snapshots into NAS, and choose the file name to add time suffix or overwrite the base file name.

Upload Via FTP: Upload the snapshots via FTP.

Upload Via Email: Upload the snapshots via Email.

Note: If you choose to add time suffix, every snapshot picture will be saved, but if you choose to overwrite the base file name, only one latest picture will be saved. When you choose add overwrite the base file name to SD Card or NAS, it will create a file named “Snapshot” to place the snapshot.

HTTP Post: Upload the snapshots via HTTP Post. Support uploading the snapshots to specified HTTP URL.</td></tr>
<tr><td>Schedule Settings</td><td colspan="2">Edit record schedule as needed. Intuitive scheduling by drawing the time bar directly.
 
</td></tr>
<tr><td rowspan="2">Schedule Settings</td><td> 
</td><td>Copy the schedule area to another date.</td></tr>
<tr><td> 
</td><td>Select all schedule.</td></tr>
</table>

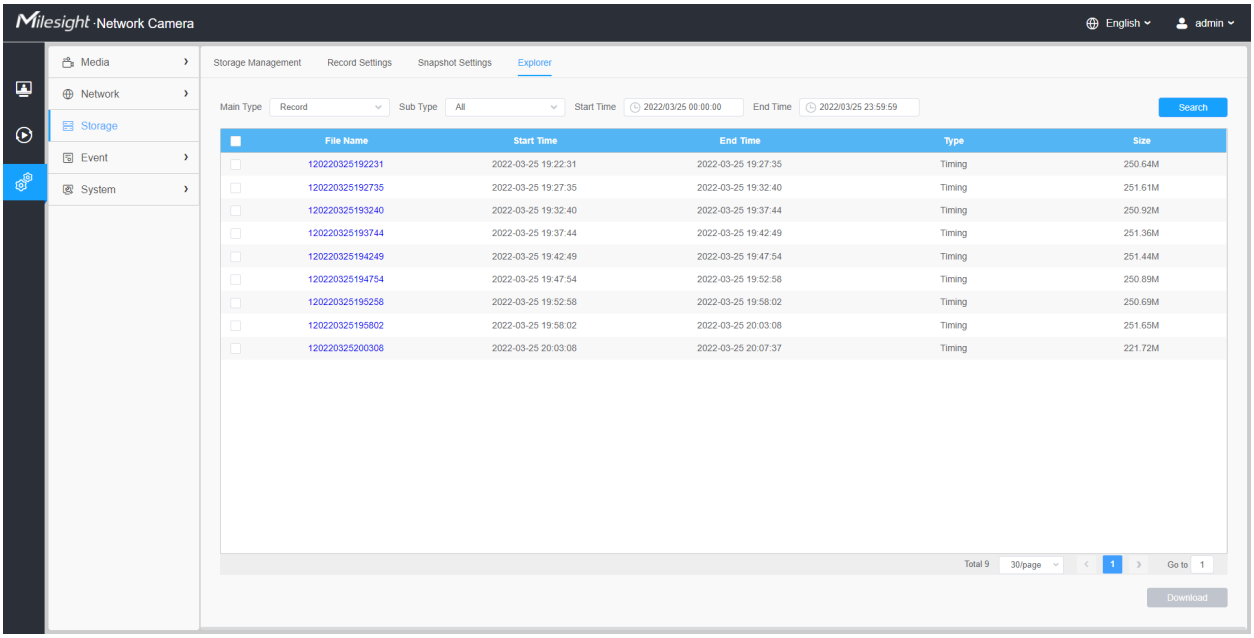
Parameters	Function Introduction	
	Clear All	Clear all schedule.
Save	Save the configuration.	

8.3.4 Explorer

Files will be seen on this page when they are configured to save into SD card or NAS. You can set time schedule every day for recording videos and save video files to your desired location.

Note: Files are visible once SD card is inserted. Don't insert or pull out SD card when power on

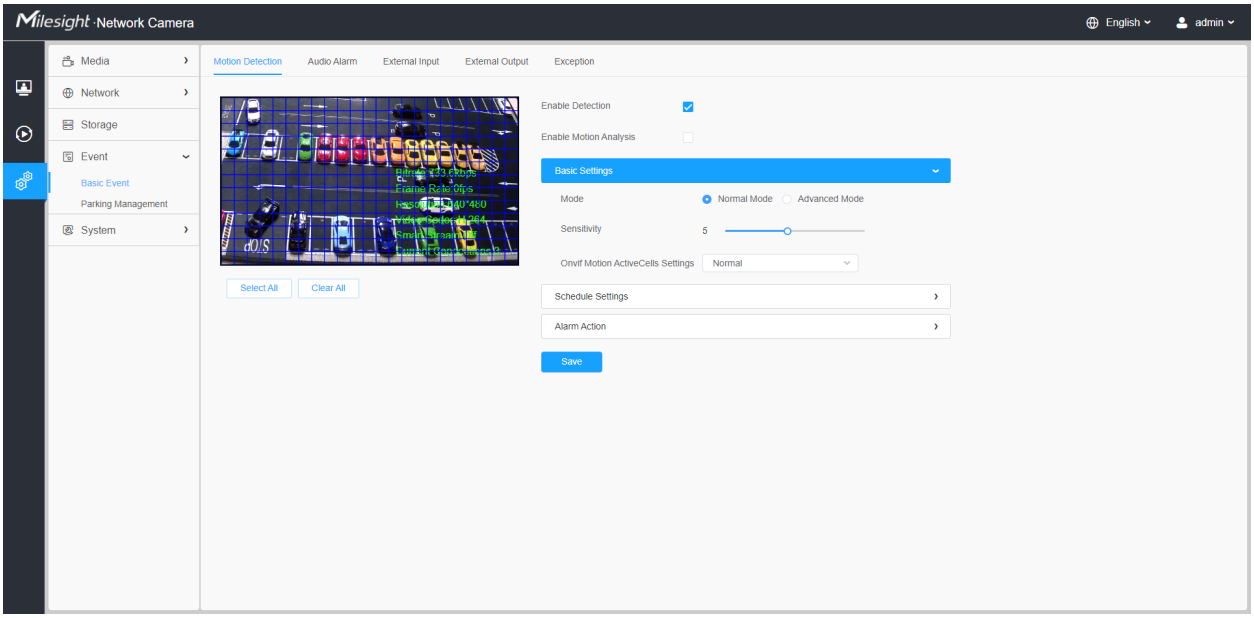
Video files are arranged by date. Set file type and start/end time to search out files. Each day files will be displayed under the corresponding date, from here you can copy and delete files etc. You can visit the files in SD card by ftp, for example, ftp://username:password@192.168.5.190(user name and password are the same as the camera account and the IP followed is the IP of your device.).



8.4 Event

8.4.1 Basic Event

8.4.1.1 Motion Detection



Note: For more details about how to set motion detection, please refer to https://milesight.freshdesk.com/a/solutions/articles/69000643423.

Settings steps are shown as follows:

Step1: Check the checkbox to enable the motion detection.

Step2: Check the check box to enable the motion analysis.

Step3: Select the detection mode;

Step4: Set motion region;

Table 43. Description of the buttons

Parameters	Function Introduction
Enable Detection	Check the checkbox to enable Motion Detection function.

Parameters	Function Introduction
Enable Motion Analysis	When Motion Analysis is enabled, the moving region will turn yellow so that the user can know exactly where the motion occurred. **Note:** Only support when HTTP is selected in Live View.
Select All	Click the button, the motion in the area will be detected.
Clear All	Click the button, the area drawn before will be removed.
Save	Save the configuration.

[Basic Settings]

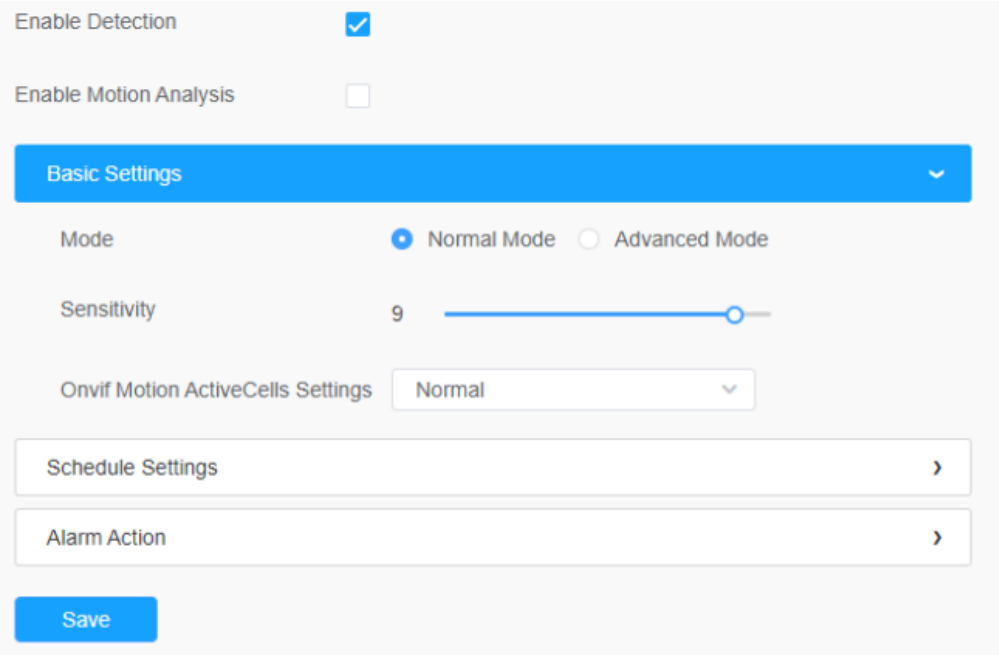


Table 44. Description of the buttons

Parameters	Function Introduction
Detection Mode	Normal Mode and Advanced Mode are available for the option. When Advanced Mode is selected, users can configure up to 4 detection regions and sensitivity for each detection region.
Sensitivity	Sensitivity level, 1~10
Onvif Motion ActiveCells Settings	Normal and Compatible are available for the option. If the setting of motion region of the third-party software is different from ours, please set this option to Compatible

[Schedule Settings]

Step5: Set motion detection schedule;

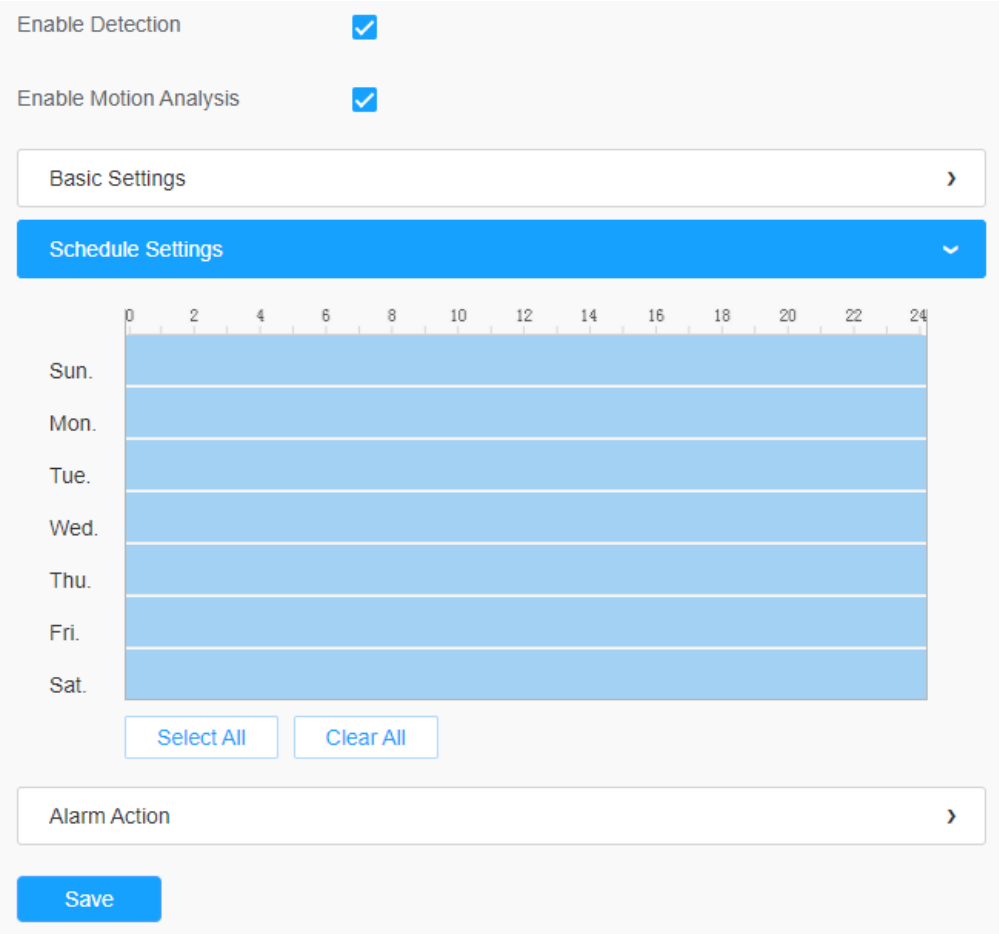
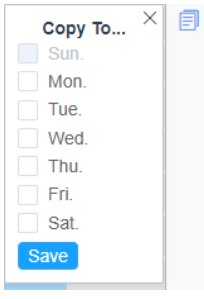


Table 45. Description of the buttons

Parameters	Function Introduction
	Copy the schedule area to another date.
	Select all schedule.

Parameters	Function Introduction
Clear All	Clear all schedule.

[Alarm Action]

Step6: Set alarm action;

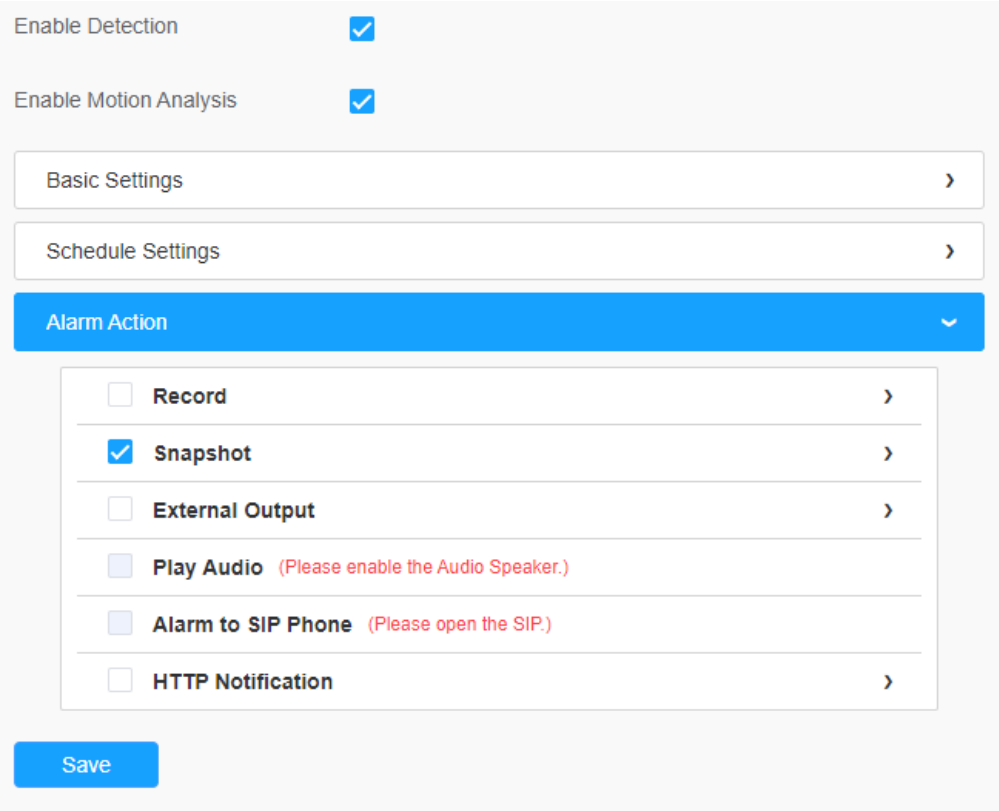


Table 46. Description of the buttons

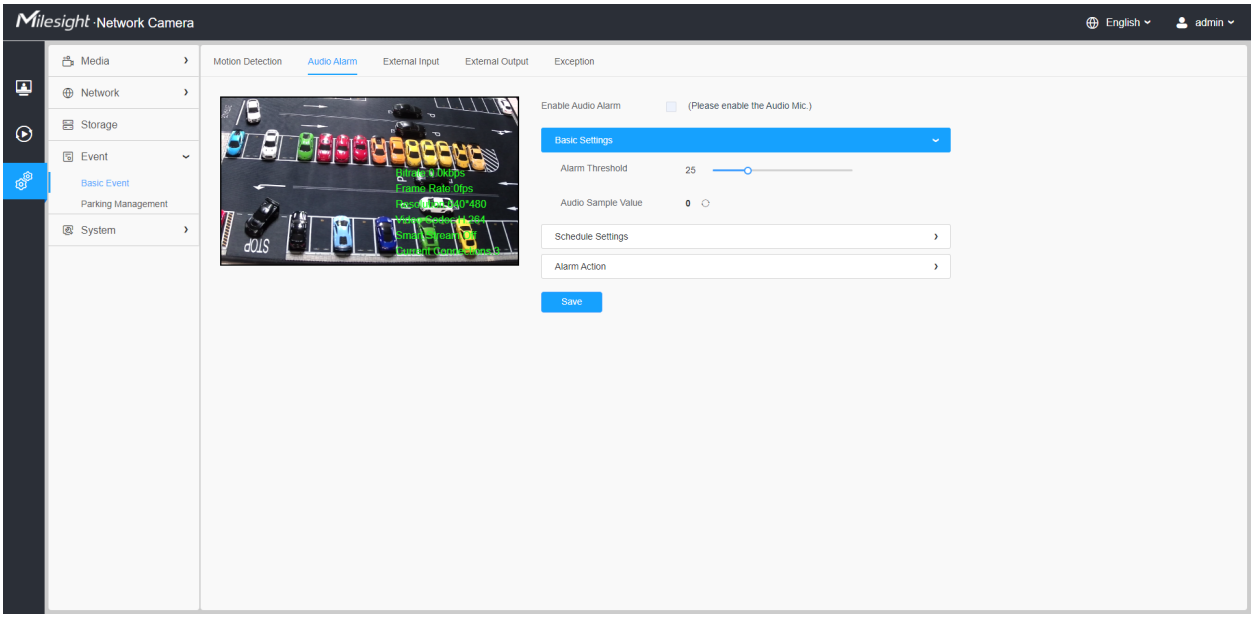
Parameters	Function Introduction
Record	**Duration:** Selected the duration time of alarm. 5s/10s/15s/20s/25s/30s are available. **Linkage:** Save alarm recording files into SD Card or NAS or Upload the recording files via FTP.
Snapshot	**Number:** The number of snapshot, 1~5 are available. **Interval:** This cannot be edited unless you choose more than 1 to Snapshot. **Linkage:** Save alarm recording files into SD Card or NAS, Upload the recording files via FTP and send alarm email.

Parameters	Function Introduction
External Output	If the camera equips with External Output, you can enable the action after configuring the trigger duration.
Play Audio	Auto/10 seconds/30 seconds/1 minute/5 minutes/10 minutes are available. **Note:** Please enable the Audio Speaker.
Alarm to SIP Phone	Support to call the SIP phone after enable the SIP function.
HTTP Notification	Support to pop up the alarm news to specified HTTP URL. **Note:** • Three HTTP notifications at most can be added to the same event. • HTTP Notification supports Basic & Digest authentication

8.4.1.2 Audio Alarm

Check the check box to enable the Audio Alarm function.

Note: Enable the Audio Mic before using Audio Alarm function.



[Basic Settings]

Table 47. Description of the buttons

Parameters	Function Introduction
Alarm Threshold	Audio Alarm will be triggered when the thresholds reaches to a certain value from 0 to 100.
Audio Sample Value	The current value of the audio sample.

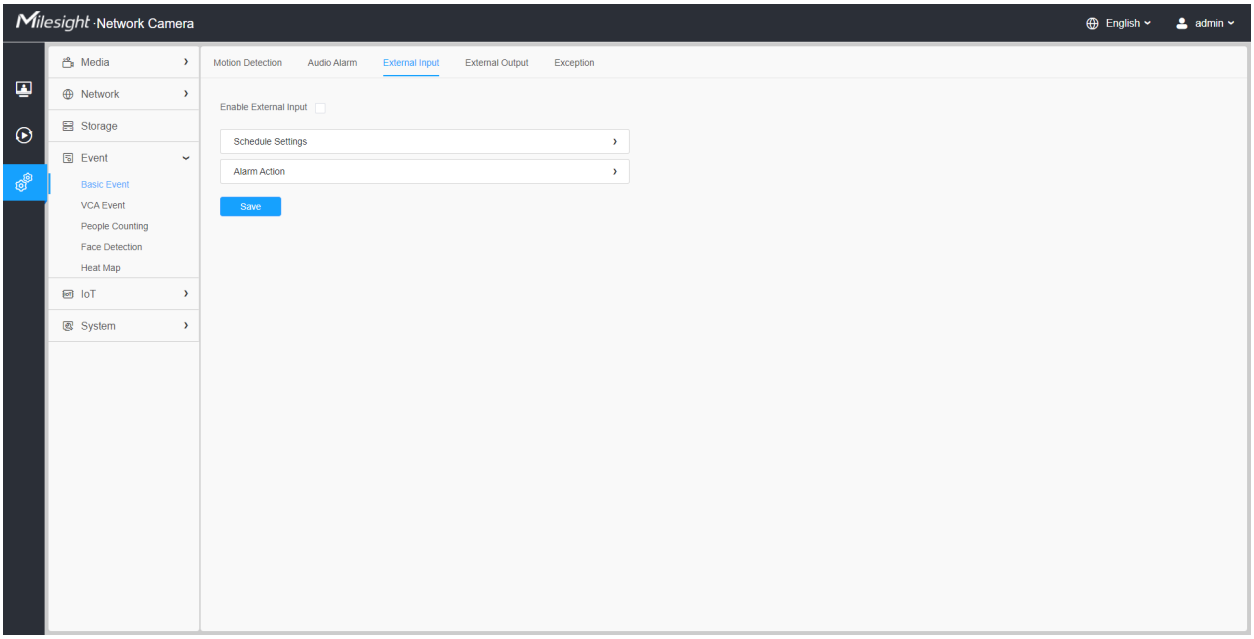
[Schedule Settings]

Refer to the table Table 3 *(page 86)* for the meanings of the items, here will not repeat again.

[Alarm Action]

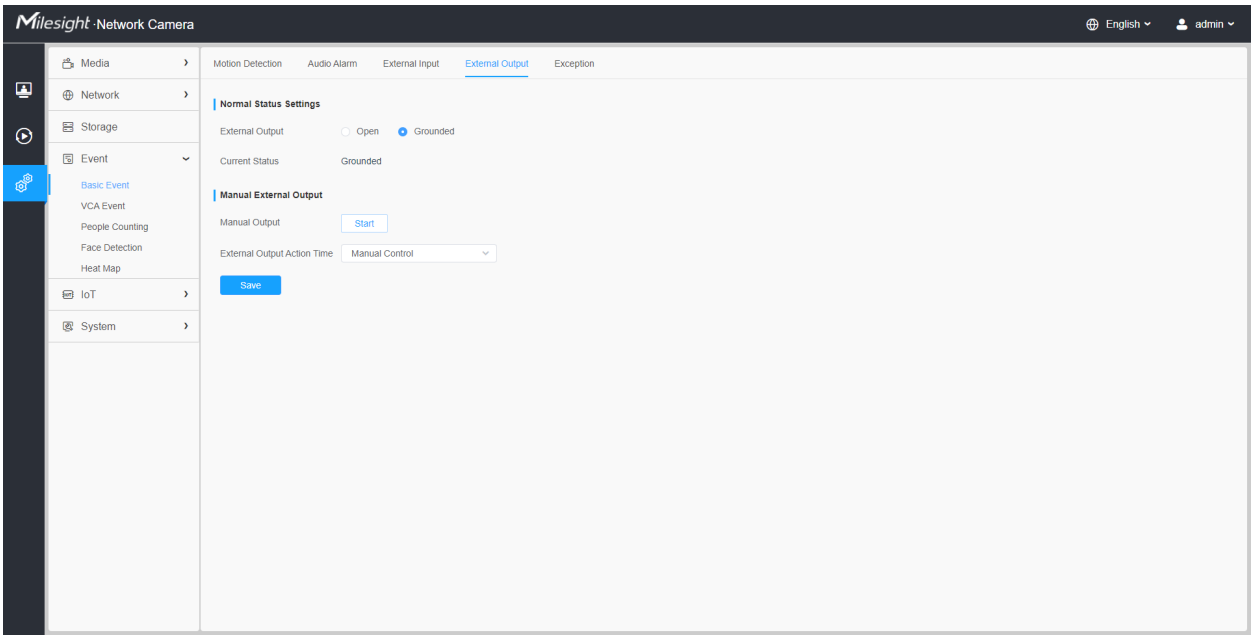
Refer to the table Table 4 *(page 87)* for the meanings of the items, here will not repeat again.

8.4.1.3 External Input



Refer to the table Table 3 *(page 86)* for the meanings of the items, here will not repeat again.

8.4.1.4 External Output



[Normal Status Settings]

Please set the **Normal Status** firstly, when the **Current Status** is different with **Normal Status**, it will lead to the alarm.

[Manual External Output]

You can set the manual external output.

Table 48. Description of the buttons

Parameters	Function Introduction
Manual Output	Click to Start/Stop manual external output.
External Output Action Time	Manual Control/Customize/10 s/1 min./5 min./10 min. are available.

8.4.1.5 Exception

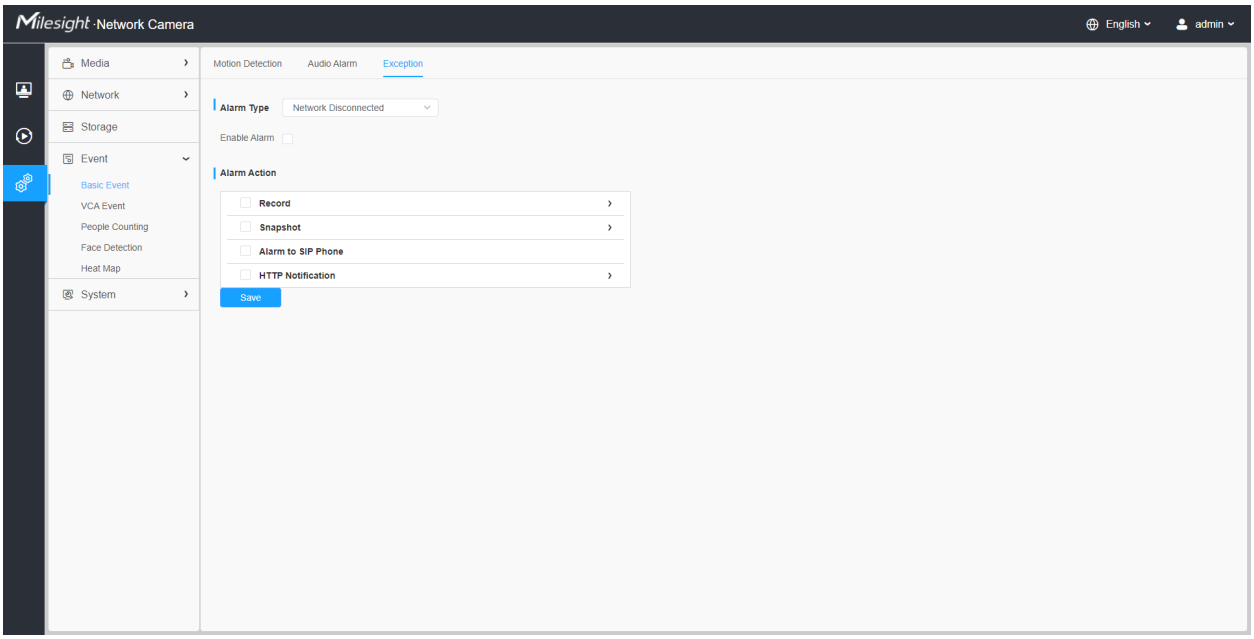
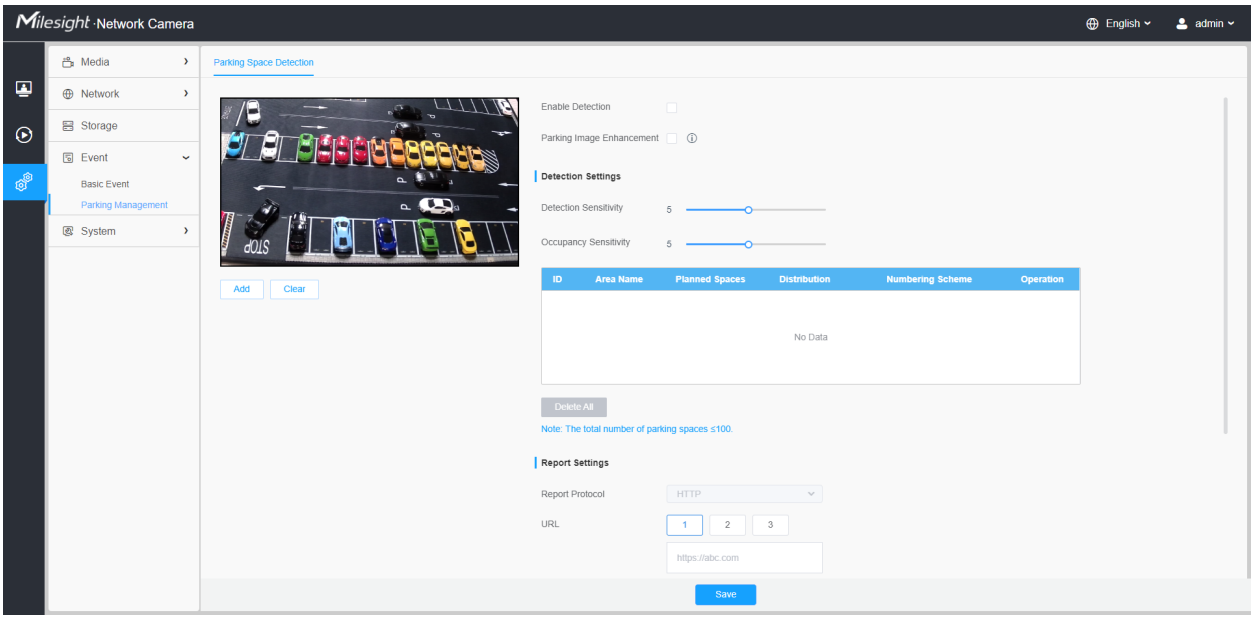


Table 49. Description of the buttons

Parameters	Function Introduction
Alarm Type	**Network Disconnected**, **IP Address Conflicted, Record Failed, SD Card Full, SD Card Uninitialized, SD Card Error** and **No SD Card** are available Check the checkbox to enable the alarm type you selected
Alarm Action	Refer to the table Table 3 *(page 86)* for the meanings of the items, here will not repeat again.

8.4.2 Parking Management

High-accuracy outdoor parking space detection based on AI algorithm can realize simultaneous detection and management of up to 100 parking spaces with more than 98% detection accuracy, which greatly helps guide parking and realizes more efficient and intelligent parking management.



Setting steps are as shown below:

Step 1: Click the button to enable the Parking Space Detection.

Step 2: You can click the button to enable the Parking Image Enhancement, which can help to ensure the detection of parking lots at night, providing 24/7 surveillance monitoring.

Note: Custom Image Parameters may not take effect as configured while this mode enabled.

[Detection Settings]

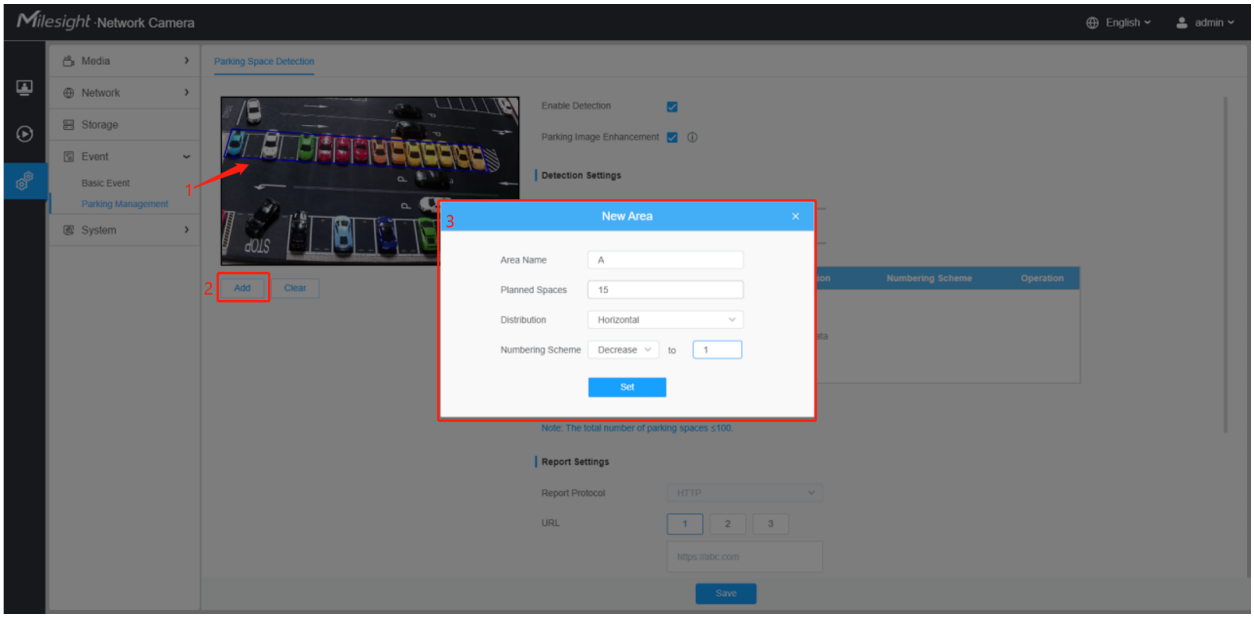
Step 3: Set Detection Sensitivity and Occupancy Sensitivity. Level 1~10 are available, the default level is 5.

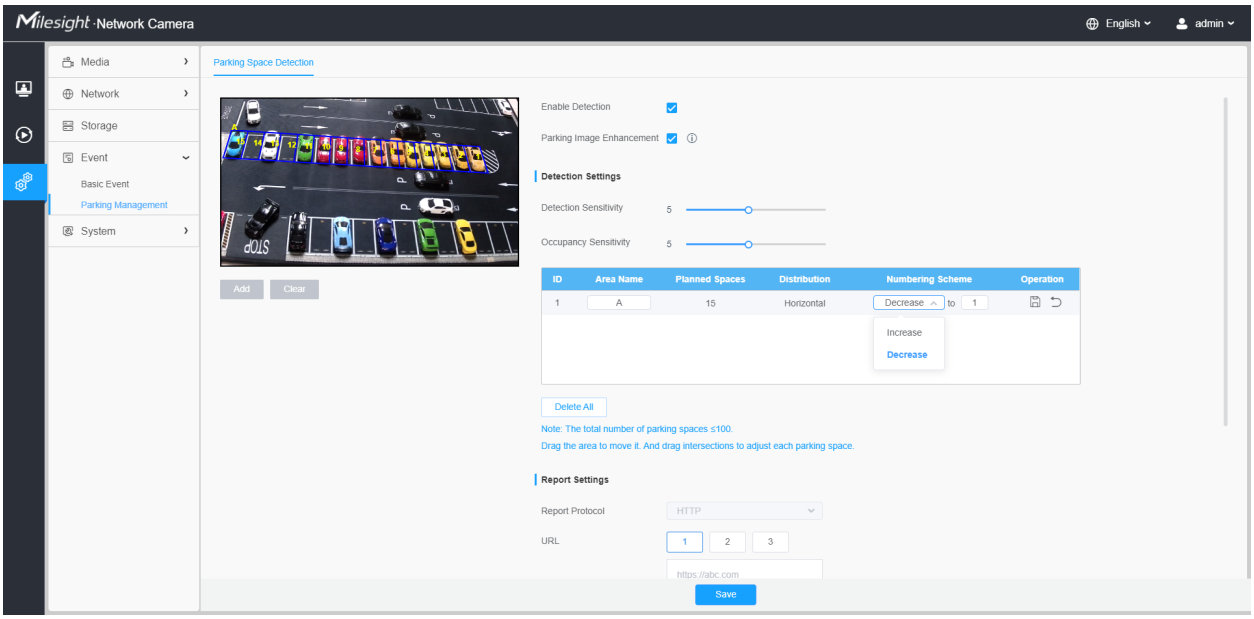
Table 50. Description of the buttons

Parameters	Function Introduction
Detection Sensitivity	Level 1~10 are available, the default level is 5. The default sensitivity of 5 is the balance point between target missed detection and false detection. The higher the sensitivity, the easier the occupancy is to be detected. Users can adjust the detection sensitivity as needed to avoid some missed or false detection. For example, when the sensitivity is set to 10, it is possible to identify some objects that look like cars as cars, resulting in false detection.

Parameters	Function Introduction
Occupancy Sensitivity	Level 1~10 are available, the default level is 5. The higher the sensitivity, the parking space will be judged to be occupied if it is slightly occupied for a while; the lower the sensitivity, the parking space needs to be occupied for a certain period of time before it is judged to be occupied. For example, when the sensitivity is set to 10, the parking space may be judged as occupied when the vehicle passes by the parking space only briefly.

Step 4: Draw the detection areas based on the parking lot. Click Add button to configure the information of detection area.

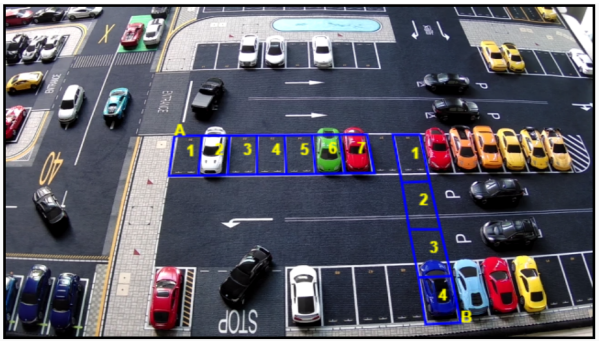
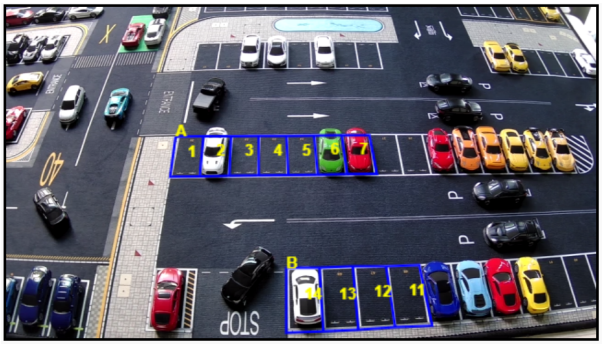




Note: The total number of parking spaces should be less than or equal to 100.

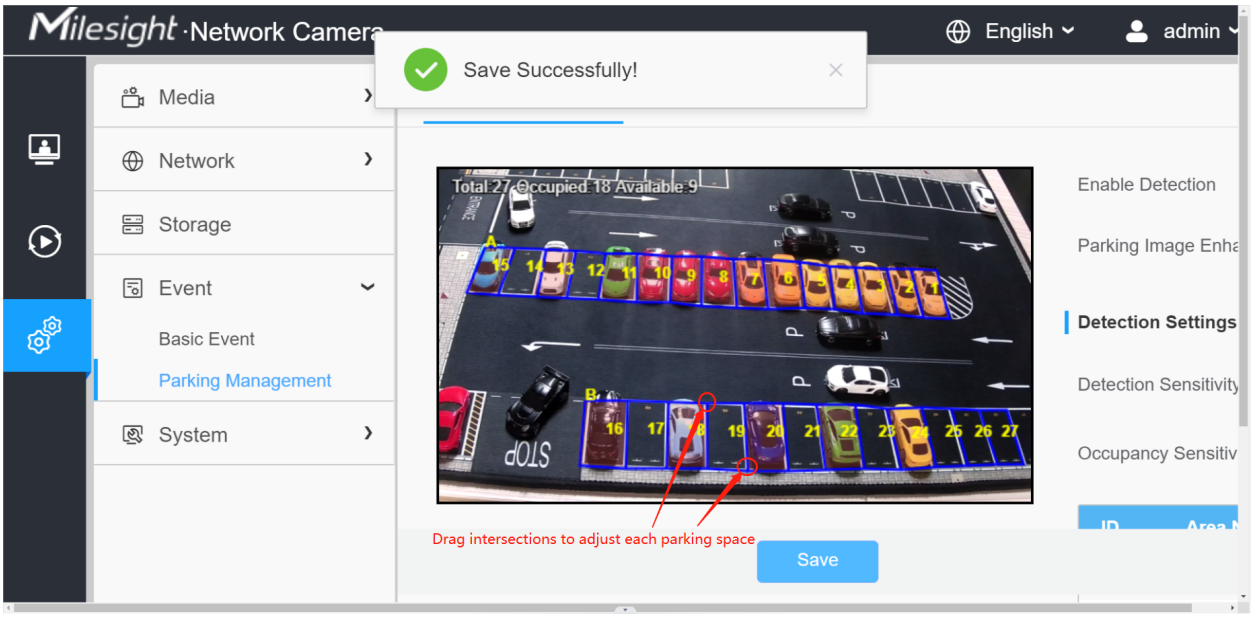
Table 51. Description of the buttons

Parameters	Function Introduction
Area Name	The name of the detection area can be edited. Such as A1, A2, B1, B2. **Note:** Valid content: 1~10 digits or letters!
Planned Spaces	Enter the number of parking spaces on the drawn detection area. Numbers between 1~99 are available. For example, Area A has 15 planned spaces: 

Parameters	Function Introduction
Distribution	Define the distribution of parking spaces. Horizontal and Vertical are available. For example, the distribution of Area A is Horizontal, and the distribution of Area B is Vertical: 
Numbering Scheme	Define the parking space numbering scheme and the starting numbers. Increase and Decrease of numbering scheme are available, and the starting numbers between 1~99 are available. For example, the numbering scheme of Area A is Increase from 1, and the numbering scheme of Area B is Decrease to 11: 
	Edit the Area Name and Numbering Scheme of the detection area.
	Delete the detection area.
	Save the edit.
	Cancel the edit.
Delete All	Delete the all added detection areas.

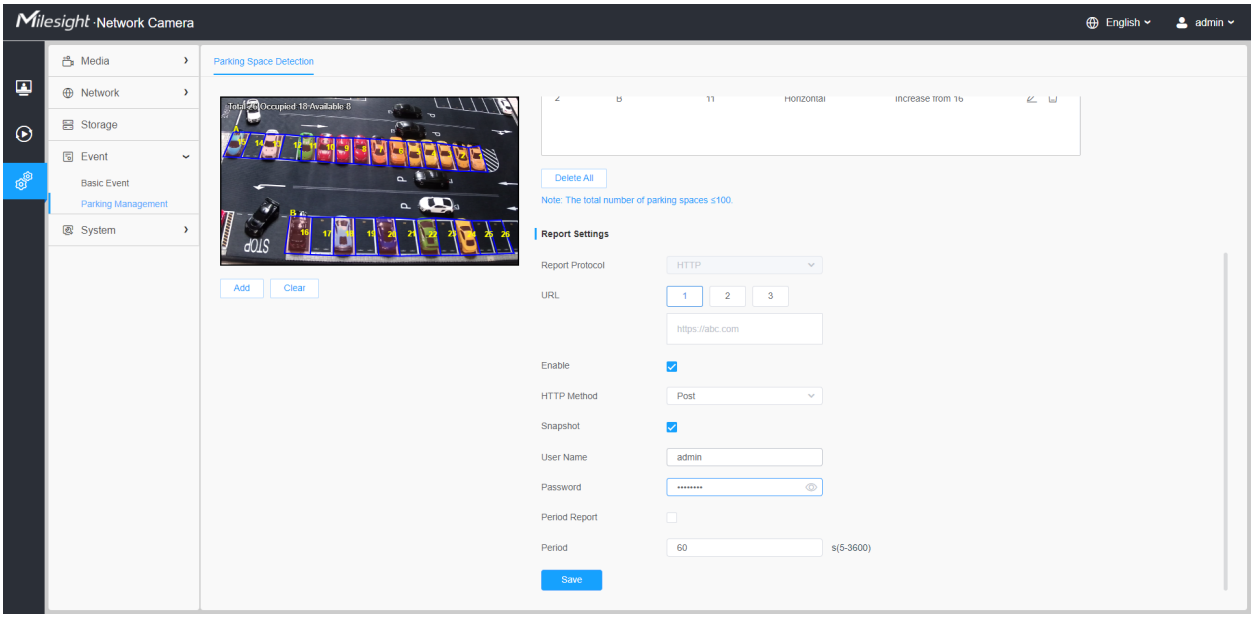
Step 5: You can drag the detection area to move it. And drag intersections to adjust each parking space.

Note: Please click Save button to save the configuration after the adjustment.



Step 6: After the configuration, the occupied parking spaces in the detection area will be covered with red to provide a more intuitive interface. And the parking information containing total number, occupied number and available number will be displayed on the interface.

Note: The minimum recognition pixel is 90*50@8MP.



[Report Settings]

Step 7: With high compatibility, the parking information can be reported by HTTP(s).

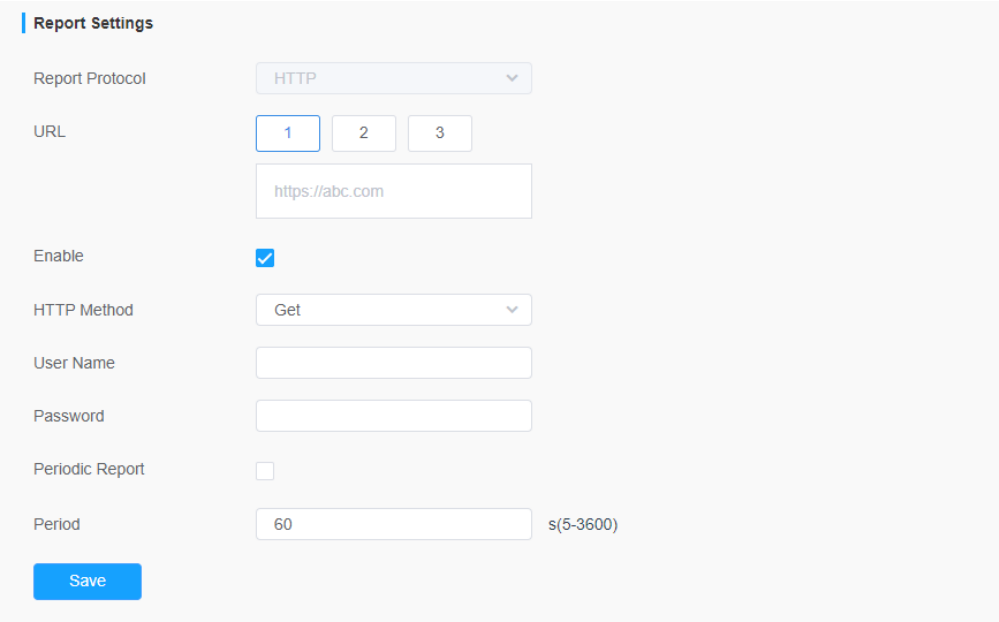


Table 52. Description of the buttons

Parameters	Function Introduction
Report Protocol	Support to report the parking informations to specified HTTP URL.
URL	The HTTP URL format can be customized,for example: `http://{ip}:{port}/api/httpEvent?xxxxxx`
Enable	Start or stop using HTTP.
HTTP Method	There are two HTTP push methods, including Post and Get.
Snapshot	Click the button to upload the snapshots via HTTP post. **Note:** This option is available just for Post HTTP Method.
User Name	Receiver name.
Password	Receiver password.
Periodic Report	According to the configured period, the parking information is pushed via HTTP post periodically.
Period	5~3600s of period time are available.

Step 8: Click the button to enable the Report.

Step 9: Click the button to enable the Periodic Report of parking space. And set the interval period time.

[Parking Information transfer for Post Method]

Camera will post the parking information data in JSON format in real time when it is triggered. The content will be sent is as follows:

Trigger Post

POST /post HTTP/1.1

User-Agent: httpclient

Host: 192.168.2.24:1234

Content-Type: application/json

Content-Length: 108615

{

"event": "Parking Space Detection",

"device": "Network Camera",

"time": "2021-03-30 13:51:56",

"report_type": "trigger",

"resolution_w": 3840,

"resolution_h": 2160,

"parking_area": "A",

"index_number": 1,

"occupancy": 1, //1:occupied, 0:available

"coordinate_x1": 3,

"coordinate_y1": 220,

"coordinate_x2": 13,

"coordinate_y2": 220,

"coordinate_x3": 3,

"coordinate_y3": 330,

"coordinate_x4": 13,

"coordinate_y4": 330,

"snapshot":
"/9j/4AAQSkZJRgABAQAAAQABAAD/2wDFABALDA4MChAODQ4SERATGCgaGBY...
(Image code)"

}

Table 53.

Key	Sample of Value	Description
event	Parking Space Detection	The event name of the parking information data.
device	Network Camera	The Device Name which can be configured on the System Info of camera. The default is Network Camera.
time	2021-03-30 13:51:56	The time when event is triggered.
report_type	trigger	Type of parking information reported, trigger or interval.
resolution_w	3840	The width of processing resolution.
resolution_h	2160	The height of processing resolution.
parking_area **index_number**	A 1	The parking area name of the triggered parking space. Such as A1, A2, B1, B2.
occupancy	1	The status of parking space detection, 1 indicates occupied and 0 indicates available.
coordinate_x1 **coordinate_y1**	3 220	The top left coordinates of triggered parking space.
coordinate_x2 **coordinate_y2**	13 220	The top right coordinates of triggered parking space.
coordinate_x3 **coordinate_y3**	3 330	The bottom left coordinates of triggered parking space.
coordinate_x4 **coordinate_y4**	13 330	The bottom right coordinates of triggered parking space.

Key	Sample of Value	Description
snapshot	(Image code)	The snapshot of the event, depends on whether it is configured to send together.

Interval Post

POST /post HTTP/1.1

User-Agent: httpclient

Host: 192.168.2.24:1234

Content-Type: application/json

Content-Length: 108615

{

"event": "Parking Space Detection",

"device": "Network Camera",

"time": "2021-03-30 13:51:56",

"report_type": "interval",

"total_occupied": 217,

"total_available": 12,

"parking_detail":

[

{"area_name": "A",

"numbering_scheme": [2,3,4,5,6,7,8,9,10],

"occupancy": [1,0,0,1,0,1,1,0,0]

},

{

"area_name": "B",

"numbering_scheme": [1,2,3,4,5,6,7,8,9],

"occupancy": [1,0,0,1,0,1,1,0,1]

},

{

"area_name": "C",

"numbering_scheme": [11,10,9,8,7,6,5,4,3],

"occupancy": [1,0,0,1,0,1,1,0,1]}

]

"snapshot":
"/9j/4AAQSkZJRgABAQAAAQABAAD/2wDFABALDA4MChAODQ4SERATGCgaGBY...
(Image code)”

}

Table 54.

Key		Sample of Value	Description
event		Parking Space Detection	The event name of the parking information data.
device		Network Camera	The Device Name which can be configured on the System Info of camera. The default is Network Camera.
time		2021-03-30 13:51:56	The time of periodic push.
report_type		interval	Type of parking information reported, interval or trigger.
total_occupied		217	Total number of parking spaces occupied in the current parking space detection area.
total_available		12	Total number of available parking spaces in the current parking space detection area.
parking_detail	**area_name**	A	The parking space detection area name.
	numbering_scheme	[2,3,4,5,6,7,8,9,10]	The parking space number of the current parking detection area.
	occupancy	[1,0,0,1,0,1,1,0,0]	The status of parking space detection of the current parking detection area, 1 indicates occupied and 0 indicates available.
	area_name	B	The parking space detection area name.
	numbering_scheme	[1,2,3,4,5,6,7,8,9]	The parking space number of the current parking detection area.

Key		Sample of Value	Description
	occupancy	[1,0,0,1,0,1,1,0,1]	The status of parking space detection of the current parking detection area, 1 indicates occupied and 0 indicates available.
	area_name	C	The parking space detection area name.
	numbering_scheme	[11,10,9,8,7,6,5,4,3]	The parking space number of the current parking detection area.
	occupancy	[1,0,0,1,0,1,1,0,1]	The status of parking space detection of the current parking detection area, 1 indicates occupied and 0 indicates available.
snapshot		(Image code)	The snapshot of the event, depends on whether it is configured to send together.

8.5 System

Here you can configure System Setting, Security, Logs and Maintenance.

8.5.1 System Setting

Here you can check System information and Date&Time.

8.5.1.1 System info

All information about the hardware and software of the camera can be checked on this page.

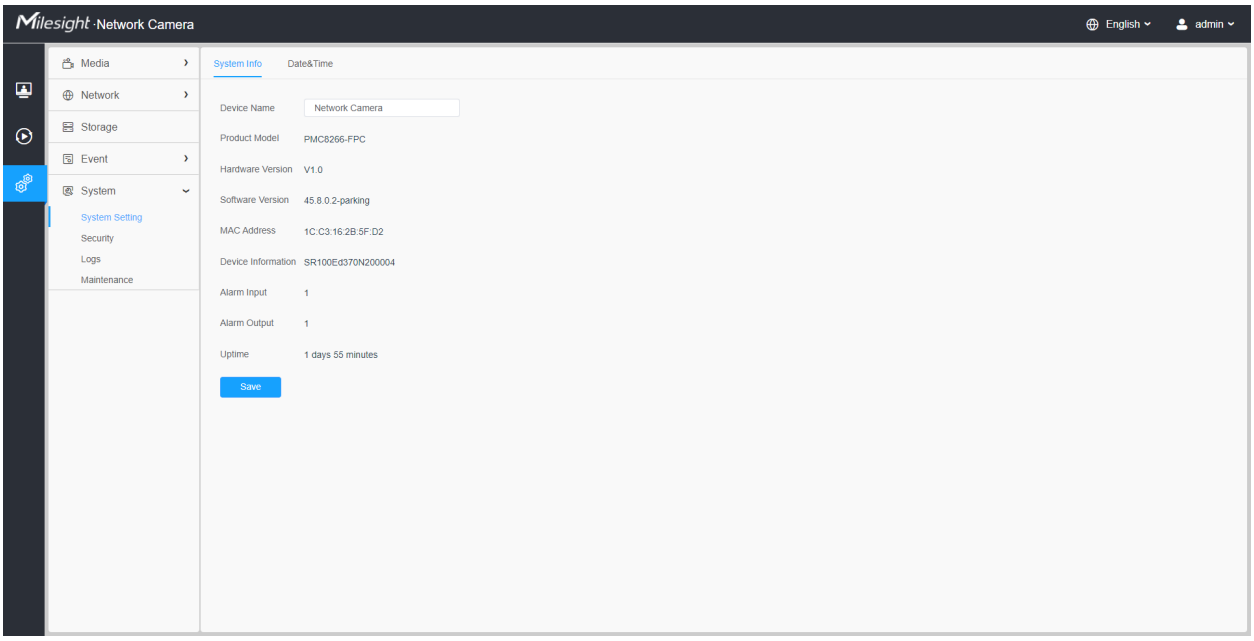


Table 55. Description of the buttons

Parameters	Function Introduction
Device Name	The device name can be customized. It will be seen in file names of video files.
Product Model	The product model of the camera.
Hardware Version	The hardware version of the camera.
Software Version	The software version of the camera can be upgraded.
MAC Address	Media Access Control address.
S/N	Stock Number.
Device Information	The device information, including information about alarm I/O and clipper chip.
Alarm Input	The number of Alarm Input interface. **Note:** The Alarm Input will appear only when the camera have alarm input/ output interface.
Alarm Output	The number of Alarm Output interface. **Note:** The Alarm Output will appear only when the camera have alarm input/ output interface.
Uptime	The elapsed time since the last restarted of the device.
Save	Save the configuration.

8.5.1.2 Date&Time

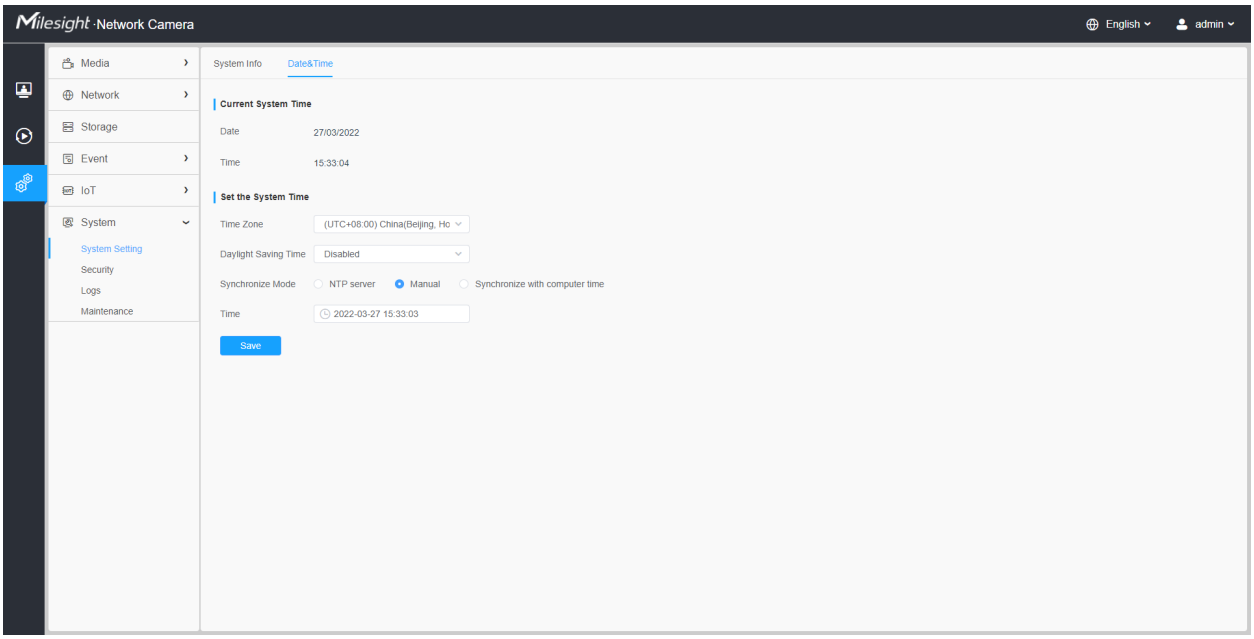


Table 56. Description of the buttons

Parameters	Function Introduction
Current System Time	Current date&time of the system.
Set the System Time	**Time Zone:** Choose a time zone for your location.
	Daylight Saving time: Enable the daylight saving time.
	Synchronize Mode: NTP server, Manual and Synchronize with computer time are optional. **NTP server:** Input the address of NTP server. **NTP Sync:** Regularly update your time according to the interval time. **Manual:** Set the system time manually. **Synchronize with computer time:** Synchronize the time with your computer.
Save	Save the configuration.

8.5.2 Security

Here you can configure User, Access List, Security Service, Watermark, etc.

8.5.2.1 User

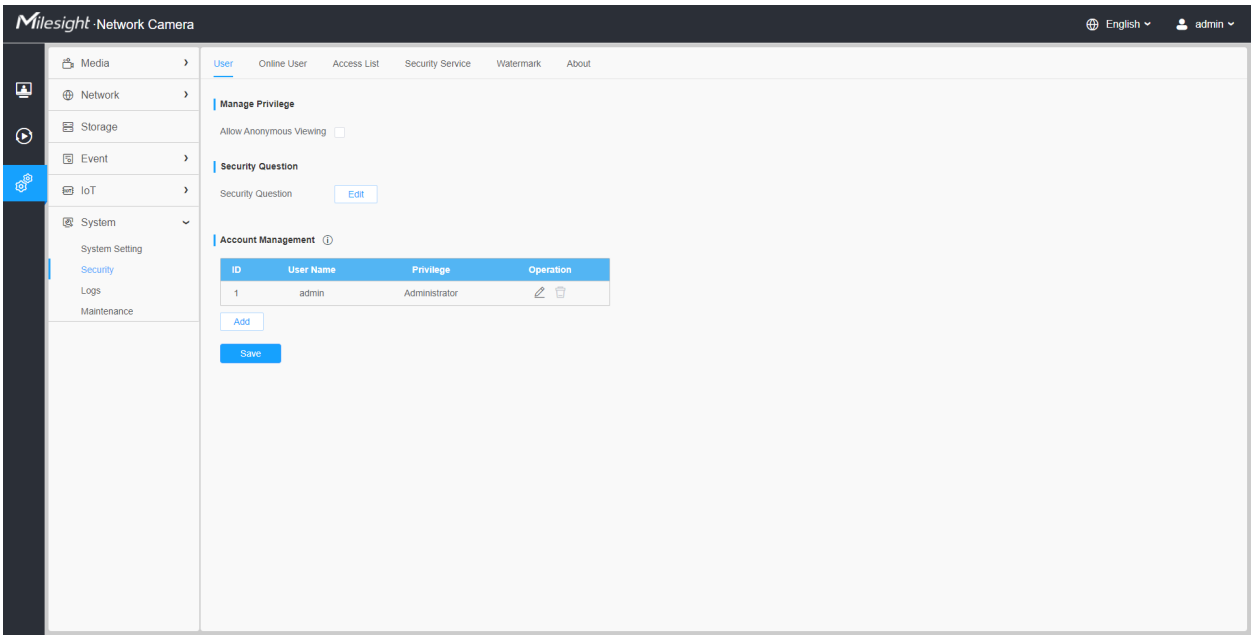
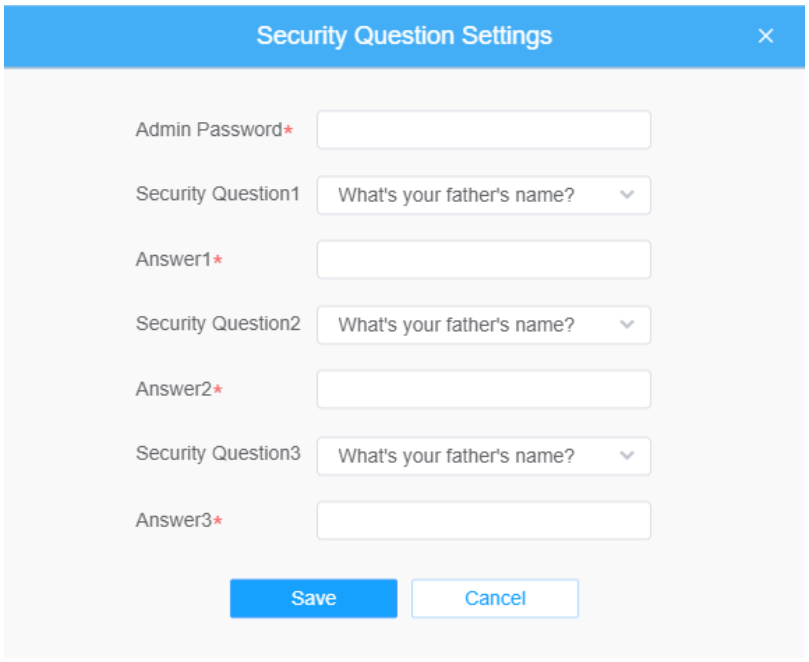
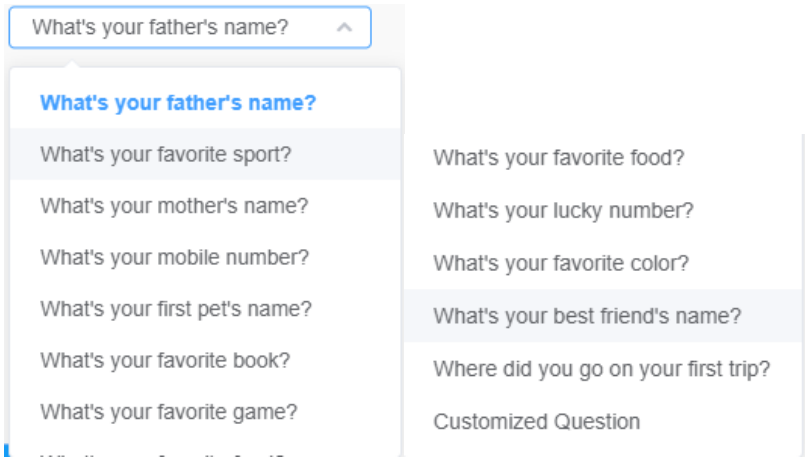


Table 57. Description of the buttons

Parameters	Function Introduction
Manage Privilege	**Allow anonymous viewing:** Check the checkbox to enable visit from whom doesn't have account of the device.

Parameters	Function Introduction
Security Question	Click “Edit” button to set three security questions for your camera. In case that you forget the password, you can click “Forget Password” button on login page to reset the password by answering three security questions correctly.  There are twelve default questions below, you can also customize the security questions. 

Parameters	Function Introduction
Account Management	Click “**Add**” button, it will display Account Management page. You can add an account to the camera by entering Admin Password, User Level, User Name, New Password, Confirm, and edit user privilege by clicking . The added account will be displayed in the account list. **Admin Password:** You can add an account only after you enter the correct admin password. **User Level:** Set the privilege for the account. **User Name:** Input user name for creating an account. **New Password:** Input password for the account. **Confirm:** Confirm the password. You can edit and delete the account in the account list under the admin account. For the default admin account, you can only change the password, and it cannot be deleted. **Note:** • Support up to 20 users, including a default user and 19 custom added users. • The operator privilege is all checked by default.

8.5.2.2 Online User

Here real-time status of user logging in camera will be shown.

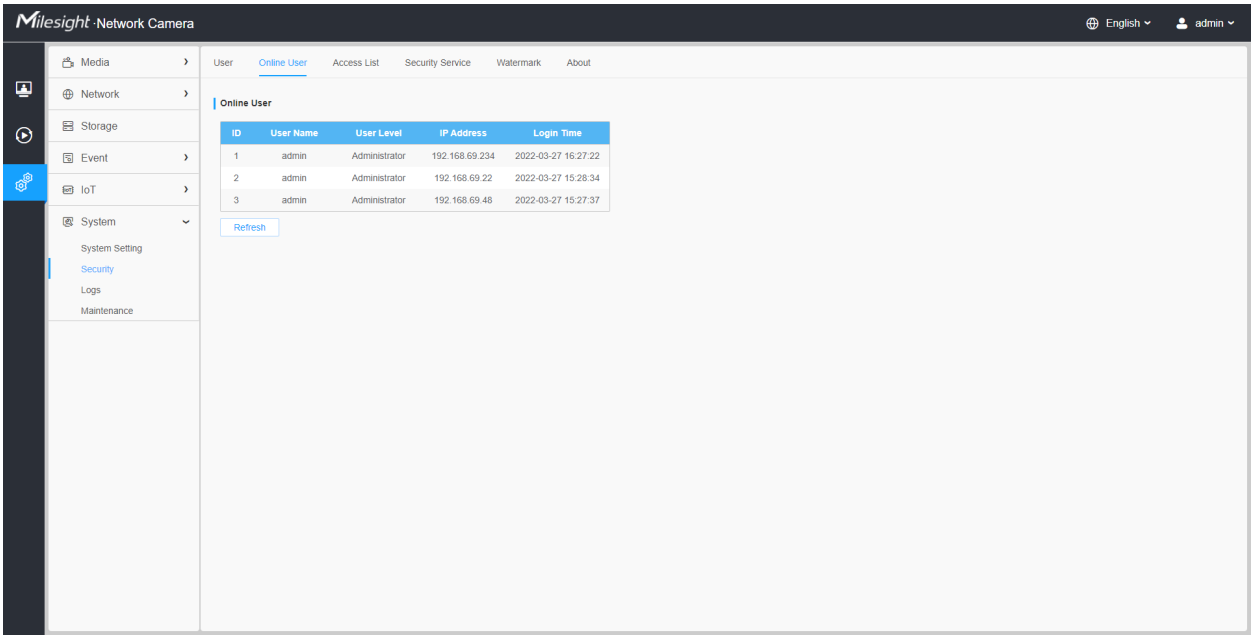


Table 58. Description of the buttons

Parameters	Function Introduction
Refresh	Click to get latest status of user accessing to camera.
ID	Record serial number of user logging in camera. **Note:** • There are at most 30 records shown at the list. • There is only one record if the same user logging on camera by the same IP address.
User Name	Name of user logging in camera.
User Level	Level of user logging in camera.
IP Address	Device IP address where user logging in camera web located.
Login Time	Camera system time of user logging in camera.

8.5.2.3 Access List

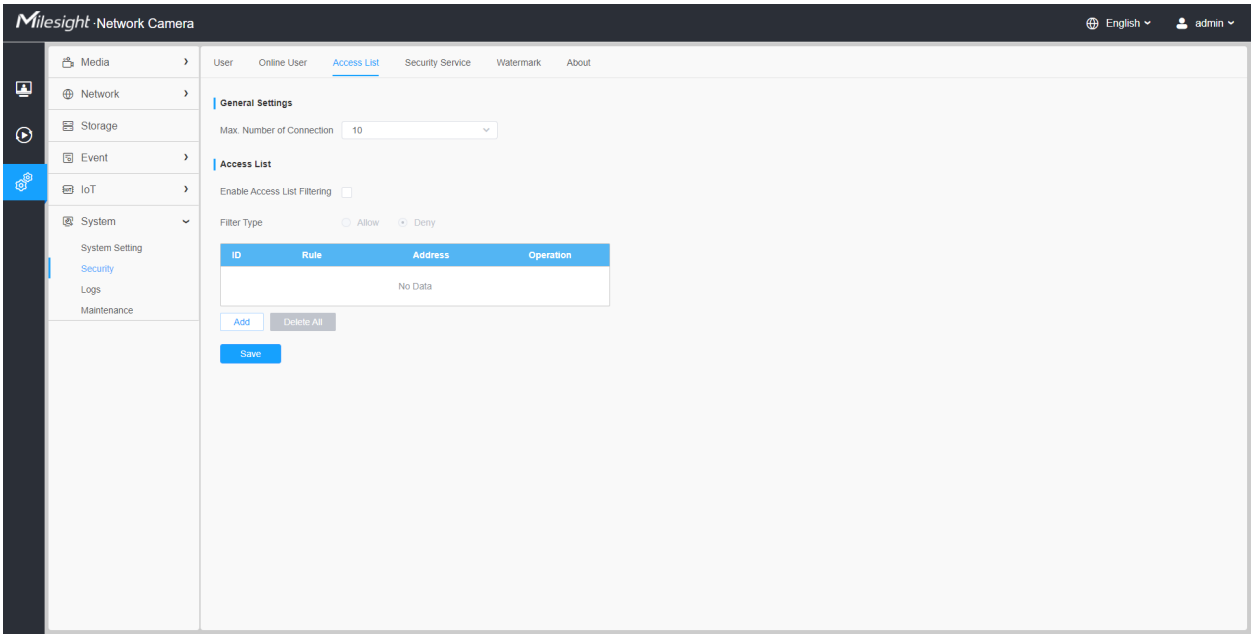


Table 59. Description of the buttons

Parameters	Function Introduction
General Settings	**Max. Number of Connection:** Select the maximum number of concurrent streaming. Options include No Limit, 1~10.

Parameters	Function Introduction	
Access List	**Enable Access List Filtering:** Able to access or restrict access for some IP address.	
Access List	**Filter type:** Allow or deny access.	
	Add	**Rule: Single, Network and Range** are available. **IP address:** Input the address to get the access to the device.
	Delete All	Delete all the access list.
		Edit the selected IP on access list.
		Delete the selected IP on access list.
Save	Save the configuration.	

8.5.2.4 Security Service

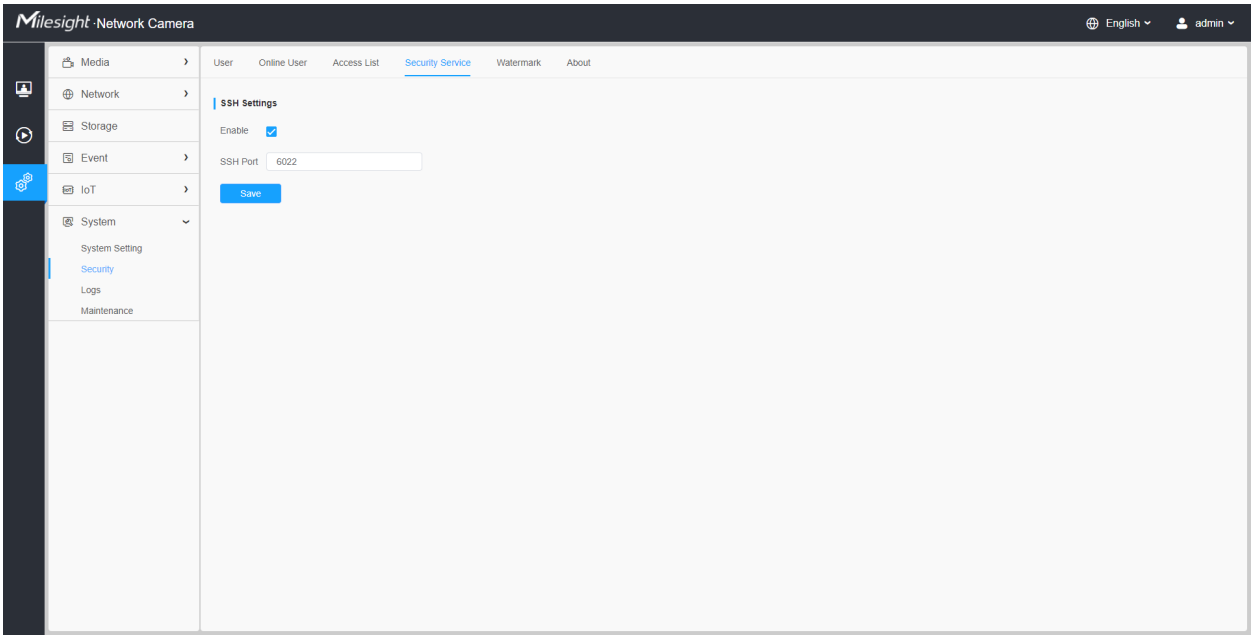
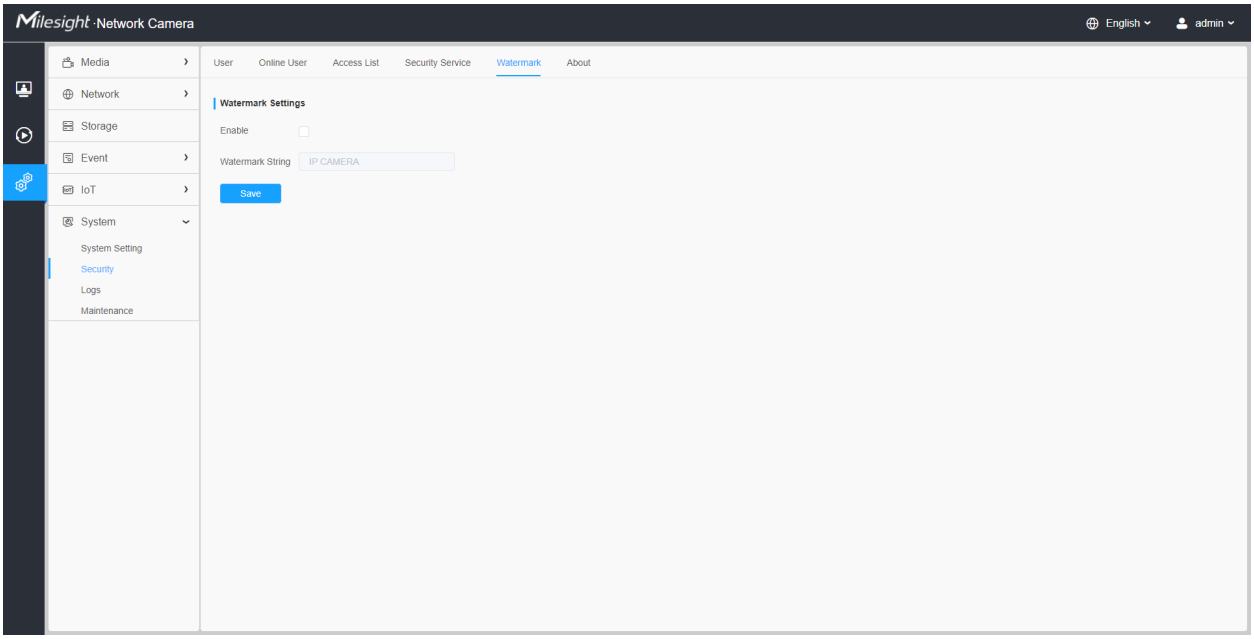


Table 60. Description of the buttons

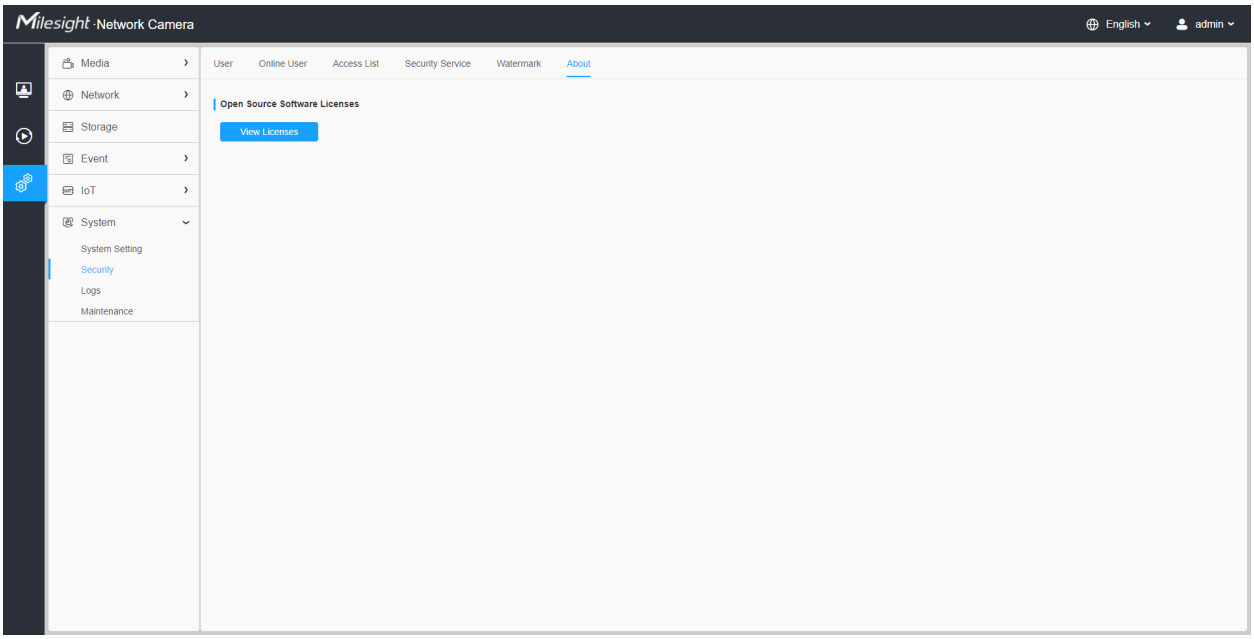
Parameters	Function Introduction
SSH Settings	Secure Shell (SSH) has many functions: it can replace Telnet and also provides a secure channel for FTP, POP, even for PPP.

8.5.2.5 Watermark



Watermarking is an effective method to protect information security, realizing anti-counterfeiting traceability and copyright protection. Milesight supports Watermark function to ensure information security.

8.5.2.6 About



User can view some open source software licenses about the camera by clicking the View Licenses button.

8.5.3 Logs

The logs contain the information about the time and IP that has accessed the camera through web.

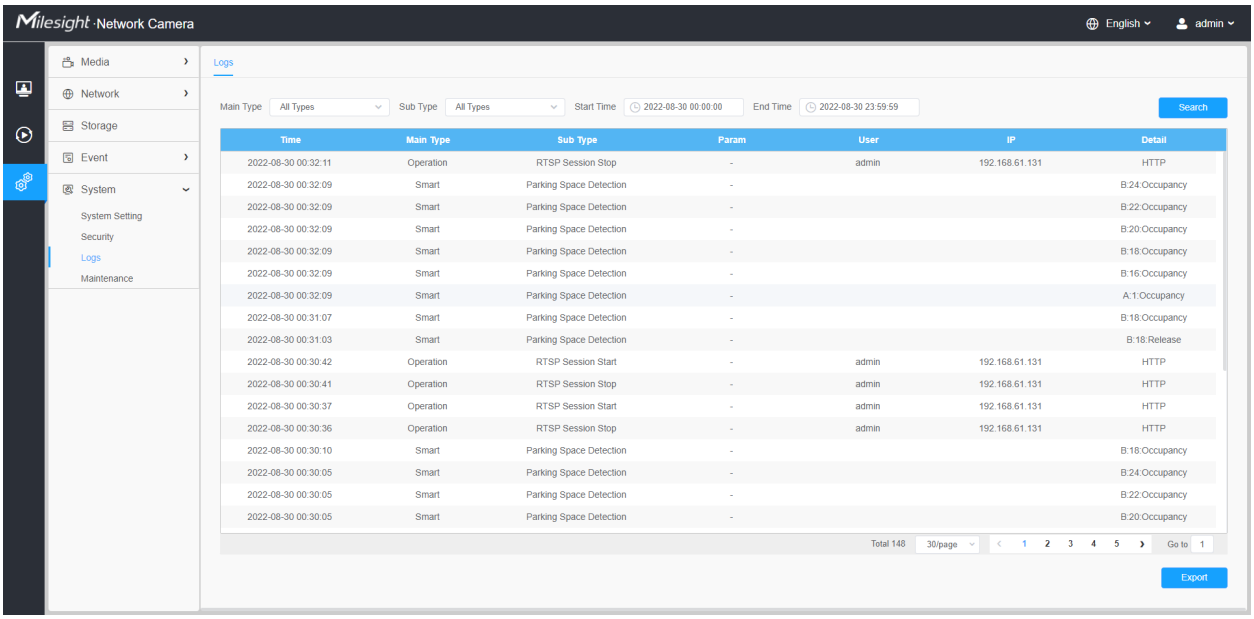


Table 61. Description of the buttons

Parameters	Function Introduction
Main Type	There are five main log types: **All Type, Event, Operation, Information, Exception** and **Smart.**
Sub Type	On the premise that main type has been selected, select the sub type to narrow the range of logs.
Start Time	The time log starts.
End Time	The time log ends.
Search	Search the logs.

Parameters	Function Introduction
Export	Export the logs.
Go to	Input the number of logs' page.

8.5.4 Maintenance

Here you can configure System Maintenance and Auto Reboot.

8.5.4.1 System Maintenance

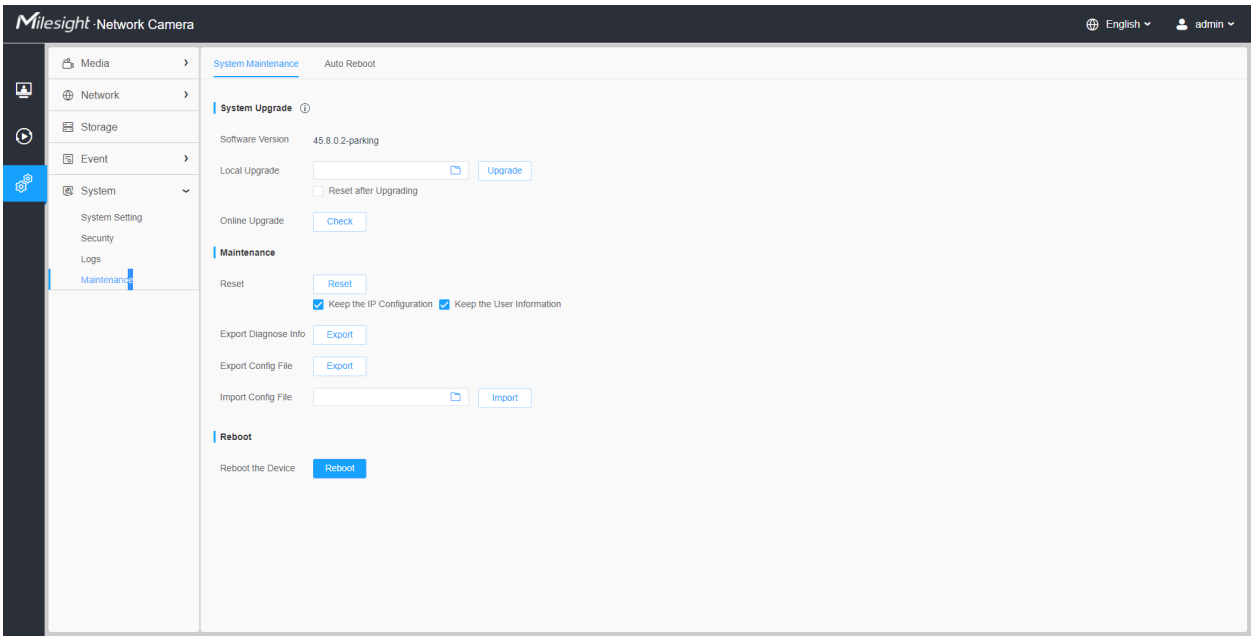
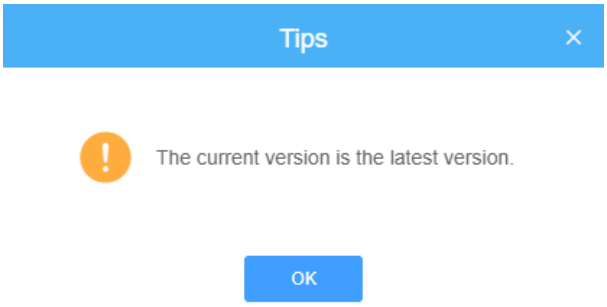
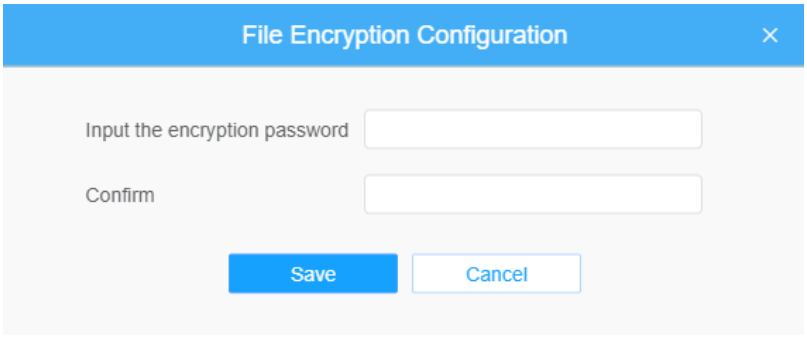
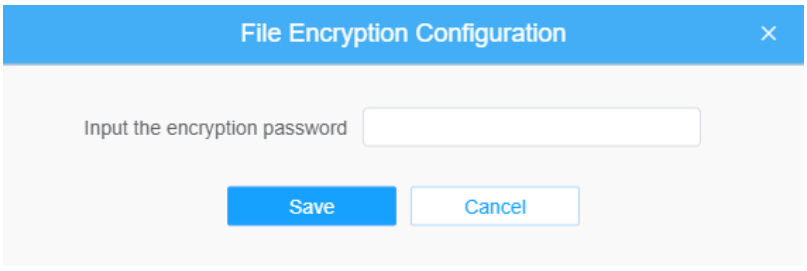
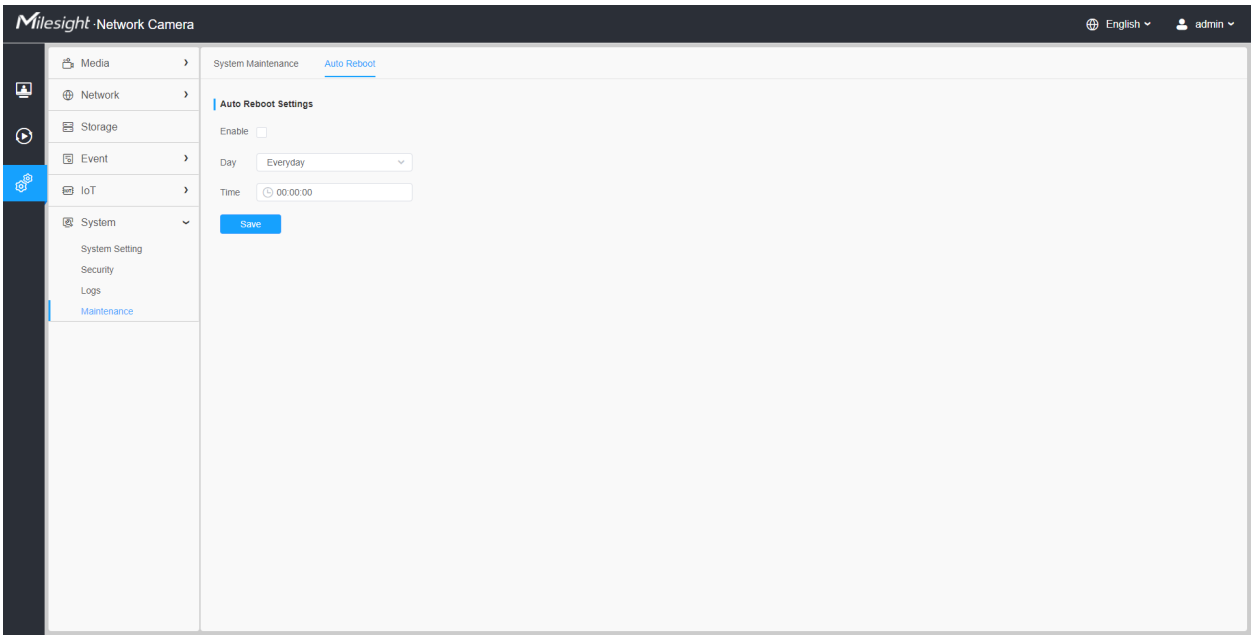


Table 62. Description of the buttons

Parameters	Function Introduction
System Upgrade	**Software Version:** The software version of the camera. **Local Upgrade:** Click the “Browse” button and select the upgrading file, then click the “Upgrade” button to upgrade. After the system reboots successfully, the update is done. You can check “**Reset after Upgrading**” to reset the camera after upgrading it. **Online Upgrade:** Click the "Check" button to check the current latest firmware version on our website, and then click "OK" to upgrade to this version. It will prompt "The current version is the latest version" if your camera is already the latest version.  **Note:** Do not disconnect the power of the device during the update. The device will be restarted to complete the upgrading.

Parameters	Function Introduction
Maintenance	**Reset:** Click “Reset” button to reset the camera to factory default settings. **Keep the IP Configuration:** Check this option to keep the IP configuration when resetting the camera. **Keep the User information:** Check this option to keep the user information when resetting the camera. **Export Diagnose Info:** Click this button to export logs and system information of the device operation status. **Note:** The file format is “.txt”. **Export Config File:** Click this button and a window will pop up as shown below:  You need to enter and confirm password again, then click save button to export configuration file. **Import Config File:** Click this button, then a window will pop up and you can click "OK" to update the configuration. It will pop up a window to prompt "Input the password of config file" , then enter password and click save button to import configuration file.  **Note:** Export and import the same configuration file. Password must be the same.
Reboot	Click “Reboot” button to restart the device immediately.

8.5.4.2 Auto Reboot



Set the date and time to enable Auto Reboot function, the camera will reboot automatically according to the customized time in case that camera overload after running a long time.

Chapter 9. Services

Milesight provides customers with timely and comprehensive technical support services. End-users can contact your local dealer to obtain technical support. Distributors and resellers can contact directly with Milesight for technical support.

Technical Support Mailbox: support@milesight.com

Web: http://www.milesight.com

Online Problem Submission System: http://www.milesight.com/service/feedback.asp

MILESIGHT USA

TEL: +1-800-561-0485

Add: 220 NE 51st ST, Oakland Park, Florida 33334, USA

MILESIGHT KOREA

TEL: +82-2-839-3335

Add: 925, Anyang SK V1 Center, LS-ro 116beon-gil, Dongan-gu, Anyang-si, Korea

MILESIGHT CHINA

TEL: +86-592-5922772

Add: Building C09, Software Park Phase III, Xiamen 361024, Fujian, China