EXCELSENSE

IP Camera - Web Interface Manual

1st Generation Sensor Module

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About

This document is intended for use with ExcelSense ToughEye-1700™ and ToughCam-1000™ cameras. Note that Self-Clean functionality is only available on the ToughEye-1700™. Please contact an ExcelSense representative for questions about this document.

Camera Compatibility

This document provides information regarding the web interface of the 1st generation sensor modules, which are used in ToughEye-1700™ and ToughCam-1000™ models released according to the table below.

	Optical Sensor	Serial Number Range
ToughEye-1700™	1st Gen	1700999 and lower
	2nd Gen	1701000 and higher
ToughCam-1000™	1st Gen	1000799 and lower
	2nd Gen	1000800 and higher

If your camera serial number indicates that a 2nd generation sensor module is equipped, please do not use this document as a reference guide. The appropriate web manual documentation for the 2nd generation sensors can be found here; please use the latest version of the documentation found in the provided link as the reference manual for 2nd Gen equipped cameras.

First Time Setup

Factory-Setting Parameters

IP Settings

IP Address: 192.168.0.120
Subnet Mask: 255.255.255.0
Default Gateway: 192.168.0.1

Main Stream Settings

Video Encode Type: H.265
Resolution: 1920 x 1080
Frame Rate: 30 fps

Login Credentials

Username: admin
Password: admin

Connecting to the Web Interface

The camera's web interface exposes all of the camera's features to the user. It is primarily used for streaming the live view, retrieving previously saved recordings, or modifying camera settings.

In order to access the web interface, the client PC's network settings must match those of the camera's to ensure both client and host are on the same subnet. Configure the connecting PC's ethernet settings to match the subnet of the camera. This can be done by following the steps below:

(1) Navigate to the PC's *Network Connections* page by typing it into the Start menu
(2) Right-click on the corresponding Ethernet device and select Properties
(3) Open the Internet Protocol Version 4 (TCP/IPv4) Properties by either double-clicking the item from the list or selecting it and clicking the Properties button
(4) Check the "Use the following IP address" box and type in address that is on the same subnet as the camera. For example, the following can be entered:

IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.1

(5) Click OK on this page as well as on the Ethernet Properties page

Finding the Camera on the Network

The camera's default IP address is 192.168.0.120 as listed in the **Factory Settings Parameters** section. However, if this IP changes from the default, the camera can be found on the local network using the free SADP (Search Active Devices Protocol) software that is available to download online. This tool searches active online devices within your subnet and displays the information of the devices. You can also modify basic network information of the devices with this software.

Streaming on Web Interface Using Internet Explorer

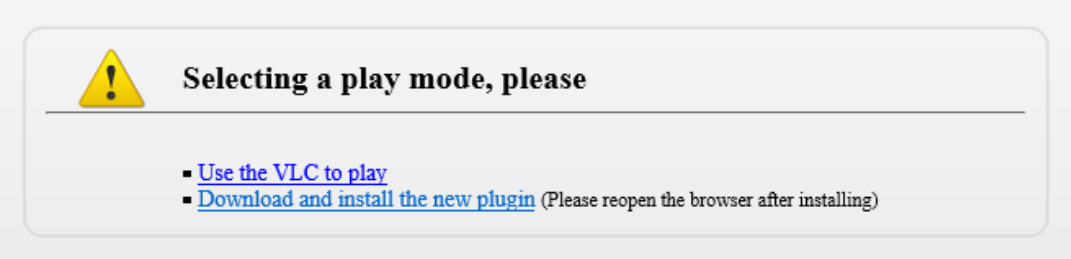
Downloading Plugin for High-Quality Streaming (H.265 / H.264)

If it is desired to use the web interface for high-quality video streaming, the browser that should be used is Internet Explorer (IE). A small plug-in is also required to be installed on the client PC which enables H.265/H.264 streaming through the web interface running on the IE browser.

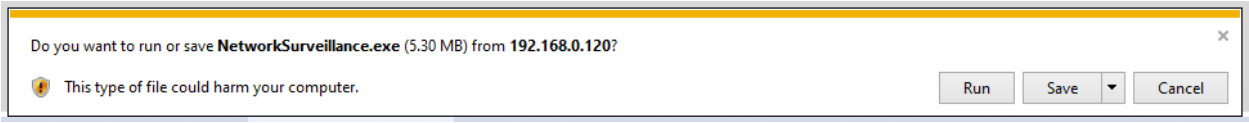
Note: *If a 3rd-party IP camera software is to be used to stream the H.265/H.264 footage, this plug-in is not required to be installed. All configuration settings, including manual, timed, and scheduled self-clean features, can be configured without this plug-in.*

Follow the steps below to download and install this plug-in:

(1) To connect to the camera's web interface, first ensure that the client PC's subnet matches that of the camera's. Refer to the **Connecting to the Web Interface** section above for more information.
(2) Open IE as Administrator and enter the IP address of the camera into the address bar. If the camera has the factory-setting IP address, the following can be entered: *http://192.168.0.120*
(3) Enter the login credentials for the camera
(4) Optionally if using the default factory-setting credentials, you can set a new password, or click Cancel to continue with the same credentials
(5) Click "*Download and install the new plugin*". This is a small plug-in that is required for streaming the camera's H.265/H.264 streams on the IE browser. Make sure to temporarily disable Windows Defender Real-Time Protection, FireWall, etc during the installation process, as not doing this may block the computer from downloading and installing this plug-in.
(6) After the plugin is installed, reopen the IE browser with Administrator privileges and navigate to the camera IP address.

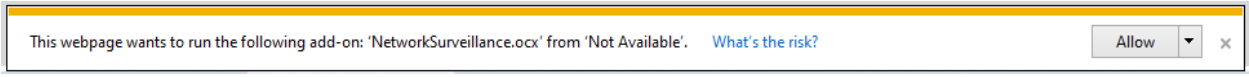


Link to download streaming plugin



Click 'Run' to download the file

'Run' the installation program



Click 'Allow' to enable the plugin to work

Streaming on Web Interface Using Microsoft Edge

Confirmed on Edge Version 105.0.1343.42 (Official build) (64-bit)

Downloading Plugin for High-Quality Streaming (H.265 / H.264)

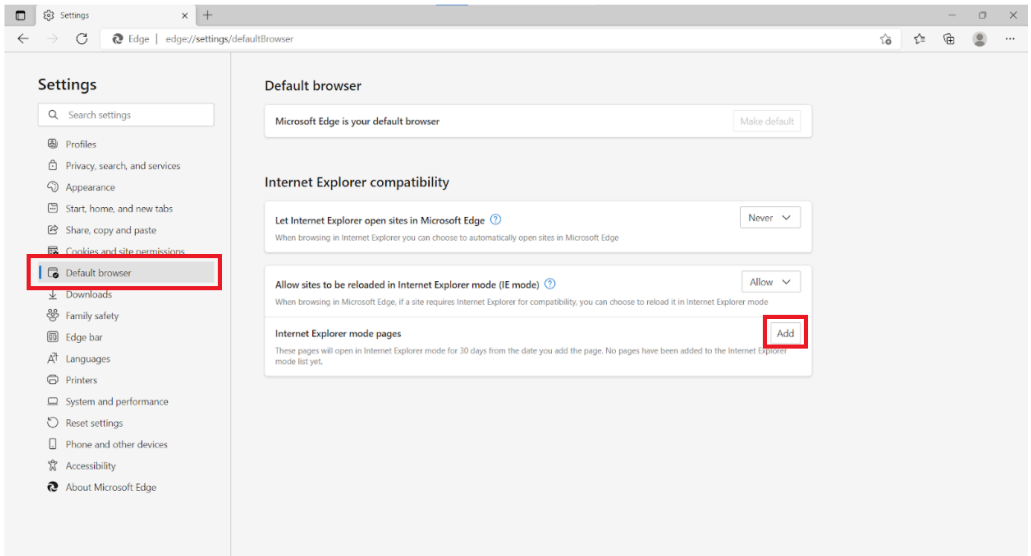
Follow the steps below to download and install this plug-in:

(1) To connect to the camera's web interface, first ensure that the client PC's subnet matches that of the camera's. Refer to the **Connecting to the Web Interface** section above for more information.
(2) Open Microsoft Edge as Administrator and enter the IP address of the camera into the address bar. If the camera has the factory-setting IP address, the following can be entered: *http://192.168.0.120*
(3) From the ellipsis menu (...) in the upper right corner of Edge, select 'Reload in Internet Explorer mode'
(4) Enter the login credentials for the camera
(5) Optionally if using the default factory-setting credentials, you can set a new password, or click Cancel to continue with the same credentials
(6) Click "*Download and install the new plugin*". This is a small plug-in that is required for streaming the camera's H.265/H.264 streams on the Edge browser. Make sure to temporarily disable Windows Defender Real-Time Protection, FireWall, etc during the installation process, as not doing this may block the computer from downloading and installing this plug-in.
(7) After the plugin is installed, reopen the Edge browser and navigate to the camera IP address in Internet Explorer mode.

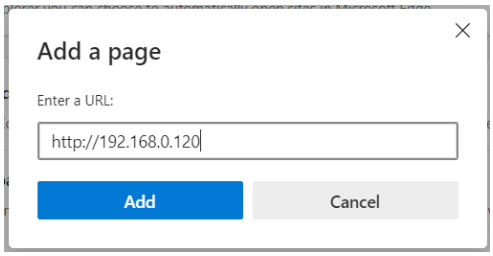
Known Limitations of Microsoft Edge

When using Microsoft Edge as the default web interface browser, some functionality is unavailable compared to using Internet Explorer in Administrative mode. The Snapshot and Local Record buttons on the Live Video page do not work.

From the Edge settings menu under 'Default Browser', there is an option to add pages to be opened using Internet Explorer mode by default. Note that this feature is limited to 30 days after the initial setup, and needs to be re-added after that timeframe.



Edge settings menu



Adding the default camera IP

Additionally, the user can add the ‘Reload tab in Internet Explorer mode’ button to the toolbar by following these steps:

1. Click on the horizontal ellipses ‘...’ in the upper right corner
2. Click on the gear to open the settings menu
3. Navigate to the appearance tab
4. Scroll down to and enable ‘Internet Explorer mode (IE mode) button’
5. Close and reopen the browser if necessary

These steps will enable the  button next to the toolbar. Clicking the button will reload the current page in IE mode, or switch back to Edge mode depending on the current state.

Lower Frame-Rate Streaming (MJPEG)

If frame rate and video compression are not critical factors, the MJPEG stream can be viewed over the web interface. If you have not configured IE compatibility mode, the default Microsoft Edge webpage will show the MJPEG stream.

Note: *The maximum frame rate for the MJPEG stream is 12fps, but the resolution can be set to as high as 1080p. No plug-in is required to stream MJPEG on the browser.*

Integrating with 3rd-Party IP Camera Software

The ToughEye-1700™ IP camera can be integrated with 3rd-party IP camera software, as the camera is ONVIF Profile G and S compliant. It is important to note that full integration cannot be confirmed with all 3rd-party software platforms (i.e. camera features and settings are not guaranteed to be accessible or configurable), therefore it is recommended to use the camera’s native IE browser interface to access and modify camera settings.

Start Page

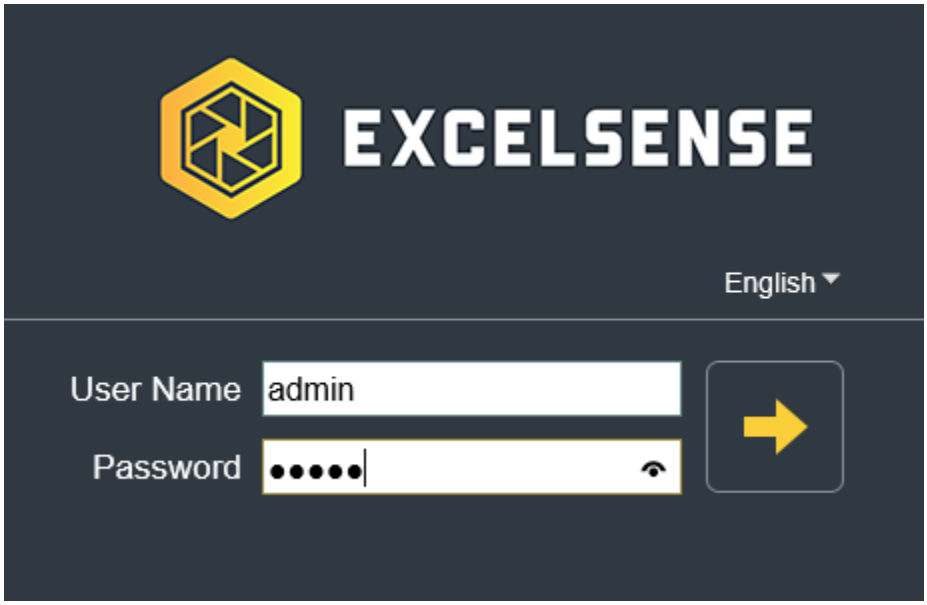
Ensure the camera is properly connected and powered before accessing the web interface. At room temperature, the camera takes roughly one minute to boot, at which point it is accessible from the web interface. If the camera is in an unsafe temperature range, the onboard systems will activate to bring the camera to a normal temperature before it can be accessed.

The IP camera web interface is accessible through Internet Explorer. It is recommended to run Internet Explorer as an **Administrator** for full access. The default IP address of the camera is 192.168.0.120, which can be changed after first login. If using Microsoft Edge, see *Streaming on Web Interface Using Microsoft Edge* to setup the webpage.

First Login

1. Run Internet Explorer as an **Administrator**
2. Type the IP address of the camera into the address bar (default is 192.168.0.120)
3. Wait for the page to load, it may be necessary to refresh the page if “Can’t reach this page” appears
4. When prompted, login to the web interface as shown below. Default credentials are
    a. User Name: admin
    b. Password: admin
5. Change the password if necessary

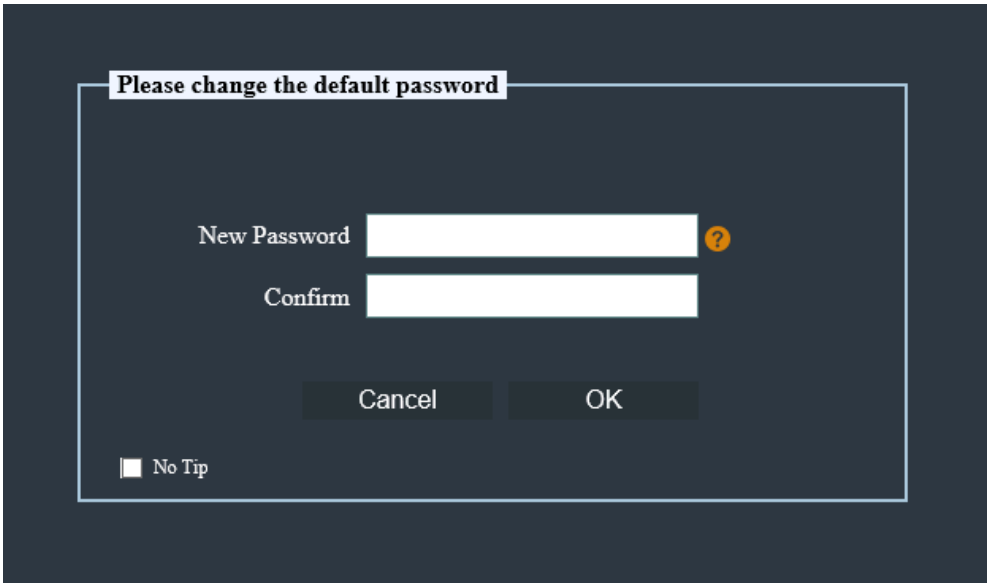
Further troubleshooting steps are available in *Troubleshooting/FAQ*.



Logging in with Default Credentials

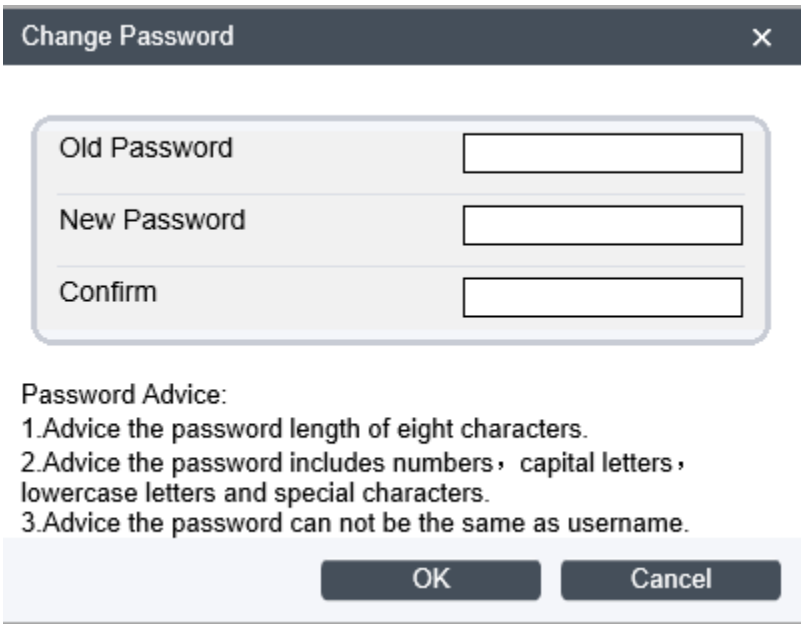
Changing the Password

It is recommended that a combination of numbers, characters, and symbols be used for increased security.



Default Password Change Page

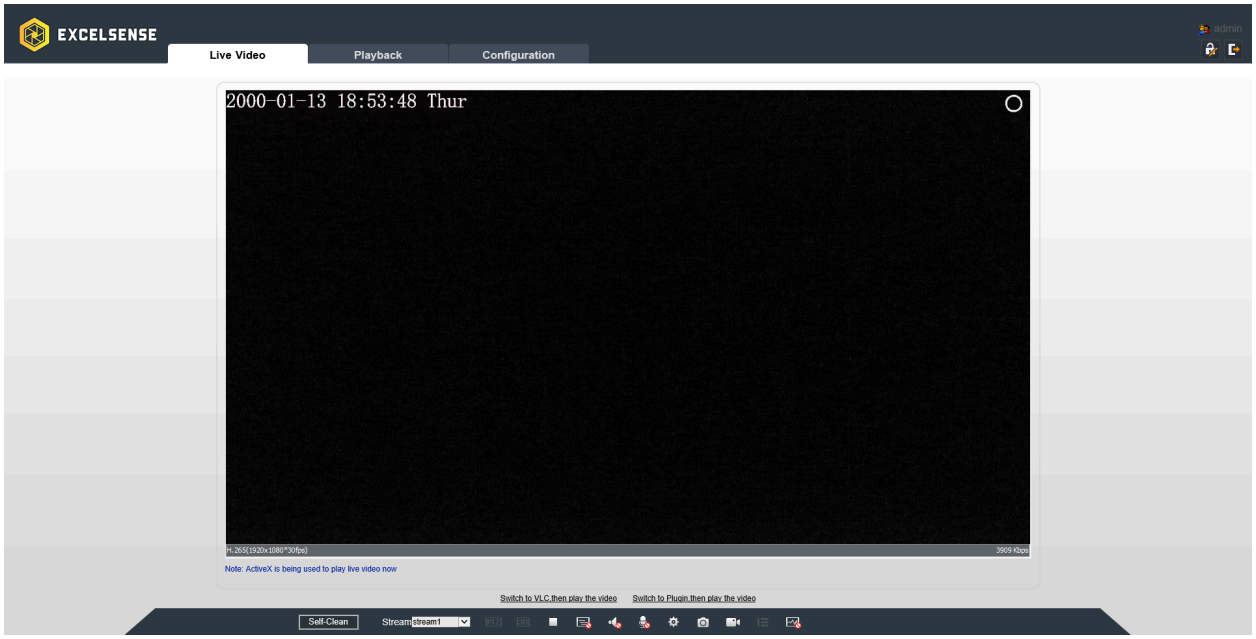
Passwords can be changed at any time by clicking the lock icon  at the upper right corner of the webpage.



Change Password Menu

Live Video Page

This is the main page where the live video stream can be accessed. Important features such as Self-Cleaning, snapshots, and recording can be activated from this screen.



Live Video Page

Display Screen

Double clicking the image will open full screen mode. Double clicking again or pressing ESC will exit full screen mode. The mouse scroll wheel can be used to zoom in and out of the picture. Selecting and dragging a rectangle on a portion of the image will zoom into the selected area. The right click context menu also brings up a list of available options.

On the Live Video page there are a variety of options available on the bottom row.

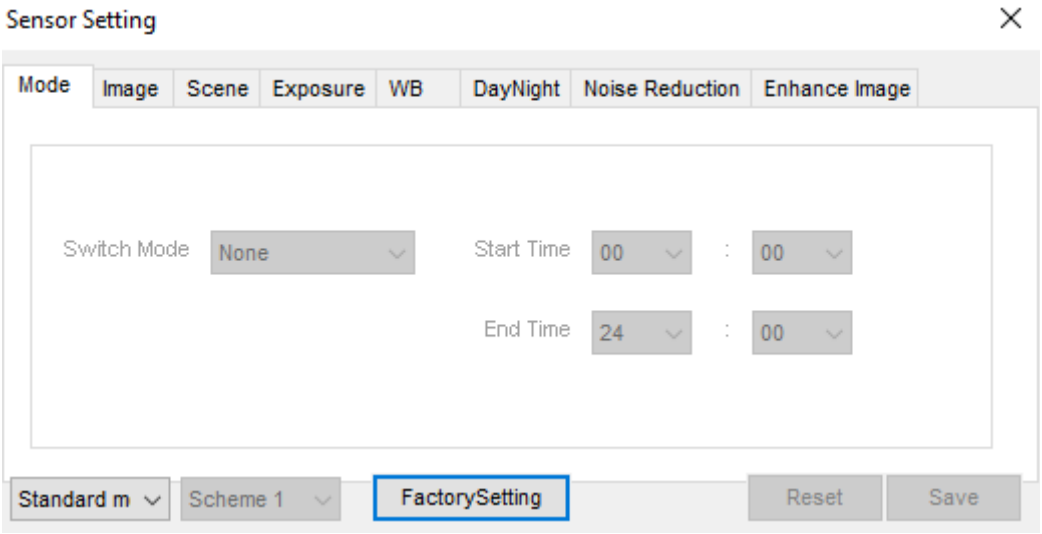
Self-Clean	Triggers a Self-Clean operation, only available on ToughEye-1700™
Stream	Allows the user to switch between multiple streams
Stop 	Stops playing the video
Play 	Starts playing the video
Live 	Toggles motion smoothing for video output (off by default)

Audio	Toggles audio (off by default)
Interphone	Toggles interphone (off by default)
Sensor	Brings up the menu for changing Sensor Settings. See *Sensor Setting*
Snapshot	Takes a snapshot of the current view and saves it locally. Save location can be changed in *Configuration->Local Config*
Local Record	Clicking this button starts recording, clicking again stops recording. The video will be saved locally in the selected Snapshot folder.
Intelligent Analysis	Toggles Intelligent Analysis (off by default)

PTZ and 3D functionality is not available, as the ToughEye-1700™ and ToughCam-1000™ cameras do not support these features.

Sensor Setting

The sensor setting menu controls image parameters that can be configured for different environments. Adjust these settings to change picture quality.



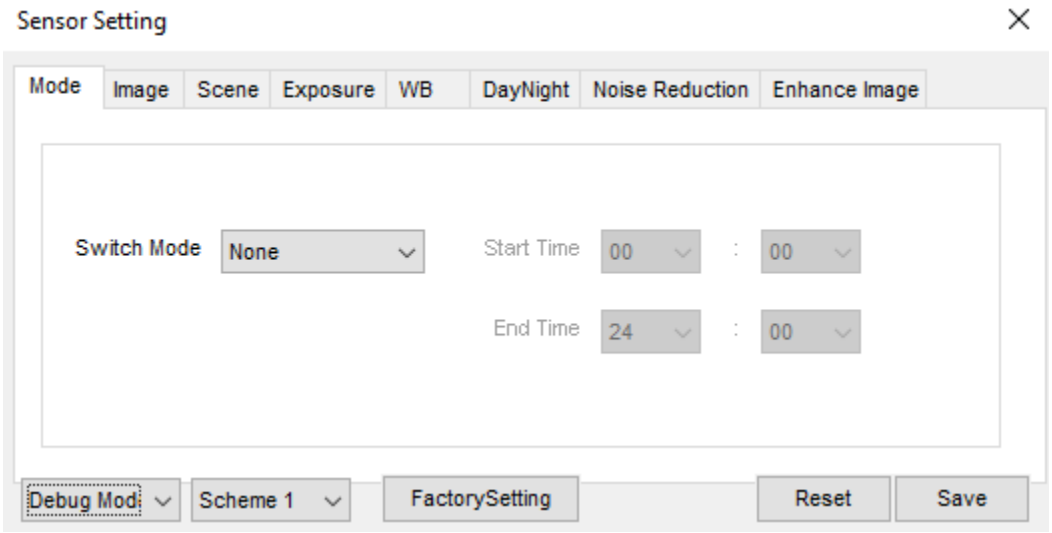
Sensor Setting Menu

Change ‘Standard mode’ in the bottom left dropdown menu to ‘Debug Mode’ to activate options that can be edited. Up to 4 schemes can be configured and applied depending on the scenario. The FactorySetting button will reset all changes to default settings. The Reset button resets settings to the last saved state. After making changes, clicking Save or X will prompt the save

confirmation dialog. Another dialog to switch from Debug mode to Standard mode will also appear. Click no to use custom settings.

Mode

Use the dropdown menus to select the Switch Mode, and Start / End times.



Debug mode on

Image

This menu controls image parameters.

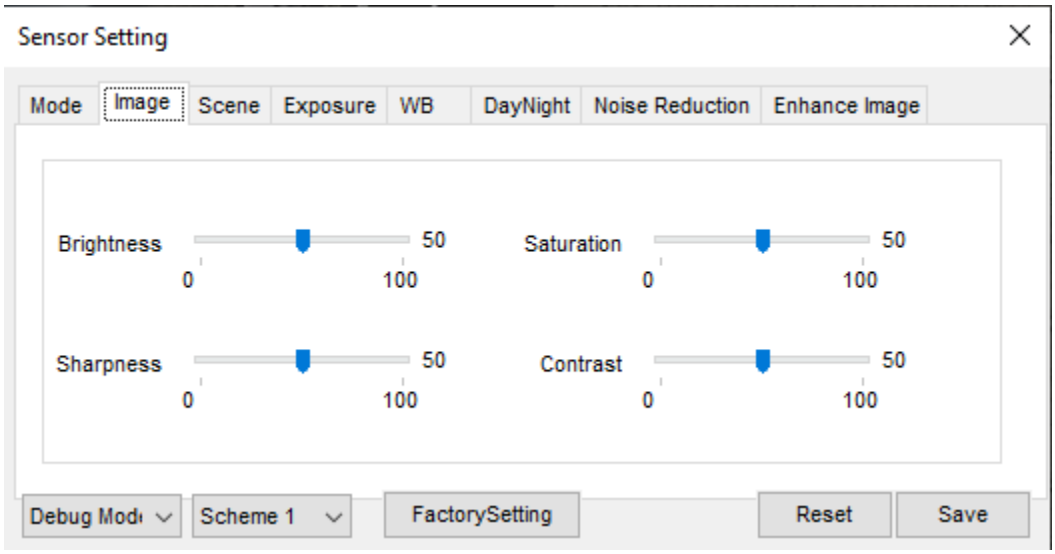


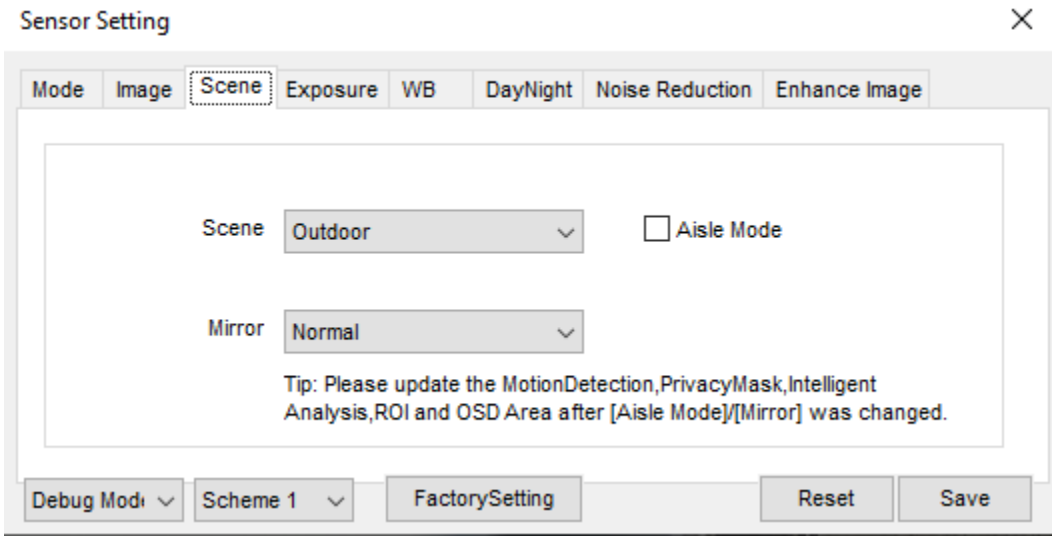
Image setting page

Brightness	The total brightness of the output image. As the value increases, the image becomes brighter. Exposure settings are independent, see *Exposure.*
Saturation	This setting controls the color purity of the image. As the value increases, the image becomes more deeply saturated.
Sharpness	Sharpness refers to the overall clarity in an image. As the value increases, the image becomes more defined.
Contrast	Contrast is the difference in color or brightness of objects relative to other objects in the same field of view.

50 is the default value for each of the parameters, and can be changed by dragging the slider to the desired level.

Scene

Different scenes can be selected based on the camera's operating environment.

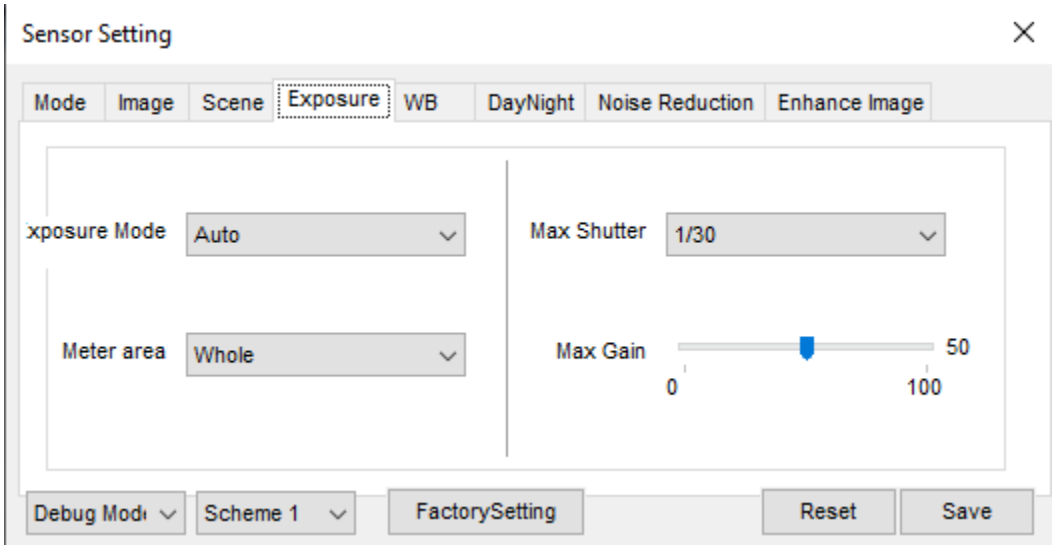


Scene options

Scene	**Outdoor**: Suited to outdoor scenarios **Indoor**: Suited to indoor scenarios
Mirror	**Normal**: Default image **Horizontal**: Image plane is mirrored about the Y-axis **Vertical**: Image plane is mirrored about the X-axis **Horizontal and Vertical**: Image plane is mirrored about the X and Y-axis
Aisle Mode	Rotates the image 90deg clockwise

Exposure

Different exposure controls can be set depending on the operating environment.

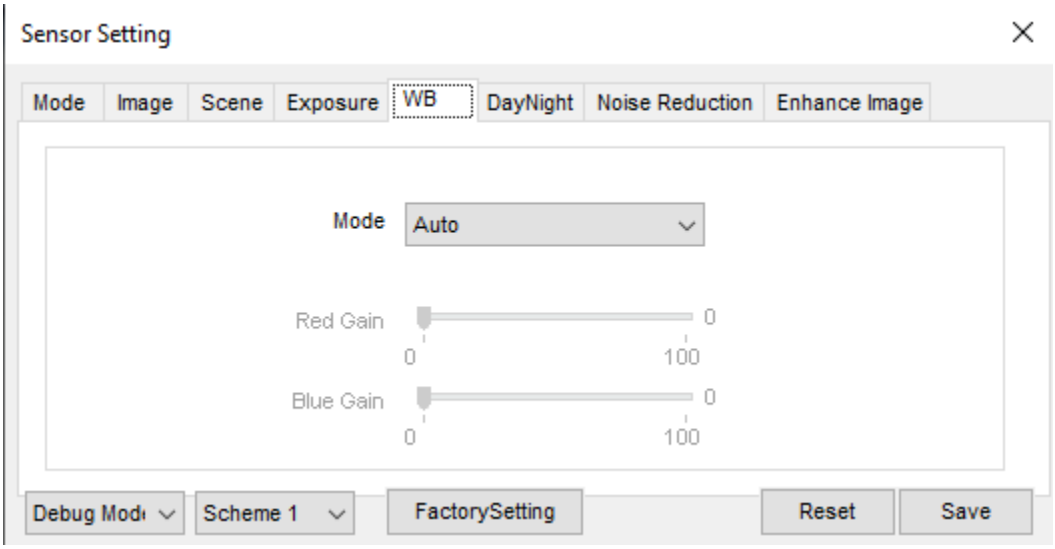


Exposure setting

Exposure Mode	**Auto**: Exposure is set automatically **Manual**: Exposure is set depending on Meter Area, Shutter Setting, and Gain Setting. **Shutter Priority**: Adjust the shutter speed to a fixed value. The iris and gain are automatically adjusted by the system.
Meter area	Metering refers to how the camera determines the correct shutter speed and aperture. **Whole**: Uses the entire image equally to weight the calculation for shutter and aperture parameters **Center spot**: The center of the image is used in the calculation **Center Area**: The middle area is weighted higher than the rest of the image in the calculation.
Max Shutter	Shutter speed adjusts automatically based on ambient brightness. The max shutter speed can be controlled from this dropdown menu.
Max Gain	Gain adjusts automatically based on external light, up to the maximum value specified by the user.

White Balance

color temperature can be controlled from this menu.



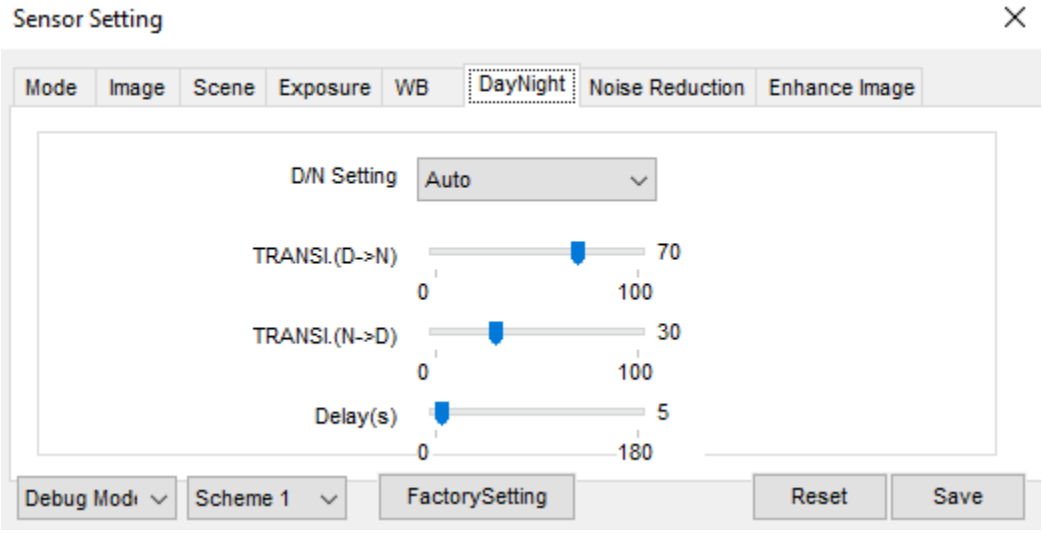
White Balance settings

White Balance

Mode	**Auto**: Automatically sets white balance based on image **Tungsten**: Balances the color temperature to tungsten light (makes the image cooler) **Fluorescent**: Balances the color temperature to fluorescent light (makes the image warmer) **Daylight**: Balances the color temperature to daylight (neutral shadows, cool sky, warm sun) **Shadow**: Balances the color temperature to shadows (makes the image warmer) **Manual**: Allows the user to set Red and Blue Gain
Red Gain	Controls the red tint of the image
Blue Gain	Controls the blue tint of the image

DayNight

This menu controls the time and speed for the camera to switch between day and night mode.

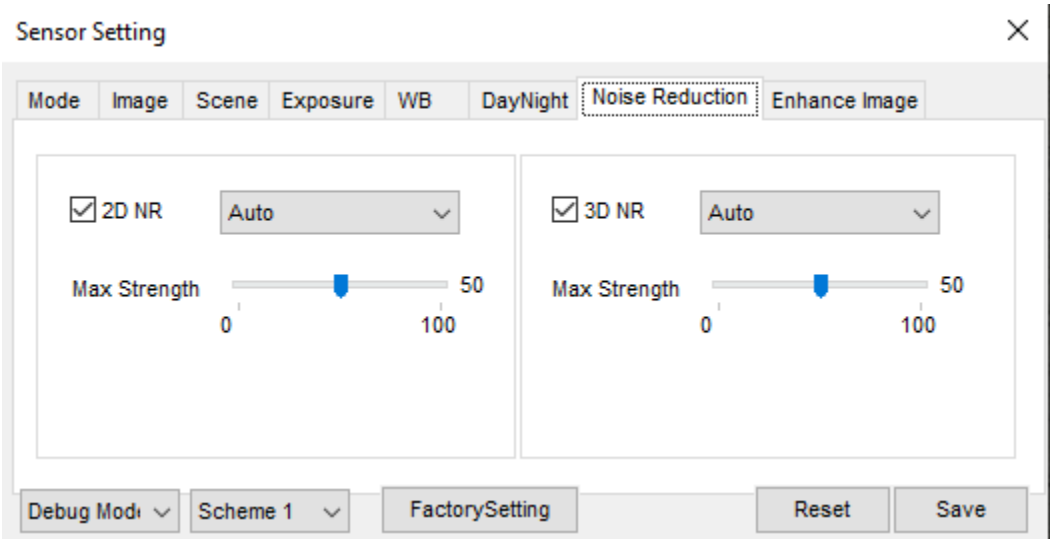


DayNight settings

D/N Setting	**Auto**: Image color is switched based on ambient brightness. In Night Mode, the stream is switched to grayscale. **Day Mode**: Camera is always in Day Mode. **Night Mode**: Camera is always in Night Mode. **Timing**: Sets specific timing for mode switching.
TRANSI (D->N)	This value determines the day to night switching. The transition will occur when the system gain is greater than the selected value.
TRANSI (N->D)	This value determines the night to day switching. The transition will occur when the system gain is lower than the selected value.
Delay(s)	Amount of transition delay in seconds

Noise Reduction

This menu allows for a noise reduction algorithm to be applied to the video stream. There can be random electronic signals during image processing which obscure picture data on a pixel level called noise. Unwanted noise is reduced if these settings are used.

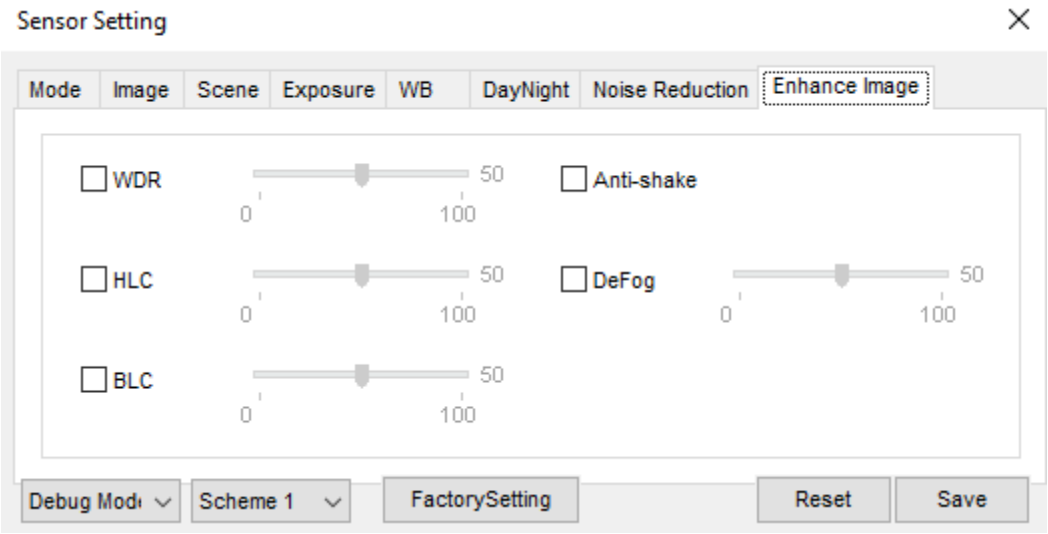


Noise Reduction Settings

2D NR	Reduce noise of image, algorithm based on analysis of individual frame (better results when used with moving objects)
3D NR	Reduce noise of image, algorithm based on difference between subsequent frames (more useful when applied to scenarios with little movement)
Max Strength	Sets the max strength of the noise reduction filter

Enhance Image

Additional image options to increase the picture quality.



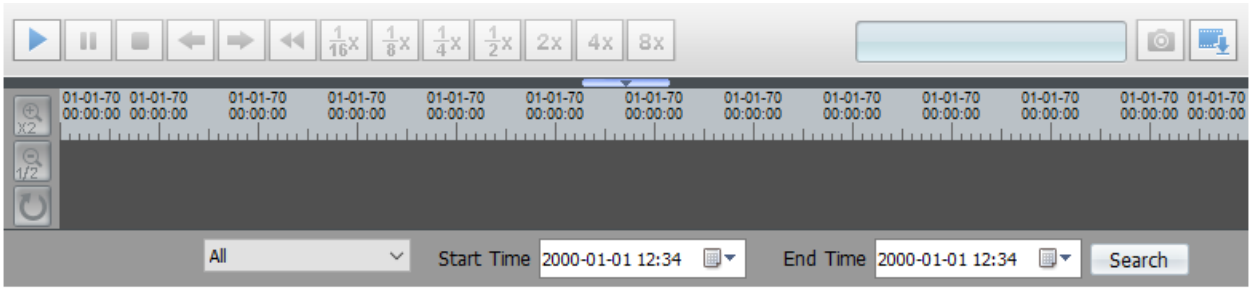
Enhance Image settings

WDR (Wide Dynamic Range)	Improves image quality under high contrast lighting conditions. E.g. bright foreground and dark background
HLC (HighLight Compensation)	The camera will compensate for points of bright lighting which interfere with the visibility of the image.
BLC (BackLight Compensation)	Compensates for bright background lighting which interferes with visibility of a subject in the foreground.
Anti-shake	Enabling this option will increase image stability in the event of camera shaking
DeFog	In a foggy environment, enabling this option increases the view clarity.

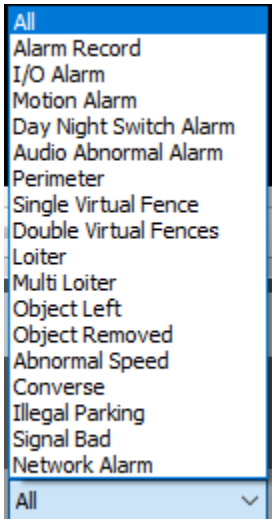
Playback Page

The playback mode allows the user to access and play back recorded video, as well as download stored video off the onboard storage to a local device. Querying videos is only possible if a SD card or NAS is connected.

There are a variety of controls that allow the user to change the playback speeds and search for recordings.



Playback Options

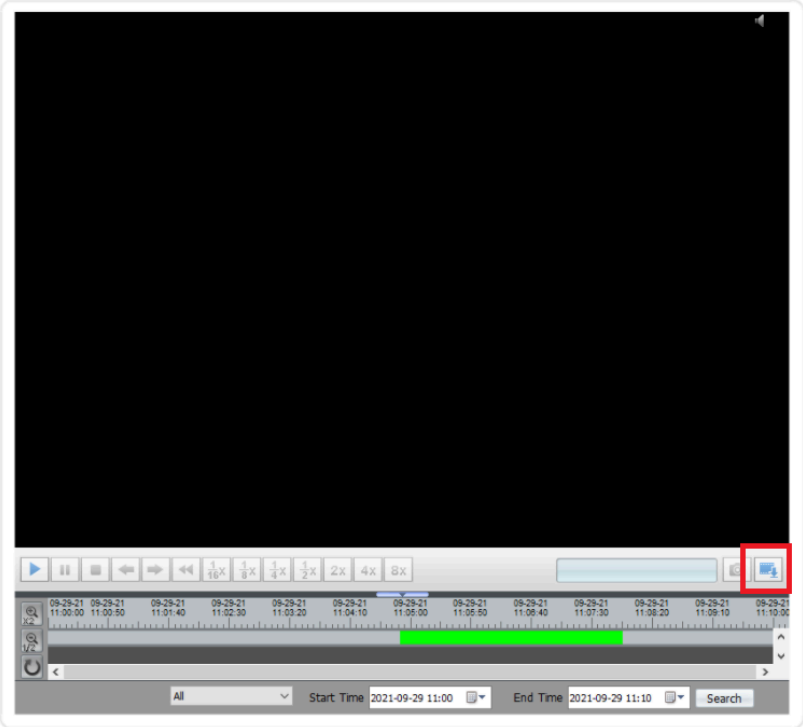


Scene Filter Menu

If the camera is configured to record in the event of an alarm, this dropdown menu can filter by type of alarm triggered.

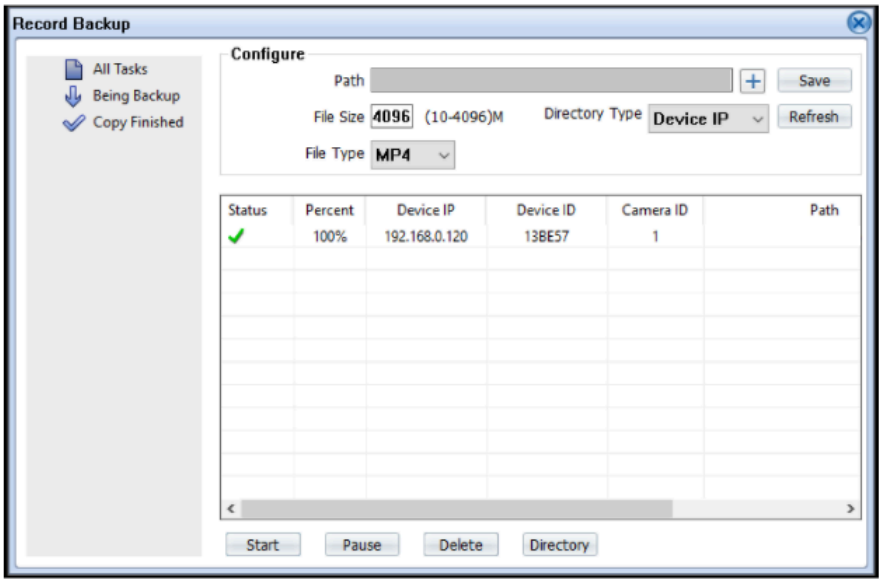
Download Local Recordings using the Web Interface

To download the local recordings, navigate to the Playback page on the web interface.



Playback Menu

To configure the download settings, click the Backup button shown above. The following window will appear.



Recording Settings Menu

Choose the destination path by clicking the “+” button next to the Path textbox. Click Save to close the window.

To find the desired recordings, select the start and end dates and times and click Search. The recordings will appear as bright green sections in the timeline at the bottom of the page.

Once the desired recordings have been found, click and drag over the desired section of footage to be downloaded. The selected section will turn blue. Right-click on the section and select Backup.

The Record Backup window will appear again. If the download doesn’t start automatically, click on the line item pertaining to the IP address of the desired camera. The files will be downloaded to the location selected in the Path textbox.

Configuration Page

The configuration page displays configurable camera settings and information about the camera. Settings can be confirmed and applied either by clicking the ✔ **checkmark** or ‘**Apply**’ button.

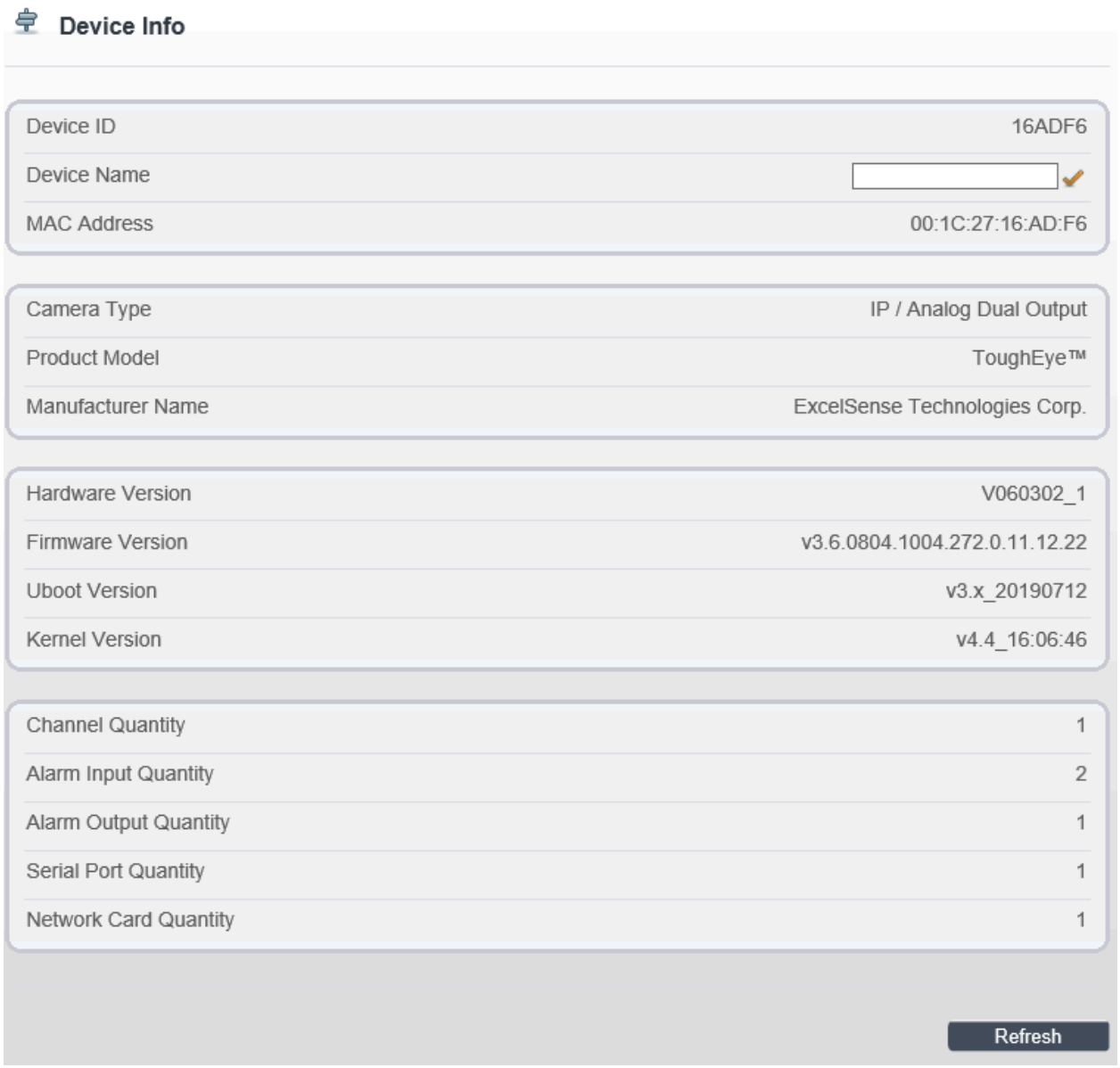
Important Note: When applying any changes to camera settings, it is extremely important to understand that the changes are permanently saved only if one of the following conditions are met:

1. Camera remains powered for 3 minutes after the change has been applied (i.e. the *Apply* button has been clicked), or
2. A software restart is initiated (Configuration > Maintenance > Restart).

All camera settings can be accessed and modified in this page, including streaming video quality, IP settings, local recording, etc.

Device Info

This page displays relevant camera information. The device name can be set from this menu. The device name cannot exceed 32 bytes.

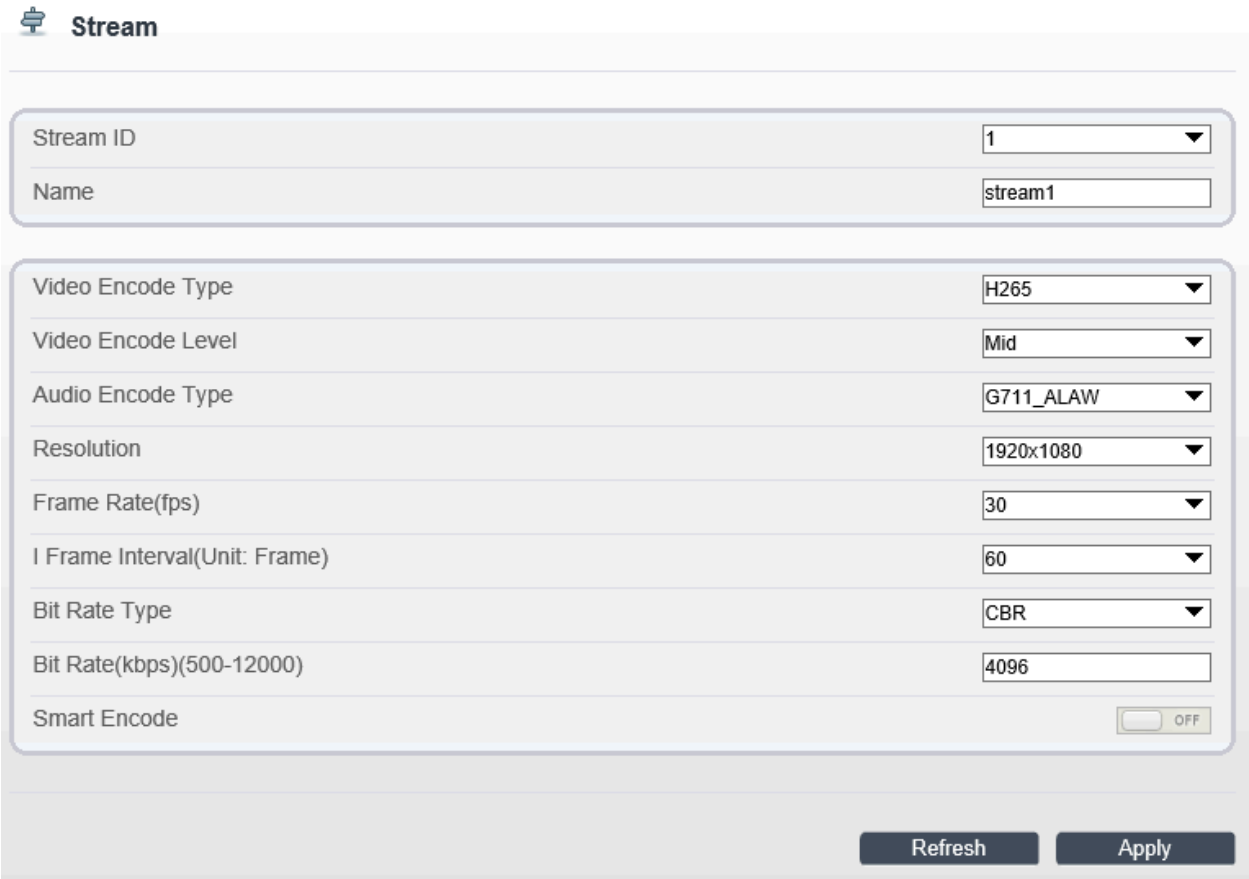


Device Information Page

Stream

Video stream settings can be configured in this menu page. Multiple streams can be configured independently and changed depending on the scenario.

Base Stream



Base Stream Settings

Stream ID	The device supports two streams. Streams 1 and 2 use the H.264 codec. The maximum resolution can be set for streams 1. Only a low resolution can be set for stream 2.
Name	Value cannot exceed 32 bytes
Video Encode Type	The video codec determines the image quality and network bandwidth required by a video. Currently, the following codec standards are supported **MJPEG**: MJPEG is a standard intra-frame compression codec. The compressed image quality is good. No mosaic is displayed on motion images. MJPEG does not support proportional compression and requires large storage space. Recording and network transmission requires increased hard disk space and bandwidth. MJPEG is not applicable to continuous recording for a long period of time or network transmission of videos. It can be used to send alarm images.

	H.264: H.264 consists of H.264 Base Profile, H.264 Main Profile, and H.264 High profile. The higher the profile, the more features are used while encoding, which typically improves the bandwidth and quality. However, the decoding device has to be able to meet the same requirements. Choose an appropriate encoding codec based on the decoding performance. The performance of H.264 High Profile ranks higher than that of H.264 Main Profile, which ranks higher than H.264 Base Profile. If a hardware decoding device is used, select the appropriate codec based on the decoding performance of the device. H.264 High Profile has the highest requirements on hardware performance. **H.265**: H.265 is a new video encoding standard, improving H.264. H.265 improves the streams, encoding quality, and algorithm complexity.
Audio Encode Type	**Note** that ToughEye and ToughCam cameras do not a microphone. The following audio codec standards are supported **G711_ULAW**: mainly used in North America and Japan. **G711_ALAW**: mainly used in Europe and other areas. **RAW_PCM**: codec of the original audio data. This codec is often used for platform data.
Resolution	Pixel density of the image
Frame Rate (fps)	The frame rate is used to measure displayed frames. Frame rates for different frequencies are as follows: PAL 50 Hz: 1–25 fps NTSC 60 Hz: 1–30 fs **NOTE** Though 60fps is available, it is not recommended for use due to increased latency. The frequency is set on the Device Configuration > Camera page. The highest MJPEG coding format frame rate is 12 frames per second.
I Frame Interval (f)	I frames do not require other frames to decode. A smaller I frame interval results in the camera recovering more quickly from encoding/decoding errors.
Bit Rate Type	The bit rate is the number of bits (data) transmitted per unit of time. **Constant bit rate (CBR)**: The compression speed is fast; however, an improperly set bitrate may lead to loss of quality.

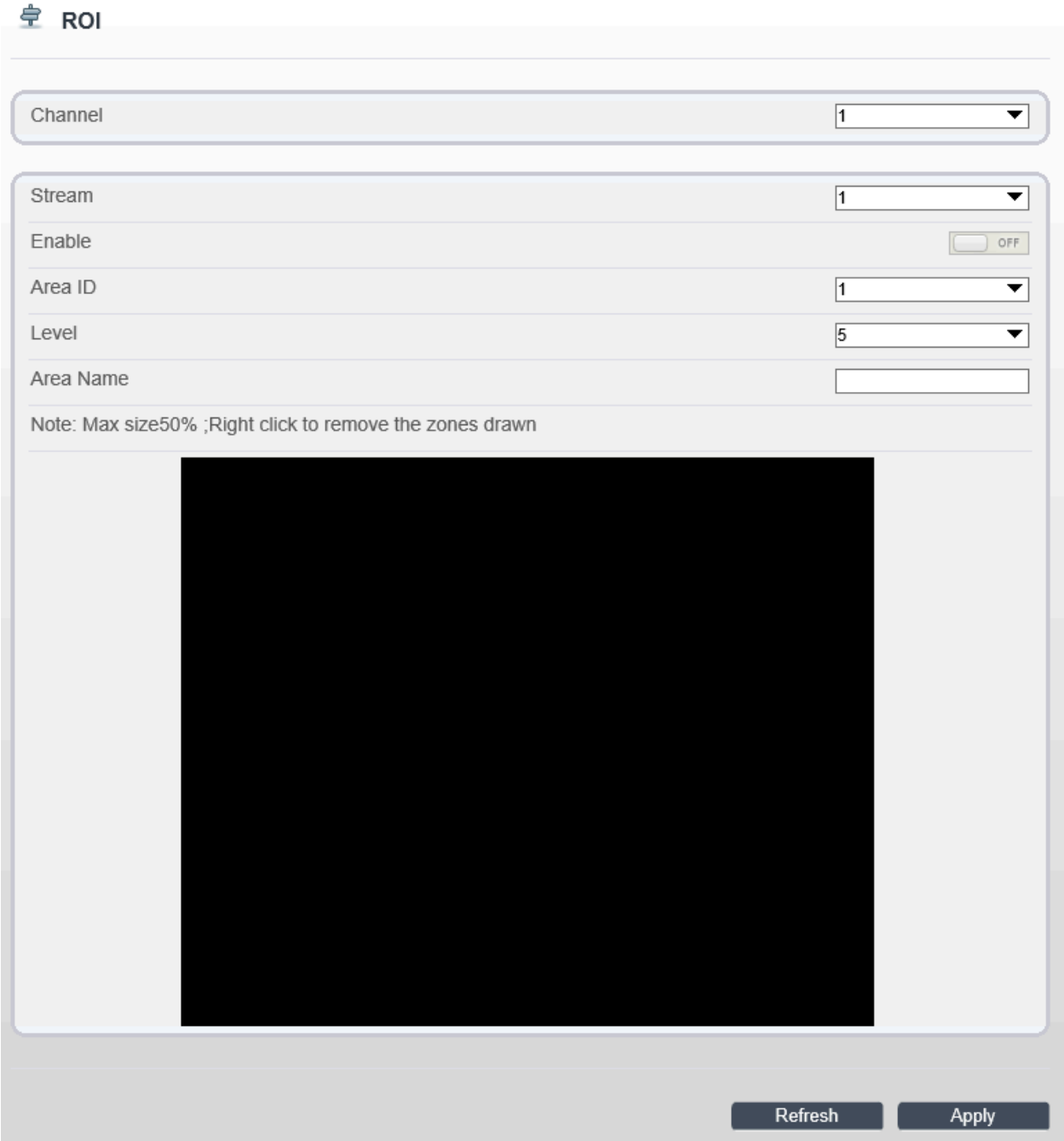
	Variable bit rate (VBR): The bit rate changes according to the image complexity. The encoding efficiency is high and the definition of motion images can be ensured.
Max bit Rate (500-12000)	Indicates the maximum value of the bit rate.
Image Quality	The picture quality of the camera output.
Smart Encode	The required storage space will be reduced by up to fifty percent when smart encode is enabled. Smart encode includes H.264 & H.265 on the main stream only **NOTE** Quality may degrade with smart encode enabled. Please ensure stream quality is satisfactory with this option enabled.

SVC Stream

SVC Stream Menu

SVC Stream ID	The ID of the SVC stream. Only 1 service stream is available
SVC Stream Name	Stream name.
Elementary Stream ID	The ID of the base stream to attach to. This can be either stream 1 or stream 2
P Frame Rate	The fractional frame rate of the service stream. For example if stream 1 is set at 30 FPS and the P Frame Rate option is set to ½, then the service stream will have 15 FPS.

ROI (Region of Interest)

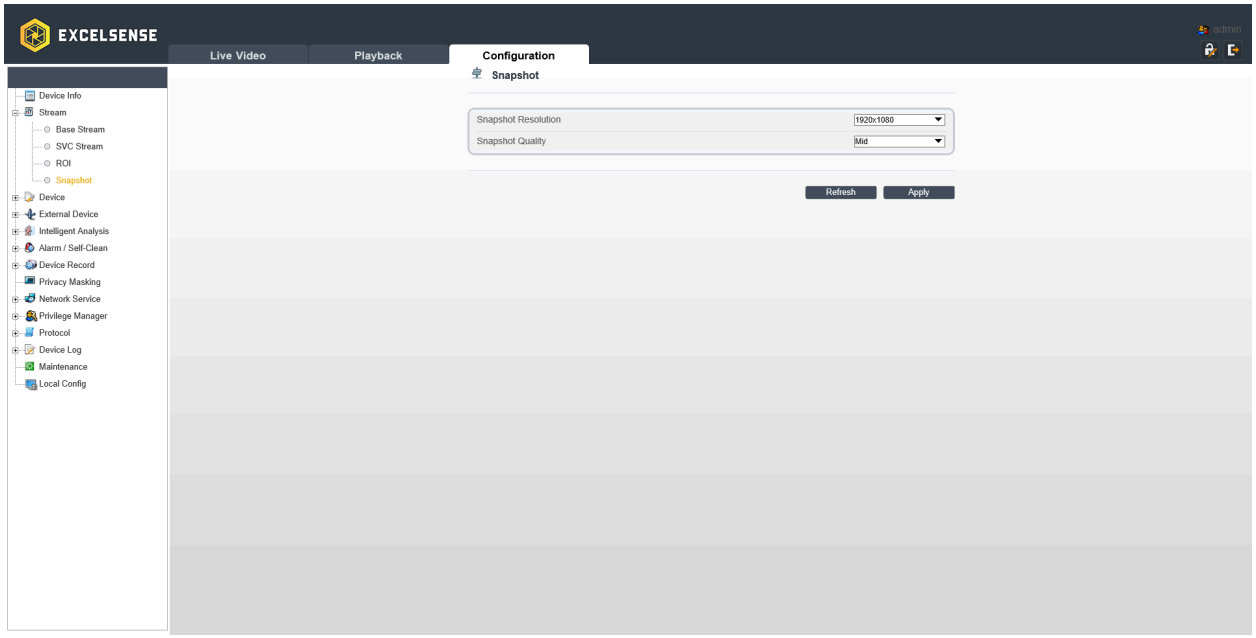


ROI Menu

Stream	Stream ID.
Enable	Enable the ROI
Area ID	ROI area ID

Level	Visual effect of ROI. The higher the grade is, the more clearly areas inside and the vaguer areas outside are.
Area Name	The marked name used for areas.

Snapshot



Snapshot Settings

Snapshot Resolution	Select the resolution of captured snapshots
Snapshot Quality	Select the compression quality of captured snapshots

Device

Common device settings and configurations, as well as information about the device.

Local Network

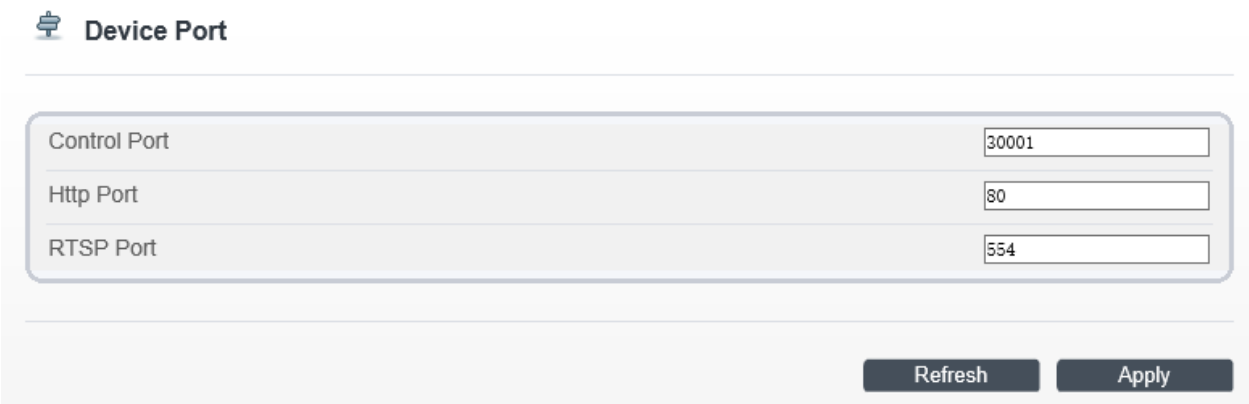
Local Network Menu

IP Protocol	IPv4 is the IP protocol that uses an address length of 32 bits.
DHCP IP	IP address that the DHCP server assigned to the device.
Preferred DNS Server	IP address of the preferred DNS server.
Alternate DNS Server	IP address of the alternate domain server. If the preferred DNS server is faulty, the device uses the alternate DNS server to resolve domain names.
MTU	Set the maximum size of network transmission data packets.

Local Network Menu with DCHP Off

IP Address	Device IP address that can be set as required.
Subnet Mask	Subnet mask of the network adapter.
Default Gateway	This parameter must be set if the client accesses the device through a gateway.

Device Port

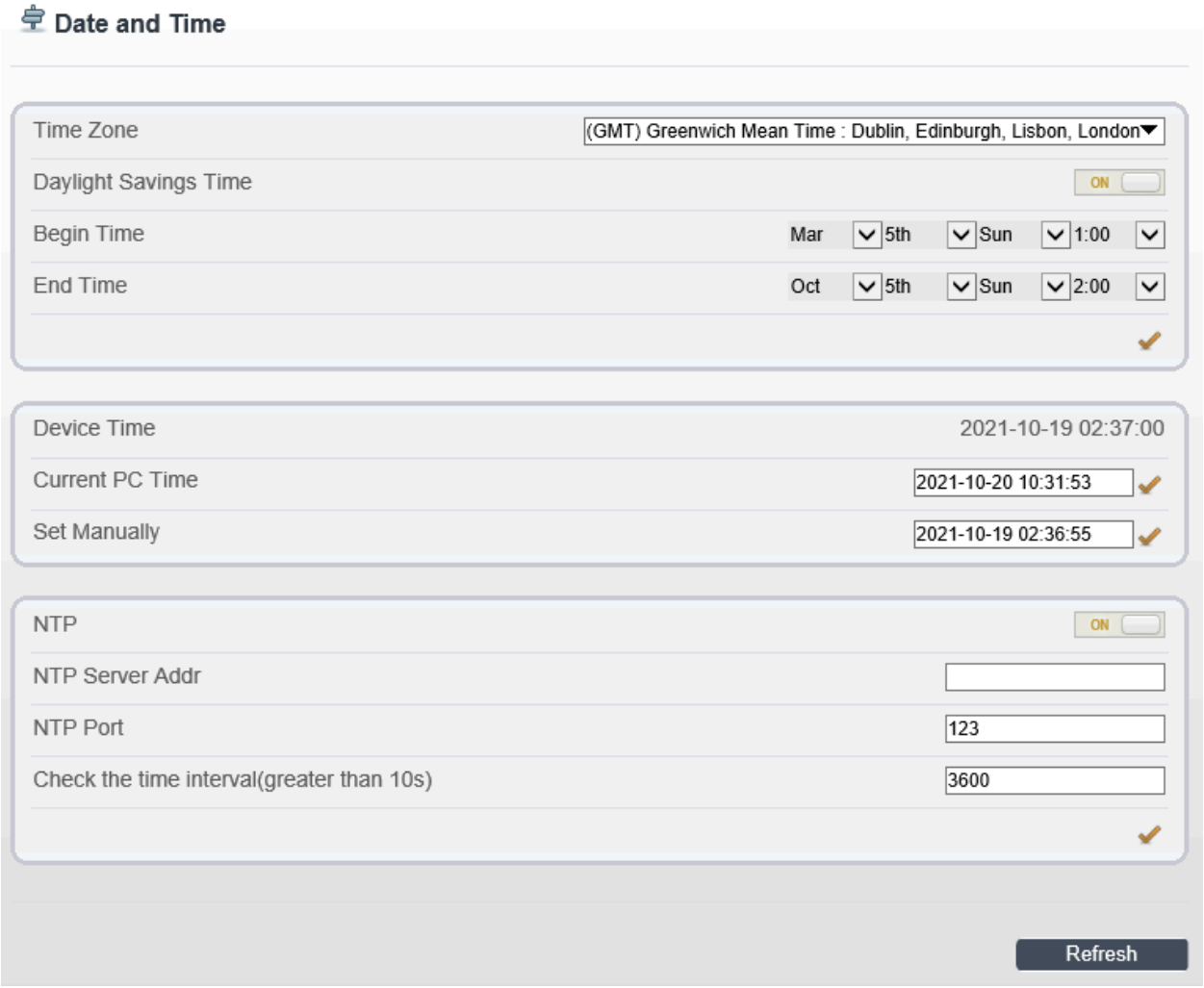


Device Port Menu

Control Port	Port used for audio and video transfer and signaling interaction.
HTTP Port	Port used in web access.
RTSP Port	RTSP protocol port.

It is not recommended to modify the control port settings.

Date and Time

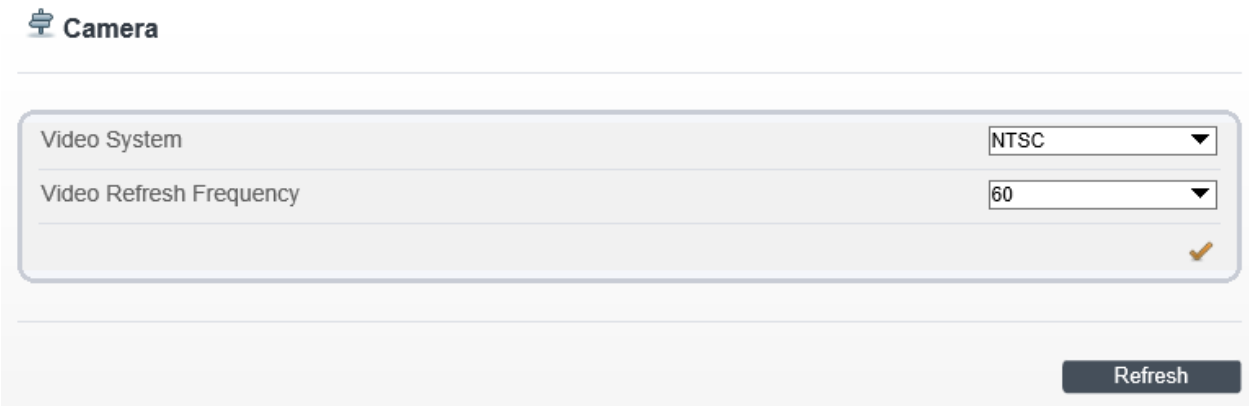


Date and Time settings

Time Zone	Sets the camera time zone
Daylight Saving Time	When the DST start time arrives, the device time automatically goes forward one hour. When the DST end time arrives, the device time automatically goes backward one hour.
Device Time	Device display time.
Current PC Time	Time on the current PC.
Set Manually	Enables the user to manually set the device time.
NTP	Enables usage of NTP
NTP Server Addr	IP address or domain name of the NTP server.

NTP Port	Port number of the NTP server.
Check the time interval (greater than 10s)	Set a time interval to check if the device time is synchronized with the NTP server time. Default value is 3600s

Camera

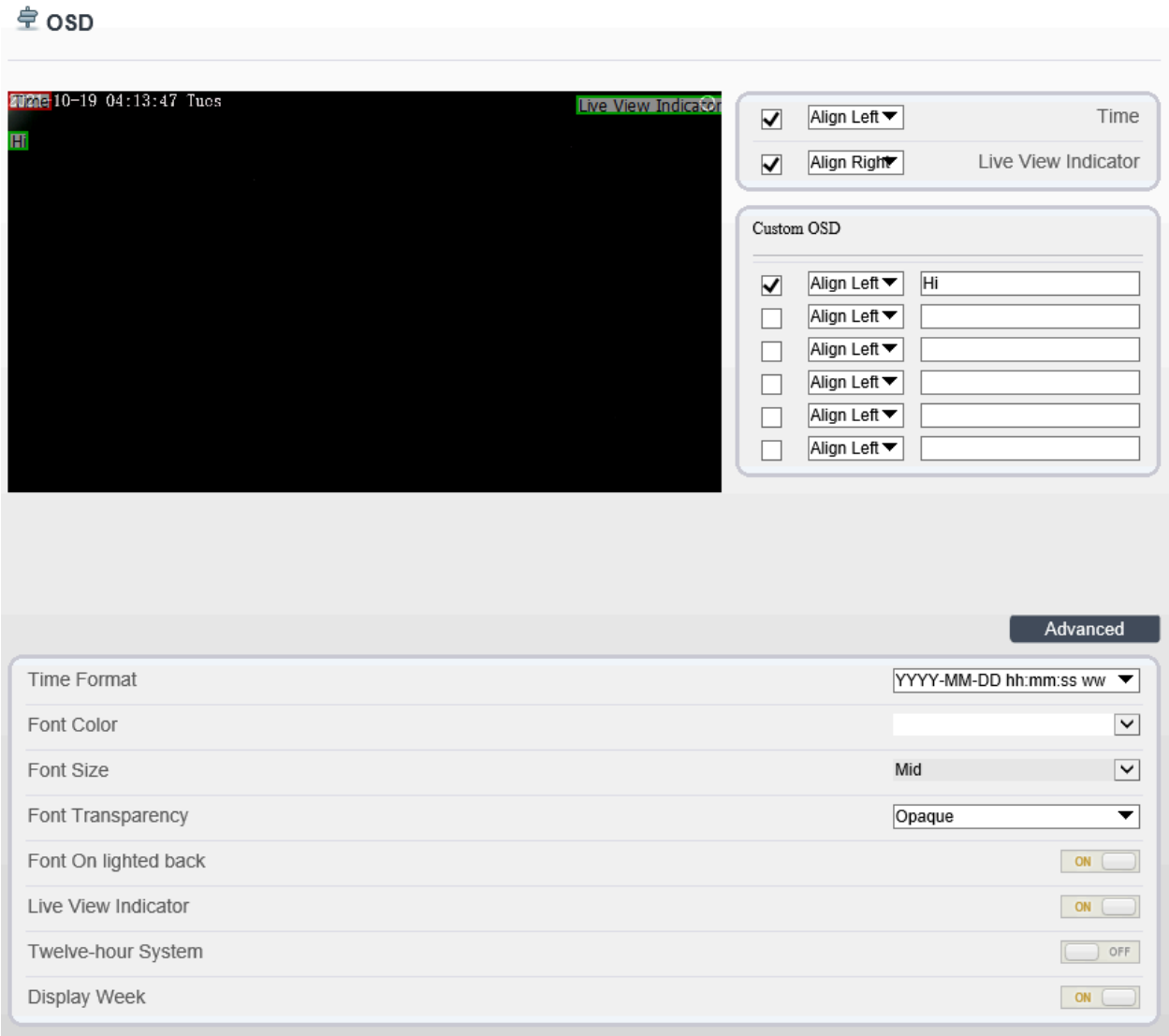


Camera Menu

Video System	**PAL**: Used in Europe and China mainland. **NTSC**: Used in USA and Japan. **NOTE** These settings affect the camera's analog output on the ToughEye-1700™
Video Refresh Frequency	**50 Hz**: corresponds to the PAL system. **60 Hz**: corresponds to NTSC system.

OSD (On Screen Display)

The OSD function allows you to display the device name, channel ID and name, time, and other customized contents on videos. When the resolution is D1 and CIF, the OSD customized in web interface can show at most 22 words normally.
The OSD supports simplified Chinese, English, digital and some special characters only.



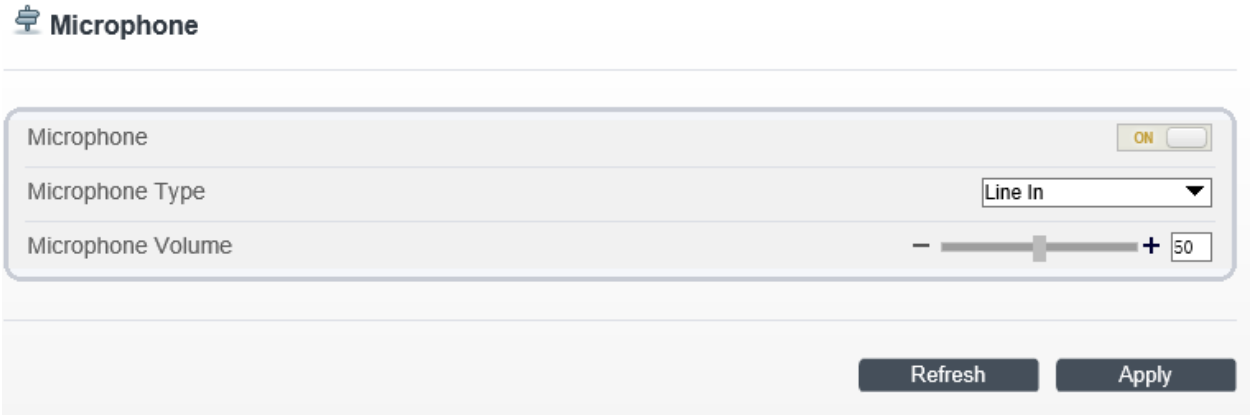
OSD Menu

Time	Indicates whether to display the time.
Custom OSD	Enables you to enter a line of characters.
Time Format	Format in which the time is displayed.
Font Color	Set the font color.
Font Size	Set the font size.
Font Transparency	Set the font transparency.
Font On lighted back	If the contrast between the text and background image is low, the font color will change to a higher contrast color. I.e. text will switch from white to black font if the background is white.

Live View Indicator	Enables or disables the live view indicator (circle with moving quadrants)
Twelve-hour system	Displays 12 or 24 hour clock
Display Week	Indicates whether to display the day of the week

Microphone

Note that there is no integrated microphone on the ToughEye-1700™ and ToughCam-1000™ cameras.

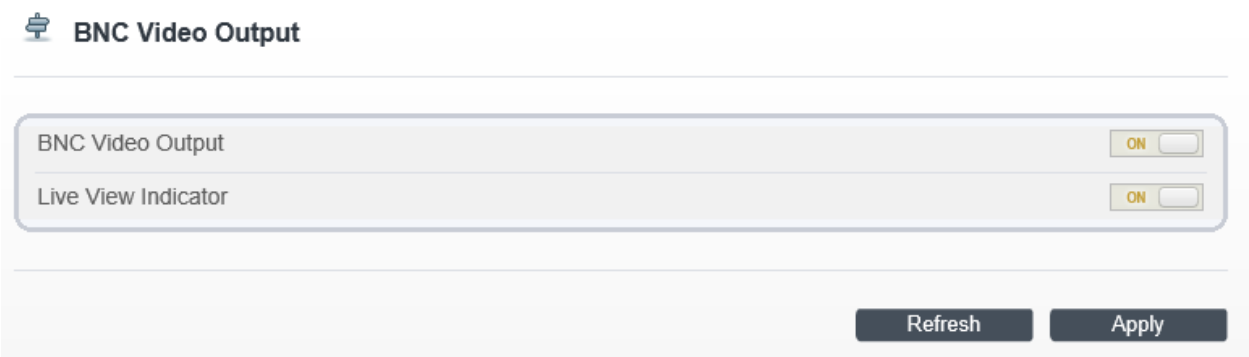


Microphone Settings

Microphone	Indicates whether to enable the microphone function.
Microphone Type	**Line In**: An active audio input is required.
Microphone Volume	Allows you to adjust the microphone volume.

CVBS (Composite Video Baseband Signal)

A display device must be connected to the VIDEO OUT port. When the analog output function is enabled, the IP camera can send analog signals to a video server or display device through the VIDEO OUT port.



BNC Video Output Menu

BNC Video Output	Enable/Disable the analog stream
Live View Indicator	Enable/Disable the live view indicator on the analog stream

System

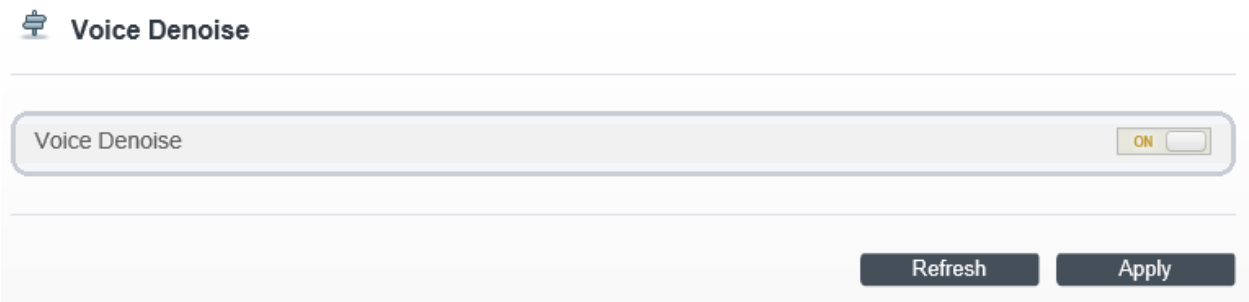
System Settings

Language	Sets system language
Web Mode	Secured or unsecured communication over the network
CA Cert	Location of CA Certificate
Server Cert	Location of Server Certificate
Server Key	Location of Server Key

A restart may be required to save changes.

Voice Denoise

On the Voice Denoise page, you can enable the Voice Denoise to reduce the effect of external environmental noise. Note that there is no integrated microphone on the ToughEye-1700™ and ToughCam-1000™ cameras.



Voice Denoise Menu

Software Licenses

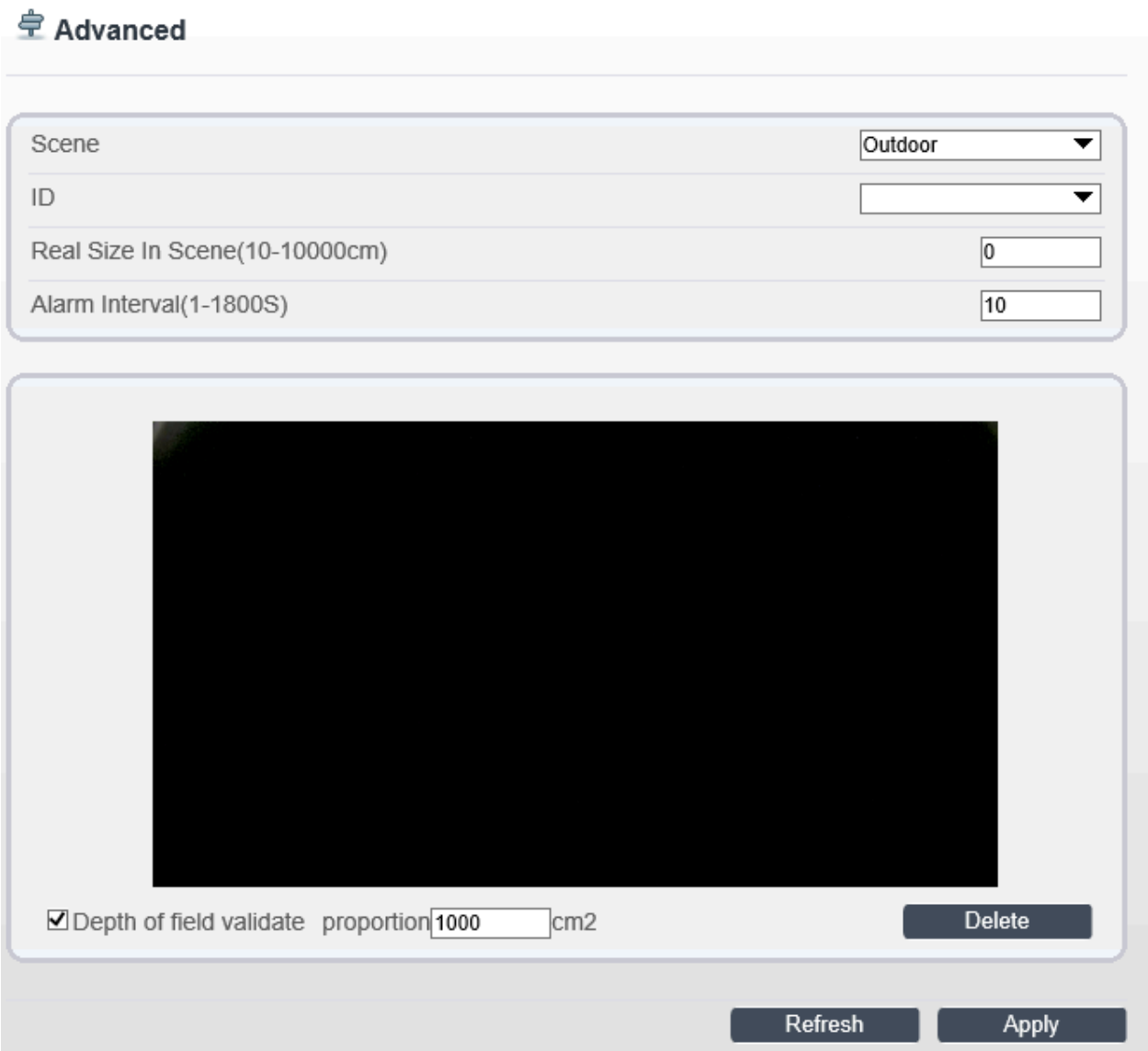
View open source software licenses from this page.

Intelligent Analysis

The performance of intelligent analysis features is not guaranteed and should be evaluated by users to ensure suitability for individual applications. These features are provided as is.

Advanced

These advanced settings apply to each of the Intelligent Analysis Functions. Review these settings first before enabling the Intelligent Analysis Functions.



Advanced Settings Menu

Draw lines in advanced parameters Interface so that the true object has a mapping relation with the image object. The method and rules for drawing line as below:

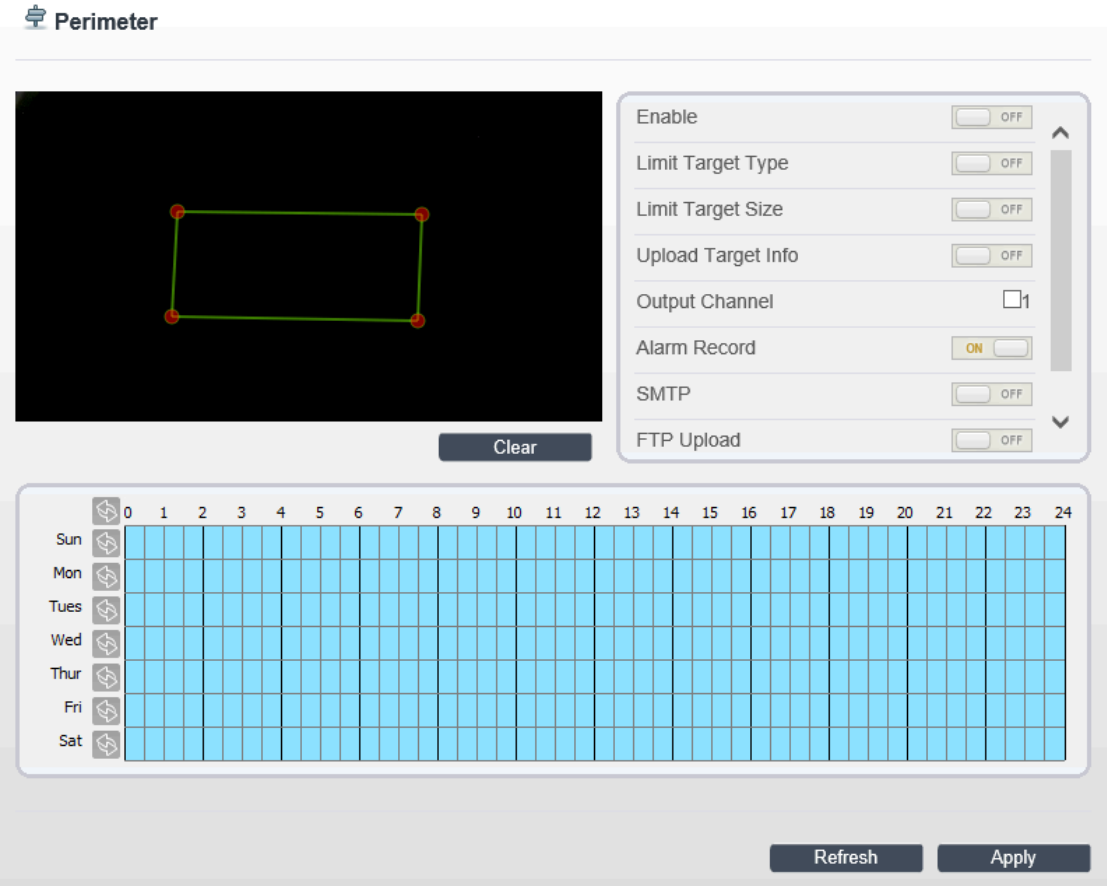
- 2-4 vertical lines or 2 vertical lines and 2 ground lines need to be entered.
- In the case of low marking requirements, two vertical lines can meet most scene requirements. Normally, the vertical line is marked based on person height.
- The lines are distributed near and far. Two vertical lines are in the scene, one near and the other far. On the screen, draw a vertical line along the target object height, measure the actual length of this target , and enter the actual length in Real Size in Scene box for saving. Similarly, two horizontal lines on the ground are in the scene, one near and the other far. Measure and enter the actual length.
- Click a marking line (turning red after clicking) and click Delete to delete the marking line

- Click a marking line (turning red after clicking), to modify the marking line data. You can also modify the line parameters by selecting a number and enter the actual size in Real Size in Scene box on the advanced parameter interface.

Scene	The scene in which the camera was installed. Select indoor/outdoor based on the Environment.
ID	Mark the line based on the ID of the line, select the according line by the ID.
Real Size in scene (cm)	Length of line according to the real size in the scene. The setting range is 10 - 10,000 cm.
Depth of field validate	Validate the size of the setting area in the scene according to the marking line.

Perimeter

The perimeter function refers to that an alarm is generated when the targets of specified types (such as person, car, and both person and car) enter the deployment area.



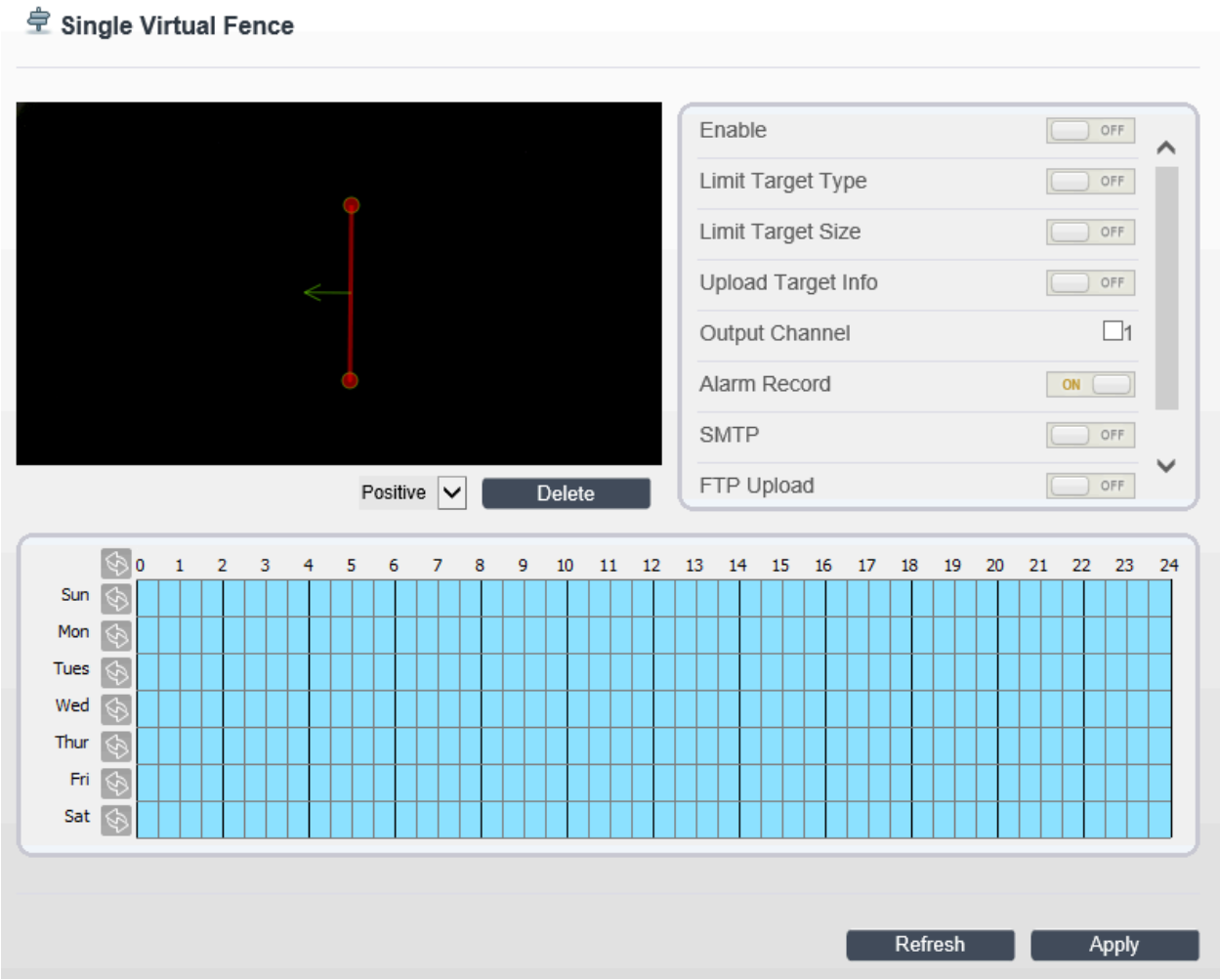
Perimeter Setting Menu with Deployment Perimeter Drawn

Enable	Enables the Perimeter Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page  .
Limit Target Type	Effective alarms are set based on target type, with options of Person and/or Car. If the device is used indoors, alarms may be triggered by a person even if 'Car' is selected, leading to false alarms. It is recommended to set the target type to 'Person' for indoor use.
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set "Real size in scene" in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.
Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Single Virtual Fence

This option allows the user to set a line and direction in the field of view. If an object (such as a car or person) crosses the line in the specified direction, an alarm will be generated.



Single Virtual Fence Settings with Virtual Fence Drawn

Enable	Enables the Single Virtual Fence Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page .
Limit Target Type	Effective alarms are set based on target type, with options of Person and/or Car. If the device is used indoors, alarms may be triggered by a person even if 'Car' is selected, leading to false alarms. It is recommended to set the target type to 'Person' for indoor use.
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set "Real size in scene" in advanced

	parameters, otherwise no alarms may be generated. See *Advanced* for details.
Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

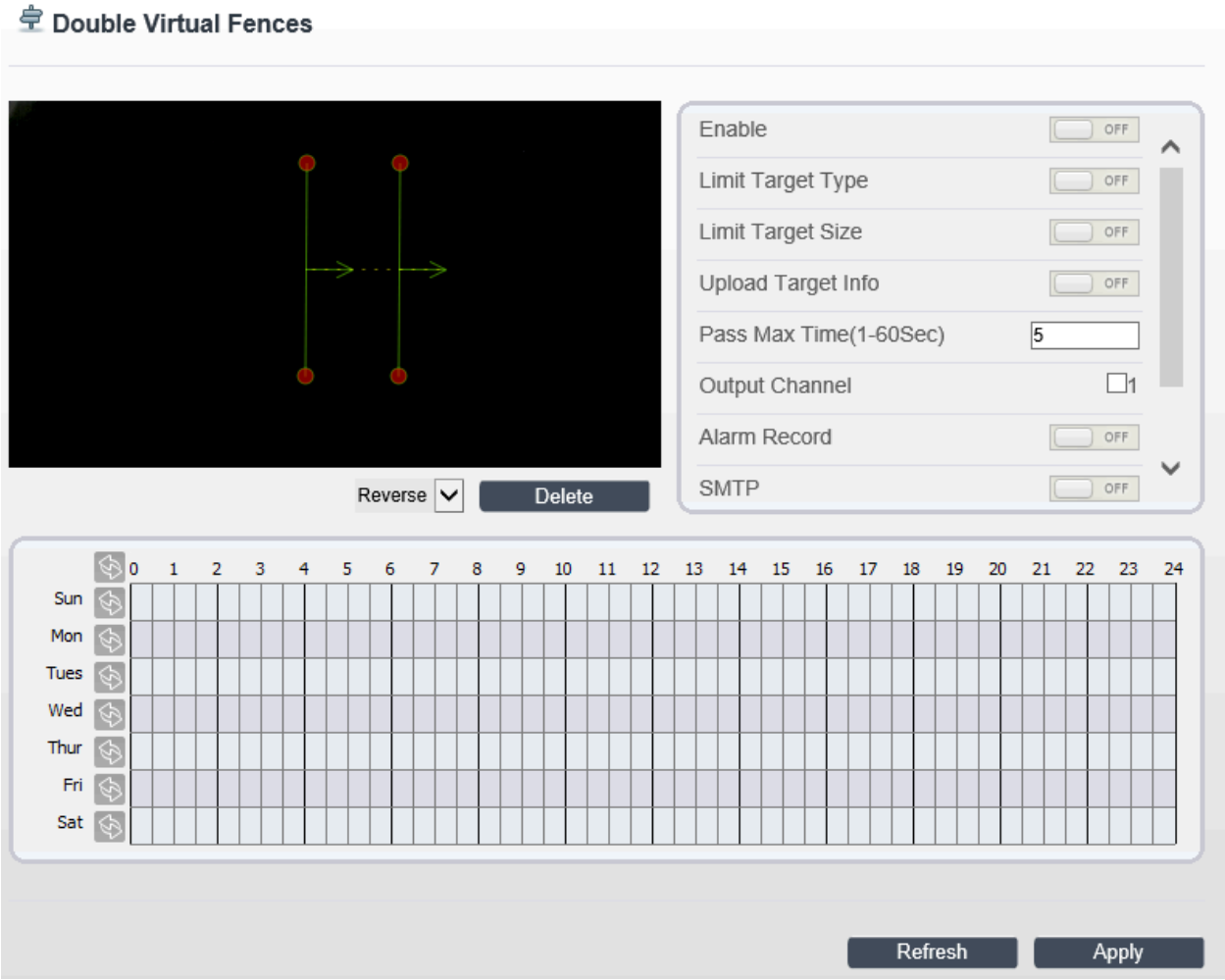
To set a deployment area:
Drawing a line: move the cursor to the drawing interface, hold down the left mouse button, and move the cursor to draw a line. When you release the left mouse button, a single virtual fence is generated.
Setting a single virtual fence: click a line (and the trip line turns red) to select the single virtual fence and set its direction as positive, reverse or bidirectional, or delete the selected line. You can also press and hold the left mouse button at the endpoint of a single virtual fence and move the mouse to modify the position and length of this single virtual fence. You can right click to delete the single virtual fence.

Operating Notes

- A single virtual fence is not within any deployment area, therefore, when an alarm is generated, the trace always exists. Only when the target object moves out of the field of view, the trace disappears.
- Try to draw the single virtual fence in the middle of the view, target recognition takes time after the target appears on screen. An alarm is generated only when the object is recognized to have crossed the single virtual fence.
- Make sure the virtual fence is long enough, a short single virtual fence may miss targets.

Double Virtual Fences

This option will allow the user to generate two fence lines within the field of view. If the object crosses both lines in a specified duration, an alarm is generated.



Double Virtual Fence Settings with Virtual Fence Drawn

Enable	Enables the Double Virtual Fence Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page .
Limit Target Type	Effective alarms are set based on target type, with options of Person and/or Car. If the device is used indoors, alarms may be triggered by a person even if 'Car' is selected, leading to false alarms. It is recommended to set the target type to 'Person' for indoor use.
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set "Real size in scene" in advanced

	parameters, otherwise no alarms may be generated. See *Advanced* for details.
Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Pass Max Time (seconds)	An alarm is generated only when the time taken to cross the double virtual fences is less than the value. The default value is 10 seconds and the setting range is 1-60 seconds.
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

To set a deployment area:
Drawing a line: move the cursor to the drawing interface, hold down the left mouse button, and move the cursor to draw a line. When you release the left mouse button, the virtual fence is generated.
Setting double virtual fences: Click one of the double virtual fences (and the virtual fence turns red) to select this virtual fence and set the direction to Positive or Reverse, or delete the selected line. You can also press and hold the left mouse button at the endpoint of a virtual fence and move the mouse to modify the position and length of this virtual fence. You can right click or press 'Delete' to delete the double virtual fences.

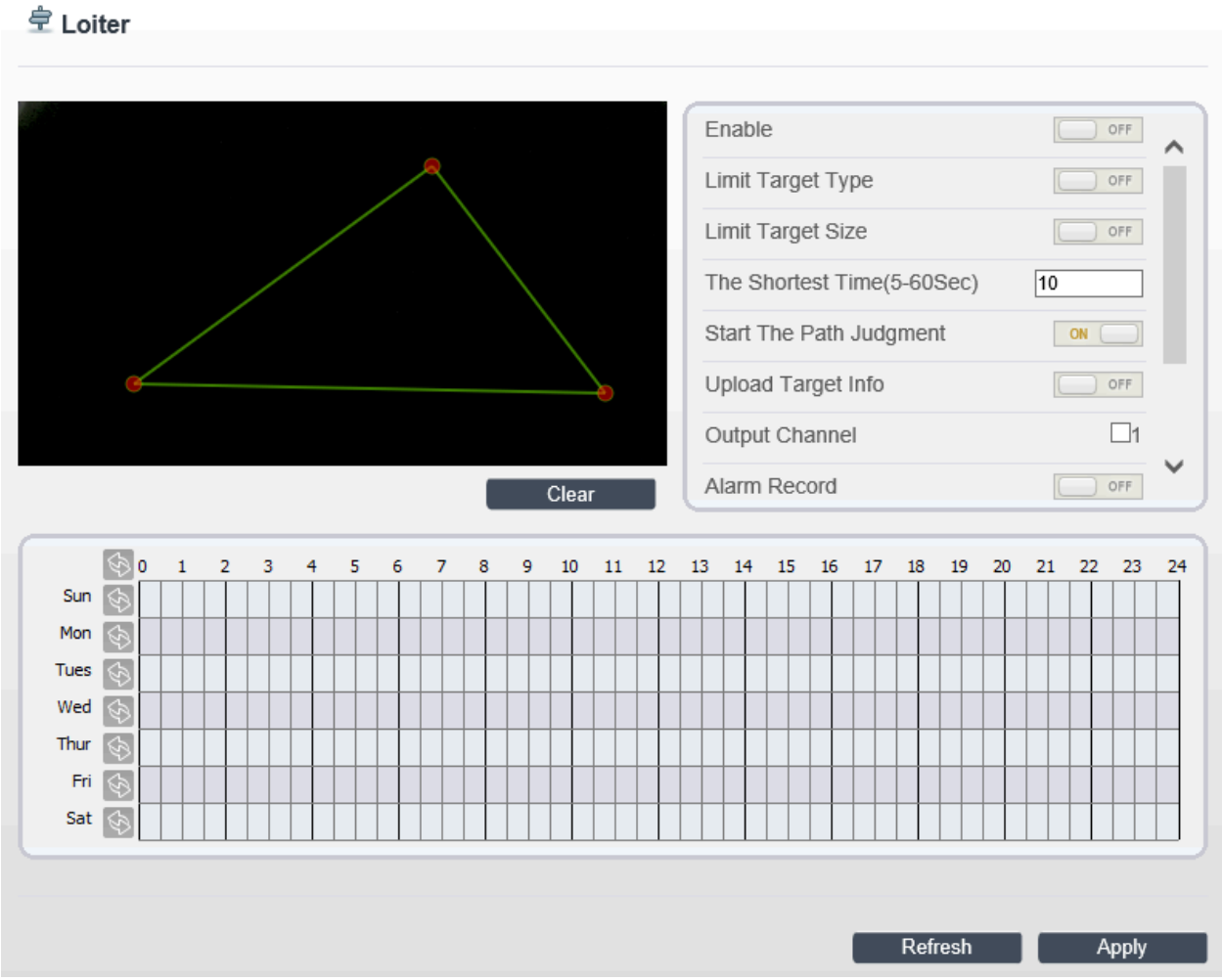
Operating Notes

- The two virtual fences are in sequential order. An alarm is generated only when a target crosses virtual fence 1 and then virtual fence 2 within the set maximum passing time.

- The double virtual fences are not within any deployment area, therefore, when an alarm is generated, the trace always exists. Only when the target object moves out of the field of view, the trace disappears.
- Try to draw the virtual fences in the middle of the view, target recognition takes time after the target appears on screen. An alarm is generated only when the object is recognized to have crossed the virtual fences.
- Make sure the virtual fence is long enough, a short virtual fence may miss targets.

Loiter

This option allows the user to set a deployment area in the field of view. If a single object is loitering within the target area longer than the specified time, an alarm is generated.



Loiter Settings with Deployment Area Drawn

Enable	Enables the Loiter Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page  .
Limit Target Type	Effective alarms are set based on target type, with options of Person and/or Car. If the device is used indoors, alarms may be triggered by a person even if 'Car' is selected, leading to false alarms. It is recommended to set the target type to 'Person' for indoor use.
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set "Real size in scene" in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.
The Shortest Time (seconds)	The allowable time that a target object spends in loitering. Setting range is 5-60 seconds.
Start the Path Judgment	The enabling of path analysis increases accurate loitering judgment through a software algorithm. For example, no alarm is generated when a person walks along a straight line if the button is set to ON.
Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to

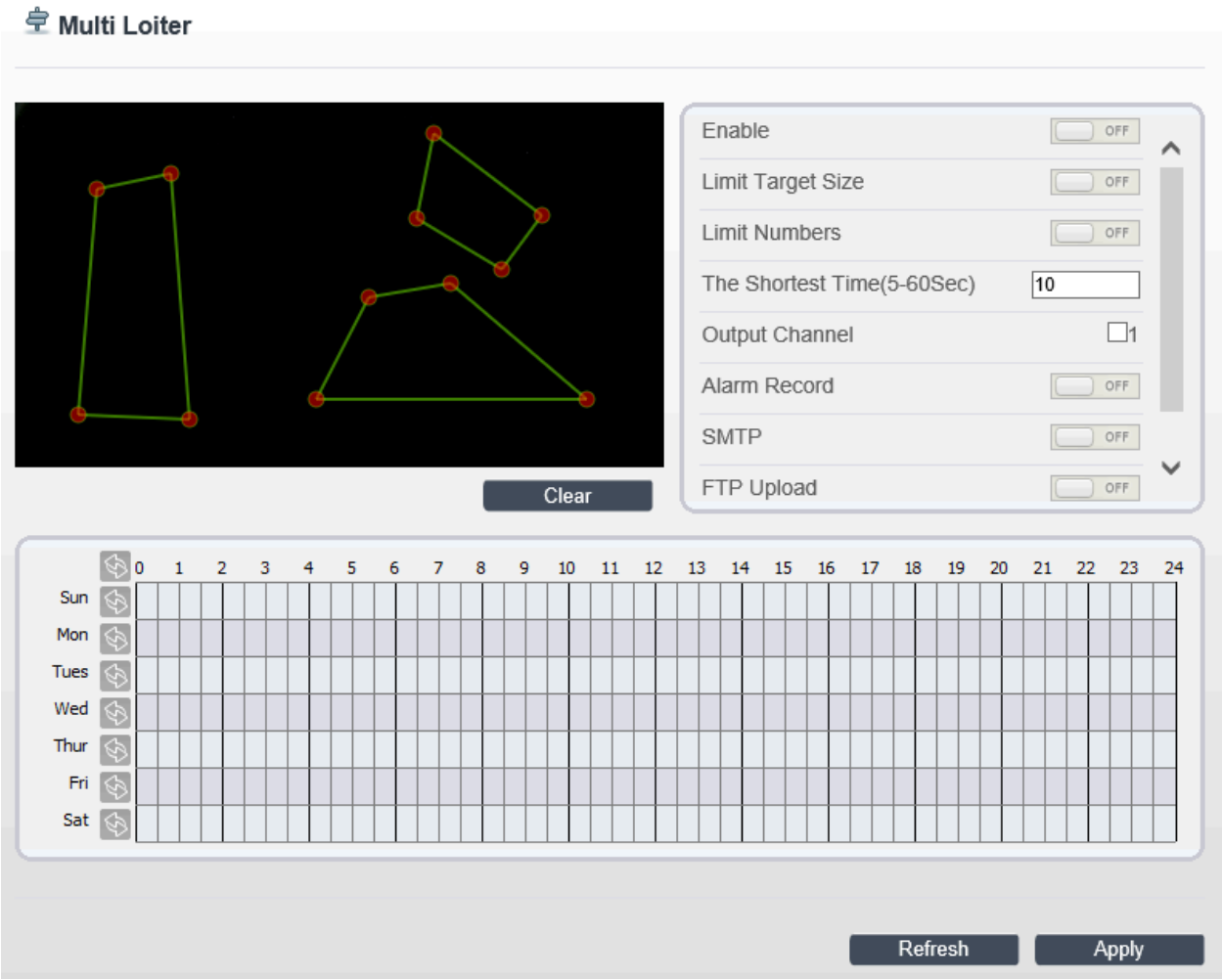
draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Multiple Loiter

This option is similar to the Loiter function but can be applied to multiple objects within the target area.



Multi Loiter Settings with Deployment Area Drawn

Enable	Enables the Multi Loiter Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page  .
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set “Real size in scene” in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.
Limit Numbers	When Limit Numbers is set to OFF, an alarm is generated no matter how many people loiter. When Limit Numbers is set to ON, if the minimum number is set to 2 and the maximum number is set to 3, an alarm is generated for 2-3 people loitering. Other settings are the same as loitering.
The Shortest Time (Sec)	The time that a target object spends in loitering cannot be less than the shortest loitering time. Setting range: 5-60 seconds.
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the ‘Output Channel’ option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

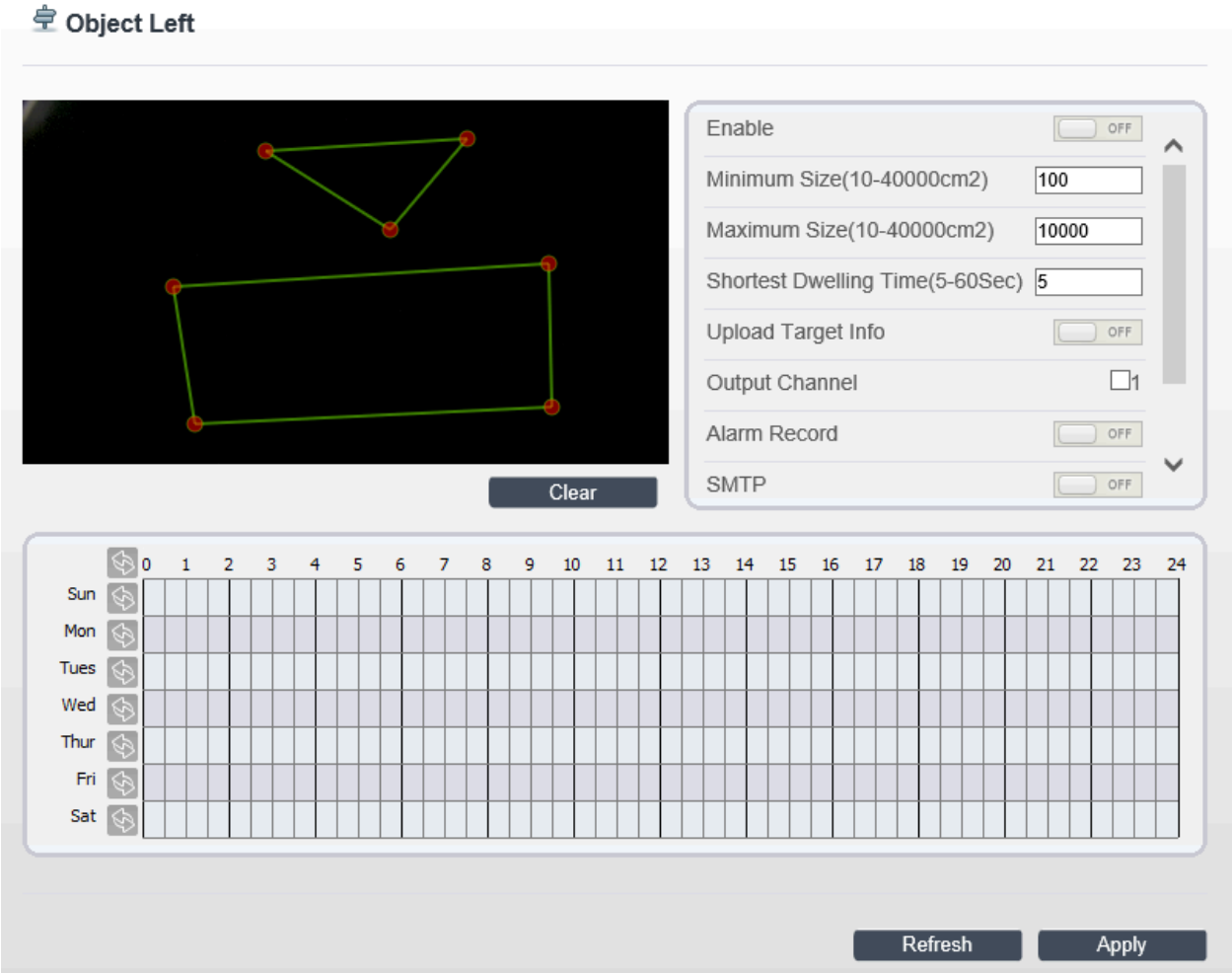
To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Object Left

The object left function refers to that an alarm is generated when the dwelling time of an object within the deployment area meets the set shortest dwelling time.



Object Left Settings with Deployment Area Drawn

Enable	Enables the Object Left Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page  .
Minimum (Maximum) Size (cm^2)	The target size for triggering an effective alarm is set based on the actual target size. The size range is 10 - 40,000 cm^2. When setting the target size, you need to set “Real size in scene” in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.
Shortest Dwelling Time (sec	An alarm is generated when the object left time is longer than the shortest dwelling time. Setting range: 5-60 seconds.

Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

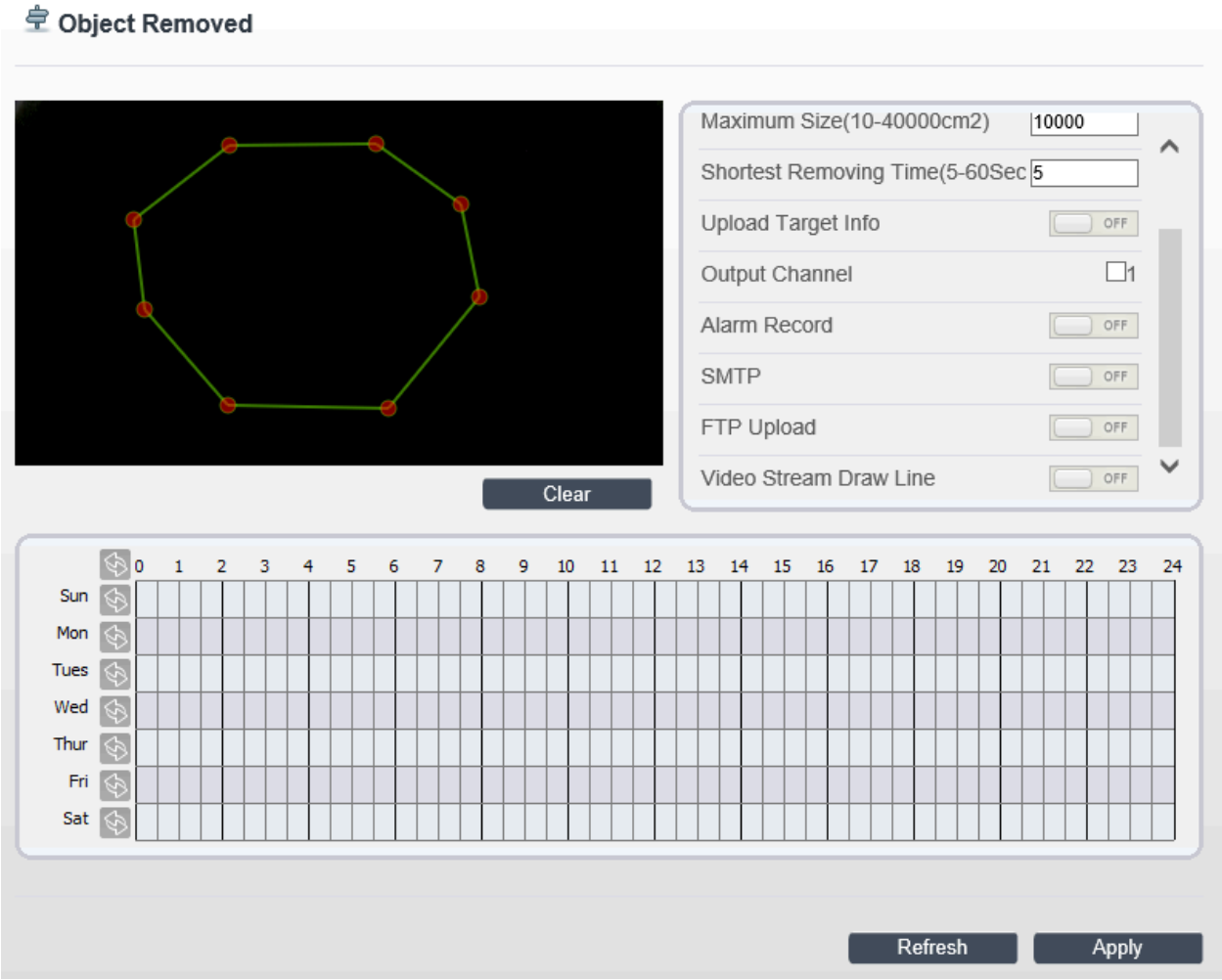
To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Object Removed

The object removed function refers to that an alarm is generated when the removing time of an object within the deployment area meets the set shortest removing time.



Object Removed Settings with Deployment Area Drawn

Enable	Enables the Object Removed Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page .
Minimum (Maximum) Size (cm^2)	The target size for triggering an effective alarm is set based on the actual target size. The size range is 10 - 40,000 cm^2. When setting the target size, you need to set “Real size in scene” in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.
Shortest Dwelling Time (sec	An alarm is generated when the object left time is longer than the shortest dwelling time. Setting range: 5-60 seconds.
Upload Target Info	Enable the function of uploading target information by clicking

	below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

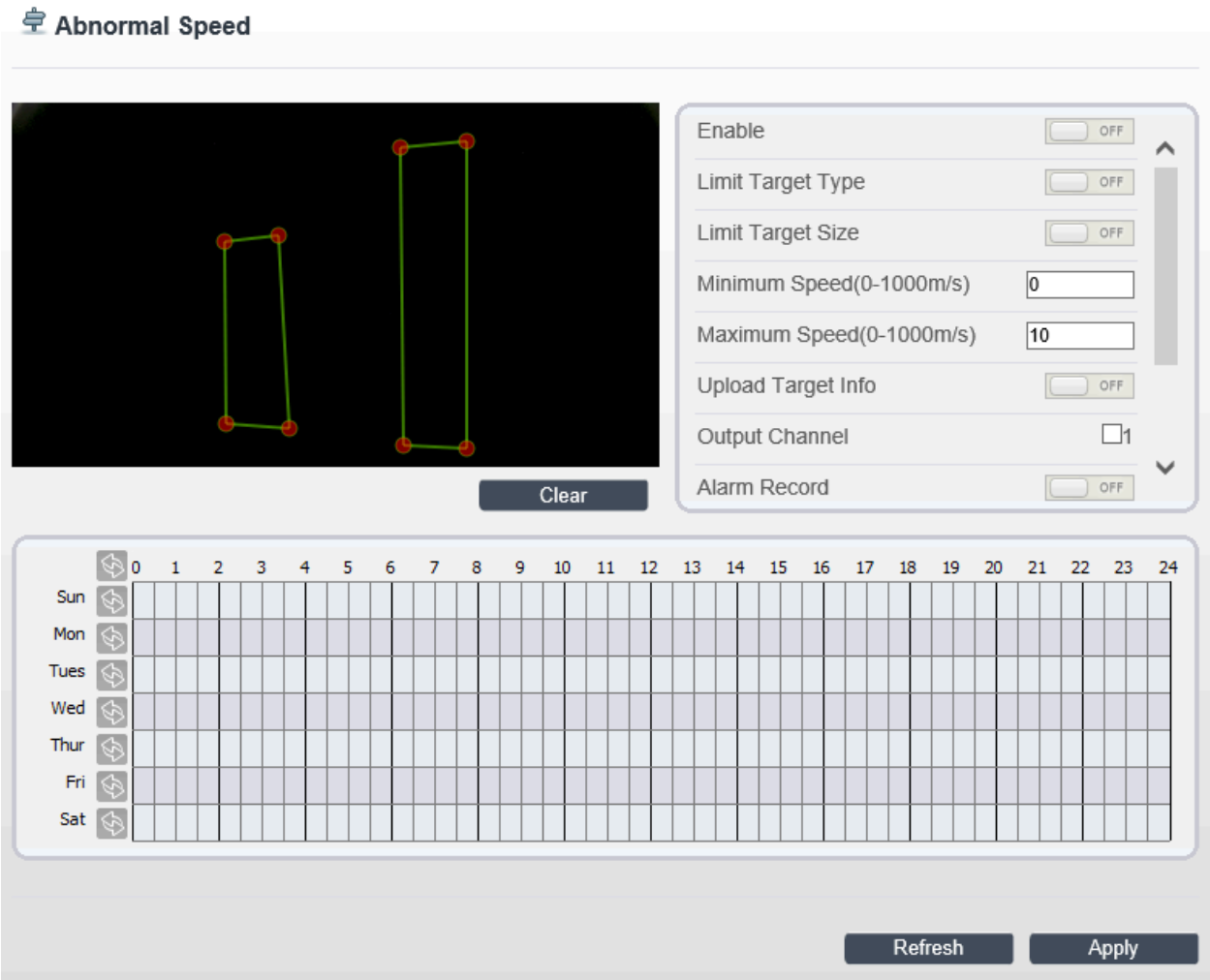
To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing..

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Abnormal Speed

Abnormal speed allows setting the travel speed criteria for a target within the deployment area on the video screen. When the travel speed of a target of specified type (such as person or car) within this area meets the alarm condition, an alarm is generated.



Abnormal Speed Settings with Deployment Area Drawn

Enable	Enables the Abnormal Speed Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page .
Limit Target Type	Effective alarms are set based on target type, with options of Person or Car, person, car. When the device is used indoors, because of small space and large targets, alarms are triggered by person sometimes even if car is selected, leading to false alarms. It is recommended to set the target type to person for indoor use.
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set “Real size in scene” in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.

Minimum (Maximum) Speed (m/s)	Set prohibited speeds. When a target object crosses an area at a speed between the minimum and maximum speeds, an alarm is generated. Setting range: 0-1000 m/s.
Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

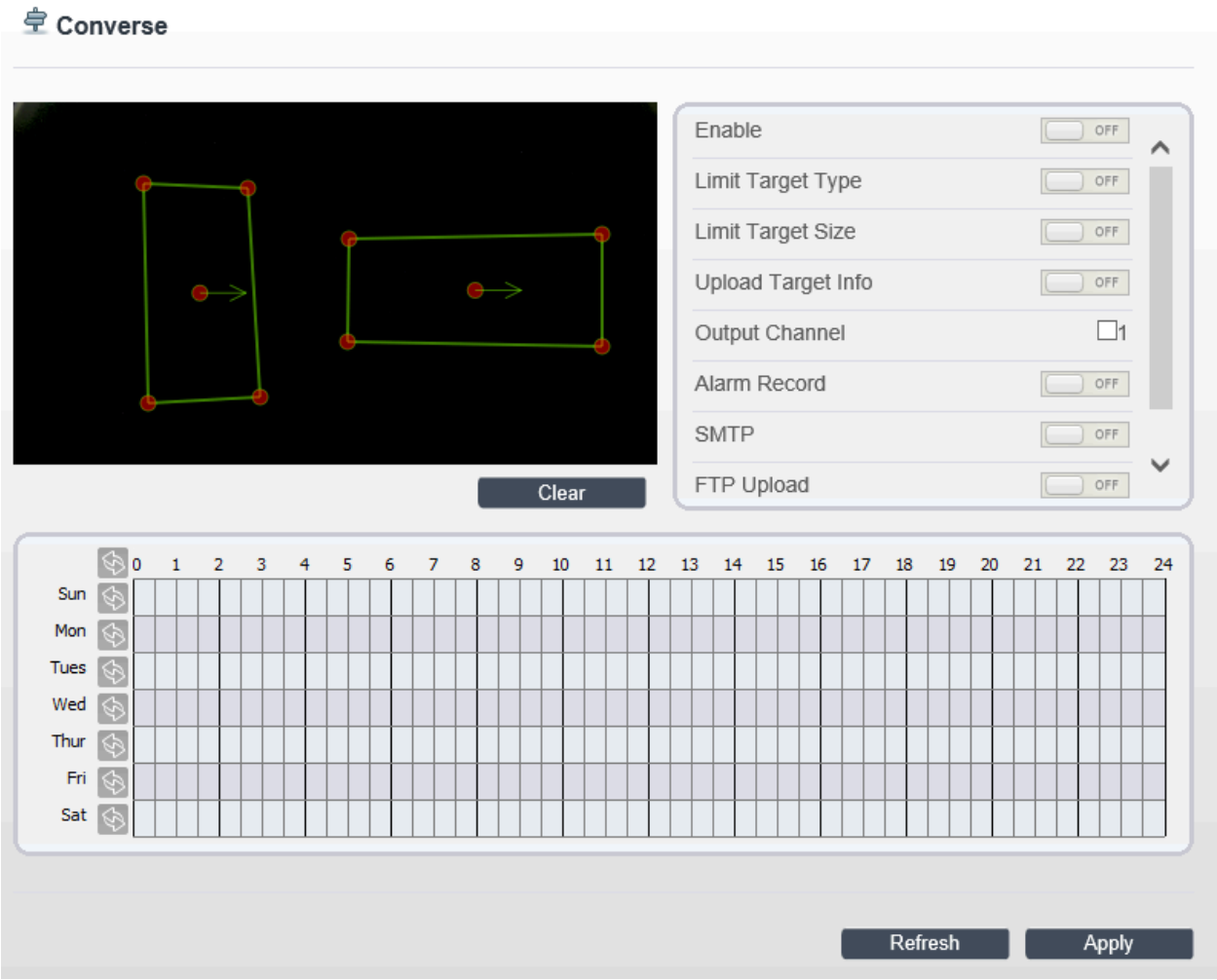
To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Converse

Converse allows setting the travel direction criteria for a target within an area on the video screen. When a target of specified type (such as people or car) within this area moves in the set travel direction, an alarm is generated.



Converse Settings with Deployment Area Drawn

Enable	Enables the Converse Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page .
Limit Target Type	Effective alarms are set based on target type, with options of Person and/or Car. If the device is used indoors, alarms may be triggered by a person even if 'Car' is selected, leading to false alarms. It is recommended to set the target type to 'Person' for indoor use.
Limit Target Size	The target size for triggering an effective alarm is set based on the actual target size. The size range is 1,000 - 100,000 cm^2. When setting the target size, you need to set "Real size in scene" in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.

Upload Target Info	Enable the function of uploading target information by clicking  below the real-time video in a browser to turn  into  . When an alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

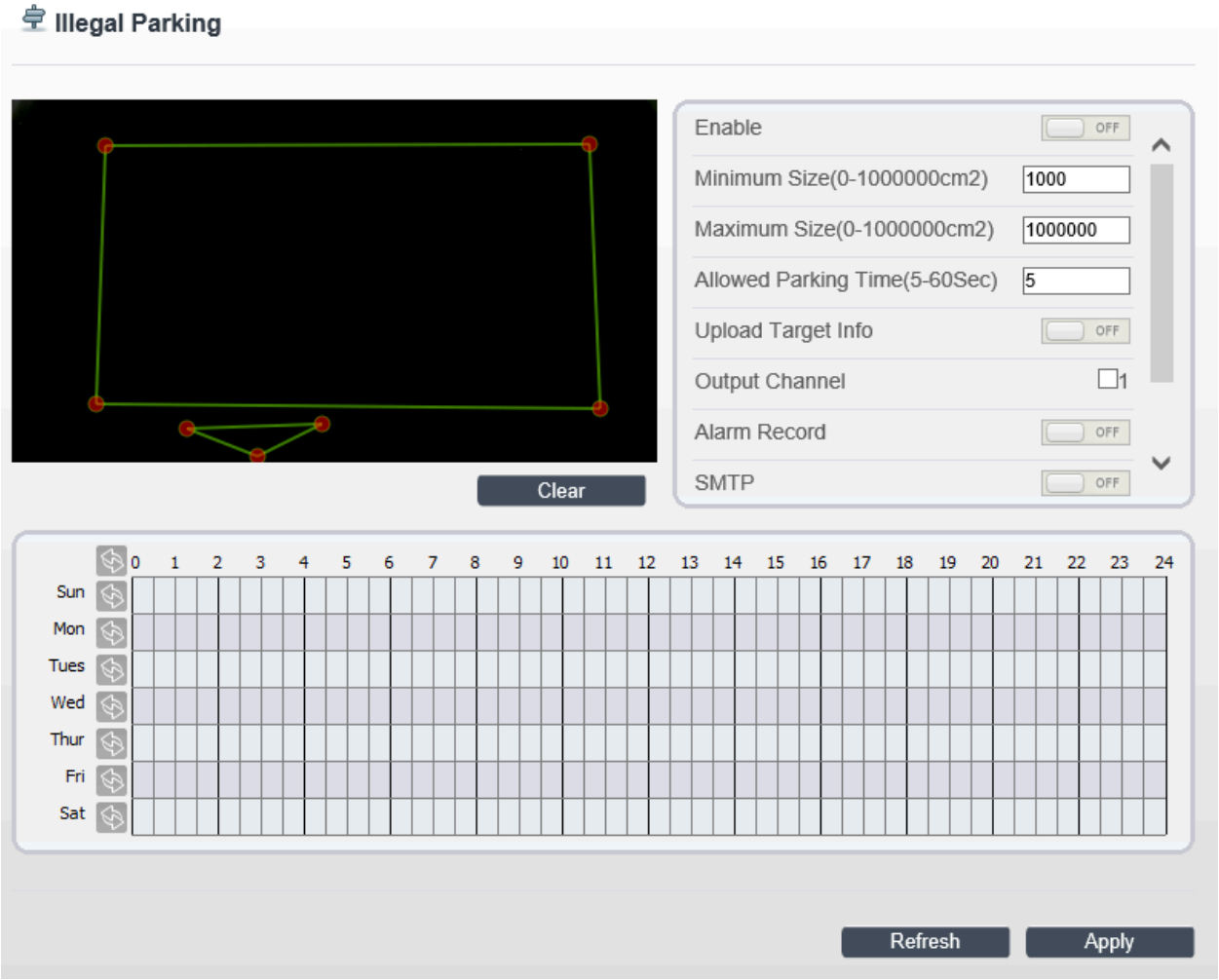
To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Illegal Parking

Illegal parking allows setting the dwelling time criteria for a target within the deployment area on the video screen. When the dwelling time of a target of specified type (car) within this area meets the set allowed parking time, an alarm is generated.



Illegal Parking Settings with Deployment Area Drawn

Enable	Enables the Illegal Parking Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page .
Minimum (Maximum) Size (cm2)	The target size for triggering an effective alarm is set based on the actual target size. The size range is 0 - 1,000,000 cm^2. When setting the target size, you need to set “Real size in scene” in advanced parameters, otherwise no alarms may be generated. See *Advanced* for details.
Allowed Parking Time (5-60 sec)	An alarm is generated when the object parking time is longer than the allowed parking time. Setting range: 5-60 seconds.
Upload Target Info	Enable the function of uploading target information by clicking below the real-time video in a browser to turn into . When an

	alarm is triggered, the target movement trace can be displayed (The trace can be seen only within the deployment area and disappears after the target leaves the deployment area).
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm. If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.
Video Stream Draw Line	

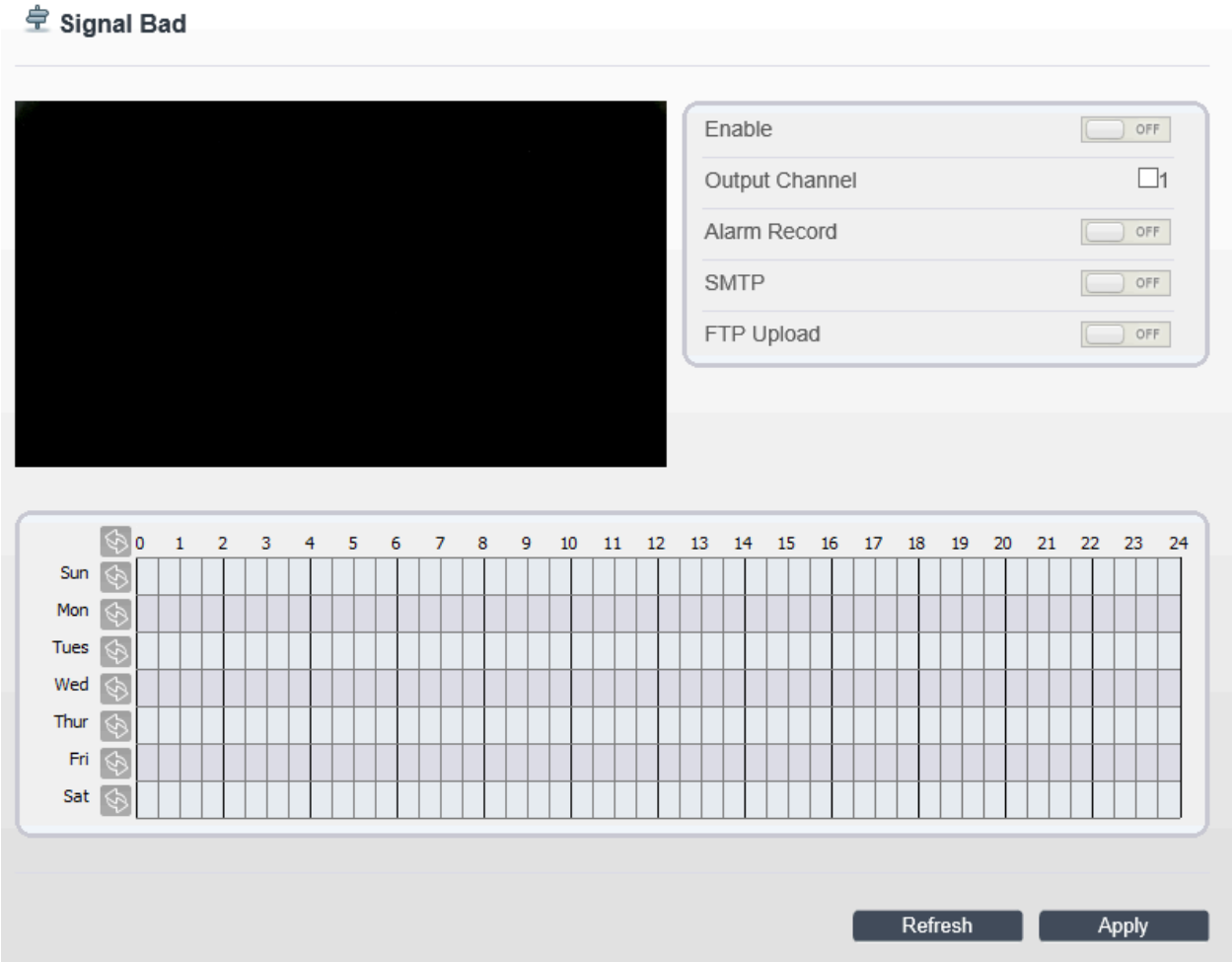
To set a deployment area:
Move the cursor to the drawing interface and left click to generate a point, move the cursor to draw a line, and then left click again to generate another point. Continue in this way to form any shape, and right click to finish drawing.

Operating Notes

- A drawn line cannot cross another one, or the line drawing fails.
- Each shape can have a maximum of 32 sides.
- The quantity of deployment areas is not limited yet and will be described in future when a limit is applied. Keep in mind that increasing the number of deployment areas may decrease performance.

Signal Bad

Signal bad generates an alarm if an event such as tampering or shifting of the camera occurs.



Signal Bad Settings

Operating Note

Currently, an alarm is generated only when more than 75% area of a video is obscured.
When the ambient light is low and the gray average is less than 40, an alarm is generated.

Enable	Enables the Signal Bad Intelligent Analysis feature. Remember to enable Intelligent Analysis on the Live Video page  .
Output Channel	***Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm.

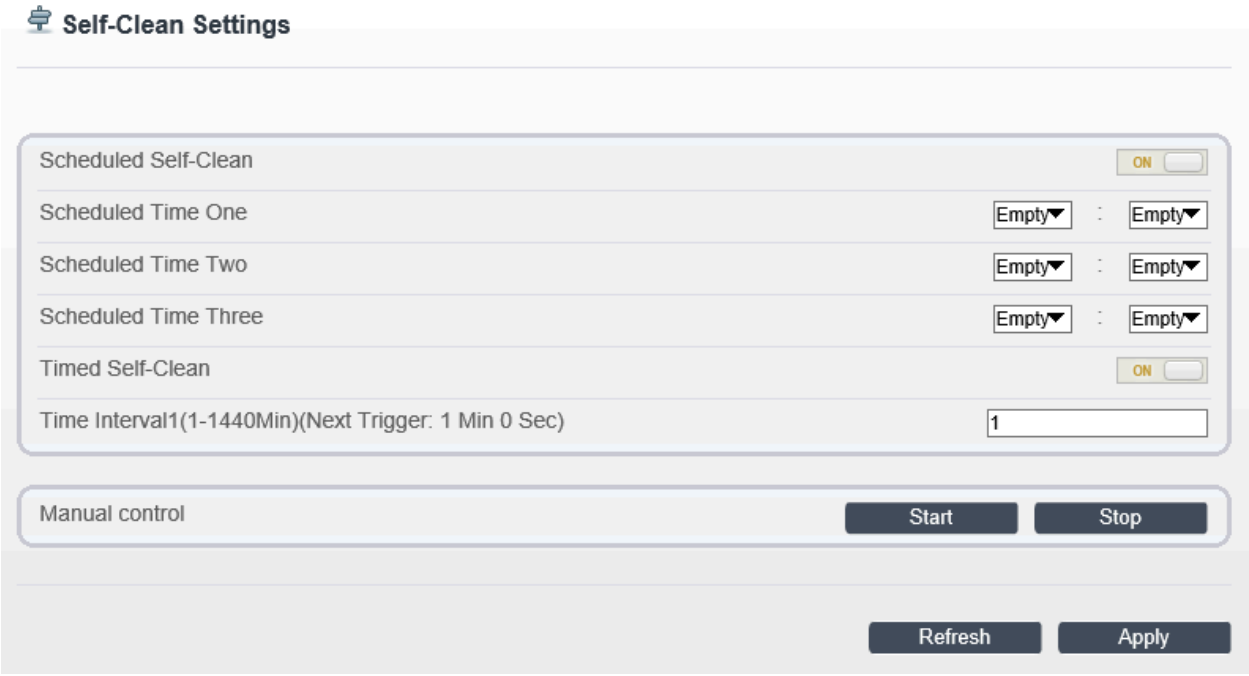
	If you check to set the Output Channel and the device is connected to an external alarm indicator, the alarm indicator signals when an alarm is triggered.
Alarm Record	If enabled, the alarm will be recorded.
SMTP	Alarms and a snapshot will be sent to the SMTP server if configured.
FTP Upload	Alarms and a snapshot will be sent to the FTP server if configured.

Alarm / Self-Clean

Important Note: The ToughEye-1700™ camera uses the output alarm channel of the internal camera module to trigger its self-clean cycles. As such the Output Alarm option should never be enabled for any of the alarm configurations.

Self-Clean Settings

The Self-Clean schedule can be controlled from the web interface in multiple ways. A manual Self-Clean can also be triggered from the Live Video page. Note that the Self-Clean function is only available for ToughEye-1700™ and not ToughCam-1000™.



Self-Clean settings menu

Scheduled Self-Clean	Allows the user to set specific cleaning times.
Timed Self-Clean	Allows the user to set the interval between cleaning cycles.
Manual control	Manually triggers a self clean.

Automatic Trigger
The ToughEye-1700™ camera is equipped with several automatic self-clean trigger options for a wide range of applications. On the camera's web interface, navigate to Configuration > Self-Clean Settings and refer to the Timed Self-Clean and Scheduled Self-Clean sections below. Note that both trigger methods may be enabled simultaneously.

Timed Self-Clean

The timer-based trigger method is useful for applications where on-demand cleaning is not essential and removes the need for additional hardware and cabling required for manual triggering. To configure the timer trigger mode from the Self-Clean Settings page on the web interface, follow the steps below:

1. Switch the Timed Self-Clean slider from OFF to ON
2. Enter the self-clean trigger time interval in minutes (valid user input: 1 min ~ 1440 min)
3. Click Apply

Scheduled Self-Clean

The scheduled trigger method is useful for applications where self-cleaning is required at specific, predefined times throughout the day. Up to three separate trigger times can be set in this mode. Note that this feature can also be used simultaneously with the Timed Self-Clean Feature.

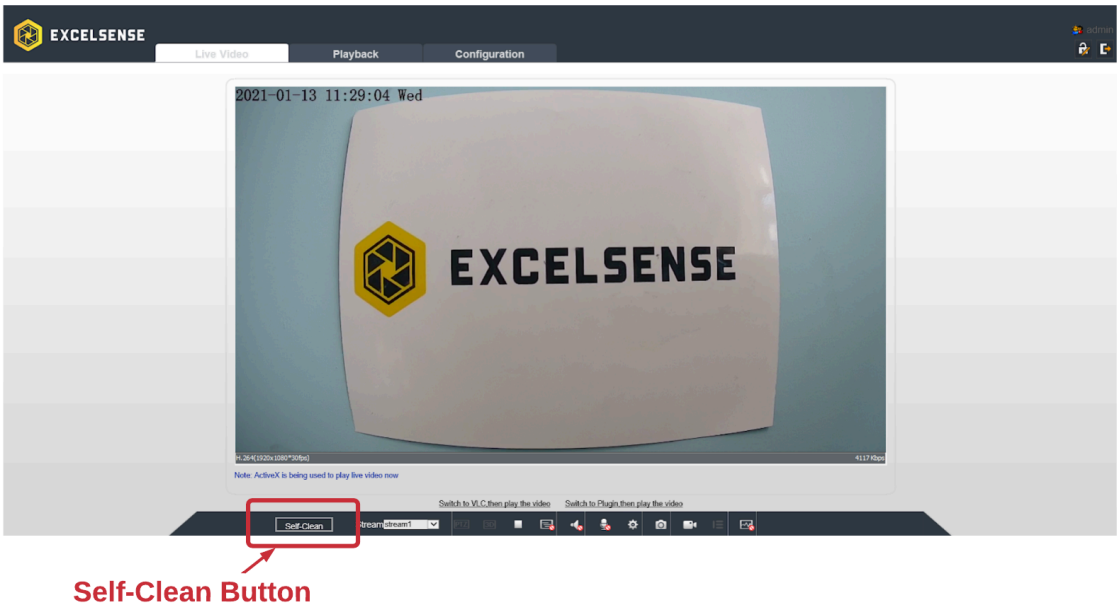
It should also be noted that the set schedule is based on the camera's current date and time. To verify the correct time is set on the camera, navigate to Configuration > Device > Date and Time, set the desired time and click the check mark next to it to apply the change. To enable the scheduled self-clean feature, follow the steps below:

1. Switch the Scheduled Self-Clean slider from OFF to ON
2. Select up to three trigger times using the hour and minute drop-down boxes
3. Click Apply

Remote Manual Trigger using Web Interface

In applications such as autonomous haulage or tele-operated machines where remote triggering is required, the ToughEye-1700™ camera web interface provides a clean solution.

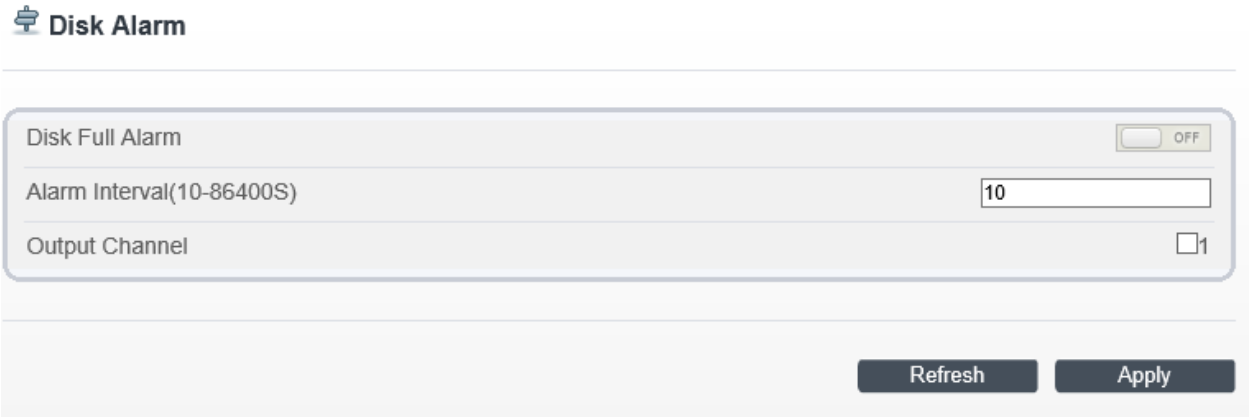
As seen below, a cleaning cycle can be triggered on-demand by clicking the Self-Clean button on the live view page of the camera, which can be found in the bottom-left section of the page.



Self-Clean Button

Disk Alarm

Note that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm.



Disk Alarm Settings

Enable the disk alarm using this page and set the alarm interval and output channel.

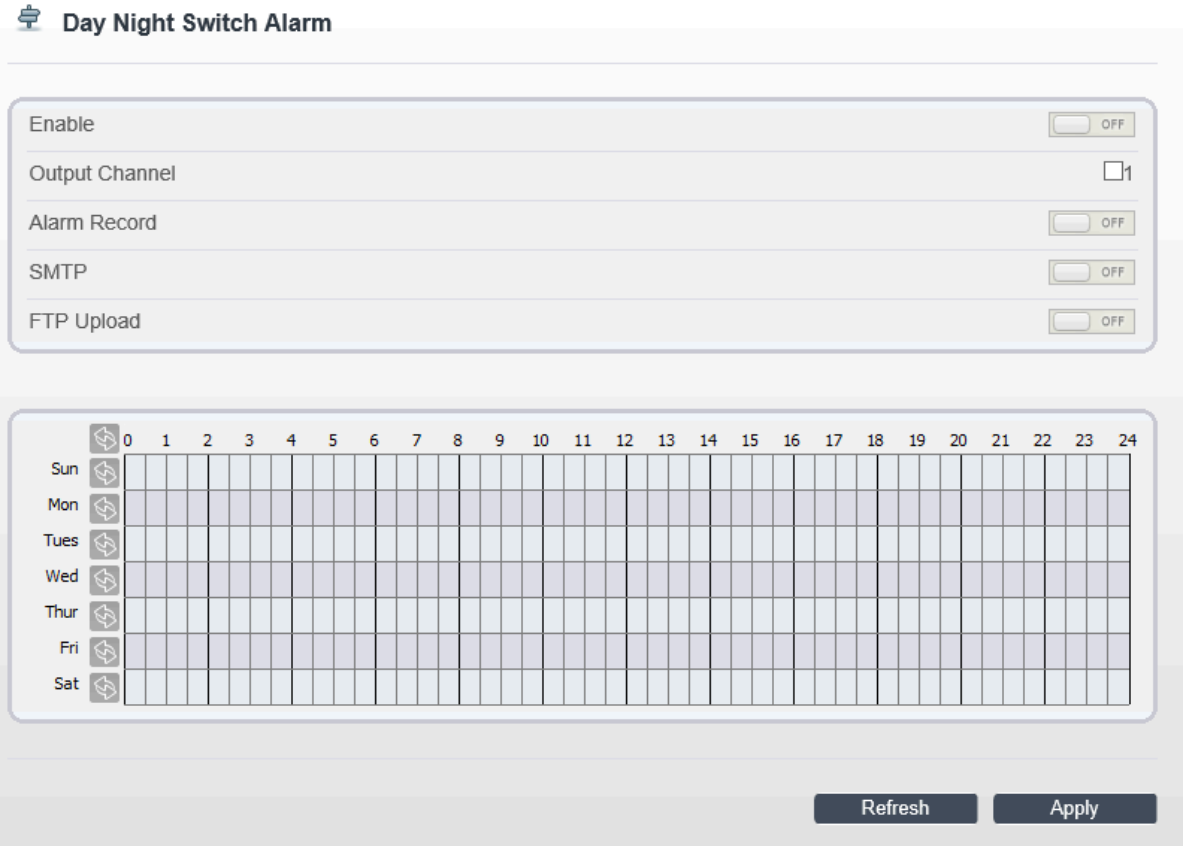
Network Alarm

Note that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm.

Network Alarm Settings

Enable the exceptional alarm using this page and set the alarm interval and output channel.

Day Night Switch Alarm

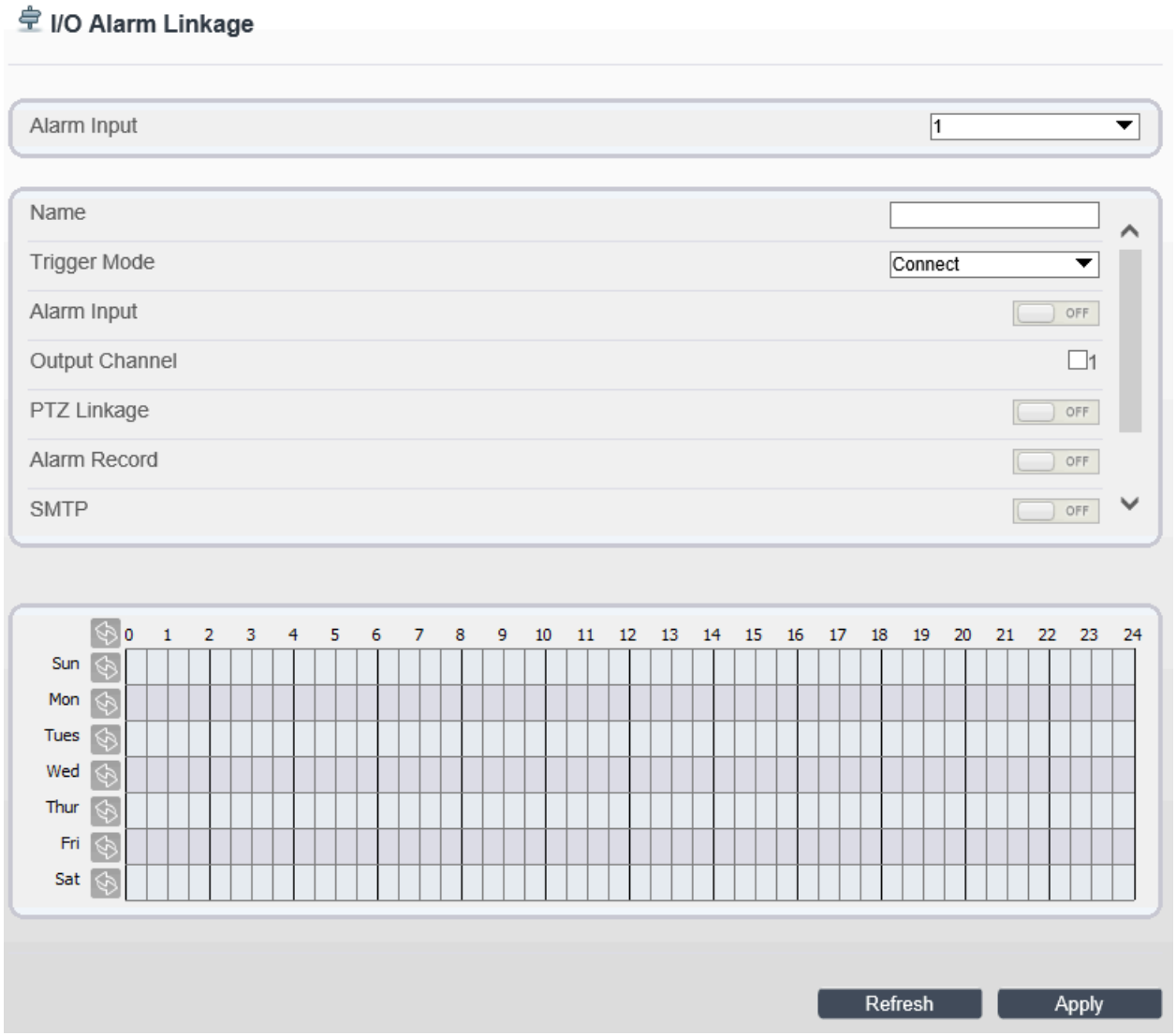


Day Night Switch Alarm Settings

I/O Alarm Linkage

The PTZ linkage policy is applicable only to a camera with the **PTZ or connected to an external PTZ**. Alarm linkage refers to linkage alarm output and camera PTZ linkage. When receiving an alarm from the alarm input port, the camera performs linkage alarm output and enables PTZ linkage based on the preceding parameters, and rotates based on the linkage policy. On the I/O Alarm Linkage page, you can perform the following operations:

- Enable the I/O alarm function.
- Configure the I/O alarm schedule.
- Configure the alarm output channel.
- Configure the PTZ linkage policy.



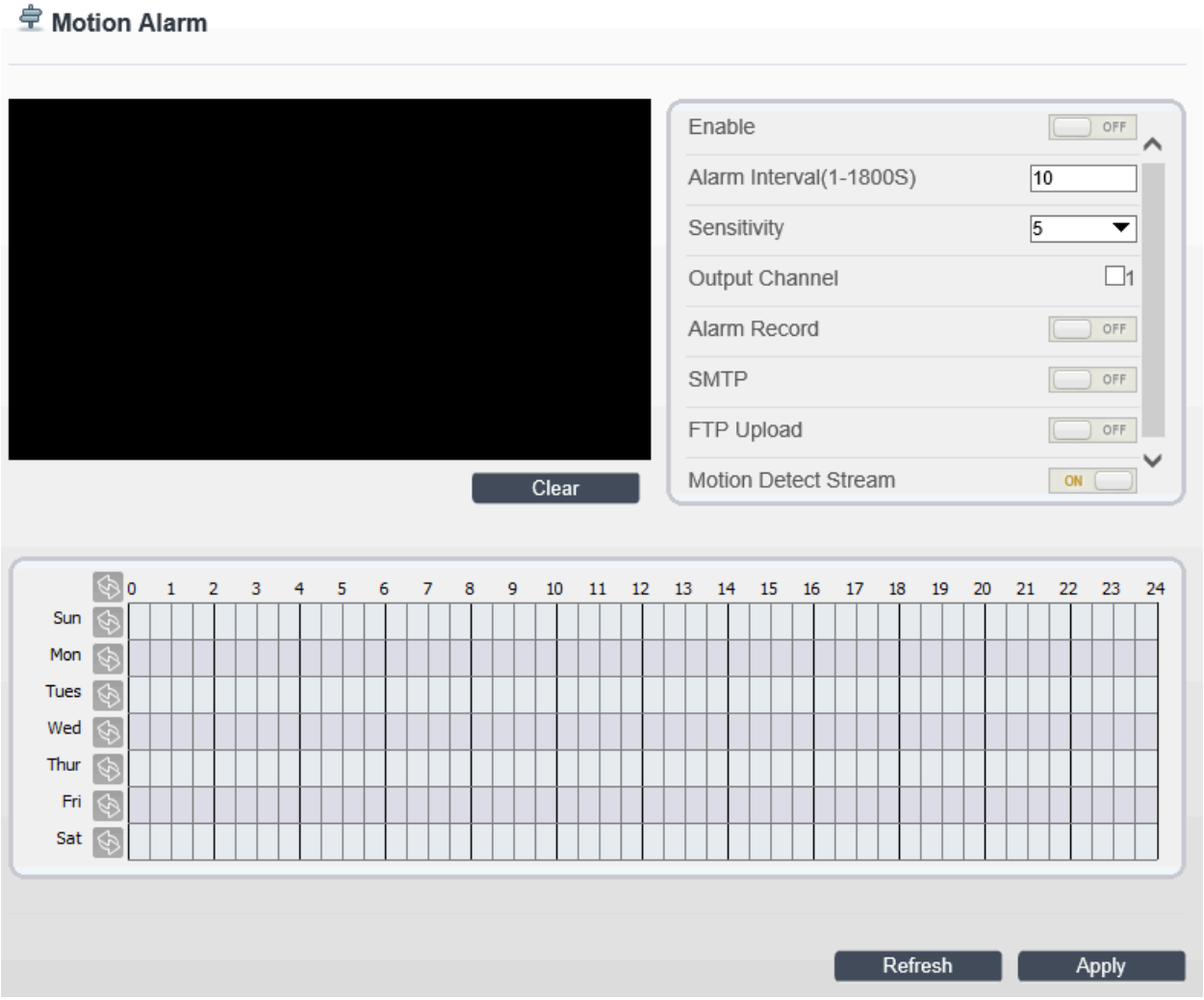
I/O Alarm Linkage Settings

Motion Alarm

Note that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm.

On the Motion Alarm page, you can perform the following operations:

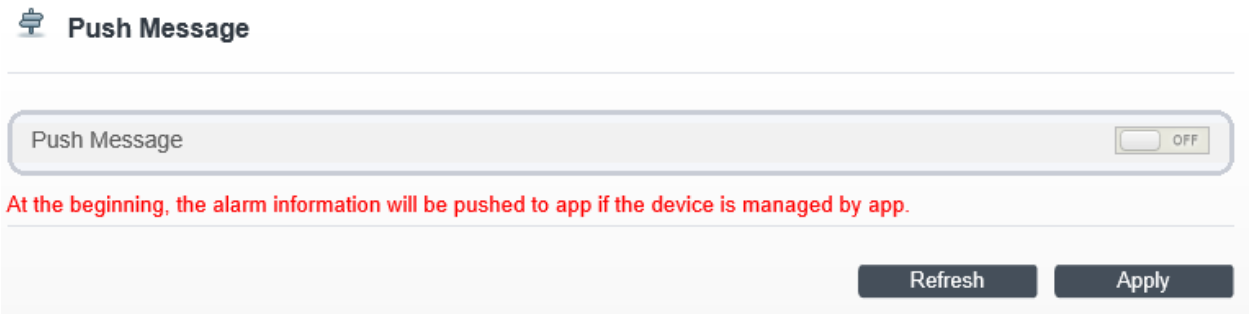
- Enable the motion detection function.
- Set the motion detection arming time and sensitivity.
- Set the motion detection area.
- Configure the motion alarm output channel.
    - **Note** that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm.
- Send alarm notifications to SMTP or FTP servers if configured.



Motion Alarm Settings

Push Message

When enable push message button, the alarm information will be pushed to an app if the device is managed by app.



Push Message Settings

Audio Abnormal Detection

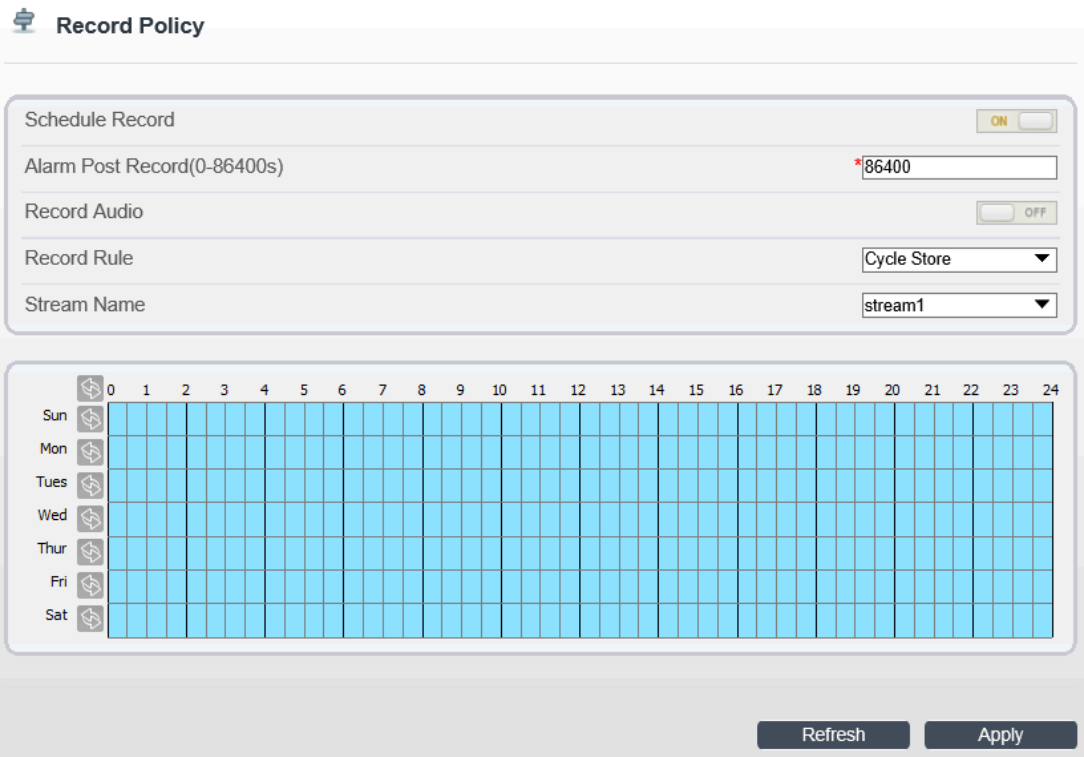
Note that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable the 'Output Channel' option for this alarm.

Device Record

The camera can be scheduled to record at specified intervals throughout the week.

Record Policy

Navigate to the Record Policy page to configure the recording schedule. As an example, to set up the camera to always record footage onto the MicroSD card, the following settings can be used. Click Apply to save the settings.



Record Policy Setup Menu

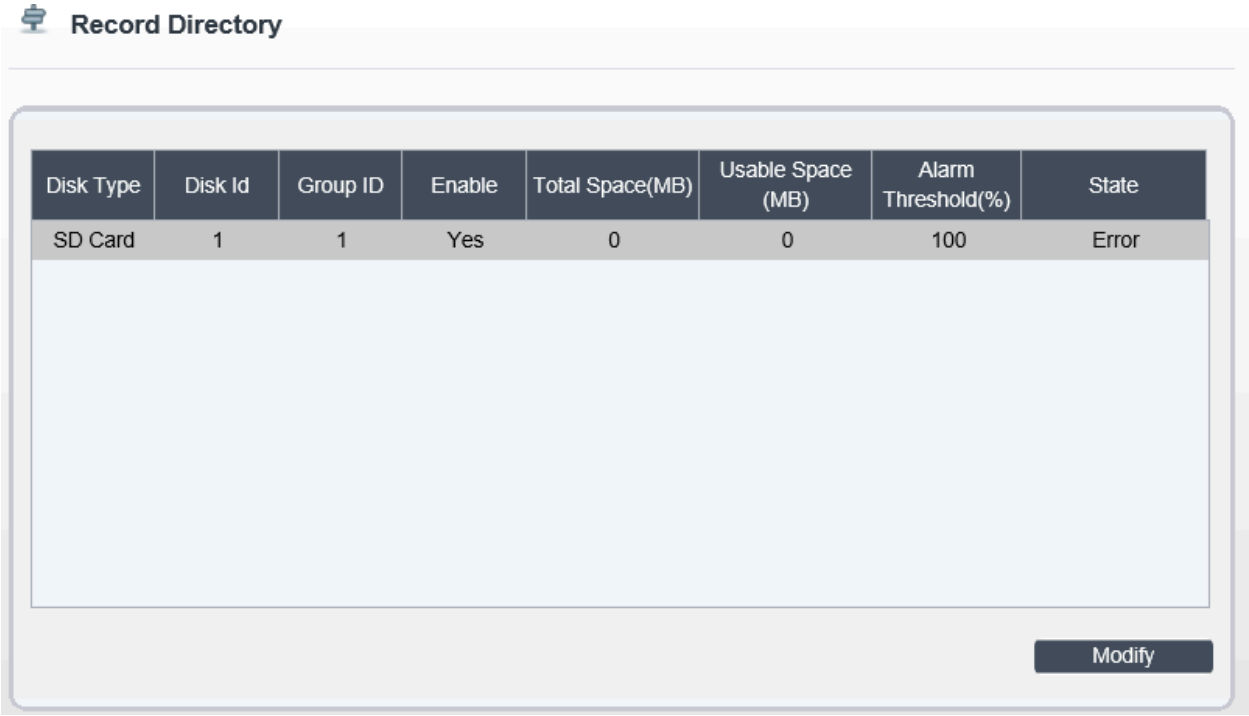
In the example above, the camera will record onto its onboard MicroSD card, and upon reaching the maximum storage capacity, it will overwrite the oldest footage on disk.

Schedule Record	Enables the recording schedule functionality
Alarm Post Record	Recording duration after an alarm is generated
Record Audio	Enables audio recording alongside video
Record Rule	Determines rules for saving video **Cycle Store**: Saves recordings in cycles **Save Days**: Duration for saving a recording measured in days. Max of 99,999 days
Stream Name	Name of the stream to record

Note: Before enabling the recordings, first ensure that the camera's date and time are set appropriately. Navigate to Configuration > Device > Date and Time to set the device time either manually or latch it onto a local PC or NTP server.

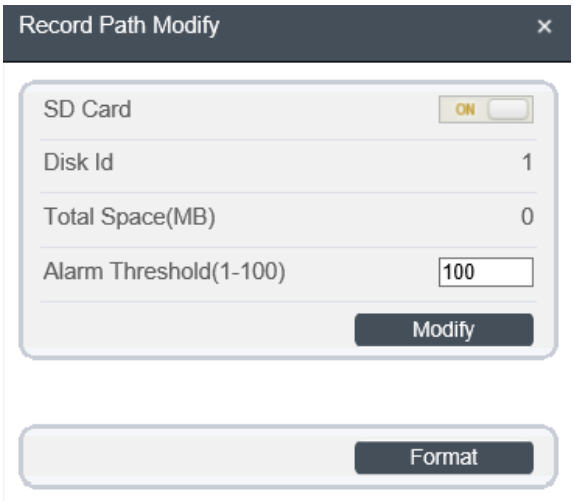
Record Directory

To enable this feature, first ensure that the Micro-SD card is enabled by navigating to Configuration > Device Record > Record Directory. In the table, there should be a line item for an SD Card that is enabled and in a “Usable” state. If the SD card is shown to be in an “Error” state (see below), it will need to be formatted.



Record Directory Page - MicroSD Error Status

To format the MicroSD card, click Modify and Format with the default settings as shown below.



MicroSD Formatting Page

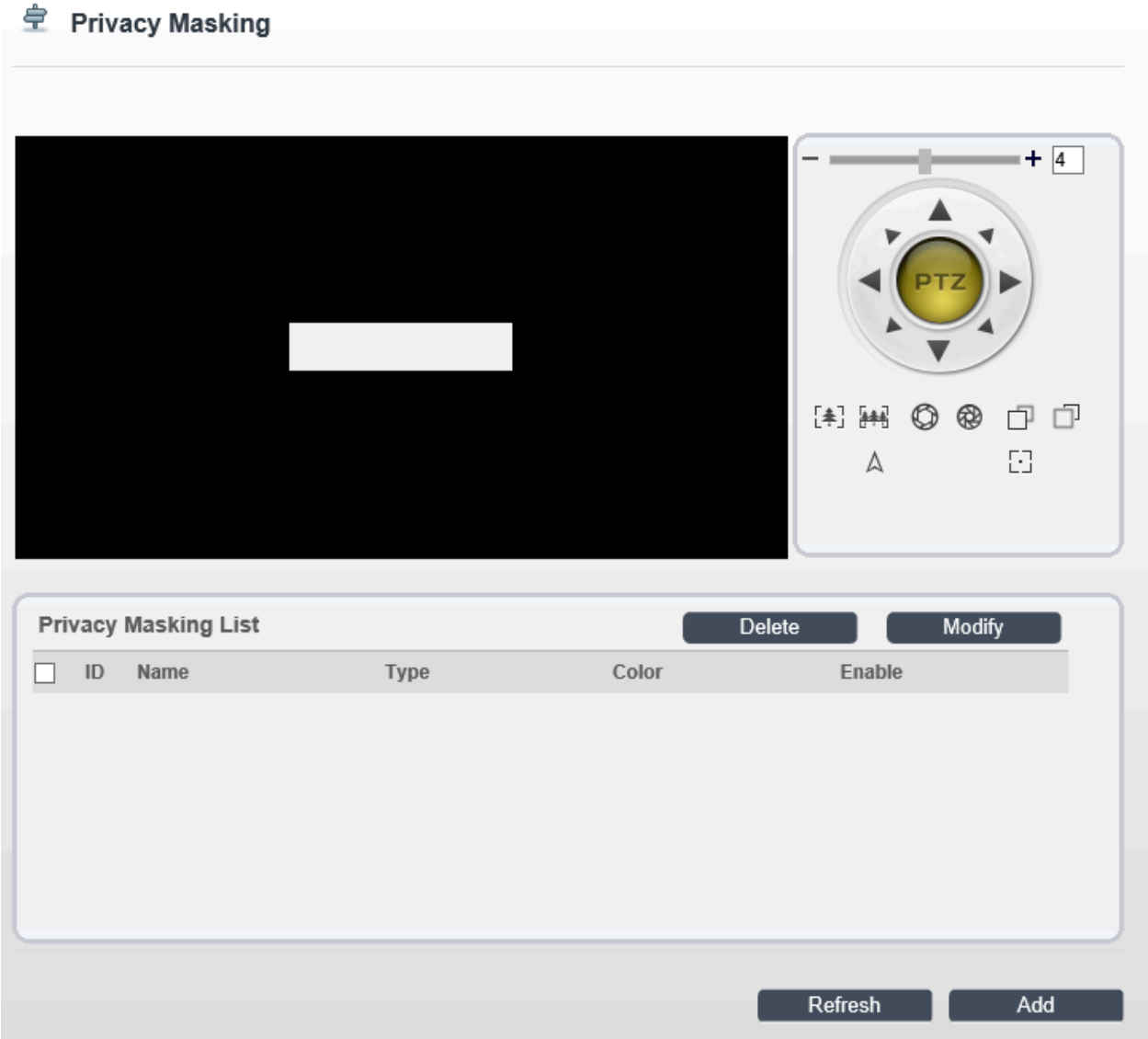
Once the formatting is completed, the state should be updated to “Usable” (see below).

Disk Type	Disk Id	Group ID	Enable	Total Space(MB)	Usable Space (MB)	Alarm Threshold(%)	State
SD Card	1	1	Yes	7168	7104	100	Usable

MicroSD Usable Status

Privacy Masking

This setting allows the user to mask up to 5 areas of the image.

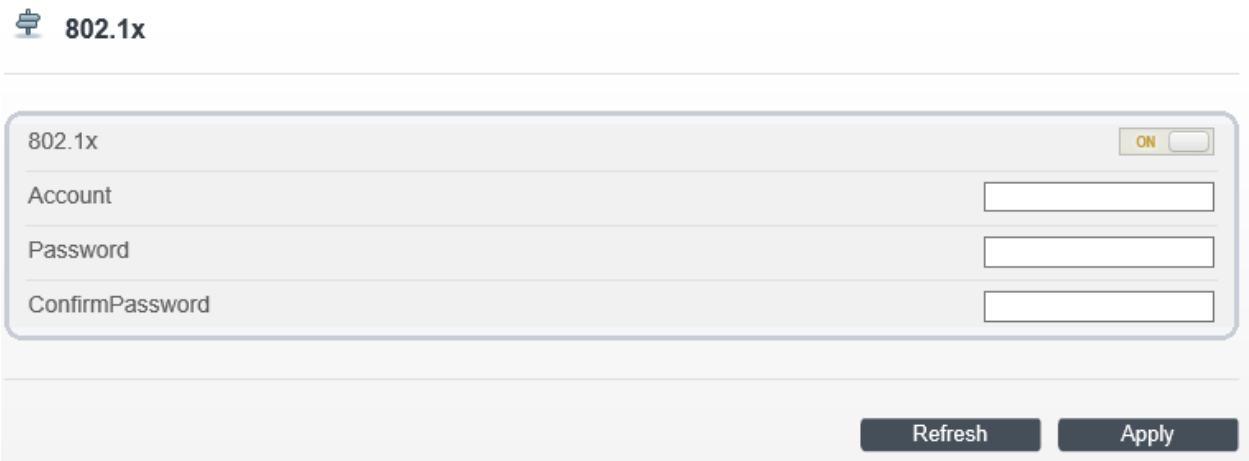


Privacy Masking Settings

Network Service

802.1x

802.1x authentication must be configured on the access port, which controls to access network resources for the connected user devices on the port.



802.1x Settings

DDNS (Dynamic Domain Name System)

Connect the specified camera to the Internet, and obtain the user name and password for logging into the DDNS server.

DDNS Settings

DDNS	Indicates whether to enable the DDNS service.
Provider	DDNS service provider. Currently, only 3322 and DynDns are supported.
Network Card Name	Name of network card
Host Name	Host name customized by a user.
Accounts	User name for logging in to the DDNS server.
Password	Password for logging in to the DDNS server.

PPPoE

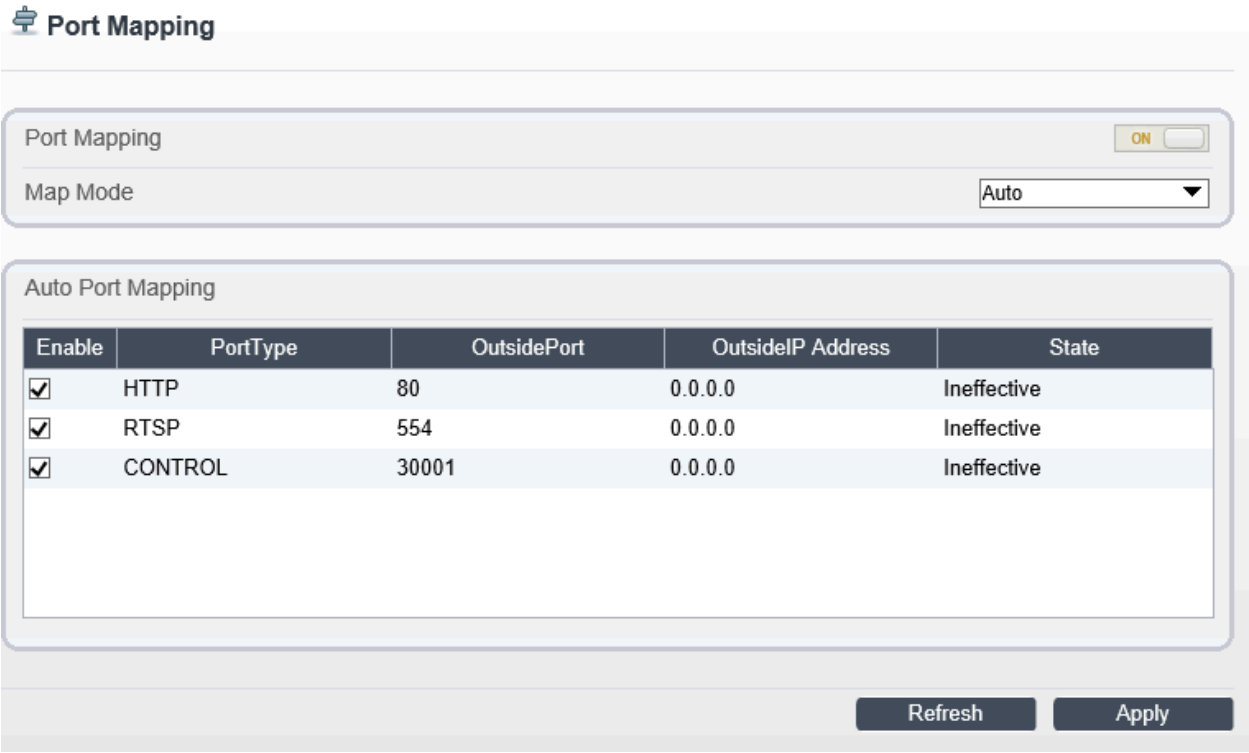
Obtain the PPPoE user name and password from the network carrier. If a PPPoE connection is used, you need to enter the user name and password on the PPPoE page. After you restart the device, the PPPoE settings take effect and the device obtains a public IP address.

PPPoE Settings

PPPoE	Indicates whether to enable the PPPoE service.
Accounts	User name of PPPoE provided by the network carrier.
Password	Password of PPPoE provided by the network carrier.

Port Mapping

With port forwarding, the user can set up the connection between private and public networks. Enable port forwarding to access the private network devices from a public network.

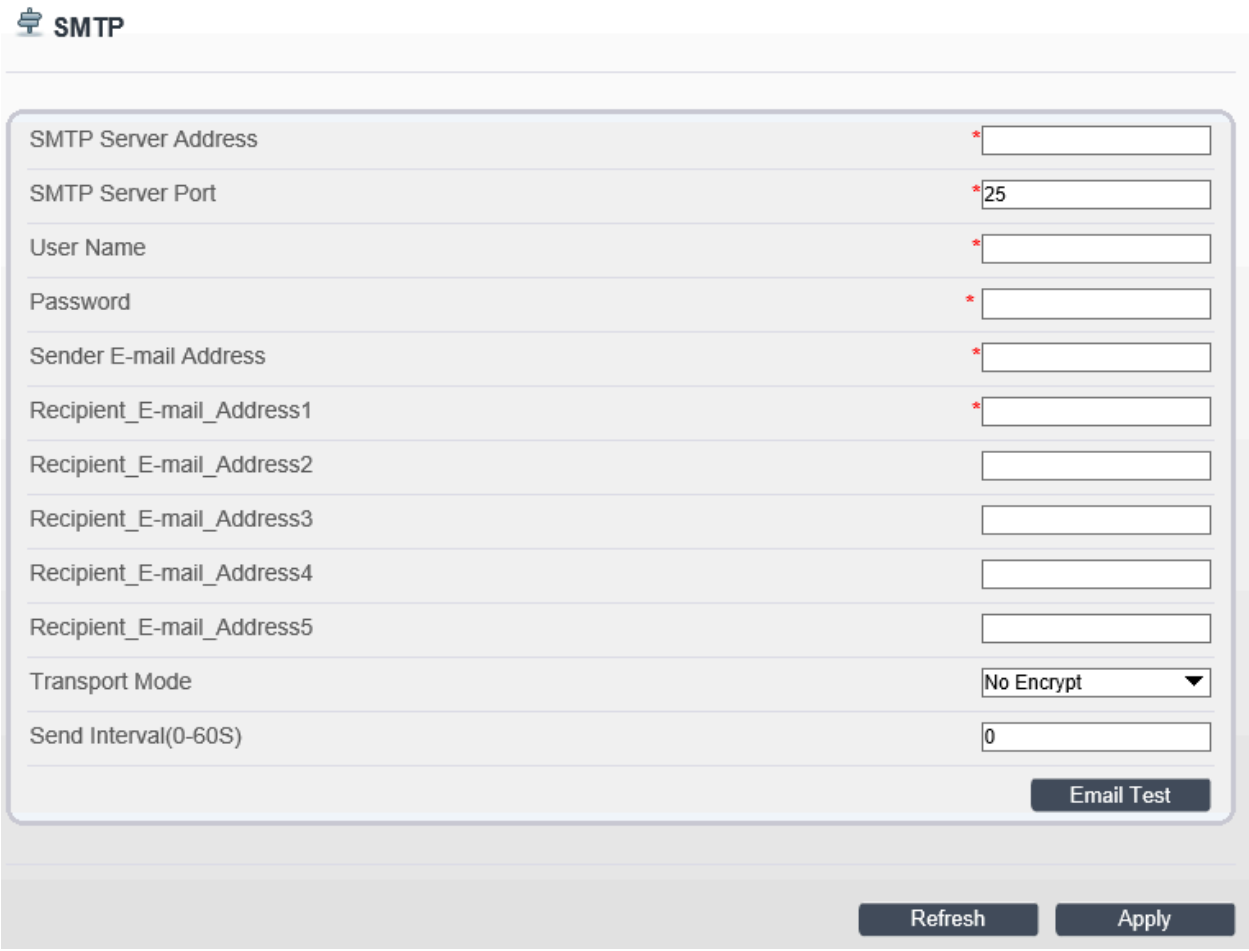


Port Mapping Settings

Port Mapping	Indicates whether to enable the Port Mapping service.
Map Mode	Mode of port mapping, includes auto and manual.
Port Type	Port Type includes: HTTP, RTSP and Control
Outside Port	Port of outside network.
Outside IP Address	IP address of outside network.
State	Mapping status

SMTP (Simple Mail Transfer Protocol)

If the SMTP function is enabled, the device automatically sends JPG images and alarm information to specified email addresses when an alarm is generated.



SMTP Settings

SMTP Server Address	IP address of the SMTP server.
SMTP Server Port	Port number of the SMTP server.
User Name	User name of the mailbox for sending emails.
Password	Password of the mailbox for sending emails.
Sender E-mail Address	Mailbox for sending emails.
Recipient_E-mail_Address1	(Mandatory) Email address of recipient 1.
Recipient_E-mail_Address2-5	(Optional) Email address of recipient 2-5.
Attachment Image Quality	A higher-quality image uses more storage space. Set this parameter based on the site requirement.
Transport Mode	Email encryption mode. Set this parameter based on the encryption modes supported by the SMTP server.

FTP

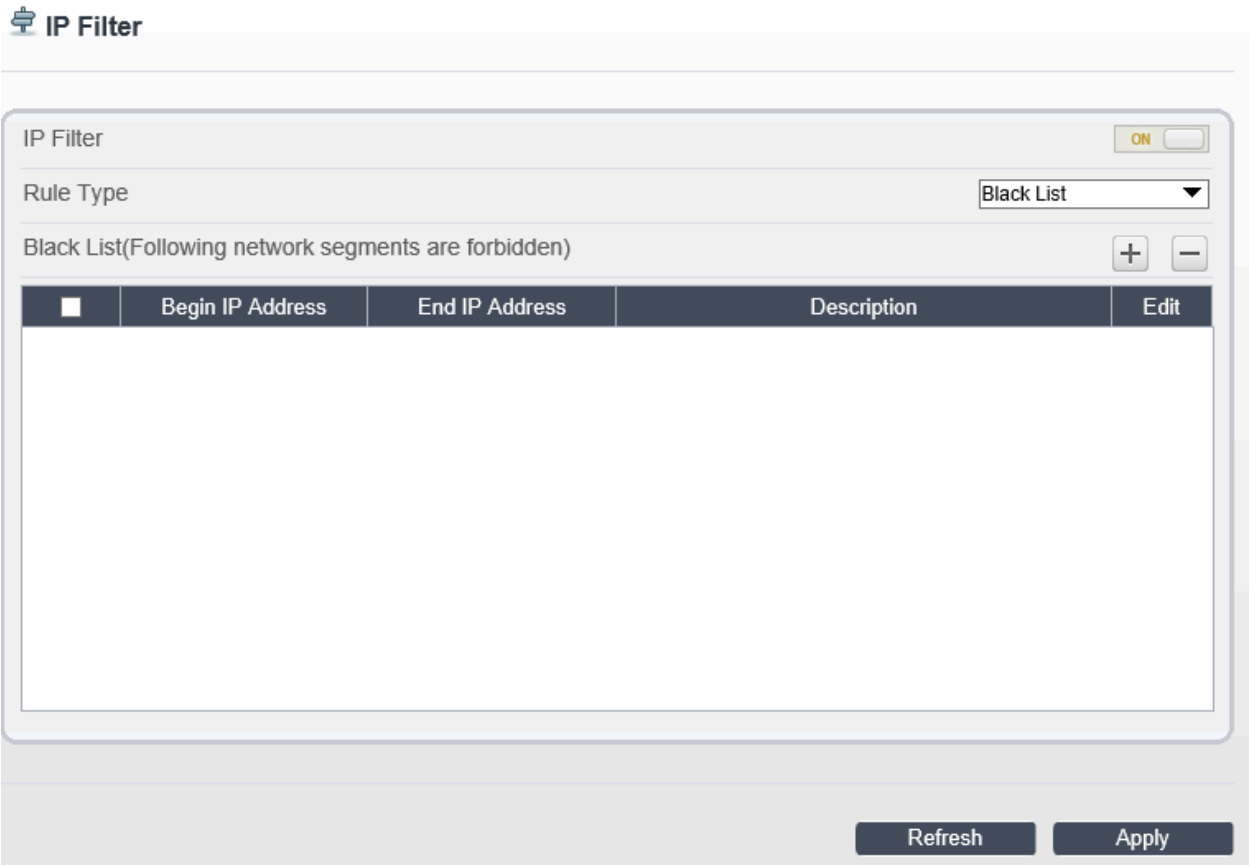
If the File Transfer Protocol (FTP) button is enabled, the device automatically sends the snapshot alarm JPG images to the specified FTP server.

FTP Settings

FTP Upload	Indicates whether to enable the FTP service.
FTP Address	IP address of FTP server.
FTP Port	Port of FTP server.
Account	FTP server account.
Password	FTP server Password.
FTP Path	FTP Path to save the JPG image.
Image Quality	A higher-quality image uses more storage space. Set this parameter based on the site requirement.

IP Filter

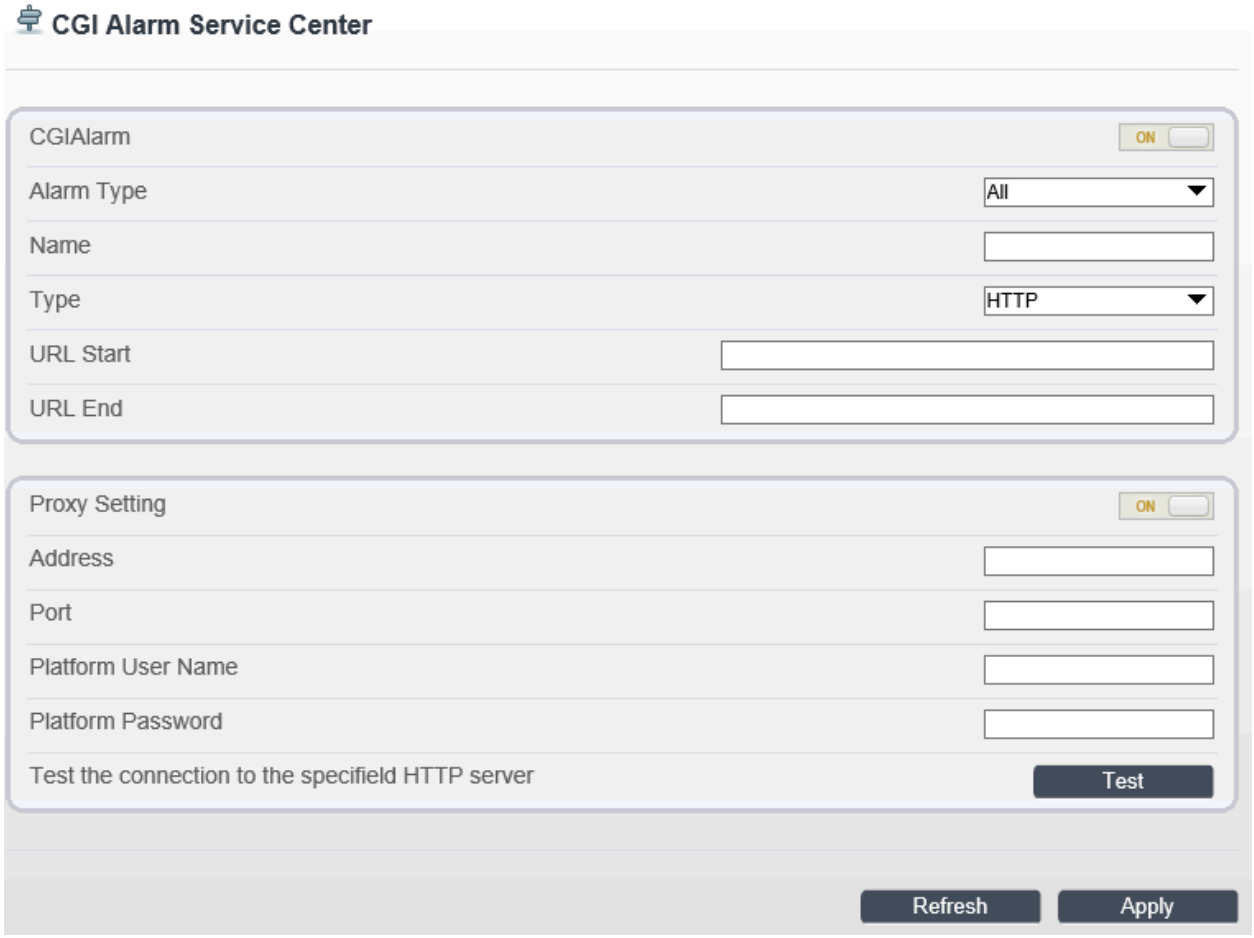
Set the IP address in the specified network segment to allow or prohibit access.



IP Filter Settings

IP Filter	Indicates whether to enable the IP Filter.
Rule Type	IP filter type, includes black list and white list.
Black List	Specified network segment to prohibit access
White List	Specified network segment to allow access

CGI Alarm Service Center



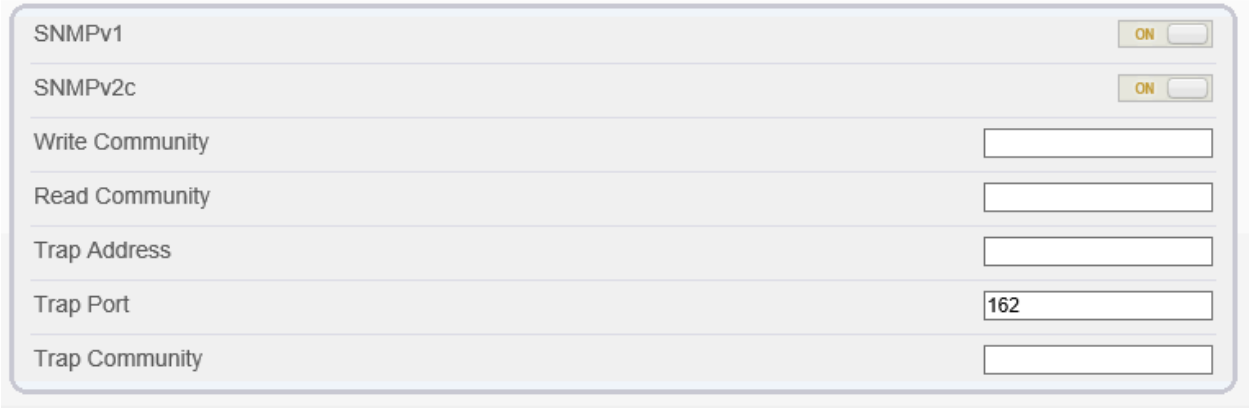
CGI Alarm Settings

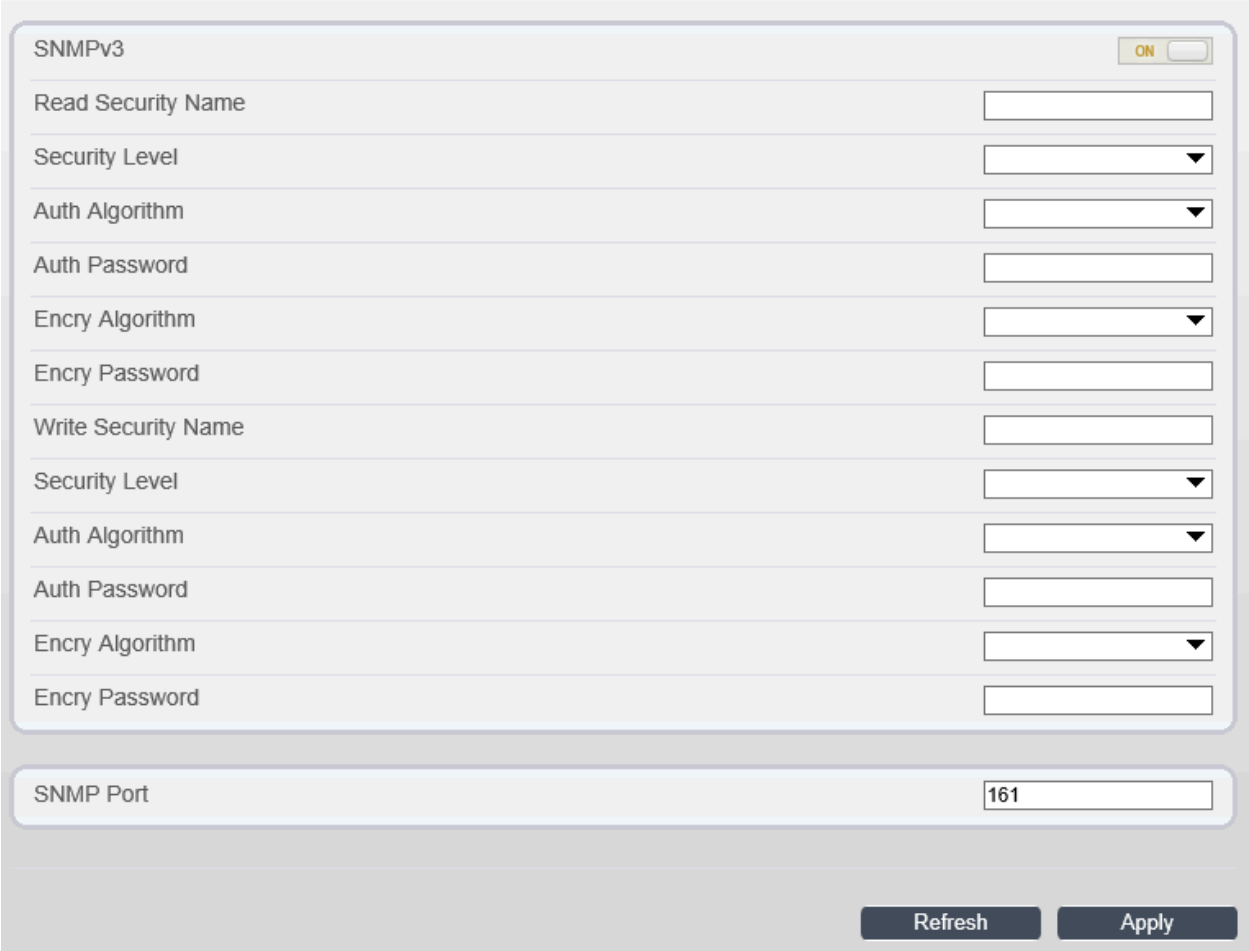
CGI Alarm	Indicates whether to enable the CGI Alarm.
Name	Name of CGI Alarm.
Type	Type of CGI Alarm.
URL Start	Push the alarm message by CGI with start URL
URL End	Push the alarm message by CGI with end URL
User Name	User name of device.
Password	Password of device.
Proxy Setting	Indicates whether to enable the Proxy.
Address	IP address of forwarding server.

Port	Port of forwarding server.
Platform User Name	User name of forwarding server.
Platform Password	Password of forwarding server.
Test the connection to the specified HTTP server	Test if the device connects to the proxy successfully.

SNMP (Simple Network Management Protocol)

SNMP is an Internet Standard protocol, which supports SNMPv1, SNMPv2c and SNMPv3 network protocol. Choose the proper SNMP protocol version and set the SNMP protocol parameter to collect and organize information about managed devices on IP networks.



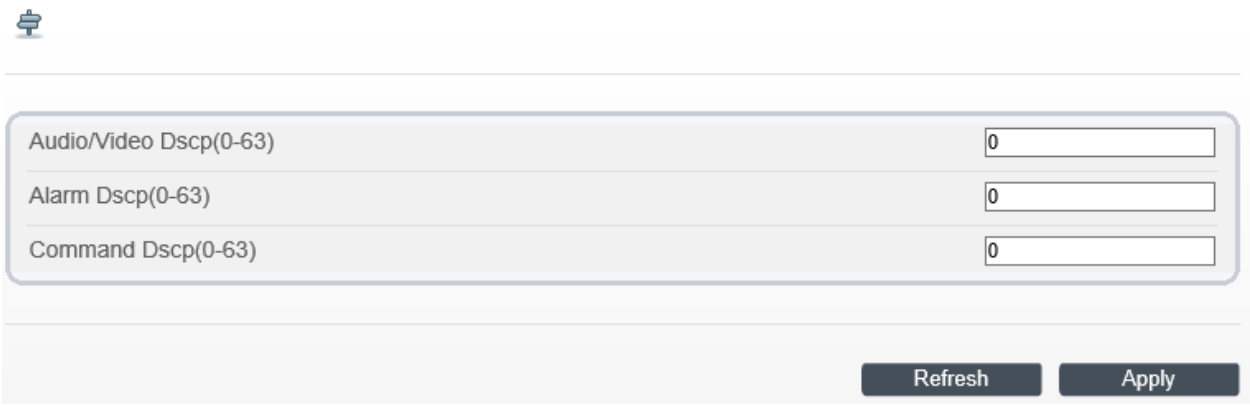


SNMP Settings

SNMPv1 SNMPv2c	Version of SNMP. SNMPv1 and SNMPv2c use communities to establish trust between managers and agents. Agents support three community names, write community, read community, and trap.
Write Community	The write community only can modify data.
Read Community	The write community only can read data.
Trap Address	IP address of the trap.
Trap Port	Management port of accepting message from trap.
Trap Community	The trap community string allows the manager to receive asynchronous information from the agent.
SNMPv3	Version of SNMP.

	SNMPv3 uses community strings, but allows for secure authentication and communication between SNMP manager and agent.
Read Security Name	Name of read security.
Write Security Name	Name of write security.
Security Level	Security Level between SNMP manager and agent, includes three levels **Noauth**: No authentication and no encryption **Auth**: Authentication but no encryption **Priv**: Authentication and encryption
Auth Algorithm	Authentication Algorithm, includes MD5 and SHA.
Auth Password	Authentication password.
Encry Algorithm	Encryption Algorithm, includes DES and AES.
Encry Password	Encryption password.
SNMP Port	Port of SNMP.

QOS



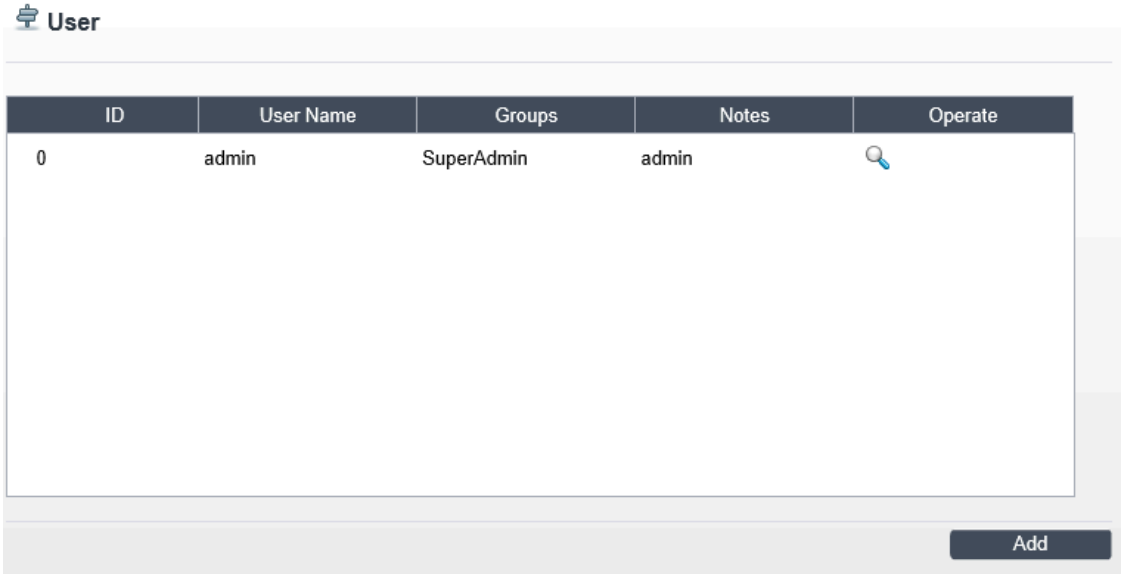
Platform Access

Privilege Manager

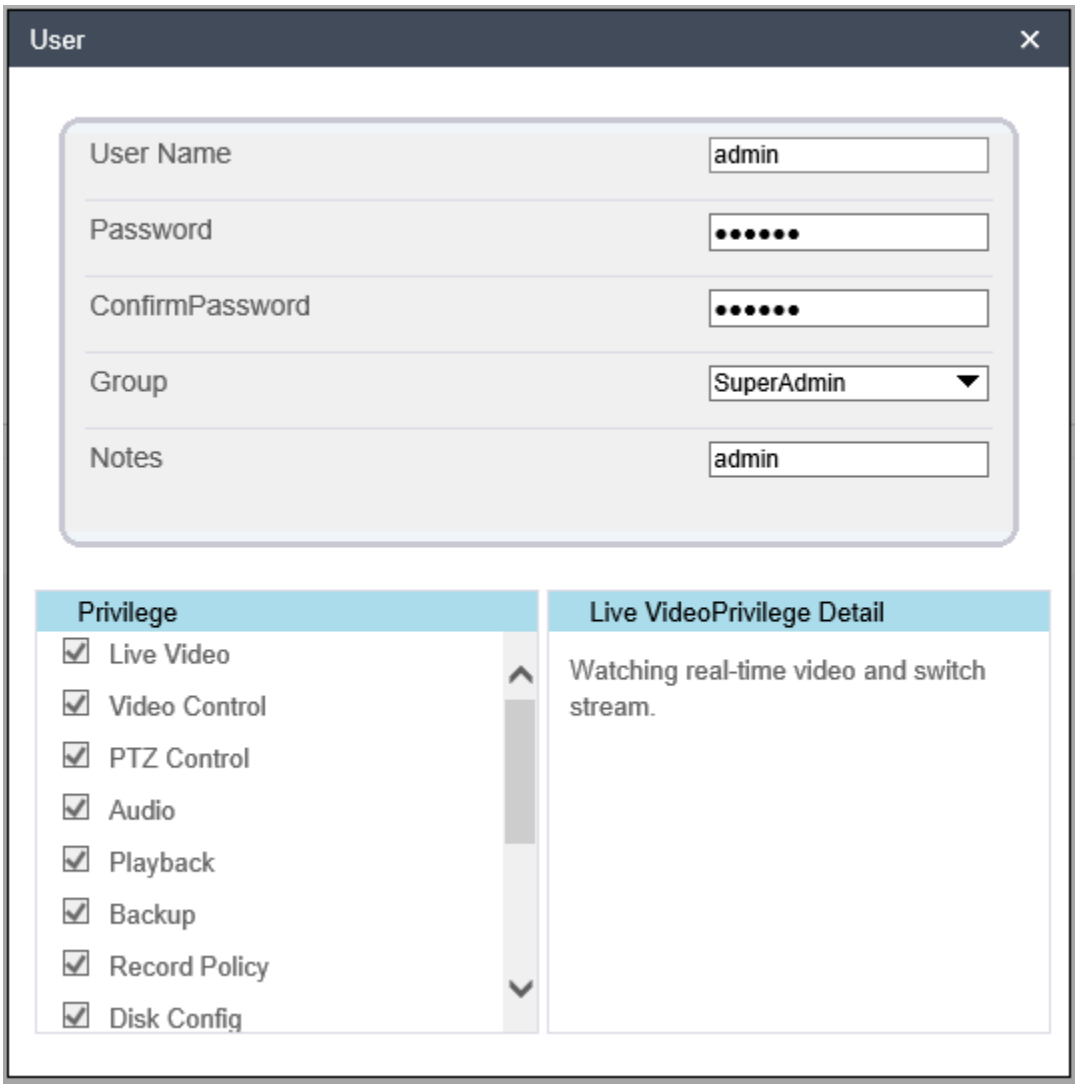
User access to the camera interface can be configured using the Privilege Manager. Permission groups and credentials can be set for multiple users.

User

A user's level will determine which parts of the camera web interface functionality they have access to.



User Management Settings



Individual User Permissions

Groups	Permission group where a user belongs. The default permission groups are Super Admin, Administrators, Operator, and Media user. **Super Admin**: Includes all privileges. **Administrators**: Live Video, Video Control, PTZ control, Audio, Playback, Backup, Record Policy, Disk Configure, Privilege Manage, Parameter Configure, System Maintenance and Log **Operator**: System Maintenance, Parameter Configure, playback, Live Video and Video Control. **Media user**: Live Video

Notes	Notes of the User.
Operate	Opens operation menu for the user, includes view user, modify user and delete user.

Protocol

You can view the existing protocol name and version number of the current device on the Configuration > Protocol > Protocol Info page.

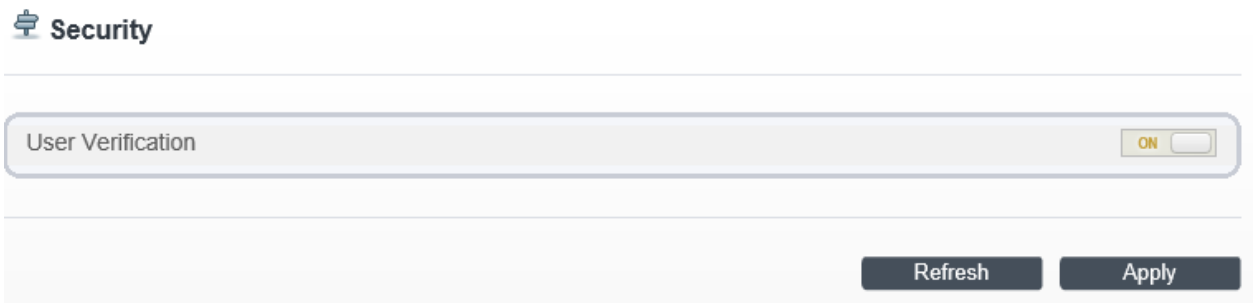
Protocol Info

Protocol Info Settings

Protocol Name	Type of the access protocol.
Protocol Version	Version number of the access protocol.
Protocol Software Version	Software version number of the access protocol.
RTSP Rule	URL rule of Real Time Streaming Protocol.
RTSP Example	URL example of Real Time Streaming Protocol.
Onvif UUID	Universally Unique Identifier of device

Security

When an ONVIF-compliant device connects to the platform, you must authenticate the user name and password to ensure the connection security.

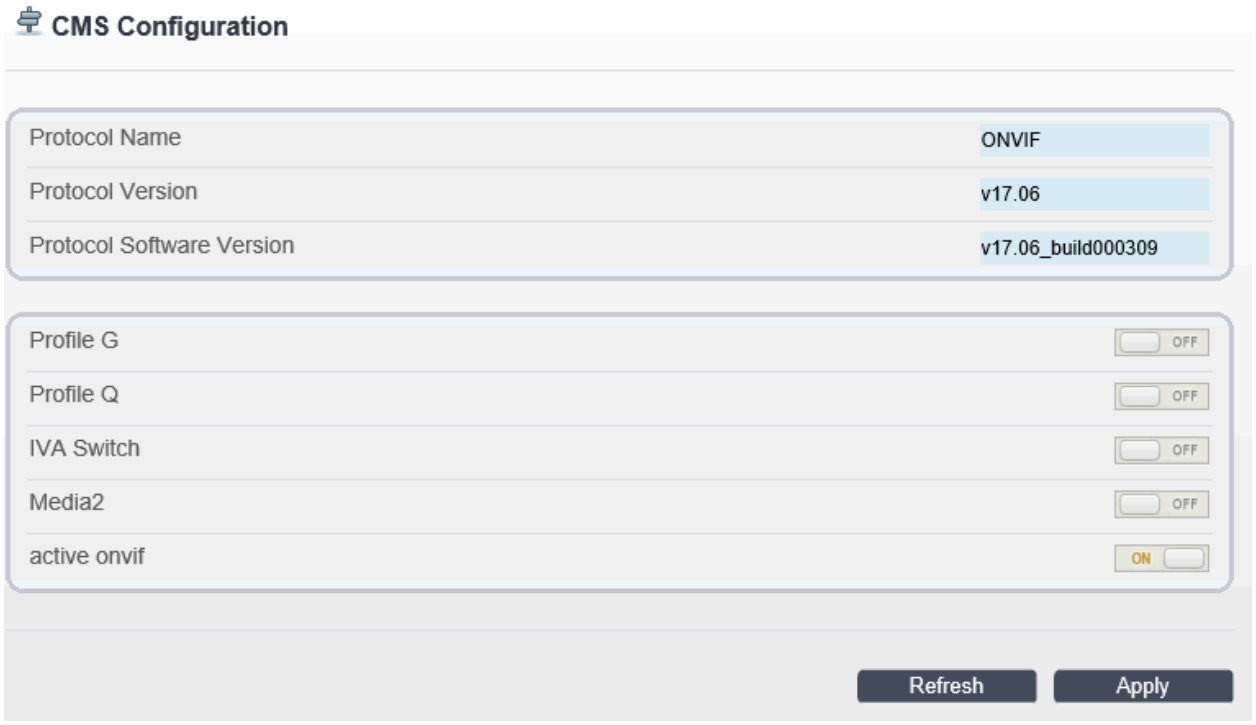


Security Settings

User Verification	When you enable User Verification, the user name and password must be the same as those for logging in to the device web page.

CMS Configuration

Configure the enabled Onvif protocols.



CMS Configuration Settings

Multicast Param

You can set multicast IP, video port, audio port and source port on the multicast parameter page.

Multicast Param Settings

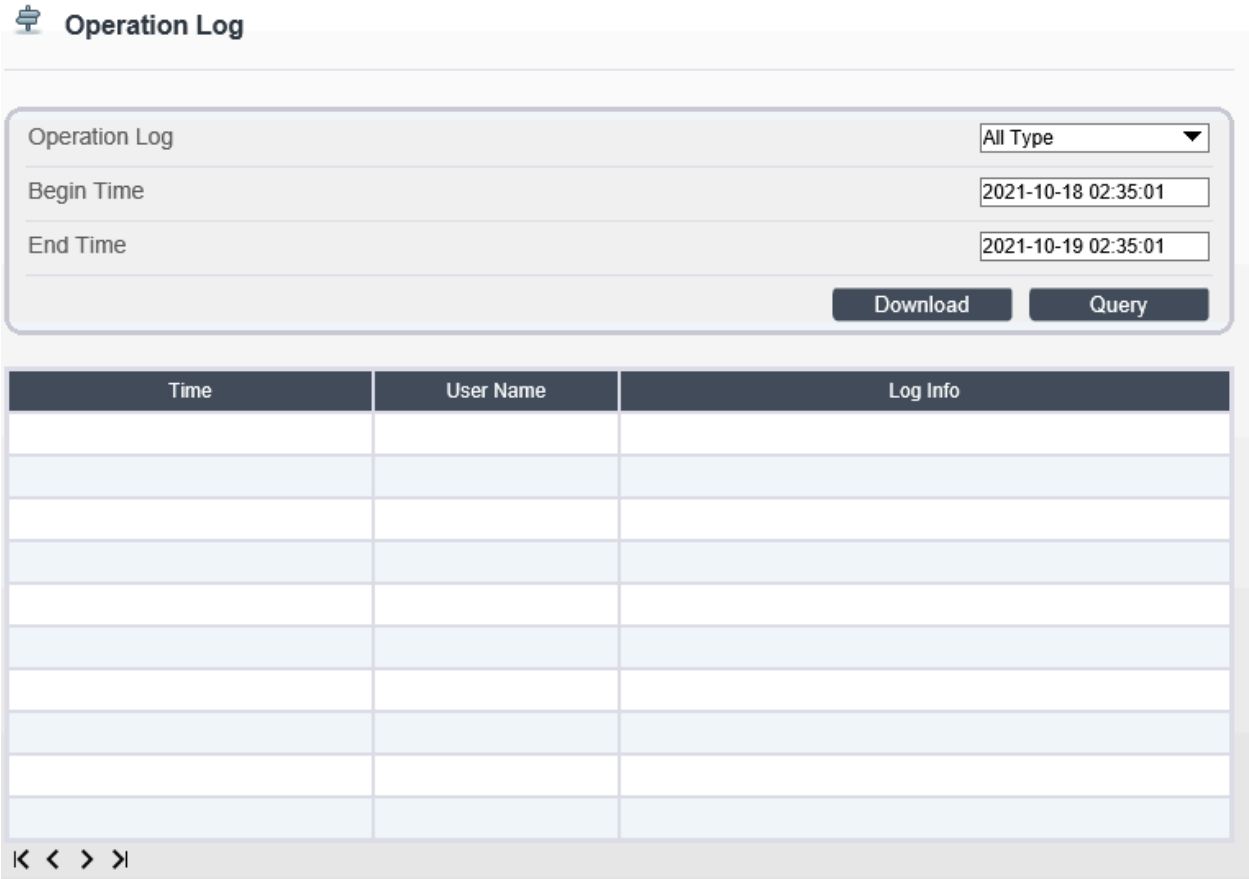
Stream ID	ID of stream.
IP	IP address that receives multicast data.
Video Port	Port that receives video data.
Audio Port	Port that receives audio data.
Source Port	Port that receives source data.

Device Log

Information related to user operations and scheduled camera tasks are recorded here. Operation logs can be classified into the following types: permission management, system maintenance, device configuration, recording operation, video control, and real-time video.

Operation Log

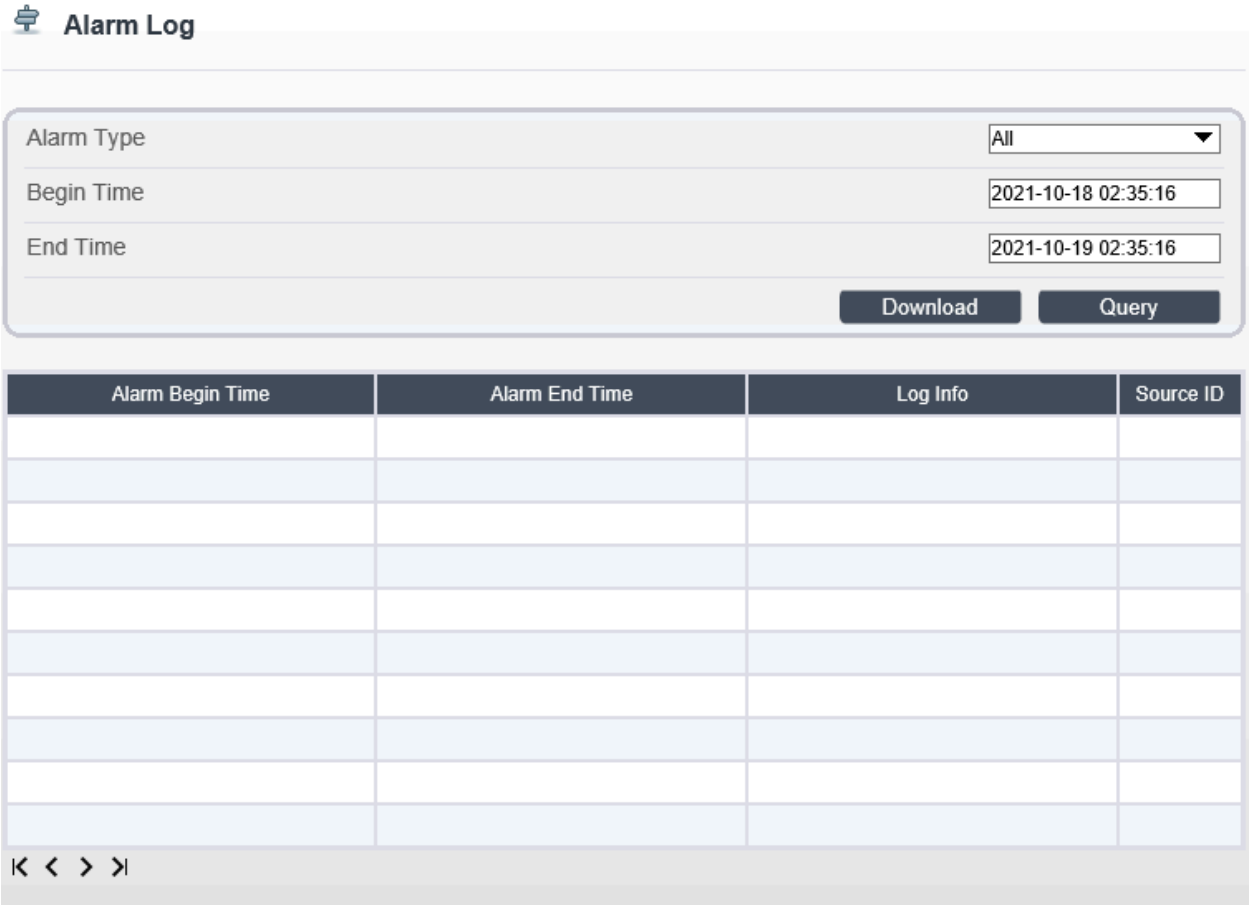
Operation logs record user operations and scheduled task commands during the running of the device. Operation logs can be classified into the following types: permission management, system maintenance, device configuration, recording operation, video control, and real-time video.



Operation Log Settings

Alarm Log

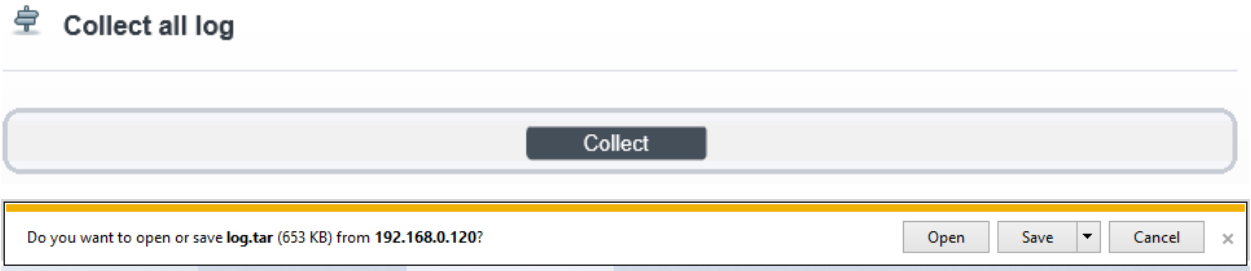
An alarm log records information about an alarm generated on a device, including the security, disk, and recording alarms.



Alarm Log Settings

Collect all Log

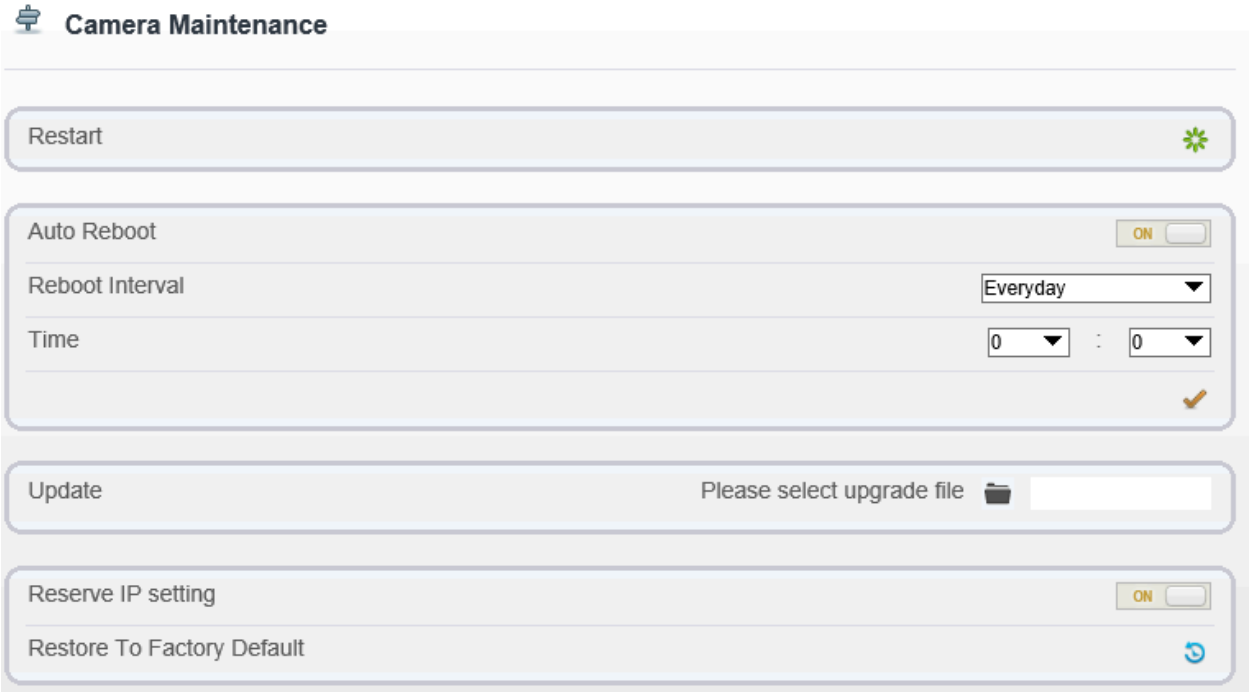
You can collect logs about a device, which help you analyze and solve possible problems occurring on the device. The logs include overview information, key parameters, operation logs, alarm logs, upgrade logs, and debugging logs.



Collect all log

Maintenance

Common functions related to camera operation can be completed from the Maintenance menu.



Camera Maintenance Settings

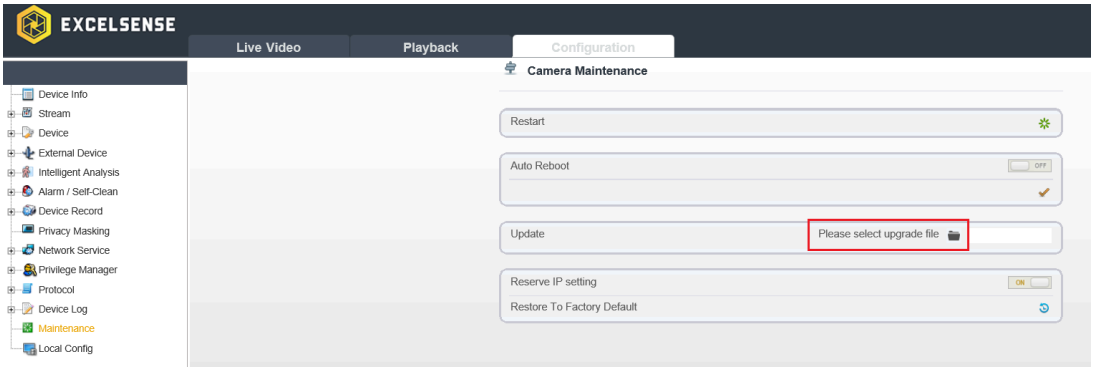
A restart can be applied in the following scenarios:

- The device needs to be restarted remotely
- Settings have been changed and a reset is required to make the changes take effect
- Device settings have been incorrectly set and the device is not working properly

Restarting the camera takes up to 5 minutes.
The device can also be restored to factory settings if necessary.

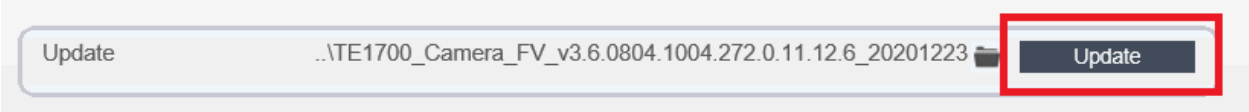
Updating Camera Module Firmware

To update the camera module firmware, navigate to Configuration > Maintenance, and click the folder icon in the *Update* section to browse for the firmware file (provided by ExcelSense).



Web Interface Firmware Browse Button

Click the Update button to initialize the firmware update process (this should take approximately 1-2 minutes).



Web Interface Update Firmware Button

The camera module will then automatically reboot. After about 1-2 minutes, restart the IE browser and login. If prompted, download and install the new camera plug-in (this may be required for full functionality of the new firmware). Make sure to temporarily disable Windows Defender Real-Time Protection, FireWall, etc during the installation process, as not doing this may block the computer from downloading and installing this plug-in.

***Note**: If a 3rd-party IP camera software is to be used to stream the H.265/H.264 footage, this plug-in is not required to be installed. All configuration settings can be configured without this plug-in.*

Local Config

This menu controls the location of saved snapshots and recordings.

Local Config Menu

Troubleshooting/FAQ

Problem: Unable to access web interface

Potential cause
Subnet settings do not match
Solution
In order to access the web interface, the client PC and IP camera must share the same subnet. To do this, the computer's ethernet settings can be modified by following the steps below:

(1) Navigate to the PC's ***Network Connections*** page by typing it into the Start menu
(2) Right-click on the corresponding Ethernet device and select Properties
(3) Open the Internet Protocol Version 4 (TCP/IPv4) Properties by either double-clicking the item from the list or selecting it and clicking the Properties button
(4) Check the "Use the following IP address" box and type in address that is on the same subnet as the camera. For example, the following can be entered:

IP address	192.168.0.1
Subnet mask	255.255.255.0
Default gateway	192.168.0.1

(5) Click OK on this page as well as on the Ethernet Properties page

Resources & Support

ExcelSense Camera Configuration Tool

ExcelSense has released a dedicated camera configuration desktop application, compatible with Windows-based operating systems. This tool can be used to retrieve and configure various camera settings including video stream settings, image sensor settings, network settings (IP address, ports), and more. The installer is available for download here, and the relevant documentation can be found here.

ONVIF Device Manager Tool

The ONVIF Device Manager Tool provides an alternative option for retrieving and configuring camera settings and accessing the live video stream of the camera. It is a Windows-based application which communicates with the camera through the ONVIF protocol. The tool's installer (.msi file) is available for download here.

Technical Support

If further technical support is needed, please contact support@excelsensetechnologies.com.