EXCELSENSE

IP Camera - Web Interface Manual

2nd Generation Sensor Module

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About

This document is intended for use with ExcelSense ToughEye-1700™ and ToughCam-1000™ cameras equipped with 2nd generation optical sensor modules. Note that Self-Clean functionality is only available on the ToughEye-1700™. Please contact ExcelSense support (support@excelsensetechnologies.com) for questions about this document.

Camera Compatibility

This document provides information regarding the web interface of the 2nd generation sensor modules, which are used in ToughEye-1700™ and ToughCam-1000™ models released according to the table below. For more information about the differences between the two generations of sensor modules, please refer to the Product Change Notice found here.

	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 1st generation sensor module is equipped, please do not use this document as a reference guide. The appropriate web manual documentation for the 1st generation sensors can be found here; please use the latest version of the documentation found in the provided link as the reference manual for 1st Gen equipped cameras.

First Time Setup

Factory Default Settings

Network Settings

IP Address	192.168.0.120
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1

Stream Settings

Stream ID	1
Video Encode Type	H.265
Resolution	1920x1080 (1080p)
Frame Rate (fps)	30

Configuring Client-Side LAN

In order to communicate with the camera, the client-side network device must be on the same subnet as the IP camera. Given its factory default subnet mask provided above, when using a Windows PC as the client device, the following steps can be followed to establish a connection:

1. Type “View network connections” into the start menu, and navigate to the corresponding window
2. Identify the appropriate ethernet network adapter, and navigate to its Properties by right-clicking on the adapter device
3. Open the Internet Protocol Version 4 (TCP/IPv4) Properties by double-clicking the item from the list
4. Select the “User the following IP address” checkbox, and type in the following network parameters (the default gateway can be left blank):

IP Address	192.168.0.1
Subnet Mask	255.255.255.0

5. Click OK on this window as well as the Properties window

Finding the Camera on the Network

The camera's default IP address is 192.168.0.120 as listed above. However, if this IP changes from the default, the camera can be found on the local network using a light-weight Windows application called Tools, which can be downloaded from here. This app searches active online devices within your local network and displays the information of the devices. You can also modify camera parameters and upload sensor module firmware with this software.

Streaming on Web Interface (Chrome, Edge)

The 2nd Generation Sensor Module is equipped with a web interface which is fully compatible with modern HTML5 browsers such as Google Chrome and Microsoft Edge.

No plugins are required in order to unlock any configuration, and the live video can be streamed without the need for a plugin.

Important Note: *At this time, the live view stream from the web interface is not optimized for latency. Performance can vary significantly between browsers and client-side processors. Therefore, it is currently recommended to perform video streaming operations by accessing the RTSP stream of the camera using a client-side software application. ExcelSense has developed a client software for this purpose; the latest version of this app available for download can be found here, with supporting documentation provided here.*

Integration with 3rd-Party Camera Software (ONVIF)

The ToughEye-1700™ IP camera can be integrated with 3rd-party IP camera software, as the camera is ONVIF Profile G and S compliant.

One such application that can be used as a demonstration or diagnostics tool is the ONVIF Device Manager tool, which communicates with the camera through the ONVIF protocol. The tool's installer (.msi file) can be found here.

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 web interface to access and modify camera settings.

Start Page

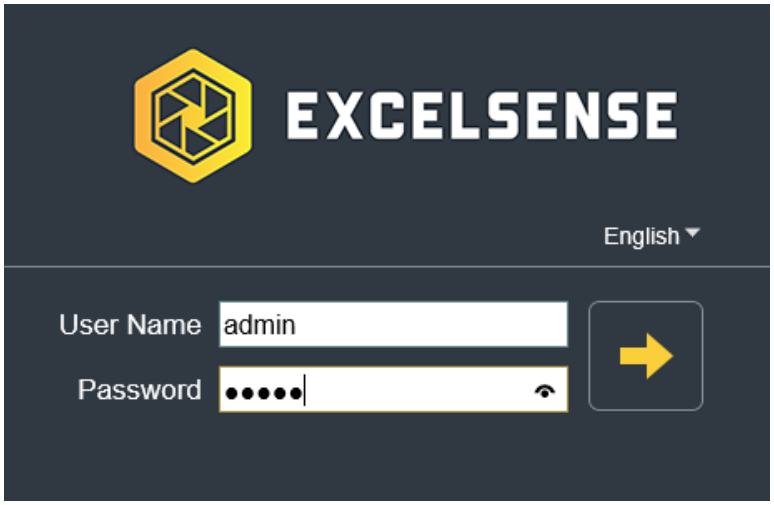
Ensure the camera is properly connected and powered before accessing the web interface. At room temperature, the camera takes roughly one minute to boot, at which point it is accessible from the web interface. If the camera is in an unsafe temperature range, the onboard systems will activate to bring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

The IP camera's web interface can be accessed through most modern browsers, but Microsoft Edge will be used in the current and following sections. It is recommended to run the browser 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.

First Login

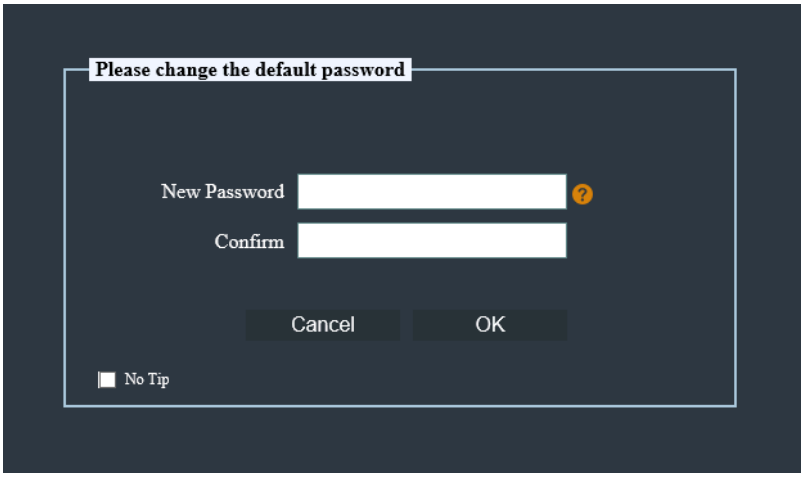
1. Run Microsoft Edge as an **Administrator**
2. Type the IP address of the camera into the address bar (default is 192.168.0.120)
3. Wait for the page to load, it may be necessary to refresh the page if "Can't reach this page" appears
4. When prompted, login to the web interface as shown below. Default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



Logging in with Default Credentials

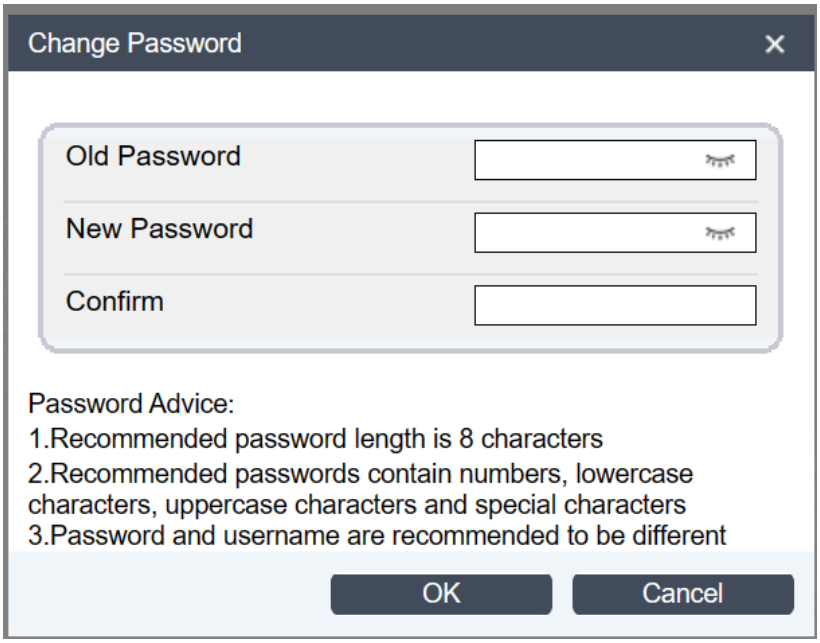
Changing the Password

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



Default Password Change Page

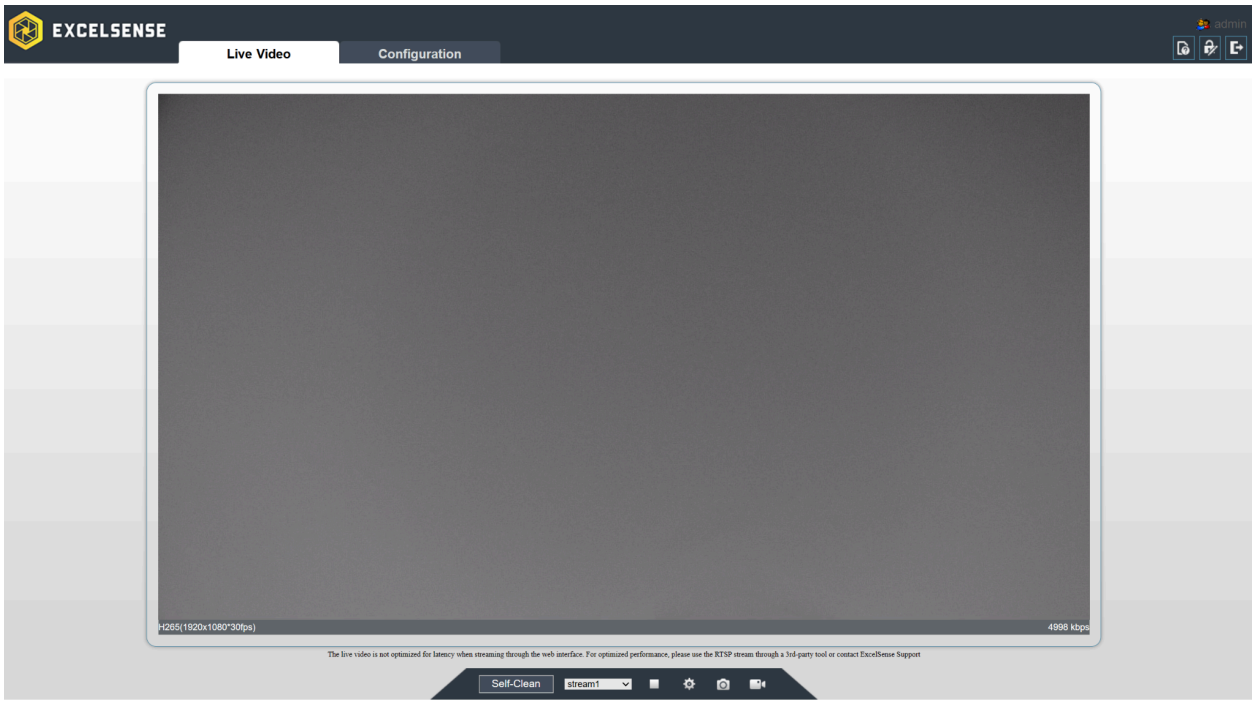
Passwords can be changed at any time by clicking the lock icon  at the upper right corner of the webpage.



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

Important Note

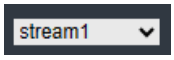
In the current version of the sensor module firmware, the live video is not optimized for latency when streaming through the web interface.

For optimized performance, please use the RTSP stream through a 3rd-party tool, or refer to the Resources & Support section of this document for recommended software.

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.

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

Self-Clean	Triggers a Self-Clean operation, only available on cameras with self-cleaning functionality, such as ToughEye-1700™
Stream 	Allows the user to switch between multiple streams
Stop 	Stops playing the live stream
Play 	Starts playing the live stream
Image Settings 	Shortcut button to navigate to the Image Settings page. See *Image Settings* for more information.
Snapshot 	Takes a snapshot of the current view and saves it locally into the Downloads folder.
Local Record 	Clicking this button starts recording, clicking again stops recording. The video will be saved locally in the Download folder.

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.

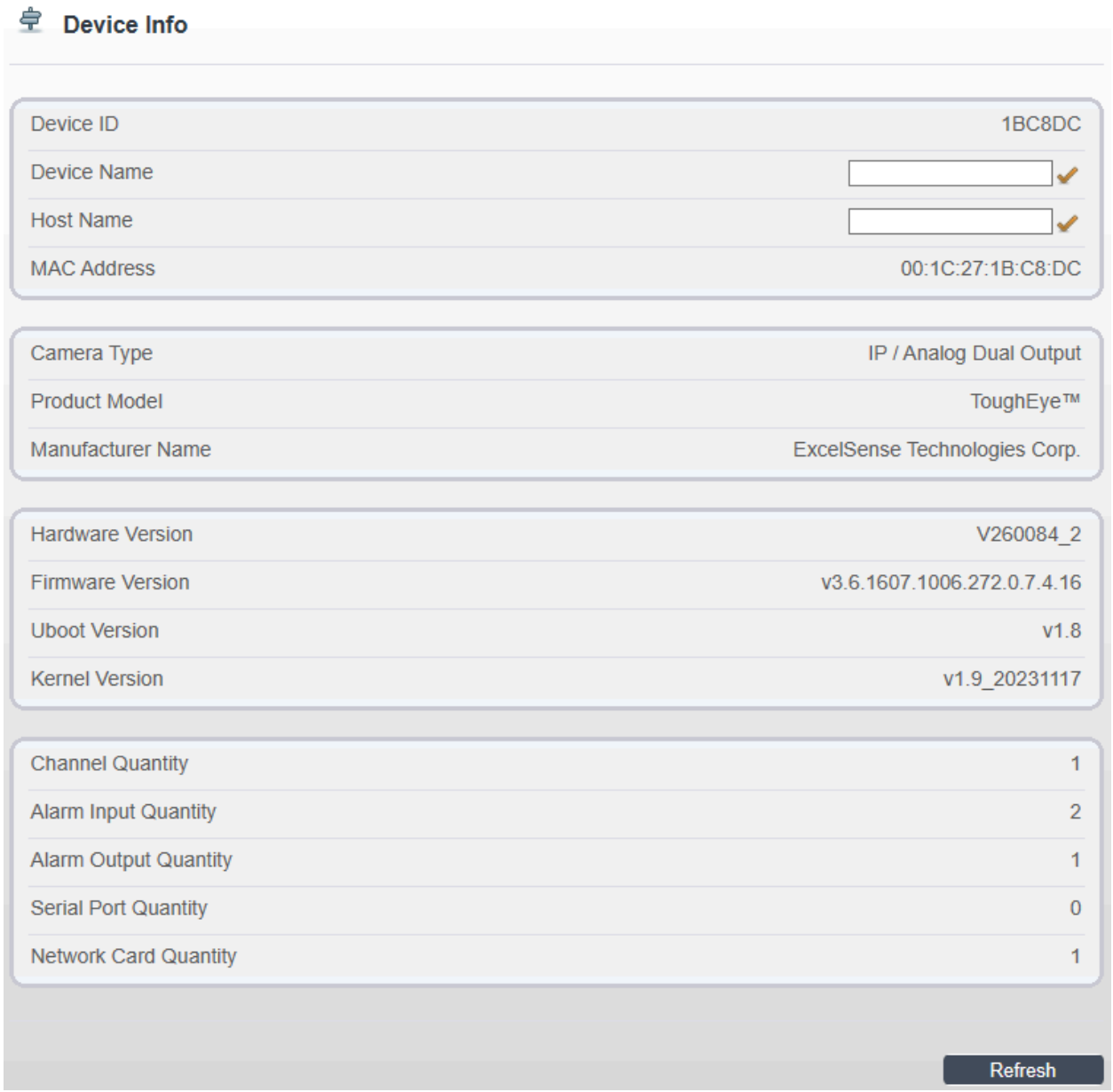
Important Note
When applying any changes to camera settings, it is extremely important to understand that the changes are permanently saved only if one of the following conditions are met:

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, etc.

Device Info

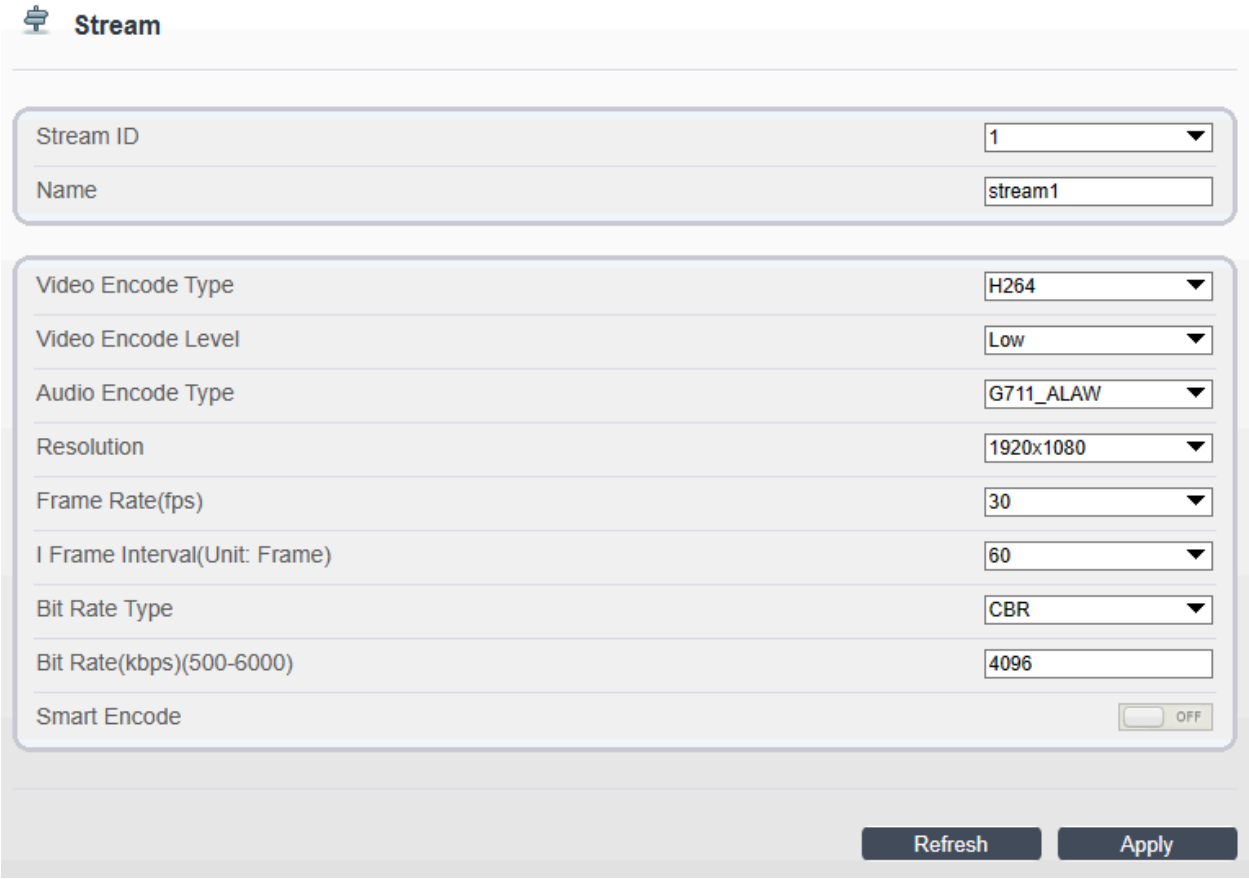
This page displays relevant camera information. The device name can be set from this menu. The device name cannot exceed 32 bytes.



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



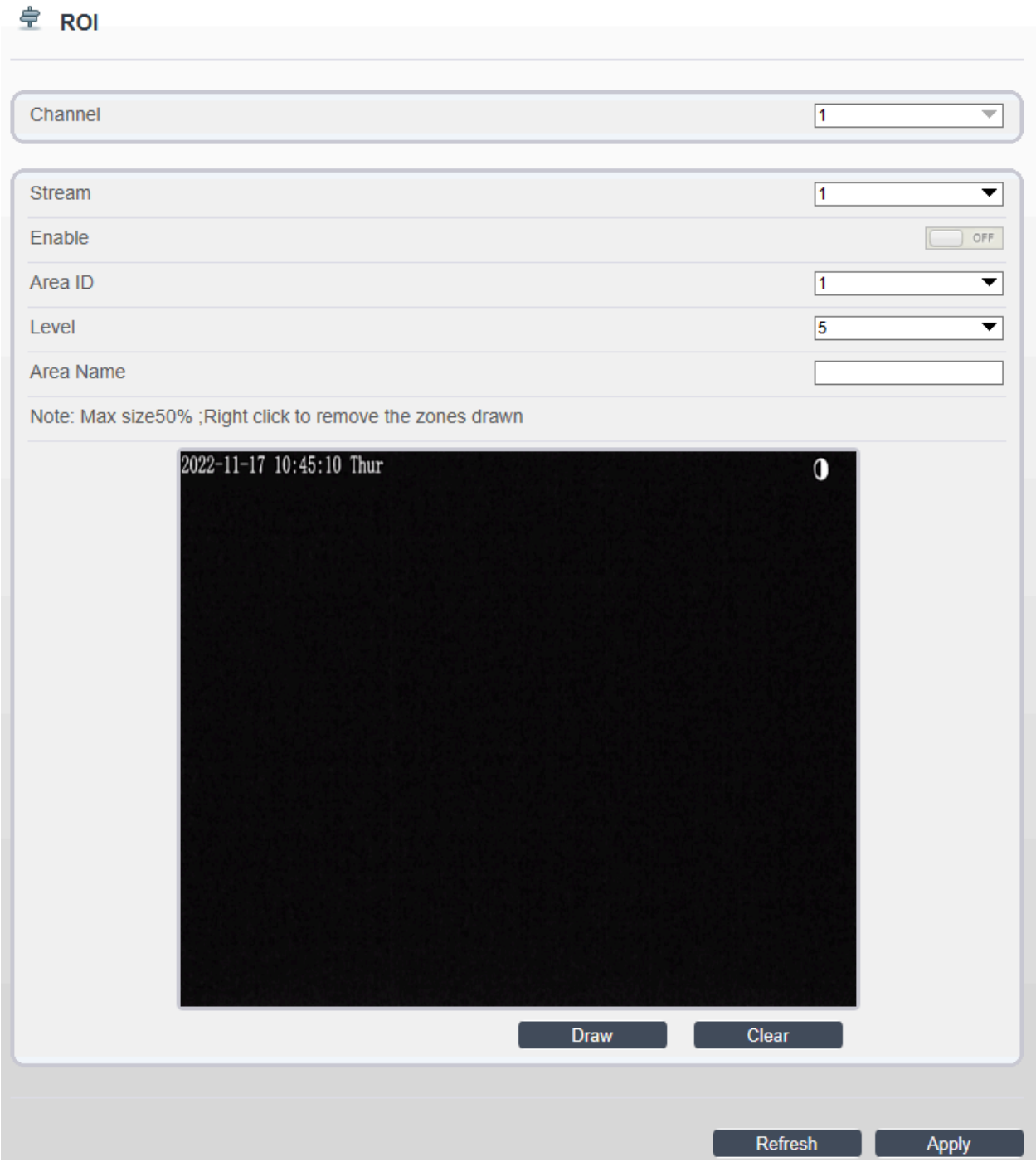
Stream ID	The device supports three independent streams. Each stream has its own resolution, frame rate, and bit rate limits. The base stream has the highest quality video settings options, and the third stream (stream ID 3) has the lowest.
Name	A custom name can be given to each stream on the camera. The name 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 the most modern video encoding standard available on the camera ● H.265 improves the streams, encoding quality, and algorithm complexity.
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 Notes: ● 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	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	Indicates the maximum value of the bit rate.
Image Quality	The picture quality of the camera output.
Smart Encode	If enabled, this feature can reduce the bandwidth, and any required video storage space, by up to 50%. Smart encode adjusts I-frame interval, bitrate, and quality parameters based on the dynamics of the scene in order to minimize the bandwidth requirement. Note: ● Quality may degrade with smart encode enabled. Please ensure stream quality is satisfactory with this option enabled. ● Video encode level, I-frame, bitrate, and quality parameters are not manually adjustable when smart encode is enabled.

ROI (Region of Interest)

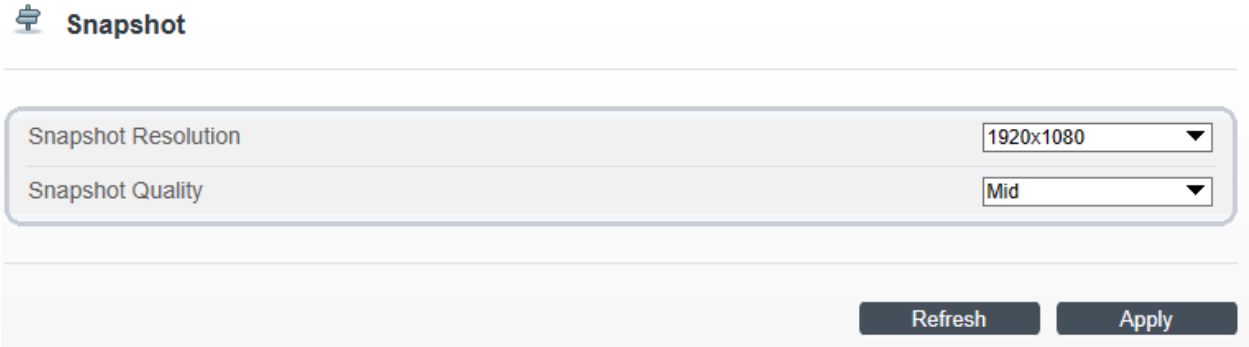
The ROI feature allows for the image in a specific region to become more clearer while all other regions outside of this image become more blurry, effectively focusing on the region of interest.



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

Image Settings

Image settings are a set of configurable parameters which affect the image sensor; these include exposure mode and gain, white balancing, and image enhancements.

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

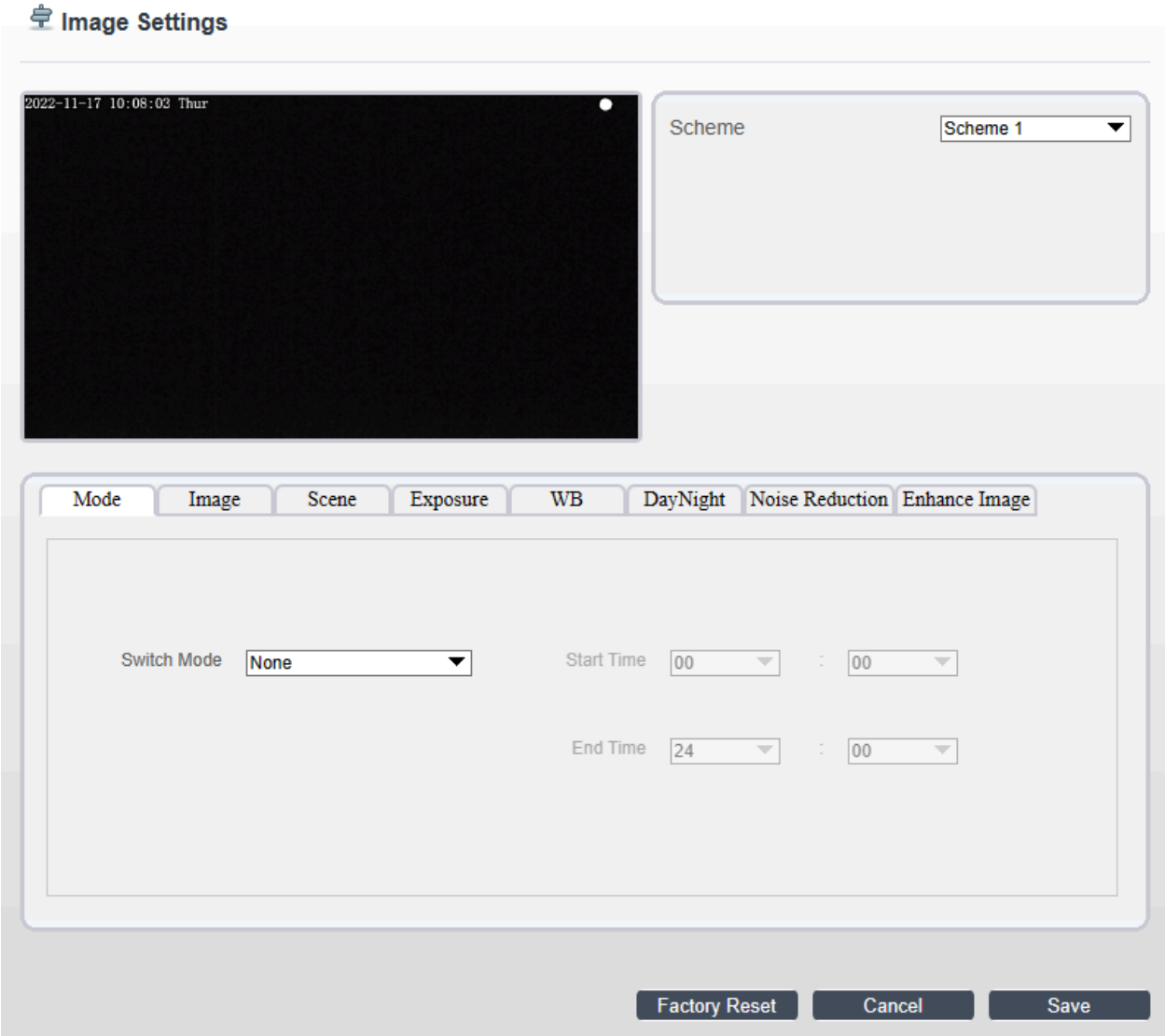
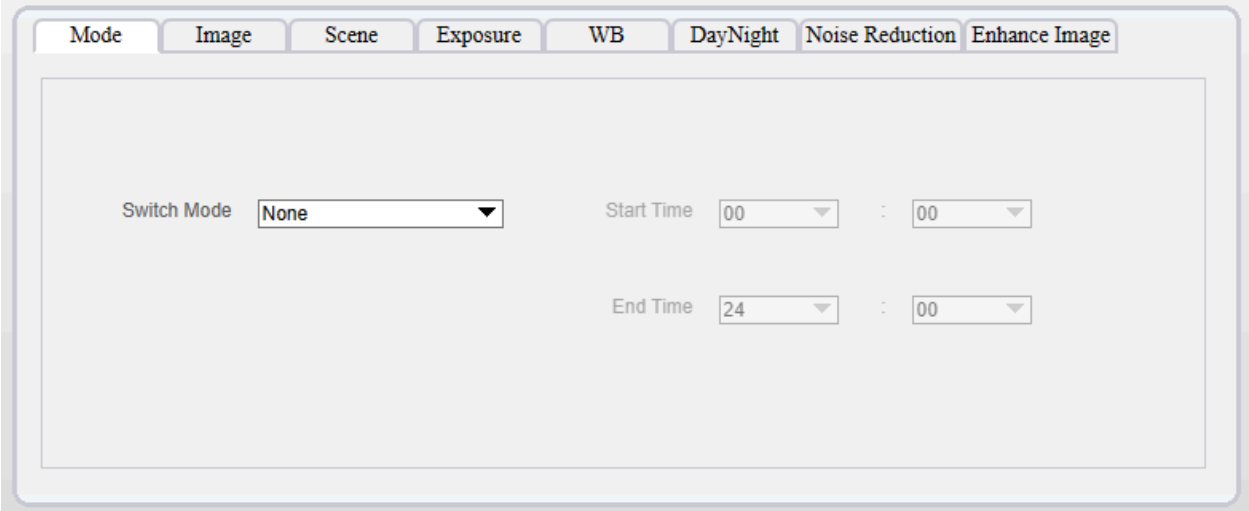


Image Settings Page

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, the preview window will show the effects, however the changes will not be saved until clicking Save. Clicking Cancel will reset the image settings to the ones which were last saved.

Mode

Use the dropdown menus to select the Image Sensor Settings scheme switch mode.

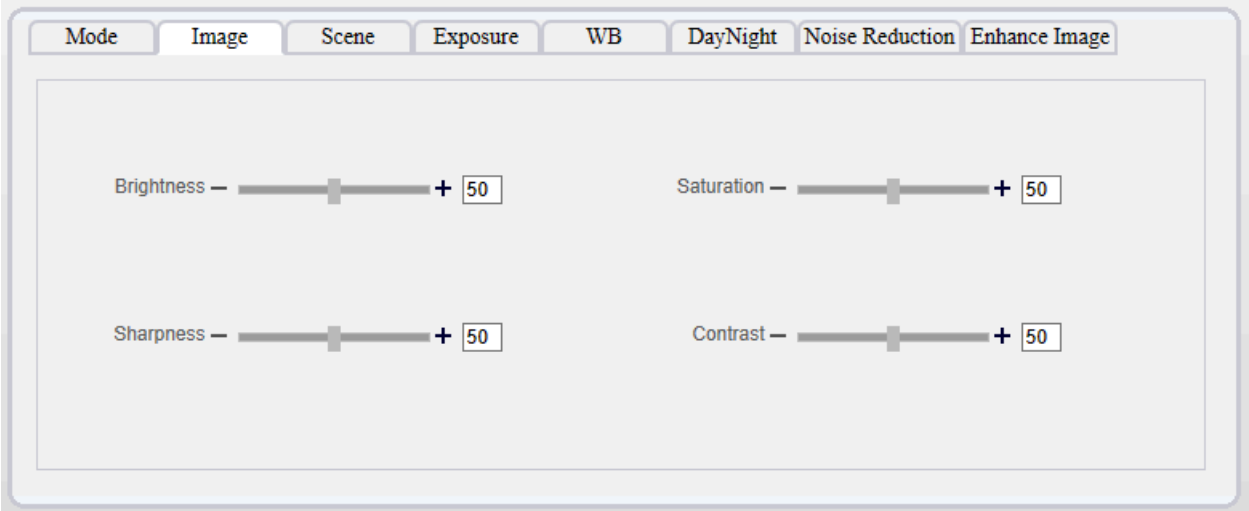


The table below describes the preset (scheme) switch mode settings.

None	The Image Sensor Settings scheme is constant; i.e. the selected preset will be used.
TimeMode	The camera will use settings in the associated scheme between Start Time and End Time.
DNLinkageMode	The camera will use the settings of Scheme 1 during Day Mode, and use the settings of Scheme 2 during Night Mode. **Note:** The DayNight Mode is based on the selection configured in Scheme 1.

Image

This menu controls image parameters.

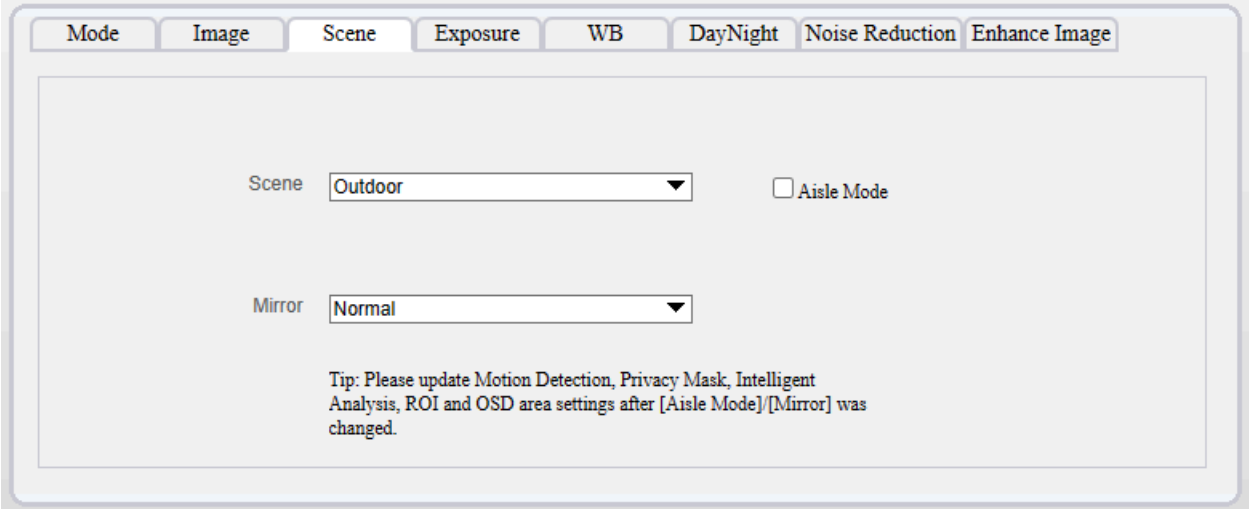


Brightness	The total brightness of the output image. As the value increases, the image becomes brighter. Exposure settings are independent, see Exposure.
Saturation	This setting controls the color purity of the image. As the value increases, the image becomes more deeply saturated.
Sharpness	Sharpness 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.

The default value for each of the above parameters is 50. This can be changed by dragging the slider to the desired level, or typing in the desired value in the corresponding adjacent textbox.

Scene

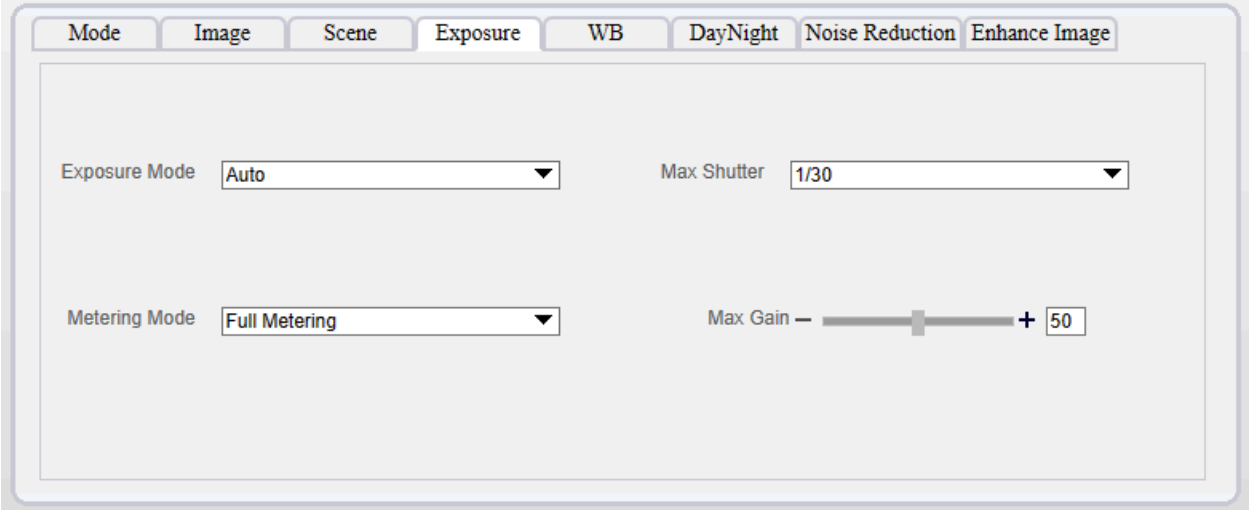
Different scenes can be selected based on the camera's operating environment.



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+Vertical: Image plane is mirrored about the X and Y-axis
Aisle Mode	Rotates the image 90 deg clockwise

Exposure

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

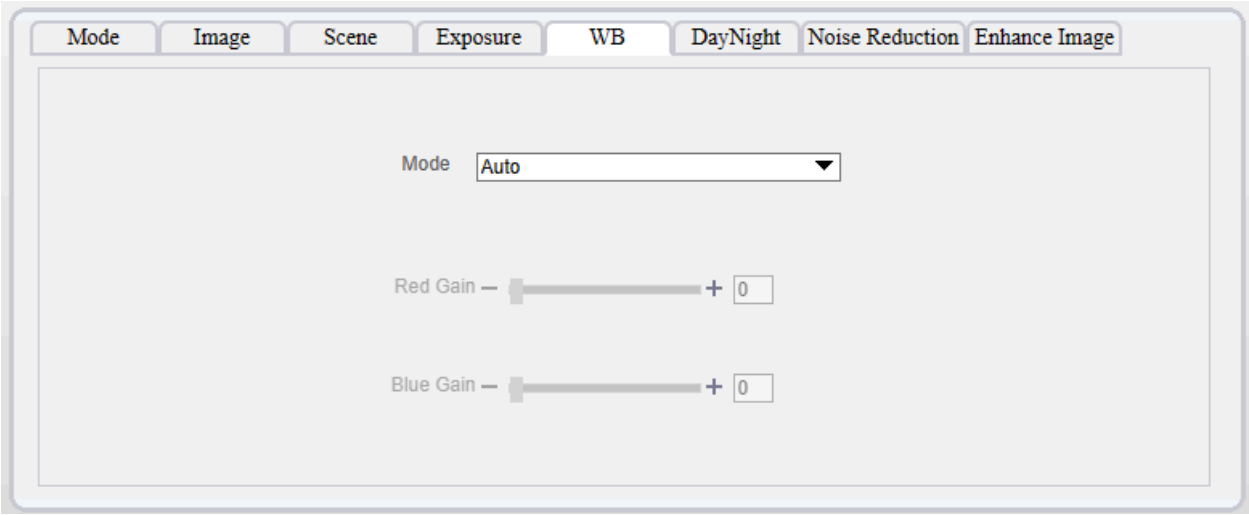


Exposure Mode	Auto: Camera adjusts shutter time and gain parameters, up to the Max Shutter and Max Gain values chosen, based on the scene and Metering Mode. Manual: Fixed Shutter, Fixed Gain, and Metering Mode must be manually set to fixed values; the camera cannot automatically adjust any of these parameters. Shutter Priority: Fixed Shutter time must be manually set to a fixed value; the camera automatically adjusts the gain up to the chosen Max Gain setting based on the scene and Metering Mode.
Meter Mode	Refers to how the camera determines the correct shutter and gain parameters. Full Metering (or Whole): All parts of the frame have equal weighting in order to calculate shutter and gain parameters. Spot Metering (or Center Spot): A small circle at the center of the frame, less than 5% of the entire frame area, is weighted more heavily than the rest of the frame in order to calculate shutter and gain parameters. Partial Metering (or Center Area): A circle at the center of the frame, 50% of the total frame area, is weighted more heavily than the rest of the frame in order to calculate shutter and gain parameters.
Max/Fixed Shutter	Refers to the time the shutter is open for (i.e.the time the image sensor is exposed to light). In Manual and Shutter Priority modes, the Fixed Shutter

	parameter can be set, and in Auto mode the camera automatically adjusts the shutter time up to a maximum of the Max Shutter value chosen. **Note:** Additional shutter time options are available when WDR is disabled.
Max/Fixed Gain	Gain adjusts automatically based on external light, up to the maximum value specified by the user. In Manual mode, the Fixed Gain parameter can be set, and in Shutter Priority and Auto modes the camera will automatically adjust the gain up to a maximum of the Max Gain value chosen.

White Balance

Color temperature can be controlled from this menu.

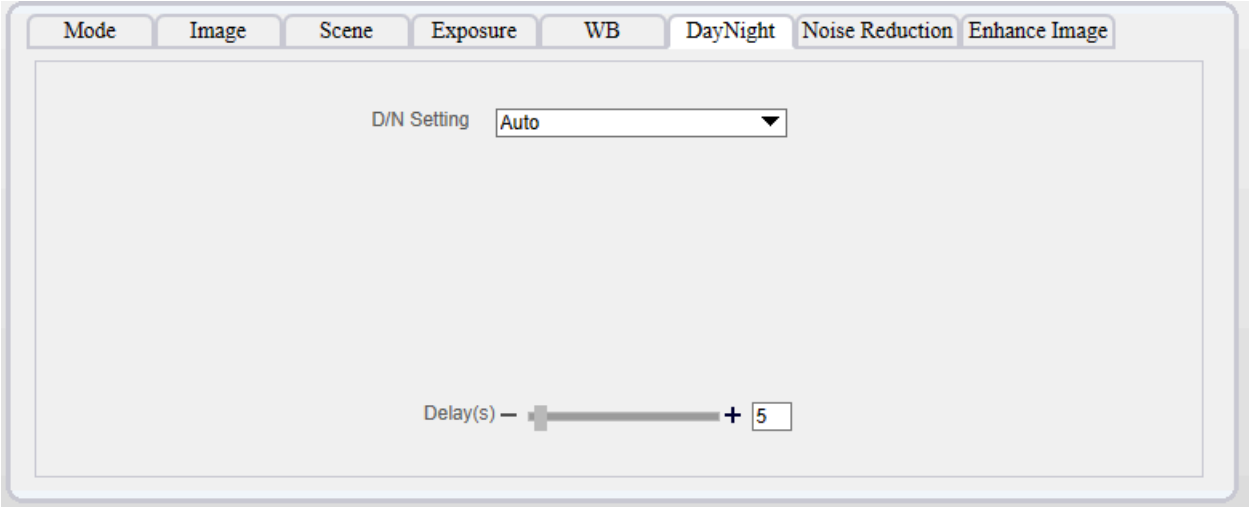


WB Mode	Auto: Automatically sets white balance based on image Tungsten: Balances the color temperature to tungsten light (makes the image cooler) Fluorescent: Balances the color temperature to fluorescent light (makes the image warmer) Daylight: Balances the color temperature to daylight (neutral shadows, cool sky, warm sun)

Red Gain	Control the red tint of the image
Blue Gain	Control the blue tint of the image

DayNight

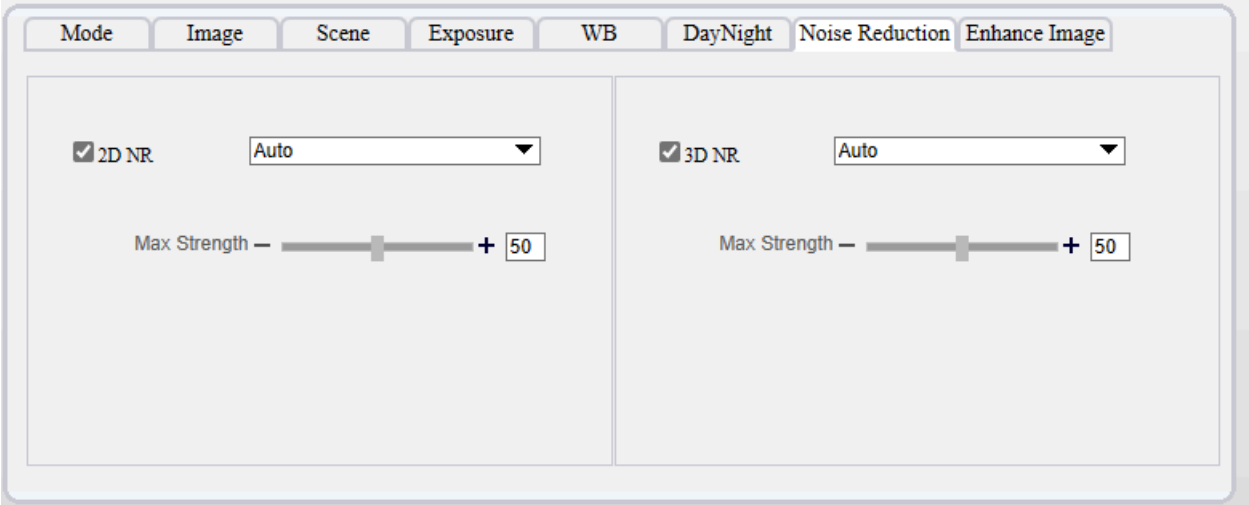
This menu controls the time and speed for the camera to switch between day and night mode.



D/N Setting	Auto: Image color is switched based on ambient brightness. In Night Mode, the stream is switched to grayscale. • **Important Note:** In Auto D/N mode, the max gain parameter when Exposure Settings are set to Auto mode should not be lower than 55. Day Mode: Camera is always in Day Mode. Night Mode: Camera is always in Night Mode. Timing: Sets specific timing for mode switching.
Delay (s)	Amount of transition delay in seconds

Noise Reduction

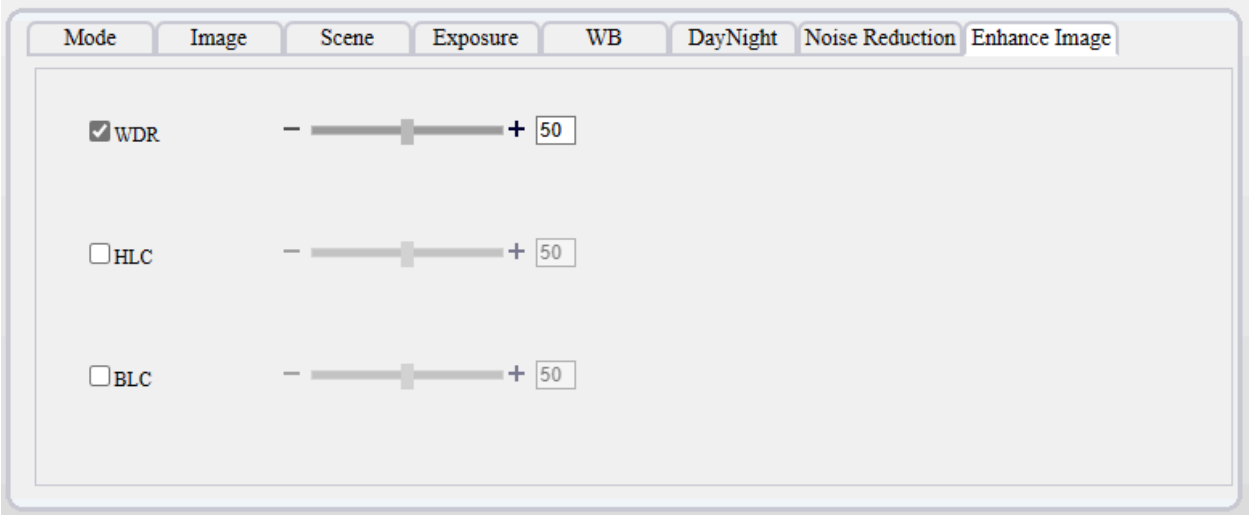
This menu allows for a noise reduction algorithm to be applied to the video stream. There can be random electronic signals during image processing which obscure picture data on a pixel level called noise. Unwanted noise is reduced if these settings are used.



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.

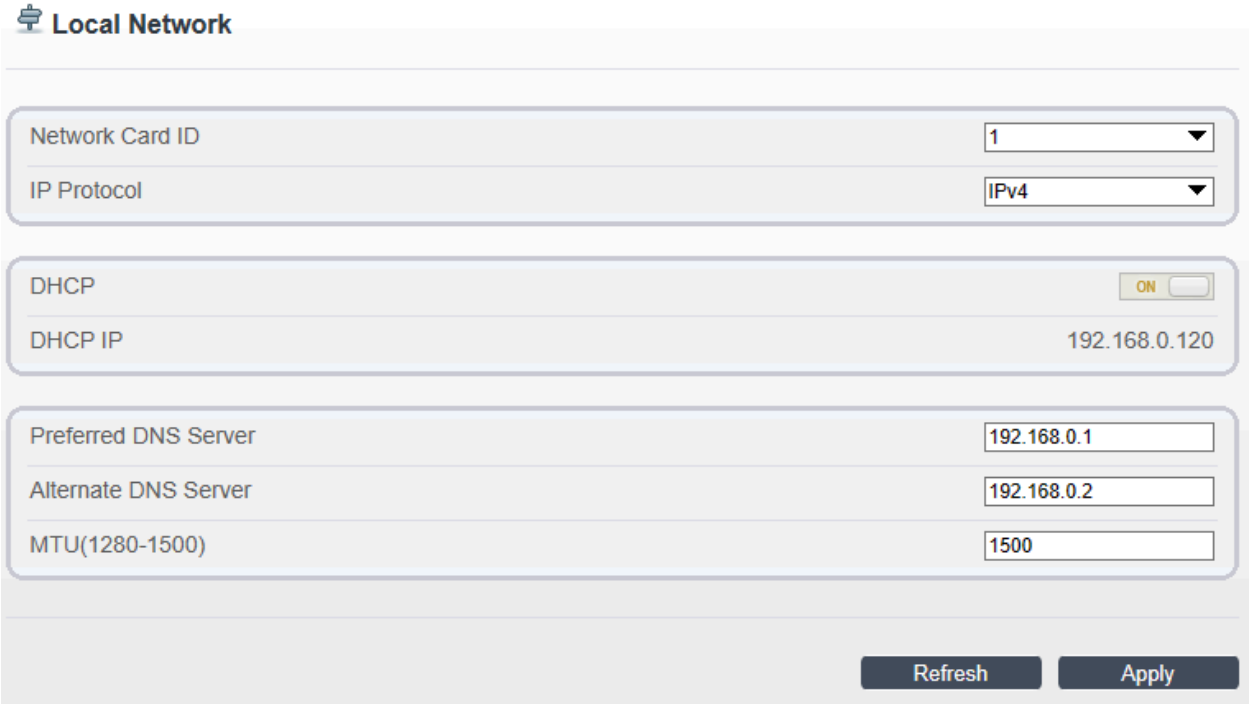


WDR (Wide Dynamic Range)	Improves image quality under high contrast lighting conditions. E.g. bright foreground and dark background
HLC (HighLight Compensation)	The camera will compensate for points of bright lighting which interfere with the visibility of the image.
BLC (BackLight Compensation)	Compensates for bright background lighting which interferes with visibility of a subject in the foreground.

Device

Common device settings and configurations, as well as information about the device. Network, port, and date/time settings can all be accessed and modified in this section of the web interface.

Local Network



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.

When DHCP is disabled, the following options are made available:

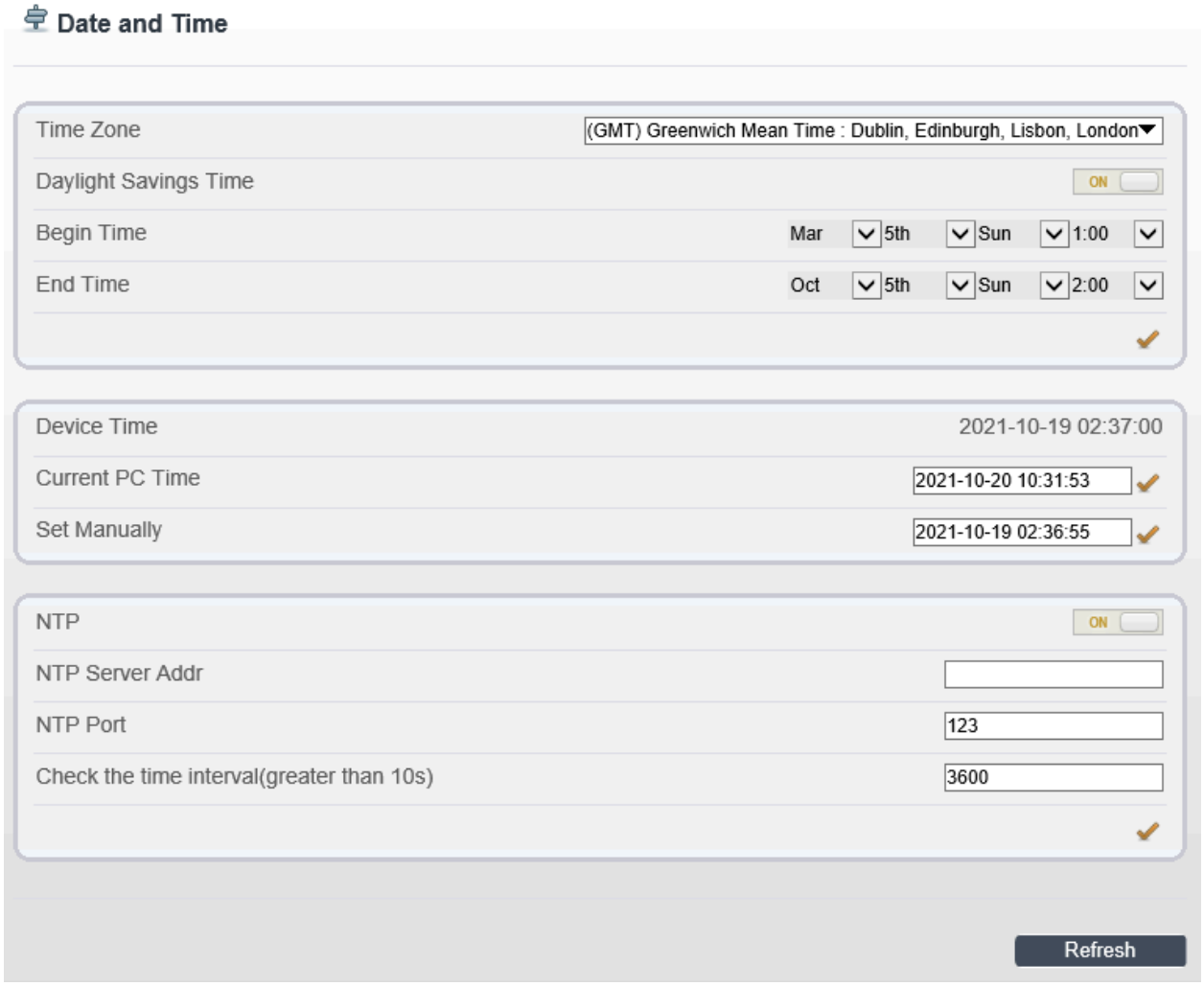
IP Address	Device IP address that can be set as required.
Subnet Mask	Subnet mask of the network adapter.
Default Gateway	This parameter must be set if the client accesses the device through a gateway.

Device Port

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

It is not recommended to modify the control port settings.

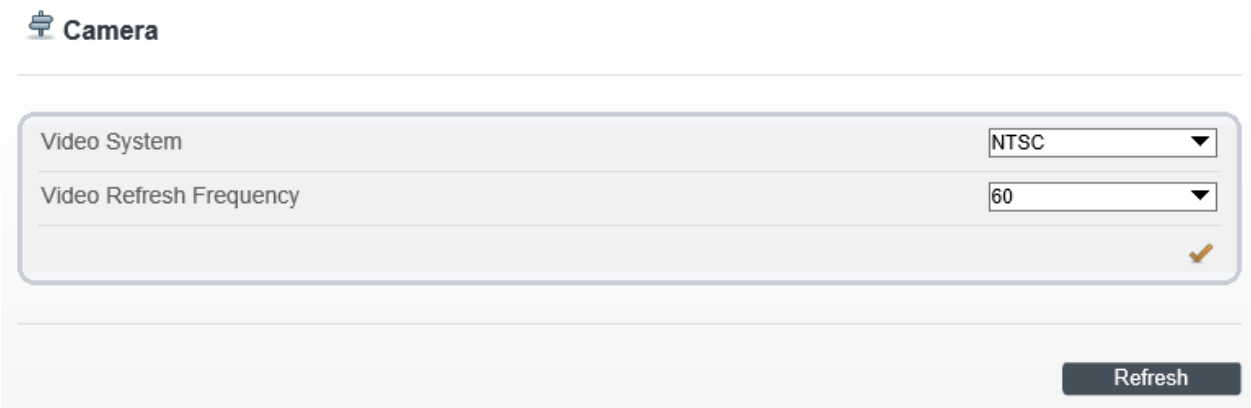
Date and Time



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

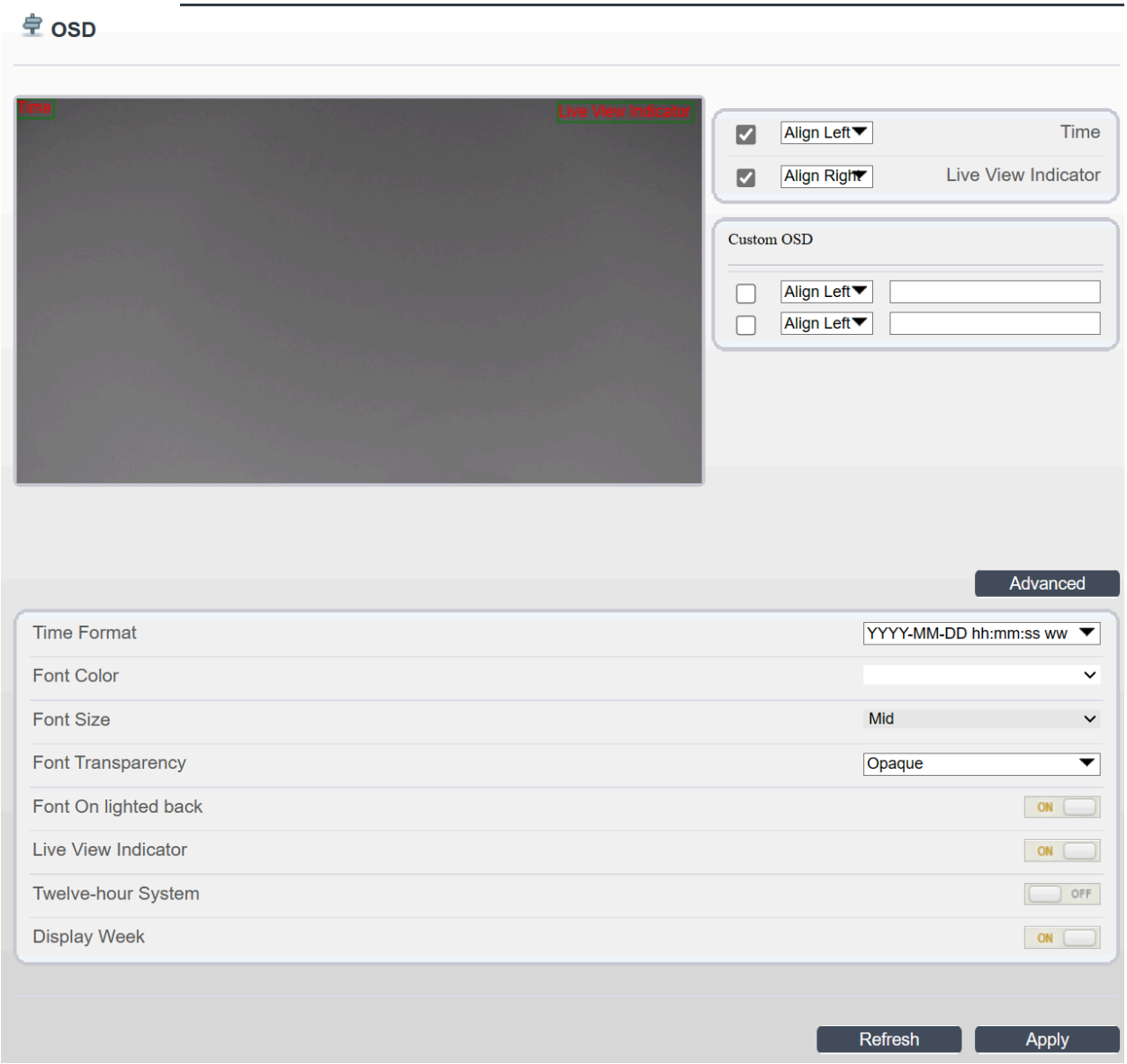


Video System	PAL: Used in Europe and China. NTSC: Used in North America and Japan. Note: ● These settings affect various camera settings including: ○ Analog output (only available on ToughEye-1700™) ○ Effective video resolution (D1, CIF) ○ Shutter time options
Video Refresh Frequency	50 Hz: corresponds 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

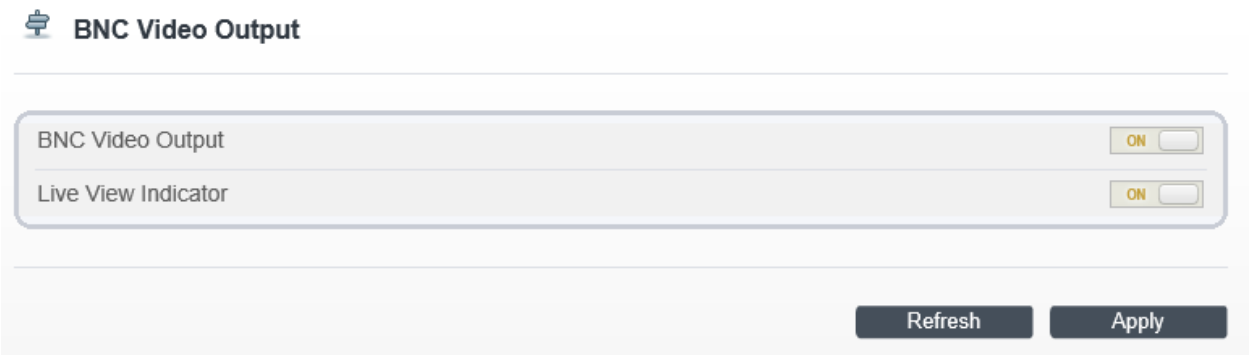
Time	Indicates whether to display the time.
Custom OSD	Enables you to enter a line of characters.
Time Format	Format in which the time is displayed.
Font Color	Set the font color.
Font Size	Set the font size.
Font Transparency	Set the font transparency.
Font On lighted back	If the contrast between the 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

Audio Input

ToughEye-1700™ and ToughCam-1000™ cameras are not configured for audio input/output features.

CVBS (Composite Video Baseband Signal)

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

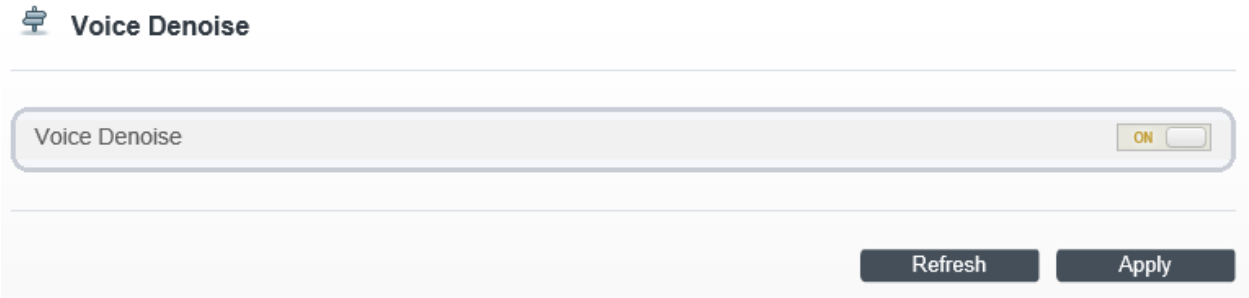
System Settings

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

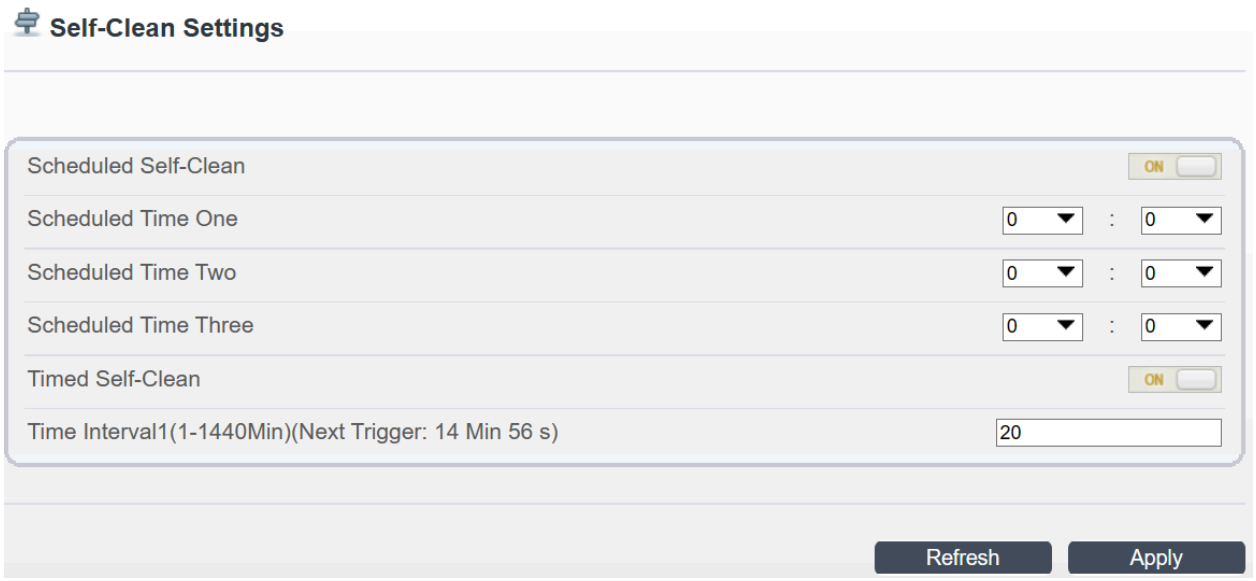
View open source software licenses from this page.

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™.



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.

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.

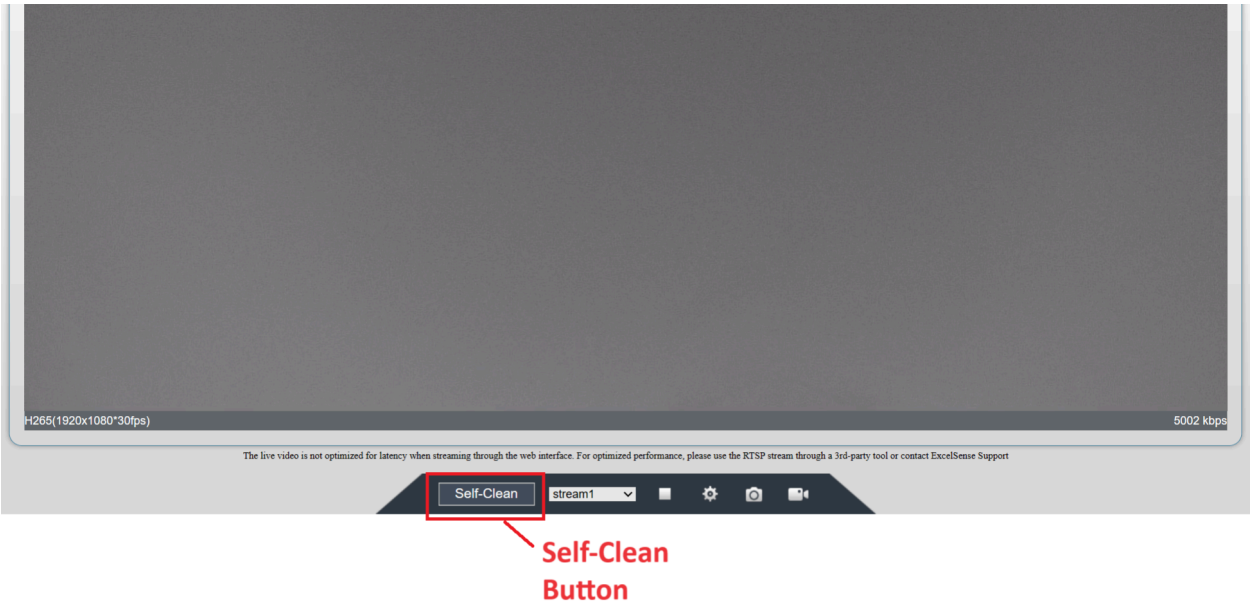
It should also be noted that the set schedule is based on the camera's current date and time. To verify the correct time is set on the camera, navigate to Configuration > Device > Date and Time, set the desired time and click the check mark next to it to apply the change. To enable the scheduled self-clean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

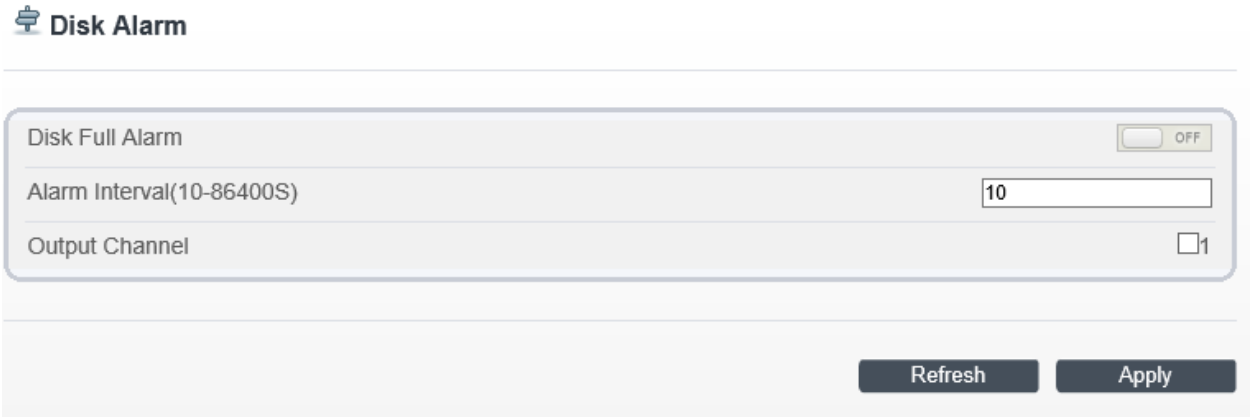
In applications such as autonomous haulage or tele-operated machines where remote triggering is required, the ToughEye-1700™ camera web interface provides a clean solution.

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.



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.

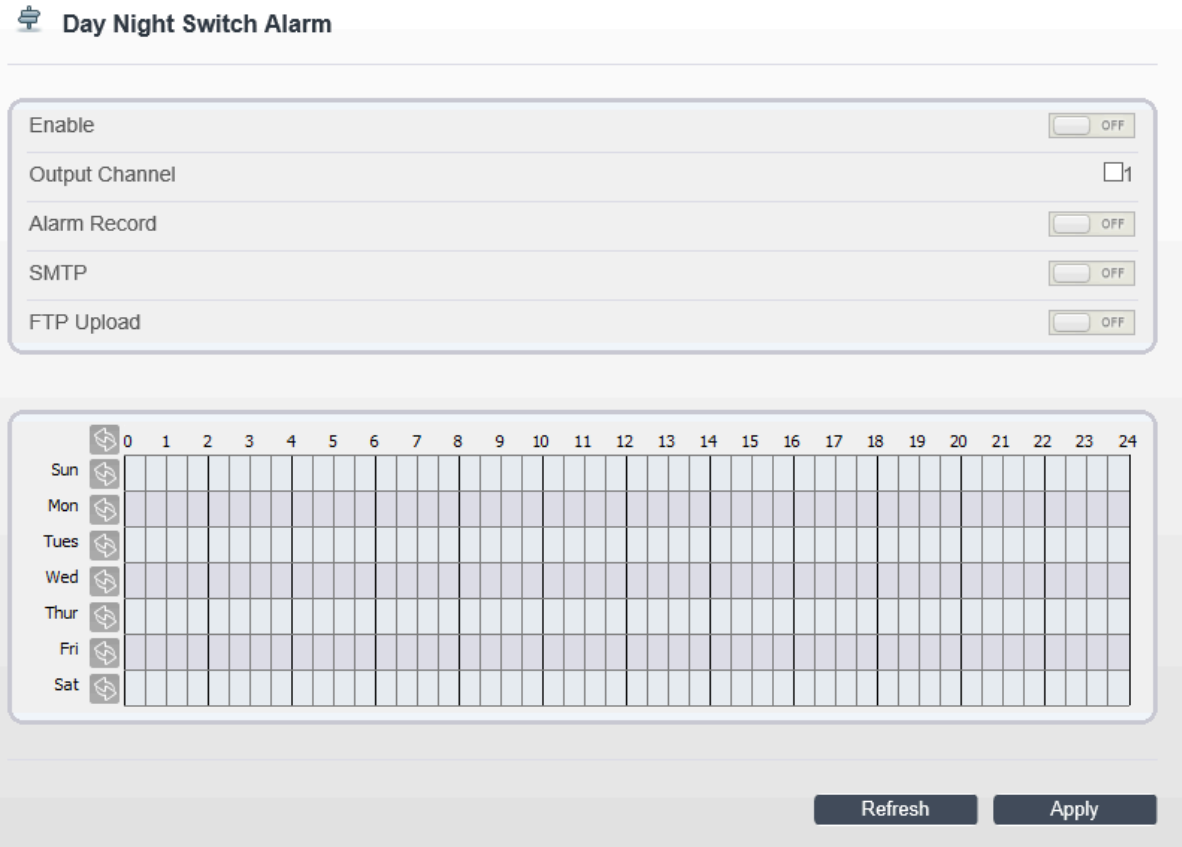
Network Alarm

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

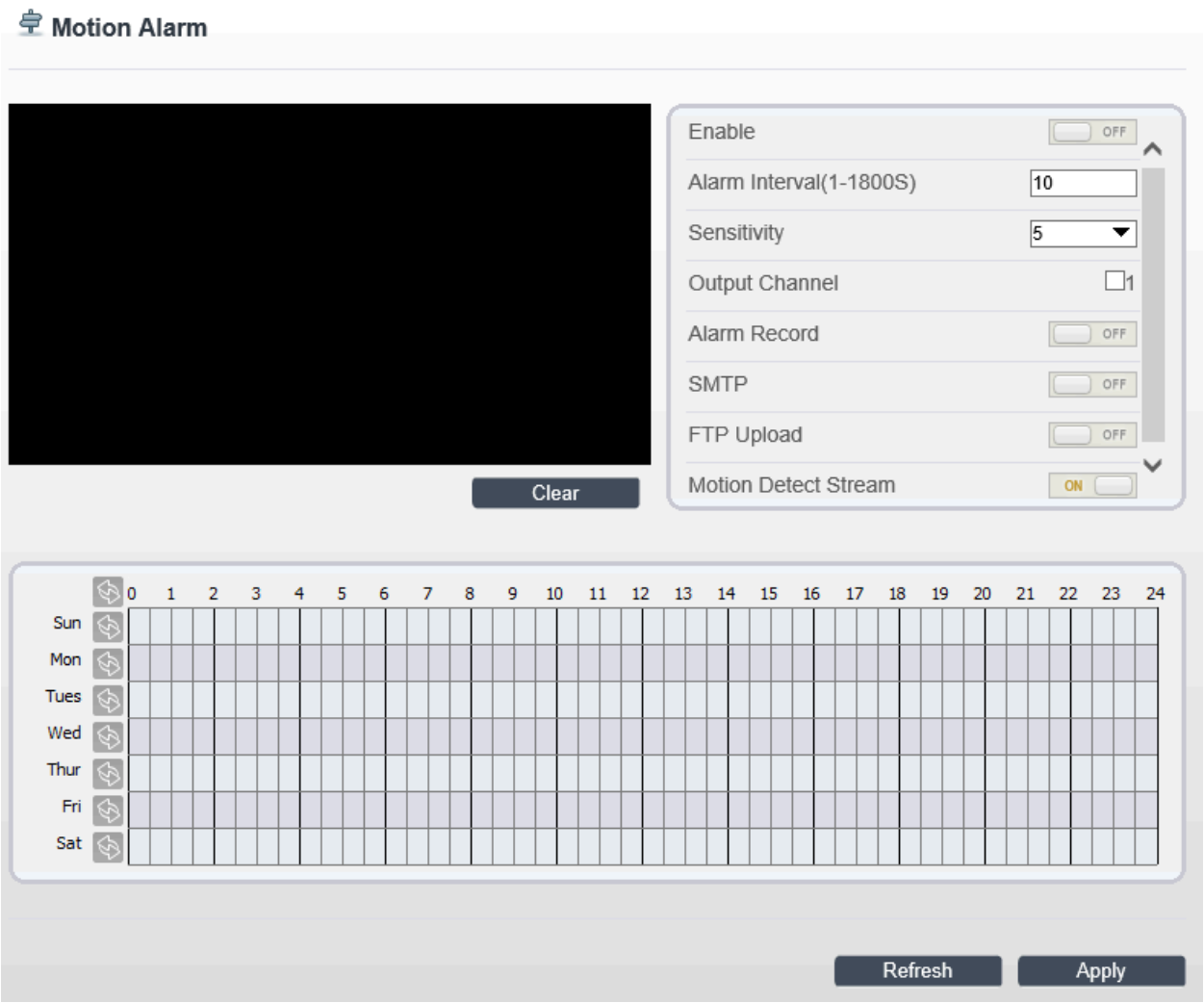
This feature is not available on the ToughEye-1700™ and ToughCam-1000™.

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:

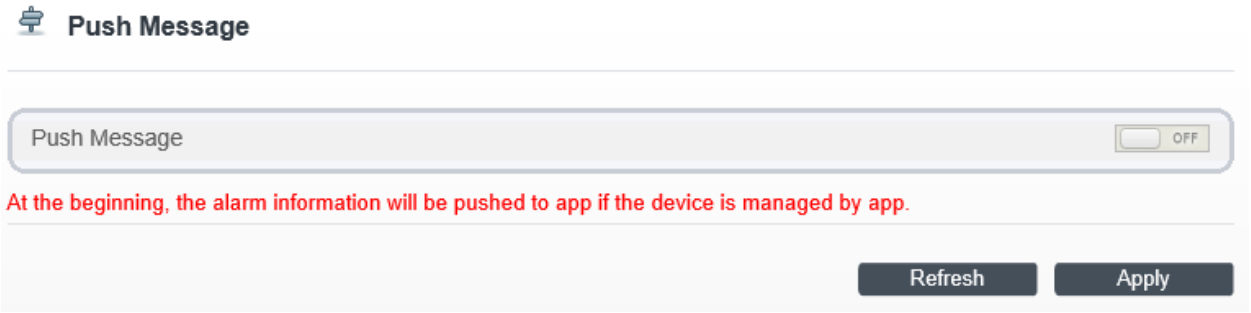
- Enable the motion detection function.
- Set the motion detection arming time and sensitivity.
- Set the motion detection area.
- Configure the motion alarm output channel.
    - Note that the Output Channel port on ToughEye-1700™ is used to trigger Self-Cleaning. As such, it is not recommended to enable 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

This feature is not available on the ToughEye-1700™ and ToughCam-1000™.

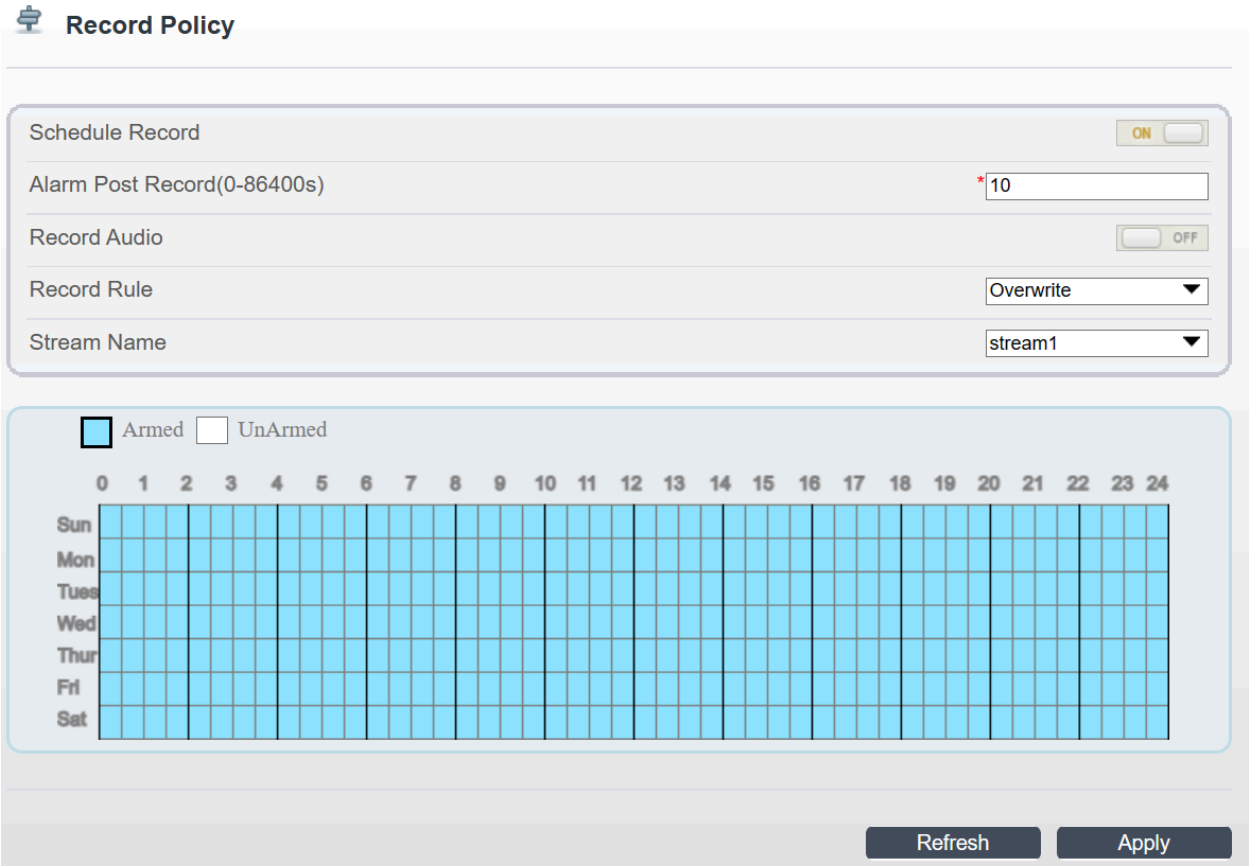
Device Record

The camera can be scheduled to record at specified intervals throughout the week. Ensure the record policy and record directory are both configured appropriately before using this feature.

Note: This feature is only available on ToughEye-1700™ and ToughCam-1000™ models with on-board memory loaded (-L designator in model number).

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

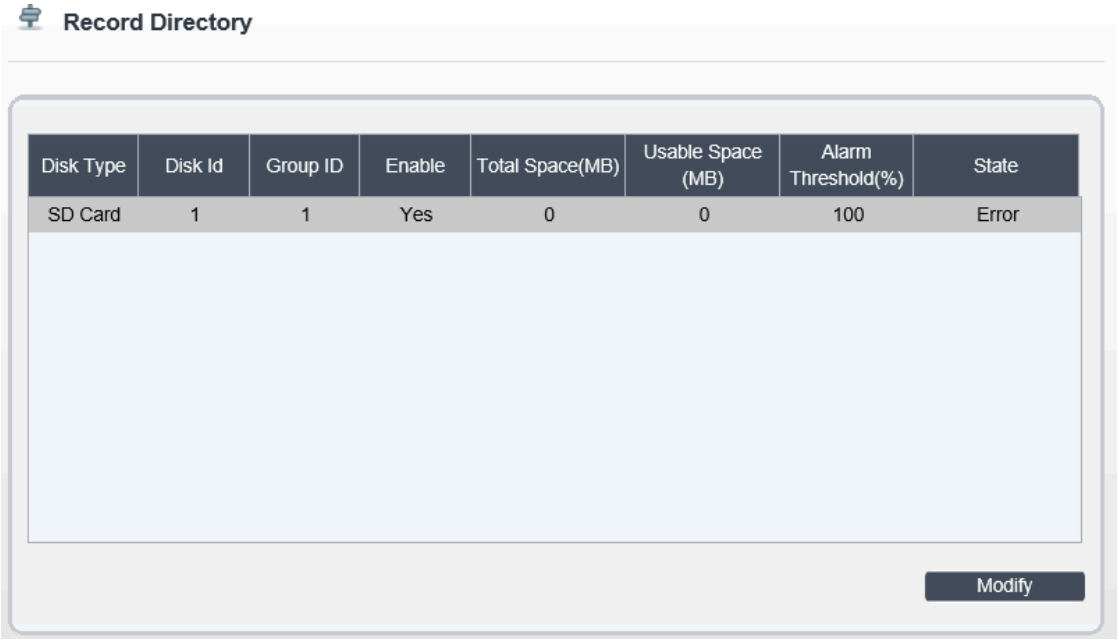
In the example above, the camera will record onto its onboard MicroSD card, and upon reaching the maximum storage capacity, it will overwrite the oldest footage on disk.

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 **Retention**: Duration for saving a recording (1-360 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.*

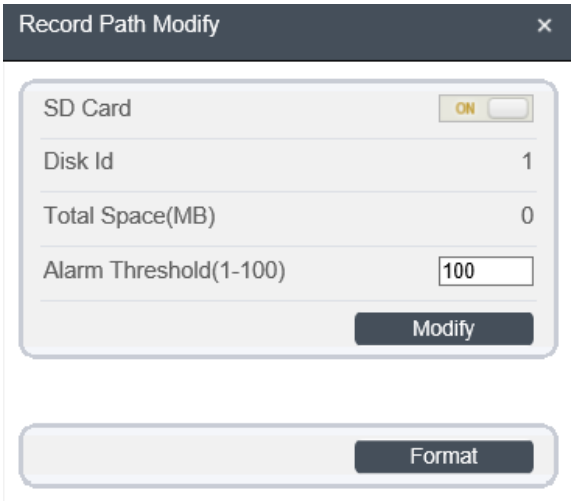
Record Directory

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

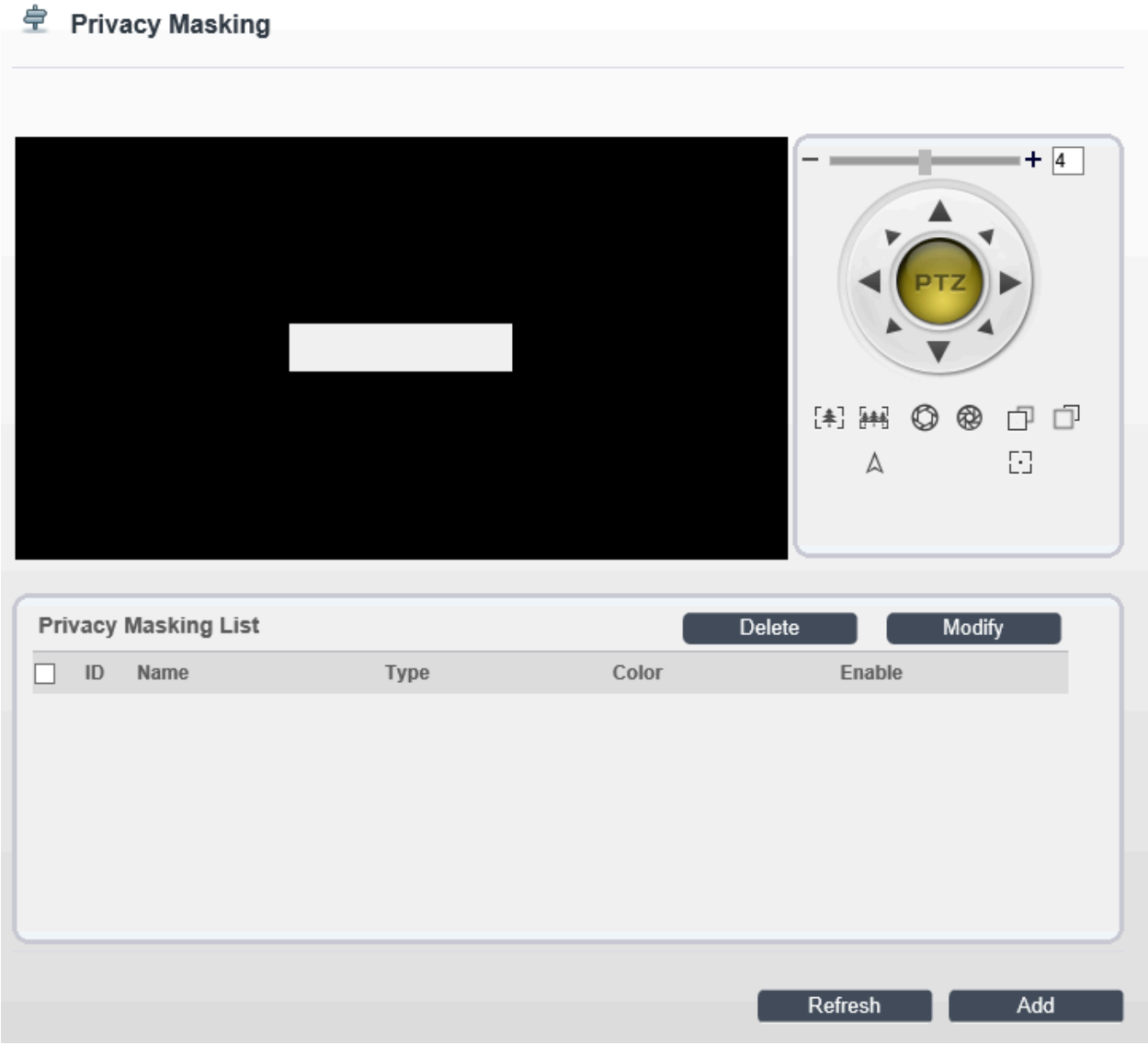
Once the formatting is completed, the state should be updated to “Usable” (see below).

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.



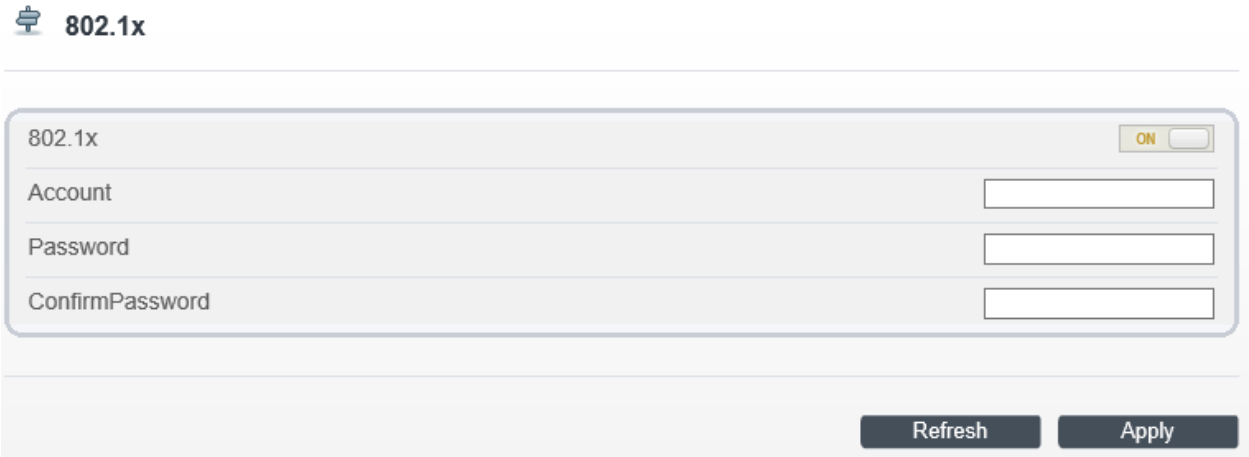
Privacy Masking Settings

Network Service

Various network services such as port mapping, IP filtering, and DDNS can be accessed and configured in this section of the web interface.

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

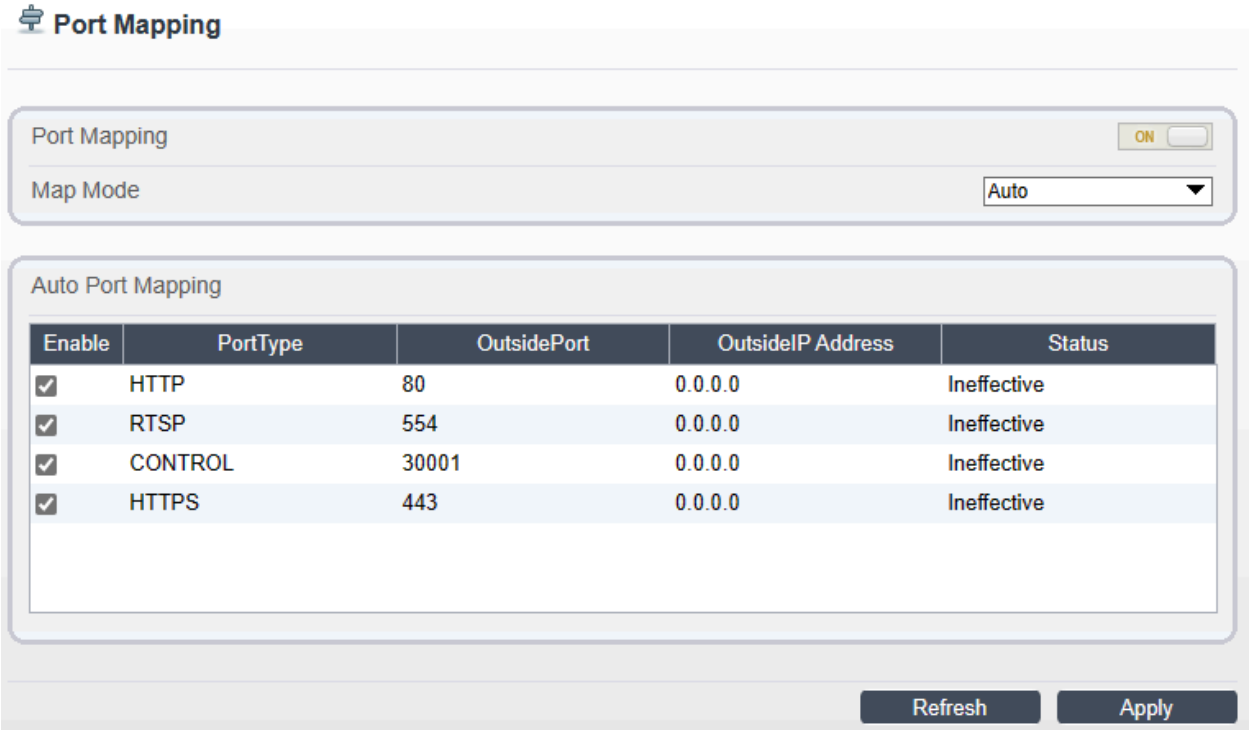
Obtain the PPPoE user name and password from the network carrier. If a PPPoE connection is used, you need to enter the user name and password on the PPPoE page. After you restart the device, the PPPoE settings take effect and the device obtains a public IP address.

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.

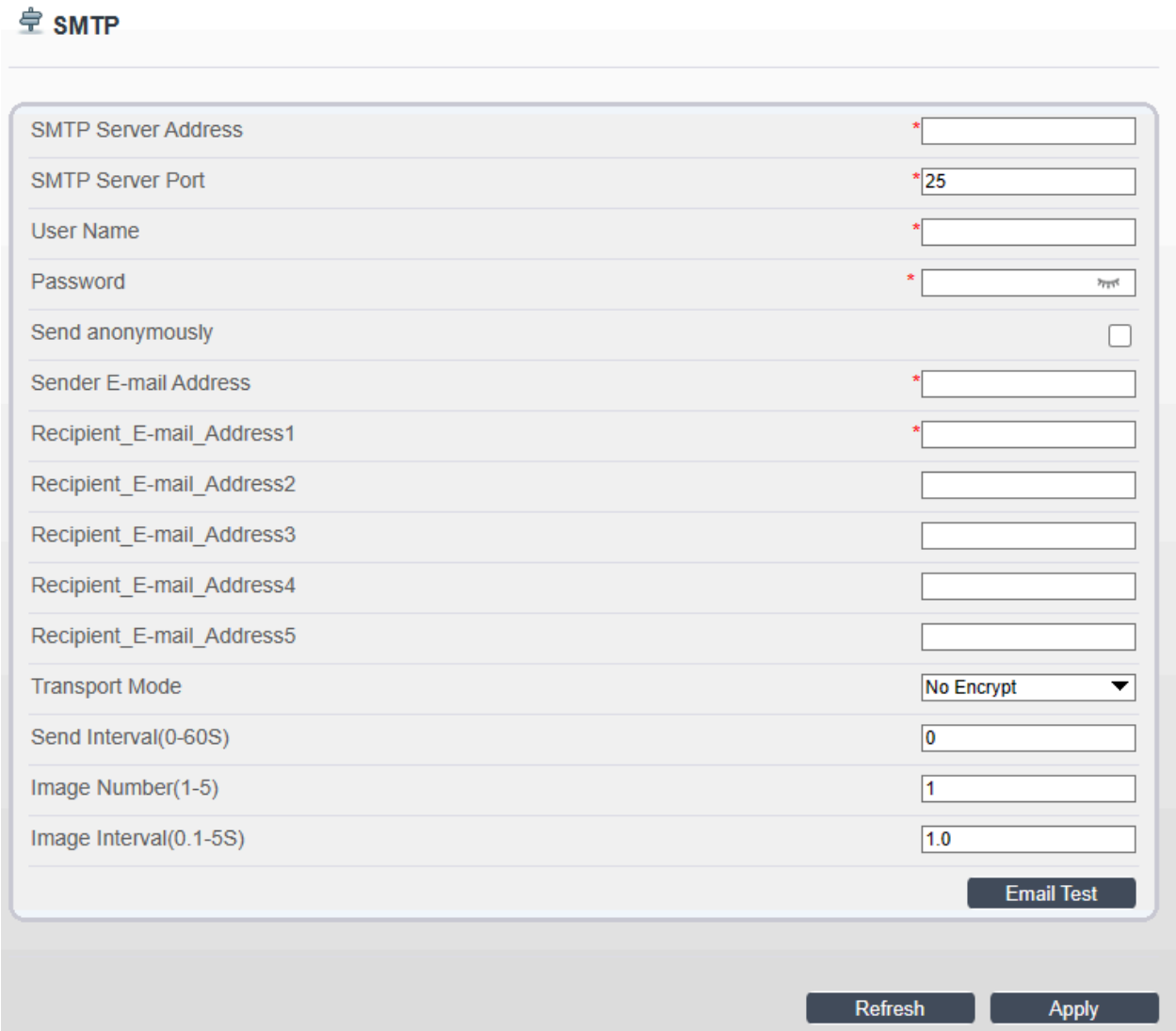


Port Mapping Settings

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, CONTROL, and HTTPS
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.



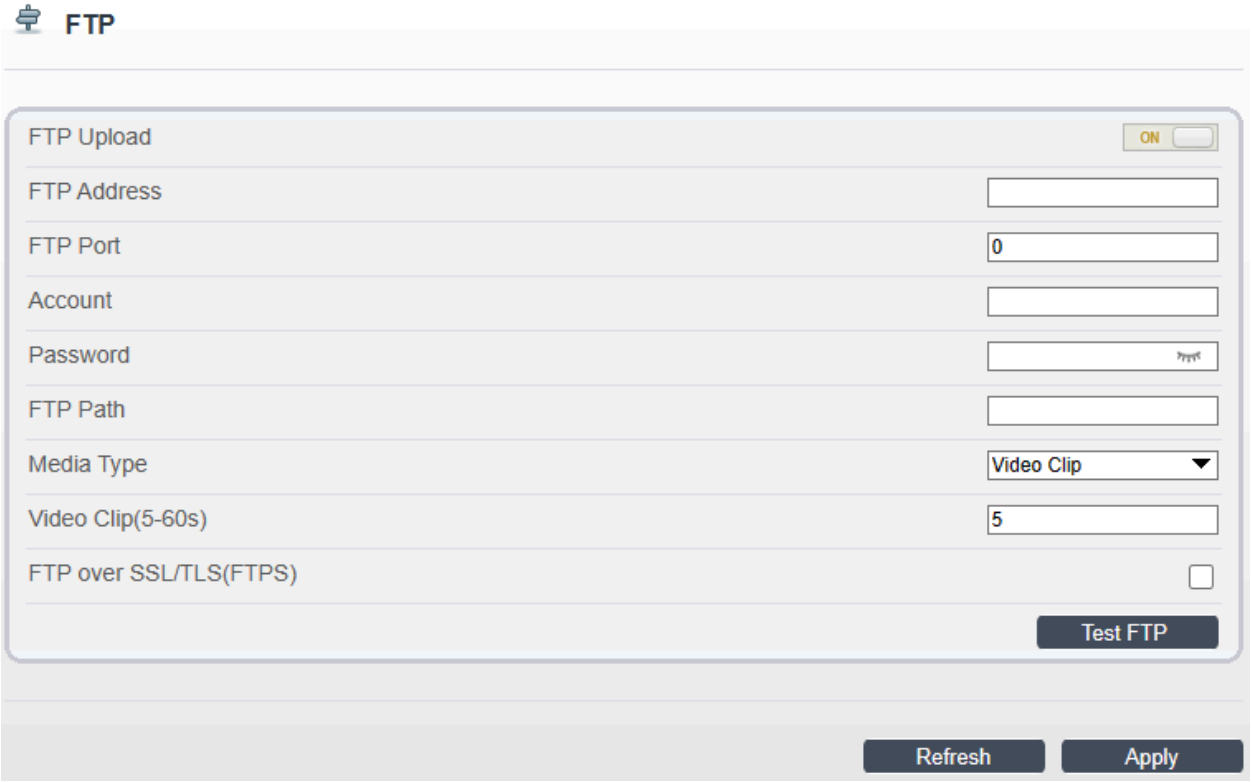
SMTP Settings

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.
Send anonymously	Check the box to send email anonymously
Sender E-mail Address	Mailbox for sending emails.
Recipient_E-mail_Address 1	(Mandatory) Email address of recipient 1.
Recipient_E-mail_Address 2-5	(Optional) Email address of recipient 2-5.

Transport Mode	Email encryption mode. Set this parameter based on the encryption modes supported by the SMTP server.
Send Interval (0-60s)	Specify the interval between each E-mail sent, in seconds. Valid range of 0-60 seconds.
Image Number (1-5)	Number of images to send. Valid range of 1-5.
Image Interval (0.1-5s)	Interval between images to send, in seconds. Valid range of 0.1-5 seconds.

FTP

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



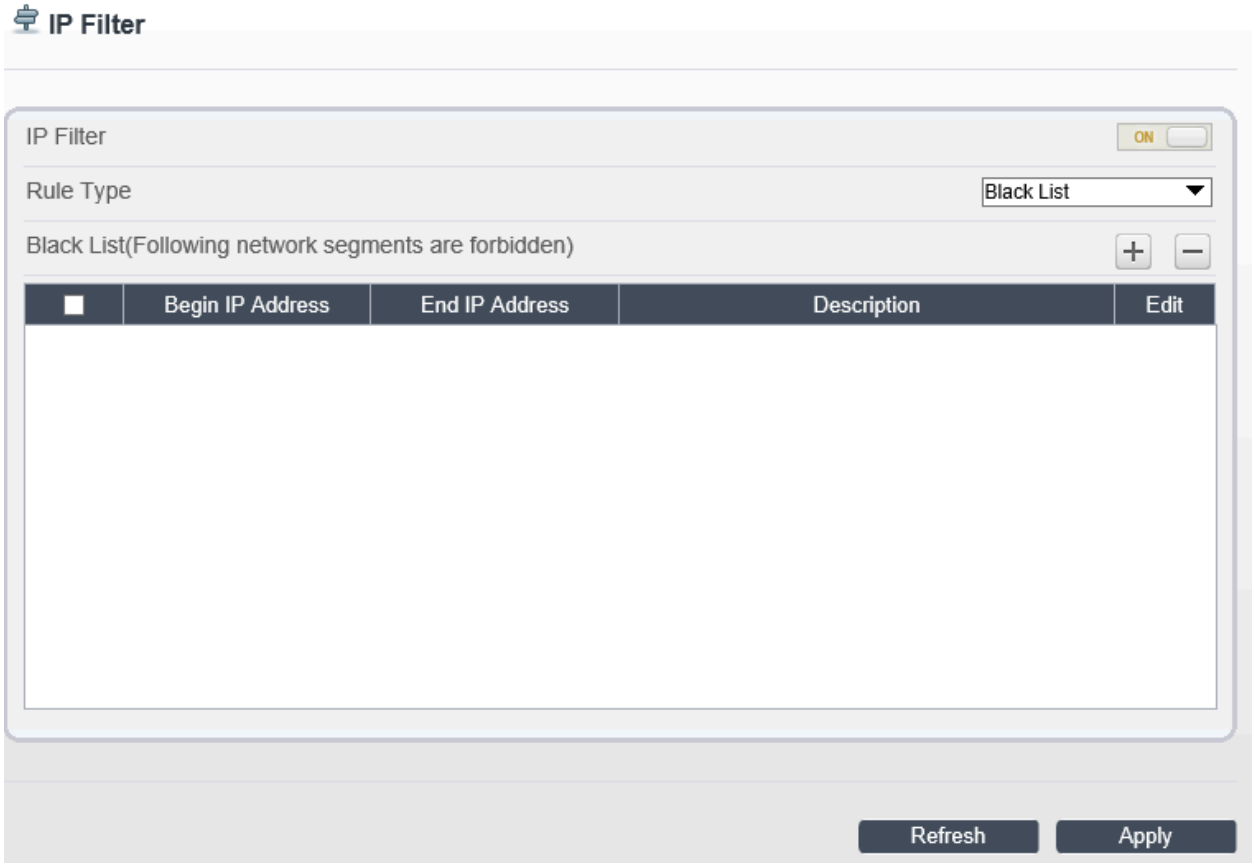
FTP Settings

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.
Media Type	Media Type options: Snapshot, Video Clip
Video Clip(5-60s)	Option is available if Video Clip is selected as Media Type. Duration of the clip, in seconds. Valid range of 5-60 seconds.
FTP over SSL./TLS(FTPS)	Transfer recording by encryption

IP Filter

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

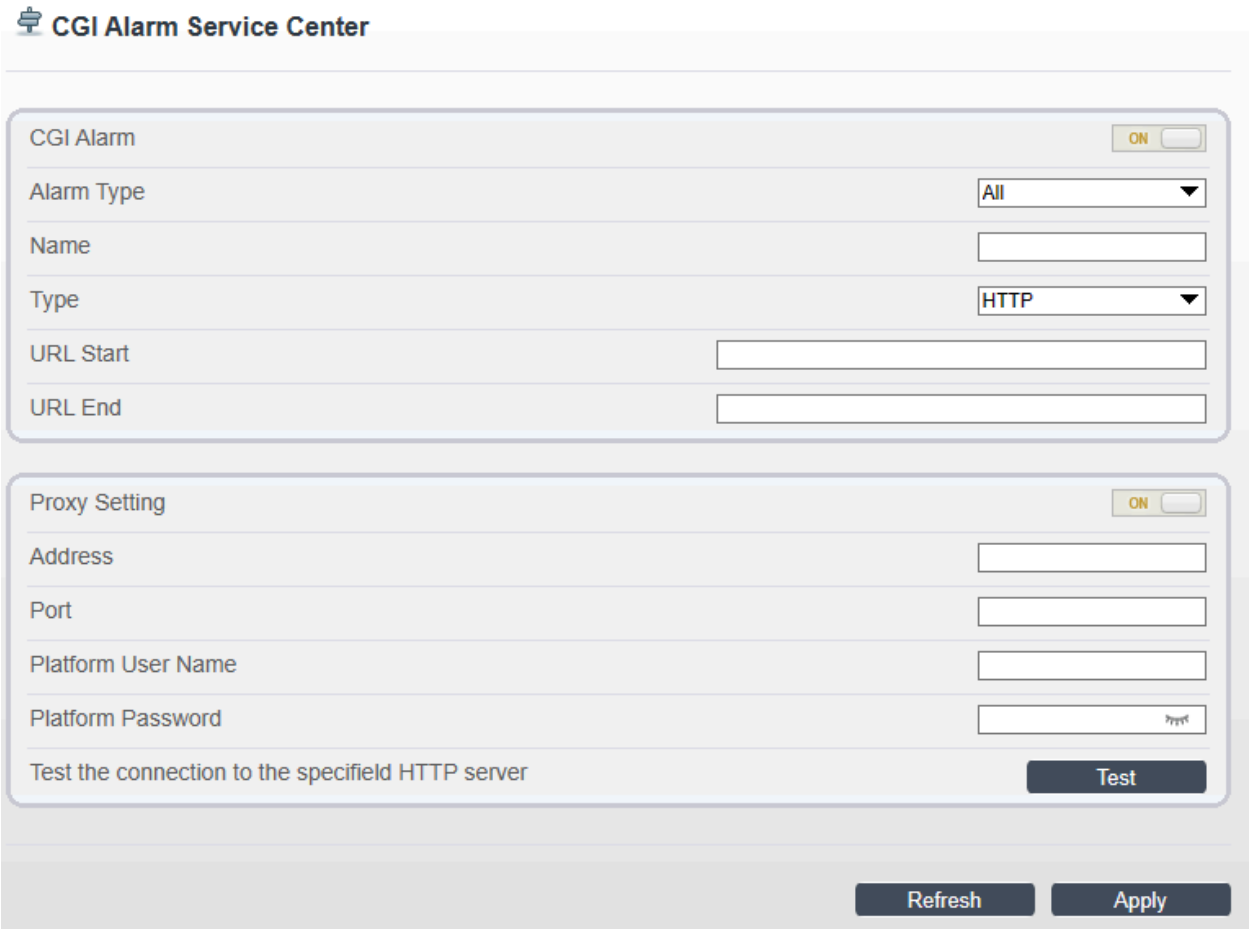


IP Filter Settings

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



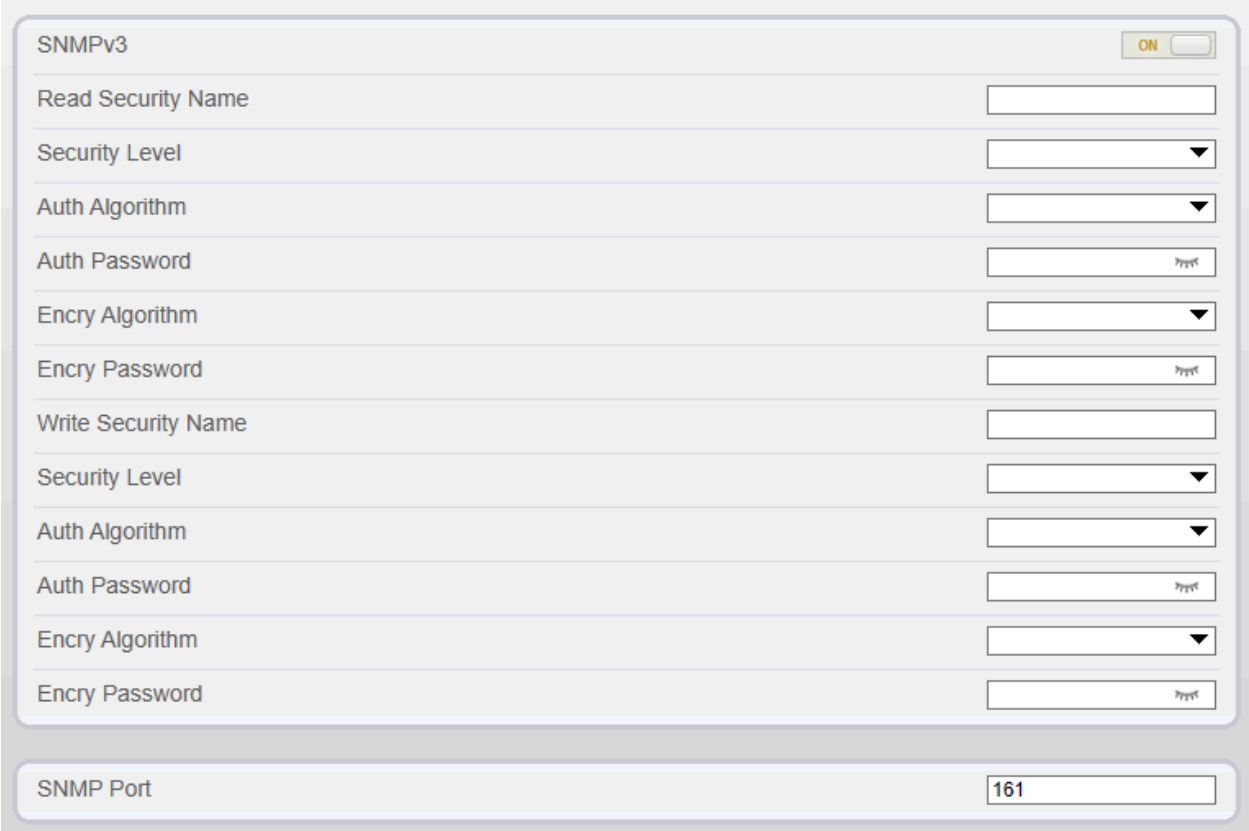
CGI Alarm Settings

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.

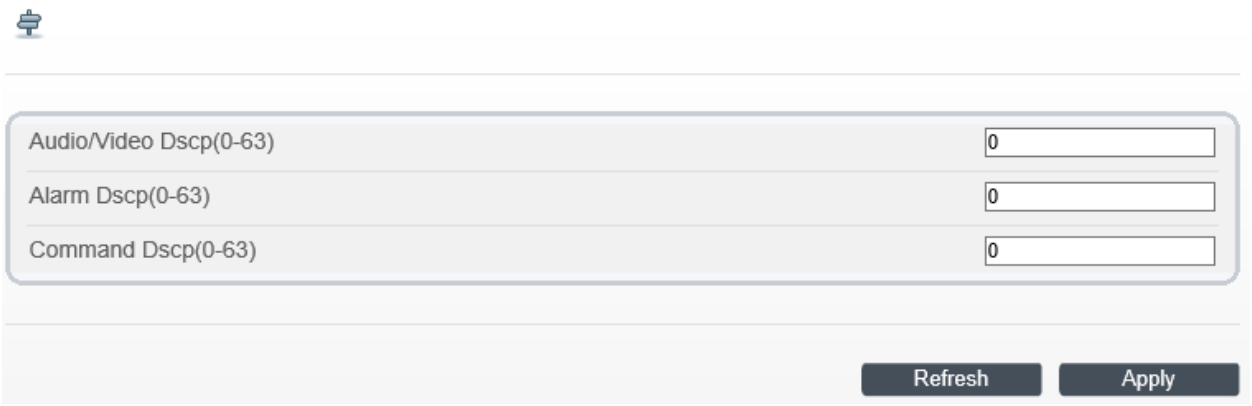


SNMP Settings

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



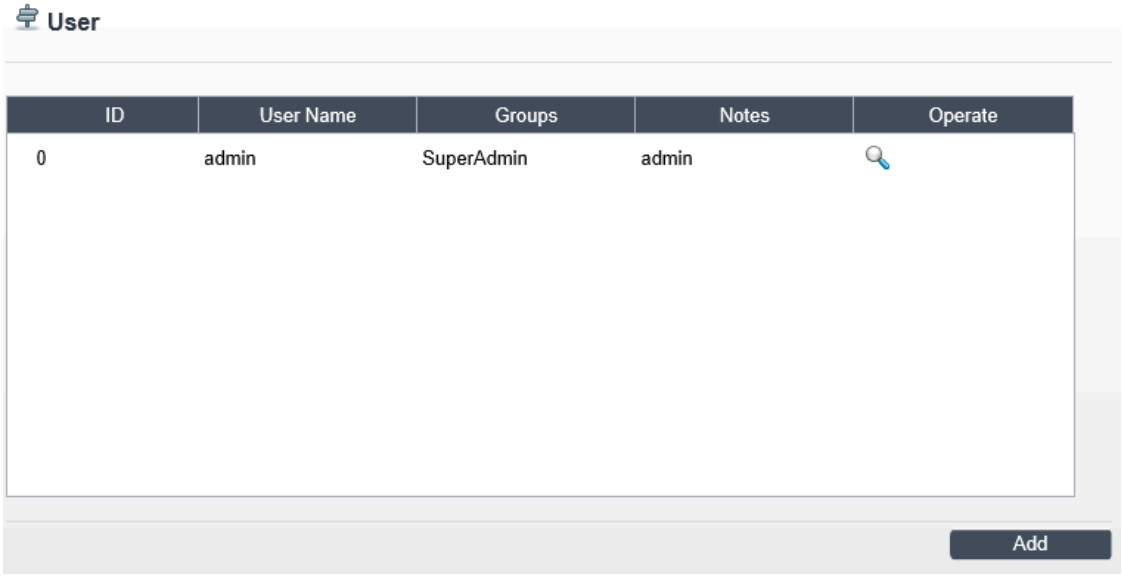
Platform Access

Privilege Manager

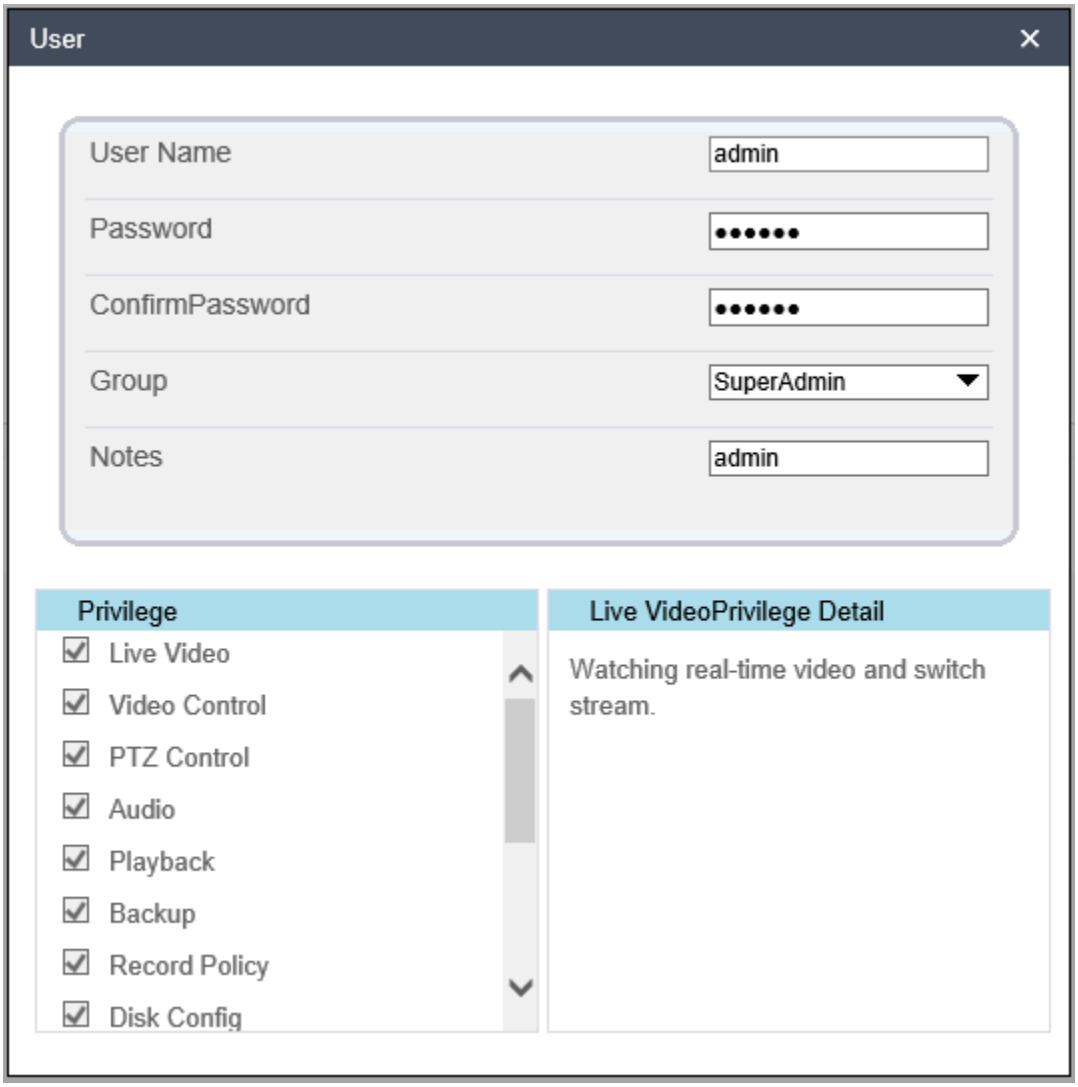
User access to the camera interface can be configured using the Privilege Manager. Permission groups and credentials can be set for multiple users.

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.

SuperAdmin:

- Includes all privileges.

Administrators:

- Live Video, Video Control, PTZ control, Audio
- Playback, Backup, Record Policy, Disk Configure,
- Privilege Manage, Parameter Configure, System Maintenance, Log

Operator:
- System Maintenance, Parameter Configure
- Playback, Live Video Video Control.

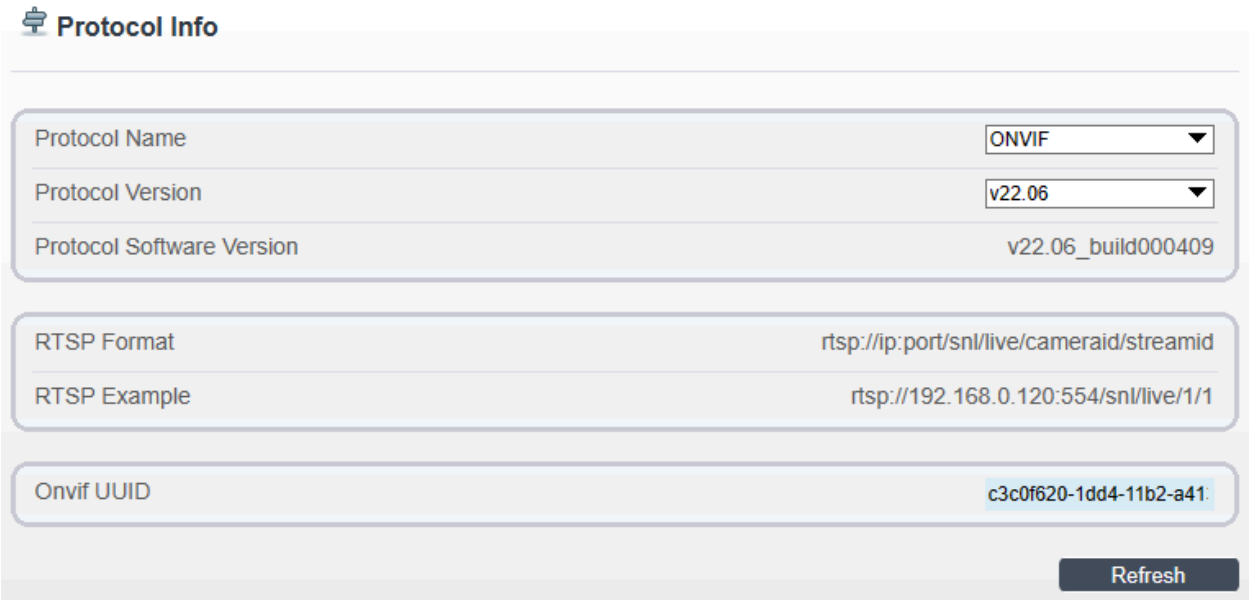
Media user:
- Live Video

Notes	Notes of the 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

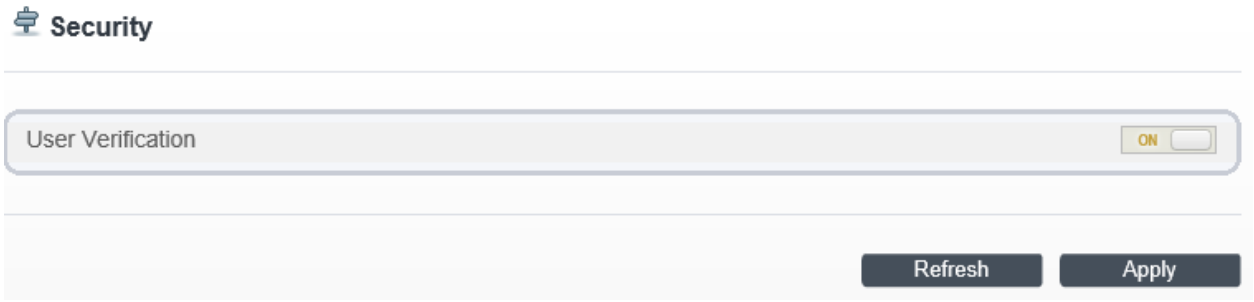


Protocol Info Settings

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.

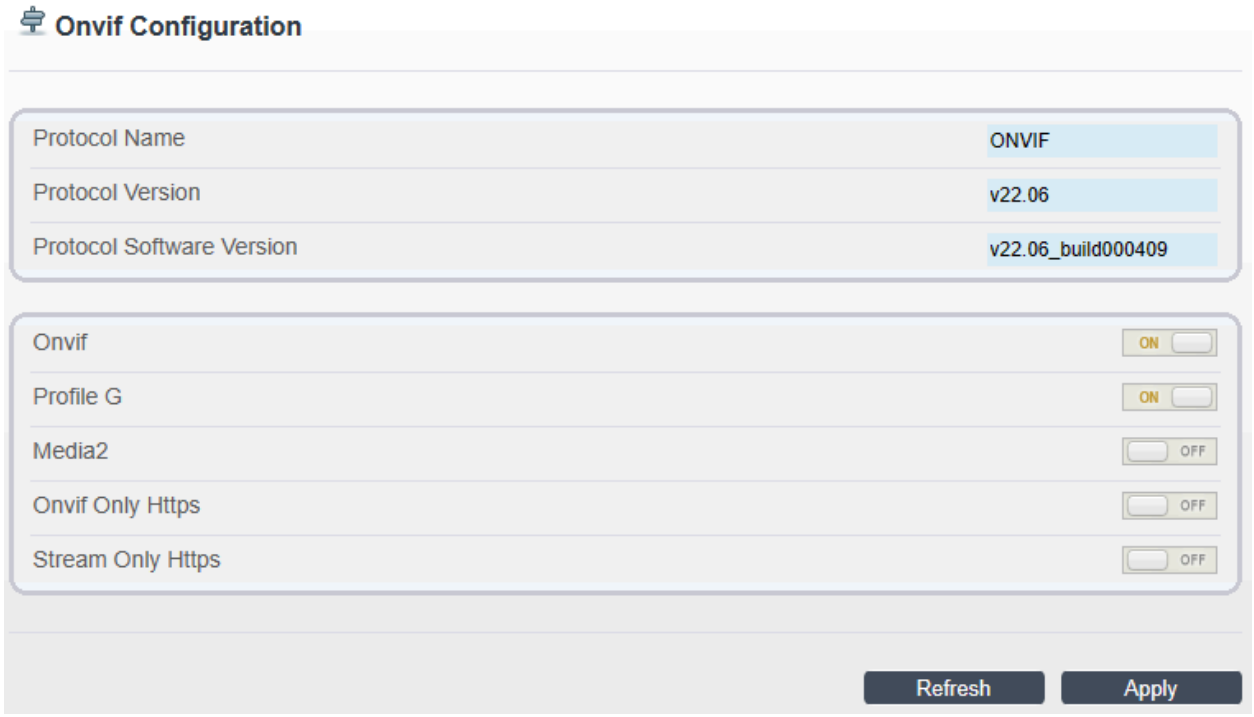


Security Settings

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.

Onvif Configuration

Configure the enabled Onvif protocols.



Onvif Configuration Settings

Onvif	Enables compatibility with Onvif clients
Profile G	Enables Onvif Profile G: Onvif clients can configure, request, and control recording of video data
Media2	Enables integration and configuration of an H265-encoded stream with Onvif clients
Onvif Only Https	Onvif can use a more secure HTTPS mode for connection, command interaction and video data transmission, which are transmitted in an encrypted way to enhance network security.
Stream Only Https	

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.
Video Port	Port that receives video data. Valid range of 1025-65535.
Video Address	IP address that receives video data.
Audio Port	Port that receives audio data. Valid range of 1025-65535.
Audio Address	IP address that receives audio data.

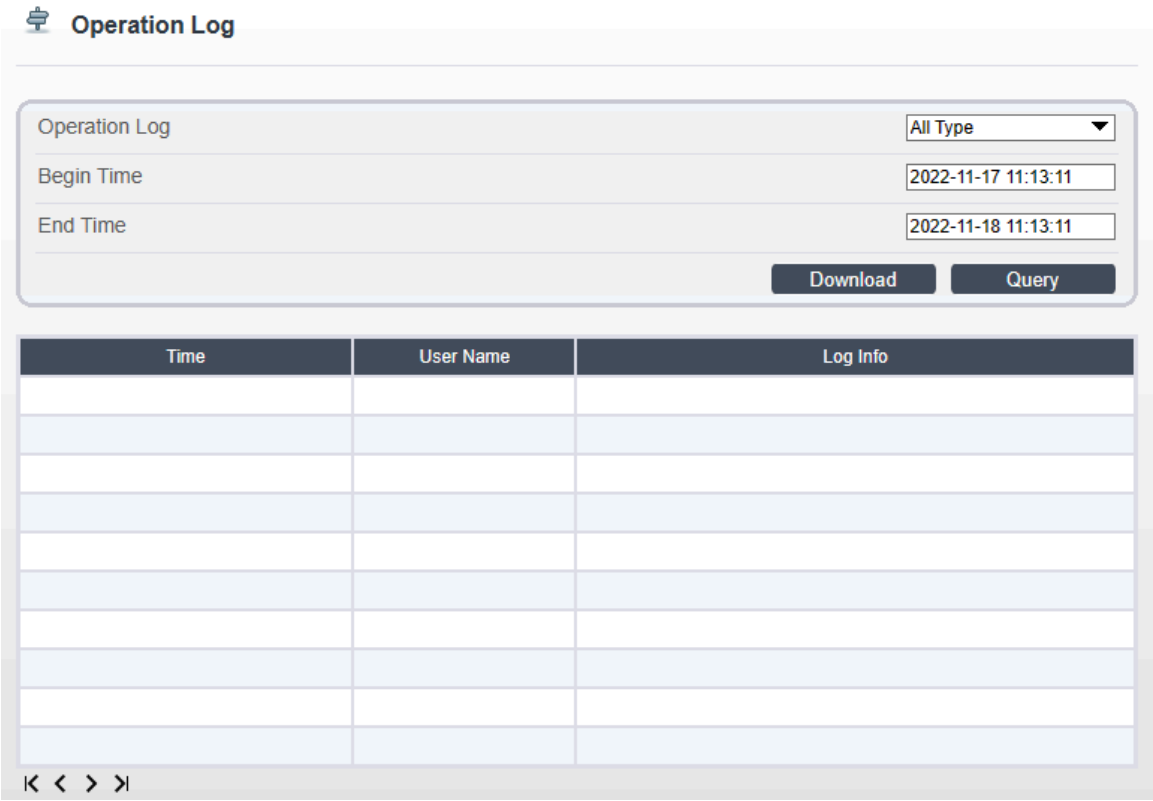
Source Port	Port that receives source data. Valid range of 1025-65535.
Source Address	IP address that receives source data.

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

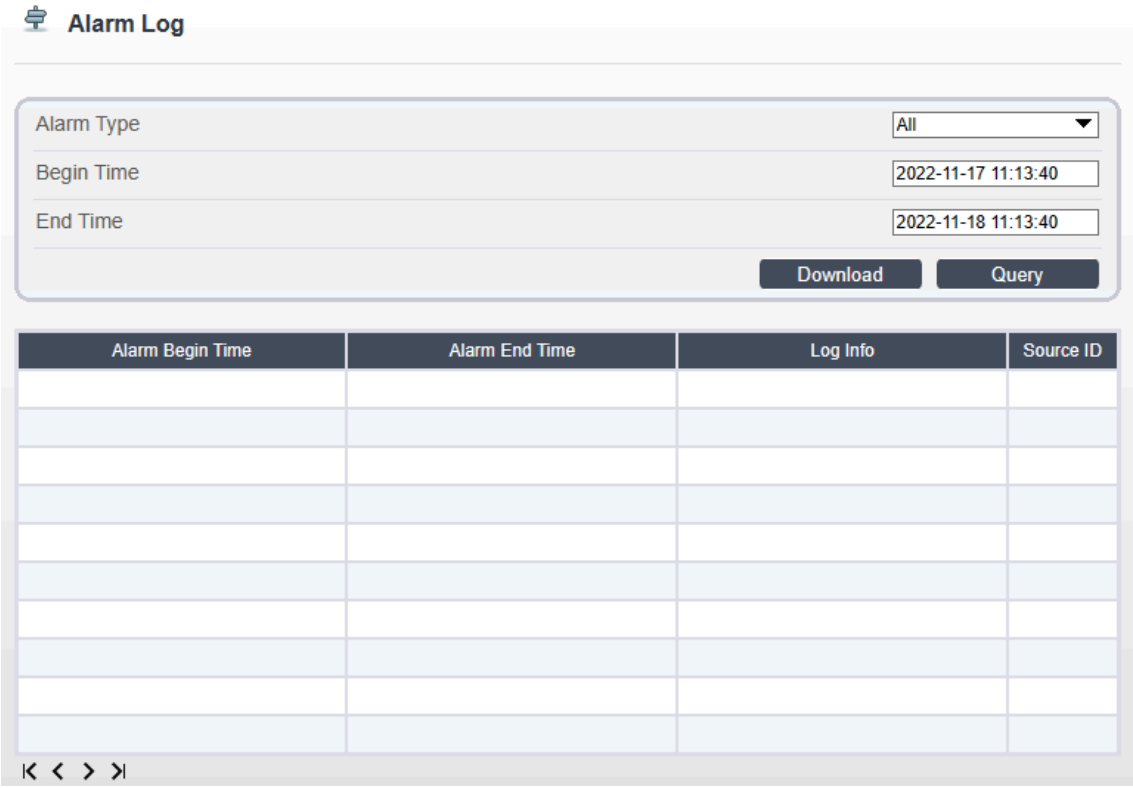
Operation logs record user operations and scheduled task commands during the running of the device. Operation logs can be classified into the following types: permission management, system maintenance, device configuration, recording operation, video control, and real-time video.



Operation Log Settings

Alarm Log

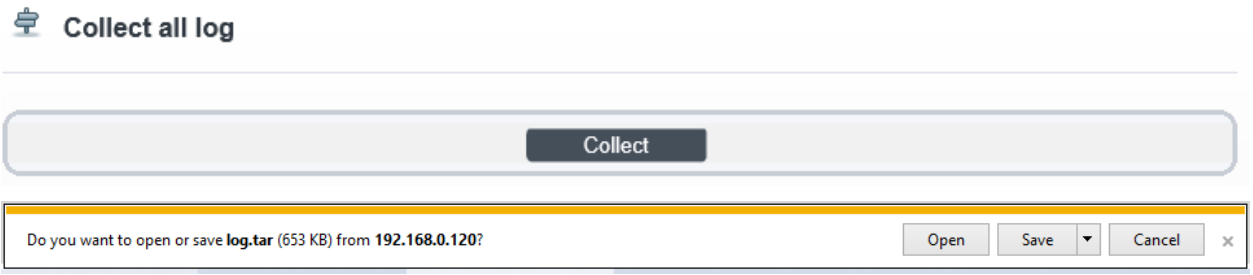
An alarm log records information about an alarm generated on a device, including the security, disk, and recording alarms.



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 run from the Maintenance menu.

Camera Maintenance Settings

Software Restart

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

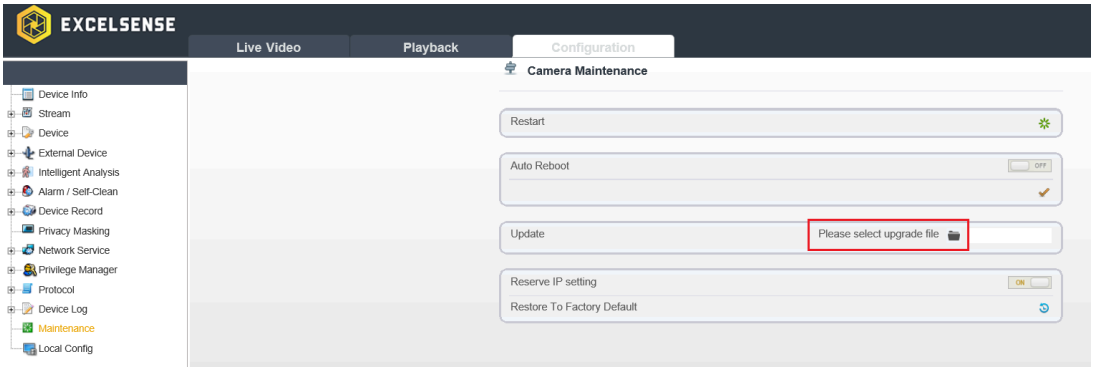
Note: Restarting the camera typically takes up to 2 minutes.

Factory Reset

The device can also be restored to factory settings by clicking the button. This process will take a few minutes, as the camera will also perform a software restart.

Sensor Module Firmware Update

To update the camera sensor 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 process will take up to 5 minutes before the camera is back online, as the camera must go through the installation, upgrade, and software restart processes.

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.