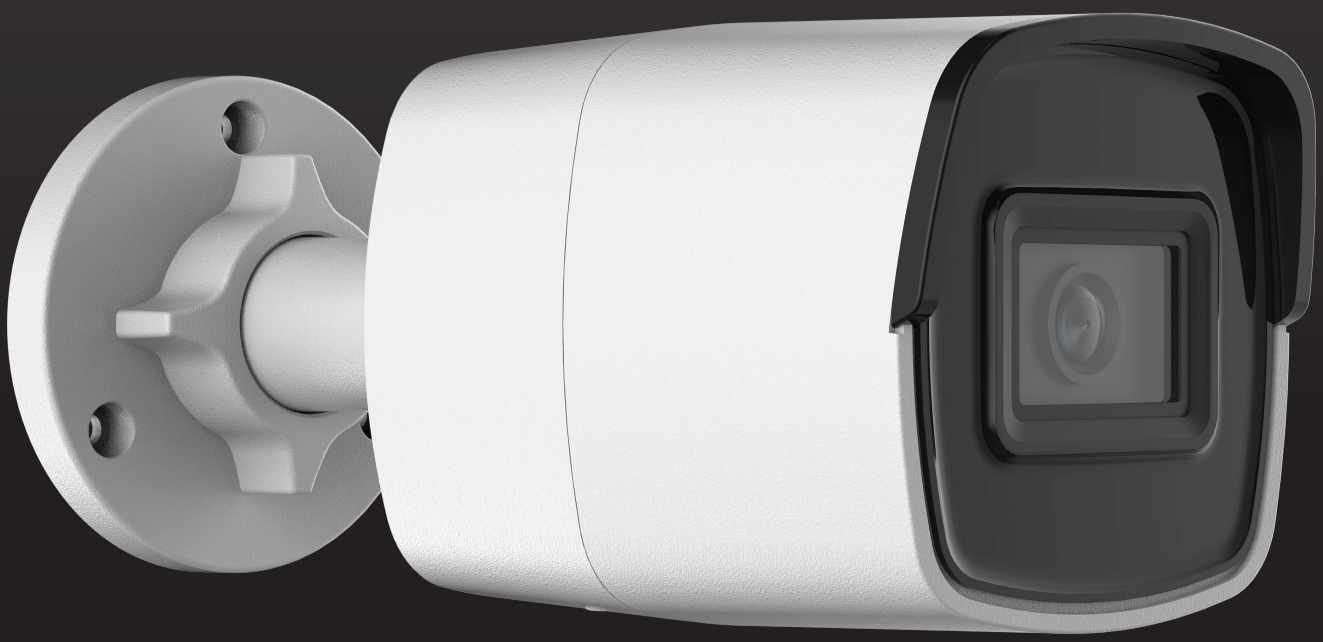
AVERTX

HD448IR

4K OUTDOOR MINI IP BULLET

User Manual



HD IP

AVX-HD448IR 4K Outdoor Mini IP Bullet with Smart Analytics

Operations Manual

Manual Edition 37577AA – January 2021

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The following words and symbols mark special messages throughout this guide:

WARNING: Text set off in this manner indicates that failure to follow directions could result in bodily harm or loss of life.

CAUTION: Text set off in this manner indicates that failure to follow directions could result in damage to equipment or loss of information.

IMPORTANT SAFEGUARDS

1. **Read Instructions**
   Read all of the safety and operating instructions before using the product.
2. **Retain Instructions**
   Save these instructions for future reference.
3. **Attachments / Accessories**
   Do not use attachments or accessories unless recommended by the appliance manufacturer as they may cause hazards, damage product and void warranty.
4. **Installation**
   Do not place or mount this product in or on an unstable or improperly supported location. Improperly installed product may fall, causing serious injury to a child or adult, and damage to the product. Use only with a mounting device recommended by the manufacturer, or sold with the product. To ensure proper mounting, follow the manufacturer's instructions and use only mounting accessories recommended by manufacturer.
5. **Power source**
   This product should be operated only from the type of power source indicated on the marking label.

Precautions

Operating

- Before using, make sure power supply and others are properly connected.
- While operating, if any abnormal condition or malfunction is observed, stop using the camera immediately and then contact AvertX Customer Support.

Handling

- Do not disassemble or tamper with parts inside the camera.
- Do not drop or subject the camera to shock and vibration as this can damage camera.
- Care must be taken when you clean the clear lens cover. Scratches and dust will ruin the image quality of your camera. Do not use strong or abrasive detergents when cleaning the camera body. Use a dry cloth to clean the camera when it is dirty. In case the dirt is hard to remove, use a mild detergent and wipe the camera gently.

Installation and Storage

- Do not install the camera in areas of extreme temperatures in excess of the allowable range. (-22°F~ 140°F / -30°C ~ 60°C)
- Avoid installing in humid or dusty places. The relative humidity must be below 90%.
- Avoid installing in places where radiation is present.
- Avoid installing in places where there are strong magnetic fields and electric signals.
- Avoid installing in places where the camera would be subject to strong vibrations.
- Never face the camera toward the sun. Do not aim at bright objects. Whether the camera is in use or not, never aim it at the sun or other extremely bright objects. Otherwise the camera may be damaged.

REGULATION

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

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste in accordance with Directive 2002/96/EC. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By proper waste handling of this product you ensure that it has no negative consequences for the environment and human health, which could otherwise be caused if this product is thrown into the garbage bin. The recycling of materials will help to conserve natural resources.

For more details information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Compliance is evidenced by written declaration from our suppliers, assuring that any potential trace contamination levels of restricted substances are below the maximum level set by EU Directive 2002/95/EC, or are exempted due to their application.

WARNING

DANGEROUS HIGH VOLTAGES ARE PRESENT INSIDE THE ENCLOSURE.

REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

CAUTION

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INTRODUCTION

OVERVIEW

The AVX-HD448IR HD 4K Outdoor Mini IP Bullet camera is capable of streaming real time ultra HD 4K video. The dual streaming can be used in a variety of building surveillance installations.

Power over Ethernet (PoE), eliminates the need for separate power cables and significantly reduces installation costs. The light weight and small size allow for quick and simple installation.

The AVX-HD448IR is equipped with True Wide Dynamic Range, which dramatically improves overall image quality in environments with various levels of illumination. The IR LEDs light up the night and work in tandem with the 8MP resolution and smart compression to bring optimum nighttime video without extreme bandwidth and storage consumption.

Camera Default Settings

IP Address	192.168.51.2
Username	admin
Password	**All AvertX IP cameras ship without a default password** **The admin user password can be set using the following methods:** 1. ProConnect recorders running software version 2.1 or newer will automatically set a new unique password by: ➢ Connecting to the built-in PoE switch ➢ Connecting to a network switch through the camera network port and selected then adding the camera in setup 2. Connect to the camera directly through a Web Browser and follow the onscreen prompts. 3. Use the Network Camera Manager (NCM) Utility.

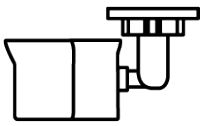
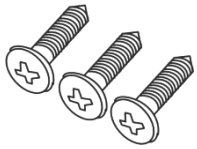
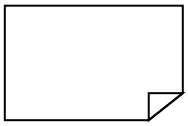
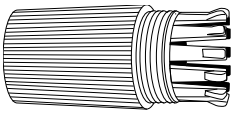
Product Features

- Smart Analytics with Person & Vehicle Detection
- 4K Resolution
- Edge Storage on a MicroSD Card (up to 512GB)
- Integrated IR
- Record still shots to edge storage
- H.264+ Smart Compression
- Dual Streaming
- True Wide Dynamic Range (WDR)
- True Day/Night
- Weatherproof (IP67 Outdoor Rated)

GETTING STARTED

BOX CONTENTS

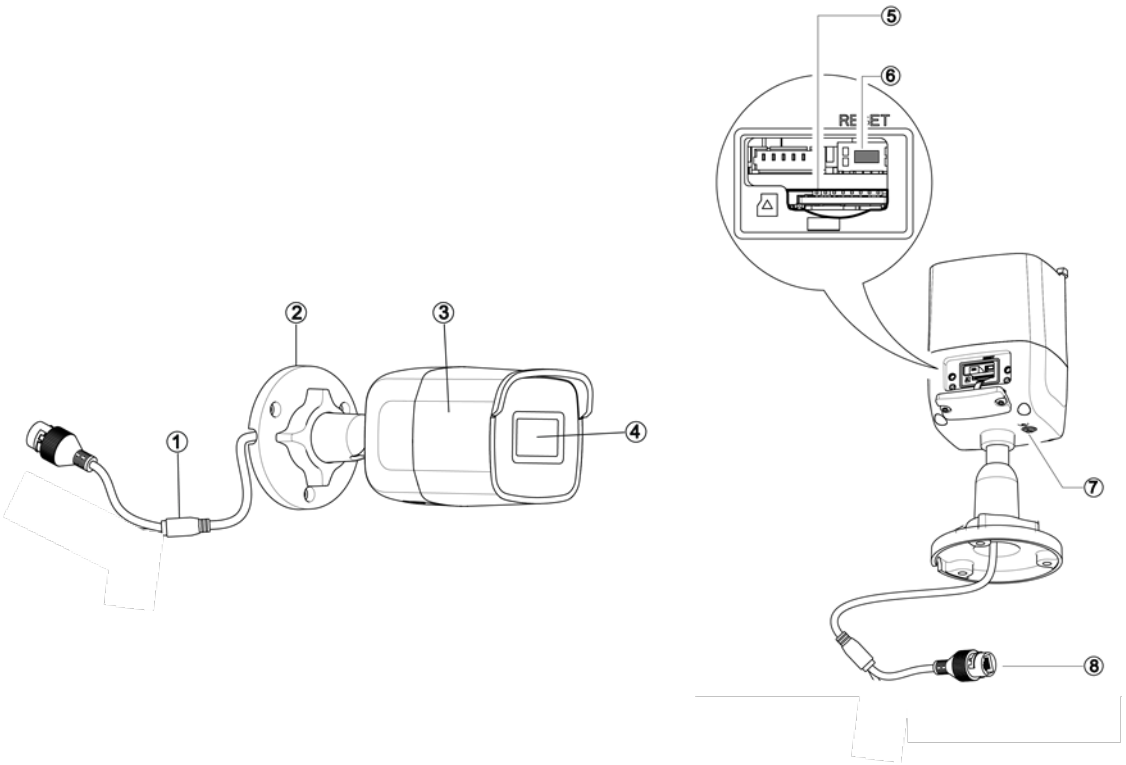
Before proceeding, please check that the box contains the items listed here. If any item is missing or has defects, do not install or operate the product and contact your dealer for assistance.

 AVX-HD448IR Camera	 Mounting Screws	Plastic Anchors
 Quick Start Guide	 IP66 Cable Connector	T10 Torx Tool
Mounting Template		

CAMERA OVERVIEW

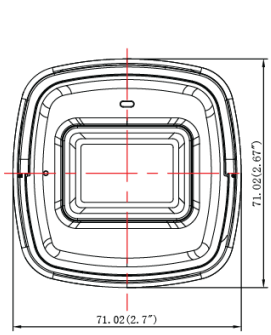
Before installing or connecting the bullet camera, please refer to this section and complete preparations for camera setup and all switch settings.

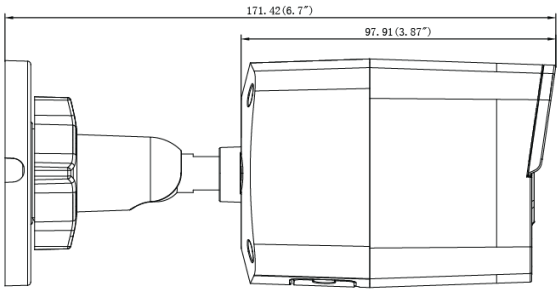
Camera Diagram

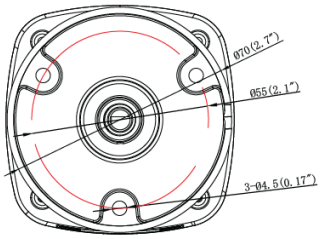


1	Cable	
2	Camera Base	
3	Bullet Cover	
4	Lens	
5	SD Card Slot	Supports up to 512GB MicroSD card
6	Reset Button	Use the reset button to restore the factory default settings. To reset your camera: 1. Disconnect the cat5e cable from the camera for 30 seconds. 2. Hold the reset button down while reconnecting cat5e and continue holding the reset button for 30 seconds after reconnecting. 3. Allow 2 minutes before attempting to rediscover camera.
7	Grounding	
8	Network Interface	

Dimensions







Connections

The AVX-HD448IR cameras use Power over Ethernet (PoE). The only connection on the camera is the RJ45 Ethernet dongle located on the rear of the camera. Connect one end of the Ethernet cable to the dongle, and connect the other end to the recorder, or to a PoE switch.

- Protect the network cable connection from water damage by running the cord inside a wall or ceiling, or through conduit.
- If passing the cord through a wall or ceiling, drill a 7/8” hole.
- For outdoor installations, seal any holes in the wall or ceiling with silicone caulk to protect against water intrusion.

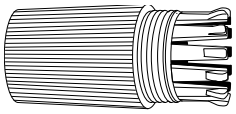
AvertX recommends using Cat5e cable to connect the camera to your network. For the best transmission quality, the cable length should not exceed 300 feet.

Weather Resistant Cable Connector

This camera features an IP66-rated weather resistant connector. For unprotected outdoor connections, screw the connector on the included Ethernet camera cable onto the camera dongle. If your installation location does not require a water-resistant connection, loosen and slide the connector back on the cable until it’s out of the way.

This camera features an IP66-rated waterproof cable connector for unprotected outdoor connections. You do not need to re-terminate the cable to use the waterproof cable connector.

Included Pieces:

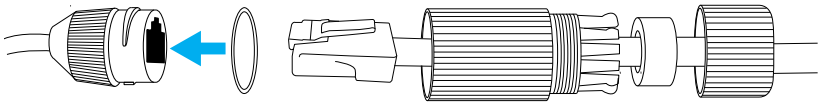
Thread Lock Cap	**Silicone Seal Ring**
 **RJ45 Enclosure**	**Silicone “O” Ring**

To Install the weather resistant cable connector:

1. Slide all pieces of the waterproof cable connector over the cable plug in this order:
   - Thread Lock Cap
   - Flexible silicone seal ring. You will need to stretch the silicone seal over the RJ-45 plug.

Tip: *Insert the flexible silicone seal ring onto the tip of a pair of needle nose pliers and stretch the seal over the RJ45 plug.*

   - RJ45 Enclosure



2. Stretch the small silicone “O” ring onto the camera dongle.
3. Connect the camera cable to the plug on the dongle. Screw the RJ45 Enclosure into the dongle.
4. Insert the flexible silicone seal into the “crown” section of the large plastic ring.
5. Screw the small plastic ring into the large plastic ring.

Tip: *To remove the RJ45 enclosure from the camera cable, tape down the locking tab on the RJ45 plug with electrical or office tape.*

CAUTION: *Do not attempt to disconnect the camera connection without loosening the smaller thread lock cap. Forcing the assembly will break the camera dongle and void the camera warranty.*

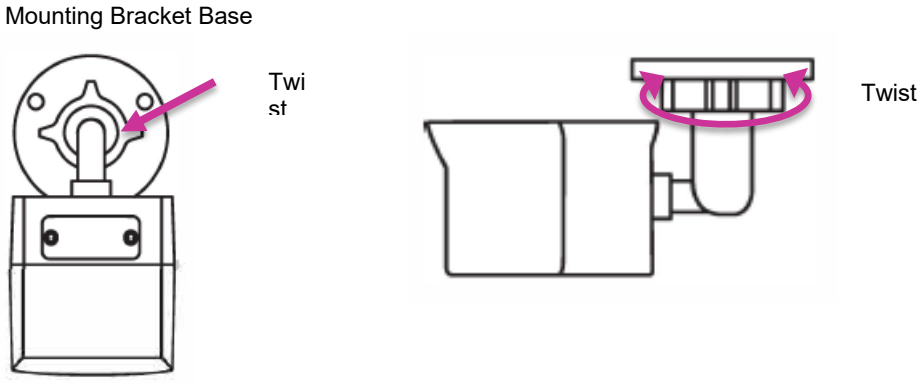
INSTALLING THE CAMERA

Note: *Before installing this camera, please refer to the Quick Start Guide included in the camera box.*

Ceiling and Wall Installation

Bullet cameras are suitable for mounting on either a wall or ceiling.

1. Use the included mounting template to pre-drill holes for the mounting screws and, if passing the cable through the ceiling or wall, drill a 7/8” hole.
2. Connect the ethernet cable to the dongle on the camera.
   - Protect the network cable connection from water damage by running the cord inside a wall or ceiling, or through conduit.
   - For outdoor installations, seal any holes in the wall or ceiling with silicone caulk to protect against water intrusion.
3. Loosen the locknut on the camera bracket mount. Aim the camera down to access screw holes.



4. Affix the camera base to the ceiling or wall with the included screws. When mounting on an unprotected outside wall, the cable notch should be positioned downward.
5. Adjust the position of your camera. Be careful not to damage the cable when moving the camera.
6. Adjust the position of the camera to the image coverage desired.
7. Tighten the locknut to secure your camera.

Tip: Use the AvertX Connect mobile app to view the camera while adjusting view.

Note: AvertX recommends sealing the opening at the wall and at the base of the camera with silicone caulking.

Considerations for Infrared (IR) Lights

Environmental factors can limit the performance of night vision using IR illuminator lights. Infrared light behaves the same as visible light and will reflect off of bright or shiny objects and overexpose the image. The camera will adjust to properly expose the bright areas of the image, which may leave the dark areas obscured.

For best IR Night Vision performance:

Be aware of surfaces that can cause IR light to reflect back into the camera.

- Reflective (shiny) or light-colored surfaces and objects close to the camera can reflect IR light back into the camera.
    - Remove the reflective (shiny) or light-colored surfaces and objects or reposition the camera away from these objects.
- Mounting the camera directly to light colored or shiny soffits (white aluminum, for example) can reflect IR light back into the camera.
    - Reposition the lens so the IR lights aren't pointed at the soffit.
    - Cover the reflecting surfaces with non-reflective surface (non-reflective tape, dark paint)
    - Mount the camera on a nearby wall using a mounting bracket.

Resetting the Camera

Use the reset button to restore the factory default settings. To reset your camera:

1. Disconnect the cat5e cable from the camera for 30 seconds.
2. Hold the reset button down while reconnecting cat5e and continue holding the reset button for 30 seconds after reconnecting.
3. Allow 2 minutes before attempting to rediscover camera.

Cleaning the Lens Cover

The Lens Cover of the AVX-HD448IR is extremely durable but can be damaged if cleaned improperly.

To clean the lens cover:

- To clean dust or loose dirt, use compressed air.
- To clean smudges or stuck on dirt, use warm water with a few drops of dish soap and a clean microfiber cloth.

CAUTION: *Do not use solvents, paper towels, newspaper, or other rough materials to clean the lens cover. This can scratch the lens cover and cause IR distortion.*

CONNECTING

BENCH TEST

AvertX recommends bench testing your camera(s) before installation. This will confirm that your camera is functioning correctly before it is installed and possibly out of reach.

To bench test your camera, attach the camera network connector to your recorder and test whether or not the camera is functioning correctly. Once the camera is connected to the recorder, test all functions to ensure proper operation.

If the camera will not connect or is not functioning correctly, do not install, and contact AvertX Support.

NETWORK CAMERA MANAGER

Network Camera Manager **(NCM)** is a software tool that allows you to quickly and easily connect and configure your AvertX IP cameras. This software allows you to assign IP addresses, configure video settings, and update firmware on multiple cameras at once.

NCM is pre-installed on all AvertX ProConnect recorders and is also available for download at **www.avertx.com/support** for installation on your personal computer or laptop.

Launch Network Camera Manager

Open the Settings menu, go to the **Cameras** page and click **Advanced** (located towards to top-middle on the page).

Note: *If you cannot connect to the camera you may need to change the camera's IP address to match your network settings.*

Finding Network Devices

Click **Refresh** to reload the Device List.

To narrow your search by Camera Model or Network Location, use the Model Filter and Networks dropdowns.

Changing the IP Address

AvertX recorders will automatically apply a DHCP IP address. If you are not connecting the camera to an AvertX recorder or DHCP network, you must set a static IP address. NCM allows you to do this in the bottom left corner:

1. Select the applicable camera.
2. Enter the **IP address**, **Subnet Mask**, **Gateway**, and **DNS**.
3. Click **Apply**.
4. Wait 10 seconds and click **Refresh**.

CONNECTING TO THE CAMERA

Connecting in a Web Browser

8. Type the IP address of the camera in a web browser.
   - OR -
   Use the **Network Camera Manager** software and locate the camera on the list, then click **Load** in the row of the desired camera.
9. Log in to the camera with the appropriate User Name and Password.

Username and Password

IMPORTANT: AvertX cameras ship without a default password; the admin password is required to gain access or establish a connection.

The admin user password can be set using the following methods:

1. AvertX ProConnect recorders will check the camera for a password once connected.
   i. **If AvertX software does not detect a password, it will set the camera password to a secure text string of 8 to 16 characters** (Including upper-case letters, lower-case letters, digits and special characters (!"#$%&'()*+,-./:;<=>?@[\]^_`{|}~ space)).
2. Network Camera Manager
3. Camera Web Browser

Connecting a Stream

AvertX IP cameras are optimized for use with AvertX ProConnect recorders, but you can also connect to your AvertX IP cameras using third party software like VLC media player (http://www.videolan.org).

To connect the camera, you may need to provide the stream URL. All AvertX IP cameras are capable of delivering two RTSP streams over HTTP. The stream URLs are listed below:

- rtsp://< IPADDRESS >/Streaming/Channels/101
  - H.264 Stream 1
- rtsp://< IPADDRESS >/Streaming/Channels/102
  - H.264 Stream 2

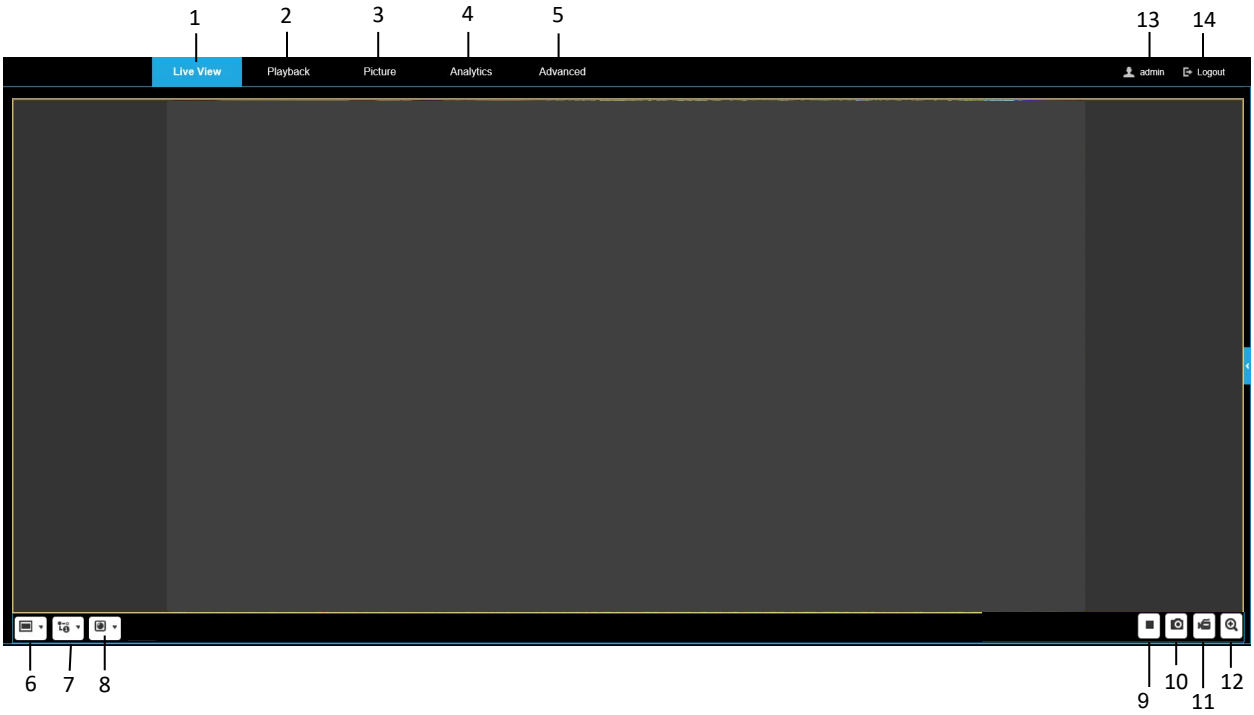
Note: *VLC will ask for the user name and password for your AvertX camera.*

LOGGING INTO THE WEB INTERFACE

The default static IP address of the camera is 192.168.51.2, and the default subnet mask is 255.255.255.0. DHCP is turned on by default. If a DHCP server is used in the network, the IP address of your camera will be assigned dynamically.

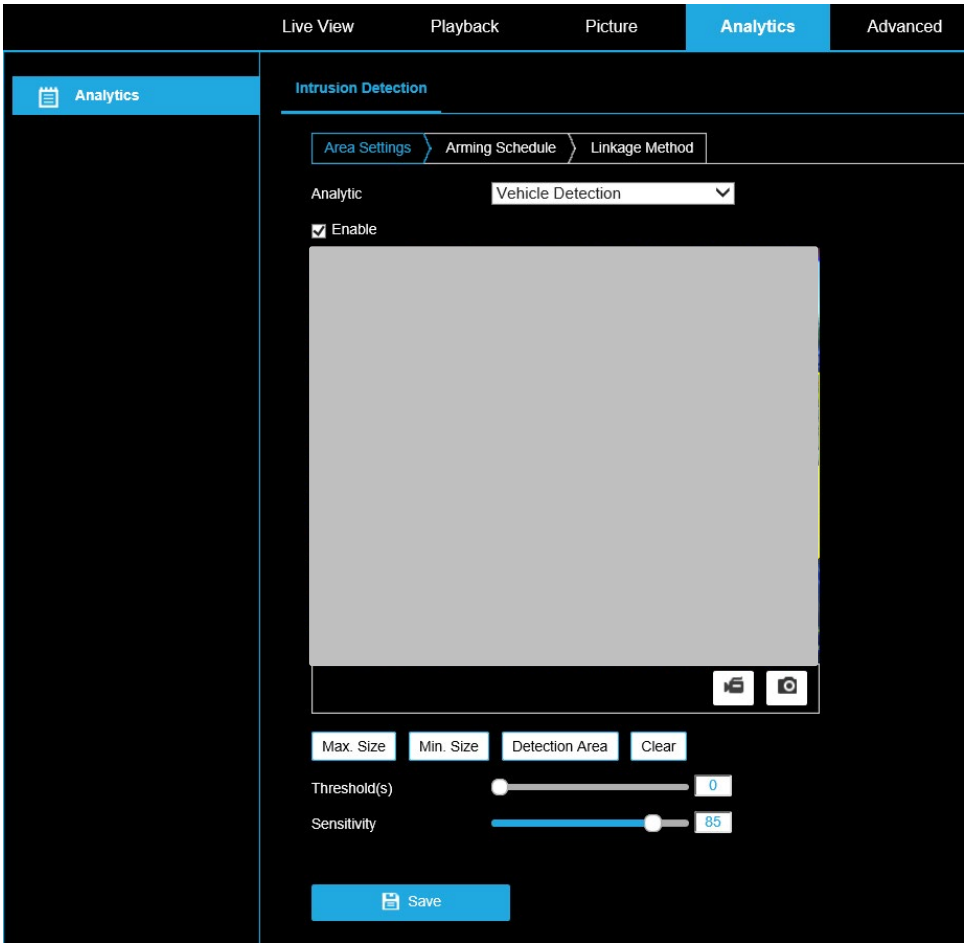
- Browse to the login page by entering the IP address of your camera in the address bar.
- Enter the **username** and **password**, and then click **Login**.
  - For the first login, use the default username: **admin**
  - You will be prompted to change the password.

LIVE VIEW



No.	**Description**
1	Browse to Live View page to view live video
2	Browse to Playback page to view video recorded to onboard storage
3	Browse to the Picture page to view snapshots saved to onboard storage
4	Browse to the Analytics Page
5	Browse to the Advanced Page
6	Change Aspect Ratio in Live View
7	Select which stream displays in Live View
8	Click to select the third-party plug-in
9	Start/Stop Live View
10	Capture live view image and save to selected location
11	Start/Stop Live View
12	Start/Stop Digital Zoom
13	Exit the device interface
14	Current user account

ANALYTICS



Intrusion Detection

Area Settings

Analytic: Choose between **Person Detection** and **Vehicle Detection**.

Use the checkbox to **Enable/Disable** the selected analytic.

Start Recording: Start/Stop a live video recording and save to selected location.

Capture: Capture live view image and save to selected location.

Max. Size: Create a maximum size detection box.

Min. Size: Create a minimum size detection box.

Detection Area: Create a shape to determine the area where Smart Analytics is enabled.

Clear: Clear all previously created areas.

Threshold(s): Time in seconds the target remains in the area before triggering an alert.

Sensitivity: The value defines the size of the object which can trigger the alarm.

Save: Save Area Settings.

To Create a Detection Area:

1. Click on **Detection Area**.
2. Click on the image to set the first corner of the detection area.
3. Move to the next corner point and click to set. Repeat this process to complete the shape.

Note: *The detection area can be adjusted by clicking on a corner and dragging to the new position.*

To Create a Min Size Detection Box:

1. Click on **Min Size**.
2. Click and drag a box around a person or vehicle at the furthest distance from the camera you would like to detect.

To Create a Max Size Detection Box:

1. Click on **Max Size**.
2. Click and drag a box around a person or vehicle at the closest distance to the camera you would like to detect.

To Set a Threshold Time:

Move the slider to the desired time (in seconds).

Note: *Threshold is the amount of time a person or vehicle must be in the detection area boundaries to trigger an alert. For example, if threshold is 0, an alert is triggered immediately when a person or vehicle is detected; if threshold is 8, an alert is triggered when a person or vehicle has been in the detection area for 8 seconds.*

To Set a Sensitivity Time:

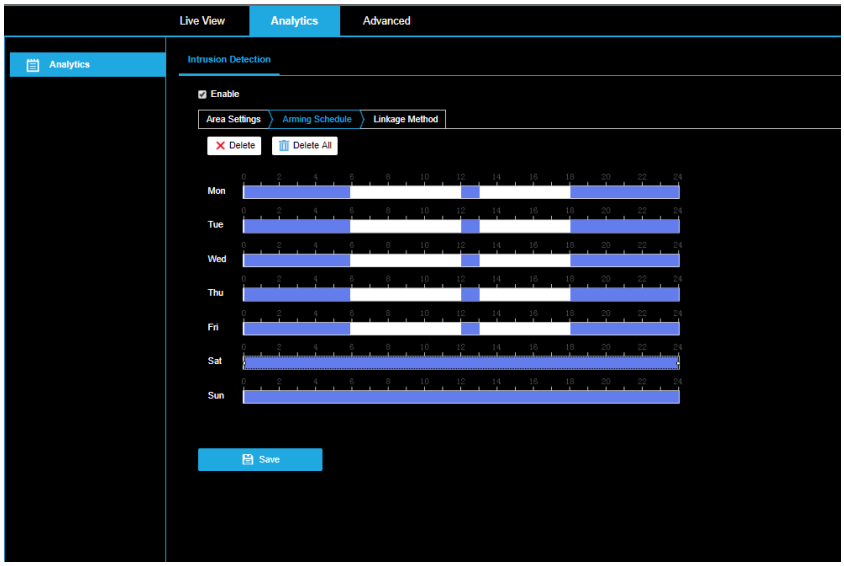
Move the slider to the desired sensitivity (between 1-100).

Note: *The value of the sensitivity defines the size of the object which can trigger the alarm. Setting the sensitivity too high can result in increased false alerts.*

Save after configuring area settings.

Arming Schedule

Note: *Arming Schedule applies only to event-triggered recording video and snapshots to onboard storage and does not impact what, when, or how video is recorded on AvertX recorders.*



Check **Enable** and set a weekly schedule for the times when Intrusion Detection is active.

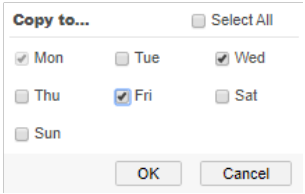
Delete: Select a scheduled block of time and Delete to remove it from the schedule.

Delete All: Delete All clears all blocks of scheduled time from the schedule.

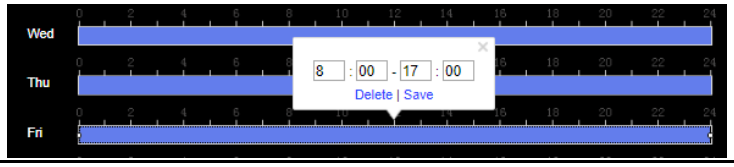
To Set a Weekly Schedule:

1. Click and drag inside the timelines to set a time (or times) when an alarm is active.
2. Click **Save** when all of the days are set.

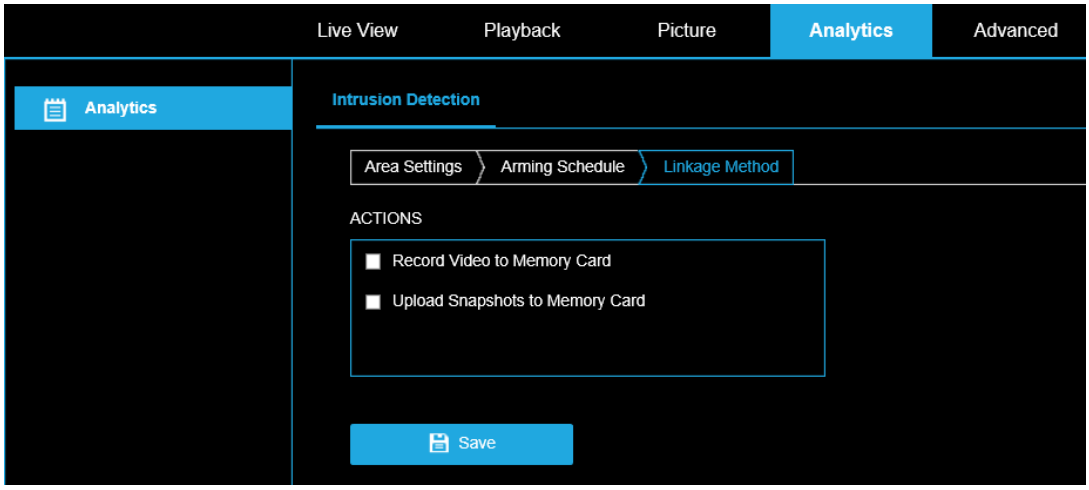
Note: *To copy the same hours across multiple days, click to the right of a timeline on* ***Copy to...*** *. Check the days that will have the same set of hours, then* ***OK****.*



Note: *Enter a range manually by clicking on a timeline. Click* ***Save*** *once the time range has been entered.*



Linkage Method



Use the checkboxes to enable the available actions.

ACTIONS (Arming Schedule must be configured to enable):

Record Video to Memory Card – Video will be recorded when a person or vehicle is detected.

Upload Snapshots to Memory Card – Capture the image when a person or vehicle is detected and save the picture to the onboard microSD card.

Click **Save** after selecting actions.

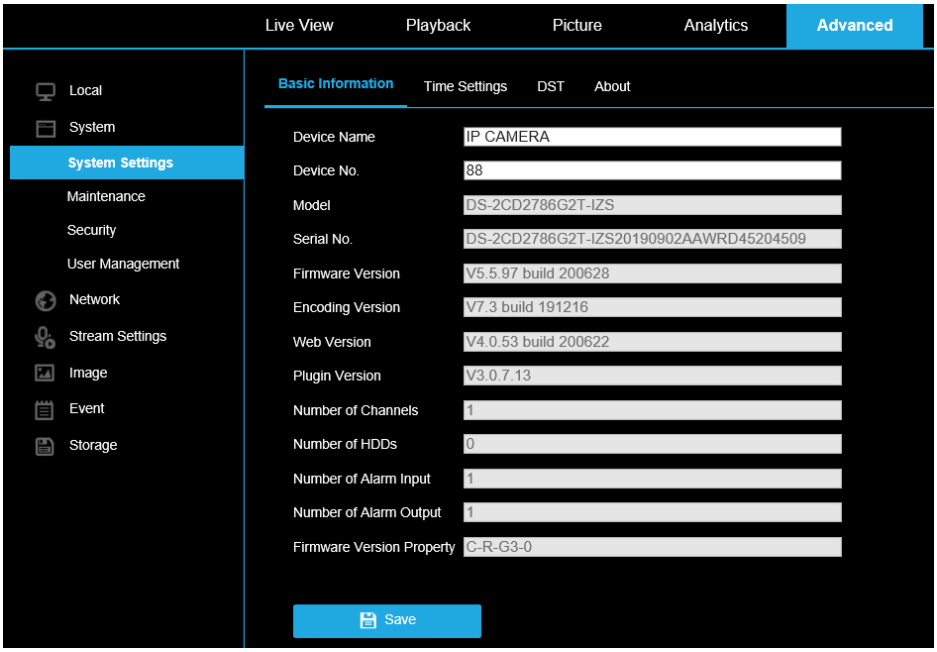
ADVANCED

SYSTEM

System Settings

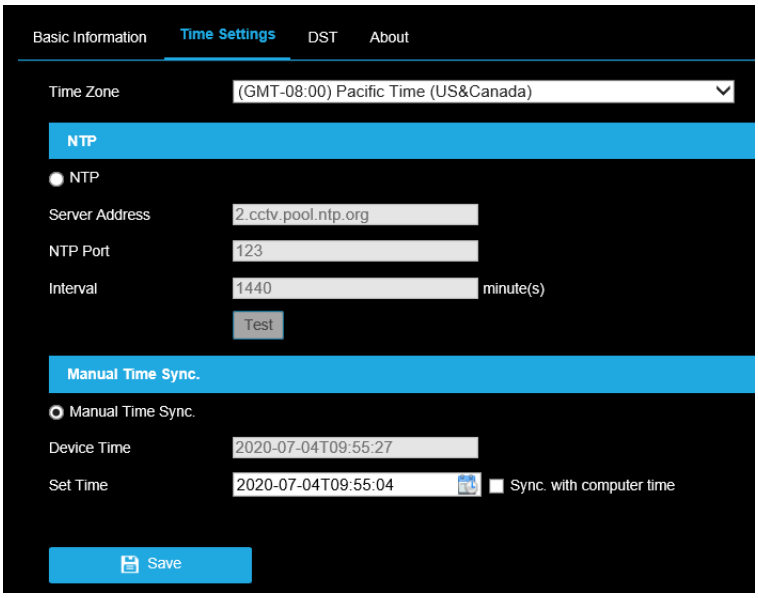
Basic Information

Basic Information displays details about the camera. **Device Name** and **Device No.** are customizable.



Time Settings

Configure the time synchronization and DST settings.



Select the **Time Zone** of your location from the drop-down menu.

To configure the NTP settings:

1. Click to enable the NTP function.
2. Configure the following settings:
   - **Server Address:** IP address of NTP server.
   - **NTP Port:** Port of NTP server.
   - **Interval:** The time between synchronizing actions with NTP server.

Note: *You can click the Test button to test the time synchronization function via NTP server.*

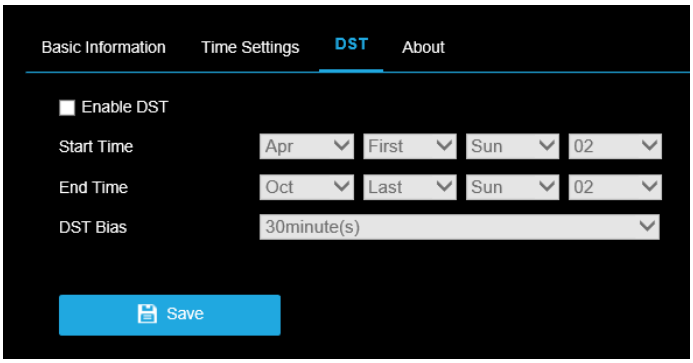
To configure Manual Time Sync:

1. Enable the manual time synchronization function. (enabled by default)
2. Click the icon to select the date, time from the pop-up calendar.

Note: *Check **sync with computer time** to synchronize the time of the device with that of the local PC.*

DST (Daylight Savings Time)

Configure daylight savings time, if needed.



To configure DST:

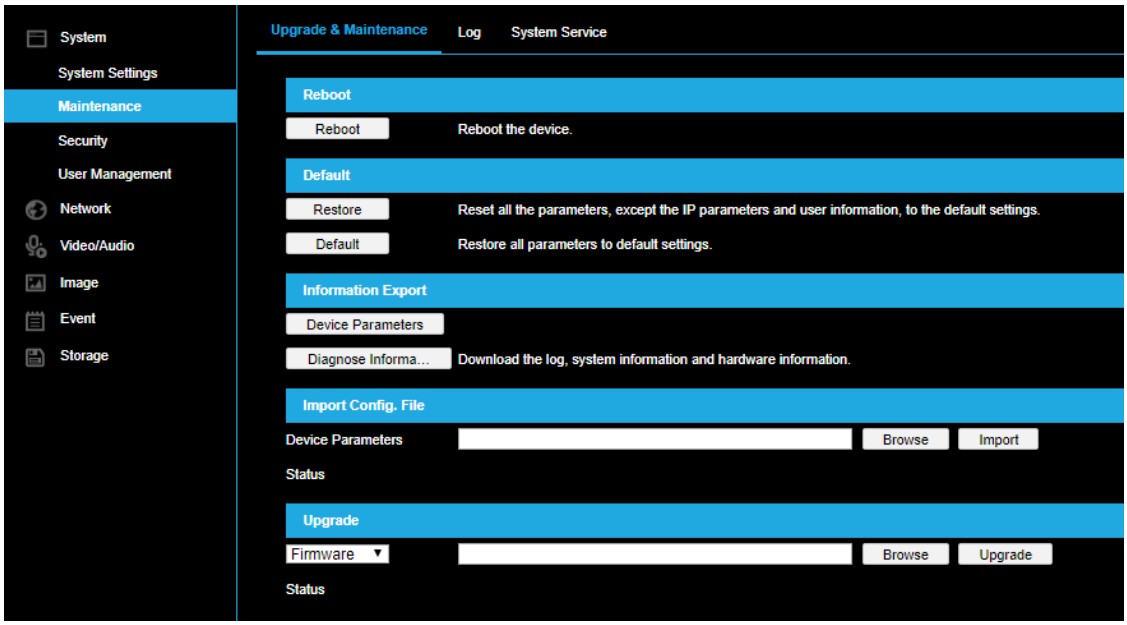
1. Select the **Start Time** and the **End Time**.
2. Select the DST Bias.
3. Click **Save** to activate the settings.

About

Click **View Licenses** to check information about the open source software that applies to the IP camera.

Maintenance

Upgrade & Maintenance



Process the operations, including reboot, partly restore, restore to default, export/import the configuration files, and upgrade the device.

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

Note: *Restoring the default settings will require setting the admin password again; the IP address is also restored to the default IP address.*

- **Device Parameters:** Export the current configuration file of the camera. This operation requires the admin password. The user will be required to create an encryption password for the exported file. The encryption password is required when you import the file to other cameras.
- **Diagnose Information:** Download log and system information.
- **Import Config. File:** Configuration file is used for the batch configuration of cameras.
- **To import a configuration file:**

  1. Click **Browse** to select the saved configuration file.
  2. Click **Import** and input encryption password to start importing configuration file.

Note: *The camera will need to reboot after importing configuration file.*

- **Upgrade:** Upgrade the device firmware.

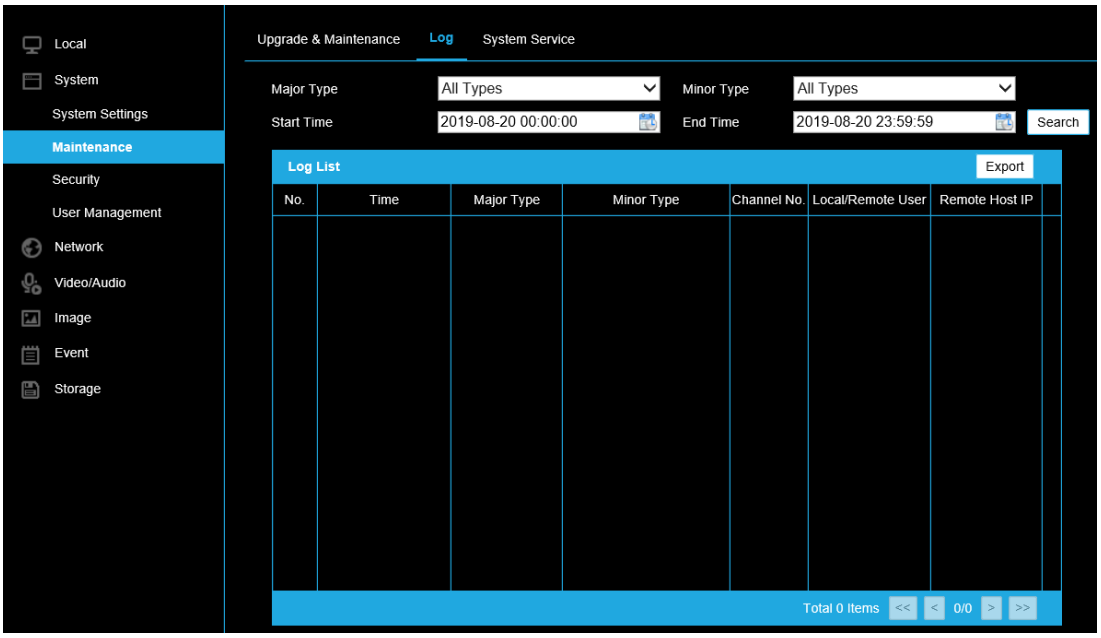
To upgrade your device firmware:

1. Select firmware or firmware directory to locate the upgrade file.
   Firmware: Locate the exact path of the upgrade file.
2. Click Browse to select the local upgrade file and then click Upgrade to start remote upgrade.

Note: *The upgrading process will take 1 to 10 minutes. Do not disconnect the camera during the upgrade process; the camera will reboot automatically after upgrade.*

Log

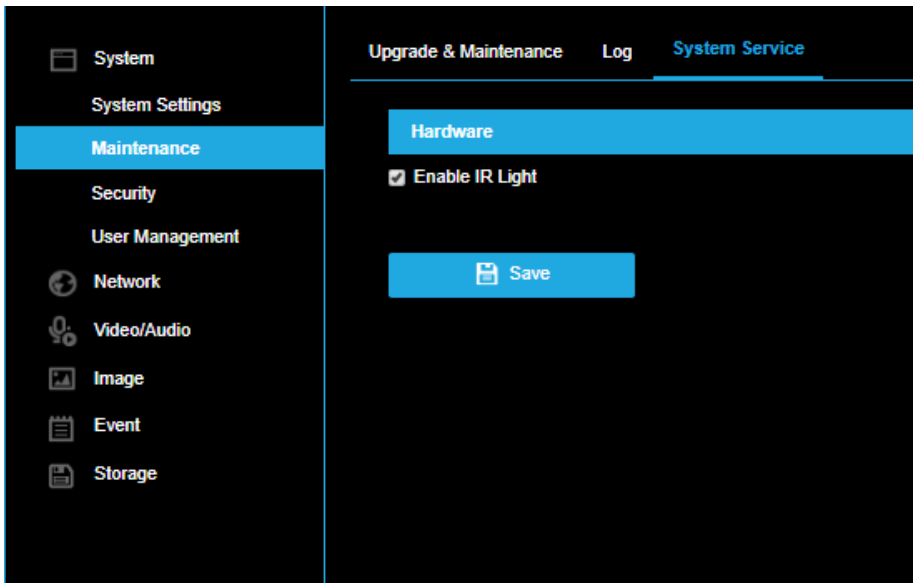
Export the camera log files.



To export log files:

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

System Service

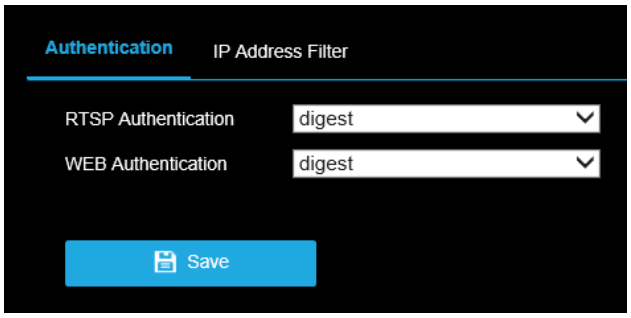


Click **Enable IR Light** and click **Save** to activate the camera's IR light.

Security

Configure the parameters, including **Authentication**, **IP Address Filter**.

Authentication

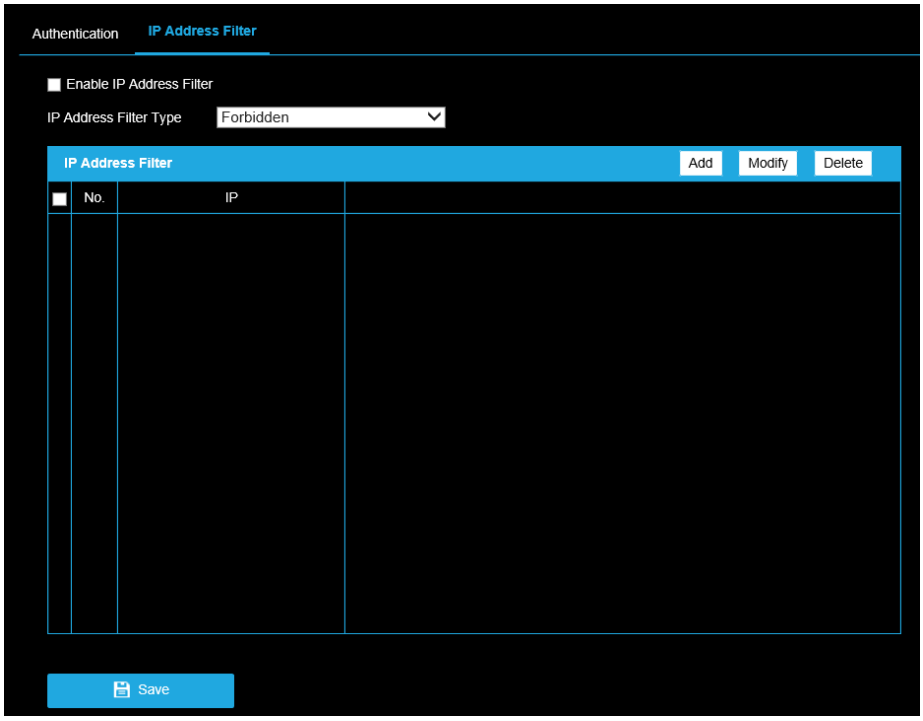


1. Set up authentication method for **RTSP Authentication** and **WEB Authentication**.

CAUTION: *Digest is the recommended authentication method for better data security. Be aware of the risk if you adopt basic as the authentication method.*

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

IP Address Filter



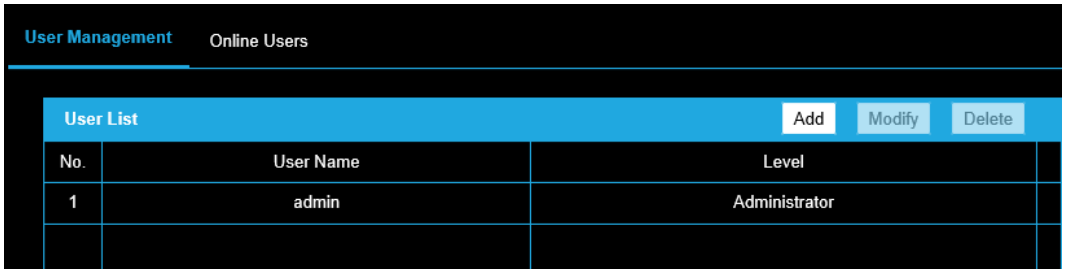
To configure IP Address Filtering:

1. Check the checkbox of **Enable IP Address Filter**.
2. Select the type of **IP Address Filter** in the drop-down list, **Forbidden** and **Allowed** are selectable.
3. Setup the **IP Address Filter** list:
   - **Add**: Add an IP Address
   - **Modify**: Modify an IP Address
   - **Delete**: Delete an IP Address
4. Click **Save** to save the settings.

User Management

As Administrator:

The admin user can **Add, Modify** or **Delete** user accounts, and grant them different permissions. We highly recommend you manage the user accounts and permissions properly.



Note: Admin password is required for adding and modifying a user account.

Adding a User

The admin user has all permissions by default and can create, modify or delete other accounts. The admin user cannot be deleted, and you can only change the admin password.

1. Click **Add** to add a user.
2. Input the Admin Password, User Name, select Level and input Password.
3. Check or uncheck permissions for the new user.
4. Click **OK** to finish the user addition.

Notes: Up to 31 user accounts can be created.
Users of different levels own different default permissions.

Modifying a User

1. Select the user from the list and click **Modify**.
2. Modify the User Name, Level and Password.
3. You can check or uncheck the permissions.
4. Click **OK** to finish the user modification.

Deleting a User

1. Click to select the user you want to delete and click **Delete**.
2. Click **OK** on the pop-up dialogue box to confirm the deletion.

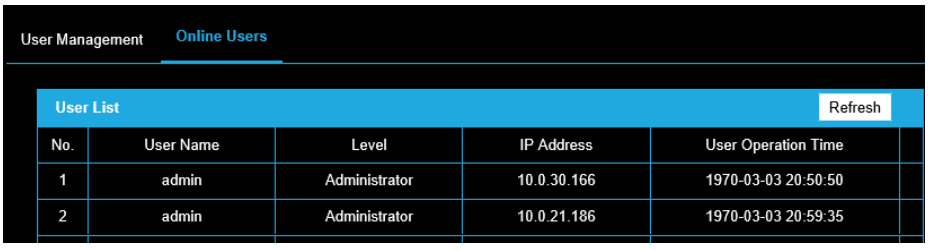
As Operator or User

An operator or user can modify a password. An old password is required for this action.

Online Users

Lists current users who are visiting the device through the web interface.

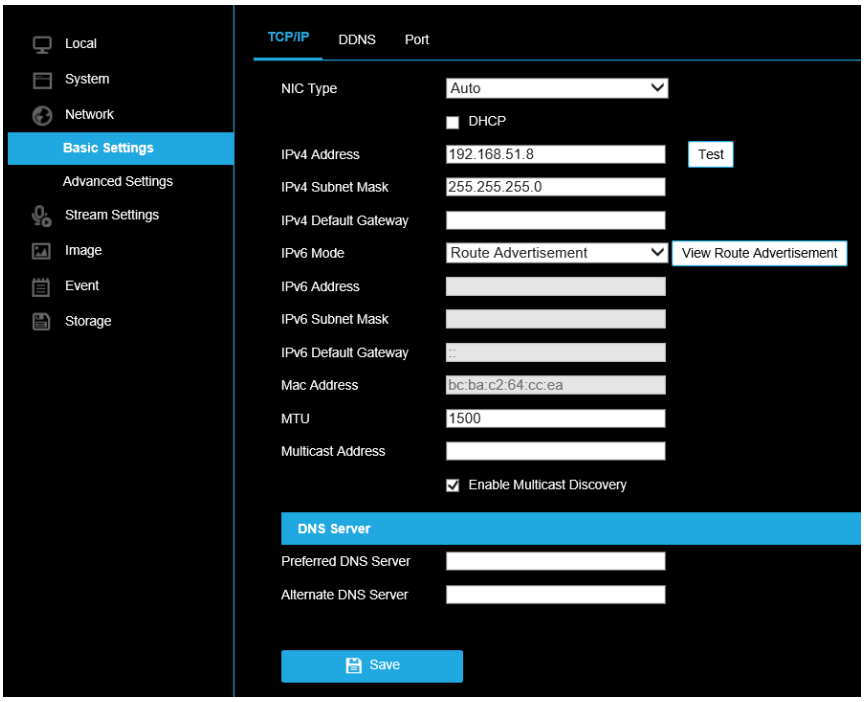
Click **Refresh** to refresh the list.



Basic Settings

Basic Settings > TCP/IP

Configure the basic network settings, including the **NIC Type**, **IP Address**, **Subnet Mask**, **Gateway**, **MTU settings** and **Multicast Address**.



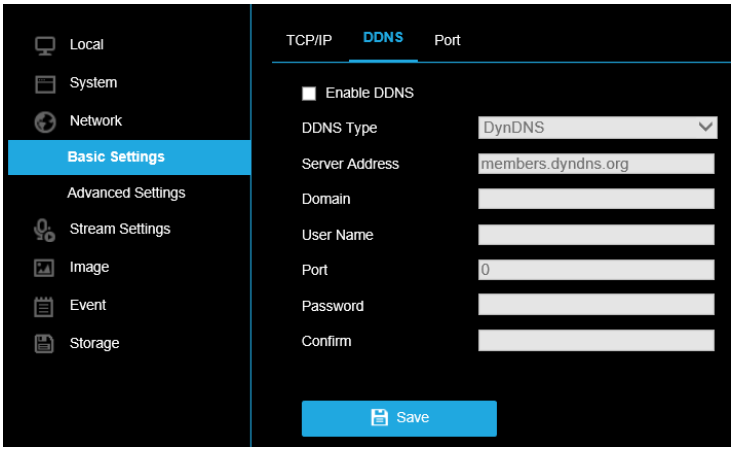
(Optional):

1. Check **Enable Multicast Discovery**, and then the online network camera can be automatically detected by client software via private multicast protocol in the LAN.
2. Configure the DNS server. Input the preferred DNS server, and alternate DNS server.
3. Click **Save** to save the above settings.

Notes:

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

Basic Settings > DDNS



Before you start: Registration on the DDNS server is required before configuring the DDNS settings of the camera.

1. Check the **Enable DDNS** checkbox to enable this feature.
2. Select **DDNS Type**. Two DDNS types are selectable: DynDNS and NO-IP.

DynDNS:

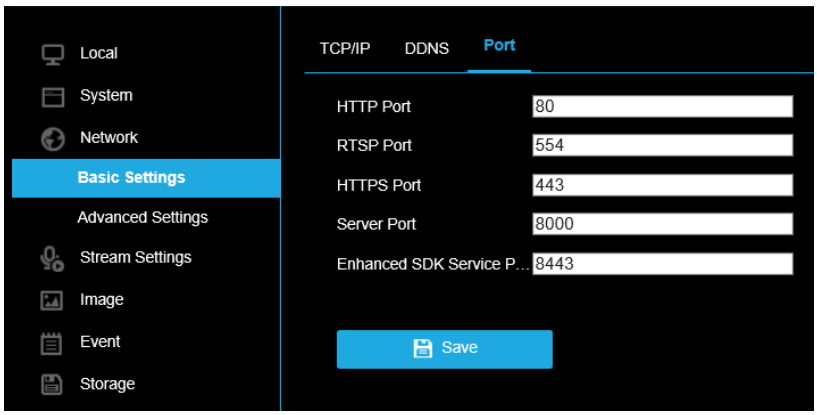
1. Enter **Server Address** of DynDNS (e.g. members.dyndns.org).
2. In the **Domain** text field, enter the domain name obtained from the DynDNS website.
3. Enter the **User Name** and **Password** registered on the DynDNS website.
4. Click **Save** to save the settings.

NO-IP:

1. Choose the **DDNS Type** as NO-IP.
2. Enter the **Server Address** as www.noip.com
3. Enter the **Domain** name you registered.
4. Enter the **User Name** and **Password**.
5. Click **Save** and then you can view the camera with the domain name.

Note: Reboot the device to make the settings take effect.

Basic Settings > Port

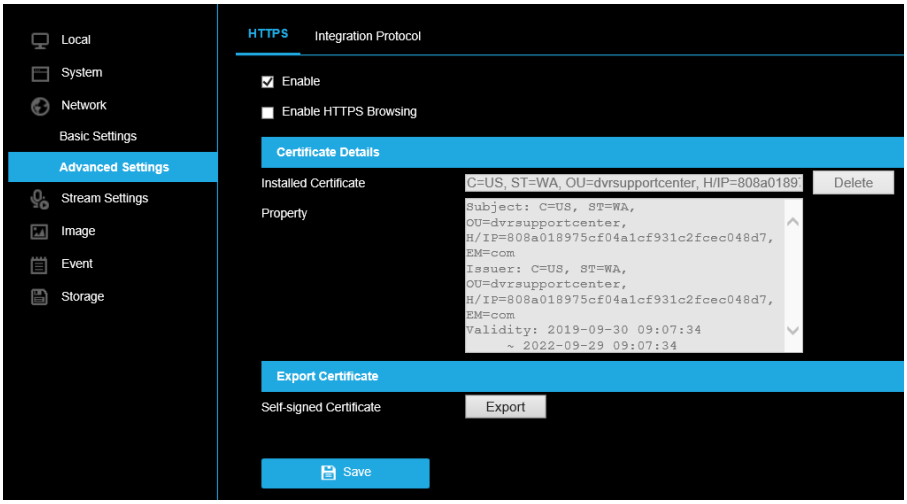


- **HTTP Port:** The default port number is 80, and it can be changed to any port No. which is not occupied.
- **RTSP Port:** The default port number is 554 and it can be from 1 to 65535.
- **HTTPS Port:** The default port number is 443, and it can be any port which is not occupied.
- **Server Port:** The default server port number is 8000, and it can be from 2000 to 65535.

Advanced Settings

Advanced Settings > HTTPS

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



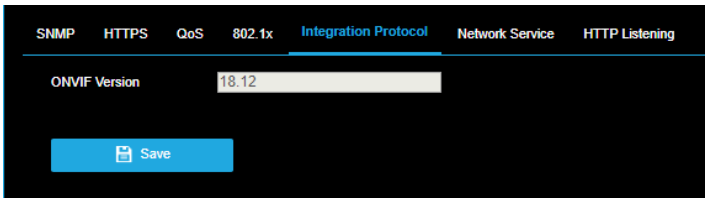
Note:

- *HTTPS is enabled by default.*
- *If HTTPS is enabled, the camera creates an unsigned certificate automatically.*

1. Check **Enable** to access the camera via HTTP or HTTPS protocol.
2. Check **Enable HTTPS Browsing** to access the camera only via HTTPS protocol.

Advanced Settings > Integration Protocol

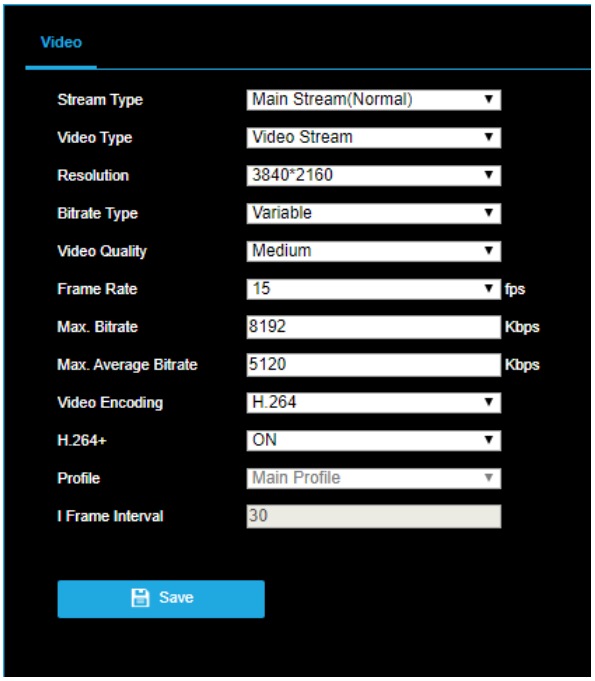
Displays ONVIF version



STREAM SETTINGS

Video

Configure parameters for the main and sub video streams.



Select the **Stream Type**.

Supported stream types are listed in the drop-down:

- **Main stream** is used for recording motion events and live view with good bandwidth.
- **Sub-stream** is used for continuous recording and live view.

Customize the following parameters for the selected stream type:

- **Video Type:** Select between Video Stream and Video & Audio.
- **Resolution:** Select the resolution of the video output.
- **Bitrate Type:** Select the bitrate type to constant or variable.
- **Video Quality:** When bitrate type is selected as Variable, 6 levels of video quality are selectable.

Note: Increasing Video Quality increases bitrate.

- **Frame Rate:** Set the frame rate.
- **Max. Bitrate:** Set the max. bitrate from 32 to 16384 Kbps. The higher value corresponds to the higher video quality and increased bandwidth use.
- **Max. Average Bitrate:** When you set a maximum bitrate, its corresponding recommended maximum average bitrate will be shown in the Max. Average Bitrate box.
- **Video Encoding:** The camera supports multiple video encodings types, such as H.264, H.264+, H.265, and H.265+. H.265 is a new encoding technology which reduces the transmission bitrate under the same resolution, frame rate and image quality compared with H.264.

Note: The camera will require a reboot to turn H.264+/H.265+ on or off.

***IMPORTANT:* AvertX ProConnect recorders do not currently support H.265/H.265+ video encoding.**

Display Settings

Configure the image adjustment, exposure settings, day/night switch, backlight settings, white balance, image enhancement, video adjustment, and other parameters in display settings, OSD settings, and privacy mask.

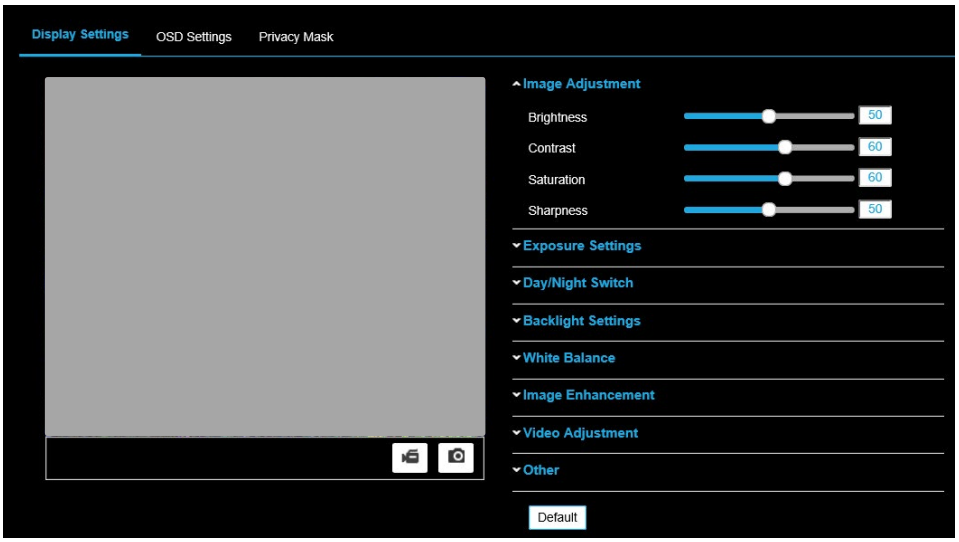
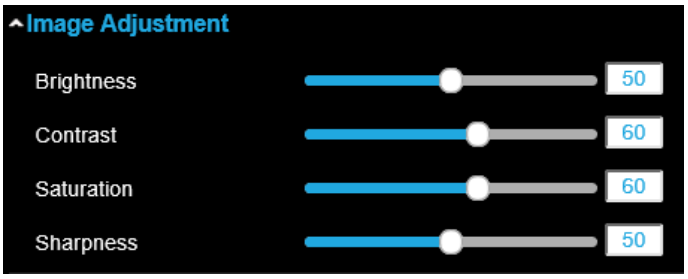


Image Adjustment



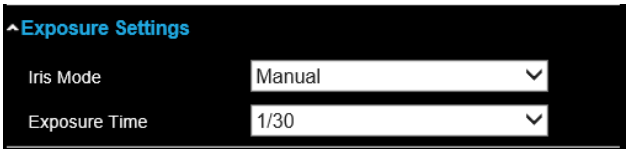
- **Brightness** describes brightness of the image, which ranges from 1 to 100.
- **Contrast** describes the contrast of the image, which ranges from 1 to 100.
- **Saturation** describes the intensity of the image color, which ranges from 1 to 100.
- **Sharpness** describes the edge contrast of the image, which ranges from 1 to 100.

Item	Description
Brightness	Set the degree of brightness of images. Low brightness High brightness

Saturation	Set the intensity of color in the image. Low saturation High saturation
Contrast	Set the degree of difference between the blackest pixel and the whitest pixel. Low contrast High contrast
Sharpness	Contrast of boundaries of objects in an image. Low sharpness High sharpness
Digital Noise Reduction	Reduce the noise of images. The function may cause image blurring.

Exposure Settings

Manual is the only available setting for Iris Mode.

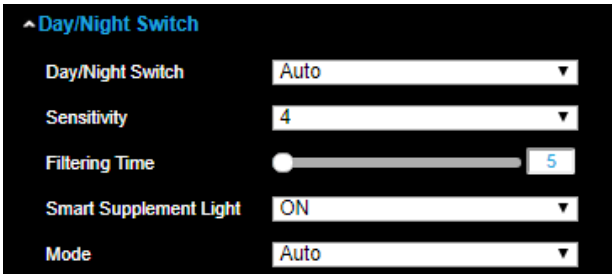


Exposure Time refers to the electronic shutter time, which ranges from 1 to 1/100,000s. Adjust it according to the actual luminance condition.

Day/Night Switch

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

- Day, Night, Auto, Scheduled-Switch are the available options.

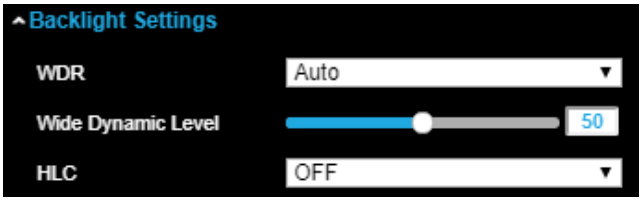


  - **Day**: The camera provides high-quality color images using the existing light.

- **Night**: The camera provides high-quality black and white images using the existing light.
- **Auto:** The camera outputs the optimum images according to the light condition. In this mode, the camera can switch between night mode and day mode automatically.

- **Sensitivity** ranges from 0 to 7, the higher the value is, the easier the mode switches.
- **Filtering Time** refers to the interval time between the day/night switch. You can set it from 5s to 120s.
- **Scheduled-Switch:** Set the start time and the end time to define the duration for day/night mode.
- **Smart Supplement Light/Mode:** Set the supplement light as **On + Auto**, **On + Manual,** or **OFF**.
- **Auto** - Supplement light changes according to the actual luminance.
  - For example, if the current scene is bright enough, then the supplement light adjusts itself to lower power; and if the scene is not bright enough, the light adjusts itself to higher power.
- **Manual** - Adjust the supplement light by adjusting the distance.
  - Lower value indicates the object is closer to the camera; the value increases as the object distance increases.

Backlight Settings



- **BLC Area:** An object against strong backlight will be too dark to be seen clearly. BLC adjusts light around the object to improve visibility. OFF, Up, Down, Left, Right, Center, Auto, and Custom are available options. WDR must be set to OFF to access BLC Area.

Note: BLC Custom mode allows the user to draw a BLC area of interest.

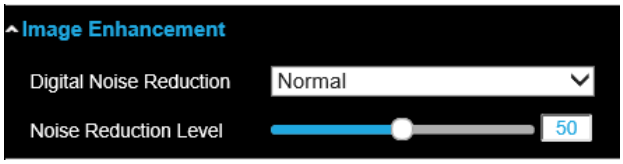
- **WDR:** Wide Dynamic Range can be used when there is a high contrast of the bright area and the dark area of the scene.
- **HLC:** High Light Compression can be used when there are strong lights in the scene affecting the image quality.

White Balance

White balance is the process of offsetting unnatural color cast in images under different color temperatures so as to output images that best suit human eyes.

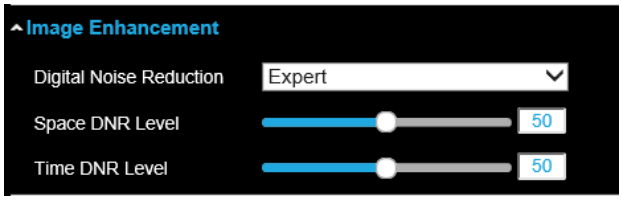
Image Enhancement

- **Digital Noise Reduction:** DNR reduces the noise in the video stream. OFF, Normal and Expert are the available options.
  - **Normal Mode:** 0 to 100



Expert Mode:

- Space DNR level: 0 – 100
- Time DNR level: 0 – 100



Video Adjustment

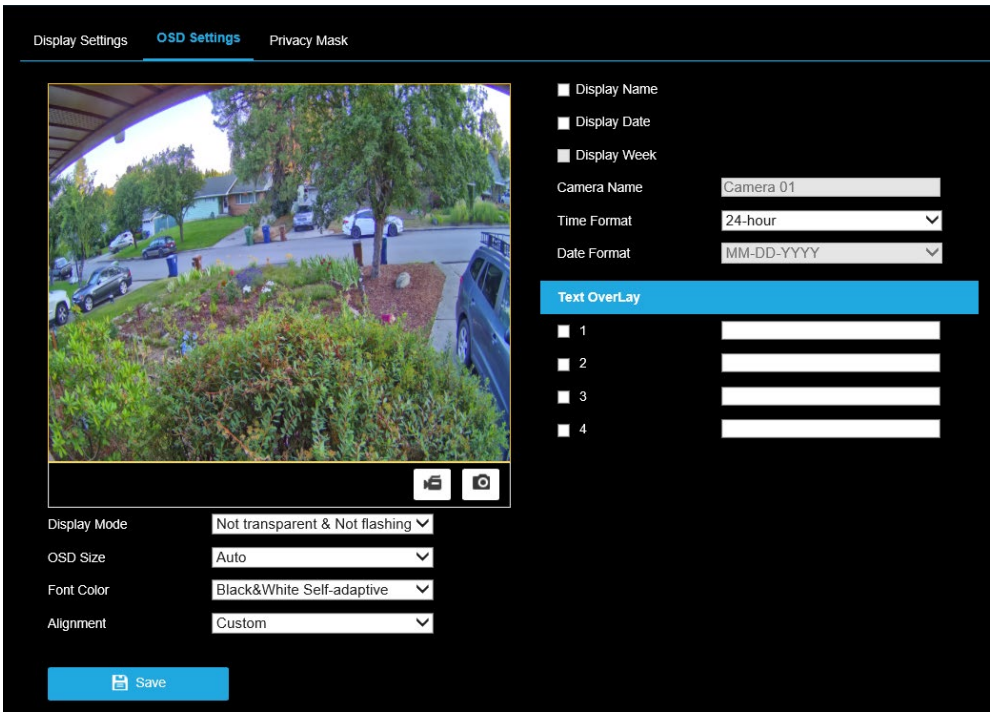
- **Image Flip:** mirrors the image so you can see it inversed. **Flip Horizontal**, **Flip Vertical**, and **OFF** are selectable.
- **Rotate:** rotates the image 90° counterclockwise for hallway or corridor mode.
- **Video Standard:** 50 Hz and 60 Hz are the available options. NTSC (60HZ) is the default mode.

Note: *NTSC is the Video Standard in North and South America.*

Click **Default** to restore original settings.

OSD Settings

Customize the camera name, time/date format, display mode, and OSD size displayed in live view.



To configure OSD settings:

1. Check the applicable checkbox to display the camera name, date or week.
2. Edit the camera name in the text field of **Camera Name**.
3. Select from the drop-down list to set the **Time Format** and **Date Format**.
4. Select from the drop-down list to set the **Display Mode**, **OSD Size**, **Font Color** and **Alignment**.

To configure the text overlay settings:

1. Check the checkbox in front of the textbox to enable the on-screen display.
2. Input the characters in the textbox.

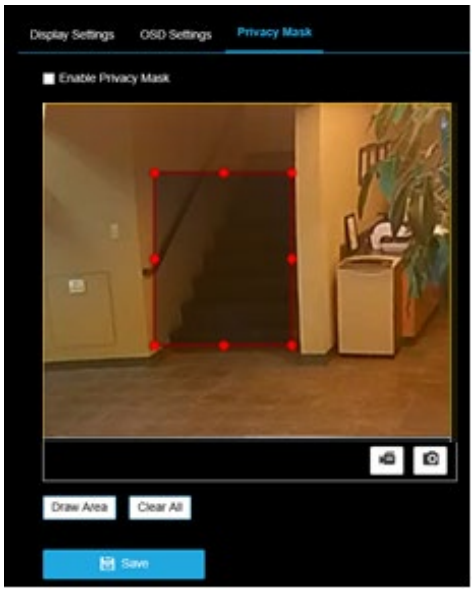
Note: *Up to 4 text overlays are configurable.*

- Adjust the position and alignment of text frames.
  - Left align, right align and custom are selectable.
    - Select custom to use the mouse to click and drag text frames in the live view window to adjust their positions.

Note: *The alignment adjustment is only applicable to Text Overlay items.*

Privacy Mask

Privacy mask enables you to cover certain areas on the live video to prevent certain spots in the surveillance area from being viewed and recorded. Privacy mask areas are used to protect privacy. For example, a privacy mask can cover the keypad of an ATM machine or the entry to fitting rooms.



To configure privacy masks:

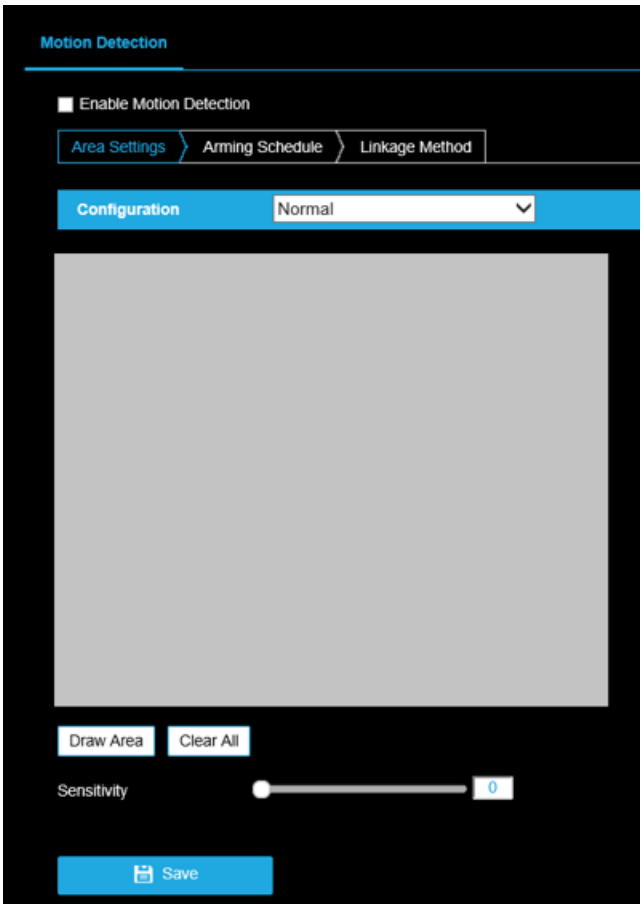
1. Check the checkbox of **Enable Privacy Mask**.
2. Click **Draw Area**.
3. Click and drag the mouse in the live video window to draw the mask area.

Note: *Draw up to 4 areas on the same image.*

4. Click **Stop Drawing** to finish drawing.
5. Click **Clear All** to clear all areas.

Motion Detection

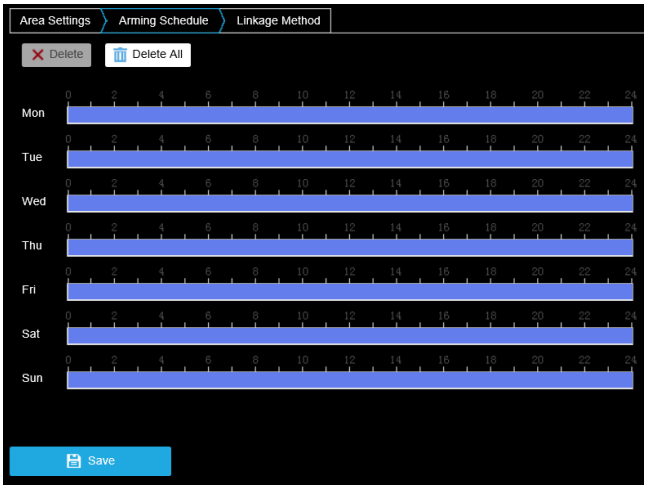
Motion detection detects moving objects in the defined areas. In order to detect the moving objects accurately and reduce the false alarm rate.



To configure Normal motion detection:

1. Check **Enable Motion Detection**.
2. Click **Draw Area**.
    - Click and drag the mouse on the live video to draw a motion detection area.
    - Click **Stop Drawing** to finish drawing one area.
- (Optional) Click **Clear All** to clear all detection areas.
- (Optional) Move the slider or type a number in the text box to set the detection **Sensitivity** level.
    - 0 – no detection; 100 – Maximum sensitivity.

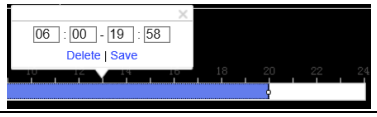
Set the Arming Schedule for Motion Detection



To configure the motion detection schedule:

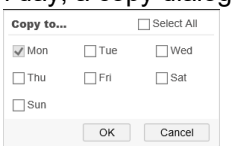
1. Click on the time bar and drag the mouse to select the time period.

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



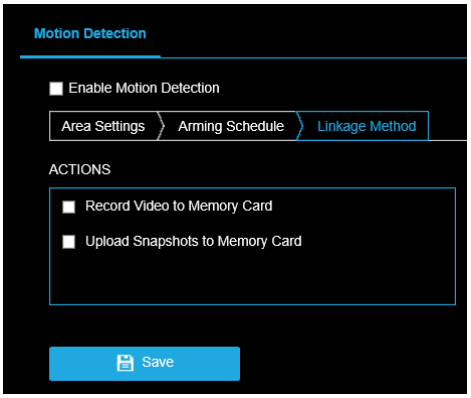
- (Optional) Click **Delete** to delete the current arming schedule.

2. Move the mouse to the end of each day, a copy dialogue box pops up, and you can copy the current settings to other days.
3. Click **Save** to save the settings.



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

Set the Linkage Method for Motion Detection



Use the checkboxes to enable the available actions.

ACTIONS (Arming Schedule must be configured to enable):

Record Video to Memory Card – Video will be recorded when a person or vehicle is detected.

Upload Snapshots to Memory Card – Capture the image when a person or vehicle is detected and save the picture to the onboard microSD card.

Note: *These actions require a microSD card installed in camera. (Not Included)*

Click **Save** after selecting actions.

Note: *Refer to Storage > Schedule Settings & Storage > Storage Management sections of this manual to configure microSD card storage.*

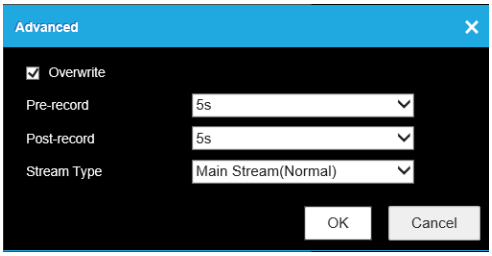
Schedule Settings

Schedule Settings > Record Schedule

This camera includes an integrated microSD™ card slot that can be used to record video. The card slot is compatible with a microSD™ card up to 512GB. This section is used to define when video should be recorded to the microSD card.

To configure record schedule:

1. Check **Enable** to enable scheduled recording.
2. Click **Advanced** to set the camera record parameters.



- **Pre-record:** length of time set to start recording before the scheduled time or the event. The Pre-record time can be configured as **No Pre-record, 5s, 10s, 15s, 20s, 25s, 30s** or **not limited**.
    - Example: if motion is detected and triggers recording at 10:00, and the pre-record time is set as 5 seconds, the camera starts to record at 9:59:55.
- **Post-record:** length of time set to record after the end of event. The Post-record time can be configured as 5s, 10s, 30s, 1 min, 2 min, 5 min or 10 min.
    - Example: if a motion event ends at 11:00, and the post-record time is set as 5 seconds, the camera records until 11:00:05.
- **Stream Type:** Select the stream type for recording (Main Stream or Sub-stream).

3. Select the **Record Type**:

   Continuous: video will be recorded automatically according to the time of the schedule.

   Motion: video will be recorded when the motion is detected.

Note: In addition to configuring the recording schedule, the schedule and actions must also be configured in the Motion Detection settings.

   Event: video will be recorded when an event occurs.

Note: In addition to configuring the recording schedule, the schedule and actions must also be configured in the Analytics settings.

4. Click-and-drag the mouse on the time bar to set the record schedule.
5. Click **Save** to save the settings.

Schedule Settings > Capture Schedule

This camera includes an integrated microSD™ card slot that can be used to record images. The card slot is compatible with a microSD™ card up to 512GB. This section is used to define when images should be saved to the microSD card.

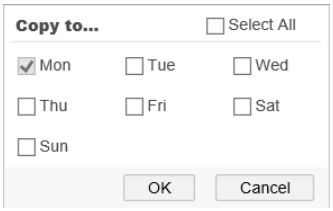
To configure the capture schedule:

1. Click on the time bar and drag the mouse to select the time period.

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

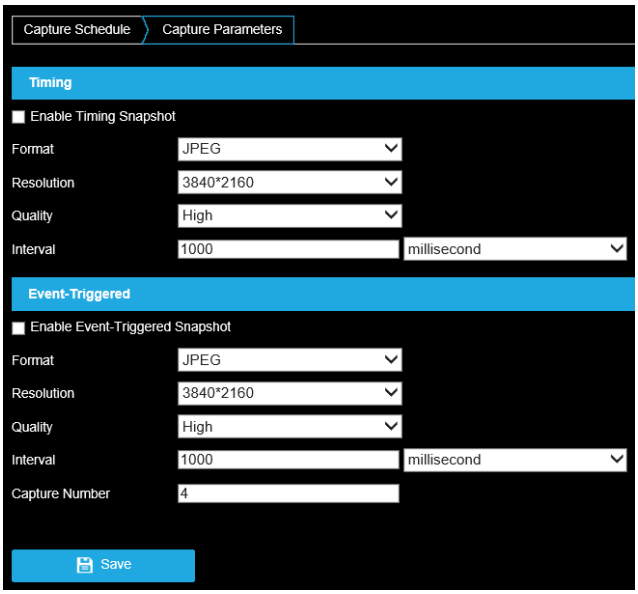
- (Optional) Click **Delete All** to delete all schedules.

2. Move the mouse to the end of each day, a copy dialogue box pops up, and you can copy the current settings to other days.



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

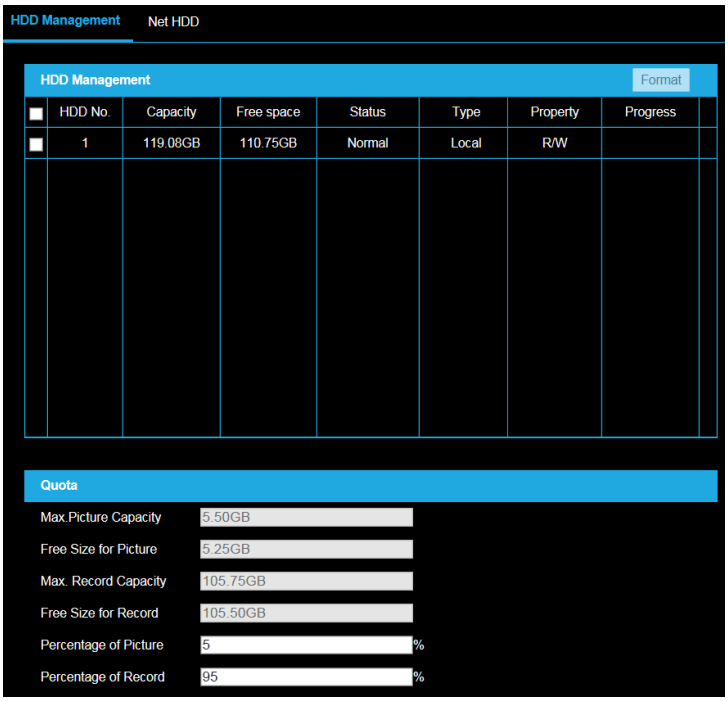
Schedule Settings > Capture Parameters



1. Check **Enable Timing Snapshot**.
2. Select the **Quality** and **Capture Interval**.
   - **Quality**: Low, Medium, High
   - **Capture Interval**: length of time between images
3. Check **Enable Event-triggered Snapshot**.
4. Select the **Quality**, **Capture Interval**, and **Capture Number**.
   - **Quality**: Low, Medium, High
   - **Capture Interval**: length of time between images
   - **Capture Number**: Quantity of images to capture
5. Click **Save** to save the settings.

Storage Management

View the capacity, free space, status, type, formatting type, and property of the disk.



Note: *The camera must be powered off when installing the microSD card.*

If the status of the disk is Uninitialized, check the corresponding checkbox to select the disk and click **Format** to start initializing the disk. When the initialization completes, the status of disk will become Normal.

1. Define the quota for record and pictures:
    - Input the quota percentage for picture and for record.
2. Click **Save** and **refresh** the browser page to activate the settings.

Note: *This camera model does not support writing to network hard drives.*

Are any parts of this manual incomplete or unclear? Please let us know! Contact us at support@avertx.com with your comments.

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1-855-**2AVERTX**
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