A large, bold, black square icon with a white square cutout in the center, positioned to the left of the title text.

# TruVision M Series IP Camera Configuration Manual

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**Product documentation**



Please consult the following web link to retrieve the electronic version of the product documentation. The manuals are available in several languages.

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THE EQUIPMENT SHOULD ONLY BE OPERATED WITH AN APPROVED POWER ADAPTER WITH INSULATED LIVE PINS.

DO NOT CONNECT TO A RECEPTACLE CONTROLLED BY A SWITCH.

THIS UNIT INCLUDES AN ALARM VERIFICATION FEATURE THAT WILL RESULT IN A DELAY OF THE SYSTEM ALARM SIGNAL FROM THE INDICATED CIRCUITS. THE TOTAL DELAY (CONTROL UNIT PLUS SMOKE DETECTORS) SHALL NOT EXCEED 60 SECONDS. NO OTHER SMOKE DETECTOR SHALL BE CONNECTED TO THESE CIRCUITS UNLESS APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

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**WARNING!** The equipment should only be operated with an approved power adapter with insulated live pins.

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**Caution:** Risk of explosion if battery is replaced by an incorrect type. Dispose of batteries according to the instructions. Contact your supplier for replacement batteries.

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## Intended use

Use this product only for the purpose it was designed for; refer to the data sheet and user documentation. For the latest product information, contact your local supplier or visit us online at [firesecurityproducts.com](http://firesecurityproducts.com).

The system should be checked by a qualified technician at least every 3 years and the backup battery replaced as required.

## Advisory messages

Advisory messages alert you to conditions or practices that can cause unwanted results. The advisory messages used in this document are shown and described below.

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**WARNING:** Warning messages advise you of hazards that could result in injury or loss of life. They tell you which actions to take or to avoid in order to prevent the injury or loss of life.

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**Caution:** Caution messages advise you of possible equipment damage. They tell you which actions to take or to avoid in order to prevent the damage.

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**Note:** Note messages advise you of the possible loss of time or effort. They describe how to avoid the loss. Notes are also used to point out important information that you should read.

# Introduction

## Product overview

This is the configuration manual for the following TruVision IP camera models:

- TVGP-M01-0201-BUL-G (2MP IP fixed lens bullet camera)
- TVGP-M01-0401-BUL-G (4MP IP fixed lens bullet camera)
- TVGP-M01-0801-BUL-G (8MP/4K IP fixed lens bullet camera)
  
- TVGP-M01-0202-BUL-G (2MP IP motorized lens bullet camera, gray)
- TVGP-M01-0402-BUL-G (4MP IP motorized lens bullet camera, gray)
- TVGP-M01-0802-BUL-G (8MP/4K IP motorized lens bullet camera, gray)
  
- TVGP-M01-0201-DOM-G/W (2MP IP fixed lens dome camera, gray/white)
- TVGP-M01-0401-DOM-G/W (4MP IP fixed lens dome camera, gray/white)
- TVGP-M01-0801-DOM-G/W (8MP/4K IP fixed lens dome camera, gray/white)
  
- TVGP-M01-0202-DOM-G/W (2MP IP motorized lens dome camera, gray/white)
- TVGP-M01-0402-DOM-G/W (4MP IP motorized lens dome camera, gray/white)
- TVGP-M01-0802-DOM-G/W (8MP/4K IP motorized lens dome camera, gray/white)
  
- TVGP-M01-0201-TUR-G/W/B (2MP IP fixed lens turret camera, gray/white/black)
- TVGP-M01-0401-TUR-G/W/B (4MP IP fixed lens turret camera, gray/white/black)
- TVGP-M01-0801-TUR-G (8MP/4K IP fixed lens turret camera, gray)
  
- TVGP-M01-0202-TUR-G (2MP IP motorized lens turret camera, gray)
- TVGP-M01-0402-TUR-G/W (4MP IP motorized lens turret camera, gray/white)
- TVGP-M01-0802-TUR-G (8MP/4K IP motorized lens turret camera, gray)
  
- TVGP-M01-0201-WED-G (2MP IP fixed lens wedge camera, gray)
- TVGP-M01-0402-WED-G/W/B (4MP IP fixed lens wedge camera, gray/white/black)

You can download the software and the following manuals from our web site:

- TruVision M Series IP Camera Installation Guide
- TruVision M Series IP Camera Configuration Manual

## Contact information and manuals/firmware

For contact information and to download the latest manuals, tools, and firmware, go to the web site of your region:

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EMEA:	<a href="http://firesecurityproducts.com">firesecurityproducts.com</a> Manuals are available in several languages.
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Australia/New Zealand:	<a href="http://firesecurityproducts.com.au">firesecurityproducts.com.au</a>
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# Network access

This manual explains how to configure the camera over the network with a web browser.

TruVision IP cameras can be configured and controlled using Microsoft Internet Explorer (IE) and other popular browsers. The procedures below described how to use Microsoft Internet Explorer (IE) and other web browsers.

## Internet Explorer – Checking the browser security level

When using the web browser interface, you can install ActiveX controls to connect and view video using Internet Explorer. However, you cannot download data, such as video and images due to the increased security measure. Consequently, you should check the security level of your PC so that you are able to interact with the cameras over the web and, if necessary, modify the ActiveX settings.

### Configuring IE ActiveX controls

You should confirm the ActiveX settings of your web browser.

#### To change the web browser's security level:

1. In Internet Explorer click **Internet Options** on the **Tools** menu.
2. On the **Security** tab, click the zone to which you want to assign a web site under "Select a web content zone to specify its security settings".
3. Click **Custom Level**.
4. Change the **ActiveX controls and plug-ins** options that are signed or marked as safe to **Enable**. Change the **ActiveX controls and plug-ins** options that are unsigned to **Prompt** or **Disable**. Click **OK**.

— or —

Under **Reset Custom Settings**, click the security level for the whole zone in the **Reset To** box, and select **Medium**. Click **Reset**.

Then click **OK** to the Internet Options Security tab window.

5. Click **Apply** in the **Internet Options** Security tab window.

### Windows Internet Explorer

Internet Explorer operating systems have increased security measures to protect your PC from any malicious software being installed.

To have complete functionality of the web browser interface with Windows 7, 8 and 10, do the following:

- Run the browser interface as an administrator in your workstation
- Add the camera's IP address to your browser's list of trusted sites

## To add the camera's IP address to Internet Explorer's list of trusted sites:

1. Open Internet Explorer.
2. Click **Tools**, and then **Internet Options**.
3. Click the **Security** tab, and then select the **Trusted sites** icon.
4. Click the **Sites** button.
5. Clear the "Require server verification (https:) for all sites in this zone box.
6. Enter the IP address in the "Add this website to the zone" field.
7. Click **Add**, and then click **Close**.
8. Click **OK** in the Internet Options dialog window.
9. Connect to the camera for full browser functionality.

## Activating the camera

When you first start up the camera, the Activation window appears. You must define a high-security admin password before you can access the camera. There is no default password provided.

You can activate a password via a web browser and via TruVision Device Manager to find the IP address of the camera.

### Activating the camera via a web browser:

1. Power on the camera and connect the camera to the network.
2. Input the IP address into the address bar of the web browser and click **Enter** to enter the activation interface.

Activation

User Name admin

Password

A valid password range must be between 8 and 16 characters. You can use a combination of numbers, lower and upper case letters, and special characters: - , . \* & @ / \$ ? Space. The password must contain characters from at least two of these groups.

Confirm

OK

### Note:

- The default IP address of the camera is 192.168.1.70.
  - For the camera to enable DHCP by default, you must activate the camera via TruVision Device Manager. Please refer to the following section, "Activation via TruVision Device Manager".
3. Enter the password in the password field.

**Note:** A valid password range must meet the following conditions:

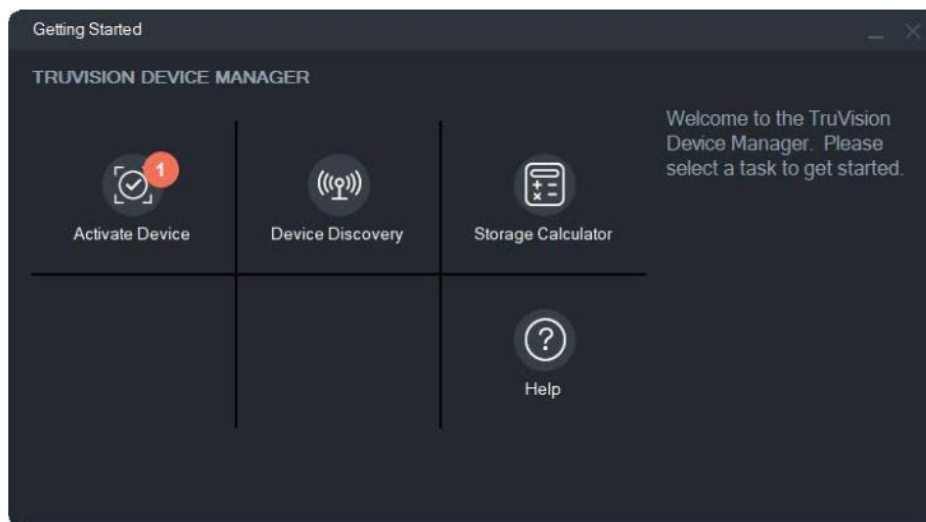
- Between 8 and 16 characters
- At least 1 lower case letter
- At least 1 upper case letter
- At least 1 of following special characters \_ : - , . \* & @ / \$ ? Space.

We recommend that you do not use a space at the start or end of a password, and that you reset your password regularly. For high security systems, it is particularly recommended to reset the password monthly or weekly for better protection.

4. Confirm the password.
5. Click **OK** to save the password and enter the live view interface.

### Activating the camera via TruVision Device Manager:

1. Run *TruVision Device Manager 9.1SP1* or newer to search for TruVision cameras on your local network.
2. After launching Device Manager, the number of inactive TruVision devices (unconfigured devices recently connected to the network) can be displayed by clicking the Activate Device button. From there you can select the cameras you want to activate.



3. Enter the password in the password field and confirm it.

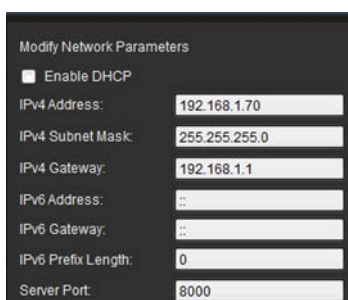
**Note:** A valid password range must meet the following conditions:

- Between 8 and 16 characters
- At least 1 lower-case letter
- At least 1 upper-case letter
- At least 1 of following special characters : \_ - , . \* & @ / \$ ? Space.
- The password is case-sensitive.

We recommend that you do not use a space at the start or end of a password, and that you reset your password regularly. For high security systems, it is particularly recommended to reset the password monthly or weekly for better protection.

4. Change the device IP address, subnet mask and gateway or check the box “Enable DHCP” if you want the camera to automatically receive IP settings from the DHCP server on the network.
5. Click **Apply** to save the password and the new network settings.

A pop-up window appears to confirm the activation. If activation fails, confirm that the password meets the requirements and try again.

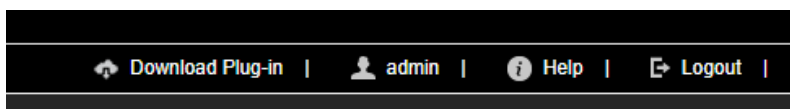


Modify Network Parameters	
<input type="checkbox"/> Enable DHCP	
IPv4 Address:	192.168.1.70
IPv4 Subnet Mask:	255.255.255.0
IPv4 Gateway:	192.168.1.1
IPv6 Address:	::
IPv6 Gateway:	::
IPv6 Prefix Length:	0
Server Port:	8000

## Using non-Internet Explorer web browsers (plugin-free browser)

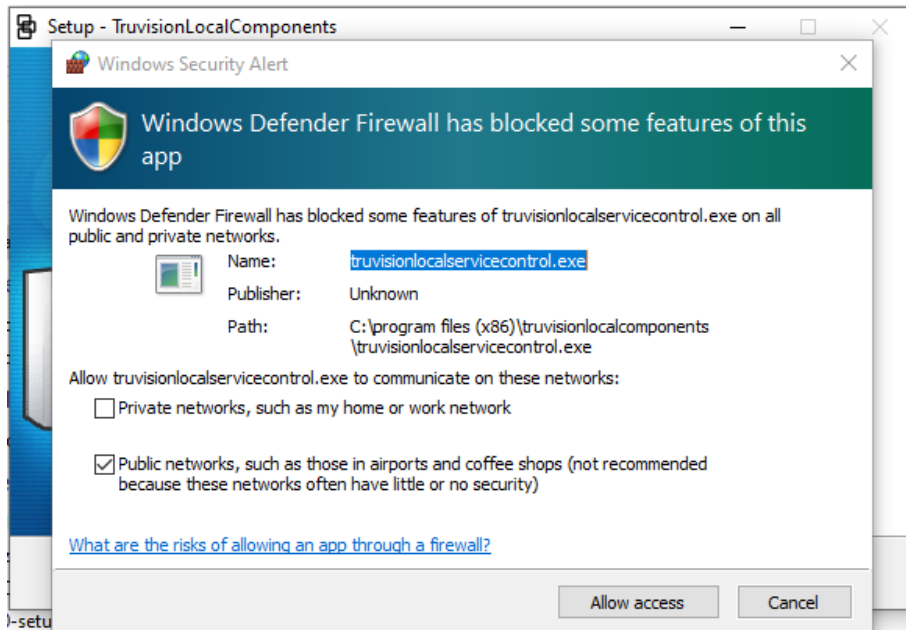
Plugin-free browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge and Apple Safari have limitations compared to Internet Explorer that uses ActiveX plugins. To solve this, an additional plugin can be download through the camera live view web page. Please note that an internet connection is needed to download this plugin.

After activating the camera, you will be redirected to the camera Live View page where you might see a pop-up to download a plugin. In case the plugin has not downloaded automatically, click the “Download Plug-in” icon at the top right of the camera Live View web page to download the plugin installation file to your PC.

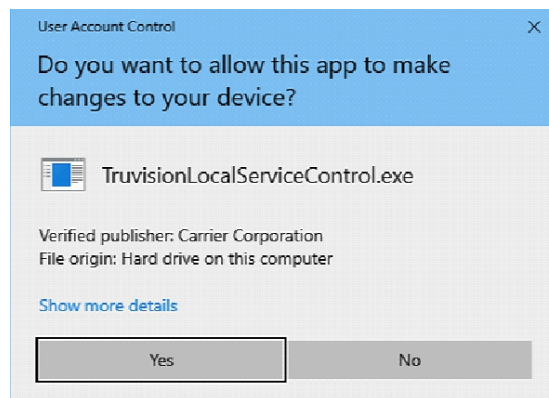


Close the browser and install the downloaded plugin *TruVisionLocalComponents.exe* on your PC. Once the plugin is installed, you can reopen the browser to view and configure the camera.

During installation of the plugin, Windows Defender may show a pop-up message that you should accept by clicking the “Allow access” button.



Note that this application will start automatically every time when starting Windows. Depending on your Windows configuration you might see below pop-up message after logging on to Windows. Accept the message to enable the plugin for plugin-free browsers.



## Overview of the camera web browser

The camera web browser lets you view, record, and play back recorded videos as well as manage the camera from any PC with Internet access. The browser's easy-to-use controls give you quick access to all camera functions. See Figure 1, "Example of the Local configuration window", on page 8 for an example.

# Camera configuration

This chapter explains how to configure the cameras through a web browser.

Once the camera hardware has been installed, configure the camera’s settings through the web browser. You must have administrator rights to configure the cameras through the web interface.

The camera web browser lets you configure the camera remotely using your PC. Web browser options may vary depending on camera model.

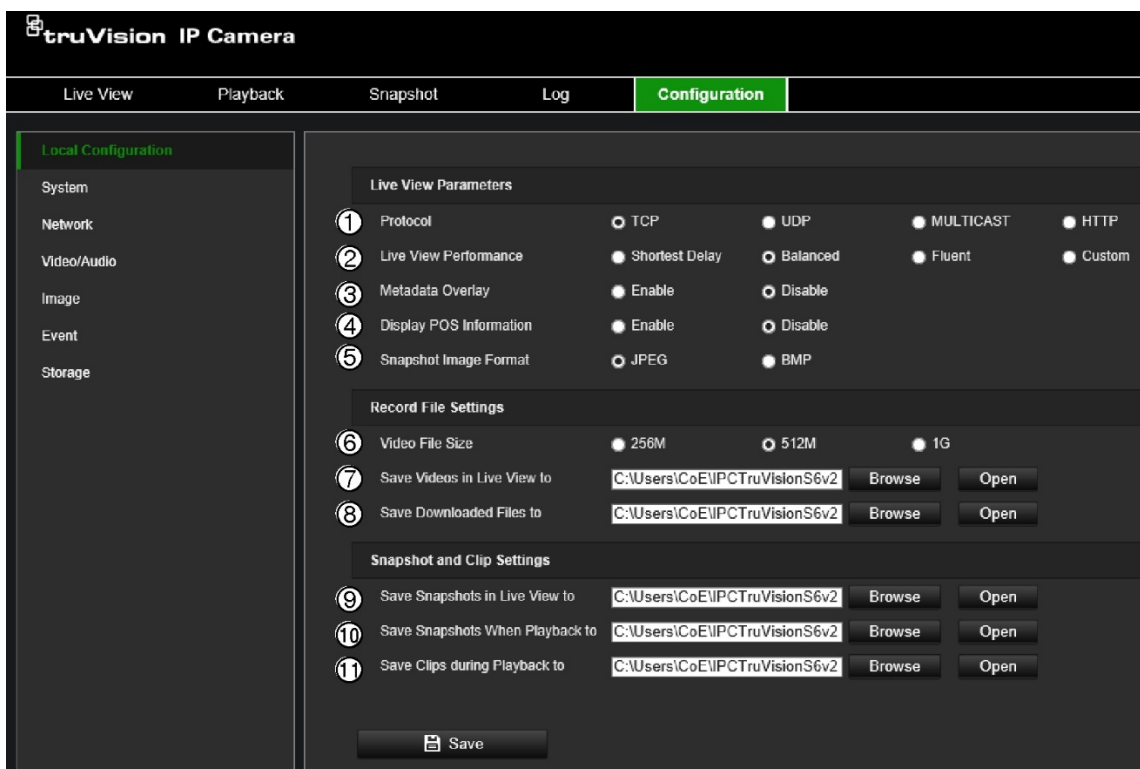
There are two main folders in the configuration panel:

- Local configuration
- Configuration

## Local configuration

Use the Local Configuration menu to manage the protocol type, live view performance and local storage paths for snapshots, downloads, and camera browser recording. In the Configuration panel, click **Local Configuration** to display the local configuration window. See Figure 1 below for descriptions of the different menu parameters.

Figure 1: Example of the Local configuration window



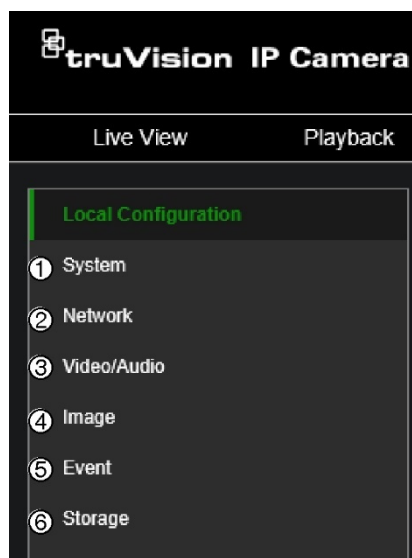
Parameters	Description
<b>Live View Parameters</b>	
1. Protocol	Specify the network protocol used. Options include TCP, UDP, MULTICAST and HTTP.

Parameters	Description
2. Live View Performance	Specify the transmission speed. Options include: Shortest Delay, Balanced, Fluent or Custom.
3. Meta Data Overlay	It refers to the rules on your local browser. Specify whether to display the colored marks when motion detection, face detection, and intrusion detection are triggered. For example, when the rules option is enabled and a face is detected, the face will be marked with a green rectangle in live view.
4. Display POS Information	Enable external data to be displayed as text overlay on camera image (currently not used)
5. Snapshot Image Format	Choose snapshot image format: JPEG or BMP.
<b>Record File Settings</b>	
5. Video File Size	Specify the maximum file size. Options include: 256 MB, 512 MB and 1GB.
6. Save Videos in Live View to	Specify the directory for recorded files.
7. Save Downloaded Files to	Specify the directory for downloaded files.
<b>Snapshot and Clip Settings</b>	
8. Save Snapshots in Live View To	Specify the directory for saving snapshots in live view mode.
9. Save Snapshots when Playback To	Specify the directory for saving snapshots in playback mode.
10. Save Clips during Playback to	Specify the directory for saving video clips in playback mode.

## Configuration menu overview

Use the Configuration panel to configure the server, network, camera, alarms, users, transactions, and other parameters such as upgrading the firmware. See Figure 2 below for descriptions of the configuration menus available.

Figure 2: Configuration menu overview



<b>Configuration menus</b>	<b>Description</b>
1. System	Displays device basic information including SN and the current firmware version, time settings, maintenance, and serial port parameters. You can only modify the device name and device number. See “System” below for further information.
2. Network	Defines the network parameters required to access the camera over a network. See “Network” on page 21 for further information on the setup.
3. Video/Audio	Defines recording parameters. See “Video/Audio” on page 35 for further information.
4. Image	Defines the image parameters, OSD settings, overlay text, and privacy mask. See “Image” on page 39 for further information on the setup.
5. Event	Defines Basic events motion detection, video tampering, alarm input/output, exception and Smart events Face detection, Intrusion detection, Cross Line detection. See “Event” on page 45 for further information on the setup.
6. Storage	Defines recording schedule, storage management, NAS configuration and snapshot. See “Storage” on page 61 for further information on the setup.

## System

Manage system settings, perform maintenance related tasks, as well as configure security and user related features.

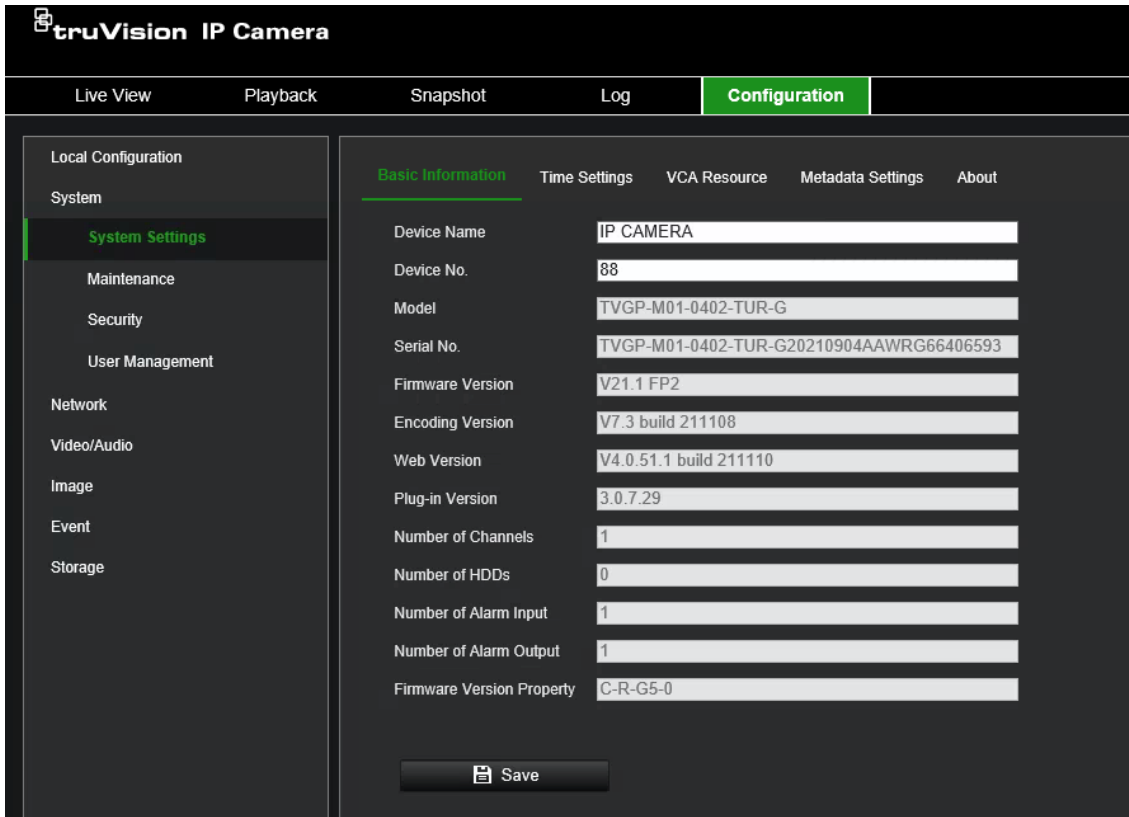
### System settings

System settings include an overview of system settings, date & time, and some VCA related options.

### Basic Information

This menu displays the hardware and firmware related information of the device.



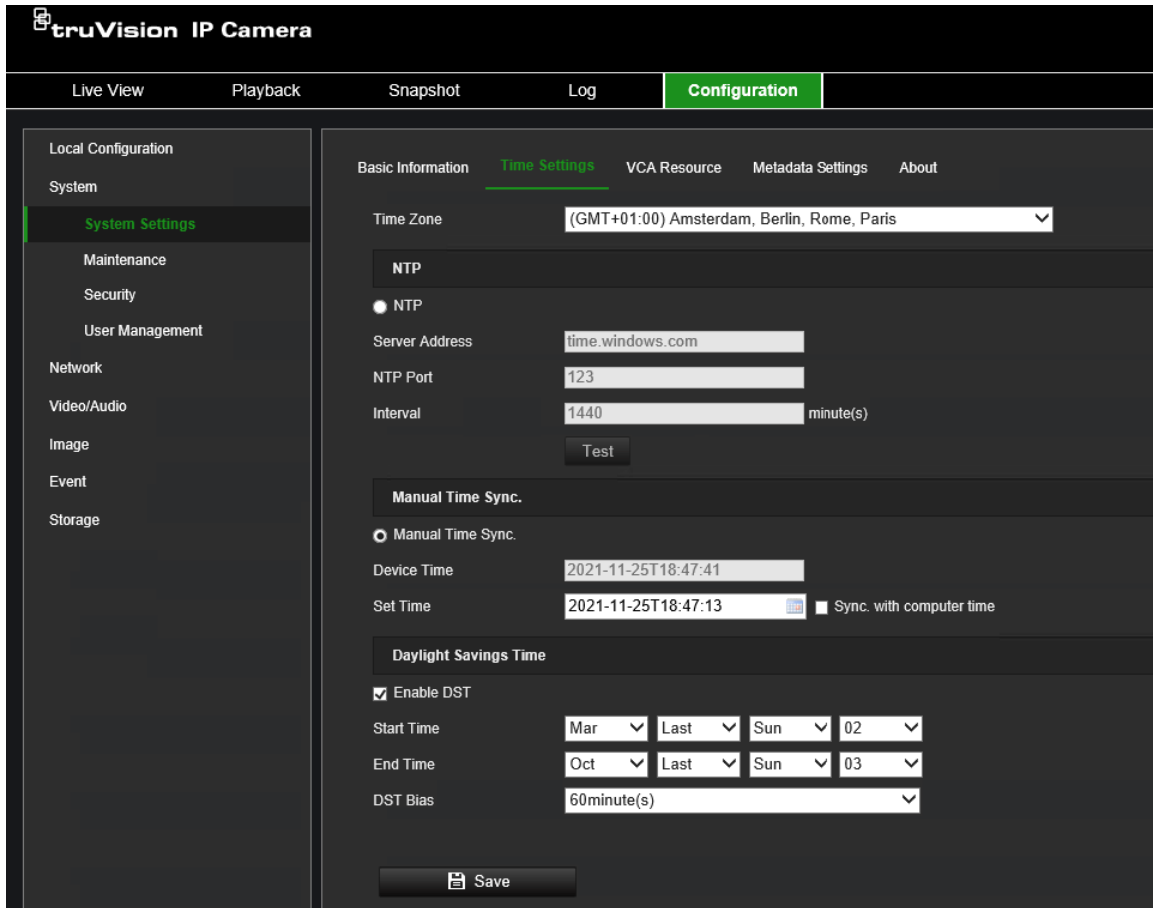


## Time settings

NTP (Network Time Protocol) is a protocol for synchronizing the clocks of network devices, such as IP cameras and computers. Connecting network devices to a dedicated NTP time server ensures that they are all synchronized.

### To define the system time and date:


1. From the menu toolbar, click **Configuration > System > System Settings > Time Settings**.



- From the **Time Zone** drop-down list, select the time zone that is the closest to the camera's location.
- Select one of the options for setting the time and date:

**Synchronize with an NTP server:** Select the **NTP** enable box and enter the server NTP address. The time interval can be set from 1 to 10080 minutes.

— OR —

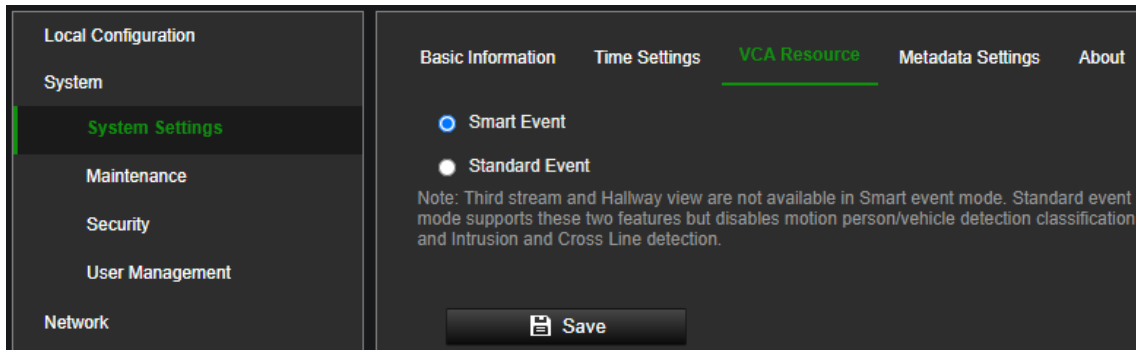
**Set manually:** Enable the **Manual Time Sync** function and then click  to set the system time from the pop-up calendar.

**Note:** You can also select the **Sync with computer time** check box to instantly synchronize the time of the camera with the time of your computer.

- Select **Enable DST** to enable the DST (Daylight Savings Time) function and set the dates of the DST period.
- Click **Save** to save changes.

## VCA Resource

The Smart VCA mode enables Cross Line and Intrusion detection along with person/vehicle options while disabling third stream and Hallway view to manage available camera resources. Switching between Smart and Standard Event modes will require the camera to restart.



## Metadata Settings

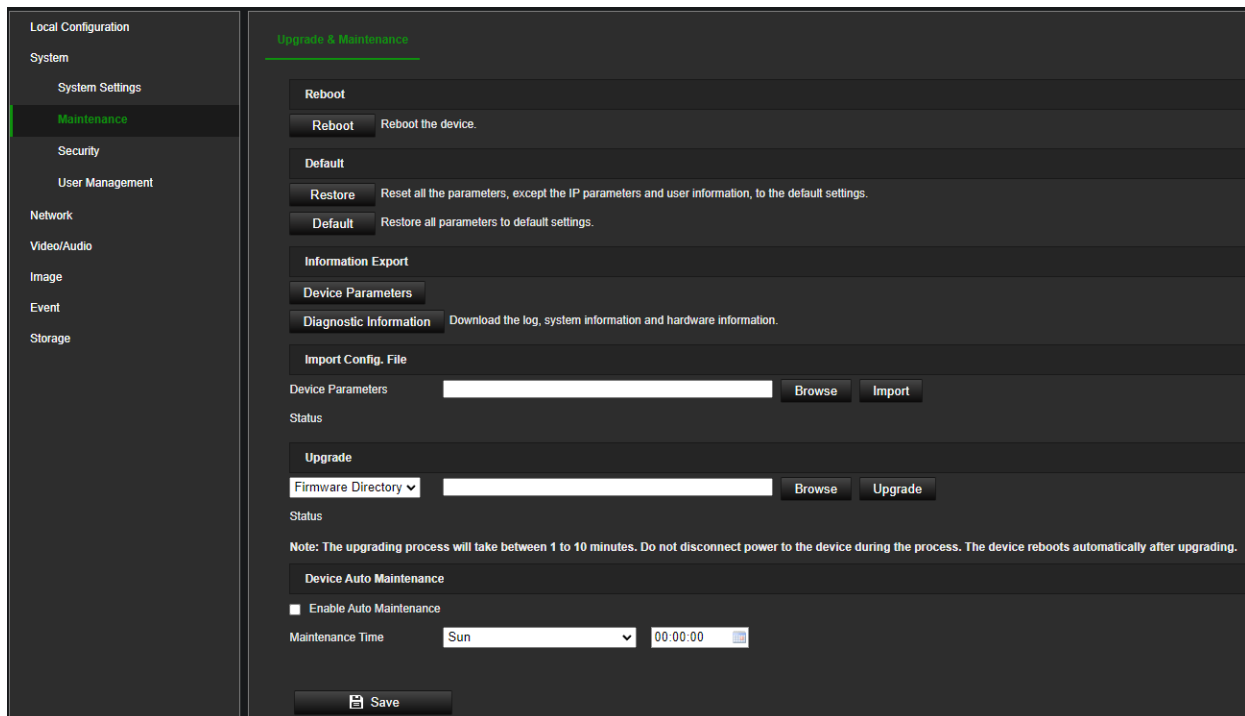
Activate Smart Event to enable camera metadata to be communicated along with the camera stream.

## About

The Open Source Software Licenses used by the camera are listed here.

## Maintenance

Maintenance tasks like importing/exporting configurations and firmware upgrade can be managed in this menu, *Upgrade and Maintenance*.



## Reboot camera

Click **Reboot** to restart the camera.

## Restore default settings

Click the **Restore** or **Default** button to restore default settings to the camera. There are two options available:

- **Restore:** Restore all the parameters, except the IP parameters and user information, to the default settings.
- **Default:** Restore all the parameters to the default settings.

**Note:** If the video standard is changed, it will not be restored to its original setting when **Restore** or **Default** is used.

The camera will always ask for the admin password when executing a restore operation.

### Import/export a configuration file

The administrator can export and import configuration settings from the camera. This is useful if you want to copy the configuration settings to camera, or if you want to make a backup of the settings.

**Note:** Only the administrator can import/export configuration files.

### To import/export configuration file

1. From the menu toolbar, go to **Configuration > System > Maintenance > Information Export**.
2. To import camera settings, click **Browse** to localize the local configuration file and then click **Import** to start importing a configuration file. Depending on the selected file, a password might be needed to import the configuration file.
3. To export camera settings, click **Device Parameters** and set the saving path to save the configuration file. The camera will ask to encrypt the exported file with a password. Choose any password you want and make sure to remember it when importing the file.

### Upgrade firmware

The camera firmware is stored in the flash memory of the camera. Use the upgrade function to write the firmware file into the flash memory.

You need to upgrade firmware when it has become outdated. When you upgrade the firmware, all existing settings are unchanged. Only the new features are added with their default settings. In some cases, a factory default might be required after upgrade. Always refer to the FW release note when upgrading.

### To upgrade firmware version:

1. Download on to your computer the latest firmware from our web site at:  
[www.firesecurityproducts.com](http://www.firesecurityproducts.com)
2. When the zipped firmware file is downloaded to your computer, extract it to the desired destination.

**Note:** Do not save the file on your desktop.

3. From the menu toolbar, click **Configuration > Camera Configuration > System > Maintenance**. Select the **Firmware** or **Firmware Directory** option. Then click the **Browse** button to locate latest firmware file on your computer.

- **Firmware directory** – Locate the upgrading folder of Firmware files. The camera will choose the corresponding firmware file automatically. (this feature is currently not supported)
  - **Firmware** – Click Browse to locate the firmware file manually for the camera.
4. Click **Upgrade**. You will receive a prompt asking you to reboot the camera.
  5. When the upgrade is finished, the device will reboot automatically. The browser will also be refreshed.

## Device Auto Maintenance

Enable **Auto Maintenance** and choose a day and time when you want the camera to perform an automatic weekly reboot. In most cases we do not recommend using this function as during reboot the camera can not capture any live video and generate any live streams.

## Security

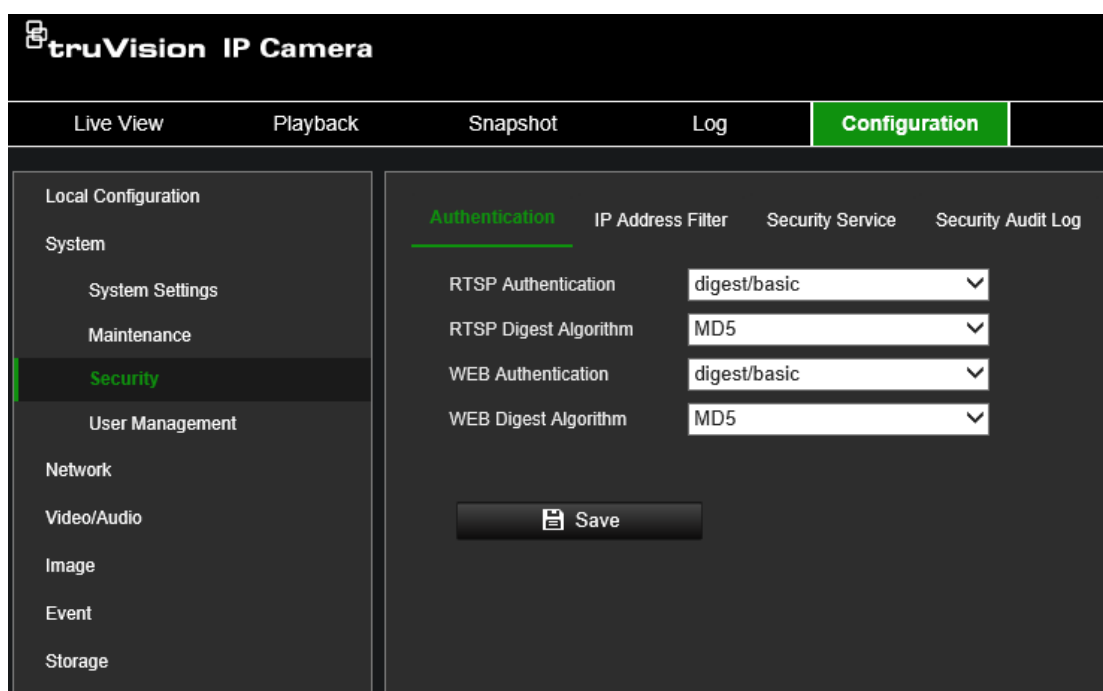
Security related parameters, such as user accounts and IP address filter, can be managed via the camera menu **System > Security**.

### Authentication

You can secure the stream data of the live view.

**To define the RTSP authentication:**

1. From the menu toolbar, click **Configuration > System > Security > Authentication**.



2. Select the **RTSP Authentication** type: **digest/basic** or **digest** in the drop-down list and the desired algorithm MD5, SHA256 or MD5/SHA256.

**Note:** Digest/Basic is the default value and needs to be used when the camera is used with TruVision Navigator.

3. Select the **Web Authentication** type: **digest/basic** or **digest** in the drop-down list and the desired algorithm MD5, SHA256 or MD5/SHA256.

**Note:** Web authentication is the authentication used between the camera and the web browser.

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

### IP address filter

This function allows you to give or deny access rights to defined IP addresses. For example, the camera can be configured so that only the IP address of the server hosting the video management software can access the camera.

#### To define the IP address filter:

1. From the menu toolbar, click **Configuration > System > Security > IP Address Filter**.
2. Select the **Enable IP Address Filter** check box.
3. Select the type of IP Address Filter in the drop-down list: Forbidden or Allowed.
4. Click **Add** to add an IP address and enter the address.
5. Click **Modify** or **Delete** to modify or delete the selected IP address.
6. Click **Clear** to delete all the IP addresses.
7. Click **Save** to save the changes.

### Security service

Use this menu to enable the following login and logout functions:

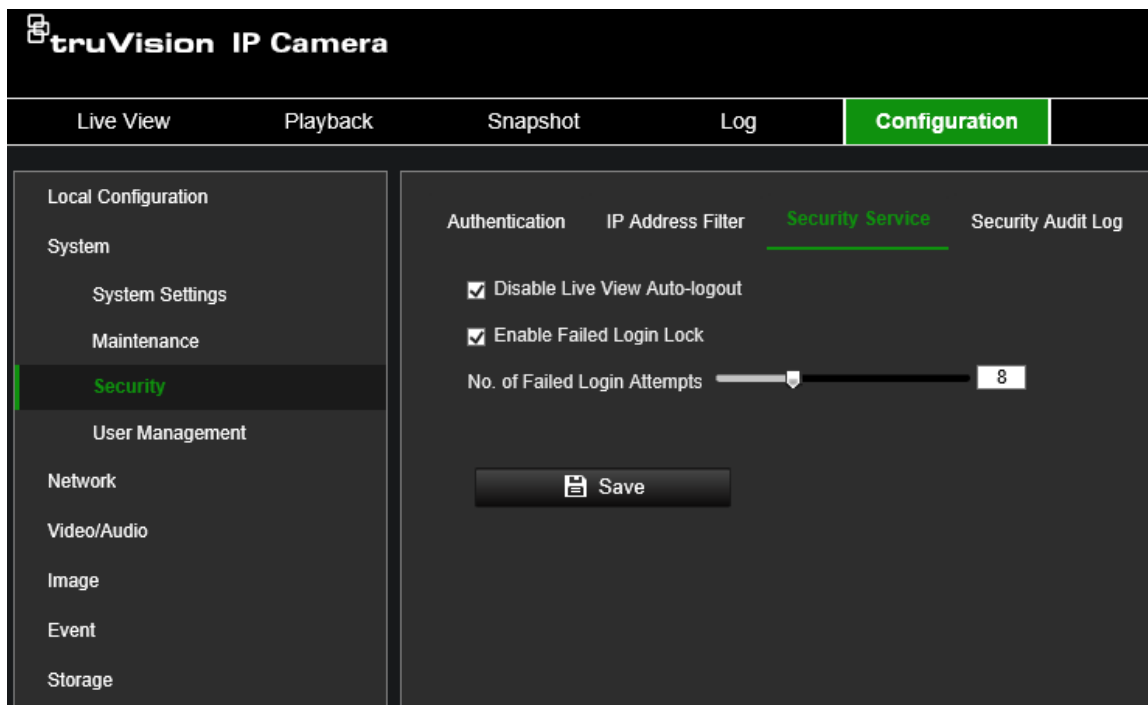
**Disable Live View Auto-logout:** By default, when logged into the live view webpage and there is no activity for at least five minutes, the system will automatically log out. Select this function to disable automatic log out.

**Enable Failed Login Lock:** When enabled, this function will lock a user out of the system after a certain number of failed login attempts. It is enabled by default.

- The IP address will be locked if a user performs seven failed user name/ password attempts.
- If the IP address is locked, you can log into the device after 30 minutes.

#### To enable the failed login lock:

1. Click **Configuration > System > Security > Security Service**.



2. Select the **Disable Live View Auto-logout** check box to disable auto-logout when staying at the live view webpage.
3. Select the **Enable Failed Login Lock** check box to check the login attempts.
4. Select the number of failed login attempts from 3 to 20 by adjusting the slider or changing the number in the box.
5. Click **Save** to save the changes.

For security reasons, we recommend leaving the number of failed login attempts at three.

#### Notes:

- A. The IP address will be blocked when the failed login attempts from a user reach the number of failed username/password attempts configured in the camera (no different times of attempts for the admin/operator/user).
- B. If the IP address is blocked, you can try to log in to the device again after 30 minutes.

#### Security audit log

You can search and analyze the security log files of the device to see if there has been any invalid access. After the camera boots up, security audit logs are saved to the device flash memory every 30 minutes.

Due to limited storage in the flash memory, you can save the logs on a log server. Configure the server settings under **Advanced Settings**.

#### User Management

This section describes how to manage users. You can:

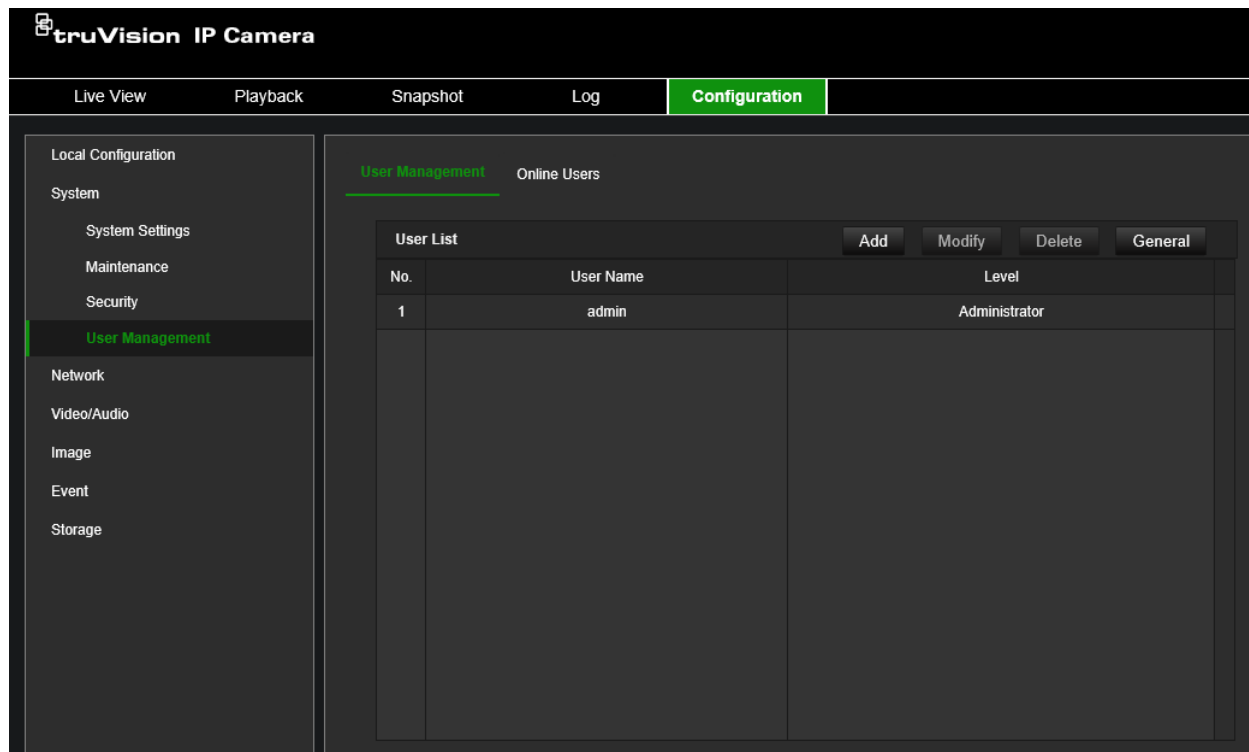
- Add or delete users

- Modify permission
- Modify passwords

Only the administrator can manage users. The administrator can create up to 31 individual users for the cameras listed in this manual.

When new users are added to the list, the administrator can modify permissions and password of each user. See Figure 3 below.

**Figure 3: User management window**



When creating a new user, you must define a password for each user. There is no default password provided for all users. Users can modify their passwords and will receive a pop-up notification asking to change their password when logging into the camera web page for the first time.

**Note:**

Keep the admin password in a safe place. If you forget it, please contact Technical Support, or reset the camera using the camera hardware reset button. Please be aware that by doing so, you will lose all configuration.

**Types of users**

A user’s access privileges to the system are automatically defined by their user type. There are three types of user:

- **Admin:** This is the system administrator. The administrator can configure all settings. Only the administrator can create and delete user accounts. Admin cannot be deleted.
- **Operator:** This user can only change the configuration of his/her own account. An operator cannot create or delete other users.



- **User:** This user has the permission of live view, playback, and log search. However, they cannot change any configuration settings.

**To add a user:**

1. From the menu toolbar, click **Configuration > System > User Management**
2. Click the **Add** button which opens the *Add user* window.

3. Enter a username.
4. Select the type of user from the **Level** drop-down list. The options are User and Operator.
5. Enter the Admin Password
4. In the Password and Confirmation field, enter a password for the new user

The passwords must meet following requirements:

- o Minimum 8 characters and Maximum 16 characters
- o Minimum 1 Capital Letter
- o Minimum 1 Small Letter
- o Minimum 1 Special Character among \_ : - , . \* & @ / \$ ? Space

We recommend that you do not use a space at the start or end of a password, and that you reset your password regularly. For high security systems, it is particularly recommended to reset the password monthly or weekly for better protection.

5. Assign permissions to the user. Select the desired options:

Remote: Parameters Settings	Remote: Live View
Remote: Log Search/Interrogate Working Status	Remote: Manual Record
Remote: Upgrade/Format	Remote: PTZ Control
Remote: Bi-directional Audio	Remote: Playback
Remote: Shutdown / Reboot	
Remote: Notify Surveillance Center/Trigger Alarm Output	
Remote: Video Output Control	
Remote: Serial Port Control	

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

#### To delete a user:

1. From the menu toolbar, click **Configuration > System > User Management**
2. Select the desired user.
3. Click the **Delete** button. A message box appears asking if you want to delete this user. Click **OK**.

**Note:** Only the administrator can delete a user.

4. Enter the Admin password. Click **OK**.

#### To modify user information:

1. From the menu toolbar, click **Configuration > System > User Management**
2. Select the desired user.
3. Click the **Modify** button. The *Modify user* window appears
4. Change the information required and enter the admin password. Click **OK**.

**Note:** Only the admin user can modify users.

#### Online users

Use this menu to display users currently connected to the camera. You can see the following user information: user name, level, IP address, and operation time.

Users		Online Users			
User List					Refresh
No.	User Name	Level	IP Address	User Operation Time	
1	admin	Administrator	10.7.70.3	2020-06-04 20:38:29	

## Network

Use the Network menu to set the desired network parameters to be able to access the camera. There are two groups of network settings, Basic Settings and Advanced Settings.

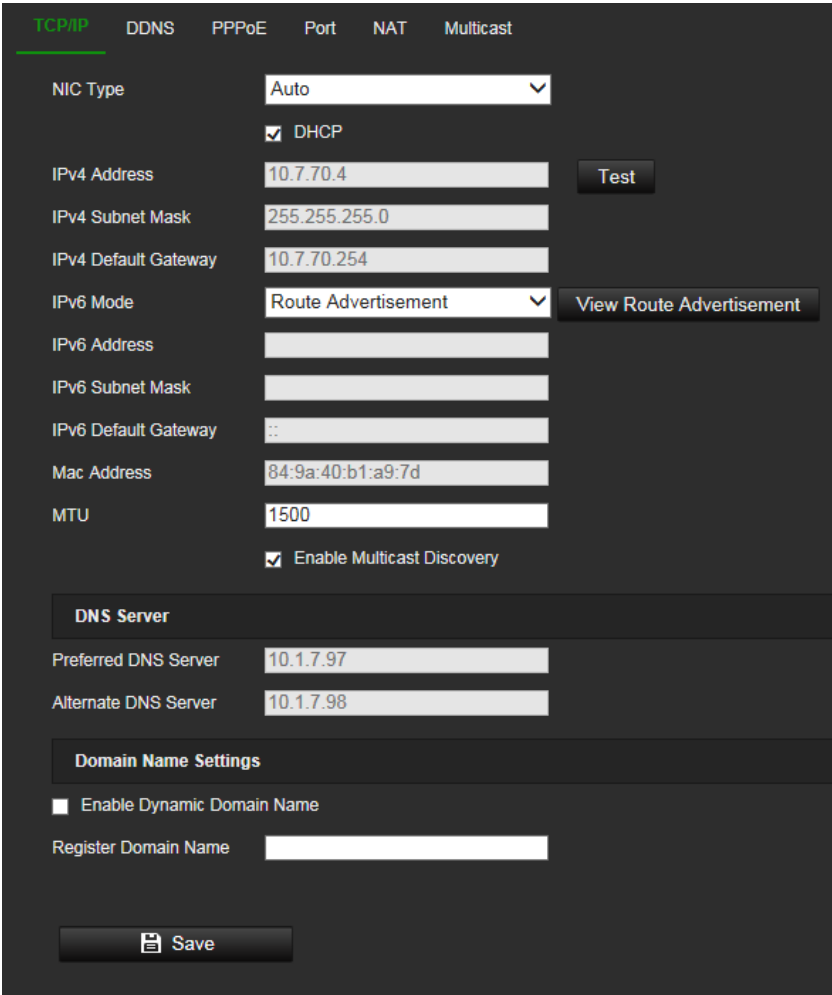
### TCP/IP

You can set up the following TCP/IP parameters:

Function	Description
NIC Type	Enter the NIC type. Default is Auto. Other options include: 10M Half-dup, 10M Full-dup, 100M Half-dup and 100M Full-dup
DHCP	Enable the parameter to automatically obtain an IP address and other network settings from that server.
IPv4 Address	Enter the IPv4 address of the camera.
IPv4 Subnet Mask	Enter the IPv4 subnet mask.
IPv4 Default Gateway	Enter the IPv4 gateway IP address.
IPv6 Mode	Enter the IPv6 mode: Manual, DHCP or Router Advertisement.
IPv6 Address	Enter the IPv6 address of the camera.
IPv6 Subnet Prefix Length	Enter the IPv6 subnet prefix length value of the camera.
IPv6 Default Gateway	Enter the IPv6 default gateway value of the camera.
MAC Address	Shows the MAC address of the devices.
MTU	Enter the valid value range of MTU. Default is 1500.
Multicast Address	Enter a D-class IP address between 224.0.0.0 to 239.255.255.255. Only specify this option if you are using the multicast function. Some routers prohibit the use of multicast function in case of a network storm.
Enable Multicast Discovery	This function is optional. It enables the automatic detection of the online network camera via private multicast protocol in the LAN.
DNS server	Specifies the DNS server for your network.
Host Name Configuration	Enable hostname configuration and define a hostname in case you want to use a name instead of an IP address to connect to the camera

## To set up the TCP/IP parameters:

1. Click **Configuration > Network > Basic Settings > TCP/IP**.



The screenshot displays the TCP/IP configuration page with the following settings:

- TCP/IP** (selected tab), DDNS, PPPoE, Port, NAT, Multicast
- NIC Type: Auto
- DHCP
- IPv4 Address: 10.7.70.4 (Test button)
- IPv4 Subnet Mask: 255.255.255.0
- IPv4 Default Gateway: 10.7.70.254
- IPv6 Mode: Route Advertisement (View Route Advertisement button)
- IPv6 Address: (empty)
- IPv6 Subnet Mask: (empty)
- IPv6 Default Gateway: ::
- Mac Address: 84:9a:40:b1:a9:7d
- MTU: 1500
- Enable Multicast Discovery

**DNS Server**

- Preferred DNS Server: 10.1.7.97
- Alternate DNS Server: 10.1.7.98

**Domain Name Settings**

- Enable Dynamic Domain Name
- Register Domain Name: (empty)

Save button

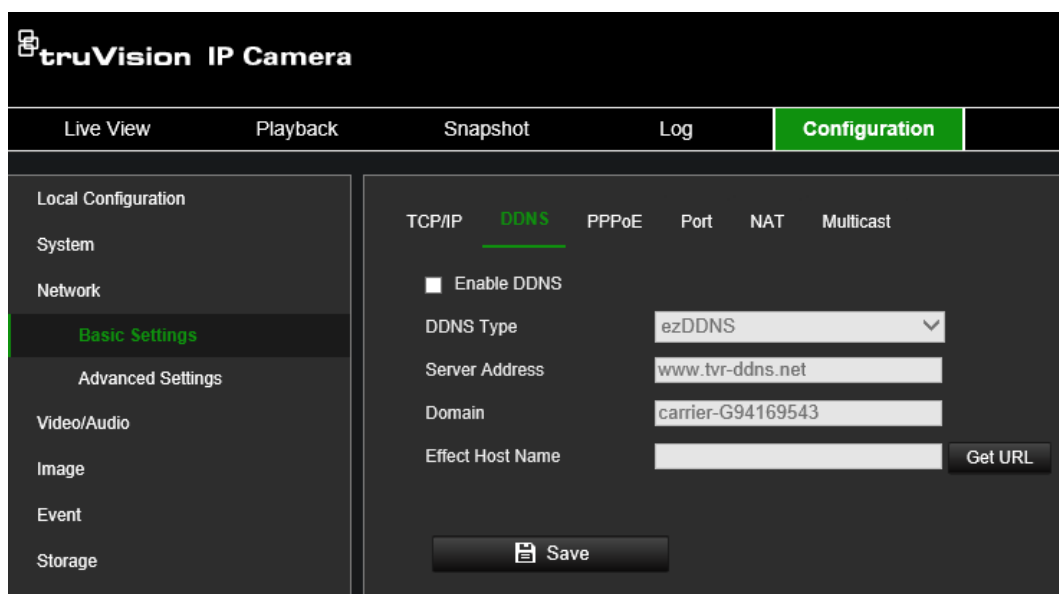
2. Configure the NIC settings, including the NIC Type, IPv4 settings, IPv6 settings and MTU settings.
3. If the DHCP server is available, select **DHCP**.
4. If the DNS server settings are required for some applications (e.g., sending email), you should configure the **Preferred DNS Server** or **Alternate DNS Server**.
5. Click **Save** to save changes.
6. Reboot the device for the changes to take effect.

## DDNS

DDNS is a service that maps Internet domain names to IP addresses. It is designed to support dynamic IP addresses, such as those assigned by a DHCP server.

## To set up the DDNS parameters:

1. Click **Configuration > Network > Basic Settings > DDNS**.



2. Select **Enable DDNS** to enable this feature.
3. Select the **DDNS Type**. Three options are available: DynDNS, ezDDNS and NO-IP.

DynDNS: Select **DynDNS** and enter the server address for DynDNS. In the recorder domain name field, enter the domain name obtained from the DynDNS web site. Then enter your user name and password registered in the DynDNS network.

For example:

Server address: members.dyndns.org

Domain: mycompanydvr.dyndns.org

User name: myname

Password: mypassword

- Or -

ezDDNS: Enter the host name. It will automatically register it online. You can define a host name for the camera. Make sure you entered a valid DNS server in the network settings and have the necessary ports forwarded in the router (HTTP, Server port, RSTP port).

- Or -

NO-IP: Enter the server address (for example, dynupdate.no-ip.com). In the host name field, enter the host obtained from the NO-IP web site. Then enter the user name and password that are registered with the No-IP network.

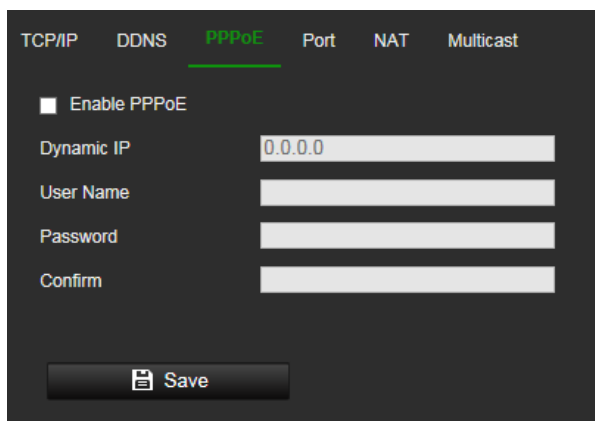
4. Click **Save** to save changes.
5. Reboot the device for the changes to take effect.

## PPPoE

This allows you to retrieve a dynamic IP address.

To set up the PPPoE parameters:

1. From the menu toolbar, click **Configuration > Network > Basic Settings > PPPoE**.



2. Select **Enable PPPoE** to enable this feature.
3. Enter the dynamic IP address.
4. Enter User Name, Password, and Confirm password for PPPoE access.
5. Click **Save** to save changes.
6. Reboot the device for the changes to take effect.

## Port

You can set up several ports:

**HTTP Port:** The default port number is 80, and it can be changed to any port number that is not occupied.

**RTSP Port:** The default port is 554 and it can be changed to any port number from 1 to 65535.

**SRTP Port:** The default port is 322.

**HTTPS Port:** The default port number is 443, and it can be changed to any port number that is not occupied.

**Server Port:** The default server port is 8000, and it can be changed to any port number from 2000 to 65535.

**Enhanced SDK Service Port:** The default server port is 8433, and it can be changed to any port number from 2000 to 65535.

**WebSocket Port:** The default port is 7681. It can be changed to any port number ranges from 1 to 65535.

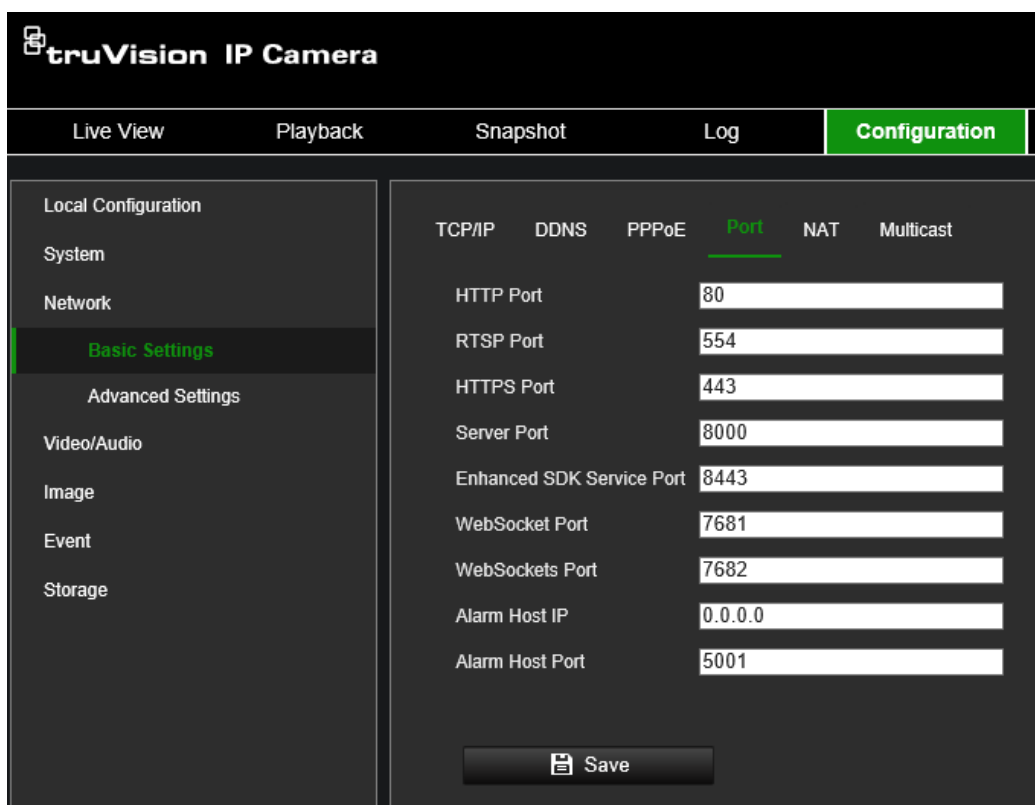
**WebSockets Port:** The default server port is 7682. It can be changed to any port number from 1 to 65535.

**Alarm Host IP:** A configurable IP address of a server that will listen and receive alarm messages.

**Alarm Host Port:** The network port of the server that is listening at. The default server port is 5001. It can be changed to any port No. ranges from 1 to 65535.

**To set up the port parameters:**

1. From the menu toolbar, click **Configuration > Network > Basic Settings > Port.**



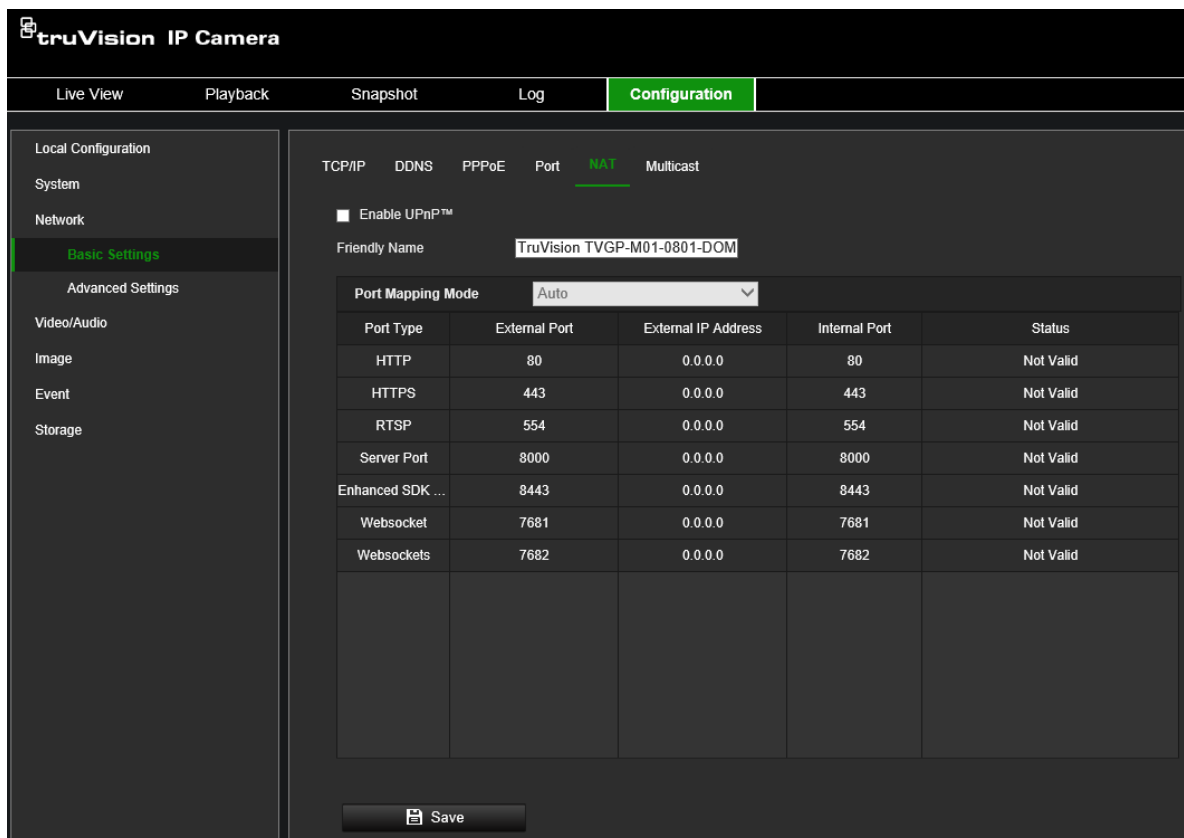
2. Set the HTTP port, RTSP port, HTTPS port and Server port of the camera.
3. Enter the IP address and port if you want to upload the alarm information to the remote alarm host. Also select the **Notify Alarm Recipient** option in the normal Linkage of each event page.
4. Click **Save** to save changes.
5. Reboot the device for the changes to take effect.

## NAT

A NAT (Network Address Translation) is used for network connection. Select the port mapping mode: auto or manual.

**To set up the NAT parameters:**

1. Click **Configuration > Network > Basic Settings > NAT.**



2. Select the **Enable UPnP™** check box to enable the UPnP™ function.
3. Select **Port Mapping Mode** to be Auto or Manual.

If you choose **Manual** mode, you can set the external port as you want.

**Note:** If you choose **Auto** mode, enable the UPnP™ function at the router.

4. Click **Save** to save changes.

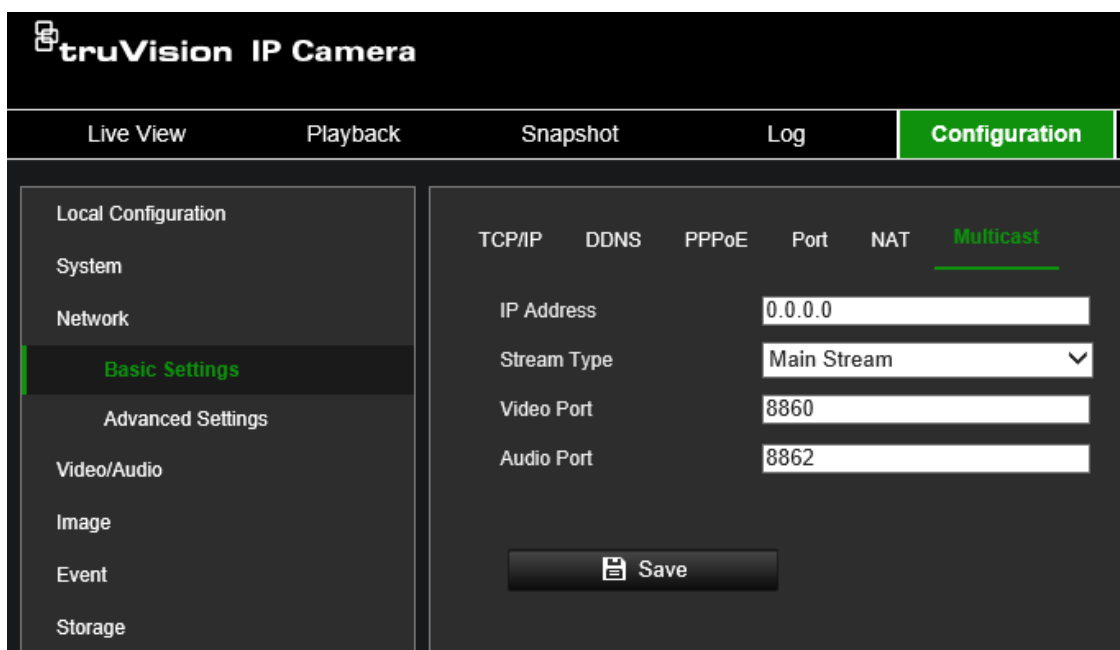
## Multicast

Multicast is a protocol for discovering devices on networks. Configure multicast to make the device discoverable.



## To set up the Multicast parameters:

1. Click **Configuration > Network > Basic Settings > Multicast**.



2. Enter a class D IP address between 224.0.0.19 to 239.255.255.255. Only specify this option if you are using the multicast function. Some routers prohibit the use of multicast function in case of a network storm.
3. Configure main stream and substream video and audio ports as required.
4. Click **Save** to save changes.

## SNMP

SNMP is a protocol for managing devices on networks. Enable SNMP to get the camera status and parameter related information.

## To set up the SNMP parameters:

1. Click **Configuration > Network > Advanced Settings > SNMP**.

The screenshot displays the configuration page for SNMP. At the top, there is a navigation bar with links for SNMP (highlighted), FTP, Email, HTTPS, QoS, 802.1x, and Integration Protocol. The main content is divided into three sections:

- SNMP v1/v2:**
  - Enable SNMPv1:
  - Enable SNMP v2c:
  - Read SNMP Community: public
  - Write SNMP Community: private
  - Trap Address: (empty field)
  - Trap Port: 162
  - Trap Community: public
- SNMP v3:**
  - Enable SNMPv3:
  - Read UserName: (empty field)
  - Security Level: no auth, no priv (dropdown)
  - Authentication Algorithm: MD5 (selected), SHA
  - Authentication Password: (masked field)
  - Private-key Algorithm: DES (selected), AES
  - Private-key password: (masked field)
  - Write UserName: (empty field)
  - Security Level: no auth, no priv (dropdown)
  - Authentication Algorithm: MD5 (selected), SHA
  - Authentication Password: (masked field)
  - Private-key Algorithm: DES (selected), AES
  - Private-key password: (masked field)
- SNMP Other Settings:**
  - SNMP Port: 161

At the bottom of the page, there is a 'Save' button with a floppy disk icon.

2. Select the corresponding version of SNMPv1, SNMP v2c, or SNMPv3.
3. Configure the SNMP settings. The configuration of the SNMP software should be the same as the settings you configure here.
4. Click **Save** to save changes.

**Note:** Before setting the SNMP, please download the SNMP software to receive the camera information via the SNMP port. By setting the Trap Address, the camera can send the alarm event and exception messages to the surveillance center. The SNMP version you select should be the same as that of the SNMP software.

## FTP

Configure the FTP server to allow the camera to upload snapshot pictures of an event to the server for storage.

## To set up the FTP parameters:

1. Click **Configuration > Network > Advanced Settings > FTP.**

SNMP **FTP** Email HTTPS QoS 802.1x Integration Protocol

FTP Protocol FTP

Server Address 0.0.0.0

Port 21

User Name

Password

Confirm

Anonymous

Directory Structure Save in the root directory

Picture Filing Interval OFF Day(s)

Picture Name Default

Upload Picture

Enable Automatic Network Replenishment

Test

Save

2. Configure the FTP settings, including server address, port, user name, password, directory, and upload type.

**Anonymous:** Select the check box to enable the anonymous access to the FTP server.

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

**Upload Picture:** To enable uploading the snapshots to the FTP server.

3. Click **Save** to save changes.

## Email

Enter the email address to which messages are sent when an alarm event occurs.

## To set up the email parameters:

1. Click **Configuration > Network > Advanced Settings > Email**.

Receiver		
No.	Receiver	Receiver's Address
1		
2		
3		

2. Configure the following settings:

**Sender:** The name of the email sender.

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

**SMTP Server:** The SMTP Server, IP address or host name.

**SMTP Port:** The SMTP port. The default is 25.

**E-mail Encryption:** Encrypt via SSL, TLS. NONE is default.

**Attached Snapshot:** Select the check box of **Attached Snapshot** if you want to send emails with attached alarm images.

**Interval:** This is the time between two actions of sending attached images.

**Authentication:** If your email server requires authentication, select this check box to use authentication to log in to this server. Enter the login user name and password.

**User Name:** The user name to log in to the server where the images are uploaded.

**Password:** Enter the password.

**Confirm:** Confirm the password.

**Receiver1:** The name of the first user to be notified.

**Receiver's Address1:** The email address of user to be notified.

**Receiver2:** The name of the second user to be notified.

**Receiver's Address2:** The email address of user to be notified.

**Receiver3:** The name of the second user to be notified.

**Receiver's Address3:** The email address of user to be notified.

3. Click **Test** to test the email parameters set up.

**Note:** Some email clients block the test message that is sent when using the Test button. If you believe the settings are correct, then test the email feature by triggering a real video event.

4. Click **Save** to save changes.

## HTTPS

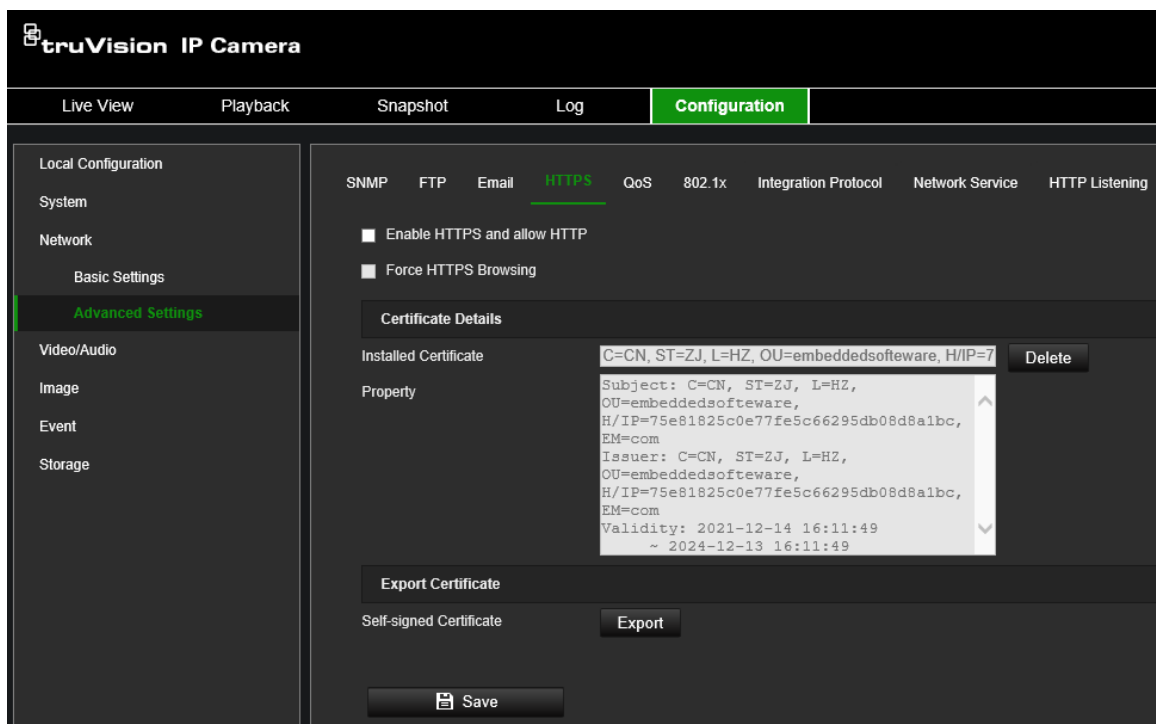
Specifies the authentication of the web site and its associated web server, which protects against Man-in-the-middle attacks.

### To set up the HTTPS parameters:

1. Click **Configuration > Network > Advanced Settings > HTTPS**.

Select **Enable HTTPS and allow HTTP** to allow connections.

Enabling option **Force HTTPS Browsing** forces the camera to use HTTPS instead of HTTP.



HTTPS certificates can be managed from this page.

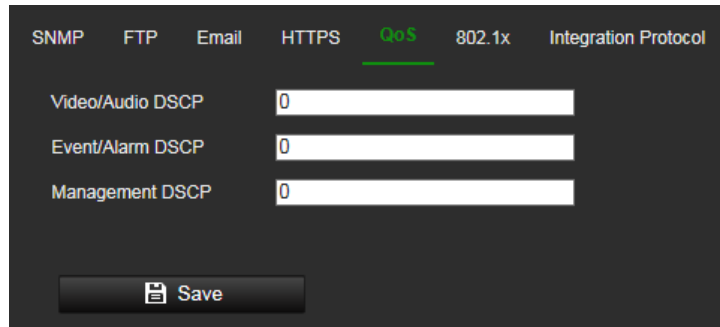
## QoS

QoS (Quality of Service) can help solve the network delay and network congestion by configuring the priority of data sending.

Enable the option to solve network delay and network congestion by configuring the priority of data sending.

**To define the QoS parameters:**

1. Click **Configuration > Network > Advanced Settings > QoS**.



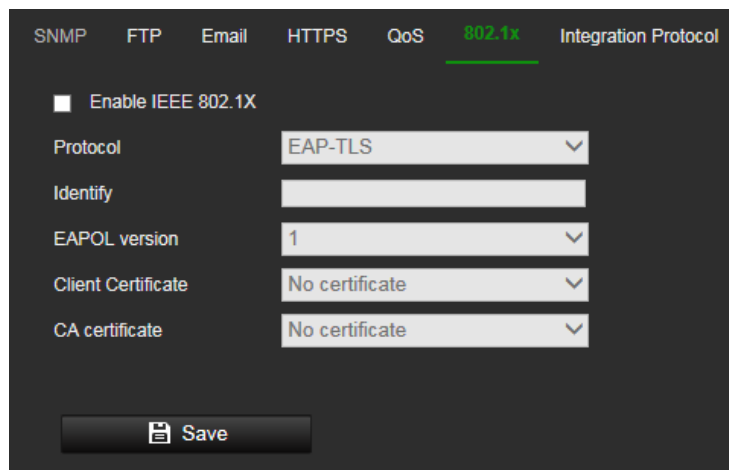
2. Configure the QoS settings, including Video / Audio DSCP, Event / Alarm DSCP and Management DSCP. The valid value range of the DSCP is 0-63. The bigger the DSCP value is, the higher the priority is.
3. Click **Save** to save changes.

**802.1x**

When the feature is enabled, the camera data is secured, and user authentication is needed when connecting the camera to the network.

**To set up the 802.1x parameters:**

1. Click **Configuration > Network > Advanced Settings > 802.1X**.



2. Select **Enable IEEE 802.1X** to enable the feature.
3. Configure the 802.1X settings, including EAPOL version, user name, and password. The EAPOL version must be identical with that of the router or the switch.
4. Click **Save** to save changes.

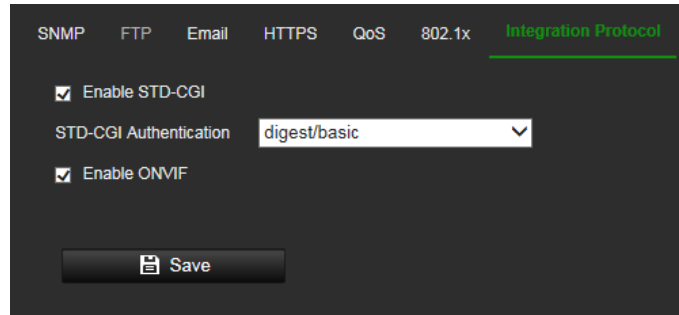
**Note:** The switch or router to which the camera is connected must also support the IEEE 802.1X standard. A server must also be configured. Please apply and register a user name and password for 802.1X in the server.

## Integration protocol

If you need to access the camera through the third-party platform, you can enable STD-CGI function. If you need to access the camera through the ONVIF protocol, you can configure ONVIF from this interface. Refer to ONVIF standard for detailed configuration rules.

### To set up the integration protocol parameters:

1. Click **Configuration > Network > Advanced Settings > Integration Parameters**.



2. Select the STD-CGI Authentication method. Digest/basic indicates using digest as priority if supported by the communication. If it is not supported, basic authentication will be the backup.
3. Select the **Enable STD-CGI** check box to enable the STD-CGI protocol.
4. Select the **Enable ONVIF** check box to enable the ONVIF protocol.
5. Click **Save** to save changes.

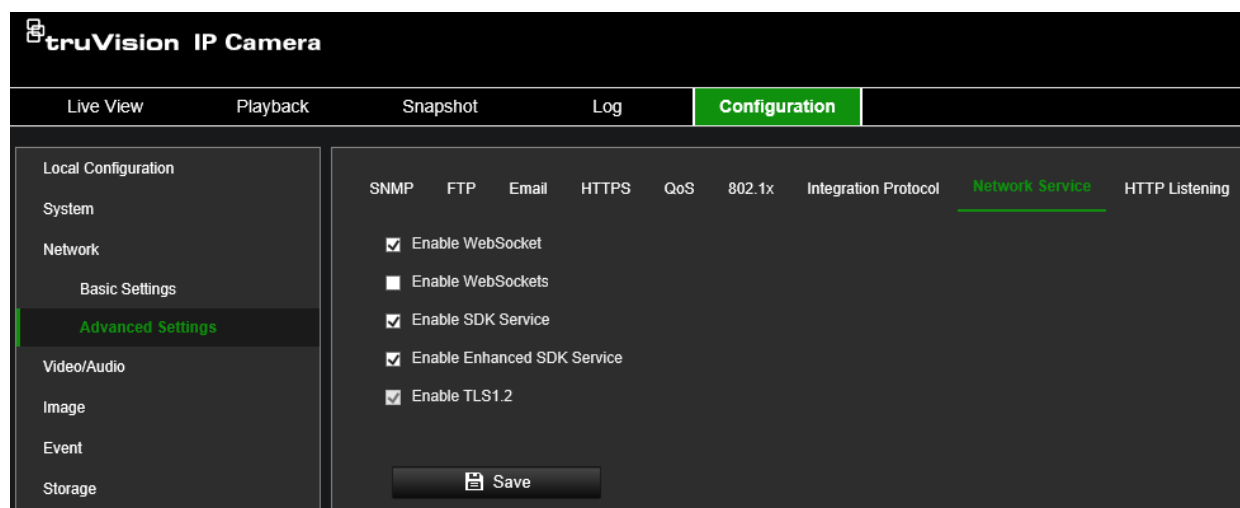
## Network service

Use this function to enable or disable certain protocols supported by the camera. Unused functions should be disabled for security reasons. Supported functions depend on the camera model.

- **WebSocket:** To access the camera, enable this function if using Google Chrome version 45 and higher or Mozilla Firefox 52 and higher. If not enabled, live view, image capture and digital zoom cannot be used with these browsers.
- **WebSockets:** TCP-based full-duplex communication protocol port for plugin-free live view. Certificate verification is required to ensure secure access.
- **SDK Service** and **Enhanced SDK Service:** Enable these functions to be able to use the device with a VMS (like TruVision Navigator or a third-party software using the SDK). **SDK Service** uses the SDK protocol. **Enhanced SDK Service** uses SDK over TLS (Transport Layer Security).

## To set up the network service parameters:

1. Click **Configuration > Network > Advanced Settings > Network Service**.



2. Select the **Enable WebSocket** check box to enable WebSocket service for live viewing over HTTP protocol without the plug-in.
3. Select the **Enable WebSockets** check box to enable WebSockets service for live viewing over HTTPS protocol without the plug-in.
4. Select the **Enable SDK Service** check box to enable SDK protocol over HTTP protocol. Client software communicates with the device via SDK service or Enhanced SDK service.
5. Select the **Enable Enhanced SDK Service** check box to enable SDK protocol over HTTPS protocol.
6. TLS1.2 is enabled by default and cannot be changed as HTTPS protocols rely on it.
7. Click **Save** to save changes.

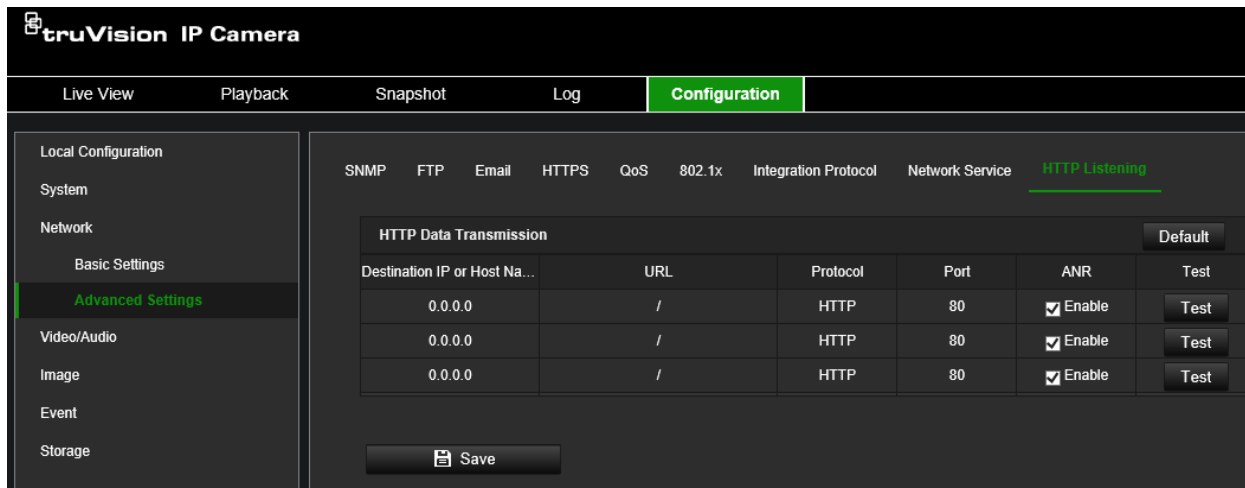
## HTTP listening

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

## To set up the HTTP listening parameters:

1. Click **Configuration > Network > Advanced Settings > HTTP**.





2. Enter destination IP or host name, URL, protocol type and port number.

3. Click the **Test** button to test if the service is available.

**Note:** the IP address or host name of a server should be available. The server should listen to the designated port.

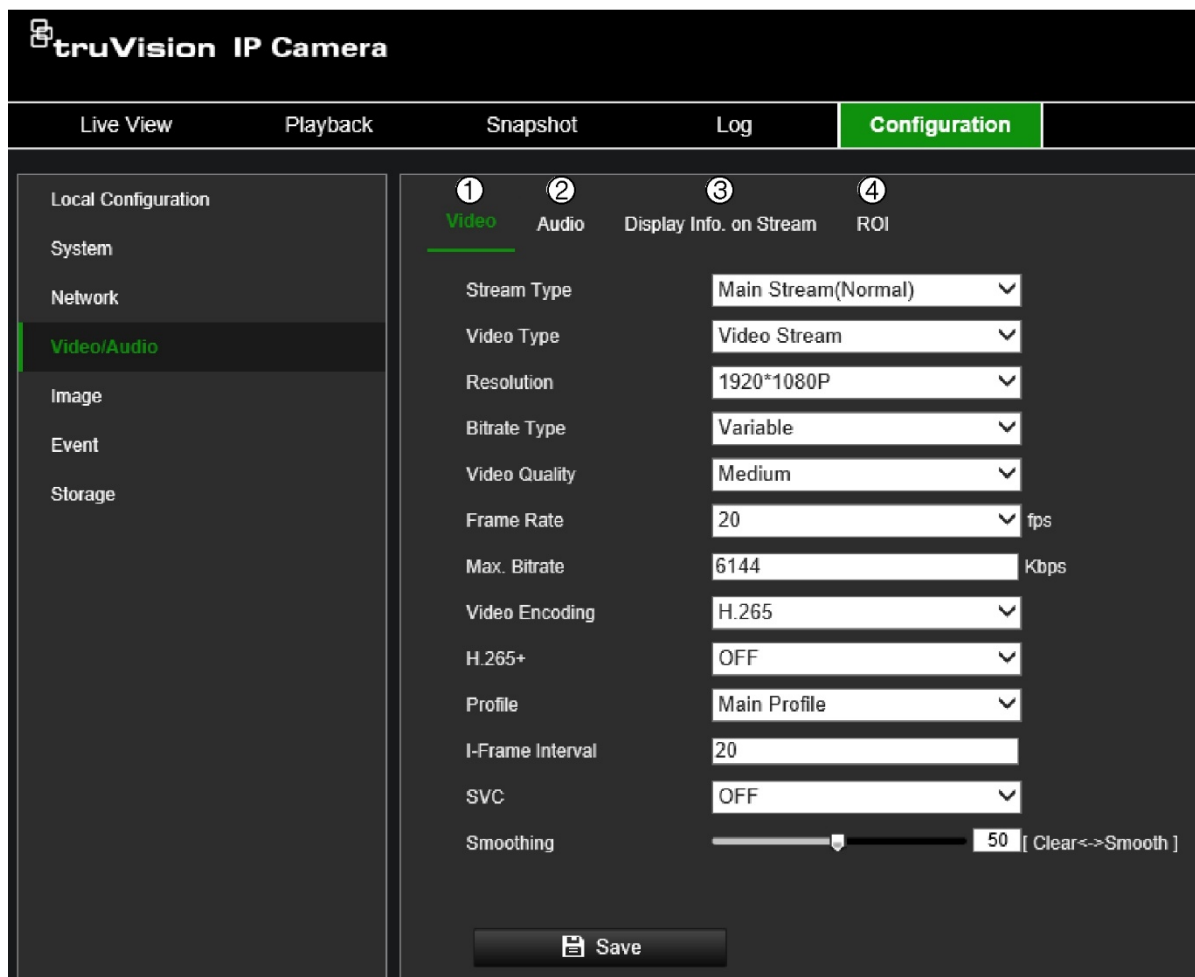
4. Enable ANR to activate Automatic Network Replenishment to have the camera send buffered events to the alarm host after restoring from a network disconnect.

5. Click **Save** to save changes.

## Video/Audio

You can adjust the video and audio recording parameters to obtain the image quality suited to your needs. Figure 4 below list the video and audio recording options you can configure for the camera.

Figure 4: Video/Audio Settings menu (Video tab shown)



Tab	Parameter descriptions
1. Video	<p><b>Stream Type:</b> Specifies the streaming method used. Options include: Main Stream, Substream, Third Stream. Note that Third Stream is only available in Standard Event Mode (menu System &gt; VCA Resource)</p> <p><b>Video Type:</b> Specifies the stream information you wish to record. Select <b>Video Stream</b> to record video stream only. Select <b>Video&amp;Audio</b> to record both video and audio streams. <b>Note:</b> Video&amp;Audio is only available for those camera models that support audio.</p> <p><b>Resolution:</b> Specifies the recording resolution. A higher image resolution provides a higher image quality but also requires a higher bit rate. The resolution options listed depend on the type of camera and on whether main, sub, third, fourth or fifth stream is being used. <b>Note:</b> Resolutions can vary depending on the camera model.</p> <p><b>Bit Rate Type:</b> Specifies whether variable or fixed bit rate is used. Variable produces higher quality results suitable for video downloads and streaming. Default is Constant.</p> <p><b>Video Quality:</b> Specifies the quality level of the image. It can be set when variable bit rate is selected. Options include: Lowest, Lower, Low, Medium, Higher and Highest.</p>

Tab	Parameter descriptions
	<p><b>Frame Rate:</b> Specifies the frame rate for the selected resolution. The frame rate is the number of video frames that are shown or sent per second.</p> <p><b>Note:</b> The maximum frame rate depends on the camera model and selected resolution. Please check the camera specifications in its datasheet.</p> <hr/> <p><b>Video Encoding:</b> Specifies the video encoding used. You can choose between H.264 and H.265.</p> <hr/> <p><b>H.264+/H.265+:</b> Depending on the selected Video Encoding, this parameter allows you to activate smart codecs H.264+ or H.265+ by switching it to ON. Leaving this parameter OFF will make the camera use standard H.264 or H.265 video encoding.</p> <p>When switching to H.265+/H.264+, features such as ROI, SVC, Main Stream Smoothing won't be supported. The camera will also need a restart after switching to one of these smart codecs.</p> <hr/> <p><b>Profile:</b> Different profile indicates different tools and technologies used in compression. Options include: Basic Profile, Main Profile, High Profile.</p> <hr/> <p><b>I-Frame Interval:</b> A video compression method. It is strongly recommended not to change the default value 50.</p> <hr/> <p><b>SVC:</b> Scalable Video Coding is an extension of the H.264/AVC standard. Select OFF / ON to disable / enable the SVC function. Select Auto, and the device will automatically extract frames from the original video when the network bandwidth is insufficient. SVC isn't available when H.264+ or H.265+ video encoding is used.</p> <hr/> <p><b>Smoothing:</b> Adjust the smoothness of the stream. Smoothing isn't available when H.264+ or H.265+ video encoding is used.</p>
2.	<p><b>Audio (only available if hardware supports it)</b></p> <p><b>Audio Encoding:</b> G.722.1, G.711ulaw, G.711alaw, MP2L2, G.726, PCM and MP3 are optional.</p> <hr/> <p><b>Audio Input:</b> Mic In and Line In are selectable for the connected microphone and pickup, respectively.</p> <p><b>Note:</b> Options can vary depending on the camera model.</p> <hr/> <p><b>Input Volume:</b> Specifies the volume from 0 to 100.</p> <hr/> <p><b>Environmental Noise Filter:</b> Set it as OFF or ON. When you set the function on the noise detected can be filtered.</p>
3.	<p><b>Display Info. On Stream</b></p> <p>When Dual-VCA mode is enabled, the camera sends video analytics metadata to an NVR or other platforms to when reporting a VCA event.</p>
4.	<p><b>ROI</b></p> <p>Enable to assign more encoding resources to the region of interest (ROI) to increase the quality of the ROI whereas the background information is less focused. ROI isn't available when H.264+ or H.265+ video encoding is used.</p>

## Display Info on Stream

When Dual-VCA mode is enabled, the camera sends video analytics metadata to an NVR or other platforms when reporting a VCA event.

For example, with a TruVision NVR (please check our website for the latest NVR models supporting this feature), you can draw a virtual line in the NVR playback window, and search the objects or people crossing this virtual line.

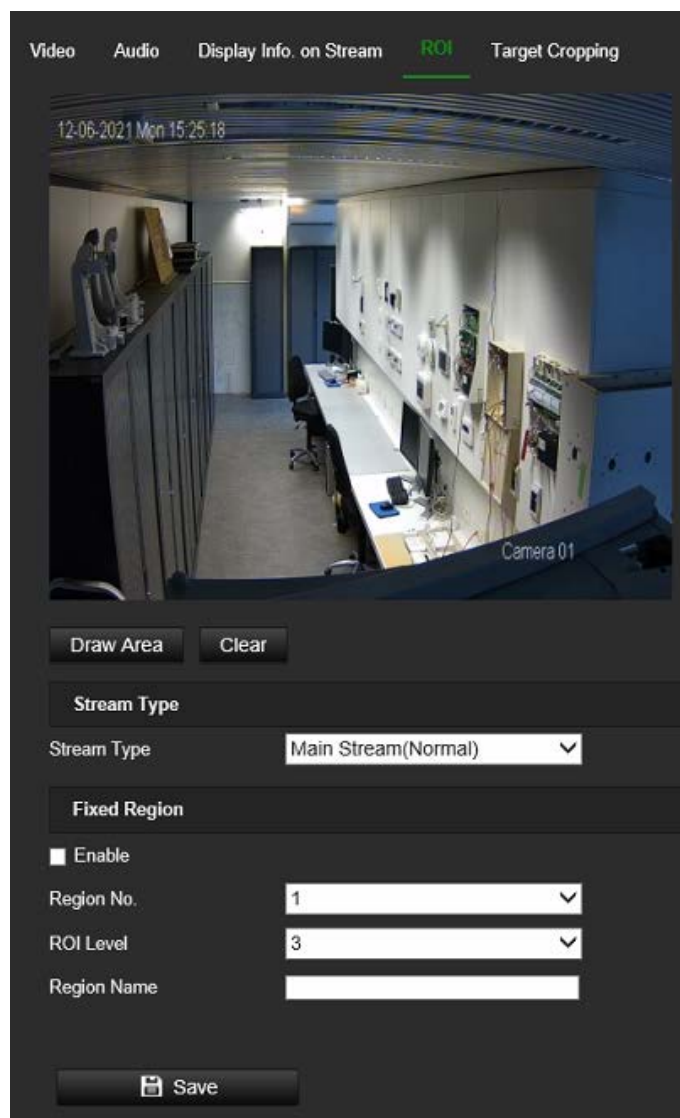
**Note:** Only cross line and intrusion detection can support dual-VCA mode.

### To define dual-VCA parameters:

1. Click **Configuration > Video/Audio > Display Info. On Stream.**
2. Select the check box to enable Dual-VCA.
3. Click **Save** to save changes.

### To configure ROI settings:

1. Click **Configuration > Video/Audio > ROI.**



2. Draw the region of interest on the image.
3. Choose the stream type to be used for the ROI encoding.
4. Under the *Fixed Region* section, select **Enable** to manually configure the area.

**Region No.:** Is always 1 since only 1 ROI region is supported.

**ROI Level:** Choose the image quality enhancing level. The larger the value selected, the better the image quality.

**Region Name:** Set the desired region name.

5. Click **Save** to save changes.

## To configure target cropping:

1. Click **Configuration > Video/Audio > Target Cropping**.
2. Select **Enable Target Cropping** check box to enable the function.
3. Set **Third Stream** as the stream type.
4. Select the cropping resolution for the video display of target area. A red rectangle is displayed on the live video to mark the target area, and you can click-and-drag the rectangle to locate the target area as desired.
5. Click **Save** to save the settings.

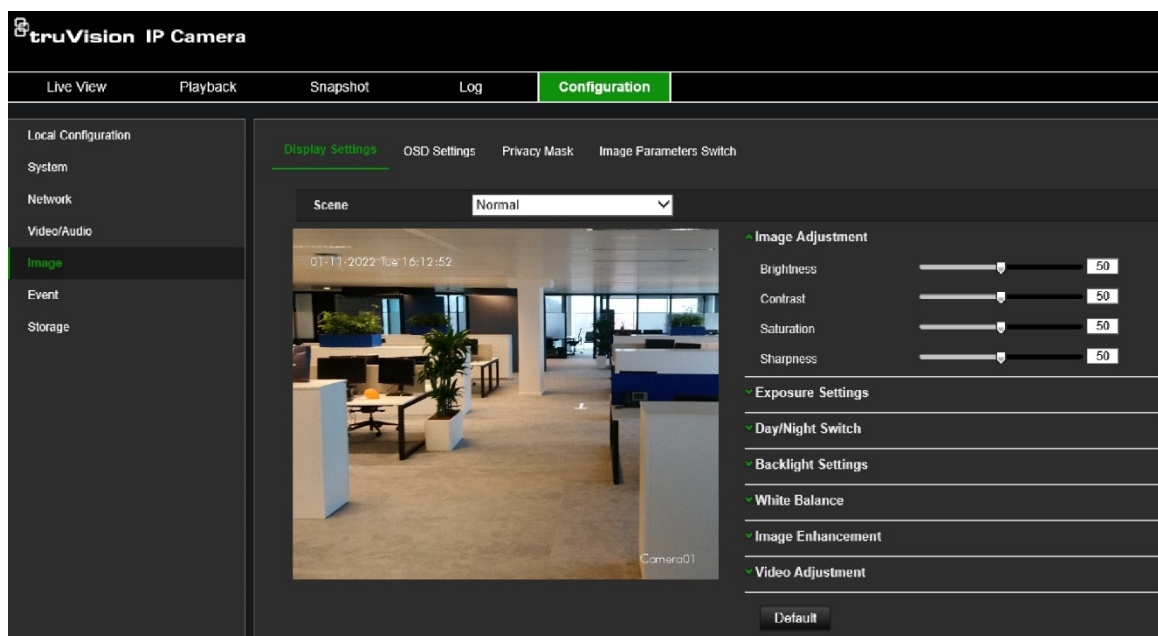
## Image

You may need to adjust the camera image depending on the camera model or location background to get the best image quality. See Figure 5 below for more information.

### Display Settings

Use this menu to set up how the image is displayed such as image adjustment, exposure settings, day/night settings, backlight settings, and white balance.

Figure 5: Camera image settings menu – Display Settings tab



Depending on the scene you select, the parameters from the table below will be updated to optimize for the scene environment.

Parameter	Description
<b>1. Image Adjustment</b>	
Brightness, Contrast, Saturation, Sharpness	<p>Modify the different elements of picture quality by adjusting the values for each of parameter.</p> <p>These options can also be modified from the General control panel in Live View.</p>
<b>2. Exposure Settings</b>	
Iris Mode	The camera has a fixed iris.
Exposure Time	<p>The exposure time controls the length of time that the aperture is open to let light into the camera through the lens.</p> <p>Select a higher value if the image is dark and a lower value to see fast moving objects.</p> <p>This option can also be modified from the General control panel in Live View.</p>
<b>3. Day/Night Switch</b>	
Day/Night Switch	<p>Defines whether the camera is in day or night mode. The day (color) option could be used, for example, if the camera is located indoors where light levels are always good.</p> <p>Select one of the options:</p> <p><b>Day:</b> Camera is always in day mode.</p> <p><b>Night:</b> Camera is always in night mode.</p> <p><b>Auto:</b> The camera automatically detects which mode to use.</p> <p><b>Scheduled switch:</b> The camera switches between day and night modes according to the configured period.</p> <p><b>Triggered by Alarm Input:</b> The camera switches to day or night mode while the alarm input is triggered.</p>
Sensitivity	<p>Only available when <i>Auto D/N switch</i> mode is selected. It defines the sensitivity of the switch between day and night.</p> <p>Set it between 0 and 7.</p>
Filtering Time	<p>Only available when <i>Auto D/N switch</i> mode is selected. The filtering time refers to the interval time between switchover the day/night switch.</p> <p>Set it between 5 and 120 s.</p>
Smart Supplement Light	When enabled, it can avoid over exposure problem by decreasing the amount of IR illumination for object closer to the camera
Supplement Light Mode	Allows you to switch ON/OFF the IR LEDs of the camera
IR Light	<p>Select On/OFF to Enable/disable IR.</p> <p><b>ON:</b> The IR LEDs are ON when the camera changes to night mode.</p> <p><b>OFF:</b> The IR LEDs are OFF when the camera changes to night mode</p> <p><b>Note:</b> The IR LEDs are always OFF in day mode.</p>
High Beam / Low Beam	Depending on the camera model, some cameras have 2 IR beams and their intensity can be controlled individually.

Parameter	Description
<b>4. Backlight Settings</b>	
BLC Area	<p>This function improves image quality when the background illumination is high. It prevents the object in the center of the image from appearing too dark.</p> <p>Select OFF, Up, Down, Left, Right, Center, Custom or Auto.</p> <p>When WDR is enabled, BLC cannot be configured.</p>
WDR	<p>When enabled, wide dynamic range (WDR) provides clear images when there is high contrast between light and dark areas in the field of view of the camera. Both bright and dark areas can be displayed in the frame.</p> <p>This option can also be enabled/disabled from the General control panel in Live View.</p>
HLC	<p>High Light Compression function can be used when there are strong lights in the scene affecting the image quality.</p> <p>This option can also be enabled/disabled from the General control panel in Live View.</p>
<b>5. White Balance</b>	
White Balance	<p>White balance (WB) tells the camera what the color white looks like. Based on this information, the camera will then continue to display all colors correctly even when the color temperature of the scene changes such as from daylight to fluorescent lighting, for example. Select one of the options:</p> <p><b>MWB:</b> Manually adjust the color temperature to meet your own requirements.</p> <p><b>AWB1:</b> Apply for small range of 2500 to 9500K, for environments where the lighting is always stable.</p> <p><b>Locked WB:</b> Locks the WB to the current environment color temperature.</p> <p><b>Fluorescent Lamp:</b> For use where there are fluorescent lamps installed near the camera.</p> <p><b>Incandescent Lamp:</b> For use with incandescent lighting.</p> <p><b>Warm Light Lamp:</b> For use where the indoor light is warm.</p> <p><b>Natural Light:</b> For use with natural light.</p>
<b>6. Image Enhancement</b>	
Digital Noise Reduction	<p>Digital noise reduction (DNR) reduces noise, especially in low light conditions, to improve image performance.</p> <p>Select Normal Mode, OFF, or Expert. Default is Normal.</p>
Noise Reduction Level	<p>Only available when DNR is set to Normal Mode. Set the level of noise reduction in the Normal Mode. Higher value has a stronger noise reduction. Default is 50.</p>
Gray Scale	<p>You can choose the range of the gray scale as [0-255] or [16-235].</p>
<b>7. Video Adjustment</b>	
Mirror	<p>It mirrors the image so you can see it inversed.</p> <p>Select Left/Right, Up/Down, Center, or OFF. Default is OFF.</p>
Hallway View	<p>To make a complete use of the 16:9 aspect ratio, you can enable the rotate function when you use the camera in a narrow view scene.</p> <p>When installing, turn the camera to the 90 degrees or rotate the 3-axis lens to 90 degrees, and set the rotate mode as on, you will get a normal view of the scene with 9:16 aspect ratio to ignore the needless information such as the wall, and get more meaningful information of the scene.</p>

Parameter	Description
Video Standard	Select 50 Hz or 60 Hz. Select the value depending on the video standards; normally 50 Hz for PAL standard and 60 Hz for NTSC standard.
Capture Mode	It is the selectable video input mode to meet the different demands of field of view and resolution.

**Note:** Click the **Default** button to default all the image settings.

## OSD Settings (On Screen Display)

In addition to the camera name, the camera also displays the system date and time on screen. You can also define how the text appears on screen.

You can also set up the OSD settings from the Live View General control panel. Go to **Live View > General > OSD Settings** and select the desired options.

**To set up the OSD text:**

1. Click **Configuration > Image > OSD Settings**.

2. Select the **Display Name** box to display the camera's name on screen. You can modify the default name in the text box of **Camera Name**.
3. Select the **Display Date** check box to display the date/time on screen.
4. Select the **Display Week** check box to include the day of the week in the on-screen display.
5. In the **Camera Name** box, enter the camera name.



6. Select the time and date formats from the **Time format** and **Date format** drop-down list boxes.
7. Select a display mode for the camera from the **Display Mode** drop-down list box. Display modes include:
  - **Transparent & Not flashing.** The image appears through the text.
  - **Transparent & Flashing.** The image appears through the text. The text flashes on and off.
  - **Not transparent & Not flashing.** The image is behind the text. This is default.
  - **Not transparent & Flashing.** The image is behind the text. The text flashes on and off.
8. Select the desired OSD size.
9. Select the desired font color.
10. Select the desired alignment (Custom, Align Left or Align Right).
11. Click **Save** to save changes.

**Note:** If the display mode sets as transparent, the text varies according the background. With some backgrounds, the text may be not easily readable.

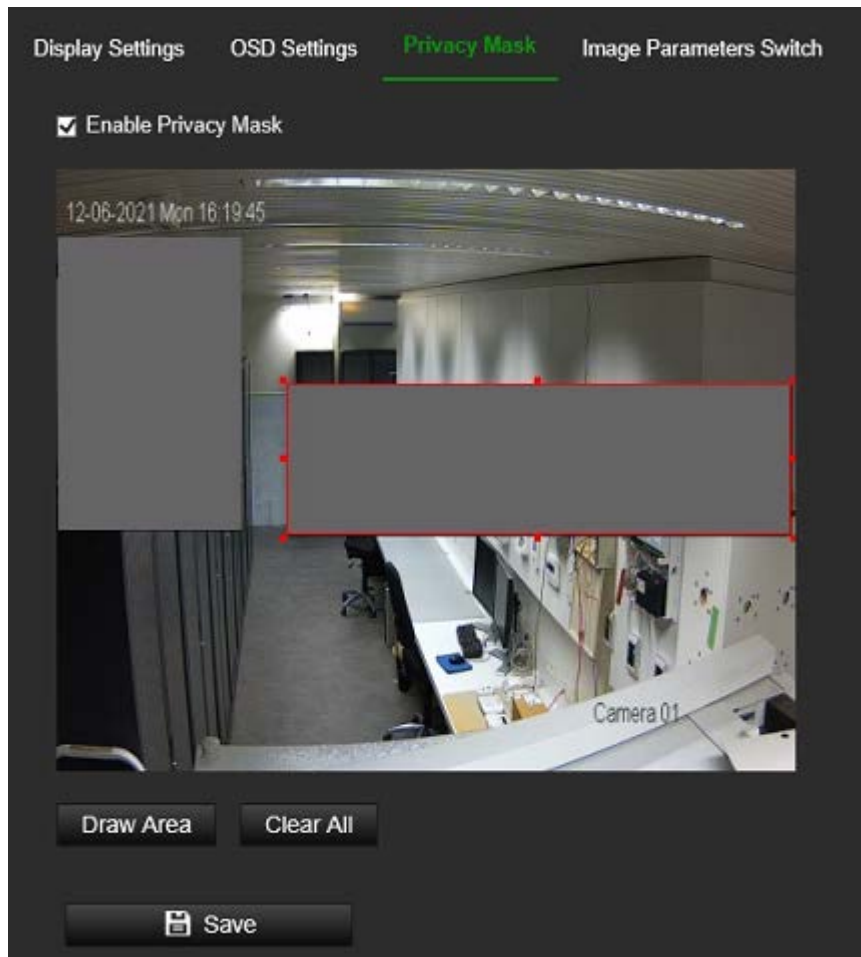
Four additional custom *Text Overlays* can be created and positioned across the camera image by dragging the text overlay to the desired position on the image. You can also add and position text overlays when in live view mode under the General control panel.

## Privacy Masks

Privacy masks let you conceal sensitive areas (such as neighboring windows) to protect them from view on the monitor screen and in the recorded video. The masking appears as a blank area on screen. You can create up to four privacy mask areas per camera.

**Note:** There may be a small difference in size of the privacy mask area depending on whether local camera output or web browser is used.

Figure 6: Camera image settings menu – Privacy mask window



**To add a privacy mask area:**

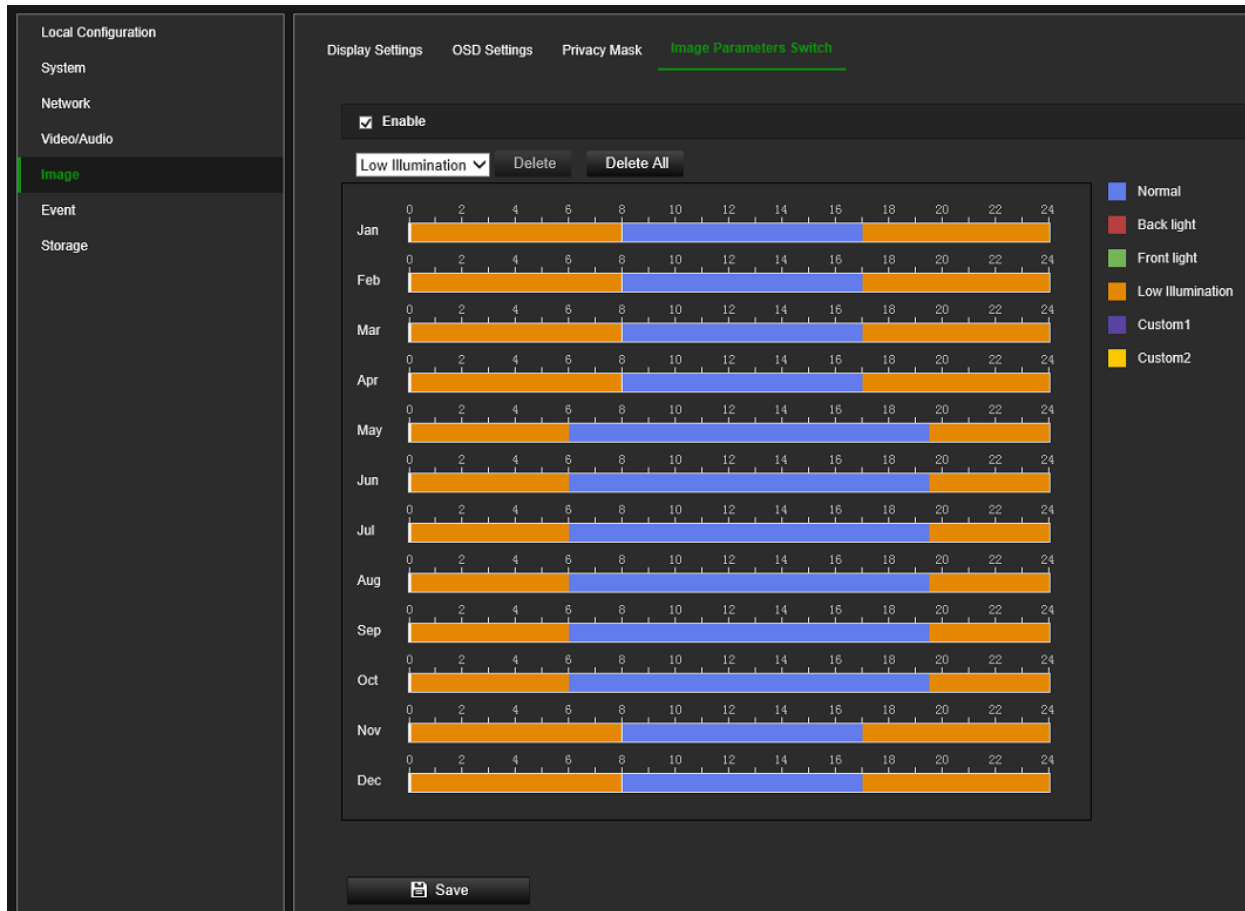
1. Click **Configuration > Image > Privacy Mask**.
2. Select the **Enable Privacy Mask**.
3. Click **Draw Area**.
4. Click and drag the mouse in the live video window to draw the mask areas.  
**Note:** You can draw up to four areas on the same image.
5. (Optional) To delete mask areas, click **Clear All**.
6. Click **Save** to save changes.

**Image Parameters Switch**

You can link different lighting scenes to a D/N month schedule, such as low illumination or back light. Before linking the lighting scenes to the D/N schedule, define the parameters for each scene under the *Display Settings* menu (see “Display Settings” on page 39 for further information). You can link up to four lighting scenes to the scheduled D/N.

**To set up an image parameter switch:**

1. Click **Configuration > Image > Image Parameters Switch**.



2. Select the **Enable** check box to activate this function.
3. Select from the drop-down list the desired lighting scene you want to use and then drag the mouse along the timeline bar of the desired day to draw a period when the alarm can be recorded. You can schedule up to eight time periods in a day.  
 To change a lighting scene, double click it and make your changes in the pop-up box that appears. Click **Save** to save the changes.
4. Repeat the above step by selecting another lighting scene from the drop-down list, if required. Once the periods/scenes are defined for one month, you can click on a period and manually type in start/end time to fine tune the period.
5. When you hover the mouse above a timeline bar a small green copy button appears at the end of the bar that allows you to easily copy the selected month configuration to any other month.
6. Click **Save** to save changes.

## Event

Events can be used to trigger actions whenever the camera is triggered by a physical input or for example a VCA event. There are two categories, Basic and Smart Event.

## Motion Detection

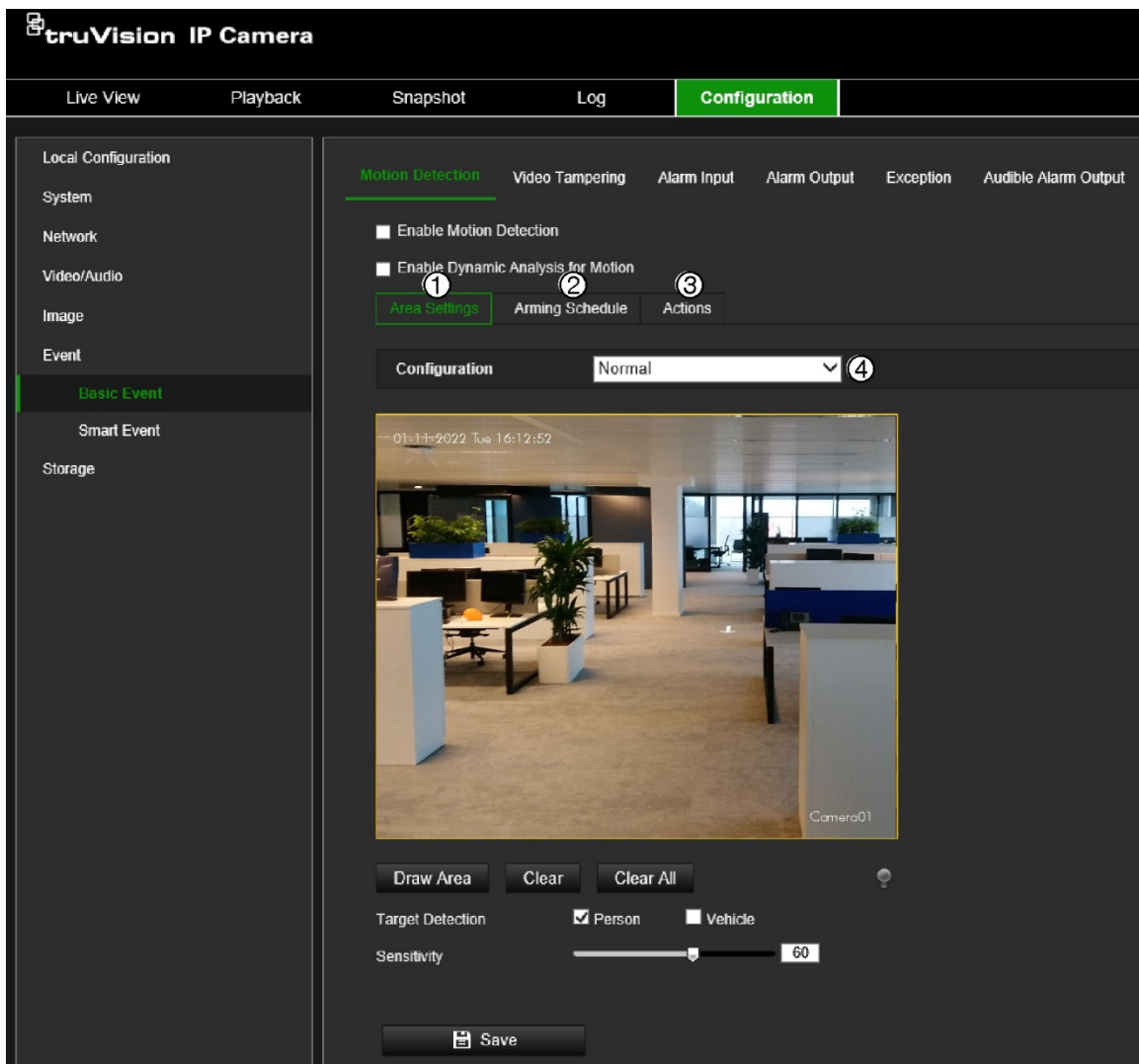
You can define motion detection alarms. A motion detection alarm refers to an alarm triggered when the camera detects motion. However, the motion alarm is only triggered if it occurs during the programmed arming schedule.

Select the level of sensitivity to motion as well as the target size and target type (person/vehicle) so that only objects that could be of interest can trigger a motion recording. For example, the motion recording is triggered by the movement of a person but not that of a cat or changing light conditions.

You can draw an area on the screen where you want to detect motion, the level of sensitivity to motion, the schedule when the camera is supposed to check for motion as well as which methods are used to alert you to a motion detection alarm.

You can also enable dynamic analysis for motion to verify sensitivity in real-time. When there is motion, the area will be highlighted as green. See Figure 7 below.

Figure 7: Motion detection window



## Defining a motion detection alarm requires the following tasks:


1. **Area settings:** Draw a polygon area on the image where you want the camera to generate motion detection alarm and set detection sensitivity level (see Figure 7 on page 46, item 1).
2. **Arming schedule:** Define the schedule during which the system detects motion (see Figure 7 on page 46, item 2).
3. **Recording schedule:** Define the schedule during which motion detection can be recorded (when using SD card or NAS). See “Recording schedule” on page 63 for further information.
4. **Actions:** Specify the actions triggered by the motion event (see Figure 7 on page 46, item 3).
5. **Normal and advanced configuration:** Normal configuration allows you to set the sensitivity level of the motion detection (see Figure 7 on page 46, item 4). Advanced configuration gives you additional configuration options. It allows you define up to eight separate motion areas with different sensitivity and scene parameters. Target options person/vehicle are not available in *Advanced Motion Detection* mode.

### To set up motion detection in normal mode:

1. Click **Configuration > Event > Basic Event > Motion Detection**.
- **Set up the motion detection area:**
  2. Select the **Enable Motion Detection** check box. Also select the **Enable Dynamic Analysis for Motion** check box if you want to see real-time motion events.

**Note:** If you do not want the detected object to be marked with the green frame, select **Disable** from **Configuration > Local Configuration > Live View Parameters > Enable Meta Data Overlay**.
  3. Under Configuration, select **Normal** mode from the drop-down list.
  4. Click **Draw Area**. Click the mouse to set the start point of the area where you want to detect motion. Then move to another position and click the mouse to define the first side of the detection area. Repeat this step to draw additional lines and ultimately close the detection area. A detection area can be a polygon with maximum 10 sides. After the last side of the polygon is drawn, right-click the mouse to close the polygon and stop drawing.

**Note:** You can draw up to eight motion detection areas on the same image.
  5. Click **Clear All** to delete all areas marked and restart drawing.
  6. Select Target Detection **Person** and/or **Vehicle** in case you want the camera to generate motion only on these targets.
  7. Move the **Sensitivity** slider to set the sensitivity of the detection. All areas will have the same sensitivity level.

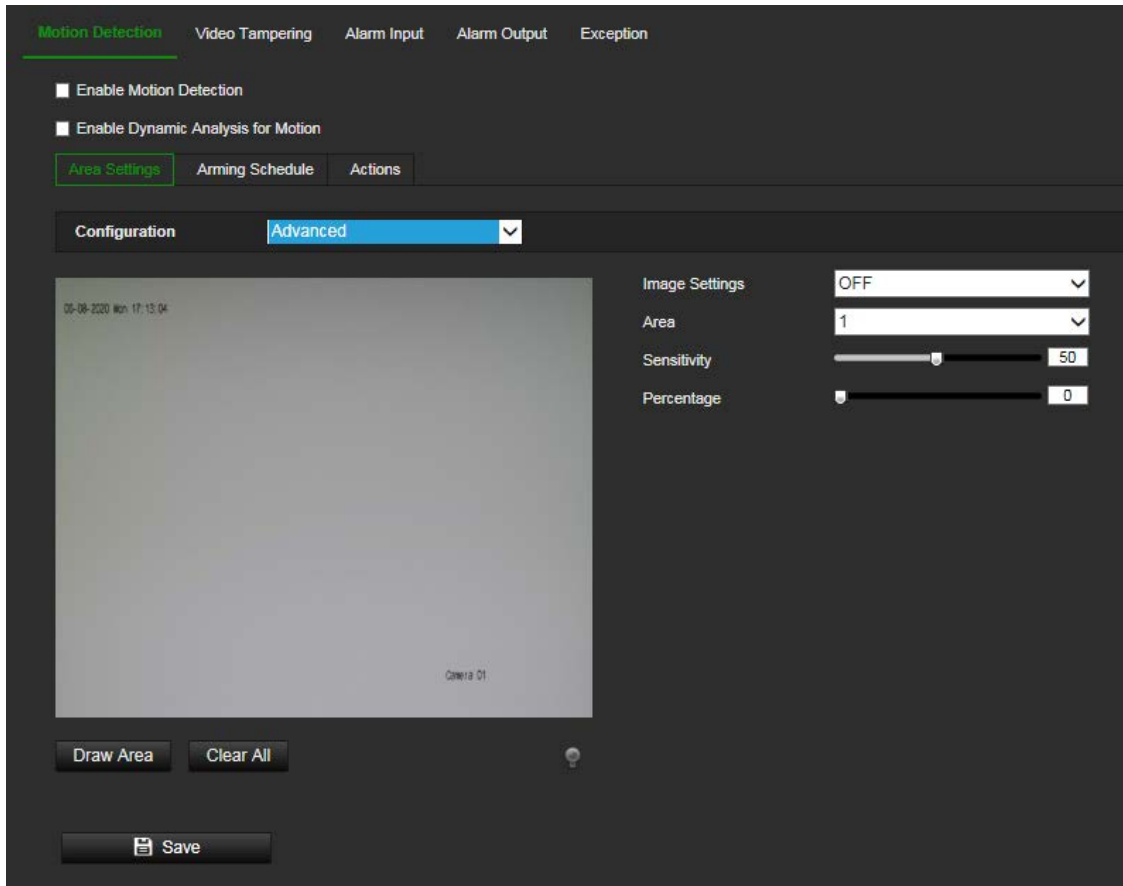
- **Set up the arming schedule:**
8. Drag and click the timeline bar to edit the arming schedule. In the pop-up box, enter the start and end times (hour and minutes).
  9. Click  to copy the schedule to other days or to the whole week.
- **Set up linking method to the motion detection alarm:**
10. Click **Actions** to trigger an action when the motion event occurs. Select one or more response methods for the system when a motion detection alarm is triggered:

<b>Send Email</b>	Send an email to a specified address when there is a motion detection alarm. <b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, check the <b>Attached Snapshot</b> option.
<b>Notify Alarm Recipient</b>	Send an exception or alarm signal to remote management software when an event occurs.
<b>Upload to FTP/Memory Card/NAS</b>	Capture the image when an alarm is triggered and upload the picture to NAS, Memory Card or FTP server. <b>Note:</b> To upload the snapshot to NAS, you must firstly configure the NAS settings. See “NAS” on page 68 for further information. To upload the snapshot to an FTP, you must firstly configure the FTP settings. See “To define the FTP parameters” on page 28 for further information. Enable the <b>Upload Type</b> option. To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select <b>Enable Event-triggered Snapshot</b> under the snapshot parameters. See “Storage” on page 61 for further information.
<b>Trigger Alarm Output</b>	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. <b>Note:</b> This option is only available for cameras that support alarm output.
<b>Trigger Recording</b>	Triggers the recording to start in the camera.

11. Click **Save** to save changes.

#### To set up advanced motion detection:

1. Click **Configuration > Event > Basic Event > Motion Detection**.
- **Set up the motion detection area:**
2. Select the **Enable Motion Detection** box. Also select **Enable Dynamic Analysis for Motion** if you want to see where motion occurs in real-time.  
**Note:** If you do not want the detected object to be marked with the green frame, select **Disable** from **Local Configuration > Live View Parameters > Rules**.
  3. Under Configuration, select **Advanced** mode from the drop-down list.



4. Under **Image Settings**, select OFF, Auto D/N Switch or Scheduled D/N settings. Default is OFF.

Auto D/N Switch and Scheduled D/N settings allow you to set different settings for day and night as well as different periods.

5. Select **Area No.** and click **Draw Area**. Click and drag the mouse on the live video image to draw an area sensitive to motion detection.


**Note:** You can draw up to eight motion detection areas on the same image. **Stop Drawing** shows up after **Draw Area** is clicked.

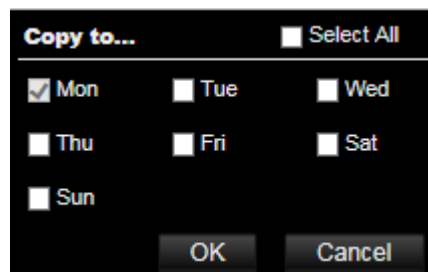
6. Click **Stop Drawing** to finish drawing. Click **Clear All** to delete all areas marked and restart drawing.
7. Move the **Sensitivity** slider to set the sensitivity of the detection for the selected areas.
8. Move the **Percentage** slider to set the proportion of the object that must occupy the defined area to trigger an alarm. Default is zero.
9. Click **Save** to save the changes for that area.
10. Repeat steps 7 to 9 for each area to be defined.

- **Set up the arming schedule:**

1. Under **Arming Schedule**, click the day you want to schedule. The Time pop-box appears. Enter the desired start and end times to detect motion.



2. If you want to copy a day's schedule, position the mouse on the desired day and click  to copy the schedule to other days or to the whole week. The *Copy to* pop-up window appears. Select the desired days to which to copy the schedule and click **OK** to save the changes.



3. Click **OK** to save changes.
  - **Set up linking method to the motion detection alarm:**
4. Click **Actions** to specify when an event occurs. Select one or more response methods for the system when a motion detection alarm is triggered.

<b>Send Email</b>	Send an email to a specified address when there is a motion detection alarm. <b>Note:</b> You must configure email settings before enabling this option. See "To set up the email parameters" on page 29 for further information. If you want to send the event snapshot together with the email, select the <b>Attached Snapshot</b> option.
<b>Notify Alarm Recipient</b>	Send an exception or alarm signal to remote management software when an event occurs.



### Upload to FTP/Memory Card/NAS

Capture the image when an alarm is triggered and upload the picture to NAS, Memory Card or FTP server.

**Note:** To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 68 for further information. To upload the snapshot to an FTP, you must first configure the FTP settings. See “To define the FTP parameters” on page 28 for further information. Enable the **Upload Type** option.

To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select **Enable Event-triggered Snapshot** under the snapshot parameters. See “Storage” on page 61 for further information.

### Trigger Alarm Output

Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output.

**Note:** This option is only available for cameras that support alarm output.

### Trigger Recording

Triggers the recording to start in the camera.

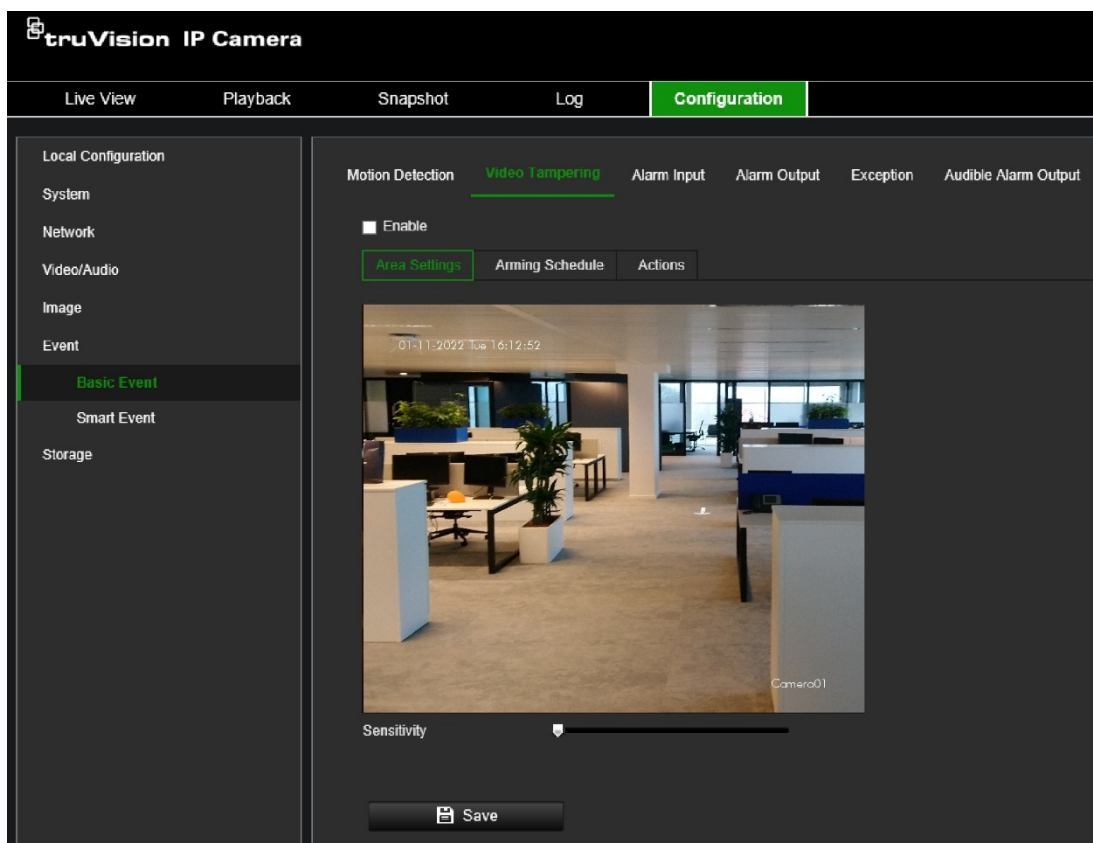
5. Click **Save** to save changes.

## Video Tampering

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

**To set up tamper-proof alarms:**

1. From the menu toolbar, click **Configuration > Camera Configuration > Alarm Event > Video Tampering**.



2. Select the **Enable** option to activate Video Tampering.

3. Move the **Sensitivity** slider to set the detection sensitivity.
4. Edit the arming schedule for video tampering. The arming schedule configuration is the same as that for motion detection. See “To set up motion detection” on page 47 for more information.
5. Specify the linkage method when an event occurs. Select one or more response methods for the system when a video tampering is triggered.

<b>Send Email</b>	Send an email to a specified address when there is a motion detection alarm. <b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, select the <b>Attached Snapshot</b> option.
<b>Notify Alarm Recipient</b>	Send an exception or alarm signal to remote management software when an event occurs.
<b>Trigger Alarm Output</b>	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. <b>Note:</b> This option is only available for cameras that support alarm output.

6. Click **Save** to save changes.

## Alarm Inputs and Outputs

### To set up the external alarm input:

1. Click **Configuration > Event > Basic Event > Alarm Input**.
2. Choose the **Alarm Input No.** and the **Alarm Type**. The alarm type can be NO (Normally Open) and NC (Normally Closed). Enter a name for the alarm input.
3. Set the arming schedule for the alarm input. See “To set up motion detection” for more information.
4. Select the check box to select the actions.

<b>Send Email</b>	Send an email to a specified address when there is a motion detection alarm. <b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, select the <b>Attached Snapshot</b> option.
<b>Notify Alarm Recipient</b>	Send an exception or alarm signal to remote management software when an event occurs.

<b>Upload to FTP/Memory Card/NAS</b>	<p>Capture the image when an alarm is triggered and upload the picture to NAS, Memory Card or FTP server.</p> <p><b>Note:</b> To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 68 for further information.</p> <p>To upload the snapshot to an FTP, you must first configure the FTP settings. See “To define the FTP parameters” on page 28 for further information. Enable the <b>Upload Type</b> option.</p> <p>To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select <b>Enable Event-triggered Snapshot</b> under the snapshot parameters. See “Storage” on page 61 for further information.</p>
<b>Trigger Alarm Output</b>	<p>Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output.</p> <p><b>Note:</b> This option is only available for cameras that support alarm output.</p>
<b>Trigger Recording</b>	<p>Triggers the recording to start in the camera.</p>

5. Click **Save** to save changes.

### To set up an alarm output:

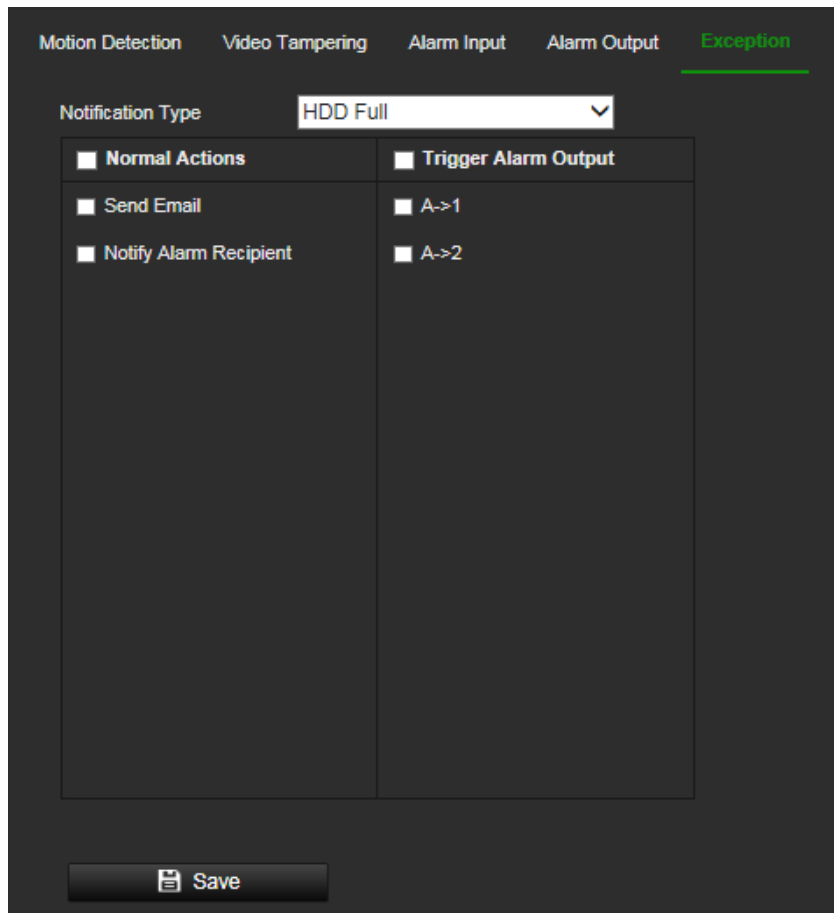
1. Click **Configuration > Event > Basic Event > Alarm Output**.
2. Select one alarm output channel from the **Alarm Output** drop-down list. You can also set a name for the alarm output.
3. Set the delay time to 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min or manual. The delay time refers to the time duration that the alarm output remains in effect after the alarm occurs.
4. Set the arming schedule for the alarm input. See “To set up motion detection” on page 47 for more information.
5. Click **Save** to save changes.

### Exception

You can set up the camera to notify you when irregular events occur and how you should be notified. These exception alarms include:

- **HDD Full:** All recording space of NAS is full.
- **HDD Error:** Errors occurred while files were being written to the storage, no storage or storage had failed to initialize.
- **Network Disconnected:** Disconnected network cable.
- **IP Address Conflicted:** Conflict in IP address setting.
- **Invalid Login:** Wrong user ID or password login attempt to the cameras.

Figure 8: Exception window



**To set up exception alarms:**

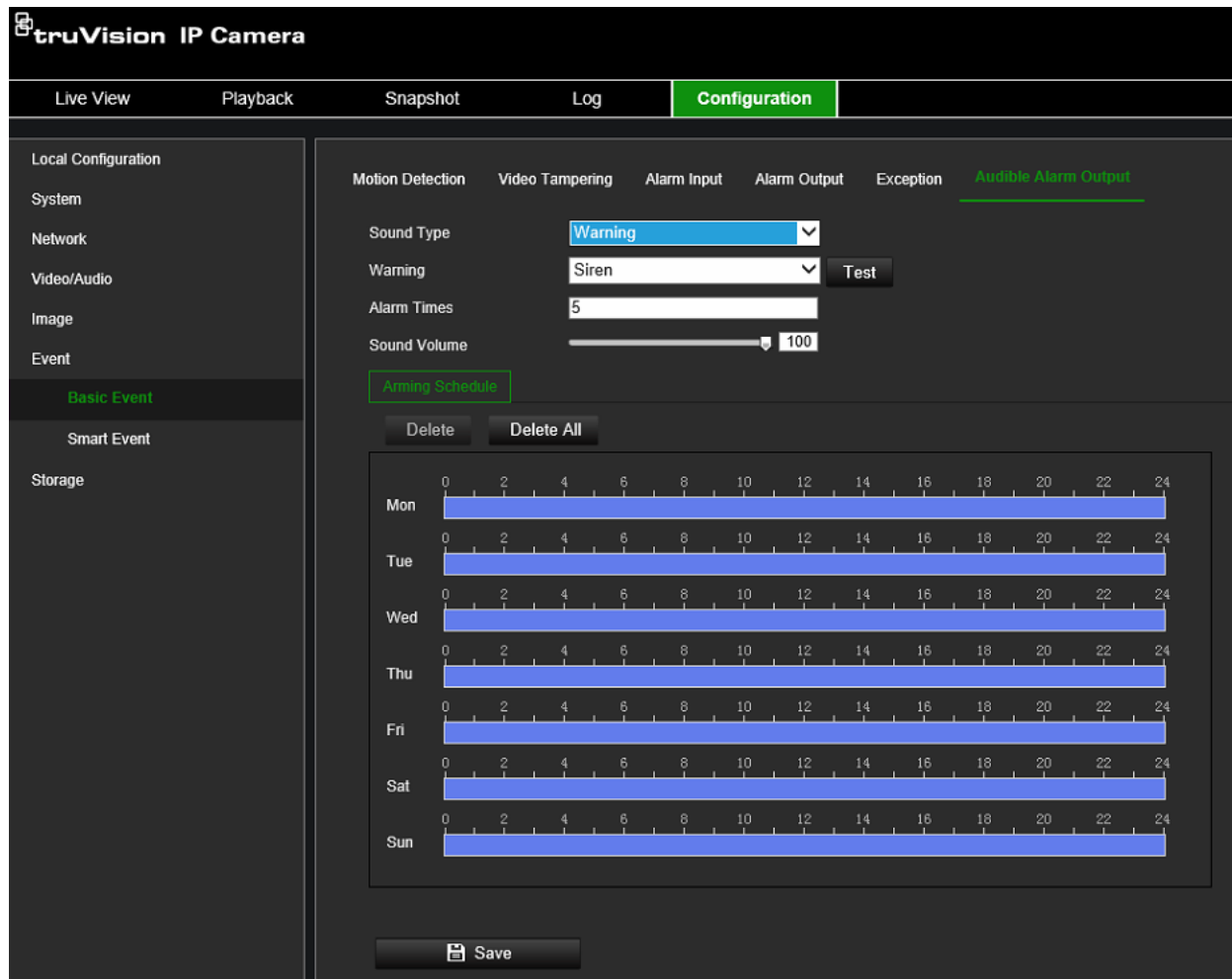
1. Click **Configuration > Event > Basic Event > Exception**.
2. Under **Exception Type**, select an exception type from the drop-down list.
3. Specify the actions when an event occurs. Select one or more response actions when an exception alarm is triggered.

<p><b>Send Email</b></p>	<p>Send an email to a specified address when there is a motion detection alarm.</p> <p><b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, check the <b>Attached Snapshot</b> option.</p>
<p><b>Notify Alarm Recipient</b></p>	<p>Send an exception or alarm signal to remote management software when an event occurs.</p>
<p><b>Trigger Alarm Output</b></p>	<p>Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output.</p> <p><b>Note:</b> This option is only available for cameras that support alarm output.</p>

4. Click **Save** to save changes.

## Audible Alarm Output

The camera can trigger pre-defined or custom audio alert whenever an event occurs. To be able to use this feature, the camera needs to support an audio output. It is not supported by all camera models.



### To set up the audible alarm output:

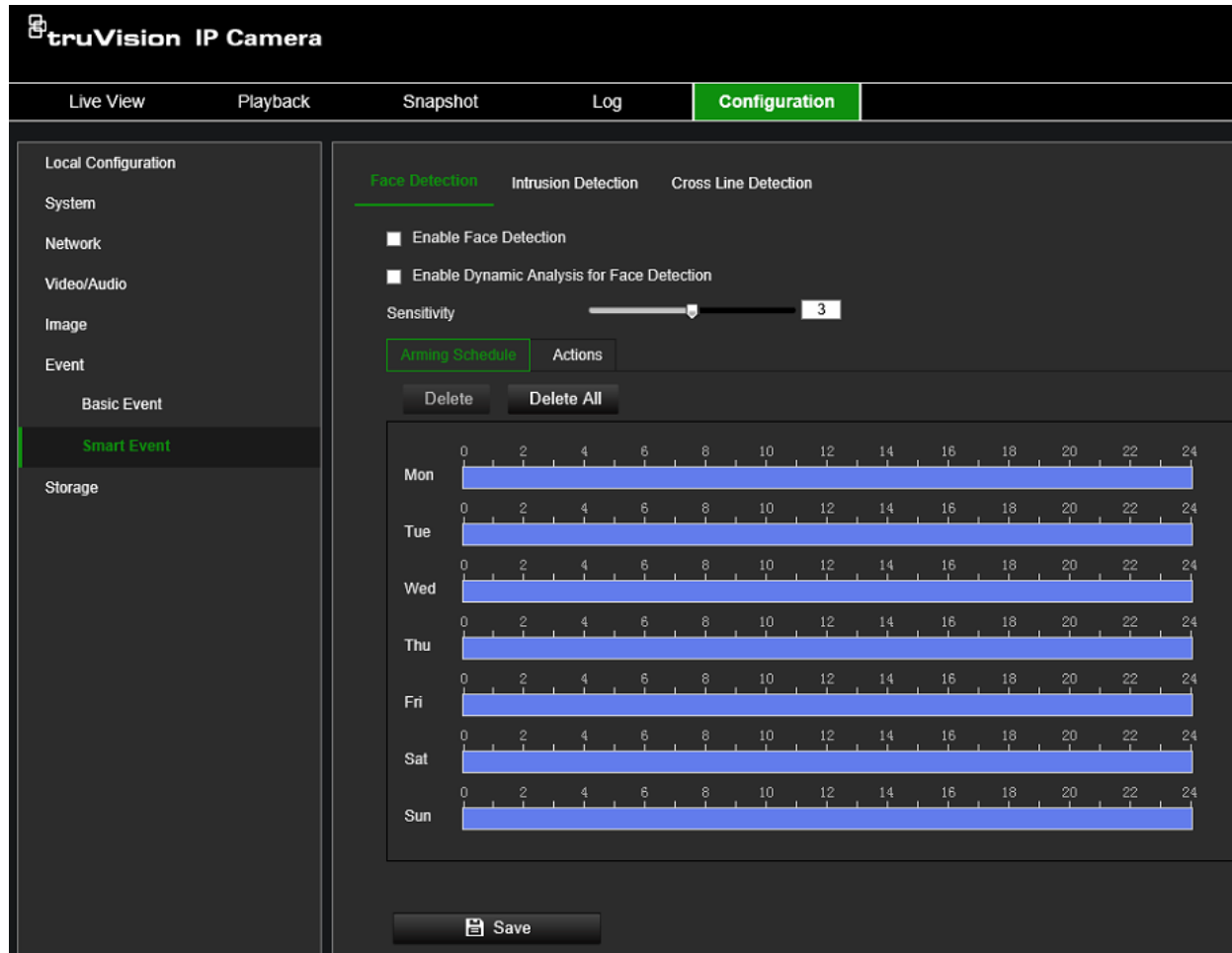
1. Click **Configuration > Event > Basic Event > Audible Alarm Output**.
2. Choose the desired **Sound Type**. You can choose between **Warning**, **Prompt** or **Custom Audio**.
3. With **Custom Audio** you can upload a .wav audio file max 512kB recorded at 8kHz into the camera.
4. Click the **Test** button to check the audio Set the arming schedule for the alarm input. See "To set up motion detection" for more information.
5. Set the **Sound Duration** to define the duration of the audio alarm
6. Select the check box to select the actions.
7. Adjust the **Sound Volume** slider to the desired level
8. Configure the **Arming Schedule** to define when audio can be triggered
9. Click **Save** to save changes.

## Face detection

This function can detect faces that appear in the surveillance scene. It can be set up to trigger a series of alarm actions when a face is detected.

### To set up face detection:

1. Click **Configuration > Event > Smart Event > Face Detection**.



2. Select the **Enable Face Detection** check box to enable the function.
3. Select the **Enable Dynamic Analysis for Face Detection** check box. The detected face is marked with a green rectangle in the live mode.

**Note:** To be able to mark the detected face in real-time during live view mode, go to **Configuration > Local Configuration** and enable **Metadata Overlay**.

4. Drag the slider to set the detection sensitivity. The sensitivity ranges from 1 to 5. The higher the value, the more easily the face can be detected.
5. Set the arming schedule for the alarm input. See “To set up motion detection” on page 47 for more information.
6. Specify the linkage method when an event occurs. Select one or more response methods for the system when a face detection alarm is triggered.

<b>Send Email</b>	<p>Send an email to a specified address when there is a motion detection alarm.</p> <p><b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, select the <b>Attached Snapshot</b> option.</p>
<b>Notify Alarm Recipient</b>	<p>Send an exception or alarm signal to remote management software when an event occurs.</p>
<b>Upload to FTP/Memory Card/NAS</b>	<p>Capture the image when an alarm is triggered and upload the picture to NAS, Memory Card or FTP server.</p> <p><b>Note:</b> To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 68 for further information.</p> <p>To upload the snapshot to an FTP, you must first configure the FTP settings. See “To define the FTP parameters” on page 28 for further information. Enable the <b>Upload Type</b> option.</p> <p>To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select <b>Enable Event-triggered Snapshot</b> under the snapshot parameters. See “Storage” on page 61.</p>
<b>Trigger Alarm Output</b>	<p>Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output.</p> <p><b>Note:</b> This option is only available for cameras that support alarm output.</p>
<b>Trigger Recording</b>	<p>Triggers the recording to start in the camera.</p>

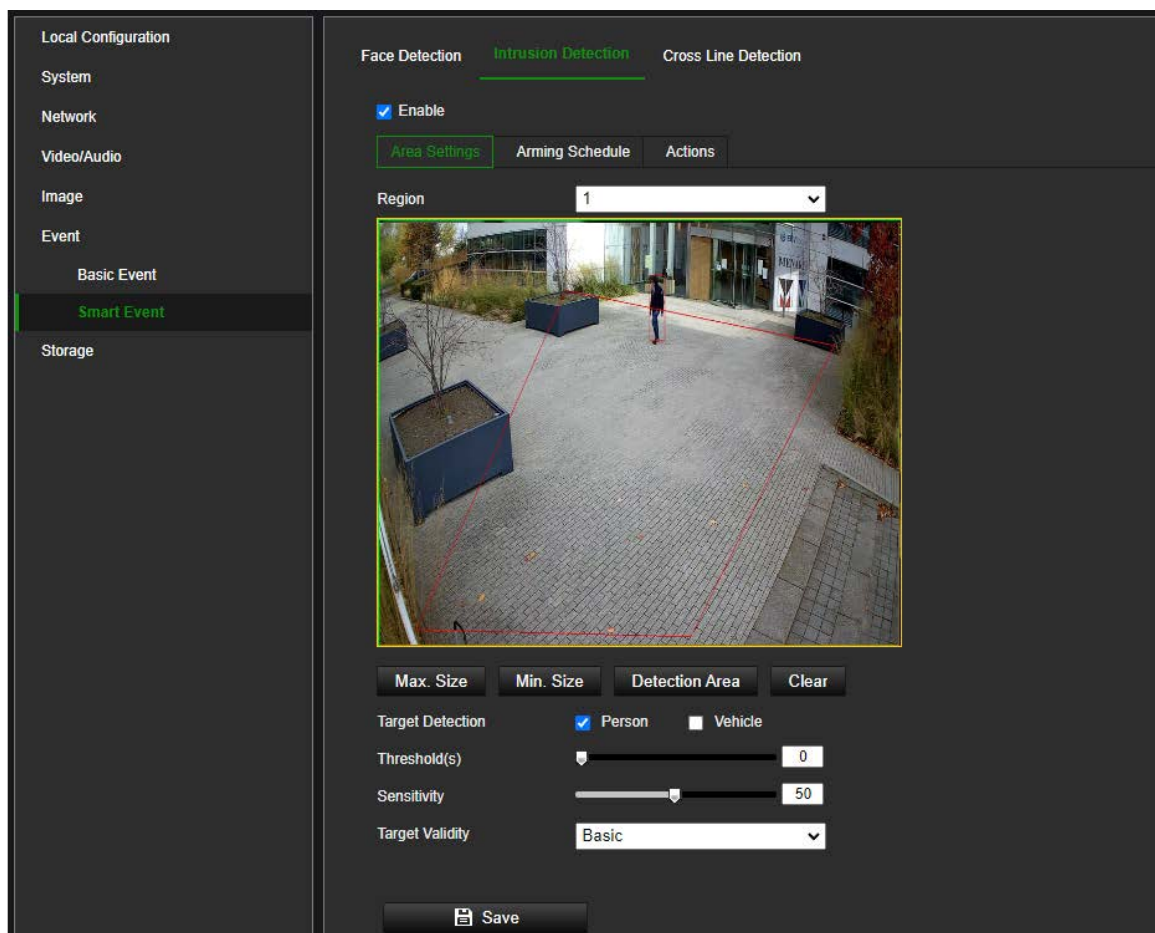
7. Click **Save** to save changes.

## Intrusion Detection

You can set up an area in the surveillance scene to detect when intrusion occurs. Up to four intrusion detection areas are supported. If someone enters the area, a set of alarm actions can be triggered.

## To set up intrusion detection:

1. Click **Configuration > Event > Smart Event > Intrusion Detection**.



2. Select the **Enable Intrusion Detection** check box to enable the function.
3. If you want to define the minimum and maximum pixel size for objects to be detected, use the **Max. Size** and **Min. Size** buttons to draw the min/max sizes of objects to be triggered.
4. Click **Detection Area** and draw a polygon area on the image where you want the camera to check for intrusion events and set detection sensitivity level.

When you draw the polygon, all lines should connect end-to-end to each other. Click **Clear** to clear the area you have drawn.

5. Enable options **Person** and/or **Vehicle** to have the camera only react to people and/or vehicles. Selecting these options will result in fewer false Intrusion Detection events and it will also exclude, for example, animals.
6. Additional options to set up are:

**Threshold:** This is the time threshold that the object remains in the region. If you set the value as 0 s, the alarm is triggered immediately after the object enters the region. The range is between 0 and 10 seconds.

**Sensitivity:** The sensitivity value defines how fast the camera will react to a moving object in the intrusion zone. The range is between 1 and 100. A higher value will make the camera react faster.



**Target Validity:** Selecting a higher target validity means that the required target features should be more obvious, and the alarm accuracy would be higher. The target with less obvious person/vehicle features would not trigger an event. Available settings from low to high are Basic, High, Higher, Highest.

7. Set the arming schedule for the alarm input. See “To set up motion detection” on page 47 for more information.
8. Specify the actions when an event occurs. Select one or more response actions when an intrusion detection alarm is triggered.

<b>Send Email</b>	Send an email to a specified address when there is a motion detection alarm. <b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, select the <b>Attached Snapshot</b> option.
Notify Alarm Recipient	Send an exception or alarm signal to remote management software when an event occurs.
<b>Upload to FTP/Memory card/NAS</b>	Capture the image when an alarm is triggered and upload the picture to NAS, Memory Card or FTP server. <b>Note:</b> To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 68 for further information.  To upload the snapshot to an FTP, you must first configure the FTP settings. See “To define the FTP parameters” on page 28 for further information. Enable the Upload Type option.  To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select <b>Enable Event-triggered Snapshot</b> under the snapshot parameters. See “Storage” on page 61 for further information.
<b>Trigger Alarm Output</b>	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. <b>Note:</b> This option is only available for cameras that support alarm output.
<b>Trigger Recording</b>	Triggers the recording to start in the camera.

9. Click **Save** to save changes.

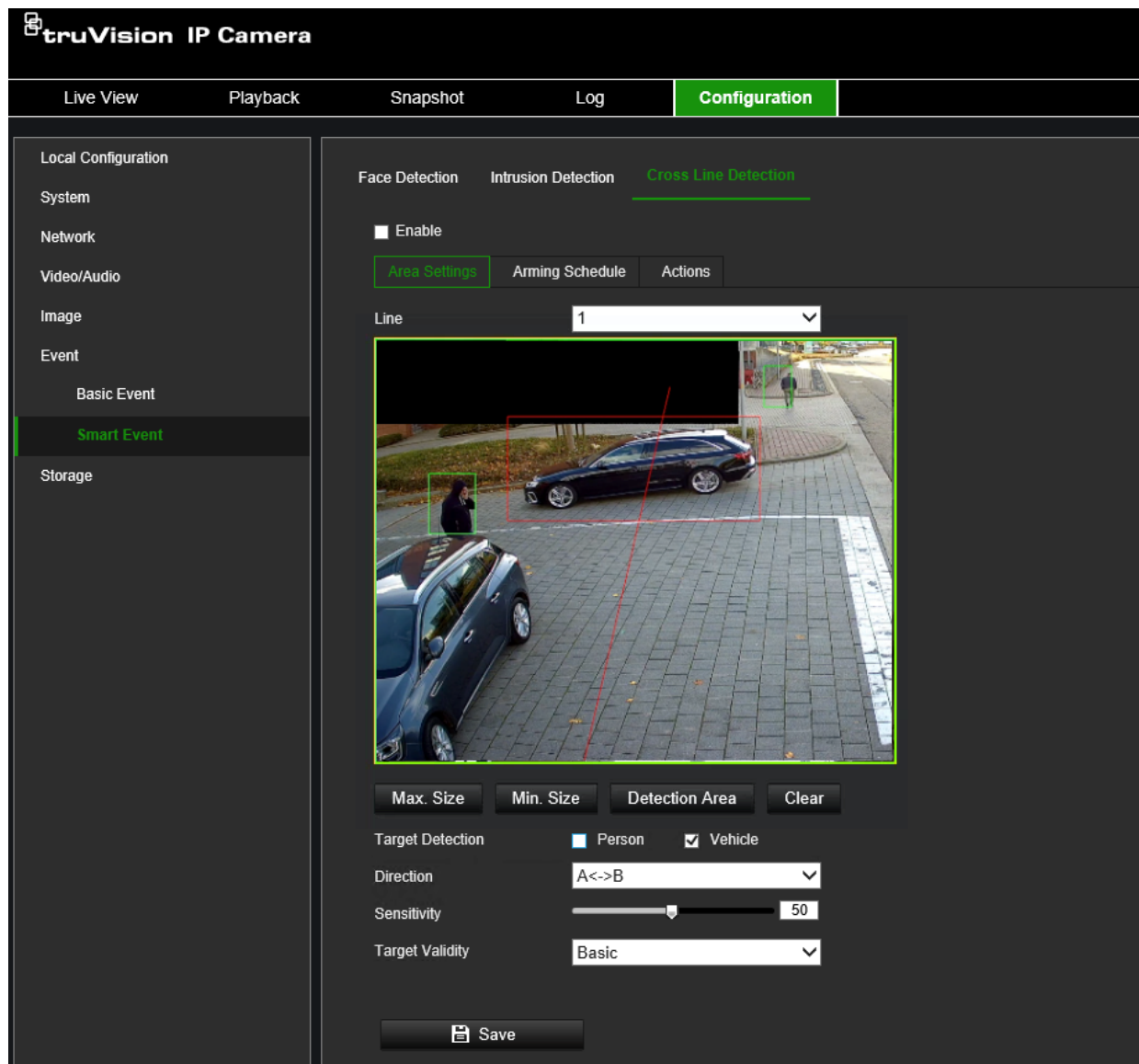
## Cross Line Detection

This function can be used to detect people, vehicles and objects crossing a pre-defined line or an area on-screen. Up to four cross lines are supported. The cross line direction can be set as unidirectional or bidirectional. Unidirectional is crossing the line from left to right or from right to left. Bidirectional is crossing the line from both directions.

A series of actions can be triggered if an object-person is detected crossing the line.

### To set up cross line detection:

1. Click **Configuration > Event > Smart Event > Cross Line**.



2. Select the **Enable** check box to enable the function.
3. If you want to define the minimum and maximum pixel size for objects to be detected, use the **Max. Size** and **Min. Size** buttons to draw the min/max sizes of objects to be triggered.
4. Click **Detection Area** to make a crossing line appear on the image.

Click the line and drag it into the desired position.

Select the direction as A<->B, A ->B, or B->A from the drop-down list (3):

**A<->B:** Arrows will be displayed on both A and B side. When an object crosses the line in any direction, it can be detected and trigger an alarm.

**A->B:** Only an object crossing the line from the A to the B side can be detected and trigger an alarm.

**B->A:** Only an object crossing the line from the B to the A side can be detected and trigger an alarm.

5. Enable options **Person** and/or **Vehicle** to have the camera react only on people and/or vehicles. Using these options will result in less false Cross Line Detection events but it will also exclude for example animals.
6. Set the **Sensitivity** level (4) between 1 and 100. The higher the value is, the more easily the line crossing action can be detected.
7. If you set a higher **Target Validity**, the required target features should be more obvious, and the alarm accuracy would be higher. The target with less obvious person/vehicle features would not trigger an event. Available settings from low to high are Basic, High, Higher, Highest.
8. If desired, select another line crossing area to configure from the **Line** dropdown menu. Up to four cross lines can be configured.
9. Set the arming schedule for the alarm input. See “To set up motion detection” on page 47 for more information.
10. Specify the linkage method when an event occurs. Select one or more response methods for the system when a line cross detection alarm is triggered.

<b>Send Email</b>	<p>Send an email to a specified address when there is a motion detection alarm.</p> <p><b>Note:</b> You must configure email settings before enabling this option. See “To set up the email parameters” on page 29 for further information. If you want to send the event snapshot together with the email, select the <b>Attached Snapshot</b> option.</p>
<b>Notify Alarm Recipient</b>	<p>Send an exception or alarm signal to remote management software when an event occurs.</p>
<b>Upload to FTP/Memory Card/NAS</b>	<p>Capture the image when an alarm is triggered and upload the picture to NAS, Memory Card or FTP server.</p> <p><b>Note:</b> To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 68 for further information.</p> <p>To upload the snapshot to an FTP, you must first configure the FTP settings. See “To define the FTP parameters” on page 28 for further information. Enable the <b>Upload Type</b> option.</p> <p>To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select <b>Enable Event-triggered Snapshot</b> under the snapshot parameters. See “Storage” below for further information.</p>
<b>Trigger Alarm Output</b>	<p>Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output.</p> <p><b>Note:</b> This option is only available for cameras that support alarm output.</p>
<b>Trigger Recording</b>	<p>Triggers the recording to start in the camera.</p>

11. Click **Save** to save changes.

## Storage

Camera streams can be recorded on an optional recording device, NAS or SD card inserted in the camera.

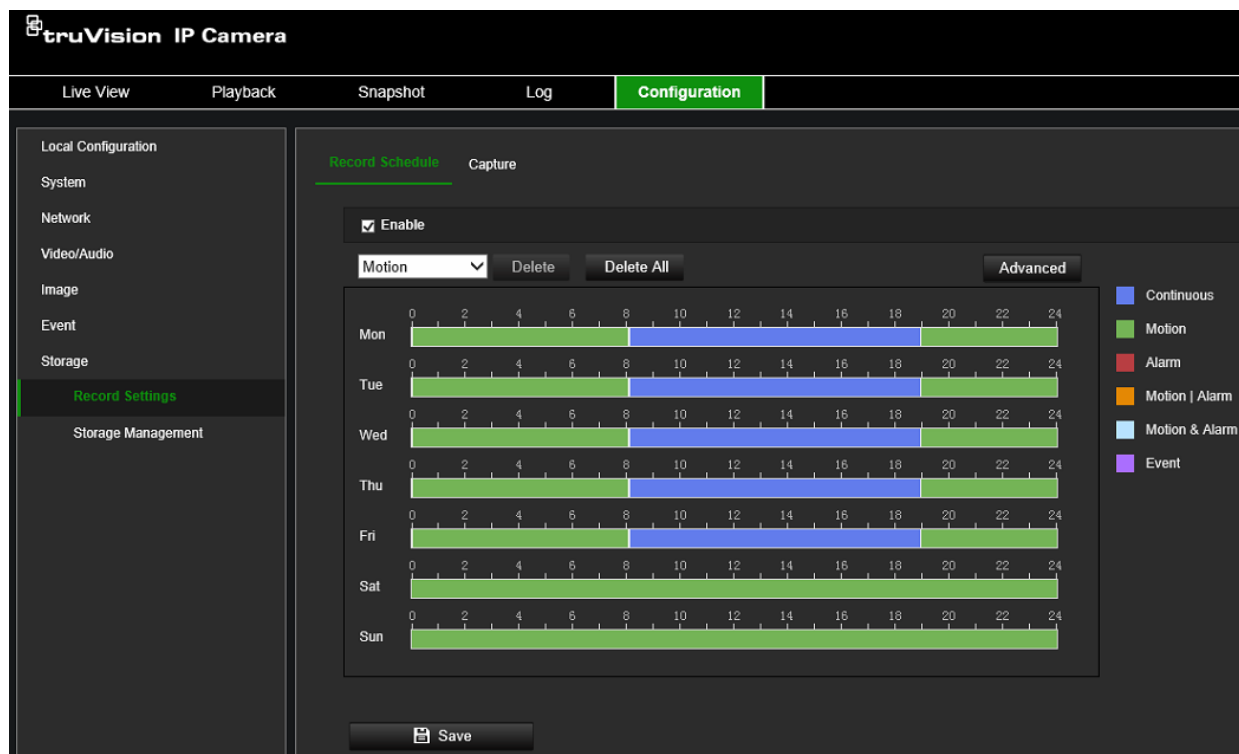
## Record Settings

Configure recording and snapshot parameters in this menu.

You can define a recording schedule for the camera in the “Record Schedule” window (see Figure 9 below). The video recordings are saved onto a SD card inserted in the camera or a NAS. The camera’s SD card can provide a backup in case of network failure. The SD card is not provided with the camera.

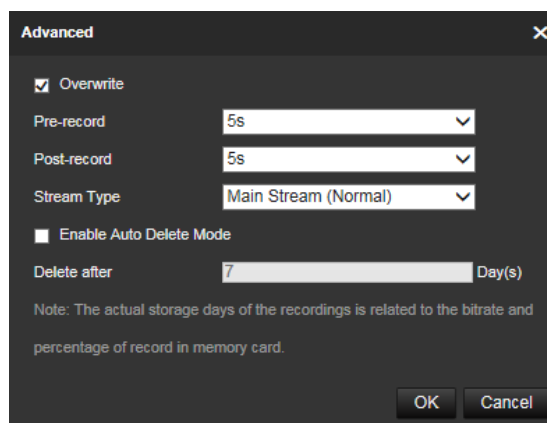
Different recording modes can be defined in the schedule.

Figure 9: Record schedule window



Click the **Advanced** button to open additional recording settings that allow you to set pre-record and post-record times, the stream type, and auto delete mode. When **Auto Delete Mode** is enabled, you can set the number of days after which recordings are automatically deleted.

Figure 10: Record schedule - Advanced window

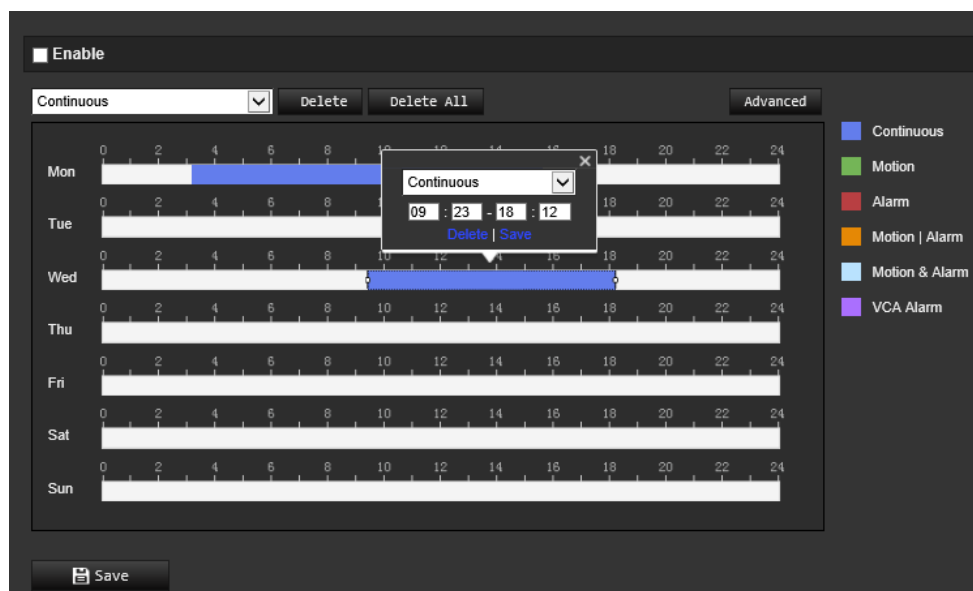


Pre-record time	The pre-record time is set to start recording before the scheduled time or event. For example, if an alarm triggers recording at 10:00, and the pre-record time is set to 5 seconds, the camera starts to record at 9:59:55. The pre-record time can be configured as No Pre-record, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, or Not Limited.
Post-record time	The post-record time is set to stop recording after the scheduled time or the event. For example, if an alarm triggered recording ends at 11:00, and the post-record time is set to 5 seconds, the camera records until 11:00:05. The post-record time can be configured as 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, or 10 min.
Stream type	You can select to record main stream or substream.
Enable Auto Delete Mode	When enabled, recorded video older than the number of days defined by "Delete after" will be automatically deleted, even if the full storage capacity has not been reached.

### To set up a recording schedule:

1. From the menu toolbar, click **Configuration > Storage > Record Settings > Record Schedule**.
2. Select the **Enable** check box to enable recording.  
**Note:** To disable recording, disable the option.
3. Configure the recording schedule.

From the drop-down list, select the desired type of recording. Then drag the mouse along the timeline of a day of the week to mark the period of the recording. Click the recording timeline to get the following pop-up window:



4. Enter the exact start and end times of the recording. If required, you can also change the type of recording.
  - **Continuous:** This is continuous recording.
  - **Motion:** Video is recorded when the motion is detected.

- **Alarm:** Video is recorded when the alarm is triggered via the external alarm input channels. Besides configuring the recording schedule, you must also set the alarm type and enable the *Trigger Channel* check box in the *Linkage Method of Alarm Input Settings* interface. For detailed information, please refer to the section on alarm inputs on page 52.
- **Motion | Alarm:** Video will be recorded when the external alarm is triggered, or the motion is detected. Besides configuring the recording schedule, you must also configure the settings on the *Motion Detection* and *Alarm Input Settings* interfaces. For detailed information, please refer to the section on alarm inputs on page 52.
- **Motion & Alarm:** Video will be recorded when the Motion and Alarm are triggered at the same time. Besides configuring the recording schedule, you must also configure the settings on the *Motion Detection* and *Alarm Input Settings* interfaces. For detailed information, please refer to the section on alarm inputs on page 52.
- **VCA Alarm:** Video will be recorded when a VCA event is triggered. Besides configuring the recording schedule, you must configure the settings of the selected VCA event type: Audio Exception Detection, Defocus Detection, Scene Change Detection, Face Detection, Intrusion Detection, Cross Line Detection, Region Entrance Detection, Region Exit Detection, Unattended Baggage Detection, and Object Removal Detection.

**Note:** Up to eight record types can be selected in a single day.

5. Set the recording periods for the other days of the week if required. Click **OK**.

Click **Copy** to copy the recording periods to another day of the week.

6. Click the **Advanced** button and set the desired pre- and post-record times stream type and auto delete mode. Click **Save to save the changes** and return to the main recording schedule menu.
6. Click **Save** to save changes.

**Note:** If you set the record type to “Motion detection” or “Alarm”, you must define the arming schedule to trigger motion detection or alarm input recording.

### Capture (Scheduled snapshots)

You can configure scheduled snapshots and event-triggered snapshots. The captured snapshots can be stored on the SD card (if installed) or the NAS. You can also upload the snapshots to an FTP server.

You can set up the format, resolution, and quality of the snapshots. The quality can be low, medium, or high.

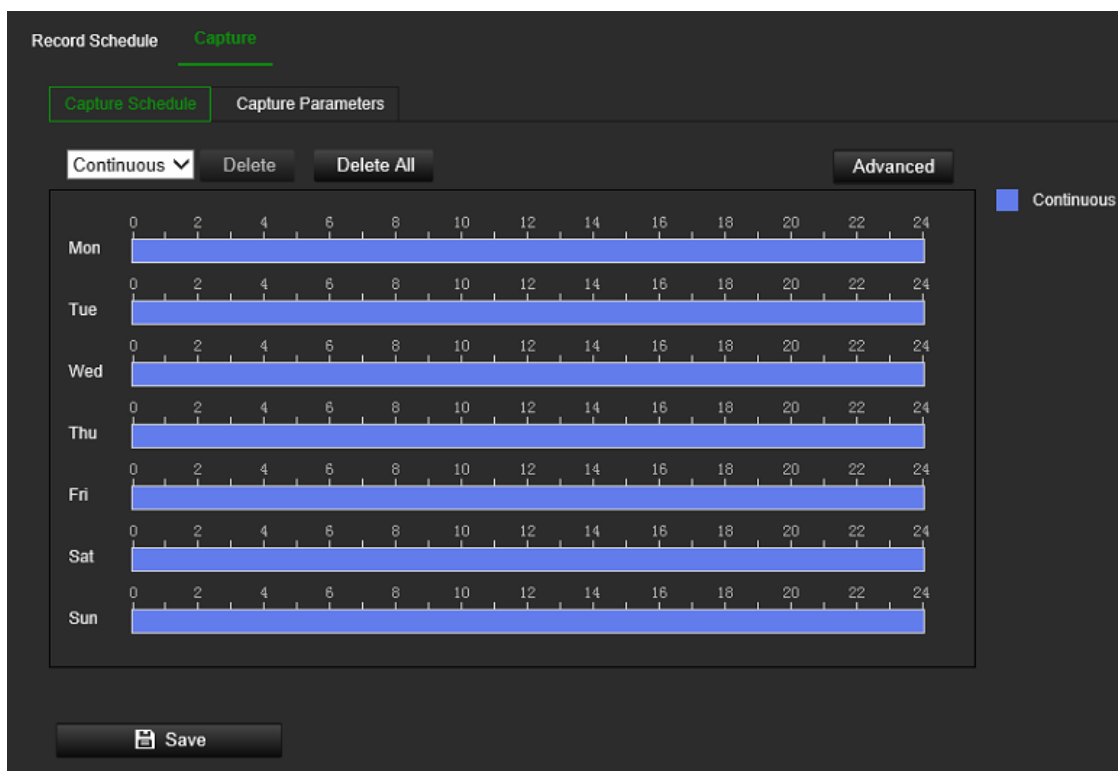
You must enable the option **Enable Timing Snapshot** if you want snapshots to be uploaded with a fixed interval to the FTP server. If you have configured the FTP settings and enabled **Upload Type** in the **Network > Advanced Settings > FTP** tab, the snapshots will not be uploaded to the FTP if the **Enable Timing Snapshot** option is disabled.

You must enable the option **Enable Event-Triggered Snapshot** if you want snapshots to be uploaded to the FTP and NAS when motion detection or an alarm input is triggered. If you have configured the FTP settings and selected **Upload Type** in the **Network > Advanced Settings > FTP** tab for motion detection or an alarm input, the snapshots will not be uploaded to the FTP if this option is disabled.

### To set up continuous and event-triggered snapshots:

1. From the menu toolbar, click **Configuration > Storage > Schedule Settings > Snapshot > Capture Schedule**.

**Note:** *Continuous* is the only recording type available.



2. Click-and-drag the mouse on the timeline bar of the desired days to set the capture schedule.
3. Click **Advanced** to select the stream type.
4. Select the **Capture Parameters** tab to configure the captured snapshot parameters.

Record Schedule **Snapshot**

Capture Schedule **Capture Parameters**

**Timing**

Enable Timing Snapshot

Format: JPEG

Resolution: 3840\*2160

Quality: High

Interval: 1000 milliseconds

**Event-Triggered**

Enable Event-Triggered Snapshot

Format: JPEG

Resolution: 3840\*2160

Quality: High

Interval: 1000 milliseconds

Capture Number: 4

Save

5. In the *Timing* section, select the parameters for continuous snapshots:

- a) Select the **Enable Timing Snapshot** check box.
- b) Select the desired format of the snapshot. Default is JPEG.
- c) Select the desired resolution and quality of the snapshot.
- d) Enter the time interval between two snapshots. Select the unit of time from the drop-down list: milliseconds, seconds, minutes, hour, or day.

In the *Event-Triggered* section, select the parameters for event-triggered snapshots:

- a) Select the **Enable Event-Triggered Snapshot** check box.
- b) Select the desired format of the snapshot. Default is JPEG.
- c) Select the desired resolution and quality of the snapshot.
- d) Enter the time interval between two snapshots. Select the unit of time from the drop-down list: milliseconds, seconds, minutes, hour, or day.

6. Under **Capture Number**, enter the total number of snapshots that can be taken.

7. Click **Save** to save changes.

## Storage Management

SD card and NAS parameters can be managed in the Storage Management menu.

## HDD Management

Use the HDD management window to display the capacity, free space available, and the working status of the HDD of the NAS and the SD card in the camera. You can also format these storage devices.



Before formatting the storage device, stop all recording. Once formatting is completed, reboot the camera as otherwise the device will not function properly.

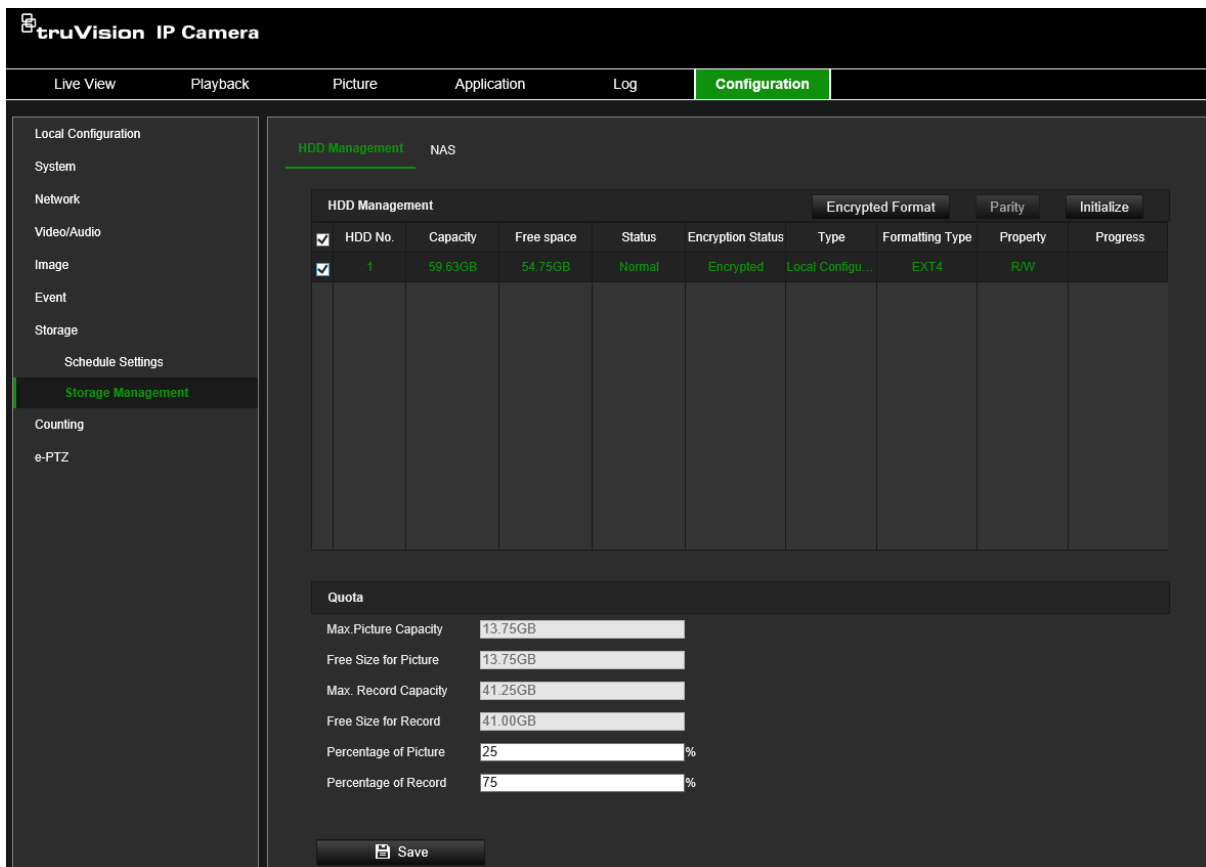
If overwrite is enabled, the oldest files are overwritten when the storage becomes full.

To ensure an efficient use of the storage space available on HDDs, you can control the camera's storage capacity using HDD quota management. This function lets you allocate different storage capacities for main stream/substream recordings and snapshots.

**Note:** If the overwrite function is enabled, the maximum capacity for both recordings and snapshots is set to zero by default.

### To format the storage devices:

1. Click **Configuration > Storage > Storage Management > HDD Management**.



2. Select the **HDD No.** to select the storage.
3. Click the **Encrypted format** button. A window appears for you to select your formatting permission. Some SD cards can support **Encrypted formatting** that provides extra encryption for the data stored on the SD card.
4. Click **OK** and enter the admin password to start the formatting process.
5. Select an HDD and do one of the following steps
  - a) If the disk status is Uninitialized, click **Initialize** to initialize it. When initialization is finished, the status becomes Normal.
  - b) If the disk status is Unencrypted, click **Encrypted Format** to format it. The encryption password is required for this process.

- c) The status of the encrypted memory card is Encrypted or Verification Failed. If the status is *Verification Failed*, click **Parity** and enter a password for verification. If the verification is successful, the status becomes Encrypted.

### To set the quota storage for recordings and snapshots:

1. Click **Configuration > Storage > Storage Management > HDD Management**.
2. Enter the quota percentage for snapshots and for main stream/substream recordings.
3. Click **Save** and refresh the browser page to activate the settings.

### NAS

You can use a network storage system (NAS) to remotely store recordings.

To configure record settings, please ensure that you have the network storage device.

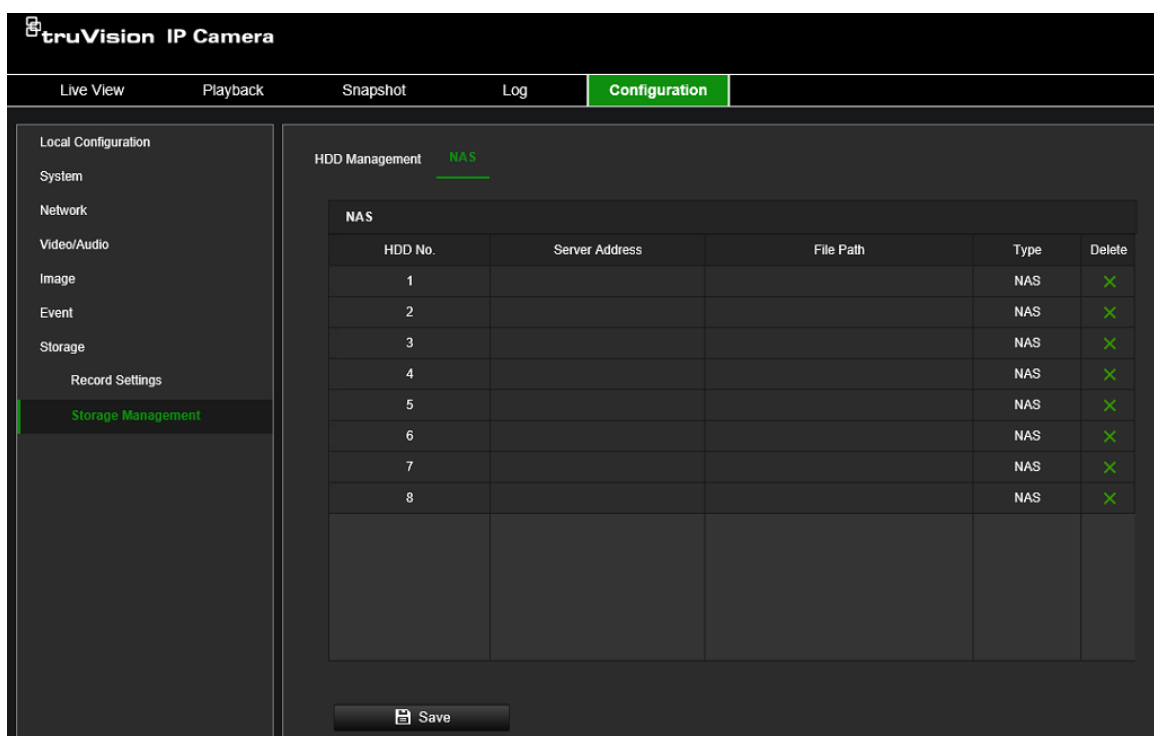
The NAS disk should be available within the network and correctly configured to store the recorded files, log files, etc.

### Notes:

1. Up to eight NAS disks can be connected to the camera.
2. The recommended capacity of NAS should be between 9GB and 2TB as otherwise it may cause formatting failure.

### To set up a NAS system:

1. Click **Configuration > Storage > Storage Management > NAS**.



2. Enter the IP address of the network disk, and the NAS folder path.
3. Click **Save** to save changes.

# Camera operation

This chapter describes how to use the camera once it is installed and configured.

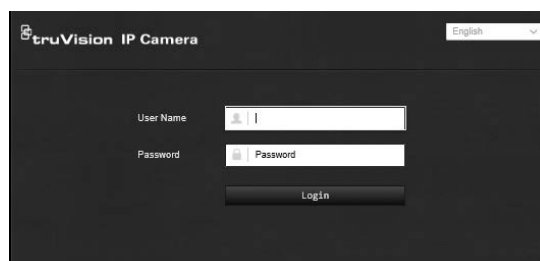
## Login and Logout

You can easily log out of the camera browser window by clicking the Logout button on the menu toolbar. You will be asked each time to enter your user name and password when logging in.

**Note:** When an incorrect user name or password has been entered, a message appears showing how many login attempts remain (“Incorrect user name or password. By default, the device will be locked after 3 failed login attempts.”). From a security perspective, we recommend that you leave this setting to default, but login settings can be changed under **Configuration > System > Security > Security Service**.

You can change the language of the interface from the drop-down menu in the top right corner of the window.

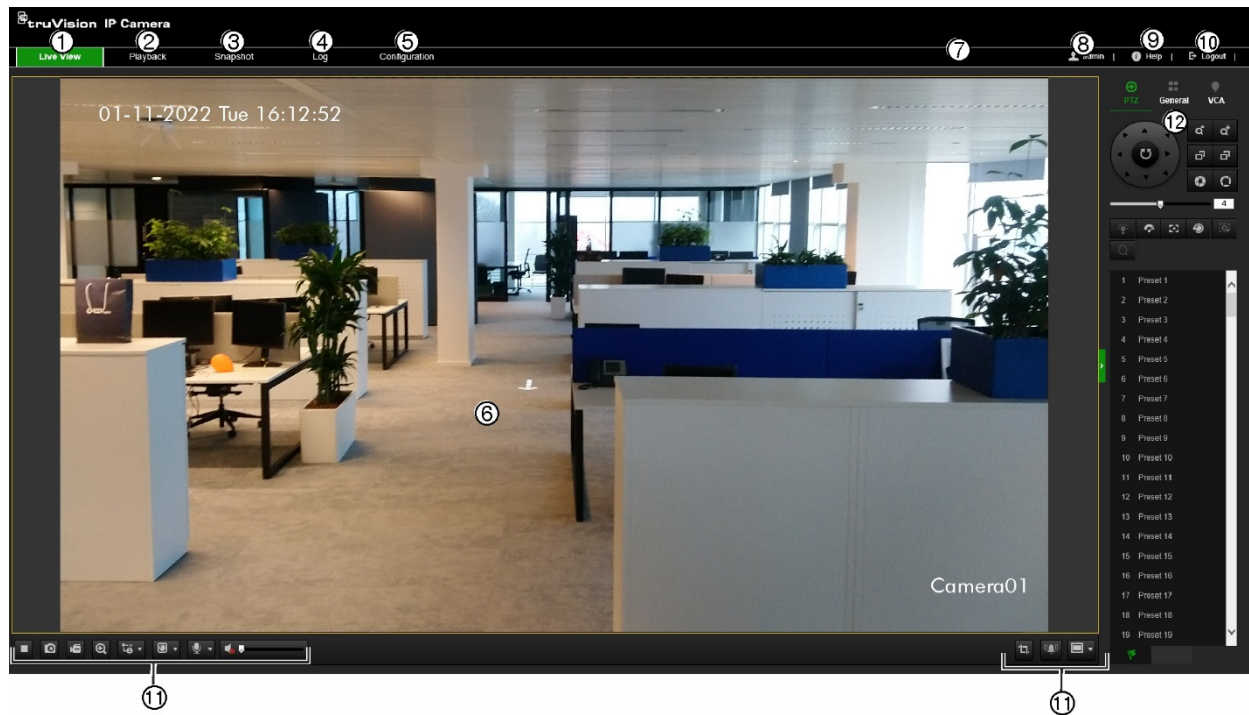
Figure 11: Login dialog box






## Live view mode

Once logged in, click “Live View” on the menu toolbar to access live view mode. See Figure 12 on page 70 for the description of the interface.

Figure 12: Live view window

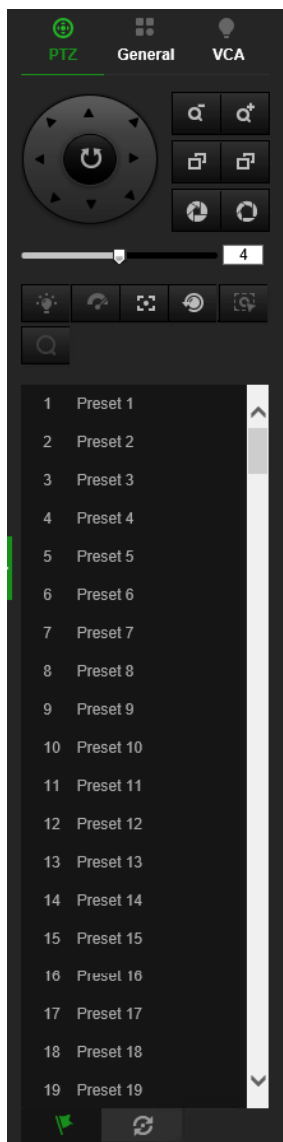


	Name	Description
1.	Live view	Click to view live video.
2.	Playback	Click to play back video.
3.	Snapshot	Click to search snapshots.
4.	Log	Click to search for event logs. There are three main types: Alarm, Exception, and Operation.
5.	Configuration	Click to display the configuration window for setting up the camera.
6.	Viewer	View live video. Time, date, and camera name are displayed here.
7.	Download Plug-in	Click to download and install the web plugin recommended for plugin-free browsers. This button only appears in non-Internet Explorer browsers. PC internet connection is required.
8.	Admin	Displays current user logged on.
9.	Help	Click to find function.
10.	Logout	Click to log out from the system. This can be done at any time.
11.	Live view toolbar	Click to start/stop live view.
		Click to manually capture a snapshot.
		Click to manually start/stop recording. The recording is stored in the directory you have configured.
		Click to start/stop digital zoom function.
		Live view with main stream, substream or third stream (if enabled).
		Click to select the third-party plug-in. Not supported by all browsers.
		Turn on/off microphone.
		Audio on/off and adjust Volume/Mute.

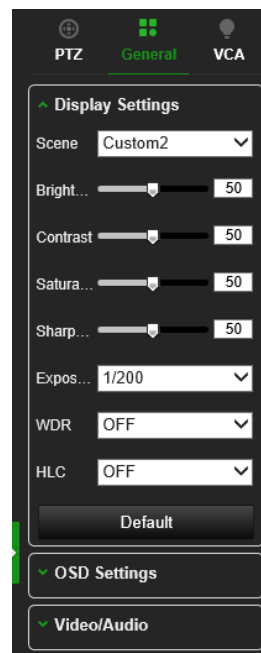
Name	Description
	Click and draw an area on the screen to display the pixel size for the highlighted area.
	Manually activate camera alarm output.
	Aspect ratio. Switch window size between 4:3, 16:9, original window size, or self-adapt window size.

12. **PTZ/General/VCA** Configuration options for PTZ, General, and VCA control panels. These options can be changed from the live view menu. See a description of the control panels below.
- The user will need permission to use the PTZ control panel (see page 20). You can switch between Standard Event (Basic) and Smart Event from the VCA control panel. The camera must be rebooted if you change the event type. You can change more Display and OSD Settings from the Configuration > Image menu.

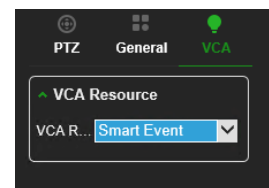
PTZ control panel



General control panel



VCA control panel



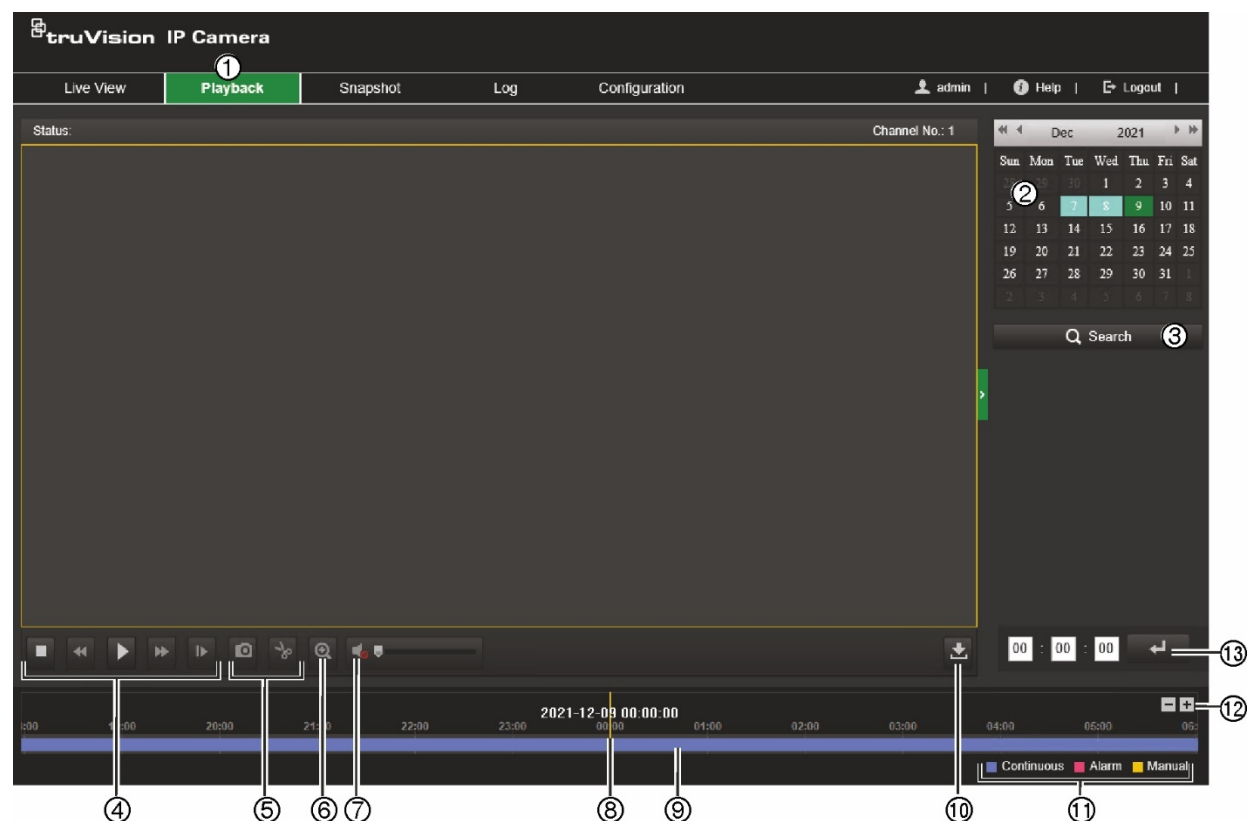
## Play back recorded video



You can easily search and play back recorded video in the playback interface.




**Note:** You must configure NAS or insert an SD card in the camera to be able to use the playback functions.

To search recorded video stored on the camera's storage device for playback, click **Playback** on the menu toolbar. The Playback window appears. See Figure 13 below.

Figure 13: Playback window




Name	Description
1. Playback button	Click to open the Playback window.
2. Search calendar	Click the day required to search.
3. Search	Start search.
4. Control playback	Click to control how the selected file is played back: play, stop, slow and fast forward playback.
5. Archive functions	Click these buttons for the following archive actions:  Capture a snapshot image of the playback video.  Start/stop video clip during playback. Sections of a recording are saved to a local computer folder.
6. Digital zoom	Zoom in and out of the selected camera image.
7. Audio control	Modify the audio level.
8. Timeline	The timeline moves from left (oldest video) to right (newest video). It shows where you are in the playback recording. The current time and date are also displayed.

Name	Description
9. Timeline bar	<p>The timeline bar displays the 24-hour period of the day being played back. It moves left (oldest) to right (newest). The bar is color-coded to display the type of recording.</p> <p>Click a location on the timeline to move the cursor to where you want playback to start. The timeline can also be scrolled to earlier or later periods for play back.</p> <p>Click  to zoom out/in the timeline bar.</p>
10. Download functions	<p> Download video files.</p>
11. Recording type	<p>The color code displays the recording type. Recording types are schedule recording, alarms recording and manual recording.</p> <p>The recording type name is also displayed in the current status window.</p>
12. Zoom in/out	Click to zoom in or out of the timeline bar.
13. Jump start	Enter a precise time in the box and click  to jump start the playback from this selected time.


### To play back recorded video

1. From the menu toolbar, click **Playback**.
2. Select the date and click the **Search** button. The searched video is displayed in the timeline.
3. Click **Play** to start playback. While playing back a video, the timeline bar displays the type and time of the recording. The timeline can be manually scrolled using the mouse.


**Note:** You must have playback permission to play back recorded images. See “Assign permissions to the user” on page 20 to permit playback of recorded video files.

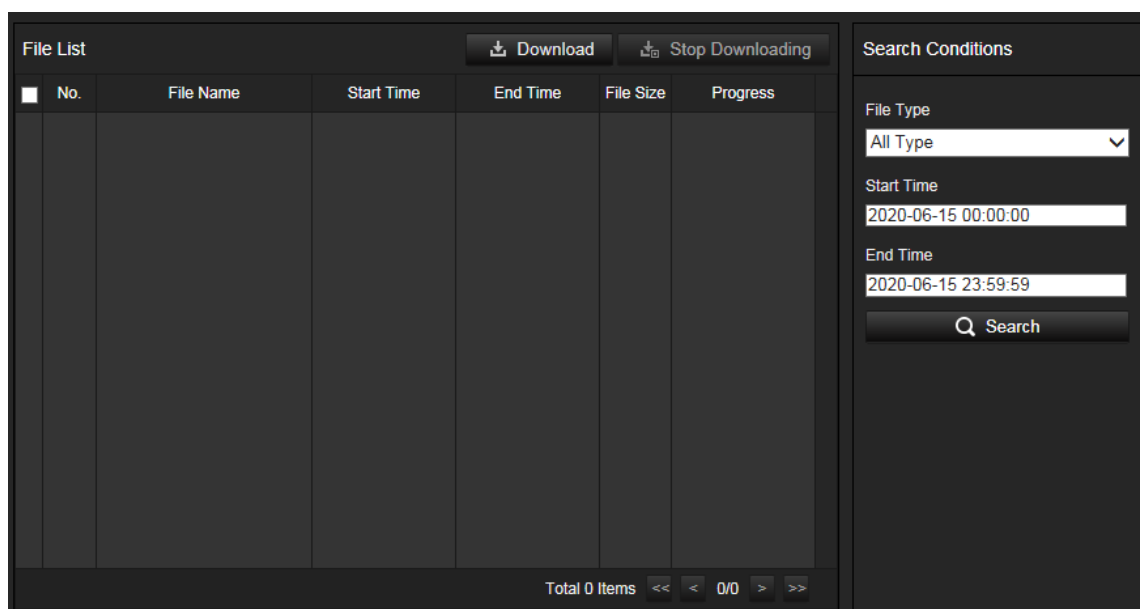
4. Select the date and click the **Search** button to search for the required recorded file.
5. Click **Search** to search the video file.
6. In the pop-up window, select the box of the video file and click  to download the video files.

### To archive a recorded video segment during playback:

1. From the menu toolbar, click **Playback**.
2. While playing back a recorded file, click  to start clipping. Click it again to stop clipping. A video segment is created.
3. Repeat step 2 to create additional segments. The video segments are saved on your computer.

## To archive recorded video files:

1. Click  to open the recorded file search window.



2. Select the file type and set start and end time.
3. Click **Search** to search for the recorded video files.
4. Select the desired video files and click **Download** to download them. Downloading files from a NAS or SD card can take some time. A progress bar will be displayed to indicate the download progress.

## Snapshot

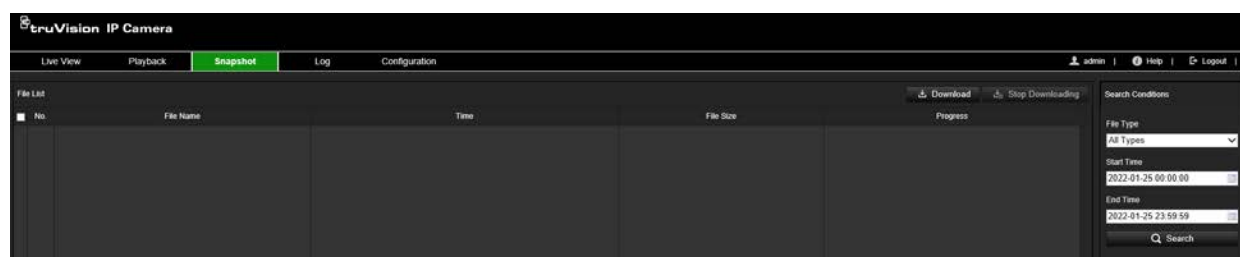
Click **Snapshot** on the menu toolbar to enter the window to search for snapshots. You can search, view, and download the snapshots stored in the NAS or memory card storage.

### Notes:

- Make sure the HDD, NAS or memory card are correctly configured before you process the snapshot search.
- Make sure the capture schedule is configured. Go to **Configuration > Storage > Record Settings > Capture** to set the capture schedule. See “Capture (Scheduled snapshots)” on page 64.

## To search recorded snapshots:

1. From the menu toolbar, click **Snapshot**.





2. From the **File Type** drop-down list, select the file type for which you want to search: All Types, Continuous, Motion, Alarm, Face Detection, Cross Line Detection, and Intrusion Detection.
3. Select the start time and end time.
4. Click **Search** to find the matching files.
5. In the list of snapshots, select the check box of the files you need and click **Download**.

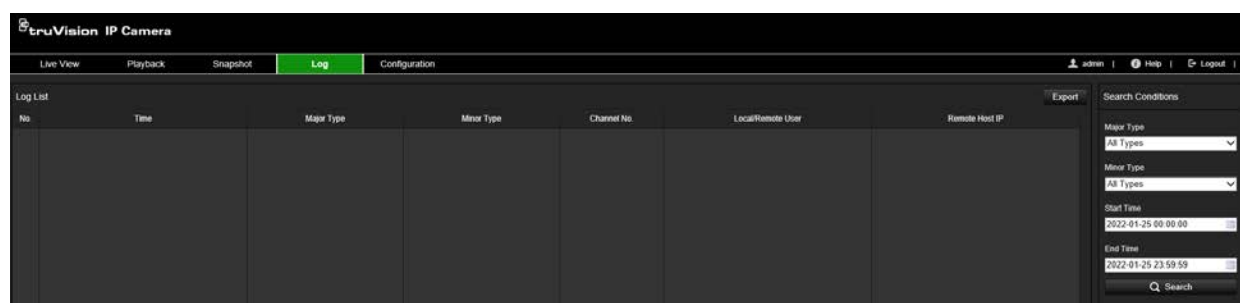
## Log

You must configure NAS or install a SD card in the camera to be able to search for log events from the camera.

The number of event logs that can be stored on NAS or SD card depends on the capacity of the storage devices. When this capacity is reached, the system will start overwriting older logs. To view log events stored on storage devices, click **Log** on the menu toolbar to open the log menu.

**Note:** The user must have viewing log access rights to search and view logs. See “Assign permissions to the user” under “User Management” on page 20 to permit the user to search and view logs.

Figure 14: Log window



You can search for recorded log events by the following criteria:

**Major Type:** There are three types of logs: Alarm, Exception, and Operation. You can also search All. See Table 1 below for their descriptions.

**Minor Type:** Each major type has some minor types which can help to refine your search. See Table 1 below for their descriptions.

**Start Time and End Time:** Set the time window in which you want to search for log events.

Table 1: Types of logs

Log type	Description of events included
Alarm	Start Motion Detection, Stop Motion Detection, Start Tamper-proof, Stop Tamper-proof
Exception	Invalid Login, HDD Full, HDD Error, Network Disconnected and IP Address Conflicted

Log type	Description of events included
Operation	Power On, Unexpected Shutdown, Remote Reboot, Remote Login, Remote Logout, Remote Configure parameters, Remote upgrade, Remote Start Record, Remote Stop Record, Remote PTZ Control, Remote Initialize HDD, Remote Playback by File, Remote Playback by Time, Remote Export Config File, Remote Import Config File, Remote Get Parameters, Remote Get Working Status, Start Bidirectional Audio, Stop Bidirectional Audio, Remote Alarm Arming, Remote Alarm Disarming

**To search logs:**

1. From the menu toolbar, click **Log**.
2. In the **Major Type** and **Minor Type** drop-down list, select the desired options.
3. Set start and end time of the log.
4. Click **Search** to start the search operation. The results appear in the left window.

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