

# TruVision 81 Series IP Camera Configuration Manual

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**Manufacturer** Interlogix  
2955 Red Hill Avenue, Costa Mesa, CA 92626-5923, USA  
Authorized EU manufacturing representative:  
UTC Building & Industrial Systems B.V.  
Kelvinstraat 7, 6003 DH Weert, The Netherlands

**Certification**



**Contact information** For contact information, see [www.interlogix.com](http://www.interlogix.com) or [www.utcssecurityproducts.eu](http://www.utcssecurityproducts.eu).

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# Introduction

This is the user manual for the following TruVision® IP camera models:

## 1080p IP Wi-Fi Desktop IR camera (2 MP):

- RS-3230/3231
- TVQ-8101

## 1080p IP Wi-Fi Bullet IR camera (2 MP):

- RS-3250/3251
- TVB-8101

## Default settings to access the camera

### Default credentials

The camera comes with a user account with administrative rights for configuring all options on the camera. The user name is “admin” and the password is “1234.” For enhanced security, we highly recommend changing the default password during initial setup.

### Default network settings

The network settings are:

- IP address (in a network without a DHCP server): 192.168.1.70
- IP address (when using a temporary Wi-Fi connection for installation): 192.168.2.70
- Subnet mask: 255.255.255.0
- Gateway address: 192.168.1.1

Ports used:

<b>Browser</b>	<b>TruVision Navigator</b>
RTSP: 554	RTSP: 554
HTTP: 80	Server/client control port: 8000

## Temporary Wi-Fi connection for camera installation

See the *Installation Guide* for instructions on using the temporary Wi-Fi connection for setup (recommended method). Please note the following when using the temporary Wi-Fi connection:

- The LED(s) on the camera blink slowly to indicate that the camera is in the default setup mode and requires attention.
- The temporary Wi-Fi connection is disabled and setup is interrupted after connecting an Ethernet cable to the camera. The camera LED(s) stop blinking and the camera SSID is no longer broadcast.

- The temporary Wi-Fi connection becomes available and setup can continue after disconnecting an Ethernet cable from the camera.
- Cameras are identifiable on the Wi-Fi network by their unique SSID address, which is comprised of the camera's model number plus serial number.
- Cameras have WPA2-PSK Wi-Fi security settings enabled by default. The camera's serial number is the unique default wireless password.
- 192.168.2.70 is used for the default camera IP address and 192.168.2.71 is assigned to the client. Only one client and IP address are assigned, so only one user at a time can access the camera in temporary Wi-Fi mode.

# 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 Apple® Safari®. The procedures described use the Microsoft Internet Explorer (IE) web browser.

## Checking web browser security level

When using the web browser interface, ActiveX controls can be installed to connect and view video using Internet Explorer. However, data such as video and images cannot be downloaded due to the increased security measure. Check the security level of the PC to enable interaction with the cameras over the web and, if necessary, modify the Active X settings.

### Configuring IE ActiveX controls

Confirm the ActiveX settings of the 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 be assigned to a website 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 then select **Medium**. Click **Reset**, and then click **OK** in the Internet Options **Security** tab window.

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

### Windows users

Internet Explorer for Windows® operating systems have increased security measures to protect a PC from malicious software.

To ensure complete functionality of the Windows web browser interface, do the following:

- Run IE as an administrator in the workstation
- Add the camera's IP address to the IE'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 click **Internet Options**.
3. Click the **Security** tab, and then select the Trusted sites icon.
4. Click the **Sites** button.
5. Deselect the **Require server verification (https:) for all sites in this zone** check box.
6. Type the IP address in the **Add this website to the zone** box.
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.

## Accessing the camera over the internet

Use the web browser to access and configure the camera over the internet.

We recommend changing the administrator password after setup is complete. Only authorized users should be able to modify camera settings. See "User management" on page 47 for further information.

### To access the camera online:

1. In the web browser enter the camera's IP address (default is 192.168.1.70). Use the *TruVision Device Finder* tool, a feature of the TruVision Device Manager included on the CD, to find the IP address of the camera and assign it a new address on the local network (if necessary).

The Login dialog box appears.

**Note:** Ensure that the Active X controls are enabled.

2. Type the user name and password.

User name: admin

Password: 1234

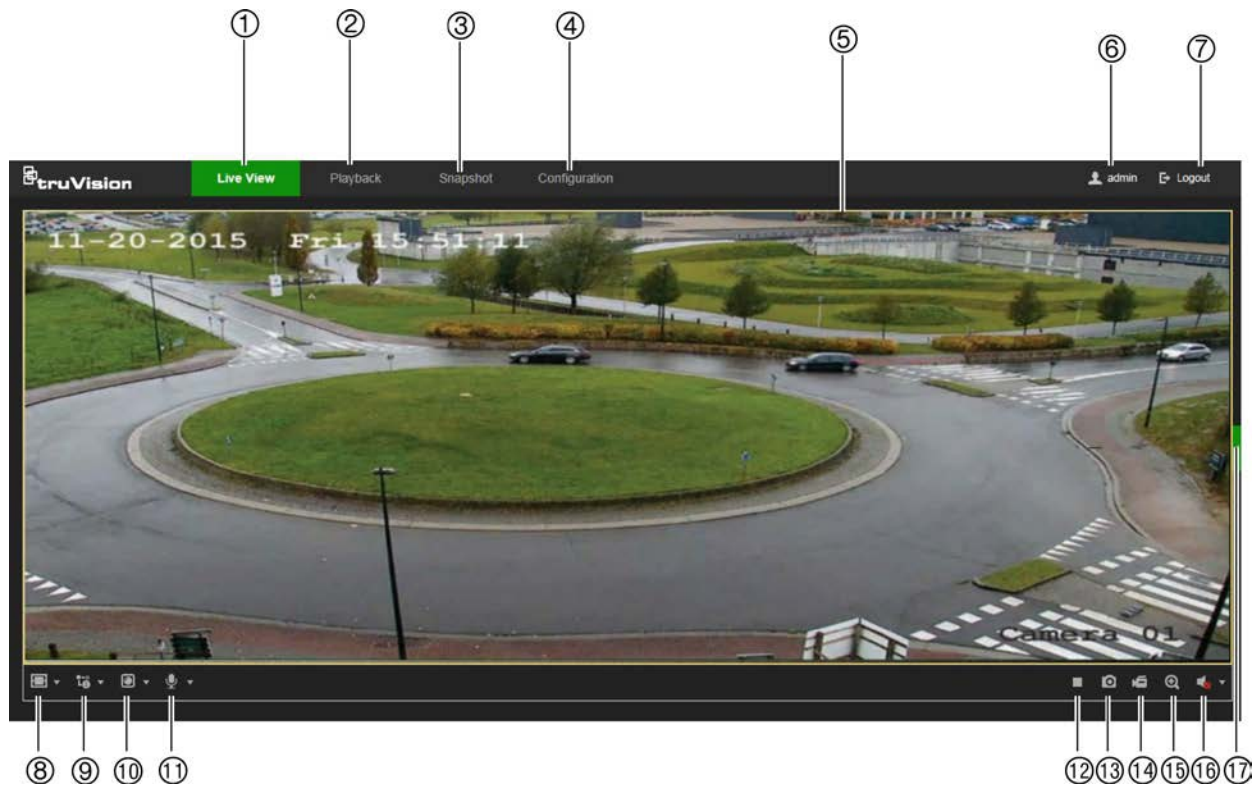
3. Click **Login**.

The web browser window appears in live view mode.

## Overview of the camera web browser

Use the camera web browser to view, record, and play back recorded videos as well as manage the camera from any PC with access to the same network as the camera. The browser's easy-to-use controls provide quick access to all camera functions.

If there is more than one camera connected over the network, open a separate web browser window for each individual camera.



Name	Description
1. Live view tab	Click to view live video.
2. Playback tab	Click to play back video.
3. Snapshot tab	Click to search for snapshots.
4. Configuration tab	Click to display the configuration window for setting up the camera.
5. Viewer	View live video. Time, date, and camera name are displayed here.
6. Current user	Displays current user logged on.
7. Logout	Click to log out from the system. This can be done at any time.
8. Aspect ratio	Click this drop-down list to select an aspect ratio (4:3, 16:9, Original, or Auto) and adjust the layout of the live view.
9. Stream type	Click this drop-down list to select main stream or sub stream.
10. Plug-in switch	Click this drop-down list to select the plug-in. For IE users, web components and QuickTime are selectable. For non-IE users, web components, QuickTime, VLC, or MJPEG are selectable if they are supported by the web browser.
11. Bi-directional audio	Turn the microphone on or off.
12. Start/stop live view	Click to start/stop live view.
13. Snapshot	Click to take a snapshot of the video. The snapshot will be saved to the default folder in JPEG or BMP format.
14. Start/stop recording	Click to record live video.
15. Digital zoom	Click to enable digital zoom.
16. Audio	Adjust the volume.
17. PTZ controls	Direction actions, zoom, focus, iris, light, and wiper control.



# Camera configuration

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

After the camera hardware has been installed, configure the camera's settings using the web browser. Administrator rights are required to configure the cameras over the internet.

The camera web browser permits configuration of the camera remotely using a PC. Web browser options may vary depending on camera model.

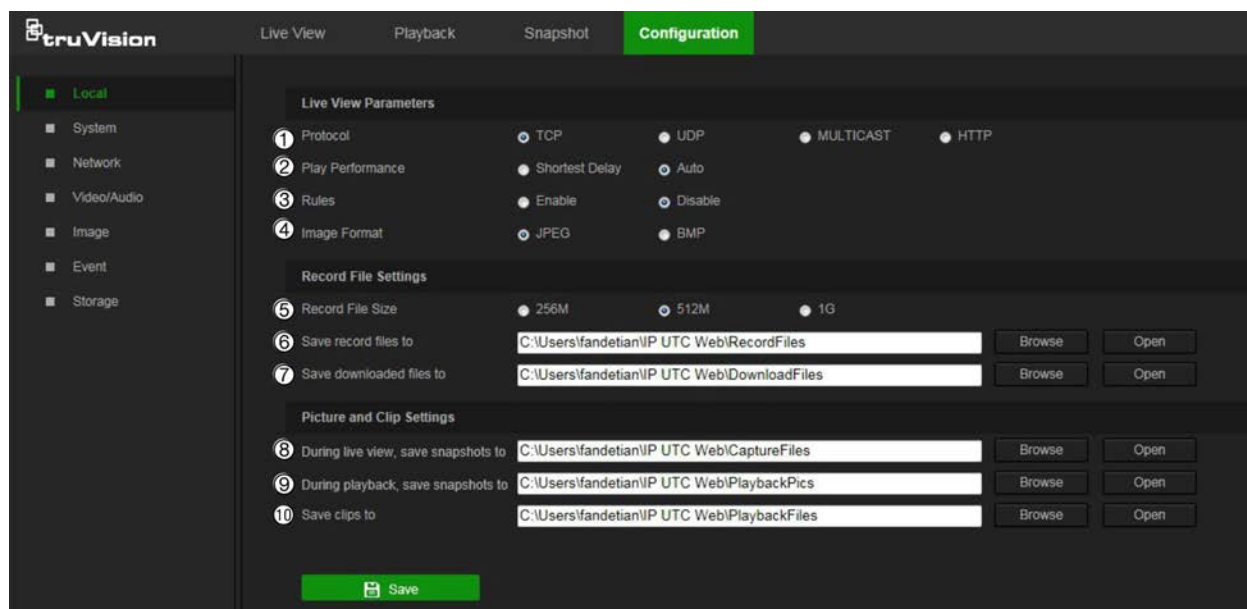
## Configuration panel overview

Use the Configuration panel to configure the server, network, camera settings, alarms, users, transactions, and other parameters such as upgrading the firmware.

This section contains images and descriptions of each of the configuration panel windows.

### Local

Use the Local window to manage the protocol type, live view performance, and local storage paths. In the Configuration panel, click **Local** to display the local configuration window.

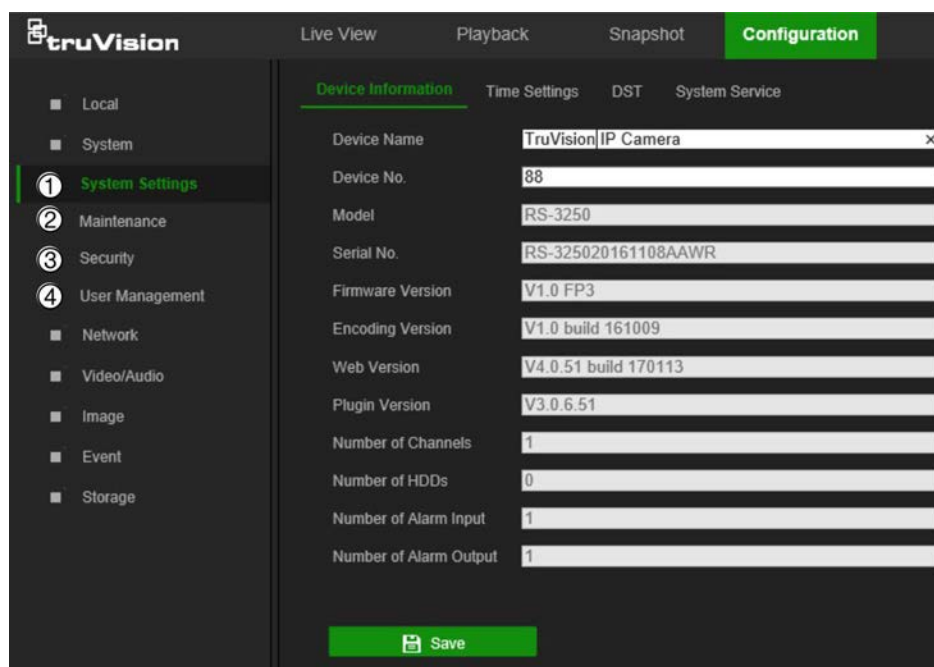


Parameters	Description
<b>Live View Parameters</b>	
1. Protocol	Specifies the network protocol used. Options include: <b>TCP</b> , <b>UDP</b> , <b>MULTICAST</b> , and <b>HTTP</b> .
2. Live View Performance	Specifies the transmission speed. Options include: <b>Shortest Delay</b> or <b>Auto</b> .
3. Rules	Specifies Live View display rules. Select <b>Enable</b> to tag a moving object with green rectangles.

Parameters	Description
4. Image Format	Choose the image format for a snapshot: <b>JPEG</b> or <b>BMP</b> .
<b>Record File Settings</b>	
5. Record File Size	Specifies the maximum file size. Options include: <b>256M</b> , <b>512M</b> , and <b>1G</b> .
6. Save Record Files to	Specifies the directory for recorded files.
7. Save Downloaded Files to	Specifies the directory for downloaded files.
<b>Picture and Clip Settings</b>	
8. During live view, save snapshots to	Specifies the directory for saving snapshots in live view mode.
9. During playback, save snapshots to	Specifies the directory for saving snapshots in playback mode.
10. Save Clips To	Specifies the directory for saving video clips in playback mode.

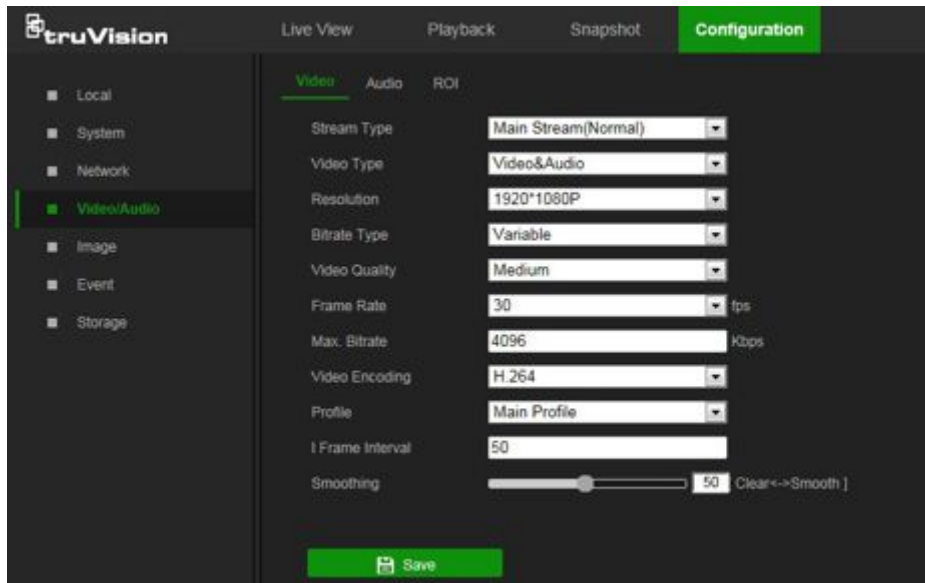
## System

Use the System window to configure basic device information, system time, users, security settings, and other parameters such as upgrading the firmware.



System submenus	Description
1. System settings	Defines device basic information including SN and the current firmware version and time settings (see “System time” on page 9). Also contains camera hardware options (see “System service” on page 13).
2. Maintenance	Perform functions such as device reboot, set to default, export and import configuration files, and firmware upgrade. Also contains an exportable event log list. See “Maintenance” on page 51.
3. Security	Defines who can use the camera, their passwords and access privileges, RTSP authentication, IP address filter, and login lock. See “Security” on page 50.



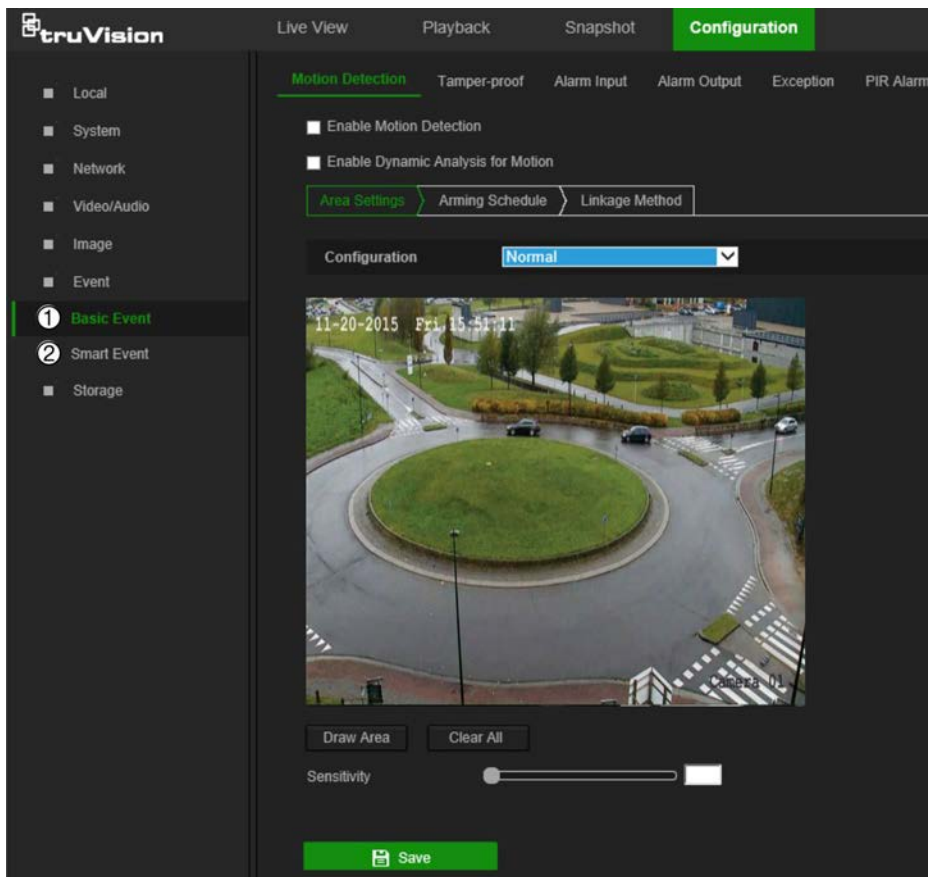


## Image

Use the Image window to define the image display settings, OSD settings, overlay text, and privacy mask. See “Image” on page 24 for further information on setup.

## Event

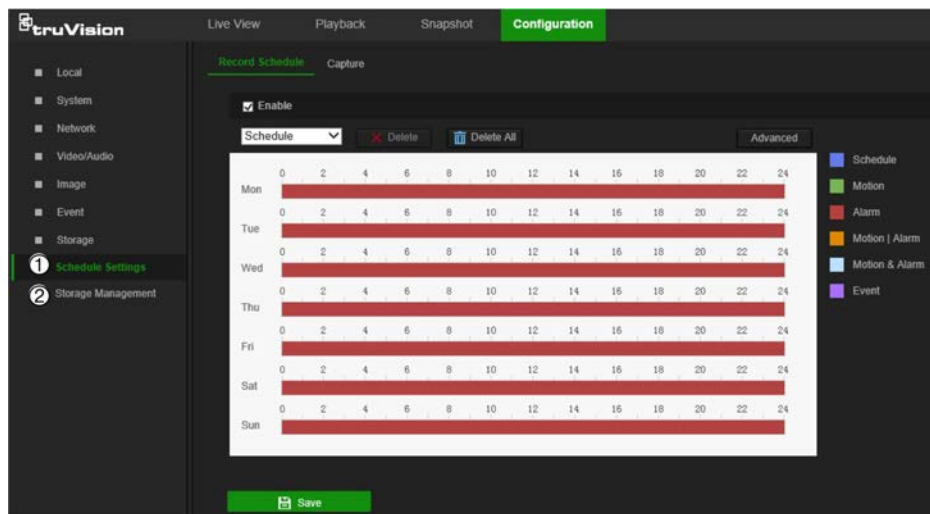
Use the Event window to set up alarms by defining area settings, arming schedules, and linkage methods.



Event submenus	Description
1. Basic event	Defines motion detection, video tampering, alarm input/output, exception, and PIR alarm. See “Motion detection alarms” on page 30, “Tamper-proof alarms” on page 35, “Exception alarms” on page 36, “Alarm inputs and outputs” on page 36, and “PIR alarm” on page 37.
2. Smart event	Defines intrusion and line crossing detection.

## Storage

Use the storage window to define recording schedule, storage management, network attached storage (NAS) configuration, and snapshot configuration.



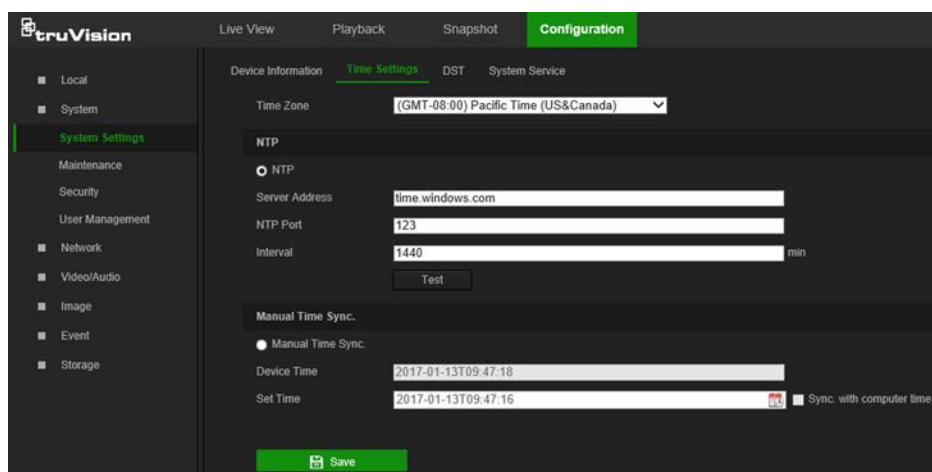
Storage submenus	Description
1. Schedule settings	Configure recording settings and snapshot captures for all available event types on a daily basis.
2. Storage management	Manage hard drive storage space by file type and configure NAS drives.

## System time

Network Time Protocol (NTP) 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**.



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

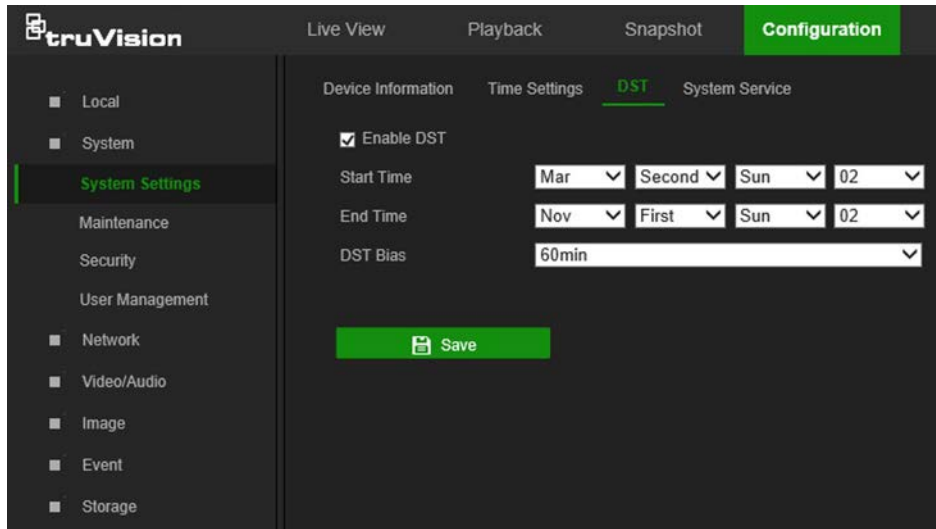
**Synchronize with an NTP server:** Select the **NTP** radio button and type the required information in the **Server Address** and **NTP Port** boxes. The time interval can be set from 1 to 10080 minutes.

—or—

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

**Note:** Select the **Sync with computer time** checkbox to synchronize the time of the camera with the time of the computer.

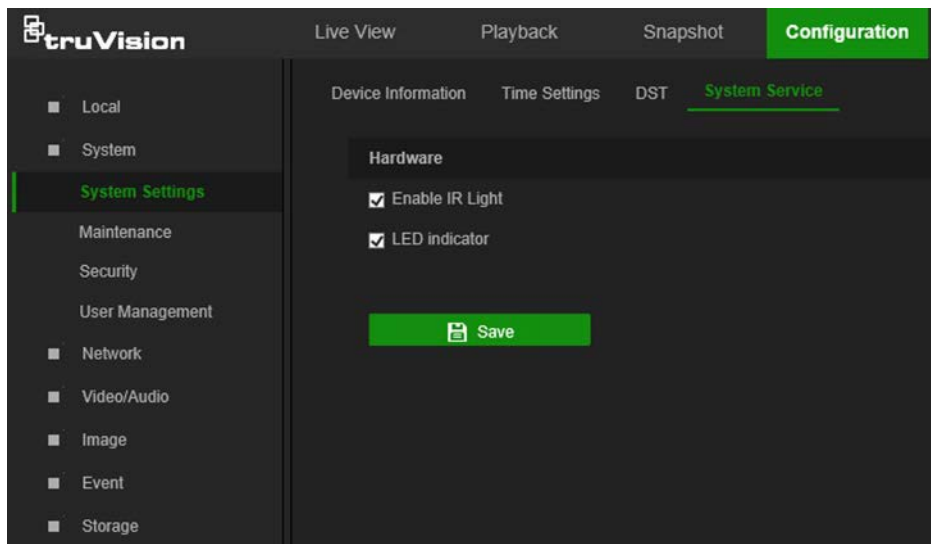
4. Click **Save** to save changes.
5. Click the **DST** tab and then select **Enable DST** to enable the DST (Daylight Savings Time) function, and set the date of the DST period.
6. Set the date and time differential of the DST period using the **Start Time**, **End Time**, and **DST Bias** drop-down lists.



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

## System service

System service hardware settings enable or disable camera LED functions. These LEDs are selected by default.



- Select or deselect **Enable IR Light** to turn the infrared LED indicator on or off.
- Select or deselect **LED indicator** to turn the LED indicator(s) on or off. See the camera installation guide for further information on LED functions.





Select the **PBC Connection** radio button and click **Connect**. The camera and the wireless network router connect automatically.

—or—

**Router PIN mode:** Locate the PIN code printed on a sticker or directly on the router. Select the **Use router PIN code** radio button, type the PIN code in the **Router PIN Code** box, and click **Connect** to connect the camera to the wireless router.

2. Click **Save** to save changes.

## Basic settings

Menu tabs	Description
1. TCP/IP	<p><b>NIC Type:</b> Select the NIC type from the drop-down list. Default is <b>Auto</b>. Other options include <b>10M Half-dup</b>, <b>10M Full-dup</b>, <b>100M Half-dup</b>, and <b>100M Full-dup</b>.</p> <p><b>DHCP:</b> Select <b>DHCP</b> to automatically obtain an IP address and other</p>

Menu tabs	Description
	<p>network settings from that server.</p> <p><b>IPv4 Address:</b> If necessary, type in the IPv4 address of the camera.</p> <p><b>IPv4 Subnet Mask:</b> If necessary, type in the IPv4 subnet mask.</p> <p><b>IPv4 Default Gateway:</b> If necessary, type in the IPv4 gateway IP address.</p> <p><b>IPv6 Mode:</b> Select <b>Manual</b>, <b>DHCP</b>, or <b>Router Advertisement</b> from the drop-down list.</p> <p><b>IPv6 Address:</b> Type in the IPv6 address of the camera.</p> <p><b>IPv6 Subnet Mask:</b> Type in the IPv6 subnet mask.</p> <p><b>IPv6 Default Gateway:</b> Type in the IPv6 gateway IP address.</p> <p><b>Mac Address:</b> If necessary, type in the MAC address of the devices.</p> <p><b>MTU:</b> Type in the valid value range of MTU. Default is 1500.</p> <p><b>Multicast Address:</b> Enter a D-class IP address between 224.0.0.0 to 239.255.255.255. Only specify this option if using the multicast function. Some routers prohibit the use of multicast function in case of a network storm.</p> <p><b>Enable Multicast Discovery:</b> Enables the automatic detection of the online network camera via private multicast protocol in the LAN.</p> <p><b>DNS server:</b> Specifies the DNS server for the network.</p> <p>See page 17 for setup information.</p>
2. DDNS	<p>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. DDNS permits remote connection to the camera's network; however the router serving that network must be configured properly for remote access.</p> <p>Make a selection from the <b>DDNS Type</b> drop-down list (<b>IPServer</b>, <b>DynDNS</b>, <b>ezDDNS</b>, or <b>NO-IP</b>).</p> <p><b>DynDNS</b> (Dynamic DNS): Manually create a host name. A user account must first be created using the DynDNS.org hosting web site.</p> <p><b>ezDDNS:</b> Activate the DDNS auto-detection function to set up a dynamic IP address. The server is set up to assign an available host name to the recorder.</p> <p><b>IPServer:</b> Type in the address, host name, and user name for the IP Server.</p> <p>See page 17 for setup information.</p>
3. Port	<p><b>HTTP Port:</b> The HTTP port is used for remote internet browser access. Enter the port used for the IE browser. Default value is 80.</p> <p><b>RTSP Port:</b> RTSP (Real Time Streaming Protocol) is a network control protocol designed for use in entertainment and communications systems to control streaming media servers. Enter the RTSP port value. The default port number is 554.</p> <p><b>HTTPS Port:</b> HTTPS (Hyper Text Transfer Protocol Secure) allows video to be securely viewed when using a browser. Enter the HTTPS port, value. The default port number is 443.</p> <p><b>Server Port:</b> This is used for remote client software access. Enter the server port value. The default port number is 8000.</p> <p><b>Alarm Host IP:</b> Specifies the IP address of the alarm host.</p> <p><b>Alarm Host Port:</b> Specifies the port of the alarm host.</p> <p>See page 17 for setup information.</p>
4. NAT	<p>A NAT (Network Address Translation) is used for network connection. Select <b>Auto</b> or <b>Manual</b> from the <b>Port Mapping Mode</b> drop-down list. See page 18 for setup information.</p>

### To define the TCP/IP parameters:

1. From the menu toolbar, click **Configuration > Network > Basic Settings > TCP/IP**.
2. Configure the NIC settings, including the **NIC Type**, IPv4 settings, IPv6 settings, **MTU**, and **Multicast Address**.
3. If a DHCP server is available, select the **DHCP** checkbox.
4. If the DNS server settings are required for some applications (e.g., sending email), configure the **Preferred DNS Server** or **Alternate DNS Server**.
5. Click **Save** to save changes.

**Note:** Click the **Wlan** tab to configure the Wlan settings.

### To define the DDNS parameters:

1. From the menu toolbar, click **Configuration > Network > Basic Settings > DDNS**.
2. Select the **Enable DDNS** check box to enable this feature.
3. Select **DDNS Type**:

- **DynDNS:** Enter the DNS server address, members.ddns.org, which is used to notify DDNS about changes to the IP address, the host name for the camera, the port number (443 (HTTPS)), and the user name and password used to log into the DDNS account. The domain name displayed under “Host Name” is the one created on the DynDNS web site.
- **ezDDNS:** Type the required host name in the **Host Name** box. The default host name is the utc-serial number. The default server address is www.tvr-ddns.net, which cannot be changed. Click **Get URL** to register generate a URL that, when copied and pasted into a browser, generates an IP address for the camera for remote access.

**Note:** The camera’s network router must be configured for remote access.

- **IPServer:** Type the address of the IP Server.
  - **NO-IP:** Type www.noip.com into the **Server Address** box and create a domain name.
4. Click **Save** to save changes.

### To define 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.

**HTTP Port:** The default port number is 80, and it can be changed to any port No. which is not occupied.

**RTSP Port:** The default port number is 554. It can be changed to any port number in the range from 1 to 65535.

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

**Server Port:** The default server port number is 8000. It can be changed to any port number in the range from 2000 to 65535.

3. Type the IP address and port 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.

**To set up the NAT parameters:**

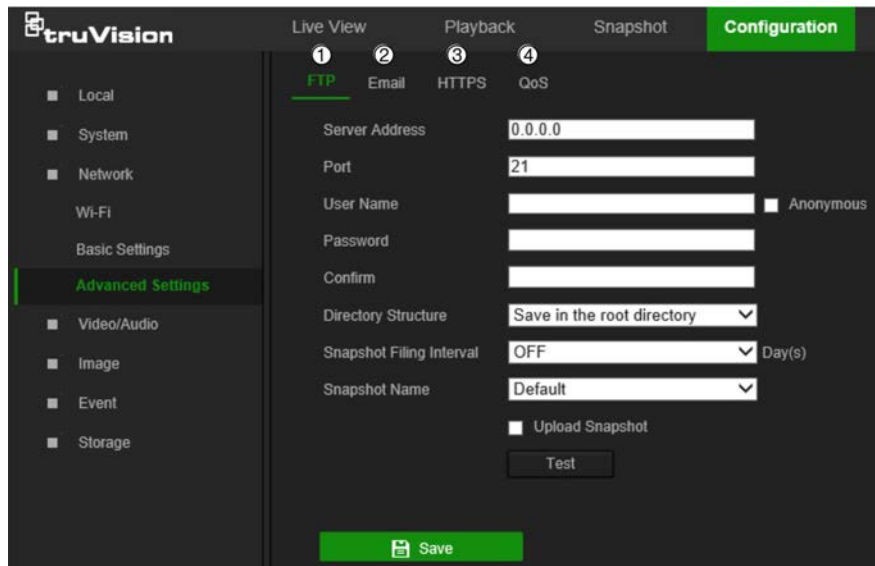
Network Address Translation (NAT) permits automatic communication with a network router.

1. Click **Configuration > Network > Basic Settings > NAT**.
2. Select the **Enable UPnP** check box to enable the NAT function.
3. Select **Auto** or **Manual** from the **Port Mapping Mode** drop-down list. When **Manual** is selected, click on an external port number to change it by typing in a new port number.

**Note:** If a non-default external port number is assigned, the network router settings must be configured accordingly.

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

**Advanced settings**



Menu tabs	Description
1. FTP	Enter the FTP address and folder to which camera snapshots can be uploaded. See page 19 for setup information.
2. Email	Enter the email address to which messages are sent when an alarm occurs. See page 19 for setup information.
3. HTTPS	Specifies authentication of the website and its associated web server, which protects against Man-in-the-middle attacks.
4. QoS	QoS (Quality of Service) can help solve network delay and congestion by configuring the priority of data sending. See page 21 for setup information.

## To define the FTP parameters:

1. From the menu toolbar, click **Configuration > Network > Advanced Settings > FTP**.
2. Configure the FTP settings, including the **Server Address, Port, User Name, Password, Directory Structure**, and upload type.

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

**Directory Structure:** Select the **Save in the root directory, Save in the parent directory**, or **Save in the child directory**. When the parent directory is selected, select **Use Device Name, Use Device Number, Use Device IP**, or **Custom** (type in a directory name) for the name of the parent directory. If **Save in the child directory** is selected, select **Use Camera Name, Use Camera Number**, or **Custom** as the name of the child directory.

**Snapshot Filing Interval:** Select a number of days to specify how many days of snapshots should be stored in a single folder. All snapshots are saved to a single folder in default mode (**OFF**).

**Snapshot Name:** Select **Custom Prefix** to change the default snapshot name prefix. Invalid characters for the custom prefix are as follows: / \ : \* ? ' " < > | %.

**Upload Snapshot:** Select this check box to enable the uploading of snapshots to an FTP server.

**Test:** Click **Test** to test the FTP parameters.

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

## To set up the email parameters:

1. From the menu toolbar, click **Configuration > Network > Advanced Settings > Email**.

The screenshot shows the 'Configuration' tab in the TruVision interface, specifically the 'Email' settings page. The left sidebar shows a navigation menu with 'Advanced Settings' selected. The main content area has tabs for 'FTP', 'Email', 'HTTPS', and 'QoS', with 'Email' being the active tab. The settings are as follows:

- Sender: [Text Field]
- Sender's Address: [Text Field]
- SMTP Server: [Text Field]
- SMTP Port: 25
- Email Encryption: None (dropdown menu)
- Attached Snapshot: [Unchecked]
- Interval: 2 (dropdown menu)
- Authentication: [Unchecked]
- User Name: [Text Field]
- Password: [Text Field]
- Confirm: [Text Field]

Below these settings is a 'Receiver' table:

No.	Receiver	Receiver's Address	Test
1	[Text Field]		Test
2			Test
3			Test

A green 'Save' button is located at the bottom of the configuration area.

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.

**Email Encryption:** Select **None**, **SSL**, or **TLS**. If the **Enable STARTTLS** check box is not selected after selecting SSL or TLS, e-mails are sent after encryption via SSL or TLS. The SMTP port should be set as 465 for this encryption method. After selecting SSL or TLS and then selecting **Enable STARTTLS**, emails are sent after encryption via STARTTLS, and the SMTP port should be set as 25.

**Note:** When using STARTTLS, ensure that the protocol is supported by the email server. If the **Enable STARTTLS** check box is selected when the protocol is not supported by the e-mail server, e-mail will not be encrypted.

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

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

**Authentication:** If the 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.

**Receiver:** Click inside the Receiver table to type in receiver names and email addresses. Row 1 shows the first user to be notified, Row 2 shows the second user to be notified, and so on.

3. Click **Test** to test the email parameters for each receiver.
4. Click **Save** to save changes.

### To set up the HTTPS parameters:

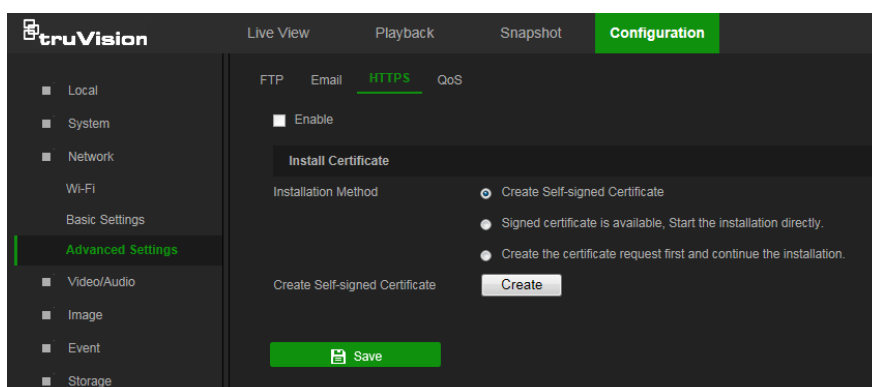
A valid certificate must be installed to use a secure HTTPS connection for accessing the user interface.

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**Caution:** Removing and installing certificates is only recommended for advanced users.

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



2. Deselect **Enable** and click **Save** to remove the default certificate.

3. **To create a self-signed certificate:**

Select the **Create Self-signed Certificate** radio button and then click **Create**. Enter the country, host name/IP, validity, and the other information requested.

—or—

**To create a certificate request:**

Select the **Signed Certificate is available, Start the installation directly** radio button and then click **Create**. Upload the certificate to the device.

—or—

**To create an authorized certificate:**

Select the **Create the certificate request first and continue the installation as** radio button and then click **Create**. Fill in the required information in the popup window. Download the certificate request and submit it to the trusted certificate authority (such as Symantec or RSA) for signature. After receiving the signed valid certificate, upload the certificate to the device.

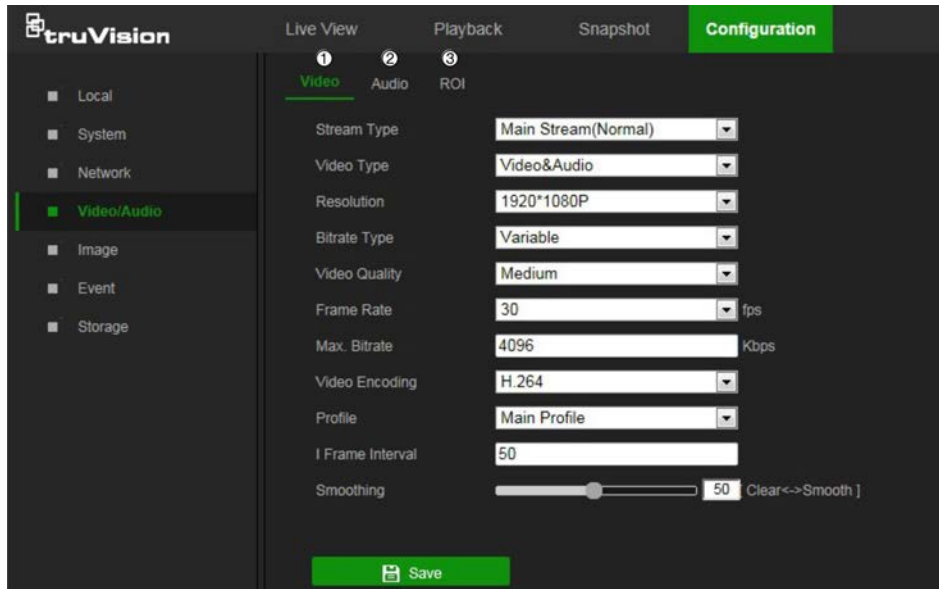
4. Click **OK** to save the settings.

**To define the QoS parameters:**

1. From the menu toolbar, 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 higher the differentiated services code point (DSCP) value, the higher the priority of the service.
3. Click **Save** to save changes.

## Video/Audio

Adjust the video and audio recording parameters to obtain the required picture quality and file size.



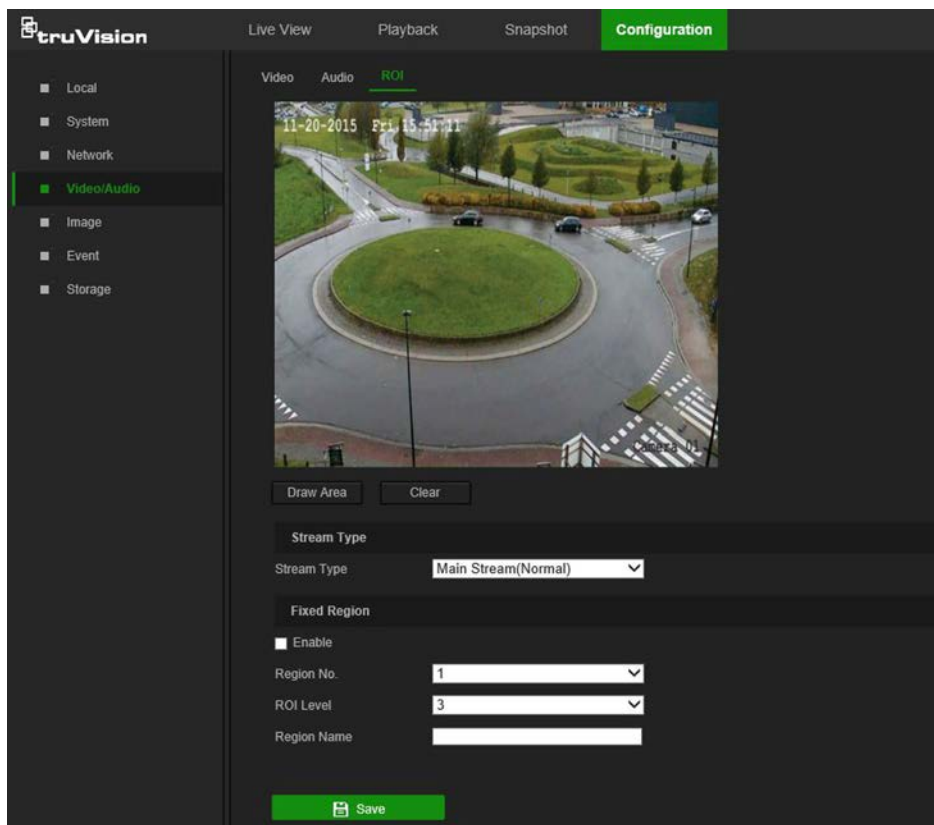
Tab	Parameter descriptions
1. Video	<p><b>Stream Type:</b> Specifies the streaming method used. Options include: <b>Main Stream (Normal)</b>, <b>Sub Stream</b> and <b>Third stream</b>.</p> <hr/> <p><b>Video Type:</b> Specifies the stream type for recording. Select <b>Video Stream</b> to record video stream only. Select <b>Video&amp;Audio</b> to record both video and audio streams.</p> <p><b>Note:</b> <b>Video&amp;Audio</b> is only available for those camera models that support audio.</p> <hr/> <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 if main or sub stream is being used.</p> <p><b>Note:</b> Resolutions can vary depending on the camera model.</p> <hr/> <p><b>Bitrate Type:</b> Specifies whether variable or fixed bit rate is used. Variable produces higher quality results suitable for video downloads and streaming.</p> <hr/> <p><b>Video Quality:</b> Specifies the quality level of the image. It can be set when variable bit rate is selected. Options include: <b>Lowest</b>, <b>Lower</b>, <b>Medium</b>, <b>Higher</b> and <b>Highest</b>.</p> <hr/> <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. Refer to the camera's specifications.</p> <hr/> <p><b>Max Bitrate:</b> Specifies the maximum allowed bit rate. To maintain high quality image resolution, a high bit rate must also be selected.</p> <hr/> <p><b>Video Encoding:</b> Specifies the video encoding used.</p> <hr/> <p><b>Profile:</b> Different profile options indicate different tools and technologies used in compression. Options include: <b>High Profile</b>, <b>Main Profile</b>, and <b>Basic Profile</b>.</p>



Tab	Parameter descriptions
2. Audio (Desktop camera only)	<p><b>I Frame Interval:</b> A video compression method. We strongly recommended not changing the default value of 50.</p> <p><b>Smoothing:</b> Adjust the smoothness of the stream.</p> <p><b>Audio Encoding:</b> G.722.1, G.711ulaw, G.711alaw, MP2L2, G.726, and PCM encoding standards are selectable.</p> <p><b>Sampling Rate:</b> Set the frequency of samples per second. Higher settings result in higher quality audio.</p> <p><b>Audio Stream Bitrate:</b> Bit rate settings from 32-160 kbps are selectable. The higher the bit rate setting, the larger the audio file generated.</p> <p><b>Audio Input:</b> MicIn is selectable for the connected microphone.</p> <p><b>Input Volume:</b> Specifies the volume from 0 to 100.</p> <p><b>Environmental Noise Filter:</b> Set as OFF or ON to filter environmental noise.</p>
3. ROI	<p>Define a region of interest (ROI) within the camera view. Assigns more encoding resources to an ROI (background information is less focused when network performance is less than optimal).</p>

### To configure ROI settings:

1. From the menu toolbar, click **Configuration > Video/Audio > ROI**.



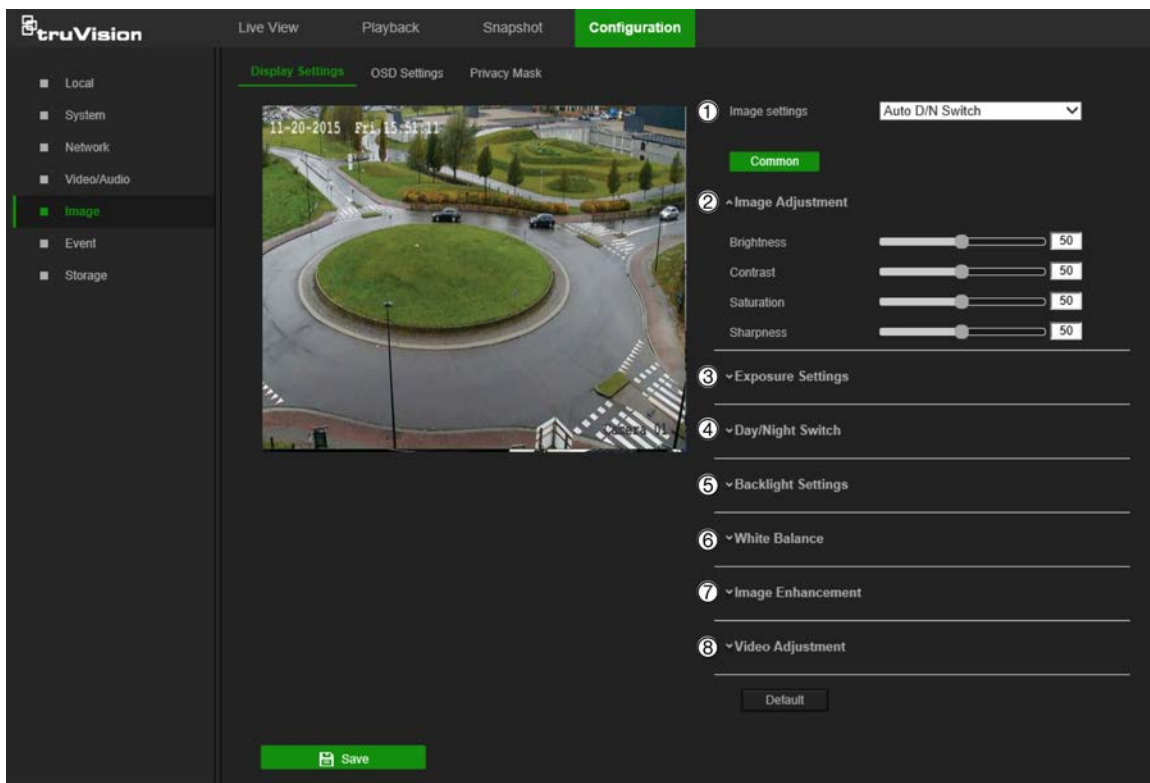
2. Click **Draw Area** to draw the region of interest on the image. One region can be drawn.

3. Select the stream type from the **Stream Type** drop-down list to set the ROI encoding.
4. Select **Enable** under **Fixed Region** to manually configure the area.  
**Region No.:** Select the region.  
**ROI Level:** Choose the image quality enhancing level.  
**Region Name:** Type the required region name.
5. Click **Save** to save changes.

## Image

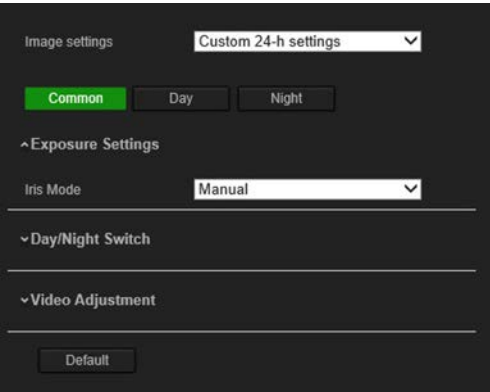
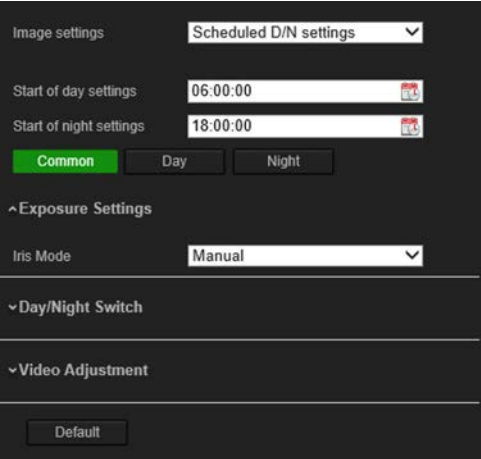
The camera image may need to be adjusted to obtain the best image quality depending on the camera model or location background. Adjust the brightness, contrast, saturation, hue, and sharpness of the video image using the Image menu.

Use this menu to also adjust camera behavior parameters such as exposure time, iris mode, video standard, day/night mode, image flip, WDR, digital noise reduction, white balance, and indoor/outdoor mode.



Parameter	Description
<b>1. Image Settings</b>	
Auto D/N Switch	The camera automatically switches between day and night modes. All image settings remain the same for both modes.

Parameter	Description
Scheduled D/N Settings	<p>The camera switches between day and night modes according to the configured schedule. The start and end times shown are for day mode. The other time period is for night mode.</p> <p>There are three tabs to configure the day/night settings:</p> <p><i>Common:</i> The settings are identical for both day and night modes for Exposure Settings (Iris Mode), Day/Night Switch, and Video Adjustment.</p> <p><i>Day:</i> Configure Image Adjustment, Exposure Settings, Backlight Settings, White Balance, and Image Enhancement settings for day mode only.</p> <p><i>Night:</i> Configure Image Adjustment, Exposure Settings, Backlight Settings, White Balance, and Image Enhancement settings for night mode only.</p>
Custom 24h Settings	<p>This is used when the camera is in an outdoor situation where the day and night is defined by the amount of daylight or a trigger via an alarm input. Consequently, no schedule is required for the D/N switch.</p> <p>The camera has specific image settings for day and night situations. There are three tabs to configure the day/night settings:</p> <p><i>Common:</i> Both day and night settings are identical for Exposure Settings (Iris Mode), Day/Night Switch, and Video Adjustment.</p> <p><i>Day:</i> Configure the Exposure Settings (Exposure Time and Gain), Backlight Settings, White Balance, and Image Enhancement settings for day mode only.</p> <p><i>Night:</i> Configure Image Adjustment (Brightness, Contrast, and Sharpness), Exposure Settings (Exposure Time and Gain), Backlight, White Balance, and Image Enhancement settings for night mode only.</p>



Parameter	Description
<b>2. Image Adjustment</b>	
Brightness, Contrast, Saturation, Hue, Sharpness	Modify the different elements of picture quality by adjusting the values for each parameter.
<b>3. Exposure Settings</b>	
Iris Mode	There are two settings, Auto and Manual. The type of lens determines which setting is used.
Exposure Time	The exposure time controls the length of time that the aperture is open to let light into the camera through the lens. Select a higher value if the image is dark and a lower value to see fast moving objects.
Gain	Select the value to adjust the image brightness.
<b>4. Day/Night Switch</b>	
Day/Night Switch	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. Options: <b>Day:</b> Camera is always in day mode. <b>Night:</b> Camera is always in night mode. <b>Auto:</b> The camera automatically detects which mode to use. <b>Schedule:</b> The camera switches between the day mode and the night mode according to the configured time period. <b>Triggered by Alarm Input:</b> The camera switches to the day mode or the night mode after the alarm is triggered.
Sensitivity	Only available when Auto D/N switch mode is selected. It defines the sensitivity of the switch between day and night. Sensitivity can be set anywhere from 0 to 7.
Delay Time	Only available when Auto D/N switch mode is selected. The delay time refers to the interval time between the day/night switchover. It can be set from 5 to 120 seconds.
Smart IR	When enabled ( <b>ON</b> ), this setting can help to avoid over-exposure of an image due to IR LED glare.
Mode	The <b>Mode</b> drop-down list appears when the smart supplement light is enabled. Auto: The camera adjusts the IR LED automatically to avoid over-exposure. Manual: Enables the <b>Distance</b> slider so that IR distance controlling can be increased or decreased.
Distance	Move the slider to increase or decrease the IR transmission distance.
Enable IR Light	Select <b>ON</b> or <b>OFF</b> to enable/disable IR. <b>Enable:</b> The IR illuminators are <b>ON</b> when the camera turns into night mode. <b>Disable:</b> The IR illuminators are <b>OFF</b> when the camera turns into night mode. <b>Note:</b> The IR illuminators always are <b>OFF</b> in day mode.

Parameter	Description
LED indicator	<p>Select <b>ON</b> or <b>OFF</b> to enable/disable LEDs. See the <i>Installation Guide</i> for a description of LED functions.</p> <p><b>Enable:</b> The LEDs will be <b>ON</b> when the camera is in the mode selected (Common, Day, or Night).</p> <p><b>Disable:</b> The LEDs will be <b>OFF</b> when the camera is in the mode selected (Common, Day, or Night).</p> <p><b>Note:</b> The LEDs always are <b>ON</b> if the camera is connected to the network with an Ethernet cable.</p>
<b>5. Backlight Settings</b>	
BLC Area	<p>If the camera is focused on an object against strong backlight, the object will be too dark to be seen clearly. BLC compensates for the background light so that the image in the foreground is clear. <b>OFF</b>, <b>Up</b>, <b>Down</b>, <b>Left</b>, <b>Right</b>, and <b>Center</b> are selectable. When WDR is enabled, BLC cannot be configured.</p>
WDR	<p>When enabled, this feature (wide dynamic range) shows details of objects in shadows or details of objects in bright areas of frames that have high contrast between light and dark areas.</p>
<b>6. White Balance</b>	
White Balance	<p>White balance (WB) sets the relative parameters for the color white in the camera. Based on this information, the camera continues to display all colors correctly even when the color temperature of the scene changes such as from daylight to fluorescent lighting.</p> <p>Select one of the options:</p> <p><b>AWB1:</b> Apply for small range of 2500 to 9500 K, 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>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> <p><b>Fluorescent Lamp:</b> For use where there are fluorescent lamps installed near the camera.</p>
<b>7. Image Enhancement</b>	
Digital Noise Reduction	<p>Digital noise reduction (DNR) reduces noise, especially in low light conditions, to improve image performance.</p> <p>Options include: <b>Normal</b> mode, <b>Advanced</b> mode, or <b>OFF</b>.</p>
Noise Reduction Level	<p>Only available when DNR is set to Normal Mode. Set the level of noise reduction to a higher value for stronger noise reduction.</p>
Time/Space DNR Level	<p>Set the level of noise reduction level in <b>Advanced</b> mode.</p> <p><b>Note:</b> Setting high values may result in an unclear image.</p>
<b>8. Video Adjustment</b>	
Mirror	<p>Inverts the image. Options are <b>Left/Right</b>, <b>Up/Down</b>, <b>Center</b>, and <b>OFF</b>.</p>

Parameter	Description
Hallway View	To invert the 16:9 aspect ratio, enable the rotate function. This function is best used when installing the camera in a scene with a narrow angle of view.  During installation, turn the camera to 90 degrees or rotate the 3-axis lens to 90 degrees, and then set the rotate mode as <b>ON</b> . A normal view of the scene with 9:16 aspect ratio that ignores needless information such as the walls appears.
Video Standard	<b>PAL(50Hz)</b> and <b>NTSC(60Hz)</b> are selectable. Choose according to the video standard required.
Capture Mode	Set the required frame rate to meet the different demands of field of view and resolution. A higher frame rate may be needed in a location with a lot of movement (such as a money depot).

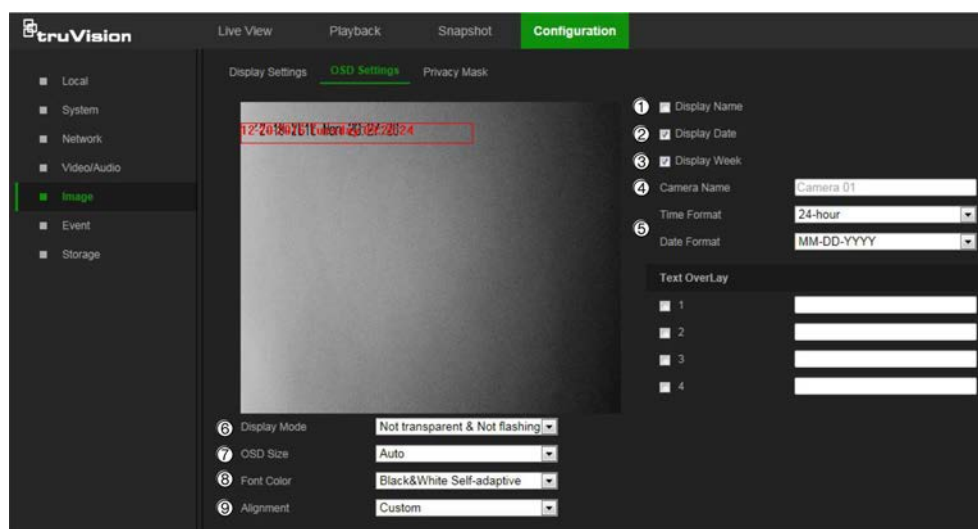
**Note:** Click the **Default** button to return all the image settings to default values.

## OSD (On Screen Display) Settings

In addition to the camera name, the camera also displays the system date and time on the screen. How the text appears on screen can also be defined.

**To position the on-screen date/time and name:**

1. From the menu toolbar, click **Configuration > Image > OSD Settings**.



2. Select the **Display Name** check box (1) to display the on-screen camera name.
3. Select the **Display Date** check box (2) to display the date/time on screen.
4. Select the **Display Week** check box (3) to include the day of the week in the on-screen display.
5. In the **Camera Name** box (4), type the camera name.
6. Select the time and date formats from the **Time format** and **Date format** drop-down lists (5).
7. Select a display mode for the camera from the **Display Mode** drop-down list (6). 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 the default setting.
  - **Not transparent & Flashing.** The image is behind the text. The text flashes on and off.
8. Select the OSD size (7). Pixel display options include **Auto**, **16\*16**, **32\*32**, **48\*48**, and **64\*64**.
  9. Select the OSD font color (8). Options include **Black&White Self-adaptive** and **Custom**. Use the color picker to assign a font color after selecting **Custom**.
  10. Select the alignment (9). Options include **Align Right**, **Align Left**, and **Custom**.
  11. Click **Save** to save changes.

**Note:** When the display mode is set as transparent, the text varies according the background. With some backgrounds, the text may not be easy to read.

### Text overlay

Add up to four lines of on-screen text in the Text Overlay section. This option can be used to display emergency contact details and/or other information. Each text line can be positioned anywhere on the screen.

#### To add on-screen text:

1. From the menu toolbar, click **Configuration > Image**.
2. In the Text Overlay section, select check box 1.
3. Type the text in the text box.
4. Use the mouse to click and drag the red text in the live view window to adjust the text overlay position.
5. Repeat steps 2 to 4 for each extra line of text, selecting the next string number.

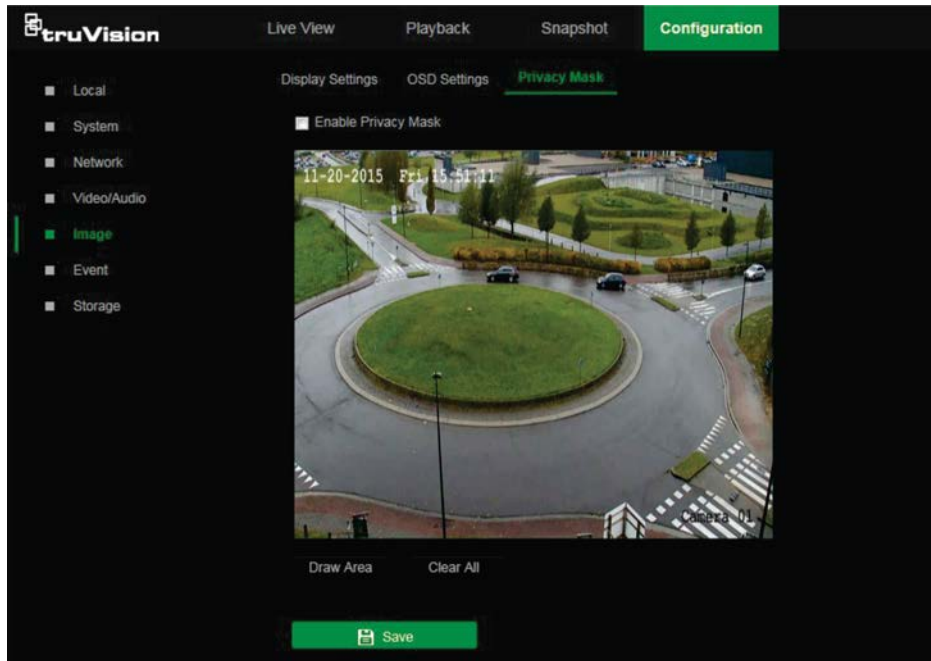
**Note:** Remove overlay text by deselecting its corresponding check box.

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

### Privacy mask

Privacy masks allow concealment of 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. Up to four privacy masks can be created per camera.

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



### To add a privacy mask area:

1. From the menu toolbar, click **Configuration > Image > Privacy Mask**.
2. Select the **Enable Privacy Mask** check box.
3. Click **Draw Area**.
4. Click and drag the mouse in the live video window to draw the mask area.
5. Click **Stop Drawing** to finish drawing, or click **Clear All** to clear all of the areas set without saving them.
6. Click **Save** to save changes.

## Basic event

### Motion detection alarms

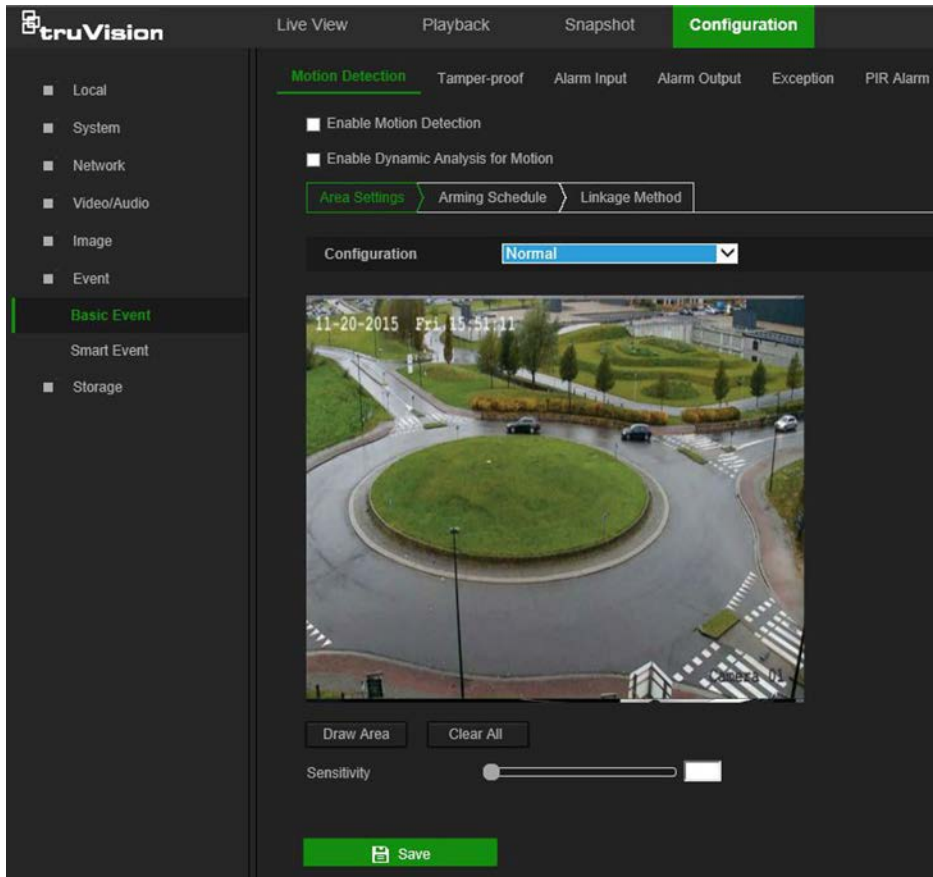
A motion detection alarm refers to an alarm triggered when the camera detects motion. The motion alarm is only triggered if it occurs during a programmed time schedule.

Select the level of sensitivity to motion as well as the target size so that only objects that could be of interest trigger a motion recording. For example, the motion recording is triggered by the movement of a person but not that of a cat.

Define the area on-screen where the motion is detected, the level of sensitivity to motion, the schedule when the camera is sensitive to detecting motion, as well as which methods are used to produce a motion detection alarm.

Dynamic analysis for motion can also be enabled. When there is motion, the motion area is indicated by green rectangles.





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

1. **Area settings:** Define the on-screen area that can trigger a motion detection alarm and the detection sensitivity level.
2. **Arming schedule:** Define the schedule during which the system detects motion.
3. **Linkage:** Specify the method of response to the alarm (see below). **Trigger Recording** must be selected to launch recordings to be stored on the SD card or in NAS.
4. **Normal and advanced configuration:** Normal configuration permits setting the sensitivity level of the motion detection. Advanced configuration provides more control over how motion is detected. It permits setting the sensitivity level as well as the percentage of the motion detection area that the object must occupy, selecting day or night mode, and setting up eight differently configured defined areas.
5. **Recording schedule:** Define the schedule during which motion detection can be recorded. See “Recording schedule” on page 41 for further information.

**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.

### Linkage methods

The linkage methods available are as follows:

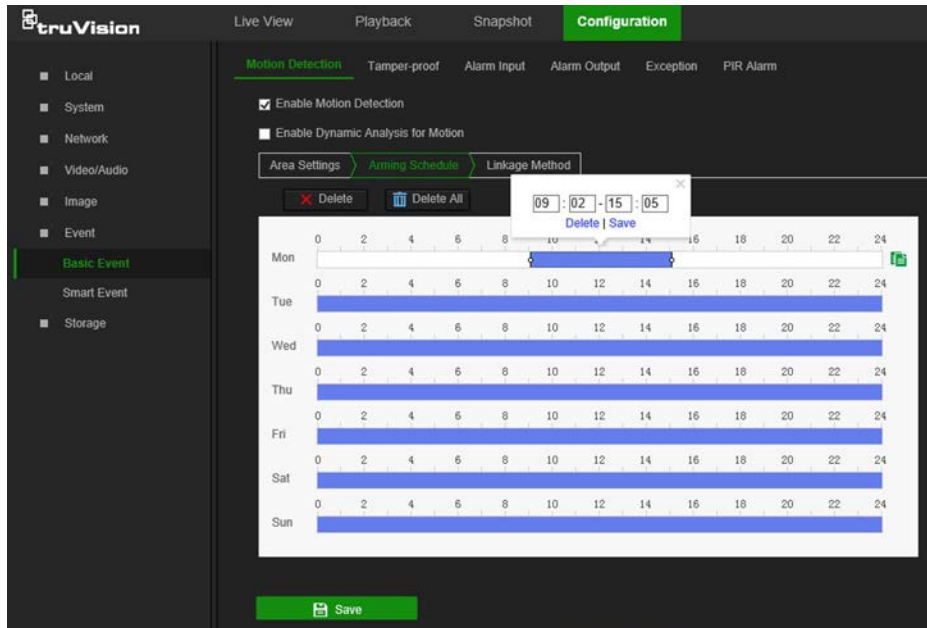
<b>Notify Alarm Recipient</b>	Send an exception or alarm signal to the remote management software when an event occurs.
<b>Notify Surveillance Center</b>	Triggers an audible warning locally (only applies to cameras with an audio output).
<b>Send Email</b>	Sends an email to a specified address when there is a motion detection alarm. <b>Note:</b> Email settings must be configured before enabling this option. See “To set up the email parameters” on page 19 for further information. To send the event snapshot together with the email, select the <b>Attached Snapshot</b> check box.
<b>Upload to Snapshot</b>	Capture a snapshot when an alarm is triggered and upload the snapshot to NAS or an FTP server. <b>Note:</b> NAS settings must be configured before uploading the snapshot to NAS. See “NAS settings” on page 45 for further details. FTP settings must be configured before uploading the snapshot to FTP. See “To define the FTP parameters” on page 19 for further details. To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, <b>Enable Event-triggered Snapshot</b> must also be selected in the snapshot parameters. See “Snapshot parameters” on page 41 for further information.
<b>Trigger Alarm Output</b>	Triggers external alarm outputs when an event occurs. Select the check boxes next to individual alarm outputs or select the <b>Trigger Alarm Output</b> check box to select all outputs. <b>Note:</b> This option is only supported by cameras that feature an alarm output.
<b>Trigger Recording</b>	Triggers the camera recording.


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

1. From the menu toolbar, click **Configuration > Event > Basic Event > Motion Detection**.
2. Select the **Enable Motion Detection** check box. Select **Enable Dynamic Analysis for Motion** to see real-time motion events.  
**Note:** Select **Local > Rules > Disable** to *not* have detected objects indicated by green rectangles.
3. Select **Normal** from the Configuration drop-down list.
4. Click **Draw Area**. Click and drag the mouse on the live video image to draw an area sensitive to motion detection.  
**Note:** Up to eight motion detection areas can be drawn on the same image.
5. Click **Stop Drawing** to finish drawing. Click **Clear All** to delete all areas marked and restart drawing.
6. Move the **Sensitivity** slider to set the sensitivity of the detection. All areas will have the same sensitivity level.
7. Click **Save** to save changes.

- Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.

**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.

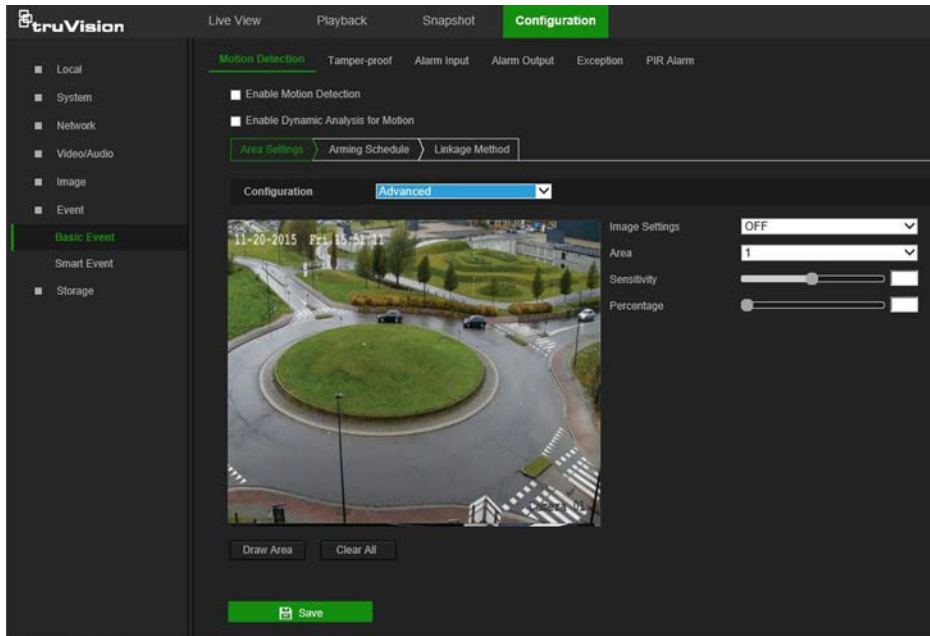



- Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
- Click **Save** to save changes.
- Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
- Click **Save** to save changes.

**To set up motion detection in advanced mode:**

- From the menu toolbar, click **Configuration > Basic Event > Motion Detection**.
- Select the **Enable Motion Detection** check box. Check **Enable Dynamic Analysis for Motion** to see where motion occurs in real-time.
 

**Note:** Select **Local > Rules > Disable** to *not* have detected objects indicated with green rectangles.
- Select **Advanced** from the Configuration drop-down list.

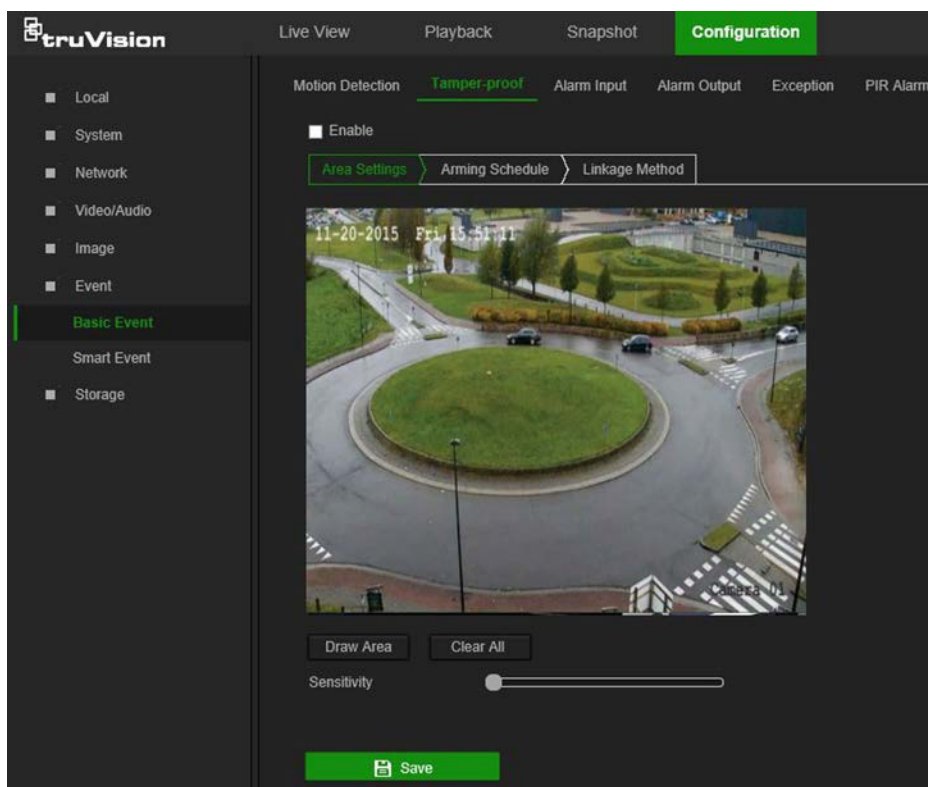


4. In the **Image Settings** drop-down list, select **OFF**, **Auto-switch** or **Scheduled-switch**. Default is **OFF**.  
Auto-switch and Scheduled-switch allow permit different settings for day and night as well as different periods.
5. Select a number from the **Area** drop-down list and click **Draw Area**. Click and drag the mouse on the live video image to draw an area sensitive to motion detection.  
**Note:** Up to eight motion detection areas can be drawn on the same image.
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 **Proportion of Object on Area** slider to set the proportion of the object that must occupy the defined area to trigger an alarm.
9. Click **Save** to save the changes for that area.
10. Repeat steps 7 to 9 for each area to be defined.
11. Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.  
**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.
12. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
13. Click **Save** to save changes.
14. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.

15. Click **Save** to save changes.

## Tamper-proof alarms

The camera can be configured to trigger an alarm when the lens is covered and take an alarm response action.




### To set up tamper-proof alarms:

1. From the menu toolbar, click **Configuration > Event > Basic Event > Tamper-proof**.
2. Select the **Enable** check box.
3. Move the **Sensitivity** slider to set the sensitivity of the detection.
4. Click **Save** to save changes.

5. Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.

**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.


6. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
7. Click **Save** to save changes.
8. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
9. Click **Save** to save changes.

## Alarm inputs and outputs (Desktop cameras only)

### To define the external alarm input:

1. From the menu toolbar, click **Configuration > Event > Basic Event > Alarm Input**.
2. Select the **Alarm Input No.** and the **Alarm Type**. The alarm type can be **NO** (Normally Open) or **NC** (Normally Closed). Type a name for the alarm into the **Alarm Name** box.
3. Click **Save** to save changes.
4. Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.

**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.

5. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
6. Click the **Copy to** button to copy the schedule to other alarm inputs.
7. Click **Save** to save changes.
8. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
9. Click **Save** to save changes.

### To define alarm output:

1. From the menu toolbar, click **Configuration > Event > Basic Event > Alarm Output**.
2. Select an alarm output channel from the **Alarm Output No.** drop-down list. If required, type a name for the alarm output in the **Alarm Name** box.
3. The delay time can be set to **5s, 10s, 30s, 1min, 2min, 5min, or 10min**. The delay time refers to the time duration that the alarm output remains in effect after the alarm occurs.
4. Click **Save** to save changes.
5. Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.

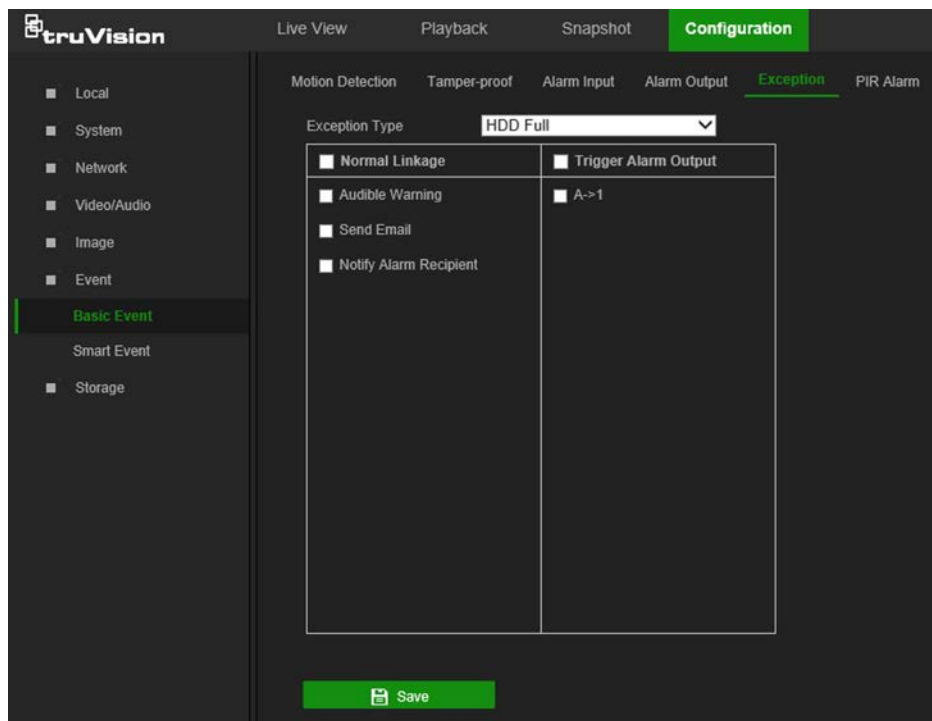
**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.

6. Click the **Copy to** button to copy the schedule to other alarm inputs.
7. Click **Manual Alarm** to generate a test alarm. After setting a manual alarm, click **Clear Alarm** to remove it.
8. Click **Save** to save changes.

## Exception alarms

The camera can be configured for notification of irregular events. These exception alarms include:

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



### To define exception alarms:

1. From the menu toolbar, click **Configuration > Event > Basic Event > Exception**.
2. Under **Exception Type**, select an exception type from the drop-down list.
3. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
4. Click **Save** to save changes.

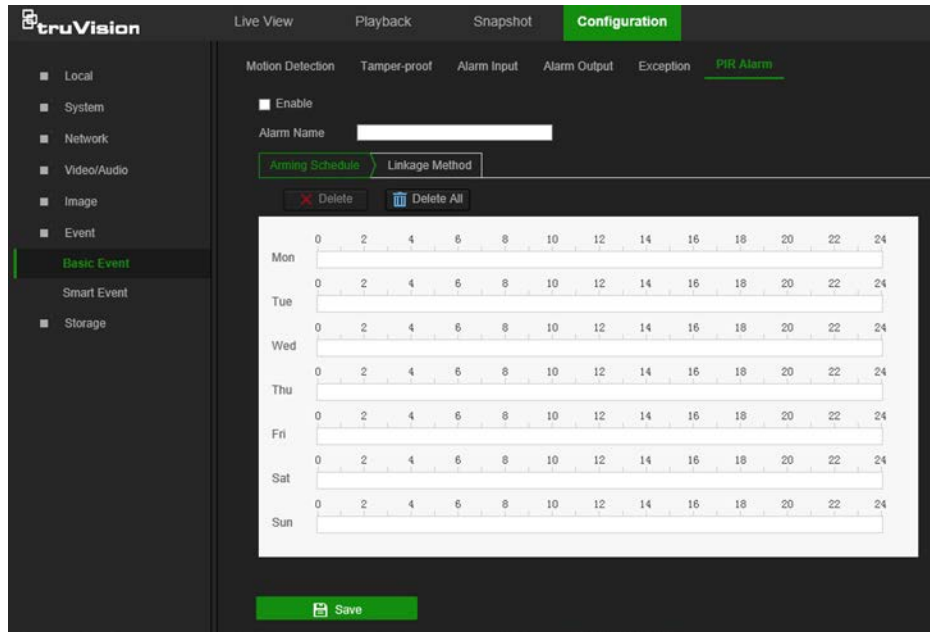
### PIR alarm (Desktop cameras only)

A PIR (Passive Infrared) alarm is triggered when an intruder moves within the detector's field of view. The heat energy dissipated by a person, or any other warm blooded creature such as dogs or cats, can be detected.

### To define PIR alarms:

1. From the menu toolbar, click **Configuration > Event > Basic Event > PIR Alarm**.





2. Select the **Enable** check box.
3. Type the alarm name in the **Alarm Name** box.
4. Drag the mouse on time bar to set the arming schedule and click **Save** when finished.

**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.

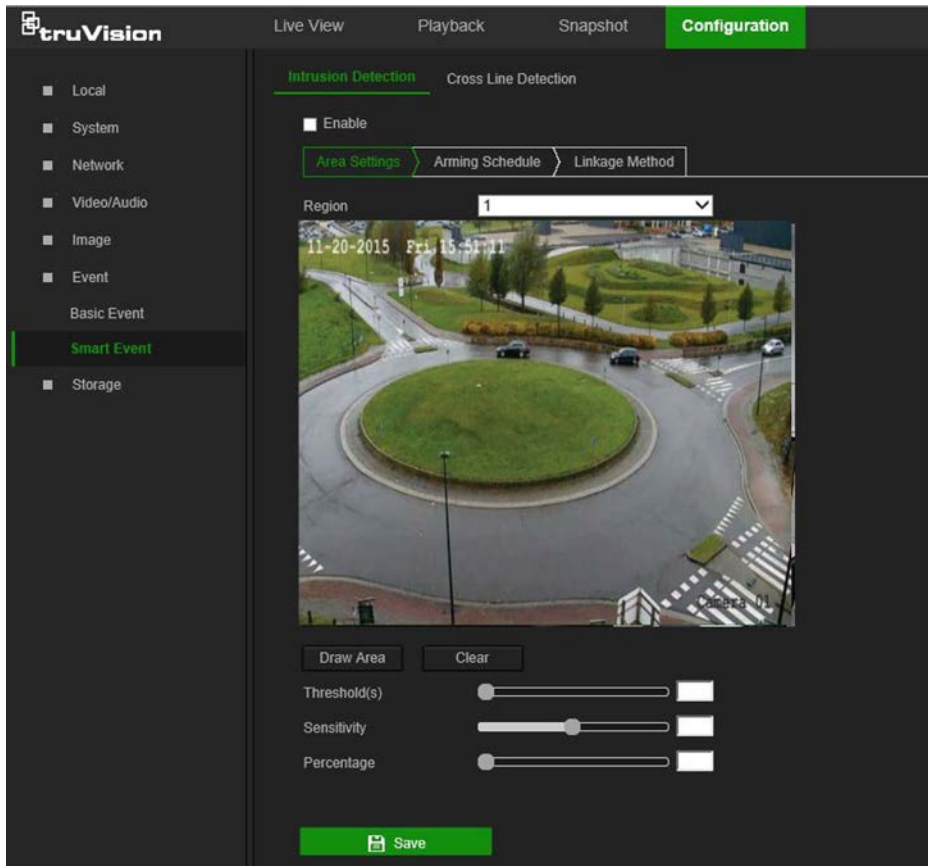
5. Click **Save** to save changes.
6. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
7. Click **Save** to save changes.

## Smart event

### Intrusion detection

An area in the surveillance scene can be configured to detect when intrusion occurs. If someone enters the area, a set of alarm actions can be triggered.





### To define intrusion detection:

1. From the menu toolbar, click **Configuration > Event > Smart Event > Intrusion Detection**.
2. Select the **Enable** check box to enable intrusion detection.
3. Click **Draw Area**, and then draw a rectangle on the image as the defense region.

When drawing the rectangle, connect all lines end-to-end to each other. Up to four areas are supported. Click **Clear** to clear the areas drawn. The defense region parameters can be set up separately.

**Note:** The drawn area can only be quadrilateral.


4. Select the region number to be configured from the **Region** drop-down list.
5. Set the sliders as follows:

**Threshold:** This is the time threshold that the object remains in the region. If the value is set as 0, the alarm is triggered immediately after the object enters the region. The range is between 0 and 100.

**Sensitivity:** The sensitivity value defines the size of the object that can trigger the alarm. When the sensitivity is high, a small object can trigger the alarm. The range is between 1 and 100.

**Percentage:** This defines the ratio of the in-region part of the object that can trigger an alarm. For example, when the percentage is set as 50%, half of the object entering the region will trigger the alarm. The range is between 1 and 100.

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

7. Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.  
**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.
8. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
9. Click **Save** to save changes.
10. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
11. Click **Save** to save changes.

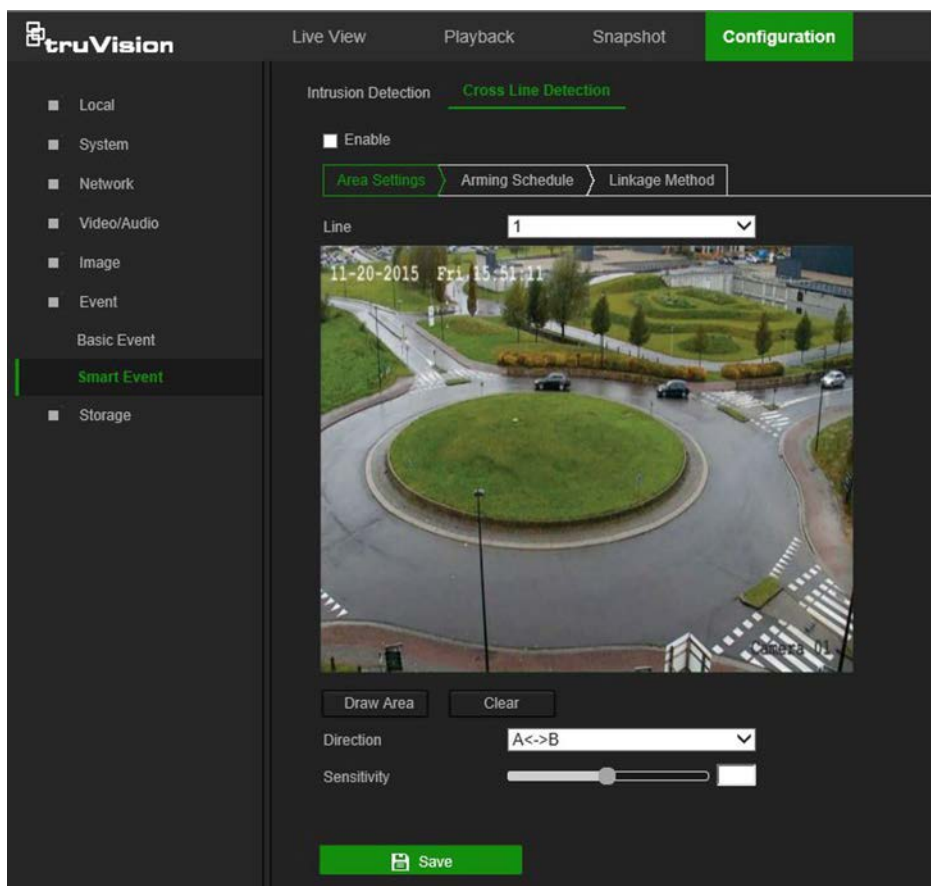
### Cross line detection

This function can be used to detect people, vehicles, and objects crossing a pre-defined line or an area on-screen. The line crossing direction can be set as unidirectional or bi-directional. Unidirectional is crossing the line from left to right or from right to left. Bi-directional is crossing the line from both directions.

A series of linkage methods can be triggered if an object is detected crossing the line.

### To define cross line detection:


1. From the menu toolbar, click **Configuration > Event > Smart Event > Cross Line Detection**.



2. Select the **Enable** check box to enable the function.
3. Click **Draw Area**. A crossing plane appears on the image.
4. Click the line and two red squares that appear at each end. Drag one of the red squares to define the arming area.

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

- **A<->B**: Only the arrow on the B side is displayed. When an object moves across the plane in both directions, it is detected and alarms are triggered.
- **A->B**: Only an object crossing the pre-defined line from the A to the B side can be detected and trigger an alarm.
- **B->A**: Only an object crossing the pre-defined line from the B to the A side can be detected and trigger an alarm.

5. Set the sensitivity level between 1 and 100.
6. If required, select another line crossing area to configure from the **Line** drop-down list and repeat steps 3-5. Up to four line crossing areas can be configured.
7. Click **Save** to save changes.
8. Click the **Arming Schedule** tab to edit the arming schedule. Click and drag along the time bars or click on a time bar to configure arming schedule times.  
**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.
9. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
10. Click **Save** to save changes.
11. Click the **Linkage Method** tab to specify the linkage method for when an event occurs. Select one or more response methods for the system when an alarm is triggered. See “Linkage methods” on page 31 for details.
12. Click **Save** to save changes.

## Schedule settings

### Recording schedule

Use the Record Schedule window to define a recording schedule for the camera. The recording is saved to the SD card or the NAS in the camera. The camera's SD card provides a backup in case of network failure.

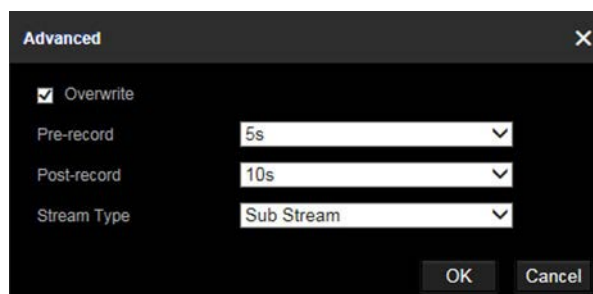
The selected recording schedule applies to all alarm types.

## To set up a recording schedule:

1. From the menu toolbar, click **Configuration > Storage > Schedule Settings > Record Schedule**.
2. Select the **Enable** check box to enable recording.

**Note:** To disable recording, deselect the option.

3. Click **Advanced** to set the camera record parameters. Select **Overwrite** to overwrite the recording. Configure **Pre-record**, **Post-record**, and **Stream Type**.



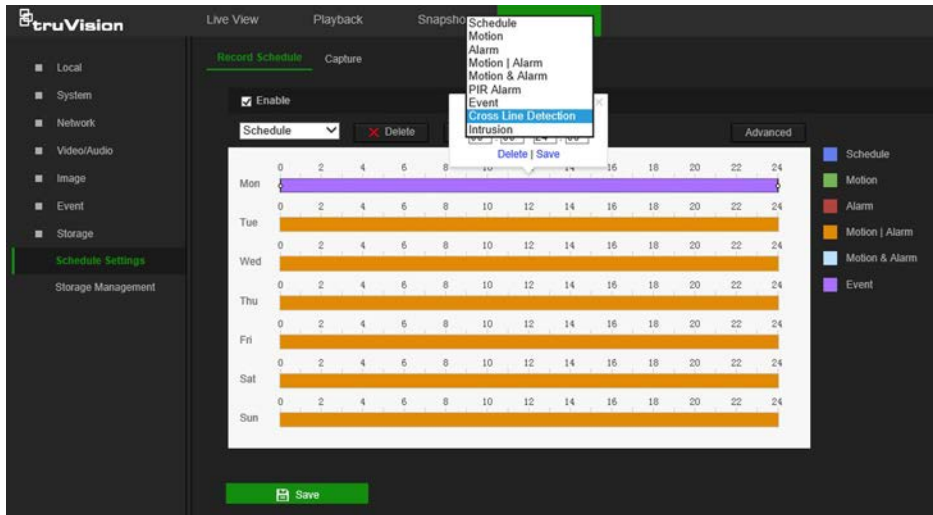
### Pre-record time

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 as 5 seconds, the camera starts to record at 9:59:55. The pre-record time can be configured as **No Pre-record**, **5s**, **10s**, **15s**, **20s**, **25s**, **30s**, 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 as 5 seconds, the camera records until 11:00:05. The post-record time can be configured as **5s**, **10s**, **30s**, **1min**, **2min**, **5min**, or **10min**.

4. Select a recording type from the drop-down list:
  - **Schedule:** For scheduled recording.
  - **Motion:** Video is recorded when the motion is detected.
  - **Alarm** (Desktop cameras only): Video is recorded when the alarm is triggered via the external alarm input.
  - **Motion | Alarm** (Desktop cameras only): Video is recorded when the external alarm is triggered or motion is detected.
  - **Motion & Alarm** (Desktop cameras only): Video is recorded when motion and alarms are triggered at the same time.
  - **Event:** Video is recorded if the configured alarms for events (cross line detection, intrusion, or a desktop camera PIR alarm) are triggered.
5. Click and drag along the time bars or click on a time bar to configure recording schedule times and alarm/event types.



**Note:** All scheduled times are based on the 24-hour clock. Ensure that the correct time zone and daylight saving time settings have been configured in **Configuration > System > System Settings**.

6. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
7. Click **Save** to save changes.

**Note:** If the recording type is set to a motion and/or alarm setting, an arming schedule must also be defined in order to trigger motion detection or alarm input recording.


### Snapshot parameters

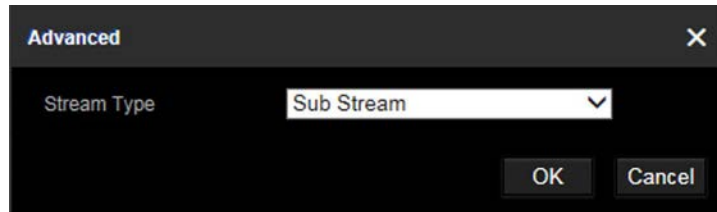
Scheduled and event-triggered snapshots can be captured and stored in the camera's SD card or in a NAS (if configured). The snapshots can also be uploaded to an FTP server.

Select the **Enable Timing Snapshot** check box to have snapshots uploaded to the FTP. Also, ensure that the **Upload Snapshot** check box in the **Network > Advanced Settings > FTP** tab is selected to upload snapshots to the FTP.

Select the **Enable Event-Triggered Snapshot** check box to have snapshots uploaded to the FTP and/or NAS when motion detection or an alarm input is triggered. Also, ensure that the **Upload Snapshot** check box in the **Network > Advanced Settings > FTP** tab is selected to upload snapshots to the FTP.

### To set up a snapshot schedule:

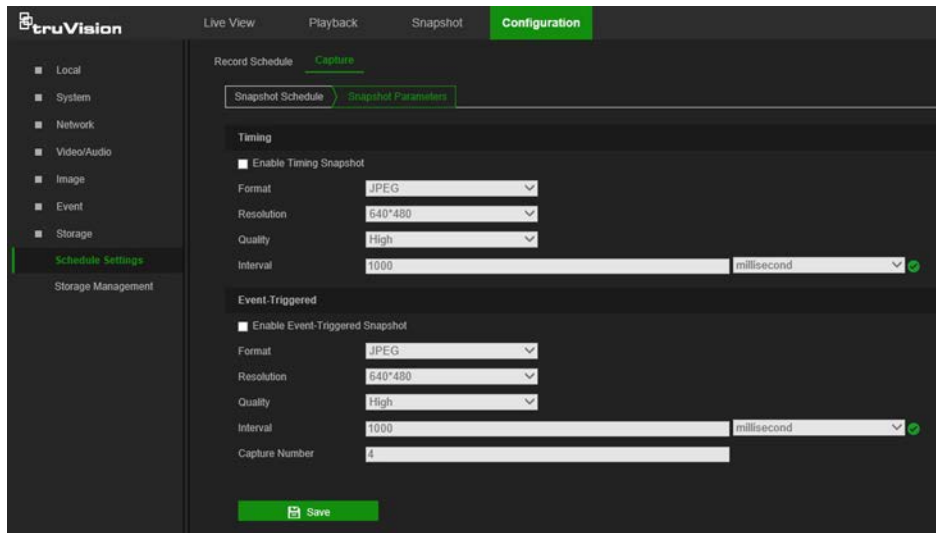
1. From the menu toolbar, click **Configuration > Storage > Schedule Settings > Capture**.
2. Click the **Snapshot Schedule** tab to configure the capture schedule by clicking and dragging the mouse on the time bar. Click  to copy the schedule to other days by selecting the corresponding check box next to the day.
3. Click **Advanced** to select stream type (**Sub Stream** or **Main Stream**).



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

### To set up timed snapshots:

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



2. Select **Enable Timing Snapshot** to enable continuous snapshots.
3. Select the file format for the snapshot from the **Format** drop-down list.
4. Select the resolution and quality of the snapshot from the **Resolution** and **Quality** drop-down lists.
5. Enter the time interval between two snapshots. Select the unit of time from the drop-down list: **millisecond**, **second**, **minute**, **hour**, or **day**.
6. Click **Save** to save changes.

### To set up event-triggered snapshots:

1. From the menu toolbar, click **Configuration > Storage > Snapshot > Snapshot Parameters**.
2. Check **Enable Event-triggered Snapshot** to enable event-triggered snapshots.
3. Select the file format for the snapshot from the **Format** drop-down list.
4. Select the resolution and quality of the snapshot from the **Resolution** and **Quality** drop-down lists.
5. Enter the time interval between two snapshots. Select the unit of time from the drop-down list: **millisecond**, **second**, **minute**, **hour**, or **day**.
6. Under **Capture Number**, enter the total number of snapshots required.



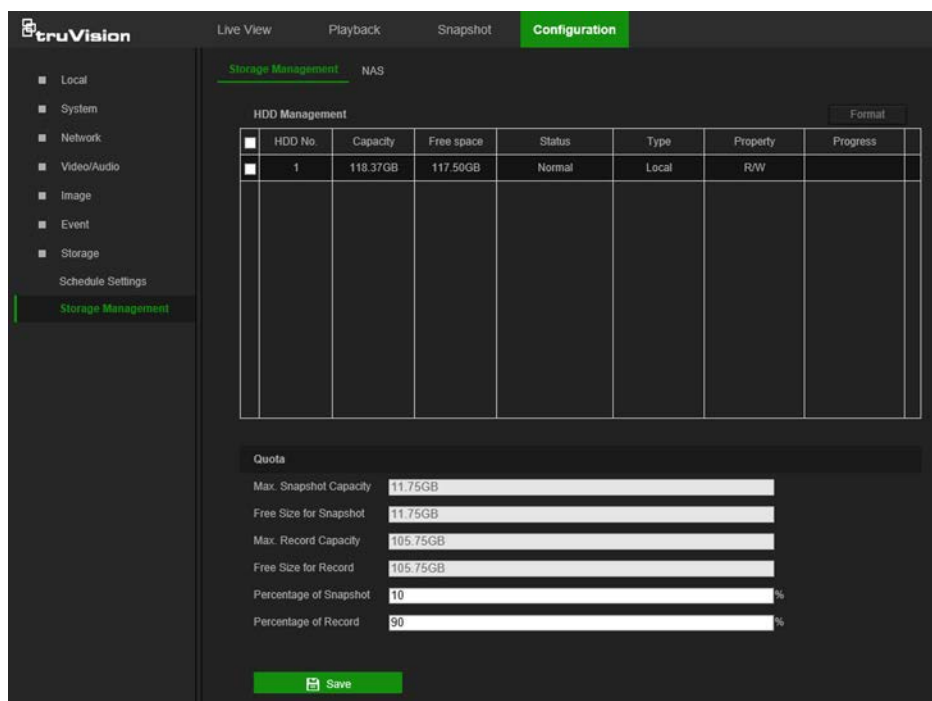
7. Click **Save** to save changes.

## Storage management

Use the storage management window to display the capacity, free space available, and the working status of NAS hard drives and the SD card in the camera. These storage devices can also be formatted in the **Storage Management** window.

Before formatting the storage device, stop all recording. Reboot the camera after formatting is complete, otherwise the device will not function properly.

If **Overwrite** is selected, the oldest files are overwritten when the storage becomes full.



### To format the storage devices:

1. From the menu toolbar, click **Configuration > Storage > Storage Management > Storage Management**.
2. Select the check box next to the HDD No. of the hard drive to be formatted.
3. Define the quota percentage for snapshots and recordings by modifying the values in the **Percentage of Snapshot** and **Percentage of Record** boxes.
4. Click **Format**. A formatting permissions window appears.
5. Click **OK** to start formatting the hard drive.

### NAS settings

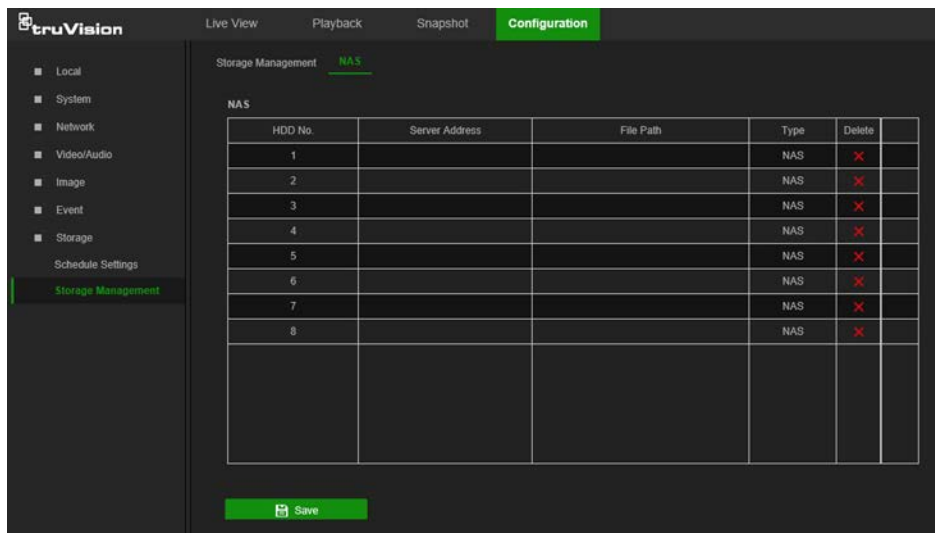
A network attached storage (NAS) device can be used to remotely store recordings.

To configure recording settings, ensure that one or more NAS disks are available within the network and correctly configured to store the recorded files, log files, etc.

### Notes:

- Up to eight NAS disks can be connected to a camera.

- To prevent formatting failure, we recommend NAS drives with a capacity between 9 GB and 2 TB.



### To set up a NAS system:

1. From the menu toolbar, click **Configuration > Storage > Storage Management > NAS**.
2. Click inside the NAS table to type the IP address and the file path of the network disk in the appropriate HDD No. row.
3. Select the hard drive mounting protocol (**NFS** or **SMB/CIFS**). A user name and password are required if **SMB/CIFS** is selected.



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



# Camera management

This chapter describes how to use the camera's web browser interface to manage users, configure security settings, and perform camera maintenance.

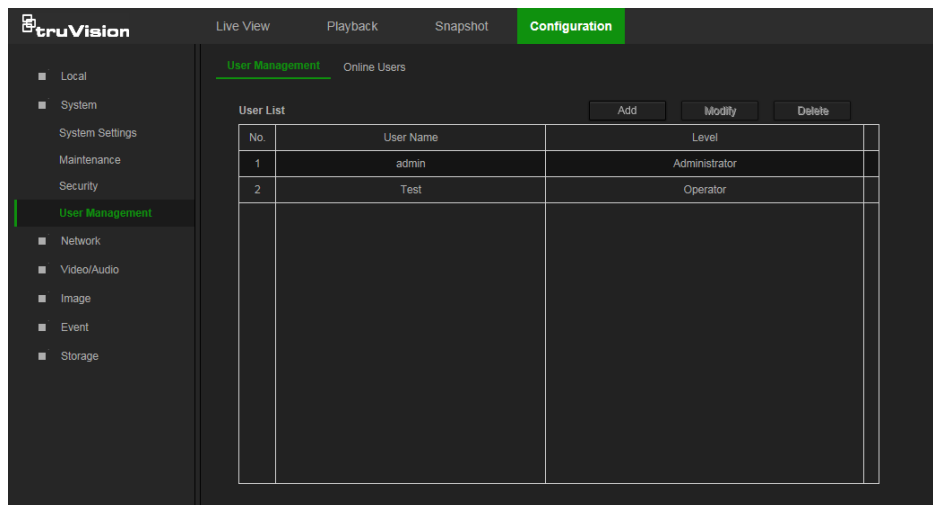
## User management

This section describes how to:

- Add or delete users
- Modify permissions
- Modify passwords

Only the administrator can manage users. The administrator can create up to 31 individual users for the cameras listed in this manual (see "Introduction" on page 2).

When new users are added to the list, the administrator can modify the permissions and passwords for each user.



Passwords limit access to the camera and the same password can be used by several users. When creating a new user, the user must be assigned a password. There is no default password provided for all users. Users can modify their passwords after they have been assigned.

**Note:** Keep the admin password in a safe place. Contact technical support if the password is forgotten.

### Types of users

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

- **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.

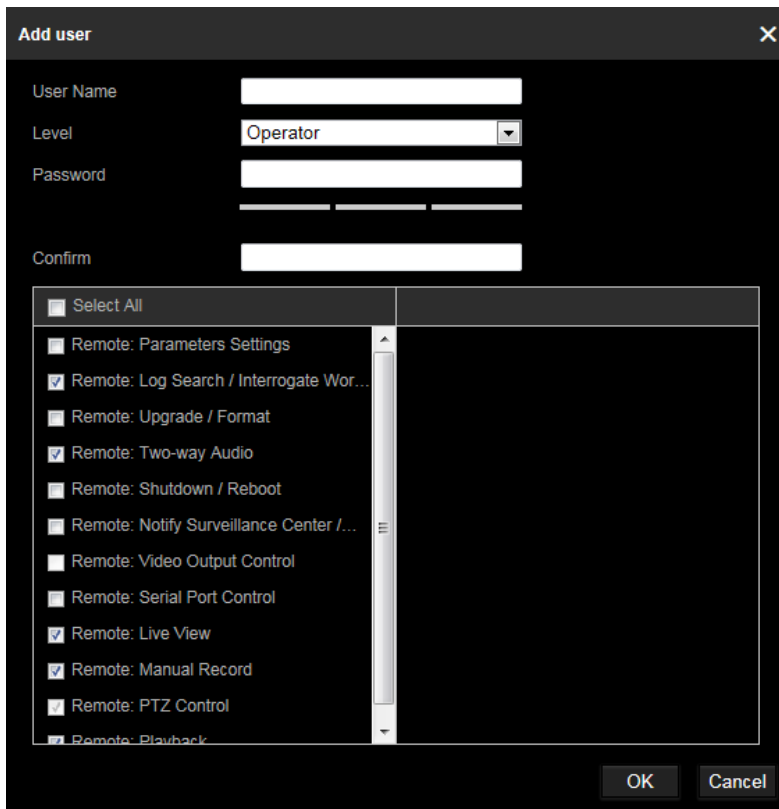
- **Viewer:** This user has the permission of live view, playback, and log search. Viewers cannot change any configuration settings.

### Add and delete users

The administrator can create up to 31 users. Only the system administrator can create or delete users.

#### To add a user:

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



3. Type a name in the **User Name** box.
4. Assign the user a password. Passwords can have up to 16 alphanumeric characters.
5. Select the type of user from the **Level** drop-down list. The options are **Viewer** and **Operator**.
6. Assign permissions to the user. Select from the following permissions:

Basic Permissions	Camera Configuration
Remote: Parameters Settings	Remote: Live View
Remote: Log Search/Interrogate Working Status	Remote: PTZ Control
Remote: Upgrade/Format	Remote: Manual Record
Remote: Bi-directional Audio	Remote: Playback

Basic Permissions	Camera Configuration
Remote: Shutdown/Reboot	
Remote: Notify Alarm Recipient/Trigger Alarm Output	
Remote: Video Output Control	
Remote: Serial Port Control	

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

**To delete a user:**

1. Select a user from the User List.
2. Click the **Delete** button. A message box appears.

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

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

**To modify user information:**

Information about a user such as their name, password, and permissions can be modified.

**To modify user information:**

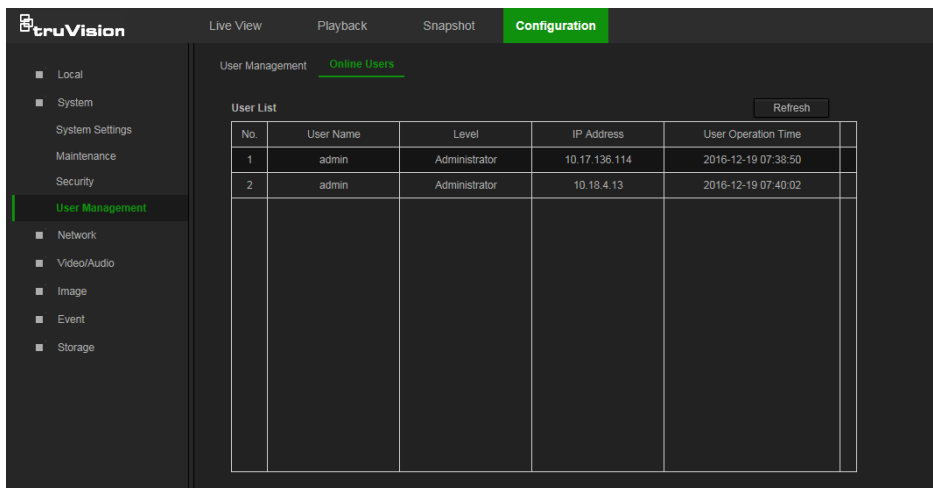
1. Select a user from the User List.
2. Click the **Modify** button. The user management window appears
3. Change the information required.

**Note:** The user “Admin” can only be changed by entering the admin password.

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

**Online users**

Click **Configuration > System > User Management > Online Users** to view the current users accessing the device through the camera configuration interface. Information such as user name, level, IP address, and operation time appears in the User List for each user.

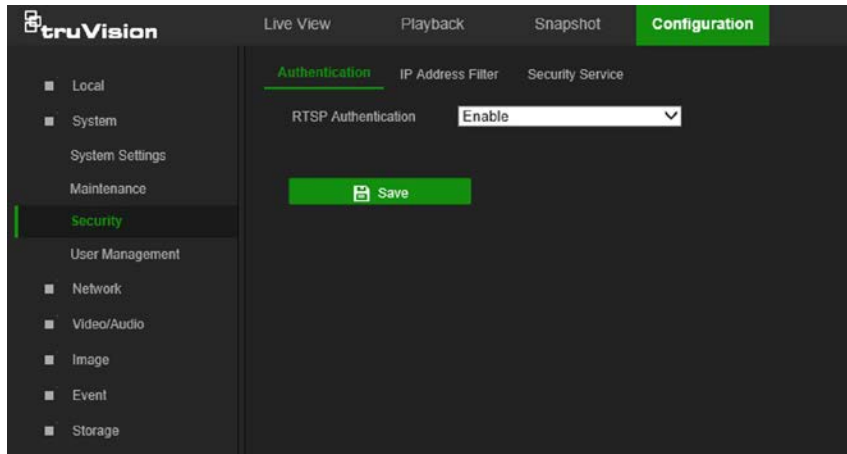


Click **Refresh** to refresh the list.

## Security

### RTSP authentication

Add Real Time Streaming Protocol (RTSP) functionality to Live View streaming in the Authentication window.

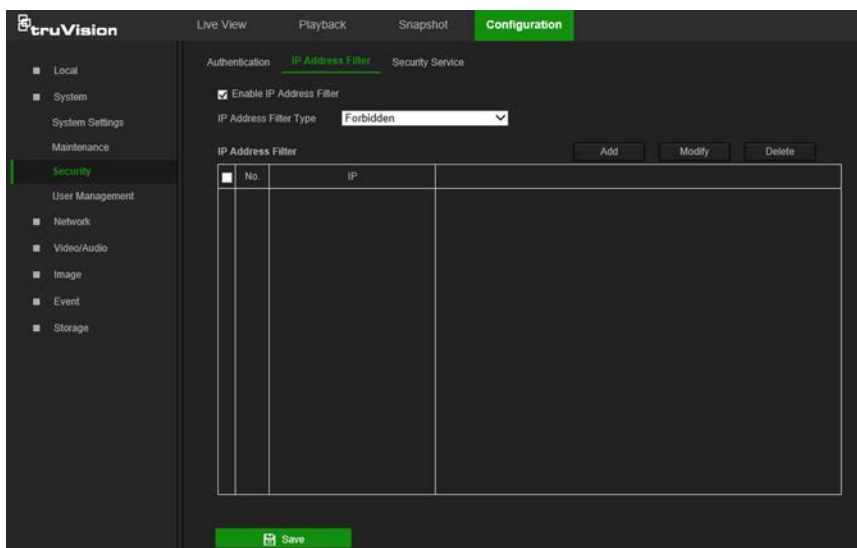


#### To define RTSP authentication:

1. From the menu toolbar, click **Configuration > System > Security > Authentication**.
2. In the **RTSP Authentication** drop-down list, select **Enable** or **Disable** to enable or disable the RTSP authentication.
3. Click **Save** to save the changes.

### IP address filter

Use the IP address filter window to set access rights for 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 be accessed. Attempts by users to access other IP addresses would be denied.

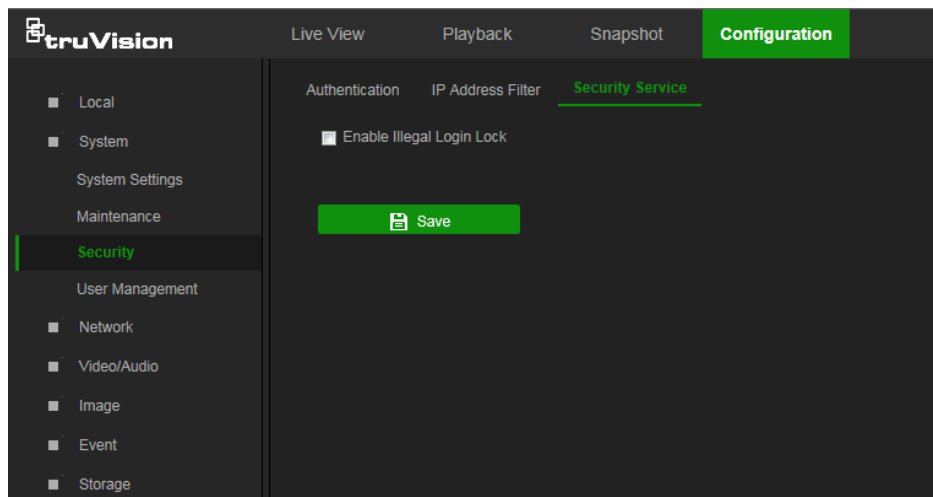


### To define the IP address filter:

1. From the menu toolbar, click **Configuration > Security > IP Address Filter**.
2. Select the **Enable IP Address Filter** check box.
3. Select **Forbidden** or **Allowed** from the **IP Address Filter Type** drop-down list.
4. Click **Add** to add an IP 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

Enable the illegal login lock to block the IP address after five failed user name/password login attempts. After the IP address is locked, a user can log in to the device after 10 minutes



### To enable the illegal login lock:

1. Click **Configuration > System > Security > Security Service**.
2. Select the **Enable Illegal Login Lock** check box
3. Click **Save** to save the changes.

## Maintenance

### Reboot camera

The camera can be rebooted remotely.

### To reboot the camera through the web browser:

1. Click **Configuration > Security > Maintenance > Upgrade & Maintenance**.
2. Click the **Reboot** button to reboot the device.
3. Click **OK** in the pop-up message box to confirm reboot operation.

## Restore default settings

Use the **Upgrade & Maintenance** tab window to restore factory default settings to the camera.

- **Restore:** Restore all the parameters, except the IP parameters, 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.

### To restore default settings:

1. From the menu toolbar, click **Configuration > System > Maintenance > Upgrade & Maintenance**.
2. Click either **Restore** or **Default**. A window showing user authentication appears.
3. Enter the admin password and click **OK**.
4. Click **OK** in the pop-up message box to confirm restoring operation.

## Import or export a configuration file

The administrator can export and import configuration settings from the camera. This is useful for copying configuration settings from an existing camera to a new camera or backing up camera settings.

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

### To import or export a configuration file:

1. Click **Configuration > System > Maintenance > Upgrade & Maintenance**.
2. Click **Browse** under Import Config. File to select the local configuration file and then click **Import** to start importing the configuration file.
3. Click **Export** under Export Config. File and set the saving path to save the configuration file.

## Upgrade firmware

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

Firmware should be upgraded when it has become outdated. When upgrading the firmware, all existing settings are unchanged. Only the new features are added with their default settings.

The camera selects the corresponding firmware file automatically. Cookies and data in the web browser are automatically deleted when the firmware is updated.

### To upgrade the firmware version:

1. Download the latest camera firmware from our web site at [www.interlogix.com/video/category/ip-cameras](http://www.interlogix.com/video/category/ip-cameras).
2. When the firmware file has downloaded, extract the file to the required destination.

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

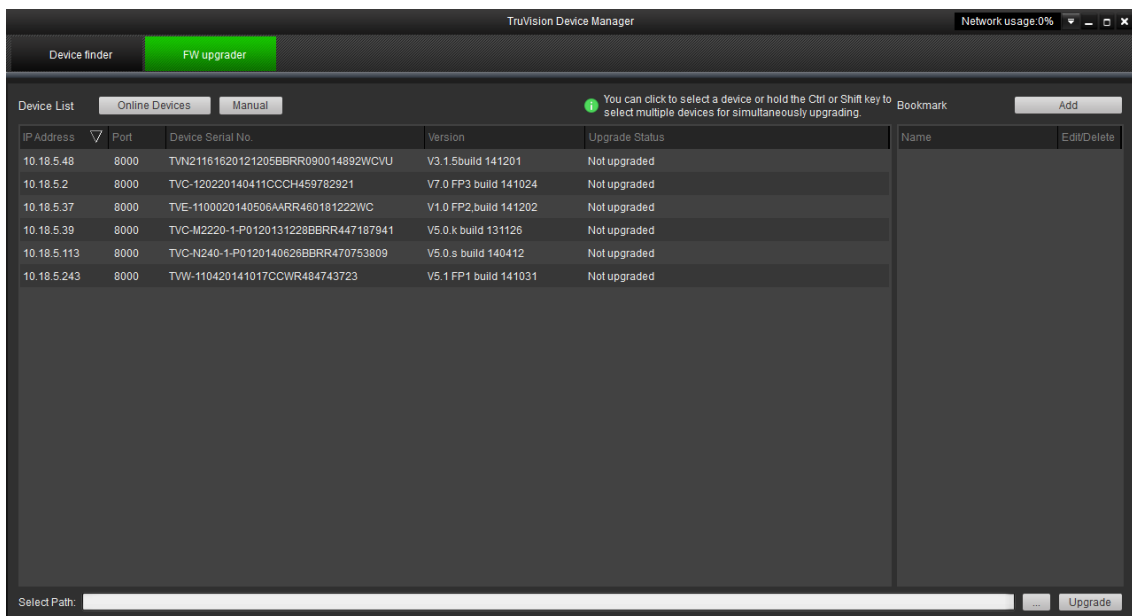
3. From the menu toolbar, click **Configuration > Security > Maintenance > Upgrade & Maintenance**. Select the **Firmware** or **Firmware Directory** option from the **Upgrade** drop-down list, and then click the **Browse** button to locate latest firmware file on the computer.
  - **Firmware directory** – Locate the folder containing the firmware file. The camera chooses the appropriate firmware file automatically.
  - **Firmware** – Locate the firmware file manually.
4. Click **Update**. A prompt to reboot the camera appears.
5. When the upgrade is finished, the device reboots automatically. The browser is also refreshed.

### To upgrade the firmware using TruVision Device Manager:

1. Launch TruVision Device Manager.

**Note:** Install TruVision Device Manager using the included CD or download it from [www.interlogix.com/video](http://www.interlogix.com/video).

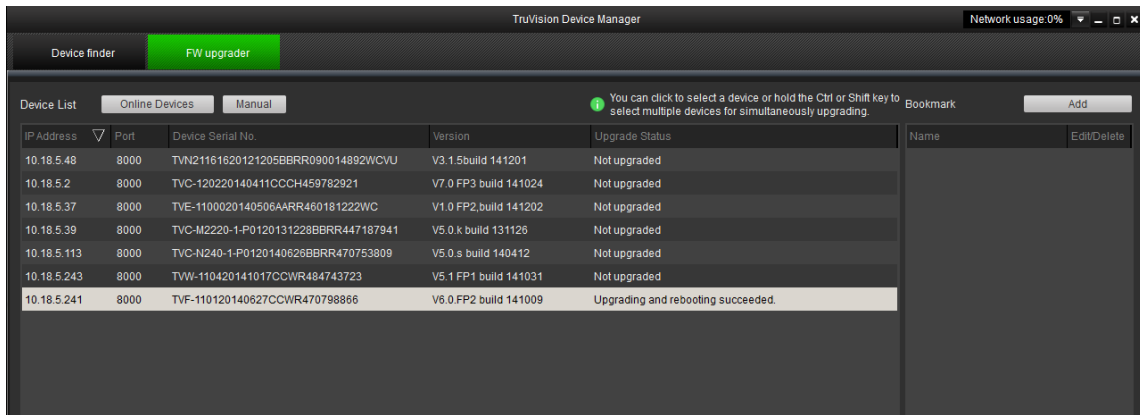
2. In the **FW upgrader** panel, select a device or hold the Ctrl or Shift key to select multiple devices for simultaneous upgrading.



3. Click the browse button  to locate the firmware file.

To have the device automatically reboot after the upgrade, select **Reboot the device after upgrading**. Select **Restore default settings** to restore all parameters.

4. Click **Upgrade**.
5. When the upgrade is complete, the updated version information on the devices is listed.

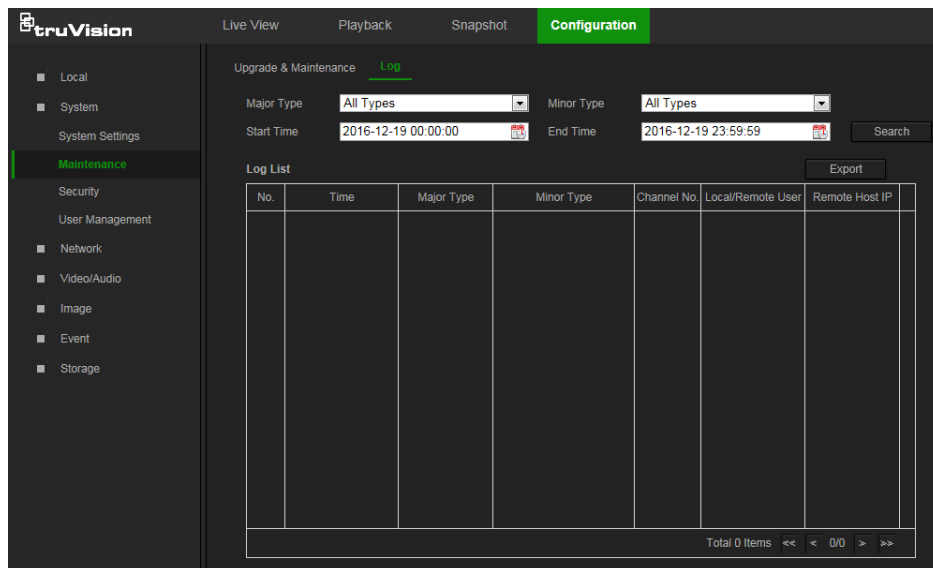


## Searching event logs

Configure NAS storage (see “NAS settings” on page 45) or insert a SD card in the camera before using the log functions.

The number of event logs that can be stored on NAS or SD card depends on the capacity of the storage devices. When the capacity limit is reached, the system starts deleting older events.

**Note:** View log access rights are required to search and view logs.



Search for recorded logs using the following criteria:

**Major type:** There are four types of logs: All Types, Alarm, Exception, and Operation.

**Minor type:** Each major type log has some minor types.

**Date and Time:** Logs can be searched by start and end recording time.

**Export:** Export the Log List to text or Microsoft Excel (XLS) file format.

Main log type	Minor log types: Description of events included
Alarm	Alarm Input, Alarm output, Start Motion Detection, Stop Motion Detection, Start Tamper-proof, Stop Tamper-proof, Cross Line Detection Started, Cross Line Detection Stopped, Intrusion Detection Started, Intrusion Detection stopped, Start PIR Alarm, Stop PIR alarm
Exception	Illegal Login, HDD Full, HDD Error, Network Disconnected, IP Address Conflicted



Main log type	Minor log types: Description of events included
Operation	Power On, Local Reboot, Local Abnormal Shutdown, Local Login, Local Logout, Local Configure Parameters, Local Upgrade, Local Start Record, Local Stop Record, Local Export Config File, Local Import Config File, 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 Get Parameters, Remote Get Working Status, Start Bi-directional Audio, Stop Bi-directional Audio, Remote Alarm Arming, Remote Alarm Disarming, Remote Export Config File, Remote Import Config File

**To search logs:**

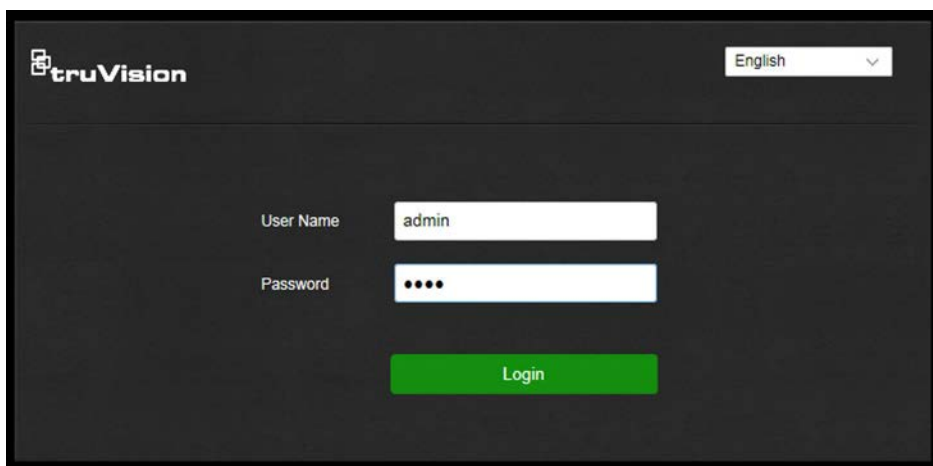
1. From the menu toolbar, click **Configuration > System > Maintenance > Log**.
2. In the **Major Type** and **Minor Type** drop-down list, select the required option.
3. Select start and end time of the log.
4. Click **Search** to start the search. The results appear in the window.

# Camera operation

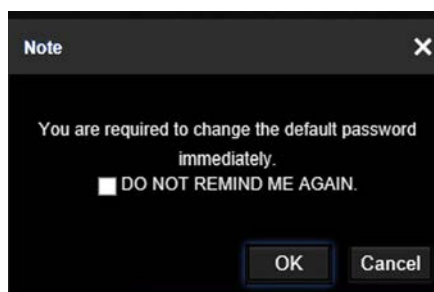
This chapter describes how to use the camera after it is installed and configured.

## Logging on and off

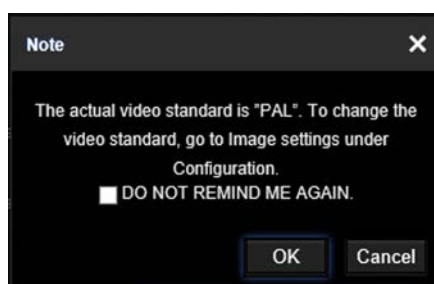
1. If necessary, log out of the camera browser window by clicking the **Logout** button on the menu toolbar. A user name and password are always required when logging in.
2. If necessary, change the language of the interface from the drop-down list in the top right corner of the login window.
3. The camera comes with a user account with administrative rights for configuring all options on the camera. The user name is “admin” and the password is “1234”. Type in these values and click Login.



4. *Initial login:* The default password notification appears. Click **OK**. For enhanced security, we highly recommend changing the default password during initial setup.






5. *Initial login:* The video standard notification appears. Click **OK**.



## Live view mode

After logging in, click the **Live View** tab on the menu toolbar to access live view mode. See “Overview of the camera web browser” on page 5 for a description of the interface.

-  **Start/stop live view:** Stop and start live view by clicking the Start/stop live view button on the bottom of the window.
-  **Record:** Record live video and store it in a configured directory. In the live view window, click the **Record** button at the bottom of the window. To stop recording, click the button again.
-  **Take a snapshot:** Take a snapshot of a scene when in live view. Click the **Capture** button located at the bottom of the window to save an image. The image is in JPEG format. Snapshots are saved on the hard drive.








## Playing back recorded video

Search for and play back recorded video in the playback interface.

**Note:** Configure the NAS or insert an SD card in the camera before using the playback functions. See “Storage devices” on page 45 for more information.

To search recorded video stored on the camera’s storage device for playback, click **Playback** on the menu toolbar. The Playback window appears.




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. Set playback time	Input the time and click  to locate the playback point.
5. Recording type	The color code displays the recording type. Recording types are Schedule, Alarm, and Manual. The recording type name is also displayed in the current status window.
6. Download functions	 Download video files.  Download captured images.
7. Audio control	Control level of audio.
8. Archive functions	Click these buttons for the following archive actions:  Enable digital zoom.  Capture a snapshot image of the playback video.  Start/Stop clipping video files.
9. Time moment	Vertical bar shows the current position within the playback recording. The current time and date are also displayed.
10. Control playback	Click to control how the selected file is played back: Play, Stop, Slow or Fast Forward playback, and Single Frame playback.
11. Timeline bar	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. Click a location on the timeline to move the cursor to a time for playback to start. The timeline can also be scrolled to earlier or later periods for playback. Click  to zoom in and out on the timeline bar.


### To play back recorded video:

1. Select the date and click the **Search** button. The searched video appears in the timeline.
2. 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:** Playback permission is required to play back recorded images. See “Modify user information” on page 49 for more information.

3. Select the date and click the **Search** button to search for a recorded file.
4. Click  to search the video file.
5. In the pop-up window, select the check box next to the video file and click **Download** to download the video files.

## To archive a recorded video segment during playback:

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

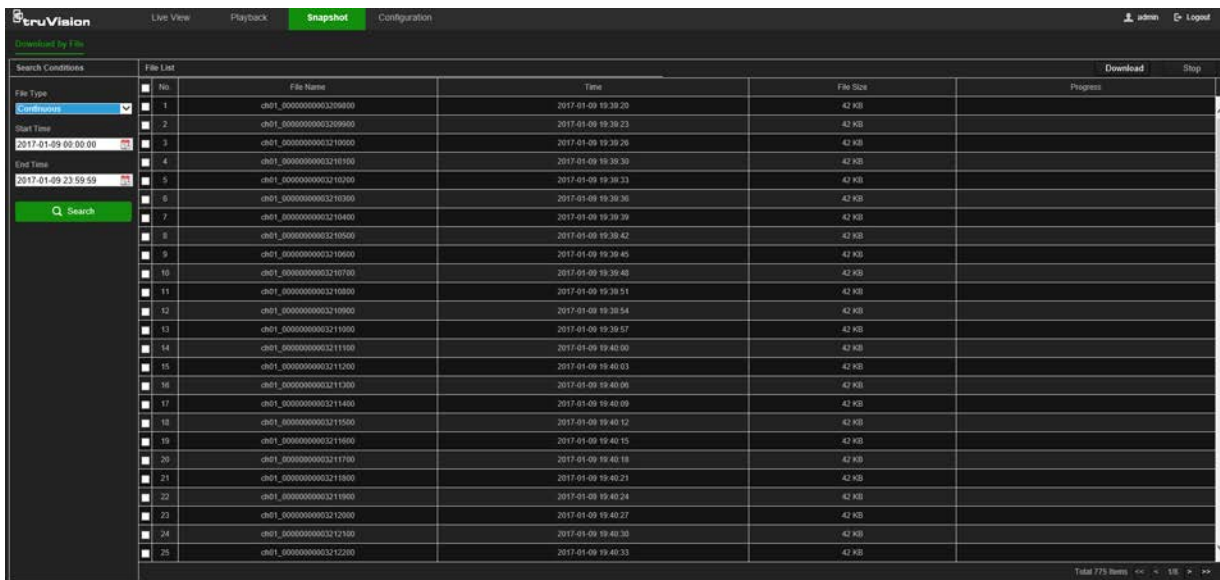
## Snapshot

**Note:** Follow the instructions under “Snapshot parameters” on page 43 to configure snapshot capture parameters before using the Snapshot menu.

Click **Snapshot** to launch the picture searching interface. Use this menu to search for, view, and download the pictures stored in the camera’s SD card or in network storage.

### To search the snapshots:

1. Make a selection from the **File Type** drop-down list. **Schedule, Motion, Alarm, Cross Line, and Intrusion Detection** are selectable (**PIR Alarm** is selectable for Desktop cameras only).
2. Click on the calendar icon in the **Start Time** and **End Time** boxes to select the start time and end time.
3. Click **Search** to search the matched pictures.
4. Select the check box next to one or more snapshots and then click **Download** to download the selected images.



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