TruVision ANPR IP Camera Configuration Manual

Content

Introduction

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

- TVB-5412   (2MPX ANPR IP camera, 2.8 to 12 mm)
- TVB-5413   (2MPX ANPR IP camera, 8 to 32 mm)

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 browsers. The procedures described use Microsoft Internet Explorer (IE) web browser.

Check your web 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 Active X settings.

Configure 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 users

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 (included on the CD to find the IP address of the camera).

Activation via the 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 window.

   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", below.

3. Enter the password in the password field. The default user name is *admin*.

   Note: 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. We also recommend 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 window.

Activation via *TruVision Device Manager*:

1. Run the *TruVision Device Manager* to search for online devices.

2. Select the device status from the device list, and then select the inactive device.

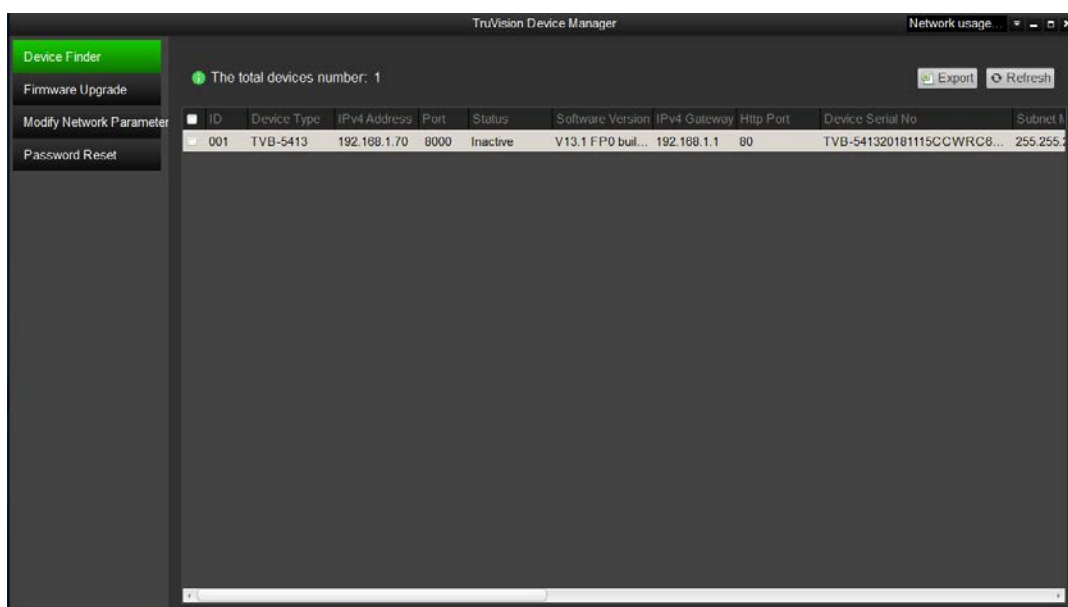3. Enter the password in the password field, and confirm it.

   Note: 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. We also recommend 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. Click **OK** to save the password.

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

5. Change the device IP address to the same subnet with your computer by either modifying the IP address manually or selecting the check box of *Enable DHCP*.
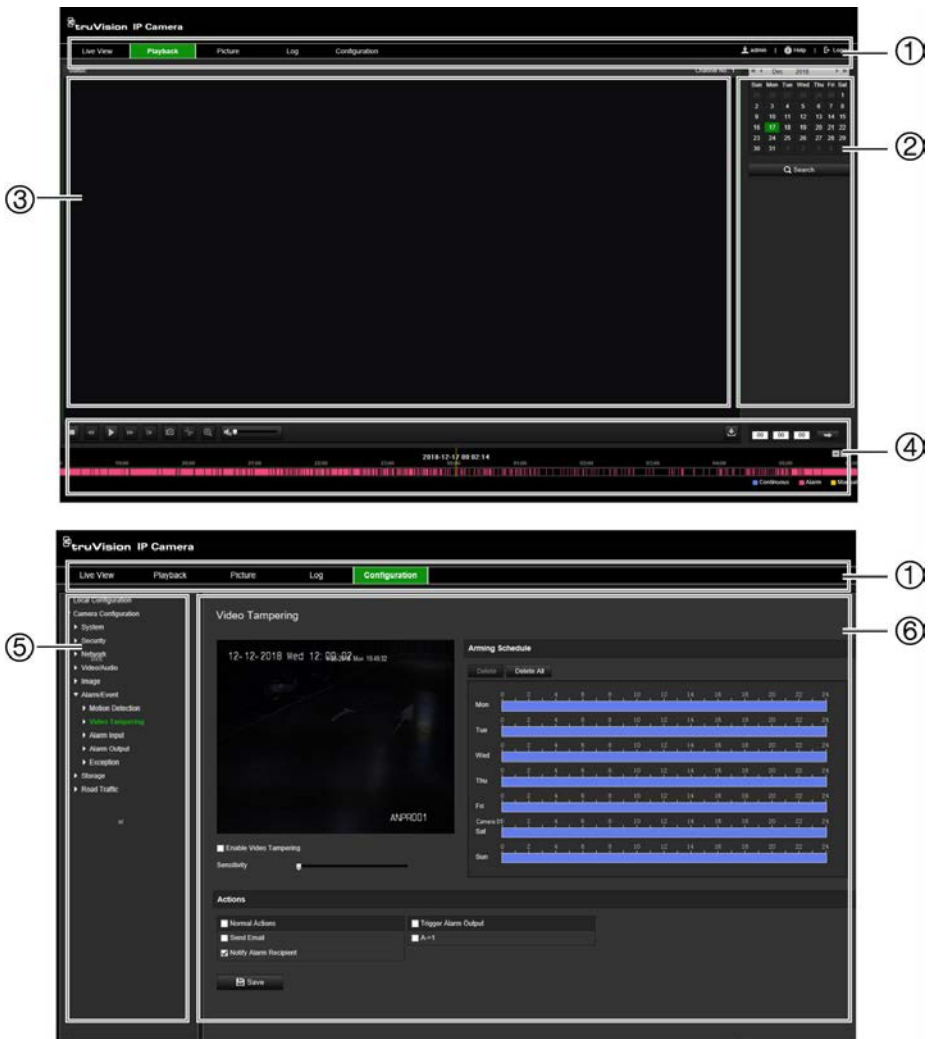

6. Input the password and click the **Save** button to activate your IP address modification.

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 on page 7.

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

Figure 1: Overview of the browser windows

Name	Description
1. Menu toolbar	**Live view**: Click to view live video. See "Live view mode" on page 71 for further information.
	Playback: Click to play back video. See "Play back recorded video" on page 72 for further information.
	Picture: Click to search for snapshot and video clip files to download for archiving. See "Search snapshots and video clips" on page 74 for further information.
	Log: Click to search for event logs. There are three main types: Alarm, Exception, and Operation. See "Search event logs" on page 75 for further information.
	Configuration: Click to display the configuration window for setting up the camera.
	Admin: Displays the current user logged on.
	Help: Click to access the camera's built-in help.
	Logout: Click to log out from the system. This can be done at any time.
2. Search panel	Enter date and time of files to search.

Name		Description
3.	Viewer	View live or playback video depending on the menu chosen. Time, date and camera name are displayed here.
4.	Live View/Playback toolbar	Click the buttons to control the live view or play back. See "Camera operation" on page 71 for more information.
5.	Configuration panel	Click to select a camera menu to configure. See "Configuration" on page 9 for further information.
6.	Configuration parameters setup	Enter the camera parameters.

Configuration overview

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 in order to configure the cameras over the internet.

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 menus in the configuration panel:

- Local configuration
- Configuration

Configuration menu overview

Use the Configuration panel to configure the network, camera settings, alarms, users, road traffic, and other parameters such as upgrading the firmware. See Figure 2 below for descriptions of the configuration menus available.
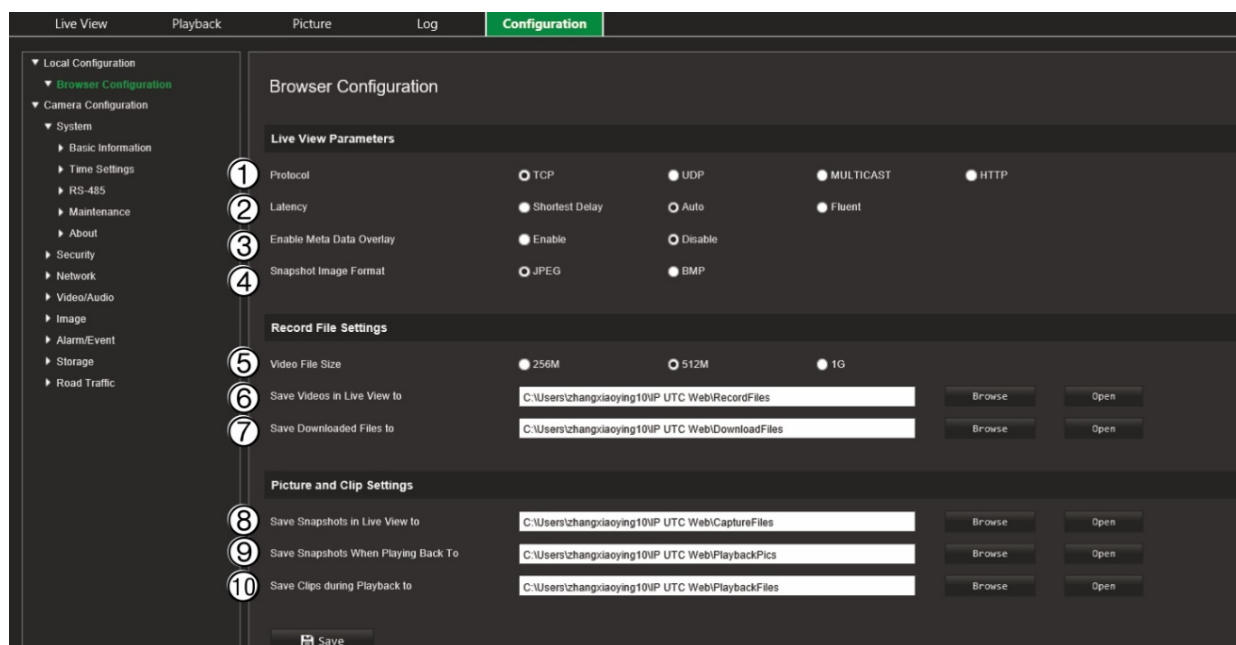
Figure 2: Structure of the Configuration menu
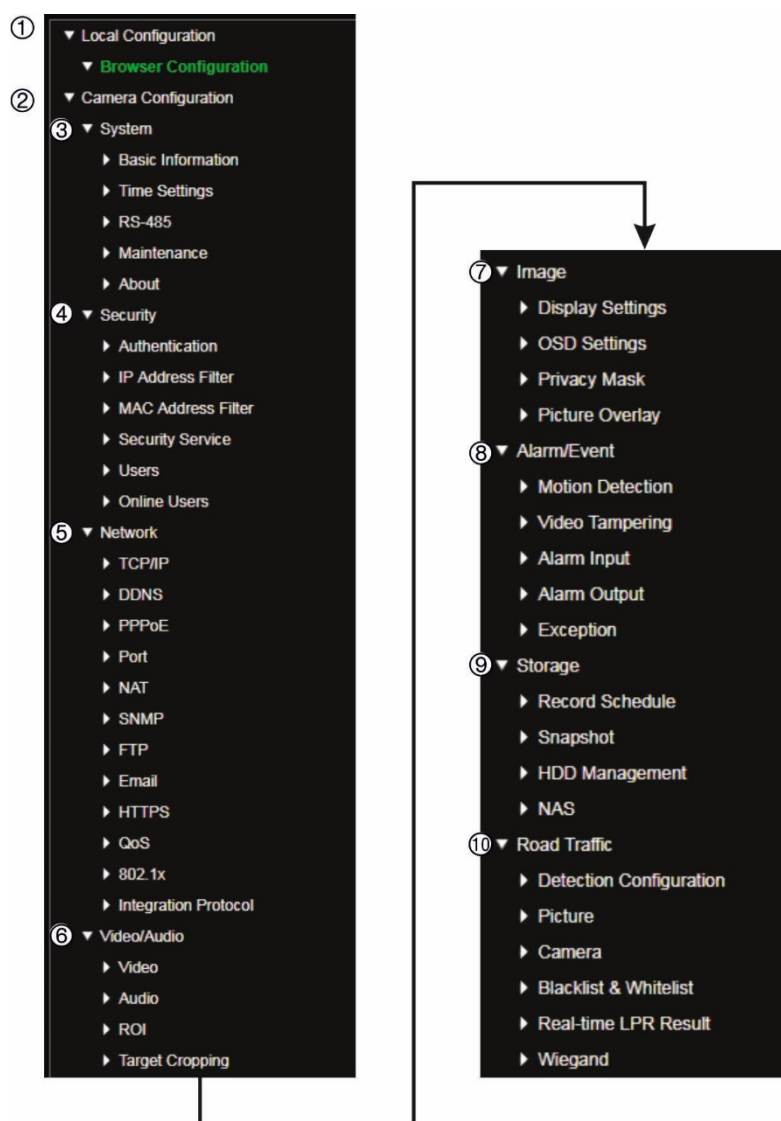
	Configuration menus	Description
1.	Local configuration	Defines the protocol type, live view performance and local storage paths for your web browser. See "Local configuration" on page 12 for further information on the setup.
2.	Camera configuration	Defines the camera parameters. See below for further information on the different groups of parameters that can be defined.
3.	System	Defines device basic information including SN and the current firmware version, time settings, maintenance, and serial port parameters. See "System settings" on page 14 for further information.
4.	Security	Defines who can use the camera, their passwords and access privileges, RTSP authentication, IP address filter, and preventing illegal logins. See "Security settings" on page 20 for further information.
5.	Network	Defines the network parameters required to access the camera over the network. See "Network settings" on page 26 for further information.

Configuration menus	Description
6. Video/Audio	Defines the video and audio recording parameters as well as the RoI. See "Video/audio settings" on page 34 for further information.
7. Image	Defines the image parameters, OSD settings, overlay text, and privacy mask. See "Image settings" on page 38 for further information.
8. Alarm/Event	Defines motion detection, video tampering, alarm input/output, and exception. See "Alarm /event settings" on page 48 for further information.
9. Storage	Defines recording schedule, storage management, NAS configuration, and snapshot parameters. See "Storage settings" on page 57 for further information.
10. Road Traffic	Defines vehicle license plate detection, black and white lists, real-time LPR results, and Wiegand. Wiegand is a serial data communication for access control. See "Road traffic settings" on page 63 for further information.

Local configuration

Use the Local Configuration menu to manage the protocol type, live view performance and local storage paths for your web browser. In the Configuration panel, click **Browser Configuration** to display the local configuration window. See Figure 3 below for descriptions of the different menu parameters.

Figure 3: Example of the Local configuration window

Live View Parameters

1.	Protocol	Specifies the network protocol used.
		Options include: TCP, UDP, MULTICAST and HTTP.
2.	Latency	Specifies the transmission speed.
		Options include: Shortest Delay, Auto or Fluent.
3.	Enable Meta Data Overlay	It refers to the rules on your local browser. Specify whether or not 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.	Snapshot Image Format	Choose the image format for a snapshot: JPEG or BMP.

Record File Settings

5.	Video File Size	Specifies the maximum file size.
		Options include: 256 MB, 512 MB and 1G.
6.	Save Videos in Live View to	Specifies the directory for recorded files.
7.	Save Downloaded Files to	Specifies the directory for downloaded files.

Picture and Clip Settings

8.	Save Snapshots In Live View To	Specifies the directory for saving snapshots in live view mode.

9.	Save Snapshots during Playback To	Specifies the directory for saving snapshots in playback mode.
10.	Save Clips during Playback to	Specifies the directory for saving video clips in playback mode.

System settings

Under the camera configuration menu, system configuration allows you to configure system-wide settings like date and time and perform maintenance operations such as firmware upgrade, configuration import/export, and rebooting the camera.

Basic information

This section displays the following information:

Device name	Plugin version
Device number	Number of channels
Camera model	Number of HDDs
Serial number	Number of alarm inputs
Firmware version	Number of alarm outputs
Encoding version	Firmware version property
Web version	

Only the device name and device number can be changed (see Figure 4 below). All other information is read-only.

Note: The device number can also be changed under *Road Traffic > Camera*. See page 66.

Figure 4: Basic Information window

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. Click **Configuration** > **Camera Configuration** > **System** > **Time Settings**.

2. From the **Time Zone** drop-down list, select the time zone that is the closest to the camera's location.

3. Under **Time Settings**, 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 set the system time from the pop-up calendar.

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

4. Select **Enable DST** to enable the DST (Daylight Savings Time) function, and set the date of the DST period.

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

RS-485 settings

The RS-485 serial port is used to control the PTZ of the camera or connect to light and wiper devices. You need to configure these parameters before you connect any devices.

To set up RS-485 settings:

1. Click **Configuration** > **Camera Configuration** > **System** > **RS-485**.
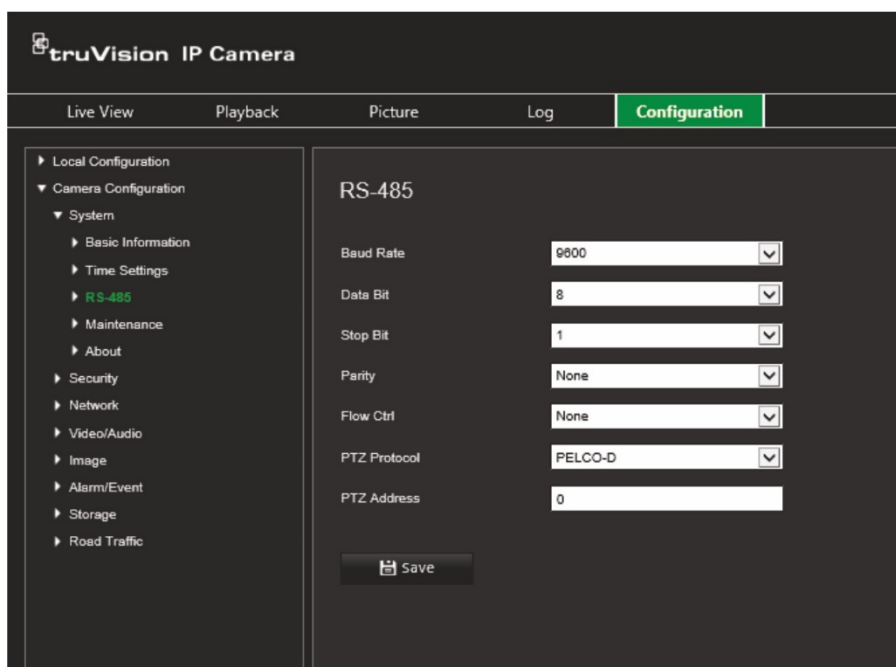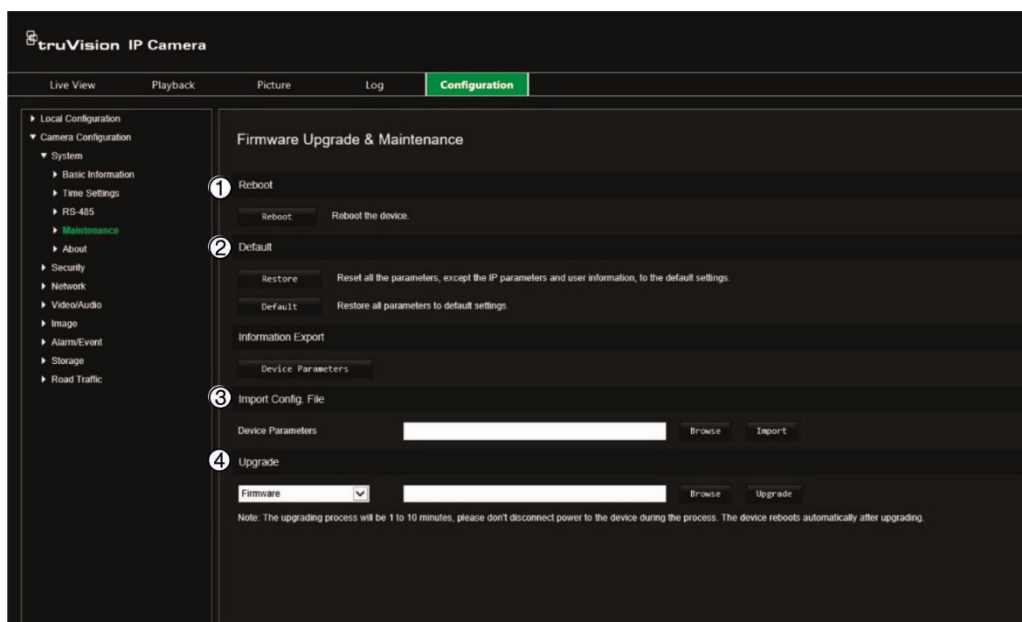

2. Select the RS-485 port parameters.

   Note: The Baud Rate, PTZ Protocol, and PTZ Address parameters must be exactly the same as the PTZ camera parameters.

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

Maintenance and firmware upgrade

Use this menu to perform maintenance operations like firmware upgrade, configuration import/export, and rebooting the camera.

Figure 5: Maintenance and firmware upgrade window

Name	Description
1. Reboot camera	It is easy to reboot the camera remotely. See page 18 for further information on how to reboot the camera.
2. Restore default settings	Use the Default menu to restore default settings to the camera. There are two options available: • **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. See page18 for further information on how to restore default settings.
3. 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. See page 18 for further information on how to import/export a configuration file.
4. Upgrade the firmware	The camera firmware is stored in the flash memory. 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. The camera will select the corresponding firmware file automatically. Cookies and data in the web browser are automatically deleted when the firmware is updated. See page 18 for further information on how to upgrade the

Name	Description
	firmware version. You can also upgrade the firmware version using TruVision Device Manager. See page 19 for further information.

To reboot the camera through the web browser:

1. Click **Configuration** > **System**> **Maintenance**..

2. Click the **Reboot** button to reboot the device.

3. Click **OK** in the pop-up window to confirm reboot operation.

To restore default settings:

1. Click **Configuration** > **System**> **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 window to confirm restoring operation.

To import/export a configuration file:

1. Click **Configuration** > **Camera Configuration** > **System** > **Maintenance**.

2. Click **Browse** to select the local configuration file and then click **Import** to start importing configuration file.

3. Click **Device Parameters** and set the saving path to save the configuration file.

To upgrade the firmware version:

1. Download on to your computer the latest firmware from our web site at:

   Americas: www.interlogix.com

   EMEA: www.firesecurityproducts.com

2. When the firmware file is downloaded to your computer, extract the file to the desired destination.

   Note: Do not save the file on your desktop.

3. Click **Configuration** > **System** > **Maintenance**. Under *Upgrade*, select the **Firmware** or **Firmware Directory** option. Then click the Browse button to locate latest firmware file on your computer.
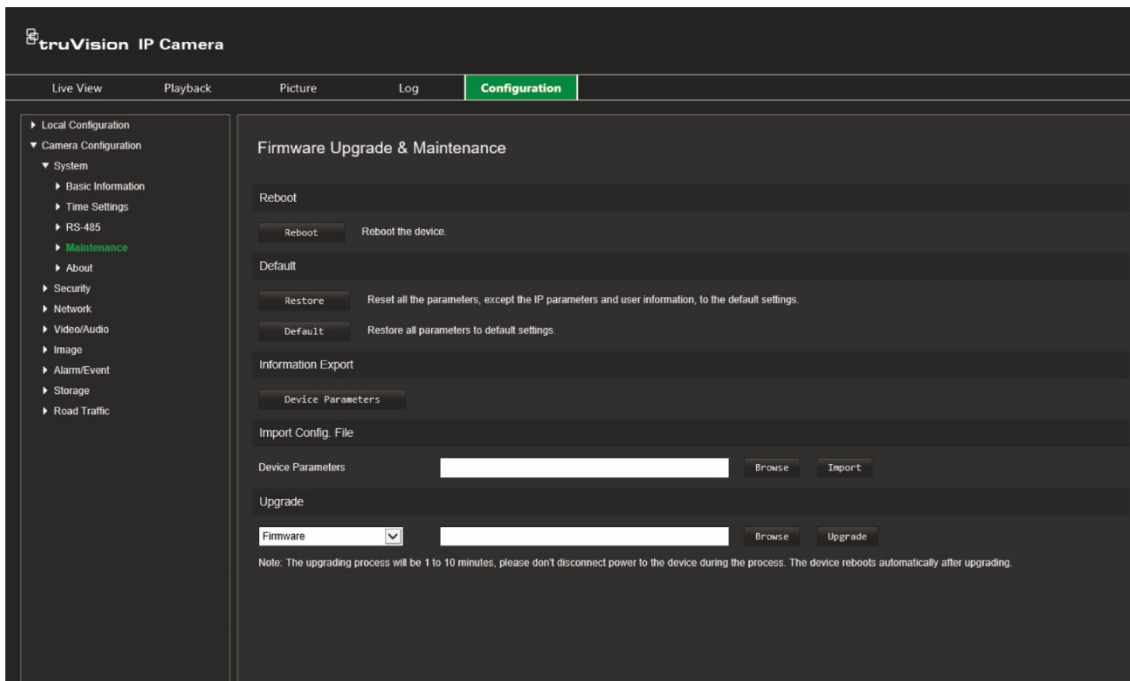
- **Firmware directory** – Locate the upgrading folder of Firmware files. The camera will choose the corresponding firmware file automatically.

- **Firmware** – Locate the firmware file manually for the camera.

  Note: Please select the file *digicap.dav* for firmware.

4. Click **Upgrade**. You will receive a prompt asking you to reboot the camera.

   When the upgrade is finished, the device will reboot automatically. The browser will also be refreshed.

To upgrade the firmware via TruVision Device Manager:

1. In the **FW Upgrade** window of TruVision Device Manager, select a device or hold the Ctrl or Shift key to select multiple devices for simultaneous upgrading.

2. Click the Browse button ![...] to locate the firmware file to use.

   If you want the device to automatically reboot after the upgrade, select **Reboot the device after upgrading**. When enabled, it will also display **Restore default settings** option. Select it if you want to restore all parameters.

3. Click **Upgrade**.

   Note: The upgrading process will take between 1 and 10 minutes. Please do not disconnect power to the device during the process. The device reboots automatically after upgrading.

About

The open source software licenses used in the firmware are found here.
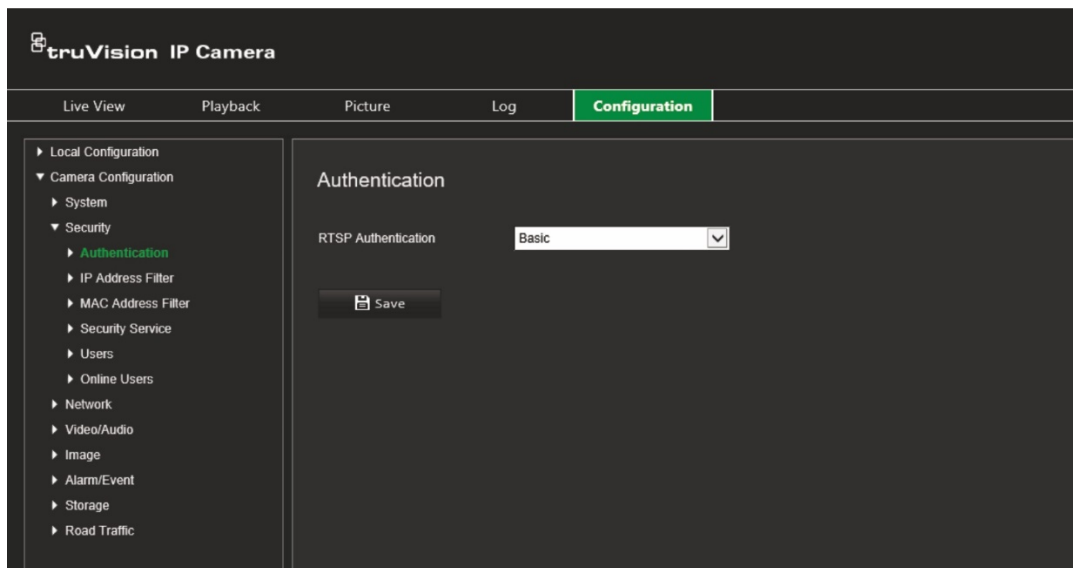
Security settings

Under Camera Configuration, use the Security menu to set the desired security parameters.

RTSP authentication

You can secure the live view RTSP stream.

To define RTSP authentication:

1. Click **Configuration** > **Security** > **RTSP Authentication**.

2. Select the **RTSP Authentication** type **Digest/basic** or **Digest** in the drop-down list

3. 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 is allowed to be accessed.

To define the IP address filter:

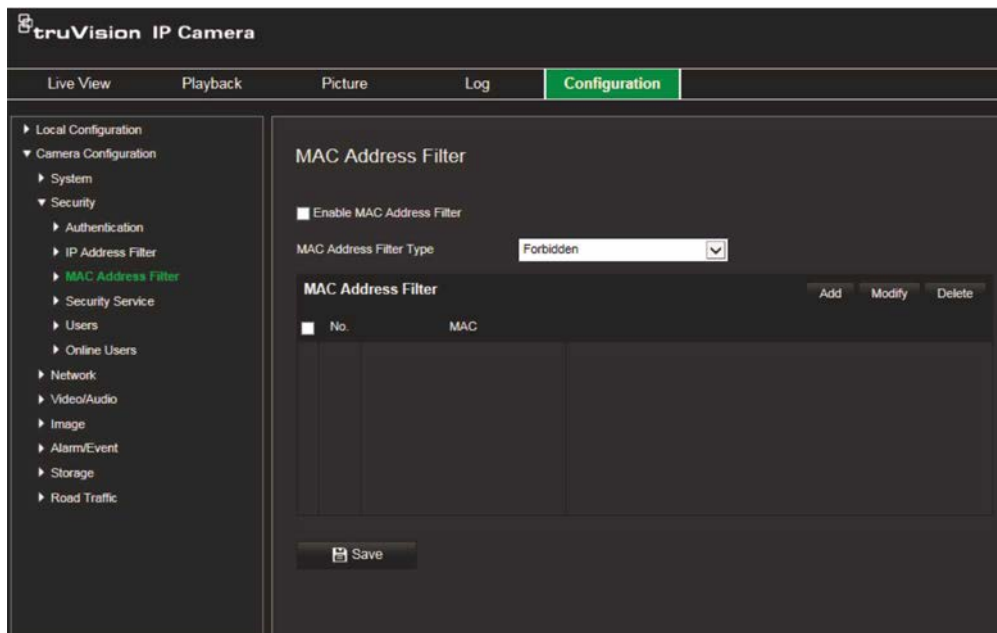1. Click **Configuration** > **Security** > **IP Address Filter**.
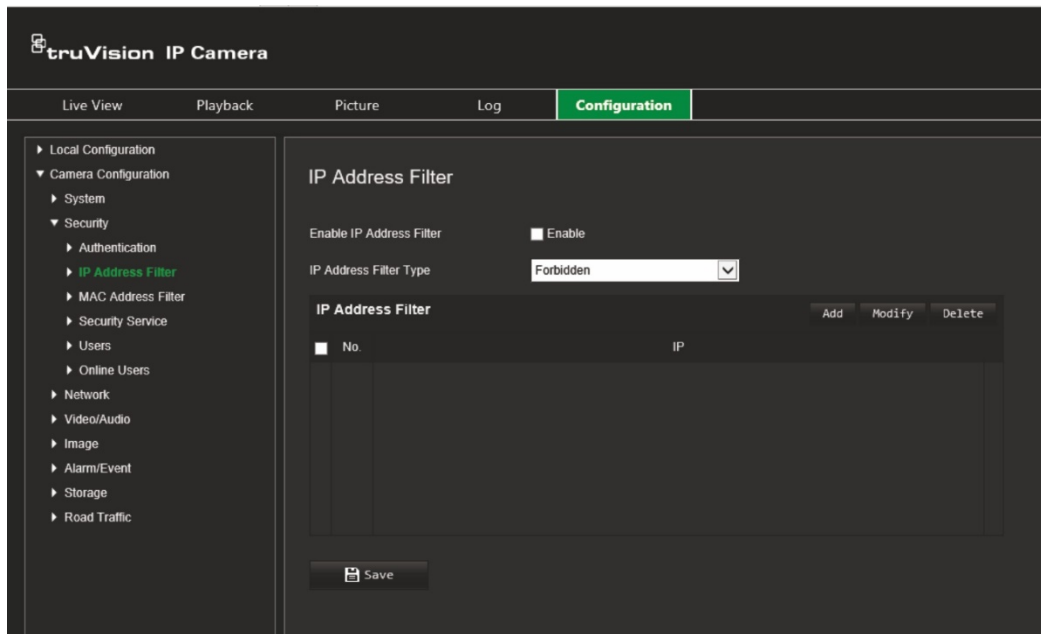
2. Select the **Enable IP Address Filter** check box**.**

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.

MAC address filter

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

To define the MAC address filter:

1. Click **Configuration** > **Security** > **MAC Address Filter**.

2. Select the **Enable MAC 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 a MAC address and enter the address.
5. Click **Modify** or **Delete** to modify or delete the selected MAC address**.**
6. Click **Clear** to delete all the MAC addresses.
7. Click **Save** to save the changes.

Security service

Enabling this function will lock a user out of the system after a certain number of failed login attempts.

To enable the illegal login lock:

1. Click **Configuration** > **Security** > **Security Service**.
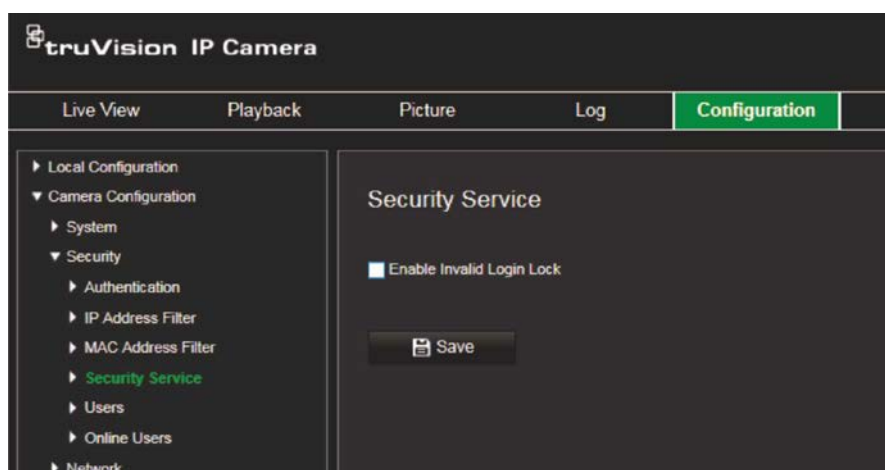
2. Select the **Enable Illegal Login Lock** check box

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

Notes:

- The IP address will be locked if the admin user performs seven failed user name/password attempts (five attempts for the operator/user).

- If the IP address is locked, you can try to log in to the device after 30 minutes.

User settings

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 6 below.

Figure 6: User management window
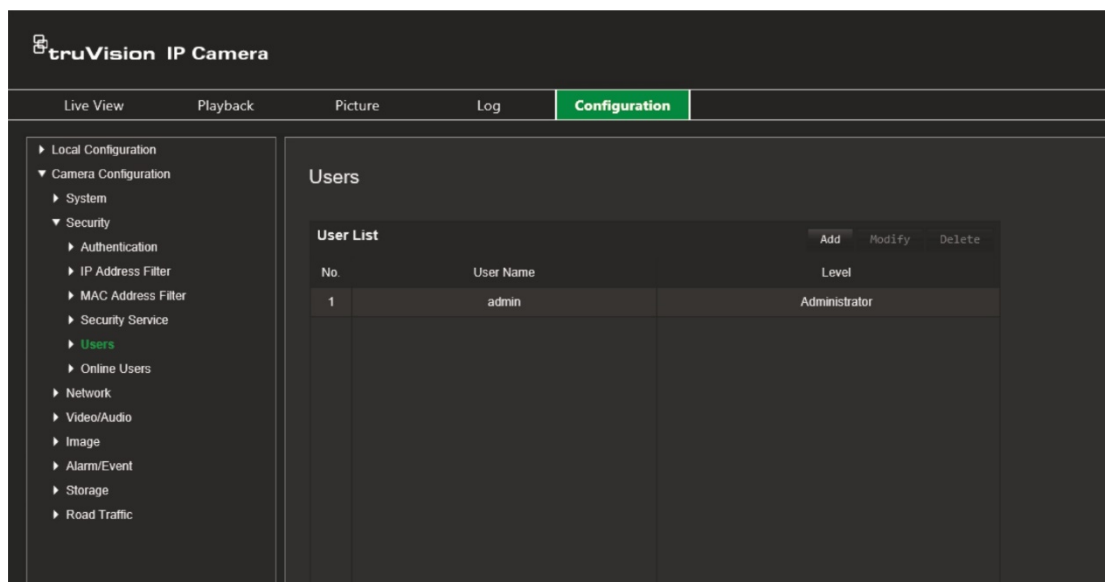
Passwords limit access to the camera and the same password can be used by several users. When creating a new user, you must give the user a password. There is no default password provided for all users. Users can modify their passwords.

Note: Keep the admin password in a safe place. If you forget it, please contact technical support.

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.

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. Click **Configuration** > **Security** > **Users**.

2. Select the **Add** button. The user management window appears.

3. Enter a user name.

4. Assign the user a password. Passwords can have up to 16 alphanumeric characters.

5. Select the type of user from the drop-down list. The options are Viewer and Operator.

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

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: Two-way Audio	Remote: Playback
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 the desired user under the **User** tab.

2. Click **Delete** button. A message box appears.

   Note: Only the administrator can delete a user.

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

Modify user information

You can easily change the information about a user such as their name, password and permissions.

To modify user information:

1. Select the desired user under the **User** tab.

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.

Network settings

Under Camera Configuration, use the Network menu to set the desired network parameters to be able to access the camera. See Figure 7.

Figure 7: Network window (TCP/IP tab shown)

TCP/IP parameters

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 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 prefix length.

IPv6 Default Gateway	Enter the IPv6 gateway IP address.
MAC Address	Enter 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	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.

To define the TCP/IP parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **TCP/IP**.

2. Configure the NIC settings, including the NIC Type, IPv4 settings, IPv6 settings, MTU settings, and Multicast Address.

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.

DDNS parameters

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. Specify DynDNS, No-IP and ezDDNS.

- **DynDNS (Dynamic DNS**): Manually create your own host name. You will first need to create a user account using the hosting web site, DynDDNS.org.

- **ezDDNS**: 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 your recorder.

- **NO-IP**: Enter the address of the NO-IP, host name for your camera, the port number, your user name and password.

To define the DDNS parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **DDNS**.

2. Select **Enable DDNS** to enable this feature.

3. Select the **DDNS Type**. Three options are available: DynDNS, ezDDNS and NO-IP.

   - **DynDNS:** Enter the DNSS server address, members.ddns.org (which is used to notify DDNS about changes to your IP address), the host name for your camera, the port number (443 (HTTPS)), and your user name and password used to log into your DDNS account. The domain name displayed under "Host Name" is that which you created on the DynDNS web site.

- **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).

- **NO-IP:** Enter the address of the NO-IP, host name for your camera, the port number, your user name and password.

4. Click Save to save changes.

PPPoE parameters

This allows you to retrieves a dynamic IP address.

To define the PPPoE parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **PPPoE**.

2. Select **Enable PPPoE** to enable this feature.

3. Enter User Name, Password, and Confirm password for PPPoE access.

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

Port parameters

You can set up several ports:

- **HTTP Port:** The HTTP port is used for remote internet browser access. Enter the port used for the Internet Explorer (IE) browser. Default value is 80.

- **RTSP Port:** 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.

- **HTTPS Port:** 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.

- **Server Port:** This is used for remote client software access. Enter the server port value. The default port number is 8000.

- **Alarm Host IP**: Specifies the IP address of the alarm host.

- **Alarm Host Port**: Specifies the port of the alarm host.

To define the port parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **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 number that 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. 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.

NAT parameters

A NAT (Network Address Translation) is used for network connection.

To set up the NAT parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **NAT**.

2. Select the check box to enable the NAT function.

3. Select the *Port Mapping Mode* to be **Auto** or **Manual**. When you choose Manual mode, you can set the external port as you want.

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

SNMP parameters

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

To define the SNMP parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **SNMP**.

2. Select the corresponding version of SNMP: v1 or v2c.

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 and manage 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 parameters

Enter the FTP address and folder to which snapshots of the camera can be uploaded.

To define the FTP parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **FTP**.

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 parameters

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

To set up the email parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **Email**.

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 this check box 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.

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

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

HTTP parameters

Specifies 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** > **Camera Configuration** > **Network** > **HTTPS**.
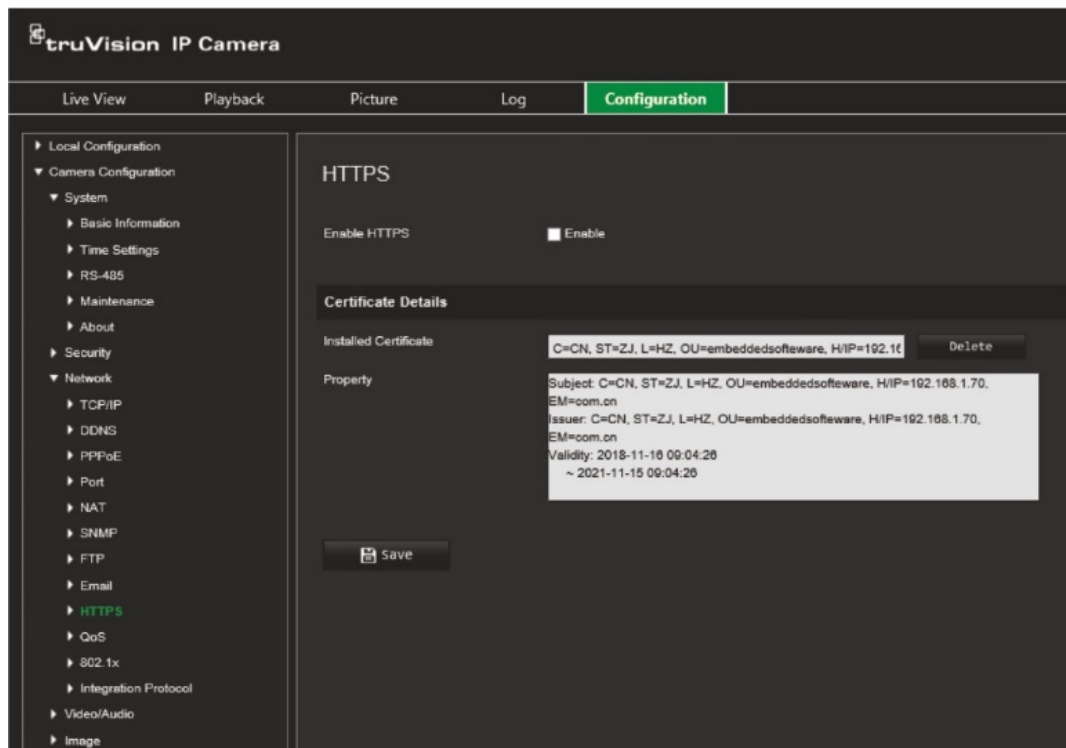
2. Select the check box to enable the HTTPS function. HTTPS provides authentication of the web site and associated web server that one is communicating with, which protects against Man-in-the-middle attacks.

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

QoS parameters

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. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Network** > **QoS**.

2. Select the QoS setting: Video/Audio DSCP, Event/Alarm DSCP, or Management DSCP.

   The valid value range of the DSCP is 0 to 63. The larger the DSCP value, the higher the priority.

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

802.1x parameters

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

To define the 802.1x parameters:

1. Click **Configuration** > **Camera Configuration** > **Network** > **802.1X**.

2. Select **Enable IEEE 802.1X** to enable the feature.

3. Select the 802.1X protocol (only EAP-MD5 only available) and select the 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, and a server must be configured. Please apply and register a user name and password for 802.1X in the server.

Integration protocol

Enable ONVIF when the camera needs to communicate to a recorder or VMS using the ONVIF protocol. Refer to ONVIF standard for detailed configuration rules.
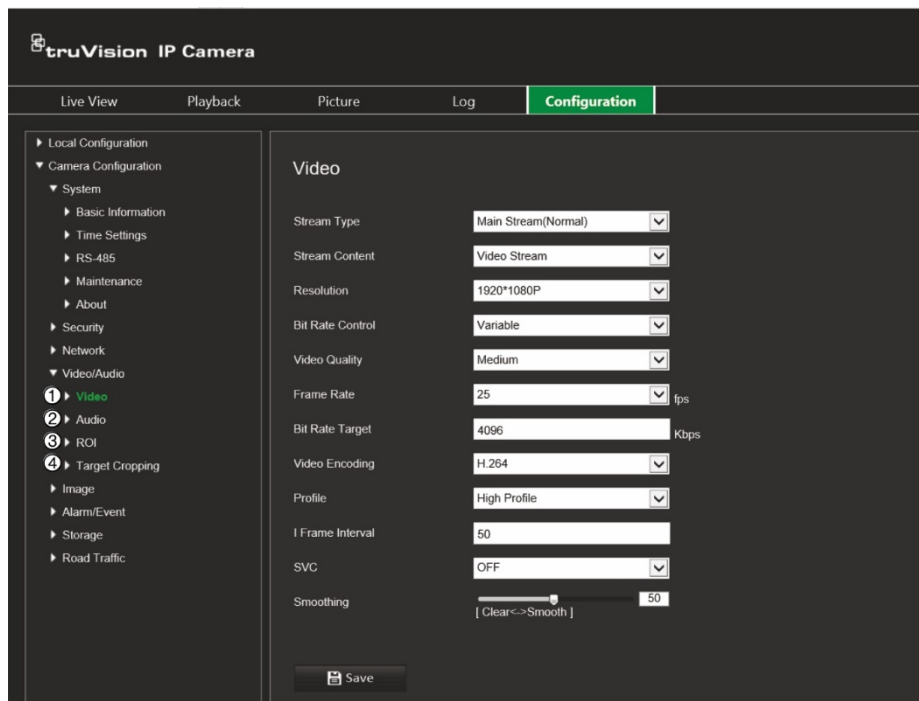
To enable ONVIF:

1. Click **Configuration** > **Camera Configuration** > **Network** > **Integration Protocol**.

2. Select **Enable ONVIF**.

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

Video/audio settings

Under Camera Configuration, use the Video/Audio menu to set the desired video and audio recording parameters as well as the region of interest (ROI) to obtain the picture quality and file size best suited to your needs. You can also specify the target area to live view an image using the third stream.

Figure 8 below list the video and audio recording options you can configure for the camera.

Figure 8: Video window

Tab	Parameter descriptions
1. Video	**Stream Type**: Specifies the streaming method used.
	Options include: Main Stream (Normal), Substream, or Third Stream.
	Use main stream for live viewing and recording with high resolutions and bandwidth. Use substream when there is a bandwidth limitation, such as when using a mobile app. The third stream can be used for local live viewing or as a backup to the other streams.
	Note: The Third stream is only available when the this function is enabled in **System** > **System Service**
	Stream Content: Specifies the stream type you wish to record.
	Select **Video Stream** to record video stream only. Select **Video & Audio** to record both video and audio streams.
	Note: Video & Audio is only available for those camera models that support audio.

Tab	Parameter descriptions
	Resolution: 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 stream, substream or third stream is being used. **Note**: Resolutions can vary depending on the camera model.
	Bit Rate Control: Specifies whether variable or fixed bit rate is used. Variable produces higher quality results suitable for video downloads and streaming. Default is Constant.
	Video Quality: 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.
	Frame Rate: Specifies the frame rate for the selected resolution. The frame rate is the number of video frames that are shown or sent per second. **Note**: The maximum frame rate depends on the camera model and selected resolution. Please check the camera specifications in its datasheet.
	Video Encoding: Specifies the video encoder used.
	Profile: Different profile indicates different tools and technologies used in compression. Options include: High Profile, Main Profile.
	I Frame Interval: A video compression method. It is strongly recommended not to change the default value 50.
	SVC: Scalable Video Coding (SVC) 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.
	Smoothing: Adjust the smoothness of the stream. The higher the smoothing value, the more fluent the streaming, but the video quality may decrease. The lower the smoothing value, the higher video quality of the stream, but it may not appear fluent.
2. Audio	**Audio Encoding**: G.722.1, G.711ulaw, G.711alaw, MP2L2, G.726 and PCM are optional.
	Audio Input: Select "Mic In" (microphone) or "Line In" (other audio device) for the type of audio input connected.
	Input Volume: Specifies the volume from 0 to 100.
	Environmental Noise Filter: Set it as OFF or ON. When enabled, the noise detected can be filtered.
3. ROI	Select an area of detail or ROI (Region of interest) in a stream. You can define up to four ROIs. There are two types of ROI regions: **Fixed region**: When a moving image is detected on-screen, it will be displayed at the selected stream type. However, areas outside of the ROI, the areas of low interest, will be displayed at a lower image quality. When no movement is detected on-screen, all the screen is shown at the selected stream type. **Dynamic region**: This option is used to improve the image quality of detected license plates when a vehicle passes through an ROI. It is recommended to enable this function to have good quality images of detected licenses plates to download. See "Road traffic settings" on page 63 for further information on setting up the camera ROI to detect license plates. The ROI function depends on the camera model.

| Tab	Parameter descriptions
4. Target Cropping	Specify a target area in the live video and the preferred resolution to display the image in greater detail using third stream streaming.
	Note: Target cropping function varies depending on the camera models.

To configure audio settings:

1. Click **Configuration** > **Camera Configuration** > **Video/Audio** > **Audio**.
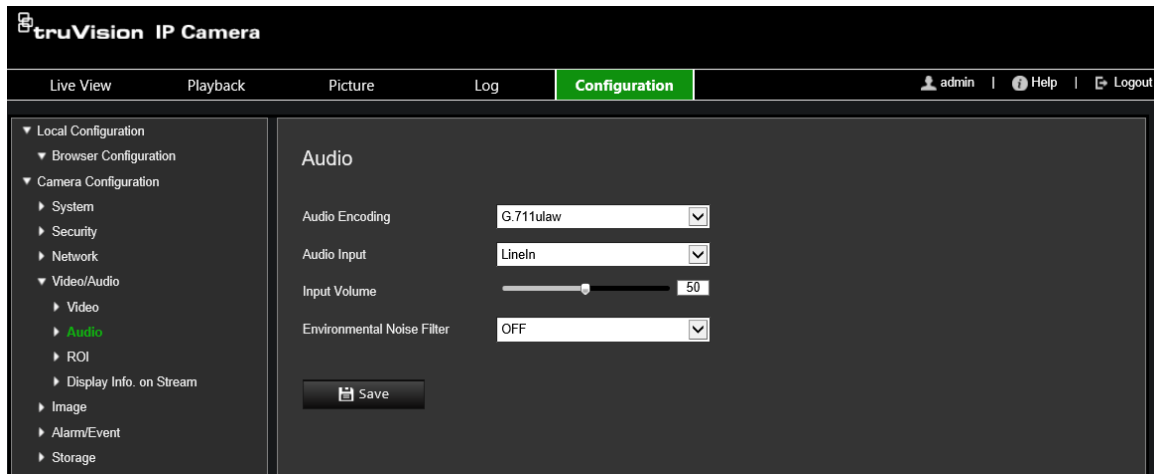
2. Select the desired audio parameters.

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

To configure the ROI settings:

1. Click **Configuration** > **Camera Configuration** > **Video/Audio** > **ROI**.
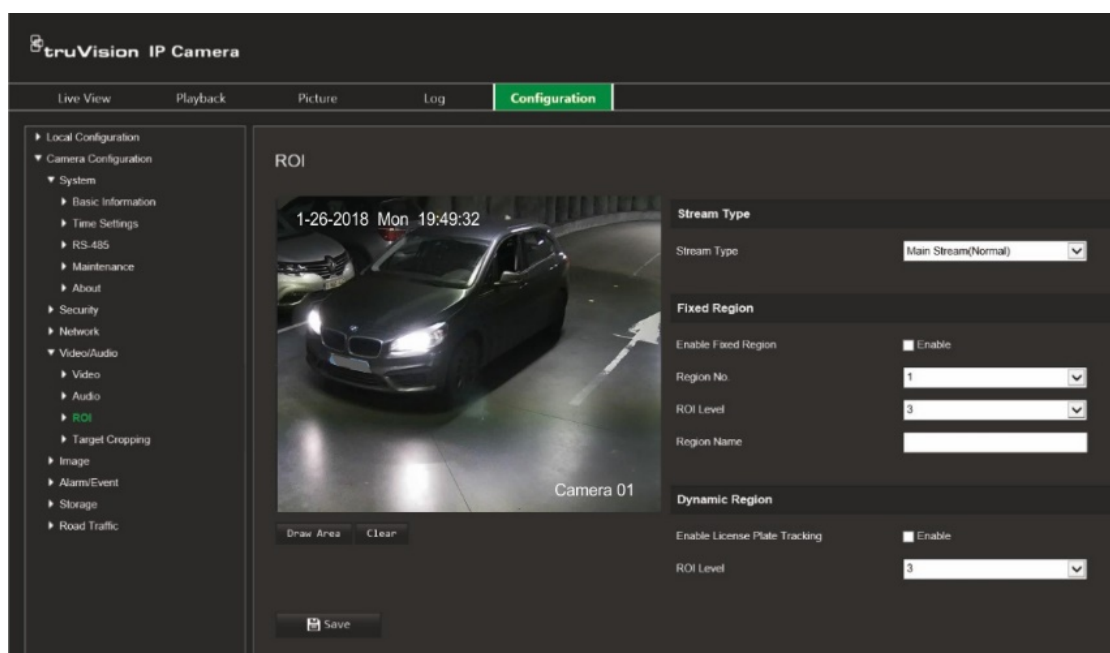
2. Choose the stream type for the ROI encoding: Main stream, Substream, or Third Stream.

3. To set up a fixed ROI region, select the **Enable Fixed Region**.

Select the number of the desired ROI, its image quality enhancing level (ROI level), and enter its name. You can create up to four ROIs. The greater the ROI level, the better the image quality.

Click the **Draw Area** button and draw the desired ROI area with your mouse. A red rectangle appears on the live video image to mark the target area. Then click the **Stop Drawing** button.

Note: You can enable/disable the fixed region option for each region individually.

Repeat this step for each ROI region, if required.

4. To set up a dynamic ROI region, select **Enable License Plate Tracking** to automatically track license plates as a good quality image. The ROI will depend on where license plates are detected in the scene. See "Road traffic settings" on page 63 for further information on setting up the camera ROI to detect license plates.

Select the image quality enhancing level (ROI level).

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

To configure target cropping:

1. Click **Configuration** > **Camera Configuration** > **Video/Audio** > **Target Cropping**.

2. Select **Enable Target Cropping**.

3. Select the stream type as **Third Stream**.

4. Select the cropping resolution for the video display of target area. A red rectangle appears on the live video image to mark the target area. Click-and-drag the rectangle to position the target area as desired.

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

Image settings

Under Camera Configuration, use the Image menu to set the desired camera image parameters. You may need to adjust the camera image depending on the camera model or location background in order to get the best image quality. You can adjust the brightness, contrast, saturation, hue, and sharpness of the video image.

Display settings

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. See Figure 9 below for more information.

Changes are automatically saved.

Figure 9: Display Settings

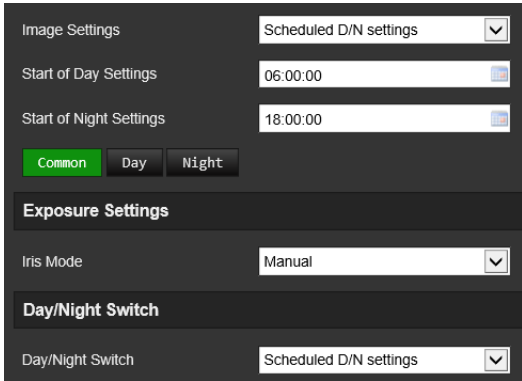| Parameter	Description
1. Mounting Scenario	Defines the image quality.
	Normal: Select when the lighting conditions are constant or indoors.
	Road: Select when the lighting conditions are variable or outdoors. Use this option to better capture vehicle license plates in dark environments when a shorter exposure/shutter time is needed.

Parameter	Description
Image Settings	**Auto D/N Switch:**
	The camera automatically switches between day and night modes. All image settings remain the same for both modes.
	The image settings are: Image Adjustment, Exposure Settings, Day/Night Switch, Backlight Settings, White Balance, Image Enhancement, Video Adjustment, and Other.
	Custom 24-h Settings:
	Customize the camera switch schedule for 24-hour settings.
	There are three tabs to configure the Custom 24-hour settings:
	Common, *Day, Night.*
	See "Scheduled D/N Switch" below for further information.
	Scheduled D/N Switch:
	The camera switches between the day and night modes depending on the schedule configured (see figure below). Select the start times for day and night modes.
	There are also three tabs to configure the day/night settings:
	Common: The settings are identical for both day and night modes for Exposure Settings, and Day/Night Switch.
	Day: Image Adjustment, Exposure Settings, Backlight Settings, White Balance, and Image Enhancement for day mode only.
	Night: Image Adjustment, Exposure Settings, Backlight Settings, White Balance, and Image Enhancement for night mode only.

2. **Image Adjustment**

Brightness, Contrast Saturation, Sharpness	Modify the different elements of picture quality by adjusting the values for each of parameter.

3. **Exposure Settings**

Iris Mode	This option is only available when the *Common* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.
	There are two settings, Auto and Manual. The type of lens determines which setting is used. Default is Auto.
Auto Iris Level	This option is only available when the *Common* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.
	Select the iris level. Default is 50.

Parameter	Description
Exposure Time	This option is only available when the *Day* or *Night* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.
	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	This option is only available when the *Day* or *Night* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.
	Select the value to adjust the image brightness. Default is 20.

4. Focus Settings

This option is only available when the *Common* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.

Focus mode	If the camera supports an electronic lens, you can set the focus mode as Manual, Auto or Semi-auto.
	Auto: The camera focus is adjusted automatically.
	Manual: You can control the lens by adjusting the zoom, focus, lens initialization, and auxiliary focus via the PTZ control interface. Default is Manual.
	Semi-auto: When you adjust focus manually, the camera will no longer focus automatically.

5. Day/Night Switch

This option is only available when the *Common* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.

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.
	Select one of the following options:
	Day: Camera is always in day mode.
	Night: Camera is always in night mode.
	Auto: The camera automatically detects which mode to use depending on the illumination level. The minimum illumination level required to switch from day to night mode is 1 lux. The minimum illumination level required to switch from night to day mode is 3 lux.
	Scheduled D/N Settings: The camera switches between day and night modes depending on the configured time period.
	Triggered by Alarm Input: When an alarm is triggered, the camera switches to day or night mode depending on the current mode.
	Triggered by Video: This option is used to better ensure a clearer image of vehicle license plates in dim light. When an alarm is triggered, the camera does not switch to night mode until the illumination level is at least 10 lux. This means that the IR LEDs are turned on earlier than for the *Auto* option. The camera does not switch from night to day mode until the illumination level is at least 100 lux.
N->D	This option is only available when the *Scheduled D/N Settings* option under "Day/Night Switch" has been selected.
	Enter the time when night mode changes to day mode.
D->N	This option is only available when the *Scheduled D/N Settings* option under "Day/Night Switch" has been selected.
	Enter the time when day mode changes to night mode.

Parameter	Description
Triggering Status	This option is only available when the *Triggered by Alarm Input* option under "Day/Night Switch" has been selected. Select whether Day or Night mode starts when an alarm is triggered.
Sensitivity	This option is only available when the *Triggered by Alarm Input* option under "Day/Night Switch" has been selected. It defines the sensitivity of the switch between day and night. Set it between 0 and 7.
Delay Time	This option is only available when the *Triggered by Alarm Input* option under "Day/Night Switch" has been selected. This is the time duration that the alarm output remains in effect after an alarm occurs. Maximum time is 120 s. Default is 5 s.
Smart Supplement Light	When enabled, it can avoid over exposure of the image. Default is OFF.
IR Light	Select ON/OFF to enable/disable IR. **ON**: The IR LEDs are ON when the camera changes to night mode. **Off**: The IR LEDs are OFF when the camera changes to night mode **Note**: The IR LEDs are always OFF in day mode.

6. **Backlight Settings**

This option is only available when the *Day* or *Night* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.

BLC Area	This option is not available when *WDR* is enabled. If you focus 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. Select OFF, Up, Down, Left, Right, Center, or Custom. If *Custom* is selected, you must draw an area on the live view image where you want BLC to apply. When WDR is enabled, BLC cannot be configured.
WDR	This option is not available when *BLC Area* is enabled. When enabled, this feature (wide dynamic range) allows you to see details of objects in shadows or details of objects in bright areas of frames that have high contrast between light and dark areas.
Wide Dynamic Level	This option is only available when *WDR* is enabled.

7. **White Balance**

White Balance	White balance (WB) sets the relative parameters for the color white in the camera. Based on this information, the camera will continue to display all colors correctly even when the color temperature of the scene changes such as from daylight to fluorescent lighting. Select one of the options: **MWB:** Manually adjust the color temperature to meet your requirements. **AWB1:** Adjust within a range of 2500 to 9500K, for environments where the lighting is always stable. **Locked WB:** Locks the WB to the current environment color temperature. **Fluorescent Lamp:** For use where there are fluorescent lamps installed near the camera.

Parameter	Description
	Incandescent Lamp: For use with incandescent lighting.
	Warm Light Lamp: For use where the indoor light is warm.
	Natural Light: For use with natural light.

8. Image Enhancement

This option is only available when the *Day* or *Night* tab under "Scheduled D/N Switch" or "Custom 24-h Settings" has been selected.

Parameter	Description
Digital Noise Reduction	Digital noise reduction (DNR) reduces noise, especially in low light conditions, to improve image performance. Options include: Normal Mode, Advanced, or OFF. Default is Normal.
Noise Reduction Level	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.
Defog Mode	You can enable the defog function when the environment is foggy and obscures the image. It enhances the subtle details so that the image appears clearer. Default is OFF.
EIS	Electrical Image Stabilizer reduces the effects of camera vibration for the image. Default is OFF.
Gray Scale	You can choose the range of the gray scale from 0 to 255 or from16 to 235. Default is 0 to 255.

9. Video Adjustment

Parameter	Description
Mirror	Inverts the image. Options are Left/Right, Up/Down, Center, and OFF. Default is OFF.
Hallway View	To invert the 16:9 aspect ratio, enable the rotate function. 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 On. You will get a normal view of the scene with 9:16 aspect ratio that ignores needless information such as the walls. Default is OFF.
Scene Mode	Select the scene as indoor or outdoor depending on the current environment.
Video Standard	Select PAL (50 Hz) or NTSC (60 Hz) as the video standard.
Capture Mode	Set the desired frame rate to meet the different demands of field of view and resolution. A higher frame rate may be required in a location with a lot of movement (such as a money depot).
Lens Distortion Correction	Cameras that use a motorized lens may experience some image distortion. Enable this option when using such a lens.

10. Other

Parameter	Description
Local Output	Select ON or OFF to enable or disable the BNC output. Default is ON.

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

OSD (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 add up to eight lines of text that are superimposed on the stream to provide extra information during recordings. This option can be used, for example, to display emergency contact details. Each text line can be positioned anywhere on screen.

To position the date/time and camera name on screen:

1. Click **Configuration** > **Camera Configuration** > **Image** > **OSD Settings**.
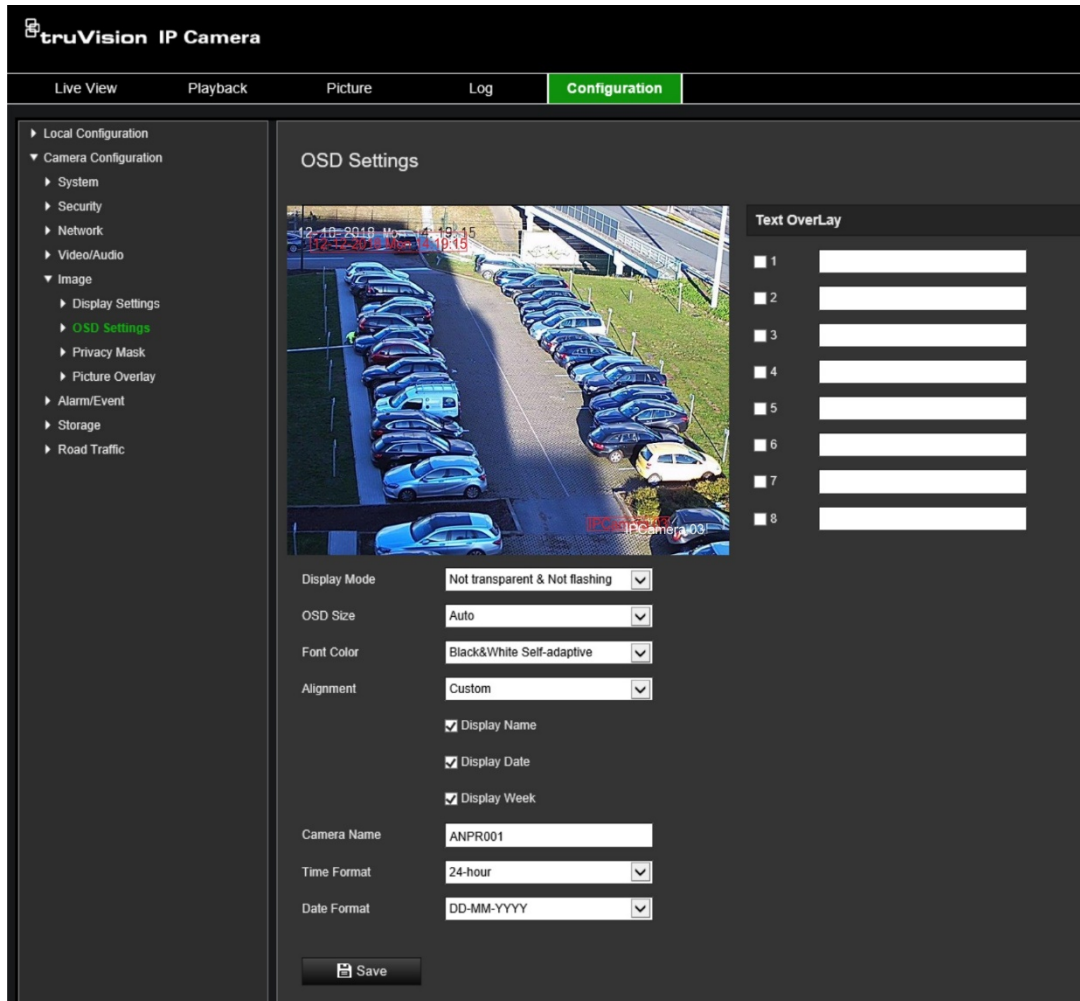
2. Select **Display Name** box to display the camera's name on screen. You can modify the name in the text box of **Camera Name**.

3. Select **Display Date** to display the date/time and **Display Week** to include the day of the week. Also select the time and date formats from the **Time format** and **Date format** list boxes.

4. Select a display mode for the camera from the **Display Mode** 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.

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

5. Select the font color, alignment and OSD size.

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

To add overlay text:

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

2. Under *Text Overlay*, select the check box for the first line of text and enter the text in the text box.

3. Using the mouse, click and drag the red overlay text in the live view window to the desired position.

4. Repeat steps 2 to 3 for each extra line of overlay text, selecting the next string number.

   Note: Remove an overlay text by deselecting its text line.

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

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 masks on the same image.

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. Click **Configuration** > **Camera Configuration** > **Image** > **Privacy Mask**.

2. Select **Enable Privacy Mask**.

3. Click **Draw Area**. Click and drag the mouse in the live video window to draw the mask area. The **Draw Area** button is renamed **Stop Drawing** when clicked.
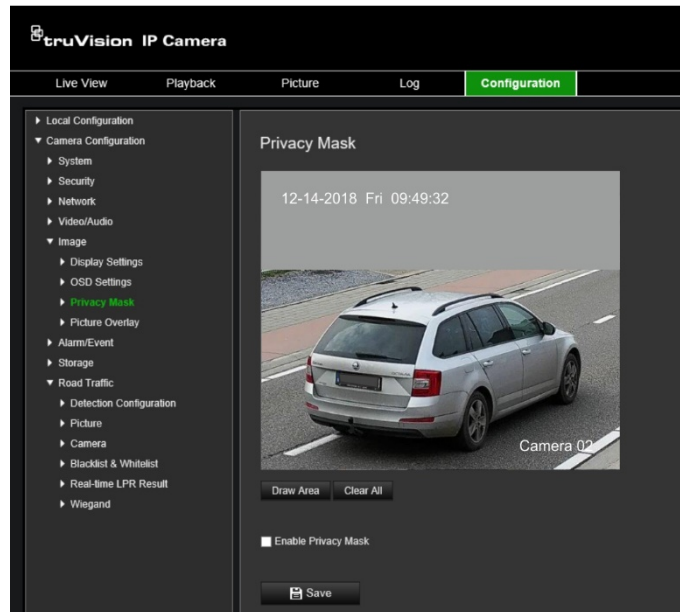
4. Click **Stop Drawing** to finish drawing, or click **Clear All** to clear all of the areas you set without saving them.

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

Picture overlay

Picture overlay enables you to overlay a picture on the image. This function enables an enterprise or users to overlay their logo on the image, for example. The picture must be in RGB24 bmp format and the maximum size of the picture is 128*128.

To overlay a picture:

1. Click **Configuration** > **Camera Configuration** > **Image** > **Picture Overlay**.
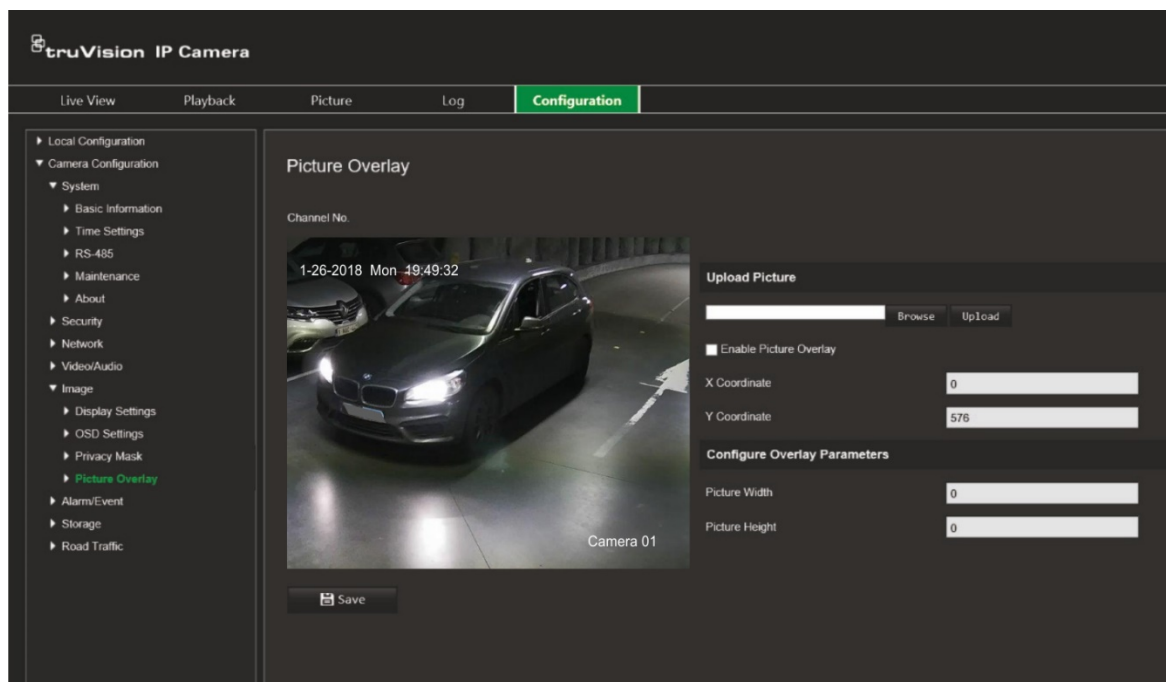
2. Under *Upload Picture*, click **Browse** to select a picture from your library or online and click **Upload** to upload it.

3. Select **Enable Picture Overlay** check box to enable the function.

   Note: X coordinate and Y coordinate values are the location of the picture on the image. The picture width and height shows the size of the picture.

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

Alarm /event settings

Under Camera Configuration, use the Alarm/Event menu to set the desired parameters for motion, inputs, outputs and system alarms and events.

A motion detection alarm is triggered when the camera detects motion. However, 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 can trigger a motion recording. For example, the motion recording is triggered by the movement of a person but not that of a cat.

You can 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 alert you to a motion detection alarm.

You can also enable dynamic analysis for motion. When there is motion, the area will be highlighted as green.

Figure 10: Motion detection window
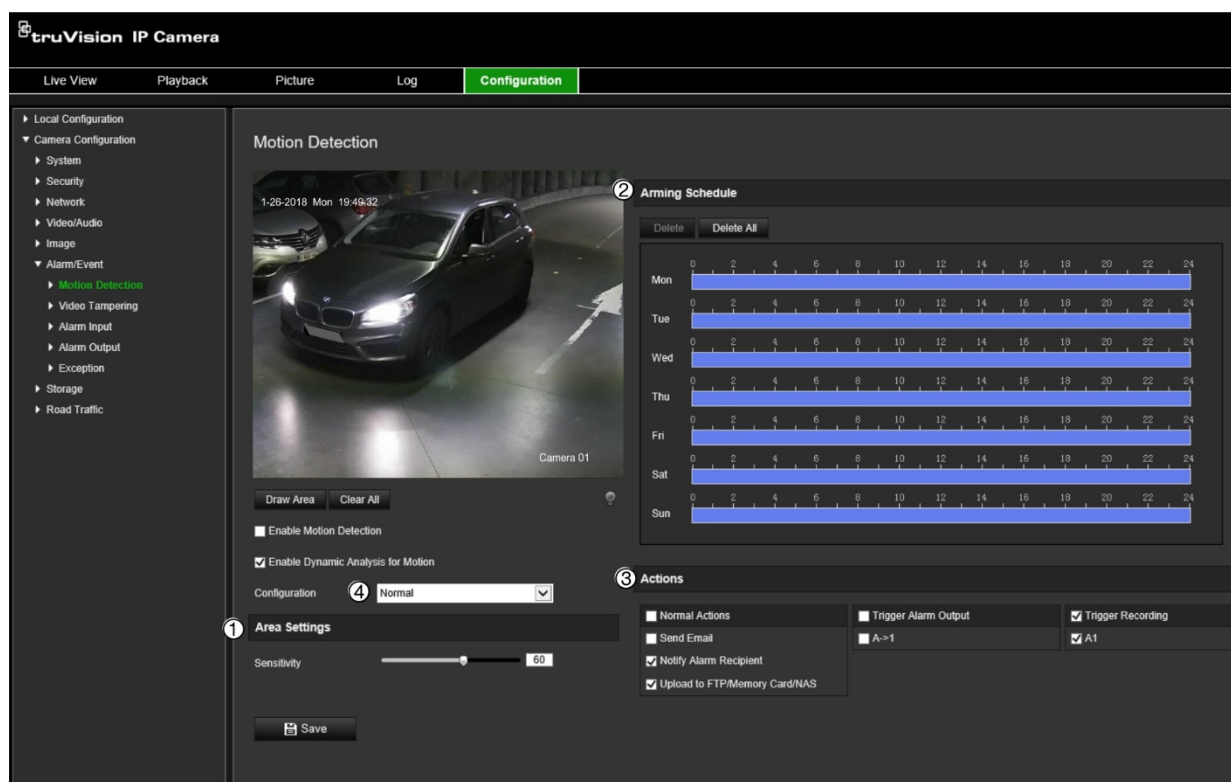
To define a motion detection alarm requires the following tasks to be done:

1. **Area settings**: Define the on-screen area that can trigger a motion detection alarm and the detection sensitivity level (see Figure 10, item 1).

2. **Arming schedule**: Define the schedule during which the system detects motion (see Figure 10, item 2).

3. **Recording schedule**: Define the schedule during which motion detection can be recorded. See "Recording schedule" on page 57 for further information.

4. **Actions**: Specify the method of response to the alarm (see Figure 10, item 3).

5. **Normal and advanced configuration**: Normal configuration allows you to set the sensitivity level of the motion detection (see Figure 10, item 4). Advanced configuration gives you much more control over how motion is detected. It lets you set the sensitivity level as well as define the percentage of the motion detection area that the object must occupy, select day or night mode, and set up eight differently configured defined areas.

To set up motion detection in normal mode:

1. Click **Configuration** > **Camera Configuration** > **Alarm/Event** > **Motion Detection**.

2. Select the **Enable Motion Detection** check box. 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 and drag the mouse on the live video image to draw an area sensitive to motion detection. The **Draw Area** button is renamed **Stop Drawing** when clicked.

   Note: You can draw up to eight motion detection areas 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. 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.

Enter the start time (hour and minutes)   Enter the end time (hour and minutes)

8. 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.

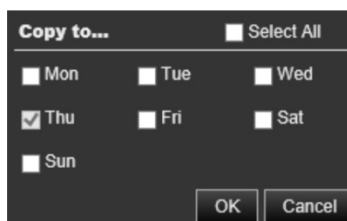9. Specify the **linkage method** when an event occurs. Select one or more response methods for the system when a motion detection alarm is triggered:

Normal Actions	This is a group selection. It automatically selects "Send Email", "Notify Alarm Recipient" and "Upload to FTP/Memory Card/NAS".
Send Email	Send an email to a specified address when there is a motion detection alarm. **Note:** You must configure email settings before enabling this option. See "Email parameters" on page 30 for further information. If you want to send the event snapshot together with the email, select the **Attached Snapshot** option.
Notify Alarm Recipient	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 settings" on page 62 for further information. To upload the snapshot to an FTP, you must first configure the FTP settings. See "FTP parameters" on page 29 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 "Snapshots" on page 59 for further information.
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. **Note:** This option is only supported by cameras that support alarm output.
A->1	Trigger the alarm input A->1.
Trigger Recording	Trigger the camera to start recording.
A1	

10. Click **Save** to save changes.

To set up motion detection in advanced mode:

1. Click **Configuration** > **Camera Configuration** > **Alarm/Event** > **Motion Detection**.

2. Select the **Enable Motion Detection** check box. 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 **Advanced** mode from the drop-down list.
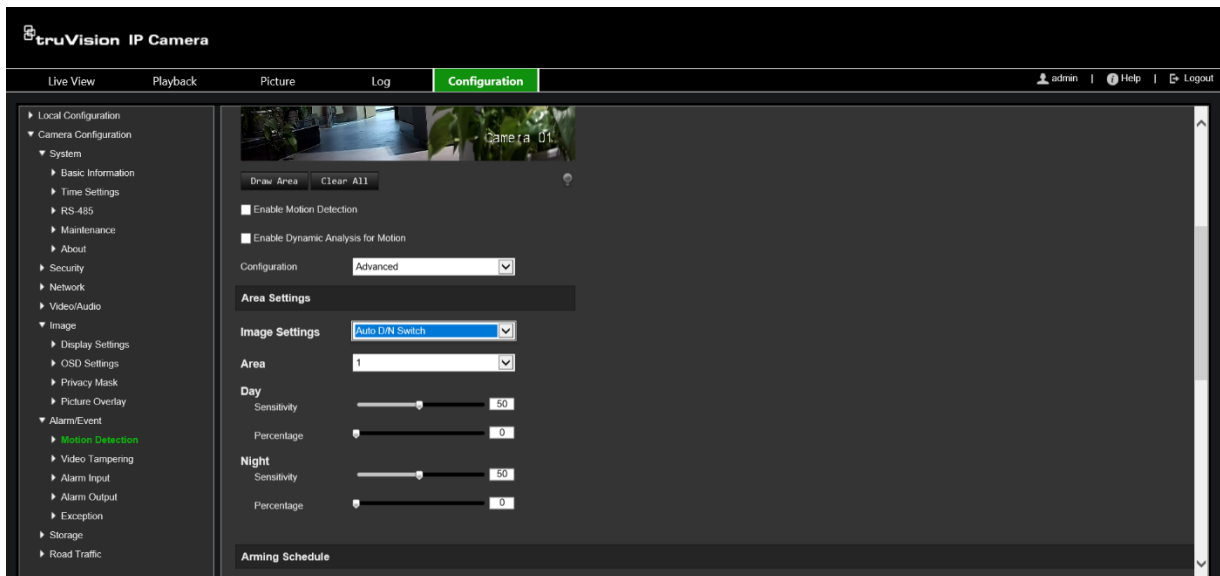
4. Under **Image Settings**, select OFF, Auto D/N Switch or Scheduled D/N settings. Default is OFF.

   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. Under **Area**, select the area number of this area and then click **Draw Area**. Click and drag the mouse on the live video image to draw an area sensitive to motion detection. The **Draw Area** button is renamed **Stop Drawing** when clicked.

   Note: You can draw up to eight motion detection areas on the same image.

   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 for the selected areas. Default is 50.

7. Move the **Percentage** slider to set the proportion of the object that must occupy the defined area to trigger an alarm. Default is zero.

8. Click **Save** to save the changes for that area.

9. Repeat steps 5 to 8 for each area to be defined.

10. 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.

Enter the start time (hour and minutes)   Enter the end time (hour and minutes)

11. 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.

12. Click **OK** to save changes.

13. Specify the linkage method when an event occurs. Select one or more response methods for the system when a motion detection alarm is triggered:

Normal Actions	This is a group selection. It automatically selects "Send Email", "Notify Alarm Recipient" and "Upload to FTP/Memory Card/NAS".
Send Email	Send an email to a specified address when there is a motion detection alarm.
	Note: You must configure email settings before enabling this option. See "Email parameters" on page 30 for further information. If you want to send the event snapshot together with the email, select the **Attached Snapshot** option.
Notify Alarm Recipient	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 settings" on page 62 for further information.
	To upload the snapshot to an FTP, you must first configure the FTP settings. See "FTP parameters" on page 29 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 "Snapshots" on page 59 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 supported by cameras that support alarm output.
A->1	Trigger the alarm input A->1.
Trigger Recording	Trigger the camera to start recording.
A1	

14. 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. Click **Configuration** > **Camera Configuration** > **Alarm Event** > **Video Tampering**.
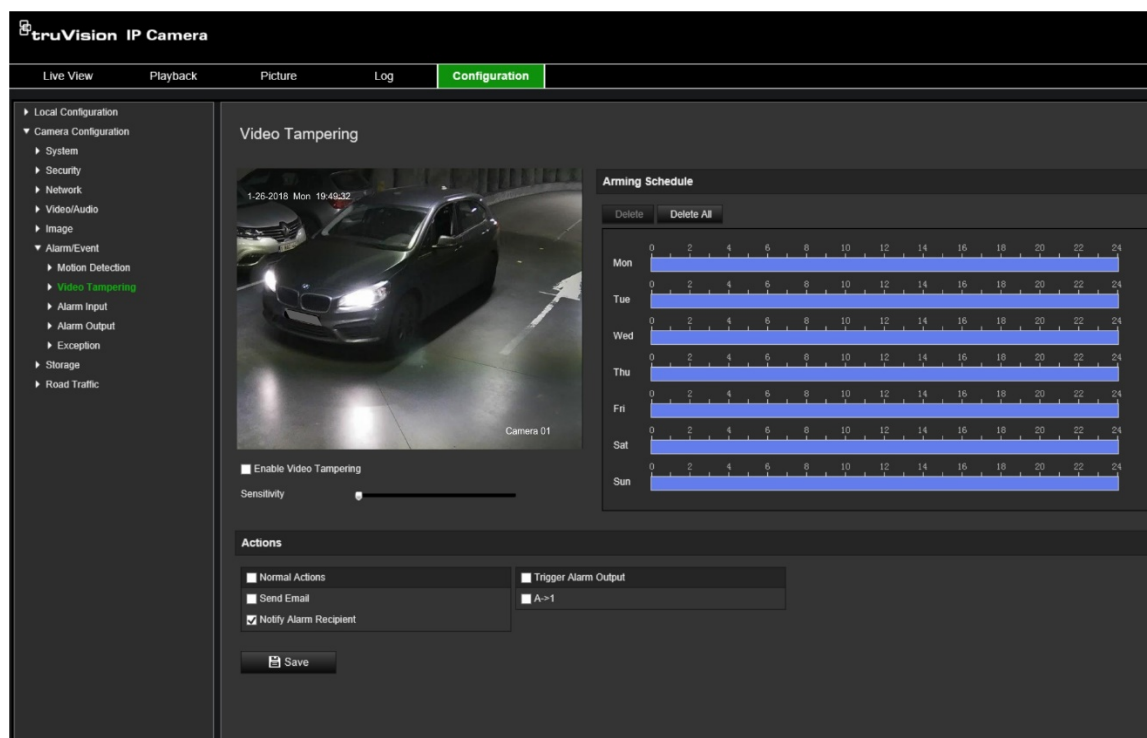
2. Select the **Enable Video Tampering** box.

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 reboot the camera through the web browser" on page 18 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:

Normal Actions	This is a group selection. It automatically selects "Send Email", "Notify Alarm Recipient" and "Upload to FTP/Memory Card/NAS".
Send Email	Send an email to a specified address when there is a motion detection alarm. **Note:** You must configure email settings before enabling this option. See "Email parameters" on page 30 for further information. If you want to send the event snapshot together with the email, select the **Attached Snapshot** option.
Notify Alarm Recipient	Send an exception or alarm signal to remote management software when an event occurs.

|	
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select "Select All" or each individual alarm output.
	Note: This option is only supported by cameras that support alarm output.
A->1	Trigger the alarm input A->1.

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

Alarm inputs and outputs

To define the external alarm input:

1. Click **Configuration** > **Camera Configuration** > **Alarm/Event**> **Alarm Input**.

2. Select Enable Alarm Input Handling.

3. Select the desired alarm input number and type from **Alarm Input No.** and **Alarm Type** drop-down lists. The alarm type can be NO (Normally Open) and NC (Normally Closed). Enter a name for the alarm input.

   Note: The IP address is set under *Local Configuration*. It cannot be changed here.

4. Set the arming schedule for the alarm input. See "To reboot the camera through the web browser" on page 18 for more information.

5. Under **Actions**, select the desired linkage method.

Normal Actions	This is a group selection. It automatically selects "Send Email", "Notify Alarm Recipient" and "Upload to FTP/Memory Card/NAS".
Send Email	Send an email to a specified address when there is a motion detection alarm.
	Note: You must configure email settings before enabling this option. See "Email parameters" on page 30 for further information. If you want to send the event snapshot together with the email, select the **Attached Snapshot** option.
Notify Alarm Recipient	Send an exception or alarm signal to remote management software when an event occurs.
Upload to FTP/Memory Card/NAS	**Note**: To upload the snapshot to NAS, you must first configure the NAS settings. See "NAS settings" on page 62 for further information.
	To upload the snapshot to an FTP, you must first configure the FTP settings. See "FTP parameters" on page 29 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 "Snapshots" on page 59 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 supported by cameras that support alarm output.
Trigger Recording	Trigger the camera to start recording.

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

To define the alarm output:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **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 reboot the camera through the web browser" on page 18 for more information.

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

Exception alarms

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 the 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 used to login to the cameras.

To define exception alarms:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Basic Event** > **Exception**.
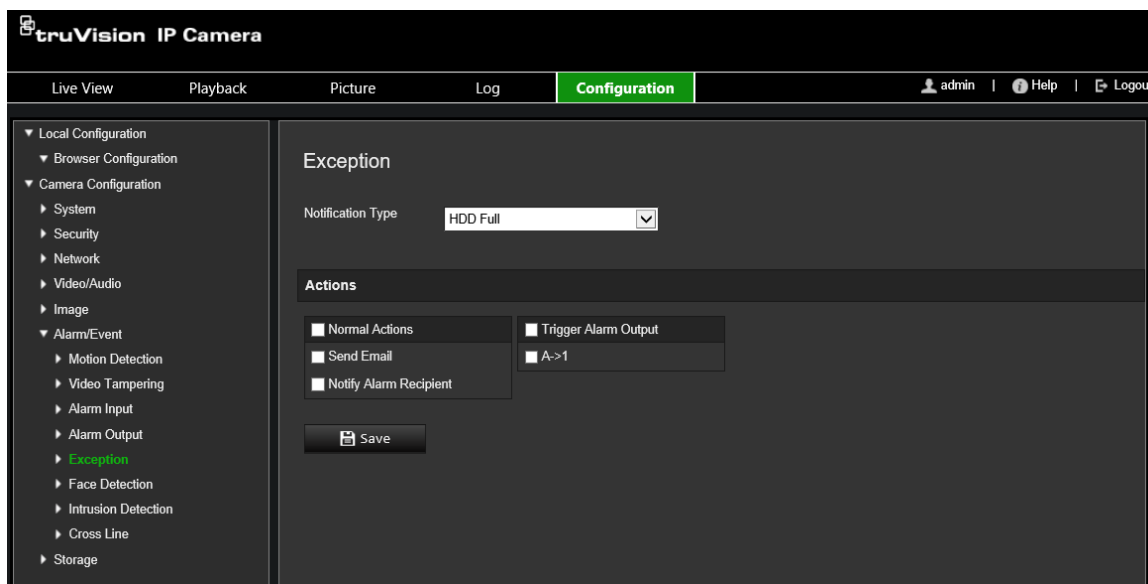
2. Under **Exception Type**, select an exception type from the drop-down list.

3. Specify the linkage method when an event occurs. Select one or more response methods for the system when a tamper-proof alarm is triggered.

Normal Actions	This is a group selection. It automatically selects "Send Email", "Notify Alarm Recipient" and "Upload to FTP/Memory Card/NAS".
Send Email	Send an email to a specified address when there is a motion detection alarm.
	Note: You must configure email settings before enabling this option. See "Email parameters" on page 30 for further information. If you want to send the event snapshot together with the email, select the **Attached Snapshot** option.
Notify Alarm Recipient	Send an exception or alarm signal to remote management software when an event occurs.
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select "Select All" or each individual alarm output.
	Note: This option is only supported by cameras that support alarm output.
A->1	Trigger the alarm input A->1.

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

Storage settings

Under Camera Configuration, use the Storage menu to set the desired parameters for the recording schedule, capturing and uploading snapshots, and managing storage.

Recording schedule

You can define a recording schedule for the camera in the "Record Schedule" window. The recording is saved on to the SD card or NAS in the camera. The camera's SD card provides a backup in case of network failure. The SD card is not provided with the camera.

The selected recording schedule applies to all alarm types.

Figure 11: Recording schedule window
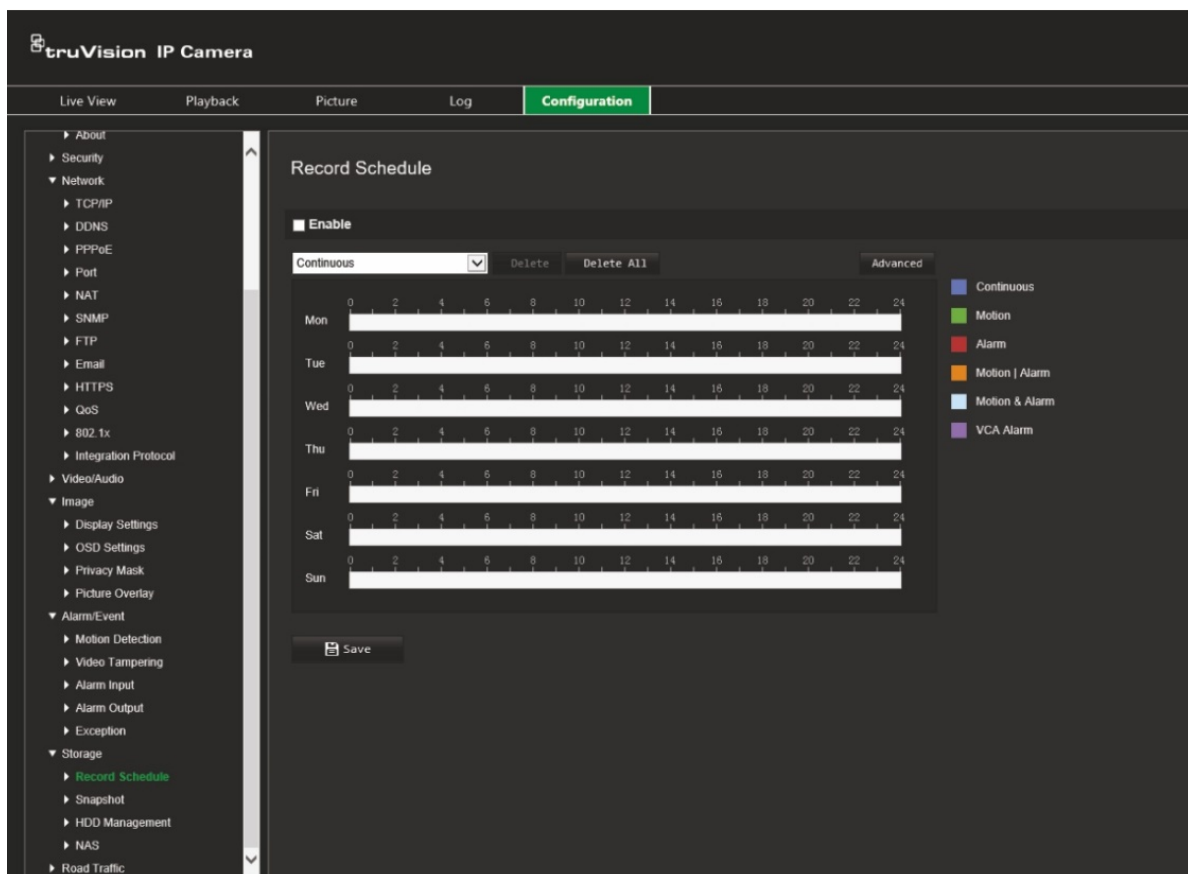
Pre-record time

The pre-record time is set to start recording before the scheduled time or event. For example, if an alarm triggers a 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.

Recording stream

You can select main stream or substream to record.

To set up a recording schedule:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Storage** > **Record Schedule**.

2. Select the **Enable** check box to enable recording.

    Note: To disable recording, deselect the option.

3. Set up the recording schedule.

4. Click the day you want to schedule recordings. The Schedule pop-up window appears. Select the desired recording type and enter the start and end times for recording.
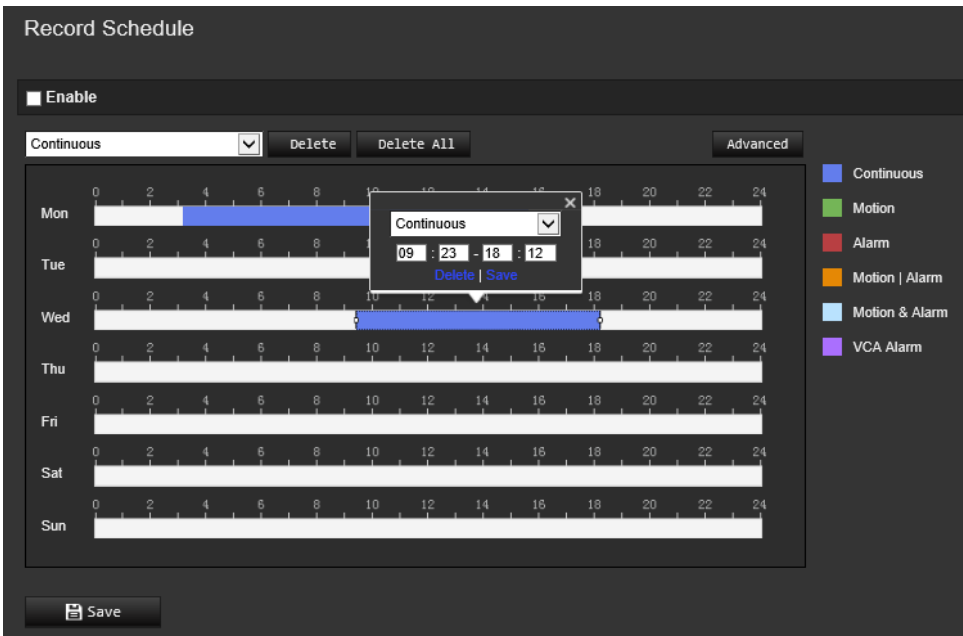
Recording types	Description
Continuous	This is continuous recording.
Motion	Video is recorded when the motion is detected.
Alarm	Video is recorded when the alarm is triggered via the external alarm input channels. Besides configuring the recording schedule, you have to set the Alarm Type and select the check box of Trigger Channel in the Linkage Method of Alarm Input Settings interface. For detailed information, please refer to Section Alarm Input.

Motion | Alarm	Video will be recorded when the external alarm is triggered or the motion is detected. Besides configuring the recording schedule, you have to configure the settings on the Motion Detection and Alarm Input Settings interfaces.
Motion & Alarm	Video will be recorded when the motion and alarm are triggered at the same time. Besides configuring the recording schedule, you have to configure the settings on the Motion Detection and Alarm Input Settings interfaces.
VCA Alarm	Video will be recorded when the either of the VCA events is triggered. Besides configuring the recording schedule, you have to configure the settings on the VCA interface.

Note: You can only have up to two different recording types in a day.

5. Set the recording periods for the other days of the week.

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.

6. Click the **Advanced** button and select the stream type to set the pre- and post-recording times as well as the stream type. These values apply to all recording schedules.

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

Note: If you set the record type to "Motion" or "Alarm", you must also define the arming schedule in order to trigger motion detection or alarm input recording.

Snapshots

You can configure scheduled snapshots and event-triggered snapshots. The captured snapshots can be stored in the SD card (if supported) 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 to the FTP. If you have configured the FTP settings and selected **Upload Type** in the Network > 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 > 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 scheduled snapshots:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Storage** > **Snapshot**.
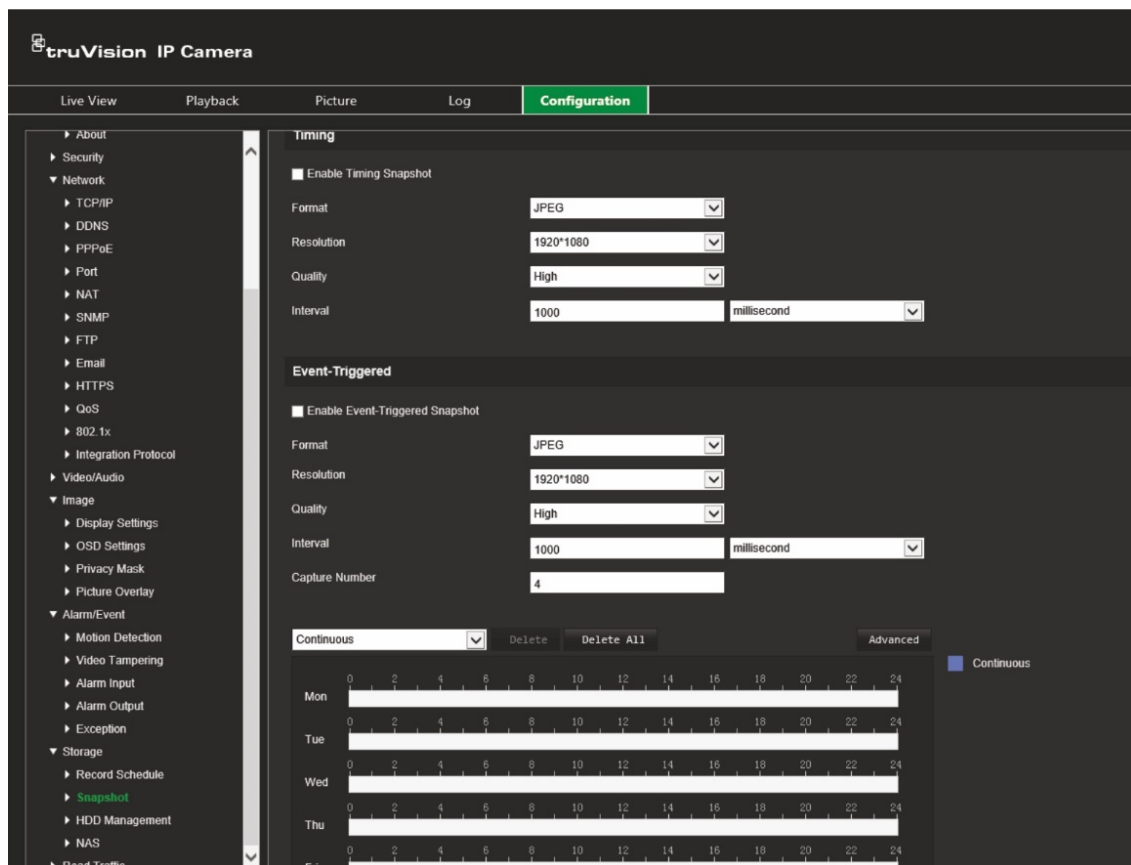
Note: The only recording type available is *Continuous*.

2. Select the **Enable Timing Snapshot** check box to enable continuous snapshots.

3. Select the desired format of the snapshot. Default is JPEG.

4. Select the desired resolution and quality of the snapshot.

5. Enter the time interval between two snapshots. Select the unit of time from the drop-down list: milliseconds, seconds, minutes, hour, or day.

6. Set the schedule for when you want snapshots to be taken. Enter the desired schedule for each day of the week. Click the **Advanced** button and select the stream type. Click **OK**.

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

To set up event-triggered snapshots:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Storage** > **Snapshot**.

2. Select the **Enable Event-Triggered Snapshot** check box to enable event-triggered snapshots.

3. Select the desired format of the snapshot. Default is JPEG.

4. Select the desired resolution and quality of the snapshot.

5. Enter the time interval between two snapshots. Select the unit of time from the drop-down list: milliseconds or seconds.

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

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

HDD management

Use the storage 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 otherwise the device will not function properly.

Figure 12: HDD management window
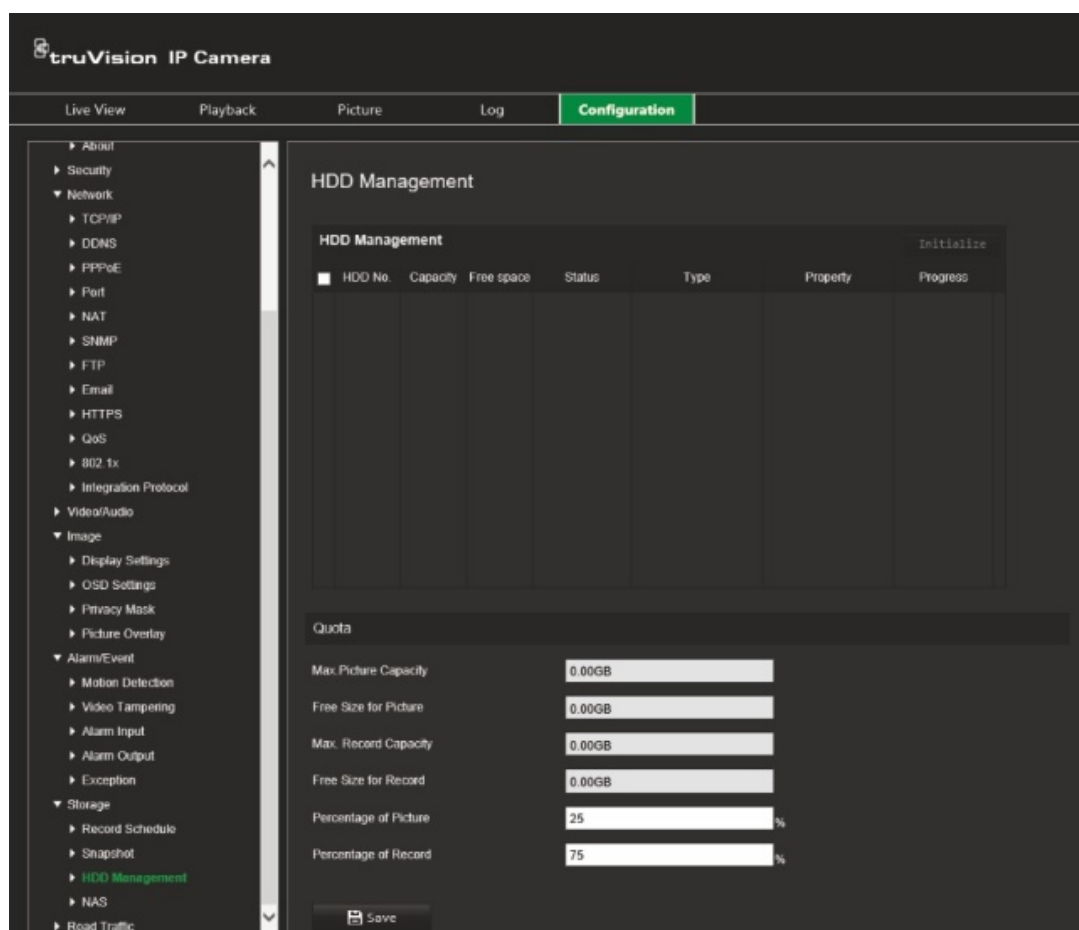
To format the storage devices:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Storage** > **HDD Management**.

2. Select the **HDD Number** check box to select the desired storage.

3. Define the quota percentage for snapshots and recordings by modifying their values in **Percentage of Picture** and **Percentage of Record**.

4. Click **Format**. A window appears to check your formatting permission.

5. Click **OK** to start formatting.

NAS settings

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

To configure recording settings, please ensure that you have the network storage device within the network. The NAS disk should be 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.

- The recommended capacity of NAS is between 9G and 2T as otherwise it may cause formatting failure.

To set up a NAS system:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Storage** > **NAS**.

2. For each NAS, enter the IP address of the network disk and the NAS file path.

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

Road traffic settings

Under Camera Configuration, use the Road Traffic menu to set the desired parameters to identify license plates.

License plate recognition lets you identify, track and analyze vehicles as they enter or leave your site. The camera can be set up to automatically capture license plates for storage and later analysis.

Using the *Picture Overlay* function, you can also select the information to be embedded in the snapshot of the captured license plate, such as the capture time and direction.

Detection configuration

Use this function to set up the area on screen to be detected and to capture a vehicle's number plate information.

To set up license plate detection:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Road Traffic** > **Detection configuration**.

   Note: Only one detection type can be selected, **Vehicle Detection**.

2. Select the **Enable** check box to enable the detection function.

3. Set up the detection area.

   Under **Total Number of Lanes**, select the desired number of lanes from the drop-down list. Up to four lanes can be set up. For the best performance, we recommend using one camera for each lane.

   Select the desired detection area on the image. Using the mouse, click and drag the lane line to set the range. Enter the maximum and minimum widths of the license plates to be detected.
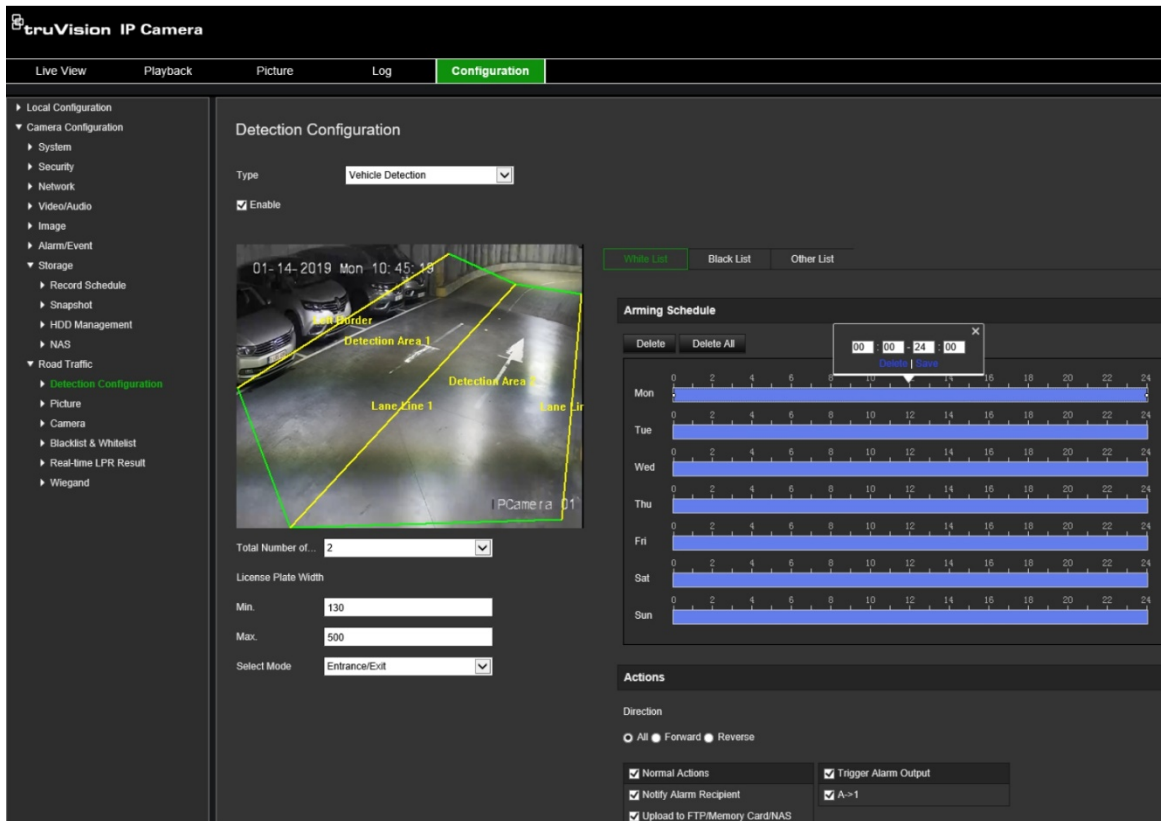
4. Set the **Select Mode**. When enabled, this function uploads the license plate information when a vehicle passes the selected detection area and triggers detection. Select one of the following options:

Entrance/Exit	When a vehicle is detected in an entrance or exit area, its license plate number is captured and the information uploaded to the camera for analysis.
City Street	When a vehicle is detected in a city street, its license plate number is captured and the information uploaded to the camera for analysis.
Custom	Set the time interval between when a vehicle is initially detected and uploading the license plate into the system. The lower the interval, the higher the speed of the vehicle. You can select a time interval between 1 and 15,000 ms.
Alarm Input	An input alarm triggers the capture of a license plate number and the information uploaded to the camera for analysis. **Note**: When *Alarm Input* is selected, the alarm input "A<-1" is automatically assigned to trigger vehicle detection. Its alarm type is always NO. If the "A<-1" alarm input is used to trigger vehicle detection, it can not be used for other basic events. When *Alarm Input* is selected and saved, any previously configured linkage methods for "A<-1" are canceled.

5. Go to **Arming Schedule** to set up the schedule and linking method for white lists, black lists, and other lists.

Set the arming schedule and linkage action for the white list, the black list, and the other list.

6. Select the direction the vehicle must be moving to trigger the linkage method. Only the vehicles moving in the selected direction can trigger the selected linkage method. Under *Direction*, select one of the following options:

Forward	The vehicle moves toward the camera.
Reverse	The vehicle moves away from the camera
All	The vehicle moves toward or away from the camera.

7. Specify the linkage method when an event occurs. Select one or more response methods for the system when number plate is detected.

Normal Actions	This is a group selection. It automatically selects "Notify Alarm Recipient" and "Upload to FTP/Memory Card/NAS".
Notify Alarm Recipient	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 settings" on page 61 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 29 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 enable **Enable Event-triggered Snapshot** under the snapshot parameters. See "Snapshots" on page 57 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 supported by cameras that support alarm output.
A->1	Trigger the alarm input A->1.

8. Click **Save** to save changes.

Picture overlay

Configure the text overlay for to appear on the snapshot. The fields Device No., Camera No. and Camera info that can be displayed in the snapshot overlay can be configured here.

To set up the picture overlay function:

1. Click **Configuration** > **Camera Configuration** > **Road Traffic** > **Picture** and select the text to overlay on the picture. The options are: Device number, capture time, direction, matching result, plate number, camera information, camera number, lane number, validity.

   You can also change the order in which the overlay text appears on the snapshot from the *Sorting* column.

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

Camera

You can display on the captured snapshot the device number, camera number as well as camera information.

To set up the camera information displayed on the snapshot:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Road Traffic** > **Camera**.
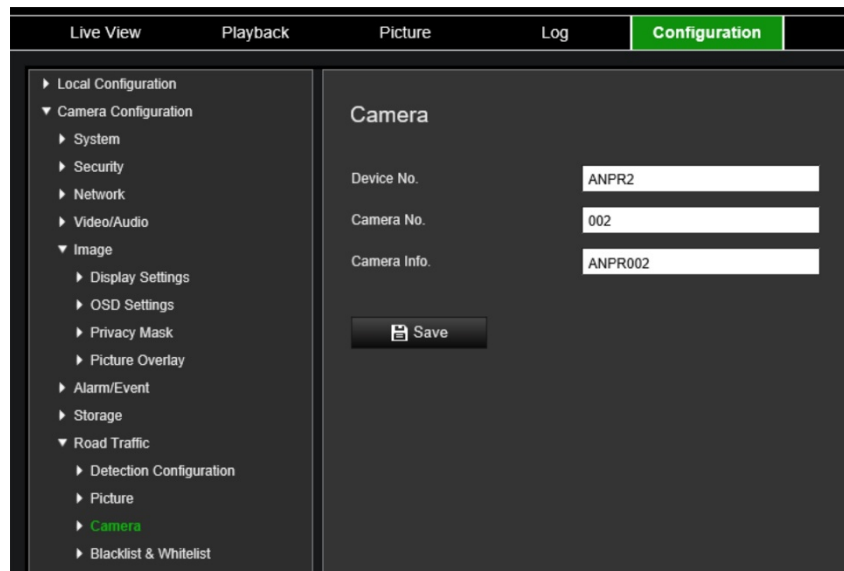
2. Enter the device number, camera number and camera information.

   Note: The device number can also be changed under *Basic Information*. See page 14.

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

Black and white lists

You can store a list of black and white entries on the camera to match against when automatically analyzing the captured numbered plates. You can have up to a total maximum of 10,000 license plates listed in the Black, White and Other lists. See Table 1 below.

Table 1: Description of Black, White and Other lists

Black list	This is a list of license plate numbers that are considered restricted vehicles.
White list	This is a list of authorized license plate numbers.
Other list	This is the list of unknown license plate numbers. They are not included in either the black or white lists.

If you do not have already have a list of your black/white license plates, you can export the template to create one. It can then be imported back to the camera.

The template format is shown below. When inputting the license plate number and ID, there should be no spaces between the letters and numbers. For example, if the actual license number plate is "1-DKS-140", in the list it should be written as "1DKS140".

Figure 13: Example of a Black/White list

A	B	C	D
No.	Plate Num	Group(0 black list, 1 white list)	ID
140	1DKS140	1	1553545874
141	1DKS141	1	1553545875
142	1DKS142	0	1553545876
143	1DKS143	0	1553545877
144	1DKS144	0	1553545878
145	1DKS145	0	1553545879
146	1DKS146	0	1553545880
147	1DKS147	0	1553545881
148	1DKS148	1	1553545882
149	1DKS149	1	1553545883
150	1DKS150	1	1553545884
151	1DKS151	1	1553545885
152	1DKS152	1	1553545886

To set up the black and white lists track the captured licenses plates:

1. Click **Configuration** > **Camera Configuration > Road Traffic > Blacklist & Whitelist**. Click **Browse** to select a file from your library or online and click **Import** to import it to the camera.

Note: You can have up to a total maximum of 10,000 license plates listed in the Black, White and Other list.

Select the file name of the Black/White list file to upload to the FTP server; either use the existing name (Default) or give it new name (Custom).

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

Real-time LPR results

The real-time LPR (license plate result) page displays the captured license plate in the license plate result area. The information lists the capture time, plate number, captured snapshot, lane number, direction, matching result, and country.

Click on the captured snapshot in the Real-Time LPR Result window to see the whole image with the LPR data embedded on the bottom of the photo. See Figure 14 below.

Figure 14: Example of a real-time LPR snapshot

To set up real-time LPR result:

1. From the menu toolbar, click **Configuration** > **Camera Configuration** > **Road Traffic** > **Real Time LPR Result**.

2. Select **Enable Real-time LPR Result**. The LPR results can now start to be listed as they are detected and captured. Up to the 20 latest license plate pictures and their data can be displayed. You can also select to display the country of origin of the license plate.
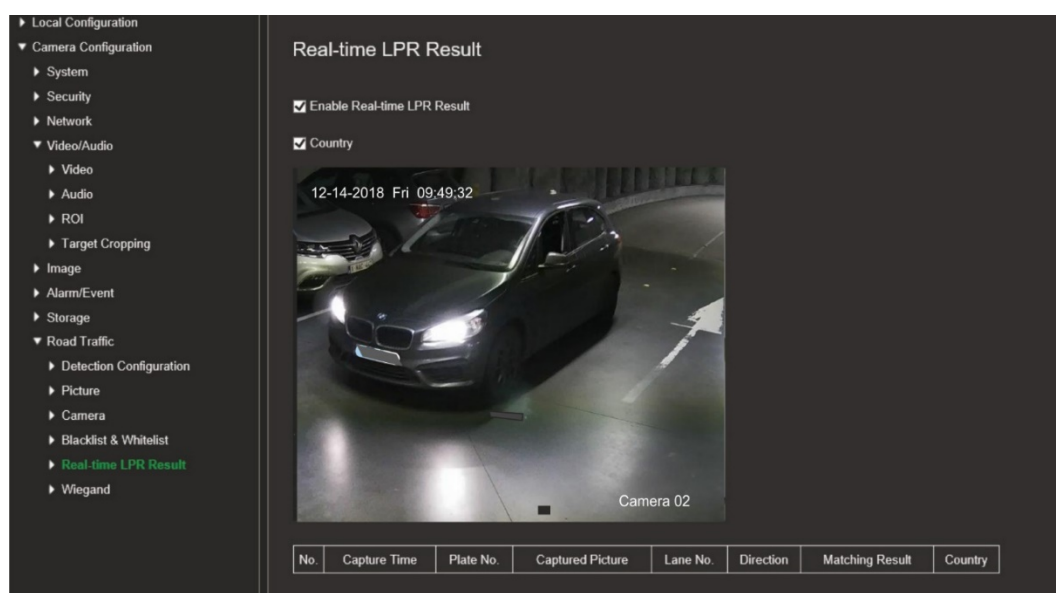
The results start to be displayed immediately in the Real-time LPR Results table below the image.

Wiegand

Wiegand is a serial data communication for access control.

To set up the Wiegan bit format:

1. From the menu toolbar, click **Configuration** > **Camera Configuration > Road Traffic > Wiegand**.

2. Select one of the options from the drop-down list to configure the Wiegand data bit: 26 or 34.

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

Camera operation

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

Log on and off

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.

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

If you do not change the default password for *admin*, a message will always pop up requesting you to do so.

Live view mode

Once logged in, click "Live View" on the menu toolbar to access live view mode. See Figure 15 below for a description of Live View.

Figure 15: Live View window
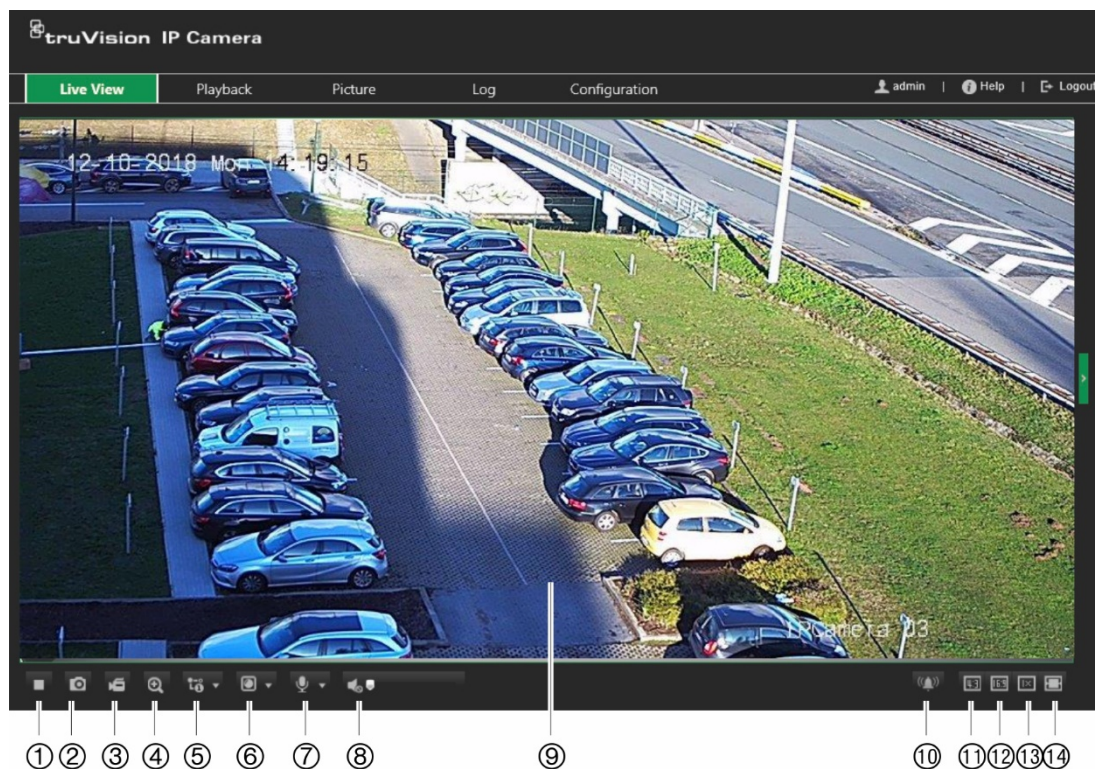
Buttons		Description
1.	▶ / ■	Click to start/stop live view.
2.	⊙	Click to take a snapshot. The snapshot will be saved to the default folder in JPEG format.

Buttons		Description
3.		Click to manually start/stop recording. To stop recording, click the button again.
4.		Click to start/stop the digital zoom function.
5.		Live view with main stream.
6.		Click to select the third-party plug-in.
7.		Click to turn on/off the local microphone (if supported).
8.		Click to turn audio on and to adjust volume/mute.
9.		Viewer. View live video. Time, date and camera name are also displayed.
10.		Click to manually turn on/off the alarm
11.		Click to select the window size 4:3.
12.		Click to select the window size 16:9.
13.		Click to select the original window size.
14.		Click to select the self-adaptive window size.

Play back recorded video

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

Note: You must configure the NAS or insert an SD card in the dome camera to be able to use the playback functions. See "HDD management" on page 61 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 displays. See Figure 16 below.

Figure 16: 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.	Set playback time	Input the time and click ➡ to locate the playback start point.
5.	Control playback	Click to control how the selected file is played back: Play ▶, Stop ■, Pause ❚❚, Reverse ◄◄, and Fast forward ►► .
6.	Archive functions	Click these buttons for the following archive actions: 📷 Capture a snapshot image of the playback video. ✂ / ✂ Start/Stop clipping video files.
7.	Digital zoom	🔍 / 🔍 Start/stop digital zoom.
8.	Audio control	Control level of audio. 🔊 —▪ Audio on and adjust audio. 🔇 Audio mute.
9.	Time moment	Vertical bar shows where you are in the playback recording. The current time and date are also displayed.
10.	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 where you want playback to start. The timeline can also be scrolled to earlier or later periods for play back. Click ➖➕ to zoom out/in the timeline bar.

Name	Description
11. Download functions	Download captured snapshots.
12. Recording type	The color code displays the recording type. Recording types are:
	Blue: Continuous recording
	Magenta: Alarm recording
	Yellow: Manual recording.
	The recording type name is also displayed in the current status window.

Note: You must have playback permission to play back recorded images. See "Modify user information" on page 18 for further information.

To play back recorded video:

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

2. Select the desired date and click **Search**.

3. Click ▶ to play back the video files found on this date.

    Note: You can choose the file paths locally for downloaded playback video files and snapshots under *Local Configuration*.

    The timeline bar displays the 24-hour period of the day being played back. It moves left (oldest) to right (newest).

4. Input the desired time and click ➡ to locate the playback start point.

    The timeline bar is color-coded to display the type of recording.

    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.

    Click ➖➕ to zoom out/in the timeline bar.

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 your computer.

Search snapshots and video clips

Click **Picture** on the menu toolbar to enter the window to search for snapshots video clips. You can search, view, and download the files stored in the local storage or in network storage.

Notes:

- Make sure the HDD, NAS, or memory card are properly configured before you carry out the snapshot search.

- Make sure the capture schedule is configured. Go to Configuration > Storage > Snapshot to set the capture schedule.

To search snapshots and video clips:

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

2. Select the file type from the dropdown list: Continuous, Motion, Alarm, or Vehicle Detection.

3. Select the start date and time and the end date and time. If *Vehicle Detection* was selected as the file type, enter the plate number.

4. Click **Search** to search for the matched files.
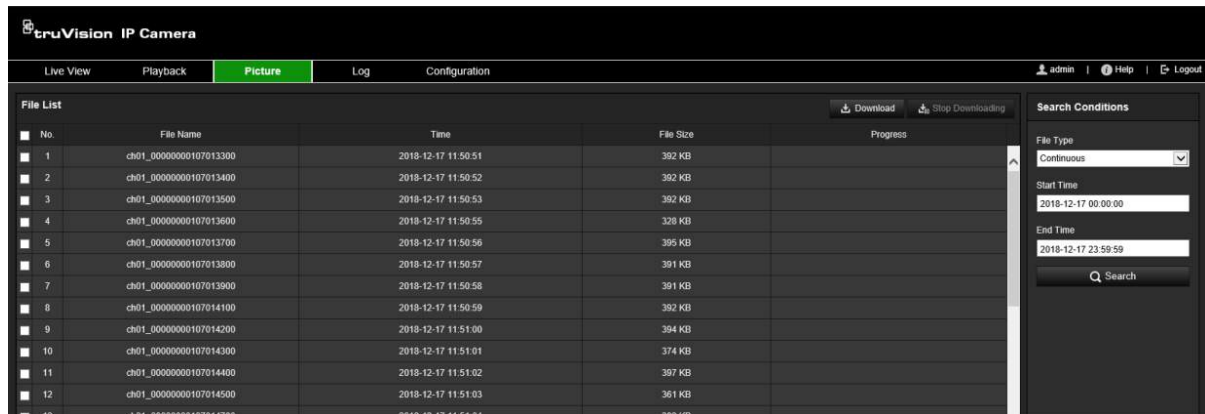
5. Select the check box of the desired files to download and click **Download**.

Search event logs

You must configure NAS or insert a SD card in the dome camera to be able to use 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 this capacity is reached, the system starts deleting older logs. To view logs stored on storage devices, click **Log** on the menu toolbar. The Log window appears. See Figure 17 below.

Note: You must have view log access rights to search and view logs. See "Modify user information" on page 18 for further information.

Figure 17: Log window
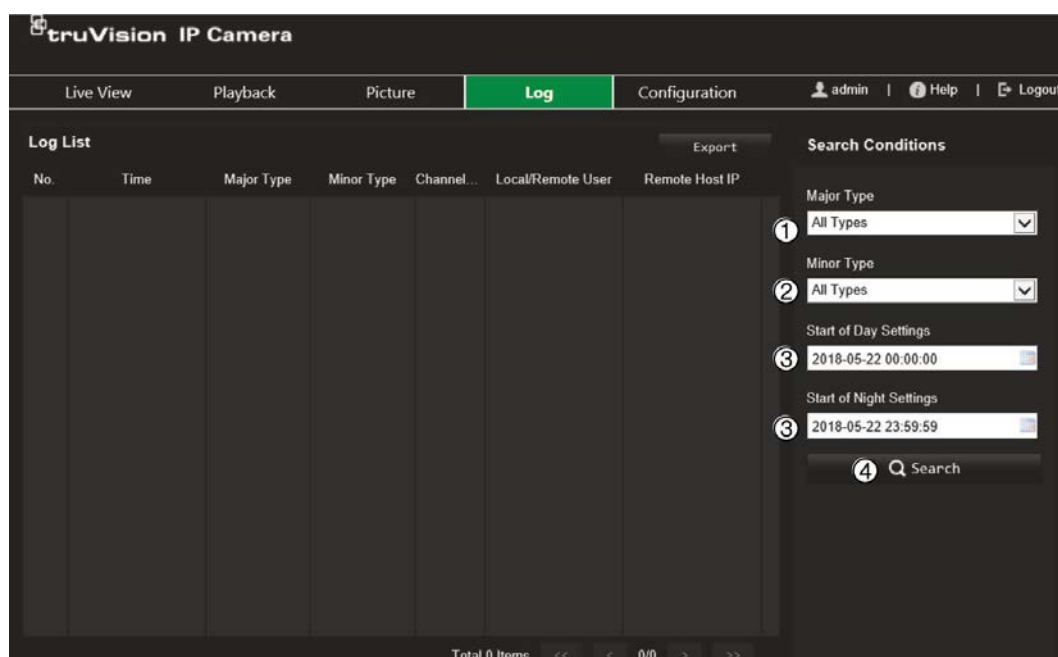
1. Major type	3.	Start of day and night settings
2. Minor type	4.	Start search

You can search for recorded logs by the following criteria:

Major type: There are four types of logs: All Types, Alarm, Exception, Operation or Information. See Table 2 below for their descriptions.

Minor type: Each major type log has some minor types. See Table 2 below for their descriptions.

Start of Day or Night settings: Logs can be searched by the start and end of the recording time.

Table 2: Types of logs

Main log type	Minor log types
Alarm	Alarm Input, Alarm output, Start Motion Detection, Stop Motion Detection, Start Tamper-proof, Stop Tamper-proof, Face Detection Started, Face Detection Stopped, Cross Line Detection Started, Cross Line Detection Stopped, Intrusion Detection Started, Intrusion Detection stopped, Defocus Detection Started, Defocus Detection stopped, Audio Input Exception, Sudden Change of Sound Intensity Detection.
Exception	Invalid Login, HDD Full, HDD Error, Network Disconnected and IP Address Conflicted
Operation	Power On, Abnormal Shutdown, Remote Reboot, Remote Login, Remote Logout, Remote Configure parameters, 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, Establish Transparent Channel, Disconnect Transparent Channel, Start Bidirectional Audio, Stop Bidirectional Audio, Remote Alarm Arming, Remote Alarm Disarming

To search the logs:

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

2. In the Major Type and Minor Type drop-down lists, select the desired option.

3. Select start and end time of the log.

4. Click **Search** to start your search. The results are displayed.

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