



TruVision P Series IP PTZ Camera Configuration Manual

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Product documentation

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

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

DO NOT CONNECT TO A RECEPTACLE CONTROLLED BY A SWITCH.

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

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

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

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Intended use

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

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

Advisory messages

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

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

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

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

Introduction

Product overview

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

- TVGP-P01-0201-PTZ-G (2MP IP PTZ, 25x zoom)
- TVGP-P01-0401-PTZ-G (4MP IP PTZ, 42x zoom, 400 m IR)

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

- TruVision P Series IP PTZ Camera Installation Guides
- TruVision P Series IP PTZ Camera Configuration Manual

Contact information and manuals/firmware

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

EMEA:	firesecurityproducts.com Manuals are available in several languages.
Australia/New Zealand:	firesecurityproducts.com.au

Network access

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

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

Internet Explorer – Checking the browser security level

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

Configuring IE ActiveX controls

You should confirm the ActiveX settings of your web browser.

To change the web browser's security level:

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

— or —

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

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

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

Windows Internet Explorer

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

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

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

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

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

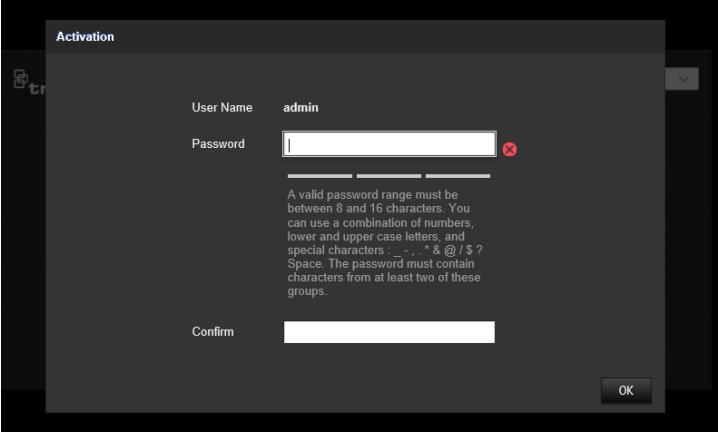
Activating the camera

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

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

Activating the camera via a web browser:

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



Note:

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

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

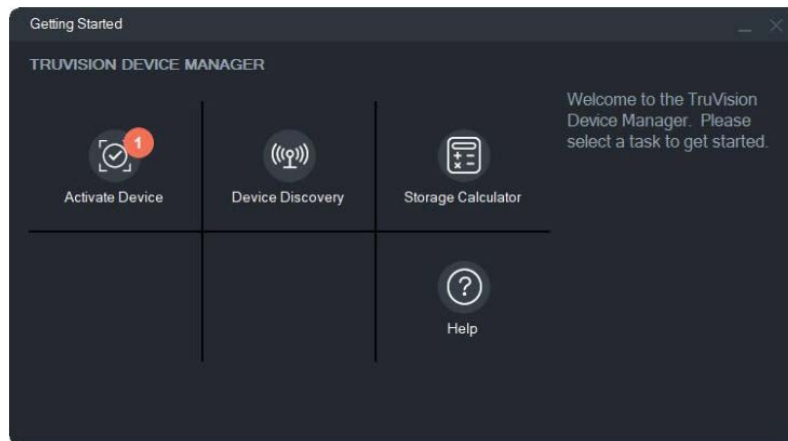
- Between 8 and 16 characters
- At least 1 lower case letter
- At least 1 upper case letter
- At least 1 of following special characters _ : - , . * & @ / \$? Space.

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

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

Activating the camera via TruVision Device Manager:

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



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

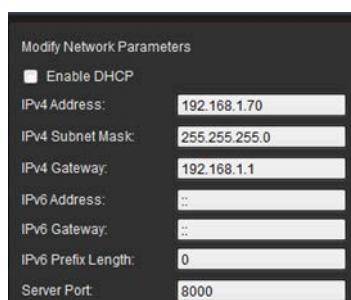
Note: A valid password range must meet the following conditions:

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

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

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

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



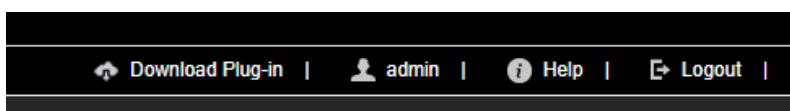
The screenshot shows a 'Modify Network Parameters' window with the following fields and values:

Parameter	Value
Enable DHCP	☐
IPv4 Address:	192.168.1.70
IPv4 Subnet Mask:	255.255.255.0
IPv4 Gateway:	192.168.1.1
IPv6 Address:	::
IPv6 Gateway:	::
IPv6 Prefix Length:	0
Server Port:	8000

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

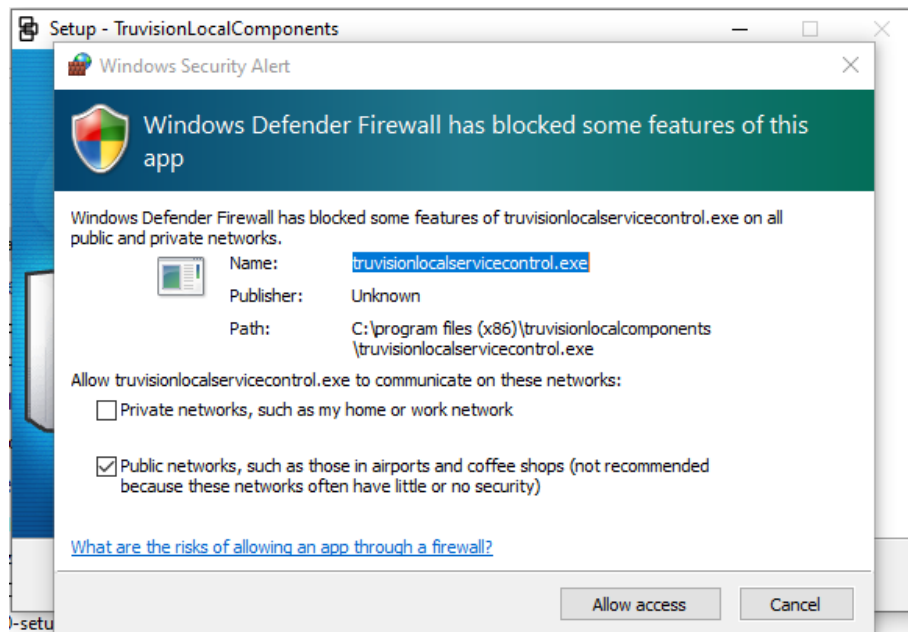
Plugin-free browsers such as Google Chrome, Mozilla Firefox, Microsoft Edge, and Apple Safari have limitations compared to Internet Explorer that uses ActiveX plugins. To solve this, an additional plugin can be download through the camera live view web page. Please note that an internet connection is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

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

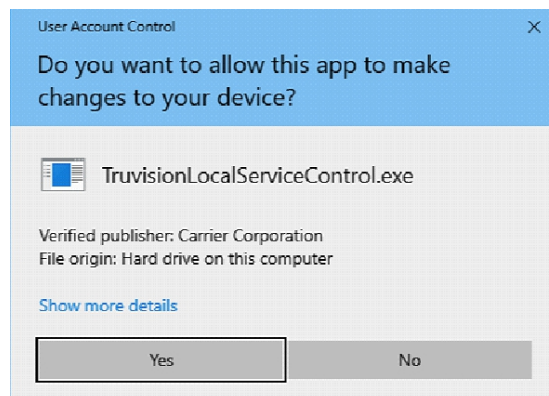


Close the browser and install the downloaded plugin *TruVisionLocalComponents.exe* on your PC. Once the plugin is installed, you can reopen the browser to view and configure the camera.

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



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



Overview of the camera web browser

The camera web browser lets you view, record, and play back recorded videos as well as manage the camera from any PC with Internet access. The browser's easy-to-use controls give you quick access to all camera functions. See Figure 1, "Example of the Local configuration window", on page 7 for an example.

Camera configuration

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

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

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

There are two main folders in the configuration panel:

- Local configuration
- Configuration

Local configuration

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

Figure 1: Example of the Local configuration window

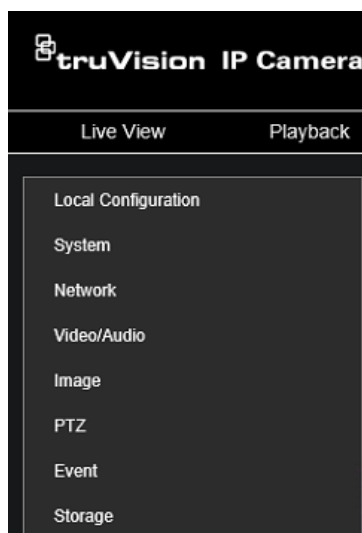
Parameters	Description
Live View Parameters	
1. Protocol	Specify the network protocol used. Options include TCP, UDP, MULTICAST and HTTP.

Parameters	Description
2. Live View Performance	Specify the transmission speed. Select one of the options: Shortest Delay: Real-time video has priority over video fluency. Balanced: The device ensures both real-time video and fluency. Fluent: Video fluency has priority over real-time video. In a poor network environment, the camera cannot ensure video fluency even if this option is enabled. Custom: Set the frame rate manually. In a poor network environment, reducing the frame rate improves the fluency of live view. However, the rule information may not be displayed.
3. Meta Data Overlay	It refers to the rules on your local browser. Specify whether to display the colored marks when motion detection, face detection, and intrusion detection are triggered. For example, when the rules option is enabled and a face is detected, the face will be marked with a green rectangle in live view.
4. Display POS Information	Enable external data to be displayed as text overlay on camera image (currently not used)
5. Snapshot Image Format	Choose snapshot image format: JPEG or BMP.
Record File Settings	
6. Video File Size	Specify the maximum file size. Options include: 256 MB, 512 MB and 1GB.
7. Save Videos in Live View to	Specify the directory for recorded files.
8. Save Downloaded Files to	Specify the directory for downloaded files.
Snapshot and Clip Settings	
9. Save Snapshots in Live View To	Specify the directory for saving snapshots in live view mode.
10. Save Snapshots when Playback To	Specify the directory for saving snapshots in playback mode.
11. Save Clips during Playback to	Specify the directory for saving video clips in playback mode.

Configuration menu overview

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

Figure 2: Configuration menu overview



Configuration menus		Description
1.	System	Displays device basic information including SN and the current firmware version, time settings, maintenance, and serial port parameters. You can only modify the device name and device number. See “System” below for further information.
2.	Network	Defines the network parameters required to access the camera over a network. See “Network” on page 24 for further information on the setup.
3.	Video/Audio	Defines recording parameters. See “Video/Audio” on page 39 for further information.
4.	Image	Defines the image parameters, OSD settings, overlay text, and privacy mask. See “Image” on page 43 for further information on the setup.
5.	PTZ	Defines PTZ specific settings and configuration options like privacy masking, park action, scheduled tasks, etc. See “PTZ” on page 48 for further information.
6.	Event	Defines Basic events motion detection, video tampering, alarm input/output, exception and Smart events Face detection, Intrusion detection, Cross Line detection. See “Event” on page 57 for further information on the setup.
7.	Storage	Defines recording schedule, storage management, NAS configuration and snapshot. See “7. Click Save to save the settings. Storage” on page 91 for further information on the setup.

System

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

System settings

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

Basic Information

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

The screenshot shows the 'truVision IP Camera' configuration web interface. The top navigation bar includes 'Live View', 'Playback', 'Snapshot', 'Log', 'Configuration' (highlighted), 'Smart Display', and 'VCA Configuration'. The left sidebar lists 'Local Configuration' with sub-items: 'System' (highlighted), 'System Settings' (highlighted), 'Maintenance', 'Security', 'User Management', 'Network', 'Video/Audio', 'Image', 'PTZ', 'Event', and 'Storage'. The main content area is titled 'Basic Information' and contains the following fields:

Device Name	IP DOME
Device No.	88
Model	TVGP-M01-0201-PTZ-G
Serial No.	TVGP-M01-0201-PTZ-G20211203AAWRJ19112968
Firmware Version	V23.1.2
Encoding Version	V7.3 build 210819
Web Version	V4.0.51.1 build 220124
Plug-in Version	3.0.7.4101
Number of Channels	1
Number of HDDs	1
Number of Alarm Input	1
Number of Alarm Output	1
Firmware Version Property	C-R-H8-0

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

Time Settings

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

To define the system time and date:

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

The screenshot shows the 'truVision IP Camera' configuration web interface with the 'Time Settings' tab selected. The left sidebar is identical to the previous screenshot. The main content area is titled 'Time Settings' and contains the following fields:

Time Zone: (GMT+01:00) Amsterdam, Berlin, Rome, Paris

NTP

☒ NTP

Server Address: time.windows.com

NTP Port: 123

Interval: 1440 minute(s)

Test

Manual Time Sync.

☐ Manual Time Sync.

Device Time: 2022-01-31T15:50:05

Set Time: 2022-01-31T15:50:03 ☐ Sync. with computer time

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

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

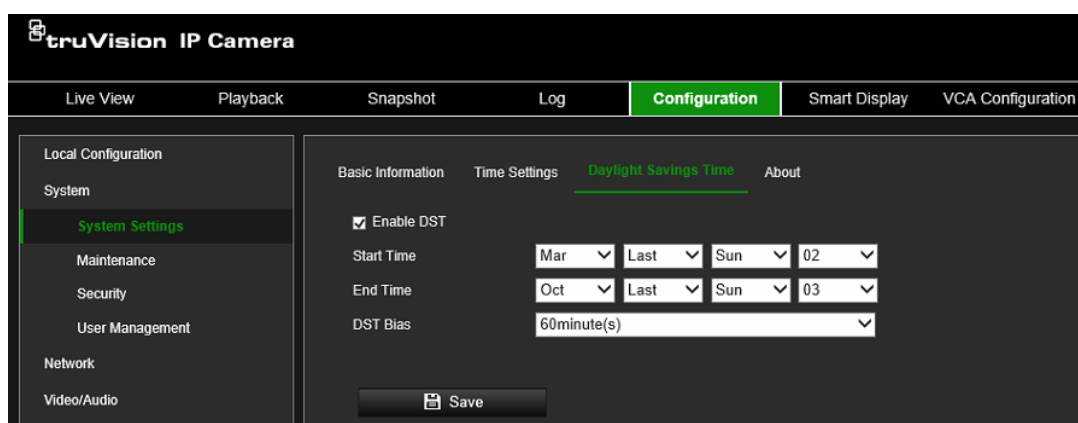
Synchronize with an NTP server: Select the **NTP** enable box and enter the server NTP address. The time interval can be set from 1 to 10080 minutes.

— Or —

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

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

To define Daylight Saving Time (DST):



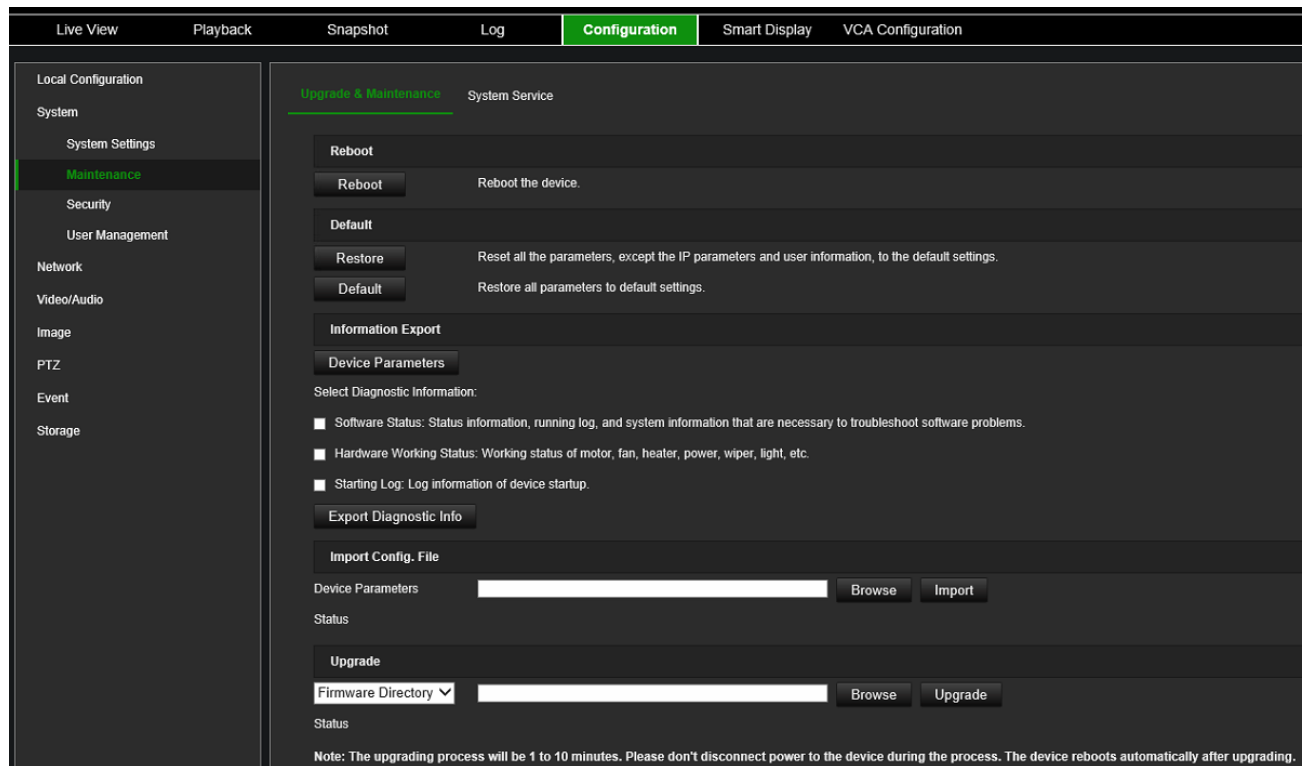
1. Select **Enable DST** to enable the DST (Daylight Savings Time) function and set the dates of the DST period.
2. Click **Save** to save changes.

About

The open-source software licenses used by the camera are listed here.

Maintenance

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



Reboot camera

Click **Reboot** to restart the camera.

Restore default settings

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

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

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

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

Import/export a configuration file

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

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

To import/export configuration file:

1. From the menu toolbar, go to **Configuration > System > Maintenance > Information Export**.

2. Click **Browse** to select the local configuration file and then click **Import** to start importing a configuration file. Depending on the selected file, a password might be needed to import the configuration file.
3. To export camera settings, click **Device Parameters** and set the saving path to save the configuration file. The camera will ask to encrypt the exported file with a password. Choose any password you want and make sure to remember it when importing the file.
4. To export three categories of diagnostic information, click the **Export Diagnostic Info** button.

Upgrade firmware

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

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

To upgrade firmware version:

1. Download on to your computer the latest firmware from our web site at:
www.firesecurityproducts.com
2. When the zipped firmware file is downloaded to your computer, extract it to the desired destination.
Note: Do not save the file on your desktop.
3. From the menu toolbar, click **Configuration > Camera Configuration > System > Maintenance**. Select the **Firmware** or **Firmware Directory** option. Then click the **Browse** button to locate latest firmware file on your computer.
 - **Firmware directory** – Locate the upgrading folder of Firmware files. The camera will choose the corresponding firmware file automatically. (this feature is currently not supported)
 - **Firmware** – Click **Browse** to locate the firmware file manually for the camera.
4. Click **Upgrade**. You will receive a prompt asking you to reboot the camera.
5. When the upgrade is finished, the device will reboot automatically. The browser will also be refreshed.

Security

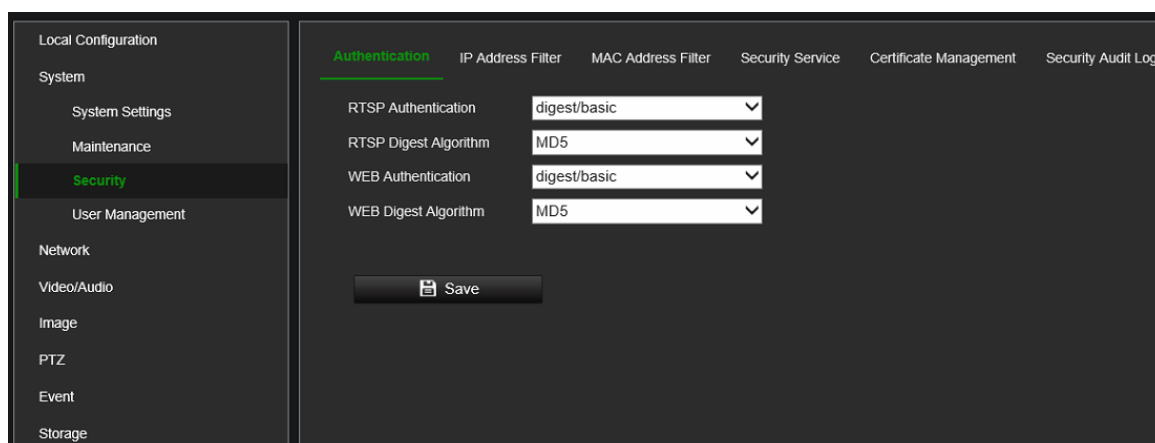
Security related parameters, such as user accounts and IP address filter, can be managed via the camera menu **System > Security**.

Authentication

You can secure the stream data of the live view.

To define the RTSP and web authentication:

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



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

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

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

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

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

IP address filter

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

To define the IP address filter:

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

To define the MAC address filter:

1. From the menu toolbar, click **Configuration > System > Security > Mac Address Filter**.
2. Select the **Enable MAC Address Filter** check box.
3. Select the type of MAC Address Filter in the drop-down list: Forbidden or Allowed.
3. Click **Add** to add a Mac address and enter the address. Format of the MAC address needs to be xx-xx-xx-xx-xx-xx
4. Click **Modify** or **Delete** to modify or delete the selected MAC address.
6. Click **Save** to save the changes.

Security service

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

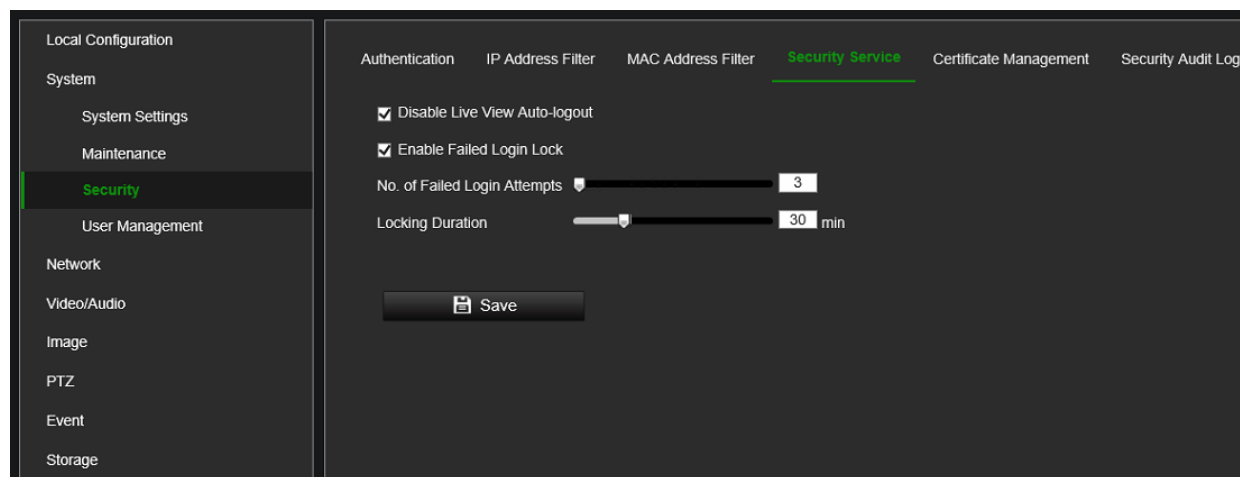
Disable Live View Auto-logout: By default, when logged into the live view webpage and there is no activity for at least five minutes, the system will automatically log out. Select this function to disable automatic log out.

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

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

To enable the failed login lock:

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



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

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

Notes:

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

Certificate Management

It helps manage the server/client certificates and CA certificate, and sends an alarm if the certificates will expire, or are expired/abnormal.

To manage certificates:

1. Click **Configuration > System > Security > Certificate Management**.

truVision IP Camera

Live View

Playback

Picture

Application

Log

Configuration

Local Configuration

System

System Settings

Maintenance

Security

Users

Network

Video/Audio

Image

Event

Storage

Counting

EPTZ

Authentication

IP Address Filter

Security Service

Advanced Security

Certificate Management

Security Audit Log

Server/Client Certificate

Create Self-sign...

Create Certificate...

Import

Export

Delete

Certificate Propert...

Certificate ID	Valid From:	Valid To:	Status	Functions
default	2020-05-09 10:51:51	2023-05-09 10:51:51	Normal	HTTPS,WebSockets,Enhanced...

CA certificate

Import

Delete

Certificate Propert...

Certificate ID	Valid From:	Valid To:	Status	Functions
----------------	-------------	-----------	--------	-----------

Certificate Expiration Al...

Enable Certificate Expiration Alarm

Remind Me Before Expira...

Alarm Frequency(day)

Detection Time (hour)

7

1

10

Normal Actions

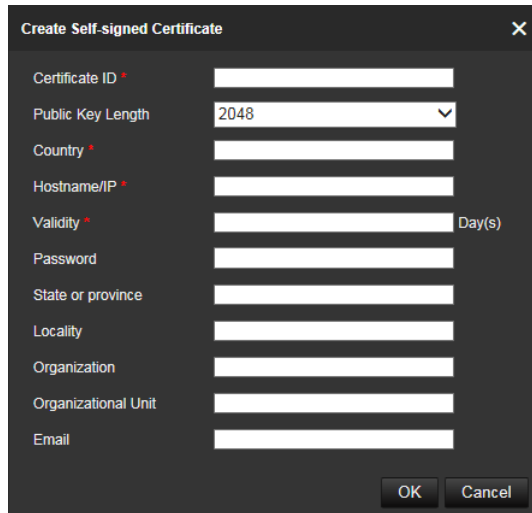
Send Email

Notify Alarm Recipient

Save

To create self-signed certificate:

1. Click **Create Self-signed Certificate**.
2. Enter certificate ID, country, hostname/IP, validity, and other information. The certificate ID should be numbers or letters less than 64 characters.



Create Self-signed Certificate

Certificate ID *

Public Key Length

Country *

Hostname/IP *

Validity * Day(s)

Password

State or province

Locality

Organization

Organizational Unit

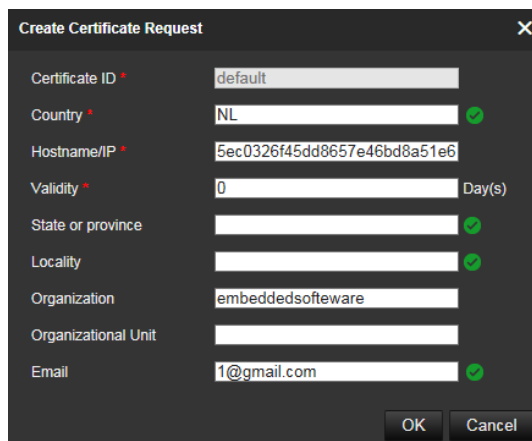
Email

OK Cancel

3. Click **OK** to save the changes.
4. (Optional) After selecting a certificate, click **Export** to export the certificate, click **Delete** to delete the certificate, or click **Certificate Properties** to view the certificate details.

To create a certificate request:

1. Select a saved self-signed certificate.
2. Click **Create Certificate Request**.
3. Enter the related information before saving the request. Otherwise, it cannot be saved.



Create Certificate Request

Certificate ID *

Country * ✓

Hostname/IP *

Validity * Day(s)

State or province ✓

Locality ✓

Organization

Organizational Unit

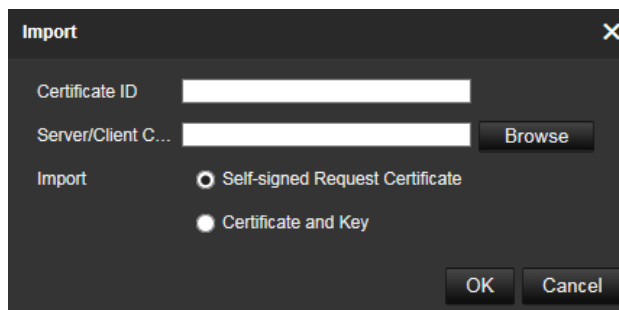
Email ✓

OK Cancel

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

To import a certificate:

1. Click **Import**
2. Enter the certificate ID, click **Browser** to select the desired server/client certificate, select the desired import method and enter the required information.
3. Click **OK** to save the changes



Note:

- Up to 16 certificates are allowed.
- If certain functions are using the certificate, it cannot be deleted.
- You can view the functions that are using the certificate in the Functions column.
- You cannot create a certificate that has the same ID with that of the existing certificate, nor import a certificate that has the same content with that of the existing certificate.

To manage CA certificate:

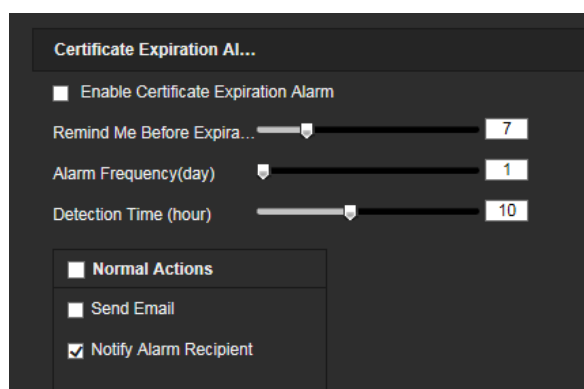
1. Click **Import**
2. Enter certificate ID, click Browser to select the desired server/client certificate, select the import method and enter the required information.
3. Click **OK** to save the changes

Note:

- Up to 16 certificates are allowed.

To enable certificate expiration alarm:

1. Check **Enable Certificate Expiration Alarm**. If enabled, notification messages that certificates will soon expire, or have expired or are abnormal, will be sent to the saved email box or alarm recipient.



2. Select the **Remind Me Before Expiration (day)**, **Alarm Frequency (day)** and **Detection Time (hour)** periods by adjusting the bars.

Note:

- If you set the expiration reminder day to 1, then the camera will remind you the day before the expiration day. You can select between 1 to 30 days. Seven days is the default reminding days.
- If you set the reminding day before expiration to 1, and the detection time to 10:00, and the certificate will expire in 9:00 the next day, the camera will remind you in 10:00 the first day.

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

Security audit log

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

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

User Management

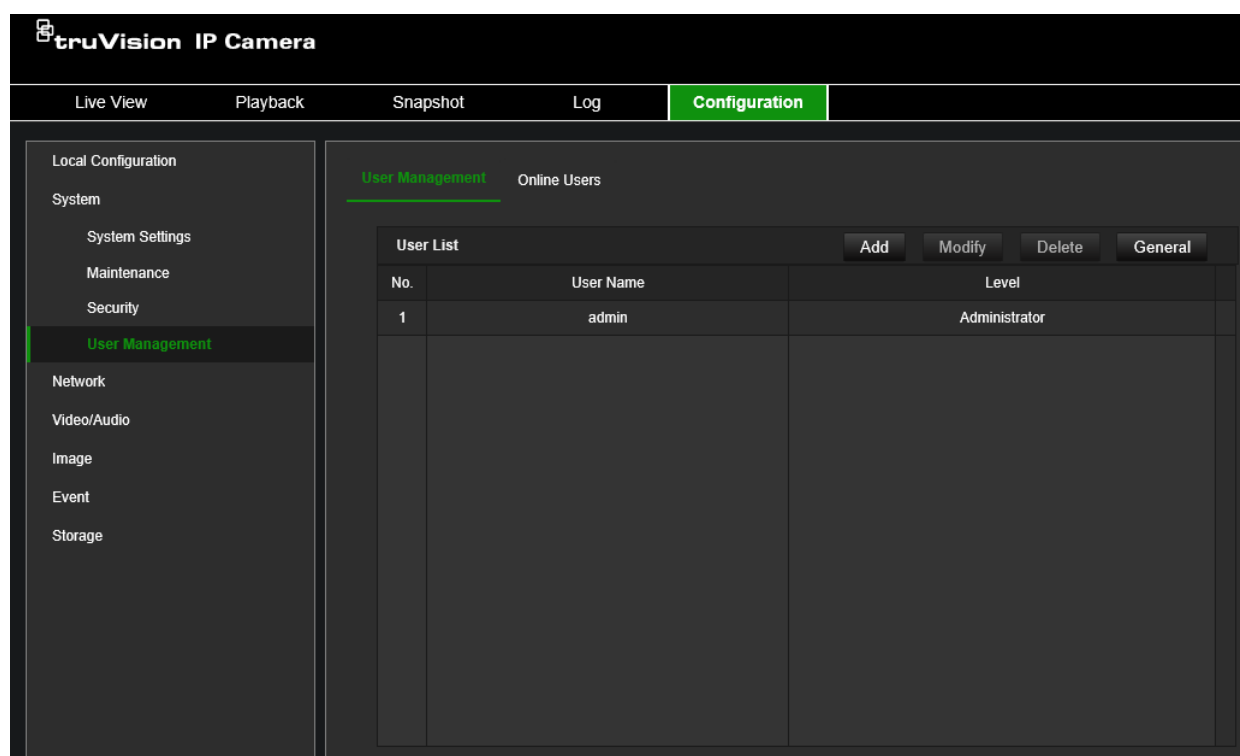
This section describes how to manage users. You can:

- Add or delete users
- Modify permission
- Modify passwords

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

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

Figure 3: User management window



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

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

Types of users

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

- **Admin:** This is the system administrator. The administrator can configure all settings. Only the administrator can create and delete user accounts. Admin cannot be deleted.
- **Operator:** This user can only change the configuration of his/her own account. An operator cannot create or delete other users.
- **User:** This user has the permission of live view, playback, and log search. However, they cannot change any configuration settings.

To add a user:

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

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

The passwords must meet following requirements:

- Minimum 8 characters and Maximum 16 characters
- Minimum 1 capital letter
- Minimum 1 small letter
- Minimum 1 special character among _ : - , . * & @ / \$? Space

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

6. Assign permissions to the user. Select from these options:

Remote: Parameters Settings	Remote: Live View
Remote: Log Search/Interrogate Working Status	Remote: Manual Record
Remote: Upgrade/Format	Remote: PTZ Control
Remote: Bi-directional Audio	Remote: Playback
Remote: Shutdown / Reboot	

Remote: Notify Surveillance Center/Trigger Alarm Output
Remote: Video Output Control
Remote: Serial Port Control

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

To delete a user:

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

Note: Only the administrator can delete a user.

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

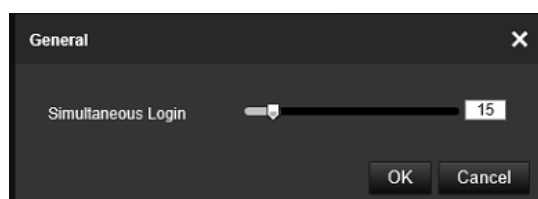
To modify user information:

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

Note: Only the admin user can modify users.

To define the maximum number of simultaneous logins:

1. From the menu toolbar, click **Configuration > System > User Management**
2. Click the **General** button and use the slider to define the maximum number of simultaneous logins allowed for the camera.



Online users

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

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

Network

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

TCP/IP

You can set up the following TCP/IP parameters:

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

To set up the TCP/IP parameters:

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

The screenshot displays the 'TCP/IP' configuration page with tabs for TCP/IP, DDNS, PPPoE, Port, NAT, and Multicast. The TCP/IP tab is active. The settings are as follows:

- NIC Type:** Auto (dropdown)
- DHCP:** ☒ DHCP
- IPv4 Address:** 10.7.70.4 (text field) with a **Test** button
- IPv4 Subnet Mask:** 255.255.255.0 (text field)
- IPv4 Default Gateway:** 10.7.70.254 (text field)
- IPv6 Mode:** Route Advertisement (dropdown) with a **View Route Advertisement** button
- IPv6 Address:** (empty text field)
- IPv6 Subnet Mask:** (empty text field)
- IPv6 Default Gateway:** :: (text field)
- Mac Address:** 84:9a:40:b1:a9:7d (text field)
- MTU:** 1500 (text field)
- Enable Multicast Discovery:** ☒

Below these settings are two sections:

- DNS Server:**
 - Preferred DNS Server:** 10.1.7.97 (text field)
 - Alternate DNS Server:** 10.1.7.98 (text field)
- Domain Name Settings:**
 - Enable Dynamic Domain Name:** ☐
 - Register Domain Name:** (empty text field)

A **Save** button is located at the bottom of the form.

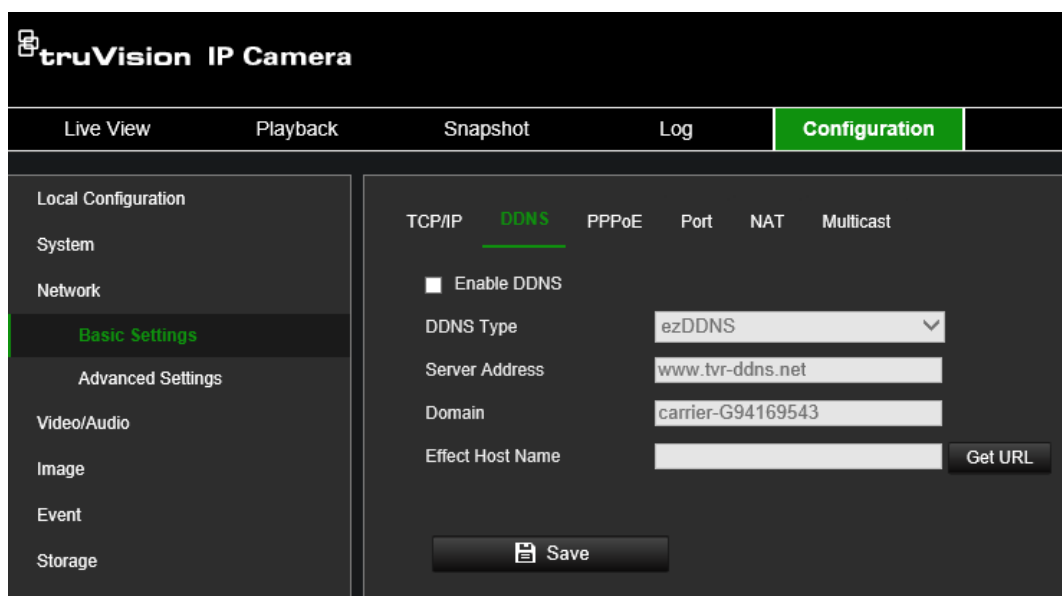
2. Configure the NIC settings, including the NIC Type, IPv4 settings, IPv6 settings and MTU settings.
3. If the DHCP server is available, select **DHCP**.
4. If the DNS server settings are required for some applications (e.g., sending email), you should configure the **Preferred DNS Server** or **Alternate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

DDNS

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

To set up the DDNS parameters:

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



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

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

For example:

Server address: members.dyndns.org

Domain: mycompanydvr.dyndns.org

User name: myname

Password: mypassword

- Or -

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

- Or -

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

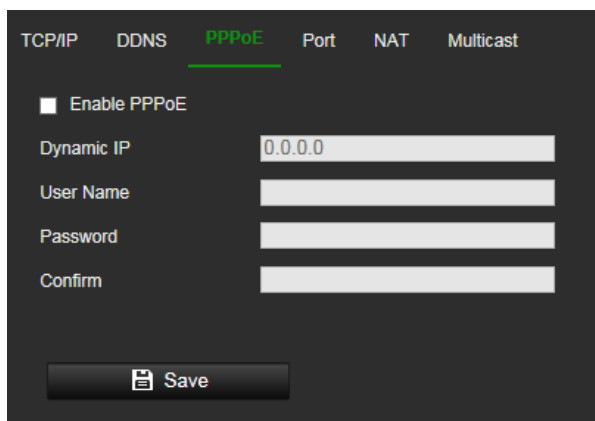
4. Click **Save** to save changes.
5. Reboot the device for the changes to take effect.

PPPoE

This allows you to retrieve a dynamic IP address.

To set up the PPPoE parameters:

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



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

Port

You can set up several ports:

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

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

SRTP Port: The default port is 322.

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

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

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

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

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

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

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

To set up the port parameters:

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

Port Type	External Port	External IP Address	Internal Port	Status
HTTP	80	0.0.0.0	80	Not Valid
HTTPS	443	0.0.0.0	443	Not Valid
RTSP	554	0.0.0.0	554	Not Valid
Server Port	8000	0.0.0.0	8000	Not Valid
Enhanced SDK ...	8443	0.0.0.0	8443	Not Valid
Websocket	7681	0.0.0.0	7681	Not Valid
Websockets	7682	0.0.0.0	7682	Not Valid

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

NAT

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

To set up the NAT parameters:

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

Local Configuration

System

Network

Basic Settings

Advanced Settings

Video/Audio

Image

PTZ

Event

Storage

TCP/IP DDNS PPPoE Port **NAT** Multicast

☐ Enable UPnP™

Friendly Name TruVision TVGP-M01-0201-PTZ-

Port Mapping Mode Auto

Port Type	External Port	External IP Address	Internal Port	Status
HTTP	80	0.0.0.0	80	Not Valid
HTTPS	443	0.0.0.0	443	Not Valid
RTSP	554	0.0.0.0	554	Not Valid
Server Port	8000	0.0.0.0	8000	Not Valid
Enhanced SDK ...	8443	0.0.0.0	8443	Not Valid
WebSocket	7681	0.0.0.0	7681	Not Valid
Websockets	7682	0.0.0.0	7682	Not Valid

Save

2. Select the **Enable UPnP™** check box to enable the UPnP™ function.

3. Select **Port Mapping Mode** to be Auto or Manual.

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

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

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

Multicast

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

To set up the Multicast parameters:

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

The screenshot shows the 'Configuration' tab selected in the top navigation bar. On the left, the 'Local Configuration' menu is open, showing 'Basic Settings' under the 'Network' section. The main content area displays the 'Multicast' configuration page. It includes tabs for 'TCP/IP', 'DDNS', 'PPPoE', 'Port', 'NAT', and 'Multicast' (which is active). The 'IP Address' field is set to '0.0.0.0'. The 'Stream Type' is set to 'Main Stream'. Below this, there are two sections: 'RTSP' and 'SRTP'. Each section has 'Video Port' and 'Audio Port' fields. For RTSP, the Video Port is 8860 and the Audio Port is 8862. For SRTP, the Video Port is 18860 and the Audio Port is 18862. A 'Save' button is at the bottom.

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

SNMP

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

To set up the SNMP parameters:

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

The screenshot displays the configuration page for the camera's SNMP settings. At the top, there is a navigation bar with tabs for 'SNMP', 'FTP', 'Email', 'HTTPS', 'QoS', '802.1x', and 'Integration Protocol'. The 'SNMP' tab is currently selected and highlighted in green.

The main configuration area is divided into three sections:

- SNMP v1/v2:** This section contains several settings:
 - ☐ Enable SNMPv1
 - ☐ Enable SNMP v2c
 - Read SNMP Community: public
 - Write SNMP Community: private
 - Trap Address: (empty text field)
 - Trap Port: 162
 - Trap Community: public
- SNMP v3:** This section is for configuring SNMPv3 and includes two identical sets of fields for Read and Write operations:
 - ☐ Enable SNMPv3
 - Read/Write UserName: (empty text field)
 - Security Level: no auth, no priv (dropdown menu)
 - Authentication Algorithm: MD5 (selected) or SHA
 - Authentication Password: (password field with dots)
 - Private-key Algorithm: DES (selected) or AES
 - Private-key password: (password field with dots)
- SNMP Other Settings:** This section contains:
 - SNMP Port: 161

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

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

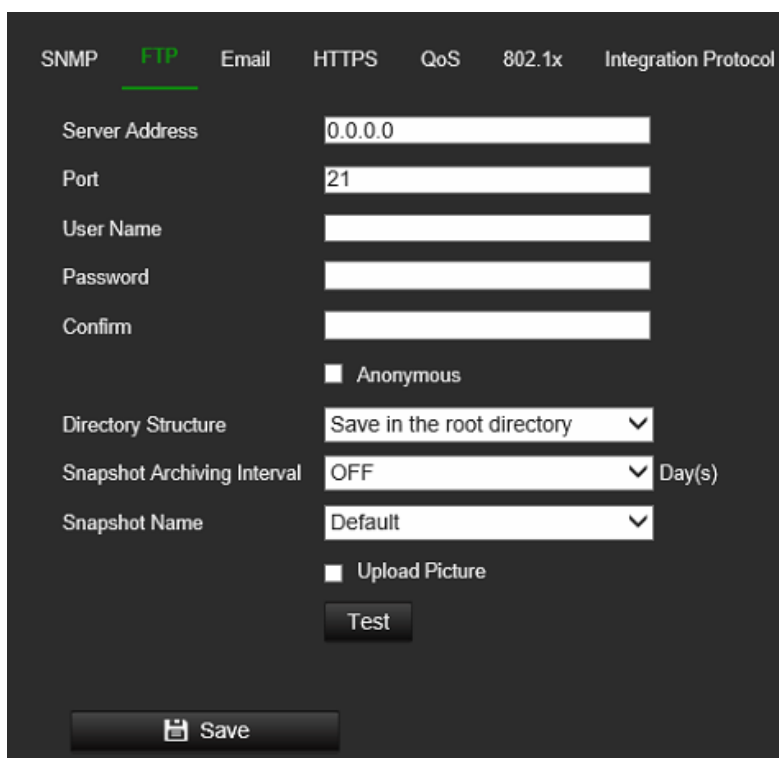
Note: Before setting the SNMP, please download the SNMP software to receive the camera information via the SNMP port. By setting the Trap Address, the camera can send the alarm event and exception messages to the surveillance center. The SNMP version you select should be the same as that of the SNMP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

FTP

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

To set up the FTP parameters:

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



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 *Main directory* is selected, you have the option to use the Device Name, Device Number or Device IP for the name of the directory. When *Subdirectory* is selected, you can use the Camera Name or Camera No. as the name of the directory.

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

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

Email

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

To set up the email parameters:

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

The screenshot shows the 'Email' configuration page. At the top, there are tabs for SNMP, FTP, Email (selected), HTTPS, QoS, 802.1x, Integration Protocol, Network Service, HTTP Listening, TCP Acceleration, Traffic Shaping, and SRTP. Below the tabs, there are input fields for Sender, Sender's Address, SMTP Server, SMTP Port (set to 25), Email Encryption (set to None), Attached Image (checkbox), Interval (set to 2s), Authentication (checkbox), User Name, Password, and Confirm. Below these fields is a table for Receivers with columns for No., Receiver, Receiver's Address, and Test. The table has three rows, each with a 'Test' button. At the bottom, there is a 'Save' button.

No.	Receiver	Receiver's Address	Test
1			Test
2			Test
3			Test

2. Configure the following settings:

Sender: The name of the email sender.

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

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

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

Email Encryption: Encrypt via SSL, TLS. NONE is default.

Attached Snapshot: Select the **Attached Snapshot** 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.

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

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

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

HTTPS

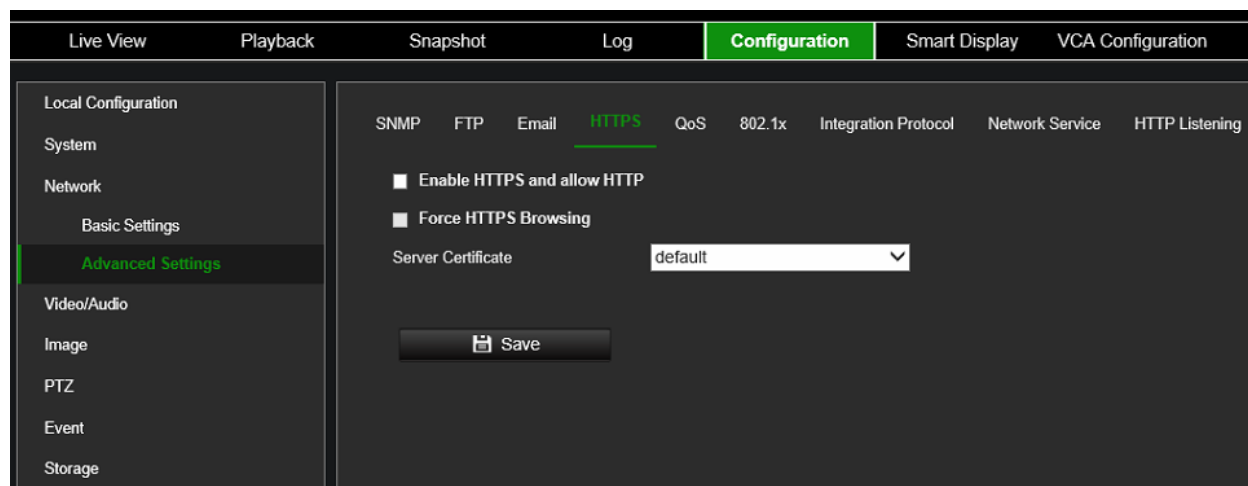
Specifies the authentication of the web site and its associated web server, which protects against Man-in-the-middle attacks.

To set up the HTTPS parameters:

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

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

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



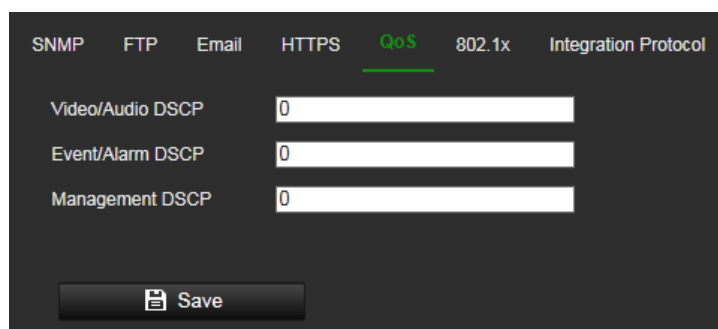
QoS

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

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

To define the QoS parameters:

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



The screenshot shows the 'QoS' configuration page. At the top, there are tabs for 'SNMP', 'FTP', 'Email', 'HTTPS', 'QoS' (which is highlighted with a green underline), '802.1x', and 'Integration Protocol'. Below the tabs, there are three input fields for DSCP values: 'Video/Audio DSCP' with a value of '0', 'Event/Alarm DSCP' with a value of '0', and 'Management DSCP' with a value of '0'. At the bottom of the page is a 'Save' button with a floppy disk icon.

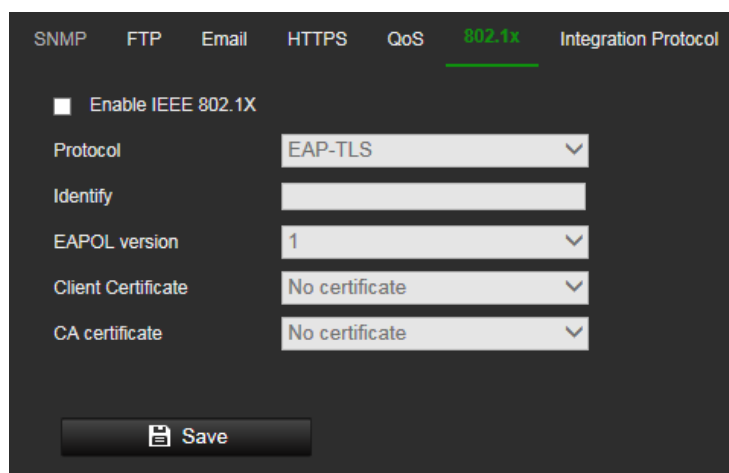
2. Configure the QoS settings, including Video / Audio DSCP, Event / Alarm DSCP and Management DSCP. The valid value range of the DSCP is 0-63. The bigger the DSCP value is, the higher the priority is.
3. Click **Save** to save changes.

802.1x

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

To set up the 802.1x parameters:

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



The screenshot shows the '802.1x' configuration page. At the top, there are tabs for 'SNMP', 'FTP', 'Email', 'HTTPS', 'QoS', '802.1x' (which is highlighted with a green underline), and 'Integration Protocol'. Below the tabs, there is a checkbox labeled 'Enable IEEE 802.1X'. Below this, there are several configuration options: 'Protocol' set to 'EAP-TLS', 'Identify' (empty), 'EAPOL version' set to '1', 'Client Certificate' set to 'No certificate', and 'CA certificate' set to 'No certificate'. At the bottom of the page is a 'Save' button with a floppy disk icon.

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

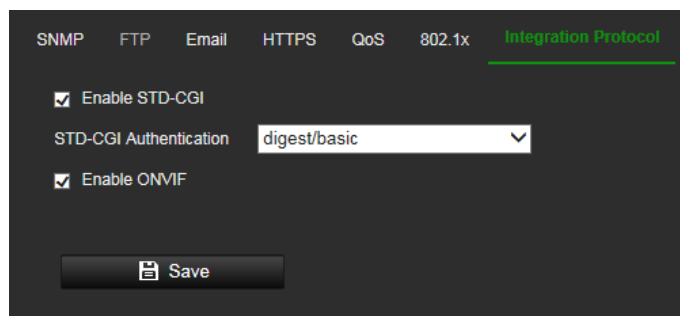
Note: The switch or router to which the camera is connected must also support the IEEE 802.1X standard. A server must also be configured. Please apply and register a user name and password for 802.1X in the server.

Integration protocol

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

To set up the integration protocol parameters:

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



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

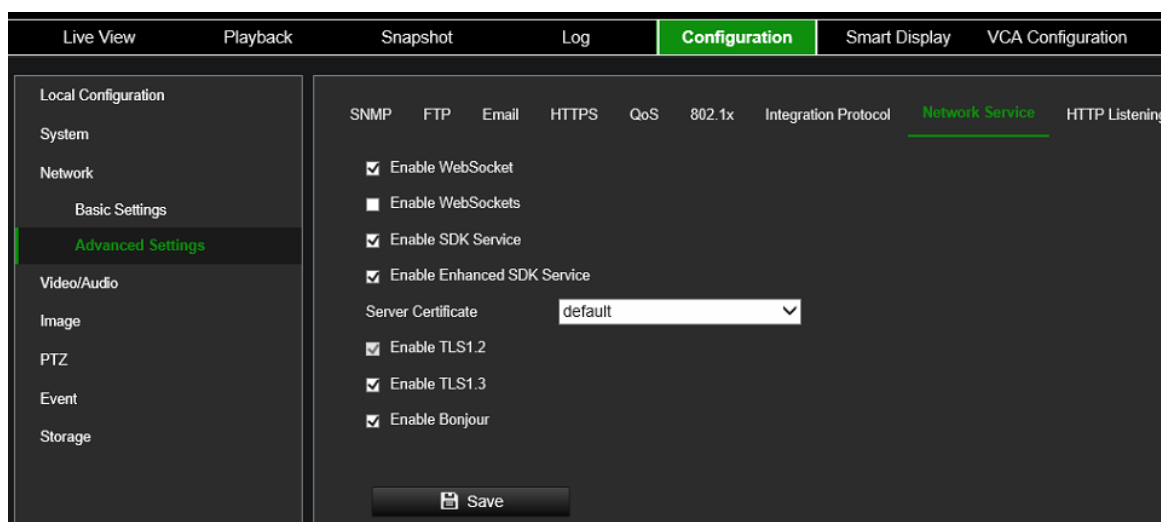
Network service

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

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

To set up the network service parameters:

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



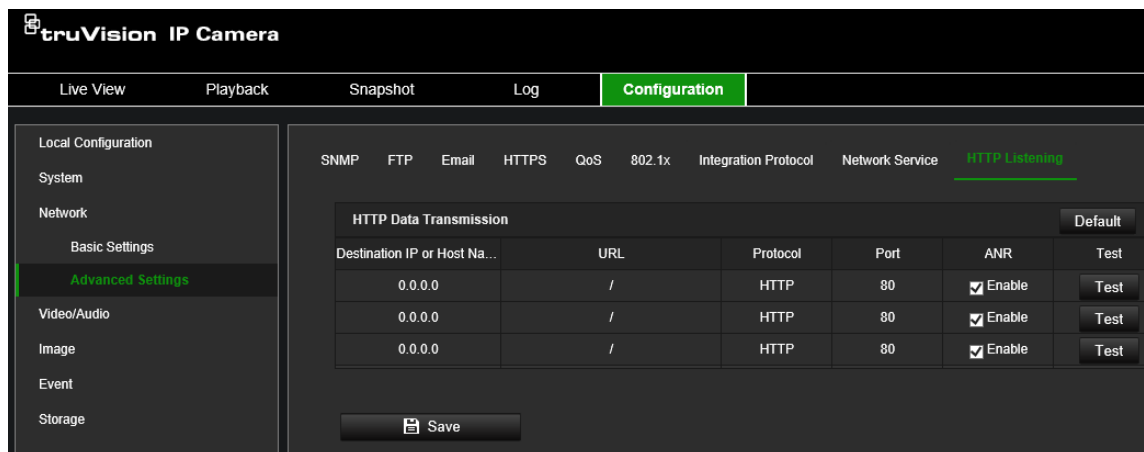
2. Select the **Enable WebSocket** check box to enable WebSocket service for live viewing over HTTP protocol without the plug-in.
3. Select the **Enable WebSockets** check box to enable the WebSockets service for live viewing over HTTPS protocol without the plug-in.
4. Select the **Enable SDK Service**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

HTTP listening

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

To set up the HTTP listening parameters:

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



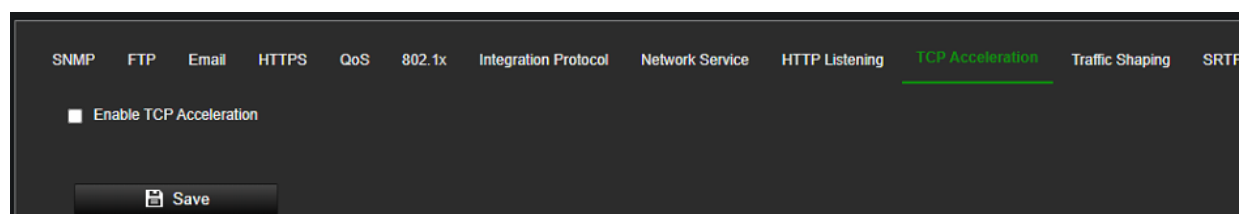
2. Enter destination IP or host name, URL, protocol type and port number.
3. Click the **Test** button to test if the service is available.

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

4. Enable ANR to activate Automatic Network Replenishment to have the camera send buffered events to the alarm host after restoring from a network disconnect.
5. Click **Save** to save changes.

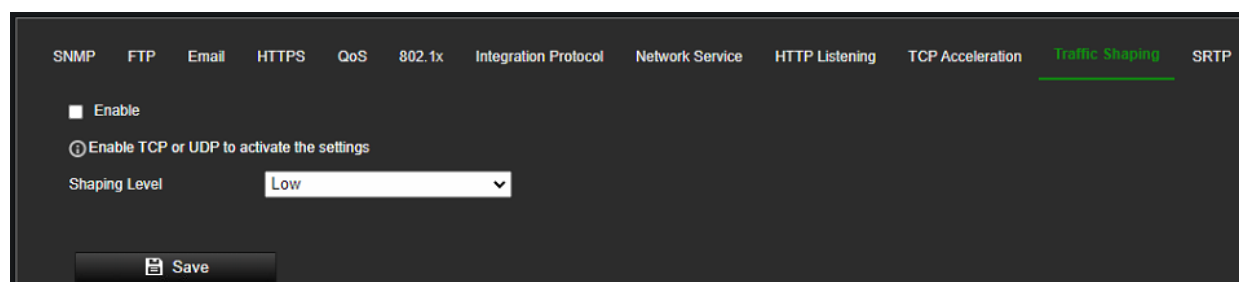
TCP Acceleration

TCP acceleration is used to improve latency and reduce packet loss caused by network congestion in a poor network environment. It can help to improve fluency of live view.



Traffic Shaping

Traffic shaping is used to shape and smooth video data packets before transmission. It can help to improve latency and reduce packet loss caused by network congestion and ensure the video quality as well. Shaping level is configurable. It optimizes video frame data.



Click **Configuration > Network > Advanced Settings > Traffic Shaping** to open its window

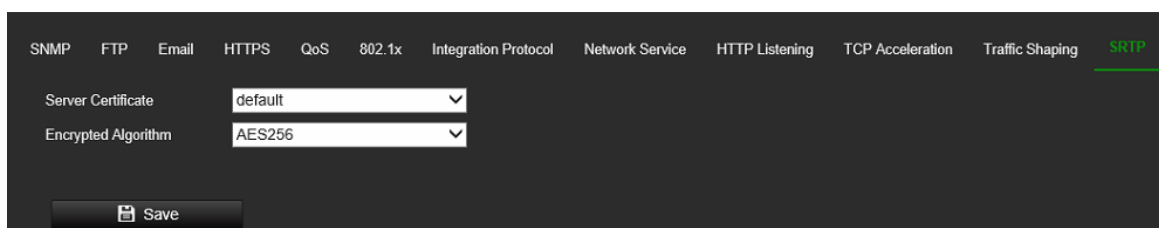
Select the **Enable** check box to activate Traffic Shaping

Select the desired shaping level from the drop-down list: Low, medium, high. Low means limited optimization of video frame data while the higher settings will try to optimize data more.

SRTP

To set up the SRTP parameters:

1. Click **Configuration > Network > Advanced Settings > SRTP** to open its window.

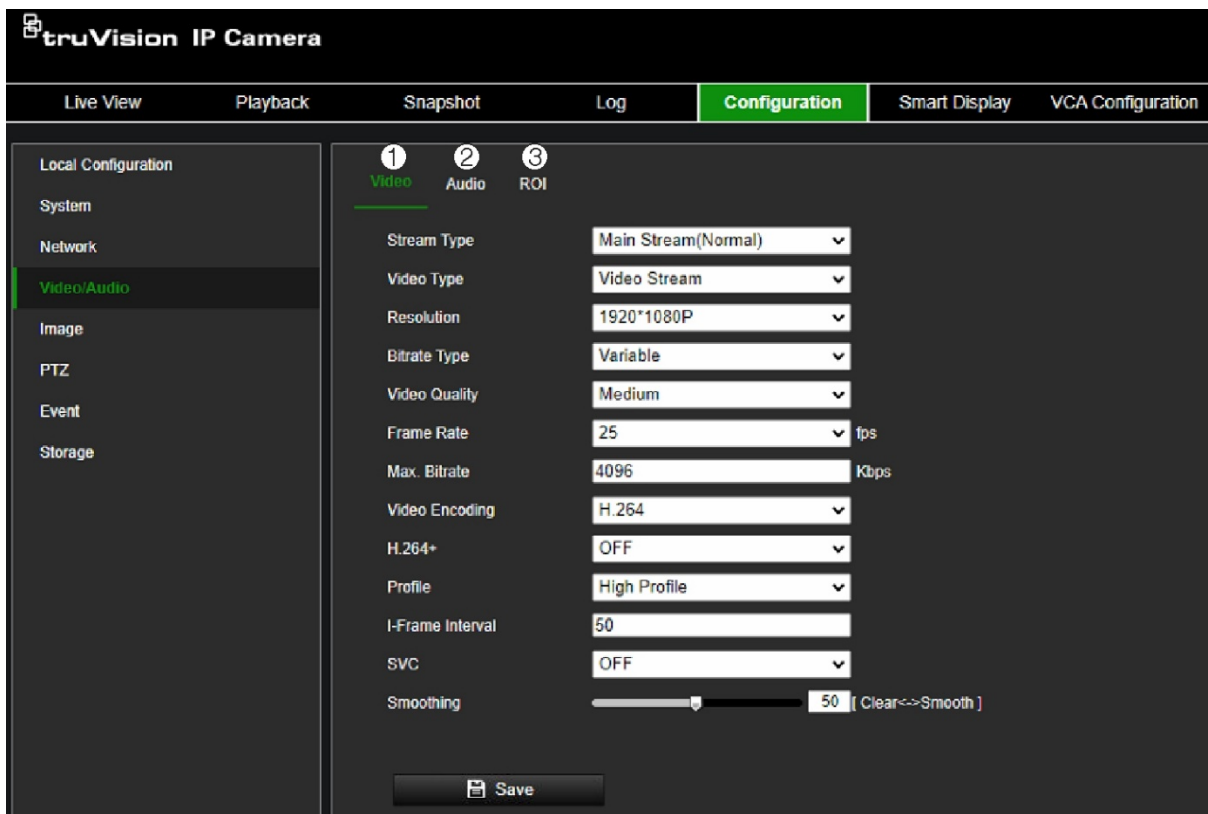


2. Select the server certificate in the drop-down list
3. Select the encrypted algorithm in the drop-down list
4. Click **Save** to save changes.

Video/Audio

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

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

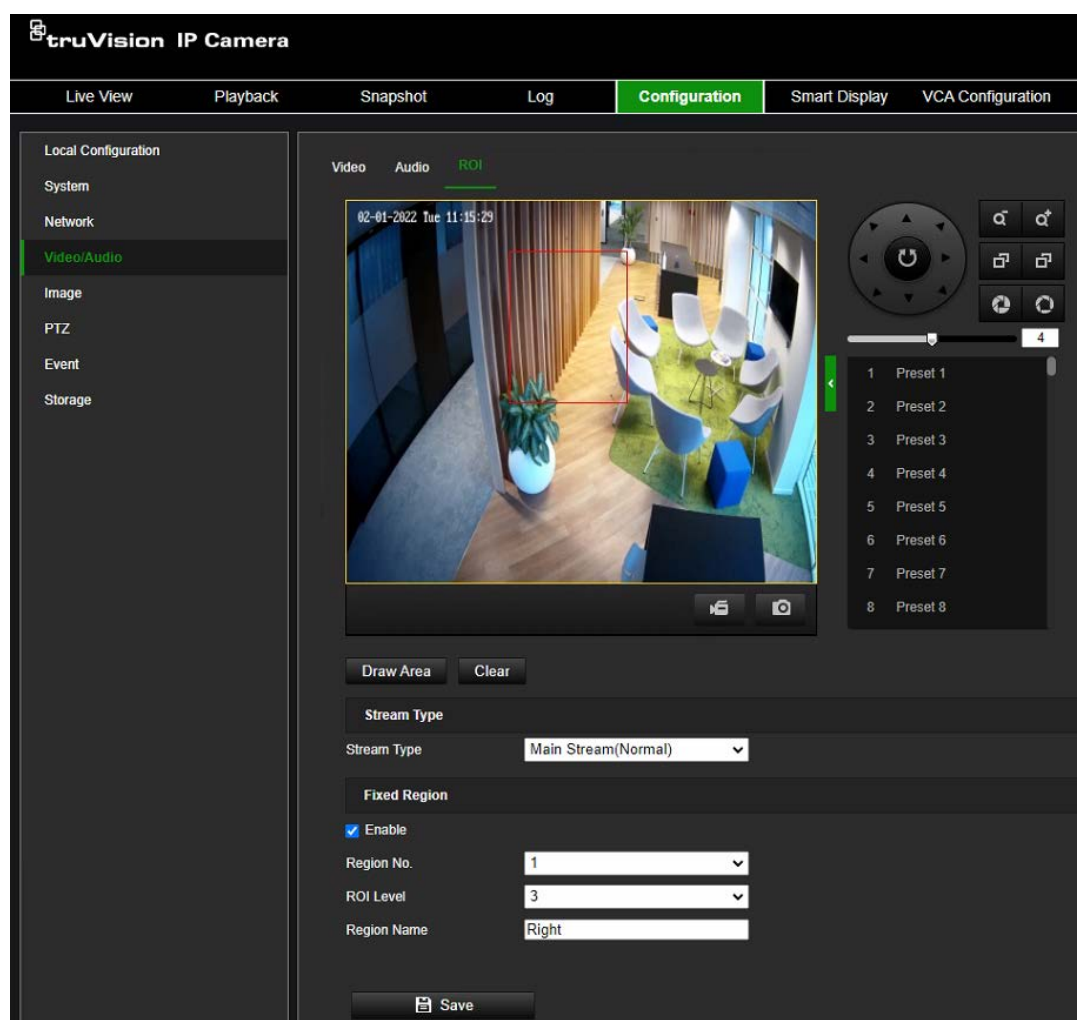


Tab	Parameter descriptions
1. Video	Stream Type: Specifies the streaming method used. Options include: Main Stream, Substream, Third Stream. Note that Third Stream is only available in Standard Event Mode (menu System > VCA Resource) Video Type: Specifies the stream information you wish to record. Select 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. 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, sub, third, fourth or fifth stream is being used. Note: Resolutions can vary depending on the camera model. Bit Rate Type: 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 the 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 encoding used. You can choose between H.264 and H.265.

Tab	Parameter descriptions
	H.264+/H.265+: Depending on the selected Video Encoding, this parameter allows you to activate smart codecs H.264+ or H.265+ by switching it to ON. Leaving this parameter OFF will make the camera use standard H.264 or H.265 video encoding. Note: When switching to H.265+/H.264+, parameters such as SVC Profile and I-Frame Interval will not be supported. Profile: Different profile indicates different tools and technologies used in compression. Options for H.264 include: Basic Profile, Main Profile, High Profile. I-Frame Interval: A video compression method. It is strongly recommended not to change the default value 50. SVC: Scalable Video Coding is an extension of the H.264/AVC standard. Select OFF / ON to disable / enable the SVC function. Select Auto and the device will automatically extract frames from the original video when the network bandwidth is insufficient. SVC is not available when H.264+ or H.265+ video encoding is used. Smoothing: Adjust the smoothness of the stream. Smoothing is not available when H.264+ or H.265+ video encoding is used.
2. Audio (only available if hardware supports it)	Audio Encoding: G.722.1, G.711ulaw, G.711alaw, MP2L2, G.726, and PCM are supported. Audio Input: <i>Line In</i> is available to connect an active microphone. Note: Options can vary depending on the camera model. Input Volume: Specifies the microphone volume from 0 to 100. Output volume: Specifies the audio output volume Environmental Noise Filter: Set it as OFF or ON. When you set the function on the noise detected can be filtered.
3. ROI	Enable to assign more encoding resources to the region of interest (ROI) to increase the quality of the ROI whereas the background information is less focused.

To configure ROI settings:

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



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

Region No.: You can configure up to eight fixed ROI regions.

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

Region Name: Set the desired region name.

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

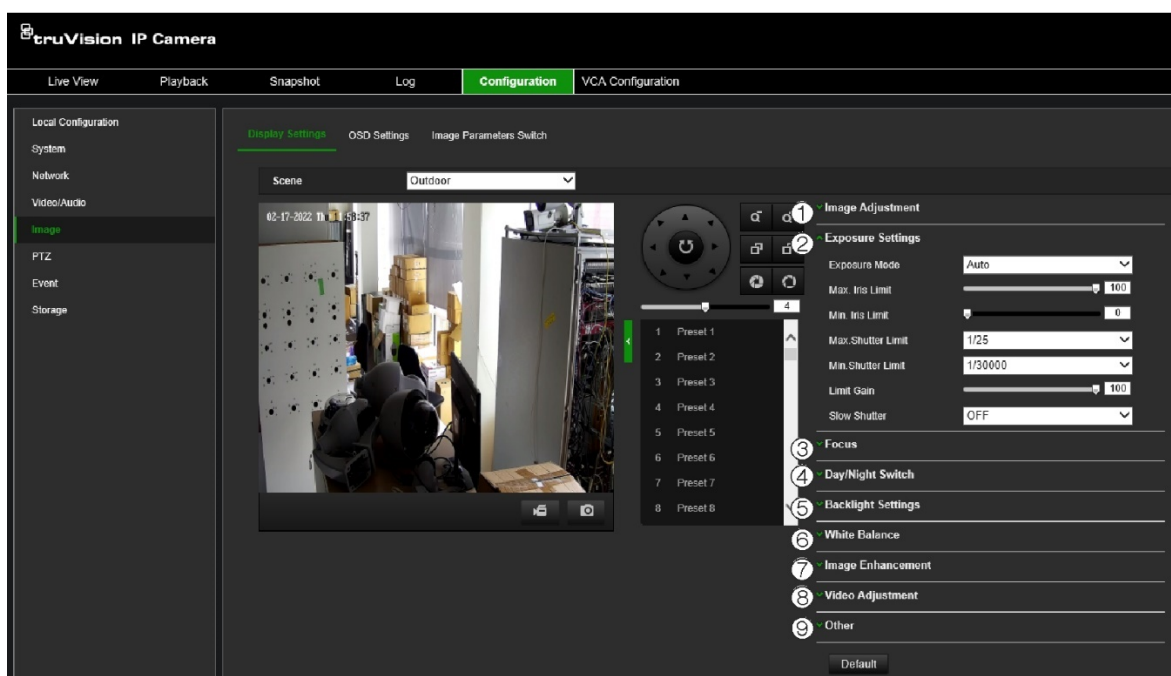
Image

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

Display Settings

Use this menu to set up how the image is displayed such as image adjustment, exposure settings, day/night settings, backlight settings, and white balance. Available settings can vary slightly depending on camera model.

Figure 5: Display Settings menu



The parameters displayed depend on the **Scene** selected from the drop-down list. Select the scene best suited to the environment: Indoor, Outdoor, Day, Night, Nightfall, Street, Low Illumination, Custom1, Custom2, or Face.

Parameter	Description
1. Image Adjustment	
Brightness, Contrast, Saturation, Sharpness	Modify the different elements of picture quality by adjusting the values for each of parameter. These options can also be modified from the General control panel in Live View.
2. Exposure Settings	
Exposure Mode	Auto: The iris, shutter, and gain values are adjusted automatically. You can limit the changing ranges of iris, shutter, and gain by setting Max. Iris Limit, Min. Iris Limit, Max. Shutter Limit, Min. Shutter Limit, and Limit Gain for better exposure effect. Iris Priority: Adjust this value manually. The shutter and gain values are adjusted automatically according to the brightness of the environment. You can limit the changing ranges of the shutter and gain by setting Max. Shutter Limit, Min. Shutter Limit, and Limit Gain for better exposure effect.

Parameter	Description
	Shutter Priority: Adjust this value manually. The iris and gain values are adjusted automatically according to the brightness of the environment. You can limit the changing ranges of the iris by setting Max. Iris Limit, Min. Iris Limit, and Limit Gain for better exposure effect. Manual: Manually set Iris, Shutter, and Gain. Slow Shutter: The higher the slow shutter level is, the slower the shutter speed. It ensures full exposure in underexposed conditions.
3. Focus	
Focus Mode	Adjust the focus mode and the minimum focus distance. Auto: The device focuses automatically as the scene changes. If you cannot get a well-focused image in auto mode, reduce the light sources in the image and avoid flashing lights. Semi-auto: The device focuses once after the PTZ and lens zooming. If the image is clear, the focus does not change when the scene changes. Manual: You can adjust the focus manually in live view.
Min. Focus Distance	When the distance between the scene and lens is shorter than the Min. Focus Distance configured, the lens does not focus. Select the desired distance from the drop-down list.
4. Day/Night Switch	
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 amount of light captured by the camera. Scheduled switch: The camera switches between day and night modes according to the configured period.
Sensitivity	Only available when <i>Auto D/N switch</i> mode is selected. It defines the sensitivity of the switch between day and night. Set it between 1 and 7.
Smart Supplement Light	When enabled, it can avoid over exposure problems by decreasing the amount of IR illumination for objects closer to the camera
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.
IR LED Mode	Always set to Auto. This value cannot be changed.
5. Backlight Settings	
BLC	This function improves image quality when the background illumination is high. It prevents the object in the center of the image from appearing too dark. Select OFF, Up, Down, Left, Right, Center, or Auto.

Parameter	Description
WDR	When enabled, wide dynamic range (WDR) provides clear images when there is high contrast between light and dark areas in the field of view of the camera. Both bright and dark areas can be displayed in the frame. This option can also be enabled/disabled from the General control panel in Live View.
Wide Dynamic Level	The WDR level can be fine tuned by changing its value between 0 and 100
HLC	Use the highlight compensation (HLC) function when there is strong sources of light in the scene that affects the image quality. This option can also be enabled/disabled from the General control panel in Live View.

6. White Balance

White balance (WB) tells the camera what the color white looks like. Based on this information, the camera will then continue to display all colors correctly even when the color temperature of the scene changes such as from daylight to fluorescent lighting, for example. Select one of the options:

MWB: Manually adjust the color temperature to meet your own requirements.

Locked WB: Locks the WB to the current environment color temperature.

Outdoor: White balance setting that works best for outdoor environment.

Indoor: White balance setting that works best for indoor environment.

Fluorescent Lamp: For use where there are fluorescent lamps installed near the camera.

Sodium Lamp: For use where there are sodium lights (e.g., streetlights)

ATW: The Auto Tracking White function that automatically tracks the white balance of images according to the lighting conditions.

Auto: The camera will try to automatically adjust its white balance according to the lighting conditions.

7. Image Enhancement

Digital Noise Reduction	Digital noise reduction (DNR) reduces noise, especially in low light conditions, to improve image performance. Select Normal Mode, OFF, or Expert. 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 the image is misty. It enhances the subtle details so that the image appears clearer. Default is OFF.
EIS	Electrical Image Stabilizer (EIS) reduces the effects of vibration in a video. Default is OFF. Using EIS will decrease the camera field of view.

8. Video Adjustment

Mirror	It mirrors the image so you can see it inversed. Select Center or OFF. Default is OFF.
Video Standard	Select PAL (50 Hz) or NTSC (60 Hz). Select the value depending on the video standards.
Capture Mode	It is the selectable video input mode to meet the different demands of field of view and resolution. Available value depend on model and image sensor.

Parameter	Description
9. Other	
Lens initialization	Initialize the lens of the camera with a motorized lens. This function helps to maintain lens focus accuracy over prolong periods of time. Default is OFF.
Zoom Limit	Set the user-defined limitation of the zoom. Zoom level= Optical zoom× Digital zoom. If you set the zoom limit to its minimum value (25), digital zoom is disabled and optical zoom is at maximum value. If you set a higher zoom limit, digital zoom is enabled.

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

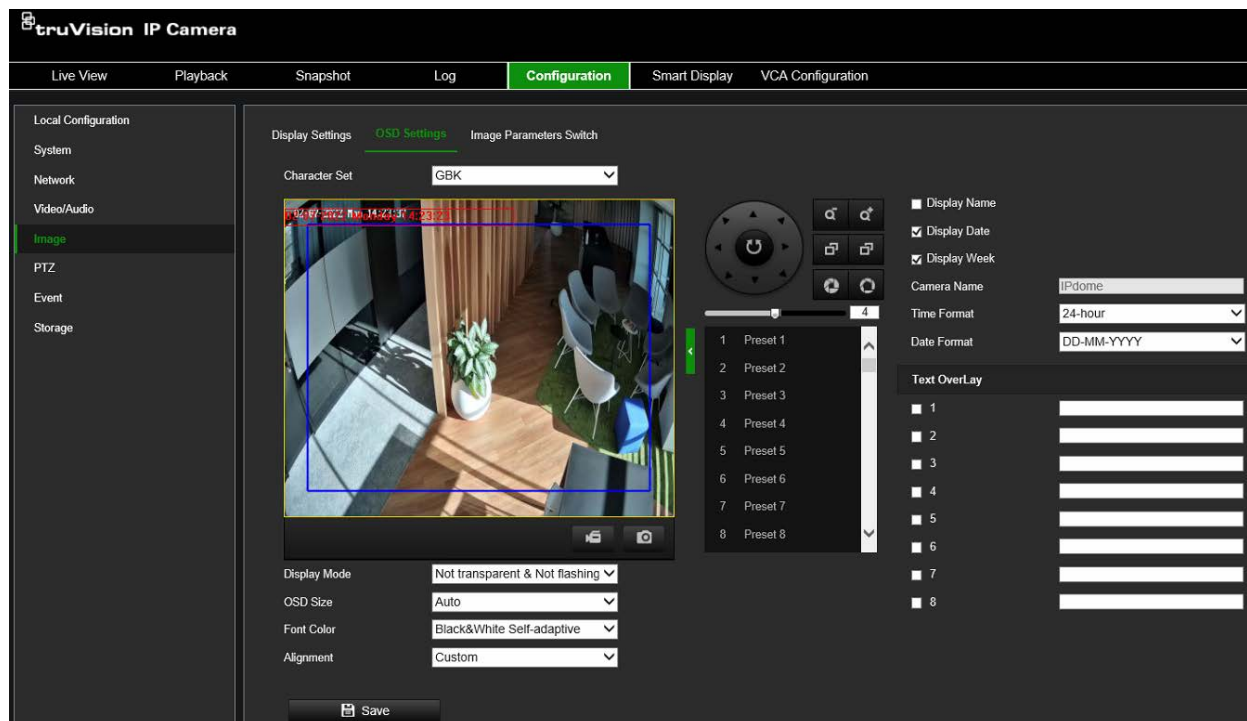
OSD Settings (On Screen Display)

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

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

To set up the OSD text:

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



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

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

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

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

Image Parameters Switch

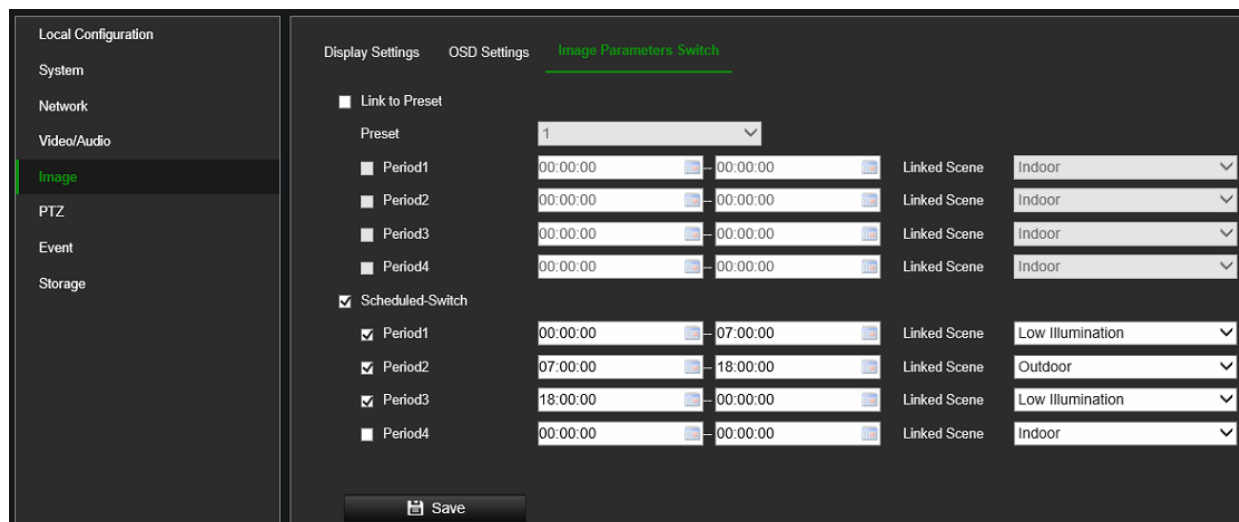
You can configure *Link to Preset* or *Scheduled-Switch* in this menu.

Link to Preset: Set the time period and linked scene for the preset and check the corresponding check box to go to the linked scene in the configured period.

Scheduled-Switch: Set the time period and linked scene and it will use the linked scene in the configured time period when you check the corresponding check box.

To set the Image Parameters Switch:

1. From the menu toolbar, click **Configuration > Image > Image Parameters Switch**.



2. Select **Link to Preset** or **Scheduled-Switch**. (Only one function can be enabled at the same time.)
3. To set up the image parameter switch based on presets, enable **Link to Preset**.
Select a predefined preset from the drop-down list (see “Using presets” on page 103 for information on setting up a preset).
Select a period check box and set the start and end time periods as well as the linked scene. Up to four periods can be configured for a selected preset.
4. To set up the image parameter switch based on scheduled periods, enable **Scheduled-Switch**.
Select a period check box and set the start and end time periods and linked scene. Up to four scheduled periods can be configured.
5. Click **Save** to save changes.

Note: The two functions are not enabled by default.

PTZ

The following sections explain how to configure the different PTZ parameters.

Basic Settings

You can configure the PTZ parameters, such as proportional pan, preset freezing, preset speed, keyboard control speed, auto scan speed, and PTZ OSD.

To define basic PTZ parameters:

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

The screenshot shows a web-based configuration interface for a PTZ camera. On the left is a sidebar menu with options: Local Configuration, System, Network, Video/Audio, Image, PTZ (highlighted), Event, and Storage. The main area has tabs: Basic Settings (active), Limit, Initial Position, Park Action, Privacy Mask, Scheduled Tasks, Clear Config, Prioritize PTZ, and Position Settings. The 'Basic Settings' tab contains three sections: 'Basic Parameter' with checkboxes for 'Enable Proportional Pan' (checked) and 'Enable Preset Freezing' (unchecked), and dropdowns for 'Preset Speed' (4), 'Manual Control Speed' (Auto), 'Keyboard Control Speed' (Medium), and 'Zooming Speed' (2); 'PTZ OSD' with dropdowns for 'Zoom Status' (2s), 'PT Status' (2s), 'Position Display Format' (PT), and 'Preset Status' (2s); and 'Power Off Memory' with a dropdown for 'Set Resume Time Point' (30s). A 'Save' button is at the bottom.

2. Configure the following settings:

Basic Settings:

Enable Proportional Pan	When enabled, the pan/tilt speeds change according to the zoom level. When the zoom is high, the pan/tilt speed will be slower to prevent the image from moving too quickly on the live view image.
Enable Preset Freezing	This function enables live view to switch directly from one scene defined by a preset to another, without showing the actual movement between the presets. This helps ensure surveillance efficiency. It can also reduce the use of bandwidth in a digital network system. Note: The preset freezing function is invalid when calling up a shadow tour.
Preset Speed	Set the speed of a defined preset from 1 to 8.
Manual Control Speed	Set the manual control speed as Compatible, Pedestrian, Non-motor Vehicle, Motor Vehicle, or Auto. Compatible: The control speed is same as the keyboard control speed. Pedestrian: Select when you monitor pedestrians. Non-motor Vehicle: Select when you monitor non-motor vehicles. Motor Vehicle: Select when you monitor motor vehicles. Auto: Select when the application scene of the PTZ dome is complicated.
Keyboard Control Speed	Define the speed of PTZ control by a keyboard as Low, Medium, or High.
Zooming Speed	Adjust the zooming speed level between 1 and 3.
PTZ OSD:	
Set the on-screen display duration of the PTZ status.	
Zoom Status	Set the OSD duration of zooming status as 2 seconds, 5 seconds, 10 seconds, Always OFF, or Always ON.

PT Status	Set the azimuth angle display duration while panning and tilting as 2 seconds, 5 seconds, 10 seconds, Always OFF, or Always ON.
Preset Status	Set the preset name display duration while calling the preset as 2 seconds, 5 seconds, 10 seconds, Always OFF, or Always ON.
Power-off Memory:	
	The dome resumes its previous PTZ status or actions after it restarts from a power off. You can set the time point at which the dome resumes its PTZ status. You can set it to resume at 30 seconds, 60 seconds, 300 seconds, or 600 seconds before power off.

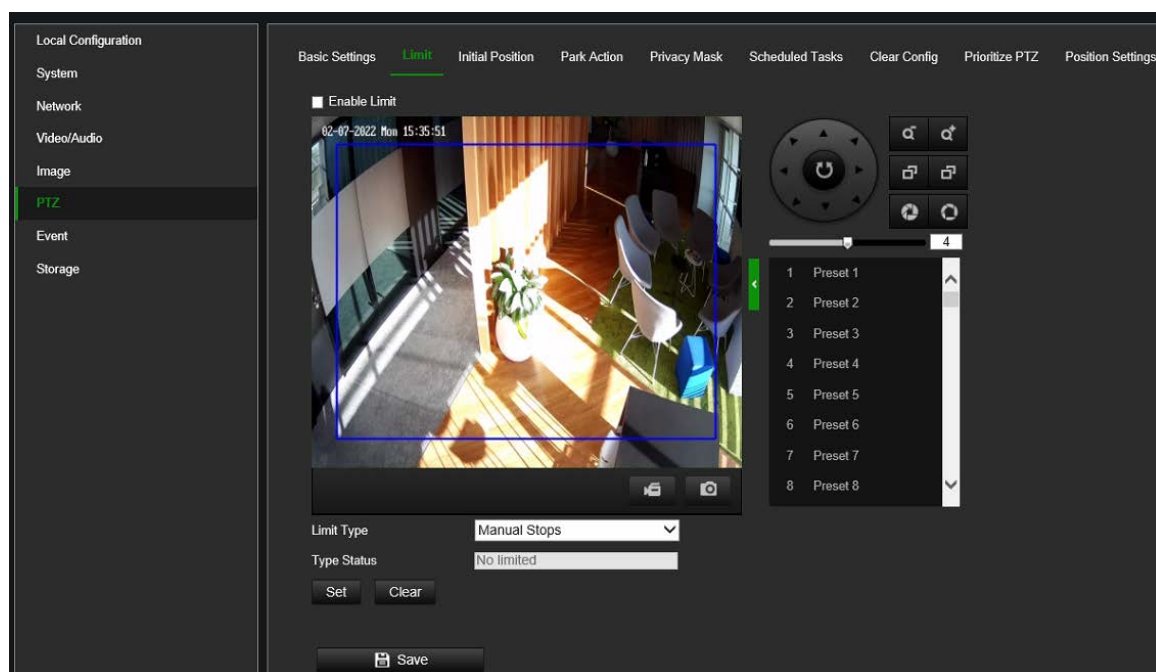
3. Click **Save** to save changes.

Limit

The camera can be programmed to move only within a defined area. It can be limited in how much it can move left/right and up/down. This can be useful when you do not want an area, such as a neighboring building, to be included in the camera view.

To define the limit parameters:

1. From the menu toolbar, click **Configuration > PTZ > Limit**.



2. Select **Enable Limit**.
3. **Limit Type** is always set to **Manual Stops** to allow you to manually operate the PTZ control panel only within the restricted surveillance area.
4. Click the **Set** button and use the PTZ control panel to set the limits of the camera movement. You can also call up defined presets and set them as the limits of the camera.
5. The camera will ask you to set the left limit. When done, click the **Iris+** button to confirm.

6. After confirming the limit position, the camera will ask the same for right, up, and down limit positions. Each position needs to be confirmed by clicking the **Iris+** button.
7. Click **Save** to save changes.
8. Click **Clear** to delete the configured limits.

Initial position

The initial position is the PTZ home coordinates. It can be the factory default position, or you can customize the initial position to your own requirements.

To set the initial position:

1. From the menu toolbar, click **Configuration > PTZ > Initial Position**.
2. Click the PTZ control buttons to find a position as the initial position of the camera. You can also call a defined preset and set it as the initial position.
3. Click **Set** to save the position.

To call and delete the initial position:

Click **Call** to call the initial position. Click **Clear** to delete the initial position and restore the factory default initial position.

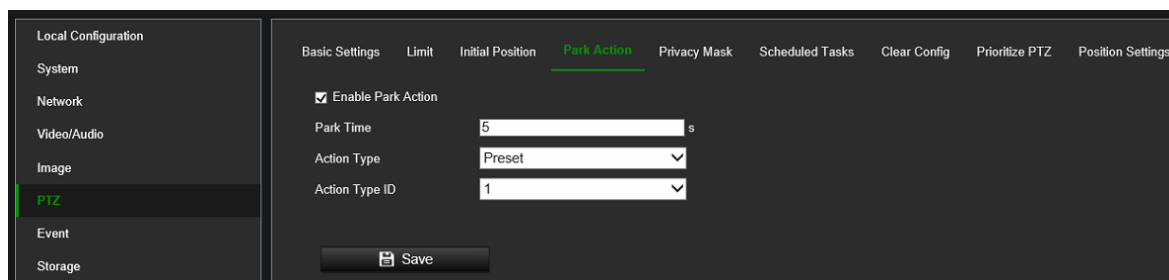
Park action

This is the action that will run automatically after a certain time when you stop controlling the camera manually. A park action can be, for example, a scan, a preset, a preset tour, or a shadow tour.

Note: The *Scheduled Tasks* function (see page 51) has priority over the *Park Action* function. If these two functions are set at the same time, only *Scheduled Tasks* is enabled.

To define a park action:

1. From the menu toolbar, click **Configuration > PTZ > Park Action**.



The screenshot shows the 'Local Configuration' sidebar on the left with 'PTZ' selected. The main panel has tabs for 'Basic Settings', 'Limit', 'Initial Position', 'Park Action' (which is active), 'Privacy Mask', 'Scheduled Tasks', 'Clear Config', 'Prioritize PTZ', and 'Position Settings'. Under the 'Park Action' tab, there is a checkbox for 'Enable Park Action' which is checked. Below it are three fields: 'Park Time' with a value of '5' and a unit 's', 'Action Type' with a dropdown menu showing 'Preset', and 'Action Type ID' with a dropdown menu showing '1'. At the bottom of the panel is a 'Save' button with a floppy disk icon.

2. Select **Enable Park Action**.
3. Set the **Park Time**, which is the inactivity time of the dome before it starts the defined park action.
4. Select an action from the **Action Type** drop-down list. You can choose between Preset or Preset Tour.

5. Select the **Action Type ID**. There are two options. **Preset**, which is the Preset No., or **Preset Tour**, which is the Preset Tour No.
6. Click **Save** to save changes.

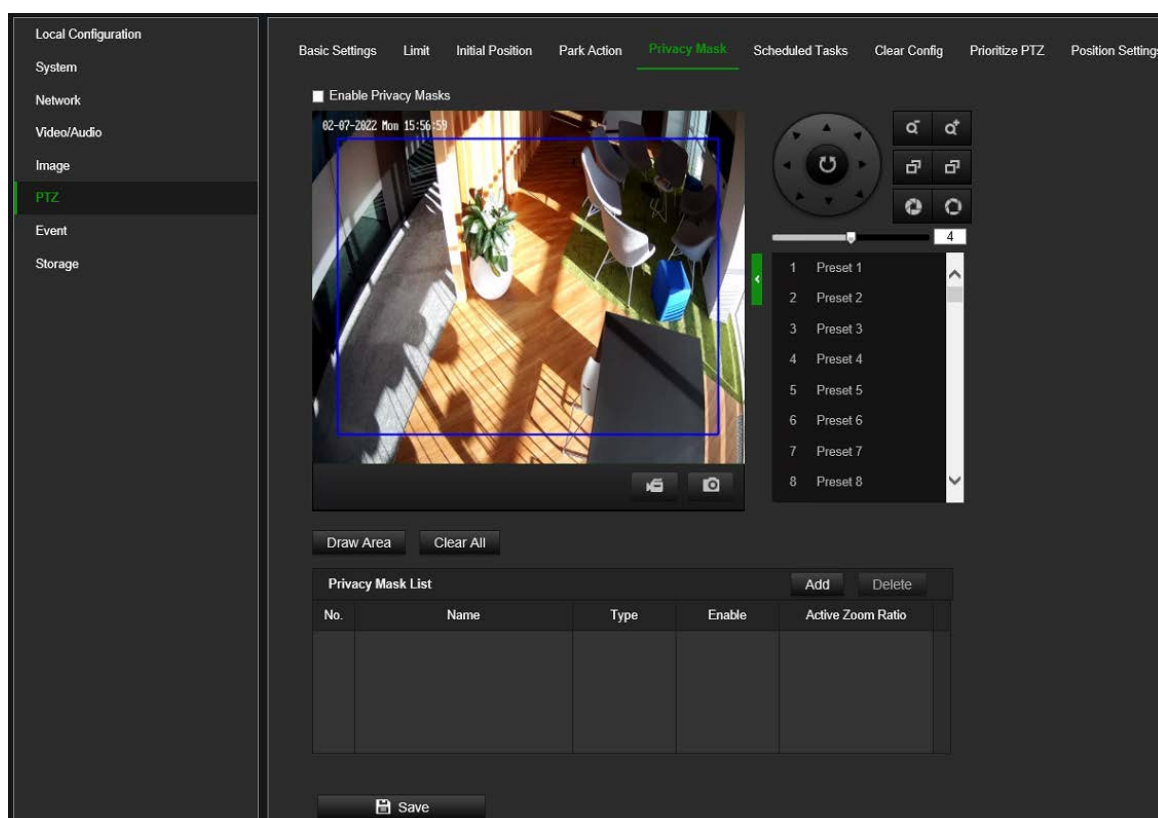
Privacy Mask

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 or mosaic area on screen. You can create up to 24 privacy masks per camera.

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

To add privacy mask area:

1. From the menu toolbar, click **Configuration > PTZ > Privacy Mask**.



2. Select **Enable Privacy Masks**.
3. Using the PTZ control buttons, point the camera at the desired area, or select a predefined preset position where you want to set the privacy mask.
4. Click the **Draw Area** button. Click and drag the mouse in the live video window to draw the mask area.
5. Click **Add** to add the area. Enter its name, color or mosaic, and active zoom ratio. Each mask can be individually set.
6. To remove a privacy mask, click the desired row in the table below the screen and click **Delete**.

Privacy Mask List					Add	Delete
No.	Name	Type	Enable	Active Zoom Ratio		
1	Privacy Mask 1	green	Yes	1		
2	Privacy Mask 2	blue	Yes	1		
3	Privacy Mask 3	yellow	Yes	1		

Note: The *Active Zoom Ratio* is the zoom ratio at which the privacy mask will appear. If, for example, it is set to 3, the privacy mask will only appear at a zoom ratio of 3 and higher.

- Click **Save** to save changes.
- Click **Clear All** to clear all the masking areas set.

Scheduled tasks

You can configure the camera to perform specific actions automatically during a user-defined time period.

To define a scheduled task:

- From the menu toolbar, click **Configuration > PTZ > Scheduled Tasks**.

- Select **Enable Scheduled Task**.
- Select the task type from the drop-down list. You can choose from one of the following: OFF, Preset Tour, Preset, Dome Reboot, Dome Adjust, or Aux Output.
- Set the schedule by dragging the mouse pointer on the time bar of the desired day.

—Or—

Click the time bar of the desired day. The pop-up *Timing Tasks* window appears. Select the desired task from the drop-down list and set its schedule:

Click **Save** to save the settings. Select more tasks and their schedule, if desired.

Note: The color of the scheduled period is that of the selected task type. Multiple task schedules can be set for each day.

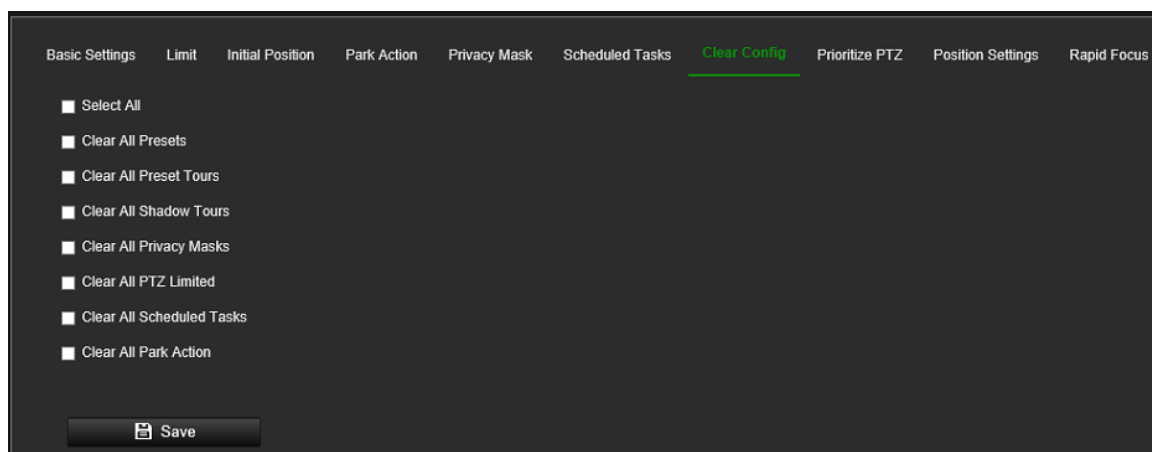
5. Set the **Park Time**. After you stop operating the camera manually, Park Time defines in seconds when the scheduled tasks will resume.
6. Click **Save** to save changes.

Clear Config

Use the Clear Config PTZ menu to clear all presets, preset tours, shadow tours, privacy masks, PTZ limits, scheduled tasks, and park actions.

To clear PTZ configurations:

1. From the menu toolbar, click **Camera Configuration > PTZ > Clear Config**.



2. Select the options listed that you want to clear. More than one option can be selected:

Select All	Clear All Shadow Tours	Clear All Scheduled Tasks
Clear All Presets	Clear All Privacy Masks	Clear All Park Action
Clear All Presets Tours	Clear All PTZ Limits	
3. Click **Save** to save changes.

Prioritize PTZ

The PTZ dome can be controlled by the network and by RS-485. You can set the which of these has control priority.

To define Prioritize PTZ:

1. From the menu toolbar, click **Configuration > PTZ > Prioritize PTZ**.

The screenshot shows a configuration window with a dark background. At the top, there is a horizontal menu bar with the following items: 'Basic Settings', 'Limit', 'Initial Position', 'Park Action', 'Privacy Mask', 'Scheduled Tasks', 'Clear Config', 'Prioritize PTZ' (which is highlighted with a green underline), and 'Position Settings'. Below the menu bar, on the left, are the labels 'Prioritize PTZ' and 'Delay'. To the right of 'Prioritize PTZ' is a dropdown menu showing 'Network' with a downward arrow. To the right of 'Delay' is a text input field containing '10', followed by a small 's' for seconds. At the bottom left, there is a button with a floppy disk icon and the text 'Save'.

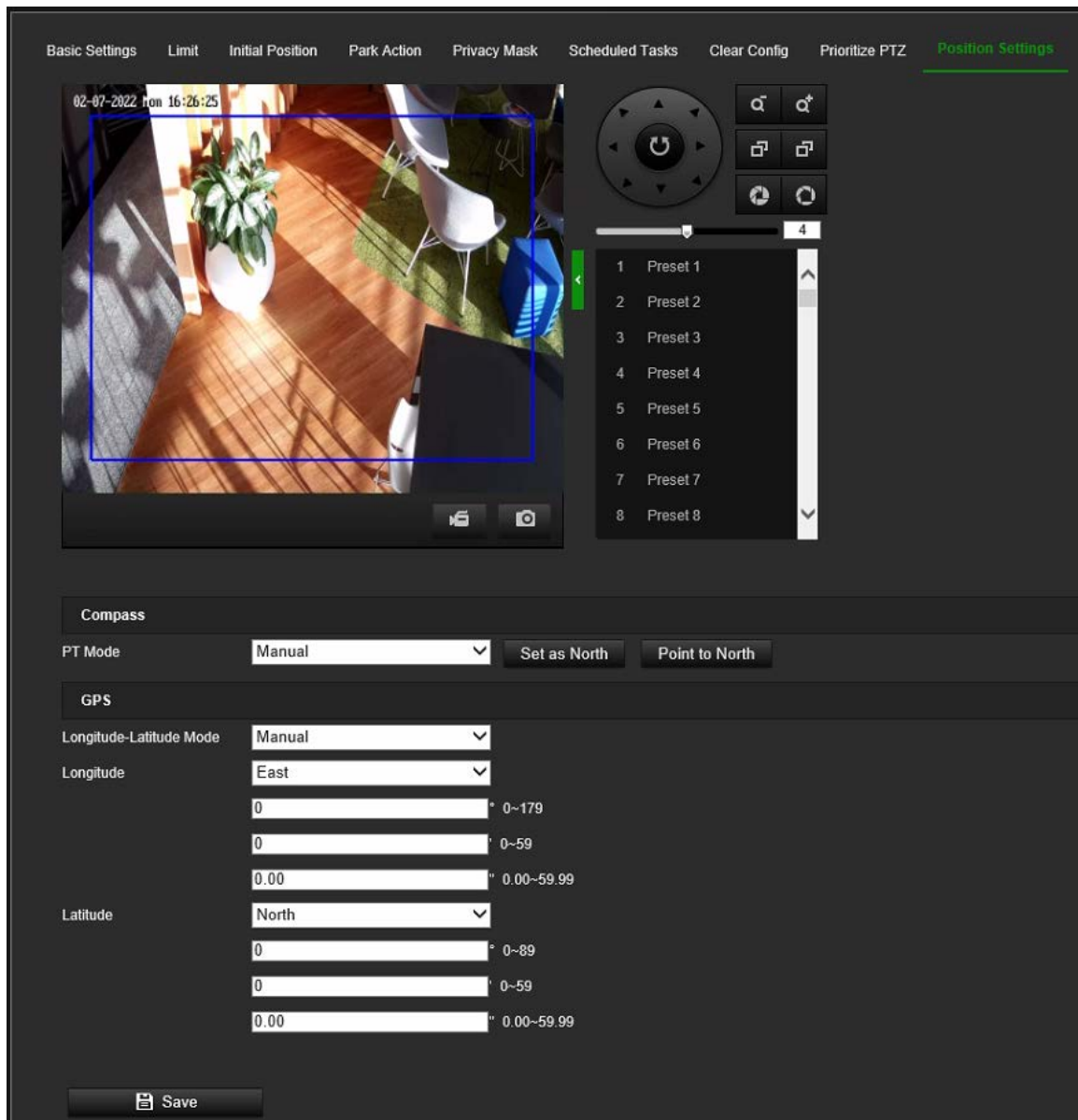
2. From **Prioritize PTZ**, select the desired option. Network prioritization is automatically selected.
3. Set the delay time (the range is between 2 and 200 s). This refers to the time interval of PTZ operation controlled by different signals. When the operation with high priority is finished, the low priority signal can control the device after the defined delay time.
4. Click **Save** to save changes.

Position Settings

Before you start, make sure you know the direction of North at the device location.

To define the north position:

1. From the menu toolbar, click **Configuration > PTZ > Position Settings**.



2. **PT Mode** is always set as Manual.

- 1) Adjust the tilt position of the device to 0 using the up arrow and down arrows on the PTZ panel.
- 2) Adjust the pan position to show the live view pointing in the north direction using the left arrow and right arrows on the PTZ panel.
- 3) Click **Set as North**.

3. Input the longitude and latitude of the device manually.

4. Click **Save**.

If you lose direction when operating the device, click **Point to North** to call up the north position that is saved in the device.

Rapid Focus

Rapid focus is a function to reduce time to focus compared to the normal camera focus. When enabled, the camera will focus accurately and quickly when the zoom ratio is changed. To use this function, the camera should first be calibrated.

To configure Rapid Focus

1. From the menu toolbar, click **Configuration > PTZ > Rapid Focus**.
2. Select **Enable** to activate rapid focus.
3. Select **Enable Height Compensation** when the mounting height of the camera is less than 3 meters.
4. Using the control PTZ buttons, move the camera to the desired position.
5. Click **Add** to add a scene and set **Rate** and **Calibration Point Amount** for the added scene. We recommend using three calibration points for calibration. The Rate is the zoom ratio used during calibration.
6. Select the scene to make a red line appear on the image.
7. Adjust the length of the red line by dragging its end points from near to far in the image to cover the ground while the line is positioned in the center of the scene.
8. Click **Start Calibration** to start the automatic calibration process.
9. A text overlay will appear on the image when the calibration process is finished. Then click **Stop Calibration**.
10. Click **Save**.

Event

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

Motion Detection

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

Important note:

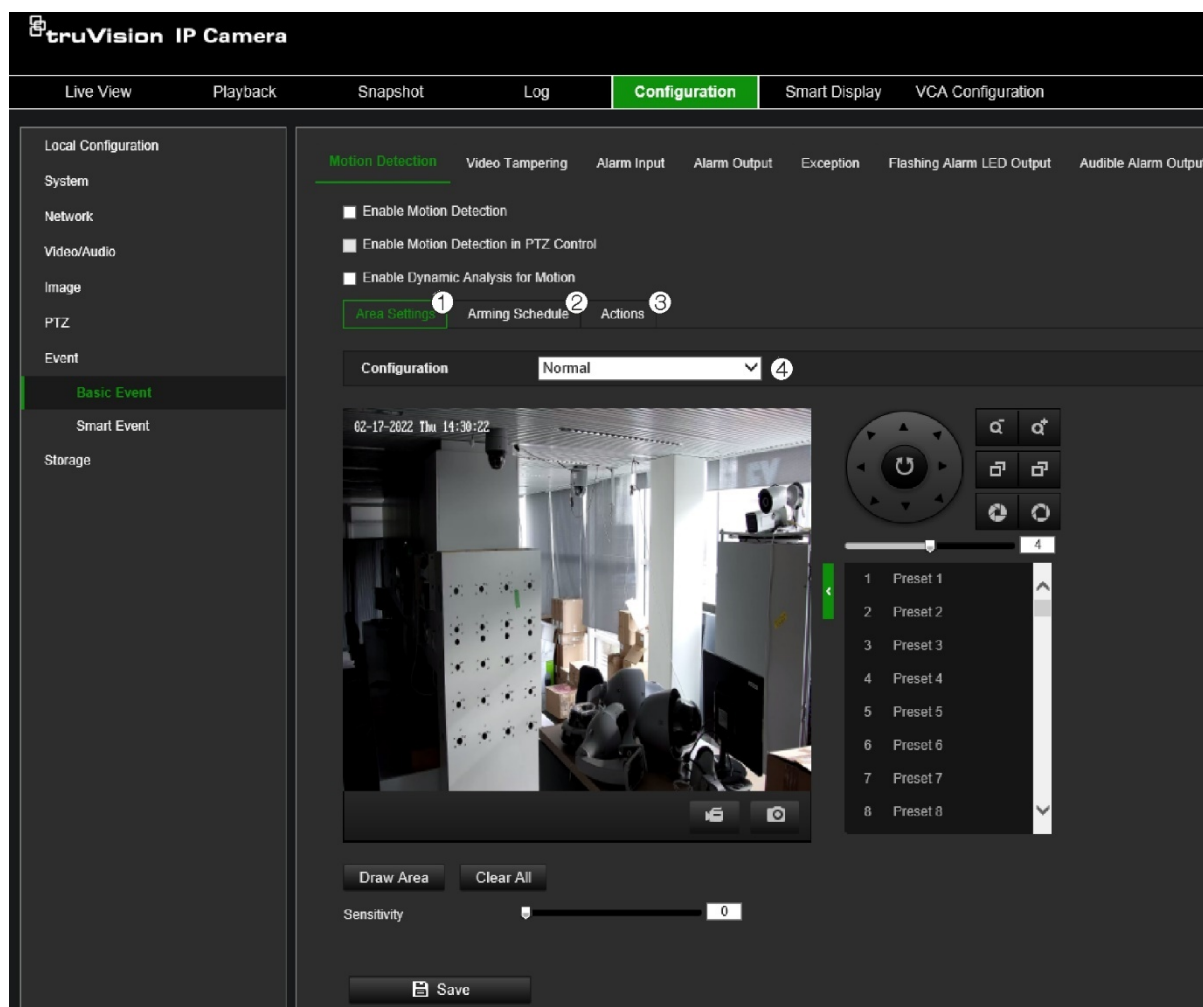
- Motion detection is only available when the camera is set to Face Capture or Road Traffic VCA resource mode.
- When the camera is set to Smart Event VCA resource mode (that is, no motion detection support), some recorders will still let you configure motion detection from the recorder configuration menu although this feature is not activated in the camera. Therefore, make sure to only configure motion detection in the recorder when the camera is set to Face Capture or Road Traffic VCA resource mode. See also “VCA Resource” on page 68.

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

You can also enable dynamic analysis for motion to verify sensitivity in real-time. When there is motion, the area will be highlighted as green. See Figure 6 below.

Leaving **Enable Motion Detection in PTZ Control** disabled will prevent the camera from triggering motion events during PTZ control.

Figure 6: Motion detection window



Defining a motion detection alarm requires the following tasks:

1. **Area settings:** Draw a polygon area on the image where you want the camera to generate motion detection alarm and set detection sensitivity level (see Figure 6 above, item 1).
2. **Arming schedule:** Define the schedule during which the system detects motion (see Figure 6 above, item 2).
3. **Recording schedule:** Define the schedule during which motion detection can be recorded (when using SD card or NAS). See “Recording schedule” on page 93 for further information.

4. **Actions:** Specify the actions triggered by the motion event (see Figure 6 on page 58, item 3).
5. **Normal and advanced configuration:** Normal configuration allows you to set the sensitivity level of the motion detection (see Figure 6 on page 58, item 4). Advanced configuration gives you additional configuration options. It allows you define up to eight separate motion areas with different sensitivity and scene parameters. Target options person/vehicle are not available in *Advanced Motion Detection* mode.

To set up motion detection in normal mode:

1. From the menu toolbar, click **Configuration > Event > Basic Event > Motion Detection**.

- **Set up the motion detection area:**

2. Select the **Enable Motion Detection** check box. Also select the **Enable Dynamic Analysis for Motion** check box if you want to see real-time motion events.

Note: If you do not want the detected object to be marked with the green frame, select **Disable** from **Configuration > Local Configuration > Live View Parameters > Enable Meta Data Overlay**.

3. Under Configuration, select **Normal** mode from the drop-down list.
4. Click **Draw Area**. Click the mouse to set the start point of the area where you want to detect motion. Then move to another position and click the mouse to define the first side of the detection area. Repeat this step to draw additional lines and ultimately close the detection area. A detection area can be a polygon with maximum 10 sides. After the last side of the polygon is drawn, right-click the mouse to close the polygon and stop drawing.

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

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

- **Set up the arming schedule:**

8. Drag and click the timeline bar to edit the arming schedule. In the pop-up box, enter the start and end times (hour and minutes).
9. Click  to copy the schedule to other days or to the whole week.

- **Set up linking method to the motion detection alarm:**

10. Click **Actions** to trigger an action when the motion event occurs. Select one or more response methods for the system when a motion detection alarm is triggered:

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 “To set up the email parameters” on page 32 for further information. If you want to send the event snapshot together with the email, check 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 snapshot to NAS, Memory Card or FTP server. Note: To upload the snapshot to NAS, you must firstly configure the NAS settings. See “NAS” on page 97 for further information. To upload the snapshot to an FTP, you must firstly configure the FTP settings. See “To define the FTP parameters” on page 31 for further information. Enable the Upload Type option. To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select Enable Event-triggered Snapshot under the snapshot parameters. See “Storage” on page 91 for further information.
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. Note: This option is only available for cameras that support alarm output.
Trigger Recording	Triggers the recording to start in the camera.

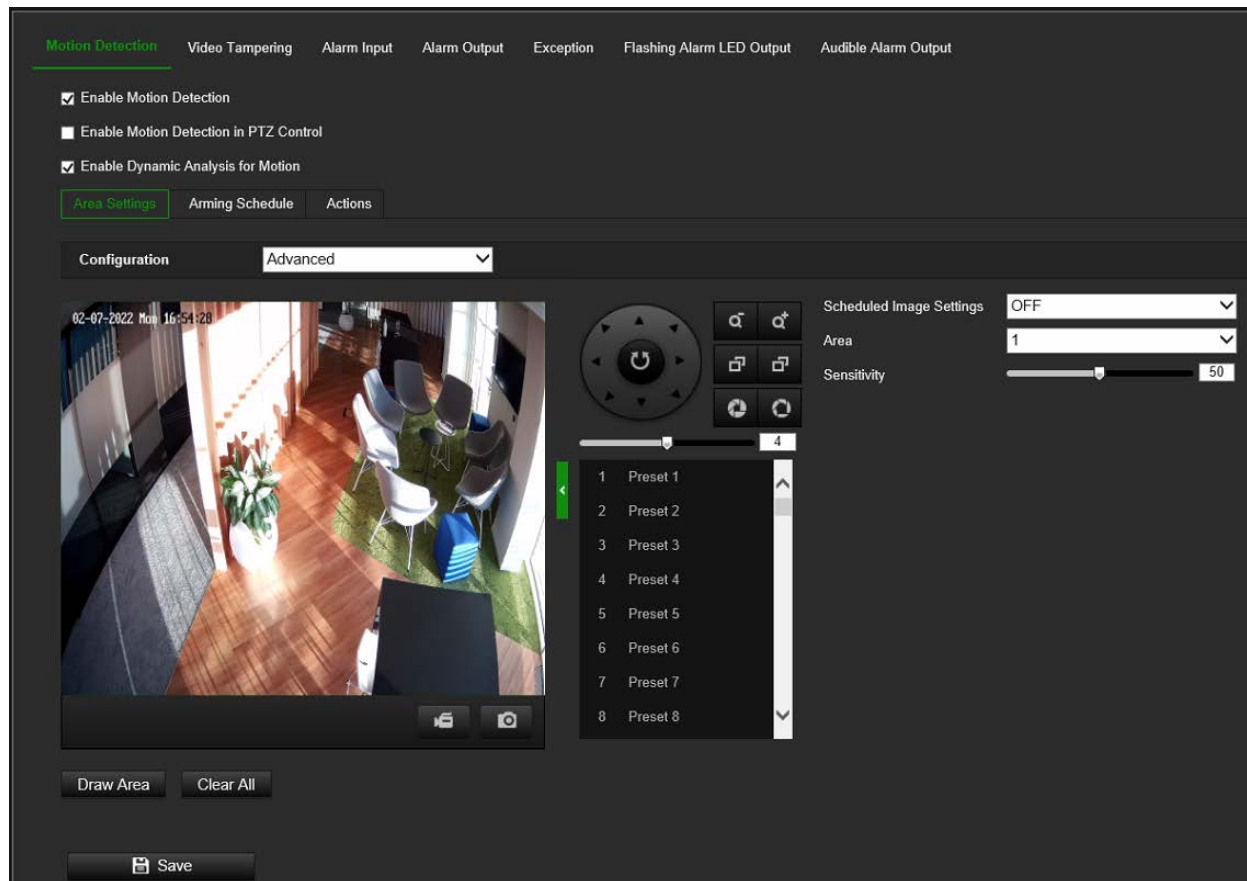
11. Click **Save** to save changes.

To set up advanced motion detection:

- From the menu toolbar, click **Configuration > Event > Basic Event > Motion Detection**.
- Set up the motion detection area:**

Select the **Enable Motion Detection** box. Also select **Enable Dynamic Analysis for Motion** if you want to see where motion occurs in real-time.

Note: If you do not want the detected object to be marked with the green frame, select **Disable** from **Local Configuration > Live View Parameters > Rules**.
- Under Configuration, select **Advanced** mode from the drop-down list.



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

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

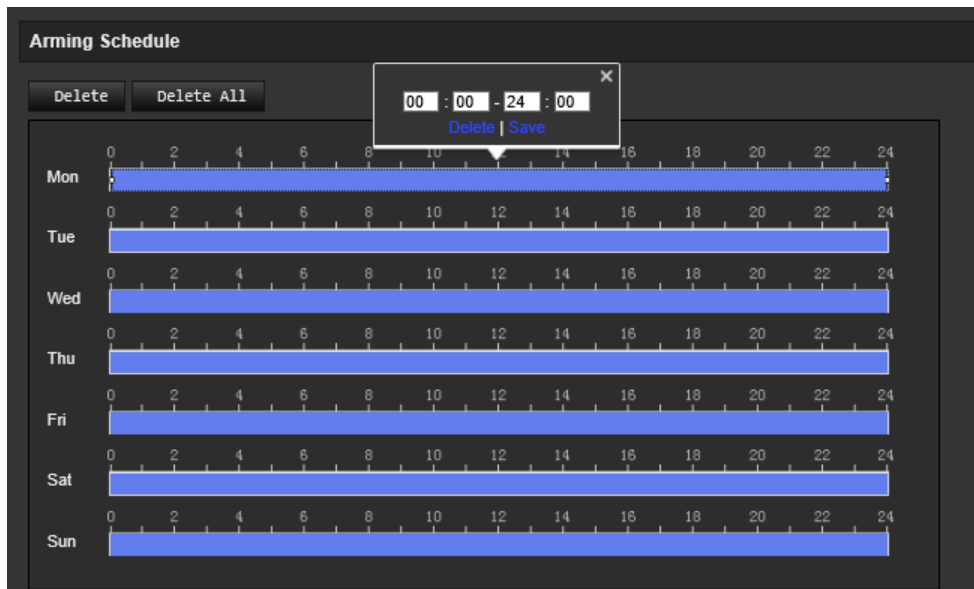
5. Select **Area No.** and click **Draw Area**. Click and drag the mouse on the live video image to draw an area sensitive to motion detection.

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

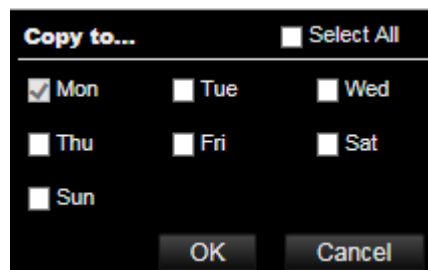
6. Click **Stop Drawing** to finish drawing. Click **Clear All** to delete all areas marked and restart drawing.
7. Move the **Sensitivity** slider to set the sensitivity of the detection for the selected areas.
8. Move the **Percentage** slider to set the proportion of the object that must occupy the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

- **Set up the arming schedule:**

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



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



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

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 "To set up the email parameters" on page 32 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 snapshot to NAS, Memory Card, or FTP server.

Note: To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 97 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 31 for further information. Enable the **Upload Type** option.

To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select **Enable Event-triggered Snapshot** under the snapshot parameters. See “Storage” on page 91 for further information.

Trigger Alarm Output

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

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

Trigger Recording

Triggers the recording to start in the camera.

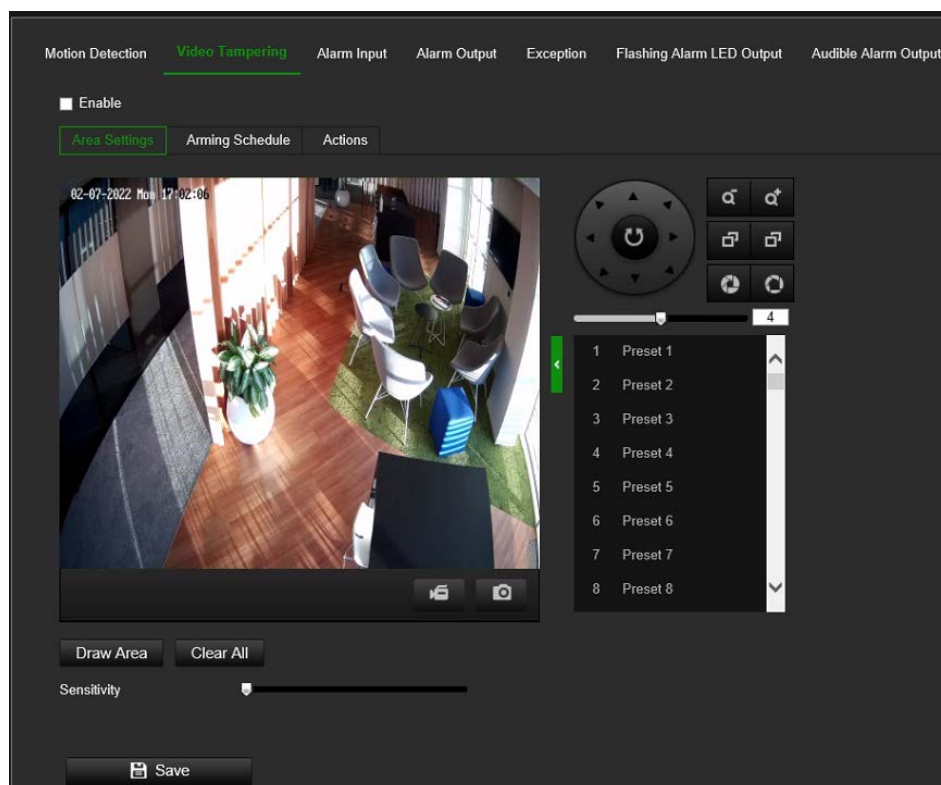
5. Click **Save** to save changes.

Video Tampering

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

To set up tamper-proof alarms:

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



2. Select the **Enable** option to activate *Video Tampering*.
3. Move the **Sensitivity** slider to set the detection sensitivity.

4. Edit the arming schedule for video tampering. The arming schedule configuration is the same as that for motion detection. See “To set up motion detection” on page 59 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.

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 “To set up the email parameters” on page 32 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 available for cameras that support alarm output.

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

Alarm Inputs and Outputs

To set up the external alarm input:

1. From the menu toolbar, click **Configuration > Event > Basic Event > Alarm Input**.
2. Choose the **Alarm Input No.** and the **Alarm Type**. The alarm type can be NO (Normally Open) and NC (Normally Closed). Enter a name for the alarm input.
3. Set the arming schedule for the alarm input. See “To set up motion detection” on page 59 for more information.
4. Select the check box to select the actions.

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 “To set up the email parameters” on page 32 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 snapshot to NAS, Memory Card or FTP server. Note: To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 97 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 31 for further information. Enable the Upload Type option. To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select Enable Event-triggered Snapshot under the snapshot parameters. See “Storage” on page 91 for further information.
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. Note: This option is only available for cameras that support alarm output.
Trigger Recording	Triggers the recording to start in the camera.

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

To set up an alarm output:

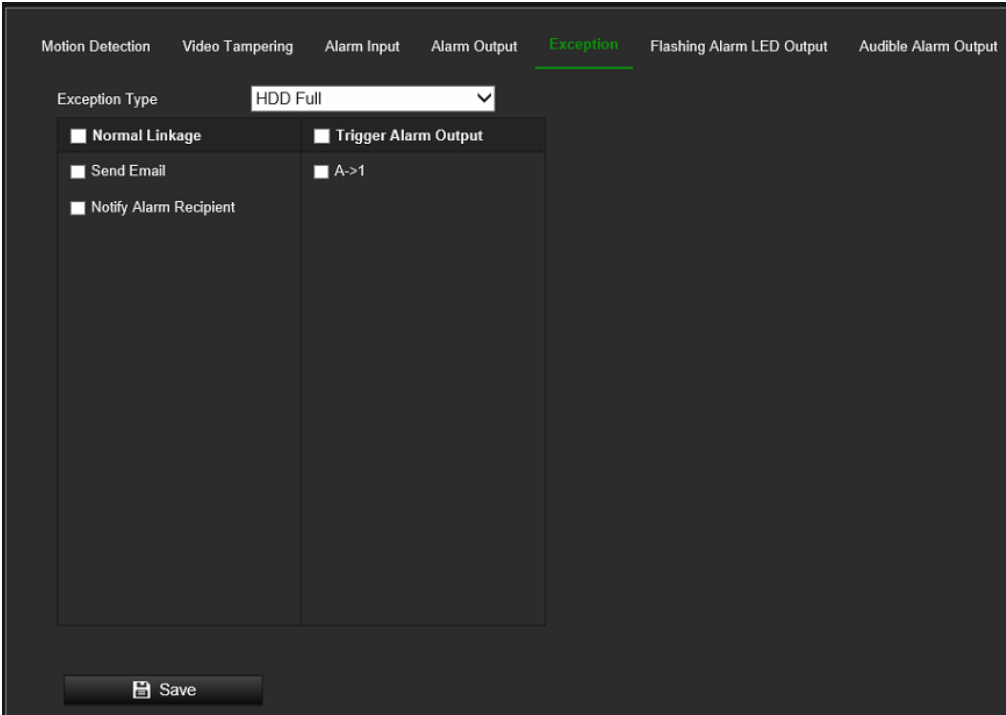
1. From the menu toolbar, click **Configuration > Event > Basic Event > Alarm Output**.
2. Select one alarm output channel from the **Alarm Output** drop-down list. You can also set a name for the alarm output.
3. Set the delay time to 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min or manual. The delay time refers to the time duration that the alarm output remains in effect after the alarm occurs.
4. Set the arming schedule for the alarm input. See “To set up motion detection” on page 59 for more information.
5. Click **Save** to save changes.

Exception

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

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

Figure 7: Exception window



To set up exception alarms:

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

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 “To set up the email parameters” on page 32 for further information. If you want to send the event snapshot together with the email, check 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 available for cameras that support alarm output.

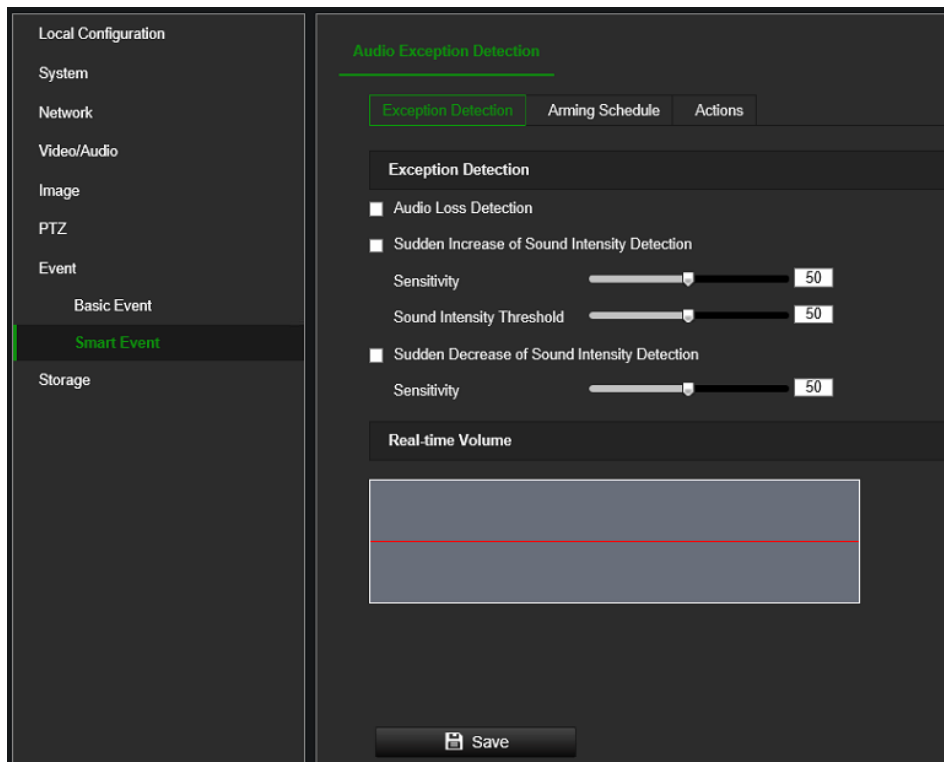
4. Click **Save** to save changes.

Audio Exception Detection

Audio exception detection detects sounds that are above a defined threshold.

To set up audio exception detection:

1. From the menu toolbar, click **Configuration > Event > Smart Event > Audio Exception Detection**.



2. Select **Audio Loss Exception** if you want to generate an event in case of audio loss
3. Select **Sudden Increase of Sound Intensity Detection** and set the sensitivity and sound intensity threshold if you want to be alerted when there is a sudden increase of audio captured through the audio input.
4. Select **Sudden Decrease of Sound Intensity Detection** and set the sensitivity if you want to be alerted when there is a sudden decrease of audio captured through the audio input.
5. Set the arming schedule for the alarm input. See “To set up motion detection” on page 59 on page for more information.
6. Select the actions to be used. The options are:

Notify Surveillance Center	Send an exception or alarm signal to remote management software when an event occurs.
Send Email	Sends an email to a specified address when there is a motion detection alarm.
Trigger Recording	Triggers the recording to start in the camera.
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select one of the options: Select Trigger Alarm Output, A->1, or A->2. Note: This option is only supported by cameras that support alarm output.

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

VCA Configuration

Use this menu to configure smart event configuration features such as Cross Line Detection, Intrusion Detection, Face Capture, and others.

Some of these features are only available in a specific VCA Resource mode. See below for more information.

VCA Resource

The cameras have three VCA Resource modes that will enable/disable certain smart event features in the camera. See the tables below with supported features for each camera.

Note: Switching between the VCA Resource modes will require the camera to reboot.

VCA modes TVGP-P01-0201-PTZ-G

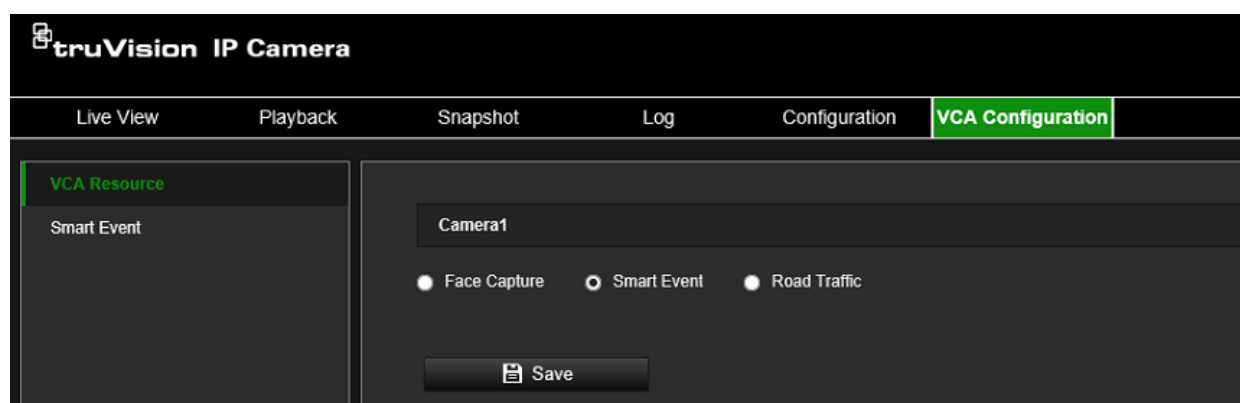


Table 1: TVGP-P01-0201-PTZ-G Supported features by VCA resource mode

Available features	Face Capture	Smart Event (Default mode)	Road Traffic
Motion Detection	Yes	No	Yes
Cross Line Detection	No	Yes	No
Intrusion Detection	No	Yes	No
Region Entry Detection	No	Yes	No
Region Exit Detection	No	Yes	No
Unattended Baggage Detection	No	Yes	No
Object Removal Detection	No	Yes	No
Face Capture	Yes	No	No
Face Comparison	No	No	No
Smart Tracking	No	Yes	No
Road Traffic (ANPR capture)	No	No	Yes

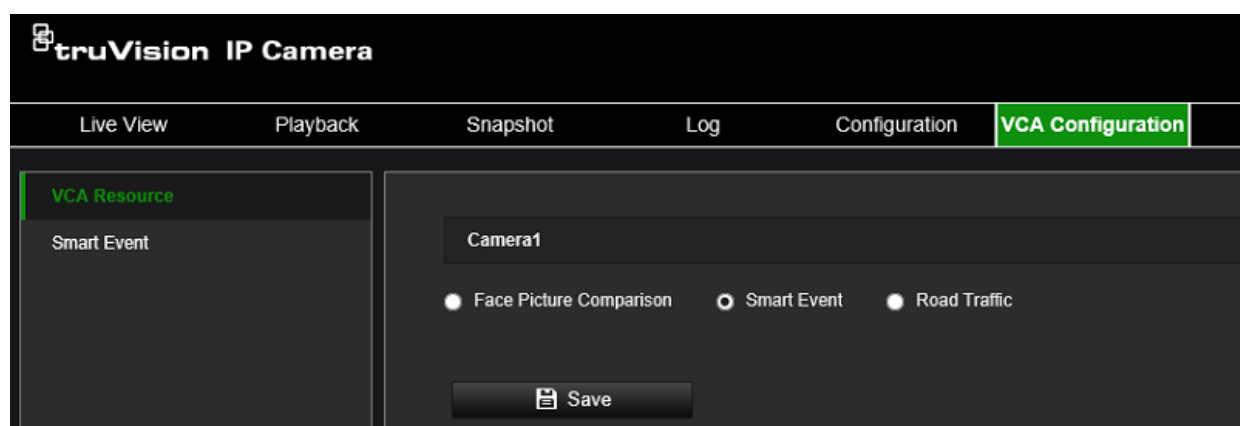


Table 2: TVGP-P01-0201-PTZ-G Supported features by VCA resource mode

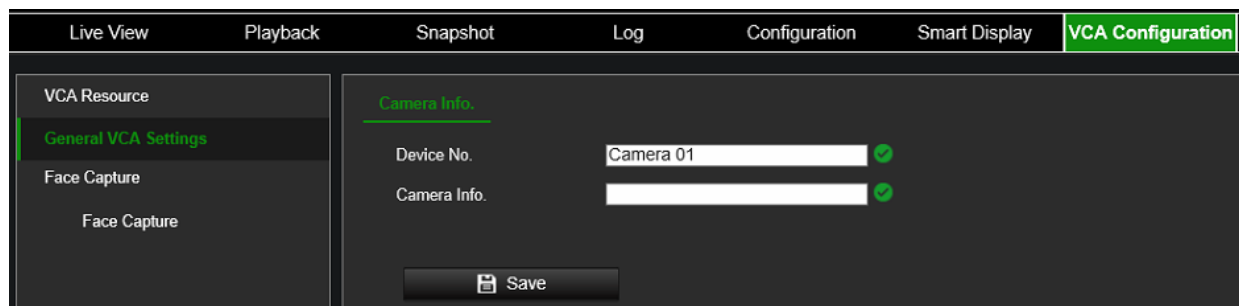
Available features	Face Picture Comparison	Smart Event (Default mode)	Road Traffic
Motion Detection	Yes	No	Yes
Cross Line Detection	No	Yes	No
Intrusion Detection	No	Yes	No
Region Entry Detection	No	Yes	No
Region Exit Detection	No	Yes	No
Unattended Baggage Detection	No	Yes	No
Object Removal Detection	No	Yes	No
Face Capture	Yes	No	No
Face Comparison	Yes	No	No
Smart Tracking	No	Yes	No
Road Traffic (ANPR capture)	No	No	Yes

Important note:

- Motion detection is **not** available when the camera is set to Smart Event VCA resource mode.
- When the camera is set to Smart Event VCA resource mode (that is, no motion detection support), some recorders will still let you configure motion detection from the recorder configuration menu although this feature is not activated in the camera. Therefore, make sure to only configure motion detection in the recorder when the camera is set to Face Capture VCA resource mode.

General VCA Setting

The fields *Device No.* and *Camera Info* can be displayed along with captured snapshots triggered by events. Any additional information about the camera can be added here if needed.

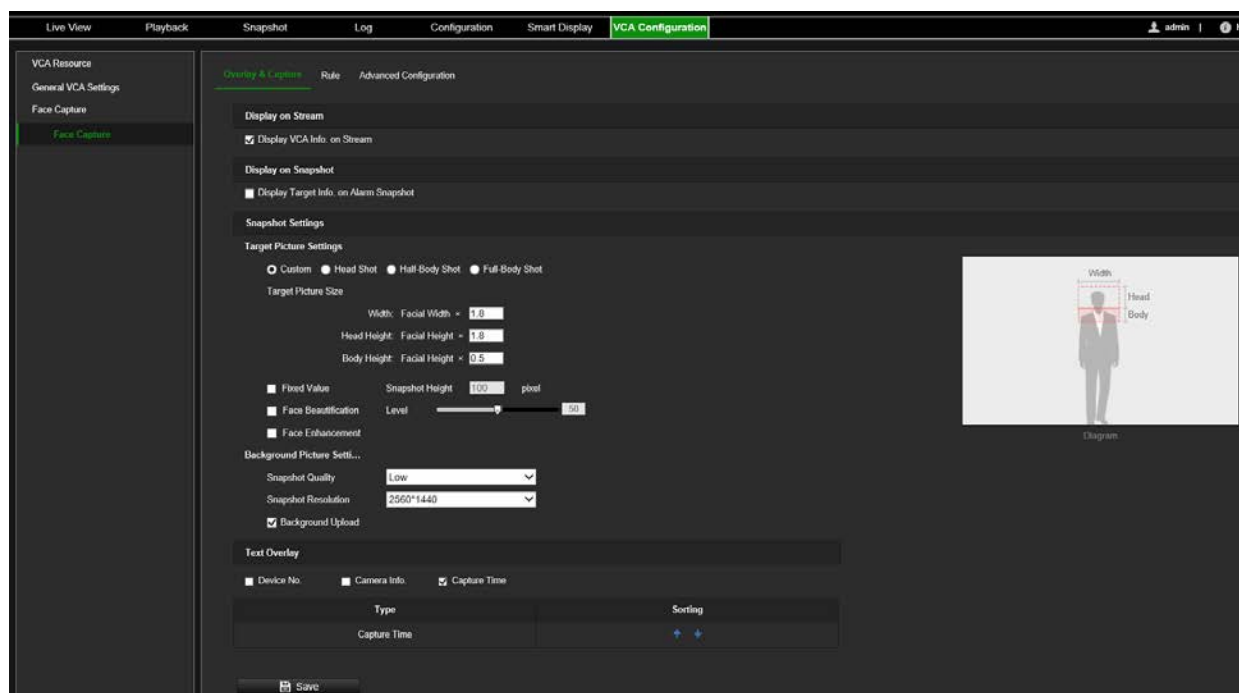


Face Capture

The Face Capture function can detect and capture faces in surveillance scenes. The face detection algorithm in the camera detects faces and can trigger actions such as storing snapshots, trigger recording, as well as other actions. A face capture rule must be set up to use this feature.

To set up Face Capture:

1. From the menu toolbar, click **VCA Configuration > Face Capture**.

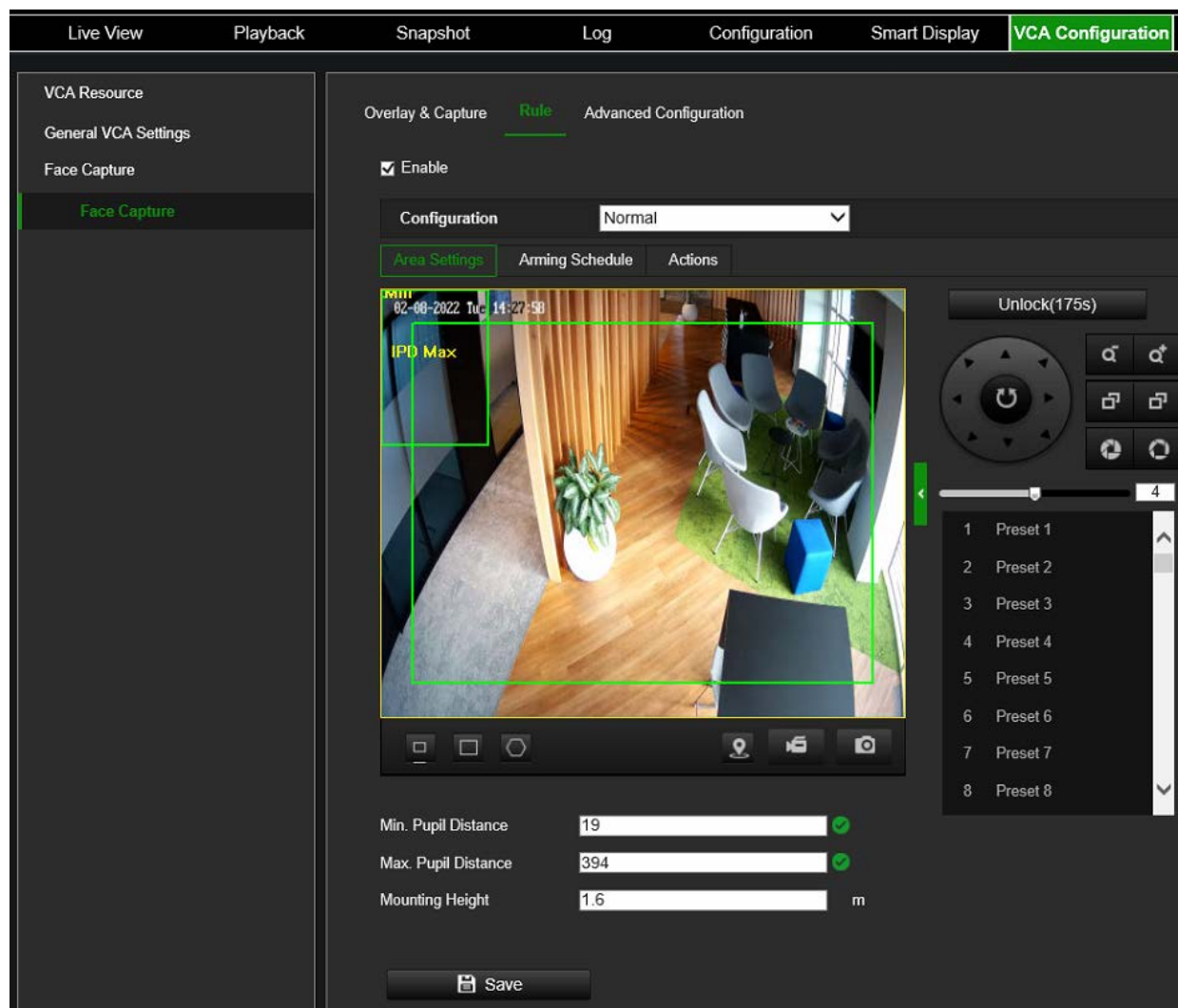


2. Select **Display VCA Info on Stream** and **Display Target Info on Alarm Snapshot** to add additional target and rules information to a stream or a face capture snapshot.
3. Under **Target Picture Settings** set the face snapshot type by selecting Custom, Head Shot, Half-Body Shot, or Full-Body Shot. If you select *Custom*, you can define the desired snapshot width and height. If the captured snapshots always have the same snapshot height, enable **Fixed Value**, and enter the desired snapshot height.
4. Under **Background Picture Settings** set the background snapshot quality and resolution. If the background image needs to notify the alarm host, check **Background Upload**.

5. Under **Text Overlay** select if you want to display Device No., Camera Info. and Capture Time text on snapshots.
6. Click **Save** to save changes.

To set up a Face Capture rule:

Use the Face Capture Rule menu to define the area in which snapshots can be taken (detection scene) and which actions are triggered when the event occurs.



1. From the menu toolbar, click **VCA Configuration > Face Capture > Rule > Area Settings**.
2. Select **Enable**.
3. Select a configuration mode.

Normal: One detection scene can be configured. The device will capture faces in the *defined area when the arming schedule is active*. See “A: To set up Normal Configuration” below for more information.

Expert: The camera moves between the different detection scenes set up and captures faces when they appear in these defined areas. You need to set up the detection scenes and the preset tour schedule in advance. See “B: To set up Expert Configuration” on page 73 for more information.

- If *Normal configuration* has been selected, click the *Arming Schedule* tab, and draw the desired schedule for each day of the week. Click a time bar and enter the desired schedule for that day in the pop-up window.

- Or -

If *Expert configuration* has been selected, see “To set the Scene Schedule” on page 73 for more information.

- Click the **Actions** tab to define the method by which you want the camera to notify you of events:

Normal Linkage	This is a group selection. It automatically selects “Send Email”, “Notify Alarm Recipient” and “Upload to FTP/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 snapshot to NAS, Memory Card or FTP server. Note: To upload the snapshot to NAS, you must first configure the NAS settings. See “NAS” on page 97 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 31 for further information. Enable the Upload Type option. To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select Enable Event-triggered Snapshot under the snapshot parameters. See “Storage” on page 91 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.
A->2	Trigger the alarm input A->2.

- Click **Save** to save changes.

A: To set up Normal Configuration:

- See “To set up a Face Capture rule” on page 71 for the initial steps to set up a face capture rule.
- Optional: PTZ control is automatically locked for 180 s when you enter the *Face Capture > Rule* menu. If unlocked, click the **Lock** button to lock PTZ control again for 180 s to prevent any interruptions from PTZ actions during the configuration.
- Use the PTZ control panel or click on screen to locate a scene where you want to capture faces.
- Click  and draw a detection area on the live image.
- Enter the minimum and maximum pupil distance values or draw them using the minimum  and maximum  pupil distance buttons.

The minimum and maximum pupil distances are used to improve detection accuracy. Only targets whose pupil distance are between the maximum and minimum distances can trigger a face capture event.

6. Enter the mounting height of the camera in meters.
 7. Click **Save** to save changes.
 8. Click the **Arming Schedule** tab to set the arming schedule of the rule.
 9. Click the **Actions** tab to select the linkage methods for the face capture events.
- Or -

B: To set up Expert Configuration:

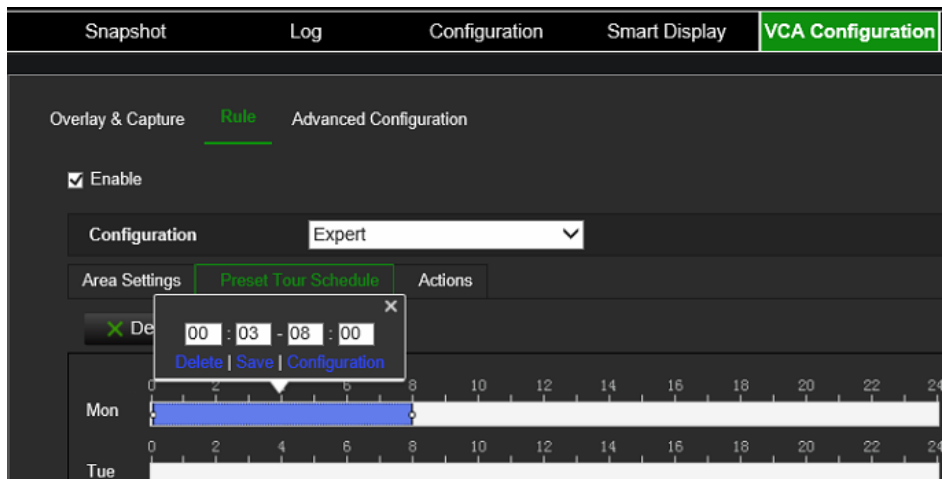
1. See “To set up a Face Capture rule” on page 71 for the initial steps to set up a face capture rule.
2. Optional: PTZ control is automatically locked for 180 s when you enter the *Face Capture > Rule* menu. If unlocked, click the **Lock** button to lock PTZ control again for 180 s to prevent any interruptions from PTZ actions during the configuration.
3. Enter the **Mounting Height** of the camera.
4. Select a **Detection Scene** from the drop-down list.
5. Use the PTZ control buttons to go to a desired scene where you want the camera to capture faces.

You can also click  and draw on the image to highlight the position of a face and have the camera position to this point.
6. Click  and draw a detection area on the live image.
7. Enter the minimum and maximum pupil distances values or draw them using the minimum  and maximum  pupil distance buttons.
8. Click **Save** to save changes.
9. Repeat steps 2 to 8 to set additional detection scenes.

To set the Scene Schedule:

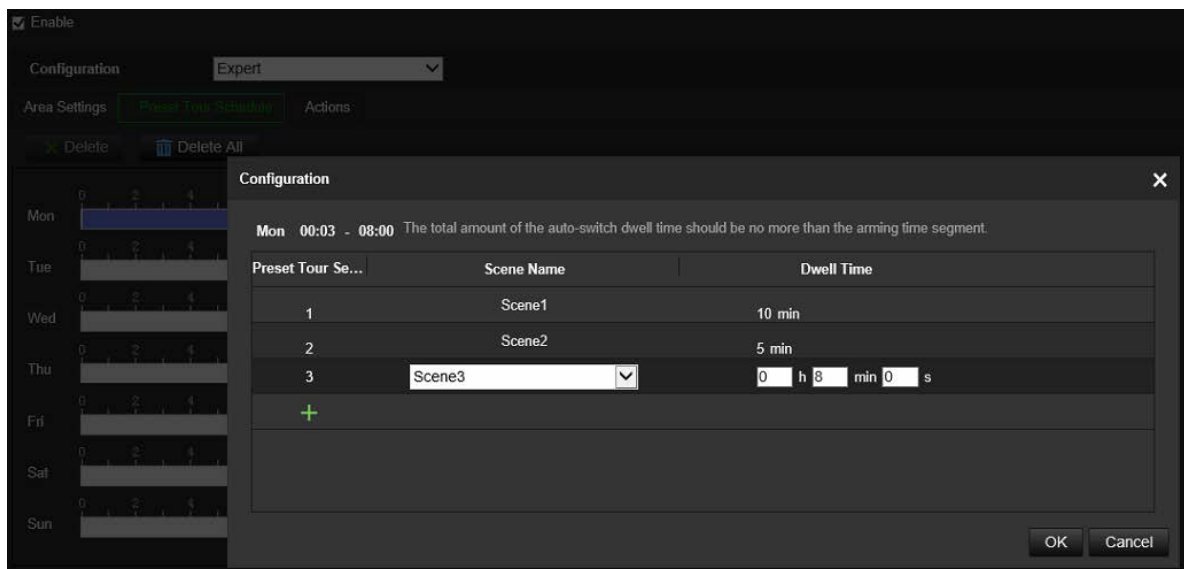
When the face capture rule uses the Expert configuration mode, which has multiple detection scenes, use the *Scene Schedule* menu to define how long the camera stays on each detection scene.

1. Set up the area settings of the face capture rule. See “To set up a Face Capture rule” on page 71 for more information.
2. Click **Scene Schedule**.
3. Draw the desired schedule for each day of the week. Click a time bar and enter the desired schedule for that day in the pop-up window.



4. To define the dwell time for the scenes for each day, click a time bar and click **Configuration** in the pop-up window.

A new window will open where you can define the scenes to be checked by the camera with a duration per scene.



5. Click **OK** to close this window
6. Click **Save** to save changes.

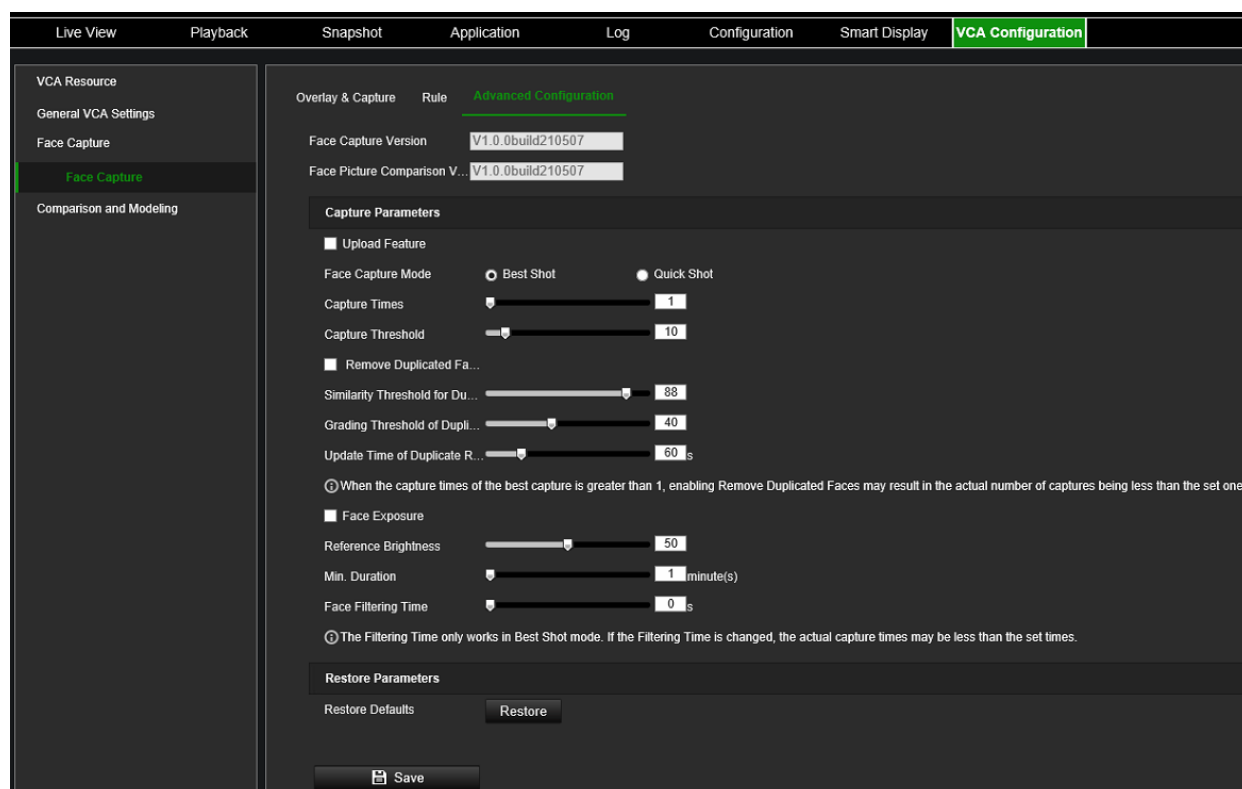
To set up Advanced Configuration:

This function is used to set up and optimize the parameters of the face capture algorithm. The parameters displayed will depend on which *Face Capture Mode* has been selected: Best Shot or Quick Shot.

Best Shot: The camera captures the target snapshot with the highest algorithm score after setting the parameters.

Quick Shot: The camera captures the target snapshot when the score of the captured face exceeds the *Quick Shot Threshold* during the *Max. Capture Interval*. If the score does not exceed the Quick Shot Threshold, the camera selects and uploads the snapshot with the highest score during the Max. Capture Interval.

1. From the menu toolbar, click **VCA Configuration > Face Capture > Advanced Configuration**.
2. The **Face Capture Version** shows the current algorithm version in use.
3. Under **Face Capture Mode**, select **Best Shot**. and then select the desired capture parameters:



Upload Feature	The face capture algorithm generates additional information from captures faces. Enable this option to upload this additional information.
Capture Times	This is how often a face will be captured while in the detection area.
Capture Threshold	The level of face quality that triggers a face capture. A higher value means better face visibility is required to capture the face.
Remove Duplicated Faces	Enable this function to filter out duplicate face captures.
Similarity Threshold for Duplicate Removal	This is the similarity between the newly captured face snapshot and the snapshots in the duplicate removing library. When the similarity is higher than the value you set, the captured snapshot is regarded as a duplicated face and will be removed.
Grading Threshold Duplicate Removal Library	This is the face grading threshold that triggers duplicate checking. When the face grading is higher than the set value, the captured face is compared with the face snapshots that are already in the duplicates removing library.
Update Time of Duplicate Removal Library	Every face snapshot is kept in the duplicate removal library for this defined update time. Time is measured in seconds.

- Or -

Under *Face Capture Mode*, select **Quick Shot**. and then select the desired capture parameters.

Quick Shot Threshold	The level of face quality that triggers a face capture. A higher value means better face visibility is required to capture the face.
Max. Capture Interval	This is the maximum time a person must be in the detection area for one quick shot of the face. Time is measured in seconds.
Capture Times	This is how often a face will be captured while in the detection area.

4. Select **Face Exposure** so that the camera automatically adjusts the exposure level when a face appear in the scene.
5. Adjust the **Reference Brightness** scale as required. This is the brightness of a face in face exposure mode. If a face in the actual scene is brighter than the set reference brightness, the device will lower the exposure level. If a face in the actual scene is darker than the set reference, the device will increase the exposure level.
6. Adjust the **Minimum Duration** scale as required. The extra time the device keeps the face exposure level after the face disappears from the scene.
7. Adjust the **Face Filtering Time** scale as required. This is the time interval between the camera detecting a face and taking a capture action. If the detected face stays in the scene for less than the set filtering time, capture will not be triggered. For example, if the face filtering time is set to 5 seconds, the camera will capture the detected face only when it stays in the scene for at least 5 seconds.
8. At any time during set up, you can restore all the Advanced Configuration settings to factory default by clicking the **Restore** button.
9. Click **Save** to save changes.

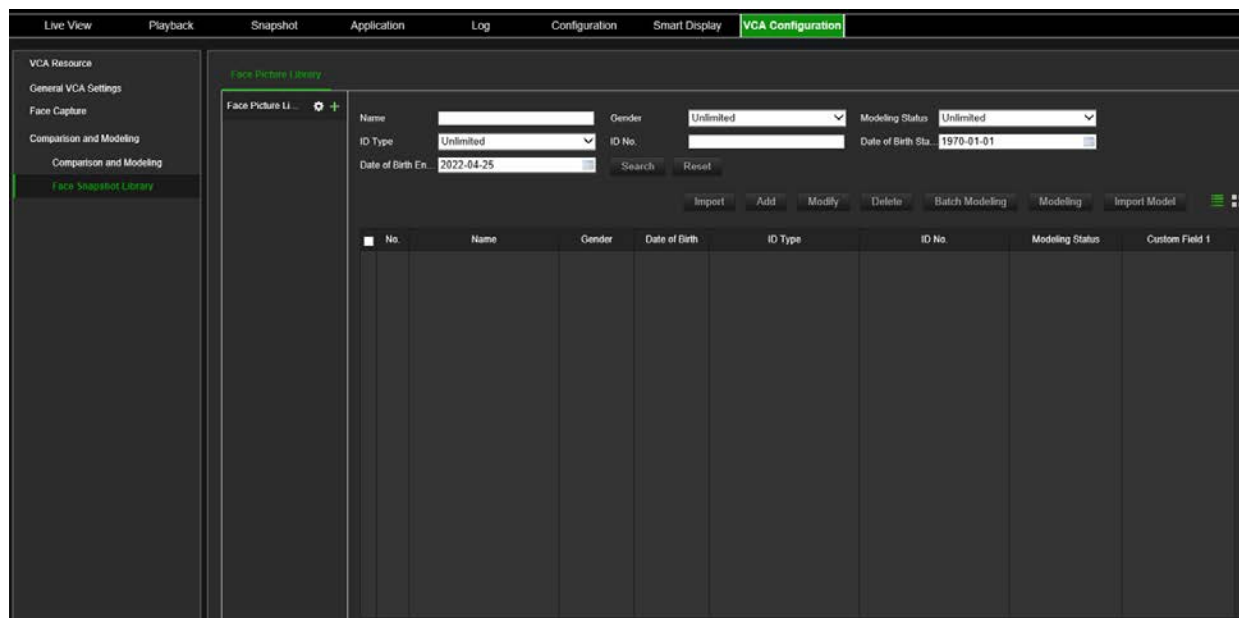
Comparison and Modeling

This function compares captured faces with face snapshots loaded in the library and the reports comparison data results. Comparison results can trigger actions when the arming schedule and linkage method are set. To use this feature, face capture needs to be correctly configured.

Note: This feature is only available for camera TVGP-P01-0401-PTZ-G when the VCA resource mode "Face Picture Comparison" is selected. See "VCA Resource" on page 68 for further information.

To do a face comparison, you must configure:

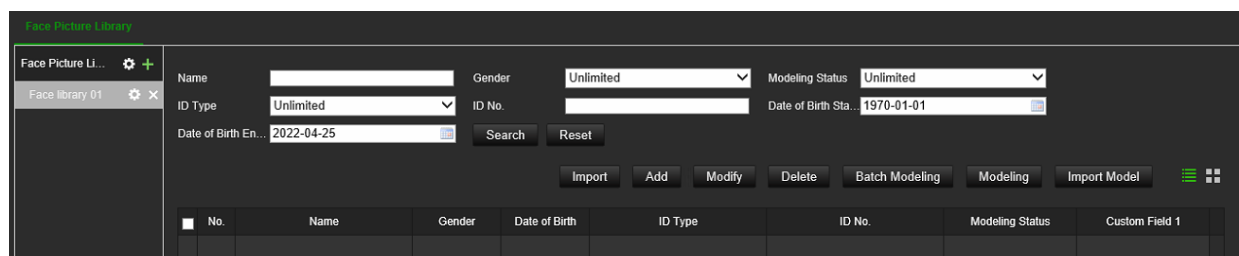
- Face Capture to capture face snapshots. See "Face Capture" on page 70 for configuration instructions.
- Face picture library. See page 77 for configuration instructions.
- Face picture comparison rule. See page 79 for configuration instructions.



To set up the face picture library:

1. Go to **VCA Configuration > Comparison and Modeling > Face Snapshot Library**.
2. Create a face picture library by clicking the green “+” sign at the top left of the table.
3. In the small pop-up window that appears, enter a name for the library, some additional info, and a threshold. A face similarity event will be triggered by the camera when the the face similarity between captured face and library faces is higher than the configured threshold. The default value is 60.

4. The created face library will appear in the left column of the table.



5. Use the **Add** button to add/upload a face snapshot and to enter additional face information.
6. Use the **Configuration instructions** button to select a path and import face snapshots in batch.

Face Picture Library

Face Picture Li... +

Face library 01 X

Name Gender Modeling Status

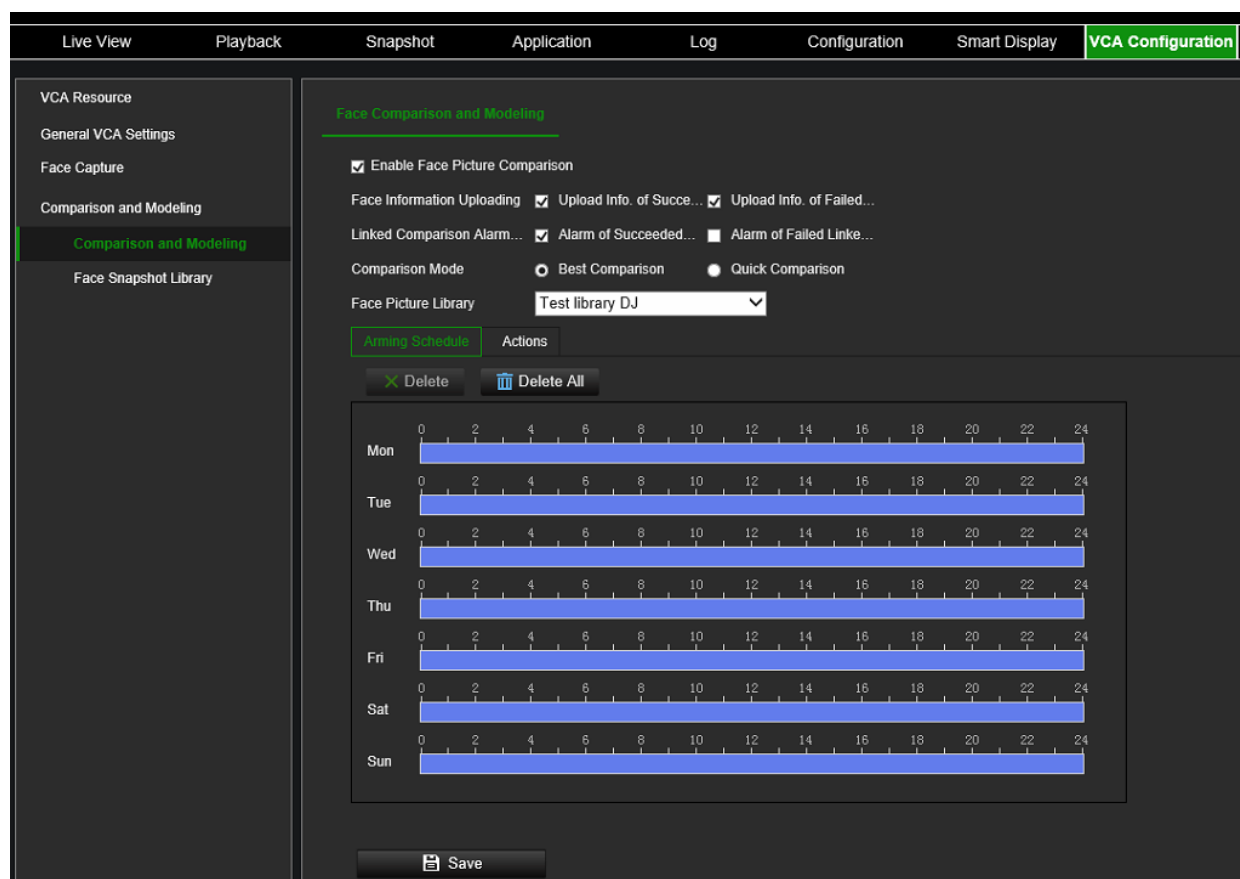
ID Type ID No. Date of Birth Sta...

Date of Birth En...

No.	Name	Gender	Date of Birth	ID Type	ID No.	Modeling Status	Custom Field 1
1	ch01_20220228130352_FACE_S...	Unknown	2000-01-01	Unknown		Unmodeled	
2	ch01_20220228130911_FACE_S...	Unknown	2000-01-01	Unknown		Unmodeled	
3	ch01_20220228133139_FACE_S...	Unknown	2000-01-01	Unknown		Unmodeled	

7. Faces will be listed in the table after they are imported. Click the  button at the top right of the table to display a thumbnail of the face snapshot.
8. Click **Modify** to change the name of the imported snapshot along with other parameters and custom fields. Always first consult local regulations to see if personal information is permitted to be added here.
9. Make sure to perform individual **Modeling** or **Batch Modeling** to the imported face snapshots. The modeling process builds a face model for each face snapshot. Face models are compulsory for face snapshot comparison to take effect.
10. Repeat above steps if you want to create additional Face Picture Libraries.

To set up Comparison and Modeling:



1. From the menu toolbar, click **VCA Configuration > Comparison and Modeling > Comparison and Modeling**.
2. Enable **Face Picture Comparison**.
3. Select a face picture library from the drop-down list to match the captured faces against.
4. Select the desired **Face Information to Upload**. The available options are “Upload Info of Successful Comparison” and “Upload Info of Failed Comparison”.
5. Select the desired **Linked Comparison Alarm Output**. The available options are “Alarm of Successful Comparison” and “Alarm of Failed Comparison”.
6. Select one of the face comparison modes:

Best Comparison

The camera captures and compares images of the target face continuously when the face target stays in the detection area. It uploads the face image with the best score, and its related alarm information, when the target face leaves the area.

Quick Comparison

The camera captures and compares images of the target face when the face grading exceeds the “Face Grading Threshold for Capture” setting.
Face Grading Threshold for Capture: Set the face grading threshold. This determines whether or not the camera captures and uploads images of the face.

Max. Capture Interval: Set the maximum interval between two image captures when the target is in the detection area. The camera captures an image when it reaches the maximum interval even if the face grading does not reach the set threshold.

Quick Setup Mode: Select **Custom**, **Face Attendance**, or **Face Recognition**. Under Custom mode, you can set **Comparison Timeout** and **Comparison Times**.

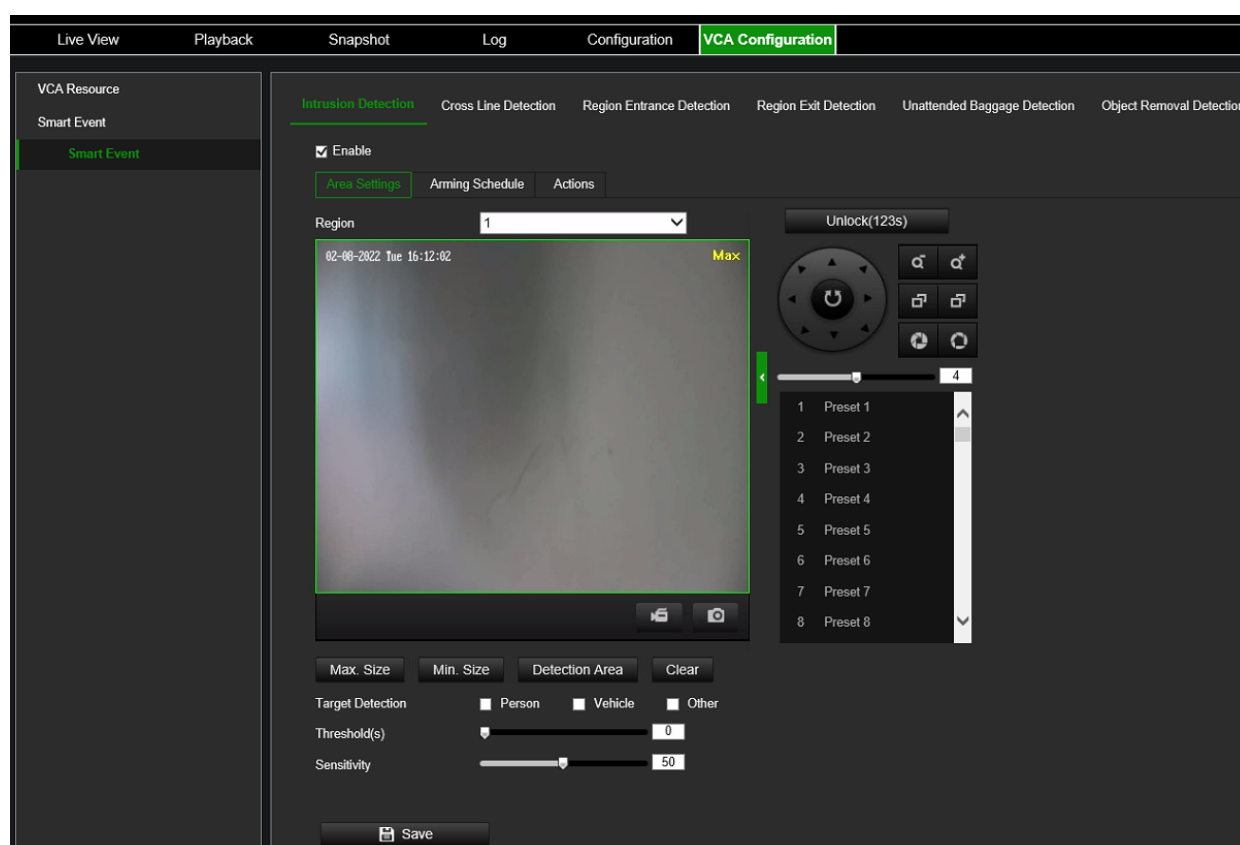
7. Click the **Arming Schedule** tab to set the arming schedule.
8. Click the **Actions** tab to select the linkage methods.
9. Click **Save** to save changes.

Intrusion Detection

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

To set up intrusion detection:

1. From the menu toolbar, click **VCA Configuration > Smart Event > Intrusion Detection**.



2. Select the **Enable** check box to enable the function.
3. Set the **Max. Size** and **Min. Size** to determine valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

Max. Size: The maximum size of a valid target. Larger-sized targets will not trigger detection.

Min. Size: The minimum size of a valid target. Smaller-sized targets will not trigger detection.

4. Click **Detection Area** and draw a polygon area on the live video viewer where you want the camera to check for intrusion events.

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

5. Enable the options **Person**, **Vehicle** or **Others** to have the camera react to people, vehicles, or non-people/vehicle objects. Selecting the person/vehicle options will result in fewer false intrusion detection events and will also exclude, for example, animals. If none of these three options are selected, the camera will react to all types of objects.
6. Additional options to set up are:

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

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

7. Click the **Arming Schedule** tab and set the arming schedule for the alarm input. See "To set up motion detection" on page 59 for more information.
8. Click the **Actions** tab and specify the actions when an event occurs. Select one or more response actions when an intrusion detection alarm is triggered.

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 "To set up the email parameters" on page 32 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 snapshot to NAS, Memory Card or FTP server. Note: To upload the snapshot to NAS, you must first configure the NAS settings. See "NAS" on page 97 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 31 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 "7. Click Save to save the settings. Storage" on page 91 for further information.

Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. Note: This option is only available for cameras that support alarm output.
Trigger Recording	Triggers the recording to start in the camera.

Note: Additional actions like *Audible Warning* or *Flashing Alarm* may be available depending on camera model.

- Click **Save** to save changes.

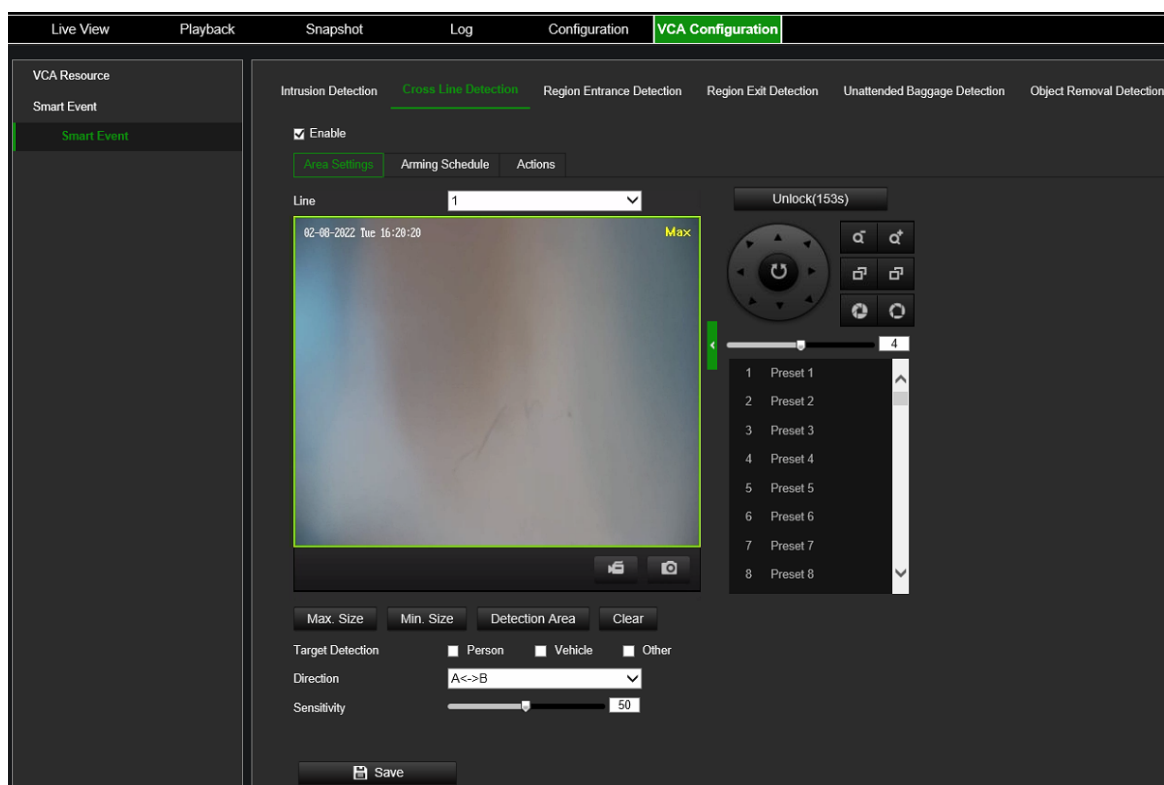
Cross Line Detection

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

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

To set up cross line detection:

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



- Select the **Enable** check box to enable the function.
- Click the **Area Settings** tab.
- Under **Line**, select the desired line from the drop-down list for detection settings.

5. Set the **Max. Size** and **Min. Size** to determine valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

Max. Size: The maximum size of a valid target. Larger-sized targets will not trigger detection.

Min. Size: The minimum size of a valid target. Smaller-sized targets will not trigger detection.
6. Click **Detection Area** to have a cross line on the live video viewer. Click the starting point of the line on the live video viewer and drag it to the desired end position. Select one of the direction options from the drop-down list:

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

A->B: Only an object crossing the line in the A to the B direction can be detected and trigger an alarm.

B->A: Only an object crossing the line in the B to the A direction can be detected and trigger an alarm.
7. Enable the options **Person**, **Vehicle** or **Others** to have the camera react to people, vehicles, or non-people/vehicle objects. Selecting the person/vehicle options will result in fewer false intrusion detection events and will also exclude, for example, animals. If none of these three options are selected, the camera will react to all types of objects.
8. Set the **Sensitivity** level between 1 and 100. The higher the value, the more easily the line crossing action can be detected.
9. If desired, select another line crossing area to configure from the **Line** dropdown menu. Up to four cross lines can be configured.
10. Set the arming schedule for the alarm input. See "To set up motion detection" on page 59 for more information.
11. Specify the linkage method when an event occurs. Select one or more response methods for the system when a line cross detection alarm is triggered.

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 "To set up the email parameters" on page 32 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 snapshot to NAS, Memory Card or FTP server. Note: To upload the snapshot to NAS, you must first configure the NAS settings. See "NAS" on page 97 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 31 for further information. Enable the Upload Type option.

	To upload the snapshot to FTP and NAS when motion detection or an alarm input is triggered, you must also select Enable Event-triggered Snapshot under the snapshot parameters. See “Storage” on page 91 for further information.
Trigger Alarm Output	Trigger external alarm outputs when an event occurs. Select “Select All” or each individual alarm output. Note: This option is only available for cameras that support alarm output.
Trigger Recording	Triggers the recording to start in the camera.

Note: Additional actions like *Audible Warning* or *Flashing Alarm* may be available depending on camera model.

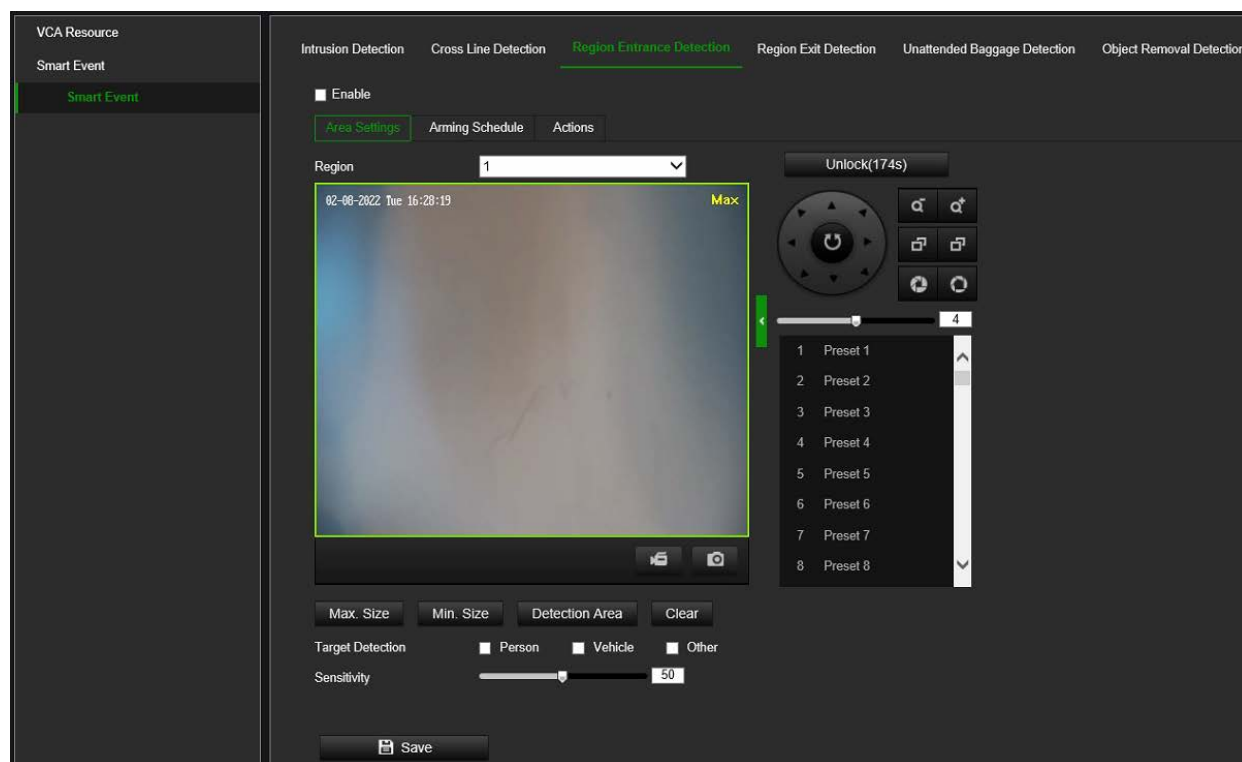
12. Click **Save** to save changes.

Region Entry Detection

This function detects people, vehicle or other objects that enter a pre-defined virtual region. It can be set up to trigger a series of alarm actions.

To define region entry detection:

1. From the menu toolbar, click **VCA Configuration > Smart Event > Region Entry Detection**.



2. Select the **Enable** check box to enable the function.
3. Click the **Area Settings** tab.
4. Under **Region**, select the desired region from the drop-down list for detection settings.
5. Click the **Detection Area** button to draw a detection area.

6. Click the live video viewer to specify the four vertexes of the detection region and release the mouse to complete drawing.
7. Set the **Max. Size** and **Min. Size** to determine valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.
Max. Size: The maximum size of a valid target. Larger-sized targets will not trigger detection.
Min. Size: The minimum size of a valid target. Smaller-sized targets will not trigger detection.
8. Enable the options **Person**, **Vehicle** or **Others** to have the camera react to people, vehicles, or non-people/vehicle objects. Selecting the person/vehicle options will result in fewer false intrusion detection events and will also exclude, for example, animals. If none of these three options are selected, the camera will react to all types of objects.
9. Set the detection sensitivity level. Drag the slider to the desired value.
Sensitivity: Range [1-100]. This is the percentage of the target versus the entire detection area.
$$\text{Sensitivity} = 100 - S1/ST \times 100$$

S1 stands for how much the target occupies the detection area. ST stands for the whole detection area.

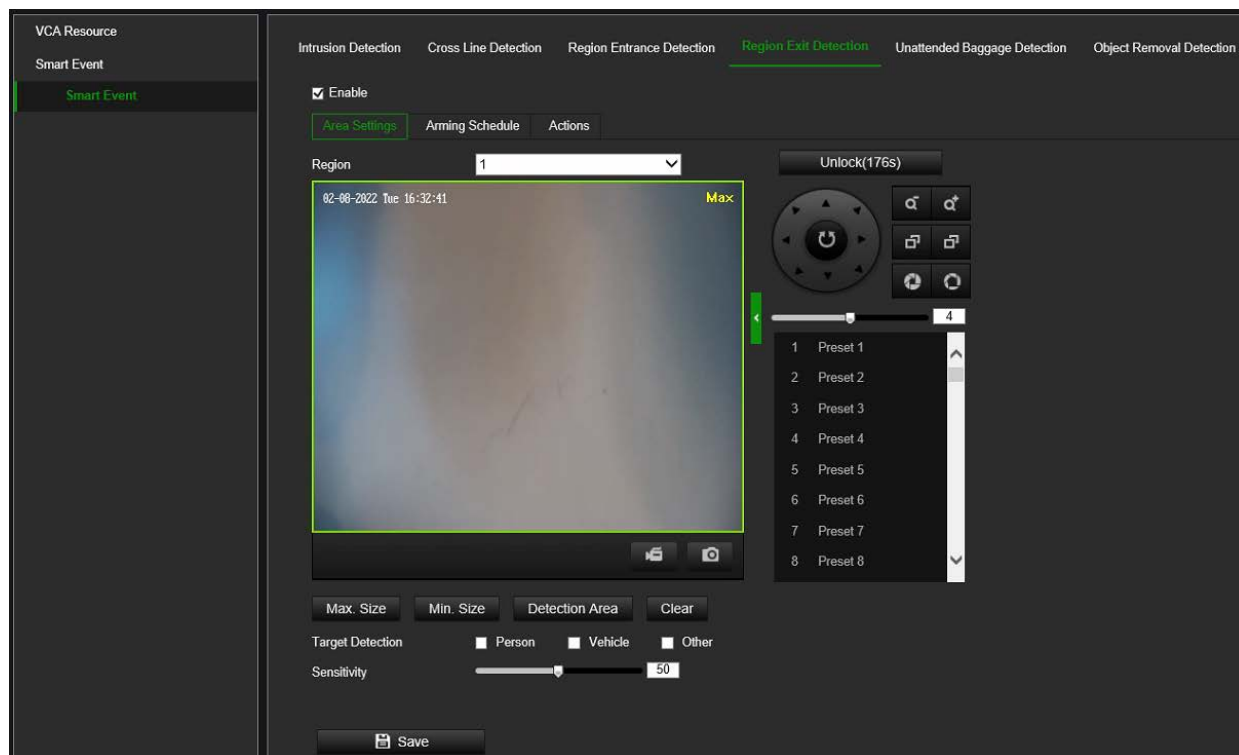
Example: If you set the value at 60, the action can be counted as a region entrance action only when 40 percent of the target enters the region.
10. Repeat steps 4 to 9 to configure other regions. Up to four regions can be set. You can click the **Clear** button to clear all pre-defined regions.
11. Click the **Arming Schedule** tab to set the arming schedule.
12. Click the **Actions** tab to select the linkage methods.
13. Click **Save** to save the settings.

Region Exit Detection

This function detects people, vehicle or other objects that exit from a pre-defined virtual region. It can be set up to trigger a series of alarm actions.

To define region exit detection:

1. From the menu toolbar, **VCA Configuration > Smart Event > Region Exiting Detection**.



2. Select the **Enable** check box to enable the function.
3. Click the **Area Settings** tab.
4. Under **Region**, select the desired region from the drop-down list for detection settings.
5. Click the **Detection Area** button to draw a detection area.
6. Click the live video viewer to draw the four vertexes of the detection region. Release the mouse to complete drawing.
7. Set the **Max. Size** and **Min. Size** to determine valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

Max. Size: The maximum size of a valid target. Larger-sized targets will not trigger detection.

Min. Size: The minimum size of a valid target. Smaller-sized targets will not trigger detection.

8. Enable the options **Person**, **Vehicle** or **Others** to have the camera react to people, vehicles, or non-people/vehicle objects. Selecting the person/vehicle options will result in fewer false intrusion detection events and will also exclude, for example, animals. If none of these three options are selected, the camera will react to all types of objects.
9. Set the detection sensitivity level. Drag the slider to the desired value.

Sensitivity: Range [1-100]. This is the percentage of the target versus the entire detection area.

$$\text{Sensitivity} = 100 - S1/ST*100$$

S1 stands for how much the target occupies the detection area; ST stands for the whole detection area.

Example: If you set the value at 60, the action can be counted as a region exiting action only when 40 percent of the target part enters the region.

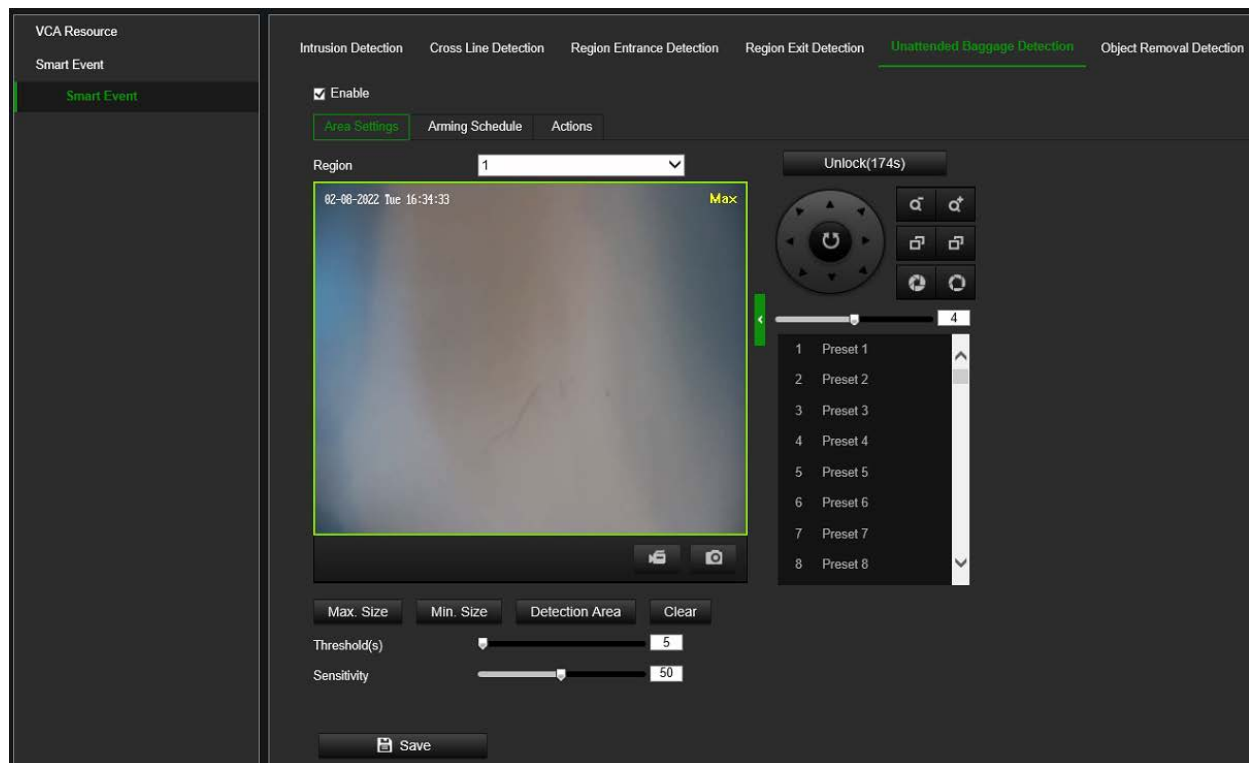
10. Repeat steps 4 to 9 to configure other regions. Up to four regions can be set. You can click the **Clear** button to clear all pre-defined regions.
11. Click the **Arming Schedule** tab to set the arming schedule.
12. Click the **Actions** tab to select the linkage methods.
13. Click **Save** to save the settings.

Unattended Baggage Detection

This function detects the objects left behind in the pre-defined region such as a suitcase, purse, dangerous materials, etc. It can be set up to trigger a series of alarm actions. Please note that this feature is not able to properly detect unattended objects in complex and low contrast environments.

To define unattended baggage detection:

1. From the menu toolbar, click **VCA Configuration > Smart Event > Unattended Baggage Detection**.



2. Select the **Enable** check box to enable the function.
3. Click the **Area Settings** tab.
4. Under **Region**, select the desired region from the drop-down list for detection settings.
5. Click the **Detection Area** button to draw a detection area.
6. Click the live video viewer to specify the four vertexes of the detection region. Release the mouse to complete drawing.

7. Click **Stop Drawing** when finished drawing.
8. Set the **Max. Size** and **Min. Size** for valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

Max. Size: The maximum size of a valid target. Larger-sized targets will not trigger detection.

Min. Size: The minimum size of a valid target. Smaller-sized targets will not trigger detection.
9. Enable the options **Person**, **Vehicle** or **Others** to have the camera react to people, vehicles, or non-people/vehicle objects. Selecting the person/vehicle options will result in fewer false intrusion detection events and will also exclude, for example, animals. If none of these three options are selected, the camera will react to all types of objects.
10. Set the time threshold for unattended baggage detection.

Threshold: Range [1-100]. This is the time in seconds that an object has been left in the region. If you set the value as 10, an alarm is triggered when the object is in the region for 10s.
11. Set the detection sensitivity level. Drag the slider to the desired value.

Sensitivity: Range [1-100]. This is the percentage of the target body that enters the pre-defined region.

$$\text{Sensitivity} = 100 - S1/ST \times 100$$

S1 stands for how much of the object that is in the pre-defined region, ST stands for the whole detection area.

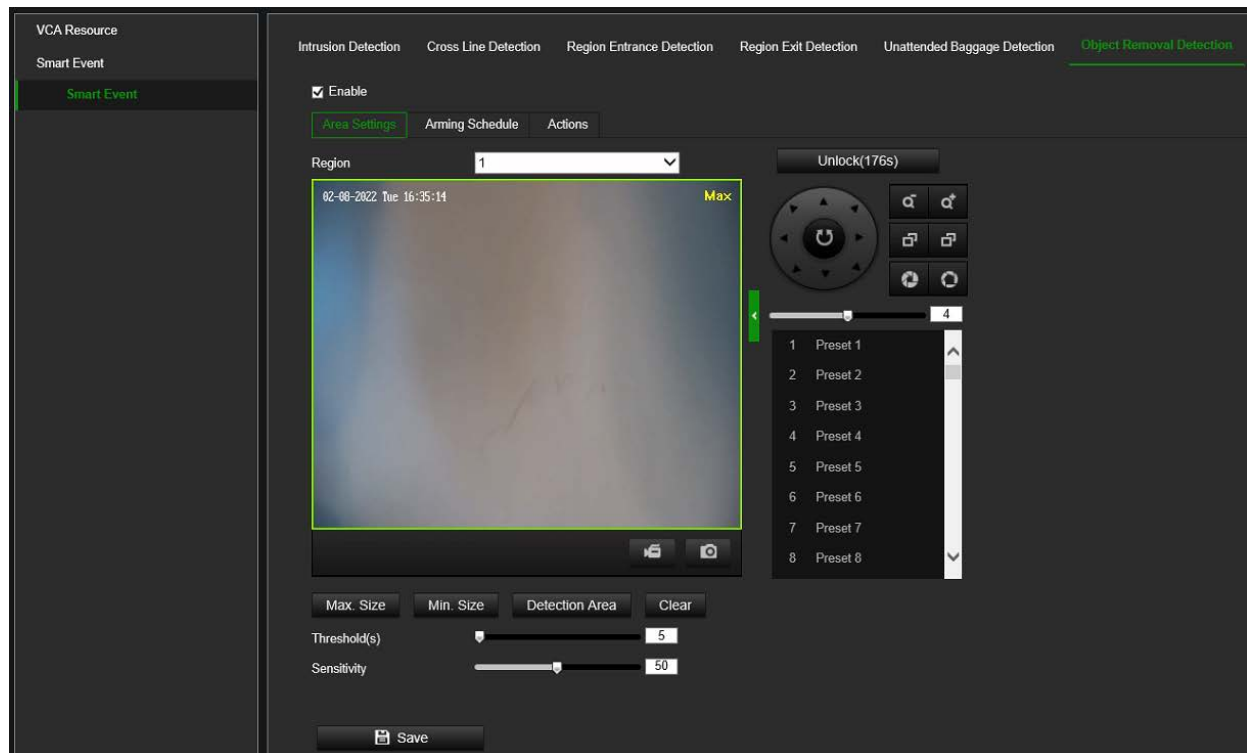
Example: If you set the value at 60, the action can be counted as unattended baggage only when the object occupies 40 percent of the region.
12. Repeat steps 4 to 11 to configure other regions. Up to four regions can be set. You can click the **Clear** button to clear all pre-defined regions.
13. Click the **Arming Schedule** tab to set the arming schedule.
14. Click the **Actions** tab to select the linkage methods.
15. Click **Save** to save the settings.

Object Removal Detection

This function detects the objects removed from the pre-defined region, such as the exhibits on display. It can be set up to trigger a series of alarm actions. Please note that this feature is not able to properly detect removed objects in complex and low contrast environments.

To define object removal detection:

1. From the menu toolbar, click **VCA Configuration > Smart Event > Object Removal Detection**.



2. Select the **Enable** check box to enable the function.
3. Click the **Area Settings** tab.
4. Under **Region**, select the desired region from the drop-down list for detection settings.
5. Click the **Detection Area** button to draw a detection area.
6. Click the live video viewer to specify the four vertexes of the detection region and release the mouse to complete drawing.
7. Set the maximum and minimum sizes of valid targets. Targets smaller or larger than the valid target size are not able to trigger detection.

Max. Size: The maximum size of a valid target. Larger-sized targets will not trigger detection.

Min. Size: The minimum size of a valid target. Smaller-sized targets will not trigger detection.

8. Click **Stop Drawing** when finished drawing.
9. Set the time threshold for object removal detection.

Threshold: Range [1-100]. This is the time in seconds that an object has been left in the region. If you set the value as 10, alarm is triggered after the object has disappeared from the region for 10s.

10. Set the detection sensitivity level. Drag the slider to the desired value.

Sensitivity: Range [1-100]. This is the percentage of the target body that enters the pre-defined region.

$$\text{Sensitivity} = 100 - S1/ST \times 100$$

S1 stands for how much of the target body that enters the pre-defined region, ST stands for the whole target body.

Example: If you set the value at 60, the action can be counted as a unattended baggage only when 40 percent of the target part enters the region.

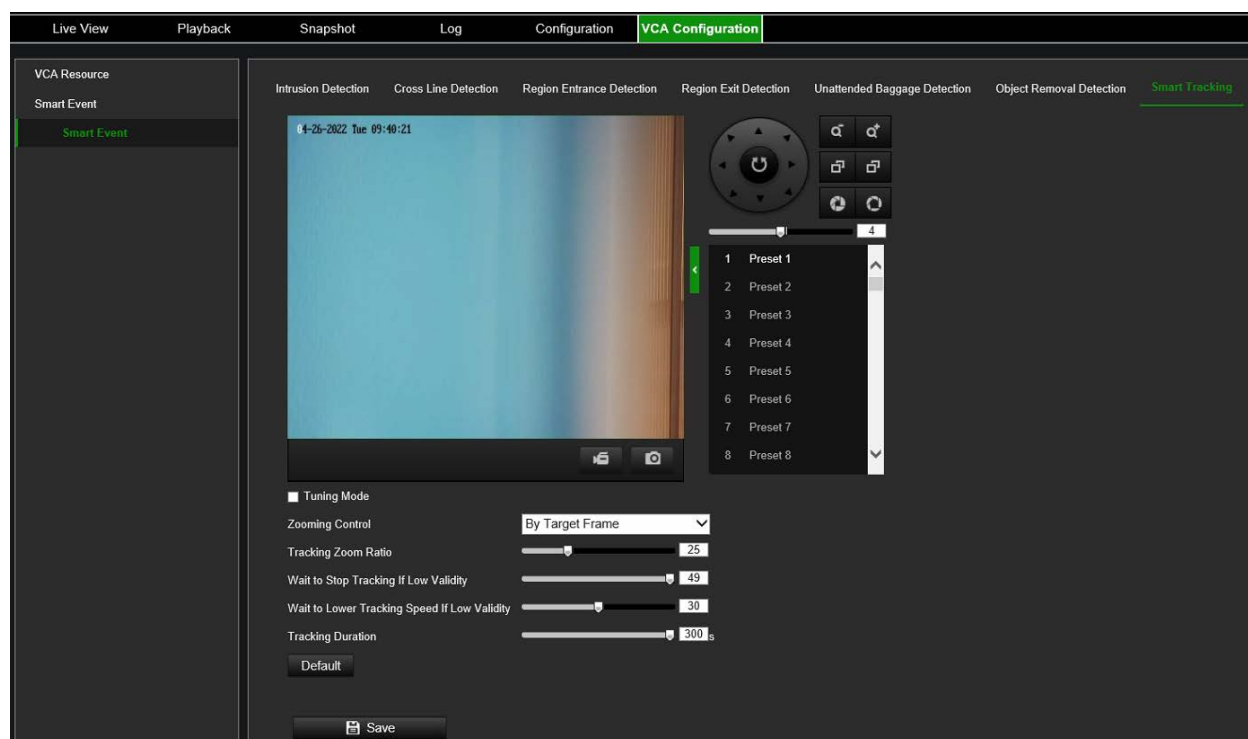
11. Repeat steps 4 to 10 to configure other regions. Up to four regions can be set. You can click the **Clear** button to clear all pre-defined regions.
12. Click the **Arming Schedule** tab to set the arming schedule.
13. Click the **Actions** tab to select the linkage methods.
14. Click **Save** to save the settings.

Smart Tracking

Use this menu to set the tracking parameters. Note that Smart Tracking is only available when camera VCA resource mode is set to *Smart Event*. See section “VCA Configuration” on page 68 for more information.

To define tracking parameters:

1. From the menu toolbar, click **VCA Configuration > Smart Event > Smart Tracking**.



2. Optional: **Tuning Mode** is used to display the information that helps to debug the function. This mode is reserved for Technical Support.
3. Set the **Zooming Control** and other tracking parameters. Select one of the two options for controlling zoom:
 - **By Tilt Angle:** The device calculates the tracking zoom ratio automatically according to the tilt angle of the device.

- **By Target Frame:** Drag the **Tracking Zoom Ratio** slider to the desired value. There is also a virtual frame around the tracked target. The camera calculates a suitable zoom ratio according to the frame and the tracking zoom ratio. The larger the value, the larger the zoom ratio.
4. Drag the **Wait to Stop Tracking If Low Validity** slider to the desired value.

This value determines when the camera stops tracking. A low value is a short waiting time before tracking stops. A larger value means a longer waiting time.
 5. Drag the **Wait to Lower Tracking Speed If Low Validity** slider to the desired value.

This value determines the tracking speed of the PTZ channel. A low value is a short waiting time before reducing the tracking speed. A larger value means a longer waiting time.
 6. Drag the **Tracking Duration** slider to the desired value. Time is measured in seconds. The camera stops tracking a target after the set time.
 7. Click **Save** to save the settings.

Storage

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

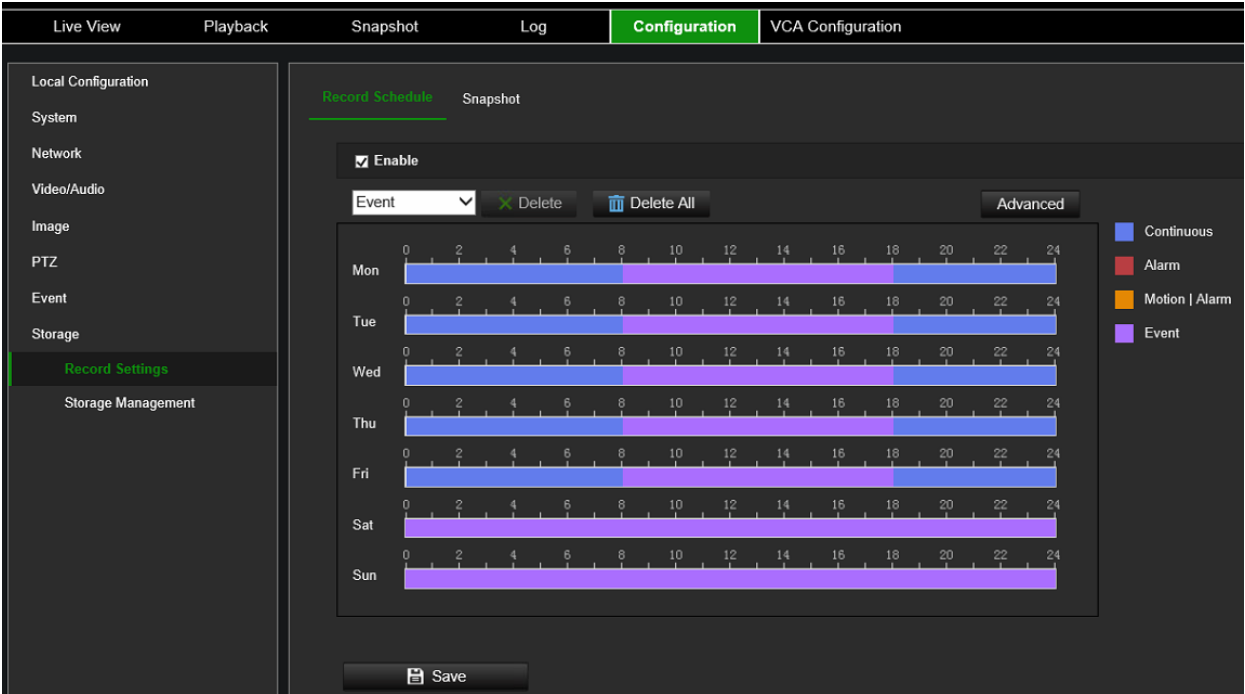
Record Settings

Configure recording and snapshot parameters in this menu.

You can define a recording schedule for the camera in the “Record Schedule” window (see Figure 8 below). The video recordings are saved onto a SD card inserted in the camera or a NAS. The camera’s SD card can provide a backup in case of network failure. The SD card is not provided with the camera.

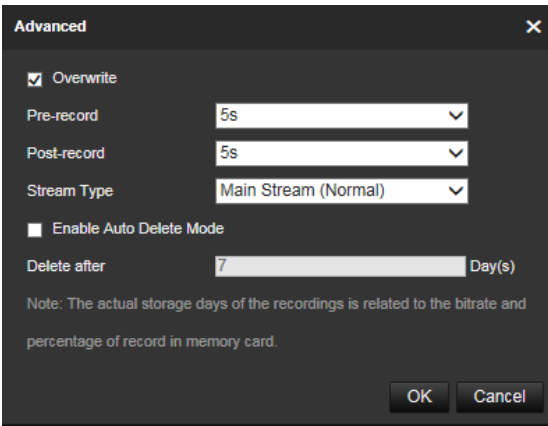
Different recording modes can be defined in the schedule.

Figure 8: Record schedule window



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

Figure 9: Record schedule - Advanced window



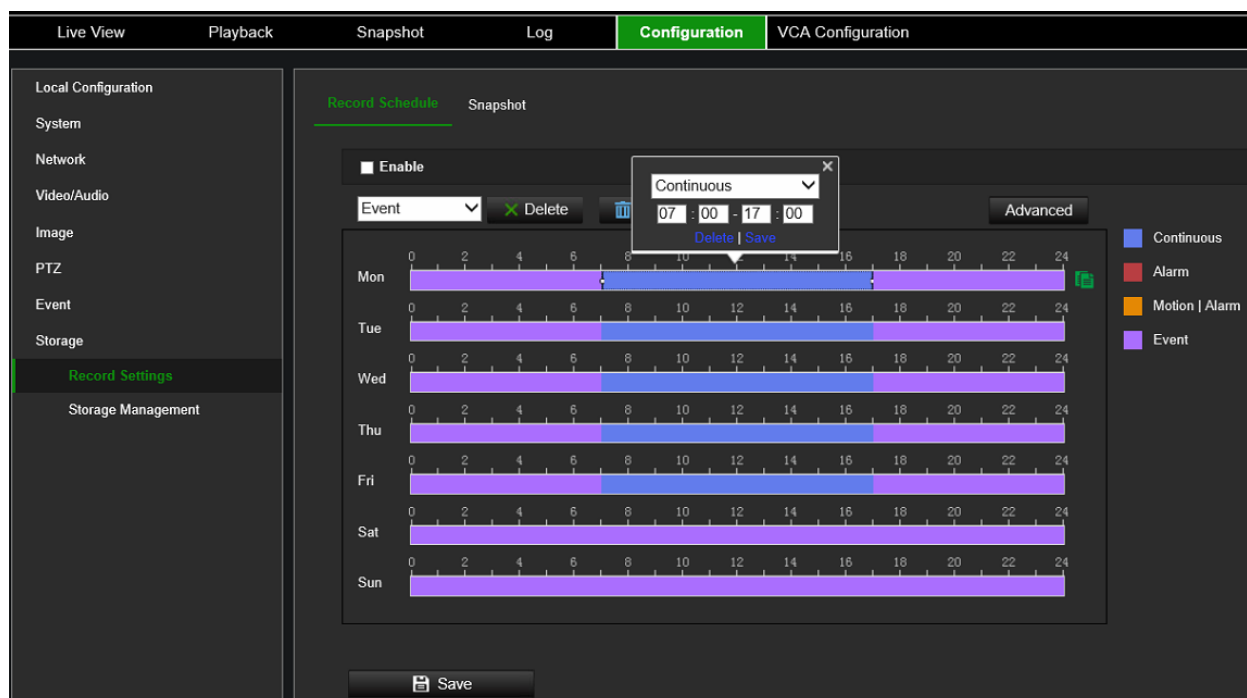
Pre-record time	The pre-record time is set to start recording before the scheduled time or event. For example, if an alarm triggers recording at 10:00, and the pre-record time is set to 5 seconds, the camera starts to record at 9:59:55. The pre-record time can be configured as No Pre-record, 5 s, 10 s, 15 s, 20 s, 25 s, 30 s, or Not Limited.
Post-record time	The post-record time is set to stop recording after the scheduled time or the event. For example, if an alarm triggered recording ends at 11:00, and the post-record time is set to 5 seconds, the camera records until 11:00:05. The post-record time can be configured as 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, or 10 min.
Stream type	You can select to record main stream or substream.

Enable Auto Delete Mode	When enabled, recorded video older than the number of days defined by “Delete after” will be automatically deleted, even if the full storage capacity has not been reached.
-------------------------	---

To set up a recording schedule:

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

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



4. Enter the exact start and end times of the recording. If required, you can also change the type of recording.
 - **Continuous:** This is continuous recording.
 - **Motion:** Video is recorded when the motion is detected.
 - **Alarm:** Video is recorded when the alarm is triggered via the external alarm input channels. Besides configuring the recording schedule, you must also set the alarm type and enable the *Trigger Channel* check box in the *Linkage Method of Alarm Input Settings* interface. For detailed information, please refer to the section on alarm inputs on page 64.
 - **Motion | Alarm:** Video will be recorded when the external alarm is triggered, or the motion is detected. Besides configuring the recording schedule, you must also configure the settings on the *Motion Detection* and *Alarm Input Settings*

interfaces. For detailed information, please refer to the section on alarm inputs on page 64.

- **Motion & Alarm:** Video will be recorded when the Motion and Alarm are triggered at the same time. Besides configuring the recording schedule, you must also configure the settings on the *Motion Detection* and *Alarm Input Settings* interfaces. For detailed information, please refer to the section on alarm inputs on page 64.
- **Event:** Video will be recorded when a VCA event is triggered. Besides configuring the recording schedule, you must configure the settings of the selected VCA event type: Audio Exception Detection, Defocus Detection, Scene Change Detection, Face Detection, Intrusion Detection, Cross Line Detection, Region Entrance Detection, Region Exit Detection, Unattended Baggage Detection, and Object Removal Detection.

Note: Up to eight record types can be selected in a single day. Some recording types like motion might not be available depending on the selected VCA resource mode.

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

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

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

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

Snapshot (Scheduled snapshots)

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

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

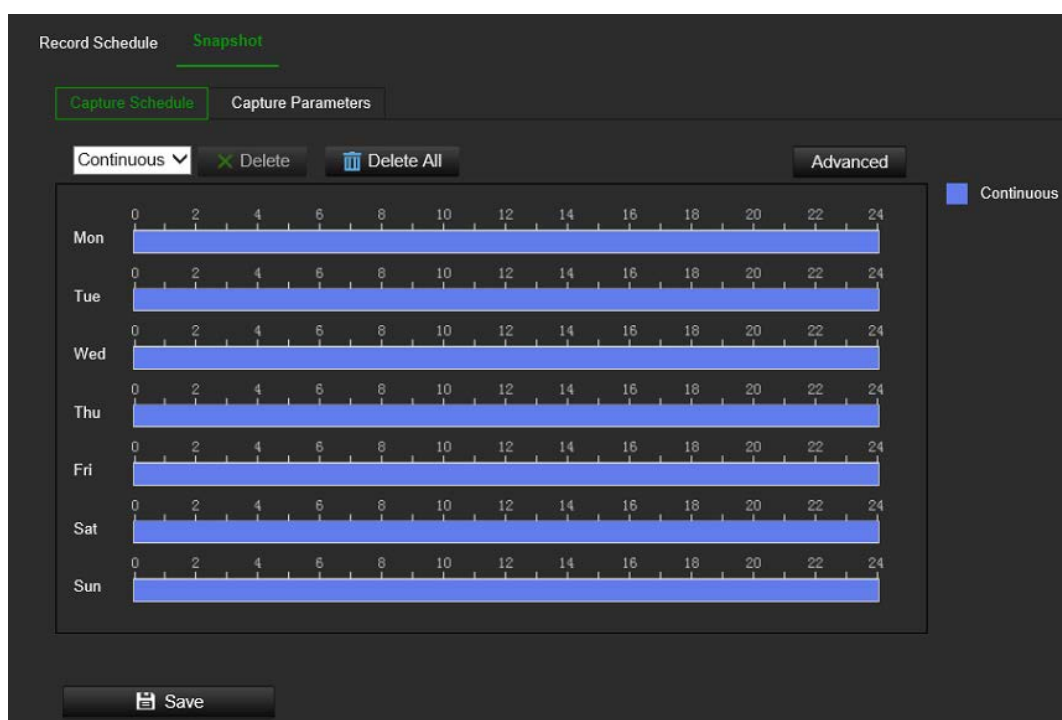
You must enable the option **Enable Timing Snapshot** if you want snapshots to be uploaded with a fixed interval to the FTP server. If you have configured the FTP settings and enabled **Upload Type** in the **Network > Advanced Settings > FTP** tab, the snapshots will not be uploaded to the FTP if the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

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

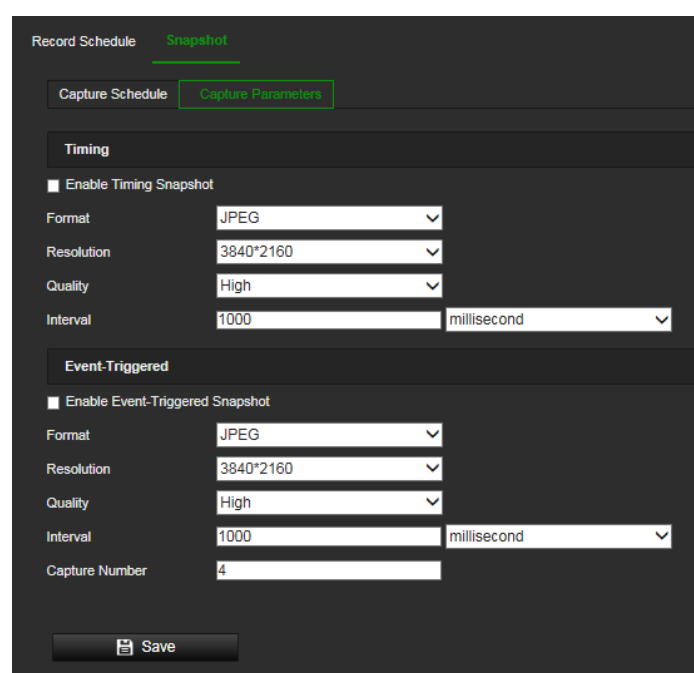
To set up continuous and event-triggered snapshots:

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

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



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



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

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

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

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

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

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

Storage Management

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

HDD Management

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

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

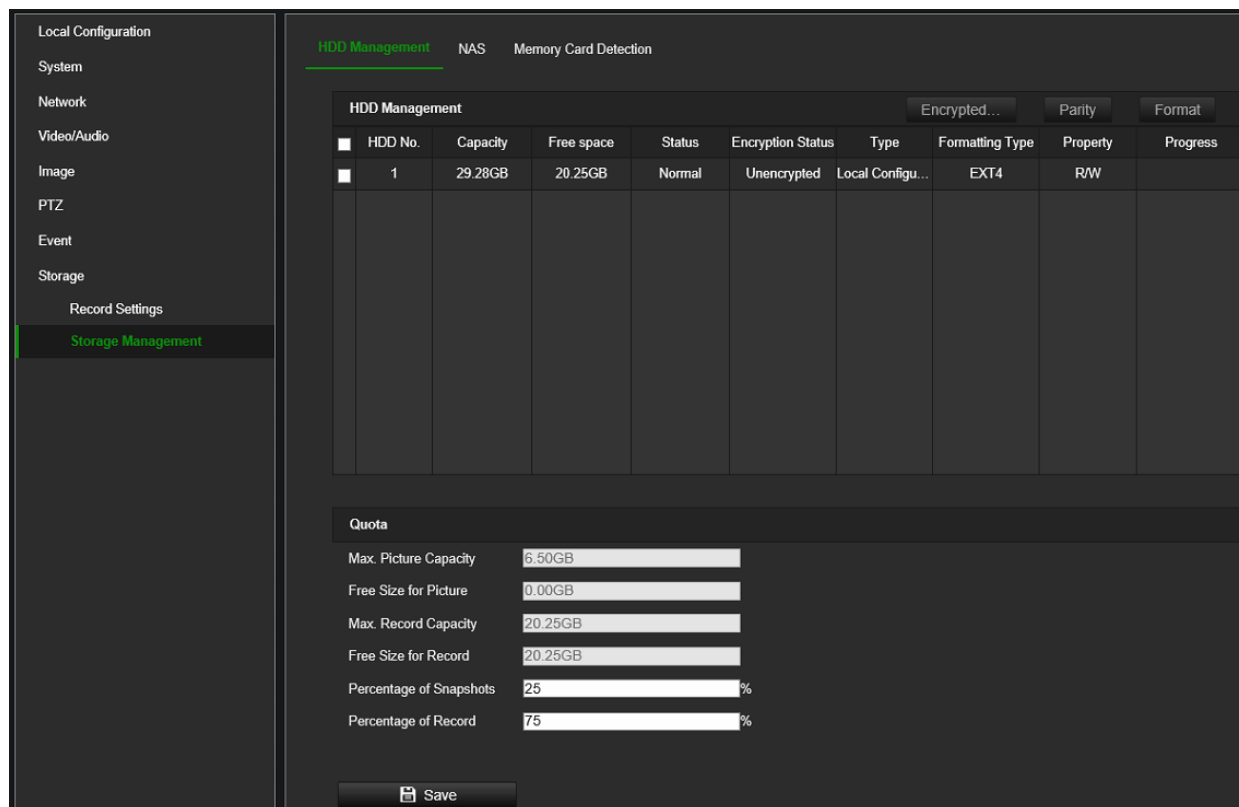
If overwrite is enabled, the oldest files are overwritten when the storage becomes full.

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

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

To format the storage devices:

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



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

To set the quota storage for recordings and snapshots:

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

NAS

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

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

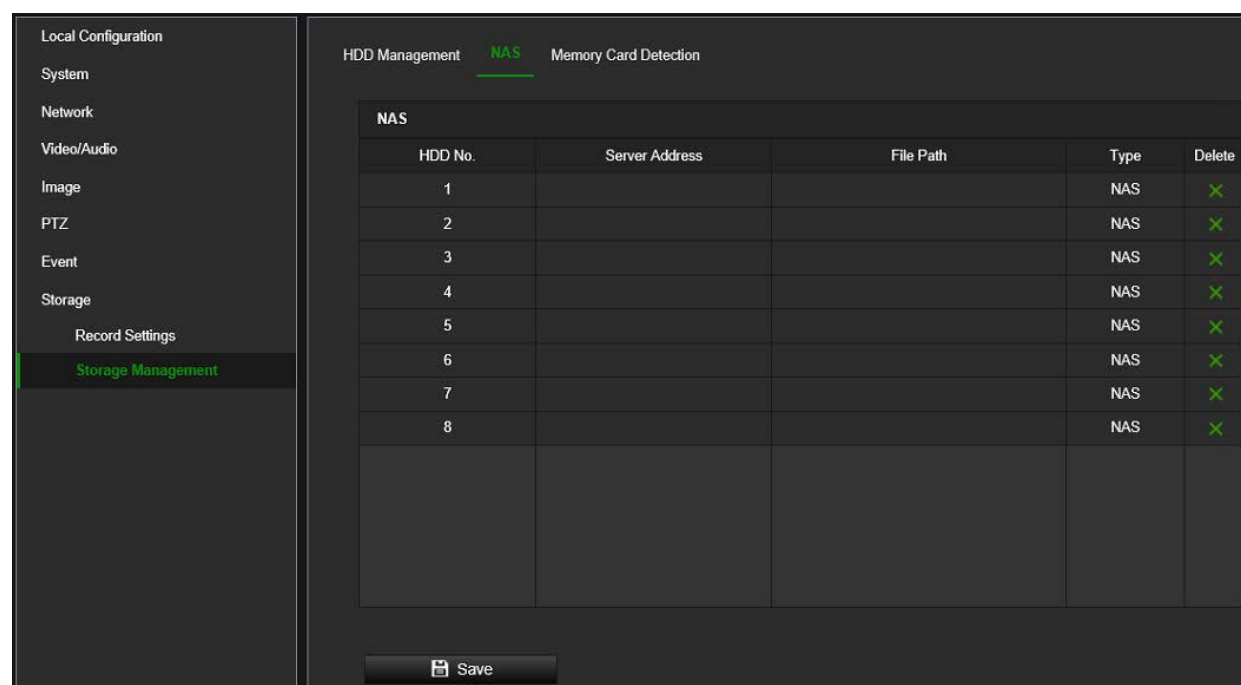
The NAS disk should be available within the network and correctly configured to store the recorded files, log files, etc.

Notes:

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

To set up a NAS system:

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

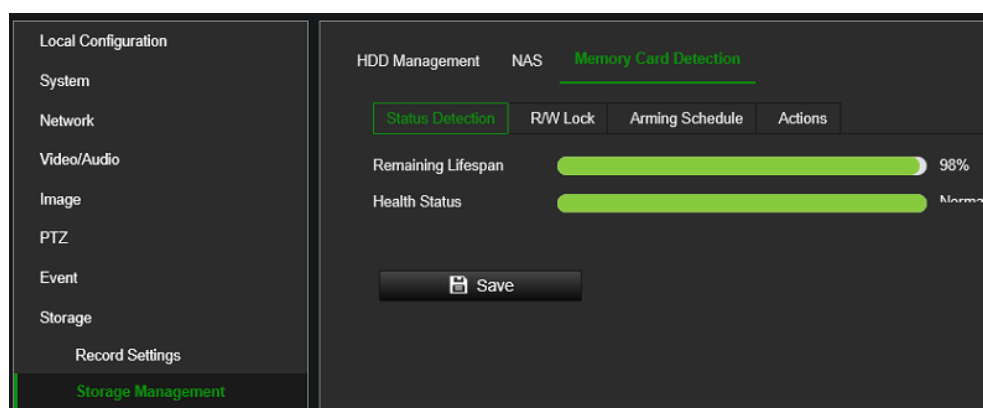


2. Enter the IP address of the network disk, and the NAS folder path.
3. Click **Save** to save changes.

To check the SD card status:

1. Click **Configuration > Storage > Storage Management > Memory Card Detection**.

The health status and estimated lifespan of the SD Card is displayed.



Camera operation

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

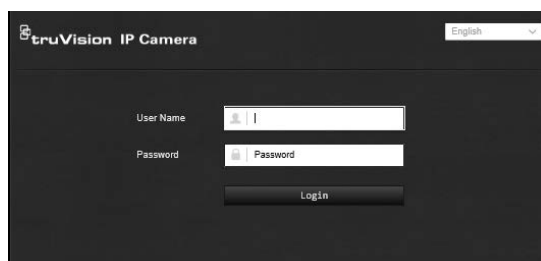
Login and Logout

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

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

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

Figure 10: Login dialog box



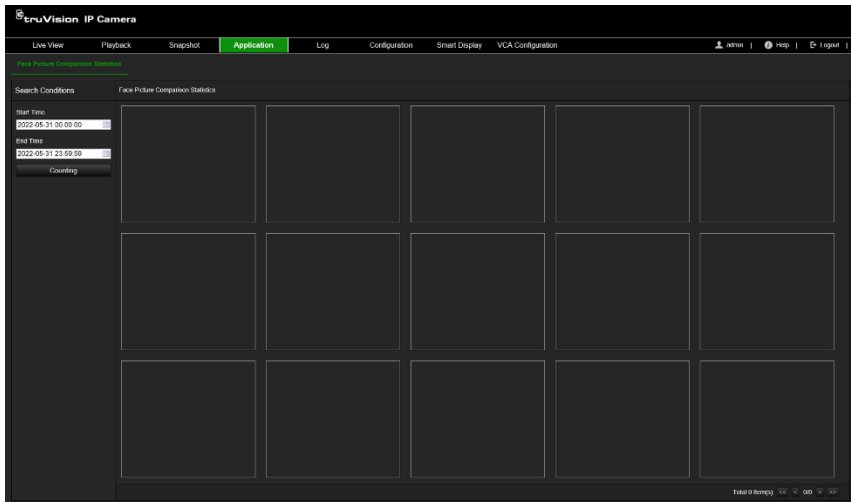
Live view mode

Once logged in, click “Live View” on the menu toolbar to access live view mode. See Figure 11 below for the description of the interface.

Figure 11: Live view window (“Face Capture” VCA resource mode enabled)

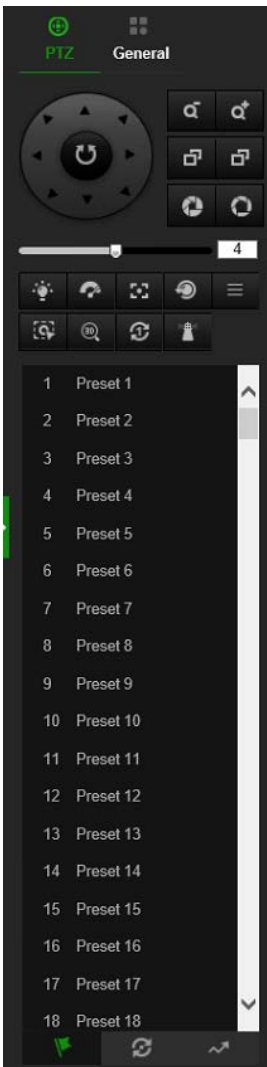
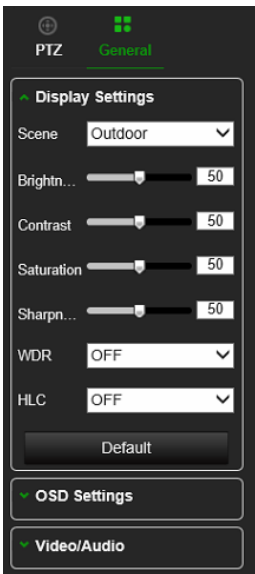


Name		Description
1.	Live view	Click to view live video.
2.	Playback	Click to play back video. See “Play back recorded video” on page 106 for more information.
3.	Snapshot	Click to search snapshots. See “Snapshot” on page 108 for more information.
Application		This menu is only available for the TVGP-P01-0401-PTZ-G camera when the “Face Picture Comparison” VCA resource mode has been selected. Click “Application” to search for face comparison results. See page 68 for more information.



Note: This function is not available for the TVGP-P01-0201-PTZ-G camera as it does not support the Face Comparison feature.

Name		Description
4.	Log	Click to search for event logs. There are three main types: Alarm, Exception, and Operation. See “Log” on page 110 for more information.
5.	Configuration	Click to display the configuration window for setting up the camera.
6.	Smart Display	Click to view captured images of certain smart functions. See “Smart Display” on page 109 for further information. Note: This menu is only available when “Face Capture” VCA resource mode is enabled. It does not appear when “Smart Event” or “Road Traffic” VCA resource mode are selected.
7.	VCA Configuration	Click configure smart event configuration features such as Cross Line Detection, Intrusion Detection, Face Capture, and others. See “VCA Configuration” on page 68 for more information.
8.	Viewer	View live video. Time, date, and camera name are displayed here.
9.	Download Plug-in	Click to download and install the web plugin recommended for plugin-free browsers. This button only appears in non-Internet Explorer browsers. PC internet connection is required.
10.	Admin	Displays current user logged on.
11.	Help	Click to find function.
12.	Logout	Click to log out from the system. This can be done at any time.
13.	Live view toolbar	 Click to start/stop live view.
		 Click to manually capture a snapshot.
		 Click to manually start/stop recording. The recording is stored in the directory you have configured.
		 Click to start/stop digital zoom function.
		 Regional exposure: Click and draw a rectangle to optimize the exposure of the selected area.
		 Regional focus: Click can draw a rectangle to optimize the focus in the selected area.
		 Live view with main stream, substream or third stream.
		 Click to select the third-party plug-in. Not supported by all browsers.
		 Turn on/off microphone.
		 Audio on/off and adjust volume/mute.
		 Pixel counter
		 Aspect ratio. Switch window size between 4:3, 16:9, original window size, original ratio, or self-adapt window size.
14.	PTZ / General	Configuration options for PTZ and General control panels. These options can be changed from the live view menu. See a description of the control panels below. The PTZ panel lets you control the movement of the camera (see page 102) as well as call up pre-existing presets (see page 103). The user will need permission to use the PTZ control panel (see page 22). Although you can modify display, OSD and video/audio settings from the General Control panel, you have greater control of these settings from the Configuration > Image menu.

Name	Description
PTZ control panel	General control panel
	

Operating PTZ control

In live view you can use the PTZ control buttons to control pan/tilt/zoom and carry out other functions of the camera.

Figure 12: PTZ control panel



No.	Description
1.	Directional buttons: Controls the movements and directions of the PTZ. Center button is used to start auto-pan by the PTZ dome camera.
2.	Zoom, focus and iris: Adjusts zoom, focus and iris.
3.	PTZ movement: Adjusts the speed of PTZ movement.
4.	Turns on/off the light. Not applicable for these cameras.
5.	Turns on/off camera wiper. Not applicable for these cameras.
6.	Auxiliary Focus
7.	Initializes the lens
8.	Menu
9.	Start Manual Tracking
10.	Enable/Disable 3D Zoom
11.	One-touch Preset Tour
12.	One-touch Park
13.	Turns on/off manual face capture

Note: Some of these features may not be supported by certain camera models.

Using presets

Presets are predefined locations of a PTZ dome camera that allow you to quickly move the PTZ dome camera to a desired position.

You can only call up the predefined presets. For instance, preset 99 is the “Start auto scan”. If you call the preset 99, the camera starts the auto scan function.

These predefined presets cannot be modified. You cannot set up new presets.

Table 1: Predefined preset settings

Special Preset	Function	Special Preset	Function
33	Auto flip	48	Alarm light OFF
34	Back to initial position	92	Start to set limit stops
35	Call preset tour 1	93	Save limit stops
36	Call preset tour 2	94	Remote reboot
37	Call preset tour 3	95	Call OSD menu
38	Call preset tour 4	96	Stop a scan
39	IR cut filter ON (Day mode)	97	Start random scan
40	IR cut filter OFF (Night mode)	98	Start frame scan
41	Call shadow tour 1	99	Start auto scan
42	Call shadow tour 2	100	Start tilt scan
43	Call shadow tour 3	101	Start panorama scan
44	Call shadow tour 4	102	Call preset tour 5
45	One touch preset tour	103	Call preset tour 6
46	Day/night auto mode	104	Call preset tour 7
47	Alarm light ON	105	Call preset tour 8

Note: Some of the above features might not be supported by all camera models.

To call a preset:

1. Select a pre-defined preset from the list.

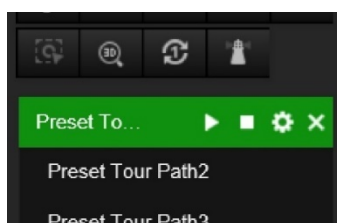
Using preset tours

A preset tour is a memorized series of presets. The camera stays at a preset for a set dwell time before moving on to the next preset. A preset tour can be configured with up to 32 presets.

You can configure up to eight preset tours.

To set a preset tour:

1. At the bottom of the PTZ control panel, click  to enter the preset tour settings interface.
2. Select a preset tour number from the drop-down list and click  to set its parameters.



3. In the preset tour interface that appears, click  to add a preset to the preset tour.

Preset	Speed	Time(s)
1	30	15

OK Cancel

- Enter the preset number, time, and speed.

Preset Tour Time	The dwell time. The length of time for which a camera stays at a preset before moving to the next preset.
Preset Tour Speed	The speed the camera moves from one preset to another.

- Click **OK** to save a preset into the preset tour.
- Repeat the steps from 3 to 5 to add more presets.

To call a preset tour:

In the PTZ control panel, click  and select a defined preset tour from the drop-down list. Click  to start the preset tour. Click to stop it.

Preset	Speed	Time(s)
1	30	15
2	30	15

OK Cancel

Using shadow tours

A shadow tour is a memorized series of pan, tilt, zoom, and preset functions. You can configure up to four shadow tours.

To set a shadow tour:

- At the bottom of the PTZ control panel, click  to enter the shadow tour list.
- Select a shadow tour number from the list.

Shadow Tour1	Shadow Tour2	Shadow Tour3	Shadow Tour4
   			

- Click  to start recording the panning, tilting, and zooming actions.
- Use the PTZ control buttons to move the lens to the desired position after the information:
 - Pan the PTZ dome to the right or left.
 - Tilt the PTZ dome up or down.
 - Zoom in or out.

- Refocus the lens.

5. Click  to stop recording the shadow tour and save the settings.

To start/stop a shadow tour:

Select one shadow and click  to start the shadow tour.

Click  to stop the shadow tour.

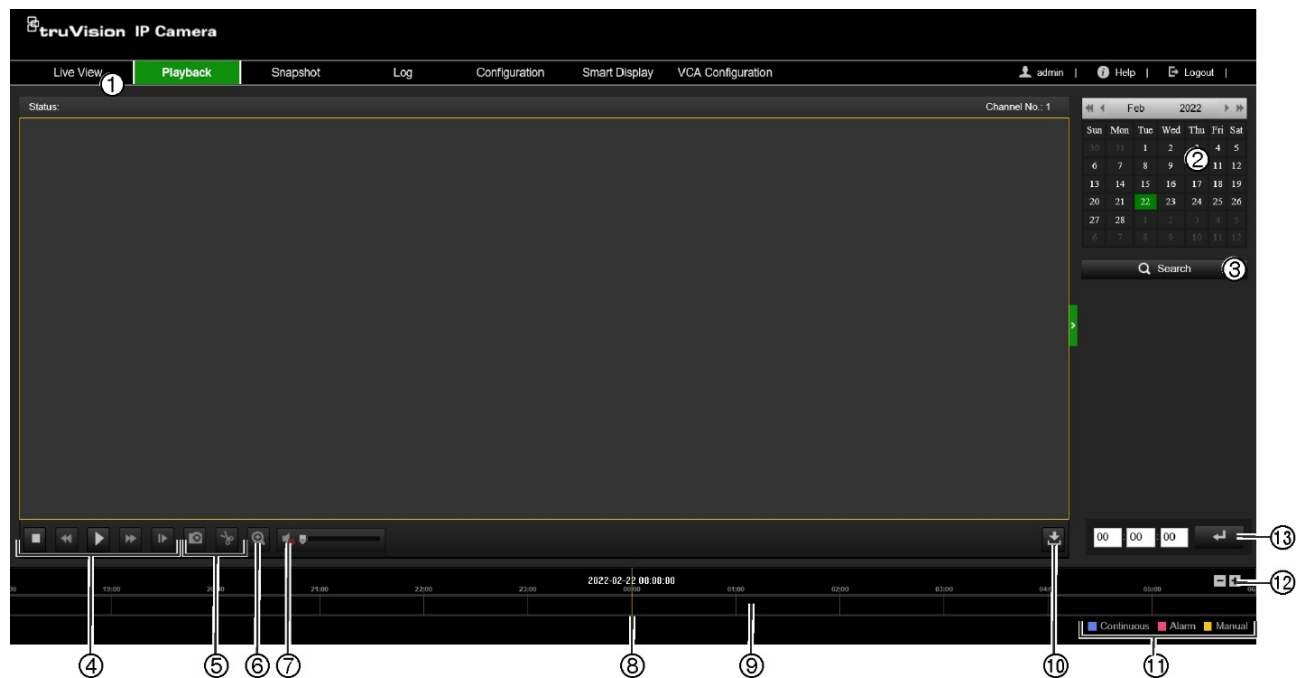
Play back recorded video

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

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

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

Figure 13: Playback window



Name	Description
1. Playback button	Click to open the Playback window.
2. Search calendar	Click the day required to search.
3. Search	Start search.
4. Control playback	Click to control how the selected file is played back: play, stop, slow and fast forward playback.
5. Archive functions	Click these buttons for the following archive actions:  Capture a snapshot image of the playback video.  Start/stop video clip during playback. Sections of a recording are saved to a local computer folder.

Name	Description
6. Digital zoom	Zoom in and out of the selected camera image.
7. Audio control	Modify the audio level.
8. Timeline	The timeline moves from left (oldest video) to right (newest video). It shows where you are in the playback recording. The current time and date are also displayed.
9. 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. No bar indicates no recording.
10. Download functions	 Download video files.
11. Recording type	The color code displays the recording type. Recording types are schedule recording, alarms recording and manual recording. The recording type name is also displayed in the status window.
12. Zoom in/out	Click to zoom in or out of the timeline bar.
13. Jump start	Enter a precise time in the box and click  to jump start the playback from this selected time.

To play back recorded video

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

Note: You must have playback permission to play back recorded images. See “Assign permissions to the user” on page 22 to permit playback of recorded video files.

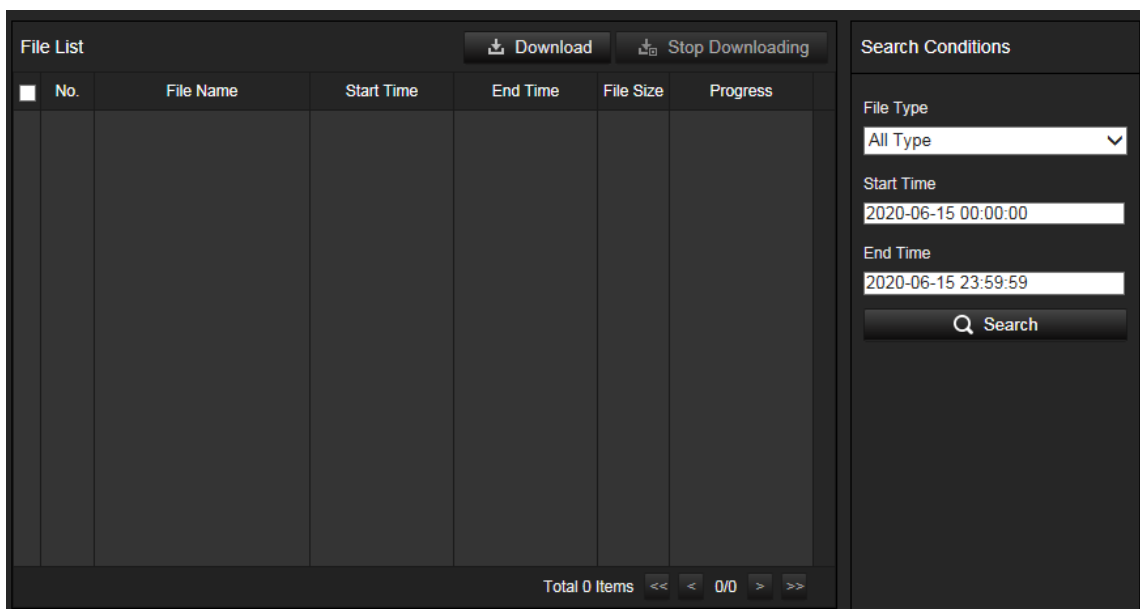
4. Select the date and click the **Search** button to search for the required recorded file.
5. Click **Search** to search the video file.
6. In the pop-up window, select the box of the video file and click  to download the video files.

To archive a recorded video segment during playback:

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

To archive recorded video files:

1. Click  to open the recorded file search window.



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

Snapshot

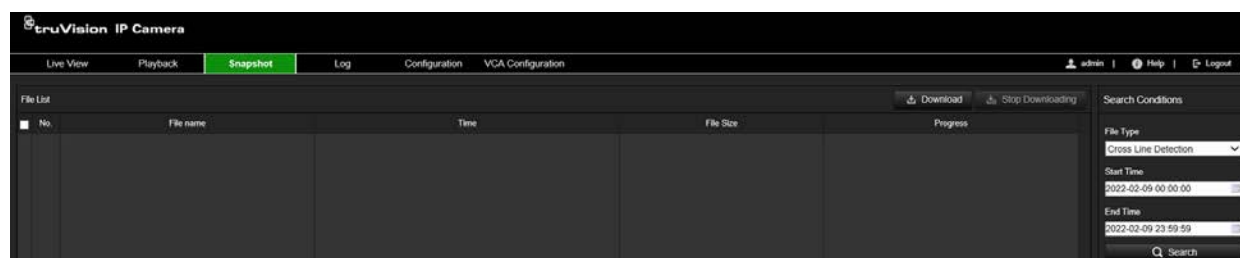
Click **Snapshot** on the menu toolbar to enter the window to search for snapshots. You can search, view, and download the snapshots stored in the NAS or memory card storage.

Notes:

- Make sure the HDD, NAS or memory card are correctly configured before you process the snapshot search.
- To store snapshots, a capture schedule needs to be configured or the camera needs to be set up for Face Capture.

To search recorded snapshots:

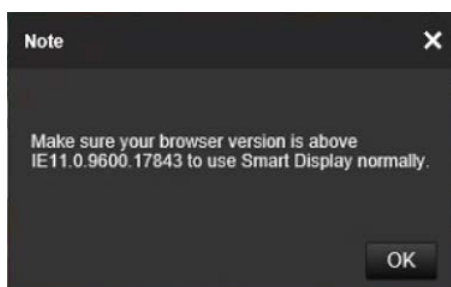
1. From the menu toolbar, click **Snapshot**.



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

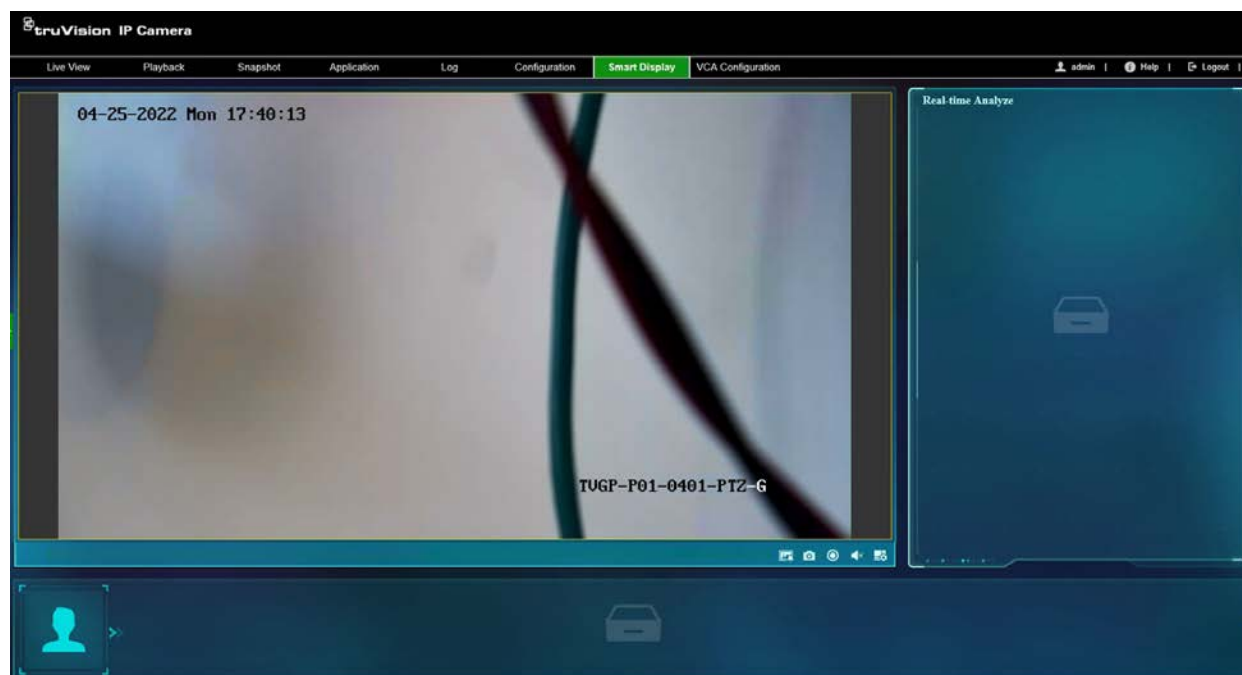
Smart Display

Use this menu to display captured snapshots (faces) in real-time. This page works only in Internet Explorer version 11.0.9600.17843 and above. Each time you open Smart Display, a pop-up warning will appear to inform the user about the browser compatibility for this feature.



To receive face snapshots in real-time:

1. From the menu toolbar, click **Smart Display**.



2. On the bottom right of the image there are a set of buttons to:



Start/Stop saving face capture snapshots in the browser cache.

	Click to manually take a snapshot of the full image.
	Start/stop recording live stream on local PC.
	Mute audio.
	Configure the Smart Display layout.

3. Click the **Start/Stop**  button to send live captured face snapshots to the browser cache. When using this button, the browser will inform the user that, for browser performance reasons, a maximum 200 snapshots can be sent to the browser cache.
4. Click  again to stop real-time saving of snapshots to the browser cache and automatically download the captured snapshots from the browser cache to your local PC.
5. Use additional buttons for extra features, as required (see the table in step 2 above).
6. At the bottom, all captured faces will be shown horizontally when face capture is configured
7. In the Real-Time Analyze section at the right side of the screen captured faces that are being matched against the selected face picture library will be shown. To use this feature, Face Comparison and Modeling must be configured. Note that this feature is only available for TVGP-P01-0401-PTZ-G.

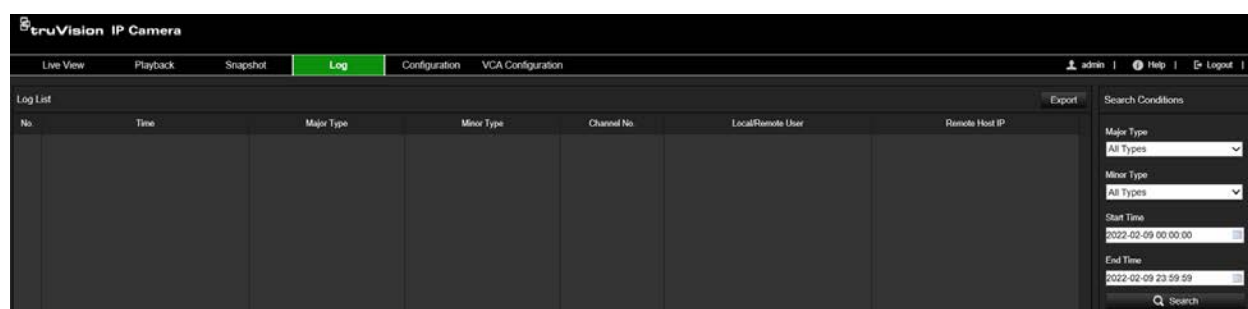
Log

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

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

Note: The user must have viewing log access rights to search and view logs. See “Assign permissions to the user” under “User Management” on page 22 to permit the user to search and view logs.

Figure 14: Log window



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

Major Type: There are three types of logs: Alarm, Exception, and Operation. You can also search All. See Table 2 below for their descriptions.

Minor Type: Each major type has some minor types which can help to refine your search. See Table 2 below for their descriptions.

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

Table 2: Types of logs

Log type	Description of events included
Alarm	Start Motion Detection, Stop Motion Detection, Start Tamper-proof, Stop Tamper-proof
Exception	Invalid Login, HDD Full, HDD Error, Network Disconnected and IP Address Conflicted
Operation	Power On, Unexpected Shutdown, Remote Reboot, Remote Login, Remote Logout, Remote Configure parameters, Remote upgrade, Remote Start Record, Remote Stop Record, Remote PTZ Control, Remote Initialize HDD, Remote Playback by File, Remote Playback by Time, Remote Export Config File, Remote Import Config File, Remote Get Parameters, Remote Get Working Status, Start Bidirectional Audio, Stop Bidirectional Audio, Remote Alarm Arming, Remote Alarm Disarming

To search logs:

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

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