IVS – Hanwha devices

Tartalom

1. Introduction, important information

This guide summarizes the registration, management, and configuration of Hanwha devices within the IVS. For a complete overview of the IVS system setup and configuration, please refer to the ***IVS Installation Manual*** documentation.

For registering Hanwha, HanwhaVision, Wisenet, or previously Samsung cameras, an **OCS** camera license is required. This ensures that the device's **video/audio channels** appear in IVS, enabling **dual streaming**, **PTZ control**, and **I/O port management**. All settings must be configured on the camera's web interface. Recording can be managed using either **camera-side motion detection** or **server-side motion detection**.

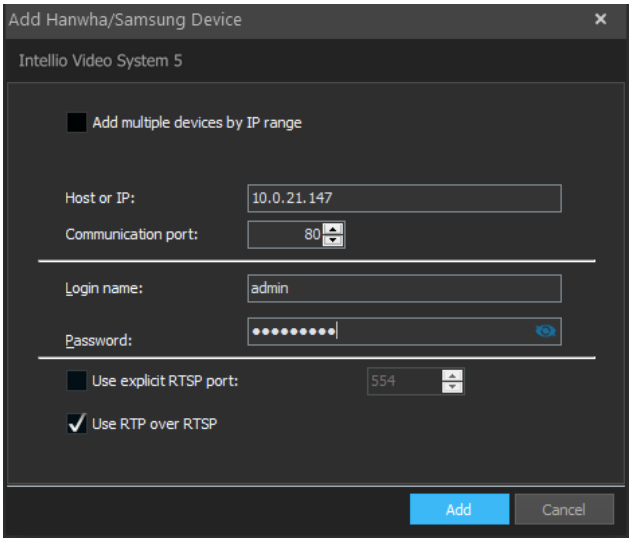
To receive signals from camera-side detectors, add the corresponding **System / Device Event Detector** under **System Configuration / Alarm / Detectors**.

If you want to use **Smart MetaData** processing, post-event **SmartSearch**, or live **SmartLive** functions, an **OCS++** camera license is required. For further conditions, review the ***Smart features*** documentation.

For **NVR** devices, if you want to use the Edge Storage and Playback mode, you will need **OCS+** camera licenses in the required quantity per enabled camera channel. For more details, refer to the Manage NVRs section.

2. Add a device

Steps to add a device:

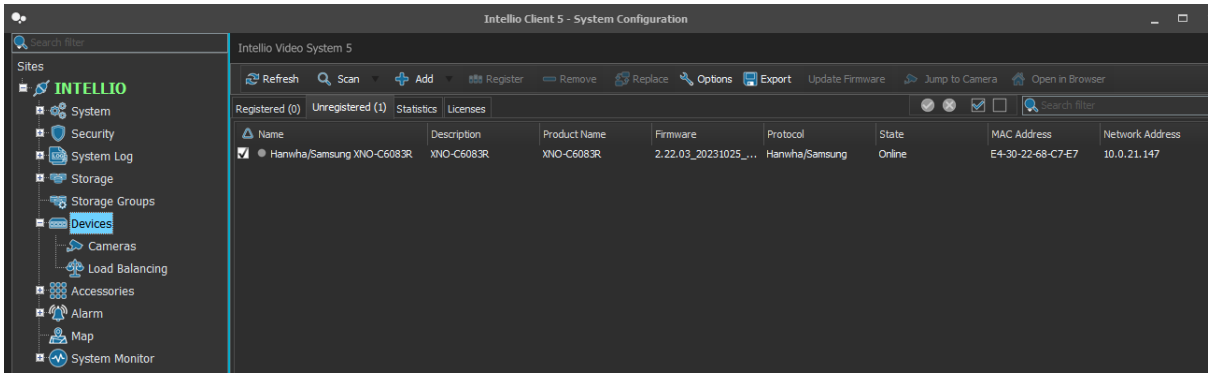


- Press the **System Configuration / Devices / Add** button, then select **Add Hanwha / Samsung Device....**
- Fill in the **Host or IP**, **Communication Port**, **Login Name**, and **Password** fields.
- If necessary, use the **Use explicit RTSP Port** option to modify the default RTSP port value.
- •Use **RTP over RTSP**: Determines whether video and audio transmission occurs via a TCP or UDP channel. By default, this option is enabled, ensuring a more reliable TCP connection.

3. Register devices

Every device must be registered on a SITE, and the primary server for the device needs to be specified. The primary server is responsible for storing the images and data of the associated cameras and devices, as well as managing the cameras.

Devices that have been added to the system but are not yet registered can be found under the **Unregistered** tab in the **System Configuration / Devices** menu.



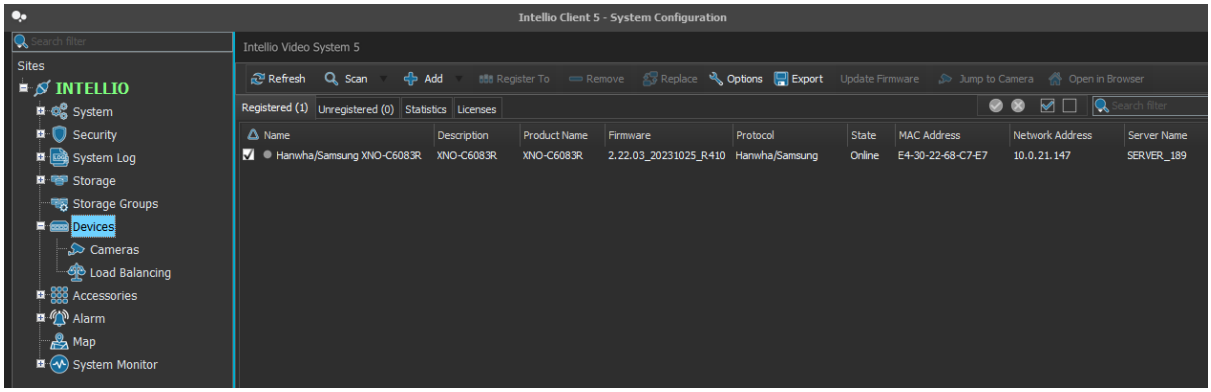
The system maintains partial data flow with the listed and enabled devices, meaning the displayed device information is always kept up to date.

To register a device, select the devices you want to register and press the **Register** button. Before registration, you must enter the username and password required to manage the device. Enter these credentials under the **Connection** tab of the selected device, then press the **Refresh** button. After providing the credentials, confirm the registration.

For multi-server Sites, specify the device's primary server in the pop-up window.

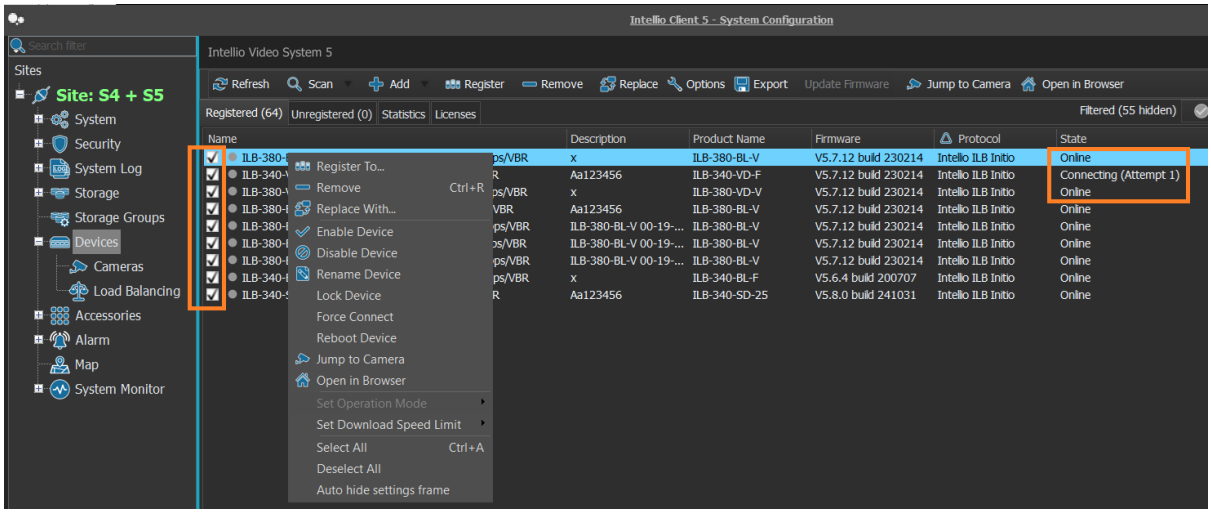
Once registered, the server establishes a connection with the devices, and they start transmitting video.

Registered devices appear under the **Registered** tab.



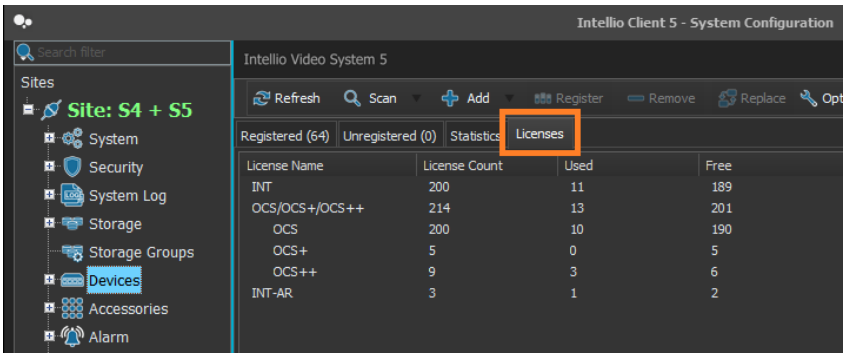
4. Manage Devices

The checkmark next to a device name in the **System Configuration / Devices** menu indicates that the device is enabled, and the server is either maintaining or attempting to maintain a connection with it. If the connection is successful, the Status column will display Online. If the connection is unsuccessful, the Status column will show an ongoing connection attempt.



You can click the checkmark with the left mouse button to toggle the device between enabled and disabled states. Alternatively, you can right-click the device and select **Enable Device** or **Disable Device** from the pop-up menu.

If a device is disabled, the server does not maintain a connection with it, live footage cannot be displayed from the device, and no images are stored. However, previously recorded footage from the device can still be played back. In the disabled state, the device does not consume camera licenses, the quantity of which can be checked under the Devices menu / **Licenses** tab.



If the server continuously fails to connect to a device, the number of attempts will gradually decrease over time. If necessary, an immediate attempt can be forced using the **Force Connect** option in the pop-up menu.

The selected device can be replaced with another device registered with the same protocol using the **Replace With...** option in the pop-up menu or the **Replace** button in the top button bar. Before selecting this function, add the device you want to replace the selected device with to the **Unregistered Devices** list.

When replacing devices, camera-side detectors will not be transferred; they will become inaccessible and generate an error message if activated. This occurs because device-side detectors were assigned to the replaced camera. However, server-side detectors will continue to function without issues after the replacement.

5. Open device web interface

Most Hanwha device have their own web-based configuration interface. This interface can be accessed directly from the IVS by pressing the **Open in Browser** button in the **System Configuration / Devices** menu. This button opens the device's web interface in the default browser with a single click.

The device's web interface is accessible only if the device is reachable from the computer running the client program. It must be accessible from the client program running on the server, but it can be accessed from any location only if the appropriate network settings are in place.

6. Hanwha cameras firmware update

You can update the FW of Hanwha cameras via the camera's web interface.

7. Change camera name and description

To edit the name and description of an already registered camera, navigate to the **System Configuration / Devices / Cameras** page. Select the camera, go to the **Name and Description** tab, edit the fields, and then press the **Apply** button in the bottom right corner.

8. Select video profiles

In the **System Configuration / Devices / Cameras** menu, under the selected camera's **Profile Settings** tab, you can configure two **Monitoring profiles** and a **Storage profile**.

For the Live and Storage profiles, select the primary, high-resolution video channel, while for the Low-Resolution Live profile, choose the secondary, low-resolution video channel. This ensures that if the client program displays the camera image in a small window, it will use the low-resolution video stream, optimizing the use of computing resources on the client program's host machine.

- **Monitoring profile** refers to the high-resolution primary stream displayed in Live mode when the camera's display panel is in SPOT mode.
- **Monitoring profile (low resolution)** denotes the secondary low-resolution stream displayed in Live mode when more than 4 divided Views are selected, or when performance optimization is enabled in client settings and the panel is not in SPOT mode.
- **Recording profile** determines the stored images' resolution, image quality, and frame rate. It usually aligns with the primary high-resolution stream. The option <**Same as Monitoring**> refers to the stream specified there.

9. Set up the motion detection

In the **System Configuration / Devices / Cameras** menu, select the desired camera, and click on the **Motion Detection** tab at the bottom to select the motion detection mode. The motion detection settings configured here will affect the **storage of video recordings**. Therefore, video footage will only be available for the selected camera if the motion detection mode set here was active at the specific moment.

By default, the **Server-side, for I-frame only (faster)** mode is automatically selected after registering the device. This means that motion detection will be immediately available for the entire screen, with general sensitivity and threshold settings. Be sure to check the settings and modify them if necessary so that recordings are only generated and occupy storage space when actual motion occurs.

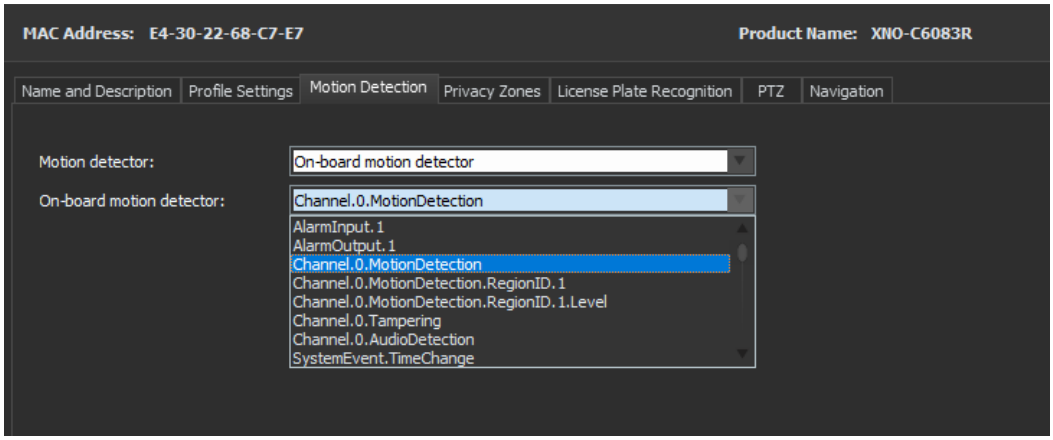
If the registered ONVIF camera supports it, always choose the **On-board motion detector** option, thus reducing the load on the server's processor.

On-board motion detector

Motion detection is performed in the camera, and the camera signals the server when motion occurs. For proper operation, enable and configure motion detection on the camera's web interface.

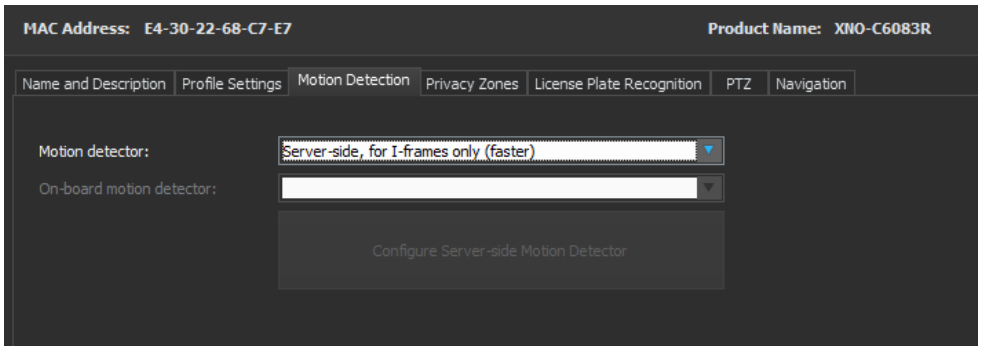
Select the notification type for motion detection in the **On-board motion detector** dropdown menu, which in most cases means the **Channel.0.MotionDetection** type, then press the **Apply** button in the lower right corner.

Important: *To enable motion-based recording, it can provide appropriate information, but for features like Intelligent Motion Search or Intelligent Event Browsing, a separate detector must be added based on the motion detection set here.*



Server-side

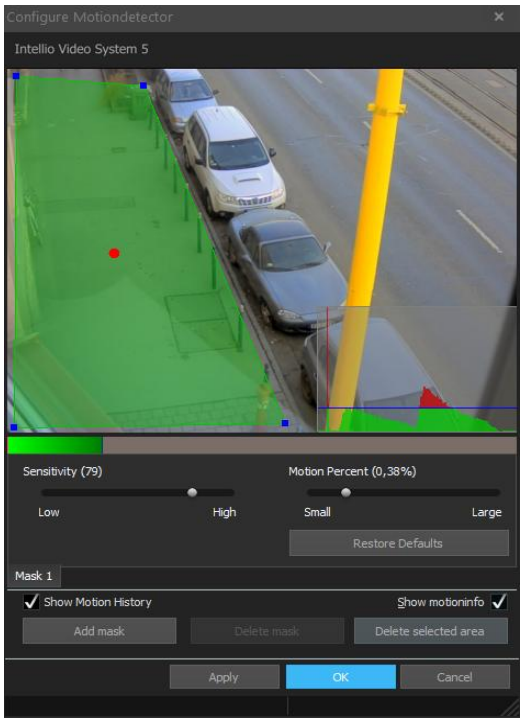
Motion detection is performed by the server, which can impose an additional load on the server's processor. Therefore, configuring this option is recommended only if the previous option, **On-board motion detector**, is not functioning properly.



For server-side motion detection, the following options are available:

- **Server-side, for I-frame only (faster):** Motion detection only runs on keyframes, significantly reducing processing requirements.
- **Server-side (slower):** Motion detection examines each frame during the process, regardless of whether it is a keyframe or not. This method is the most CPU-intensive but provides the highest accuracy.

When any of the server-side motion detection options is selected, the **Configure Server-side Motion Detector** button becomes active. Pressing this button opens a settings window. By default, the motion detector considers the entire image area, but masks can be configured to make the motion detector sensitive to movements only within the designated areas. Multiple masks can be created, each with different detection parameters.



- The **Sensitivity** value determines how much luminance and shade differences the sensor takes into account. A low value might cause a person walking in a similarly shaded coat to blend into a similarly colored house wall without being noticed by the sensor. On the other hand, a high value prevents this, but it might trigger the motion detector for small changes in lighting conditions.
- The **Motion Percent** compares the number of moving pixels to the total number of masked pixels. Setting it low might interpret small moving objects or even slight changes in lighting conditions as motion, while setting it too high might filter out distant moving objects because they are too small.

Create as many masks as you need. By creating multiple masks, you can create different sensitivity and size settings within the observed area, allowing you to tailor them to the specific characteristics of the monitored area.

Disabled

The system does not detect any motion on the camera, so in motion-based recording, the camera's image is not stored; it can only be viewed in the live view.

10. Manage NVRs

When connecting an NVR device, the following features are available:

- Adding, registering, and managing NVRs, including enabling or disabling individual NVR channel inputs based on usage
- Configuring encoder profiles for each channel
- Managing and displaying live video feeds
- Normal operation mode: Storing video streams on the IVS server and replaying them from the IVS server via the IVS client
- Edge Playback mode: Storing video streams on the NVR's built-in storage and playing back recordings directly from the NVR storage via the IVS client's playback interface
- Audio channels from cameras and Smart features (such as SmartLive detectors and SmartSearch) are not accessible through the NVR

10.1. Normal operation mode

When an NVR device is registered, the IVS system automatically handles it in Normal Operation Mode, similar to a standard camera. The recording of camera channel footage on the IVS server will follow the settings configured for Encoder, Motion Detection, and Storage Group.

10.2. Edge Playback mode

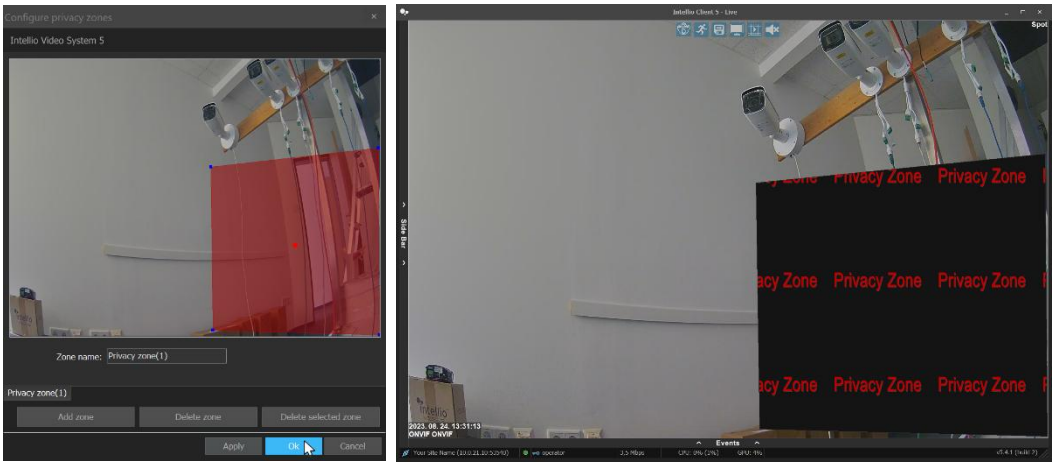
In Edge Playback mode, video footage is stored on the NVR's own storage unit, so the playback is served from the NVR storage. The IVS client playback interface can be used in the traditional way to view recordings stored on the NVR. However, positioning, jumping between different time points, and communication with the NVR API may occasionally be slower compared to playback from an IVS server. For efficient playback, consider the following:

- While performing actions, monitor the status information displayed in the bottom status bar of the client, and only give another command when the status bar indicates that the previous command has been completed.
- Upon entering the playback interface, the timeline will immediately begin drawing, and the image corresponding to the current time will be displayed. However, if you access the playback interface using the **Jump to Instant Playback** button on the camera live feed panel, it is possible that the image may not yet be stored by the NVR, or the storage file may not have been finalized, making it unreadable. Therefore, it is recommended to configure the NVR storage settings to determine how much earlier footage can be played back immediately.
- When selecting footage for playback from the camera, a few minutes' worth of video footage, or a few frames, will be temporarily downloaded starting from a few seconds earlier than the currently set playback time. The download happens to the IVS server's memory, and playback from the client is supported from there. This allows for

immediate playback forward and stepping forward/backward by a few frames. As playback moves forward, the download of additional footage continues seamlessly, ensuring continuous playback before the end of the downloaded footage is reached.

11. Privacy zones

By using privacy zones, certain areas of the displayed images can be hidden from users, ensuring that only those with the appropriate permissions can view the full images without privacy zones. To create a privacy zone, go to **System Configuration / Devices / Cameras**, select a camera, then go to its **Privacy Zones** tab and click the **Configure Privacy Zones** button. Draw around the area to be hidden and define one or more masks. When logged in with a user with restricted permissions, such as the default **Operator** user, by default, the content behind the masks will not be visible.



12. Camera navigation

Efficient navigation among cameras can be achieved using the camera navigation feature, with clickable arrows displayed on the camera images. Navigation is camera-independent, so it can be used with any camera. To set up navigation, select the specific camera in the **System Configuration / Devices / Cameras** menu, then choose the **Navigation** tab among the camera functions, and press the **Configure Navigation** button.

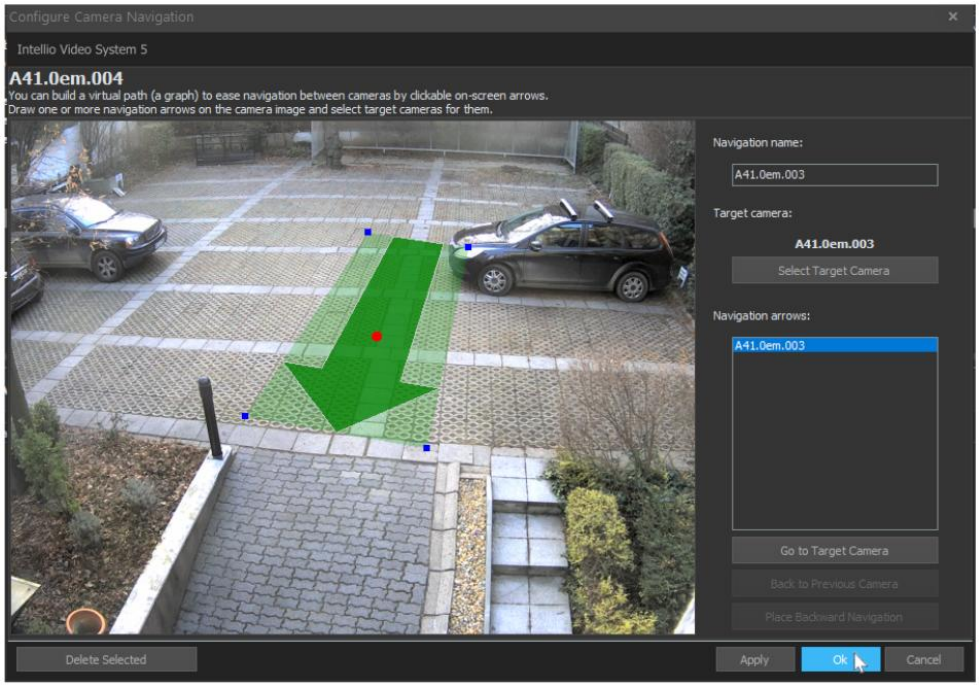
In the **Configure Camera Navigation** window, the live view of the selected camera is displayed, along with any arrows that may have been added. At the top, you can see the name of the currently edited camera, and on the right side, there are control elements used for modifying the settings.

Edit navigation arrows

To select a previously placed arrow, simply left-click on the bounding area or choose the specific arrow from the **Navigation arrows** list on the right side. The active, selected arrow is indicated by a red dot in the center.

For drawing a new arrow, move the mouse pointer to the desired starting point of the arrow. While holding down the left mouse button, draw the arrow in the desired direction. When you release the left mouse button, the arrow will be placed and simultaneously selected.

You can adjust the size of the selected arrow by dragging the corners or edges of the bounding rectangle with the left mouse button. To change the position of the arrow, move the bounding area while holding down the left mouse button to the desired position.



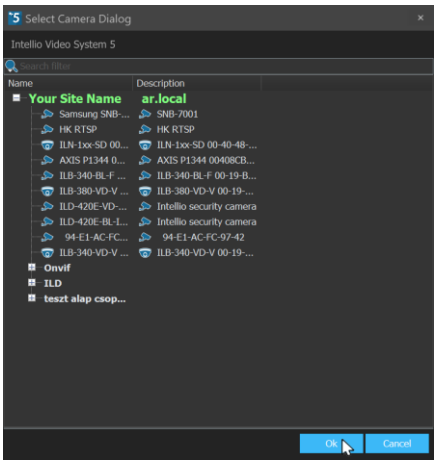
Navigation name

The **Navigation name** field allows you to enter a label that will appear on the live image when you hover the mouse pointer over the arrow. This display can be toggled on and off from the

camera menu. If you don't enter anything, the default label will be the name of the selected target camera.

Target camera

The target camera refers to the camera that will appear when you click on the respective arrow. In the window that appears after pressing the **Select Target Camera** button, choose the desired camera, and then press the **Ok** button.



Navigation arrows

In the list, all arrows placed on the specific camera are visible by name, making it easier to identify and select the arrows.

Go to Target Camera

Using the **Go to Target Camera** button, you can jump to the target camera assigned to the currently selected arrow. This function is useful when you want to create a route starting from one camera.

Back to previous camera

If the camera image displayed in the editor window is already a result of navigation, you can use the **Back to Previous Camera** button to return to the camera from which the navigation occurred.

Back arrow placement

If the camera image displayed in the editor window is already a result of navigation, you can use the **Place Backward Navigation** button to place an arrow to the camera from which the navigation occurred. The target camera and name of the navigation arrow created in this way are automatically set, but can be modified later. If there is already a navigation arrow for that camera, the button is disabled.

Delete selected

The **Delete Selected** button can be used to delete the active, selected arrow.

Note: *PTZ control takes precedence over camera navigation, so navigation does not work with arrows placed in the PTZ control circle. If you want to place a navigation arrow on a PTZ camera, be sure to place it outside the PTZ control circle.*

13. Camera groups

The cameras can be organized into groups based on certain characteristics, greatly facilitating their overview; for example, cameras located on different levels can be placed in separate groups. To create a group, press the **Create Group** button in the **System Configuration / Devices / Cameras** menu, then enter the name of the new group.

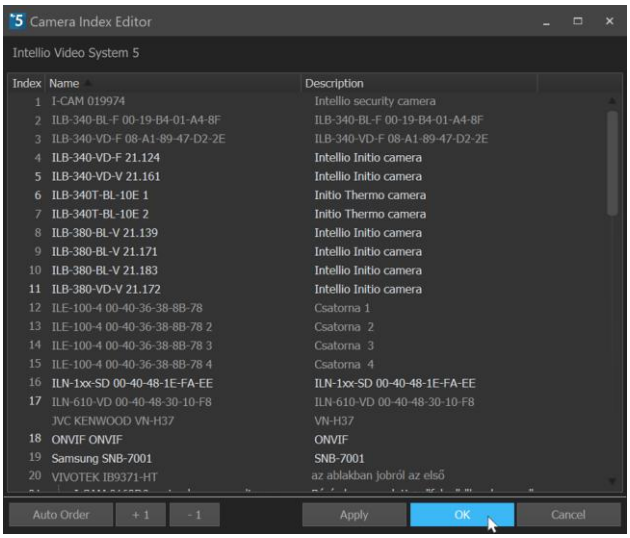
Cameras within the groups can be freely moved by right-clicking on the selected camera, selecting the **Move Cameras to...** option from the pop up panel, and then choosing the target group where you want to move the camera. To change the order of cameras within a group, use the two options above the **Move Cameras to…** button (**Move Up, Move Down**).

The groups themselves can also be sorted. Right-click on the group name, then use the options in the menu that appears to rearrange the order of the groups, or even create subgroups that can be sorted separately. It is also possible to grab the group with the mouse and drag it to the desired location.

To delete a group, first move all the cameras within it to another group, then select the group name, right-click, and choose the appropriate option from the menu.

14. Edit camera index list

In the **Camera Index Editor** window, you can assign a number to each camera. During live display, entering the index number allows you to view the camera's video stream. This method is faster than dragging the camera with the mouse from the left panel. More information about using index numbers can be found in the ***User Guide***.



The Camera Index Editor can be opened by pressing the **Edit Index List** button in the **System Configuration / Devices / Cameras** menu.

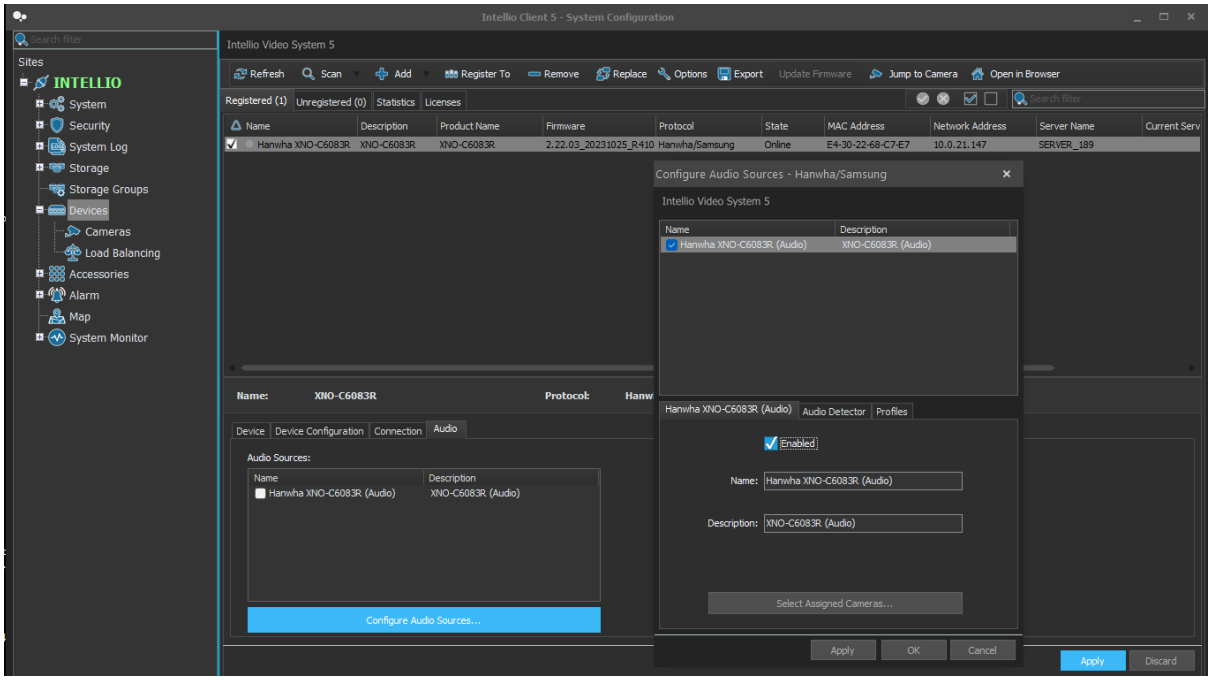
The easiest way to assign index values is to use the **Auto Order** button. This automatically assigns a number to each camera in increasing order, overriding previous settings. The order can be changed by clicking on the camera's index, then editing it to the desired number. You can also use the **+1** and **-1** buttons to increase or decrease the index value by one. The client program prevents two cameras from having the same index value. If this happens, the names of the problematic cameras will be highlighted.

15. Audio settings

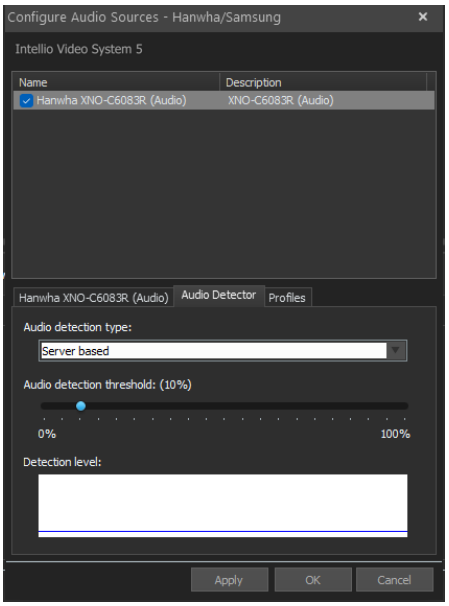
The main settings for audio inputs are located in the specific device settings. Navigate to **System Configuration / Devices** menu, select the device, and on the device configuration interface that appears at the bottom, click on the **Audio** tab. Here, you will get an overview of the names and status of the audio inputs associated with the device. To modify the settings, press the **Configure Audio Sources** button.

- **Enabled:** This checkbox is used to enable/disable the audio input. If an audio input is not in use, you can disable it here to prevent the system from processing it. In this case, it is advisable to disable the audio channel in the camera's web interface as well.

- **Name** and **Description:** Here, you can provide a name and a detailed description for the audio input.
- **Select Assigned Cameras:** You can choose which cameras you want to hear the audio input with. This is relevant during live view and playback. Multiple cameras can be selected, with the audio initially assigned to its own camera by default. If you don't select a camera, the audio channel will appear separately in the Audio Channels toolbar, where you can toggle it on/off and adjust the volume.



- **Audio Detector:** Specifies the type of audio detector used for storage.
    - **Disabled:** No audio recording takes place, but audio can still be monitored on the Live View interface.
    - **Continuous:** Continuous audio recording.
    - **Server based:** In this case, the detection threshold can be set as a percentage. The currently detected audio strength and the set threshold are continuously displayed at the bottom of the window.



- **Profiles tab:** You can select the audio channel.

16. Manage I/O ports

To receive input signals, a **Device event detector** must be created:

- Navigate to **System Configuration / Alarm / Detectors** menu
- Click the **Add** button, select a **System**-type detector, choose **Device event detector**, select **Camera**, then click **Finish**
- In the **Detector** tab, select the appropriate signal channel and define the remaining detector parameters according to the General structure of a detector section.

Output control is managed through **Multi I/O Actions**:

- Navigate to **System Configuration / Alarm / Actions** menu
- Click the **Add** button, select **Multi IO Action**, then click **OK**
- In the **Create Multi IO action** window, go to the **Action** tab, check the desired port, and configure the additional action parameters. For more details, refer to the ***System detectors and the IVS alarm system*** documentation.

17. Camera-side, intelligent device detectors

This chapter only focuses on detector settings for Hanwha devices. To gain a comprehensive understanding of the entire IVS alarm system, refer to the ***System detectors and the IVS alarm system*** documentation.

The initial step in setting up detectors is to define the detectors you want to apply on the **camera's web interface**. Then, you need to register the **signaling channels** of the detectors in the IVS system using the Device Event Detector. In addition to camera-side detectors, some server-side detectors can also be used with the camera, such as License Plate Detector and Video Motion Detector.

Based on the settings, when a detector triggers an event, the event is logged in the Event Log, the Client software can play an alert sound, display camera feeds, etc., according to the parameters set in the Detector configuration window shown in this section.

If additional actions are required (e.g., moving to a PTZ preset, sending an email), you must not only add the detector but also configure the **entire alarm system** by creating Partitions and Actions (see ***System detectors and the IVS alarm system*** documentation).

17.1. Add a detector

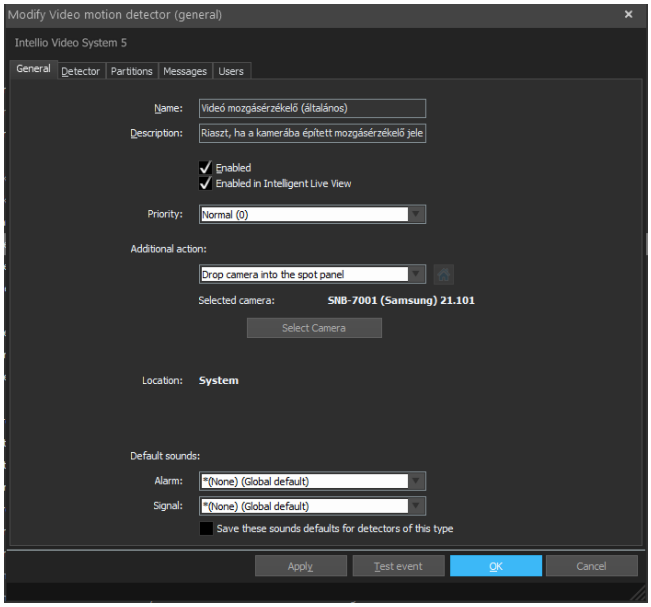
The settings for receiving signals from detectors defined in the camera are accessible through the Client program. The process for modifying and adding detectors is the same after selecting the appropriate detector-camera pair.

- Press the **Add** button in the **System Configuration / Alarm / Detectors** menu, then choose the **System** detector type.
- Select the desired detector from the list.
- Choose the camera on which you want to use the detector or from which you will expect signals (in the case of the Device Event Detector).

17.2. General structure of a detector

Each detector includes configuration settings across the following five tabs.

17.2.1. General



The detector's **name** and **description** are general by default, so it's recommended to change them for easier identification later (including the associated camera in the name or description can be helpful). Below the name and description, you can **enable** the detector and specify whether the **Intelligent Live View** function should consider it.

Priority controls how events from the detector appear in Spot panels in Live View; higher-priority events will override lower-priority ones.

Additional action allow you to display even a different camera's feed instead of the default one when an event is triggered. This is useful if a sensor is connected to a camera's I/O input, but monitors a different camera's field of view. You can also configure complete view changes, displaying multiple cameras simultaneously when the detector triggers an event.

You can assign a custom sound to the detector's events.

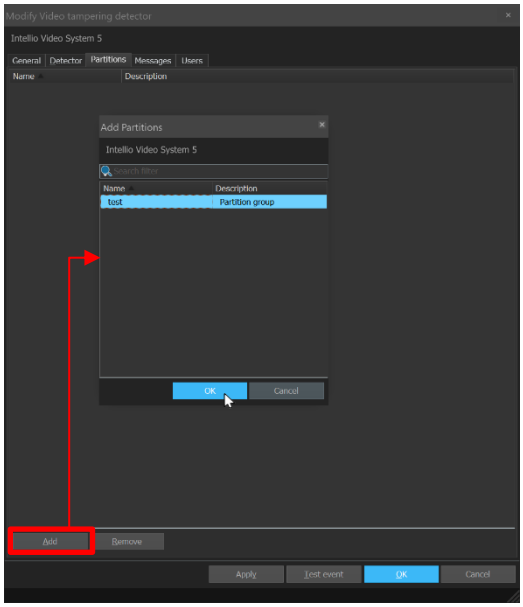
If it is not necessary for each event to have a separate sound, you can simply set the **Default Sounds** for the detector. These will be the default sounds for detector events: **Alarm** for alarm events, and **Signal** for signal events.

If you want these default sounds to apply to all detectors of this type, check the **Save these sounds defaults for detectors of this type** checkbox. You can also provide your own custom sound file by selecting **Add...** from the dropdown menu at the bottom. The selected sound file will be uploaded by the client to the SITE servers, from where other clients will download it upon their first login (see the **Media Library** section in the ***System detectors and the IVS alarm system***).

If you want each event to have a different sound, you can set the sounds for each event on the **Messages** tab.

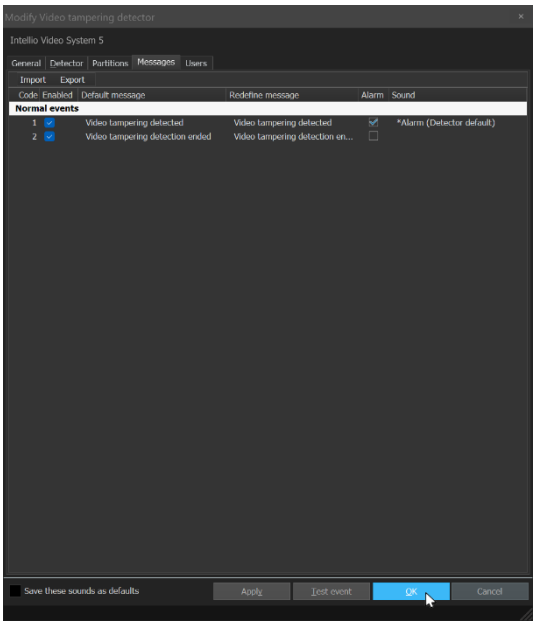
17.2.2. Partitions

The list of partitions to be activated by the detector alarm can be specified here. The partitions only respond to normal events, ignoring technical events.



***Important**: **if all the partitions associated with a detector are inactive, the detector will not transmit events and alarms!** If the detector must always be active, it is recommended to add an always-active partition without any actions to the list of partitions associated with the detector.*

17.2.3. Messages



It is possible to set which events of a given detector are allowed and whether they appear as alarms or simple signals.

If an event type is checked in the **Alarm** column, an alarm will be triggered when the corresponding event occurs (e.g., the alarm will appear with a red background in the Events panel at the bottom of the Live View).

If only the left-side Enabled box is checked, then only a **signal** will occur (e.g., the signal will appear in yellow in the Events panel).

You can override the default sounds with custom event sounds. In the **Sound** column, you can open the dropdown menu and select any sound that will play when the event occurs. You can also select your own sound file by clicking the **Add** option at the bottom of the list.

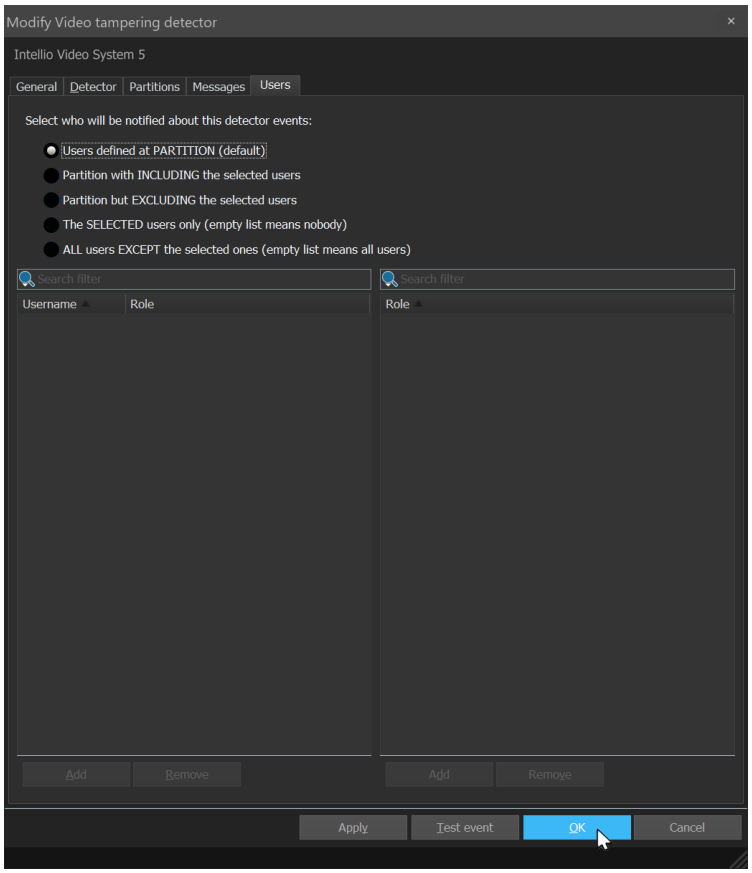
These settings can also be saved to the detector type by checking the **Save these sound as defaults** checkbox at the bottom.

The settings in the Messages tab can be exported and imported, allowing the same message settings to be imported into multiple cameras with the same type of detector.

17.2.4. Users

On this tab, you can specify which users or roles should receive notifications about detector events:

- **Users defined at PARTITION (default):** In this case, only the users and roles specified for the partitions assigned to the detector will receive detector events.
- **Partition with INCLUDING the selected users:** Users and roles specified for the partitions assigned to the detector will receive events, supplemented by those listed here.
- **Partition but EXCLUDING the selected users:** Only the users and roles specified for the partitions assigned to the detector will receive events; those listed here will be excluded.
- **The SELECTED users only (empty list means nobody):** In this case, users and roles specified for the partitions assigned to the detector will not be considered; only those listed here will receive notifications. An empty list means nobody will be notified.
- **ALL users EXCEPT the selected ones (empty list means all users):** In this scenario, everyone will receive events except those listed here. An empty list means everyone will receive notifications.



17.2.5. Detector

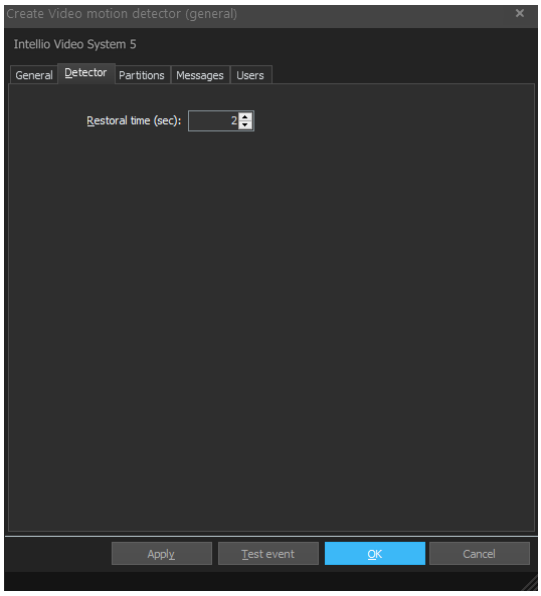
The unique settings specific to the detector can be configured in this tab. Some detectors do not have this tab because they do not require any special configuration.

The following sections provide descriptions of the most commonly used detectors for Hanwha cameras.

17.3. Video motion detector (general)

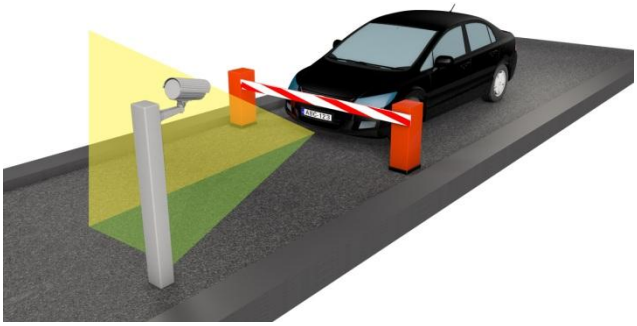
It essentially converts the camera's built-in motion detection signals into events. These generated events can then be used within the alarm system to trigger various actions.

- **Restoral time:** The duration the detector waits before sending the restore signal. If the monitored area has significant movement, it is recommended to set a higher value. Conversely, if motion detection is infrequent, a lower value can be used. This helps prevent excessive repeated alerts.



17.4. Automatic number plate recognition (ANPR/ALPR)

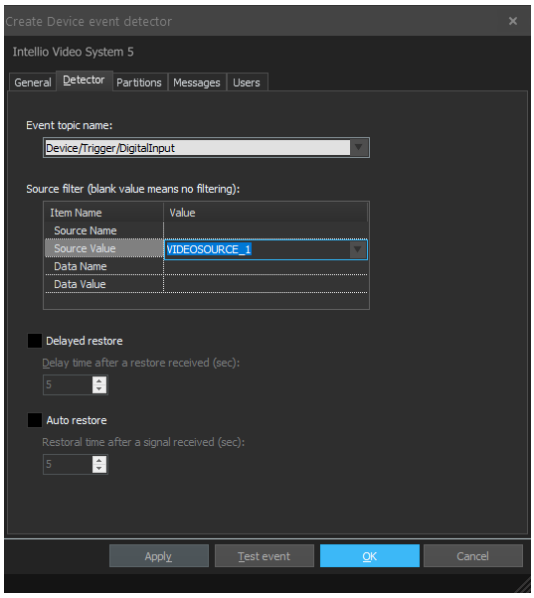
License plate recognition is performed on the server side. For configuration, be sure to read the ***License Plate Recognition*** documentation.



The detector tab is completely absent from the configuration window; the settings for recognition properties must be done at the camera associated with the detector, under the **System Configuration / Devices / Cameras** menu, in the **License Plate Recognition** tab.

17.5. Device event detector

An event is triggered when a predefined alarm event occurs on the camera monitored by the detector.



To enable the detector, first configure the desired camera-side detector on the camera's web interface, then set the following parameters in the IVS:

- **Event topic name:** Select the detector signal channel set in the camera, through which the camera sends the signal for the specific detector. For example, if you want to receive the signal from the camera's contact input, you typically need to select the signal type named **Device/Trigger/DigitalInput**.
- **Source filter:** Allows server-side filtering based on the event source and data. The detector will only signal events that match the configured values. Fields left blank will not be filtered.
- **Delayed restore:** The time it takes for the detector to return to its idle state after the event ends.
- **Auto restore:** The time elapsed since the start of the alarm event after which the detector returns to its idle state. Since it's possible that the detector remains in the active state continuously during this period without additional alarms (e.g., continuous movement in front of the camera), it is advisable to set a high value.

18. SmartSearch: search with post-generated detectors

Some Hanwha cameras can track people, vehicles, and other categorized objects moving within their monitored area. These metadata are also transmitted to the IVS server, which can store them for later use. Stored metadata can be searched quickly using **Virtual Detectors** created afterward.

The conditions for searching with Virtual Detectors can be found in the ***Smart features*** documentation, while information on creating Virtual Detectors and using the **Intelligent Motion Search** and **Intelligent Object Search** interfaces is available in the ***User's manual***.

19. SmartLive: server-side, live, Smart MetaData-based detectors

Based on the metadata of moving objects detected by certain Hanwha cameras, server-side **SmartLive** detectors can be created for Motion Detection, Area Entry/Exit, Direction Detection, and Line Crossing events, triggering immediate alerts. The object category information detected by the cameras can be expanded or validated using the **SmartAI** function.

For detailed information on SmartLive detectors and basic requirements, refer to the ***Smart features*** documentation.

Depending on the settings, when a detector triggers an event, the event is logged in the Event Log, the client software may play an audio notification, display camera images, etc. If additional actions are required (e.g., jumping to a PTZ preset, sending an email), the **complete alarm system** must be configured in addition to adding the detector. This includes creating Partitions and Actions (see ***System detectors and the IVS alarm system*** documentation).

20. Further steps

For an overview of additional system settings, please refer to the ***IVS Installation Manual*** documentation.