

IVS - EINAR cameras

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1. Introduction, important information

This documentation describes the use of the Einar license plate recognition camera family within the Intellio Video System. For a complete overview of the IVS system setup and configuration, please refer to the ***IVS Installation Manual*** documentation.

To register EINAR cameras, verify that the IVS server product key includes enough **INT-AR** camera licenses for the number of cameras you wish to register in the system. If you do not have the appropriate number of INT-AR licenses, you can expand the product key as described in the ***System management*** documentation.

The following functions have been integrated between the camera and the IVS:

- Manual registration of the Einar camera
- Management of the camera's primary and secondary video channels (monitoring, recording)
- Receiving motion data to enable motion-based recording
- Controlling the camera's contact output from the IVS
- Live, real-time reception of events from detectors created in the camera (license plate and MMR data)

For the Einar camera [Installation Guide](#), [User Manual](#), [Datasheet](#), the latest firmware version, and regional license plate recognition engines, please refer to the [official documentation page of the Einar camera](#).

Suggested installation steps:

- Install the camera following the [Installation Guide](#).
- Using the [User Manual](#):
 - Upload the license file received during the order to the Einar camera.
 - Upload the appropriate License Plate Recognition (LPR) Engine.
 - Verify if the camera has the latest firmware (FW).
 - Configure license plate recognition using the camera's web interface.

Summary and verification steps are provided in the [How to use the Einar camera](#) section. With the correct settings, license plate reading events should appear under the Live View on the camera's web interface.

- Register the camera in the IVS system according to the following chapters. The built-in license plate recognition detector is automatically registered, allowing you to immediately see license plate recognition events.
- If necessary, add authorized license plates in the IVS and implement control actions, such as opening a barrier.

2. Discover the camera on the network

2.1. Intellio Device Explorer program

The easiest way to search for the Einar camera on the network is by using the Intellio Device Explorer, which can be found in the Intellio Video System server folder or in the Intellio Video System group in the Windows Start menu.

Once the program is launched, it continuously searches the network for cameras and displays the found cameras in an automatically updating list. Right-click on the camera you want to set up to display a pop-up menu with the functions available for that camera type. Or left click on the camera you want to use and select the functions that will become active in the program header. For Einar cameras, these functions include:

- Clicking the **Device Webpage** button displays the device's web interface in the default browser.
- **Copy IP Address** copies the IP address of the device to the clipboard. Paste this into your browser to open the camera's web interface or you can use it when manually adding the camera in IVS.

Status	MAC Address	Product Name	IP	Subnet Mask	Gateway	DHCP	Port	Activated	Name	Description
Online	00-19-B4-02-DE-F6	Einar Gen 2 T	10.0.21.120	255.255.255.0	10.0.21.254	Yes	53539	Yes	EINAR G2.8MP 21.120	demofal
Online	00-19-B4-01-A4-8F	ILB-340-BL-F	10.0.21.119	255.255.255.0	10.0.21.254	Yes	8000	Yes	ILB-340-BL-F20180928AAWRC56375076	

2.2. AR (Harbard) Device Tool

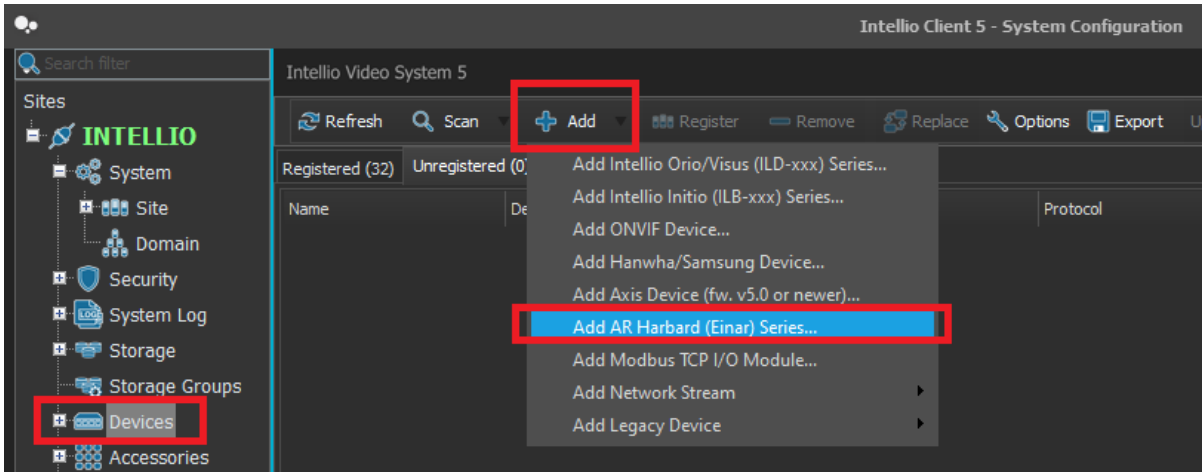
You can discover the Einar camera using its own search program, which allows you to perform various tasks beyond just searching. With this program, you can carry out actions such as individual or group firmware updates, uploading license and engine files, and checking for updates to these files. You can find the latest version of the program on the [official documentation page for the Einar camera](#), and its usage is explained in the [User Manual](#).

Name	Family	Version	Firmware	IP Address	MAC address	Upload information
EINAR G2.8MP 21.120	EINAR	Einar Gen 2 T	1.3.1.27	10.0.21.120	00:19:b4:02:de:f6	

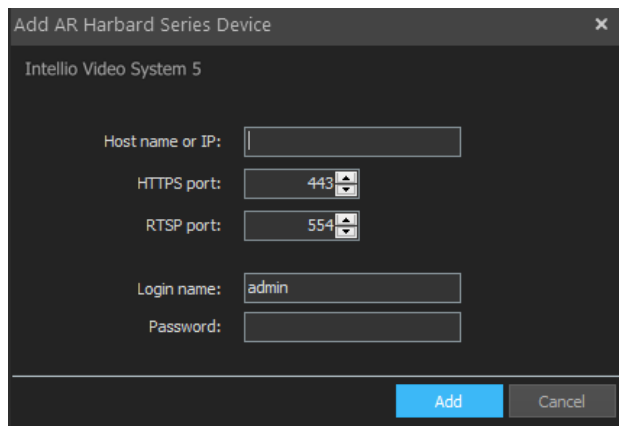
3. Registration in the IVS system

To register the device in the IVS system after discovering its IP address:

- Press the **System Configuration / Devices / Add** button and select the option **Add AR Harbard (Einar) series...**

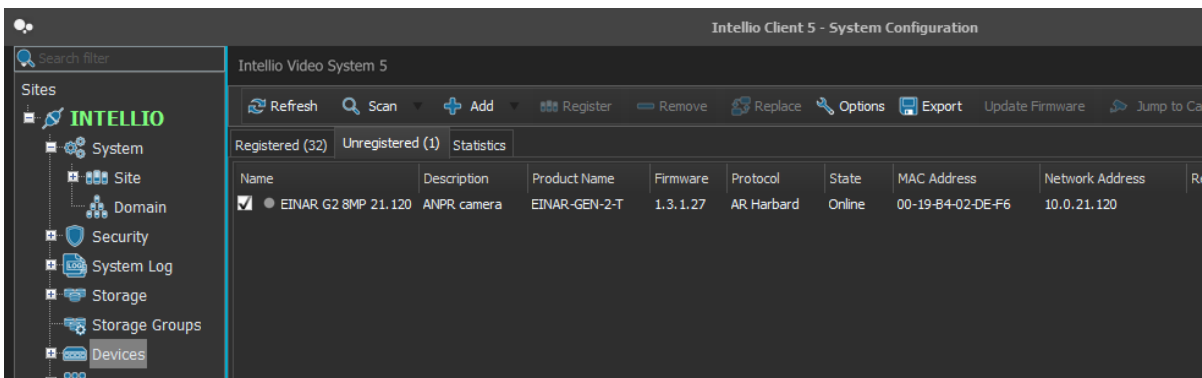


- Fill in the **Host Name or IP** and **Password** fields. Only modify the **Login Name**, **HTTPS Port** and **RTSP Port** fields if necessary.



- Press the **Add** button.
- After a few seconds, click the **Refresh** button on the top toolbar.

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

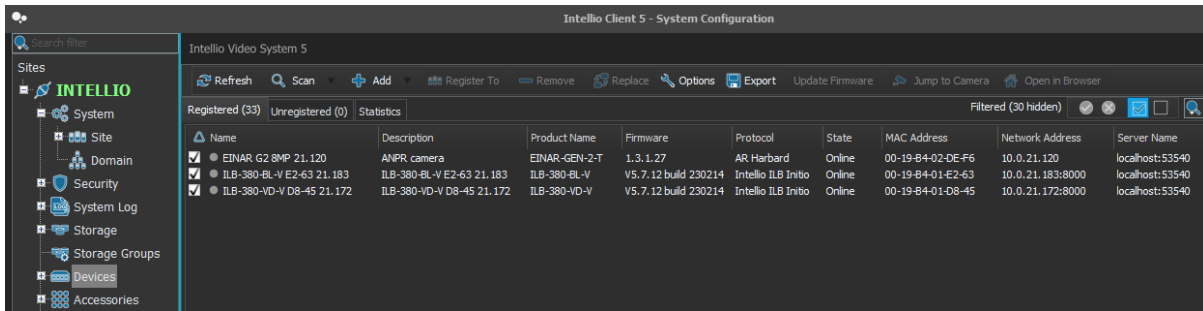


Every device must be registered on a SITE, and the primary server for the device needs to be specified. The primary server is responsible for storing the images and data of the associated cameras and devices, as well as managing the cameras.

To register, select the cameras to be registered, and press the **Register** button. In the case of a multi-server Site, specify the camera's primary server in the pop-up window.

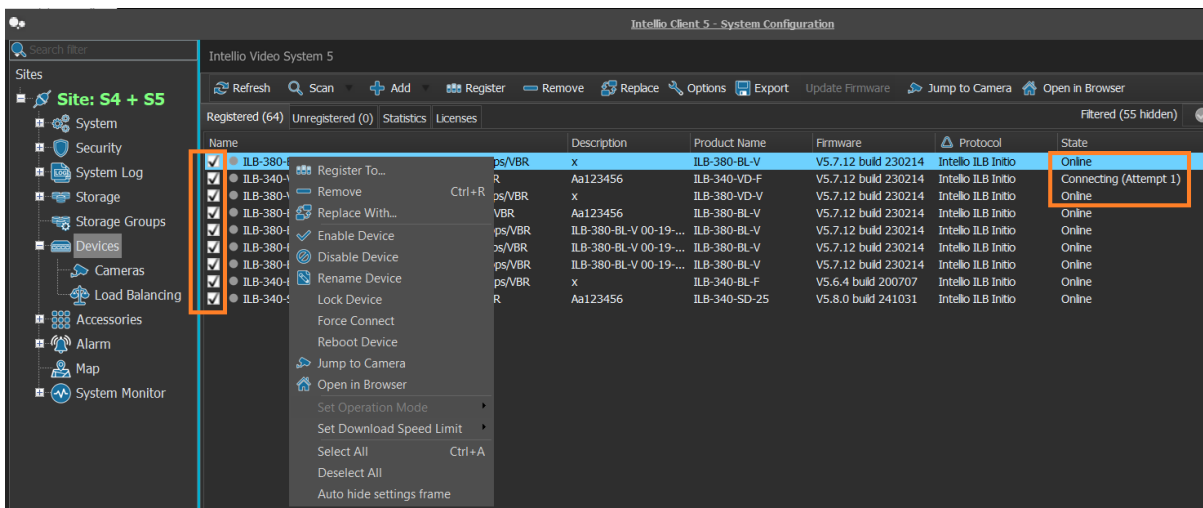
Once registered, the server establishes a connection with the registered cameras, and they begin transmitting images.

The registered cameras will appear on the **Registered** tab.



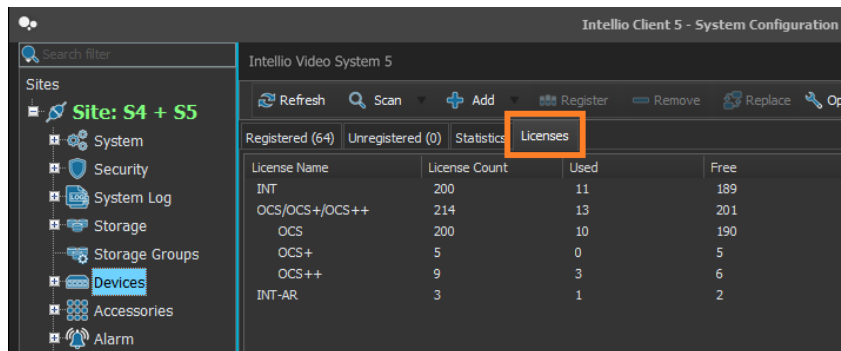
4. Manage Devices

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.

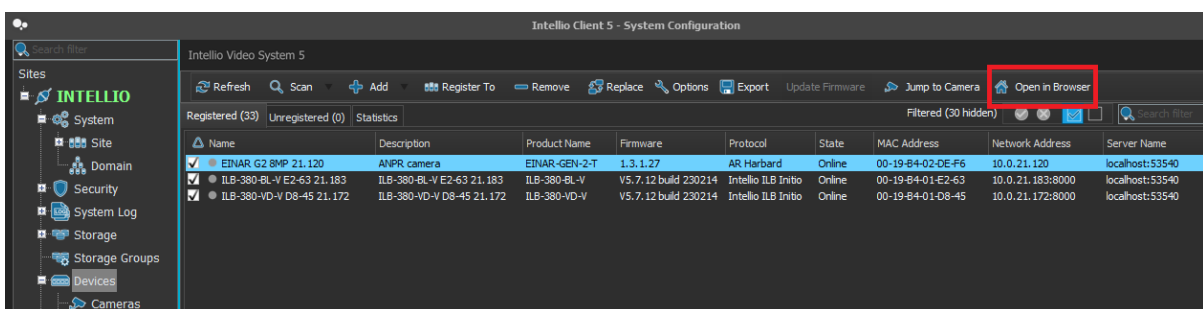
The selected device can be replaced with another device registered with the same protocol using the **Replace With...** option in the pop-up menu or the **Replace** button in the top button bar. Before selecting this function, add the device you want to replace the selected device with to the **Unregistered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

During device replacement, the device-side detectors are not transferred and will become inaccessible afterward, potentially displaying error messages if activated. This is because the device-side detectors were assigned to the replaced device. Server-side detectors will continue to function without issues after the replacement.

5. Open device web interface

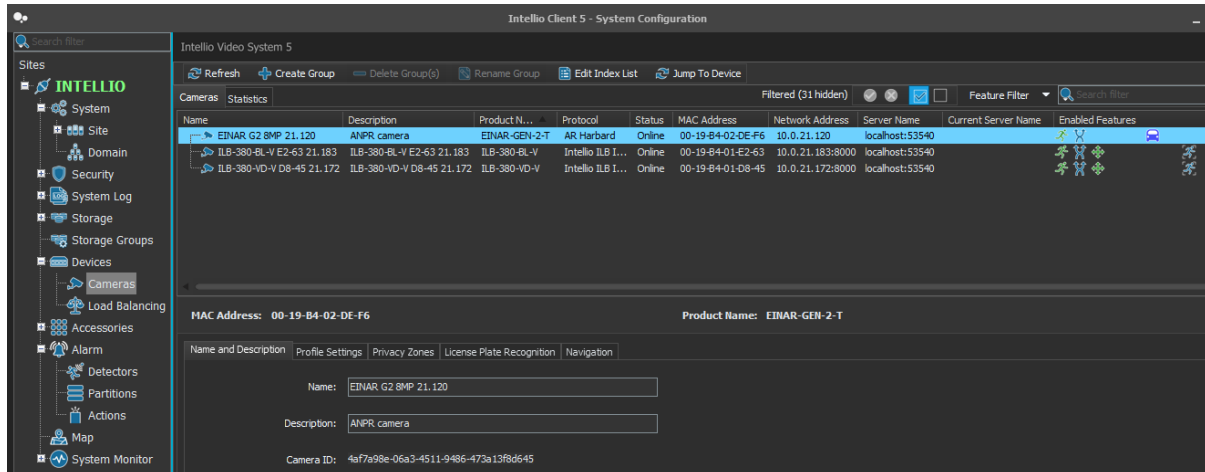
Einar cameras have their own web-based configuration interface. This interface can be accessed directly from the IVS by pressing the **Open in Browser** button in the **System Configuration / Devices** menu. This button opens the device's web interface in the default browser with a single click.

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. Change camera name and description

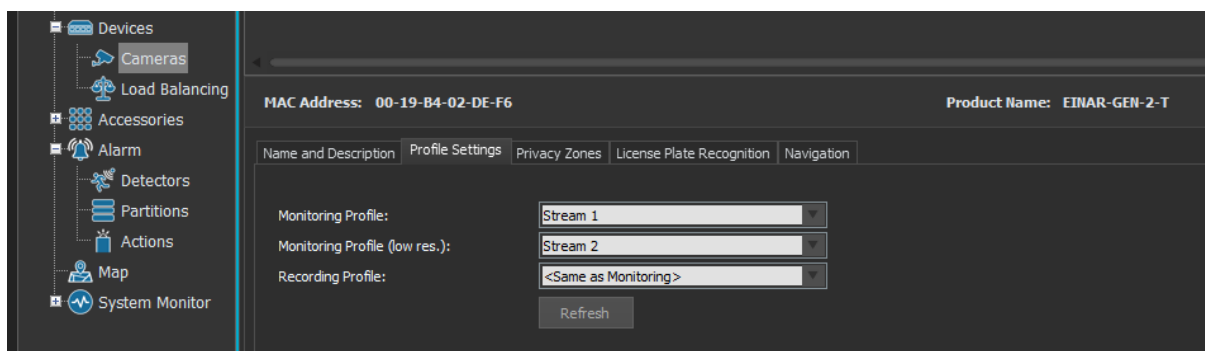
To edit the name and description of an already registered camera, navigate to the **System Configuration / Devices / Cameras** page. Select the camera, go to the **Name and Description** tab, edit the fields, and then press the **Apply** button in the bottom right corner.



7. Profile settings

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**:

- **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.



The camera registration automatically includes the most optimal configuration. For the Live and Storage profiles, the primary, high-resolution video channel is selected, while for the Low-Resolution Live profile, the secondary, low-resolution video channel is chosen. This ensures that

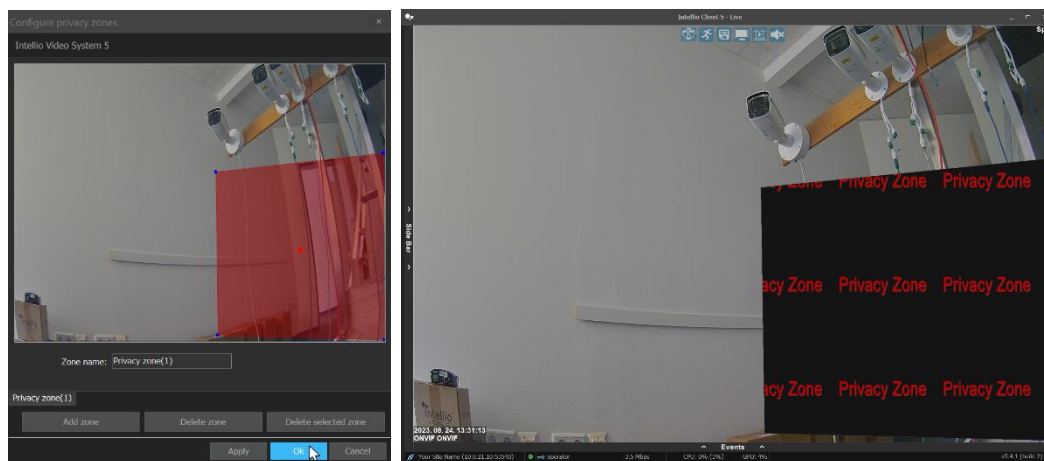
if the client program displays the camera image in a small window, it will use the low-resolution video stream, optimizing the use of computing resources on the client program's host machine. The configuration of profile parameters can be done on the camera's web interface (resolution, bandwidth, frame rate, etc.).

8. Set up the motion detection

The Einar camera **continuously provides a live stream** to the IVS. However, **for storage**, only images with **detected motion** are saved. You can adjust the motion detection mask and sensitivity on the camera's web interface. Motion-based storage occurs only when the camera is in a storage group where the Storage Mode is **Motion-Triggered**, which is the default setting for a Storage Group (see **Storage settings** documentation). This means that with default settings, motion-triggered recording starts immediately.

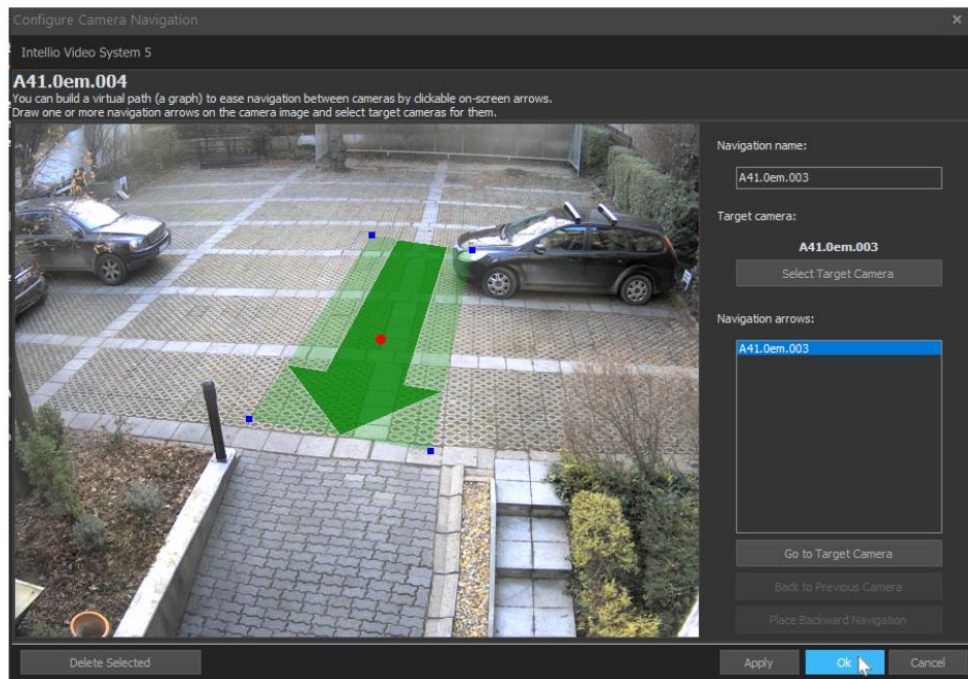
9. Privacy zones

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.



10. 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.

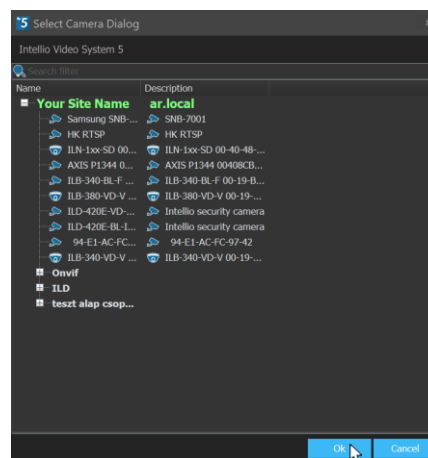
Delete selected

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

11. 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.

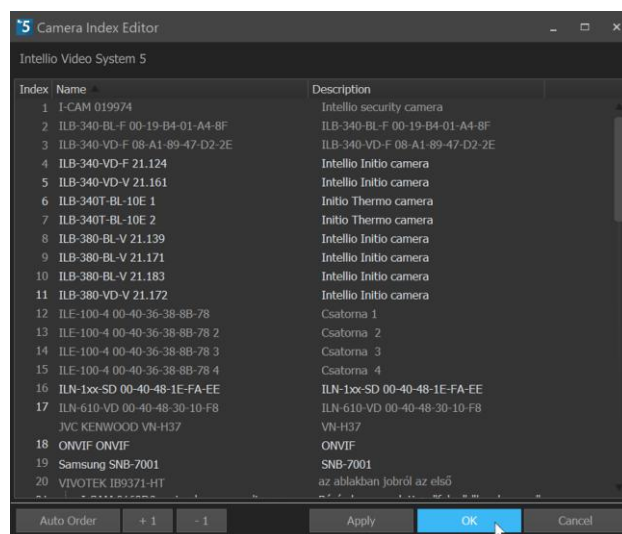
To delete a group, first move all the cameras within it to another group, then select the group name, right-click, and choose the appropriate option from the menu.

12. 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**.

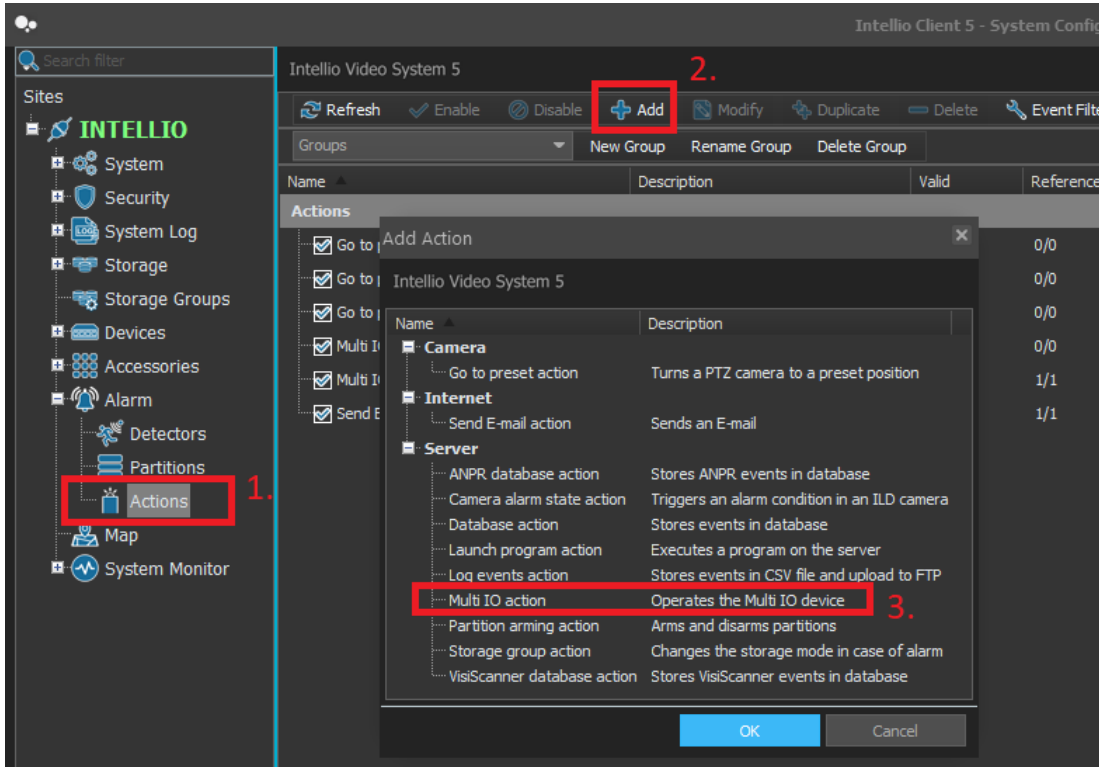
The Camera Index Editor can be opened by pressing the **Edit Index List** button in the **System Configuration / Devices / Cameras** menu.

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.

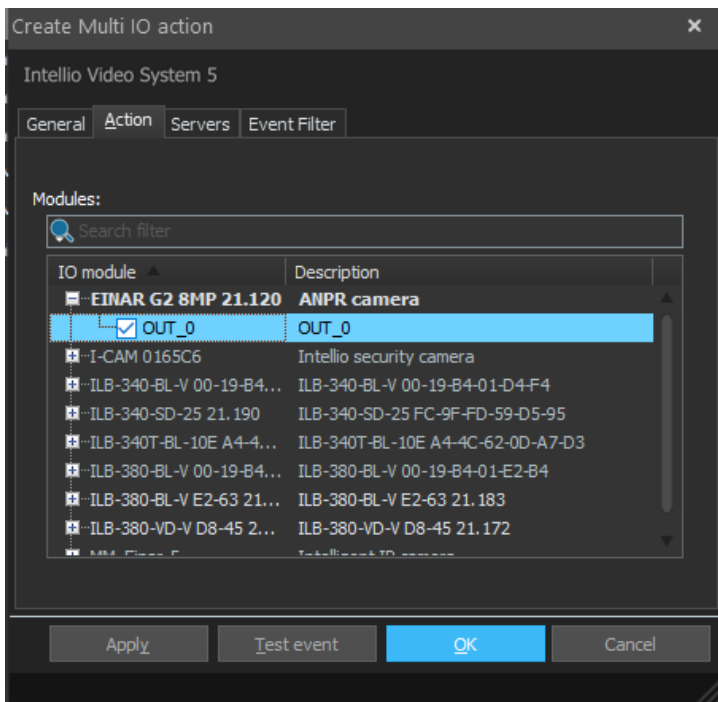


13. Manage I/O ports

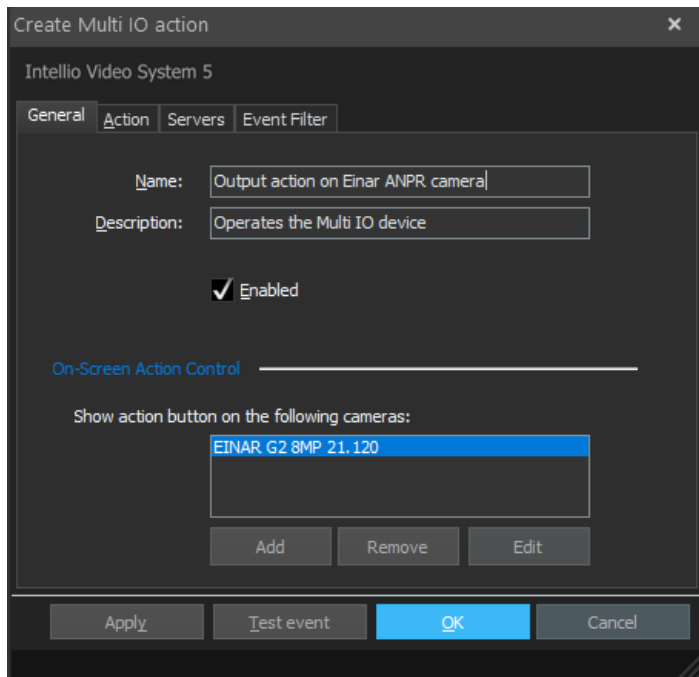
You can control the output contact port of the Einar camera with a Multi I/O action created in IVS. Press the **Add** button in the **System Configuration / Alarms / Actions** menu. In the displayed window, choose the **Multi I/O action**.



Next, select the output port of the Einar camera on the Action tab of the window.



On the **General** tab, you can rename the action. If necessary, you can also add an output control button, which will appear on the live view of the selected camera.



14. Automatic number plate recognition

In this chapter, only the IVS detector settings for Einar cameras will be presented. The necessary parameters for license plate recognition (field of view, resolution, license plate recognition engine, mask, etc.) should be configured in the camera's web interface, as described in the Einar camera [User Manual](#).

14.1. Register the ANPR detector

The initial step in setting up the license plate recognition detector for Einar cameras is to define the detectors to be applied **on the camera's web interface**. The Einar camera has a **Built-in ANPR detector** created automatically, which, with default settings, generates license plate events according to the settings of the license plate recognition engine (**ANPR engine**).

With the camera's registration in IVS, this Built-in ANPR detector is automatically added to the IVS detector list. Consequently, the license plate events sent by the Built-in ANPR detector are automatically displayed in the IVS live events immediately after registration, appearing in the Live View and being recorded in the Event Log. The client program can provide audio alerts, display camera images, and more in response to these events.

If additional actions are required (e.g., opening a barrier, 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).

If you need additional license plate recognition detector, create it in the camera's web interface. Then, in the IVS **System Configuration / Devices** menu, select the camera (device), disable it,

and after a few seconds, enable it again. You can perform this operation by unchecking and then checking the box in front of the device name, or by right-clicking on the selected row and using the Disable Device / Enable Device commands (see [Manage devices](#)). IVS will automatically add the detector created on the camera to the detector list (**System Configuration / Alarms / Detectors** menu).

14.2. License Plate Recognition in practice, sample configuration

Follow the [Installation Guide](#) for the Einar camera, set up license plate recognition using the camera's web interface according to the [User Manual](#). Summary and verification steps are provided in the [How to use the Einar camera](#) section. With the correct settings, the license plate recognition events should appear under the Live View on the camera's web interface.



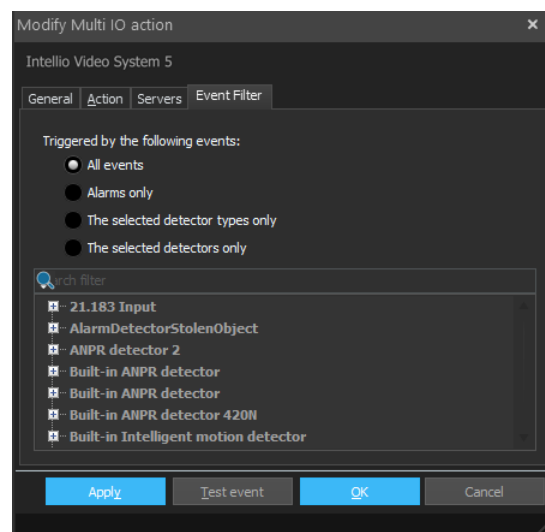
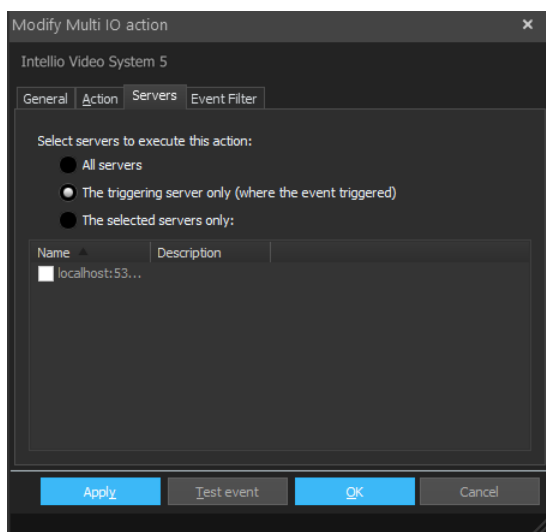
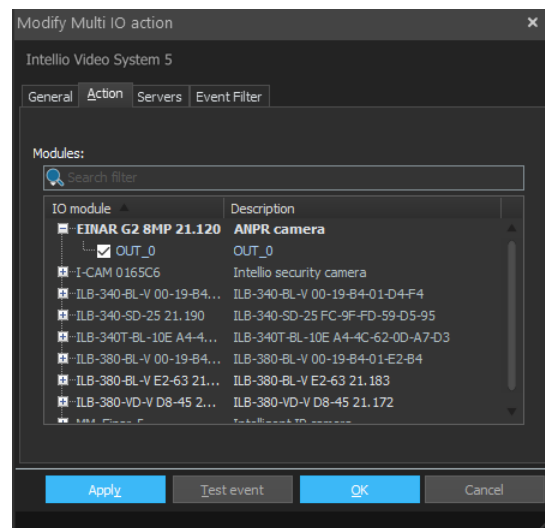
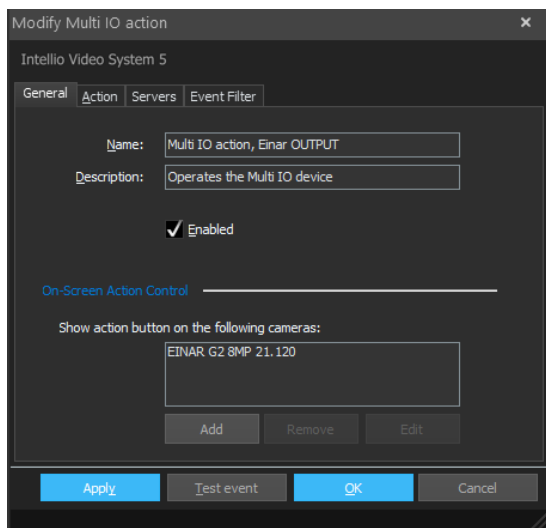
Register the camera in the IVS system following the steps outlined in the [Registration in the IVS system](#) section. Along with camera registration, the Built-in ANPR detector is automatically registered, allowing you to immediately view license plate recognition events in the IVS.

Time	Detector	Message	Source	State
2023-12-11 15:18:42	Built-in ANPR detector	License plate found (TBF041,White,Black,HUN,Approaching (96%) (Car, White, Kia Ceed))	TBF041	EINAR G2 8MP 21.120 Event

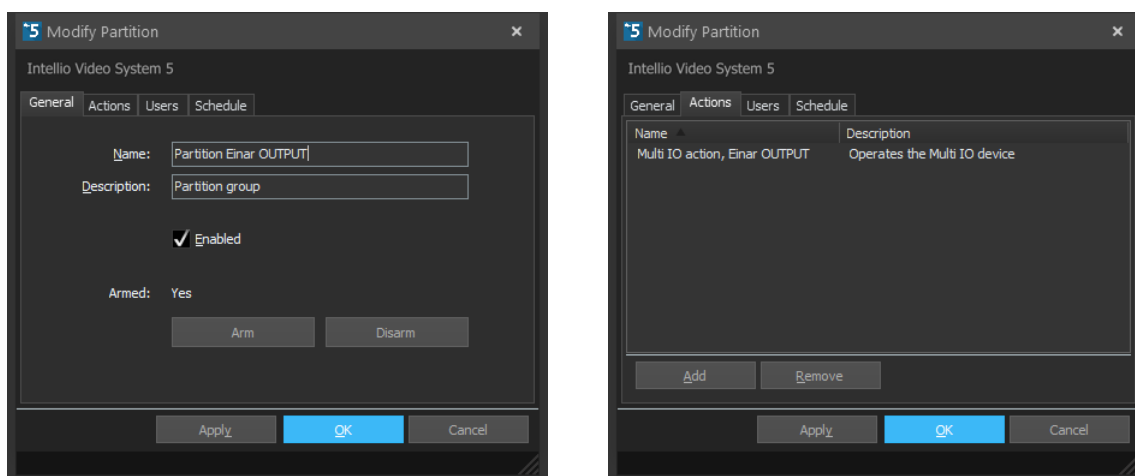
You can modify the display parameters of the detector as needed based on the [General Structure of a Detector](#) section if you require custom settings.

14.2.1. Open a barrier

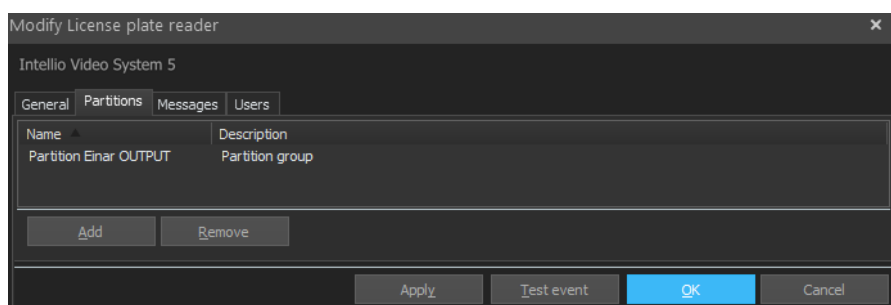
If you need barrier opening in addition to recognizing license plates and logging events, create a **Multi IO action** in the **System Configuration / Alarm / Actions** menu. This action will activate the output of the Einar or any other registered camera and can trigger the connected barrier opening input. On the **Event Filter** tab, set the triggering to **All events**.



Create a Partition in the **System Configuration / Alarm / Partitions** menu, and assign the Action created in the previous step to the Partition.



Assign the Partition created in the previous step to the Built-in ANPR detector.

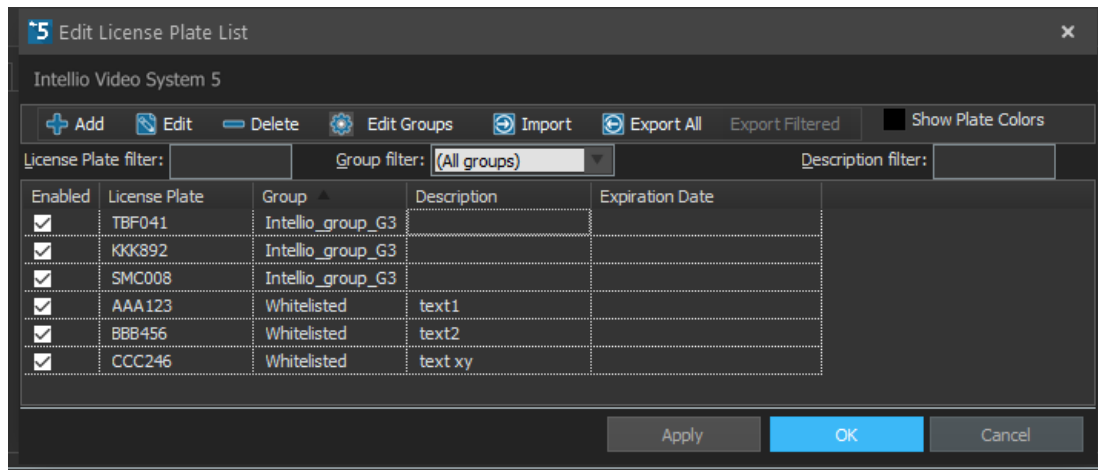


This way, the detector's signal activates the Partition, and the Partition activates the Action. Therefore, any license plate recognition will trigger the output, and the barrier will open.

Note: For a detailed understanding of the IVS alarm system, refer to the **System detectors and the IVS alarm system** document.

14.2.2. Open a barrier triggered by a License Plate on the allowed list

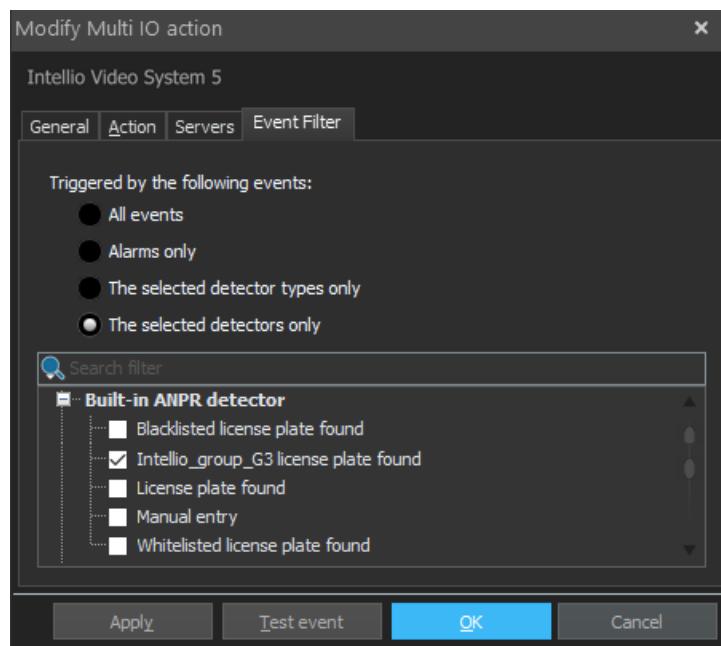
If you only want to open the barrier when certain license plates are recognized, create a license plate group and add the allowed license plates to the group. You can do this in the **System Configuration / Devices / Cameras** menu under the **License Plate Recognition** tab, and in the settings windows that appear when clicking the **Edit License Plate List** and **Edit License Plate Groups** buttons. You can click on the buttons under any selected camera because the license plate list applies to the entire SITE. After creating the License Plate Group (e.g., Intellio_group_G3), add license plates to the group.



This way, events will show which group the recognized license plate belongs to:

Time	Detector	Message	Source	State
2023-12-11 15:48:58	Built-in ANPR detector	Intellio_group_G3 license plate found (TBF041,White,Black,HUN (96%) (Car, White, Kia Ceed))	TBF041	Event

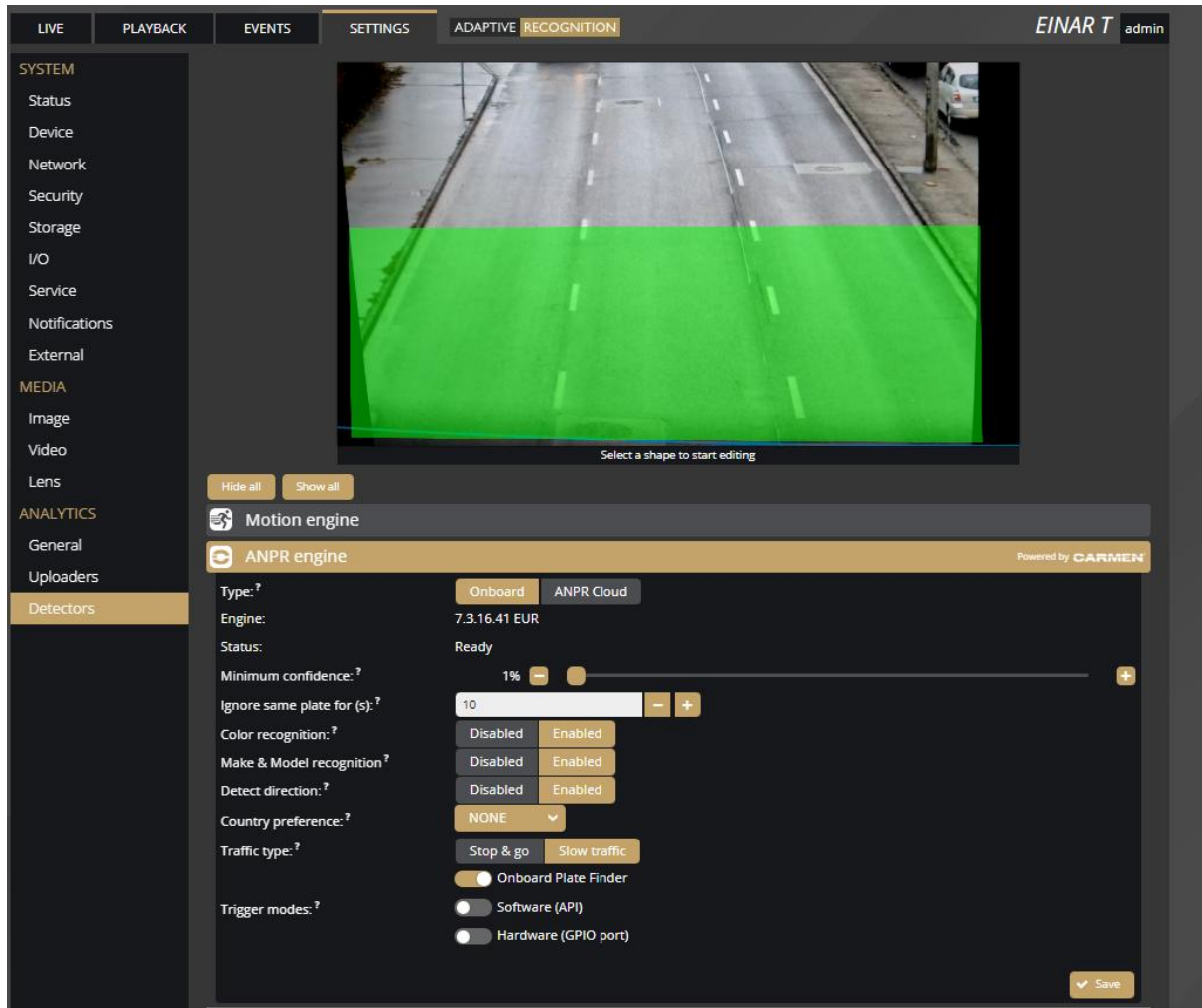
Then, change the Event Filter mode in the Action settings window that activates the output:



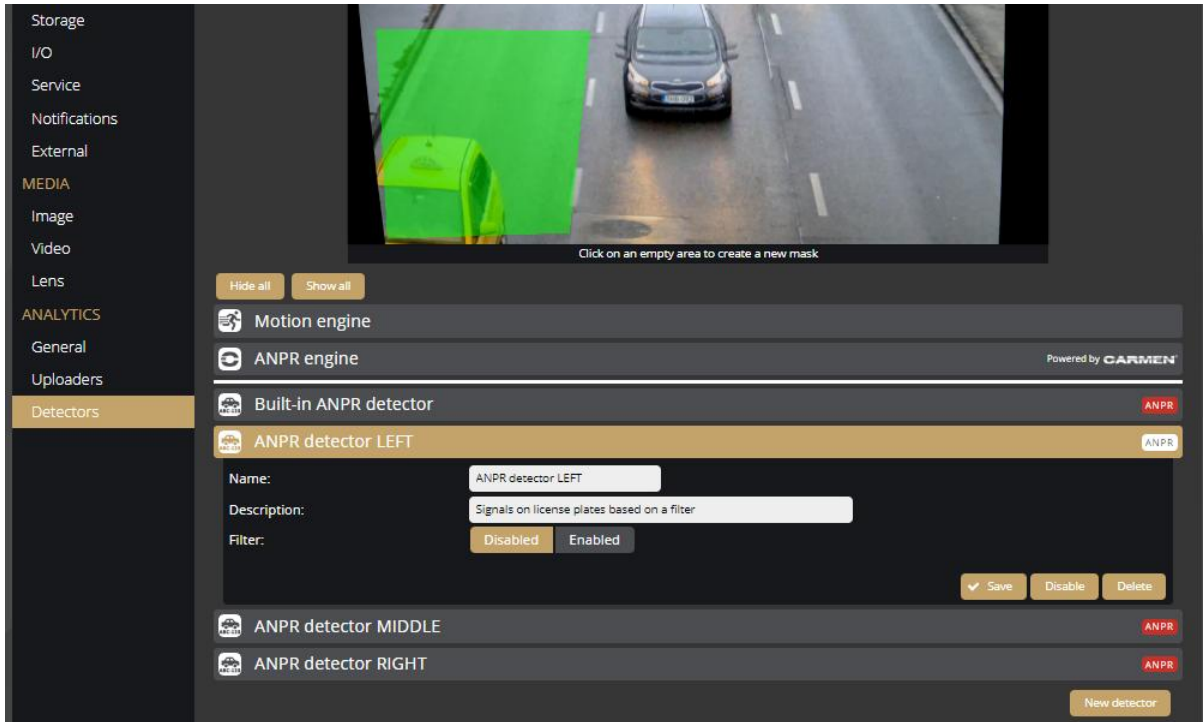
As a result, the barrier will only open when license plates in the Intellio_Group_G3 group are recognized.

14.2.3. ANPR on multiple lanes

If the traffic volume, car speed, or camera placement allows for license plate recognition on multiple lanes with a single Einar camera, leave the ANPR engine mask area active on the entire image in the Einar web interface, or draw the mask to include all the lanes you want to supervise.



Then, add additional detectors, other than the Built-in ANPR Detector, that can distinguish the license plates of cars passing through each lane:



Finally, disable and then enable the Einar camera in IVS as described in the section [Register the ANPR detector](#) so that the detectors recorded in the camera will be automatically included in IVS. The license plate events in the event log will appear as separate lanes. This way, additional actions can be performed separately for each lane, such as opening Entry and Exit barriers.

Time	Detector	Message	Source	State
2023-12-11 16:48:16	Built-in ANPR detector	License plate found (IGX6; ,White,Black,HUN (57%) (Car, White, Opel Astra)) [IGX6]	EINAR G2 8MP 21.120	Event
2023-12-11 16:48:13	ANPR detector MIDDLE	License plate found (MIY; ,White,Black,HUN,Approaching (68%) (Car, Red, Mazda 2)) [MIY]	EINAR G2 8MP 21.120	Event
2023-12-11 16:48:13	Built-in ANPR detector	License plate found (MIY; ,White,Black,HUN,Approaching (68%) (Car, Red, Mazda 2)) [MIY]	EINAR G2 8MP 21.120	Event
2023-12-11 16:48:13	ANPR detector LEFT	License plate found (PYCO; ,White,Black,HUN (48%) (Heavy Truck, Green, MAN TGA)) [PYCO]	EINAR G2 8MP 21.120	Event
2023-12-11 16:48:13	Built-in ANPR detector	License plate found (PYCO; ,White,Black,HUN (48%) (Heavy Truck, Green, MAN TGA)) [PYCO]	EINAR G2 8MP 21.120	Event
2023-12-11 16:48:12	ANPR detector MIDDLE	License plate found (PMH; ,White,Black,BEL,Approaching (63%) (Car, White, Toyota Auris)) [PMH]	EINAR G2 8MP 21.120	Event
2023-12-11 16:48:12	Built-in ANPR detector	License plate found (PMH; ,White,Black,BEL,Approaching (63%) (Car, White, Toyota Auris)) [PMH]	EINAR G2 8MP 21.120	Event

14.3. General structure of a detector

Every ANPR detector created in IVS contains the following settings on the next four tabs.

14.3.1. 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.

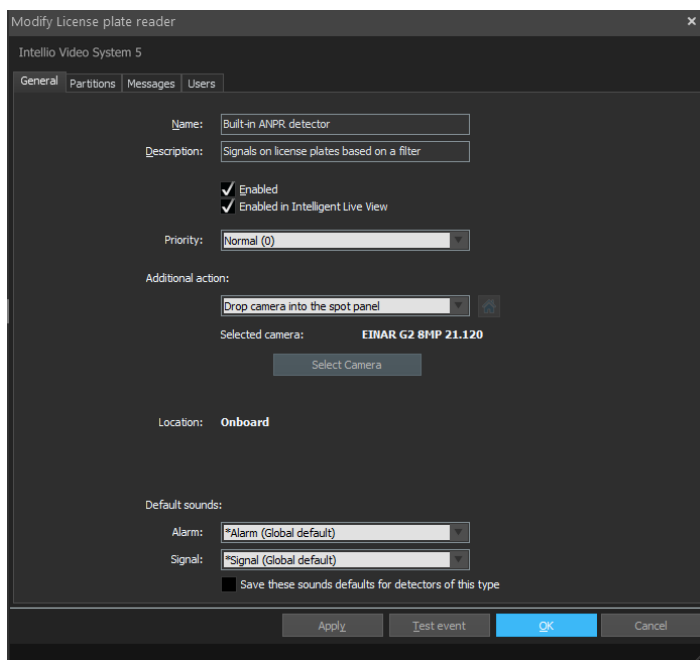
Additional action allow you to display even a different camera's feed instead of the default one when an event is triggered. This is useful if a sensor is connected to a camera's I/O input, but monitors a different camera's field of view. You can also configure complete view changes, displaying multiple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

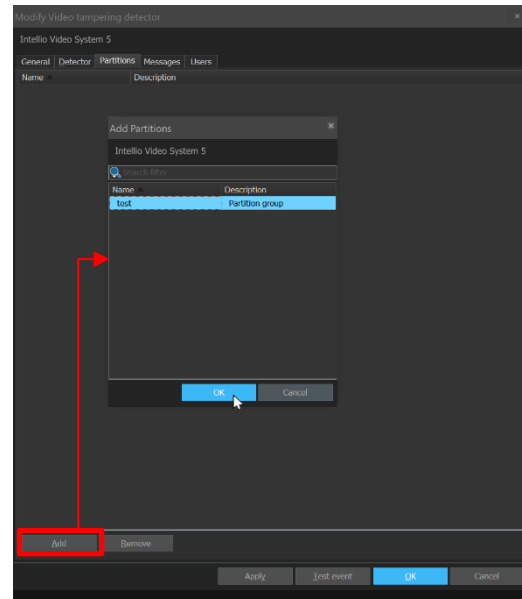
If you want each event to have a different sound, you can set the sounds for each event on the [Messages](#) tab.



14.3.2. 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.*



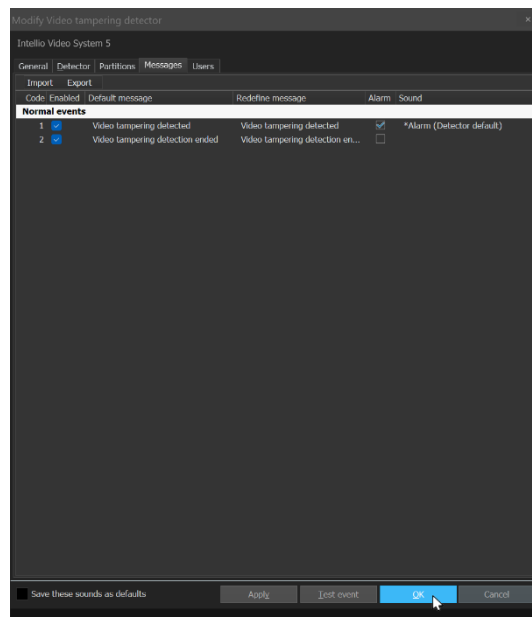
14.3.3. Messages

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.



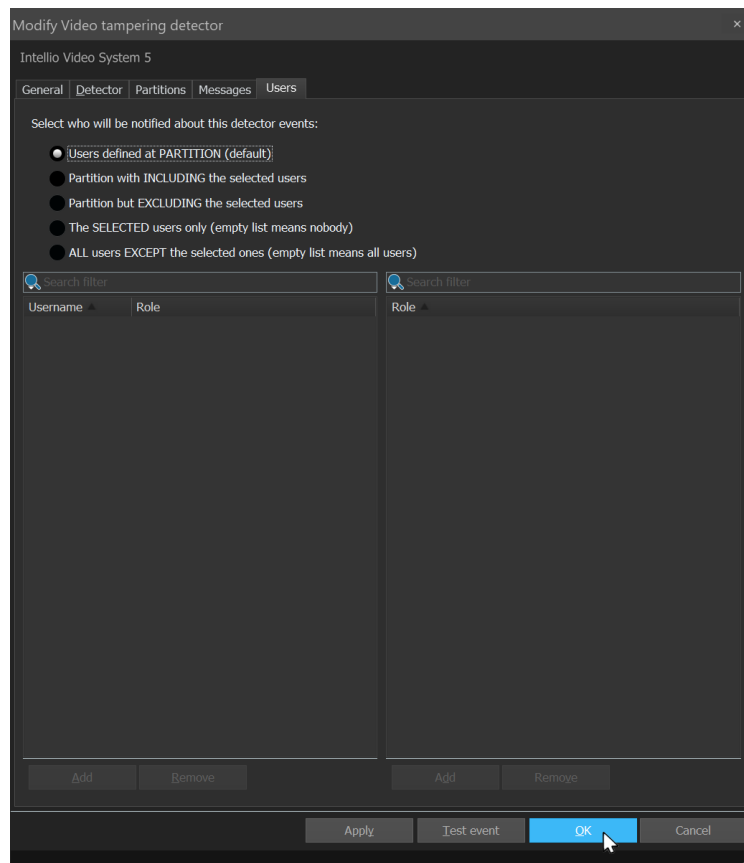
These settings can also be saved to the detector type by checking the **Save these sound as defaults** checkbox at the bottom.

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.

14.3.4. 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.



15. Further steps

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