IVS - Mobile client

Table of Contents

1. Introduction, important information

This guide details the setup and usage of the **Intellio Mobile Client (IMC)**. For a complete overview of the system architecture and configuration, please refer to the ***IVS Installation Manual*** documentation

2. Intellio Mobile Client introduction

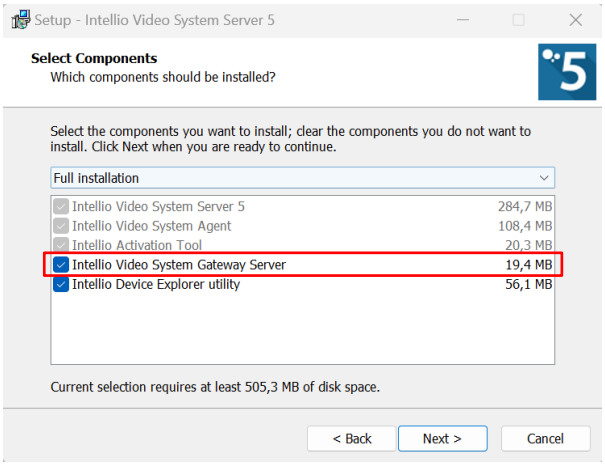
The **Intellio Mobile Client (IMC)** is a mobile application designed for viewing video streams from cameras connected to an **Intellio Video System (IVS)**. The application allows live video monitoring, playback of recorded footage, and event receiving and viewing. IMC is available for Android and iOS mobile operating systems.

The **Intellio Video Gateway (IVG)** is an intermediary component between the IMC and IVS, operating „transparently" to the end user. IVG runs as a Windows service and is primarily responsible for serving mobile clients. If necessary, IVG can transcode the requested video streams into formats compatible with mobile clients, ensuring optimal performance. Additionally, playback, event browsing, and instant notifications in the IMC are only available when mobile devices connect to server machines through IVG.

3. Installation

3.1. Intellio Video Gateway installation

During IVS installation, IVG can be installed as an optional component on the server. If IVG was not enabled during the initial IVS installation, rerun the IVS server installer version 5.8.x (or a later version), provided the server update eligibility period allows it.



If an older IVS server version is installed on your server(s), download the IVG installer from the Intellio.eu download page and install it.

In a multi-server SITE configuration, at least one IVG service is required per SITE. If you are serving many mobile devices or using servers with lower resources, consider installing the IVG on multiple servers, depending on the resources used by the IVG. It is generally recommended to

install the IVG service on every server, so that if one server fails, Gateway services are still available for mobile devices.

Under normal usage, no further action is required if the network is properly configured, as the IVG is capable of serving mobile clients. It is recommended to check the operation (status) of the IVG service through **Windows Services** or the **Intellio Agent** program, which appears as an icon in the Windows Taskbar (more information can be found in the **Status check of the Server operation** section of the ***Installation, initial settings*** guide).

3.2. Intellio Mobile Client installation

3.2.1. Android Operating System

The easiest way to install the IMC is through Google Play:

- Open the **Google Play** app and search for "Intellio", or use the following link: https://play.google.com/store/apps/details?id=com.arh.ivsmobile
- After searching, select the latest version of the **Intellio Mobile Client** app from the results.
- Choose Install.
- Enable the required permissions by pressing **OK** in the pop-up window.
- Once the installation is complete, the app will appear among your applications with this icon:

3.2.2. iOS Operating System

For iOS, you can install the app via the App Store:

- Launch the **App Store** app on your device, search for "Intellio," or use the following link: https://apps.apple.com/us/app/intellio-mobile-client/id1587664666
- After searching, select the **Intellio Mobile Client** app from the results.
- Choose Install.
- Once the installation is complete, the app will appear among your applications with this icon:

3.3. Network and Configuration Settings

To use the IMC over any connection (Local Network, Mobile Internet, VPN, etc.), the computer(s) running the IVG and the network environment must be configured to allow access for the IMC via the specified TCP port (default: **53560**). This ensures that communication between the IVG and IMC can take place over port 53560.

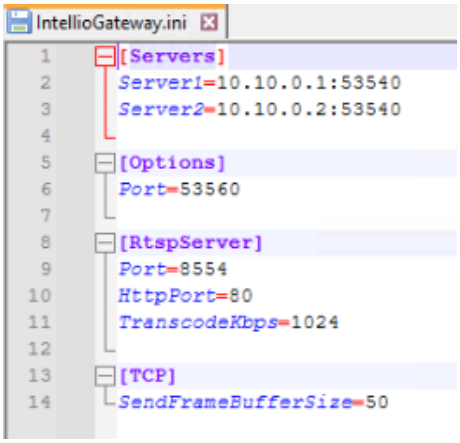
If you have installed the IVG on multiple computers along with the IVS server services and want to access them separately with mobile devices, each must be made accessible to the IMC, and a separate connection must be configured for each in the IMC.

It is recommended to install the IVG on each server in a multi-server Site and configure the access to all servers in each IntellioGateway.ini file by specifying their IP addresses and port numbers.

If you want to access multiple IVS server services through a single IVG, modify the settings in the installed IVG configuration file.

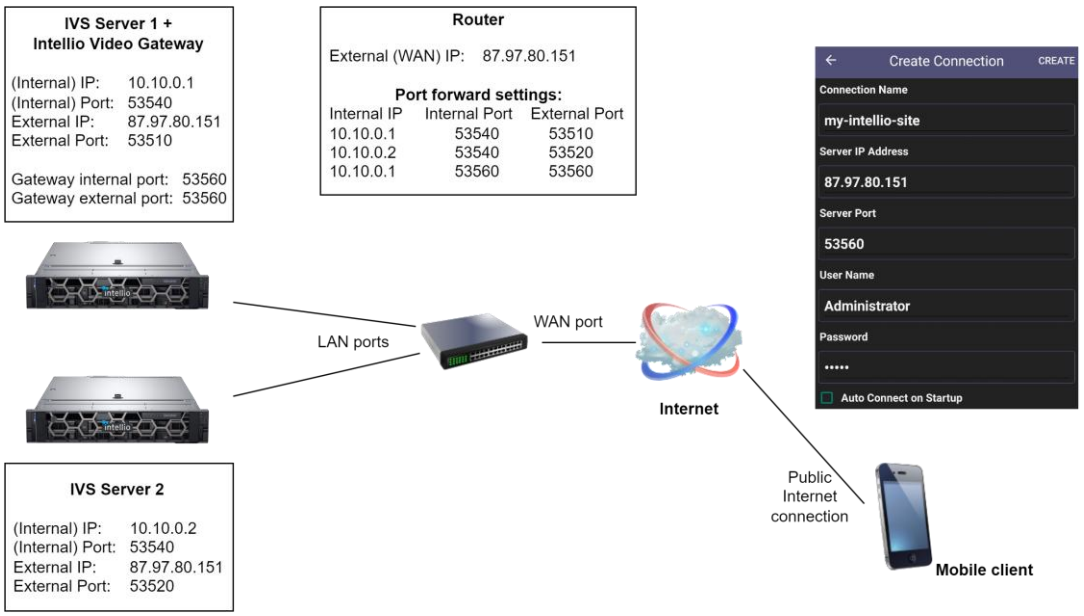
The parameters of the **IntellioGateway.ini** file:

- **Servers:** Enter the IP addresses and port numbers of all servers in the Site.
- **Options:** Mobile devices can access the IVG through the specified port number (default: 53560).
- **RtspServer:** RTSP Gateway parameters, for more information refer to the ***RTSP Gateway module*** documentation.
- **TCP:** The maximum frame buffer size for the Dejitter function.



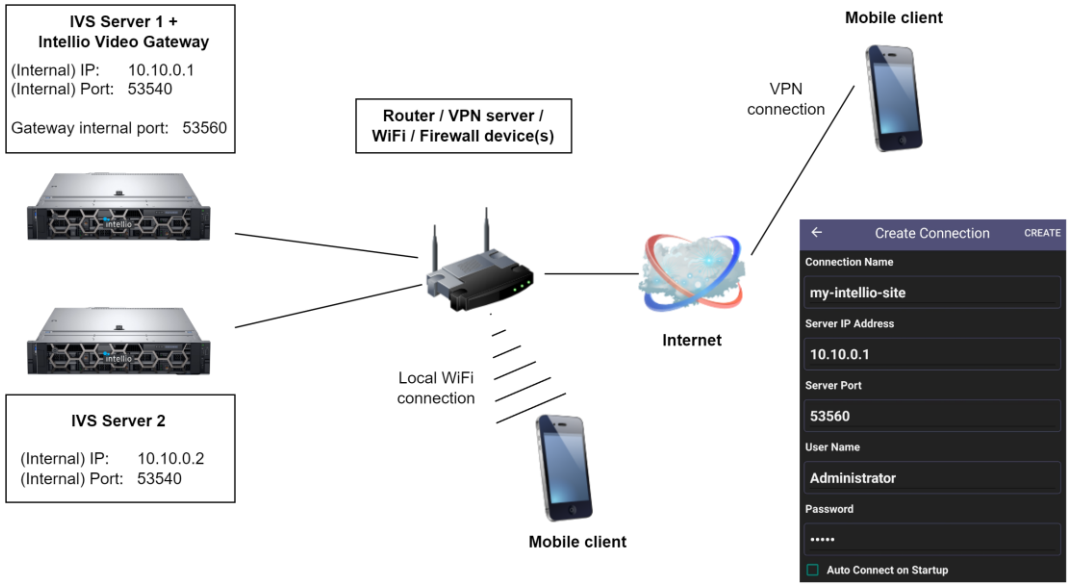
3.3.1. Access via the Internet

In the mobile client connection settings, for internet access, the external IP address from the internet side and the gateway's external port number must be specified, and the 53560 port must be made accessible in the router.



3.3.2. Access over a local network; or over the internet via VPN

If you connect to the IVG with your mobile device through the internet via VPN, or through the local network via WiFi, you should enter the internal IP address of the computer running the IVG in the IMC connection settings.



3.3.3. Settings for Notification

For push notifications to work, both the computer running the IVG and the IMC must be connected to the internet. Additionally, in the role permissions settings associated with the user, the **Multiple Logins** option must be enabled.

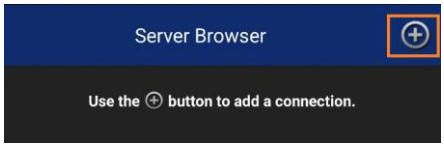
When notifications are enabled, the mobile device sends a (invisible to the user) registration message to the IVG with its own identifier via port 53560, allowing message sending by the IVG. This activates the **Enable/Disable Notification** button for that specific connection.

During a notification, the IVG sends a message to the Google Firebase Cloud Messaging (FCM) service over port 443. The message is then sent from the FCM service to the mobile device via one of the following ports: 5228-5230, 443.

4. IMC Usage

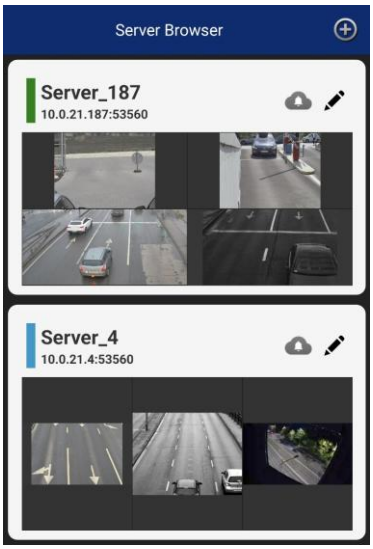
After launching the IMC application, the login screen will appear. The list displayed on this screen includes the available server connections.

On the first launch of the application, no predefined connections will be displayed, so create one by pressing the **+ (Add connection)** button.



For each connection, the top row displays the connection name provided by the user, and the bottom row shows the server's connection details.

On the right side of each connection, there is an **Edit button** and a **Notification enable/disable button**, while the left side is highlighted in green to indicate the connection designated for automatic connection.



The connection panels display the images and layout of the cameras selected during the previous connection session.

To connect, simply tap the desired connection.

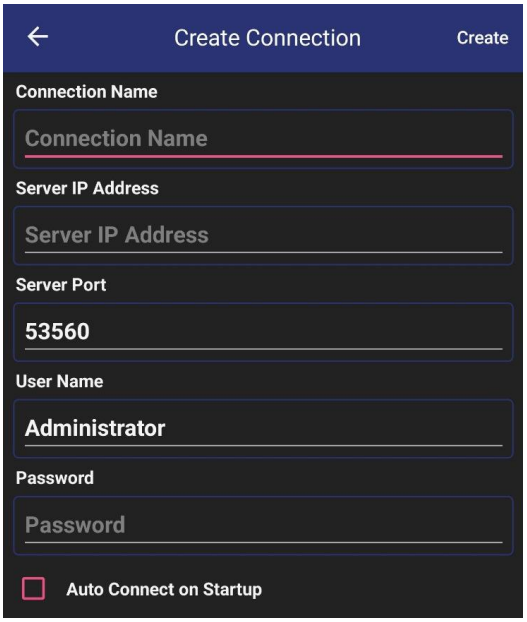
The order of connections can be changed by pressing and holding the connection you want to move, then dragging it to the desired position.

4.1. Managing connections

4.1.1. Creating a New connection

To create a new connection, press the **New** button on the login screen.

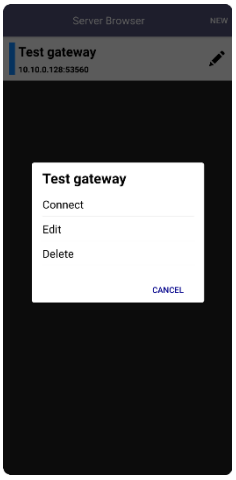
In the **Create Connection** window, provide the necessary information for the connection:



- **Connection Name:** This is the name that will be displayed for the connection on the login screen.
- **Server IP Address:** The IP address or host name of the server running the IVG, which is accessible by the IMC (usually the public-facing IP address).
- **Server Port:** The port used by the IVG (default: **53560**).
- **User Name:** The user name used for the connection.
- **Password:** The password associated with the provided user name.
- **Auto Connect on Startup:** If enabled, the application will automatically connect to the server specified by the above parameters after it starts. Only one connection can have this option active at a time, so it will always be active for the last connection marked for automatic connection. This is indicated by a green marker next to the connection name.

After entering the data, press the **Create** button to save the information. You can return to the login screen without saving the data by pressing the left arrow button . The newly created connection will appear on the login screen. By tapping on the connection name, you can initiate the connection.

4.1.2. Operations with Connections



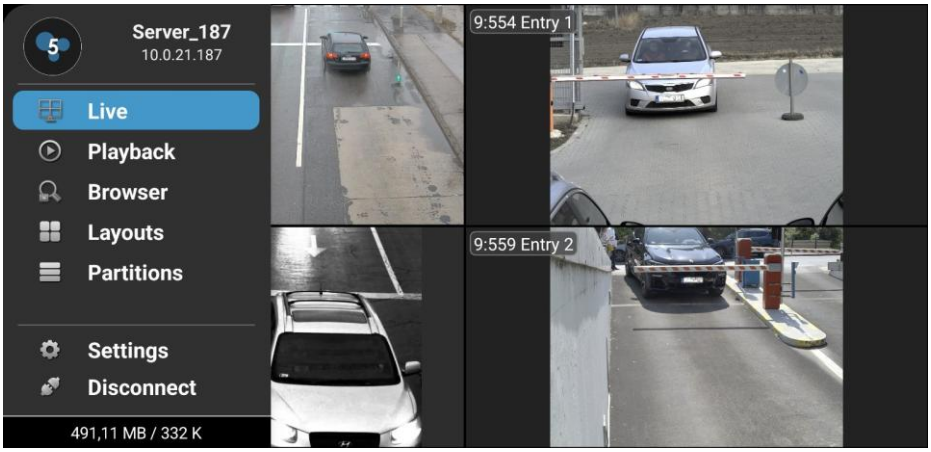
By pressing the pencil button on the right side of the connection, a pop-up window will appear with the following options:

- **Connect:** Connect to the selected server.
- **Edit:** Modify the connection. Selecting this option will open the **Update Connection** window, where you can change the connection parameters.
- **Delete:** Delete the connection. Selecting this option will delete the connection after a confirmation prompt.

4.2. Live main screen

After a successful connection, the main screen displaying the live video feeds will appear. Upon the first connection, the default display is an empty, 4-panel grid. The IMC supports six different layouts: **1, 3, 4, 6, 9, 10** panels. Each panel in the layout has its own dynamic toolbar, the content of which depends on the selected camera and the connection.

The **Global toolbar** can be displayed by either clicking the right-facing arrow button  located in the middle of the left side of the main screen or by sliding the screen's edge.



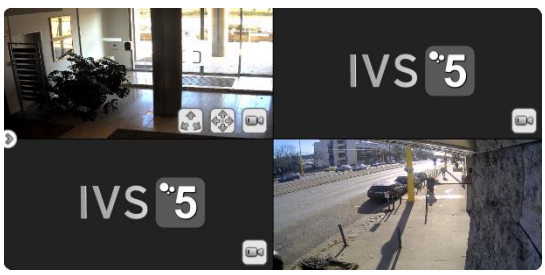
4.2.1. Global toolbar

The Global toolbar provides access to the main functions of the IMC. The toolbar is only available after connecting to an IVG. You can choose from the following options:

- **Live:** live video feed display
- **Playback:** video playback
- **Browser:** event browser interface
- **Layouts:** choose the screen layout
- **Partitions:** toggle partitions on and off
- **Settings:** application settings
- **Disconnect:** disconnect from the IVG.

4.2.2. View panels, Camera toolbar

Each panel in the view has its own **Camera toolbar**, which dynamically changes depending on the content of the view. If a camera is selected on a specific panel, the toolbar will automatically disappear after a short time to minimize the covered area of the display. To show the toolbar again, simply tap the respective panel.

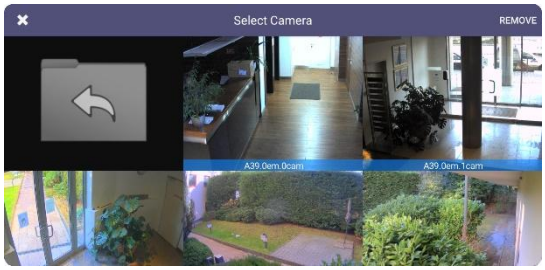


4.2.3. Buttons of the Camera toolbar

- **Camera:** Used to select the camera to be displayed on the panel, or you can remove the currently displayed camera image.
- **PTZ:** For cameras with PTZ functionality, tapping this button enables or disables the PTZ control. When PTZ control is enabled, the button changes color.
- **Preset:** If the PTZ camera supports the preset function (saved positions), this button allows you to move the camera to a previously saved PTZ position.
- **Camera Navigation:** Displays the navigation buttons for selecting a camera with a single press within the same panel.
- **I/O:** Allows you to toggle the Multi IO control assigned to the camera.
- **Original resolution:** Displays the image in its original resolution.
- **Playback:** Jumps to the playback interface for the selected camera.

4.2.4. Displaying / Removing camera image

To display or remove a camera on a specific panel, tap the **Camera** button on the panel's Camera toolbar. In the window that appears, select the camera to be displayed by choosing from the images (names) and tapping the desired image. To remove the camera image, press the **Remove** button. To go back, press the **X** button.



Cameras displayed in the panels can also be switched by dragging the images sideways.

4.2.5. Switching view with double-tap

You can switch from a multi-panel view to a single-panel view by double-tapping on the selected camera image quickly. This will open the chosen camera feed in a large panel. To return to the multi-panel view, double-tap again.

4.2.6. Two-finger zoom

The displayed camera feed supports the "two-finger zoom" function. To zoom into a specific point, move one finger to the left and another to the right around the desired area. The zoom level allows panning within the original image. To pan, touch the image and move it in the desired direction.

4.2.7. PTZ camera control

To enable PTZ control, press the PTZ button for the selected camera. The activated control is indicated by the PTZ button turning blue. You can control the camera's optics using the arrow buttons that appear on the right side of the image:

- to zoom in, tap the **+** button,
- to zoom out, tap the **–** button.

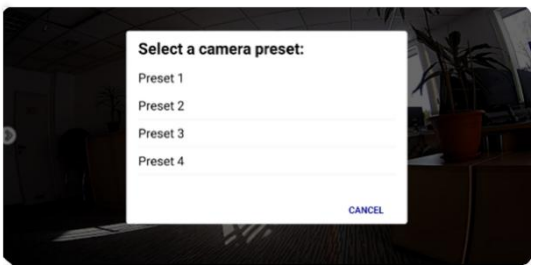
You can control the movement of a PTZ or Speed Dome camera by tapping on the image, depending on the **Use center point PTZ** option in the settings.

Note: *When PTZ control is enabled, double-tap view switching is disabled.*

4.2.8. PTZ preset recall

If the PTZ camera supports the PTZ preset function (stored positions), the IMC allows you to recall pre-saved positions for the camera.

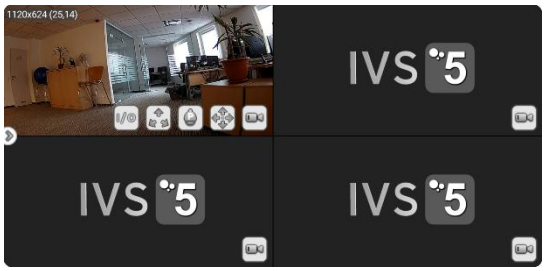
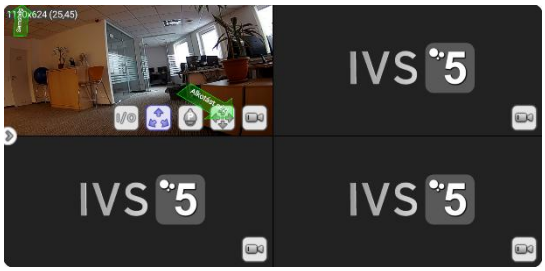
Press the **Preset** button in the Camera toolbar. In the pop-up window, select the preset you want to load.



Note: *New presets cannot be created in the IMC; only previously saved ones can be loaded.*

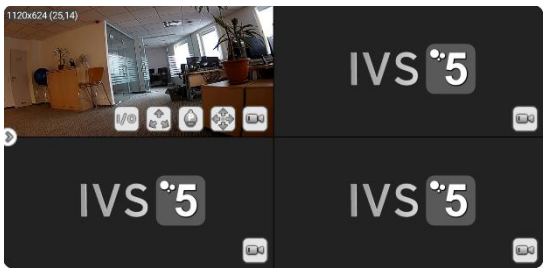
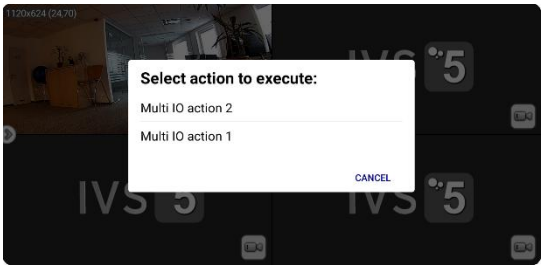
4.2.9. Camera navigation

After the server configuration, the configured camera navigation arrows can also be displayed on the IMC interface. To do this, press the **Navigation** button  . The button will turn blue  to indicate that the IMC is displaying the camera navigation buttons.

4.2.10. Multi I/O

It is possible to activate the outputs of the pre-configured Multi I/O devices from the IMC interface. To do this, press the **Multi IO** button  on the camera toolbar. In the pop-up window, you can select which port of the Multi I/O device you want to control.

4.2.11. OSD (Camera Name, Resolution, FPS, Other stream info)

Displaying Camera Name

If the **Show Camera Names** option in the settings (**Settings** menu) is enabled, the camera names will appear in the top left corner of the camera panels.

Additional video stream information

If the **Show Stream Info** option is enabled in the settings, the video stream resolution and the FPS value (in parentheses) will appear in the top left corner of the camera panels. Depending on other enabled features, additional information may also be displayed.

If **the Dejitter Frame Time** option is enabled, a number related to the Dejitter function will appear in parentheses between the resolution and FPS display. This number indicates how many frames are buffered before the decoding process.

For example, with a stream arriving at 20 FPS, ideally, the number will always be around 20, meaning the same number of frames are arriving as the mobile device can decode. However, if the number decreases, it indicates that due to network bottlenecks, fewer frames can pass from the Gateway to the mobile device. If the number reaches zero, decoding (and display) stops, and decoding will wait until enough frames for one second of video stream have been collected again.

The **FPS display** typically shows how many frames per second the application is displaying. However, if the number of frames to be displayed exceeds the mobile device's decoding capability, the display will turn red. The first number will show the incoming video stream's FPS rate on the network, while the second number will indicate the FPS rate the device is capable of decoding.

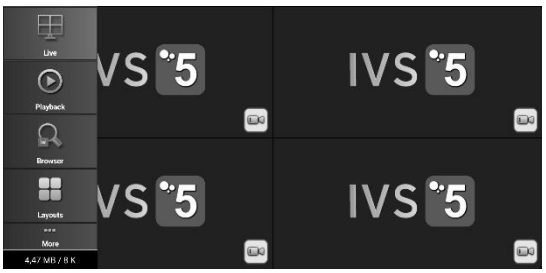
The server re-encodes any camera image that is not in H265/H264 format. If **Show Stream Info** is enabled, a **T** will appear next to the resolution and FPS, indicating that the server has re-encoded the image.

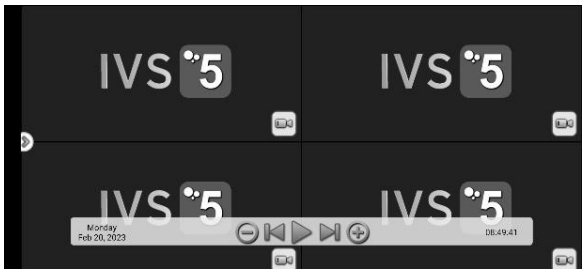
The **Original Resolution** icon  only appears on camera panels where the image has been re-encoded. By pressing the icon  , the camera image will be displayed in its original resolution. Using this option may increase data usage.

4.3. Playback

In the IMC, it is possible to playback stored footage. To do this, select the **Playback** icon on the Global toolbar, or press the **Playback** button on the Camera toolbar of the selected camera on the live view.

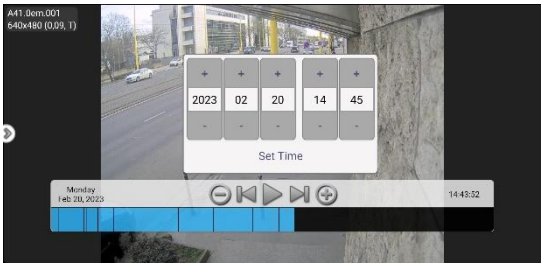
When entering playback from the Global toolbar, the images of the selected cameras will appear according to the layout of the live view panels. If you press the Playback button on a specific camera in the live view, only that camera's image will appear in a single-panel view.





You can move along the timeline using the "drag and drop" technique between the recordings. The change will be immediately visible on the camera images. There is a white line in the middle of the timeline that divides it, indicating the current frame. If you try to drag the timeline to a point where there is no recording, the app will jump back to the last frame of the previous recording segment, similar to the normal Client program.

On the right side above the timeline, the current time is displayed, and on the left side, the current date. Tapping either one opens the **Set Time** option, where you can choose a different date/time. Tapping the **Set Time** label will confirm the setting.



Playback can be started with the **Play** button.

Use the **Step backward** and **Step forward** buttons to step the recording frame by frame.

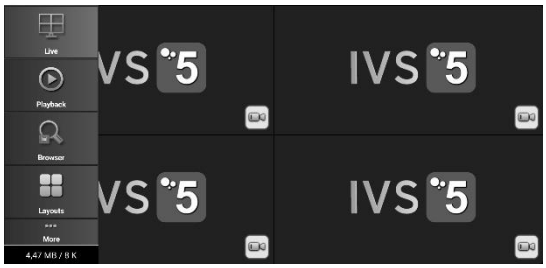
The and buttons allow you to zoom in and out on the timeline.

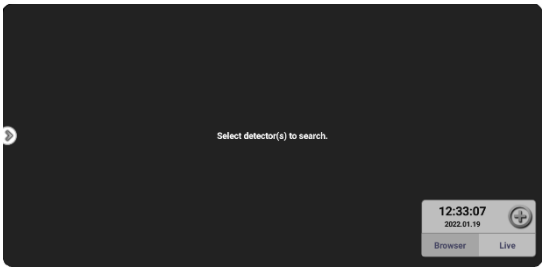
To switch from a multi-panel view to a single-panel view, double-tap on the selected camera image. Returning to the multi-panel view can also be done with a double-tap. If the playback is running and you switch views, playback will continue without interruption.

While playing back, the recorded time can be displayed if the **Show Continuous Time** option is enabled in the settings.

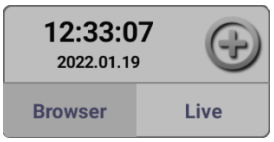
4.4. Managing events

The IMC is capable of receiving and displaying live events, as well as browsing stored events, if the connection is made through the IVG. To view the events, select the **Browser** icon from the Global toolbar.





On the displayed interface, the panel controlling the display of events can be found in the bottom-right corner.



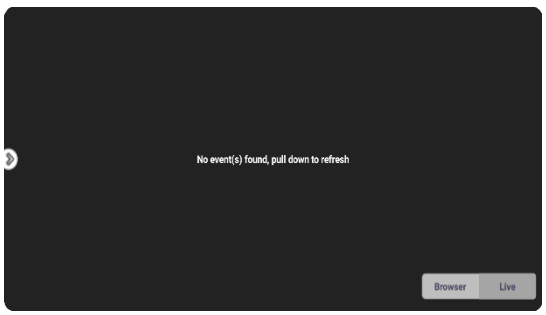
The **Live** and **Browser** buttons allow switching between the live event list and browsing stored events. You can jump to a specific time using the date/time selector, and the **+** button can be used to add/remove detectors for browsing. The date/time selection function is not available for the live event list.

4.4.1. Live events

To receive alerts for live events, enable the **Event Monitoring** option in the settings.

The arrival of a live event is indicated by the **Notification** icon (a yellow triangle icon with an exclamation mark) at the bottom of the Global Toolbar.

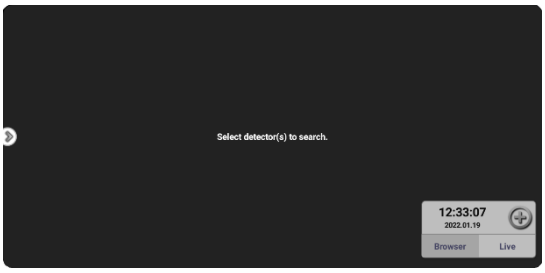
On the event browser interface, use the **Live** button to switch to live event display. Incoming events automatically appear in this list, but you can also refresh it manually. To do so, pull the

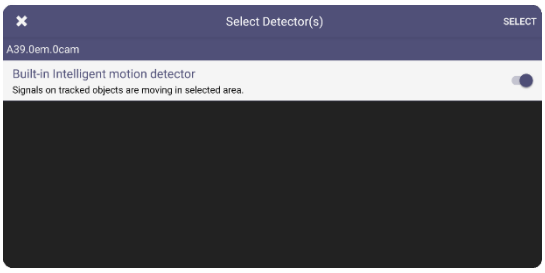


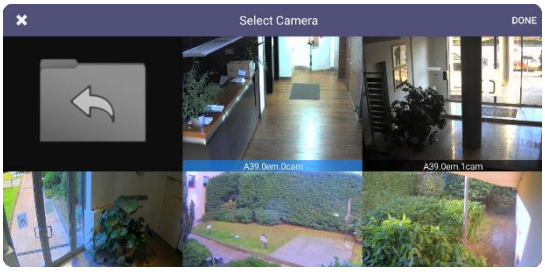
list down and release it. After refreshing, the list will display event snapshots that occurred since the last update (events are shown in chronological order).

4.4.2. Event browsing

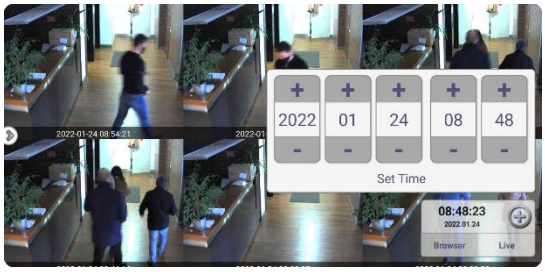
- On the event browser interface, use the **Browser** button to switch to stored event display.
- Press the **+** button  on the control panel to open the camera selection window.
- In the list that appears, select the camera whose detector events you want to browse. You can select detectors for multiple cameras.
- In the next window, choose one or more detectors, then press the **Select** button.
- The application will return to the camera list, where you can select detectors for another camera. Cameras with selected detectors will have a blue background in the list. To browse events, press the **Done** button.







- Use the date/time selector on the control panel to jump directly to a specific time. To set a time, tap the time display on the control panel. Confirm your selection with the **Set Time** button, which will move the browser to the event closest to the specified time.



You can browse forward or backward by simply dragging in the list that appears. To exit the event browser, press the **Live** button  in the Global Toolbar.

4.4.3. Result list

In both the **Live** and **Browser** result image lists, selecting an image will open it in a pop-up window, displaying event details such as date/time, camera name, detector name, and detector message.

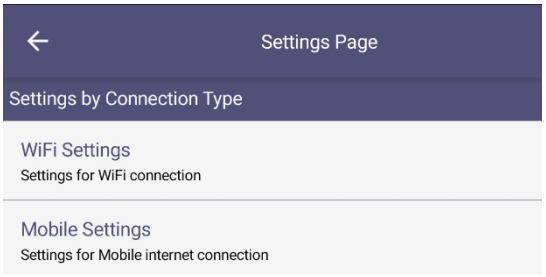
The pop-up image can be zoomed in using a two-finger pinch gesture, and panning is possible by touching and dragging. To return to the list, tap anywhere outside the image.

The **Play** button in the center of the image allows you to view the recorded footage of the selected camera at the specified time on the playback interface.

4.5. Settings

By pressing the **Settings** button in the Global Toolbar, the following configuration options are available.

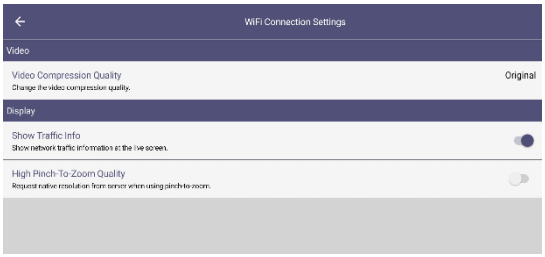
4.5.1. Settings based on connection type



For IMC parameters that affect network transmission, different settings can be applied based on the connection type. This means separate configurations can be used for WiFi and Mobile Internet connections.

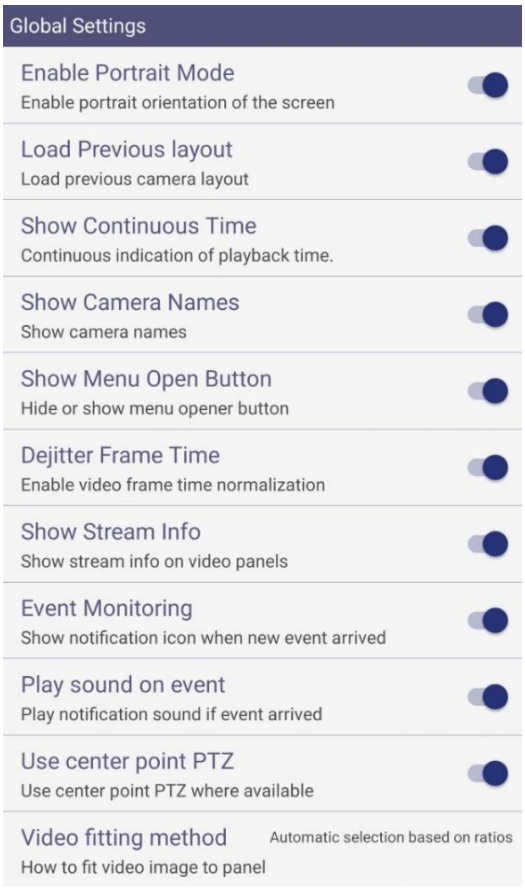
The following options are available for both connection types.

4.5.1.1. Video configurations



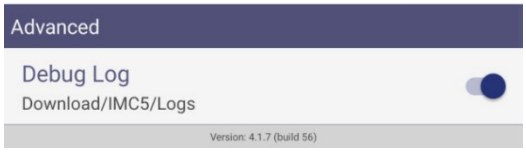
- **Video Compression Quality:** Select the video compression quality: Original, 128 kbit/s, 256 kbit/s, 512 kbit/s, 1 Mbps, 1.5 Mbps, and 2 Mbps. Any option other than Original will result in video stream transcoding, which may put additional load on the Gateway. This setting is recommended for low-bandwidth usage.
- **Show Traffic Info:** Enables the display of the data usage since connection initiation at the bottom of the Global toolbar.
- **High Pinch-To-Zoom Quality:** When enabled, two-finger zooming will display the image in its original resolution.

4.5.2. Global settings



- **Enable Portrait Mode:** Allows the application to be displayed in portrait mode when the phone is held vertically.
- **Load Previous layout:** Automatically loads the last viewed layout after connecting to the server.
- **Show Continuous Time**: Displays the video stream timestamp on the playback interface even when the timeline is hidden.
- **Show Camera Names:** Displays camera names.
- **Show Menu Open Button:** Displays the left-side arrow button for accessing the main menu.
- **Dejitter Frame Time**: Enables the Dejitter function, which helps smooth out frames that arrive at an inconsistent rate over the network, resulting in a more fluid video stream display.
- **Show Stream Info**: Displays stream information on camera panels (OSD).
- **Event Monitoring:** Displays a notification icon when a new event occurs.
- **Play sound on event:** Enables an audio alert when a new event occurs.
- **Use center point PTZ:** When enabled, the IMC will use center-point PTZ camera control for supported cameras.
    - **Enabled:** Moves the camera so that the touched point becomes the center of the frame.
    - **Disabled**: Moves the camera in the direction of the touched point.
- **Video fitting method:** Defines how the video image is displayed: fit to panel, maintain aspect ratio, or automatic.

4.5.3. Advanced



- **Debug Log:** it is possible to enable IMC logging.

The bottom line shows the version number of the application.

5. Further steps

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