intellio™ VISUS

User Manual

Firmware version: 4.0.2.135

Table of Contents

1.   Overview

The full functionality of Intellio ILD cameras can be best utilized through the Intellio Management Software. Register the camera on the server, make the necessary adjustments, then watch the live video or play back the footage via the client.
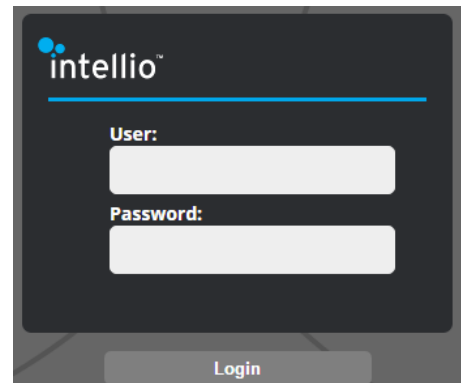Read more about the Intellio brand on our website at http://intellio.eu/index.php/en/

Intellio ILD cameras have a dedicated web interface giving access to the camera settings, and in case of live video according to the type of the camera, a "Playback" and "Event" interface for playback of footage stored on the SD card. The web interface may come especially handy when mounting the camera, since the required image quality can be adjusted by connecting the camera to a laptop.

It is recommended to upgrade your web browser to the latest version to use the web interface of Intellio ILD cameras

Here is how to access the interface:

1. Type the camera IP address in the URL field of the browser.

2. Provide the user name and password on the login interface (default: admin/admin).

3. After login you will see the web interface of the camera, and you can make the necessary adjustments.

For more information about the camera IP address, please   visit http://intellio.eu/index.php/en/products/cameras.

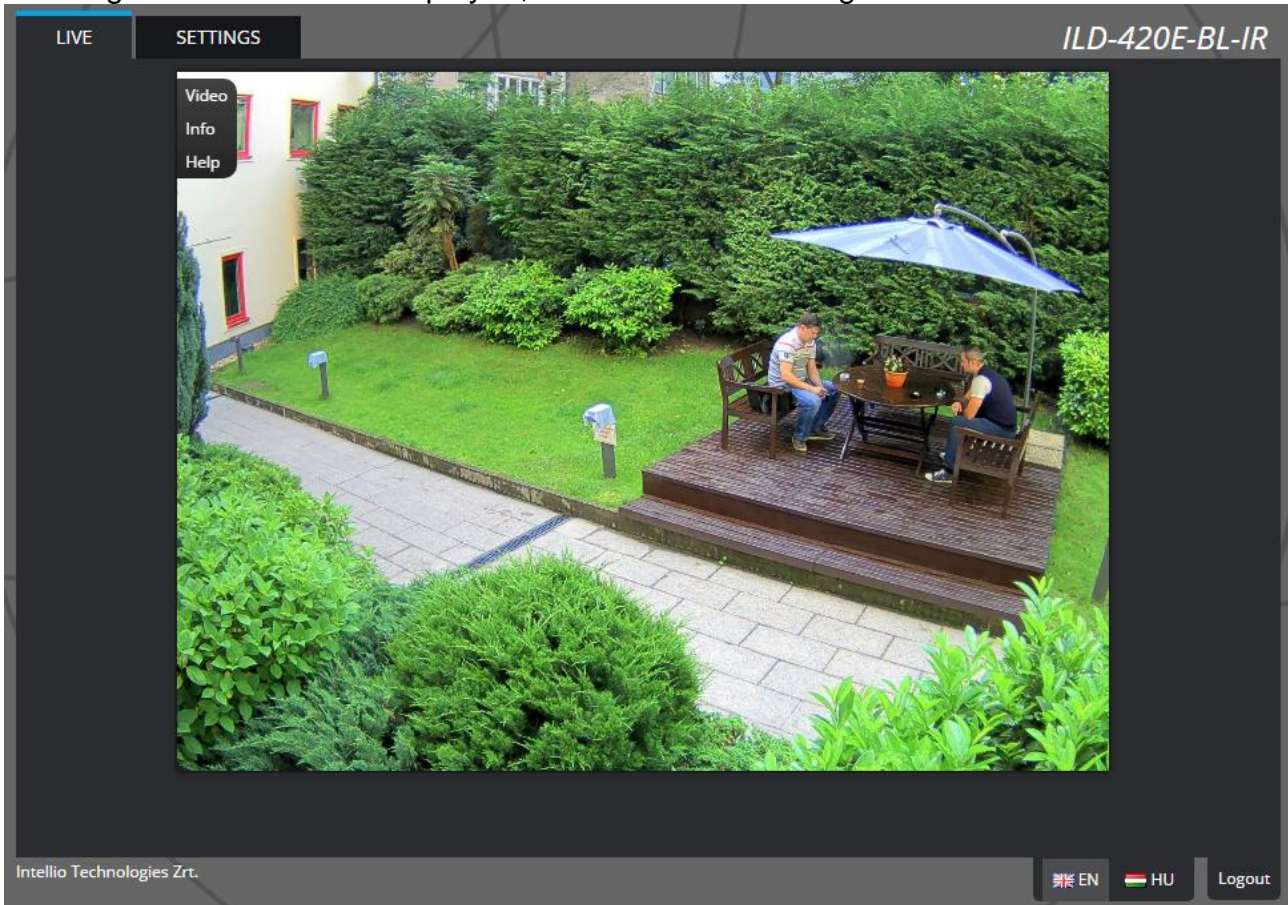The web interface offers the following menu:

1. Live
    To view the live video of the camera

2. Playback
    Playback of footage stored on the SD card or Windows share
3. Events

4. Settings
    a) **System**: adjust device, network, user, SD card storage settings and view active connections.
    b) **Video**: adjust sensor, encoder, image, motion detector and RTSP settings, and access EPTZ or lens control for the given camera type.
    c) **Alarms:** view onboard detectors and their status.

The video stream of Intellio cameras can not only be accessed through the web interface and the management software, but also through a standard RTSP interface.

This way the live video of the camera can be monitored, as well.

2. Live

After login the live video is displayed, with the Live tab being active.

This interface is for displaying the current view of the camera. When hovering over the image with the mouse the buttons on the upper left side of the image allow the viewer to change what is displayed on the live view:

1) **Video** : Can change between H264, MJPEG, Primary or Secondary streams

2) **Info**: Additional information can be displayed about the camera or its detectors

    a) **OSD**:
        i) **System**: Information about the camera's firmware version
        ii) **Camera monitoring**: Information about the Voltage (where available) and Temperature of the camera. Also displays the currently activated heat protection.
        iii) **Image properties**: Shows information about the current image (Gain, Exposure, D/N Mode etc.)

    b) **Itracking Engine**: Toggles the display of additional information related to the Tracker
        i) **Masks**

        ii) **Tracked objects**
       iii) **Untracked objects**
       iv) **Object types**
       v) **Advanced info**

  c) **Motion Detector**: Toggles the display of additional information related to the Motion Detector for both the Monitoring and Recording configuration
     i) **Motion info**
     ii) **Masks**

  d) **Detectors**: Toggles the display of the detector masks

3) **Help**: Toggles the display of the viewport help

3. Playback

The Playback interface is accessible only if Storage is enabled.

Click the Playback tab to access the interface that allows for the retrieval and playback of footage stored on the memory card.

In case the storage is switched off, but there is an available storage device, it can be connected to the camera. By switching the storage back on, previously recorded footage can be played back again.
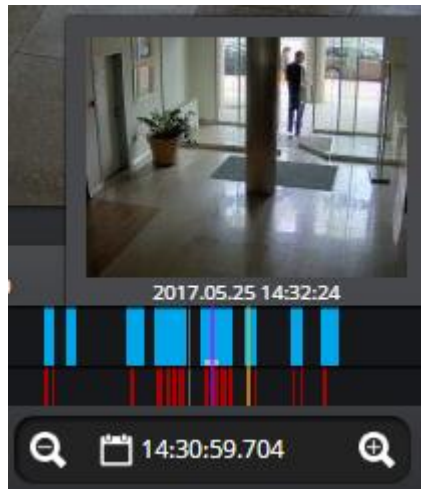
The timeline and the calendar allows for searching in the footage. The timeline is the black bar below the camera image. The blue area represent parts of the footage where there is recording, below the blue bar are the currently selected detectors, the red parts show where the detector was in alarm state. Left click and hold on the timeline to move it left and right. Be aware that the video has to buffer before it can be played, this is indicated by the white line at the bottom or the blue timeline.

Below the timeline, the minus and plus button next to the date are for decreasing or increasing the time span of the timeline.

The purple vertical stripe in the middle of the timeline shows the current point of playback with the current time of the playback indicated below.

Click on this time label to see a calendar where you can select the time (month, day, hour, minute, second) to be played back. After pressing *Select* the events of the selected time period will be displayed on the timeline. Navigate following the instructions above. Retrieval of specific events is aided by the image thumbnails being displayed alongside the mouse cursor when it is placed over the timeline.
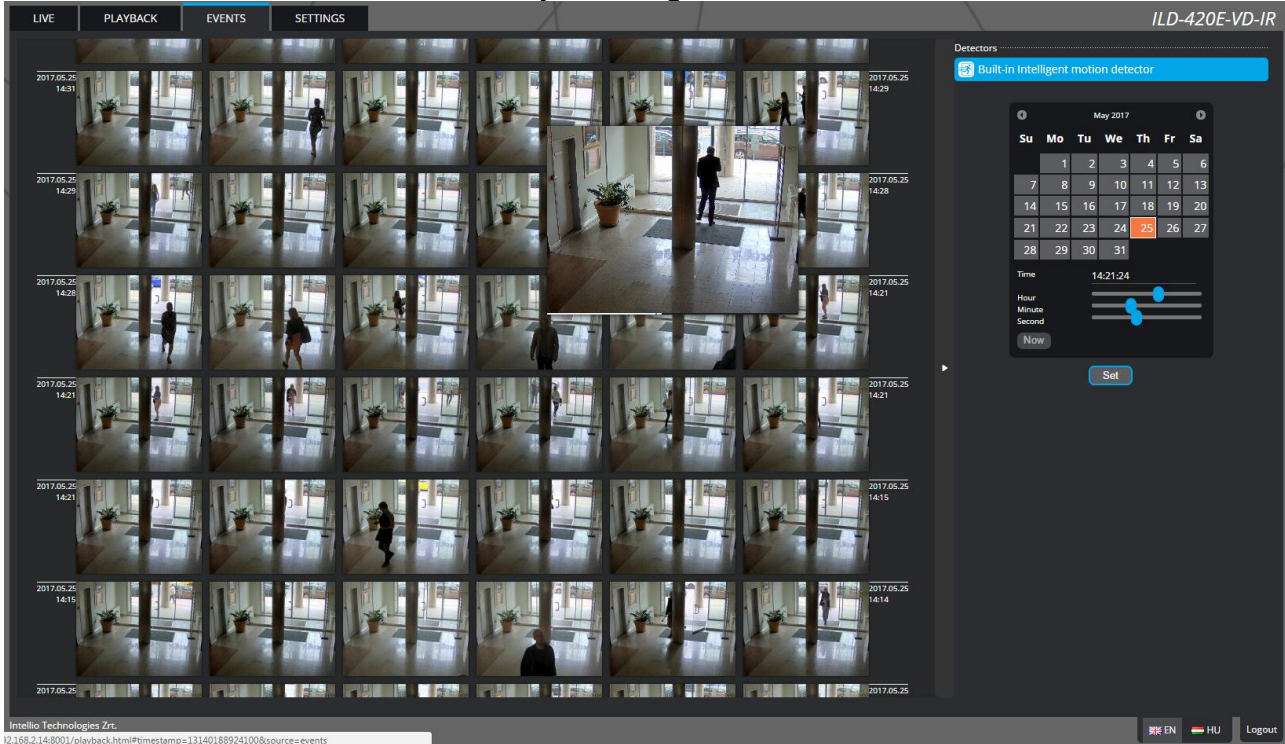

If the playback period is set, the typical playback functions can be used. The play and speed buttons only appear at the bottom of the image if the cursor hovers over it The Stop button appears only during active playback.

To the right of the image there is a list of the currently configured detectors and the events associated with them, clicking on the detector toggles the display of its events on both the timeline and the events list. Clicking on an event makes the timeline jump to when that event occurred. When hovering over an event the detector associated with it is shown in blue, when hovering over the detector the events associated with it are shown in yellow.

Hovering over the image displays the Info and Help buttons on the top left which function identical to the buttons on the Live menu.

4.   Events

The Events interface is accessible only if Storage is enabled.

Click the Events tab to access the interface that shows all the events that occurred on the camera.

On the left is the event browser, use the mouse scroll wheel to scroll up or down, the latest events are at the top. When hovering over an event the detector associated with the event is shown in blue and a short video plays showing what happened during the event. Clicking on an event the playback interface is opened with the clicked event's time.

On the right the configured detectors are shown, hovering over a detector the events associated with the detector are shown the rest are faded out. Clicking on a detector toggles the display of its events in the event browser, below the detectors is a calendar which can be used to select the time of the events without having to scroll up or down, after choosing the time click on set to set the browser to the specified timestamp.

5. Settings

Go to the Settings menu to adjust the parameters for optimal camera operation.

5.1. System / Device

The Device data sheet contains the basic details of the camera:

- Product name: camera type,
- MAC address: the MAC-address of the camera
- Alarm manager (available, not available): the status of the alarm manager service
- I/O manager: status of the I/O manager service
- Name: camera name (modifiable),
- Description: camera description (modifiable),
- Firmware build: firmware number of the camera.

The modifiable data can be modified by clicking on the *Change settings* button.

Upgrade firmware

The camera software can be upgraded under *Device description* in the menu.
Click on the *Choose file* button, then select the .rce file to be uploaded.

Next, click on the *Upload* button.
It takes a few minutes for the file to upload, during which the message below is shown:

Finally, the camera reboots with the new firmware and is fully operational after a few minutes. Do not turn off the power during this period.

Restart

The camera can be rebooted with this button.

Restore default

The camera will revert all settings (except network settings) to the factory defaults.

5.2.   System / Network
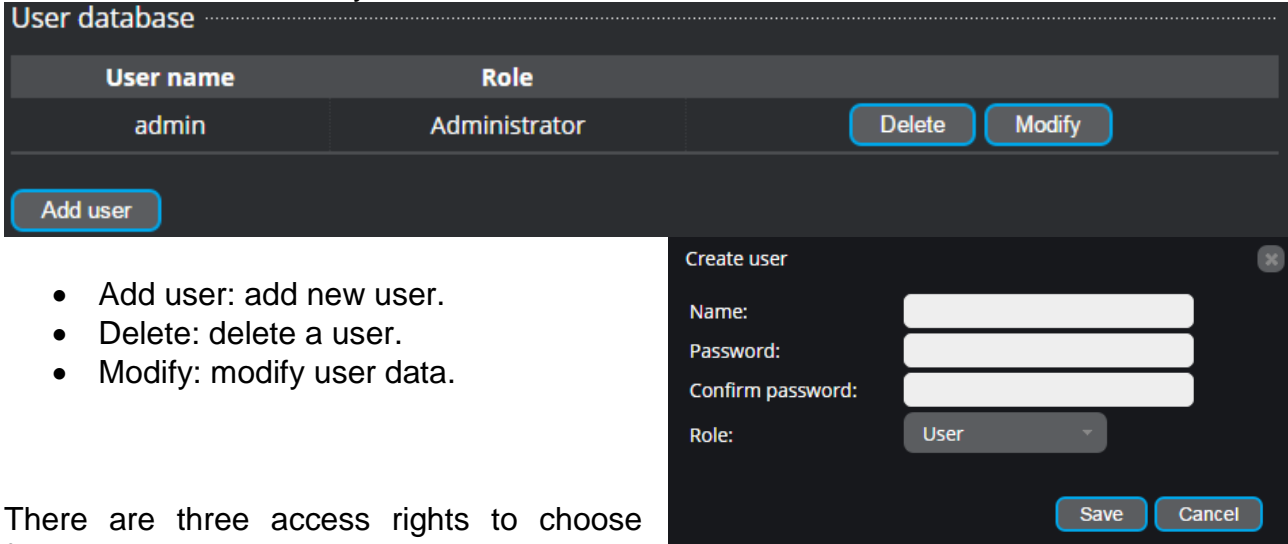

The **Network** menu contains the network settings options. Either a static or dynamic IP address can be assigned to the camera.

Default DNS: 8.8.8.8

5.3.   System / Users

The **Users** menu allows you to maintain user data. The default user is *admin*.

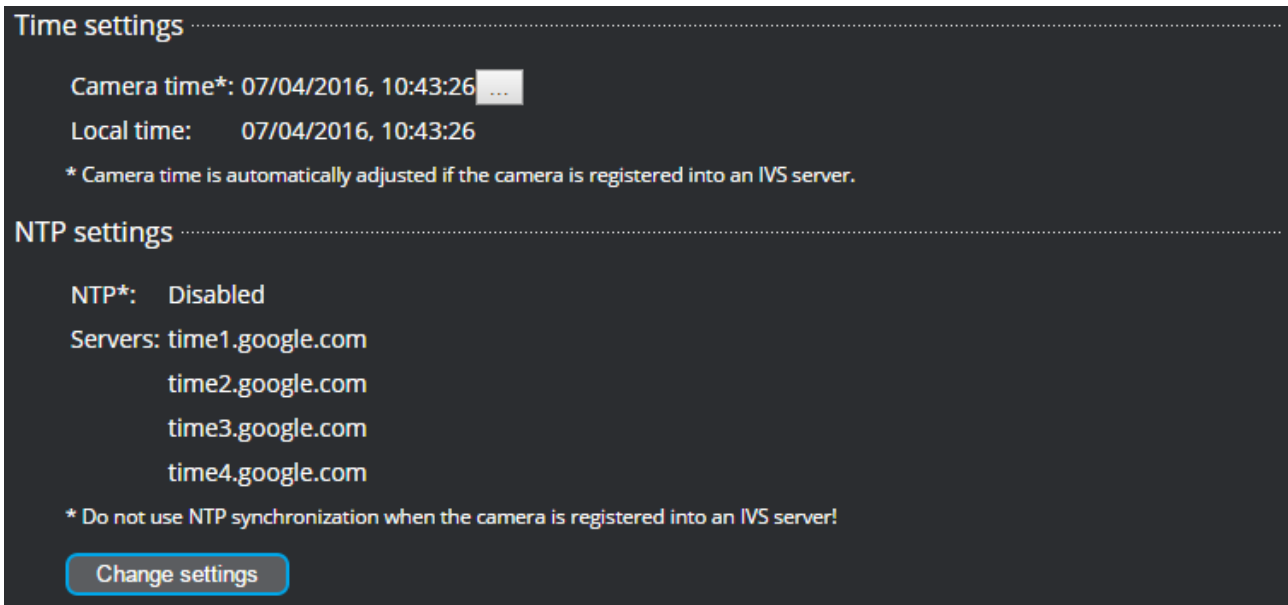
- Add user: add new user.
- Delete: delete a user.
- Modify: modify user data.

There are three access rights to choose from:

Admin: the user can manage all settings.
User: the user can only access the Live and Playback functions, but cannot modify the camera settings, but these can be seen.

Operator: the user can only access the Live and Playback functions, but cannot modify the camera settings, but these can be seen.

5.4.   System / Time

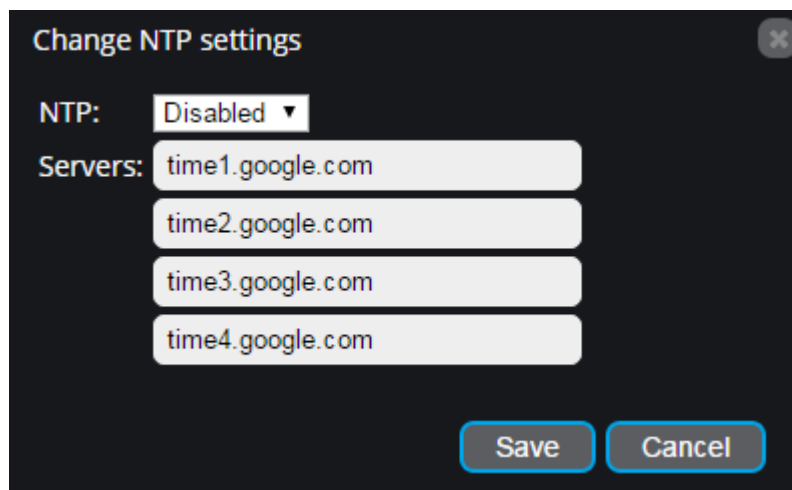This menu is for adjusting the camera time and date.

Below the *Camera time* caption you can see the current time of the camera (day-month-year hour:minute:second).
Click on the icon on the right ( ) to manually adjust the date and the clock.
Local time indicates the time set on your computer.

NTP servers can be used as well. You can enable or disable them in the window that appears after clicking *Change settings*.
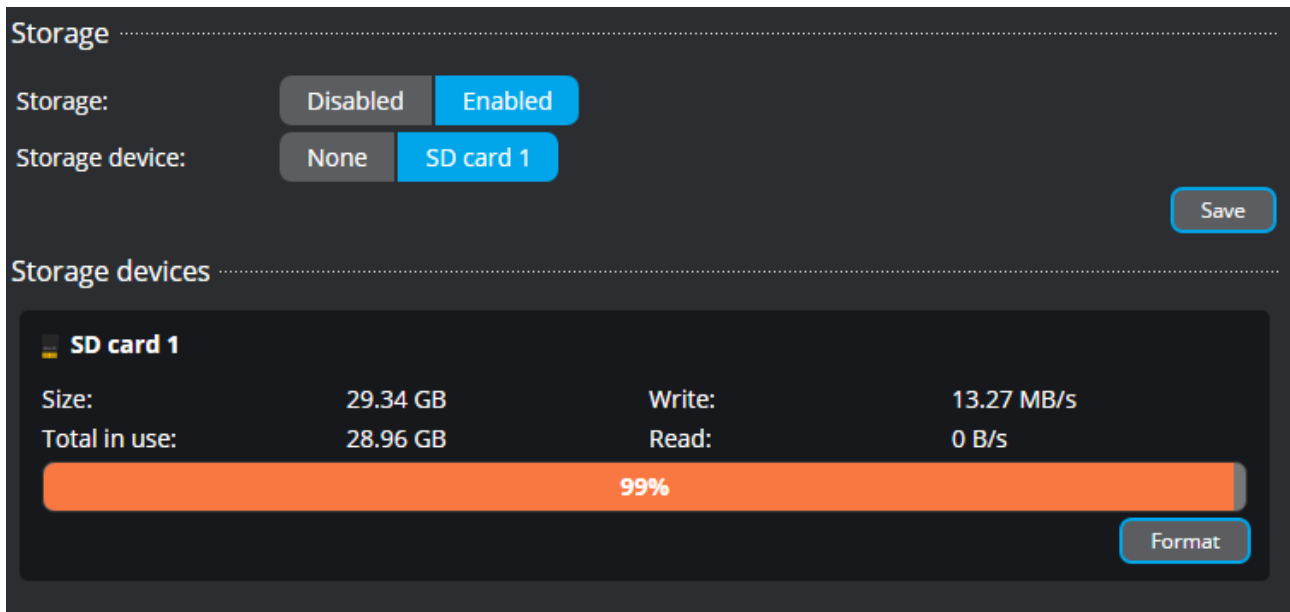

Use this option only if the camera is not registered to an Intellio server!

The default values are as follows:

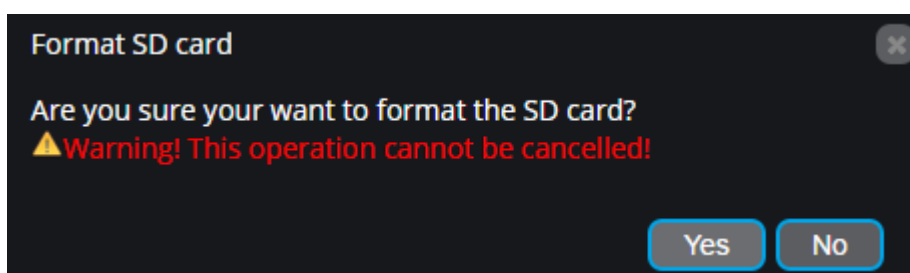|	
Enabled:	Disabled
Server addresses:	time1.google.com
	time2.google.com
	time3.google.com
	time4.google.com

5.5.   System / Storage !!!

The above picture shows the storage menu, the Storage section can be used to Enable or Disable storage and choose the Storage device.

Warning! A storage device must be chosen for the storage to work properly!
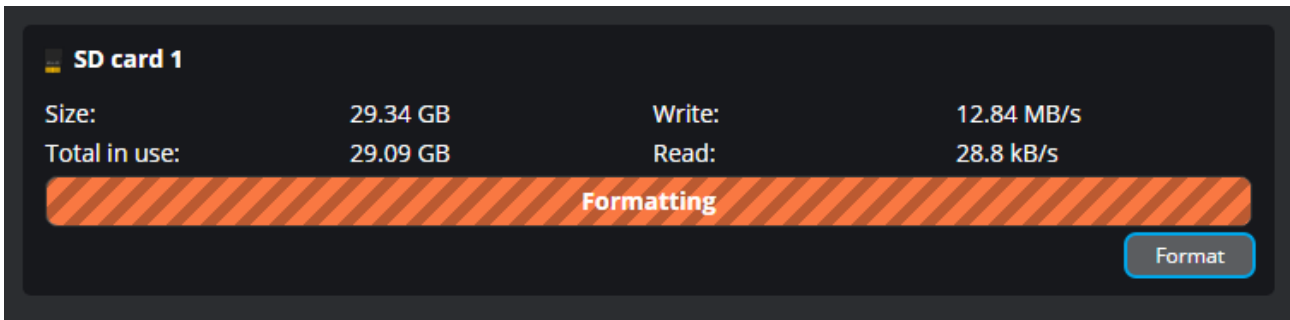
The "Storage devices" shows details about the active storage devices:
- device name
- total size
- total space in use
- read/write speed
- Format the SD card using the "Format" button

Warning! Formatting will erase all data on the card.
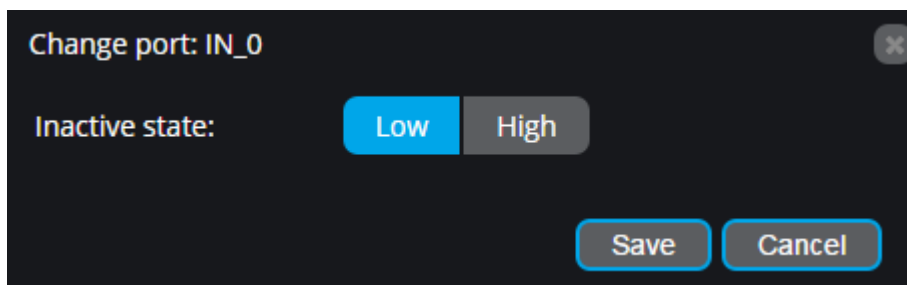
Clicking on yes will start the process:
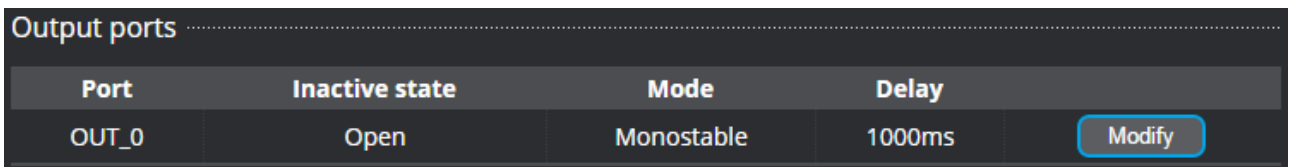

5.6.   System / IO ports

IO ports enable communication between the information processing system (in this case, the camera) and the outside world (persons, computers, alarm systems, barriers, etc.).

On the interface (input ports) you can change the parameters of managing incoming information by clicking the"Modify" button:

Set the switch to *Low* in order to only receive a signal from the IO detector if the device connected to the camera closes the circuit. Set it to *High* if the device interrupts the circuit.

The interface allows the output ports to be changed.

There are three adjustable parameters:

Inactive state represents the inactive state of the port. *Open* means the port is open, and *closed* means the port is closed.

Mode: the output port switches from inactive to active state in case of activation, so the state turns to the contrary (Open→Closed; Closed→Open.) In Bistable mode it stays in active state until deactivated. In Monostable mode it reverts to inactive state automatically after a set period of time.

Delay time – in monostable mode – defines the span of time after which the port switches from active to inactive state. In Bistable mode this parameter is non-applicable.
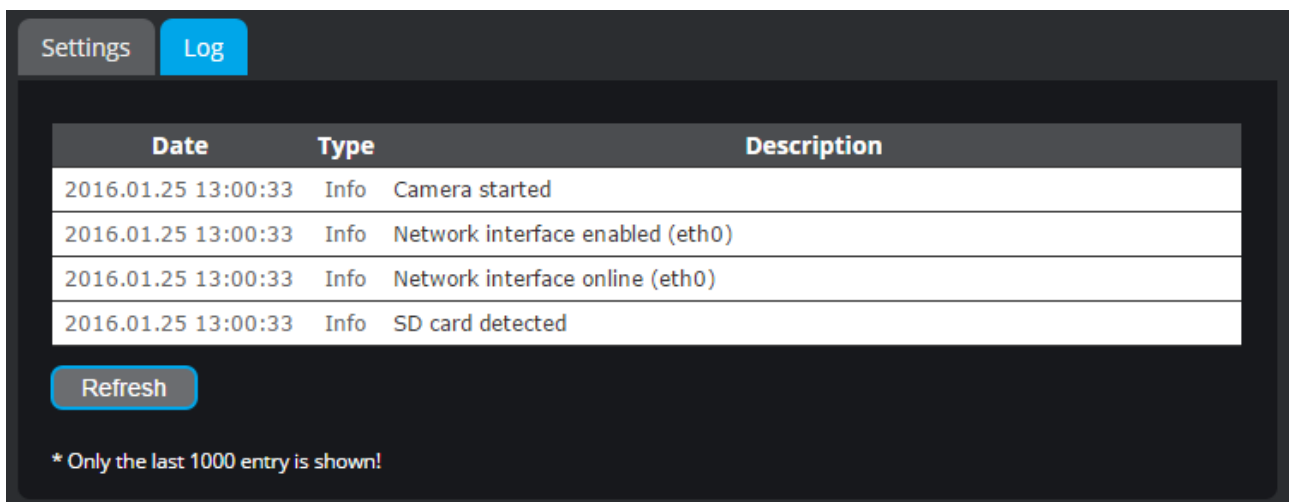

In each case click "Save" to save your settings.

5.7.   System / Notification

The camera logs system events as notifications. The logged notifications are shown on the "Log" tab.

Optionally the camera can be configured to send e-mails of certain events. To enable e-mail notifications select "Enable" at "Notification sending" then configure an SMTP host and sender account.

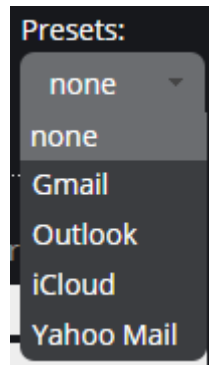The SMTP host can be configured under "SMTP settings".

Common e-mail hosts are preconfigured and can be selected using the "Presets" dropdown menu:

Warning! If a Gmail account is used as the SMTP host then the "Access for less secure apps" option must be enabled on the Gmail account. More information is available here: https://support.google.com/accounts/answer/6010255?hl=en

The sender and recipients of the notification e-mails can be configured on the "E-mail settings" panel.

The options are the following:
- From name: arbitrary name that will be shown in some clients instead of the sender e-mail address. Leave empty for default.
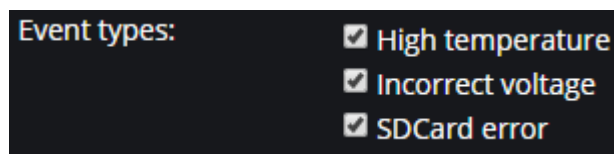
- From address: notification will be sent from this address
- To addresses: list of addresses where the notifications will be sent. One line can contain only one address.

The applied settings can be tested using the "Test settings" button.

E-mails will be sent of the following events:
- camera overheating
- camera voltage over limits (VD, BL devices)
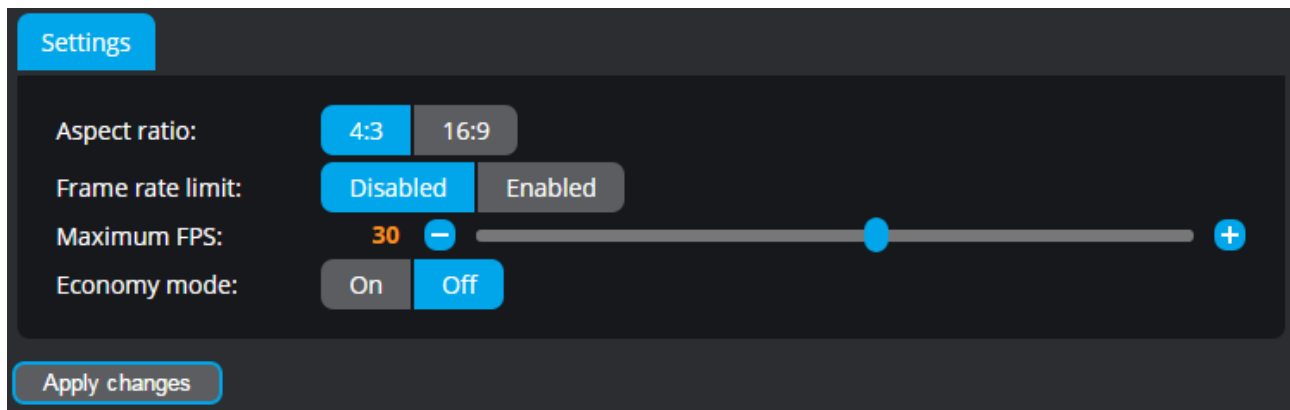- SD card damaged or missing (if SD card supported)

The event types can be selected with the checkboxes:

Additional e-mails may be sent by other types not listed here (e.g.: storage).

5.8.   Video / Sensor settings

In video settings the live video is displayed above the settings interface to allow tracking the outcomes of the settings adjustments. The full screen view is accessible, like in the Live menu.

Three parameters can be adjusted in Sensor settings.

The first is *Framerate Limit*, which – when enabled – can be adjusted for the fps that the camera should be transmitting images at. If disabled, the highest possible fps (depending on the resolution) will be used.

The second is *Aspect Ratio*, to modify the aspect ratio of the images.

4:3 – normal ratio

16:9 – "wide screen" ratio

The third is **Economy mode**:

The ECO mode is available with 4xx camera.

Turn it on to lower the fps, and thus, decrease consumption and heat emission, and expand the temperature range in which the camera can operate in. Read more on this in the camera data sheet. Switch to "On" to lower the consumption of the camera.

5.9.   Video / Lens control

This menu allows for controlling the on-board, remote-controlled objectives in cameras with such optics.

Iris control:
- Auto: opens-closes the iris automatically,
- Always open: keeps it open.

Zoom:

Keep the button pressed to incrementally increase it,

or the button to decrease it.

After adjusting the zoom, the camera will automatically detect the optimal focus.

Focus:

Click to focus on a distant point,

Or click to focus on a nearby point.
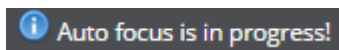
Auto focus: automatically detects the optimal focus.

The speed of zoom and focus is shown on the interface and can be manually adjusted by clicking on the respective buttons.

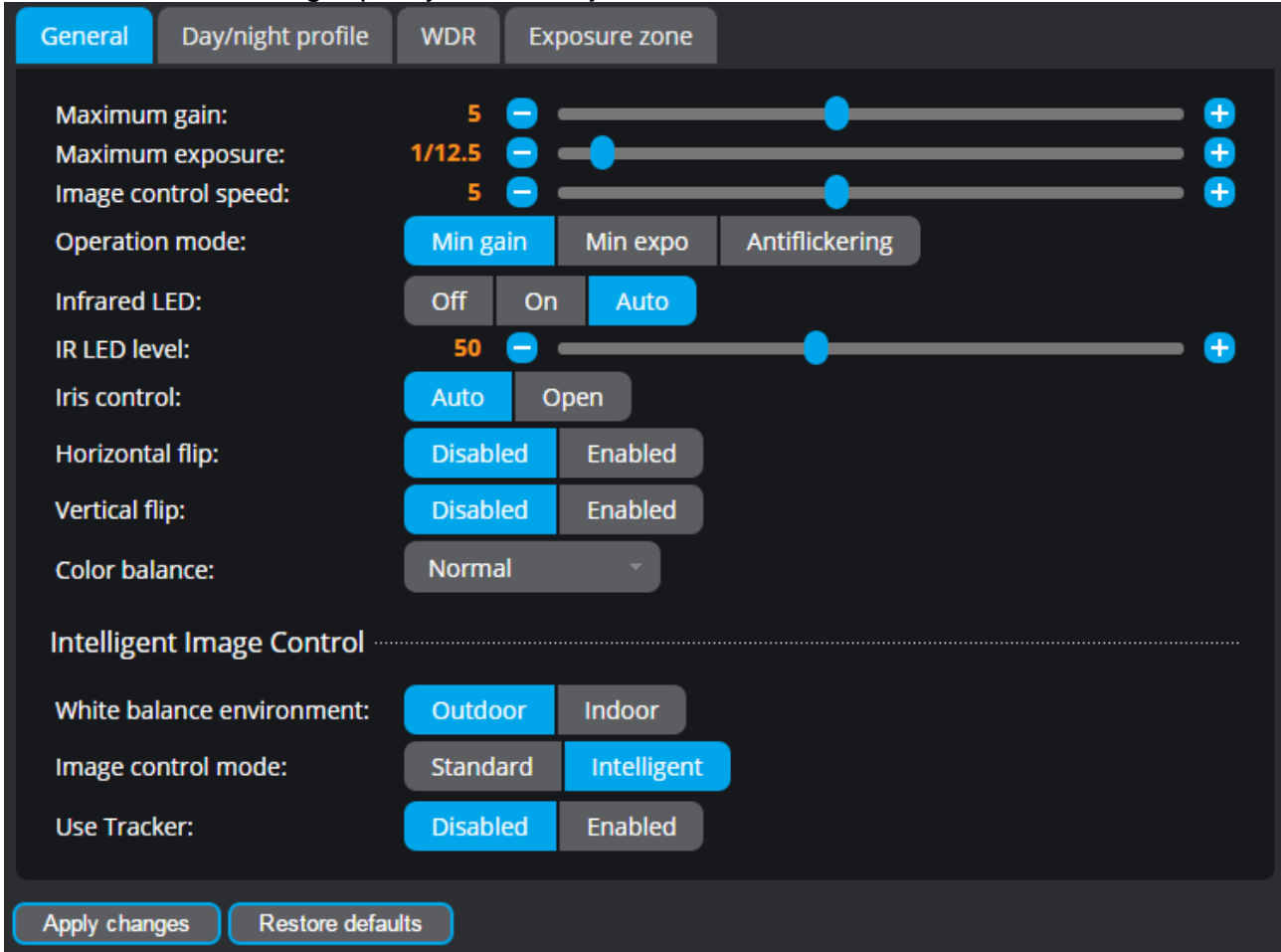By clicking on the or buttons the camera will move the zoom or focus 100 units in the specified direction.

The following message appears, when the camera automatically searches for the optimal image clarity:

5.10.   Video / Image settings

This is where the image quality can be adjusted.

The **General** tab contains the following options:

- Maximum gain – the maximum level of digital amplification

- Maximum exposure – the maximum level of exposure

- Operation Mode
    - o Min gain – the image driver keeps gain at the lowest possible level to increase exposure times and decrease image noise.
    - o Min expo – the image driver selects the shortest possible exposure time, while increasing the gain value to prevent blurring of fast motion.
    - o Antiflicker – exposure time is set to values that prevent fluctuation in the camera image in case of artificial lighting; recommended for indoor use.
- Iris control – iris is controlled automatically or is always open

- Horizontal flip – enable or disable horizontal flip

- Vertical flip – enable or disable vertical flip

- Color balance – adjust warmer or cooler hues

Intelligent Image Control

WB environment Outdoor:

- Outdoor: image quality is governed by outdoor conditions
- Indoor: image quality is governed by indoor conditions
-
Image control mode:

- Standard: adjust image quality manually using the sliders in the Day/Night profile tab.
- Intelligent: the camera automatically calculates the values for optimal image quality.

Use tracker:
- Enable it to alter the image around the tracked object for optimal visibility. In case of light objects, it darkens the immediate background, while in case of dark objects, it makes it lighter.

The **Day/Night profile** tab contains the following options:

- Day/Night mode – switch manually or automatically between day and night mode.
- Day/Night threshold – in case of automatic switch, the camera can be programmed to give preference to one or the other mode.
- Day/Night timeout – delay day/night switch by the preset number of seconds

Day profile:

- Brightness – brightness
- Contrast – contrast
- Gamma – adjust the transition between dark and light parts of the image
- Sharpness – sharpness

- Noise filter – noise filter
- Saturation – saturation

<u>Night profile:</u>

- Enable or disable it. If enabled, the values can be assigned regardless of the daytime settings. If disabled, the daytime settings will be used in nighttime mode, as well.
- Brightness – brightness
- Contrast – contrast
- Gamma – adjust the transition between dark and light parts of the image
- Sharpness – sharpness
- Noise filter – noise filter

Enable the WDR (Wide Dynamic Range) function to achieve better image quality in case of images with both overexposed and underexposed parts.
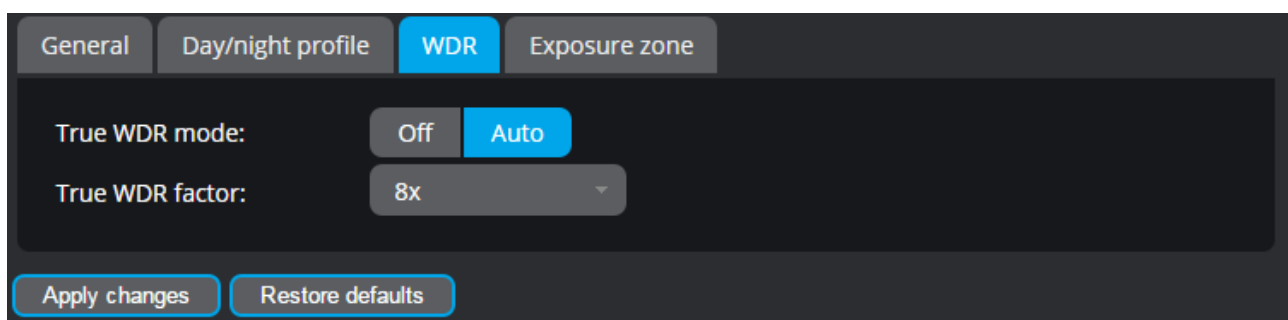
This function can be accessed via software on 5xx and 8xx cameras, while on 4xx cameras it can be accessed via hardware, too.

Software WDR means that the current gamma values are increased by 1 (in case of 1x factor) or by 2 (in case of 2x factor).
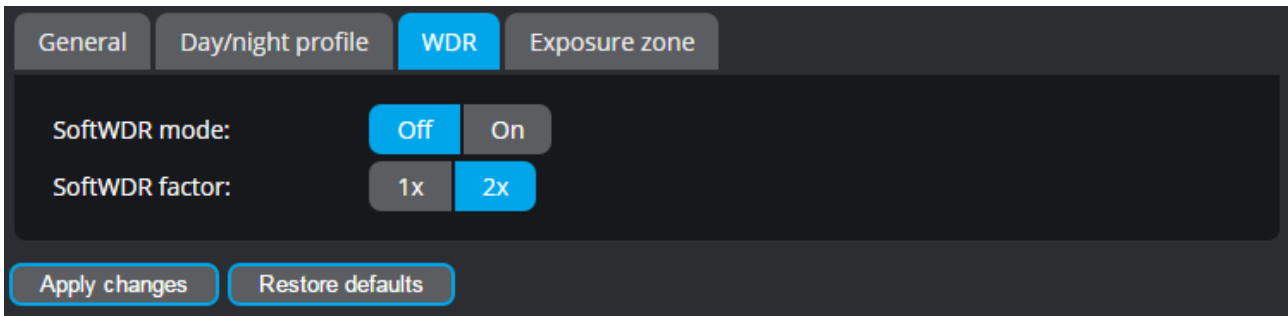
True WDR stiches two images together. One of the images adjusts the exposure time to the light part, while the other one to the dark parts. This way the stitching of the two images result in a compensation for both the overexposed and underexposed parts for better visibility.
The exposure factor marks the difference between the two stitched together images.
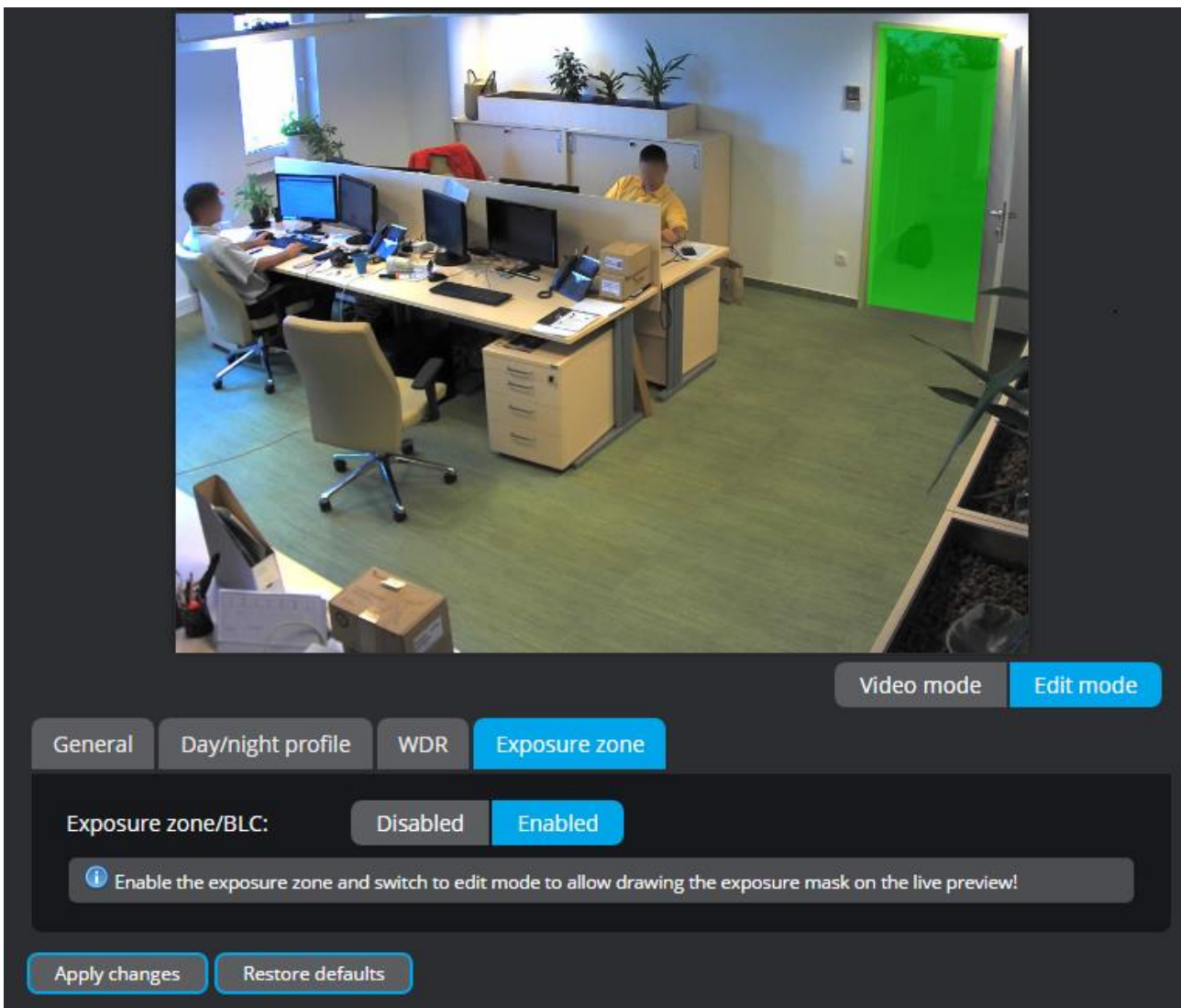
The interface of True WDR is seen below:

In case of software WDR:

Exposure zone, aka **Backlight Compensation**, comes handy when the camera image contains both significant and insignificant details.

Enable Exposure zone, select **Edit mode** below the image then mask the significant parts. Click *Apply changes* to optimize image drive to the masked area for perfect visibility. Areas outside the mask may become overexposed or underexposed.
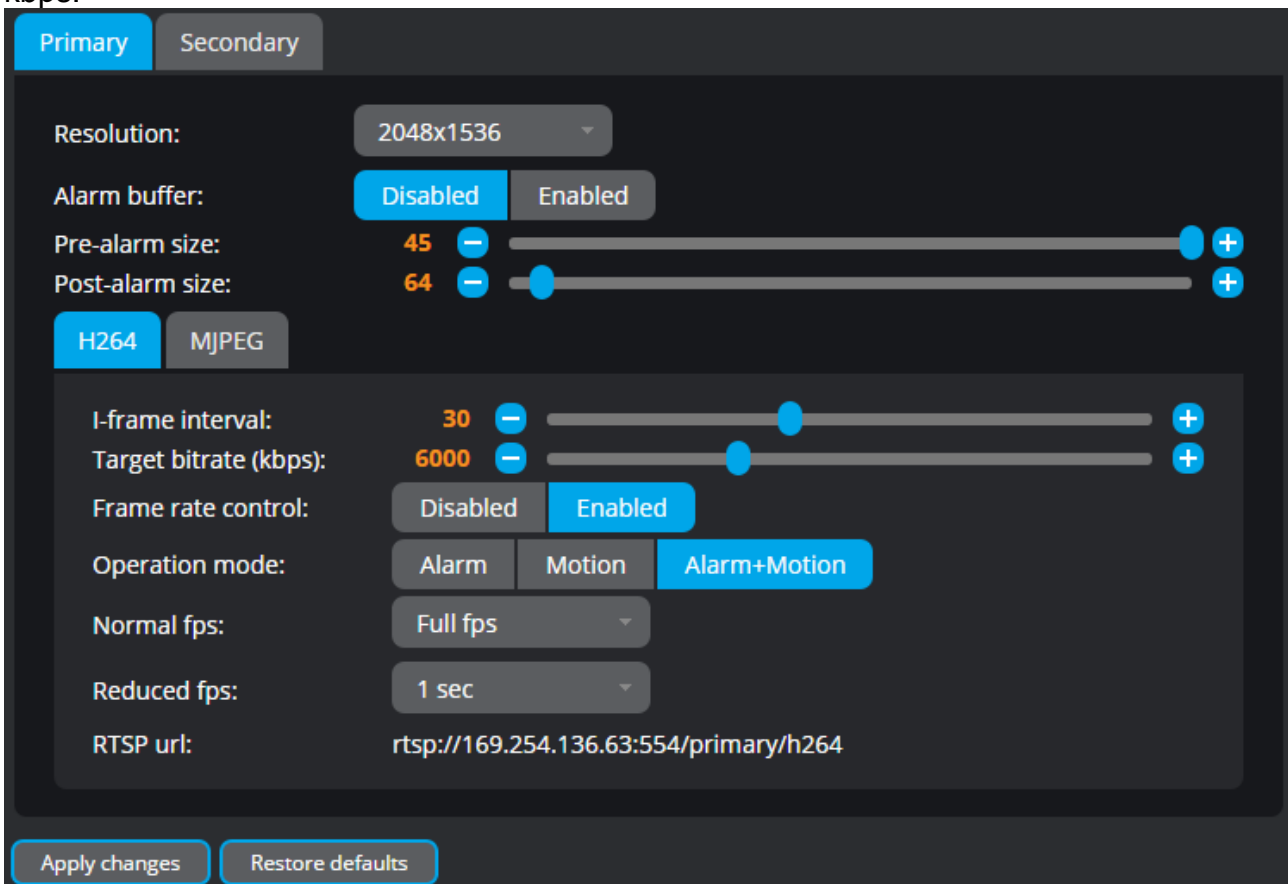
Multiple masks can be added to a single image. Individual masks can be deleted using the *Delete selected area* button.

To revert to default settings, click on *Restore Default* at the bottom of the page.

5.11.   Video / Video encoder

If you select the Video encoder menu you will see video encoder parameters, with the live video shown above it.

The difference in the settings of Primary and secondary encoders lie in the fact that the resolution of the secondary is fixed, while the maximum value of the Target bitrate is 5000 kbps.

- **Resolution**
  Allows for selecting the preferred resolution.

- **Alarm Buffer**
  This is where pre/post alarm buffers can be enabled or disabled.
  Use the PreAlarm Size slider to adjust the volume of stored images before an event, and the PostAlarm Size slider to adjust the volume of stored images after an event

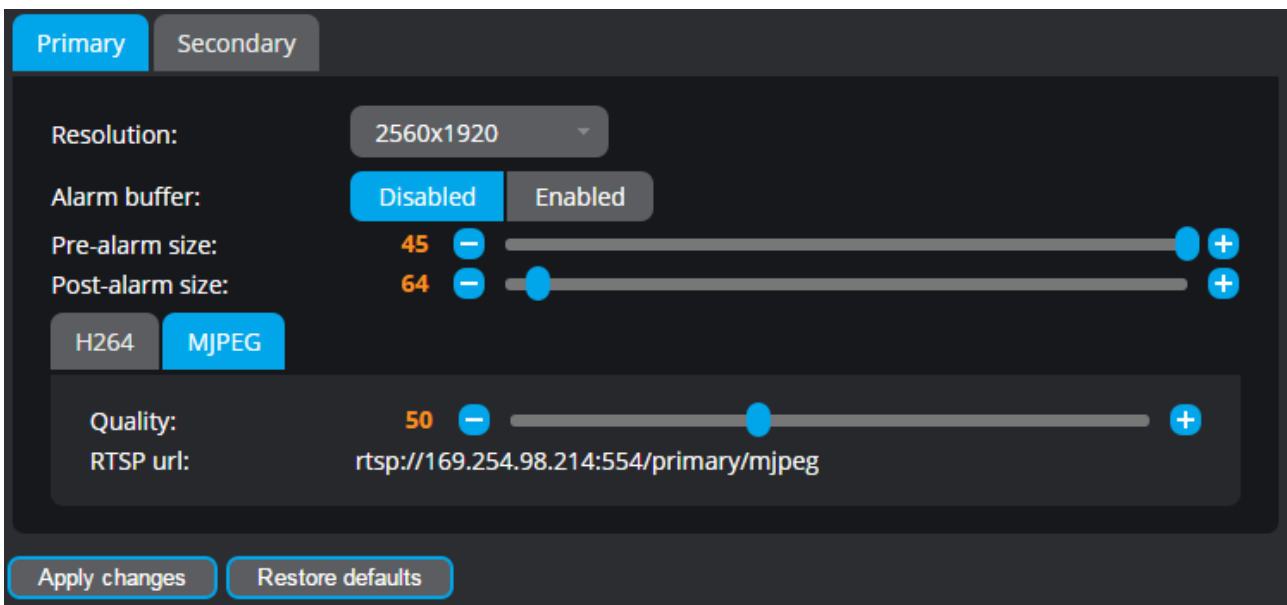**The H264** tab allows for the following adjustments:

- **Use the Iframe Interval** slider to adjust the density of I frames.

- **Use the Target Bitrate** slider to adjust the bandwidth.

- **Framerate Control**
  It can be enabled or disabled. If disabled, the camera runs at maximum fps, regardless any other settings. If enabled, the following parameters can be adjusted:

  - *FRC Mode*: Adjust whether the fps should change in case of motion only, alarm only, or both motion and alarm.
  - *Normal fps*: In case of motion or alarm, the preset fps will be used.
  - *Reduced fps*: In case of no motion or alarm, the preset fps will be used.

  Full fps is the value adjusted in sensor settings. If there are no set values, it will be the maximum fps in the current resolution.

To apply changes, click the *Apply changes* button.
Click the *Restore default* button to revert to the default settings.

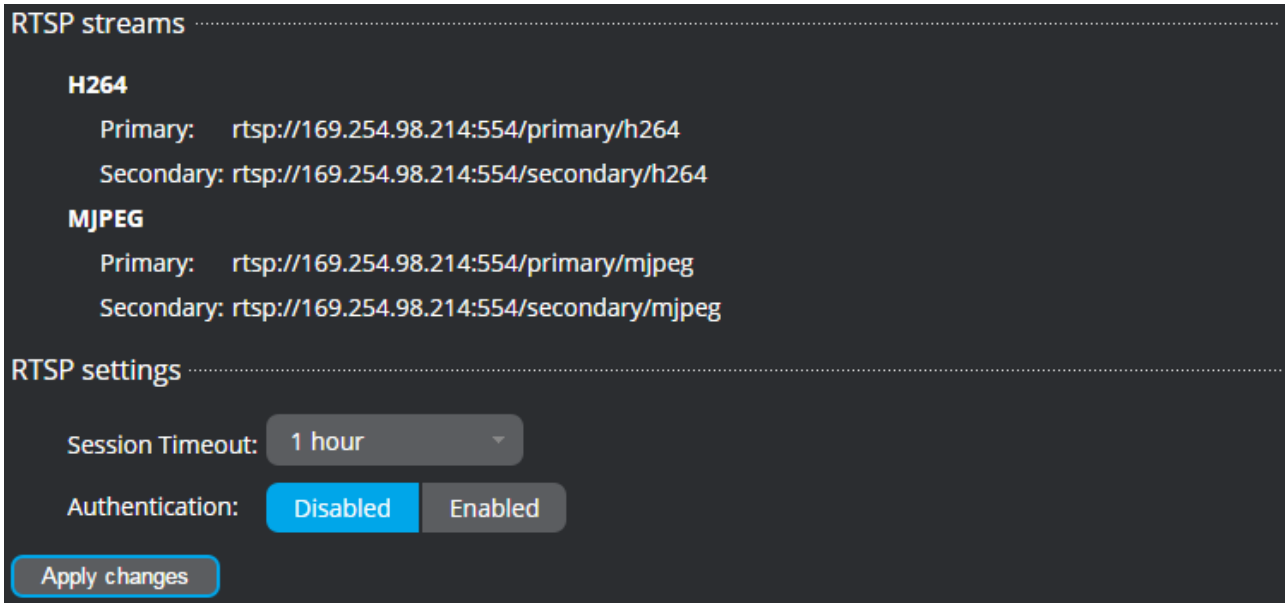**Use the MJPEG** tab to make the following adjustments:

- **Resolution**
  Allows for selecting the preferred resolution.

- **Alarm Buffer**
  This is where pre/post alarm buffers can be enabled or disabled.
  Use the PreAlarm Size slider to adjust the volume of stored images before an event, and the PostAlarm Size slider to adjust the volume of stored images after an event

Quality: set the required image quality using a slider.

RTSP url: The RTSP stream available on the camera can be accessed here. You can open it with an RTSP client (e.g. VLC).

5.12.   Video / RTSP settings

RTSP Streams:

> The RTSP streams available on the camera can be accessed here. You can open it with an RTSP client (e.g. VLC).
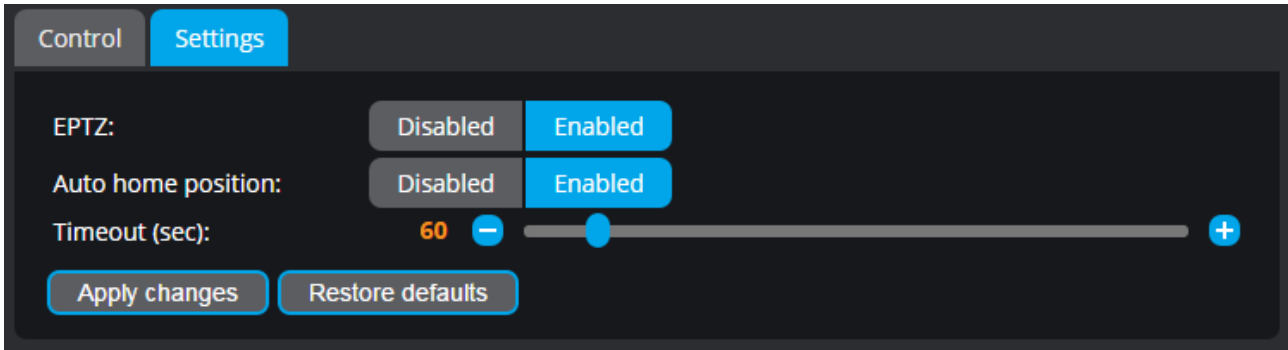
RTSP Settings:

> Session Timeout:
> Set the time period after which the channel will be shut down following the opening.
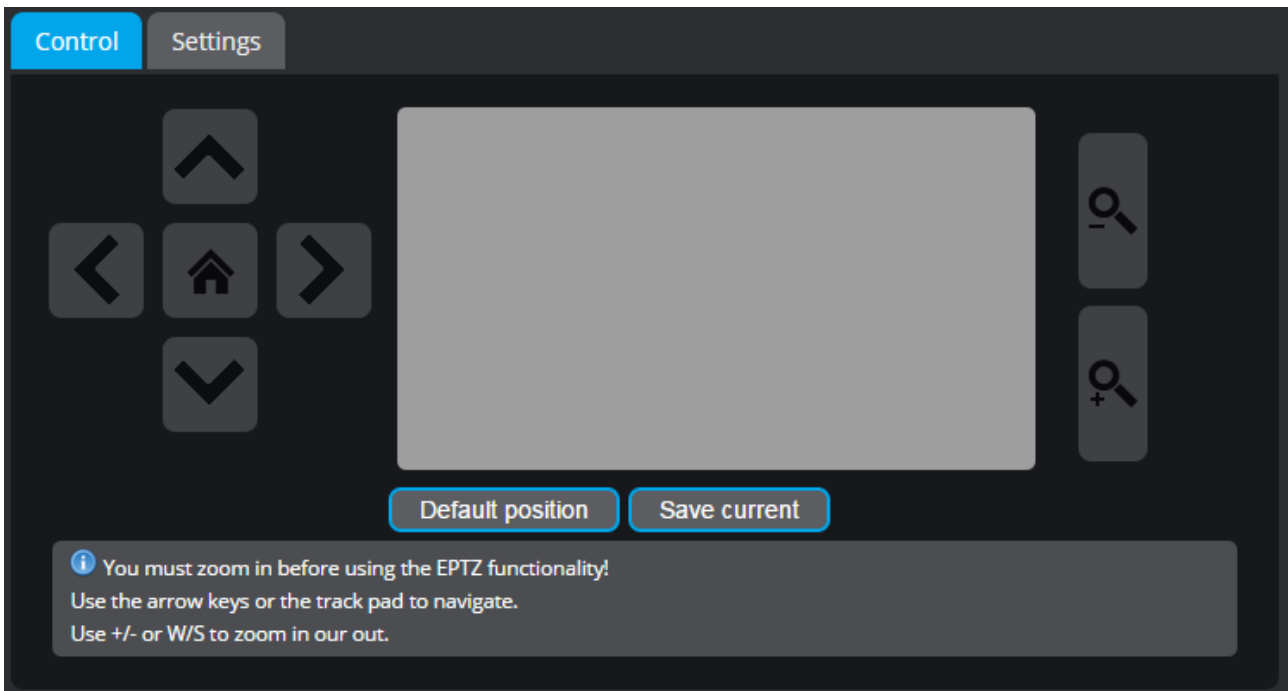> Authentication:
> If enabled, a user name and password will be requested by the camera when opening an RTSP stream. These are identical to the login data set for a user profile.

5.13. Video / EPTZ

Before you use the EPTZ function, first it has to be enabled. The EPTZ does not work at maximum resolution. Decrease the resolution to use the EPTZ. Click *Yes* on the Settings tab, then *Apply changes*.

The Control tab contains the EPTZ control interface: the arrows on the left and a pointer pad on the right.

Zoom into the image with the button, then move within the image using the arrows or the pointer pad.

To view the entire image, press the button to quit zooming.

Auto home position

The EPTZ window can be set to return automatically to a predefined point of the image after a set interval. This is called auto home position.

Switch to the *Settings tab* and set <u>Auto home position</u> to *On*, then using the slider below, adjust the time interval after which the image should revert to home position.

This position can be assigned manually by directing the image to the target using the *Control* tab, then click *Save Current*.
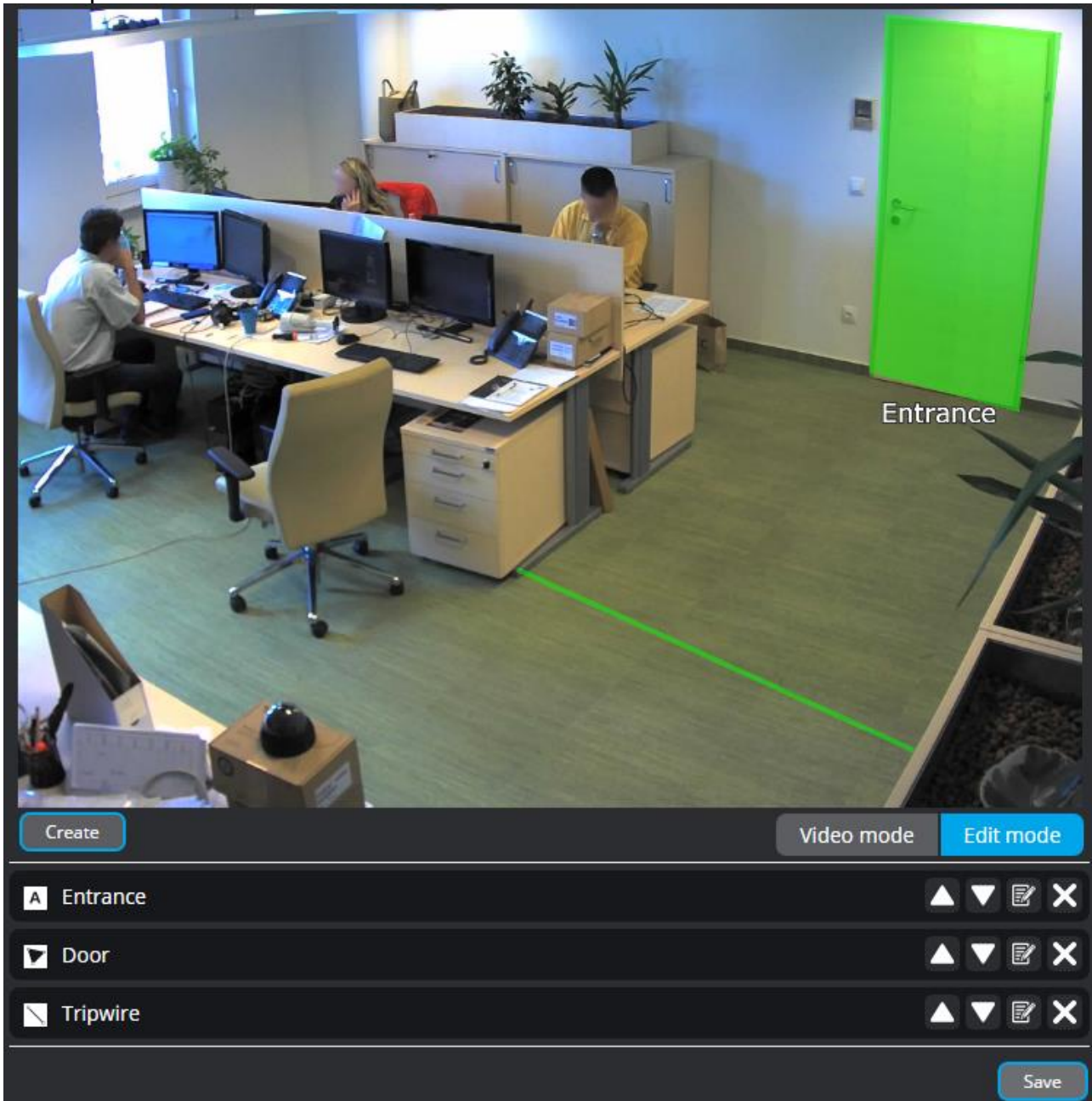
If the EPTZ is not used, the image will revert to the predefined position after the set time interval, and recording will take place from the same area.

Press the icon to revert to home position at any time.

Click the *Default Position* button to revert to the default home position showing the full image without zoom.

5.14.   Video / Overlay

The **Overlay** menu lets the user setup shapes that help mark objects and reference points. These shapes do not have any effect on the camera's operation and the changes only show up on the web.
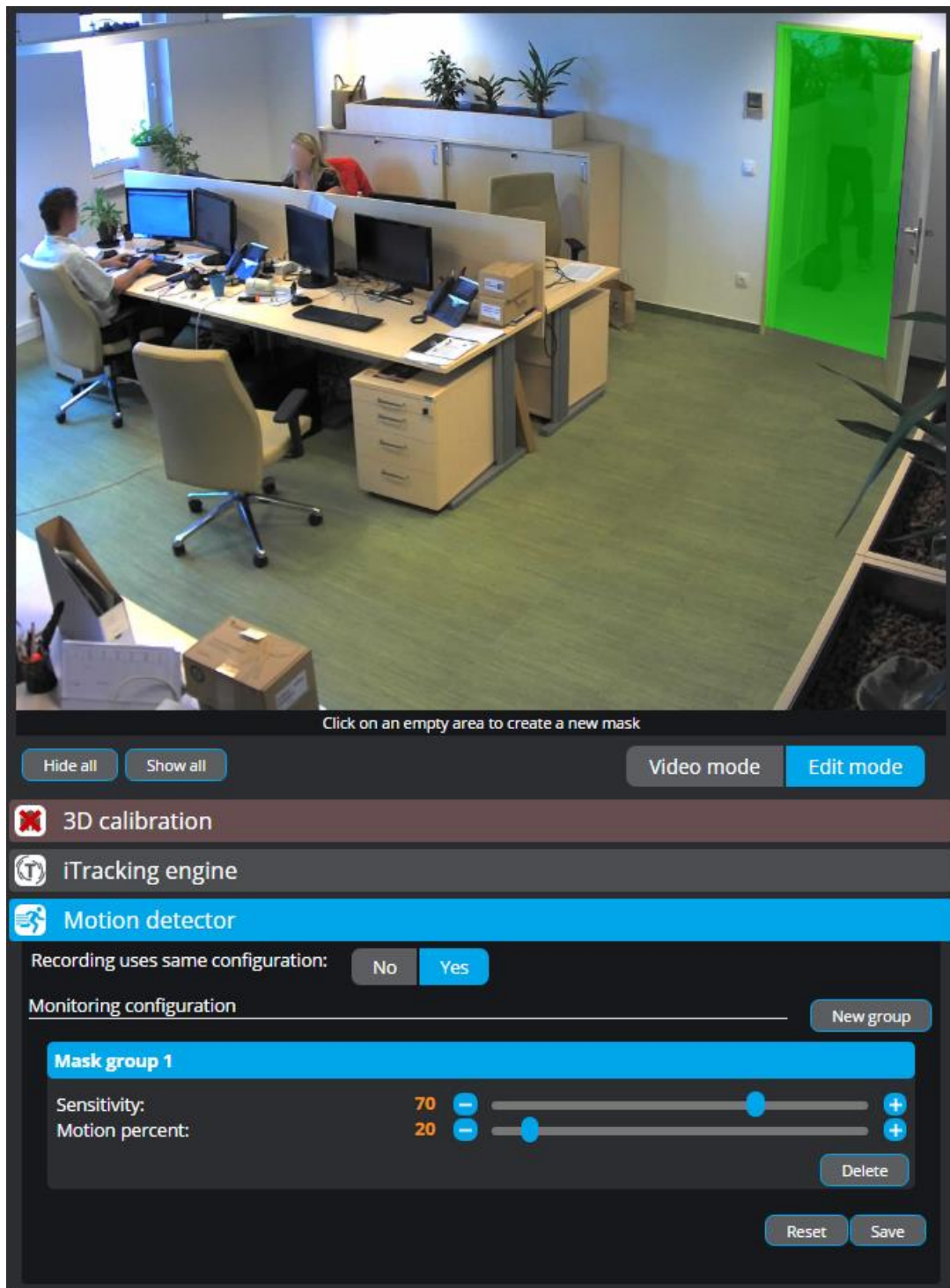

To create a new shape select **Edit mode** then click on the „Create" button, then choose between a line, polygon or text.

The arrows determine the order of appearance, the ![edit] button lets the user change the name and color (where available), the ![delete] button deletes the shapes. Click on „Save" to apply the settings.

5.15.   Alarms/ Detectors / Motion detector

Setting the motion sensor is of utmost importance for flawless event storing and economical storage usage.

First switch to **edit mode** then mask the important areas with green polygon masks. Multiple masks can be defined. They will collectively constitute Mask group 1. Make sure to click *Save* when finished.

Several mask groups can be added to this detector using the „New Group" button. Each mask group can be set to different parameters. The parameters of the detector can be fine-tuned:

- If you decrease the **Sensitivity** parameter the system won't sense the smaller motion only the big ones. If you increase the sensitivity parameter the system will able to sense very little motion.

- By increasing the **Motion Percentage** parameter you increase the threshold the system alerts at. Note: this is the percentage of the masked area, not of the whole camera image

Mask groups can be deleted using the „Delete" button, the „Delete selection" button deletes the currently selected green polygon. The „Reset" button restores the default motion detector settings.

5.16.   Alarms/ Detector list

Here you can view the list of detectors onboard the camera.
This first column shows the detector name, while the second column shows the detector type.

Supported detectors

Type	Maximum supported	Currently active
Direction detector	16	1
Intelligent motion detector	16	1
Entry detector	16	0
Sabotage detector	1	1
Stolen object detector	16	0
Motion detector	1	0
Tripwire detector	16	1
IO detector	1	0

Currently active detectors

Show technical info

Name	Type	Enabled
Sabotage detector	Sabotage detector	✅
Direction detector	Direction detector	⛔
Tripwire detector	Tripwire detector	⚠️
Built-in Intelligent motion detector	Intelligent motion detector	✅

Here is a list of the types and number of detectors that can be added to the camera, along with the status of these detectors:

- ✅ Detector enabled and configured.
- ⚠️ Detector is not configured.
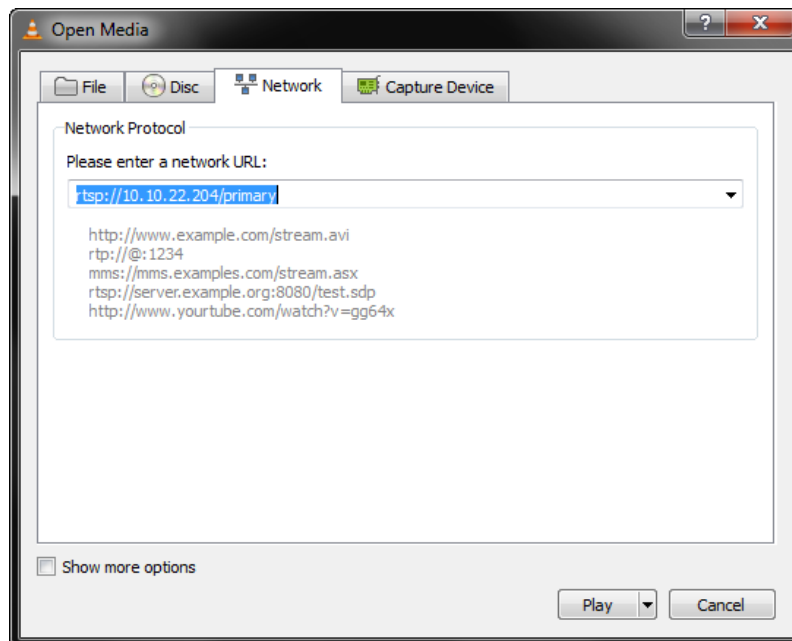
- Detector disabled.

Detectors can be calibrated through the management software.

6. RTSP

The video stream of Intellio cameras can be accessed via a standard RTSP interface, too.
To do so, we recommend the VLC player.
Download free from: http://www.videolan.org/vlc/

After launching the program, select the Media/Open Network Stream menu, then input one of the RTSP URL's in the popup window.

Then click on *Play*. After a short while the connection will be established and the camera live video will load.

RTSP URL addresses:

- Primary encoder image:
  rtsp://camera_ip/primary (pl.: rtsp://10.10.22.127:554/primary/h264 vagy
  rtsp://10.10.22.127:554/primary/mjpeg)

- Secondary encoder image:
  rtsp://camera_ip/secondary (pl.: rtsp://10.10.22.127:554/secondary/h264 vagy
  rtsp://10.10.22.127:554/secondary/mjpeg)

Recommended settings for the optimal operation of the VLC program:

- RTP/RTSP/SDP (Live555 demuxer)
- H264 level: 4-5
- H264 profile: high
- Using RTSP over RTP (TCP)

7. Heat protection

The average inside temperature of Intellio Visus cameras is 56 °C at room temperature. Then the metal casing of the camera is approx. 40 °C.

The inside temperature of the cameras is largely affected by environmental factors and the properties of the camera casing. Therefore, it is recommended that in outdoor use the cameras are placed within coolable (fan-equipped) camera casing.
Intellio Visus cameras are designed to withstand extreme heat.

The cameras have a three-tiered heat protection:
- First, resolution is halved (above 81 °C inside temperature)
- Second, the frame rate is reduced to 1 frame per second (above 82 °C inside temperature)
- Finally, the camera is temporarily shut down (above 83 °C inside temperature)

The inside temperature of the cameras can be viewed in the Intellio Client after switching on the OSD "Temperature" layer in live view.

In the top left corner of the image, a small display will show the current temperature and the activated heat protection measures.