2023

BEWARD IP Visor

Software Operation User Manual



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BEWARD

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Please read this Manual before operating the BEWARD IP Visor software.

Some contents of this Manual, as well as menus of the software may be subject to changes without prior notice.

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Chapter 1. General Information

1.1. BEWARD IP Visor Software Overview

This manual contains information about installation and setting of the BEWARD IP Visor software that is used for making a video surveillance system based on IP cameras and IP servers.

IP cameras are video surveillance cameras which have a built-in web server, a network interface and which are connected to the Ethernet networks.

Video servers digitize an analogue video signal and transmit it over IP networks, providing remote access to a real-time video stream through the local area network or Internet. The video stream can be watched using a web browser or by means of the BEWARD IP Visor software.

BEWARD IP Visor is feature-rich software for managing centralized and remote video surveillance systems, which can consist of up to 36 devices, including IP cameras and IP servers.

1.2. BEWARD IP Visor Main Functions

BEWARD IP Visor supports the following essential functions:

1.2.1. Simultaneous monitoring from up to 36 channels

- Support of multiple monitors with different resolutions working simultaneously;
- Several types of screen division for displaying multiple videostreams. Custom screen divisions can be created using the View Manager;
- Support of displaying different videostreams from a single device in Single-channel and Multichannel modes;
- Support of merging devices into groups, quick group switching;
- Fullscreen and Windowed modes.

1.2.2. Alarm

- Support of the following Device Events: Video loss, Motion detection, Alarm input activation, Tamper detection, Human detection, Face detection etc. (The list of supported events differs according to the device);
- Support of various actions in response to Device Events: Popup window, Sound notification, Blinking border, Show info in the video window etc.

1.2.3. PTZ Control

- PTZ support;
- Control the following PTZ functions: Light, Wiper, Washer (for some models);

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- Quick jump to pre-defined positions, including in response to device events.;
- Initiate tours, including in response to device events;
- Joystick support.

1.2.4. BEWARD Record Center archive playback

- Playback of videos in the BEWARD Record Center archive via the built-in Single-channel or Multichannel (up to 16 channels) video player;
- Playback of videos from the local archive or the network folder.

1.2.5. BEWARD IP Visor Settings via common interface for multiple devices.

- Videostream settings: codec, resolution, framerate, coding parameters;
- Audiostream settings: codec, sound volume, coding parameters;
- Image settings: brightness, contrast, saturation, hue etc.
- Network settings;
- Date and Time settings: date and time, time zones, NTP synchronization;
- OSD settings: device name (custom text), date and time, bitrate.

1.2.6. Additional features

- Play audiostreams from selected devices;
- Send audiostream from PC mic to the device;
- Alarm Output Device Activation, door opening via Door Station;
- Please consult sales representatives at BEWARD if you want to increase the maximum number of supported videochannels.

1.3. Advantages of IP Video Surveillance Systems

IP surveillance by means of IP cameras or IP servers replaces analogue surveillance systems and DVR systems. However, existent networks TCP/IP Ethernet are used for video surveillance needs. It helps to unify a net infrastructure and allows a customer to avoid costs of wiring separate cable lines. IP systems have a variety of advantages in comparison with traditional analogue systems:

- **More effective network's infrastructure using**

  Surveillance systems which are based on IP technology don't need a layer of expensive coaxial cable as in analogue systems but use "twisted pair" cable or wireless communication systems for a connection. Using the "twisted pair" also means an absence of separate wire connection that is necessary for a transmission of control signals and energizing of a video

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camera. Furthermore, where laying cables are expensive or not practicable, wireless Wi-Fi technologies could be used.

- **Openness and compatibility**

  In distinction from traditional analogue systems that represents “black boxes” and being closed technical decisions, equipment of IP surveillance systems is based on open standards that allow using equipment of different manufacturers in one surveillance system, for instance, switchboards, routers, servers and applicable software. All these considerably reduce surveillance systems’ cost and increase its technical specification.

- **Network convergence**

  Many organizations as a rule use only Ethernet (based on IP protocol) networks for various data transmission that makes their control more effective and economically profitable.

- **Easy system integration**

  IP surveillance technology is an open, easy integrated platform. Because the integration of systems becomes a more and more important requirement, there must be assurance that systems of control access, conditioning, managing, applets and other systems could be easily and effective integrated into a whole system.

- **Remote access**

  It is possible to get access to an image of any camera or displaying recorded video in real time from any place in the world with by means of wire or wireless net connection.

- **Expandability**

  If necessary, IP networks make possible to expand security surveillance system easily. In case of an additional video camera needs to be used, it is just connected to a local network and it is ready to work. Besides, it is possible not just to add cameras but increase a volume of data’s storage by spreading information through the entire network. IP networks are possible to support a multiply subscriber’s access to the same information at the same time.

- **Intelligent processing of video image**

  A variety of built-in functions allows the IP camera to make decisions such as when to trigger alarm, when it is necessary to send a video, and even control the frequency and quality of transmitting video (it depends on a channel width). In this way, a video access and making decisions becomes better because of the basing on IP surveillance systems.

- **Reliability**

  An ability of data’s transmission using an IP protocol makes possible to use external data storage units, to realize reservation of the data, to use server and archive architectures. In case of using standard server and network equipment, the time of changing damaged devices is much less than in case of using analogue equipment. The software makes possible to observe the surveillance system’s condition in real time and inform about different problems.

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Moreover, an arrangement of reserve power supply is much easier than in case of analogue systems.

- **Image Quality**

  Modern IP systems use H.264 (MPEG-4 Part 2) video compression format that allows using the network more effectively in comparison with Motion JPEG or MPEG-4 format. User gets the most qualitative image in conditions of using limit capacity channels. Furthermore, the space of hard drive is consumed slowly than in case of the codec of the previous generation.

- **Noise resistance**

  Working with surveillance systems makes obviously that a process of installation and checking of such system is quite long and demands a lot of efforts. Quite often a noise appears in the image after the first start due to influence of some other electric devices. Removing the noise is always a difficult process. The process of installation and checking becomes faster with IP cameras because they are exposed to noises less than other cameras.

1.4. System Requirements

Minimal PC requirements

CPU: 2.0 GHz or higher.

RAM: 2 GB.

Sound card: is necessary to play sound from cameras, carry on conversations via intercoms, use sound alarms.

Video card: compliant with DirectX 9; 128 MB memory size.

Network interface controller: 100 Mbit/s transfer rate.

Supported operation systems

Windows 7 SP1, Windows 8 Embedded, Windows 8.1, Windows 10, Windows 11.

.NET Framework 4.8 is required

It is pre-installed on Windows OS, starting with Windows 10 (version 1903), manual installation might be required on older OS (See Chapter 2. BEWARD IP Visor Installation).

The PC that only meets the minimal requirements is suited for simultaneous display from several devices with low resolution and framerate (5-6 HD cameras, 25 FPS) via BEWARD IP Visor. If you need to add more devices to BEWARD IP Visor, pay close attention to the CPU load in all display modes used. Stable performance under full and near-full CPU load is not guaranteed. Please consider merging the devices into groups (see 4.2.4) and using lower resolutions in Multichannel mode (see 1.2.6. Additional features) to reduce the CPU load.

Please consider using the Hyperthreading technology if simultaneous display of dozens of video channels is required. BEWARD IP Visor is very RAM intensive, therefore a modern high

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frequency RAM card is preferable. The most important parameter is the data transfer rate and not the actual volume of RAM. If the PC is only used for BEWARD IP Visor and BEWARD Record Center on 36 video channels, then 8 GB of RAM should be enough. If possible, use the dual-channel architecture RAM, especially if you're using BEWARD IP Visor with the increased number of channels (see 0). In special cases, like playing a H.265 videostream in Full HD resolution or highter with 90+ FPS, you might need a top-of-the-line CPU in the user segment or a similar server CPU (with high clock frequency).

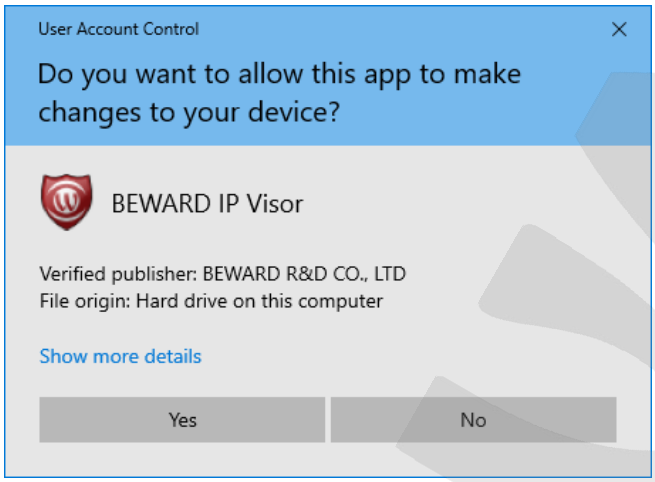
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Chapter 2. BEWARD IP Visor Installation

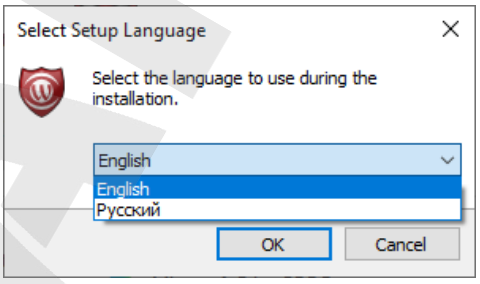
Step 1: insert the disc with the BEWARD IP Visor software into the CD/DVD-ROM computer drive or download the installer file from BEWARD website.

Step 2: run the installer file BEWARD IP Visor.exe. A User Account Control window will pop up (Pic. 2.1), thus verifying the authenticity of the file and that BEWARD is a verified software publisher. Click **[Yes]** to proceed.

Step 3: select the preferred language to be used during the installation. This language will be also used as the default language when BEWARD IP Visor is in use. The language can be changed later in the Settings. Click **[OK]** (Pic. 2.2).



Pic. 2.1



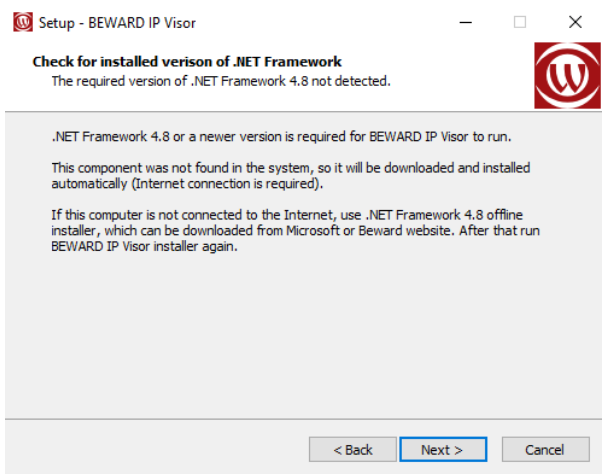
Pic. 2.2

Step 4: the main window of BEWARD IP Visor Setup wizard will appear, click **[Next >]**.

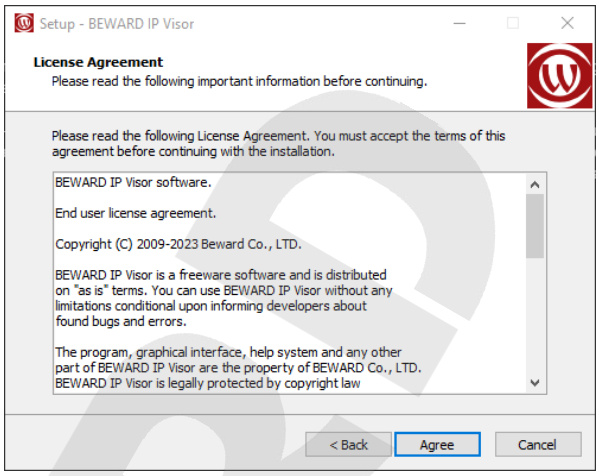
Step 5: BEWARD IP Visor requires the installed .NET Framework 4.8. The setup wizard will check if .Net Framework 4.8 is installed on the PC. If it's not installed, a specific page with the installation info will appear (Pic. 2.3). If the PC is not connected to the Internet, you will need to cancel the BEWARD IP Visor installation, download the .Net Framework 4.8 installer file and install it. Once it is done, run the BEWARD IP Visor installer again. If the PC is connected to the Internet, the setup wizard will automatically download and install .Net Framework 4.8. Press **[Next >]**.

Step 6: the next page contains the License Agreement (Pic. 2.4). Read the text and click **[Agree]**.

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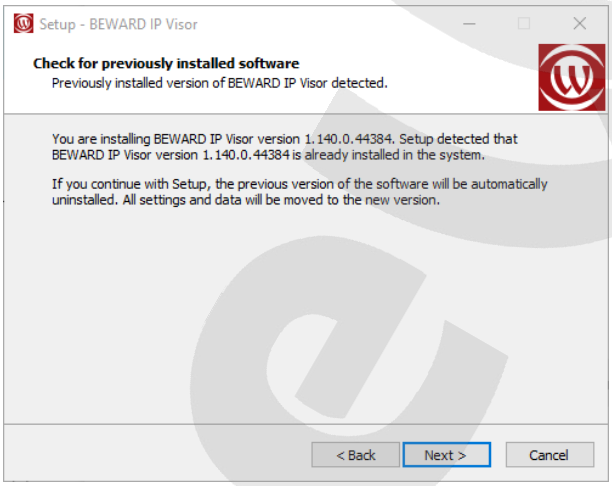
Pic. 2.3



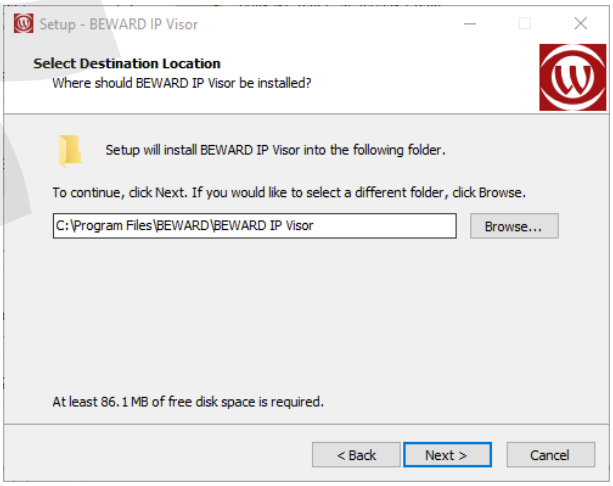
Pic. 2.4

Step 7: the setup wizard will run a check and inform you if any previous versions of BEWARD IP Visor are already installed (Pic. 2.5). This page will not appear if BEWARD IP Visor is being installed for the first time. When updating to the newer version, all application settings and data will transfer to the new version. Click **[Next >]**.

Step 8: select the destination location for BEWARD IP Visor (keep in mind the available space). Click **[Browse…]** (Pic. 2.6). If there are no special requirements, you may keep the default destination folder “C:\Program Files\BEWARD\BEWARD IP Visor”. Click **[Next >]**.



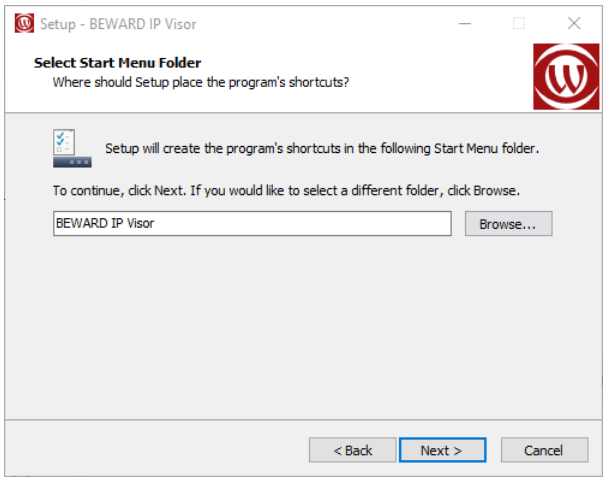
Pic. 2.5



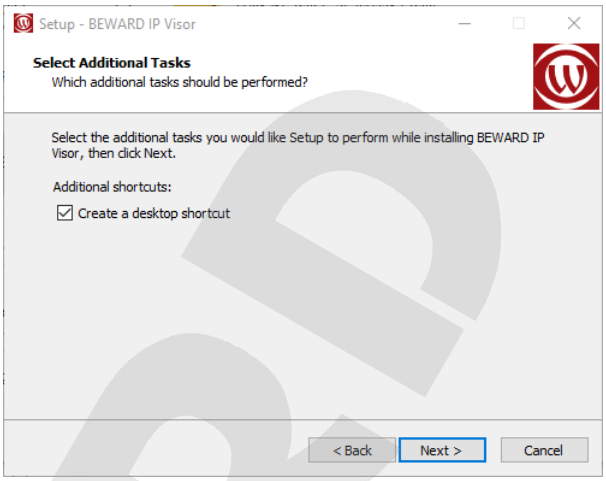
Pic. 2.6

Step 9: specify the location for BEWARD IP Visor shortcuts (shortcuts to run the program, bug reporter, open the manual and version history) in the “Start Menu” folder. Click **[Next >]** to proceed, or click **[Browse…]** if you want to specify a different folder (Pic. 2.7).

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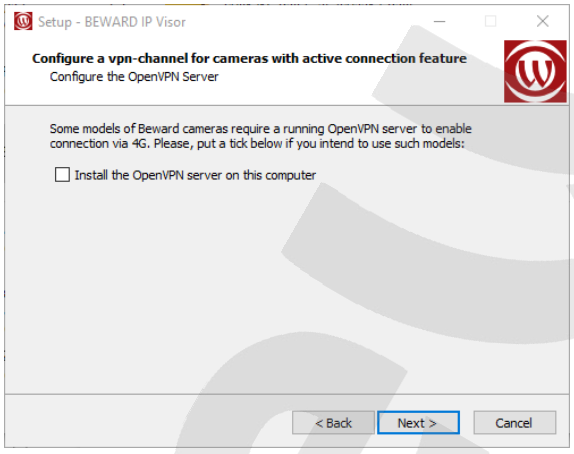
Pic. 2.7



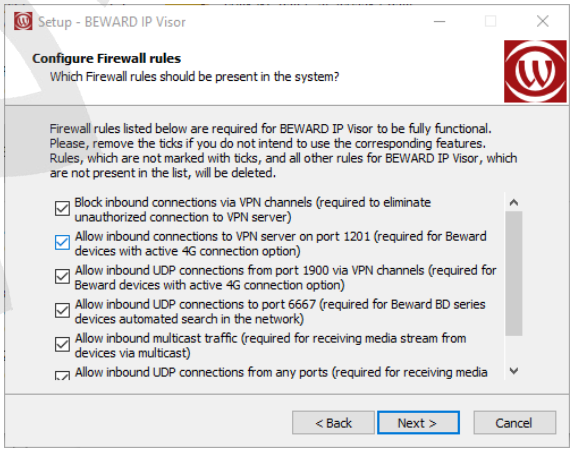
Pic. 2.8

Step 11: by default, the setup wizard will also create a desktop shortcut for BEWARD IP Visor. If this is not necessary, untick the “Create a desktop shortcut” field. Click **[Next >]** (Pic. 2.8).

Step 11: if you intend to use 4G-compatible devices (for example B1510-4G and B2710-4G cameras), you might require a VPN server. The setup wizard will offer to install the OpenVPN (Pic. 2.9). Tick the box of you intend to enable connection via 4G (see Chapter 6) and click **[Next >]**.



Pic. 2.9



Pic. 2.10

Step 12: You will need to configure Firewall rules for BEWARD IP Visor to be fully functional (see Pic. 2.10). Remove the ticks if you don’t intend to use the corresponding options and click **[Next >]**.

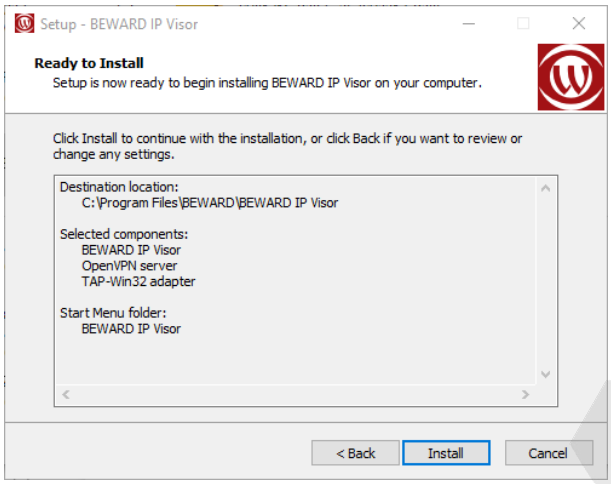
ATTENTION!

3rd-party antivirus, firewall and other software used to protect the system might block the incoming and/or outgoing traffic from installed programs which leads to incorrect work of BEWARD IP Visor. In order to

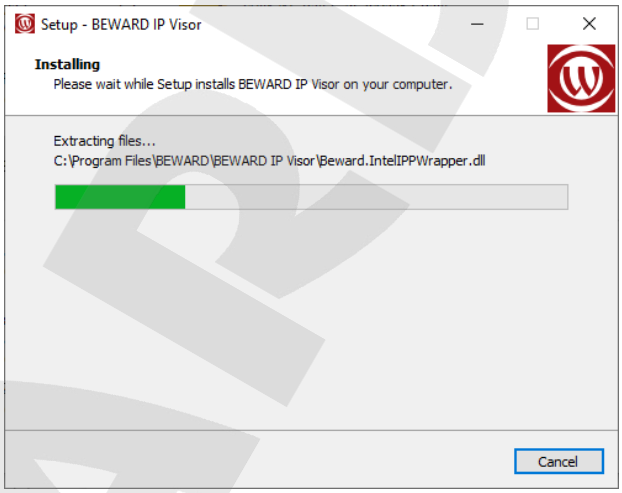
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avoid such issues, it is recommended to add BEWARD IP Visor into your antivirus/firewall software whitelist.

Step 13: After configuring the selection of components to install, click **[Install]** in the next window, if necessary, click **[< Back]** for revision (Pic. 2.11).



Pic. 2.11



Pic. 2.12

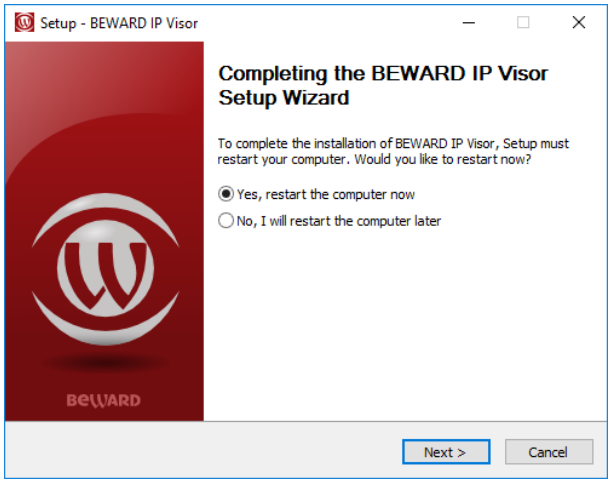
Step 14: wait until the installation process is complete (Pic. 2.12). Some components might take a while to install (for example, .NET Framework might take 3-20 minutes).

Step 15: Installation complete! If you don't need to run BEWARD IP Visor right away, untick the "Launch BEWARD IP Visor" box (Pic. 2.13). Click **[Finish]**.

In some cases, you might need to reboot your PC once the installation is complete (Pic.2.14.) If you would like to reboot the PC later, select "No, I will restart the computer later" option. Otherwise, simply click **[Finish]**.



Pic. 2.13



Pic.2.14

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Chapter 3. BEWARD IP Visor Main Window

Run the application, using one of the shortcuts created during the installation. The default start menu shortcut is located at **Start \ BEWARD IP Visor**. The main window will appear.



Pic. 3.1

Pic. 3.1 depicts the main window of BEWARD IP Visor, which allows to control all functions of a video surveillance system. The video stream displaying area is the biggest part of the main window. There are also two control panels: 1) one – on the right, which contains the clock and a PTZ control bar; 2) another one – in the bottom, which contains screen division buttons, audio control buttons and system menu buttons (Log, Player, Events, Settings).

The **[Minimize]** and **[Exit]** buttons are situated in the lower right corner of the application main window:



[Minimize]: click it to hide the application main window to the notification area of the Windows taskbar



[Exit]: Exit BEWARD IP Visor.

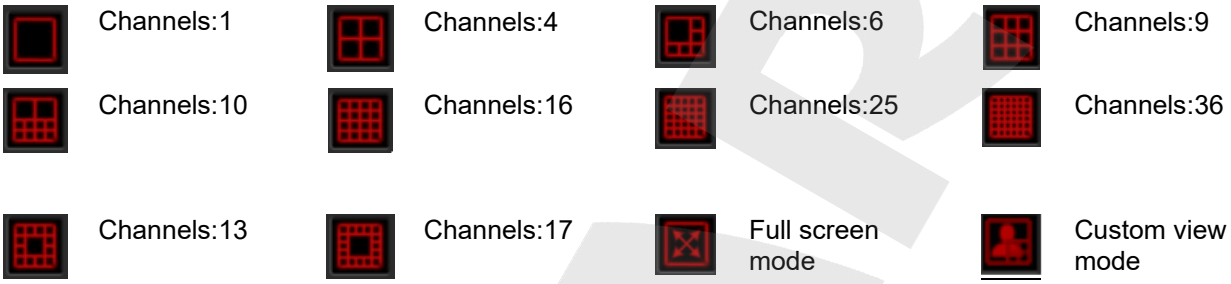
BEWARD IP Visor runs a special tool to ensure the correct closing when the **[Exit]** button is pressed.

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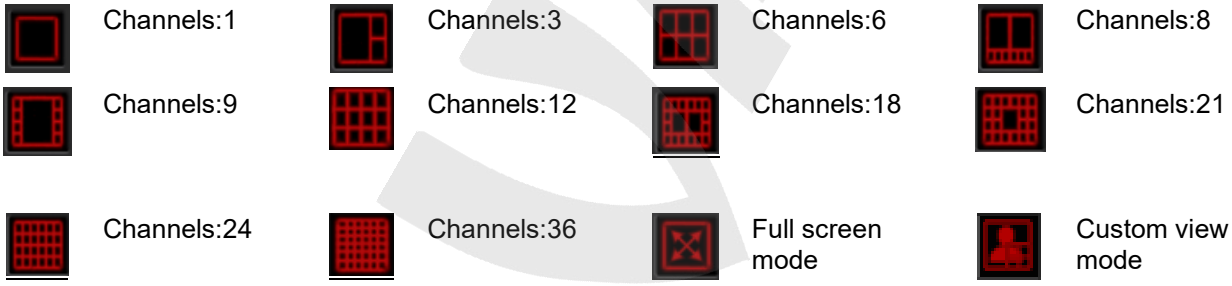
3.1. Screen Division Mode Buttons

The buttons for dividing the video stream displaying area into channel windows in different ways are situated in the lower left part of BEWARD IP Visor main window. To enlarge a window to its maximum size, click it twice with the left mouse button (a single channel mode will be enabled in this case). Double-click it again to return the window to multichannel mode.

Screen division mode buttons for 5:4 aspect ratio monitors



Screen division mode buttons for 16:10 and 16:9 aspect ratio monitors



You can arrange channel windows as you need in every screen division mode, moving them with the mouse. Just click the window you need and hold the mouse button pressed; then move the mouse and the window to the new place.

[Custom view]: this button applies a channel windows grid created by the user with the View Manager tool (see 4.4.1). If you change the group or the display while this mode is active, then the grid, which was created for them, is set automatically. If the grid was not created, then the 1 channel window mode  is set for these group and monitor.

3.2. System Buttons

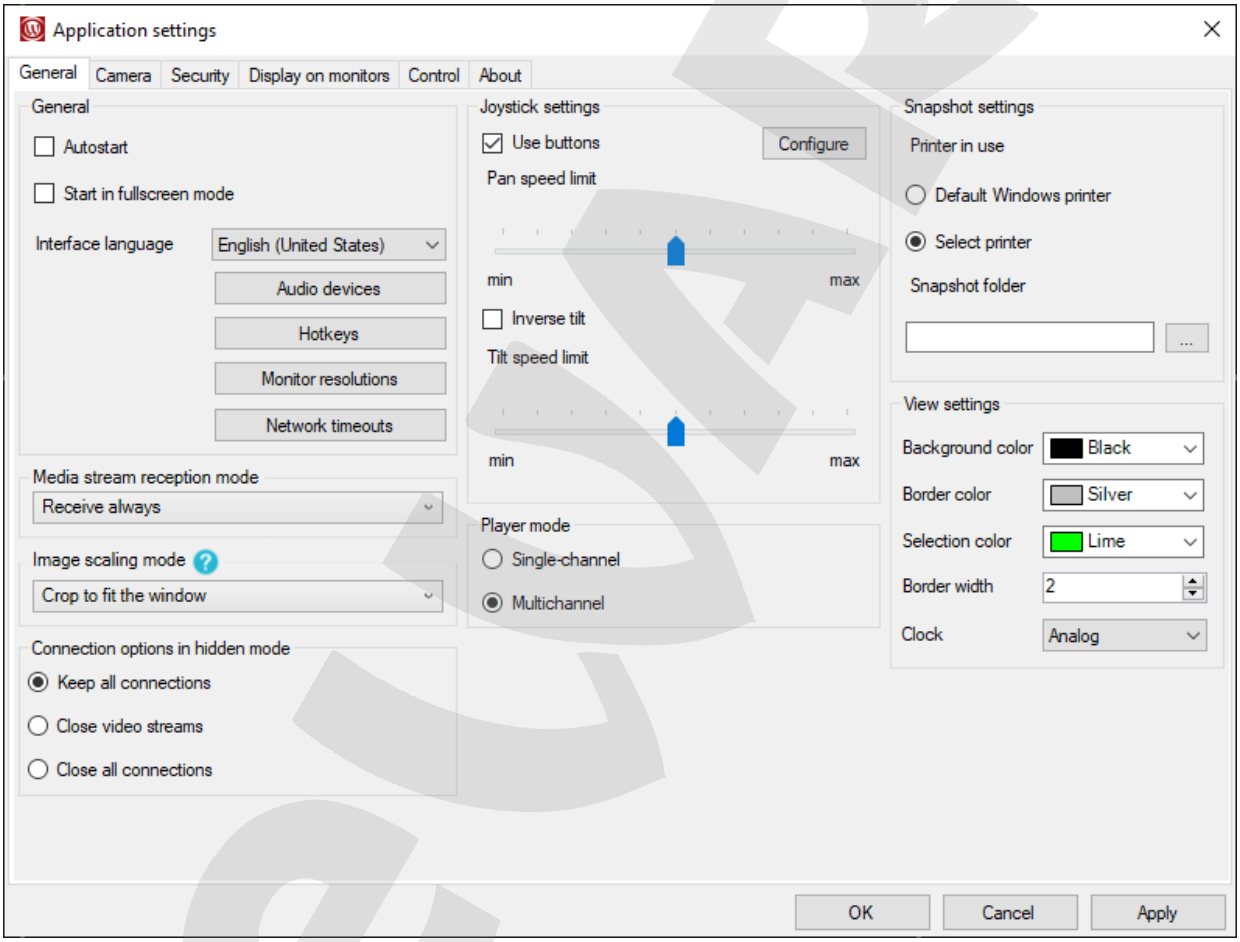
The System Menu buttons are situated in the bottom right part of BEWARD IP Visor main window (see Pic. 3.2). They are used for setting up the surveillance system and getting access to additional functions of BEWARD IP Visor.

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Pic. 3.2

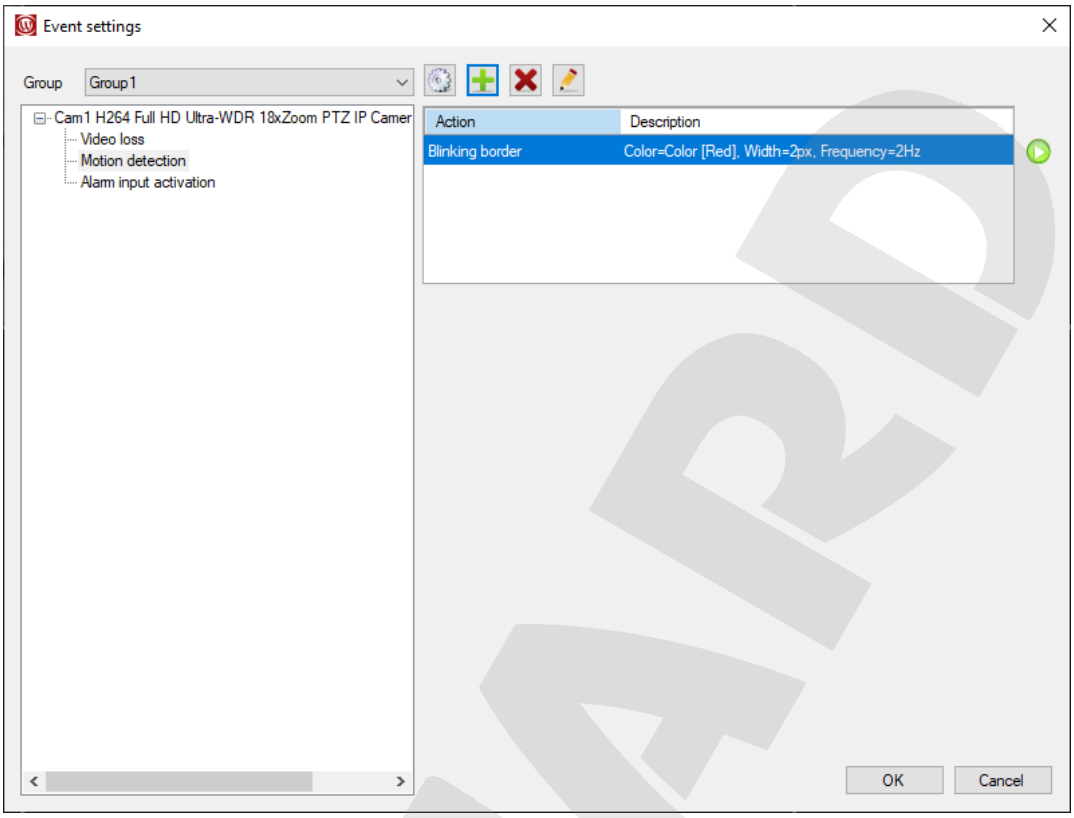
[Application Settings] : press this button if you want to set up application configuration (Pic. 3.3). Chapter 4 contains a detailed run-down of this window.



Pic. 3.3

[Event Settings] : press this button to open the window that will allow you to set up various events and actions to react as these events happen. (Pic. 3.4). Chapter 7 contains a detailed run-down of this window

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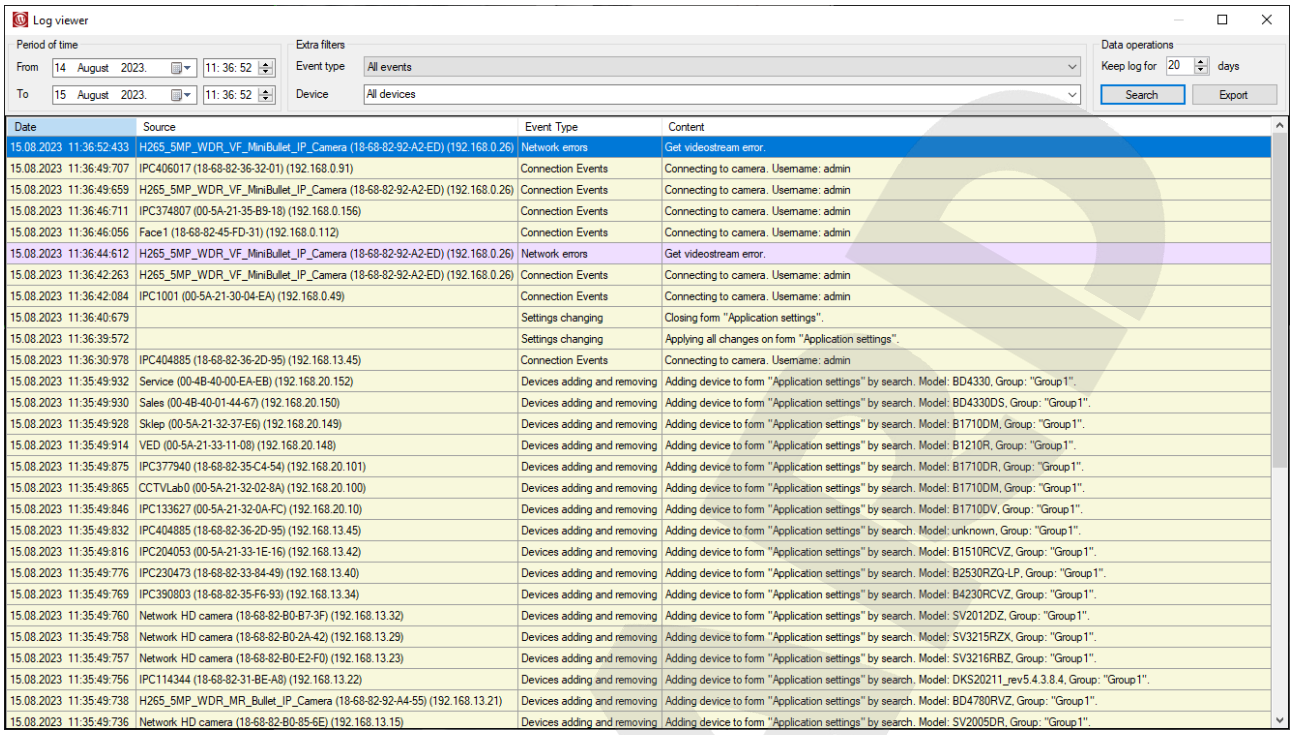
Pic. 3.4

[Player] : press this button to run BEWARD Player. The player is used for playing files from the video archive that were recorded via BEWARD Record Center. Depending on the settings (see 4.1.6) the player will run in either single-channel or multichannel modes. BEWARD Player and BEWARD Record Center are described in detail in their respective User Operation Manuals.

[User] : press this button to configure Access policy. The available features for Operator-level users are described in section 4.3.

[Log] : press this button to open the Log viewer, which allow to view and export events of the surveillance system (Pic. 3.5). Chapter 7 contains the detailed run-down of this window.

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Pic. 3.5

3.3. Audio Control

To the right of the Screen Division Mode buttons, there are 2 Audio Control buttons: Audio On/Off and Talk Mode On/Off. These buttons allow choosing (enable / disable) one of two audio data transmission modes: one-way audio mode or two-way audio mode (“Talk” mode).

> **NOTE!**
> Audio Control buttons become available only if audio is supported on the selected device.

[One-way audio mode] : press this button to enable playback of the selected device audio stream in computer speakers. Press the button again to disable audio playback.

[Two-way audio mode (Talk Mode)] : press this button to enable playback of the selected device audio stream in computer speakers and to transmit sound from your PC microphone to the speakers connected to the device audio output. Press the button again to disable audio playback.

3.4. Door Station Control

Two additional buttons appear in BEWARD IP Visor main window to the right of audio control buttons if Door Stations are selected. These buttons are **[Talk mode on]** and **[Open door]**.

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NOTE!
Door Stations are DS-series and DKS-series devices, as well as analog single-user/multiuser door stations, connected via DK103(M) IP-portals.



[Talk mode on]: click to enable two-way audio transmission between the operator and a door station. Click again to turn off the talk mode.



[Open door]: click to open the door.

ATTENTION!
When the talk mode is used by some client connected to the door station, the others can't use it. In this case they are notified that the talk mode is not available with a pop-up message.

When the **[Talk mode on]** button is pressed, BEWARD Record Center starts recording the video and audio (two-way) streams. The recording stops when the talk mode is disabled or if BEWARD IP Visor Main Window is either closed or minimized.

ATTENTION!
The recording is possible only if the BEWARD Record Service is running on the PC and the recording mode "on two-way audio activation" is enabled (see BEWARD Record Center User Operation Manual).

3.5. PTZ Control

PTZ control bar is located along the right side of the main window. (Pic. 3.6, Pic. 3.7, Pic. 3.8). It contains buttons for manual control, quick jump to preset positions and tours. Chapter 5 contains a detailed run-down of the PTZ control.



Pic. 3.6



Pic. 3.7

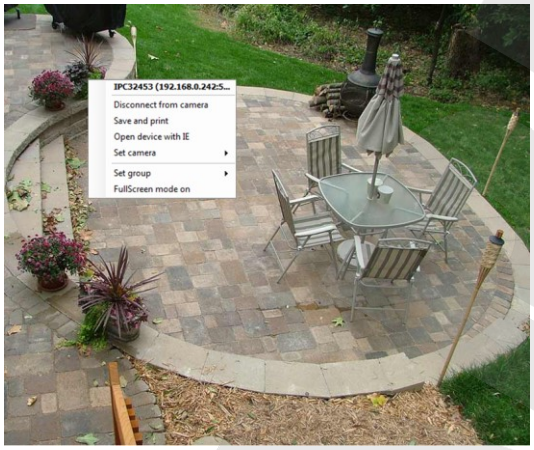


Pic. 3.8

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3.6. Screen Context Menu

Right-click on the video image from a camera in the channel window to open a screen context menu (Pic. 3.9). The top line of the menu displays the device name and its IP address.

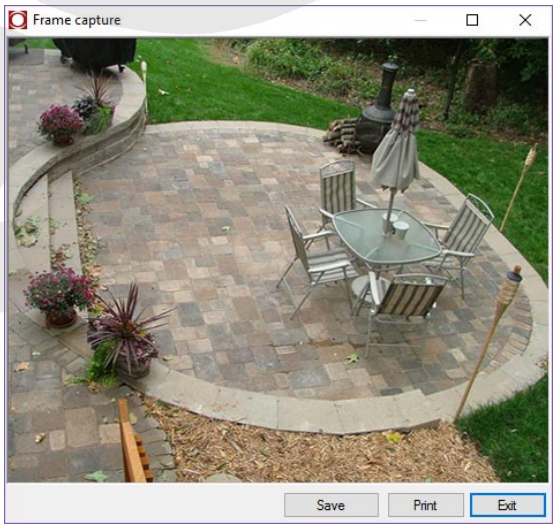


Pic. 3.9

The menu allows the user to perform the following actions:

Connect to / Disconnect from camera: Connect/Disconnect the selected camera from BEWARD IP Visor. If you select “Disconnect from camera” the video image will disappear from the channel window, but the camera will not be removed from the application list of added devices and it can be connected back at any time.

Save and print: choose this item to save the current snapshot of the camera video image as a JPEG file or print it. After selecting this action, a preview of the snapshot will appear (Pic. 3.10), which allows to either save or print the snapshot. The save and print parameters are described in section 4.1.7.



Pic. 3.10

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Open device with IE: selecting this action launches Internet Explorer and connects to the Web UI of the selected device. In newer Windows versions Edge browser might be used instead of IE.

Set camera: select this action to display video stream from other devices that are not displayed in the current screen division mode. This action becomes available when the current screen division mode contains less video display windows than there are devices in the selected group.

Set group: select this action to display video stream from devices belonging to another group. This action becomes available when there are at least 2 non-empty groups.

FullScreen mode on: select this action to hide the control bars and expand the video stream display area to a full screen.

> **NOTE!**
> To turn FullScreen mode on/off you can use the Alt + Enter hotkey combination.

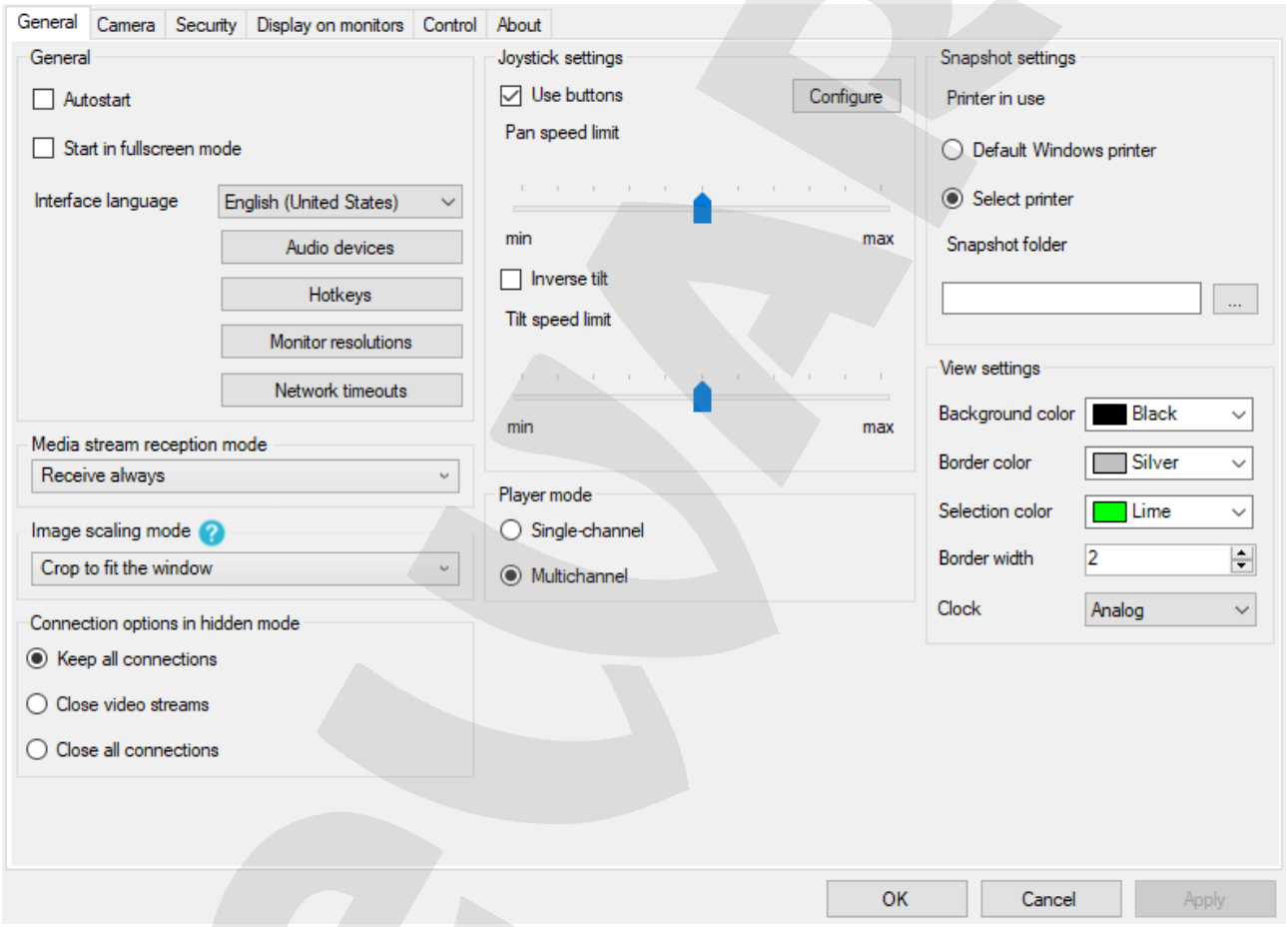
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Chapter 4. BEWARD IP Visor Settings

Press **[Application Settings]** button (see section 3.2) to open the **"Application Settings"** menu, which is used for configuring the devices added to BEWARD IP Visor.

4.1. "General" tab

The "General" tab is shown on Pic. 4.1. This tab contains settings which determine the way BEWARD IP Visor starts, its appearance and the way it interacts with external devices.

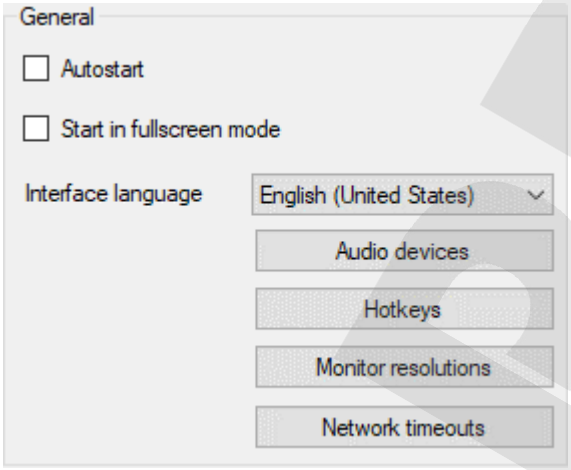


Pic. 4.1

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4.1.1. General Settings

This group contains the general settings of BEWARD IP Visor (Pic. 4.2):



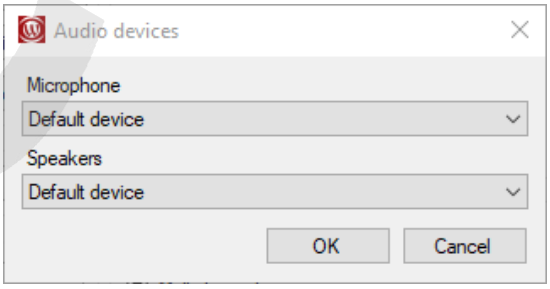
Pic. 4.2

Autostart: enable to allow the BEWARD IP Visor to start with the operation system (after the user authorization).

Start in fullscreen mode: enable to allow the BEWARD IP Visor to start in the Full Screen mode (the tool bars of the application main window are hidden and the video stream displaying area is expanded to a full screen).

> **NOTE!**
> Press the **[Alt + Enter]** hotkey combination or press **[FullScreen mode off]** in the context menu to exit the Fullscreen mode.

Interface language: choose the language of the BEWARD IP Visor Interface. Currently only English and Russian are available.

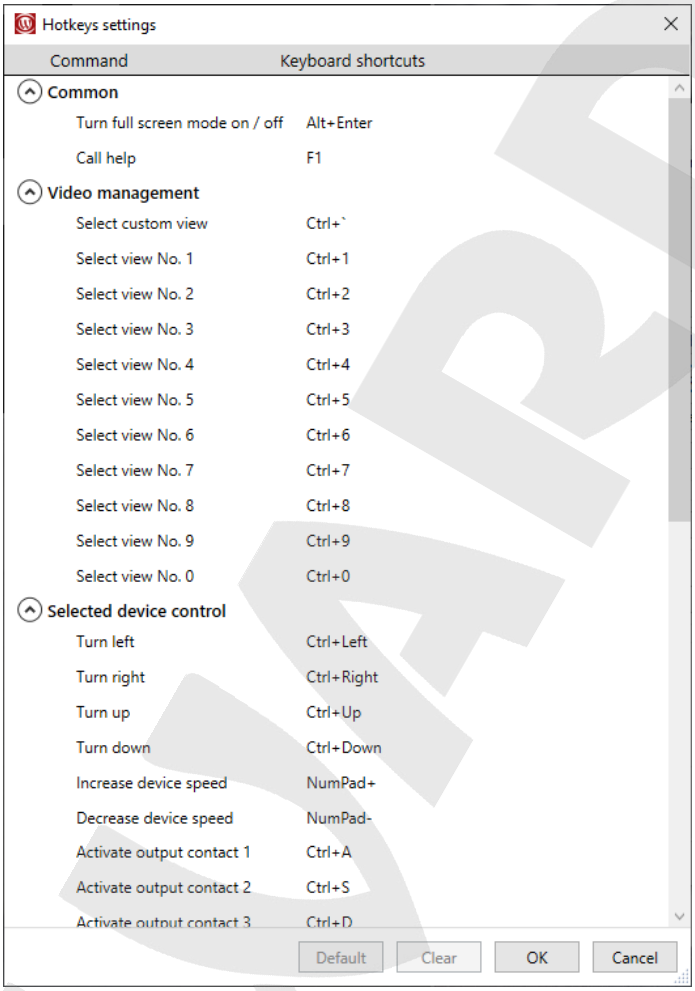


Pic. 4.3

[Audio devices]: press this button to open the audio devices window (Pic. 4.3). It allows to select the microphone and speakers for BEWARD IP Visor.

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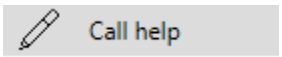
[Hotkeys]: press this button to display the full list of commands for BEWARD IP Visor (Pic. 4.4). The key combinations for these commands can be edited, deleted and reset to default.



Pic. 4.4

All commands are divided into categories that can be collapsed. All the basic commands are already assigned keyboard shortcuts by default. To return to the original keyboard shortcuts, select the commands in the list and press **[Default]**. The commands that are linked to specific devices do not have the default keyboard shortcuts assigned to them. To remove the shortcut from a command, select the command and press **[Clear]**.

To edit a command, hover the mouse cursor over it and press the pencil icon that appears (Pic. 4.5), or double-click the command, or select the command and press **[Enter]**.

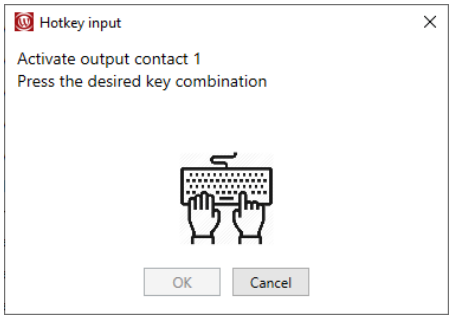


Pic. 4.5

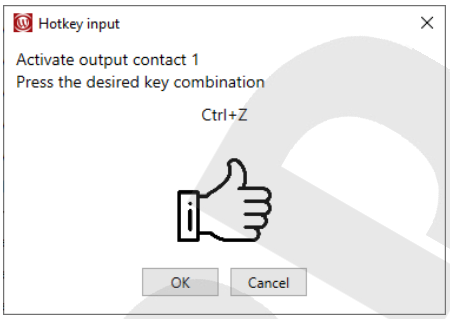
In the Hotkey input window (

Pic. 4.6), and keyboard key combination can be assigned to a command. Please make sure that the key combination is valid and doesn't conflict with other existing hotkey combinations (

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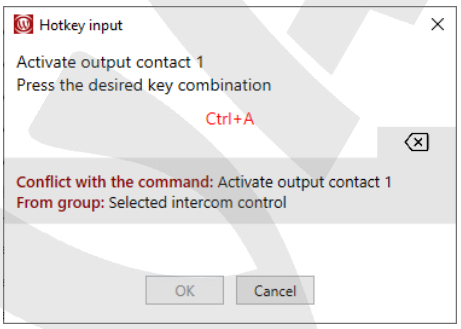


Pic. 4.7).



Pic. 4.6 *Pic. 4.7*

If the hotkey combination is already in use for another command, a warning message will pop up (Pic. 4.8).



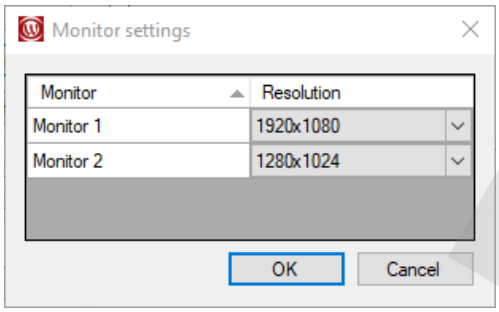
Pic. 4.8

In this case, the User may enter a different key combination or press **[Clear]** to delete the hotkey combination from the conflicting command and enter the combination to the new command.

When editing the hotkeys in the main window, conflicts may appear. The conflicting commands will change their font color to red and the **[OK]** Button will become unavailable. To solve the conflict, just reset to default, clear or edit one of the conflicting commands.

[Monitor resolutions]: press this button to open the Monitor settings window (Pic. 4.9), which allows to set the window resolutions for the main and alternative monitors. By default, the Main Window is to set to fullscreen.

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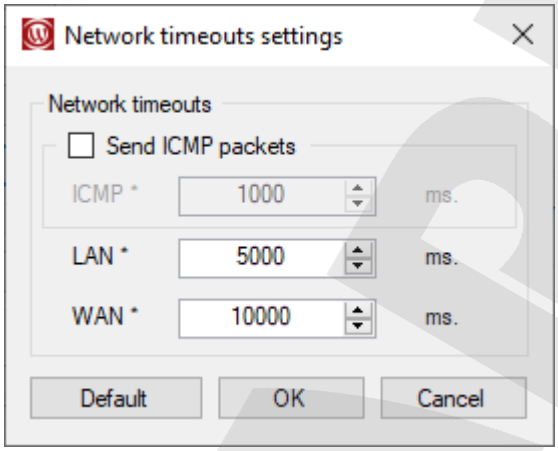


Pic. 4.9

BEWARD

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[Network Timeouts]: press this button to open a window (Pic. 4.10), which allows to set up network timeouts used when BEWARD IP Visor is connecting to devices. It is recommended to increase timeout intervals only for very slow channels (for example, satellite).



Pic. 4.10

Send ICMP packets: this option is outdated; it is advised to keep it turned off.

LAN: network timeout interval for local network requests (including VPN).

WAN: network timeout interval for global network requests.

4.1.2. Media stream reception mode

These parameters set the rules for BEWARD IP Visor when requesting media streams (video and audio) from the connected devices. The following values are available:

Receive always: media streams do not close, so the display image restores quicker after changing screen division mode or switching to different device groups;

Receive when needed to view: if the device is not on screen, its media stream is closed, thus reducing the workload on CPU and network, but requires more time to restore the display image after changing screen division mode or switching to different device groups. You still can receive event notifications from the device and react to them;

Set individually for each device: the reception mode is set individually for each device in “Media stream reception settings” window (see 4.2.4).

4.1.3. Image scaling mode

Set the algorithm for getting rid of empty areas on the sides of the image when it is displayed in the window. The following values are available:

Without crop: leave the image as is, without cropping any parts and keeping the original ratio, you might notice empty areas on the sides of the image;

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Crop to fit the window: the image is cropped to fit the window entirely, keeping the original ratio;

Set individually for each device: the image scaling mode is set individually for each device in “Media stream reception settings” window (see 4.2.4).

4.1.4. Connection options in hidden mode

Set the actions performed by BEWARD IP Visor when minimized:

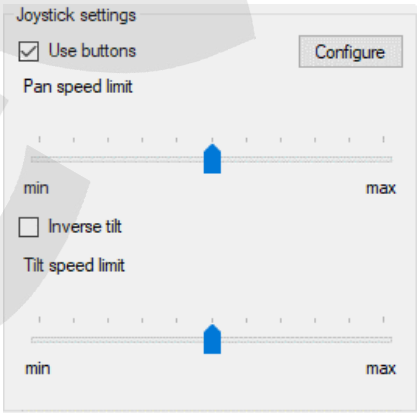
Keep all connections: choose this option to keep all cameras, whose images are displayed in the application window, connected to the application when you minimize it; in this case network and CPU load is not decreased, but video is restored without delay after maximizing the window;

Close video streams: choose this option to stop transmitting video and audio streams from cameras whose images are displayed in the application when you minimize it; in this case network and CPU load is decreased significantly, but video is restored with some delay after maximizing the window. In addition, when the application window is minimized, the actions, which were set for alarm events, remain enabled;

Close all connections: choose this option to disconnect all devices. This significantly reduces the network load, but video is restored with a long delay after maximizing the application. In addition, when the application is minimized, you will not receive event notifications.

4.1.5. Joystick settings

BEWARD IP Visor allows controlling PTZ cameras with a standard USB joystick. The Joystick settings menu is shown on Pic. 4.11.



Pic. 4.11

Use buttons: enable to control the zoom and focus of a PTZ camera using buttons of the joystick.

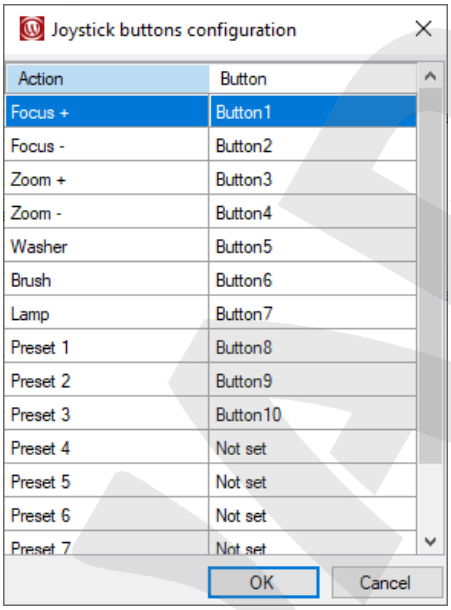
Pan speed limit: set a limit of a horizontal rotation velocity of a PTZ camera which can be reached by moving the joystick left or right.

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Inverse tilt: enable inverse tilt motion of the camera.

Tilt speed limit: set a limit of a tilt velocity of a PTZ-camera which can be reached by moving the joystick forward or backward.

[Configure]: press this button to open the “Joystick button configuration” menu (Pic. 4.12). Left-click the control function and then press the joystick button that you want to assign to that particular function. Once you’re done with the configuration, click **[OK]**.



Pic. 4.12

ATTENTION!
After connecting the joystick to your PC, you need to calibrate it using standard Windows software, otherwise the device may work incorrectly.

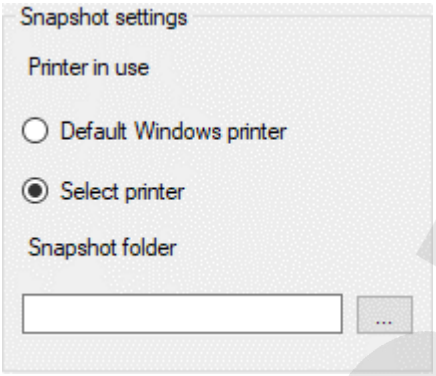
4.1.6. Player mode

Set the player type that will launch when you press the [**Player]** button in the main window (see section 3.2). You can select either a single-channel or a multichannel player. BEWARD Player is described in detail in “BEWARD Player Operation User Manual”.

4.1.7. Snapshot settings

These settings (see Pic. 4.13) are meant for configuring the Screen Context menu (see section 3.6).

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Pic. 4.13

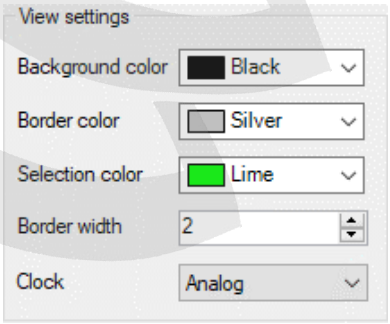
Default Windows printer: use this setting to print snapshots by means of the printer that is set by default in Windows without displaying the window to choose another printer.

Select printer: use this setting to have the option to choose the printer you want to use for printing snapshots in a dialog window.

Snapshot folder: specify the folder where snapshots will be saved. If the folder is not specified, you will be asked to choose an existing folder or create a new one.

4.1.8. View settings

Use the View settings (Pic. 4.14) to edit the appearance of the video channel window.



Pic. 4.14

Background color: use this drop-down list to change the color of the empty channel windows.

Border color: use this drop-down list to change the color of the channel window borders in the video stream displaying area.

Selection color: use this drop-down list to change the color of the active channel window frame.

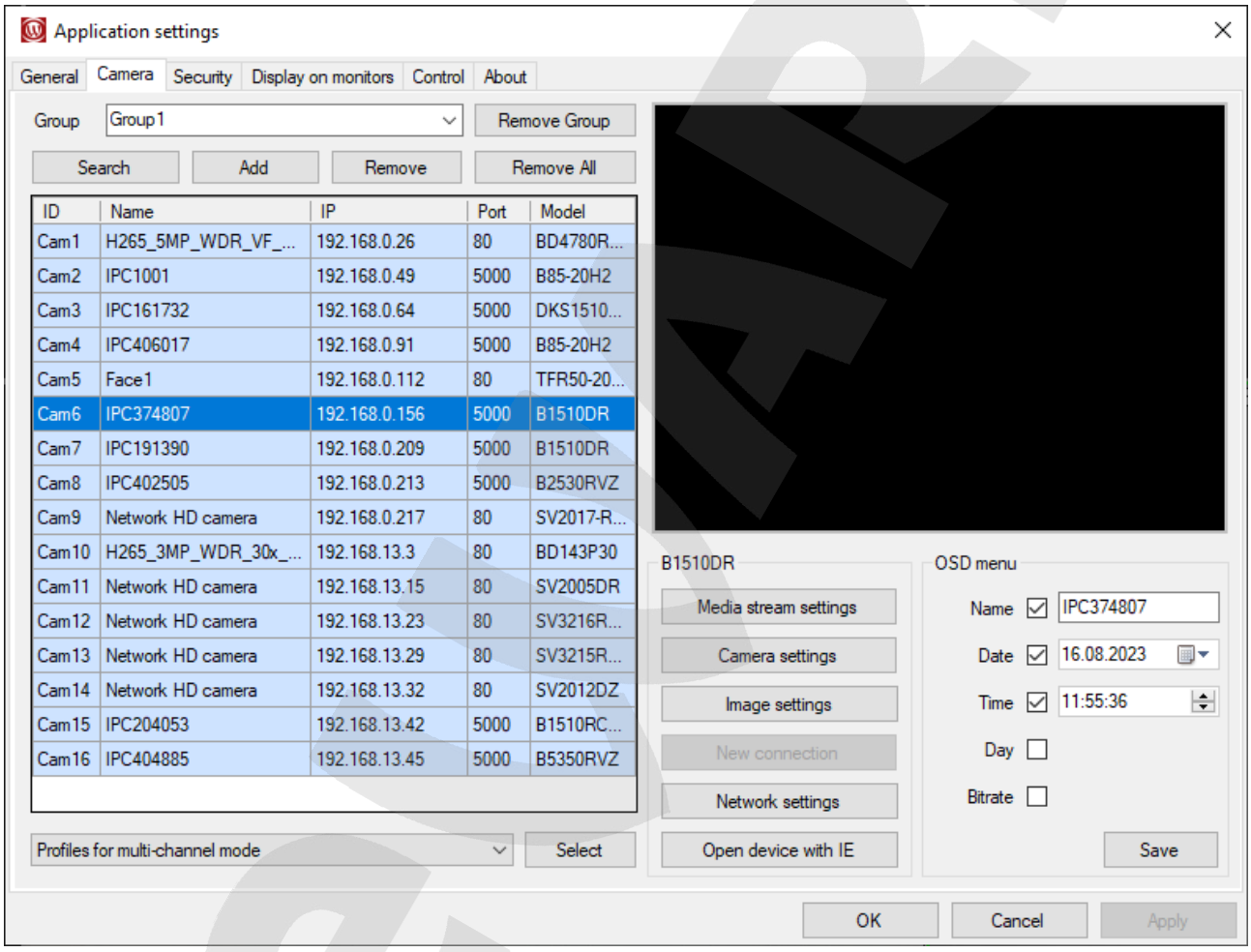
Border width: enter the width of the window borders and also the frame width in the current field.

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Clock: choose the type of the clock on the right side of the main window: “Classic” (No date) or “Digital” (includes current date).

4.2. “Camera” tab

Camera tab (Pic. 4.15.) allows you to add/remove devices from BEWARD IP Visor and configure them.



Pic. 4.15

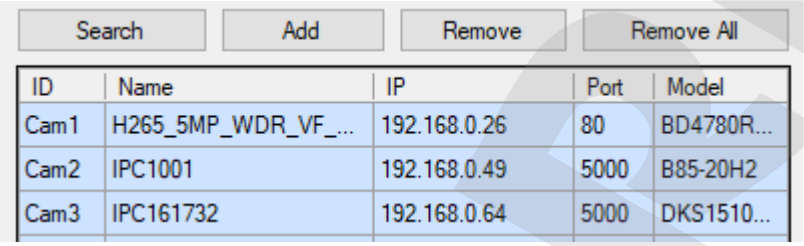
The UI elements in this tab can be divided into 3 groups:

- Lists of devices and groups and elements for their modification (**[Search]**, **[Add]**, **[Remove]**, **[Remove All]**, **[Remove group]**);
- Video display window;
- Buttons for changing settings of specific devices (i.e. media stream settings, network settings etc.);
- On-screen display (OSD) menu.

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4.2.1. List of added devices

Before a device (camera, videoserver, door station) can be worked with, it needs to be added to the device list in the Camera tab. It can be done in two ways: by clicking the **[Search]** button to find all available devices in your local network, or by clicking **[Add]** and manually filling out the connection parameters for each device. (Pic. 4.16).



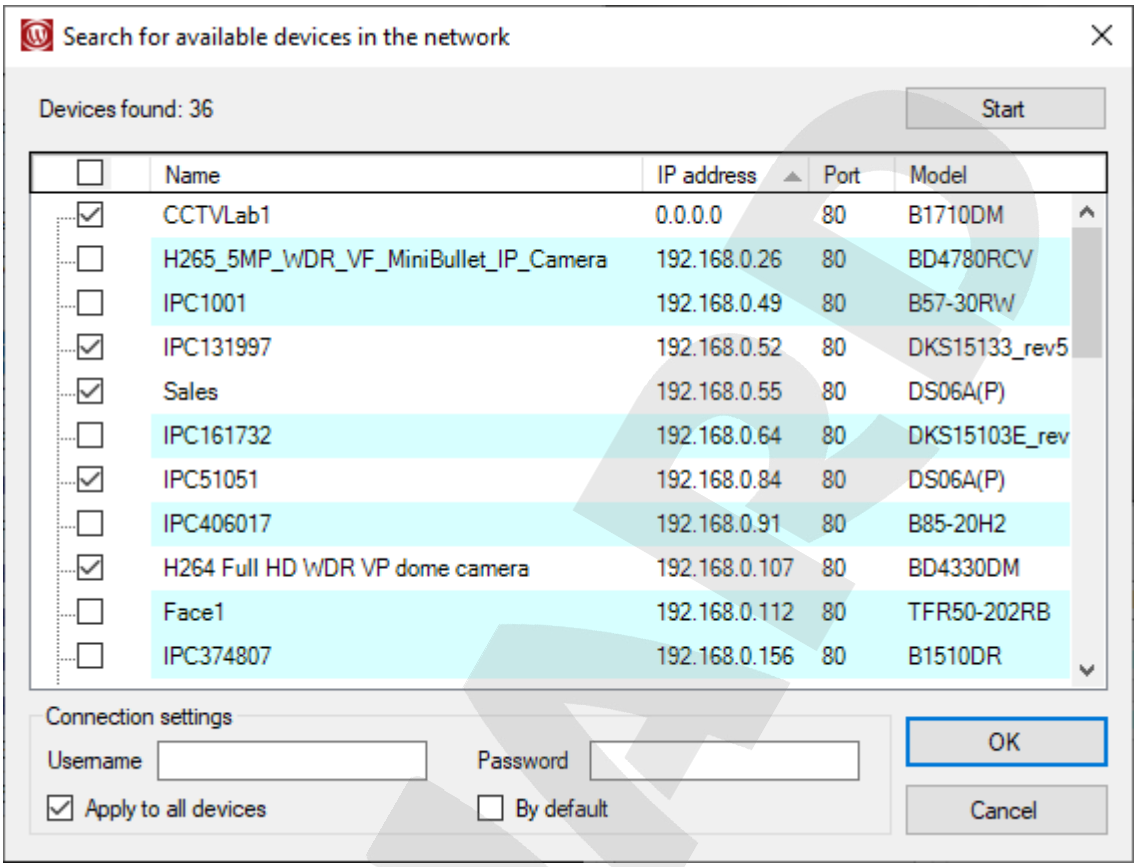
Pic. 4.16

NOTE!
BEWARD IP Visor supports only BEWARD devices. Devices of other manufacturers are not supported.

Search in the local network

[Search]: click this button to launch the search for available devices in the local network. A new window will open to show the search progress and BEWARD devices found so far. (Pic. 4.17). This allows to add multiple devices simultaneously, without the need to manually set connection parameters like IP addresses and ports.

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Pic. 4.17

[Stop]/[Start]: press this button to pause/resume the ongoing search of available devices.

The already added devices are highlighted in light-blue. Each device can be added once to each group (see section 4.2.3). When the search is complete, tick the boxes near the devices that need to be added.

Username and **Password**: enter the username (login) and password to connect to the selected devices.

By default: tick this option to replace the text in Username and Password fields with “admin”.

Apply to all devices: if all selected devices have the same username and password, leave this option enabled. If you need to add devices with different usernames and/or password, do the following steps:

1. Tick the boxes next to the devices that you want to add;
2. Turn off “Apply to all devices”;
3. Use the mouse and *Ctrl* or *Shift* keys to select one or multiple devices (they will be highlighted in dark blue);
4. Enter the username and password or use the “by default” option;
5. Repeat steps 3-4 until you're done.

Click the **[Ok]** button to add the selected devices to BEWARD IP Visor.

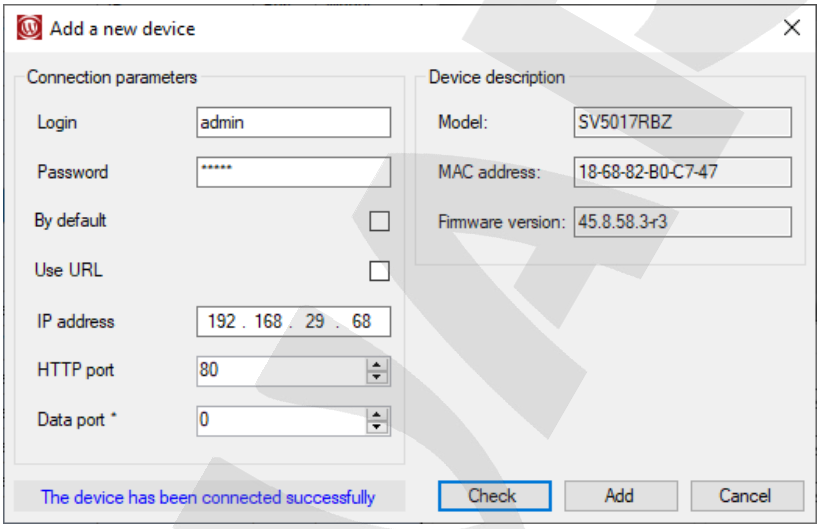
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ATTENTION!

N-series cameras might require Microsoft Network Discovery to be enabled in Windows before they can become available for automatic search in the local network. Go to Control Panel – Network and Sharing Center – Advanced sharing settings – Turn on network discovery (for the appropriate network profile).

Adding devices manually

[Add]: click this button (Pic. 4.16) to manually add a new device (Pic. 4.18). This function is useful when some devices can't be found by the automatic search, for example, when they are not in a local network but in the Internet.



Pic. 4.18

Login, **Password**: enter username and password in these text fields to get access to the device.

By default: enable this option to set the following parameters: "admin"/"admin" for Login and Password, "0.0.0.0" for IP address, "80" for HTTP port.

IP address: IP address of the added device.

Use URL: this option allows you to add the device using its URL address.

HTTP port: port for HTTP protocol (for loading and configuring settings).

Data port: specific port for B-series devices, the default value is 5000, for all other devices the value should be set to 0;

When all connection parameters are specified, click the **[Check]** button to start connecting to the device (to stop connecting, click the **[Stop]** button). If the connection is established, you will see the following device information in the top right corner of the window:

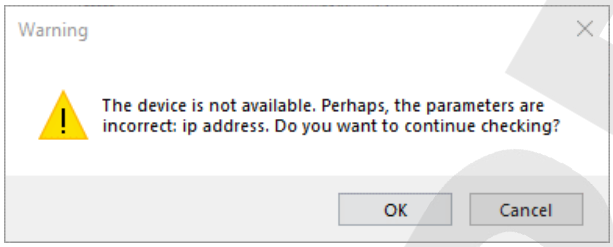
Model: model name of the connected device.

MAC address: MAC address of the connected device.

Firmware version: current firmware version of the connected device.

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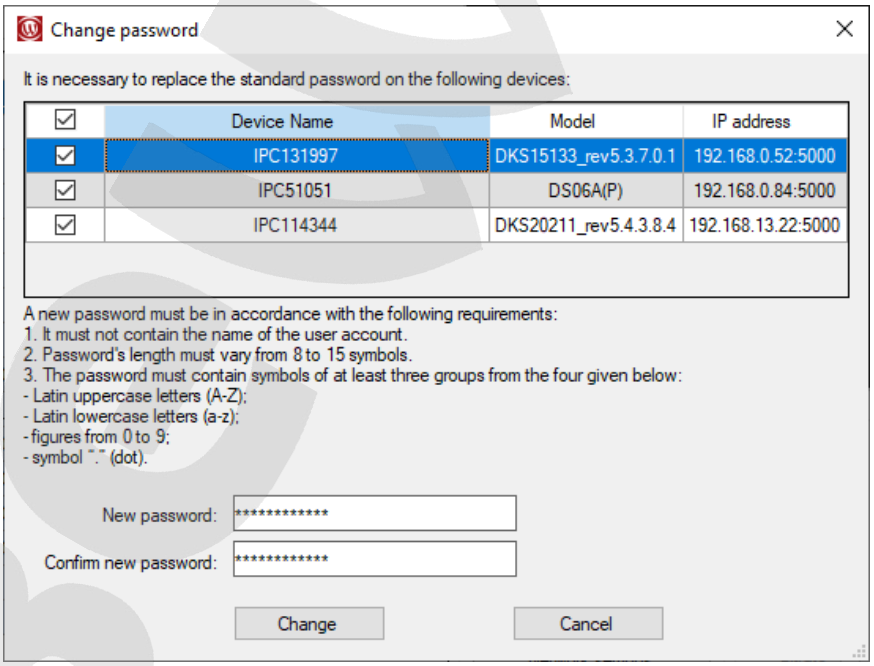
If connection parameters were entered incorrectly, a warning message will pop up, showing the wrong parameter (Pic. 4.19). Press **[Cancel]** to return to the “Add a new device” window. If you are sure that all parameters are entered correctly, press **[OK]** to continue the check.



Pic. 4.19

If the newly added device is a door station with the default password, you will be asked to change it in the popup window (Pic. 4.20). Select the devices for which you want to change the passwords, enter the new password in accordance with all security requirements, confirm it and press **[Change]**. The passwords of the selected devices will be changed and then the devices will be added to BEWARD IP Visor.

NOTE!
Door Stations with default password cannot be added to BEWARD IP Visor.



Pic. 4.20

[Remove]: press this button (Pic. 4.16), to delete the selected device from BEWARD IP Visor.

[Remove All]: press this button (Pic. 4.16), to delete all cameras of the selected group (see 4.2.3) from BEWARD IP Visor.

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4.2.2. New ePTZ connection

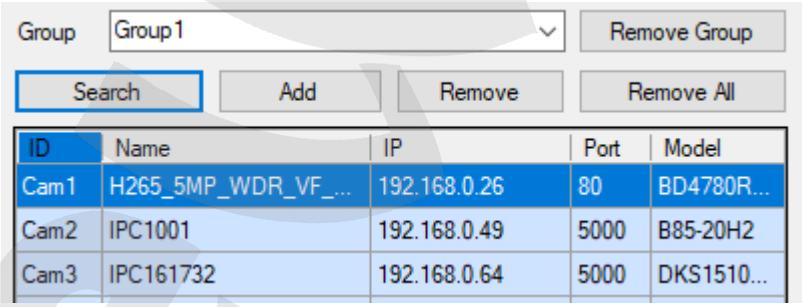
ePTZ technology allows to use a single camera with a fisheye lens as several PTZ cameras (up to 4). BEWARD IP Visor receives only a single videostream and divides it into several channels, in each one PTZ can be controlled independently. To use ePTZ function, enable “ePTZ function” in “Fish eye settings” (“Device settings” window, “Advanced image settings” tab, see section 4.2.6).

To add a new ePTZ connection, click **[New connection]** in the “Camera” tab of the application settings window (see Pic. 4.15). A new connection will appear as a separate videoserver channel. All channels share the same settings (video, image, audio, network etc.) but ePTZ control is independent for each channel.

NOTE!
“ePTZ function” becomes available only if the “Fisheye distortion correction” setting is set to “on device”.

4.2.3. Device groups

Users can monitor videostreams from all added devices on the main window by selecting the appropriate screen division mode. In some cases, when there are too many devices, it would be more convenient to divide the devices into groups (i.e. by floors, rooms etc.), switching between the groups when needed. BEWARD IP Visor allows the user to group devices when they're being added.

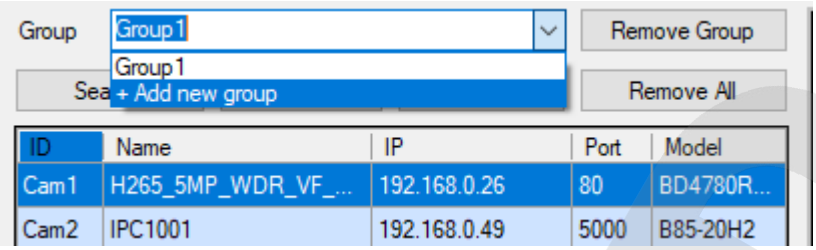


Pic. 4.21

The list of groups is located above the list of added devices (Pic. 4.21). By default, there's always at least 1 group. If there's no need to group the devices, all new devices will be added to the default group. The ways to do so are described in section 4.2.1.

Add new group: click the dropdown list and select “+ Add new group” (Pic. 4.22). There can be up to 20 groups.

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Pic. 4.22

Change group name: group name can be changed in the text field of the group dropdown list.

[Remove group]: press this button if you want to delete the current device group. Another way to delete a group is to remove all its devices (make sure that this is not the only group available).

NOTE!

When you switch between device groups, video streams may be disconnected (see "**Receive when needed to view"**, section 4.1.2).

ATTENTION!

Event actions are only displayed/performed for devices from the currently selected group, which is displayed in the application main window. However, the call notification and the popup window are displayed and the sound notification is performed for the door stations in any way

4.2.4. Media stream reception settings

BEWARD IP Visor receives video and audio streams directly from the devices (with some exceptions, like receiving streams via Multicast). Almost all devices can send several simultaneous videostreams with different coding settings, resolutions etc. When configuring surveillance systems, it is important to correctly set up the videostream parameters in accordance with the way they are being used. For example, when viewing video from a camera in single-channel mode, you need to select the highest quality parameters: the biggest resolution, high bitrate etc. When viewing video from several cameras simultaneously, it's better to use streams with lower resolutions. This reduces the workload on the camera, network and the PC, as well as allows to display more video channels simultaneously on your current hardware, add a single camera into several instances of BEWARD IP Visor etc.

ATTENTION!

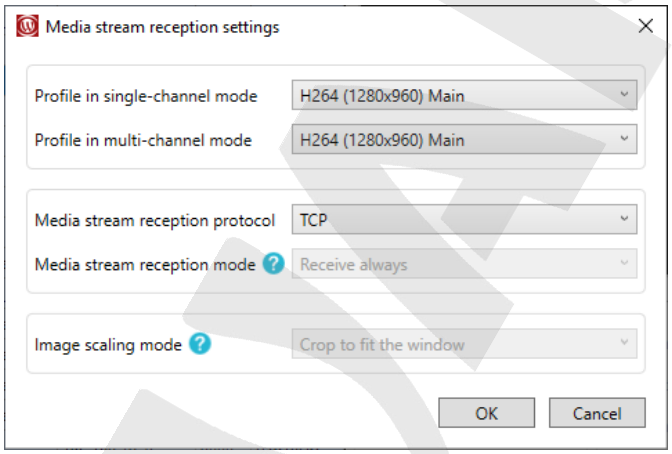
Pay close attention to the CPU load during configuration. The total CPU load in any display mode shouldn't exceed 80% for BEWARD IP Visor to function stable.

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NOTE!

The following video parameters are the biggest contributors to the CPU load: resolution, codec and framerate. Higher resolutions and framerate lead to more CPU load. H.265 codec requires more resources than H.264 and other codecs.

A set of video encoding parameters assigned to one of the device's videostreams is called a Profile. Profiles determine what videostreams will be sent from the device to BEWARD IP Visor in single-channel/multichannel modes. Profiles can be assigned to each device independently in the "Media stream reception settings window" (Pic. 4.23). This window can be accessed by clicking **[Media stream settings]** for the currently selected device (Pic. 4.15).



Pic. 4.23

Profile in single-channel mode: select the profile that ensures good image quality in single-channel mode.

Profile in multi-channel mode: select the profile that ensures acceptable image quality in multi-channel mode for your preferred screen division mode.

Media stream reception protocol: BEWARD IP Visor can receive video- and audio streams via one of the 3 protocols: TCP, UDP, Multicast. TCP ensures the delivery of data packets and usually allows to achieve the best video quality; the image never looks fragmented but can stutter in case of severe network errors. UPD might deliver video data with some packet loss, which leads to unwanted visual artifacts. When using TCP and UDP protocols the device sends a separate stream to each recipient, even if they all request the same profile, which increases the workload on the camera and might result in a lower actual framerate. Multicast Protocol allows to decrease the workload on the camera by sending the same stream to multiple recipients. In this case, the workload of sending the stream to each recipient is taken up by the networking hardware. Multicast allows to organize complex surveillance system infrastructures with a large number of stream recipients. But it also requires high grade networking hardware and it is harder to configure. Recipients might

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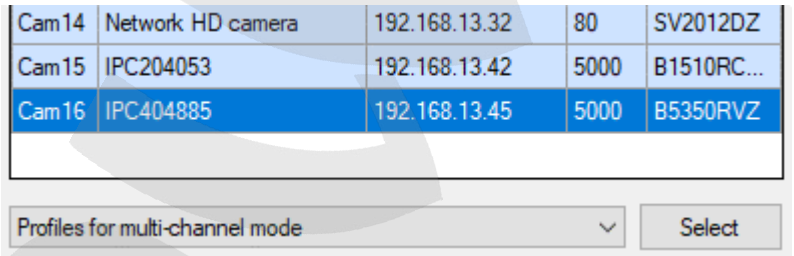
experience the same issues as when using UDP protocol, since Multicast also doesn't guarantee flawless delivery of data packets. TCP and UDP protocols are supported by all BEWARD devices, while the list of Multicast-supported devices is limited. TCP protocol results in more workload for the camera than UDP and Multicast. To ensure the best possible video quality, BEWARD IP Visor is using TCP Protocol by default.

Media stream reception mode: set the rules for BEWARD IP Visor when requesting mediastreams from the selected device. This parameter only becomes available if the "Media stream reception mode" in "Application settings" window is set to "Set individually for each device" (see section 4.1.2).

Image scaling mode: set the algorithm for getting rid of empty areas on the display window. This parameter only becomes available if the "Image scaling mode" in "Application settings" window is set to "Set individually for each device" (see section 4.1.3).

Press **[OK]** to save all changes for the selected device and close the window. Press **[Cancel]** to close the window without saving the changes.

It might become too overwhelming to set the mediastream parameters for each device separately if there are too many connected devices. For this case BEWARD IP Visor supports setting up profiles group-wide. Go to the "Camera" tab in "Application settings" window (Pic. 4.24). Click the dropdown list under the list of connected devices and choose one of the modes (either single-channel or multi-channel) and press **[Select]**.



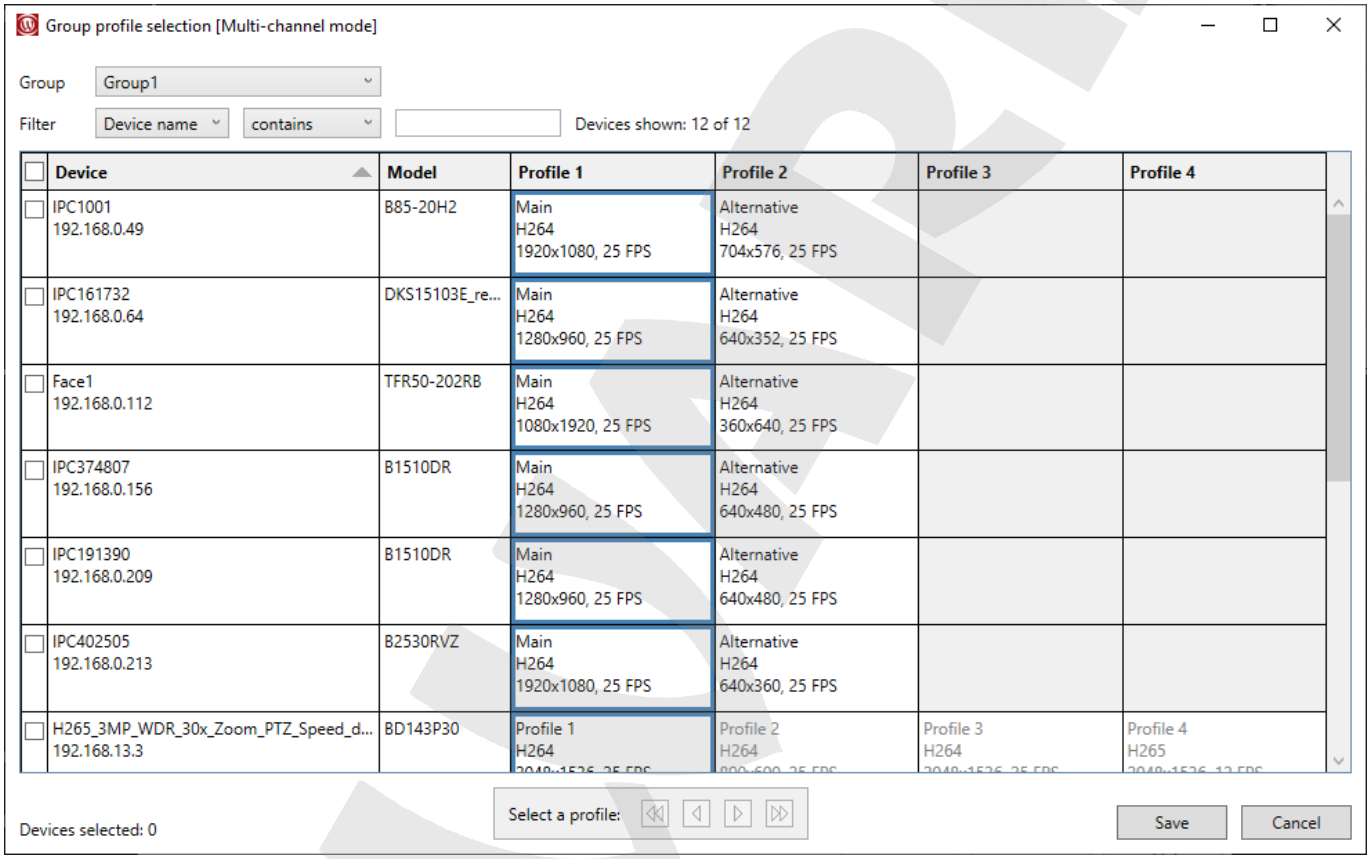
Pic. 4.24

"Group profile selection" window will appear (Pic. 4.25), that allows to select profiles for several devices within the same group. Select the group from the "Group" dropdown list (if there are more than 1 group) and put a tick next to all the needed devices in the list. You can also use *Ctrl+A* hotkeys or put a tick next to the "Device" cell to select all devices in the group. Then you can use the profile buttons in the bottom part of the window: "First profile", "Previous profile", "Next profile" and "Last profile". Otherwise, you can select the profiles for devices by double-clicking their corresponding cells on the main table. The selected profiles are highlighted light-blue.

On some cameras profiles can be disabled. Disabled profiles are highlighted gray and cannot be interacted with. To enable and configure profiles within a device, see Video settings (section 4.2.5).

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The devices in the main table can be filtered by Device name, IP address, Model, Codec name, Resolution and Framerate. They can be also be sorted by cell values. To sort the devices by a desired parameter, click the corresponding header on the table. Click the same header again to reverse the sorting order. To sort the devices by a certain criterion, right-click the desired header and select the criterion in the context menu.



Pic. 4.25

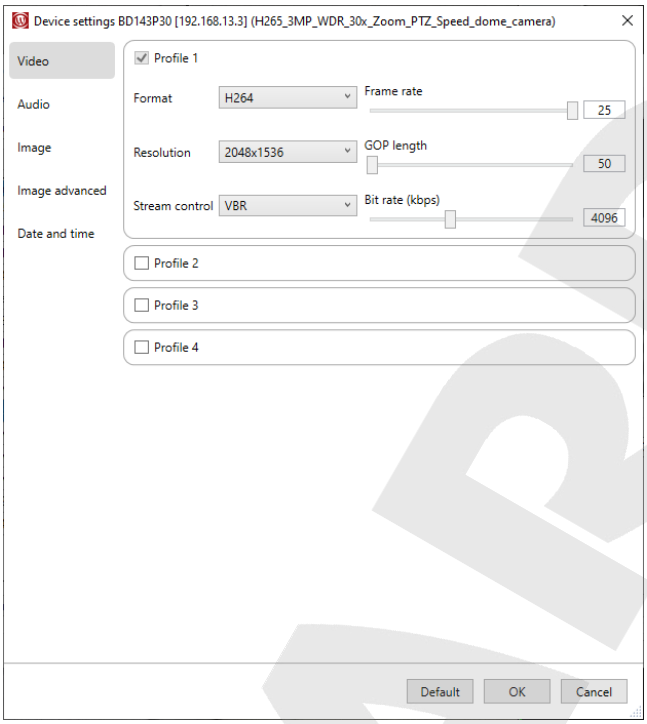
Press **[Save]** to accept all changes and close the window. Press **[Cancel]** or the “Close” icon in the top right corner to close the window without changes.

4.2.5. Video settings

Click the **[Camera settings]** button on the “Camera” tab (Pic. 4.15) to open a window with different parameters of a video stream transmitting from the camera. The window looks differently depending on the series of the device. BD-series and SV-series Video settings window looks as seen on Pic. 4.26.

Profile 1, 2, 3, …: Profile is a set of encoding parameters. You can enable/disable profiles on BD-series and SV-series devices. To enable a profile, simply put a tick on the corresponding field. When a profile is disabled, its group of parameters is hidden (see Profile 2-4 on Pic. 4.26). The number of available profiles depends on the device model.

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Pic. 4.26

Format: select the video coding format (codec). The available formats depend on the series and device model. The most common formats are: H.264, H.265, MJPEG. Some BEWARD devices may support additional formats.

Resolution: select the video image resolution (in pixels, width x height). Higher resolutions lead to better image quality but also bigger workload on all components of the surveillance system: camera, network and the PC running BEWARD IP Visor. The list of available resolutions depends on the device model and parameters of other profiles.

Framerate: set the framerate of the videostream (frames per second). Higher framerate results in better video quality but also bigger workload on all components of the surveillance system. The available value ranges depend on the device model and parameters of other profiles.

Specific parameters for H.264 and H.265 formats

Bit rate: set the average volume of encoded video data that is transferred by the network per one second (kilobits per second) within the currently configured profile. The camera's coding device will attempt to compress the videostream to the set value. Higher bitrate results in better video quality but also bigger workload on all components of the surveillance system.

Stream control: choose the prioritization type during the videostream compression:

- "CBR" (Constant Bit Rate) – constant bitrate is prioritized while the image quality may change over time. The image quality may drop when there are too many moving objects on screen, but the bitrate will grow insignificantly.

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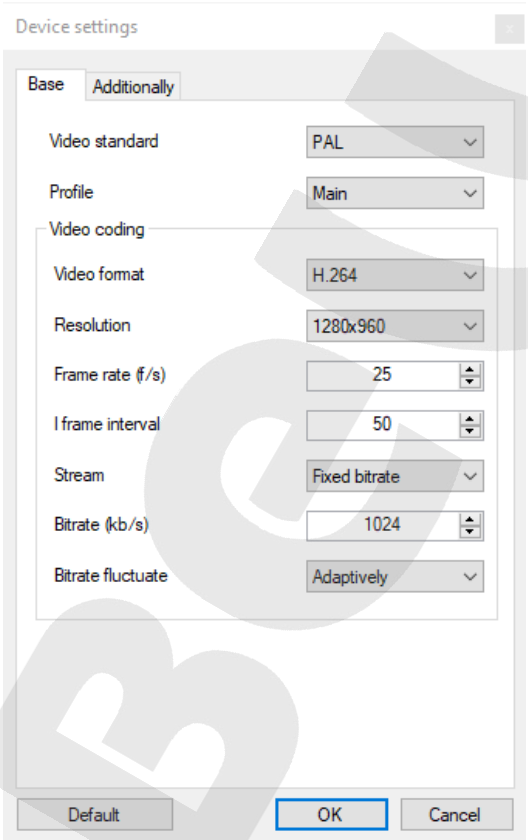
- "VBR" (Variable Bit Rate) – Image quality is prioritized while the bitrate may change over time. The image quality doesn't drop when there are many objects on screen, but the bitrate will grow significantly.
- "LBR" (Low Bit Rate) – low bitrate is prioritized. The coding device analyzes the video and lowers the bit rate in static scenes, while increasing it in dynamic scenes to acceptable levels. This type is available only for some device models.

GOP Length: H.264 and H.265 process videoframes in groups (GOP – Group Of Pictures,). Video decoding in these formats can only begin with the first frame in a group, the I-frame. The I-frames are compressed insignificantly, the rest of the frames are compressed way more severely. Lower GOP length leads to better image quality and higher bitrate, as well as shorter time to display video in BEWARD IP Visor when the videostream is requested.

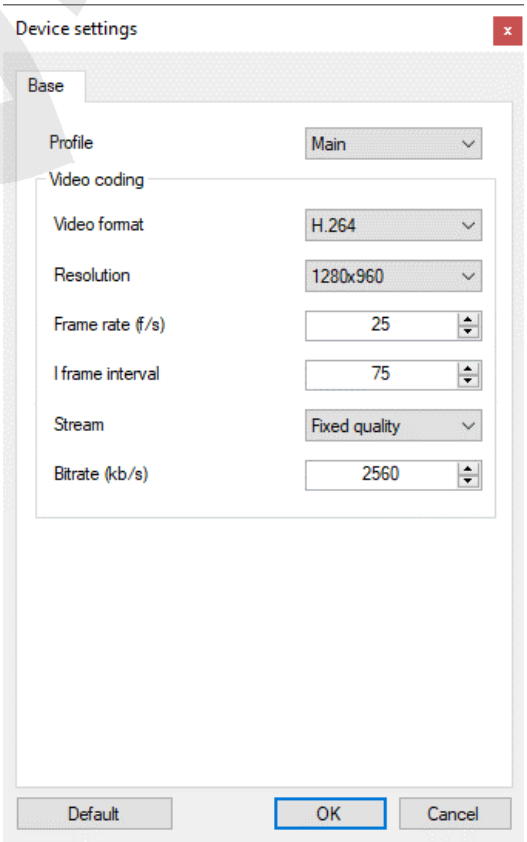
Quality: this parameter is MJPEG-specific. Lower values result in lower image quality and bitrate.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

B-series Video settings window looks as seen in Pic. 4.27 and Pic. 4.28.



Pic. 4.27



Pic. 4.28

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The actual set of parameters depends on the current device.

Video standard: select the video encoding standard according to the power supply frequency in your region: PAL (50 Hz) or NTSC (60 Hz). Correct video standard prevents screen flickering in rooms with artificial lighting. This option applies to all profiles on the device. Available only for some devices.

Profile: select the profile (Main or Alternative) for further configuration.

For the most part, the profile settings for B-series devices are identical to BD-series and SV-series. The main differences are as follows: B-series profiles cannot be disabled; B-series devices almost always have 2 profiles (only very old models have a single profile); Some B-series parameters are identical to BD/SV-series ones but have different names: “I frame interval” is identical to “GOP Length”, “Stream” (“Priority” in some older models) is identical to “Stream control”.

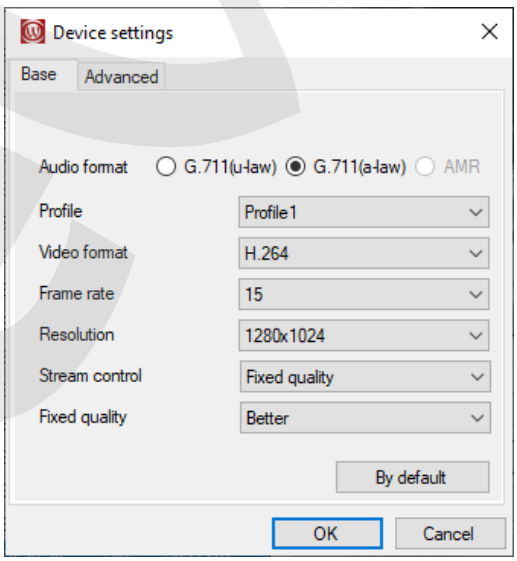
Bitrate fluctuate: this parameter becomes available for H.264 and H.265 if the “Stream” is set to “Fixed bitrate”. It sets the limits of deviation of the bitrate. This parameter is unavailable for some older models.

Quality: this parameter is available on some older models for H.264 format, if the “Stream” is set to “Fixed bitrate”. It sets the image quality and the level of video compression.

This parameter is unavailable on B-series devices if MJPEG codec is selected, the quality is set by changing the bitrate (higher bitrate results in better image quality).

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

N-series Video settings window is shown on Pic. 4.29.



Pic. 4.29

For the most part, the profile settings for N-series devices are identical to B-series. The main differences are as follows:

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N-series cameras support MPEG-4, but not H.265.

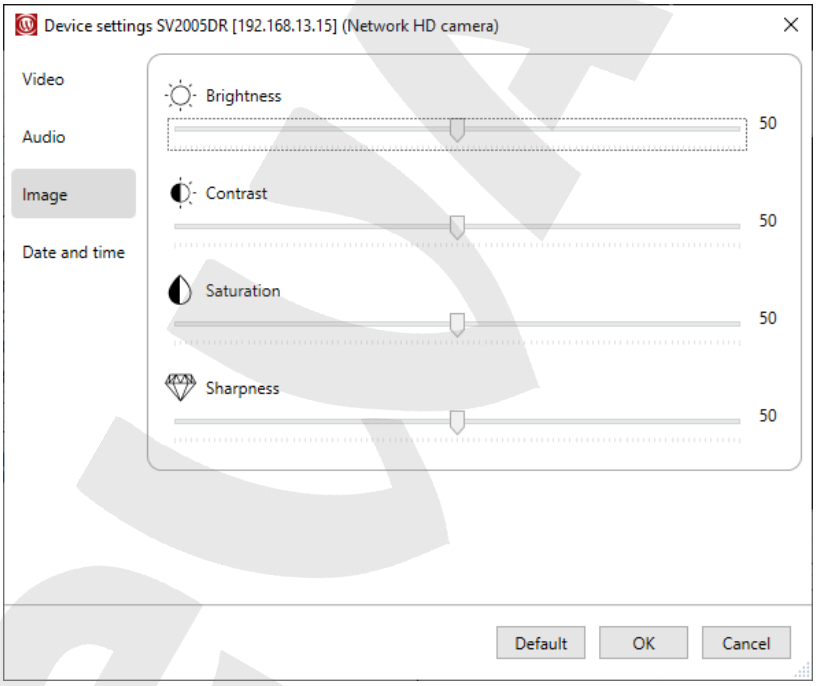
Fixed quality: this parameter is available for all codecs only if the “Stream control” is set to “Fixed quality”. It sets the image quality and the level of video compression.

Fixed bitrate: this parameter is available for all codecs only if the “Stream control” is set to “Fixed bitrate” or “Low Bitrate Control”. It sets the bitrate of the video stream. The higher the value, the higher the video quality.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

4.2.6. Image settings

To open the “Image Settings” tab (Pic. 4.30) for BD-series and SV-series cameras, click **[Camera settings]** in the “Application” settings window (Pic. 4.15) after selecting the desired camera in the list, then click “Image”.



Pic. 4.30

This tab contains such video image parameters as “Brightness”, “Contrast”, “Saturation”, “Sharpness” and “Hue”. Some devices may have fewer available parameters while others may also allow to set the “Exposure compensation” parameter. The configuration is being done in real time (with delay on some devices) so the changes can be monitored on the screen.

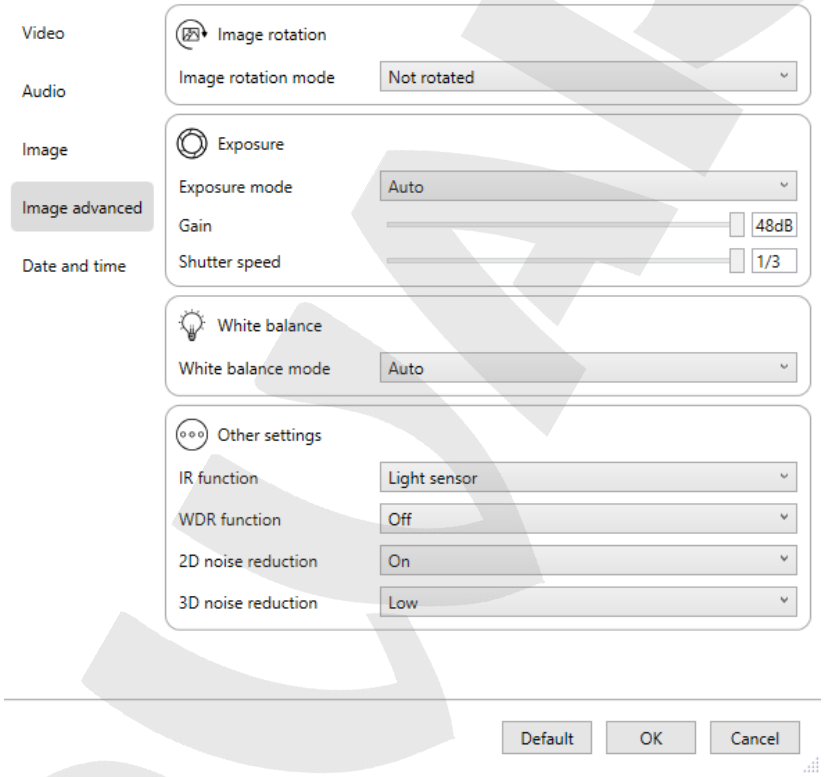
Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

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See Pic. 4.31 for the “Image Advanced” tab. This tab is meant for fine-tuning of image parameters of the camera. The actual set of parameters depends on the device. All the possible advanced image parameters tab are described below:

Image rotation

Image rotation mode: select the image rotation mode from the dropdown list. Available values are: “Not rotated”, “Flip video image”, “Mirror video image”, “Flip + Mirror”, “90° clockwise”, “90° counter-clockwise”, “90° clockwise + mirror”, “90° counter-clockwise + mirror” (may vary depending on the device).



Pic. 4.31

Exposure

Exposure mode: select the digital shutter operation mode. Depending on the device, the following modes are available:

- **Auto**: automatic control of the shutter speed. Setting manually a minimum level of the shutter speed is available.
- **Auto iris**: the luminous flux is controlled by the iris of the camera lens.
- **Manual**: set the shutter speed, iris and gain manually.
- **Fixed shutter**: set the fixed speed of the shutter. The range of available values is from 1/10000 up to 1 sec.

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- **Shutter priority**: the iris value is automatically controlled according to the shutter speed specified manually;
- **Iris priority**: the shutter speed is automatically controlled according to the iris value specified manually.
- **P-iris priority**: the shutter speed is automatically controlled according to the iris value specified manually with high accuracy;
- **Hardware WDR mode**: WDR mode is used when there are both very bright and very dark areas simultaneously in the flied of view of the camera. It uses video recording with two different exposures, which are then merged and the end result is an evenly illuminated video image.
- **WDR RSS mode**: optimized version of Hardware WDR mode.
- **Flicker reduction**: the camera synchronizes the framerate with the power supply frequency (50 or 60 Hz) to avoid flickering.

Depending on the selected Exposure mode, the following options may become available: **Gain**, **Shutter speed**, **Iris**.

White balance

White balance mode: select the white balance mode in accordance with light conditions in the surveillance areas. The list of available modes depends on the device.

If White balance is set to “Manual mode”, then **Red level** and **Blue level** parameters become available.

Fish eye settings

Fisheye distorion correction: select either “On device” or “In software”. If “In software” is selected, “EPTZ function” option becomes available.

EPTZ function: digital emulation of PTZ for fisheye cameras. If this option is enabled, the specific area of the screen is shown without distortions and can be navigated with PTZ control buttons.

Other settings

IR function: set the operation mode of the IR filter;

ICR function: set the photosensitivity in low light conditions;

WDR function: used for compensating when light levels are insufficient;

2D noise reduction: enable noise reduction on every single frame;

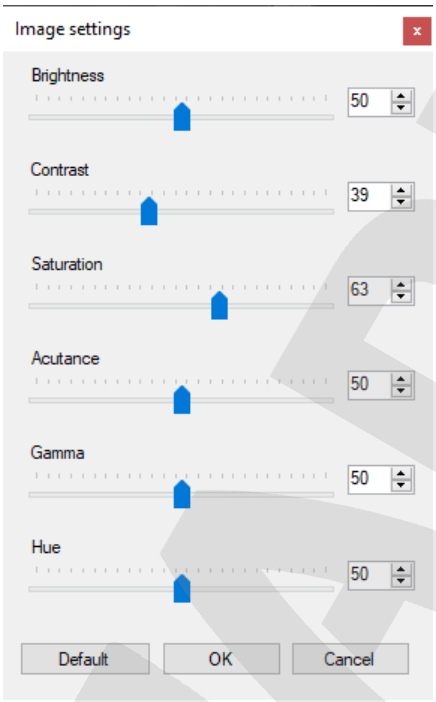
3D noise reduction: enable lossless noise reduction by analyzing previous frames.

Back light compensation: this option prevents situations when an object behind a bright light source turns out too dim.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

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To open Image settings for a B-series camera (Pic. 4.32), press **[Image settings]** in the “Application settings” window (Pic. 4.15).



Pic. 4.32

This tab contains such video image parameters as “Brightness”, “Contrast”, “Saturation”, “Acutance”, “Hue” or “Red”, “Blue”, “Gamma”. The actual set of parameters depends on the device. The configuration is being done in real time (with delay on some devices) so the changes can be monitored on the screen.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

Some B-series cameras have additional image settings parameters that can be accessed by going to “Lens settings” (see Pic. 4.33).

[Open] and **[Close]**: the buttons allow the user to open and close the lens auto-adjustable iris.

AI: in this mode the luminous flux is controlled by the lens with the auto adjustable iris .

EE: in this mode the electronic shutter is automatically controlled in accordance with the luminous flux level, which is determined using a camera sensor.

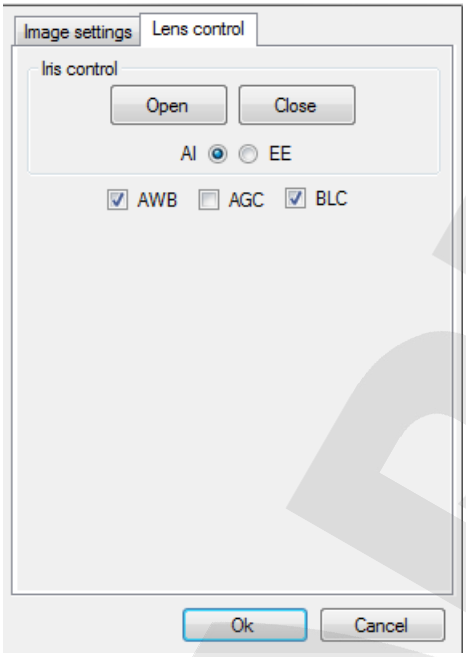
AWB: auto white balance.

AGC: auto gain control.

BLC: back light Compensation.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving.

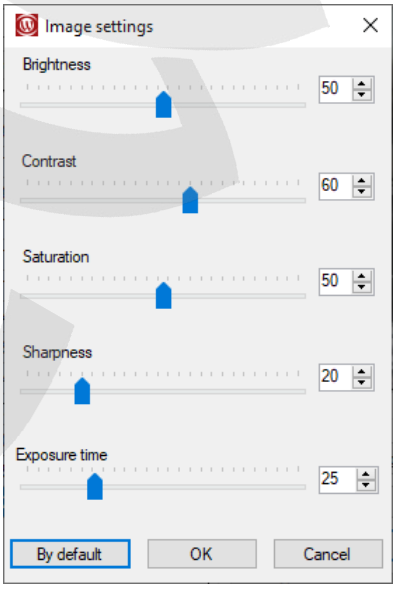
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Pic. 4.33

To open Image settings for a N-series camera (Pic. 4.34), press **[Image settings]** in the "Application settings" window (Pic. 4.15).

This tab contains such video image parameters as "Brightness", "Contrast", "Saturation", "Sharpness", "Exposure time". The actual set of available parameters depends on the device.

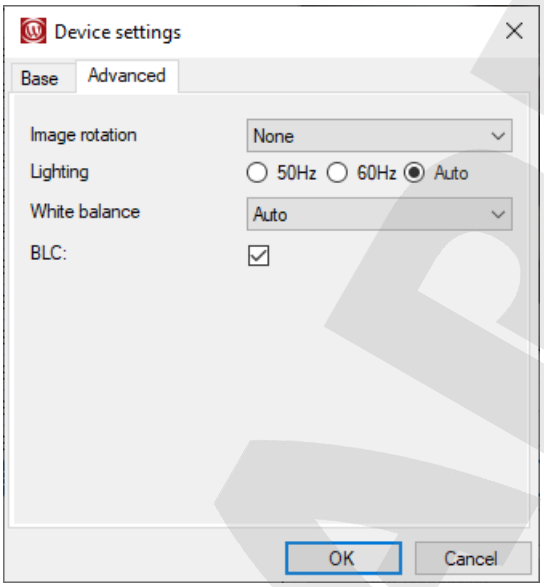


Pic. 4.34

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[By default]** if you want to restore the settings to default values.

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N-series cameras have additional image settings parameters that can be accessed by pressing **[Image settings]** in the “Application settings” window (Pic. 4.15) and going to “Camera settings” (see Pic. 4.33). The actual set of additional parameters depends on the device.



Pic. 4.35

Image rotation: select one of the image rotation modes: “None”, “Flip”, “Mirror”, “Flip + mirror”.

Lighting: this parameter is used for synchronization with the external light source. Select the power supply frequency of your region (50 or 60 Hz) If the parameter is set incorrectly the video image will blink.

Night mode: enable\disable high photosensitivity mode.

White Balance: choose the white balance mode in accordance with light conditions in a surveillance area.

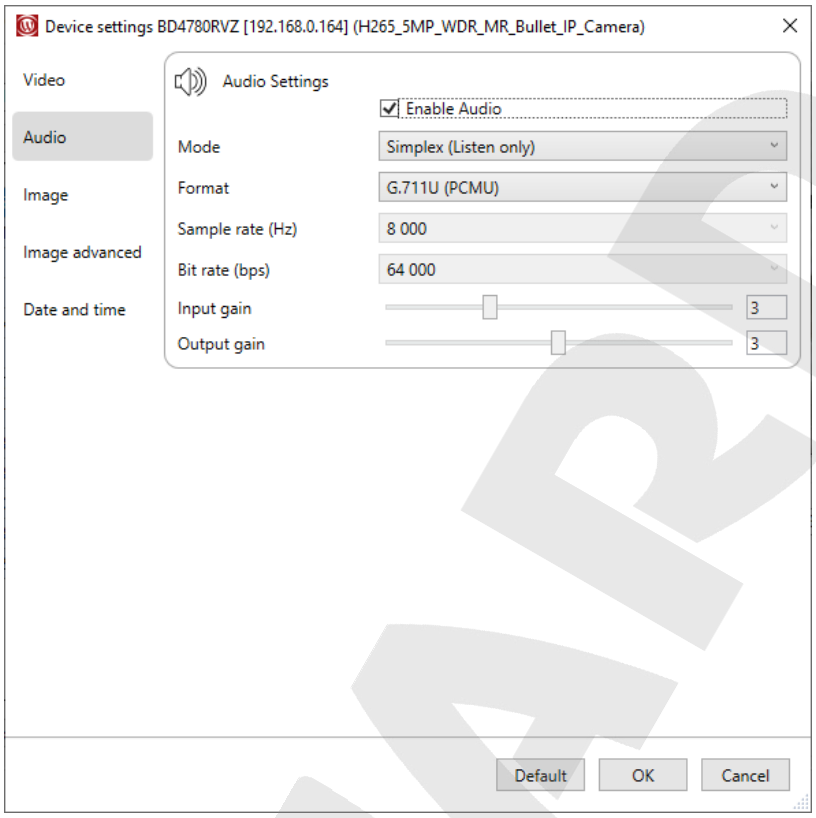
BLC: enable back light compensation option to enhance image quality.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving.

4.2.7. Audio settings

To open the “Audio Settings” tab for BD-series and SV-series devices (Pic. 4.30), click **[Camera settings]** in the “Application” settings window (Pic. 4.15) after selecting the desired camera in the list, then click “Audio”. The set of available parameters depends on the device.

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Pic. 4.36

Enable audio: enable/disable audio from the device.

Mode: Select one of the available modes of audio transmission between BEWARD IP Visor and the device: Full duplex (Talk and listen simultaneously), Half-duplex (Talk or listen, not at the same time), Simplex (Talk only), Simplex (Listen only).

Format: select the audio coding format. The list of available formats depends of the device.

Sample rate (Hz): select the audio sample rate. Higher sample rate results in higher quality, as well as higher bitrate. Depending on the device and the selected audio format, this option may be unavailable.

Bit rate (bps): select the audio bit rate. Higher bit rate results in higher quality, as well as higher sample rate. Depending on the device and the selected audio format, this option may be unavailable.

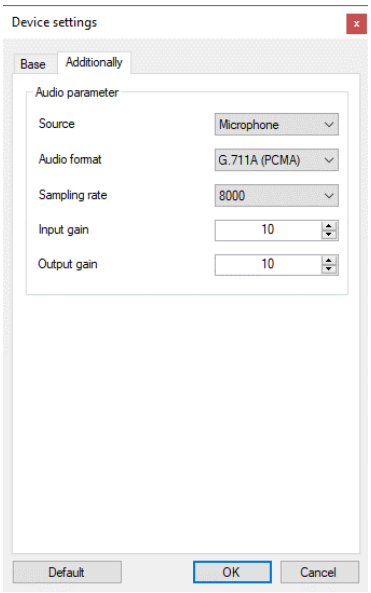
Input gain: set the audio volume level of the device speakers.

Output gain: set the audio volume level of the device microphone.

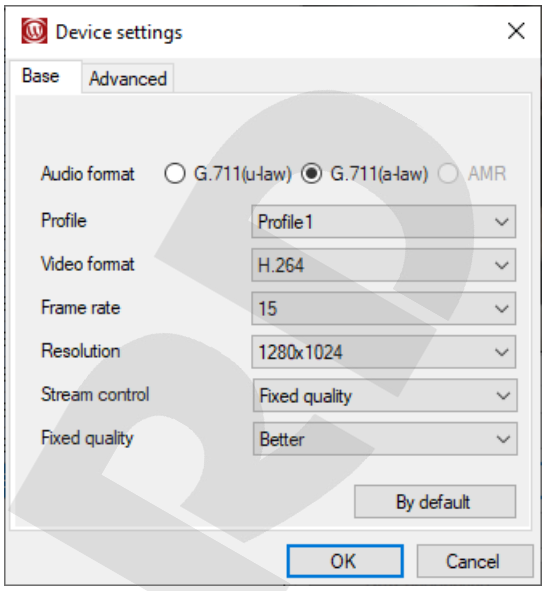
Audio settings window for B-series is shown on Pic. 4.37, and for N-series – on Pic. 4.38. N-series cameras allow only to select the audio format (the rest of the parameters belong to the video settings that are described in section 4.2.5). B-series audio settings window features an additional parameter – “Source”.

Source: select one of the audio sources: “Microphone” (the in-built microphone of the device), “Line in” (audio jack for an external microphone).

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Pic. 4.37

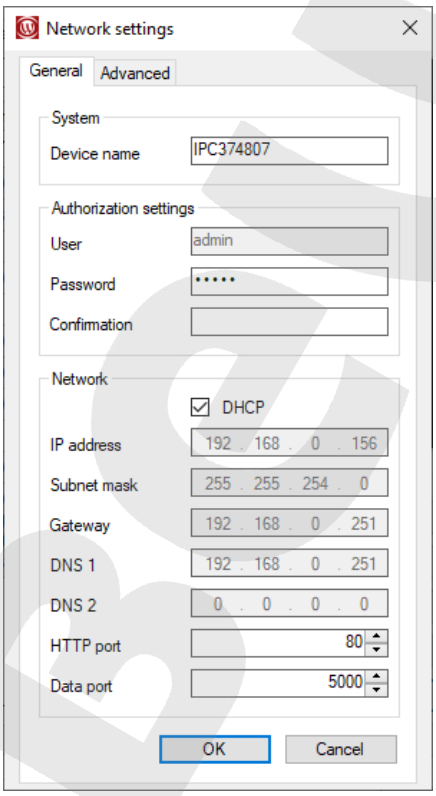


Pic. 4.38

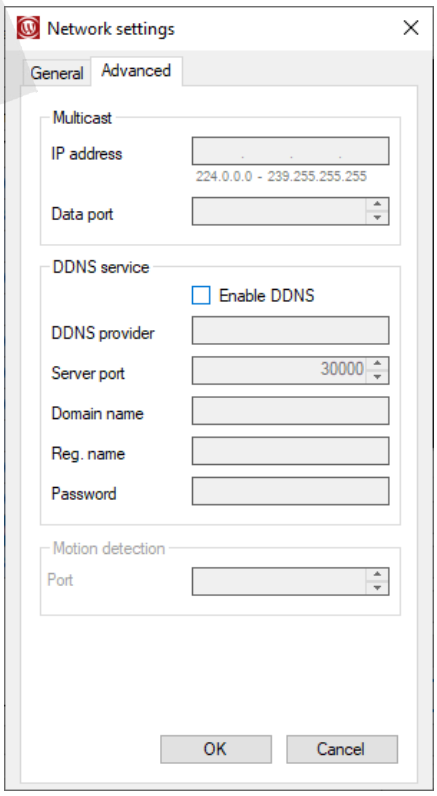
Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[By default]** if you want to restore the settings to default values.

4.2.8. Network settings

To open the “Network settings” window, press **[Network settings]** in the “Application settings” window (Pic. 4.15)



Pic. 4.39



Pic. 4.40

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This window contains parameters for the network settings of the device, as well as the connection settings for accessing the device via BEWARD IP Visor. Some parameters are unavailable for certain BEWARD devices.

General settings (Pic. 4.39)

Device name: name of the device as shown by BEWARD software.

User and **Password**: username and password used for accessing the device. Some devices allow to change the username in accordance with the current user access rights (i.e., username “admin” can be changed).

DHCP: automatically get network parameters from a DHCP server. If enabled, the network parameters can’t be entered manually.

IP address: IP address of the device.

Subnet mask: subnet mask of the device.

Gateway: the default gateway address.

DNS 1: IP address of the main DNS server.

DNS 2: IP address of the alternative DNS server.

HTTP port: HTTP port of the device.

Data port: this port is specific for B-series devices, the default value is 5000.

Advanced settings (Pic. 4.40)

DDNS: enable\disable the connection via DDNS server. If enabled, the network parameters can’t be entered manually.

DDNS provider: enter the URL address of the DDNS server.

Server port: port of the DDNS server.

Domain name: enter the domain name obtained from the DDNS server after the registration.

Reg. name: enter the username obtained from the DDNS server after the registration.

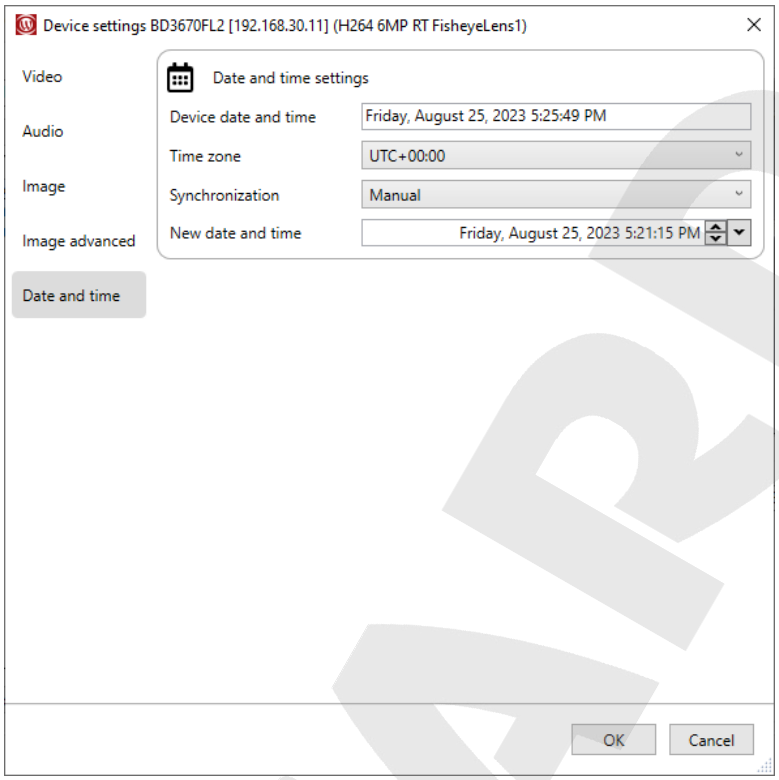
Password: enter the password obtained from the DDNS server after the registration.

Motion detection port: this port is meant for BD-series and N-series devices behind NAT. It allows to receive motion detection data when forwarding to the standard port is not possible.

4.2.9. Date and time settings

To open the “Date and time” tab (Pic. 4.41) for BD-series and SV-series cameras, click **[Camera settings]** in the “Application” settings window (Pic. 4.15) after selecting the desired camera in the list, then click “Date and time”.

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Pic. 4.41

Device date and time: this field displays the current date and time according to the device.

Time zone: choose the time zone in accordance with the location of the device.

Synchronization: choose the type of date/time synchronization from the dropdown list. Available types: “Manual”, “With computer”, “With NTP server” (recommended).

If the parameter is set to “with NTP server”, the following parameters become available:

NTP server address and **NTP server port**: enter the address and the port of the current NTP server. The recommended NTP server addresses depend on the current location of the device. Some devices don’t support the **NTP server port** parameter. Also, some devices may not require the NTP server address and use the default one instead. In this case, the field **NTP server address** is read-only and can only be edited if the **Set Manually** option is enabled.

Synchronization interval: select the interval between successful time synchronization attempts with the NTP server.

If “Synchronization” is set to “with computer”, then the **Computer date and time** field will display the current date and time of the PC. It can only be changed by changing the system time.

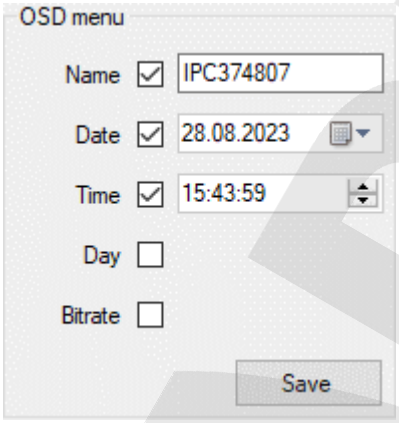
If “Synchronization” is set to “Manually”, then you can edit the current date and time in the **New date and time** field.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

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4.2.10. OSD menu

This settings group is located at the bottom right part of the “Camera” tab (Pic. 4.15). It allows to set the configurations of the OSD (On-Screen Display) information, which is displayed over the video image. The OSD Menu settings are shown on Pic. 4.42.



Pic. 4.42

Name, **Date** and **Time**: enable/disable display of device name as well as current date and time over the video image. You can set the values in the text fields next to the options.

Day and **Bitrate**: enable/disable display of the current weekday, bitrate and framerate.

To confirm the changes to OSD settings, press **[Save]**.

4.3. “Security” tab

The “Security” tab (Pic. 4.43) is used for enabling and setting rules of application access policy. By default, and when you run BEWARD IP Visor for first time the rules are disabled. When the access policy rules are enabled, the application may operate in one of the following roles: Administrator or Operator.

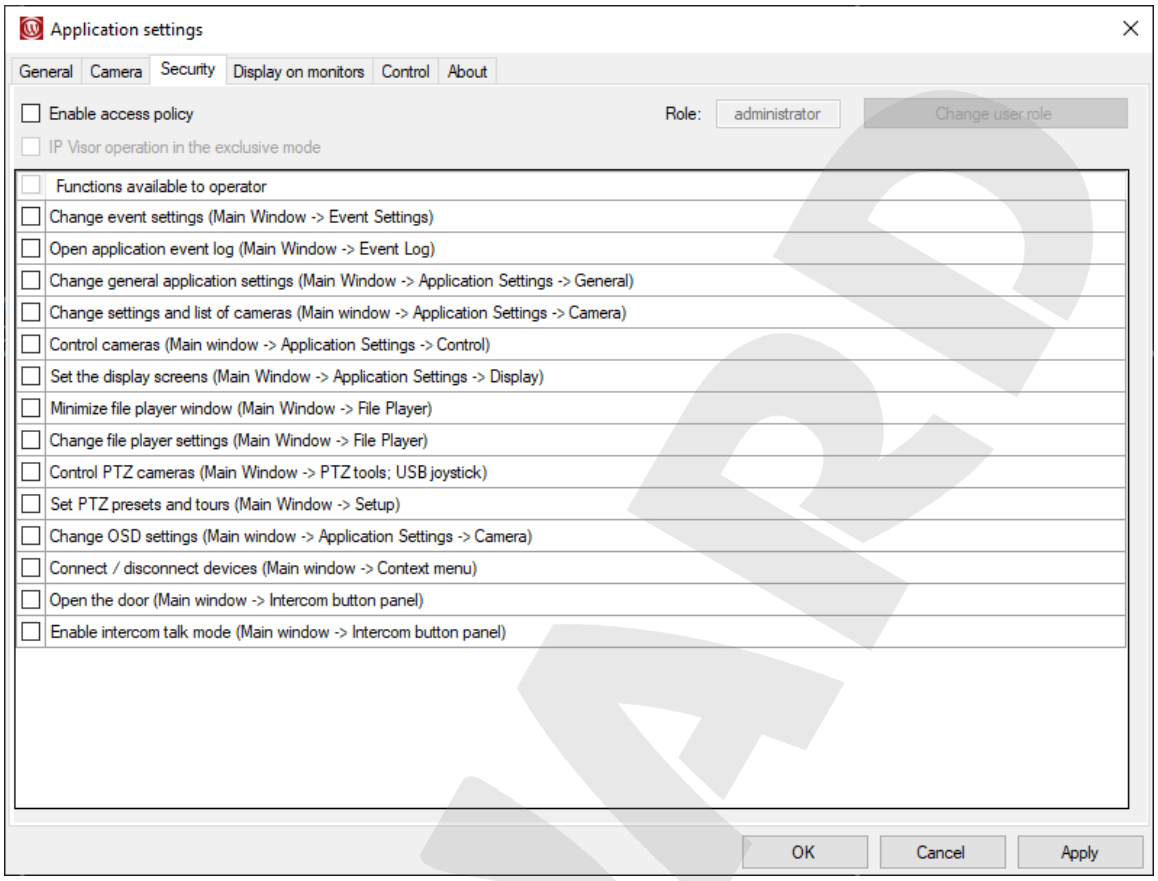
Administrator Role

Administrator users have constant full access to BEWARD IP Visor functionalities, including access rules for Operator users. For example, administrators can specify the passwords for the operators and allow/deny them access to different application functions, as well as enable/disable the exclusive mode when running BEWARD IP Visor.

Operator Role

By default, operator users don't have access to all features that are listed in the “Security” tab. They can be given access to some or all functions in the list by the administrator.

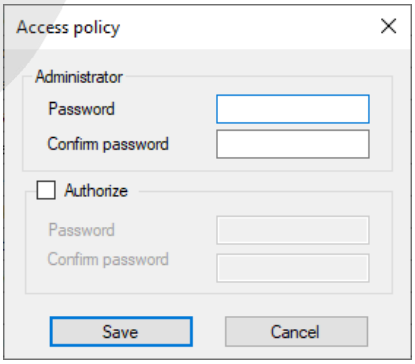
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Pic. 4.43

Enable access policy: (available only to Administrators) when you enable this option, a window will pop up (Pic. 4.44). You must set a new password for administrator role in this window. Enable "Authorize operator" to set a password for operators (this is not mandatory, but recommended in order to avoid unauthorized access to BEWARD IP Visor). The password is case-sensitive and must be 6-12 characters long. Enter the password and confirm it, then press **[Save]** – BEWARD IP Visor will enable access policy and set the current user role to "Administrator".

[Change user role]: press this button to change the current user role. Whenever the role is changed, you are required to enter the password of the new role.



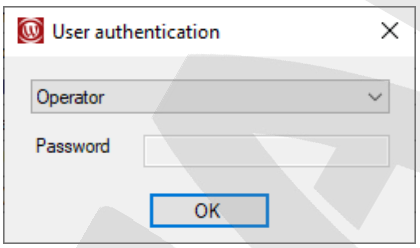
Pic. 4.44

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BEWARD IP Visor operation in the exclusive mode: (Administrators only) enable/disable exclusive mode, in which operators may only use BEWARD IP Visor. They can't minimize, close BEWARD IP Visor, nor run any other applications.

> **NOTE!**
> In Exclusive mode, the following hotkeys are unavailable: Win, Ctrl+Esc, Win+D, Win+E, Win+R, Win+F, Win+M, Win+Tab, Win+Shift+Tab, Alt+Tab, Alt+Shift+Tab, Ctrl+Win+Tab, Shift+Tab, Alt+Esc. Task Manager cannot be called to launch other applications.

If access policy is enabled and the password for the operator role is set, the User authentication window will pop up when BEWARD IP Visor is launched (Pic. 4.45).



Pic. 4.45

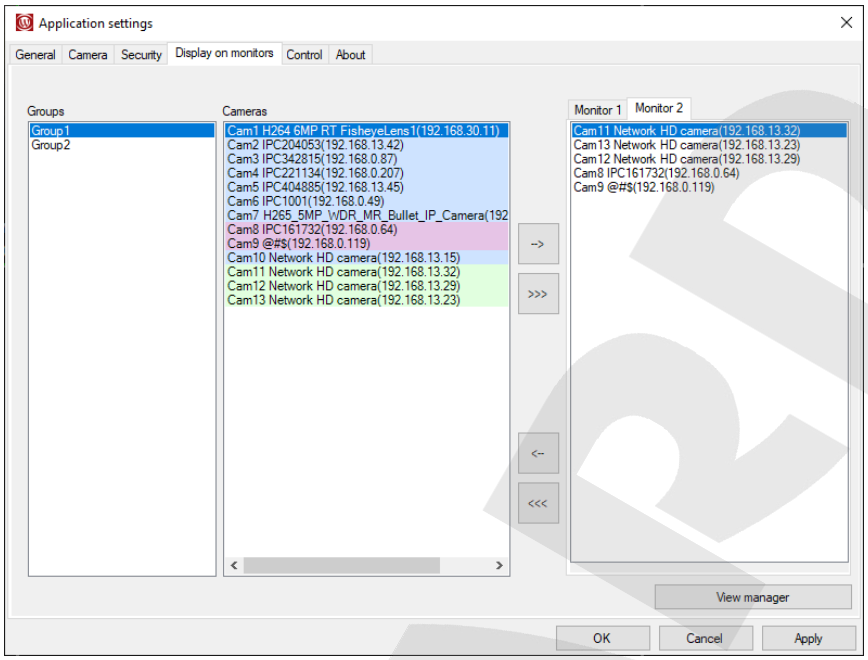
If the password for the operator role is not set, then the authentication window doesn't appear, the user automatically enters as an operator. If access policy is disabled, the authentication window doesn't appear.

4.4. “Display on monitors” tab

“Display on monitors” tab (Pic. 4.46) is used for distributing added devices among the monitors on the PC that's running BEWARD IP Visor. The left half of the tab contains the lists of groups and devices, the right half – the tabs of all available monitors.

> **NOTE!**
> The additional monitor tabs become available when a new monitor is connected to the PC

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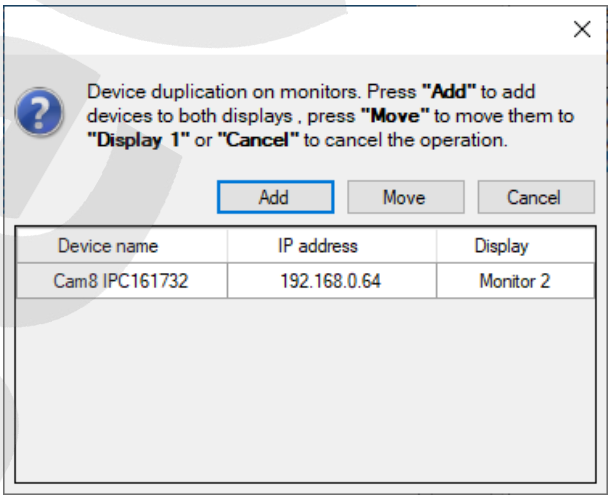
Pic. 4.46

Devices assigned to different monitors are highlighted with different colors (blue for monitor 1, lilac for monitor 2 etc.). Devices displayed on both monitors are highlighted with pale green.

[Add] →: to add a device to the specific monitor, choose the corresponding tab in the right list, choose the device(s) using the mouse and Ctrl and Shift keys and click **[Add]**. A single device can be added to a monitor by double-clicking it in the camera list.

[Add all] >>>: click this button to add all devices from the current group to the current monitor.

BEWARD IP Visor allows to add the same device to the same monitor only once (device duplication on the same monitor is not allowed), but it can be added to different monitors. Whenever you attempt to add the device to a different monitor, the following warning message will appear:



Pic. 4.47

[Remove] ←: to remove a device from the specific monitor, choose the corresponding tab in the right list, choose the device(s) using the mouse and Ctrl and Shift keys and click **[Remove]**

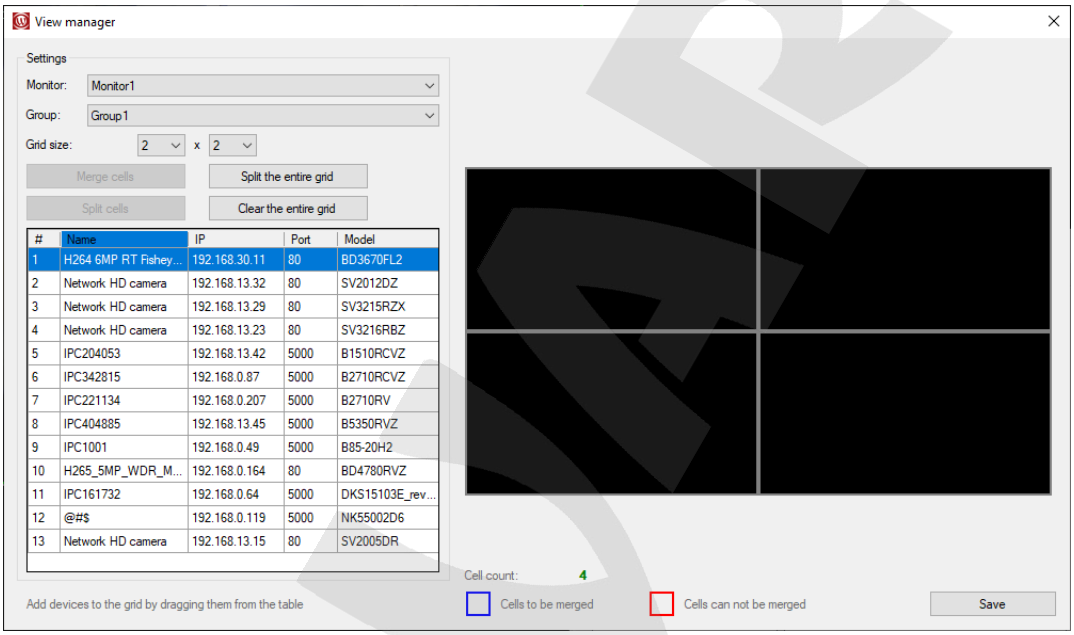
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[Remove all] <<<: press this button to remove all devices from the current monitor

Once you're done making changes, press **[Apply]** or **[OK]**.

4.4.1. View manager

The View Manager is a function of BEWARD IP Visor which you can use to divide a screen area into channel windows (see section 3.1) in your preferred way. To open the View Manager (Pic. 4.48), press “View manager” button in the “Display on monitors” tab (Pic. 4.46).



Pic. 4.48

The view manager window is divided into two parts: the grid settings in the left side of the window, and the result viewing area on the right side of the window. The grid settings area contains the following elements:

Monitor: choose a monitor in the list your grid will be used for. The number of monitors is automatically determined by the system. The contents of the devices table, which is situated in the left lower corner of the window, is changed depending on the monitor you choose. You can add devices to monitors on the “Display on monitors” tab (see above).

Group: choose a group in the list your grid will be used for. The contents of the devices table are also changed depending on the group you choose. You can create groups and add devices to them on the “Camera” tab (see sections 4.2.1 and 4.2.2).

Grid size: set the size of the grid using two drop-down lists. The left list contains the numbers of grid cells in a column; the right one contains the numbers of the cells in a row.

[Merge cells]: click this button to merge the cells highlighted with a blue frame in the result view area (see below).

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[Split cells]: click this button to split the cells previously merged, firstly choosing them with a blue frame in the result view area (see below).

[Split the entire grid]: click this button to split all the cells previously merged in the result view area.

[Clear the entire grid]: click this button to remove all the added devices from the grid (see below).

Devices table: this table contains devices which can be added to the grid in accordance with the group and monitor you have chosen. To add a device, click the corresponding row in the device table, hold the left mouse button pressed, drag the device to an empty cell of the grid in the result view area. Each device can be only added to one cell. If you didn't add all devices from the table to the grid, they will be added automatically and in order as you will click the **[Save]** button.

All actions you perform setting the grid (choosing its size, merging/splitting cells, adding/removing devices) are displayed in real-time in the result view area. This area has an aspect ratio in accordance with the monitor you choose and its resolution (you can set the monitor resolution on the "General" tab (see section 4.1.1).

You can choose the cells by clicking and holding the left mouse button, or clicking them one by one while holding Ctrl key.

Cell color indication:

- blue – a cell is chosen, chosen cells can be merged;
- red – chosen cells cannot be merged;
- grey – a cell is not chosen.

There is also a **context menu** in the result view area, which is opened by clicking with the right mouse button on the grid. The menu contains the following three items:

Merge cells: merge the cells if possible.

Split cell: split the chosen cell.

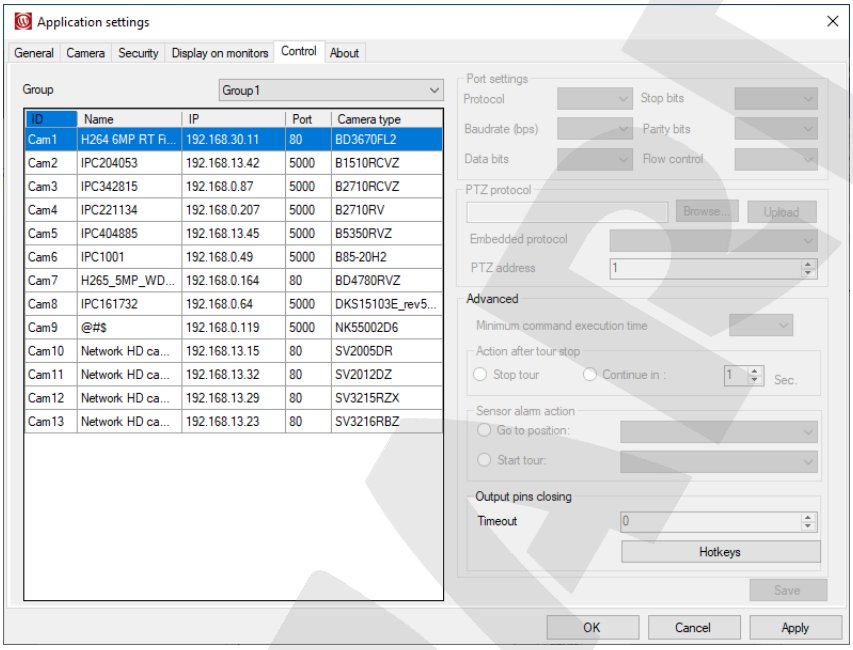
Remove device: remove a device from the chosen cell.

[Save]: click this button to save the changes you made. Make sure that you don't exceed the maximal number of video channels (36) before saving the grid. Otherwise, the changes are not saved, and a special pop-up notification appears. A successful saving is also confirmed with a pop-up notification.

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4.5. “Control” tab

This tab is used for setting parameters of IP PTZ-cameras or IP video servers, which have analog PTZ-cameras connected to them (Pic. 4.49).

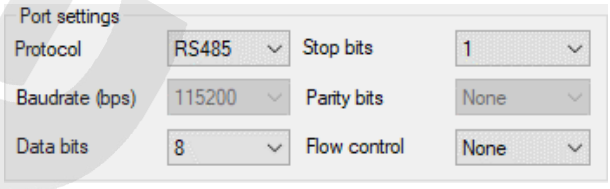


Pic. 4.49

NOTE!
See how to set up PTZ presets and tours in Chapter 5.

4.5.1. Port settings

Port settings are shown on Pic. 4.50. They allow to set up the port used to connect the PTZ device to the IP board of a camera (IP videoserver).



Pic. 4.50

Protocol: select the data transfer protocol.

Baudrate: set the data transmission rate between the PTZ device and the IP board of a camera (IP videoserver).

Data bits: set the number of data bits for each transmitted or received symbol.

Stop bits: set the interval between transmitted symbols.

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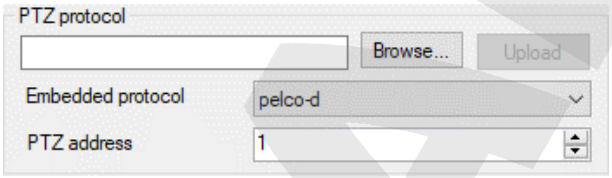
Parity bits: choose the transmission error detection method.

Flow control: choose the way to control the data stream.

> **ATTENTION!**
> The parameters of the PTZ device and the IP board of a camera (IP videoserver) must be the identical; otherwise, it is impossible to control the PTZ device.

4.5.2. PTZ protocol

Use this group of parameters to upload and set the protocol of data transmission between the PTZ device and the IP board of a camera (IP videoserver) (Pic. 4.51).



Pic. 4.51

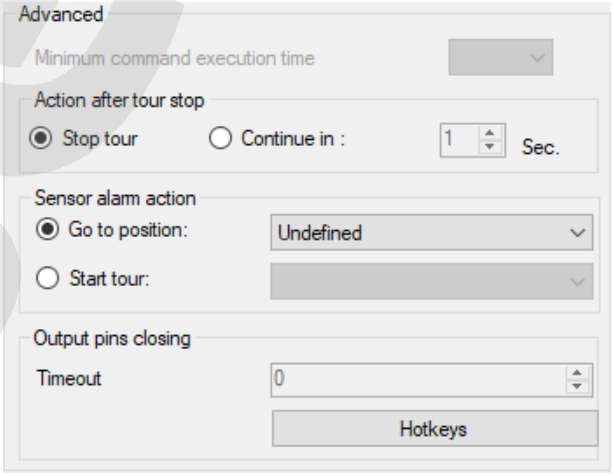
To upload the protocol, click **[Browse]**, select the protocol you need and click **[Upload]**.

Embedded protocol: Current protocol(s) embedded into the PTZ device.

PTZ address: assign the address to a PTZ-camera (it depends on parameters of the camera).

4.5.3. Advanced

This group of parameters (Pic. 4.52) is used to set functions of PTZ devices, such as execution of control commands, actions after tour stops and sensor (input pin activation) alarm actions, as well as output pins activation parameters for cameras that support it.



Pic. 4.52

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Minimum command execution time: a minimum time interval between two sequential PTZ control commands are sent. The interval needs to be increased when the camera is located far from operator's PC. The default value (and also the minimum one) is 250 ms, the maximum value is 650 ms.

Action after tour stop: choose what action the PTZ camera must do after it stops performing the tour. You can choose "Stop tour" (no action) or "Continue in" and specify the time in seconds to the right.

Sensor alarm action: choose what action the PTZ camera must do on sensor alarm (input pin activation) – go to a specific position or start a specific tour (the position and/or tour must be previously set up by the user). For setting up PTZ positions and tours, see Chapter 5

You can specify a hotkey to activate the first output pin of the device. In order to do so, press the **[Hotkeys]** button – the hotkey settings window will pop up (see section 4.1.1). After assigning the hotkey, specify in the "Timeout" field the amount of time (in seconds) the output needs to stay active.

Press **[Save]** to confirm the new changes.

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Chapter 5. PTZ Control

BEWARD IP Visor provides different tools for PTZ control: manual camera motion, zoom and focus control, presets and tours, motion speed control.

5.1. Manual camera control

The PTZ control panel (Pic. 5.1) is located on the right side of the main application window. It contains buttons for efficient control of PTZ cameras.

Left-click the channel window of the PTZ camera to make it active and ready for PTZ control. Camera movements can be controlled either by pressing the buttons on the control panel, or by using a joystick controller (for the detailed description of joystick controls, see section 4.1.5).



Pic. 5.1

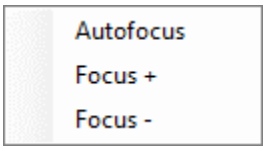
Use the following control panel buttons for zoom control (Pic. 5.2).



Pic. 5.2

[Focus]: when you press this button, the following dropdown menu appears (Pic. 5.3):

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Pic. 5.3

[Autofocus]: click this menu item to enable automatic focus setting.

[Focus +], **[Focus -]:** use these menu items to adjust the focus manually.

Use the following buttons (Pic. 5.4) to control the IR light, wiper and washer functions (not all devices support these functions):



Pic. 5.4

[IR light]: enable/disable IR light of the camera.

[Wiper] (if available): enable/disable the wiper for cleaning the camera lens.

[Washer]: Clean the camera lens with the washer mechanism in accordance with pre-determined washer (see section 5.4).

5.2. Preset settings

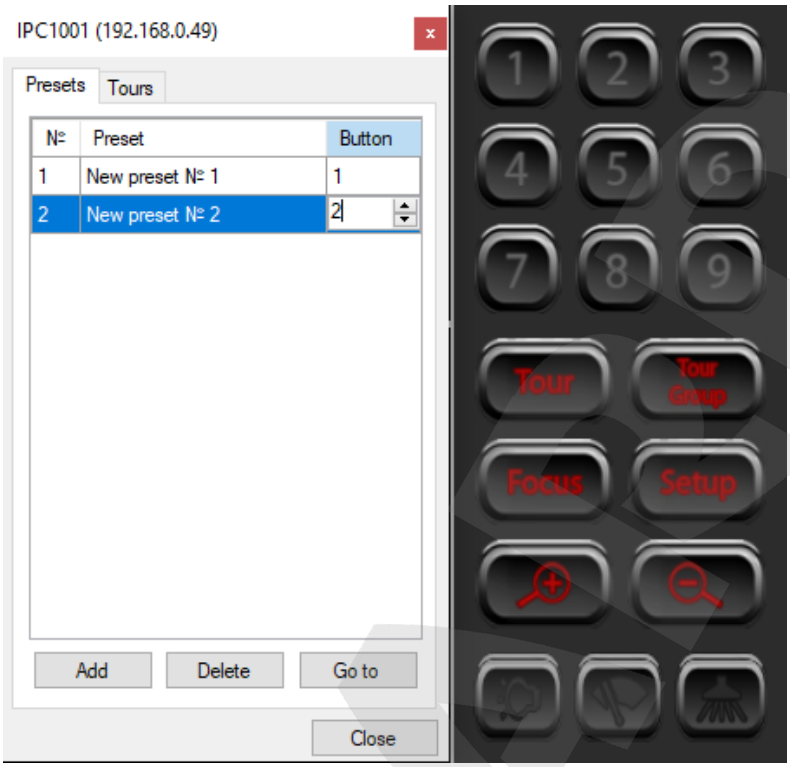
To ensure flexible and effective PTZ camera control, you might want to create several presets (a preset is a combination of PTZ settings such as a position, zoom and focus values), as well as combine them into tours for automatic control. To move the camera into the predetermined position with pre-configured zoom and focus parameters, simply press the button assigned to that position.

[Setup] 

: press this button to adjust the presets and tours for the current PTZ camera in the popup window (Pic. 5.5).

[Add]: put the camera in the position you need and click this button. Enter the number and name of the preset in the new window and click **[OK].** The new preset will be added to the preset list. Each preset can be assigned to a quick jump button on the main application window. To assign one of the buttons to the preset click the corresponding cell in the “Button” column of the table and enter the number of the button. Set the button value to “0” if you want to unassign the preset from the button.

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Pic. 5.5

[Delete]: select in the list the preset you need to remove and click this button. Confirm or cancel your decision in the opened window.

To rename a preset, double-click it in the preset list and enter the new name in the popped-up window. Press **[OK]** to save the new name and close the window.

[Go to]: select in the list the preset you need to go to and click this button.

5.3. Tour settings

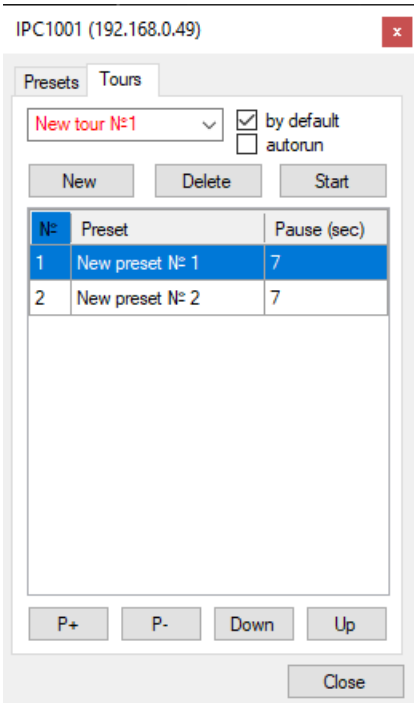
Tours are recommended for surveillance over vast territories. In Tour mode the PTZ camera automatically jumps to preset positions in time intervals. Before creating tours, you need to set up its presets (as described in section 5.2). Once you are done setting up presets, go to the “Tours” tab (Pic. 5.6).

[New]: press this button to add a new tour. In the popped-up window enter the name of the new tour and press **[OK]**. The new tour will be added to the list.

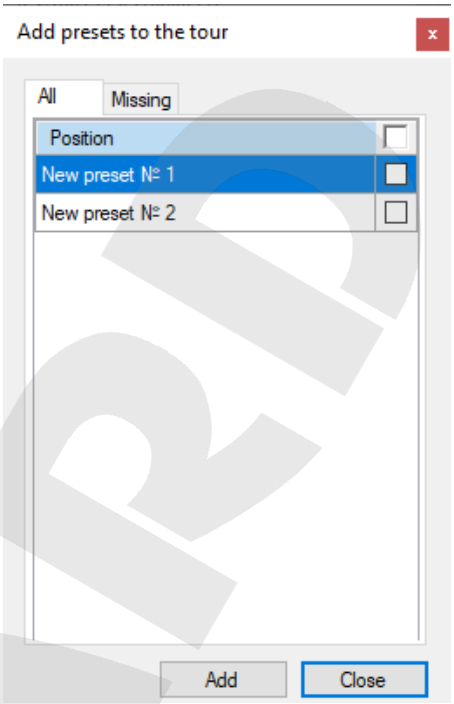
[Delete]: select in the drop-down list the tour you need to remove and click this button. Confirm or cancel your decision in the opened window.

Default: the first tour you add automatically becomes the tour by default (for the current camera). If you want to change the tour by default select the one you need in the drop-down list and mark “default” with a tick. The name of the default tour is highlighted with red in the drop-down list.

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Pic. 5.6



Pic. 5.7

NOTE!

The name of the default tour is highlighted with red in the tour list.

Autorun: select the tour you need in the drop-down list and mark “autorun” with a tick to run this tour right after the application start.

[P+]: press this button add presets to the tour (Pic. 5.6). The “Add presets to the tour” window will appear (Pic. 5.7). Select the required presets and press **[Add]** to add them to the current tour. The window also contains two tabs: “All” (contains all presets made for the current camera) and “Missing” (contains the presets that are not added to the current tour).

[P-]: select the presets you wish to delete and press this button (Pic. 5.6). Confirm your choice.

[Down] and **[Up]**: use these buttons (Pic. 5.6) to change the order of presents that the camera will jump to during the tour. You can also change the pause time between the jumps by clicking the “Pause” cell of the preset and enter the value. The minimum pause value is 2 seconds

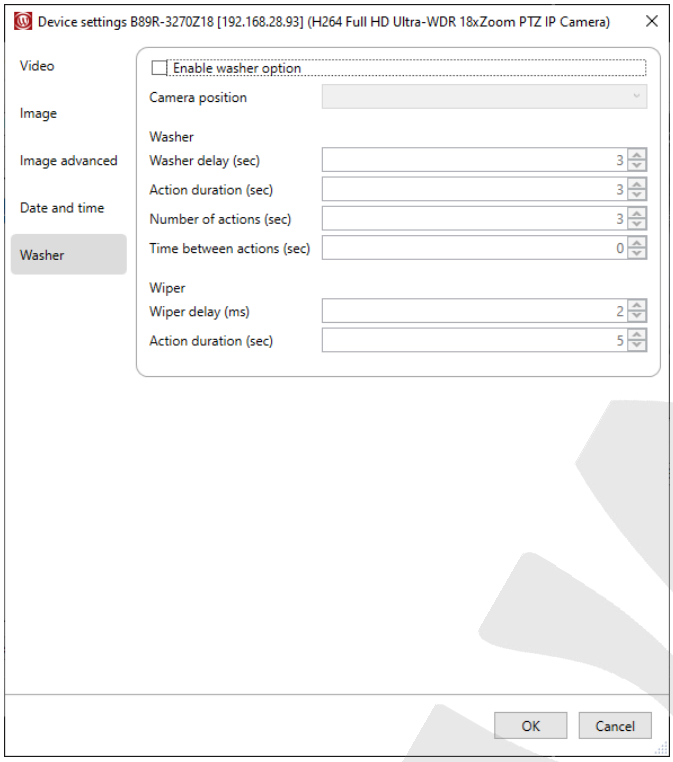
[Start]: press this button to start the tour (Pic. 5.6).

All the actions described above can also be performed by right-clicking the preset to call the context menu.

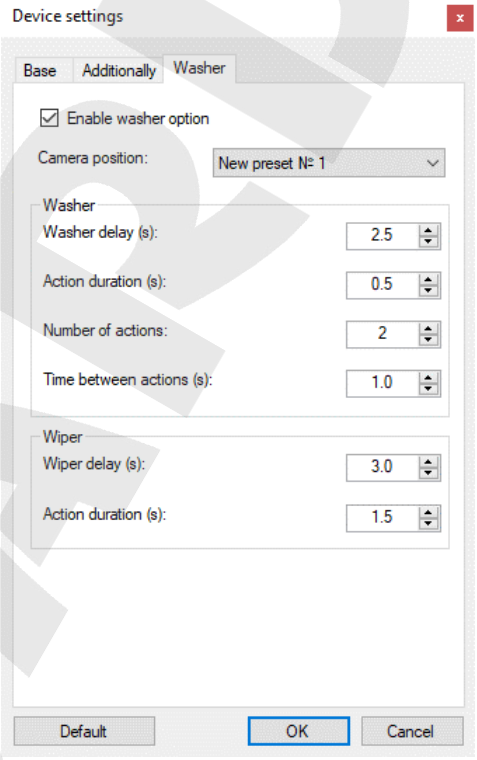
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5.4. Washer settings

Washer settings are supported by some PTZ cameras. The washer settings window for BD-series cameras is shown on Pic. 5.8, B-series cameras – on Pic. 5.9.



Pic. 5.8



Pic. 5.9

Before setting up the washer, the camera needs to have at least one PTZ preset configured. (see section 5.2) – the washing procedure will become available when the camera is in this position. To open the Washer settings window, press **[Camera settings]** button the main application settings window (Pic. 4.15) and go to the “Washer” tab.

Enable washer option: enable washer. If it is enabled, **[Washer]** button (see section 5.1) is available.

Camera position: select the PTZ preset, in which the washing procedure will be performed.

Washer

Washer delay (s): set the time delay (in seconds) between jumping to the PTZ preset and pumping the washing fluid.

Action duration (s): duration (in seconds) of the pumping of the washing liquid.

Number of actions: the number of times the washing liquid is pumped.

Time between actions: interval (in seconds) between each time the washing liquid is pumped.

Wiper

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Wiper delay (s): set the time delay (in seconds) between jumping to the washing preset and cleaning the lens with wipers.

Action duration (s): duration (in seconds) of lens cleaning with wipers.

Click **[OK]** to save new changes. Click **[Cancel]**, to close the window without saving. Click **[Default]** if you want to restore the settings to default values.

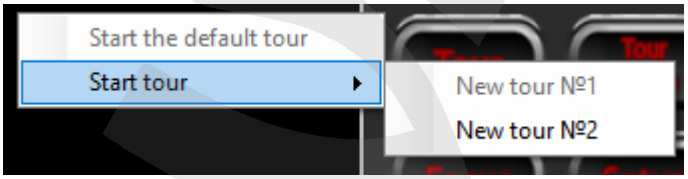
5.5. Jump to preset, start tour, group tour

The **[Presets]** buttons become available in BEWARD IP Visor main window after assigning presets to them (Pic. 5.5). Select the PTZ camera by left-clicking its videostream window on the screen and press one of the **[Presets]** buttons to jump to that preset position.

After setting up the tours (see section 5.3) they can be started by pressing **[Tour]** and **[Tour Group]** buttons in the main window.

[Tour] 

: Select a PTZ camera by left-clicking its videostream window on the screen and press **[Tour]** to start the tour for this camera. Use the context menu (Pic. 5.10) to select one of the created tours or start the default tour. Press **[Tour]** again to stop the current tour.



Pic. 5.10

[Tour Group] 

: If there are several PTZ cameras with defined tours within the surveillance system, you can press this button to make all the cameras start their default tours simultaneously. Press this button again to stop the tours.

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Chapter 6. Setting up active 4G-connection

The essence of an active 4G-connection is that a device initiates the connection to client software by itself. Such a connection scheme needs a mediator on the client side and that is a VPN server. In case all settings are correct (devices are configured, the VPN server is set up and running, the Firewall is configured) devices are added to the software via active connection the same way as any other device, using the automatic device search or manually (see section 4.2.1). You need to know device VPN IP-addresses in this case.

ATTENTION!

In case of troubles with the devices connected via active 4G-connection, first of all, check the SIM-card balance, whether you have any internet traffic left.

To connect and set up the devices refer to their user manuals (all necessary user manuals can be found on the disc from the device package contents, or on BEWARD website https://www.beward.net/).

The steps below need to be done to ensure that all the settings on the client side are made correctly.

Step 1

A VPN server needs to be run on the client PC (the OpenVPN server is included in the BEWARD IP Visor installer, see Pic. 2.9). You can check if it is running by going to *PC* → *Manage* → *Services*, where you'll find *OpenVPN Service*.

If there is no OpenVPN Service, it needs to be installed (use BEWARD IP Visor installer).

If the service is not running, it needs to be started. Make sure the OpenVPN Service Startup type is set to "Automatic". In case the type is different, you can change it by using the service properties (right click on the service name and select "Properties" in the context menu).

Step 2

BEWARD IP Visor interacts with the OpenVPN server via the "openvpn-status.log" file. This file must be located in the OpenVPN install folder (usually *"C:\Program Files (x86)\OpenVPN\log"* for 64-bit versions of Windows and *"C:\Program Files\OpenVPN\log"* for 32-bit versions). This file must contain descriptions of the clients currently connected to the OpenVPN server (see Pic. 6.1). If this file is absent, empty or does not contain any client descriptions (highlighted grey on the picture), restart OpenVPN Service.

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```
OpenVPN CLIENT LIST
Updated,Thu Jul 06 07:39:33 2017
Common Name,Real Address,Bytes Received,Bytes Sent,Connected Since
BewardVPNClient,192.168.30.175:4066,4701,3715,Thu Jul 06 07:39:20 2017
BewardVPNClient,192.168.30.163:62581,260635,3715,Thu Jul 06 07:39:18 2017
ROUTING TABLE
Virtual Address,Common Name,Real Address,Last Ref
10.2.1.3,BewardVPNClient,192.168.30.175:4066,Thu Jul 06 07:39:26 2017
10.2.1.2,BewardVPNClient,192.168.30.163:62581,Thu Jul 06 07:39:27 2017
GLOBAL STATS
Max bcast/mcast queue length,2
END
```

Pic. 6.1

Step 3

BEWARD IP Visor installation program offers to configure Firewall rules to close access to the client computer via VPN-channels (Pic. 2.10). If you accept this, the installer will add the 4 following Firewall rules for incoming connections:

Windows Firewall rules for
BEWARD IP Visor software

№	Name	Action	Program	Local address	Protocol	Local port	Remote port
1	Block connections via Beward VPN-channels	Block	Any	10.2.1.0/24	TCP	Any	Any
2	Block connections via Beward VPN-channels	Block	Any	10.2.1.0/24	UDP	Any	1-1899, 1901-65535
3	Allow connections to Beward VPN-server	Allow	Any	Any	TCP	1201	Any
4	Allow search for Beward devices via active 4G-connection in BEWARD IP Visor	Allow	Path[1]	10.2.1.0/24	UDP	Any	1900

[1] – path to the BEWARD IP Visor executable.

These rules are crucial for the BEWARD IP Visor to work properly with devices added via the active connection.

You can check whether the rules exist by checking the Windows Firewall Advanced settings (*Control Panel → Windows Firewall → Advanced settings → Inbound rules*).

ATTENTION!

If some Firewall rules are in conflict with ones given in the table above, correct operation of BEWARD IP Visor with the devices added via the active connection is not possible

If you need to change the VPN IP-address range (“server” parameter) or a port used by the OpenVPN server for accepting inbound connection requests (“port” parameter), then you need to edit its configuration file “beward-server.ovpn”. This file is located in the OpenVPN install folder

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(usually *"C:\Program Files (x86)\OpenVPN\config"* for 64-bit versions of Windows and *"C:\Program Files\OpenVPN\config"* for 32-bit versions) and can be opened via "Notepad" application.

ATTENTION!

Make a backup of the OpenVPN configuration file before editing it. Restart the OpenVPN Service after editing this file.

VPN IP-address range changing requires the "Local address" parameter to be changed in the rules 1, 2 and 4 of the Windows Firewall for correct operation of the BEWARD IP Visor (see the table above). Port changing requires the "Local port" parameter to be changed in the rule 3.

Adding to the BEWARD IP Visor application the devices connected via active 4G-connection, it is important to keep in mind that VPN IP-addresses of the devices can change, when they are disconnected from the VPN server. So, any of them may get a different VPN IP-address when reconnecting to the VPN server for any reason (OpenVPN service restart, device reboot, network errors).

It is recommended to assign different main network interface (usually LAN) IP-addresses to the devices connected via the active connection, before adding them to the application. These addresses will be shown in the application in parenthesis next to the VPN IP-addresses for convenience.

ATTENTION!

This recommendation is obligatory for BEWARD Record Center to work correctly, because these exact LAN IP addresses are used when creating record directory names.

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Chapter 7. Event Settings

In this chapter, the interaction between BEWARD IP Visor and various video surveillance system events are described. The supported types of events are described in section 7.1. The ways to configure events on the side of BEWARD IP Visor are described in section 7.2. The ways to configure events on the device-side are described in section 7.3. The actions performed in BEWARD IP Visor when device events trigger are described in section 7.5. All supported events are entered into the Event Log which is described in section.

7.1. Event types

BEWARD IP Visor supports the following event types:

- **System events**: events related to BEWARD IP Visor (i.e. launching the software).
- **Settings changing**: events related to making changes in BEWARD IP Visor settings (i.e., saving changes in various settings windows).
- **Devices adding and removing**: events related to adding/removing devices in BEWARD IP Visor.
- **Connection events**: events related to connecting/disconnecting devices in BEWARD IP Visor.
- **Network errors**: various device connection errors, video loss.
- **User actions**: user actions that are registered by the system (i.e., operator reaction or no reaction to events).
- **Device events**: events that are triggered by the device (i.e., motion detection).

Device events is the most common and important event type. BEWARD IP Visor offers extensive support for this event type. The supported types of device events, actions and settings are described below. All other event types cannot be configured and are only entered into the event log.

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7.1.1. Types of device events

General Events:

- **Alarm input activation** – this event is triggered when the alarm input transitions into signaled state (i.e., when a hardware motion detector or a limit switch is triggered). This event is supported by most devices if they have at least 1 alarm input pin.
- **Motion detection** – this event is activated when the motion detector of the device is triggered. Supported by most devices.
- **Video loss** – this event is activated by BEWARD IP Visor when there is no video from the device for a predefined period of time. Supported by most devices.

Door station events:

- **Intercom call button** – this event is triggered when the call button of a door station is pressed. Supported by BEWARD door stations (DS-series, DKS-series) as well as analog single-user/multi-user door stations connected via DK103(M) IP portals.

Extended video analysis events (supported by SV-series cameras):

- **Region entrance detection** – the event is triggered when a person enters the pre-defined region on the surveillance area.
- **Region exit detection** – the event is triggered when a person exits the pre-defined region on the surveillance area.
- **Human detection** – the event is triggered when one or more people are detected on the surveillance area.
- **Line crossing detection** – the event is triggered when a person crosses the pre-defined line on the surveillance area.
- **Loitering detection** – the event is triggered when a person stays in the pre-defined region on the surveillance area for a pre-defined period of time.
- **Tamper detection** – the event is triggered when there's an attempt to tamper with the camera lens by obscuring or flashing it.
- **Counting incoming people** – the event is triggered when a person crosses the pre-defined line in a certain direction. Whenever that happens the total counter goes up by 1. This allows to count the number of people passing through the door.
- **Counting leaving people** – same as "Counting incoming people", but it counts people passing the line in the opposite direction.
- **Counting incoming and leaving people** – a merge of "Counting incoming people" and "Counting leaving people". Each new event makes the total counter go up by 1.
- **Counting people inside** – a merge of "Counting incoming people" and "Counting leaving people". Each new incoming person makes the total counter go up by 1, each exiting person makes the total counter go down by 1.

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- **Advanced motion detection** – the event is activated when the motion detector of the device is triggered. This event type supports way more configuration parameters than the regular “Motion detection”.

Access terminal events:

- **High temperature detection** – this event is activated when a person passes the access terminal with temperature higher than the set value. Supported by access terminals with temperature measurement functionality.
- **Face detection** – this event is activated when a person (registered or unregistered) attempts to pass the access terminal. Supported by all access terminals.
- **No face mask detection** – this event is activated when a person (registered or unregistered) without a face mask attempts to pass the access terminal. Supported by all access terminals.

7.2. Event settings in BEWARD IP Visor

This section of the manual describes the event settings that are available in BEWARD IP Visor.

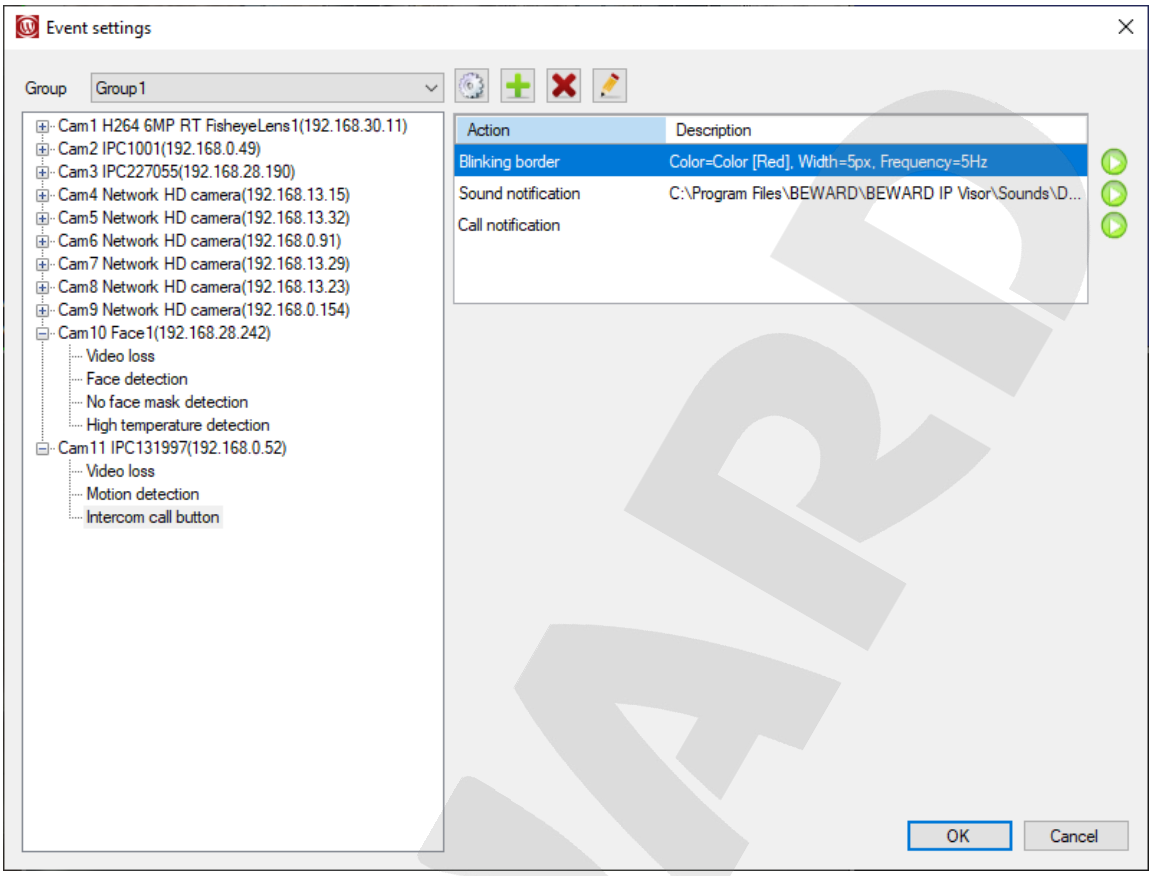
Click the **[Event Settings]**  system menu button in the lower right part of the application main window to open the “Event settings” window (Pic. 7.1). At the left side of the window, you can choose device groups and devices added into the application along with event types available for each device. At the right side you can set up the actions for the events.

In the “Event settings" window you can assign actions to the selected event type of a particular device. In order to do so, choose the device you need from the list at the left side of the window and double-click device’s name or click **[⊞]** to open the drop-down list of available events.

> **NOTE!**
> The list of available events depends on the device model.

Select the event type in the left list. On the right side you will see the actions that are assigned to that event type. Usually, the list is empty at first, but some event types include actions by default. For example, the “Intercom call button” event includes the following actions by default: “Blinking border”, “Sound notification”, “Call notification”.

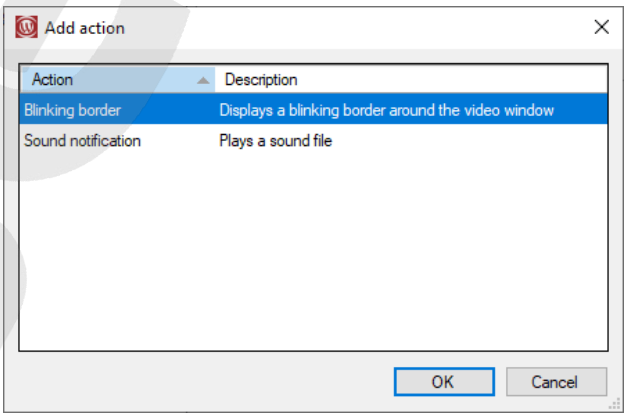
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Pic. 7.1

[Add action] : press this button, choose the action you want to add in the opened window and press **[OK]** (Pic. 7.2). Set the action parameters in the popped-up window (parameters of event actions are described in section 7.4). You can use the same action for different event types within a single device.

> **NOTE!**
> The list of available actions depends on the selected event type.



Pic. 7.2

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[Remove action] : select an action from the list and press this button. Once you confirm your choice the action is deleted.

[Edit action] : select an action from the list and press this button if you want to edit the action parameters (see section 7.4).

[Test] : press this button next to the action on the list to see the preview of the action when it is triggered.

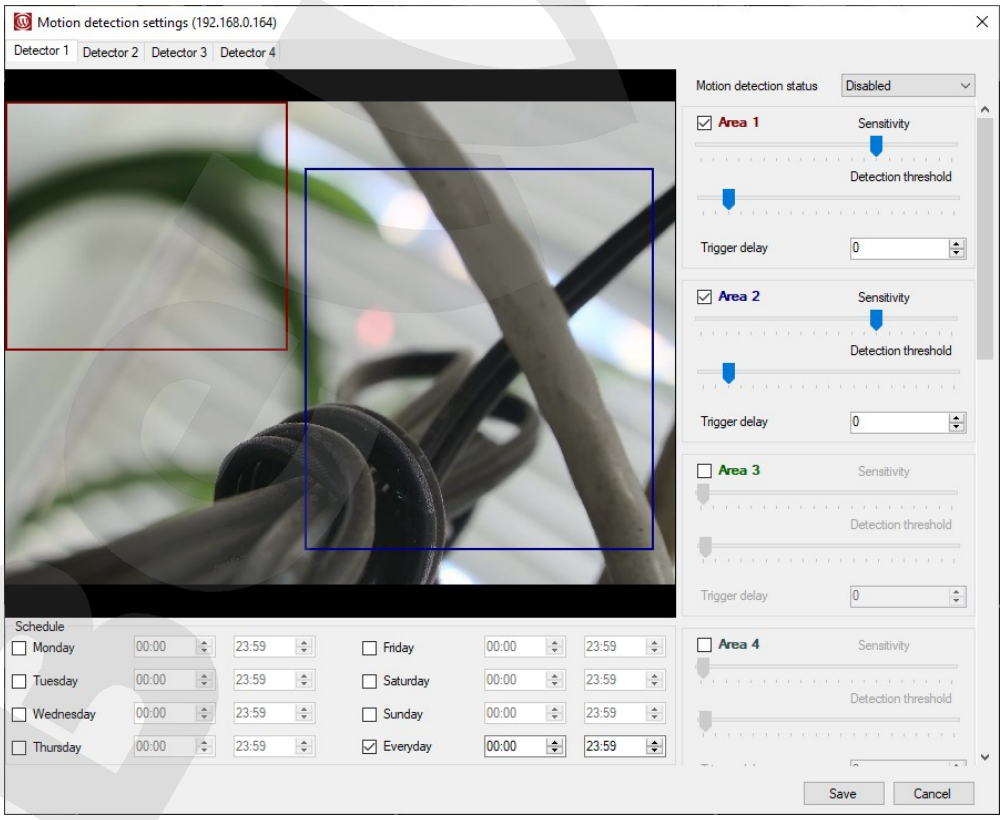
[Event settings] : some event types can be edited in BEWARD IP Visor (see section 7.3). For example, motion detection regions can be set up on cameras.

7.3. Event settings of the devices

The event types described in this Chapter can be configured in BEWARD IP Visor in the same way as in the Web UI of the device. Select the device and the event type in the left panel of the “Event settings” window (Pic. 7.1) and press the **[Event settings]** button, or double-click the event type. If the button is greyed out, then the current event type can’t be configured via BEWARD IP Visor, it must be configured via Web UI of the device.

7.3.1. Motion detection settings

The motion detection settings window is shown in Pic. 7.3.



Pic. 7.3

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BEWARD IP Visor supports several motion detectors working simultaneously (the actual number of motion detectors depends on the specific device). Each motion detector can be assigned various detection regions with its own detection parameters. Select the tab with the specific motion detector to begin configuring it.

Motion detection status: set this parameter to “Enabled” to activate the motion detector and allow BEWARD IP Visor to receive motion detection event data from the device.

Area 1, 2, 3, …: set the checkmark next to the field of the desired area to add a new motion detection area, represented by a colored rectangle. Click and drag the top border of the rectangle to move the detection area. Click and drag any other border of the rectangle to adjust its size.

Sensitivity: adjust the sensitivity of the current motion detection area. It takes into account the speed of the moving object, as well as how it contrasts against the background. If the value set is too high, the detector will trigger even at the slow-moving objects that barely contrast against the background. The recommended value is 80.

Detection threshold: set the motion detection threshold in the current area. If the value set is too high, the motion of the smaller objects will not trigger the detector. The recommended value is 25.

Trigger delay: this parameter determines the duration of the alarm in BEWARD IP Visor after the camera stopped sending the detection signal.

Schedule: set the time intervals when the motion detection is enabled for each day of the week.

> **ATTENTION!**
> For some camera models the parameters “Sensitivity”, “Detection threshold” and “Trigger delay” have a common value all detection areas. It is possible to set up overlapping detection areas for N-series and BD-series cameras. However, it is not recommended to set up areas with completely matching parameters and location; such areas will be treated as equal.

7.3.2. Alarm input settings

The alarm input settings window is shown on Pic. 7.4. This category of parameters is only supported by B-series devices.

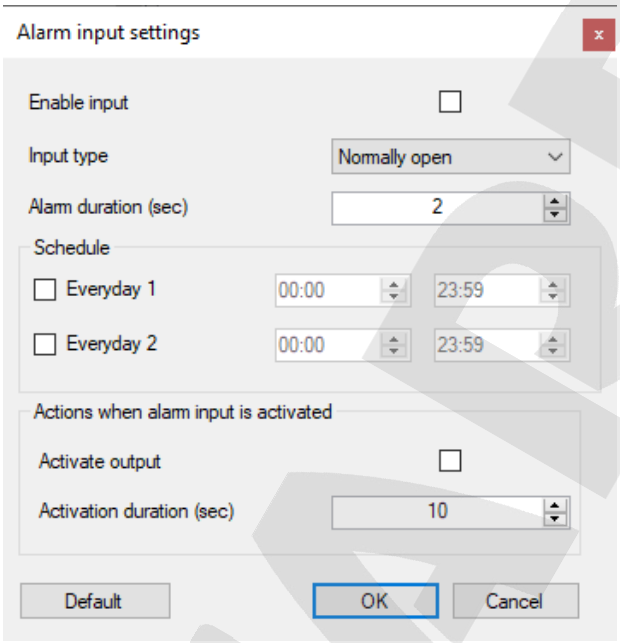
Enable input: allow/forbid processing of signals coming from the output of the external device (i.e., analog motion detector or limit switch) to the input of BEWARD IP device.

Input type: set the signal state of the input:

“Normally open” – in normal state the voltage level is zero. A non-zero signal needs to be sent in order to activate the alarm input.

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"Normally closed" – in normal state the voltage level is non-zero. In order to activate the alarm input, the voltage level needs to be reduced to zero.



Pic. 7.4

Alarm duration (sec): this parameter determines the duration of the alarm in BEWARD IP Visor after the camera input deactivation.

Schedule: set the time intervals when the device informs BEWARD IP Visor about changes in the state of the alarm input.

Activate output: if this option is enabled, the device will activate its output whenever the input is triggered.

Activation duration (sec): this parameter sets the duration (in seconds) of the output being in signal state.

Press **[OK]** to save the changes in the device.

7.4. Event actions

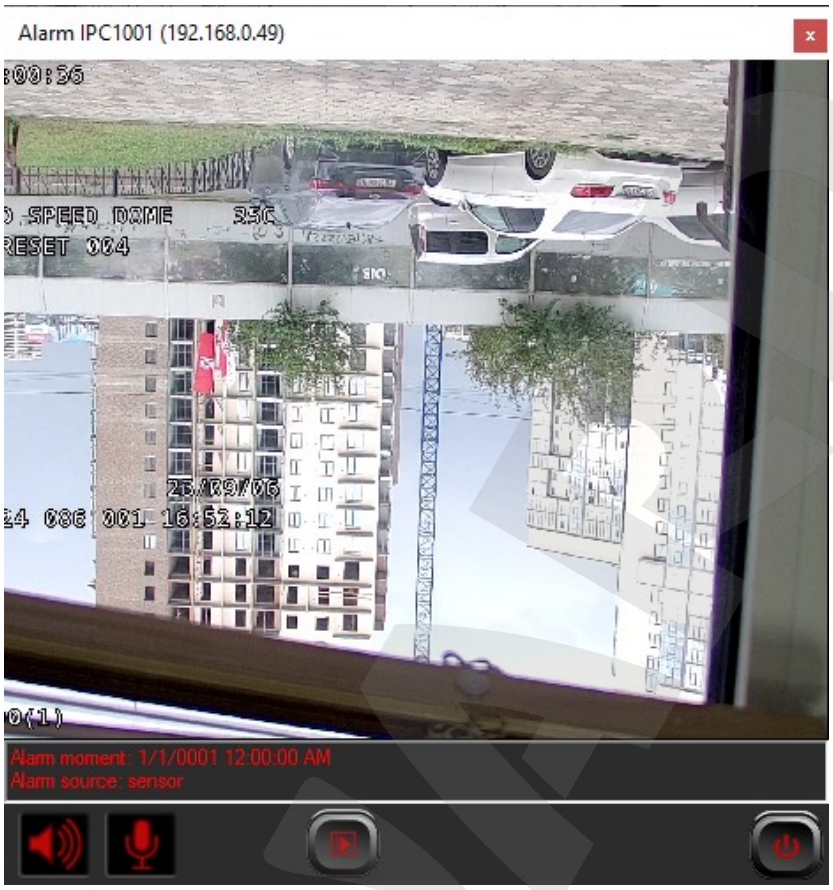
This section describes the various actions that can be performed in BEWARD IP Visor when events are triggered on devices.

7.4.1. Popup window

This action displays a popup window (as shown on Pic. 7.5) on the selected monitor whenever an event is triggered.

[Turn on the sound] : turn on/off the sound from the device.

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Pic. 7.5

[Enable the talk mode] : turn on/off the two-way audio transmission between the operator and the device.

[Activate the contact]  (For door stations – **[Open]** ): press this button to activate the output contact on the device.

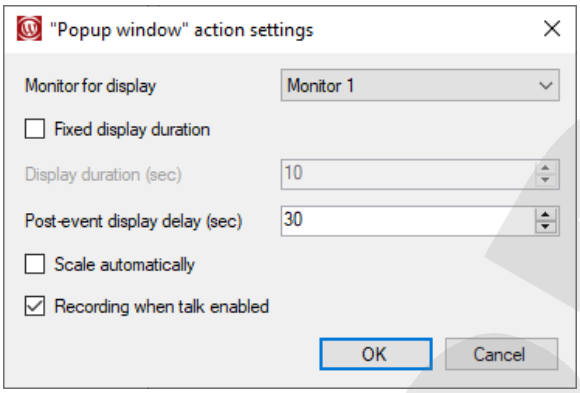
ATTENTION!
If the “Talk” mode is turned on, the popup window doesn’t close during the two-way audio transmission. If the two-way audio transmission ended before the timeout or a delay, the popup window will automatically close once the timeout or delay is reached.

The popup window action settings are shown on Pic. 7.6.

Monitor for display: select the monitor which will display the popup window.

Fixed display duration: enable this option and set the time (in seconds), during which the popup window will stay on-screen after the event is triggered, in the **Display duration (sec.)** field. Otherwise, the popup window will stay onscreen until the event is over and **the Post-event display delay** has passed. The delays will start the countdown anew if another event with the popup window action is triggered.

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Pic. 7.6

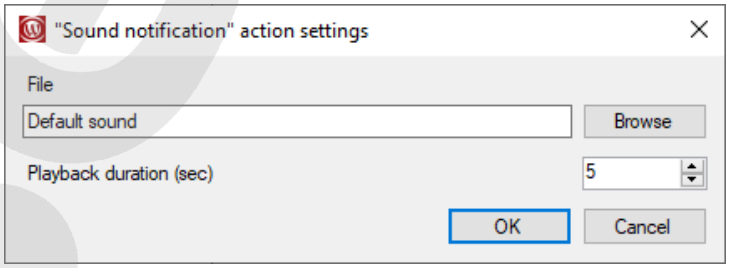
Scale automatically: enable the scaling mode in which the popup windows are automatically scaled and placed on monitor screens depending on the number of cameras that detected the event. For example, If the event was detected by a single camera, the popup window is maximized to fullscreen mode. If the event was detected by 2-4 cameras, the popup windows will take up a quarter of the screen each. If the event was detected by 5-9 cameras, the popup messages will take up 1/9th of the screen. If the scaling mode is disabled, the popup messages will have a fixed size.

Recording when talk is enabled*:* enable this option to record video and audio via BEWARD Record Center software when the two-way audio mode in BEWARD IP Visor is enabled

> **ATTENTION!**
> This option is only available when the Record Service is running on the same PC and the “Record on two-way audio activation” option is enabled. (see BEWARD Record Center Software Operation User Manual).

7.4.2. Sound notifications

This action plays an audiofile when an event is triggered. The Sound notification action settings window is shown on Pic. 7.7.



Pic. 7.7

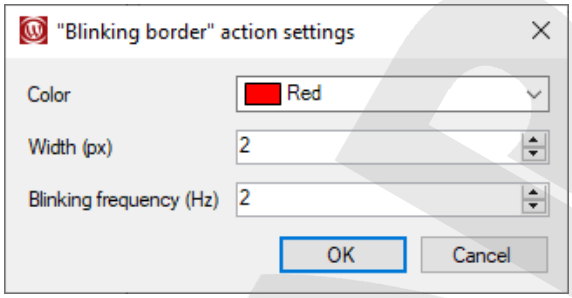
[File]: select an audiofile (.wav or .mp3) that will play in BEWARD IP Visor whenever the event is triggered. The default sound is suitable for events like “Intercom Call button”.

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[Playback duration (sec)]: set the duration (in seconds) of the sound notification when it is played. The audio will play from the beginning each time the event is triggered.

7.4.3. Blinking border

The border of the camera channel window starts blinking when the corresponding event happens. Blinking border action settings window is shown on Pic. 7.8.



Pic. 7.8

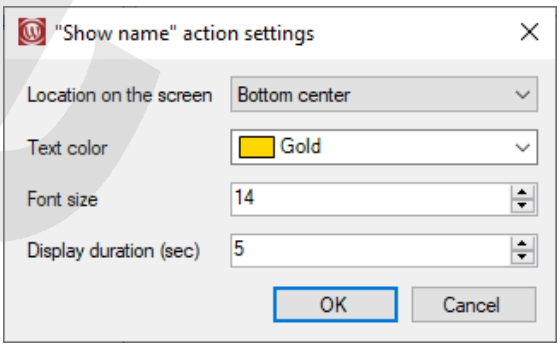
Color: the color of the active border, the color of the inactive border is set in the View settings (see section 4.1.8).

Width (px): the width of the border in pixels.

Blinking frequency (Hz): the frequency of the border blinking per second.

7.4.4. Show name

This action shows the full name of the person passing through the BEWARD access terminal. The name is displayed as overlay on the videostream from the access terminal. If the person trying to pass is not registered in the database, the text “Unregistered person” will be displayed instead. Show name action settings are shown on Pic. 7.9.



Pic. 7.9

Location on the screen: select one of the available positions of the text on the screen

Text color: select the color of the text font.

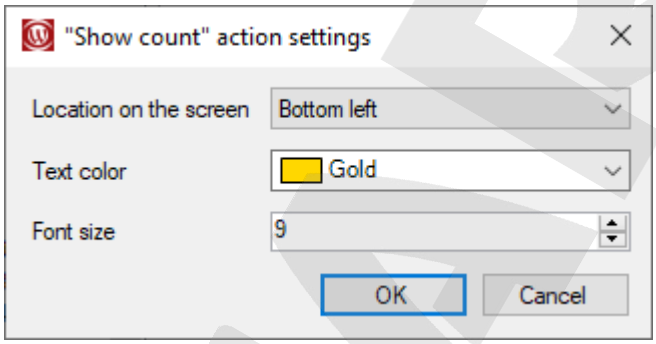
Text size: select the size of the text font

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Display duration (sec): set the duration during which the text will be displayed on the screen when the event is triggered.

7.4.5. Show count

This action shows the total count of objects that were detected by the advanced video analysis. This action can be used for the following event types: “Counting incoming people”, “Counting leaving people” etc. The count is displayed as overlay on the videostream from the camera. Supported by SV-series cameras. “Show count” action settings are shown on Pic. 7.10.



Pic. 7.10

Location on the screen: select one of the available positions of the text on the screen

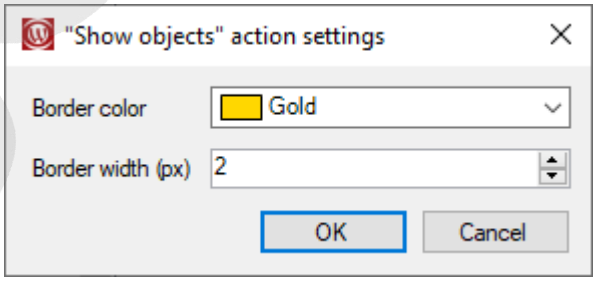
Text color: select the color of the text font.

Font size: select the seize of the text font.

The duration of this action cannot be set manually, the count value is displayed constantly and is refreshed each time a new event is triggered.

7.4.6. Show objects

This action creates rectangles around the objects that were detected by the camera. This action is used for event types like “Human detection”. The count is displayed as overlay on the videostream from the camera. Supported by SV-series cameras. “Show objects” action settings are shown on Pic. 7.11.



Pic. 7.11

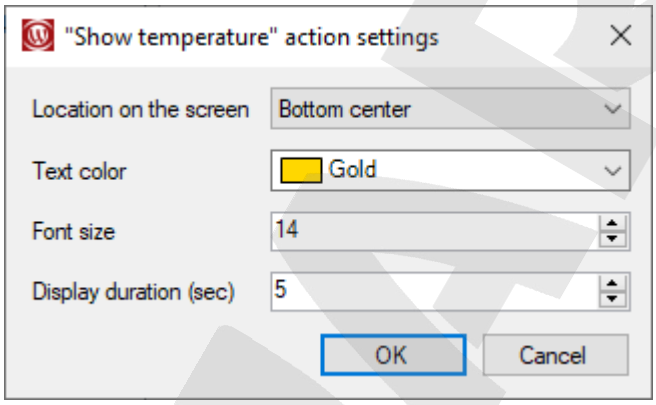
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Border color: select the border color for the rectangles around the detected objects.

Border width (px): set the width of the rectangle borders.

7.4.7. Show temperature

This action shows the facial temperature of the people passing through the BEWARD access terminal. The temperature is displayed as overlay on the videostream from the camera. This action is supported by devices with temperature measurement functionality. “Show temperature” action settings are shown on Pic. 7.12.



Pic. 7.12

Location on the screen: select one of the available positions of the text on the screen.

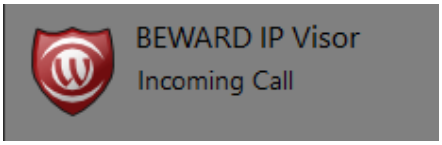
Text color: select the color of the text font.

Font size: select the seize of the text font.

Display duration (sec): set the duration during which the text will be displayed on the screen when the event is triggered.

7.4.8. Call notification

This action displays a small notification window in the bottom right part of the screen. It is used for the “Door station incoming call” event type. This action is incompatible with the “Popup window” action (see 7.4.1). If the event was assigned the “Popup window” action, then the “Call notification” action can't be assigned to it, and vice versa. Call notification window is shown on Pic. 7.13. Left-clicking the notification window will open a popup window.

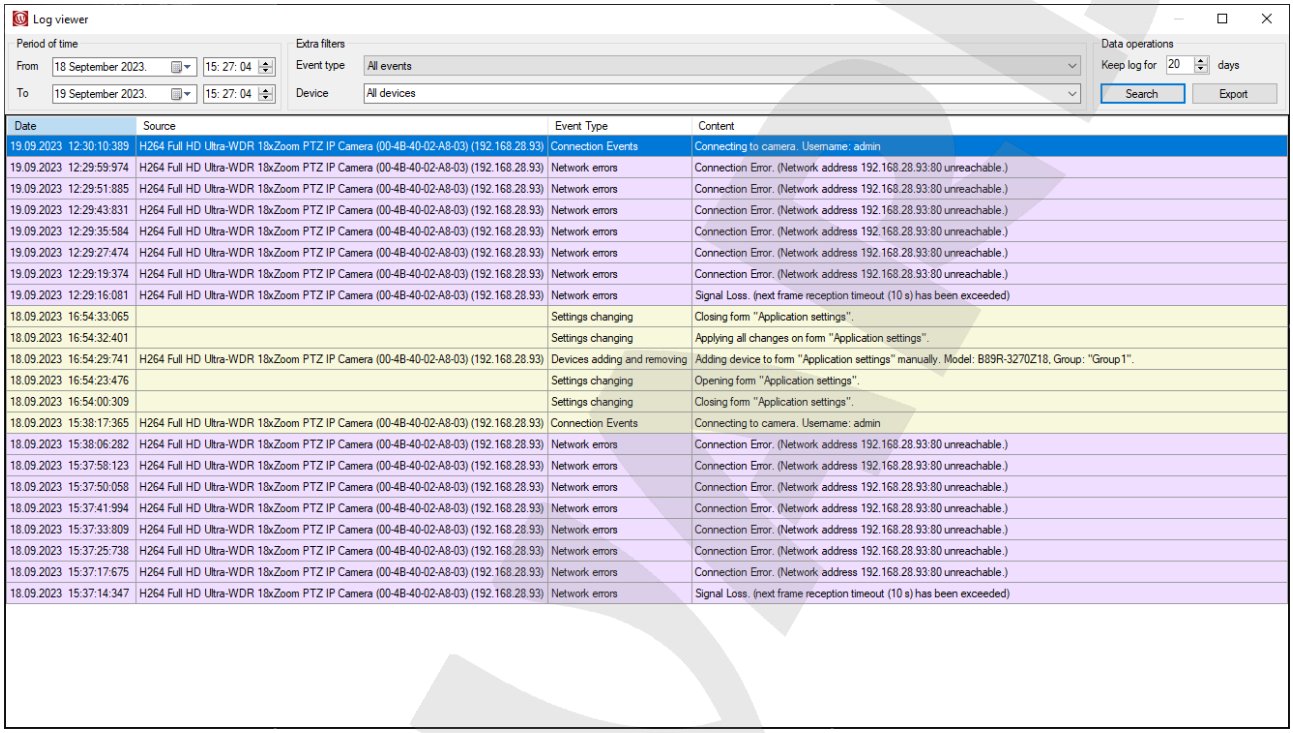


Pic. 7.13

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7.5. Log Viewer

Click the **[Log]**  button in the main application window to open the Log Viewer (see Pic. 7.14). It allows the users to monitor all events that were registered by BEWARD IP Visor. Each event type (see section 7.1) uses a different color for highlighting.



Date	Source	Event Type	Content
19.09.2023 12:30:10:389	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Connection Events	Connecting to camera. Username: admin
19.09.2023 12:29:59:974	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
19.09.2023 12:29:51:885	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
19.09.2023 12:29:43:831	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
19.09.2023 12:29:35:584	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
19.09.2023 12:29:27:474	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
19.09.2023 12:29:19:374	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
19.09.2023 12:29:16:081	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Signal Loss. (next frame reception timeout (10 s) has been exceeded)
18.09.2023 16:54:33:065		Settings changing	Closing form "Application settings".
18.09.2023 16:54:32:401		Settings changing	Applying all changes on form "Application settings".
18.09.2023 16:54:29:741	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Devices adding and removing	Adding device to form "Application settings" manually. Model: B89R-3270Z18, Group: "Group1".
18.09.2023 16:54:23:476		Settings changing	Opening form "Application settings".
18.09.2023 16:54:00:309		Settings changing	Closing form "Application settings".
18.09.2023 15:38:17:365	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Connection Events	Connecting to camera. Username: admin
18.09.2023 15:38:06:282	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:58:123	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:50:058	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:41:994	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:33:809	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:25:738	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:17:675	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Connection Error. (Network address 192.168.28.93:80 unreachable.)
18.09.2023 15:37:14:347	H264 Full HD Ultra-WDR 18xZoom PTZ IP Camera (00-4B-40-02-A8-03) (192.168.28.93)	Network errors	Signal Loss. (next frame reception timeout (10 s) has been exceeded)

Pic. 7.14

7.5.1. Event filter

BEWARD IP Visor supports event filtering. The event filter bar takes up the top part of the Log viewer window (see Pic. 7.14). User can use multiple filters simultaneously for more efficient event searching.

From / To: use these date and time fields to specify time intervals in the calendars for searching events.

Event type: use this drop-down list to choose a specific type of the system events so only the events of this type would be displayed in the Log after searching.

Device: select a specific device or “All devices”.

[Search]: press this button to find and display the events that meet the specified filter parameters.

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7.5.2. Log export

[Export]: click this button in the top right part of the window (Pic. 7.14) to save data of the current Log as the Excel (*.xls) file and confirm your choice.

7.5.3. Log clearing

BEWARD IP Visor regularly clears the event log by deleting events that are no longer relevant.

Keep log for… days: all events will be stored in the log for the specified number of days. The range of available values is 10 to 55 days. The default value is 20 days.

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Appendix A – Hotkeys

The default hotkey combinations for BEWARD IP Visor are described in the table below. The hotkeys can be edited in the BEWARD IP Visor settings (see section 4.1.1).

Alt + Enter	Enter/exit fullscreen mode (expand the video stream area and hide the toolbar)
Ctrl + `	Switch to custom screen division mode
Ctrl + 1 Ctrl + 2 … Ctrl + 0	Switch between screen division modes (see section 3.1)
Ctrl + Left Ctrl + Right Ctrl + Up Ctrl + Down	Rotate a PTZ camera left, right, tilt it up and down
NumPad+ NumPad-	Increase/decrease the speed of PTZ camera
F1	Open a PDF file of the Operation User Manual
Ctrl + A	Close output 1 of the Door station
Ctrl + S	Close output 2 of the Door station
Ctrl + D	Close output 3 of the Door station
Ctrl + T	Enable/disable “Talk” mode (Door stations only)

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Technical Support

You can find information on technical support on our official website: www.beward.ru Alternatively, you can contact our technical support service by email: support@beward.ru.

Before contacting the support service, please prepare the following information:

- Exact model name, firmware version and connection parameters of your device;
- Error messages received since the problem appeared;
- Steps you took to solve the problem yourself (step by step);
- Screenshots of relevant software and device settings;
- Error report file, such as ErrorReport131011_170413.bbr.

In order to create an error report, run the “Bug Report BEWARD IP Visor” application using the shortcut which was created during the installation. The default path is: ***“Start” – “BEWARD IP Visor” – “Bug report BEWARD IP Visor”***. Follow the directions of the Bug Report application.

The more information you can give the quicker our engineers can help you to solve the problem.

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