User Manual

NOVUS MANAGEMENT SYSTEM VSS

NOVUS®

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FOREWORD INFORMATION

1. FOREWORD INFORMATION

1.1. Main characteristics

- Software for network connections with NOVUS IP cameras and recorders;

- Support for RTSP channels and ONVIF devices

- Flexible and fully customizable software interface;

- Ability to create your own camera layouts;

- Live view and recording for each channel;

- Supported video compression: MJPEG, H.264, H.264 +, H.265, H.265 +;

- Resolution of recording / displaying streams: 4000 x 3000, 3840 x 2160 (4K Ultra HD), 3200 x 1800 (QHD +), 1920 x 1080 (Full HD), 1280 x 1024 (SXGA), 1280 x 720 (HD), 1024 x 768 (XGA), 800 x 600 (SVGA), 720 x 576 (D1), 640 x 480 (VGA), 352 x 288 (CIF), 320 x 240 (QVGA);

- Live monitoring, recording of audio channels, two-way audio "from" and "to" the camera;

- Advanced graphical recording schedule;

- NMS VSS user management;

- Advanced system for recording and filtering alarm events and NMS VSS logs;

- Control of speed dome cameras using the PTZ panel or the mouse;

- Export of recorded video to AVI files;

- Export of recorded video and audio to a PAK file;

- Object map implementation;

- Digital PTZ (Pan and Tilt functions available only for Fisheye cameras);

- Support for event schemas;

- Integration with cash registers, license plate recognition system, network module of outputs / inputs;

- Remote configuration of cameras;

- NMS VSS Mobile support for platforms: Android and iOS;

- Export of recorded video to a DVD recorder;

NOTE! This manual is based on NOVUS MANAGEMENT SYSTEM VSS, version 2.01.16.

NOTE! In the rest of this manual, the terms "Software", "Program", "Application" or NMS VSS refer to NOVUS MANAGEMENT SYSTEM VSS and replace the full name in the text.

FOREWORD INFORMATION

1.2. Recommended PC specification

Below are the requirements for working in a system with 1080p video images in real time (1920x1080 resolution, refresh rate 25 fps) for each video channel. When displaying more video channels at the same time, working with higher resolution or number of frames, the requirements may be higher. In such a situation, it is recommended to contact AAT SYSTEMY BEZPIECZEŃSTWA Sp. z o.o. in order to select the appropriate NMS VSS NVR server.

Recommended specification of the computer unit for NMS VSS software:

1. Processor CPU **Intel i7**

2. RAM DDR4 8 GB

3. OS **Windows Pro 10 64 bit** or **Windows 11 Pro 64 bit**

4. Network card **1 Gb/s** (We reccomend to add additional network card for client connections)

5. Audio interface

6. Hard drives with **SATA** interface, with min. **32MB** cache. **NTFS** file system required on the drives to be recorded.

7. GPU - **GeForce GTX 1050** or newer,

Additionally, in the computer system before installing the NMS VSS software it is recommended to:

- update Your Windows installation;

- update motherboard, graphics card and sound card drivers to the latest versions available on the manufacturers' websites

NOTE!

Due to the fact that process reliability is a priority in CCTV systems For data registration and management, it is recommended to use dedicated disks for continuous operation, the so-called 24x7.

It is recommended to purchase a unit dedicated to the required load. Hardware configurations based on the AMD platform have not been tested.

FOREWORD INFORMATION

1.3. PC settings before NMS VSS installation

Before installing the software, make sure that all energy saving functions are turned off both in the BIOS settings of the computer and in the Windows settings.

NOTE! **The description below is for Windows 10.**
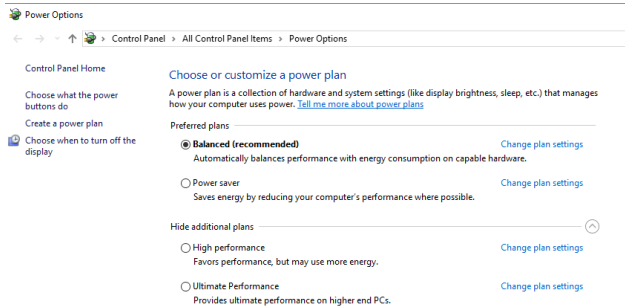
First, you must set the power plan to "high performance" you set it in,

"Control panel-> Power options"

In editing the power plan you should

switch the monitor off as

also the moment of entering sleep mode. Must be set to "Never"

FOREWORD INFORMATION
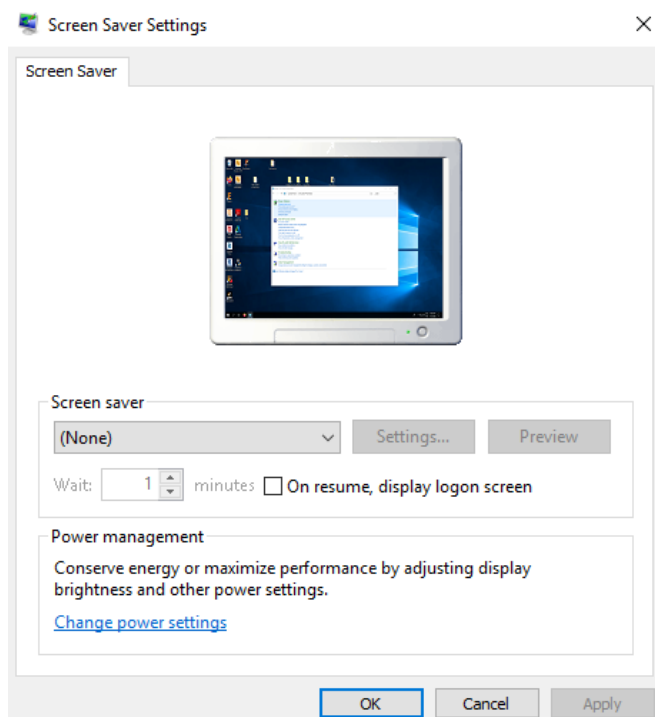
Screen saver settings Windows.

Control Panel ->

Personalization ->

Screen Saver -> (None)

In the network card settings it is necessary to select the option to disable the network card to save energy (this option is enabled by default).
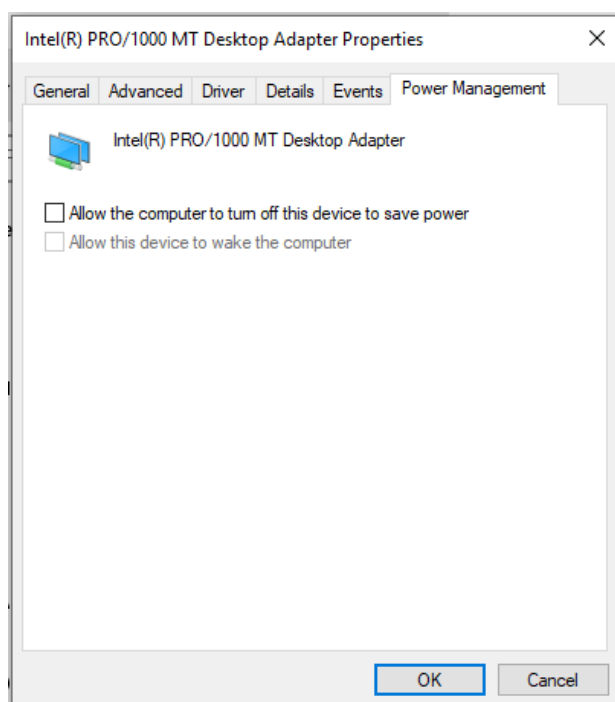
Power management settings for the network adapter

Control Panel ->

System ->

Device Manager ->

Network adapters ->

{card model} ->

Properties ->

Energy management

Clear the Allow the computer to turn off this device to save power check box.

FOREWORD INFORMATION

Due to the size of the windows and the ease of use of NMS VSS, the recommended screen resolution is 1920 x 1080.

Screen resolution settings Windows.

Start ->

Control Panel ->

Screen ->

Change screen settings

Display

Select and rearrange displays

Select a display below to change the settings for it. Press and hold (or select) a display, then drag to rearrange it.

| 1 | 2 |

Identify   Detect

Color

Night light

⬤─── Off
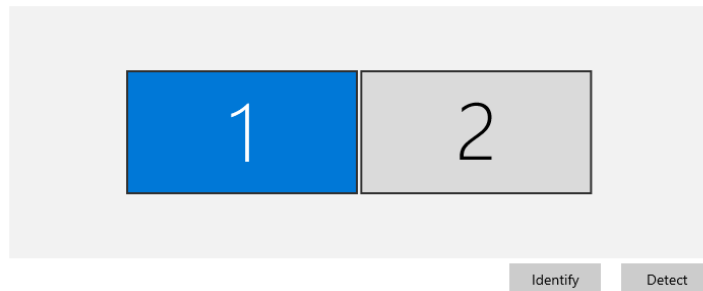
Night light settings

Windows HD Color

Get a brighter, more vibrant picture in HDR and WCG videos, games, and apps.

Windows HD Color settings

Scale and layout

Change the size of text, apps, and other items

100% (Recommended) ⌄
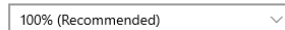
Advanced scaling settings

Resolution

NMS VSS INSTALLATION

2. NMS VSS INSTALLATION

Attention! Follow all steps to install NMS VSS preliminary described in the previous chapter

Attention! The NMS VSS software can be used to build a simple single-user system as well as an extensive system consisting of a recording server and many client stations connected to this server. Before starting the installation, consider which installation profile matches the needs of your system.

2.1. Single workstation system - NMS VSS Server / Client installation (Standalone)

Single-site installation in the NMS VSS Server / Client mode is intended for users of systems with a simple structure. In such systems, all streams from IP devices are connected to a single workstation, where they are simultaneously recorded and displayed

- Recording images from cameras
- Displaying images from cameras
- One operator station

NMS VSS Server / Client

2.2. Multi-workstation system - installation of the NMS VSS Server or NMS VSS Client type

In multi-workstation systems, recording and displaying functions are separated, which significantly increases the level of system security and enables viewing the images from cameras from several independent operator stations. In such applications, the server can be placed in a separate, air-conditioned room with limited physical access. This type of system also enables centralized management of user rights on client stations.

- Display
- Remote playback

NMS VSS Client

Recording

NMS VSS Server

- Display
- Remote playback

NMS VSS Client
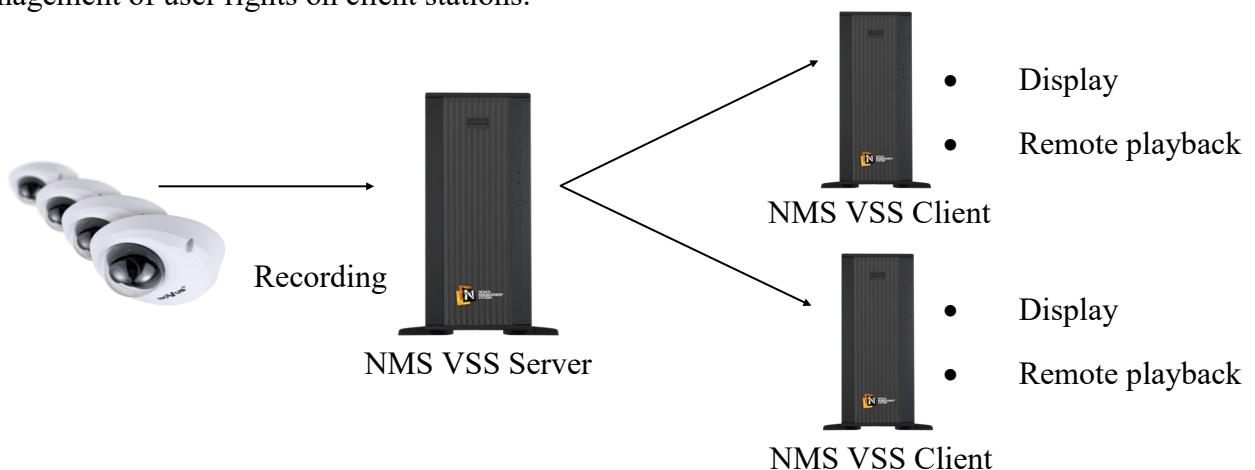
NMS VSS INSTALLATION

2.3. FEATURES OD PARTICULAR INSTALLATION TYPES

Depending on the type of installation, the NMS VSS software has the following features

- **MULTI SIDE SYSTEM**

NMS VSS Server

- automatic search for compatible IP cameras;
- recording video streams from IP cameras and other NMS VSS servers;
- sending video streams to NMS VSS Client client stations;
- displaying video streams - the computing power of the server is dedicated to sending video streams to many client stations;
- setting the maximum number of connections from client stations both in "live" and playback mode - NMS VSS firewall function;
- defining a camera list for users of client stations;
- defining user rights;
- group priority setting - requesting access to recordings via a user from a group with a higher priority disconnects the user from a group with a lower priority;
- manually adding other NMS VSS servers to build a system containing the so-called Backup Server;
- dynamic management of streams sent to client stations (the server sends only the streams currently displayed on client stations);

NMS VSS Client

- automatic search for NMS VSS Server units and NMS VSS Server / Client;
- Live view of video streams - computing power
- remote playback of recordings from NMS VSS Servers (information about the availability of recordings on the server is displayed on the Client's NMS VSS side);
- no possibility of recording on the client's NMS VSS side;
- remote activation of panic recording (NMS VSS Client sends server-side panic recording start command);
- no possibility to send video streams to other NMS VSS Client stations;
- dynamic stream selection (automatic switching to a stream with lower parameters in case of a large number of streams displayed simultaneously in the video window).

NMS VSS INSTALLATION

- **SINGLE SIDE SYSTEM**

NMS VSS Server/Client

- automatic search for compatible IP cameras;

- recording video streams from IP cameras and other NMS VSS servers;

- Live view of video streams - the client's computing power is focused on decompression of video streams;

- manually adding other NMS VSS servers to build a system containing the so-called Backup Server;

- dynamic management of streams sent to stations client (the server sends only the streams currently displayed on client stations);

- dynamic stream selection (automatic switching to a stream with lower parameters in case of a large number of streams displayed

2.4. NMS VSS installation

After reading the information described in the previous chapter, run the NMS VSS installer as an administrator - the NMS VSS_full_x86_n.n.nn.exe or NMS VSS_full_x64_n.n.nn.exe file (v.n.n.nn means the current version of the program).
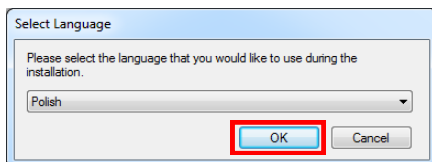
Installation language selection. For English, choose English and click *Ok*.
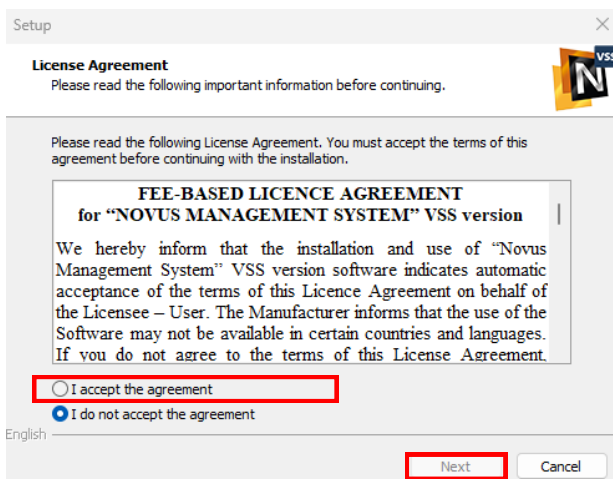
Please read the license agreement carefully. After reading the terms of the agreement, please select *I accept the agreement* and click *Next*.

NMS VSS INSTALLATION
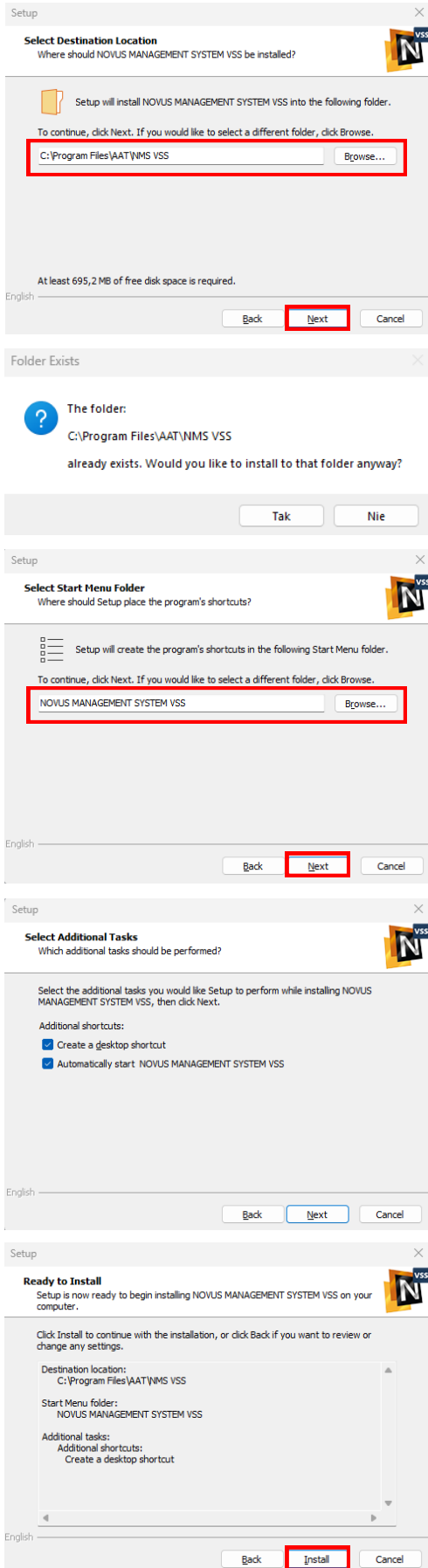
Please select the folder where NMS VSS software will be installed (button *Browse* ...) or leave the default path and click *Next*.

If a previous version of the program was installed in this folder, there will be a question if you want to install it there anyway.

Previous configuration will be lost if installation is continued! In order to prevent this, it is necessary to export the configuration in advance using the appropriate program function.

The Setup will create shortcut in Start Menu folder. You can select other folder using *Browse* butto.

To continue the installation, please choose the *Next* button.

There are checkboxes to create shortcut on the desktop and to start NMS VSS automatically.

The last window summarize all selscted options. Click *Install* to start installation process.

NMS VSS INSTALLATION
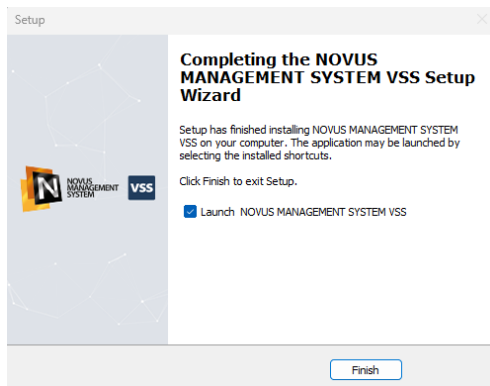
The NMS VSS software installation process will be completed after selecting the *Finish* button.

To start the NMS VSS application after the installation is completed, please select the *Launch NOVUS MANAGEMENT SYSTEM VSS* option.

2.5. NMS VSS software activation

The NMS VSS program is launched using the shortcut icon on the desktop or in the programs menu.
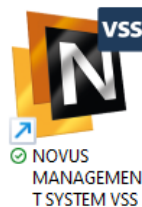
The first time you start NMS VSS, you have to activate the NMS VSS software - Menu -> Help -> Licensing
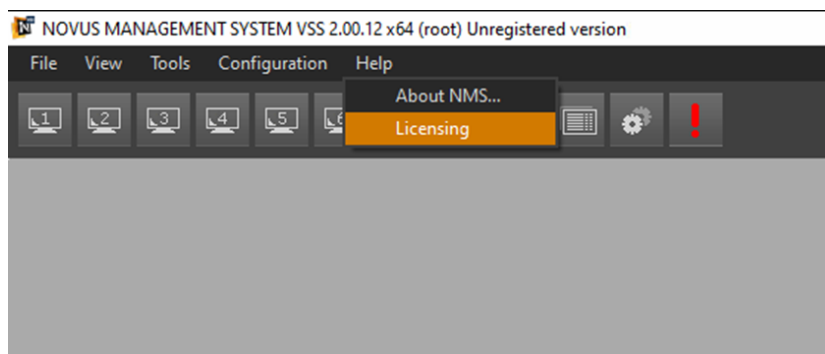
NMS VSS INSTALLATION

In the Licensing window, in the Registration tab, you need to fill in all installer and user data. After completing the data, click the "Save" button.

After completing this step, the following message should appear:
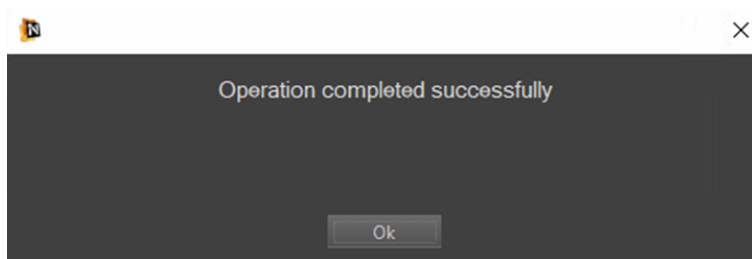
2.5.1. Automatic NMS VSS activation

In the Licenses window, go to the Licenses tab and select the "Activate key" button.

NMS VSS INSTALLATION

Enter the product key in the designated place in the window
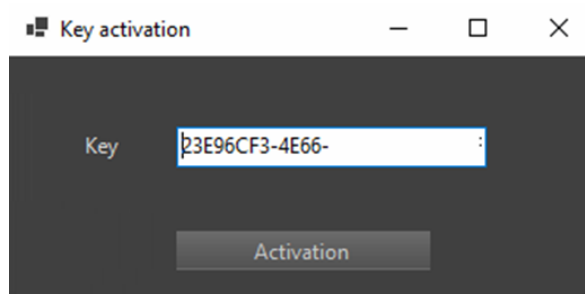
After completing this step, the following message should appear:
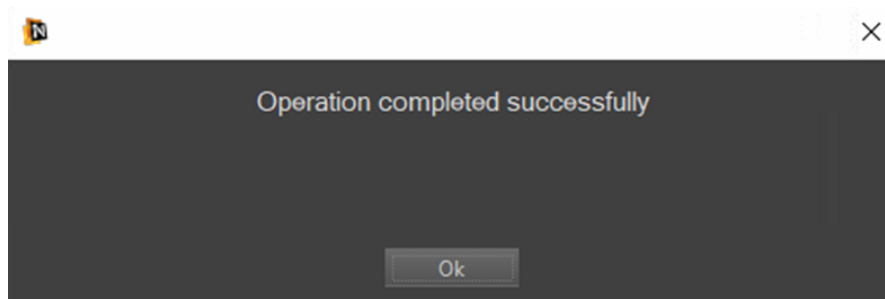
2.5.2. Manual NMS VSS activation

If the NMS VSS has no Internet access, the window below will appear
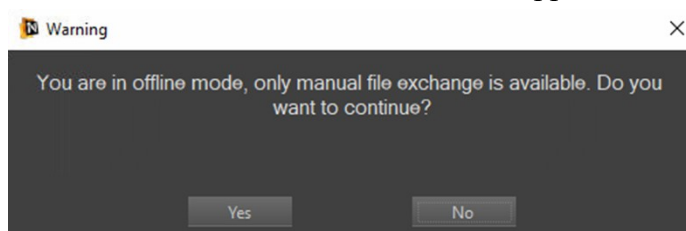
The program creates a file called request.nlic which needs to be saved and transferred to a computer with Internet access.
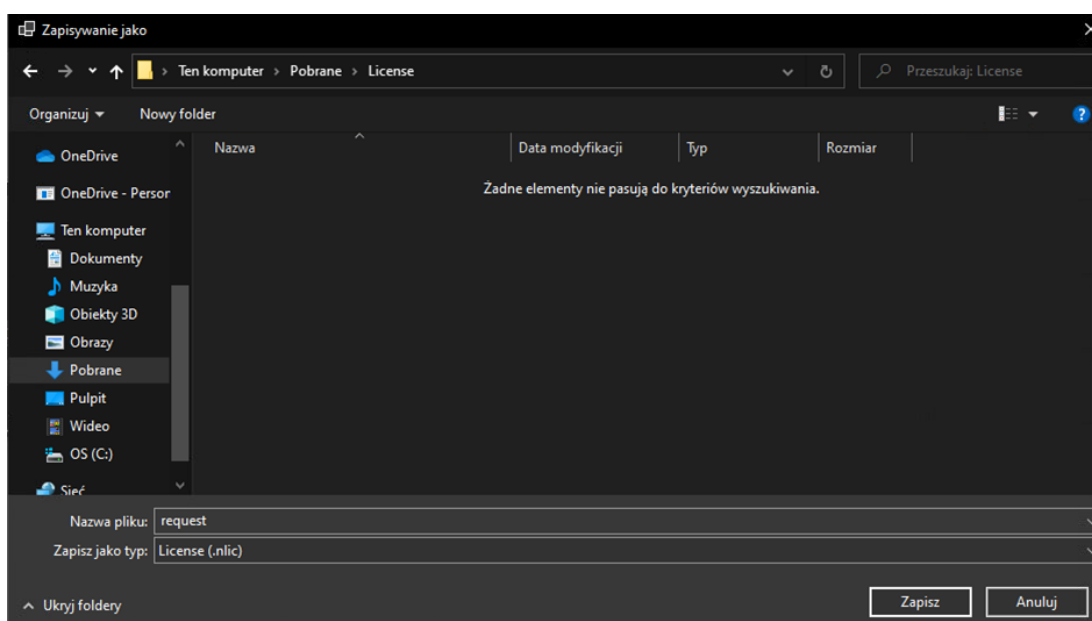
NMS VSS INSTALLATION

Open browser on a computer with Internet access, go to the NMS VSS.aat.pl website and click the Registration/Activation button as in the picture below.
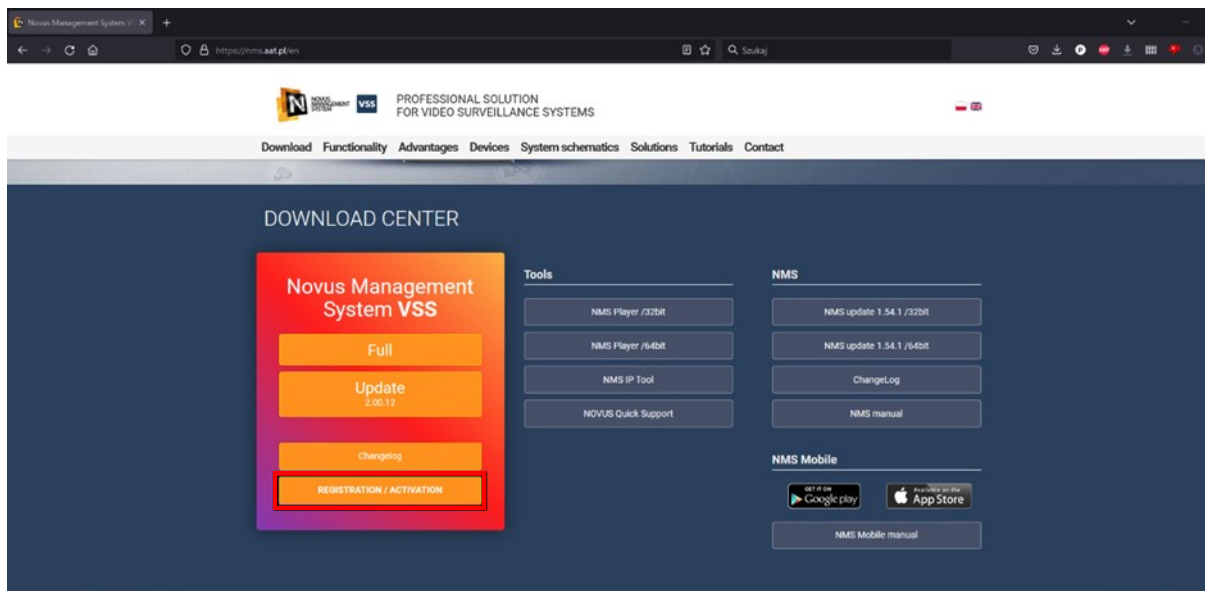
A new page will appear on which, after pressing the Upload File button, we must upload the previously generated request.nlic file. In return, the website will generate a file called response.nlic that needs to be transferred to the target computer with the program installed.
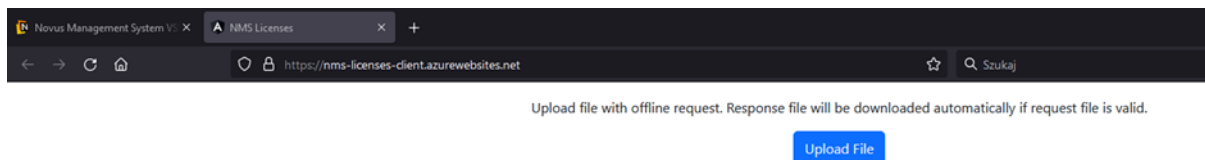
On the unit with NMS VSS installed, the button Load response file from server appeared in the license window. You need to select it and indicate the response.nlic file in the opened window
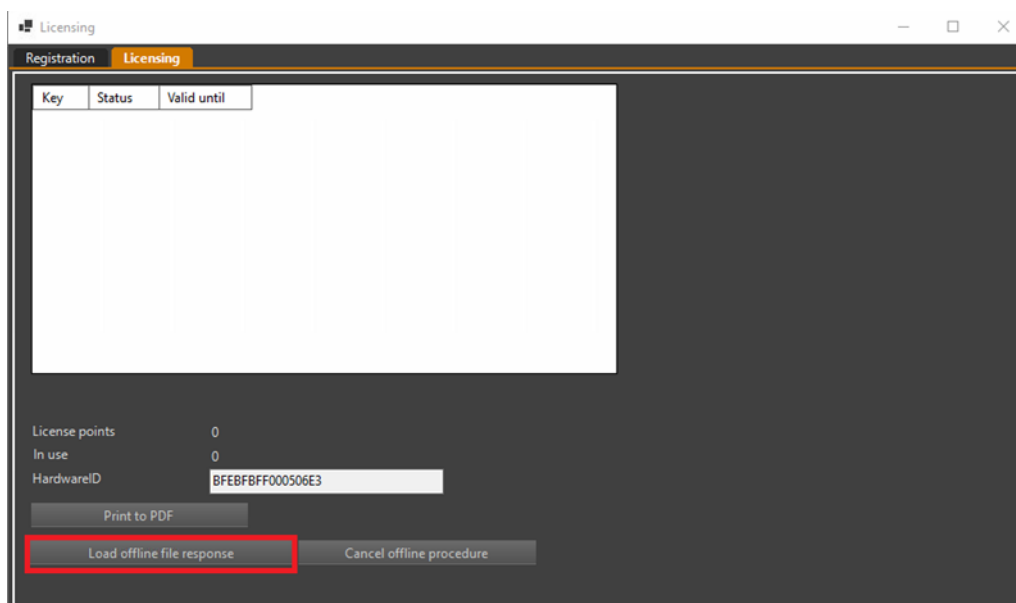
NMS VSS INSTALLATION
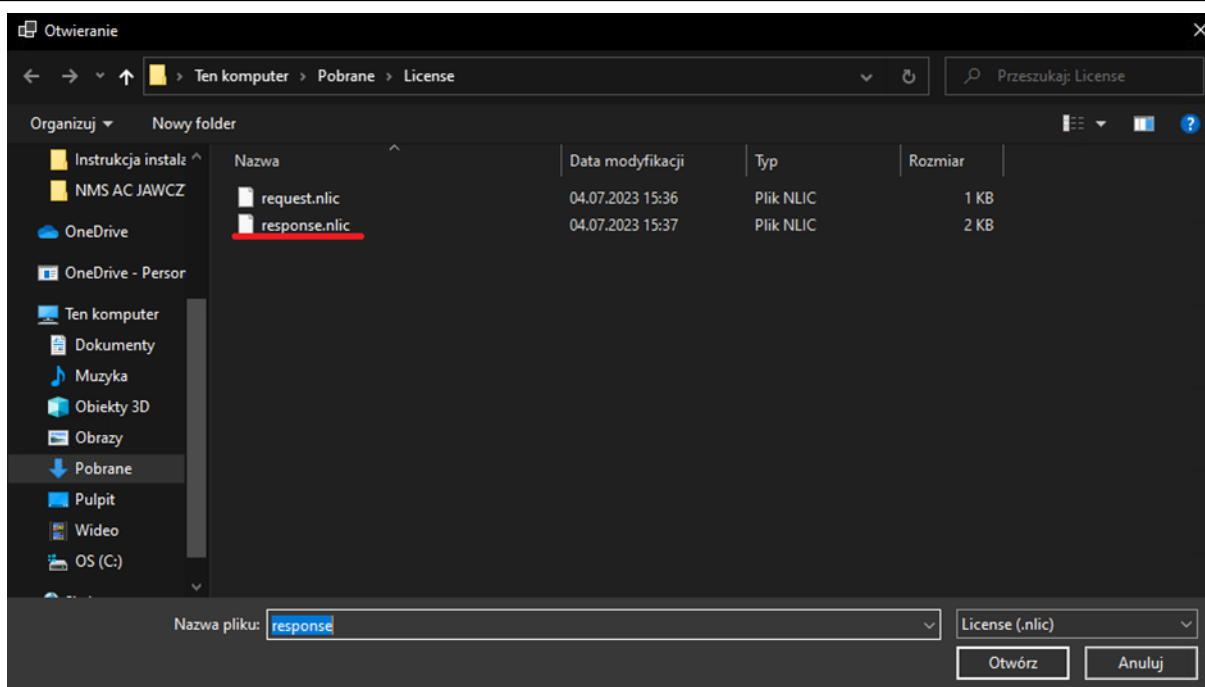
After selecting the file, a message about correct loading of the license should appear
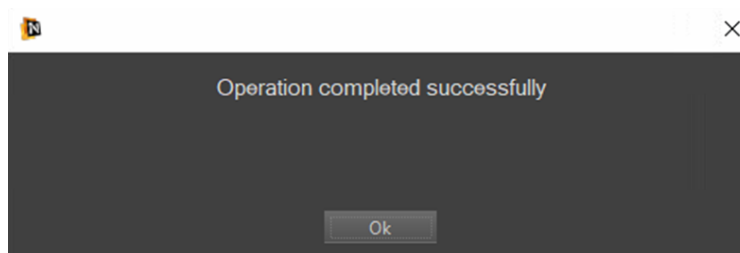
NMS VSS INSTALLATION

2.6. Launching NMS VSS Software

When you click NMS VSS shortcut icon, all software modules are started.
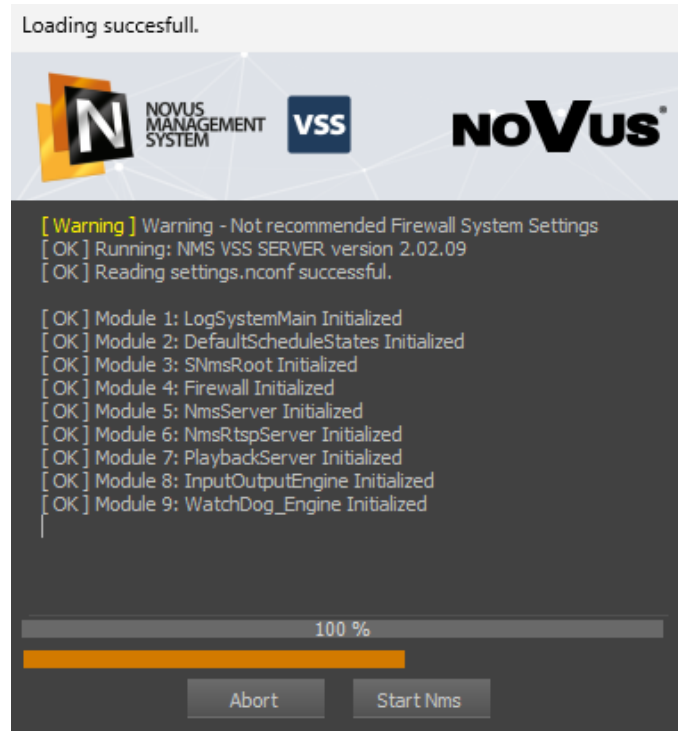
NMS VSS INSTALLATION

If during the initialization process there are any errors with the launch of the NMS VSS application or individual devices assigned to the system, for 10 sec. a window with information about errors will be displayed. To go to the login window, press the OK button. If there is no reaction, the error window will close after 10 seconds.
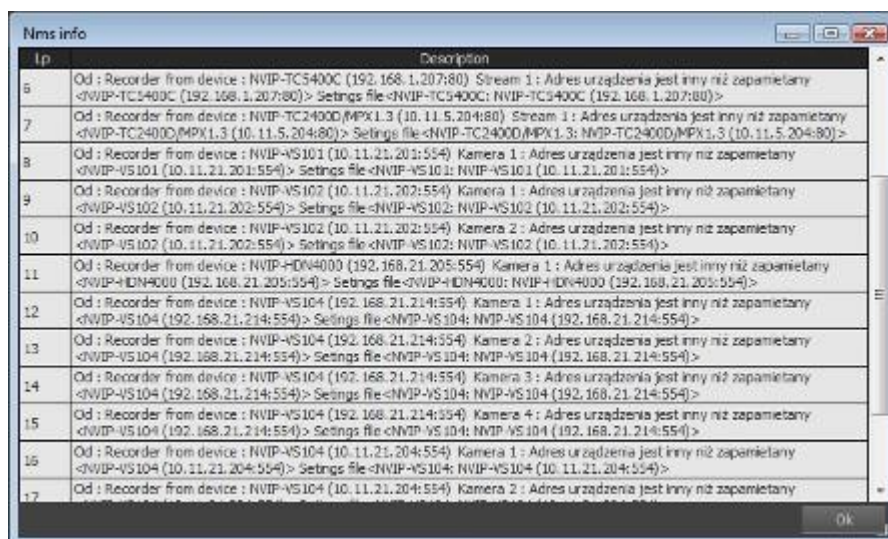
Note!

Full information about the course of the last launch and closing of the NMS VSS application is provided in the LOGs panel: "Start screen log", "End screen log".

NMS VSS user login window. The default user is **root** and the password is **pass**.
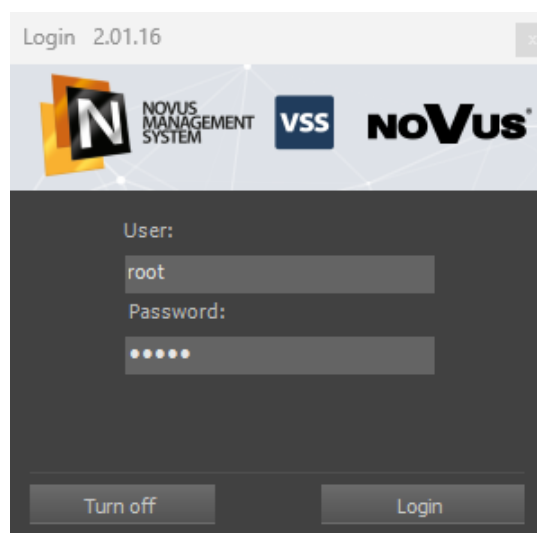
The **Turn off** button allows to close the NMS VSS application, the **Login** button starts the application. Closing the application is possible only when the user has granted permissions for such an operation. Pressing Enter is equivalent to pressing **Login**, and pressing ESC is equivalent to pressing **Turn off**.

Information!

After logging in, it is recommended to change the default username and password.

NMS VSS INSTALLATION

The first launch of the NMS VSS program is associated with the automatic launch of the wizard allowing for quick program configuration. The wizard's welcome window is illustrated below:
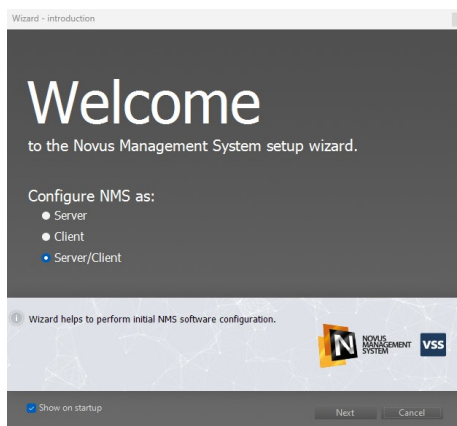
Selection of one of the three operating modes of NMS VSS made at the installation stage as Client, Server, or both, it affects the wizard's mode of operation.

Selecting the **Show on startup** checkbox will start the wizard every time the program is started. Click **Next** button to go to the next window, the **Cancel** button will close the wizard and open the main program window. If Next was selected, another wizard window will open containing a search engine for cameras / video-servers or NMS VSS servers connected to the subnetwork in which the computer with the NMS VSS software installed is working.
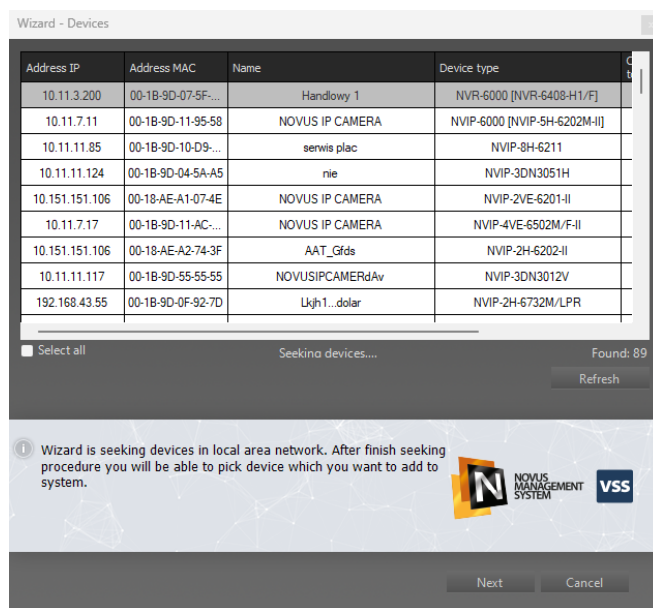
The search process starts automatically, depending on the selected operating mode, cameras (Server and Server / Client) or NMS VSS servers (Client) are searched after its completion the window shows a list of found IP addresses with the names and type of devices. The Refresh button repeats the search. Pressing Next will take you to the next window where you can choose to share streams with other machines with the NMS VSS software installed (this applies when installing NMS VSS as a Server or Server / Client). This option is not available when installing in Client mode. Clicking Next takes you to the next window that allows you to select the path and size of the disk space for recording recordings (only Server and Server / Client).

NMS VSS INSTALLATION

The size of the recordings database selected in the wizard (after selecting Create recorder database) is identical for each of the previously detected devices, as is the path to the recordings folder.
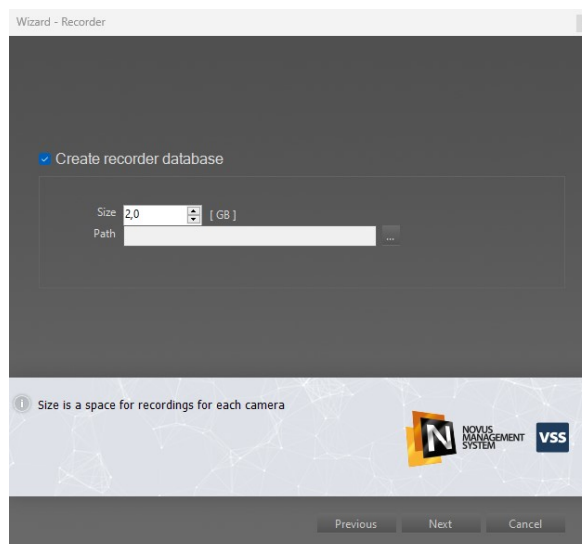
Pressing Next will take you to the next window where you can add new user accounts. The root / pass account under which NMS VSS is first run is the administrator account. It is recommended to enter at least one user account in this step, which will not be able to change the program settings. It is also necessary to change the password for the administrator account later
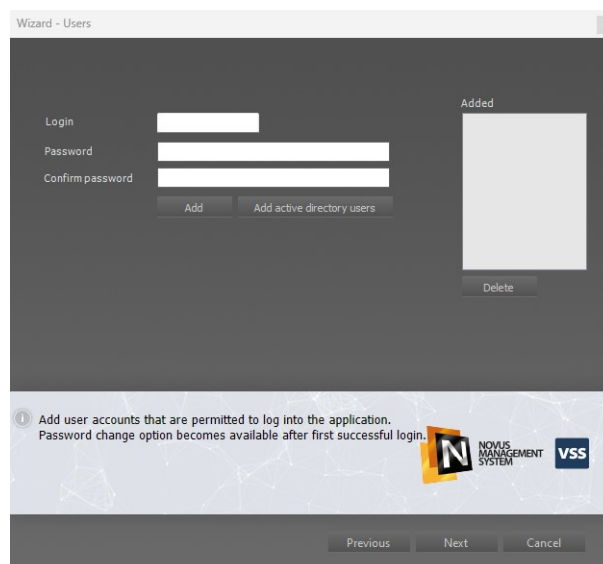
Entering data (login and password) and pressing the Add button adds the account to the ADDED window. In case of incorrect data input, it is possible to remove the account from the list by clicking the Delete button.

After adding the desired number of user accounts and pressing Next, the last wizard window opens, allowing the settings to be applied and saved in the program configuration. To apply the settings, the program automatically logs the user out and then prompts them to log in again. Appropriate settings made during the Wizard run will be applied during NMS VSS startup.

NMS VSS INSTALLATION

After a while, the program window will appear on the screen. When the program is started for the first time, the default panel layout will be displayed. When working with the program, the layout of panels can be adapted to your needs.
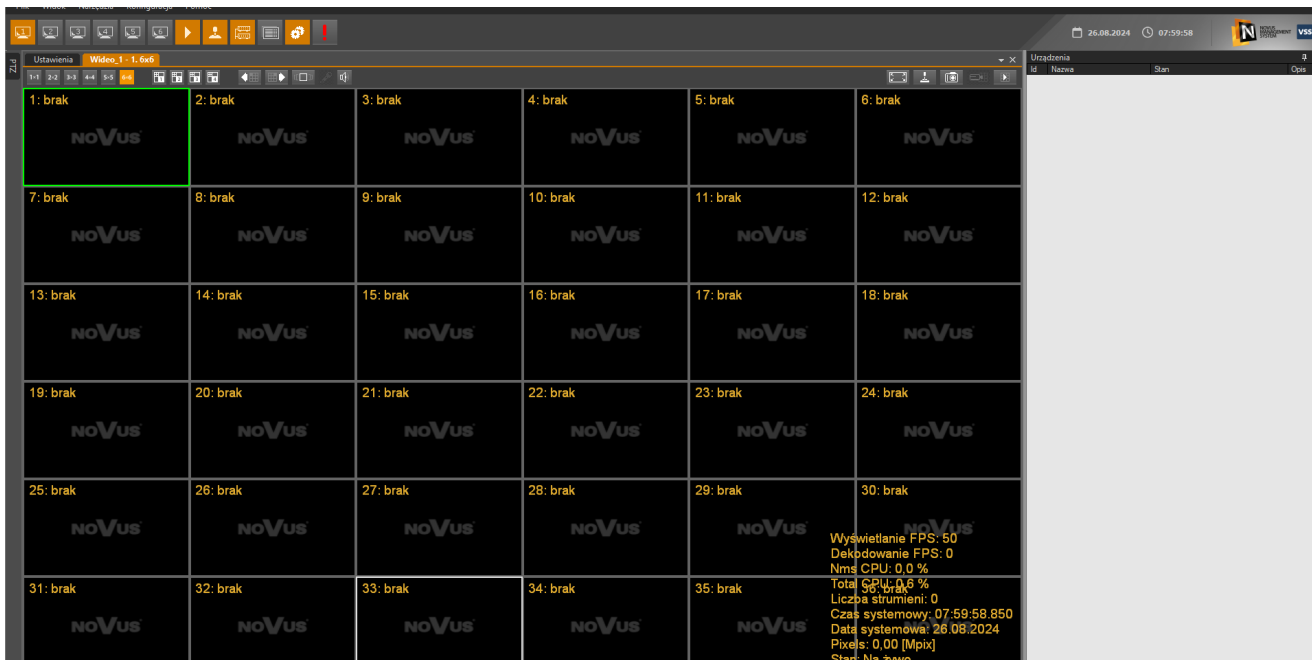
Using a graphic card with a two-monitor display, it is possible to arrange a large number of panels on the screen without the need to reduce their size.

An example of a window layout for working in a two-screen mode.

NMS VSS INSTALLATION

2.6.1 NMS Service

NMS can run as a system service. This means it can run in the background of the system without a user interface. To start the NMS service, click on the NMS Service icon on the desktop.

The window shown below will be displayed.
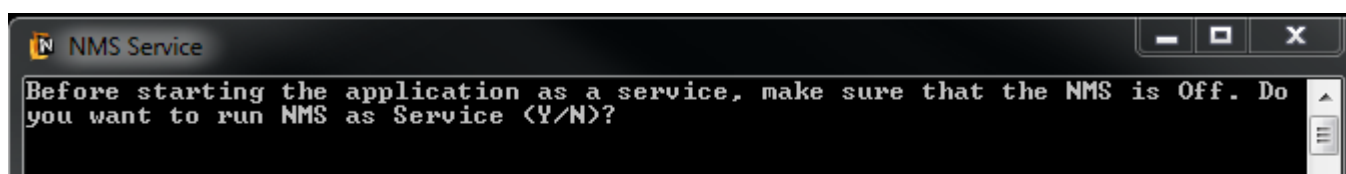
Make sure the NMS application is closed. Press the "Y" key and confirm by pressing Enter. The service will start. In the Windows task manager, in the Services tab, the NMS service is listed as NmsServerService.
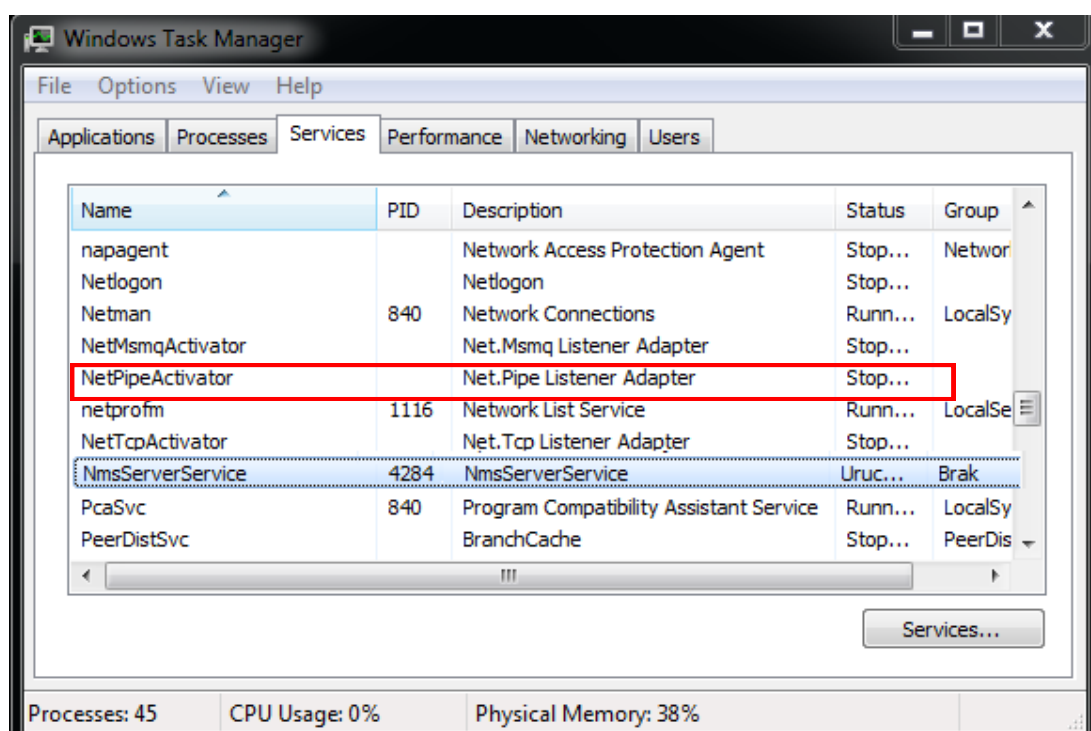
To restart the NMS application, double-click the NMS icon on the desktop.

NMS VSS INSTALLATION

2.7. Initial configuration of NMS VSS application

The NMS VSS application is designed in such a way that it can work as a server and a client at the same time. The launched NMS VSS server is connected to the client as one of the devices in the same way as e.g. an IP camera. Thanks to this, there are great opportunities for expansion or reconstruction of the system.

Warning! When running multiple services at the same time, pay attention to computer performance. Viewing multiple camera images at the same time puts a considerable strain on your computer. Also, connecting many users via the network to one server increases the load on this unit. If the load on the processor or the Internet network is too high, it may result in interruptions in displaying or even recording video streams. It is recommended not to exceed 60% of the CPU and network load in normal operation of the NMS VSS application.

2.7.1. NMS VSS Server configuration

In order to configure the NMS VSS application installed as NMS VSS Server, it is recommended to follow the procedure presented below (or to run the Wizard):

- You should configure the network connection of the computer on which the NMS VSS application has been installed in accordance with the assumptions of the target computer network;

- Attach one IP device (camera or video server) one by one to the network switch and define a unique IP address and other parameters of the network connection on it (for the description of the IP device configuration, see the manual delivered with the device);

- Start the NMS VSS application, select CONFIGURATION / APPLICATION SETTINGS from the main menu. There is a Shutdown submenu in the APPLICATION tab. If the NMS VSS server application is to be automatically closed when you try to turn off the computer, select the option Allow the system to close NMS VSS and select the Save button.

- Otherwise, if the NMS VSS application is open, it will block system shutdown.

- In the DEVICES tab, there is an option to add devices. Devices can be searched automatically using the "Magnifier" button and added from the found list of devices, or manually with the use of Plus, specifying the IP address, port and device type.

- After all devices are added, give them appropriate names. Then go to SCHEDULE and configure the recording mode (continuous, alarm, motion detection. If there are devices in the system using PTZ control, you can configure them in the ADVANCED subpage.

- It is also recommended to add users in the USERS tab and to grant appropriate rights to their groups for each of the NMS VSS clients. The administrator account should only be used to configure NMS VSS.

- In the next step, select CONFIGURATION / RECORDER from the main menu. After the current list of devices is displayed, you can define the size and storage location of video recordings for each camera. For this purpose, it is best to select all video streams with the Ctrl + A key combination and at the bottom of the screen, in the auxiliary bar, specify the size of the recording on the disk for each stream and add these parameters for all cameras using the Use buttons and save the changes.

NMS VSS INSTALLATION

- After carrying out all the above actions, select the FILE / SAVE CONFIGURATION option from the main menu of the NMS VSS program, and then restart the application;

- After restarting, in the CONFIGURATION / SERVERS menu, select the cameras that are to be transmitted to the client. You must also configure all other servers;

- Then, from the CONFIGURATION / FIREWALL menu, configure the firewall settings;

- It is recommended to disable video windows on the server so that they do not burden the system unnecessarily.

After completing the configuration, restart the computer to check if the automatic startup of applications and services works properly and you can start working with the program.

2.7.2. NMS VSS Client configuration

In order to configure the NMS VSS application installed as an NMS VSS Client, it is recommended to follow the procedure presented below (or to run the Wizard in the appropriate mode):

- You should configure the network connection of the computer on which the NMS VSS application has been installed in accordance with the assumptions of the target computer network;

- Start the NMS VSS Client application, select CONFIGURATION / APPLICATION SETTINGS from the main menu. In the DEVICES tab, there is an option to add previously launched NMS VSS Servers to the system. It should be done manually with the plus, giving the IP address, ports and NMS VSS Server device type;

- After adding the NMS VSS Server to the system, the process of updating the list of streams available on the server will be carried out for the user whose account is logged into the NMS VSS server .;

- It is also recommended to add local users working on the client's NMS VSS side. Adding users and assigning appropriate rights to their groups is possible in the USERS tab. We strive for a situation where the administrator account is used only to configure the NMS VSS program, and daily work takes place from the level of user accounts .;

- After carrying out all the above actions, select the FILE / SAVE CONFIGURATION option from the main menu of the NMS VSS program, and then restart the application;

- After restarting, adjust the arrangement of windows to your needs.

Attention!

On a computer with the application installed in NMS VSS mode, the Client cannot register images sent via the NMS VSS server locally.

If there is a need to back up server recordings, use the so-called Backup server. To do this, connect from the NMS VSS Server level or NMS VSS Server / Client to the NMS VSS Server type recording unit and start recording video streams.

NMS VSS INSTALLATION

2.7.3. Configuration of single-unit NMS VSS application

In order to configure the NMS VSS application installed as an NMS VSS Server / Client, it is recommended to follow the procedure presented below:

- You should configure the network connection of the computer on which the NMS VSS application has been installed in accordance with the assumptions of the target computer network;

- Attach one IP device (camera or video server) one by one to the network switch and define a unique IP address and other parameters of the network connection on it (for the description of the IP device configuration, see the manual delivered with the device);

- Start the NMS VSS application, select CONFIGURATION / APPLICATION SETTINGS from the main menu. There is a Shutdown submenu in the APPLICATION tab. If the NMS VSS server application is to be automatically closed when you try to turn off the computer, select the option Allow the system to close NMS VSS and select the Save button.

- Otherwise, if the NMS VSS application is open, it will block system shutdown.

- There is an option to add devices in the device tab. Devices can be searched automatically using the Magnifier button and added from the found list of devices or manually using the Plus by entering the IP address, port and device type. ;

- After adding all devices, give them appropriate names in the CONFIGURATION / GENERAL tab. Then go to SCHEDULE and configure the recording mode (continuous, alarm, motion detection). If there are devices in the system using PTZ control, you can configure them in the ADVANCED page. ;

- It is also recommended to add users in the USERS tab and to grant appropriate rights to their groups, so that the administrator account is used only for NMS VSS configuration. ;

- In the next step, go to RECORDER in the CONFIGURATION menu. After the current list of devices is displayed, you can define the size and storage location of video recordings for each camera. For this purpose, it is best to select all video streams with the "CTRL + A" key combination and at the bottom of the screen, in the auxiliary bar, specify the size of the recording on the disk for each stream and add these parameters for all cameras with the Use buttons and save the changes. ;

- After carrying out all the above actions, select the FILE / SAVE CONFIGURATION option from the main menu of the NMS VSS program, and then restart the application;

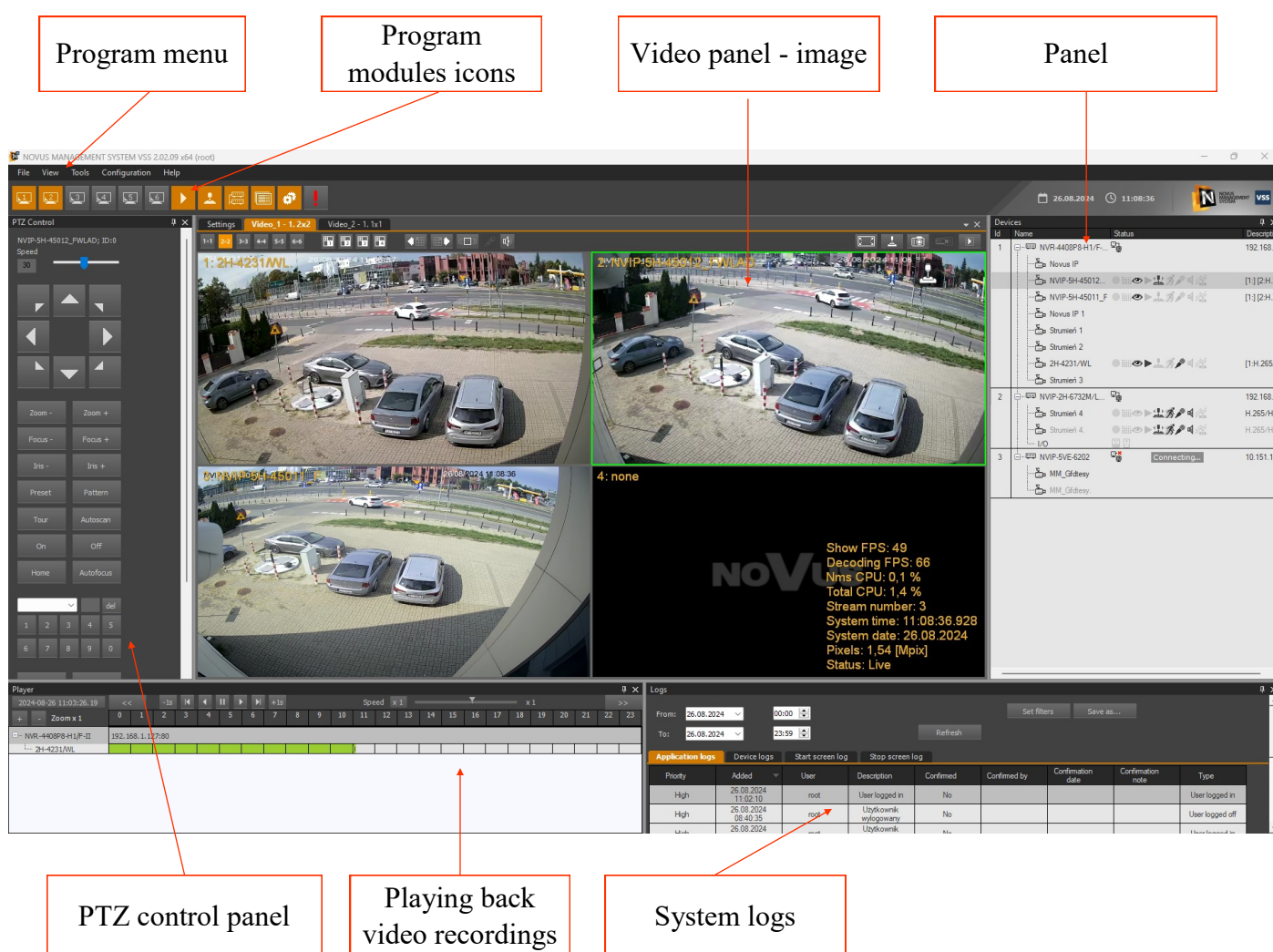- After restarting, adjust the window layout to your needs.

After completing the configuration, you can start working with the program.

PANEL MANAGEMENT

3. PANEL MANAGEMENT

3.1. Graphic interface: information

The NMS VSS interface is made of movable panels, the functionality of which is described below. Details on the operation of individual panels can be found on the following pages of the manual. A characteristic feature of the program is the ability to customize the interface by moving or hiding individual panels. One of the possible implementations of the program panels arrangement is presented below.

Program menu

Program modules icons

Video panel - image

Panel

PTZ control panel

Playing back video recordings

System logs

PANEL MANAGEMENT

### 3.2. User workspace arrangement

As mentioned before, the program interface consists of separate panels that can be freely activated, moved (also to a second monitor in multi-monitor operation), combined and resized. It gives the user practically unlimited possibilities to compose his own interface, tailored to his needs and preferences. The layout of the interface is saved after the program is turned off and it is loaded automatically after restarting the program. The panel will be a rectangular window, which can be freely moved and resized, functionally corresponding to one of the NMS VSS program modules.

The NMS VSS program consists of the following functional modules:

1. **Video panel from 1 to 6** - "live" image display and video playback

2. **Player** - selection of the video material to be played

3. **PTZ panel** - PTZ camera control panel

4. **Devices** - a list of IP devices installed in the system with a mimic board

5. **Logs** - a list of logs for IP devices and NMS VSS applications

6. **Settings** - NMS VSS application settings

7. **Alarm Recording** - recording

Each panel has icons on the top bar. Clicking in the panel area activates it (the bar changes color depending on the color settings of the active window in Windows).

When a window is active, you can change its size, position, etc.

Bar Icons
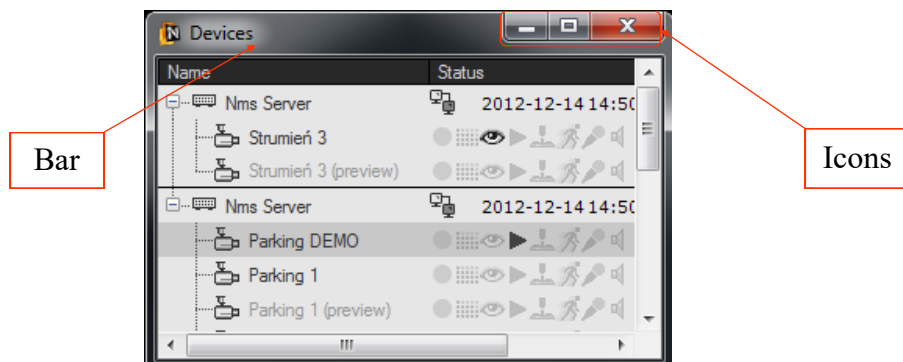
The rules of working with panels will be described later in this chapter. The rules shown in the examples apply to all NMS VSS panels.

PANEL MANAGEMENT

3.2.1. Moving panels

Each of the panels can be moved to any place in the interface, including the second monitor (if the computer's graphics card supports multi-monitor mode).

To place a panel, left-click on the panel bar. By holding down the button, you can move the panel to the desired place
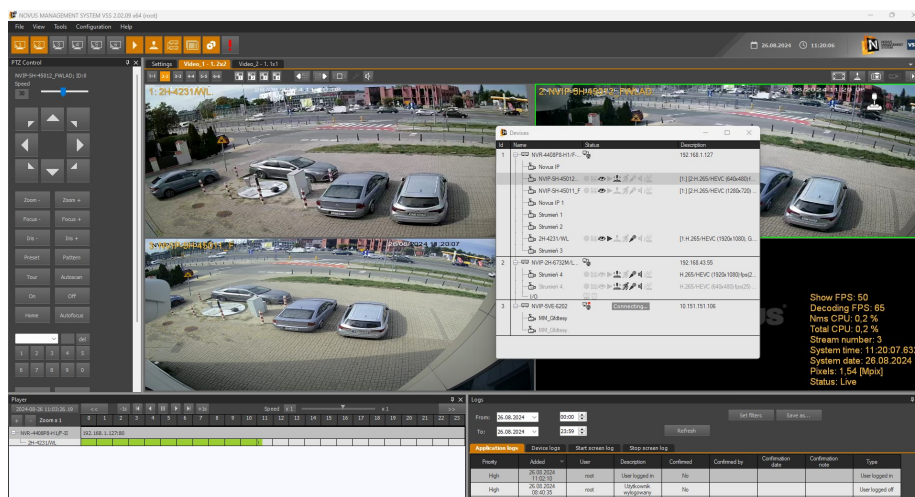
3.2.2. Changing panel's size

To resize the panel, place the mouse pointer over the panel edge so that it changes into a double arrow cursor. Depending on whether it will be a horizontal or vertical edge, it will be possible to change the size of the window horizontally or vertically. With the cursor changed, press the left mouse button and, holding it down, change the size of the panel. By placing the cursor in the corner of a window, you can proportionally resize the window both vertically and horizontally.

Cursor view while changing
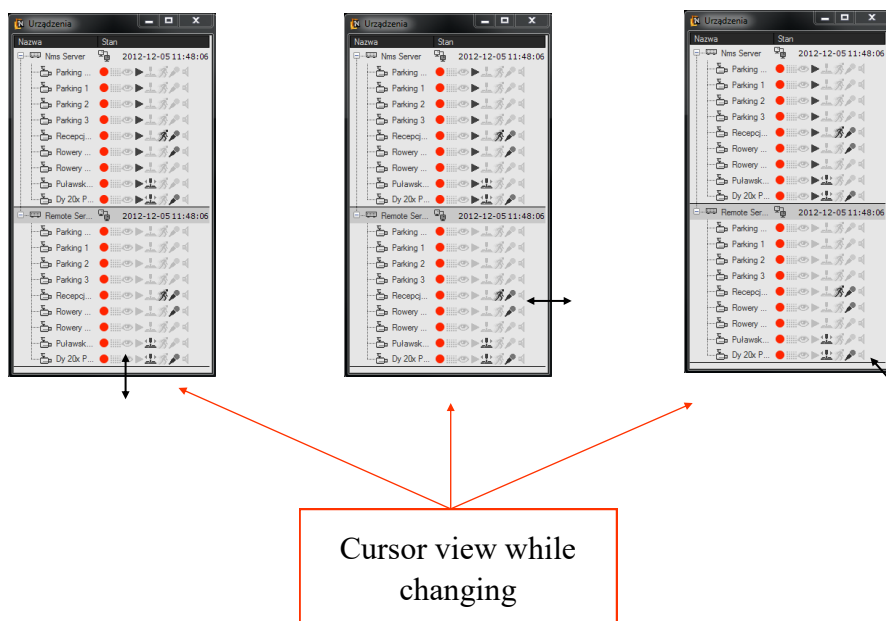
PANEL MANAGEMENT

3.2.3. Docking panels

Each of the panels can be located anywhere in the interface. The position of the panels can be "chaotic", but as a rule, the user strives to organize and optimally use the screen space. In order to facilitate the arrangement of the panels, the NMS VSS program has a convenient system of connecting panels. Thanks to this system, windows connect optimally and precisely, with an accuracy of a single pixel.
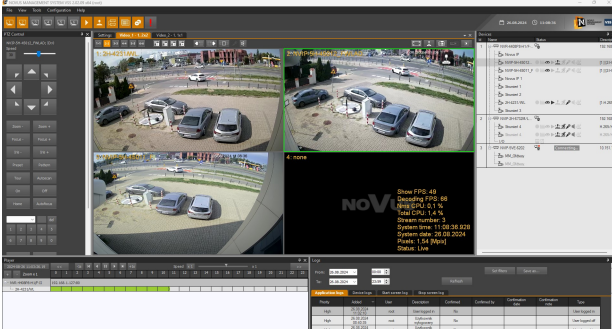
View of the interface with docked panels
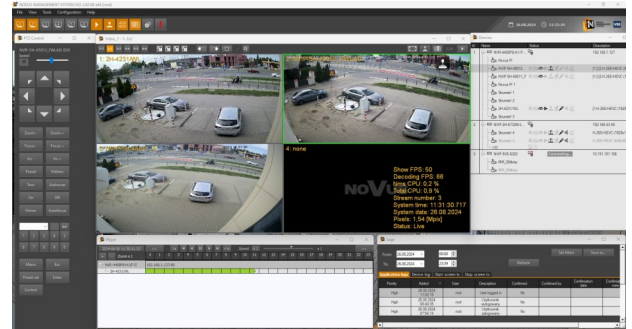
Interface view - panels undocked

To attach the edge of a panel to another panel, you should "grab" the panel (move it) and, holding down the mouse button, move it over the area of the panel to which you want to attach it. The join menu is displayed in front of panel A as icons arranged in the shape of a cross.
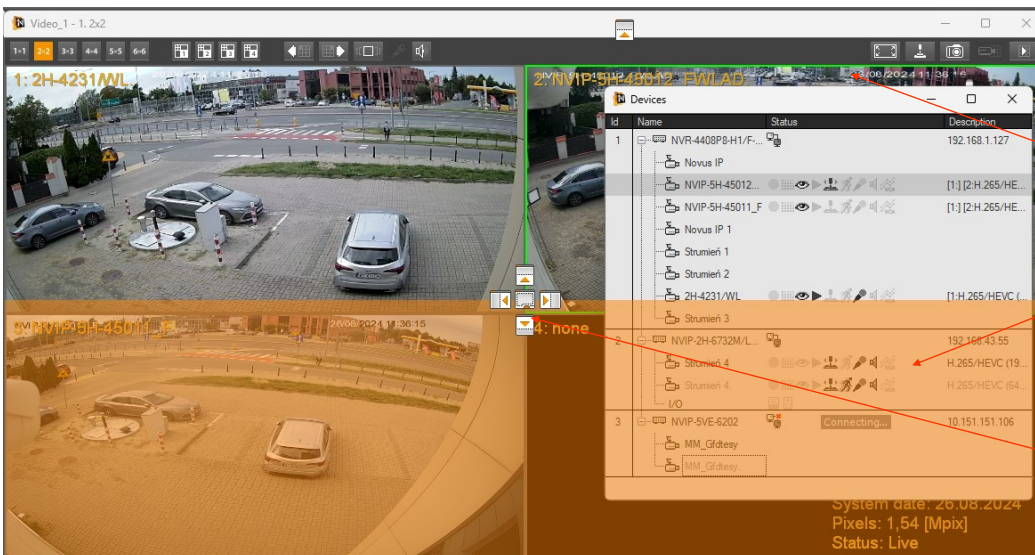
Panel A - panel to which another is attached

Panel B - attached panel

Docking menu

PANEL MANAGEMENT

When you move the cursor over one of the cross icons, a window will appear in the form of an orange area occupying the future position of the attached panel. After releasing the button, the panel will be attached. Below is an example of attaching the *LOGS* panel to the bottom edge of the *DEVICE* panel.
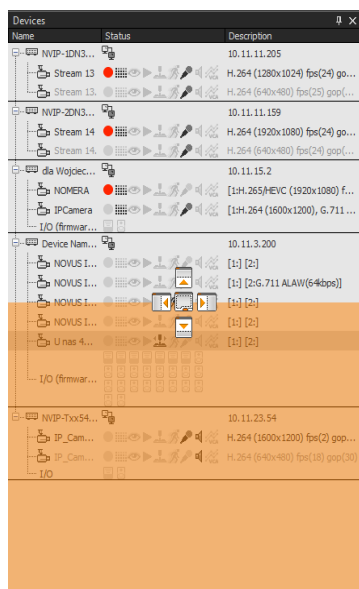
Docking   The final result
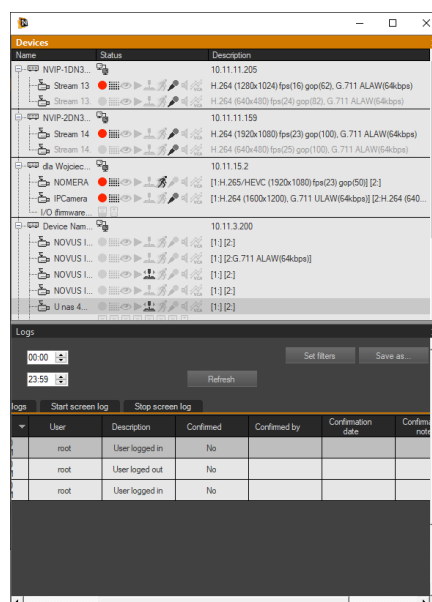
In a similar way, you can attach panels to the edge of the camera view window. To do this, display the preview window joining menu by moving the added panel over the camera preview window area.

It is possible to attach the panel to one of the four outer edges of the program window. To do this, "move" the panel over the join icon at the given edge.

The functions of each *DOCK MENU* icon are described below

Attachment to the top
edge of the panel

Attachment to the left
edge of the panel

Attachment to the right
edge of the panel

Attachment to the
bottom edge of the
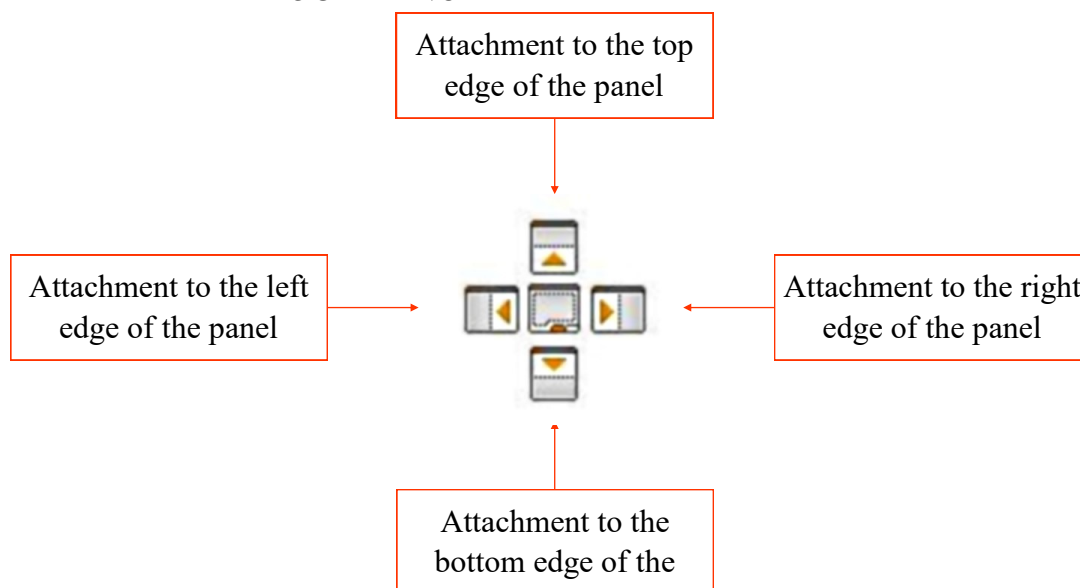
PANEL MANAGEMENT

3.2.4. Joining panels

Interface panels can be displayed separately, as shown in the previous chapters, or be combined into a single composite panel consisting of several panels nested in a single window. The selection of individual elements of such a complex panel is possible thanks to the tabs displayed at the bottom of the panel.
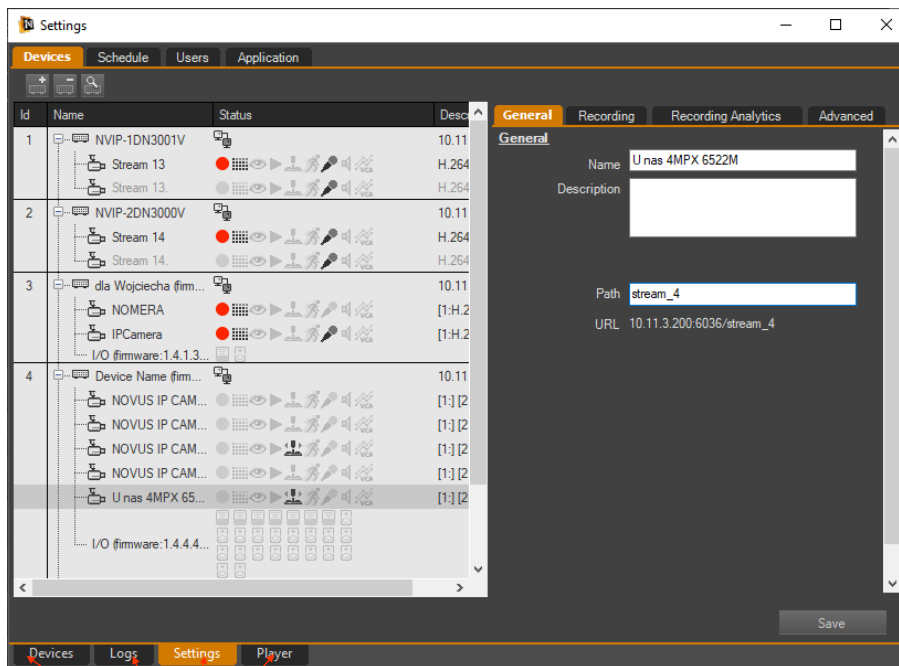
Tabs for selecting individual panels

To nest a panel inside another panel, "grab" it as described when moving the panels and, holding down the mouse button, move it over the area of the panel to which you want to "throw" the moved panel. The JOIN MENU will be displayed on the background of the panel above which the sliding panel is located in the form of icons arranged in the shape of a cross, as presented in the previous chapter.

This time, move the cursor over the icon in the center of the cross.

Panel nesting

in the form of tabs

PANEL MANAGEMENT

At this point, the moved panel will disappear and will appear as a tab at the bottom of the target panel.

Nesting - 1st step
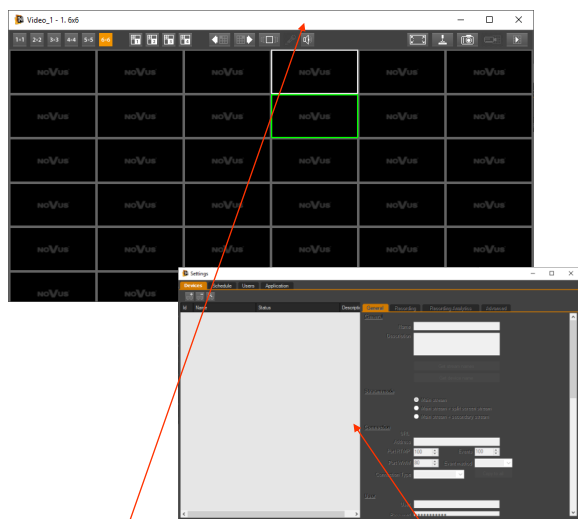
Nesting - 2nd step

Target panel

A nested panel

Added panel selection tab

Nesting - the end result

The order of tabs can be changed. It is possible by left-clicking on a given tab and moving it in the row of tabs while holding the left mouse button.

Similarly, you can separate a given panel from a set of nested panels. With the button pressed, move the tab outside the current panel.

PANEL MANAGEMENT

3.2.5. Closing panels

Individual panels can be closed. For this purpose, the icon in the upper right corner of each panel is used. In the case of composite panels, all component panels will be hidden simultaneously.

Hide panel icon

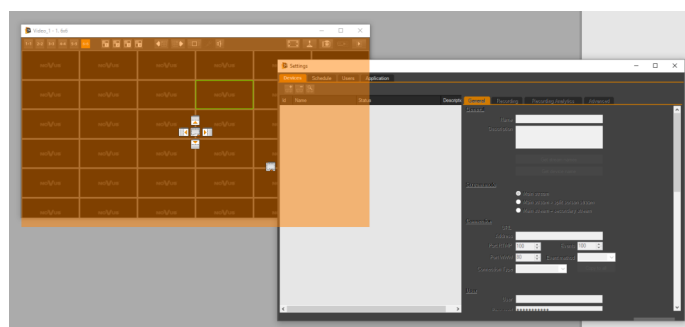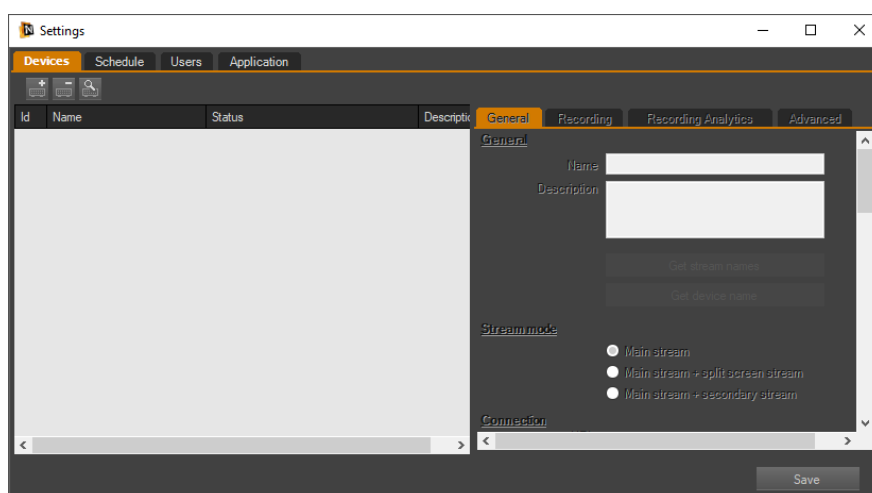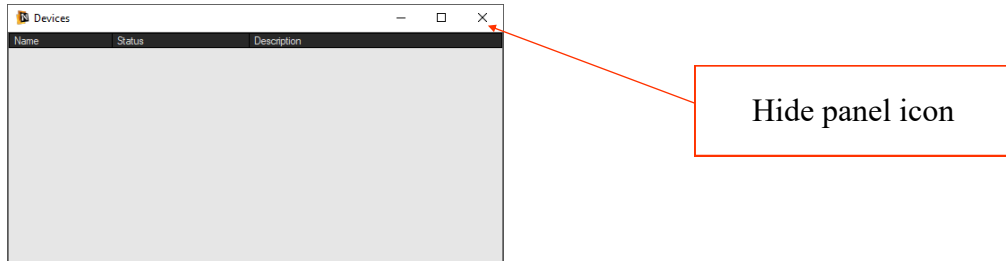To display a given panel again, it is necessary to select the appropriate icon from the module panel or enter the program menu. In the VIEW menu, select the required panel to be visible again. Only one panel can be restored at a time. Thus, in order to "recreate" a closed composite panel, one must successively restore the component panels and recompose the composite panel.

3.2.6. Panel auto-hiding feature

NMS VSS allows you to display panels in the auto-hide mode. In this way, after clicking on the 'pins' icon, the user has the opportunity to effectively use the screen surface to display camera images, while maintaining quick access to other panels.

When the auto-hide mode is on, a given panel is displayed only when the mouse cursor is on it. After leaving the panel area, it is automatically "hidden" beyond the screen area (except right, left, or bottom) where it was located. On a given edge of the screen, only the tab that allows you to restore the display of the panel after moving the mouse pointer over it remains displayed. (see picture below)

All panels that are part of a combined (nested) panel are displayed as separate tabs. For this reason, a situation may arise when it will not be possible to display all tabs on a given edge of the screen.

The 'pins' icon (auto-hide)

The device panel shows up after clicking on the side panel
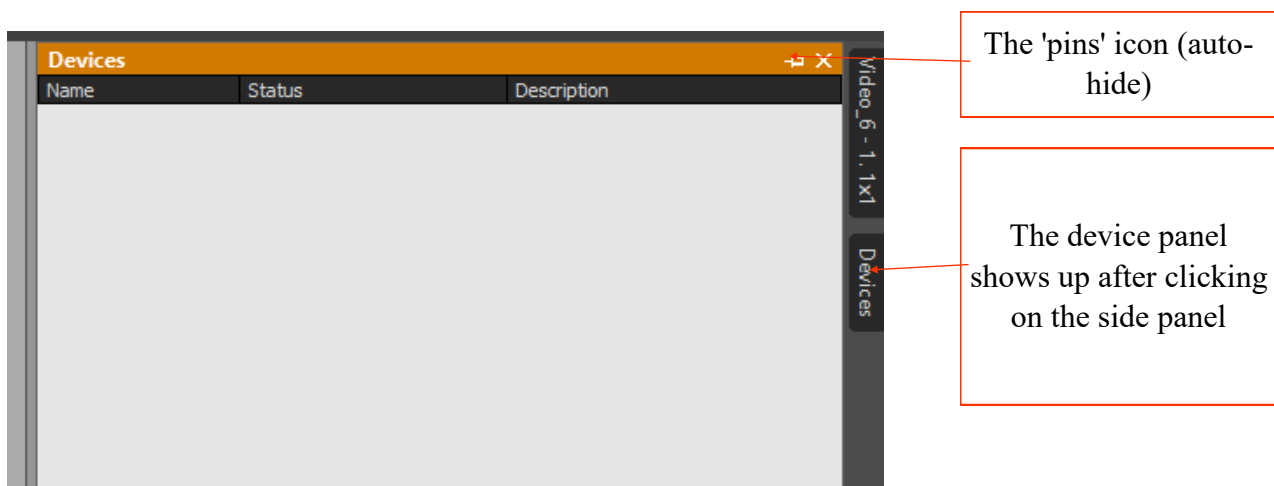
PANEL MANAGEMENT

The screen view after starting the automatic hiding of all panels
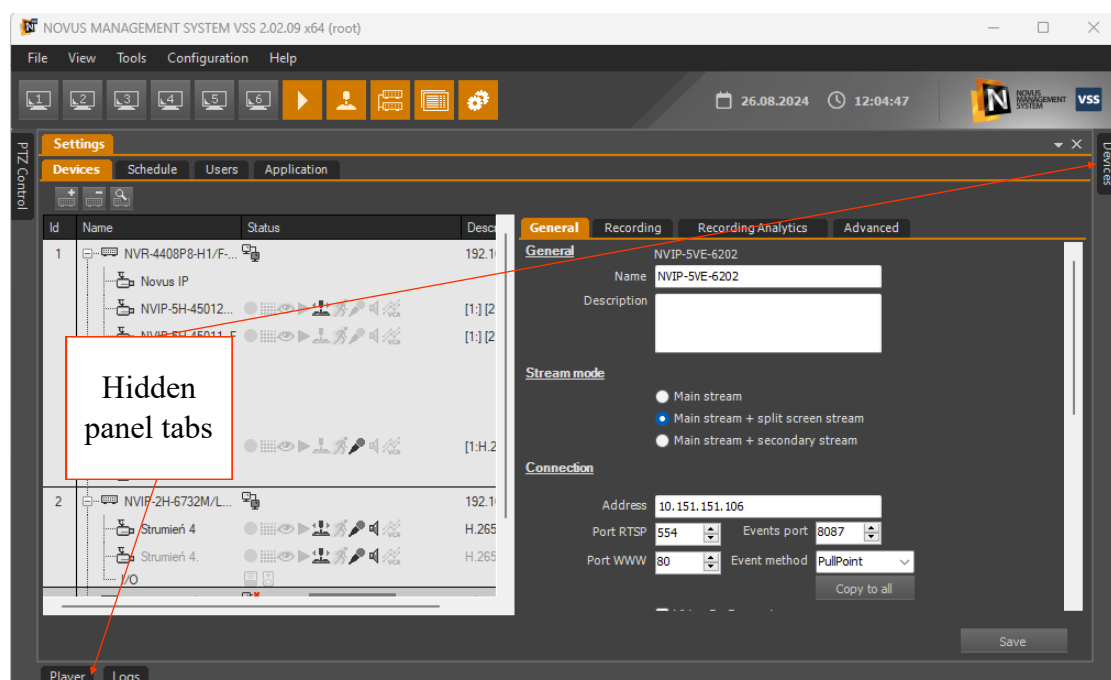
The screen view after placing the mouse cursor on the tab of the PTZ CONTROL panel

VIDEO PANEL

4. VIDEO PANEL

4.1. Video panel - information

In the NMS VSS application, there are six video panels in the server / client and client mode or 1 window in the server mode. Each of them can display up to 42 video streams (up to 8 streams in the NMS VSS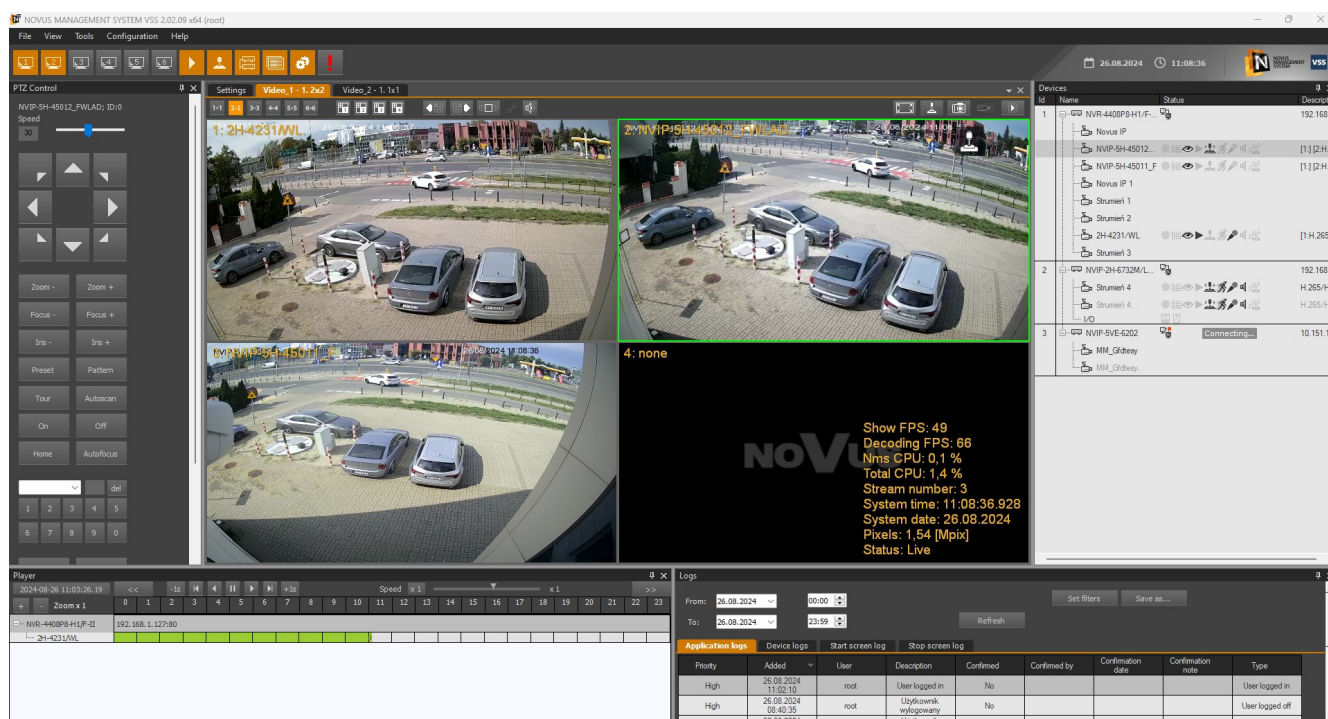 Server application). On the other hand, the functionality of the Video 2 panel is extended to support the display and playback of cameras called from logs, maps and events

Switching cameras in divisions and sequences

Playback buffer

Switching between live and playback modes

Image Capture Manager

Activate the PTZ mode

Full screen mode

Audio listening for playback and live modes

Change the screen division

Selected camera window

|	
1×1 2×2 3×3 4×4 5×5 6×6	Split into 1, 4, 9, 16, 25, 36 cameras on the screen NMS VSS Server displays up to 8 cameras
(custom division icons)	Choice of custom divisions
< ⊞	Previous split of the same group of standards (eg when the split "2. 3x3" is displayed, the button will display the split "1. 3x3").
⊞ >	Next split of the same group of standards (eg when the split "2. 3x3" is displayed, pressing the button will display the split "3. 3x3").
🔊	Enable audio monitoring for live and playback mode.
📷	Launching the image capture manager
⊓□⊓	Turns on the camera sequential switching mode
▶	Switch between live view and playback modes. The recovery mode depends on the type of installation (local or remote)
⬇	Button enabling / disabling the control of PTZ cameras
⛶	The button switches the video window to full screen mode
1,0s	Playback speed. (times that allow for faster playback)

VIDEO PANEL

To select a camera window, click the left mouse button in the camera window, the window is surrounded by a green frame. The selected window is related to the PTZ control panel and the devices window. Double-clicking on the selected window displays the selected camera in the full window (division into 1).

The speed of refreshing images while connected depends on:

- configuration of video display by NMS VSS application;

- bandwidth between the NMS VSS workstation and IP video devices;

- settings of individual video channels defining the number of frames and quality of transmitted images (encoding method, GOP, bandwidth, compression ratio);

- the number of simultaneous connections made at a given moment by an IP video device (the more users are connected at the same time, the lower the refresh rate observed in the NMS VSS program).

Changing the video division and audio listening is possible using the appropriate buttons on the top bar of the VIDEO window.

For splits larger than 2x3, streams of splits with reduced parameters will be displayed if possible. This is to reduce the load on the computing unit of the computer. Their availability depends on the settings in the CONFIGURATION / DEVICES / Stream mode window. The stream to be divided is displayed as greyed out on the list of devices (NMS VSS Server, NMS VSS Client / Server), and the (Preview) information will be displayed next to the camera name in the video window.

Camera status icons and related alarm events
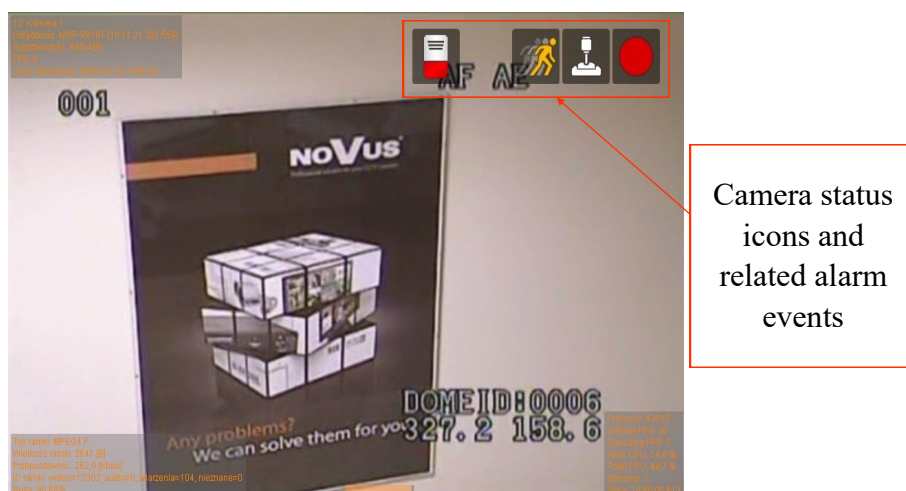
Icons showing the status of the camera are displayed in the upper right corner of the camera window and alarm events related to a given camera.

VIDEO PANEL

▶	Video recordings playback mode.
●	Video recording (scheduled or panic recording)
🏃	Motion detection.
🕹	The PTZ camera control mode is on.
🔲	Active alarm input associated with the selected camera.
🔲	Active alarm output associated with the selected camera.
🌡⚠	Temperature warning level reached (thermal imaging cameras)
🌡⚠	Temperature alarm level reached (thermal imaging cameras)

After right-clicking in the video image field, a context menu with additional settings will be displayed.
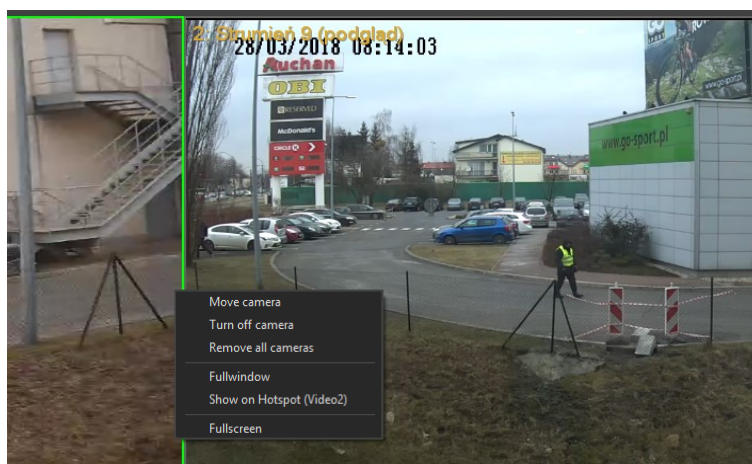

Move the camera	The movement of the camera window within the defined area division. After selecting Move Camera, click in the window where the camera image is to be moved.
Turn off the camera	Disabling video preview from a given camera.
Remove all cameras	Removes all cameras from the video window
Full Window / Back to Split	Switch the selected camera to the split mode of 1 and return to the previous split
Show on Video	Switch the selected camera to the next free division.
Full screen / Return to window	Switching the Video module to full screen mode

VIDEO PANEL

4.2. Screenshot manager

The task of the Screenshot Manager is to capture the image frames that are currently displayed on the screen.
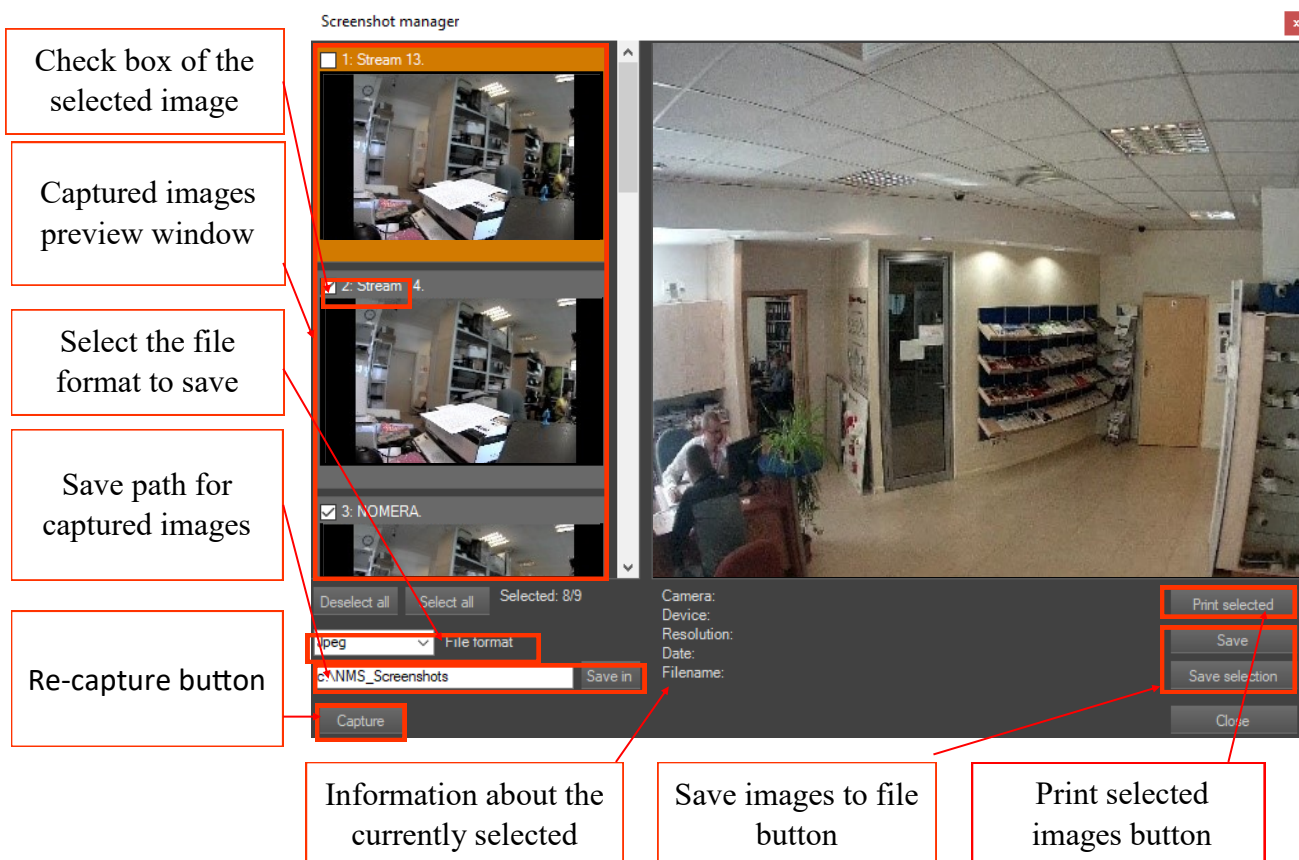
Thanks to this, it is possible to save captured images as graphic files for archiving, further processing, etc.

In the File format field, define the type of graphic file in which the captured images will be saved. The available formats are:

- BMP

- JPEG

- PNG

Information about the currently selected image includes the origin, resolution, and creation date and filename of the image displayed in the large preview window.

Using the Save button saves the currently selected image in the location defined for saving captured images.

The Save selected button saves all selected images to the location defined for saving captured images.new images will be saved. The available formats are:

VIDEO PANEL

Viewing screenshots is done using the "Photo Viewer" tool that can be found in TOOLS / Photo Viewer.

Folder selection button with photos / screenshots

Screen shots

VIDEO PANEL

4.3. PTZ mouse control

The PTZ camera can be controlled from the PTZ CONTROL panel or by using the mouse directly from the VIDEO panel. In both cases, the intention to control must be confirmed by pressing the button ⬛

The control of PTZ cameras (analog, AHD) requires a properly made connection of the RS-485 port (a converter is required). Additionally, it is necessary to properly configure the control parameters (protocol, camera ID) in the NMS VSS configuration. Activation of the PTZ camera control mode is signaled by the icon in the upper right corner of the camera image.

The control of PTZ (IP) cameras requires only starting the PTZ window and selecting the PTZ option in the camera configuration -> advanced tab.

To control PTZ cameras with the mouse, you need to click in the central area of the image and holding the left mouse button pressed down, move the cursor in the direction you want to move the camera.

Zooming can be done using the knob on the computer mouse.

Activated PTZ camera control

Controlling PTZ cameras with the mouse - move the cursor in the direction of camera movement
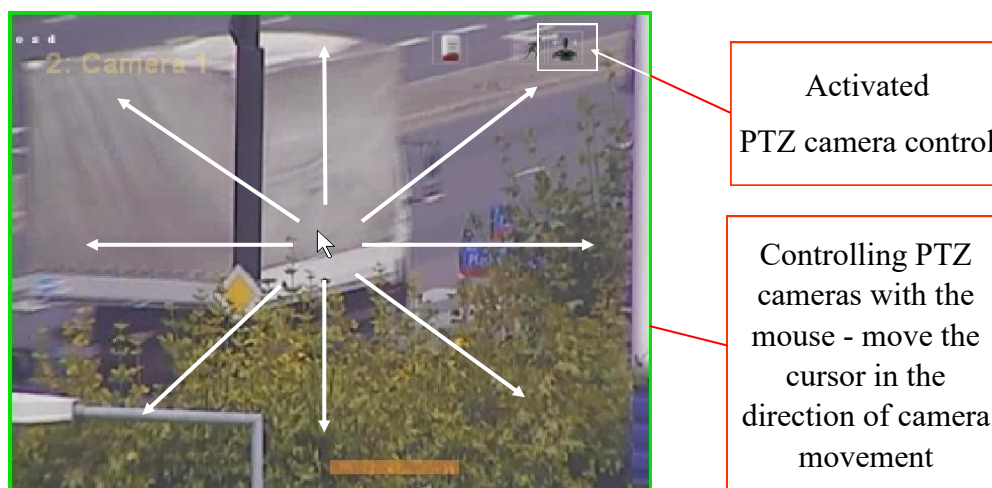
Another possibility is to click on the part of the image that is in the direction of the camera movement, e.g. to shift to the left, click on the point to the left of the image center. Camera control from the PTZ panel is described in chapter 9 of this manual

Controlling PTZ cameras with the mouse - clicking on a point in the direction of the camera movement
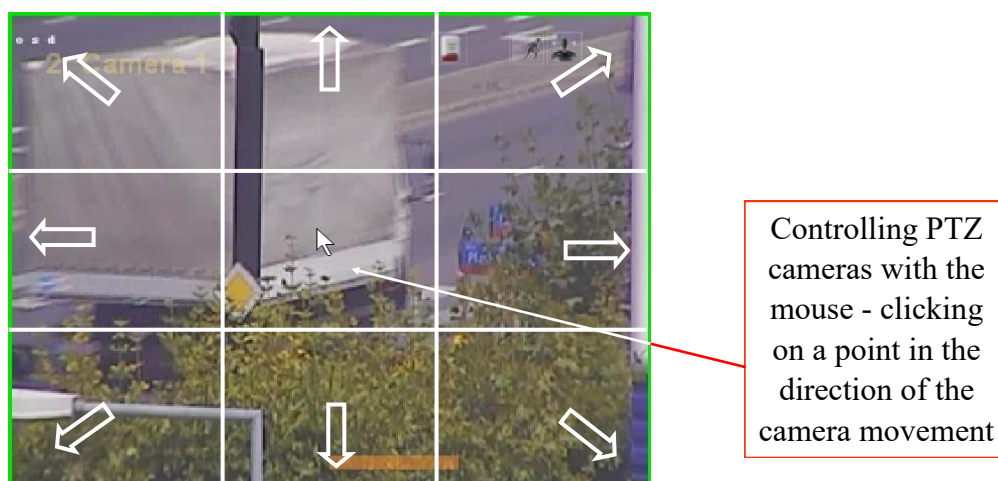
VIDEO PANEL

## 4.4. Moving cameras (camera layouts)

The NMS VSS software allows any movement of the cameras to adjust the screen layout to the user's preferences. The camera position is swapped by indicating the camera which is to be moved and then indicating the target window. The contents of the target window will be changed with the contents of the selected camera window.

After right-clicking on the camera image you want to move, select the Move camera option from the context menu.

Then select the target window by clicking the left mouse button on the camera image where the above selected one is to be moved.
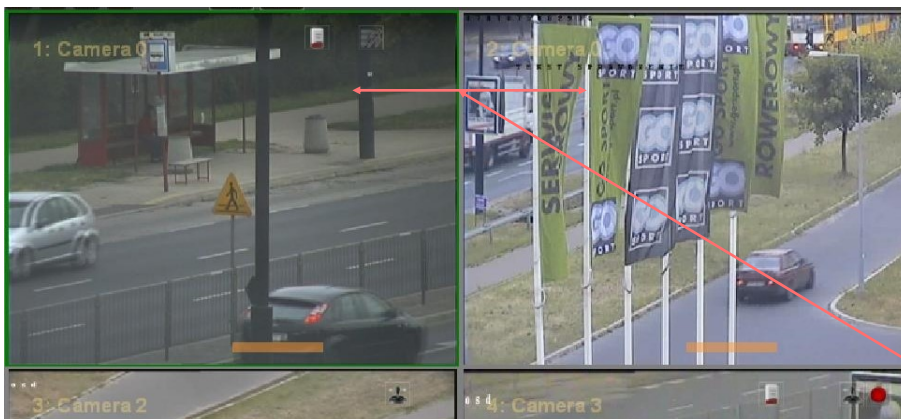

As a result, we change the position of both cameras.

VIDEO PANEL

4.5. Creating custom screen layouts

NMS VSS software allows you to adjust the number and display of cameras to the individual preferences of the user. To add your own camera division within the standard divisions, press one of the division buttons 1×1 2×2 3×3 4×4 5×5 6×6 and then Add division, as shown in the figure below. The division will be added to the drop-down list for a given display standards item. Then select cameras to be displayed in a given division, give possible names to divisions using the Rename option (e.g. 1, Floor 2 etc., the division name is displayed in the corresponding video tab), remove unwanted divisions from the buttons by selecting them and selecting Delete , and after making all the desired changes, save the whole thing as a .lay file through the File—> Save view menu.
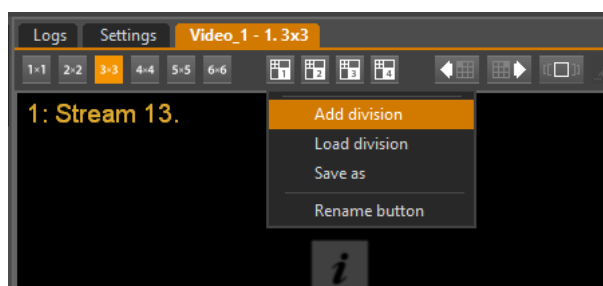
NMS VSS allows you to save an unlimited number of breakdowns within a given group of standards. Adding non-standard divisions by means of the buttons is performed similarly, but it is possible to use any combination of divisions.
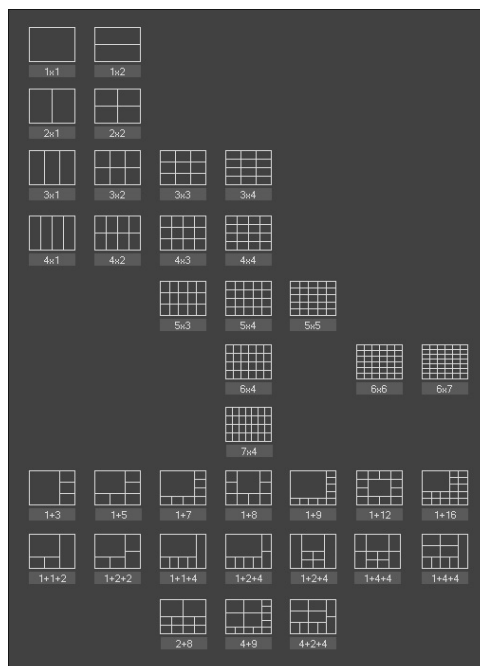
The above steps enable further assigning of divisions to given user groups in order to limit the groups' access to individual camera views.

DEVICES PANEL

5. DEVICES PANEL

5.1. Devices panel - basic information

The DEVICES panel displays a list of all devices (video servers, IP cameras) that are available for the NMS VSS software. The cameras assigned to them are also displayed in the Device tree next to the video servers. The individual columns display basic information about both cameras and video servers.

The Name column displays the names of the servers and the names assigned to the cameras.

The Status column displays information about the status of the video server (connected / disconnected) and the status of the cameras (recording, recording mode, preview, playback, PTZ control, motion detection, audio inputs and outputs, alarm inputs and outputs).

In the Description column for video servers, the IP address and port are given, while for cameras the descriptions entered in the settings are shown.

Name, status, and description of video servers

Icons that indicate the status of the video stream

A popup with a static image of the camera in question is availableafter clicking the icon

DEVICES PANEL

The status of the IP device and the video stream is signaled with the following icons:

Icon	Description
	IP device connected
	IP device disconnected
	Camera image recording in schedule or panic mode is enabled. The icon displayed on the client means that registration on the NMS VSS side of the Server is enabled
	Schedule mode enabled, gray icon - recording disabled or panic recording.
	Live view from the camera is on.
	Playback of camera recordings enabled.
	PTZ camera control mode enabled.
	Motion detection detected.
	Audio input active.
	Audio output active.
	Alarm output active.
	Alarm input activation detected.

DEVICES PANEL

Right-click the menu of the selected device or video stream.
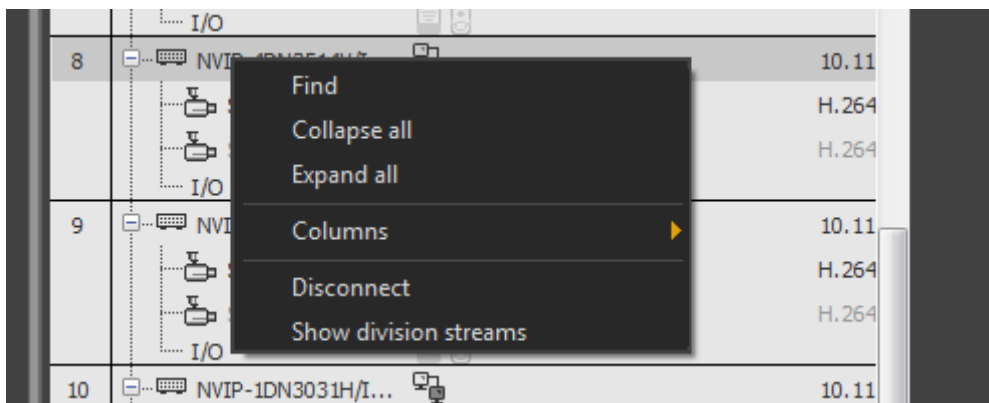
Available commands for NMS VSS Servers, IP devices and video streams:

Collapse eve-	Collapse the device list - Only IP devices are displayed
Expand eve-rything	Expansion of the list of all devices - all IP devices and video streams are displayed
Columns	Enables and disables the display of the Name, State and Description columns.
Connect / Discon-	Connect to or disconnect from the device (only for IP devices and NMS VSS Servers).
Enable / Stop	Starts / stops transmission of the selected video stream (only for video streams). After the transmission is stopped, viewing and registration is
View	Select the field in the video window where the camera is to be displayed
Delete	Command to remove a selected stream from the NMS VSS system (only

Information!

The availability of these commands depends on the configuration of the NMS VSS system, installed devices and the permissions of the currently logged in user.

DEVICES PANEL

Messages on the device panel inform about the current status of devices and any errors that occurred in the connection:

| | No connection | Device connected correctly |
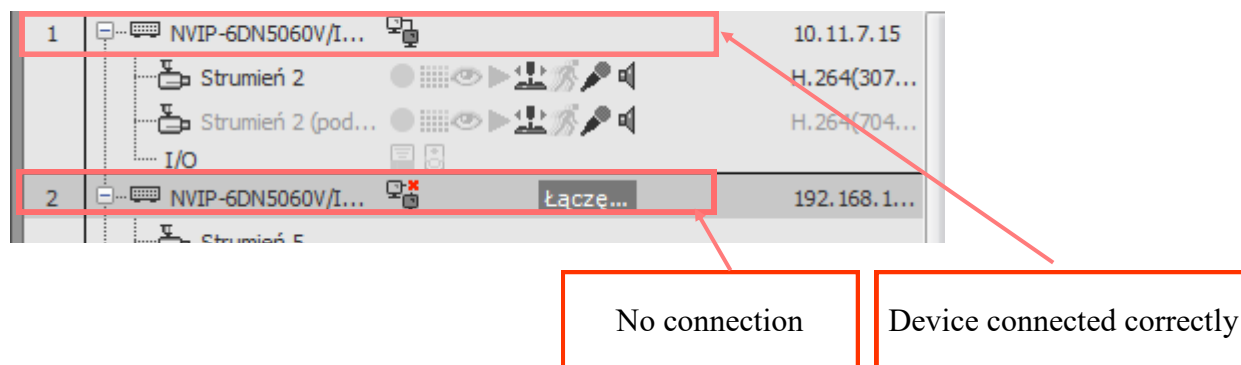
- Connecting - an attempt to establish network communication with an IP device;

- Disconnecting - the process of closing network communication with an IP device;

- Authorization failed - wrong password to access the IP device or NMS VSS Server;

- Date and time - current time on the connected NMS VSS server (applies only to the NMS VSS server);

- Initialization - an attempt to start a video stream;

- Connection Lost - No network communication with the IP device and computer

- with NMS VSS software;

- No stream - information means that the stream is not decoded by the NMS VSS application. The stream may have been intentionally disconnected by the operator (to save resources)

- or there was too much load on the video server (e.g. too many unicast clients connected), network congestion etc;

- Incompatible device - error in connection with a device that is not compatible with the NMS VSS system;

- Connection limit exceeded - the connection limit in the live view mode has been reached, which was set by the system administrator on the NMS VSS Server in the Firewall settings

It is also possible to move devices within the tree, e.g. to increase its transparency. To move a device:

- Select CONFIGURATION / APPLICATION SETTINGS from the main menu;

- While in the DEVICES tab press and hold the right ALT key;

- Select a device with the left mouse button, drag it and drop it to the desired position in the tree structure.

The change made in the *CONFIGURATION* panel is reflected in the list in the *DEVICES* panel, located by default on the right side of the program window.

DEVICES PANEL

5.2. Displaying video streams from devices

One way to display a given camera on a selected video window is to select Display from the right-click context menu in that pane. Select one of the enabled video panels and then the position in the division where the camera image is to be displayed.
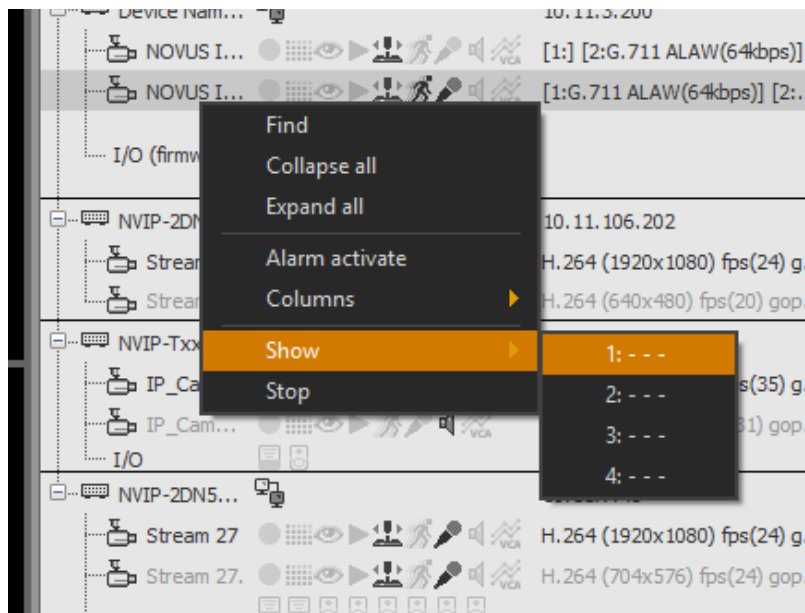
"1: - - -" means that no camera image is displayed in the first split window.

An alternative display method is the so-called "drag & drop" method. To display the camera image, select a stream by left-clicking it on the device list. Then, without releasing the button, drag the mouse pointer to the video window area. Releasing the button will display the stream in the window pointed by the mouse cursor.
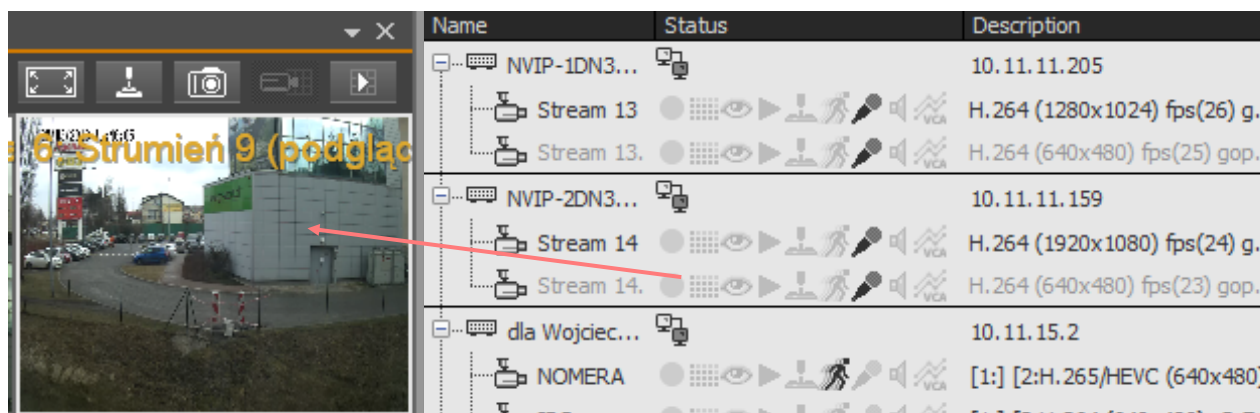
DEVICES PANEL

This method allows you to display an image from multiple streams simultaneously. To do this, select cameras on the device list. Click on the selected one with the left mouse button while holding down the Ctrl key. The selected cameras will be highlighted with a gray bar. After dragging to the video window, the streams will be displayed in successive split windows, starting from the one where you released the mouse button.
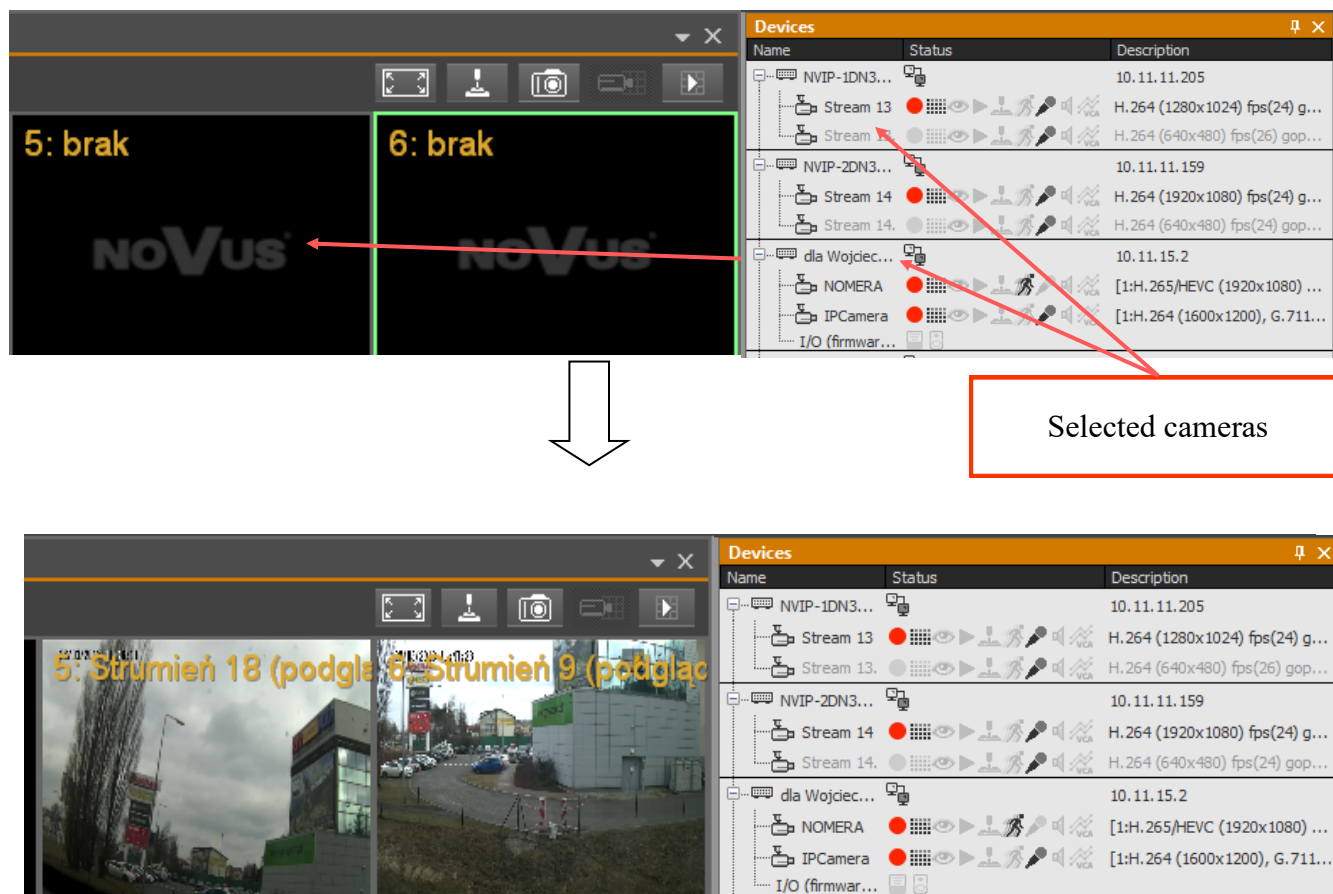
Similarly, you can drag the NMS VSS server to display the image from all connected cameras, and even several selected NMS VSS servers.

Information!

Note that if you drag more streams than the windows in the selected split, some streams will not be displayed.

VIDEO PLAYBACK PANEL

6. VIDEO PLAYBACK PANEL

6.1. Video playback - basic information

To switch to the video recording playback mode, press the Switch all cameras to playback mode button. It is located at the top of each video wall.

The start of the playback mode is indicated by the corresponding icon in each image of the video window. Additionally, information about the playback mode is signaled in the DEVICES panel. The video being played is displayed in the same window as the live image.

Icons showing that streams are in play mode	Button Switch all cameras to playback mode	Icons showing that streams are in play mode
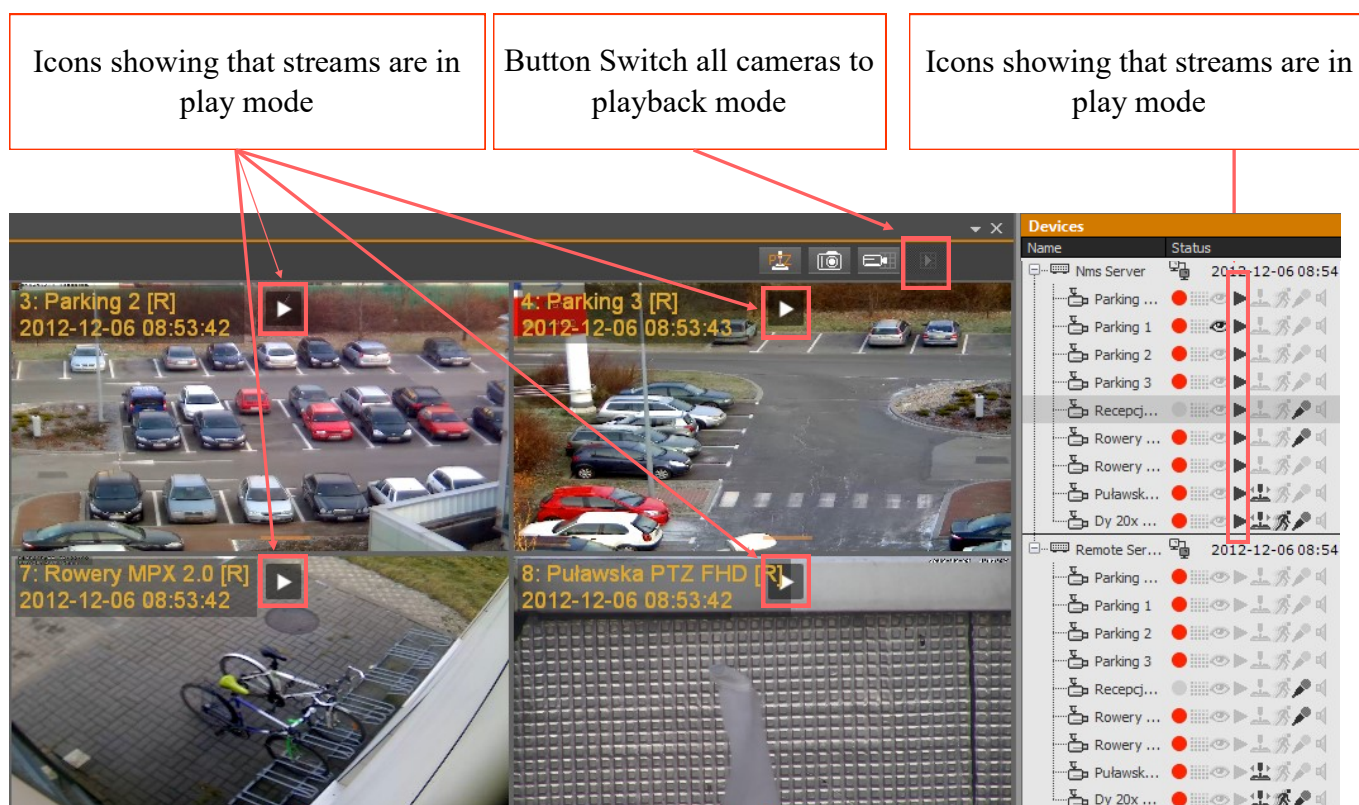
Warning! Up to 16 cameras can be in playback mode simultaneously.

The number of the maximum possible connections in the recordings playback mode can be limited by the system administrator by appropriate configuration of the NMS VSS firewall function settings available in the CONFIGURATION / FIREWALL menu.

Information!

After switching the entire video wall to playback mode, all newly connected video streams will be automatically started in playback mode.

# VIDEO PLAYBACK PANEL

6.2 Playback mode for NOVUS DVRs/NVRs

The PLAYER panel allows you to precisely select the time period for playback. To activate it, click the button.

The times when the image is displayed will be highlighted on the PLAYER panel below the timeline from a given camera (or group of cameras) was recorded. The colors on the timeline correspond to the recording modes described in the schedule module. Navigating the recorded recordings is facilitated by a clock with information about possible alarms, which appears together with the mouse cursor positioned over the selected camera. Selecting the starting point of the recordings is made by clicking the left mouse button on the place on the recordings bar from which we want to start playing the given camera.

During playback, the NMS VSS program automatically skips gaps in the recordings in which no video was recorded.
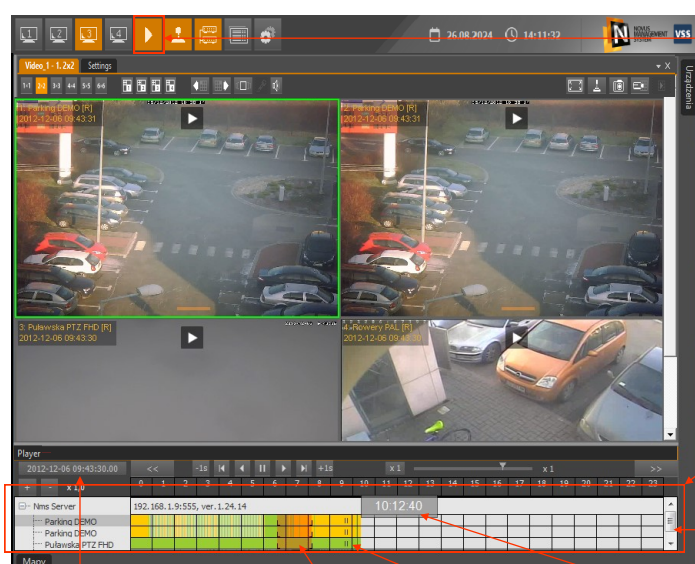
Player panel activation button

Timeline along with navigation buttons

Selection of camera and video recording time

Calendar with existing recordings

Selecting a fragment for export
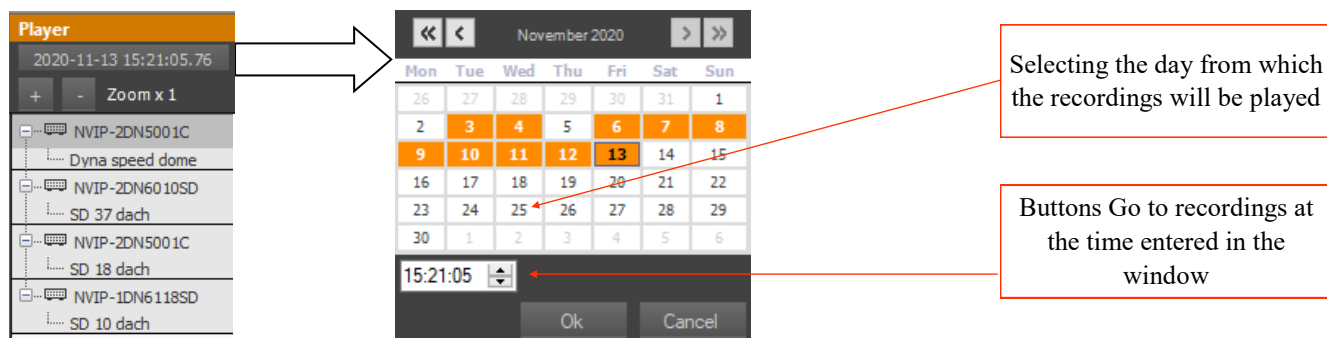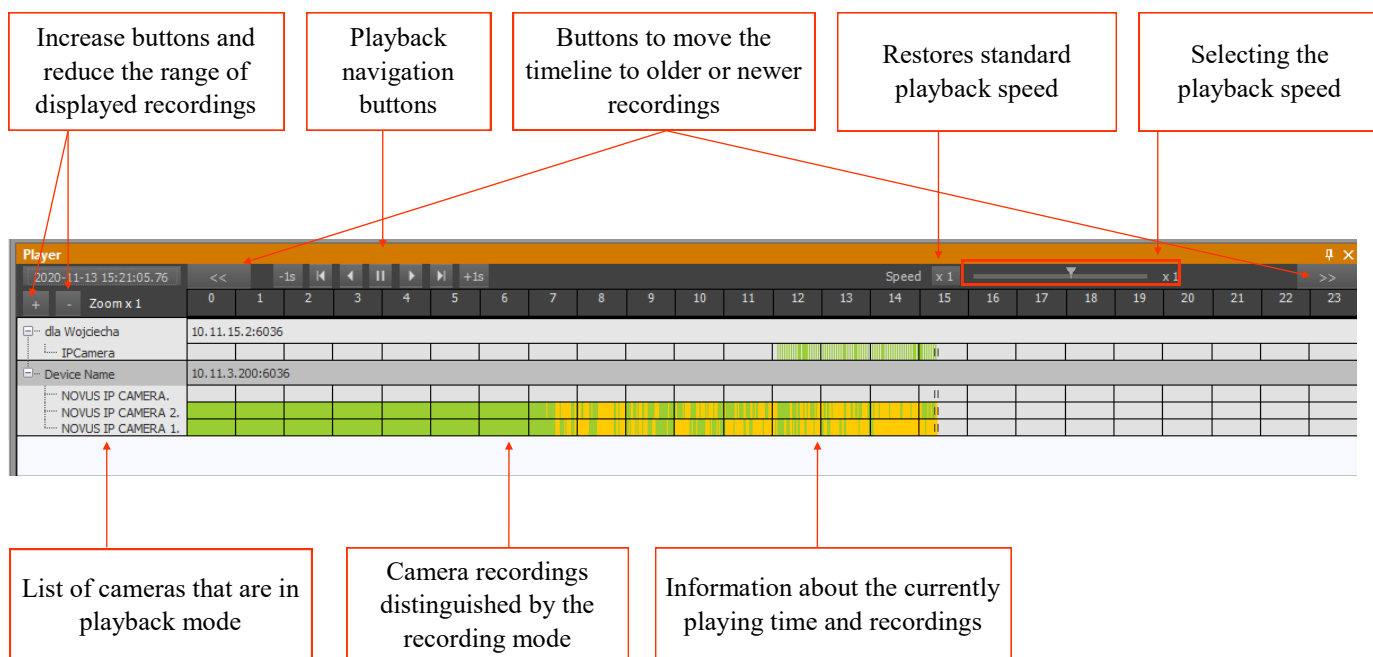
Date and time of the current recording

Time indicated by the mouse cursor on the axis

Attention! **If the connection limit in playback mode of a given server is reached, the user will be notified in the video window**

Attention! **For the recovery mode to work, the Remote Recovery Server must be properly configured and started on the server to which the client is connected**

VIDEO PLAYBACK PANEL

Increase buttons and reduce the range of displayed recordings

Playback navigation buttons

Buttons to move the timeline to older or newer recordings

Restores standard playback speed

Selecting the playback speed

List of cameras that are in playback mode

Camera recordings distinguished by the recording mode

Information about the currently playing time and recordings

Selecting the day from which the recordings will be played

Buttons Go to recordings at the time entered in the window

Description of navigation buttons controlling playback of recordings:

⏮	Reverse frame by frame playback
◀	Reverse playback at a defined speed
⏸	Pause
▶	Play forward at the defined speed
⏭	Frame-by-frame forward playback
+1s	Skip forward one second
-1s	Skips playback one second backward

VIDEO PLAYBACK PANEL

6.3   Video export to AVI

"Quick export to AVI" uses the default codec in which the video stream is encoded. Thanks to this, the export of 20 minutes from one camera takes only a few seconds. In the export window, you can change the set start and end point via the time and date selection boxes and select multiple video streams to be exported simultaneously.

In the maximum file size field, define the maximum size of one single AVI file. The range is from 50 to 2000MB. The export can also be carried out to a CD / DVD or a local disk.

It is also necessary to select a target directory or a CD / DVD disc that has enough free space for the export of the selected recordings.

After pressing the Start button, exporting the recordings to the selected folder will be started. A progress bar informs you about the progress of the export.

After the export is completed, there will be folders in the destination folder with the names of their origin.

Inside each of these folders is a file (or many files) with the extensions AVI and TXT. The names of these files are the date and time of the beginning of the recordings in them. The text file contains information about the time of recording consecutive image frames of the video file.

The names and structure of the AVI files exported from the video using Quick Export to AVI are defined in such a way that the name of each folder contains an exact description of the origin of the exported material:

DeviceName_StreamName_IPAddress_NumberID

The name of each file (both AVI and TXT) contains the date and time of the beginning of the recordings:

Year_Month_Day_Hour_Minute_Second.avi

The number of files depends on the range of exported recordings and the maximum defined file size (in the example 200MB).
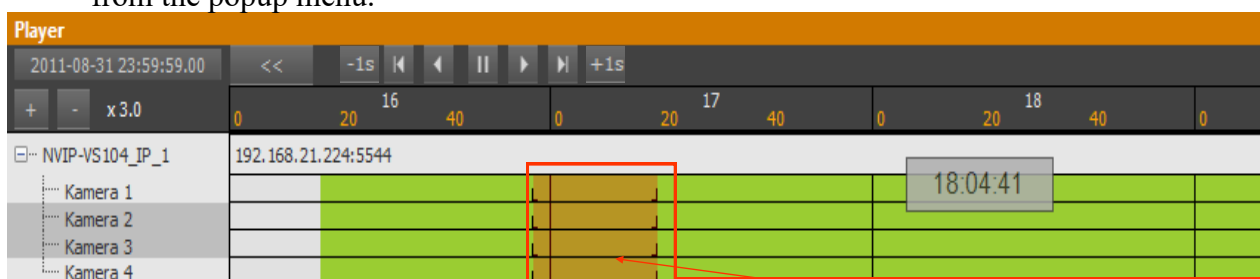
VIDEO PLAYBACK PANEL
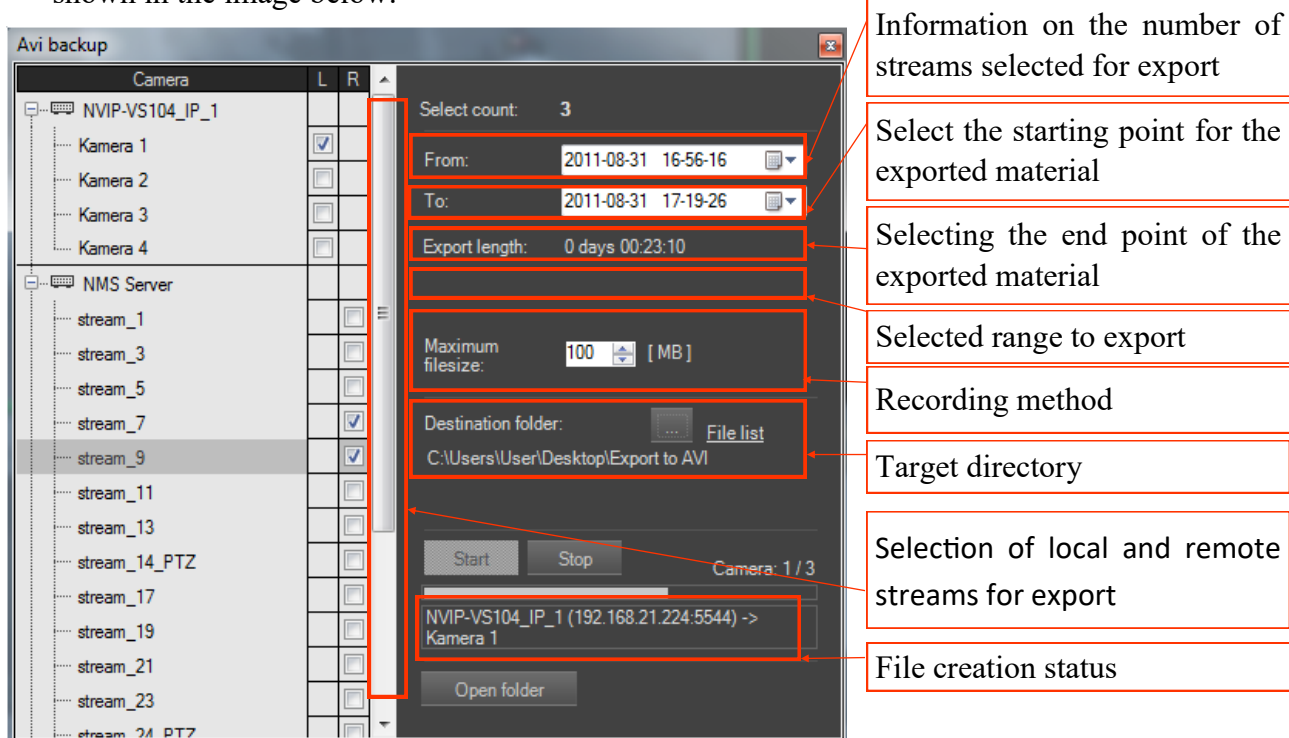
6.4. Video export (NMS VSS)

In addition to exporting video recordings to AVI format, it is also possible to export to your own NMS VSS format. This format allows you to play recordings in the NMS VSS Player program as well as the ability to "connect" recordings for which the path has been changed, eg in the case of changing drive letters.

To save a file in the NMS VSS format from a selected camera, proceed similarly to exporting to AVI. First, start its playback, then right-click in the field with the recordings bar:

- mark the starting point of recordings (with the right mouse button on the graph),

- mark the end of recordings (with the right mouse button on the graph),

- right-click on the selected video stream (not on the IP device) and select Export recordings from the popup menu.

After right-clicking on the graph of the selected camera, select an option from the menu
Export of recordings

Recordings export - After selecting the Recordings export option, a panel will be displayed as shown in the image below:

Information on the number of streams selected for export

Select the starting point for the exported material

Selecting the end point of the exported material

Selected range to export

Recording method

Target directory

Selection of local and remote streams for export

File creation status

VIDEO PLAYBACK PANEL

Quick export to AVI - After selecting the option Quick export to AVI, the video export to AVI panel will be displayed as shown below:

Information on the number of streams selected for export

Select the starting point for the exported material

Selecting the end point of the exported material

Selected range to export

Choice of video or audio stream. Export of POS transactions to a text file.

The maximum size of a single AVI file

Target directory

AVI file creation status

Selection of local and remote streams for export

Export to AVI, PAK file of many channels with the player program to one file, an additional option is the possibility of delaying the start of video export.

The screenshot option has been enhanced with the possibility of direct printing.

VIDEO PLAYBACK PANEL

The saving method allows you to choose from Folder or .PAK. The Folder option causes each exported stream to be in a separate directory. The .PAK option means that the exported recordings will be contained in one file. It is also necessary to select the target directory in which there is enough free space to export the selected recordings.

After pressing the Start button, exporting the recordings to the selected folder will be started. A progress bar informs you of the progress of the export.

After the export is complete, the destination folder will have folders with the names of their origin or one export file (.PAK).

The names of the folders exported from the video material using Export recordings are defined in such a way that they contain a detailed description of the origin of the exported material:

DeviceName_StreamName_IPAddress_NumberID

Each file name (.PAK) contains the date and time of the export:

NMS VSSexport_Year_Month_Day_Hour_Minute_Second.PAK

6.5. NMS VSS Player description

NMS VSS Player is an application that allows you to play exported video recordings. It is installed together with the NMS VSS application, it is built of its modules, but it works independently of it. To start it, select from the start menu Novus \ NMS VSS \ NMS VSS Player. The program window is presented below.
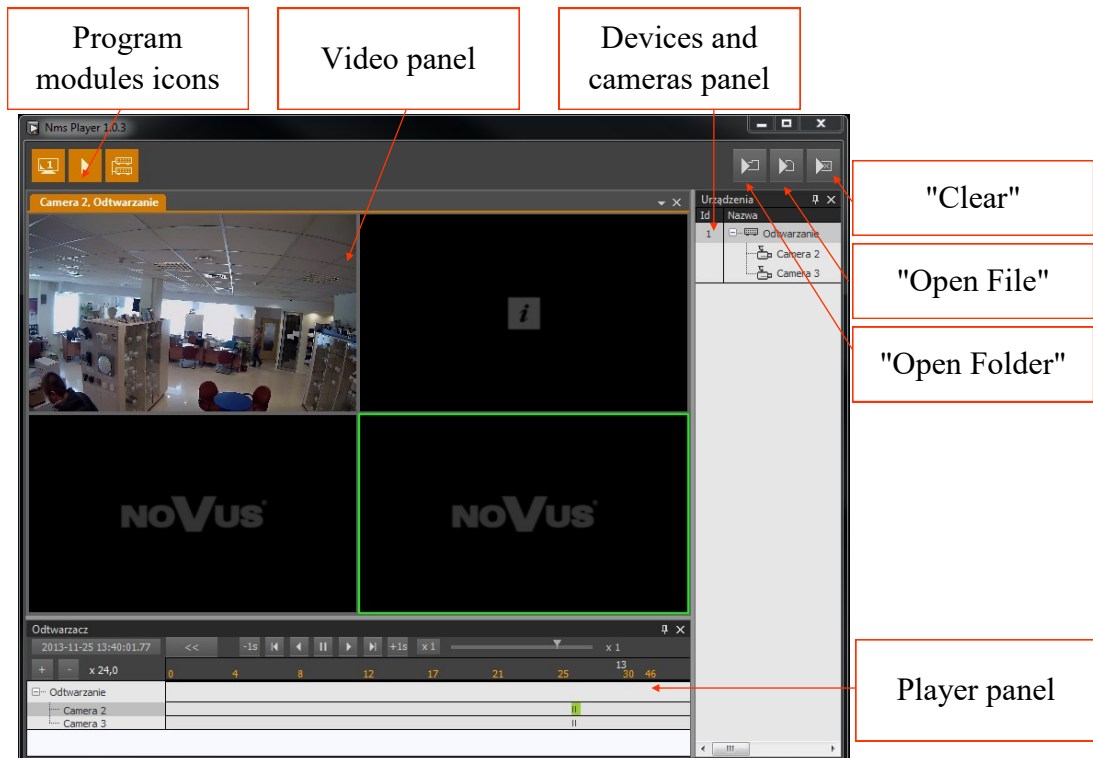
VIDEO PLAYBACK PANEL

After starting the program, open the file or folder with video recordings. Press
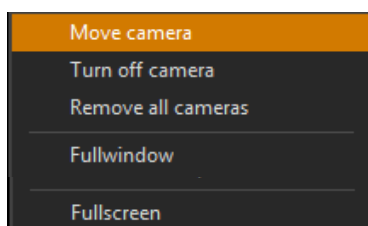
- to select a folder with recordings

- to select a record file

Then indicate the location of the folder / file and confirm with the OK button. By pressing the above buttons again, you can add more folders or files.

Warning! The program prevents you from selecting the same folder / file twice.

The video window automatically adjusts the split to the number of streams added. After right-clicking on the video image field, the context menu in the NMS VSS application will be displayed.

Move the camera	The movement of the camera window within the defined area division. After selecting Move Camera, click in the window where the camera image is to be moved.
Turn off the camera	Disabling video preview from a given camera.
Remove all cameras	Removes all cameras from the video window
Full Window / Back to Split	Switch the selected camera to the split mode of 1 and return to the
Full screen / Return to window	Switching the Video module to full screen mode(keeping the division) or return to the window.

7. LOGS PANEL

7.1. Logs panel - basic information

Alarm events generated by IP video devices as well as related events

with the NMS VSS application are stored in the database and can be viewed using the LOGS panel. To run it, select LOGI from the VIEW menu. The logs are divided into four categories: Application logs, Device logs, Start screen log, End screen log. The log database configuration menu is displayed after selecting the Filters button. The log database can also be exported to a text file - CSV format (Save As ...).

The appearance of the logs panel is presented below:

The navigation buttons at the bottom of the panel allow you to navigate through the pages of the event log. One page is a list of alarm events with the number of lines defined in the Configuration panel. The transition to the selected log page takes place after selecting its number and confirming with the Go button.

Logs collected in the database can be filtered according to time (From ... To ... Find) and a selected criterion after clicking the Filters button.

Warning! It is possible to access the server logs from the NMS VSS client application. It is then required to grant appropriate permissions on the server for the client's account.
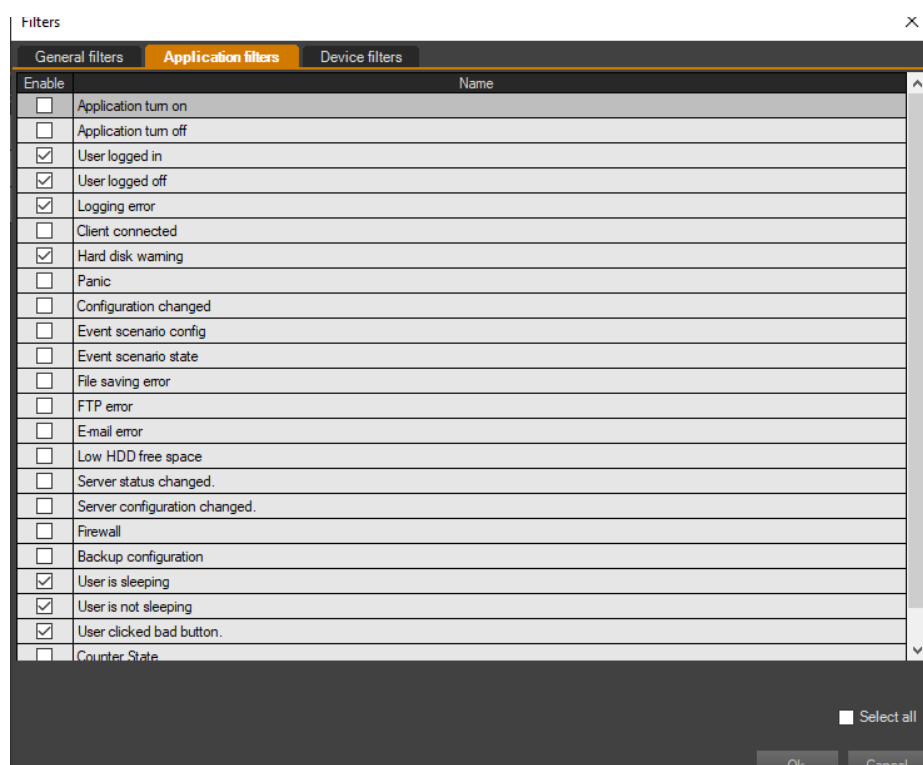
LOGS PANEL

The FILTERS panel consists of three tabs:

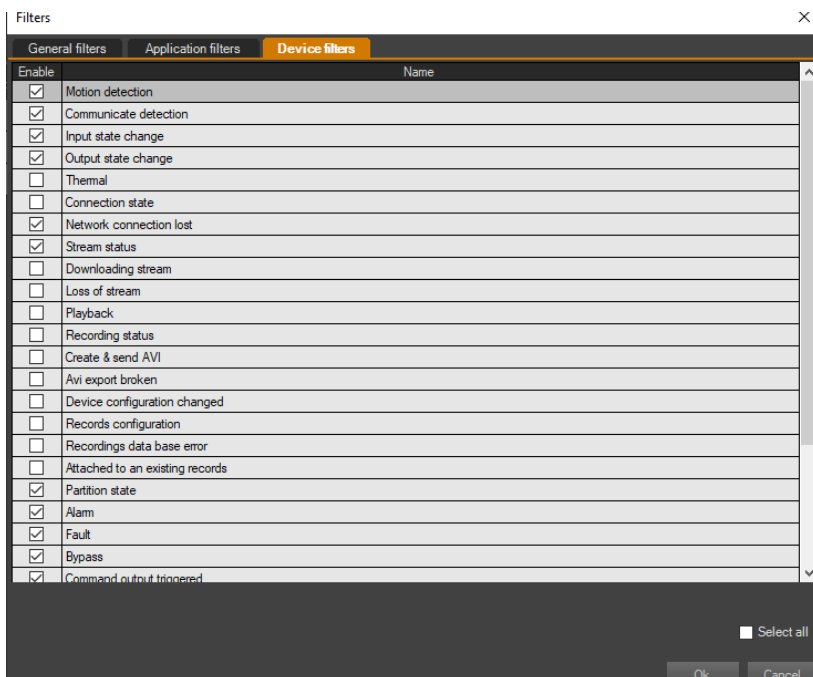- General Filters - Allow you to select one or more IP devices, streams or users;
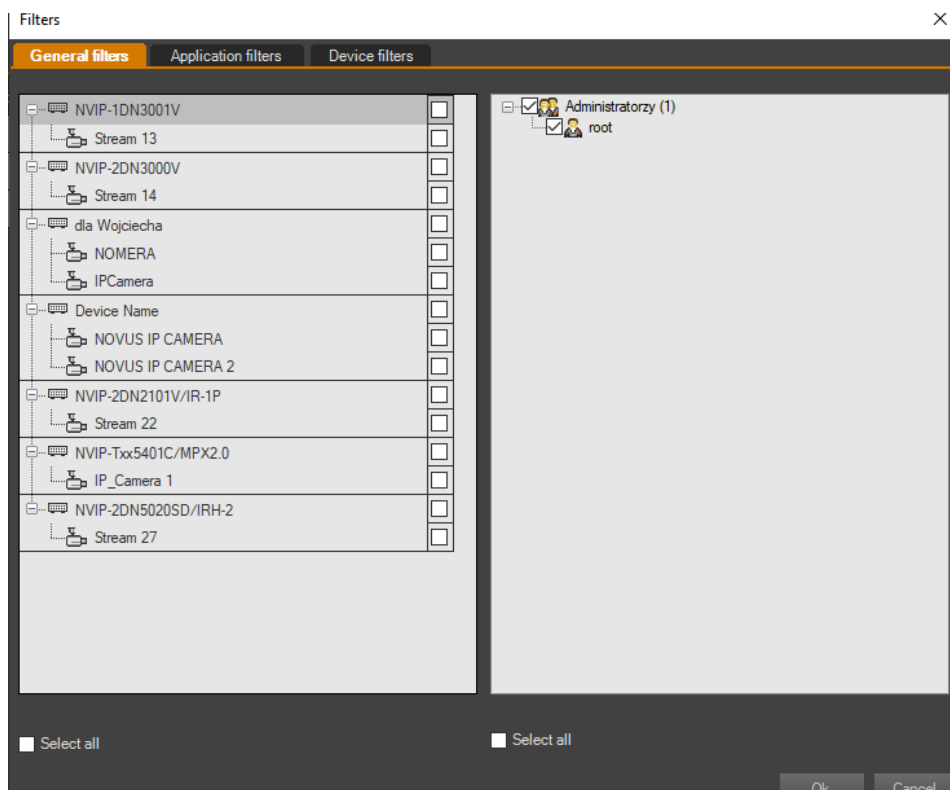
- Application filters - allow you to select events related to the NMS VSS application;

- Device filters - in this tab, you can select events that are directly related to IP devices connected to the system.

7.2. Playing playback video connected with alarm action

After double-clicking on an event (which is related to the recorded video material: motion detection, activation of the alarm input), the related image will be displayed in the VIDEO 2 window. Remember to launch the VIDEO 2 panel first

View the video associated with the selected alarm event

LOGS PANEL

In order to stop, undo, or change the currently playing material, use the PLAYER panel. The control buttons let you pause and play the video forward or backward in normal or frame by frame mode.

After right-clicking on the selected line of the event list, the following options appear:
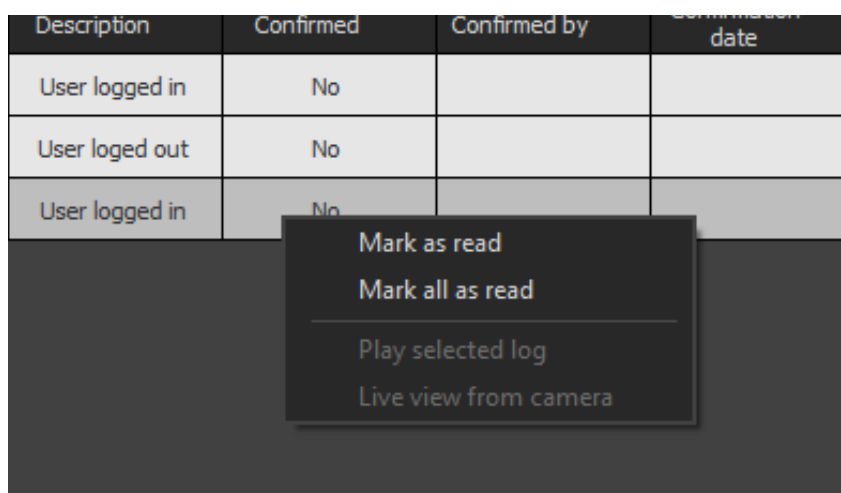
Mark as read	Changes the log status to 'confirmed', adds the date of confirmation, confirming user and a possible confirmation
Mark all as read	Confirmation for all remaining unconfirmed logs
Play selected log	Launches the video window with the selected video material (useful especially when viewing alarm events)
Live view from camera	Starts live view for the channel associated with the logo

CURRENT LOG PANEL

8. CURRENT EVENT LOG PANEL

8.1. Current event log - basic information

Alarm events generated by devices connected to the NMS VSS software, as well as events related to the NMS VSS application itself, are visible on the CURRENT EVENTS LOG panel. To run it, select the CURRENT EVENT LOG option from the VIEW menu. This panel, unlike the LOGS panel (database of all logs), displays the last several dozen events. The user can decide himself about the type and number of displayed events. To simplify the operation of the panel, different types of events have been distinguished by the color of the backlight.

The appearance of the panel is shown below:

Warning!
Initial configuration of the event filter for the CURRENT EVENT LOG panel is required because by default not all types of events are displayed.

8.2. Current event log filter

Within the devices available for a given group of users, the administrator can set a filter that will display on the CURRENT EVENT LOG panel only selected types of events coming from devices indicated by the administrator.

Warning! Configuration of the Current event log filter is assigned to a user group.

In order to change the display filter, select the menu:

- CONFIGURATION / APPLICATION SETTINGS / USERS;

- select a group of users;

- press the Set Filter button

CURRENT LOG PANEL

The current event log filter consists of three tabs:

- general filters allow you to select one or more IP devices, streams;
- application filters allow you to select events related to the NMS VSS application;
- Device filters allow you to select events that are directly related with IP devices connected to the system.

The appearance and configuration of these filters is the same as the previously described log filter.

Additionally, the following buttons are available in the application filter and device filter tab:

- Import Imports settings from a file with the extension .FLT;
- Export Exports settings to a file with a .FLT extension;
- Copy to all Copies selected options to all user groups.

8.3. Current event log configuration

The CURRENT EVENTS LOG panel presented in the previous chapter can be adapted to the user's needs. Apart from the possibility of defining the types of events and indicating the devices about the status of which the operator will be notified, it is also possible to configure the appearance and behavior of the panel itself. The settings are available in the CONFIGURATION / APPLICATION SETTINGS / APPLICATION / Current events log window.

The user may:

- unlock the column layout and rearrange them;
- enable / disable display of selected columns;
- define the number of events displayed on the Current events log panel;
- define the program's reaction to a double-click on the event.

PTZ CONTROL PANEL

## 9. PTZ PANEL

9.1. PTZ panel - information

The PTZ CONTROL panel is an alternative to mouse control.

Activation of the control of speed dome cameras, and thus the PTZ panel, requires a correctly connected camera and recorder and the configuration of the RS-485 port (transmission speed).

Arrows (◄► ▼ ▲)	*control camera movement*
Speed	*Camera movement speed (see note below)*
Zoom - / +	*zoom control*
Focus - / +	*controls focus*
Iris - / +	*iris control*
Preset	*calling a preset*
Pattern	*calling the selected observation route*
Tour	*calling the selected patrol*
Autoscan	*calls up the selected route automatic scan*
On, Off	*buttons for deactivating special functions (see manual for a given PTZ camera)*
Home	*calling the parking function*
Autofocus	*turning on the auto mode. focus control*
0 - 9	*selection of the function number: preset, tour, etc.*
del	*Clears the function number selection field*
Menu	*entering the camera menu*
Control	*programming of routes, patrols, etc. in the cam. analog.*
Esc	*go back to submenu, exit camera menu*
Preset SET	*programming the selected preset*
Mode	*switching between modes (for Novus-C1)*

Additionally, the control of speed dome cameras can be performed via the computer keyboard.

Warning! Setting the "speed" parameter does not provide the same functionality for all Novus PTZ cameras. In case of problems, eg with moving around the OSD menu of a given camera, the "speed" parameter should be increased / decreased accordingly.
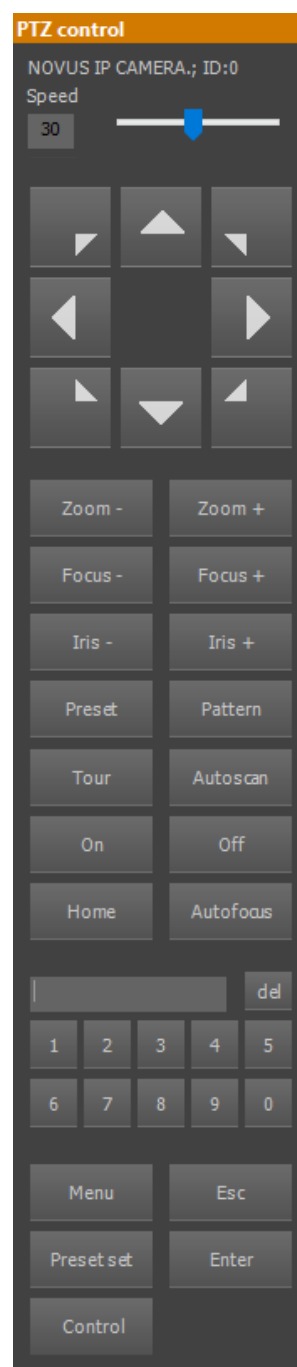
PTZ CONTROL PANEL

9.2 „Fisheye" camera control

The NMS VSS software allows you to control a specific camera with a lens with a very wide viewing angle, the so-called Fisheye (from ang. Fisheye). Although the lens is stationary, the camera's features make it possible to control it in a manner similar to PTZ cameras.

After activating PTZ, navigation can be performed by:

– PTZ control panel;

– computer keyboard (arrows and keys Page Up, Page Down);

– computer mouse by clicking on the part of the image that is in the direction of the desired scene, e.g. to move to the left, click on the point to the left of the center of the image. The mouse wheel allows you to adjust the zoom.

The camera displays the image in two modes. With the zoom turned off (the widest angle of the lens) in the center position, the image is presented in a "circular" mode (the image is a circle in the frame).

Virtual zoom or movement results in switching on the "Digital PTZ" and switching to the full-frame mode (the image covers the entire surface of the frame).

PTZ CONTROL PANEL

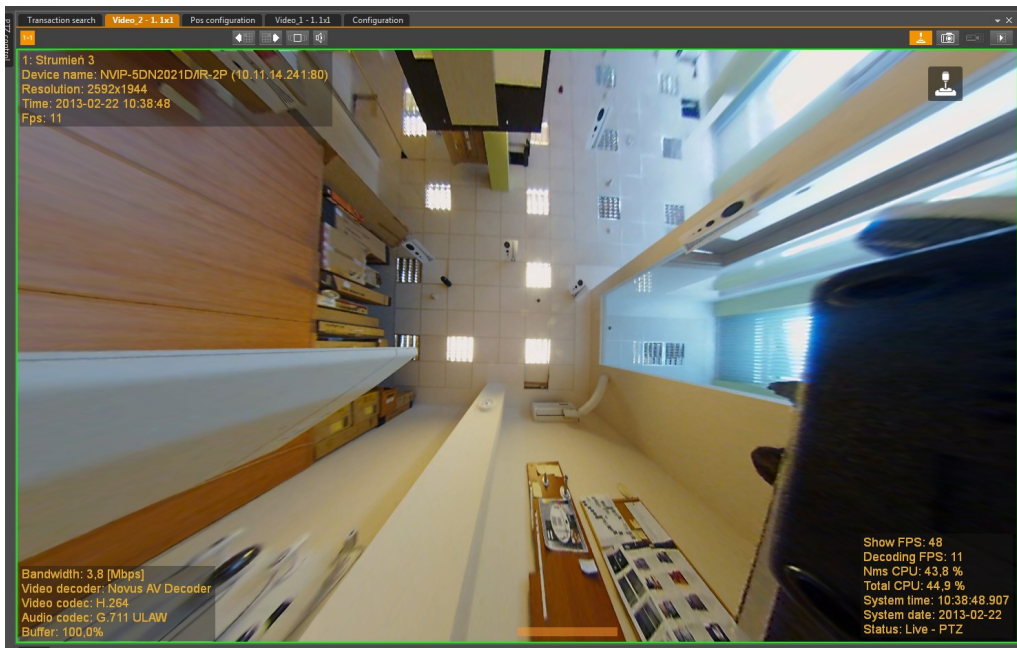In both cases the image has the distortions typical of "fisheye" lenses.

Image analysis is performed on a computer remotely connected to the camera. In digital PTZ mode, the amount of computation needed to properly display the image may cause a drop in overall operating system performance, depending on the computer's hardware configuration.

CONFIGURATION PANEL
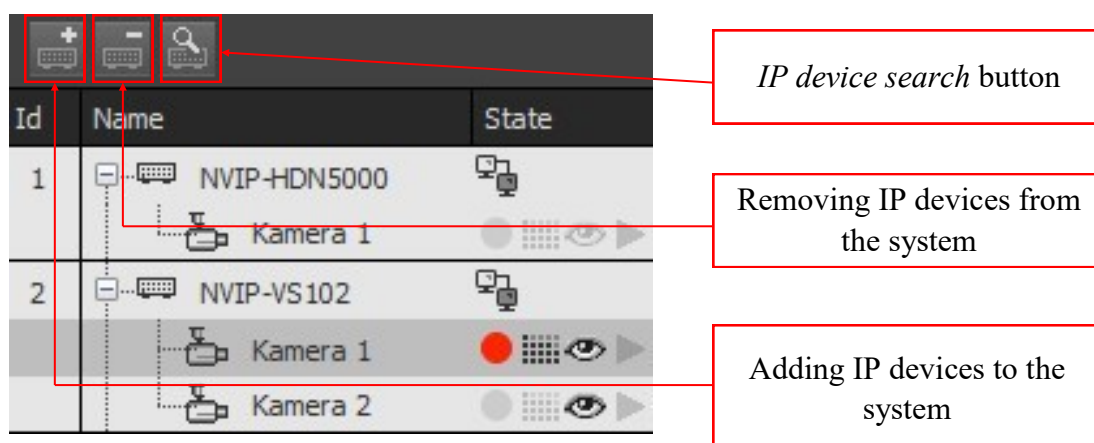
10. CONFIGURATION PANEL

The configuration panel is divided into tabs and subpages that allow full configuration of the NMS VSS application.

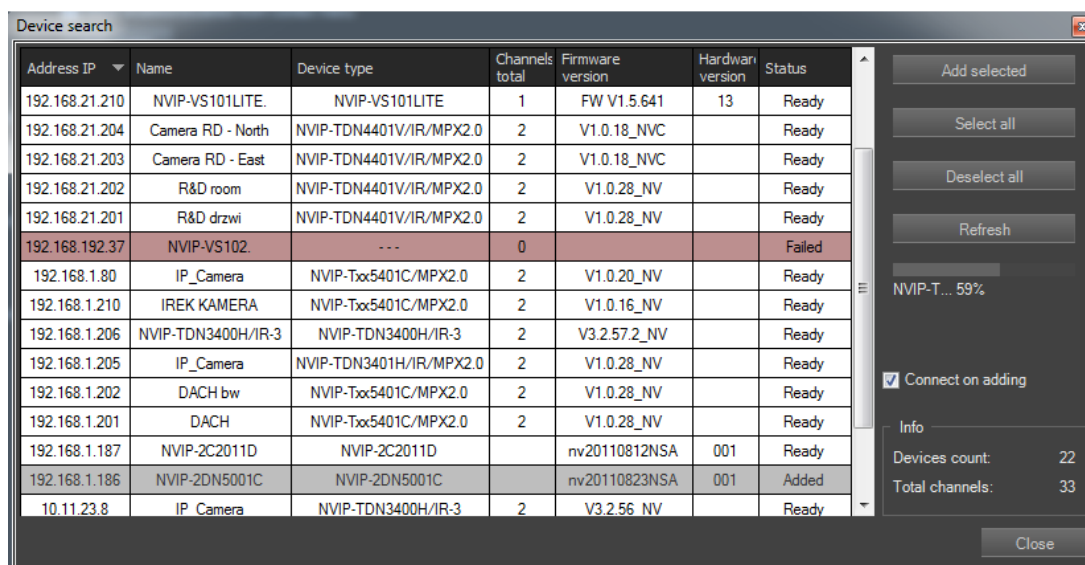### 10.1. Devices tab - information

The functionality of the DEVICES tab is similar to the DEVICES panel available from the main program menu. Additionally, there are options for adding, removing and searching devices as well as their configuration. In the NMS VSS application, it is possible to simultaneously work with local IP cameras and an NMS VSS Server connected to the system as another IP device.

10.1.1. Adding video servers to Devices list

Adding a video server or IP camera to the list of devices is possible using the IP device finder or manually, it requires knowing the IP address and the type of the device. The start-up and initial configuration of the IP device is described in the user manual of this device. The easiest way to add new devices to the system is to search for them on the network using the built-in compatible IP device search engine.
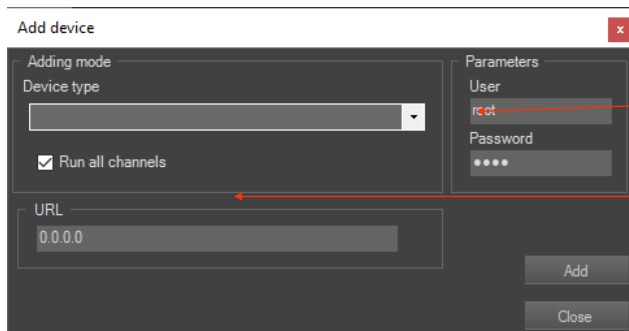

After searching for IP devices, select them, check the Connect after adding option and use the Add selected button.

Address IP ▼	Name	Device type	Channels total	Firmware version	Hardware version	Status
192.168.21.210	NVIP-VS101LITE.	NVIP-VS101LITE	1	FW V1.5.641	13	Ready
192.168.21.204	Camera RD - North	NVIP-TDN4401V/IR/MPX2.0	2	V1.0.18_NVC		Ready
192.168.21.203	Camera RD - East	NVIP-TDN4401V/IR/MPX2.0	2	V1.0.18_NVC		Ready
192.168.21.202	R&D room	NVIP-TDN4401V/IR/MPX2.0	2	V1.0.28_NV		Ready
192.168.21.201	R&D drzwi	NVIP-TDN4401V/IR/MPX2.0	2	V1.0.28_NV		Ready
192.168.192.37	NVIP-VS102.	- - -	0			Failed
192.168.1.80	IP_Camera	NVIP-Txx5401C/MPX2.0	2	V1.0.20_NV		Ready
192.168.1.210	IREK KAMERA	NVIP-Txx5401C/MPX2.0	2	V1.0.16_NV		Ready
192.168.1.206	NVIP-TDN3400H/IR-3	NVIP-TDN3400H/IR-3	2	V3.2.57.2_NV		Ready
192.168.1.205	IP_Camera	NVIP-TDN3401H/IR/MPX2.0	2	V1.0.28_NV		Ready
192.168.1.202	DACH bw	NVIP-Txx5401C/MPX2.0	2	V1.0.28_NV		Ready
192.168.1.201	DACH	NVIP-Txx5401C/MPX2.0	2	V1.0.28_NV		Ready
192.168.1.187	NVIP-2C2011D	NVIP-2C2011D		nv20110812NSA	001	Ready
192.168.1.186	NVIP-2DN5001C	NVIP-2DN5001C		nv20110823NSA	001	Added
10.11.23.8	IP_Camera	NVIP-TDN3400H/IR-3	2	V3.2.56_NV		Ready

Add selected | Select all | Deselect all | Refresh

NVIP-T... 59%

☑ Connect on adding

Info
Devices count: 22
Total channels: 33

Close

CONFIGURATION PANEL

There is also a manual method for adding devices to the system. In order to add a video server to the device list, use the button in the devices menu marked with the icon. A window will be launched in which you must enter the appropriate IP address, port and, additionally, the device type, if it cannot be identified automatically.
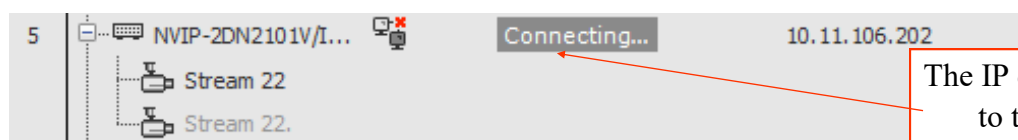

The manual mode allows you to add a device when it is not possible to identify it in the network, e.g. when it has not been started yet
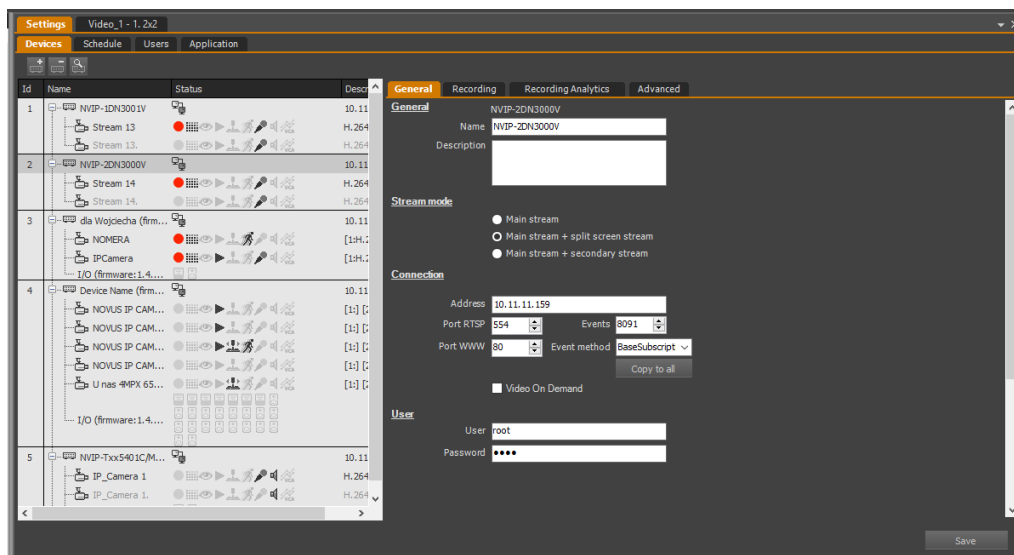
IP address or device name

The IP device has been added to the Device list and connection is taking place

After the devices have been successfully added, they will start to appear on the device list one by one.

When adding devices via the RTSP protocol, remember that to support more than one stream via RTSP it is required to purchase an appropriate license and a USB key.

Regardless of the method used, the added device will be displayed with only one stream. The user can choose between the stream modes by clicking on the General tab of the device. In the Stream mode field it is possible to switch the streaming into one with three modes. The first mode is the default mode, the second mode The stream to be divided (up to 720x576 and 512kbps) allows to automatically switch to the second stream (with reduced parameters) in the case when a large number of images will be displayed on the video screen at once (in order to maintain the computer's computing abilities). In this mode, the second stream should have parameters worse than the main stream. The third mode, ie Main stream + Second stream allows you to send two streams with independent parameters from the device at once.

CONFIGURATION PANEL

10.1.2. Adding and removing NMS VSS Server devices

Adding the NMS VSS server in the client application should be done manually by entering the server's IP address and the necessary ports. In order to add NMS VSS Server to the list of devices, use the button in the device configuration menu marked with the icon ▦. A window will open in which you must manually select the Device type - NMS VSS Server and enter the appropriate IP address. You should also enter the appropriate username and password that were previously defined in the application acting as the NMS VSS Server.

Select the manual mode and select the NMS VSS Server device type

Enter the username and password to connect to the NMS VSS Server

Enter the IP address of the NMS VSS server
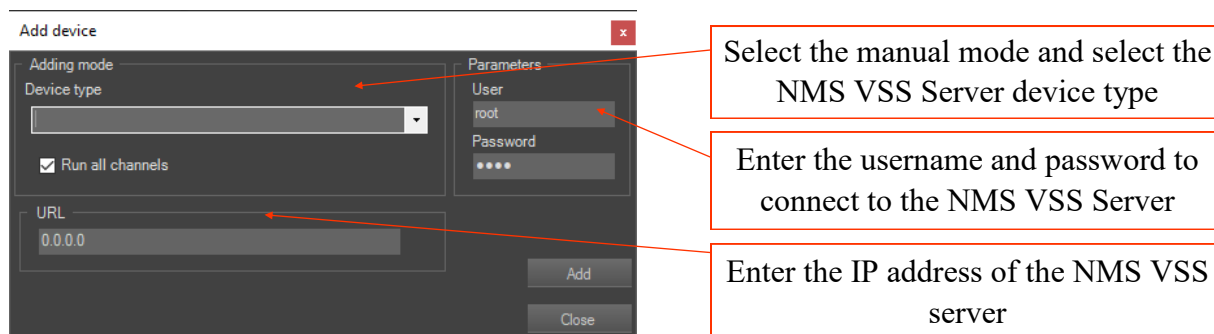
After adding the NMS VSS Server it will be added to the list of devices along with the list of streams it serves.

List of servers and stream that are served

Server parameters (name, IP address, ports, credentials)

Warning! **In the case of incompatible versions of the server and client software, the program may not work properly, which the user will be informed about. For the correct operation of the system, compatibility of the server and client software versions is required.**

In order to remove the NMS VSS server from the device list, proceed in the same way as when removing an IP device. It is enough to select the selected devices and press the button on the devices panel with the icon ▦ . The Inputs / Outputs tab allows you to add inputs / outputs of devices connected to the Server in the same way as in the case of streams.

CONFIGURATION PANEL

10.1.3. NMS VSS server - streams management

NMS VSS Server allows you to select streams that will be available on the client application. Of the video streams provided by the NMS VSS Server. In the "Server Configuration" tab, we can define which streams are to be made available to Client Stations.
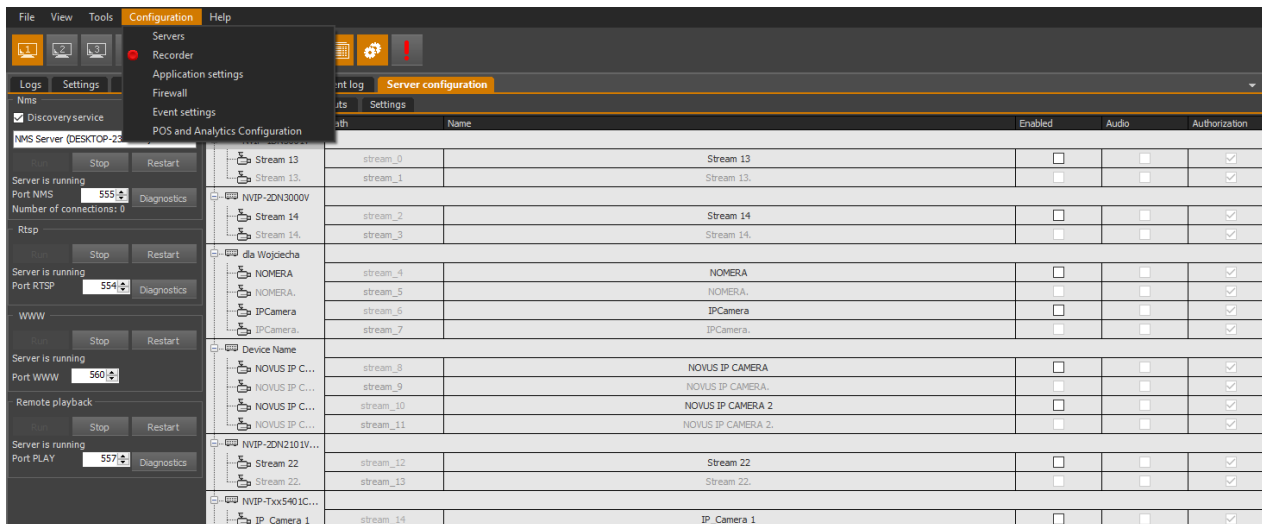
Information!

The list of available streams depends on the list of streams sent by the NMS VSS Server and the permissions to access the NMS VSS Server streams that the logged in user has.

CONFIGURATION PANEL

10.1.4. Devices tab - General subpage

This subpage allows you to define the basic operating parameters of IP devices and streams installed in the NMS VSS.

Depending on the selected type of IP device or video stream, the following options are distinguished:

a) for the NMS VSS Server device:

- General - configuration of the name and description of the device as well as the connection status and the possibility of changing it from the context menu;

- Connection - settings of the IP address, network ports and connection type;

- User - a field that allows you to enter the username and password necessary to log into the NMS VSS Server;

- NMS VSS port - port number for NMS VSS connection;

- Stream list update - a function that allows you to manage the stream list.

CONFIGURATION PANEL

b) for IP device:

- General - configuration of the name and description of the device as well as the connection status and the possibility of changing it from the context menu;

- Stream Type;

- Connection - settings of address, network ports and connection type;

- User - Additionally, you can also enter a username and password for devices that require authorization;

c) for video streams:

- General - configuring the name and description of the device as well as the connection status and the possibility of changing it from the context menu;

All changes should be confirmed with the Save button at the bottom of the panel.

10.1.5. Devices tab - Schedule subpage

In the internal panel for setting the stream called schedule, we can independently set the recording modes for the camera available in the NMS VSS system. The default mode is the continuous recording mode, this option does not apply to work in the Client mode.

5 registration modes have been implemented in the NMS VSS *:

Continuous	recording with constant recording speed;
Motion detection	registration only when detecting changes in the image content (requires setting detection zones in the video server);
Alarm input	logging only when the alarm input is active;
D.R or W.A	recording only when changes in the image are detected (motion detection) or the alarm input is activated;
Empty	no registration;
Continuous post-event	recording of base frames and full continuous recording after an event.

There is also PANIC recording in the system, but it is not included in the schedule due to the high priority of this recording.

After selecting a video stream (not an IP device), the schedule assigned to that stream will be displayed.

To define the appropriate recording method, select the recording mode, and then, using the mouse, select the area on the schedule corresponding to the required recording time.

The fields reflecting the recording modes, filled in half with white (/) mean that only full image frames are recorded.

*-Mode of registration applies only to servers, this description does not apply to the Client unit.

CONFIGURATION PANEL

Select a schedule to configure

Defining the registration mode for special days

Selection of the recording mode for the week

Weekly schedule

Table of defined special days

Defining special days

The schedule is divided into days of the week (horizontally) and hours (vertically). Hours are additionally divided into 4 parts, which allows you to set the recording time with an accuracy of 15 minutes. You can select entire columns (by clicking on the gray rectangles respectively hours / quarters, entire lines (by clicking on the acronyms of the days of the week respectively) or the entire week 24/7 by clicking on the black rectangle in the upper left corner of the diagram.

In addition to the general schedule, we have the option of indicating special days for which we define an individual registration mode. Such days can be set independently in a given calendar year or defined as annually repeated. The changes made should be confirmed with the Save button at the bottom of the panel.

Once configured, the schedule can be saved to a file and reused when configuring another camera or another NMS VSS system. By using the Import to all button, it is possible to load the schedule saved on the disk for all available cameras.

CONFIGURATION PANEL

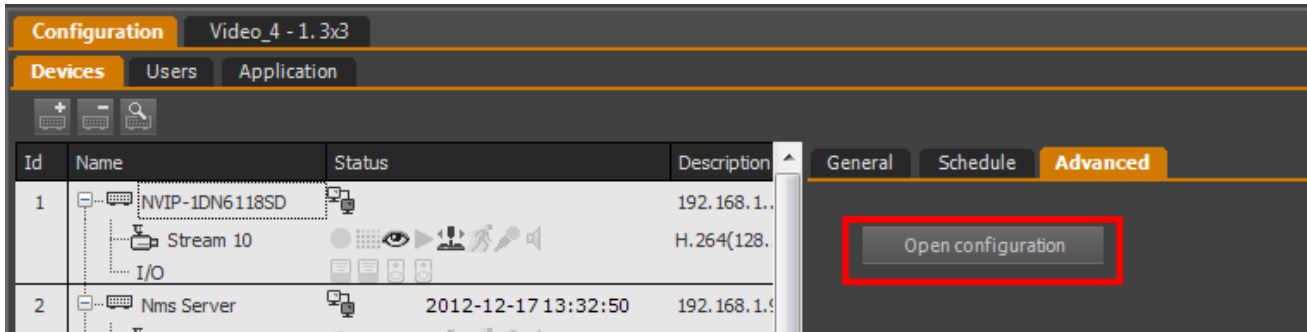Editing of saved schedules is available in the general tab:
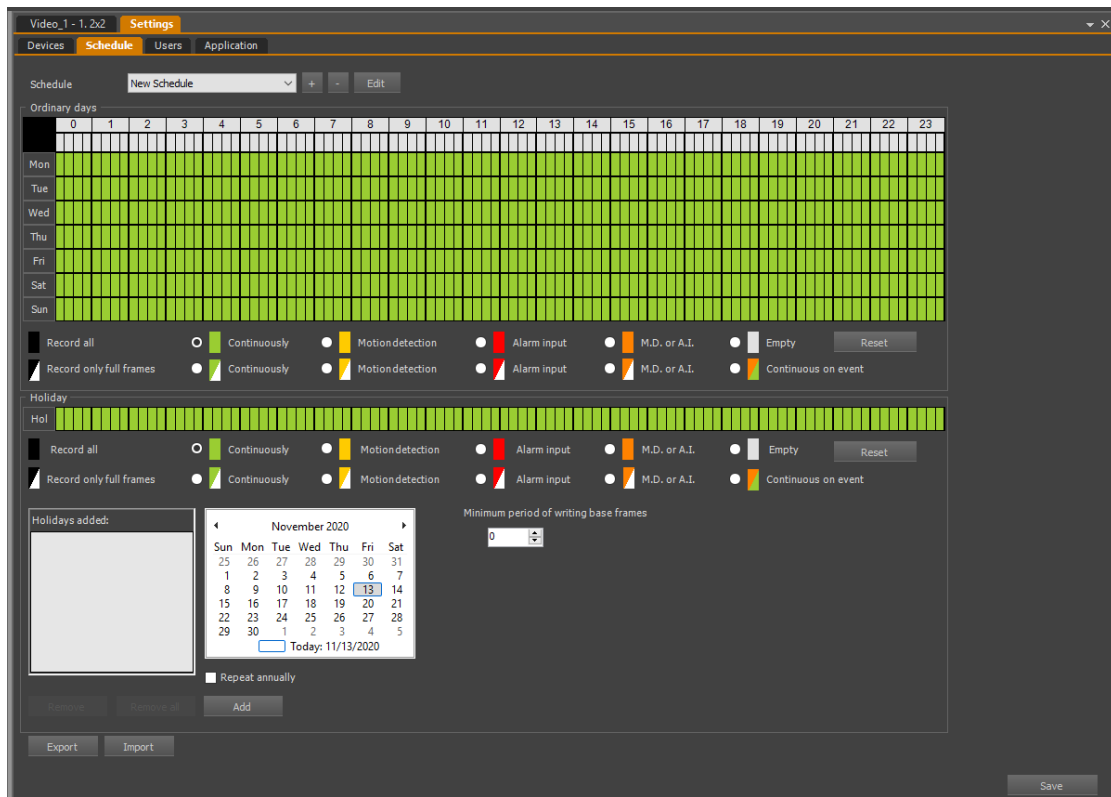
However, in the Schedule tab in the devices section, we can choose the already created schedule:
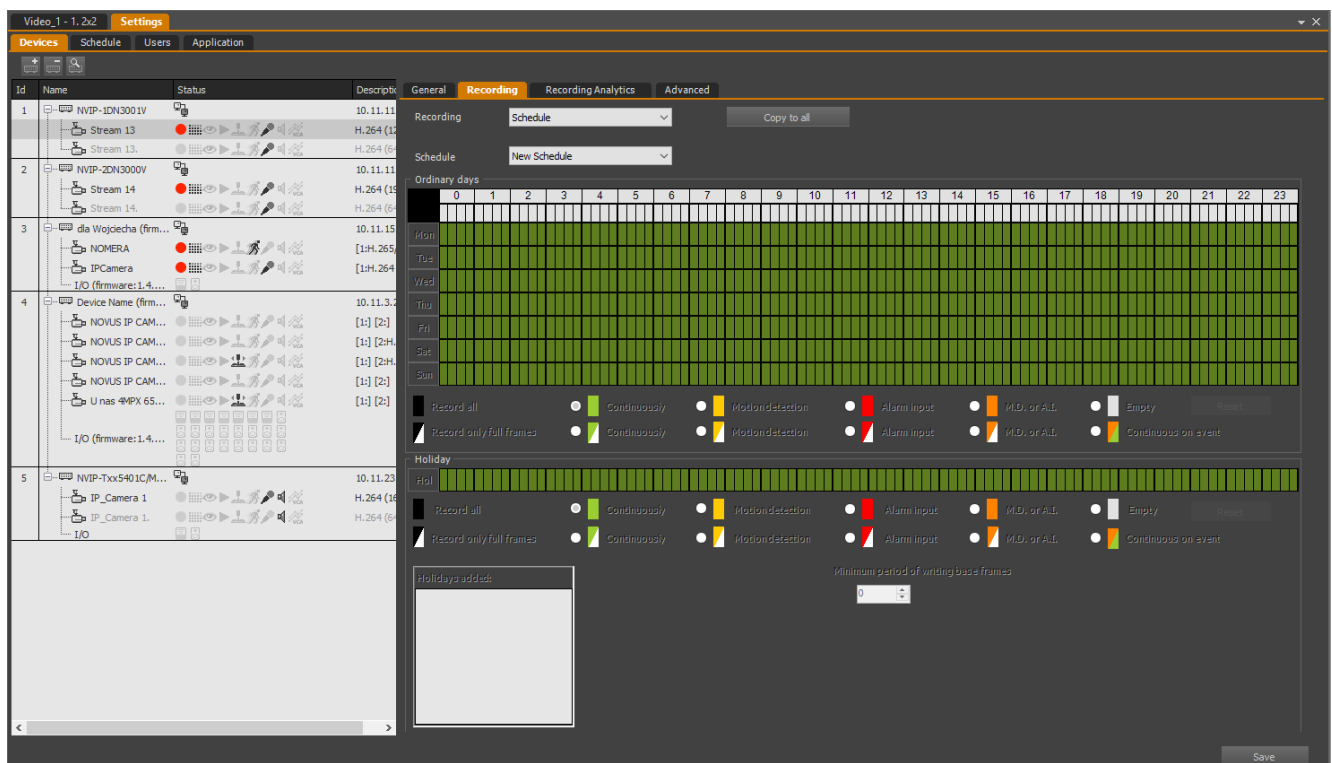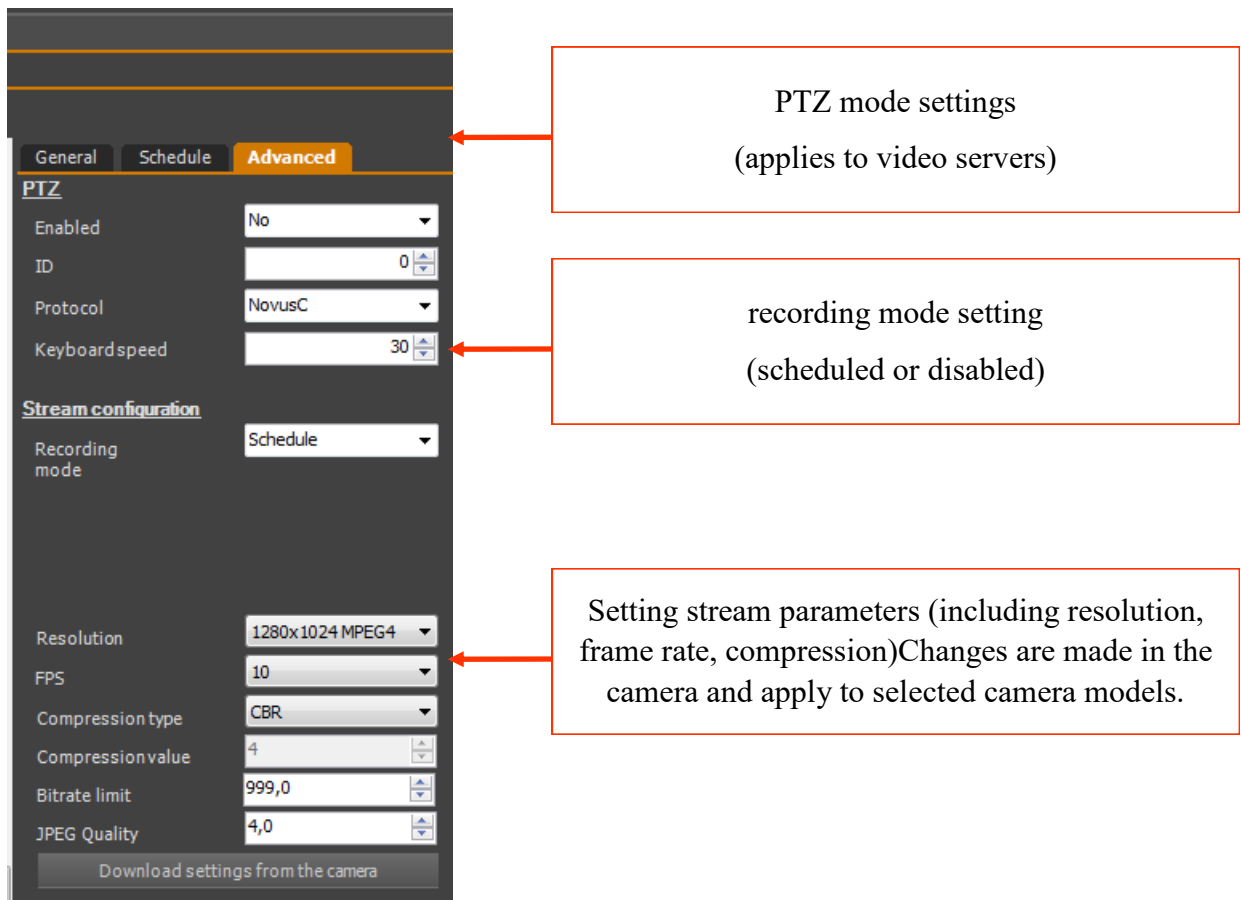
CONFIGURATION PANEL

10.1.6. Devices tab - Advanced subpage

In the case of an IP device, this subpage allows you to go to the device configuration mode through the website implemented in the device.

In case of selecting a video stream in the list of devices, the subpage allows you to configure additional functions related to this stream:

PTZ mode settings
(applies to video servers)

recording mode setting
(scheduled or disabled)

Setting stream parameters (including resolution, frame rate, compression)Changes are made in the camera and apply to selected camera models.

All changes should be confirmed with the Save button at the bottom of the panel.

CONFIGURATION PANEL

10.2. Users tab - information

In the USERS tab, we can define users and user groups of the NMS VSS program and grant them access rights.

NMS VSS user group their access rights.

User's account

Current event log filter settings

Maximum speed of exporting to AVI

The type of user account selected

Setting the access priority when the maximum number of connections to the server has been reached.
(0– highest
10 - lowest)
(see point firewall)

Loading an independent panel layout for groups

Selection of camera access for the selected group

Settings privacy masks

Availability digital zoom

Choosing permissions for the selected group

After installing the program, an administrative account is automatically created - user: **root**, password: **pass**, placed in the **Administratorzy** group. New groups and users can be created using the context menu available under the right mouse button.

Note!   **Access rights apply to local and remote users. It is important to ensure that the appropriate settings are made in both the NMS VSS Server and NMS VSS Client applications. When connecting to the server, the client user has dual access rights, depending on: the permission group in the NMS VSS Client application, the group defined in the NMS VSS Server, under which they log in to the server. In this case, the restrictions will be cumulative.**

CONFIGURATION PANEL

Warning! Only the Admin type user groups have access to the CONFIGURATION menu.

Context menu options:

In order to create a group of users with limited privileges, follow the procedure presented:

File / Reload	Reloading the file with users
Add a new group	Adding a new user group to the system
Add a new user	Adding a new user
Delete User	Removing the selected user
Delete group	Removing a selected group of users

- add a new group and define its type as "User" and give it an appropriate name;

- add new users to the group, set their names and passwords;

- select the created group and define access to cameras and program functions that are to be available for the selected user group;

- optionally, using the Appearance function, you can define an independent panel layout for each user group. Working with windows and their layout is described in chapter 3.

In the same way, you can create new user groups and grant them independent rights.

You can also delete a selected user or user group from the context menu available with the right mouse button.

You can move the user between groups using the pick and drop method.
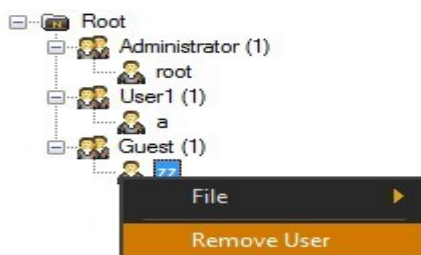
CONFIGURATION PANEL

Selecting an entry for a user in a given group allows you to assign an individual login / password, JPEG photo and personal data. A separate field is the cell phone number, cooperating with the SMS modem, the description of which is provided in chapter 10.3. The date of registration and last login is also displayed. not delete the selected user or user group.You can move the user between groups using the pick and drop method.

The password change screen requires entering the current password, and the new password twice. It also displays information about the compliance and strength of the password.

All changes in the Users tab must be confirmed with the Save button at the bottom of the screen.

It is possible to enable the double login function. To do this, select CONFIGURATION / APPLICATION SETTINGS from the main menu. There is a Login with confirmation submenu in the APPLICATION tab. If this function is selected, logging into the administrator account will require entering two user names with administrator rights and two passwords assigned to them.

CONFIGURATION PANEL

### 10.2.1. Domain users - Active Directory authentication

The NMS VSS application enables cooperation with the Active Directory service. It allows you to integrate domain users with logging into the NMS VSS application.

To add users from the domain, select the desired user group, and then from the menu select the option Add Active directory users.
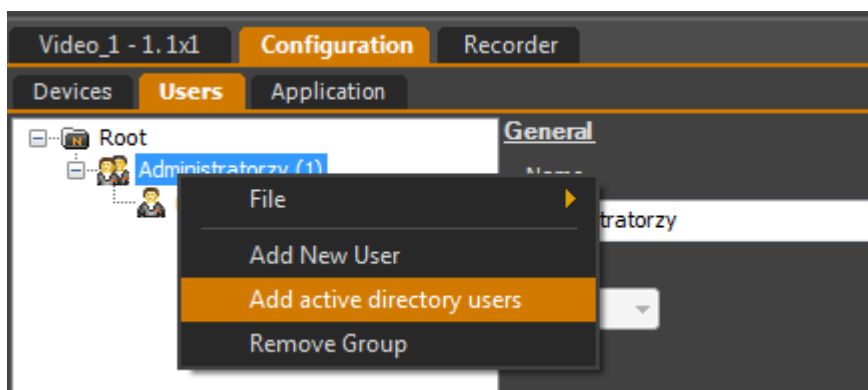
The application will start searching for users. If the system user is located

data in the domain will be completed automatically. Otherwise, enter the Domain address, Login and Password and then click Get users to restart the search.

The defined domain users will be displayed in the list below. Selecting an item on the list and then pressing Add users results in assigning the user to a specific group.
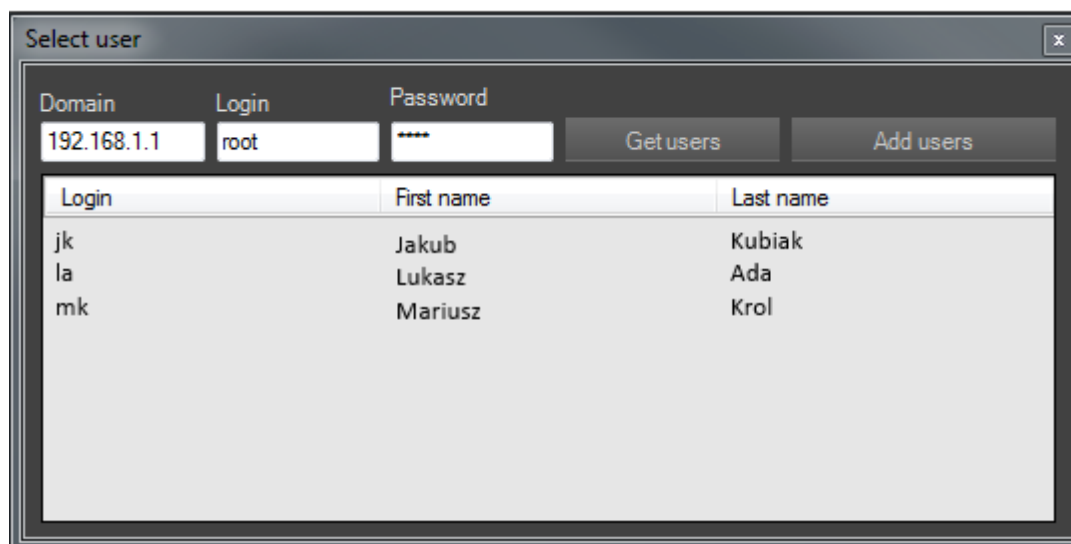
The added domain users have the suffix (Active directory user) on the list. The name and password are not editable. The content of the personal data fields will be imported from the domain and automatically completed.

CONFIGURATION PANEL

When at least one of the users is defined using Active Directory, the login screen will allow you to select an Authorization Method. Selecting the Active directory authorization parameter results in logging in as a domain user.

CONFIGURATION PANEL

10.2.2. Privacy masks

The NMS VSS software enables the creation of privacy masks. The number of masks is unlimited. They are defined for a specific group of users.

Selecting the "privacy mask" field in the USERS tab opens a window with a preview of the selected stream.
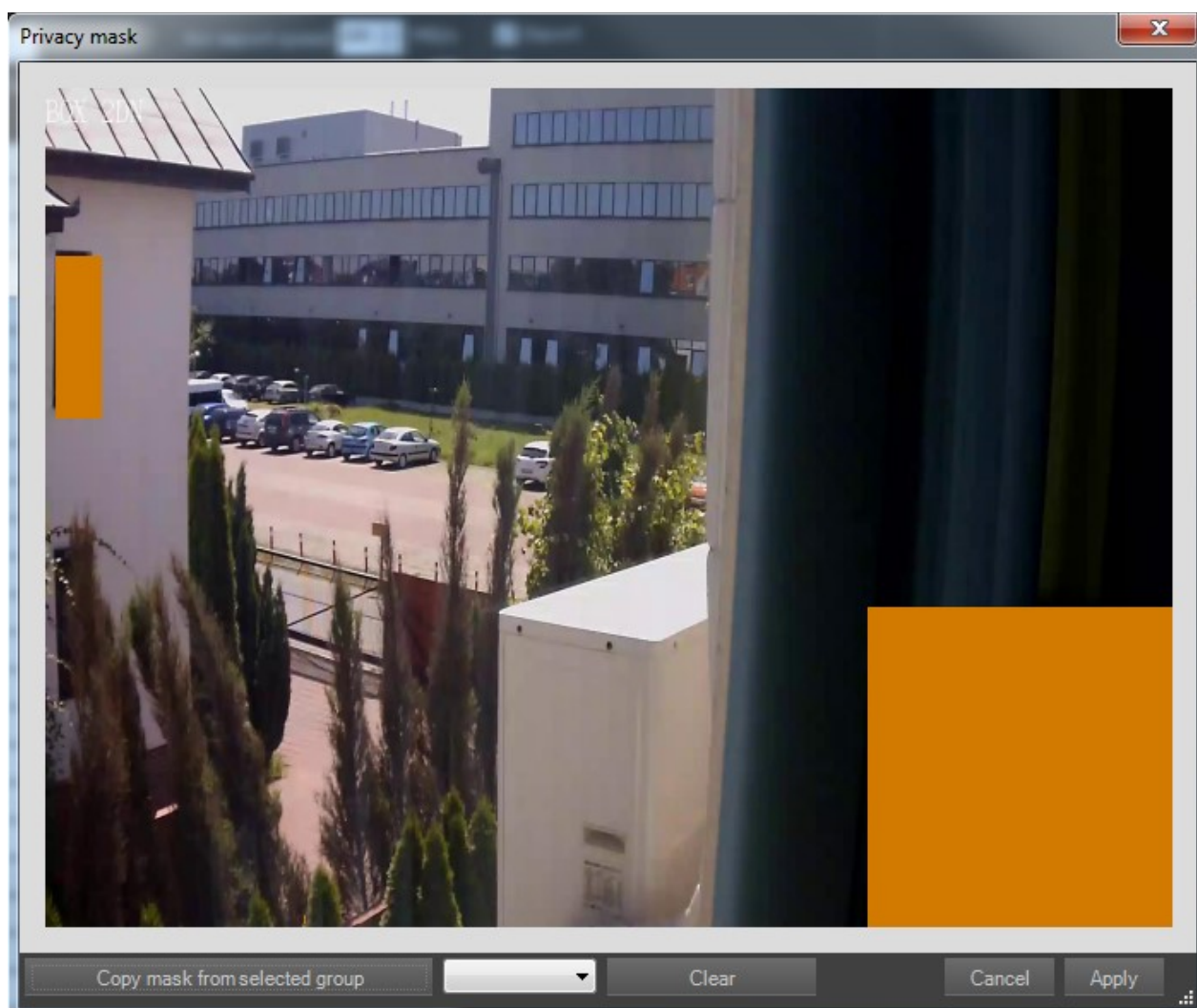
Selecting a part of the window with the left mouse button creates a rectangle masking the image. Pressing the right mouse button when the cursor is in the field will delete the mask. Selecting a window fragment with the right mouse button deletes all privacy masks that are in the selected field.

Saved privacy masks can be copied to other user groups. At the bottom of the window, there is a drop-down list with user groups with defined masks for the selected stream. Selecting the appropriate one and pressing the Copy from selected group button restores the setting of masks from this group.

CONFIGURATION PANEL

10.3. Application tab - information

The APPLICATION tab contains NMS VSS settings

- Autom. logging in the account of the user who is to be logged in when starting the application;

- Language - option to change the application language. After restarting the software is set to the newly selected language;

- Panic recording - setting the recording time after pressing the PANIC button;

- Log settings description of available functions:

Keep logs for ... days	Database logs are deleted after a certain number of days (default 30).
Display... on the page	One page of the logs contains a specific number of events
Number of entries stored	Number of alarm events (10,000 by default).
Save logs with priority	It allows you to define the type of saved logs.

- Current events log configuration of the panel appearance, number of entries;

- Sequence time configuration of camera switching times in sequence mode;

- Display settings configuration of codecs, video settings, text colors and frames;

- FTP settings FTP server settings for dumping AVI images and sequences after the event;

- SMTP settings settings for outgoing SMTP mail server to dump images and AVI sequences after an event;

- Settings for the number of pop-up windows containing snapshots of pop-up images and messages displayed after events;

- The SMS modem allows you to set the computer COM port number and the transmission speed for the SMS modem. Additional information on the modem configuration can be found in the manual corresponding to the device model used.

- Shutdown Allow the system to shutdown the NMS VSS.

- Supervisor This function allows to control whether the operator is awake.

- POS and Analytics At this point, we can define the database directory and enable color selection on the "playback" bar

- Export Transfer limit from the server.

CONFIGURATION PANEL

- Display settings [General] - description of available functions:

Video buffer	The ability to set the video buffer from 0s to 2s, the default value is 100ms
Main frames	Option that enables displaying only the frame (i-Frame)
Keep the proportions	A function that enables or disables proportion behavior.
Frames	Ability to set the maximum number of decoded frames Ability to set the maximum number of displayed frames

- Display settings [Colors] - description of available functions:

The color of the channel window frame	After clicking on the colored rectangle next to the numeric value of the color, we can choose the color of the frame separating individual video
The border color of the selected channel	After clicking on the colored rectangle next to the numeric color value, we can choose the color of the selected video stream.
Motion detection areas	After clicking on the colored rectangle next to the numerical value of the
Text	OSD text color and transparency selection
Text background	Select the color and transparency of the OSD background

- OSD

OSD texts	Main stream information Additional information about the stream General information
Display	Camera name device name Resolution Time
Position	OSD display position, percentage or pixel, with anchor function.
Fonts	Global font settings. Size, font, shading, size adjustment.

CONFIGURATION PANEL

- Display Settings [OSD] - There are 3 types of OSD (1, 2, 3). Appearance configurationand the position of each of them is independent. After selecting a particular OSD, a list of available parameters will appear in window 7.

Description of available functions:

1.	Main stream information	Video window number, device information, its IP, resolution, frame rate, local time of the device
2.	General information	Frame ID, Decoded Frames, Display Frames, CPU, NMS VSS CPU,
3.	Additional information	Bandwidth (audio, video), codec (audio, video), frame size, frame ID, frame type, buffer efficiency
4.	POS	OSD display options for cash register transactions
5.	Position [%]	X - the value of the distance in the horizontal axis from the given corner Y - the value of the distance in the vertical axis from the given corner
6.	Anchor	Corner selection option for a given OSD text
7.	Global font settings	Select the type and size of the OSD font
	Adjust the size	Scaling the font size to the window size (in percent)
	Enable text shading	Add a shadow to the OSD text
8.	Parameters available	It allows you to choose to display only those parameters that interest you
9.	Up / Down	Change the display order of selected parameters on the list
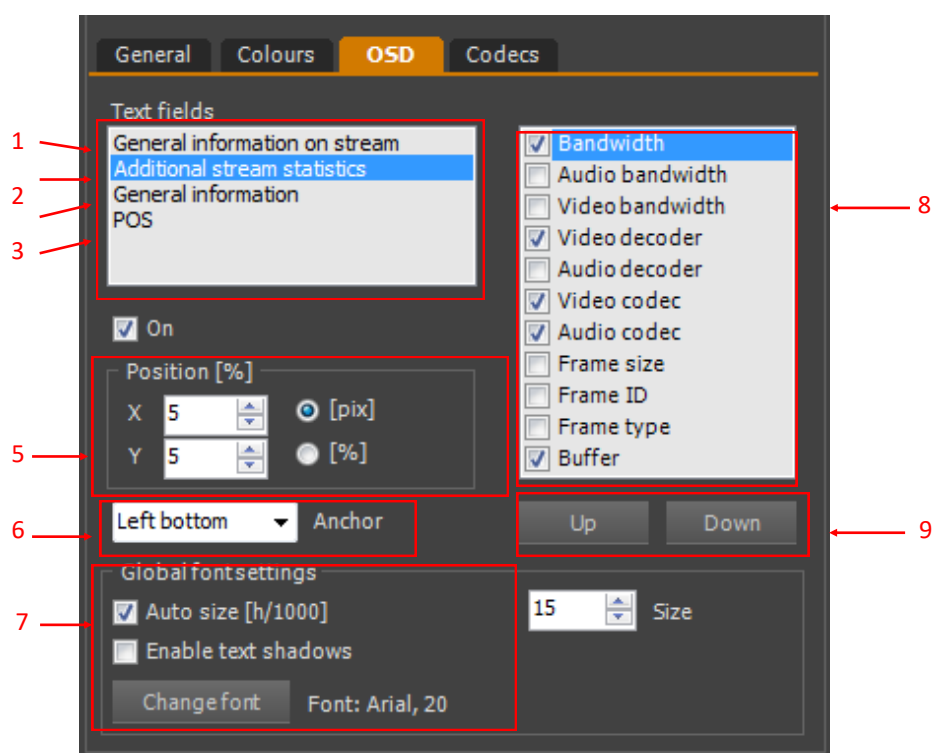
SERVER PANEL

11. SERVER PANEL

11.1. Servers - information

The SERVERS panel allows you to configure and manage the operation of video and data stream servers for other client applications. It can be both an NMS VSS application, a multimedia player or a website. To open it, select the CONFIGURATION / SERVERS option from the main menu.

The SERVERS panel allows you to configure:

- NMS VSS server - whose task is to send information necessary for the correct operation of the NMS VSS client application via networks;

- Web server - responsible for the functioning of the web applet that allows you to view image and video from cameras, as well as for sending static preview images from cameras to the NMS VSS client application;

- RTSP server - responsible for sending live video streams. It is used both by the NMS VSS Server, WWW and other applications;

- Remote playback server - responsible for playing back recorded recordings (Playback).
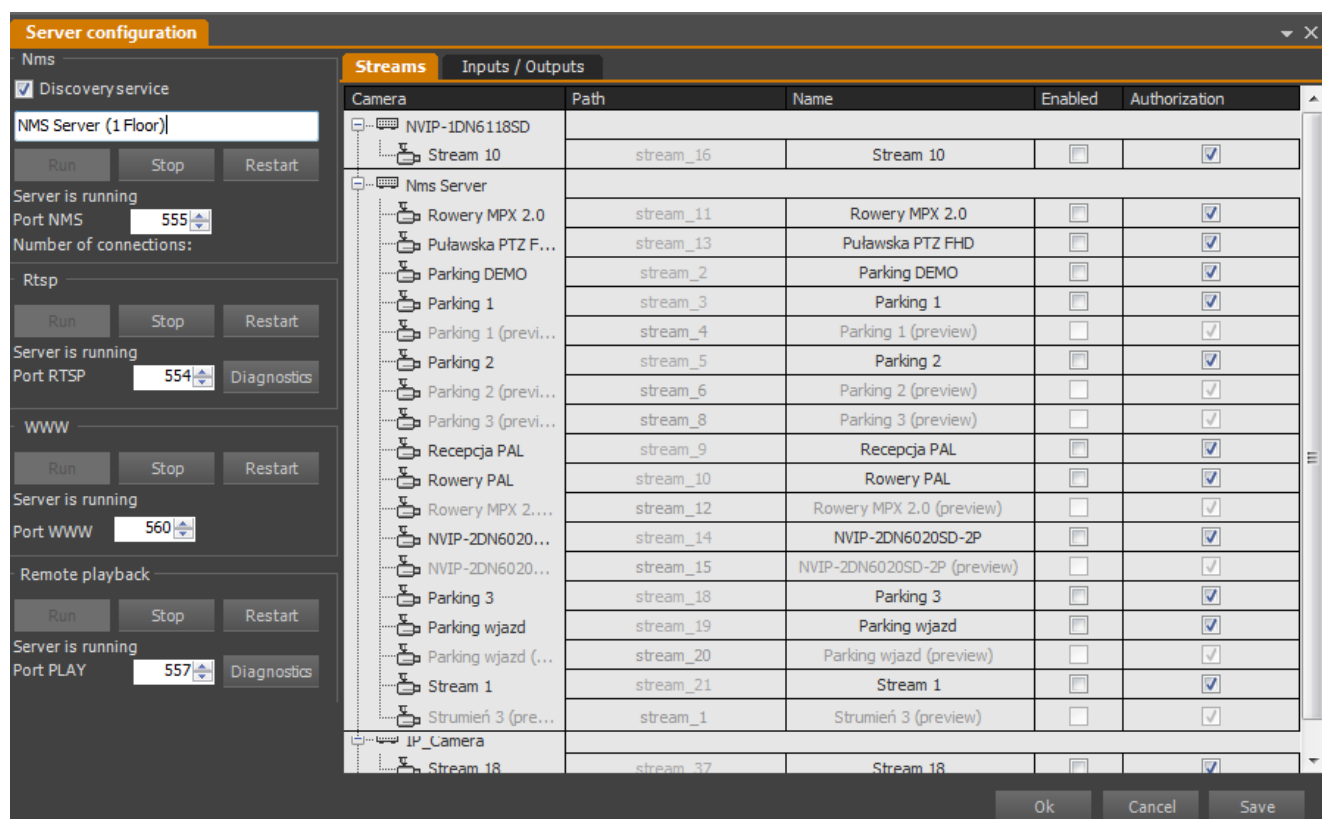
SERVER PANEL

The operation of the servers is independent of each other. However, stopping either operation reduces functionality to the extent described above.

Attention! When starting the NMS VSS Server application, the servers automatically restore their status from before the shutdown (Servers previously started start up, servers previously turned off remain turned off).

The panel also lists the streams and I / O statuses that can be transmitted

The Path field specifies the network name under which the stream is available.

The Enabled field defines whether a given stream is to be sent and available in the NMS VSS Client application.

The Authentication field determines whether login and password will be required for RTSP connection.

Camera	Path	Name	Enabled	Authorization
NVIP-1DN6118SD				
Stream 10	stream_16	Stream 10	✓	✓
Nms Server				
Rowery MPX 2.0	stream_11	Rowery MPX 2.0	☐	✓
Puławska PTZ F...	stream_13	Puławska PTZ FHD	✓	✓
Parking DEMO	stream_2	Parking DEMO	✓	✓
Parking 1	stream_3	Parking 1	✓	✓
Parking 1 (previ...	stream_4	Parking 1 (preview)	☐	✓
Parking 2	stream_5	Parking 2	☐	✓
Parking 2 (previ...	stream_6	Parking 2 (preview)	☐	✓
Parking 3 (previ...	stream_8	Parking 3 (preview)	☐	✓
Recepcja PAL	stream_9	Recepcja PAL	☐	✓

11.2. NMS VSS Server configuration

The task of the NMS VSS server is to send information necessary for the correct operation of the NMS VSS client application over the networks. The configuration window is on the top left side of the SERVER panel.

Server name

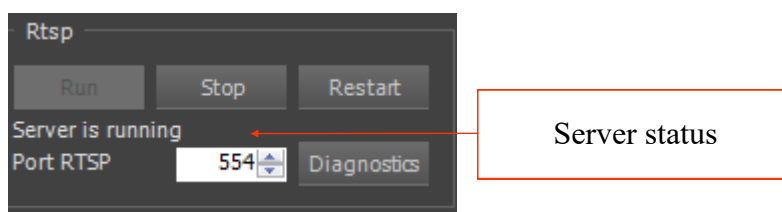Server status
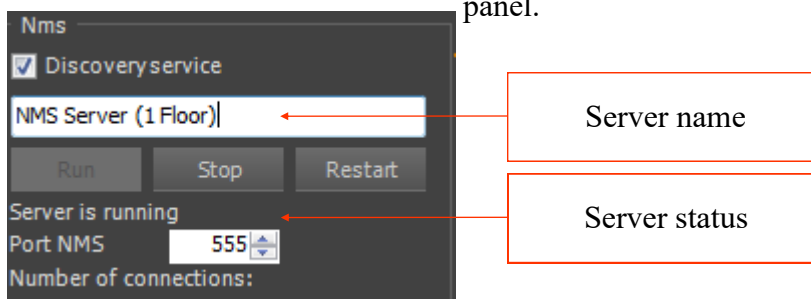
SERVER PANEL

In the window from the top there are:

- Search service check box - by selecting it, the server will be visible by the NMS VSS Client application in the device search field;

- Text field for entering the name of the server, facilitating identification on the list of devices;

- Start, Stop, Restart buttons managing the server operation;

- Server status information;

- Port on which communication is to take place (default 555);

- Number of connected clients.

After setting all the necessary parameters, save the changes with the Save or OK button. In case of changes to the server configuration, it is recommended to press the Restart button after saving the changes, which will reload the NMS VSS Server service.

11.3. RTSP Server configuration

The role of the RTSP Server is to send live video streams to client applications over the network. It is used both by the NMS VSS Server, WWW and other applications. The configuration window is below the NMS VSS Server window.
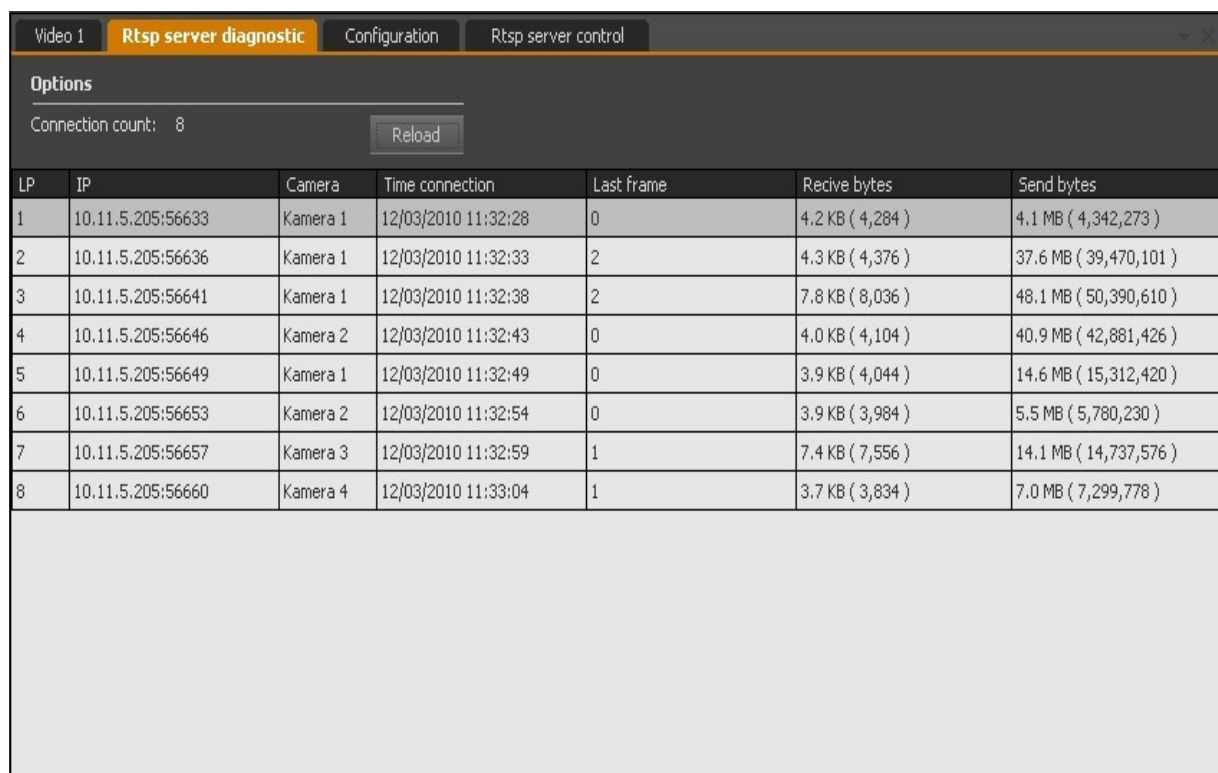

In the window from the top there are:

- Start, Stop, Restart buttons managing the server operation;

- Server status information;

- Port on which communication is to take place (**default 554**);

- Diagnostics button that opens the RTSP server diagnostics window.

After setting all the necessary parameters, save the changes with the Save or OK button. In case of changes to the server configuration, it is recommended to press the Restart button after saving the changes, which will reload the RTSP Server service.

SERVER PANEL

The Diagnostics window allows you to view active connections with video streams. The window is launched after pressing the Diagnostics button on the RTSP Server panel.

The Refresh button reloads the list of current connections. Right-clicking on a given connection opens an additional menu that allows you to:

- Adding the selected IP address to the list of forbidden addresses

- Adding the selected IP address to the list of allowed addresses

- Disconnect - disconnects the selected network connection

11.4. WWW Server configuration

The web server is responsible for the functioning of the web applet that allows you to preview the image and video from cameras, as well as for sending static preview images from cameras to the NMS VSS client application. The configuration window is located below the RTSP Server window.
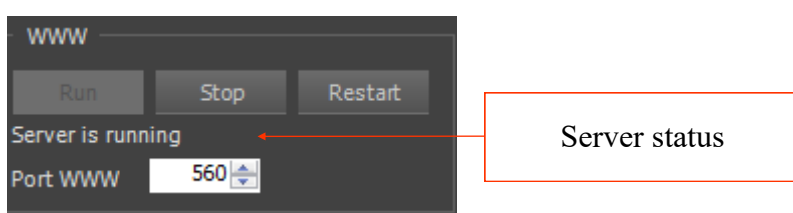
SERVER PANEL

In the window from the top there are:

- Start, Stop, Restart buttons managing the server operation;

- Server status information;

- Port on which communication is to take place (by default 560);

After setting all the necessary parameters, save the changes with the Save or OK button. In case of changes to the server configuration, it is recommended to press the Restart button after saving the changes, which will reload the WWW server service.

11.5. Remote playback server configuration

The remote playback server is responsible for playing back recorded recordings (Playback) in the NMS VSS client application. The configuration window is located below the Web Server window.
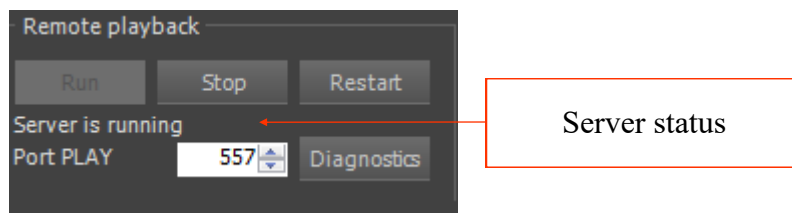

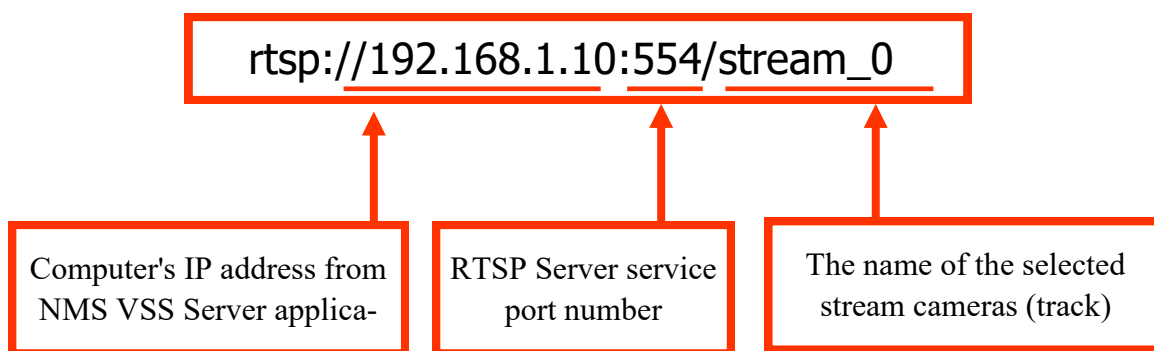In the window from the top there are:

- Start, Stop, Restart buttons managing the server operation;

- Server status information;

- Port on which communication is to take place (by default 557);

After setting all the necessary parameters, save the changes with the Save or OK button. In case of changes to the server configuration, it is recommended to press the Restart button after saving the changes, which will reload the Remote recovery server service.
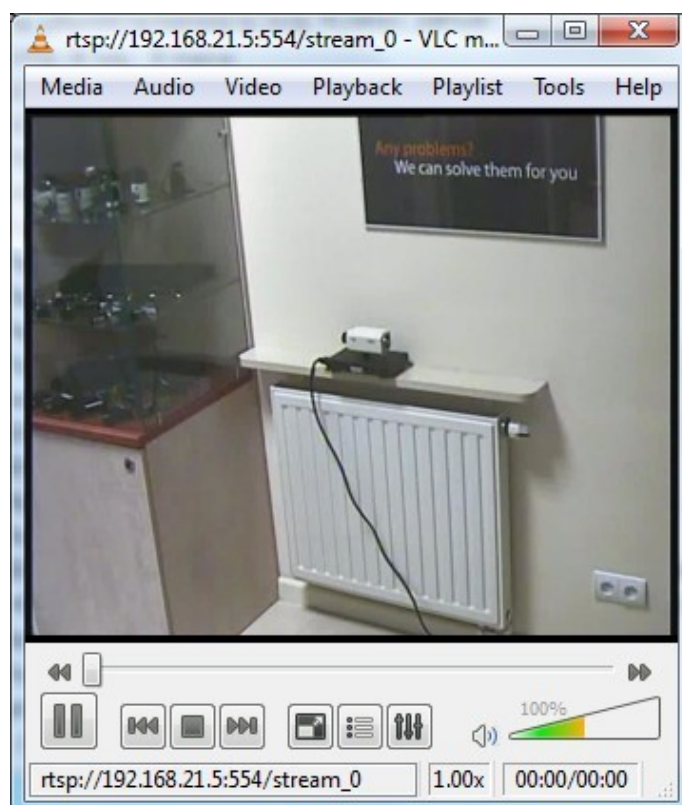
SERVER PANEL

11.6. Other features of RTSP Server

The RTSP server transmits video streams (including audio) over the network in a form compatible with some network media players. Thanks to this, it is possible to play the selected video stream using a video player (eg VideoLAN VLC Media Player). To gain access, select the RTSP transmission mode in the media player and then enter the correct network path as described below:

| Computer's IP address from NMS VSS Server applica- | RTSP Server service port number | The name of the selected stream cameras (track) |

After correctly entering the network path and loading the player buffer, the image from the camera will be displayed on the screen.
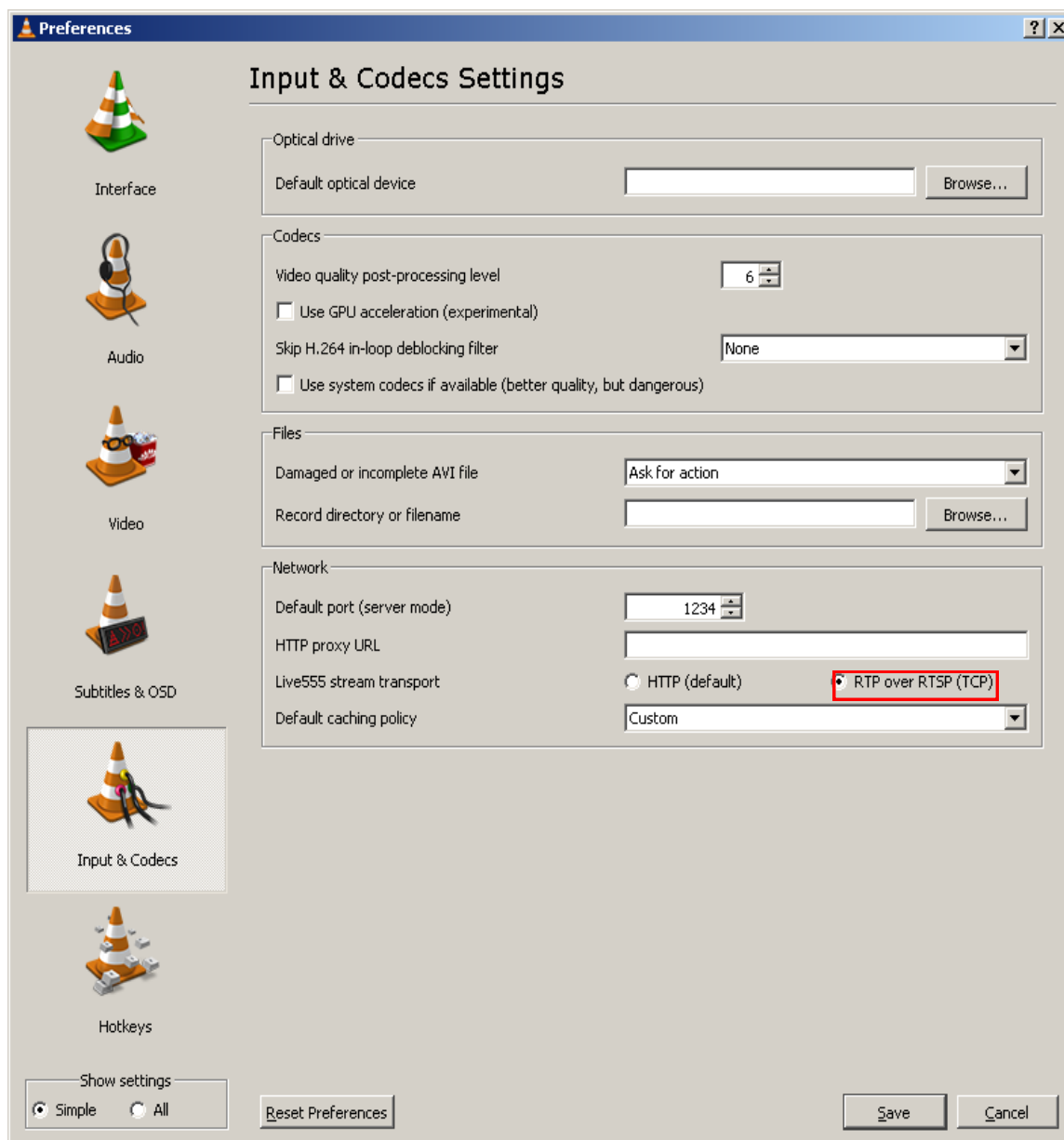

Information!

In case of low network connection speed, loading the buffer may take up to several minutes.
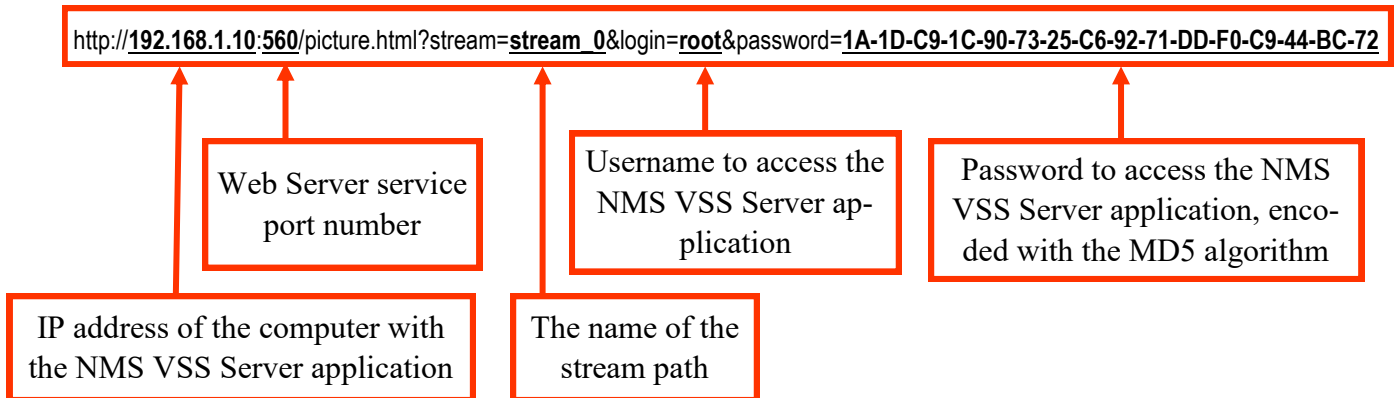
SERVER PANEL

To configure VLC for proper cooperation, select the selected option in its settings:
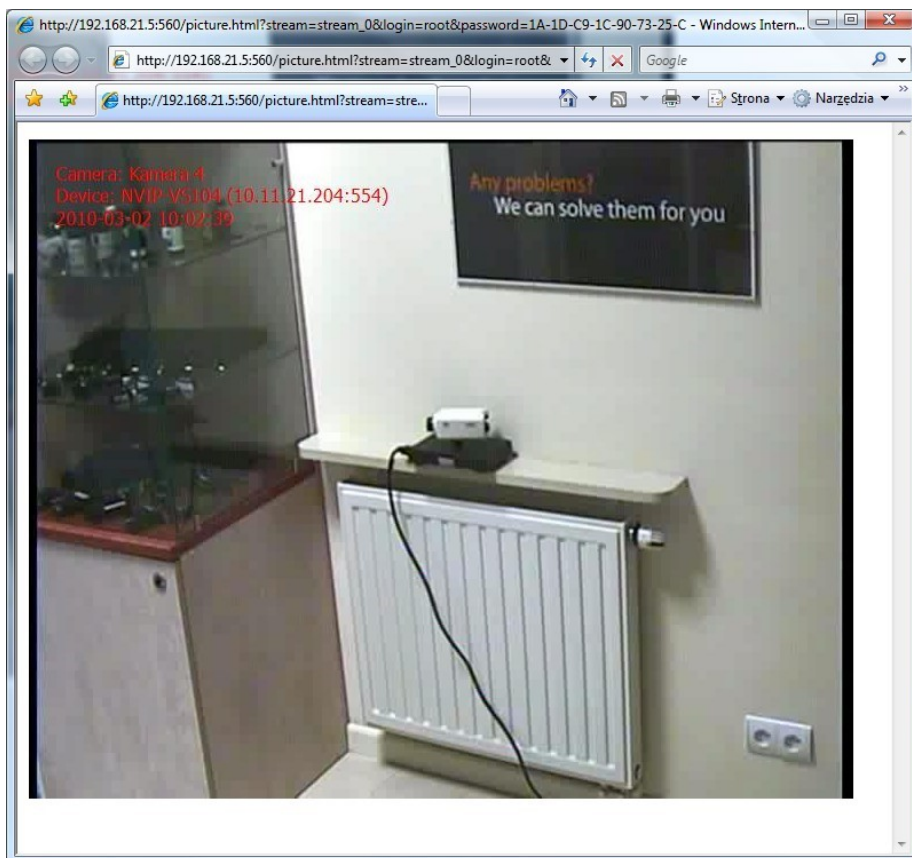
SERVER PANEL

11.7. Other features of WWW Server

The web server transmits images from cameras over the network in the form of JPEG files, refreshed every one second. This allows you to display the selected image from the camera in any web browser, or even embed the image on your own website. To access the selected image from the camera, enter the appropriate network path in the web browser as described below:

http://**192.168.1.10**:**560**/picture.html?stream=**stream_0**&login=**root**&password=**1A-1D-C9-1C-90-73-25-C6-92-71-DD-F0-C9-44-BC-72**

Web Server service port number

Username to access the NMS VSS Server application

Password to access the NMS VSS Server application, encoded with the MD5 algorithm

IP address of the computer with the NMS VSS Server application

The name of the stream path

The default server login and password is **root** / **pass**

FIREWALL PANEL

12. FIREWALL

Firewall's task is to control connections with the RTSP / NMS VSS server and to limit remote access to RTSP streams transmitted by the NMS VSS application.

12.1. Firewall settings

To go to the Firewall configuration window, select CONFIGURATION / FIREWALL from the main menu.

It is possible to define single IP addresses or entire ranges and allow or deny access to such addresses.
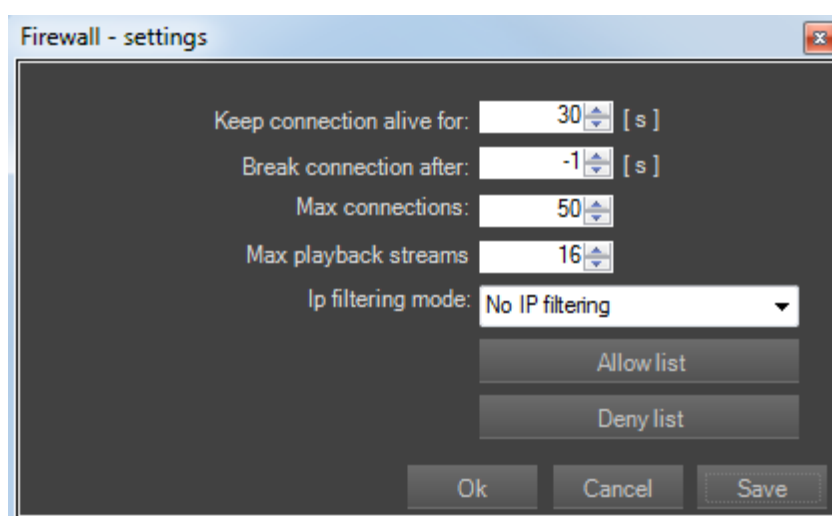

The following server operating parameters are available:

- Maintain connection - the time for which the connection is maintained without data transmission (available range from 1 to 64000 seconds);

- Disconnect after - time after which the video stream transmission will be automatically disconnected (available range from 0 to 64000 seconds, -1 means no automatic disconnection);

- Maximum number of live connections - the maximum number of simultaneous transmissions of video streams in the "live" mode (-1 means no limit to the number of streams);

- Maximum number to recorder - the maximum number of simultaneous transmissions of video streams in playback mode (-1 means no limit to the number of streams);

- Filtering mode - no restrictions or selection of a list of allowed or forbidden IP addresses:

    -List of allowed IP addresses;

    -List of banned IP addresses.

FIREWALL PANEL

After opening one of the lists, the window below will appear.
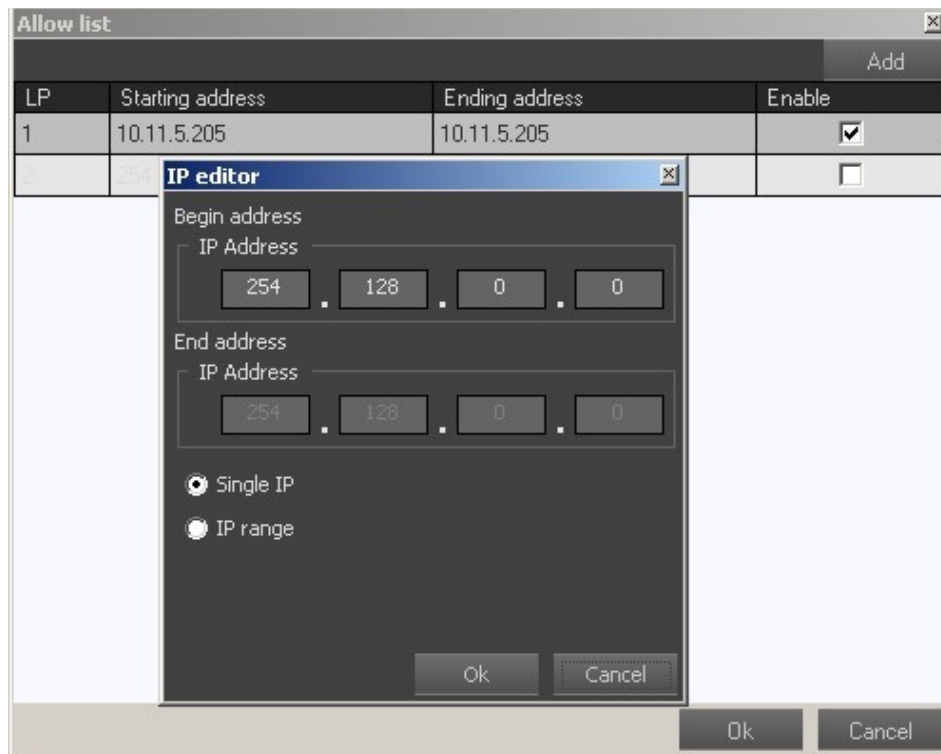
The Add button allows you to enter a range or a single IP address to the current list. To delete the selected IP address, right-click on it and select the Delete option.

It is also possible to add the currently connected IP address to the list directly from the diagnostic window of RTSP Server. For the changes to take effect, save the changes and then restart the RTSP Server and NMS VSS Server.

RECORDER PANEL

## 13. RECORDER

13.1. Recorder panel - information

The RECORDER panel allows you to save the image from cameras with individual settings (location, space for recording) or to assign the same settings for selected group of cameras and for all cameras simultaneously. Thanks to the statistics of the recording time that are updated on an ongoing basis, it is possible to evaluate the scope of recordings and later modify the size of the recording area for a given camera. The longer the time of the currently recorded camera recording, the higher the accuracy of the approximate recording time.

Information!

On the RECORDER panel, you can select channels to allocate disk space using methods analogous to those for folders / files in the Windows environment (the shortcut Ctrl-A is valid - marking all channels, holding down the Ctrl key and left-clicking the mouse select any selected cameras. Similarly, with the Shift key pressed we select the first and last cameras to select the required camera range.

To run this module, select Configuration -> Recorder from the main menu. The appearance of the Recorder panel is presented below:

The description includes a drive letter and information about the free space and total size of the drive in numerical and graphic form.
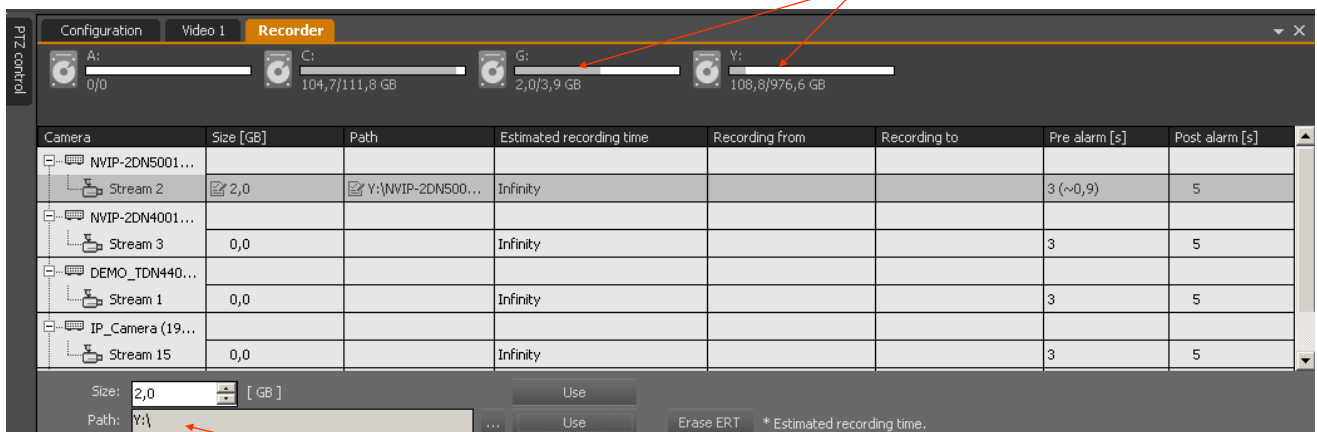
The assist bar allows you to enter a specific size and paths to all selected cameras simultaneously.

All drives that enable camera registration are displayed on the disk strip, along with information about the amount of space available on the disks. The disk usage is updated each time you make another change, even though the changes have not yet been finally saved. Thanks to this, the user obtains information on how much free space will remain on the disks after approving the changes and may make some adjustments to your settings.

RECORDER PANEL

The columns present information about IP devices currently assigned to the system:

- **Camera** -   name of the camera or videoserver along with the description of the video streams
- **The icon** shows the current status of the IP device (connected or disconnected)
- **The size** of the area on the disk for recording a given video stream
- **Path** network address for IP devices disk location for each video stream
- **PCN** - estimated time of camera recordings at the declared disk space
- **Recordings from** the time of the oldest recordings
- **Recordings until** the latest recordings
- **Pre-alarm** pre-alarm recording time. To change it, enter the time in seconds in the appropriate field.
- **Post alarm** post-alarm recording time

To reserve disk space for a specific camera, use the auxiliary bar at the bottom of the panel, which helps to locate the appropriate folder on your computer or create a new one. Thanks to this, you can select several cameras at the same time and then define the size and path on the auxiliary bar. After pressing the Use buttons, the appropriate fields for all selected cameras will be filled in.
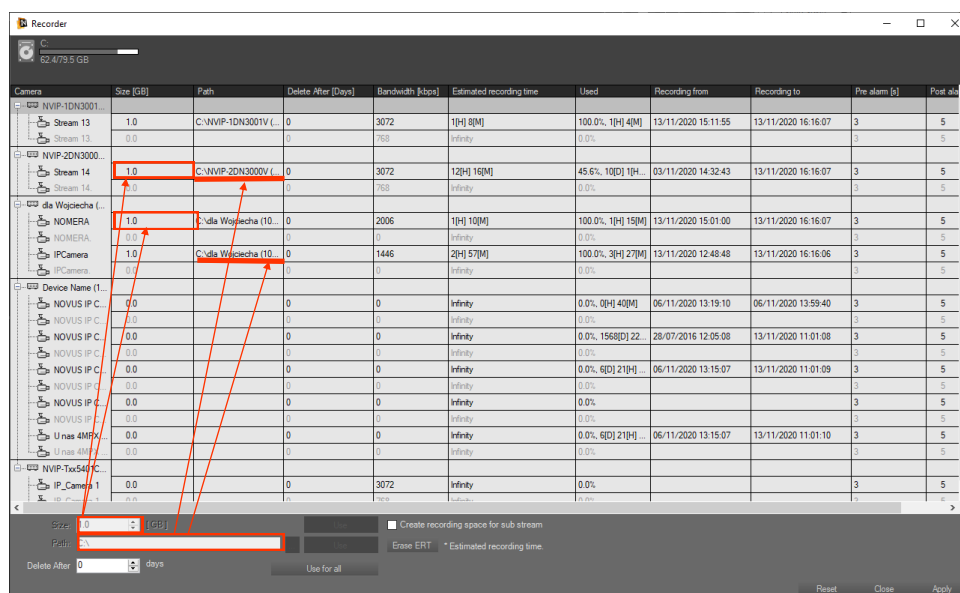
In the given location, NMS VSS will automatically create a separate folder for each camera, the name of which consists of several parts separated by an underscore symbol, e.g. NVIP-HDN5000_192.168.21.221_554_1_0. The first part is the device name, the second is the IP address and port, then the video stream number for a given network device, at the end the index of the next copy (changes when the folder name repeats).

Warning!

The recommended file system for registration is NTFS. Do not create folders for recording on the system drive and the drive where the Windows paging file is located.

RECORDER PANEL

You can also enter the size to be reserved on the disk in the appropriate line. The changes you make will also be reflected in the disk information.

If the available disk capacity is exceeded, it will be highlighted in red. You must then make appropriate corrections to the sizes occupied by recordings. When all settings are correct, click the Apply button. The process of starting recording for individual cameras will be confirmed with progress bars and text information.

You can change the size of the disk for each camera at any time. For this purpose, it is enough to enter the changed value of the size of recordings for the appropriate camera in the Recorder panel and click the Save button. If the given value is decreased, the user will receive a message that some data will be lost.

To stop recording in a given folder and not to delete the recordings from the selected camera, select it and then select the Disconnect recording option from the popup menu.
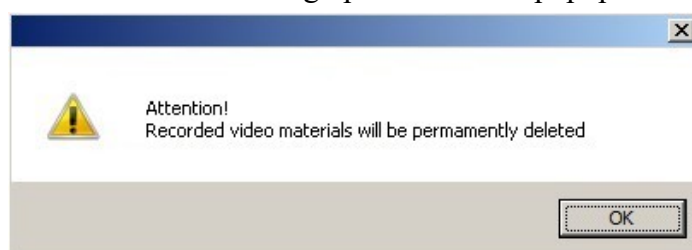
In order to completely delete recordings from a given camera, select the appropriate camera and select the Delete recording option from the pop-up menu or enter "0" in the camera size column and then click the Save button. Changing the path for existing recordings will also delete the recorded material for that camera. In both cases an appropriate message will be displayed.

These operations will irretrievably delete recordings for the given camera and should be used with caution.

Warning! The help bar cannot be used to delete recordings because it does not allow you to enter a zero value.

Warning! Note that if you change the folder destination, the recordings will be lost.

RECORDER PANEL

It is also possible to "connect" recordings for which the path has been changed, eg in the case of changing drive letters. To do this, right-click on the camera icon and then select Connect to existing recording from the menu. Then the folder selection window will be launched, in which you should select the folder with recordings of the appropriate camera. Thanks to the name of the target folder with the device's IP address, the user knows exactly in which folder the camera has been recorded so far. Do not enter the size of the recording because the program will recognize this size after confirming the changes. If an error occurs while connecting existing materials, it means that the video recordings were not properly terminated by the NMS VSS program.
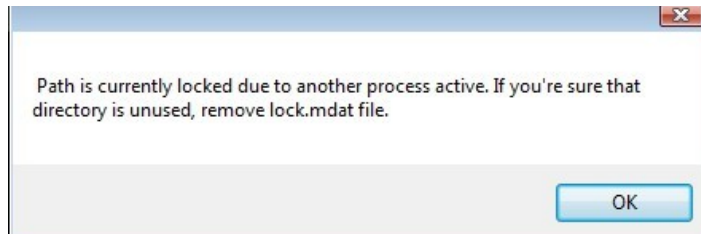
In this case, remove the lock.mdat file from each folder for which this message appears.

Warning! The auxiliary bar cannot be used to connect existing recordings because it creates a new folder with recordings and ignores existing folders.

To change the location of recordings on the disks without losing the recordings, proceed as follows:

- Close the NMS VSS application

- In Windows, move or copy the folders with the recordings to a new location

- Start the NMS VSS program

- Go to the recorder panel and follow the instructions for connecting recordings described above

The status of currently recorded cameras can be seen on the device panel.
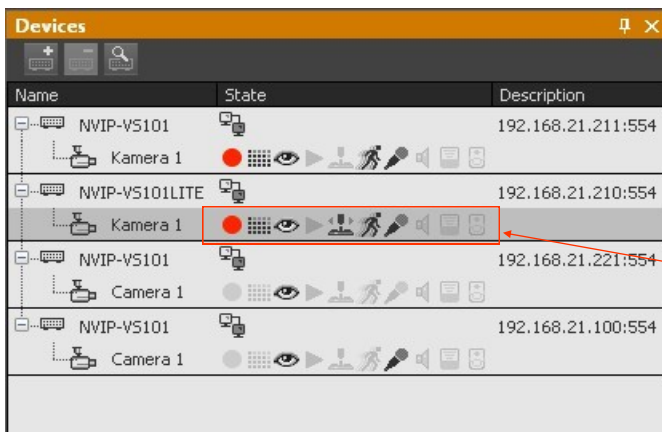
You can see the information that the video from a selected camera is recorded.

In order to stop the recording of a given camera without deleting its recordings, set no recording in its schedule or in the Advanced tab CONFIGURATION / DEVICES change the recording mode from Schedule to Off.

RECORDER PANEL

Information about recordings can be called up in VIEW / Information about recordings, this menu shows the time to overwrite, the time of recordings made so far, and the date from which recordings are available.

Record time

Date from when recordings are present

EVENT PANEL

14. EVENT SETTINGS PANEL

14.1. Defining event scenarios

The EVENT CONFIGURATION module is used by the user to create scenarios for handling events that may occur in the system supervised by the NMS VSS software. If one of the input actions indicated in the scenario occurs, user-defined output reactions will be initiated. For example, as a result of activating the alarm input, the alarm outputs will be temporarily turned on and any video sequence from the camera will be exported to the selected FTP server. A detailed description of all possible functions is provided later in this chapter.

To run this module, select the menu from CONFIGURATION / EVENT CONFIGURATION.

In order to define an event scenario, first add it to the List of scenarios using the button [+] .
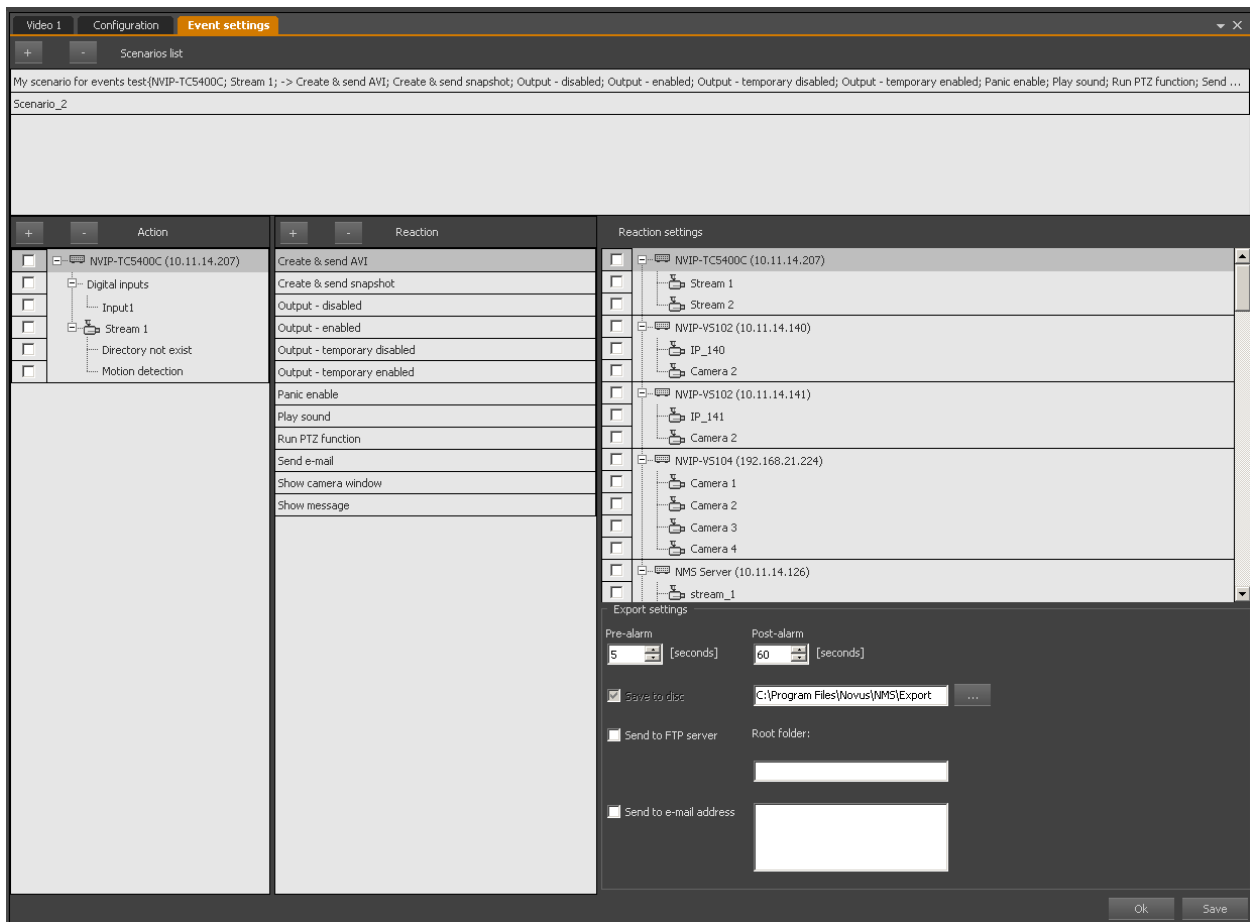
The user can change the name of a scenario by right-clicking on the list of scenarios and selecting the appropriate option from the context menu. The name change is confirmed by pressing the ENTER key on the computer keyboard.

The user can deactivate / activate the selected scenario by right-clicking on the list of scenarios and selecting the appropriate option from the context menu.

EVENT PANEL

In the next step, define the list of input actions. The NMS VSS software enables the execution of the scenario as a result of the following events:

- alarm input activation;
- motion detection (motion detection must be turned on in the camera settings);
- loss of the disk on which the indicated stream from the IP device is recorded;
- alarm control panel alarm (see section: Connecting and operating the alarm control panels);
- occurrence of a specific string of characters in the POS transaction from the cash register (after selecting the appropriate POS, enter the character strings separated by a semicolon in the window).

Adding / removing IP devices to the list →
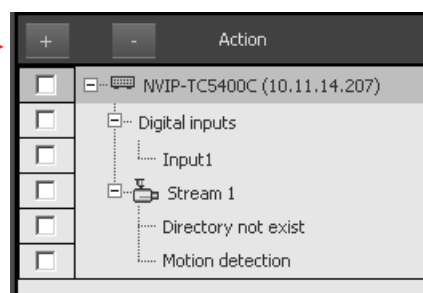
Warning! The user can add multiple devices to the list of input actions and select on them any number of input events in a combination of his choice.

You can also add a device to a scenario by dragging it from the device tree and dropping it on the list of input actions. The dragging method allows you to add entire devices (all alarm inputs and all streams), as well as add only the indicated device element, e.g. the only stream from a four-channel video server. To do this, drag the selected element while holding down *Shift + Alt*.

If even one of the input actions indicated in the scenario occurs, user-defined *output reactions* will be performed. The NMS VSS software enables the following actions to be performed under the scenario:

- Record the selected channel
- Playing a defined sound;
- Display a screenshot of the selected camera;
- Send the screenshot to e-mail or FTP;
- Display a window with a camera view;
- Calling preset, pattern, scan route
- Create an AVI file;
- Forward the AVI file to e-mail or FTP
- Sending an e-mail / SMS;
- Temporary or permanent switching on / off of the relay output;
- Display a user-defined message;
- Enabling panic recording (the camera must have a declared space for recordings);
- Close NMS VSS application (immediate, delayed).
- NMS VSS application restart with immediate or delayed option.

EVENT PANEL
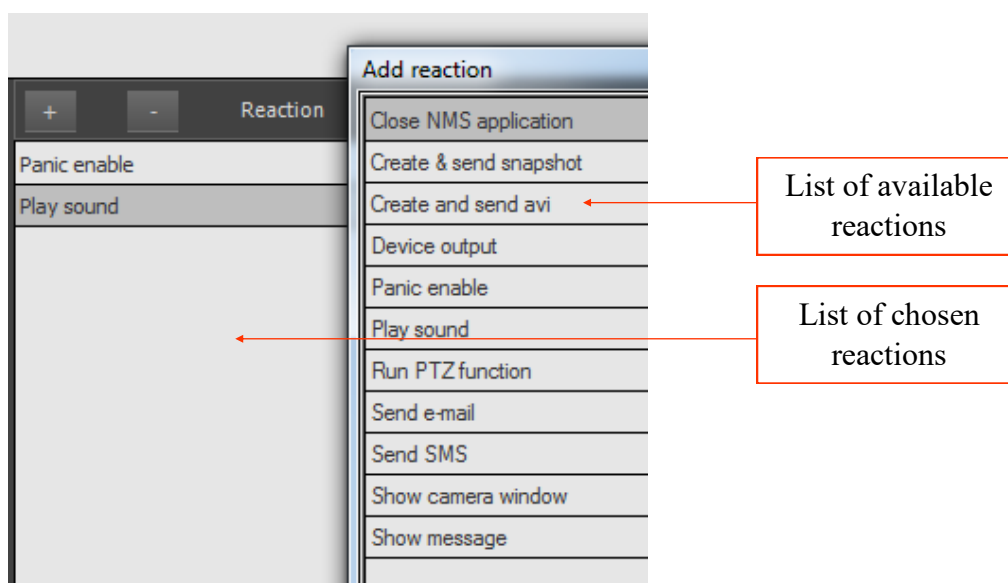
In order to perform the scenario correctly:

- remember to turn on and configure the motion detection function in the IP camera menu;

- make sure that the alarm input is properly connected and operated;

- remember that PANIC recording will only be triggered for cameras that had a pre-configured recording space;

- configure the FTP server in the application settings CONFIGURATION / APPLICATION SETTINGS / APPLICATION / FTP Settings;

- configure the outgoing SMTP mail server in the application settings CONFIGURATION / APPLICATION SETTINGS / APPLICATION / SMTP settings;

- define e-mail addresses in the NMS VSS user account settings CONFIGURATION / APPLICATION SETTINGS / Users;

- remember that you can select a maximum of one camera for each Create and send AVI type reaction added in one scenario;

- remember that for each reaction of the Show window type from a camera added within one scenario, you can select up to four cameras that will be displayed in the VIDEO 2 window;

- program presets, observation paths and automatic scan paths in the dome camera.

If the user has not decided to change the installation directory, NMS VSS saves the created files by default in the following locations:

- Program Files\Novus\NMS VSS\Images - in the case of screenshots,

- Program Files\Novus\NMS VSS\Export - for AVI files,

The maximum size of attachments sent by NMS VSS is 10 MB. If the maximum size of the attachment is exceeded, only information about the location of files on the local disk of the server that generated the message will be sent.

EVENT PANEL

14.2 Events schedule

The schedule function is available in the EVENT CONFIGURATION tab. Thanks to this feature, it is possible to run pre-configured scenarios only during specific periods of time. This option allows, for example, to ignore motion detection during normal operation of the facility and alarm only when motion is detected outside normal working hours. The event schedule function is independent of the recording schedule. Each scenario can run on its own independent schedule. To associate a given scenario with a schedule, click the Schedules configuration button. In the window that will appear, select appropriate periods of activity (marked in green) in a similar way as described for recording schedules.
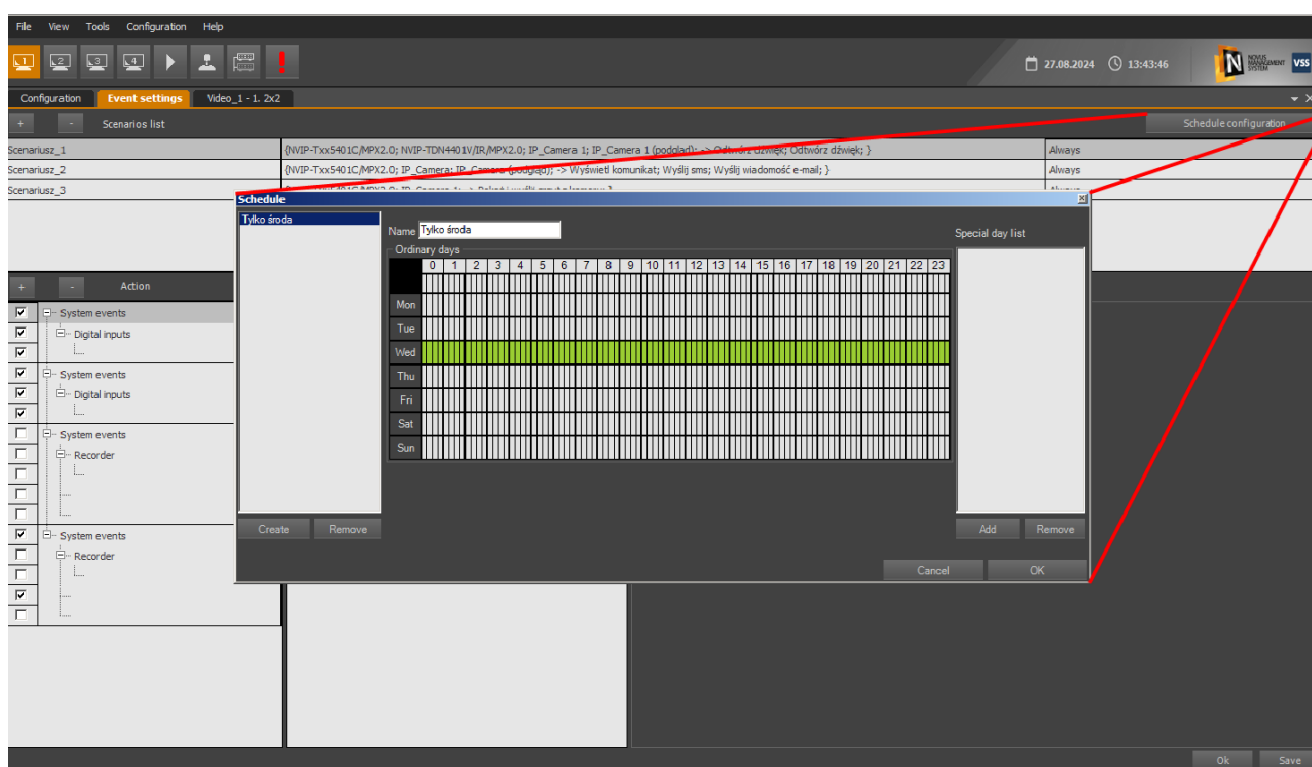
BACKUP PANEL

15. BACKUP

The program allows you to create a backup of the program's configuration and logs. The backup manager is located in the TOOLS / CONFIGURATION BACKUP menu.

15.1. Exporting configuration backup

The Source field contains the path leading to the directory containing the program configuration files. The Target field allows you to select the target directory (by clicking Open) to which the configuration will be copied (program or program and logs, according to the User's choice made in the Export options window). The check boxes below allow you to select the desired parameters used during the configuration copying process (including settings for message filters, device settings, login options, etc.). It is recommended to select the "Select all" option. Pressing the Export button will copy the settings to the configuration file.
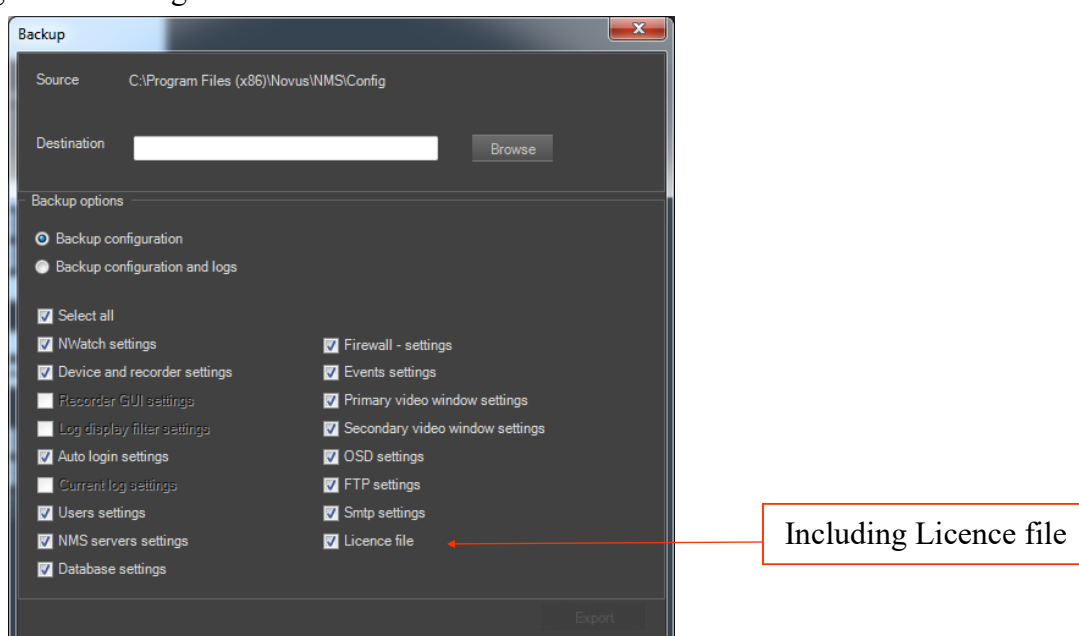
15.2. Restoring configuration backup

Warning!

Configuration import is possible only within the same version of the program and from the older version of NMS VSS to the newer version!

Restoring the previously saved configuration copy is possible only after closing the currently running NMS VSS program. Then open the main program folder and run the RestoreConfigurationBackup.exe file. A window similar to the one above will open, the difference being the active Source field and an inactive Target field suggesting the reversed procedure compared to the one presented above. The Recordings search options window will contain all drive letters available in the system, minus the system drive, the search of which requires selecting the appropriate box. The Restore options window allows you to choose whether to restore only program settings or settings and logs. Pressing Import will import the configuration to the Source directory. Restoring will overwrite the current configuration.

Warning!

When importing a configuration, the license file is not selected by default. This is to avoid that the imported file is not suitable.
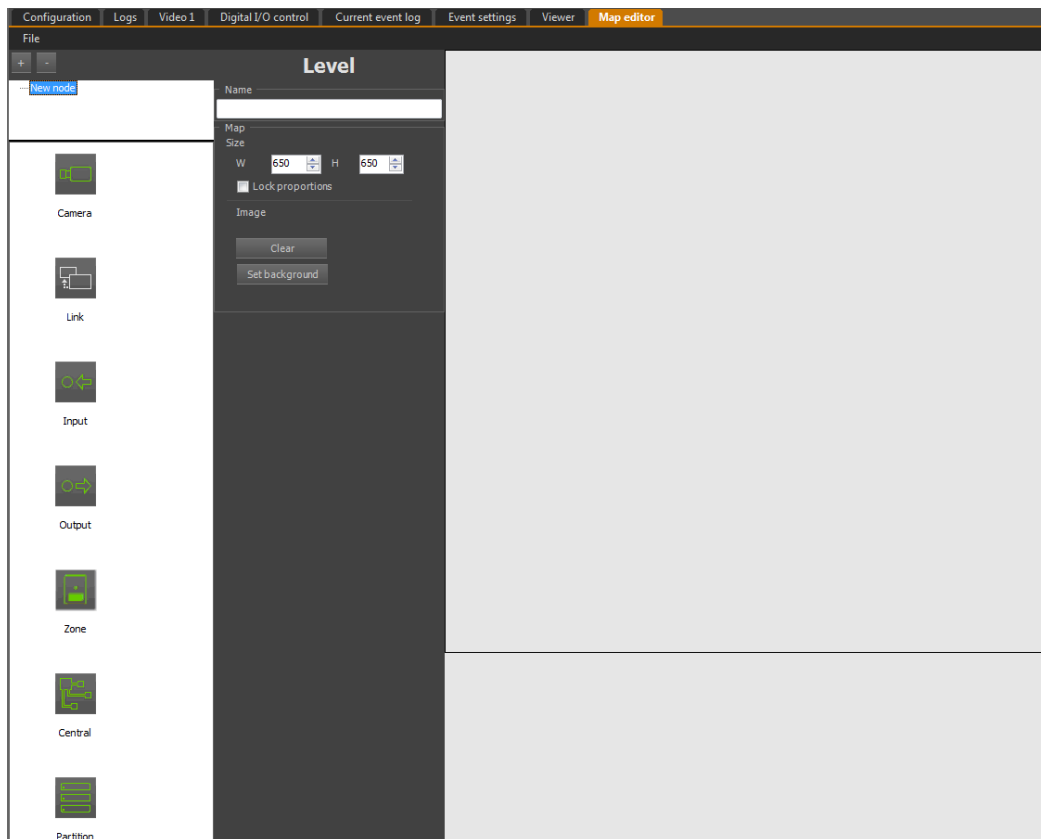
MAPS

16. MAPS

16.1. Map Editor panel - map creation

The MAP EDITOR module is used by the user to create maps of the site using his own graphic files and ready-made elements - icons.

To run this module, select TOOLS / MAP EDITOR from the menu. After selecting this option, the NMS VSS software will launch the MAP EDITOR panel.

To start creating a new map, create a new project. To do this, select the New command from the File menu, and then enter the title for the selected map in the Name field. Using the Set background button, you can insert a building background, city plan or any other image as a background for the edited map. The map size determines the size of the canvas. If the uploaded file is of a different size than the pre-declared system, the system will █ suggest resizing the map to be identical to the graphics size. In order to add more maps, use the button and proceed in the same way as for the first map. You can add maps to both the main map and the sub maps. In █ order to add ▄ a child map, select the map on the tree to which the child map is to be added and use the button. █ This way, a multi-level map tree is created in the system. To delete a map, select its name in the tree and click the button.

At this stage, it is worth saving the current map under an appropriate name. This can be done after selecting File / Save As from the editor menu. It is also possible to open a previously saved map for editing. To do this, select the Open command from the File editor menu.

MAPS

16.2. Map Editor panel - defining system elements

After inserting the map background, you should put the icons of the desired system elements. To do this, place any number of elements from the selection menu of system elements using the "drag and drop" method. It is possible to move the icons, change their size or background. To delete an icon, right-click the selected icon and select Delete from the context menu.

We can choose from the following system elements:

Camera   Shortcut   Entry   Exit   Panel   Line   Subsystem

If you have added more sub-maps to the map, shortcuts to these sub-maps will appear in the upper left corner of the main window, which should be placed in the right place on the main map.
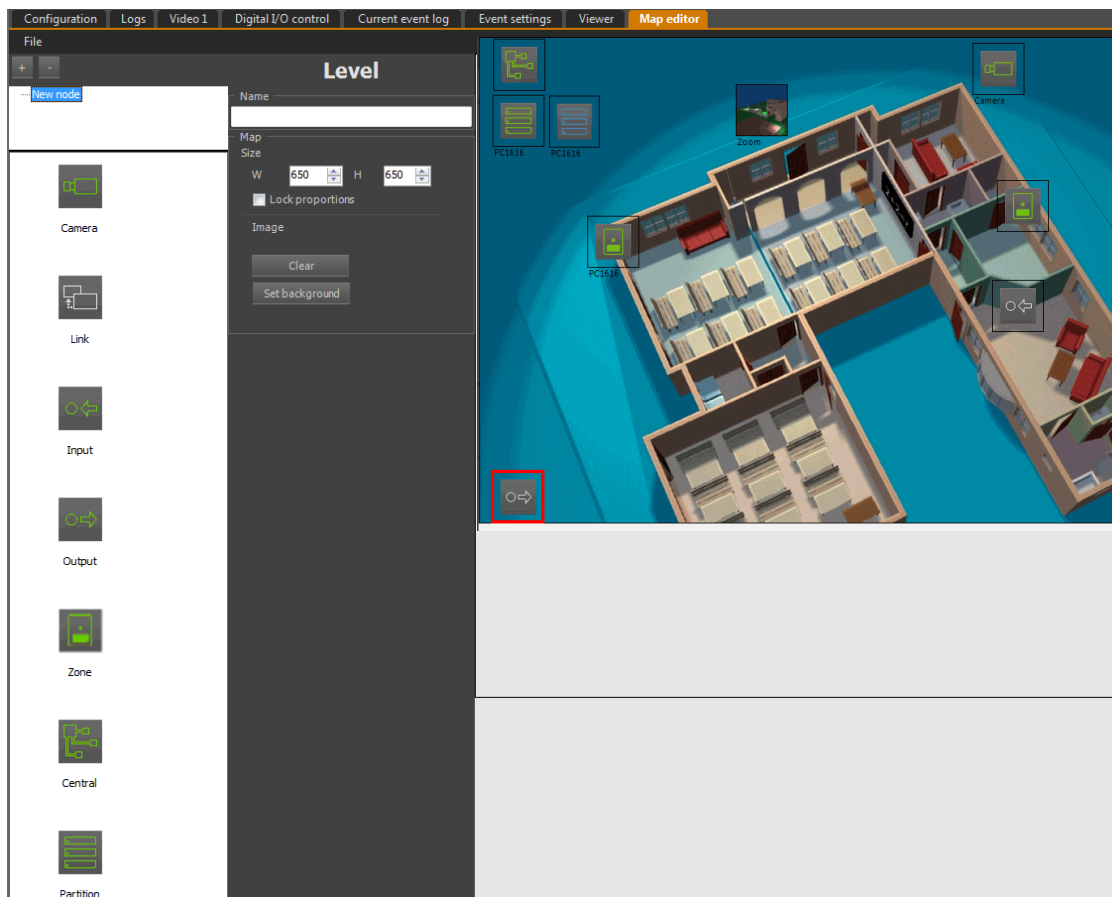
After placing the element icons on the map, define their parameters. To do this, click each icon in the design area one by one and edit the following parameters:

Name - name of a given element displayed in the map preview module;

Location coordinates of the icon location on the map;

Size - the size of the icon expressed in pixels, can be freely changed;

The angle allows the icon to be rotated by any number of degrees;

MAPS

Graphics - the option to change the icon background (only for Camera or Shortcut icon) and add displaying the description and icon frame;

Font allows you to define the type, size and color of the font used in the description of the icon;

Address, enter the IP address of the device - this option is necessary for the correct operation of the icon;

Channel for multi-channel devices, select the appropriate video channel;

Shortcut - an option that displays the currently selected map for a given shortcut (only for the Shortcut icon).

In order to enter the network parameters, just drag the appropriate camera or video server from the device list to the appropriate icon on the map, and the device's IP address and channel number will be automatically assigned. To define a shortcut to another map, place the Shortcut icon on the map project, eg "CCTV" and then select the map from the map tree, eg "ZOOM" to which the shortcut should refer and drag it to the Shortcut icon.
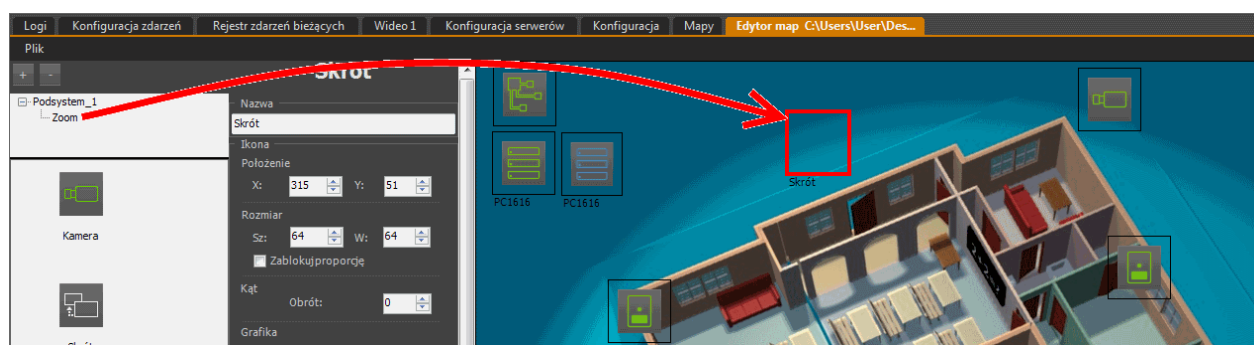
When this is done correctly, the background of the map currently defined as the shortcut will be displayed in the frame of the Shortcut icon. You can keep the icon layout (a), enlarge it (b) to get a clearer image or give up the background (c) (disable the Use background as icons option) and select an area after clicking which shortcut will redirect the user to the appropriate map.
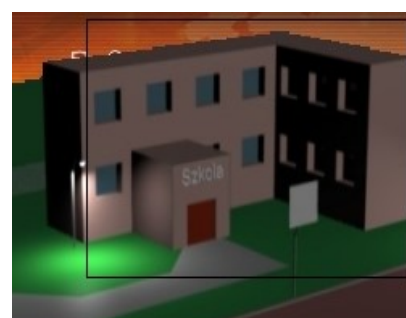
a)   b)   c)

MAPS

16.3. Map Viewer panel

With the help of the MAP module you can track the status of alarm inputs in live mode, control the outputs and gain access to cameras whose location on the map reflects the actual installation in the facility. Live view with the use of maps is an alternative to the method of "dragging" names from the device list.

To start this module, select VIEW / MAPS. After selecting this option, the NMS VSS software will launch the MAPS panel and load the last opened map.
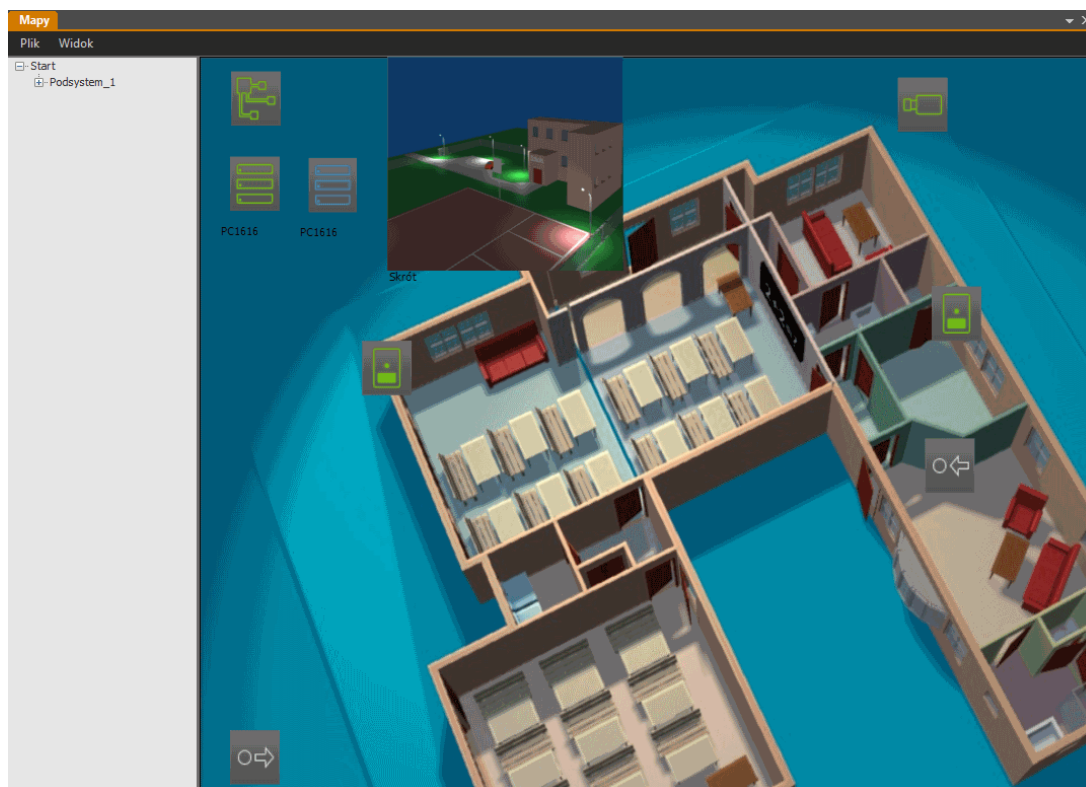
To change the currently displayed map, select File / Open in the preview window menu and load any map. In the View menu of the preview window, you can hide the map tree display with the Display tree option and lock the map's size proportions using the Lock aspect ratio.

The operator working with the map is able to quickly assess the condition of individual elements system such as video inputs, alarm inputs and outputs. One of the methods of visualizing the state of system components are the symbols that appear next to the icons. They are defined the same way like icons in the device tree. The status of alarm inputs and outputs of IP devices is represented by the grayed out icons for inactive elements.

Alarm output: disabled / enabled

MAPS

As mentioned before, the main advantage of the locatíon maps function is to make it easier for the operator to orientate the cameras on the site and thus work more efficiently while observing the images. The operator does not have to remember where the individual elements of the system are physically located, because he can see them directly on the map. The map functions can be most effectively used by using a graphics card with two monitor outputs. Thanks to this, the user gains space for a convenient arrangement of the panels. The map panel can be on one monitor and the video preview window from cameras on the other. As a result, the map does not obscure the view from the cameras, and at the same time can be large and legible.

To navigate the maps, double-click on the shortcut to the selected map or camera. The camera image will be displayed in the sub video window. Input icons inform the operator about the current state of alarm inputs of the corresponding IP device, and by double-clicking on the output icon, the user can change the state of the assigned alarm output. The shortcut to the next map can be implemented as a separate icon (eg Novus Maps), or as a selection of a certain part of the screen, which is visible as an orange frame only after placing the mouse pointer in the shortcut area.

CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

17. CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

17.1. General characteristics

The NMS VSS software control keyboard enables:

- control of rotary cameras;
- control over selected program functions;
- navigation in record playback mode.

17.2. Front panel description

Jog/Shuttle	Function and numeric buttons	Joystick
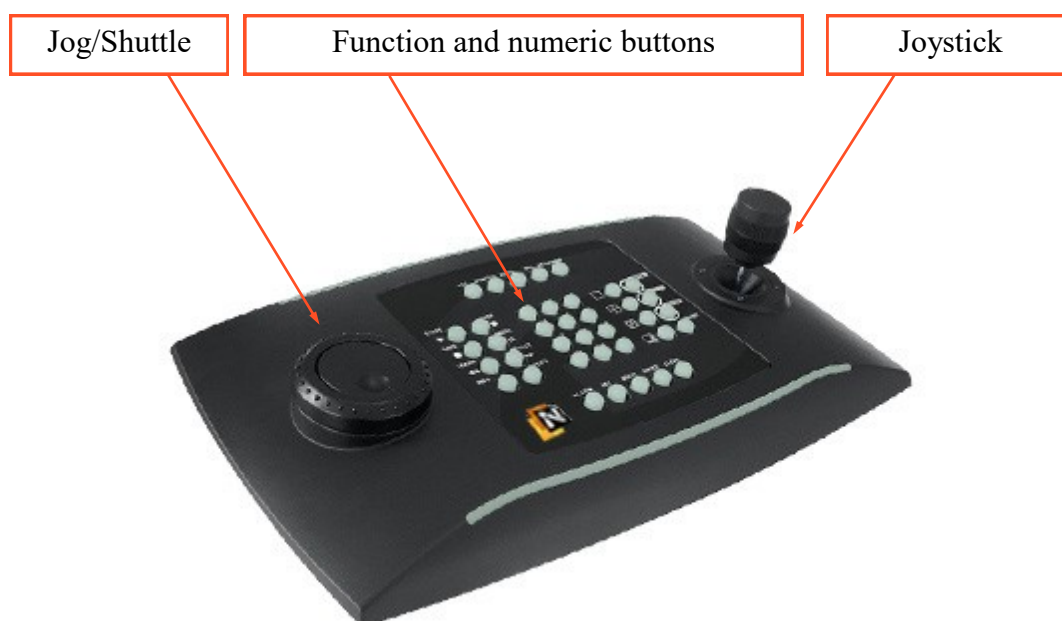
Warning! The keyboard must be connected to the computer before starting the program.

Warning! The first time you connect the keyboard, you must perform the calibration process.

Warning! The assignment of the function and numeric buttons cannot be changed.

CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

17.3. Joystick calibration

Before using the keyboard, use the calibration software available on the system Windows. The NMS VSS program must be informed about the values it is to recognize as extreme, as well as the value for which the neutral position is.
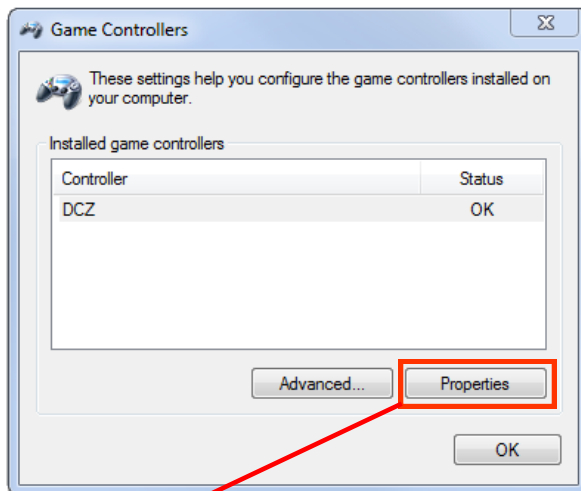
Windows game controllers.

Start -> Control Panel ->

Devices and Printers -> DCZ
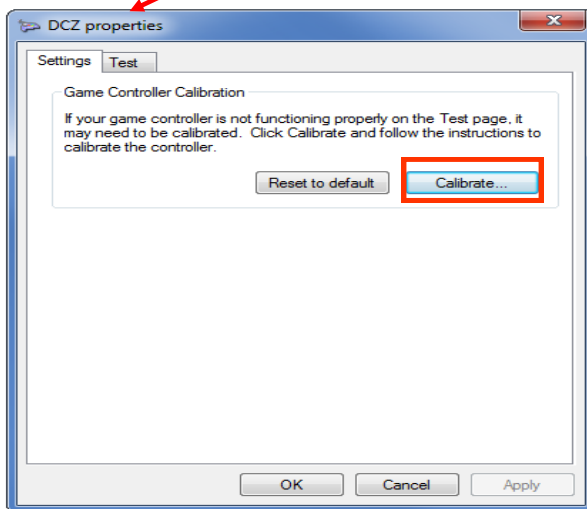
Run the Windows Device Calibration Wizard
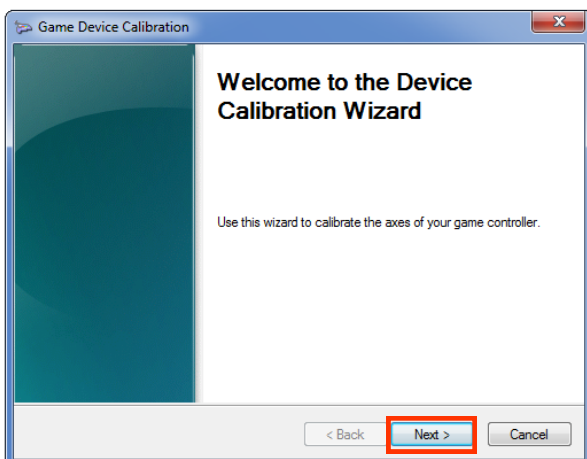
Perform the calibration process

following the instructions on the monitor screen

CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

17.4. Software controlling via keyboard

In order to control the NMS VSS software, connect the keyboard to the USB port of the computer and start the NMS VSS program. Pressing any button on the keyboard will result launching a dedicated Video Controller window.

The defined key configuration enables:

- control of rotary cameras;
- control over selected program functions;
- navigation in record playback mode.

The arrangement of the function buttons on the keyboard is shown below.The functions available in the recording playback mode are marked in orange.
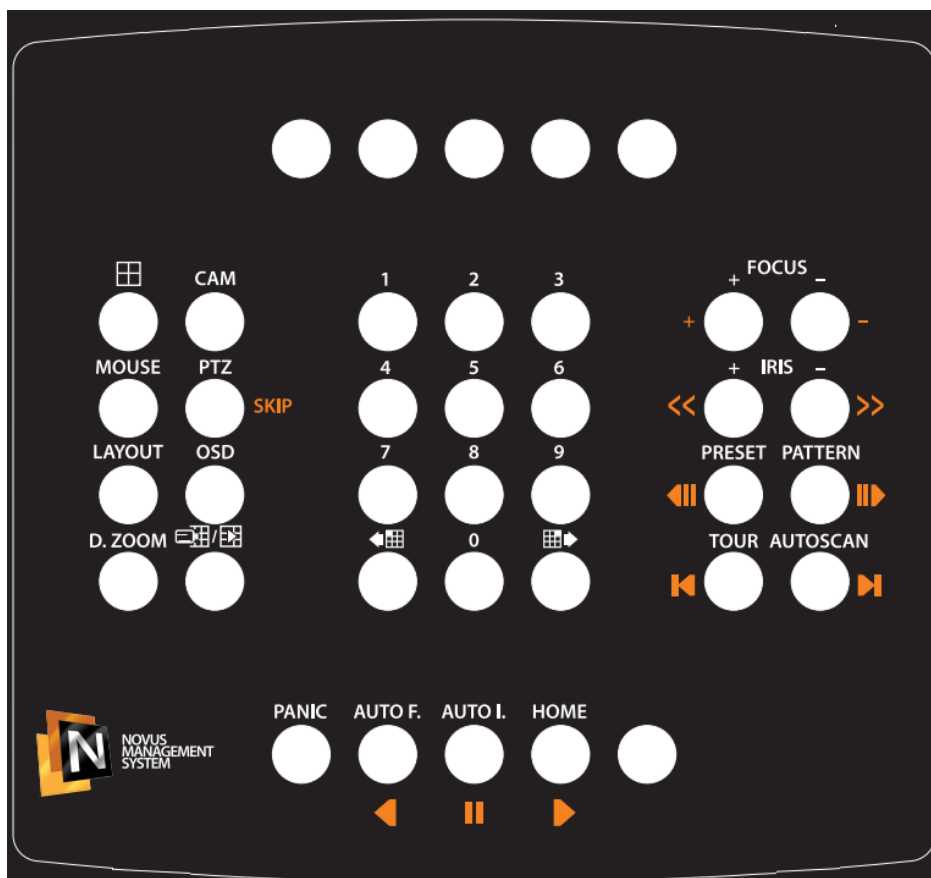
CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

FUNCTION	KEY	DESCRIPTION
Camera selection	**Nr** +CAM	Displays the selected camera in full screen mode and allows you to manage a PTZ camera if the camera has been previously configured. (e.g. 1 + CAM, 1 + PRESET, 4 + AUTOSCAN) Pressing the CAM button without specifying a camera number displays, active full screen camera. Pressing this button again returns to the previously displayed split.
Change of division	**Nr** +⊞	Previous / next group of cameras (e.g. split into 9 and visible cameras 10 ~ 18, cameras 1 ~ 9 or respectively will be displayed when the button is pressed 19 ~ 27).
Camera group	◀⊞　⊞▶	Previous / next group of cameras (e.g. split into 9 and visible cameras 10 ~ 18, cameras 1 ~ 9 or respectively will be displayed when the button is pressed 19 ~ 27).
PTZ	PTZ	It allows you to manage a PTZ camera if the camera has been previously configured. Enabling / disabling the PTZ mode allows you to control PTZ cameras using a joystick, call up presets, observation routes, etc.
Sharpness	+ FOCUS -	Manual focus.
Iris	+ IRIS -	Manual iris setting.
Preset call	**Nr** + PRESET	Calling up a preset after selecting the key combination: number + PRESET.
Observation route	**Nr** + PATTERN	Calling up the observation route after selecting the key combination: number + PATTERN.
Calling a patrol	**Nr** + TOUR	TOUR call after selecting the key combination: number + TOUR
Auto Scan	**Nr** + AUTOSCAN	Invoking the automatic scan route after selecting the key combination: number + AUTOSCAN.
Parking	HOME	Calls up the HOME function of the camera.
Special functions	ON	It activates special functions, e.g. the combination 1 ~ 4 + ON activates the selected relay. A detailed list of functions is included in the camera manual.
Special functions	OFF	It turns off special functions, e.g. a combination of 1 ~ 4 + OFF turns off the selected relay. A detailed list of functions is included in the camera manual.
Joystick		Manual zoom setting, PTZ camera control.
Digital zoom	D. ZOOM	Digital zoom function on / off.
OSD	OSD	Enable / disable displaying the OSD on the image. Enabling / disabling individual elements of the OSD after selecting the key combination: number + OSD
View	LAYOUT	Reloading the view assigned to the currently logged in user
Panic	PANIC	Panic recording for all cameras that had a pre-configured recording space
Mouse	MOUSE	Mouse cursor control mode with the keyboard. PANIC and AUTO F. correspond to the left and right mouse buttons respectively.

CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

FUNCTION	KEY	
Live / Playback	⊟⊞ / ⊞	Change the display mode between live image and recording playback
Playback	◀ ▶	Change the direction of playback at x1 speed
Pause	‖	Pause
Time magnifier	+ −	Buttons for increasing and decreasing the range of displayed recordings
Scope of the graph	<< >>	Buttons to move the timeline to older or newer recordings
Timeline	<‖ ‖>	Time stamp shift, proportional to the displayed recording range
Frame-by-frame playback	◀◀ ▶▶	Frame-by-frame reverse / forward playback
Skip	SKIP	The function of skipping the blank spaces between recordings
Shuttle		Turning the knob changes the playback speed of the recordings

17.5. Additional functions available in the NOVUS cameras

Functions available in cameras controlled by Novus C, Novus C1 protocol (some commands are available only in selected camera models

| KEY	FUNCTION	KEY	FUNCTION
1 + ON	Relay 1 is on	1 + OFF	Relay 1 off
2 + ON	Relay 2 is on	2 + OFF	Relay 2 off
3 + ON	Relay 3 is on	3 + OFF	Relay 3 off
4 + ON	Relay 4 is on	4 + OFF	Relay 4 off
7 + ON	Automatic focus	7 + OFF	manual focus
8 + ON	AE is set automatically	8 + OFF	AE set manually
9 + ON	Night Shot set automatically		
10 + ON	Night Shot on (switched to manual mode)	10 + OFF	Night Shot off (switched to manual mode)
11 + ON	BLC on (AE automatic)	11 + OFF	BLC off (AE automatic)
12 + ON	Digital Zoom is on	12 + OFF	Digital Zoom off
13 + ON	OSD enabled	13 + OFF	OSD disabled
14 + ON	Zone name enabled	14 + OFF	Zone name disabled
15 + ON	World directions included	15 + OFF	World directions excluded
100 + ON	Automatic shutter		
101 + ON	Shutter 1/3sec		
102 + ON	Shutter 1/2 sec		
103 + ON	Shutter 1 sec		
104 + ON	WDR enabled	104 + OFF	WDR disabled
105 + ON	Image stabilization on	105 + OFF	Image stabilization off

POS INTEGRATION

18. POS INTEGRATION

The NMS VSS software enables integration with cash registers. This functionality allows you to save and synchronize data from the cash register with a video image. Thanks to this, the user can easily verify the correctness of the cashier's work. The NMS VSS software has been adapted to work with POSNET and UPOS cash registers, however, it also works with solutions from other manufacturers.

18.1. POS configuration

Cash register settings can be found in the CONFIGURATION / POS panel and Configuration analytics panel. The panel is divided into two tabs: Device configuration and Other options.
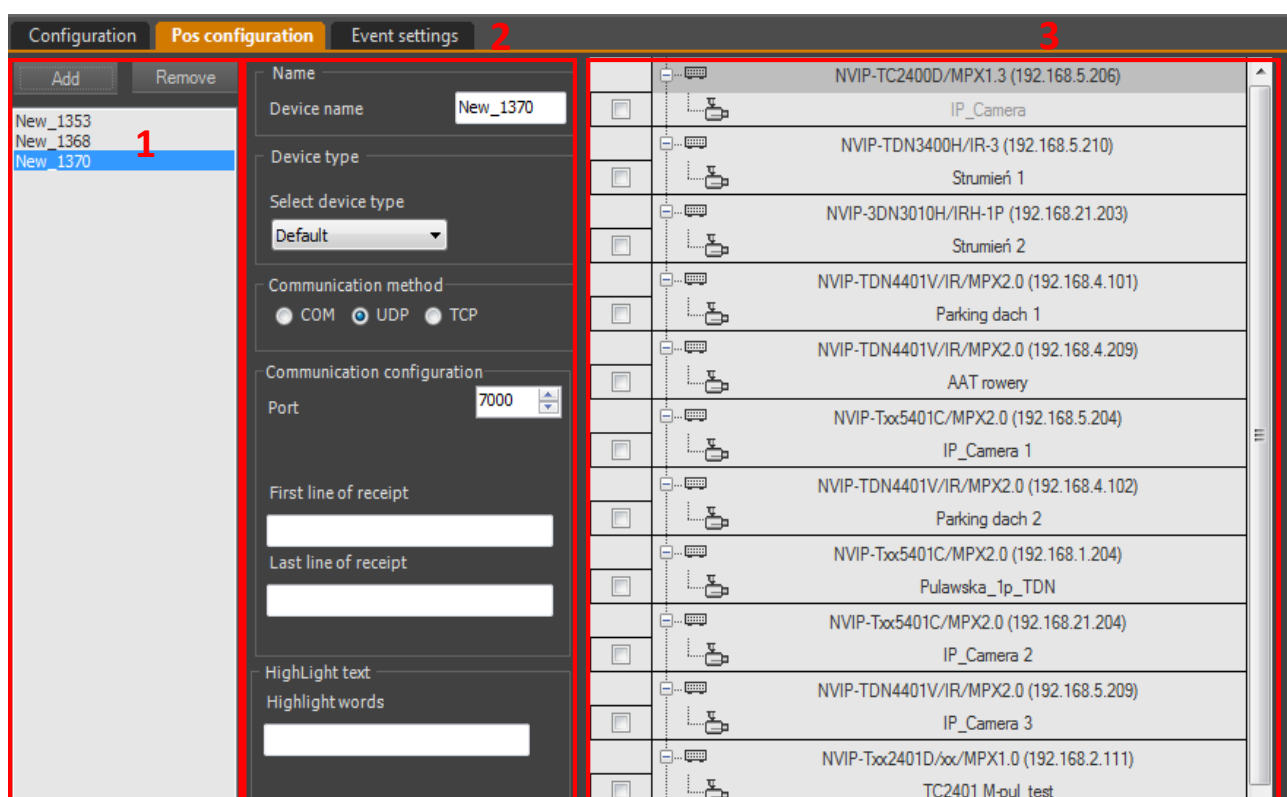
1.   The device configuration consists of three columns.

2.   The first one includes buttons for adding and removing cash registers, as well as a list of all cash registers added to the system. The currently edited device is highlighted with a bar on the list.

3.   In the second, the user can set in turn:

- **Device name** - facilitating the identification of the cash register.

- **Device type** - default or POSNET. The default option should be used for UPOS cash registers as well as for other ones that generate a text receipt (with a defined start and end line). The selection affects the access to editing the remaining parameters.

- **Communication method** - choose the method of communication with the cash register. Possible selections depending on the type of device are COM, UDP, TCP.

POS INTEGRATION

- **Communication configuration** - depending on the selected method, the field may take a different form. For communication via the COM port, specify the Baudrate and the COM port number under which the cash register is located. In the case of communication via TCP, cash registers can work in the server or client mode. Hence, for POSNET devices, enter the device IP address and transmission port. For UPOS devices, only the port can be edited, because the cash register connects to the NMS VSS software, at the IP address set in the computer or NMS VSS Server. Additionally, the UPOS device can be communicated via the UDP protocol, for which the transmission port must also be specified. For devices of the default type (including UPOS), the First and Last line of the receipt should be additionally specified.

- **Highlighted text** - Allows you to enter words that will highlight the entire line in red. Separate words with the sign "; "(Semicolon).

3. The third section lists the video streams and their corresponding check boxes. Selecting the field results in associating the cash register with the video image. Only one camera can be assigned to one cash register.

All changes should be confirmed by clicking the Save button

POS INTEGRATION

18.2. Displaying POS transactions on video screen

After correct configuration, the data from the cash register are displayed on the video image. The frame is located in the upper right corner of the video window. Displayed for a 1x1 split, or for a stream that is in a full window.

Lines containing the strings specified in the Highlighted text field are displayed in red (in the example above, the lines contain the string "20").

The appearance of the field can be customized by changing e.g. frame position, font, number of lines. The settings are available in the Configuration / Application Settings / Application / Display Settings / OSD / POS window.

18.3. Transaction search panel

Viewing the registered transactions is possible using the panel available after selecting the TRANSACTION SEARCH option in the VIEW menu.

The panel contains the search criteria:

1.   Device for which transactions are to be searched;

2.   The start date of the search (the date can be selected using the calendar);

3.   The end date of the search (the date can be selected using the calendar);

4.   Field for specifying search "words" in transactions;

5.   Search button that starts the search;

6.   Information on the total number of transactions meeting the criteria;

7.   List of searched transactions;

POS INTEGRATION

When you left-click on the list, a window with detailed transaction data will be displayed.

When you right-click on the list, a menu will appear allowing you to:

- Export of video recordings connected with the transaction to AVI format. The transaction data will be exported to a text file as synchronized strings. A program that supports the display of "subtitles" is required for playback.

- Running the recorded video stream related to a transaction in playback mode;

- Live view from the camera starts
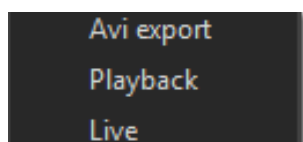
POS INTEGRATION

18.4. Advanced searching options for POSNET devices

For POSNET cash registers, NMS VSS software offers advanced transaction search capabilities. The selection in the Transaction Type field determines the availability of additional search criteria. The transaction type can be selected from Sale, Login, Deposit, Drawer, Packaging.

The two operators "; "And" | ". The semicolon` should be treated as the logical operator "or". The sample criterion "10; 20; 30" will return all transactions with the value "10" or "20" or "30". The operator "| "Is used to define the range in fields with numerical values (eg the field Price" 10 | 20 "means the price from" 10 "to" 20 "). The operator "| "Cannot be combined with other operators. When you click the mouse in the field area, a hint on how to use the above operators will be displayed.

For the Sales type transaction, you can define criteria: Product name, Cashier, Value, Reverse, Cancellation, PLU, Price, Payment method, Percentage or amount discount, Total amount.

For a Login transaction you can define the following criteria: Cashier, Login, and Logout.

For the deposit type transactions you can define the following criteria: Value, Deposit, Withdrawal;

Drawer transactions do not have any additional criteria;

For transactions of the Packaging type, you can define the criteria Cashier, Value, Cancellation, End.

ALARM INPUT / OUTPUT INTEGRATION

After clicking on the list of transactions, the details will be displayed in the window. Sample information about the *Sales* transaction is shown below.

19. LANKON-008 network input / output module

The LANKON-008 network I / O module has 6 outputs and 4 inputs, it is a simple but very innovative device. The small device acts as a web server on which the readings of various sensors are presented and allows you to remotely control up to 6 outputs. Additionally, the Event Config table function allows you to program an appropriate action when the condition is met on one of the sensors. Thanks to the integration with NMS VSS, it significantly expands the range of the program's possibilities.

REMOTE ACCESS

20. REMOTE ACCESS TO NMS VSS SERVER

The NMS VSS software has a remote access function. It enables remote management of the NMS VSS Server operation using the Client's NMS VSS.

20.1. Configuration of remote access

The feature uses Microsoft Windows remote desktop options. Windows must be properly configured to work properly. On the computer where the NMS VSS Server is installed, in the Start menu, in the search window, find the option *Allow remote access* to the computer and click on it.
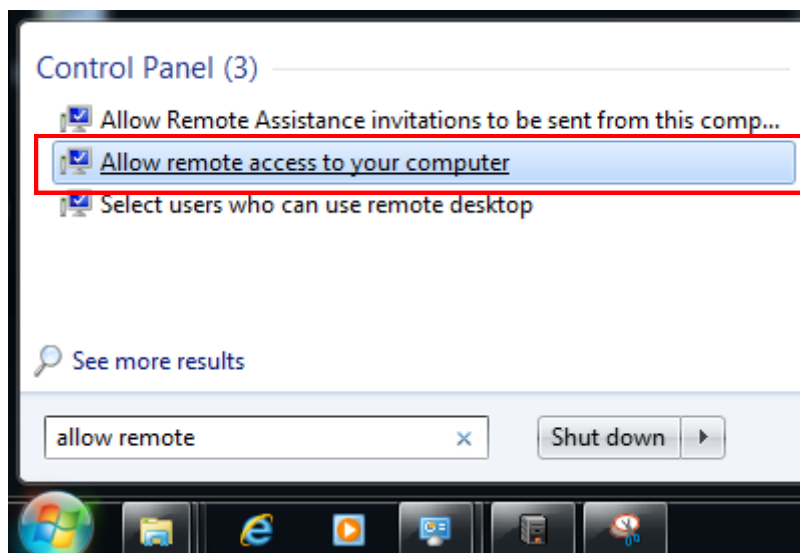
After opening the *System Properties* window, check the *Allow connections from computers with any version of Remote Desktop* and apply the changes.

REMOTE ACCESS

In the NMS VSS Client application you must configure the access data to the NMS VSS Server. In the CONFIGURATION / APPLICATION / DEVICE SETTINGS panel, select the Server with which you want to connect from the NMS VSS list. In the General / Remote configuration field, enter the Login and Password to access the server, i.e. login and password of the Windows user created on the server (an empty password is not allowed for remote connection).
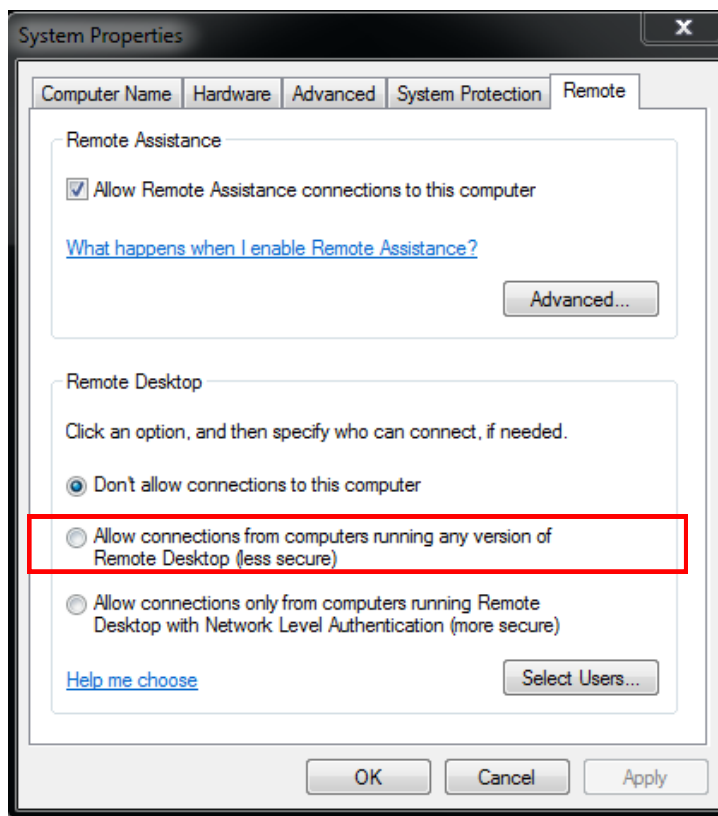
The remote access option is available in the context menu on the device list. Click the right mouse button on the NMS VSS Server to which you want to connect, and then select the Remote configuration option. As a result, the NMS VSS Server remote desktop window will be launched, enabling full configuration of the application.
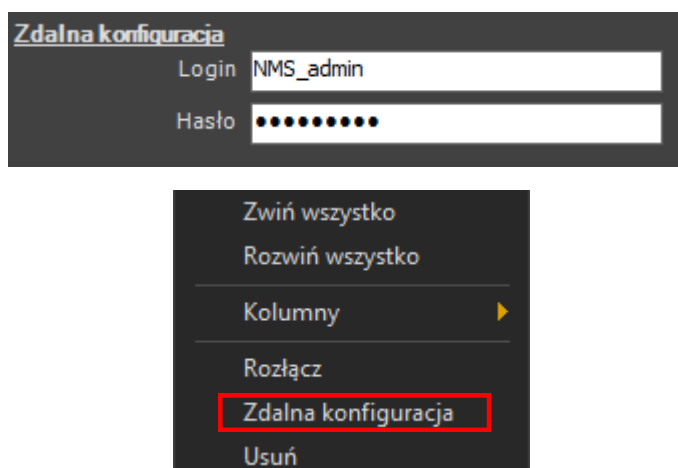
VSS WEB CLIENT

21. NMS VSS WEB CLIENT

VSS WEB CLIENT is an additional service that enables displaying video from CCTV devices added to the NOVUS MANAGEMENT SYSTEM VSS server directly in a web browser.

Thanks to its intuitive interface, users gain quick access to the following functionalities: live video preview, video playback in playback mode, browsing current event logs, and system logs that support system analysis and troubleshooting.

The VSS WEB CLIENT service allows video views from devices previously configured in the NOVUS MANAGEMENT SYSTEM VSS software to be shared and displayed in the browser.
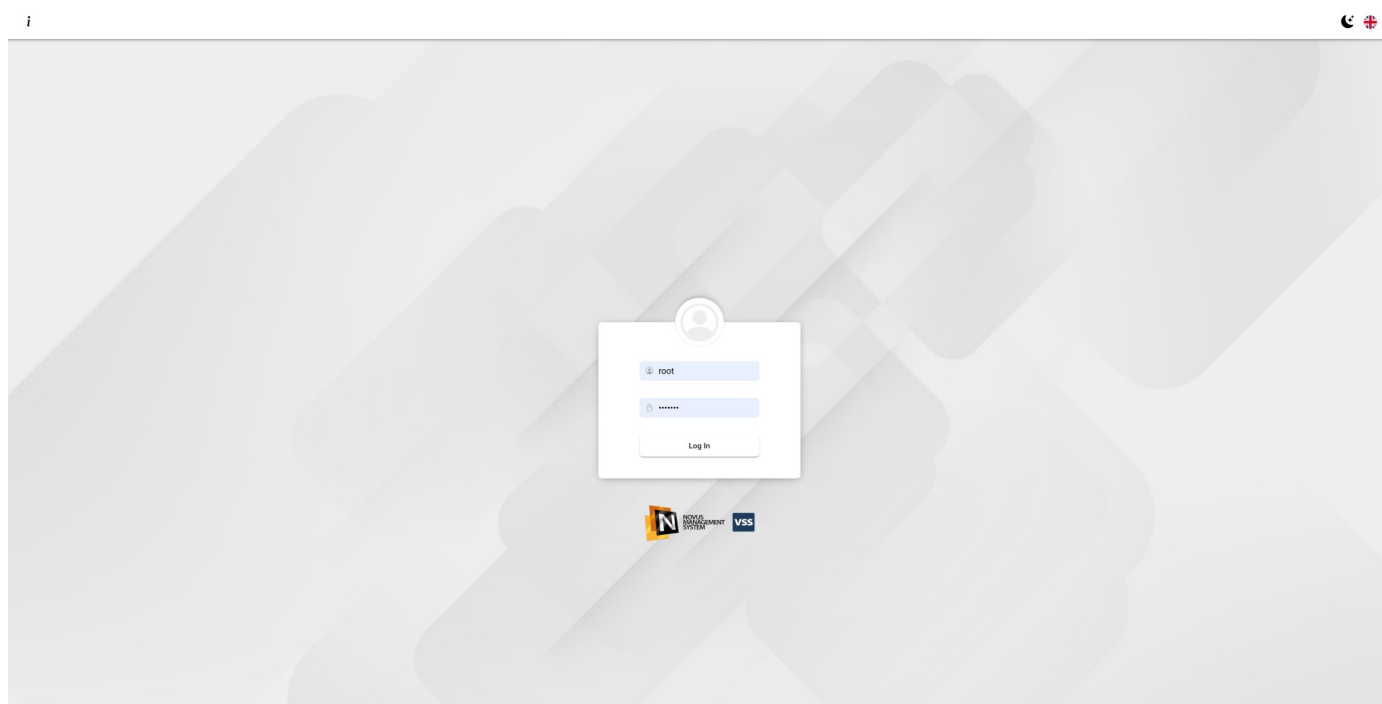
The VSS WEB CLIENT web application is available on devices equipped with a web browser, such as computers running Windows 10/11, as well as mobile devices with iOS or Android operating systems.

VSS WEB CLIENT

21.1 Server Configuration in NOVUS MANAGEMENT SYSTEM VSS

To properly configure the server, go to the *SERVER CONFIGURATION* section and then find the VSS WEB CLIENT tab. If the message **Server isn't running** is displayed in yellow, it means the server is currently inactive. To enable it, click the *RUN* button.

the number of the port to connect to
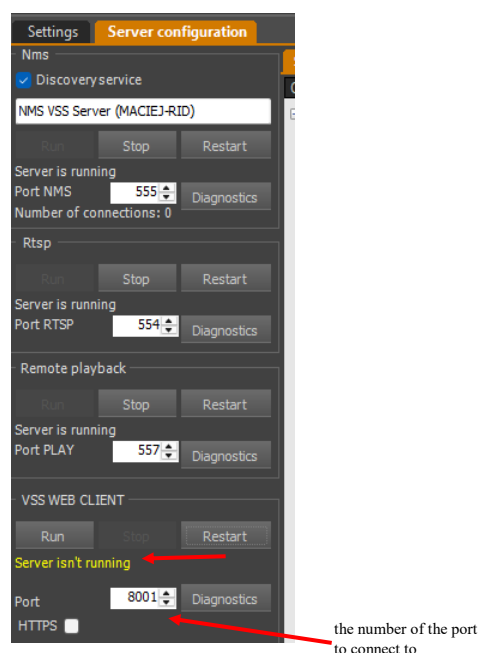
After activating the button, the license agreement for the VSS WEB CLIENT web application will appear. You must accept the agreement to proceed.

VSS WEB CLIENT

Once the server is successfully started, a confirmation message should be displayed.
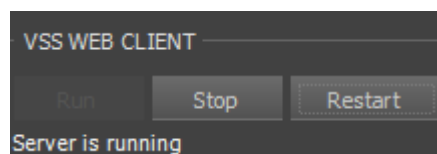
If the user wants to log in with an account other than root, the next configuration step appears after creating a Group and assigning a user to it. The process of creating groups and users is described in section **10.2. Users tab - information.**

To confirm which channels will be shared on the server, go to the *SETTINGS / USERS* tab and mark the selected streams in the **Share** field.
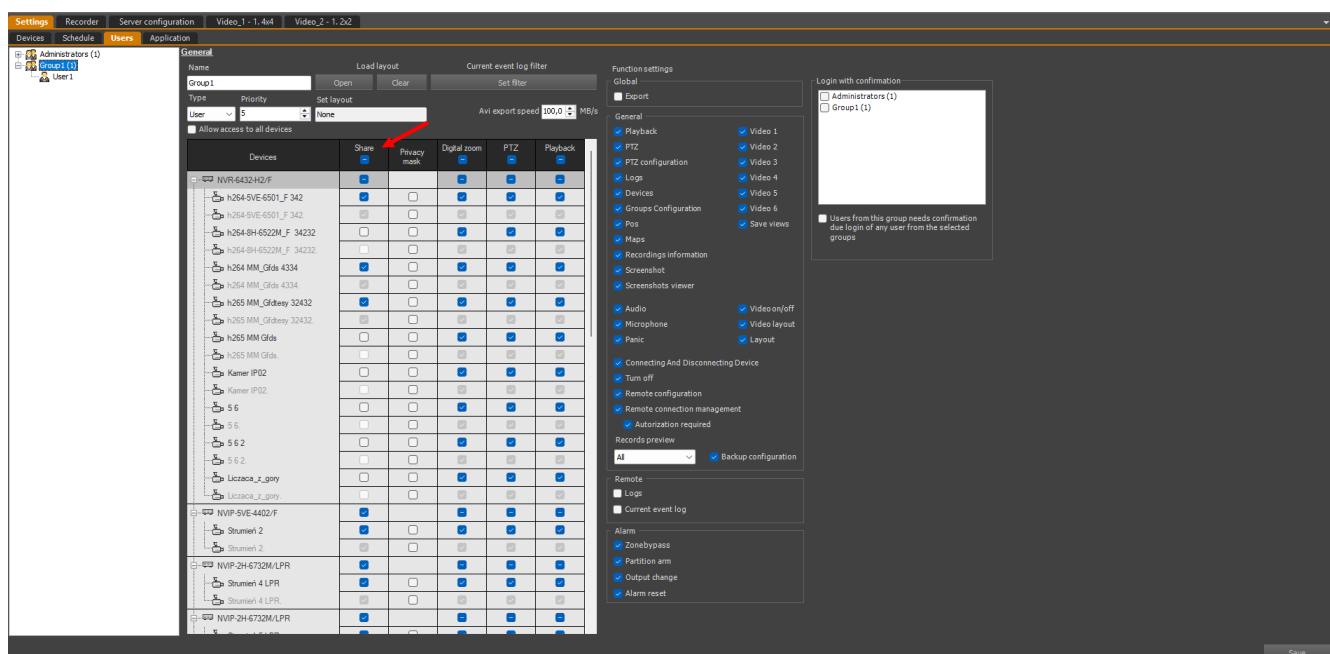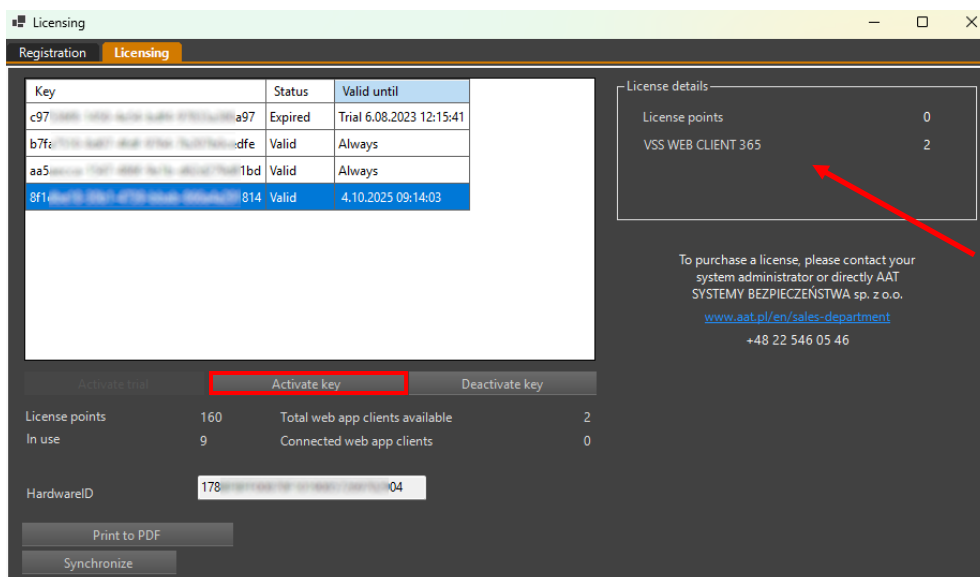

VSS WEB CLIENT

21.2 Activation of the Web Application License

The next step is to activate the license in the NOVUS MANAGEMENT SYSTEM VSS software. To do this, select *HELP / LICENSES* from the top menu. There are two available options: a free Trial license or a paid license. To activate the free license, click the **Activate trial** button in the newly opened window.
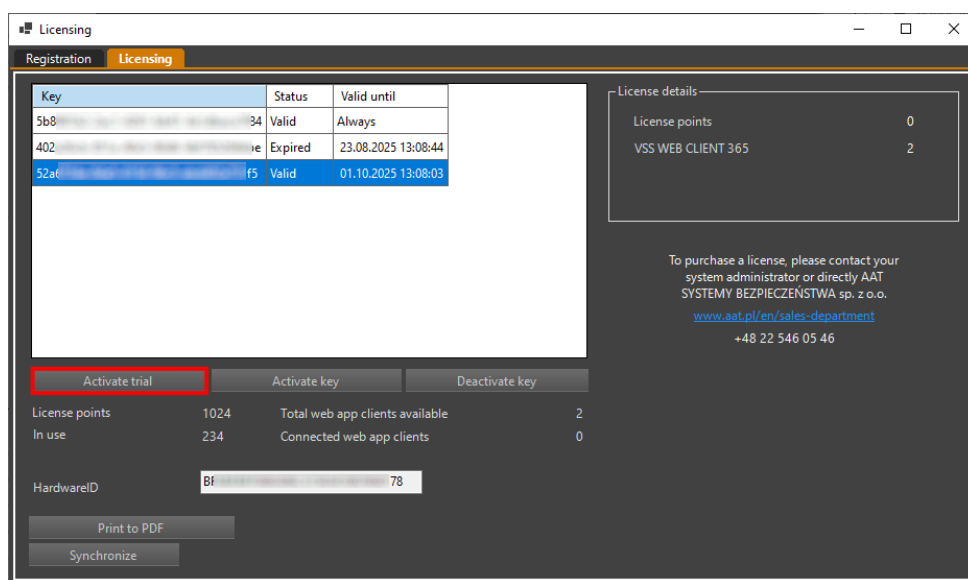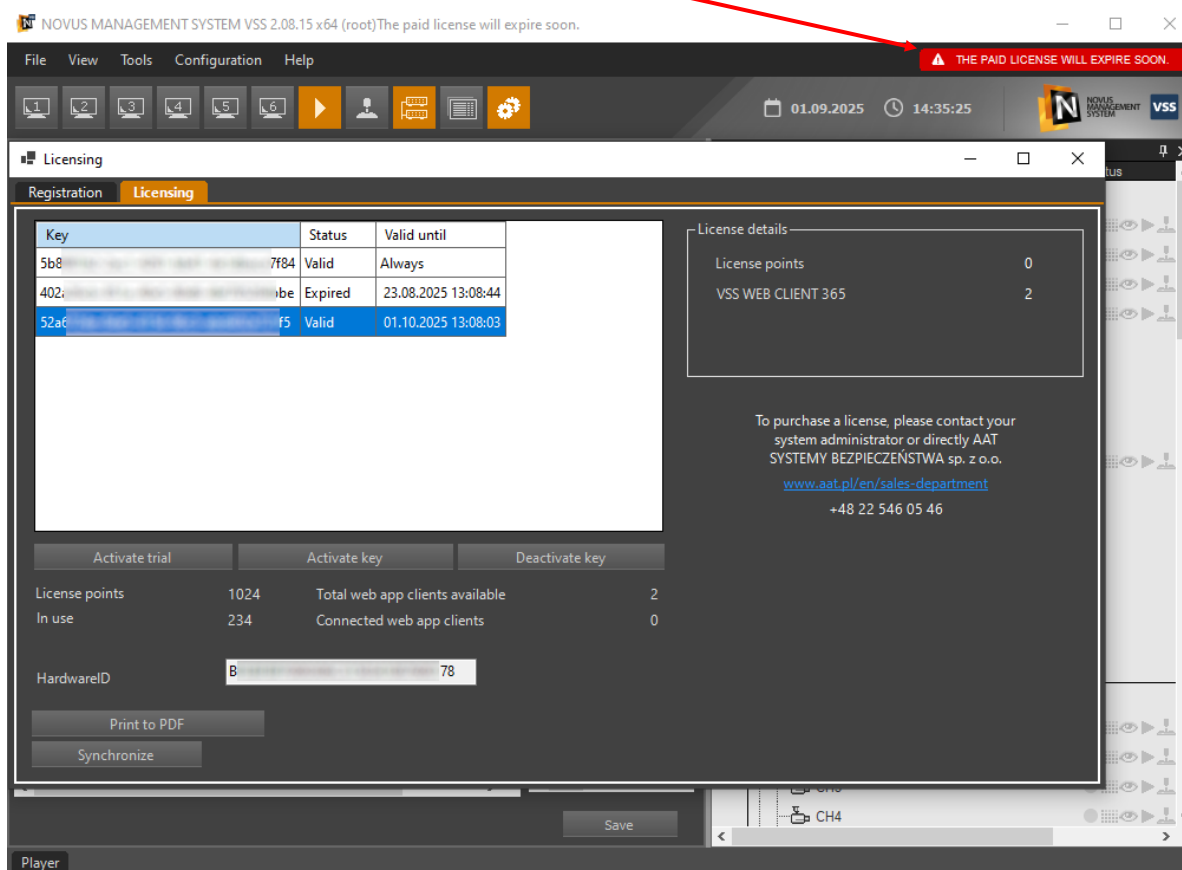

To activate a paid license, time-limited - click the **Activate key** button and then enter the license key.
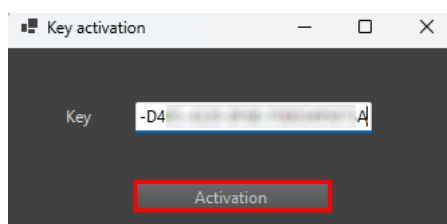
VSS WEB CLIENT

If the license is nearing its expiration date, a message will appear at the top of the application: **The paid license will expire soon**. After clicking on the highlighted text, a window with license information will open.
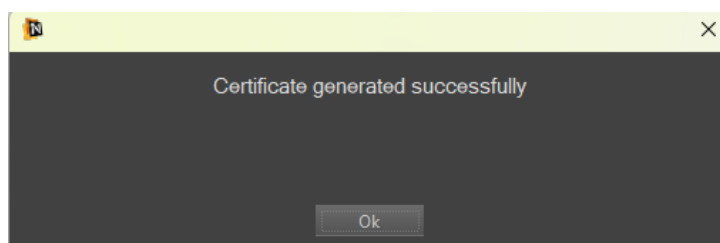
VSS WEB CLIENT

21.3 HTTPS Protocol Activation

To secure communication and protect transmitted data, it is recommended to activate the HTTPS protocol on the server hosting the VSS WEB CLIENT web service. To do this, select the HTTPS option and generate a self sign certificate.
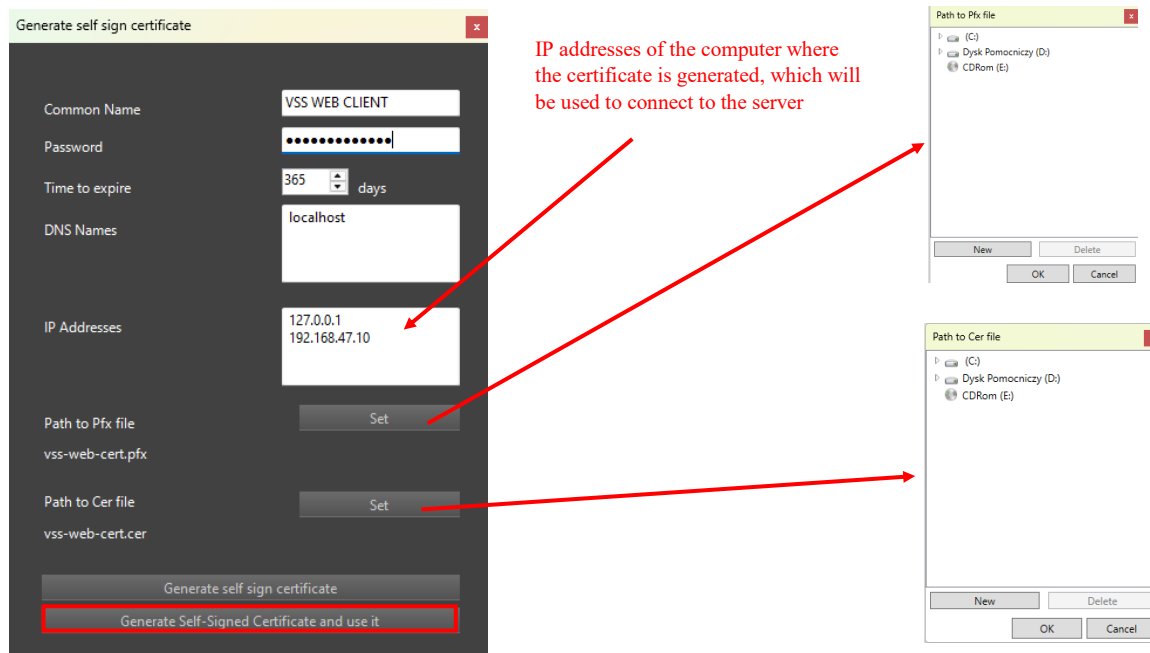

First, you need to assign a name to the certificate (the default name is acceptable), create a password, and set the certificate's validity period along with the address of the server. Then, specify the path for the PFX and CER files (the path must be the same for both). After clicking the **Generate Self-Signed Certificate and use it** button, a message should appear confirming that the certificate was successfully generated.

VSS WEB CLIENT

The next step is to install the certificate on the computer where the application using the HTTPS protocol will be run (this may be a different computer than the one where the certificate was generated). To do this, open the file with the .cer extension and follow the procedure outlined below.
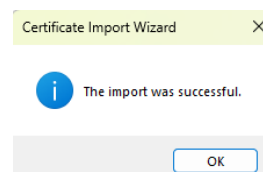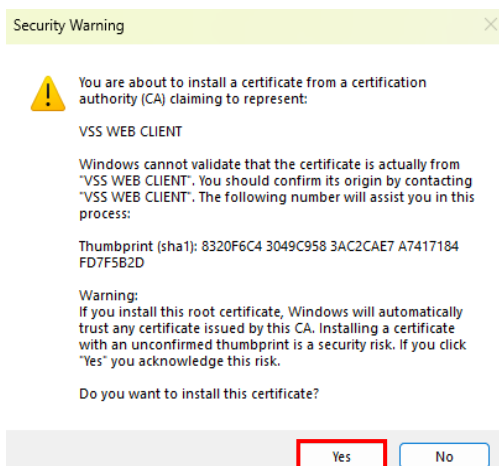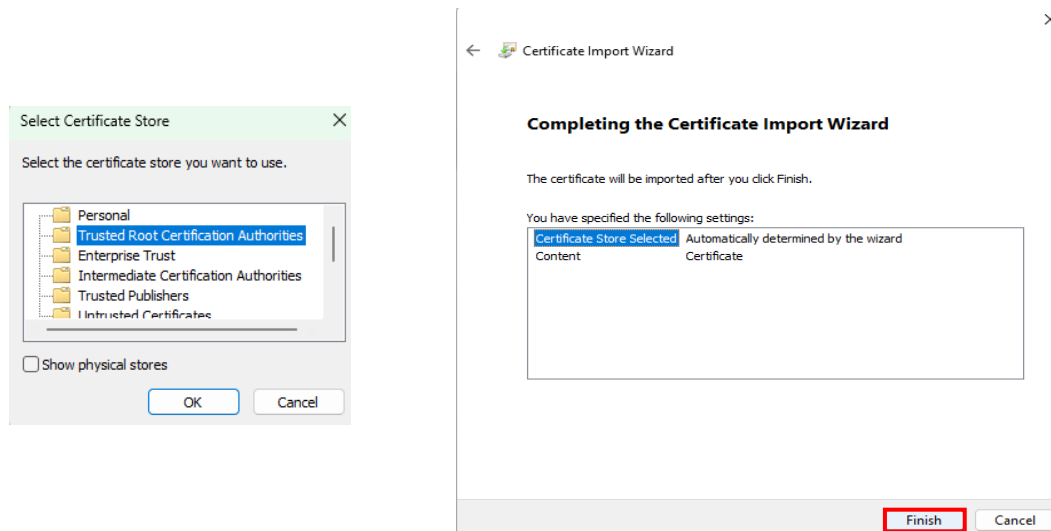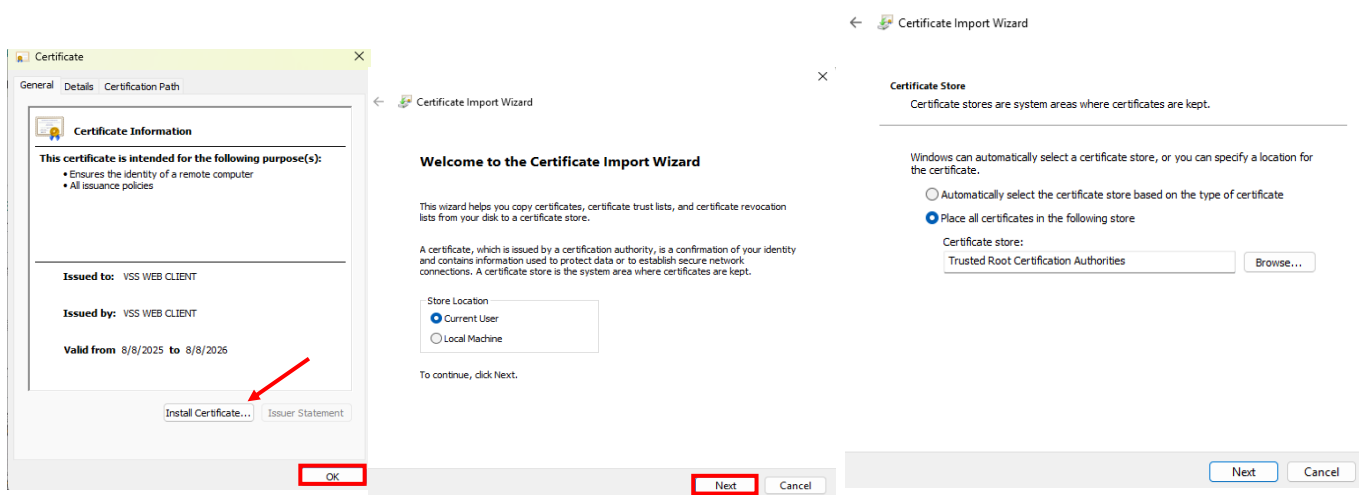
VSS WEB CLIENT

After successfully importing and installing the generated certificate, and entering the appropriate address (e.g., https://localhost:port_number), the page shown below should appear.
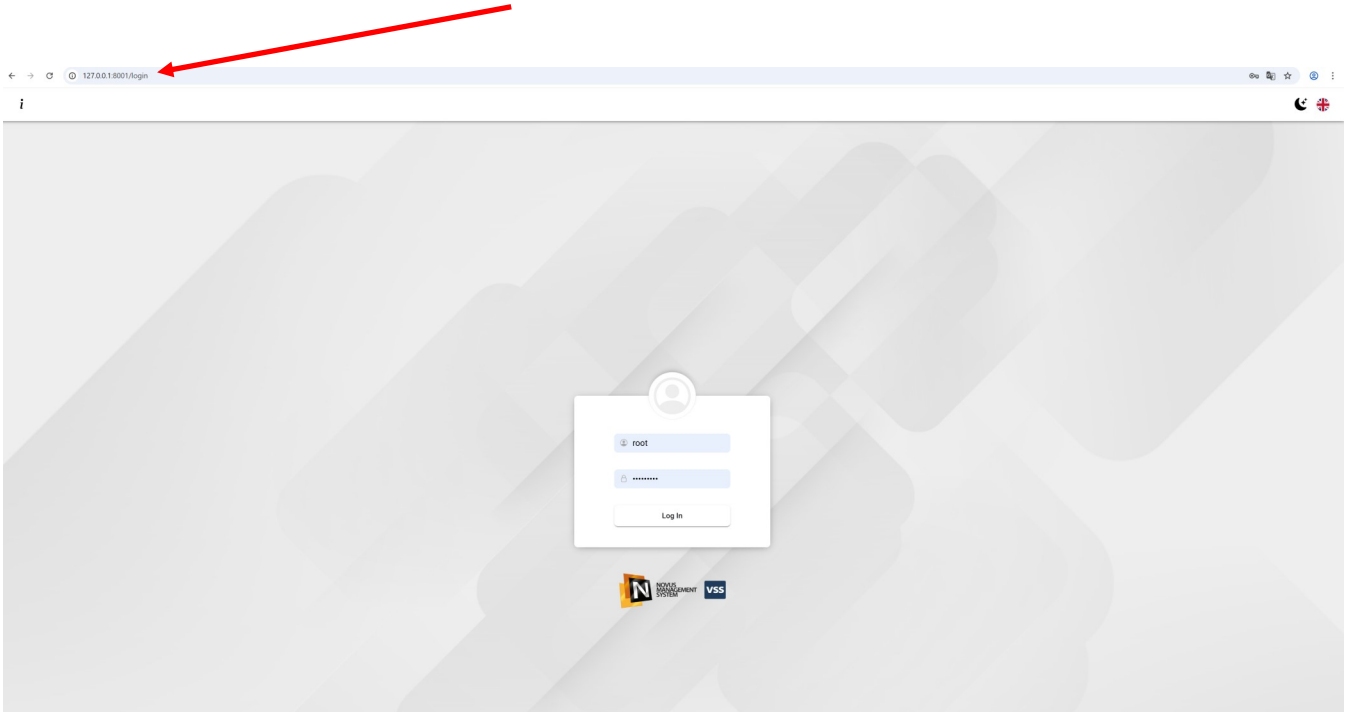
WARNING! On mobile devices and computers other than the one running the server, you must enter the IP address of that computer. Additionally, if the web browser is already running, it should be closed and restarted. Also, the server needs to be restarted VSS WEB CLIENT.
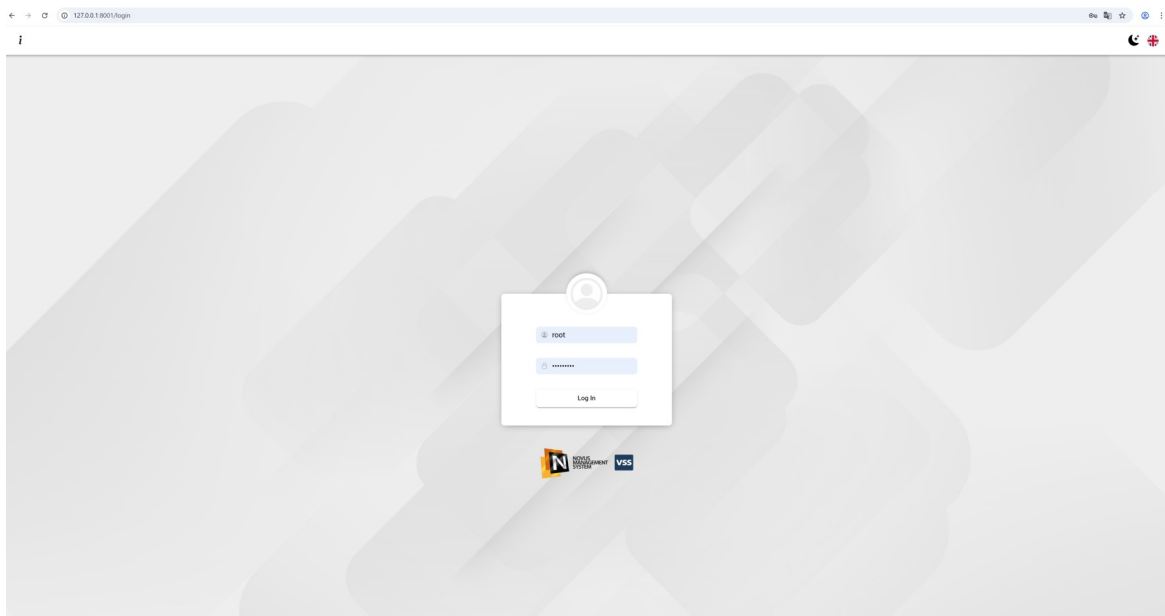
VSS WEB CLIENT

## 21.4 Logging into the VSS WEB CLIENT Service

After configuring the server in NOVUS MANAGEMENT SYSTEM VSS and activating the license key for the web application, you can proceed to open a web browser.

For Windows operating systems, the recommended browser is Google Chrome. However, when using other browsers such as Microsoft Edge, you may encounter issues displaying video using the H.265 compression format. In such cases, it may be necessary to install an additional codec: HEVC Video Extension Codec (https://apps.microsoft.com/detail/9nmzlz57r3t7?hl=en-us&gl=US%27).

In the browser's address bar, enter the IP address of the computer where the server is installed. If both the server and the browser are running on the same computer, enter the local address, usually 127.0.0.1:port_number.

WARNING! If there is no valid license when the server is started and the IP address is entered correctly, a message will appear: **Web users limit reached, please one of users to continue.**
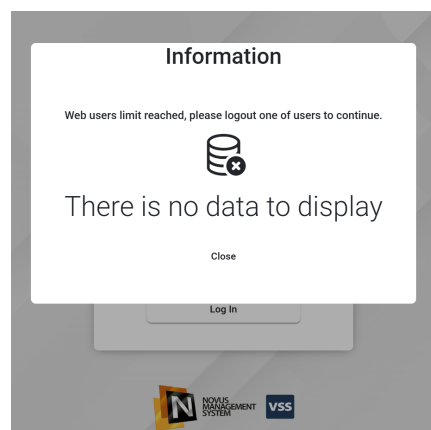
VSS WEB CLIENT

After entering correct login credentials, the Home Page window should appear, as shown below. The following screenshots are taken while using a web browser on a computer - the view on mobile devices may differ slightly.

1. **Sidebar** - contains essential features such as **Video**, **Logs search**, and **Current event log**.

2. **Live Video Preview** - displays all channels that have been selected in the Share option under the SETTINGS / USERS tab (see page 126). Additionally, it allows previewing video views that were previously configured in NOVUS MANAGEMENT SYSTEM VSS.

3. **Device Log List** - displays current logs .

4. **Current Server Date and Time** - shows the current date and time of the server.

5. **Dark Mode** - allows switching the interface to a dark theme.

6. **Language Selection** - Polish or English.

7. **Account Settings** - includes the **Settings** and **Log Out** options .

VSS WEB CLIENT

The section **Settings** contains three tabs that allow you to view user account settings, manage sessions, and configure video settings.

Account settings

This tab allows you to view the user's name, personal details, and place of residence.

Sessions

This tab displays details of active sessions, including IP addresses, device type, browser used, and the time of last activity. Additionally, there is an option to log out from a selected device by clicking the **Log Out** button.

Video configuration

In this tab, you can choose the video streaming mode between **Auto**, **MSE**, and **RTC**. There is also an option called **Show OSD with stream parameters**, which displays technical information about the currently transmitted video stream directly on the camera image.

- **Auto** mode automatically selects the streaming method between RTC and MSE. RTC is the preferred mode. MSE is selected when RTC streaming is not available.

- **RTC** mode is the recommended video streaming method. It provides smooth video playback with minimal latency. It requires port forwarding for UDP ports and the port used by the application.

- **MSE** is an alternative streaming method. It should only be used if RTC streaming is unavailable or not functioning properly. It works without the need for UDP port forwarding, requiring only the application's port. Its drawback is higher video latency compared to RTC.

VSS WEB CLIENT

21.5 Video Window

This is the most important tab, allowing live view, video playback in playback mode, and PTZ control. It provides access to ALL CHANNELS as well as video views previously configured in NOVUS MANAGEMENT SYSTEM VSS.

21.5.1 Live View Mode

This is the default mode, which enables real-time viewing from the selected channel. It provides continuous access to the current camera image.
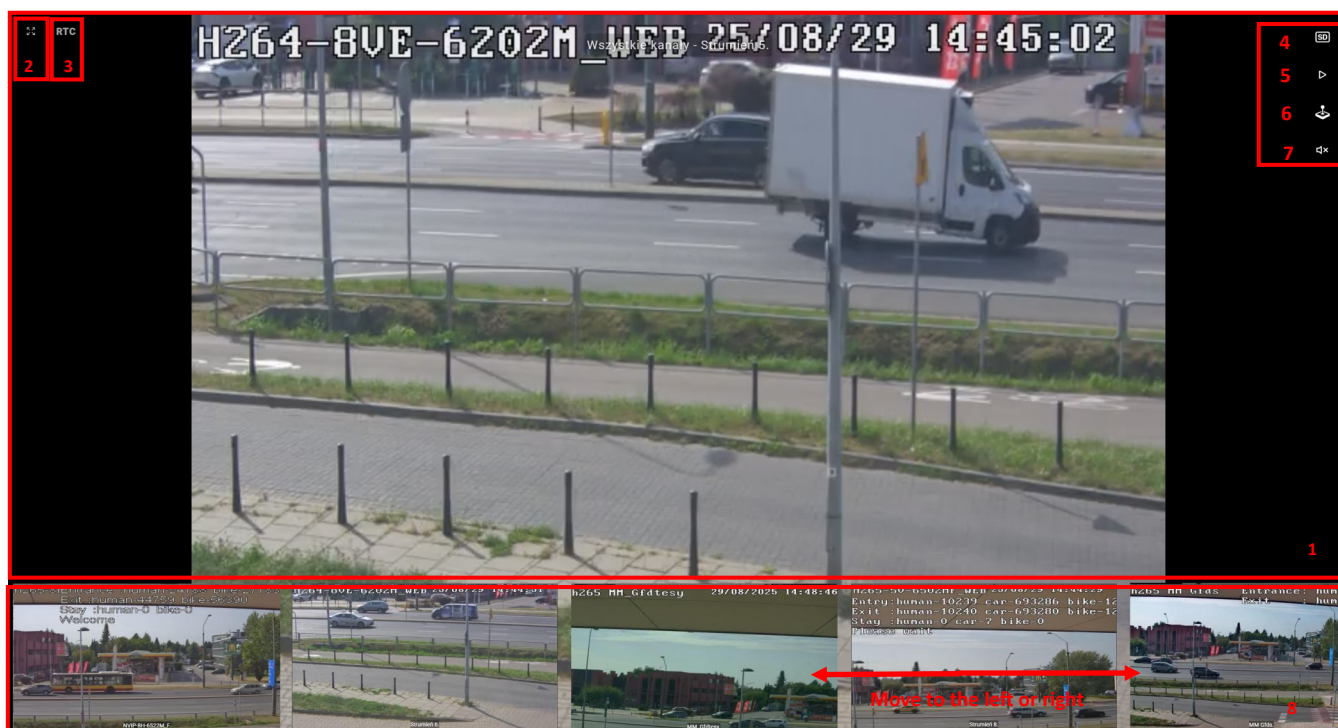

1. **Current channel view** - displays the selected camera feed.

2. **Fullscreen** - switches the view to full-screen mode, hiding toolbars.

3. **Video Streaming Mode** - shows which streaming mode is currently in use: RTC or MSE.

4. **HD/SD** - allows switching between the main and sub-stream display. The icon indicates the currently selected stream.

5. **Playback mode** - switch between live and playback.

6. **PTZ** - controls PTZ cameras.

7. **Audio** - enable or disable sound, available for video streaming mode via MSE.

8. **List of available channels** - based on the defined view.

To switch to a specific channel, click the desired thumbnail in the list of available channels. To view more channels, drag the mouse left or right to scroll through the list.
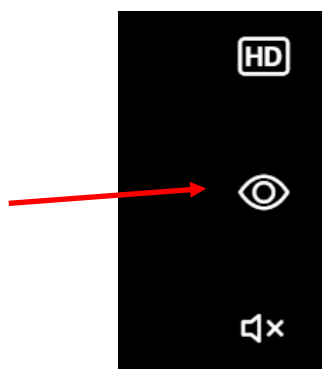
VSS WEB CLIENT

21.5.2 Playback Mode Option

The playback mode function allows users to browse recorded video from selected cameras. Users can specify a date and time using the calendar and time selector, or interact with the timeline located at the bottom of the screen by clicking on the desired segment of the recording.
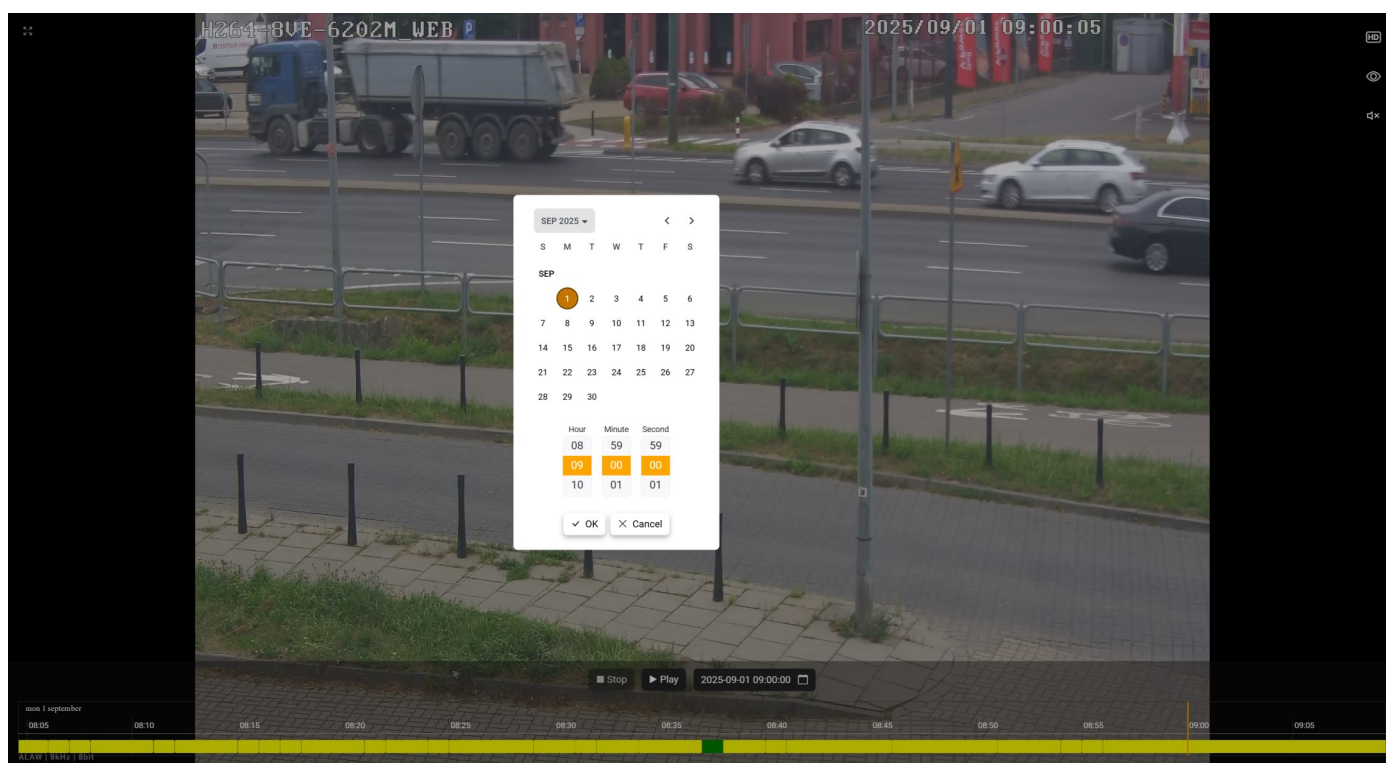
To switch from playback mode back to live view, click once in the center of the screen. After a moment, an interactive options bar will appear - click the eye icon to return to real-time viewing.

VSS WEB CLIENT

21.6 PTZ Function

This option is available exclusively for PTZ cameras and allows full control over camera movement and features such as:

- **Camera movement** – left, right, up, down, and rotation.

- **Zoom (in/out)** – on computers, zoom is controlled by scrolling the mouse wheel. On mobile devices, to zoom in or out, move two fingers apart or together on the screen.

- **Focus** – manual adjustment of focus (Focus in/out).

- **Presets** – ability to save and recall previously defined camera positions.
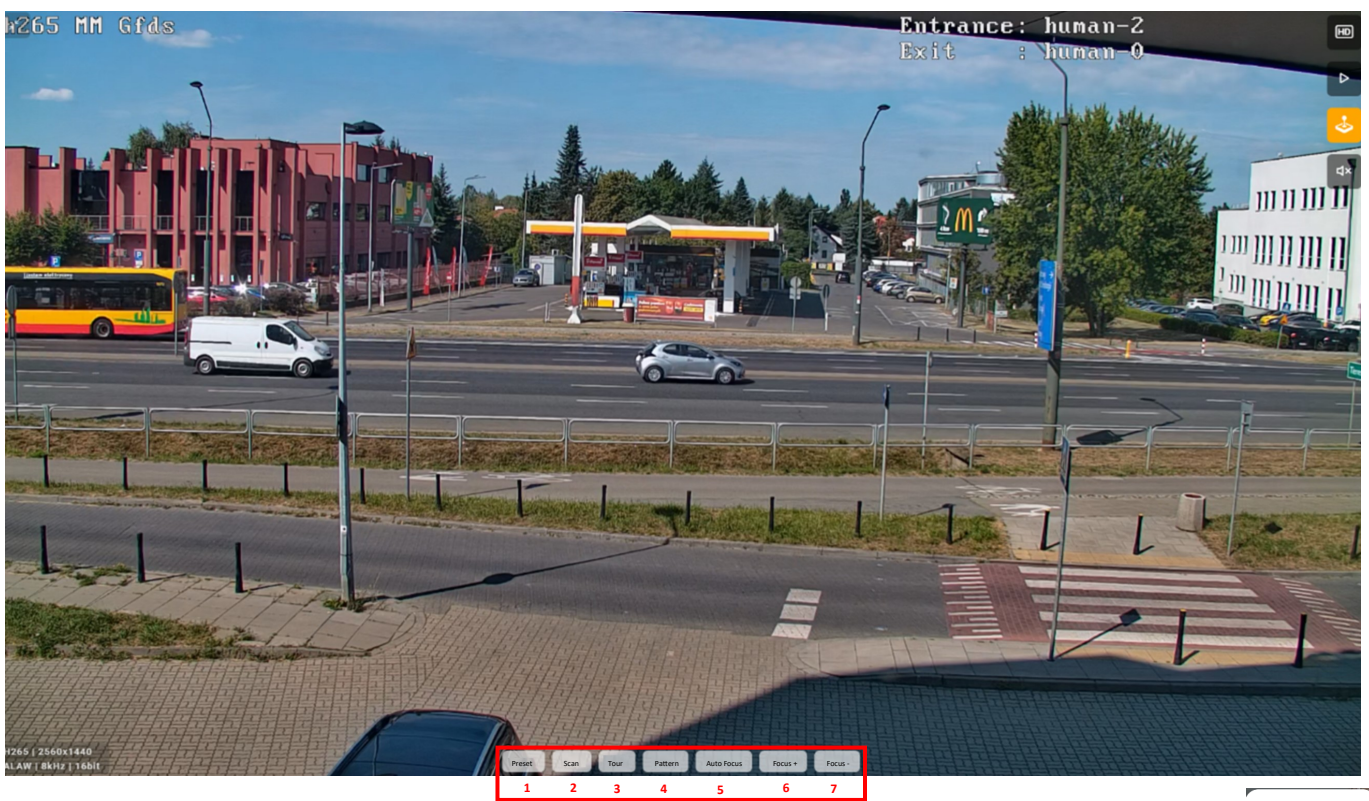
1. **Preset** – saves the current camera position as a reference point; once saved, it can be quickly recalled. To use it, set the camera position, save the preset, and then recall it .

2. **Scan** – the camera automatically moves between two defined points (e.g., left ↔ right side). To activate, enter a function number in the range of 0–255.

3. **Tour** – plays a sequence of presets in a defined order and timing. To activate, enter a function number in the range of 0–255.

4. **Pattern** – records the exact manual movement of the camera (e.g., pan, zoom) and replays it as a programmed path. To activate, enter a function number in the range of 0–255.

5. **Auto Focus** – automatically adjusts the camera's focus .

6. **Focus +** – manual focus adjustment (+).

7. **Focus -** – manual focus adjustment (-).

VSS WEB CLIENT

21.7 Logs Search Function

This feature allows filtering and searching through logs using various criteria:

- **Time range** – define a specific date and time interval.

- **Priorities** – filter by importance level (low, medium, high).

- **Streams** – select or deselect specific video streams.

The log search includes both application logs and device logs, enabling comprehensive system analysis and troubleshooting.

VSS WEB CLIENT

21.8 Current Event Log

This tab allows users to view real-time system events in a table format. Each entry contains detailed information about the event, including:

- **Date** – the exact time the event occurred.

- **Device** – the name of the device from which the event originated.

- **Channel name** – name of the video channel.

- **User** – the user associated with the event.

- **Description** – a brief summary of the event.

- **Priority** – the importance level (low, medium, high).

- **Type** – the category of the event (e.g., system, video, alarm).

CURRENT EVENT LOG

Date	Device	Channel name	User	Description	Priority	Type
27.08.2025 09:04:43	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:04:42	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:04:32	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:04:31	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:04:24	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:04:23	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:03:59	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:03:59	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:03:58	NVIP-2H-6101/WL/LITE	Stream 2	root	Motion detection	Medium	Motion detection
27.08.2025 09:03:52	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection
27.08.2025 09:03:52	NVR-6432-H2/F	h265 MM Gfds	root	Motion detection	Medium	Motion detection

When clicking the ABOUT button, a window appears displaying the version number of the NOVUS MANAGEMENT SYSTEM VSS application, along with contact information for AAT Holding.

VERSION

2.08.15

TECHNICAL SUPPORT

Telephone numbers available in the Contact tab at nms.aat.pl/en

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Close

VSS WEB CLIENT

21.9 Automatic Logout

The system automatically logs out the user in two cases:

- **Session timeout** – if a user remains logged in for 15 minutes without any activity, the system may terminate the session for security reasons, unless video playback is in progress or the event log is being viewed. Additionally, the authorization token expires after 7 days, requiring the user to log in again.

- **License limit exceeded** – if the number of simultaneously logged-in users exceeds the limit defined by the license (e.g., the license allows 2 clients, and a third client attempts to log in. A message appears: **Web users limit reached, please one of users to continue.**

Information

Web users limit reached, please logout one of users to continue.

Id	Login	Ip	Port	Last activity	Operation
0	root	127.0.0.1	57713	2025-08-22 07:44:40	Log Out
0	root	127.0.0.1	57771	2025-08-22 07:44:36	Log Out

Close

In the dialog window, a list of currently logged-in users is displayed, including:

- **ID user**
- **Login**
- **IP address**
- **Port**
- **Last activity**

The user can manually log out one of the active sessions to free up a slot and continue working. Additionally, the root operator can log out any user, while a given user can only log out themselves.
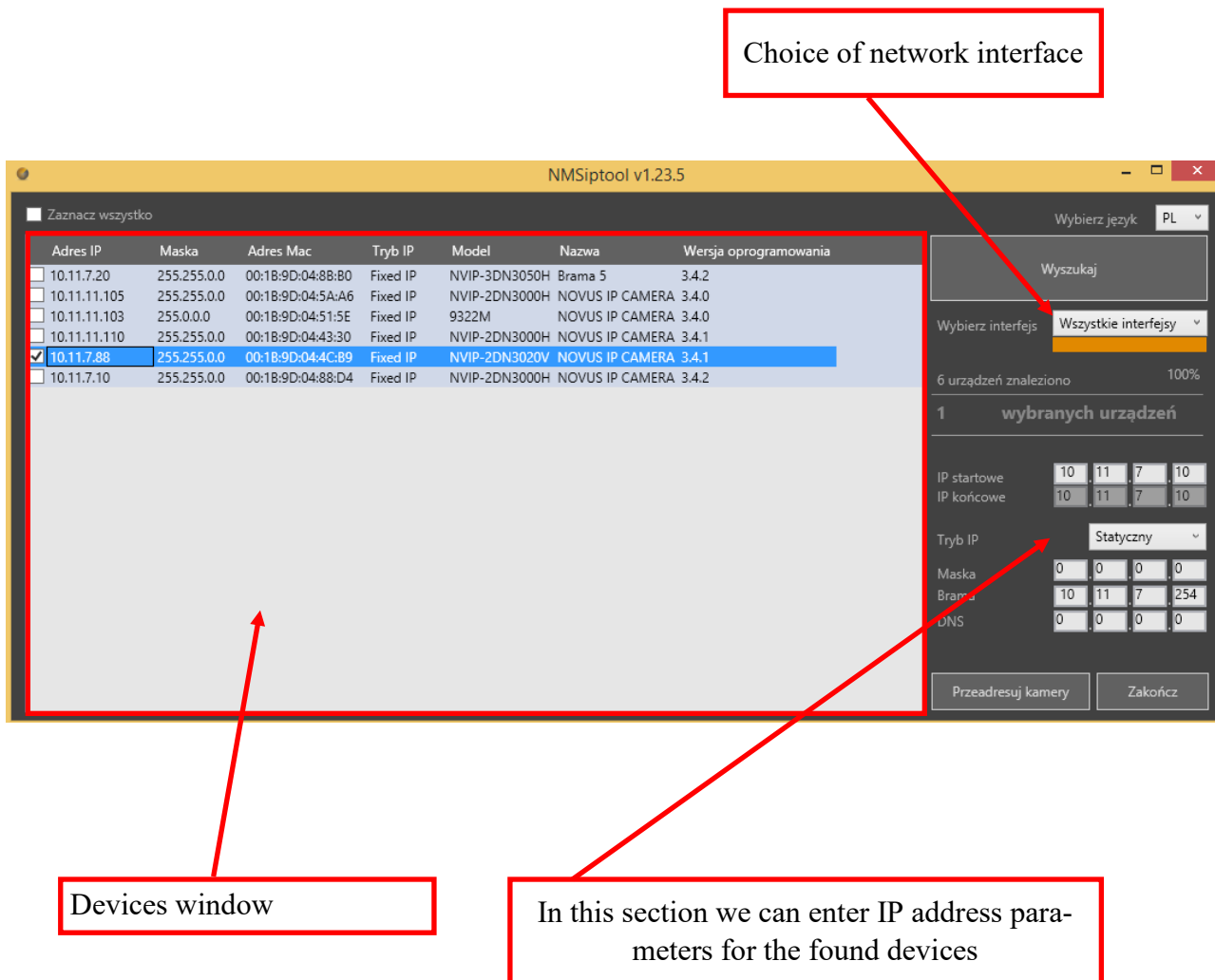
Information!

You have been automatically logged out of the system, your session has expired

Ok

NMS VSS IP TOOL

22. NMS VSS IP TOOL

NMS VSS IP TOOL is an additional application that allows you to search for NOVUS devices, as well as change the IP addresses of cameras.

Choice of network interface

Devices window

In this section we can enter IP address parameters for the found devices

NOVUS®