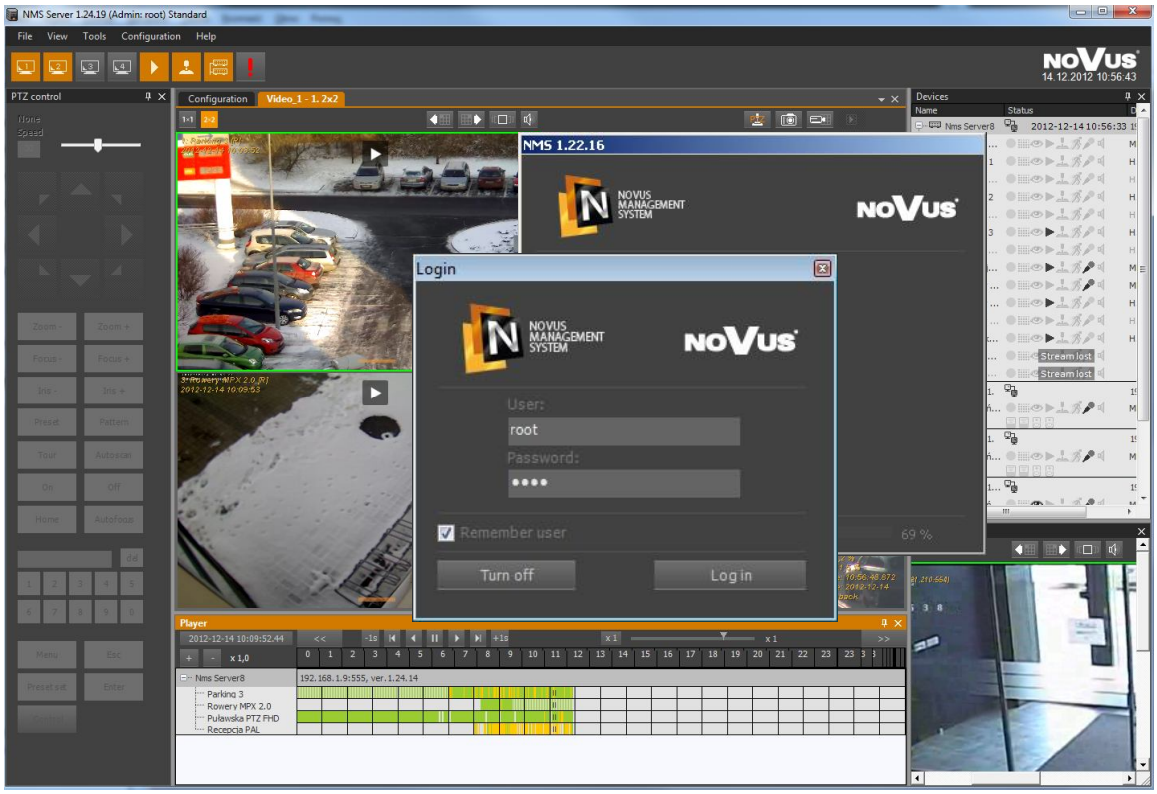
User's manual



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NMS
Novus Management System

NOVUS®

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1. FOREWORD INFORMATION

1.1. Main characteristics

- Software used for connections to NOVUS video servers and IP cameras;
- Unlimited number of simultaneously recorded video panels;
- RTSP support (to connect more then one RTSP channel it is required to purchase a separate license and use special USB dongle);
- Intuitive, graphic user interface composed of separate panels;
- Ability to create own camera systems;
- Real time displaying and recording speed up to 30 fps;
- H.264 compression;
- Video recording / video displaying 25 fps at **QCIF** (176 x 144), **QVGA** (320 x 240), **CIF** (352 x 288), **2CIF** (704 x 288), **VGA** (640 x 480), **4CIF** (704 x 576), **D1** (720 x 576), **SXGA** (1280 x 1024), **UXGA** (1600x1200), **HD** (1280x720), **FULL HD** (1920x1080); **3MPX** (2048x1536) **5MPX** (2592x1944);
- Support ipGO cameras;
- Live audio transmission and audio recording function, bidirectional audio transmission (function not available for 3000 and 5000 series cameras);
- Advanced graphic recording schedule;
- NMS users management;
- Advanced system of recording and filtering of events and application logs;
- Speed dome mouse-control; supported protocols: Pelco-D, Novus-C, Novus-C1, Novus-C2;
- Export to AVI function;
- Site maps features;
- Digital zoom;
- Support of event scenarios;
- POS implementation;
- Remote configuration of the NMS Server;
- Remote configuration of IP cameras;
- Support NMS Mobile for Android;
- Export recorded video to DVD burner;

Notice! This user's manual is based on NMS ver. 1.31.24

1. FOREWORD INFORMATION

1.2. Recommended PC specification

The PC hardware requirements for 720p resolution real time (25fps) NMS system are listed below. The PC requirements might be lower in case of small number of simultaneously displayed video channels and processing low resolution or low frame rate streams.

General PC specification is listed below:

1. **Intel** Processor (specified in table below)
2. RAM memory DDR3 4 GB
3. **Windows Pro 7 (64 bit)** - recommended
   (other supported OS: Windows XP (32bit) / Vista Bussines (32bit) / Windows Pro 7 (32bit)
4. Network adaptor **1000 Mb/s**
5. Sound card
6. **SATA hard discs** with **NTFS** file system

Notice! Due to the fact that reliability of the recording process and data safety are paramount factors of any CCTV system, we strongly advise to use HDDs dedicated to continuous (24/7) operation.

7. Additional VGA card for NMS Client unit - ATI4860 or newer with higher performance (additional VGA card is required when more than 24 MPx of total resolution is displayed)

NMS NVR 3 Server	Processor i3, 1HDD 500G + 2HDDx2TB, DVD, 2xGbit Ethernet	• Recording of up to 50 streams in HD resolution • Sending to the NMS CLIENT station of up to 50 streams in live mode or up to 16 streams in playback mode
NMS NVR 5 Server	Processor i5, 1HDD 500G + 3HDDx2TB, DVD, 2xGbit Ethernet	• Recording of up to 64 streams in HD resolution • Sending to the NMS CLIENT station of up to 75 streams in live mode or up to 16 streams in playback mode
NMS NVR 7 Server	Processor i7, 1HDD 500G + 4HDDx2TB, DVD, 2xGbit Ethernet	• Recording of up to 64 streams in HD resolution • Sending to the NMS CLIENT station of up to 150 streams in live mode or up to 16 streams in playback mode
NMS CLIENT 7	Processor i7, 1HDD 500G, DVD, 1xGbit Ethernet	• Receiving of up to 96 streams, displaying of up to 25 streams in live mode or playback of up to 16 streams with recordings

Notice! AMD configuration has not been tested.

Additionally, before NMS installation you are advised to:

- update Windows system
- update mother board, VGA card and sound card drivers to the latest version available at respective manufacturer's website

In case of problem with the selection of appropriate hardware please contact your local NOVUS distributor.

1. FOREWORD INFORMATION

1.3. Additional software requirements

Prior to the NMS software installation the following components are required:

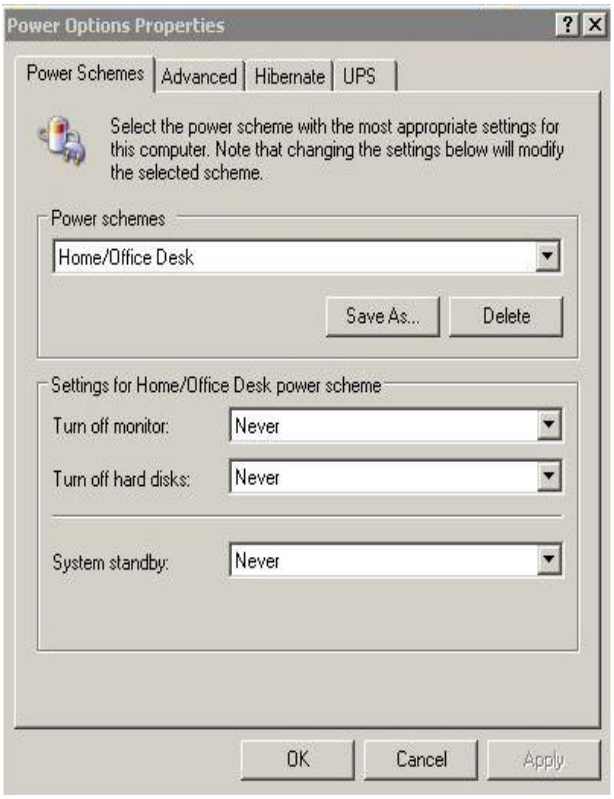
- DirectX ver. 9.0c or newer
- Microsoft .net Framework ver. 4.0
- Mictrosoft Visual C++ 2012 Redistributable Package x86
- Xvid MPEG-4 Video Codec (latest version)
- FFdshow codecs

Components listed above are not included in the NMS installation pack. To ensure proper installation, please install DirectX and .NET components. Installation of Xvid and FFdshow is also recommended. Installing components above is required only during the first NMS installation.

1.4. PC configuration before NMS installation

Before NMS installation please make sure that all power saving options in BIOS and Windows have been switched off.

Notice! The following instruction is for Windows XP. However, configuration of power management and screen saver in Windows Vista is very similar.



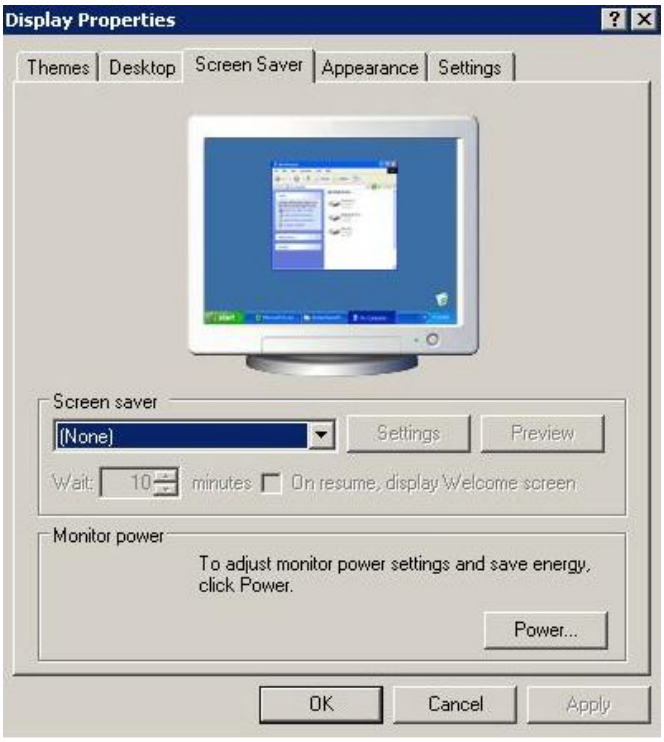
Windows Power Options Properties

Start -> Settings -> Control Panel -> Power Options Properties

Set *Power schemes* to *Always on*

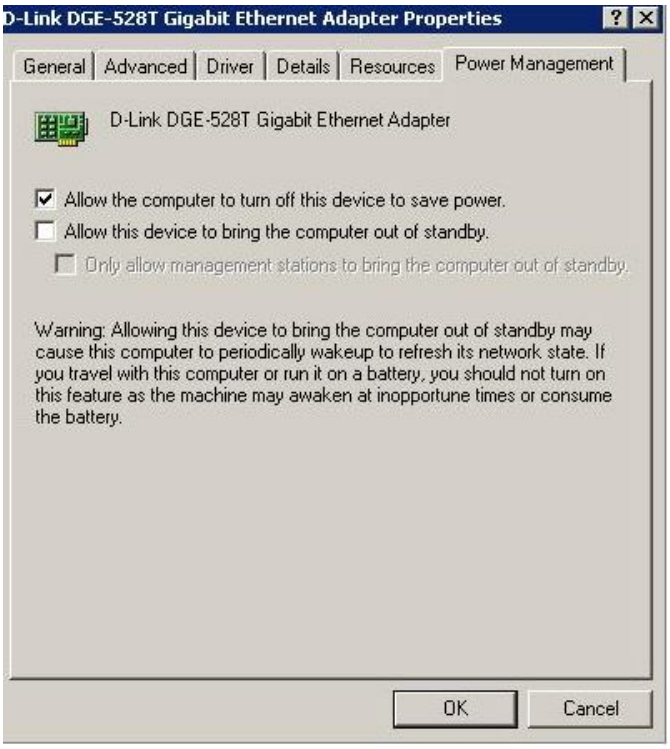
In other fields set *Never*.

1. FOREWORD INFORMATION



Windows Screen saver settings

Start -> Settings ->
Control panel -> Display properties ->
Screen Saver -> (None)

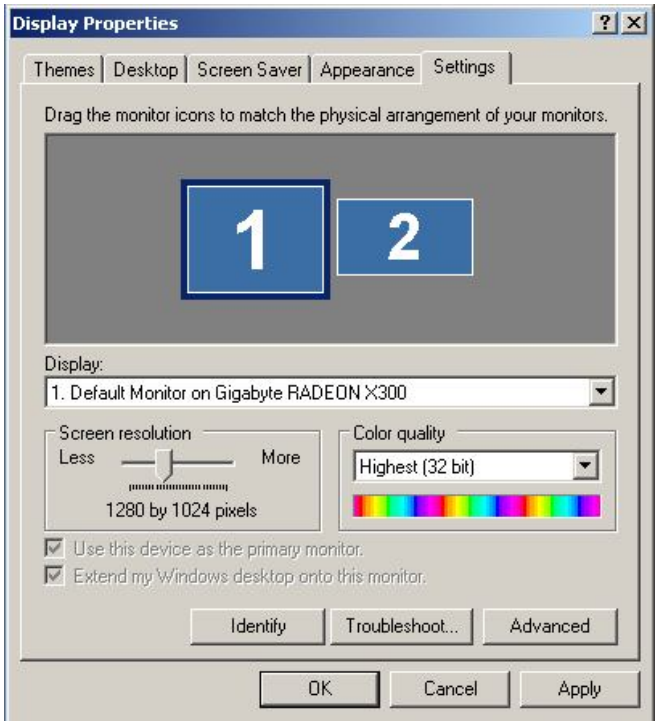


Network card power management settings

In the network adaptor settings please uncheck the "*Allow the computer to turn off this device to save power"* (marked by default).

1. FOREWORD INFORMATION

Recommended Screen resolution for NMS is 1280 x 1024. However, the application works properly for higher and lower resolutions as well.



Windows screen resolution settings

Start -> Settings -> Control Panel-> Display Properties -> Settings

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1. FOREWORD INFORMATION

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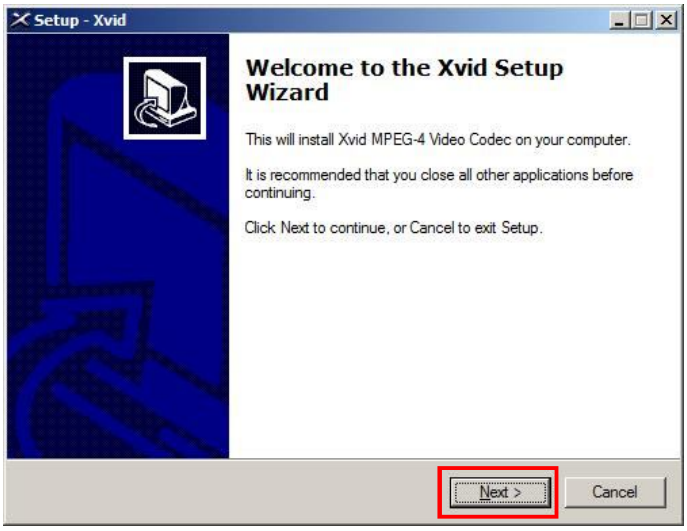
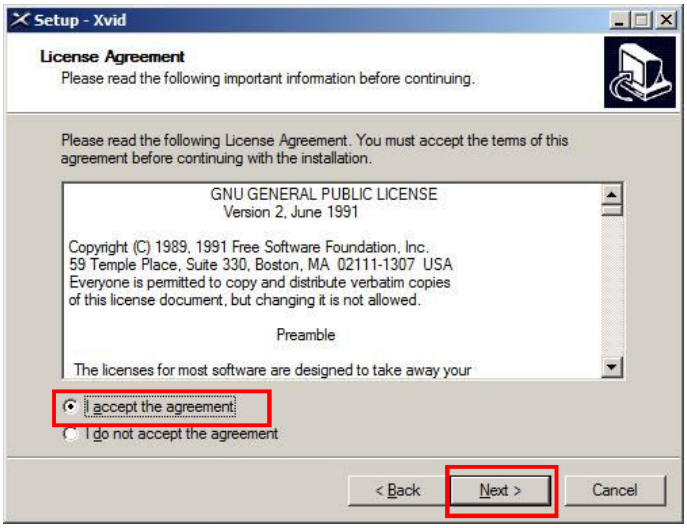
Xvid codec installation

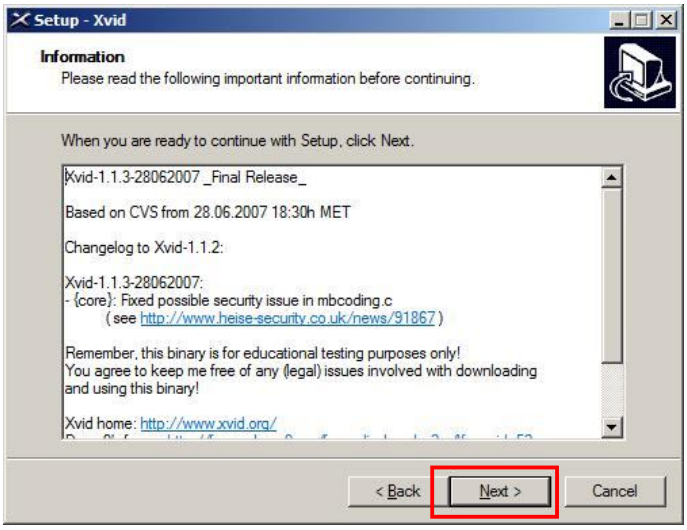


After selecting the Xvid Codec application please press the *Next* button to continue.

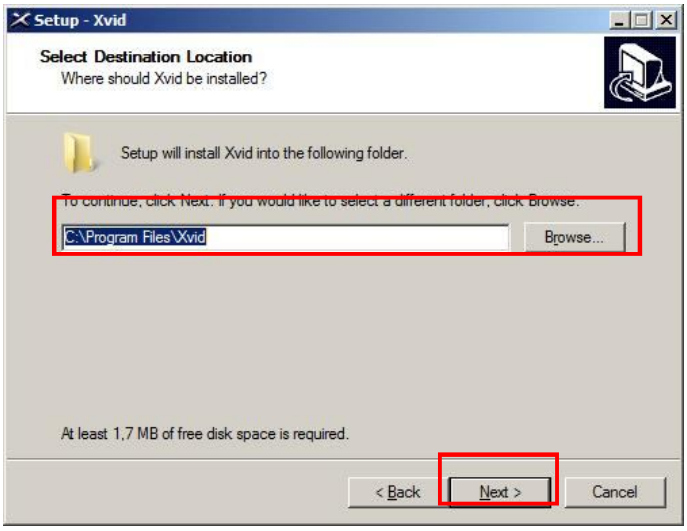


Please read through the license agreement, then select *"I accept the terms in the license agreement"* and select *Next* to continue.

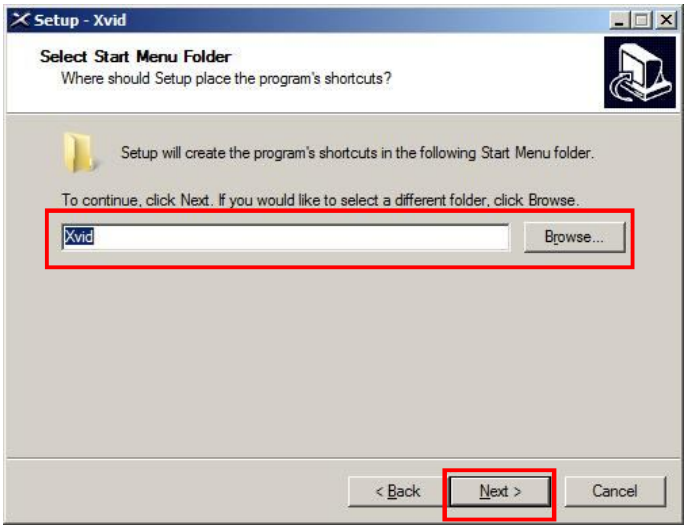
1. FOREWORD INFORMATION



Please read the important information on the current version of Xvid Codec being installed. Select *Next* to continue.

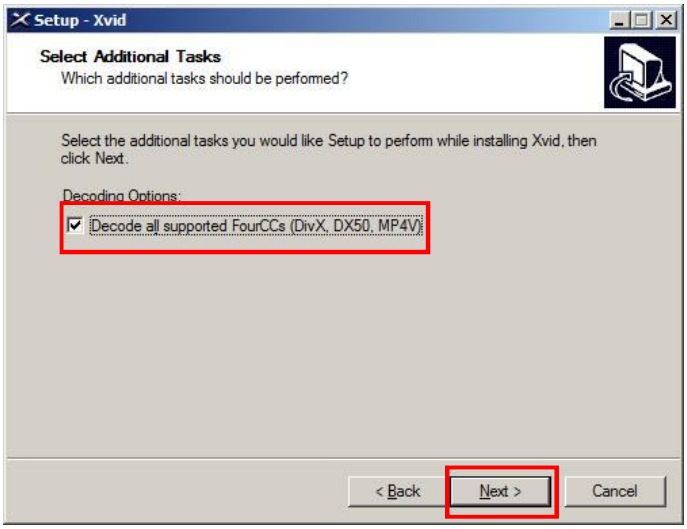


Please select Browse to place the Xvid Codec application in a specified location or leave the default path and click *Next*.

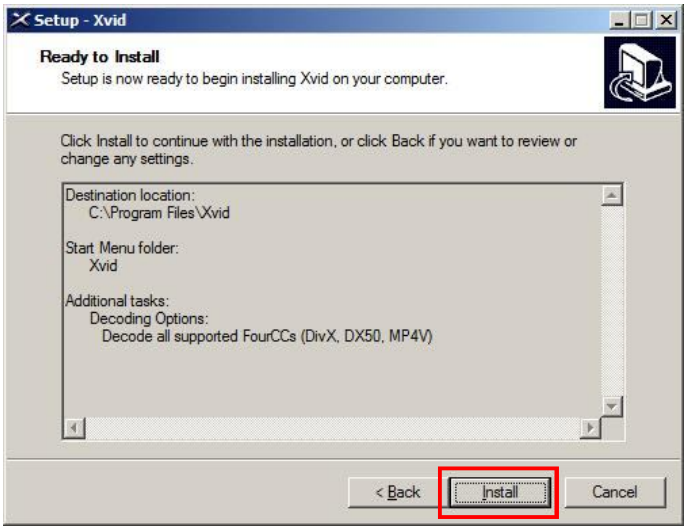


Xvid Codec shortcut - leave the default path and select *Next* to continue.

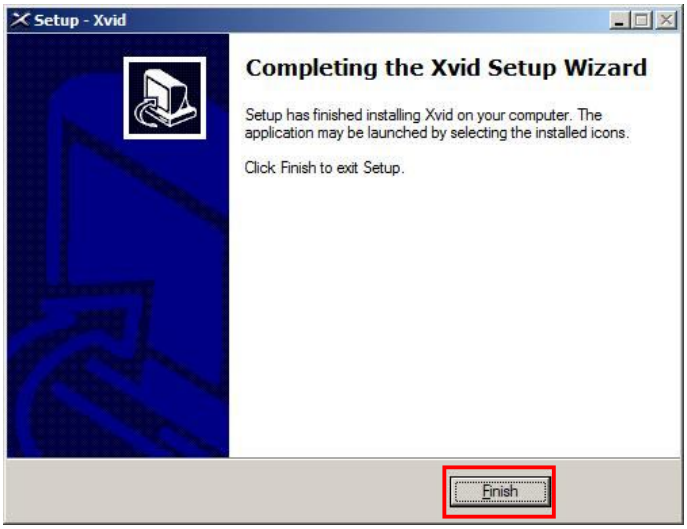
1. FOREWORD INFORMATION



Please check the "*Decode all supported FourCCs (DivX, DX50, MP4V)*" option and select *Next* to continue.



Please select "*Install*" button. The software will complete its installation.



To confirm the completion of installation select "*Finish*" buton.

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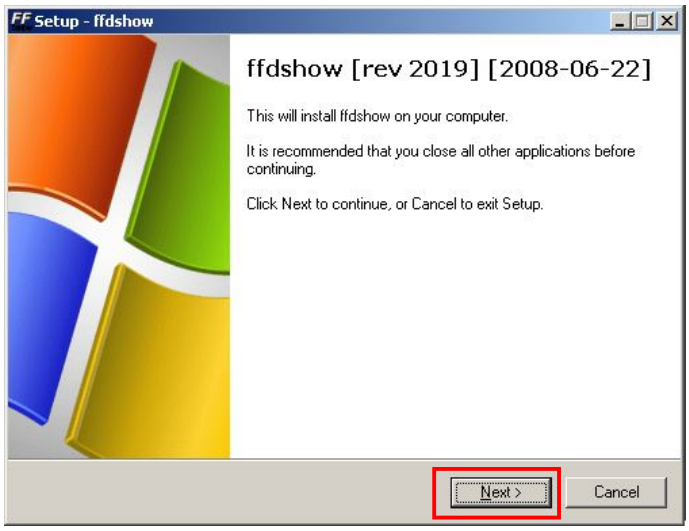
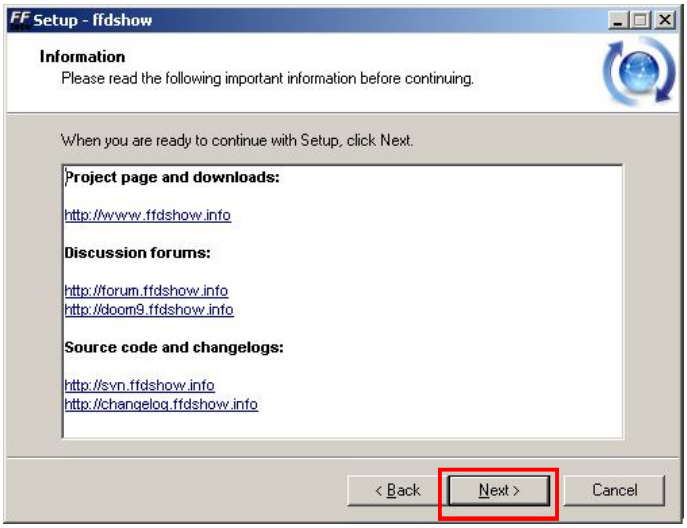
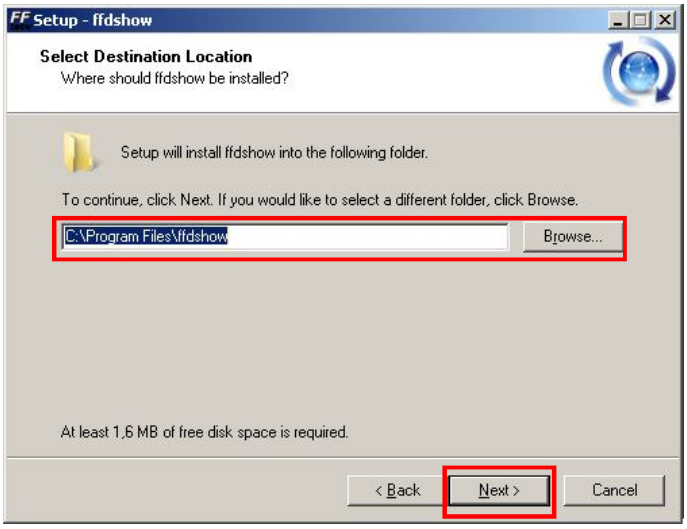
FFdshow codecs installation



After selecting the FFdshow application please press the *Next* button to continue.

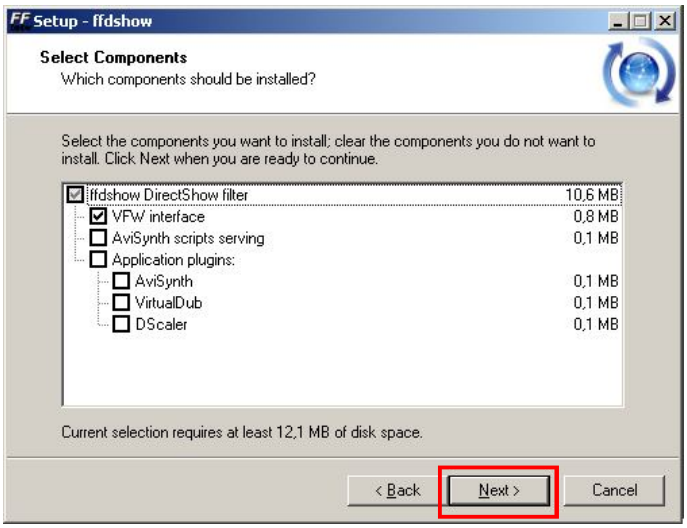


Please read the important information on the current version of FFdshow being installed. Select *Next* to continue.

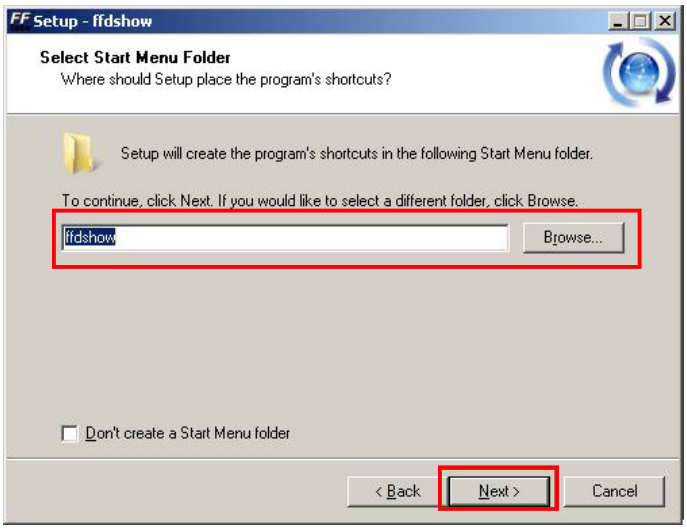


Please select Browse to place the FFdshow application in a specified location or leave the default path and click *Next*.

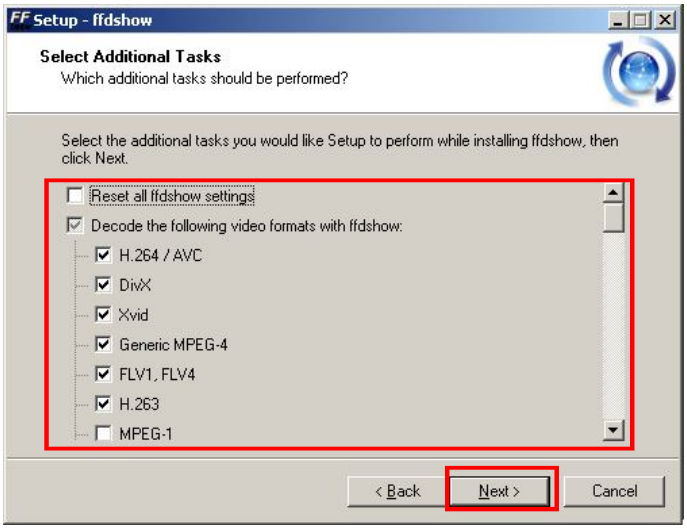
1. FOREWORD INFORMATION



Select components to be installed. *FFdshow DirectShow filter* is only required. Select *Next* to continue.

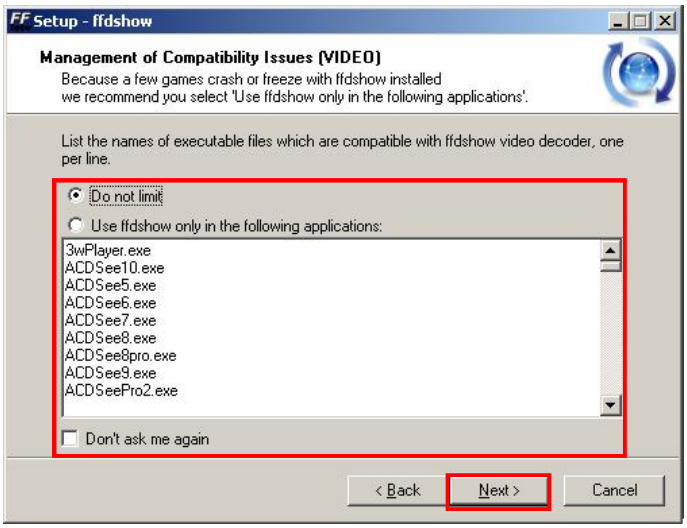


FFdshow codec shortcut - leave the default path and select *Next* to continue.

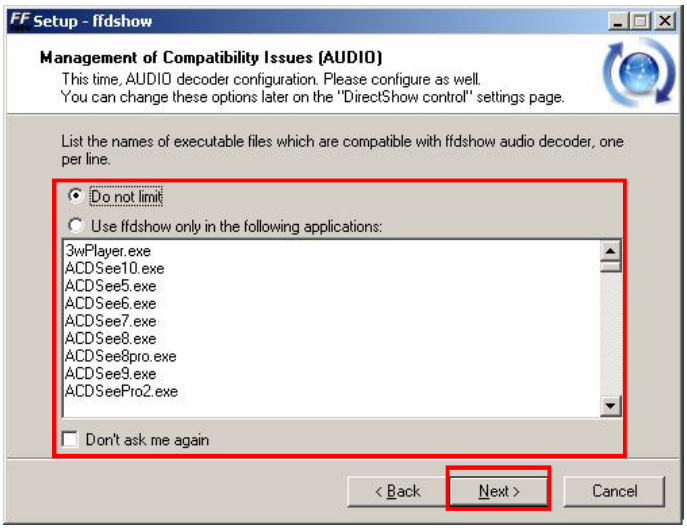


Please leave the default option on this page and select *Next* to continue.

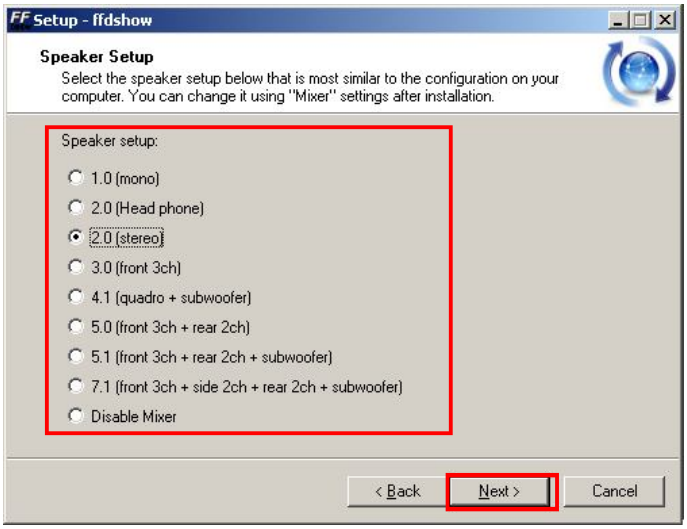
1. FOREWORD INFORMATION



Please select *Do not limit* for video applications and select *Next* to continue.

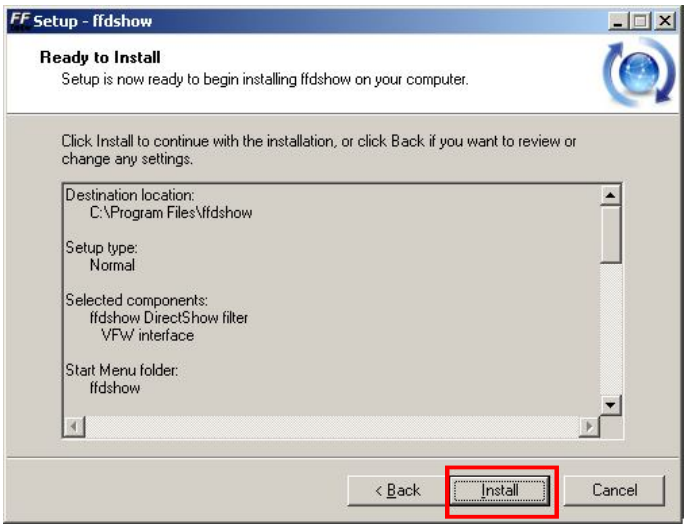


Please select *Do not limit* for video applications and select *Next* to continue.

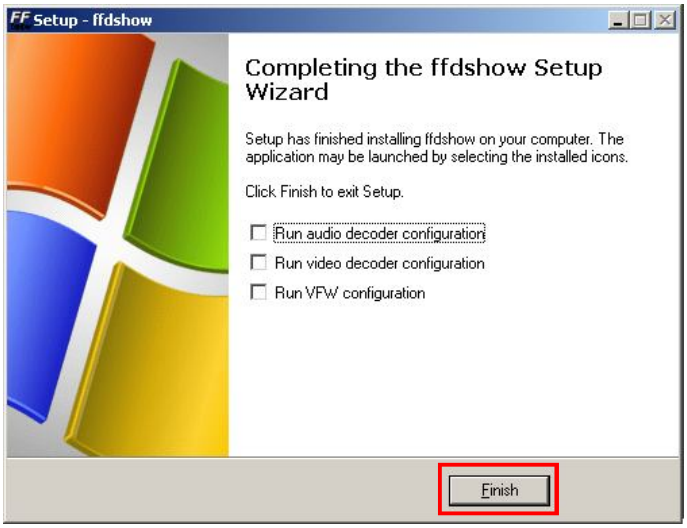


Please place a check mark next to the option resembles your PC configuration the most. Select *Next* to continue.

1. FOREWORD INFORMATION



Select *Install*.



To confirm the completion of the installation please select *Finish*.

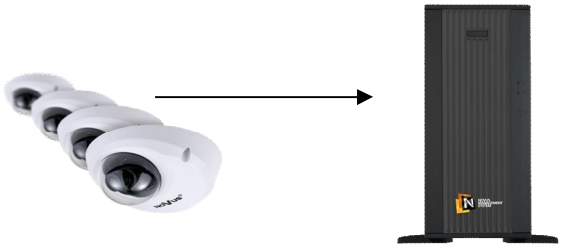
2. INSTALLATION AND LAUNCHING NMS SOFTWARE

Attention: Prior to NMS installation please fulfil all preliminary requirements described in previous chapter of this manual.

Attention: Flexibility of NMS application allows users to create simple single site system as well as complicated system where many remote clients are connected to central recording station. Please consider your system requirement prior to software installation.

2.1. Single site system - NMS Server / Client installation

Single site installation mode - **NMS Server / Client** is dedicated to users of simple systems where all IP cameras are connected to a single PC unit where recording and monitoring process is performed at the same time by a single operator.

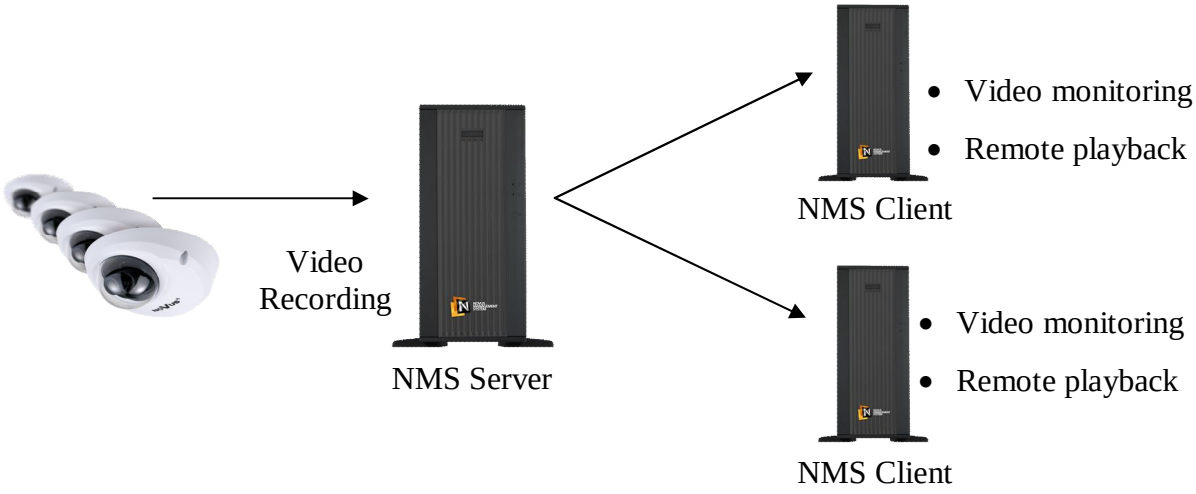


- Video streams recording
- Video monitoring
- One operating station

NMS Server / Client

2.2. Multisite system - NMS Server or NMS Client installation

In order to ensure access to video streams for many operators and increase system security the recording and monitoring process should be separated. More complicated multisite system allows to meet these requirements. In this case all remote clients are connected to an NMS Server and only this recording station is directly connected to IP cameras. This system architecture allows to place central NMS server in secure location with limited staff access as well as manage all remote user's rights directly from central server.



2. INSTALLATION AND LAUNCHING NMS SOFTWARE

2.3. Features of particular installation types

Depend on selected installation mode NMS application features:

- **MULTISITE INSTALLATION**

NMS Server

- compatible IP camera searching;
- video stream from IP camera and other NMS Server recording;
- video stream to NMS Client transmitting;
- up to 4 video streams monitoring - processing power of NMS Server is used to record and send video streams to many remote clients.
- maximum simultaneous connection limiting for live view and playback mode - NMS firewall feature;
- centralized managing remote user's cameras lists;
- centralized managing remote user's rights;
- centralized managing remote user's group priorities - access to recording is always available for users with higher priority. If connection limit in playback mode is exceeded user with lower priority is disconnected.
- manual NMS Server adding - in order to ensure video data redundancy it is possible to connect NMS Server to another NMS Server and start recording its video streams. It is typical solution when additional NMS Backup Server is required.
- dynamic bandwidth management - NMS Server and NMS Server/ Client transmits to NMS Client currently displayed streams only.

NMS Client

- NMS Server and NMS Server/Client units searching;
- up to 144 video streams monitoring - processing power of NMS Client unit is used to decompress video streams;
- up to 16 video streams searching in remote playback mode (NMS Client shows an information about recordings available on NMS Server);
- video stream recording impossible;
- remote panic recording - NMS Client sends start panic recording command to the NMS Server.
- video streams transmitting to another NMS Client, NMS Server, NMS Server/Client is not possible;
- dynamic stream management - automatically switches video displayed in the main window to a lower performance stream if a certain amount of streams is simultaneously displayed on screen.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

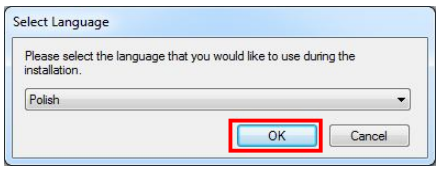
- **SINGLE SITE INSTALLATION**

NMS Server/Client

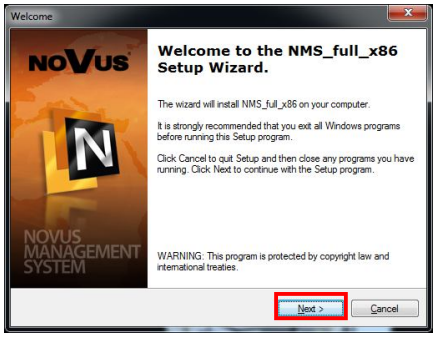
- compatible IP camera searching;
- video stream from IP camera and other NMS Server recording;
- up to 144 video streams monitoring - processing power of NMS Client unit is used to decompress video streams;
- manual NMS Server adding - in order to ensure video data redundancy it is possible to connect NMS Server/Client to another NMS Server and start recording its video streams. It is typical solution when additional NMS Backup Server is required.
- video stream to NMS Client transmitting - is not recommended;
- dynamic bandwidth management - NMS Server and NMS Server/ Client transmits to NMS Client currently displayed streams only.
- dynamic stream management - automatically switches video displayed in the main window to a lower performance stream if a certain amount of streams is simultaneously displayed on screen.

2.4. NMS installation

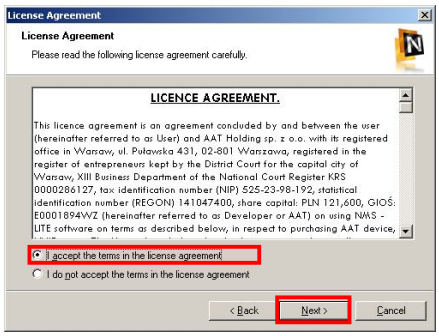
Please familiarize yourself with the information described in previous chapter of this manual first. In order to install NMS application please make a double click on the NMS installation file.



Please select the installation language.

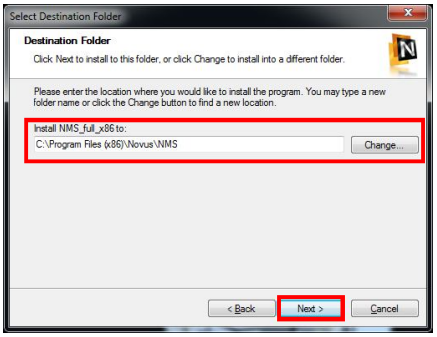


The welcome message appears on the screen. Select *Next* to continue.

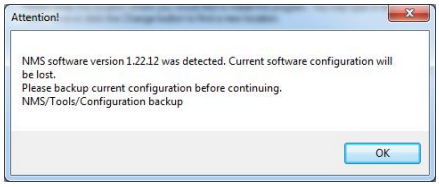


Please read the license agreement on the next screen carefully. Choose "*I accept the terms in the licence agreement*" and select *Next* to continue.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

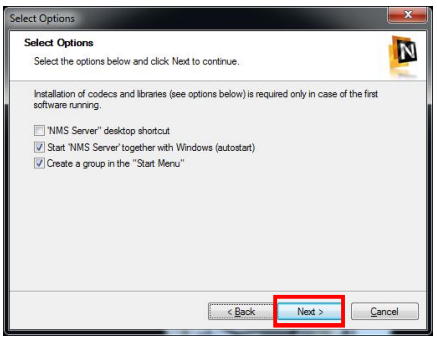


To change default software location press "*Change*" button and point to a folder where the software is installed or leave the default path and select *Next* to continue.

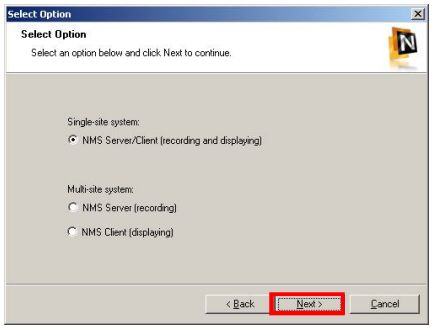


The adjacent information is displayed when previous installation was detected. Please familiarize yourself with the information described in chapter 15 BACKUP.

Current software configuration will be lost if you continue installation process !!!

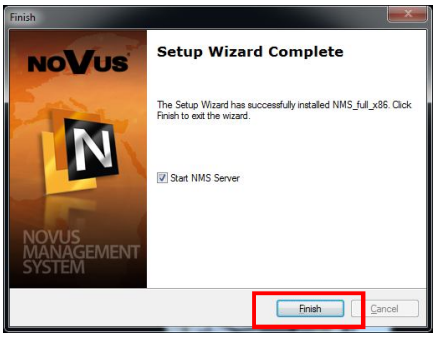


Please select *Next* to continue.



Please select installation mode. Please find detailed information on previous pages of this manual.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE



Please place a check mark next to „*Start NMS Server* „ option to run software after the installation completion. To confirm, select *Finish*.

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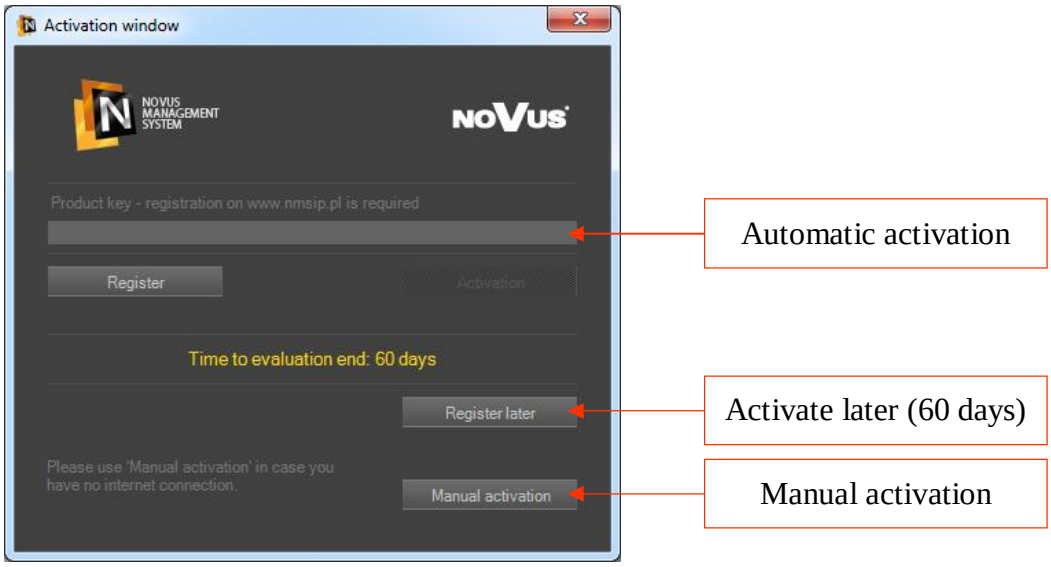
2.5. NMS software activation

The NMS software is launched via a shortcut icon on the desktop or in the *Start* menu.

After a while NMS activation window appears on the screen.



Activation window allows to pick one of the three options:

- automatic activation – Internet connection on PC with NMS application is required;
- manual activation - any PC with Internet connection can be used;
- activate anytime later (within 60-day period).

Attention: Activation process must be done within 60 days from NMS first launch otherwise application stops working.

Attention: Online registration is free of charge.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

2.5.1. Automatic NMS activation

Activation window allows to activate NMS application automatically. It is most convenient activation method however **Internet connection on PC with NMS application is required.** NMS establishes a connection with an activation server, and then processes the activation request.

Attention: Internet connection is required only to perform short activation process.

In order to activate NMS application please follow these steps:

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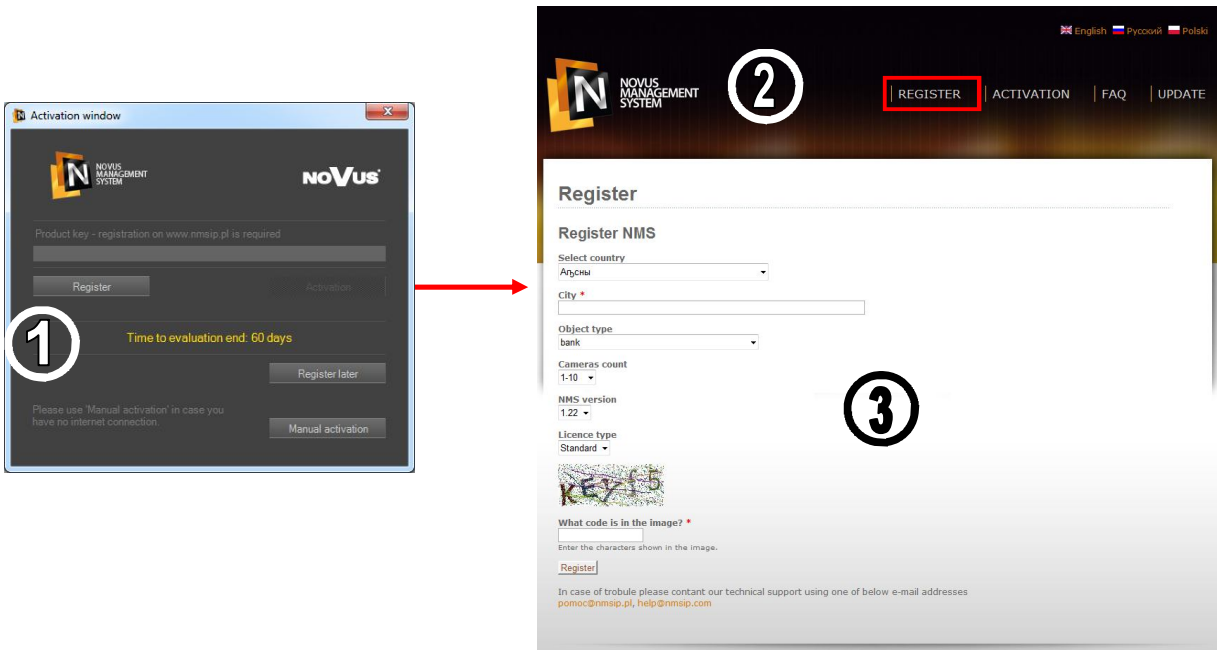
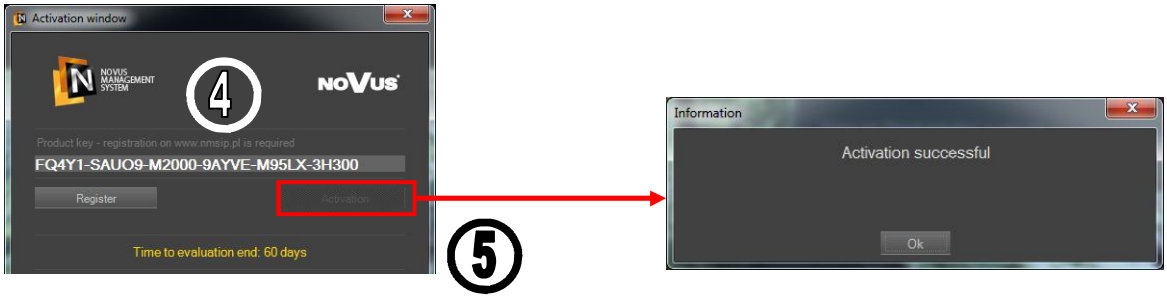
1. Please press *REGISTER* button in activation window.
2. Following webpage is displayed *http://nmsip.pl/en/**Register***.



3. Please fill in registration form, re-write appropriate code in the image and press *REGISTER*.
4. Your *PRODUCT KEY* will be generated during successful registration. Please copy and paste it in the proper field in NMS activation window.
5. Please press *ACTIVATE* button to complete activation process. When activation is completed and you receive the following message, click *OK*.



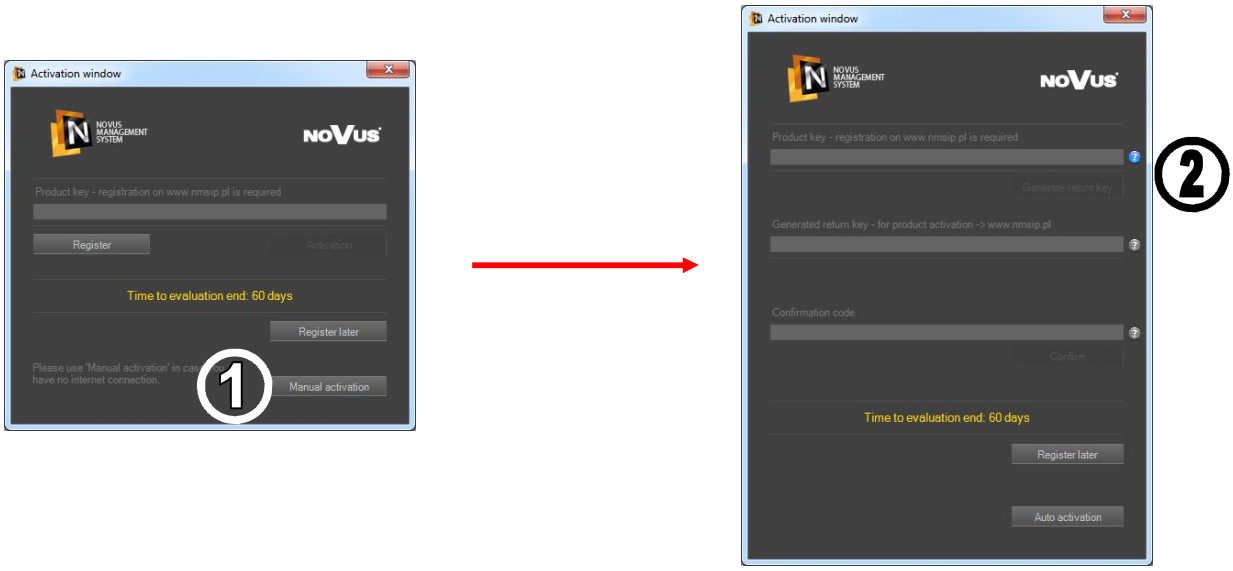
2. INSTALLATION AND LAUNCHING NMS SOFTWARE

2.5.2. Manual NMS activation

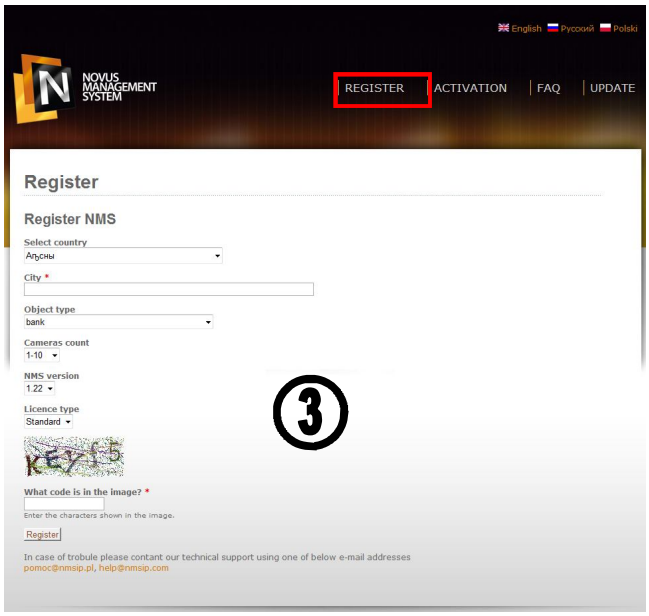
Attention: If you do not have an Internet connection on a PC with NMS application, you can activate NMS manually. In order to activate NMS application please use any PC with Internet connection or contact with person that can register NMS application for You and provide her all the necessary information by telephone.

In order to activate NMS application manually please follow these steps:

1. Please press *MANUAL ACTIVATION* button in activation window.
2. All activation steps are also described here.



3. Please use any PC with Internet connection and visit the following webpage *http://nmsip.pl/en/**Register*** to start registration process.



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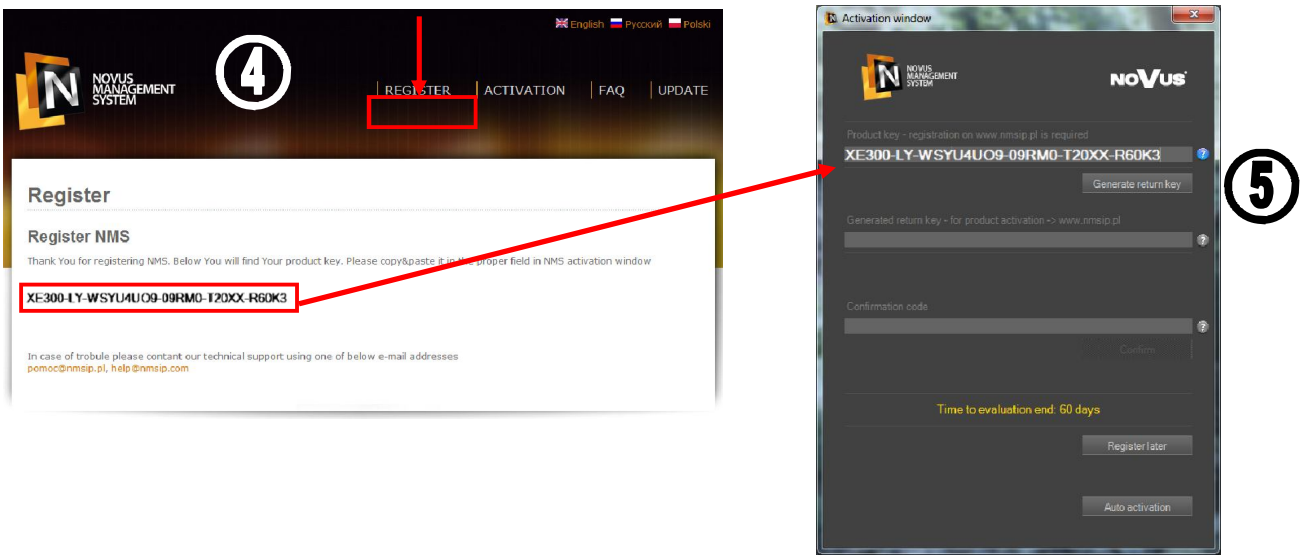
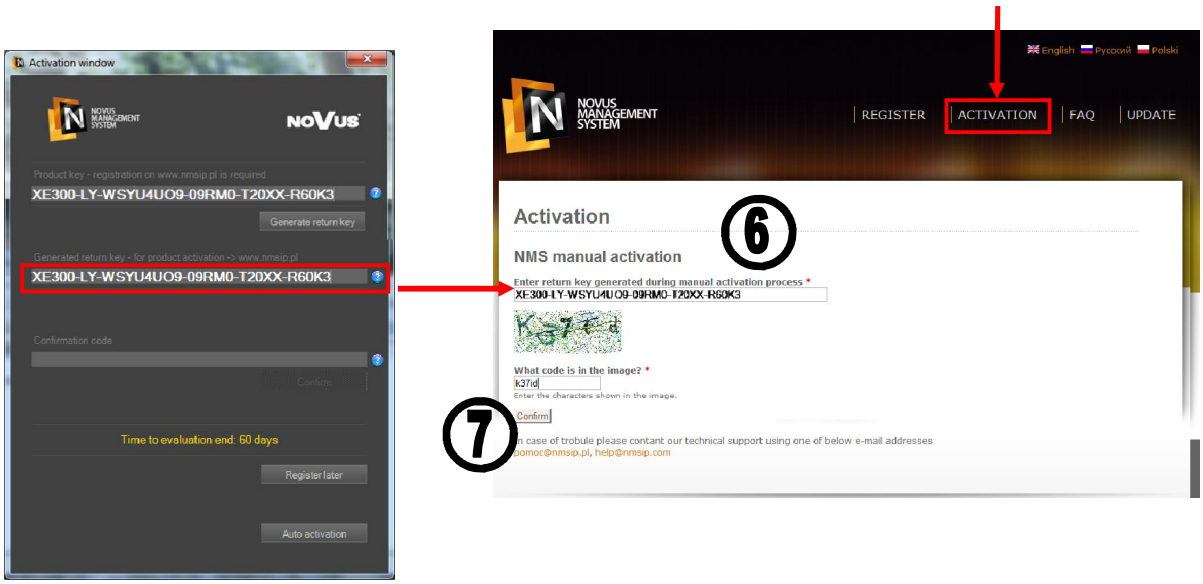
2. INSTALLATION AND LAUNCHING NMS SOFTWARE

4. Your *PRODUCT KEY* will be generated during successful registration. Please copy and paste it in the proper field in the NMS activation window.
5. Please press *GENERATE RETURN KEY* button in activation window.



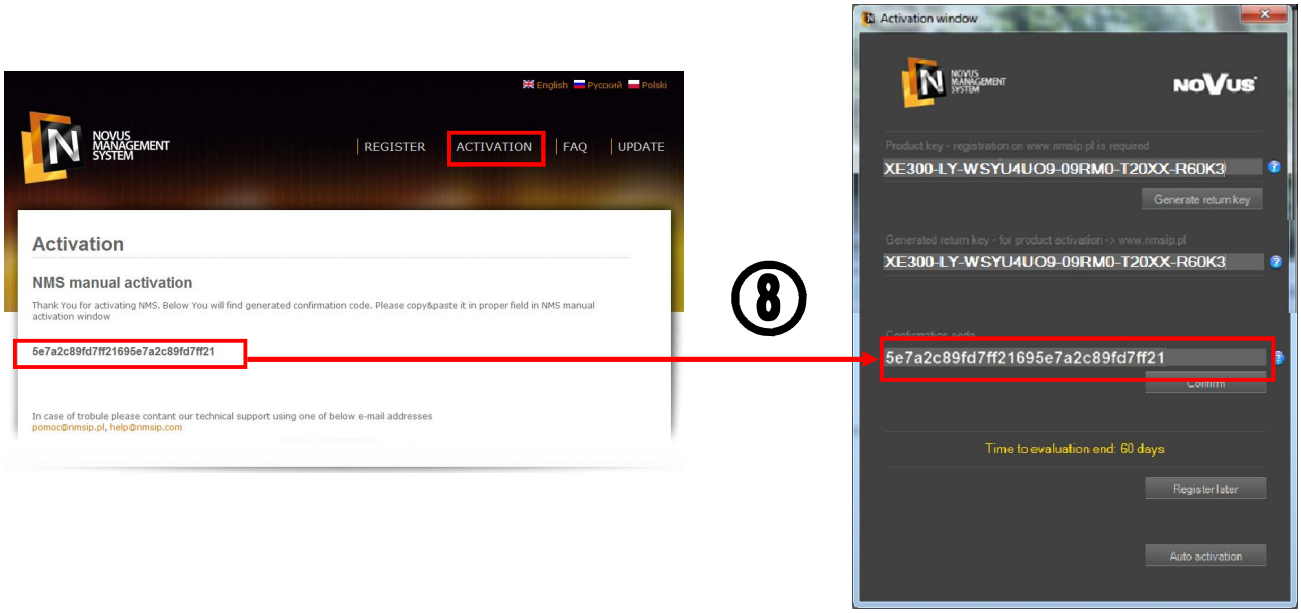
6. Please again use any PC with Internet connection and visit *http://nmsip.pl/en* webpage. *In **ACTIVATION*** tab please type your *RETURN KEY* obtained during activation process.



7. Please press *CONFIRM* button in your browser to generate a *CONFIRMATION CODE.*

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

8. Your *CONFIRMATION CODE* will be generated during successful activation. Please copy and paste it in the proper field in NMS activation window.



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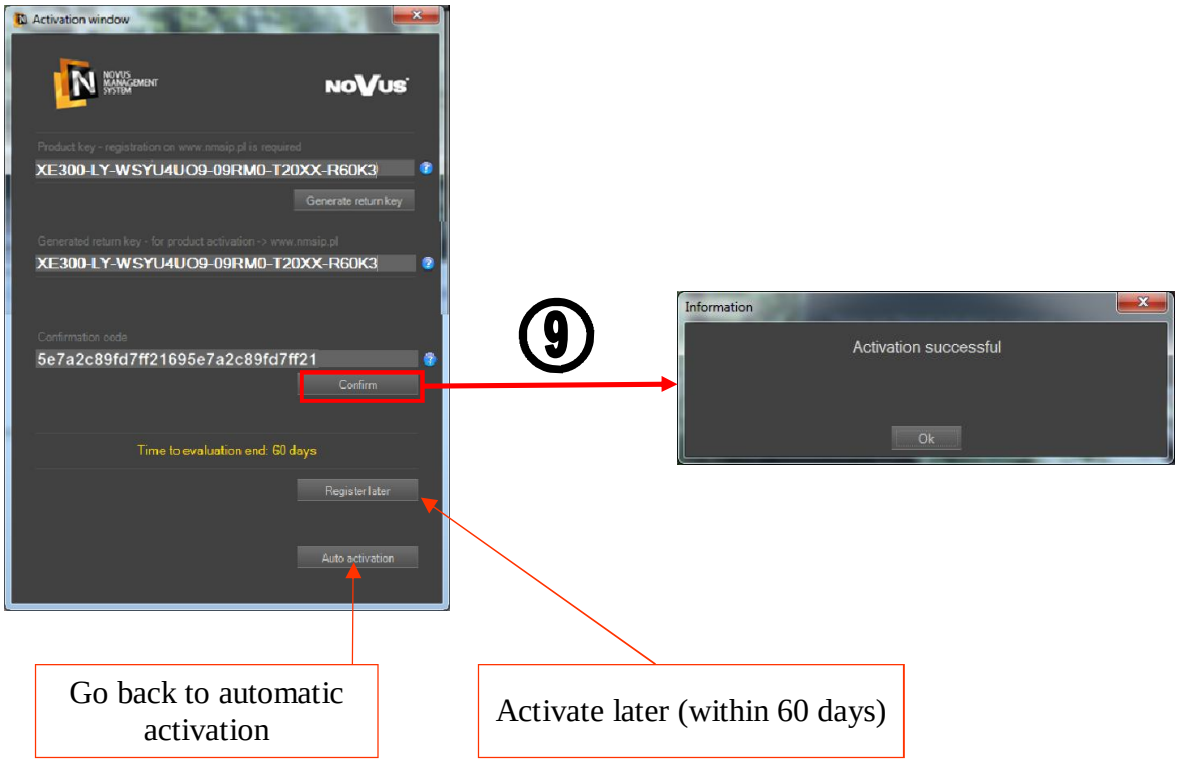
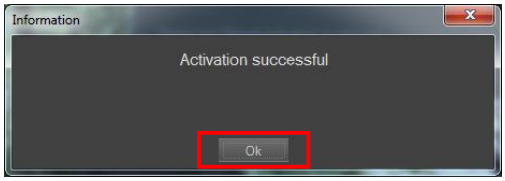
9. Please press *CONFIRM* button to complete activation process. When activation is completed and you receive the following message, click *OK*.

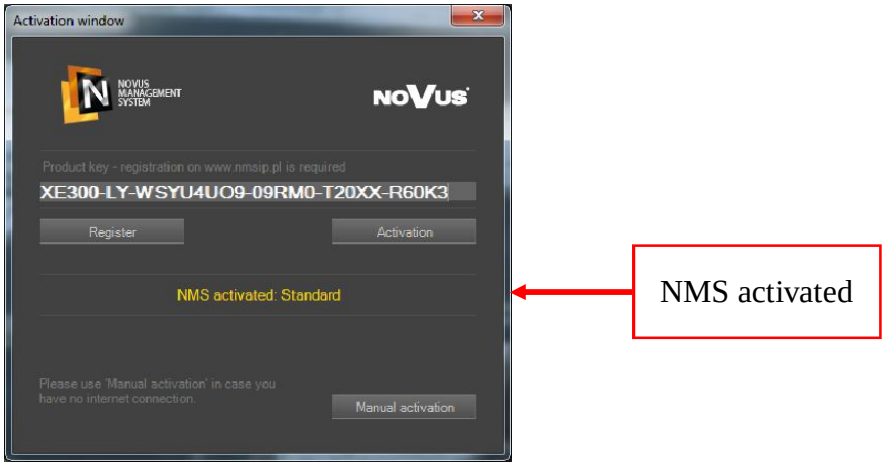


2. INSTALLATION AND LAUNCHING NMS SOFTWARE

When activation is completed and you receive the following message, please click *OK* to start NMS application.

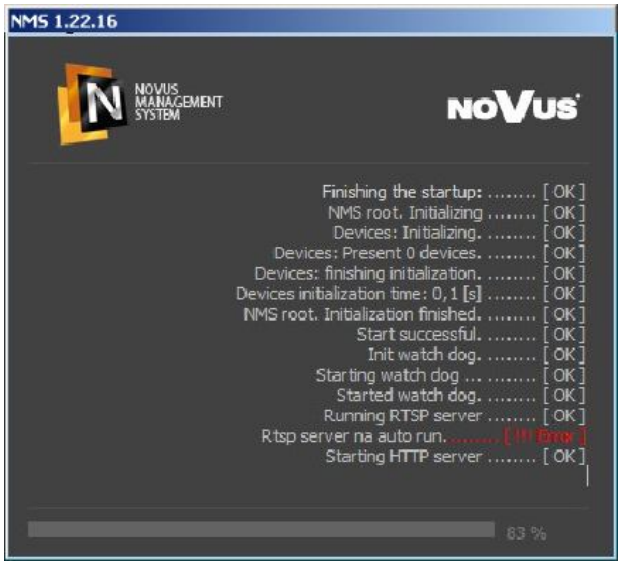


Current status of software activation is shown in NMS */ HELP/ ACTIVATION* window.



2.6. Launching NMS software

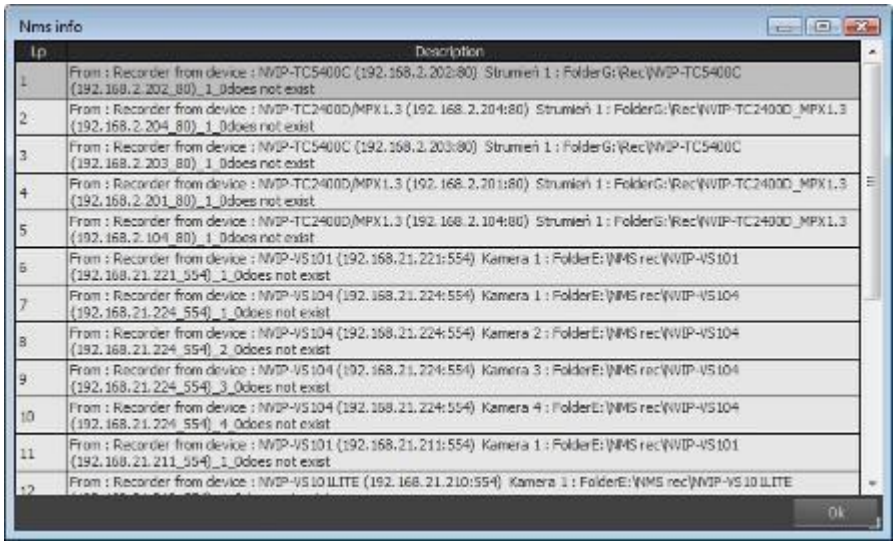
NMS module initialization window appears on the screen regardless of successful or planned (within 60-day period) NMS activation.



Attention: Activation process must be done within 60 days from NMS first launch otherwise application stops working.

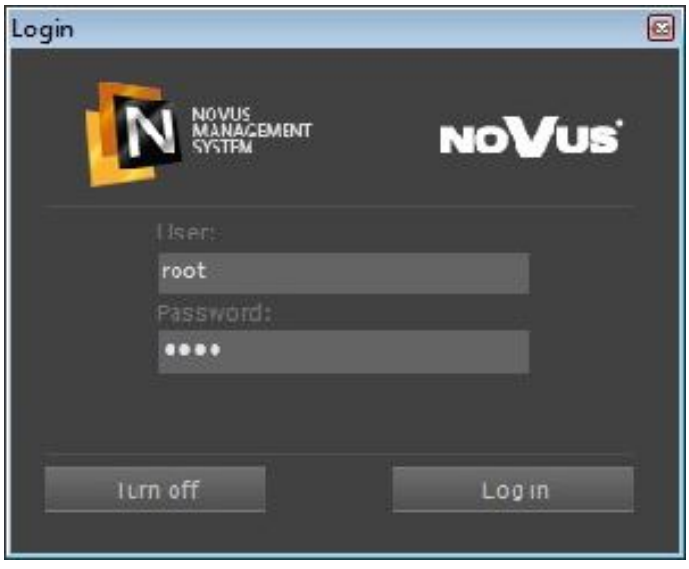
2. INSTALLATION AND LAUNCHING NMS SOFTWARE

In case of any problems during software or IP devices initialization, the following short form report will be displayed. Error messages are displayed for 10 seconds in the window above. If no action is taken, the window is then automatically closed.



Notice! The *Start screen log* and *Stop screen log* are located in VIEW / LOGS panel.

Login window appears on the screen, default user is **root** and the password is **pass**.

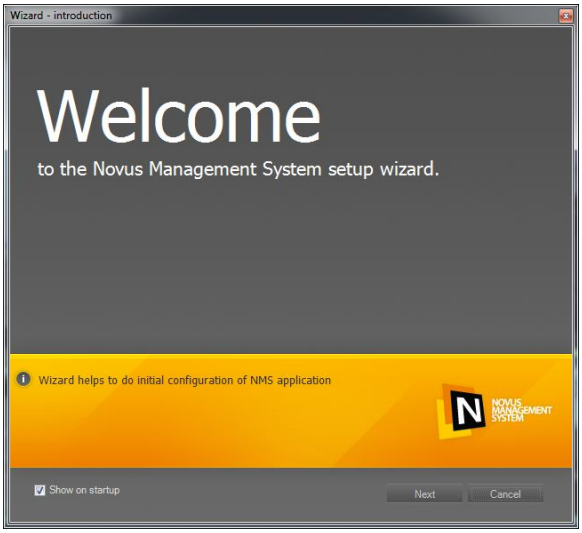


Log in button opens NMS main window, *Turn off* button closes NMS - function limited to group of users with sufficient administrative level.

Notice! Changing default user name and password after login is recommended.

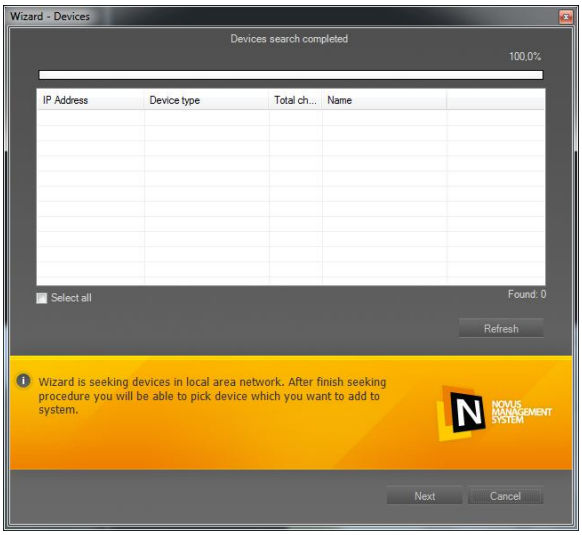
2. INSTALLATION AND LAUNCHING NMS SOFTWARE

An embedded NMS Wizard is automatically started when running NMS for the first time. Startup window is depicted below:



Installation mode (NMS as Client, as Server or in a dual mode) selected during NMS installation determines further Wizard operation. Please find detailed information regarding NMS installation modes in the **NMS SOFTWARE INSTALATION** chapter.

Checking „Show at start-up" launches wizard every time the NMS is started. In order to move to the next window, please press the „Next" button. „Cancel" closes the window and opens the NMS main window. If the „Next" button is pressed, a new window is launched:



This window starts immediate search of:

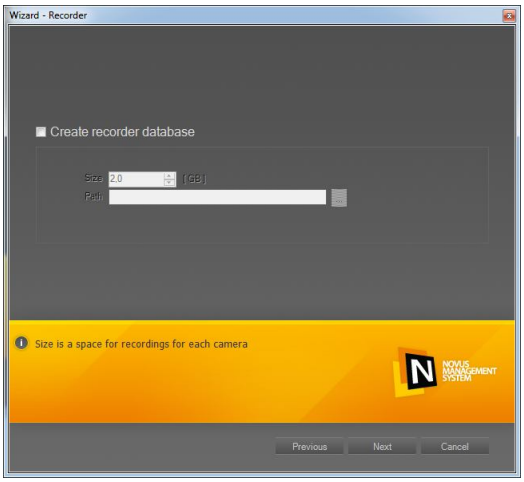
- IP cameras by application installed in NMS Server and NMS Server/Client mode
- NMS Servers by application installed in NMS Client mode.

All IP cameras and NMS Servers must reside in the same subnet as the host computer. Search is automatic and, when finished, displays a list of available supported devices together with their IP addresses and names.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

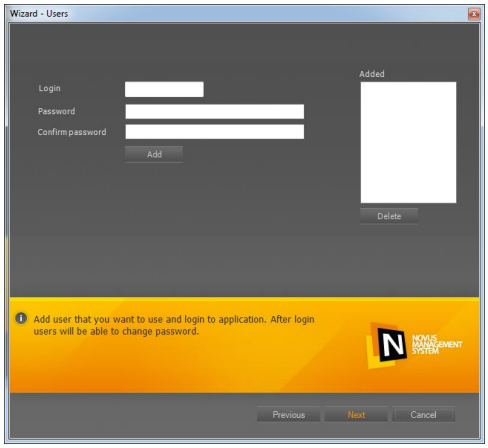
Refresh button restarts the search process. Pressing the „Next" opens subsequent window, which allows to select whether the NMS software is to share video streams over a network or not (function available only in server and server/client modes). This function has its significance when installing the NMS in server mode. Option is skipped in client mode.

Pressing the „Next" opens another window, that allows to assign disk recording space and paths for archives (function available only in server and server/client modes):



Checking the "Create recording database" is required in order to do that. Settings entered here are applied globally to each device found earlier in the search process.

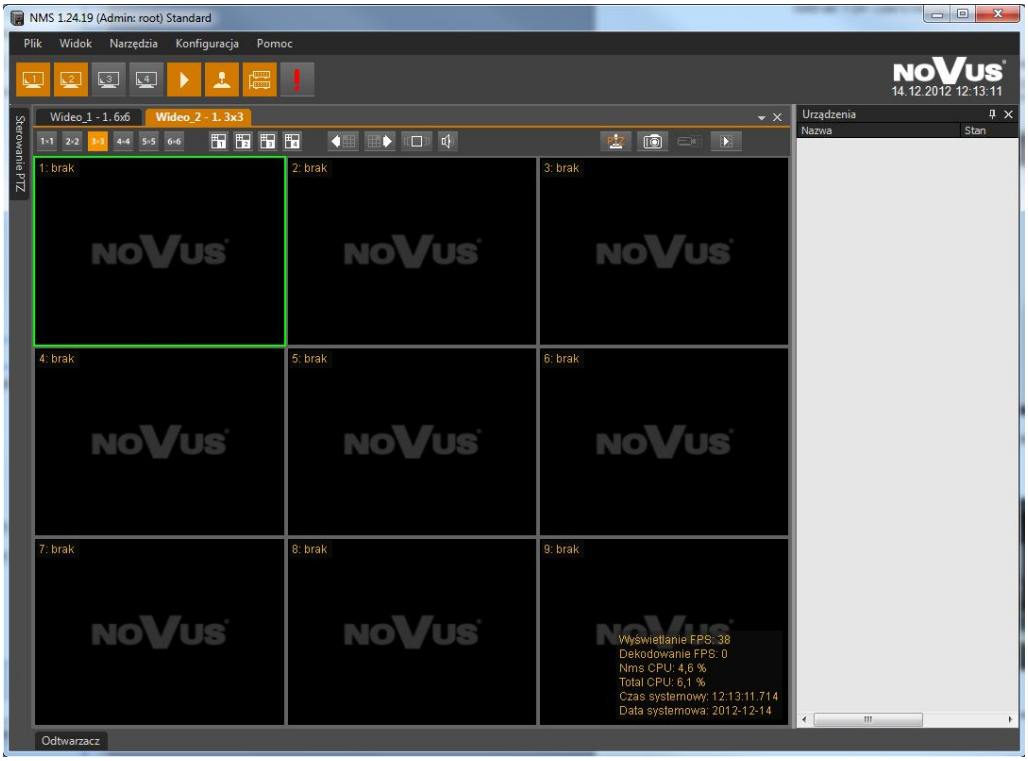
Pressing "Next" once more opens subsequent window that allows to create user accounts and assign their passwords (please take note that default account under which the NMS is launched is an Administrator one and adding at least one User account with appropriate privileges is strongly advised).



Entering required data (login and password) and pressing the "Add" button moves an edited account to the "Added" box. When an incorrect user entry has been performed, an account may be deleted by pressing the "Delete" button. After adding required user accounts and pressing the "Next" button a final window is then opened, allowing to apply selected changes and save them in software configuration. In order to apply settings, user is automatically logged out and then prompted to log in again.

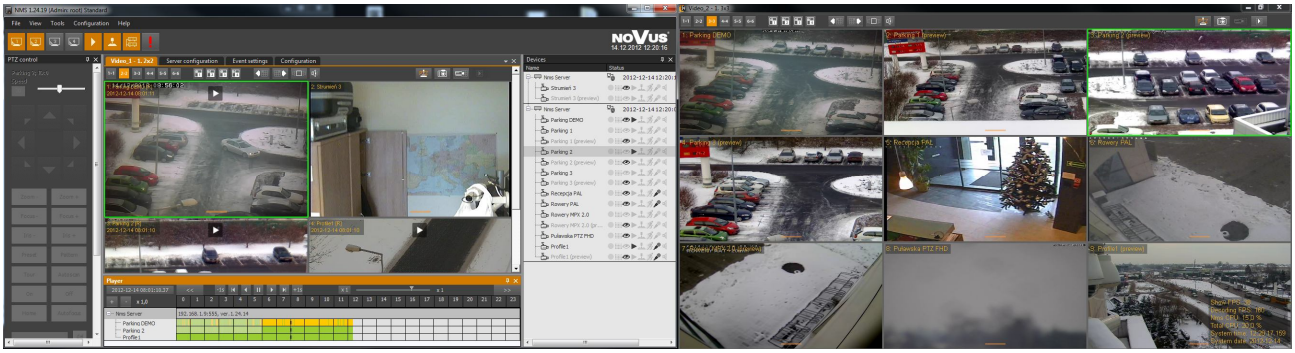
2. INSTALLATION AND LAUNCHING NMS SOFTWARE

After a while application window appears on the screen. When you run the NMS application for the first time the panel configuration is in its default mode. Users can modify panels layout according to their needs.



If your graphic card supports dual-screen option you can locate the panels keeping their original size.

Layout example during dual monitor operation.

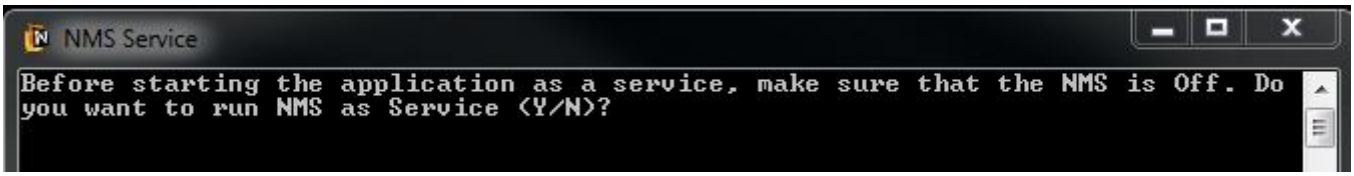


2. INSTALLATION AND LAUNCHING NMS SOFTWARE

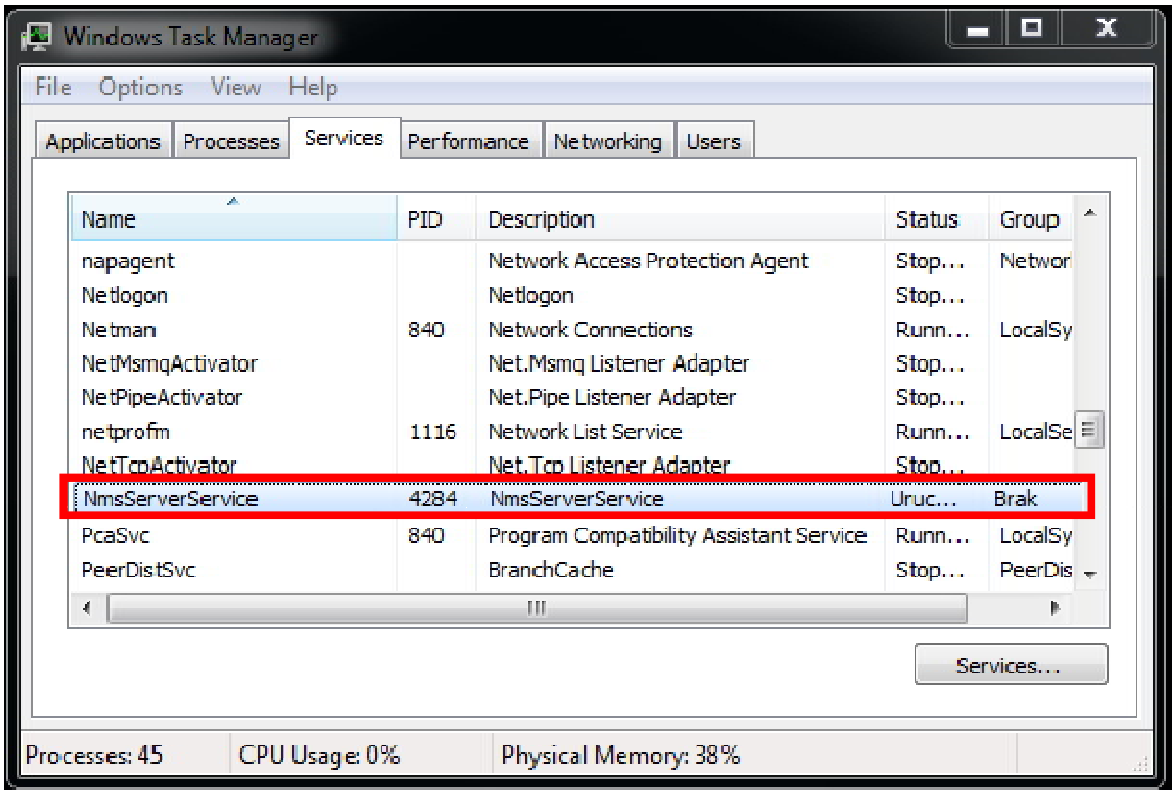
2.6.1 NMS Service

NMS can be run as a system service. It means that it can run in the background without an user interface . To start the NMS as the service, please double-click on the *NMS Service* icon located on the desktop.

New window will appear as shown below.



Please make sure that the NMS application is closed. Press the "*Y*" key and confirm by pressing *Enter*. The service will be launched, and appear as the *NMSServerService* at the *Services* list in *Window Task Manager*.



Double-click the *NMS* icon on the desktop to rerun the NMS application.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

2.7. Initial configuration of the NMS application

NMS application is designed to work as server and client simultaneously. Launched NMS Server is connected to client as one of devices as well IP cameras. It creates vast of possibilities of system extension.

Notice! In case of launching many services simultaneously please check PC performance. Watching pictures from multiple cameras at the same time, may strongly impact the PC performance.

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2.7.1 NMS Server configuration

To configure the NMS application in Server mode follow the procedure below or use the Wizard:

- You have to configure the network connection on the computer with NMS application accordingly to the target network.
- Connect devices to the network switch one by one, set its unique IP addresses and define other parameters of the network. Corresponding manuals of IP devices contain information about their configuration.
- Run the NMS application and open the *CONFIGURATION / APPLICATION SETTINGS* window. In Application tab is Closing submenu. Check the Allow to close NMS by operating system box and press the Save button to close the NMS server application when shutting down the computer. Otherwise, the NMS server application will block this operation.
- The *DEVICES* tab allows user to add devices. Devices can be found automatically by pressing a *Search* button and/or manually by using *Add* button. For manual method, list of IP device must be known. Full instructions for adding devices is given in chapter 10.1.12.
- After adding all of the IP devices please set names in the *CONFIGURATION / DEVICES* tab under the *General* subpage. Next, please configure a recording *Schedule* (10.1.5.). NMS can work in 3 modes (continuous, alarm, motion detection) simultaneously. If there are any PTZ devices in system user has to set unique ID and other parameters in the *Advanced* subpage. The chapter 10.1.6. contains information about *Advanced* subpage.
- It is also recommended to add new users in *CONFIGURATION / USERS* tab and set permissions rights to their groups. To improve system security it is advised to create your own users account with limited administrative level and use administrator account for NMS configuration only. The exact description is given in chapter 10.2.
- Please select *CONFIGURATION / RECORDER* window from main menu to configure disks dedicated to video recording. After pressing *Reset* button a full list of available IP devices is displayed. User can define the size and location of a video recording directory for each of video streams. Please use *Ctrl+A* key combination to select all streams. Please put a required recordings size and path and then select *Use* button to copy current settings to all selected streams. Full description is given in Chapter 13.1.
- Once all the above settings are done choose *File / Save Configuration* from the main menu of NMS and then restart the application.
- After restarting select in *CONFIGURATION / SERVERS* window please select feeds streamed to the client. Configure others servers, firewall and automatic start as well. Full description is given in chapter 11.

- Configure Firewall Setting using CONFIGURATION / FIREWALL window. Full description is given in chapter 12.1.
- To avoid undesirable strain on system resources, closing windows on server is recommended.

2.7.2. NMS Client Configuration

To configure the installation as an *NMS Client*, follow the procedure below (or simply run Wizard):

- Configure network connection where NMS application has been installed in line with target network.
- Run the NMS application and open the *CONFIGURATION / APPLICATION SETTINGS* window. The *DEVICES* tab allows user to add devices. You have to do it with *PLUS* button and provide their IP addresses, ports and select NMS server type of device. Full description is given in chapter 10.1.2.
- When *NMS Server* is added application updates list of available streams. Full description of update process is given in chapter 10.1.3.
- Adding users in *CONFIGURATION / USERS* tab is recommended and group permissions such as administrator account are used only to configure NMS application. Full description is given in chapter 10.2.
- Once all the above settings are done, choose FILE / *SAVE CONFIGURATION* from the main menu of NMS and then restart the application.
- After restarting, adjust windows appearance according to personal needs. Full description of adjusting windows is given in chapter 3.2.

When the configuration is done you can start using NMS application.

Attention: Local recording of pictures sent by server is impossible on NMS Client machine. In order to ensure video data redundancy it is possible to connect only NMS Server to another NMS Server or NMS Server/Client PC and start recording its video streams. It is typical solution when additional NMS Backup Server is required.

2.7.3. Configuration of single-unit NMS application.

To configure *Server/ Client NMS* application follow the procedure below:

- Configure network connection where NMS application has been installed in line with target network.
- Add IP devices in sequence (camera video server) and define unique IP addresses and other network properties (IP device configuration is describe in their respective user's guides)
- Run the NMS application and open the *CONFIGURATION / APPLICATION SETTINGS* window. In Application tab is Closing submenu. Check the Allow to close NMS by operating system box and press the Save button to close the NMS server application when shutting down the computer. Otherwise, the NMS server application will block this operation.

2. INSTALLATION AND LAUNCHING NMS SOFTWARE

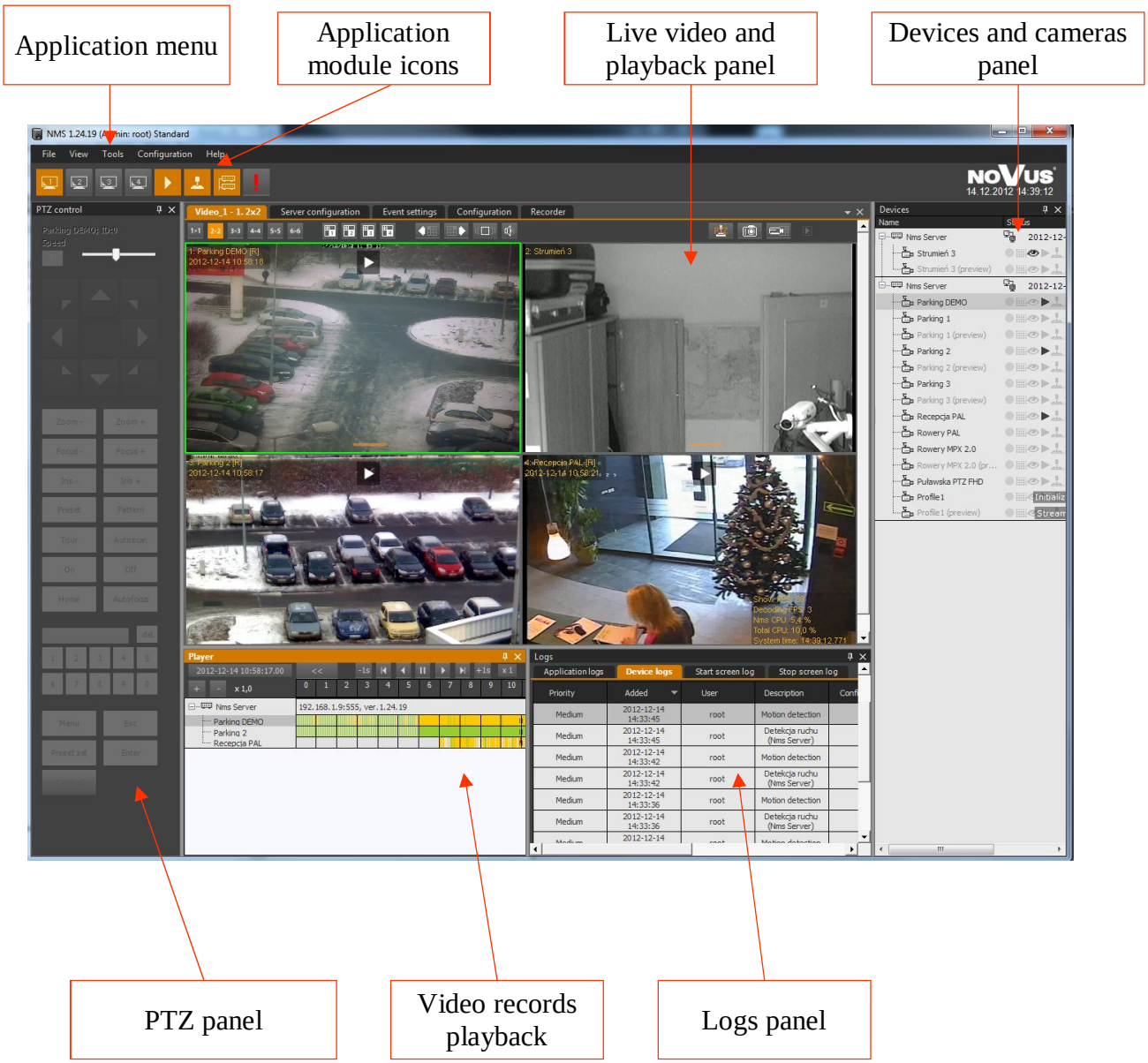
- In the *DEVICES* tab you can add devices to NMS. The device can be found automatically by pressing a *Search* button and/or manually by using *Add* button. For manual method list of IP device must be known. Full instructions for adding devices is given in chapter 10.1.12.
- After adding all of the IP devices please set their names in the *CONFIGURATION /DEVICES* tab under *General* subpage.
- Next, please configure a recording *Schedule* (10.1.5.). NMS can work in 3 modes (continuous, alarm, motion detection) simultaneously. If there are any PTZ devices in system user has to set unique ID and other parameters in the *Advanced* subpage. The chapter 10.1.6. contains information about *Advanced* subpage.
- It is also recommended to add new users in *CONFIGURATION / USERS* tab and set permissions rights to their groups. To improve system security it is advised to create your own users account with limited administrative level and use administrator account for NMS configuration only. The exact description is given in chapter 10.2.
- Please select *CONFIGURATION / RECORDER* window from main menu to configure disks dedicated to video recording. After pressing *Reload* button a full list of available IP devices is displayed. User can define the size and location of a video recording directory for each of video streams. Please use *Ctrl+A* key combination to select all streams. Please put a required recordings size and path and then select *Use* button to copy current settings to all selected streams. Full description is given in Chapter 13.1.
- Once all the above settings are done choose *FILE / SAVE CONFIGURATION* from the main menu of NMS and then restart the application.
- After restarting, adjust windows appearance according to personal needs. Full description of adjusting windows is given in chapter 3.2.

When the configuration process is complete you can start using program.

3. PANEL MANAGEMENT

3.1. Graphic interface: information

NMS interface consists of movable panels whose functions are described below. Details will be presented in the following chapters of the user's manual. You can adjust panel layout by moving or hiding selected panels. Below you can see a model of panel layout.



3. PANEL MANAGEMENT

3.2. User workspace arrangement

You can move, enable or disable, link and change the panels' size what gives you practically unlimited possibilities of modifying the layout according to your needs or preferences. The interface layout is saved and is restored by default when NMS is run again. A movable window, which you can modify (change its size, or functions in NMS modules) is called a panel.

NMS includes the following modules:

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1.**Video panel 1** real time video or playback display

2. **Video panel 2** real time video or playback display

3.**Video panel 3** real time video or playback display

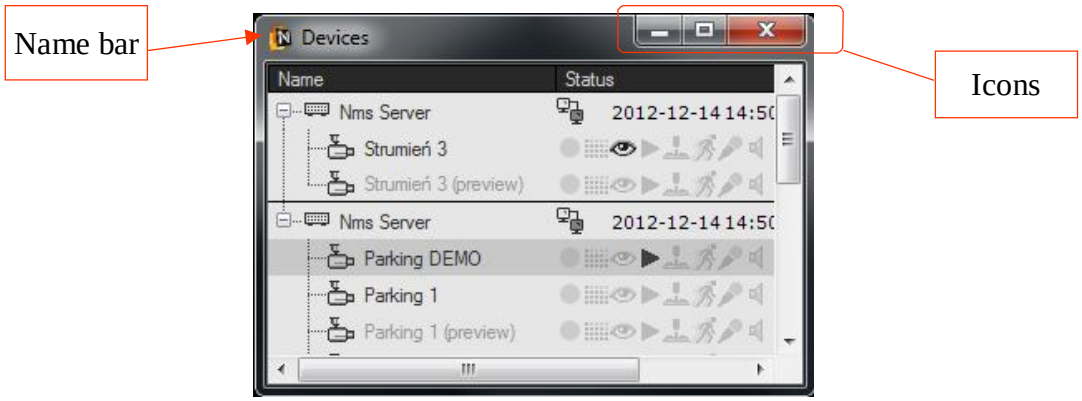
4.**Video panel 4** real time video or playback display

5. **Playback** - selecting the recording to be played

6. **PTZ panel** - PTZ camera control panel

7. **Devices** - selecting and displaying status of IP devices

Each panel has a name bar with icons. When you click in the panel area, name bar changes color (depend on MS Windows *Active window color* setting), which means that it is active and you can operate on it (change the size, move etc.)



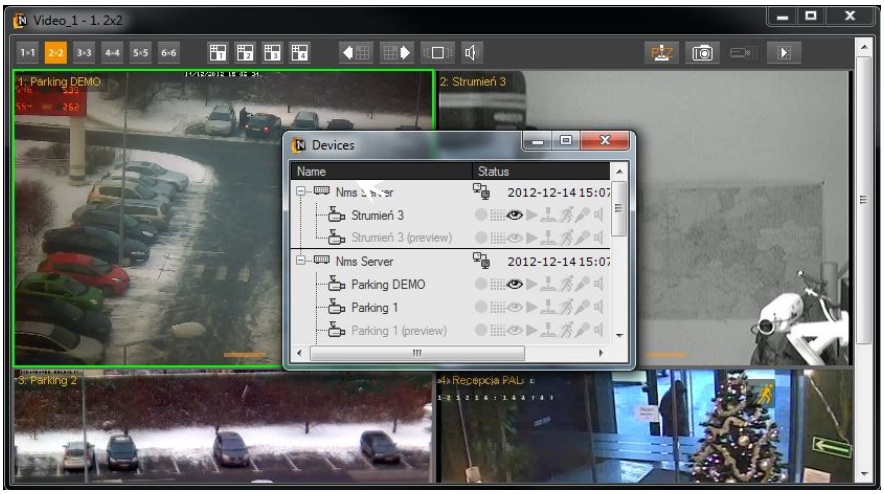
On the following pages of this manual the principles of panel management are described. Although the examples are only for some selected panels all the rules apply to all the panels.

3. PANEL MANAGEMENT

3.2.1. Moving panels

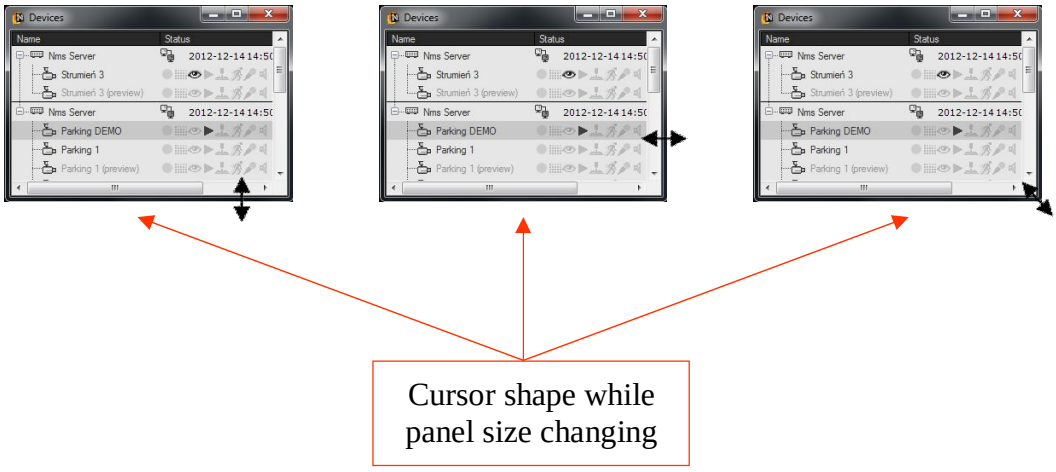
You can move each panel to a desired point, including export to another monitor (if your graphic card supports multi-screen mode).

To move a selected panel please click LMB (left mouse button) on the panel, and drag it to the desired destination.



3.2.2. Changing panel's size

To change the size of any panel move the mouse cursor over panel edge so that cursor changes the appearance to a double arrow. Whether you can move it horizontally or vertically depends on the arrow direction. When the cursor changes you press and hold LMB then you can change the size of the panel. When you place the cursor in the box corner you decrease or increase horizontal and vertical size simultaneously.



3. PANEL MANAGEMENT

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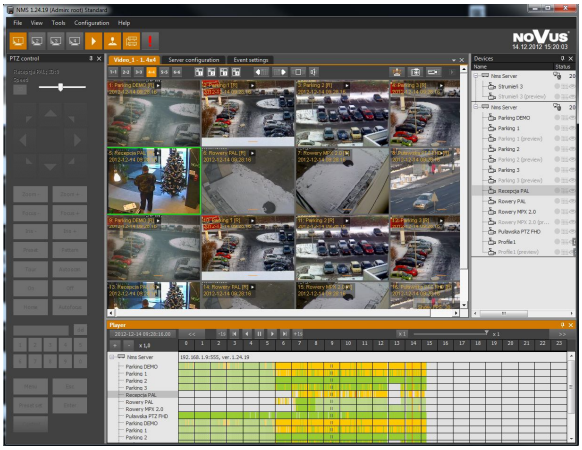
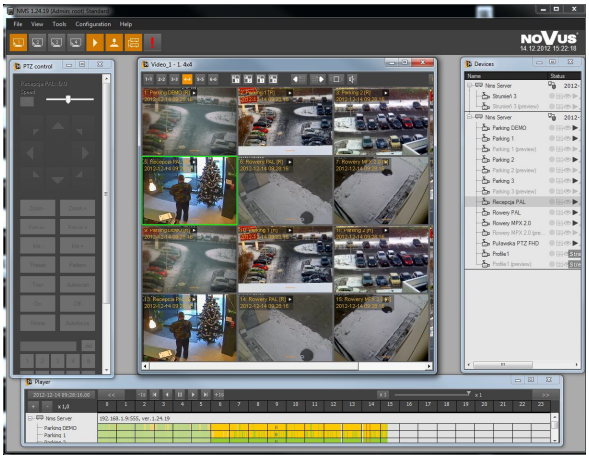
3.2.3. Docking panels

Each of the panels can be placed in any interface point. The arrangement could be completely "chaotic", however, in most cases users prefer order and optimal workspace utilization. In order to ease panel arranging NMS supports panel docking system. It helps user to easily dock panels with pixel accuracy.

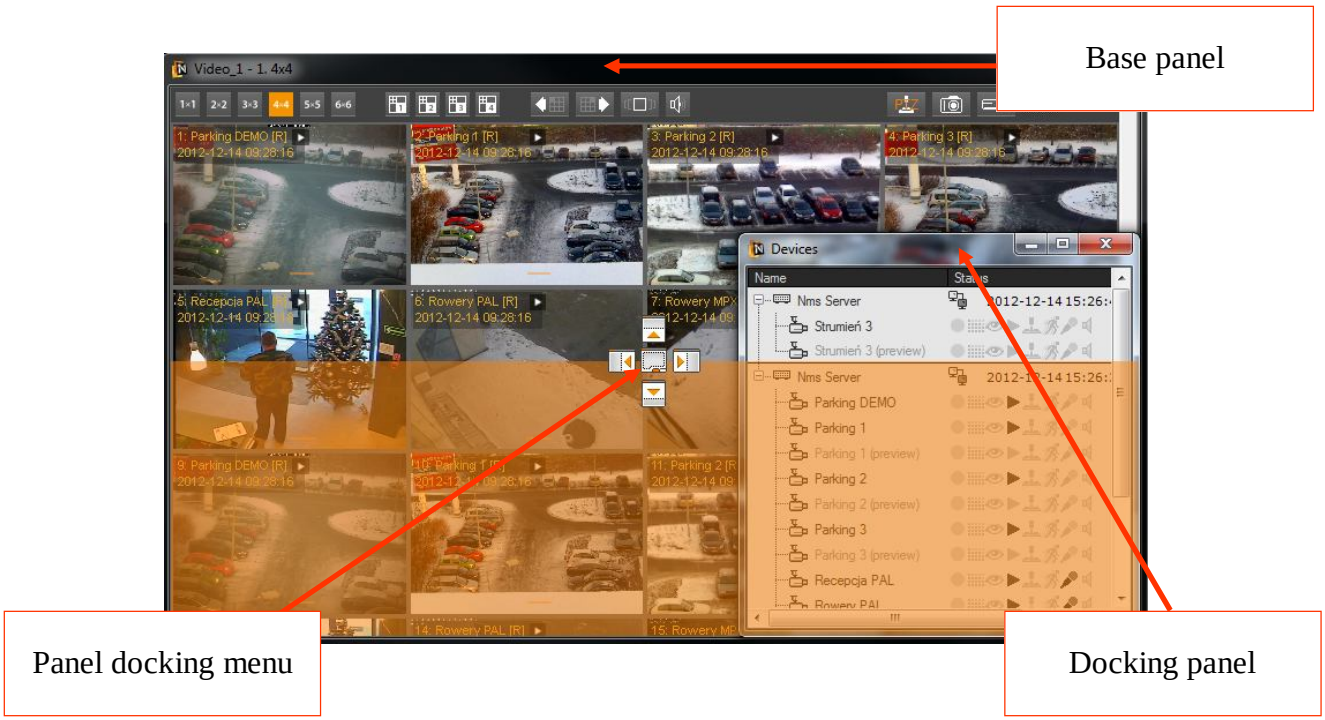


Workspace automatically arranged by precise panel docking system



Manually arranged workspace. No panel docking system was used

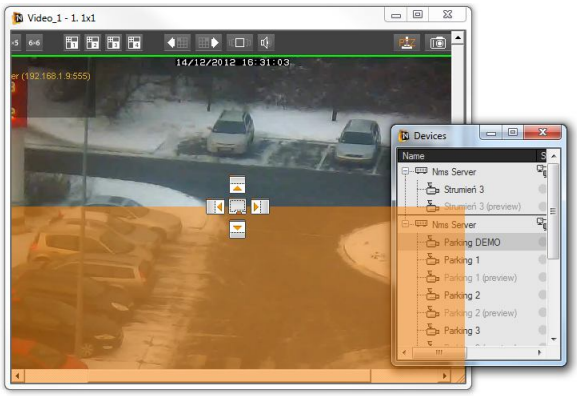
In order to dock the edge of the panel to the edge of another drag the panel the way it was described in chapter 3.2.1, keep the mouse button pressed and move the panel above the base panel area. Docking cross-like menu is displayed.



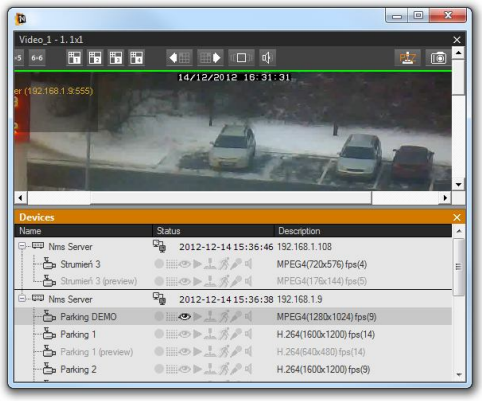
3. PANEL MANAGEMENT

When you place the cursor over the docking menu orange area appears showing docked panel future position. After mouse button is released panels are docked. Below you can find the stages of docking the *DEVICES* panel to the lower edge of *VIDEO 1*.

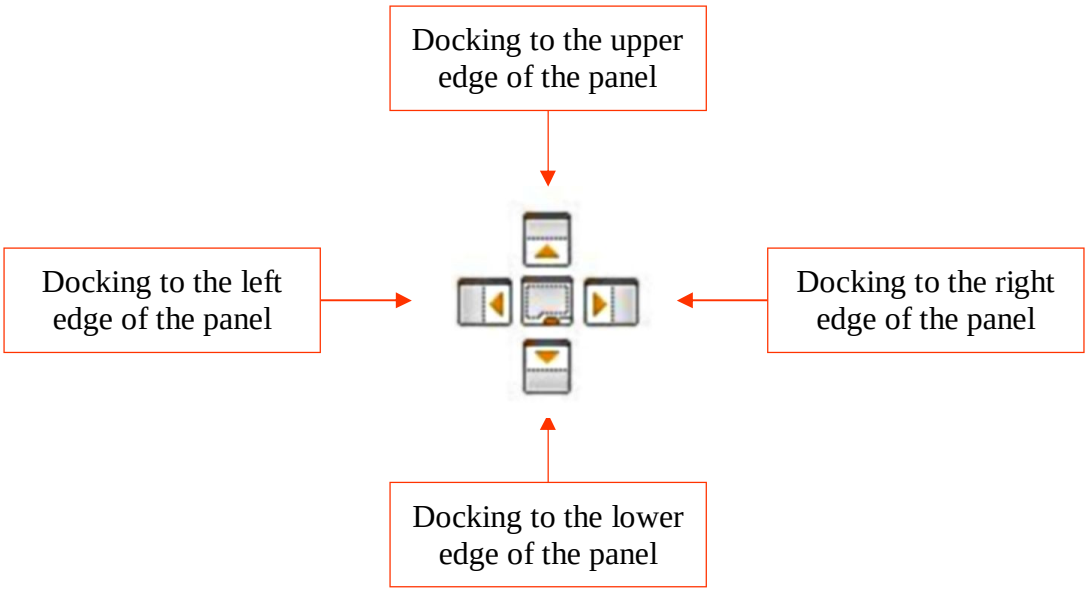
Docking stage



Final stage - 2 panels docked (to each other)



Below you can find the description of each part of docking menu



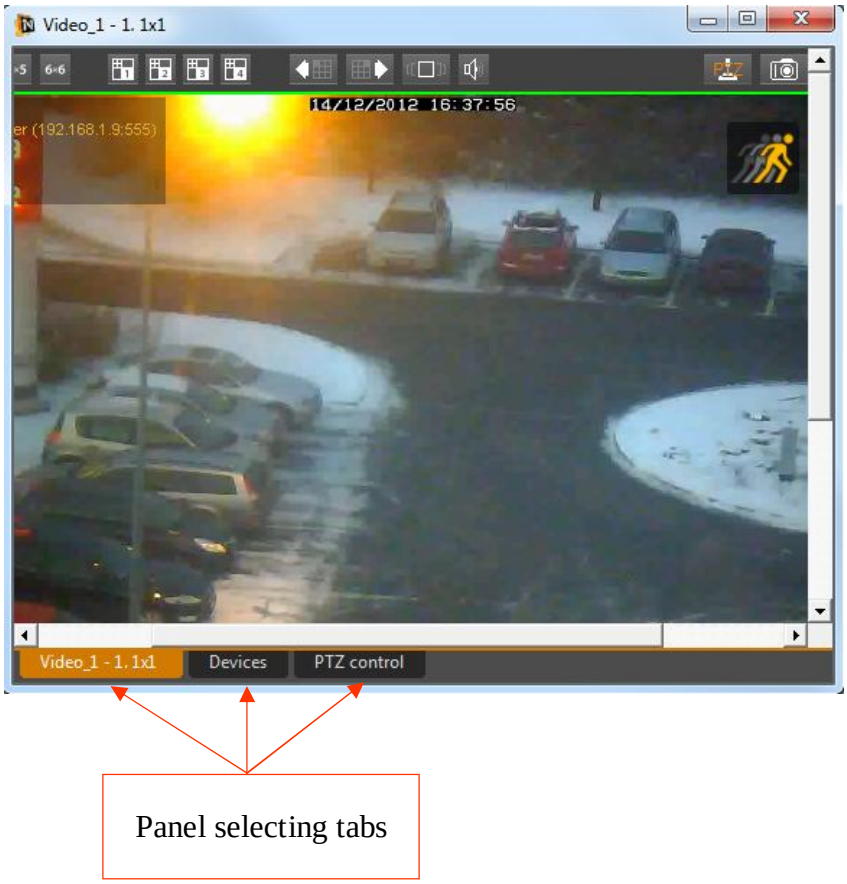
Docking to the edges of the camera image window is done in a similar way. In this case panel should be "carried" over window area.

Docking to the edge of the whole software window is also possible. In this case panel should be "carried" to the edge of the screen where one of the icons presented above is displayed.

3. PANEL MANAGEMENT

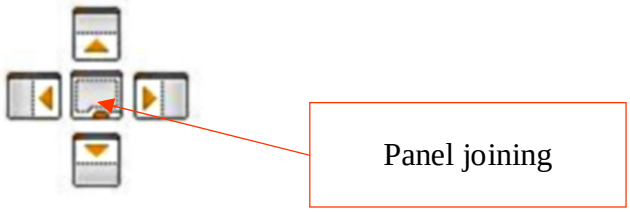
3.2.4 Joining panels

Each panel can be displayed separately or displayed as a group of joined panels. You can select particular elements of a joined panel from a panel tab shown in the lower part of multi-panel.



To join two panels into one multi-panel "drag" the panel bar as it was described in chapter 3.2.1, keep the button pressed and move cursor over base panel. Like it has been described before, *cross-like menu* appears.

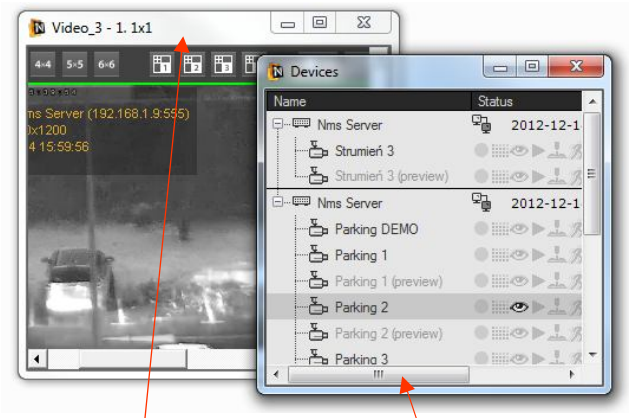
This time move the cursor right over the centre icon.



3. PANEL MANAGEMENT

At the moment the cursor moves over the centre of the joining menu, the panel that has moved disappears and a new tab appears as on the bottom of target panel(s).

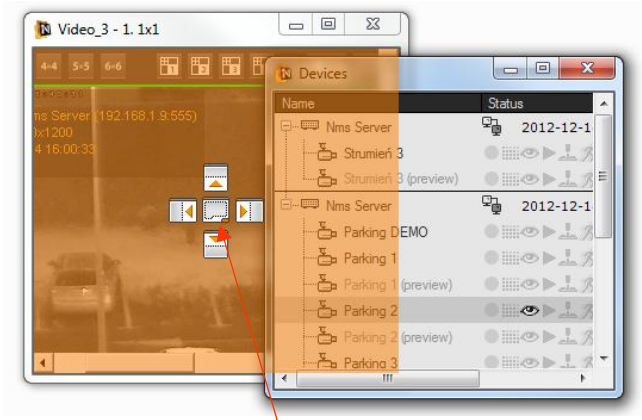
Panel joining - 1st stage



Target panels

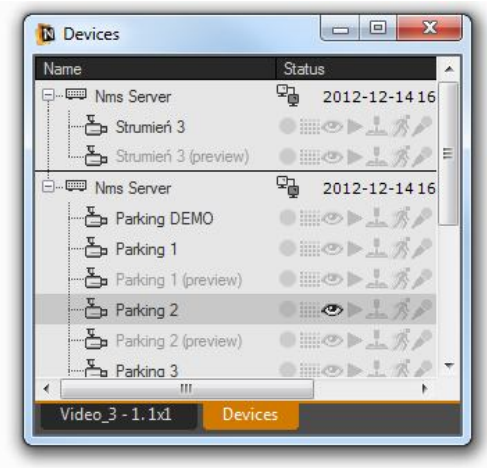
Joined panel

Panel joining - 2nd stage



Added panel tab

Panel joining - final stage



Tabs order could be rearranged by clicking on any tab and moving it with mouse button pressed.

Any joined panel can be separated from others in a similar way. Click on a desired panel tab, keep the button pressed and move the panel away from the present panel.

3. PANEL MANAGEMENT

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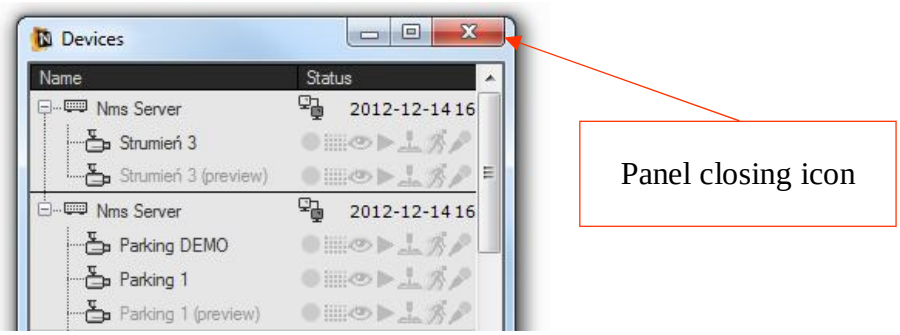
3.2.5. Closing panels

Each panel can be easily closed by means of cross-like icon in the upper right corner of the panel. In case of complex panels all component panels are closed when this method is used.



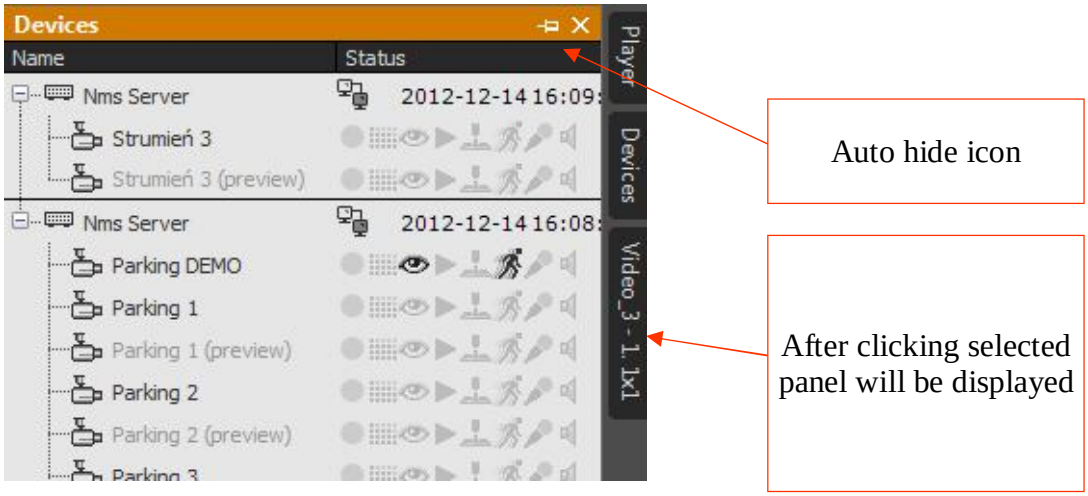
In order to display a closed panel go to the *VIEW* menu and select a desired panel. In this case only one panel is restored. In order to restore a complex panel all the components should be restored one by one and joining action should be carried out again.

3.2.6. Panel auto-hiding feature

NMS supports auto hiding feature. This feature allows to utilize workspace for camera image displaying very effectively and to maintain fast access to each hidden panel.

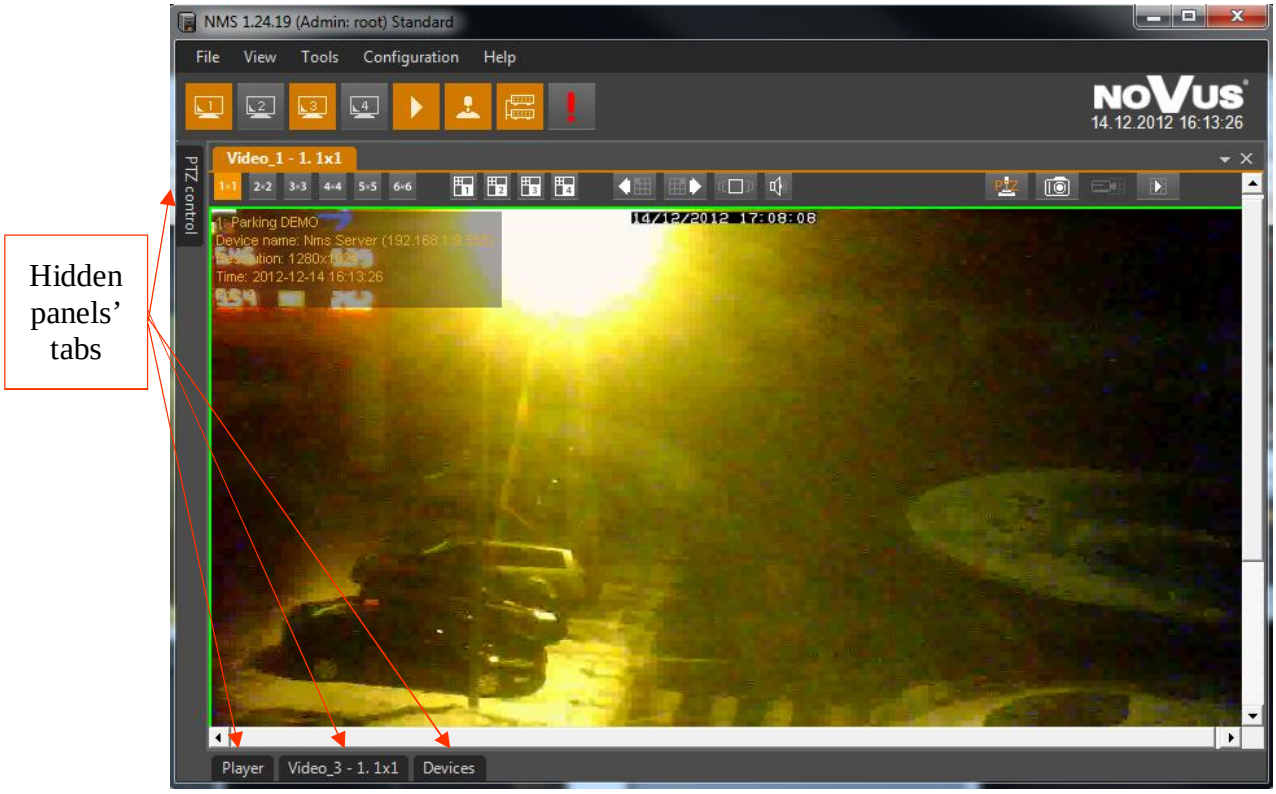
When this option is enabled, any particular panel is visible only when mouse cursor is above it. Once cursor is moved panel is automatically hidden outside right, left or lower edge of NMS window and only panel tab is displayed.

All the panels constituting a joined panel are displayed as separate tabs. That's why it may happen that not all tabs could be displayed because of the lack of space. In this case special arrow-like icons appear by means of which you can toggle between all tabs of given panel.

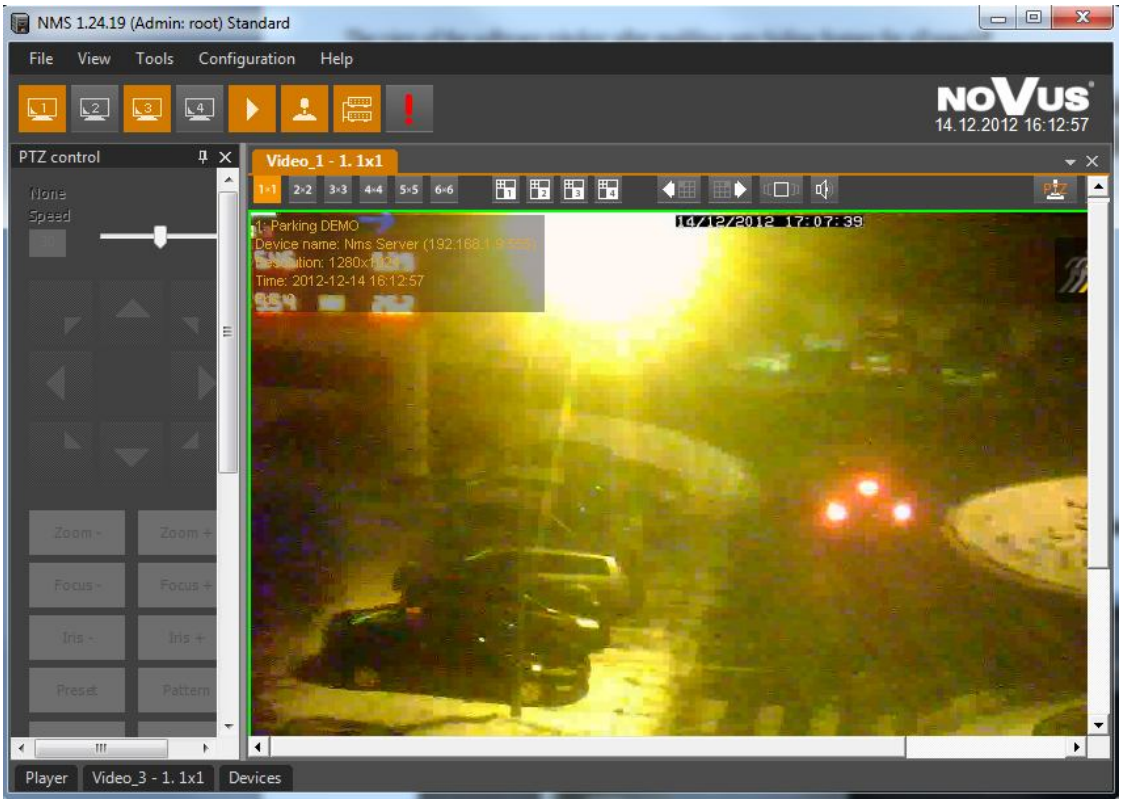


3. PANEL MANAGEMENT

The view of the software window after enabling auto hiding feature for all panels:



The same window after selecting PTZ panel tab:



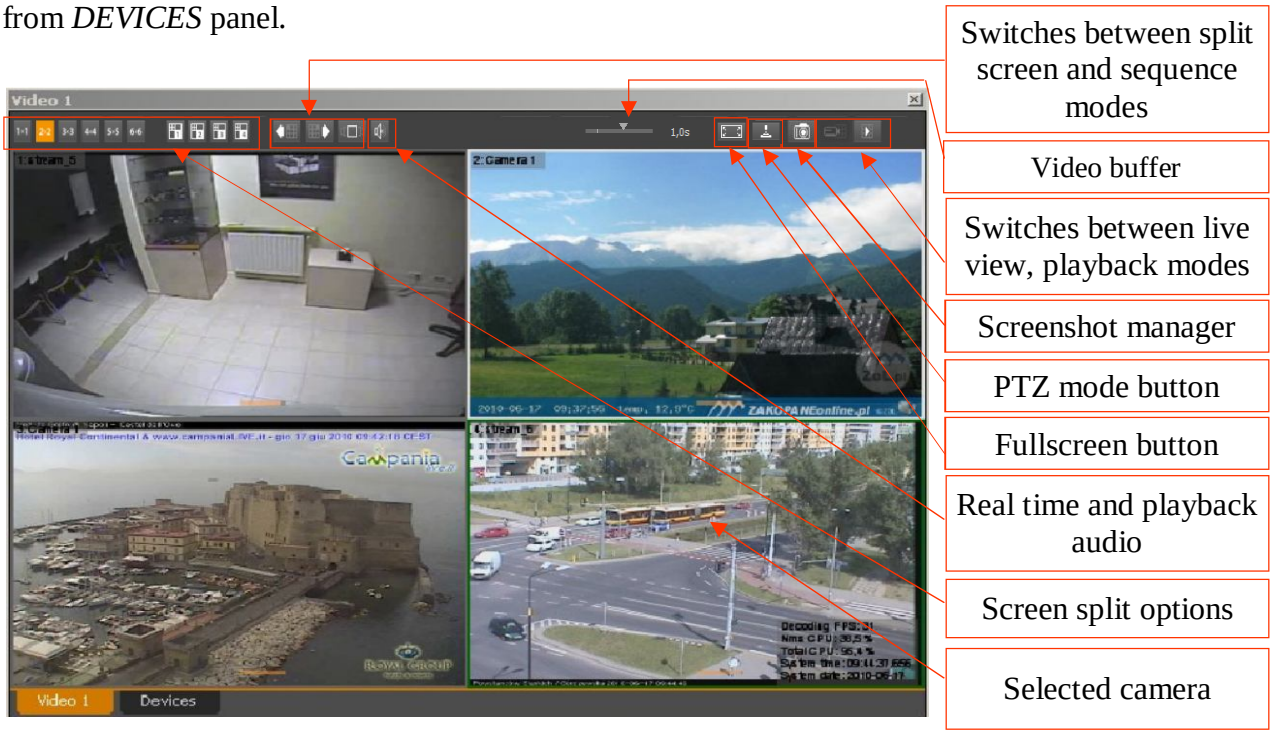
4. VIDEO PANEL

4. VIDEO PANEL

4.1. *VIDEO* panel - information

NMS application was developed to support 4 video windows. Each of them can display up to 36 video streams (NMS Server is limiter to display up to 4 streams per window). The second video window is also used by *LOGS*, *MAPS* and *EVENTS* panels.

In the window you can also view the live transmission from a selected camera after „dragging" it from *DEVICES* panel.



	Displaying mode in full screen mode or 4, 9, 16, 25, 36 division NMS Server is limited to display up to 4 video streams.
	Custom screen divisions
	Previous group of cameras (e.g. when division 2. 3x3 is displayed on the screen it switches to division 3. 3x3")
	Next group of cameras (e.g. when division "2. 3x3" is displayed on the screen it switches to division "1. 3x3")
	Real time audio transmission or audio playback on
	Turns on the sequence mode on video panel
	Switching between live and playback mode. Playback mode is dependant on the type of installation (local or remote playback)
	Turns on screenshot manager
	Turns on PTZ camera control mode
	Displays video window in fullscreen mode
	Video buffer (from 0 to 2000ms). The higher value, the smoother image, but higher video delay.

4. VIDEO PANEL

LMB click on a selected camera marks this window with the green border. This selected window is now associated with PTZ control panel. If the selected camera has active PTZ mode user can control it by a mouse. A double click on a selected window changes display mode to full screen mode.

PTZ control is enabled after pressing the  button.

The refresh rate of displayed video stream depends on:

- NMS displaying configuration;
- network bandwidth between the video servers and NMS station;
- video server settings (frame rate, coding, GOP, band, compression level);
- the number of simultaneous connections at a specific period of time (fore more users connected the slower refreshing rate in the window is observed).

In the top of *VIDEO* window are buttons which allow to change display video mode and audio playback.

Display modes starting from 2x3 upwards have their video streams downgraded in quality for video window display purposes, in order to save computing power of a PC.

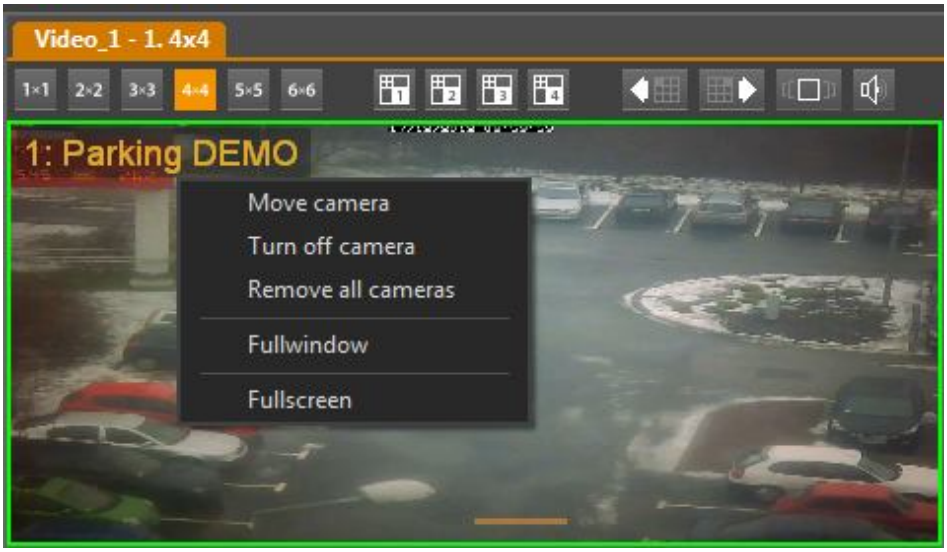
Split screen stream option is configurable in *CONFIGURATION / DEVICES / General* tab. Split screen streams are shown as greyed out on *DEVICES* panel. Further details can be found in chapter 10.1.1.

In the right upper corner of the camera window you can see the icon information about a camera status and related events.

4. VIDEO PANEL

	Playback mode
	Video recording (according to the schedule or panic recording)
	Motion detection
	PTZ control on
	Related alarm input on
	Related alarm output on

In order to display additional settings window please make a RMB click on a camera window:

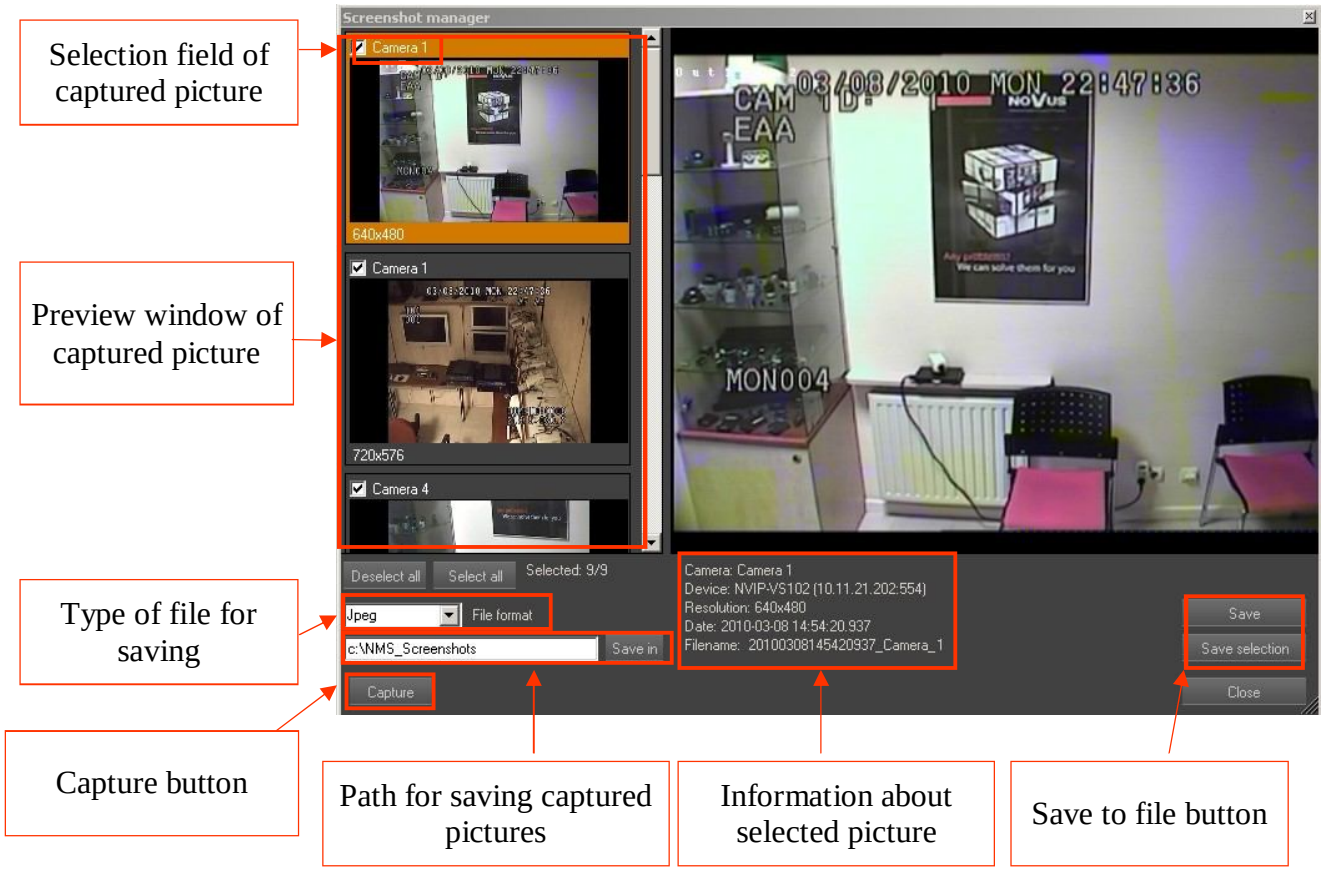


Move camera	Move the selected camera around video screen by clicking LMB on a window that the camera is to be moved into.
Full window / Back to split	Changing the camera screen division to full window mode
Turn camera off	Turning off selected video stream from a particular window
Remove all cameras	Removes all cameras from video window
Full-screen / Back to window	Changing the camera screen division to full screen window mode

4. VIDEO PANEL

4.2. Screenshot manager

Screenshot manager allows capturing frames displayed on the screen.



That gives opportunity of saving captured pictures as graphic files to backup, further processing etc.

Define type of graphic file to save in *Format file* field. Available formats:

- BMP;
- JPEG;
- PNG;

Information about selected picture contain source, resolution, creation date and name of the file displayed on the large screen preview.

Save button makes current selected picture saved in defined place.

Save selection button makes all selected pictures in defined place.

4. VIDEO PANEL

4.3. PTZ mouse control

The NMS application allows to control PTZ cameras equipped with RS485 interface. These might be either PTZ or stationary cameras with optical and digital zoom. In both cases, the intent of control should be confirmed by pressing the button .

Video server's RS485 port should be cascade-connected in order to properly control all of the cameras (for the details information please refer to NVIP-VS10x user's manual).

Additionally, proper configuration of camera protocol and ID in NMS settings is essential.

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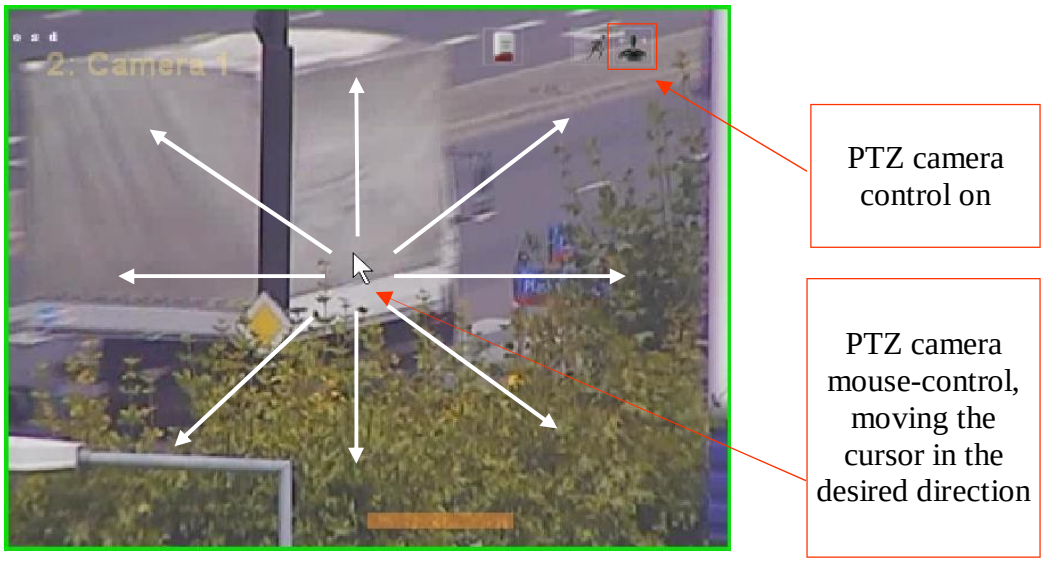
In the right upper corner of the camera window you can see the icon information about when PTZ camera control is on.



When PTZ control mode is enabled the user can control the camera using dedicated *PTZ* panel or the mouse. To control the camera movement you have to click on selected camera with the left mouse button and hold it press move the cursor to the specified picture area.

4. VIDEO PANEL

4.4. Moving cameras (own camera layout)

NMS allows for free camera positioning to match user's preferences. To change the camera position please select the camera and then the target window and follow the instruction below:

Please click RMB in the camera window and select *Move camera* option

Select the target window by clicking LMB

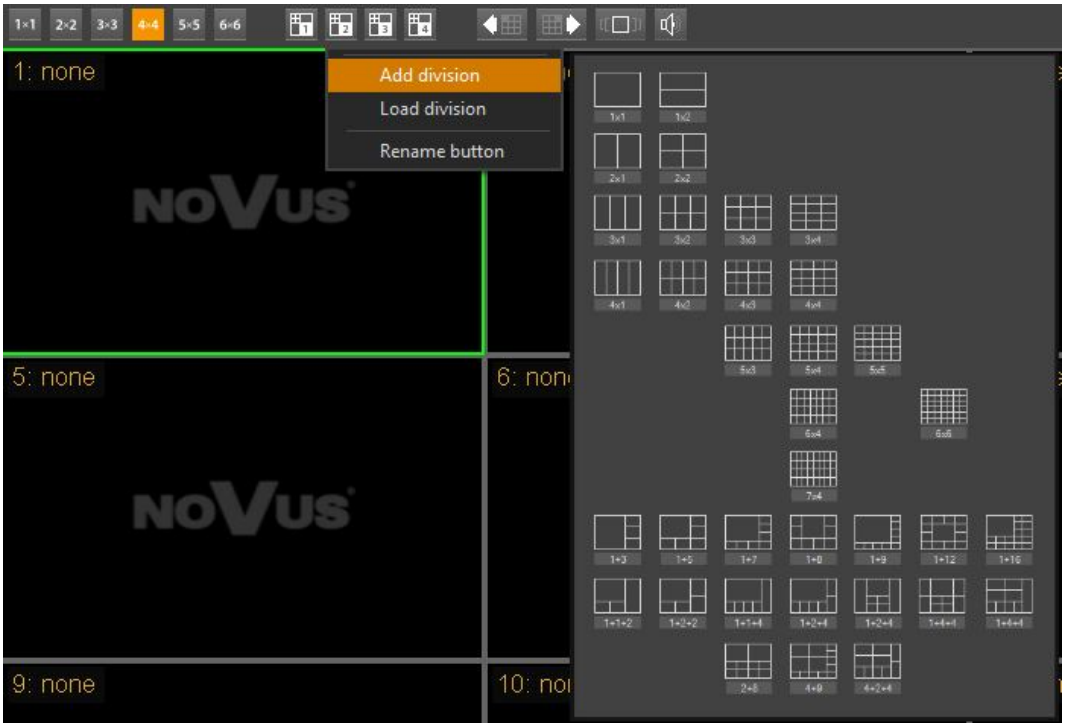
The pictures have been switched sides.

4. VIDEO PANEL

4.5. Creating custom screen layouts

NMS software features the possibility to personalize the number and display representation of cameras. In order to do so, please select one of the following buttons:  and select *Add division*, as depicted below. Division is subsequently added to the drop down list for a particular standard division mode. Next, please select cameras to be displayed, add title(s) to particular divisions (e.g. Floor 1, Floor 2, etc., with the title of Division being displayed in its corresponding tab), remove undesired divisions by them and clicking *Delete* and after performing the desired adjustments, save the layout the .lay file by clicking the *FILE / SAVE LAYOUT*.

NMS allows to create unlimited number of personalized divisions within a particular standard division group. Adding custom divisions via  buttons is the same manner as described above, whereby combining customized layouts is possible.



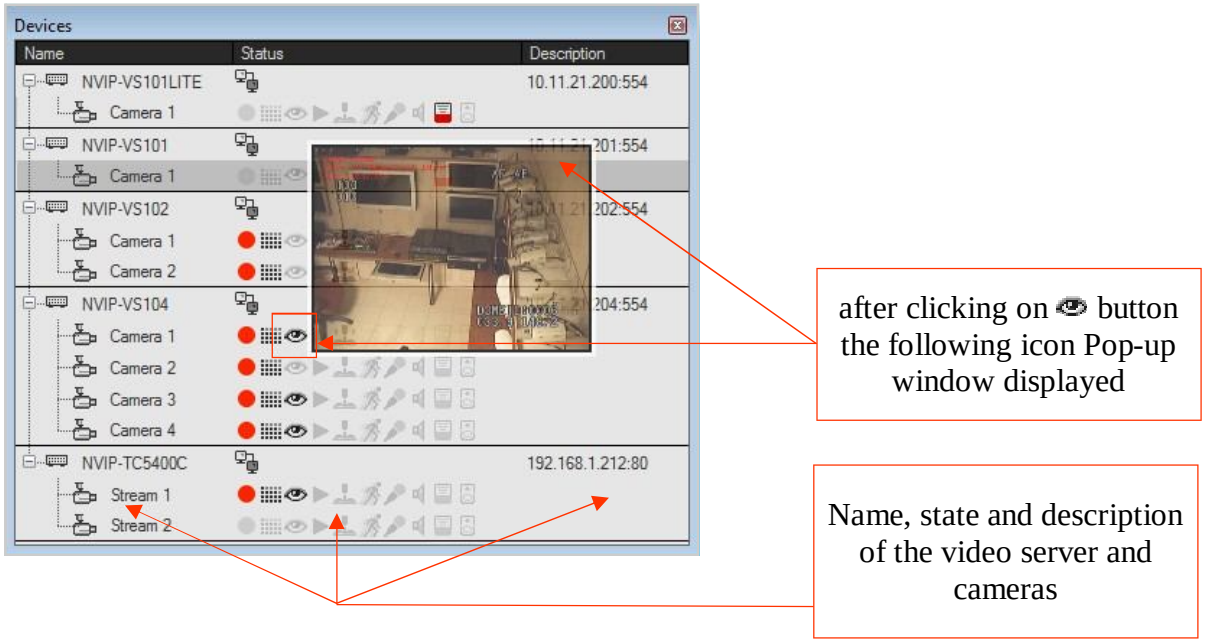
Steps above serve as a method to assign particular screen layouts and screen divisions to particular user groups. The method is described further in chapter 10.2. of this manual.

5. DEVICES PANEL

5.1. *DEVICES* panel - basic information

DEVICES panel contains a list of all the video servers and IP cameras and video streams associated with these devices. Specific columns provides the information about IP devices such as:

- *Name* name of the device (also names of all video streams associated with IP device);
- *State* The IP device status (connected/disconnected) and associated video streams status (recording on/off, recording mode, snapshoot, playback, active PTZ control, motion detection, audio output and input);
- *Description* video servers IP: transmission port and also video stream descriptions set by the user in *Settings* panel.



5. DEVICES PANEL

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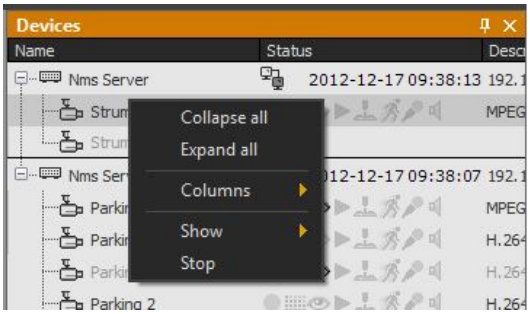
Camera status icons:

Symbol	Description
	IP Device connected
	IP Device disconnected
	Schedule or panic recording is enabled/disabled. Icon displayed on NMS Client application shows recording available on NMS Server.
	Schedule mode enabled, grey icon means that recording is disabled.
	Live view enabled
	Playback on.
	PTZ camera control on
	Motion detected.
	Audio input on
	Audio output on *
	Alarm output activated
	Alarm input activated

* Function "Bidirectional audio" is not supported with 3000 and 5000 series cameras.

5. DEVICES PANEL

A context menu that appears after clicking RMB is different for IP devices and video streams. Also options available for this menu depends on the currently logged on user, and security rules.



RMB camera/devices menu:

Collapse all	IP devices are only visible
Expand all	IP devices and video streams are visible in a devices tree
Columns	Selected columns *Name*, *State*, *Description* are displayed
Connect	Connect to video servers
Disconnect	Disconnect from video servers
View	Display selected video stream in desired window
Remove	Removes a stream from an NMS Server (available only for streams linked to an NMS Server)

Availability of certain commands depends on NMS configuration, devices installed and user privileges.

The following important messages can be also displayed in device panel:

- *Connecting...* - NMS software is trying to establish connection with IP device;
- *Connection lost* - lack of communication between IP device and a computer with NMS;
- *No stream* - video stream isn't decoding by NMS - a stream was disconnected by the operator, or as a result of high IP device load (too many users is connected);

5. DEVICES PANEL

- *Disconnecting* - ending network session with an IP device;
- *Auth fail* - improper password to an IP device or NMS server;
- *Date and Time* - Current NMS server time;
- *Initialization* - attempting to open a video stream;
- *Incompatible device* - Connection error, device incompatible with the NMS software;
- *Connection limit exceeded* - maximum simultaneous live view connection limit was exceeded please check **NMS firewall** settings in *CONFIGURATION / FIREWALL* panel.

Software allows to shuffle devices inside device tree. In order to move a device:

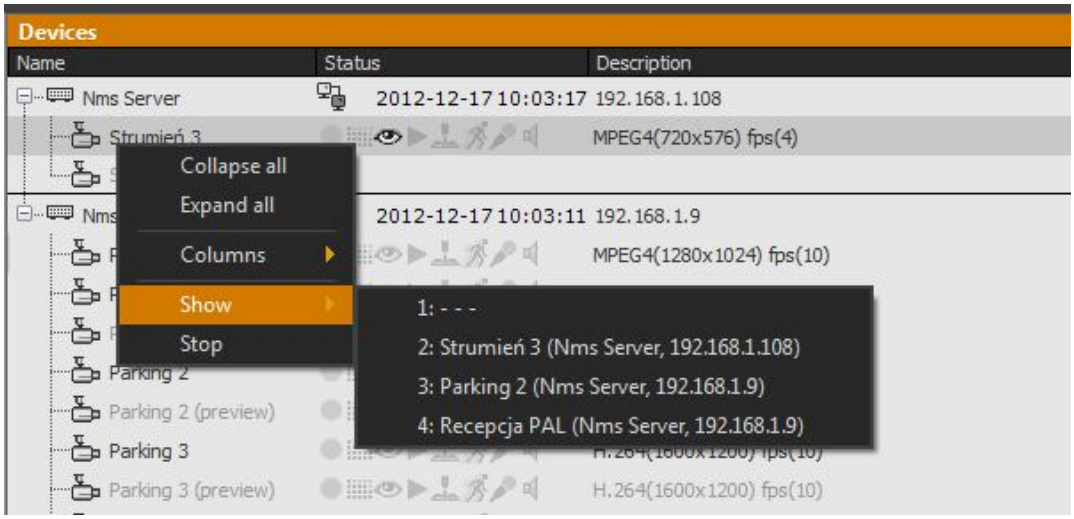
- From Main menu choose *CONFIGURATION / APPLICATION SETTINGS*;
- press and hold right Alt key in *DEVICES* tab;
- Then select a desired device via left mouse button and drag & drop it to a desired place inside the tree.

Changes made in *CONFIGURATION* panel are immediately visible on the *DEVICE* panel available by default in the right part of program window.

5. DEVICES PANEL

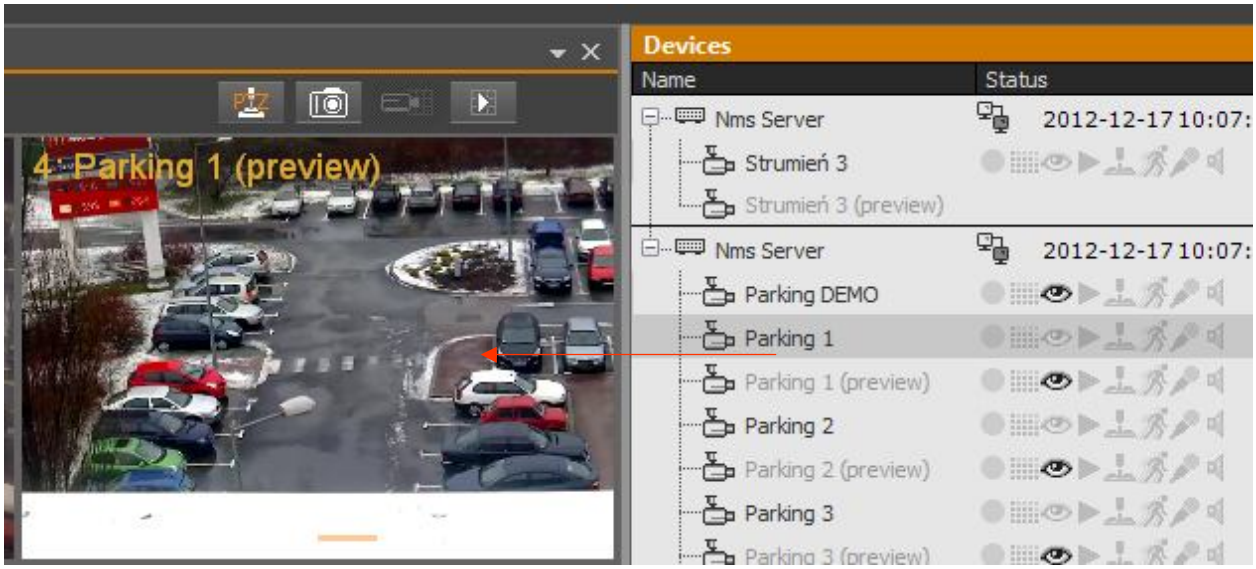
5.2. Displaying video streams from devices

The *DEVICE* panel allows user to display selected video stream in desired window by clicking RMB and choosing *Show* position in menu.



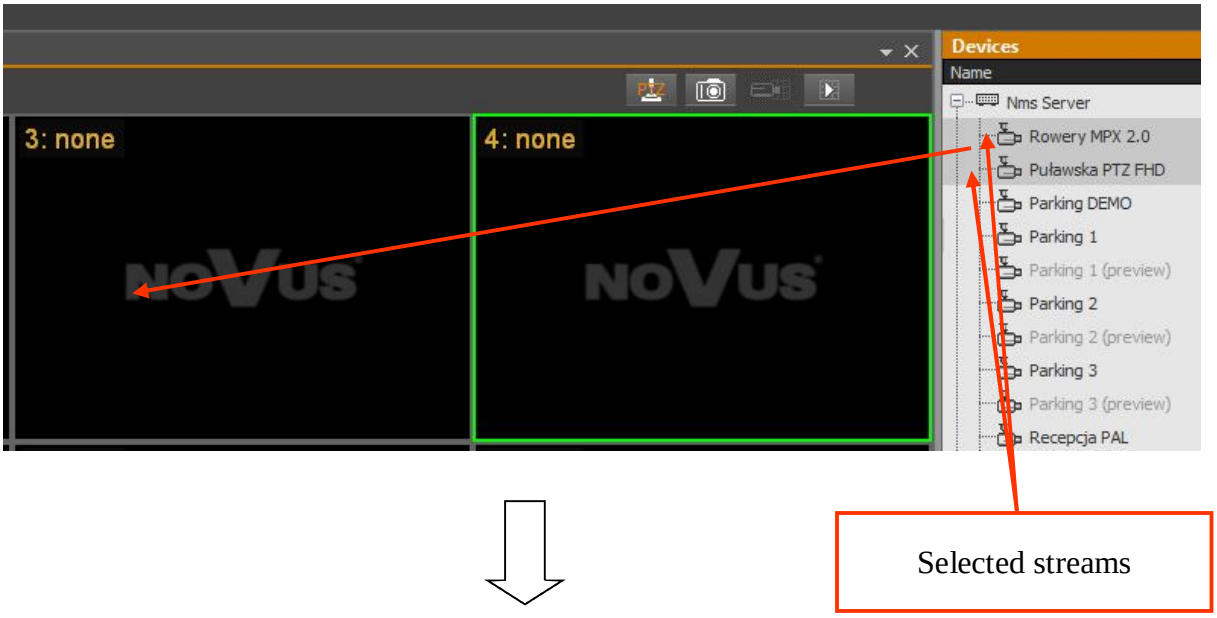
Position "1: - - - " means, that first screen in division isn't displaying any video stream at the moment.

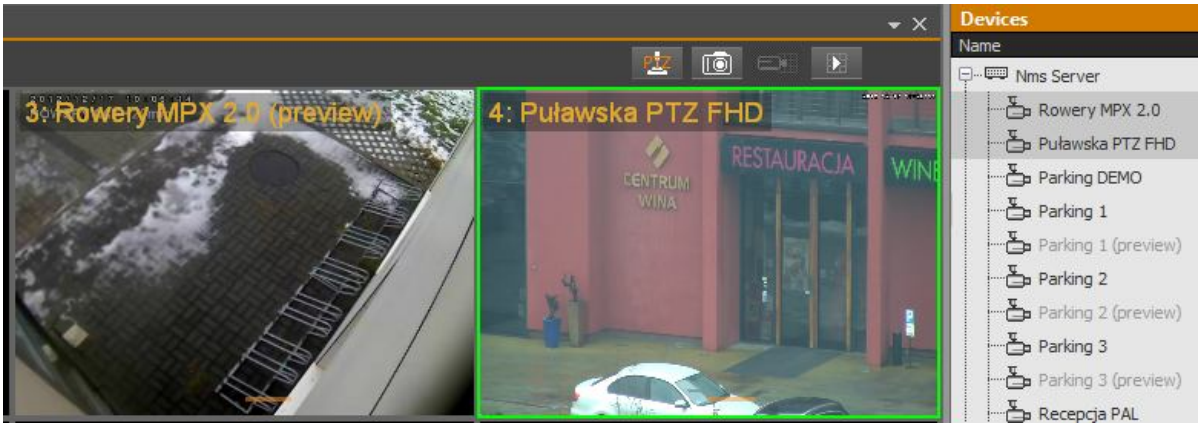
Alternatively user can use a 'drag & drop' method to display selected (marked) video streams. Please refer to the picture below.



5. DEVICES PANEL

The 'drag & drop' method allows to start displaying many video streams simultaneously. In order to do that, please select video streams by holding Ctrl key and clicking LMB on desired streams. Selected streams have gray background. Then drag & drop them to split screen. Streams will be shown in order from the screen in division where they were "dropped".



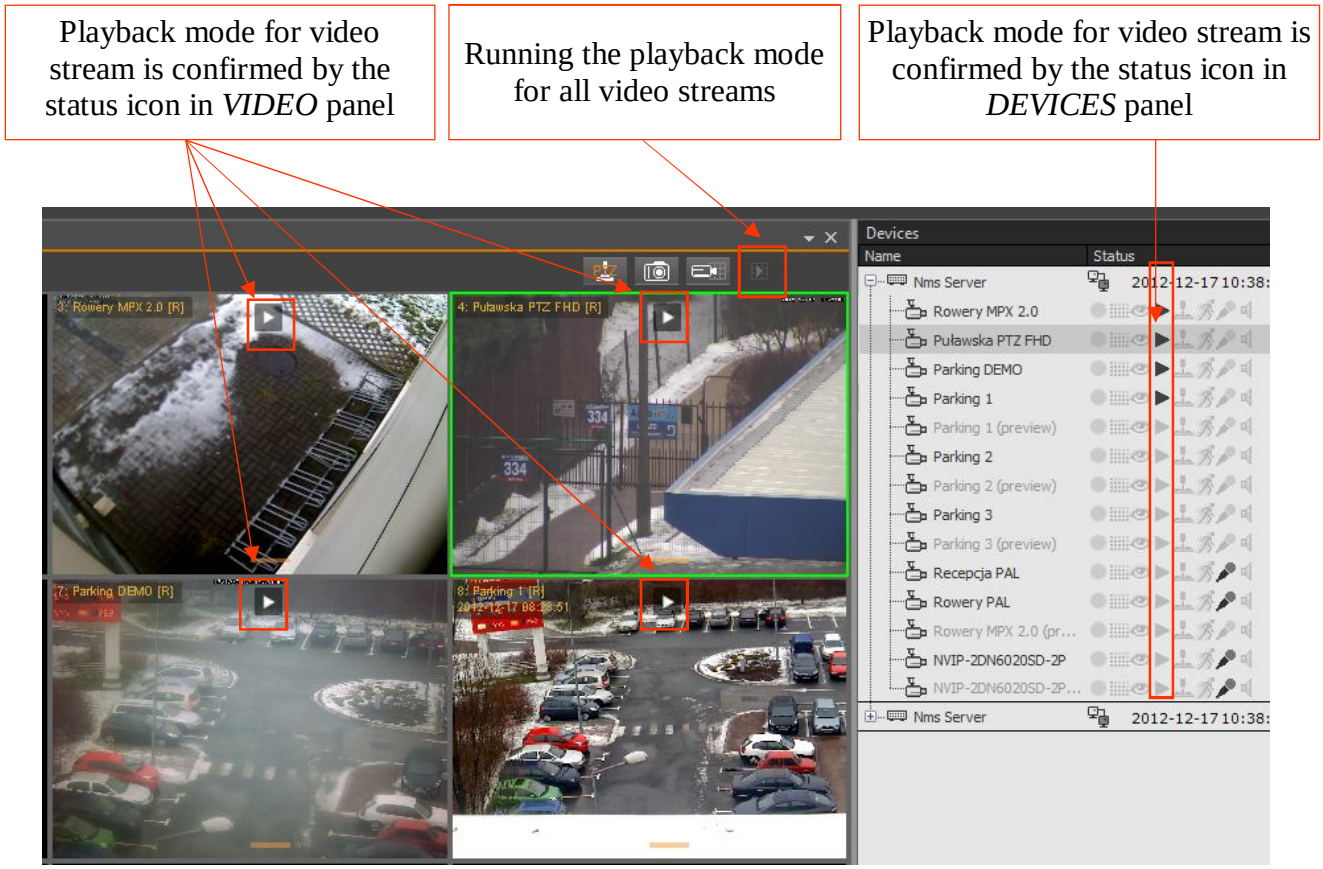


Similarly, it is possible to 'drag & drop' NMS server to display all video streams, or even many NMS servers.

6. VIDEO PLAYBACK

6.1. Video playback - basic information

To run video playback mode for all displayed cameras click on  button in *VIDEO* panel (please refer to the picture below).



It is possible to playback up to 16 cameras in one NMS application at the same time. White *Play* information icon is displayed for all of cameras switched to playback mode.

Maximum **simultaneous connection in playback mode can be also limited by the administrator** using **NMS firewall** feature. Firewall configuration is available in NMS Server settings (*CONFIGURATION / FIREWALL*).

When maximum simultaneous connection in playback mode is exceeded appropriate message is displayed on the screen.

Notice! **In Video Panel playback mode all new connected video streams will be switch to playback mode automatically.**

6. VIDEO PLAYBACK

To navigate in records please click button , which opens *PLAYER* panel.

Colourful stripes for every recorded camera provides an information about type of existing records. The meaning of the stripes colour is the same as in the schedule panel. Additionally moving the mouse cursor over the records stripe displays an information window play (time and event type).

In order to search recorded materials please select a start position by clicking LMB on the *PLAYER* panel.

NMS application automatically omits period of time where video records are not exist.

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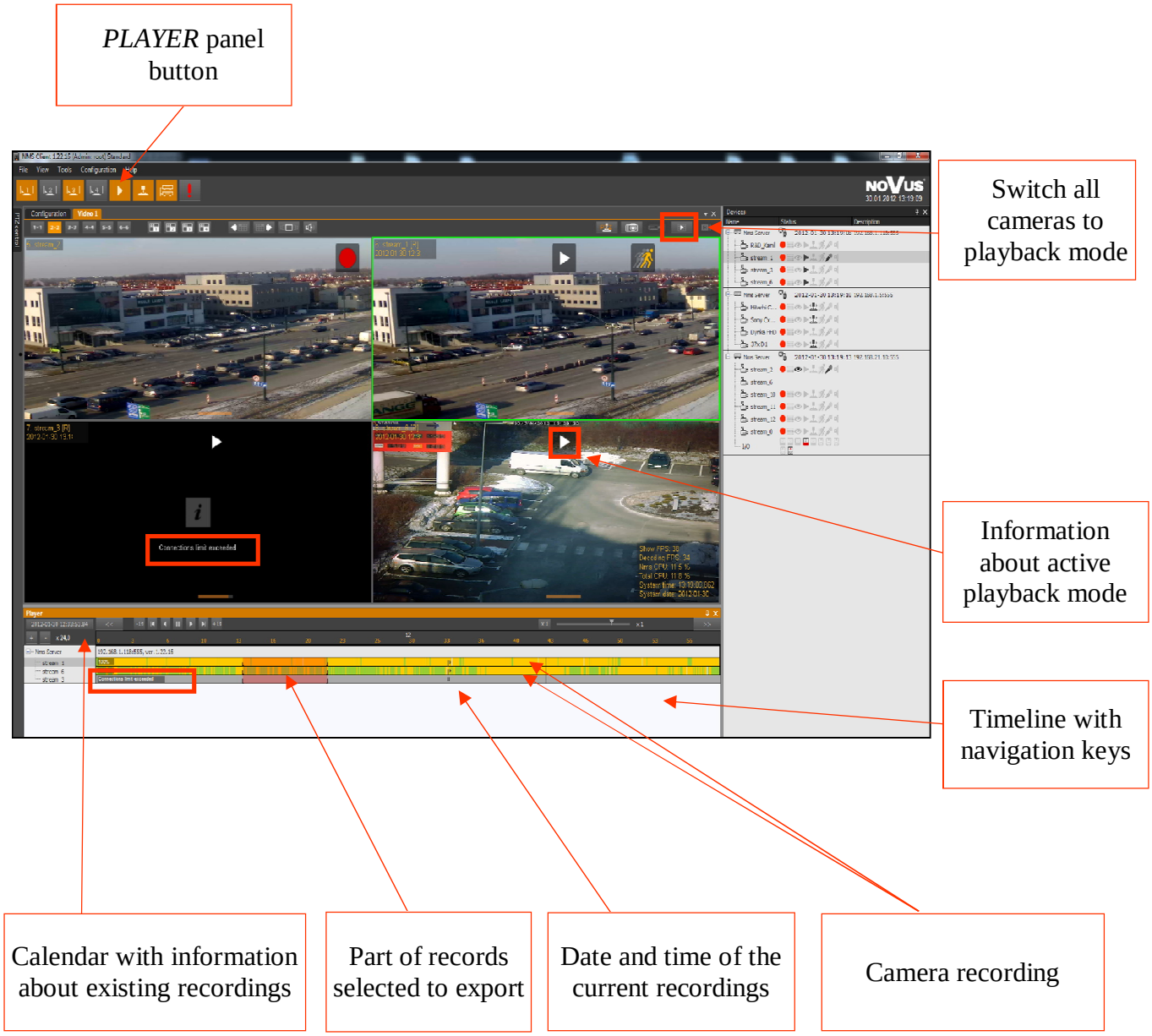
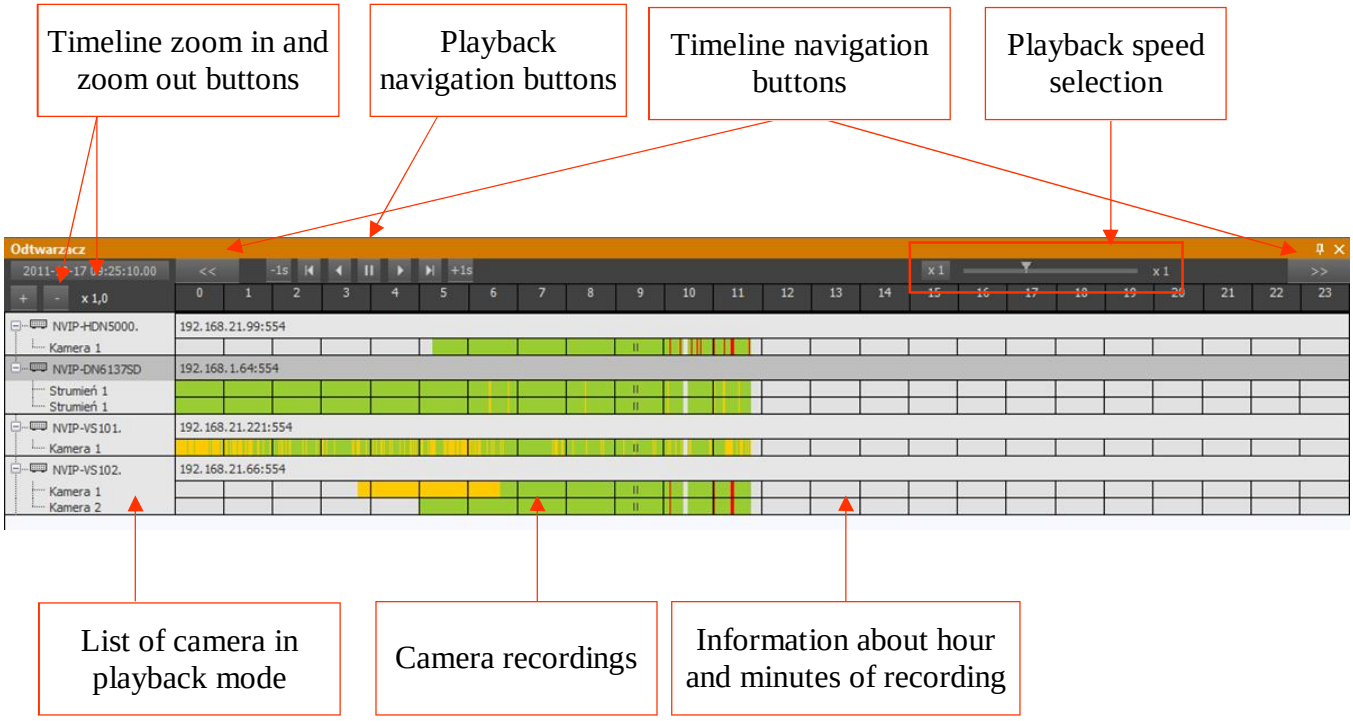
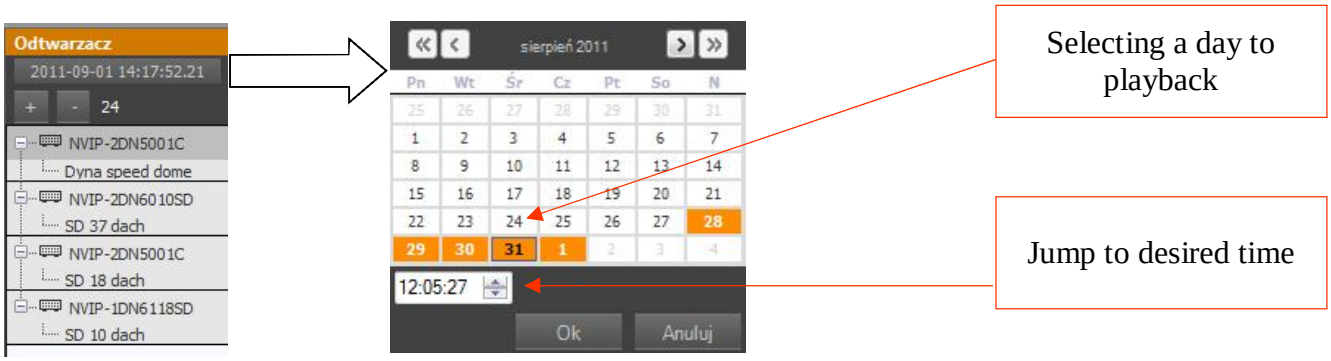


Attention: For correct work of playback mode please previously configure and run Remote playback server in NMS Server application. Further information is in chapter 11.5.

6. VIDEO PLAYBACK

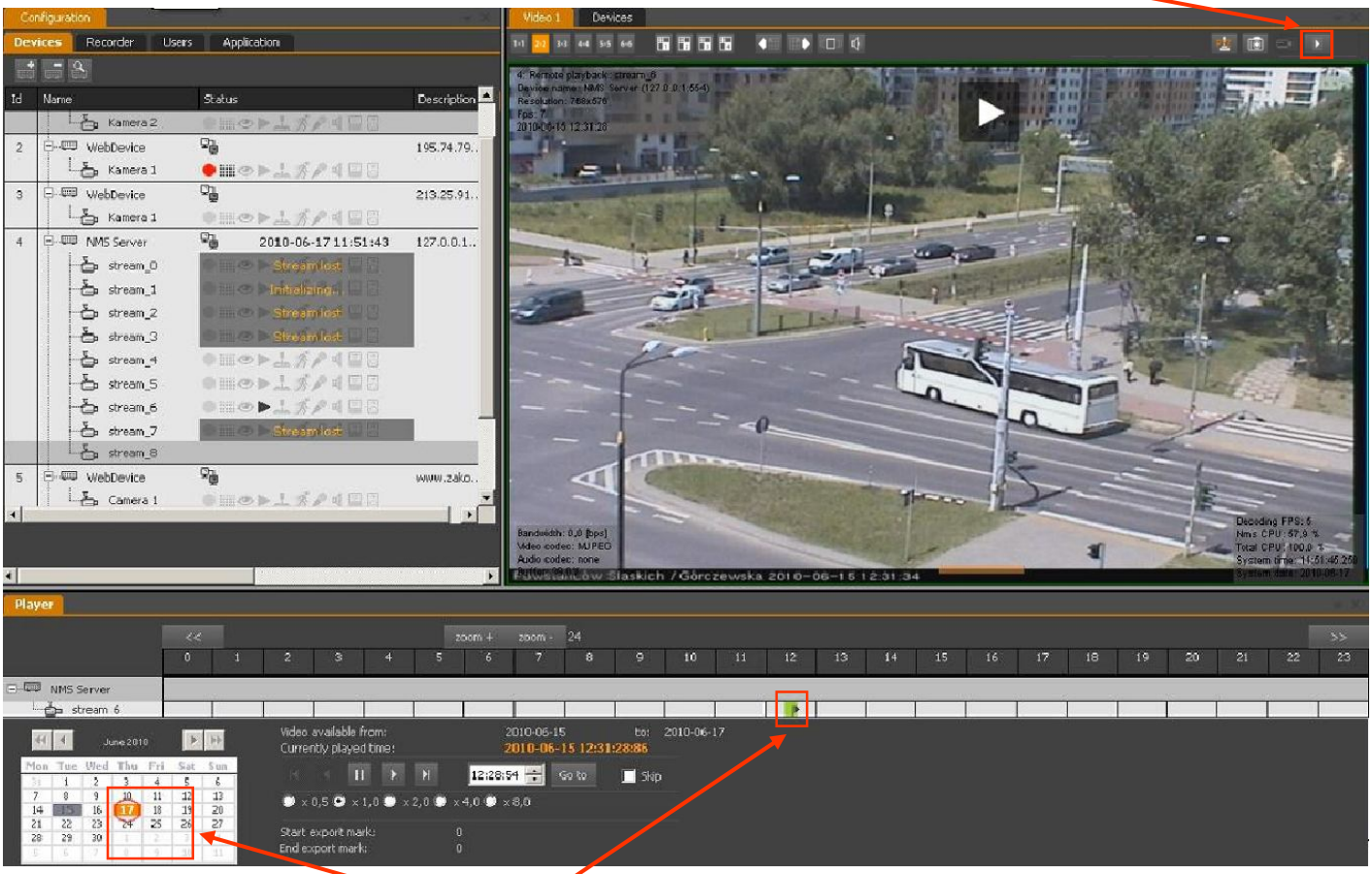




	Frame by frame rewind
	Rewind
	Pause
	Playback
	Frame by frame playback
	Move playback 1 second forward
	Move playback 1 second back

6. VIDEO PLAYBACK

If connection to NMS Server was successful , you have to drag required video streams to video divide window. Then turn on *playback* mode and select required time range where accessible video records are available.



6.2. Playback mode for NOVUS DVRs

NMS Software is capable to playback records from NOVUS DVRs. Specification allows to run one playback stream from all connected application simultaneously. This function refers to B Series (NDR-BA4104-II, NDR-BA4208, NDR-BA4416 models). NMS Software doesn't provide playback mode for E and H Series of NOVUS DVRs.

NMS Software can not export to AVI records from NOVUS DVRs directly. To do that, it is necessary to start recording in NMS Software. Afterwards export streams from NMS Software.

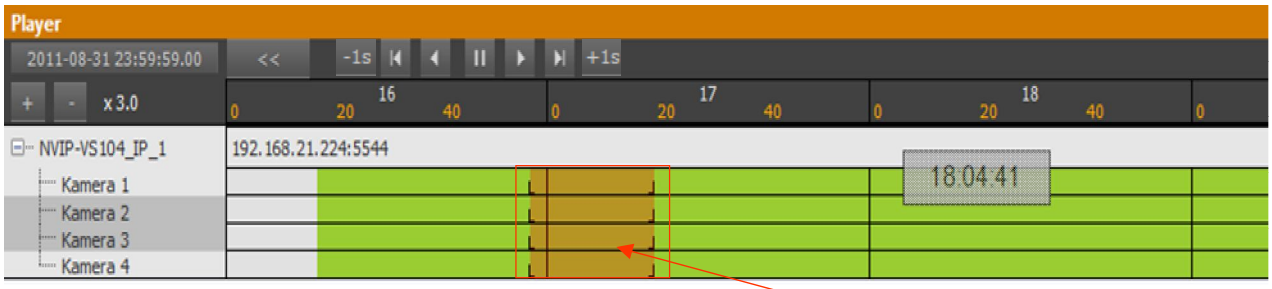
6. VIDEO PLAYBACK

6.3. Video export to AVI

NMS software allows user to save a selected video recordings to not-compressed AVI file.

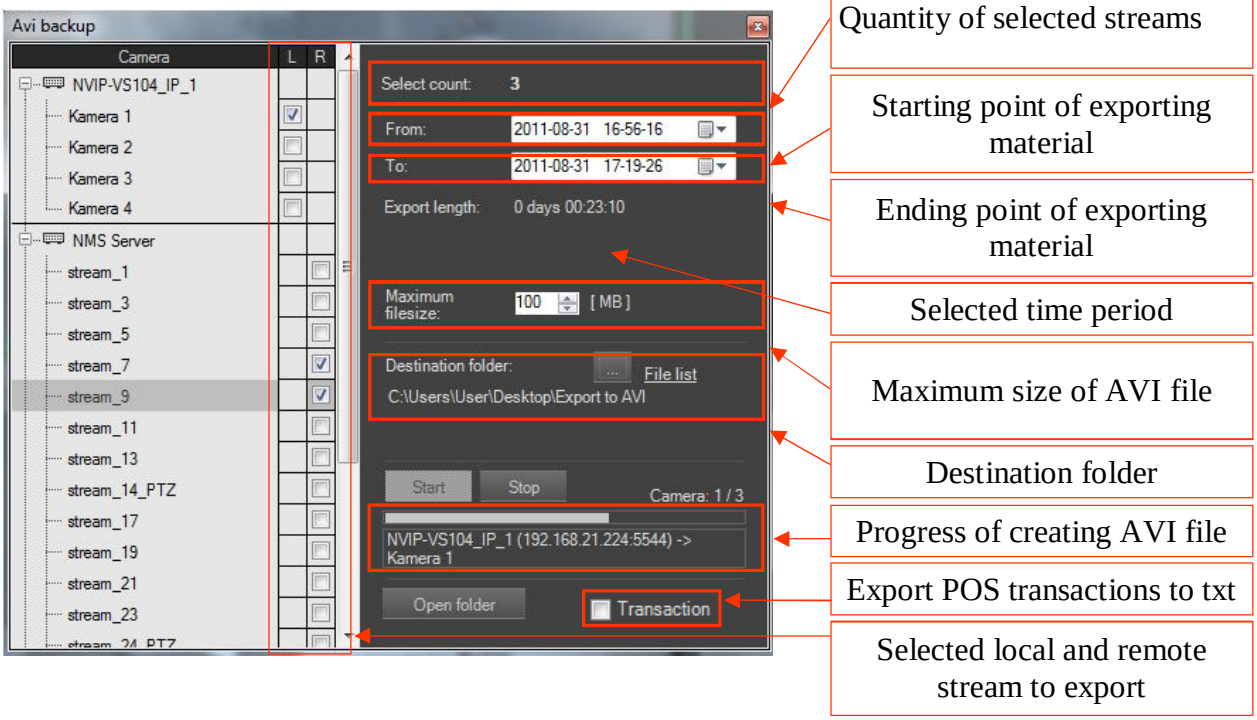
In order to export recordings to AVI file please:

- run video playback mode;
- set *Start Export Stamp* position by clicking RMB on the records stripe;
- set *Stop Export Stamp* position by clicking RMB on the records stripe;
- select *Export to AVI* option for desired camera (not IP device);
- press *START* button to engage the export operation.



Click RMB on the camera window and select *fast export to AVI.*

AVI backup - choosing *fast export to AVI.*will display window as below:



Quantity of selected streams

Starting point of exporting material

Ending point of exporting material

Selected time period

Maximum size of AVI file

Destination folder

Progress of creating AVI file

Export POS transactions to txt

Selected local and remote stream to export

6. VIDEO PLAYBACK

AVI backup uses default codec with encoded video stream. Thanks to that 20 min backup from one camera takes only few seconds. Start and stop position and date recording can be adjusted, select multiple video stream to be exported at the same time.

Maximum size of single AVI file must be defined. Range between 50 to 950MB is available. AVI can be exported also to CD/DVD disc or local drive.

Choosing of destination folder or CD/DVD disc with sufficient free space available is required to export selected files.

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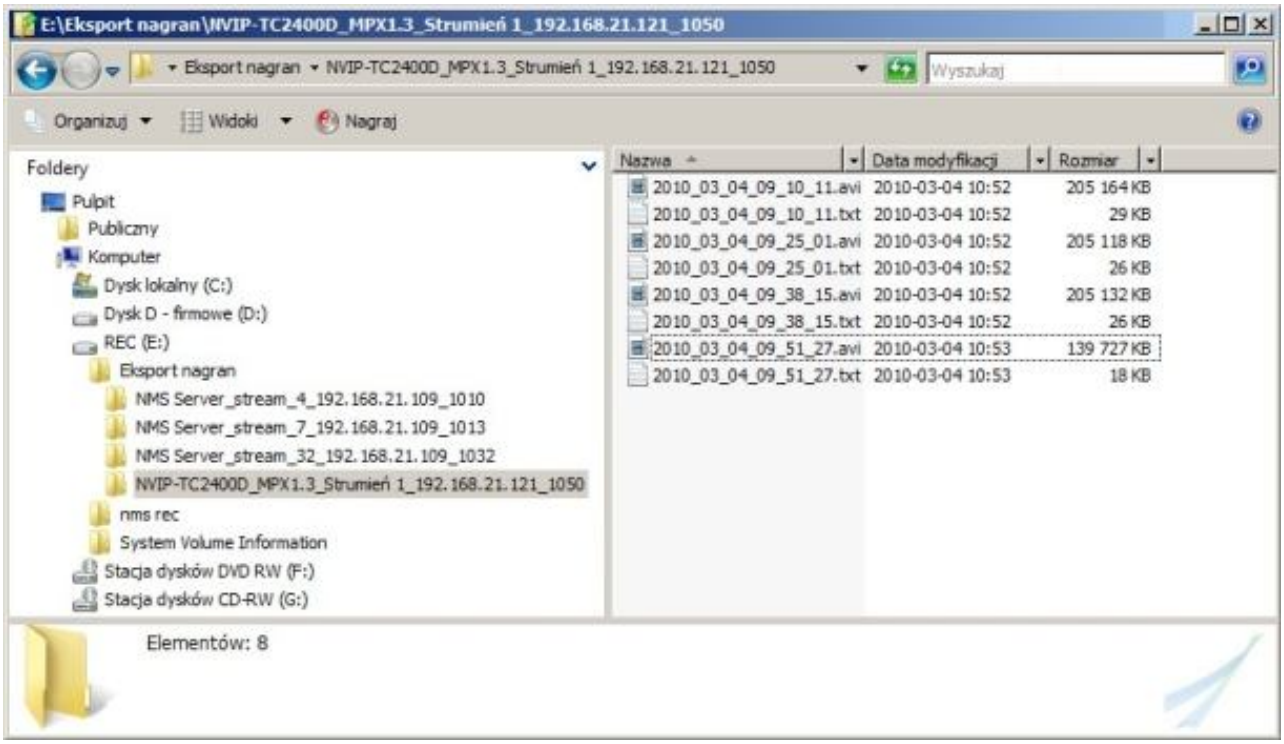
Start button runs exporting files to selected folder. Progress bar inform about status.

When export is finished, files are located inside destination folder. Every folder contain TXT extension file. Date and start recording time are names of those file. TXT file inform about frames recording time.

AVI file name contains an information about date and time of video saved to the file.

For instance a file ***CameraNN_RRRRmmDDhhMMss_RRRRmmDDhhMMss.avi*** contains: video recordings from ***CameraNN*** where first part of the name defines ***Start Export*** position, second one ***End Export*** position (*RRRR* - year, *mm* - month, *DD* - day, *hh* - hour, *MM* - minute, *ss* - second).



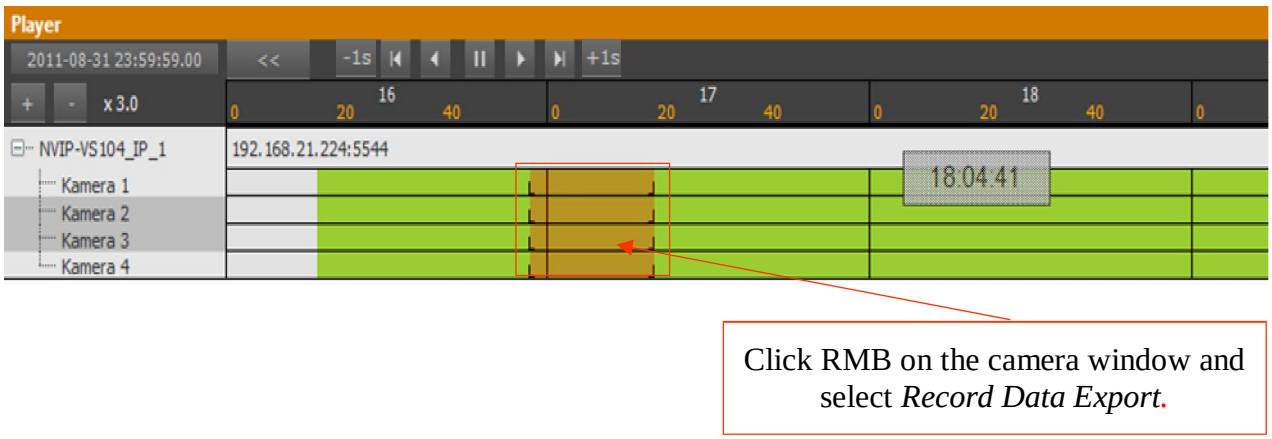
6. VIDEO PLAYBACK

6.4. Video export (NMS)

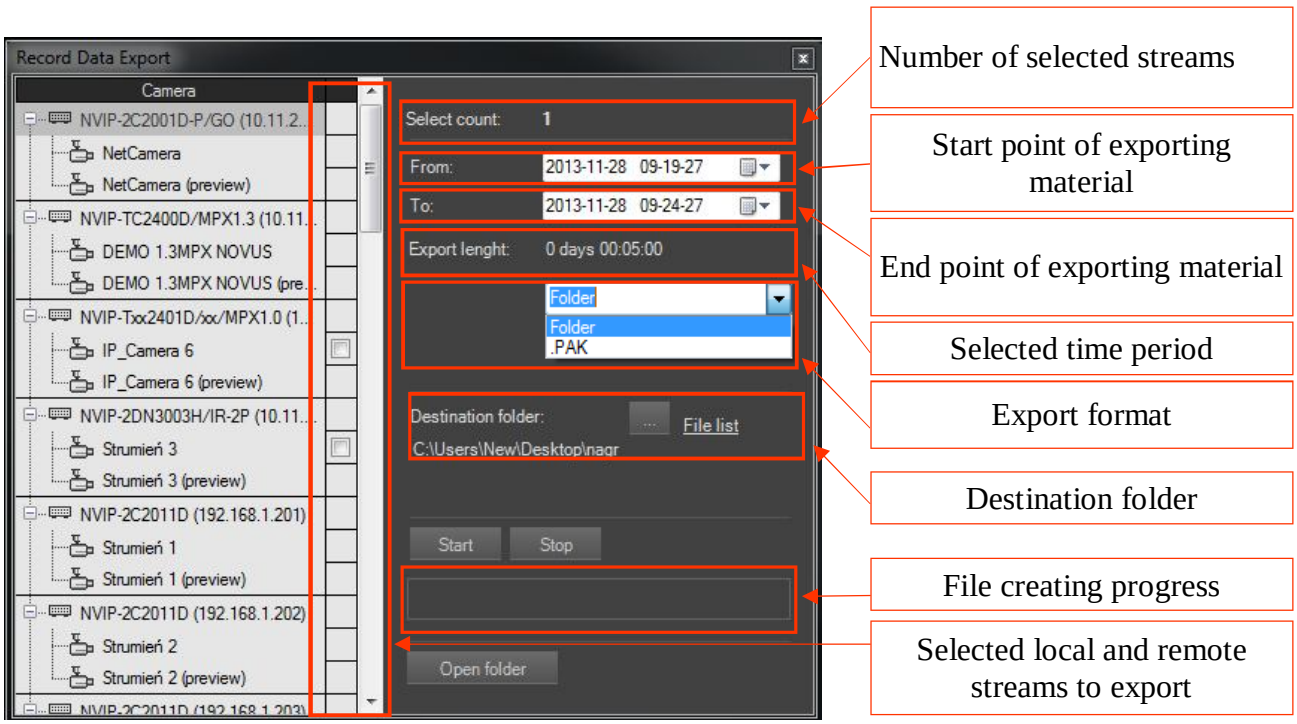
NMS application provides export video, not only to AVI, but also to NMS format. This particular format is used by NMS Player application or to "connect" video recordings from other disk or recorder (description in chapter 13.1.).

In order to export recordings to NMS format please:

- run video playback mode;
- set *Start Export Stamp* position by clicking RMB on the records stripe;
- set *Stop Export Stamp* position by clicking RMB on the records stripe;
- select *Record Data Export* option for desired camera (not IP device);



Choosing *Record Data Export* will display window as below:



6. VIDEO PLAYBACK

An export format lets to choose between *Folder* or *.PAK* option. Selecting *Folder* creates stream in separate folder. Selecting .PAK will export streams to one file. Choosing of destination folder with sufficient free space available is required to export selected streams.

Start button runs exporting files to destination folder. Progress bar inform about status.

When export is finished, .PAK file or folders are located inside destination directory. Folder name contains an information about:

CameraName_StreamName_IPAddress_IPNumber

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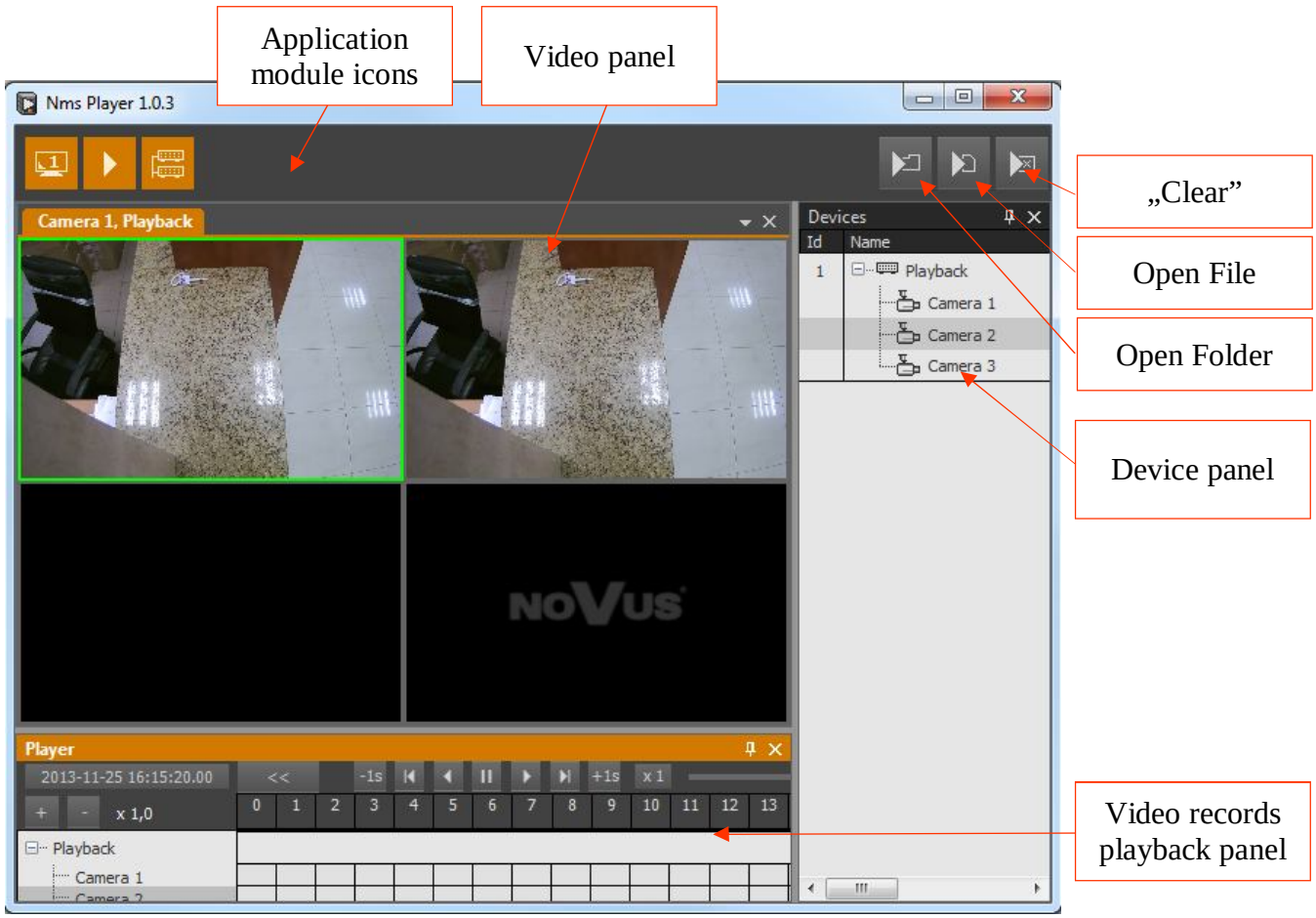
Each of .PAK file name contain date and time of the export:

NMSexport_Year_Month_Day_Hour_Minute_Second.PAK

6.5. NMS Player description

The NMS Player is the self-contained application for playback recorded video. It is installed with NMS application and consists in its modules. Open *Start menu* \ *Novus* \ *NMS* \ *NMS Player* to run the program. The application window is shown below.



6. VIDEO PLAYBACK

In order to open the recordings please:

- click on the icon:

 - to open the folder with the recordings

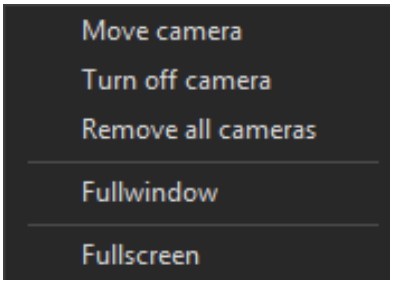
 - to open .PAK file with the recordings

- select the destination folder / file and confirm by clicking OK.

Repeating the operation will add next folder / file with recordings.

Attention! It is forbidden to open the same folder/ file twice.

The video window adjusts division automatically to the number of streams on the list. Click the right mouse button to open the context menu, similiar to the one in NMS application.



Move camera	Move the selected camera around video screen by clicking LMB on a window that the camera is to be moved into.
Full window / Back to split	Changing the camera screen division to full window mode
Turn camera off	Turning off selected video stream from a particular window
Remove all cameras	Removes all cameras from video window
Full-screen / Back to window	Changing the camera screen division to full screen window mode

To navigate in records please use video records playback panel which is described in chapter 6.1.

7. LOGS PANEL

7. LOGS PANEL

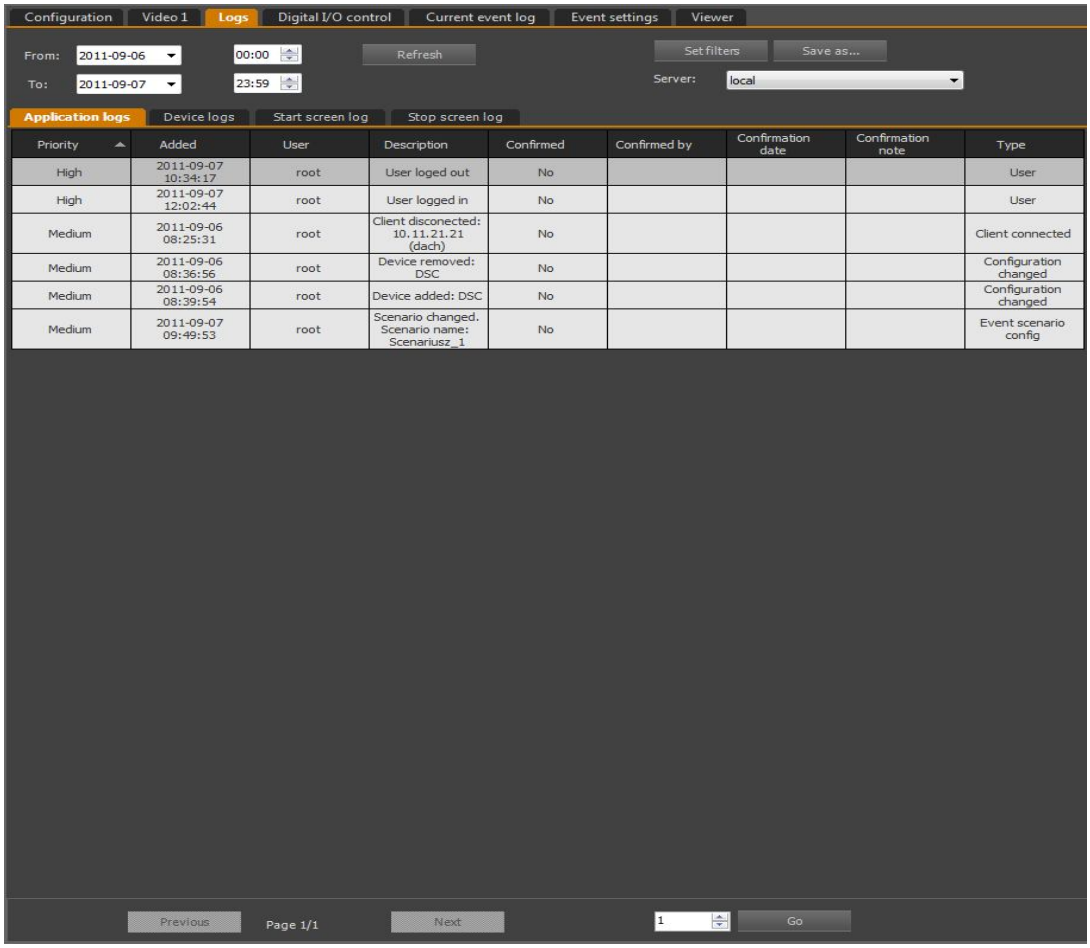
7.1. *LOGS* panel - basic information

LOGS panel allows for viewing logs generated by IP devices as well as NMS application stored in a data base. Logs are divided into four categories:

- Application logs;
- Devices logs;
- Start screen log;
- Stop screen log.

Available *Set filters* function allows user to define whether particular logs are displayed. Also logs data base can be exported to a text file - CSV format (*Save as...).*

The *LOGS* panel is presented below:



Buttons placed on the bottom of the window allow user to navigate through the logs data base (pages). You can define the number of logs displayed on a page in *Settings -> Display...on page.*

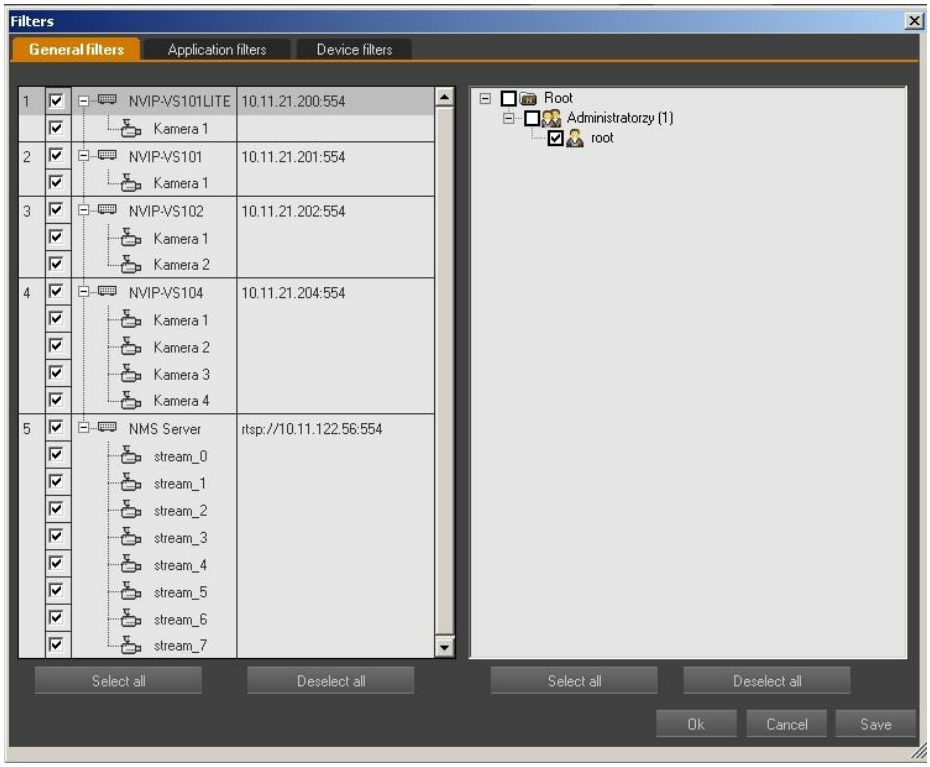
Go function allows to display selected a selected logs page.

Logs also can be filtered by time (*From…to...*).

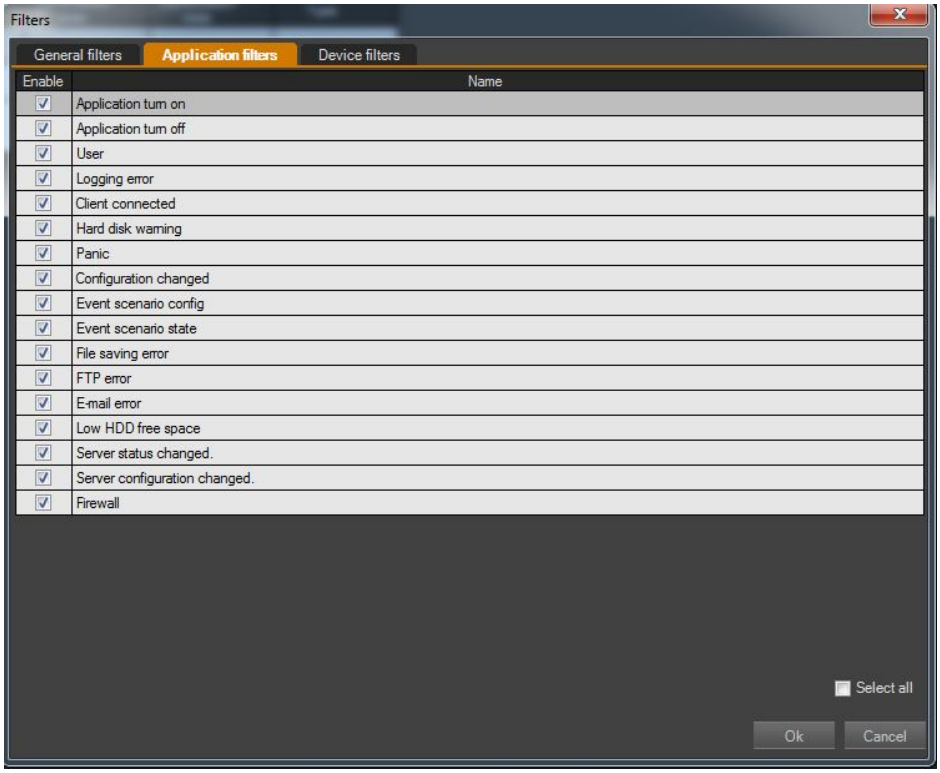
7. LOGS PANEL

FILTERS windows are divided into three tabs:

- *General Filters* - allow you to choose one or many IP devices, video streams and users;

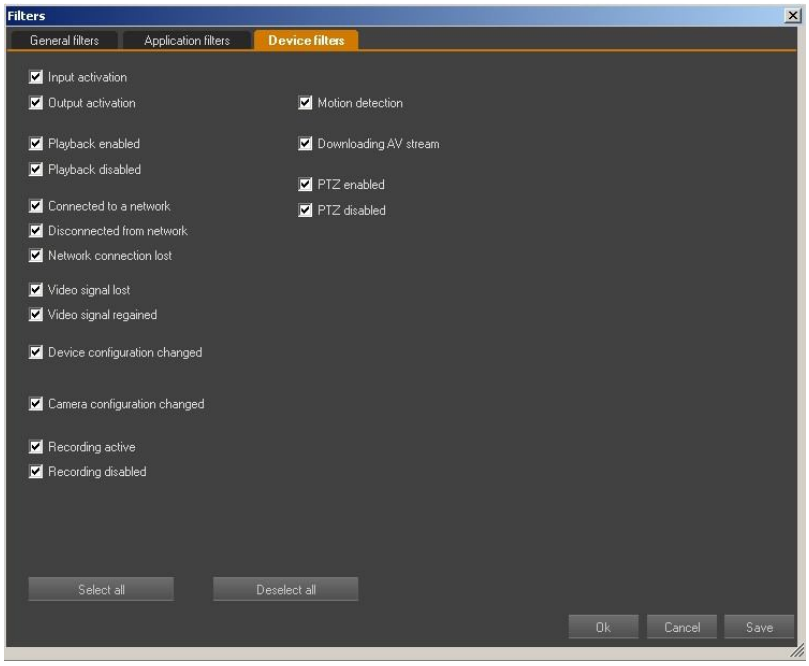


- *Application Filters* - allow selection of events related to the NMS application;



7. LOGS PANEL

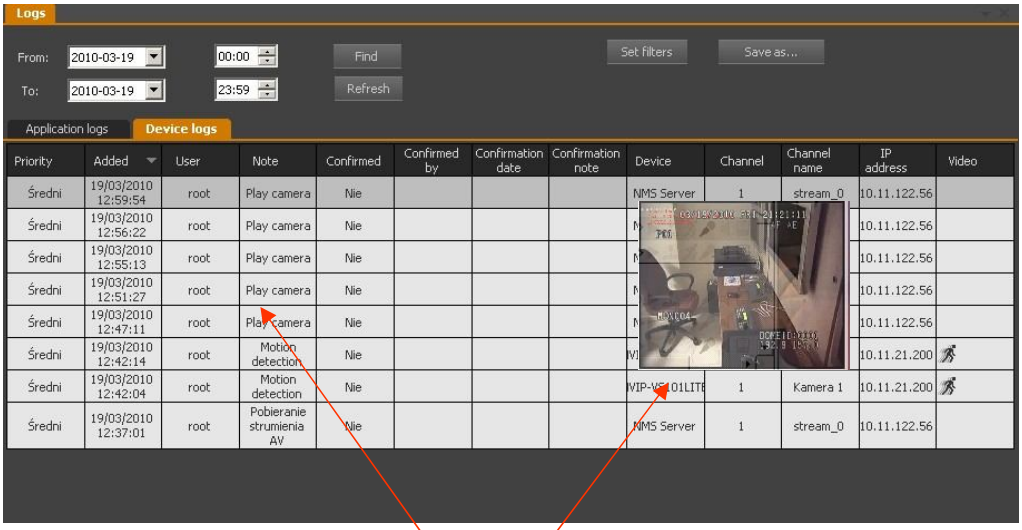
- *Devices Filters* - in this tab, you can choose events that are directly related to the IP devices connected to the system.



7.2. Playing playback video connected with alarm action.

LOGS panel allows for playing back the video material combined with logs (motion detection, alarm input activation) in a *VIDEO 2* panel.

Notice! Remember to open VIDEO 2 window firstly.

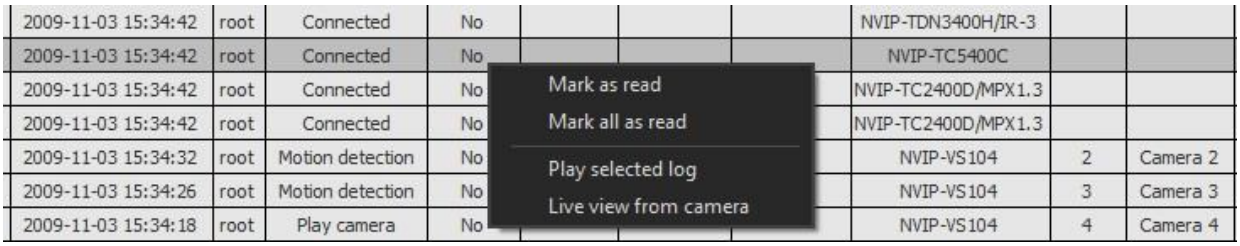


Playing back the video material combined with logs in a separate window

7. LOGS PANEL

Please use *Player* panel to navigation through the recordings (pause and play the video forward or back in normal mode or frame by frame).

A context menu appears after clicking RMB on the selected row:



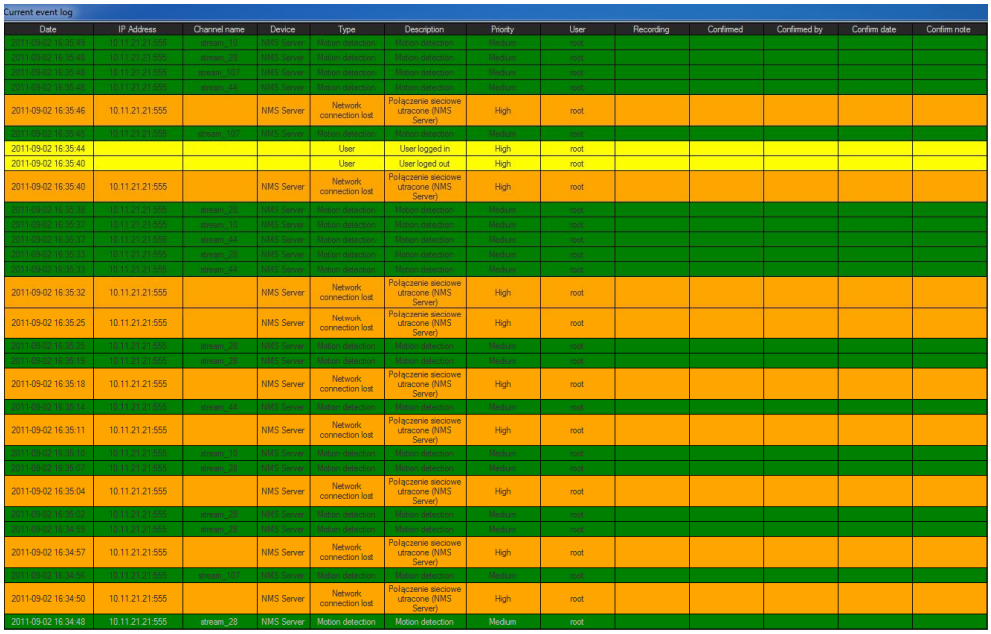
Mark as read	Change the log status to 'confirmed'. Confirmation date and together with user's name and optional note is added
Mark all as read	Confirm all logs
Play selected log	Paying back the video material combined with selected event (useful for alarm events viewing)
Live view from camera	Displaying live view from camera combined with selected event

8. CURRENT EVENT LOG PANEL

8. CURRENT EVENT LOG PANEL

8.1. *CURRENT EVENT LOG* - basic information

Alarm logs generated by IP devices as well as NMS application are listed in a *CURRENT EVENT LOG*. In contrast to *LOGS* panel, were all logs are available, this panel displays a list of last tens events. User may define the exact amount of displayed entries as well as a type of displayed logs. For easy operation different groups of events are distinguished by different colours. Events on the list appear chronologically, depending on time of event occurrence. The latest events are listed on top. The *CURRENT EVENT LOG* panel is presented below:



The *CURRENT EVENT LOG* panel contains events that occurred from application start-up till now. Just after software start-up event list is empty.

Attention: Only some groups of events are displayed by default. Current event log filter configuration is necessary.

8.2. Current event log filter

The NMS administrator may define a list of devices and events types that will be displayed in *CURRENT EVENT LOG* for each group independently. Please use a current event log filter to adjust a content of panel very easily.

In order to change *CURRENT EVENT LOG* filter configuration please select:

- *CONFIGURATION / APPLICATION SETTING / USERS* tab;
- point to desired group of users;
- press *Set Filter* button.

Caution: *CURRENT EVENT LOG* filter configuration is independent for all defined group of users.

Filter is divided into three tabs:

- general - allow you to choose one or many IP devices, video streams;
- application - allow selection of events related to the NMS application;
- devices - in this tab, you can choose events that are directly related to the IP devices connected to the system.

Current event log filter configuration is analogical to Log filter configuration described in previous chapter of this manual.

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Additionally, there are available buttons:

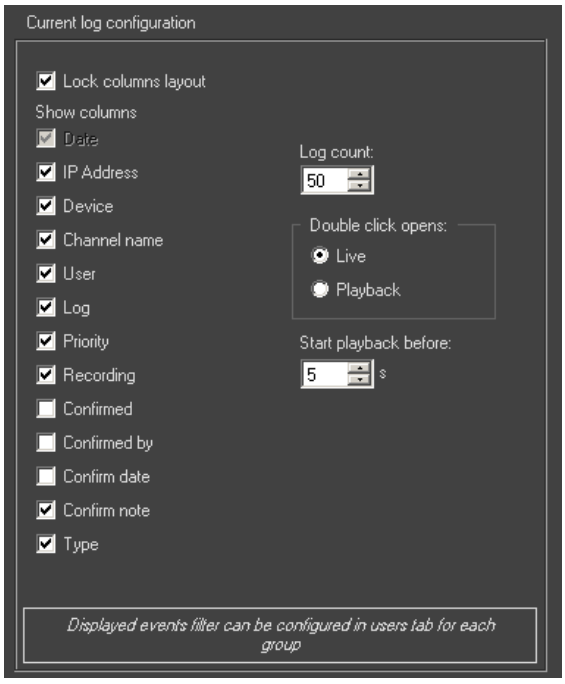
- *Import* Import settings from .FLT file;
- *Export* Export settings to .FLT file;
- *Copy to all* Copy settings to all groups of users.

8.3. Current event log configuration

CURRENT EVENT LOG described in a previous chapter of this manual can be easily adjusted to user's preferences. Settings are available in *CONFIGURATION / APPLICATION SETTINGS / APPLICATION / Current event log window.*

User can also change:

- columns order and lock current columns layout;
- hide some of the columns;
- define the exact amount of displayed alarm events;
- select live or playback mode for video combined with alarm log (mouse double click).

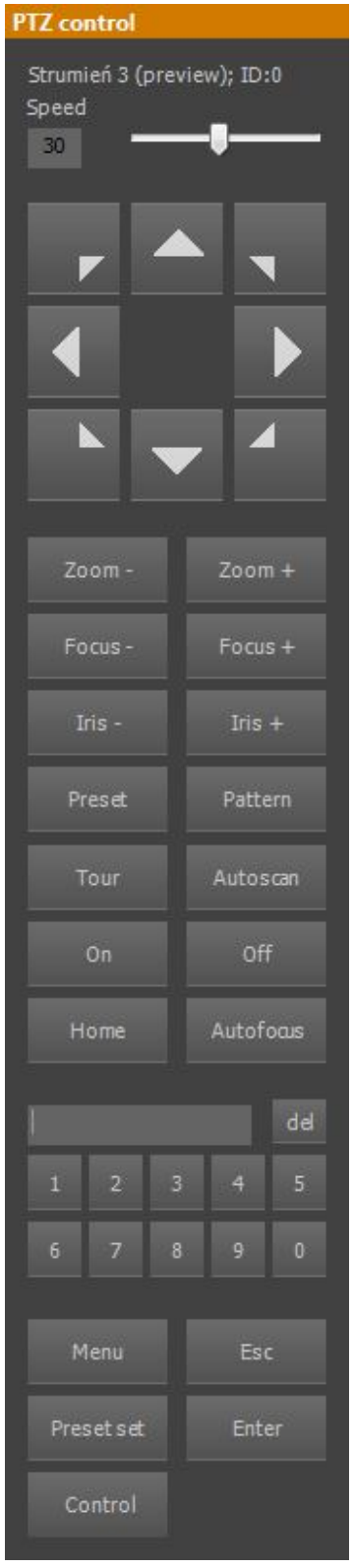


9. PTZ PANEL

9. PTZ PANEL

9.1. PTZ panel - information

PTZ panel is an alternative for direct on-image mouse-control of speed dome cameras. Moreover PTZ offers full configuration for speed dome cameras: CAMA-I, CAMA-II, CAMA-III (protocols: NOVUS-C, NOVUS-C1, NOVUS-C2 and PELCO-D) (Further information about activation and configuration PTZ cameras in chapter 10.1.6.).



PTZ panel activation requires a proper camera-to-video server connection (you can find the details in video server's manual) and video server port RS485 configuration as well (transmission speed).

Arrows (◄►▼▲)	- pan and tilt control
Speed	- camera movement speed
Zoom -/+	- zoom control
Focus -/+	- focus control
Iris -/+	- shutter control
Preset	- preset recall
Pattern	- pattern menu
Tour	- tour menu
Auto scan	- auto scan menu
On, Off	- buttons to use with special functions in PTZ cameras
Home	- home mode on
Autofocus	-autofocus mode
0 - 9	- functions' numbers : presets, tours etc.
Del	- deletes the function box
Menu	- camera menu
Control	- presets, tours, etc saving in analog cameras
Esc	- back to the previous menu, sub menu
Preset SET	- preset saving
Mode	- switching between modes (for Novus C1)

Attention: Set the parameter "speed" does not provide the same functionality for all PTZ camera's Novus. In case of problems inside the OSD menu , set increase/decrease "speed" parameter.

Attention: In case of NVIP-2DN6020SD-2P camera to restore Auto Iris mode, set the *Speed* „0" and click the button *Iris* -/+

9.2. Control NVIP-5DN2021D/IR-2P („fisheye") camera

NMS Software allows to control specific camera as NVIP-5DN2021D/IR-2P. It has the ultra-wide (so called „fisheye") lens. Despite the lens is fixed, features of the camera make possible to control it in similar way to the real PTZ camera.

After PTZ mode activation, the camera can be controlled by:

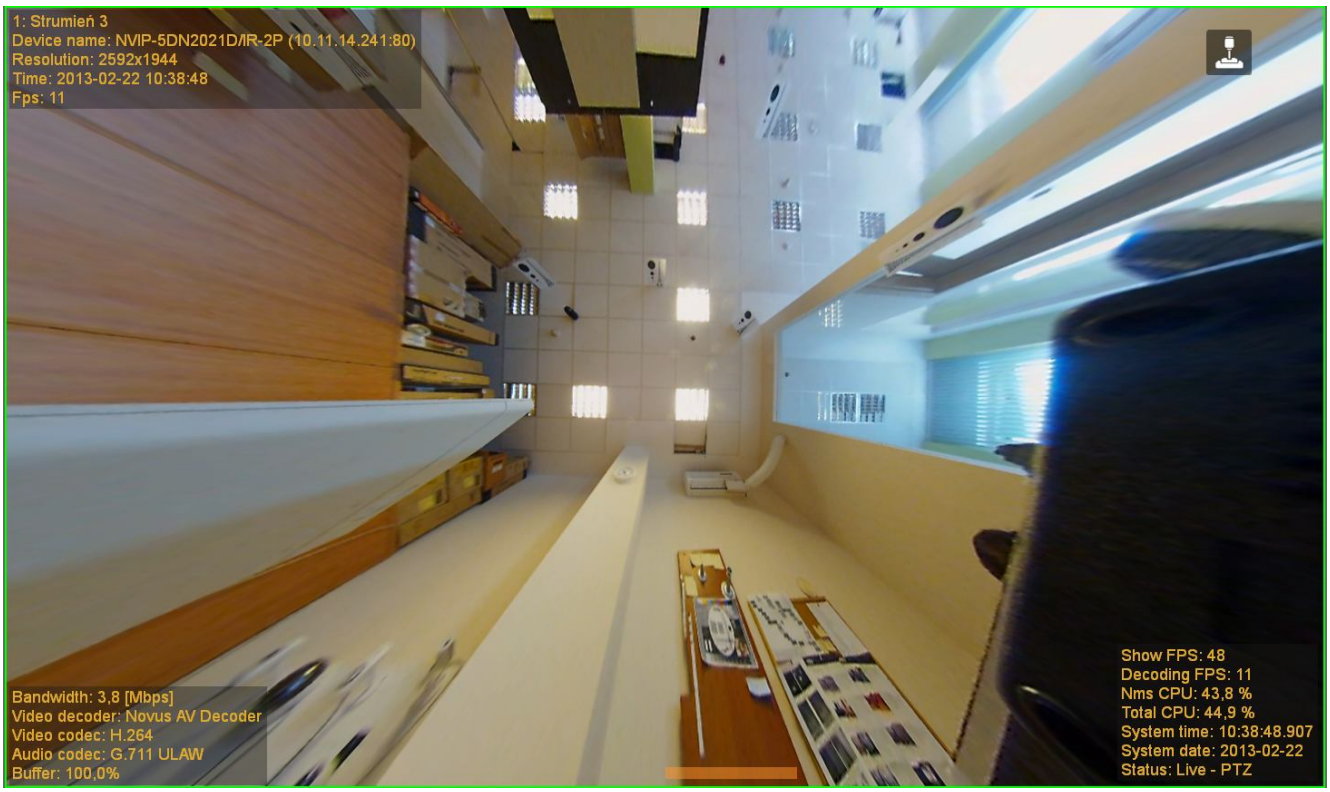
- PTZ control panel (further information in chapter 9.1.);
- PC keyboard - arrow buttons change scene in the desirable direction, Page Up/Down buttons control Zoom Out/In;
- PC mouse - clicking on the side of video screen changes scene in the desirable direction. Scroll controls Zoom.

The camera displays video in two modes. In the central position, and zoom out (the widest angle), the scene is circular (the scene circle is inscribed in the division window).

Virtual zoom or movement switch on „Digital PTZ" function and full-frame mode. The scene circle is enlarged to cover the entire rectangular division window.

Video has typical distortion for the "fisheye" cameras in both modes.

9. PTZ PANEL



Video analysis is performed at the computer which is remotely connected with the camera. Digital PTZ function, due to number of calculations required in video processing, may cause general decrease in computing power and decrease in operating system performance, depending on the PC hardware configuration.

10. CONFIGURATION PANEL

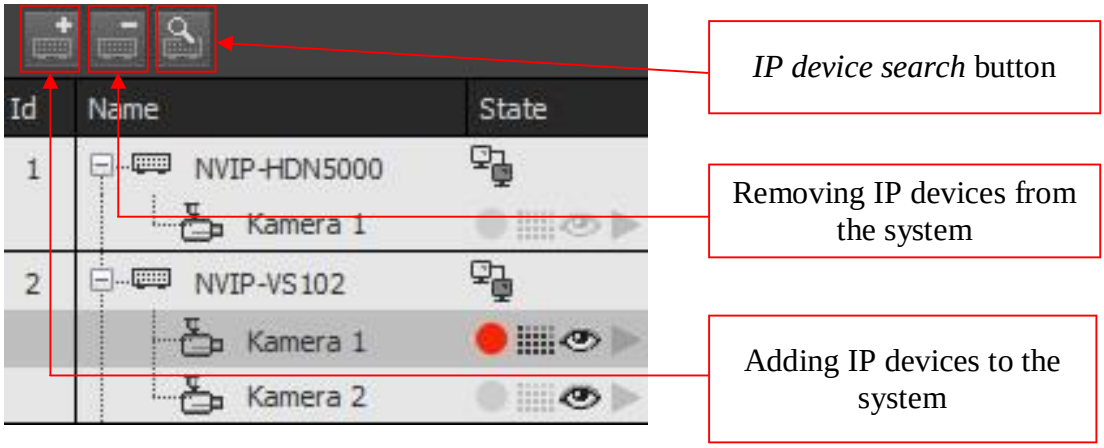
Configuration panel is divided into tabs and sub-pages which allow for full set-up of NMS application.

10.1. *DEVICES* tab - information

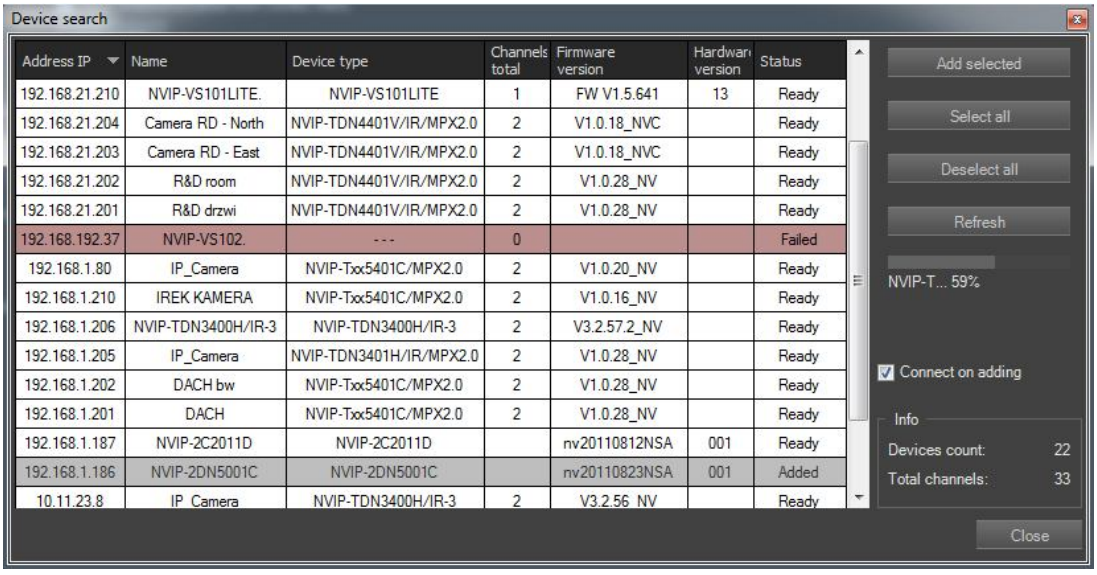
Devices tab functionality is similar to the panel *DEVICES* available from the main menu. In addition, there are options for adding and removing devices and their configuration.

10.1.1. Adding video servers to a *DEVICES* list

Adding a video server or IP cameras to the list of devices is possible by using a *IP devices search* button or by hand, but for this you have to know the IP address and type of the device. Startup and initial configuration of the IP device is describe in the manual for this device. The easiest way to add new devices to the system is to search a compatible IP devices by using search button.

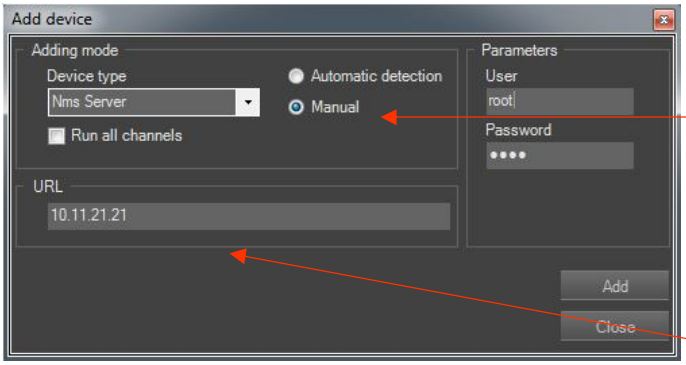


Once you find the IP devices select them, set the option *Connect to adding* and use the *Add selected* or *Add all*.



10. CONFIGURATION PANEL

There is also option to add new IP device manually. Please press a following button in the configuration menu. Then new window will be displayed where user can specify the devices IP address, port and also the type of IP device, if it can not be identified automatically.



Manual mode is recommended only when type of IP device can't be determinate automatic (e.g. device does not exist on the net)

An IP address or domain name of IP device

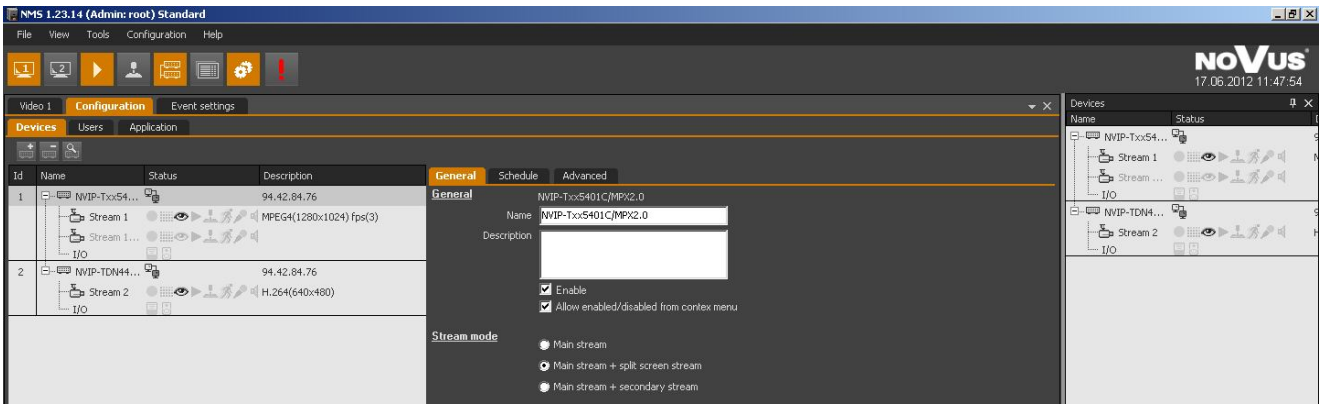
After proper adding equipment, they will successively appear in the list of devices.

Adding video servers to a *Devices* list

Notice! **If you manually add devices please notice that the default port of communication for IP devices NOVUS NVIP-VS10x, xDNxxxx and NVIP-HDNxxx series is 554 and for the NVIP-Txxx series is 80.**

To connect more then one RTSP channel it is required to purchase a separate license and use special USB dongle.

Regardless of method that was used to add the device it will appear on the *Devices* panel list with only one active stream. User can switch between two remaining stream options under the *General* tab, that is: *Main stream+Split screen stream* and *Main stream+Secondary stream* (up to 720x576 and 512kbps). The former one is best used with multiple video streams being displayed on the video screen simultaneously. NMS is able to detect that and automatically switch the streaming from higher performance to a lower one in order to conserve the computing power of the PC it is currently running on. The latter mode allows to enable a device to serve two individual streams at once.

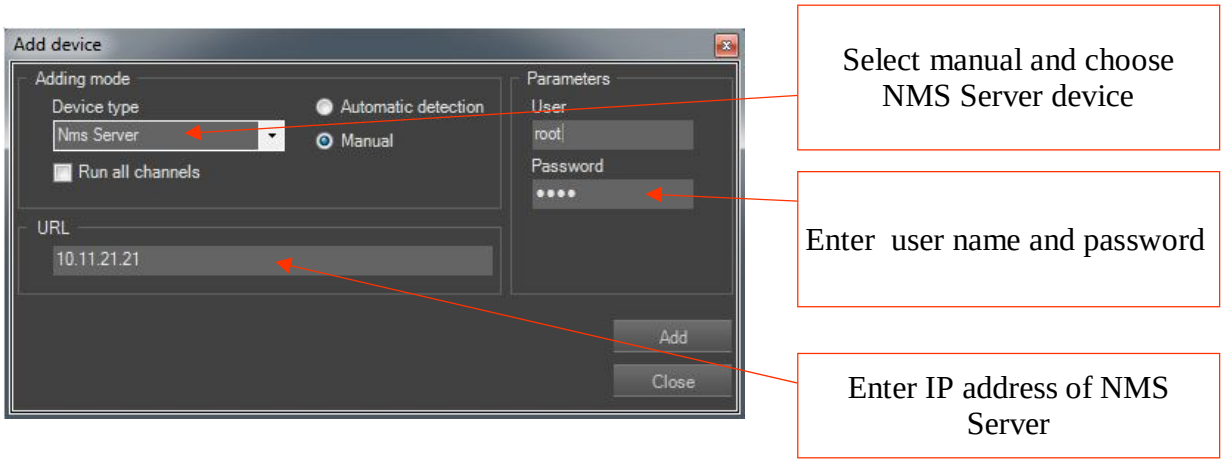


To remove an IP device you have to select this device on the list and press the button.

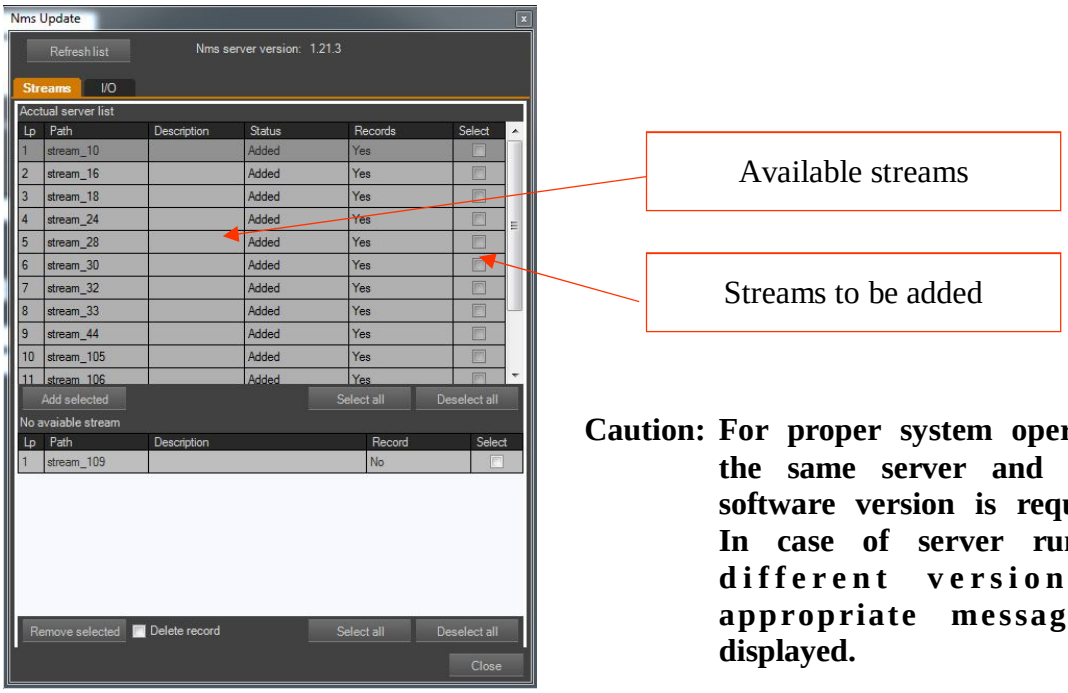
10. CONFIGURATION PANEL

10.1.2. Adding and removing NMS server devices.

Adding NMS Server has to be done manually - IP address and necessary port are required. In configuration menu please press button. After a while below window is displayed. Please select *NMS Server* as device type and enter correct IP address. Proper user name and password is required as well. (Defined before in working NMS Server application on server machine).



When NMS Server has been added, will append to device list as well. You have to highlight that server and in Configuration window, *General* tab - press *Update*. After that window as below will appear:



Caution: For proper system operation the same server and client software version is required. In case of server running different version an appropriate message is displayed.

Mark streams you want to add to the system (all new streams are highlighted as default settings) than press *Add selected* and close window. Stream's list of new NMS server has been updated with selected streams and will make connection sequentially.

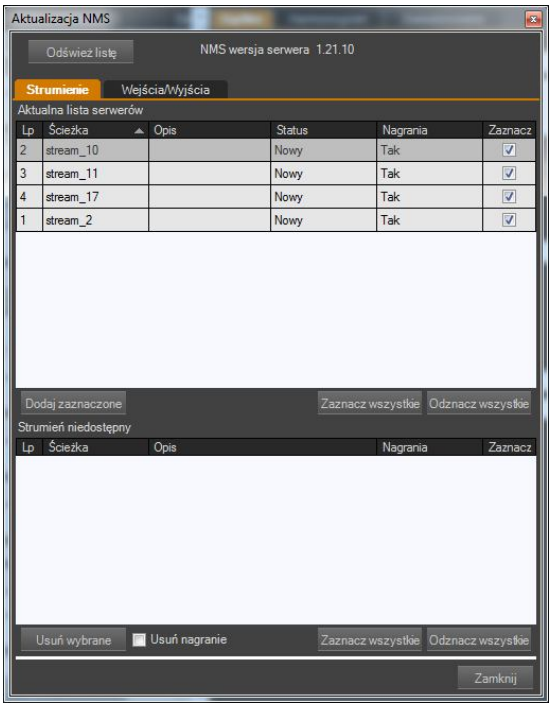
Alarm input and outputs list available from the NMS Server is displayed in I/O tab in this window. Please add alarm inputs/outputs analogically to video streams.

10. CONFIGURATION PANEL

10.1.3. NMS Client - streams management

NMS allows to choose streams available from the NMS client. Among video streams available through NMS server you can chose these that are received or recorded.

Update button in *CONFIGURATION / DEVICES / General* subpage runs stream management, after that a window depicted below appears:



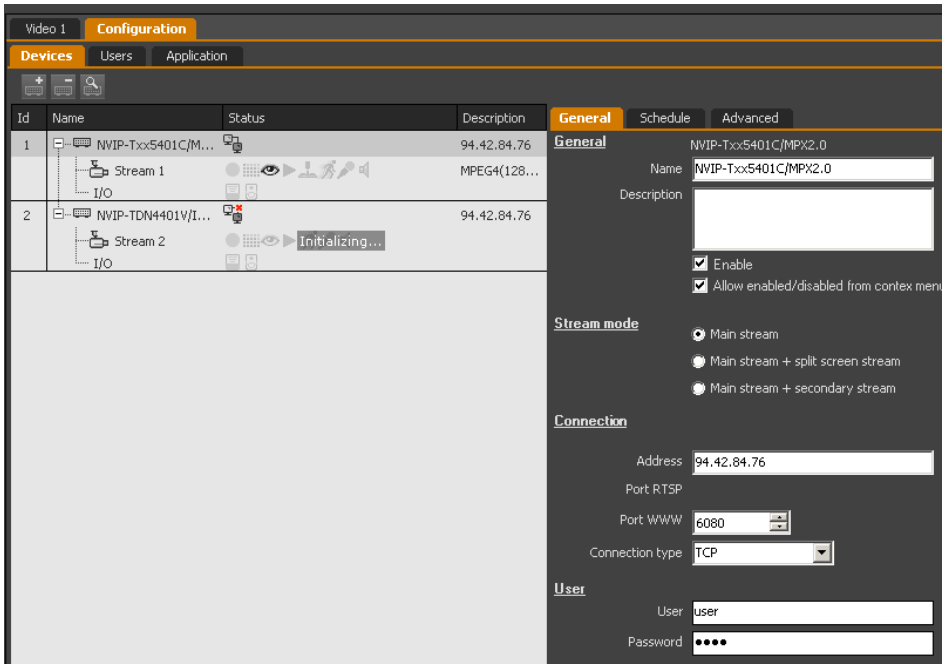
Window contains a list of streams both sent and currently not sent by NMS Server. *Status* on available streams informs if that's new or existing system stream. When new streams appear, select desired ones and press *Add Selected*.

Unavailable streams are also listed and records for them are available as well. Unwanted streams may be deleted.

Notice! List of available streams depends on streams sending by NMS Server and level of access to NMS Server. Manual adding and removing streams connected to selected NMS Server is possible and all steps are given in chapter 10.1.4.

10.1.4. *DEVICES* tab: *General* subpage

General subpage allows to define settings of IP devices and installed NMS streams.



Type of device (IP device or video stream) determines following options:

a) NMS Server:

- General - configuration of name and device description , connection status;
- Connection - IP address and network port settings and type of connection;
- User - user name and password necessary to log in to NMS Server*;*
- NMS Connection - NMS connection port number;
- Update streams - list of streams management. Description was given in chapter 10.1.3.

b) IP device:

- General - configuration of name and device description , connection status;
- Stream mode - (refer to 10.1.1.);
- Connection - IP address and network port settings and type of connection;
- User - user name and password necessary for device authorisation;

c) Video streams:

- General - configuration of name and device description , connection status.

All changes must be approved *Save* button at the bottom of the panel.

10. CONFIGURATION PANEL

10.1.5. *DEVICES* tab: *Schedule* subpage

You can define separate recording settings for each camera available in NMS using *Schedule* subpage. Continuous recording is set by default.

NMS application has 5 recording modes:

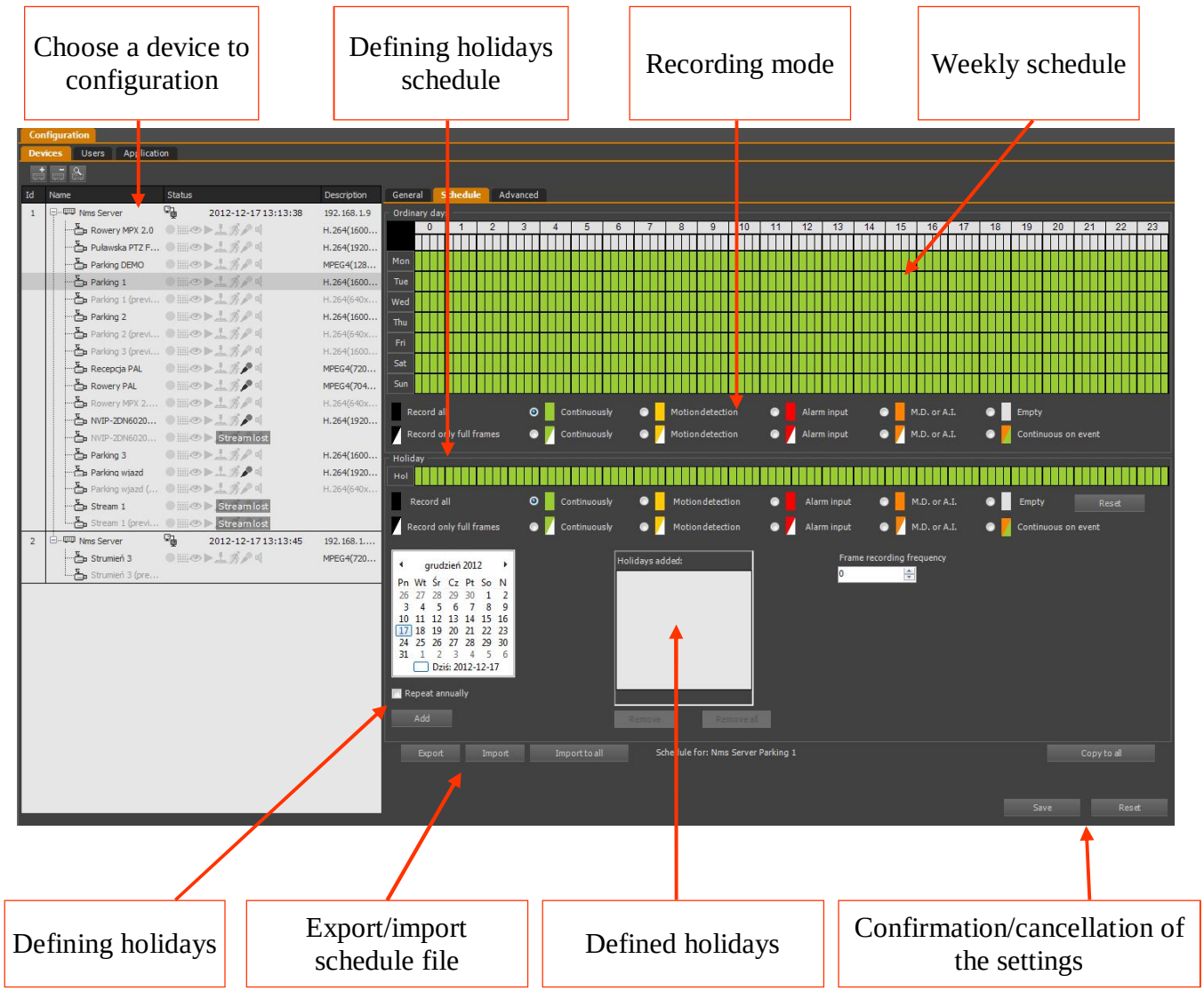
- *Continuous* - recording with a constant speed,
- *Motion detection* - recording only when image changes are detected (motion regions must be selected in the video server),
- *Event input* - recording only while the event input is activated,
- *M.D or A.I* - recording only when image changes are detected (motion detection) or while the alarm input is activated.
- *None* - no recording,
- *Continuous on event* - recording only full video frames with full continuous recording after event occurrence.

"Panic" recording also appears in the system, but it is not included in the schedule due to the high priority of this recording mode.

Fields half-filled with a color ( ) indicate that only the full video frames are recorded.

When you select a video stream (no IP device) you will see the schedule assigned to this device.

10. CONFIGURATION PANEL



When you select the recording mode choose the area on the schedule that matches the desired period of time. Schedule is divided into days of the week (horizontally) and hours (vertically). The hours are additionally divided into four sections which lets you choose the recording time every 15 minutes. You can select the entire column (by clicking on gray rectangles, respectively hours / quarters, entire rows (by clicking on weekdays short names) or a whole week 24/7 by clicking on the gray box in the upper left corner of the diagram.

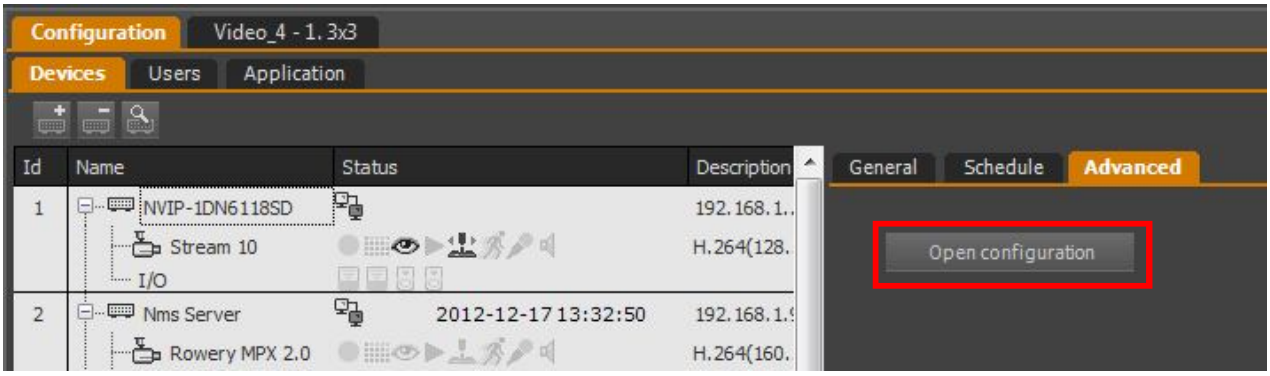
Moreover, you can also set holidays for which you define individual recording settings. Such days can be set independently of the year, and repeated annually. Changes must be saved by clicking *Save* button at the bottom of the panel.

Once configured schedule is saved it can be used while configuring another camera or another NMS application. You can use *Import to all* button to load saved timetable for all available cameras.

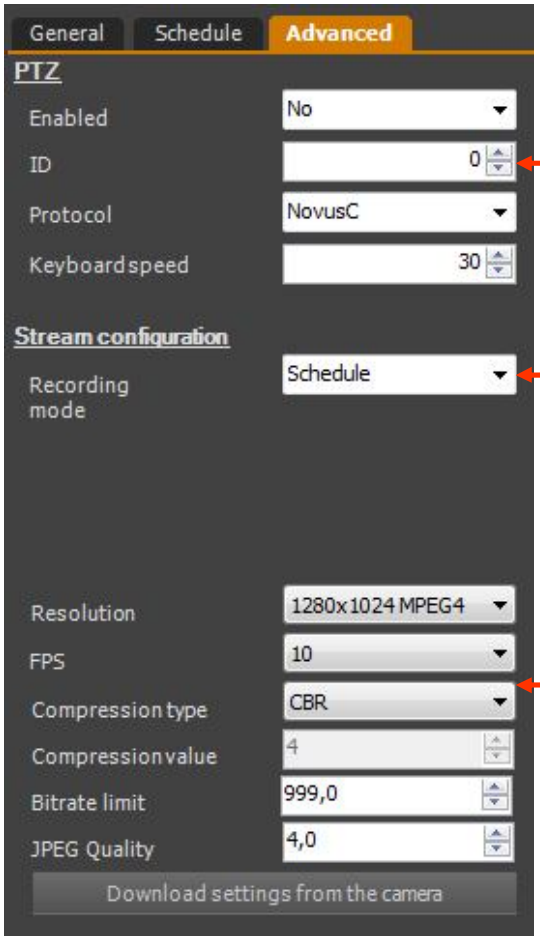
10. CONFIGURATION PANEL

10.1.6. *DEVICES* tab: *Advanced* subpage

Advanced subpage allows to open WWW page implemented in selected IP device



In case of the video stream you can configure additional functions:



PTZ settings (address and protocol);
(concerns video servers)

Recording mode (schedule or disable);

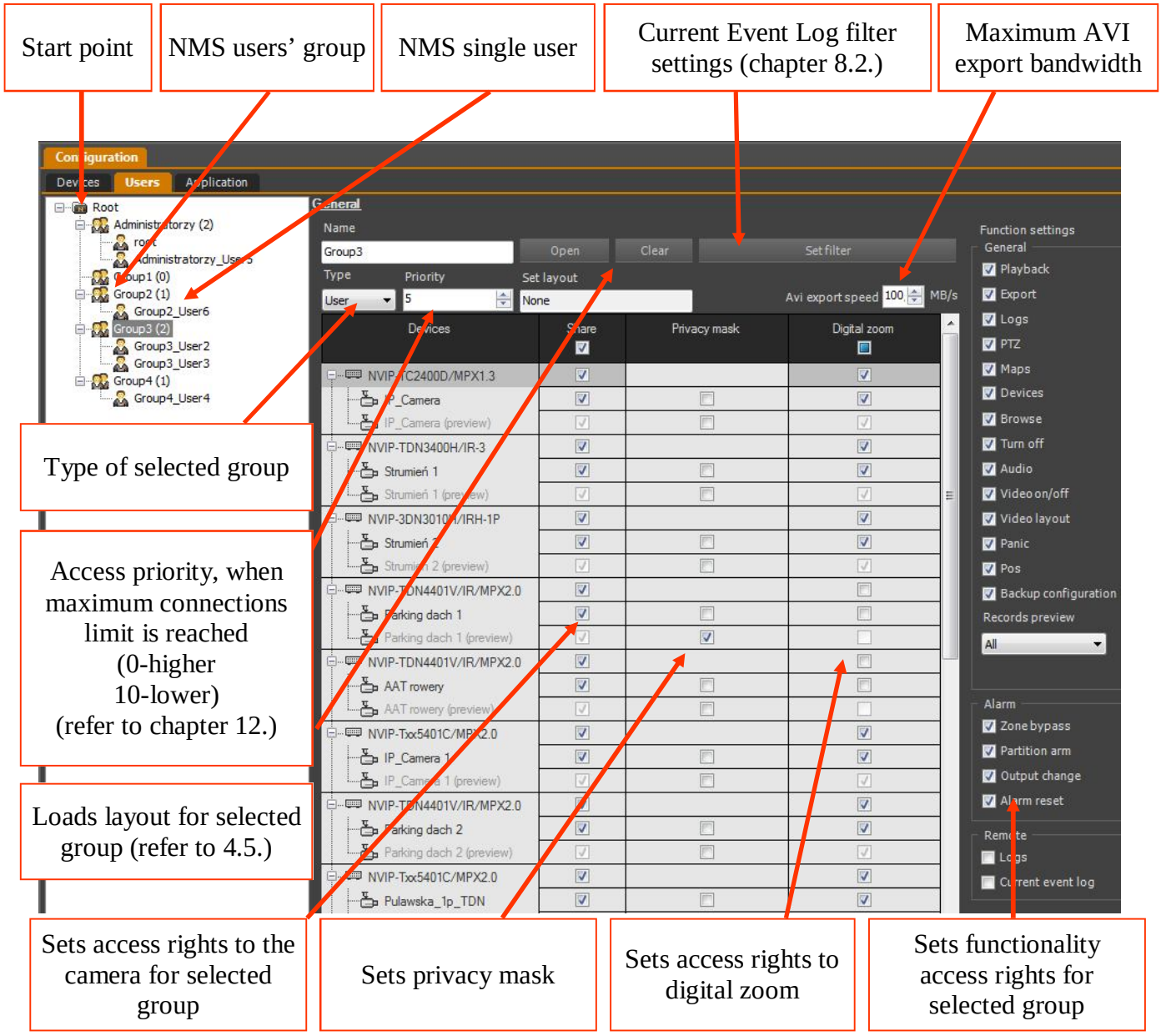
Stream settings (resolution, frame rate, compression). Changes are made in the cameras. (This funcion concern selected models of cameras)

All changes must be approved by clicking *Save* button at the bottom of the panel.

10. CONFIGURATION PANEL

10.2. *USERS* tab - information

In this tab you can configure NMS users or users' groups and making their access rights.



When NMS is installed a default administrative account is created, user: **root,** password: **pass**, placed in a group: **Administrator.** New groups and users can be created by using context menu when you click RMB.

Attention! Access rights configuration is for local and remote users. Remember to configure access rights in NMS Server and NMS Client. Client connecting to server has twofold defined rights (group of users defined in NMS Server, and NMS Client). Restrictions will sum up.

10. CONFIGURATION PANEL

Attention: Only groups with admin rights have access to *CONFIGURATION* menu.

Context menu options:

File/Reload	Reloading/exporting users' data
Add new users group	Adding a new group of users.
Add new user	Adding a new user.
Remove user	Removing a selected user.
Remove group	Removing a selected group of users.

To create groups of users with limited privileges, follow the set procedure:

- add a new group and define type as *User* and give an appropriate name;

- add new users to the group, set their names and passwords;
- select the group that you created and defined access to cameras and program features that should be available for selected group of users;
- optionally you can define window view that will be loaded after the user logged on. Works with windows and their arrangement is described in Chapter 3.

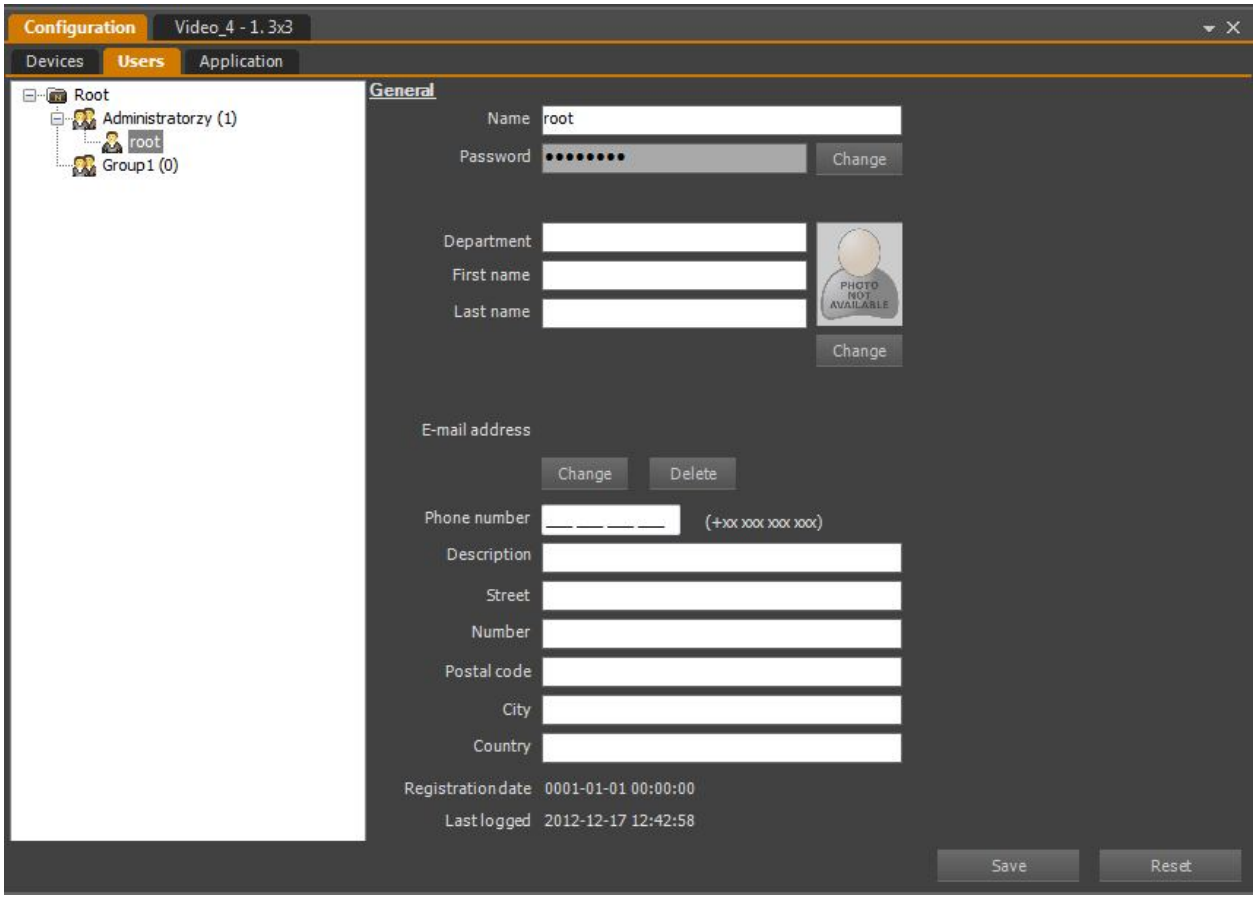
In the same way, you can create additional user groups and give them an independent rights.

From the context menu accessible from the right mouse button, you can also delete a selected user or group.

10. CONFIGURATION PANEL

Selecting a user associated with a given group allows to assign a personalized login/password for him, attach a JPEG picture and personal information. Mobile number field is a separate case, closely interconnected with the SMS module, which is further described in chapter 10.3.

Change password window requires typeing a current password, and a new password twice.



Below there is an information about password strength.

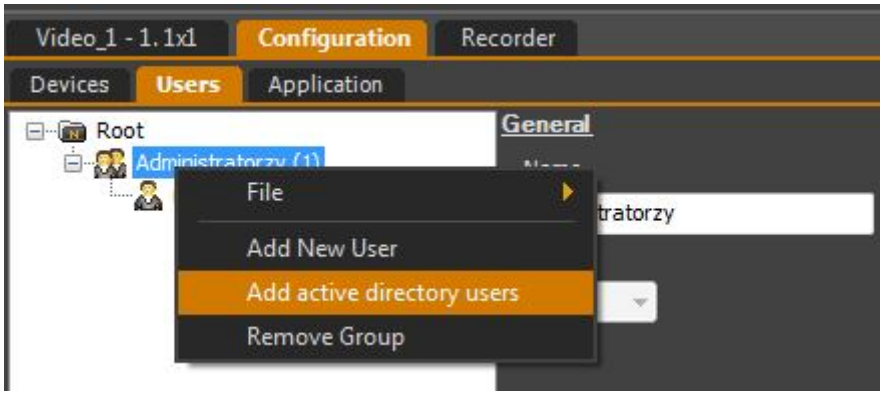
You can enable *Login with confirmation function*. To log into administrator account, it will be required to enter the second administrator's login and password. To turn on this function, open the *CONFIGURATION / APPLICATION SETTINGS* window. In *Application* tab, select *Login with confirmation* submenu, check the box located there and press the Save button.

10. CONFIGURATION PANEL

10.2.1. Domain users - Active Directory authentication

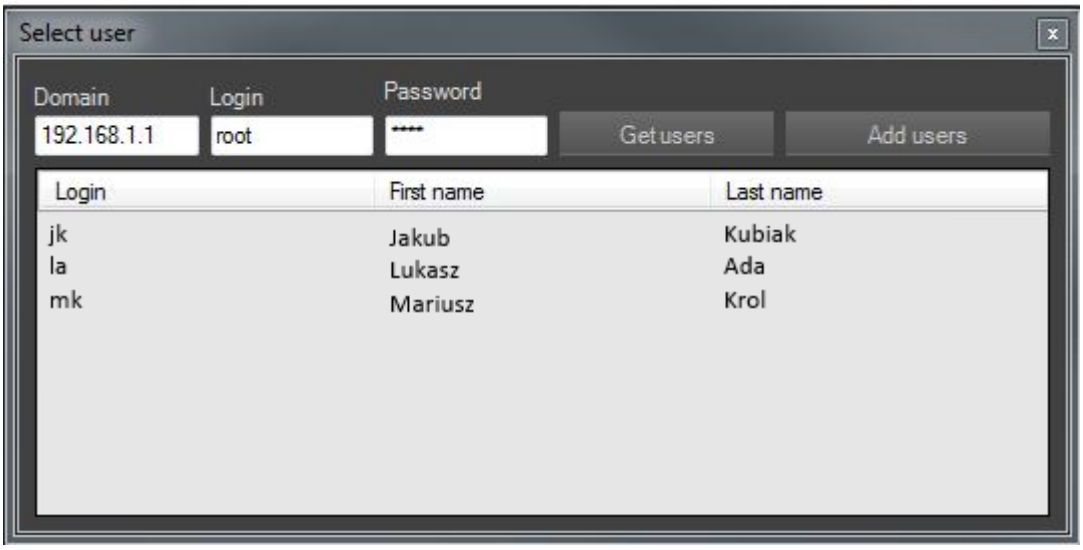
Nms application work with Active Directory service. Domain users can be "integrated" with NMS user list.

To add domain users, point the desired group, click the right mouse button, and choose *Add active directory users* from the context menu.



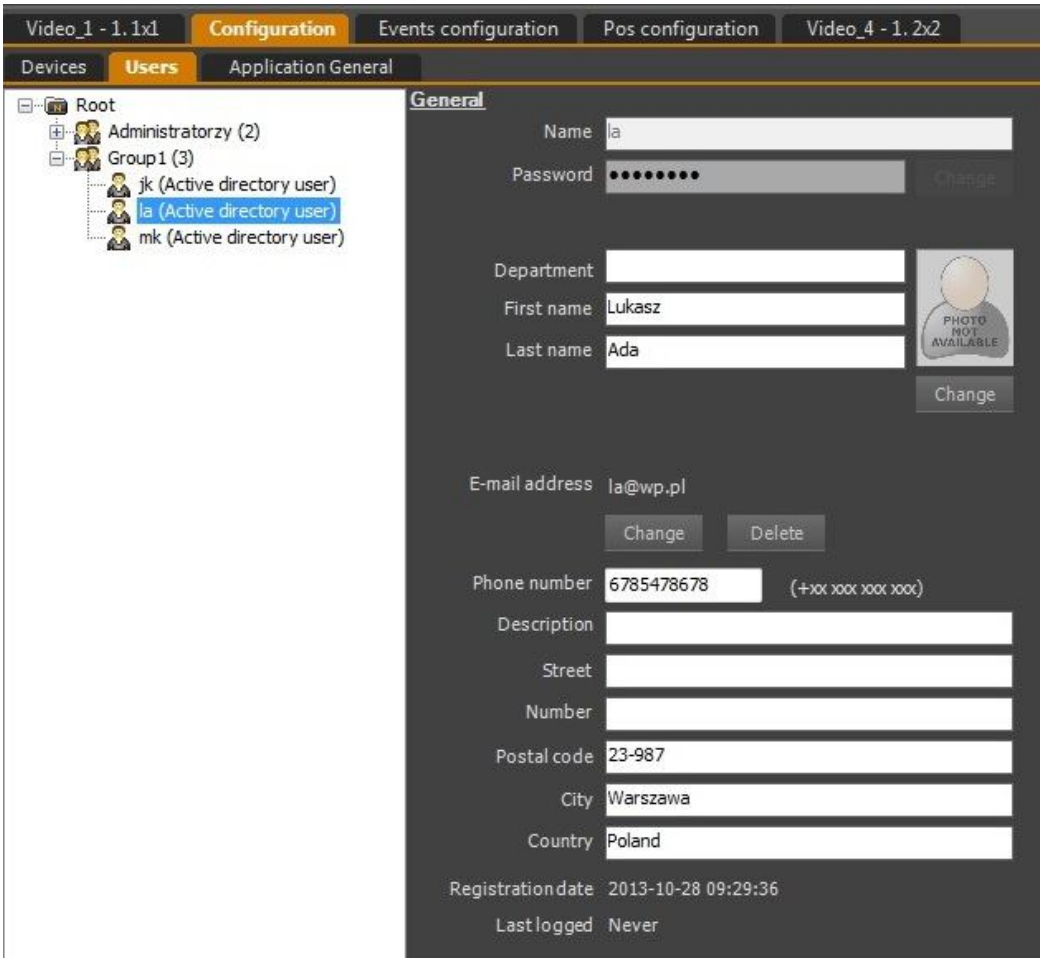
Domain users search will start automatically. If system user is defined in domain, the list will fill up with domain users. In other case it is necessary to fill the *Domain* address, *Login*, *Password* fields and press *Get users* button.

Domain users are displayed on the list below. Select record on the list, and press *Add users* to assign user to selected group.

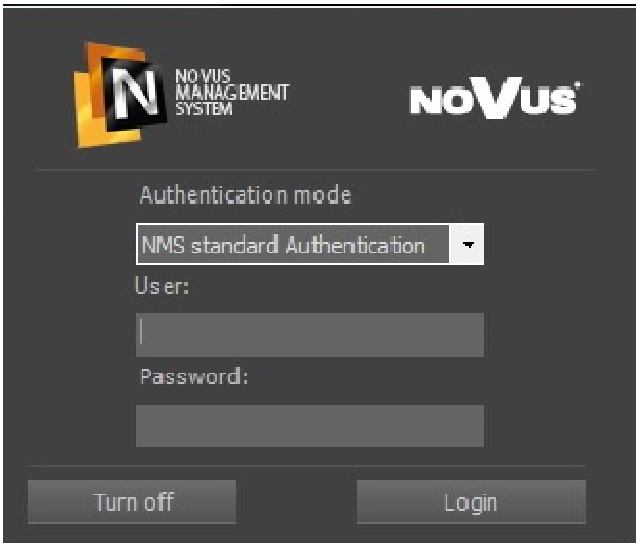


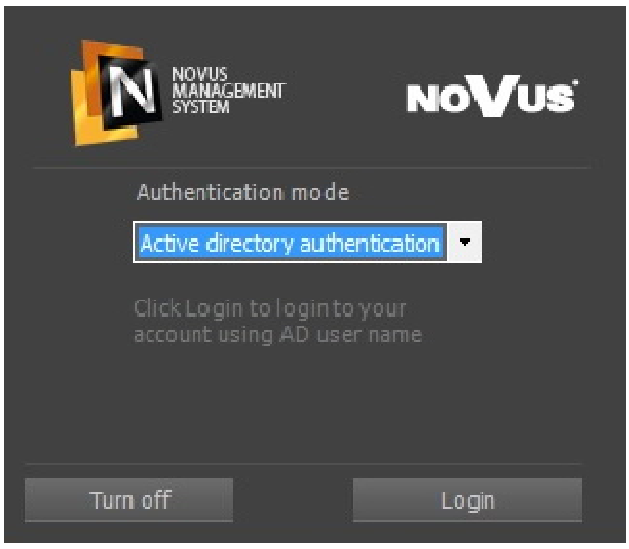
Domain users name has suffix *(Active Directory user). Name* and *Password* are non-editable. Personal information fields will be filled up automatically from the domain.

10. CONFIGURATION PANEL



Authentication mode field in logon window is enable when at least one of the users is defined by Active Directory. Selecting *Active directory authentication* results login as domain user.





10. CONFIGURATION PANEL

10.2.2. Privacy masks

Check the *privacy mask* field opens the window with the stream preview shown below.

Selection with the left mouse button creates the rectangular privacy mask on the screen. The right mouse button click deletes pointed mask. Selection with the right mouse button deletes all masks in the selected area.

Quantity of the privacy masks is unlimited.

It is possible to copy saved privacy masks from the other user group. Choose the proper group from the list located on the bottom of the window and click *Copy mask from selected group.*

10. CONFIGURATION PANEL

10.3. *APPLICATION* tab - information

APPLICATION tab contains settings for NMS:

- Auto login — User account that one is logged in to during application start-up;
- Language — option to change the application language. New language will be applied after restart the software;
- Panic — setting time of recording after pushing panic record button;
- Logs configuration — available functions:

Remove logs after…days	Logs are removed after a selected period of time (30 days by default).
Display...on page	You can define the number of logs on one page (100 by default)
Number of logs to store	Number of logs (10000 by default).
Save logs with priority	Allows to select a priority of logs that will be saved

- Current event log — appearance, number of logs;
- Sequence time — configuration switching time of cameras in sequence mode;
- Display Settings — codec configuration, video settings, text and frame color;
- FTP Settings — FTP server (storing videos/pictures of events) settings;
- SMTP settings — SMTP settings (for sending e-mails containing videos/images of events);
- Events active window count settings — Sets the popup window limit;
- SMS Modem — Allows to set COM port number together with baud rate appropriate for a given SMS modem in order to enable notification via SMS. Detailed modem configuration settings can be found in their respective manuals.

10. CONFIGURATION PANEL

Available options in Display Settings: [General]

Show motion regions	Displaying defined motion regions (only in Server mode)
Detect the same streams	In case displaying the same stream on more than one frame CPU usage is reduced
Show only I-Frame of MPEG-4	When you select this option only the base frame will be displayed (fluent of displaying channel is dependent from the GOP parameter for each channel).
Minimum buffer value [%]	Minimum buffer value (ranging from 75 to 99%) defining the threshold value exceeding of which results in „jumping" to the next frame. Default value is 99%
Maximum number of decoded frames	0 means 'unlimited' other value means the maximum number of frames displayed simultaneously in the whole system (the sum of all windows, video breakdowns). Default value is 0.
Number of frame per second	Limit the frames display on video window, without decoding limitation. Default value is 40
Video scaling	Options: 4:3, 16:9 and scaled to the shape of the source video stream. The default is to scale the video stream.
Force output colour space	Force output colour space. Default value is 30
Load default configuration	Default configuration will be loaded.

- Display Settings: [Colours] - description of available functions

Video window background	When you click on the colourful box you can select colour of the video window background .
Video window/ selected video stream	When you click on the colourful box you can select colour of selected video stream
Motion regions	When you click on the colourful box you can select the motion regions colour
Text	When you click on the colourful box you can select the text colour
Text background	When you click on the colourful box you can select the text backgound colour

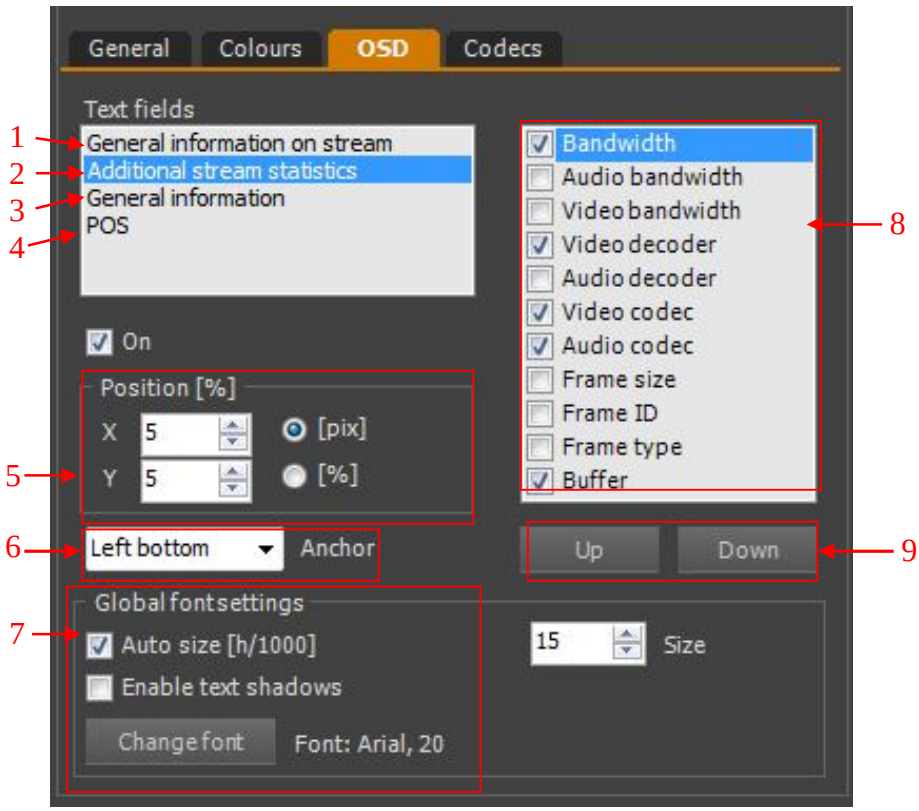
- Display Settings: [codec] - Setting decoding for MJPEG and MPEG-4 streams. The preferred decoder for both streams is Novus AV Decoder

10. CONFIGURATION PANEL

- Display Settings [OSD] - There are 3 types of OSD (1, 2, 3). Configure the appearance and position of each one is independent. After selecting one OSD list of available parameters will be displayed in window 7.

Description of available functions:

1.	*General information on stream*	Number of the video window, information about the device, its IP, resolution, framerate, device time
2.	*Additional stream statistics*	Bandwidth (audio, video), codec (audio, video), frame size, frame ID, the type of frame, buffer capacity
3.	*General information*	ID frame, decoded frames, display frames, CPU, CPU NMS, the number of streams, system time and date
4	*POS*	Settings for POS transaction frame
5.	*Position [%]*	X - the value of distance in the horizontal axis from the corner Y - the value of distance in the vertical axis from the corner
6.	*Anchor*	Selecting the OSD corner
7.	*Change font*	OSD font size and type
	Auto size	Scaling font size to window size
	Enable text shadows	Add OSD text shadow
8.	*Available parameters*	Lets you choose only those parameters which we are interested
9.	*Up / Down*	Changing the display order of selected parameters on the list



11. SERVERS

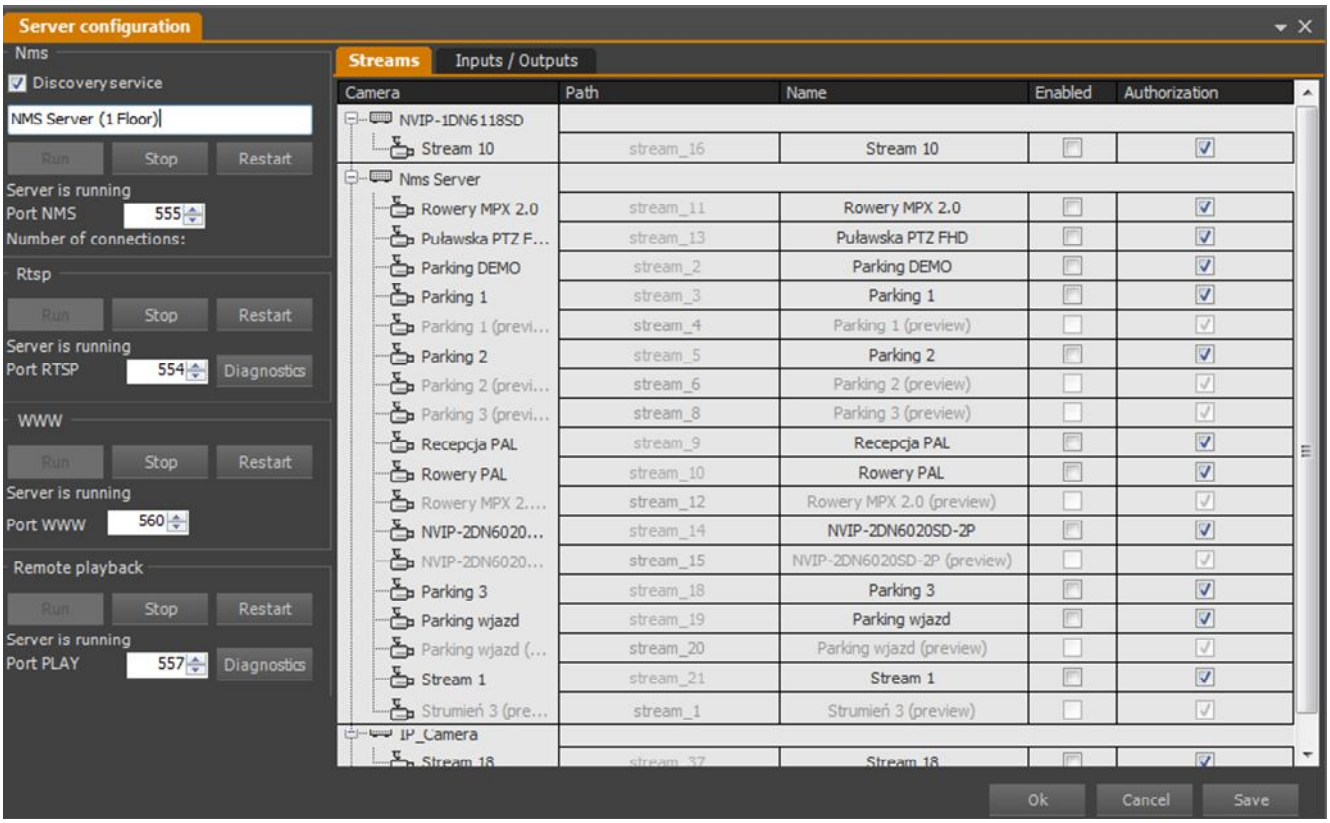
11. SERVERS

11.1. *SERVERS* - information

SERVERS service is sending video streams and data to client applications through NMS Server. It may be the same NMS application, WWW website or multimedia player as well. To open *SERVERS* panel choose *CONFIGURATION / SERVERS* option in main menu.

This panel allows to configure:

- NMS Server - responsible for correct connection NMS Client application;
- WWW Server - responsible for correct work WWW applet which allows to preview images and video using web browser, and for sending static images to NMS Client application;
- RTSP Server - responsible for sending "live" streaming of video to NMS Client, WWW and other applications.
- Remote playback Server - allowing to play recorded videos (Playback).



11. SERVERS

Servers work independent, but turning whichever off will disable functionality described previously.

Attention: After running NMS, servers automatically re-establish their state before shutdown (Servers which were running, start up. Servers which were stopped, remain stopped).

SERVERS panel contains also list of video streams and inputs/outputs which may be sending.

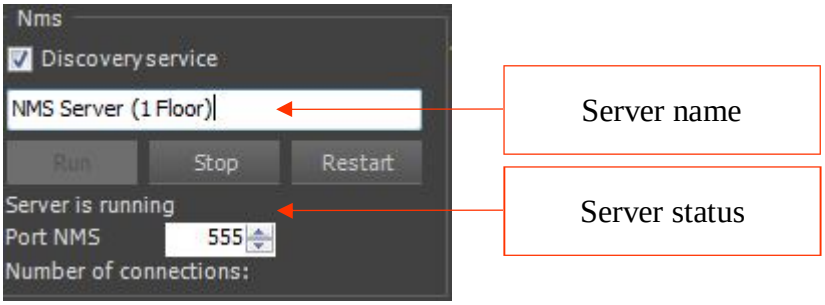
Path - is specific network name of stream;

Enabled - means that stream is sending and available in NMS Client;

Authorization - determine login / password requirement in RTSP connection.

11.2. NMS Server configuration

NMS Server - is responsible for correct connection NMS Client application. Configuration window is located in the upper left corner of *SERVERS* panel.



11. SERVERS

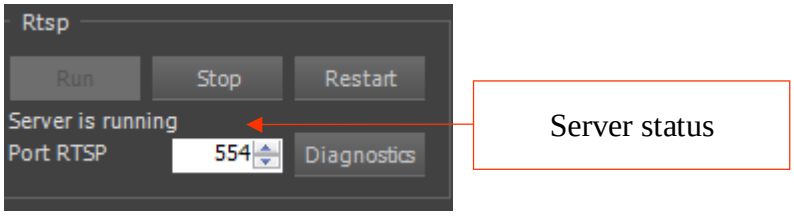
NMS server window contains:

- *Discovery service* checkbox - if checked, server will be 'visible' in *DEVICE / Search* window;
- Textbox to set the server name;
- *Run*, *Stop*, *Restart* buttons controlling server work;
- Server status information;
- *Port NMS* field - allows to set communication port (**555 is default**);
- *Number of connections* informs about quantity connections to NMS Server.

After setting all essential parameters, saving changes and restarting is required.

11.3. RTSP Server configuration

RTSP Server sends through LAN "live" video streams (including sound) to NMS Client, WWW and other applications. Configuration window is located below NMS Server window.



RTSP server window contains:

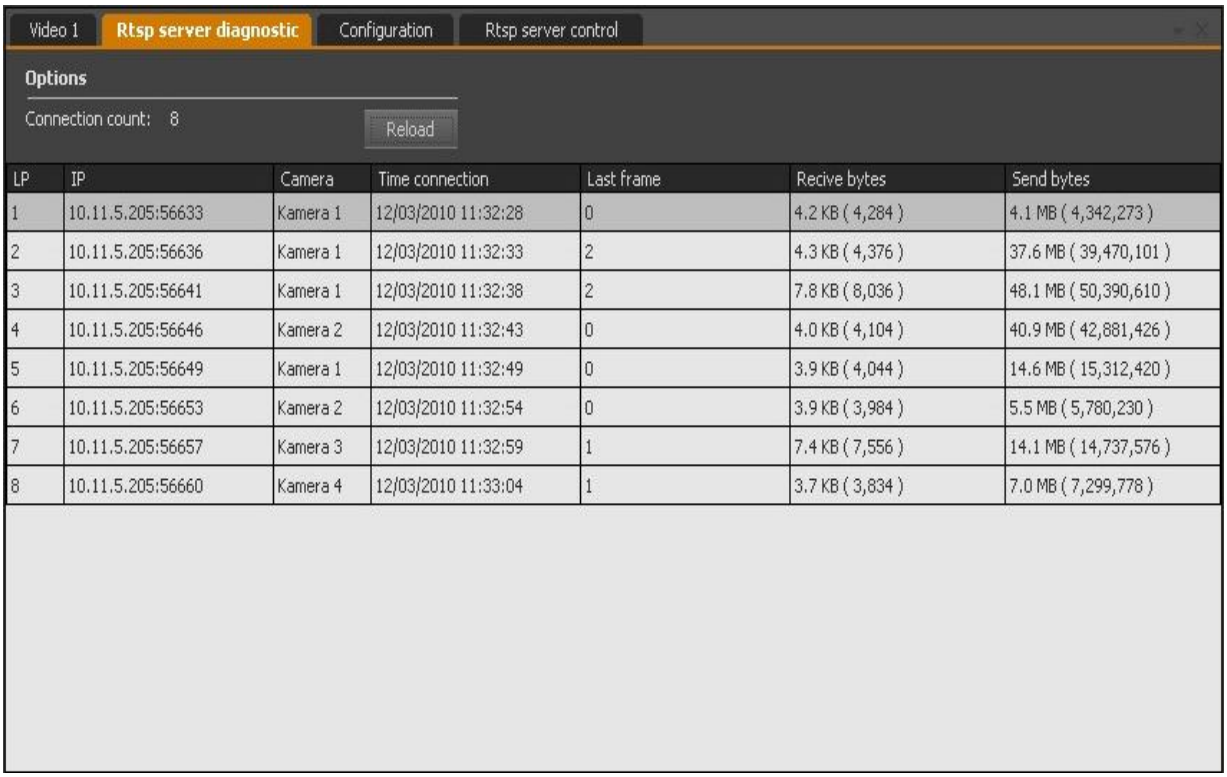
- *Run*, *Stop*, *Restart* buttons controlling server work;
- Server status information;
- *Port RTSP* field - allows to set communication port (**554 is default**);
- *Diagnostics* button - opens diagnostic window.

Before starting RTSP Server, you should mark video streams and choose components to be send to client applications in *Streams* and *Inputs / Outputs* windows.

After setting all essential parameters, saving changes and restarting is required.

11. SERVERS

Diagnostic window allows to display active connections with video streams. To open window - press *Diagnostic* on *RTSP Server.*



LP	IP	Camera	Time connection	Last frame	Recive bytes	Send bytes
1	10.11.5.205:56633	Kamera 1	12/03/2010 11:32:28	0	4.2 KB (4,284)	4.1 MB (4,342,273)
2	10.11.5.205:56636	Kamera 1	12/03/2010 11:32:33	2	4.3 KB (4,376)	37.6 MB (39,470,101)
3	10.11.5.205:56641	Kamera 1	12/03/2010 11:32:38	2	7.8 KB (8,036)	48.1 MB (50,390,610)
4	10.11.5.205:56646	Kamera 2	12/03/2010 11:32:43	0	4.0 KB (4,104)	40.9 MB (42,881,426)
5	10.11.5.205:56649	Kamera 1	12/03/2010 11:32:49	0	3.9 KB (4,044)	14.6 MB (15,312,420)
6	10.11.5.205:56653	Kamera 2	12/03/2010 11:32:54	0	3.9 KB (3,984)	5.5 MB (5,780,230)
7	10.11.5.205:56657	Kamera 3	12/03/2010 11:32:59	1	7.4 KB (7,556)	14.1 MB (14,737,576)
8	10.11.5.205:56660	Kamera 4	12/03/2010 11:33:04	1	3.7 KB (3,834)	7.0 MB (7,299,778)

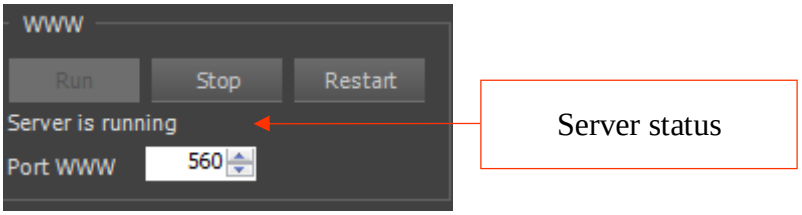
Reload button will reload list of valid connections. RMB on connection will display additional menu:

- *Add to deny list* - selected IP address will be added to deny list
- *Add to access list* - selected IP address will be added to access list
- *Disconnect* - selected network connection will be disconnected

Permitted and prohibited list of IP addresses are in *FIREWALL* panel. Firewall configuration description is given in chapter 12.1.

11.4. WWW Server configuration

WWW Server provides correct work of web browser aplet and transmits preview pictures to NMS Client. *WWW Server* configuration window is located below RTSP Server window.



11. SERVERS

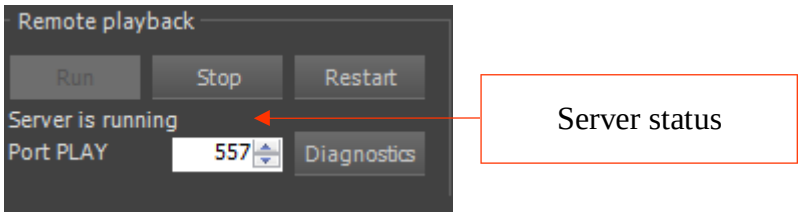
WWW Server window contains:

- *Run*, *Stop*, *Restart* buttons controlling server work;
- Server status information;
- *Port WWW* field - allows to set communication port (**560 is default**);

After setting all essential parameters, saving changes and restarting is required.

11.5. Remote playback server configuration

Remote playback allows user to make selected video recordings accessible for other client applications (and uses video recordings by NMS client which are accessible by NMS Server)



Remote playback server window contains:

- *Run*, *Stop*, *Restart* buttons controlling server work;
- Server status information;
- *Port PLAY* field - allows to set communication port (**557 is default**);
- *Diagnostics* button - opens diagnostic window.

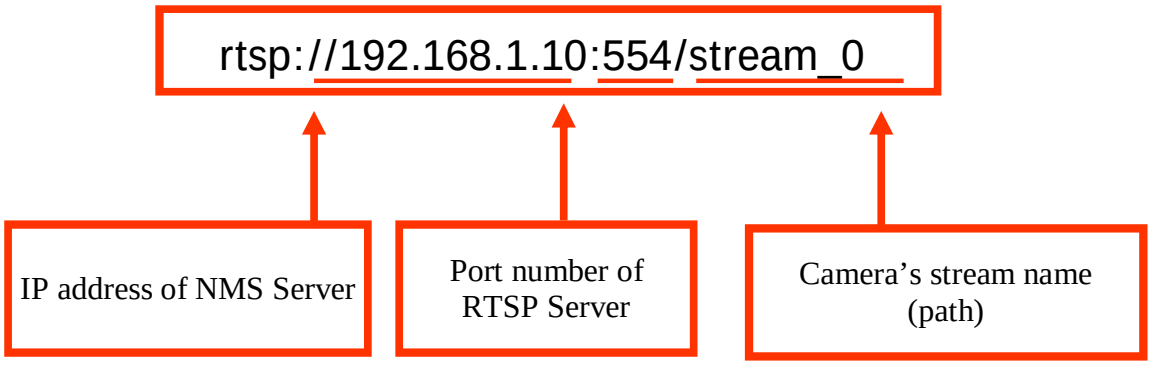
After setting all essential parameters, saving changes and restarting is required.

When servers configuration has been done, we're ready for making video recordings accessible. Make sure that video streams are turned on (*Enabled*) and recorded videos exist.

To make video recordings accessible, turning on NMS Server and Remote playback server is required. (Select *Run* button in *SERVERS* panel).

11.6. Other features of RTSP Server

RTSP Server transmits video streams through the network (with sound) compatible with some network media players. Thus it is possible to play chosen video stream using video player (e.g. Video LAN VLC Media Player). To get the access, media player must chose RTSP mode of transmission then indicate the correct network path, described as below:

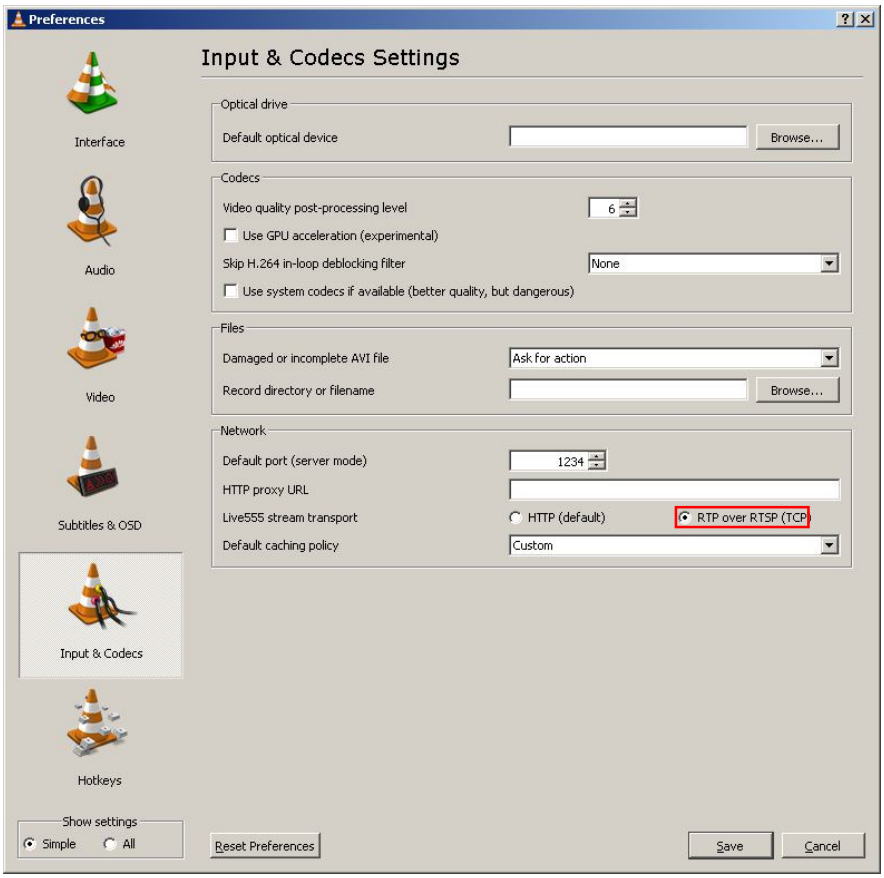


When correct path is entered and buffering is complete, camera image is displayed on the screen.

Notice! When network speed connection is low, buffering may take even few minutes.

11. SERVERS

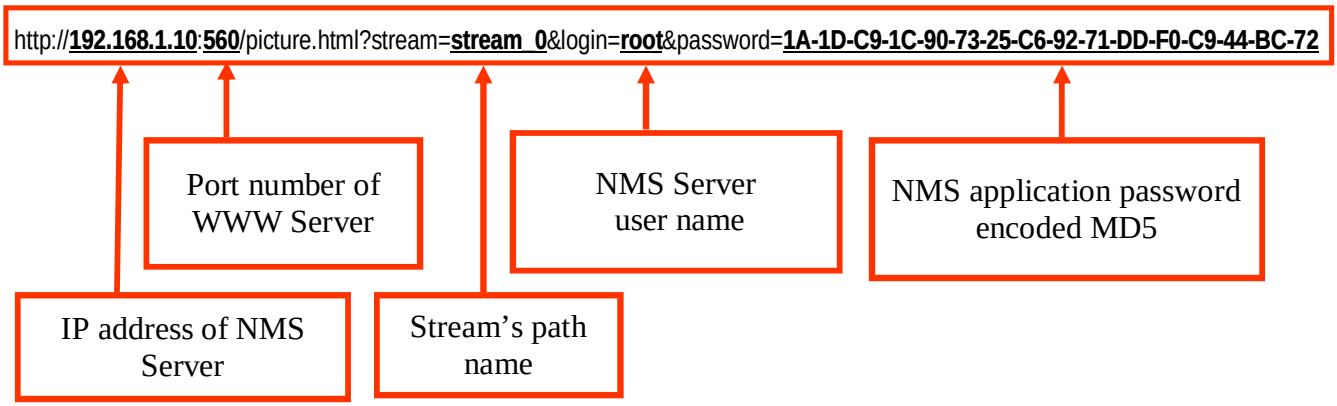
In order to configure VLC properly please open VLC properties window and select RTP over RTSP for LIVE555 stream transport.



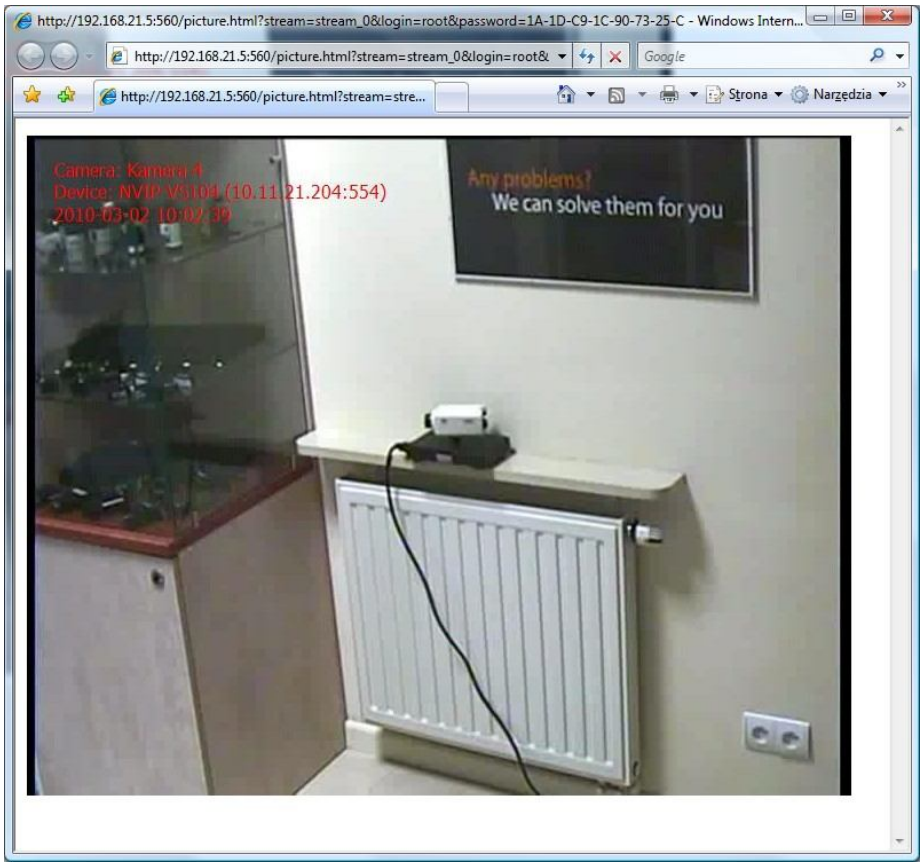
11. SERVERS

11.7. Other features of WWW Server

Web Server transmits network camera images as JPEG files refreshed every second .You can view camera image in any web browser, or even embedding image on your own website. To get access to the selected camera image, enter correct path in a web browser, described as below.



Default login/password for the server is **root/pass**



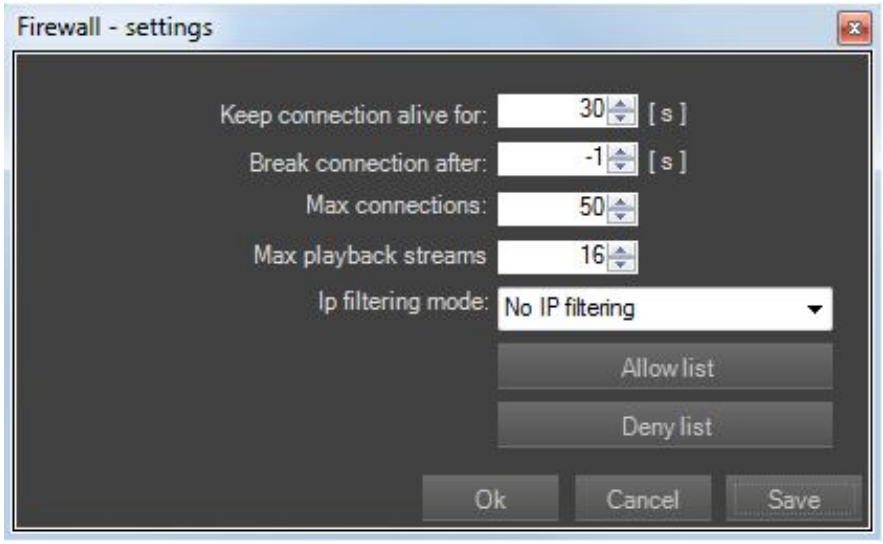
12. FIREWALL

12. FIREWALL

Firewall is to control RTSP/NMS server connections and limitation of remote access to RTSP streams transmitted by NMS application. It is possible to configure single or full range of IP addresses and permit/prohibit access to those addresses.

12.1. Firewall settings

To open firewall settings window choose *CONFIGURATION / FIREWALL* from main menu:



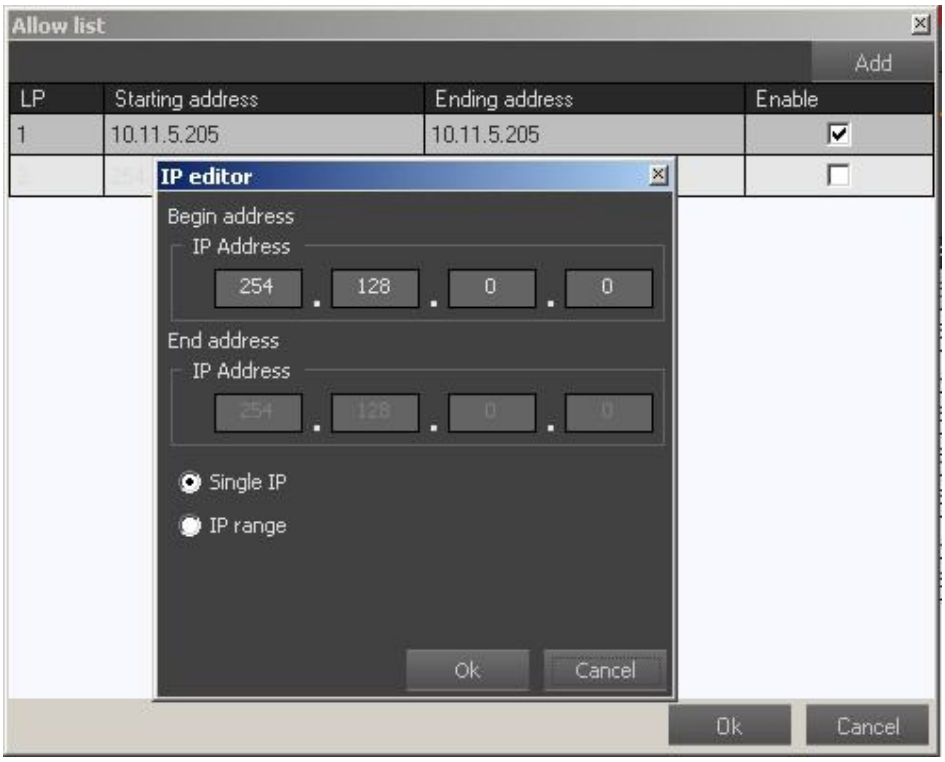
It is possible to allow / deny access to single IP addresses or ranges of addresses.

Available server's parameter:

- *Keep connection* - connection support time during no data transition (available time range 1-64000 seconds);
- *Break connection* - automatic time of disconnection (available time range 0-64000 seconds, where - 1 means no automatic disconnection);
- *Max connection* - maximum number of simultaneously transmission of live streaming (available range -1 means no limit for number of streams);
- *Max playback streams* - maximum number of simultaneously transmission of playback streaming (available range -1 means no limit for number of streams);
- IP filtering mode - no limit or selection from prohibited/allowed IP addresses:
  - Allow list;
  - Deny list.

12. FIREWALL

When you open one of those lists, window as below will appear.



Add button enables entering single IP or IP range address to the list. To delete IP address click RMB and select *delete*.

It is also possible to add already connected IP address, straight from RTSP diagnostic window.

After all, save changes and restart RTSP and NMS Servers.

13. RECORDER

13. RECORDER

13.1. *RECORDER* panel - information

NMS application allows for recording each camera with a different settings or all the cameras with the same parameters in one location. In the recorder panel menu you can see estimated recording time for each camera with current settings, and correct size on disk if this time wouldn't be proper. The longer the time of current recordings the more precise the estimated recording time.

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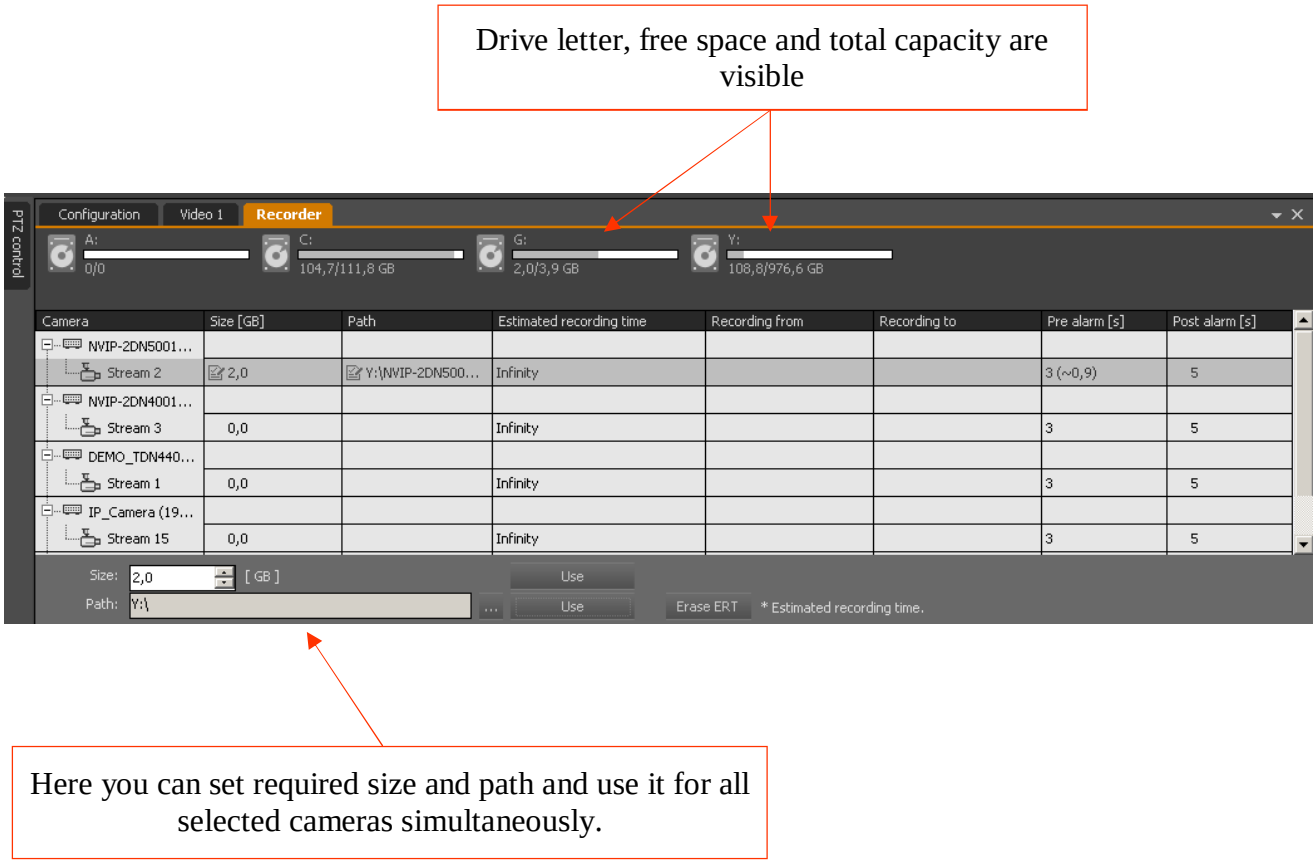
Information!

In the RECORDER panel menu you can select many cameras to group recording setup by using typical Windows function to select objects, e.g. to select all cameras you have to use Ctrl + A shortcut keys. You can use Ctrl key and select specific cameras, or by using Shift key you can select first and last camera, then whole group is selected.

In order to run this module select *CONFIGURATION / RECORDER* from main menu. Below you can see a *RECORDER* panel view.



13. RECORDER

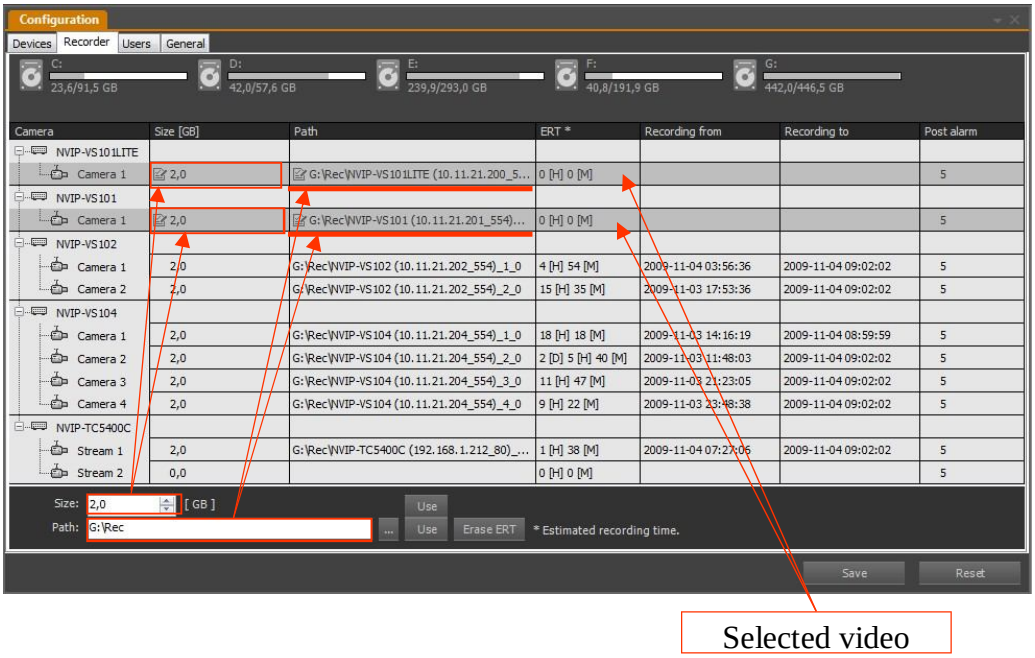
In the *RECORDER* panel you can see all the disks that can be used for recording video streams, statistics about free space and total disk capacity. After any changes in the size of recordings, information about free space is refreshed, even though these changes are not finally applied. Then users can see statistics of used space and they can make some adjustment of previous settings.

Attention: NTFS is a recommended recording file system. You mustn't use system disk or disk with Windows paging file to record video streams.

In the columns you can see information about network devices installed in system:

- Camera — name of camera or video server and video stream description
- Icon — actual state of network device
- Size — information about disk space allocated to record
- Path — IP address for network device path on disk for video stream recording
- ERT — estimated recording time
- Record from — time of oldest recordings
- Record to — time of latest recordings
- Pre alarm — pre-alarm recording duration. In order to change it, please enter a new value (in seconds) in corresponding field.
- Post alarm — post-alarm recording duration

To start recording for a selected camera you have to use bottom bar, which helps you to find desired folder or create new one dedicated to recording video files and set a size of this folder. By using this bar you can select a few cameras and push the *Use* buttons after filling in size and path fields. Then all selected video streams are configured with previously selected parameters.



13. RECORDER

In the given folder, NMS application automatically creates separate folder for each camera, with the information about specified camera, for e.g. 192.168.21.221_1_0. Name of this folder contains IP address, number of video stream and index of copy separated by "_"symbol (index of copy is increased when a folder with the same name exists). You can also set size and path for a chosen camera by writing these parameters directly in a suitable row and column. You have to remember to create different folder for each camera. After implementing the mentioned changes disk used space information is refreshed. If the recording size is bigger than the maximum disk size then that disk is highlighted in red. Then you have to decrease recordings folder size on that disk. When all settings are correct you have to click the *Apply* button. The Screen below informs about current starting of the recording process.

You can always change folder size used for recording of any camera. To do it, you have to write desired size for a in chosen camera the *RECORDER* panel and use *Apply* button. If new the size is smaller than the current size information box similar to the one below appears.

To delete recorded video material permanently you have to set 0 in *Size* column for chosen camera and use *Apply* button. Changing the path for existing video also results in material deleting. In both cases a box similar to the one below appears.

After using these functions recorded video material from selected camera is deleted, so you have to be careful.

Attention: You can't use the bar on bottom of *RECORDER* to set size 0 because it is not allowed in NMS application.

Attention: You have to remember that changing folder path results in deleting of all video material from a selected camera.

13. RECORDER

Folder with video recordings, whose path was changed due to changes in disk letters, can be also "connected" to NMS application. In that case you have to click on name of the camera with RMB and select "Connect to existing record from the menu that appears. Due to the fact that the name of destination folder is the same as the IP address of a network device you can easily connect each folder to proper video stream. You needn't set size of this folder because NMS application can determine the size of existing video recordings. If you will see error like below when you connect existing material, this means that the video recording had not been properly stopped by the NMS program.

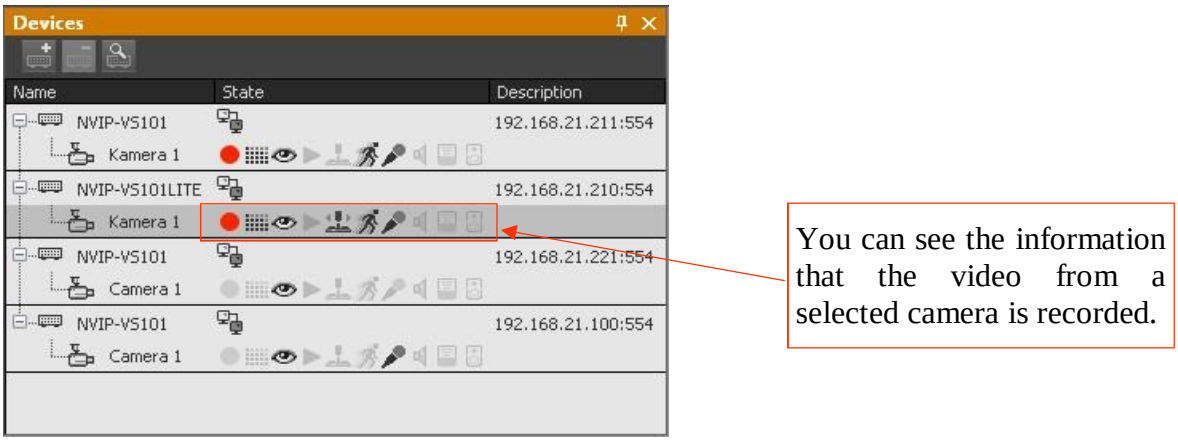
In that cause you have to remove file lock.mdat from every directory with records witch will display this information

Attention: You can't use the bar on the bottom of *RECORDER* to set path of existing folder because NMS application will ignore current folder and create new one with higher index of copy.

To change location of video recordings without deleting existing ones follow the instruction below:

- Close NMS application;
- In Windows system move or copy folder with video recording to new location;
- Start NMS application;
- Run *RECORDER* panel and follow the instruction to "connect" existing folder;

In *DEVICE* panel you can see which camera is already recording.



To stop recording for a chosen camera but not to delete recordings you have to set recording mode as *None* in the *Schedule* in *CONFIGURATION / DEVICES* panel.

13. RECORDER

Folder with video recordings, whose path was changed due to changes in disk letters, can be also "connected" to NMS application. In that case you have to click on name of the camera with RMB and select "Connect to existing record from the menu that appears. Due to the fact that the name of destination folder is the same as the IP address of a network device you can easily connect each folder to proper video stream. You needn't set size of this folder because NMS application can determine the size of existing video recordings. If you will see error like below when you connect existing material, this means that the video recording had not been properly stopped by the NMS program.

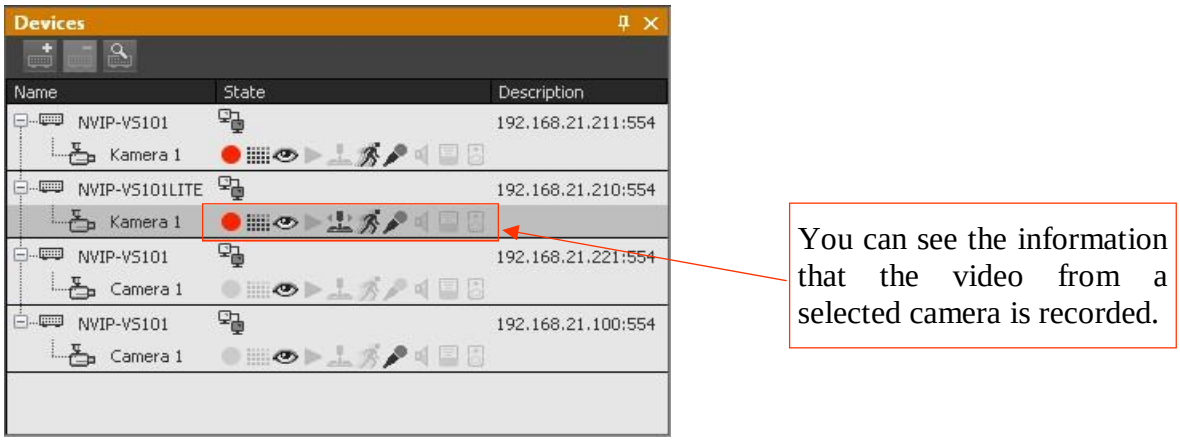
In that cause you have to remove file lock.mdat from every directory with records witch will display this information

Attention: You can't use the bar on the bottom of *RECORDER* to set path of existing folder because NMS application will ignore current folder and create new one with higher index of copy.

To change location of video recordings without deleting existing ones follow the instruction below:

- Close NMS application;
- In Windows system move or copy folder with video recording to new location;
- Start NMS application;
- Run *RECORDER* panel and follow the instruction to "connect" existing folder;

In *DEVICE* panel you can see which camera is already recording.



To stop recording for a chosen camera but not to delete recordings you have to set recording mode as *None* in the *Schedule* in *CONFIGURATION / DEVICES* panel.

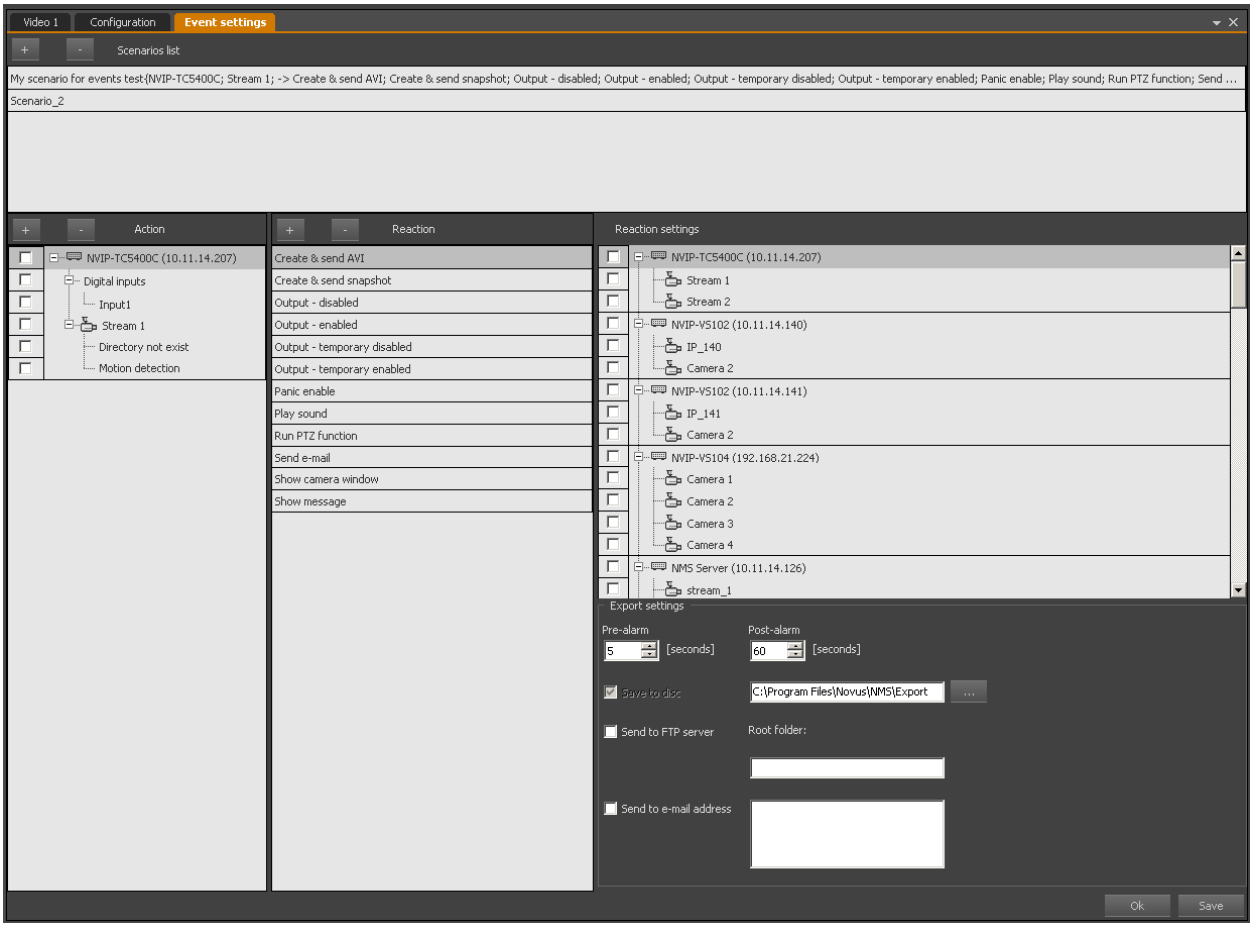
14. EVENT SETTINGS PANEL

14. EVENT SETTINGS PANEL

14.1. Defining event scenarios

Continuous control of various situations without personnel participation increases system efficiency. *EVENT SETTINGS* panel allows user to create event scenarios for alarm situations that may occur in monitoring system controlled by NMS application. If any of *Actions* defined in the scenario take place, the NMS application executes all *Reactions* available in the scenario e.g. in case of alarm input activation, selected alarm output will be temporarily activated and exported AVI movie will be sent to FTP server. Detailed information about all available actions can be found on the following pages of this manual.

In order to run this panel select *CONFIGURATION / EVENT SETTINGS* in main menu.



In order to define the event scenario please add a new scenario to the *Scenario list* by pressing the following button + .

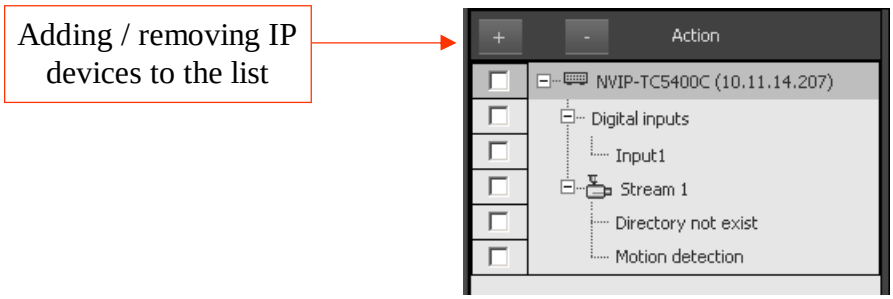
In order to rename event scenario please click on it at the *Scenario list*, rename, and press Enter.

In order to deactivate / activate scenario please display an additional context menu by pressing right mouse button at selected position on the *Scenario list*.

14. EVENT SETTINGS PANEL

The next step is to define *Actions list*. NMS application allows to execute event scenario when any of following alarm situations occur:

- digital input activation;
- motion detection (motion detection must be activated in camera settings);
- HDD loss for the selected stream;
- event detected by DSC alarm system (for the details information please refer to appropriate chapter of this user's manual);
- Occurrence of specified string in POS transaction (After choosing *POS System* it is necessary to enter *events generating words* in pop-up window).



Attention: User may add many different devices to the *Actions list* and tick numerous number of alarm situations for single scenario.

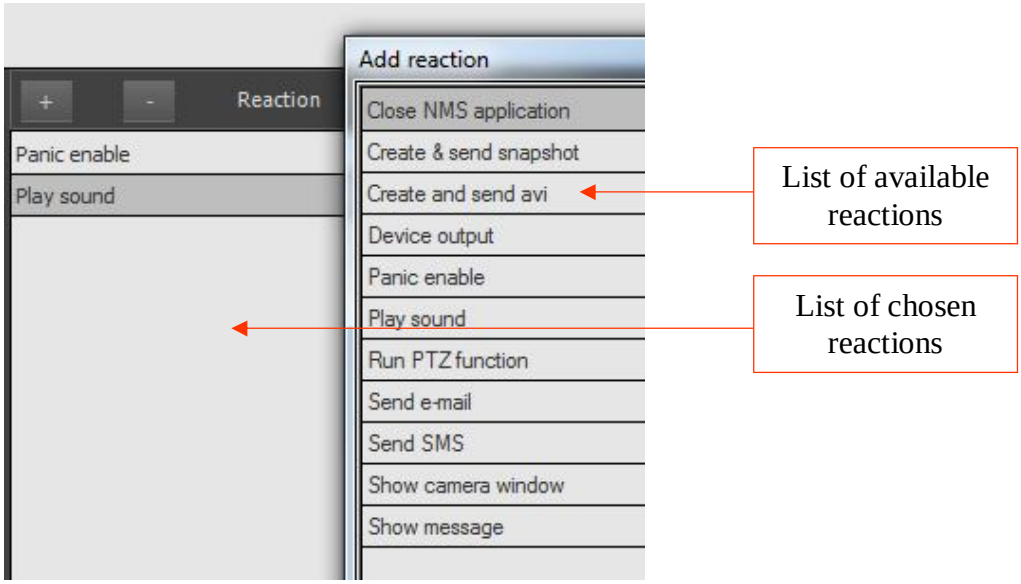
Alternatively user can use 'drag & drop' method to add a device to *Actions list*. 'Drag & drop' method allows to add a complete device to the list (with all its digital inputs and all streams) as well as add selected items only. In order to add single stream please click LMB (left mouse button) on the device and press *SHIFT* + *ALT* key combination then drag it to the *Actions list*.

If any of *Actions* defined in the scenario take place the NMS application executes all *Reactions* specified in the scenario.

NMS application allows to execute following reactions:

- create an AVI file from selected camera,
- send a AVI file to e-mail address and FTP server,
- create a snapshot from selected cameras,
- send a snapshot to e-mail address and FTP server
- activate panic recording mode,
- play defined sound,
- send an e-mail,
- send an SMS
- show live video from up to 4 selected cameras,
- show message box,
- call preset, pattern, auto-scan function for PTZ camera,

14. EVENT SETTINGS PANEL



In order to execute event scenario properly please follow the instruction below:

- turn on and configure motion detection in the IP camera menu;
- make sure that digital input is connected and configured properly;
- Panic recording takes place only for the cameras with previously allocated recording space;
- add an FTP server in:

CONFIGURATION / APPLICATION SETTINGS / APPLICATION / FTP settings;

- add an SMTP server in:

CONFIGURATION / APPLICATION SETTINGS / APPLICATION / SMTP settings;

- add e-mail addresses in user account settings:

CONFIGURATION/ APPLICATION SETTINGS / USERS

- each *Create & send AVI* reaction added in scenario can export single video stream;
- each *Show camera window* reaction added in scenario can display up to 4 video streams in *VIDEO 2* window;
- save presets, patterns, auto-scan functions for PTZ cameras.

All snapshot and AVI files are saved in following location by default:

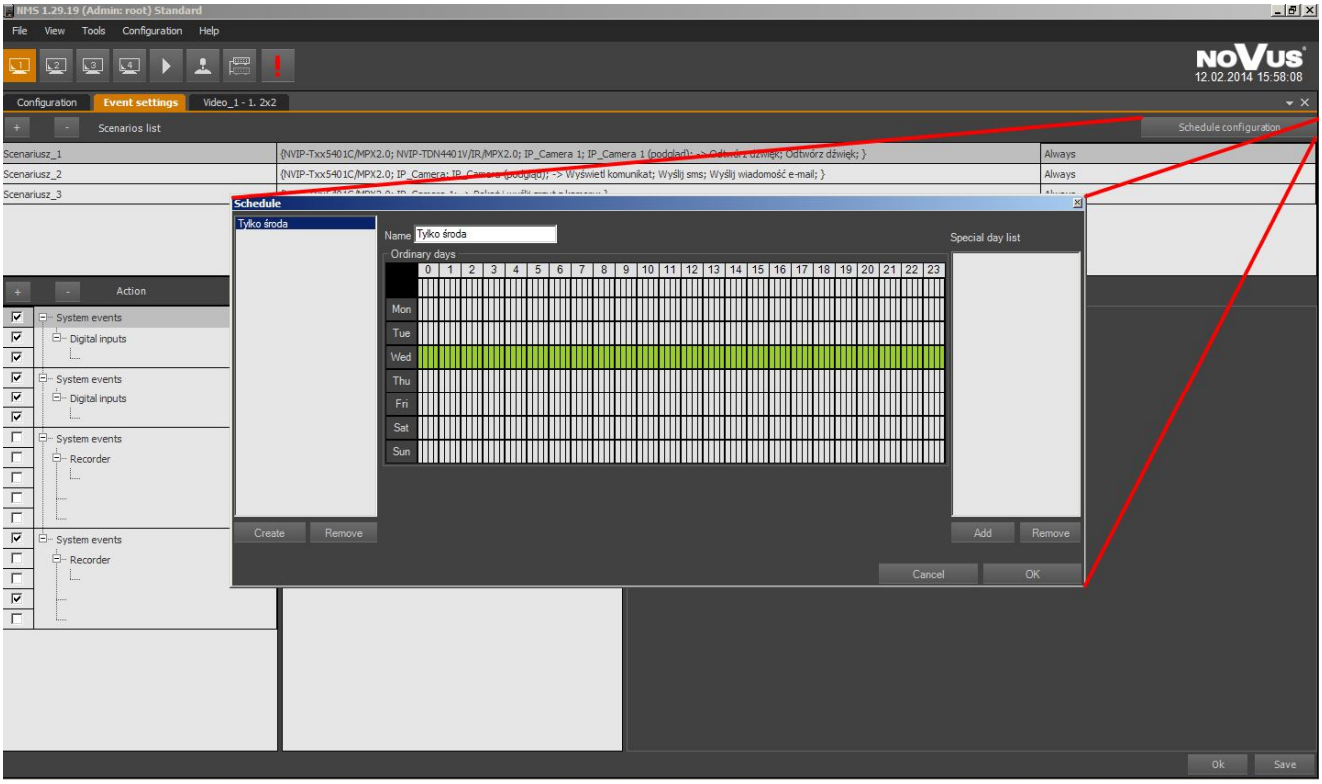
- C:\Program Files\Novus\NMS\Images - snapshot files,
- C:\Program Files\Novus\NMS\Export - exported AVI files,

Due to a different email services limitation NMS application does not send attachments larger than 10 MB. When email attachment exceeds maximum size, NMS application sends an information with file location on NMS server local disk instead.

14. EVENT SETTINGS PANEL

14.2 Events schedule

In *Events setttings* tab user can enter *Schedule configuration* options. It is possible to activate previously defined scenarios only in chosen periods of time. For example, motion detection alarms can be ignored during regular office working hours and system will alarm only when the motion is detected after predefined hours. Events schedule works regardless of recording schedule. Each scenario can work with individually dedicated schedule. To relate chosen scenario to schedule user needs to click *Schedule configuration*. New window will appear, which allows to set activation periods (green color), analogously to recording schedule.



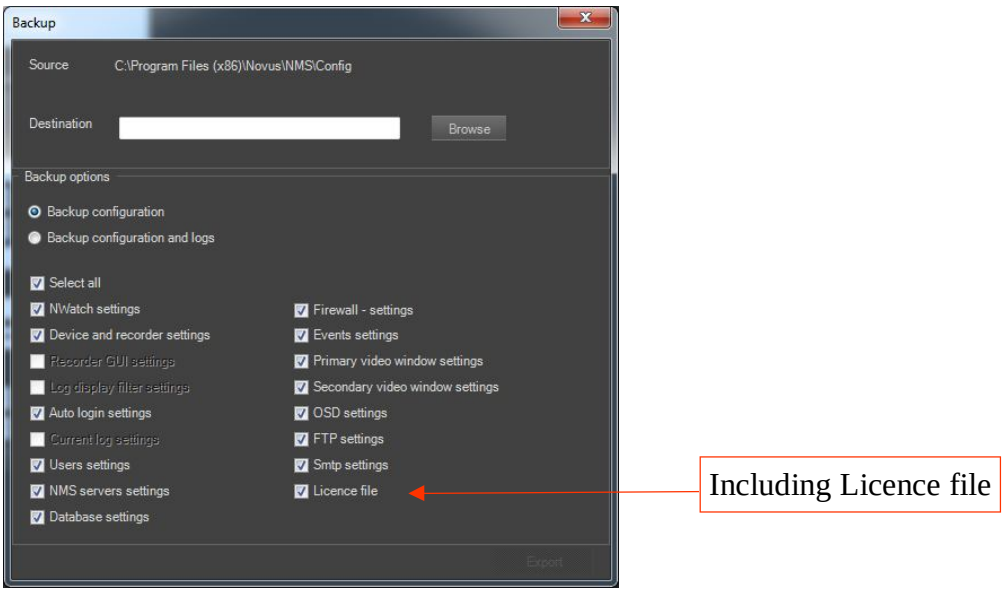
15. BACKUP

15. BACKUP

Backup window is located in main menu: *TOOLS / CONFIGURATION BACKUP*.

15.1. Exporting configuration backup

Source field contains a path leading to configuration directory. *Destination* field allows to select the target folder (by clicking *Browse*) for backup process. Depending on user's need, either configuration or both configuration and logs can be selected for backup. Checkboxes below *Backup Options* allow to fine-tune the backup process parameters, however selecting the *Select all* is recommended.



15.2. Restoring configuration backup

Attention: Restoring backup configuration is possible using the same or newer NMS software version than one used to create configuration backup file!

Restoring previously saved configuration is possible only after shutting the NMS software down. Next, please open the main NMS directory and look for *RestoreConfigurationBackup.exe* file. Opening said file should open a window which is very similar to the one depicted above, with the main difference being *Source* field activated *Destination* field deactivated - which suggests a similar, albeit reversed restoring procedure.

Recording search options should contain drive letters that recordings are associated with. Selecting *Search on system disk* adds system drive to the search. Options below allow to select whether only configuration or configuration and logs should be restored - and contain additional restore parameters, analogical to those available in *Configuration backup*. Pressing the *Import* starts copying backup contents to the *Destination* directory.

Attention: Licence file is not restored by default. Please tick appropriate checkboxes to import licence file.

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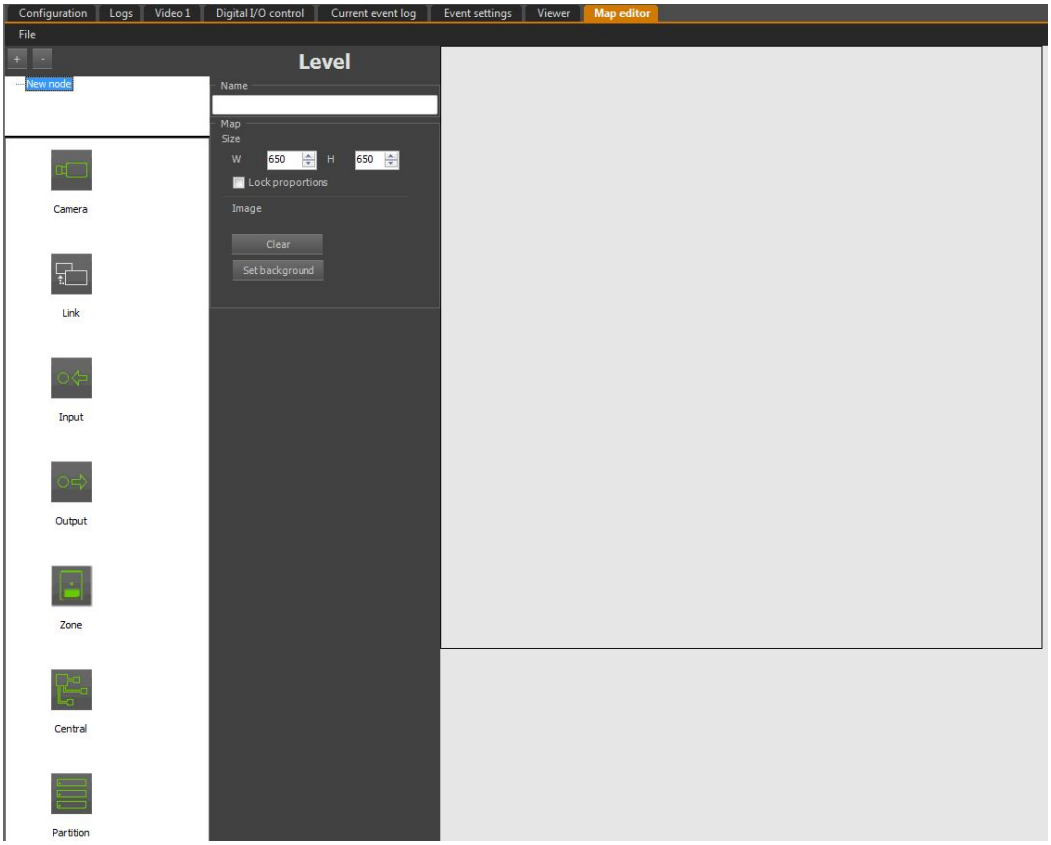
16. MAPS

16.1. *MAP EDITOR* panel - map creation

A user can create maps of different objects or areas using their own graphic files or icons in the *MAP EDITOR* module.

To run the module select *TOOLS / MAP EDITOR* in main menu.



To create a new map you need to start a new project. Select *File* menu and click *New* . The next step is to enter the desired name for the map in *Name* field. Using *Set background* button you can set the background with a building, a town or city map or other image you prefer. If the image has a different size than the initially selected one, the system offers to alter the size to fit the graphics. In order to add more maps you select + and follow the above instructions. You can add maps both to the main map and the subordinate ones. In order to add a subordinate map you select the map on the tree chart, which you want to add to, and click + . In this way multilevel map tree is created in the system. To delete a map select its name on the tree chart and click - .

It is recommended to save a map at the stage of creation at this time under the desired name. You can do it via selecting *File / Save as.* You can also open a previously saved map by *File / Open* .

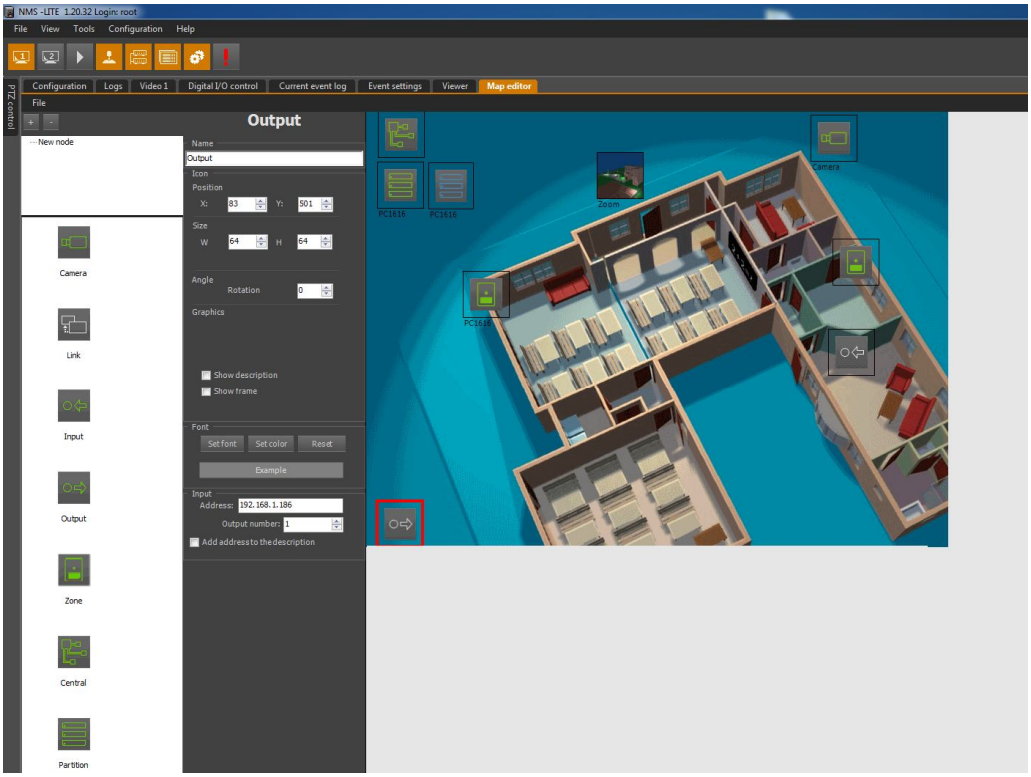
16. MAPS

16.2 *MAP EDITOR* panel - defining system elements

After map background has been completed you should place the icons of the desired system elements. In order to do so select the elements to be placed on the map using „drag and drop" system. You can also move objects, change their size or the size of the background as well. To delete an icon you click RMB on a selected element and select *Delete*. You can choose from the following elements:

Camera Link Alarm in Alarm out DSC panel Zone Partition

If subordinate maps have been already added , in the left upper corner you can see their links, which are to be placed on the proper place on the main map.



After element icons have been located, define their parameters by clicking on each of the icons separately and modify the following parameters:

- **Name -** the name of the element displayed in the map window;
- **Position** - the coordinates of the icon location, which help to place the icon more properly using a mouse;
- **Size -** icon size in pixels;
- **Angle -** you can rotate a selected icon;

16. MAPS

- **Graphic** - you can change the icon background (it only works for *camera* or *link* icon) and add icon frame and description to be displayed.
- **Font** - you can define type, size and colour of fonts used in the icon description;
- **Address** - you enter the object IP address– necessary for proper icon functioning;
- **Channel** - you select a channel for multi-channel systems;
- **Link** - shows a selected map for a selected link.

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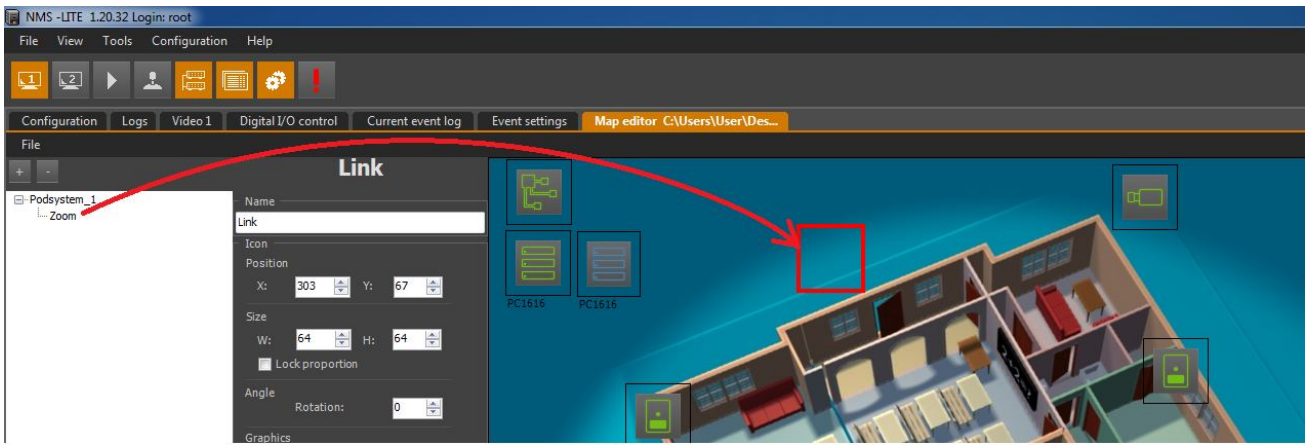
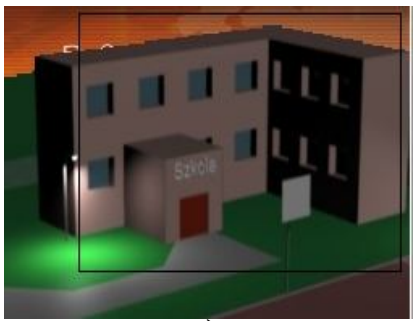
In order to enter the net parameters you drag a selected camera or video server from the device list and drop it onto the proper icon located on the map, the device IP address and channel is automatically set. To define a link leading to a different map you place the *link* icon on the map project, e.g. "CCTV" and then from the map tree you select a map, e.g. "ZOOM" where the link must lead.



Having done that in a proper way, in the *link* window you can see the map background defined as the link. You can leave that icon layout (a), increase the size (b) to have a better view or disable the background (c) (unclick the *Draw background as icon*) and select the area where the link leads after clicking.

a)

b)



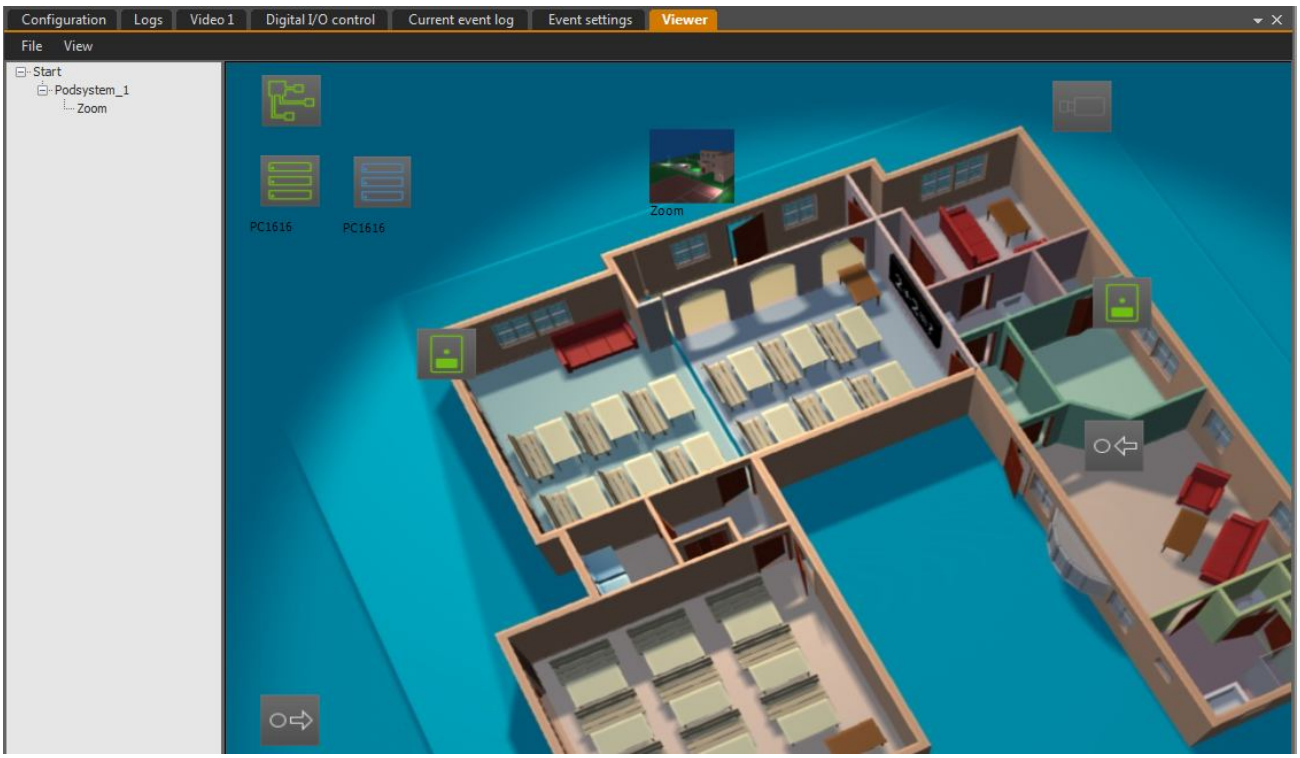
c)

16. MAPS

16.3 *MAP VIEWER* panel

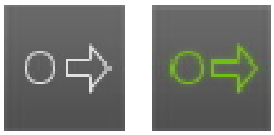
Using *MAP VIEWER* you can watch alarms, control inputs and outputs, access the cameras whose location on the map represents the real position on the monitoring area. "Live" view is the alternative to "dragging" the names from the device list.

In order to run this module you select *VIEW -> MAP VIEWER*. Then NMS application starts the *VIEWER* and loads the previously opened map.



To change the present map you select *File / Open* in the viewer menu window and open a desired map. From the *Viewer* menu you can hide displaying the map tree by choosing *Show tree* option or block the map size proportion by *Lock proportion*.

A map operator working on it can rate the state of separate system elements such as video inputs, alarm inputs or outputs. Symbols which appear near the icons are one of the ways of displaying. They are defined in the same way as the icons in the device tree. The state of alarm inputs and outputs of IP devices is represented by changing the icons' colour into grey for inactive elements

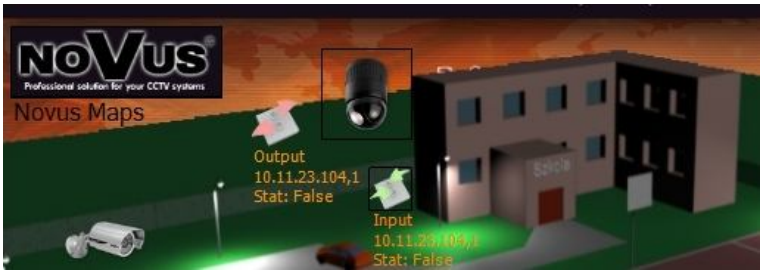


Alarm output: off / on

16. MAPS

As mentioned before, the main purpose of maps is to facilitate operating on the area, learning the position of cameras and therefore to make operators' work more effective while monitoring the objects. An operator does not have to remember the real, exact location of the system elements as they can see all of them on the map. All the map functions can be effectively used while amending a graphic card with dual monitor outputs. Thanks to that a user has more space to plan and set the panels location. Map panel can be placed on one monitor while video is displayed on the other. In this way the map does not interfere with the camera live display and can be easily accessible at the same time.

To change maps you double click on the link leading to a selected map or camera. It is displayed in a separate video window. Input icons inform the operator on a present state of alarms for a specific IP device, when double-clicked you can change the state of the linked output. The link to the next map can be a separate icon (e.g. Novus Maps) or an orange frame which is shown when you move your mouse cursor over the link.



17. CONNECTING AND CONTROLLING THE SOFTWARE VIA KEYBORD

17. CONNECTING AND CONTROLING THE SOFTWARE VIA KEYBOARD

17.1. General characteristics

Universal NMS keyboard allows to:

- control PTZ cameras;
- manage certain functions of NMS application;
- playback the records.

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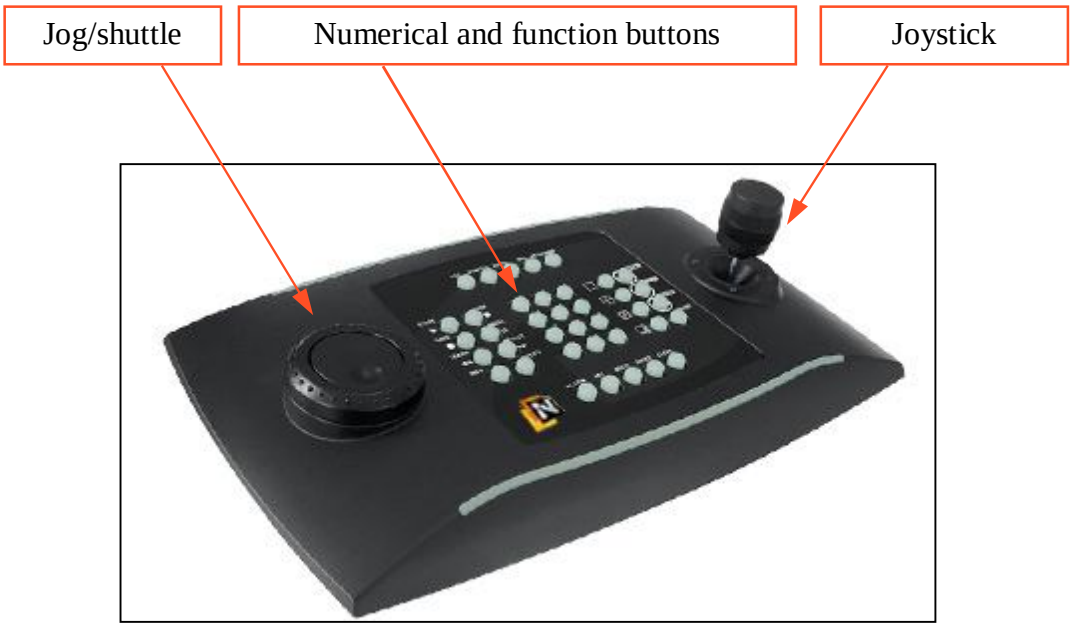
17.2. Front panel description



Attention: Prior to starting the NMS application connect keyboard to the computer first.

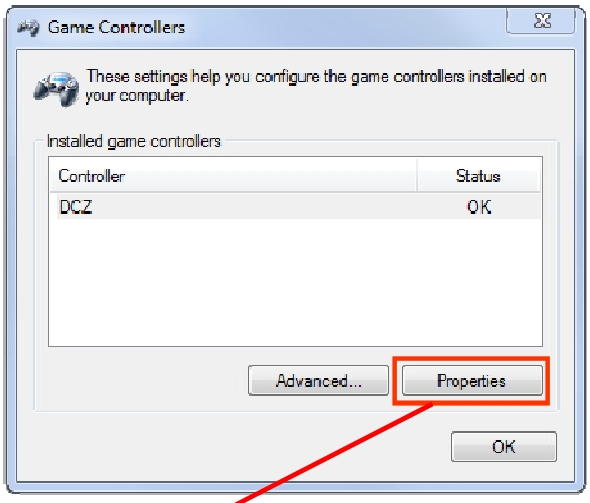
Attention: Joystick calibration should be performed after connecting the keyboard for the first time.

Attention: Assignment of function and numerical buttons cannot be changed.

17. CONNECTING AND CONTROLLING THE SOFTWARE VIA KEYBORD

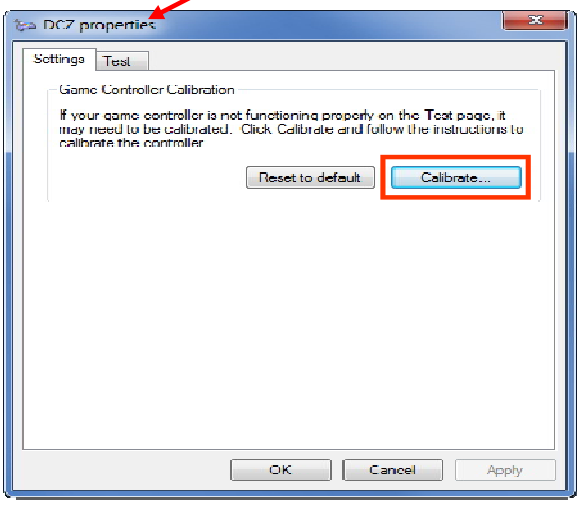
17.3. Joystick calibration

Joystick calibration should be performed after connecting the keyboard for the first time. In order to calibrate keyboard joystick please use a Device Calibration Wizard application in Windows operating system. During this process you will be asked to move the joystick in all directions and determine the centre point of the joystick.

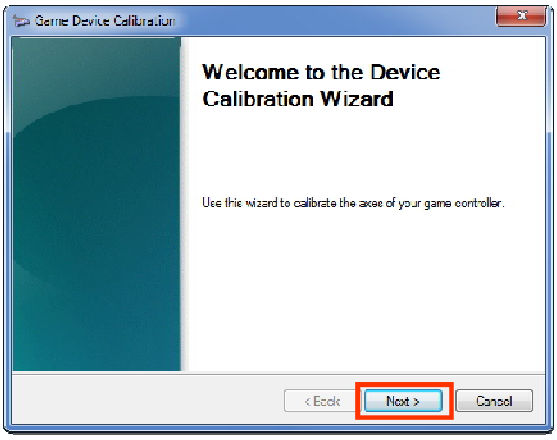


Start -> Control panel -> Device and printers -> DCZ (Windows 7)

Start -> Control Panel -> Game Controllers (Windows Vista)



Please launch a Device Calibration Wizard application.



Please follow all steps of the wizard that appears and click Finish when done.

17. CONNECTING AND CONTROLLING THE SOFTWARE VIA KEYBORD

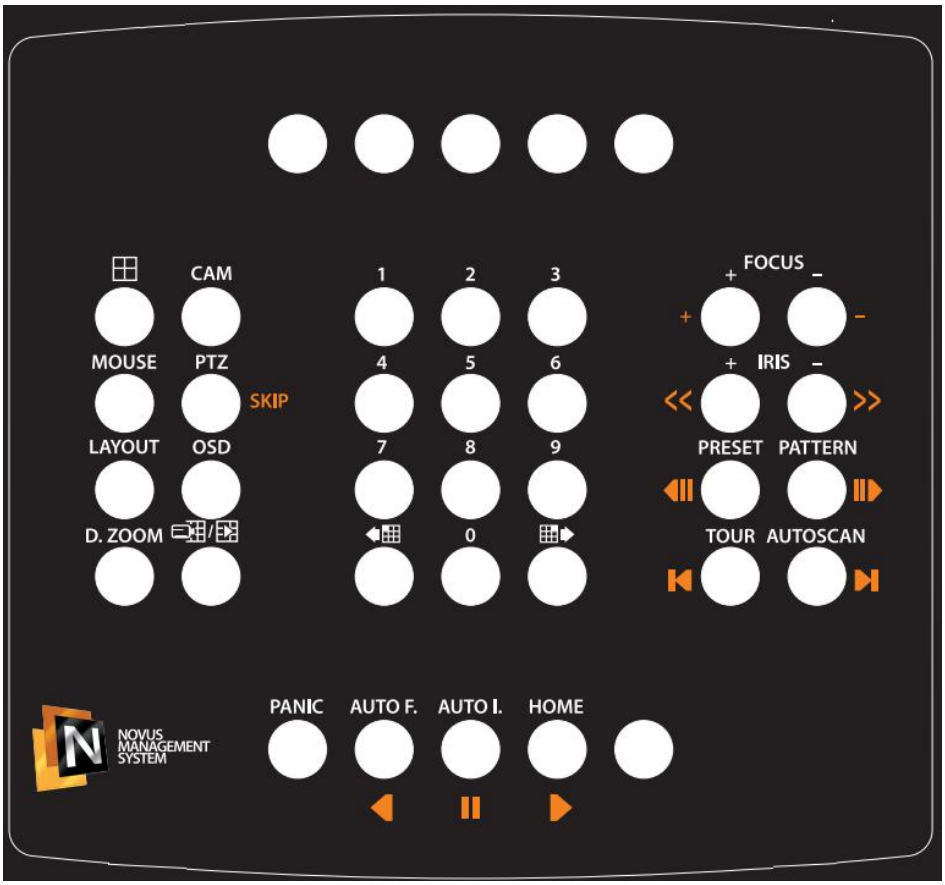
17.4. Software controlling via keyboard

Prior to starting the NMS application connect keyboard to the computer first. Please press *1+Layout* key on the keyboard to run video window.

Defined key configuration allows to:

- control PTZ cameras,
- manage certain functions of NMS application,
- playback the records.

The scheme shown below depicts assignment of function and numerical buttons. Some of the keyboard buttons are also dedicated for operation in playback mode, those buttons are distinguished with light-orange colour.



17. CONNECTING AND CONTROLLING THE SOFTWARE VIA KEYBORD

Function	Key	Description
Camera selection	**Nr +** CAM	Displays selected camera in full screen mode. Displaying of the camera is performed via appropriate key combination, e.g. **3 + CAM** or by pressing only **CAM** button for camera with colour frame around the camera window. Pressing **CAM** button in full screen mode allows to recall previously displayed screen division.
Split screen selection	**Nr +** ⊞	Changes split screen mode. Changing of screen division is performed via appropriate key combination, e.g. **3 + DIVISION - 3x3** or by pressing only **DIVISION** button for switching between different split screen modes: 2x2, 3x3, 4x4
Camera group	◀▦ ▦▶	Previous / Next group of cameras
PTZ mode	PTZ	Enables / disables PTZ mode to manage PTZ camera, e.g. PTZ camera controlling, calling presets, tours, patterns etc.
Focus	+ FOCUS -	Manual focus setting.
Iris	+ IRIS -	Manual iris setting.
Call Preset	**Nr +** PRESET	Preset calling is performed via appropriate key combination, e.g. **3 + PRESET**.
Call Pattern	**Nr +** PATTERN	Pattern calling is performed via appropriate key combination, e.g. **3 + PATTERN**.
Call Tour	**Nr +** TOUR	Tour calling is performed via appropriate key combination, e.g. **3 + TOUR**.
Call Auto-scan	**Nr +** AUTOSCAN	Scan calling is performed via appropriate key combination, e.g. **3 + SCAN**.
Home	HOME	Calls **HOME** function.
Special function	ON	Special function calling is performed via appropriate key combination, e.g. **1~4 + ON** activates selected relay output.
Special function	OFF	Special function calling is performed via appropriate key combination, e.g. **1~4 + OFF** deactivates selected relay output.
Joystick		Sets zoom, PTZ control.
Digital zoom	D. ZOOM	Enables / disables digital zoom function.
OSD	OSD	Enables / disables an on screen display menu. There are 3 independent types of OSD menu that can be displayed. Turning on / off each of OSD menu is performed via appropriate key combination, e.g. **3 + OSD**.
Layout	**Nr +** LAYOUT	Switch to V1 or V2 window.
Panic	PANIC	Panic recording for all cameras with previously allocated recording space.
Mouse	MOUSE	Mouse cursor control. LMB - PANIC; RMB - AUTO F.

17. CONNECTING AND CONTROLLING THE SOFTWARE VIA KEYBORD

Function	Key	Description
Display mode	/	Live view mode / Playback mode selection.
Playback		Play the stored recordings in the selected direction.
Pauza		Pause the recordings.
Timeline zoom	+ –	Timeline zoom in and zoom out buttons
Timeline navigation	<< >>	Timeline with navigation keys
Timeline axis	<|| ||>	Playback time selection with a step proportional to value of timeline zoom.
Frame by frame		Pictures displayed frame by frame in the selected direction.
Skip	SKIP	Function allows user to skip the period of time where video records not exist.
Jog/Shuttle		Shuttle Ring is available in playback mode. Twisting it results in playback speed selection being dependant on the twist direction (x0,1...x1...x60).

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17.5. Additional functions available in the NOVUS cameras

Functions available in: Novus C, Novus C1 controlled cameras (some of the commands are available only in certain camera models).

Key	Function	Key	Function
1 + ON	Relay 1 active	**1 + OFF**	Relay 1 inactive
2 + ON	Relay 2 active	**2 + OFF**	Relay 2 inactive
3 + ON	Relay 3 active	**3 + OFF**	Relay 3 inactive
4 + ON	Relay 4 active	**4 + OFF**	Relay 4 inactive
7 + ON	Auto focus	**7 + OFF**	Manual focus
8 + ON	Automatic AE active	**8 + OFF**	AE set to manual
9 + ON	Night Shot set to auto		
10 + ON	Night Shot enabled (set to manual)	**10 + OFF**	Night Shot disabled (set to manual)
11 + ON	BLC active (automatic AE)	**11 + OFF**	BLC inactive (automatic AE)
12 + ON	Digital Zoom enabled	**12 + OFF**	Digital Zoom disabled
13 + ON	OSD enabled	**13 + OFF**	OSD disabled
14 + ON	Zone title enabled	**14 + OFF**	Zone title disabled
15 + ON	Geographical directions enabled	**15 + OFF**	Geographical directions disabled
100 + ON	Shutter set to auto		
101 + ON	1/3sec shutter		
102 + ON	1/2 sec shutter		
103 + ON	1 sec shutter		
104 + ON	WDR enabled	**104 + OFF**	WDR disabled
105 + ON	Digital image stabilization enabled	**105 + OFF**	Digital image stabilization disabled

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

18.1. Compatible DSC alarm systems

The NMS software allows to integrate following DSC alarm systems:

- PC1616 alarm system;
- PC1832 alarm system;
- PC1864 alarm system;
- PC4020A alarm system;
- PC5020 alarm system.

18.2. General characteristic

NMS application allows to display DSC alarm system status and control it. The following functionality is possible:

- alarm partitions and zones status visualization;
- user can create maps of different objects or areas using their own graphic files and place the icons of the desired system elements;
- user can arm / disarm partitions, active command output, bypass selected zone (MAXSYS - PC4020A only);
- alarm partitions and zones failure visualization;
- view alarm events detected by DSC alarm system stored in a NMS data base;
- received alarm event data base can be exported to a text file - CSV format;
- user can create event scenarios for alarm situations detected by DSC alarm system e.g. in case of alarm situation any of selected alarm output will be temporarily activated and exported AVI movie will be sent to FTP server.

18.3. DSC alarm system communication modules

In order to connect DSC alarm system to the PC running NMS application one of following RS232 integration modules should be used:

- PC5401 - communication with PowerSeries panels (PC5020, PC1616, PC1832, PC1864);
- IT-100 - communication with PowerSeries panels (PC5020, PC1616, PC1832, PC1864);
- PC4401 - communication with MAXSYS panel (PC4020A).

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

Please connect the integration module via an RS232 cable to a PC running NMS application located in the same room and no more than 15m (50 ft) from integration module.

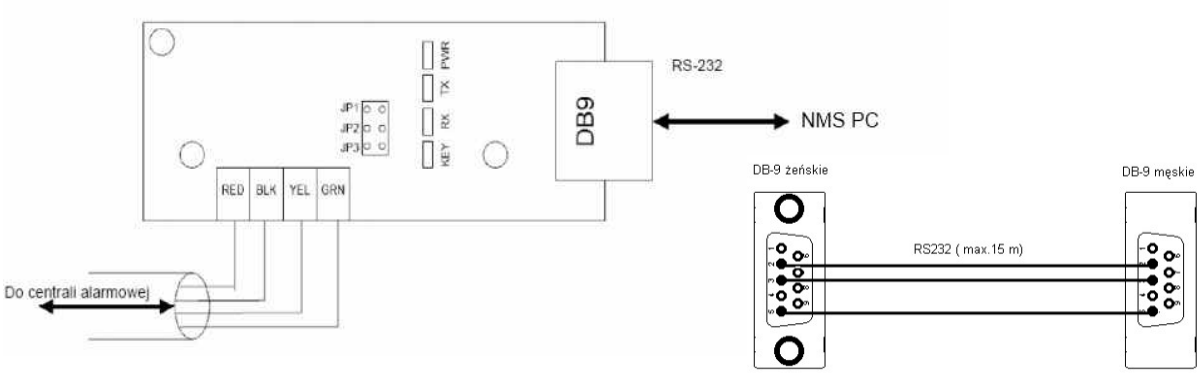
Aforementioned distance can be increased up to 1200 m with the use of RS232 to RS485 converter (two symmetric controllers are necessary).

Long communication distance can be also achieved with the use of RS232 / LAN converter that allows integration module to become Ethernet network enabled. User can use one of the following devices UTN4 [Roger], DEN311 [MOXA]).

Caution: If USB to RS232 converter was used please make sure it works properly. There are many of available products that stop working constantly - requiring an unplug/plug the device to get them working again.

18.3.1. PC5401 integration module

The PC5401 integration module can be used to quickly and easily communicate NMS PC with PowerSeries panels (PC5020, PC1616, PC1832, PC1864) through a standard RS232 serial communication port. Please connect module to the KEYBUS with the panel powered down.



Caution: The maximum distance between integration module and DSC panel is 305m.

Caution: The maximum distance between integration module and NMS PC is 15m.

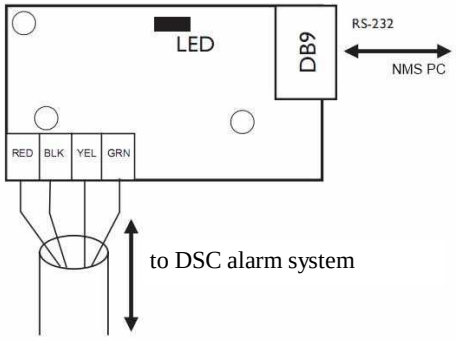
Caution: Recommended baud rate is 9600 bd (JP1=OFF, JP2=OFF, JP3=OFF).

Caution: Integration module does not required any additional configuration in DSC panel configuration menu.

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

18.3.2. IT-100 integration module

The IT-100 integration module can be used to quickly and easily communicate NMS PC with PowerSeries panels (PC5020, PC1616, PC1832, PC1864) through a standard RS232 serial communication port. Please connect module to the KEYBUS with the panel powered down.



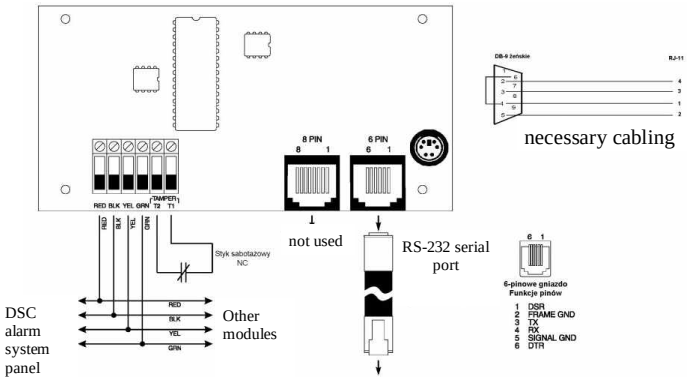
The maximum distance between integration module and DSC panel is 305m. Recommended distance between integration module and NMS PC is 15m. The IT-100 default rate is set at 9600 bd.

Caution: Integration module does not required any additional configuration in DSC panel configuration menu.

18.3.3. PC4401 integration module

The PC4401 integration module can be used to quickly and easily communicate NMS PC with MAXSYS series panel PC4020A.

Please connect module to the *COMBUS* with the panel powered down.



Caution: The PC4401 integration module required additional configuration in DSC panel configuration menu. Please change a module functionality to DATANLINK and select appropriate baud rate value. For the details information please refer to PC4401 user's manual.

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

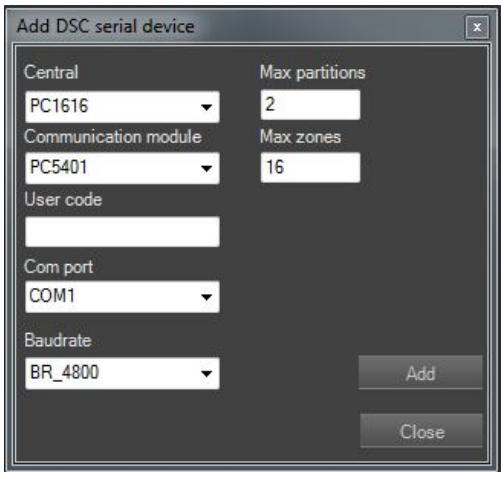
18.4. Adding DSC alarm system to a *Devices* list

In order to add DSC alarm system please select:

- *CONFIGURATION / APPLICATION SETTING / DEVICES;*
- please press a button;
- please select DSC alarm serial option.

Please insert following connection parameters:

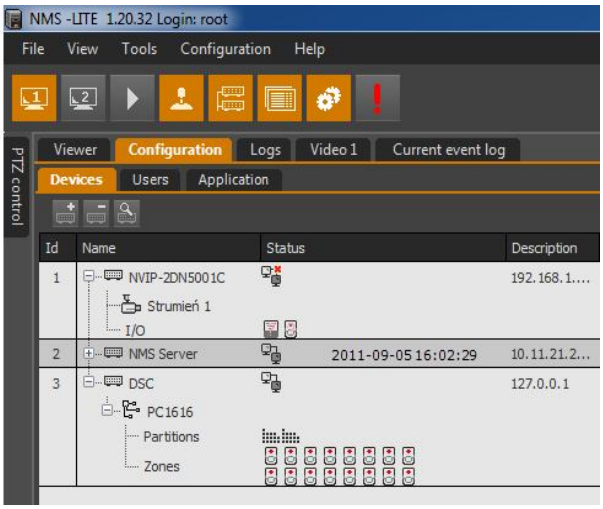
- **Central** DSC alarm system panel type;
- **Communication module** integration module type used for communication with PC;
- **User code** user code that allows to disarm all defined partition;
- **Com port** PC COM port used for connection to integration module;
- **Baud rate** baud rate value appropriate to integration module settings e.g. the IT-100 default rate is set at 9600 bd.



18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

18.5 DSC alarm system controlling via NMS

After proper adding equipment, it will appear on *DEVICES* panel list:



DSC alarm system status visualization:

- normal state - system is ready to arm,
- system in alarm,
- system in alarm and failure was detected,
- general system tamper.

Partition status visualization:

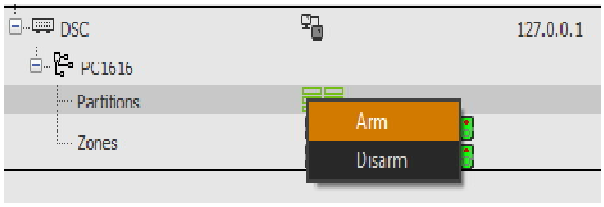
- no information - DSC system is not connected ,
- partition [number] disarmed,
- partition [number] armed,
- partition [number] in alarm,
- partition [number] is not ready to arm, check your system.

Zone status visualization:

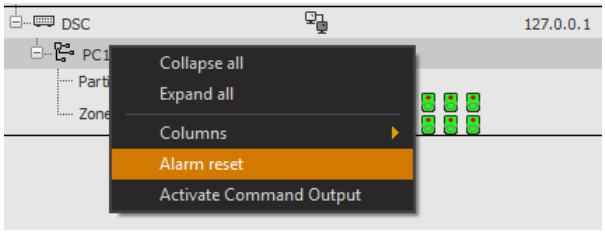
- no information - DSC system is not connected ,
- normal state - system is ready to arm,
- zone is violated (partition is not ready to arm, check your system),
- system in alarm,
- tamper (∞ [Ω]) or fault (0 [Ω]) ,
- zone bypass (only MAXSYS series - PC4020A).

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

In order to *Arm / Disarm* partition using NMS software please make a RMB click on the partition icon and select appropriate option in context menu:

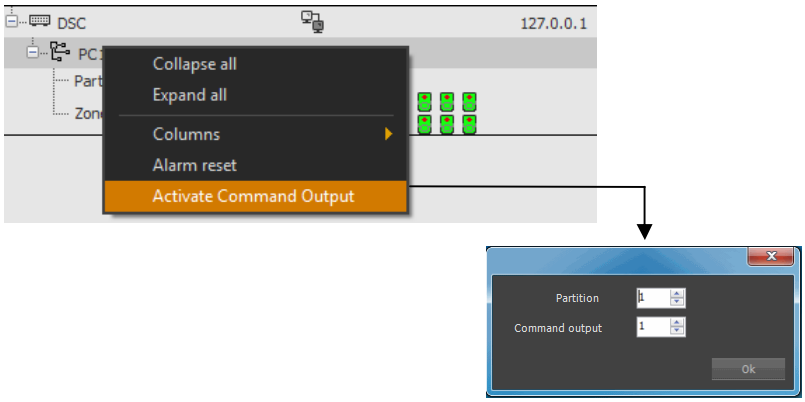


In order to reset alarms detected by DSC alarm system using NMS software please make a RMB click on the DSC panel icon and select appropriate option in context menu:



Caution: Alarm reset function via NMS application allows to remove all alarms visible on *DEVICES* panel list. An event message is still displayed on the DSC system keyboard. In order to remove all alarm events please arm and than disarm DSC system.

In order to *Active Command Output* using NMS software please make a RMB click on the DSC panel icon and select appropriate option in context menu. User will be asked to select partition and command output to activate:



In order to *Bypass zone* using NMS software please make a RMB click on the zone icon and select appropriate option in context menu.

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

18.6 DSC alarm system controlling via MAPS panel

Using *MAP VIEWER* you can manage DSC system panel, arm/disarm partitions and watch zones status, whose location on the map represents the real position on the monitoring area.

DSC alarm system visualization:

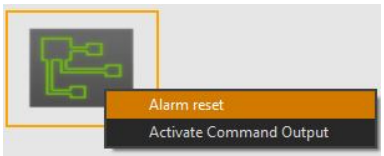
 no information, DSC system is not connected,

 normal state - system is ready to,

 system in alarm,

 general system tamper.

In order to manage DSC alarm system via NMS application please make a RMB click on the DSC panel icon and select appropriate option in context menu:



18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

Partition status visualization:

 no information - DSC system is not connected;

 partition is not ready to arm, check your system;

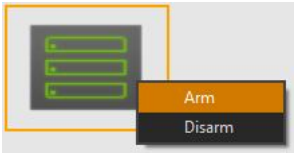
 partition disarmed;

 partition armed;

 partition in alarm;

 tamper (∞ [Ω]) or fault (0 [Ω]).

In order to manage DSC partition via NMS application please make a RMB click on the partition icon and select appropriate option in context menu:



Zone status visualization:

 no information - DSC system is not connected;

 normal state - system is ready to arm;

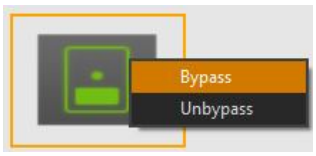
 zone is violated (partition is not ready to arm, check your system);

 alarm state;

 tamper (∞ [Ω]) or fault (0 [Ω]);

 zone bypass (only MAXSYS series - PC4020A).

In order to *Bypass zone* via NMS application please make a RMB click on the zone icon and select appropriate option in context menu.



Caution: Bypass zone functionality is possible only for MAXSYS series PC4020A DSC panels.

18. CONNECTING AND CONTROLLING DSC ALARM SYSTEM

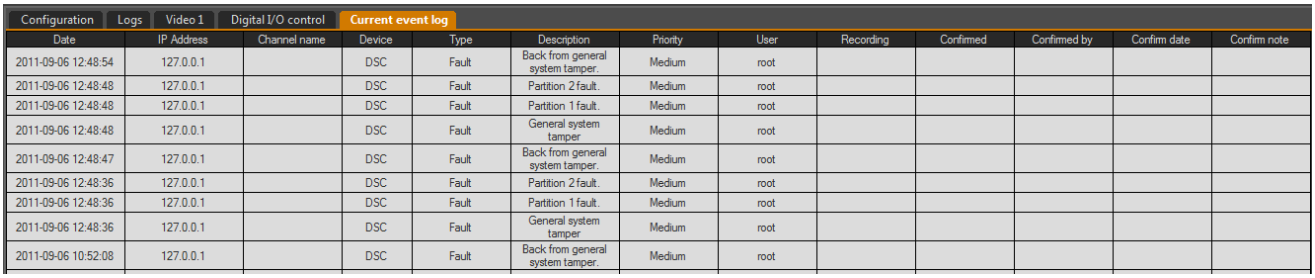
18.7. DSC alarm system logs

In accordance with information presented in the previous chapters of this user's manual user is able to watch DSC system status on *DEVICE* panel list as well as on the maps where elements position represent its real position on the monitoring area.

All alarm logs generated by DSC alarm system are also listed in a *CURRENT EVENT LOG* as well as in a *LOGS* panel

- *CURRENT EVENT LOG* displays a list of last fifty alarm events,;
- *LOGS* panel - all logs data base.

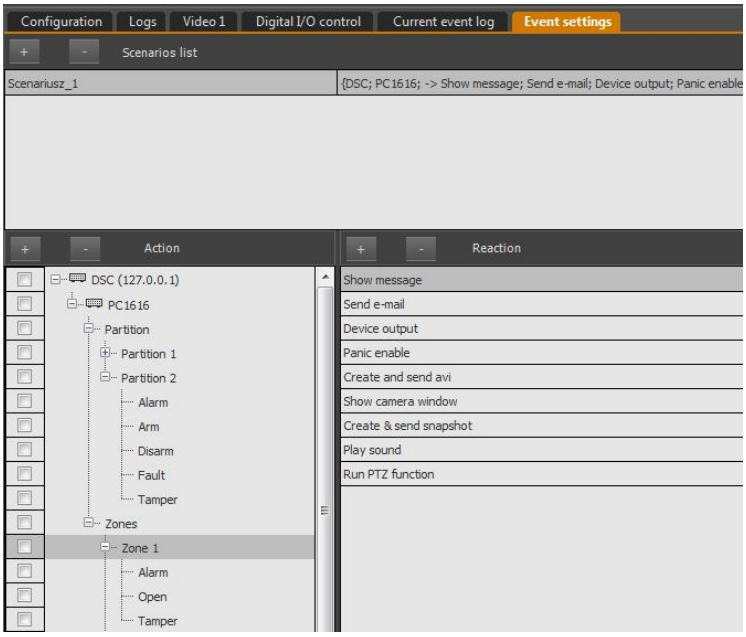
Caution: Only some groups of events are displayed by default. Current event log filter configuration is necessary to display DSC system logs.



Date	IP Address	Channel name	Device	Type	Description	Priority	User	Recording	Confirmed	Confirmed by	Confirm date	Confirm note
2011-09-06 12:48:54	127.0.0.1		DSC	Fault	Back from general system tamper.	Medium	root					
2011-09-06 12:48:48	127.0.0.1		DSC	Fault	Partition 2 fault.	Medium	root					
2011-09-06 12:48:48	127.0.0.1		DSC	Fault	Partition 1 fault.	Medium	root					
2011-09-06 12:48:48	127.0.0.1		DSC	Fault	General system tamper	Medium	root					
2011-09-06 12:48:47	127.0.0.1		DSC	Fault	Back from general system tamper.	Medium	root					
2011-09-06 12:48:36	127.0.0.1		DSC	Fault	Partition 2 fault.	Medium	root					
2011-09-06 12:48:36	127.0.0.1		DSC	Fault	Partition 1 fault.	Medium	root					
2011-09-06 12:48:36	127.0.0.1		DSC	Fault	General system tamper	Medium	root					
2011-09-06 10:52:08	127.0.0.1		DSC	Fault	Back from general system tamper.	Medium	root					

18.8. Event scenario based on DSC alarm system events

DSC alarm system integration with NMS software allows to create event scenarios based on DSC system events. If any of *Actions* defined in the scenario take place, the NMS application executes all *Reactions* specified in the scenario. For details information please refer to *EVENT SETTINGS* panel chapter of this user's manual.



19. POS INTEGRATION

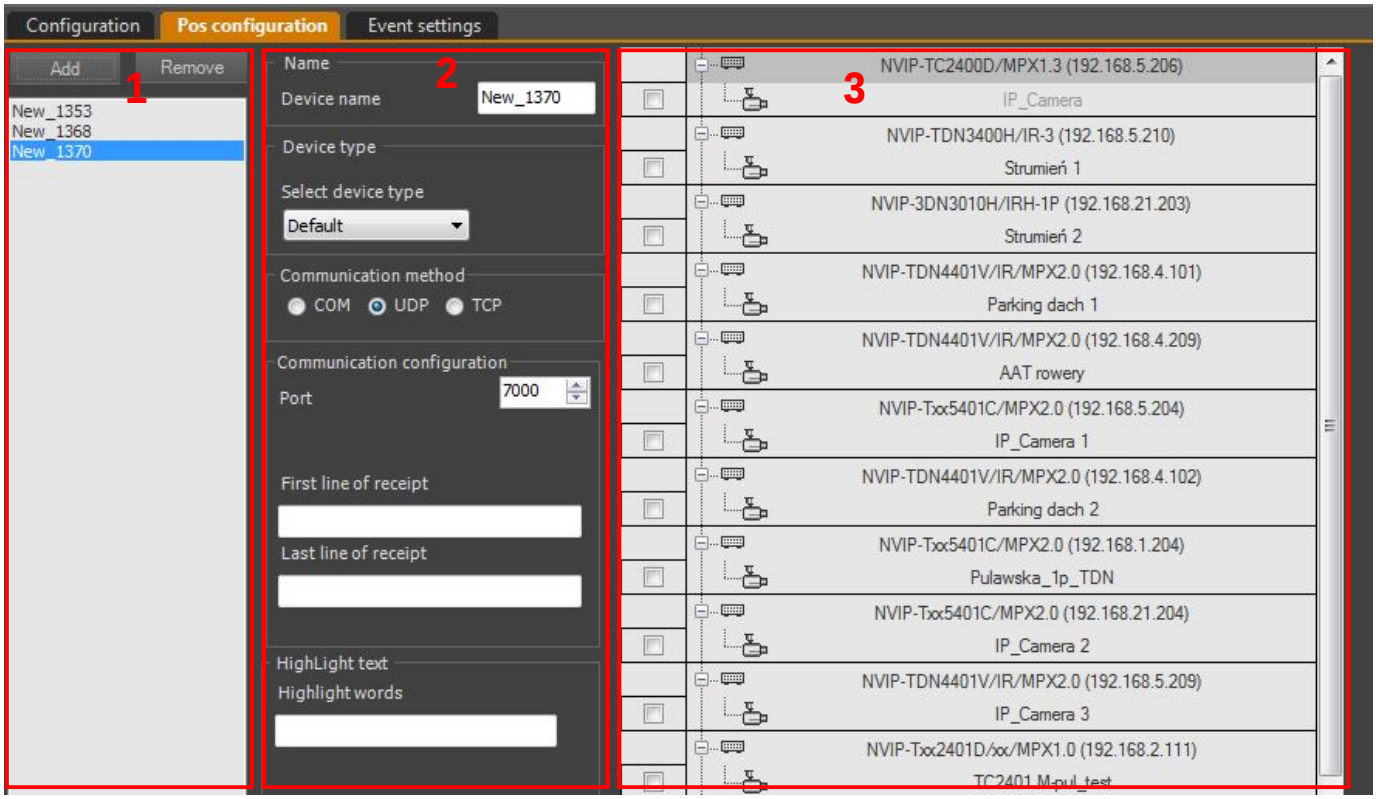
19. POS INTEGRATION

NMS software contains POS (Point Of Sale) integration. This feature allows to save transactions synchronized with video streaming. It is helpful for verifying work of the POS. NMS software integrates the POSNET and the UPOS points of sale. However, it can works with other companies' POS solutions.

19.1. POS configuration

Settings are available in *CONFIGURATION / POS CONFIGURATION* panel.

First tab - *Device configuration* is divided into three columns.



1. In first column there are *Add* and *Remove* POS buttons and the list of all points added to NMS Software. Highlighted bar is indicating currently edited device.
2. In second column user can set:
   - *Device name* - identifying the POS;
   - *Device type* - *default* or *POSNET*. *Default* setting is used for the UPOS devices and others which generate receipts in text mode (with defined *first* and *last line of receipt*).
   - *Communication method* - NMS to POS. User can choose between COM, UDP, TCP interface.

19. POS INTEGRATION

- *Communication configuration* - this field differs depend on the communication method. For COM communication, *Baudrate* and *COM port* fields are available. POS using TCP protocol can work as a server or a client. Therefore it is necessary to define *IP address* and transmission *Port* for the POSNET devices. For *default* devices it is necessary to define only *port*, because it is set to work as a client. The UPOS needs to define *first* and *last line of receipt* also. *UDP* protocol is available for *default* devices.
- *Highlighted text* - Allows to type specific strings. If any of them occurs whole row will be highlighted with the red colour. Each string must be separated by „ ; ” (semi-colon) operator.

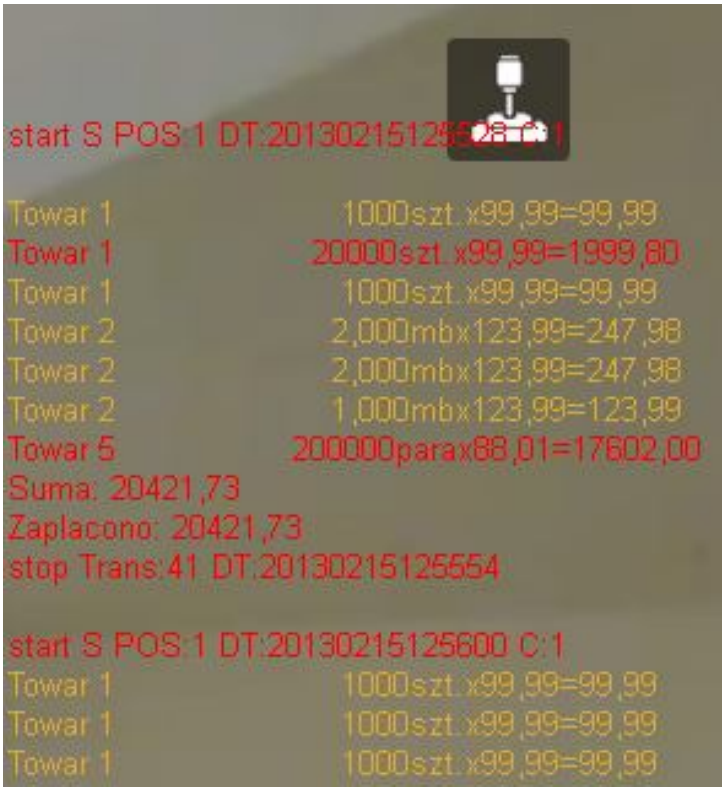
3. In third column there is the list of video streams and adequate checkboxes. Mark connects POS with chosen video stream. There is possibility to connect POS with one stream only.

All changes must be approved by clicking *Save* button at the bottom of the panel.

19. POS INTEGRATION

19.2. Displaying POS transactions on video screen.

After proper configuration, transactions are displaying as OSD on video screen. The frame is located in top right corner, and is visible in 1x1 division or stream in full window mode only.



Rows, containing words typed in *highlighted text* field, are red. (For example on the screen above rows contain string „20").

Appearance of the field is fully adjustable (f.e. position, font, number of lines). Settings are available in *CONFIGURATION / APPLICATION SETTINGS / Application / Display Settings / OSD / POS* window. Further information is in chapter 10.4.

19.3. *Transaction search* panel

For browsing transactions use *VIEW / TRANSACTION SEARCH* panel. It allows for search, preview of receipt, and export video with transaction.

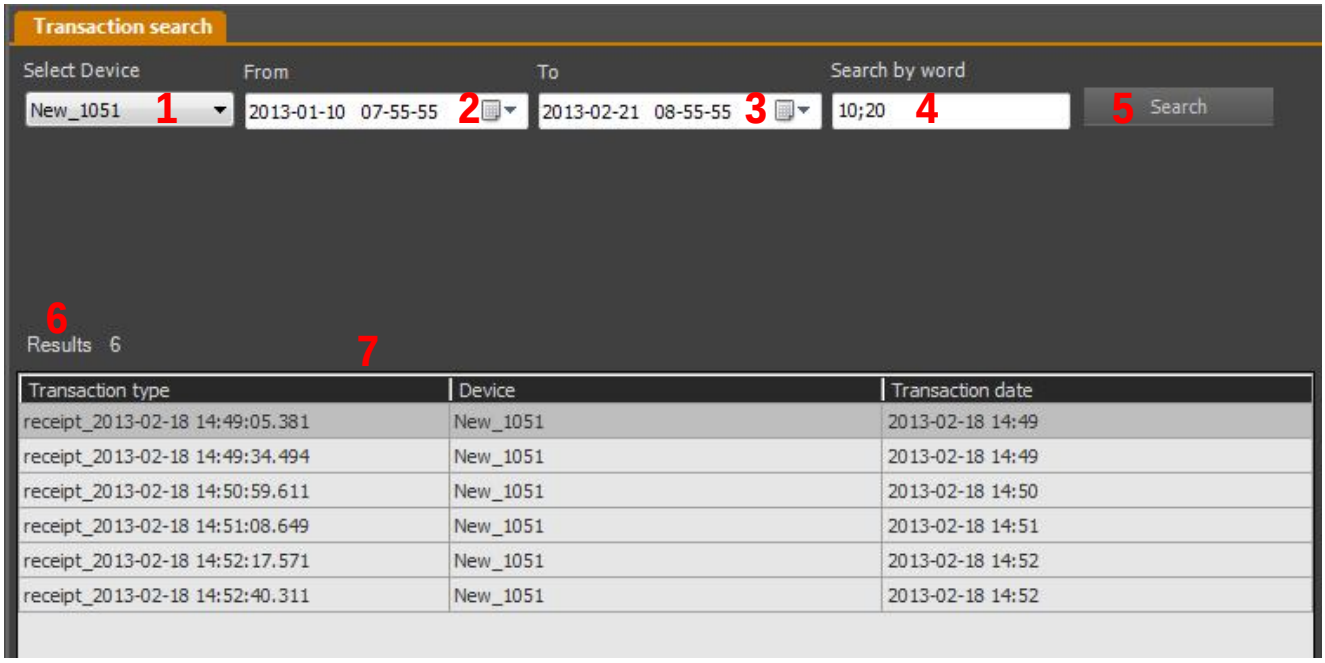
Panel consist searching criteria:

1. Selection of the POS;
2. Date and time of the begining of search (Date can be chosen from the calandar);
3. Date and time of the end of search (Date can be chosen from the calandar);
4. Searching words or strings in transaction;

As well:

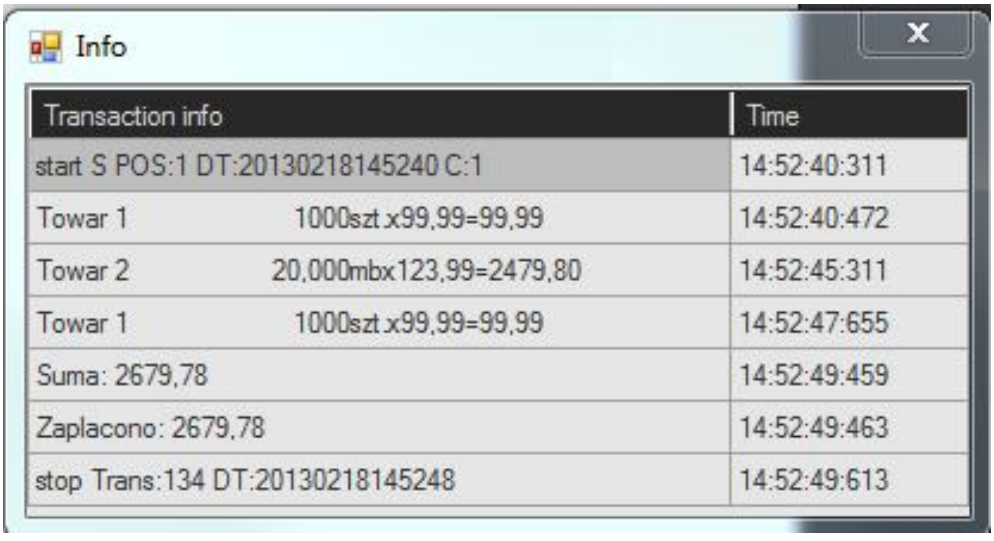
5. *Search* button;
6. Quantity of results matching the criteria;
7. List of results matching the criteria;

19. POS INTEGRATION



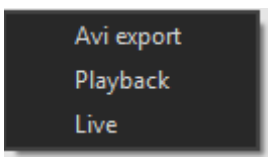
eng

Left mouse button click on transaction list displays details.



Right mouse button click on transaction list displays context menu:

- *Avi export* saves synchronized video and transaction data to AVI/TXT file in specified folder. To open AVI/TXT file please use the video player with „subtitles" feature.
- *Playback* runs video stream related with transation in playback mode;
- *Live* runs video stream in live mode.



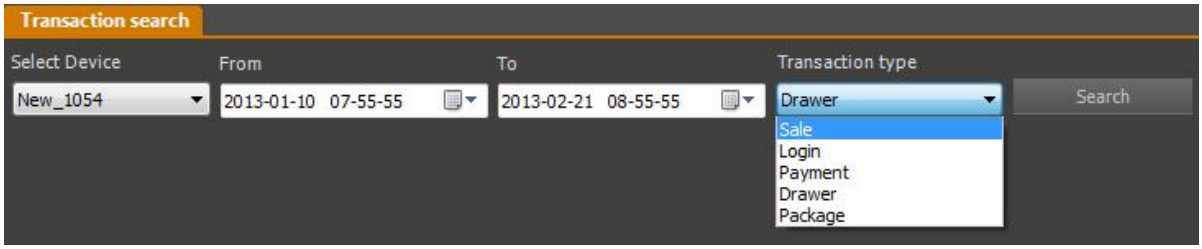
19. POS INTEGRATION

19.4. Advanced searching options for POSNET devices

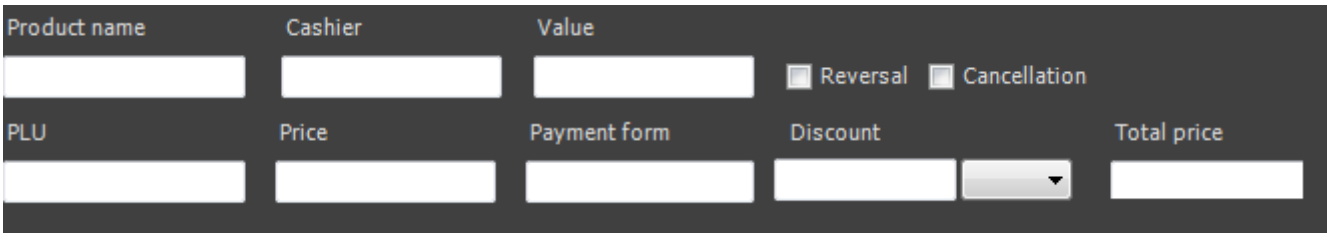
NMS software provides advanced searching options for the POSNET devices. Selection in *Transaction type* affect an availability of the other criteria. It can be chosen between *Sale, Login, Payment, Drawer, Package.*

Two operators help defining criteria: „ ; " and „ | ". Sub-colon has to be treated as logical operator „or", f.e. „10;20;30" means value „10" or „20" or „30". Operator „ | " defines the range, f.e. „10|20" means range between „10" to „20". Range operator can not be used with other operators.

Place a mouse cursor on the criteria field to show a hint.



For *Sale* transaction user can define criteria: *Product name, Cashier, Value, Reversal, Cancellation, PLU, Price, Payment form, Discount, Total price.*

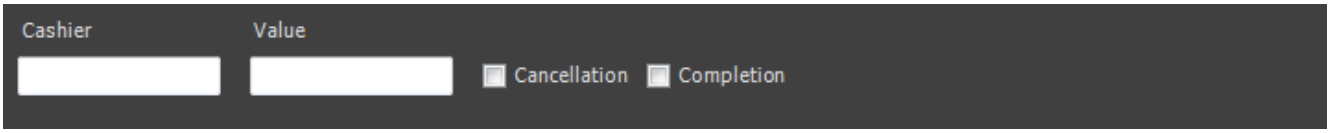


For *Login* transaction user can define criteria: *Cashier, Login, Logout.*

For *Payment* transaction user can define criteria: *Value, Payment, Cash out*.

For *Drawer* transaction there aren't any cryteria.

For *Package* transaction user can define criteria: *Cashier, Value, Cancellation, Completion.*



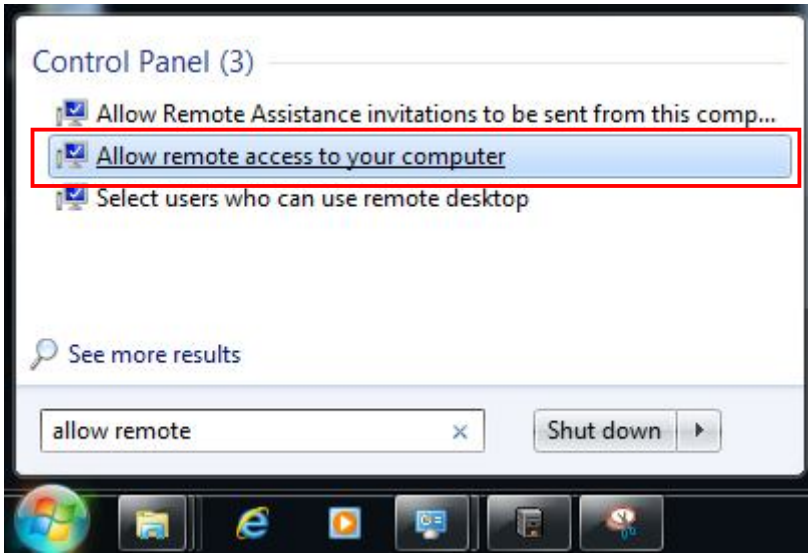
The left mouse button click on transaction list displays details.

20. NMS SERVER REMOTE ACCESS

The NMS Software provides remote access function. It allows to remote configure a NMS Server from a NMS Client.

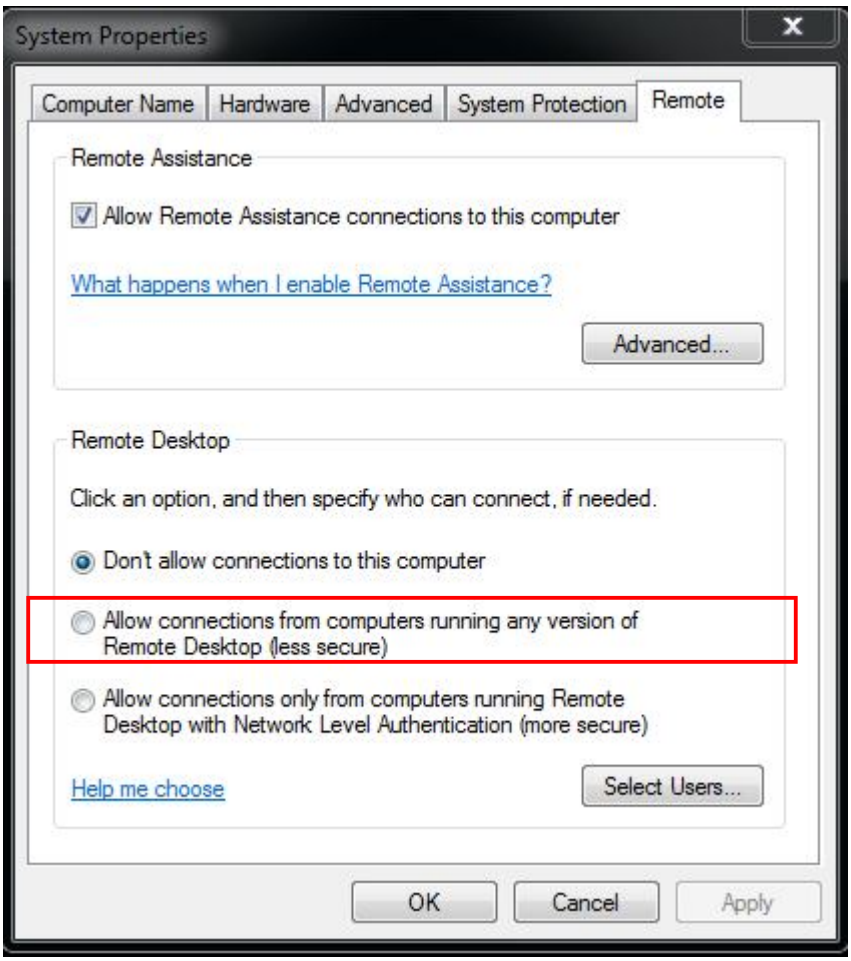
20.1. Remote access configuration

This function uses Microsoft Windows remote desktop connection. The operating system needs to be configured properly. At the NMS Server computer open the Start menu, using search window find the *Allow remote access to your computer* option and click it.

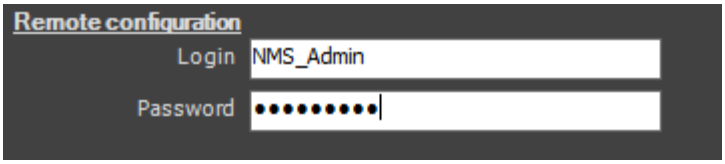


After opening the *System Properties* window check *Allow connections from computers running any version of Remote Desktop* and apply changes.

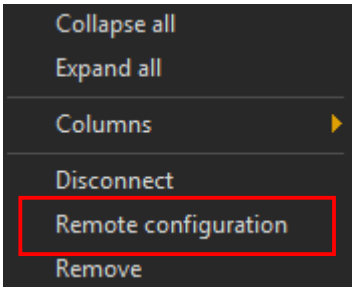
20. NMS SERVER REMOTE ACCESS



In NMS Client application open *CONFIGURATION / APPLICATION SETTINGS / DEVICES* panel. Choose NMS Server. Fill *Login* and *Password* in *General* / *Remote configuration* field, with the login and password of the user created in MS Windows on the NMS Server (for remote access password can not be blank).



The *Remote configuration* function is available in the context menu at the devices list. Click the right mouse button on NMS Server and choose *Remote configuration*. It opens remote desktop from the NMS Server computer.



21. LIST OF CAMERAS COMPATIBLE WITH NMS VER. 1.29 AND HIGHER

21. List of cameras compatible with NMS ver. 1.31 and higher.

NMS ver. 1.31 allows to work with new NOVUS cameras:

- NVIP-3DN3050H/IR-1P
- NVIP-3DN3051H/IR-1P
- NVIP-3DN3050V/IR-1P
- NVIP-3DN3051V/IR-1P
- NVIP-3DN3052V/IR-1P
- NVIP-3DN3052H/IR-1P
- NVIP-2DN5022SD/IRH-2
- NVR 5000 series

All NOVUS cameras compatible with previous NMS version are also compatible with NMS ver. 1.31.

2014-12-23 PR, MM

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