

LINE

video surveillance system



LINE USER MANUAL

Version 8.0

DEVLINE.NET

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Software "Line 8.0" 2022

Architecture: client-server.

The number of supported operating systems:
64-bit (64-bit, 64-bit, x64).

The server part is available:

Windows (not lower than Windows 7).

Service: Line 8 Server.

Process: kernel.

Linux (glibc at least 2.19).

Daemon: line service.

Command: kernel.



The client part is available:

Windows (not lower than Windows 7).

Linux (glibc not lower than 2.19).

macOS (not lower than 11.1).

Android (not lower than 6.0).

iOS (not lower than 12.5).

Default connection ports used:

To connect to the server core – 9780.

To connect to a WEB server – 9786
(HTML5-based WEB server).

Software Installation

To use the program as a client location on Windows, Linux, macOS, no additional actions are required, you can launch an "Observer" and connect to servers or video recorders.

1.1. / Windows

To install the software, use the distribution of the program downloaded from the sites

<https://www.devline.net/soft/> or <https://myvms.app/>.

In the "Line" installation wizard window, click "Next".

Read the license agreement and accept its terms by clicking the "Accept" button (fig. 1.1). If you do not accept the terms of this agreement, then you have no right to use this program.

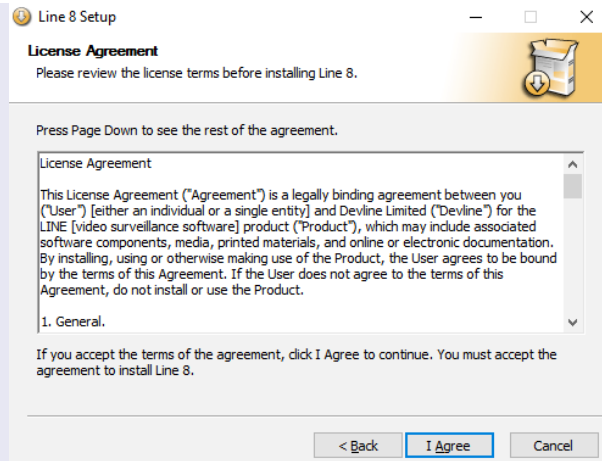


Figure 1.1
License Agreement

Select the directory for installation (the recommended default directory is "C:\Program Files\Devline\Line8") (fig. 1.2) and click "Install". Wait until the installation is finished and click on the "Finish" button.

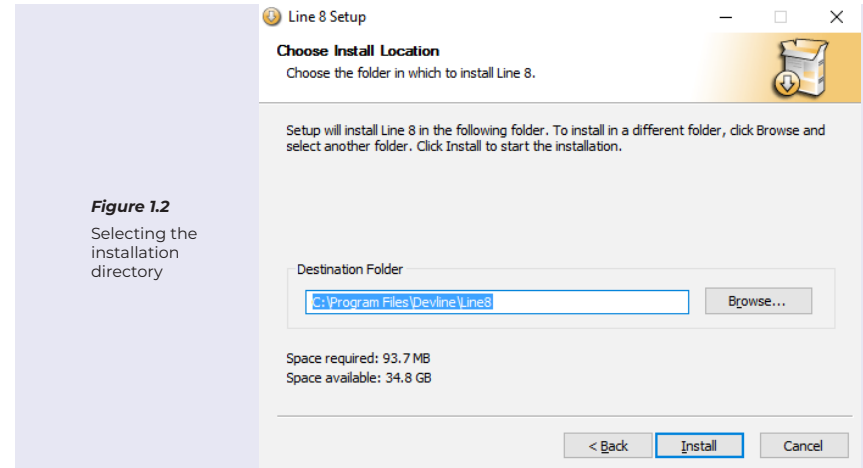


Figure 1.2
Selecting the installation directory

1.2. / Linux

To install the program, open the terminal and run the following commands:

```
wget -O line.run 'https://www.devline.net/count.php?c=420'
```

Wait for the file to download, then:

```
chmod 0755 line.run  
sudo ./line.run
```

To install the demo version of the program, open the terminal and execute the sequence of commands:

```
wget -O line.run 'https://www.devline.net/count.php?c=422'
```

Wait for the file to load, then:

```
chmod 0755 line.run  
sudo ./line.run
```

1.3. / MacOS

The MyVMS client application can be found and downloaded in the AppStore. To install the software as a separate file, use the distribution of the program downloaded from the sites <https://www.devline.net/soft/> or <https://myvms.app/>.

After downloading the .dmg file, double-click on the file name and mount the disk image. Drag the MyVMS.app application to the "Programs" folder. Wait for the copying process to complete and dismantle the image.

2 Activation of IP Line licenses

The server part can be run on Windows and Linux operating systems by activating the license codes "Line IP".

Warning.

The license "IP Line" is designed to be used on 1 PC and has a limit in the number of activations. The license can be activated only for the server with Internet access.

To activate the "IP Line" license:

- **Run "Observer Network Connections"** — "Network Connections".
- **Click "Autosearch"** and select the server localhost:9780 from the list (instead of localhost you can specify the local IP address of the network interface, for example 192.168.1.2:9780).
- **Connect to the server** by double click by mouse or by selecting the server and clicking the "Connect" button.
- **Enter the authorization data:** by default admin without password and press "Accept".

- After connecting, go to the menu "Administration".
- In the upper left corner of "Administration" click on the name of the video server Devline Server (fig. 2.1).

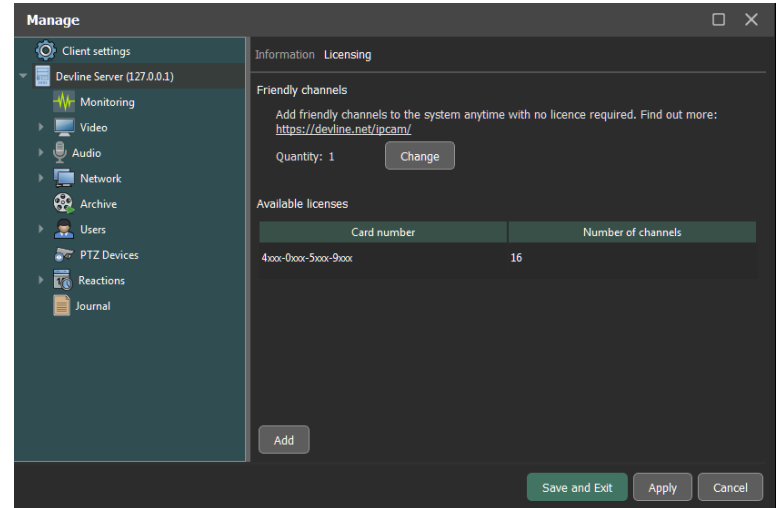


Figure 2.1 Activation menu

- **In the "Licensing" tab, click on the "Add" button** and enter the license code consisting of 16 digits. If you need multiple activations, use the button with the "+" sign. If you need to delete the added, but not yet activated codes, use the button with the "-" sign. In case of an activation error, make sure that the PC has Internet access. Activated licenses after clicking on the "Activate" button are deleted through the complete deletion of the license file with subsequent reactivation. The activation window warns about limiting the maximum allowable number of channels on the video server (fig. 2.2).

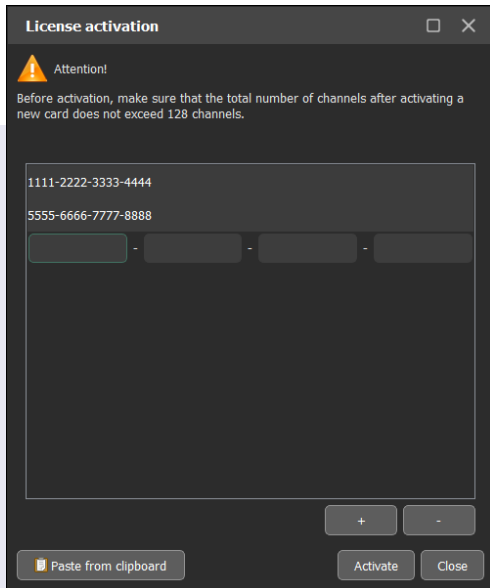


Figure 2.2
License activation

- Click on the "Save and Exit" button. Log in again "Manage", click on the name of the server, in the "Licensing" tab part of the activation code and the value of the license "IP Line" will be displayed (maybe 1, 4, 8, 16, 32, 64, 128 channels).
- The server is ready to be configured via the "Observer". By default, 1 user is created: admin (system administrator) without passwords. When connecting the cameras, the following will be used: the archive recording mode is cyclic to all available disks, all video channels are enabled, the sub stream is disabled, the recording setting for motion detection.

3 Observer



The "Observer" is designed for real-time monitoring, as well as for program administration.

At startup, the core of the video surveillance system "Line" is automatically launched as a system service and immediately starts working. That is, a running "Observer" is not required to capture video data, record and be able to connect to the server.

The program interface (fig. 3.1) contains a working area divided into video windows and a control panel located on top.

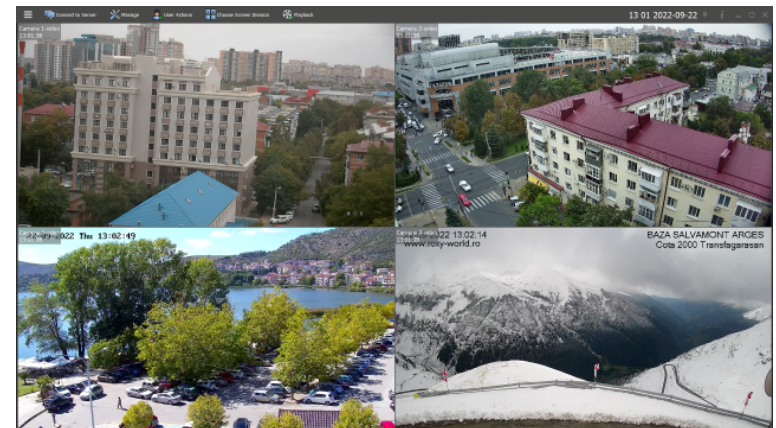
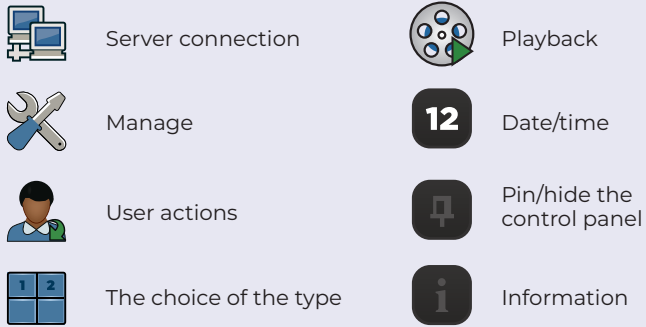
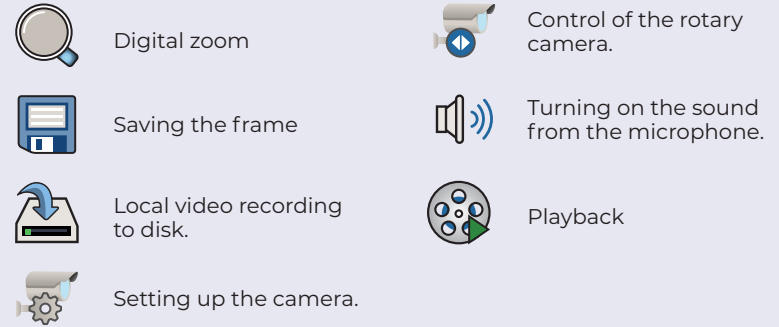


Figure 3.1. Observer

The control panel contains the following active elements:



The following panel functions are available to a user with full rights:



3.1 / Quick Access Toolbar

For quick access to the main functions of the selected camera, use the special panel (fig. 3.2), which appears when you select any working camera in the multi-screen division with the left mouse button click. The availability of a particular function depends on the level of user rights.

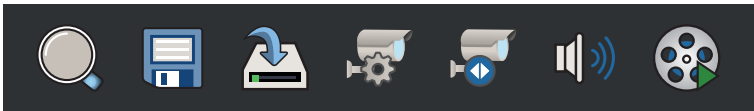


Figure 3.2. Quick Access Toolbar

The ability to configure the camera depends on the level of integration and is not available for all models.

To control a PTZ camera (controlled, rotary), you must first add it to the PTZ devices (see 4.7).

Turning on the sound from the microphone is available only for one selected camera in the multi-screen division.

3.2 / Right mouse button click

Click the right mouse button on the camera window opens the camera destination menu, displaying the first or second stream, adding an event (a text label to the archive), information about the camera and going to "Administration". The presence or absence of any item depends on the rights of the user rights, connected to the server.

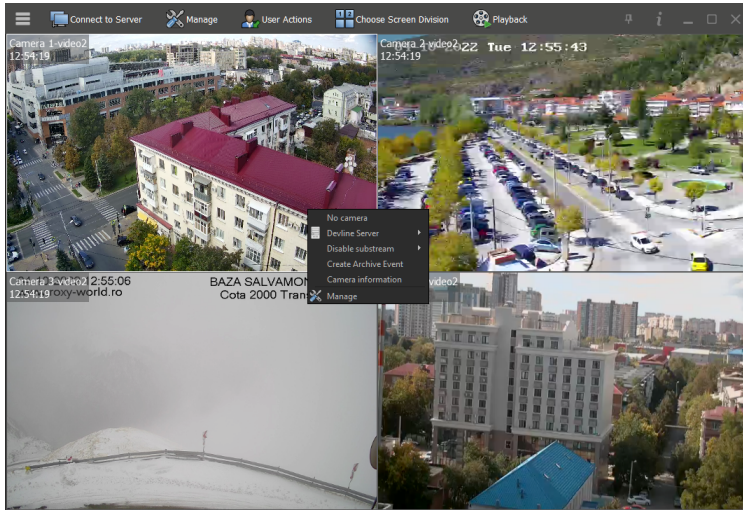


Figure 3.3. Right mouse button click menu

3.3 / User Actions

The User Actions window (fig. 3.4) is designed for local video recording to disk, changing the user and ending the session with the Observer application.

The **"Change user"** position is used to switch between the program users. The **"End session"** position hides the multi-screen division and displays the authorization window until the correct user data is entered. To assign a user to be downloaded by default, enter a name and password, then check the **"Remember password"** box and click **"Accept"** (fig. 3.5).

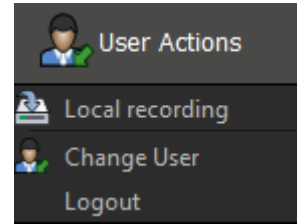


Figure 3.4. User actions

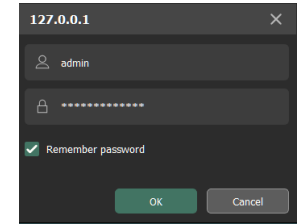


Figure 3.5. Authorization window

3.4 / Connecting to servers

The "Connect to servers" menu allows you to go to the **"Network Connections"** window, where you can find available servers, recorders and cameras based on the "Line" software, connect to them using a local network or the Internet (fig. 3.6).

To automatically search for devices in the local network, use the **"Auto-Search"** button. All available found devices will be added to the list. In the right panel of the advanced settings window, you can change or view the connection parameters of the selected device.

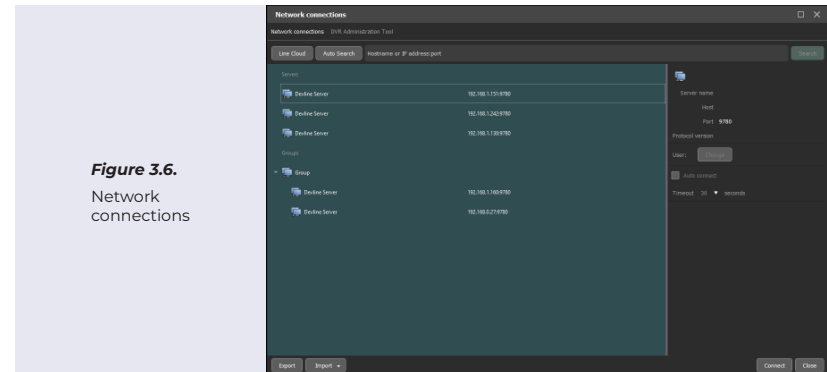


Figure 3.6. Network connections

To find the server manually, enter the IP address and port (if it differs from the standard one), then click "Find".

By right mouse button click, you can open the context menu with additional options for connection management or displaying a list of servers (fig. 3.7).

Attention! If you need to organize a video server on a local computer where the "Observer" is running, you need to connect to the localhost:9780 server or a server with an IP address corresponding to the settings of the server's network card. After connecting to the local server, click "Administration" and activate the "Line IP" licenses according to step 2 of the instruction.

The system allows you to combine several servers into groups. When creating a group, it becomes possible to work with multiple servers as with one. To create a group, select the necessary servers and combine them by right mouse button click and select the appropriate item. Then enter the name of the group.

To automatically connect to a server or group when the program starts, right mouse button click when the cursor hovers over the selected server or group and select **"Auto-connect"**.

The "Line Cloud" button allows you to connect an account of this service with all available servers. To automatically connect to the servers, the login and password for each must be registered in the WEB interface of the service, or it is necessary to fill in the corresponding lines additionally in the program interface.

The **"Export"** and **"Import"** buttons allow you to upload and download a list of servers both locally and to other client locations.

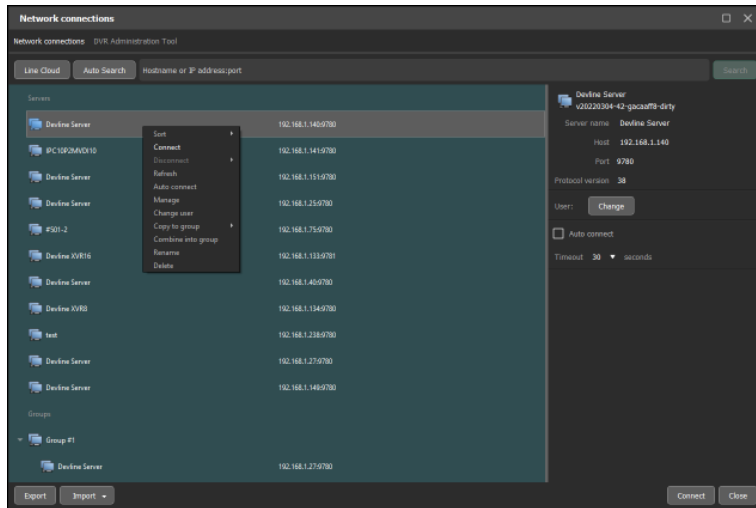


Figure 3.7. Server menu

3.4.1 / Admintool

The Admintool tab allows you to find recorders and cameras based on the "Line" software in the same local network with the program running. The search is carried out by the MAC addresses of network cards and can find devices outside the network setup rank of the PC on which the "Observer" is running.

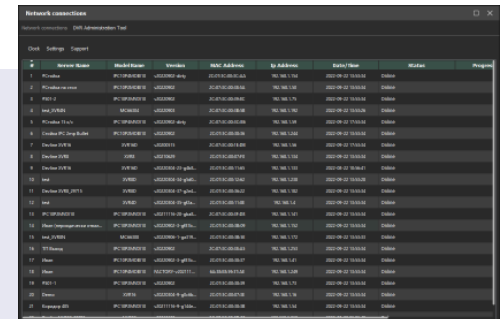


Figure 3.8. Admintool menu

Attention! To be able to manage and interact with the found devices, it is necessary that the network settings of the client location and the found device are in the same TCP/IP LAN segment.

By selecting the necessary position of the found equipment, you can:

- **The "Clock" menu:** Set the time zone, synchronize the time with the PC, set the time manually.

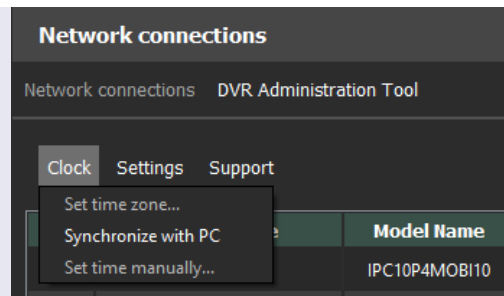


Figure 3.9.
The "Clock" menu

- **Settings menu:** Change network settings, select a mode (for MicroNVR), add to network connections or connect, and save or restore settings.

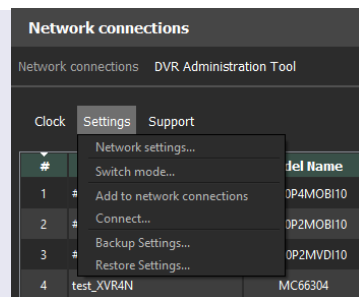


Figure 3.10.
Settings menu

- **"Support" menu:** Format HDD (the process starts after additional selection and confirmation of actions), reset to factory settings, update firmware, collect system information, copy the MAC address to the clipboard (necessary to reset user passwords).

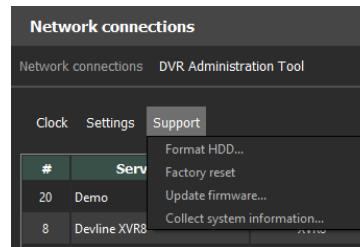


Figure 3.11.
"Support" menu

All selected menu items are available by right mouse button click on the desired line with the device.

The process of performing part of the functionality is shown graphically in the "Progress" column.

3.5 / View Selection

The "View Selection" window displays all created views available to the active user (fig. 3.12). Green check mark indicates default screen division.

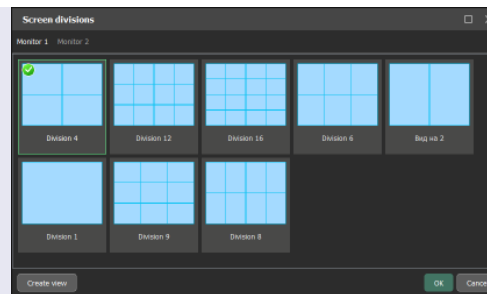


Figure 3.12.
View Selection

4 Manage

The "Manage" window provides access to all settings of both local and remote devices, and also includes the client settings of the "Observer" (fig. 4.1).

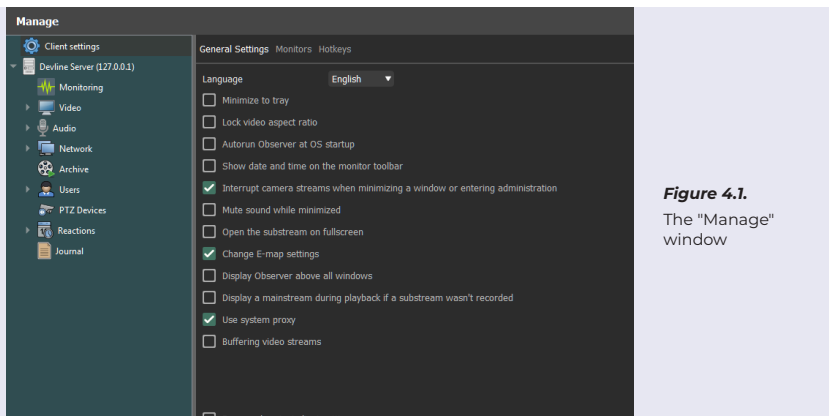


Figure 4.1.
The "Manage" window

4.1 / Client Settings

They allow you to configure the **"Observer"** of the "Line" and include general settings for the operation and launch of the program, connecting to the network, using multiple monitors and camera display modes, as well as setting up hot keys.

4.1.1 / General Settings

Depending on the platform of the client part, the following functionality can be used:

- The ability to change the interface language.
- Place an "Observer" in the tray when collapsing.
- Keep the aspect ratio of the frame.
- Automatically start when the OS starts.
- Show the date and time on the toolbar.
- Interrupt camera streams when minimizing a window or entering "Administration".
- Disable audio playback when minimizing the main window.
- Open the sub stream in full screen.
- Change the monitor's E-map settings.
- Display the program interface on top of all windows.
- Display the main stream in the archive if there is no sub stream.
- Use a system proxy.
- Enable the ability to call the virtual keyboard.
- Hide the view scrolling arrows.
- Disable screen timeout.
- Protect client settings with a password.

4.1.2 / Monitors

The "Monitors" tab is used to configure the output of the "Observer" to several monitors (fig. 4.2).

Monitor functions:

"Disabled" – the monitor is not used.

"Surveillance" – displaying cameras with a preset view for the user.

"Full screen" – when the camera is opened to full screen (double click), the video is displayed on the monitor with this function in full frame.

"Alarm" – use the monitor to output video on the reaction of the action "display on the alarm monitor".

"Cyclic" – use as a monitor with a cyclic change of cameras and views.

"E-map" – use as an electronic map of the object.

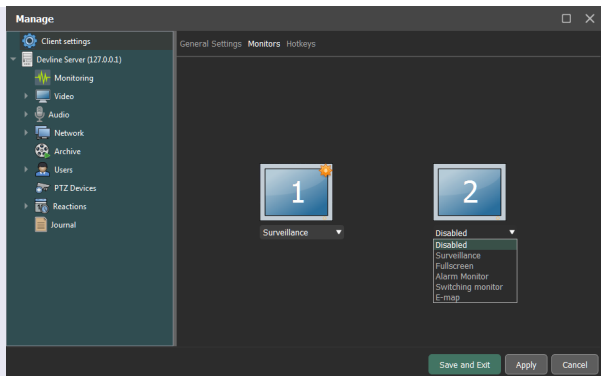


Figure 4.2. Monitors

4.1.3 / Hotkeys

This tab allows you to customize the hotkeys to the functionality "Line" (Fig. 4.3).

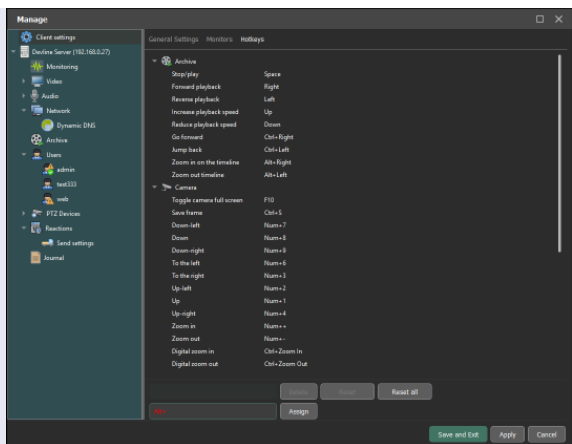


Figure 4.3. Hotkeys

4.2 / Device Administration

To proceed to the setup, double-click on the device name on the left side of the "Administration" window (fig. 4.4).

Using this list, the parameters of each device are configured both for individual and group connection.

The settings are divided into the following sections:

Device name – displays information on the connected device, as well as utilities and the "Licensing" tab.

"Monitoring" – displays the status of the server and cameras, connected clients, archive.

"Video" – general settings of video cameras, setting up analytics, motion detection and information display.

"Audio" – audio channel playback and recording settings, as well as information display.

"Network" – server network settings, IP address filter, Dynamic DNS.

"Archive" – video archive storage and recording settings.

"Users" – create, edit, delete users.

"PTZ devices" – settings of rotary cameras, creation of presets and detours.

"Reactions" – settings of server reactions to events, settings for sending notifications.

"Log" – tracking user activity and internal events.

The server settings presented in each section of the right side of the Administration window apply only to the server SELECTED in the list on the left.

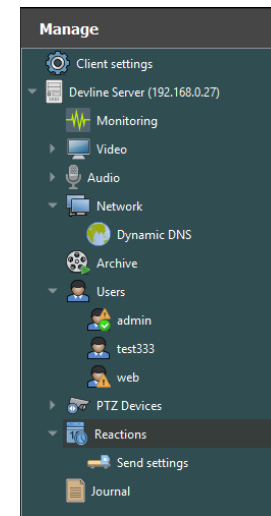


Figure 4.4. Administration

4.2.1 / Device name

By clicking on the device name, the user gets access to the tabs:

Information – displaying information of the connected server.

Utilities – available only for DVRs, has the functionality of the Admintool module. (fig. 4.5).

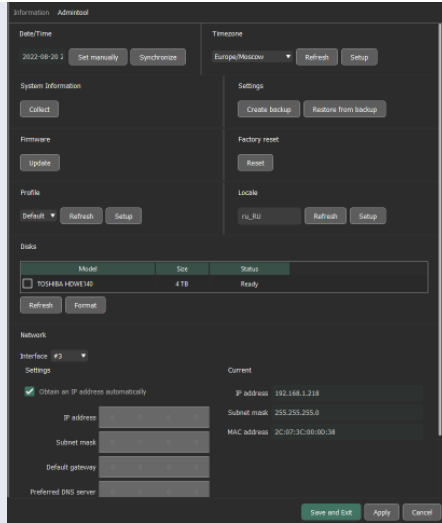


Figure 4.5.
Utilities tab

Licensing – available only for video servers, displays the license number "Line IP" and the number of activated channels, allows you to activate or add licenses to the server.

4.2.2 / Monitoring

In the "Monitoring" section, the "Media" tab displays the server time, startup time and operating time, as well as technical data on streams for each channel separately and in total. (Fig. 4.6).

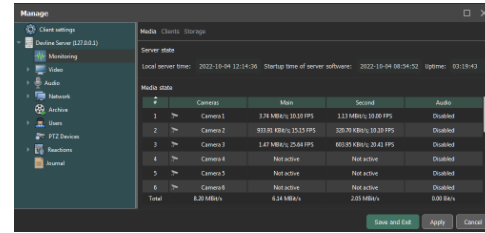


Figure 4.6.
Monitoring

The "Clients" tab displays a list of clients connected at the time of viewing the information, their IP address and connection time (fig. 4.7).

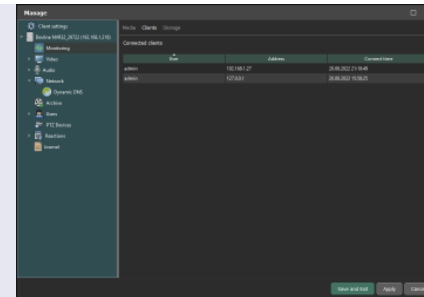


Figure 4.7.
Clients

The Storage tab displays the recording path to the archive, free space for recording and technical data about the recording (fig. 4.8).

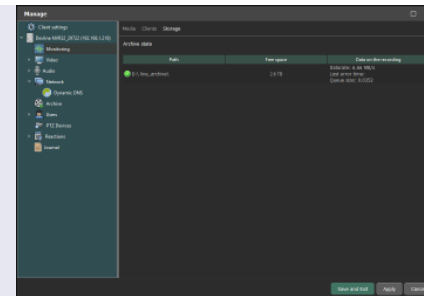


Figure 4.8.
Storage

4.2.3 / Video

This section of settings displays all channels of the device, settings of connected cameras, allows you to configure them, and also gives you the opportunity to add IP cameras by IP addresses, ranges or from found ones.

To configure the desired channel in detail, select it in the list under **"Video"** and go to the right side of the "Administration" window. This part has three tabs: **"General Settings"**, **"Analytics"** and **"Information"**.

4.2.3.1 / General settings

The **"General Settings" window** allows you to individually configure the parameters of each camera (fig. 4.9).

Depending on the camera and its inertia, the following functionality is available:

- enabling/disabling the camera;
- replacing the IP channel with analog and vice versa in hybrid recorders;
- configuring the connection and opening of the camera's WEB interface in the browser (for IP channels);
- video capture rate (fps) from the camera;
- the quality of the recorded video archive;
- compression method;
- recording mode: "Constantly" — all frames are recorded, recording "By detection" — frames are recorded when the motion detector is triggered, "Not conducted" — recording to the archive is not performed;
- chromaticity, brightness, contrast of the camera;
- change the camera name;
- enabling and disabling the second stream.

By right mouse button click on the preview of the main stream, you can open the context menu, which allows you to configure the display / change of information in a cell of a specific camera. You can output the name, date/time, and stream number.

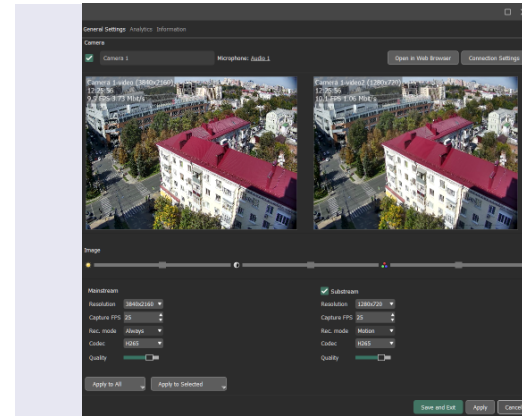


Figure 4.9.
General settings

"Font" allows you to change the color and font size, **"Contouring"** allows you to change the color and thickness of the contouring, as well as display the size of the detection object as a percentage,

"Icons" allow you to display icons of digital magnification, recording, motion detection and the presence of sound in the cell.

The "Apply to All" function allows you to apply the current or changed settings of this channel to all cameras. The **"Apply changes for All"** function allows you to apply only the changed settings of this channel to all cameras.

The "Apply to Selected" function allows you to select cameras for which settings should be applied by analogy with the current configurable channel. **The "Apply changes to Selected" function** allows you to select cameras for which only the changes made on the current configurable channel should be applied.

To connect an IP camera (only for hybrid systems) to the Line server, click **"Change to IP"** and enter the address and port of the camera in the window that opens. These settings will be available in the Connection Settings window. To return to receiving video from analog cameras, click **"Change to analog"**.

4.2.3.2 / Sub stream

To activate the dual-threading function, you need to select a camera and tick **"Substream"** in the camera settings window (fig. 4.10). Next, click the **"Connection Settings"** button.

Select from the menu items the desired type of receiving the sub stream. This can be an automatic link acquisition (for integrated IP cameras), an RTSP link to the sub stream (for non-integrated IP cameras).

The sub stream, when activated, is automatically included in the display. If this did not happen, then right mouse button click on the general grid of the view in the window of the configurable camera and select the menu item **"Enable substream"**.

4.2.3.3 / Analytics

The Analytics tab contains analytical modules and their settings.

"Motion Detector" allows you to configure the detection zones for the selected camera, the size of the detection object, the degree of entry, the duration of motion fixation, enabling/disabling the "Contouring" function, as well as the time of pre-recording and post-recording. The "Video Analytics" block activates or deactivates the recording of analytics in the archive database for subsequent search in the data archive (fig. 4.11).

By default, motion detection is performed across the entire working area of the camera. In order to assign your own zones, you can delete a shared zone or add a new one by clicking on + or - accordingly. In the upper right corner there are tools for drawing detection zones.

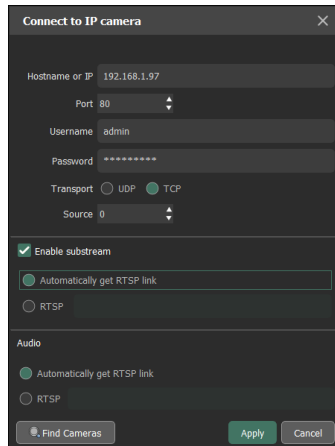


Figure 4.10. Sub stream

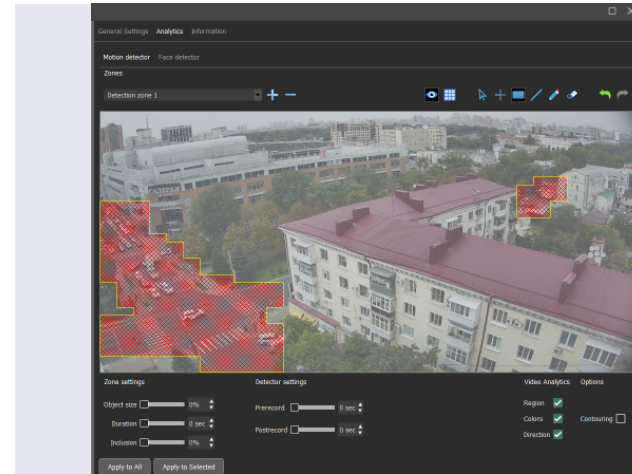


Figure 4.11. Motion detector

The drawing itself is carried out by holding down the left mouse button click and dragging the mouse cursor over the intended detection zone. The detection zone can be deleted or moved, and a name can be set. Each detection zone has independent settings: object size, duration, degree of occurrence.

The **"Contouring"** function allows you to visualize the detected detection in the frame, highlighting the moving object with green contouring.

Setting the degree of entry into the zone allows you to set the percentage of fixing the entry of a moving object into the detection zone (example):

- 0** — the object must touch the detection zone.
- 50** — the object must enter the detection zone by at least half in order for the motion detector to work.
- 75** — the object must enter the zone by at least 75% of its size.
- 100** — the object must fully enter the detection zone for the motion detector to be triggered.

The settings of the **"Duration"** parameter allow you to set the time during which the object must be mobile in the selected zone in order for motion detection to work.

To set the pre-record and/or post-record time, move the corresponding slider to the desired value (measured in seconds).

"Face Detector" allows you to record and archive all detections of people's faces falling into the frame. This setup menu allows you to activate/deactivate the functionality, adjust the sensitivity of the trigger and, through the "Contouring" option, see face detection in real time. Setting the slider "Face size" shows the average of the estimated size of the face in the frame. Activation of this functionality allows you to search the archive for face detection data in the selected zone.

4.2.3.4 / Information

This tab displays general information about the connected camera: protocol, camera model, firmware version, involved streams and RTSP links for integrated cameras (fig. 4.12).

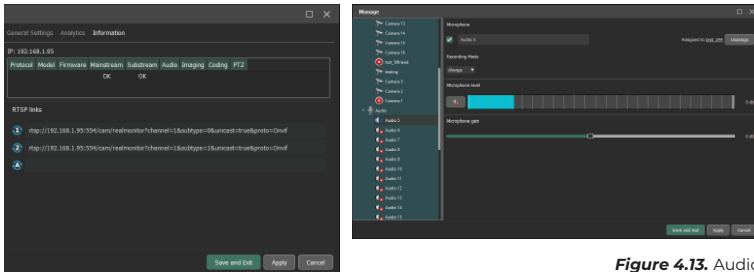


Figure 4.12. Information

Figure 4.13. Audio

4.3 / Audio

This section allows you to display a general list of audio channels linked to video channels. To set up a microphone, select it in the list.

In order to bind the microphone to the video camera, you need to click on the underlined part of the line **"Bindings to the camera Select camera"** and select the desired camera. In order for the microphone to be recorded only after exceeding the set decibel level, you need to set the recording mode **"By level"** and adjust the scale **"Microphone signal level"**. If you need to amplify or attenuate the sound from the microphone, you need to set the **"Microphone Amplification"** scale to the appropriate position (fig. 4.13).

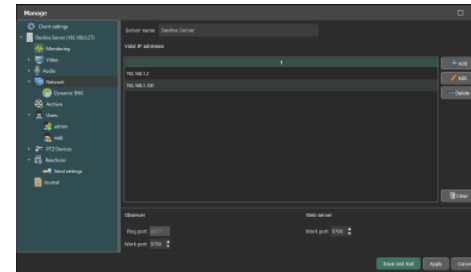


Figure 4.14. Network

4.4 / Network

The "Network" section allows you to change the network settings of the observer, the web server, the IP address filter and uses the Dynamic DNS service (fig. 4.14).

In order to allow connecting to the server only from certain IP addresses, enter a trusted IP address in the lower field **"IP Address Filter"** and click **"Add"**.

Attention! After adding the first address, the IP address filter turns on and blocks all connections that are not included in its list.

4.4.1 / Dynamic DNS

In order to use the Dynamic DNS service, you need to expand the "Network" section and select "Dynamic DNS". Next, you need to enable the use of the service by checking **"Enable Dynamic DNS"**, enter a valid email address, the desired domain name and click "Register" (fig. 4.15).

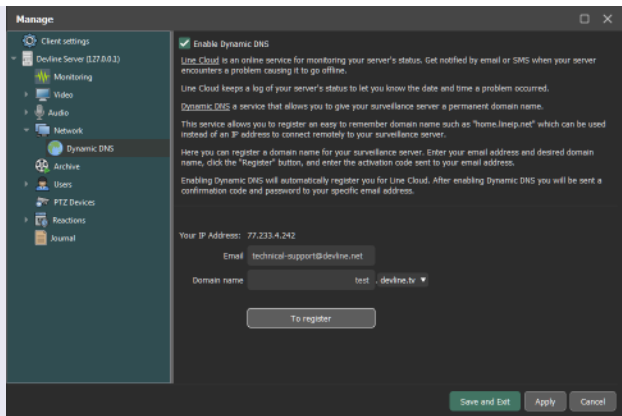


Figure 4.15
Registration in the
DynDNS service

4.5 / Archive

In the "Archive" section, the settings for recording the program archive are specified (fig. 4.16).

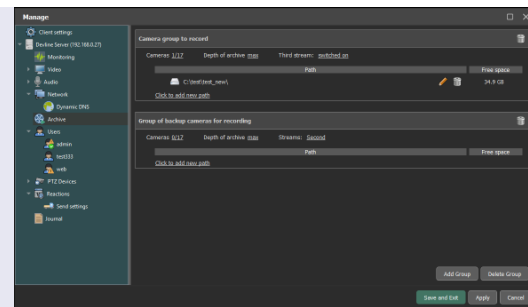


Figure 4.16.
Archive

Next, a confirmation code will be sent to the specified mailbox, which must be entered to complete registration.

After entering the code, you need to click the **"Confirm"** button.

This completes the process of enabling the Dynamic DNS service and registering a domain name.

To connect to a remote server using a previously registered domain name, open "Connect to servers" on the client computer, then enter the name in the "Server Address" field and click "Find".

The desired server will appear in the list of available connections. To connect, double-click the left mouse button click on the name of this server and log in.

This service allows you to automatically activate the TURN — connection service to the "Line" server, which does not have a real (white) IP address, or is not configured for the availability of ports for connection.

To connect to the server without using the TURN service, you need to configure the availability of the server on ports 9780 and 9786. You can change the default network ports in the "Network" tab (p. 4.4. instructions).

By default:

Windows uses all additional local media found in the system, except the system disk. Writing to the system disk is not recommended and is possible by default only if there are no additional disks.

on Linux, the default path to the directory is /var/opt/line/archive.

To add a new video archive storage location, specify a folder on a local or network drive.

To distribute the recording of cameras or groups of cameras to different media, you need to add the required number of camera groups by clicking on the "Add" button and select the "Main group". The same record source cannot be assigned to different main groups. By selecting the "Duplicate group", you can simultaneously record the same events in different directories for subsequent viewing in case of failure of the disk from the main group.

By selecting the "Duplicate group", you can simultaneously record the same events in different directories for subsequent viewing in case of failure of the disk from the main group.

To assign the recording of cameras to a specific group, you need to hover the mouse pointer over the digital indicators of the number of cameras in the groups and click the left mouse button. In the "Select cameras" window that opens, select the desired cameras for this group (fig. 4.17).

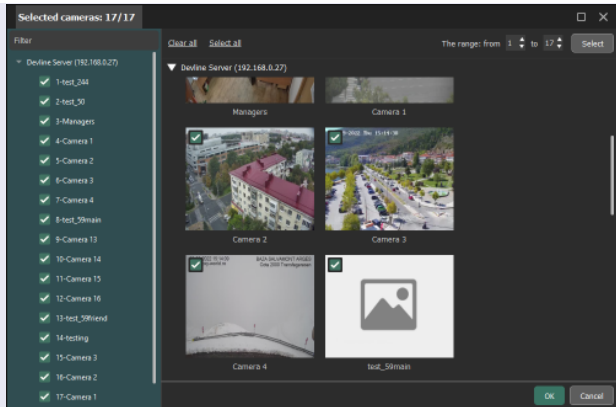


Figure 4.17.
Assigning camera:
to a group

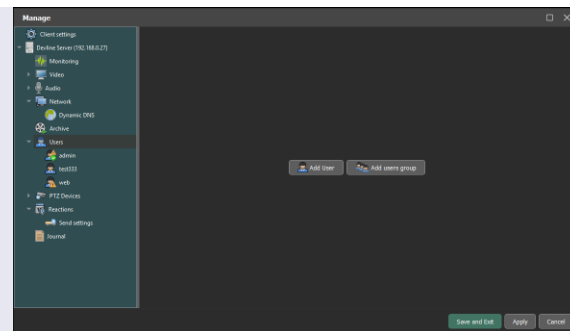


Figure 4.18.
Adding a new
user or group

To rename a group, double-click on the name. To delete a group, click on the trash icon next to the group name, or after selecting the group, click on the "Delete" button in the lower right corner of the window. To assign a record path, click on the "Add path" line in the block of the corresponding group. To delete the recording path of a group, click on the trash icon next to the recording path.

The program uses a cyclic video recording mode: as soon as the disk space runs out, the program will start writing new data on top of the earliest ones. Data is deleted daily. If several folders are selected for storing the video archive, then they will be filled in turn.

4.6 / Users

The "Users" section allows you to create, delete, rename users or groups of users, as well as configure the level of access to the server, devices and functions of the client part.

To add a new user/group, select the **"Users"** tab and click on the corresponding button in the right part (fig. 4.18).

By default, an admin user is created without a password.

You cannot change the level of rights of this user, move to any group, or delete the admin user.

You can rename and set a password.

The added new channels "Line IP" are initially available only for this user, by logging in to which you need to distribute access to the necessary users to groups.

Important! When setting a password and then losing it, it is possible to restore full access to server administration only after completely deleting all passwords of all users through contacting the manufacturer's technical support.

The "General Settings" allow you to enable/disable a user/group, set the group name or change the user name and password, as well as leave a comment in the "Description" field.

"Access" allows you to configure the access time to the server by interval, by days of the week, before the onset of a certain time. By default, the setting has no access time limits (fig. 4.19).

"Devices" delimits the ability to view the camera, listen to audio or control the PTZ camera for a specific user/group. To restrict the access of a user/group of users to the cameras or microphones being viewed, as well as PTZ cameras, uncheck those that should not be available (fig. 4.20).

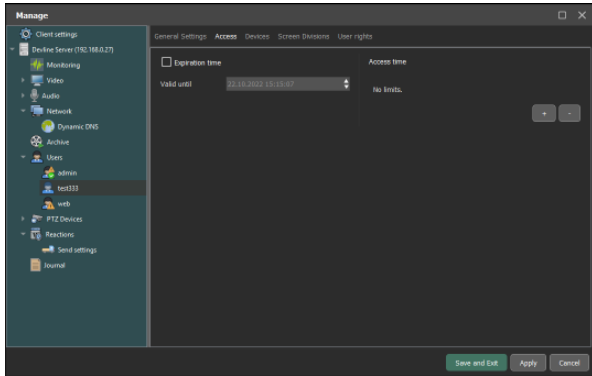


Figure 4.19.
Access

"Views" displays sets of camera locations on monitors created for a specific user or group of users. You can select the available views for multiple monitors using the appropriate tabs. In order to assign the selected view to be loaded by default, right mouse button click on it and select "Default". To create, delete, edit views, you can use either clicking the corresponding icon at the bottom of the tab or right mouse button click on the desired view and then selecting the desired function.

When creating a view in the **"View Editor"** window that opens, consistently draw the required number of displayed cameras. Drawing is done by holding down the left mouse button click and dragging the cursor from one corner to another of the intended window. Or use the automatic view creation function by clicking on the **"Table"** button and specifying the number of rows and columns (fig. 4.21).

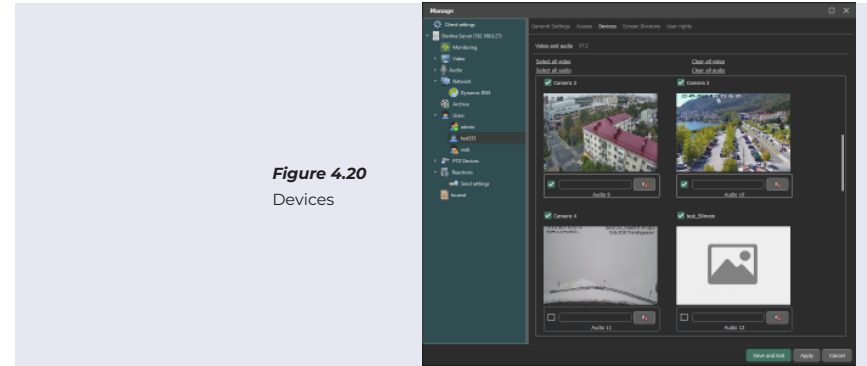


Figure 4.20
Devices

The "rights" to the functionality are divided into "server operations", the availability of which is the responsibility of the system core, and "client operations", the availability of which is visible in the client part of the program. If server operations are available/not available, then client operations are enabled/disabled by default, but if server operations are available, you can additionally disable client operations (fig. 4.22).

When users are added to a group, they inherit all the group settings by default. At the same time, it is possible for each user to select individual settings for all functions, different from the settings of the group in which the user is located.

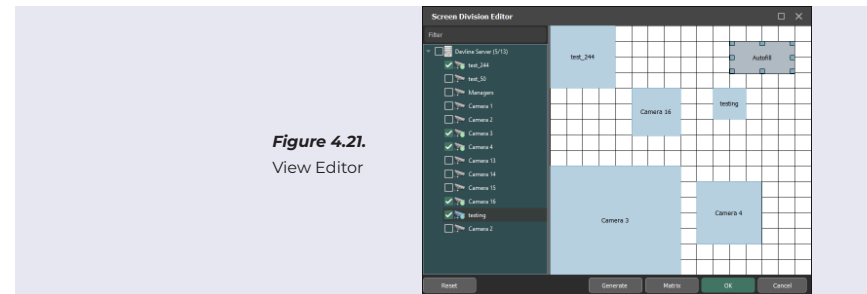


Figure 4.21.
View Editor

4.7 / PTZ devices

To add rotary cameras in the "PTZ devices" section, click the **"Add PTZ device"** button.

To control an IP camera, it must be integrated with the Line software. The degree of control capability depends on the level of integration.

To add an analog PTZ device, check the box **"Use COM port"**. Then set the device parameters. In the "General Settings" tab, specify the interface converter port, data exchange rate, control protocol and camera address. To control the camera, use the graphical joystick menu. To remember the preset, point the camera at the desired area, select an empty preset cell and click "Save". To rename a preset, right mouse button click on it and select the appropriate menu item. (fig. 4.23). In the **"Patrols"** tab, automatic patrol routes can be formed from presets (fig. 4.24).

The bypass route is a set of presets of the rotary camera, along which the camera navigates according to the list.

To create a camera route, click on the "+" icon and select the first preset in the window that appears. Then set the time during which the camera will be in this position (including the time taken by the camera to switch to the preset). Repeat adding presets until the bypass route is completed.

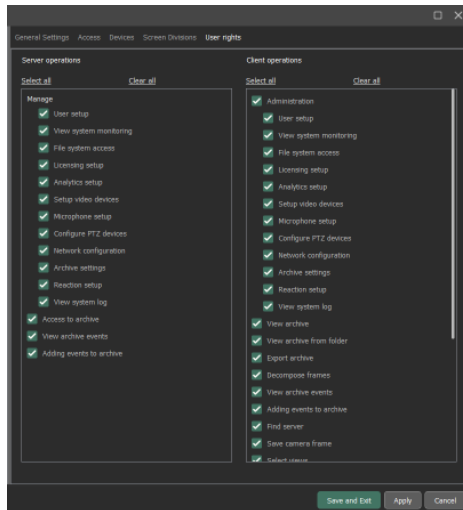


Figure 4.22. Rights

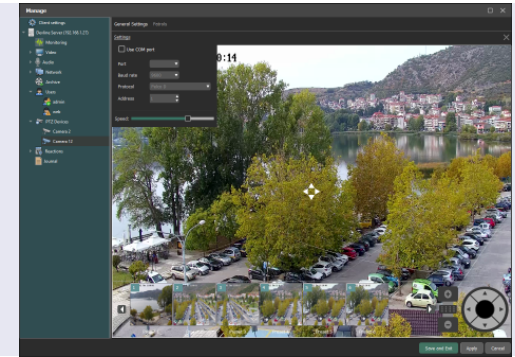


Figure 4.23.
PTZ device settings

To delete a preset, click on the corresponding buttons next to the name of the patrol.

To add a patrol, click the "Create New Patrol" button at the bottom of the window.

To start a crawl, you need to create a "Rounds" reaction.

4.8 / Reactions

In this section, you can configure actions in detail and the time interval in which the program will take them (fig. 4.25).

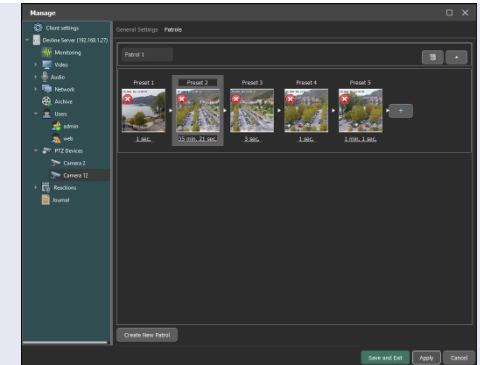


Figure 4.24.
Detour patrols

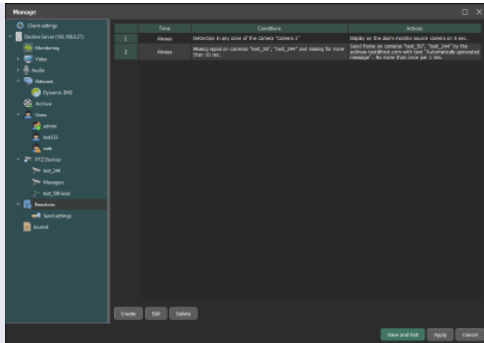


Figure 4.25
Reactions

All created reactions are presented as a list. By default, this list is empty. To adjust the reaction, click on the "+" icon. The window "Creating a reaction" opens (fig. 4.26).

"Time" — select the days of the week and the time interval during which the program will monitor compliance with the following conditions and take the following actions.

"Conditions" — select the type of event to which the program should respond:



Figure 4.26
Creating a reaction

Motion detection	The condition of triggering is detection of movement in the specified area of the specified camera.
No movement	The condition of triggering is the absence of movement in the specified zone of the specified camera or camera within the selected time.
Lost signal	The condition of triggering is absence of a signal on the channel.
Resumption of signal	The condition of triggering is the restoration of the signal to the camera with stable reception of video frames within N-seconds, after the absence within at least N - seconds.
Microphone level	The condition of triggering is to exceed tge sound level from the recorded microphones.
Error writing archive	The condition of triggering is a failed attempt to write the archive to the specified place.
External event	The condition of triggering is an event originating from an external source, through an HTTP - request.

"Actions" — select the type of action for the event.

To send SMS	To send SMS with the specified text to the specified number.
To save frame to FTP	With certain camera, saves the frame with the specified quality to the selected FTP server.
To send e-mail	Send video from selected cameras to specified e-mail with the automatically generated message or customized message.
Sound alert	Plays the selected audio file for the set time interval.
Alarm monitor	Displays tha camera on the alarm monitor- source.
Run external program	Allows to run any PC-only executable file.
To send HTTP request	Allows you to send HTTP request.
Camera preset	Loads the specified preset.
Rounds	Activates specified patrol.
Send commands to clients	Sends the command to "minimize, maximize, restore the window" to the clients places
Change camera settings	Changes camera settings, brightness, contrast, color, on/off camera, recording mode.
Change the microphone settings	Changes microphone setting: on/ off, recording mode.

For each action, you can set the trigger interval during which the action will be performed once.

If the program does not have enough data entered for a reaction, the requested data will be marked in red. The response function will not turn on until this data is entered!

4.8.1 / Sending Settings

In this tab, the parameters for sending SMS messages and emails by the server to e-mail, as well as the parameters of the FTP server are configured.

The option "Use Line Cloud for sending" allows you to automatically configure sending via the Line Cloud account (fig. 4.27). The Line Cloud account is automatically generated when registering a domain name to the E-mail address specified during DynDNS registration (see paragraph 4.4.1). For additional configuration, you need to visit the WEB resource: <https://devline.tv/>.

FTP — FTP tab in "Line Cloud";

SMTP — the E-mail address specified in the "Monitoring" tab;

SMS — the number specified in the "Monitoring" tab.

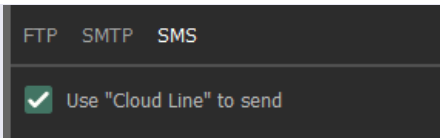


Figure 4.27
Sending Settings

To configure your own sending servers, uncheck the option "Use Line Cloud" and fill in the data in the appropriate tab.

FTP — enter the name and port of the FTP server in this window, then specify the name and password for authorization (fig. 4.28).

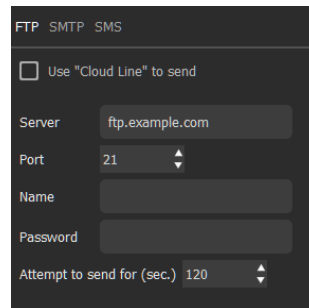


Figure 4.28. FTP

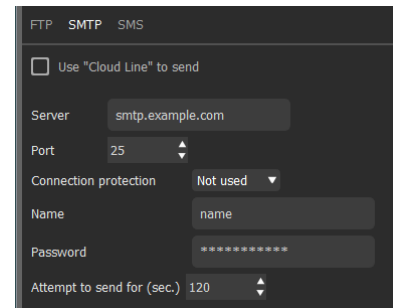


Figure 4.29. SMTP

To configure mail sending, enter the IP address and port of the mail server in the SMTP tab, then select the connection type, enter the name and password of the email mailbox (fig. 4.29).

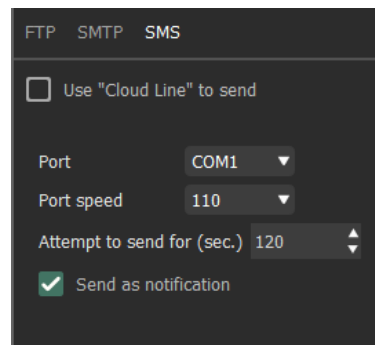


Figure 4.30
SMS

To send SMS you need a connected modem with SIM card.

Enter the port of the connected device and its speed.

To send a message as a notification, set the appropriate tick.

For each of the above sending settings, you can specify the time during which the program will attempt to execute the request.

4.9 / The log

This section allows you to track user actions and internal server events (fig. 4.31).

Filtering is carried out by time, by message level and text queries.

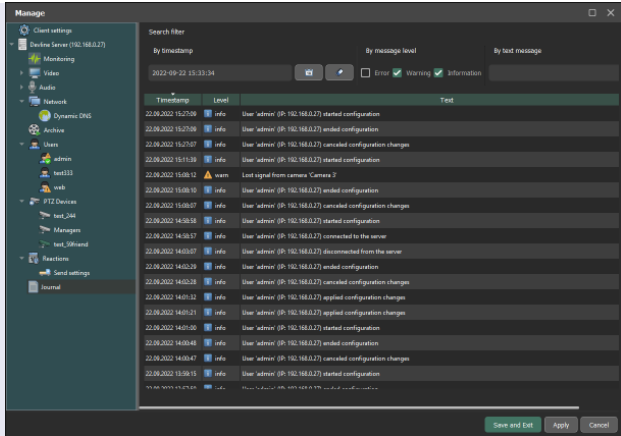


Figure 4.31
Journal

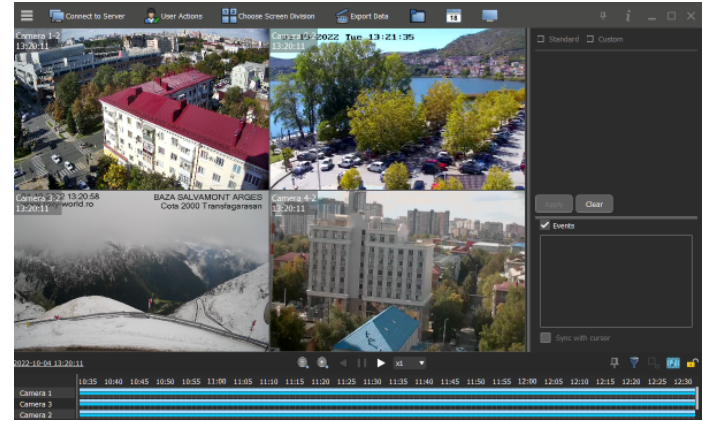


Figure 5.1. Play back

5 Play back

"Play back" is intended for viewing previously recorded video, audio data from local or remote servers, as well as exporting fragments of the recording to a public format. After launching, the Archive will automatically download all the video data stored on the connected server, after which it will offer to select a viewing date.

The Archive window is divided into a video display workspace and a control panel (fig. 5.1).

Play back consists of items:



"Connecting to servers": connecting to other servers.



"Export": export archive to an accessible video/audio format.



"Manage": administration of system.



"Archive from folder": playing archive from specified folder.



"User actions": the ability to change the current user or end the connection session.



"Calendar" select date for playback.



"Select screen division".

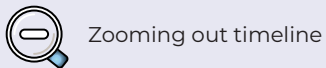


"Surveillance": switch to surveillance.

At the bottom of the "Archive" there are quick search bars (timeline), where dark blue marks the current live stream, light blue shows the recording of another stream, and dark blue shows the audio. If all three streams are recorded, they are arranged from top to bottom on each camera in the following order: main stream, sub stream, audio stream. To move through the Quick Search bar, hold down the left mouse button click and move the cursor in the desired direction; when you release the mouse button, there will be a brief automatic scrolling in the specified direction. To scale the time value, use the mouse wheel or the magnifying glass icons with "plus" and "minus".

To select the displayed video stream, right mouse button click on the desired camera and select enable item, " switch on main stream or sub stream ", depending on current setting.

At the bottom of the "Archive" above the timeline there are buttons:



Zooming out timeline



Zooming in timeline



Playback backwards



Stop playback "Pause"



Playback forward



Select playback speed



Demonstrate/ hide filter panel- displaying filter panel of settings for analytics and events.



Priority stream - playback segments by priority of audio/video streams.



Synchronous playback mode — wait for video decompression to be received for all cameras with a short-term playback stop in case of waiting, or skip frames from cameras with a long frame load, but play without stopping.



Lock the cursor — either the cursor is locked in the center of the timeline, or moves along the timeline in the direction of playback export mode.

5.1 / Video export

This window is intended for exporting archive video fragments to a format accessible to a regular media player (fig. 5.2).

To export a video fragment, select the server and camera in the **"Video Source"** field, and then specify the time interval desired for export. You can unload one or more cameras from the list. Then select a codec from the suggested ones in the list and, if necessary, configure its parameters in the "OSD" line (available only for H.264/H.265).

The original is exported to an MP4 container by the codec that was used to record from the camera. Fast export without changes. To overlay date and time information, you can use "Subtitles".

H.264 — export is performed by recompressing the original video data with the H.264 codec into an MP4 container. Exports longer, but allows the application of OSD information on the video.

H.265 — export is performed by recompressing the original video data with the H.265 codec into an MP4 container. Exports longer, allows the application of OSD-information on video, compresses better, but is more demanding of resources when play back mode.

The **"Subtitles"** item allows you to add information to the video in the form of text subtitles, which can be turned on when playing the exported file in media players.

If necessary, you can correct the name of the exported file in the **"File Name template"** field.

The item **"Using event filter"** is available when using the analytics search, followed by exporting only events according to the setting of the video analytics filter.

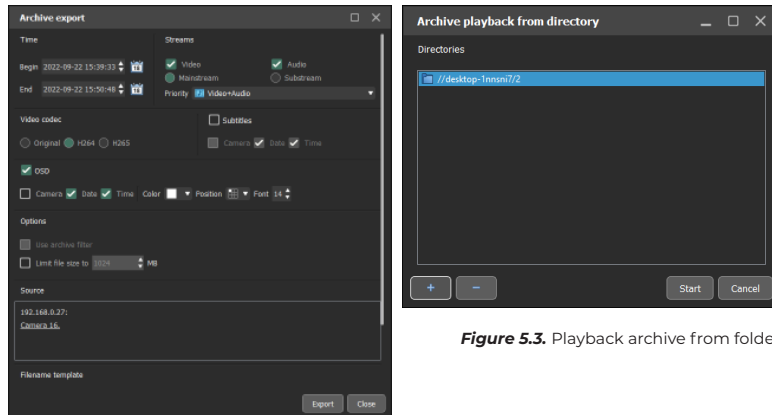


Figure 5.3. Playback archive from folder

Figure 5.2. Export archive

5.2 / Playback from folder

To play back archive, you can also use the **"Folder playback"** function (fig.5.3).

Click "Folder playback", then in the window that appears, click "+" and select the path from where you want to play the archive (specify the root directory with the archive), then click "Get started."

5.3 / Video analytics

The "Video Analytics" function is used to filter software archive recordings by detection, object size, color, direction of motion and face search. When searching, the frame is divided into 64 areas.

To search and filter events by analytics, it must initially be enabled on the desired channel in the **"Administration" — "Camera Channel" — "Analytics"** tab.

In the Archive View window, when you select the camera with the left mouse button click, the quick access panel will appear in the camera cell (fig. 5.4).

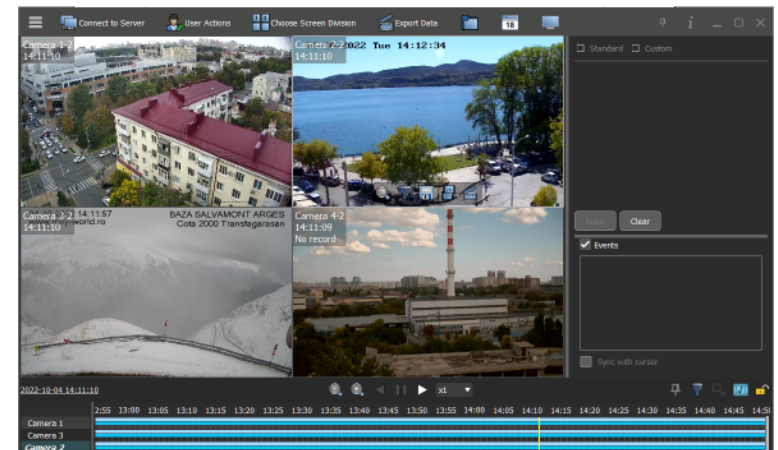


Figure 5.4. Camera toolbar



Click on the "Analytics" icon.

Then select the search by motion detection or face, and then by clicking on the pencil icon you can select the areas of interest in the frame. When searching by motion detection you can select additional filtering by color and direction of motion (fig.5.5).

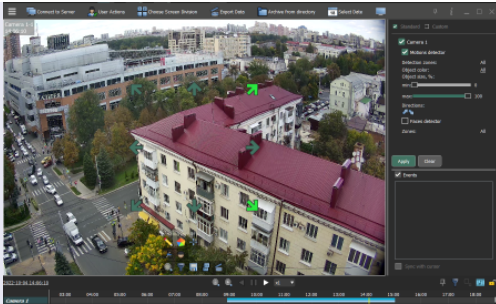


Figure 5.5.
Search by analytics

After selecting the necessary detectors in the right part of the window you can see the filter bar and the selected settings, as well as adjust the size of the moving object as a percentage of the frame size. After clicking on the "Accept" button, the data on the timeline and the visual display will match the preset search settings. The program plays only those fragments that fit the parameters you have set. If you want to reset the filter settings, click the "Clear" button.



If you want to hide the video filter panel, click on the analytics icon in the lower right corner of the timeline area.

In the filters panel, if you check the "Custom" checkbox, you can also track previously added text events by the archive. (fig.5.6).

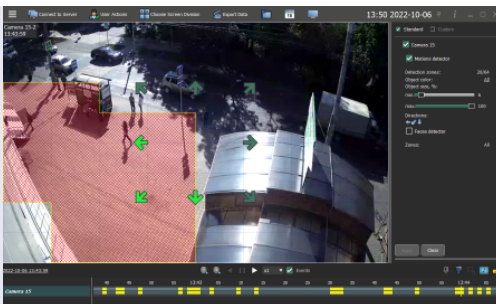


Figure 5.6.
Events

6 Mobile clients

Mobile client of "Line" MyVMS is designed for viewing cameras and administering servers via cell phones, tablets and other devices based on Android and iOS operating systems. To find and install the application, visit the appropriate operating system application store:



Google Play



App Store

Search

MyVMS



Attention: The mobile client is as close as possible to the functionality of the client part for PC, but because of the features of the operating system, device performance and the specific screens of mobile devices can display the menu items differently or not have all the functionality of the client version for PC.

After downloading and installing mobile client, tap two blue screen icons in the upper left corner to connect to the servers.

The connection is made in the same way as on PC, via auto search or by directly specifying the data to connect to devices. Default port 9780.

When the server appears in the list, tap the authorised user data. The default is admin without password. When entering data, be careful to observe the register of symbols.

To call up additional menu items for the desired server, tap its name and hold it until the selected server is highlighted and the bottom navigation menu is displayed.

If you want to use the management of multiple devices simultaneously, add the remaining servers by tapping with a delayed gesture before selecting each server, while in the lower left corner there will be a digital count of the allocated devices. To organize a multi-server connection after selecting 2+ devices, click "Other..." and select "Merge" in the context menu. To change the connection settings of the selected position, tap the right arrow opposite the desired line.

The Admintool tab allows you to find and configure the recorders based on the "Line" software only in the local network. Pay attention that polling and finding the devices is performed by MAC-address of the network card, but both devices (data logger and mobile client "Line") must be in the same network rank to be configured. It is necessary to check and configure the network addresses properly. To control a specific model you need to touch with a delayed gesture.

For navigation and control, in addition to the usual menus and buttons in the mobile clients of the program, the system buttons and navigation gestures of the operating system itself ("back", "undo", "minimize", "next/previous display") can be taken into account. For ease of navigation and playback, you can use the horizontal screen layout. If the "Auto Rotate" function is enabled in the operating system, the client part of the "Line" will be scaled accordingly.



After connecting to the server, you can enter "Administration". To bring up the menu items on the "Administration" sidebar, tap the button in the upper left corner.

After selecting the desired item, tap anywhere outside of the Administration sidebar or swipe to the left on the Administration panel.



To move to another Admin Item, repeat the swipe in the upper left corner of the button.

To exit the Administration menu and save your settings, tap the "Save and Exit" button in the lower right corner.

To cancel the settings and exit without changes, press the "Cancel" button in the lower right corner.

VMS mobile client has the ability to display cameras in the following views:

"Local screen division" — built-in views with no possibility to change.

"Server screen division" — the screen division is loaded and displayed, which is assigned on the server by default to the user under which we connect from the mobile client. User can create customized screen division with different located levels of the cameras.



Web-server

The web server is intended for viewing the cameras of the remote server through the Internet browser. Web server is installed automatically when installing the server part of the "Line".

To view images from the cameras via a web server, open a browser that supports the HTML5 standard and enter the ip-address and port of the server into the address bar.

The default port is 9786.

Example: <http://192.168.1.2:9786>.

IP address may be local (192.168.0.1), external (example.devline.net) or internal (127.0.0.1 or localhost). If the connection will occur correctly, the server will display the Cookies settings window, as well as client settings (fig. 7.1).

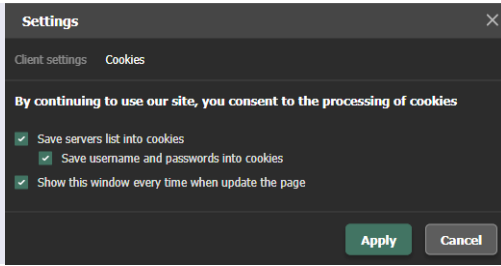


Figure 7.1
Cookies

After configuring and clicking on **"Accept"** the user authorization window will be displayed, in which you must enter the data from the user "Lines" on the server. By default admin without a password. After connecting, the interface of the client part will be displayed (fig. 7.2).

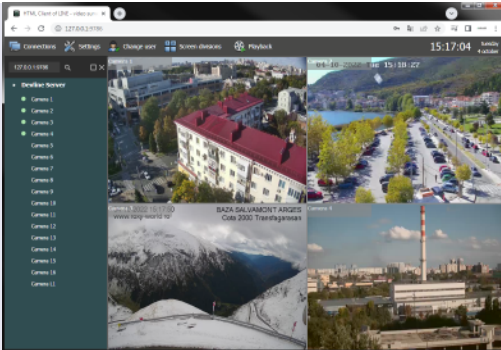


Figure 7.2
Interface of the client part of the WEB-server

The left side will display the name of the server and a list of available cameras (by level of access depending on the connected user). To hide this menu, you can click on the **"Connections"** button in the upper control panel. To display as a separate pop-up window, click on the square icon at the top of the list between the search bar and the close button. To display the former, you need to click the same buttons.

In the upper control panel you can access the client settings and Cookies, change the user and selection (fig. 7.3), as well as play back. Screen division selection, as well as for mobile clients, allows either displaying the built-in and immutable views, or the default screen division for the user under which you are connected. In the latter option, by assigning screen division to the user on the server, you can display exclusive screen divisions in the browser.

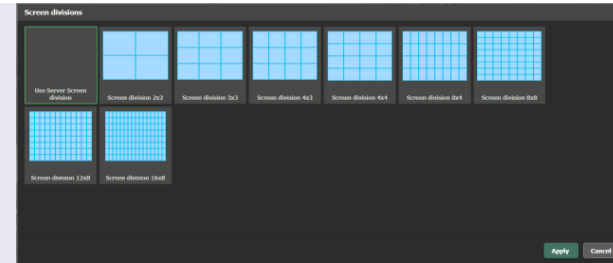


Figure 7.3
Select screen division

The set screen division will occupy most of the display. When you select any cell in the screen division, the control panel of a particular camera may be displayed where you can select sound playback mode or PTZ camera control by clicking on the corresponding icon. (fig. 7.4).

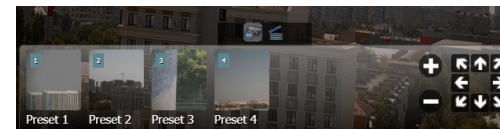


Figure 7.4
PTZ Camera Control

When you expand the camera to the full screen by double-clicking the mouse, the main (first) stream will be displayed, which will be indicated by the sign (M) in the upper right corner of the display. By clicking on the icon, you can switch the streams display to the secondary (second) sign (S) or the third (JPEG) sign (J), which is formed by the WEB-server. In the same state of the full screen camera display, it will be possible to export video from the archive by clicking on the archive export icon in the lower panel.

To play back, click on the **"Archive"** button in the upper control panel. To show the main stream or sub stream, it is recommended to open the selected camera to the full screen, where the stream data of the main or sub stream will be displayed depending on the presence in the recording: the main stream sign (M), the sub stream sign (S) in the upper right corner.

At the bottom of the "Archive" there is a quick search bar (timeline). To move through the quick search bar, hold down the left mouse button click and move the cursor in the desired direction. To zoom, use the mouse scroll. In the middle of the archive you can also find the Forward, Backward, Pause buttons and the speed regulator, where 1x is no acceleration and Max is the maximum possible playback speed.



To export an archive, select the camera in the archive viewer or expand the camera to full screen, after the bottom panel will the export button and becomes available.

In Export dialog (fig. 7.5) select necessary parameters: Beginning, duration (measured in seconds), type of data, number of stream and filename. After pressing the button "Export" browser saves data to default download folder. To have more features of export model, please use "Line" software for PC.

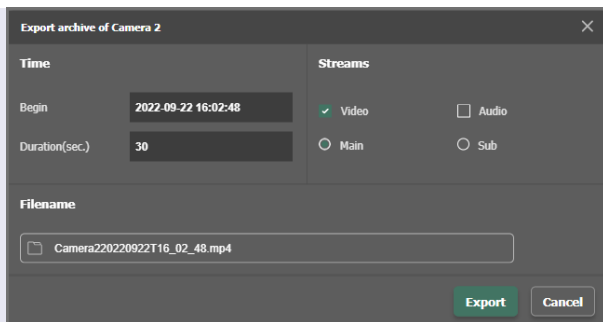


Figure 7.5
Export dialog

Licensing rules "Line IP"

<https://www.devline.net/>

Recommendations for selecting an HDD for the archive:

https://www.devline.net/recommendations_HDD/