

LINE

video surveillance system



USER MANUAL

Version 7.0

DEVLINE.NET

Table of Contents:

1. Software Installation	1
2. Observer	2
2.1 Quick Access Panel	3
2.2 Right Mouse Button Menu	4
2.3 User Actions	4
2.4 Connect to Servers	5
2.5 Choose Screen Division	8
3. Manage	9
3.1 Client Settings	9
3.1.1 General Settings	9
3.1.2 Network	10
3.1.3 Monitors	11
3.1.4 Hot Keys	11
3.1.5 Joystick	13
3.2 Server Manage	13
3.2.1 Video	14
3.2.1.1 General Settings	14
3.2.1.2 Double Streaming	16
3.2.1.3 Motion Detection	17
3.2.1.4 Privacy Mask	19
3.2.1.5 Information	20
3.2.2 Audio	20
3.2.3 Network	21
3.2.4 Dynamic DNS	21
3.2.5 Archive	23
3.2.6 Users	24
3.2.6.1 General Settings	25
3.2.6.2 Available Devices	26
3.2.6.3 Screen Divisions	27
3.2.7 Event Log	29
3.2.8 PTZ-Devices	30
3.2.8.1 General Settings	30
3.2.8.2 Patrols	31
3.2.9 Reactions	31
3.2.9.1 Notification Settings	34
4. Playback	36
4.1 Export Data	37
4.2 Playback from Folder	38
4.3 Video Analytics	38
5. Mobile Client	40
5.1 Mobile Client for iOS	40
5.2 Mobile Client for Android	42
6. Web Server	43
7. Line IP License Activation	45
Recommendations for Using IP Cameras	46

1. Software Installation

To install software, download the latest version from the website at <https://www.devline.net/soft/>.

Click Next in the Line Installation Wizard window.

Read the License Agreement and accept the terms by clicking the Accept button (fig. 1.1).

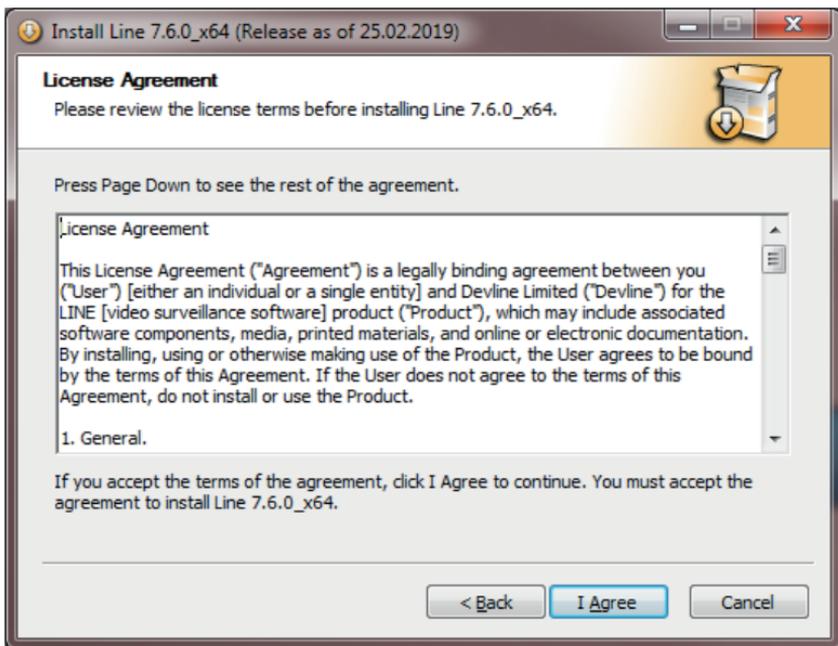


Figure 1.1 License Agreement

Select a catalog to install and click Next. The catalogue for installation recommended by default is specified automatically. It may be changed if necessary.

Recommended default catalog:

Windows x32 bit — C:\Program Files\Devline\Line;

Windows x64 bit — C:\Program Files (x86)\Devline\Line.

If a Windows security message appears, allow driver installation by clicking Install (fig. 1.2). Check "Always trust DEVLIN LTD software" to avoid seeing this message again.



Figure 1.2 Windows security message

On the Import Current Settings page click Install. Wait for the installation to complete and click Done.

The system is now ready to use. There are 4 users created by default without passwords with different permission settings: Admin (system administrator), Chief (system head), Guard (security officer), and Web (remote access). Archive recording mode is cyclical, to all available disks. By default all video channels are turned on, the second stream is turned on, recording is by motion detection.

2. Observer



Observer is used for observation in real time, as well as for program administration.

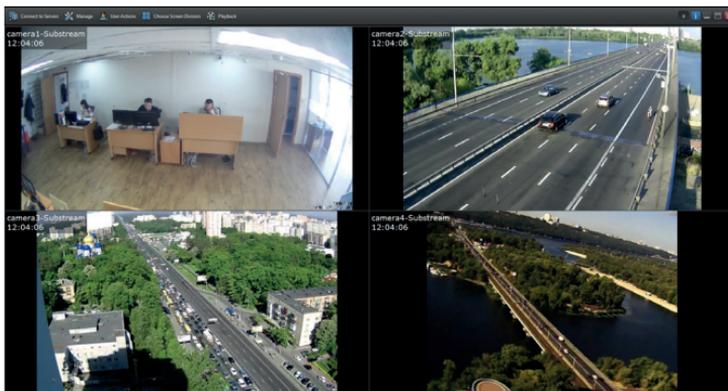


Figure 2.1 Observer

When you start Windows, the kernel of the Line video surveillance system is launched automatically as a system service and starts working immediately. In other words, you do not need to start the Observer in order to capture images, make recordings, or connect to the server.

The program interface (fig. 2.1) has the desktop divided into surveillance windows and control panel at the top.

Control panel has the following active elements:



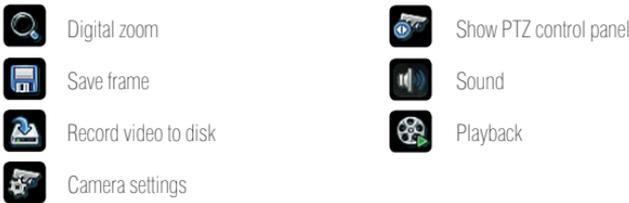
2.1 Quick Access Panel

For quick access to basic functions of the selected camera, use the special panel (fig. 2.2), which appears when you highlight any camera with left mouse button in multi-view:



Figure 2.2 Quick Access Panel

The availability of any one function depends on the level of user's permissions (see section 3.2.6.1 General Settings). The following functions are available to users with full access:



To control a PTZ camera, you will need to add it to PTZ devices first (see section 3.2.8 PTZ Devices). If the camera supports directional remote control, left-click and hold the joystick (figure 2.3) in the middle of the screen to tilt the camera. Move it as needed by moving the cursor. If you do not see the joystick in the middle of the cell or an icon for the PTZ camera control panel is missing, the camera has most likely not been added as a PTZ device.



Figure 2.3 Joystick

2.2 Right Mouse Button Menu

Right-clicking on the camera window opens the window of camera functionality, output to the screen of the first (primary) or second stream, adding an event to the archive, view of camera information and going to Manage if the user has permissions (see fig. 2.4).

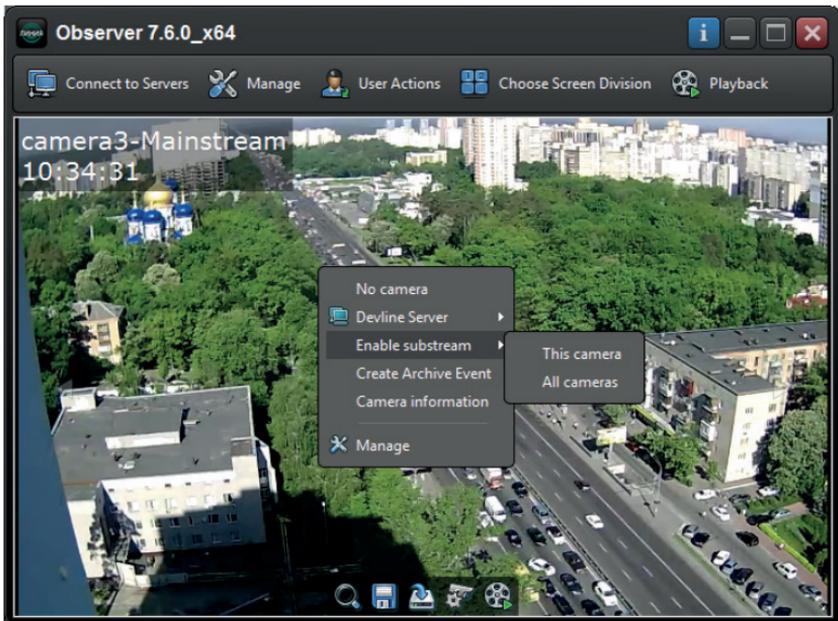


Figure 2.4 Right mouse button menu

2.3 User Actions

The User Actions window (fig. 2.5) is for making local recordings of a video to a disk and saving camera screenshots. You can also open a folder with saved content.

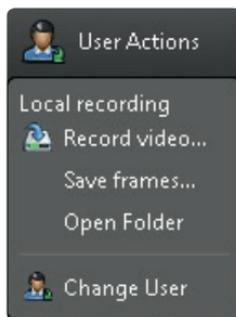


Figure 2.5 User Actions

The Change User option is used to switch between program users. To select a default user enter username and password, then mark Default and click Accept (fig. 2.6).

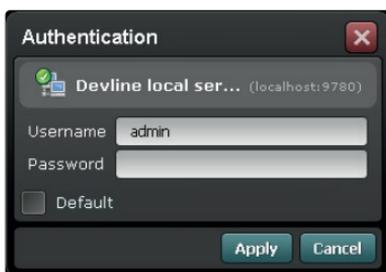


Figure 2.6 Authentication Window

2.4 Connect to Servers

The Connect to Servers window takes you to the Network Connections section, where you can find available Line servers and connect to them using local network or the Internet, as well as add servers using the Line Cloud (Figure 2.7). The Line Cloud registration process is described in section 3.2.4 Dynamic DNS.

Use the AutoSearch function to automatically find a server on the local network. The servers found will be added to the list. The version of the Line software installed on the server highlighted by the mouse cursor is displayed in the Advanced Settings panel of the Connections window.

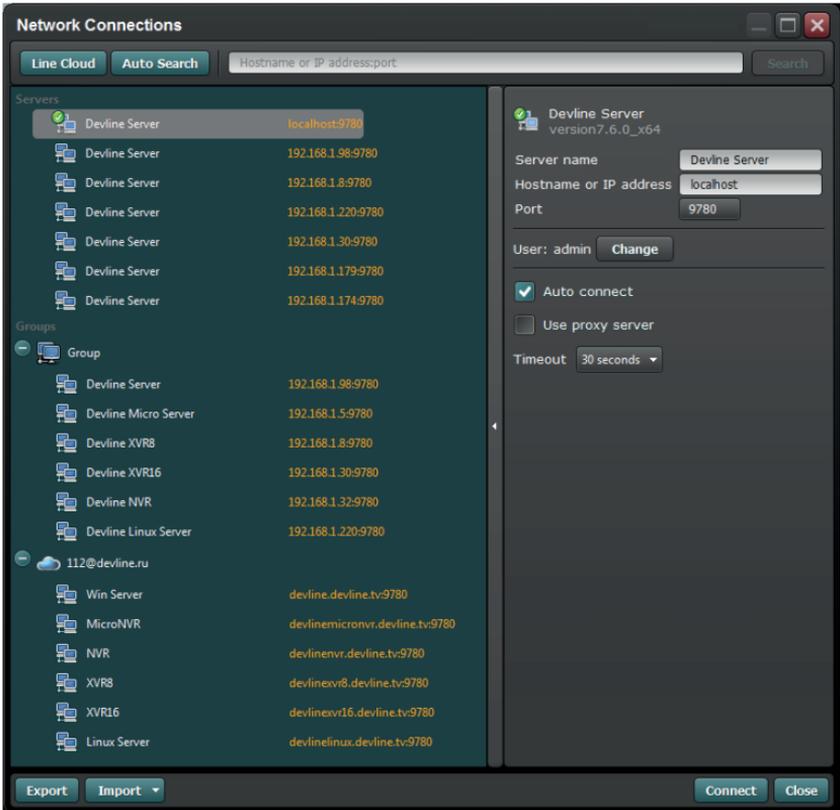


Figure 2.7 Network Connections

In order to find a server manually, enter computer's IP address and port (if different from the standard one) you are looking for, then click Search.

To delete, rename, sort, or group servers or to check connections, right-click on the line with the server you need and select from the menu (fig. 2.8).

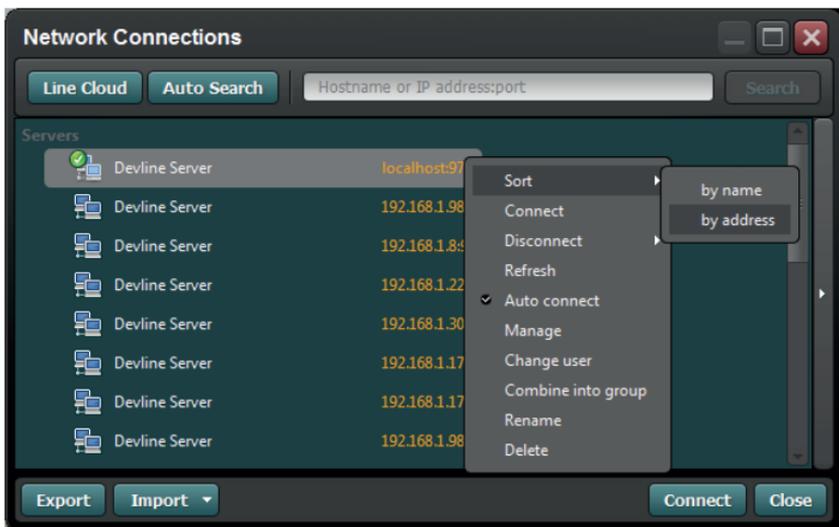


Figure 2.8 Server menu

To connect using the Line Cloud service in the Network Connections menu, click the Line Cloud button and go through the authorization process.

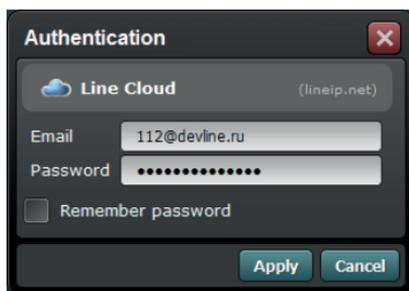


Figure 2.8.1 Authorization window

The system allows creating a group of several servers. When you create a group you can work with several servers as if it were a single one. To create a group, highlight the servers and group them by right-clicking and selecting from the menu. Then enter the group name.

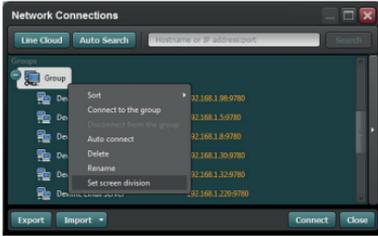


Figure 2.8.2 Group of servers menu

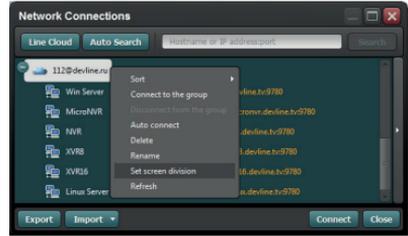


Figure 2.8.3 Line Cloud menu

To automatically connect to a server or a group of servers when launching the program, move the cursor to a server or a group and right-click, then select AutoConnect.

To access Advanced Settings of a server or a group click on the button with an arrow in the center of the right window border. Advanced Settings allow you to change most parameters of a server or a group described above and to set up a connection via a proxy server.

Export and Import buttons allow you to download or upload the list of servers both locally and to other client locations.

2.5 Choose Screen Division

The Choose Screen Division window displays all views created that are available to the active user (fig. 2.9). The view displayed by default is check-marked. View setup is described in section 3.2.6.3 Screen Divisions.



Figure 2.9 Choose Screen Division

3. Manage

The Manage window provides access to all settings for both local and remote video servers and also includes Observer client settings and server settings (fig. 3.1).

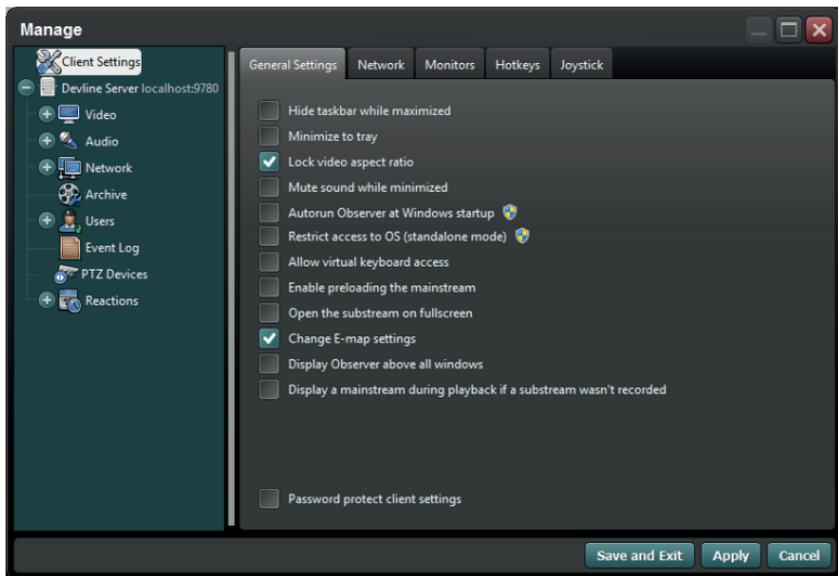


Figure 3.1 Manage window

3.1 Client Settings

These allow you to set up the Line Observer and include general settings for launching and operating the Observer using a proxy server to work online, the use of several monitors, as well as settings for hot keys and joystick.

3.1.1 General Settings

These allow setting up parameters for launching and operating the Observer.

- Mark the Hide taskbar while maximized if you want the Observer to take up the entire monitor in Full Screen mode, including the Windows task bar.

- To collapse the Observer into a tray instead of the Windows task bar, check-mark Minimize to tray.

- To keep the camera ratios for display, check-mark Lock video aspect ratio.
- In order for the Observer not to reproduce sound when collapsed into a tray or the task bar, check-mark Mute sound while minimized.
- To launch Observer automatically when starting Windows, check-mark Autorun Observer at Windows startup.
- In order for the Observer to block a user's access to Windows interface, check-mark Restrict access to OS (standalone mode). In this mode the Observer is loaded as a Windows shell and blocks third-party programs. You will need to restart your PC.
- To call the virtual keyboard, check-mark the correspondent item.
- Check-marking Enable preloading the mainstream allows to speed-up display of the first stream from the camera when viewed in Full Screen mode.
- The first stream is opened by default when any camera is opened in Full Screen mode. Open the substream on fullscreen allows changing the default setting.
- Change E-map settings allows blocking or allowing local setup of the E-map monitor.
- To display the interface over windows select Display Observer above all windows.
- Display a mainstream during playback if a substream wasn't recorded allows viewing video by cameras in the first channel right away, without recording the second channel in the archive.

Items marked with a special mark require Windows administrator permissions to apply.

Password protect client settings allows setting up a password for client settings. To remove password protection, you need to enter a previously set-up password and disable this item.

3.1.2 Network

The Network tab allows setting up connection of the Observer via a proxy server (fig. 3.2).

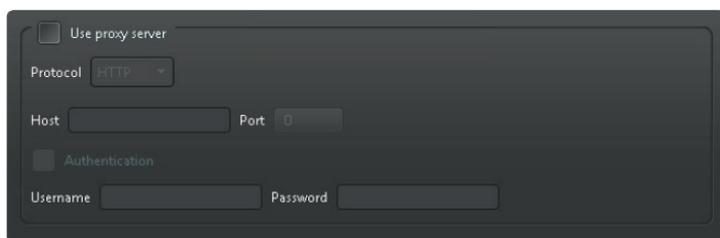


Figure 3.2 Network

To use the proxy server, check-mark it and then select the protocol and specify the host and port address. If the proxy server requires authentication, check-mark it and enter the name and password. After that all network connections will take place using the specified proxy server.

3.1.3 Monitors

The Monitors tab is used to set up the Observer output to be displayed on several monitors (fig. 3.3). A second active monitor is required to use monitor functions Full Screen, Alarm Monitor, and E-Map Monitor.



Figure 3.3 Monitors

3.1.4 Hot Keys

This tab allows setting up quick access keys to the Line functionality (fig. 3.4).

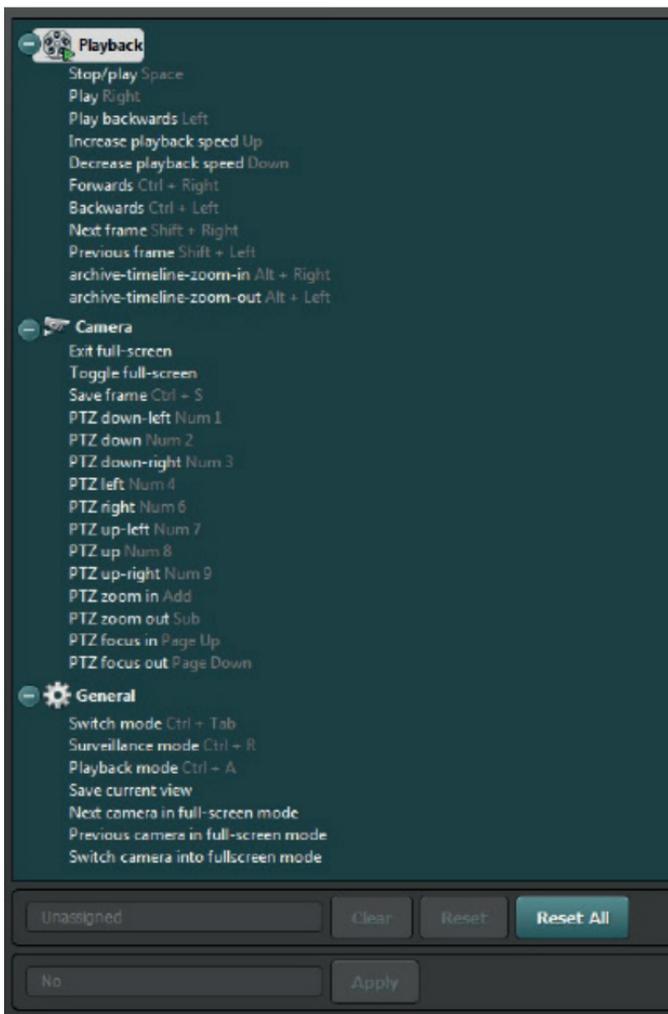


Figure 3.4 Hot keys

3.1.5 Joystick

In this tab you can find and calibrate a USB joystick, as well as set certain options for its buttons (fig. 3.5). Line allows using joysticks that are connected to the Windows system using the Plug and Play technology.



Figure 3.5 Joystick

3.2 Server Manage

To go to server settings, specify the server in the tree list on the left side of the Manage window (fig. 3.6).

Using this list, parameters can be set up for each connected server. Settings are separated into the following items:

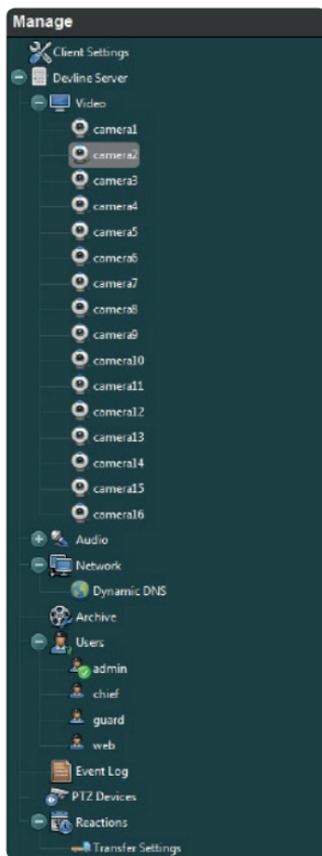


Figure 3.6 Manage

«**Video**» – general settings for cameras, detection, privacy masks, and information.

«**Audio**» – settings for audio reproduction and recording.

«**Network**» – server network settings, IP address filter, Dynamic DNS.

«**Archive**» – video archive storage and recording settings.

«**Users**» – create, edit, and delete users.

«**Event Log**» – monitoring of user actions and internal events.

«**PTZ Devices**» – PTZ camera settings.

«**Reactions**» – settings for server reactions to events and notification settings.

Server settings in each section on the right side of the Manage window apply only to the server HIGHLIGHTED in the list on the left.

3.2.1 Video

This section displays and allows setup of the cameras connected to the highlighted server.

To set up a camera, highlight it in the list and go to the right side of the Manage window. This part is separated into four tabs: General Settings, Motion Detection, Privacy Mask, and Information.

3.2.1.1 General Settings

The General Settings window allows setting the following parameters

for each camera individually (fig. 3.7):

- Camera on/off;
- Camera name;
- Switching video card input to IP channel and back;
- Connecting and opening the WEB interface of the camera in a browser (for IP channels);
- Camera chrominance, luminance, and contrast;
- Camera resolution and video capture velocity (frames/second);
- Choice of PAL or NTSC standard (for analog cameras);
- Compression method. MJPEG saves each frame with no changes to the frame structure. H.264 saves the difference between frames and anchor frames;
- Speed of archive recording and transmission of video to the network (frames/second);
- Recording mode. Record Always – all frames are recorded, Record on Motion – frames recorded when motion is detected, Switch off – no record is made in the archive. Scheduled recording can be set up in the Reactions section (see section 3.2.9. Reactions);
- Bitrate option. Allows setting the camera value for each stream: VBR – variable bitrate, CBR – constant bitrate;
- Quality of video archive recorded;
- Bitrate size;
- Second stream on/off.

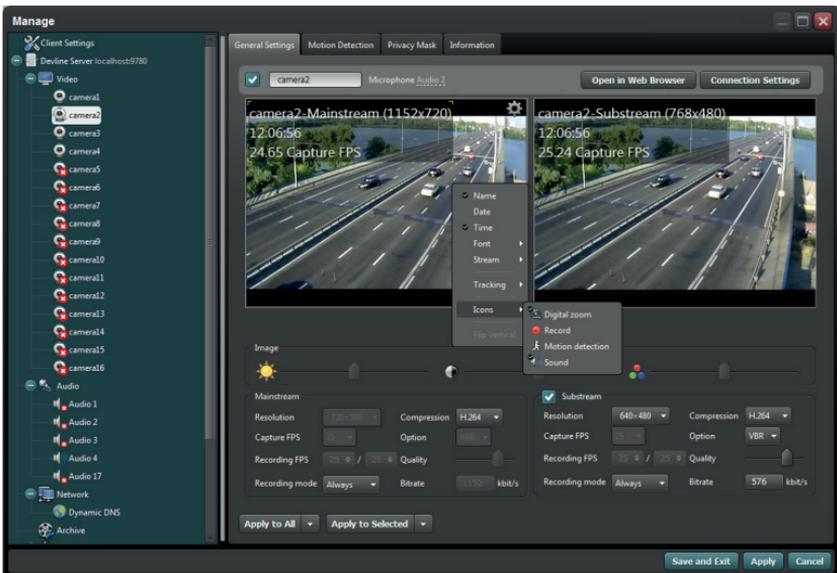


Figure 3.7 General Settings

You can right-click on the preview of the main stream to see the drop-down menu, where you can set up display/change of information in the camera cell. You can display name, date, and time. You can change the font colour and size. Stream allows displaying stream number and camera name as a separate text or an icon; Delineate allows changing the colour and weight of the contour line, as well as displaying the size of the detection object as a percentage; Icons allows displaying digital zoom, recording, motion detection, and sound in the icon cell (figure 3.7).

Apply to All allows applying current or changed settings to all cameras on the server.

Apply to Selected allows selecting cameras to which setting will be applied, similarly to the channel current set.

To connect IP cameras (for hybrid systems only) to the Line server, click Change to IP camera and enter camera address and port in the new window. Then select TCP or UDP protocol (depending on the camera use), enter name and password to connect, and click Accept. These settings are available in the Connection Parameters window. To go back to image capture using the Line card, click Change to Analog Feed.

3.2.1.2 Double Streaming

To activate double streaming for analog cameras, select the camera and check-mark Substream in the Camera Settings window. For IP cameras, the substream is turned on by default (recommended). To change this setting, click the Connection Settings button. Select how you want to receive the second stream from the menu: automatically receive a link (for integrated IP cameras), receive an RTSP link to the substream (for unintegrated IP cameras), or source re-coding (for analogue cameras; not recommended for IP cameras).

The substream is turned on for IP cameras by default. To change this parameter, click the Connection Settings button.

Select the right type of substream from the menu. It can be an automatic link receipt (for integrated IP cameras), an RTSP link to the substream (for non-integrated IP cameras), or source re-coding (for analog cameras).

When the substream is turned on it is displayed automatically. If this does not happen, in the general view grid right-click on the window for the camera you are setting up and select Enable substream.



Figure 3.8 Double Streaming

3.2.1.3 Motion Detection

You can set up detection zones for selected camera, size of detection object, extent of inclusion, movement recording, pre-recording and post-recording time, as well as on/off for Tracking and Video Analytics functions in the Motion Detector tab (figure 3.9).

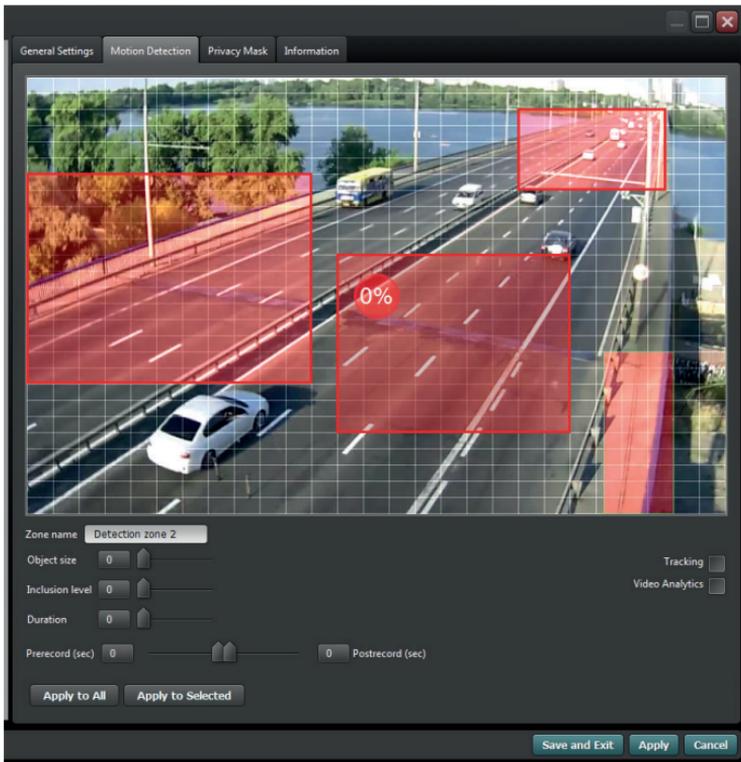


Figure 3.9 Motion Detection

By default, motion is detected in the entire work area of the camera. In order to set up your own zones, you need to delete the general zone by right-clicking on it and selecting Delete and then draw the right number of your own zones. Drawing is done by holding the left mouse button and dragging the cursor from one corner of the zone to another.

You can delete or move a detection zone, as well as name it.

To combine several zones, highlight them by holding Shift and left-clicking on them; then, still holding Shift, right-click on any of the highlighted zones and make a selection from the menu. **The combined zones must have common boundaries throughout the length of contiguity.**

To set the size of the object, select one or several detection zones and use the regulator. To turn on the Tracking function of a moving object, place a checkmark in the appropriate box. To set up reactions for a detection zone, right-click on it and select Create Reaction (see Section 3.2.9 for a detailed description).

The settings for zone inclusion allow managing which percent of inclusion of a moving object in a detection zone is recorded:

- 0% – the object must touch the detection zone.
- 50% – the object must enter the detection zone at least half-way in order for the motion detector to work.
- 75% – at least 75% of the object must be in the zone.
- 100% – the object must enter the detection zone completely for the motion detector to work.

The Duration setting allows managing the time during which the object should move in the selected zone for the motion detector to work. To set the pre-recording and/or post-recording time, move the correspondent slider to the value you need.

When you turn on the Video Analytics function, additional information is recorded in the archive database that allows you to look for events sorted by the Video Analytics filter in subsequent viewings. The setting is described in section 4.3 Video Analytics.

3.2.1.4 Privacy Mask

You can hide part of the image that you do not wish to record in the Privacy Mask tab, for example, a part of production line equipment that constitutes a commercial secret. You can create privacy masks by left-clicking and holding the mouse button and dragging the cursor from one corner of the zone not to be recorded to another. A privacy mask can be deleted or moved. You can change the size of the zone by dragging the cursor, just as you do in creating a new one. Move the cursor to the edge of the zone to do that (fig. 3.10).

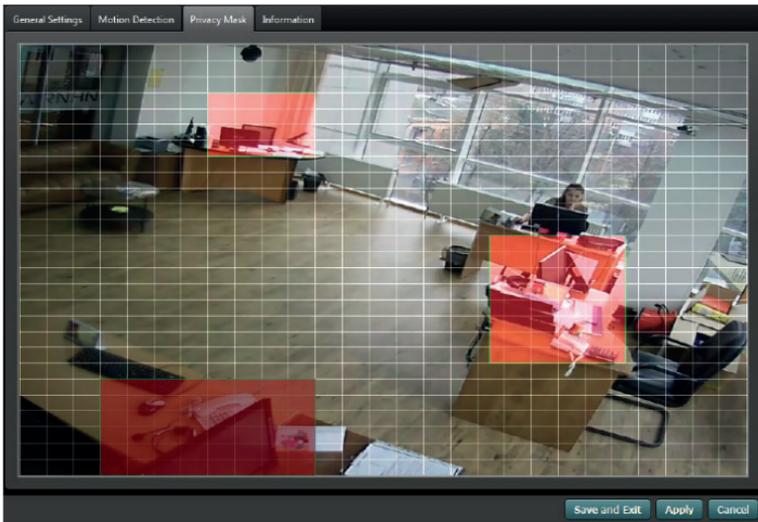


Figure 3.10 Privacy masks

3.2.1.5 Information

General information on the connected camera is displayed in this tab: protocol, camera model, streams used, and RTSP links for integrated cameras (fig. 3.11).

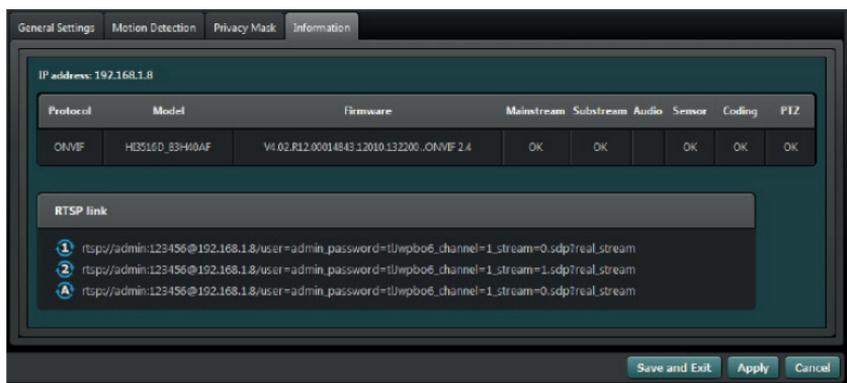


Figure 3.11 Information

3.2.2 Audio

In this section you can set up microphones. To set up a microphone highlight it in the list and go to the right side of the Manage window.

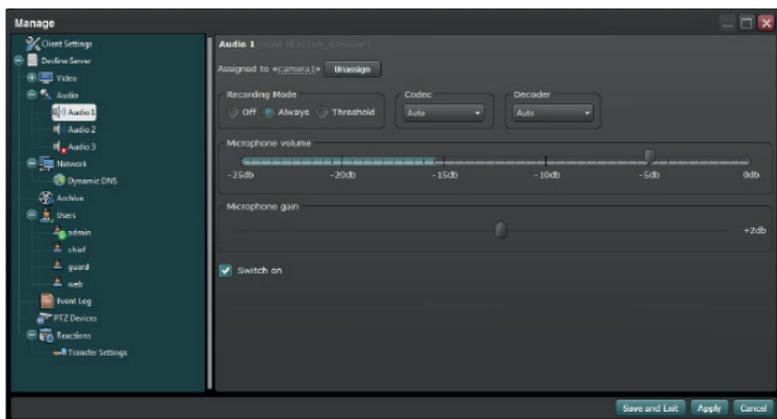


Figure 3.12 Audio

In order to connect a microphone to a camera, click on the underlined part of the “Select camera” line.

In order for microphone recording to take place only above a given number of decibels, set the Threshold point and set the scale below that.

If you need to amplify or reduce the microphone sound, set the Microphone gain scale (fig. 3.12).

3.2.3 Network

The Network tab allows changing network settings for the Observer, the Web server, IP address filter, and launching the Dynamic DNS (fig. 3.13).

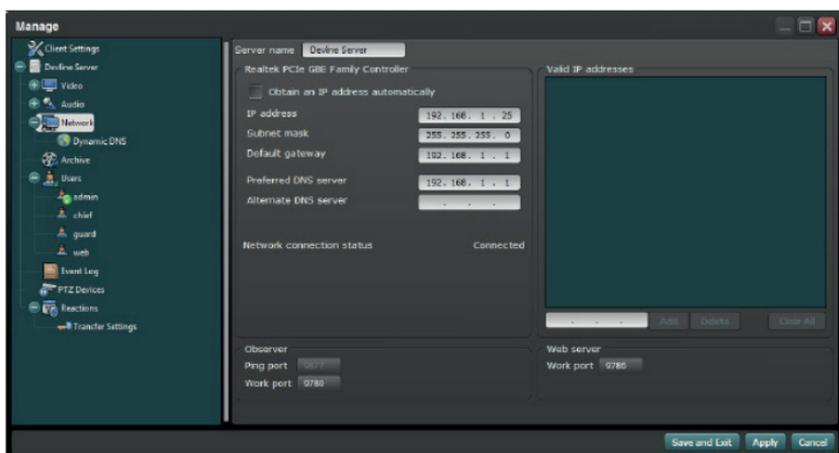


Figure 3.13 Network

In order to permit connection to the server only from certain IP addresses, enter the authorized IP address into the field at the bottom of Valid IP addresses and click Add. Once the first IP address has been added, the filter is on and blocks all connections not on its list.

3.2.4 Dynamic DNS

In order to use Dynamic DNS, open the Networks tab and select Dynamic DNS.

Then you need to turn on the service by check-marking Enable Dynamic DNS, enter a valid email address, the domain name you want, and click on the Register button (fig. 3.14).



Figure 3.14 Service registration

A confirmation code will then be sent to the email address, which needs to be entered to complete registration.

Once you have entered the code, click the Confirm button.

This completes turning on the Dynamic DNS and domain name registration.

In order to connect to a remote server using a previously registered domain name, you need to open Connect to Servers on a client computer and then enter the name in the Server Address field and click on the Search button.

The server you are looking for will appear in the list of available connections. To connect, double-click with the left mouse button on the name of the server and go through authorization (fig. 3.15).

This service allows you to automatically use the TURN service, which is a connection to the Line server that does not have a real (white) IP address or is not set up for availability of ports for connection.

Starting with the Line 7.0 version, you can connect to a video server on any source of the Internet using the registered server domain name. To connect to the server without using the TURN service, you need to set up server availability on ports 9780 and 9786.



Figure 3.15 Service connection

3.2.5 Archive

These settings show the ways to store the program archive (fig. 3.16). By default, local disks found in the system are used, except the system disk.

All local media found in the Windows system are used by default.

In order to add a new location for video archive storage, click on Add Path and specify a folder on the local or network disk and set the limit of free space (not to be used) that will not be taken by the archive.

To limit the depth of the archive in days, set the value for the Depth of archive field. The maximum number of days is used by default and archive depth depends on the total disk space of the group.

Mobile Stream option is turned on by default and can be used to view archive on mobile devices and online.

To record a camera or a group of cameras on different media, you need to add the number of camera groups by clicking the Add button.

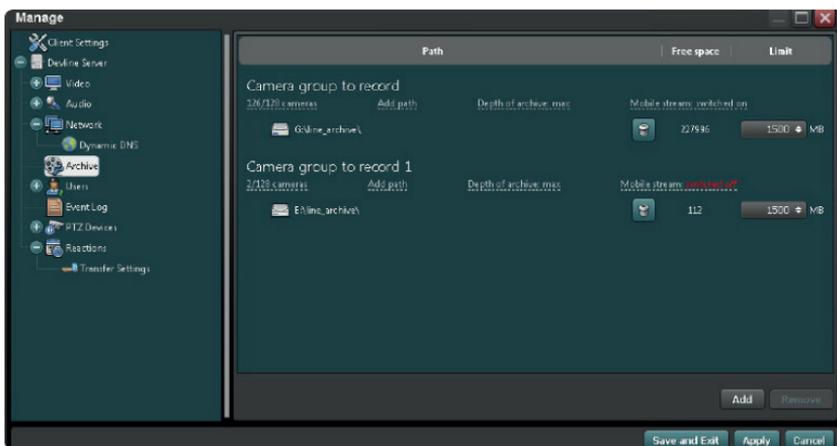


Figure 3.16 Archive

To assign camera recordings to a certain group, point the cursor to the numbers of cameras in the group and left-click. In the Select Camera window select the cameras for the group (fig. 3.17).

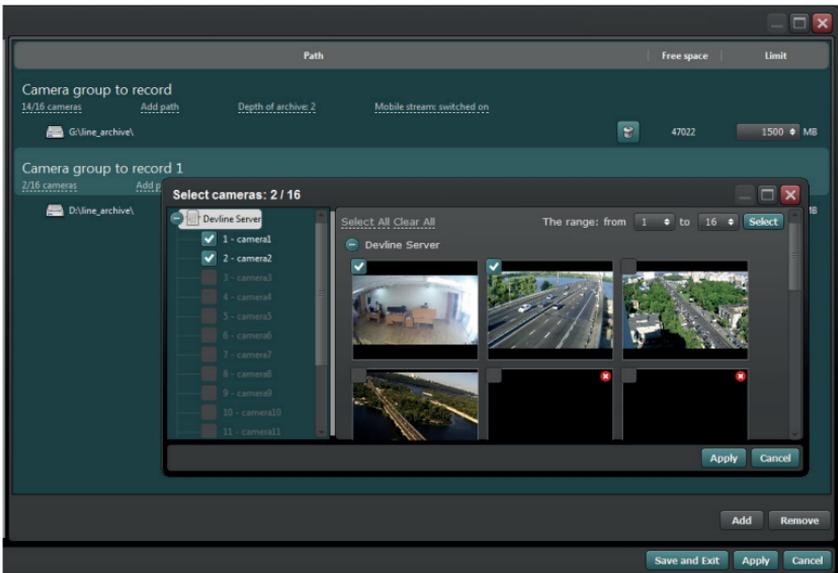


Figure 3.17 Recording camera group

The same camera or the same recording source cannot be assigned to different groups.

To rename, delete, or set a path for the group, you need to right-click on the group name and make a selection.

To delete a record path in the group, place the cursor on the path line, right-click and select Remove Path.

The program records videos in a cyclical mode: as soon as the space on the disk is used up, the program records new data over the oldest data. If several folders are selected to store video archive, they will be filled one by one.

3.2.6 Users

The Users tab allows creating, deleting, and renaming a user, as well as setting up server access permissions.

To add a new user, highlight the Users with the left mouse button on the right side of the window and click Add User. Add username, password, password confirmation, and pre-set permissions of the user (Guard, Supervisor, Administrator) in the new window (fig. 3.18).

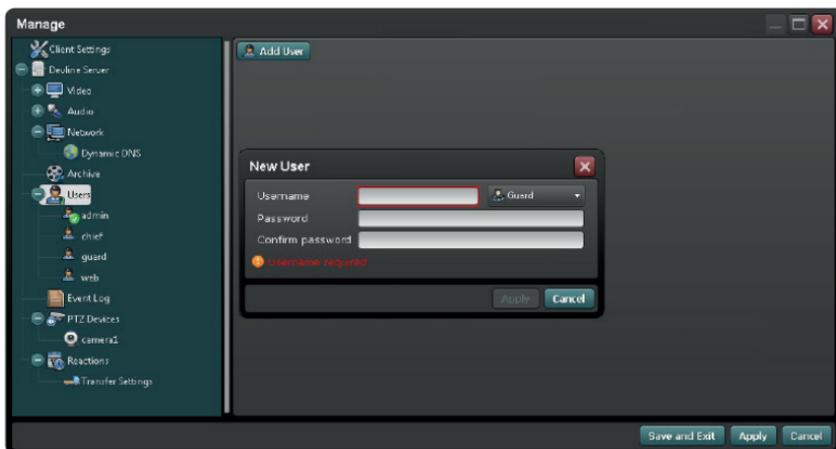


Figure 3.18 Add a new user

The program has four pre-set default permission levels: Administrator, Supervisor, Guard, and Web.

Each permission level presumes certain permissions to use program functions.

Administrator has full access to all functions.

Supervisor has access to all system functions, except administration, video archive export, and change of video streams.

Guard has access to the basic functions needed for surveillance.

Web has permissions to view and control cameras in real time.

By default all users are created without a password.

3.2.6.1 General Settings

To add or delete Observer or archive functions for a selected user, add or remove checkmarks in the General Settings (fig. 3.19).

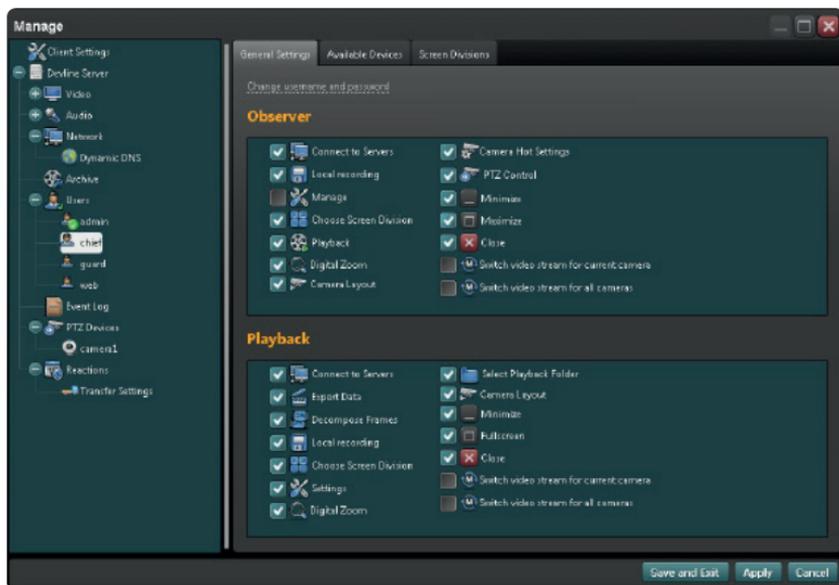


Figure 3.19 General Settings

To change username or password, use the functions in the top part of the tab.

3.2.6.2 Available Devices

The Available Devices tab can be used for setting microphones and cameras specified by the user (fig. 3.20).

To restrict user access to cameras and microphones, uncheck the ones that should not be available.

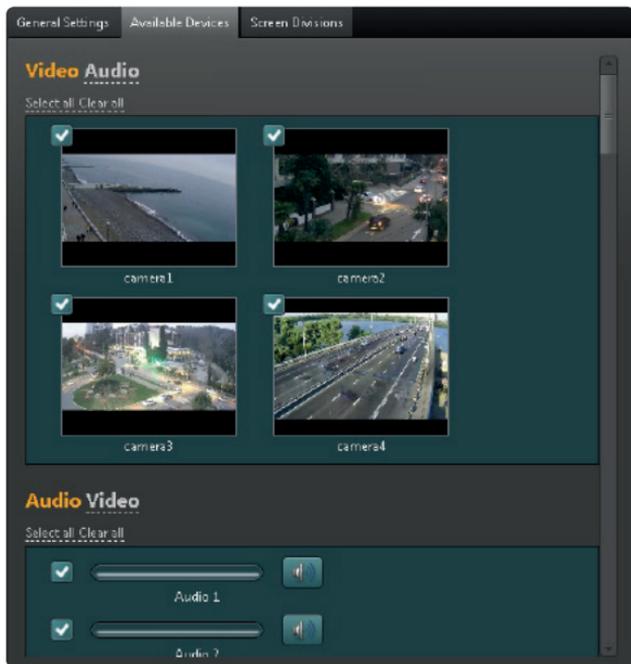


Figure 3.20 Available devices

3.2.6.3 Screen Divisions

The Screen Divisions tab displays camera location sets created on a selected server. You can also add/delete monitors and set up views for each monitor (Figure 3.21).

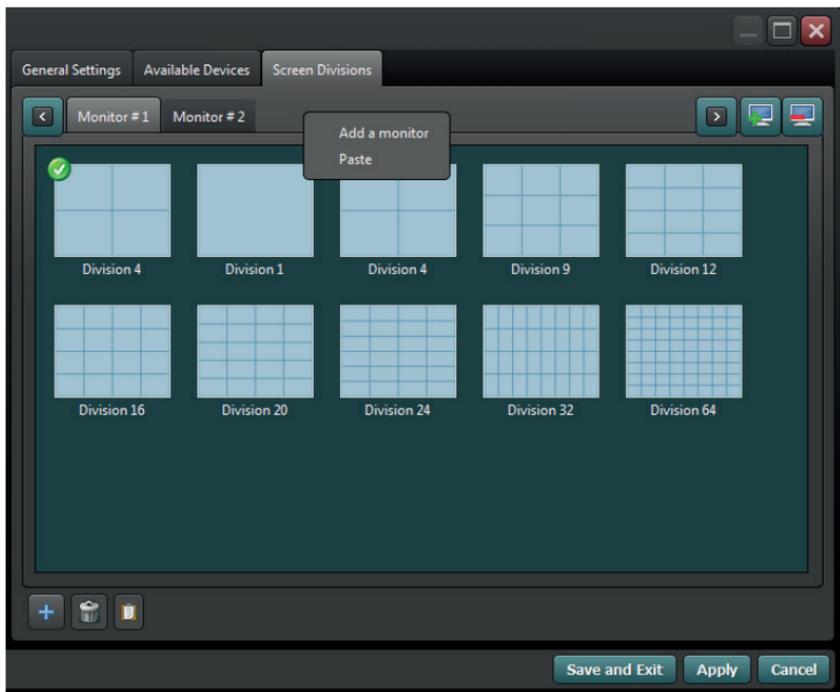


Figure 3.21 Screen Division

Only the views permitted to the selected user are displayed here. You can select available views for several monitors using correspondent tabs. In order to assign a selected view to be a default view, right-click on it and select from the menu. To create or delete a selected view click on the mark in the bottom part of the tab. To edit a view that has already been created, right-click on it and select Edit.

To create a view click on the '+' sign in the bottom part of the Screen Division Editor window and draw the number of displayed cameras needed. You can draw by holding down the left mouse button and dragging the cursor from one corner of the window to the next. Alternatively, you can use the automatic Create View function by clicking the Matrix button and specifying the number of rows and columns (fig. 3.22).



Figure 3.22 Screen Division Editor

3.2.7 Event Log

This section allows monitoring user actions and internal events (fig. 3.22).

To use the filters for type, purpose of impact, or event level, checkmark the Advanced settings box.

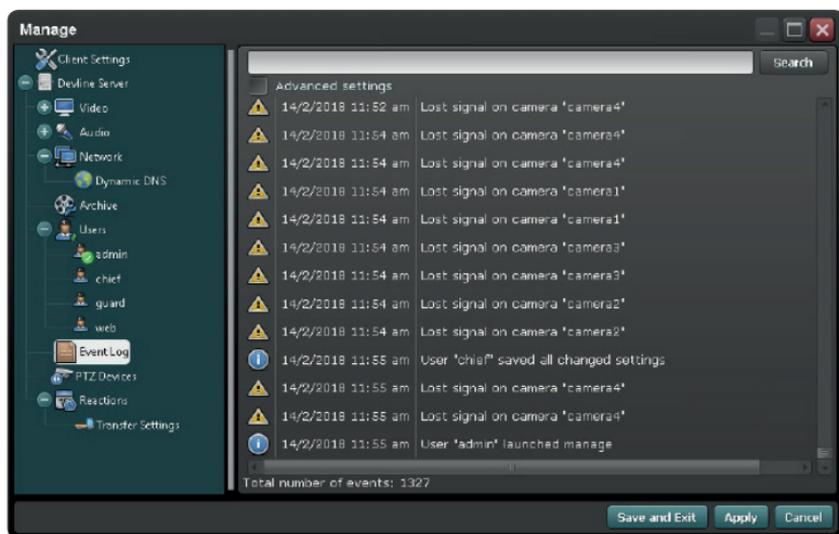


Figure 3.23 Event Log

3.2.8 PTZ Devices

To set up PTZ cameras use the PTZ Devices tab located on the list in the left-hand side of the Manage window.

To manage an IP camera, it must be integrated with the Line software. The level to which you can manage the camera depends on the level of integration (fig. 3.23).

In order to add an analog PTZ device, check-mark Use COM Port. Then enter the device parameters.

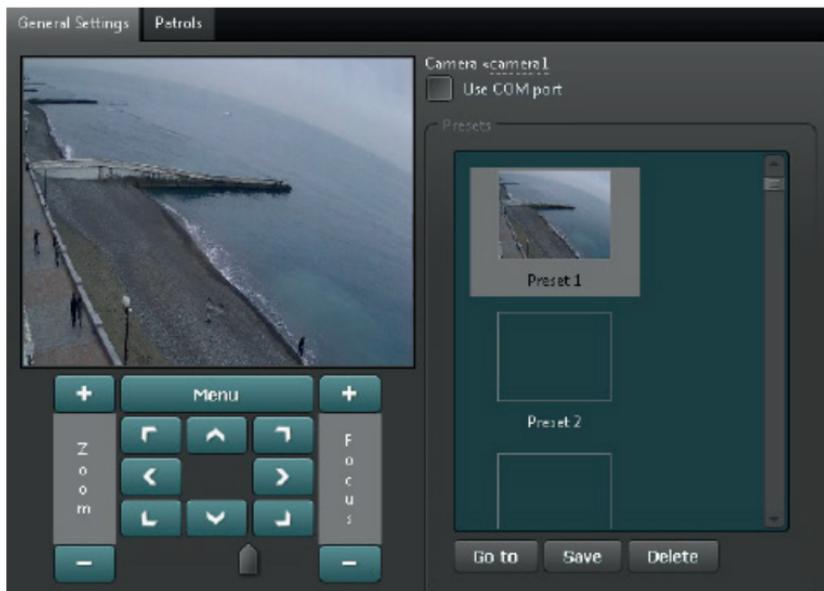


Figure 3.24 PTZ device settings

3.2.8.1 General Settings

Specify the port for the interface converter, communication speed, management protocol, and camera address. To manage the camera, use the graphic joystick menu. In order to save pre-settings, move the camera to the right area, highlight an empty cell, and click Save. In order to rename a pre-setting, right-click on it and make a selection from the menu.

3.2.8.2 Patrols

You can create routes for patrols using pre-settings (fig. 3.24).



Figure 3.25 Routes for patrols

A route for patrols is a set of pre-settings of a PTZ camera, using which the camera moves according to the list.

To create a route for the camera click on the '+' sign and in the new window select the first pre-setting, then assign the time interval during which the camera will remain in that position (including the time spent by the camera to switch to pre-setting). Repeat adding pre-settings until the route is complete. To delete a pre-setting, click on the buttons against the name of the patrol.

To add a route, click the Create New Patrol button in the bottom part of the window.

To start rounds, create a Round reaction (how to create reactions is described in detail in section 3.2.9).

3.2.9 Reactions

In this tab you can set up in detail which actions in which periods of time the program will take (fig. 3.26).



Figure 3.26 Reactions

All created reactions are presented in a list. In the original settings this list is empty. To set up a reaction click on the '+' sign and a Create Reaction window will open (fig. 3.27).

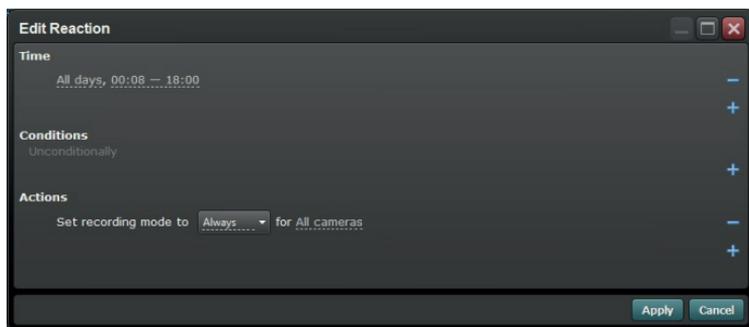


Figure 3.27 Create Reaction

«**Time**» — select days of the week and the time interval, during which the program will monitor that the conditions set below are met and will take actions set below.

«**Conditions**» — select the type of events that the program should react to:

Motion detection	The trigger is motion detection in a given zone by a given camera or cameras
No Motion*	The trigger is lack of motion in the selected zone of selected camera or cameras for the duration of time selected
Signal loss	The trigger is lack of signal in the channel
Restoring a signal*	The trigger is resumed signal in the camera with stable reception of videos for a given number of seconds after the absence of signal for the length of at least a given number of seconds
Audio threshold exceeded	The trigger is excess of volume from the recorded microphones
Recording error	The trigger is an unsuccessful attempt to record the archive in a specified location
External Event*	The trigger is an external event received from an outside source via an HTTP query

«Action» — select the type of action used to react to an event.

SMS	Sends a text message with given text to a given phone number
Save frame	Saves a frame with given quality from certain cameras to a selected folder
Upload frame to FTP server	Saves a frame with given quality from certain cameras to a selected FTP server
Email	Sends an email attaching a frame with given content to a specified email address
Sound alarm	Plays selected audio file for a given length of time
Alarm monitor	Displays the source camera on the alarm monitor
Send HTTP Query*	Allows sending an HTTP query
Add entry to log file	Records certain text in system log
Launch external program	Allows launching any executable file
Go to camera preset	Loads a specified pre-setting
Start patrol	Activates a given patrol
Adjust camera settings	Changes camera settings, sets special detector settings for selected cameras
Microphone settings	Changes sound volume of microphone recording, sets microphone recording mode

* Available for Linux-based servers, as well as for recorders based on the Line software

For each action you can set trigger time during which the action will be taken once.

If the information entered is not sufficient for the program to react, the information required will be marked in red. Reaction will not be turned on until this information is entered!

In the course of creating and editing reactions Line remembers the information entered and can cancel or repeat several latest changes.

Click the arrows at the bottom of the window to do that.

3.2.9.1 Notification Settings

In this tab you can set up parameters for sending text messages and emails by Line, as well as the FTP server parameters.

The Use Line Cloud option allows automatically setting up notifications using the Line Cloud account (fig. 3.28). FTP is the FTP tab in Line Cloud, SMTP is the email address specified in the Monitoring tab, SMS is the cell phone number specified in the Monitoring tab.

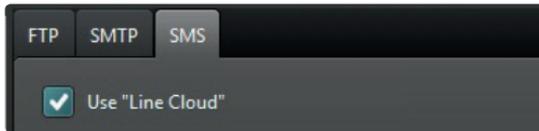


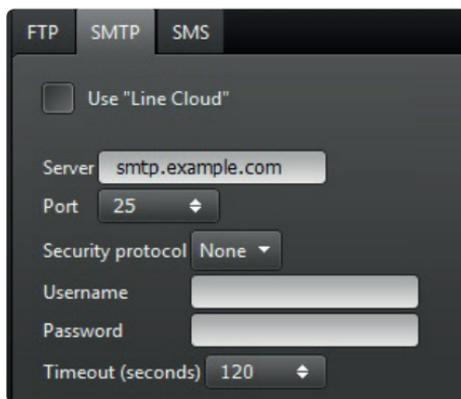
Figure 3.28 Notification settings

To set up the “Save frame to FTP” action, enter the name and port of the FTP server in this window and then specify the name and password for authorization (fig. 3.29).



Figure 3.29 FTP

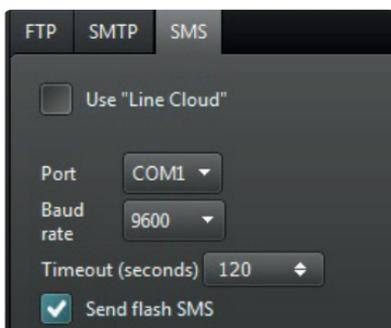
To set up Notifications enter the IP address and port of the mail server, then select type of connection and enter name and password (fig. 3.30).



The screenshot shows a configuration window with three tabs: FTP, SMTP, and SMS. The SMTP tab is selected. At the top, there is a checkbox labeled "Use 'Line Cloud'" which is unchecked. Below this, there are several input fields: "Server" with the text "smtp.example.com", "Port" with a dropdown menu showing "25", "Security protocol" with a dropdown menu showing "None", "Username" with an empty text box, "Password" with an empty text box, and "Timeout (seconds)" with a dropdown menu showing "120".

Figure 3.30 SMTP

To send a text message you need a modem with a sim card connected to the computer. Enter the port of the connected device and its speed. To send a text message place a checkmark (fig. 3.31).



The screenshot shows the same configuration window with the SMS tab selected. The "Use 'Line Cloud'" checkbox remains unchecked. The "Port" dropdown menu now shows "COM1", and the "Baud rate" dropdown menu shows "9600". The "Timeout (seconds)" dropdown menu remains at "120". At the bottom, there is a new checkbox labeled "Send flash SMS" which is checked.

Figure 3.31 SMS (Text message)

You can set a time for each of the above settings, during which the program will attempt to complete the request.

4. Playback

Playback is meant for viewing previously recorded video and audio information on the local or remote servers, as well as to export record fragments into a publically available format. Once launched, Archive will automatically load all video information stored on the connected server, after which will ask to select the view date.

The Playback window is divided into work area for video display and control panel (fig. 4.1).

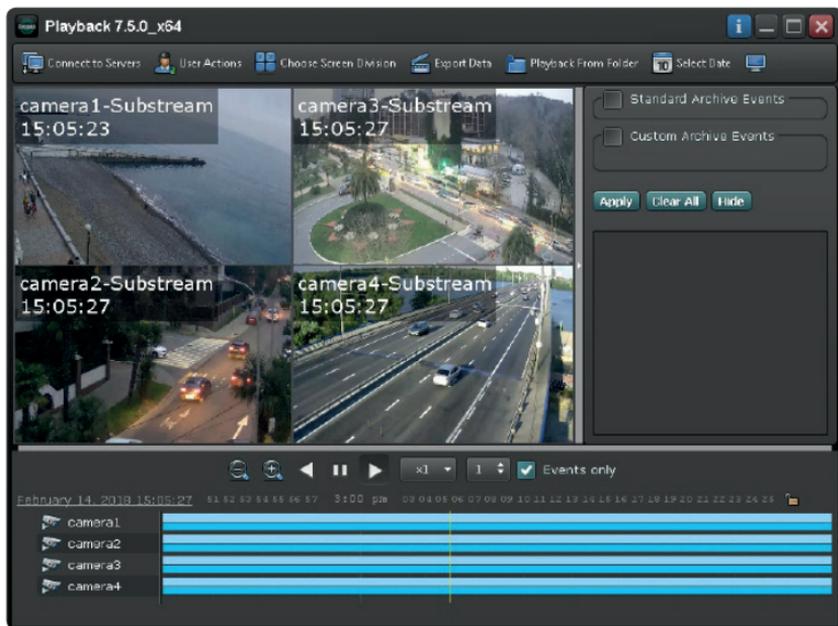


Figure 4.1 View Archive

At the bottom of the Playback there is a quick search timeline, where dark blue marks the current stream displayed in real time, light blue marks another stream, and purple marks the sound. To move along the quick search line, hold down the left mouse button and move the cursor in the direction you need. Use the mouse wheel to zoom in and out.

To select the video stream displayed right-click on the camera and select on/off substream, depending on the current settings.

At the bottom of the Playback window there are Forward, Back, and Pause buttons, viewing speed controller, as well as the duration of instant events and the on/off switch of the Event display.

The Archive menu consists of the following:

- | | |
|--|--|
|  Connect to Servers: connection to other servers; |  Playback from folder; |
|  User Actions: an option to change the current Line user; |  Select Date: view fragment of archive by date; |
|  Choose Screen Division: select view; |  Surveillance: exit Archive and go back to the |
|  Export Data: export archive into available video or audio format; | |

4.1 Export Data

This window is for exporting video fragments of the archive into a format that is publically available to a regular player (AVI container is used) (fig. 4.2).

To export a video fragment, select Camera Export or Multi-View Export and specify the length of the recording. You can download one or several cameras from the list. In order to export video and/or audio, place checkmarks below. Then select a codec from the ones listed and set up its parameters, if necessary. When selecting a codec different from the Original, specify information to be displayed over the video recording in the Information section, as well as their color and location. Then select the path where you wish to save the exported file and click Export.

By default the program uses 2 codec formats

Original — recording is exported into an AVI container using the same codec as the recording from the camera.

H.264 — export is done by re-compressing the H.264 codec, also to an AVI container. This takes more time than “initially” but allows displaying additional information in the resulting video file.

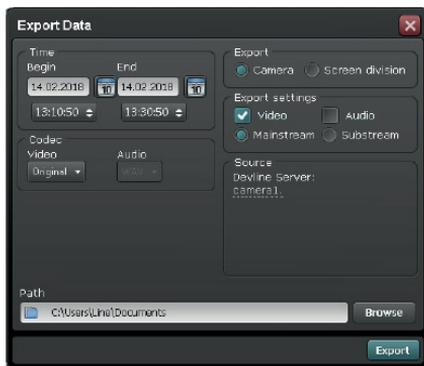


Figure 4.2 Export Data

4.2 Playback from Folder

You can also use the Playback from Folder feature to view archive (figure 4.3).

Go to Playback and click Playback from Folder, then click “+” in the new window and select the path from which the archive should be displayed (show root catalogue with archive) (Figure 4.3). Once you specify the catalogue and hit the Start View button, an archive calendar is displayed where available archive dates are highlighted.

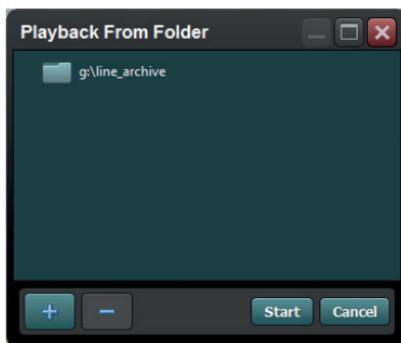


Figure 4.3 View from Folder

4.3 Video Analytics

The Video Analytics function is used to filter archive records of the Line software by detection, object size, and colour. The frame is divided into 64 areas for searching. Colour search supports 11 shades.

Video Analytics is turned on for all channels by default. To turn off this function, go to the Administration menu, select a channel, click on the Motion Detector tab, and uncheck Video Analytics (figure 3.9).

In the Playback window, a quick access panel will appear in the camera cell when you left-click on the camera (figure 4.4).



Figure 4.4 Quick Access Panel



– Click the Video Analytics button.

Then select the detection areas on the grid in order to see when movement or record of movement of the object with selected size or color took place. You can select additional settings to exclude false alarms in the right part of the window (Figure 4.5). The programme

displays only those fragments that match the set parameters.

When you uncheck Events, the entire record is displayed. Also you can set up separate areas for each camera by various parameters.

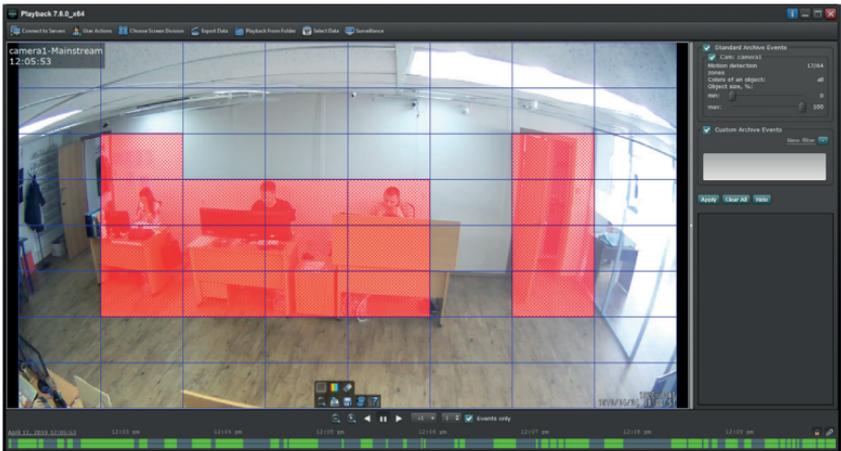


Figure 4.5 Video Analytics

If you check Users, you can also track previously added events in the archive (Figure 4.6).

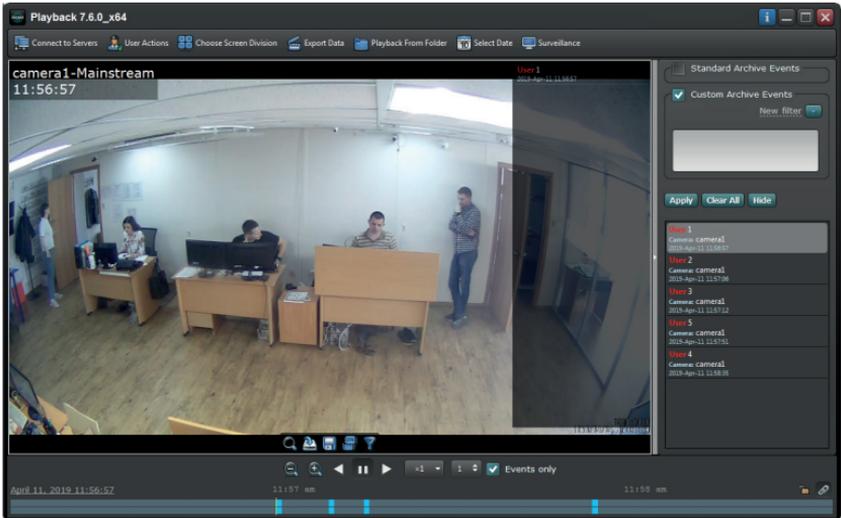


Figure 4.6 Events

5. Mobile Clients

The Line mobile client is used to view from cameras using a mobile messenger, a tablet, or a cell phone. The following mobile app versions are available: Android and iOS.

There are several versions of mobile client for various types of devices.

5.1 Mobile Client for iOS

In order to install a mobile client compatible with iOS, open the AppStore and tap the Search icon.

Enter Line video surveillance in the Search line and select the application in the results, then tap Install in the new window.

Once the installation is complete, tap the Open button or use the list of installed programs to launch the application.

To add a server to which you wish to connect, tap the Settings button.



Then tap the Server Settings button. Tap the '+' sign in the new window to create a new server, then enter server name, its address and port, as well as username and password that you use for authorization in the regular version of the Line software. If you use one of the standard accounts, for example, admin, be careful with the cases because iOS always has the first letter in upper case.

When you enter the server information tap the arrow button



to go back to the first screen and then tap



in the top left corner and turn on your server. If you want to use a multi-server connection add the rest of your servers as described above and turn them on.

To change picture quality, the number of frames per second, the size of audio buffer, speed of tilt for a PTZ camera, as well as the number of cameras displayed on the screen simultaneously or other settings, select Client Settings.

In order to hear the sound of a microphone set next to the camera or built into it (if you have such cameras) tap the camera image to open it in full screen mode and then tap the speaker icon. If you are using a slow connection to the Internet and the sound is disrupted, you can tap the Pause button and the application will stop downloading the video stream from the selected camera freeing up the channel for audio streaming.

To manage PTZ cameras, tap the camera image to open it in full screen mode, then tap the PTZ icon (a circle with four arrows), and assign motion path to the camera using the joystick. There is a special widget to manage the lens in the bottom right corner of the screen. To go to pre-settings, tap the Pre-settings icon and select the one you need.

If you wish to save the current frame, tap the Save button (camera icon). You can activate digital zoom of the image by drawing your fingers apart from the center of the screen to its edges.

To view the archive tap



The Archive View interface will be displayed. In the top part there is a view control panel, where:



means return to observation in real time;



means view forward in time;



means a calendar to select the date of archive recording;



means the speed of archive reproduction;



means view backward in time;



means pause;



means hide the camera time line.

There is a pop-up camera time line in the bottom part.

5.2 Mobile Client for Android

To install this version of the Line mobile client download it in Google Play, entering Line VideoSurveillance in the search line.

To launch the application once it is installed, use the list of installed programs. To add the server to which you wish to connect tap the Settings button (the gear icon).

Then tap the List of Servers button. Tap the '+' sign in the new window to create a new server, then enter server name, its address and port, as well as username and password that you use for authorization in the regular version of the Line software.

Android OS-based mobile client also has the Multi-server function available to connect to several servers at the same time. Check-mark the servers to which you wish to connect in the Select Server menu and tap the List of Cameras button.

In order to hear the sound of a microphone set next to the camera or built into it, tap the speaker icon located in the top right corner.

You can select the number of frames per second, picture quality, speed of tilt for a PTZ camera, view grid for displaying picture from camera, as well as the size of audio buffer in the Client Settings tab.

This client version supports digital zoom using the Multitouch function.

To manage PTZ cameras and going to pre-settings, open the camera in Full Screen mode and move it using the joystick in the bottom left corner.

Tap the icon that looks like a film disk to view the archive.



The archive view interface will be displayed. In the top part there is a view control panel, where:



means return to observation in real time;



means pause;



means a calendar to select the date of archive recording;



means view forward in time;



means view backward in time;



means the speed of archive reproduction.

There is a pop-up camera timeline in the bottom part.

6. Web Server

The web server is used to view cameras of the remote server using an Internet browser. The web server is installed automatically when you install the server part of Line.

To view camera images using the web server, open a browser that supports Adobe Flash and in the address line enter the IP address and port of the server in the `http://192.168.1.2:9786` format.

The IP address may be internal (192.168.0.2), external (77.246.156.80 or `demo.devline.tv`) or local (127.0.0.1 or `localhost`). Then enter the name and password that you use to connect and click OK (fig. 6.1).

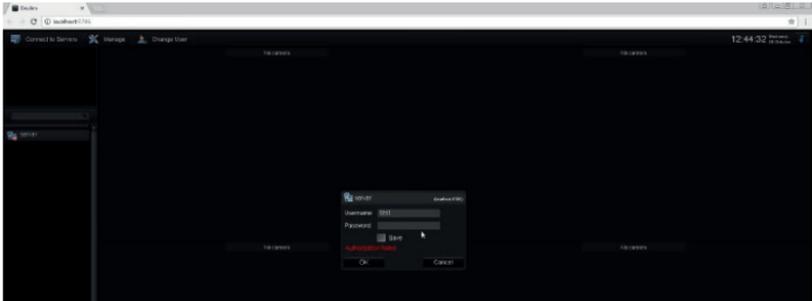


Figure 6.1 Server connection

To select the number of cameras viewed use the Choose Screen Division panel at the top of the page (fig. 6.2).

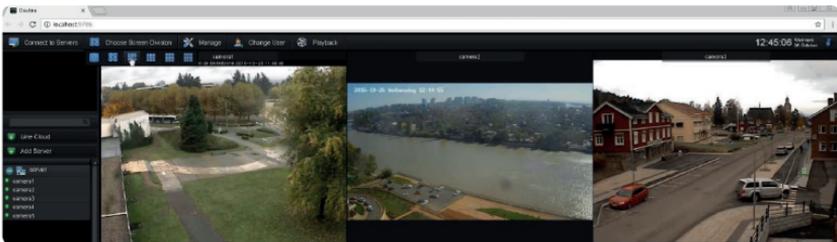


Figure 6.2 Select view

To manage PTZ cameras and going to pre-settings activate the PTZ control in the bottom line of elements by left-clicking on it.

You can then manage it using pop-up elements on the sides.



Controls zoom in/out



Controls camera tilt

To set up the quality of video information, frames displayed per second, size of audio buffer, display of camera names, and loading indicators, as well as to keep the frame side ratio, go to the Manage menu (fig. 6.3).

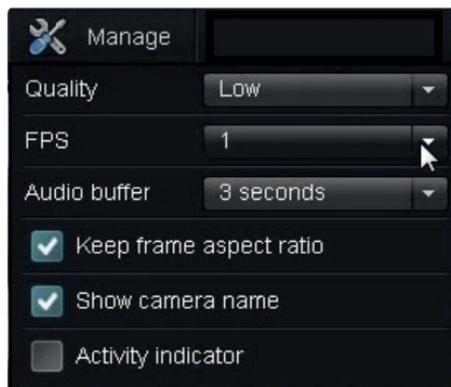


Figure 6.3 *Manage menu*

To view the archive, go to the Playback menu.

There is a quick search line at the bottom of the Archive. To move along the quick search line, left-click and hold and move the cursor in the direction you need. Use the mouse wheel to zoom in.

There are also Forward, Back, and Pause buttons, as well as the view speed control located in the middle.

7. Line IP License Activation



Attention! The Line IP license is meant to be used on one PC.

To activate the Line IP license start the Activation Wizard, open Start → All programs → Line 7.x → Line IP activation.

Select the appropriate activation method.

Internet: enter the code on the scratch card and follow the Activation Wizard instructions.

Phone: enter the code on the scratch card and tap Next. Call the numbers listed for activation. Tell the operator the program answer code. Enter the code given to you by the operator and tap Next.

To activate the code on your own without the Internet we suggest using the <http://a.devline.net/> service on the server from any source of the Internet (cell phone, for example).

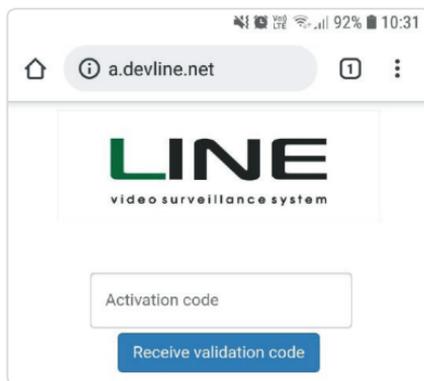


Figure 7.1 Code activation

To activate the alpha-numeric temporary code, you need to go to the Company website and activate the Line IP activation code: <https://devline.net/activate/> using an email address.

Enter your email address

Email:

Get link

Recommendations for Using IP Cameras

This section is of a general, informational nature and does not contain detailed instructions for setting up a particular camera type.

Before purchasing an IP camera, make sure that the model you choose is on the list of integrated (supported) equipment on the website at <https://www.devline.net/> (Supported cameras list) otherwise DevLine does not guarantee that the camera will work with the Line system.

If the camera you purchased is not integrated but supports RTSP, ONVIF or PSIA, you can connect it using these protocols (full capacity is not guaranteed).

To connect the camera using RTSP, you need to enter the RTSP link in the camera IP address line.

The standard link has the following format: `rtsp://username:password@IP address:port/`.

Different manufacturers have different link formats. To find out the link for your camera go to the user guide for your device or contact the technical support service of the manufacturer of your device.

If you need to use ONVIF or PSIA, make sure that these protocols are turned on (see the appropriate item in the web interface settings menu). If turning on these protocols causes difficulties, go to the user guide for your device or contact the technical support service of the manufacturer of your device.

If after installing the Line software, activating the Line IP license, and entering all parameters for access to the camera there is still no signal from the camera (given that this model is integrated) and its web interface does not open, make sure that it is available by executing the ping command.

Start the command line by hitting the Win + R keys (Win is the key with the flag) and enter the cmd command, then hit Enter.

In the new window enter the command `ping space camera IP address` (you can find the camera IP address in the user guide) and hit Enter.

For example, `ping 192.168.1.10`. If you see a message "This node is not available" or packet losses are 100%, check that the cable connecting the camera is undamaged and the network is setup right.

If the camera is available, but does not show anything, make sure that you have the current version of Line installed (check the Download section on the website at www.devline.net).

Make sure that the compression you plan to use is supported by your camera (you can see it in device specifications).

Make sure that the compression set on the camera web interface is the same as the one set in the Line settings.

Make sure that in the Streaming Method parameter on the camera web interface is not multicast.

If you have network security tools (anti-virus, firewall, brandmauer), make sure that the kernel.exe process is allowed network activity.