

Administrator's Guide

Axxon PSIM 1.0.0-1.0.1 (english)

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- Requirements for TCP/IP Network
- Requirements for PTZ and control panels
- Requirements for audio input units
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13 Administrator's Guide. INTRODUCTION

On the page:

- Purpose of the Axxon PSIM™ intelligent video surveillance system
- Setting up logical interrelations among objects in the Axxon PSIM software system
- Purpose and structure of the guide
- License method of the Axxon PSIM™ software

13.1 Purpose of the Axxon PSIM™ intelligent video surveillance system

Axxon PSIM™ software is designed for the deployment of industrial scalable, flexible (adjustable) integrated security systems, based on the digital video surveillance and audio monitoring systems.

Axxon PSIM™ software possesses the following basic features:

1. Integration of digital video surveillance and audio monitoring systems with the existing data systems, various security equipment, auxiliary software of other developers, using integrated open interfaces of the data exchange.
2. Compatibility with diverse security devices and data systems, in particular, with the fire and security alarm and access control systems, video surveillance cameras, data analysis systems and systems for recognition of objects (events) and identification by their images.
3. Single-source registration and processing of events, generation of notifications and controlling response in compliance with the flexibly modified logics.
4. Ultimately unlimited capabilities for scaling, solution − specific adjustments, re-distribution of resources with changes in the number or quality of tasks in monitoring protected facilities and operating various equipment.

13.2 Setting up logical interrelations among objects in the Axxon PSIM software system

Functional facilities of Axxon PSIM software complex are based on logical cooperation of objects. Common data about ways of setting up the logical interrelation is given in the table.

Ways of setting up the logical interrelation	Description	Realization	Example
Objects settings panels	Base setting of system objects interrelation	Is realized with the use of system objects functionality – see Administrator's Guide	Setting up the video signal displaying in Monitor interface window
Macros	Setting up simple interrelations among objects which functionalities do not allow to carry out the required operations	Is realized with the use of Macros object functionality – see Administrator's Guide	Setting of enabling the additional executive relay with ray closed
Program	Setting up complex interactions among objects, when **Macro** object functionality does not allow to carry out the required operations	Is realized on the basis of Program object as a code on the embedded Axxon PSIM program language – see The Script object. Programming using the JScript language	It is necessary to return the cameras to the reference position and make a frame
Script		Is realized on the basis of Script object as a code on embedded JScript language – see The Script object. Programming using the JScript language	

13.3 Purpose and structure of the guide

Documentation for the Axxon PSIM™ intelligent video surveillance system, Video surveillance and audio monitoring Administrator Guide is a reference and information handbook on programming on embedded Axxon PSIM software language, which is designed for system administrators, installation and configuration technicians, users with administrator rights to the digital video surveillance and audio monitoring systems, developed on the basis of Axxon PSIM™ software.

Programming in the Axxon PSIM™ enables system control by setting up complex logical interactions among objects. This guide contains the following materials:

1. Software programming;
2. Description of embedded program language syntax;
3. Examples of program on the embedded language.

13.4 License method of the Axxon PSIM™ software

Licensing of the Axxon PSIM™ software is performed by means of software and program protection.

The Axxon PSIM™ software protection is built on one of the following components:

1. dallas-codes of video capture cards' cryptochips (FS-5B, FS-6C, FS-8, FS-16(Exp), WS-7, WS-17);
2. dallas-codes of the electronic hardware security key «Guardant»;
3. dallas-codes of the electronic hardware security key «MatrixLock»;
4. codes of HID devices (hardware id).

The key file, connecting the software protection with program modules, belongs to the program protection part. A list of available for using functional program modules depends on the configuration of security system's delivery and is registered in the key file.

While extending the system configuration (for example while installing a new functional subsystem) for activating the program module functionality, corresponding to the installed subsystem, in the previous key file has to be changed by a new one, which the updated system functionality will be regulated with.

While using the distributed architecture a single key file is used for all the computers of the system.

Attention!

If the video capture card is changed, its dallas-codes are changed too, so the previous key file should be respectively changed by a new one. While using the distributed architecture the key file should be changed on all the computers of the system.

14 Software Lifecycle Policy

On page:

- Software Lifecycle Phases
- Software Technical Support
- Standard Period for Release of Software Updates
- Licensing Policy with Regard to Software Updates

14.1 Software Lifecycle Phases

The software source code repository is divided into 3 branches:

- **trunk** – current changes;
- **stabilization** – preparation of a new release;
- **release** – the latest official release.

During the development process, all new software features are added to the **trunk** branch.

After reaching *Feature Complete* status, all changes from the **trunk** branch are moved to the **stabilization** branch.

From that time on, only software fixes that are critical for this version are added to the **stabilization** branch. These fixes are also duplicated in the **trunk** branch.

After the version stabilization is completed, all changes are moved from the **stabilization** branch to the **release** branch, and a new development phase begins.

14.2 Software Technical Support

After purchasing a license key, the Customer can receive full technical support throughout the key's validity period or until the end of the software lifecycle if the license is unlimited in time.

14.3 Standard Period for Release of Software Updates

Release	Standard period
Major release	1 – 1.5 years
Minor release	3 – 5 months
Bug and security fixes*	3 – 5 weeks

Major and minor releases are available on the company's official website. Releases with bug and security fixes can be requested from technical support.

***** Software bugs can only be fixed in the latest official release.

14.4 Licensing Policy with Regard to Software Updates

- New software versions are fully compatible with the license keys of previous versions.
- After the software has been updated, all the features previously specified in the license key will be available in the new version.
- New software features that are subject to licensing will not be available until the license key is updated.

15 General description of the Axxon PSIM software

15.1 Axxon PSIM functionality

On the page:

- Video surveillance functionality
- Audio monitoring functionality
- Structuring of the protected facilities functionality
- Event registration and processing functionality
- Notification functionality
- Workability control functionality
- Automatic management functionality
- Access control functionality
- Integration of the distributed video surveillance and audio monitoring system functionality

This section provides information on the basic administered user functions of the distributed digital video and audio surveillance system based on *Axxon PSIM*.
Axxon PSIM provides the following basic user functions:

15.1.1 Video surveillance functionality

1. Simultaneous display of the images from several cameras (belonging to one or several Servers) on the **Video surveillance monitor** on a single computer screen (display).
2. Priority-oriented automatic selection of the displayed video images from alarm or active cameras (using a special **Video surveillance monitor** with video images from the cameras according to the set parameters).
3. Change the number of the **Surveillance windows** and their layout on the **Video surveillance monitor**.
4. Display of the zoomed in image from the selected camera (**Surveillance window**) displayed on the **Video surveillance monitor**, **Surveillance windows** slideshow option for the selected camera.
5. Color coding of the **Surveillance window** (camera) state: **Armed**, **Alarm**, **Recording**, etc.
6. Remote access to audiovisual streams from any workstation with both local and remote archive recording option.
7. Video recording can be performed:
    a. continuously;
    b. in real-time according to the set events;

    c. on alarm with a pre-event recording option or by Operator's command.
8. Pre-event video recording.
9. Display of the freeze frame by Operator's command without interruption of the recording.
10. Display of the service information on the **Video surveillance monitor**:
    a. current time;
    b. current date;
    c. camera No, ID.
11. Recording by Operator's command.
12. Viewing of the video images from the cameras.
13. Priority viewing of the video images from the cameras based on events (alarms) detection.
14. Video surveillance using the Web interface and mobile apps.
15. Audio and video archive management.
16. Viewing of the recorded videos with the possibility to search the archive by time, event and camera.
17. Synchro playback of the recorded videos on several cameras.
18. Timing of the archived video recordings.
19. Timestamp based video recordings search.
20. Video image processing:
    a. digital zooming;
    b. contrasting;
    c. focusing;
    d. masking;
    e. dynamic outlining.
21. Management of the actuating devices using:
    a. the 3rd party program interface panel;
    b. the universal control panel for the actuating devices management;
    c. a mouse;
    d. a joystick.
22. Viewing video information from all Servers included in the system on any workstation using the TCP/IP communication environment.
23. Storage and export of video frames and video recordings.
24. Integrated use of multi-zone detectors of various types:
    a. Main motion detector;
    b. Motion;
    c. Focusing;
    d. Video signal stability;
    e. Changes in the video image background;
    f. Light-struck camera lens;
    g. Closing camera lens;
    h. Infra-red.
25. Detector area(s) masking.
26. Image deinterlacing.
27. Analog video-signal output.

15.1.2 Audio monitoring functionality

1. Audio surveillance.
2. Audio and video synchro recording.
3. Sound activated audio recording.
4. Audio recording by Operator's command.
5. Audio recordings export.

15.1.3 Structuring of the protected facilities functionality

1. Conditional subdivision of the protected facility into areas and sections.
2. Using the multilevel (multilayered) interactive **Map** of the protected facility which implements the following functions:
    a. Auto switching and recursive search for links on the map (layers).
    b. Using the active device symbols on the map (layers) with the possibility to manage the devices from the function menu.

15.1.4 Event registration and processing functionality

1. Maintenance of the **Event log**, which displays all registered events or events of certain types according to the preconfigured filters. It is possible to display the corresponding video or a map with the object for each event.
2. Auto notification about different alarm and information events in the **Alarm notification window**.
3. Event management and processing according to the configurable scripts using the **Operator protocol** and **Incidents manager**.

15.1.5 Notification functionality

Auto notification using:

1. SMS (Short Message Service).
2. Emails.
3. V-dial auto redial service.
4. Sound (voice) notification.
5. Telegram bot.

15.1.6 Workability control functionality

1. Software control of workability — the **System restart service** object.
2. Hardware control of workability — *Watchdog.*
3. **Failover**: in case of the connection loss to one of the servers of the distributed system, the configuration is automatically moved to the backup server.

15.1.7 Automatic management functionality

Implementation of the user specific functions (performed according to the individual algorithms) using macros.

15.1.8 Access control functionality

Flexible configuration of the access levels to the system components and the possibility to manage administrator rights.

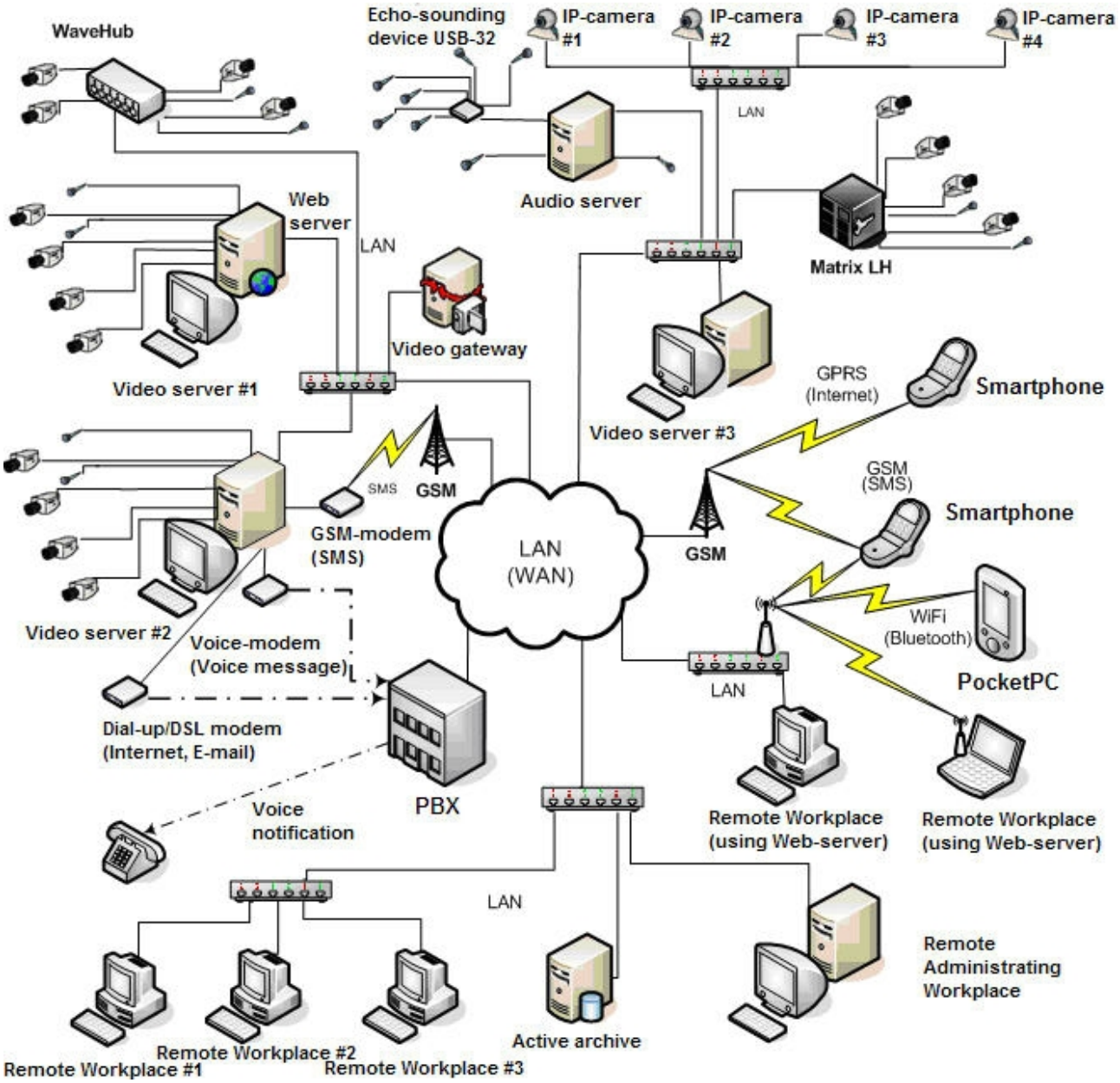
15.1.9 Integration of the distributed video surveillance and audio monitoring system functionality

1. Remote interaction of the software cores and automated replication of the internal databases (containing the system setup parameters and the data on the events registered in the system) between Servers and Remote workstations that are the components of the distributed digital video surveillance system.

2. Creating the integrated database of the system setup parameters and the registered events, followed by their processing in compliance with the standards and the specialized adjustable algorithms, including generation of notifications and system responses.
3. Software-programmable optimization of the video data flows within the distributed digital video surveillance system when there is a lack of communication channel capacity (optional videogate functionality).

15.2 Structure of the digital video surveillance and audio monitoring system based on Axxon PSIM™ software

The versatile structure of the digital video surveillance and audio monitoring system based on Axxon PSIM™ software and standard hardware and software is shown in the figure below.



15.2.1 Basic hardware components of the digital video surveillance system

The distributed video surveillance and audio monitoring system based on the Axxon PSIM™ system may be deployed using the following basic hardware and software components:

1. Servers and Remote workstations based on PCs (IBM PC–based).
2. Network video hubs (WaveHub, Linux Hub, etc.).
3. Network video servers (Matrix, etc.).
4. Analog and IP video cameras.
5. Audio input devices.
6. TCP/IP communication.

15.2.2 Software

Operating system

Axxon PSIM software operates in Microsoft Windows family (see Operating system requirements).

Software kernels

The Axxon PSIM™ system can be implemented in the following options (installation options):

1. Based on the full-featured Axxon PSIM software kernel (this option corresponds to the psim.exe software module). The full-featured software kernel ensures operation the video server, Administrator and Operator workstation.
2. Software kernel with minimized functionality supporting the Remote Operator Workstation functions (this option corresponds to the psim_host.exe software module).

Software of the Remote Operator Workstation does not support system administration (create, delete, set system objects, register users, user rights administration), as well as local database maintenance (operations with ROW use a remote database operated by the psim.exe kernel and belonging to the video server or Remote Administrator Workstation).

Psim.exe, the fully software kernel, is the central software component of the system. The system kernel interacts with the program modules, which form the software basis for the subsystems.

Integration of the distributed digital video surveillance and audio monitoring system is provided by the data exchange between software kernels.

Program modules

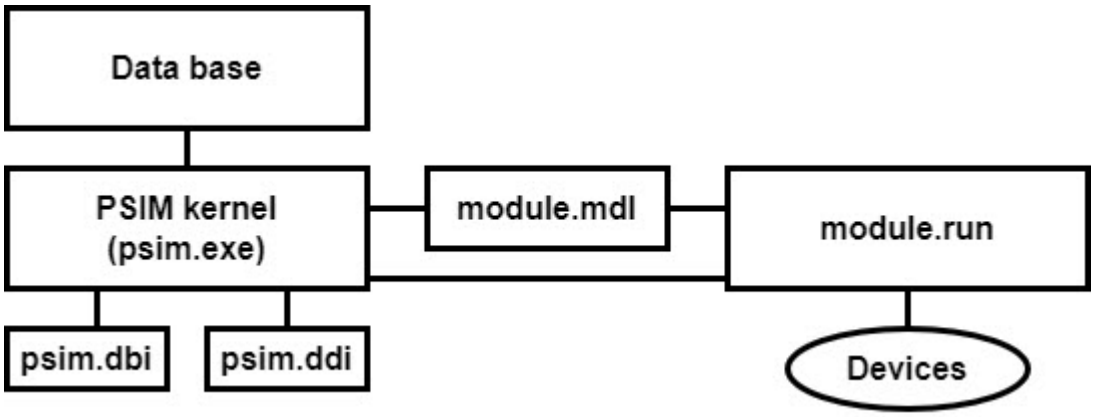
Program modules support direct interworking of the hardware, and also serve as a source of data about protected facilities. The software kernel of the system processes the incoming data from various program modules, providing their integration. The kernel sends ICMP packages to program modules every 5 seconds to check their availability.

The list of the program modules available for the operations depends on the configuration option of the system. Executive files, corresponding to the subsystems are automatically launched by the kernel as the system is configured.

For instance, if the **Camera** object is created and as soon as the relevant settings are confirmed, the video sub-system executive module (video.run executable file) will be launched.

Interaction of basic modules with the Axxon PSIM kernel

Basic modules interact with the *Axxon PSIM* kernel via the data exchange interface of the *Axxon PSIM* kernel, using module.mdl, a dynamic library. The program modules and *Axxon PSIM* kernel interaction scheme are shown in the figure.



Psim.dbi and psim.ddi object setting files contain the information about integrated modules (objects) required to support operation of the *Axxon PSIM* kernel. System setting files are edited using ddi.exe, a specialized utility. At the object integration stage, the names and parameters of the integrated object and related system events and responses, used for this object, and the values thereof are recorded in the system setting files.

The module.mdl file supports operation with objects of the same type: creation, modification, deletion, changing object parameters at the configuration stage or during operation and saving updated parameters in the database, as well as certain special operations with the object. Apart from that, the module.mdl transmits parameters of the created or modified objects to the executive module.

The module.mdl file stores the configuration of the object setting panels.

The module.run execution file supports interworking with the units, transmits information about events to the kernel and also supports unit control.

Consequently, module.mdl supports two-way data exchange between the *Axxon PSIM* kernel and module. The responses and events, which are used, will be described in the system manuals of the appropriate object (in psim.ddi file).

To simplify integration with the joint data systems, auxiliary software or extension modules, *Axxon PSIM* system offers an alternative interface for data exchange between modules and the *Axxon PSIM* kernel – IIDK.

Interaction of modules of other vendors with Axxon PSIM kernel

Axxon PSIM software architecture is designed for intertask communication between the *Axxon PSIM* kernel and modules (joint information systems) using the TCP/IP communication environment, requiring the following parameters to support connection:

1. port number;
2. IP address of the PC using the *Axxon PSIM* kernel;
3. ID, an identifier of the connectable object.

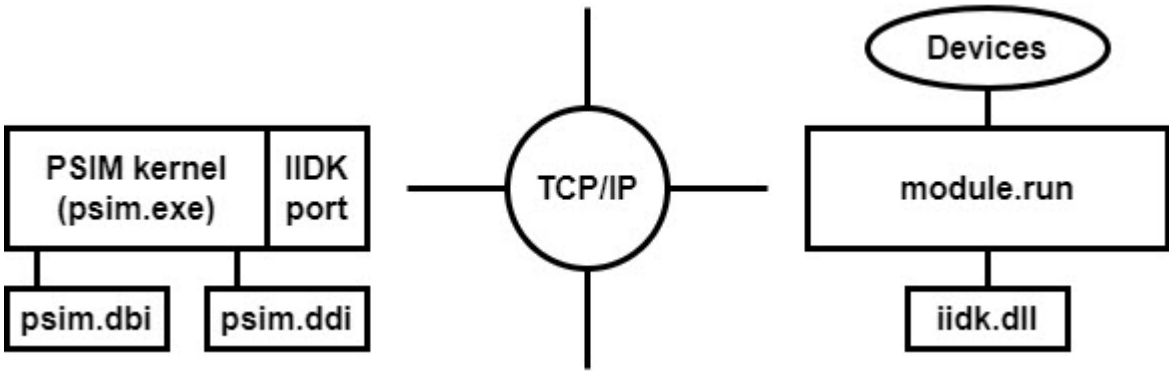
To enable the above mechanism, the **IIDK interface** object should be created in the *Axxon PSIM* software tree based on the **Computer** object at the stage of *Axxon PSIM* software configuration.

Where the **IIDK interface** is used, setting panels for the integrated modules (of already existing software) are not created.

To enable interworking between modules and the *Axxon PSIM* kernel, one of the following prerequisites should be complied with:

1. Integrated software should be adjusted for TCP/IP data exchange in the *Axxon PSIM* kernel format.
2. An interface program module should be developed to support transmission of events and responses of the integrated software in the *Axxon PSIM* kernel format and interoperate with the kernel through TCP/IP. This option is used in cases where integrity of the integrated software (for instance, integration of ATM software) is especially important.

The *Axxon PSIM* kernel adjusts to the data exchange over the specified port, as soon as the **IIDK interface** is created in the program.



Being a module and hierarchy object-based structure, *Axxon PSIM* software ensures efficient extension of functionalities through the integration of modules supporting new equipment or new service functions. *Axxon PSIM* software offers IIDK (Axxon PSIM Integration Developer Kit) to the vendors, integrating proprietary security equipment with *Axxon PSIM* software.

The above kit includes the software tools required for the development of integrated modules (auxiliary software) or modification of existing software to process messages, events and responses in the *Axxon PSIM* kernel format.

15.2.3 Internal video Server database

The internal video Server database contains the following information:

1. system settings (objects created in the system, their attributes, users and user rights and other additional data);
2. events registered by the system within the period specified at the system configuration stage (event logs).

The internal video Server database is maintained in the MS SQL format. The list of MS SQL Server versions, supported by Axxon PSIM, is given in the table below.

MS SQL Server version	**Supportes edition**	**Constraints**

MS SQL Server 2008 R2 – see http://www.microsoft.com	Enterprise Edition (Restrictions – maximum number of processors and memory capacity, supported by OS)	
	Developer Edition (Restrictions – maximum number of processors and memory capacity, supported by OS)	
	Standard Edition (Restrictions – 4 supported processors; maximum memory capacity, supported by OS)	
	Express Edition (Restrictions – 1 supported processor, maximum database size –10 Gb)	
	Web Edition (Restrictions – 4 supported processors; maximum memory capacity, supported by OS)	
	Workgroup Edition (Restrictions – 2 supported processors; maximum memory capacity, supported by OS (32-bit version), or memory capacity – 4Gb (64-bit version)	
MS SQL Server 2012 – see http://www.microsoft.com	All	
MS SQL Server 2014 – see http://www.microsoft.com	All	
MS SQL Server 2016 – see http://www.microsoft.com	All	**List of supported operating systems:** Windows 10; Windows 8; Windows 8.1; Windows Server 2012; Windows Server 2012 R2; Windows Server 2016. When MS SQL Server 2016 is in use, **only x64** bit operating systems are supported. Maximum database size for Express edition – 10 Gb

MS SQL Server 2017 – see http://www.microsoft.com	All	**List of supported operating systems:** Windows 8, Windows 8.1, Windows 10; Windows Server 2012, Windows Server 2012 R2, Windows Server 2016. For Web Edition, Enterprise Edition: Windows Server 2012, Windows Server 2012 R2, Windows Server 2016. When MS SQL Server 2017 is in use, **only x64** bit operating systems are supported
MS SQL Server 2019 – see http://www.microsoft.com	All	**List of supported operating systems:** Windows 10 TH1 1507 or later version Windows Server 2016 or later version When MS SQL Server 2019 is in use, **only x64** bit operating systems are supported

Note.

Free of charge version MS SQL Server 2014 Express (SP3) is installed with Axxon PSIM software on default. To get information about technical features and limitations of free version see https://www.microsoft.com.

Note.

If an error occurs while installing Microsoft SQL Server 2008 R2 Express, try to download the corresponding installation kit from https://www.microsoft.com and install manually.

Attention!

While exceeding maximum database memory capacity (when MS SQL Server edition with memory capacity is used) there is no guarantee of stable operation for Axxon PSIM™.

Information about the objects, settings of the digital video surveillance and audio monitoring system and event logs can be automatically replicated from the video Server database to the databases of all other video Servers of the system. Communication between full featured program kernels of Axxon PSIM system is supported by the TCP/IP environment (if the system configuration defines certain program kernels, between which communication is to be provided).

Information about system objects and their settings is initially stored to the database of the video Server where the objects belong to. Replication is initiated automatically whenever data is changed, the kernel is launched or communication is restored.

Replication is used to create a common event environment within the distributed digital video surveillance system. Replication is a hidden process for the user.

15.2.4 Communication environment

The communication facilities of Axxon PSIM™ software allows deployment of distributed digital video surveillance systems, which control lengthy and versatile objects. Remote system components interact automatically with each other forming a common security system.

Data exchange and communication between distributed digital video surveillance and the audio monitoring system is supported by the local access networks (LAN), Internet (WAN), telephone lines (Dial-Up) and leased communication channels, when TCP/IP telecommunications transportation protocol is used.

15.3 Axxon PSIM restrictions

The following restrictions are imposed in *Axxon PSIM* when building video surveillance and audio control systems:

1. Maximum PTZ devices (analog) that are used on one computer is 64. For IP devices, this number is limited by the server hardware resources.
2. Maximum **Screen** objects assigned for one computer is 500.
3. Maximum number of video input channels for video signal processing in the live video and/or multiplexing modes is limited by the server hardware resources—processor power, RAM memory space, etc.
4. Maximum number of simultaneous output analog video signals is limited by the number of video capture cards (with analog video outputs) in use on the server.
5. Maximum number of remote workstations connected to the server to receive videos is limited by the number and parameters of transmitted video signals, video surveillance system architecture, and network bandwidth.
6. Maximum number of servers, video signals from which are transmitted simultaneously to a remote workstation, is limited by the number and parameters of transmitted video signals, video surveillance system architecture, and network bandwidth.
7. Maximum number of simultaneous video images displayed on the screen of a remote workstation is limited by video image parameters and network bandwidth.
8. Maximum video stream rate transmitted via a videogate is limited by the videogate hardware parameters and network bandwidth.
9. Maximum number of audio output channels (to the loudspeakers, earphones, etc.) depends on the audio card used for playback.
10. Enable 64-bit modules if more than 25 **Tracker** objects are used on one server with video resolution higher than 800x600.
11. Digitization bandwidth depends on the audio card parameters and software limitation from 0 to 48 000 Hz.
12. Do not set the bitrate value to 8 or 12 kb/s when the sampling frequency is 8 kHz for correct sound registration from Axis IP cameras using the AAC codec; it is recommended to use the bitrate value equal to 16, 24, 32, 48 or 64 kb/s.
13. Use the G.711 audio codec instead of the G.726 codec for correct sound registration from Sony IP cameras.
14. Different servers are not allowed to be connected to one database. Use of a remote database by server is allowed, but it can cause increased requirements for the network and other resources and can cause delays when sending events and states between cores that can affect the system.
15. You must install the same version of *Axxon PSIM*, including the build number, on all components of the distributed system.
16. It is recommended to leave **Decompressor** field empty on the settings panel of the **Camera** object or use the Motion Wavelet decompressor when using WS7 and WS17 video capture cards. Correct operation of *Axxon PSIM* is not guaranteed if other decompressors are selected.
17. Partial decompression is possible when using MPEG4, MJPEG, MXPEG, Motion Wavelet, and H264svc codecs. Partial decompression for H263, H264avc and Mpeg2 codecs is not supported. FPS decreasing only is supported by H264svc-t codec.
18. If the MPEG4 format of recording to archive is selected, the loss of the video record part is possible (about 0.5 seconds from the video recording beginning).

19. If the **Recording frame rate** parameter (the **Camera** object, the **Basic settings** tab) is set to non-zero, regardless of its value of recording to the archive is performed only by anchor frames if the H.264 codec is in use. If the **Hot record rate** parameter for H.264 codec is also in use, then the recording to the archive will be performed by anchor frames too. If the **Recording frame rate** parameter is set to 0 or not set, all frames are recorded to the archive.
20. If 64-bits modules are in use the following items are not supported:
    a. The **Scene** object (see Configuring object's panoramic view by means of the Scene object).
    b. Some detectors from *DetectorPack* (at the moment of writing the documentation—the Barcode detector only).
    c. *Arena* module and *Auto-Uragan* license plate recognition as a part of *Auto PSIM*.
    d. *ACFA PSIM* modules.
21. Decimation on Videogate can be performed using MJPEG, Motion Wavelet, MPEG, H.264 and MxPeg codecs. If the decimation rate is 25 FPS, then the first minute of video will be displayed at a lower speed (~12 FPS). For MXPeg codec the maximum allowed decimation rate is 12 FPS.
22. Web server displays video only in MJPEG format. When transferring video to the Web server video stream is recompressed to MJPEG format.
23. It is required to add Web server address to the Java exceptions in order to Web server work with JRE 7u51 or later versions.
24. Video stream transferred via RTSP Server is to be compressed using H.264, H.265, MPEG4, or MJPEG codecs. Video with width and/or height more than 2048 pixels is not supported when MJPEG codec is in use.
25. Use of more than 100 scripts/programs on one computer can cause system instability.
26. Only files of WAV format can be in use as the **Play audio file** action parameter of the **Audio player** object. Otherwise, the **Play audio file** action is not performed.
27. The **External window** object is specialized on working with onebox applications. If the application contains several boxes, then all of them will be opened simultaneously when the application is started.
28. PureVideo/CUDA technology in *Axxon PSIM* is applied only for video signal decompression in the H.264 codec. PureVideo/CUDA technology is not used for video signal compression if a resolution more than 1920x1088 is set in the camera.
29. Recording to the archive is performed only in the color mode if the SC590N4 video capture card with h.264 format of video signal compression is in use. The black-and-white mode is not supported.
30. Video displaying on server using SC3B0N16 (WS216) and SC390N16 (WS16) cards is performed only with 352x288(PAL)/352x240(NTSC) resolution.
31. Only key frames are played back when the archive is played back fast in H264 and MPEG4 formats.
32. Video signals are not transferred to PSIM-based vertical modules using the Videogate module. These modules always receive video signals directly, like other modules.
33. There is no sound transmission to the RMW via the Videogate if different subnets are in use.
34. When working with *Axxon PSIM*, do not use power-saving modes, such as sleep mode or a “Power saver” power plan, so that the CPU clock speed does not get lower than the base speed.
35. *Axxon PSIM* does not support NVIDIA® Mosaic™ multi-display technology.

15.4 Hashing procedure

The following hashing procedures are used in the *Axxon PSIM* software package:

1. The MD5 procedure is used for passwords hashing (hash length is 16 bits).
2. For digital signing of archive the following are used:
    a. RSA-256 encryption (key is 256 bits).
    b. SHA1 hashing (hash size is 20 bytes).

15.5 Traffic encryption in the Axxon PSIM software

A security and video surveillance system based on Axxon PSIM software should be built on a separate network that connects all the major components of the system without any connection to the main network. This significantly reduces the risk of being hacked and losing important data. If for some reason it is not possible to isolate the security system on a separate network, it is recommended that you secure access to it from external networks by using a VPN with dedicated ports and password protection.

Users can connect and work with Axxon PSIM software from their mobile devices or from a browser. In addition, the video signal can be transmitted over the secure HTTPS protocol.

In addition to encryption software, Axxon PSIM software supports hardware encryption of the channels between routers and all network nodes.

16 Requirements for the software and hardware platform

16.1 Requirements for the base computer

Axxon PSIM is designed for use with IBM compatible computers. Efficiency and performance of the *Axxon PSIM* system depend, in particular, on the technical parameters and performance of computers. Before you start system design, you must carefully study the requirements for the hardware components and check if they are able to support the target performance of the system.

16.1.1 General requirements for PCs

Requirements for PCs depend on *Axxon PSIM* software installation type. The following installation types are available:

1. **Servers** are designed for digitization, processing, recording, transmission and displaying the incoming video signals from the cameras of the video surveillance system.
2. **Remote Administrator Workstations** are designed for remote monitoring of video signals, for creating gateways and archives of video sequences, for logging the events registered by *Axxon PSIM* software and use as a web server for the transmission of video signals over HTTP (this protocol is used to transmit signals over the Internet and display them with standard Web-browsers). Configuration requirements for the Remote Administrator Workstation depend on the functions it is designed to perform.
3. **Remote Clients** are designed to playback incoming video and audio signals from video surveillance system servers and to control cameras, microphones, PTZ units, etc.

Minimum requirements for computer configuration are specified in the table.

Component	Server and RAW	Client	QTY per computer	Additional information
Tower	Any		1	—
Motherboard	Any type that supports required processor and has the necessary set of pins and slots		1	Pay attention to the number of free PCI (-e) slots and socket type of the processor

Processor	Select the processor in accordance with the computer configuration using the on-line calculator: https://sale.axxonsoft.com/calc/calculator.jsf. Documentation on the calculator is available here: Documentation		1	If the total number of processor cores is more than 8, it is recommended to use only 64-bit operating systems: Windows 7 x64 Ultimate, Windows 7 x64 Professional, Windows Server 2008 R2 x64 or higher. Processor supporting AVX instructions is required for the *VA* capture and recognition (the most recent *Face PSIM* documentation is available in AxxonSoft documentation repository)
RAM	At least 2 GB		—	Memory operating speed increase by using memory with greater frequency or using memory in the dual stream (or more) mode results in less CPU load and, consequently, greater *Axxon PSIM* performance
Hard drive 1	Space required for installation of the OS + 10 GB for installation of *Axxon PSIM* software + 20 GB for installation of MS SQL Server	Space required for installation of the OS + 10 GB for installation of *Axxon PSIM* software	1 (+1)	Mirroring can be used to improve the fault-tolerance
Hard drive 2	To maintain video/audio archive compatible with the requirements for the archive depth	—	—	External disk systems can be connected via SAS, SCSI, Fiber Channel interfaces. Will be installed in cases where video/audio archives are required

DVD-RW	Any type of DVD-RW	1	To write the archive to an external carrier, for fallback recovery (optional)
Video card (GPU)	Discrete: NVIDIA GeForce GT520 1 GB RAM or with higher performance. On-board: Intel HD Graphics 530 or with higher performance	1	Optional if it is not required to display video on the monitor. *Axxon PSIM* can operate without a video card if the processor has a built-in video core
Audio card	Standard audio cards, MidiMan Delta, Comart Hera and Olkha 9P	1	Optional if audio surveillance is not required
Power supply unit	Any matching the PC tower. Capacity depends on the hardware configuration	1	Two fans are recommended: a suction fan and an induced draft fan. A redundant fan can also be installed
FAN & Temp Control	Any temperature control module	1	Optional
OS	OS Windows supported versions (see Operating system requirements)	1	Internet access is recommended to be switched off
Architecture	x86, x64	—	—

Attention!

If *Axxon PSIM* is installed on a computer with two processors, it is recommended to disable the Hyper-threading. If it is enabled, the operating system does not allow *Axxon PSIM* to run on two processors simultaneously.

Note

The system clock on the server must be synchronized with the client's system clock, or run a couple of seconds ahead. Otherwise, problems during re-connecting (for example, on connection loss) may occur.

16.1.2 Operating system requirements

Axxon PSIM is compatible both with 32 (x86) and 64 bit licensed versions of Microsoft Windows operating system (OS). File system — NTFS.

Note

To ensure the correct *Axxon PSIM* operation, it is necessary that the OS is updated to the latest version.

Attention!

For stable and correct *Axxon PSIM* operation, the swap file (the size is selected according to system requirements) should NOT be enabled in OS.

Windows version	Supported architecture	Supported release	Restrictions	Installation types
Windows				
Windows 11	x64	All editions	No restrictions	Any type
Windows 10 IoT[2]	x86, x64	Enterprise ***Attention! Core edition is not supported***	No restrictions	Any type
Windows 10[2]	x86, x64	Home	No restrictions	Any type
		Pro		
		Enterprise		
Windows 8.1[2]	x86, x64	Core	No restrictions	Any type
		Pro		
		Enterprise		
Windows 8[2]	x86, x64	Windows 8 (Windows 8 Core)	No restrictions	Any type
		Windows 8 Pro		

Windows version	Supported architecture	Supported release	Restrictions	Installation types
		Windows 8 Enterprise		
Windows 7 SP1[2]	x86, x64	Starter (x64 edition does not exist)	Restrictions, imposed by the OS edition (2GB RAM, 1 physical processor, 1 monitor). See http://www.microsoft.com	Any type
		Home Basic	Restrictions, imposed by the OS edition (1 physical processor). See http://www.microsoft.com	
		Home Premium	Restrictions, imposed by the OS edition (1 physical processor). See http://www.microsoft.com	
		Professional	No restrictions	
		Enterprise		
		Ultimate		
Windows Server				
Windows Server 2022[1,3]	x64	Standard	No restrictions	Any type
Windows Server 2019[1,3]	x64	Standard	No restrictions	Any type. If you plan to use video capture cards for analog cameras, make sure to install all official Windows Server 2019 updates (see http://www.microsoft.com)
		Datacenter		

Windows version	Supported architecture	Supported release	Restrictions	Installation types
Windows Server 2016[1,3]	x64	Essentials	No restrictions	Any type
		Standard	No restrictions	Full Installation type is supported. Server Core and Nano Core Installation types are not supported
		Datacenter		
Windows Server 2012 R2[1,3]	x64	Foundation	Restrictions, imposed by the OS edition (1 physical processor). See http://www.microsoft.com	Full Installation type is supported. Server Core Installation type is not supported
		Essentials	Restrictions, imposed by the OS edition (2 physical processors). See http://www.microsoft.com	
		Standard	No restrictions	
		Datacenter		
Windows Storage Server 2012 R2[1,3]	x64	Standard	No restrictions	Any type
Windows Server 2012[1,3]	x64	Foundation	Restrictions, imposed by the OS edition (1 physical processor). See http://www.microsoft.com	Full Installation type is supported. Server Core Installation type is not supported

Windows version	Supported architecture	Supported release	Restrictions	Installation types
		Essentials	Restrictions, imposed by the OS edition (2 physical processors). See http://www.microsoft.com	
		Standard	No restrictions	
		Datacenter		
Windows Home Server 2011 SP1[3]	x64	-	No restrictions	Full Installation type is supported. Server Core Installation type is not supported
Windows Small Business Server 2011 SP1[3]	x64	Standard	No restrictions	Full Installation type is supported. Server Core Installation type is not supported
		Essentials		
		Premium Add-on		
Windows Storage Server 2008 R2 SP1[3]	x64	Essentials	Restrictions, imposed by the OS edition (1 physical processor). See http://www.microsoft.com	Full Installation type is supported. Server Core Installation type is not supported
		Workgroup	No restrictions	
		Standard		
		Enterprise		
Windows Server 2008 R2 SP1[2,3]	x64	Enterprise	No restrictions	Full Installation type is supported. Server Core Installation type is not supported
		Datacenter		
		Standard		

Windows version	Supported architecture	Supported release	Restrictions	Installation types
		Web		
		HPC		
		Foundation		

[1] The latest drivers should be installed on video adapter from the video adapter manufacturer for the correct operation of *Axxon PSIM* interface objects and vertical solutions in server OS.

[2] Face capture and recognition using the *VA* and *VisionLabs* modules is not supported in 32-bit operating systems.

[3] In order to use SC590N4, SC3B0N16, SC390N16, SC300Q16 (FX-4), SC300D16 (FX-8), SC310N16 (FX-16), SC200Q4 Low profile (FS-115), SC510N4 (FX HD4) video capture cards in Windows Server operating systems enable the *Desktop Experience*. Find information on how to work with this component at https://technet.microsoft.com/en-us/library/cc754314(v=ws.11).aspx.
In addition, to use SC300Q16 (FX-4), SC300D16 (FX-8), SC310N16 (FX-16) video capture cards in Windows Server operating systems, enable access to camera on the Server: type **Camera privacy settings** in the search field or go to the **Start** → **Settings** → **Privacy** → **Camera** menu, then allow access to the camera on this device in the window that opens.

Specific requirements for working with Axxon PSIM

Before installing *Axxon PSIM* on Windows 7, Windows 8, Windows Server 2008 R2 and Windows Server 2012 OS, it is necessary to pre-install .Net 4.0 or later. When the installation begins on these OS, the corresponding message will be displayed.

For the correct operation of FX-4 and FX-8 cards in *Axxon PSIM*, the KB3033929 update is to be installed. Download this update at https://technet.microsoft.com/en-us/library/security/3033929.

For the correct start of the Elasticsearch service on 32-bit systems, you should limit the RAM allocated to this service (see Limiting RAM for Elasticsearch service).

16.1.3 Free disk space (video archive size) required

Axxon PSIM™ system allows saving the video recordings to the hard drives (maintain video recordings archive). Archived information can be saved to the hard drives of such types as SCSI, IDE, SATA, USB and also RAID arrays. SCSI disks and RAID arrays (in particular RAID-5) allow accelerating data search and recording.

The size of the redundant array defines the length (time based length) of the saved and archived video recording. The size of the redundant array is selected based on the required parameters of the video recording.

> **Attention!**
>
> For proper operation of video archive recording the disk space size must exceed «Ring» parameter, that has been stated in **Video Subsystem** section of advanced system settings utility (see The settings panel for the Video subsystem section).

To determine disk space required for storing archive from IP-cameras, please use the on-line calculator. Documentation on the calculator is available here.

Table below shows the average frame size of a PAL video signal depending on frame resolution, video signal compression, color grade of the image and frame resolution, frame chromaticity and motion level in the frame.

Video card type	Resolution	Colour	Frame size (Kb) with 50% of motion in the frame	Frame size (Kb) with 75% of motion in the frame	Frame size (Kb) with 100% of motion in the frame
SC390N16 (WS16)	704x576	colour	15	30	61
		black-and-white	10	22	42
	704x288	colour	6	10	30
		black-and-white	4	9	18
	352x288	colour	4	6	17
		black-and-white	2	5	10
SC3B0N16 (WS216)	704x576	colour	19	35	101
		black-and-white	11	33	65
	704x288	colour	8	12	49
		black-and-white	6	11	29
	352x288	colour	4	7	25
		black-and-white	3	6	15
FX416\MS416	To calculate required disk space for these cards, please use the on-line calculator.				

Video card type	Resolution	Colour	Frame size (Kb) with 50% of motion in the frame	Frame size (Kb) with 75% of motion in the frame	Frame size (Kb) with 100% of motion in the frame
SL16-200 (FX116) **SC310N16 (FX16)** **SC200Q4 (FS15)** **SC200Q4 LOW PROFILE (FS115)** **SC300Q16 (FX4)** **SC300D16 (FX8)** **SC230N4** **SC330Q16 (analogue of SC300Q16)** **SC330D16 (analogue of SC300D16)**					
FS5\FS6\FS8\ FS16	704x576	colour	26	59	103
		black-and-white	24	42	91
	704x288	colour	17	26	52
		black-and-white	16	24	47
	352x288	colour	11	15	39

Video card type	Resolution	Colour	Frame size (Kb) with 50% of motion in the frame	Frame size (Kb) with 75% of motion in the frame	Frame size (Kb) with 100% of motion in the frame
		black-and-white	10	14	37

Note.

Table shows the examples of frames for video cameras with set frame frequency – 25 f\s.

Archive size will be calculated on the basis of frame resolution and compression, image color grade, rate of video signal frames per second, number of cameras, recording events continuously to the hard drives.

Archive size can be calculated from formula no. 1:

Archive size (days) = (1024 (Mb/Gb) * 1024 (Kb/Mb) * Hard drive size (Gb)) / (60 (sec/min) * 60 (min/hr) * 24 (hr/day) * Frame size (Kb) * Frame rate (frames/sec) * Number of cameras)

Comments relating to Formula no. 1. To estimate the archive size, the following should be performed: the size of hard drive in Kb (the rates for converting Gb into Kb are included into the numerator of Formula no. 1) divide by the frame size, defined in Table A as a function of video signal parameters, and by the frame rate per camera and the number of cameras, connected to the video server. Archive size in this case will be measured in seconds. Now, the archive size expressed in seconds should be converted to the number of days (the rates to convert seconds to days are given in the denominator of Formula no. 1).

Note.

Archive size can also be calculated from a simplified formula, where numerical conversion factors are reduced to a numerical value (Formula no 2).
Archive size (days) = 12 (Kb/Gb * day/sec) * Hard drive size (Gb) / (Frame size (Kb) * Frame rate (frames/sec) * Number of cameras)

Example. If the size of a hard drive, for instance, is 40 GB, 4 cameras are continuously recording PAL video signals with 10 frames per second and 150 Kb frame size. Based on the formula, you work out:

Archive size (days) = 12 (Kb/Gb * day/sec) * 40 (Gb) / (150 (Kb) * 10 (frames/sec) * 4) = 0.08 (days)

The arithmetic calculation shows, that the video archive size in the particular case will be 0.08 days (about 1 hour 55 minutes).

For the purpose of calculations, frame size can be defined in the table above.

Note.

To calculate the size of a hard drive, the following specific features should be accounted for: 1) About 5-10% of the hard drive size is taken up by the filing subsystem data. To ensure that Windows OS is operating properly, at least 20% of free disk space is required. By default, Windows OS auxiliary files are assigned 1000 Mb. To modify the above value, Windows OS catalogue should be updated, using Tweaki.exe utility, supplied together with the *Axxon PSIM* distribution software package.

Table below shows archive sizes calculated for hard drives of various sizes, based on a continuous incoming PAL video signal recording, from 1 camera with a frame rate of 25 f/sec.

Resolution	Hard drive size			
	80 GB	160 GB	400 GB	750 GB
352x288 b/w	2,1	4,3	10,7	20,0
352 x 288 color	1,9	3,8	9,6	18,0
704x288 b/w	1,6	3,2	8,0	15,0
704 x 288 color	1,5	3,1	7,7	14,4
704x576 b/w	1,2	2,3	5,8	10,9
704 x 576 color	1,1	2,3	5,6	10,6

16.1.4 Defining disk space (audio archive size)

Axxon PSIM software package allows storing audio archive (recorded with the video archive) on hard disks (see Setting up the audio and video synchro recording). So, it is necessary to provide space for storing not only video recordings, but also audio recordings recorded synchronously, on the hard disk. Information on how to calculate the required disk space for storing the video archive is given in Free disk space (video archive size) required section.

Below one can find information about required disk space for storing audio recordings from 1 audio channel (microphone) depending on the audio digitization rate.

Important!

Regardless of the codec, the audio archive is recorded in PCM format.

Digitization rate	Audio recordings for 24 hours, GB	Audio recordings for 30 days, GB
8000	0.39	11
11025	0.49	15
22050	1	30
44100	1.8	54
48000	2	60

96000	4	120

The formula for calculating the depth of the video archive recorded synchronously with the audio archive is given below (to find info about frame size see Free disk space (video archive size) required):

Depth of video and audio archive (day) = Hard disk space (GB) / ((k (s/day* GB/Kb) * Frame size(Kb) * Frame rate (fps) * Number of cameras) + Volume of audio recording per day (GB/day) * Number of audio channels)

Here k is the unit conversion factor for the depth of the video archive, calculated like this:

*k = (60(s/min)*60 (min/h)*24(h/d))/(1024(Mb/GB)*1024(Kb/MB))~0.08*

16.1.5 Define required disk space (size of event log database)

The event log database can be stored with the Axxon PSIM configuration database or without it.

Disk space required for event log database storing is counted by formula:

Required disk space, Gb = N (pcs) * K (events/hour) * T (days) * 24 (h/day) * 1.2 (Kb) / 1024^2 (Kb/Gb)

where N – number of objects generated events.

K – average number of events per hour from one object. It is defined experimentally from real conditions. For example, to define the average number of events per hour for camera it is required to know how many times per hour motion appears in the camera field of view. Estimation from above: one event once per five seconds, on more frequently triggering detection haven't got enough time to disarm and events won't be record to the database.

T – the depth of events archive in days, specified at the system configuration.

1.2 – space required for storing one event in kilobytes.

Example. There are 250 objects, each of them generates one event per 5 seconds (i.e. 720 events per hour) with the archive depth of 20 days.

Required disk space, Gb = 250 (pcs) * 720 (events/hour) * 20 (days) * 24 (h/day) * 1.2 (Kb) / 1024^2 (Kb/Gb) = 98.9 Gb ~ 100Gb

16.1.6 Define required disk space (VMDA metadata storage)

When using the smart search in the archive, the VMDA metadata storage is created and configured (see Creating and configuring VMDA metadata storage).

The size of the VMDA metadata storage depends on the frame rate, minimal and maximal object size, tracker sensitivity: the higher the frame rate and larger the object size, the more disk space is needed for storage.

If the record is performed 24 hours a day, it's possible to use the following formula to estimate the disk space required to store the object tracks database:

DB VMDA (Gb) = 0,5Gb * (Number of cameras) * (Number of days)

16.1.7 Axxon PSIM operation on virtual machines

Axxon PSIM software supports operation on the following virtual machines:

Virtual machine	Client OS	Additional information
VMware Workstation Pro 15.5.1	see Operating system requirements	Neural analytics can be in use (including Neural filter, Neural tracker, as well as fire and smoke detectors—see the *DetectorPack* subsystem documentation in the AxxonSoft documentation repository). USB-devices forwarding to virtual machine via the virtual machines means is available. Working for Carmen-freeFlow, Carmen-parking, VIT, Auto-Uragan LPR modules' hardware keys, as well as Guardant is checked
VMware Workstation 17.5.0	see Operating system requirements	USB-devices forwarding to virtual machine via the virtual machines means is available. Working for Carmen-freeFlow, Carmen-parking, VIT, Auto-Uragan LPR modules' hardware keys, as well as Guardant is checked
VMware ESXi 6.7.0	see Operating system requirements	USB-devices forwarding to virtual machine via the virtual machines means is available. Working for Carmen-freeFlow, Carmen-parking, VIT, Auto-Uragan LPR modules' hardware keys, as well as Guardant is checked
Hyper-V 10.0.22621	see Operating system requirements	It is possible to use external program, for example USBoverLAN to forward USB-devices in this virtual machine

Note

Officially Carmen software module does not support virtual machines, although Carmen software module operates on VMware and VirtualBox as they can handle the USB properly.

Use general requirements for PCs in order to define the requirements for RAM, processor, etc. It should be taken into account that the performance of virtual systems is less than one of real systems, so the estimated number of cameras should be reduced accordingly. Get more details from the sales department in your AxxonSoft branch.

Note

To implement other devices to the virtual machine see documentation of the corresponding virtual machine.

Attention!

The following restrictions are imposed when *Axxon PSIM* software is working in virtual machines:

1. Using of video capture devices is not supported.
2. Working of *Axxon PSIM* interface objects, Report.exe utility and Converter.exe utility is not guaranteed in virtual machines.

3. Demo mode operation of the VIT module (part of *Auto PSIM* software) is not allowed.

16.2 Requirements for TCP/IP Network

On the page:

- Requirements for TCP/IP Network bandwidth for video signal transferring
- Requirements for TCP/IP network bandwidth for database synchronization functionality
- Requirements to the TCP/IP network quality

16.2.1 Requirements for TCP/IP Network bandwidth for video signal transferring

Throughput capacity of the network refers to the factors restricting performance of the distributed network. Data exchange flow is primarily made up of image data. For instance, where surveillance cameras are used to monitor remote objects, likes ATMs, the data flow (image flow) is transmitted over communication links.

In order to calculate the required bandwidth of TCP/IP network for video transmission from IP devices and some video capture cards, it is recommended to use the AxxonSoft Platform Calculator, available here (the **Summary stream from ip devices (Mbit/s)** parameter). For video capture cards that are not supported by the platform calculator, use the calculation data below.

Table below shows the maximum number of remote surveillance cameras as a function of the throughput capacity of various communication links. The frame rate of the image flow (reference format is PAL) for calculation purposes was accepted as equal to 1 frame per second.

Note

In real conditions, the fluctuations of camera streams can be quite significant, depending on the scene illumination, the use of day/night mode, how much motion there is in the frame. To accurately calculate the required network bandwidth, it is necessary to measure the stream from cameras that are already installed on the protected facility.

Communication mode	Link capacity	Black and white image			Color image		
		standard	high	full	standard	high	full
Dial-Up	56 Kb/sec	<1*	<1*	<1*	<1*	<1*	<1*
ADSL, Ethernet	128 Kb/sec	1	<1*	<1*	<1*	<1*	<1*
ADSL, Ethernet	256 Kb/sec	2	1	1	1	1	<1*
ADSL, Ethernet	512 Kb/sec	4	3	2	3	3	2
ADSL, Ethernet	1 Mb/sec	7	5	4	6	5	4
ADSL, Ethernet	1.5 Mb/sec	11	8	6	10	8	6
Ethernet	2 Mb/sec	14	11	8	13	10	8
Ethernet	10 Mb/sec	71	53	39	64	51	38
Ethernet	100 Mb/sec	711	533	388	640	512	376
Ethernet	1 Gb/sec	7282	5461	3972	6554	5243	3855

*max. one surveillance camera, provided that maximum compression and/or additional grooming is applied.

To calculate the maximum number of remote cameras transmitting image flow to the network with a rate over 1 f/sec, the corresponding value shown in the table should be divided by the number of frames.

Example: To transmit live video, a 100 Mb/sec network should be used (25 frame/sec – PAL), video image – color; frame resolution – standard. As the table shows, the Mb/sec link can transmit the image flow at a rate of 1f/sec, specified color grade and resolution from max. 640 surveillance cameras. Consequently, if the image flow rate is 25 frames per second, the maximum number of cameras will decrease by 25 times and will be equal to: 640/25=25 cameras.

Note

More often than not, video signal processing, transfer and recording requirements take up only a small proportion of the digital video surveillance system resources. While calculating performance of the video surveillance system, the proportion of resources, consumed by audio monitoring, may be neglected.

16.2.2 Requirements for TCP/IP network bandwidth for database synchronization functionality

If the Axxon PSIM software operates in the distributed environment where several Servers and/or Remote Admin Workstations are combined the Configuration databases synchronization is performing (see Configuring database synchronization).

The fulfilling of following minimal requirements for network is needed for correct synchronization of Configuration databases:

1. Minimal speed of data transferring by link channel (capacity) is 64 kbit/sec.
2. Maximal delay while packet transferring is 500 milliseconds.

With more badly parameters value the correct operation of databases synchronization functionality is not guaranteed.

16.2.3 Requirements to the TCP/IP network quality

The following connection quality requirements are imposed for the *Axxon PSIM* software video subsystem to work correctly when connecting IP devices via WAN:

1. Latency:
   - for live video no more than 10 seconds. If this value is exceeded, the connection to the IP device will be terminated;
   - for face recognition no more than 1500 milliseconds, if this value is exceeded, many faces will be missed due to the skipping of a large number of frames;
   - for service and smart detection tools no more than 400 milliseconds, if this value is exceeded, the quality of object detection will decrease, smart detection tools may incorrectly generate alarms.

2. Packet loss:
   - for live video no more than 40%. If this value is exceeded, the connection to the camera will be terminated. With a packet loss of 10% to 40%, frame drops will be observed (the more losses, the more drops);
   - for face recognition, service and smart detection tools no more than 25%. If this value is exceeded, skipping of faces will be missed, and the tracks of smart detection tools will not correspond to objects.

16.3 Requirements for PTZ and control panels

Axxon PSIM software is compatible with PTZ units, control panels and tilt IP-cameras from such manufacturers as Panasonic, Samsung, Videotec, Sanyo, etc. You can find an updated list of PTZ units and control panels that are compatible with *Axxon PSIM* software on the sithe of AxxonSoft in the Integration section at: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

16.4 Requirements for audio input units

Axxon PSIM software can use the following audio inputs:

1. FS/WS/FX/VRC video capture cards. These cards support simultaneous digitization of 1-16 audio signals, depending on the type of the card used. The list of video capture cards compatible with *Axxon PSIM* software and their features are given in the Installing and configuring security system components guide.
2. Standard sound cards, including cards, integrated with the motherboard. Standard sound cards, as a rule, support simultaneous digitization of up to 2 audio signals.
3. Multi-channel sound cards and converters for digitization of outgoing audio signals from microphones and telephone lines, software and hardware complex for the digital audio registration, etc. You can find an updated list of multi-channel audio inputs that are compatible with *Axxon PSIM* software on the AxxonSoft

site in the Integration section at: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

4. IP-units. You can find an updated list of IP-units for audio input that are compatible with *Axxon PSIM* software, as well as specific application features thereof on the AxxonSoft site in the Integration section at: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.
   The IP device shall transfer audio data encoded in any of the following formats:
   - G.711
   - G.726
   - AAC
   - PCM
   - MPEG2 LAYER2 (MP2L2)
   - IMA ADPCM

16.5 Requirements for IP devices

Axxon PSIM is compatible with IP devices of the following vendors: Axis, Panasonic, Sony, Arecont Vision and others.

Note

The current list of the IP devices compatible with *Axxon PSIM* and the range of IP device functionalities supported by *Axxon PSIM* are at the company's site in the **Integration** section: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

Number of IP devices connected to one Server depends on TCP/IP network bandwidth (see Requirements for TCP/IP Network) and functions performed on the basis of these devices. For instance, virtual memory consumption (for video.run process) increases when VMDA detection tools are used (see Configuring smart video detection tools). One camera with a configured VMDA detection tool can use 30-40 MB (depending on camera resolution) of virtual memory. By default, not more than 2 GB of virtual memory is allocated for the video.run process, if you need to connect to one Server more than 25 IP cameras with the configured VMDA detection tools with video resolution higher than 800x600, use 64-bit modules (see the Configuring the use of 64-bit modules).

In some cases, it is necessary to enable the synchronization of the Server and IP device time (if the device supports this setting):

1. In some cases (for example, if there is no video from the device), when connecting the camera via the ONVIF protocol, it may be necessary to synchronize the time and the time zone between the Server and the device.
2. For *Axxon PSIM* operation with the embedded IP device storage, it is necessary to synchronize the time between the Server and the device.
3. If there is no time synchronization for some IP devices, events of the onboard analytics may work incorrectly in *Axxon PSIM*.

Specific application features of certain IP devices:

1. To ensure correct sound recording from Axis IP cameras when AAC audio codec is used, avoid setting the audio stream bitrate at 8 or 12 Kb/s, if the digitizing rate is 8 kHz: the bitrate should be 16, 24, 32, 48 or 64 Kb/s.
2. To ensure correct sound recording from Sony IP cameras, avoid using G.726 audio codec: use G.711 codec instead.

Attention!

It is possible to install the up-to-date drivers and codecs, taking into account the changed distributive structure, irrespective of the general *Axxon PSIM* version update.

Hardware integrated into Axxon PSIM

16.6 Requirements for GSM Equipment

GSM equipment is used in the *Axxon PSIM* software to send SMS, whenever the program registers pre-defined events (detector alarms, Operator commands, etc.). The list of said GSM equipment includes GSM modems, GSM adapters or mobile phones supporting such standards as ETSI GSM 07.07 or ETSI GSM 07.05.

16.7 Requirements for voice modems

Voice modems are used in the *Axxon PSIM* software to automatically send out voice messages, whenever the program registers pre-defined events (detector alarms, Operator commands, etc.). *Axxon PSIM* software is compatible with the voice modems, which are not designed to code (compress) audio streams, or the voice modems, which support such audio stream coding standards as 4-bit Rockwell ADPCM 7200 Hz, 4-bit IMA ADPCM 4800 Hz, 4-bit IMA ADPCM 7200 Hz, 4-bit IMA ADPCM 8000 Hz, 8-bit unsigned linear PCM at 7200 Hz, 8-bit unsigned linear PCM at 8000 Hz, 4-bit Rockwell ADPCM 7200 Hz, 8 bit u-law (G.711) at 8000 Hz, 8 bit A-law (G.711) at 8000 Hz.

16.8 Requirements for software which is used while integrating

The *Axxon PSIM* software allows integrating with contiguous information systems, additional software or functional expansion modules.

Use InternetExplorer browser while working with *Axxon PSIM* software from browser through the CamMonitor Active X-object.

16.9 Requirements for anti-virus software

Correct working of some modules of the *Axxon PSIM* software package is not guaranteed if the anti-virus software installed on computer where the *Axxon PSIM* software package is installing analyses incoming/outgoing traffic.

16.10 Requirements for BIOS configuration

For the performance of *Axxon PSIM*, especially for video decoding, the frequency of the processor is important. The higher the frequency, the higher the performance of *Axxon PSIM* on a given platform.

On modern computers, the energy saving mode is activated in BIOS by default. Using this mode on multiprocessor systems leads to a partial load of CPU cores and reduces the performance of the I/O subsystem.

For better performance of *Axxon PSIM*, you must configure the computer BIOS as follows:

Attention!

Different manufacturers of motherboards call these technologies differently. So, for each specific motherboard model, you must always check the documentation for that model to find out the name of the technology.

Action	Technology	Reason
Enable	E-Cores	To get the calculation results with the actual load

Action	Technology	Reason
Disable	Turbo Boost	The clock rate and displayed CPU load can vary from server to server depending on the cooling system
	Hyper-Treading	Uneven load of processor cores
	Intel Speed Shift	To keep the processor clock from dropping below the base clock
	Enhanced Intel SpeedStep (EIST)	Reduces the operating clock of the CPU
	Energy saving	To keep the processor clock from dropping below the base clock
	Smart throttling	Abrupt reset of processor clock

16.11 Hardware requirements for Axxon PSIM and vertical solutions detection tools

Axxon PSIM software and vertical solutions include various detection tools, some of which can use video card resources (GPU) for operation.

See also Hardware requirements for the Tracker with neural filter operation. Please refer to the corresponding vertical solution documentation in AxxonSoft documentation repository for more detailed hardware platform requirements applied to the detection tools being part of the vertical solutions.

Detection tool(s)	CPU	GPU	VPU
Axxon PSIM base			
VMDA tracker	+	-	-
VMDA tracker with neural filter	+	+	+
Main motion detection tool	+	-	-
Basic detection tools	+	-	-
Face detection	+	-	-
DetectorPack			

Detection tool(s)	**CPU**	**GPU**	**VPU**
Heat map detection	+	-	-
Detection of moving against crowd flow	+	-	-
Queue length detection	+	-	-
Smoke detection	+	+	+
Fire detection	+	+	+
Stopped vehicle detection	+	-	-
People counter detection	+	-	-
Train detection	+	-	-
Detection of light indication control	+	-	-
Sweethearting detection	+	+	+
Barcode detection	+	-	-
Fluid level detection	+	-	-
Neurotracker	+	+	+
Person location tracker	+	+	+
Face PSIM			
Face detection with any external capture	+	+	-
Auto PSIM			
Any LPR module	+	+	-

17 Personnel skills requirements

The Administrator of a digital video surveillance system based on *Axxon PSIM* software should possess the following qualifications:

1. Windows local network administrator (see Operating system requirements).
2. AxxonSoft product expert. The above qualifications can be obtained through authorized training in AxxonSoft Products in the AxxonSoft Training Centre.

18 Installing and removing Axxon PSIM software

18.1 Installing Axxon PSIM™ software

18.1.1 Description of Axxon PSIM™ software distribution package

Axxon PSIM™ software is offered as a software installation kit (distribution package) available on the company's official website: https://www.axxonsoft.com/support/downloads/axxon-psim.

The installation kit contains all software components necessary for the installation of *Axxon PSIM*™ software.

The software is made operable with the psim.sec license key file provided by AxxonSoft manager. The key file defines the configuration of the *Axxon PSIM*™ software delivery package.

Note.

If there is no key file *Axxon PSIM*™ software will operate in *Axxon PSIM* Demo mode within two month from the psim.exe file creation date, from 8 a.m till 12 midnight.

To install and configure *Axxon PSIM*™ software, administrator rights are required.

The description of the main components of the *Axxon PSIM* installation package is given in the table below:

File or folder	Description
Drivers	The folder containing the drivers for the *Axxon PSIM*-integrated video capture cards, sensors/relays, USB WatchDog hardware performance monitoring devices
ipint.driverpack	The folder containing the drivers package installation kits (x32 and x64) for the *Axxon PSIM*-integrated IP devices – *IP Drivers Pack*
Key	The folder containing the license key file. If the installation kit was downloaded from the official AxxonSoft website rather than received on a disk, then this folder is empty
languages	The folder containing the language packs for installation. By default, it contains only the Setup folder with the English (en) language packs in the corresponding folders. If the folder with the language pack is deleted, the corresponding language will not be available for the installer. Other language packs downloaded from the official AxxonSoft website can be added to the languages folder in order to install the Axxon PSIM in the required language – for details, see Installation of Axxon PSIM as a Server/ Remote Administrator's workstation
Redist	The folder containing the installation kits of the prerequisites required for the *Axxon PSIM* operation – for details, see Using the Product.msi and Redist.exe for Axxon PSIM™ software installation

File or folder	Description
Product.msi	The installation file for installing the *Axxon PSIM* without additional components (drivers, prerequisites, etc.) – for details, see Using the Product.msi and Redist.exe for Axxon PSIM™ software installation
Redist.exe	The installation file for installing the additional components required for the *Axxon PSIM* operation (drivers, prerequisites, etc.) – for details, see Using the Product.msi and Redist.exe for Axxon PSIM™ software installation
setup.exe	The executable file to run the full installation of the *Axxon PSIM* with all the necessary drivers, prerequisites, etc.

18.1.2 Getting ready for Axxon PSIM installation

On the page:

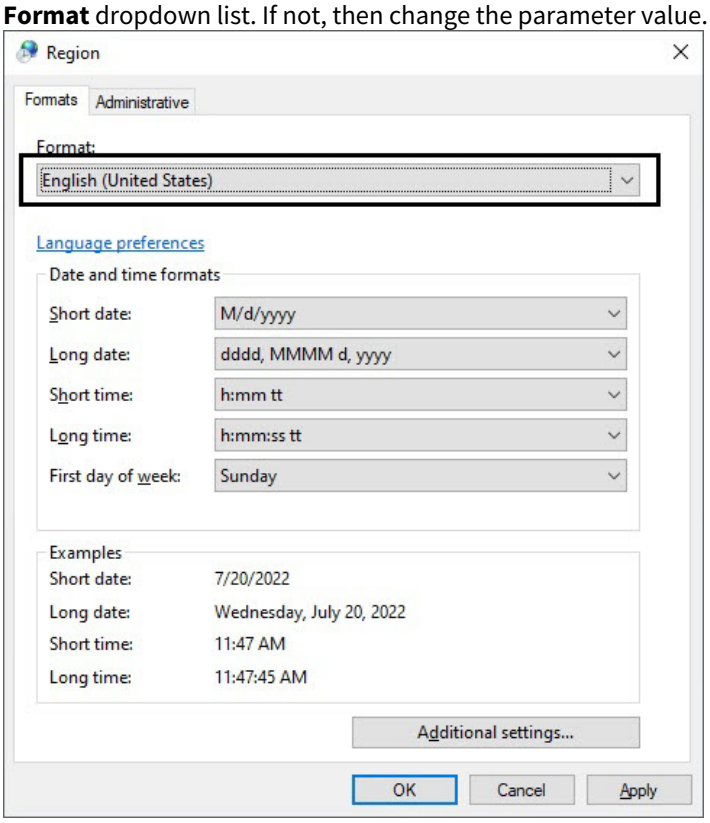
- OS language settings
- System settings

OS language settings

Before installing *Axxon PSIM* in any language with any configuration (Server, Client or RAW) make sure that appropriate language and regional options are set in the OS. Do the following:

1. Go to the **Start – Control Panel – Regional and Language Options** menu. The **Regional and Language Options** window is displayed.

2. Go to the **Formats** tab. Make sure that the language that is used for *Axxon PSIM* installation is selected in the **Format** dropdown list. If not, then change the parameter value.

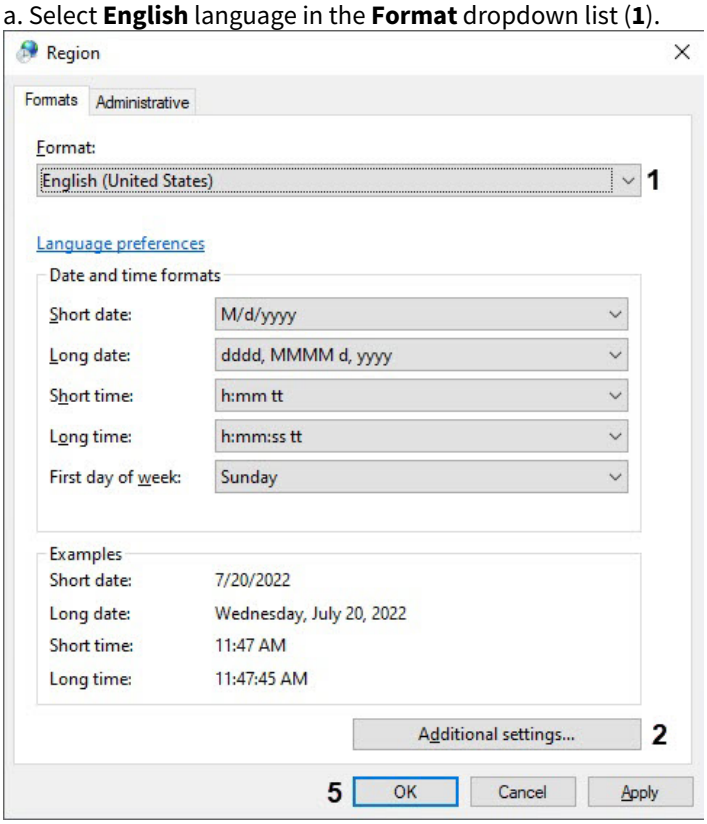


Important!

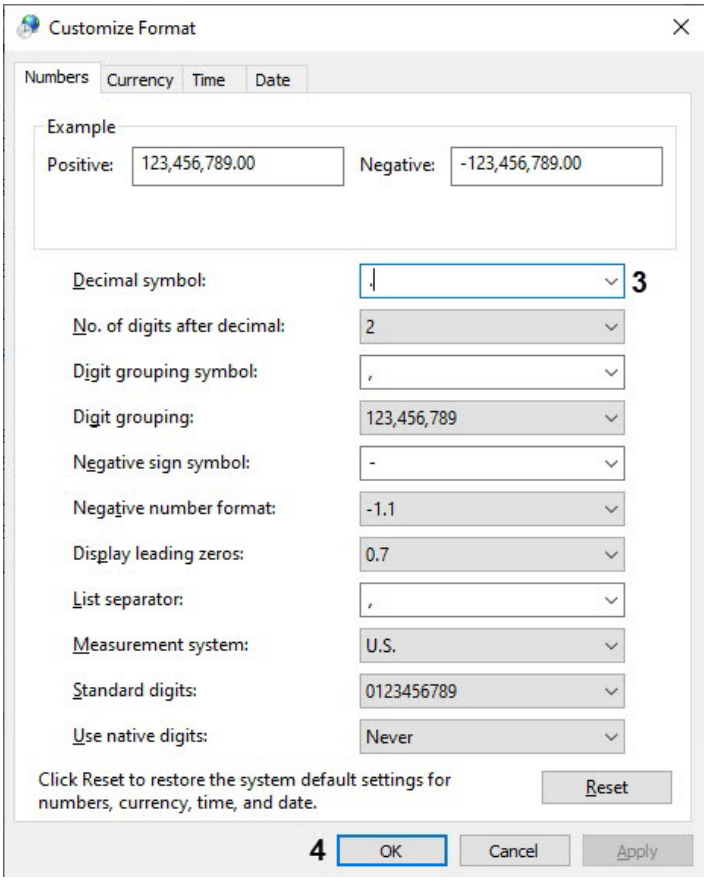
If **English** is to be in use, then '.' is to be specified as the decimal symbol.

Specify '.' as the decimal symbol as follows:

a. Select **English** language in the **Format** dropdown list (**1**).

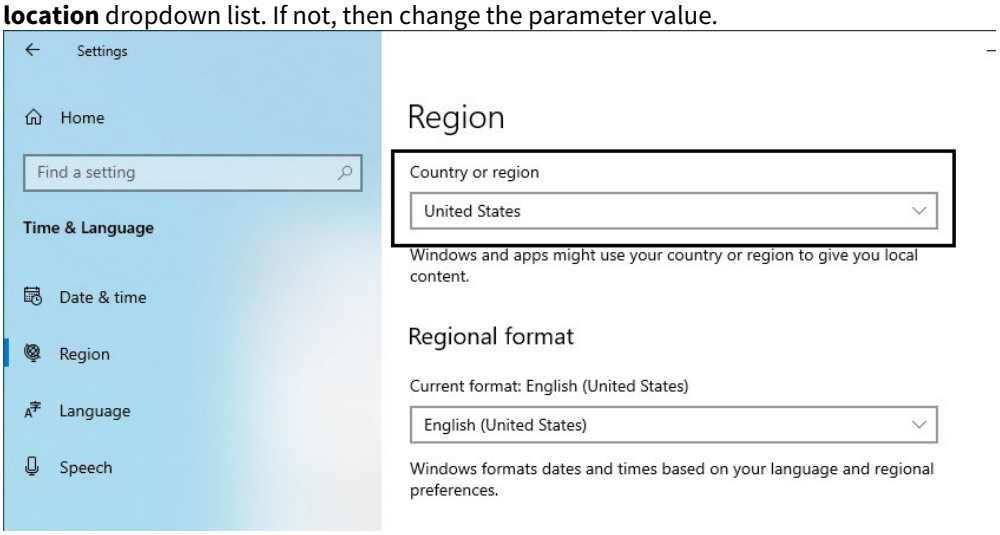


b. Click the **Additional settings...** (2) button and make sure the '.' value is selected for the **Decimal symbol (3)** parameter in the **Numbers** tab. If not, then change the parameter value manually.



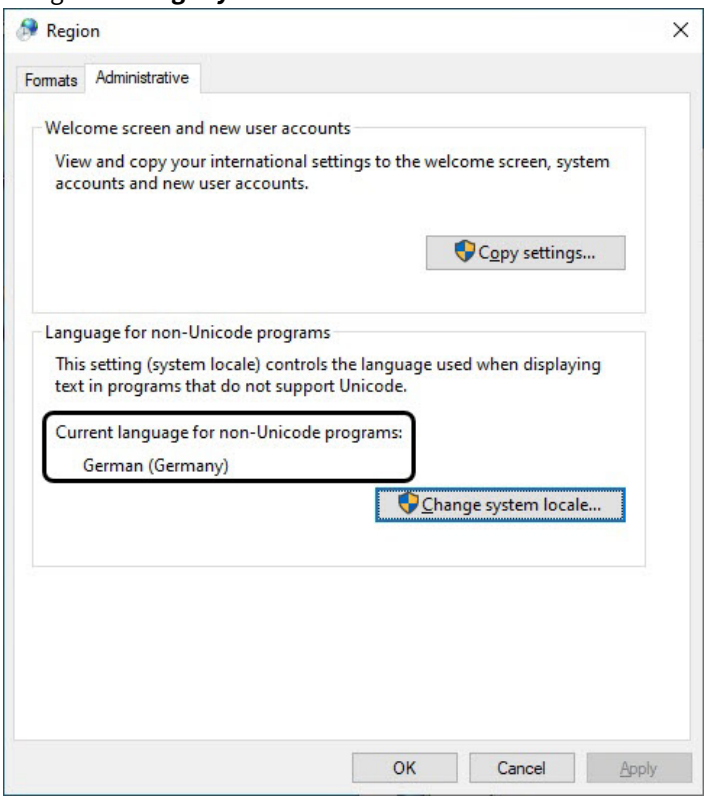
c. Click **OK** (**4**).
d. Click **OK** (**5**).

3. Go to the **Region** tab. Make sure that the real computer location is selected in the **Current location** dropdown list. If not, then change the parameter value.



4. Go to the **Administrative** tab. Make sure that the language that is used for *Axxon PSIM* installation is specified in the **Current language for non-Unicode programs** field. If not, then change the parameter value

using the **Change system locale...** button.



System settings

Before starting the *Axxon PSIM* software installation, make sure that the name of the computer it is installed on does not exceed 15 characters. If the computer name is longer than 15 characters, the installation will not complete correctly. Rename the computer.

For example, GATE-SERVER is a valid computer name that contains 11 characters, and BACKUP-ARCHIVE-SERVER is too long because it contains 21 characters.

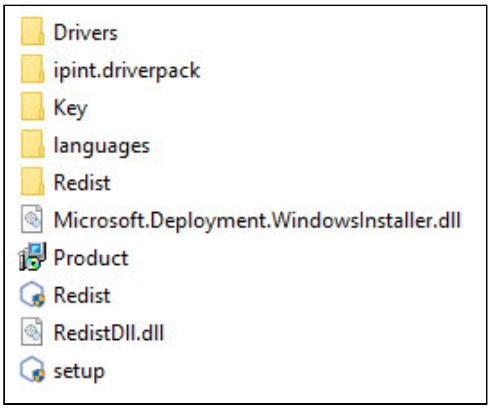
18.1.3 Installation of Axxon PSIM as a Server/Remote Administrator's workstation

This section provides step-by-step instruction for installing the *Axxon PSIM* software with the **Sever/Remore Administrator's workstation** installation type.

> **Note**
>
> Note the following features during the installation of the *Axxon PSIM* software:
> - Install the *Axxon PSIM* software on a clean Windows OS (see the Operating system requirements section).
> - To install the *Axxon PSIM* software, OS Windows administrator rights are required.

To install the *Axxon PSIM* software, do the following:

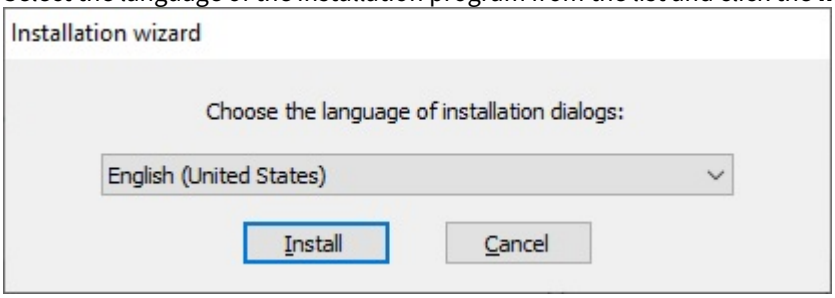
1. Unpack the archive downloaded from the official website of the company, in accordance with the manual in the Getting ready for Axxon PSIM installation section. The destination folder displays the contents of the kit.



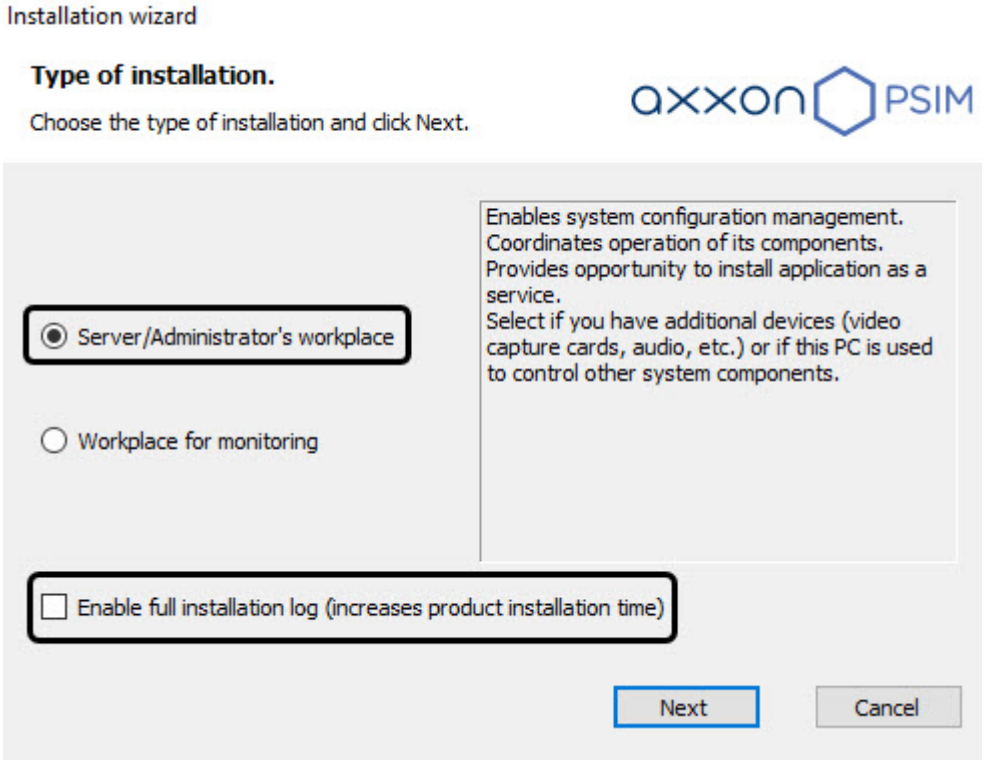
2. Run the setup.exe executable file designed to start the *Axxon PSIM* installation program. As a result, the dialog window for selecting the language of the installation program is displayed.

> **Note**
>
> When you install *Axxon PSIM* on the OS Windows 8 and the OS Windows Server 2012, you must install Microsoft.Net Framework 8.0 or later. Otherwise, it is installed along with *Axxon PSIM*.

3. Select the language of the installation program from the list and click the **Install** button.



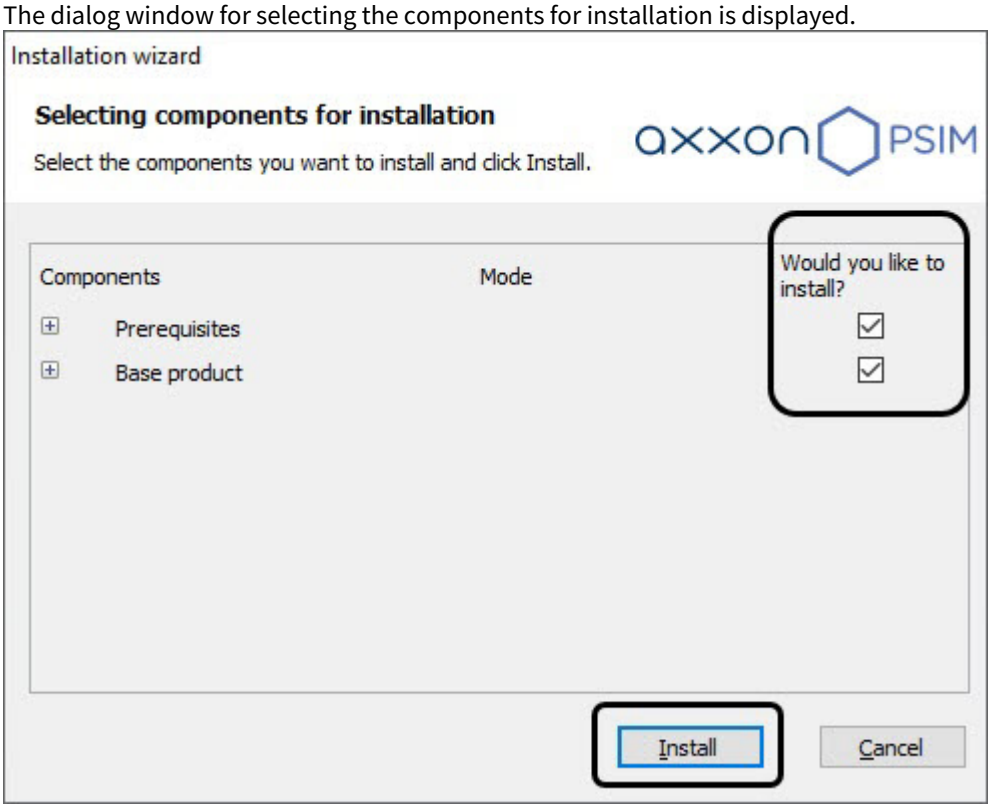
As a result, the dialog window for selecting the type of installation is displayed.



4. Select the **Server/Remote Administrator's workstation** installation type.
5. Set the **Enable full installation log (increases product installation time)** checkbox if you want to write all software installation events to the log file.

> **Note**
>
> When you install the software, the event logging is performed in the PSIMSetup.log log file. To collect log files, we recommend using the *Support.exe* utility (see The utility for collecting configuration data on servers and RWS for the Technical Support section*)*.

6. Click the **Next** button.
   The dialog window for selecting the components for installation is displayed.



7. Set the checkboxes next to the components that you want to install (you can expand the lists by clicking ⊞).
   Consider the following peculiarities when you select the components:
   a. We recommend installing all provided components—the *Axxon PSIM* installer sets checkboxes next to everything required for proper operation by default.
   b. If you perform the installation using the comprehensive installation package, including the vertical solutions modules, at this stage you can select the installed vertical solutions. You must select only those that you will actually use on this computer; there is no need to install everything. Vertical solutions are installed after you complete the *Axxon PSIM Base* installation. The installation process is described in the documentation for the corresponding vertical sollution (see the links at the bottom of the Documentation for Axxon PSIM page).
   c. To operate in *Axxon PSIM*, you must install Microsoft.Net Framework 4.0 or later. Usually it is bundled with Windows OS and doesn't require separate installation. If you don't have it, then .Net 4.6 is offered for installation at prerequisites—make sure to set the checkbox. For more information about Microsoft.Net Framework, see the official documentation at https://learn.microsoft.com/en-us/dotnet/framework/.
   d. At this stage, you can refuse to install the MS SQL Express database server. In this case, at step 16, you must configure the connection to the remote database. After you complete the installation of *Axxon PSIM*, you can change the database connection parameters using the *idb.exe* utility, see Connecting the Axxon PSIM database. Note that *Axxon PSIM* operation is impossible without connection to any database source.

> **Note**
>
> If this method of language installation isn't suitable, later you can install each language separately (see Installing the language). After the installation, use the *tweaki.exe* utility to switch languages (see Switching languages in the Axxon PSIM Software System).

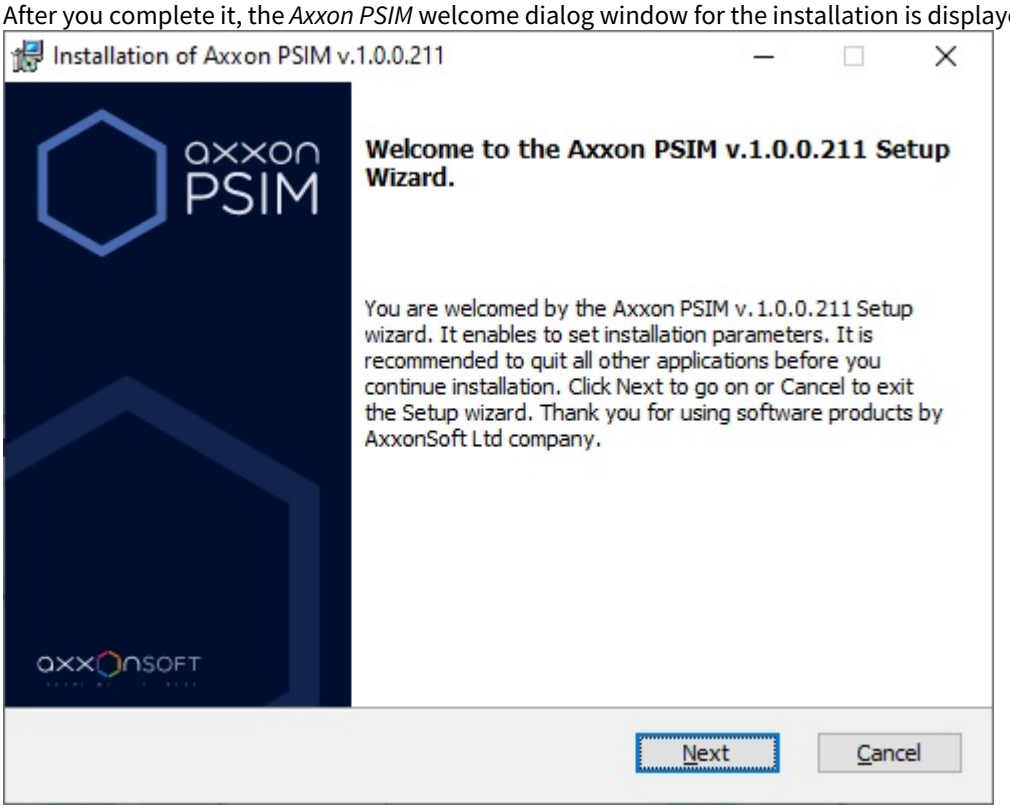
8. Click the **Install** button.
   After that, the automatic installation of the selected components is performed except Microsoft SQL Server Express 2019 database server (required for operation with *Axxon PSIM* databases), that is installed manually (see Microsoft documentation).

> **Note**
>
> To ensure stable and proper operation of *Axxon PSIM* on the Windows 11 OS, we recommend using the Microsoft SQL Server 2019 Express database server or the newer version.

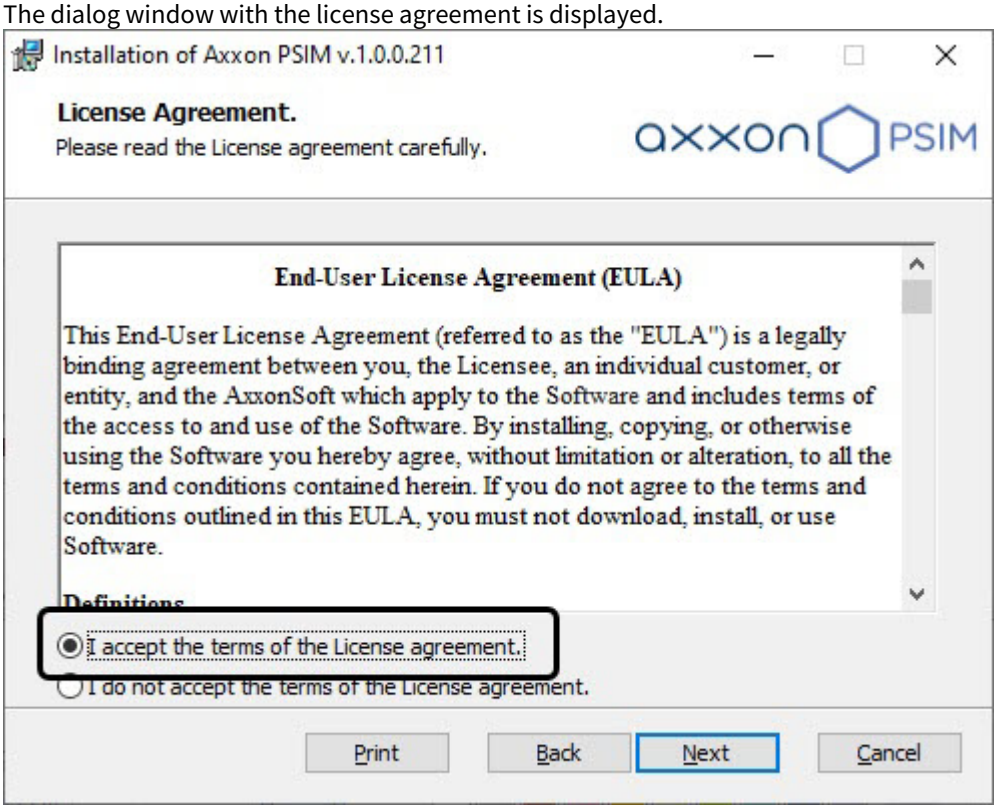


> **Attention!**
>
> The installation of the required prerequisites can take a lot of time (more than 10 minutes).

After you complete it, the *Axxon PSIM* welcome dialog window for the installation is displayed.

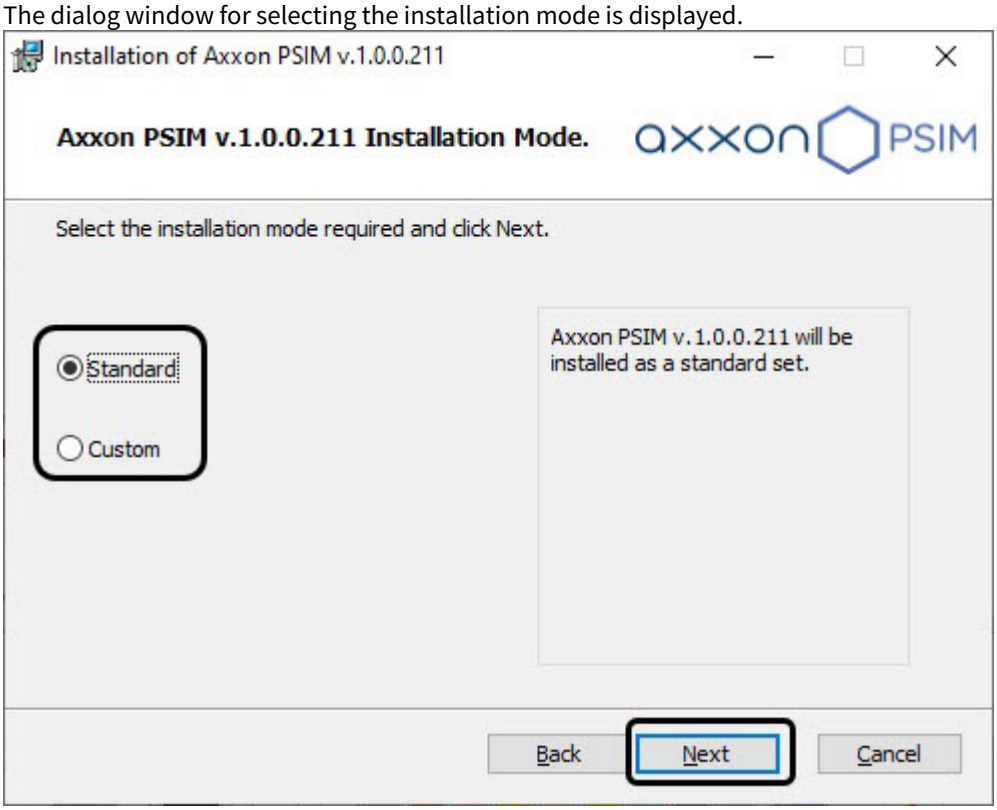


9. Click the **Next** button.
   The dialog window with the license agreement is displayed.

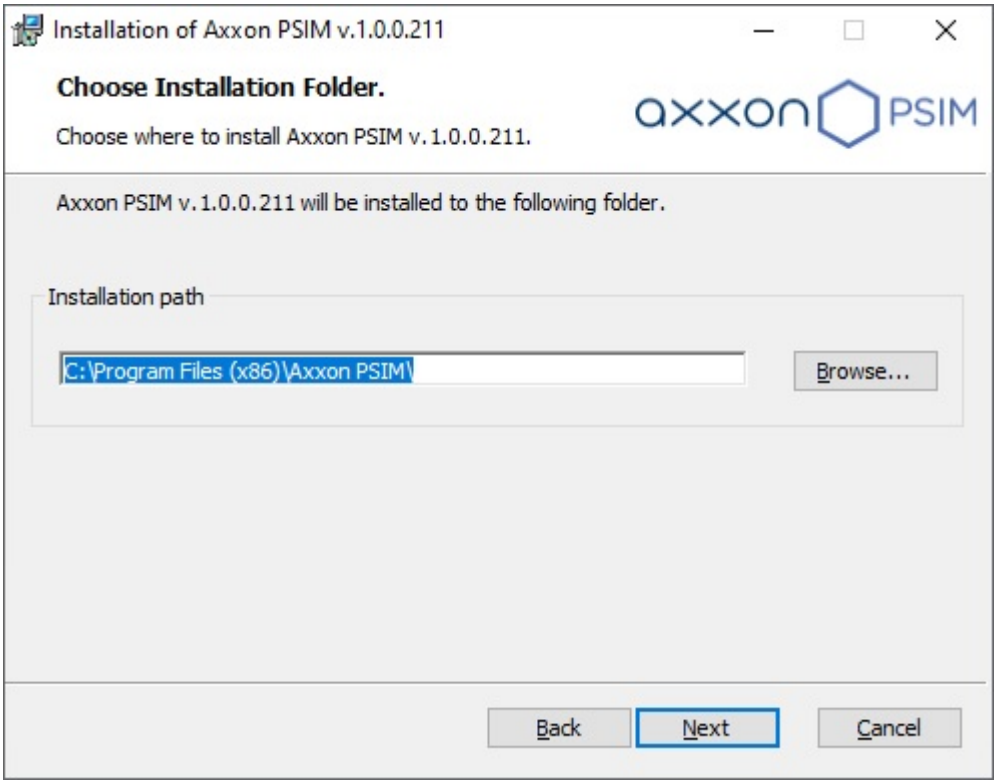


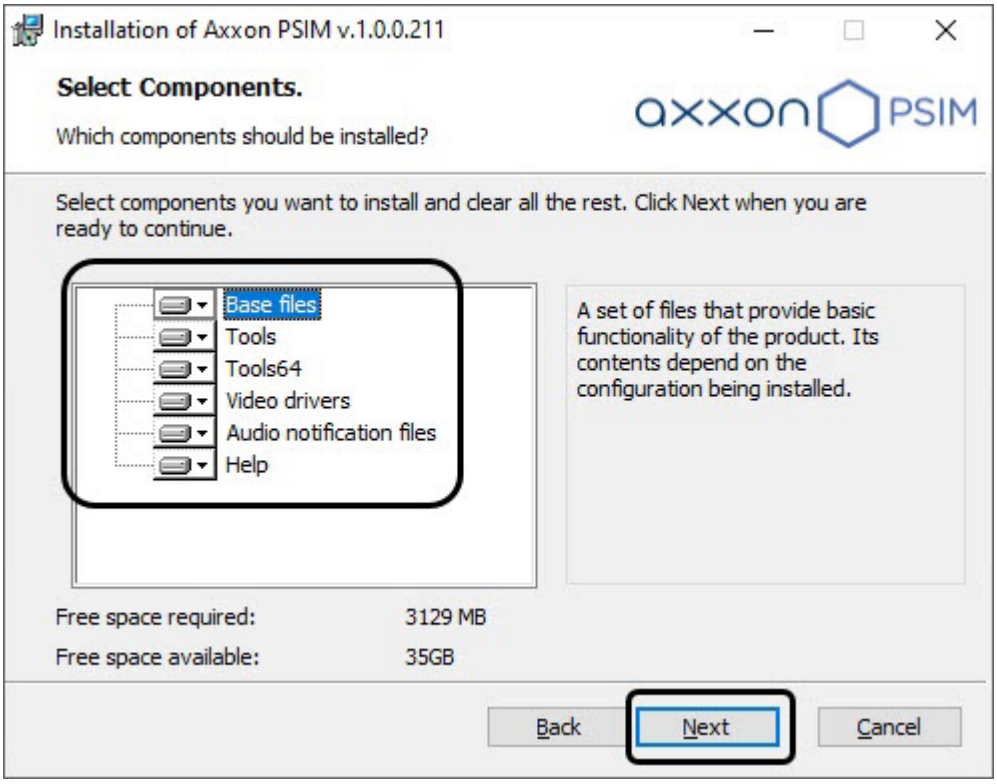
10. Read the license agreement and accept its terms by setting the switch into the **I accept the terms of the License agreement** position, otherwise the *Axxon PSIM* installation is stopped.

11. Click the **Next** button.
    The dialog window for selecting the installation mode is displayed.



12. Select the installation mode.
13. Click the **Next** button.
    When you select the **Custom** installation mode, the dialog window for selecting the installation path is displayed, and then the dialog window for selecting the *Axxon PSIM* components is displayed. When you select the **Standard** installation mode, these steps are omitted.

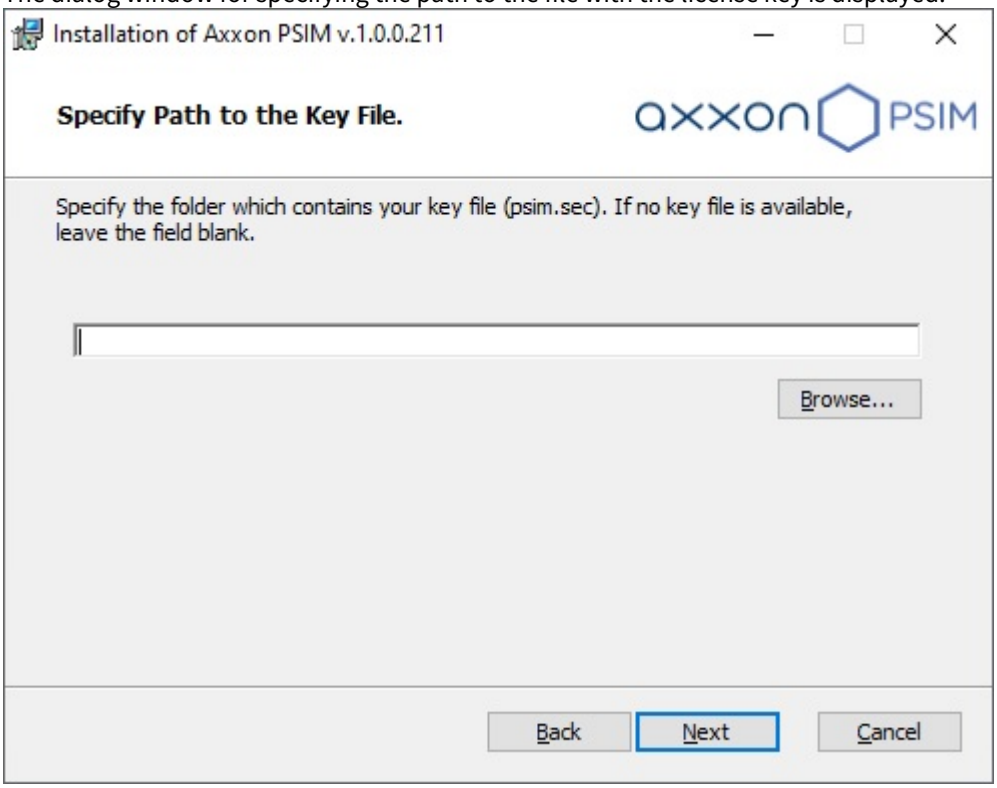

Installation of Axxon PSIM v.1.0.0.211
Choose Installation Folder.
Choose where to install Axxon PSIM v.1.0.0.211.
axxon PSIM
Axxon PSIM v.1.0.0.211 will be installed to the following folder.
Installation path
C:\Program Files (x86)\Axxon PSIM\
Browse...
Back
Next
Cancel


Installation of Axxon PSIM v.1.0.0.211
Select Components.
Which components should be installed?
axxon PSIM
Select components you want to install and clear all the rest. Click Next when you are ready to continue.
Base files
Tools
Tools64
Video drivers
Audio notification files
Help
A set of files that provide basic functionality of the product. Its contents depend on the configuration being installed.
Free space required: 3129 MB
Free space available: 35GB
Back
Next
Cancel

Note

When you select a component, the description of the component is displayed in the installation window.

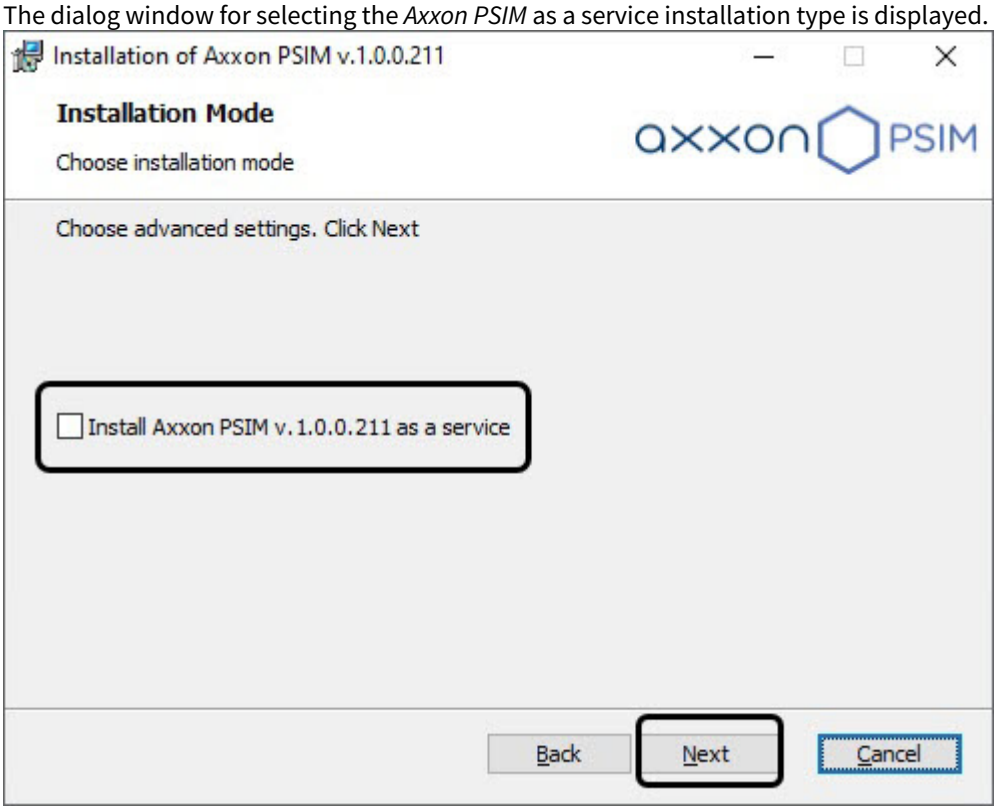
The dialog window for specifying the path to the file with the license key is displayed.



Note

Leave the field blank if the key file is copied later.

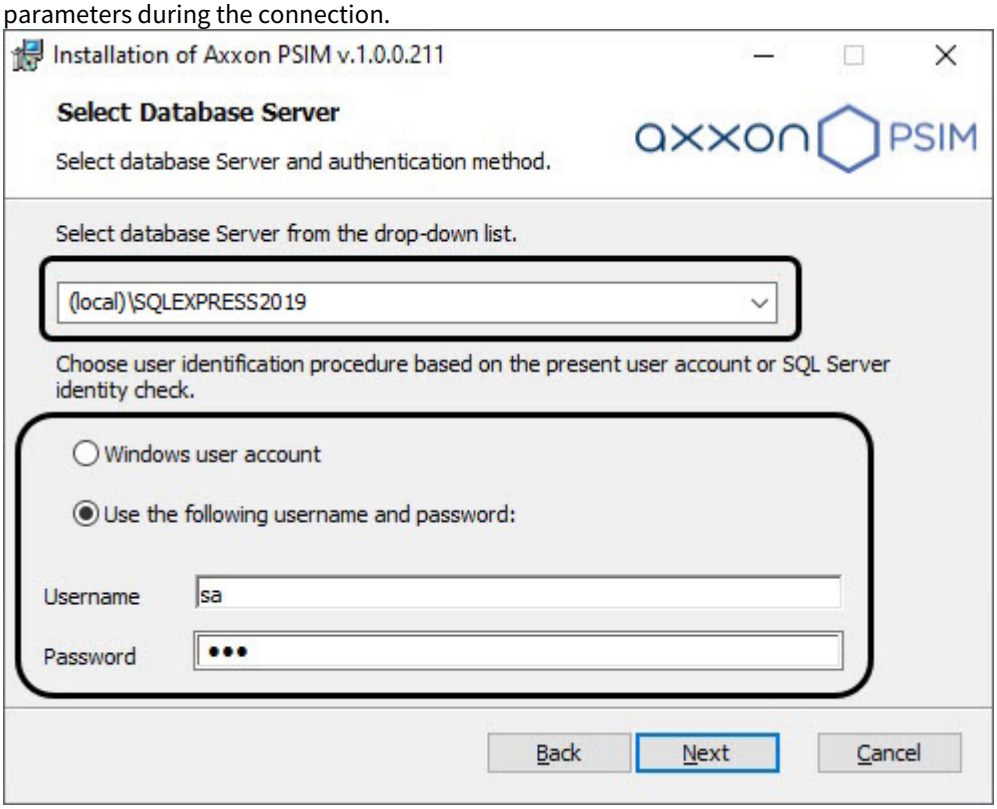
14. Click the **Next** button.
The dialog window for selecting the *Axxon PSIM* as a service installation type is displayed.



> **Note**
>
> When you install as a service, the 64-bit version of *Axxon PSIM* isn't available. If you set this checkbox, then 32-bit modules are started after you install *Axxon PSIM* as a service.

15. Set the **Install Axxon PSIM as a service** checkbox if you want to start the *Axxon PSIM* software before the user authorization in the Windows OS and before the startup of Windows applications (including the Explorer application that is used for starting Windows OS interfaces and various other applications installed on the server, see Working with Windows OS services for operating Axxon PSIM™ installed as a Service section).
16. Click the **Next** button.
The dialog window for selecting the MS SQL Server database server is displayed. Specify the authentication

parameters during the connection.



Attention!

If the computer administrator performs the installation of *Axxon PSIM*, and Windows credentials are used for the SQL server authentication, the access to the database of any other user is impossible without the additional settings of the *idb.exe* utility and knowledge of the administrator login and password. That is why we highly don't recommend using such an authentication method of the SQL server.

17. Select the SQL-server using the Database Server drop-down list.

Note

If you want to use the SQL-server installed on this (local) computer, select the (local)\SQLEXPRESS item (set by default).

Attention!

You cannot connect different servers to one database.
The server can use the remote database, but it results in high requirements for the network and other resources and can cause delays when you transmit events and states between cores that negatively affect the system performance.

18. Set the authorization parameters that are used by *Axxon PSIM* during the connection to the SQL-server.

Note

If you install *Axxon PSIM* as a service, select the SQL server authentication check, that is, set the switch to the **Use the following username and password** position and specify the login and password to authorize in the server database in the corresponding fields. If you want to connect to the database using Windows credentials, then for proper operation of *Axxon PSIM* under any other user, the user must have the corresponding SQL server rights.

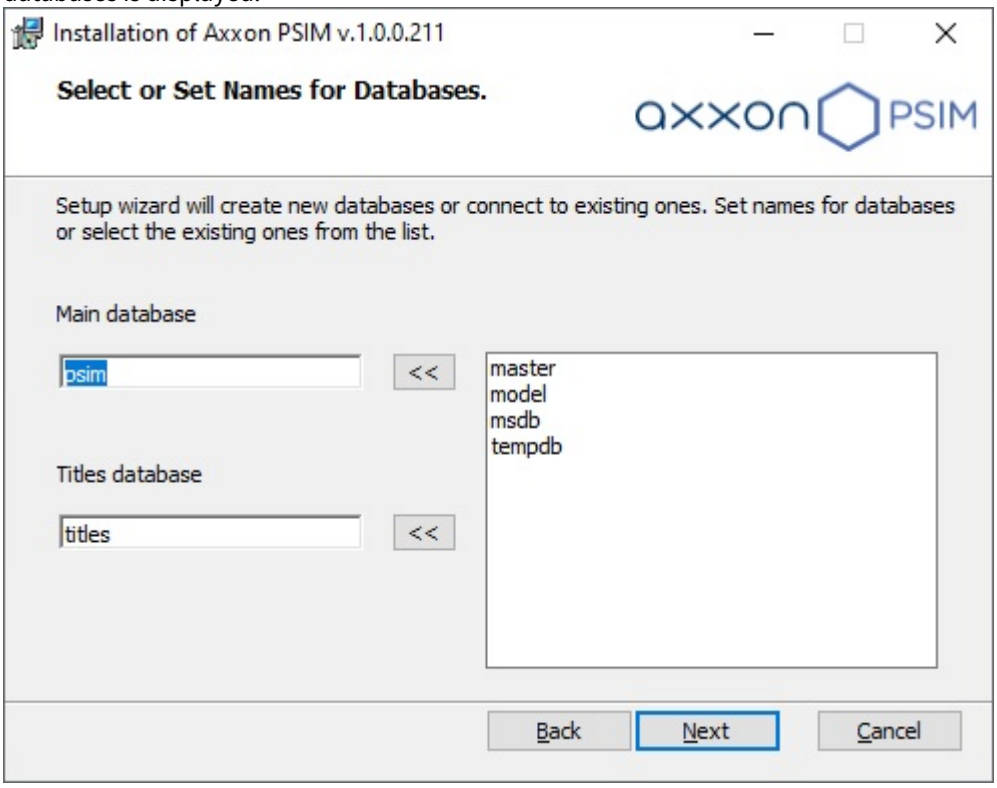
Ways of authorization performed in the dialog window.

Ways of authorization	**Windows user account**	**Use the following username and password (recommended)**
Usage	SQL server from the *Axxon PSIM* distributive (or from the distributive of the third-party vendor) and *Axxon PSIM* are installed on one computer	SQL Server from the *Axxon PSIM* distributive and *Axxon PSIM* are installed on the same computer. Meanwhile, the connection to the SQL server with the set username (login) and password can be performed from any remote computer that is in the same network domain of the TCP/IP network as the computer on which the SQL server is being installed
	SQL server and *Axxon PSIM* are installed on different computers that are connected through the TCP/IP network and are within the same network domain. Meanwhile, the user account that is currently authorized in Windows OS on the computer where *Axxon PSIM* is being installed must be created in Windows OS on the computer with the installed MS SQL Server	SQL server from the *Axxon PSIM* distributive and *Axxon PSIM* are installed on different computers that are connected through the TCP/IP network and are in the same network domain. Meanwhile, the set username (login) and password must correspond to the username (login) and password used to access the SQL server
	The full-scale SQL server (additionally installed) and *Axxon PSIM* are installed on different computers, connected through the TCP/IP network and are within the same network domain. Meanwhile, the user account currently authorized in Windows OS on the computer where *Axxon PSIM* is being installed must be created on the remote SQL server	The full-scale SQL server (additionally installed) and *Axxon PSIM* are installed on the same or different computers that are connected through the TCP/IP network and are in the same network domain. Meanwhile, the set username (login) and password must correspond to the username (login) and password used to access the SQL server

Note

For the SQL server installed from the *Axxon PSIM* distributive, the "sa" username and "PSIM_default_DB_4" password are used by default. When you install the Microsoft SQL Server Express 2019 server database, you can change the password to any other.

19. To continue the installation process, click the **Next** button.
The dialog window for selecting the already existing databases or setting the names of the created databases is displayed.

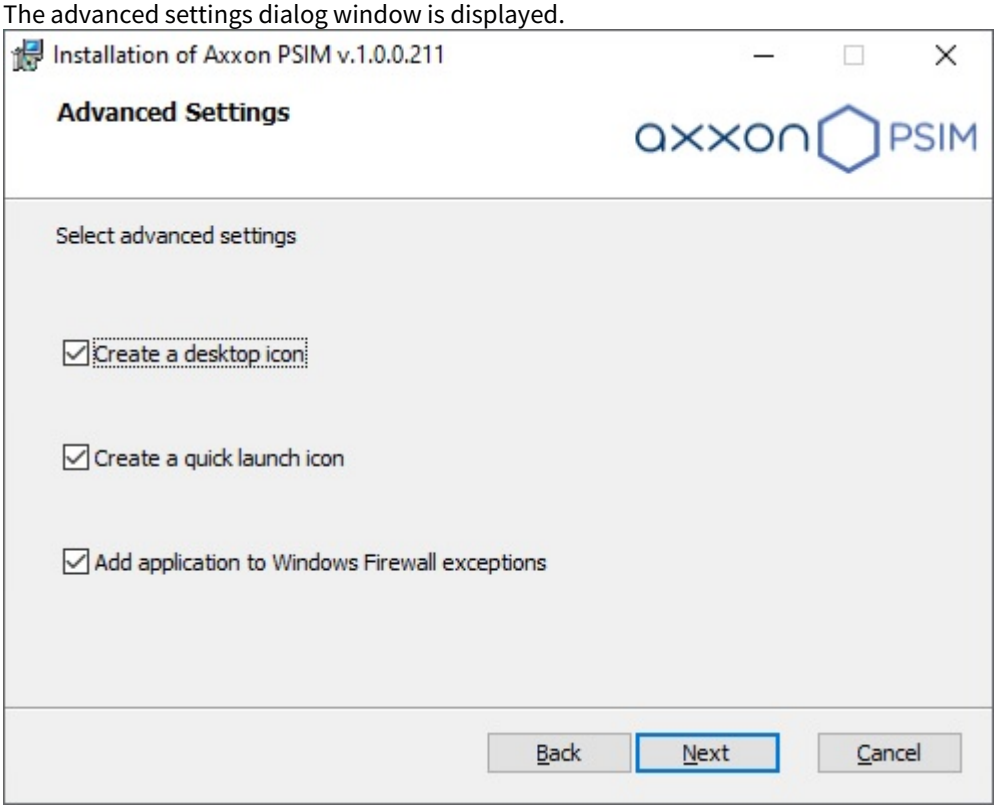


20. By default, the psim database is used as the main *PSIM* database. If you want to use another database, select it in the **Existing databases** list and click the << button next to the **Main database** field.
21. By default, the titles database is used as the titles database. If you want to use another database, select it in the **Existing databases** list and click the << button next to the **Titles database** field.
22. Click the **Next** button.

Note

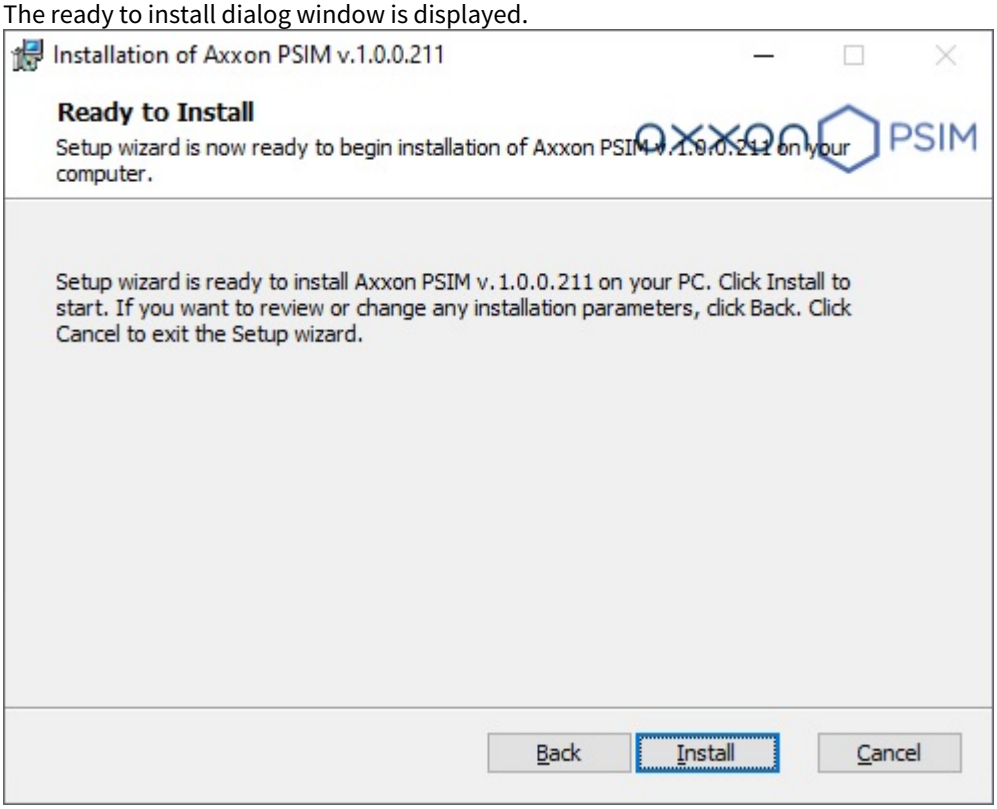
If the **Rights are required to create or edit databases** message appears during the system installation, you must stop the installation process and restart again.

The advanced settings dialog window is displayed.



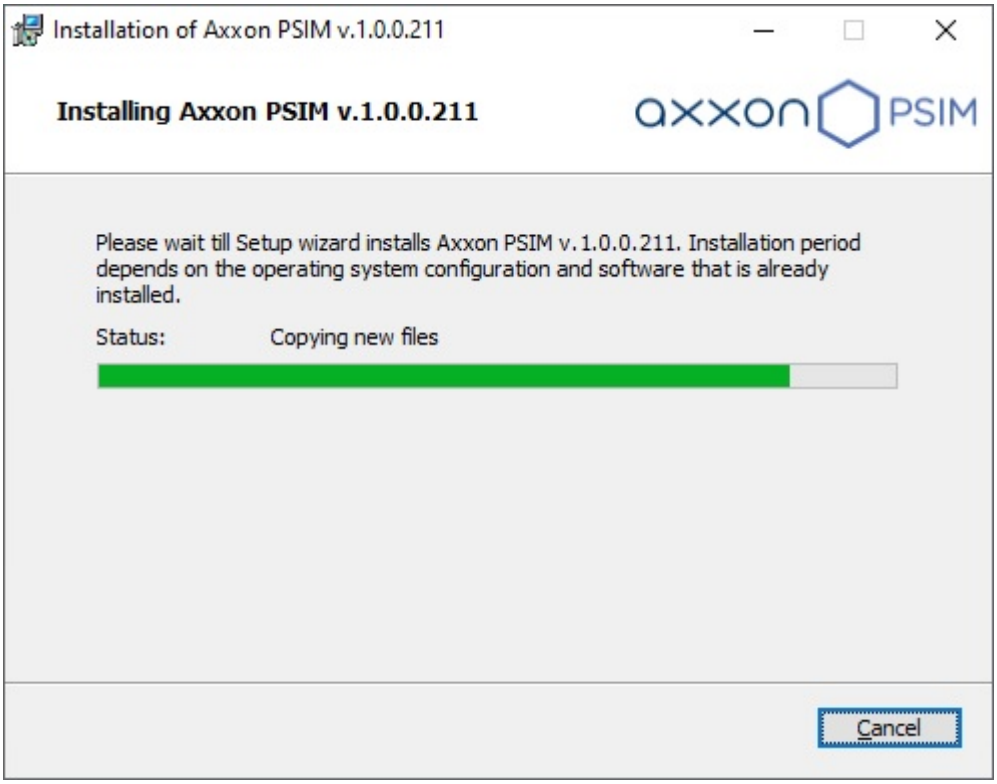
23. If necessary, you can create the *Axxon PSIM* desktop shortcut and set the corresponding checkbox..
24. If necessary, you can create the *Axxon PSIM* desktop icon in the quick launch toolbar and set the corresponding checkbox.
25. If necessary, you can add *Axxon PSIM* and all its components to the Windows firewall exceptions and set the corresponding checkbox.
26. Click the **Next** button.

27. The ready to install dialog window is displayed.



> **Note**
>
> To change the setting, click the **Back** button.

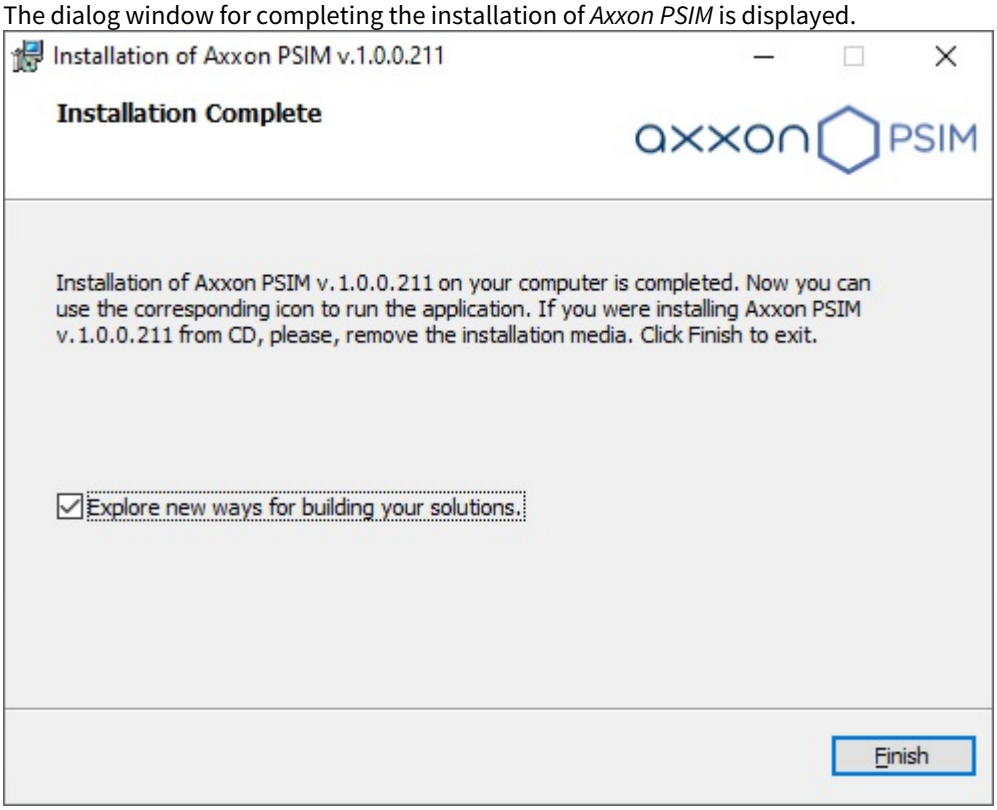
28. Click the **Install** button.
Then the dialog window of the *Axxon PSIM* installation process is displayed.



Note

When you install *Axxon PSIM* on OS Windows 7 SP1 without the internet connection, the error during the driver installation for the FX4 card can occur. To eliminate this error, you must install the following missing Windows updates:
https://support.microsoft.com/en-us/kb/3004394
https://support.microsoft.com/en-us/kb/3033929

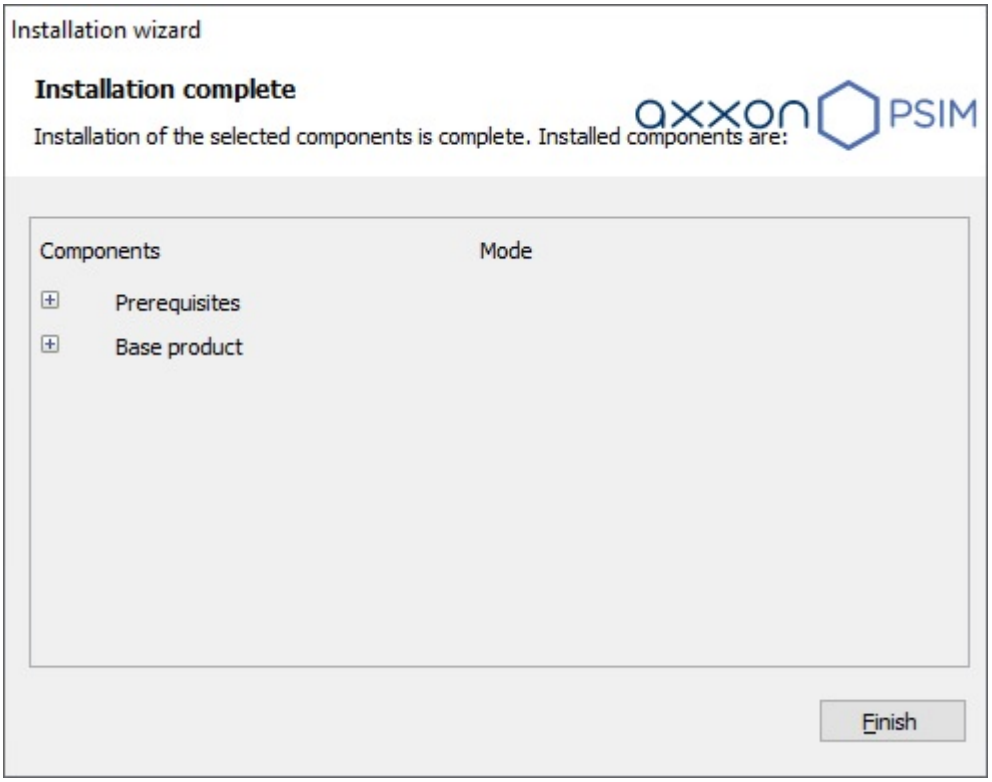
29. The dialog window for completing the installation of *Axxon PSIM* is displayed.



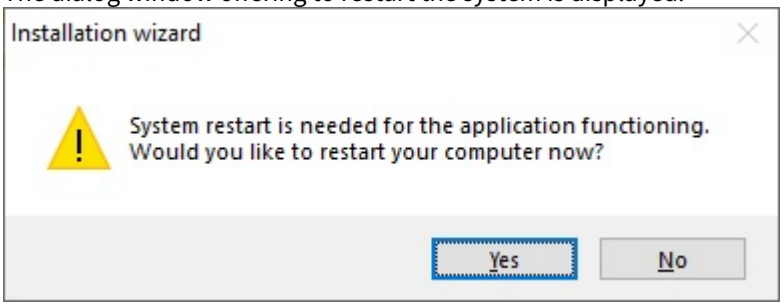
30. Set the **Explore new ways for building your solutions** checkbox to view the document containing the information about new features of the installed *Axxon PSIM* version
31. Click the **Finish** button.

> **Note**
>
> After that, the Driver Pack add-on installation starts.
> Starting from the Driver Pack 3.51 version, to work with this driver package, you must install the Windows KB2999226 update. If this update isn't installed in the system, the corresponding warning is displayed. To continue the installation, you must install the update from the official Microsoft website:
> https://www.microsoft.com/en-us/download/details.aspx?id=49093
> If the KB2999226 update is installed, but there is no software ability to identify it, run the Driver Pack installation from the command prompt with the SOFT_INSTALL = "yes" parameter.
> `C:\>start /i IPDriverPack-x64.msi SOFT_INSTALL="yes"`

Then the **Installation wizard** dialog window is displayed, containing the information about the status (installed or not) of the *Axxon PSIM* components.



32. Click the **Finish** button.
The dialog window offering to restart the system is displayed.



Computer restart is required to correctly complete the *Axxon PSIM* installation. If you don't select the restart option now, you must do it yourself after the installation.

Installing the *Axxon PSIM* software with the server installation type is complete.

18.1.4 Installation of Axxon PSIM as Workplace for monitoring

This section provides step-by-step instruction for installing the *Axxon PSIM* software to the Monitoring Workplace.

Note

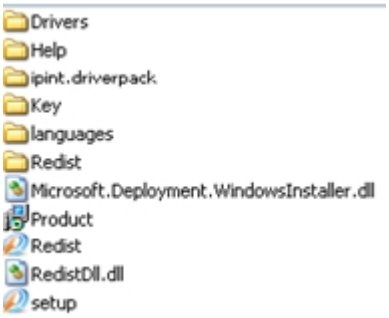
Note the following features during the installation of the *Axxon PSIM* software:

- Install the *Axxon PSIM* software on a clean Windows OS (see the Operating system requirements section).
- To install the *Axxon PSIM* software, administrator rights are required.

- Install the *Axxon PSIM* software in the directory, which is specified by default in the corresponding dialog window of the installation program (that is, C:\Program Files\PSIM). We highly don't recommend changing the name of the logical disk and the directory of the installation program.
- Versions of the *Axxon PSIM* software installed in the configuration of the Client and Server/ Administrator's workstation must be the same. Otherwise, we don't guarantee their proper cooperation.

To install the *Axxon PSIM—Monitoring Workplace* software, do the following:

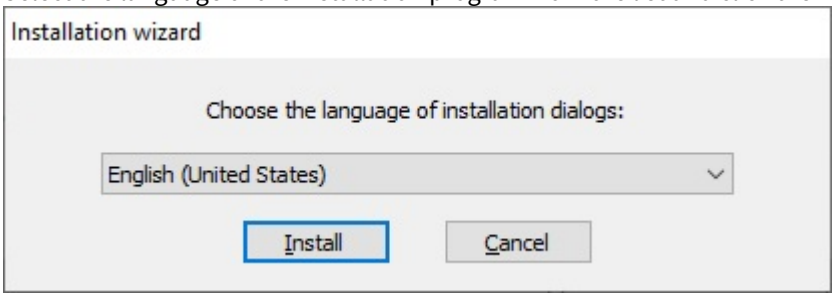
1. Unpack the archive downloaded from the official website of the company, in accordance with the manual in the Getting ready for Axxon PSIM installation section. The destination folder displays the content of the distribution kit.



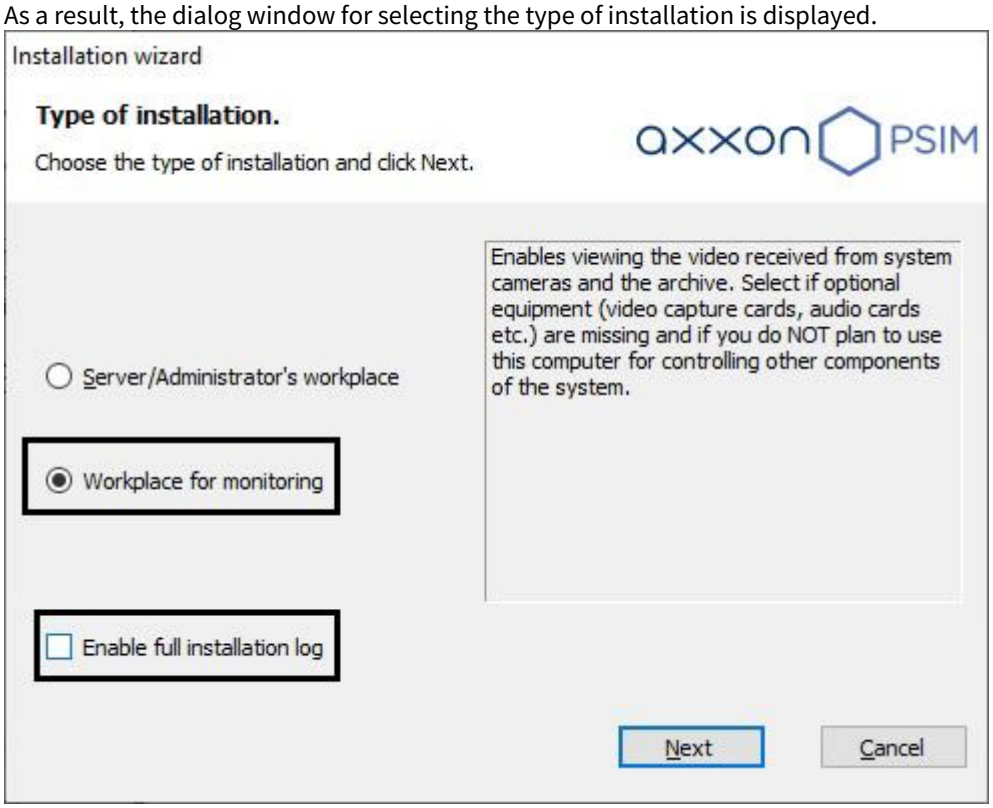
2. Run the setup.exe executable file designed to start the *Axxon PSIM* installation program.
As a result, the dialog window for selecting the language of the installation program is displayed.

> **Attention!**
>
> When you install *Axxon PSIM* on the OS Windows 8 and the OS Windows Server 2012, you must install Microsoft.Net Framework 8.0 or later. Otherwise, it is installed along with *Axxon PSIM*.

3. Select the language of the installation program from the list and click the **Install** button.



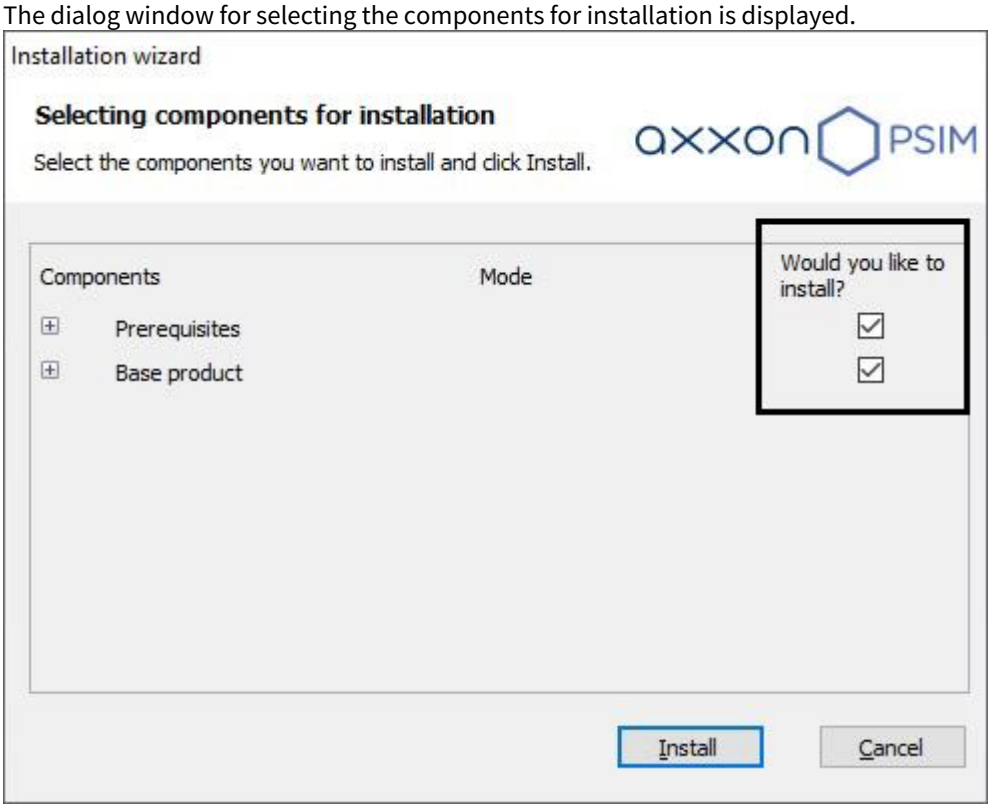
As a result, the dialog window for selecting the type of installation is displayed.



4. Select the **Workplace for monitoring** installation type.
5. Set the **Enable full installation log** checkbox (increases the time of the software installation) if you want to write all software installation events to the log file.

> **Note**
>
> When you install the software, the event logging is performed in the PSIMSetup.log log file. To collect log files, we recommend using the Support.exe utility (see The utility for collecting configuration data on servers and RWS for the Technical Support section).

6. Click the **Next** button.
The dialog window for selecting the components for installation is displayed.



7. Set the checkboxes next to the components that you want to install (you can expand the lists by clicking ⊞).
Consider the following peculiarities when you select the components:
   a. We recommend installing all provided components—the *Axxon PSIM* installer sets checkboxes next to everything required for proper operation by default.
   b. To operate in *Axxon PSIM*, you must install Microsoft.Net Framework 4.0 or later. Usually it is bundled with Windows OS and doesn't require separate installation. If you don't have it, then .Net 4.6 is offered for installation at Prerequisites—make sure to set the checkbox. For more information about Microsoft.Net Framework, see the official documentation at https://learn.microsoft.com/en-us/dotnet/framework/.

> **Note**
>
> If this method of language installation isn't suitable, later you can install each language separately (see Installing the language). After the installation, use the tweaki.exe utility to switch languages (see Switching languages in the Axxon PSIM Software System).

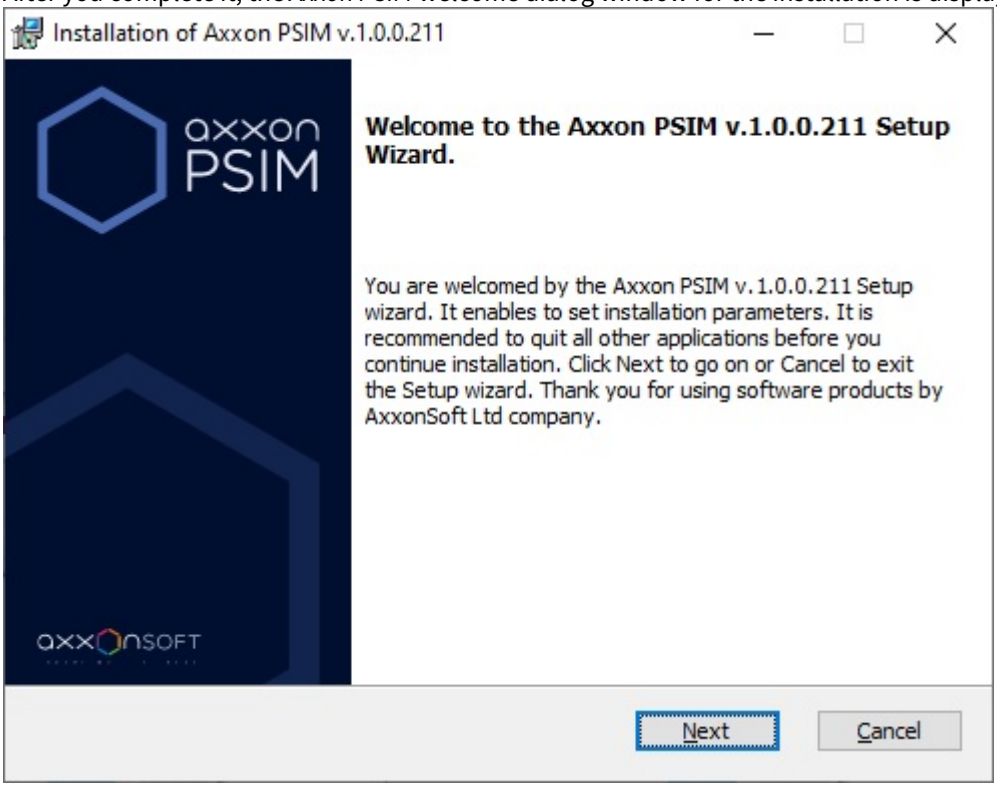
8. Click the **Install** button.
After that, the automatic installation of the selected components is performed.



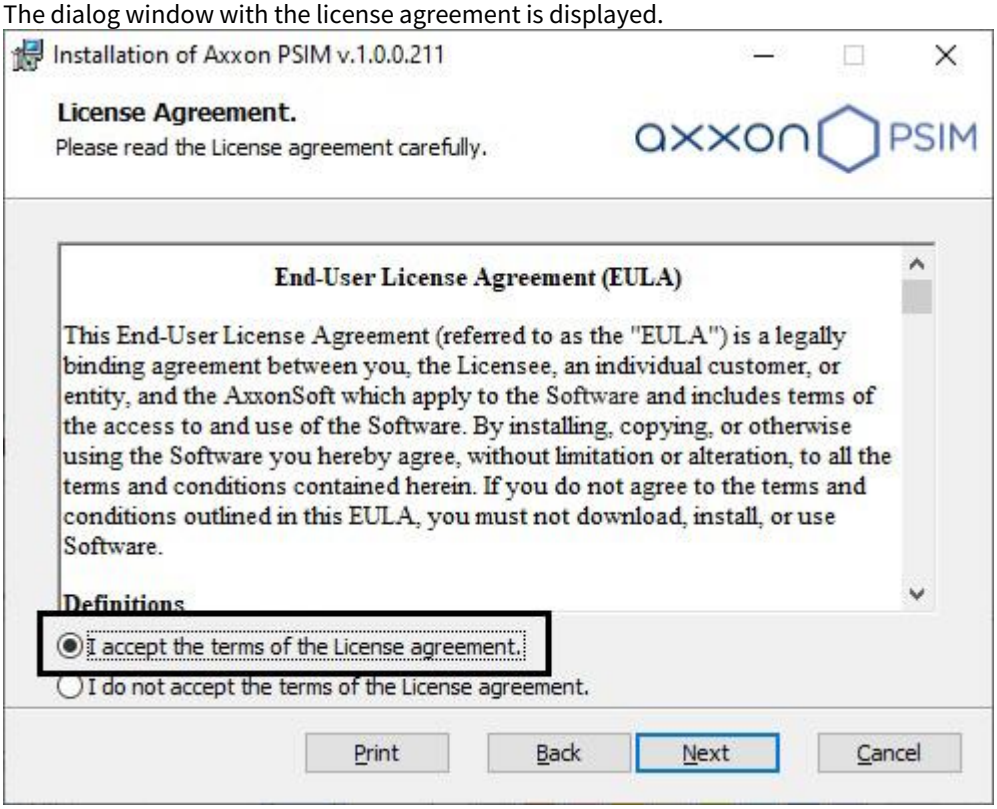
> **Attention!**

The installation of the required prerequisites can take a lot of time (more than 10 minutes).

After you complete it, the *Axxon PSIM* welcome dialog window for the installation is displayed.

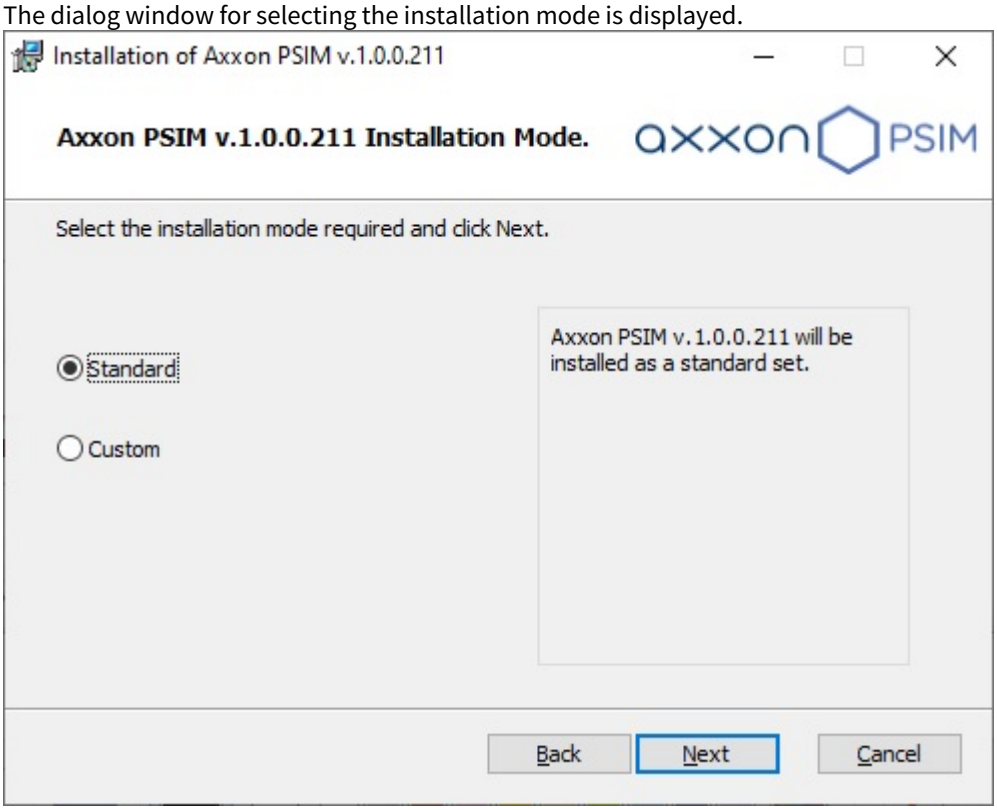


9. Click the **Next** button.
   The dialog window with the license agreement is displayed.

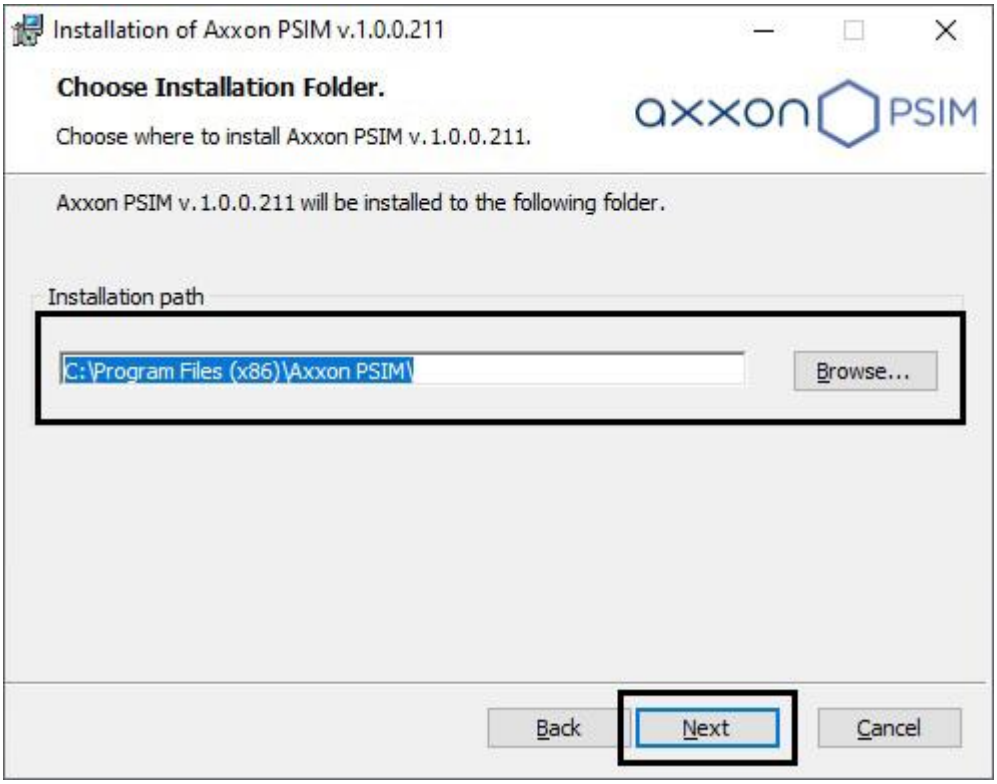


10. Read the license agreement and accept its terms by setting the switch into the **I accept the terms of the License agreement** position, otherwise the *Axxon PSIM* installation is stopped.

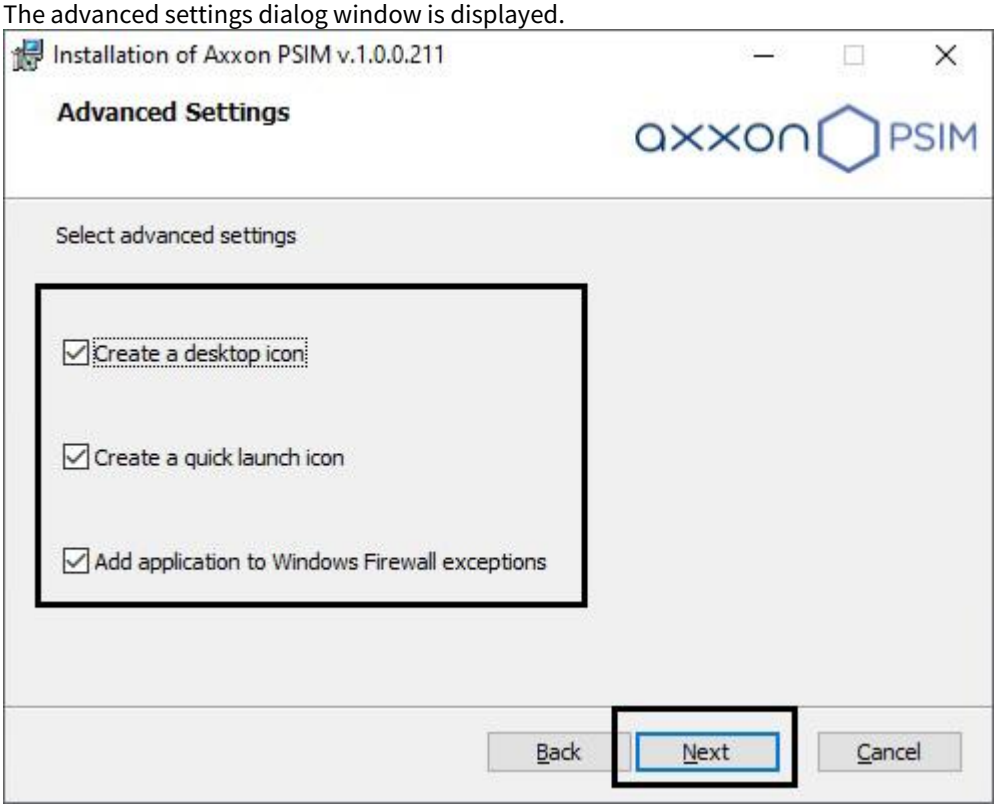
11. Click the **Next** button.
    The dialog window for selecting the installation mode is displayed.



12. Select the installation mode.
13. Click the **Next** button.
    When you select the **Custom** installation mode, the dialog window for selecting the installation path is displayed. When you select the **Standard** installation mode, this step is omitted.

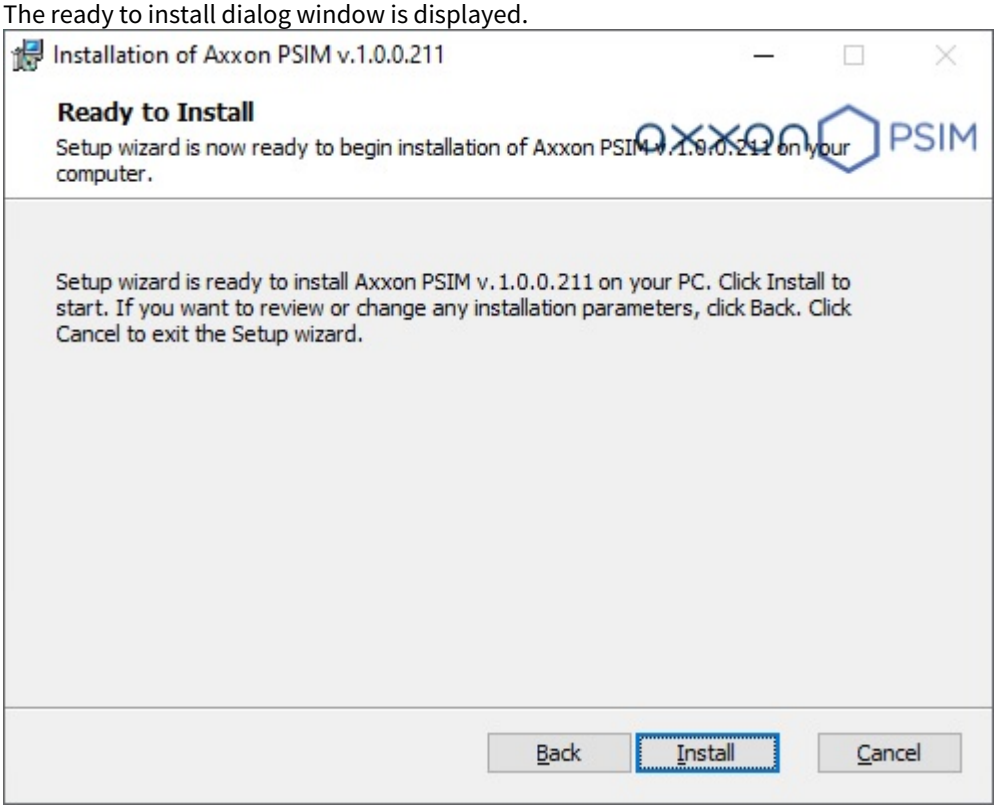


The advanced settings dialog window is displayed.



14. If necessary, you can create the *Axxon PSIM* desktop shortcut and set the corresponding checkbox.
15. If necessary, you can create the *Axxon PSIM* desktop icon in the quick launch toolbar and set the corresponding checkbox.

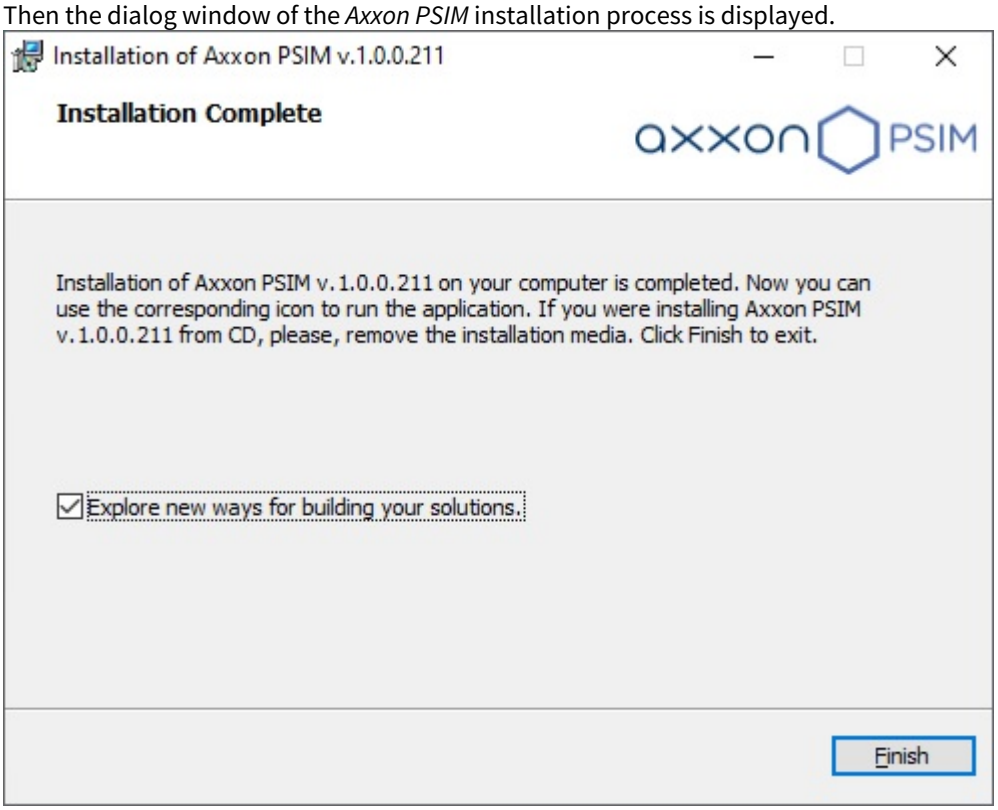
16. Click the **Next** button.
The ready to install dialog window is displayed.



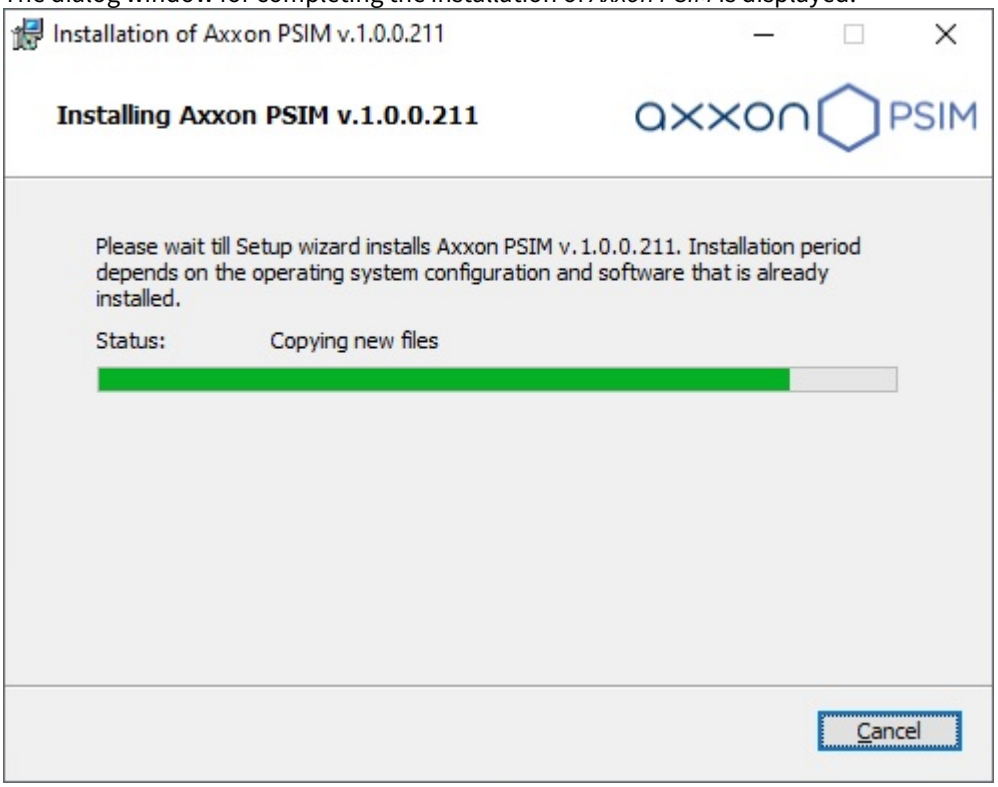
Note

To change the setting, click the **Back** button.

17. Click the **Install** button.
Then the dialog window of the *Axxon PSIM* installation process is displayed.



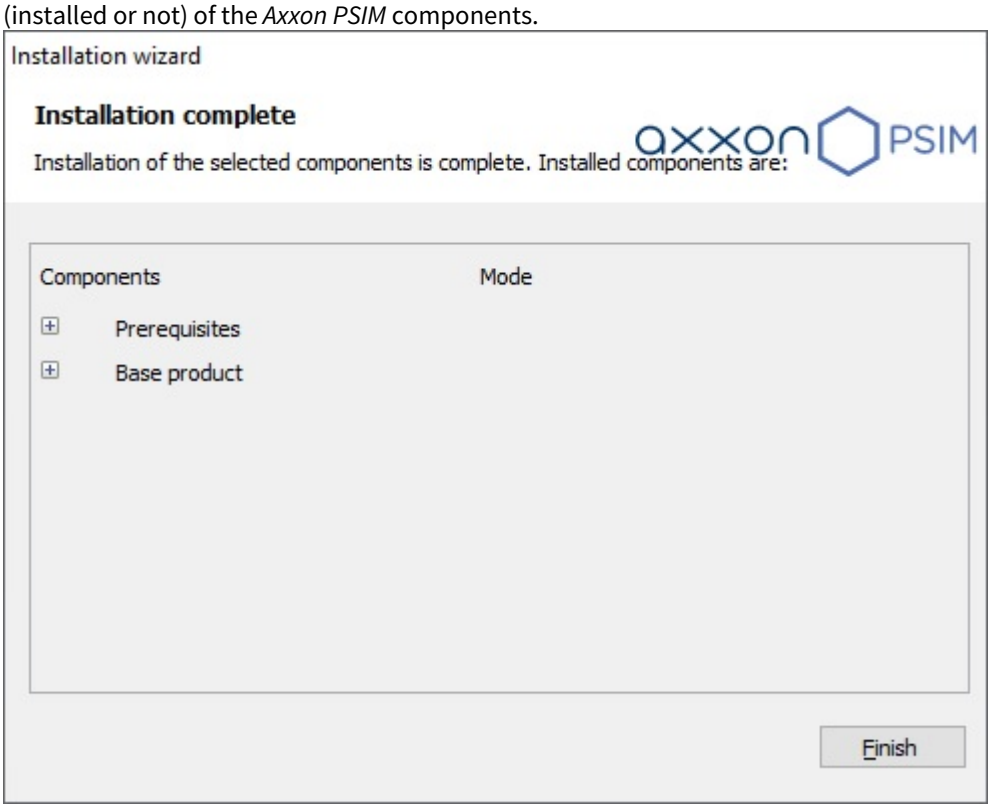
18. The dialog window for completing the installation of *Axxon PSIM* is displayed.



19. Set the **Explore new ways for building your solutions** checkbox to view the document containing the information about new features of the installed *Axxon PSIM* version.
20. Click the **Finish** button.

> **Note**
>
> After that, the Driver Pack add-on installation starts.

Then the installation wizard dialog window is displayed, containing the information about the status (installed or not) of the *Axxon PSIM* components.



21. Click the **Finish** button.

Installing the *Axxon PSIM* software with the **Monitoring Workplace** installation type is complete.

18.1.5 Updating Axxon PSIM

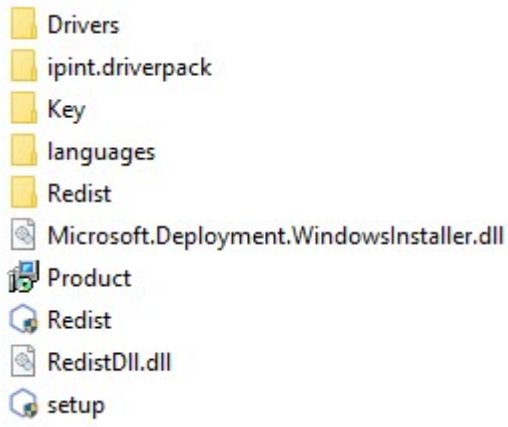
If you install *Axxon PSIM* on a computer where an earlier version is used, then the installation will be performed in the updating mode.

> **Attention!**
>
> Important to know before updating *Axxon PSIM:*
>
> 1. Before updating, we recommend you back up all databases that you use—see Creating the database backup copy. Also, copy and save the **psim.sec** license file (located in the root of the *Axxon PSIM* installation directory, by default: C:\Program Files/Axxon PSIM).
> 2. *Axxon PSIM* can be updated if there is a difference in the third digit of the version number and the first two digits are the same. If the first and/or second digits are different, you must reinstall *Axxon PSIM* instead of updating, that is, uninstall the previous version and install the new one.

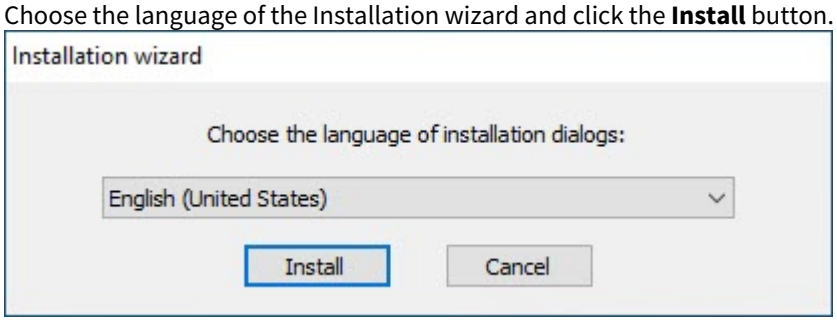
Examples:
   a. you can update from version 1.0.1 to version 1.0.2;
   b. you cannot update from version 1.0.1 to 1.2.0, you need to reinstall.
3. Before starting the update, you must stop *Axxon PSIM* if it is running.
4. You must run the update as a Windows administrator.
5. When you update *Axxon PSIM* on the server or Remote Administrator's workstation, you must also update *Axxon PSIM* on Remote client. The compatible versions of *Axxon PSIM* must be installed on Remote Clients and on server/Remote Administrator's workstation, that is, the first two digits of the version number must be the same (for example, versions 1.1 and 1.2 aren't compatible, but versions 1.0.1 and 1.0.3 are compatible).
6. You can update *Axxon PSIM* 1.0 to *Axxon PSIM* 2.0. This process requires manual configuration. For detailed information on updating, please contact technical support.

To update *Axxon PSIM*, do the following:

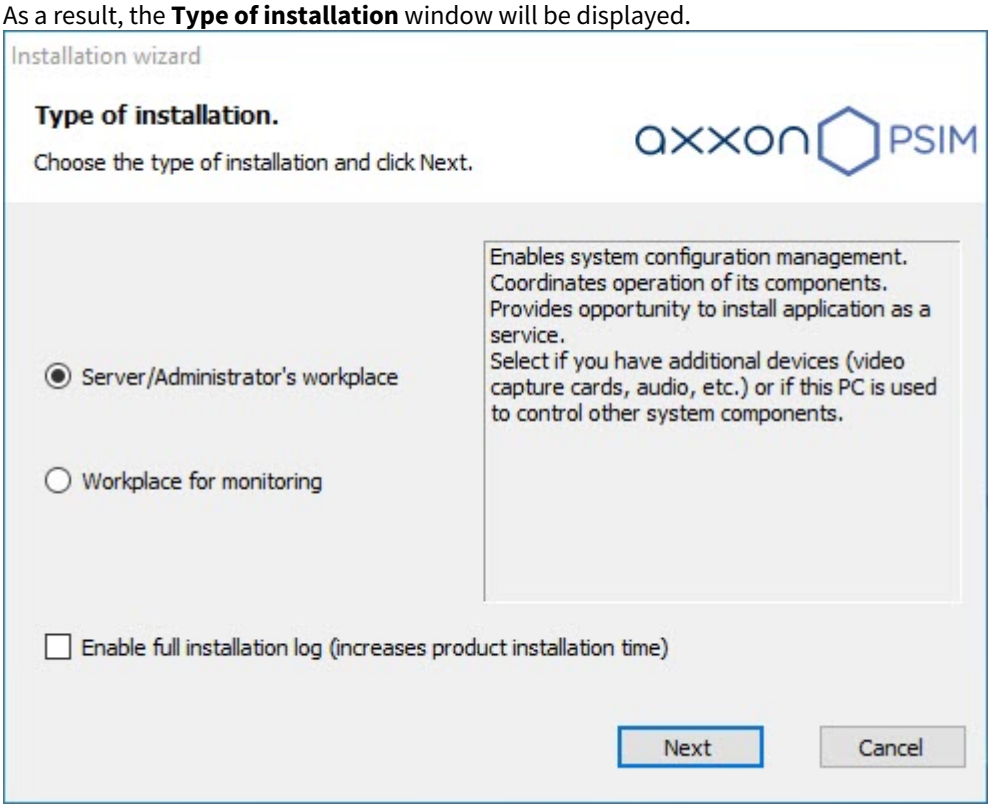
1. Unpack the installation kit as described in Getting ready for Axxon PSIM installation. The destination folder will show the contents of the kit.



2. Run the setup.exe file to start the *Axxon PSIM* installation procedure.
   As a result, a window for choosing the Installation wizard language will be displayed.
3. Choose the language of the Installation wizard and click the **Install** button.



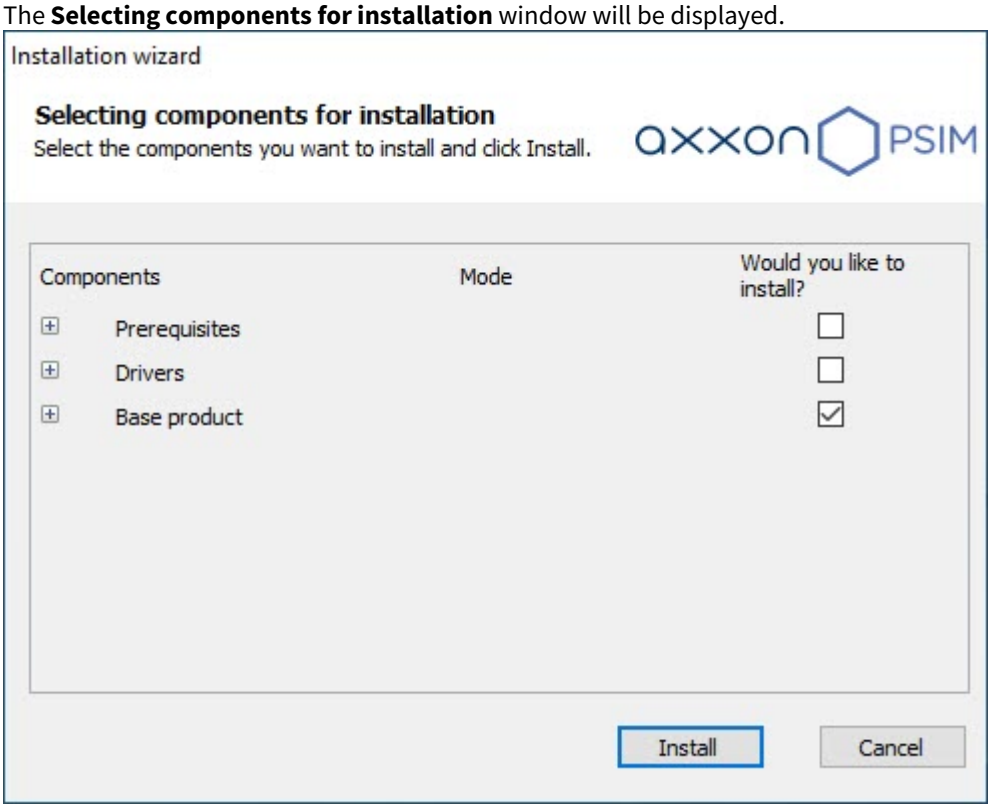
As a result, the **Type of installation** window will be displayed.



4. Choose the type of installation needed.
5. To log all installation events, set the **Enable full installation log (increases product installation time)** checkbox.

> **Note**
>
> When you update the software, the event logging is performed in the PSIMSetup.log log file. To collect log files, use the Support.exe tool (see The utility for collecting configuration data on servers and RWS for the Technical Support).

6. Click the **Next** button.
The **Selecting components for installation** window will be displayed.



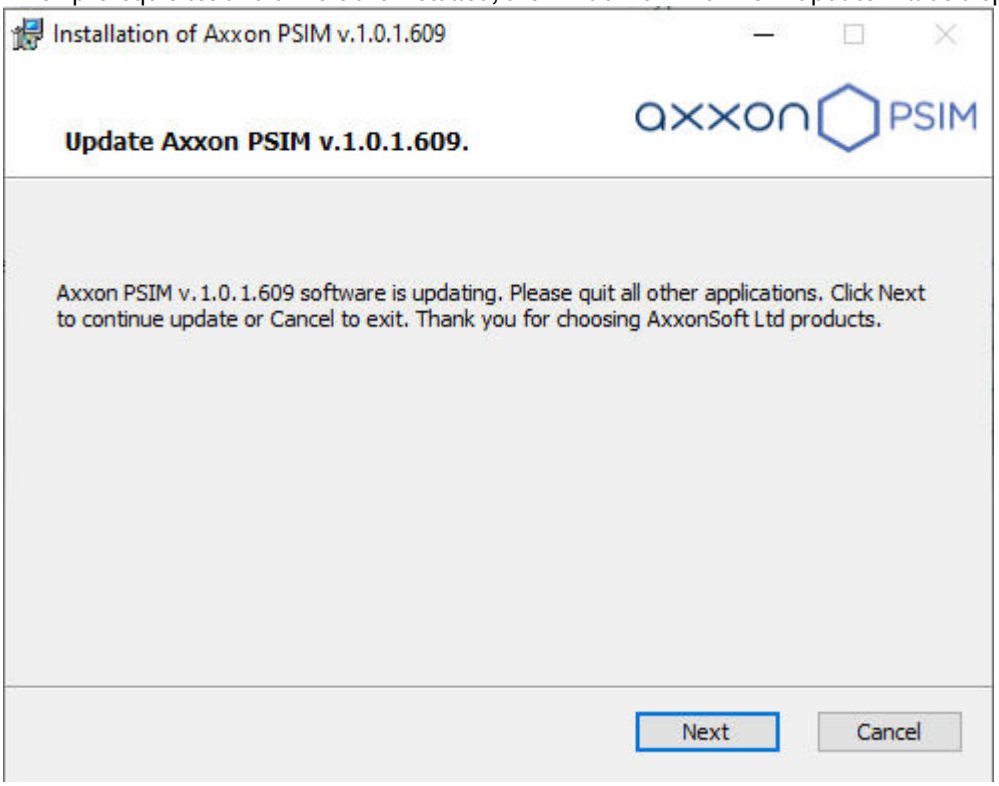
7. Set the checkboxes next to the components that you want to install.

> **Note**
>
> We recommend installing all suggested components.

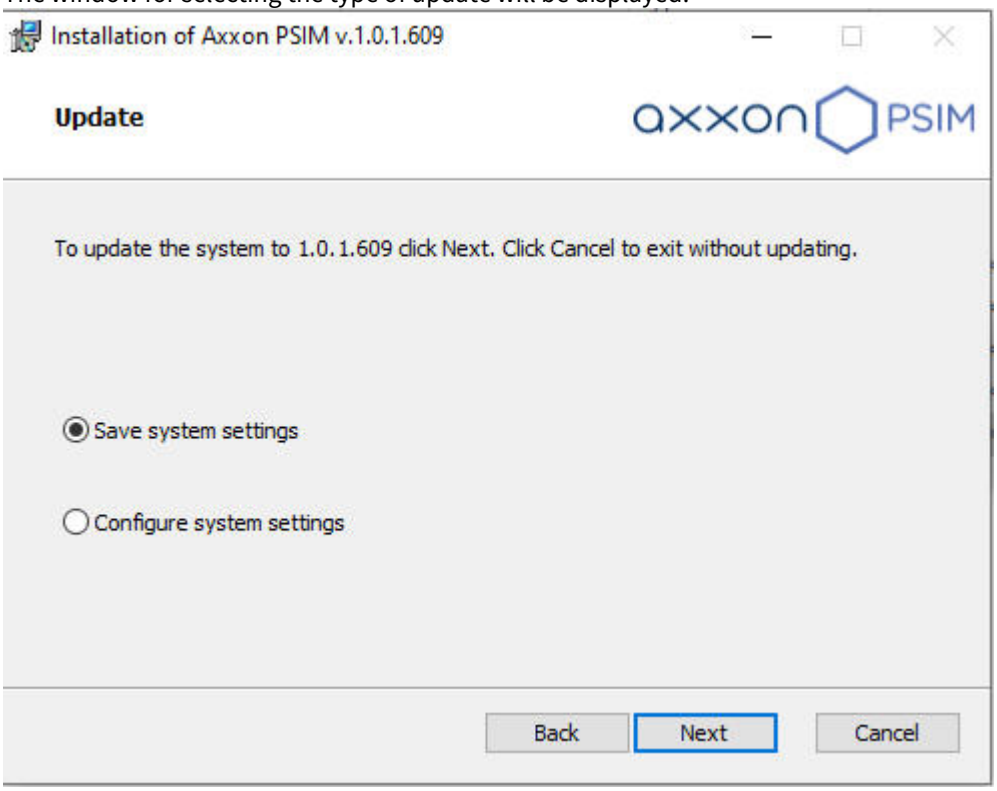
8. Click the **Install** button.
The selected prerequisites and drivers will be installed.

> **Attention!**
>
> During the installation process, you will be prompted to remove the installed vertical solutions. Two options are possible:
>
> a. If you click the **Yes** button, the vertical solutions will be removed during the update process. In this case, you will need to reinstall them after the update. Installation manuals are available in the documentation for each solution, links are on the main documentation page for Axxon PSIM 1.0.0-1.0.1. You must also take into account the compatibility of versions: General information about product releases and versions compatibility.
> b. If you click the **No** button, the vertical solutions won't be removed and will be compatible with the new version of *Axxon PSIM* after the update.

When prerequisites and drivers are installed, the window of *Axxon PSIM* update will be displayed.



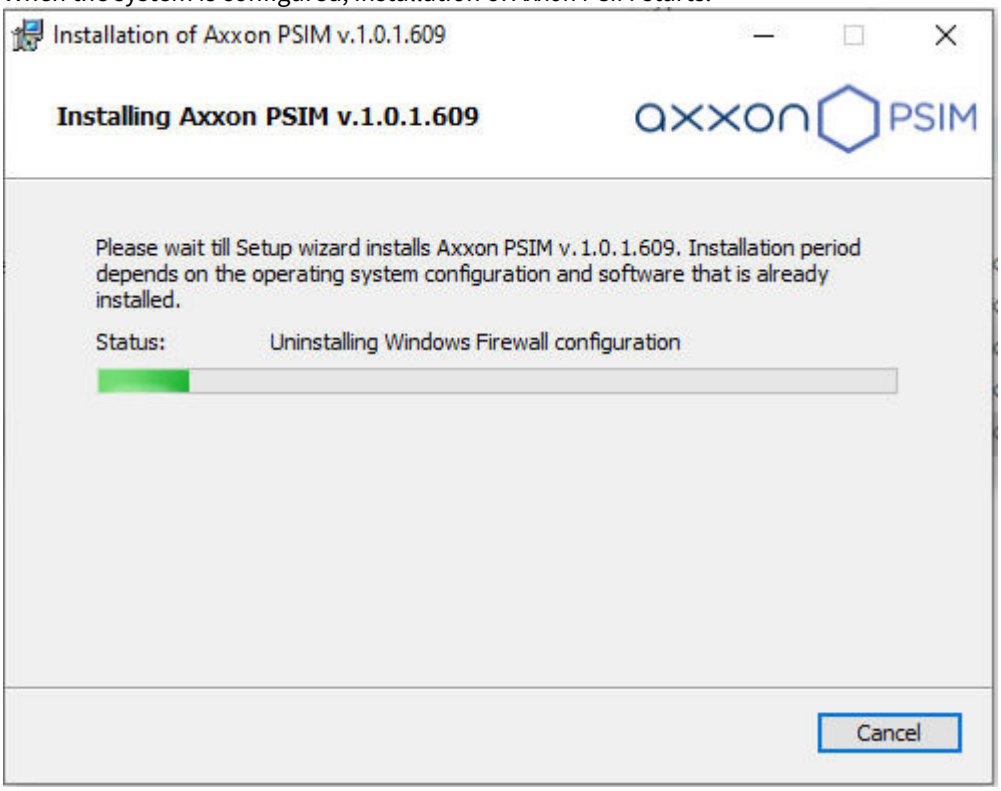
9. Click the **Next** button.
The window for selecting the type of update will be displayed.



10. Select one of the suggested types of update. The types of update are described in the table below:

The type of update	Description
Save system settings	Use of settings chosen for installation of an earlier version
Configure system settings	Switch to step-by-step system configuration. Step-by-step configuration is described in Installation of Axxon PSIM as a Server/Remote Administrator's workstation

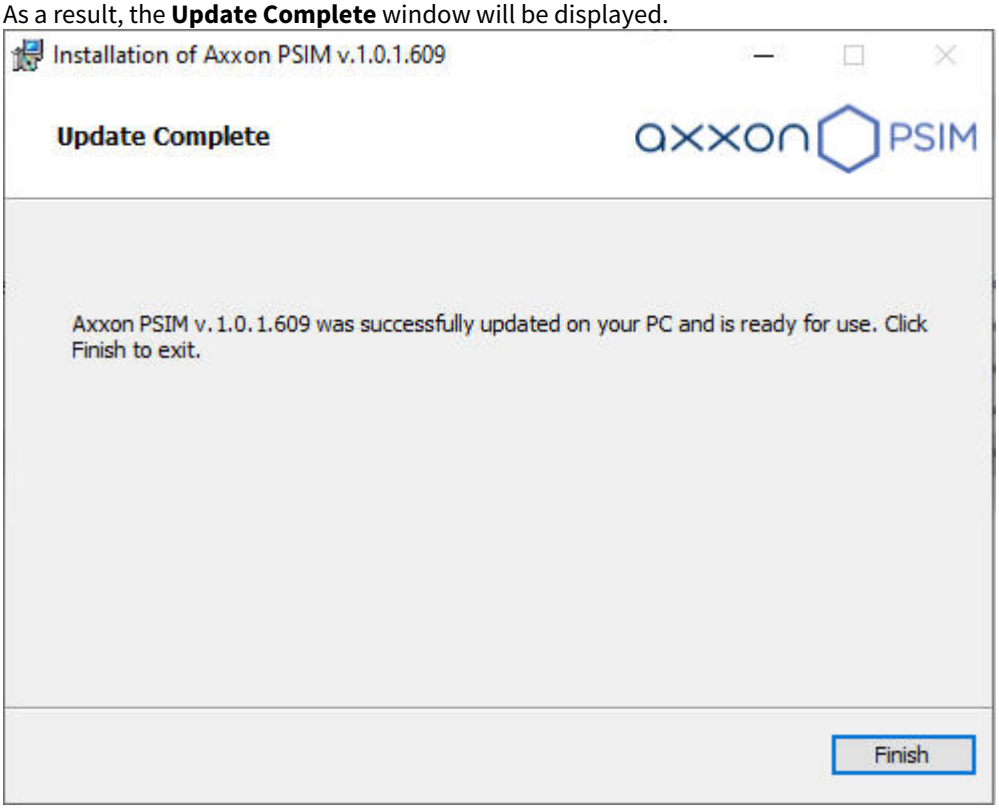
11. Click the **Next** button.
When the system is configured, installation of *Axxon PSIM* starts.



Note

When updating *Axxon PSIM* on Windows OS 7 SP1 without an internet connection, an error can occur during the installation of the drivers for the FX4 card. To eliminate this error, install the following missing Windows updates:
https://support.microsoft.com/en-us/kb/3004394
https://technet.microsoft.com/en-us/library/security/3033929

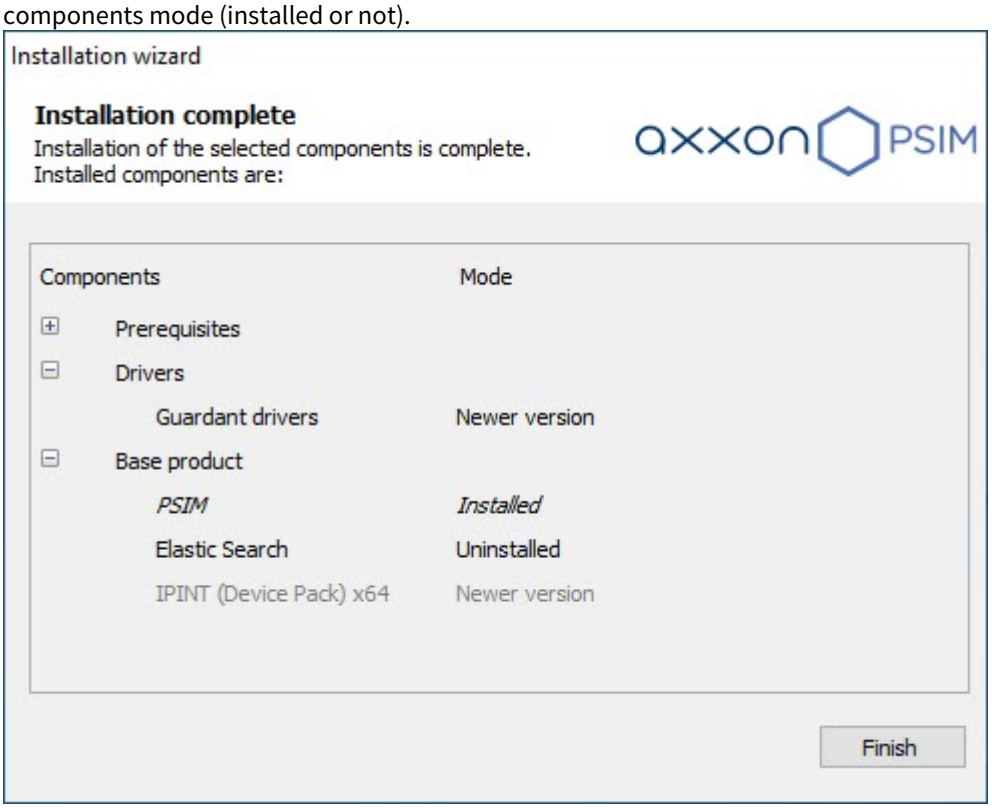
12. As a result, the **Update Complete** window will be displayed.



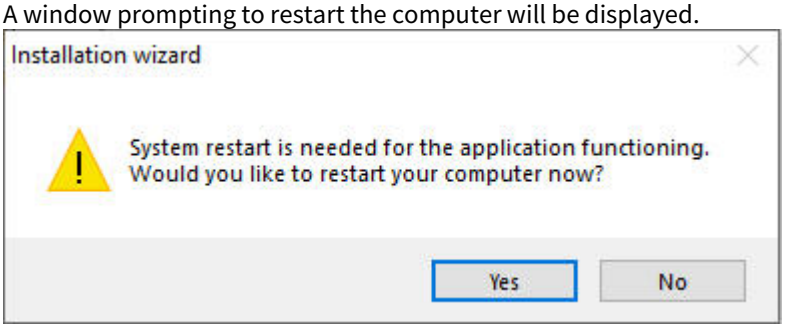
13. Click the **Finish** button.

> **Note**
>
> Then the *DriversPack* will be installed if you selected this component.

The **Installation complete** window will be displayed. It contains the information about *Axxon PSIM* components mode (installed or not).



14. Click the **Finish** button.
A window prompting to restart the computer will be displayed.



To correctly finish the installation of *Axxon PSIM,* you must restart the computer. If you don't choose to restart now, you will have to do it yourself after the installation.

Axxon PSIM is now updated.

Note

If you try to update *Axxon PSIM* to an older version, the updating process will go as described above, but the version will remain the same, and there will be no changes in the software.

Updating Axxon PSIM installed as a Service
Remote update of Axxon PSIM software
The Automatic Update Service

18.1.6 Using the Product.msi and Redist.exe for Axxon PSIM™ software installation

Besides running Setup.exe file for the the *Axxon PSIM*™ software installation, Product.msi and Redist.exe files can be used:

1. Product.msi is designed for *Axxon PSIM*™ software installation with step-by-step configuration of main parameters such as type of installation, installation directrory etc.

   Note.

   Product.msi is worth being used when all drivers, prerequisits and other components necessary for proper operation of *Axxon PSIM*™ being installed.

2. Redist.exe enables selection and installation of necessary components for *Axxon PSIM*™ operation (for example drivers, prerequisits and the very product).

The use of these files allows reducing installation time of *Axxon PSIM*™ software due to less steps during installation.

18.1.7 Separate installation of components for Axxon PSIM operation

The components that are required for *Axxon PSIM* operation are installed automatically when *Axxon PSIM* is installed, and you don't need to install anything additionally (see Installing Axxon PSIM™ software).

Attention!

It is strongly recommended to install or update the components together with *Axxon PSIM* installation. A component separate update can lead to incompatibility with the main product. In this case, you will have to reinstall everything.

If you need to install or update the components, the following options are available:

1. For all components: run the Redist.exe executable file, which is included in the distribution package of the required version, select the necessary components to install (see Using the Product.msi and Redist.exe for Axxon PSIM™ software installation).
2. For IP Drivers Pack, two ways are described on the page Updating Drivers Pack separately from the main product.
3. For the language pack: install LanguagePack downloaded from the website (see Installing the language).

Updating Drivers Pack separately from the main product

The version of Drivers Pack that matches the *Axxon PSIM* base version is installed together with *Axxon PSIM.* It is not recommended to update Drivers Pack separately, as this may cause its incompatibility with the main product. In this case, you will have to reinstall everything.

This manual describes the options for updating Drivers Pack in cases when you want to revert to an earlier version of Drivers Pack or install a newer version of Drivers Pack.

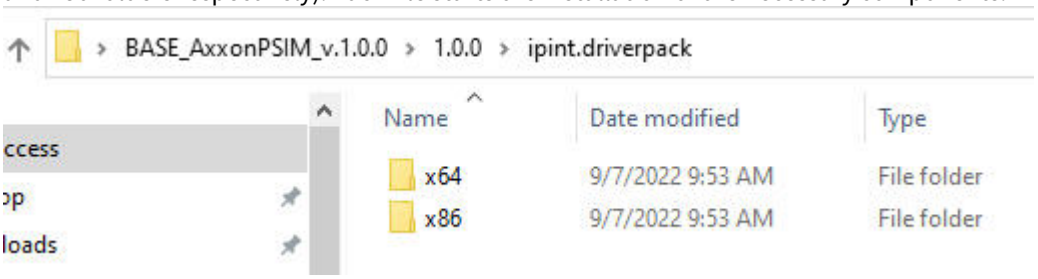
For the information on the *Axxon PSIM* and Drivers Pack compatibility, see Documentation Drivers Pack and the webpage https://www.axxonsoft.com/products/integration/supported-ip.

Attention!

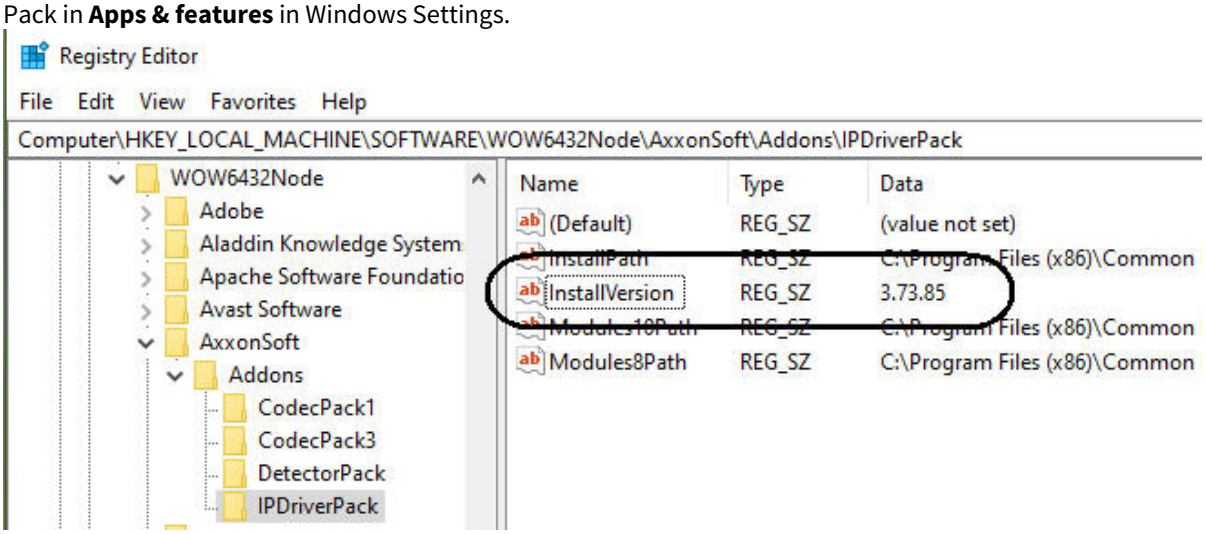
If you want to install a newer version of Drivers Pack, you don't need to uninstall the previous version.
If you want to install an earlier version of Drivers Pack, you will need to uninstall the current version and then install the version you need.

Installation without uninstalling the previous version

1. In the *Axxon PSIM* distribution package containing the required version of Drivers Pack, go to the **ipint.driverpack** folder and one-by-one run the **IPDriverPack.msi** files for x64 and x86 (located in the x64 and x86 folders respectively). Each file starts the installation of the necessary components.

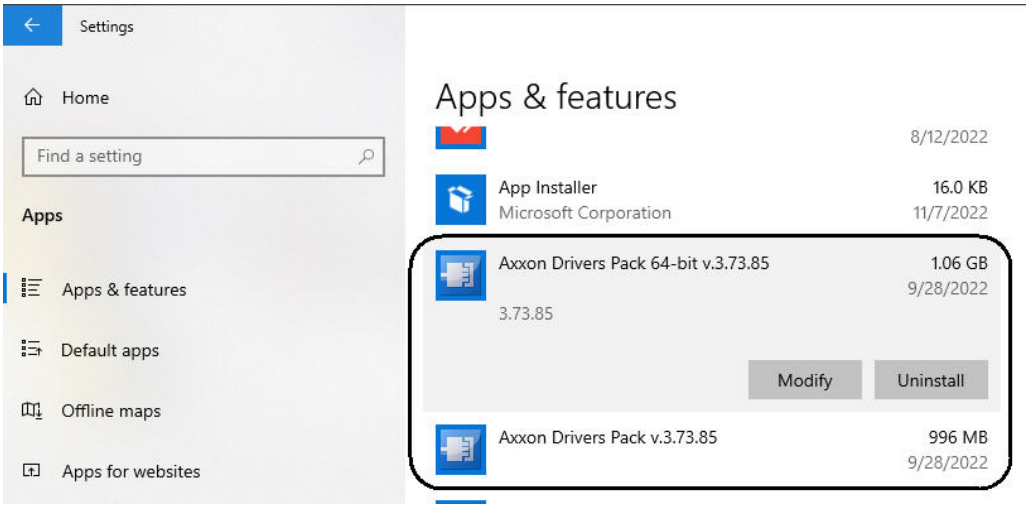


2. After the installation is finished, check if it was successful. To do this, in the **Registry Editor** in the path Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\Addons\IPDriverPack, check the **InstallVersion** key. The version you installed should be specified. You can also check the version of Drivers Pack in **Apps & features** in Windows Settings.

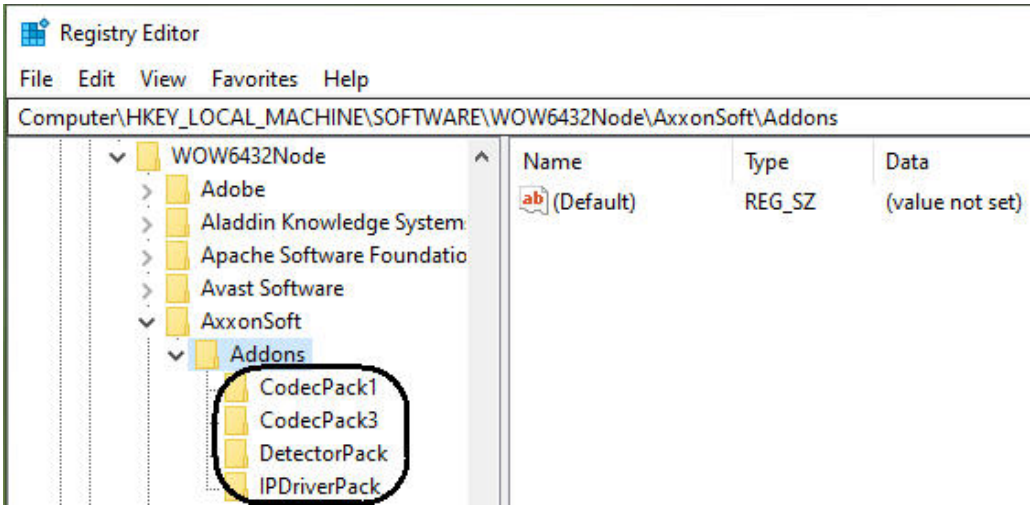


Installation with uninstalling the previous version

1. In Windows Settings, go to **Apps & features** and uninstall **Axxon Drivers Pack 64-bit** and **Axxon Drivers Pack**.



2. In the **Registry Editor** on the path Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\Addons\IPDriverPack, delete all contents of the **Addons** subsection.



3. Delete all contents of the **C:\Program Files\Common Files\AxxonSoft** folder.
4. Install Drivers Pack by running the **IPDriverPack.msi** files of the correct version as described above. Check if the installation was successful.

As a result, the new version of Drivers Pack will be installed.

18.2 Possible installation problems and their solutions

On the page:

- Error while installing driver for the FX4 card
- Error code 26352

18.2.1 Error while installing driver for the FX4 card

Error of driver installation for the FX4 card can occur while the *Axxon PSIM* software installation on the Windows 7 SP1 operating system without Internet connection. To eliminate this error install the following missing Windows updates:

https://support.microsoft.com/en-us/kb/3004394

https://support.microsoft.com/en-us/kb/3033929

18.2.2 Error code 26352

Error 26352 may occur if *Axxon PSIM* is being installed on an operating system with applied information security policies. This error code means that the problem is related to installing driver signature certificates. These

certificates are valid for one year. If the OS security settings do not allow to install drivers with expired certificates and the certificates themselves, the installation is interrupted with an error.

To solve this problem, please download a newer *Axxon PSIM* distribution kit. It is available on the web-site https://www.axxonsoft.com/resources or by request to the technical support at https://support.axxonsoft.com.

18.3 Editing/restoring Axxon PSIM

The edit/restore mode is used to reinstall all *Axxon PSIM* components. Use this function when, for example, some files were accidentally deleted from the installation directory.

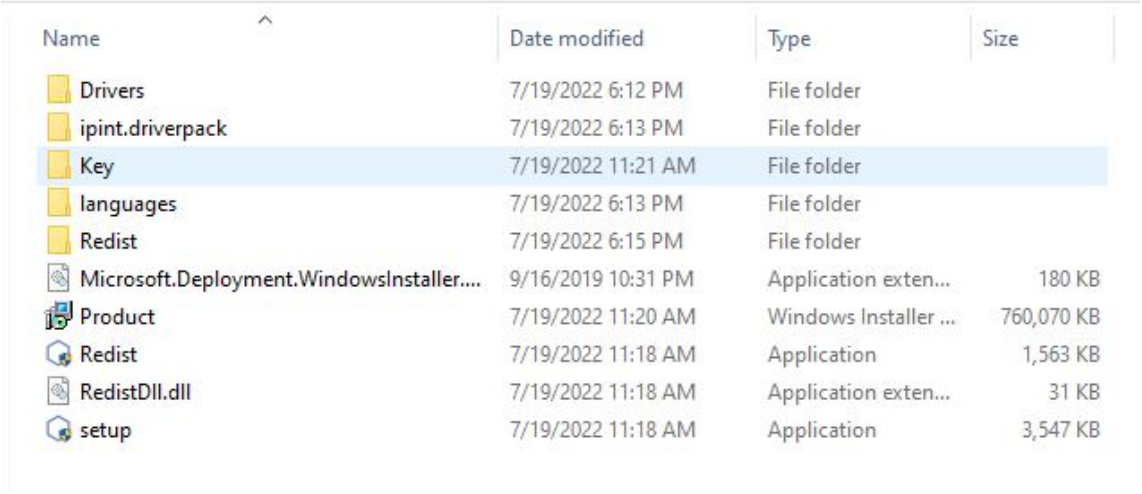
To launch the edit/restore mode, you need to restart *Axxon PSIM* installation without deleting the previous version. To edit/restore *Axxon PSIM* correctly, make sure that the distribution package is located in the same path as it was during installation or that the operating system is configured to save the *.msi files in the cache.

Note

To reinstall *Axxon PSIM* correctly, close all applications on the computer before the reinstallation startup.

To edit/restore *Axxon PSIM*, do the following:

1. Open the folder containing the unpacked distribution package.



Note

Here we describe how to edit/restore *Axxon PSIM* using the installer. The same process can be started using the uninstaller: open Windows Start menu → Settings → Apps, find *Axxon PSIM* in the list and click **Uninstall**. The uninstaller window will open, select the **Repair** option and proceed according to this manual.

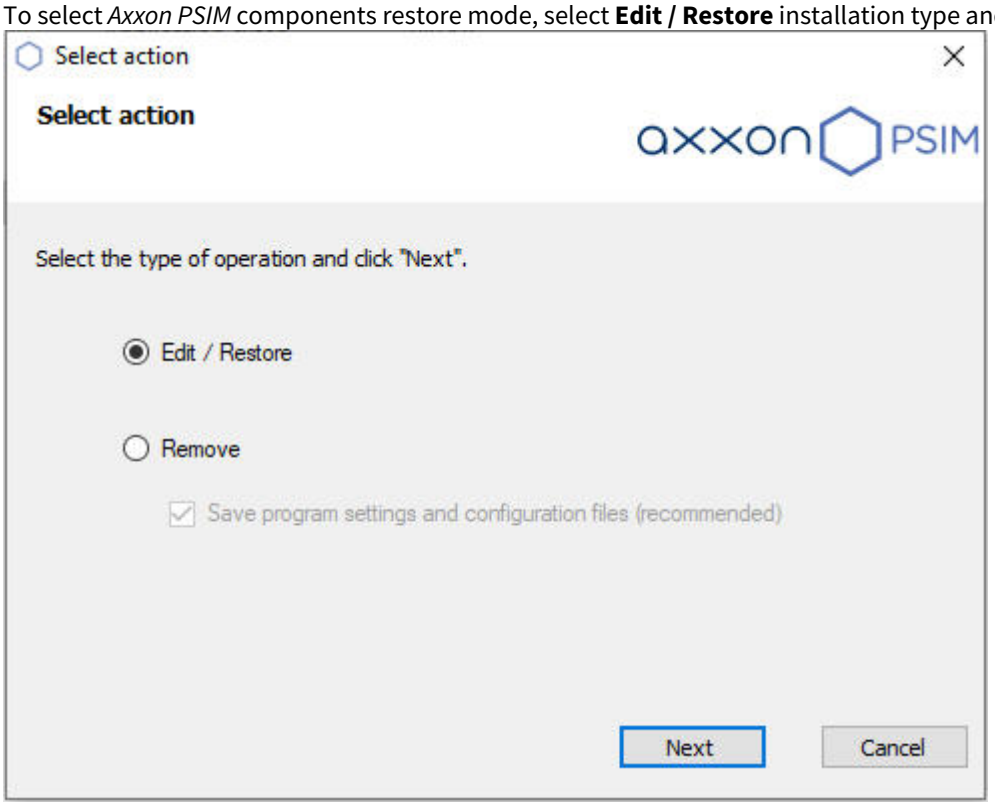
2. Run the Setup.exe executable file used for running *Axxon PSIM* installation program.
As a result, the **Select action** dialog box is displayed.

Note

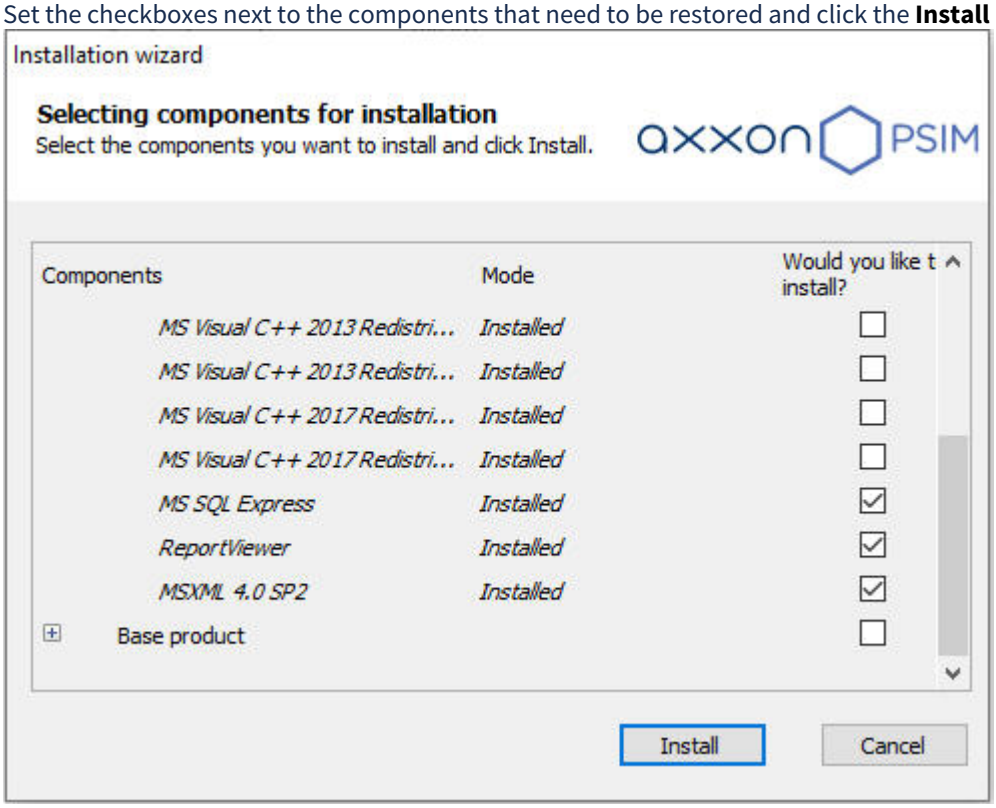
The following files may be run for restoring *Axxon PSIM* instead of Setup.exe:

a. Product.msi—to repair *Axxon PSIM*;
b. Redist.exe—to install additional components.

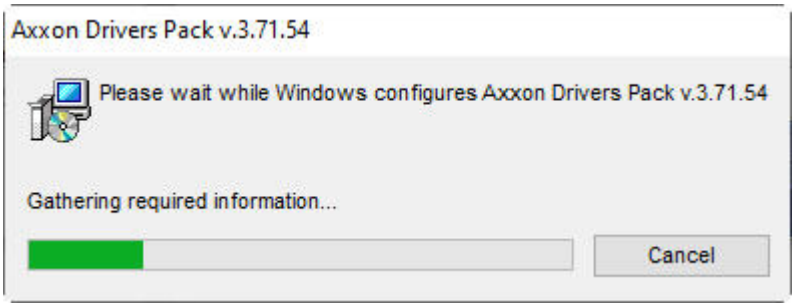
3. To select *Axxon PSIM* components restore mode, select **Edit / Restore** installation type and click **Next**.



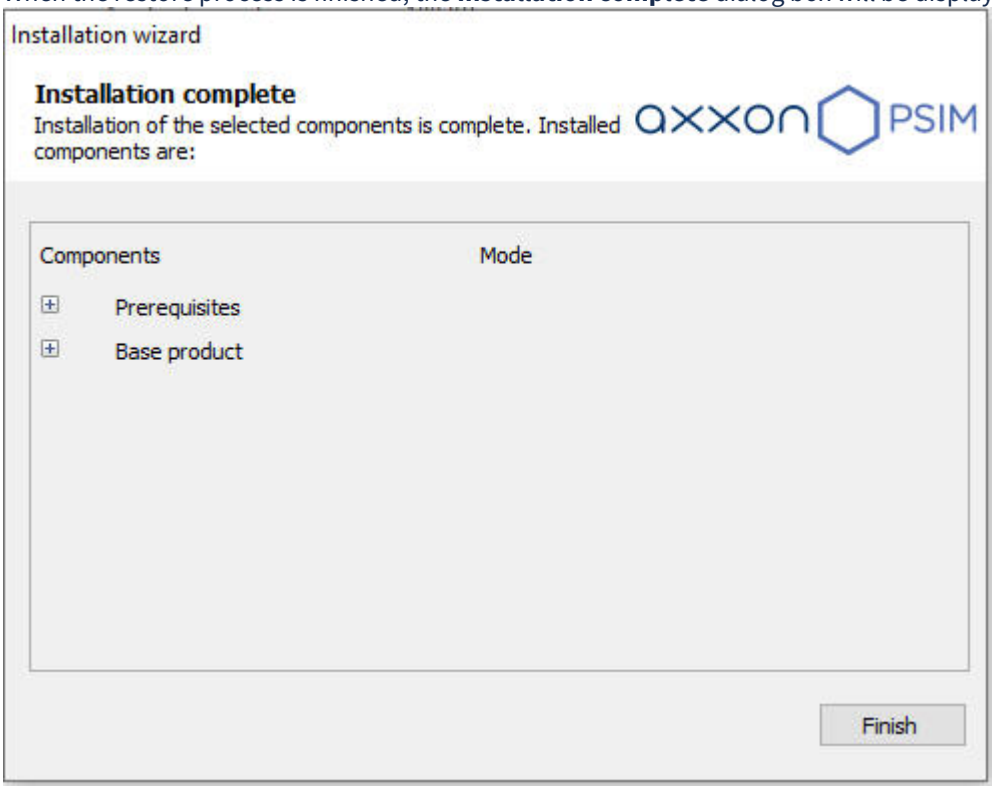
4. Set the checkboxes next to the components that need to be restored and click the **Install** button.



Axxon PSIM restore dialog box will be displayed.



When the restore process is finished, the **Installation complete** dialog box will be displayed.



5. Click the **Finish** button.

Axxon PSIM is now restored.

18.4 Removing Axxon PSIM™ software

Axxon PSIM software installation program works in a deletion mode. This mode is required when all the components of the *Axxon PSIM* software should be deleted.

> **Note.**
>
> Before starting the deletion process of the *Axxon PSIM* software all the other applets should be closed on the computer.

The *Axxon PSIM* software removal process can be launched using one of the following ways:

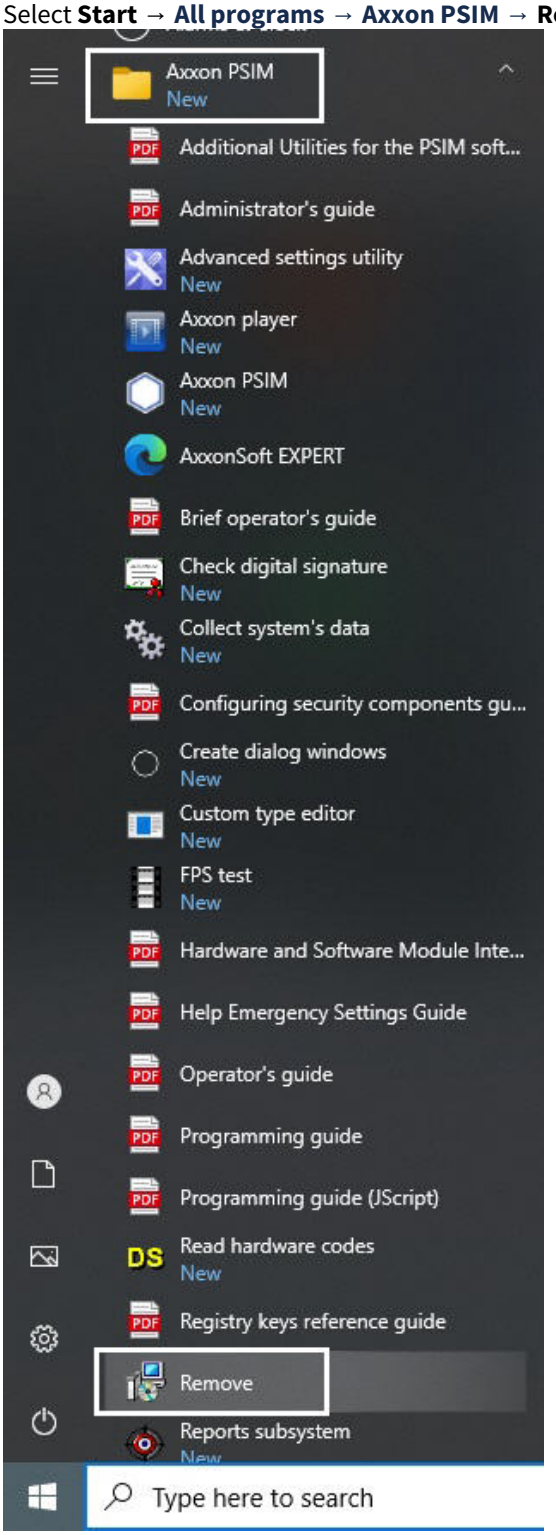
1. Using the Start menu;
2. Using OS Windows panel «Add or remove programs»;

3. Using the installation kit.

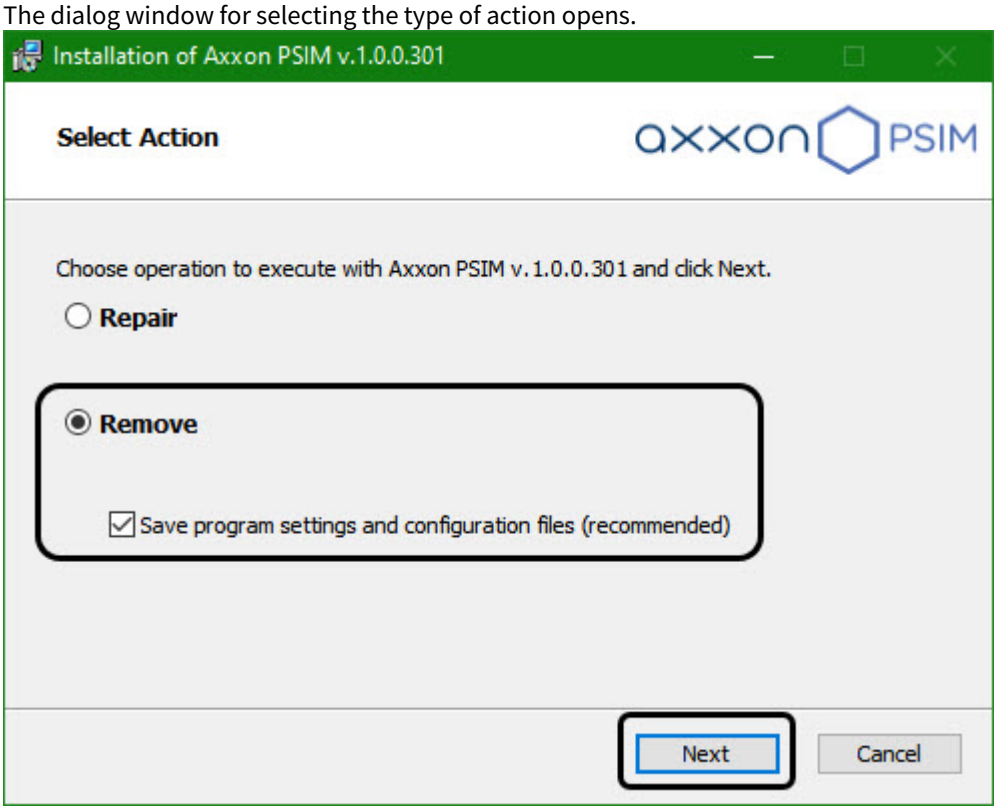
18.4.1 Removing Axxon PSIM from Start menu

To remove *Axxon PSIM* from the **Start** menu, do the following:

1. Select **Start** → **All programs** → **Axxon PSIM** → **Remove**.



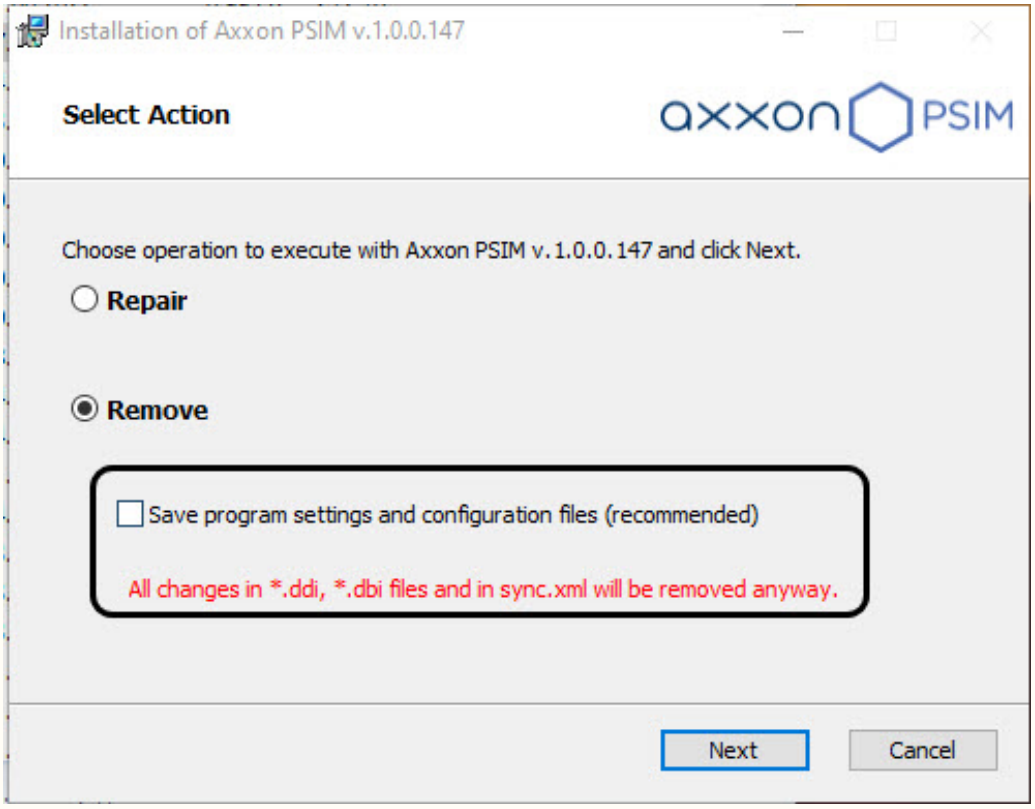
The dialog window for selecting the type of action opens.



2. Select the **Remove** action.
3. If you want to save the *Axxon PSIM* settings in the database, set the **Save program settings and configuration files (recommended)** checkbox.

> **Note**
>
> If you make changes in the sync.xml file, then when you remove it with the configuration saved, the file isn't deleted, but the next time you install *Axxon PSIM,* it will be overwritten.
> If the user makes changes in the ddi or dbi files installed with *Axxon PSIM* using the ddi.exe utility, these files are deleted when you remove *Axxon PSIM* with the configuration saved. If you create new ddi or dbi files, they will be saved.

> **Attention!**
>
> If you clear the **Save program settings and configuration files (recommended)** checkbox, the warning message appears.

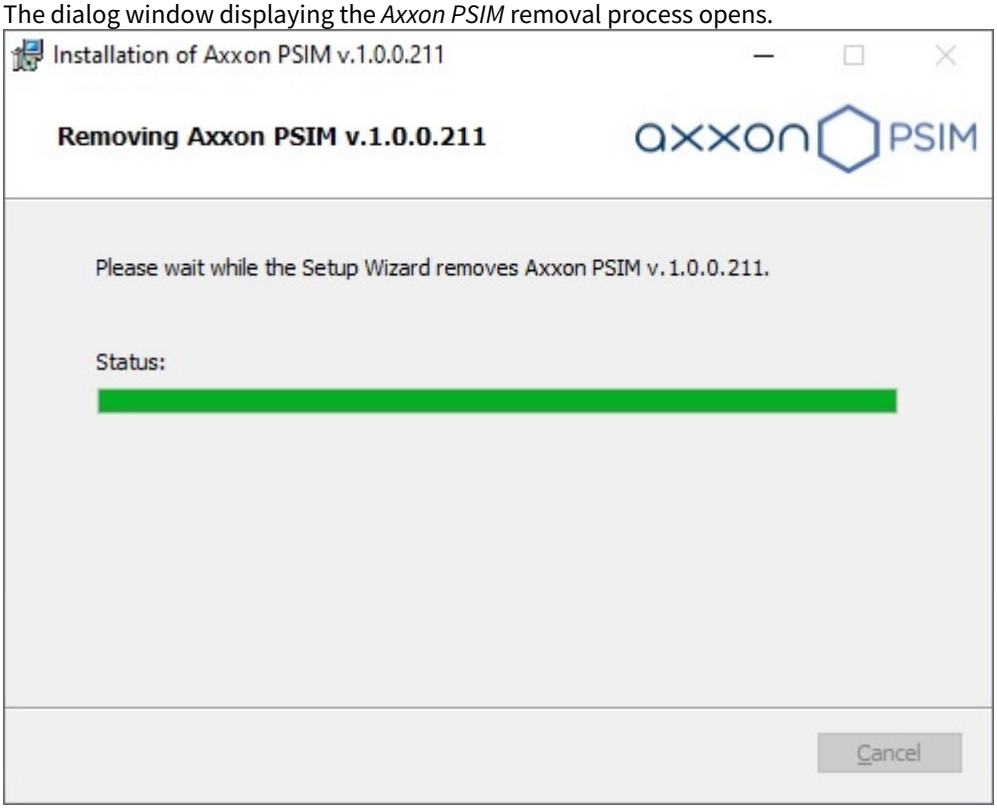


When you remove *Axxon PSIM* without saving the configuration, all ddi and dbi files, as well as the sync.xml file, are deleted.

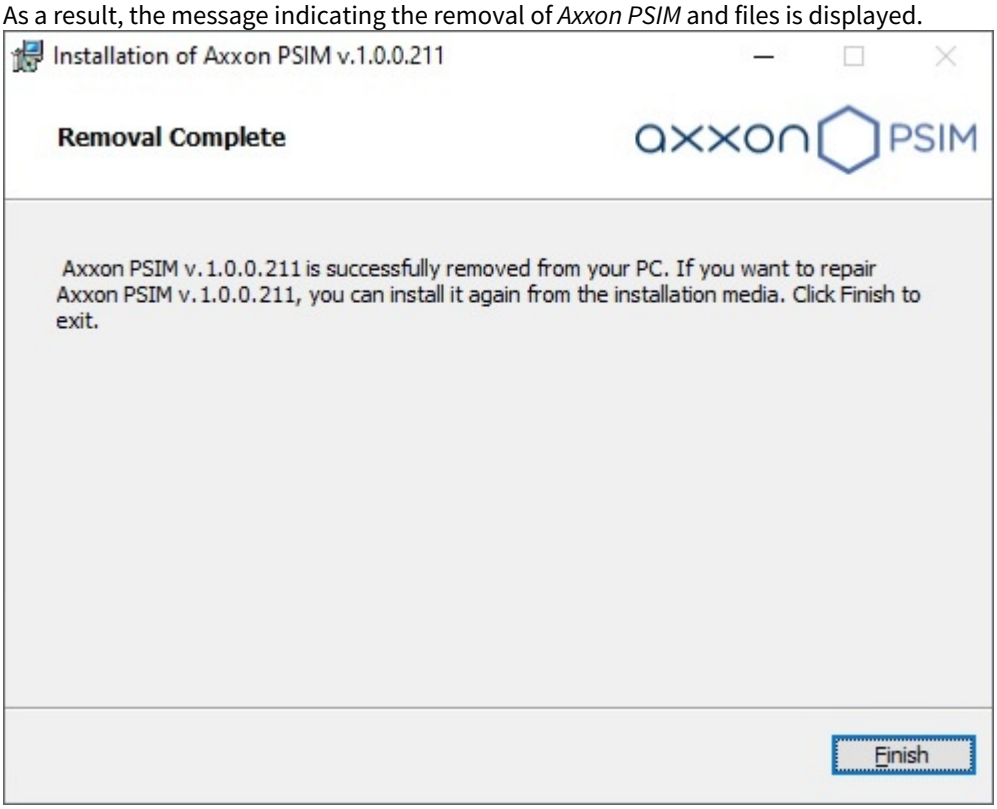
4. Click the **Next** button.

> **Note**
>
> Click the **Cancel** button to cancel *Axxon PSIM* removal.

The dialog window displaying the *Axxon PSIM* removal process opens.



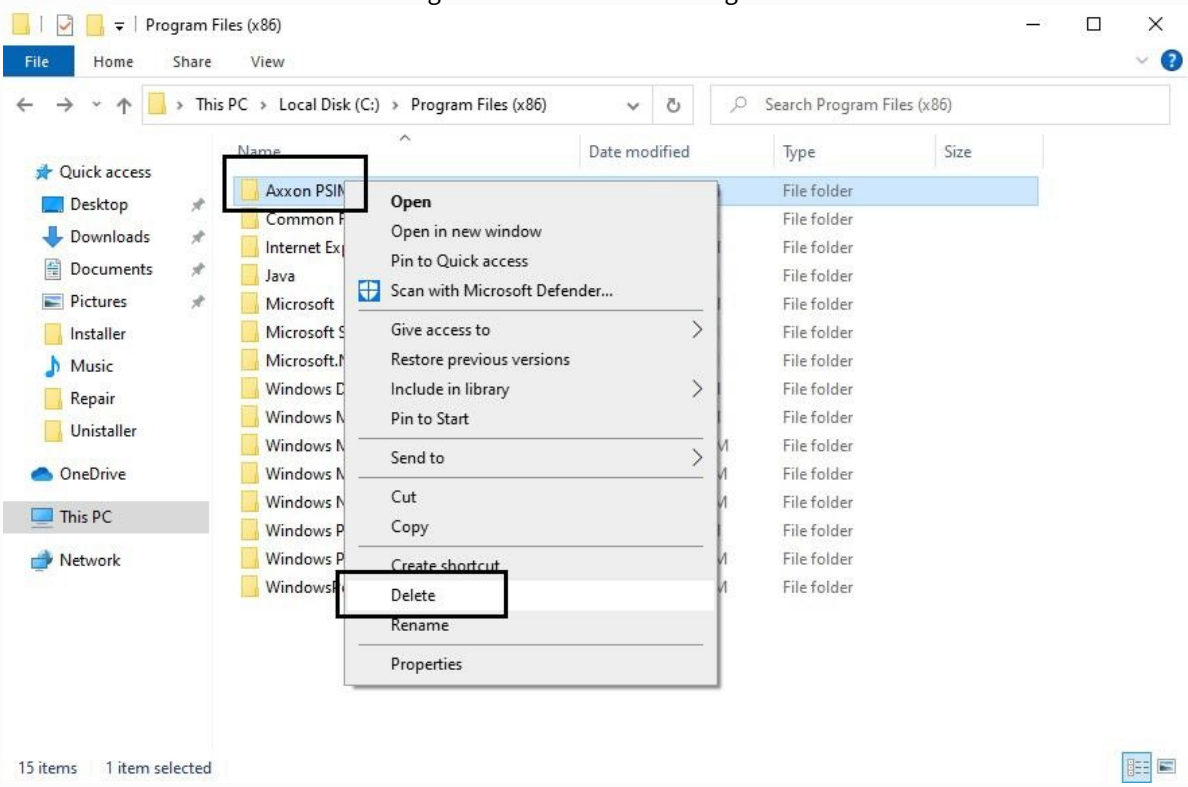
As a result, the message indicating the removal of *Axxon PSIM* and files is displayed.



5. Click the **Finish** button.

Note

To completely remove *Axxon PSIM* files, you must manually delete the *Axxon PSIM* installation directory and all Video folders created for storing audio and video recordings.



Note

Note that the name of the *Axxon PSIM* installation directory may differ from the default name (C:\Program Files\Axxon PSIM).

Note

In some cases, before removing the *Axxon PSIM* installation directory (for instance, folders/Axxon PSIM), you must restart Windows OS.

Note

We don't recommend removing the *Axxon PSIM* installation directory if you plan to reinstall *Axxon PSIM*. This directory contains:

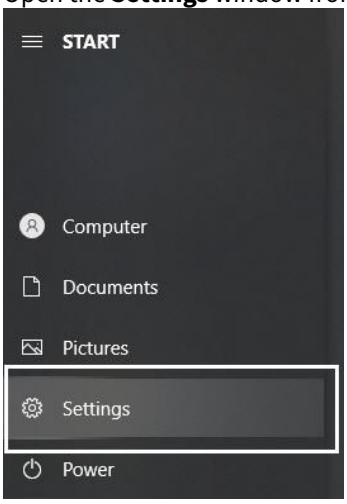
1. Folders with video recordings and video recording frames exported during *Axxon PSIM* operation.
2. Log files containing the information about module operations as well as the list of objects that exceed the limit of the *Axxon PSIM* license key.
3. Backup copies of these files.

Removing *Axxon PSIM* from the **Start** menu is complete.

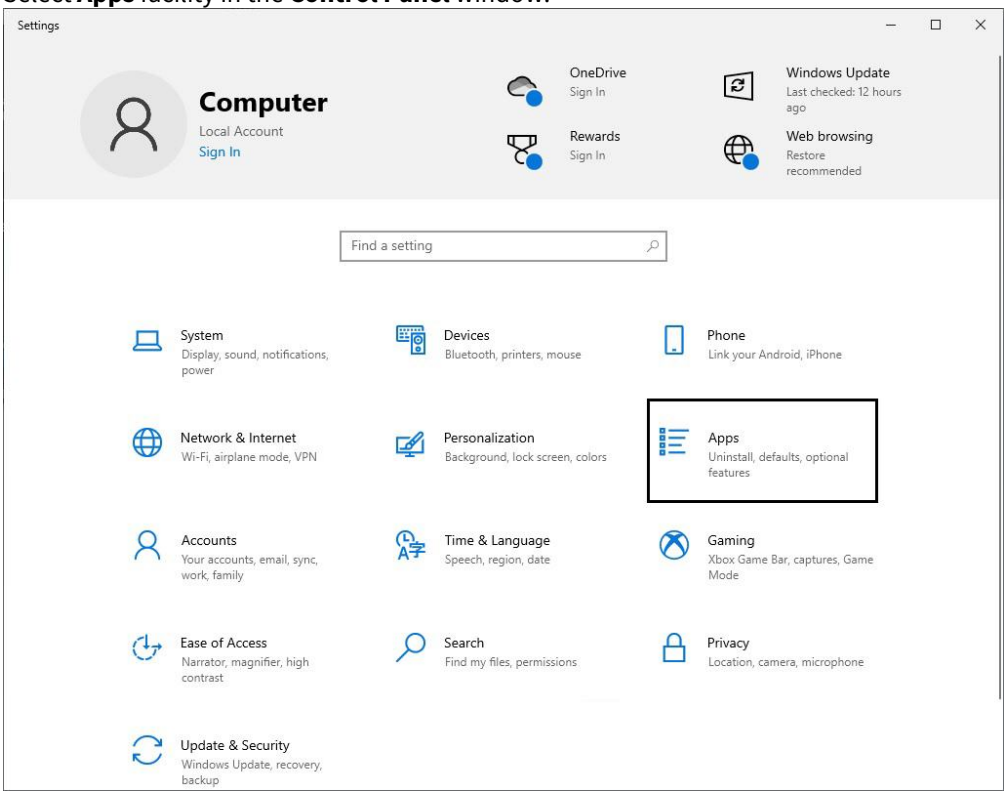
18.4.2 Removing Axxon PSIM™ software from the OS Windows panel Add or Remove Apps

To uninstall *Axxon PSIM*™ system using **Add or Remove Apps** facility, follow the next steps:

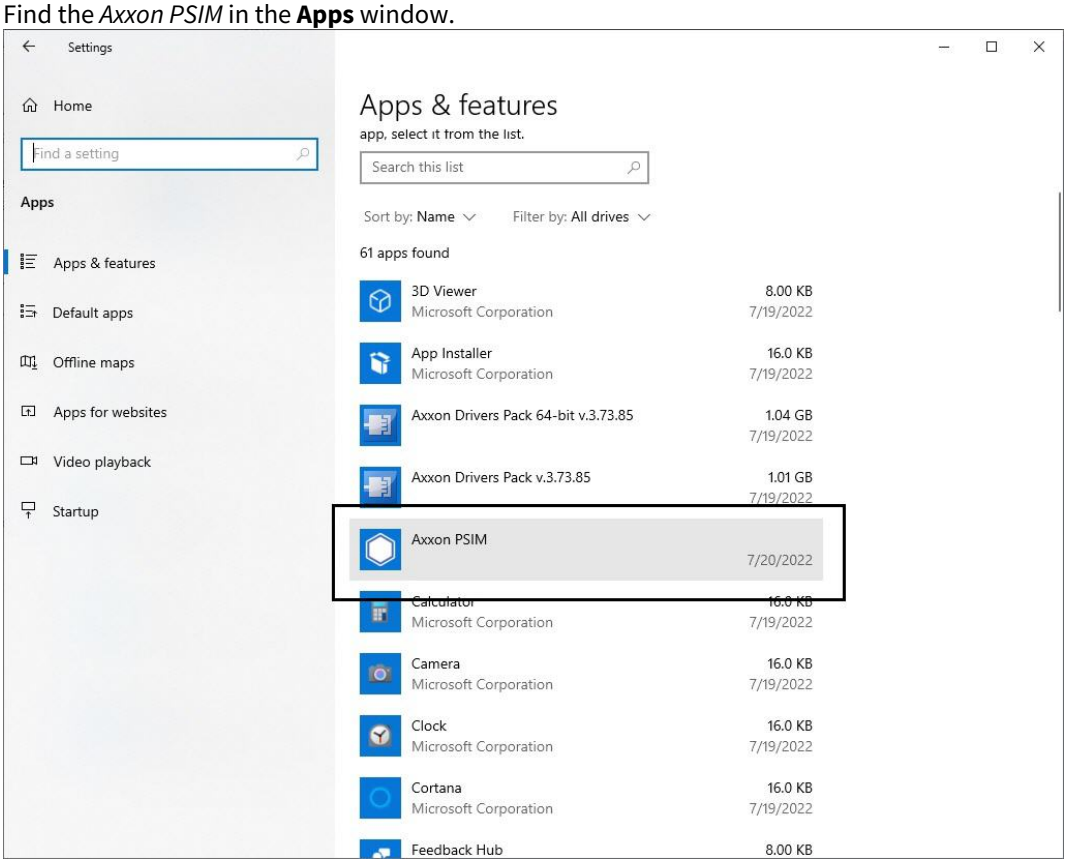
1. Open the **Settings** window from the Windows **Start menu**.



2. Control panel dialog window will be displayed.
3. Select **Apps** facility in the **Control Panel** window.



Find the *Axxon PSIM* in the **Apps** window.



4. Click the **Remove** button next to the name of *Axxon PSIM* program.
   As a result the **Select Action** dialog box is displayed.
5. Follow steps 2-5 of the instruction in section Removing Axxon PSIM™ software from the Start menu.

At this stage the deletion process of *Axxon PSIM* software with the help of OS Windows **Add or Remove apps** panel is over.

18.4.3 Removing Axxon PSIM™ software using the installation kit

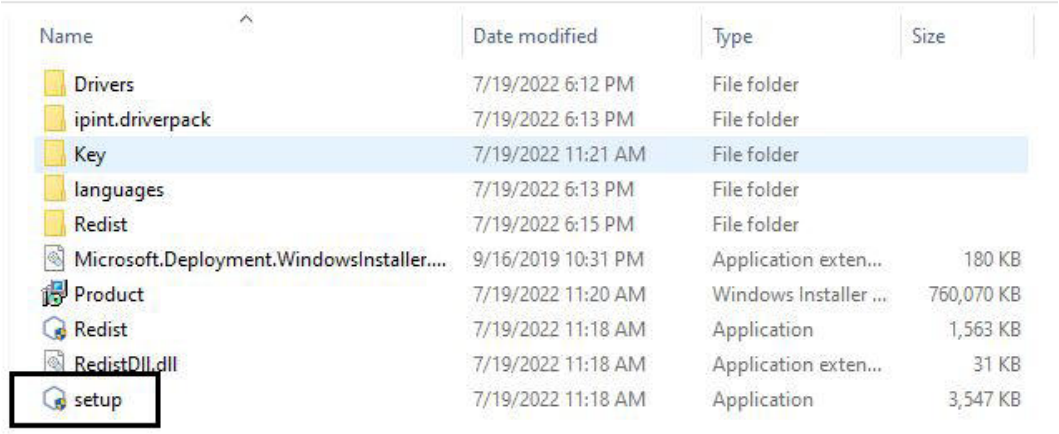
Axxon PSIM installation wizard can run in a deletion mode. This mode is required when all the components of the *Axxon PSIM* software should be deleted.

Run the installation wizard without removing the previous version of the *Axxon PSIM* software to run installation program in a deletion mode.

> **Note.**
>
> Before starting the deletion process of the *Axxon PSIM* software all the other applets should be closed on the computer.

To delete *Axxon PSIM* software do the following:

1. Open the folder containing the unpacked installation kit.



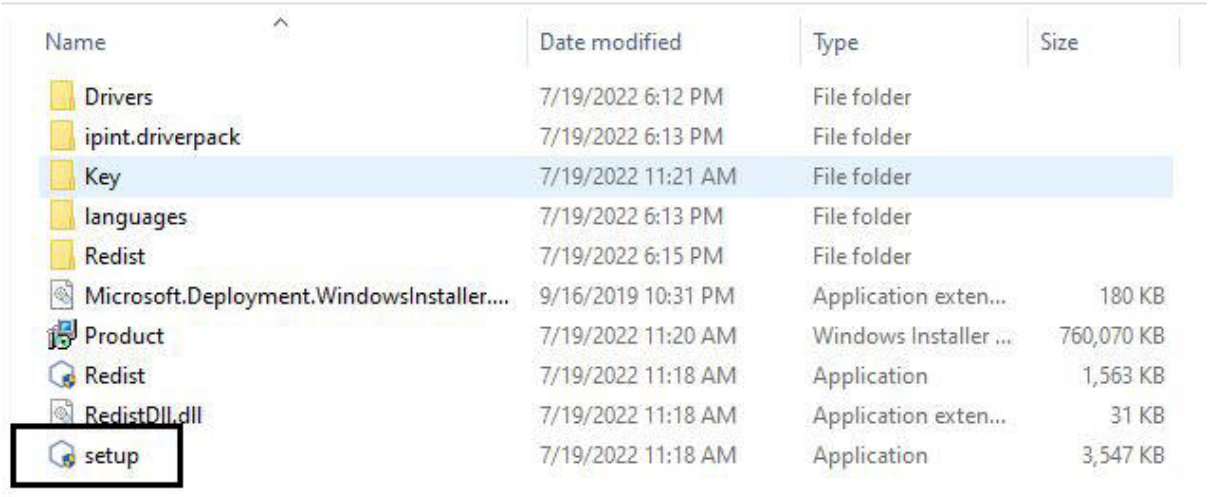
2. Launch the file **Setup.exe**.
   As a result the **Select Action** dialog box is displayed.
3. Follow steps 2-5 of the instruction in section Removing Axxon PSIM™ software from the Start menu.

At this stage the deletion process of *Axxon PSIM* software with the help of installation kit is over.

18.4.4 Removing Axxon PSIM™ software installed as a Service

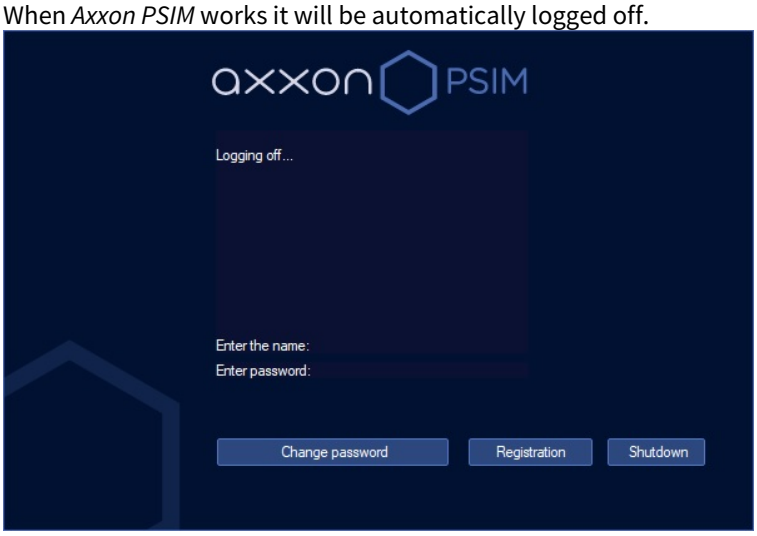
To remove *Axxon PSIM* software, installed as a Service, do the following:

1. Open the folder containing the unpacked installation kit.



2. Run **setup.exe**.
   As a result the **Select Action** dialog box is displayed.

When *Axxon PSIM* works it will be automatically logged off.



3. Follow steps 2-5 of the instruction in section Removing Axxon PSIM™ software from the Start menu.

At this stage the deletion process of *Axxon PSIM* software installed as a Service is over.

18.5 Installing Axxon PSIM in quiet mode

There is a possibility to run the *Axxon PSIM* software in the quiet mode (without a user interface).

Note

While the installation program is operating, it may be required to restart the system. The installation will be continued automatically after the system is restarted.

Note

When installing in invisible mode on Windows 7 and Windows Server 2008 R2, all Windows Update updates are to be installed, then use the HotFix available at the link on the Microsoft website or here. As a result, there will be no messages about the unreliable publisher during the installation of drivers.

The redist.exe process finishing in Windows Task Manager indicates that the program has been installed.

This installation type is performed by setting the setup.exe install file parameters in the OS Windows command prompt. The install file parameters are given in the table below.

The install file parameter in the command prompt	**Description**
/?	Help window call
/help	Help window call
/x /removeall	The *Axxon PSIM* software deletion without saving the configuration

/x /uninstall	The *Axxon PSIM* software deletion saving the configuration
/r	The *Axxon PSIM* software repair
/repair	The *Axxon PSIM* software repair
/qn	The *Axxon PSIM* software installation/update
/quiet	The *Axxon PSIM* software installation/update
/norestart	Disabling the auto restart of the system while it is being installed
/LANG=”en”	English language selection of installation program
/INSTALLTYPE="Client"	Selecting the **Monitor workstation** installation type
/INSTALLTYPE="Server"	Selecting the **Server** installation type
/INSTALLTYPE="Admin"	Selecting the **Admin workstation** installation type
/ADD="[]"	A list of components required for installation. It is used if a component that isn't installed by default is to be installed. Possible values are given in the next table
/REMOVE="[]"	A list of components that aren't to be installed. Possible values are given in the next table
/CMD="[commands]"	Values of functions for a basic installation program. Where commands mean [Function] =\"[Value]\" or [Function] ='[Value]'. Available functions of installation program are given in the last table in the section
/debug	Enable verbose logging
/noOSCheck	Suppress checking OS version
/dpcmd="INSTALL_BOSCH_VIDEOSDK=\"no\""	Installation of the Bosch VideoSDK driver (see Note): no—don't install; yes—install
/saveaddons	Don't delete any vertical solutions

Attention!

In some cases, the **Bosch VideoSDK** installation results in the displaying of the command prompt window, which must be closed to proceed with the installation.

Note

In the help window of the installation program, there are two examples identical in function that differ by the type of parameter entered /CMD (table above, parameter's value /CMD).

Possible values of /ADD and /REMOVE parameters:

Architecture x86	**Architecture x64**
BaseAxxonPSIM	BaseAxxonPSIM
IPDriverPack_x86	IPDriverPack_x86
-	IPDriverPack_x64
Acrobat	Acrobat
dotnetfx35_x86	dotnetfx35_x86
JRE_x86	JRE_ amd64
MsXml	MsXml
Redist2005_x86	Redist2005_x86
SQLServer_x86	SQLServer_amd64
WindowsInstaller_x86	WindowsInstaller_ amd64
WindowsPowerShell20_x86	WindowsPowerShell20_x amd64
Guardant_x86	Guardant_ amd64
Dotnet40	Dotnet40
Redist2010_x86	Redist2010_x86
-	Redist2010_x64

ReportViewer	ReportViewer

Installation program features:

Installation program features	**Description**
CREATE_QUICKLAUNCH_SHORTCUT='1'	Create quick launch shortcut (is used by default)
CREATE_QUICKLAUNCH_SHORTCUT='0'	Don't create quick launch shortcut
CREATE_DESKTOP_SHORTCUT='1'	Create shortcut on the desktop (is used by default)
CREATE_DESKTOP_SHORTCUT='0'	Don't create shortcut on the desktop
ADDLOCAL='[]'	A list of components for installation. Available values: 1) Utils—the utilities included in the *Axxon PSIM* system are installed; 2) AxxonSoft VideoDrivers—drivers by AxxonSoft company are installed; 3) Wav—sound notification files are installed. All the components are installed without the ADDLOCAL='[]' command. Example. ADDLOCAL='Wav' – *Axxon PSIM* system and sound notification files are installed
REMOVE='[]'	A list of components that aren't to be installed. Available values: 1) Utils—the utilities included in the *Axxon PSIM* system aren't installed; 2) AxxonSoft VideoDrivers—drivers by AxxonSoft company aren't installed; 3) Wav—sound notification files aren't installed. All the components are installed without the REMOVE='[]' command. Example. REMOVE = 'Utils'—Axxon *PSIM* drivers and sound notification files are installed. The utilities aren't installed
Functions of the “Server” and “Admin workstation” installation types	
INSTALL_AS_SERVICE='1'	Installation as a service

PATHTOKEYFILE='[%SourceDir%]'	Specify the path to the Key folder with license key
LANGUAGE='[en]'	Select the language of the *Axxon PSIM* system
SQL_AUTHTYPE='Windows'	Selecting the ”Windows accounts” user authentication method
SQL_AUTHTYPE='Sql'	Selecting the “SQL authentication” user authentication method
SQL_USERNAME='[psim]'	Setting the user name for the “SQL authentication” method
SQL_PASSWORD='[]'	Setting the password for the “SQL authentication” method
General functions:	
DB_PSIM_NAME='[PSIM]'	Specifying the main database. It isn't relevant when SQL_AUTHTYPE='Windows'
DB_TITLES_NAME='[titles]'	Specifying the titles database. It isn't relevant when SQL_AUTHTYPE='Windows'
SQL_INSTANCE='[(local)\SQLEXPRESS]'	Specifying the database server. It isn't relevant when SQL_AUTHTYPE='Windows'

Example of running the *Axxon PSIM* system installation program in a hidden mode:

setup.exe /quiet /LANG="en" /INSTALLTYPE="Admin" /REMOVE="Acrobat Guardant_x86" /
CMD="CREATE_QUICKLAUNCH_SHORTCUT=\"0\" INSTALL_AS_SERVICE=\"1\" LANGUAGE=\"de\"
SQL_AUTHTYPE=\"Sql\" SQL_USERNAME=\"username\" SQL_PASSWORD=\"pass\" SQL_INSTANCE=\"(local)
\SQLEXPRESS2019\" DB_PSIM_NAME=\"PSIMNew\" DB_TITLES_NAME=\"titlesNew\"
INSTALLDIR=\"%ProgramFiles%\PSIMNew\" REMOVE=\"Wav,Utils\""

As a result, the installation file setup.exe will be run with the following parameters:

1. The installation program will install the *Axxon PSIM* software in a hidden mode (/quiet).
2. Installation program language—English(/LANG="en").
3. Installation type—**Administrator workstation** (/INSTALLTYPE="Admin").
4. The following components aren't installed: Adobe Acrobat, *Guardant* drivers (/REMOVE="Acrobat Guardant_x86").
5. Installation is performed with the following features (/CMD=):
    a. Without creating the quick launch shortcut (="CREATE_QUICKLAUNCH_SHORTCUT=\"0\").
    b. The *Axxon PSIM* software is installed as a **Service** (INSTALL_AS_SERVICE=\"1\").
    c. The language of installed *Axxon PSIM* software is German (LANGUAGE=\"de\").
    d. Authentication method—**SQL authentication** (SQL_AUTHTYPE=\"Sql\").
    e. Login—username (SQL_USERNAME=\"username\").
    f. Password—pass (SQL_PASSWORD=\"pass\").
    g. Database server—(local)\SQLEXPRESS2019 (SQL_INSTANCE=\"(local)\SQLEXPRESS2019\").
    h. Main database—PSIMNew (DB_Axxon PSIM_NAME=\"PSIMNew\").

i. Titles database—titlesNew (DB_TITLES_NAME=\"titlesNew\").
j. Installation path—%ProgramFiles%\PSIMNew (INSTALLDIR=\"%ProgramFiles%\PSIMNew\").
k. Utilities and voice notification files aren't installed (REMOVE=\"Wav,Utils\").

18.6 Remote installation, removal and update of Axxon PSIM software

Remote installation, removal and update of *Axxon PSIM* software are performed using the wmic.exe utility of the command prompt. This utility is a part of Windows OS. Enter «wmic» without quotations in the Windows command prompt to run the utility.

Detailed information about this utility is presented in the http://msdn.microsoft.com reference web-site.

Note.

The wmic.exe utility works incorrectly with VMware virtual computers. The utility working with other virtual computers is not guaranteed.

It is required to disable UAC for wmic operation on the remote computer (instruction on disabling is presented in the OS settings for correct operation of Remote Admin Workstation or Server section).

The method of installation, removal and update described in this section is applicable for computers in the domain and for installation on computers outside the domain.

First copy the *Axxon PSIM* distributive to local disks of these computers.

For this use the following script of the command prompt:

xcopy %Path_to_folder_with_distributive% %Network_folder_on_target_PC% /e

Where:

%Path_to_folder_with_distributive% – path to the folder with distributives on the local computer.

%Network_folder_on_target_PC% – path to the folder on computer where the software installation is supposed. Access for writing is to be granted for it.

Attribute /e – causes the copying of all catalogues and their contents, including empty catalogues.

Note.

UNC-path is specified in the\\<server IP-address>\<General folder on this server>\... format.
Here dots define path from general folder to folder with distribution. If installation is performed on off-domain computers with specifying of server IP-address on which installation is performed. If installation is performed on computers in domain the address of server containing the folder with distribution available for all computers is specified.

Detailed information about working with the xcopy utility is presented on the Microsoft reference web-site. At the time of writing this documentation the utility description is located on http://technet.microsoft.com/en-gb/library/bb491035.aspx.

The method of installation described in this section allows installing and updating only basic product without prerequisites, drivers and other additional components.

18.6.1 Remote installation of Axxon PSIM software

To install the *Axxon PSIM* software on the remote computer, do the following command using the wmic.exe utility:

/NODE:"Computer_name" /USER:"User_name" /PASSWORD:"Password" productcallinstalltrue, "%installer parameters%", "%Path_to_folder_with_distributive%\Product.msi"

Where:

- /NODE – the target computer name on which the *Axxon PSIM* software is to be installed.

> **Note.**
>
> Instead of NODE list the text file in which names of target computers are listed in column can figure.

- /USER and /PASSWORD – login and password of user who has the corresponding rights for the *Axxon PSIM* software installation on the remote computer.
- "% Path_to_folder_with_distributive %\Product.msi" – path to the Product.msi installer file which is to be run, namely a local path to the folder in which the distributive was copied.
- %installer parameters% – installer options. The following parameters can be applied to the Product.msi:

1. which can be applied to all msi files (to get the reference execute the msiexec.exe /? command in the command line from the <WINDOWS>\system32\ directory).
2. parameters described in the setup.exe reference in the /CMD="[commands]" section (to get the reference execute the setup.exe /? command in the command line from the installer folder, all commands are described in the Installing Axxon PSIM™ software in a hidden mode section.
3. Parameters which are specified in the setup.exe while installation, i.e.:
    a. CMD_INSTALLTYPE – Client, Server, Admin.
    b. REMOVEALL (0, 1) – removing with/without configuration saving
    c. NOOSCHECK=1 – disable the check for compatibility with OS.

> **Note.**
>
> Working of specified parameters is not guaranteed if there is a thread in the registry:
> - For x86 system: HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\PSIM\InstallPropertyInfo
> - For x64 system: HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\PSIM\InstallPropertyInfo
>
> It contains parameters of previous installation.

> **Example**
>
> Example of the line with installer parameters:
> REBOOT=ReallySuppress LANGUAGE="es" TRANSFORMS="%Path_to_folder_with_distributive% \languages\Setup\es\es.mst" CMD_INSTALLTYPE="Server"
> Where
> REBOOT=ReallySuppress – cancel computer reboot when installation finished.
> LANGUAGE="es" – select the language of product. Default product language is English.
> TRANSFORMS="%Path_to_folder_with_distributive%\languages\Setup\es\es.mst" – specify path to the language mst-patch of installer (specify the installer language).
> CMD_INSTALLTYPE="Server" specifies the type of the Axxon PSIM software package installation – Server. The “Admin” value is also available (if the Remote Administrator Workstation installation type is required) and “Client” (if the Remote Client installation type is required).

18.6.2 Remote update of Axxon PSIM software

For remote update of the Axxon PSIM software up to a newer version:

1. Install the new version as described in Remote installation of Axxon PSIM software section.
2. In the command, make sure to specify the path to Product.msi for a new version.

In this case the old version will be automatically removed with configuration saving and the newer version will be installed.

18.6.3 Remote removal of Axxon PSIM software

> **Note**
>
> When *Axxon PSIM* is removed remotely, its configuration is kept.

For remote removal of the *Axxon PSIM* software, run the following command in the wmic.exe utility:

```
/NODE:"Computer_name" /USER:"User_name" /PASSWORD:"Password" product where name="Prod
uct_name" call uninstall
```

Where **Product_name** – the name under which the *Axxon PSIM* software installed. Usually it is «Axxon PSIM v.Build_number». These names can be found in the registry catalogue in the HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Uninstall section.

18.7 Configuring Cluster Service for Axxon PSIM

Cluster is a group of independent computers operating together as a whole system providing clients with a general set of services. Cluster enables expanding both accessibility of services and scalability and controllability of their OS.

To set up a cluster for *Axxon PSIM*, stick to the following rules:

1. *Axxon PSIM* is to be installed on all the computers forming the cluster;
2. *Axxon PSIM* configuration (paths to the installed *Axxon PSIM* software and video archive disks) is to be identical on all computers;
3. All computers, forming the cluster, are to be in one network domain;
4. All computers are to run one OS Windows Server;
5. If the *Axxon PSIM* software is installed as a service, the InheritServiceEnvironment registry key must be created and set to 1 (the key is created in the HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\PSIM\PSIMRunService section for 32-bit and in the HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AxxonSoft\PSIM\PSIMRunService for 64-bit systems);
6. the specific name and password must be used for database connection.

> **Note.**
>
> Nets organization and setting up order are given in the Windows Server reference manual (see https://learn.microsoft.com/en-us/windows-server/failover-clustering).

18.7.1 Example. Consolidation of two Servers into cluster and Axxon PSIM configuration

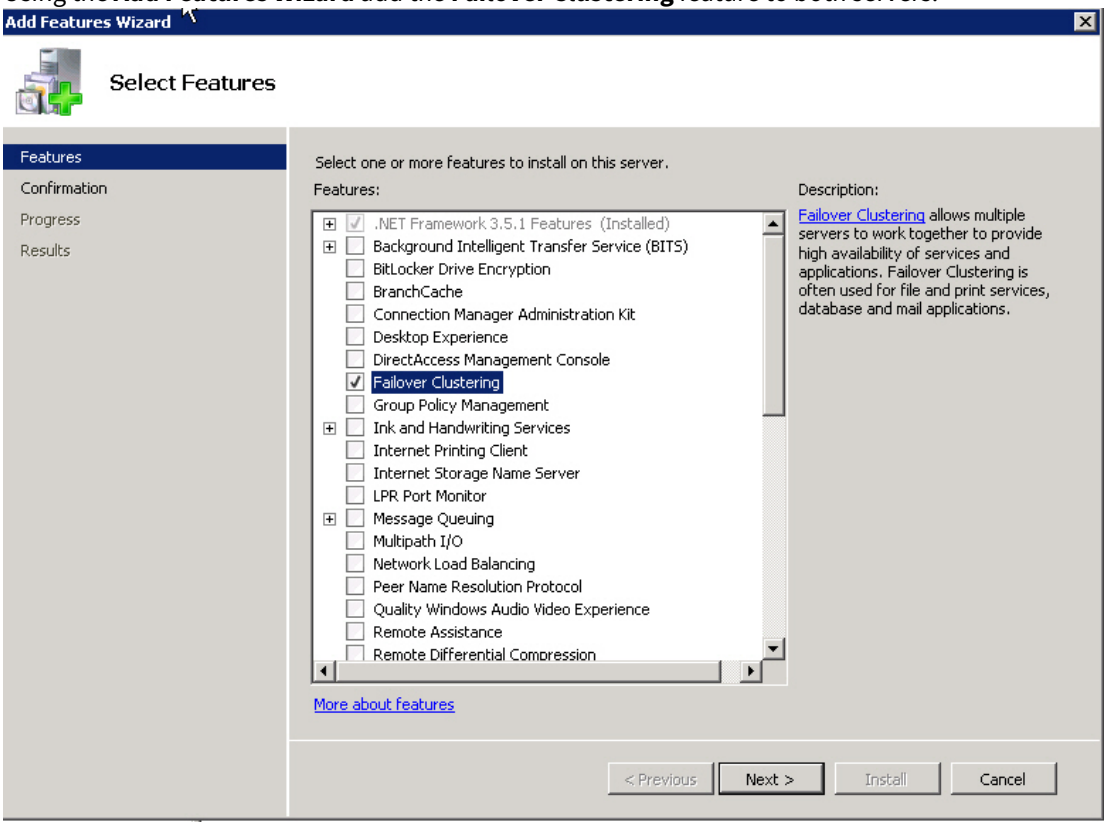
On the page:

- Preconfiguration of servers
- Consolidation of two Servers into cluster and Axxon PSIM configuration

Preconfiguration of servers

Before consolidating the Servers into cluster, do the following:

1. Install Windows Server of one of the following edition to both Servers:
   a. Windows Server 2008 R2 Enterprise,
   b. Windows Server 2008 R2 Datacenter,
   c. Windows Server 2012 R2 Standard.
2. Add both servers to one domain.
3. Using the **Add Features Wizard** add the **Failover Clustering** feature to both servers.



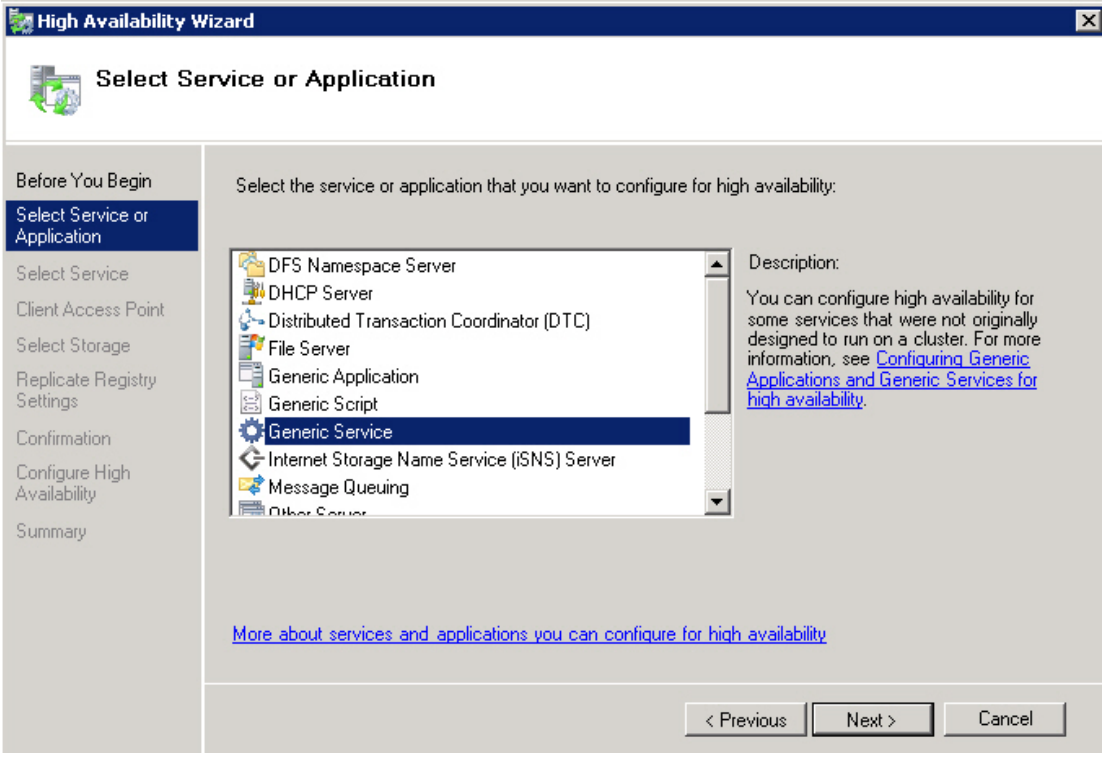
4. Enter the following parameter for the RAID supporting as a storage for cluster to the register:
   Location—HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\ClusDIsk\Parameters,
   Name—AllowBusTypeRAID
   Type—DWORD
   Value—1
   (see Working with Windows OS registry).
5. Restart both Servers.
6. Create three disks on the common RAID array:
   a. to work in quorum and to store the cluster configuration,
   b. to store the *Axxon PSIM* database,
   c. to store video archive.
7. In the **Storage** → **Setup** menu, set **Assignment Mode** in the **Multiple Assignment** position.
8. In the **Virtual Disks** → **Assign** menu, set the **Full Access** value for all servers.
9. Enter the **first server**. Start the disks control consol and initialize all three disks.
10. Switch the disks to online mode, create sections on all disks and format them.
11. Switch the disks to offline mode.
12. Enter the **second server** and initialize the disks in the same way.

Consolidation of two Servers into cluster and Axxon PSIM configuration

To consolidate two Servers into cluster and configure *Axxon PSIM*, do the following:

1. Install the required version of *Axxon PSIM* on both Servers before consolidating them into cluster (see Installing and removing Axxon PSIM).
2. Set the AxxonSoft\PSIM\PSIMRunService\InheritServiceEnvironment parameter with the value 1 in the registry.
3. Stop the **SQL Server (SQLEXPRESS)** and **PSIM Core Server** services on both Servers and switch them to the manual type of start.
4. Start the **Failover Cluster Manager** on the one of Servers (or remotely).
5. Select **Act** → **Create cluster**. The **Cluster Creation Wizard** will launch.
6. Add both servers which are supposed to use for the failover cluster.
7. Specify NetBios name and the IP address for the failover cluster (this data will be used for connection of the settings console).
8. Complete the cluster creation.

9. Configure the role on cluster. Select **Add service** → **Generic Service** in the **High Availability Wizard**.



10. Select the **PSIM Core Server** service.
11. Configure the NetBios name and the IP address for the service (these parameters will be used for connection to *Axxon PSIM*).
12. Complete the role configuration.
13. Set the dependence on the Name and the IP address on the **Dependence** tab in the service settings.
14. Set the **Use network name for computer name** checkbox (regardless of the letter case in the cluster settings, the name will be transmitted in capital lettters) on the **General** tab.
15. Go to the role settings and select **Add service** → **Generic Service**.
16. Select the **SQL Server (SQLEXPRESS)** service.
17. Complete the adding of the service.
18. Select the **PSIM Core Server** service and perform **Off the line** action.
19. Enter the Server, which is specified as the Owner unit. Disconnect the *Axxon PSIM* database in SQL, move the database files to the disk in the failover array and connect the database again.
20. In the idb.exe, set the username and password for the database connection (see The idb.exe utility for converting databases, selecting database templates and making backup copies of databases).
21. Start the Tweaki.exe and rename the computer to the name of the failover cluster (see Tweaki.exe utility for advanced setup of the Axxon PSIM software system).
22. In the cluster settings, select **Additional actions** → **Replace primary cluster resources** → **Select unit**. Specify the second Server.
23. In the SQL, disconnect the old databases and connect new databases from the disk in the failover array.
24. Change the username and password for the database connection in the idb.exe.
25. Start the **PSIM Core Server** in the **Failover Cluster Manager**.
26. Start *Axxon PSIM*. Make sure that the start is correct.

Consolidation of two Servers into cluster and *Axxon PSIM* configuration are complete.

19 License key

Functionalities (configuration) of the system are restricted by the license key supplied together with the *Axxon PSIM* software installation package. The use of the license key is described in the Installing and removing Axxon PSIM software section. The license key is required when you install *Axxon PSIM* with the server or the Remote Administrator's workstation installation type. When you select the Remote Client installation type, the license key isn't required.

The license key activates system functionalities. When you expand system configuration (for example, if it is necessary to use a subsystem that isn't included in the basic configuration) to enable functionalities of the program module corresponding to the installed subsystem, you must replace the previous license key with a new one, which will restrict the updated system functionalities.

Replacement of the previous license key with a new license key provides the availability of the updated set of functional subsystems at a subsequent system startup.

> **Attention!**
>
> Restarting *Axxon PSIM* after replacing the activation key is mandatory. If *Axxon PSIM* is installed as a service, restart the AxxonSoft Axxon PSIM Core Server service (see also Working with Windows OS services for operating Axxon PSIM installed as a Service).

In the distributed system the configuration of each computer is determined not only by the computer's license key but also by the license keys of other computers that are within the distributed system. Thus, the maximum functionalities of each computer in the system are determined by the license key that limits the minimum capabilities relative to other license keys in the distributed system. Therefore, we recommend using the same license key on all computers in the distributed system.

The license key is bound to the computer hardware. You can bind to the hardware in one of the following ways:

1. Binding to the Guardant hardware dongle of one of the following types:
    a. Guardant Stealth II;
    b. Guardant Sign;
2. Binding to the MatrixLock hardware dongle;
3. Binding to dallas-codes of video capture cards with cryptochip (FS5\6\8\16, WS7\17) of AxxonSoft production;
4. Binding to the computer hardware (HID).

> **Attention!**
>
> To bind the license key, we recommend using Guardant or MatrixLock. These methods are the most convenient, since they don't depend on the computer hardware (HID). If you use Guardant and MatrixLock dongles, card replacement won't cause errors.

19.1 Binding the license key to computer equipment

HID (Hardware ID) is encrypted information about computer equipment which is gathered by CodeReader utility and is transferred to AxxonSoft for license key generation.

At the moment of writing the documentation the binding of following elements has been realized:

1. motherboard;
2. processor;
3. hard disk;
4. RAM;

5. video card;
6. netcard.

If main utilities of Server are replaced, then the license is not active. For instance, simultaneous replacement of motherboard and processor will cause the license loss. However, simultaneous replacement, installation or deinstallation of hard disk, RAM, video card or netcard will not cause the key deactivation.

19.2 Match search in the license key

Codes match search in the license key with devices codes in the computer is performed in the following way:

1. Computer HID is read where the *Axxon PSIM* software is run.
2. License key is read.
3. For every computer, stated in the license key, the following actions are performed:
    a. If the computer in license key is bound via HID:
        i. If there are video capture cards manufactured by AxxonSoft company in the license key, the match search of board codes on the computer and board codes in the license key will be performed (if there is no match, the following computer in the key will be checked);
        ii. If there are no video capture cards manufactured by AxxonSoft Company in the license key, the match search of computer HID and computer equipment codes in the key will be performed (if there is no match, the following computer in the key will be checked).
    b. If the computer in license key is not bound via HID, the match search of video capture cards manufactured by AxxonSoft company on the computer and board codes in the license key will be performed (if there is no match, the following computer in the key will be checked).

If there is at least one match found the *Axxon PSIM* software will be run.

19.3 Specifics of the Axxon PSIM operation when the object limit is exceeded

When *Axxon PSIM* is launched with a key and equipment limit exceeded, the **Limit exceeded** message is displayed in the loading window indicating the object which caused the excess and the number of created in the "created/ allowed" format. Square brackets indicate the internal ID of the object type in the license key.



In this case to start the *Axxon PSIM* software operation, do the following:

1. Forward the psim.sec key from the *Axxon PSIM* directory to another folder, e.g. "D:\Temp".
2. Run the *Axxon PSIM* software in the Demo mode.
3. Remove a redundant object.
4. Shutdown the *Axxon PSIM* software.
5. Restore the key from the "D:\Temp" folder to the *Axxon PSIM* installation directory.
6. Start the *Axxon PSIM* software.

If the object is not provided by the license key, then it will not be possible to add it to the equipment tree, since it will be absent in the **Create object** function (see The Create object function). Similarly, it will not be possible to create another object if the limit on the number of such objects provided by the license key is reached.

Moreover time of action of certain objects can be set in the psim.sec license key. If the action of the objects expired, *Axxon PSIM* starts as usual, but the expired object is colored red in the hardware tree, and the INVALID_OBJECT_TIME event from this object comes to the Debug window.





After the expiration of the object, it is impossible to use it in *Axxon PSIM*: it continues to be displayed in the object tree, but events are not received from it and it does not respond. Other modules cannot communicate with an expired object.

To resume work with an expired object, you need to request the psim.sec license key from the AxxonSoft manager and update it. If the object is no longer needed, you can delete it (see Deleting).

Note

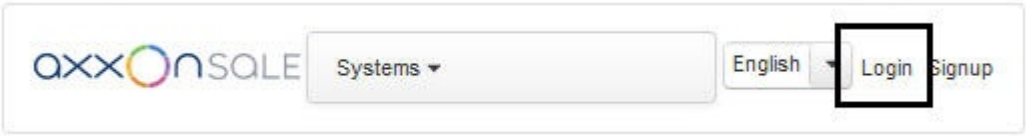
The validity period of the object cannot be longer than the validity period of the temporary key.

19.4 Decoding license key

You can find out what objects and how many of them are available thanks to the activation key as well as hardware codes to which the key is bound.

For this, do the following:

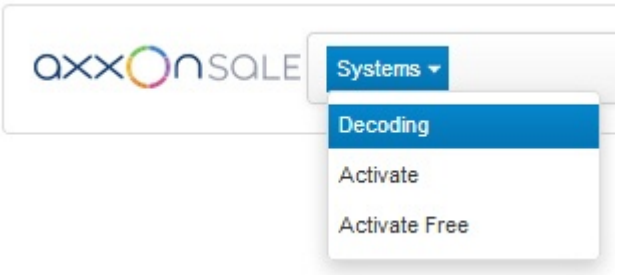
1. Go to https://sale.axxonsoft.com/sale/.
2. Log in to the site. To do this, click **Login** and enter your username and password.



Note

License key decoding is available only to registered users of the site. If you do not have a username and password, then you need to register by clicking **Signup**.

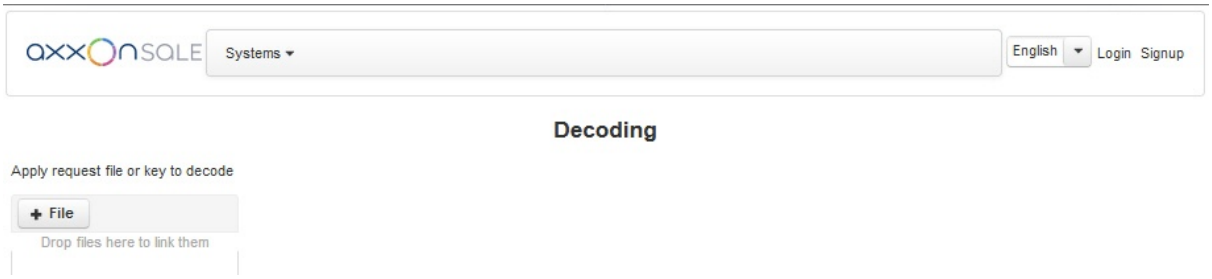
3. Select **Systems** - **Decoding**.



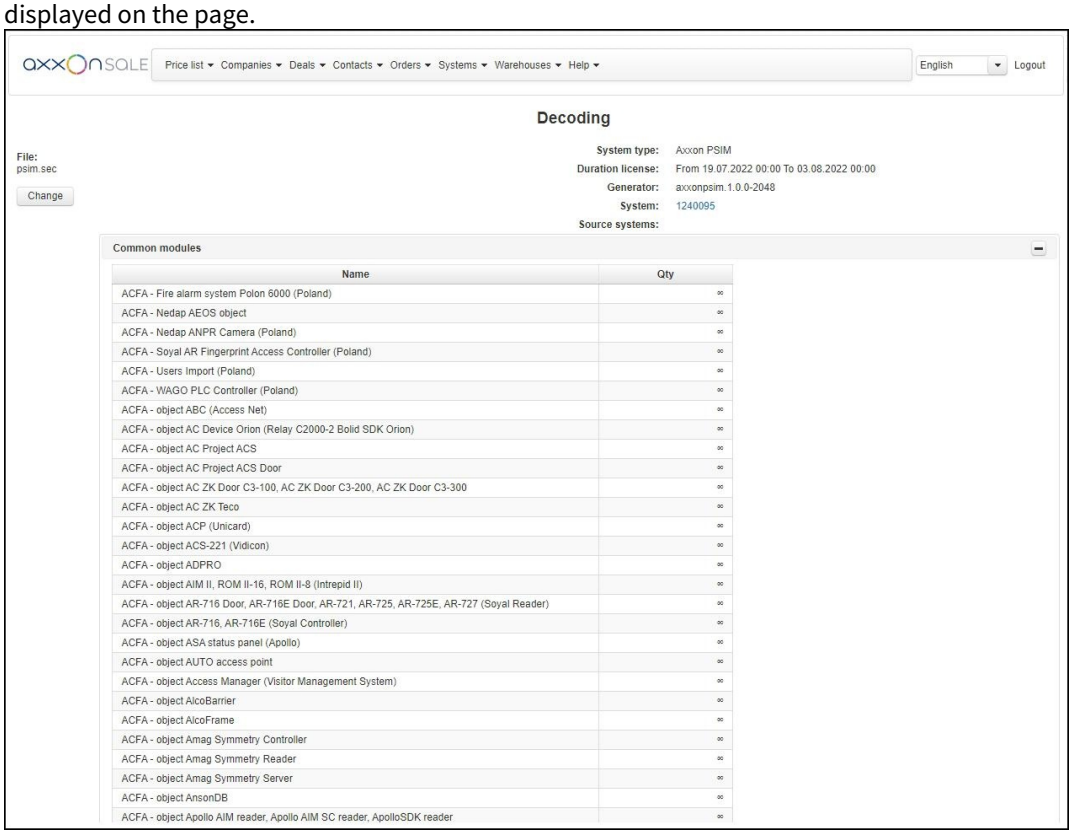
4. Add psim.sec license file to the **File** form.

Note

The license file is in the *Axxon PSIM* installation directory root, by default: C:\Program Files (x86)\Axxon PSIM\.



5. After adding the file, the information about available objects and hardware codes will be automatically displayed on the page.



20 Configuring system startup and shutdown

20.1 Configuration of Axxon PSIM™ software startup

20.1.1 Possible options for Axxon PSIM software startup

Axxon PSIM software is launched in one of the following ways:

1. manual launch;
2. launch from Windows OS Start menu;
3. launch from Windows OS command prompt;
4. automatic launch;
5. launch from Startup of the Windows OS;
6. launch with the PC switched on, without starting Windows OS.

Manual launch of *Axxon PSIM* software does not require additional settings. Automatic launch of *Axxon PSIM* software using one of the above methods, requires certain additional Windows OS settings. Windows OS settings are given in the corresponding sections of this chapter.

If the video surveillance system uses pre-defined rights and authorizations for the users, *Axxon PSIM* software launch starts with user authorization. Depending on the *Axxon PSIM* system settings, the following user authorization options are available:

1. By entering the login and password. In this case, when the system is launched, the user will be able to access only those functions of *Axxon PSIM*™ system, which comply with his rights and authorities.
2. Without entering any login and password. In this case *Axxon PSIM* system makes available only those functions, which comply with the rights and authorities of the default user.

By default, *Axxon PSIM* system authorizes a user through a password. To launch *Axxon PSIM* software without a password, an Operator should identify a user, whose rights and authorities will be used to launch the *Axxon PSIM* system. Procedures for identification of the default user are described in the Rights administration chapter.

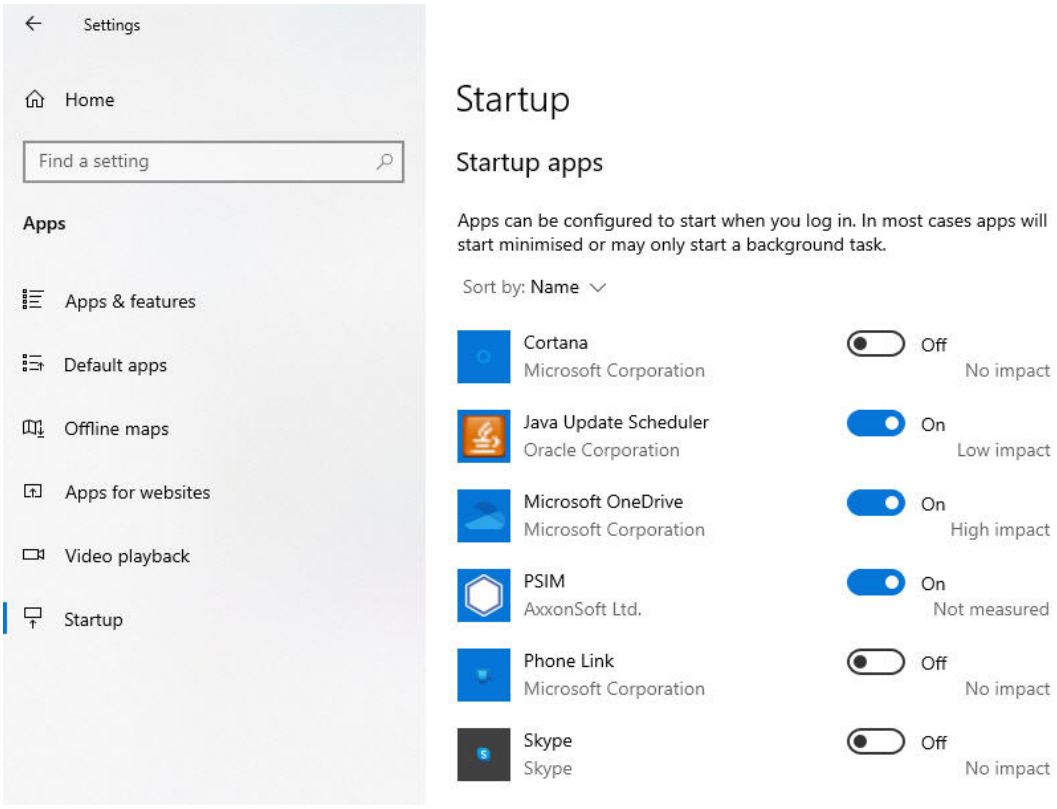
Note.

If the *Axxon PSIM* software is installed as a service, and the user rights and privileges are not set, password authorization is required upon entering the *Axxon PSIM*. Otherwise the *Axxon PSIM* modules and services will not be launched.

20.1.2 Configuring Axxon PSIM system automatic startup from Windows OS Startup

Axxon PSIM software can be launched automatically from the **Startup** function, as soon as Windows OS services and shell start downloading.

To configure the *Axxon PSIM* system launch using the **Startup** function, you need to add *Axxon PSIM* to the Startup Apps list: Start → Settings → Apps → Startup. You can refer to the Windows OS documentation (depending on the installed version); a link to the relevant documentation will be in the Startup window.



Important!

In **Windows 8.1** and **Windows 10** for the proper operation of the Startup function, create a registry key with an arbitrary name in the HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Windows\CurrentVersion\Run (if the OS is 64-bit) or HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run (if OS is 32-bit).
The path to the executable file is to be specified as the key value, for instance: C:\Program Files\Axxon PSIM\psim.exe
Also, disable UAC completely as described in OS settings for correct operation of Remote Admin Workstation or Server.

20.1.3 Configuring Axxon PSIM system automatic startup bypassing standard Windows OS

Automatic start of *Axxon PSIM* system, instead of starting the standard Windows OS shell is used in cases, when access to the basic PCs of the video surveillance system need to be restricted: to prevent start of various applications, file copying and deletion, operations with Windows OS and other non-standard PC operations.

In cases where Startup is set for launching instead of Windows OS, the *Axxon PSIM* system will start downloading after Windows OS, instead of Explorer. This makes start of various applications installed in a PC, and operations with the program dialog boxes, inaccessible for a user.

Attention!

Configuration of the local security policy is required for full disabling of UAC in the Windows 8 and Windows 8.1 OS—see the OS settings for correct operation of Remote Admin Workstation or Server section.

To set up *Axxon PSIM* software automatic startup bypassing the standard Windows OS (Explorer), the following string parameters of the Windows OS registry are to be modified:

Registry section: HKEY_LOCAL_ MACHINE\SOFTWARE\Microsoft\ WindowsNT\CurrentVersion\.

Folder: Winlogon.

Parameter: Shell.

Default parameter value: Explorer.exe.

Required parameter value: entire path to the *Axxon PSIM* software startup file.

For instance, to set up *Axxon PSIM* system automatic start for configuration of the Server, the "Shell" parameter is to be identified as: "C:\ Program Files\Axxon PSIM\psim.exe".

To set up *Axxon PSIM* system automatic start for configuration of the Remote Client, the "Shell" parameter is to be identified as: "C:\Program Files\Axxon PSIM\psim_host.exe".

If the rules of safety of distributed network, a part of which the configured PC is, require that the PC be authorized in the domain, Windows OS may be configured to start without requesting the name (login) and password of the user, who is registered in the domain of the distributed network. To do this, you need to specify the user name (login) and password, which will be used to authorize the computer in the domain by default. To set up Windows OS start without user name (login) and password request, change the following string parameters of the Windows OS registry:

Registry section: HKEY_LOCAL_ MACHINE\SOFTWARE\Microsoft\ WindowsNT\CurrentVersion\.

Folder: Winlogon.

#	Parameter	Default parameter value	Required parameter value
1	AutoAdminLogon	0	1
2	DefaultUserName	One of the registered user names (logins)	User name (login) for authorization in the domain
3	DefaultPassword	If parameter does not exist, it is to be created	User name for authorization in the domain

Registry parameters are edited either using the Tweaki.exe utility (recommended), or manually. Setup of *Axxon PSIM* system automatic startup with the Tweaki.exe utility is shown in Tweaki.exe utility for advanced setup of the Axxon PSIM software system. Basic information required for manual system registry editing is outlined in the Working with Windows OS registry section.

Working with Windows OS services for operating Axxon PSIM installed as a Service

20.2 Configuring Axxon PSIM™ system shutdown

The *Axxon PSIM*™ system is always closed manually. If the video surveillance system uses pre-defined rights and authorizations for the users, *Axxon PSIM*™ software should be closed by entering a user password.

Axxon PSIM™ system may be closed using the following options:

1. using an authorized user login and password;
2. using an administrator password;
3. using an administrator password entered in the displayed administrator password request window.

Axxon PSIM™ system closure is configured at the stage of administration of user rights and authorizations, and is described in the corresponding sections of the Rights administration chapter..

21 Working with the system settings dialog box

21.1 General information about the System settings dialog box

The *Axxon PSIM*™ system is configured using the **System settings** dialog box.

The **System settings** dialog box is designed to configure and set up the digital components of the video surveillance system.

The **System settings** dialog box helps to solve the following key objectives:

1. creation and configuration of the system objects corresponding to the function modules (groups) of the *Axxon PSIM*™ system;
2. configuration of video surveillance and audio monitoring functions;
3. user interface configuration;
4. administration of user rights and authorizations.

The interface of the **System settings** dialog box is described in Description of the System settings dialog box.

21.2 Startup and shutdown of the System settings dialog box

21.2.1 Startup of the System settings dialog box

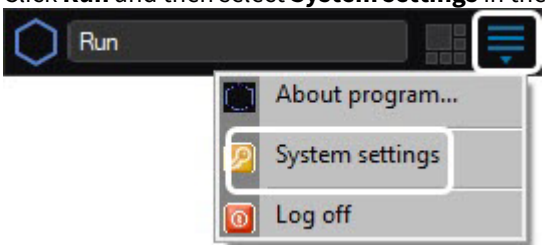
To start up the System settings dialog box follow the next steps:

1. Display the main control panel on the monitor. For this purpose, drag the mouse cursor to the upper left corner of the monitor.

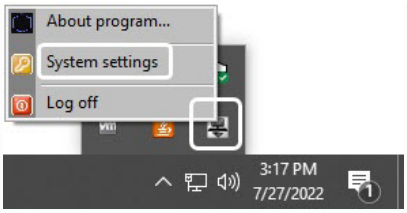


> **Note.**
>
> By default, the Main Control Panel is displayed on the primary monitor. The number of monitor for displaying the Main Control Panel can be set by the cur_monitor registry key (see Registry keys reference guide).

2. Click **Run** and then select **System settings** in the appearing dropdown menu.



> **Note.**
>
> The **System settings** item is also available in the menu that appears on clicking the  icon in the Windows notification area (system tray), or by short-time holding the “hot” button F8.



Now you have the **System settings** dialog box displayed on the monitor.





Note.

The interface of the Axxon PSIM™ **Main Control Panel** is given in Appendix 1. Interface.

Attention!

While changing the screen resolution it is necessary to restart the *Axxon PSIM* software for dialog windows correct displaying.

Note.

In case of the **System settings** dialog window exceeds the bounds of the screen, use one of the following ways to solve this problem:

1. Set the font size 96 pixels per inch (the screen scale is 100%). To perform this operation, go to the **Control panel -> Appearance and personalization -> Settings of screen resolution**.
2. If the first way doesn't solve the problem, use settings_height and settings_width registry keys and specify the height and width of the **System settings** dialog window in pixels (see the Registry keys reference guide).

Note.

If captions are displayed incorrectly in the interface because there is no such font in the system, then install the font located in the Redist\Font folder. Information on how to install fonts in Windows up to 7 can be found at https://support.microsoft.com/en-us/help/314960/how-to-install-or-remove-a-font-in-windows.

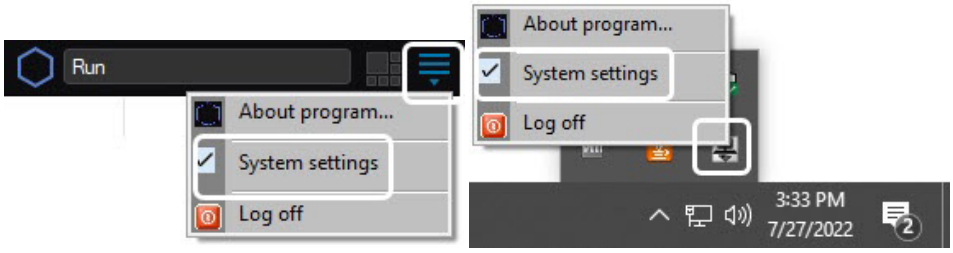
On Windows 8, Windows 8.1, Windows 10 fonts are installed in the other way:

1. Select **Run** in the **Start** menu.
2. Enter the following command:
   %windir%\fonts
3. Click **OK**.

4. Copy or move font files to the folder opened.

21.2.2 Shutdown of the System settings dialog box

To exit the **System settings** dialog box, select **Run** in the **Main Control Panel**, or in the Windows notification area (system tray), or by short-time holding the “hot” button F8, and then select **System settings** in the appearing dropdown menu, which will already be checked.



The **System settings** dialog box will be closed after repeated selection of the **System settings** in the menu.

21.3 Setting procedure for system objects

On the page:

- Select an object
- Create an object
- Edit an object
- Change the parent object
- Copy objects
- Enable or disable objects
- Delete an object

Configuration of *Axxon PSIM* system objects generally includes the following stages:

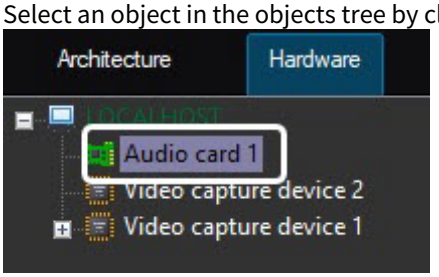
21.3.1 Select an object

To select an object, do the following:

1. Open the **Hardware** tab containing the objects tree.



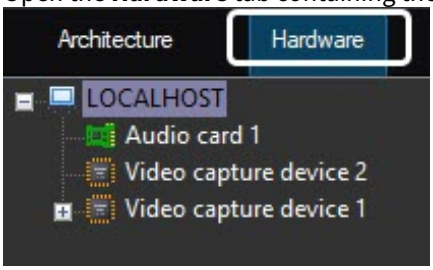
2. Select an object in the objects tree by clicking it with the mouse.



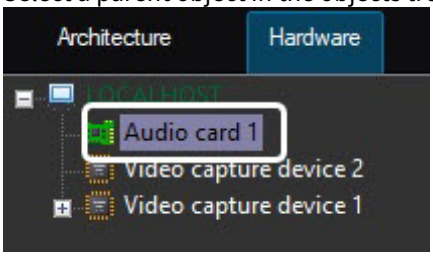
21.3.2 Create an object

To create an object, do the following:

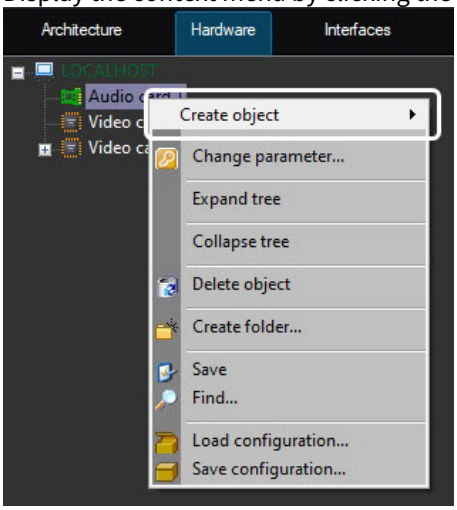
1. Open the **Hardware** tab containing the objects tree.



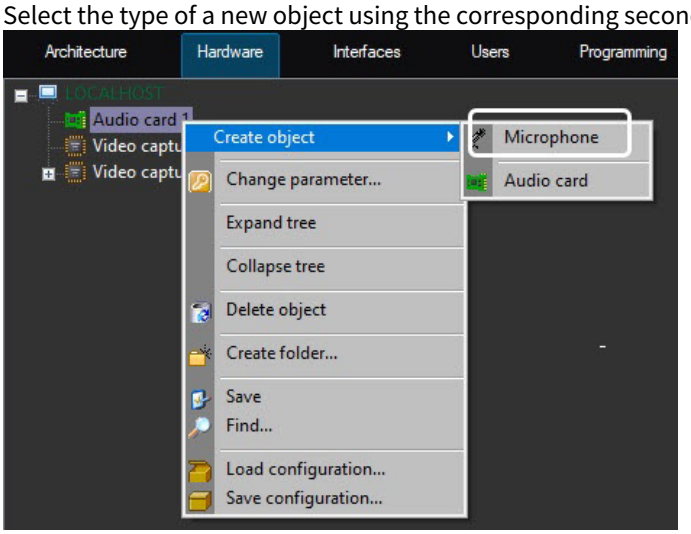
2. Select a parent object in the objects tree, which should be used as a basis for the creation of a child object.



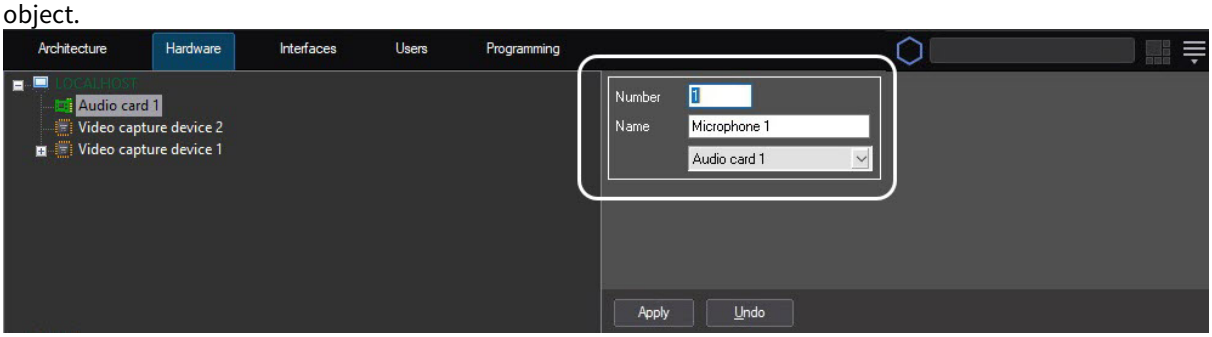
3. Display the context menu by clicking the right mouse button and select **Create object.**



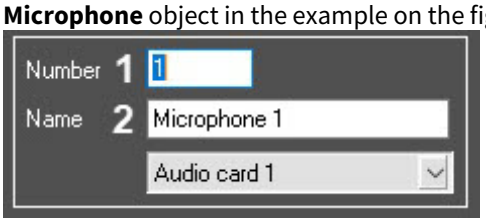
4. Select the type of a new object using the corresponding second level menu.



As a result of the above operations, the object settings panel will display an identification panel for the new object.

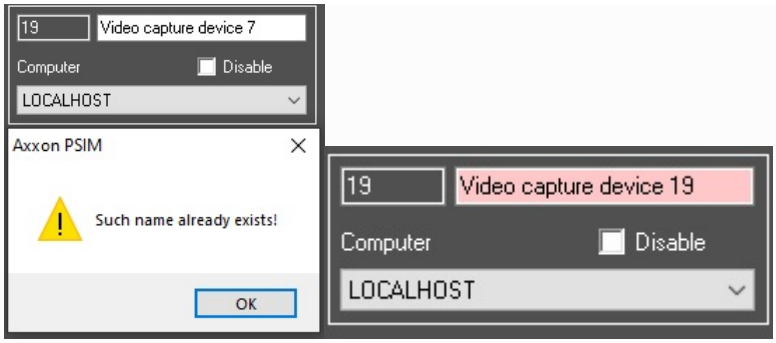


5. Specify a unique identification number in the **Number** field (**1**) and the unique name of a new object (the **Microphone** object in the example on the figures) in the **Name** field (**2**).

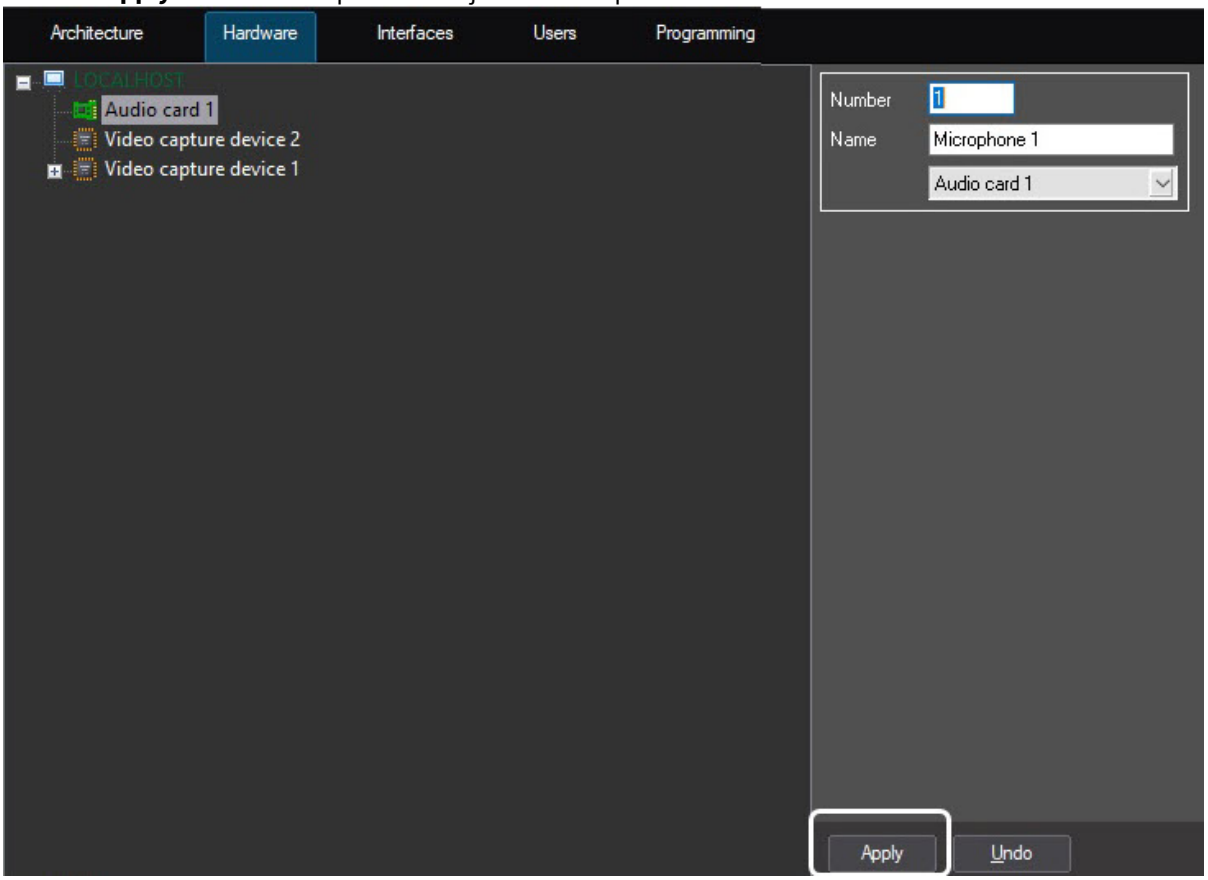


Note

For the list of restrictions on the use of characters for object identifiers (Numbers), see Identifiers (numbers) of system objects.
You should not use the > and < characters in the **Name** filed. If these characters are used in the object name, they will be removed when settings are applied.
If the identifier or the name already exist in the system, the corresponding message is displayed on the panel, and the field is highlighted in red.



6. Click the **Apply** button to complete the object creation process.



7. As a result, a new child object will be created based on the selected parent system object.



Note

If the parent system object has one or more child objects, then you can expand the list of child objects using the ⊞ icon, and collapse the list using the ⊟ icon.

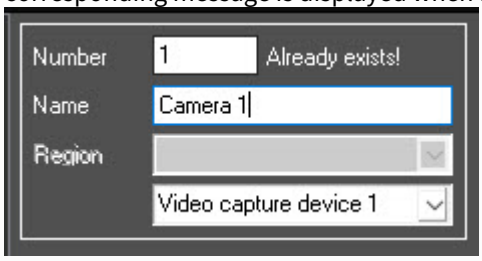
21.3.3 Edit an object

Editing means any modification of the object settings, i.e. changes in the object parameter values. The settings panel of the system object is the key configuration instrument of the object setup.
To edit an object, do the following:

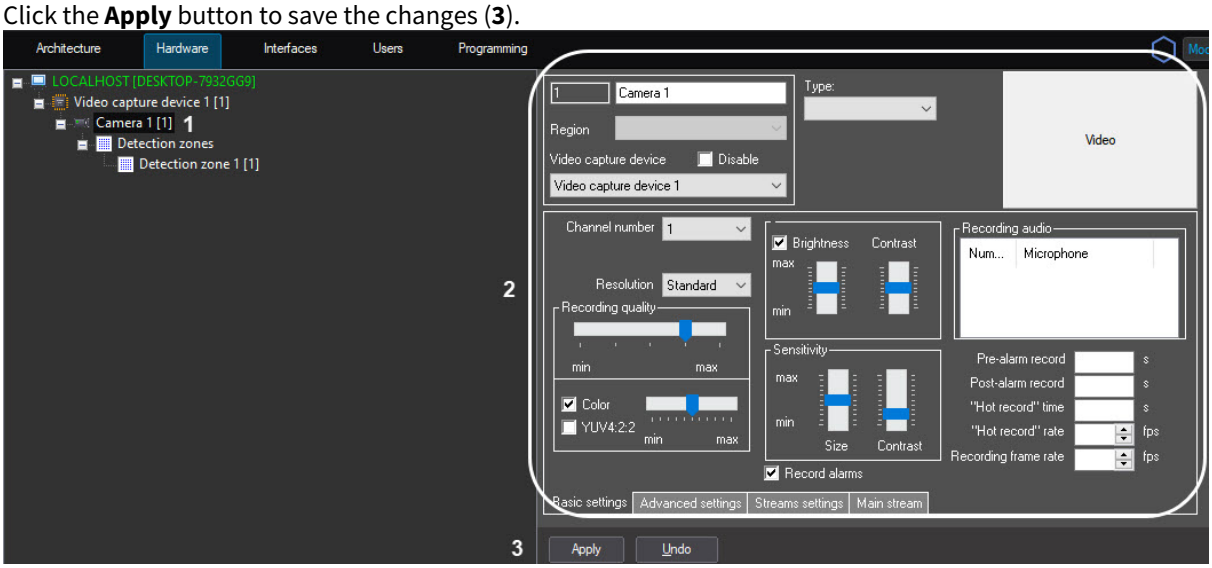
1. In the objects tree, select a system object the parameters of which should be edited by clicking the object (**1**).
2. Edit the object parameters using the settings panel of the object (**2**).

Note

The object ID cannot be edited.
The object name can be changed, however, if an object with the same name already exists, the corresponding message is displayed when applying the settings:



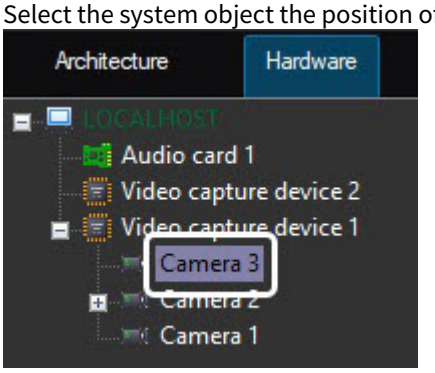
3. Click the **Apply** button to save the changes (**3**).



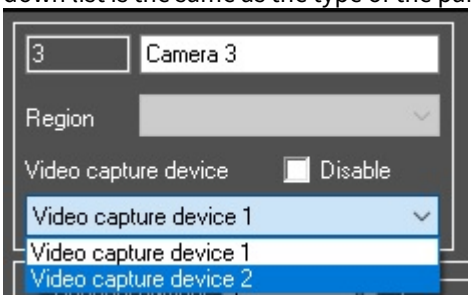
21.3.4 Change the parent object

When changing the parent object, you can move created object in the objects tree of *Axxon PSIM* without losing the settings.
To change the parent object, do the following:

1. Select the system object the position of which should be changed in the objects tree.



2. Select a new parent object in the drop-down list on the settings panel of the object. The name of the drop-down list is the same as the type of the parent object.



> **Note**
>
> If the object is moved to another computer, *Axxon PSIM* should be restarted on both computers—on the one the object is moved to and on another the object is moved from.

3. As a result, the object is displayed in the objects tree of the selected parent object.



21.3.5 Copy objects

The copy function enables cloning the objects created in *Axxon PSIM* objects tree (for copying objects using a template, see also The Save function).

> **Note**
>
> The copy function is guaranteed for the **Video capture device** object and its child objects: **Camera**, **Sensor**, **Relay**, **Embedded detection tool**, **Face detection tool**, **Detection zone**, **Tracker**, **VMDA detection tool** and **Captioner**. For other objects this function is not guaranteed.

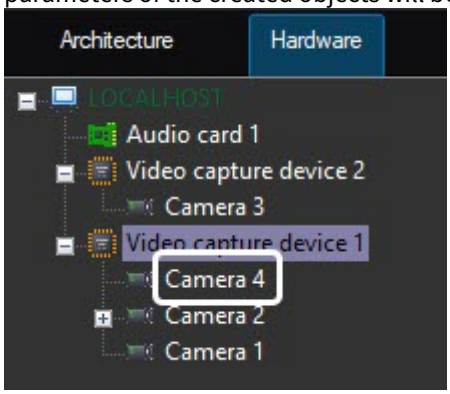
To copy the objects, do the following:

1. Select the object that should be copied in the objects tree.



2. To copy the object, press the **Ctrl+C** key combination.
3. Select the parent object on the basis of which the copy of the selected object should be created or one of the objects created on the basis of the parent object.
   If the copy should be created on the basis of the same parent object as the source object, then this step can be skipped.
4. Paste the object using one of the following key combinations:
   a. **Ctrl+V**—paste only the copied object.
   b. **Ctrl+Shift+V**—paste the copied object with all child objects.

The object or objects will be created with the default names, and they will be assigned the next free ID in order. The parameters of the created objects will be the same as those of the corresponding source objects.



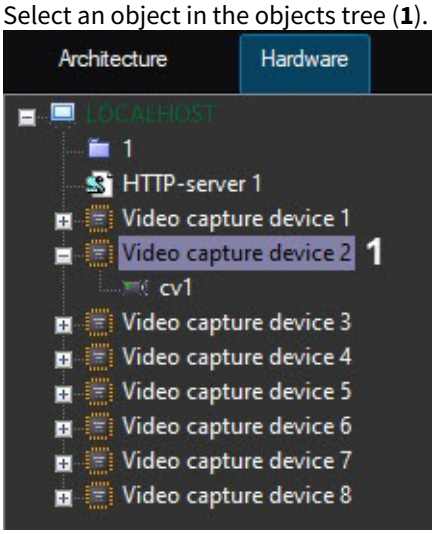
Note

Once copied object can be pasted multiple times.
The copied object will be stored in the clipboard until *Axxon PSIM* restart, or until the clipboard clipping is replaced with a new copied object.

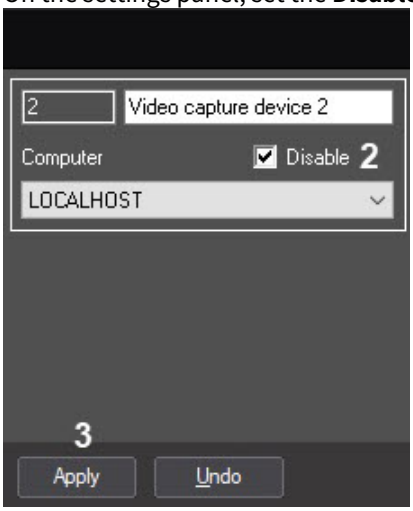
21.3.6 Enable or disable objects

In order to disable an object, do the following:

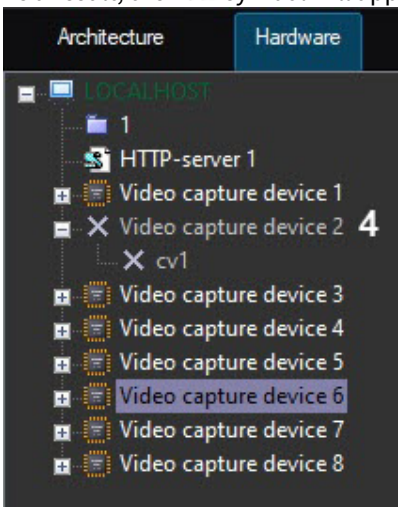
1. Select an object in the objects tree (**1**).



2. On the settings panel, set the **Disable** checkbox (**2**) and click the **Apply** button (**3**).



3. As a result, the  symbol will appear next to the disabled object (**4**).



To enable an object, set the **Disable** checkbox clear in the settings panel and click the **Apply** button.

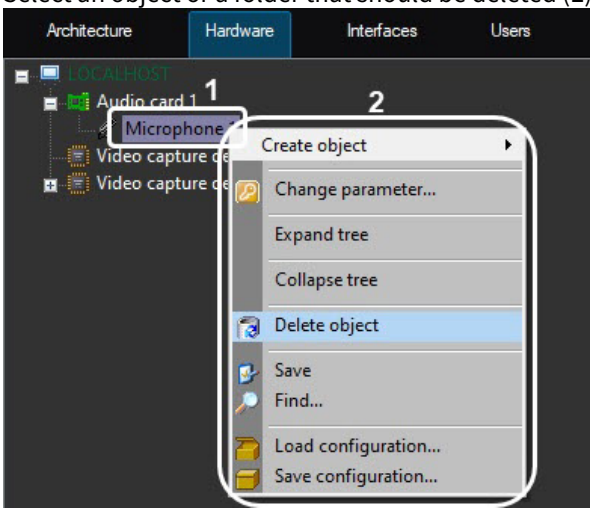
Note

Disabling an object also disables all of its child objects.

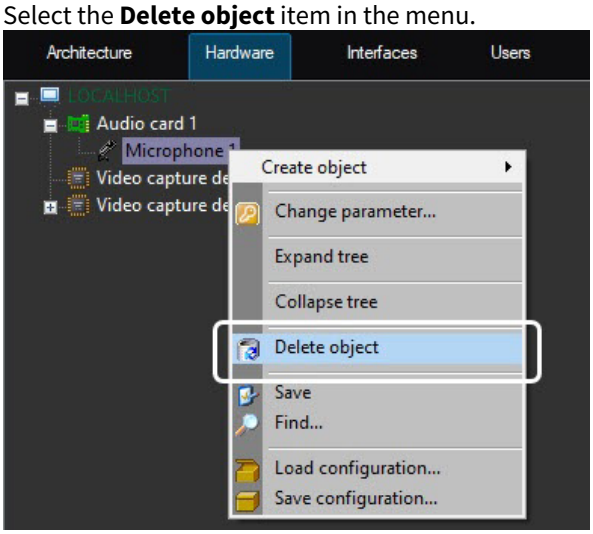
21.3.7 Delete an object

To delete an object, do the following:

1. Select an object or a folder that should be deleted (**1**) and right-click to display the context menu (**2**).



2. Select the **Delete object** item in the menu.



Note

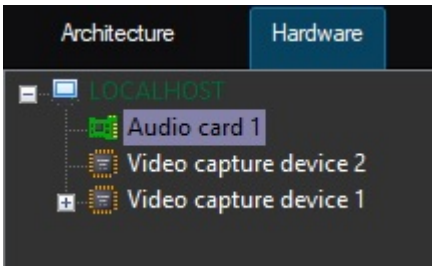
You can also select the object that should be deleted and press **Ctrl+Del** instead of using the context menu.

As a result, a dialog box requesting confirmation of the object deletion will appear on the monitor.

3. Click the **OK** button.



4. The figure below displays the result of an object deletion (objects tree contents after the object was deleted). The deleted object (the **Microphone** object in the example) is no longer displayed in the objects tree.



Note

The object settings are applied after switching to another fragment, regardless of clicking the **Apply** button.

Description of the System settings dialog box

21.3.8 Identifiers (numbers) of system objects

When you create any system object, its number is automatically set by the system in order and depends on how many objects of the same type have already been created. At the same time, you can change the number by setting it yourself, taking into account the restrictions given in the table below.

Features:

- you cannot create objects of the same type with the same identifiers in the system;
- you can change the identifier only when creating an object (see Create an object). After creation, the identifier cannot be changed.

The Hardware tab

№	Object type	You can use in the Number
1	Alarm notification window	Digits, letters, periods, hyphen, dash, and underscore
2	ATM	Digits, letters, periods, hyphen, dash, and underscore
3	Audio card	Only digits from 1 to 2147483647

№	Object type	You can use in the Number
4	Microphone	Only digits from 1 to 32767
5	Audio playback card	Only digits from 1 to 2147483647
6	Speaker	Only digits from 1 to 255
7	NGP manager	Digits, letters, periods, hyphen, dash, and underscore
8	Backup archive	Digits, letters, periods, hyphen, dash, and underscore
9	Backup audio archive	Digits, letters, periods, hyphen, dash, and underscore
10	BacNet	Digits, letters, periods, hyphen, dash, and underscore
11	Control device	Only digits from 1 to 2147483647
12	Data replication service	Digits, letters, periods, hyphen, dash, and underscore
13	Event counter	Digits, letters, periods, hyphen, dash, and underscore
14	Failover service	Digits, letters, periods, hyphen, dash, and underscore
15	HTTP Server	Only digits from 1 to 2147483647
16	IIDK Interface	Digits, letters, periods, hyphen, dash, and underscore
17	Incident server	Digits, letters, periods, hyphen, dash, and underscore
18	Incident handler	Digits, letters, periods, hyphen, dash, and underscore
19	Intercom subsystem	Digits, letters, periods, hyphen, dash, and underscore
20	Intercom	Digits, letters, periods, hyphen, dash, and underscore
21	ISD integration server	Digits, letters, periods, hyphen, dash, and underscore
22	Special keyboard	Digits, letters, periods, hyphen, dash, and underscore

№	Object type	You can use in the Number
23	LDAP service	Digits, letters, periods, hyphen, dash, and underscore
24	Mail Message Service	Digits, letters, periods, hyphen, dash, and underscore
25	Mail message	Digits, letters, periods, hyphen, dash, and underscore
26	Failover manager	Digits, letters, periods, hyphen, dash, and underscore
27	Manitou	Digits, letters, periods, hyphen, dash, and underscore
28	Map server	Digits, letters, periods, hyphen, dash, and underscore
29	ONVIF-Server	Digits, letters, periods, hyphen, dash, and underscore
30	ONVIF-Server Profile	Digits, letters, periods, hyphen, dash, and underscore
31	Operator query panel	Digits, letters, periods, hyphen, dash, and underscore
32	RTSP Server	Digits, letters, periods, hyphen, dash, and underscore
33	Short Message Service	Digits, letters, periods, hyphen, dash, and underscore
34	Short Message	Digits, letters, periods, hyphen, dash, and underscore
35	SIP-terminal	Digits, letters, periods, hyphen, dash, and underscore
36	SIP trunk	Digits, letters, periods, hyphen, dash, and underscore
37	Address book	Digits, letters, periods, hyphen, dash, and underscore
38	SIP-device	Digits, letters, periods, hyphen, dash, and underscore
39	SIP-operator	Digits, letters, periods, hyphen, dash, and underscore
40	SNMP service	Only digits from 1 to 2147483647
41	SNMP trap	Only digits from 1 to 2147483647

№	Object type	You can use in the Number
42	Sound notification	Only digits from 1 to 2147483647
43	System restart service	Digits, letters, periods, hyphen, dash, and underscore
44	Telegram bot	Digits, letters, periods, hyphen, dash, and underscore
45	Telemetry Controller	Digits, letters, periods, hyphen, dash, and underscore
46	Control panel	Digits, letters, periods, hyphen, dash, and underscore
47	PTZ device	Digits, letters, periods, hyphen, dash, and underscore
48	Video capture device	Only digits from 1 to 2147483647
49	Camera	Only digits from 1 to 2147483647
50	Analog sensor	Only digits from 1 to 2147483647
51	Edge storage	Digits, letters, periods, hyphen, dash, and underscore
52	Relay	Only digits from 1 to 2147483647
53	Sensor	Only digits from 1 to 2147483647
54	Captioner	Only digits from 1 to 2147483647
55	Detection zone	Digits, letters, periods, hyphen, dash, and underscore
56	ECHD channel	Only digits from 1 to 2147483647
57	Embedded detection	Only digits from 1 to 2147483647
58	Face Detection	Digits, letters, periods, hyphen, dash, and underscore
59	MPEG4 encoder	Only digits from 1 to 2147483647
60	Tag&Track	Digits, letters, periods, hyphen, dash, and underscore

№	Object type	You can use in the Number
61	Tracker	Only digits from 1 to 2147483647
62	Neurofilter	Only digits from 1 to 2147483647
63	VMDA detection	Only digits from 1 to 2147483647
64	VideoIntellect detection	Digits, letters, periods, hyphen, dash, and underscore
65	Video.run watcher	Only digits from 1 to 2147483647
66	Videogate	Only digits from 1 to 2147483647
67	VideoGuard integration client	Only digits from 1 to 2147483647
68	VideoGuard message filter	Only digits from 1 to 2147483647
69	VideoIntellect Client	Digits, letters, periods, hyphen, dash, and underscore
70	VMDA metadata storage	Digits, letters, periods, hyphen, dash, and underscore
70	Search channel	Digits, letters, periods, hyphen, dash, and underscore
72	Voice Message Service	Digits, letters, periods, hyphen, dash, and underscore
73	Voice message	Digits, letters, periods, hyphen, dash, and underscore
74	Voice Notification Service	Digits, letters, periods, hyphen, dash, and underscore
75	Web-server	Only digits from 1 to 2147483647
76	Web-server 2.0	Only digits from 1 to 2147483647
77	Yitu client	Digits, letters, periods, hyphen, dash, and underscore
78	Computer	Digits, letters, periods, hyphen, dash, underscore, and any characters. Maximum 15 characters

The Interfaces tab

№	Name	You can use in the Number
1	Display	Digits, letters, periods, hyphen, dash, and underscore
2	Audio player	Digits, letters, periods, hyphen, dash, and underscore
3	Panel of Backup archive	Digits, letters, periods, hyphen, dash, and underscore
4	Captions search	Digits, letters, periods, hyphen, dash, and underscore
5	Charts	Digits, letters, periods, hyphen, dash, and underscore
6	Configuration check	Digits, letters, periods, hyphen, dash, and underscore
7	Display manager	Digits, letters, periods, hyphen, dash, and underscore
8	Event Viewer	Digits, letters, periods, hyphen, dash, and underscore
9	External window	Digits, letters, periods, hyphen, dash, and underscore
10	HTML Interface	Only digits from 1 to 2147483647
11	HTML page	Only digits from 1 to 2147483647
12	Incident manager	Digits, letters, periods, hyphen, dash, and underscore
13	Intercom Control Monitor	Digits, letters, periods, hyphen, dash, and underscore
14	Live sound switch	Only digits from 1 to 2147483647
15	Map	Only digits from 1 to 2147483647
16	Layer	Only digits from 1 to 2147483647
17	Monitor	Digits, letters, periods, hyphen, dash, and underscore
18	Operator protocol	Digits, letters, periods, hyphen, dash, and underscore
19	Scene	Digits, letters, periods, hyphen, dash, and underscore

№	Name	You can use in the Number
20	SIP-panel	Digits, letters, periods, hyphen, dash, and underscore
21	State statistics	Digits, letters, periods, hyphen, dash, and underscore
22	Telemetry control panel	Digits, letters, periods, hyphen, dash, and underscore

The Users tab

№	Name	You can use in the Number
1	Department	Digits, letters, periods, hyphen, dash, and underscore
2	User	Digits, letters, periods, hyphen, dash, and underscore
3	User rights	Digits, letters, periods, hyphen, dash, and underscore

The Programming tab

№	Name	You can use in the Number
1	Area	Digits, letters, periods, hyphen, dash, and underscore
2	Region	Only digits from 1 to 65534
3	Rule of states transition	Only digits from 1 to 65534
4	Time schedule	Only digits from 1 to 65534
5	Timer	Only digits from 1 to 2147483647
6	Script	Only digits from 1 to 2147483647
7	Program	Digits, letters, periods, hyphen, dash, and underscore
8	Macro event	Digits, letters, periods, hyphen, dash, and underscore
9	Macro	Digits, letters, periods, hyphen, dash, and underscore

№	Name	You can use in the Number
10	Objects link	Digits, letters, periods, hyphen, dash, and underscore
11	Access level	Only digits from 1 to 65534

For **virtual objects**, you can use digits, letters, periods, hyphen, dash, and underscore in the identifier.

22 Axxon PSIM configuration and setup

22.1 Configuration procedure for servers, clients and remote workstations

22.1.1 Server settings

Server hardware and software platform

The video surveillance system based on Axxon PSIM™ software uses Servers to receive and process video signals from analog and IP surveillance cameras. The Server hardware and software platform generally contains:

1. A personal computer that meets the requirements of Axxon PSIM™ software.
2. Embedded video capture cards or dongle (Guardant or MatrixLock) that enables receiving video from IP devices only.
3. Axxon PSIM™ software with the **Server** configuration (see Installation of Axxon PSIM as a Server/Remote Administrator's workstation).
4. The license key with rights to use video capture cards or IP devices along with Axxon PSIM™ software.
5. MS SQL server software for Axxon PSIM™ system database control.

Attention!

The same set of program modules specified in the psim.sec license key is to be set for proper operation of the system on all Servers (see Program modules section).

Attention!

Proper operation of Axxon PSIM™ is possible only if the user has OS Windows administrator rights.

Setting up a Server

The main task of the Server is receiving and processing of video signals. It provides several options: audio signal receiving and processing, PTZ control, security services, user's auto functions (macros), etc. Server setup sequence depends on its hardware configuration and the options to be realized.

To configure the Server, follow the steps:

1. Start the Axxon PSIM™ program on the Server (see Operator's Guide).
2. With remote Server setup (e.g., from the administering Server), register the **Computer** object, which corresponds to the Server, and set the interaction parameters with the Servers, Remote Admin Workstations, Remote Clients of the distributed video surveillance system (see Configuration of distributed architecture section). While local setting up the Server the relevant **Computer** object is created automatically in the **Hardware** tab during the first startup.
3. Configure hardware that is connected to the Server (see Configuration of hardware section). This includes the following steps:
    a. Configure the Server video subsystem (see Configuring video subsystem section).
    b. Configure the Server audio subsystem if there are microphones (see Configuring audio subsystem section).
    c. If there are sensors and relays, create and configure the relevant objects (see Installing and configuring security system components guide).

   d. Configure backup video archiving on the Server, if necessary (see Configuring backup archiving section).
   e. Configure the hardware performance tester and restart service, enable and configure the notification services (see Notification services and Configuring the System restart service sections).
   f. Set up logging of events registered for the Server system objects (see Configuring events logging).
4. If the Server is to be used as the Operator's workstation, configure the user interface: video surveillance monitor, audio player, map etc. (see Configuring the user interface section).
5. Assign the users rights to work with Server system objects (see Configuration of users and rights section).
6. If auto options are to be used, create the macros and time zones, etc. (see System settings (the Programming tab) section).

22.1.2 Configuring a Remote Admin Workstation

Remote Admin Workstation hardware and program platform

The video surveillance system based on Axxon PSIM™ software uses Remote Admin Workstations for remote administering of Axxon PSIM™ software installed on Servers and other Remote Admin Workstations of the distributed video surveillance system, as well as the specialized platforms: videogate, remote archive server, remote web server etc. The Remote Admin Workstation can perform several of these functions or one of them.

> **Note.**
>
> Audio and video from IP devices can be processed at Remote Admin Workstations.

Remote Admin Workstation hardware and software platform contains:

1. Personal computer that meets the requirements of Axxon PSIM™ software.
2. Axxon PSIM™ software with the "Remote Admin Workstation" configuration (see Installation of Axxon PSIM as a Server/Remote Administrator's workstation).
3. License activation key (see License key).
4. MS SQL server software to control the *Axxon PSIM*™ database.

Remote Admin Workstation configuration

In a simple case a Remote Admin Workstation may be used for remote administering only.

To configure a Remote Admin Workstation, follow the steps:

1. Start the Axxon PSIM™ program on Remote Admin Workstation (see Operator's Guide).
2. With remote setup (e.g., from the administering Server), register the **Computer** object, which corresponds to the Remote Admin Workstation, and set the interaction parameters with the Servers, Remote Admin Workstations, Remote Clients of the distributed video surveillance system (see Configuration of distributed architecture section). While local setting up the Remote Admin Workstation the relevant **Computer** object is created automatically in the **Hardware** tab during the first startup.
3. Configure the hardware performance tester and restart service (see Configuring the System restart service section).
4. Set up logging of events registered for the Remote Admin Workstation system objects (see Configuring events logging).
5. If the Remote Admin Workstation is to be used as the Operator's workstation, configure the user interface: video surveillance monitor, audio player, map etc. (see Configuration of interfaces section).
6. Assign the users rights to work with Remote Admin Workstation system objects (see Rights administration section).
7. If auto options are to be used, create the macros and time zones, enable and configure the notification services (see System settings (the Programming tab) and Notification services sections).

Videogate configuration

Videogates are used in large-scale distributed video surveillance systems for video signal routing among the Servers, Remote Admin Workstations and Remote Clients that are in different subnets.

To configure the gateway, do the following:

1. Start the Axxon PSIM™ program on the videogate (see Operator's Guide).
2. With remote setup of the videogate (e.g., from the administering Server), register the **Computer** object, corresponding to the Remote Admin Workstation, and set the parameters of interaction with Servers, Remote Admin Workstations and Remote Clients of the distributed video surveillance system (see Configuration of distributed architecture section). While local setup of the videogate the relevant **Computer** object is created automatically in the **Hardware** tab during the first startup.
3. Enable and configure the **Videogate** module (see Configuring the Videogate module section).
4. Configure the hardware performance tester and the restart service (see Configuring the System restart service section).
5. Set up logging of events registered for the **Videogate** system objects (see Configuring events logging).
6. Assign the rights to users in order to work with the **Videogate** system objects (see Configuration of users and rights section).
7. If auto options are to be used, create the macros and time zones, enable and configure the notification services (see System settings (the Programming tab) and Notification services sections).

Configuring backup archive server

Axxon PSIM has a backup archiving option for video records from the video surveillance Servers. As the archiving process requires great computer resources, archiving is not to be performed on the Servers directly. It is strongly recommended to choose the individual Remote Admin Workstation as the archiving Server.

To configure the archiving server, do the following:

1. Start the Axxon PSIM™ program on the archive server (see Operator's Guide).
2. With remote setup of the archive server (e.g., from the administering Server), register the **Computer** object, corresponding to the archive server, and set the parameters of interaction with the Servers, Remote Admin Workstations and Remote Clients of the distributed video surveillance system (see Configuration of distributed architecture section). While local setup of the archive server the relevant **Computer** object is created automatically in the **Hardware** tab during the first startup.
3. Enable and configure the **Backup archive** module (see Configuring backup archiving).
4. Configure the hardware performance tester and the restart service (see Configuring the System restart service).
5. Set up logging of events registered for the **Videogate** system objects (see Configuring events logging).
6. Assign the rights to users in order to work with the **Videogate** system objects (see Configuration of users and rights).
7. If auto options are to be used, create the macros and time zones, enable and configure the notification services (see System settings (the Programming tab) and Notification services).

Configuring remote Web-server

The video surveillance system based on Axxon PSIM™ software uses the remote web-server to transmit video signals and to receive Operator's commands via the Internet. It is recommended for large-scale systems with a distributed structure to use the remote web server on the individual Remote Admin Workstation instead of a local one on one of Servers.

Note.

The remote web-server should be allocated in the individual subnet and on the outer IP address (for its operation as an Internet HTTP server). Therefore the web server should be set to receive video signals via the videogate. The videogate can be the remote one (remote computer with installed and configured *Videogate* module) or the local one (*Videogate* module is installed and configured on the same computer with the web-server).

To configure the remote web server, follow the steps:

1. Start the Axxon PSIM™ program on the web-server.
2. With web-server remote setup (e.g., from the administering Server), register the **Computer** object, which corresponds to the web-server, and set the interaction parameters with the Servers, Remote Admin Workstations, Remote Clients of the distributed video surveillance system (see Configuration of distributed architecture section). While local setting up the web-server the relevant **Computer** object is created automatically in the **Hardware** tab during the first startup.
3. Enable and configure the *Web-server* module (see Configuring the Web-server module section).
4. If no remote videogate is used, then enable and configure the *Videogate* module (see Configuring the Videogate module section).
5. Configure the hardware performance tester and restart service (see Configuring the System restart service section).
6. Set up logging of events registered for the **Web-server** system objects (see Configuring events logging).
7. Assign the users rights to work with the **Web-server** system objects (see Configuration of users and rights section).
8. If auto options are to be used, create the macros and time zones, enable and configure the notification services (see System settings (the Programming tab) and Notification services sections).

22.1.3 OS settings for correct operation of Remote Admin Workstation or Server

The user who does not belong to the “Administrators” group can work with *Axxon PSIM* software correctly if the following requirements are fulfilled:

1. UAC (Users account control) is disabled for Windows 7, Windows 8, Windows 8.1, Windows 10 OS. UAC can be disabled on the Control panel by Administrator of computer.

   Attention!

   Low position of the **Do not notify me** slider on the **User account control parameter** page doesn’t mean the full UAC disabling in the Windows 8, Windows 8.1 or Windows 10. Configuration of the local security policy is required for full disabling the UAC. Configuration is performed on the **Control panel** → **Administrating** → **Local security policy** window.
   It is required to disable all policies names of which are started from “User Account Control”, apart from:
   User Account Control: request action to increase rights for administrators in the mode of administrator approval—set the Increasing without request item in the **Security parameter** value.
   User Account Control: request action to increase rights for users—set the Account request item in the **Security parameter** value.

2. User is to have the free access to the AxxonSoft thread in the registry HKEY_LOCAL_MACHINE\Software\AxxonSoft section for 32-bit system (HKEY_LOCAL_MACHINE\Software\Wow6432Node\AxxonSoft for 64-bit system).
3. User is to have the free access to the folder in which the *Axxon PSIM* software is installed.
4. User is to have the free access to the VIDEO and AUDIO folders on all logical disks in the system.
5. If the HKEY_LOCAL_MACHINE\Software\AxxonSoft\PSIM\BackupFolder key is in the registry (HKEY_LOCAL_MACHINE\Software\Wow6432Node\AxxonSoft\PSIM\BackupFolder for 64-bits system), the

free access to the folder specified in the BackupFolder key is to be granted to user. For more information on this key please see Creating the database backup copy.

6. The free access to the following folders is needed if there is no the BackupFolder key:
    a. C:\ProgramData\—for Windows 7 OS;
    b. C:\Documents and Settings\All Users\Application Data\—for Windows XP OS.
7. The user is to have SeCreateGlobalPrivilege rights. Open the **Local security policy** tool (**Control panel** → **Administration**), select **Local policies** → **Assign User rights** → **Global objects** creation and add the existing user to the folder.
8. In Microsoft SQL Server Management Studio, assign the sysadmin role to the BUILTIN\Users group:
    a. In the Microsoft SQL Server Management Studio object explorer, select **Security** → **Logins**;
    b. In the **BUILTIN\Users** context menu select **Properties**;
    c. In the properties, select **Server Roles** and set the **sysadmin** checkbox, then click **OK**.

22.1.4 Configuring Remote Clients (RC)

Remote Client hardware and software platform

Remote Clients are used as Operator's workstations and provide remote video surveillance and audio monitoring: video and audio monitoring, sensor status control, cameras and PTZ units control and so on.

At a Remote Client administering options (one cannot create, delete and configure objects in the system as well as register users and administer their rights) as well as local database (database on the remote computer with installed Axxon PSIM™ system is in use) are inaccessible.

The Remote Client hardware and program platform generally contains:

1. A personal computer, that meets the requirements of Axxon PSIM™ software.
2. The *Axxon PSIM*™ software with the **Client** configuration (see Installation of Axxon PSIM™ software to the Client section).

Configuring remote client

The basic function of the remote client is receiving video and audio signals from the servers of the video surveillance system, viewing videos, listening to audio, and managing cameras, microphones, and PTZ devices by using various components of the operator's user interface (video surveillance monitor, audio player, map, PTZ window, and so on).

To configure the remote client:

1. Register the **Computer** object, which corresponds to the remote client, on the administration server and set the interaction parameters with the servers, remote administrator's workstations, and the remote clients of the distributed video surveillance system (see Configuring Axxon PSIM with distributed architecture of the digital video surveillance system).
2. Configure the user interface. To do this, create display(s), configure the access to them using the remote client, and place the user interface components on the displays: video surveillance monitor, audio player, map, and so on (see Configuring the user interface).

Note

When you start the remote client, it connects to one selected server by default. If you want to select a server to connect to, add the **allow_alter_core_ip_address registry** parameter to the registry HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\PSIM\ (see Registry keys reference guide).

OS settings for correct operation of Remote Client

Fulfill the following conditions to work correctly with *Axxon PSIM* software which is installed as Remote Client by the user who does not belong to the “Administrators” group:

1. User is to have the free access to the AxxonSoft thread in the registry HKEY_LOCAL_MACHINE\Software\AxxonSoft section for 32-bit system (HKEY_LOCAL_MACHINE\Software\Wow6432Node\AxxonSoft for 64-bit system).
2. User is to have the free access to the folder in which *Axxon PSIM* software is installed.

22.2 Configuration of distributed architecture

22.2.1 General principles of designing the digital video surveillance system with distributed architecture

The digital video surveillance system generally contains:

1. Servers – hardware and program platforms used to receive and process video and audio signals from analog and IP surveillance cameras.
2. Remote Admin Workstations – hardware and program platforms used for remote administering of the video surveillance system and as the specialized platforms for: video gateway, remote archive server, remote web server etc.
3. Remote Client – hardware and program platforms used as Operator’s workstations to realize remote video surveillance and audio monitoring.

Servers, Remote Admin Workstations and Remote Clients are integrated into the video surveillance system, fitting the system set of functions, safety requirements, specific features of the guarded location etc. The video surveillance system may include several subnets, that interact via selected (node) servers and Remote Admin Workstations. The distributed architecture of the video surveillance system provides synchro data exchange (events, commands, setting parameters, etc) among its components.

Servers, RAWs and ROWs communicate with each other in LAN, WAN, VPN, Wireless networks using TCP protocol.

Note.

One version of the *Axxon PSIM* software package is to be installed on all components of the distributed system. This is due to the database structure of the *Axxon PSIM* software package can differ in different versions so the data loss can occur.

Requirements for the software and hardware platform

22.2.2 Configuring procedure for the distributed system

To configure the distributed video surveillance system, follow the steps:

1. Design the surveillance system structure project, if it has not been developed before (see Selecting the structure of the distributed system).
2. Set up database synchronization for all servers and Remote Admin Workstations in compliance with the system structure project (see Synchronizing the databases of servers and remote workstations).
3. Register the servers, Remote Admin Workstations and Remote Clients from the same subnet on the administering server of this subnet (or at node Remote Admin Workstations and servers, that optionally realize the administering server function, if there are any subnets). If any selected subnets are present in the

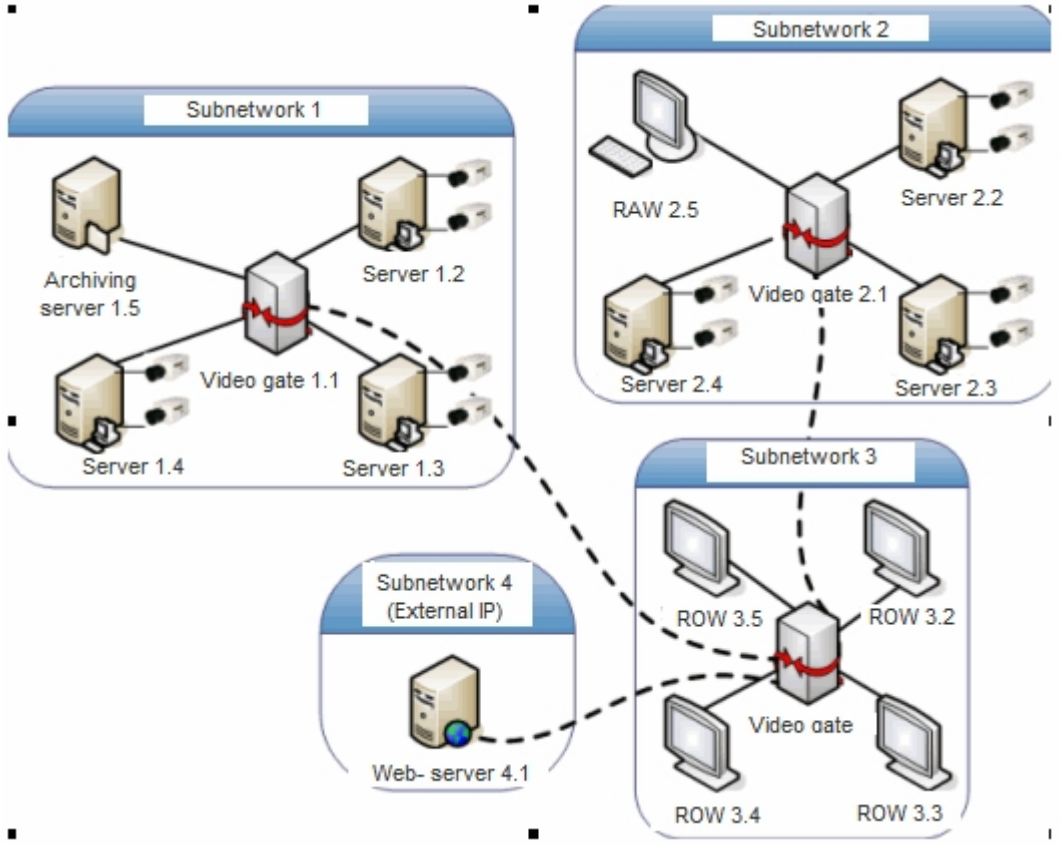
system, register the servers and Remote Admin Workstations that provide interaction of subnets (see Registration of servers and workstations on the administration server).
4. Set up interaction of servers, Remote Admin Workstation and Remote Clients in compliance with the system structure project (see Configuring the interaction of distributed system components).
5. Set up time synchronization in the distributed system, if necessary (Configuring time synchronization in the distributed system).
6. Specify computers in the distributed system which will be used only as Clients (see Role-assignment in distributed system).

22.2.3 Selecting the structure of the distributed system

While designing the distributed video surveillance system structure you should take into account:

1. The number of servers, Remote Admin Workstations and Remote Clients to be installed on the guarded location.
2. The distances between video surveillance system components and their comminication channels capacity. For example, servers are divided by long stretches of land, and the Remote Admin Workstation and Remote Client are within the same room – the central surveillance station. Given the engineering constraints, servers will have the low capacity channels, and the Remote Admin Workstation and Remote Client will have high capacity channels. Then Remote Admin Workstation and Remote Client will interact with the servers via the gateway only.
3. The system security requirements, for example, to prevent unauthorized administering, subnets with servers and Remote Admin Workstations and subnets with Remote Clients, are separated. Subnets interact via the gateway only.

An example of organization of the distributed video surveillance system is shown in the figure.



22.2.4 Synchronizing the databases of servers and remote workstations

Axxon PSIM™ software servers and Remote Admin Workstations configuration parameters are stored in the distributed database. Each server and Remote Admin Workstation store local copies of the distributed database. Local database copies should be synced to provide distributed operation of Axxon PSIM™ software and data replication (synchro alteration of local database copies).

The following synchronization mechanisms are used in *Axxon PSIM*:

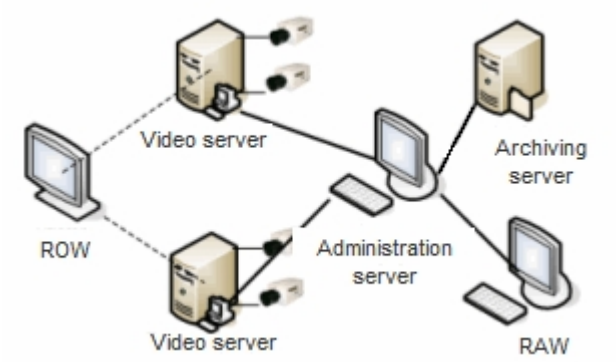
1. Internal synchronization. All changes are applied to computers automatically. This mechanism is used by default and does not require any further configuration. Internal synchronization can be disabled – see Configuring internal synchronization.
2. DB synchronization of recipients with sources when starting *Axxon PSIM*:

1. Configuration synchronization (see Configuring database synchronization).
2. Configuration and protocol synchronization (see Configuring database synchronization and make changes to sync.xml file).

> **Note.**
>
> DB tables that are not synchronized during synchronization are in the sync.xml file. It is highly recommended not to change this file.

3. Only protocol synchronization (see Configuring the Event Viewer databases synchronization).

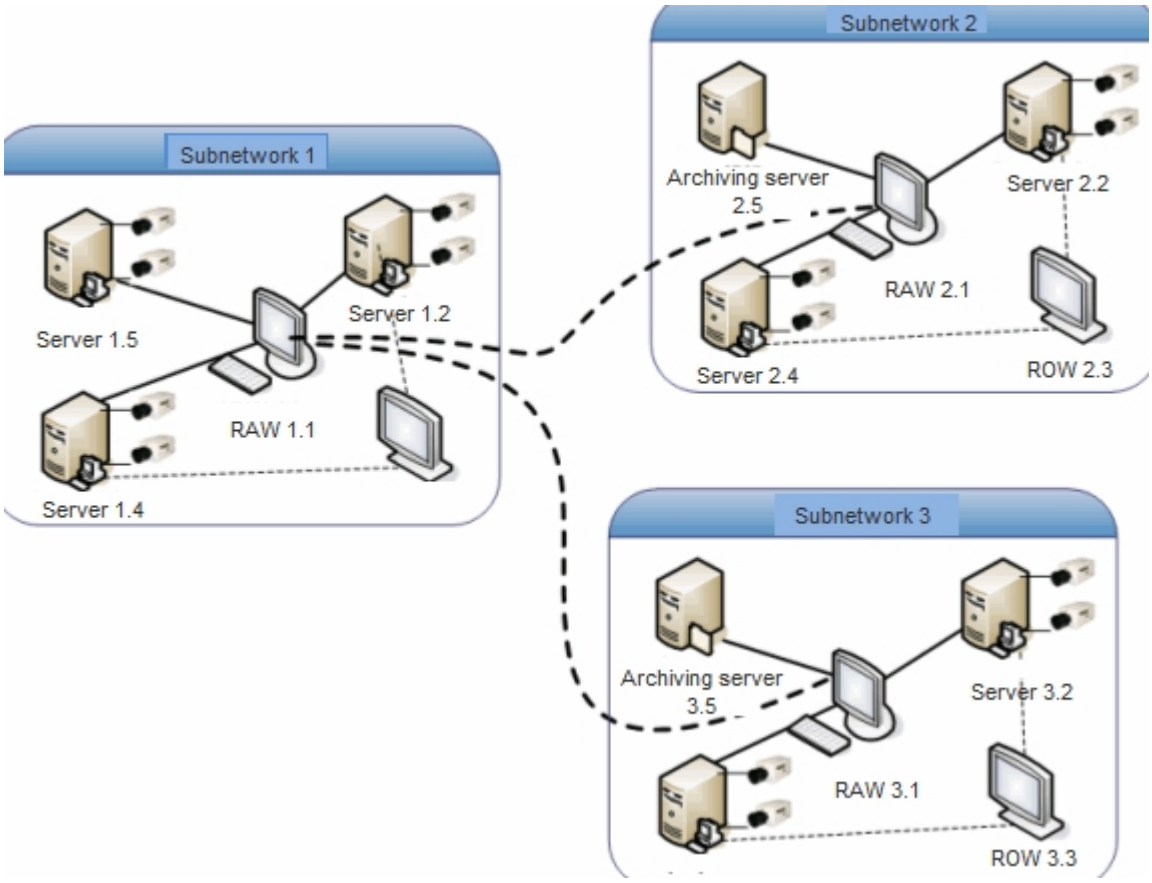
In the simplest case, database synchronization is performed for all servers and Remote Admin Workstations with the database of the administering server.



Note.

The Remote Client has no database; therefore the administering server database should not be synced with it.

If any selected subnets are present in the system, the servers and Remote Admin Workstation databases should be synced with the node server or Remote Admin Workstation database (see, for example, figure below).



For example, to set up database synchronization for the servers of the distributed system shown in the figure, you need:

1. to sync the databases of 1.2, 1.4, 1.5 servers with 1.1 Remote Admin Workstation database;
2. to sync the databases of 2.2, 2.4 servers and 2.5 archiving server with 2.1 Remote Admin Workstation database;

3. to sync databases of 3.2, 3.4 servers and 3.5 archiving server with 3.1 Remote Admin Workstation database;
4. to sync databases of 3.1 and 2.1 and Remote Admin Workstations with 1.1 Remote Admin Workstation database.

For detailed instructions on database synchronization setup see Axxon PSIM™ software database management.

22.2.5 Registration of servers and workstations on the administration server

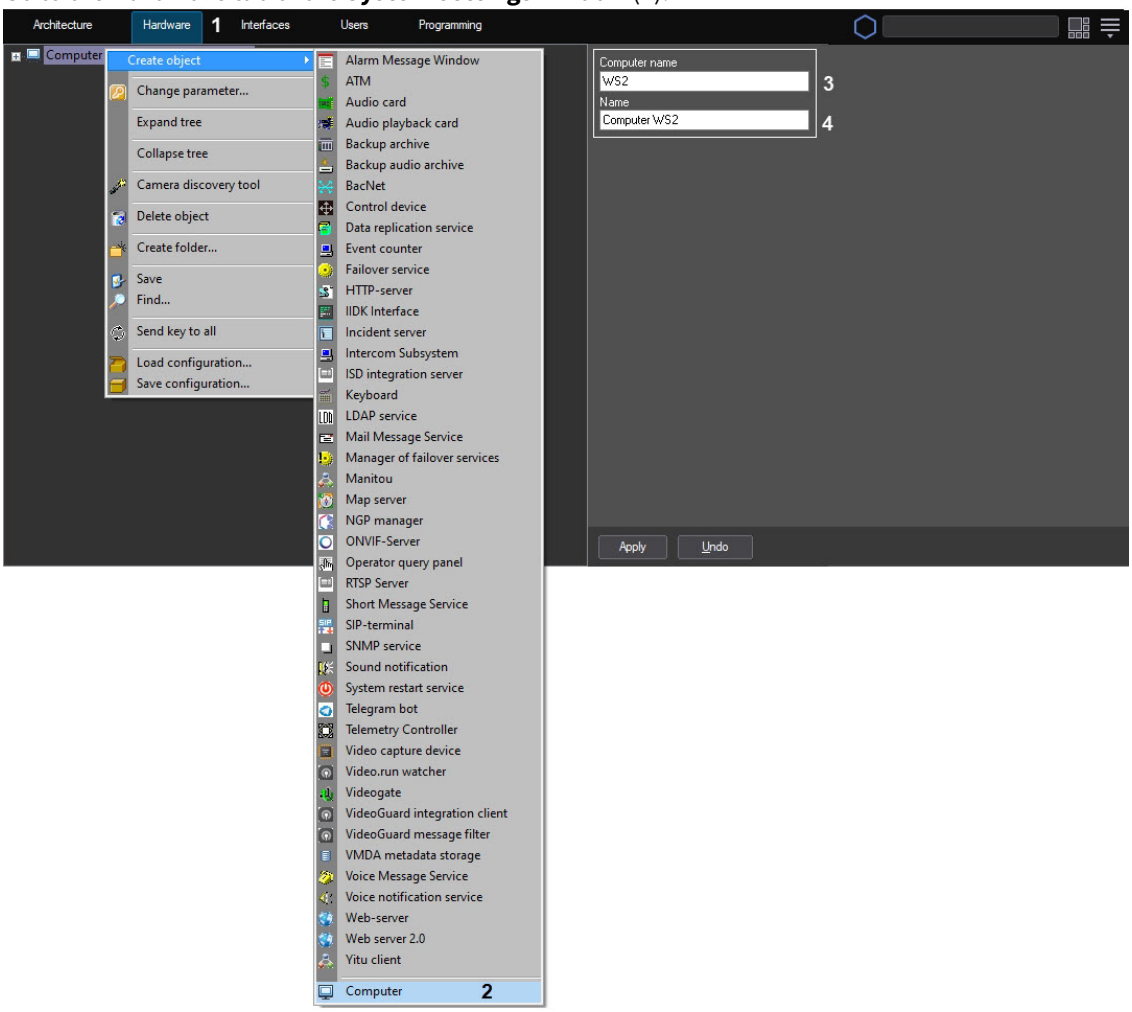
Administration of servers and remote administrator's workstations is performed from one selected workstation—the administration server. We recommend having one administration server for each dedicated subnetwork of the video surveillance system (for example, for security reasons).

All servers, remote administrator's workstations, and remote clients must be registered on the administration server.

To register servers and workstations on the administration server, do the following:

1. Make sure that the synchronization of databases of all servers and remote administrator's workstations with the database of the administration server is properly configured (see Synchronizing the databases of servers and remote workstations).
2. Check the connection of servers, remote administrator's workstations, and remote clients to the network.
3. Start *Axxon PSIM* on the administration server.
4. Register the **Computer** object on the administration server for each server, remote administrator's workstation, or remote client. To do this, do the following:

a. Go to the **Hardware** tab of the **System settings** window (**1**).



b. Create a **Computer** object on the basis of the **Computer** object (**2**).
c. In the **Computer name** field (**3**), enter the network name of the server, remote administrator's workstation, or remote client.

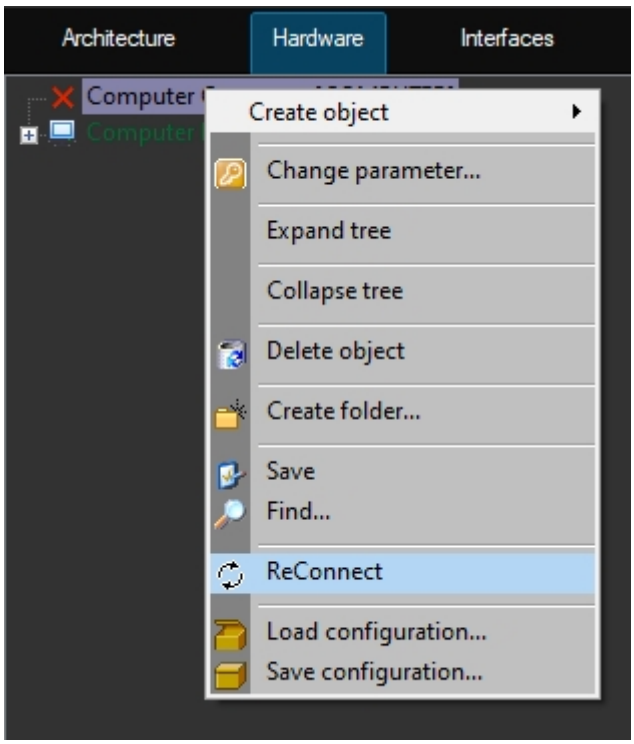
> **Note**
>
> The maximum length for the network name is 15 characters. If the network name is longer than 15 characters, then enter the first 15 characters as the network name in this field. The computer name must consist of only Latin characters and digits.

d. In the **Name** field (**4**), enter the name that will be used for the computer in *Axxon PSIM*.
e. Click the **Apply** button.

5. Repeat step 4 for each server, remote administrator's workstation, and remote client of the distributed video surveillance system (or its subnetwork).
6. Start *Axxon PSIM* on all servers, remote administrator's workstations, and remote clients.
7. If there is a connection between the administration server and the server, remote administrator's workstation, and remote client, the **Computer** object is marked with the icon in the object tree.
8. If there is no connection between the administration server and the server, remote administrator's workstation, and remote client, the **Computer** object is marked with the icon in the object tree. The most likely causes of disconnection are *Axxon PSIM* failure on the server, remote

administrator's workstation, and remote client; network disconnection; incorrect database synchronization; and invalid network name. Before continuing to configure the video surveillance system, you must detect and resolve the cause of disconnection between the server, remote administrator's workstation, and remote client and the administration server and try connecting again.

To connect to the server or remote administrator's workstation from the remote administration server without restarting *Axxon PSIM*, right-click the required **Computer** object to open the menu and select **Reconnect**.



Registration of servers, remote administrator's workstations, and remote clients on the administration server is complete.

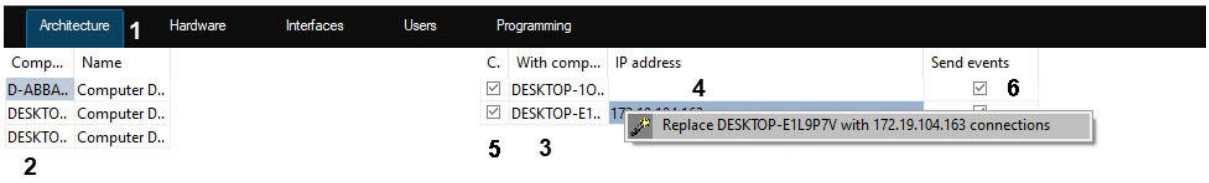
22.2.6 Configuring the interaction of distributed system components

To provide operation of distributed system, you must configure the interaction between Servers, Remote Administrator's workstations and Remote Clients. The interaction between Servers, Remote Administrator's workstations and Remote Clients means database replication (for Servers and Remote Administrator's workstations only) and event exchange. During configuration, you must specify for each Server, Remote Administrator's workstation and Remote Client the lists of interacting and non-interacting Servers, Remote Administrator's workstation and Remote Clients.

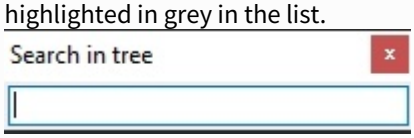
You can configure the interaction of surveillance system components from administration Server or, if there are dedicated subnets, from the node Server or Remote Administrator's workstation.

To configure the interaction between the distributed system components, do the following:

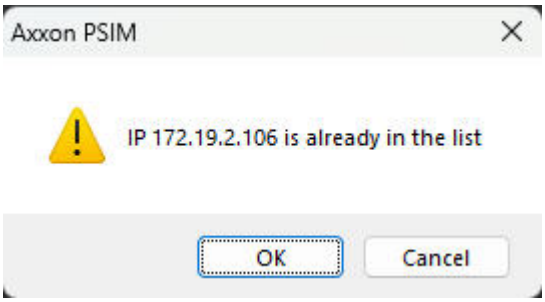
1. Go to the **Architecture** tab in the **System settings** dialog window (**1**).



2. The **Computer** column displays the list of network names of Servers, Remote Administrator's workstations and Remote Clients registered in the **Hardware** tab (**2**). In the **Computer** column, left-click the network name of the Server, Remote Administrator's workstation or Remote Client to change its interaction settings. Text in the selected cell becomes grey.

> **Note**
>
> To search for a computer by name, use the Ctrl+F keyboard shortcut. The **Search in tree** window opens, enter the full computer name or its part and press the Enter button. Found computer is highlighted in grey in the list.
>
> 
>

3. The **With computer** column displays the list of those Servers, Remote Administrator's workstations and Remote Clients, with which the selected Server, Remote Administrator's workstation or Remote Client is able to interact (**3**).
4. In the **IP address** column, specify the addresses of the computers you are connecting to (**4**). Features:
   a. By default, you must specify the IP address. If the **DNS instead of IP allowed** checkbox is set on the settings panel of the **Security zone** object in the **Programming** tab, you can specify DNS name instead of IP address.
   b. If computer addresses in the network are set automatically (DHCP is configured), then you can leave the **IP address** field blank.
   c. If computer name is correct, then the IP address can be filled in automatically. For this, enter the question mark "?" in the **IP address** field and press the Enter key on the keyboard.
   d. You cannot add computers with the same IP addresses, a warning message appears if you try to do so:



   If the entered IP address is already assigned to some computer in the system, the address is assigned to the added computer and the address of the computer that previously had the address is reset.
5. If the specified IP address must be set for all connections with this computer in the distributed system, right-click in the **IP address** field and select **Replace <Computer name> with <IP-address> connections** in the menu. This is allowed if computers with one network interface are used in the distributed system and the specified IP address must be used to communicate with these computers.

> **Attention!**

When you click the **Apply** button (see step 10), the changes are saved only for the current computer. In order for the IP address to be saved for all computers in the distributed system, click the **Apply** button pressing down the **Ctrl** key on the keyboard.

6. If the checkbox in the **Connection** column and in the row corresponding to the Server, Remote Administrator's workstation or Remote Client is set, then the data on system configuration of the selected Server, Remote Administrator's workstation or Remote Client with any Server, Remote Administrator's workstation or Remote Client is exchanged (**5**). To prohibit exchange of configuration data with the selected Server, Remote Administrator's workstation or Remote Client, clear the checkbox in the **Connection** column.

   Note

   Server or Remote Administrator's workstation always exchange configuration parameters with Remote Client, even if the **Connection** checkbox is clear for this Remote Client.

7. If the checkbox in the **Send events** column and in the row corresponding to the Server or Remote Administrator's workstation is set, then events are exchanged between selected Server or Remote Administrator's workstation and any Server or Remote Administrator's workstation (**6**). To prohibit event exchange with the selected Server, Remote Administrator's workstation or Remote Client, clear the checkbox in the **Send event** column.

   Note

   Server or Remote Administrator's workstation always exchange configuration parameters with Remote Client, even if the **Send events** checkbox is clear for this Remote Client.

   Note

   In order to set all checkboxes in the **Connection** or **Send events** columns, highlight a cell in the required column and press Ctrl+A. To clear all checkboxes, highlight a cell and press Shift+A.

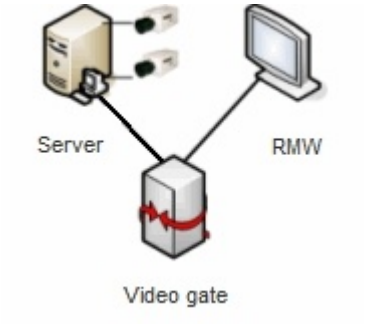
8. If modems are used for connecting the distributed system components, then fill in the **Connection**, **User** and **Password** fields in properties of the **Computer** object on the **Hardware** tab according to the Windows modem configuration used.
9. Repeat steps 2-6 for each pair of Servers, Remote Administrator's workstations and Remote Clients.
10. Click the **Apply** button.

Interaction of the distributed video surveillance system components is now configured.

Let's consider setup of a Server and Remote Client connection via videogate as an example. A diagram of interaction of relevant components is shown in the figure.

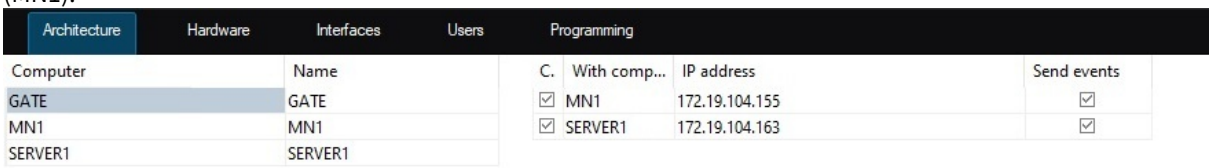
Note

Videogate is used in large distributed video surveillance systems for routing the video signals between Servers and Clients located in different subnetworks. For details, see General information on the videogate.

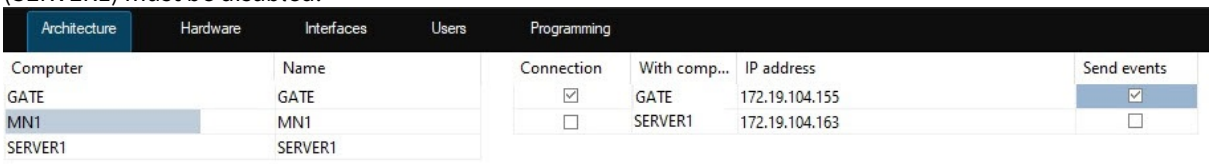


According to the diagram, shown in the figure above, interaction must be disabled between the Server and Remote Client. As a result, the **Architecture** tab displays the following configuration parameters:

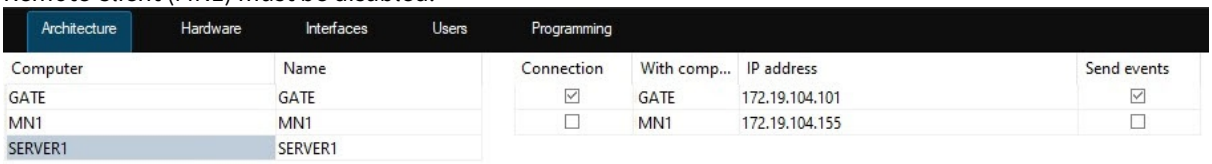
1. For the videogate (GATE), interaction must be set with the Server (SERVER1) and with the Remote Client (MN1).



2. For Remote Client (MN1), interaction must be set with the videogate (GATE), and interaction with the Server (SERVER1) must be disabled.



3. For the Server (SERVER1), interaction must be set with the videogate (GATE), and interaction with the Remote Client (MN1) must be disabled.



In *Axxon PSIM*, the **Computer** object corresponding to the Remote Client (MN1) isn't displayed on the **Hardware** tab of the **System settings** dialog window.

However, if you set the **Send events** checkbox (the **Connection** checkbox is clear), the **Computer** object corresponding to the Remote Client (MN1) is displayed on the **Hardware** tab on the Server (SERVER1), but it is marked with the icon and the object name is highlighted in grey color. It means that administration of the given object is forbidden.

22.2.7 Configuring time synchronization in the distributed system

If Server is to synchronize its time with Servers connected to it when *Axxon PSIM* is started, do one of the following:

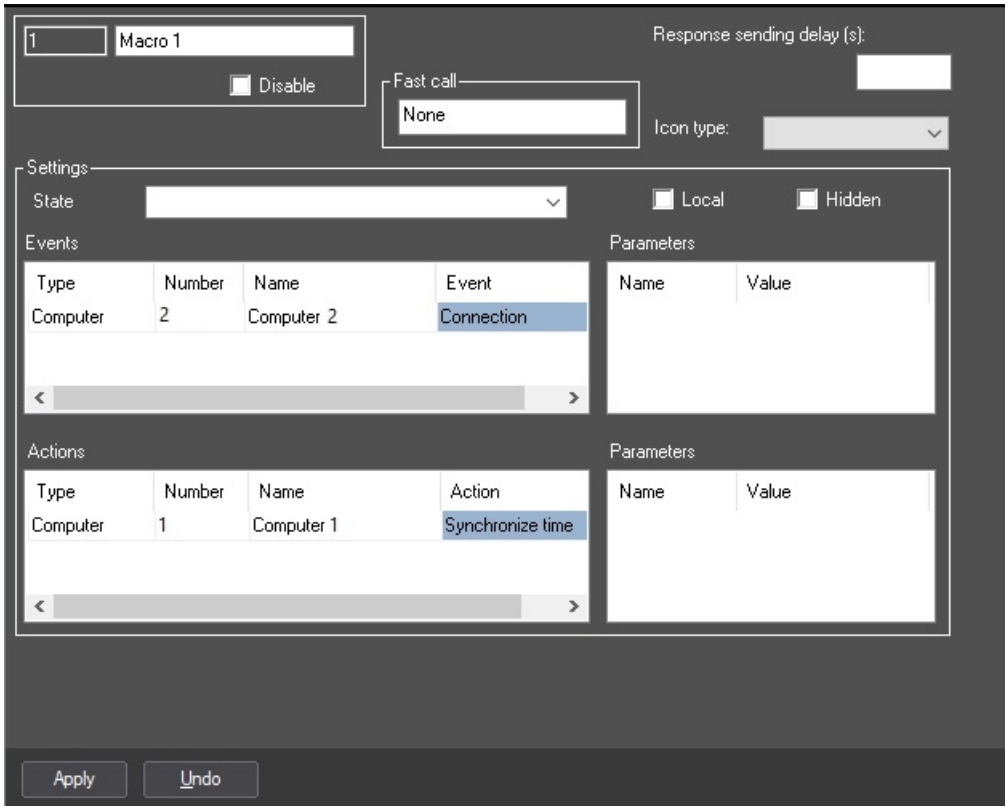
1. Set the **Synchronize time** checkbox on the settings panel of the **Computer** object corresponding to the Server that is the source of time synchronization (see The settings panel of the Computer object section).
2. Set the **Time synchronization** checkbox in the tweaki.exe utility on the Server that is the source of time synchronization (see The Settings panel of the Axxon PSIM section).

3. Create the SyncTime parameter with 1 value in the HKEY_LOCAL_MACHINE\Software\AxxonSoft\PSIM for 32-bit system (HKEY_LOCAL_MACHINE\Software\Wow6432Node\AxxonSoft\PSIM for 64-bit system) registry on the Server that is the source of time synchronization.

Time is automatically synchronized at midnight every 24 hours or when *Axxon PSIM* is started on the Server that is the source of time synchronization. Synchronization can also be started by SYNC_TIME command of the SLAVE system object (see The Script object. Programming using the JScript language).

You can run a macro if time is to be synchronized when connecting the Servers that are time receivers. The details are in the Creating and using macros section.

The example of macro that synchronizes time of all Servers in the distributed system when connecting to Computer 2 if Computer 1 is configured as the source of time synchronization:



22.2.8 Role-assignment in distributed system

If it is certain that a computer is to be used as the Client only in the distributed systems (more than 30 computers), then it is to be specified on the settings panel of the corresponding **Computer** object. In this case software operation will be optimized.

Note.

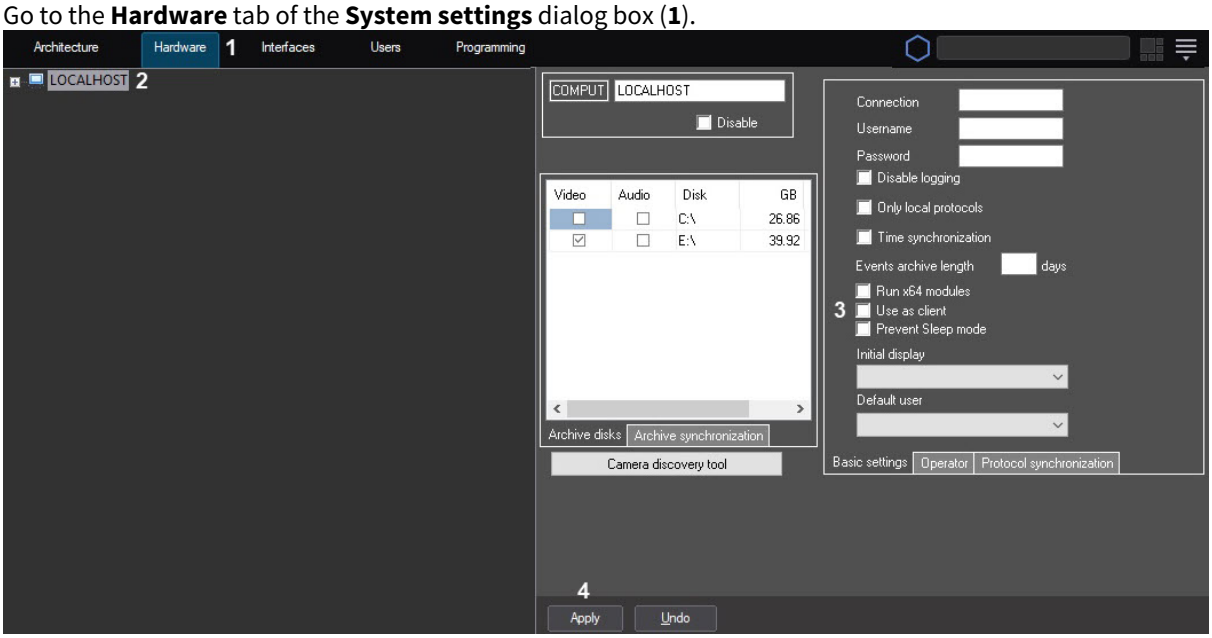
There is no need to use this setting in the smaller distributed systems.

Important!

If the computer is in use as Server/RAW and it is set to be used as the Client, then the distributed system will not operate correctly.

Role-assignment is performed as follows:

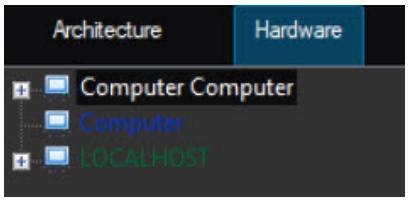
1. Go to the **Hardware** tab of the **System settings** dialog box (**1**).



2. Select the **Computer** corresponding to the Client (**2**).
3. Set the **Use as client** checkbox checked (**3**).
4. Click the **Apply** button (**4**).

The role of the computer in a distributed system is displayed in color in the object tree:

- The current Server operated locally is highlighted in **green**.
- The Clients are highlighted in **blue**.
- The other remote Servers in the system are highlighted in **black**.



The role is now assigned to the computer in the distributed system.

Requirements for TCP/IP Network
Operations using the client

22.2.9 Features of distributed system operation using NAT

If the distributed system is built on the basis of a network in which Servers and/or Clients are behind NAT, then it is recommended to use VPN technology for the operation of such system. However, this is not a requirement: the distributed architecture may be configured in the usual way as described in Configuring the interaction of distributed system components. In this case, make sure to specify Server external IP address for Client-to-Server connection and do not specify the Client IP address.

When you configure NAT the ports that are used by started Axxon PSIM™ modules are to be opened — see The list of TCP ports used in Axxon PSIM™ section. Moreover the ports that are used by MS SQL Server for database synchronization are to be opened.

Note.

By default MS SQL Server uses 1433 TCP port and 1434 UDP port.

If an ONVIF IP-camera is behind NAT, then proper operation of this camera is not guaranteed. This limitation is due to the special features of the ONVIF protocol.

22.3 Configuration of hardware

22.3.1 Configuring the use of 64-bit modules

In *Axxon PSIM,* you can use modules specialized for working in 32-bit and 64-bit operating systems. The video.run, vmdadb.run and vmsscript.exe modules, codecs, part of IP cameras and video capture card drivers, and Operator protocol are migrated to the 64-bit platform.

Modules specialized for working in the 64-bit system allow removing the restrictions on the number of connected and simultaneously displayed video channels in *Axxon PSIM*. The use of 64-bit modules allows the system performance improvement up to 10% compared with 32-bit modules.

The 64-bit version of the **Scene** object (see Configuring object's panoramic view by means of the Scene object) isn't available in *Axxon PSIM*. Some modules of the vertical solutions don't support 64-bit mode, while others, on the contrary, only support 64-bit mode. For more information, see the documentation for the corresponding vertical solution in the documentation repository here.

By default, 64-bit modules are loaded in *Axxon PSIM*, and if they are not available, the corresponding 32-bit modules are started.

Attention!

If two detectors of *DetectorPack* are created in the configuration and one supports 32-bit operation while the other supports only 64-bit operation, then the detection module starts in 32-bit mode, and the 64-bit detector won't operate (similarly for other vertical solutions within the same module).

We recommend using 64-bit modules in the following cases:

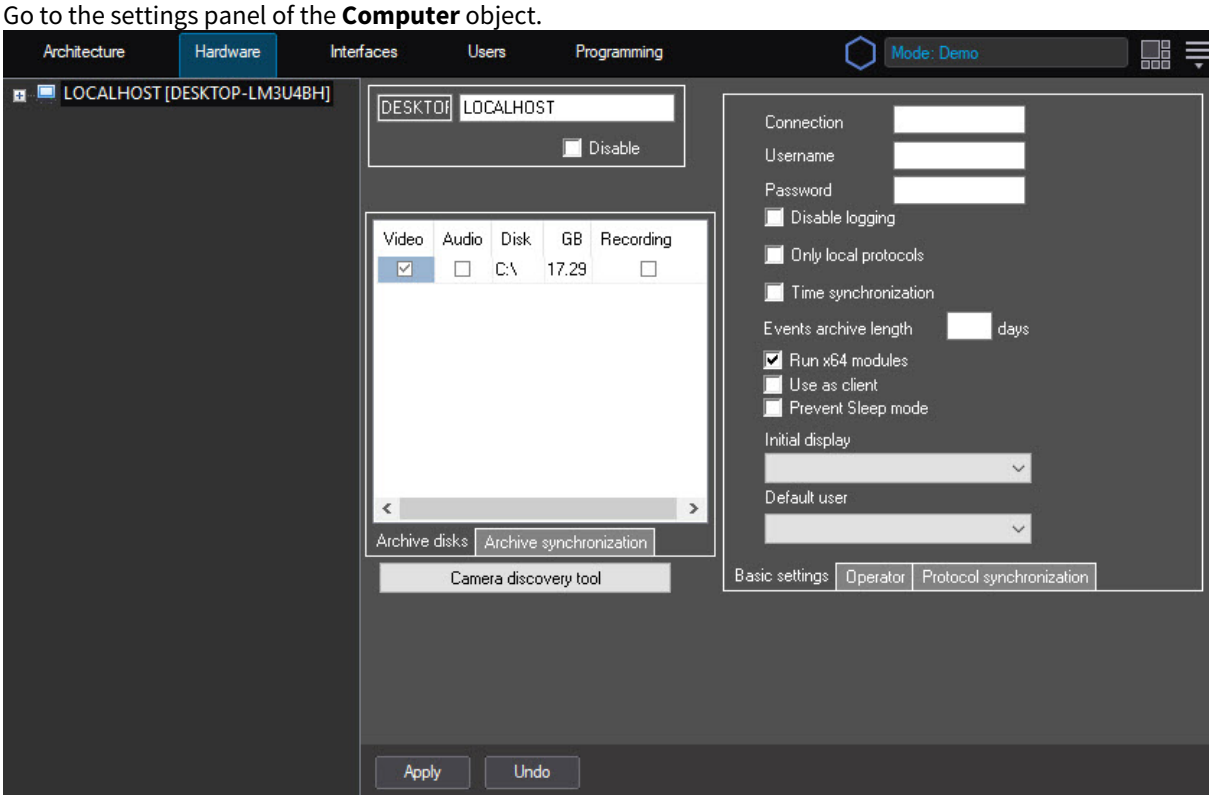
1. When you want to display a large number of cameras simultaneously (over 100 cameras).
2. When you want to display a large number of cameras in ultra-high resolution (over 50 cameras with 5 MP resolution in format without partial unpacking).
3. When you want to use a large number of channels of smart detectors with search (over 25 **Tracker** objects on the server when video resolution is higher than 800x600).

Note

There is no 64-bit decoder for WS7 and WS17 cards with hardware compression. So video from these cards isn't displayed on the remote client when you use 64-bit modules.

To run 64-bit modules, do the following:

1. Go to the settings panel of the **Computer** object.



2. Set the **Run x64 modules** checkbox.
3. Click the **Apply** button.
4. Restart *Axxon PSIM*.

As a result, modules specialized for 64-bit operating systems are loaded. If a 64-bit module isn't found, the corresponding 32-bit module is started.

Configuring the use of 64-bit modules is complete.

22.3.2 Configuring video subsystem

General information on configuring video subsystem

Video subsystem components description

In the video surveillance systems based on *Axxon PSIM,* the video subsystem is the set of software modules and hardware devices used to receive, transmit, digitize, process, record and display video signals from video surveillance system cameras on monitor screens.

Video subsystem hardware includes:

1. video capture cards;
2. analog video camera (cameras);
3. IP devices.

Video subsystem software includes:

1. components for configuring the video capture cards.
2. components for digitized video signal compression and decompression.
3. components for digitized video signal recording.

4. components for digitized video signal transmission to Remote workstations.
5. components for displaying video signal on the monitor.

Installing security system components
Configuring video capture cards in Axxon PSIM™ software
Configuring IP devices
Hardware integrated into Axxon PSIM

Configuring video capture cards

Video capture cards are configured in the course of Axxon PSIM™ software administering. Video capture cards are configured by video signal digitization and processing settings, which comply with:

1. signal format (PAL or NTSC);
2. frame rate;
3. frame resolution;
4. brightness;
5. contrast;
6. color depth;
7. color rendition format.

Each camera has its individual video signal processing and digitization settings (except for the signal format, which is set for all cameras, and is attached to the same ADC).

Note.

In multistream mode (see Configuring the multistream video) settings of signal format parameters (PAL or NTSC), frames frequency, frame resolution is performed for each video stream separately on the **Camera** object's settings panel on the **Video stream** tab (see the The settings panel of the Camera object section).

Moreover, configuring the video grabber involves setting up a proper switching of the video input channels.

Configuring video capture cards in Axxon PSIM™ software
Configuring the video signals processing mode while using video capture cards and analog video cameras

Configuring IP-devices

IP-devices are configured via the web server or any other software, supplied together with the device, and via Axxon PSIM™ software.

Video signal compression and processing settings (format, frame rate, frame resolution, brightness, contrast, color depth, color rendition format) are performed via the web server or any other software, supplied together with the device.

The Axxon PSIM™ software system receives the image, processes it with detectors, records the video signals from IP-devices and transfers it to the Remote Client.

Be sure before using an IP-device that processing and digitization settings of IP-devices (especially codecs), set via the web server, are supported by Axxon PSIM™ software. For actual information on IP-device compatibility, see the "Integration" section on the site of AxxonSoft company: https://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php

Requirements for IP devices
Configuring IP devices

Compressing and decompressing a video signal

Software video compression is a software processing of a digital video stream in order to reduce its size. Compression is performed according to a specific software algorithm.

Axxon PSIM uses a specially developed MotionWavelet algorithm to compress video signals received from video capture cards. This algorithm allows reducing video stream size by tens of times (from 5 to 30 times, depending on the video signal features and compression rate).

Video signals from IP devices are compressed using algorithms developed by the manufacturers of these devices or standard algorithms (for example, MPEG4).

When the size of the video stream reduces after compression, the quality of the video stream reduces as well. That is why *Axxon PSIM* compresses the video signal in two modes only: in recording to disk mode and transmitting to the Remote Workstation mode. The video signal isn't compressed before being displayed on the monitor installed on the Server.

Before the compressed video signal is displayed on the monitor, it is decompressed beforehand. Decompression is automatically performed when video signals are displayed (both in real time and when playing back video recordings from the Server archive) at Remote Workstations and when video recordings are played back on the Server.

If video resolution on the Monitor is less than the resolution of the compressed video signal, *Axxon PSIM* partly decompresses the video signal, which reduces the load on the CPU of the decompressing computer. The network load is reduced only when you use MotionWavelet codec, for other codecs it isn't reduced. Partial decompression is possible when you use MPEG4, MJPEG, MXPEG, Motion Wavelet, H264svc, JPEG2000 codecs. Partial decompression isn't supported for H263, H264avc, and Mpeg2 codecs. Only FPS reduction is supported for H264svc-t codec.

Description of the used decompressors is given in the table:

Decompressor	**Description**
FfmpegAllInOneDecoder	A module with a set of Ffmpeg library decoders (with an open source code). It allows converting multimedia data compressed by MxPEG, MPEG2, MPEG4 and Motion JPEG codecs
H264InterlacedIppDecoder H264IppDecoder MPEG2IppDecoder MJPEGIppDecoder MPEG4IppDecoder	Decompressors included into the Intel Integrated Performance Primitives (Intel IPP) library. A compression format is specified in the decompressor name
H264SvcEx	A decompressor for converting video signals in H264Svc format received from Stretch devices into H264Avc format
H264SvcTex	A decompressor for converting video signals in H264Svc-t format received from VIVOTEC devices into H264Avc format
MxPEG Mobotix	A decompressor for converting video signals received from Mobotix devices

Decompressor	Description
Motion Wavelet 7.1	A decompressor for wavelet-converting video signals
BOSCH	A decompressor for converting video signals received from BOSCH devices
Intel Quick Sync	A decompressor based on QuickSync technology that decodes H.264 video in hardware using Intel's embedded graphics processor, thus significantly reducing CPU load. To enable operation of this decompressor, you must enable the embedded graphics card in BIOS and install the latest Intel drivers. The maximum resolution differs depending on Intel Quick Sync version, for more information, see https://www.intel.com/
Nvidia decoder	A decompressor for converting video signals using the GPU of the video card, which reduces the load on the Server CPU

Note

When you use decompressors included in the Intel IPP library, video image defects can occur at some resolutions. In such cases, we recommend using video resolution divisible by 16 (for example, 1280x720 or 1360x768) or selecting another decompressor.

Compression and decompression algorithms are specified on the settings panel of the **Camera** object using the **Compressor** and **Decompressor** list, respectively (see The settings panel of the Camera object), or on the **List of cameras** tab on the settings panle of the **Monitor** object (see Selecting and configuring video cameras and Selecting and configuring video cameras in bulk). The decompression algorithm specified in the camera settings is used when a video signal is displayed on a video surveillance monitor and for detectors operation.

Attention!

By default, you cannot select compression and decompression algorithms, and **Compressor** and **Decompressor** drop-down lists aren't available for editing. To enable this feature, set the **1** value for the **EnableCodecSettings** registry parameter (see Registry keys reference guide).

Note

In the multistream mode (see Configuring the multistream video), you can select the codec and configure the video signal quality separately for each video stream on the settings panel of the **Camera** object on the **Video stream** tab.

If you don't select the compressor/decompressor (default value) on the settings panel of the **Camera** object or select the inapplicable one, *Axxon PSIM* automatically selects the first compressor/decompressor in alphabetical order. If it is also inapplicable, the next compressor/decompressor in alphabetical order is selected, and so on, until an applicable one is selected.

Note

When you use WS7 and WS17 video capture cards, we recommend leaving the **Decompressor** field blank, or using Motion Wavelet decompressor. If you select another decompressor, then *Axxon PSIM* operation isn't guaranteed.

Attention!

If you are not satisfied with the automatic decompressor selection, you must select a suitable decompressor yourself.

Enabling the PureVideo/CUDA hardware acceleration

On the page:

- General information about the PureVideo/CUDA hardware acceleration
- Limitations of using the PureVideo/CUDA hardware acceleration
- Enabling PureVideo/CUDA in the settings of the Camera object

General information about the PureVideo/CUDA hardware acceleration

You can enable the PureVideo/CUDA hardware acceleration when video signals from IP devices are decompressed. In this case, the GPU of the video card can perform decompression, which reduces the load on the server CPU.

Note

For more information about the PureVideo/CUDA hardware acceleration, see the official NVIDIA reference documentation.

Limitations of using the PureVideo/CUDA hardware acceleration

1. Use Windows 10 and later, which operates with NVIDIA GPUs, as well as related libraries and drivers, such as the CUDA Toolkit and NVIDIA Video Codec SDK.
2. Video card with NVDEC hardware decoding support is installed.

Attention!

- CUDA is compatible with generations of computers on architectures: Kepler (partially), Maxwell, Pascal, Volta, Turing, Ampere, and Ada Lovelace (partially) (see CUDA).

- You can check the version of your GPU Compute Capability on the manufacturer's website.
- When you use the NVIDIA GPU, we recommend installing the latest driver version from the official website.

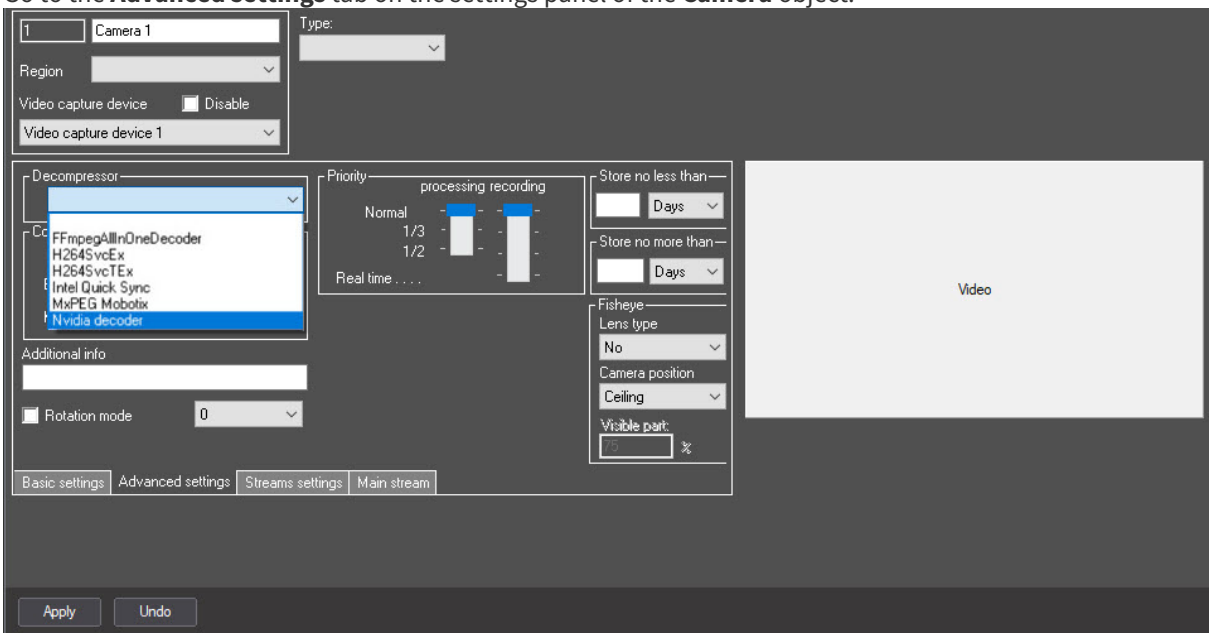
3. You can use it only for one video card.
4. You can use it for decompression of live video on the client.
5. You can use it for decompression of video signals with H.264 and H.265 compression formats.
6. You can use it for decompression at any resolution of the camera.

You can enable the PureVideo/CUDA hardware acceleration on the settings panel of the **Camera** object or on the settings panel of the **Monitor** object on the **List of cameras** tab (see Selecting and configuring video cameras and Selecting and configuring video cameras in bulk).

Enabling PureVideo/CUDA in the settings of the Camera object

To enable the PureVideo/CUDA hardware acceleration in the settings of the **Camera** object, do the following:

1. Shutdown *Axxon PSIM* if it is running on the computer.
2. Set the **1** value for the **EnableCodecSettings** registry key (see Registry keys reference guide. For more information on working with the registry, see Working with Windows OS registry). The key opens the **Decompressor** and **Compressor** settings for editing.
3. Go to the **Advanced settings** tab on the settings panel of the **Camera** object.



4. From the **Decompressor** drop-down list, select the **Nvidia decoder** value.
5. Click the **Apply** button.
6. Restart *Axxon PSIM*.

Enabling The PureVideo/CUDA hardware acceleration is complete.

How to record digitized video signals

Video signals archiving provides post-event analysis of evidence footage.

The archive is located on the local disks of the videoserver. Having reached the end of the archive disk volume, the archive is overwritten.

Before archiving on the videoserver, the video signal is compressed. It is compressed to reduce the size of the video recordings.

Axxon PSIM™ software is capable of auto recording, initiated by cameras (Main detectors) and detectors alarm detection or by Operator command.

Pre-event, post-event, and Hot (higher frame rate) recording can be performed to make post-event analysis of evidence footage more effective.

Configuring video archiving

Digital video signal transmission to Remote Workstations

Axxon PSIM software provides video surveillance from Remote Workstations based on:

1. A PC (IBM PC–based) personal computer, connected to the videoserver via local TCP/IP net;
2. An IBM PC, connected to the videoserver via the “web server” module by HTTP protocol;
3. Mobile device on the basis of iOS or Android connected to the videoserver with the help of mobile client.

Both real-time and archive video signals may be transmitted to Remote Workstations. Prior to being transmitted to a Remote Workstation, video signals are compressed.

Configuring video transmission to Remote Workstations

Video signal display

Video signals are displayed using the **Video Surveillance Monitor** interface object. The Video monitor is especially used to display video signals, received from cameras, and to play back the video recordings.

The video monitor has several options: detectors, PTZ units and microphones control, image processing and exporting.

Different video monitors are used with different video signal transmission modes:

1. Video server surveillance Monitor.
2. Video surveillance Monitor of the Remote Workstation, connected to the videoserver via the TCP/IP net, identical to the videoserver surveillance Monitor.
3. Video monitor of the web server, depicted in web browsers on Remote Workstations, connected to the videoserver via the web server module by HTTP protocol.
4. Video monitor of the mobile client based on iOS or Android operation system.

The above video surveillance monitors have different components and functions. Any video monitor can be set up to display real-time video and play back archive footage.

Configuring video display on Video Surveillance Monitor

Registrating Video Capture Devices and cameras in Axxon PSIM™ software

To configure video subsystem in Axxon PSIM™ software, create the **Video Capture Device** objects on the base of which the **Camera** objects are created (see Installing and configuring security system components guide).

Configuring the video signals processing mode while using video capture cards and analog video cameras

Setting up format (PAL or NTSC) for the input analog video signal

Different digitization and processing algorithms are used with different input video signal formats. The input signal format is individually set for ADC of every video capture card. Any single ADC processes and digitizes single format signals only: either PAL or NTSC.

In Axxon PSIM™ all ADCs of video capture cards by default are set to digitize video signal in PAL format.

Note.

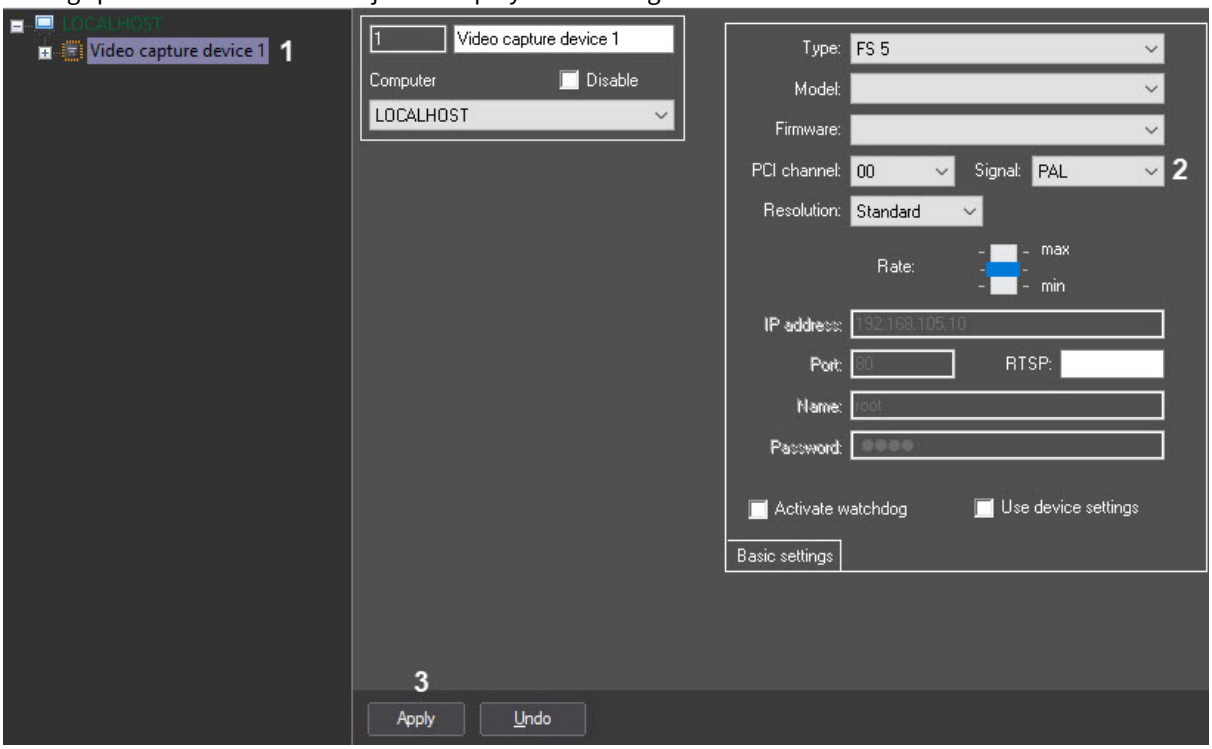
While using Stretch VRC6004, VRC 6008, VRC 6416, VRC 7008L and VRC 6404HD video capture cards, the input video signal (PAL or NTSC) is selected automatically depending on cameras, connected to the card. Changing the parameter does not affect the card workability.

Note.

While using SL16-200 (FX116) and FX416 video capture cards, restart Axxon PSIM™ software after changing the format of video input. Otherwise the initial settings will be active.

To set the ADC of a video capture card to digitize and process video signal in NTSC format, do the following:

1. Go to the **Hardware** tab in the **System Settings** dialog box.
2. In the objects tree of the **Hardware** tab, select the **Video Capture Device** object, created before (**1**). The settings panel for the selected object is displayed on the right of the **Hardware** tab.



3. In the **Signal** drop-down list, select the **NTSC** value (**2**).
4. Click the **Apply** button (**3**).

The input video signal format is now selected.

Frame rate settings

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- Frame rate setup procedure
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- Actual frame rate
- Changing frame decimation
- Allocation of video capture card's resources
- Video signal processing priorities
- Setting video processing priority
- Setting video recording priority

Video capture card resources

By default, the resources of the video capture card used to process and digitize video signals are uniformly distributed between cameras. The frame rate of the digitized video signal is limited by the ADC resources for video signal processing and digitization.

Axxon PSIM software package components that are used for configuring video capture cards can give additional ADC resources to one or more cameras and thus increase the frame rate of the video signal from these cameras. At the same time, the frame rate of the video signal from other cameras decreases.

The joint use of *Axxon PSIM* and video capture cards provides the following options for reallocating video capture card resources between cameras:

Option 1. Reallocation of cameras between ADCs of a video capture card.

ADC resources are generally characterized by the maximum allowable total frame rate of video signals. By default, ADC resources are uniformly distributed between cameras, which are processed and digitized by this ADC. Thus, the more video signals from cameras are digitized and processed by the ADC, the lower the frame rate of each digitized video signal.

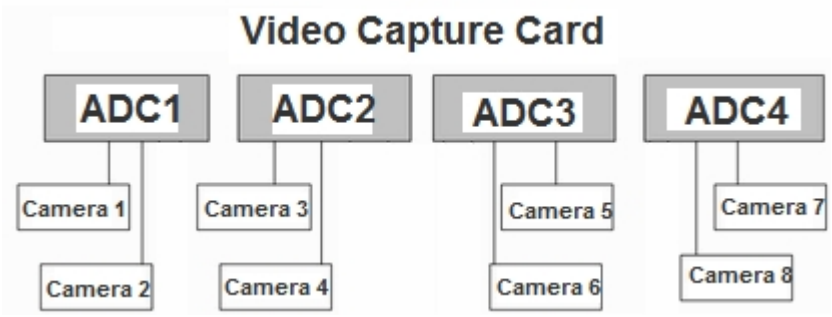
Reallocation of cameras between ADCs allows increasing the frame rate for some cameras by means of decreasing it for others.

If all allowable cameras are connected to a video capture card, then only uniform distribution on ADC is possible. In this case, every ADC of a video capture card digitizes and processes video signals from an equal number of cameras.

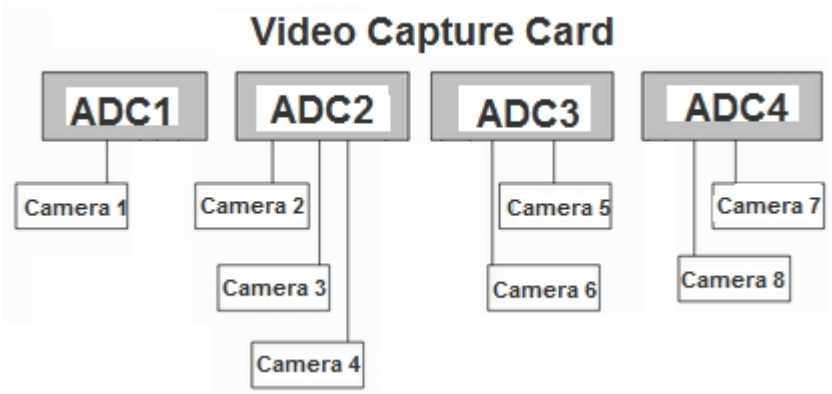
Thus, the maximum allowable frame rate is the same for all video signals (except for video signals of different formats and different frame resolutions).

If the number of cameras connected to a video capture card is less than their maximum number, then you can reallocate them between ADCs of a video capture card. For this, those cameras whose frame rate you want to increase are allocated separately to one ADC or allocated in a number that is less than the maximum allowable one. Cameras allocated to a given ADC that aren't subject to strict frame rate requirements are reallocated to other ADCs.

An example of allocating cameras to ADCs is shown in the figure.



A. Uniform camera allocation between ADCs



B. reallocating the cameras between ADCs to allocate additional resources to Camera1

Option 2. Reallocation of resources of one ADC between cameras, video signals of which are processed and digitized by one ADC.

By default, the ADC resources are uniformly distributed between cameras, video signals of which are digitized and processed by this ADC.

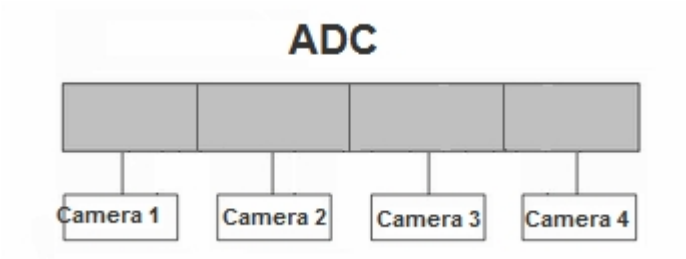
Reallocation of cameras between ADCs allows increasing the frame rate for some cameras by means of decreasing it for others. Reallocation of resources of one ADC to the cameras is much less effective than reallocation of cameras between the ADC. Therefore, you must do this only if camera reallocation to the ADC is impossible or if it doesn't help.

To reallocate resources of one ADC between cameras, give one of the cameras additional ADC resources for its video signal processing and digitization. You can give additional ADC resources by removing them from other cameras' video signals, which are processed by this ADC.

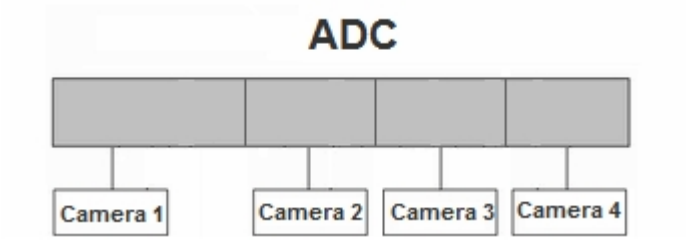
Thus, within one ADC, you can increase the frame rate of a video signal from one camera only when you decrease the frame rate of a video signal from other cameras.

To do this, place the selected camera in the priority process queue.

An example of the reallocation of resources of one ADC between cameras is shown in the figure below.



A. Uniform camera allocation between ADCs



B. reallocating the cameras between ADCs to allocate additional resources to Camera1

Operation modes of the video capture cards' ADC

ADC operation mode is determined by the number of processed and digitized video signals. There are two modes:

1. Live video.
2. Multiplexing.

In the Live video mode, all resources of an ADC are used to process only one video signal. This mode provides a digital video stream with a maximum frame rate of 25 FPS in PAL format and 30 FPS in NTSC format.

If the ADC processes two or more video signals, its resources are used in the multiplexing mode. Then the ADC resources are uniformly allocated between the cameras, and in addition to video signal processing, part of its resources support the multiplexing process. Thus, in the multiplex mode, the total frame rate of video signals digitized by a single ADC is much lower than in the **Live video** mode.

The maximum allowable total frame rate in the multiplexing mode depends on the frame resolution of video signals.

For ADC, which digitizes all video signals with standard (352 x 288 pixels in PAL format, 352 x 240 pixels in NTSC format) and/or high (704 x 288 pixels in PAL format, 640 x 240 pixels in NTSC format) frame resolution, the total frame rate is 16 FPS in PAL format and 20 FPS in NTSC format.

If ADC digitizes at least one of the video signals with full resolution (704 x 576 pixels in PAL format, 640 x 480 pixels in NTSC format), the maximum allowable total frame rate reduces to 12 FPS in PAL format and 15 FPS in NTSC format.

Frame rate setup procedure

With default settings, you can receive digitized video signals with frame rates of 2 FPS in PAL format and 2.5 FPS in NTSC format.

During setup, you can increase and reduce the frame rate.

To set up the frame rate, do the following:

1. Switch off the **Camera** objects that correspond to the idle video channels. This allows allocating the resources between working cameras only, thus increasing the frame rate of their video signals.

2. Change frame grooming.
3. Reallocate cameras on the ADC of the video capture card.
4. Reallocate resources of one ADC between cameras (priority process queues).

In most cases, 1 and 2 setting steps are sufficient to set the frame rate. 3 and 4 setting steps are necessary only with high frame rate requirements for one or more cameras.

Configuring video subsystem with disabled video channels

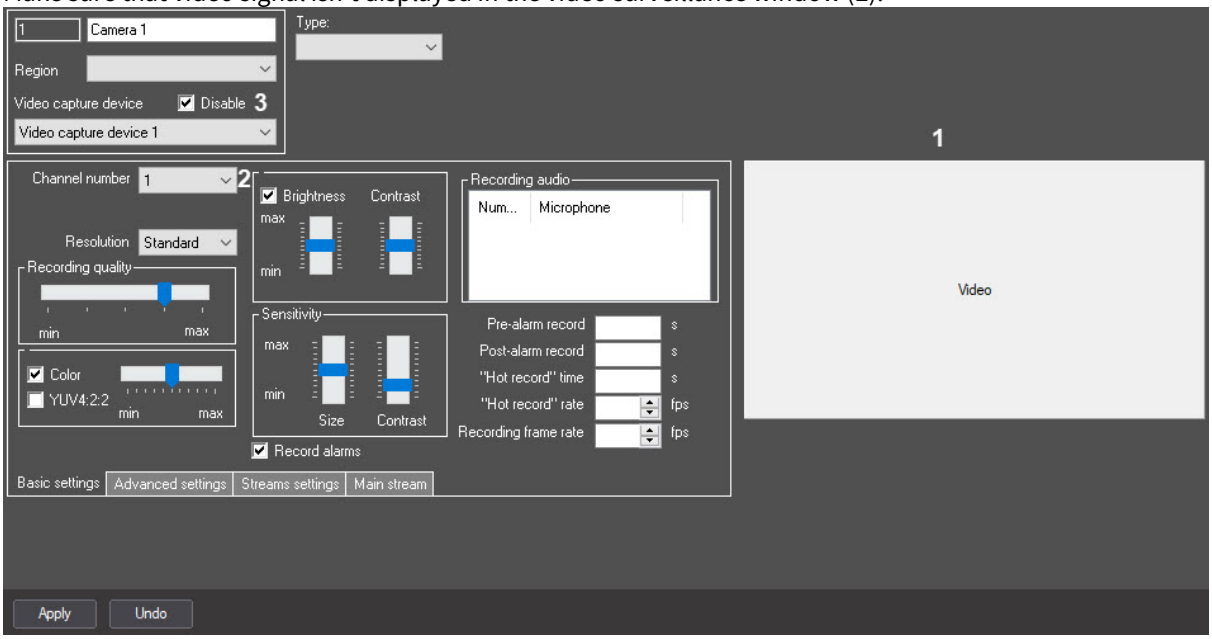
By default, resources of video capture cards' ADC are allocated uniformly between all video channels, whether there is any signal passing through it or not. Thus, even if a video channel has no signal, the resources of ADC are allocated to each video channel.

To prevent allocation of ADC resources for digitization and processing of idle video channels, you must disable the **Camera** objects that correspond to these channels in *Axxon PSIM*.

Disable several **Camera** objects in turn for each object.

To disable the **Camera** objects that correspond to the idle video channels in *Axxon PSIM*, do the following:

1. Determine the numbers of the idle video capture channels (taking into account BNC plug numbering).
2. Go to the **Hardware** tab in the **System settings** window.
3. In the object tree on the **Hardware** tab, select the **Camera** object created before, with the same channel number as the BNC plug (idle channel). The settings panel for the selected object is displayed on the right of the **Hardware** tab.
4. Make sure that video signal isn't displayed in the video surveillance window (**1**).



   The display of the video signal in the video field indicates that the **Camera** object matches another video channel.
5. Specify the number of the video channel in the **Channel number** drop-down list on the **Basic settings** tab (**2**). Match the **Camera** object with the channel number, which corresponds to the BNC plug number and the **Camera** object number, or scan for a **Camera** object matched with the required channel number.
6. Set the **Disable** checkbox (**3**).
7. Click the **Apply** button.

The disabled **Camera** object is indicated with a cross mark.



Configuration of the video subsystem with disabled video channels is complete.

Actual frame rate

We recommend determining the actual frame rate of video signal digitization and then setting up the frame rate for video signals from video surveillance system cameras.

You must perform frame rate setup if frame rates of video signals from one or more cameras don't meet the requirements.

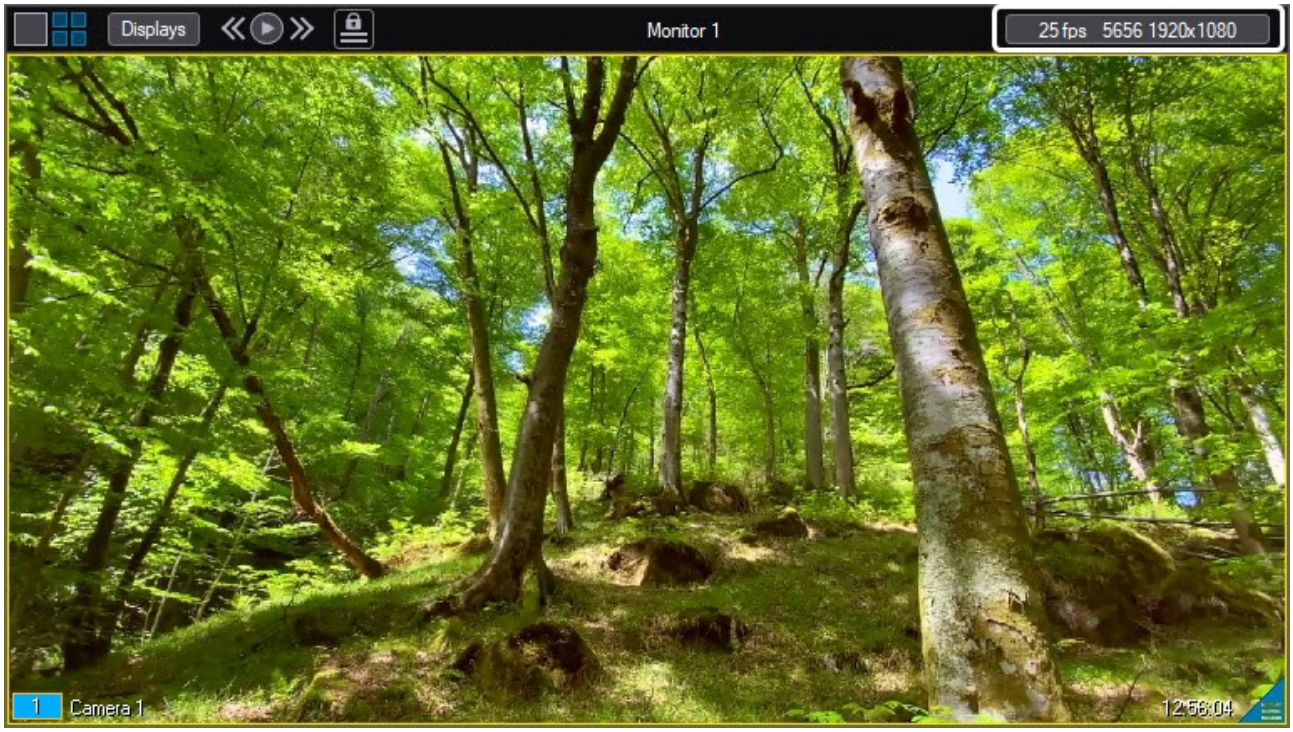
Actual frame rates are determined for each camera individually.

To specify the actual frame rate for a selected camera, do the following:

1. Configure the **Video surveillance monitor** (see Configuring video display on Video Surveillance Monitor);
2. Enable the **Debug mode** in *Axxon PSIM* using the tweaki.exe utility (see Tweaki.exe utility for advanced setup of the Axxon PSIM software system, The Settings panel of the Axxon PSIM section).

As a result, the current frame rates of the digitized video signals are displayed directly in the **Video surveillance monitor**. To get information about the frame rate of the video signal from the selected camera, display the **Surveillance window** corresponding to the selected camera in the **Video surveillance monitor** and activate this window by clicking it with the left mouse button. A window with video signal information is displayed in the upper right corner:

- video stream frame rate (FPS);
- size of the displayed frame in bytes (you can use this parameter, for example, to understand whether the displayed frame is a key frame or to calculate the average bitrate);
- video stream resolution in pixels.



Note that this information window displays initial data about the video stream from the camera or from the archive transmitted to the **Video surveillance monitor**. The actual displayed frame rate of the video stream can be different, see Displaying information about a video stream on top of a video.

Note

For the Stretch video cards of standard compression (h264), the frame rate that is displayed on the Monitor in *Axxon PSIM* can be less than the frame rate that is indicated by the video card manufacturer. This is due to the fact that while displaying the frame rate of video signal digitization on the Monitor in *Axxon PSIM* blank frames that are distributed by the video card aren't taken into account. Blank frames don't contain the information about the image and are created by the video capture card when there are no changes in the video stream and a new video frame is the same as the previous one (for example, there is no motion in the frame).

Changing frame decimation

By default, *Axxon PSIM* digitizes video signals with the frame rate lower than the maximum allowed one. This is caused by the following:

1. Video signal processing and digitization with a high frame rate is a resource-intensive process. When the video signal frame rate increases, configuration requirements increase for the computer used as a server.
2. Video signal is transmitted to the Remote Workplaces with the same frame rate as it is digitized. Thus, network capacity requirements increase along with the frame rate increase.

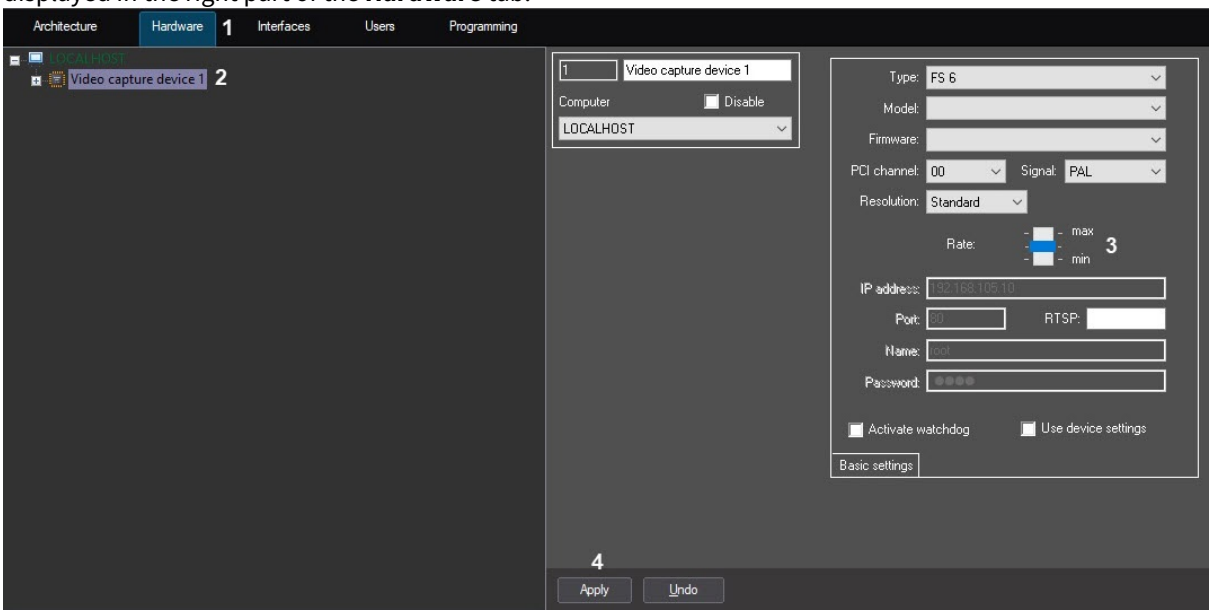
By default, the total frame rate of video signals, which are digitized and processed by the same ADC, is two times lower than the maximum allowed one. This ratio is supported by frame decimation, which provides every second frame for further processing by the functional modules of the *Axxon PSIM*.

You can reduce (total frame rate increases) or increase (total frame rate decreases) the decimation.

Frame decimation is changed separately and independently for every ADC.

To change the decimation of ADC video signals, do the following:

1. Go to the **Hardware** tab in the **System settings** window (**1**).
2. In the objects tree on the **Hardware** tab, select the **Video capture device** object created before that corresponds to the configured ADC of the video capture card (**2**). The settings panel for the selected object is displayed in the right part of the **Hardware** tab.



3. If it is necessary to increase the total frame rate up to the maximum allowed value, move the **Rate** slider to the **max** position (**3**).
4. If it is necessary to reduce the total frame rate to the minimum allowed value, move the **Rate** slider to the **min** position. The minimum total frame rate of video signals, digitized and processed by a selected ADC, is three times lower than the maximum allowed one.
5. If it is necessary to return the default decimation settings, move the **Rate** slider to the middle position. The default total frame rate is two times lower than the maximum allowed one.
6. Click the **Apply** button (**4**).
7. Close the **System settings** window and restart *Axxon PSIM*.

Note

Without a restart, changes in video signal decimation can be applied incorrectly.

Allocation of video capture card's resources

By default, all cameras are uniformly allocated to the ADC of the video capture card. Thus, ADC resources are uniformly distributed between cameras connected to the video capture card, and all cameras have the same frame rate of the digitized video signal.

If the number of cameras connected to a video capture card is less than their maximum allowed number, you can reallocate them between different ADCs of the video capture card. This allows increasing the frame rate for some cameras by means of decreasing the same frame rate value for other cameras.

Before reallocating cameras between ADCs of the video capture card, disable the **Camera** objects corresponding to disabled cameras (see Configuring video subsystem with disabled video channels section).

Note

> Video inputs numeration of the SC300Q16 (FX4) and SC300D16 (FX8) video capture cards doesn't correspond to the numeration of PCI channels in *Axxon PSIM*. It is impossible to allocate video inputs to chips one after another (that is, the first corresponds to 1 and 2 chips, the second upper input corresponds to 3 and 4, and so on) because the OS determines it.

To increase the frame rate of the video signal from one or more cameras, do the following:

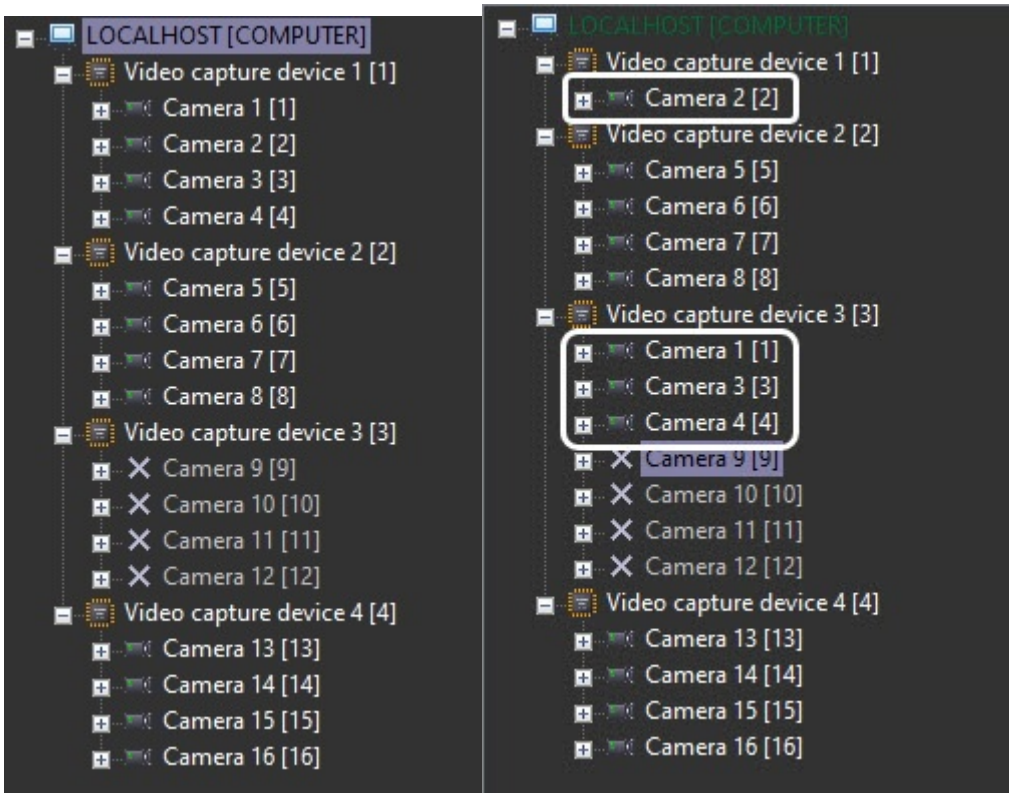
1. Go to the **Hardware** tab in the **System settings** window.
2. In the objects tree on the **Hardware** tab, select the **Camera** object created before, corresponding to the camera whose frame rate you want to increase. The settings panel for the selected object is displayed on the right of the **Hardware** tab.
3. If you want to increase the frame rate of a camera up to the Real time rate (25 FPS in PAL format and 30 FPS in NTSC format), reallocate other cameras, the video signals of which are digitized by the same ADC as for this camera, to other ADCs.

For this, move the **Camera** objects to the parent branches of other **Video capture device** objects. You can set the parent **Video capture device** object for the **Camera** object by selecting the number of the parent object in the **Video capture device** list of the **Camera** object settings panel. As a result, the **Camera** object moves to the child branch of the set **Video capture device** object in the objects tree.

Example 1. Configuring video signal digitization with the Real time frame rate.

Task. Video signal on Camera 2 must be digitized with the Real time frame rate.

Initial data. The card has four ADCs. They are matched to four **Video capture device** objects in the object tree. The video capture card may have up to 16 cameras connected to it. Eight cameras are actually connected to the video capture card. The objects matched to the remaining eight cameras are disabled. Each of the two ADCs, matched to the **Video capture device 1** and **Video capture device 2** objects, is configured to digitize the signals from four cameras. The ADCs matched to the **Video capture device 3** and **Video capture device 4** objects aren't configured to digitize signals from any cameras. An example of the object tree is given in figure A:



A. Initial data B. Result

Solution. Do the following:

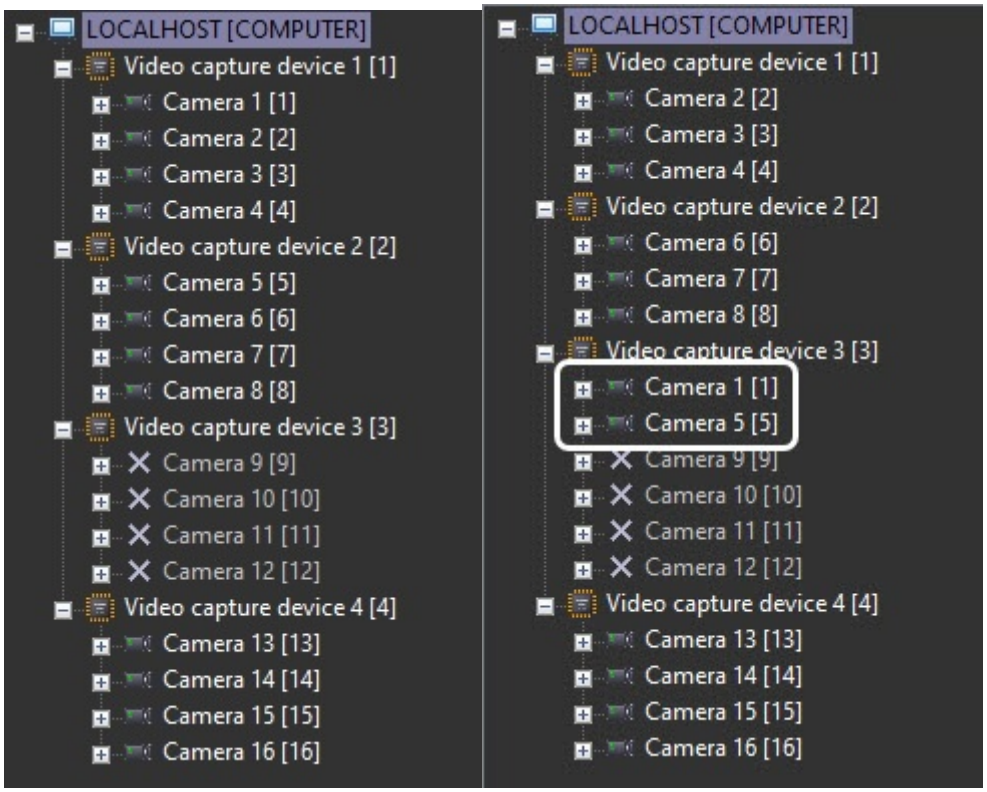
1. Select the **Camera 1** object in the objects tree. The settings panel for the selected object is displayed.
2. Select **Video capture device 3** in the **Video capture device** list.
3. Click the **Apply** button.
4. The **Camera 1** object moves to the child branch of the **Video capture device 3** object (B).
5. Repeat 1–4 steps for the **Camera 3** and **Camera 4** objects.
6. Select the **Video capture device 1** object in the objects tree.
7. Make sure that the **Rate** slider is in the max position.
   If the **Rate** slider is in the max position, then setup is completed.
   If the **Rate** slider is in another position, move it to the max position and do 8–10 steps.
8. Click the **Apply** button.
9. Close the **System settings** window and restart *Axxon PSIM*.
10. The frame rate of the selected camera increases up to the Real time rate (for information on testing the frame rate change, see Actual frame rate).
11. If the number of connected cameras doesn't allow setting up digitization of video signal from one of the cameras with the Real time rate (for example, when 15 out of 16 allowed cameras are connected) or if it is necessary to increase the frame rate of several cameras simultaneously to the rate lower than the Real time one, the allocation of cameras between ADCs is performed as follows: the cameras for which it is necessary to increase the frame rate are allocated between ADCs in the number less than the maximum allowable one. The frame rate is increased by as many times as the number of cameras on ADC is reduced.

Allocation of the video capture card's resources is complete.

Example 2. Configuring video signal digitization from two cameras with an increased frame rate

Task. Video signals on **Camera 1** and **Camera 5** must be digitized with an increased frame rate.

Initial data. The card has four ADCs. They are matched to four **Video capture device** objects in the object tree. The video capture card may have up to 16 cameras connected to it. 12 cameras are actually connected to the video capture card. The objects matched to the remaining four cameras are disabled. Each of the three ADCs, matched to the **Video capture device 1**, **Video capture device 2**, and **Video capture device 4** objects, is configured to digitize the signals from four cameras. The ADC, matched to the **Video capture device 3** object, isn't configured to digitize the signals from any camera. An example of the object tree is given in figure A.



A. Initial data B. Result

Solution. Do the following:

1. Select the **Camera 1** object in the objects tree. The settings panel for the selected object is displayed.
2. Select the **Video capture device 3** value from the **Video capture device** list.
3. Click the **Apply** button.
4. The **Camera 1** object moves to the child branch of the **Video capture device 3** object (B).
5. Repeat 1–4 steps for the **Camera 5** object.
6. The frame rate on **Camera 1** and **Camera 5** increases twofold (for information on testing the frame rate change, see the Actual frame rate section).
7. Click the **Apply** button.

Allocation of the video capture card's resources is complete.

> **Note**
>
> Ways of resource allocation (given in examples) aren't used for the SC200Q4 (FS15)\SC200Q4 LOW PROFILE (FS115)\SC300Q16 (FX4)\SC300D16 (FX8) video capture cards because for these cards the numbers of PCI channels (specified in settings of the **Video capture device** objects) are connected with physical inputs (BNC connectors).

Video signal processing priorities

By default, the ADC resources are uniformly distributed between cameras, video signals of which are digitized and processed by this ADC.

Reallocation of cameras between ADCs allows increasing the frame rate for some cameras by means of decreasing it for others. Reallocation of resources of one ADC to the cameras is much less effective than reallocation of cameras

between the ADC. Therefore, you must do this only if camera reallocation to the ADC is impossible or if it doesn't help.

To reallocate resources of one ADC between cameras, give one of the cameras additional ADC resources for its video signal processing and digitization. You can give additional ADC resources by removing them from other cameras, video signals of which are processed by the ADC.

To give a camera additional ADC resources, place it in the video signal processing queue, which has a higher priority than the other cameras.

Axxon PSIM provides 1/2 and 1/3 process queues.

When a camera has a 1/2 process queue, its video signal is processed in every second frame. Thus, the digitization frame rate on this camera is half of the total frame rate of the considered ADC.

When a camera has a 1/3 process queue, its video signal is processed in every third frame. Thus, the digitization frame rate on this camera is one-third of the total frame rate of the considered ADC.

Example 1. The ADC is configured to digitize video signals from four cameras.

If all the cameras have a common queue, the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 3, Camera 4, Camera 1, Camera 2, Camera 3…

Let us suppose that Camera 1 has a 1/2 queue, and the rest of the cameras are in the common queue. Then the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 1, Camera 3, Camera 1, Camera 4, Camera 1…

Thus, the frame rate on Camera 1 is increased by two times and becomes half of the total frame rate of the considered ADC. The frame rate of each of the remaining cameras becomes 1.5 times less and makes up 1/6 of the total frame rate of the considered ADC.

Example 2. The ADC is configured to digitize the video signals from three cameras.

If all the cameras have a common queue, the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 3, Camera 1, Camera 2, Camera 3…

Let us suppose that Camera 1 has a 1/2 queue, and the rest of the cameras are in the common queue. Then the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 1, Camera 3, Camera 1, Camera 2…

Thus, the frame rate of Camera 1 is increased by 1.5 times and becomes half of the total frame rate of the considered ADC. The frame rate of each of the remaining cameras becomes 1.33 times less and makes up 1/4 of the total frame rate of the considered ADC.

Example 3. The ADC is configured to digitize video signals from four cameras.

If all the cameras have a common queue, the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 3, Camera 4, Camera 1, Camera 2, Camera 3…

Let us suppose that Camera 1 has a 1/3 queue, and the rest of the cameras are in the common queue. Then the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 3, Camera 1, Camera 4, Camera 2, Camera 1…

Thus, the frame rate of Camera 1 is increased by 1.33 times and becomes one-third of the total frame rate of the considered ADC. The frame rate of each of the remaining cameras becomes 1.125 times less and makes up 2/9 of the total frame rate of the considered ADC.

Example 4. The ADC is configured to digitize video signals from four cameras.

If all the cameras have a common queue, the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 3, Camera 4, Camera 1, Camera 2, Camera 3…

Let us suppose that Camera 1 and Camera 2 have a 1/2 queue, and the rest of the cameras are in the common queue. Then the ADC digitizes video signals in the following sequence:

Camera 1, Camera 2, Camera 3, Camera 1, Camera 2, Camera 4, Camera 1…

Thus, the frame rate of Camera 1 is increased by 1.33 times and becomes equal to one-third of the total frame rate of the considered ADC. The frame rate of Camera 2 is also increased by 1.33 times and becomes equal to one-third of the total frame rate of the considered ADC. The frame rate of each of the remaining cameras becomes 1.5 times less and makes up 1/6 of the total frame rate of the considered ADC.

Note

If Camera 1 and Camera 2 have a 1/3 queue and Camera 3 and Camera 4 are in the common queue, then allocation of the ADC's resources is as it is shown in Example 4.
It makes no sense to enqueue one of two cameras with 1/2 priority allocated to the same ADC because this video signal from the camera is processed as if it is in the common queue.
It makes no sense to enqueue one of three cameras with 1/3 priority allocated to the same ADC because this video signal from the camera is processed as if it is in the common queue.

Reallocation of resources of one ADC between the cameras is possible in two modes:

1. In the processing mode, that is, with video signal digitization and processing prior to its display on the screen.
2. In the recording mode, with video signal digitization and processing prior to its recording into the server archive. When cameras are switched to the recording mode, video signals are displayed with the rate corresponding to the given ADC resource allocation.

Setting video processing priority

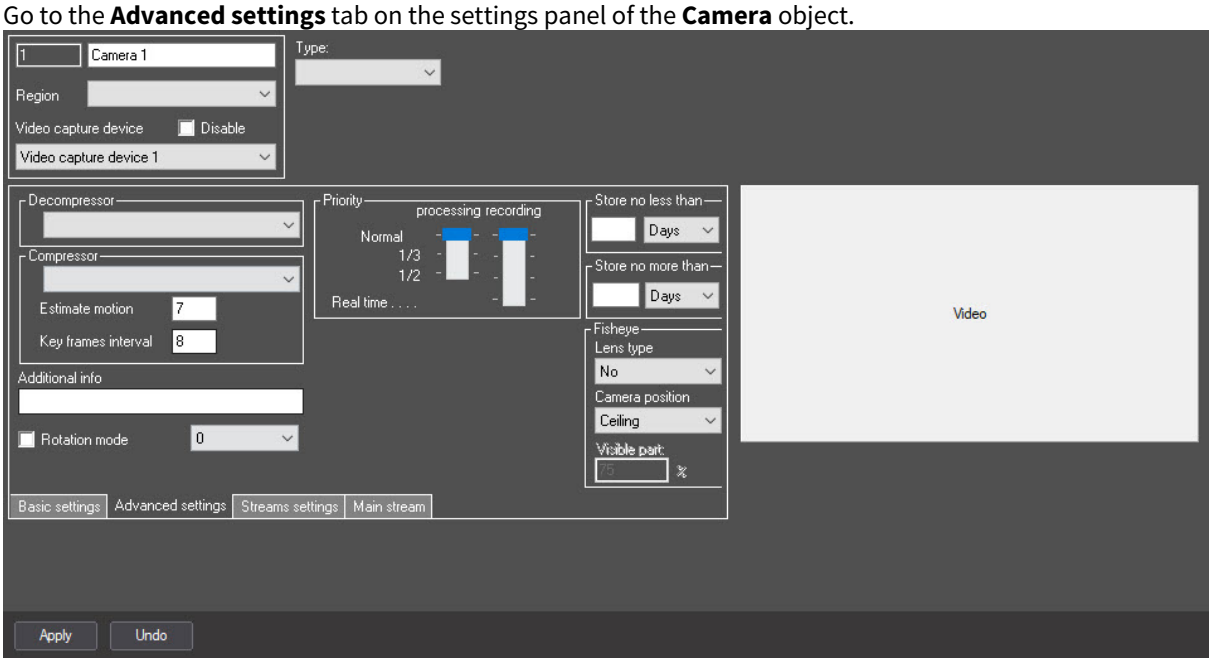
In video digitizing and processing mode, before displaying it on the screen, ADC resources are reallocated between the cameras by queueing one of the cameras with 1/2 or 1/3 priority.

This setting is relevant only for the following video capture cards: FS5, FS6, FS8, and FS16.

To change the order of processing video from the selected camera, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. In the objects tree on the **Hardware** tab, select the **Camera** object created before corresponding to the camera, the ADC video processing queue of which you want to change.

3. Go to the **Advanced settings** tab on the settings panel of the **Camera** object.



4. Set the **processing** slider in the **Priority** group to the position:
    a. **1/2** to queue the camera with 1/2 priority for ADC video processing.
    b. **1/3** to queue the camera with 1/3 priority for ADC video processing.
    c. **Normal** (default), if it is necessary to return the camera into the normal queue for ADC video processing.
5. Click the **Apply** button.

Setting video processing priority is complete.

Setting video recording priority

In video digitizing and processing mode, before recording it to the video server archive, ADC resources are reallocated between the cameras by queueing one of the cameras with 1/2, 1/3, or the **Real time** priority.

If the camera with **Real time** priority switches into the recording mode, it is allocated all ADC resources for its video processing and digitizing. Thus, the frame rate on this camera becomes equal to the total frame rate of the video signals that are processed and digitized by this ADC. Video signals from other cameras, allocated to a given ADC, aren't processed, displayed, and recorded to the disk.

To change the processing queue of the video from the selected camera in the recording mode, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. In the objects tree on the **Hardware** tab, select the **Camera** object created before corresponding to the camera, the ADC video processing queue of which you want to change.
3. Go to the **Advanced settings** tab on the settings panel of the **Camera** object.
4. Set the **recording** slider in the **Priority** group to the position:
    a. **1/2** to queue the camera with 1/2 priority for ADC video processing.
    b. **1/3** to queue the camera with 1/3 priority for ADC video processing.
    c. **Real time** to queue the camera with the Real time priority for ADC video processing in the recording mode.
    d. **Normal** (default), if it is necessary to return the camera into the normal queue for ADC video processing in the recording mode.
5. Click the **Apply** button.

Setting video recording priority is complete.

Brightness, contrast, color depth and color rendition format settings

On the page:

- Brightness and contrast settings
- Color depth adjustment
- Selecting the color rendition format

Brightness and contrast settings

In *Axxon PSIM,* you can adjust video brightness and contrast in different modes depending on the requirements of the video characteristics.

You can adjust brightness in the following modes:

1. Auto brightness and contrast adjustment. In this mode, *Axxon PSIM* automatically uses the internal algorithm of video brightness and contrast adjustment. In this mode, manual brightness and contrast adjustment is unavailable.
   This mode is activated by default, and it doesn't require any additional settings. We recommend using this mode to adjust brightness and contrast for video with no special requirements for video characteristics.
2. Manual brightness and contrast adjustment. In this mode, the administrator can change the **Brightness** and **Contrast** settings.
3. Manual brightness and contrast adjustment with auto optimization. In this mode, the administrator presets the values of **Brightness** and **Contrast** parameters manually. After the preset is confirmed, *Axxon PSIM* automatically starts the process of video image brightness and contrast optimization. This process involves the step-by-step changing of video brightness and contrast.

Note

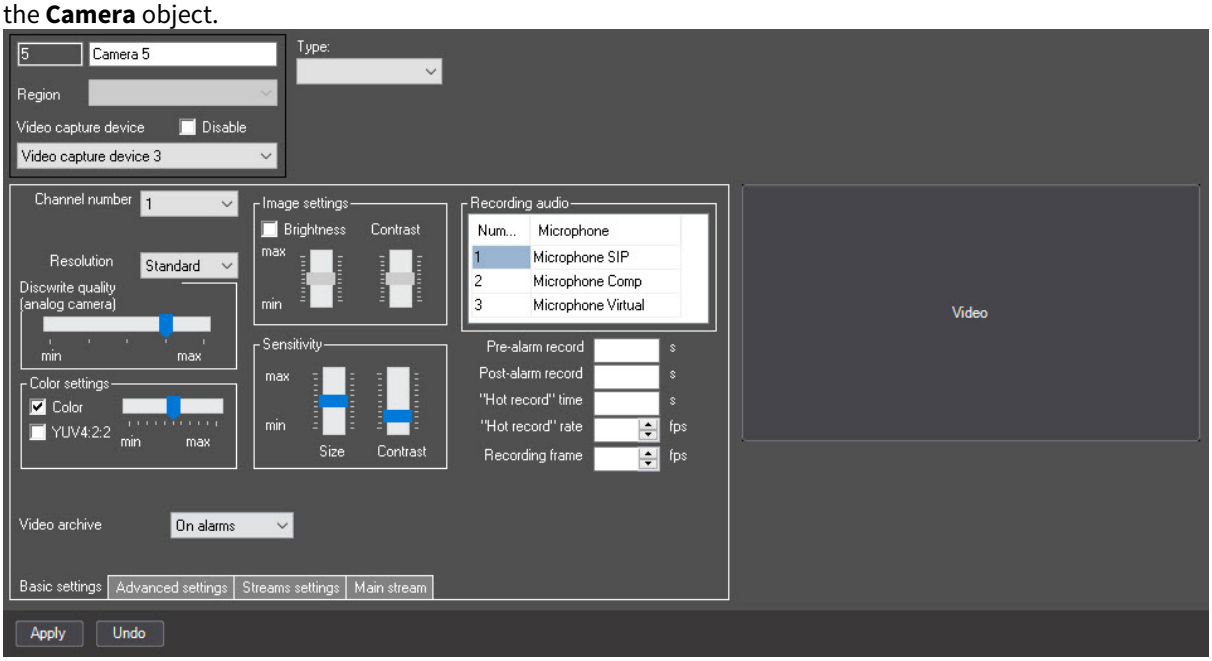
Manual brightness and contrast control of IP cameras is enabled by default.
Use the ManualBrightnessControl string parameter in the HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\PSIM\Video for 32-bit systems (HKEY_LOCAL_MACHINE\Software\Wow6432Node\AxxonSoft\Axxon PSIM\Video for 64-bit systems) registry to enable automatic adjustment of IP cameras' brightness and contrast. If ManualBrightnessControl is equal to 1, then the manual brightness and contrast control of IP cameras is enabled. If ManualBrightnessControl is equal to 0, then you must set the mode of the manual brightness and contrast control of IP cameras on the settings panel of the corresponding **Camera** object.

Adjust brightness and contrast separately and independently for every camera.

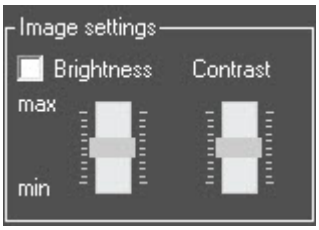
To adjust brightness and contrast, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object created before in the objects tree that corresponds to the camera, the brightness, and the contrast of which you need to adjust.
3. Go to the **Basic settings** tab on the settings panel of the **Camera** object.
   To adjust brightness and contrast, use the **Brightness** and **Contrast** sliders on the settings panel of

the **Camera** object.

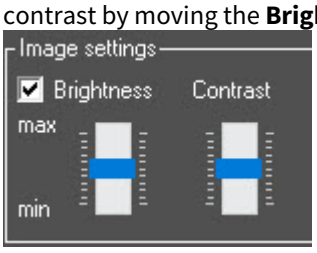


4. Auto brightness and contrast adjustment mode is activated by default and is indicated by the absence of the tag in the checkbox field located in the brightness and contrast settings group. In this mode, manual brightness and contrast adjustment is unavailable. Thus, the **Brightness** and **Contrast** sliders are deactivated.

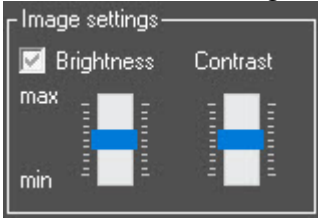


To return to this mode, clear the checkbox field located in the group that contains the **Brightness** and **Contrast** sliders.

5. To switch to the manual brightness and contrast adjustment mode, set the checkbox in the checkbox field that is located in the brightness and contrast settings group. In this mode, you can adjust brightness and contrast by moving the **Brightness** and **Contrast** sliders to the required position.



6. To switch to the manual brightness and contrast adjustment with auto optimization mode, set the checkbox that is located in the brightness and contrast settings group.



In this mode, you can adjust brightness and contrast settings by moving the **Brightness** and **Contrast** sliders to the required position. The optimization process involves a step-by-step change of video brightness and contrast.

7. To activate the new video brightness and contrast settings, click the **Apply** button.

> **Note**
>
> Use the video area to perform the sight control of specified brightness and contrast settings.

Adjusting brightness and contrast is complete.

Color depth adjustment

Color depth (the **Saturation** parameter in the HSL color spectrum model) determines the number of colors used to build an image while digitizing it by the video capture card. The color depth in *Axxon PSIM* corresponds to the **Color Depth** setting.

Set color depth for each camera individually.

The average color depth value is set by default.

When adjusting the color depth, keep in mind that the image color depth is directly proportional to the frame size and, hence, to the video stream size. Thus, the digitized video stream with the greater color depth is larger. The larger the video stream, the larger the HDD capacity to store it, and the higher the channel bandwidth to transmit it are required.

To change the video color depth, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object created before in the objects tree that corresponds to the adjusted camera.
3. Select the **Basic settings** tab on the settings panel of the **Camera** object.
4. To reduce the image color depth to the black-and-white palette, clear the **Color** checkbox.
5. To change the color depth in other cases, move the **Color** slider on the right of the **Color** checkbox into the required position. The slider's **max** position corresponds to the maximum color depth of the image, and the **min** position to its minimum color depth (black-and-white image). Use the viewing tile to perform the sight control of color rendition settings.
6. Click the **Apply** button.

Adjusting color depth is complete.

Selecting the color rendition format

Video image color rendition format fixes the number and the sequence of digitized video signal bits (or analog video signal frequencies) that contain its color depth data. Thus, the digitized video stream with the higher color depth has a larger capacity. The larger the size of the video stream, the larger the HDD capacity to store it and the higher the channel bandwidth to transmit it are required.

The TV systems use two formats of video color rendition: YUV 4:2:0 and YUV 4:2:2.

The YUV 4:2:2 color rendition format is the standard format in TV systems. The YUV 4:2:2 format provides high color depth and gives a large size of digitized video stream. That is why video surveillance systems use the YUV 4:2:0 format. In YUV 4:2:0 format, video signal color depth is slightly lower than in YUV 4:2:2 format, and video stream size digitized in YUV 4:2:0 format is several times less than that in YUV 4:2:2 format.

In *Axxon PSIM*, you can digitize video signals in both color rendition formats: YUV 4:2:0 and YUV 4:2:2.

Set the color rendition format of the video signal for each camera individually.

Default encoding of video signals for all cameras is performed by the video capture card in YUV 4:2:0 color rendition format.

To configure the encoding of video signals in YUV 4:2:2 format, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object created before in the objects tree that corresponds to the adjusted camera.
3. Go to the **Basic settings** tab on the settings panel of the **Camera** object.
4. Set the **YUV 4:2:2** checkbox. Use the viewing tile to perform the sight control of color rendition settings.
5. Click the **Apply** button.

Selecting the color rendition format is complete.

Configuring video compression

On the page:

- Setting the compression rate
- Setting the key frame rate
- Setting the delta frame generation criterion

Setting the compression rate

The image is compressed to reduce the size of the video stream. Video isn't compressed when it is displayed on the video surveillance monitor of the server.

If you increase the compression rate, it leads to video degradation. *Axxon PSIM* compresses video right after it is digitized by the video capture card before recording and/or transmitting it via the network to the remote workstations.

Set the video compression rate for each camera individually.

Axxon PSIM uses the reverse **Discwrite quality (analog camera)** parameter for setting the compression rate of the video signal.

In most cases, the default value of the **Discwrite quality (analog camera)** parameter is sufficient.

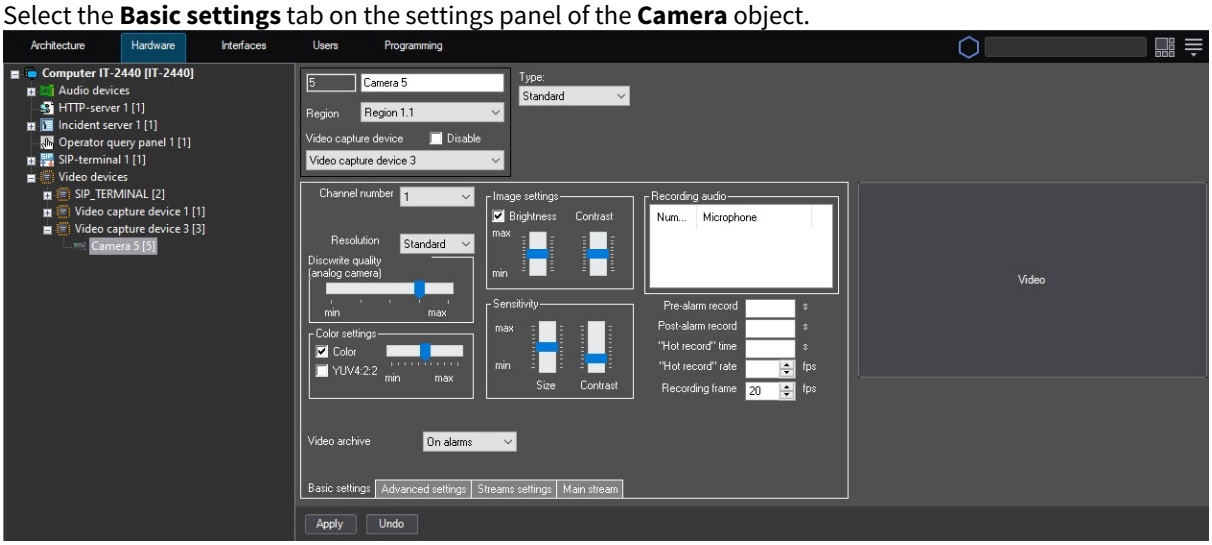
Note

The **Discwrite quality (analog camera)** parameter works only for analog cameras.

If you want to change the compression rate of the video, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object created before in the objects tree, which corresponds to the adjusted camera.

3. Select the **Basic settings** tab on the settings panel of the **Camera** object.



4. To improve the video quality, move the **Discwrite quality (analog camera)** slider to the **max** position. To reduce the size of the video stream coming from the camera, move the **Discwrite quality (analog camera)** slider to the **min**.

> **Note**
>
> Use the video surveillance area to estimate the video quality enhancement or degradation.

5. Click the **Apply** button.

Setting the key frame rate

Axxon PSIM uses the Motion Wavelet algorithm for video processing and compression. The video that is processed by this algorithm is the sequence of key and delta frames. The key frame is a full frame of an image. The delta frame (differential frame) is an image containing only pixel blocks that differ from the previous key frame.

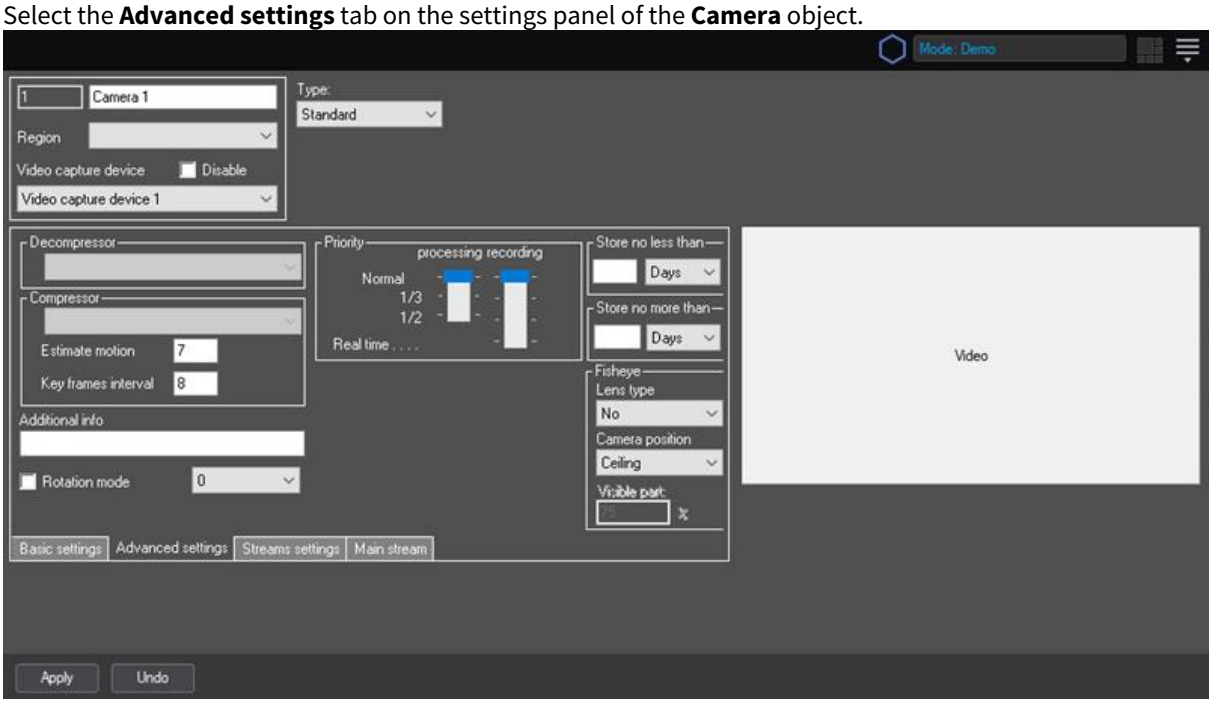
The Motion Wavelet algorithm guarantees consistency of video quality regardless of the key frame rate. With an increase in motion intensity in the frame, the size of the delta frame increases, and the quality of the video remains unchanged. With very intense motion (more than 70% of the frame is engaged), the setting of the key frame rate is ignored, and each frame is processed as the key frame.

Axxon PSIM sets the optimal key frame rate value by default: every eighth frame is processed as the key frame. If there are no special requirements for the video size and quality, we recommend keeping the default key frame rate.

To change the key frame rate, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object created before in the objects tree, which corresponds to the adjusted camera.

3. Select the **Advanced settings** tab on the settings panel of the **Camera** object.



4. In the **Key frames interval** field, specify the required value of the key frame rate.
5. Click the **Apply** button.

Setting the key frame rate is complete.

Setting the delta frame generation criterion

Axxon PSIM uses the Motion Wavelet algorithm for video processing and compression.

The video that is processed by this algorithm is the sequence of key and delta frames. The key frame is a full frame of an image. The delta frame (differential frame) is an image containing only pixel blocks that differ from the previous key frame. You can compare the pixel blocks of the key frame to the frame that follows the key one by comparing the average brightness of these blocks. If the difference in brightness exceeds the set value, it means that the motion is detected in the block, and this block becomes part of the delta frame. Otherwise, it means that there is no motion in the block, and it isn't included in the delta frame.

The legitimate values of pixel block brightness are in the range from 0 to 225. By default, the block is included in the delta frame if the difference between its average brightness in the current frame and in the previous key frame exceeds seven units. If you increase the value of this parameter, it allows reducing the size of the delta frame and, hence, the size of the video stream, by reducing the number of pixel blocks that form the delta frame. Note that blocks containing the useful motion data in the frame now are more likely to be excluded from the processed video, which consequently leads to video degradation. If you reduce the value of the parameter that sets the criterion for including blocks in the delta frame, it allows improving the video quality by increasing its size.

The optimal value of the parameter that sets the criterion for including blocks in the delta frame is determined by the brightness gradient of the video background and moving objects in the frame. You can increase the parameter value at a high gradient and decrease the parameter value at a low gradient.

Note

The **Estimate motion** parameter is ignored by the **Motion Wavelet 7.1** and **Motion Wavelet 7.1 Intr** compressors.

To change the value of the parameter that sets the criterion for including blocks of pixels in delta frames, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object created before in the objects tree, which corresponds to the adjusted camera.
3. Select the **Advanced settings** tab on the settings panel of the **Camera** object.
4. In the **Estimate motion** field, specify the required value of the parameter that sets the criterion for including blocks of pixels in delta frames.
5. Click the **Apply** button.

Setting the delta frame generation criterion is complete.

Creating and configuring a virtual Video capture device

On the page:

- General information about the virtual Video capture device
- Creating and configuring the virtual video capture device
- Features of playing back the files in the virtual Video capture device

General information about the virtual Video capture device

Axxon PSIM implements a way to work with a virtual video capture device. This way assumes that *Axxon PSIM* operates in a test mode and imitates the video stream feed to a virtual Video capture device by playing back video (video recording). In *Axxon PSIM* there are two types of virtual video capture devices:

1. **Virtual bench**. It plays back video recordings in MKV, MP4, and AVI formats, for which DirectShow filters (codecs) are installed in Windows OS.
2. **Virtual Generic**. It plays back video recordings in the *Axxon PSIM* internal format only.

Attention!

Video recordings with b-frames aren't supported.
To check a video for b-frames, specify through ffmpeg in the command prompt:

- ffmpeg -i "video.avi" -vf "showinfo" -f null - 2>&1 | find /c "type:B" (File can be of any extension that corresponds to the video file).
  As a result, the number of b-frames is displayed.
- ffmpeg -i "C:\Users\%current username%\Desktop\video.avi" -vf "showinfo" -f null - 2>&1 | findstr "type:B".
  As a result, the information on each b-frame is displayed.

Virtual video capture devices don't support multistreaming mode. To ensure the correct operation of a virtual video capture device, including the option of displaying the video archive and archiving, you must disable the multistreaming mode (see Configuring the multistream video).

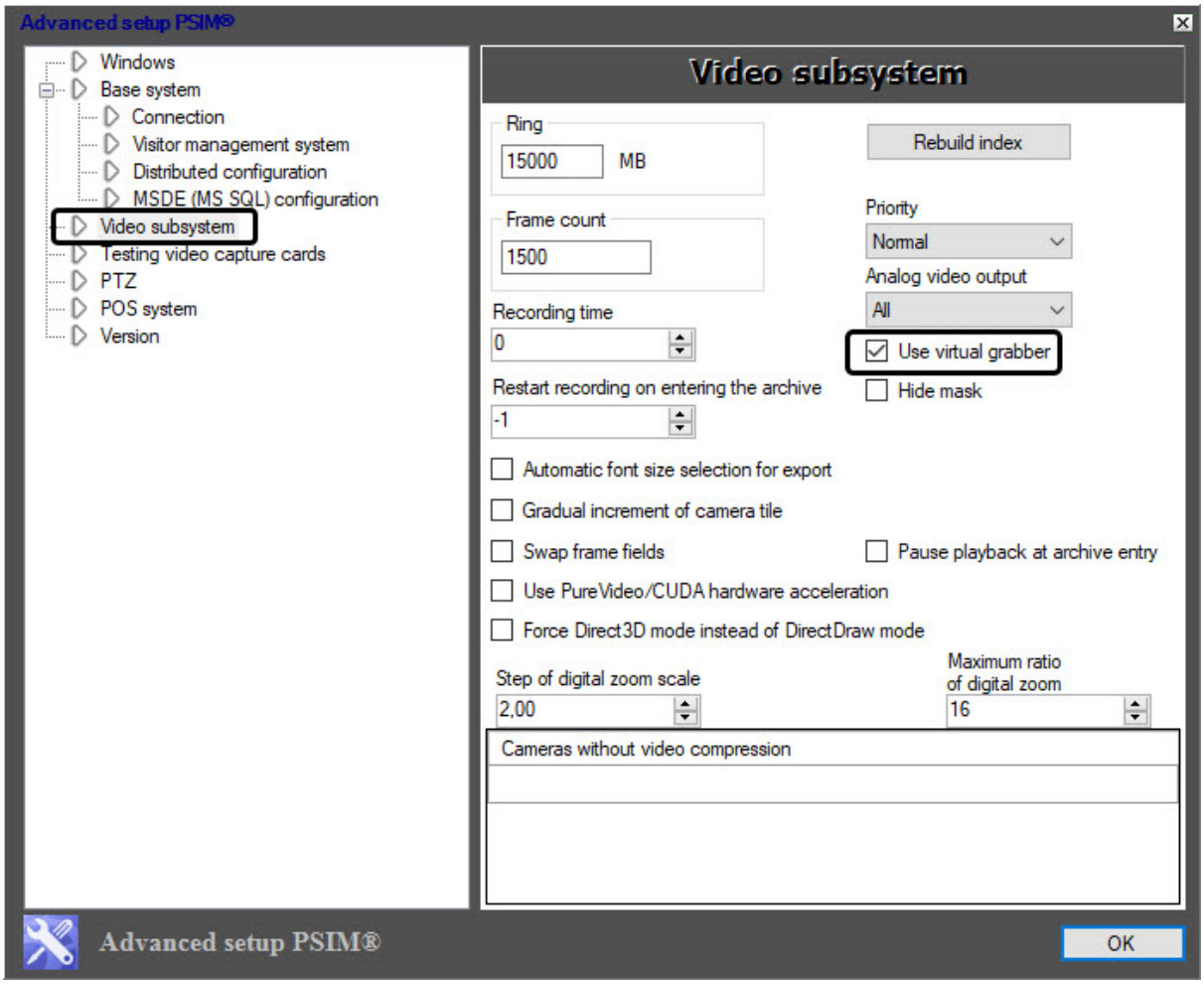
We don't recommend using an LAV Splitter to play back videos on the virtual video capture device. The FFDSHOW mediadecoder is preferable.

> **Note**
>
> If only Windows Media Player 11 (or earlier versions) is installed on Windows OS to play video recordings, then you must update it to Windows Media Player 12 or use the DirectShow filters (codecs) of the third-party manufacturers.
> Enable **Desktop Experience Feature** when using the virtual video capture device on the server OS and AVI files.

Creating and configuring the virtual video capture device

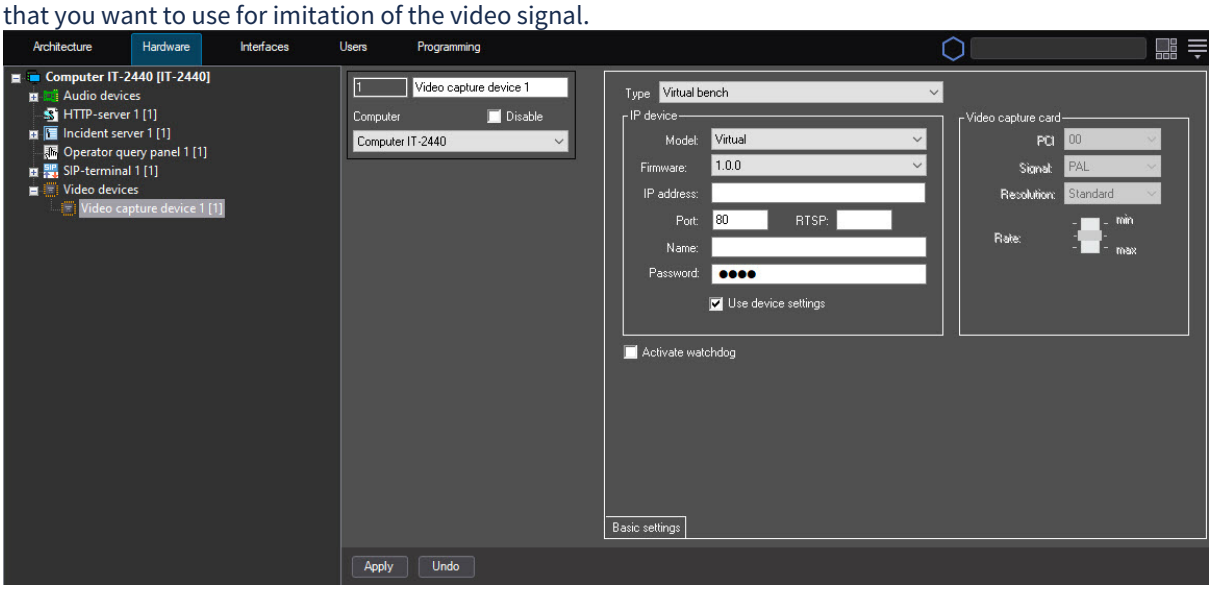
To create and configure the virtual video capture device, do the following:

1. Set the **Use virtual grabber** checkbox (see The Settings panel of the Video subsystem section). Before that, shut down *Axxon PSIM*.

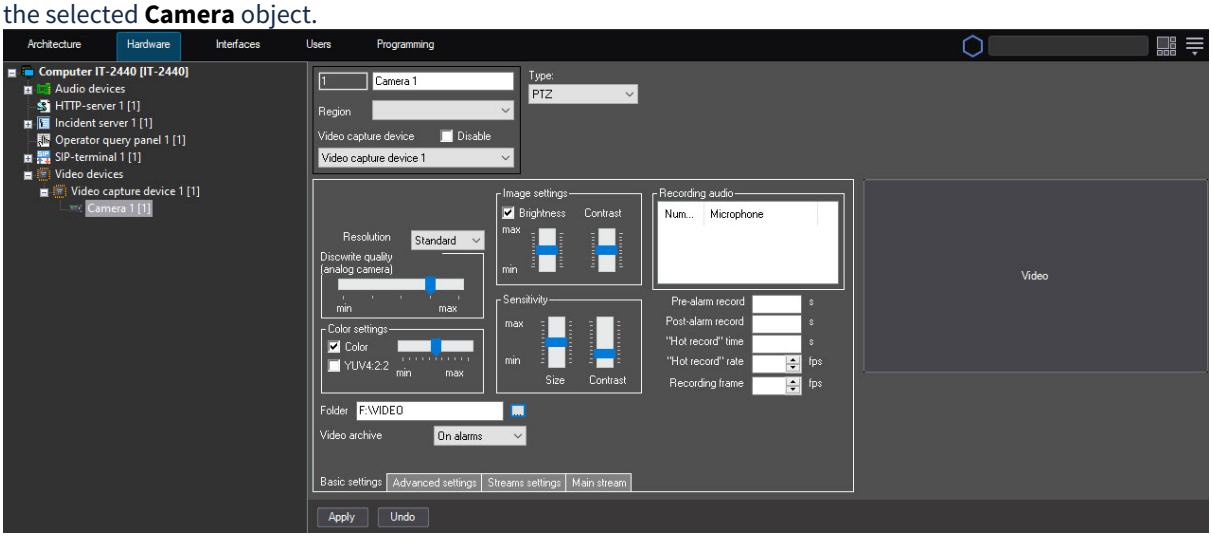


2. Create the **Video capture device** object on the **Hardware** tab.

3. Set the **Virtual Generic** or **Virtual bench** type of the video capture device, depending on the type of the file that you want to use for imitation of the video signal.



4. Click the **Apply** button.
5. Create the **Camera** child object for the **Video capture device** object.
6. Specify the storage for the video that you want to use for video signal imitation in the **Basic settings** tab of the selected **Camera** object.



> **Note**
>
> We don't recommend using videos compressed by the Wavelet codec, as their use significantly increases the load on the server.

7. Click the **Apply** button.
If *Axxon PSIM* doesn't find files for playback within one minute after clicking the **Apply** button, the file search is interrupted.

> **Attention!**
>
> The selected folder mustn't contain the video recordings of the *Axxon PSIM* internal format and AVI files at the same time.

> We recommend using one video recording and specifying the folder containing only the recording or the path to the file. If you need to use several video recordings, select the recordings with similar codecs and resolutions. This helps to avoid delays in *Axxon PSIM* work when switching between the recordings.

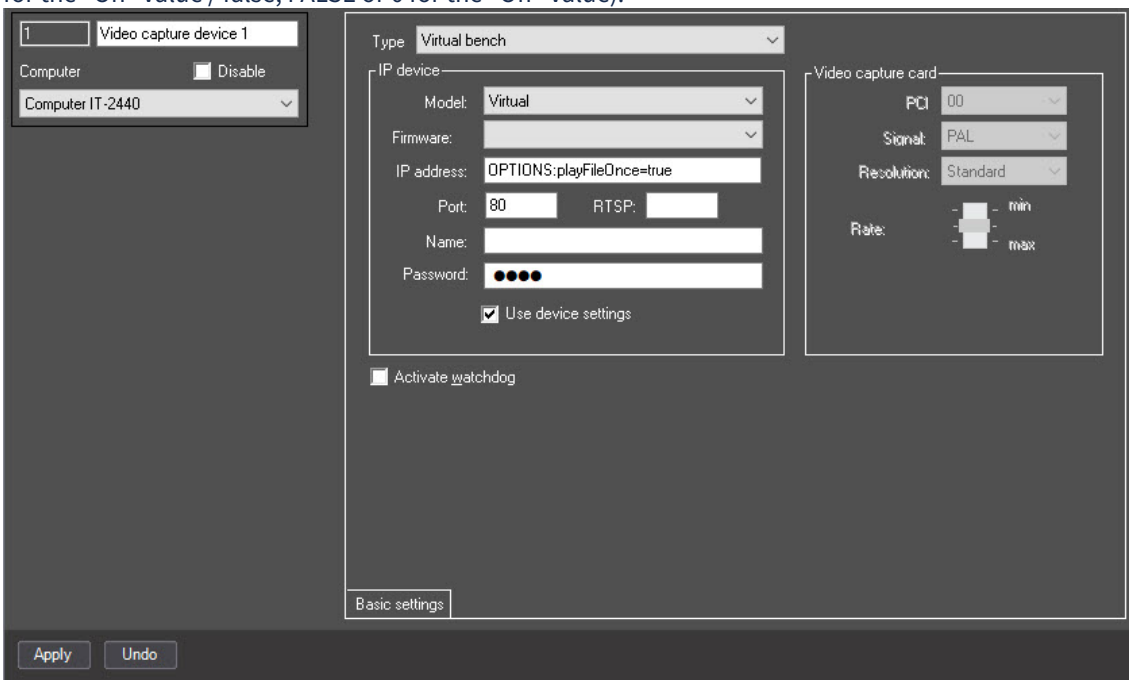
Features of playing back the files in the virtual Video capture device

As a result of the above settings, the video recording file from the selected folder is played back in a loop.

If you set the path to a separate file, not a folder of the **Virtual** video capture device type, the file is played once.

You can disable looping of a separate file for the **Virtual bench** video capture device type in one of the following ways:

1. Enter "**OPTIONS:playFileOnce=true**" in the **IP address** field on the **Video capture device** settings panel:
   a. OPTIONS: includes the use of advanced options.
   b. The playFileOnce value corresponds to the "Single Play" option (you must specify the parameter name, strictly case-sensitive).
   c. After the "=" symbol, specify the value that must be applied (the correct values are true, TRUE, or 1 for the "On" value / false, FALSE or 0 for the "Off" value).



2. Set the playFileOnce = 1 registry key (see Registry keys reference guide).

If there are several files in the folder, they are played back in the order set in the latest modification. You can also sort files by name and time of creation during playback. Set the sorting order by the VirtualGrabberSortMode registry parameter (see Registry keys reference guide).

When playing back files, the system sends events to the debug window indicating the playback status (see CAM Camera). There are also reactions for controlling video recordings' playback in a virtual video capture device using the scripts (see GRABBER Video capture device).

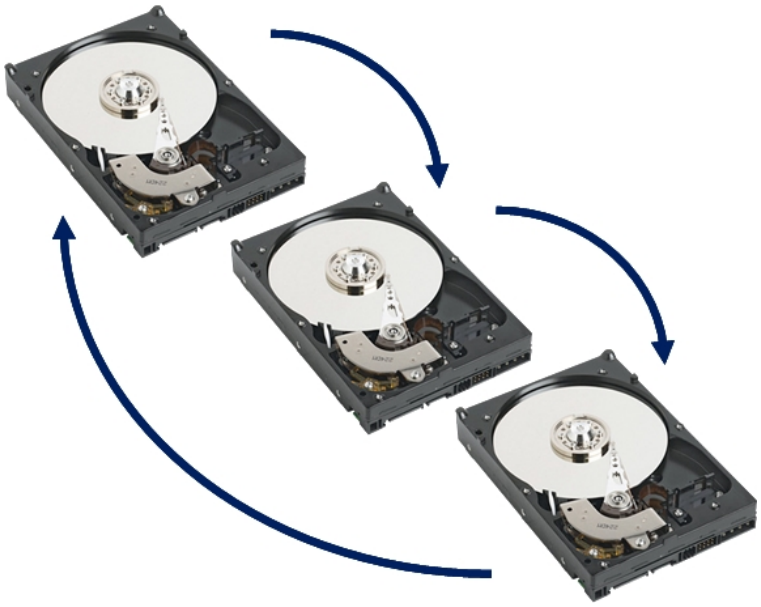
Configuring video archiving

General information on video archiving

Video archiving feature implemented in *Axxon PSIM* allows saving video according to the settings and analyze the parts of it that are of interest to the user.

The archive is saved on the Server storage device. Video is stored in the archive as one or more indexed files. To limit the size of the files, use the **Video Subsystem** tab in the tweaki utility.

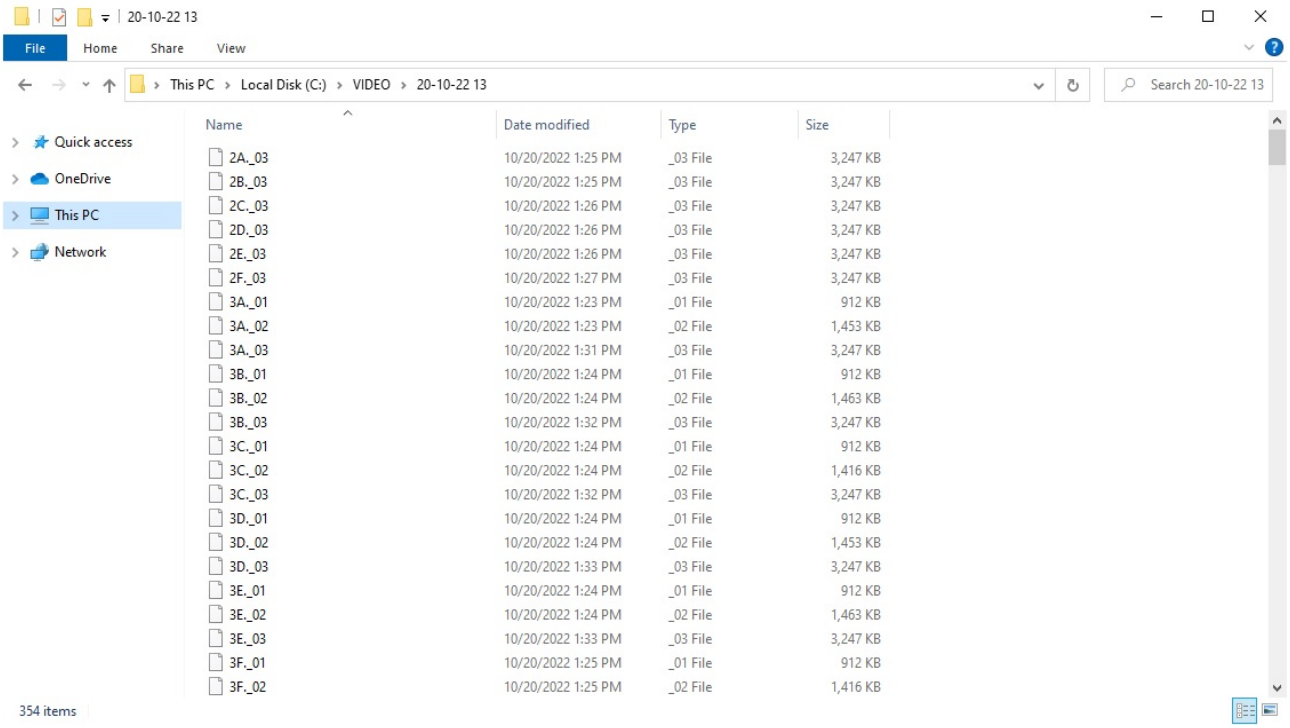
The archive is a storage of video recordings created in *Axxon PSIM*. Videos are recorded in a loop. When hard disks run out of the space allocated for storing the archive, the hard disks space is overwritten. The earliest recordings are deleted.



Video archive is stored in the VIDEO folder on the selected system disk. In the VIDEO folder, the subdirectories named in the DD-MM-YY HH (Date, Hour) format are stored. They contain the archive files for the current hour. Video file extension indicates the number of a video camera used to record the archive.

Attention!

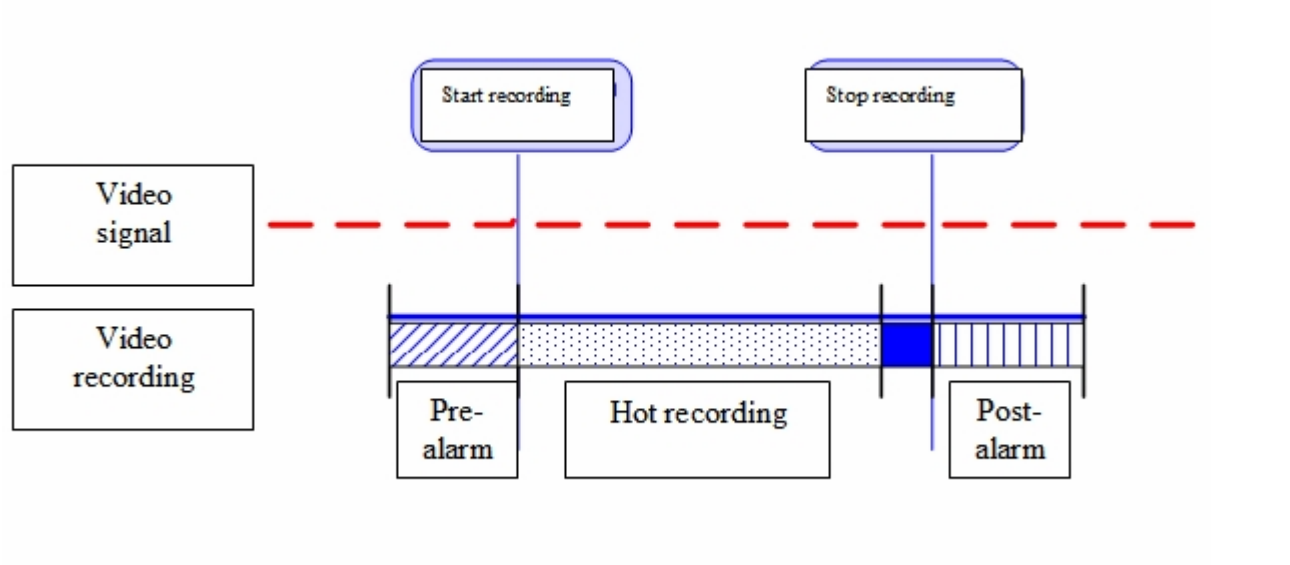
Axxon PSIM creates and stores video archive in its own format. You can view the archive files without converting in the Video surveillance window, using the converter.exe utility or using the AxxonPSIM player utility when you select the required time period.
You can also export the video archive into other formats. For this, you can use the above instruments as well as the AviExport utility. See also Export and print out.
The codec in which the archive is recorded is by default determined by the codec of the original video signal — see Compressing and decompressing a video signal. You can also record the archive in the MPEG4 format regardless of the codec of the original video signal. For this, create and configure the **MPEG4 Encoder** object.



There are three ways to start video recording:

1. Forced recording by the Operator command;
2. Automatic recording upon alarm registration;
3. Automatic recording upon a macro/script/program execution.

In order to improve the efficiency of analysis of causes and consequences of alarm events on the protected facilities, *Axxon PSIM* implements the expanded schemes for creating a video recording file. An example of a video recording expanded scheme is given in the figure below.



The scheme contains the following segments:

1. Pre-alarm event is recorded before the start time of the alarm event recording on the video camera. Pre-alarm event recording allows you to analyze the prehistory of the alarm event.

   Attention!

   For the cameras without video compression that were added to the corresponding list in the **Video subsystem** section in the tweaki.exe utility (see The Settings panel of the Video subsystem section), video is not recorded in **Pre-alarm record** mode.

2. Post-alarm event is recorded after the end time of the alarm event recording on the video camera. Post-alarm event recording allows you to analyze the consequences of the alarm events.
3. Hot recording is a video recording segment with higher frame rate. Increased frame rate on the hot recording segment makes event analysis more effective. The hot recording segment always starts from the start time of the alarm event registration. The hot recording is finished at the recording end time (depending on the hot recording settings).

In *Axxon PSIM*, the restrictions are imposed on the use of additional sections when creating a video recording.

Video recording initialization mode	**Recording option**		
	pre-alarm	**hot recording**	**post-alarm**
By Operator command	No	Yes	No
On alarm event	Yes	Yes	Yes
On macro/script	Yes	Yes	Yes

Note

If the MPEG4 recording format is selected, a small fragment of the recording (about 0.5 seconds from the beginning) may be lost.

Free disk space (video archive size) required
Working with the archives

Video archiving procedure

Configuration of video archiving consists of the following steps:

1. Selecting the disks for video archive storage.
2. Switching off/on the auto alarm recording mode.
3. If a camera supports multistreaming, then select streams that are to be recorded to the archive upon alarm and those for continuous recording (see Configuring the multistream video).
4. Setting video stream frame rate and other video stream parameters if the multistream mode is in use (see Configuring the multistream video).
5. Configuring video in the Hot recording mode.

   Note.

If different streams are selected for recording upon alarm and for continuous recording (see Configuring the multistream video), then hot recording is not performed.

6. Configuring video in the Pre-alarm mode.
7. Configuring video in the Post-alarm mode.
8. Configuring audio and video synchro recording.

Selecting the disks for video archive storage

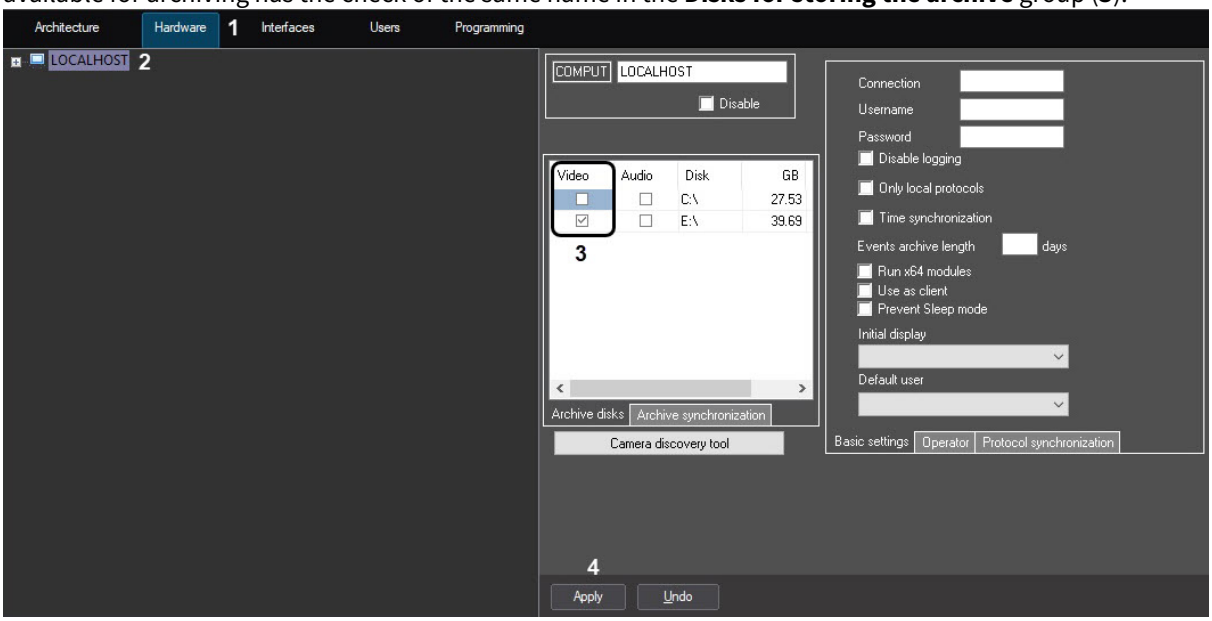
In *Axxon PSIM*, video is archived to a storage device. When *Axxon PSIM* is installed, set the local disks to save the archive to in the **Hardware** tab of the **Computer** object.

Note.

It is recommended to use disks with the NTFS file system for storing video archives. If you use the FAT32 file system, there may be problems due to the features of this file system, for instance—it has no logging.

To select the disks for the archive, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
2. Select the **Computer** object corresponding to the configured Server in the objects tree of the **Hardware** tab (**2**). The settings panel for the selected object is displayed on the right of the **Hardware** tab. Each local disk available for archiving has the check of the same name in the **Disks for storing the archive** group (**3**).



3. Set the relevant check in the **Video** column next to the disk to be selected. Local, network and USB disks are available for storing (details on adding network disks are in Using network disks section).

Note

For the reverse effect set the checkboxes corresponding to the disk unchecked in the **Video** column.

4. Click the **Apply** button (**4**).

The disks for video archive storage are now selected.

Note.

If no disk for storing video recordings is selected, the video will not be saved to the archive. In this case, the icon of the missing disk for recording the archive will appear in the lower left corner of the Surveillance window. You can hide this icon by creating the **ShowDetachedState**=0 registry key (see Registry keys reference guide, for more information on working with the registry, see Working with Windows OS registry).

Free disk space (video archive size) required
Working with the archives

Using network disks

To use network disks as an archive, set UNC paths to them in *Axxon PSIM*. Details of working with network disks in *Axxon PSIM* installed as a Service are given in Using network disks of Axxon PSIM™ installed as a Service section.

While working in Windows Vista and Windows 7 OS consider the following features:

1. For Windows Vista and Windows 7 OS with UAC enabled, it is necessary to connect network disks via command prompt with Administrator's rights. The way of connecting is described in Connecting network disks in Windows Vista and Windows 7 OS.
2. Access to network disks on computers with Windows Vista or Windows 7 OS can be forbidden when the user account control (UAC) is switched on. To enable access create the EnableLinkedConnections key of the DWORD type with 1 value in the HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System registry. Details of working with registry keys are in Working with Windows OS registry.

Note

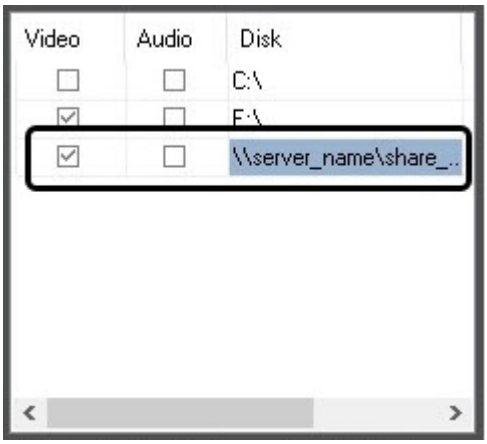
When connection with net disk fails, video is not recorded (for 30-60 seconds) and displayed. This is due to filesystem features.

Attention!

The archive from various Servers must not be recorded to one network storage as the archive index will be violated.

To add a network disk by specifying the UNC path, do the following:

1. Go to the last line in the disk list and click the down key.



2. Specify the path to a network disk in the appeared line in the **Disk** column. UNC path is set in **\\server_name\share_name** format where server_name is the name of file server and share_name is the network name of the general folder.

> **Note**
>
> If there are any problems with storing video/audio archive at network disks, then use the net use command of Windows command prompt:
> net use disk_name: \\server_name\share_name /delete
> net use disk_name: \\server_name\share_name /USER:user_name
> Where user_name is a user that has rights to store to selected network disk and on whose behalf the video module is launched;
> disk_name: is the name of the disk drive. This is to be performed after every Windows OS restart.
> Details about the net use command are in Microsoft official documentation (www.microsoft.com).

3. Set a checkbox for created disk in the **Video** column.
4. Click the **Apply** button.

A network disk by specifying the UNC path is now added.

Free disk space (video archive size) required
Selecting the disks for video archive storage
Working with the archives

Disabling automatic recording upon alarm registration

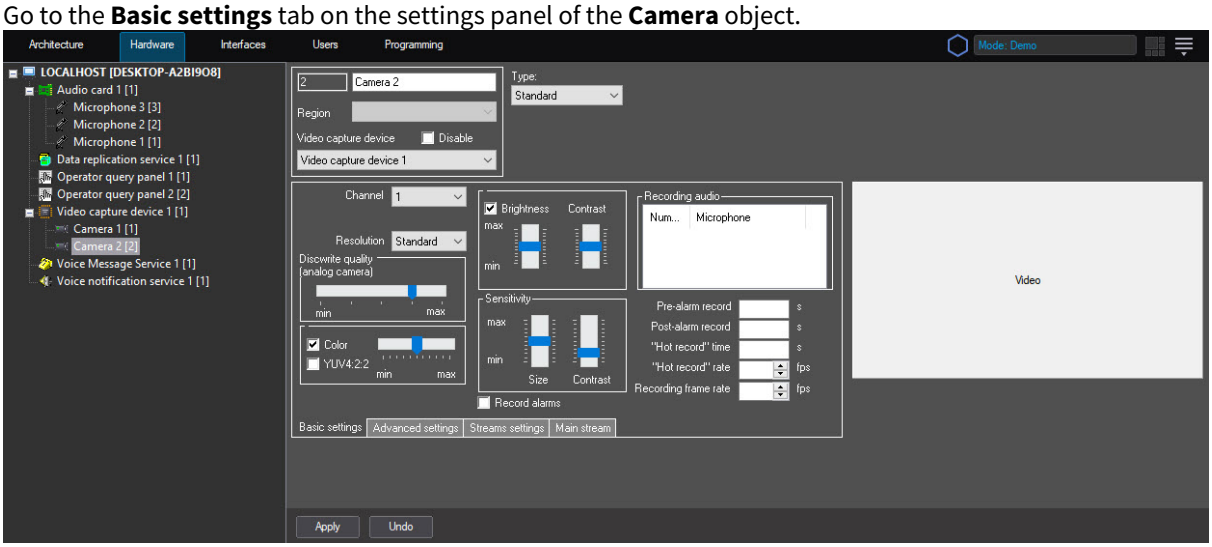
Axxon PSIM supports automatic video recording upon alarm events registration for each **Camera** system object individually. By default, the auto-recording option is enabled for all cameras registered in the **Hardware** tab.

You can disable auto-recording upon alarms for each camera individually as well.

To disable auto-recording upon alarm event registration for a selected camera, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object in the object tree that corresponds to the adjusted camera.

3. Go to the **Basic settings** tab on the settings panel of the **Camera** object.



4. Clear the **Record alarms** checkbox.
5. Click the **Apply** button.

Disabling automatic recording upon alarm event registration for a selected camera is complete.

> **Note**
>
> To re-enable the auto recording option, repeat the above steps and set the **Record alarms** checkbox.

> Events recording

Setting video stream frame rate

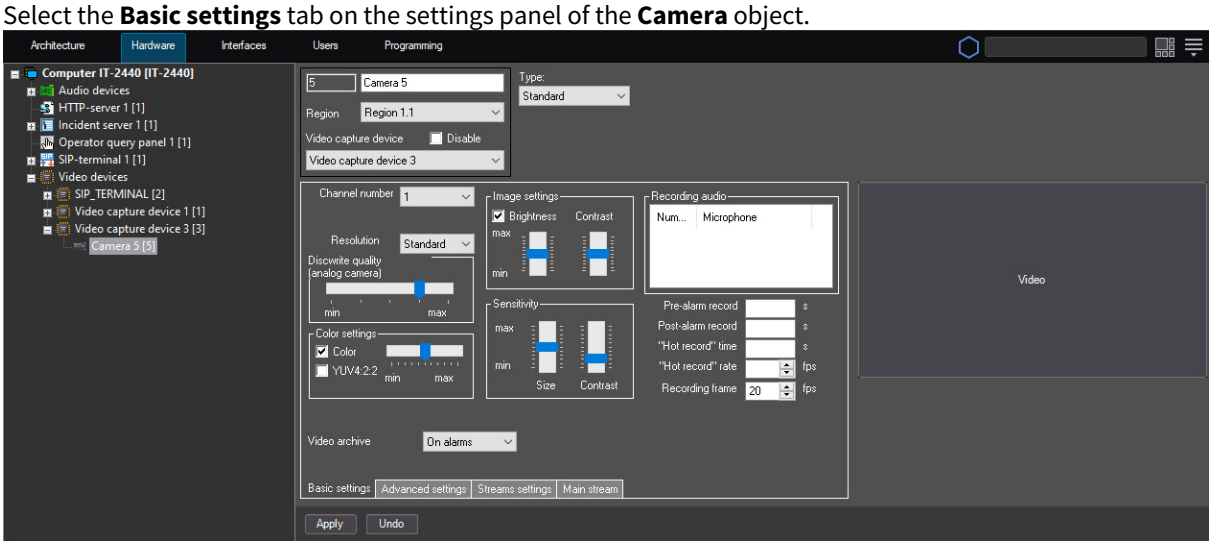
By default, the video stream is recorded to the archive with the same frame rate as the video capture card digitizes it. Thus, in *Axxon PSIM*, you can configure the value of this parameter.

> **Note**
>
> The change of the video stream frame rate doesn't affect the video signal that is displayed on the server surveillance monitor and transmitted to the remote workstations by the network.

To change the frame rate of the video stream, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object in the object tree that corresponds to the adjusted camera.

3. Select the **Basic settings** tab on the settings panel of the **Camera** object.



4. Set the value of the **Recording frame_fps** parameter. This value mustn't exceed the digitization frame rate value.
   The value set for the **Recording frame_fps** parameter allows calculating the time interval (msec) in which a frame must be captured for archive recording. You can calculate according to the formula:
   *Time interval = 1000 / Value specified in the **Recording frame_fps** field*

   > **Note**
   >
   > When you set the value of the **Recording frame_fps** parameter, you must note the video digitizing rate by the video capture card and the frame rate (fps) settings in the system. Otherwise, the actual recording speed can differ from the set one.

5. Click the **Apply** button.

Setting the frame rate of the video stream is complete.

Configuring video in the Hot record time mode

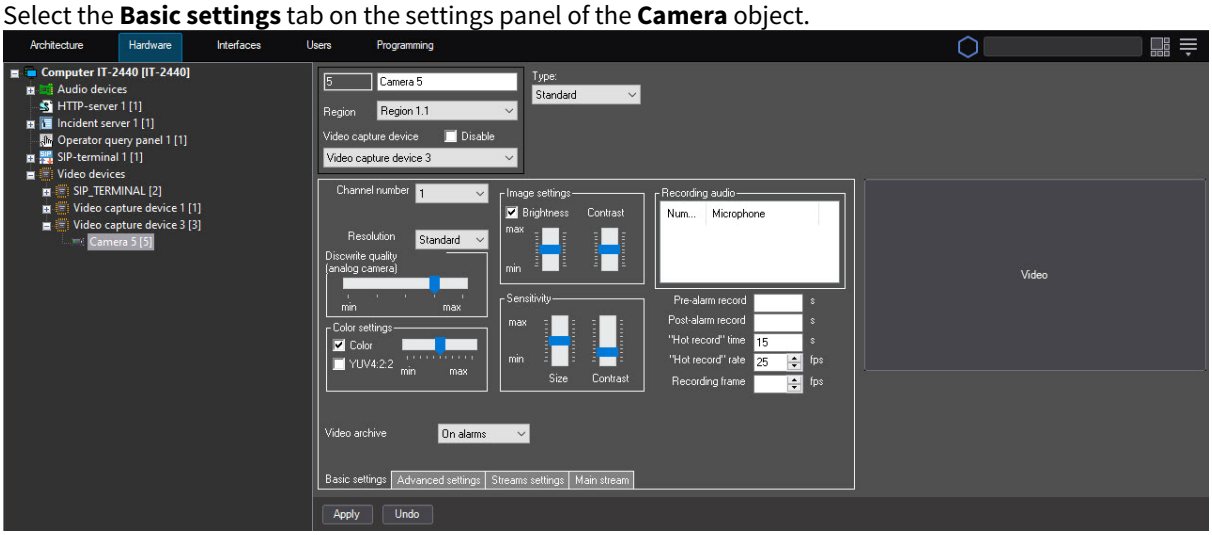
The **"Hot record" time** mode is a mode in which the video is recorded to the archive during the specified time with the set frame rate.

> **Note**
>
> The "hot record" time mode setting is invalid if you create the **Camera** object based on the **Video capture device** object that uses the H264, MPEG4, or H265 codec.

By default, this mode is disabled: when an alarm is detected, the video is recorded at the frame rate specified in **Recording frame_fps** (see Setting video stream frame rate) or at the default rate if the **Recording frame_fps** parameter isn't specified.
To enable the **"Hot record" time** mode, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object corresponding to the adjusted camera in the object tree.

3. Select the **Basic settings** tab on the settings panel of the **Camera** object.



4. In the **"Hot record" rate_fps** field, specify the frame rate with which the archive is recorded when the alarm occurs. The value of this parameter mustn't exceed the value of the frame rate with which the video signal is digitized.
5. In the **"Hot record" time** field, specify the duration of recording with the "hot" frame rate.

> **Note**
>
> If the event with the end of the alarm appears in the system during continuous recording to the camera in "hot" recording mode, the archive is recorded at the "hot" recording rate until the specified time interval expires.

> **Note**
>
> Example.
> Recording frame_fps = 10 fps, "Hot record" rate_fps = 25 fps, "Hot record" time = 15 fps.
> With these settings, the continuous recording to the archive is performed at 10 fps, and during the 15 seconds after the alarm occurs, the recording is performed at 25 fps.

6. Click the **Apply** button.

> **Note**
>
> If you set the non-zero or non-empty value of the **Recording frame_fps** parameter when you use the H.264 codec, the archive is recorded only by key frames. When you use the **"Hot record" rate_fps** parameter for the H.264 codec at a time, the recording to the archive is performed by key frames too. If you set the **Recording frame_fps** parameter to 0 or don't set it, all frames are recorded to the archive.

Configuring video in the **"Hot record" time** mode is complete.

Configuring video in the Pre-alarm record mode

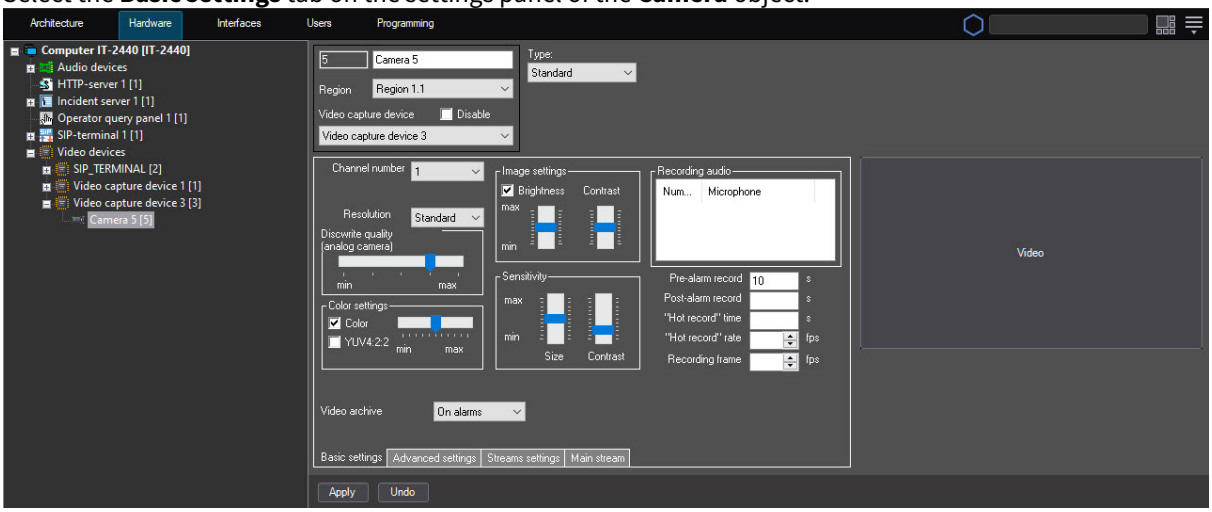
The **Pre-alarm record** mode is the record mode for recording a pre-alarm event for a specified time period before recording an alarm event. Pre-alarm recording is performed at the "hot" record rate. If you don't specify the "hot" record rate, then the recording is performed at the standard record rate.

Attention!

Video isn't recorded in the **Pre-alarm record** mode for cameras without video compression that are added to the corresponding list in the **Video subsystem** section of the *tweaki.exe* utility (see The Settings panel of the Video subsystem section).

By default, the recording in this mode is disabled. To enable the pre-alarm recording, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. Select the **Camera** object corresponding to the adjusted camera in the object tree.
3. Select the **Basic settings** tab on the settings panel of the **Camera** object.



4. In the **Pre-alarm record** field, specify the time interval in seconds during which the pre-alarm event is recorded.
5. Click the **Apply** button.

The table provides the information on pre-alarm recording options.

Camera state	Recording initiator	Recording
Armed	Macro	Without pre-alarm recording
Armed	Manually	Without pre-alarm recording
Armed	Alarm	With pre-alarm recording
Armed	Program	With pre-alarm recording
Disarmed	Macro	Without pre-alarm recording
Disarmed	Manually	Without pre-alarm recording
Disarmed	Alarm	NA

Disarmed	Program	With pre-alarm recording

In *Axxon PSIM,* you can perform recording in the **Pre-alarm record** mode if the camera is disarmed. You can do it using the DoReact("CAM","1","REC","rollback<1>") program (see The Script object. Programming using the JScript language).

If you specify a long pre-record time, it can result in increasing the waste of running memory. The recommended pre-record time is no more than 20 seconds.

To count the memory consumption, figure out the average size of the video signal frame. To do this, you must record the video fragment of 500 frames in length to the archive (maximum size, by default) and use the following formula:

- Frame size = Fragment size / 500.

Note that the frame size also depends on the percent of motion in the frame.

You can count the size of the pre-record buffer for one camera if the frame size is known:

- Size of pre-record buffer for one camera, MB = Pre-alarm record time, sec * Frame frequency in the **Pre-alarm record** mode, fps * Frame size, MB.

General memory consumption in the **Pre-alarm record** mode is determined by the sum of values received for each camera.

If cameras perform pre-recording with equal frame frequency, you can use the following formula:

- Size of pre-record buffer for all cameras in the system, MB = Number of cameras * Pre-alarm record time, sec * Frame frequency in the **Pre-alarm record** mode, fps * Frame size, MB.

Note

Example.
The camera performs pre-recording for 15 seconds with a hot record speed of 25 fps. The size of the 500-frame fragment is 20 MB. You must determine the size of the pre-record buffer for such a camera.
First, you must determine the average frame size:

- Frame size = Fragment size / 500 = 20 MB / 500 frames = 0.04 MB.

So, the size of the pre-record buffer is:

- The memory consumption in the **Pre-alarm record** mode for one camera, MB = Pre-alarm record time, sec * Frame rate in the **Pre-alarm record** mode, fps * Frame size, MB = 15 sec * 25 fps * 0.04 MB = 15 MB.

Configuring video in the **Pre-alarm record** mode is complete.

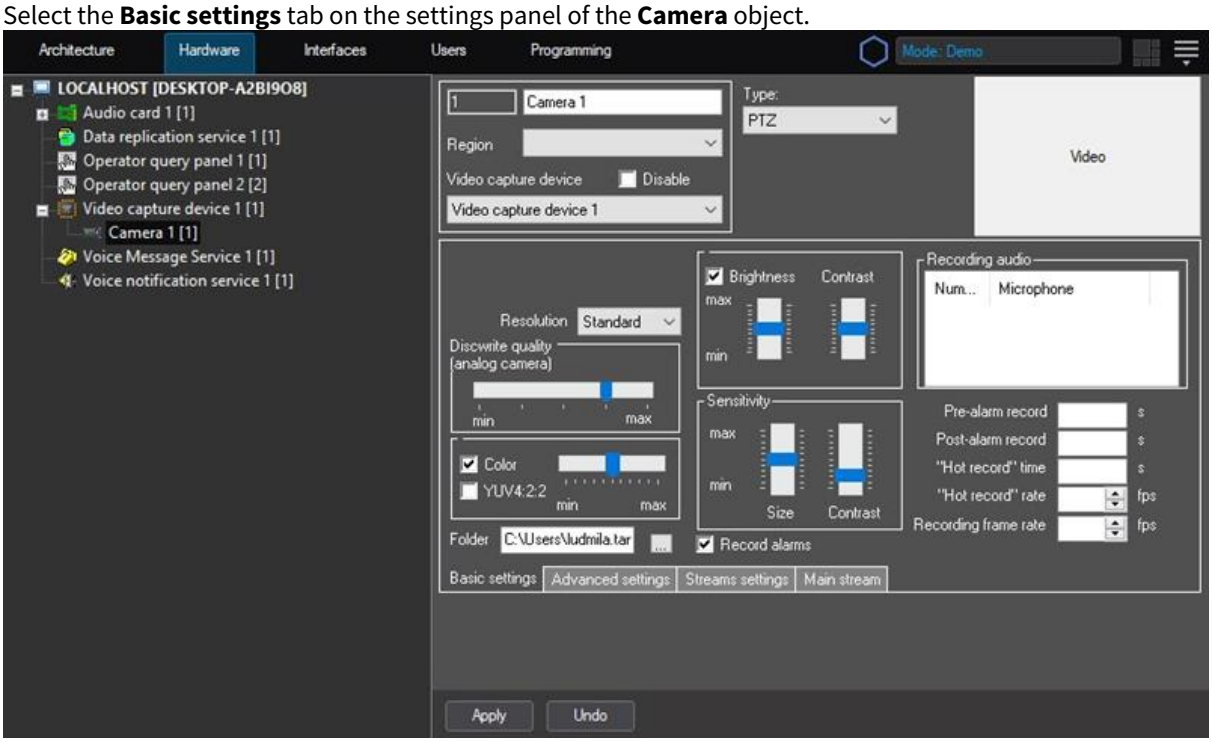
Configuring video in the Post-alarm record mode

The Post-alarm record mode is the record mode that performs recording for a specified time period upon the end of an alarm event.

By default, post-alarm recording is disabled. To enable the post-alarm recording, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. In the objects tree on the **Hardware** tab, select the **Camera** object corresponding to the adjusted camera.

3. Select the **Basic settings** tab on the settings panel of the **Camera** object.



4. In the **Post-alarm record** field, specify the time interval in seconds during which the recording continues upon the end of an alarm event.
5. Click the **Apply** button.

Configuring video in the post-alarm record mode is complete.

Configuring audio and video synchro recording

Axxon PSIM provides an audio and video synchro recording option.

Audio recording begins when video recording starts and ends when video recording stops. In synchro recording mode, audio files are stored with video files in the server archive in the VIDEO folders on the server archive local disks.

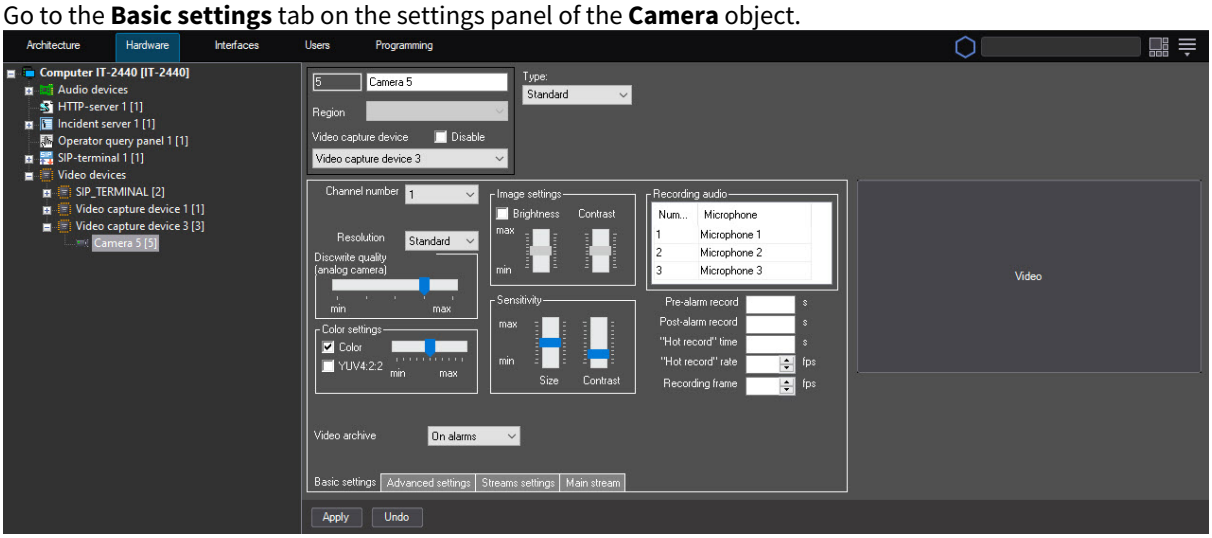
To use the synchro recording option, you must configure the *Axxon PSIM* audio subsystem properly. For the information on how to configure an audio subsystem in *Axxon PSIM,* refer to Configuring audio subsystem.

> **Attention!**
>
> If you create a camera and microphone based on different **Computer** objects (for example, server/ RAW and Client) that are configured for synchronous video and audio recording, then synchronous audio recording is performed only if there are disks for archive recording with identical letters on both computers (see also Selecting the disks for audio archive storage and Selecting the disks for video archive storage).

If you configure the audio subsystem, then do the following to configure synchro recording on the selected camera and microphone:

1. Go to the **Hardware** tab in the **System settings** window.
2. In the object tree on the **Hardware** tab, select the **Camera** object corresponding to the adjusted camera.

3. Go to the **Basic settings** tab on the settings panel of the **Camera** object.



4. In the **Recording audio** table, from the **Number** drop-down list, select the ID assigned to the microphone that is set for synchro recording when you register it in *Axxon PSIM*.
   After this, the name of the selected **Microphone** object is automatically displayed when you click on any area of the **Microphone** field in the table.
5. To perform synchro audio recording from two microphones, repeat steps 4-5 for the second microphone.

> **Note**
>
> Audio from two microphones is recorded to one stream.

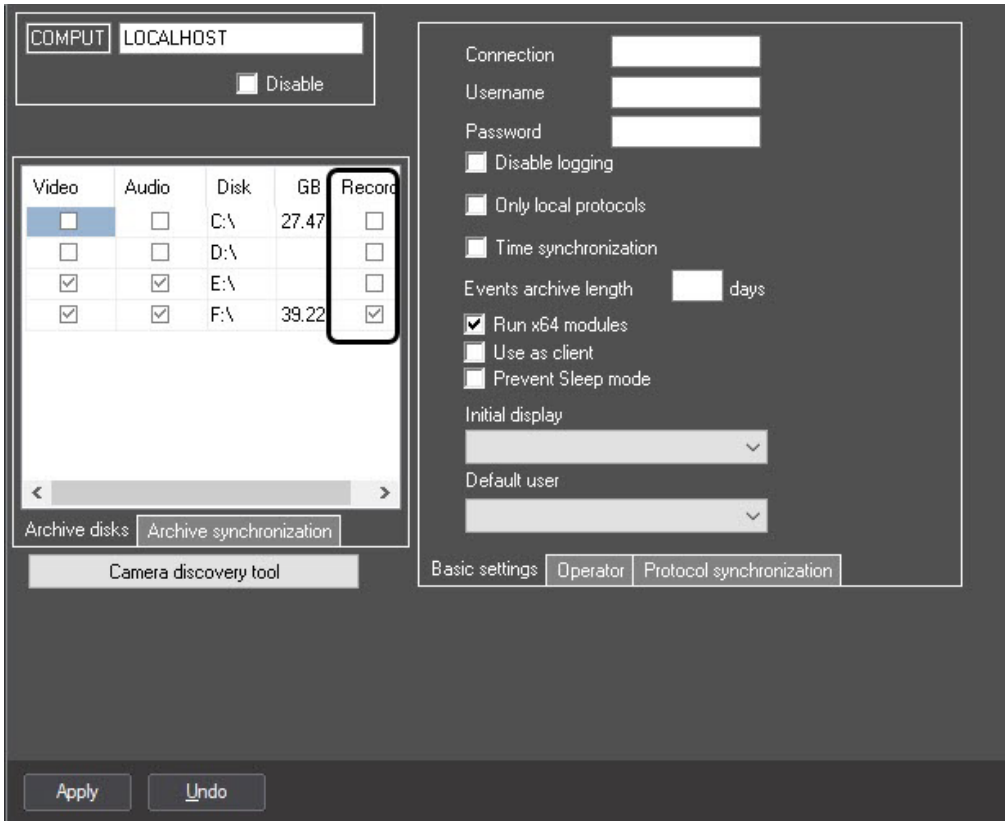
6. Click the **Apply** button.

Configuring the camera and microphone for synchro video and audio recording is complete.

Synchronous playback of video and audio recordings
Audio and video synchronous recording

Viewing current disk for recording

The current disk on which the archive is stored is displayed in the **Recording** column of the **Computer** settings panel.



Note

If no disk for storing video recordings is selected, the video will not be saved to the archive. In this case, the icon of the missing disk for recording the archive will appear in the lower left corner of the Surveillance window. You can hide this icon by creating the **ShowDetachedState**=0 registry key (see Registry keys reference guide, for more information on working with the registry, see Working with Windows OS registry).

Configuring camera archive depth

In *Axxon PSIM*, you can set the recommended period of storing the video and audio archive by a camera during synchro recording. To do this, use the **Store no more than** and **Store no less than** parameters:

- The **Store no less than** parameter allows storing the deeper archive for the selected camera by means of archives of other cameras. We recommend setting the **Store no less than** parameter no more than 30% of cameras on each server in the distributed system, as this is an advisory setting. If there is not enough space for archive recording, then the setting is ignored, and loop recording doesn't stop anyway (see General information on video archiving). When the setting is ignored, the *Event viewer* displays the 'Ignoring "Keep no less than"' message.
  If you create at least 10 cameras on the server, then the corresponding warning appears when attempting to set this parameter for more than 30% of cameras on the server after you click the **Apply** button.
- You can disable it using the **NotifyAbout_arch_days** parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\PSIM\Video registry key (see Registry keys reference guide).
- The **Store no more than** parameter allows specifying the time period after which you must remove the archive. You can remove the archive earlier than the specified time period if it is required by the loop recording. Checking for files that must be removed is performed every 10 minutes at system time (starting

with the 1.0.0 version—every 10 minutes after starting *Axxon PSIM*). If the removing process takes more than 10 minutes, the next check starts 10 minutes after the end of the current removing.

Attention!

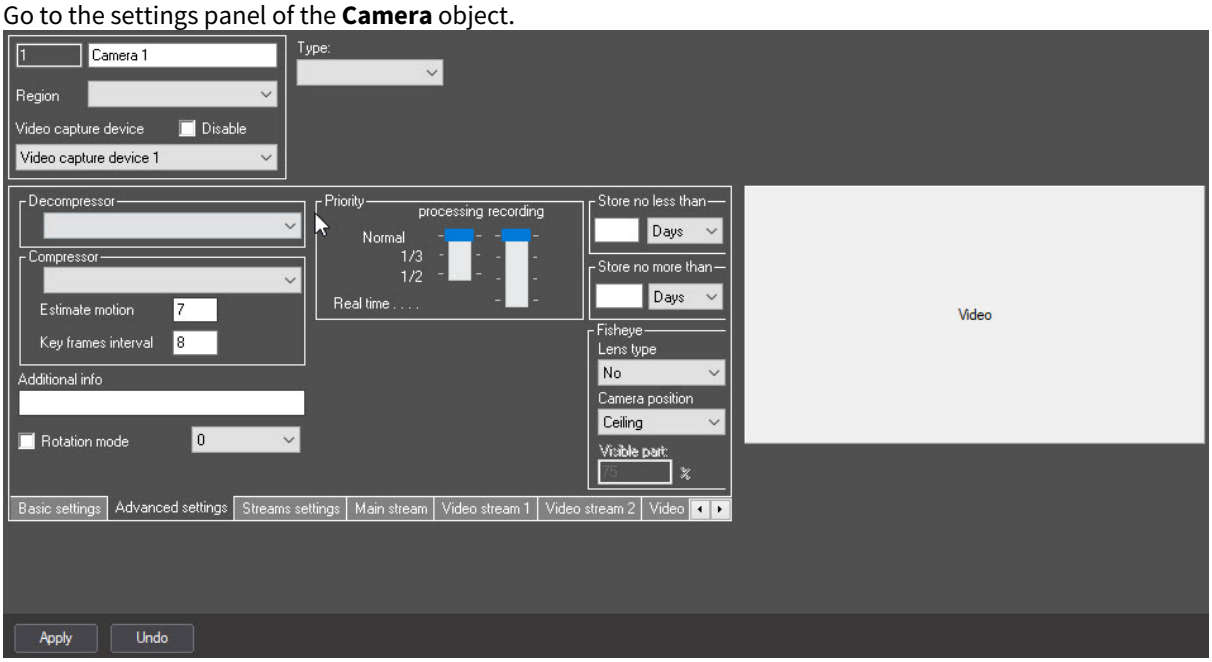
You must use this parameter carefully and don't change it dramatically downward. For example, if one TB of archive is recorded by the camera and the archive depth is 360 days, and the user sets the **Store no more than** parameter to 10 days, then it results in a one-time removal of big data that takes a lot of time, during which some frames can be skipped.

Note

The **Store no less than** and **Store no more than** parameters determine calendar time. For example, if you set **Store no more than two days**, the archive files are removed exactly two days after they are recorded, regardless of how many hours of recording they contain.
Set the FileSystem.MinMaxHoursFromNow=0 parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\PSIM\Video\FileSystem registry key to enable time counting from the last archive record timestamp (see Registry keys reference guide).

To configure the camera archive depth, do the following:

1. Go to the settings panel of the **Camera** object.



2. Go to the **Advanced settings** tab.
3. In the **Store no less than** field, specify the time period within which you want to store on the server the video archive of the camera, as well as the audio archive during synchro recording.
4. From the **Store no less than** drop-down list, select the units for the **Store no less than** field: **Days** or **Hours**.
5. In the **Store no more than** field, specify the time period of storing the camera archive, after which you must remove the archive of this camera.
6. From the **Store no more than** drop-down list, select the units for the **Store no less than** field: **Days** or **Hours**.
7. Click the **Apply** button.

Configuring camera archive depth is complete.

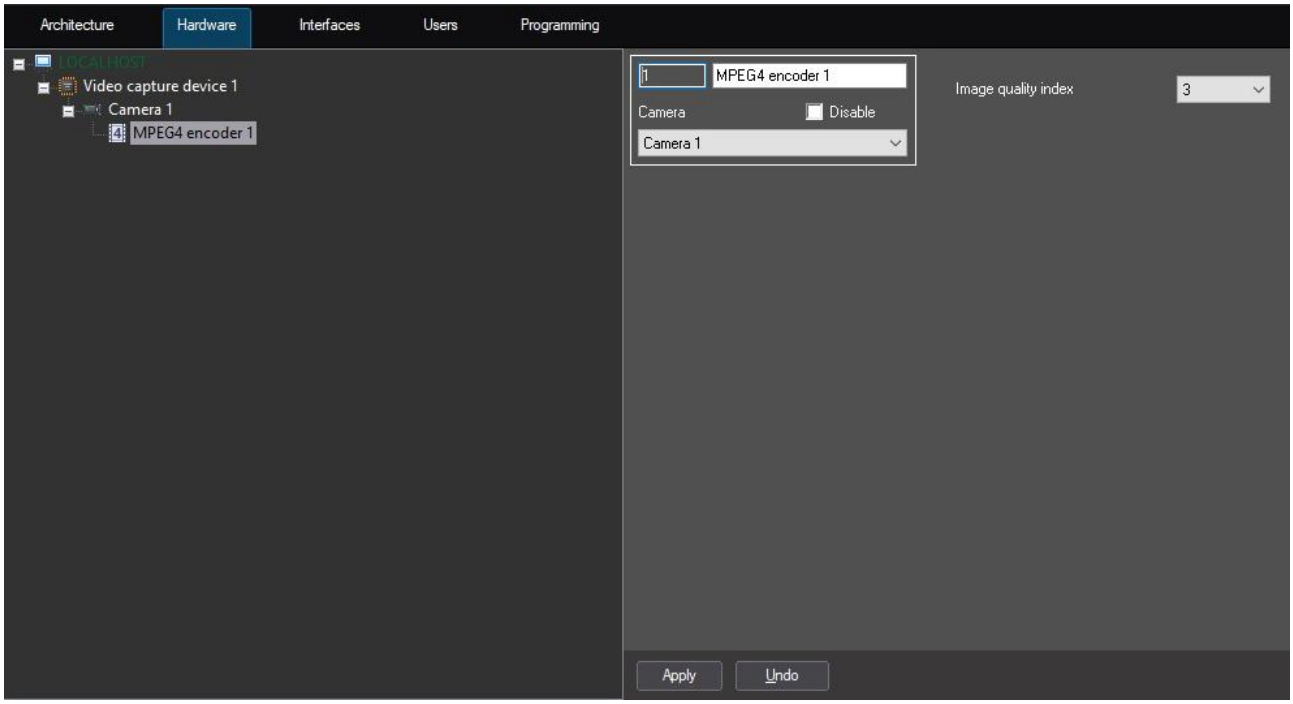
Video Archive Encryption

Encryption of the *Axxon PSIM* archive is performed by the Windows operating system means, namely using BitLocker Drive Encryption technology. Specific configuration on *Axxon PSIM* side is not required; just encrypt the disks of the Servers on which the archive is to be stored using BitLocker. The rest of the video archiving configuration is carried out in the same way as described in the sections above (see Configuring video archiving).

Creating and configuring the MPEG4 Encoder object

The **MPEG4 Encoder** object is intended for recording an archive in MPEG4 format. If the object is not created, then by default the archive is recorded in the same codec in which the video signal is received.

The **MPEG4 Encoder** object is created under the **Camera** object, the video archive of which must be stored in this codec.



Right after the **MPEG4 Encoder** object is created, the current archive fragment is finalized and the new fragment starts to be recorded in the MPEG4 codec.

Setting up the **MPEG4 Encoder** object consists in setting the **Image quality index** parameter: it affects the archive video bit rate and, therefore, the size of the resulting archive file. The larger the index, the higher the image quality and the larger the archive file size. The default value of 3 allows acceptable bit rate for various video resolutions.

See the tables below for the dependence of archive video characteristics on the value of the **Image quality index** parameter.

Codec H264, resolution 1920x1080

Image quality index	Size, Mb	Duration, sec.	Bitrate, kbps.	Quality, %
1	15	60	2048	17%
2	29,7	60	4055	33%

Image quality index	Size, Mb	Duration, sec.	Bitrate, kbps.	Quality, %
3	44,6	60	6089	50%
4	59,4	60	8110	67%
5	74,2	60	10130	83%
6	89,1	60	12165	100%

Codec H264, resolution 1280x720

Image quality index	Size, Mb	Duration, sec.	Bitrate, kbps.	Quality, %
1	6,68	60	912	23%
2	13,2	60	1802	46%
3	19,9	60	2717	69%
4	26,5	60	3618	91%
5	28,6	60	3904	99%
6	29	60	3959	100%

Codec H264, resolution 640x480

Image quality index	Size, Mb	Duration, sec.	Bitrate, kbps.	Quality, %
1	2,3	60	314	26%
2	4,7	60	641	53%
3	6,9	60	946	78%
4	8,7	60	1190	98%
5	8,8	60	1213	100%

Image quality index	Size, Mb	Duration, sec.	Bitrate, kbps.	Quality, %
6	8,9	60	1217	100%

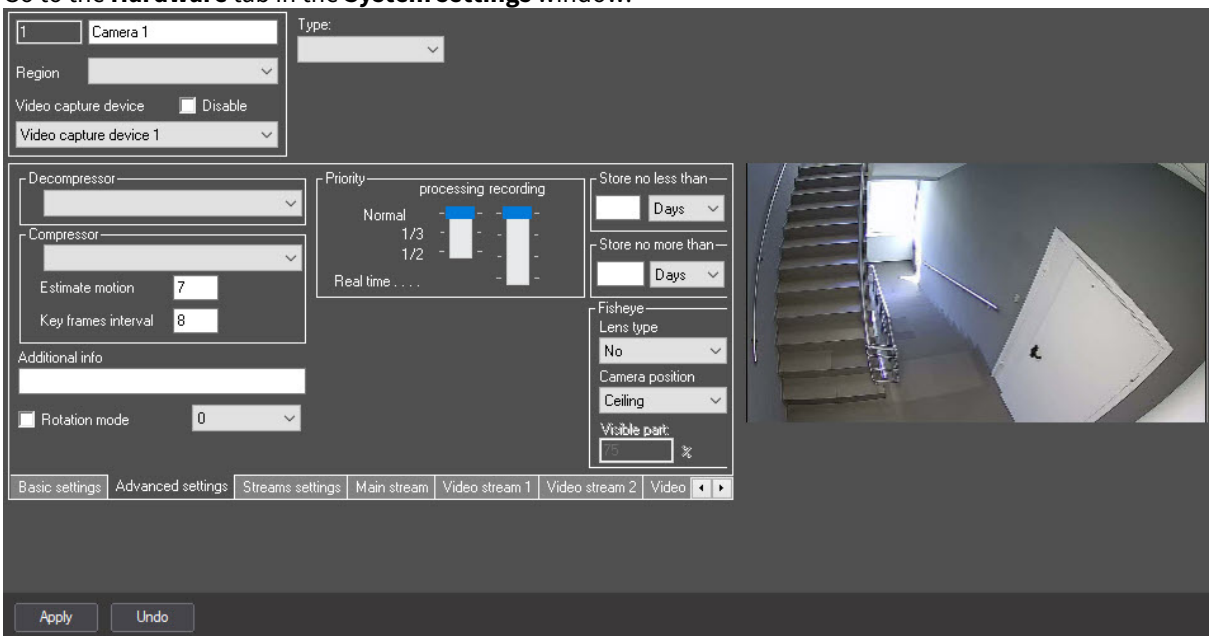
Additional information on camera

Additional information on the camera is:

1. Displayed on the video surveillance monitor over the camera name (disabled by default to reduce GPU load, see Setting the parameters of the Monitor interface window).
2. Added to the name of the export file from the interface monitor (AVI, BMP/JPEG) and for frame printing.
3. Displayed in the **Event Viewer** window in the **Additional info** column.

To set additional information about the camera, do the following:

1. Go to the **Hardware** tab in the **System settings** window.



2. In the object tree on the **Hardware** tab, select the **Camera** object corresponding to the adjusted camera.
3. Go to the **Advanced settings** tab on the settings panel of the **Camera** object.
4. In the **Additional info** field, specify the line of at least 100 characters.

> **Note**
>
> The color of additional information displayed on the surveillance monitor changes according to the state of the Camera. For example, if the Camera is recording, the text is red; otherwise, it is white. You can set an unchanging arbitrary color using the **MonitorExtraTextColor** parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\PSIM\Video registry key (for details, see Registry keys reference guide).

5. To save the changes in *Axxon PSIM*, click the **Apply** button.

Setting additional information is complete.

Event control via Event Viewer

Viewing video sequences from surveillance cameras
Export and print out

Configuring video detection tools

General description of Axxon PSIM software detection tools

The following detection tools are available in the *Axxon PSIM* software:

1. Main motion detection tool and basic detection tools.
2. Smart video detection tools.
3. Embedded detection tools.
4. Face detection tool.

Enabling, configuring and disabling basic video detection tools

General information on basic detection tools

Basic video detection tools provide automatic video image analysis to recognize events occurring within the observed scene. Event recognition capabilities depend on the type of detection tool.

In *Axxon PSIM* software several types of basic detection tools are available:

1. main motion detection tool;
2. motion detection tool;
3. focusing detection tool;
4. video signal stability detection tool;
5. background change detection tool;
6. camera blinding detection tool;
7. camera covering detection tool;
8. infrared detection tool.

The following basic detection tools may be applied as sabotage detections: focusing, background change, camera blinding and/or camera covering.

By default, *Axxon PSIM* software uses solely the main motion detection tool, which detects the video surveillance camera alarms. The rest of detection tools are optionally activated in the course of *Axxon PSIM* software administration.

To configure basic detection tools, set up the program algorithms for them, enable auto recording on detection tool alarm option etc.

To activate Main detection tool, arm the corresponding camera (see Camera arming and disarming). To activate basic detection tools, arm the corresponding detection zone (see Use of video detection tools).

Important!

The basic detection tools process key frames only (for codecs with interframe compression). If detection tool configuration as described above does not result in the proper detection tool operation and the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).
For the MJPEG codec, the number of frames per second processed by the main motion detector is set using the DetectionFps registry key (see Registry Keys Reference Guide). This registry key also affects grooming for the H264 codec (key frames only).

Requirements to video parameters while working with detection tools and Tracker
Camera arming and disarming
Use of basic video detection tools

Requirements to video parameters while working with detection tools and Tracker

Requirements for the correct operation of video analytics are given in the table:

Camera	• Resolution:
	  • at least 640x480 but no more than 800x600 pixels for smart video detection tools
	  • at least 320x240 pixels for other video detection tools
	• FPS:
	  • at least 6 frames per second for smart video detection tools
	  • at least 1 frame per second for other video detection tools
	• Video analytics works with both black-and-white and color images
	• Camera shaking must not cause image shifting of more than 1% of the frame size

Lighting	• Moderate lighting. Insufficient or excessive lighting (night or bright sunlight) may impact the quality of video analytics • No abrupt changes in lighting
Scene and camera angle	• Moving objects are visually separable from each other • The background is mostly static and doesn't change abruptly. • Moving objects are minimally obscured by static objects in the scene (columns, industrial products, and so on) • Reflective surfaces and harsh shadows from moving objects can affect the quality of analytics • Long single-color objects may not be tracked properly

Object images for smart video detection tools	• An object must be visible on the image • There is no noise on the video image and there are no artifacts caused by the compression algorithm • The width and height of objects in the video should not be less than 1% of the frame size (at resolutions not less than 1920x1080 pixels) or 15 pixels (at lower resolutions) • The width and height of objects in the video should not be more than 75% of the frame size • It is recommended that the linear measurements of objects in the frame do not exceed 75% of the frame size • The speed of objects in the frame must be at least 1 pixel per second • The object is to be visible at not less than 8 frames • Within two adjacent frames the object cannot move in the movement direction for the distance that is longer than its size • Quantity of simultaneously tracked objects on a frame—no more than 25

Procedure for enabling and configuring basic detection tools

Generally the procedure of configuring basic detection tools includes the following steps (except for the main motion detection tool (camera alarm detection tool), configuration procedure of which is described in Configuring Main motion detection tool section):

1. Connecting basic detection tools. It is performed for each camera independently.
2. Setting detection tools parameters.
3. Testing video detection tool operation by using the video monitor.
4. If detection tool operates improperly, go back to step 2, change the settings and test it again.
5. If detection tool operates properly, the setup is completed.

Connecting basic detection tools

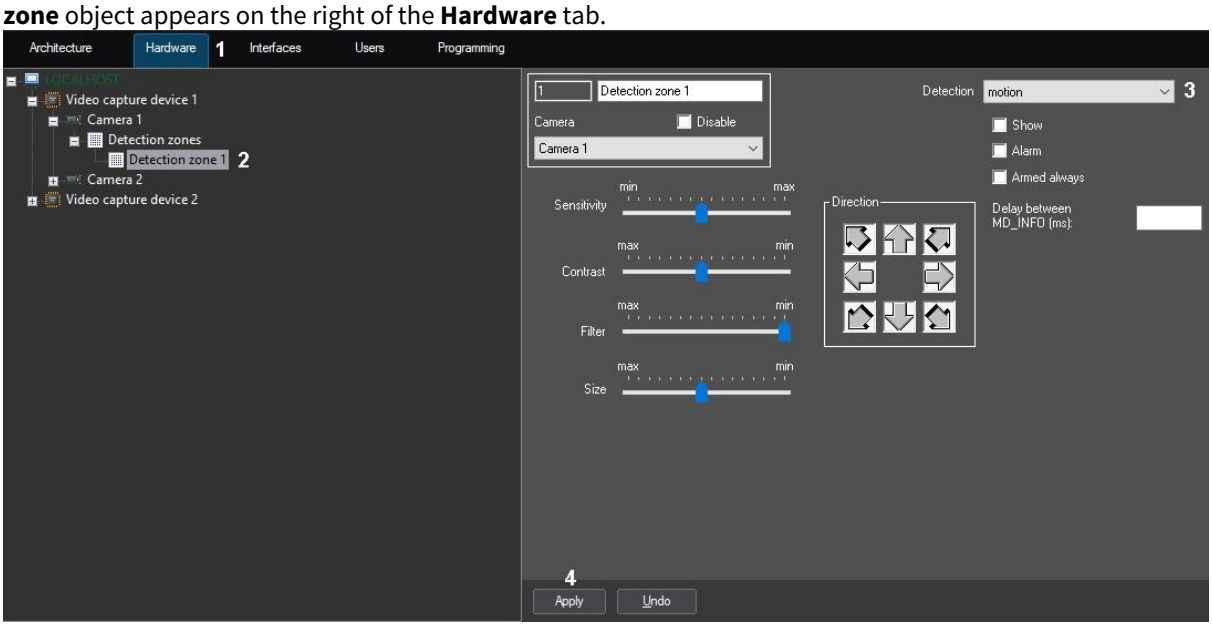
The list of video detection tools is created individually for each camera.

Initially only a Main motion detection tool is registered for each camera. No other detectors are registered by default.

To connect basic video detection tools (except the main motion detection tool), do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
2. Select the **Camera** object, corresponding to the camera to process video from which a detection tool is connected and configured, in the objects tree of the **Hardware** tab.

3. Create the **Detection zone** object on the base of the **Camera** object (**2**). The settings panel for the **Detection zone** object appears on the right of the **Hardware** tab.



4. In the **Detector** list, select the required type of detection tool (**3**).
   When a detection tool is connected, the controls for configuring the selected detection tool are activated. Controls that are not required are disabled. With different types of detectors, the same graphics object may correspond to different settings.
   The setup procedure depends on the type of detection tool. Setup sequences for different types of detection tools are described in the relevant sections.
5. Click the **Apply** button (**4**).

A detection tool is now connected.

Requirements to video parameters while working with detection tools and Tracker
Camera arming and disarming
Use of basic video detection tools

Configuring basic detection tools

Configuring Main motion detection tool

The main motion detection tool is used to detect motion on the protected facility and to generate the system alarm events when the relevant camera is armed.

Main motion detection tool configuration is performed for each camera independently.

In most cases the default settings for Main motion detection tool are sufficient for it to function properly.

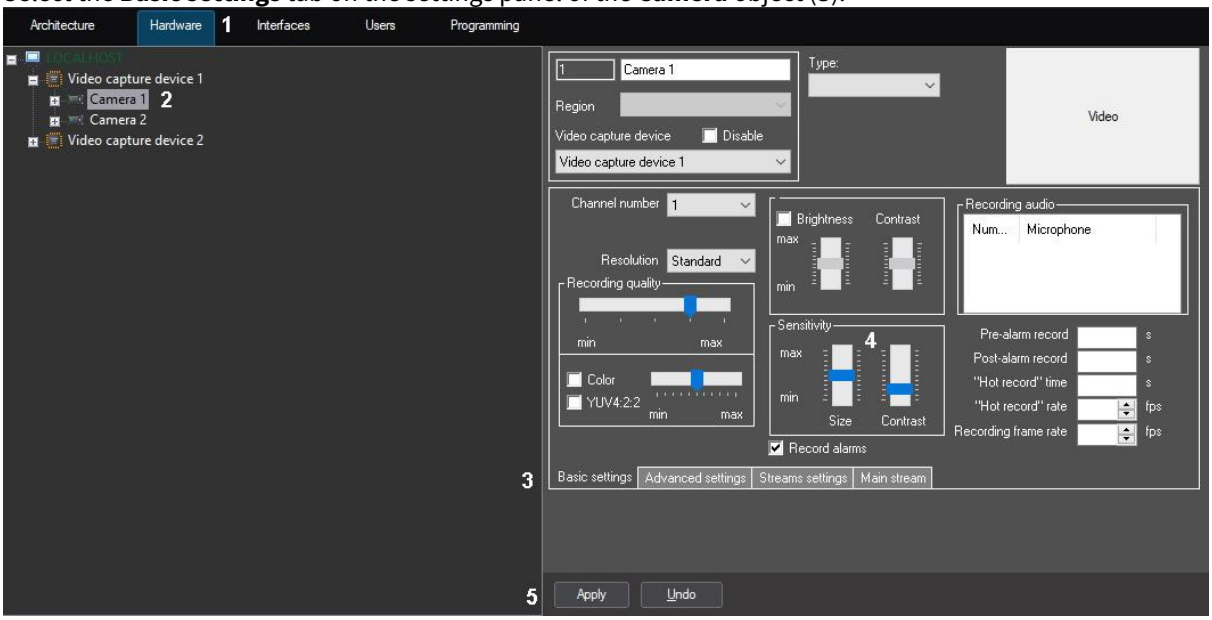
To configure Main motion detection tool, do the following:

1. Display the video surveillance monitor on the screen and check if *Axxon PSIM* properly registers alarms on camera.
   If registration is proper, then additional settings may be skipped.

Note

If alarms on camera are registered improperly (for example, a detection tool is triggered by artificial or natural video signal noise (rain, snow, etc), a detection tool does not detect small object motion and high speed motion), or if there is a big interval between the start of an event and the start of an alarm and the end of an event and the end of an alarm, you should configure the Main motion detection tool. The proper setup of a Main motion detection tool allows to significantly lower the probability of unsatisfactory camera alarm detection.
It is recommended to set the key frames interval to at least 2 (for more information, see Configuring video compression), and to change the number of processed frames by setting the corresponding value of the **DetectionFps** parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\AXXONSOFT\PSIM\Video registry key (for more information, see Registry keys reference guide; for information on working with the registry, see Working with Windows OS registry). The key value corresponds to the maximum number of frames processed per second, which decompresses all frames and increases the load on the CPU.

2. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
3. Select the **Camera** object corresponding to the camera on which a detection tool is configured, in the objects tree of the **Hardware** tab (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.
4. Select the **Basic settings** tab on the settings panel of the **Camera** object (**3**).



5. Set the **Size** value by moving the slider of the same name (**4**). The value of this setting corresponds to the part of the total frame square, occupied by the smallest detected object. When an object bigger than the preset one moves, the motion detection tool switches to the alarm status.
The best value of the **Size** parameter is defined by testing the triggering of a detection tool. With low values of the **Size** parameter, triggering by noise (including rain, snow) is more probable. With high values of the **Size** parameter, triggering by object motion is less probable.
The value that is slightly lower than the average size of the moving objects in the frame is recommended to be set to the **Size** parameter. If a detection tool triggers upon video signal noise, then it is necessary to change the **Contrast** parameter.
6. Set the **Contrast** value by moving the slider of the same name (**4**). The value of this setting corresponds to the contrast of detected object.
The best value of the **Contrast** parameter is defined by testing the triggering of a detection tool. With low values of the **Contrast** parameter, triggering by moving objects, color spectrum of which is very similar to that of the background, is more probable. In most cases the default **Contrast** setting (the average value) is sufficient.

7. Click the **Apply** button (**5**).

Main motion detection tool is now configured.

Configuring Motion detection tool

The Motion detection tool discovers moving objects in the zone under control. When a moving object is detected, it is dynamically framed. The motion is detected by calculating the gradient between sequential frames to time.

Note.

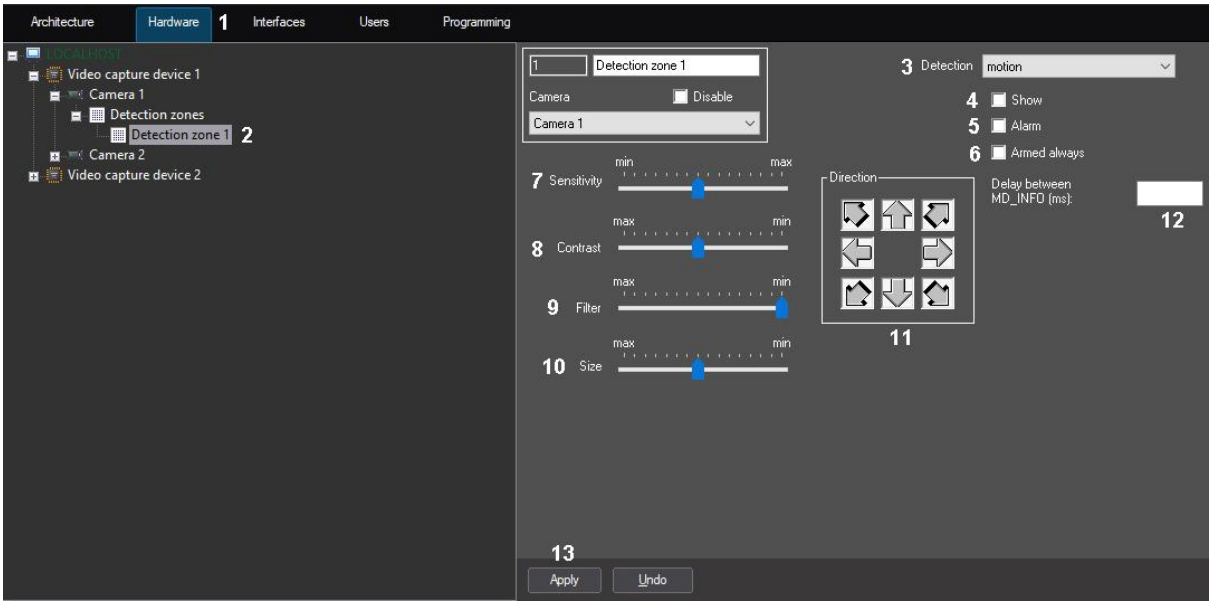
The performance of this detector is much worse than performance of VMDA detector (see Motion in the Area detection tool configuration). When better recognition quality is required, VMDA detector is recommended to be used.

Note.

The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Motion detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
2. Select the **Detection zone** object corresponding to the detection tool that is to be configured, in the objects tree of the **Hardware** tab (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the motion detection tool (see the Enabling, configuring and disabling basic video detection tools) or select the motion detection tool registered earlier (**3**).
4. By default, the detected moving object is not dynamically framed. If the moving object need to be framed, set the **Show** checkbox (**4**).
5. To enable the auto recording option on a motion detection tool alarm and generate alarm for the corresponding camera, set the **Alarmed** checkbox (**5**).

> **Note.**
>
> If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed when the detection tool triggers.

> **Note.**
>
> If the **Alarmed** option is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

6. To disable disarming of the motion detection tool by any user (irrespectively of his rights), set the **Armed** always checkbox (**6**).

> **Note.**
>
> When the **Armed always** checkbox is set, the line with with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

7. Set the value of the **Sensitivity** parameter by moving the the slider of the same name. This setting corresponds to the minimum value of the average brightness of the moving object, with which the detection tool triggers by its motion only, and not by noise in a video signal (including rain, snow, etc.) (**7**).
   The best value of the **Sensitivity** parameter is defined by testing false triggering of detection tools. With low values of the **Sensitivity** parameter, false triggering by noise is more probable. With high values of the **Sensitivity** parameter, triggering by object motion is less probable.
   Set the value of the **Sensitivity** parameter after setting the **Size**, **Filtration** and **Contrast** parameters. It is recommended to select the value of the **Sensitivity** parameter that will exclude false triggering by noise.
8. Set the value of the **Contrast** parameter by moving the slider of the same name. This setting corresponds to the contrast of the detected object (**8**).
   The best value of the **Contrast** parameter is defined by testing the triggering of detection tools. With low values of the **Contrast** parameter, triggering by moving objects, color spectrum of which is very similar to that of the background, is less probable. With high values of the **Contrast** parameter, false triggering of detection tools by noise is more probable.
   In most cases the default setting (the average value) is sufficient.
9. Set the value of the **Filtration** parameter by moving the the the slider of the same name (**9**). The value of this parameter corresponds to the threshold of color processing of objects, at which the detector should trigger.
   The best value of the **Filtration** parameter is defined by testing the triggering of detection tools. With low values of the **Filtration** parameter, triggering by noise (including rain and snow) is more probable. With high values of the **Filtration** parameter, triggering by object motion is less probable. If a detection tool triggers upon noise, then it is necessary to change the value of the **Sensitivity** parameter.
10. Set the value of the **Size** parameter by moving the slider of the same name (**10**). The value of this parameter corresponds to the minimum linear dimensions of the detection object as a percentage of the dimensions of the video. When an object that is bigger than the preset one moves, the motion detection tool switches to the alarm status.
    The best value of the **Size** parameter is defined by testing the triggering of detection tools. With low values of the **Size** parameter, triggering by noise (including rain and snow) is more probable. With high values of the **Size** parameter, triggering by object motion is less probable.
    It is recommended to set the value of the **Size** parameter that is slightly lower than the average size of objects moving in the frame. If a detection tool triggers upon video signal noise, then change the value of the **Sensitivity** parameter.

11. By default, a detection tool recognizes motion in any direction. To disable detection of motion in certain directions, click the relevant buttons in the **Direction** group. A detection tool detects motion in the directions of the pressed arrow buttons and does not detect it in the directions of pulled arrows (**11**).
12. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**12**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.
13. Click the **Apply** button (**13**).

Motion detection tool is now configured.

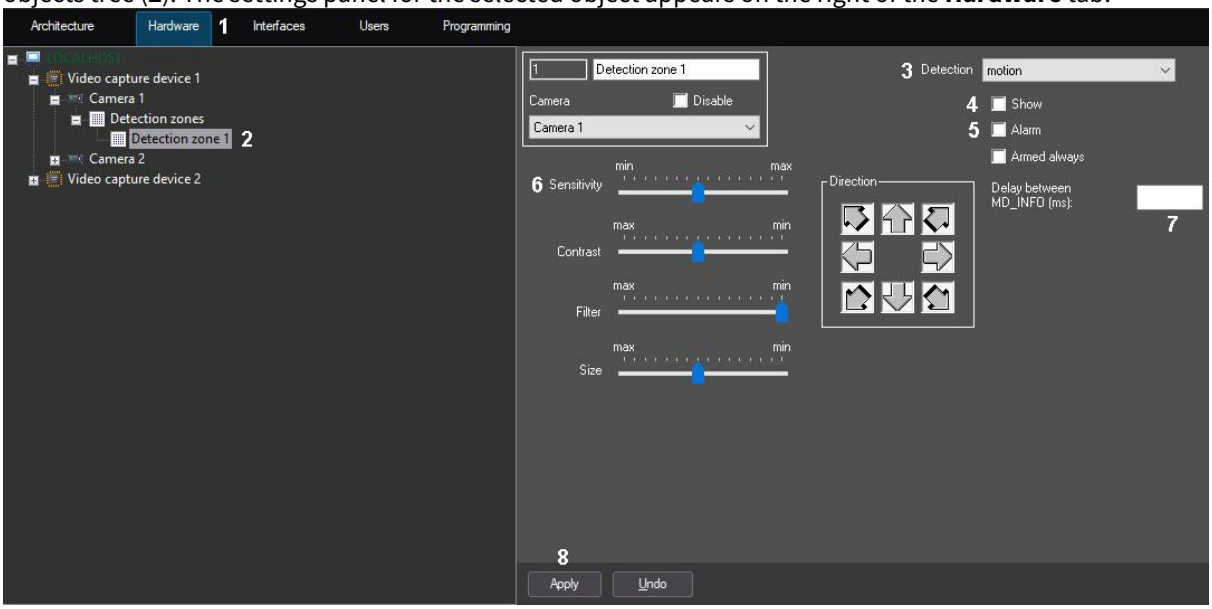
Configuring Focus detection tool

This detection tool notifies the Operator about camera tampering, resulting in focus loss or camera sensitivity degradation. The high frequency component of the video signal is analyzed to check for presence of distinct contours.

> **Note.**
>
> The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Focus detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
2. Select the **Detection zone** object corresponding to the required detection tool, on the **Hardware** tab in the objects tree (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the focus detection tool (see the Enabling, configuring and disabling basic video detection tools section) or select the focusing detection tool registered earlier (**3**).
4. To enable the auto recording option on a focus detection tool alarm and generate alarm for the corresponding camera, set the **Alarmed** checkbox (**4**).

> **Note.**

If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed after detection tool triggers.

Note.

If the **Alarmed** option is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

5. To disable disarming of the focus detection tool by any user (irrespectively of his rights), set the **Armed always** checkbox (**5**).

Note.

When the **Armed always** checkbox is set, the line with with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

6. Set the value of the **Sensitivity** parameter by moving the the slider of the same name (**6**). This setting corresponds to the minimum drop in image sharpness (that is the difference between the average number of contours and the number of contours in the current frame), with which the detection tool is to trigger. The best value of the **Sensitivity** parameter is defined by testing the triggering of detection tools. In most cases the default setting is sufficient.
7. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**7**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.
8. Click the **Apply** button (**8**).

Focus detection tool is now configured.

Configuring Stability detection tool

Stability detection tool reacts to any change in video camera position. Operation of the detection tool is based on the comparison between parameters of each frame and the average parameters (so called "background model"). Every frame is stabilized before processing by correcting to the background by least squares method. This allows eliminating alarms raising from camera blinding when the day/night mode is being enabled.

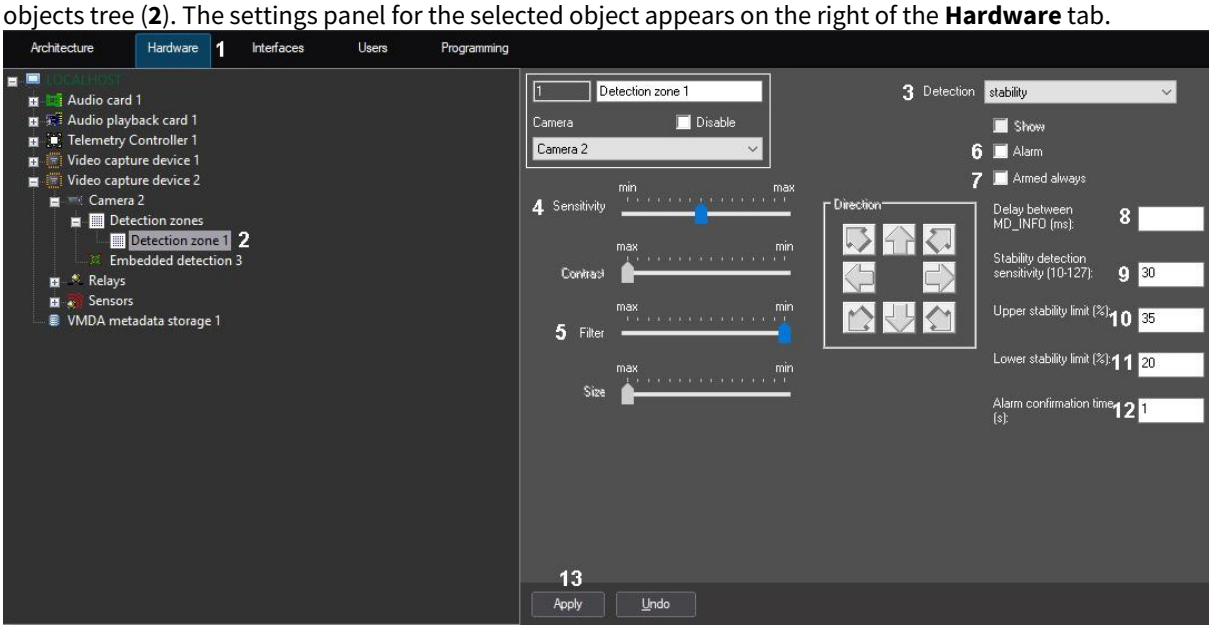
Note.

The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Stability detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).

2. Select the **Detection zone** object corresponding to the required detection tool, on the **Hardware** tab in the objects tree (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the stability detection tool (see the Enabling, configuring and disabling basic video detection tools section) or select the focusing detection tool registered earlier (**3**).
4. Set the value of the **Sensitivity** parameter by moving the the slider of the same name (**4**). This setting corresponds to the minimum drop in image sharpness (that is the difference between the average number of outlines and the number of outlines in the current frame), with which the detection tool is to trigger.
   The best value of the **Sensitivity** parameter is defined by testing the triggering of detection tools. In most cases the default setting is sufficient.
5. Set the value of the **Filtration** parameter by moving the the slider of the same name (5). The value of this parameter corresponds to the contrast threshold of the detected object.
   Decreasing the **Filter** parameter means that it is less probable that detection tool will trigger at objects the color gamut of which is close to the background color gamut. Increasing the **Filter** parameter means that it is more probable that the detection will trigger at the video signal noise. The best value of the **Filter** parameter is identified by testing the detection tool for triggering under the required conditions. In most cases, the default value is enough.
6. To enable the auto recording option on a stability detection tool alarm and generate alarm for the corresponding camera, set the **Alarm** checkbox (**6**).

> **Note.**
>
> If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed after detection tool triggers.

> **Note.**
>
> If the **Alarmed** option is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

7. To disable disarming of the stability detection tool by any user (irrespectively of his rights), set the **Armed always** checkbox (**7**).

> **Note.**
>
> When the **Armed always** checkbox is set, the line with with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

8. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**8**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.
9. In the **Stability detection sensitivity (10-127)** field, enter the threshold of the absolute difference between the brightness of the pixel in the current frame (taking into account the stabilization of brightness) and the background in the range of 10 to 127 (**9**). This parameter determines the percentage of pixels in the current stabilized frame differing from the background by more than the specified sensitivity value. The higher the value, the stronger the pixels of the frame should differ from the pixels of the background in order for the frame to be considered unstable (i.e. the scene should change in brightness).
10. In the **Upper stability limit (%)** field, enter the maximum permissible percentage of the stabilized frame pixels that differ from the background by more than the value in the **Stability detection sensitivity** (**10**). When this percentage is exceeded, the alarm state starts to be verified. If the threshold continues to be exceeded during the **Alarm confirmation time**, the alarm is considered confirmed.
11. In the **Lower stability limit (%)** field, enter the maximum permissible percentage of the stabilized frame pixels that differ from the background by more than the value in the **Stability detection sensitivity** (**11**). The frame is considered stable until this threshold is not reached. The stable frame may be used for the background model. As soon as the lower stability limit is exceeded, the frame ceases to be used for the background model so that unstable frames do not interfere with the background model. The higher the value, the greater the number of pixels should differ from the background by the sensitivity value so that the frame to be considered unstable (i.e., the more global the change in the scene should be). The smaller the value, the more local the scene change may be for the frame to be considered unstable.
12. In the **Alarm confirmation time (sec.)** field, enter the time period in seconds during which the **Upper stability limit** must be exceeded to generate an alarm (**12**). The same time will be necessary to confirm the frame stabilization after the alarm is issued and before the background model begins to be accumulated again.
13. Click the **Apply** button (**13**).

Stability detection tool is now configured.

Configuring Background change detection tool

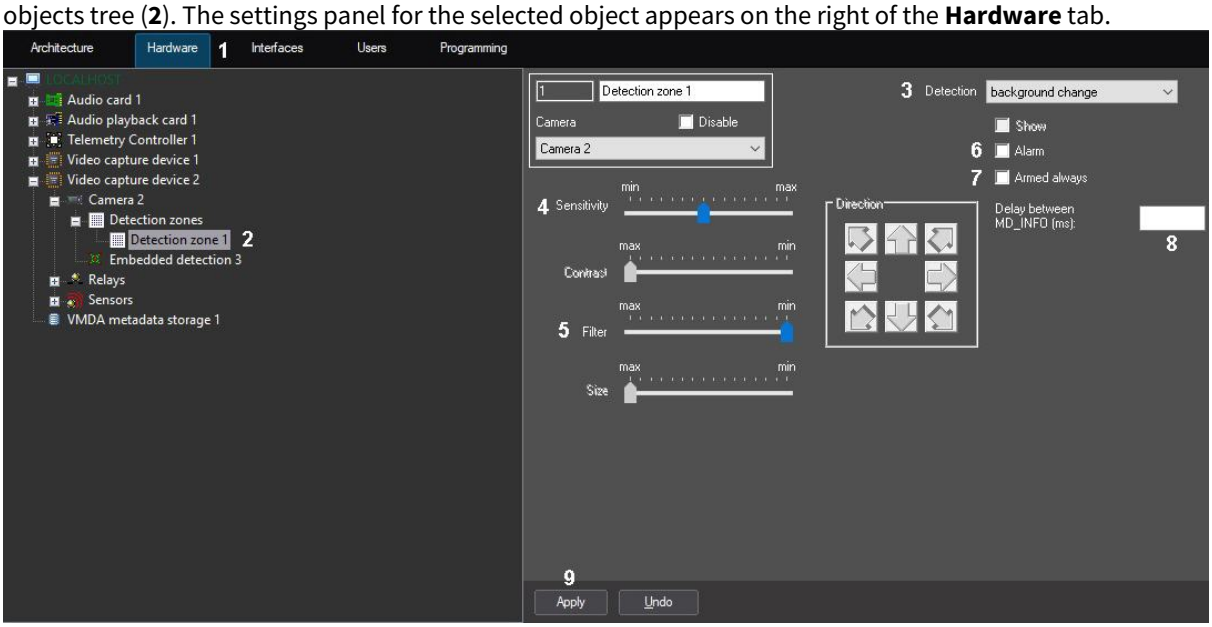
This detection tool reacts to changes in the scene background due to physical tampering of the CCTV camera. Operation of the detection tool is based on calculation of the standard deviation of integral frame intensity from its mean value.

> **Note.**
>
> The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Background change detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).

2. Select the **Detection zone** object corresponding to the required detection tool, on the Hardware tab in the objects tree (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the background change detection tool (see the Enabling, configuring and disabling basic video detection tools section) or select the focusing detection tool registered earlier (**3**).
4. Set the value of the **Sensitivity** parameter by moving the the slider of the same name (**4**). This setting defines the deviation of the integral frame brightness from its mean value at which the detection tool is to trigger.
   The best value of the **Sensitivity** parameter is defined by testing the triggering of detection tools. In most cases the default setting is sufficient.
5. Set the value of the **Filtration** parameter by moving the slider of the same name (5). The value of this parameter corresponds to the contrast threshold of the detected object.
   Decreasing the **Filter** parameter means that it is less probable that detection tool will trigger at objects the color gamut of which is close to the background color gamut. Increasing the **Filter** parameter means that it is more probable that the detection will trigger at the video signal noise. The best value of the **Filter** parameter is identified by testing the detection tool for triggering under the required conditions. In most cases, the default value is enough.
6. To enable the auto recording option on a background change detection tool alarm and generate alarm for the corresponding camera, set the **Alarmed** checkbox (**6**).

> **Note.**
>
> If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed after detection tool triggers.

> **Note.**
>
> If the **Alarmed** option is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

7. To disable disarming of the background change detection tool by any user (irrespectively of his rights), set the **Armed always** checkbox (**7**).

> **Note.**
>
> When the **Armed always** checkbox is set, the line with with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

8. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**8**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.
9. Click the **Apply** button (**9**).

Background change detection tool is now configured.

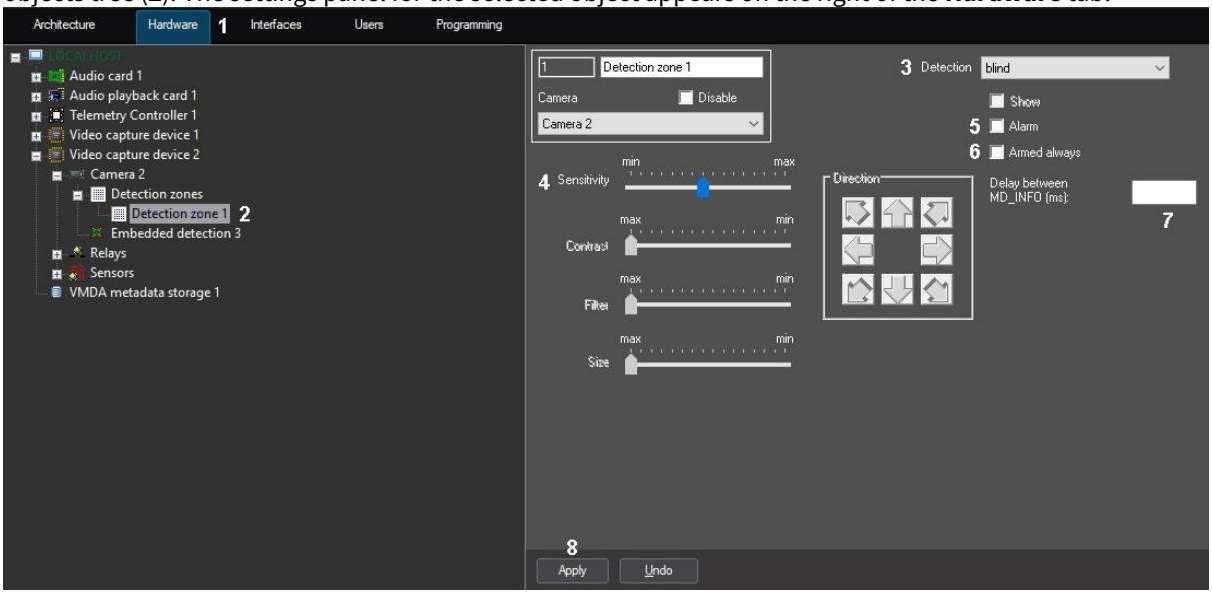
Configuring Blind detection tool

Blind detection tool detects camera blinding. Operation of the detection tool is based on comparison of the bitmap histogram of the current frame to that of the reference blinding frame (white).

> **Note.**
>
> The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Blind detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
2. Select the **Detection zone** object corresponding to the required detection tool, on the **Hardware** tab in the objects tree (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the blind detection tool (see the Enabling, configuring and disabling basic video detection tools section) or select the focusing detection tool registered earlier (**3**).
4. Set the value of the **Sensitivity** parameter by moving the slider of the same name (4). This setting defines the image blinding rate, expressed in the difference between the brightness histogram median position of the current and reference frames with which the detection tool is to trigger.

The best value of the **Sensitivity** parameter is defined by testing the triggering of detection tools. In most cases, the default setting is sufficient.

5. To enable the auto recording option on a blind detection tool alarm and generate alarm for the corresponding camera, set the **Alarmed** checkbox (**5**).

> **Note.**
>
> If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed after detection tool triggers.

> **Note.**
>
> If the **Alarmed** option is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

6. To disable disarming of the blind detection tool by any user (irrespectively of his rights), set the **Armed always** checkbox (**6**).

> **Note.**
>
> When the **Armed always** checkbox is set, the line with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

7. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**7**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.
8. Click the **Apply** button (**8**).

Blind detection tool is now configured.

Configuring Cover detection tool

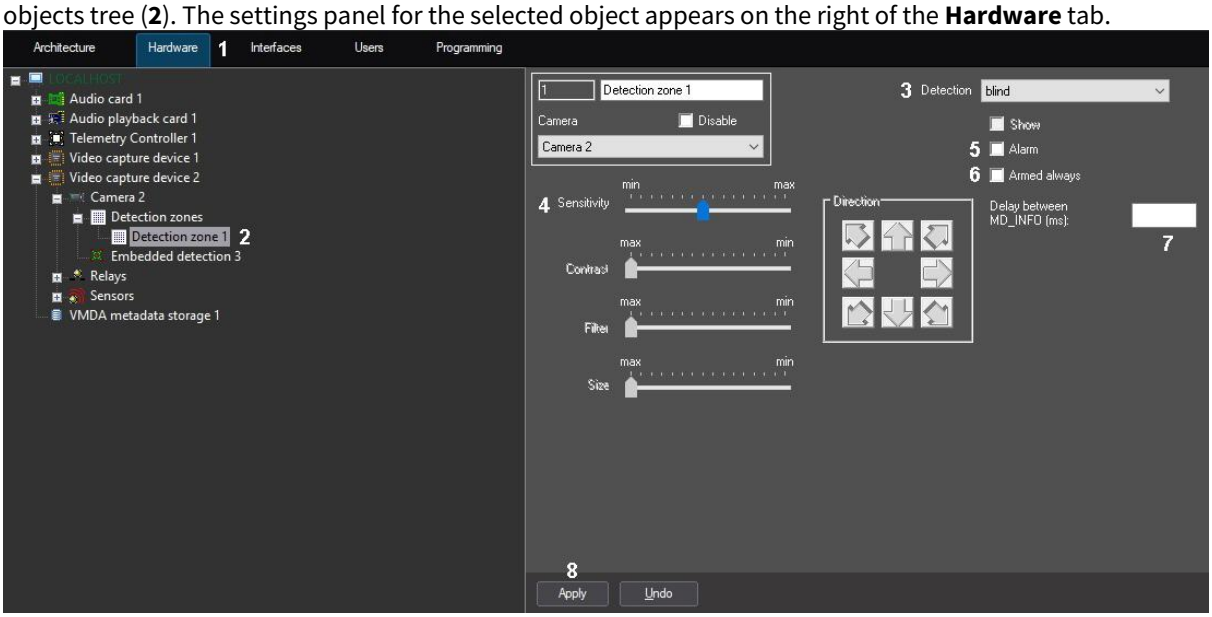
Cover detection tool detects camera covering. Operation of the detection tool is based on analysis of the broadening of the frame histogram, relative to the histogram median of the reference covering frame (grey).

> **Note.**
>
> The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Cover detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).

2. Select the **Detection zone** object corresponding to the required detection tool, on the **Hardware** tab in the objects tree (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the cover detection tool (see the Enabling, configuring and disabling basic video detection tools section) or select the focusing detection tool registered earlier (**3**).
4. Set the value of the **Sensitivity** parameter by moving the the slider of the same name (**4**). This setting corresponds to the contraction rate of the frame brightness histogram, i.e. estimation of grey filling ratio with which the detection tool is to trigger.
   The best value of the **Sensitivity** parameter is defined by testing the triggering of detection tools. In most cases the default setting is sufficient.
5. To enable the auto recording option on a cover detection tool alarm and generate alarm for the corresponding camera, set the **Alarmed** checkbox (**5**).

> **Note.**
>
> If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed after detection tool triggers.

> **Note.**
>
> If the **Alarmed option** is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

6. To disable disarming of the cover detection tool by any user (irrespectively of his rights), set the **Armed always** checkbox (**6**).

> **Note.**
>
> When the **Armed always** checkbox is set, the line with with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

7. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**7**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the

events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.

8. Click the **Apply** button (**8**).

Cover detection tool is now configured.

Configuring Infrared detection tool

Infrared detection tool is used for thermal imagers – infrared cameras. Infrared detection tool detects moving objects within the controlled scene. Detected moving objects are dynamically framed. The motion is detected by calculating gradients between consequent frames.

> **Note.**
>
> The thermal imager is a device, that allows both day and night, to control the situation in any kind of weather, functioning in the thermal, invisible spectral range. It enables to see things that are invisible for night vision devices and TV cameras. Heavy snow, fog, the absence of lighting at night strongly reduce the effectiveness of standard video surveillance facilities. The thermal imager, unlike the common highly sensitive camera or infrared camera, functions properly without regard to the weather and illumination: moonless night, heavy clouds, mist, smoke or, vice versa, very bright sunlight do not affect its functioning. The sensitive element of the thermal imager operates in the invisible spectral range and in fact is not affected by the environmental changes. The thermal imager provides instant temperature measurement at thousands of object points.

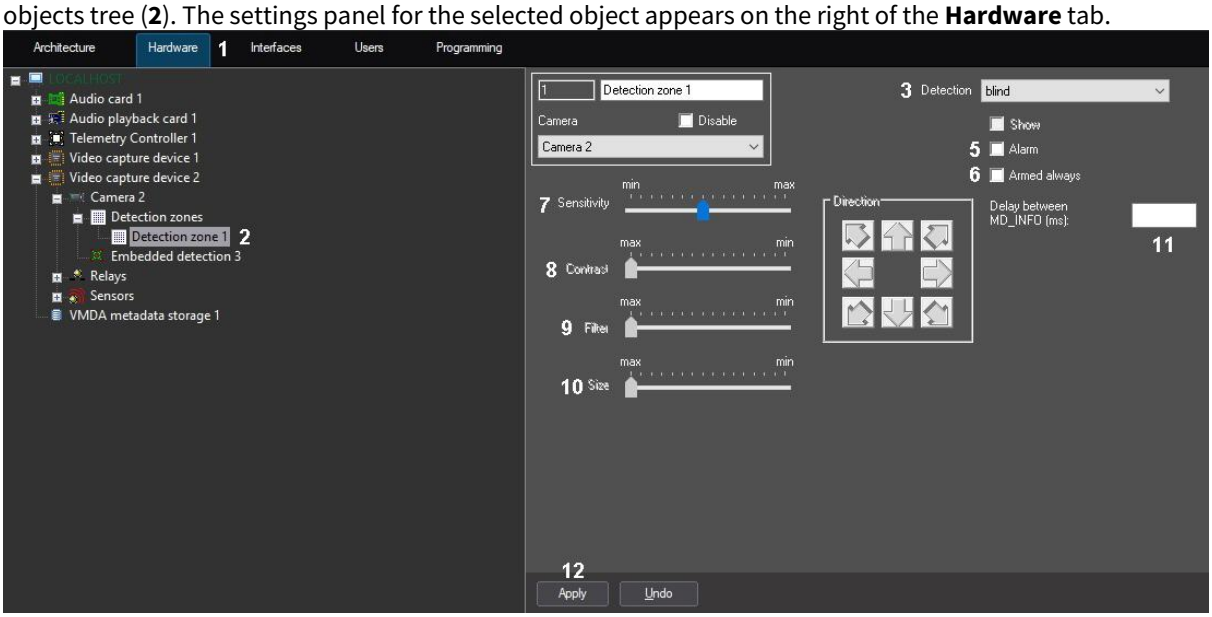
> **Note.**
>
> The video signal from the thermal imager is treated as a standard video signal, but the size of a detected object may be very small (as small as 3 pixels), so the detection tool needs fine tuning.

> **Note.**
>
> The detection is performed by key frames. If detection tool configuration process described below does not result in a proper detection quality, i.e. the detection tool does not trigger or triggers with a delay, it is recommended to reduce key frame rate for video camera (see Configuring video compression) or video analytics stream if the camera has multiple streams (see Configuring the multistream video).

To configure Infrared detection tool, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).

2. Select the **Detection zone** object corresponding to the required detection tool, on the **Hardware** tab in the objects tree (**2**). The settings panel for the selected object appears on the right of the **Hardware** tab.



3. Enable the infrared detection tool (see the Enabling, configuring and disabling basic video detection tools section) or select the infrared detection tool registered earlier (**3**).
4. By default, detected moving objects are dynamically framed. If a moving object is not to be framed, set the **Show** checkbox unchecked (**4**).
5. To enable the auto recording option on an infrared detection tool alarm and generate alarm for the corresponding camera, set the **Alarmed** checkbox (**5**).

> **Note.**
>
> If the **Recording alarms** option is disabled in the **Camera** object settings, then no video recording is performed after detection tool triggers.

> **Note.**
>
> If the **Alarmed** option is disabled in the detection tool settings, then detection tool arming is ineffective, though the line with the name of this detection tool is highlighted with a yellow square in the feature menu of the video surveillance window. This means that detection tool alarms are displayed in the Event Viewer but not shown in Video Surveillance Monitor or Map in any way.

6. To disable disarming of the abandoned objects detection tool by any user (irrespectively of his rights), set the **Armed always** checkbox (**6**).

> **Note.**
>
> When the **Armed always** checkbox is set, the line with with the name of the detection tool is not displayed in the feature menu of the video surveillance window.

7. Set the **Sensitivity** slider to the position corresponding to the minimal value of the average brightness of the moving object which triggers the detection tool by its motion (**7**).

> **Note.**

The best value of the **Sensitivity** parameter is defined by testing the false triggering of detection tools. With low values of the **Sensitivity** parameter, false triggering of detection tools by thermal noise is more probable. With high values of the **Sensitivity** parameter, detection of motion in the frame is less probable.
Set the **Sensitivity** parameter when the **Size**, **Filtration** and **Contrast** parameters are set. It is recommended to set the value of the **Sensitivity** parameter which does not lead to false triggering by noise in video signal.

8. Set the **Contrast** slider to the position corresponding to the minimal value of the contrast which triggers the detection tool by its motion (**8**).

   Note.

   The best value of the **Contrast** parameter is defined by testing the triggering of detection tools. With low values of the **Contrast** parameter the detection tool triggering by motion of objects colors of which are close to the color of the background is less probable. With high values of the **Contrast** parameter triggering of detection tools by noise in a video signal is more probable.
   In most cases the default setting (mean value) is sufficient.

9. Set the **Filter** slider to the position corresponding to the minimum color threshold of the detected object at which the detector will trigger (**9**).

   Note.

   The best value of the **Filtration** parameter is defined by testing the triggering of detection tools. With low values of the **Filtration** parameter triggering of detection tools by noise (including snow and rain) in a video signal is more probable. With high values of the **Filtration** parameter triggering of detection tools by motion in the frame is less probable. If a detection tool triggers upon noise in a video signal, then change the value of the **Sensitivity** parameter.

10. Set the **Size** slider to the position corresponding to minimal size of the object, which triggers the detection tool (**10**). The size of the object is expressed in fractions relative to the size of the frame. When there is motion of the object which size exceeds the given value, motion detection tool switches to the alarm status.

    Note.

    The best value of the Size parameter is defined by testing the triggering of detection tools. With low values of the **Size** parameter triggering of detection tools by noise (including snow and rain) in a video signal is more probable. With high values of the **Size** parameter triggering of detection tools by motion in the frame is less probable.
    It is recommended to set the value to the **Size** parameter that is slightly lower than the mean size of objects moving in the frame. It is recommended to set the value of the **Size** parameter that is a little less than the mean size of objects moving in the frame. If a detection tool triggers upon noise in a video signal, then change the value of the **Sensitivity** parameter.

11. In the **Delay between MD_INFO (ms)** field, enter the time period in milliseconds to pass between MD_INFO events (**11**). This parameter may be set to avoid overloading the Event Viewer with excessive amount of the events that may occur when the MD_INFO event of the CAM_ZONE object is enabled in .ddi file – see The Events tab.
12. Click the **Apply** button (**12**).

Infrared detection tool is now configured.

Configuring smart video detection tools

General information on forensic search

The forensic search in the archive is the search for video records in the archive using the video image metadata. The forensic search of video recordings in the archive is performed by the parameters of an object that appeared in the video camera field of view (FOV), e.g. its direction of movement.

> **Note.**
>
> Since the metadata is recorded to the VMDA metadata storage at the same time as the archive is being recorded, the forensic search in the archive imported from edge storage can not be performed. The process of the archive importing from edge storage is described in the Configuring the access to the archive in edge storage section.

Such criteria as **Line crossing** and **Motion in the area**, which are available in the video surveillance window, are used for the forensic search. For more information about these search criteria, see Search by line crossing and Search by motion in the area.

To perform the forensic search in *Axxon PSIM*, it is necessary to create and configure the following objects:

1. The **VMDA metadata storage** (see Creating and configuring VMDA metadata storage).
2. The **Tracker** (see Creating and configuring the Tracker object).
3. Optional: the **Neurotracker** object being part of the *DetectorPack* subsystem for forensic search by metadata received from the *Neurotracker*. See the *DetectorPack. User Guide* in AxxonSoft documentation repository for details on configuration and operation of this module.

One VMDA metadata storage can be used with several *Axxon PSIM* Servers with Trackers. However, this depends on resource capabilities available on metadata storage Server. Please refer to AxxonSoft Platform Calculator for more specific calculation of Server quantity.

It is possible to create the VMDA detection tools on the basis of the **Tracker** object (see Creating and configuring the VMDA detection). If the VMDA detection tools are configured, their triggering can initiate the video recording to the archive. When recording is enabled, the **Tracker** object records all trajectories of detected objects, regardless of whether the VMDA detection tools are created on its basis or not.

The **Tracker** object and the **VMDA detection tools** also allow extended object classification and object classification using the neural filters. In the extended object classification, the following object types are supported:

- a human;
- a group of humans (with a possibility to count number of people in a group);
- a vehicle;
- noise;
- an object carried into the area;
- an object carried out of the area;
- other.

Configuration and use of this classification method is performed using the scripts and registry keys. For details, see the CAM_VMDA_DETECTOR VMDA detection section of the *Programming Guide*.

The use of neural filters allows to classify any types of objects and cut off false alarms of detectors more accurately. Neural filters are configured individually for each use case (for details, see Configuring the neural filter).

> Requirements to video parameters while working with detection tools and Tracker
> Video requirements to be met for abandoned object detection tool of the Tracker object operation
> Requirements for video parameters to perform the forensic search in the archive
> Define required disk space (VMDA metadata storage)

Search by line crossing
Search by motion in the area
Search by colour

Requirements for video parameters to perform the forensic search in the archive

Video parameters are to be met the same requirements as while detection working when the forensic search in the archive is used (see the Requirements to video parameters while working with detection tools and Tracker section).

Also, there is dependence between minimal and maximal available speed of objects motion on the video image from the camera frames:

1. Maximal speed depends on the object size. Dependence of maximally available speed from the frame frequency for typical objects – person and car is given in the table:

Frame frequency	**Maximally available speed of a person**	**Maximally available speed of a car**
6 fps	5 km/h	40 km/h
12 fps	10 km/h	85 km/h
25 fps	20 km/h	170 km/h

   So, for example, if it is required to recognize people moving with speed till 10 km/h, the frequency 12 fps is enough.
2. The minimal speed of object motion is to be such as the displacement of object image will be less than 1 pixel per frame.

Hardware requirements for the Tracker with neural filter operation

When using the neural filter for the **Tracker** object, the following hardware requirements should be met:

1. The neural filter supports the following processors: CPU, GPU (discrete GPU NVIDIA, built-in Intel GPU), VPU (Intel NCS, Intel HDDL).

   Note.

   In order to connect the Intel NCS, plug in the device to the USB port and make sure that Windows shows it with one of the following names: Movidius, Myriad X, VSC Loopback Device.
   Intel NCS can be utilized with any computer compliant to the *Axxon PSIM* hardware requirements (see Requirements for the base computer).

   Important!

   It is not recommended to use more than one Intel NCS device on the same Server.
2. If CPU or Intel GPU is in use for the neural filter operation, keep in mind that the following processors are supported: Intel Core generation 6 and later, Intel Xeon and Intel Pentium® processors N4200/5, N3350/5 or N3450/5 with Intel® HD Graphics https://software.intel.com/en-us/openvino-toolkit/hardware.
3. NVIDIA GeForce 1050 Ti GPU or newer. GPU requirements:
   a. At least 2 GB of memory.
   b. Compute Capability 3.0 or higher.

Note.

Please check the GPU's Compute Capability version on the manufacturer's web site.

Important!

Install the latest NVIDIA driver from the NVIDIA official web site.

A single neural network consumes 500 MB of video memory. Each neural network is distributed between several object trackers within the GPU. For example: to apply the neural fire detector and the neural smoke detector to any number of channels, you should use a 1 GB graphics card or higher. You can use multiple video cards in your system.

Note.

Make sure that video image requirements are met in order to provide the correct neural tracker operation – see Requirements to video parameters while working with detection tools and Tracker.

Requirements for video materials for neural networks preparation and further training

To use neural network analytics (a neural filter as part of the base *Axxon PSIM* software, and a neural tracker, a posture detection tool as part of the Documentation subsystem), you need to collect and submit to AxxonSoft the images and video recordings from your actual video cameras with the same resolution, expected weather conditions and time of day as in your future application.

For example, if your neural network is intended to operate in the outdoor environment, then your video recordings should contain all range of weather conditions (sun, rain, snow, fog, etc.) at different times of the day (morning, afternoon, evening, night).

Additional requirements for the images and video recordings for each neural analytic tool are listed in the following table:

Neural Filter	No less than 1000 frames containing the objects of interest in the given scene conditions, and the same number of frames without the required objects in the frame (background footage)
Neural Tracker	3-5 minutes of video recordings containing the objects of interest in the given scene conditions
Posture detection tools	No less than 100 different unique persons in the given scene conditions. ***Attention!*** *Different conditions also mean all kinds of positions of a person in the scene (tilts, different positions of body parts, etc.)*

Video requirements to be met for abandoned object detection tool of the Tracker object operation

1. Camera requirements:

1. Resolution must be not less than 640x480 pixels.
2. Analytics works both with color and monochromatic images.
3. It is not allowed to the image shift be more than 1% from the frame size due to camera shake.

- Lighting requirements:

1. Moderate lighting. The quality of analytics performance can be lower in case of low lighting (night) or over lighting (overexposure).
2. There must be no dramatic changes in lighting.

- Scene and camera angle requirements:

1. Background is mostly static and is not changed.
2. Incorrect analytics performance can be caused by reflective surfaces.
3. Abandoned objects are hidden by moving objects not longer than 10% of the time.

- Abandoned object images requirements:

1. An abandoned object must be visible on the image.
2. There must be no noise on the video image and there must be no artifacts caused by the compression algorithm.
3. Object dimensions on the video image must not be less than 1% of the frame size.
4. The width and height of objects in the video should not be less than 1% of the frame size (at resolutions not less than 1920x1080 pixels) or 15 pixels (at lower resolutions).
5. The width and height of objects in the video should not be more than 25% of the frame size.

If these requirements are met, the following performance indicators of the abandoned object detection tool are guaranteed:

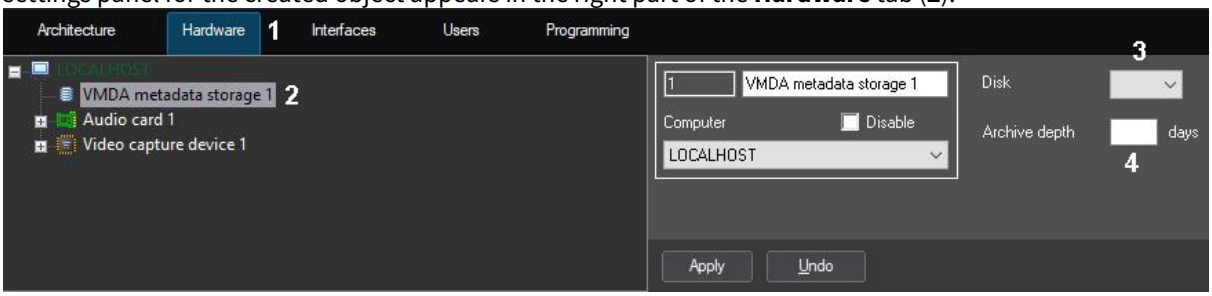
- 92 of 100 abandoned objects are detected.
- Out of 100 detection tool triggerings, 80 will be caused by real abandoned objects, and 20 – by other changes in the scene under surveillance.

Creating and configuring VMDA metadata storage

VMDA metadata storage stores object trajectories covered by a camera. Information that is stored in the VMDA metadata storage is used for the forensic search in an archive.

To configure the VMDA metadata storage, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).
2. Create the **VMDA metadata storage** object on the base of the **Computer** object in the objects tree. The settings panel for the created object appears in the right part of the **Hardware** tab (**2**).



3. In the **Disk** drop-down list, select the disk for saving the archive (**3**).

> **Note.**
>
> The archive will be saved on the selected disk in the VMDA folder.

> **Attention!**
>
> Storing the data to the VMDA metadata storage may be very computer-intensive. The following actions are to be performed for proper system operation:

1.Create the **VMDA metadata storage** object on a separate Server.
2.Enable disk caching by means of redundant array of independent disks or OS.

4. In the **Archive depth** field, set the time period (in days) of storing the archive (**4**).
5. Select cameras metadata from which is to be saved in a created storage. To do this, follow these steps:
   a. Create a **Search channel** object under the **VMDA metadata storage** object (**1**). The number of available search channels is determined by the number of cameras in the license key.



   b. From the **Camera** drop-down list, select the **Camera** object (**2**).
6. To save the changes, click the **Apply** button (**3**).

The VMDA metadata storage is now created and configured.

Recommendations on configuring smart video detection tools

Before configuring the smart video detection tools (see Creating and configuring the Tracker object), consider the following recommendations that could help to reduce the number of false positives:

1. Configure the **Tracker** object iteratively and check its operation quality at each iteration.
2. The parameters that affect the **Tracker** object operation quality the most are: **Minimum size**, **Maximum size**, and **Sensitivity**.
3. It is recommended to set the **Sensitivity** parameter to zero (left end position of the slider). This will enable automatic sensitivity ranging to ensure reasonable operation quality of the tracker in changing lighting conditions.
4. If lighting is stable, it could be reasonable to adjust the **Sensitivity** parameter manually. To detect the low contrast objects, set the **Sensitivity** value at about 35, for the high contrast ones—at about 15.
5. Minimum size of an object must be selected so that it is slightly smaller than the size of a typical object on the image.
6. Maximum size of an object must be selected so that it is slightly larger than the size of a typical object on the image, considering that the object can be joined with its shadow.
7. Lowering the **Waiting for loss** parameter will allow you to exclude triggering on false static objects. Increasing the parameter will allow you, in some cases, not to break off overlapping or temporarily disappearing objects.
8. To increase the VMDA detection tools accuracy, use an advanced object classifier, which is configured using the scripts and registry keys—see CAM_VMDA_DETECTOR VMDA detection.
9. To increase the VMDA detection tools accuracy, the neural filter can be used. It is trained individually for each use case and provides the high accuracy of the objects classification—up to 99% (see Configuring the neural filter).
10. To increase the operation stability of *Axxon PSIM,* you can separate the VMDA trackers operation into a separate **detector_ext.run** process using the **VMDAEXT** key (see Axxon PSIM base version). However, keep in mind that allocating trackers to a separate process increases the CPU and memory resources used.

Creating and configuring the Tracker object

On the page:

- Basic settings
- Tracker mask
- Detection parameters

The **Tracker** object registers the object tracks in the camera FOV during recording and saves them in the VMDA metadata storage.

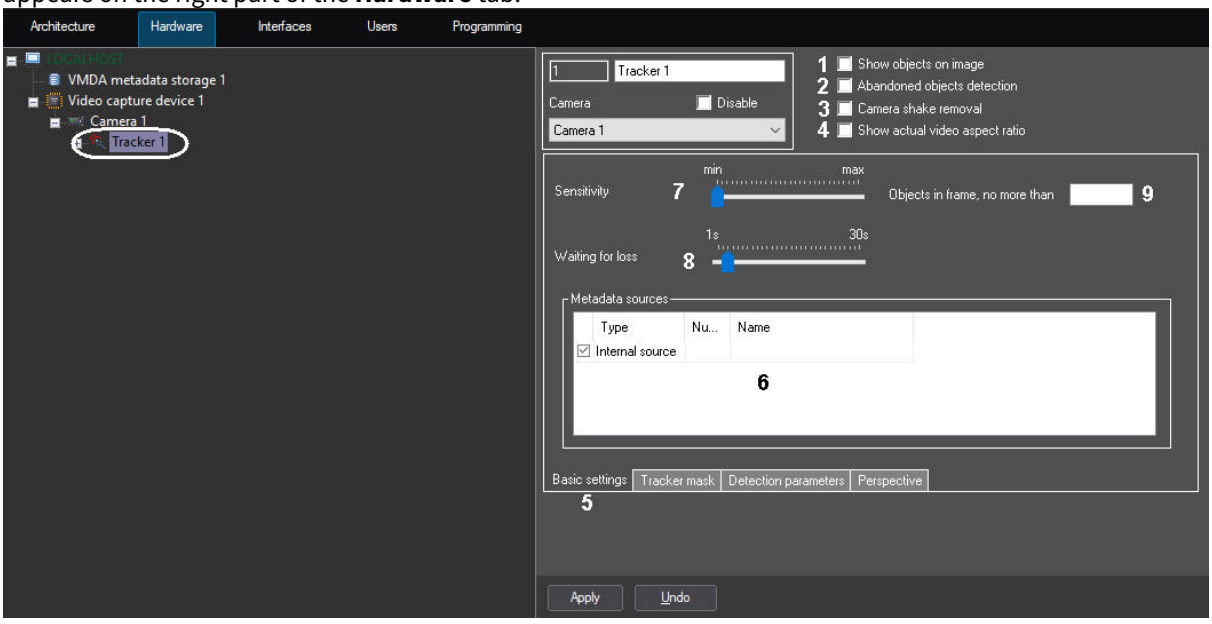
To configure the **Tracker** object, do the following:

1. Set the basic settings.
2. Optional: configure a mask to disable analysis in any parts of the camera FOV.
3. Optional: set the size of the detected objects or configure the perspective settings (see Configuring perspective).

Basic settings

To configure the **Tracker** object, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog window.
2. In the objects tree on the **Hardware** tab, select the **Camera** object, corresponding to the camera, the video image from which you want to analyze.
3. Create the **Tracker** object on the basis of the **Camera** object. The settings panel for the **Tracker** object appears on the right part of the **Hardware** tab.



4. Set the **Show objects on image** checkbox (**1**) if you want to frame the objects on the video display. The frames are displayed on live video only, for example, in the Video surveillance monitor.

Note

To enable the display of the objects' tracker ID, you must set the **1** value for the **DrawDetectorNumbers** line parameter in the HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\PSIM\Video (HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AxxonSoft\PSIM\Video for 64-bit system) registry.
Frame color is adjusted by the **DrawDetectorColors** parameter in the same registry:

- When the value is **1**, the frame color is the average color in the area.
- When value is **0**, the frame color is white.

5. To allow the VMDA detectors to monitor the objects abandoned in the camera FOV, set the **Abandoned objects detection** checkbox (**2**). The video requirements for proper operation of this feature are described in the Video requirements to be met for abandoned object detection tool of the Tracker object operation section, and the settings for VMDA detectors are described in the Creating and configuring the VMDA detection section.
   Specifics of configuration:
   a. To ensure the operation of the **Abandoned objects detection**, you must additionally configure the **Abandoned object** detector type (see Motion in the Area detection tool configuration).
   b. By default, if you enable the **Abandoned objects detection** option, then when you view the live video and archive, only the abandoned objects and disappeared objects are framed on the video image at a time. If you want the VMDA detector to detect only the disappeared objects or only the abandoned objects, you must change the value of the **VMDA.filterGivenOrTaken** parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\PSIM\Video\Vmda registry key (for more details, see Registry keys reference guide, for more information on how to work with the registry, see Working with Windows OS registry).
   c. The function of framing the abandoned and disappeared objects on the video image is available both for the standard and converted fisheye video.

   Note

   If you don't want to monitor the objects abandoned in the camera FOV, we recommend disabling the **Abandoned objects detection** option to reduce the load on the server. If you disable this option, the detectors configured to monitor the abandoned objects won't work.



6. If you set the camera on the moving object, set the **Camera shake removal** checkbox (**3**) to stabilize the image and reduce the error in the detector operation.

> **Attention!**
>
> When you enable the **Camera shake removal** option, the load on the server increases.

7. If video proportions in the preview window are too distorted on the **Tracker mask**, **Detection parameters**, and **Perspective** tabs, set the **Show actual video aspect ratio** checkbox (**4**). In this case, the video may not occupy the entire area of the preview window.
8. Go to the **Basic settings** tab (**5**).
9. In the **Metadata sources** table, set the checkboxes next to the objects used for metadata creation (**6**):
   a. **Internal source**. The resources of the **Tracker** object are used as the metadata source.
   b. **Embedded detector**. Metadata comes from the detectors embedded in the camera (see Embedded detectors).

   > **Note**
   >
   > The recording of tracks from the embedded detectors must be supported by the device. Besides, this functionality must be integrated into *Axxon PSIM*.

10. Set the value of the **Sensitivity** parameter by moving the slider to the required position (**7**). The value of this parameter corresponds to the minimum value of the moving object's averaged brightness, upon which the detector generates an event only on its motion, not to the video signal noise (including snow, rain, and so on).

    > **Note**
    >
    > If you set the slider to the far left position, the value of the **Sensitivity** parameter is selected by the tracker automatically.

11. Set the **Waiting for loss** slider into the position corresponding to the time when the object stops moving and during which this object is considered active and the detector still tracks it (**8**). If the object is motionless longer than the specified period, the object is considered lost.

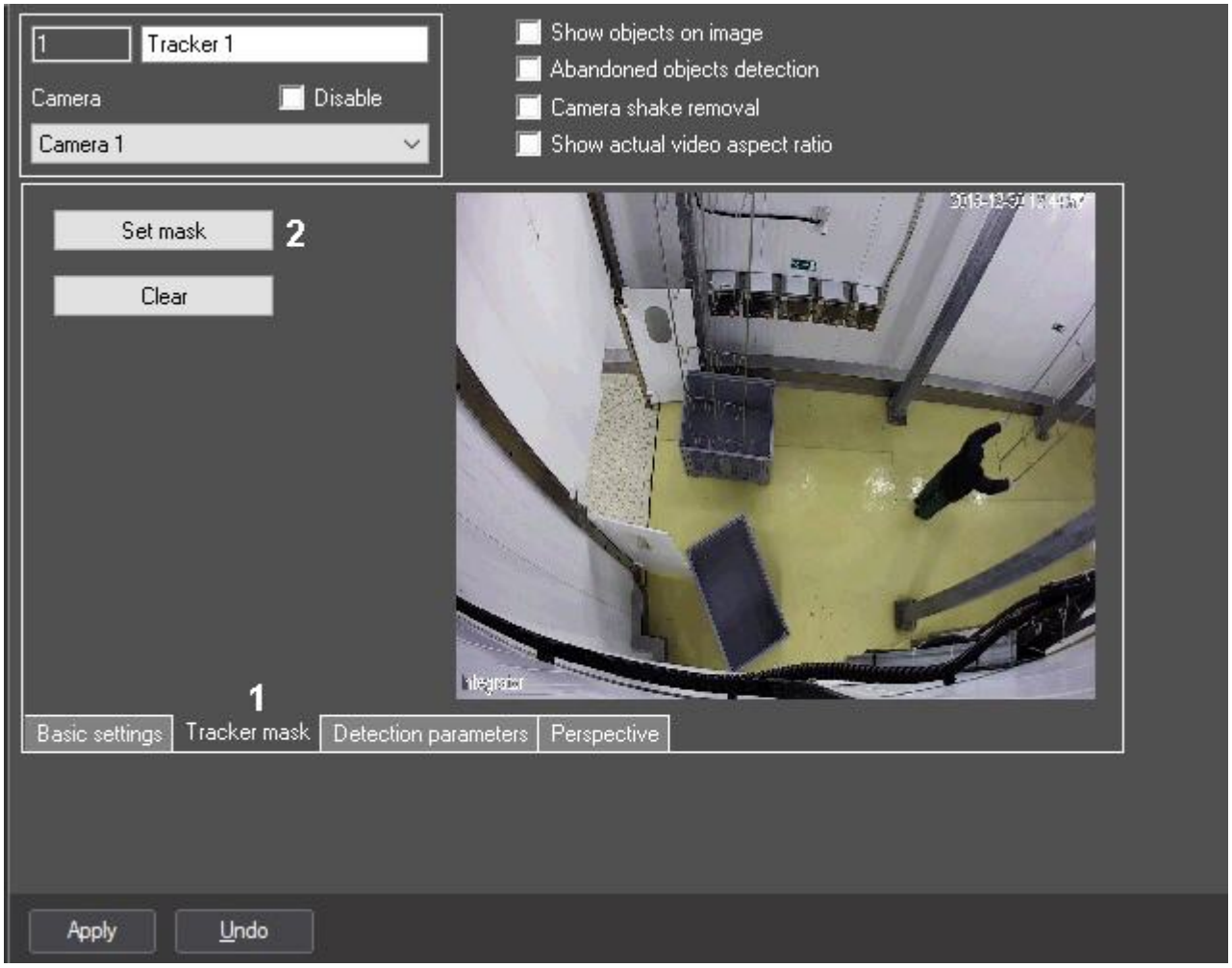
    > **Note**
    >
    > If the lost object starts moving, it is considered a new object.

    > **Note**
    >
    > To fine-tune the detector of the abandoned objects, use the registry keys (see Registry keys reference guide).

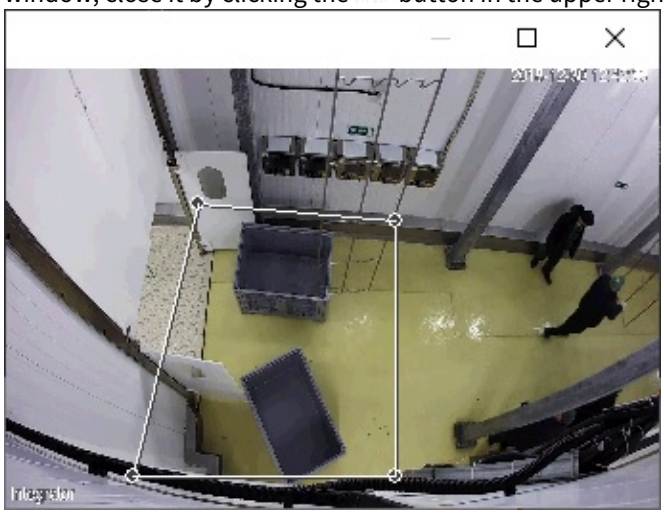
12. In the **Objects in frame, no more than** field, specify the maximum number of objects in the frame that are detected by the tracker (**9**). If the number of objects is equal to or exceeds the specified value, then the MD_LIMIT event is generated (see CAM Camera section of Guide for creating scripts (programming)). If you don't set the parameter or it is equal to 0, this event isn't generated.

Tracker mask

To disable analysis in the area that is in the camera FOV, you must click the **Set mask** button (**2**) on the **Tracker mask** tab (**1**) and specify the area in the video preview area. You can disable analysis in several areas, that is, set several masks. To set an additional mask, click the **Set mask** button again and specify an additional masked area in the video preview area.



If, after clicking the **Set mask** button, you want to zoom in on the mask setting area for a more precise selection of the masked area, right-click the video preview area while holding down the Shift key on the keyboard. The video opens in a separate window, the size of which you can change by dragging its borders. After you set the mask in this window, close it by clicking the ✕ button in the upper right corner.

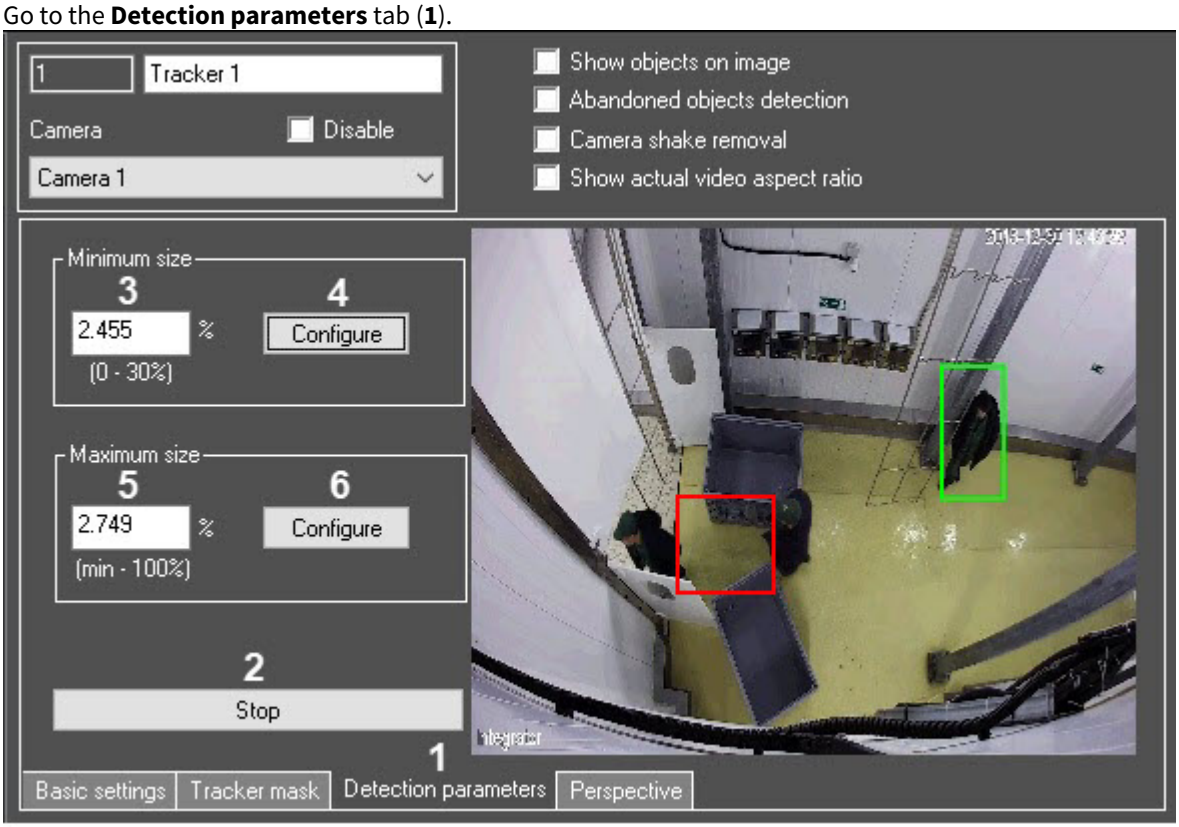


Detection parameters

To set the minimum and maximum size of the detected object, do the following:

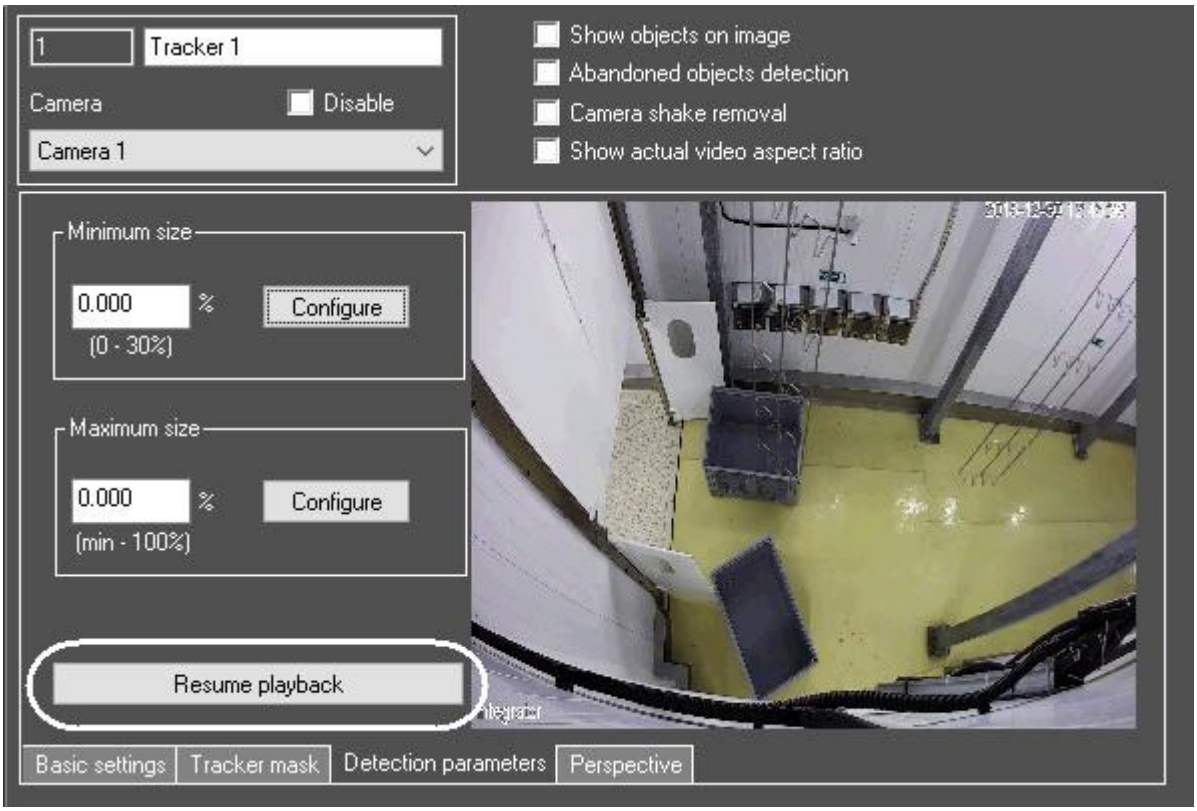
> **Note**
>
> If you enable the perspective setting, the maximum and minimum detection parameter sizes are ignored. The **Width, m** and **Height, m** parameters on the **Perspective tab** (see Configuring perspective) are considered instead.

1. Go to the **Detection parameters** tab (**1**).



2. Click the **Stop** button (**2**) to stop the playback in the video preview area.

> **Note**
>
> To resume the playback, click the **Resume playback** button.



3. In the **Minimum size** group, specify the minimum size of the detected object as a percentage of total image area (**3**) or click the **Configure** button and specify the size in the video preview area (**4**).

   Note

   The range of values of the **Minimum size** parameter is from 0 to 30% relative to the frame size.

4. In the **Maximum size** group, specify the maximum size of the detected object as a percentage of total image area (**5**) or click the **Configure** button and specify the size in the video preview area (**6**).

   Note

   The maximum size must be greater than the minimum one and not greater than 100%. If the maximum size is equal to the minimum one, detection isn't performed.

Note

To save the changes, after you complete the set, click the **Apply** button.

Smart video detection tools operation

Configuring perspective

Perspective in the **Tracker** object is configured in order to set maximum and minimum object size (in meters) for these sizes to be considered correctly regardless of the fact that small objects can look bigger than big objects in the background. Perspective calibration allow better performance of the **Tracker** object.

If the perspective setting is active in the **Tracker** object then sizes specified in the **Detection parameters** tab are not taken into account. The **Width, m** and **Height, m** parameters are used instead.

To set perspective there are to be at least three objects of the same size in the scene that is in the camera's field of view. The perspective will be calibrated by these cameras. Poles, people, etc. can be calibration objects. Calibration objects are not to be on the same line. For higher accuracy they are to be positioned in all frame grounds: foreground, medium shot and background. Though, in some cases this is not obligatory: for instance, if there is no need to detect objects in the background and objects in the foreground are to be detected, then calibration objects are to be positioned in the foreground. The more there are calibration objects, the higher the accuracy of parameters restoration is.

If the perspective is to be considered when setting maximum and minimum object size do the following:

1. Go to the **Perspective** tab (**1**).



2. Set the **With perspective settings** checkbox checked (**2**).
3. Click the **Stop** button to stop playback in the viewing tile (**3**).

> **Note**
>
> To resume playback, click the **Resume playback** button.

4. Specify the size of calibration object (in meters) in the **Object size, m** field (**4**).
5. Set the position of calibration objects on the video image in the viewing tile as follows:

> **Note.**
>
> Zoom in on the video preview field for more precise positioning of calibration objects. To do that, right-click the video preview while holding the Shift key on the keyboard. The video opens in a separate window, which can be resized by dragging its borders. Close this window after adding all required objects.

1. Click the **Add object** button (**5**).
2. Position the object over the calibration object on the video image (**6**).
3. Correct the object size by dragging its edges using left mouse button.

> **Note.**
>
> To delete an object click the button next to it.

4. Repeat steps a-c for all calibration objects in the scene.

- In the **Width, m** group set the maximum and minimum width of detected object (in meters) in the **From** (**7**) and **To** (**8**) fields.
- In the **Height, m** group set the maximum and minimum height of detected object (in meters) in the **From** (**9**) and **To** (**10**) fields.
- To save the changes, click the **Apply** button.

The perspective in the **Tracker** object is now configured.

Configuring object classification

There are three types of object classification by the smart detection tools in *Axxon PSIM*.

1. **Standard**. The following objects can be classified: a human, a vehicle, and other object (see Cross line detection tool configuration and Motion in the Area detection tool configuration). The method is based on determining the ratio of width to height of an object: if the width is greater than the height—a vehicle, if the width is less than the height—a human.
2. **Advanced**. The following objects can be classified with higher accuracy due to fine-tuning: a human, a group of humans, a vehicle, noise, an object carried into the area, an object carried out of the area, other object (see CAM_VMDA_DETECTOR VMDA detection).
3. **Neural filter** is a neural network-based classification. Any objects can be classified to a high precision. The neural network is trained individually for each use case. See Configuring the neural filter.

Configuring the neural filter

The neural filter allows classification of any objects to a high precision.

> **Note**
>
> The neural filter only works with tracks that have already been received from the **Tracker** object, allowing you to remove the excess (noise) and leave the necessary data (human, vehicle, etc.). Since the tracker records the trajectories of objects in the camera field of view, the neural filter receives the tracks only from the moving objects (or from the objects that stopped moving).

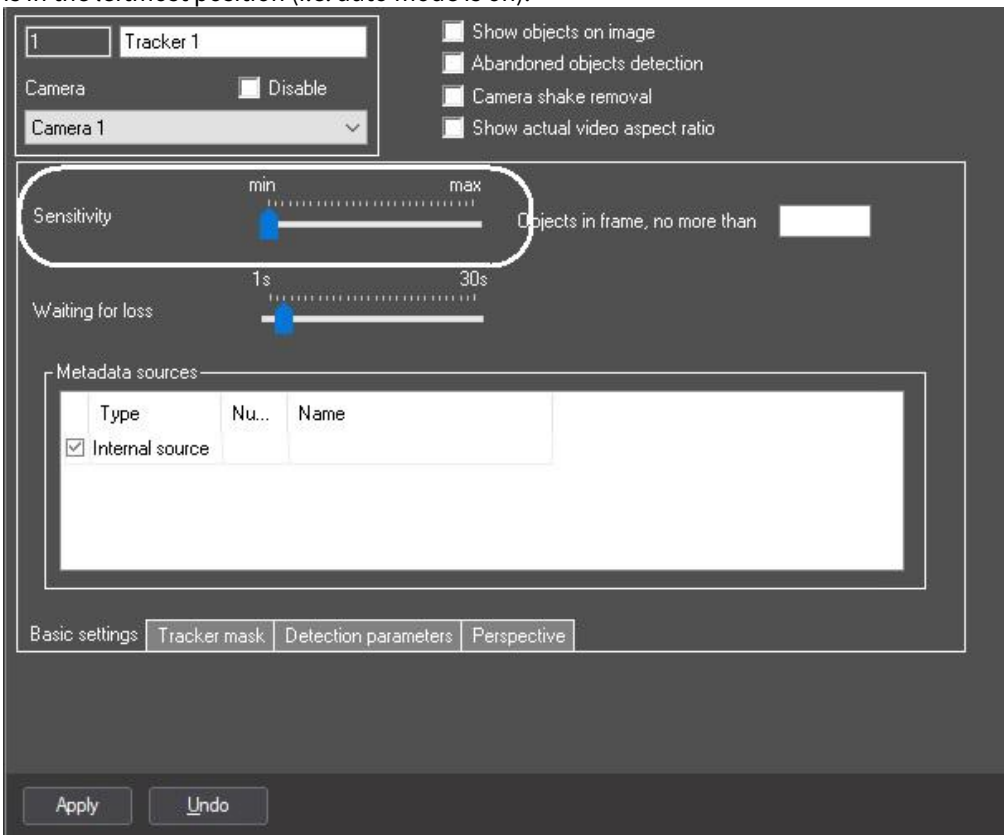
In most cases, one neural networks model is enough for the standard objects classification (e.g. a human / a vehicle). However, for the non-standard tasks with multiple object classes, more than one model may be required:

- if there are different classification tasks: for example, for some cameras the human/vehicle object classification is required, and for other cameras, the vehicle type (passenger car/freight vehicle) classification is required;
- if different conditions apply to different cameras, and the tracker will work better if each neural network is trained to work under different conditions: for example, the task is to protect the factory perimeter (only the human and vehicle detection is required) and the factory workshop (only the people in special work clothes detection is required).

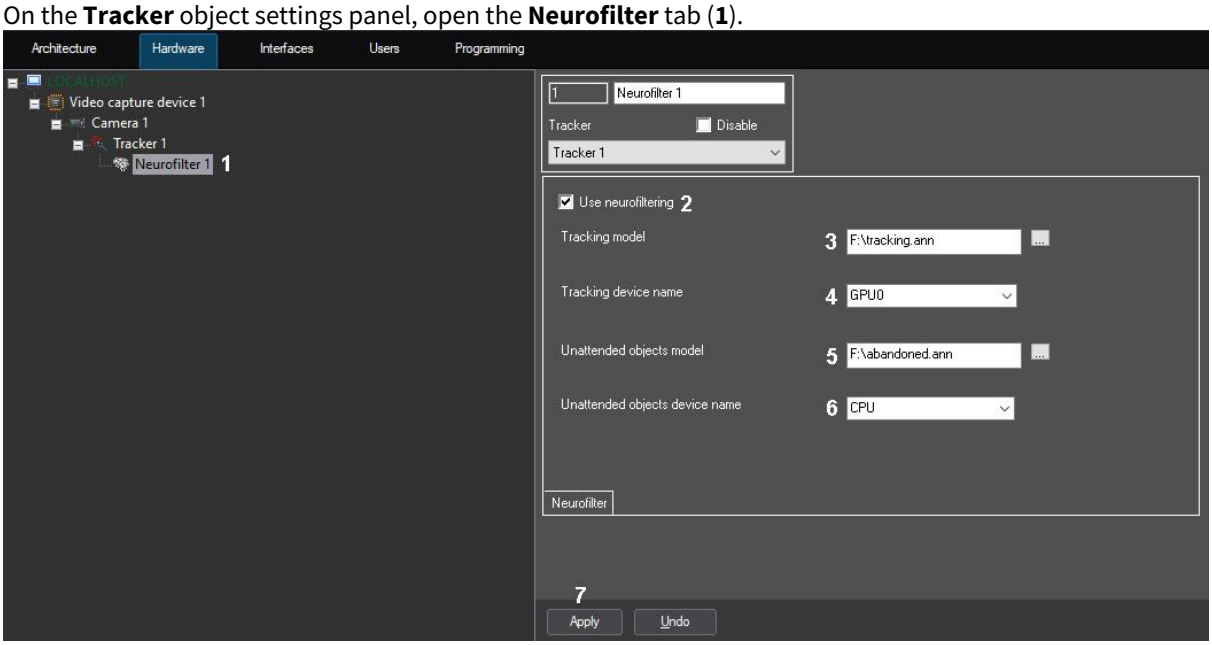
Prior to configuring the neural filter, it is necessary to contact the AxxonSoft technical support and request the model files of the trained neural networks. Technical support specialists will request the data necessary for the preparation of models, and then provide you with the ***.ann** files for each model of the neural network. These files should be distributed among all the servers where the neural filter will be used.

The neural filter is configured in the following way:

1. Install the *DetectorPack* subsystem (if not already installed). The *DetectorPack* subsystem installation guide is available in the corresponding documentation section, the most current version of the documentation is in the AxxonSoft documentation repository.
2. Make sure that the value of **1** is set for the the VMDAEXT key (for details on the key, see Registry keys reference guide). This key is automatically created with the value of 1 when the *DetectorPack* subsystem is installed.
3. Make sure that the value greater than **2000** but less than 5000 is set for the the VMDAEXT.RAM key. It is recommended to specify **4000**, depending on the computer hardware resources. This key is automatically created with the value of 2000 when the *DetectorPack* subsystem is installed.
4. Go to the **Basic settings** tab on the **Tracker** object settings panel and make sure that the **Sensitivity** slider is in the leftmost position (i.e. auto mode is on).



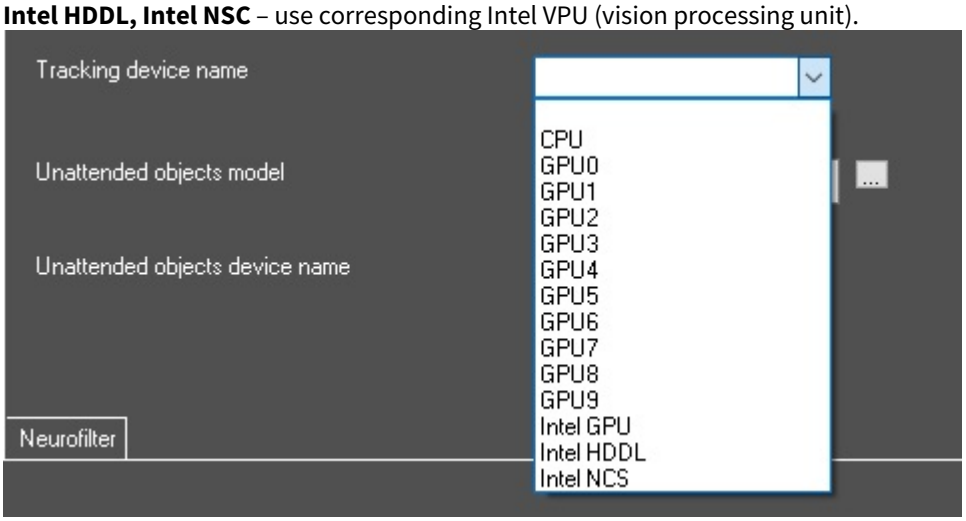
5. On the **Tracker** object settings panel, open the **Neurofilter** tab (**1**).



6. Set the **Use neurofiltering** (**2**) checkbox.
7. In the **Tracking model** field (**3**), enter the full path to the tracker model file received from the AxxonSoft technical support, or click the **...** button and select the file in the standard Windows dialog box.
8. From the **Tracking device name** drop-down list (**4**), select the name of the device that should be used by the tracker for the objects classification:
    a. **CPU** — use the CPU.
    b. **GPU0**, **GPU1**, **GPU2** ... — use the NVIDIA GPU. Usually GPUs are recognized in the system in the order of their physical installation: the first (usually the upper one) GPU is number 0, the middle one is number 1, and the last (usually the lower one) is number 2.

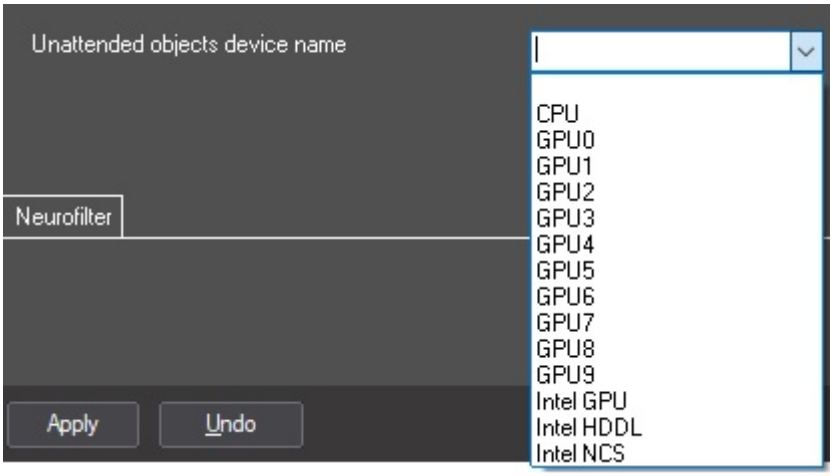
> **Note**
>
> If there are NVIDIA GPUs in the system, it is recommended to use them. If there are no NVIDIA GPUs in the system, the CPU resources should be used. GPUs from other manufacturers are not supported.

    c. **Intel GPU** – use Intel GPU.
    d. **Intel HDDL, Intel NSC** – use corresponding Intel VPU (vision processing unit).



9. In the **Unattended objects model** field (**5**), enter the full path to the abandoned objects detection model file received from the AxxonSoft technical support, or click the **...** button and select the file in the standard Windows dialog box.
10. From the **Unattended objects device name** drop-down list (**6**), select the name of the device that should be used by the tracker for the abandoned objects classification.

> **Note**
>
> For the unattended objects neural filter operation, it is necessary that the unattended objects detector of the **Tracker** object is enabled, and the VMDA detectors are configured appropriately (see Creating and configuring the Tracker object and Creating and configuring the VMDA detection).



11. Click the **Apply** button (**7**).

> **Attention!**
>
> Each tracker with configured neural filter uses about 900 MB of video memory. If you are using several neurotrackers which in total consume more video memory than is available in the system, an error will occur. In cases when there is not enough video memory, it is recommended to use several video cards in one system.

The neural filter is configured.

Creating and configuring the VMDA detection

The VMDA detection tools react to object movement. When they trigger, an alarm is generated. On the basis of this alarm, you can perform actions in the system.

If you want to initiate an alarm on a camera when the VMDA detection tool triggers, set the **Generate alarm on camera** checkbox.

> **Note**
>
> You can set the alarm generation mode for any type of VMDA detection tools using the VMDA.oneAlarmPerTrack registry key (see Registry keys reference guide).

You can arm and disarm the VMDA detection tools using macros or scripts, which must be created manually (for the detailed information about macros, see Creating and using macros). By default, the detection tool is armed after creation.

The table below describes possible reactions on detection tool triggering (for example, on line crossing or motion in the area).

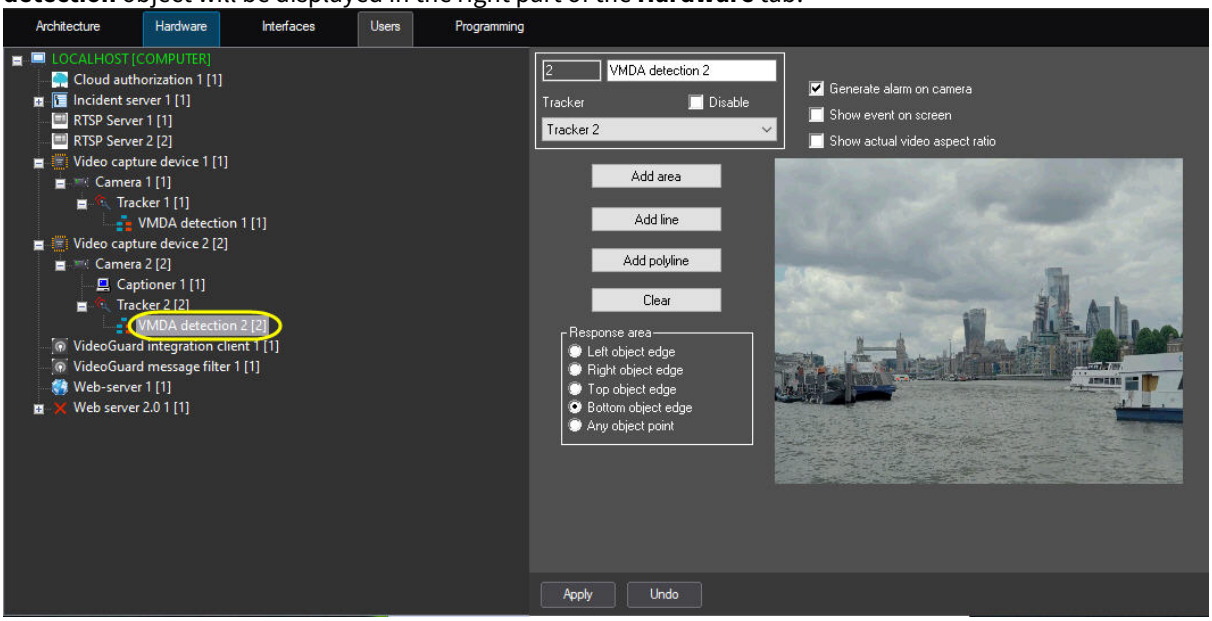
	VMDA detection tool is armed	**VMDA detection tool is disarmed**
The **Generate alarm on camera** checkbox is set	Alarm on camera + alarm on detection tool	Nothing happens
The **Generate alarm on camera** checkbox is clear	Alarm on detection tool	Nothing happens

Note

The **Disappearance in area** detection tool triggers **immediately** after an object in the area disappears. By default, the alarm is reset 15 seconds after the alarm triggers. You can change the alarm reset time using the DisappearedAlarmDuration registry key (see Registry keys reference guide).

To create a VMDA detection, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box.
2. Select the **Tracker** object in the objects tree on the **Hardware** tab.
3. Create the **VMDA detection** object on the basis of the **Tracker** object. The settings panel of the **VMDA detection** object will be displayed in the right part of the **Hardware** tab.



Note.

Video from the camera on the basis of which the **VMDA detection** object is created is displayed in the **Video** field.

The VMDA detection is now created.

Next, you must select and configure the motion variant to which the detection tool will trigger:

- Moving from one area to another detection tool configuration;
- Motion in the Area detection tool configuration;
- Cross line detection tool configuration.

Attention!

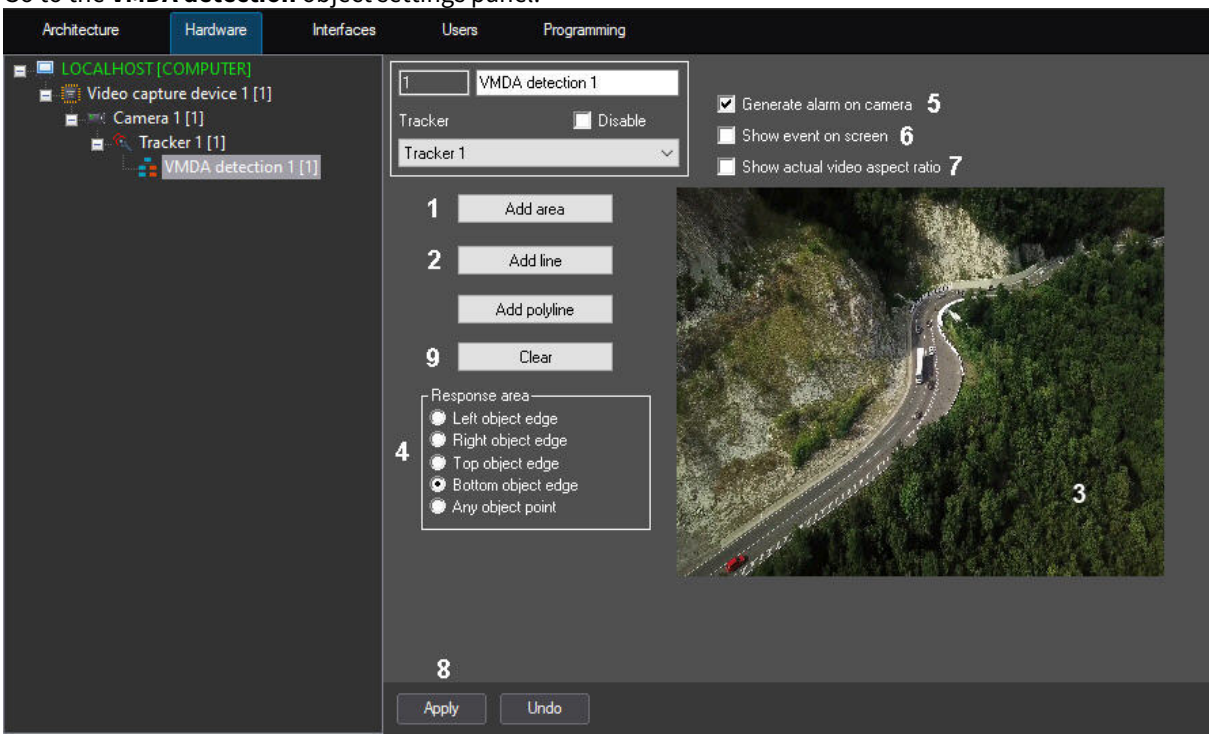
When you create VMDA detection on IP cameras, you must consider the information in Requirements for IP devices.

Cross line detection tool configuration

A cross line detection tool is a VMDA detection tool that is triggered when an object crosses a virtual line in the camera's field of view.

To configure a cross line detector, do the following:

1. Go to the **VMDA detection** object settings panel.

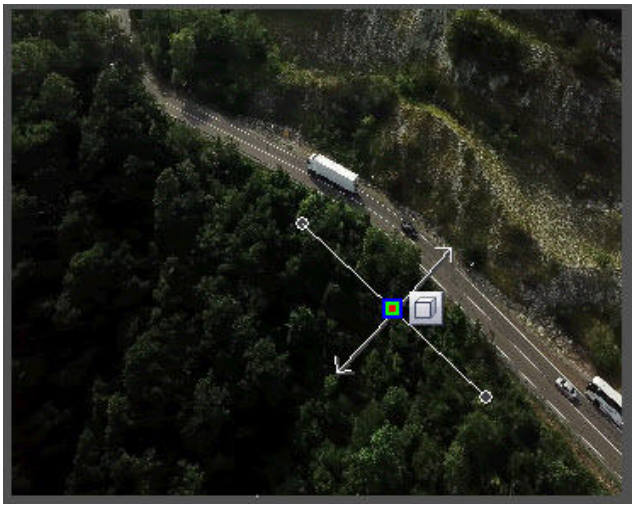


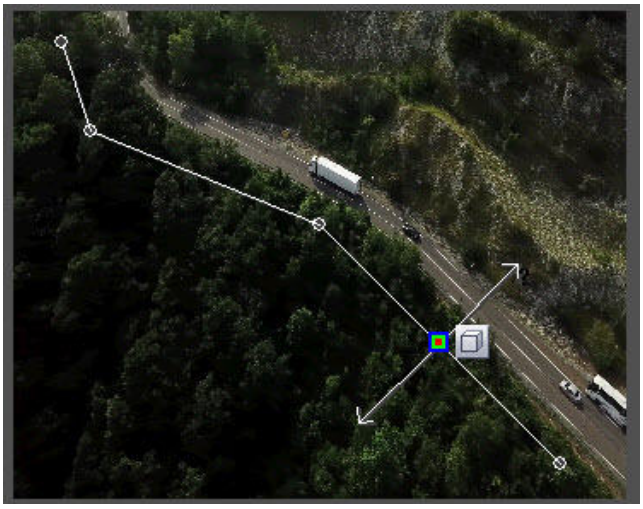
2. Select a line type (straight or polyline) the crossing of which leads to a detector triggering.
   a. If a detector is to trigger while crossing a straight line, click the **Add line** button (**2**).
   b. If a detector is to trigger while crossing a polyline, click the **Add polyline** button.

   Note

   Only one line can be added. The first line will be deleted if there is an attempt to add a second one.

3. In the **Video preview** field (**3**), set the end points of the line, by clicking left mouse button, which crossing leads to a detector triggering.





4. Make the necessary operations with a line.

Operation	**Result**
Left mouse click in the video surveillance window	Creation of a line's end point
Hover to an end point and holding the left button pressed move the mouse	Shift of a line's end point
Hover to an end point and click the right mouse button	A line's deletion

5. To select object type for which the detector will be enabled, click the symbol. Available object types:
   a. Any object. Detector triggers when the line is crossed by any object.
   b. A human. Detector triggers when the line is crossed by an object which width is less than height.
   c. Vehicle. Detector triggers when the line is crossed by an object which width is greater than height.

> **Note.**
>
> Detection of the following object types can be configured using scripts and registry keys: a human, a group of humans (with a possibility to count the number of people in a group), a vehicle, noise, an object carried into the area, an object carried out of the area, other objects. See also CAM_VMDA_DETECTOR VMDA detection.
> More precise objects classification can be performed using the neural filter (see Configuring the neural filter).

6. To set the object color to be triggered by the detector, click the icon. The color picker palette will open. Circle the required color range with the left mouse button.



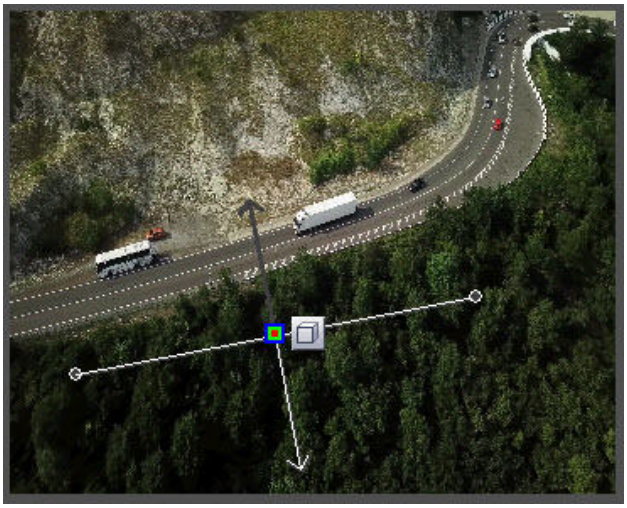
To reset the selected color range to the default value, right-click in the palette area.

7. By default, the detection tool triggers on line crossing in both directions. Click the left mouse button upon one of the arrows to ignore crossing in one of the directions. The arrow will be colored gray.

> **Note**
>
> When just added, the arrow has minimum length.

The approximate speed of detected objects as a percentage of the frame per second is displayed near the arrow. Change the speed by moving the arrow head with pressed left mouse button and changing the arrow length. The detection tool is triggered when an object crosses the line in the selected direction with a speed that is approximately the same as the specified speed. At minimum and maximum value of speed the "?" sign will display and the fact of line crossing will be detected regardless of the speed.
In order for the detection tool to be triggered when object speed is less than the specified speed, specify the id of the detection tool in the **VMDA.useSpeedLimitTypeLessThan** parameter (for details on the key, see Registry keys reference guide).
In order for the detection tool to be triggered when object speed is greater than the specified speed, specify the id of the detection tool in the **VMDA.useSpeedLimitTypeMoreThan** parameter (for details on the key, see Registry keys reference guide).

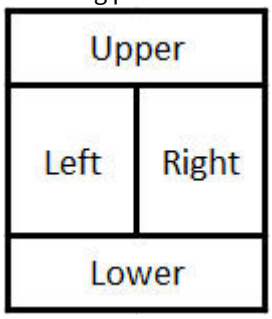
> **Attention!**
>
> The same VMDA detector id can only be specified for either the **VMDA.useSpeedLimitTypeLessThan** or the **VMDA.useSpeedLimitTypeMoreThan** parameters. The simultaneous operation of both these parameters for the same VMDA detector is not allowed.



Note

It is necessary to set at least one direction of the object's movement across the line. If both directions of movement are set, the detection tool will be triggered when the object crosses the line in any direction.

8. By default, the detection tool is triggered if the line is crossed by the lower part of the object. In this case, the object is considered a rectangle (a rectangular frame around a real object), roughly divided into the following parts:



   You can change the part of the object that must cross the line for the detection tool to be triggered. To do this, in the **Response area** (**4**), set the required check box: left, right, top (upper), bottom (lower) part of the object or any point of the object.
9. Set the **Generate alarm on camera** checkbox (**5**), if the camera alarm should be generated when the detector triggers.
10. To display the tracks of objects detected by the cross line detection tool regardless of whether the corresponding setting of the **Tracker** object is enabled, set the **Show event on screen** checkbox (**6**).
11. If the video in the preview window is too distorted, set the **Show actual video aspect ratio** checkbox (**7**). In this case, the video may not occupy the entire area of the preview window.
12. To save the changes, click the **Apply** button (**8**).

Note

To clear the preview field from a visual element (a line), click the **Clear** button (**9**).

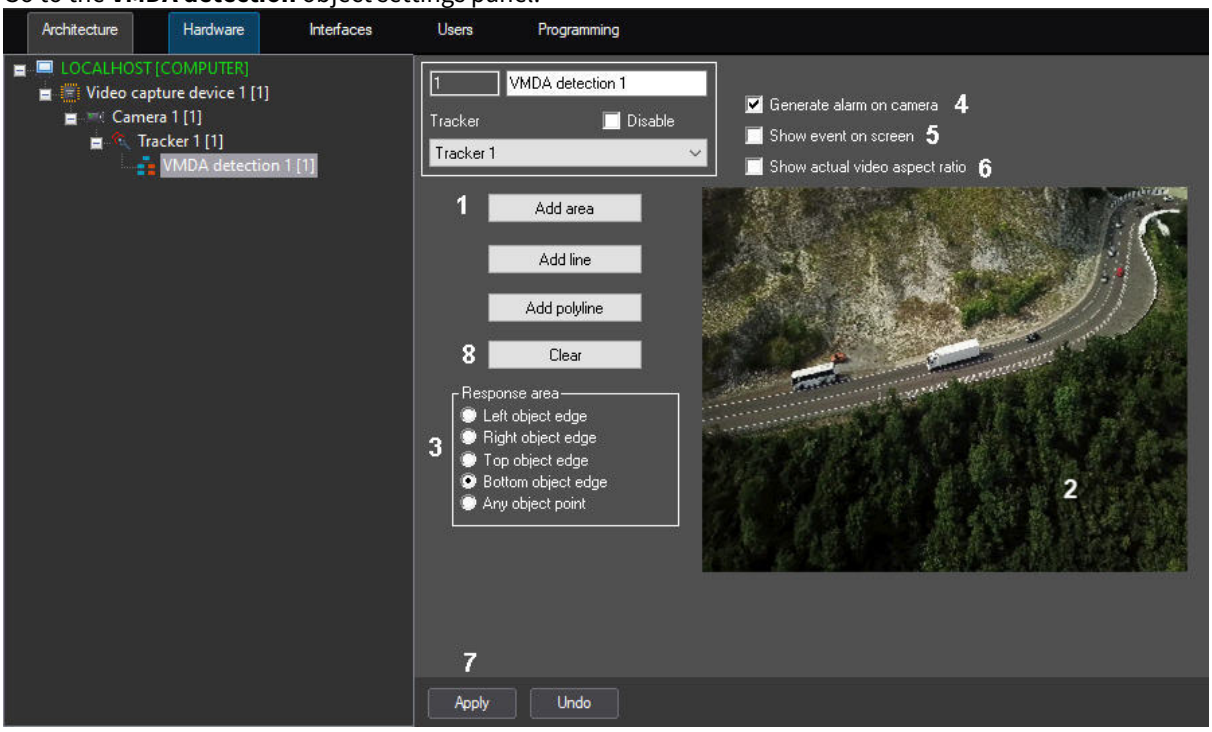
A cross line detector is configured.

Motion in the Area detection tool configuration

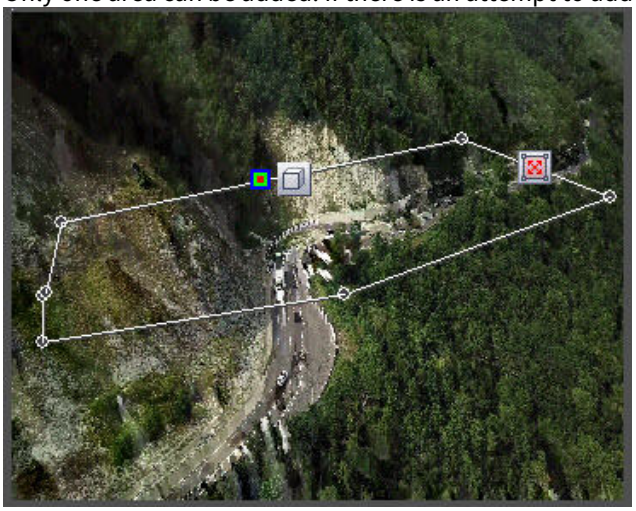
A motion in the area detector is a VMDA detection tool that triggers when the object (objects) makes some actions in a virtual area that is in the camera FOV.

To configure a motion in the area detector, do the following:

1. Go to the **VMDA detection** object settings panel.



2. Click the **Add area** button (**1**).
3. In the **Video preview** field (**2**), set the nodal points of the area one by one by clicking the left mouse button. Only one area can be added. If there is an attempt to add a second area, the first one will be deleted.



4. Make the necessary operations with an area:

Operation	Result
Left mouse click in the video surveillance window	Area's nodal point addition

Operation	Result
Hover to a nodal point and holding the left button pressed move the mouse	Area's nodal point shift
Hover to a nodal point and press right mouse button	Line deletion. If there are three nodal points the whole area will be deleted

5. To select an object type for which the detector will trigger, click the  symbol. Available object types:
   a.  Any object. Detector triggers on any object.
   b.  A human. Detector triggers on an object which width is less than height.
   c.  A vehicle. Detector triggers on an object which width is greater than height.

   > **Note**
   >
   > Detection of the following object types can be configured using scripts and registry keys: a human, a vehicle, noise, an object carried into the area, an object carried out of the area, other objects. See also CAM_VMDA_DETECTOR VMDA detection.
   > More precise objects classification can be performed using the neural filter (see Configuring the neural filter).

6. To select a detector type, click the  symbol. Available detector types are:
   a.  Any movement in the area. Detector triggers due to any motion in the area.
   b.  Entering the area. Detector triggers due to object's entrance into the area.
   c.  Exiting the area. Detector triggers due to the exit of object from the area.
   d.  Appearance in the area. Detector triggers due to the object's appearance in the area.
   e.  Disappearance in the area. Detector triggers due to the object's disappearance from the area.
   f.  Stop in the area. Detector triggers due to the object's stop in the area.
   g.  Staying in the area for more than 10 sec (i.e. loitering detection). Detector triggers due to the object's presence in the area for more than 10 sec. This period can be configured with LongInZoneTimeout registry key (see Registry keys reference guide).
   h.  Abandoned object. Detector triggers due to the item abandoned in the area.

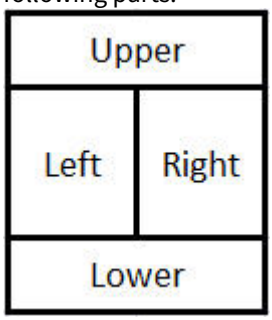
   > **Note**
   >
   > To ensure the Abandoned object detector type to work, the **Abandoned objects detection** checkbox must be set in the **Tracker** settings (see Creating and configuring the Tracker object).

7. To set the object color to be triggered by the detector, click the icon. The color picker palette will open. Circle the required color range with the left mouse button.



To reset the selected color range to the default value, right-click in the palette area.

8. By default, the detector is triggered if the bottom edge of an object is detected in the area. In this case, the object is considered a rectangle (a rectangular frame around a real object), roughly divided into the following parts:



You can change the part of the object that must be in the area for the detection tool to be triggered. To do this, in the **Response area** (**4**), set the required check box: left, right, top (upper), bottom (lower) part of the object or any point of the object.

9. Set the **Generate alarm on camera** checkbox (**4**), if the camera alarm should be generated when the detector triggers.
10. To display the tracks of objects detected by the cross line detection tool regardless of whether the corresponding setting of the **Tracker** object is enabled, set the **Show event on screen** checkbox (**5**).
11. If the video in the preview window is too distorted, set the **Show actual video aspect ratio** checkbox (**6**). In this case, the video may not occupy the entire area of the preview window.
12. To save the changes, click the **Apply** button (**7**).

> **Note**
>
> To clear the preview field from a visual element (an area), click the **Clear** button (**8**).

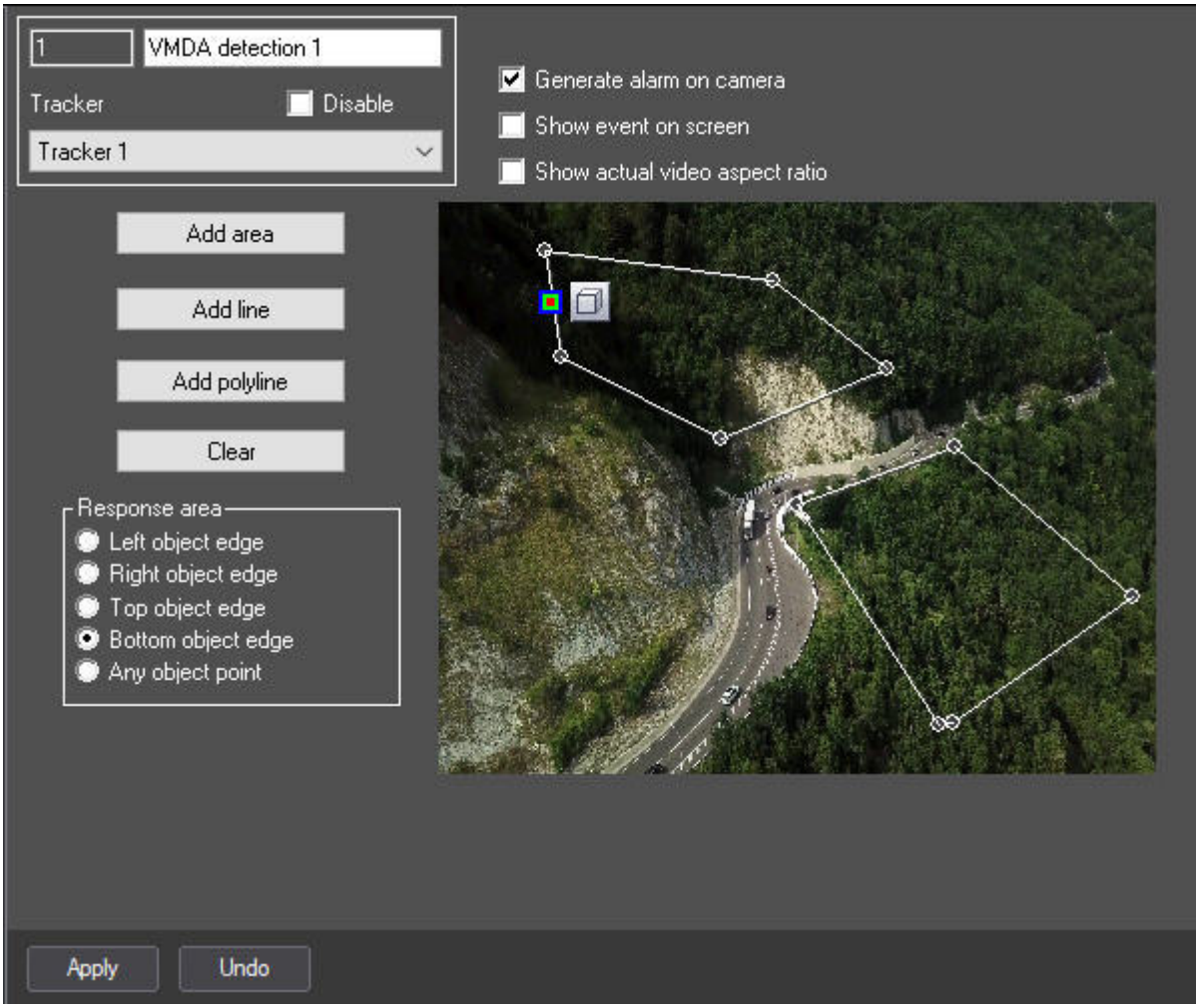
A motion in the area detector is configured.

Moving from one area to another detection tool configuration

The **Moving from one area to another** detection tool is a VMDA detection tool that triggers when the object of a specified type moves from one area to another.

To configure **Moving from one area to another** detection, do the following:

1. Configure the **Motion in the Area** detection by setting the type of object. Do not select the detection tool type (see Motion in the Area detection tool configuration).
2. Add the second area similar to the first one: click **Add area** and select the second area in the preview field. The possibility of selecting the type of **Motion in the Area** detection tool for the first area is disabled when the second area is added. The second area is not configurable.



Note

Only two areas can be added. If two areas are added, when you try to add a third area (by clicking the **Add area** button), the previous two areas will be deleted.

3. Click the **Apply** button.

The **Moving from one area to another** detection tool will trigger on transition of any object of the selected type from the first area to the second one.

The configuration of the **Moving from one area to another** detection tool is now complete.

Embedded detectors

Cameras have embedded detectors. For just about all detectors, you must specify the detection area, schedule (how long the detector must work, on what days), sensitivity, as well as specific settings depending on the detector, for example, object size (minimum and maximum size), threshold value (above which an event is generated), set the duration of the object stay in the area (above which an event is generated) and so on.

All detector settings are specified in the camera web interface. In *Axxon PSIM*, you can only create the **Embedded detection** object, by specifying its **id in device terms** (you must obtain the detector id from the camera web

interface), and monitor detector events via the **Embedded detection** object (see Configuring embedded detection). Or you can use the IP Wizard utility to add a camera with embedded detectors (see Camera discovery tool).

The most commonly used embedded detectors are motion detector, tampering detector, line crossing detector, entrance in area/exit from area detector, abandoned object detector, object disappearance detector, defocus detector. Some cameras also have IVS, IVA, VCA analytics. This is a set of detectors that most commonly includes: line crossing detector, entrance in area/exit from area detector, abandoned object detector, object disappearance detector. Less used detectors are temperature detector, audio detector, visitors counter detector, license plate detector, face detector.

At the moment of writing the documentation, the embedded analytics of various cameras and Stretch cards (if it is supported, see official reference documentation for these devices) is integrated into *Axxon PSIM*.

Note

To find out if the embedded analytics is integrated for a particular camera, refer to the documentation for the corresponding version of Drivers Pack—see Documentation Drivers Pack.

Moreover, ACAP app for Axis cameras is supported by *Axxon PSIM*—AxxonSoft Object Tracker for Axis cameras. This app allows you to use AxxonSoft analytics in Axis devices. For the information on how to add the app to Axis device, as well as how to configure and use it in *Axxon PSIM*, see AxxonSoft Tracker in Axis devices. You can download the app here.

This section contains an example of embedded detectors auto setup. When you configure embedded detectors of specific devices manually, you must refer to their description in the official reference documentation for these devices.

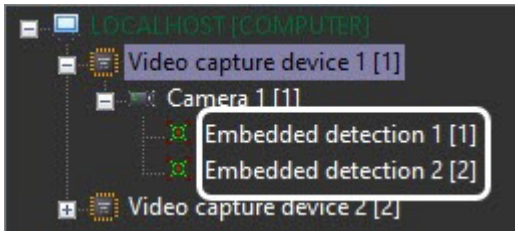
Note

If there is no time synchronization for some IP devices, the events of the embedded detectors can work incorrectly in *Axxon PSIM*. In this case, we recommend you to enable the synchronization of time and time zone between the server and the IP device in the web interface of the latter.

Creating embedded detectors

To create build-in detectors do the following:

1. With the help of *Camera discovery tool* create IP devices that support build-in analytics.
2. In result the created objects will be displayed in the objects tree together with build-in detectors.

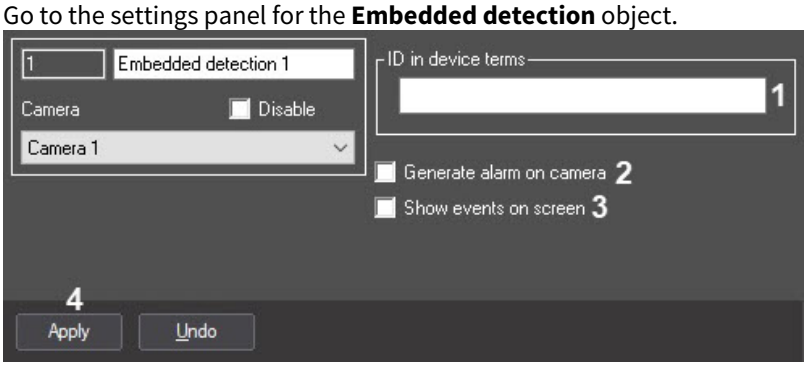


Build-in detectors creation is completed.

Configuring embedded detection

To configure embedded detection tools do the following:

1. Go to the settings panel for the **Embedded detection** object.



2. In the **ID in device terms** field, the detector code in the device is specified (camera, card) (**1**). It is recommended to leave this field unchanged for proper operation of the detection tool.
3. Set the **Generate alarm on camera** checkbox if the alarm is to be generated on the camera by detector's response (**2**).

> **Note**
>
> The alarm triggers on the embedded detection tool instead of the camera when the camera is disarmed.
> Furthermore, the alarm triggers neither on camera nor embedded detection for metadata events intended for the *Tracker* (see Creating and configuring the Tracker object).

4. Set the **Show events on screen** checkbox if it is necessary to display tracks from the built-in detection tool regardless of the corresponding settings of the **Tracker** object and metadata source selected in it (**3**). For example, this setting can be applied for embedded detection tools that are in use for AxxonSoft Tracker in Axis devices.

> **Note**
>
> See also Creating and configuring the Tracker object.

5. Click the **Apply** button to save the changes (**4**).

Embedded detectors are now configured.

> CAM_IP_DETECTOR Embedded detection
> Thermal camera operation

AxxonSoft Tracker in Axis devices

> **Attention!**
>
> Tracker isn't supported since DriverPack 3.76 (see Documentation Drivers Pack).

You can use analytics from AxxonSoft (Smart video detection tools) on Axis devices.

> **Note**
>
> This option is available for all devices based on Axis MIPS architecture (ARTPEC-4 or ARTPEC-5 processor) or ARMv7 architecture (ARTPEC-6 or ARTPEC-7 processor). The settings are given in the AxxonSoft Tracker Help.

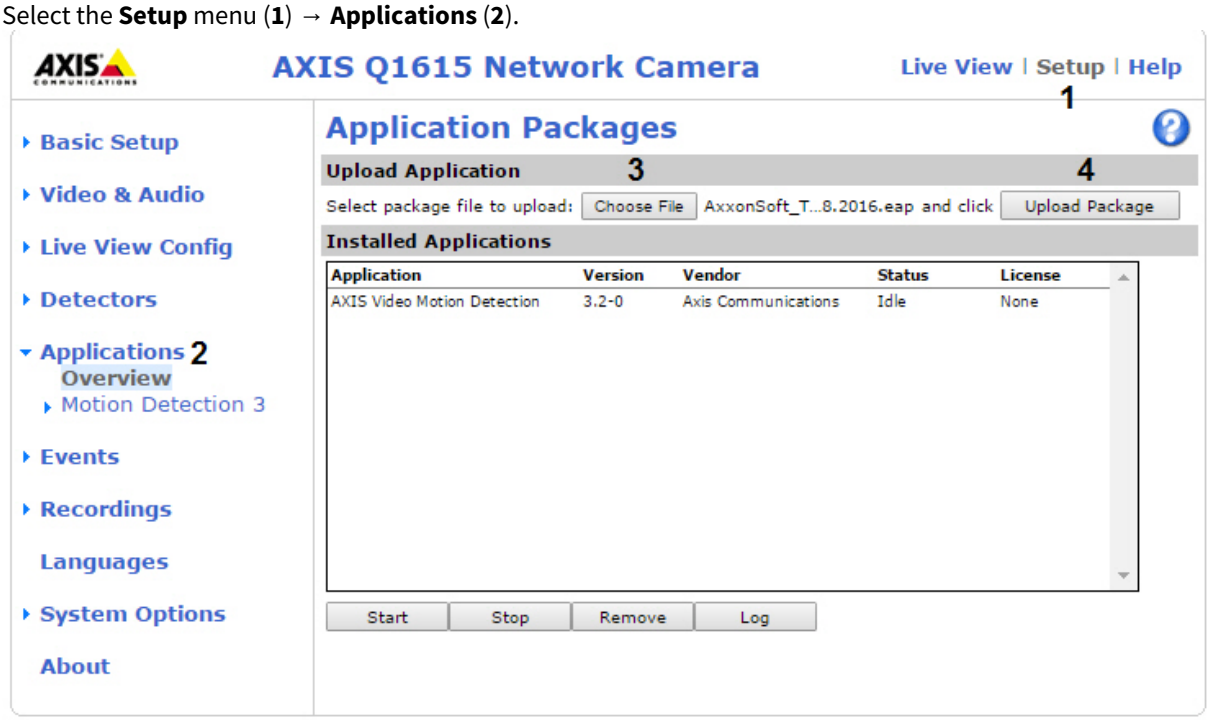
All CPU heavy analytics and metadata generation tasks are delegated to the camera in this case reducing Server load.

Attention!

In order to perform forensic search in the archive when using Axis devices for metadata generation, create and configure the **VMDA metadata storage** and **Tracker** objects and select the created above detection tool as metadata source for the **Tracker**. See also Creating and configuring the Tracker object and Creating and configuring VMDA metadata storage.
It is not necessary to create the **VMDA metadata storage** and **Tracker** objects only to receive the detection tool triggerings.

To do this, do the following:

1. Go to the device's web interface.
2. Select the **Setup** menu (**1**) → **Applications** (**2**).

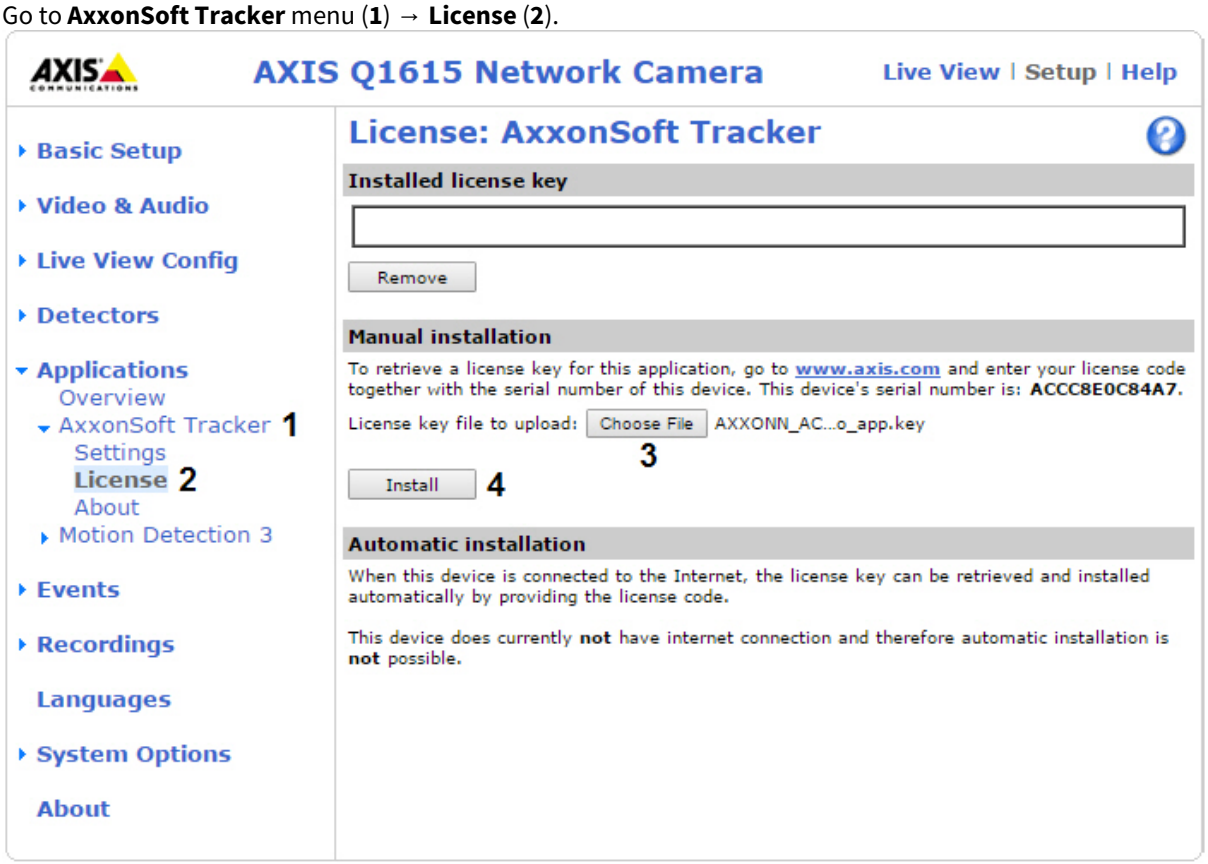


3. Select the ACAP application (**3**) and click the **Upload Package** button (**4**).

Note

You can download the app from AxxonSoft website here.

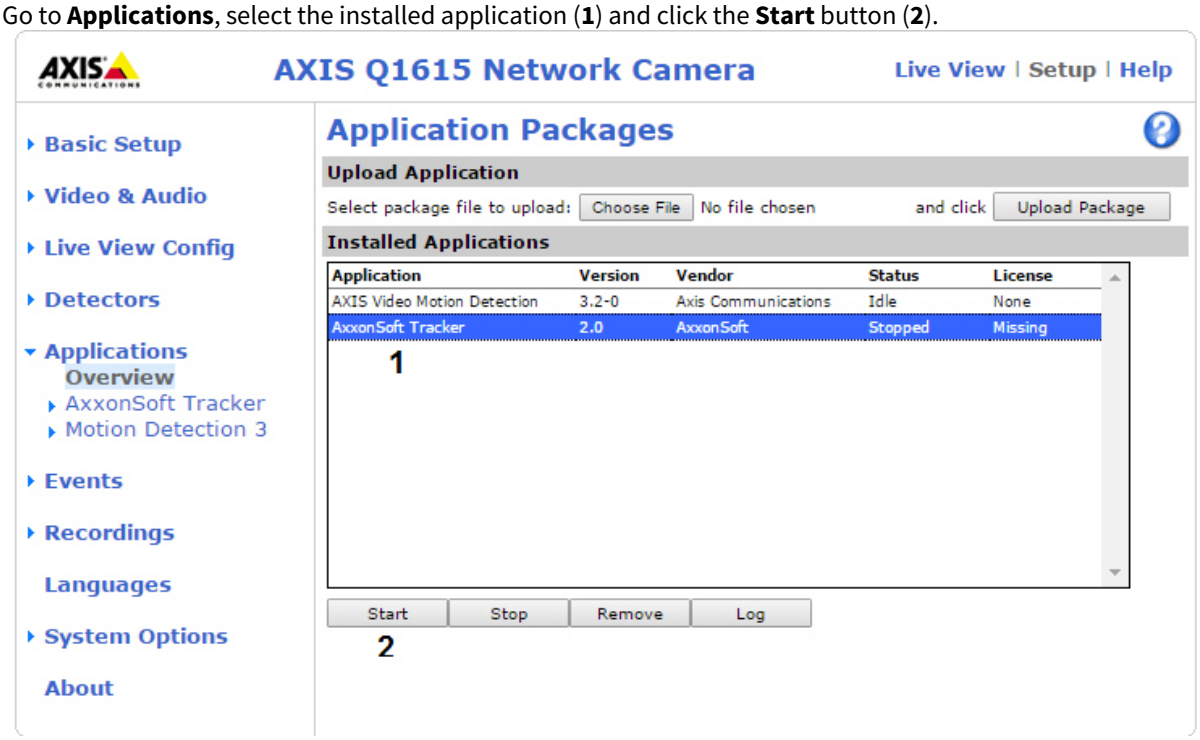
4. Go to **AxxonSoft Tracker** menu (**1**) → **License** (**2**).



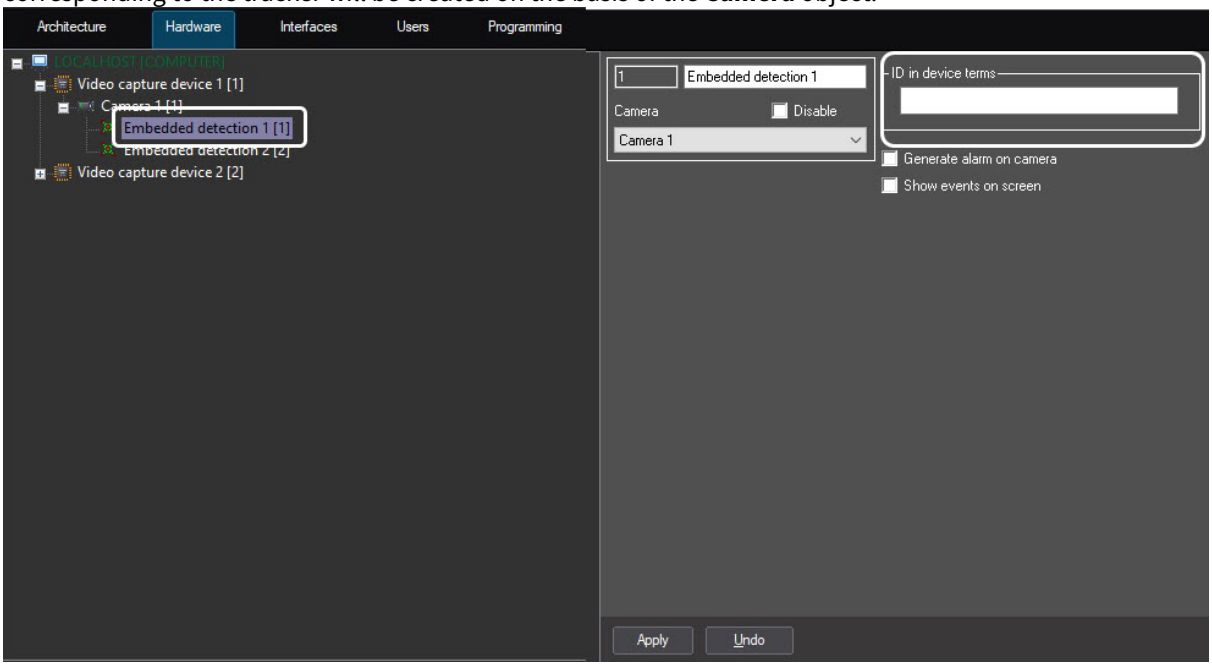
5. Select the license file (**3**) and click the **Install** button (**4**).

> **Note**
>
> Register a license code along with camera's MAC address on Axis website in order to get the license file.
> Contact AxxonSoft help-desk to get the license code.

6. Go to **Applications**, select the installed application (**1**) and click the **Start** button (**2**).



7. Add the Axis device to *Axxon PSIM* using the Camera discovery tool. An **Embedded detection tool** object corresponding to the tracker will be created on the basis of the **Camera** object.



8. Configure this object in *Axxon PSIM* according to Configuring embedded detection.

> **Note**
>
> You can configure the tracker parameters in the **Setup** → **Applications** → **AxxonSoft Tracker** → **Settings** section of the Axis device web-interface similar to the **Tracker** object in *Axxon PSIM* (see Creating and configuring the Tracker object).

AxxonSoft Tracker is now configured to be used in Axis devices.

Example of setting up and using the embedded detectors on Bosch FLEXIDOME IP dynamic 7000 VR IP camera

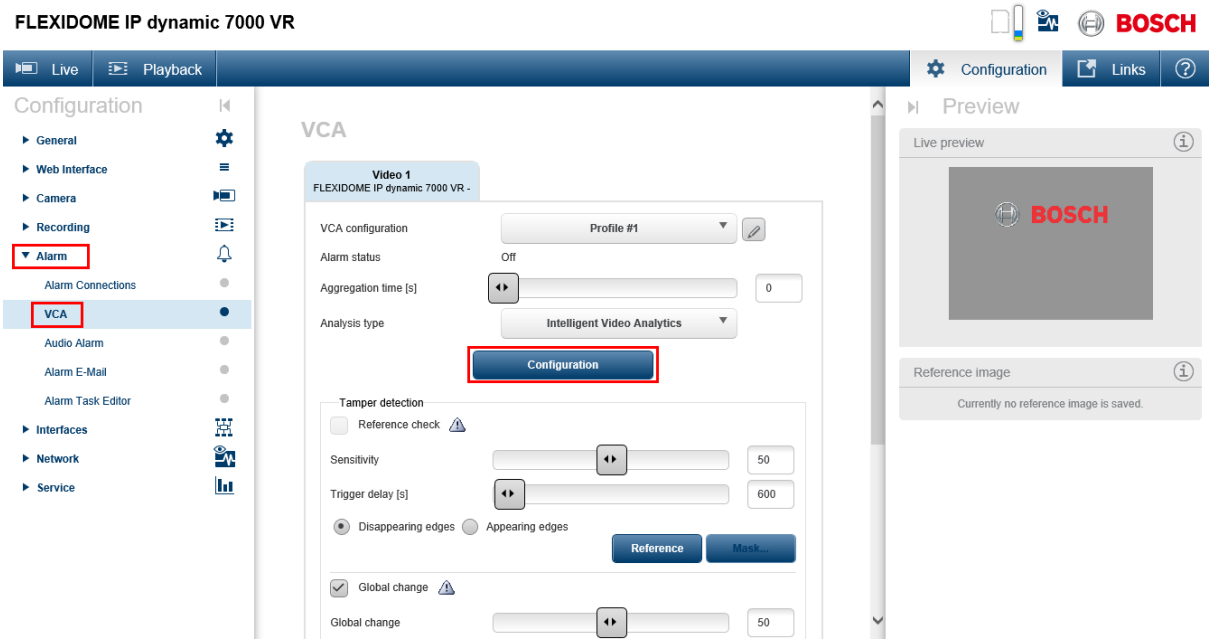
On the page:

- Configuring the visitors counter using the camera web interface
- Configuring Axxon PSIM to receive the events from the Bosch camera's visitors counter
- Using the Bosch camera visitors counter in Axxon PSIM

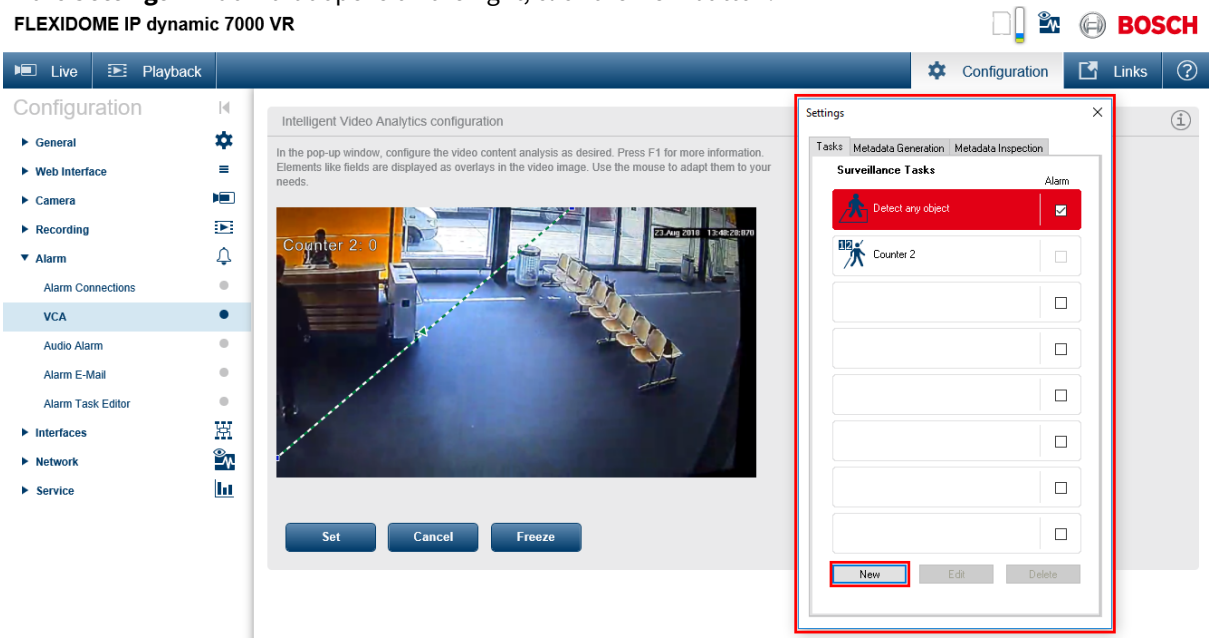
Configuring the visitors counter using the camera web interface

To configure the visitors counter using the camera web interface, do the following:

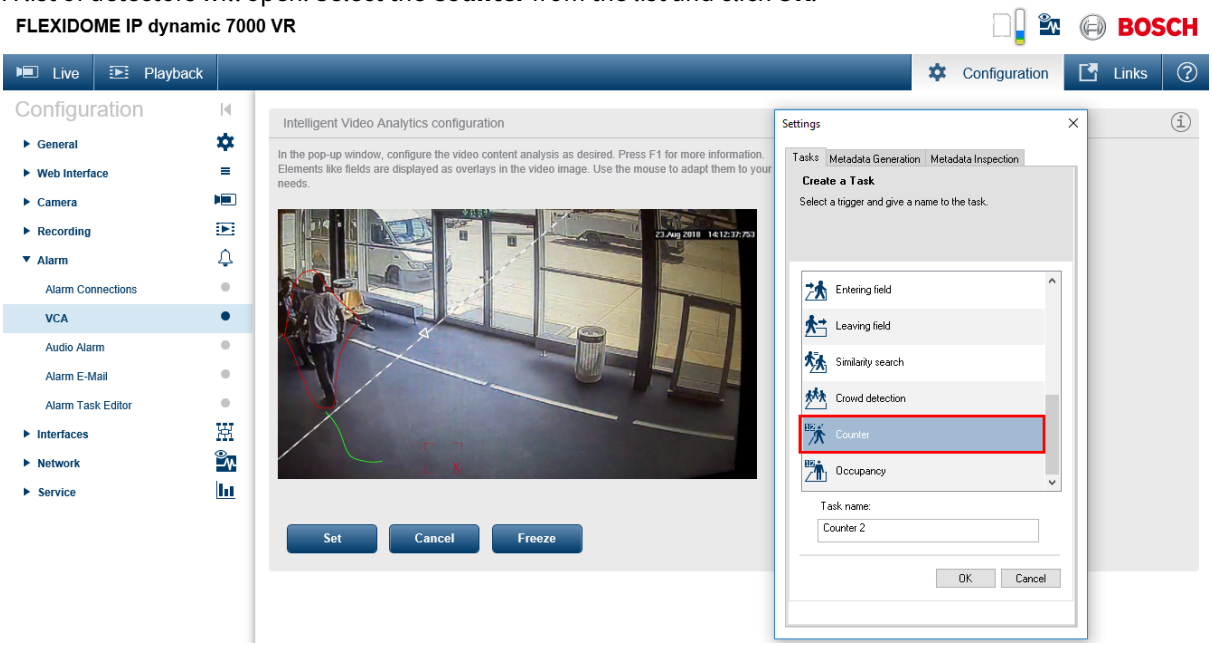
1. Open the camera web interface in the browser (see How to call the Web Server home page of IP device).
2. Go to **Settings** → **Alarm** → **VCA**, and then click on the **Configuration** button.



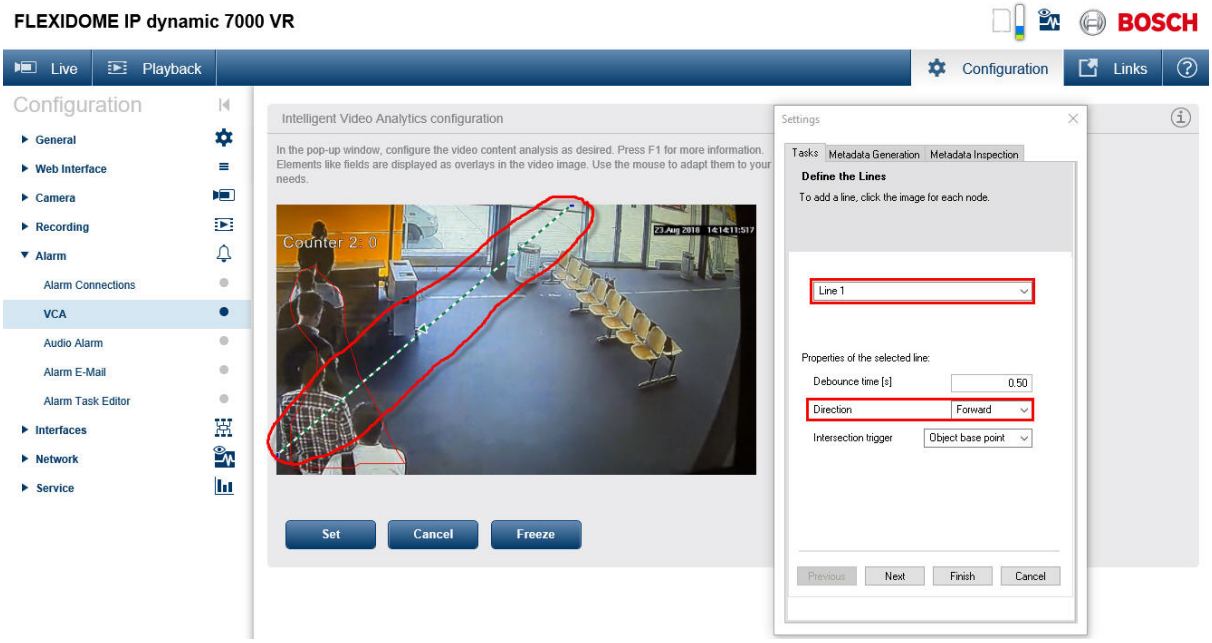
3. In the **Settings** window that opens on the right, click the **New** button.



4. A list of detectors will open. Select the **Counter** from the list and click **OK**.



5. Draw a line. The visitors who cross that line will be counted. Select the direction of movement, and then click **Finish**.

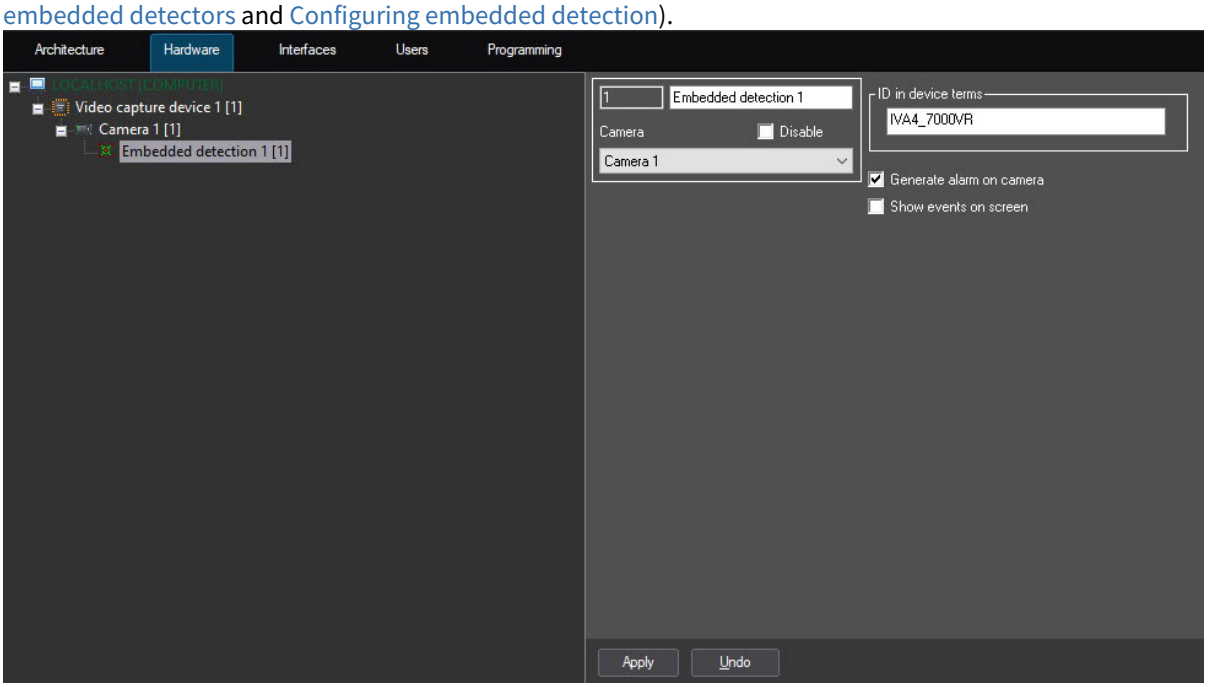


Configuring the visitors counter using the camera web interface is complete.

Configuring Axxon PSIM to receive the events from the Bosch camera's visitors counter

To configure the *Axxon PSIM* to receive the events from the Bosch camera's visitors counter, do the following:

1. Create and configure the **Embedded detection** object based on the **Camera** object which corresponds to the Bosch FLEXIDOME IP dynamic 7000 VR IP camera. If you use the Camera discovery tool, this object will be created automatically. If you create this object manually, it is necessary to configure it (see Creating embedded detectors and Configuring embedded detection).



2. Create and configure the **Event viewer** object based on the **Display** object on the **Hardware** tab of the **System settings** dialog box (see Configuring the Event Viewer interface object).

Using the Bosch camera visitors counter in Axxon PSIM

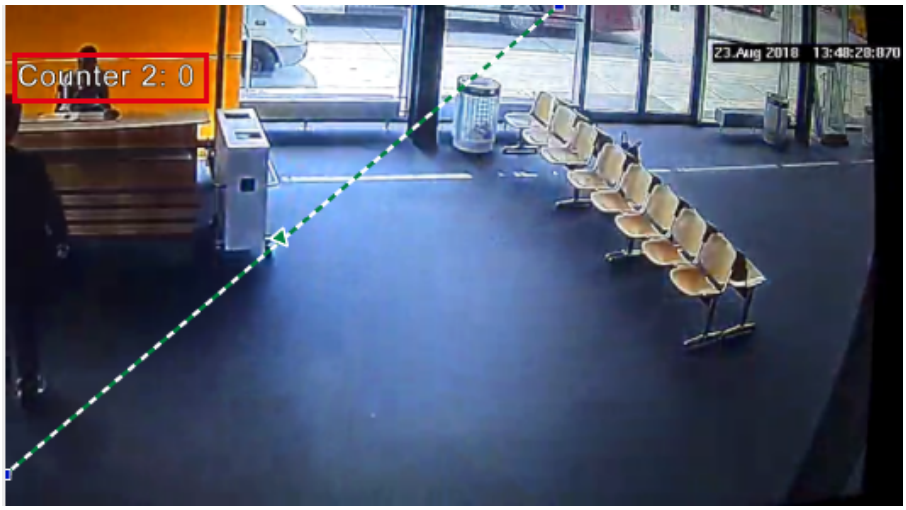
The *Axxon PSIM* **Event viewer** interface window displays the **Event** (DETECTED) events from the **Embedded detection** (CAM_IP_DETECTOR, see CAM_IP_DETECTOR Embedded detection) object. The **Add. info** field (param0 parameter) displays the detection tool identifier and the counter value, for example, “DetectorId:2;value:9”, where DetectorId:2 is the detection tool identifier, and value:9 is the number of objects counted.

Event viewer 1 [~31]

Show filters | Clear

Source	Event	Region	Add. info	Card	Date and ...
Embedded detection 1	Object appeared		30		8/1/2022 5...
Embedded detection 1	Object disappeared		30		8/1/2022 5...
Embedded detection 1	Object appeared		31		8/1/2022 5...
Embedded detection 1	Object disappeared		31		8/1/2022 5...
Embedded detection 1	Object appeared		33		8/1/2022 5...
Embedded detection 1	Object disappeared		33		8/1/2022 5...
Embedded detection 1	Object appeared		34		8/1/2022 5...
Embedded detection 1	Object disappeared		34		8/1/2022 5...
Embedded detection 1	Object appeared		34		8/1/2022 5...
Embedded detection 1	Object disappeared		34		8/1/2022 5...
Embedded detection 1	Object appeared		35		8/1/2022 5...

The detection tool identifier is displayed in the camera web interface in the video preview area.



The events from the Bosch camera's visitors counter can be used in macros, programs, and scripts — see Examples of scripts in the JScript language.

Face detection tool

General information on face detection tool

Face detection tool recognizes «faces» objects in the controlled zone. While detecting the «faces» in the frame the following can be observed:

1. A face is dynamically framed on the frame;
2. If *Face PSIM* is installed, then there is possibility to record a frame with a face to the file of .bmp format to the folder «<Face PSIM>\Bmp\person\».

Note.

The **External capture** and **Maximum performance** options are only used with *Face PSIM* installed. For more details please refer to Face PSIM Documentation. The most relevant version of this document is available in the AxxonSoft documentation repository.

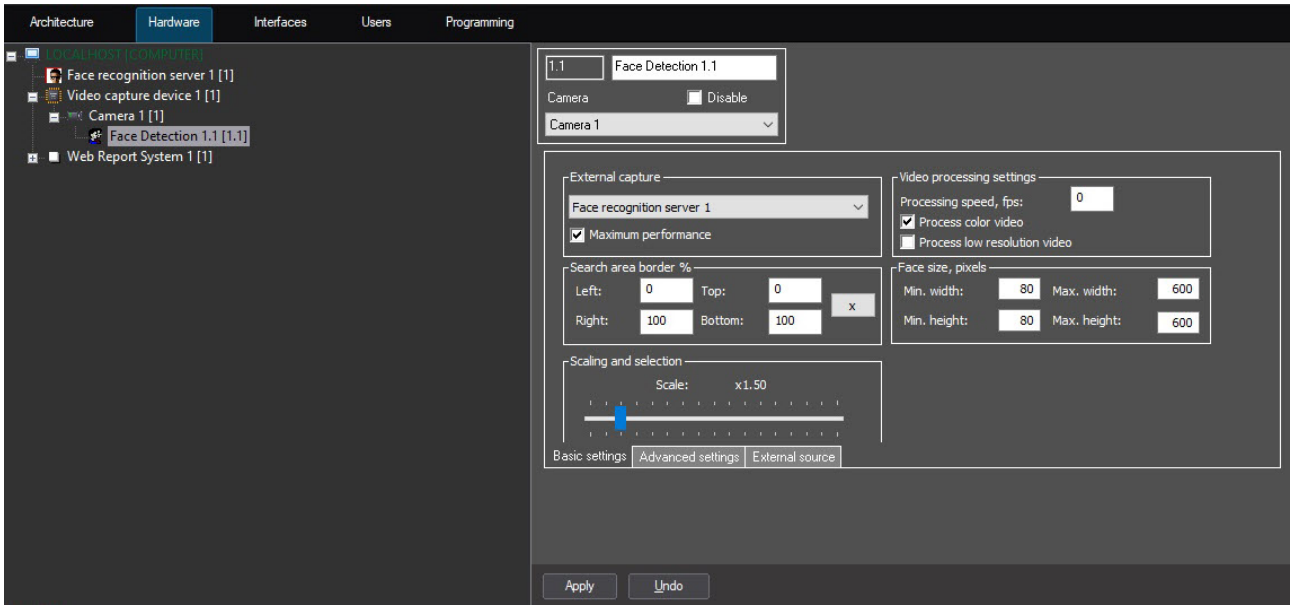
Requirements to video parameters while using face detection tool

When a face detection tool is in use, the following requirements must be met:

1. Minimum linear dimensions of a face to be detected are 24 pixels.
2. Maximum speed of a face to be detected is not to be more than a half of linear dimensions in pixels per frame (i.e. face overlapping between two adjacent frames must be not less than half-width and half-height of face).
3. A detection tool needs 8 frames to confirm face detection – otherwise, a face detection message won't be sent.

Configuring Face detection tool

The **Face Detection** object is created on the basis of the **Camera** object in the **Hardware** tab of **System settings** dialog box.



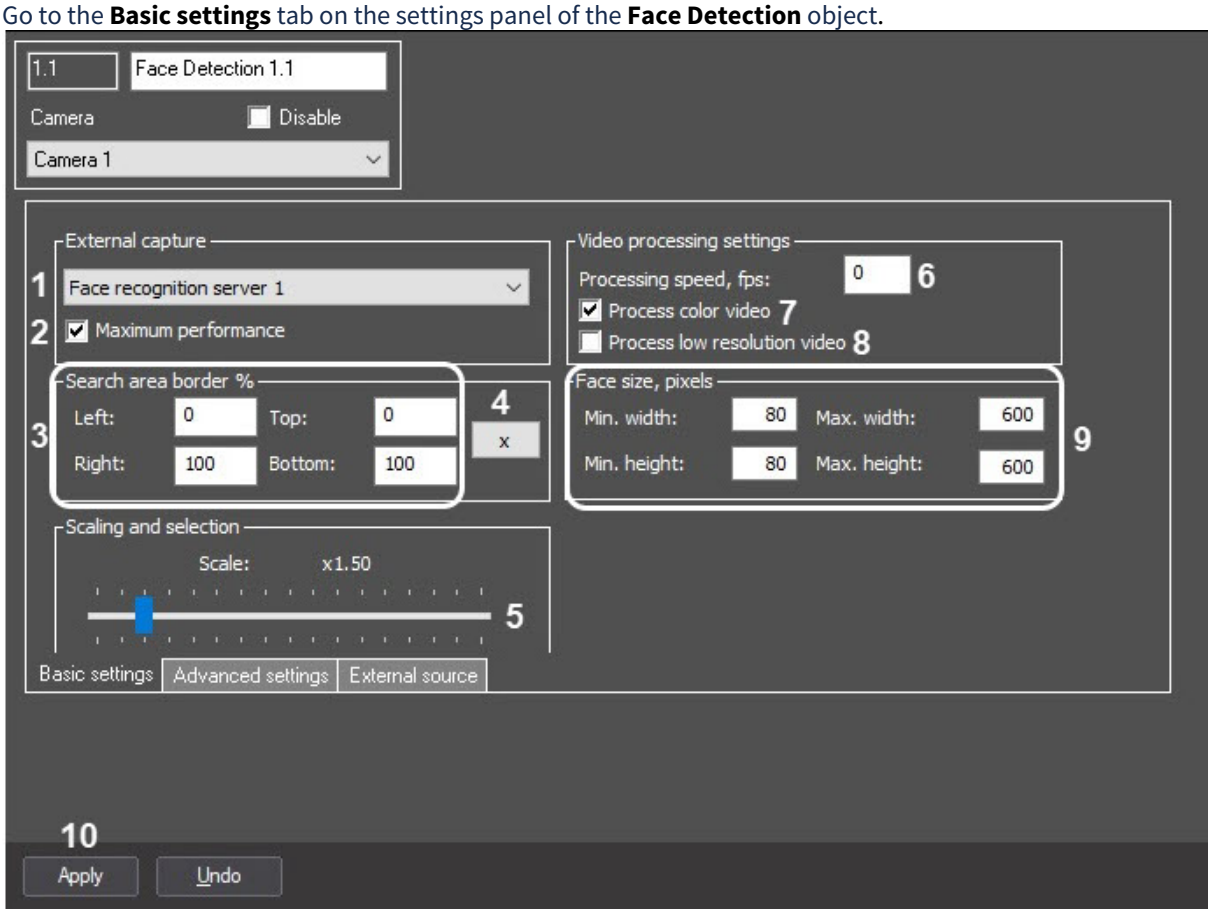
Note

The video image resolution received by the **Face Detection** from the camera can be changed using the **ResizeWidth** registry key (for details, see Registry keys reference guide).

Face Detection tool basic settings

Configure the basic settings of the *Face Detection* module as follows:

1. Go to the **Basic settings** tab on the settings panel of the **Face Detection** object.

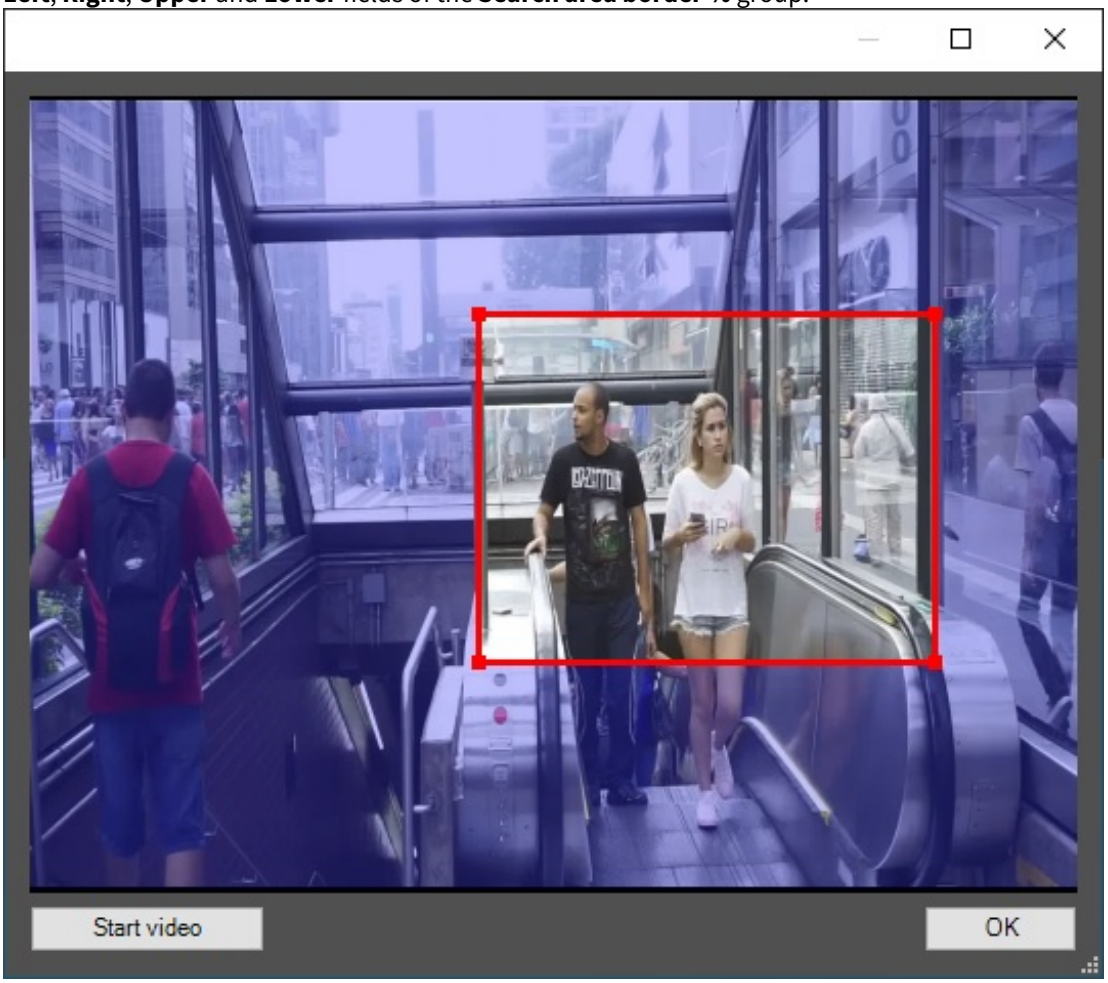


2. There are several variations of the face detection operation depending on the setting of the external capture and Face Recognition Server (**1**):
    a. External capture is NOT selected and the detection is NOT added to any of the Face Recognition Server channels. In this case, only capturing of photos of faces detected by *Axxon PSIM* software capturing is performed, and generation of vectors is not performed. This option is not for *Face PSIM*.
    b. External capture is NOT selected but the detection is added to any of the the Face Recognition Server channels. In this case, capturing and saving of photos of faces detected by *Axxon PSIM* software capturing, generation of vectors and recording them to database are performed. This option does not allow face recognition (while search and visitor counting are available).
    c. External capture is selected but the detection is NOT added to any of the Face Recognition Server channels. In this case, the photos of faces captured by the face recognition modules (see Structure of the Face PSIM software package), are captured and saved, and the vectors are generated, but the vectors are not saved in the database. This option is only suitable for use in scripts.
    d. External capture is selected and the detection is added to any of the Face Recognition Server channels. In this case, the photos of faces captured by the face recognition modules (see Structure of the Face PSIM software package), are captured and saved, and the vectors are generated and recorded to the database.

    The external capture is recommended for use. From the **External capture** drop-down list select the Face Recognition Server with the help of which the face capturing with the subsequent generation of a vector (if the **Create FIR in detection unit** checkbox is set on the settings panel of the corresponding Face Recognition Server object – see Configuring the Face recognition server object) and saving of photos will be performed.

> **Note.**
>
> Proper configuring of the face recognition server selected as external capture is performed with the help of the Cfgedit.exe utility (see Cfgedit.exe utility for configuring the Cognitec face recognizer).

3. The **Maximum performance** mode is enabled by default (**2**). This mode allows improving the quality of face capture and recognition by using all available processor cores and increasing the RAM consumption. When this mode is disabled, the memory consumption will decrease, but faces can be missed at capturing.
4. Set the face search area border on the video image by specifying the required values in percent in the corresponding fields (**3**), or by clicking the button (**4**) and using the interactive interface. After you click the button, the window with the corresponding video camera image will open. To set the face search area border, click the **Stop video** button at the required time, select the required area using the left mouse button, and then click **OK**. The specified face search area border values will be automatically entered in the **Left**, **Right**, **Upper** and **Lower** fields of the **Search area border %** group.



> **Attention!**
>
> Setting the face search area border is available only if the *VA* or *VideoIntellect 1.1* face recognition modules are used.

5. Set the **Scaling and selection** slider (**5**) to the position corresponding to the required scale of the captured face in the frame for recording and highlighting the face with a dynamic frame. The current scale value is

displayed in the field above the slider and ranges from 1 (only the captured face is recorded) to 5 (the whole frame is recorded).

> **Note**
>
> This setting is relevant only if *Face PSIM* is installed.

6. In the **Processing speed, fps** field (**6**), specify how many fps from the video stream are processed by the Face detection program module. This parameter is necessary for reducing the load on the Server.
7. If it is necessary to convert the color video image to black and white image to generate the vectors by the black-and-white frames, then uncheck the **Process color video** checkbox (**7**).

> **Important!**
>
> Generation of vectors by black-and-white frames is supported by *VA* and *VideoIntellect 1.1* face recognition modules only. It reduces the CPU load, insignificantly affecting the face capture and recognition quality.

8. By default the Face detection tool processes a video with the resolution set for the **Camera** parent object. To process a video with 320x240 pixels resolution, set the **Process video in low resolution** checkbox (**8**).

> **Note.**
>
> Enabling this option reduces the load of the Server's processor, but the probability of face capture also reduces.

> **Attention!**
>
> The **Process video in low resolution** setting is not relevant in case, when a high resolution is set for a **Camera** parent object. Also this settings is not in use if the *VA* or *VideoIntellect 1.1* module is applied for face capture.

9. Set the minimum and maximum width and height of the face on the video image in pixels in the corresponding fields of the **Face size, pixels** group (**9**).

> **Note.**
>
> If the specified minimum dimensions differ significantly from the actual ones, then the faces will not be captured.
> For example, if the video contains large faces (15-30%), then if you set the minimum size to 5%, and the maximum size to 80%, then the faces will not be detected. However, if you specify a minimum size of 12% and a maximum size of 80%, the faces will be captured.
> Thus, if the detection tool is configured to capture small faces, then it cannot detect large ones, and vice versa.

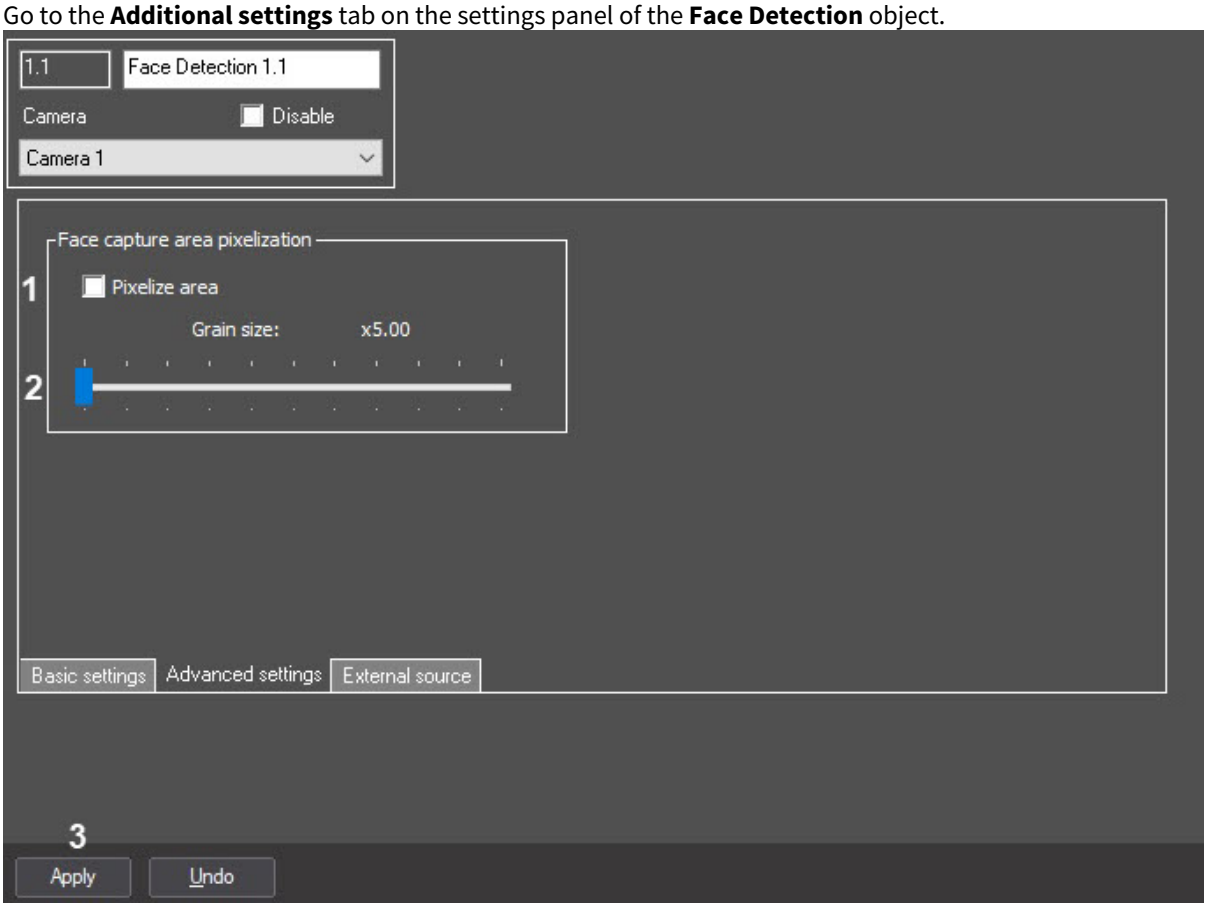
> **Note.**
>
> If all face sizes are set to 0, the Face Detection tool uses similar parameters set on the **Face Recognition Server** object settings panel (see Configuring the size of a face for recognition).

10. To save the changes click the **Apply** button (**10**).

Face Detection tool advanced settings

Configure the advanced settings of the *Face Detection* module as follows:

1. Go to the **Additional settings** tab on the settings panel of the **Face Detection** object.

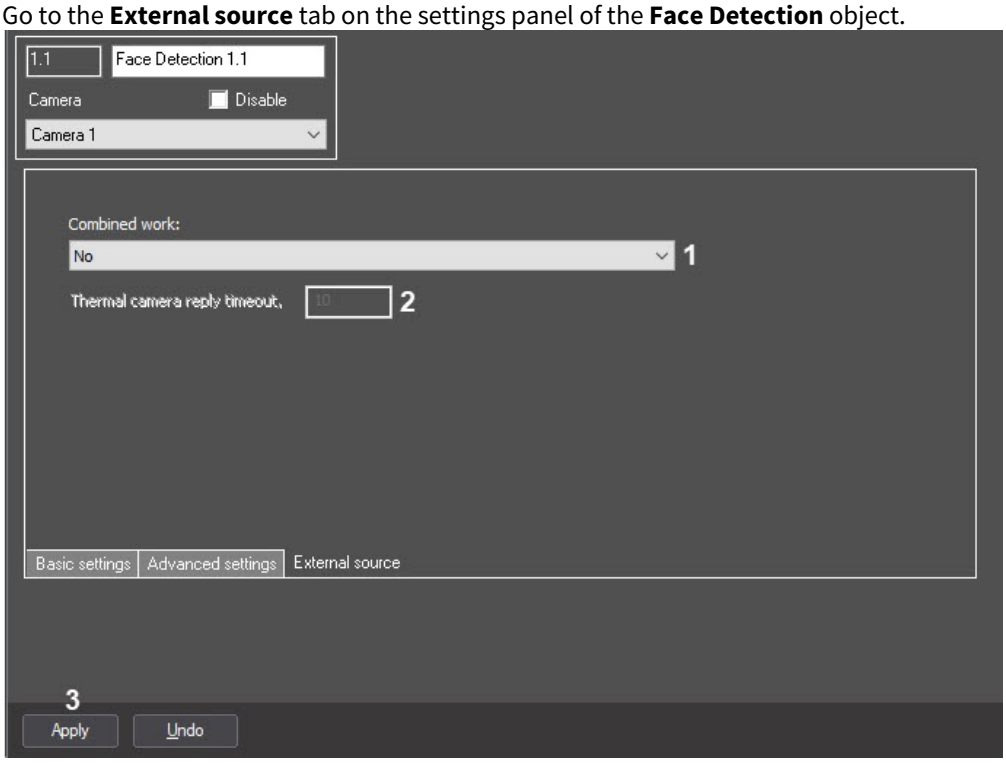


2. To pixelate the part of video image in which the face was recognized, set the **Pixelize area** checkbox (**1**).
3. Set the **Grain size** cursor in position corresponding to the pixelation grain size in pixels (**2**).
4. To save the changes click the **Apply** button (**3**).

Configuring the Face detection tool combined work with thermal camera or external system

Configure the *Face detection* module operation with a thermal camera or an external system as follows:

1. Go to the **External source** tab on the settings panel of the **Face Detection** object.



2. From the **Combined work** drop-down list (**1**) select the combined operation mode:
   - **No** – combined operation mode is not used.
   - **Combine with thermal camera temperature** – receiving the temperature and coordinates of a captured face frame from the thermal camera. A photograph of a captured face will be obtained from the capturing camera. If this mode is selected, the following setting become available:
     - **Thermal camera reply timeout, s** (**2**) – sets the timeout in seconds for receiving data from the thermal camera.

       Note

       The FIND_PERSON event will be generated only when the temperature is received from the thermal camera or after the time specified in the **Thermal camera reply timeout, s** parameter.
   - **Get photo from thermal camera** – receiving the temperature and photos of a captured face from the thermal camera.
   - **Get photo and metadata from external system** – receiving the temperature and photos of a captured face from a thermal camera or *Axxon One*.
3. Click **Apply** (**3**) to save the changes.

Configuring the multistream video

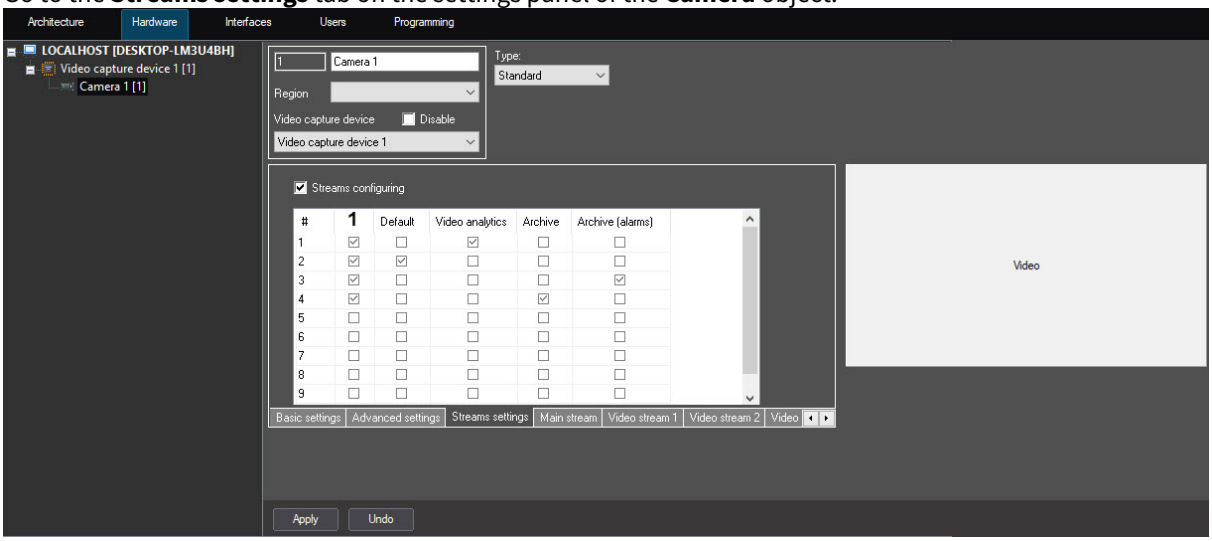
In *Axxon PSIM*, you can use different streams from the camera for displaying video on the video surveillance monitor, archiving, and video analytics. For example, this option lets you display a low-quality video on the monitor while recording a high-quality video to the archive, which reduces the load on the client.

Note

To use multistreaming via the ONVIF protocol, select the ONVIF 2.X brand and 1-channel-multistream model when creating the ONVIF device (using the Camera discovery tool, see Installing and configuring security system components guide). You can use two streams.
In multistreaming mode, there are situations where changes of some video stream parameters can affect others without any user notification. It is due to the model and firmware of the camera, since some cameras don't support user selection of the resolution, codec, and so on.

To configure multistream settings, do the following:

1. Go to the **Hardware** tab in the **System settings** window.
2. In the object tree on the **Hardware** tab, select the previously created **Camera** object that corresponds to the camera for which you want to configure multistreaming mode.
3. Go to the **Streams settings** tab on the settings panel of the **Camera** object.



4. Set the **Streams configuring** checkbox to enable multistreaming mode.
5. Set the checkboxes next to the used video streams of the camera (**1**).
6. Set the checkbox in the **Default** column next to the stream number that you need to use in the following cases:
   a. To display video both locally and on remote clients.
   b. To send to remote clients, including the Videogate, that can record this video stream.

      Note

      If a specific video stream is requested via Videogate, then the requested stream, not the **Default** one, is transmitted.

   c. When a video request doesn't contain a specified video stream.

      Note

      You can use this stream, for example, to display video on the video surveillance monitor if a default stream has been selected for the camera or for displaying video on the video surveillance monitor of the web server.

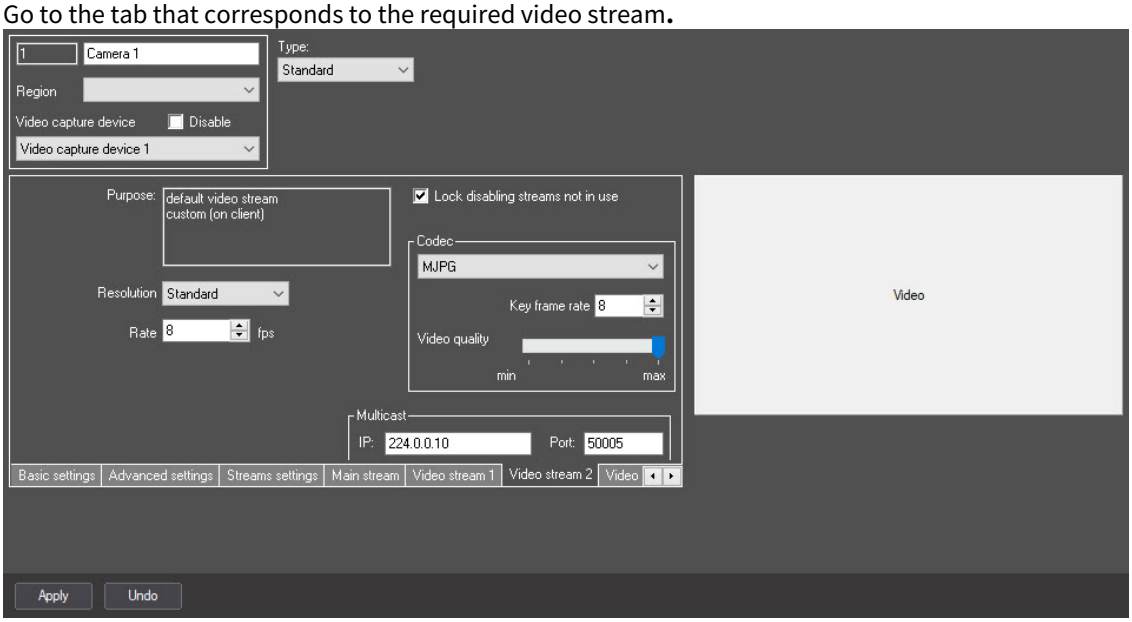
7. Set the checkbox in the **Video analytics** column next to the stream number that you need to use for the face recognition server, the main motion detector, zone detectors, tracking detectors, and face detectors (if an external recognizer isn't used).
8. Set the checkbox in the **Archive** column next to the stream number that you need to record to the archive, not upon alarm, for example, during continuous recording.

9. Set the checkbox in the **Archive (alarms)** column next to the stream number that you need to record to the archive upon alarm.
   You can use this stream for backup archiving.

> **Note**
>
> If you select different streams for recording to the archive upon alarms and continuous recording when recording is performed nonstop and detectors are enabled, then the recording of the current archive fragment stops upon alarm in the continuous recording stream, and recording of a new fragment starts in the alarm recording stream. When the alarm ends and after post-alarm recording, the continuous recording with the corresponding stream resumes.
> If you select the same stream for recording to the archive upon alarms and continuous recording, then recording of the current fragment doesn't stop upon alarm.

> **Note**
>
> If you configure pre-alarm recording, then when selecting different streams for recording to the archive upon alarms and continuous recording, some archive recordings overlay as the following video fragment starts earlier than the previous one ends.

10. Configure the video streams as follows:
    a. Go to the tab that corresponds to the required video stream**.**



    b. The **Purpose** field displays the information on how to use a video stream.
    c. In the **Codec** group, specify the video stream parameters (see The settings panel of the Camera object): codec, key frame rate, and video quality.

> **Attention!**
>
> The following video streams are available for Axis cameras:
> 1. Receiving H264/MJPEG/MPEG4 video. You can specify video stream settings using *Axxon PSIM*. Specify these settings in the **Video stream 1** tab.
> 2-4. Streams that correspond to the "Quality", "Balanced" and "Bandwidth" profiles. You

can configure these profiles in the camera web interface. **Video stream 2** corresponds to the "Quality" video stream, **Video stream 3** corresponds to the "Balanced" video stream, and **Video stream 4** corresponds to the "Bandwidth" video stream.

d. Repeat steps a-d for the remaining video streams.

11. Click the **Apply** button.

Configuring the multistream video is complete.

Video recording from computer monitor

> **Attention!**
>
> For successful operation, the IP camera must use the UDP transport protocol.
> To switch the transmission protocol for the IP camera, you must set the **RTSP**=**udp** parameter value for the HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AxxonSoft\Axxon PSIM\Video\TransportProtocols registry key (for more information, see Changing the transport protocol used by IP-device).

Video recording from the computer monitor is performed to control the operator actions. You can transmit a video from the computer monitor to *Axxon PSIM* through general protocols using third-party programs, for example:

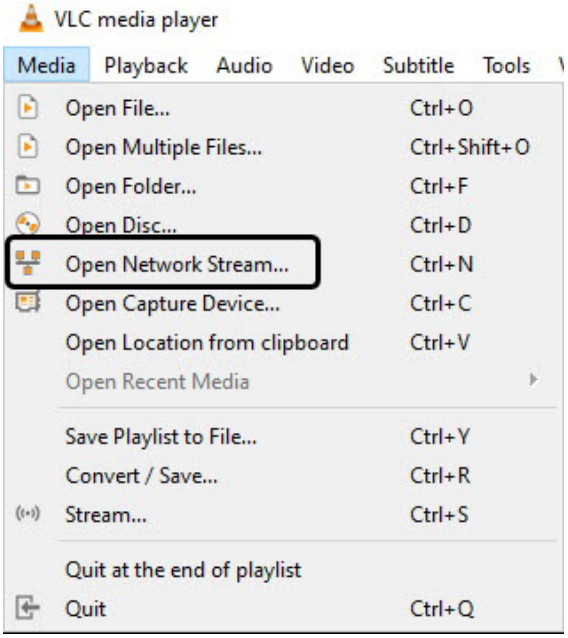
1. Via the RTSP protocol using the VLC Media Player, which you can download from the http://www.videolan.org/vlc/ website.
2. Via the ONVIF protocol using the ScreenOnvif program, which you can get on the https://vimeo.com/ website.

This section considers the example of configuring the VLC Media Player for transmitting video from the monitor screen in *Axxon PSIM* via the RTSP protocol. To configure *Axxon PSIM* for accepting and recording such a video stream, use the standard way as described in the Configuring the RTSP Server module and Selecting the disks for video archive storage sections.

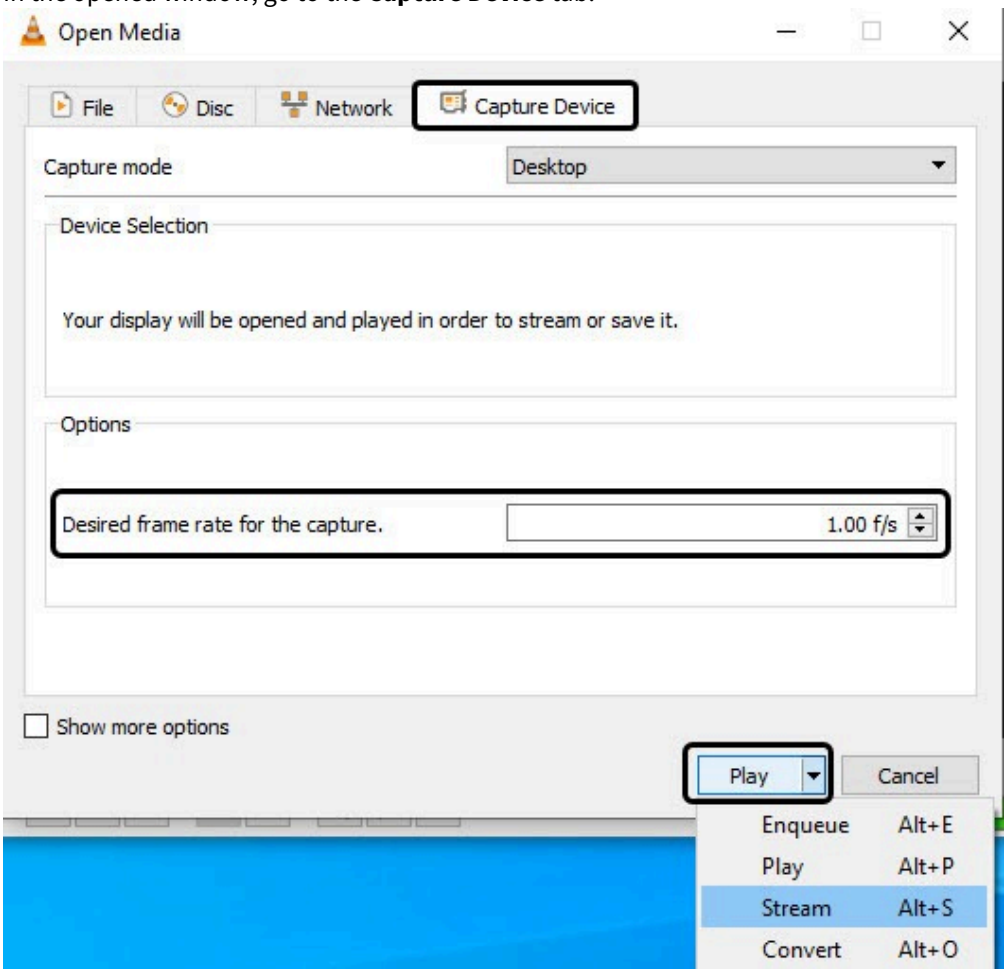
To configure the VLC Media Player for transmitting video from the monitor screen in *Axxon PSIM* via the RTSP protocol, do the following:

1. Run the VLC Media Player.

2. Select the **Open Network Stream...** item in the **Media** menu.

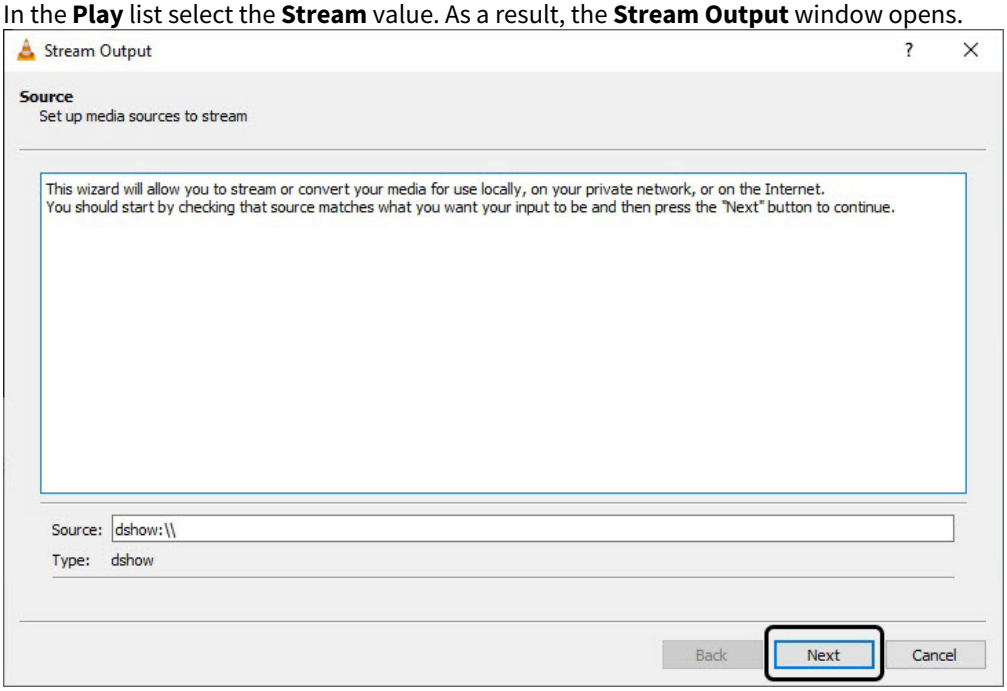


3. In the opened window, go to the **Capture Device** tab.

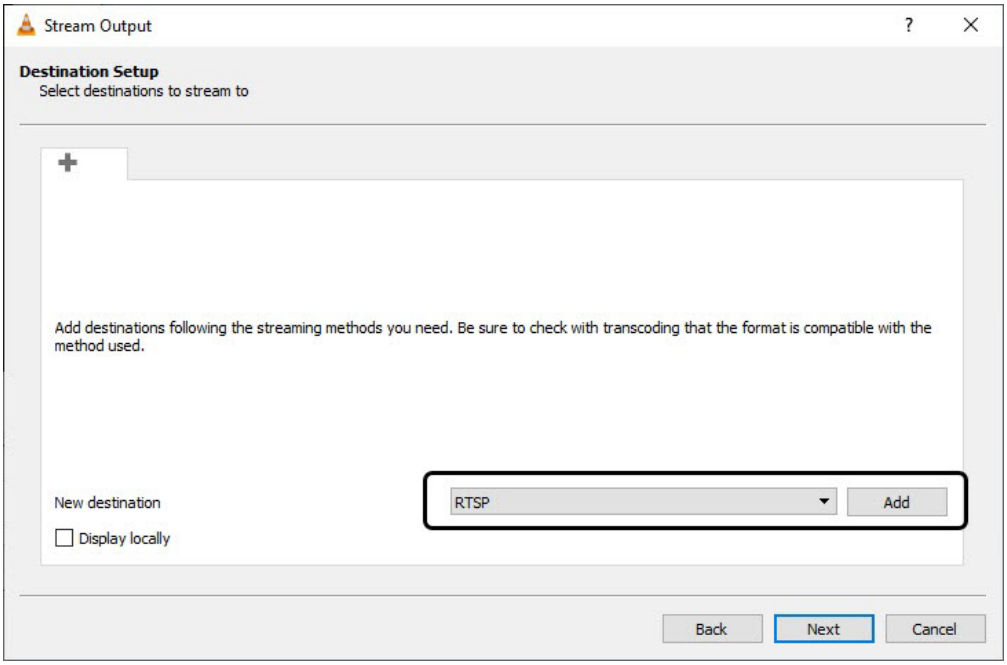


4. In the **Capture mode** drop-down list, select the **Desktop** value.

5. Set the desired frame rate for the capture in the corresponding field.
6. In the **Play** list select the **Stream** value. As a result, the **Stream Output** window opens.

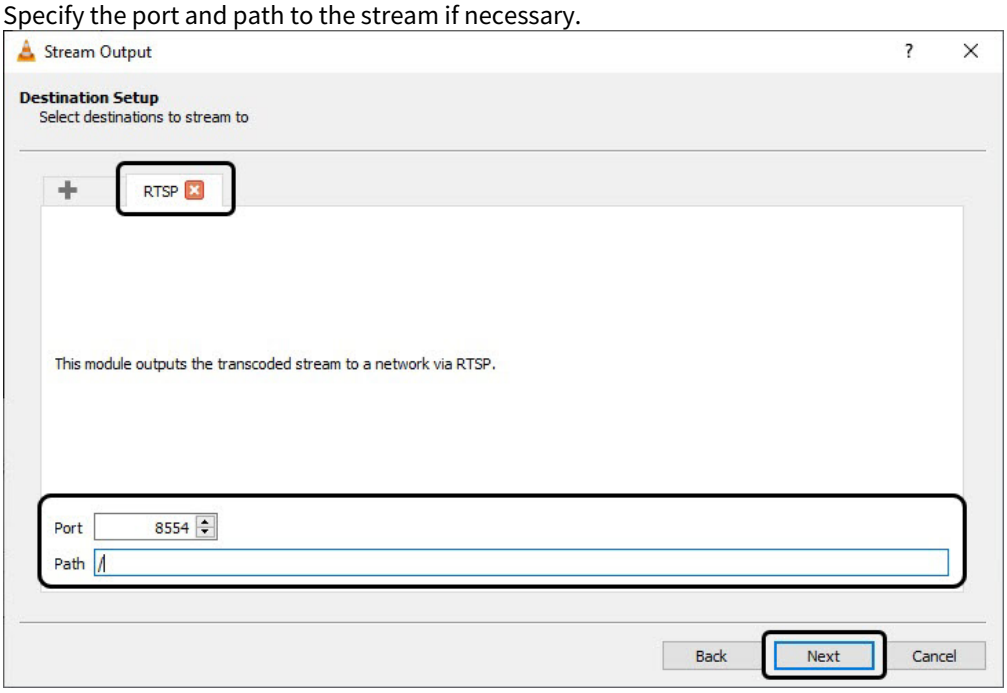


7. Click the **Next** button.
8. In the opened window, select the **RTSP** value in the **New destination** drop-down list and click the **Add** button.

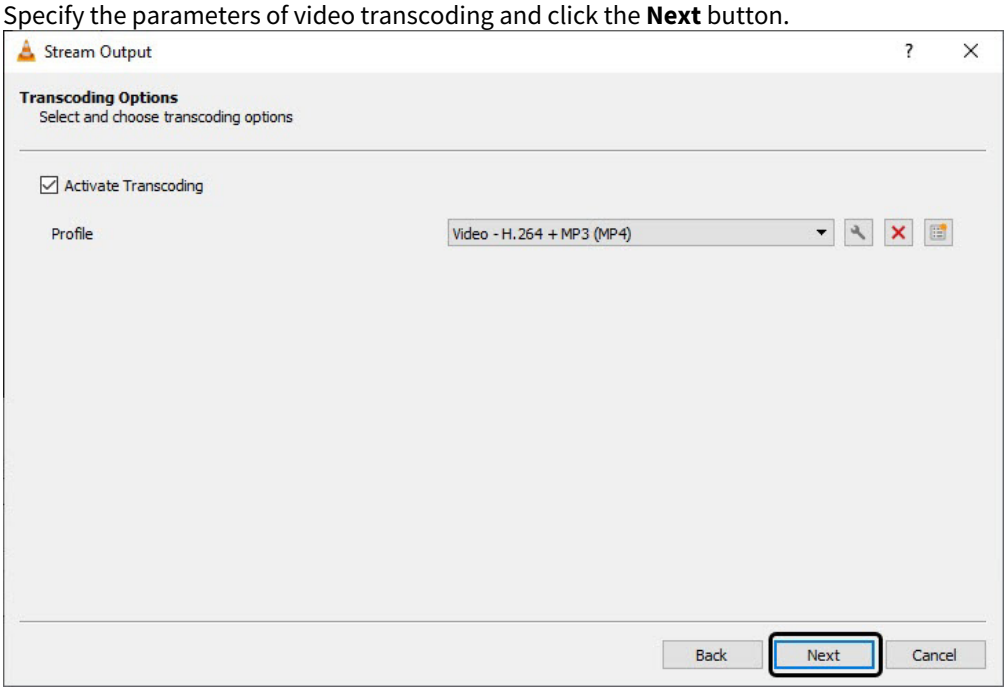


9. Go to the **RTSP** tab.

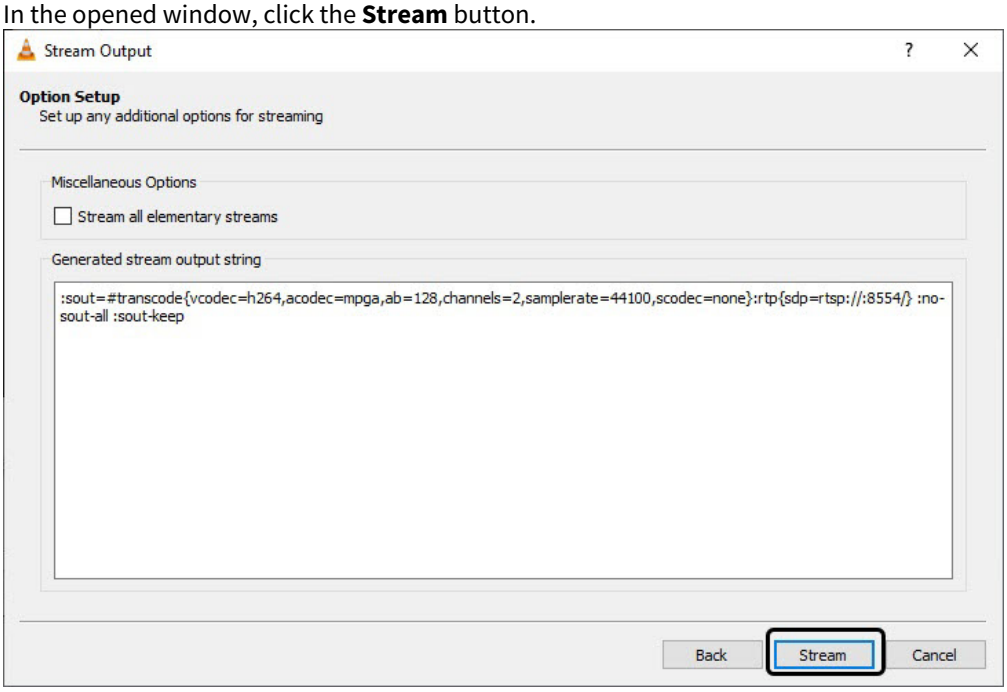
10. Specify the port and path to the stream if necessary.



11. Click the **Next** button.
12. Specify the parameters of video transcoding and click the **Next** button.



13. In the opened window, click the **Stream** button.



After that, you can configure the receiving of the RTSP stream and its recording to the archive in *Axxon PSIM*, see Configuring multimedia receipt using RTSP protocol and Selecting the disks for video archive storage.

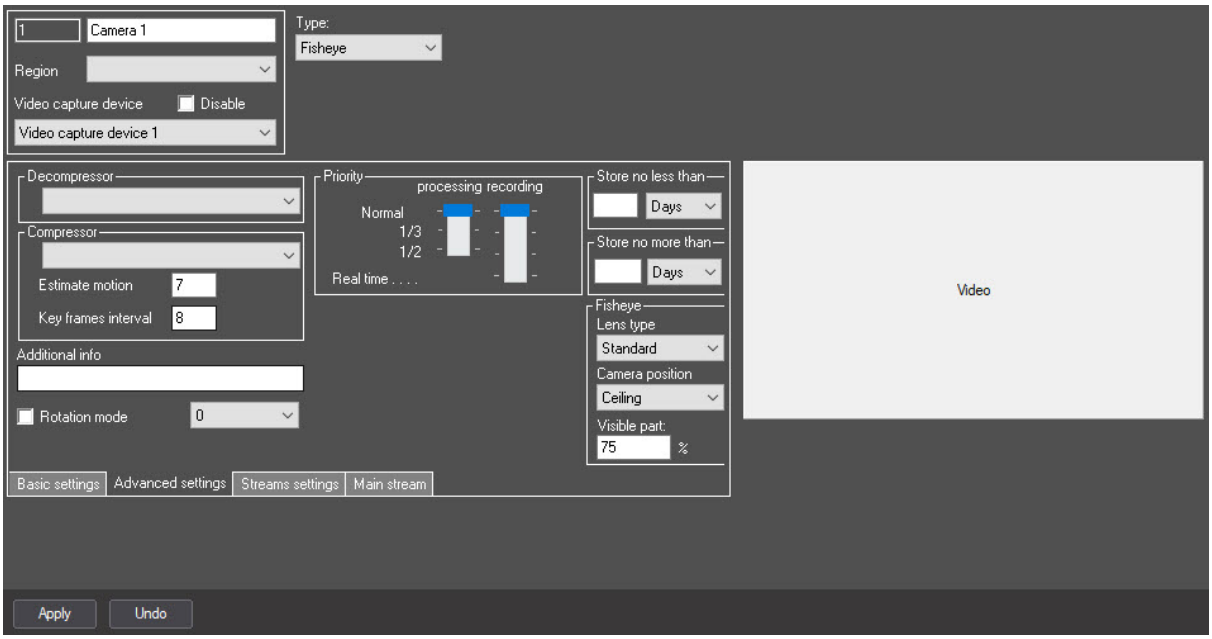
Configuring the VLC Media Player for transmitting a video from the computer monitor via the RTSP protocol to the *Axxon PSIM* is complete.

Configuring fisheye cameras

In *Axxon PSIM*, you can convert video from fisheye cameras in the video surveillance monitor as well as in all camera windows opened when viewing video through other interfaces, for instance, through the Event Viewer (refer to Event control via Event Viewer), when searching by captions (refer to Search in the captions database), and so on.

You can select the conversion type when adding a camera to the Monitor (see Selecting and configuring video cameras). To use this option, specify the lens type and fisheye camera position when configuring it in *Axxon PSIM* in the following way:

1. Go to the **Advanced settings** tab on the settings panel of the **Camera** object corresponding to the fisheye camera.



2. From the **Lens type** drop-down list, select:
   a. **Standard** for a standard fisheye lens.
   b. If you use a camera with a panamorphic lens, then select its type in this drop-down list.
   c. With some settings, there can be some artifacts at the top of the video for a standard fisheye lens. If there are such artifacts, then select the **Autocalibration** in this drop-down list.
3. From the **Camera position** drop-down list, select the value corresponding to the position of the configured camera: **Floor**, **Wall**, or **Ceiling**
4. When you perform conversion, the frame edge areas can degrade or lose information. By default, such degraded edges are cut off, that is, aren't visible on the video surveillance monitor. The default visible frame part is 75% for the **Ceiling** position and 66% for the **Wall** position. To increase or decrease the displayed frame area, change the value of the **Visible part** parameter correspondingly. The value of this parameter is selected experimentally, depending on the camera.
5. Click the **Apply** button.

Configuring the fisheye camera is complete.

22.3.3 Configuring audio subsystem

General information on configuring audio subsystem

In the video surveillance systems, based on Axxon PSIM™ software, the audio subsystem contains software modules and hardware devices, used to receive and transmit audio (i.e. support for bidirectional audio), as well as digitize, process, record and play back audio signals from video surveillance and audio monitoring system microphones.

Audio subsystem hardware includes optionally:

1. Video capture cards;
2. Standard soundcards;
3. Multi-channel soundcards;
4. Audio capture IP-devices;
5. Microphones;
6. Loudspeakers and headphones.

Audio subsystem software includes:

1. Components for configuring the audio signal digitizing devices;
2. Components for recording digital audio signals;
3. Components for transmitting digital audio signals to Remote Workplaces and remote servers;
4. Components for digital audio signals playback.

Requirements for audio input units
Audio player operation

Audio digitizing devices

On the page:

- Video capture cards
- Standard soundcards, microphones, loudspeakers and headphones
- Multichannel audio capture devices
- IP-devices

Audio capture and digitizing devices are used to receive and process analog audio signals from connected microphones.

To enter and digitize an audio signal, the servers, created in the Axxon PSIM™ software, use:

1. Video capture cards;
2. Standard soundcards;
3. Multi-channel soundcards;
4. IP-devices.

Video capture cards

Video capture cards, used as audio capture devices, support reception and digitization of audio signals. Video capture cards don’t support audio signal output to headphones and loudspeakers.

Video capture cards digitize audio signals in conjunction with processing and digitization of video signals. Audio and video signals are processed independently.

The facility to receive and digitize audio signals depends on the server hard- and software configuration, on the type of video capture cards and the key file parameters.

Standard soundcards, microphones, loudspeakers and headphones

Standard soundcards are used for audio capture and audio output devices. They receive and digitize audio signals, reconvert digitized audio signals and feed them to the loudspeakers and headphones.

Axxon PSIM™ software system supports the audio signal sample rate range, corresponding to the standard soundcard and restricted to a 48 kHz frequency.

Usually up to 2 microphones and 1 headphone are used with a standard soundcard.

Multichannel audio capture devices

Multichannel audio capture devices are PCI cards (for example, MidiMan Delta, Comart Hera, Olkha 9P) or outer hardware and software modules (for example, Echolot USB-32), used for digitization and processing of 2 or more audio signals. For the list and features of Axxon PSIM™ software compatible multichannel audio capture devices, see the Integration section on the site of AxxonSoft company: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

Multichannel audio capture devices reproduce sound and digitize audio signals in parallel, or sound is reproduced by the standard sound cards. The Audio signal sample rate range depends on the audio capture device type. The Axxon PSIM™ software system sample rate range, available to the installed card, is restricted to a 48 kHz maximum value.

IP-devices

The Axxon PSIM™ software system supports audio signals reception, digitization, processing and playback using audio capture IP-devices. IP-cameras and IP-servers' built-in microphones or the external analog microphones, connected to IP-devices, may be used for receipt, digitization and processing of audio signals. Outer loudspeakers or headphones, connected to IP-servers may be IP-devices used for playback of audio signals. For the list of Axxon PSIM™ software compatible IP-devices for audio signals reception, digitization, processing and playback see the Integration section on the site of AxxonSoft company: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

The audio signal sample rate range depends on the IP-device type, which is used as the audio capture device. The sample rate range, available to the installed card, is restricted to a 48 kHz maximum value.

Registration of audio cards and microphones in Axxon PSIM™ software

Configuring the digitization devices for audio signals

Audio capture and digitizing devices are configured via the **System Setup** dialog box.

Audio capture and digitizing devices are configured by setting the audio signal sample rate and sound volume.

The sample rate is the same for all audio signals, processed by a common device; it can't be individually set for every audio signal.

The number of hertz depends on the selected rate on the settings panel of the **Audio card** object and playback of audio from IP device is performed using any codec selected on the camera and supported by this device in the Drivers Pack. See Requirements for audio input units for the list of supported codecs.

Volume is adjusted after the audio signal has been digitized by the audio capture device. With Axxon PSIM™ software you can restrict volume to a certain value or switch on the automatic gain control (AGC). This levels out the sound volume across the range to a constant level.

Configuring audio signals digitization and processing

Digitized audio signal recording

Audio signals archiving provides post-event analysis of evidence footage.

Audio recording can be performed:

1. As an audio and video synchro recording;
2. Independently, by Operator command.
3. As a sound activated audio recording.

In synchro recording mode, audio recordings are combined with video recordings; they are stored in the videoserver archive.

When audio signals are recorded by Operator command or by sound activation, audio recordings are separately stored in the audio archive.

Once the archive disk(s) is full, the archive is overwritten.

Configuring audio signals recording

Digital audio signal transmission to Remote Workstations and servers

Axxon PSIM software enables to transmit audio signals to Remote Workstations on IBM PC's, connected to the videoserver via local TCP/IP net, to remote servers and to mobile clients on the basis of iOS or Android.

Both real-time and archive audio signals may be transmitted to Remote Workstations.

Audio signal playback

Audio signal playback is performed on Remote Workplaces with the use of the **Video surveillance monitor** or **Audio player** interface objects.

Real-time audio monitoring and synchro audio and video playback is performed by the video monitor. Non-synchronous audio recording cannot be replayed by the video monitor.

The Audio player allows to playback audio signals from microphones, and to replay audio recordings. Audio recordings, synchronous to video recordings, cannot be replayed by the Audio player.

A standard soundcard installed on a Remote Workstation or remote server and configured by Axxon PSIM software, with microphones or loudspeakers attached to its output, is necessary to play back audio signals.

Configuring audio playback

Registration of audio cards and microphones in Axxon PSIM™ software

Audio capture cards are registered in the Axxon PSIM™ software by creating and setting up **Audio card** objects. **Audio card** objects are created on the **Hardware** tab on the base of the **Computer** objects (see Installing and configuring security system components guide, the Audio subsystem configuration section).

Listening to the audio signal through microphones

Configuring audio signals digitization and processing

Audio signals sample rate settings

The signal sample rate affects the quality of the audio signal and audio recording size. The higher the audio signal sample rate, the higher the signal quality and, hence, the efficiency of real-time and post-event analysis. When the audio signal sample rate increases, the size of the audio stream, transmitted by the network to Remote Workplaces and recorded to the disk, increases. These factors should be considered while choosing the sample rate of the audio signals.

If audio is to be received from IP devices, then the digitization rate is set on the settings panel of the **Microphone** object in the driver parameters (see Configuring audio acquisition from IP devices section in Installing and configuring security system components guide). The rate set on the settings panel of the **Audio card** object is ignored.

In other cases the digitization rate is set on the settings panel of the Audio card object (see Creating and configuring the Audio card object section in Installing and configuring security system components guide). By default, the audio signals sample rate is set to the minimum value. The sample rate is set for each audio capture device individually and covers any microphone, connected to it. Different sample rate settings for different microphones, connected to the same audio capture device, are unavailable.

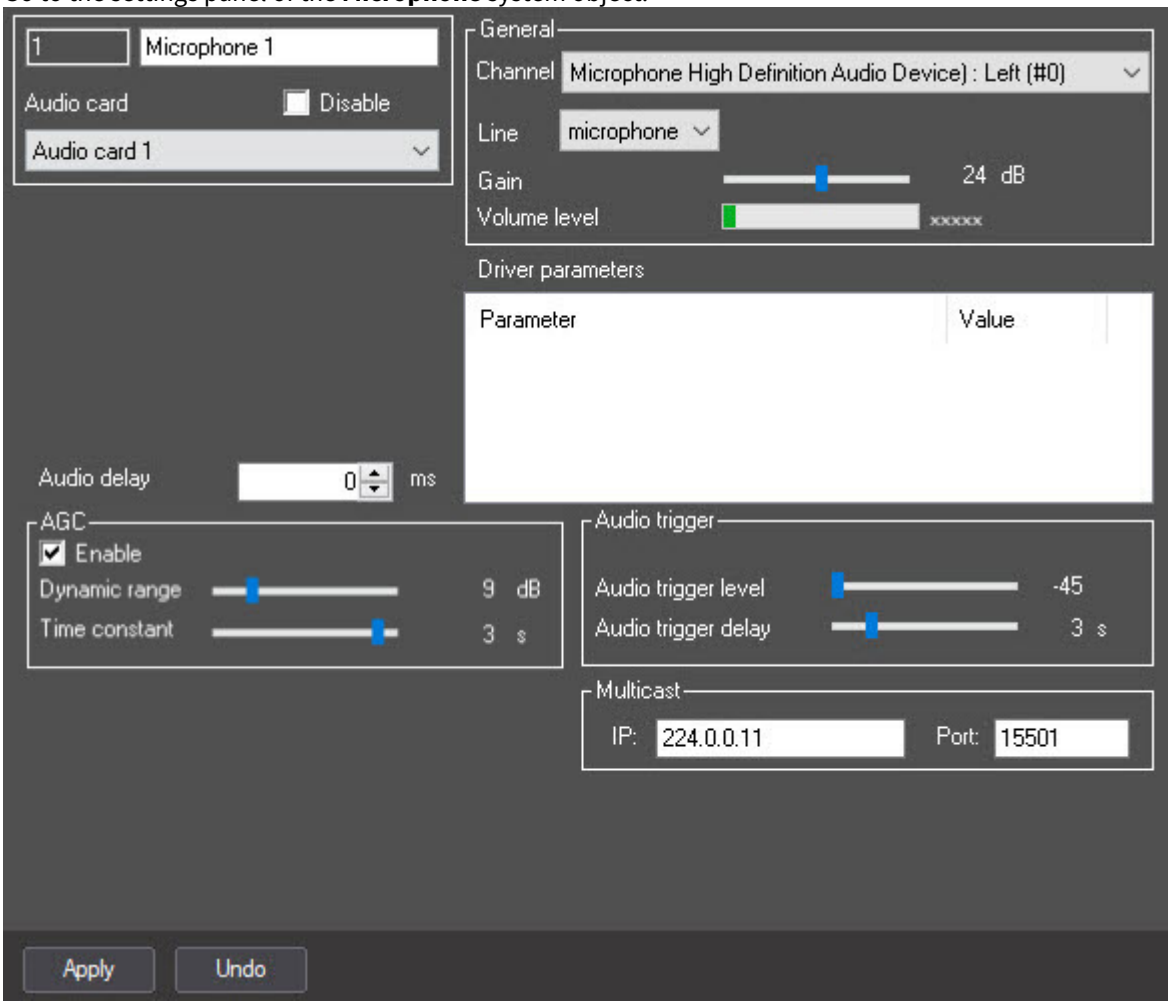
Setting up the audio signal gain

It is possible to gain incoming audio signals with the help of the software.

> **Note**
>
> If the power level of the audio signal varies over time, you can combine the audio signal gain with automatic gain control (see Setting up the automatic gain control for sound cards of Olha series).

To gain the audio signal, do the following:

1. Go to the settings panel of the **Microphone** system object.



2. Feed the audio signal to the microphone. The power level of the incoming audio signal is displayed on the **Volume level** indicator.
3. If necessary, move the **Gain** slider to the position corresponding to the required value of gain. The current value in dB is shown to the right of the slider.
4. Repeat steps 2 and 3 until the required level of audio signal power is reached.
5. Click the **Apply** button to save the changes.

Setting up the audio signal gain is complete.

Setting up the automatic gain control for sound cards of Olha series

The automatic gain control (AGC) of the audio signal is used to bring the volume of the audio signal to a constant level. You can configure the AGC mechanism only when you use sound cards of *Olha* series: *Olha-9P, Olha-10LP, Olha-12U, Olha-14*.

You can use the AGC mechanism in conditions of uneven power of the incoming audio signal or when the power of audio signals coming from different sources and forming the aggregate audio signal differs significantly. The AGC mechanism levels out the power levels of audio signal components from different audio sources.

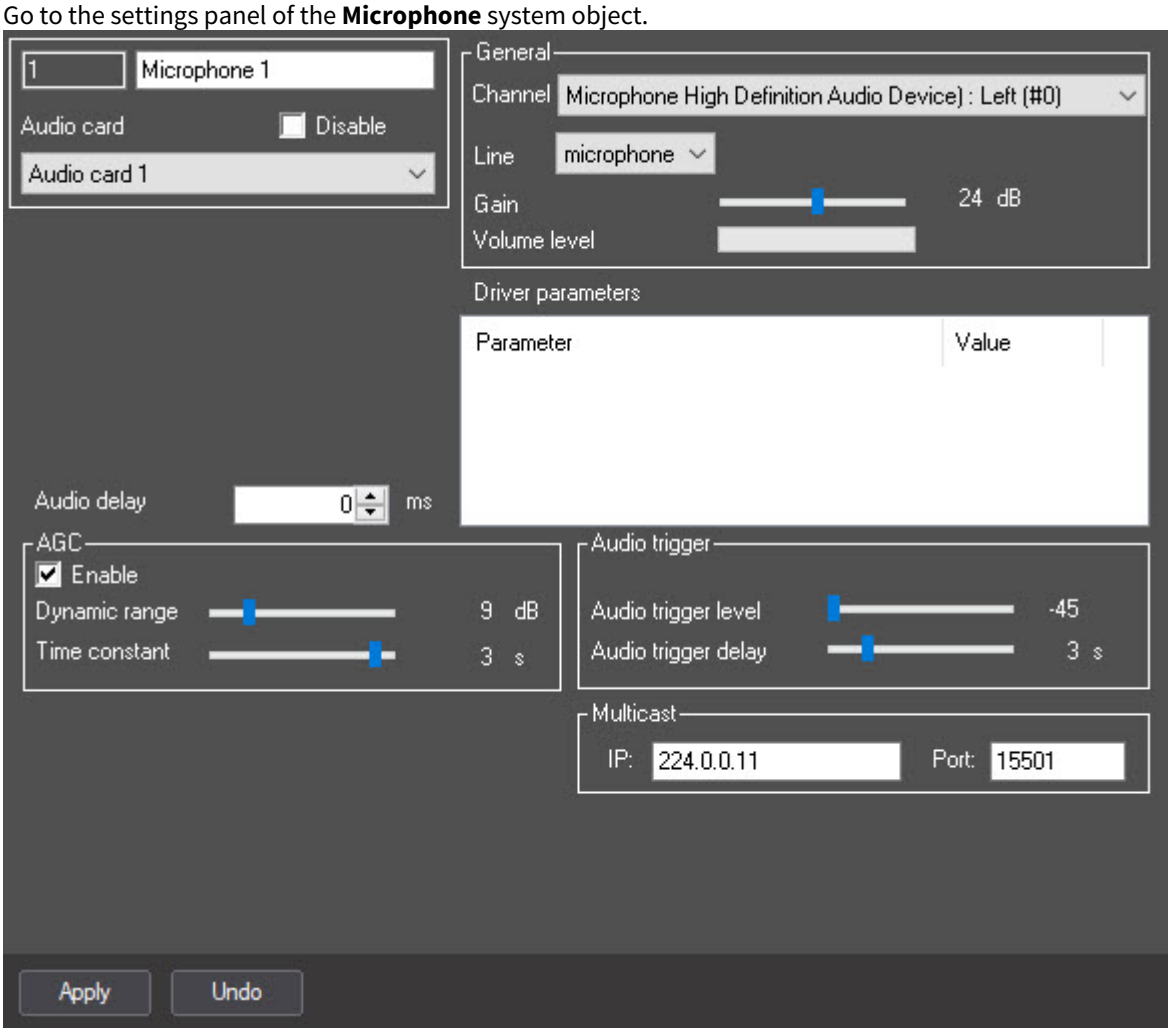
Axxon PSIM provides a possibility to configure the AGC mechanism according to the operating conditions. The AGC mechanism has two adjustable parameters: the power level, to which the AGC brings both more and less powerful audio signals, and the time to bring the audio signal to the specified power level. The second parameter of the AGC mechanism has the following limitations: the shorter the time to bring the audio signal to the required power level, the lower the quality of AGC operation and the greater the power level fluctuations in the processed signal. At the same time, increasing the time of bringing the audio signal to the required power level lengthens the areas where the power of the processed audio signal builds up and decreases. Thus, processing can bring sizable distortions into the audio signal. Due to these circumstances, the values of AGC mechanism parameters depend to a great extent on the conditions of audio signal formation, and you must configure the AGC again if they change significantly.

The AGC mechanism is applied to each audio signal coming from any microphone of the video surveillance and audio monitoring system.

By default, the AGC mechanism is disabled. You must configure the AGC for each microphone independently.

To configure the AGC, do the following:

1. Go to the settings panel of the **Microphone** system object.



2. In the **AGC** group, set the **Enable** checkbox.
   As a result, the **Dynamic range** and **Time constant** sliders become active.
3. Move the **Dynamic range** slider to the position corresponding to the required level of output power of the video signal. The current value of the output power level in decibels is displayed to the right of the slider.
4. Move the **Time constant** slider to the position corresponding to the time of bringing the signal to the required power level. The value of the time constant in seconds is displayed to the right of the slider.
5. Click the **Apply** button to save the changes.
6. After you set the parameters of the AGC mechanism, we recommend checking the correctness of the settings. To do this, use one of the audio playback tools provided in *Axxon PSIM*, for example, the **Audio player** object. Beforehand, you must configure the **Audio player** to play audio signals.
   a. If the power of the audio signal is higher than the required power, move the **Dynamic range** slider a few divisions to the left. If the power of the audio signal is lower than the required power, move the **Dynamic range** slider a few divisions to the right.
   b. If you notice a rising or falling power level in the audio signal, move the **Time constant** slider a few divisions to the left. In case there is a significant power level difference for different periods of the audio signal being played back, move the **Time constant** slider a few divisions to the right.
7. If necessary, repeat steps 6a-6b. If the AGC mechanism is set correctly, complete the setting procedure.

Setting up the automatic gain control is complete.

Configuring audio signals recording

Audio signals recording modes

Audio recording can be performed:

1. As audio and video synchro recording;
2. By sound activation, i.e. when input audio signal power exceeds a certain value.
3. Independently, by Operator command.

In synchro recording mode audio and video signals' recording is initialized simultaneously (by Operator's command or by alarm).

Audio and video signals' recording is stopped simultaneously. Audio recording shutdown may be caused by:

1. Video recording shutdown (by Operator command or by the end of alarm recording);
2. Post-alarm recording shutdown (if the relevant camera is configured to perform post-alarm recording).

In synchro recording mode, audio recordings are combined with video recordings; they are stored in the videoserver archive.

In sound activated recording mode, audio recording is initialized at the moment, when signal power exceeds a preset (threshold) value. Audio signal recording is shutdown at the moment, when signal power becomes lower than a preset value, that has been previously exceeded.

An audio recording file, created in sound activated recording mode or by Operator command, includes an audio signal segment from the start till the end of the recording. In sound activated recording mode, as well as at recordind by Operator command, audio recording files are stored in a separate server archive (audio archive).

Note.

In the sound activated audio recording mode the disk space, reaching which the recordings are deleted for loop recording, is 100 MB.

Audio recording of events
Free disk space (video archive size) required
Configuration of audio

Selecting the disks for audio archive storage

Axxon PSIM™ software performs audio signal archiving to the local server disks, net disks and USB disks.

In synchro recording mode, audio recording files are stored together with video recordings in the "Video" folder(s). So, selecting the disks for audio recording storage in synchro recording mode is equivalent to selecting the disks for video recording storage. For description of the procedure, see the relevant section of this Guide. In sound activated recording mode, audio recording files are stored in the "AUDIO" folder separately from the video archive.

By default, no HDD is listed for the sound activated audio recording storage, hence, sound activated recording is unavailable. To enable the sound activated recording, select one or more disks.

Important!

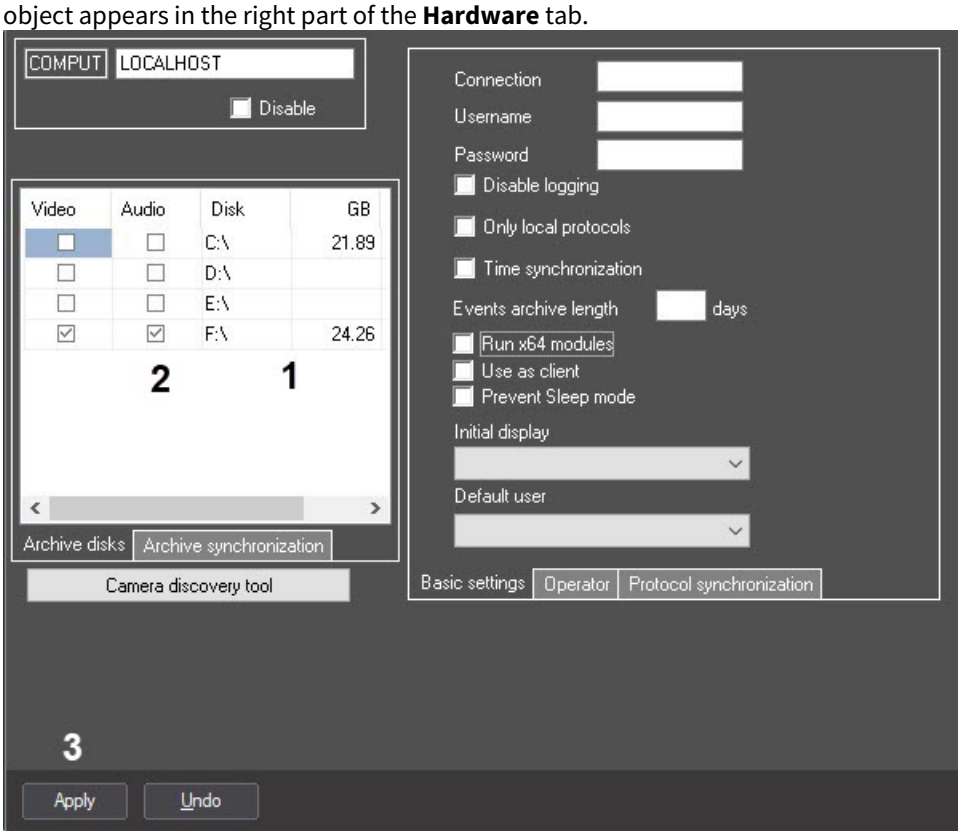
If audio recording is activated by sound – not performed in synchro record mode – then disks different from those for recording video are to be selected.

Note.

Use disks with the NTFS file system for storing the archive. If the FAT32 file system is in use, then there can be problems caused by this system, for instance — it has no logging.

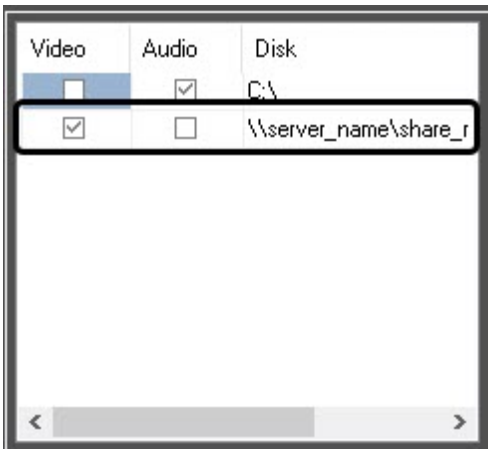
Disk(s) selection is done in one of the following ways:

1. Estimate the disk capacity, necessary for audio archive storage in the sound activated mode. The estimation technique is similar to the one used for the video archive (see Free disk space (video archive size) required).
2. Go to the **Computer** object settings panel.
3. Select the **Computer** object on the **Hardware** tab in the objects tree. The settings panel of the selected object appears in the right part of the **Hardware** tab.



4. The local disk names, available for audio archiving, are presented in the **Disk** column of the **Archive storage disks** table (1). The **GB** column contains the relevant disks capacities in gigabytes (GB). Select the disks for audio archiving and make sure that the total selected disk capacity is sufficient.
5. Set the checkmarks in the **Audio** column for the selected disks names (2). Local, net and USB disks are available for storing.
6. To add a net disk via UNC paths, do the following:

a. Go to the last line in the disk list and click the down key.



b. Enter the path to a net disk in the appeared line. UNC path is set in the format «\ \server_name\share_name», where «server_name» is the name of file server and «share_name» is the net name of general folder.
c. Set a checkbox in the **Audio** column for created disk.

7. Click the **Apply** button (3).

Selecting the disks for audio archive storage is completed.

Setting up the audio trigger recording

The audio trigger recording is a mode in which audio recording starts at the moment when the volume of the audio signal exceeds a preset level and ends at the moment when the volume of the audio signal becomes lower than the preset level exceeded earlier.

To set up the audio trigger recording in *Axxon PSIM,* you can use the following parameters:

1. **Audio trigger level** determines the threshold level of audio signal power above which audio recording (alarm event registration) is automatically started.
2. **Audio trigger delay** determines the time during which the audio signal is post-recorded after the end of an alarm event.

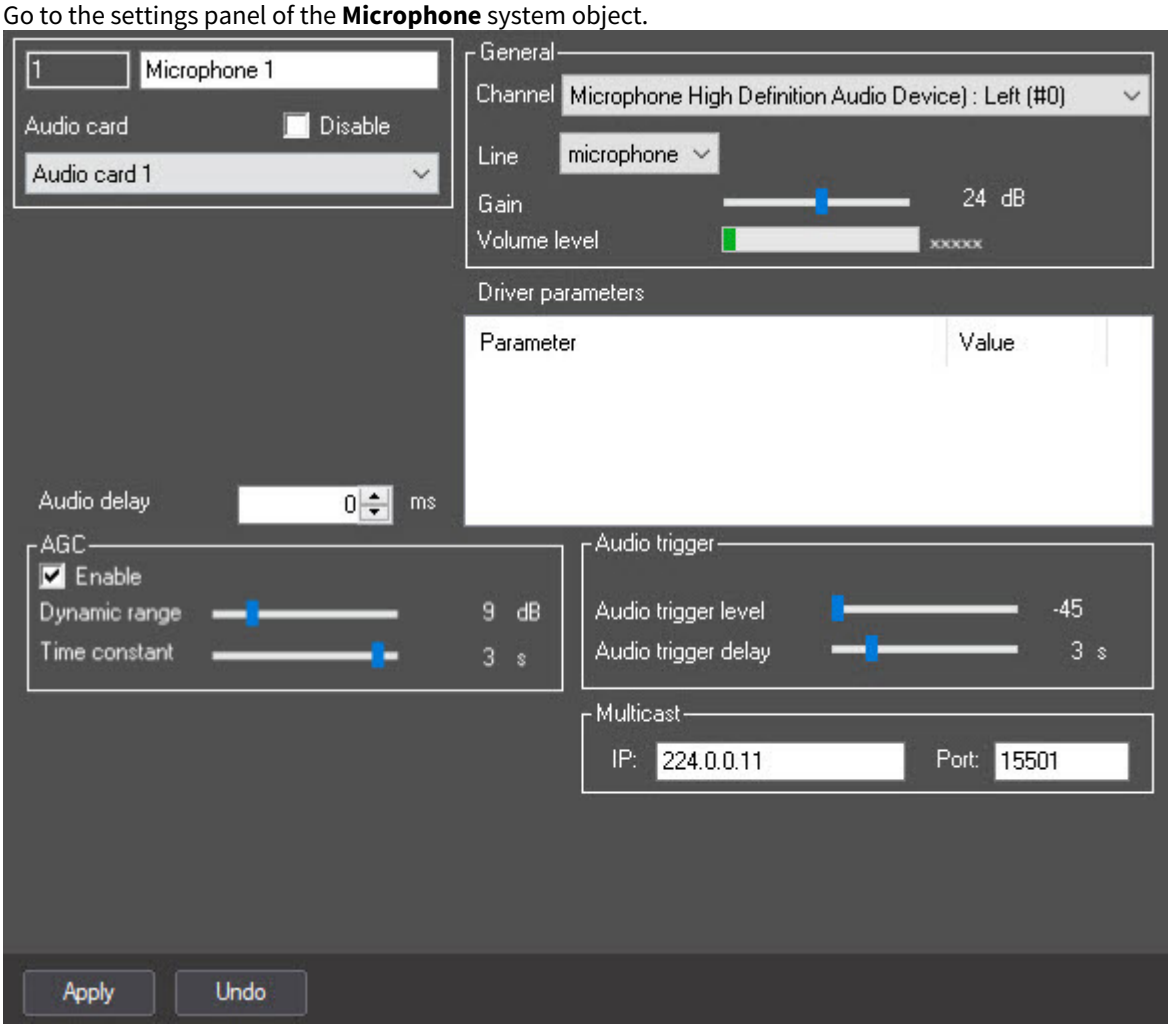
You must configure the audio trigger recording separately for each microphone. We recommend selecting the optimal values of the audio trigger recording experimentally to avoid false positives.

By default, the audio trigger recording is disabled.

To configure the audio trigger recording, do the following:

1. Select the disk(s) to store audio trigger recordings (see Selecting the disks for audio archive storage).
2. Configure the **Audio player** object to operate with the microphones, the audio signal from which must be recorded by audio trigger (see Configuring audio signals playback using the Audio player object).

3. Go to the settings panel of the **Microphone** system object.



4. Move the **Audio trigger level** slider to the position corresponding to the required level of audio threshold power. The current threshold level in conventional units is displayed in the field to the right of the slider.
5. Move the **Audio trigger delay** slider to the position corresponding to the required audio post-recording time after the end of an alarm event. The current audio post-recording time in seconds is displayed in the field to the right of the slider.
6. Click the **Apply** button to save the changes.
7. Use the **Audio player** object to check if the audio trigger recording is initialized when an audio signal of the required volume is fed to the microphone. If recording isn't initialized, reduce the value of the **Audio trigger level** parameter by moving the slider a few divisions to the left (see step 4).
8. Use the **Audio player** object to check if the audio trigger recording is initialized when an audio signal with a volume level lower than the required one is fed to the microphone. If recording is initialized, increase the value of the **Audio trigger level** parameter by moving the slider a few divisions to the right (see step 4).
9. Repeat steps 7-8. If the audio trigger recording works correctly, complete the setting procedure.

Setting up the audio trigger recording is complete.

Recording by audio trigger

Setting up the audio and video synchro recording

Audio and video synchro recording is applied to enable post-event analysis of evidence footage, retrieved simultaneously from video surveillance system microphones and cameras. In this mode audio is recorded by start and end video recording times.

Audio and video synchro recording is configured by coupling cameras, registered in Axxon PSIM™, with microphones. Any single camera can be coupled with one or two microphones. If simultaneous recording is performed from two Microphones, audio is recorded to one stream.

The procedure of audio and video synchro recording configuration is described in Configuring audio and video synchro recording section.

Synchronous audio and video recordings

Configuring audio playback

Axxon PSIM™ software provides an audio playback using the **Audio playback card** object. The **Audio playback card** object combines speakers objects in case the playing card has several channels. You can direct sound from the microphone to the dynamic using audio switch (see Setting up the sound switch section), macro or script.

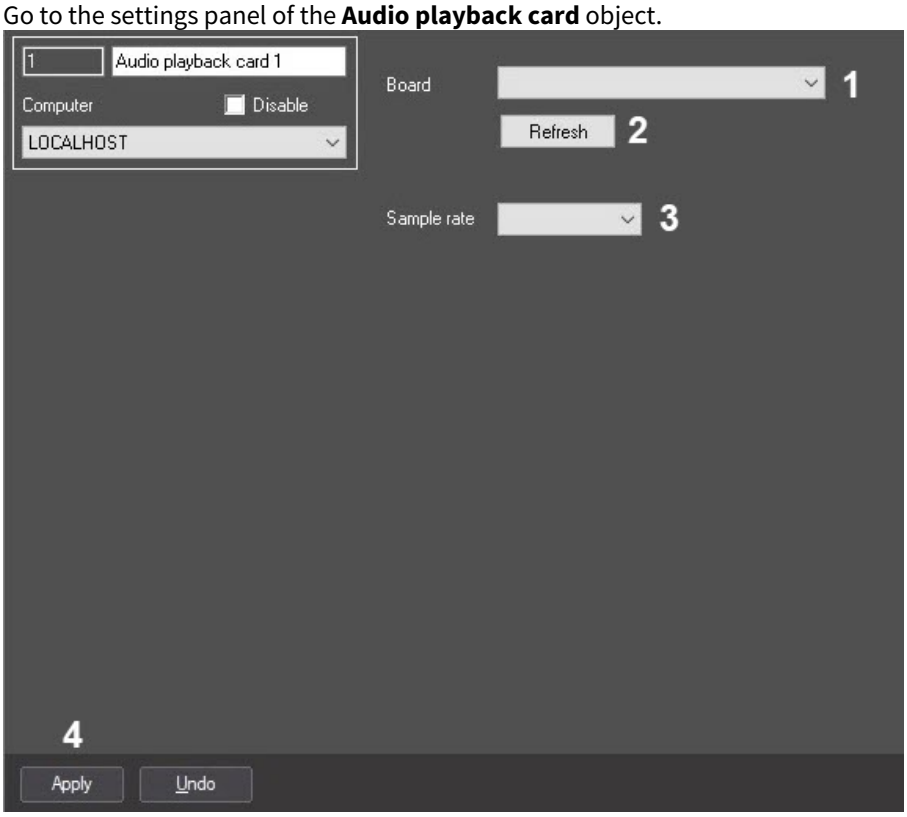
Creating and configuring the Audio playback card object

The **Playback card** object is registered on the basis of the **Computer** object in the **Hardware** tab of the **System settings** dialog box.



To configure the **Audio playback card** object, do the following:

1. Go to the settings panel of the **Audio playback card** object.



2. Select the type of audio digitization device in the **Board** dropdown list (1).

> **Note.**
>
> SoundBlaster, ADC video card, audio digitization USB devices, IP cameras digitization devices are used as audio digitization devices.

3. Select the rate of audio digitization in the **Sample rate** dropdown list (3).
4. To save the changes, click the **Apply** button (4).

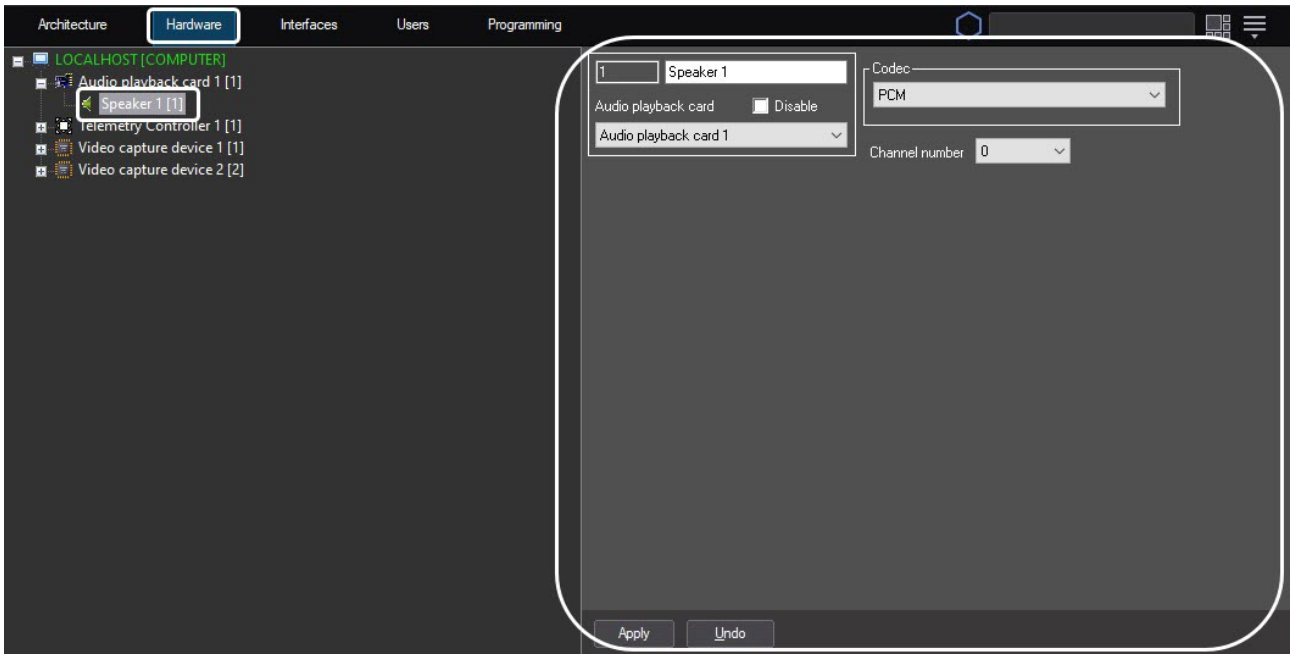
> **Note.**
>
> The **Refresh** button is for returning to previous settings of audio digitization device if new settings were not saved (2).

The **Audio playback card** object is now configured.

Creating and configuring the Speaker object

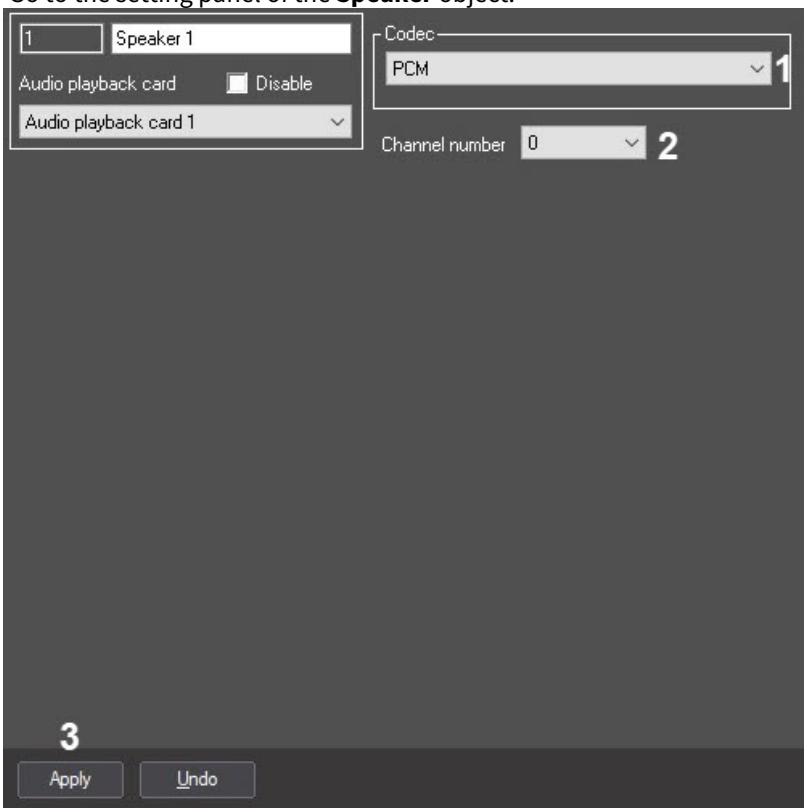
The **Speaker** object is an audio playback device.

The **Speaker** object is registered under the **Audio playback card** object in the **Hardware** tab in the **System settings** dialog box.



To configure the **Speaker** object, do the following:

1. Go to the setting panel of the **Speaker** object.



2. Select the coding format of reproducible audio signal in the **Codec** dropdown list (1). The following codecs are supported:
    a. PCM

b. G.711
c. G711_alaw
d. G721
e. G.723
f. G726_16
g. G726_32
h. IMA_ADPCM
i. G726_SUN16
j. G726_FFMPEG_16
k. G726_FFMPEG_32
l. G726_40
m. G726_SUN24
n. G726_FFMPEG_24
o. G726_FFMPEG_40
p. PCM_8
q. VNDR.0.9

3. Select channel number of speaker connection in sound card from the list of the same name (2).
4. To save the changes click the **Apply** button (3).
5. Select the created object in the **Speaker** drop-down list on the **Operator** tab of the **Computer** object settings panel – see Selecting speaker, microphone and camera for SIP-operator.

> **Note.**
>
> Several **Speaker** objects can be configured in the system. When the speaker is changed over using the **Speaker** list on the **Computer** object settings panel, then *Axxon PSIM* is to be restarted on the computer where it is in use.

6. Click the **Apply** button.

The **Speaker** object is now configured.

Features of standard sound card use

General information on standard sound cards

Standard sound cards are PCI cards or motherboard integrated modules, and are used to play back digital audio signals (2, 4, 6 or 8 sound channels) and/or to digitize analog video signals.

Usually standard sound cards have 1 output for connecting loudspeakers or headphones (modifications exist with 2 and 3 outputs for multi-channel sound realization and some others) and 1 input for connection of microphones.

> **Note.**
>
> Sound cards have one plug for 2 channels to connect microphones to. To connect 2 microphones, resolder the connector or use the mini jack 2xRCA adapter.

Standard sound cards perform sound playback and audio signals digitization in parallel.

The audio signal sampling rate range depends on the audio card type. The Axxon PSIM™ software system sampling rate range, available to the installed card, is bounded by the 48 kHz maximum value.

Features of standard sound card setup

As a rule a standard sound card digitizes no more than 2 audio signals.

Each standard sound card is registered in the Axxon PSIM™ software by creating and setting up **Audio card** objects. **Audio card** objects are created on the **Hardware** tab on the base of the **Computer** object. During creation of the **Audio card** object for each standard sound card, the different values in the numbering sequence should be assigned to the **Board** parameter: for the first **Audio card** object the FS 6 (0) value should be selected, for the second one - FS 6 (1) and so on.

Example of **Board** settings for Realtek standard sound cards:



A.at single standard sound card registration



B. at registration of two standard sound cards of the same type

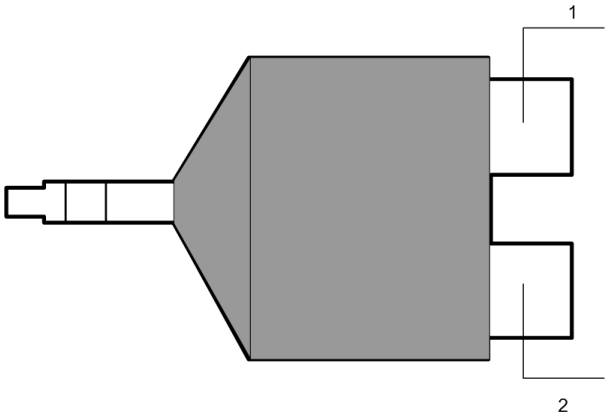
To register the microphones, connected to the standard sound card input audio channels, create **Microphone** objects on the base of the **Audio card** object. Up to 2 **Microphone** objects may be placedn the base of a single **Audio card** object. The relevant hardware tree segment during the registration of the standard sound card and 2 microphones is shown in the figure.

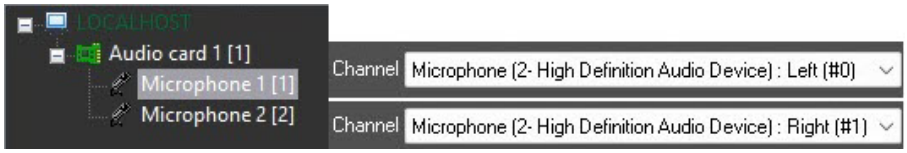


After the sound card registration in the Axxon PSIM™ system, the values should be assigned to the **Channel** settings of the **Microphone** objects, according to the channel numbers of the microphone connections to a standard sound card.

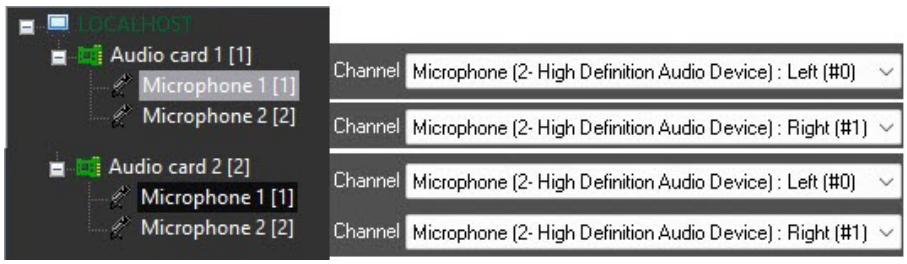
To connect more than one microphone to a standard sound card, the mini jack 2xRCA adapter is used. The mini jack 2xRCA adapter numbering layout is shown in Figure 8.8-31. Examples of **Microphone** object settings with one and two FS-5 video capture cards, registered in the Axxon PSIM™ system, are shown in Figure A and Figure B correspondingly.

Mini jack 2xRCA adapter numbering layout:





A.for a single standard sound card



B. for two standard sound cards

Using multi-channel audio capture devices

General information on multi-channel audio capture devices

Multi-channel audio capture devices are PCI cards (for example, MidiMan Delta, Comart Hera, Olha9P) or external hardware and software modules (for example, Echolot USB-32), used for digitization and processing of 2 or more audio signals. For the list and features of Axxon PSIM™ software compatible multi-channel audio capture devices, see the Integration section on the site of AxxonSoft company: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

Multi-channel audio capture devices reproduce sound and digitize audio signals in parallel, or sound is reproduced by the standard sound cards. The audio signal sampling rate range depends on the audio capture device type. The Axxon PSIM™ software system sampling rate range, available to the installed card, is limited to the 48 kHz maximum value.

Setting up multi-channel audio capture devices

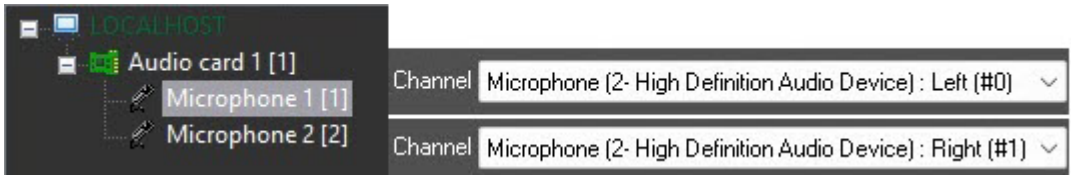
Usually multi-channel audio capture devices digitize 2 or more audio signals on the device type.

Each multi-channel audio capture device is registered in the Axxon PSIM™ software by creating and setting up **Audio card** objects. **Audio card** objects are created on the **Hardware** tab on the base of the **Computer** object. During creation of the **Audio card** object for each multi-channel audio capture device the value, corresponding to its name, should be assigned to the **Board** parameter.



To register the microphones, connected to the multi-channel audio capture device input audio channels, create **Microphone** objects on the base of the **Audio card** object. The number of **Microphone** objects, allocated on the base of a single **Audio card** object, is defined by the number of audio input channels and restricted by the License key file. The relevant hardware tree segment during the registration of the standard sound card and 2 microphones is shown in the figure.

The hardware tree segment at registration of an Eholot USB-32 multi-channel audio capture device and 2 microphones:



After registration in the Axxon PSIM™ system, the values should be assigned to the **Channel** settings of the **Microphone** objects according to the channel numbers of the microphone connections to the audio capture device. An example of **Microphone** object settings is shown in the figure above.

Using IP-devices

General information on IP-devices

Axxon PSIM™ software system supports audio signals reception, digitization, processing and playback options, using audio capture IP-devices. IP-cameras and IP-servers built-in microphones or the external analog microphones, connected to IP-devices, may be used for audio signals receipt, digitization and processing. External IP-loudspeakers or headphones, connected to IP-servers or IP-cameras may be used for audio signals playback. For the list of Axxon PSIM™ software compatible IP-devices for audio signal reception, digitization, processing and playback, see the Integration section on the site of AxxonSoft company: http://www.axxonsoft.com/products/axxon_enterprise/core_functionality/integration.php.

The audio signal sampling rate range depends on the IP-device type, used as an audio capture device. The Axxon PSIM™ software system sampling rate range, available for the installed card, is limited to the 48 kHz maximum value.

> **Note.**
>
> *Axxon PSIM* supports IP devices with dynamic IP address using DynDNS or other services. In these cases specify the address (hostname) given by DynDNS service instead of IP address when configuring IP devices.

Setting up the transmission of audio signals to IP devices

Axxon PSIM has the possibility of transmitting the audio signals from microphones to IP devices and of playing back the audio signals with loudspeakers or headphones connected to IP devices.

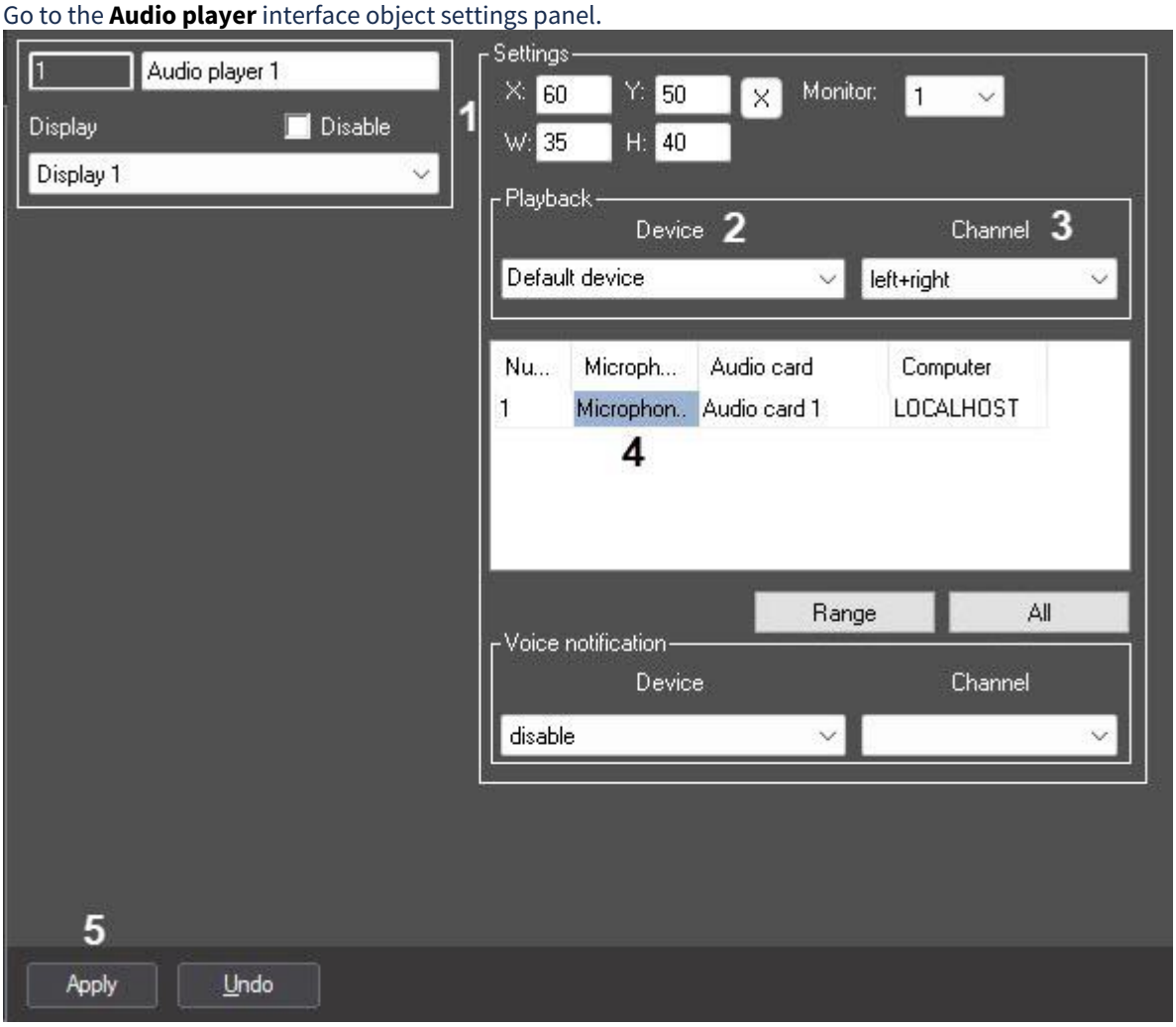
There are two ways audio signals can be transmitted to IP devices in *Axxon PSIM*:

1. using the **Audio player** interface object;
2. using the **Voice notification service** system object.

The **Audio player** object is used to transmit audio signals from the selected microphones to the supported IP devices.

To set up the transmission of audio signals using the **Audio player** object, do the following:

1. Go to the **Audio player** interface object settings panel.



2. Set the coordinates and the size of the **Audio player** interface window, as well as the number of the physical monitor on which the window will be displayed (**1**).
3. From the **Device** drop-down list, select the required IP device (**2**).
4. From the **Channel** drop-down list, select the required audio signals playback channel (**3**).
5. From the drop-down list in the **Number** column, select the **Microphone** object number, from which the audio signal has to be transmitted to the selected IP device (**4**). Other columns of the table will be filled in automatically.
6. Repeat step 5 for each required **Microphone** objects.
7. Click the **Apply** button to save the changes (**5**).

Setting up the transmission of the audio signals using the **Audio player** object is completed.

> **Note**
>
> To enable audio signals transmission from the microphone to the IP device, click the  button (Interception from microphone) in the **Audio player** interface window.

The **Voice notification service** object is used to transmit audio files in the WAV format to the supported IP devices. Setting up of the **Voice notification service** object is described in Setting up the voice notification.

Note

When using **Audio player** and **Voice notification service** together, note that the sampling rate of the audio signals transmitted from the microphones via the **Audio player** (the **Sample rate** setting of the **Audio card** object) and the sampling rate of the audio files transmitted with the help of the **Voice notification service** should be the same.

Setting up the transmission of duplex audio signals to IP-devices

Transmission of duplex audio signals to IP-devices is configured by coupling speakers, registered in Axxon PSIM™ software, with microphones.

Note.

The feature of transmitting audio to an IP-device must be supported by the IP-device and be integrated into the Axxon PSIM™ software – see Documentation Drivers Pack.

To configure transmission of duplex audio signals to IP-device, do the following:

1. Create and configure the **Camera** object on the base of the **Video Capture Device** object.
2. To work with a microphone of an IP-camera, create and configure the **Audio card** and **Microphone** objects (see Registration of audio cards and microphones in Axxon PSIM™ software section).
3. To work with a speaker of a camera, create and configure the **Playing card** and **Speaker** objects (see Configuring audio playback section).
4. To redirect a signal from a microphone to a speaker of a camera, create and configure the **Live sound switch** object (see Creating and configuring the Live sound switch object section).

As a result, one can direct audio to a speaker of a camera while working with the **Live sound switch** object (see Using the Live sound switch object section).

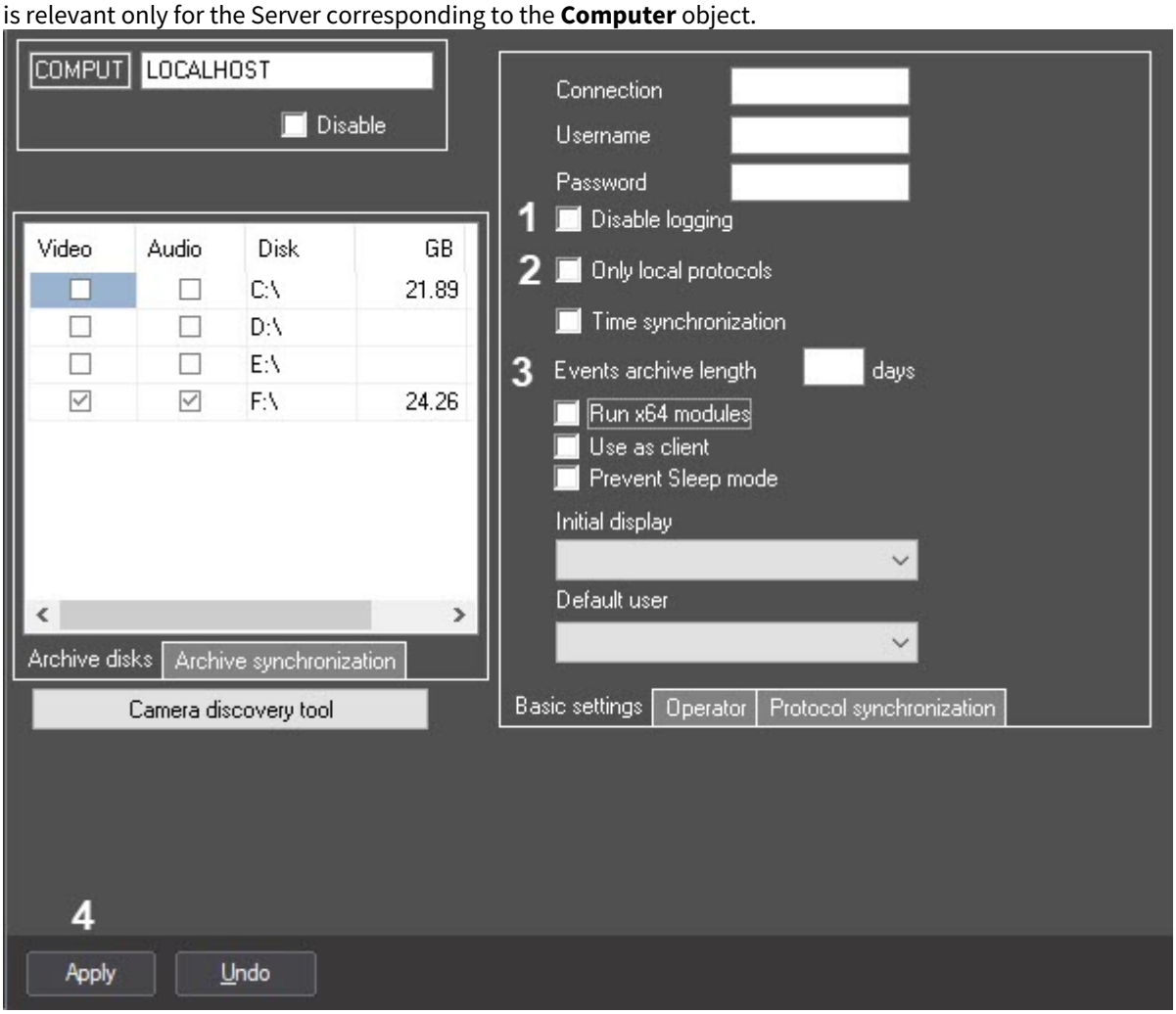
22.3.4 Configuring events logging

The data about events registered in the system is stored in the Protocol table in *Axxon PSIM* (by default) or in the Protocol table of an individual database (see Extracting event protocol into an individual database).

The Event Viewer database is configured by means of the settings panel of the **Computer** system object.

Configure the Event Viewer database as follows:

1. To disable events recording to the Event Viewer database, set the **Disable logging** checkbox (**1**). This setting is relevant only for the Server corresponding to the **Computer** object.



2. If you want to log to the Event Viewer database only the events registered on this computer, set the **Only local protocols** checkbox (**2**). This setting is relevant only for the Server corresponding to the **Computer** object.
   If this checkbox is set, then the Event Viewer database synchronization has to be started manually using the SyncProtocol.exe utility or a macro (see The SyncProtocol.exe utility to synchronize event log database and Example of macro to start the Event Viewer databases synchronization).
3. In the **Events archive length** field, specify the time period in days for storing the event archive in the Event Viewer database (**3**). This setting is relevant only for the Server corresponding to the **Computer** object. To specify the time period for storing the event archive for all Servers in the distributed system, use the common settings in the **Programming** tab (see The settings panel of the Security zone object). The value of the **Events archive length** parameter on the settings panel of the **Computer** object has the higher priority. If no value is specified in the **Events archive length** field on the settings panel of the **Computer** object, the value specified in the settings panel of the **Security zone** object is used.

> **Note**
>
> The specified **Events archive length** is also applied to the events received by the **Incident server**, which are stored in the PROTOCOL_INC_SERVER table of the *Psim* database.

> **Note**
>
> The process of clearing the database of the events older than the specified storage period is started by default every three minutes and deletes 100,000 events starting with the oldest ones.

4. Click the **Apply** button to save the changes (**4**).

The events logging to database is now configured.

> **Note**
>
> You can also use the tweaki.exe utility to configure events logging (see the The Settings panel of the Axxon PSIM section).

Define required disk space (size of event log database)
Configuring the Operator protocol interface object
Configuring the Event Viewer interface object
Event control via Event Viewer
Event processing using the operator protocol
Configuring Incident server and Incident handler
Events control and processing using the Incident manager

22.3.5 Configuring the Event Viewer databases synchronization

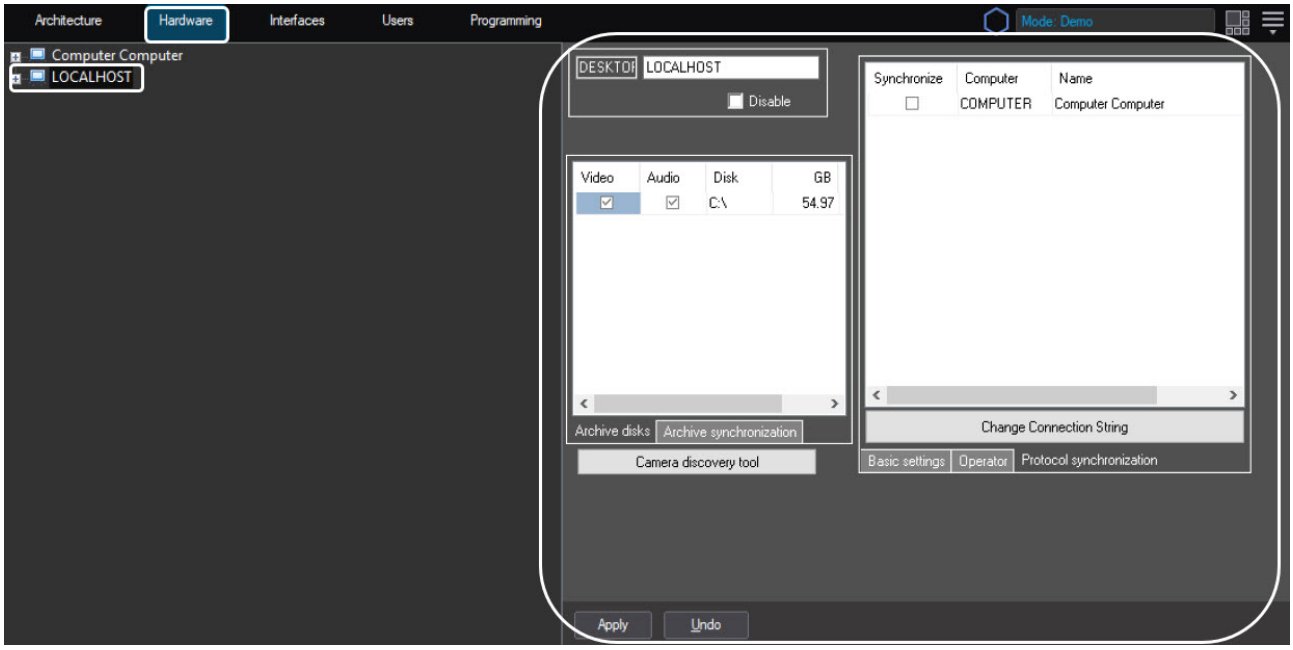
General information on the Event Viewer databases synchronization

In *Axxon PSIM* information on the events registered in the system is stored in the Event Viewer database. The local copy of the distributed database is stored on each Server. The synchronization of local copies of the Event Viewer databases is to be configured for data replication.

By default the synchronization of the Event Viewer databases is performed automatically. If the **Only local protocols** checkbox is set checked on the **Computer** settings panel, then the Event Viewer database synchronization is started via programming resources, for example, using macros or the SyncProtocol.exe utility.

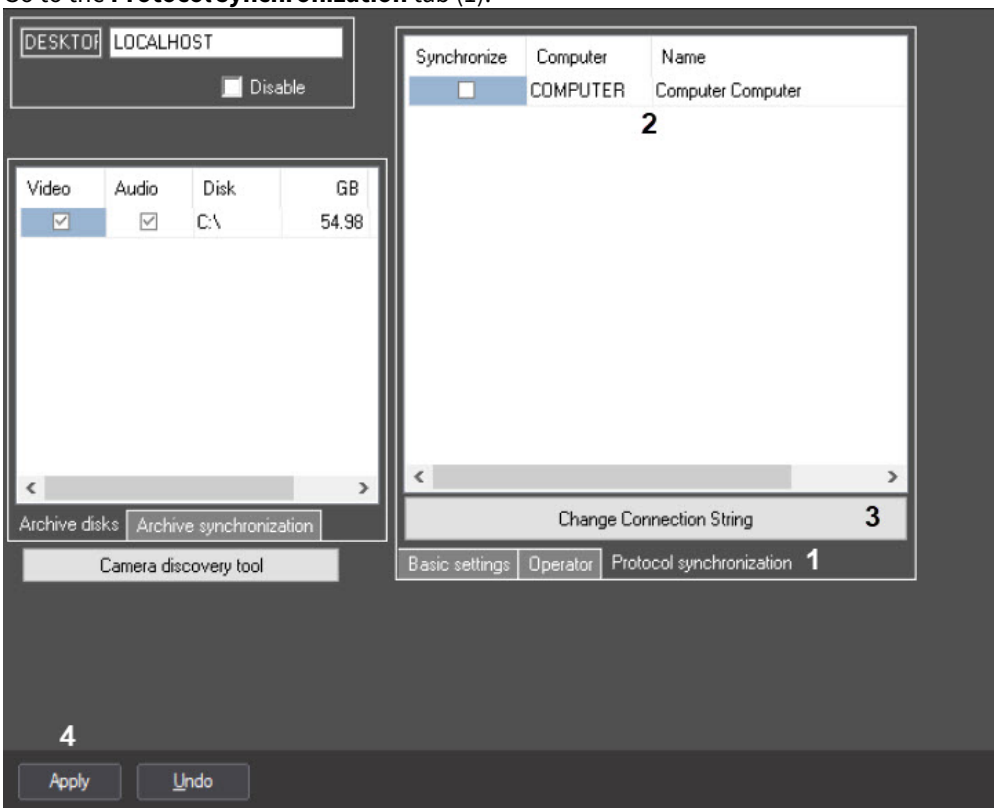
Configuring the Event Viewer database synchronization

Synchronization of the Event Viewer databases is configured on the settings panel of the **Computer** object in the **Protocol synchronization** tab.



To configure the synchronization, do the following:

1. Go to the **Protocol synchronization** tab (1).



2. In the **Synchronize** column set checkboxes next to those computers with which the synchronization of the Event Viewer databases is to be performed on the Server (2).
3. Set the connection string in the Event Viewer database on remote computers:
    a. Select the cell corresponding to the required computer in the line of the table.
    b. Click the **Change Connection String** button (3).

c. In the opened **Data communication channel** box configure the connection to the Event Viewer database located on the selected computer.
Connection configuration is performed via Windows standard tools and is described on the Microsoft reference web-site (http://msdn.microsoft.com/).
d. Repeat 3.1 – 3.3 steps for all required computers.

4. Click the **Apply** button to save the settings (4).

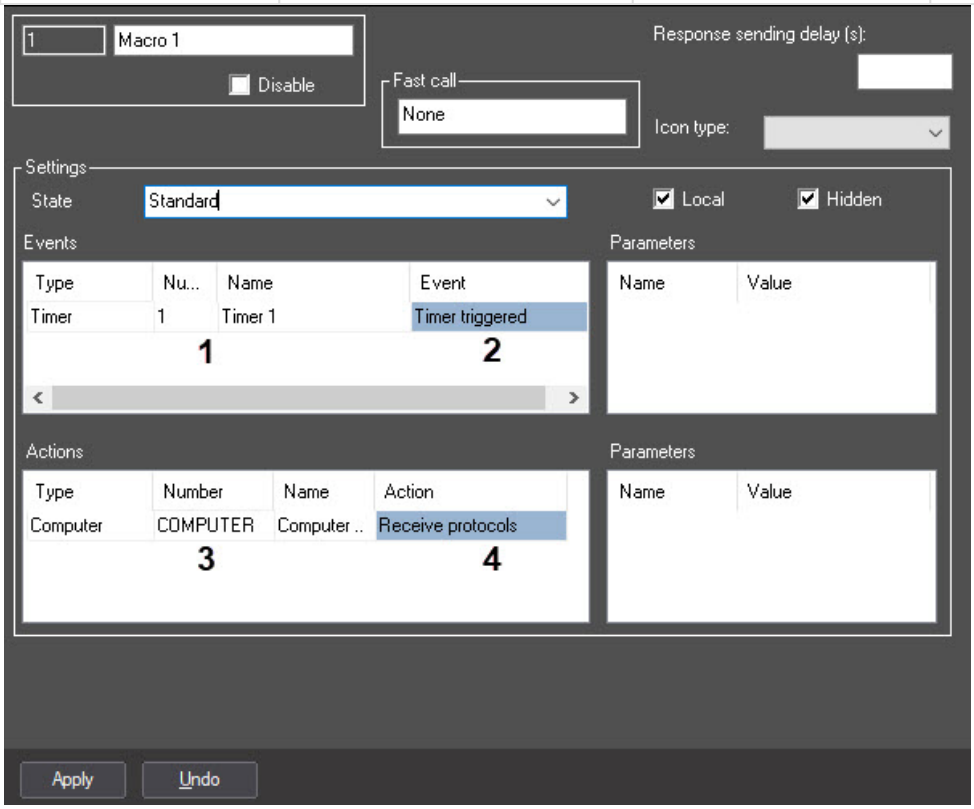
Synchronization of the Event Viewer databases is now configured.

Example of macro to start the Event Viewer databases synchronization

On the WS3 computer the synchronization of the Event Viewer databases is to be performed when Timer 1 is triggered.

Set the macro parameters using one of the following ways (see figure and table):

Event		**Action**	
Object	**Event**	**Object**	**Action**
Timer 1 (1)	Timer triggered (2)	Computer (3)	Receive protocol (4)



22.3.6 Configuring telemetry

In digital video surveillance system PTZ devices are used for extension of video surveillance area by mechanical rotation of the camera. Detailed description of connection and configuration of PTZ devices is given in the Installing and configuring security system components guide manual.

Requirements for PTZ and control panels
Telemetry control

22.3.7 Configuring operation of distributed architecture in the failover mode

General information about Failover mode

On the page:

- Purpose and features of the Failover mode
- Examples of Failover system organization
  - 1 main Server + standby Server
  - N main Servers + standby server
  - Two Servers being standby for each other

Purpose and features of the Failover mode

Distributed architecture can operate in the failover mode. If the connection with one of distributed system Servers fails, then this mode enables transferring the configuration created under the Server to a Standby Server. A Standby Server temporarily becomes a video server and records archive in accordance with the settings of the **Computer** object that corresponds to a Standby Server (see Selecting the disks for video archive storage). When the connection is restored, the configuration is restored on the main Server.

Note

Video image update on Client Video Surveillance Monitors can take several seconds after configuration transfer, as the update is performed sequentially every 3 seconds. Video is displayed as usual after the update. If more than 64 cameras are added on the monitor, the update does not occur while the **System Settings** dialog box is open. The update period can be decreased by the monitor_refresh_delay registry key – see Registry Keys Reference Guide.

Note

When moving configuration to the Backup Server and getting it back to the main Server the **Failover service** object generates START and STOP events. These events can be used in scripts for flexible system configuration. For examples, see Examples of scripts in the JScript language section of The Script object. Programming using the JScript language.

The configuration transfer time after losing connection with the main Server depends on many factors including but not limited to the following:

1. Computer capacity.
2. Data storage system speed.
3. The value of the FastIndex key in the registry (see Registry keys reference guide). It is recommended to set the key value to 1.
4. The system objects tree (the more subsystems and modules there are, the slower the configuration transfer).

Example

The following migration time is confirmed in both directions (i.e. from the Main Server to the standby Server and vice versa):

1. 100 cameras are transferred in less than 20 seconds;
2. 200 cameras are transferred in less than 30 seconds.

The archive size tested was more than 5TB and the Servers hardware as follows:
Main Server: Intel Core i5-8500, 16 GB RAM.
Standby Server: Intel Core i5-8400, 16 GB RAM.

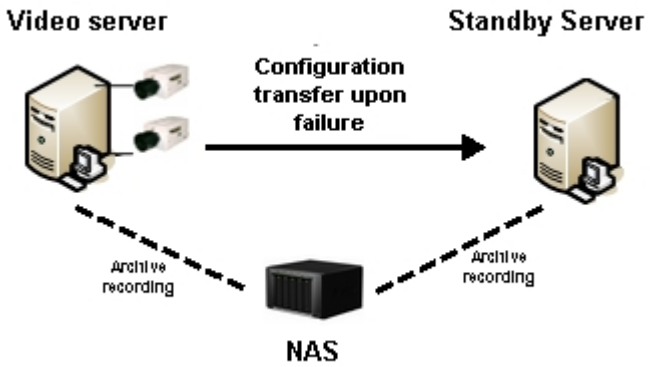
In the case of a normal shutdown of *Axxon PSIM* on the main Server, the configuration is not transferred to the backup Server.

In case of manual shutdown of the main Server, the configuration is also not transferred to the backup Server.

Examples of Failover system organization

1 main Server + standby Server

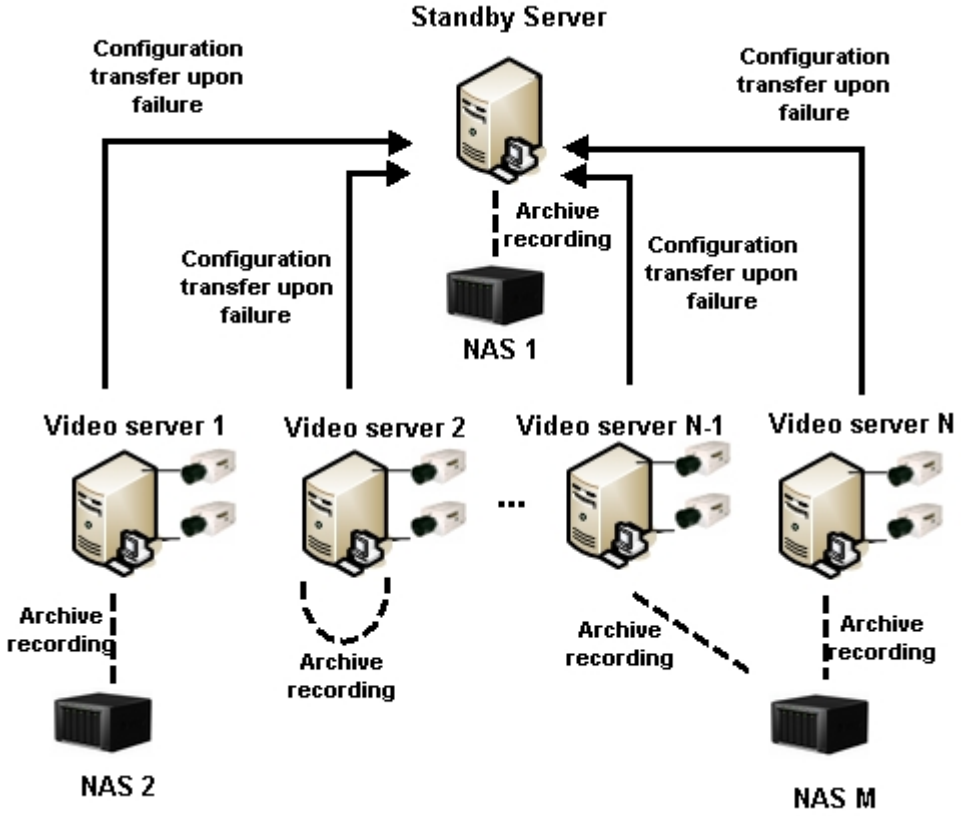
If the main Server + standby Server operation scheme is in use (see the figure below), it is possible to configure both main and standby Servers for recording on the same network resource or several resources (see Using network disks). In this case the archive is always available no matter which Server operates with cameras.

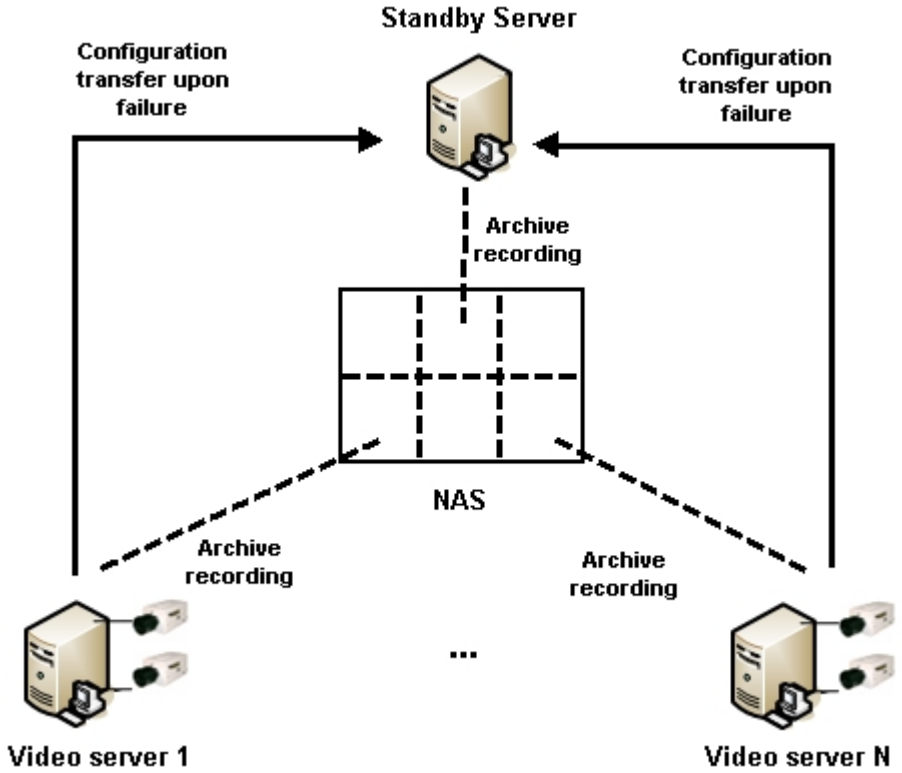


N main Servers + standby server

If the N main Servers + standby server operation scheme is in use (see the figures below), it is impossible to create a unified archive. In this case the main Servers perform recording on different logical drives (sections, partitions), local or network. If these drives are specified for archive recording on the standby Server, then the archives from different main Servers will mix.

The *AxxonPSIM player* utility can be used to access the archive created by the standby Server on NAS or local drive (see The AxxonPSIM player utility for viewing and converting the video archive). Alternatively, the main and the backup Server archives can be synchronized through the *Backup archive* module (see Configuring archive synchronization of main and backup Servers).


Standby Server
Configuration transfer upon failure
Configuration transfer upon failure
Archive recording
Configuration transfer upon failure
Configuration transfer upon failure
NAS 1
Video server 1
Video server 2
Video server N-1
Video server N
Archive recording
Archive recording
Archive recording
Archive recording
NAS 2
NAS M


Standby Server
Configuration transfer upon failure
Configuration transfer upon failure
Archive recording
NAS
Archive recording
Archive recording
Video server 1
Video server N

If configuration from several main Servers is transferred to a single standby Server, you should foresee a situation where all main Servers fail and ensure that standby Server has sufficient CPU, RAM and LAN resources.

Two Servers being standby for each other

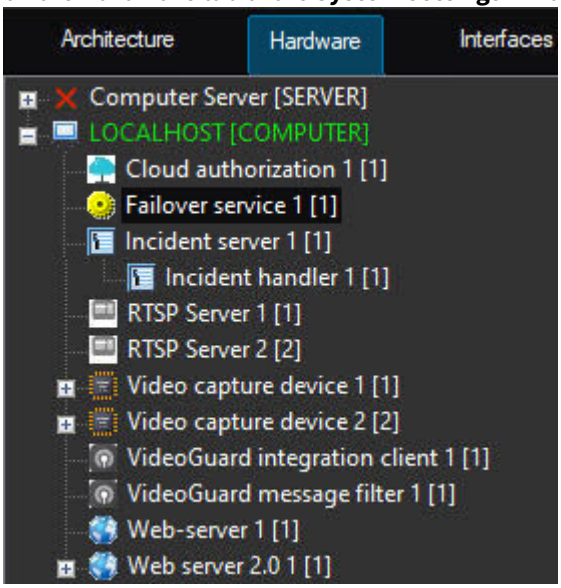
Any Server can act both as a main and as a standby at the same time given that the performance of the Server platform allows it. Therefore, a Failover system can be organized with two video servers that are standby in relation to each other.

As in the cases described above, if both Servers record the archive to the network storage, access to the archive is available when the configuration is transferred. If the Servers record a local archive or use different network storages, the *AxxonPSIM player* utility (see The AxxonPSIM player utility for viewing and converting the video archive) or synchronization through the *Backup archive* module (see Configuring archive synchronization of main and backup Servers) can be used to access the archive created by the standby Server on NAS or on local drive.

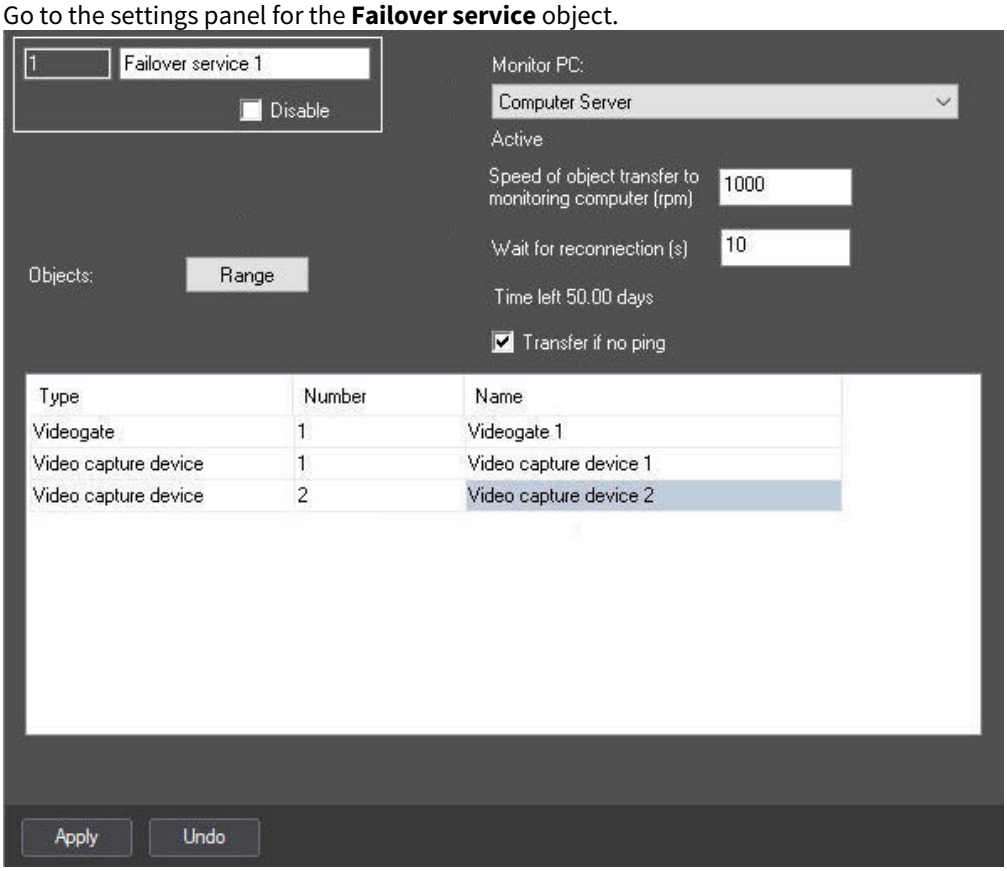
Configuring failover service

To configure the failover service, configure backup servers as follows:

1. Create the **Failover service** object on the basis of the **Computer** object corresponding to the backup server on the **Hardware** tab of the **System settings** window.



2. Go to the settings panel for the **Failover service** object.



3. From the **Monitor PC** drop-down list, select the name of the **Computer** object the connection with which must be controlled.
4. In the **Speed of object transfer to monitoring computer (rpm)** field, specify the speed of transferring objects in case the connection is lost. The default value is 1000. This setting is necessary so that the failover server sends messages at a certain speed and the receiving server has time to process them. You must set the transfer speed depending on the network speed, server bandwidth, and so on.
5. In the **Wait for reconnection (s)** field, specify the time period in seconds after which the configuration is transferred to the backup server since the server connection fails.
6. If you set the **Transfer if no ping** checkbox, then when you log out and reload the backup server, a ping from the main monitored server is checked, and if there is no response during the time specified in the **Wait for reconnection (s)** field, the forced configuration transfer occurs (the FORCED_START reaction of the forced transfer, see FAILOVER Failover service). If you clear the checkbox, a response from the main monitored server isn't tracked during the start of the backup server, and the configuration isn't transferred even if the main server is unavailable.
7. In the **Objects** table, specify the list of configuration objects of the main server that must be transferred to the backup server if connection fails in one of the following ways:
    a. Manually, one by one:
        i. From the **Type** drop-down list, select the object type.

> **Note**
>
> You cannot select the **Manager of failover services** object type. These objects aren't transferred to the backup servers, as each backup server must have its own **Manager of failover services**.

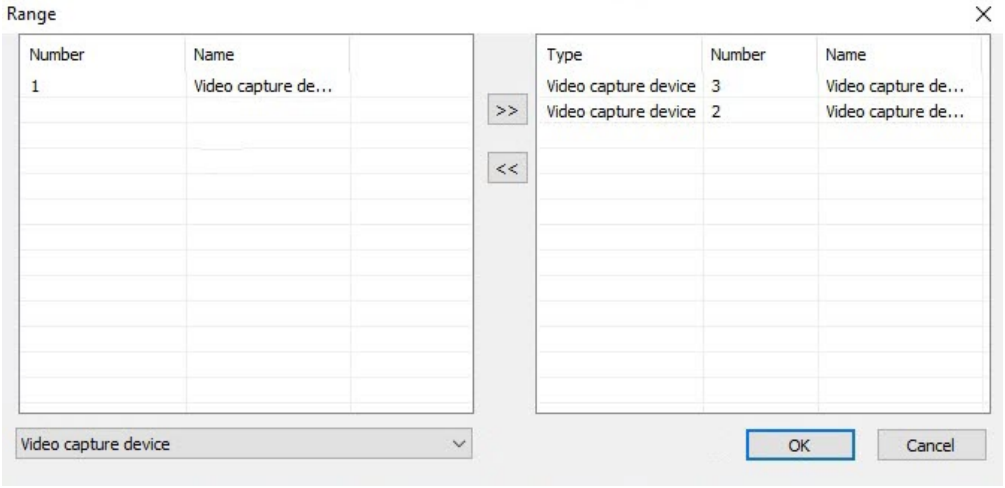
        ii. From the **Number** drop-down list, select the object ID.

iii. The **Name** field is automatically filled in with the name of a corresponding object.
iv. Repeat steps for all objects in the objects tree of the controlled server that must be transferred to the backup server if the connection fails.

> **Note**
>
> To add a new line in the table, click the **downwards ↓** button on the keyboard.

v. Click the **Apply** button.

b. As a group:
i. Click the **Range** button. The **Range** window is displayed.



ii. From the drop-down list, select the object type.

> **Note**
>
> You cannot select the **Manager of failover services** object type. These objects aren't transferred to the backup servers, as each backup server must have its own **Manager of failover services**.

iii. In the table, mark the required objects of this type. To mark several objects, hold the **Ctrl** key on the keyboard.
iv. Click the >> button to move the selected objects to the list of the monitored objects that is located in the right part of the **Range** window.

> **Note**
>
> The << button is used to move an object back from the list of the monitored objects to the list of the available ones.

v. Repeat steps for all required objects.
vi. Click the **OK** button.
vii. Click the **Apply** button.

8. Repeat steps 1—6 for all main servers in the distributed system that are controlled by the configured backup server.

Configuring the failover service is complete.

Attention!

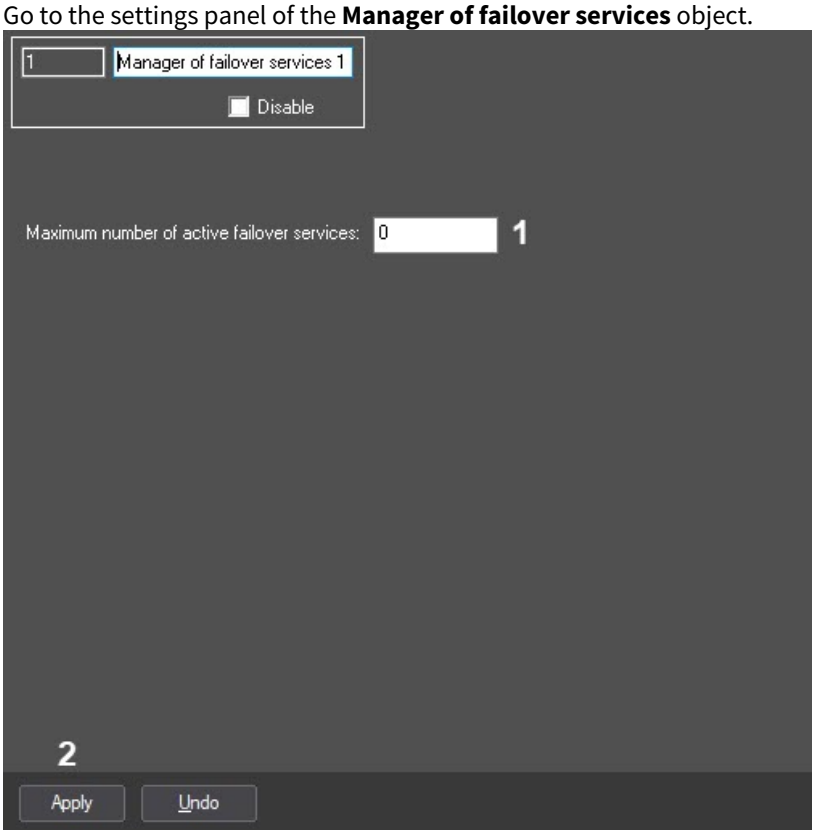
For **SIP-terminal**, you must additionally specify the IP address of the backup server in the **sip_terminal.config** file (see Configuring a SIP-terminal for Failover service).

Limiting number of failovers running simultaneously

Create one **Manager of failover services** object on each backup Server. Managers of failover services are not transferred from one backup Server to another.

Limit the number of failovers running simultaneously as follows:

1. Go to the settings panel of the **Manager of failover services** object.



2. In the **Maximum number of active failover services** field specify the maximum number of dead servers – when this limit is reached the configuration transferring is to be stopped until one of the failovers becomes vacant (1).
3. Click the **Apply** button (2).

Limit to the number of failovers running simultaneously is now set.

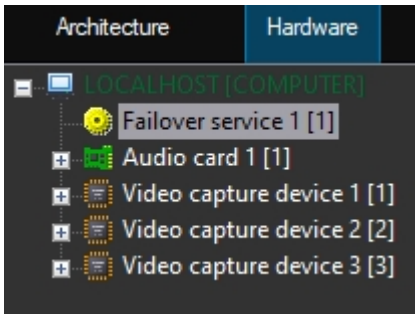
Configuring archive synchronization of main and backup Servers

In *Axxon PSIM* one can configure the synchronization of the video archive of the main and backup Servers. In this case, after restoring the main Server, the video archive will be transferred from the backup Server using the *Backup archive* module.

Important!

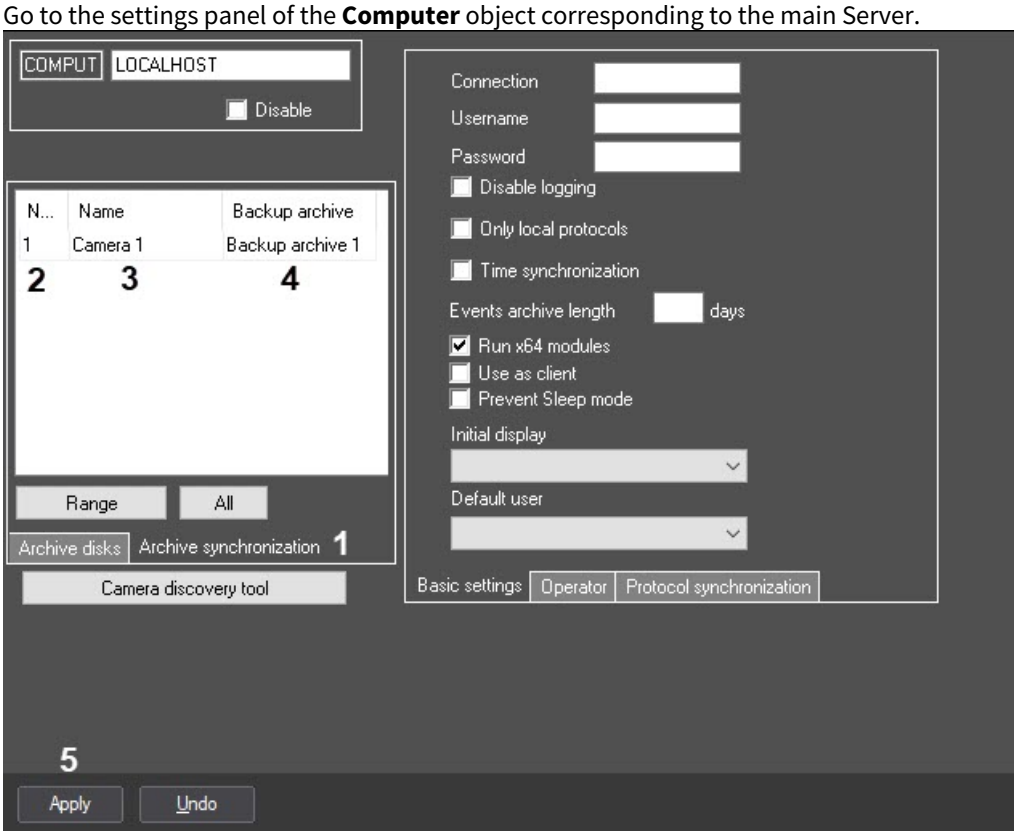
Only video records without sound are moved from backup Server to main Server at synchronization. If synchronous recording of video and audio is configured, sound will be eliminated at transmission files from backup Server to main Server, and only video files will get to the main Server.

To use the archive synchronization mechanism, create a Backup archive object under the same **Computer** object as the **Failover service** object.



Cooperation with the Failover service is to be enabled on the settings panel of the Backup archive (see Enabling cooperation of Backup archive with Failover service).
Configure synchronization on the main Server as follows:

1. Go to the settings panel of the **Computer** object corresponding to the main Server.



2. Go to the **Archive synchronization** tab (1).
3. Configure the list of cameras the archive of which is be synchronized when restoring the main Server:
    a. Select the camera ID in the **Number** dropdown list (2).
    b. Select the camera name in the **Name** dropdown list (3).
    c. In the **Backup archive** dropdown list select the name of the **Backup archive** object configured to cooperate with the Failover service and located on the backup Server where the selected camera is transferred to when the main Server fails (4).

> **Important!**
>
> This step is mandatory. If **Backup archive** is not selected, camera is not saved in the list. Configure Backup archive before configuring archive synchronization.

d. Repeat steps a-c for all required cameras.
e. Click the **Apply** button (5).

The synchronization of main and backup Servers is now completed.

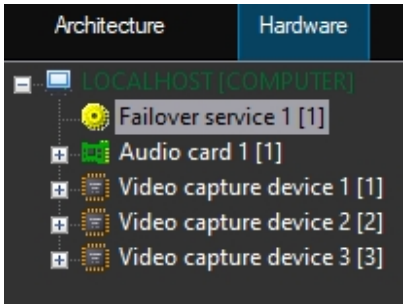
Limitations of the Failover mode

On this page:

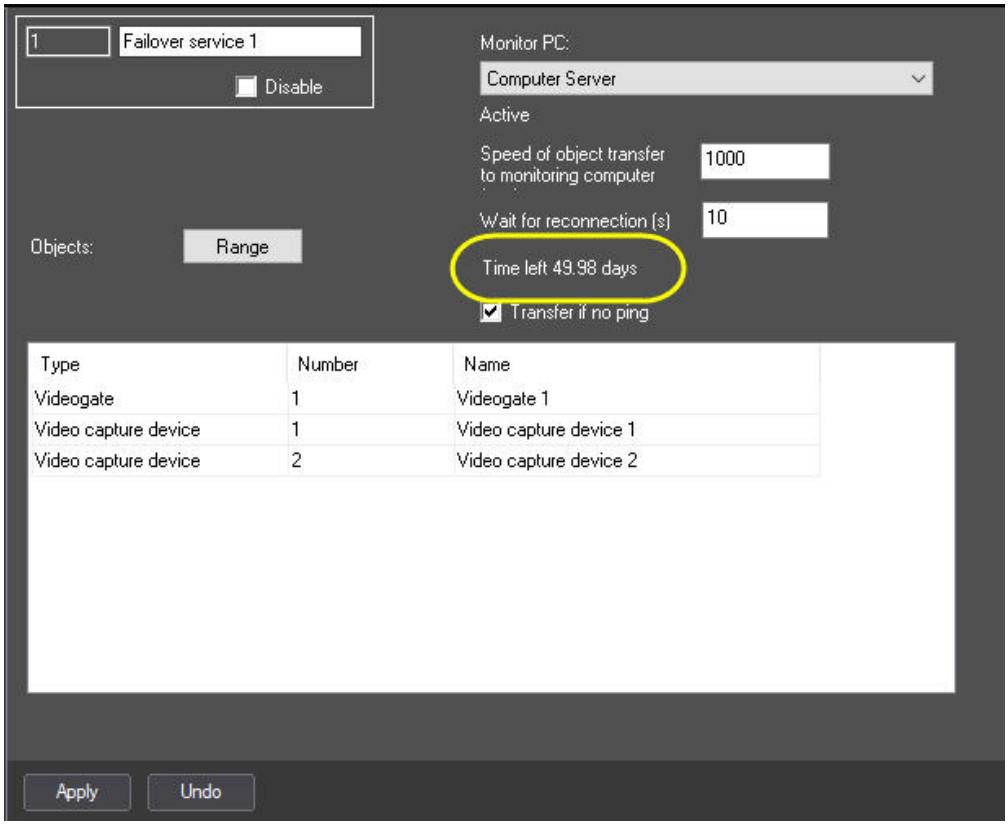
- Licenses
- Limitation on the number of simultaneously running Failover services
- Transferring vertical solution objects

Licenses

The Failover mode is configured using the **Failover service** objects created on the basis of the **Computer** objects corresponding to backup servers in the **Hardware** tab of the **System settings** dialog box.

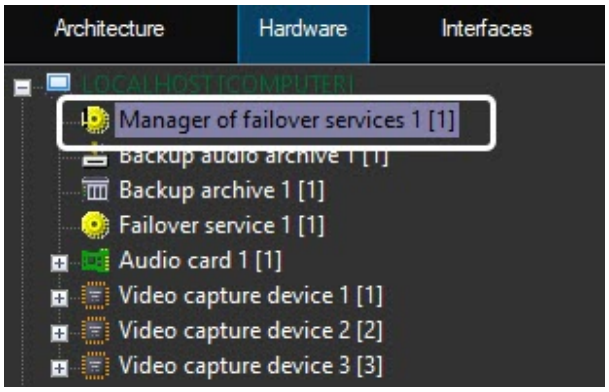


If the quantity of cameras is bound to specific Servers in the security key, then the license becomes invalid when cameras are moved to the backup Server. In this case the system gives 50 days to restore the failed Server in order to move the cameras back and the license to become valid again. Otherwise, *Axxon PSIM* will unload on the backup Server because the hardware limit is exceeded (see Specifics of the Axxon PSIM operation when the object limit is exceeded). The time (in days) remaining for restoring the main Server is displayed on the settings panel of the **Failover service** object:



Limitation on the number of simultaneously running Failover services

The number of failover services running on each computer simultaneously can be limited. The **Manager of failover services** object is used for this. It is created on the basis of the **Computer** object that is not the Client (see Role-assignment in distributed system).



If the number of failed Servers exceeds the specified limit, the configuration from the new failed Servers will be transferred to the corresponding backup Server as the previously failed Servers become operational.

Transferring vertical solution objects

You can find the links to documentation for vertical solutions on the AxxonSoft Documentation page

The table shows the versions of vertical solutions compatible with *Axxon PSIM* 1.0.0-1.0.1. The availability of object transfer for the Auto and Face vertical solutions depends on the module used and the availability of a license for it.

Vertical solution	Availability of module license key	Module	How the Failover service works
Face PSIM	No	*VA* SDK 20230804_r1	Objects are transferred correctly, face recognition continues. Images of recognized faces are sent to the "FaceDB" (default) folder
	Yes	*VisionLabs* SDK 5.10.0	Objects are transferred correctly, face recognition stops. Images of recognized faces are sent to the "FaceDB" (default) folder
Auto PSIM	No	*RR*	Objects are transferred correctly, vehicle recognition continues. Images of recognized vehicles are sent to the "LprDB" (default) folder
	Yes	*AUTO-Uragan* module	Objects are transferred correctly, vehicle recognition stops
	Yes	*VT*	Objects are transferred correctly, vehicle recognition stops
POS PSIM	—		Objects are transferred correctly, receipt and title databases are not transferred
DetectorPack PSIM	—		Objects are transferred correctly, detection tools continue to work after transfer (they generate events when triggered)

22.3.8 Configuring the SNMP service

SNMP service setting order

It is possible to create SNMP-service for resending messages about the registered events to SNMP-manager. This opportunity is realized with the use of **SNMP trap** system object.

Note.

Data concerning SNMP-manager is given in the official SNMP protocol reference manual – see, for example, https://technet.microsoft.com/en-us/library/cc738071%28v=ws.10%29.aspx.

Note.

SNMP trap objects use the trap port 162 to send messages in *Axxon PSIM*.

SNMP-service carries out the following functions:

1. Receipt of messages concerning the event, registered in the system;
2. Message conversion concerning the event to SNMP format;
3. Message transfer in SNMP format (trap) to SNMP-manager with the use of TCP/IP net protocol.

Note.

Moreover, SNMP Wrapper module is the part of *ACFA PSIM* – it allows *Axxon PSIM* to behave as SNMP manager and get data from external systems – see SNMP Wrapper Settings Guide.

Setting the SNMP-service is done in the following order:

1. Create **SNMP trap** object on the basis of **SNMP service** system objects (see Creating the SNMP trap object).
2. Select the events, which messages should be transferred to SNMP-manager (see Events selection for transmitting to SNMP manager).
3. Set the message conversion to SNMP format (see Configuring the message conversion into SNMP format).
4. Set the trap with SNMP-message (see Setting up the trap with SNMP-message).
5. Check the validity of SNMP configuration, if necessary (see SNMP configuration for traps receiving on remote computer).

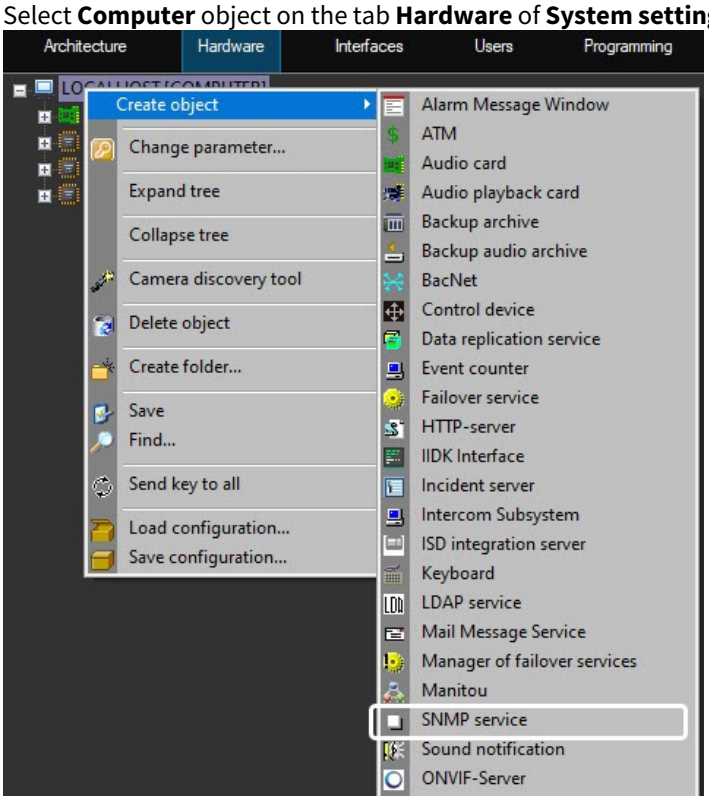
Note.

It is not recommended to create lots of SNMP trap objects (more than 10) as it can cause system slowdown.

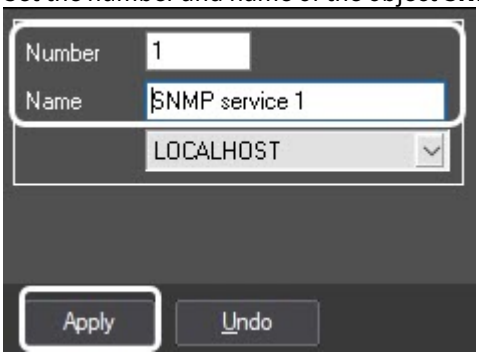
Creating the SNMP trap object

Creating the **SNMP trap** object is done in the following way:

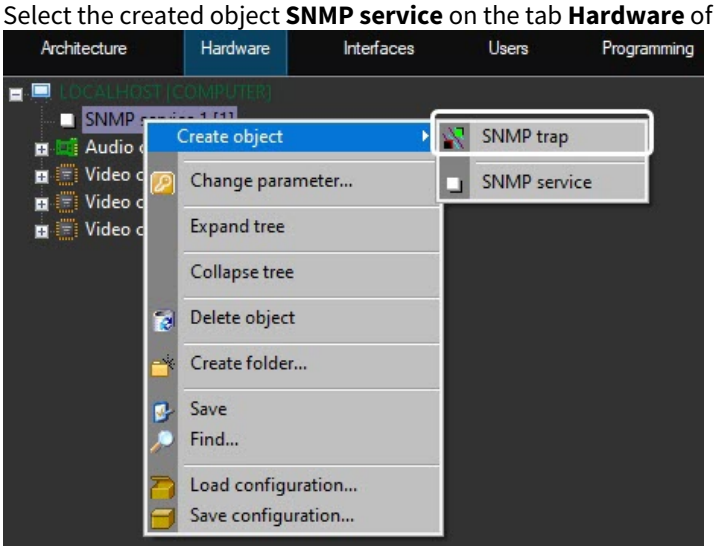
1. Select **Computer** object on the tab **Hardware** of **System settings** dialog window.



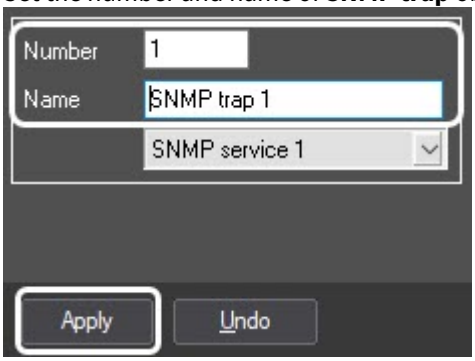
2. Make a right mouse click upon the selected **Computer** object and select **Create object -> SNMP service** in the contextual window.
3. Set the number and name of the object **SNMP service** and then click **Apply**.



4. Select the created object **SNMP service** on the tab **Hardware** of **System settings** dialog window.



5. Make a right mouse click upon the selected object **SNMP service** and select the point **Create object -> SNMP trap** in the contextual window.
6. Set the number and name of **SNMP trap** object in the appeared window and then click **Apply** button.



Note.

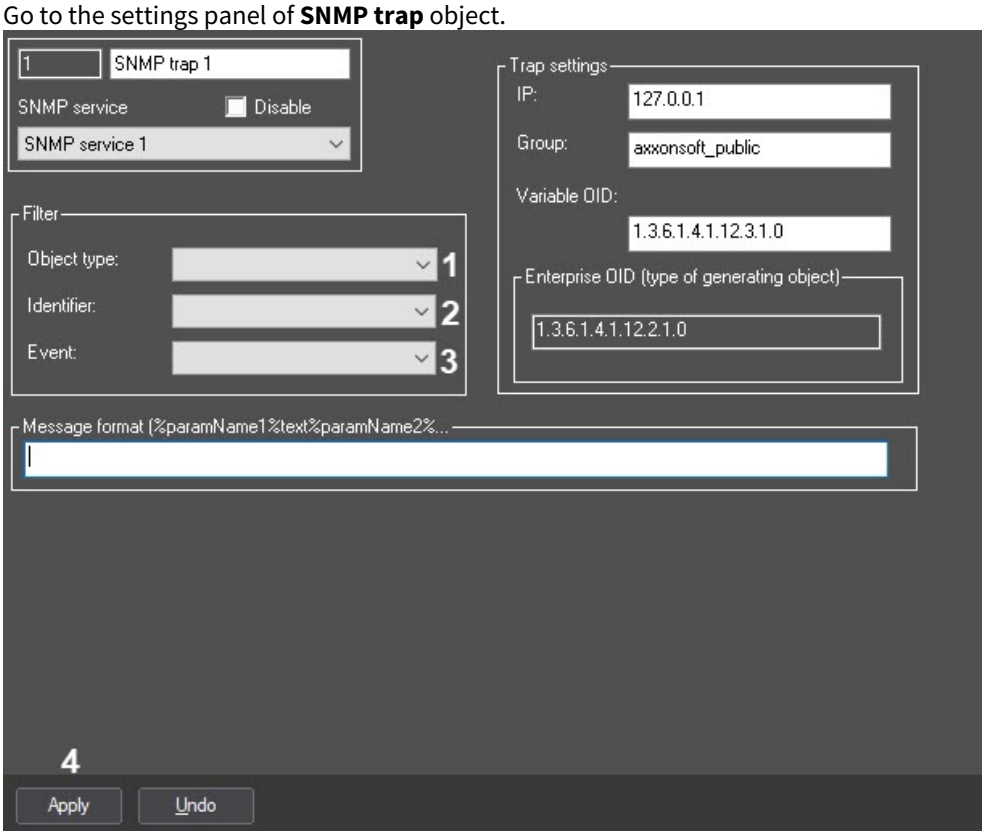
Settings panel of **SNMP trap** object will appear in result.

Creating the **SNMP trap** object is over.

Events selection for transmitting to SNMP manager

Selection of events for transmitting to SNMP-manager is done in the following way:

1. Go to the settings panel of **SNMP trap** object.



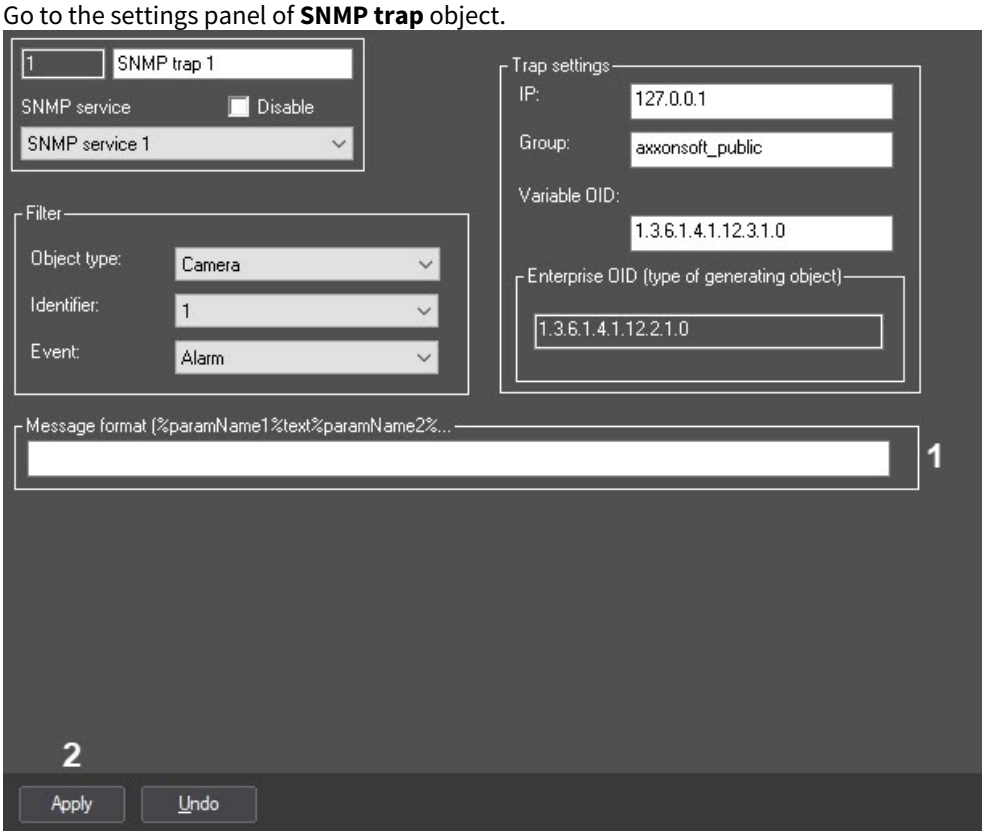
2. From the dropdown list **Object type** of **Filter** group select the object's type for which the required event may be registered (1). If no object's type is selected, all the events concerning all the system objects will be transferred to SNMP-manager.
3. From the dropdown list **Identifier** of **Filter** group select the object's identification number, which type has been entered during the second step (2). If the field is not fulfilled, all the events concerning objects of the given type will be transferred to SNMP-manager.
4. From the dropdown list **Event** of **Filter** group select the required object for the set during steps 2-3 object (3). If the field is not fulfilled, all the events registered for the given event will be transferred to SNMP-manager.
5. Click **Apply** button to save the changes (4).

Selection of events for transmitting to SNMP-manager is completed.

Configuring the message conversion into SNMP format

SNMP-service implements message conversion into SNMP format. SNMP-message is a sequence of parameters, describing the event. Parameter's name is changed by the value of this parameter in the pattern of SNMP-message with the event registration. Changing the SNMP-message is done in the following way:

1. Go to the settings panel of **SNMP trap** object.



2. Enter in the field **Message's format (%paramName1%text% paramName2%...** parameters'names in the required sequence. Description of event's main parameters is given in the table.

Parameter's name	**Description of parameter**	**Availability in the message**
%event_action%	Event, registered in the system	Is determined by object's type, for which the event may be registered
%event_source_id%	Object's identification number, for which the event has been registered	
%event_source_type%	Object's type, for which the event has been registered	
%owner%	Computer name, from which the message has been received	Obligatory message's parameters
%time%	Time of event's creation	
%user_id%	Computer's user identification number, from which the message has been received	Optional message's parameters

Parameter's name	Description of parameter	Availability in the message
%module%	Module's name, for which the event has been registered	

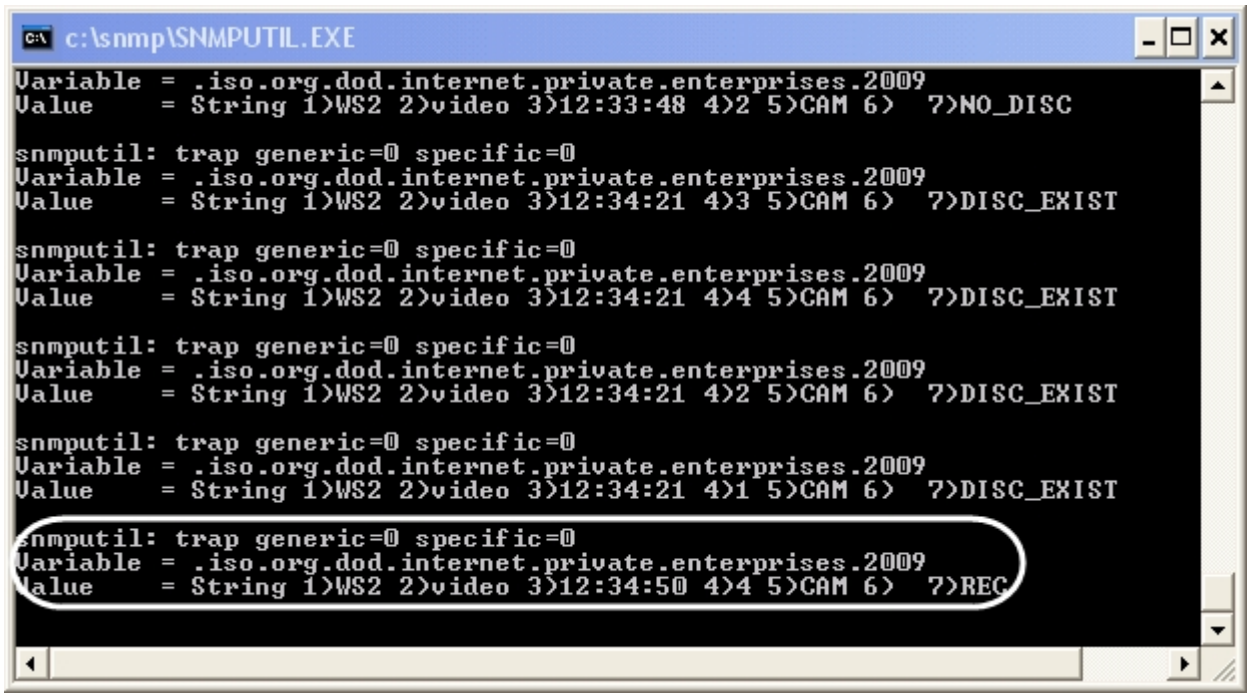
Note.

In case when message's format string is not set, SNMP message is formed in accordance with the pattern %event_action%,%event_source_id%,%event_source_type%, %owner%,%user_id%, %module%.

3. To save the changes click **Apply** button.

Changing the pattern of SNMP-message is completed.

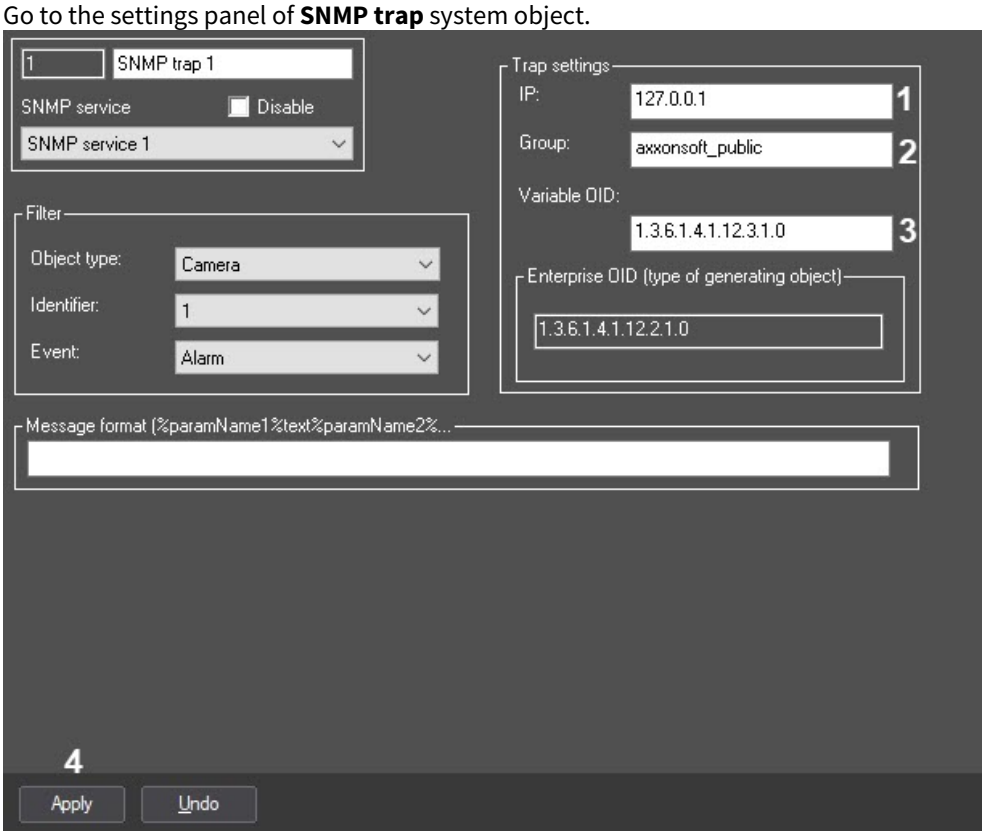
Example of SNMP-message, formed in accordance with the pattern "1)%owner% 2)%module% 3)%time% 4)%event_source_id% 5)%event_source_type% 6)%user_id% 7)%event_action%" is exemplified in the figure below.



Setting up the trap with SNMP-message

Setting the trap with SNMP-message is done in the following way:

1. Go to the settings panel of **SNMP trap** system object.



2. In the **IP** field, enter IP-address from SNMP-manager, that will receive SNMP-traps with messages concerning the events (1).
3. In the field **Group**, enter the community name for SNMP-trap authentication on the computer with installed SNMP-manager(2).

> **Note.**
>
> Safety model on the basis of communities is realized in *Axxon PSIM* program complex.

4. In the field **Variable OID**, enter the unique trap's number in the tree of SNMP-objects (3).
5. To save the changes click **Apply** button (4).

Setting up the trap with SNMP-message is completed.

SNMP configuration for traps receiving on remote computer

It is possible to use SNMPUTIL.EXE utility to check the validity of SNMP configuration. In this case SNMP configuration for traps receiving sent by Axxon PSIM software on remote computer is performed as follows:

1. Start the **SNMP Trap** on the computer where SNMPUTIL.EXE utility is run.
2. Specify address of this computer in settings of the **SNMP Trap** object (as described in the Setting up the trap with SNMP-message section).
3. Run the SNMPUTIL.EXE utility with "trap" flag.

> **Note.**
>
> It is not required to run SNMP services on the computer where the **SNMP Trap** object is created.

22.3.9 Setting up and connecting the special keyboard

The *Special keyboard* module is used for efficient control of the main functions of interface objects in the Axxon PSIM™ software. The *Special keyboard* allows to control the following system's main functions:

1. Video surveillance
2. Audio control
3. Telemetry
4. Events protocol
5. Macros
6. Sensor/Relay

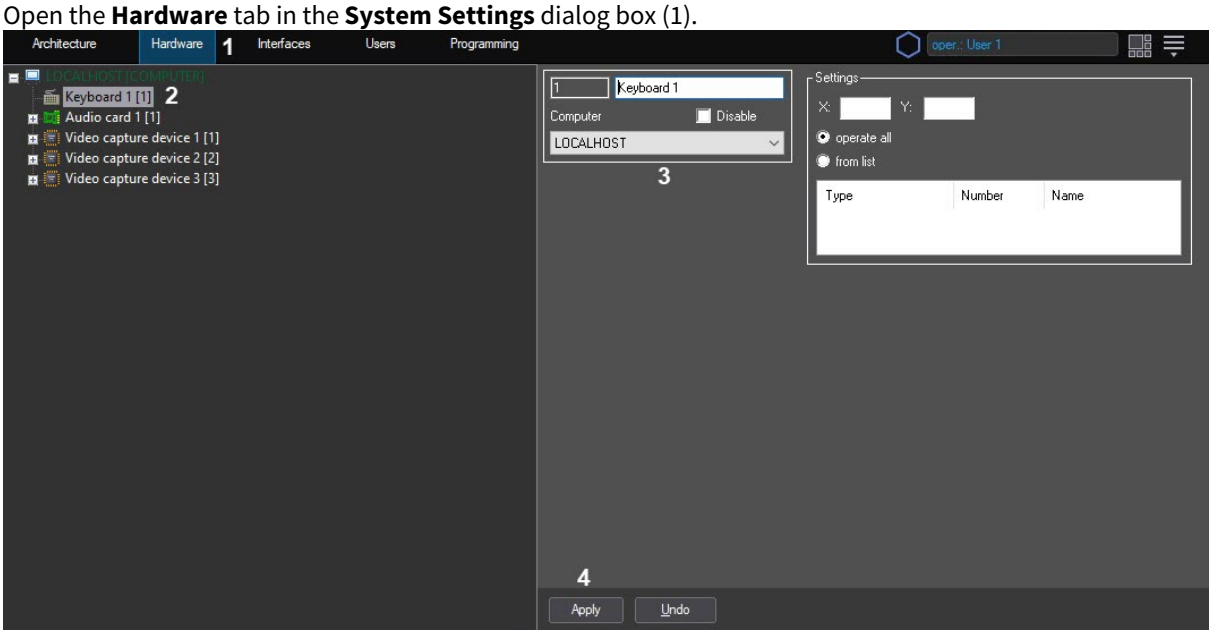
Axxon PSIM™ software supports any USB or PS/2 keyboard, for example, programmable Posiflex KB-4000 (POS keyboard).

Use of the specialized keyboard

Setting up the Keyboard object in Axxon PSIM™ software

To create and set up the *Keyboard* system object in Axxon PSIM™ software, follow the sequence:

1. Open the **Hardware** tab in the **System Settings** dialog box (1).



2. Create the **Keyboard** system object on the base of the **Computer** object or select the relevant object in the objects tree on the **Hardware** tab of *Axxon PSIM* settings panel (2).
3. Enter the ID of the created object, its name and select the **Computer** system object to be the parent one for the **Keyboard** object (3).
   The **Computer** system object should match the computer, to which the *Special keyboard* device is connected.
4. Click **Apply** (4).

See Settings the interpretation rules of the Special keyboard layout by Axxon PSIM program complex section for further configuration.

Settings the interpretation rules of the Special keyboard layout by Axxon PSIM program complex

Pressing of any button on the *Special keyboard* device shall correspond to certain option activation in Axxon PSIM™ software.

To achieve this, perform the following settings:

1. Create and configure the **Special keyboard** object under the computer to which the special keyboard is connected, e.g. create the **Special keyboard** object under the Client computer if the keyboard is connected to the Client.
2. Set the "1" value for the ProcessAll parameter that is described in details in Registry keys reference guide. The parameter should be created on the computer to which the special keyboard is connected, e.g. create the ProcessAll key on the Client, not Server, if the keyboard is connected to the Client.
3. Run the Client with Windows administrator rights to use the keyboard on the Client.

   Note.

   The run with administrator rights can be avoided if the ProcessAll key is created on the Client in the following registry section: Computer**HKEY_CURRENT_USER**\Software\AxxonSoft\Axxon PSIM\Keyb\ProcessAll=1

4. In this case keypress on the keyboard will be processed in Axxon PSIM as an event like this:
   Event : KEYB|1|NEW_KEY_PRESSED|SLAVE_id<A-BELYAEV>,fraction<43>,owner<A-BELYAEV>,module<keyb.run>,date<01-02-19>,guid_pk<{CEF89AAD-FB25-E911-ACF1-A0F3C1007840}>,core_global<1>,wparam<55>,time<11:30:56>
   where wparam<55> is the key ID.
5. Use these IDs in Scripts and Macros (see Creating and using macros and The Script object. Programming using the JScript language).

22.3.10 Configuring the System restart service

General information on the System restart service module

The system restart service is designed to control the workability of *Axxon PSIM* software modules and their restart if there is no response during the specified time interval. You can use both the program and the hardware workability control.

Attention!

The system restart service displays only those *Axxon PSIM* modules the processes of which are created directly under the PSIM_Host.exe process, which, in its turn, is running under the Psim.exe process.

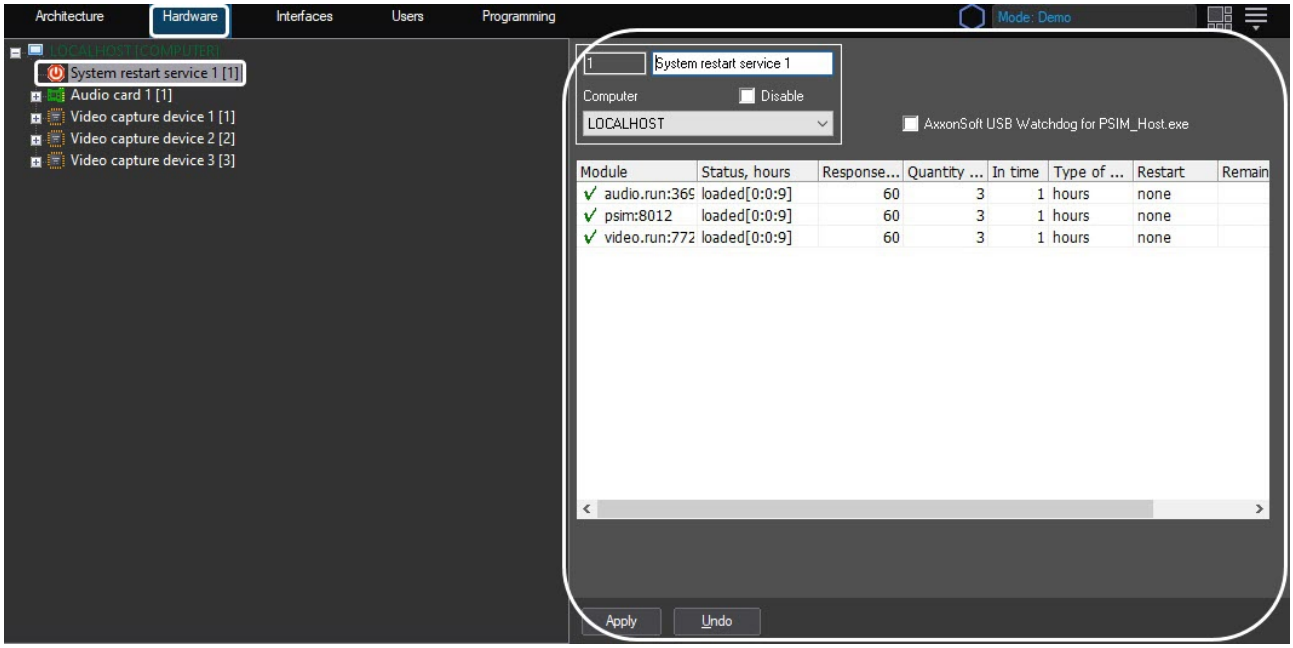
Note

To control the workability of the RTSP Server module, use the special utility and script, see The openRTSP.exe utility for checking the RTSP server workability.

The system restart service allows performing the following actions if there is no response from the module:

1. Restarting a computer (the hardware workability control requires the connection of additional devices). In this case, the computer restarts if the PSIM_Host.exe process isn't active.
2. Restarting a module. In this case, if there is no response from the module, then only the module that doesn't respond to requests restarts.
3. Restarting a core. In this case, the *Axxon PSIM* core restarts if there is no response from the module.

You can configure the system restart service on the settings panel of the **System restart service** object. This object is created on the basis of the **Computer** object on the **Hardware** tab of the **System settings** dialog window.

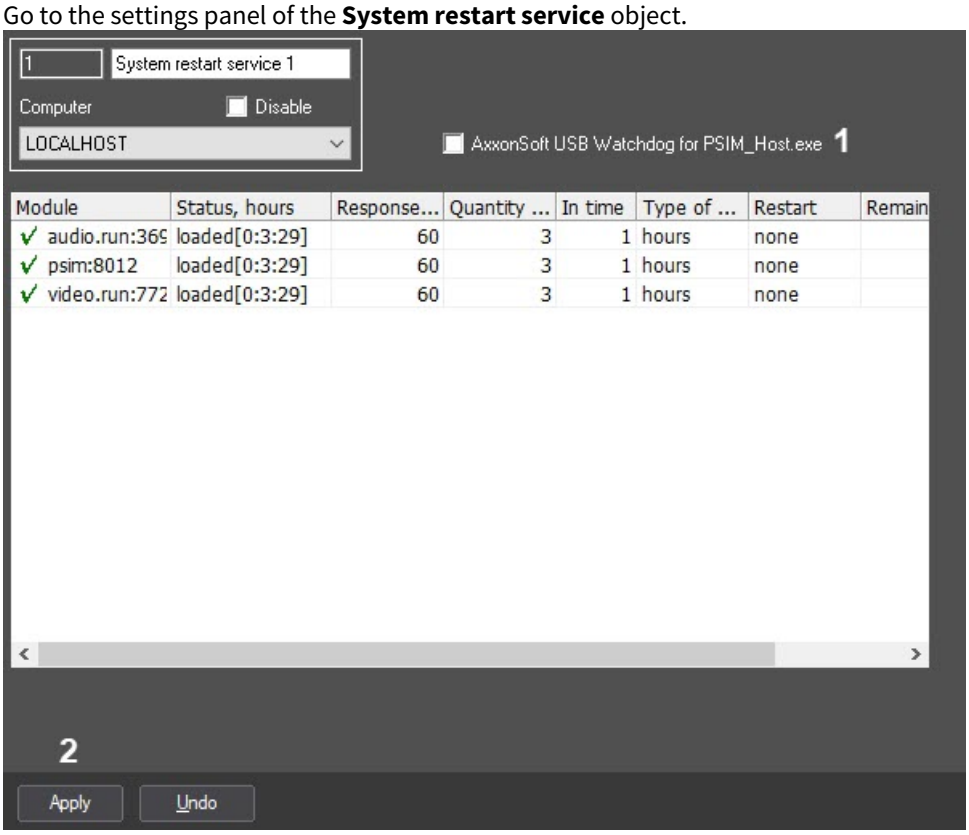


Activating the hardware control of workability

The activation of the hardware control of workability requires the additional connection of the AxxonSoft USB WatchDog cable (see the Installing and configuring security system components guide, the Connecting the USB Watchdog hardware performance tester).

To activate the hardware control of workability, do the following:

1. Go to the settings panel of the **System restart service** object.



2. Set the **AxxonSoft USB WatchDog for PSIM_Host.exe** checkbox (**1**).
3. Click the **Apply** button (**2**).

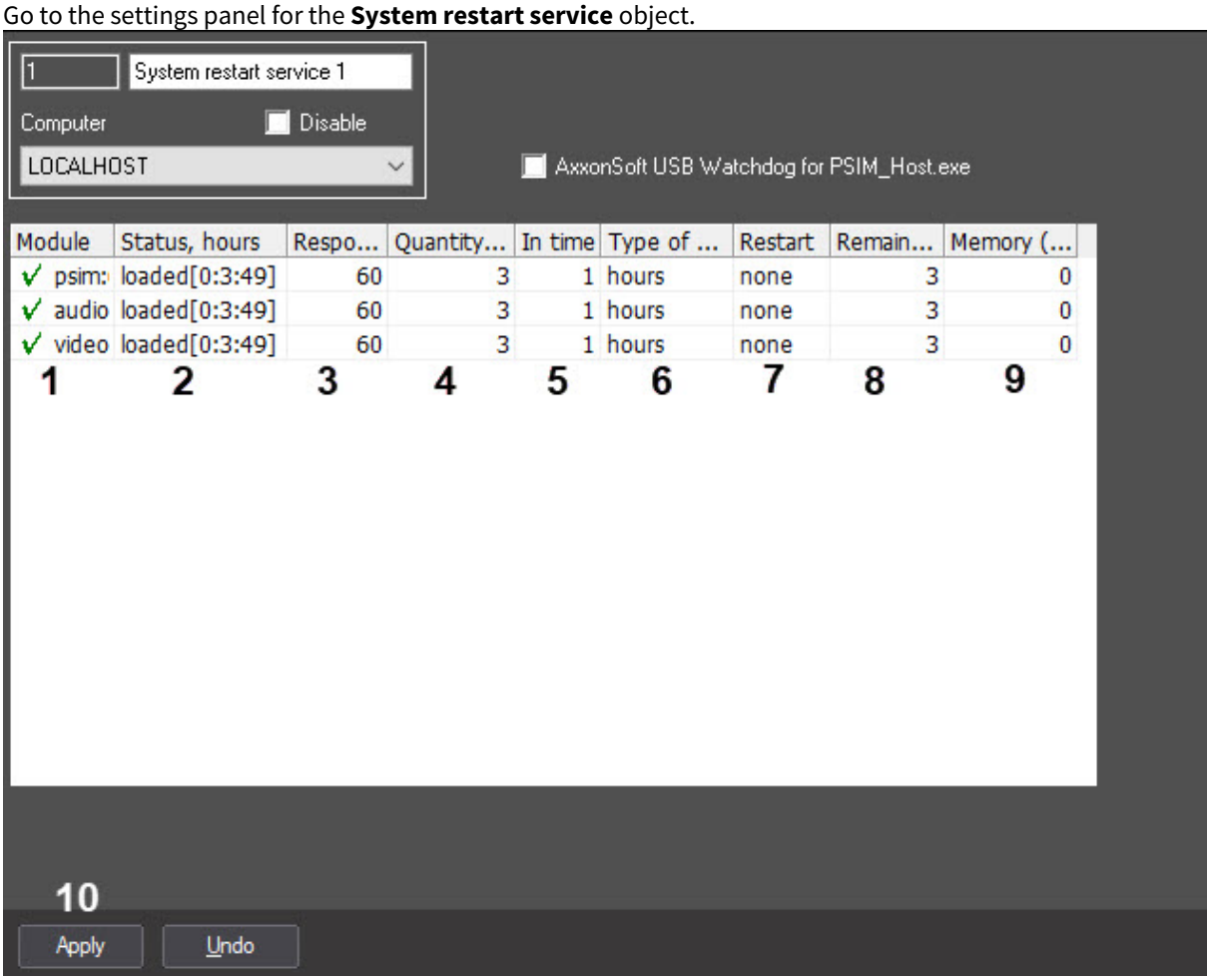
Activating the hardware control of workability is complete.

Configuring the software control of workability

The workability software control allows restarting a module or the *Axxon PSIM* core if there is no response from this module.

To configure the software control of workability, do the following:

1. Go to the settings panel for the **System restart service** object.



2. The list of modules running on this computer is automatically displayed in the **Module** column (**1**).

> **Note**
>
> Modules whose state is determined as **In process** are marked with the ✓ sign. Modules whose state is determined as **No response** (red field) or **Shutdown** are marked with the ! sign.

3. The current state of modules is automatically displayed in the **Status, hours** column (**2**). The square brackets display the module working time since the last restart in the HH:MM:SS format.
4. In the **Response timeout, sec** field, enter the time period in seconds during which the response from the module is awaited (**3**).

> **Note**
>
> You can restart the system if there is no response from the module after the waiting interval.

5. In the **Quantity of restarts** field (**4**), enter the maximum number of restarts (module or the *Axxon PSIM* core) that can be performed within the specified period.
6. In the **In time** field (**5**), enter the new numerical value and/or select from the **Type of period** drop-down list (**6**) the required metric unit of period if you want to change the value of the time period during which the maximum number of restarts can be performed.
7. From the **Restart** drop-down list (**7**), select the required way of restart.
    a. Select the **module** option if you want to restart the module without a response.

b. Select the **core** option if you want to restart the *Axxon PSIM* core when there is no response from the module.

> **Note**
>
> In case you don't want to restart the system when there is no response from the module, select the **none** value.

8. The remaining number of restarts during the current time period is automatically displayed in the **Remains of restarts** column (**8**).

> **Note**
>
> The module switches to the **Shutdown** state if the number of performed restarts exceeds the maximum one during the current time period.

> **Note**
>
> The counter of the remaining restarts can reset in the following cases:
> 1. The counter is reset upon the new restart if the time period during which the maximum number of restarts can be performed expires and the number of performed restarts doesn't exceed the maximum one.
> 2. The module restarts and the counter is reset if the time period during which the maximum number of restarts can be performed expires and the maximum number of restarts is performed.

9. In the **Memory (Mb)** field (**9**), enter the value of the memory threshold consumed by the module, exceeding which, you must restart the system.
10. To save changes, click the **Apply** button (**10**). Configuring the software control of workability is complete.

Configuring the software control of workability is complete.

Getting the information on memory consumption for processes

To the SLAVE.log log file corresponding to the **Computer** object based on which the **System restart service** object is created the information about memory consumption by processes run by the *Axxon PSIM* software is recorded once in a minute.

Messages look like this:

!WARNING <<<process information>>> name="video.run", committed memory is 83001344 bytes (79MB, 81056KB). DELTA is 22687744 bytes (21MB, 22156KB).

The DELTA value is the difference between the current and previous values of memory consumption by this process.

22.3.11 Configuring backup archiving

Purpose and implementation of backup archiving in the Axxon PSIM software

The *Axxon PSIM* software allows creating the backup copies of video and audio recordings. The *Backup archive* and *Backup audio archive* modules are used for creation of backup multimedia archives. When making a backup copy, the *Axxon PSIM* software copies video and audio recordings from the main archive of the videoserver to different storage devices.

Any drive discovered in the operating system can be used for storing the Backup Archive, including local drives, network drives, LTO drives, etc.

The *Backup archive* module copies the video archives received from the specified cameras to any of the available local or network hard drives. Copying of audio archive from specified microphones which are included in the digital video surveillance system is performed while using the *Backup audio archive* software module. Archive files are copied on loop on any of the connected disks as the main archive is recorded (see the General information on video archiving section)

The *Backup archive* module supports the following functions:

1. Copying the video archive to local or network hard drives, or USB storage.
2. Changing the frame rate of the signal (grooming) at the time of saving it to *Backup archive*.
3. Changing the rate of data transfer via a local network.
4. Setting up the periodicity of backup archiving.
5. Cyclic copying of the data to the connected storage devices.
6. Viewing the video archive from *Backup archive* on the video surveillance monitor.

Note.

To record the audio archive together with the video archive, configure the **Backup audio archive** object (see Configuring the Backup audio archive module section).

A folder named VIDEO which holds the backup multimedia archive is created on the specified storage devices when setting up the corresponding objects.

The backup copying module can be controlled:

1. Manually using special interface objects.
2. Automatically using the built-in programming capabilities of Axxon PSIM software – macros and scripts.

Configuring the Backup archive panel object
Archiving video recordings to the Backup archive

Configuring the Backup archive module

The *Backup archive* module is used to make backup copies of the video archive from the videoserver. The *Backup archive* module copies the video archives received from the specified cameras to the specified storage device.

Note.

A Remote Administrator's workstation (RAW), where the *Backup archive* is installed, is to have data about servers archive so that the video archive being copied uniformly from specified cameras. For this the remote workstation gets data about archive indexes from the server once in 30 seconds. After system restarting, data exchange is stopped until the *Backup archive* is started.

The *Backup archive* module is configured by an **Backup archive** system object. When the **Backup archive** object is created, a **Backup audio archive** object with the same identifier is created automatically.

Configuration procedure for the Backup archive object

To configure the **Backup archive** object, do the following:

1. Create the **Backup archive** object on the base of the **Computer** system object (see Creating the Backup archive object);

2. Select and configure cameras to copy the video archive to the *Backup archive* (see Selecting and configuring the cameras for the Backup archive or Selecting cameras as a group for the Backup archive);
3. Set the parameters of video archive transmission over LAN (see Setting the parameters of video archive transmission over LAN);
4. Select disks to store the *Backup archive* module (see Selecting disks to store the archive of the Backup archive module).
5. Configure the video archive grooming when it is copied to the *Backup archive* (see Configuring the grooming of the video archive);
6. Configure the schedule of video archive copying to the *Backup archive* (see Configuring the schedule of the video archive copying);

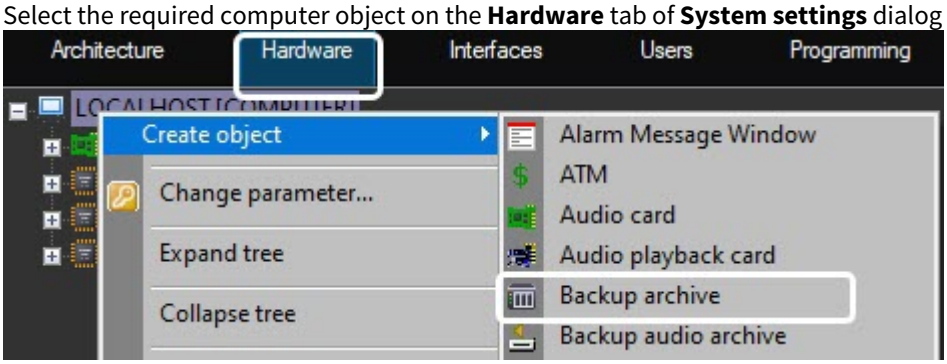
> **Note.**
>
> It is recommended to restart the *Axxon PSIM* software after performing actions described above for correct using of **Backup archive** object settings.

7. Configure the **Panel of Backup archive** interface object (see Configuring the Panel of Backup archive object).

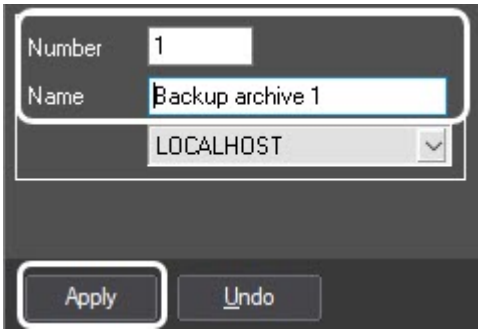
Creating the Backup archive object

To create the **Backup archive** object, do the following:

1. Select the required computer object on the **Hardware** tab of **System settings** dialog box.



2. Click right mouse button upon the selected **Computer** object and select **Create object -> Backup archive** in the context menu.
3. In the appeared window, set the number and name of the **Backup archive** object and then click the **Apply** button.



> **Note.**
>
> The settings panel for the **Backup archive** object is displayed as a result.

4. Repeat steps 1-3 for all required **Computer** and the **Backup archive** objects.

The **Backup archive** object is now created.

Selecting and configuring the cameras for the Backup archive

There are two ways to select and configure cameras for copying the video archive to the *Backup archive*:

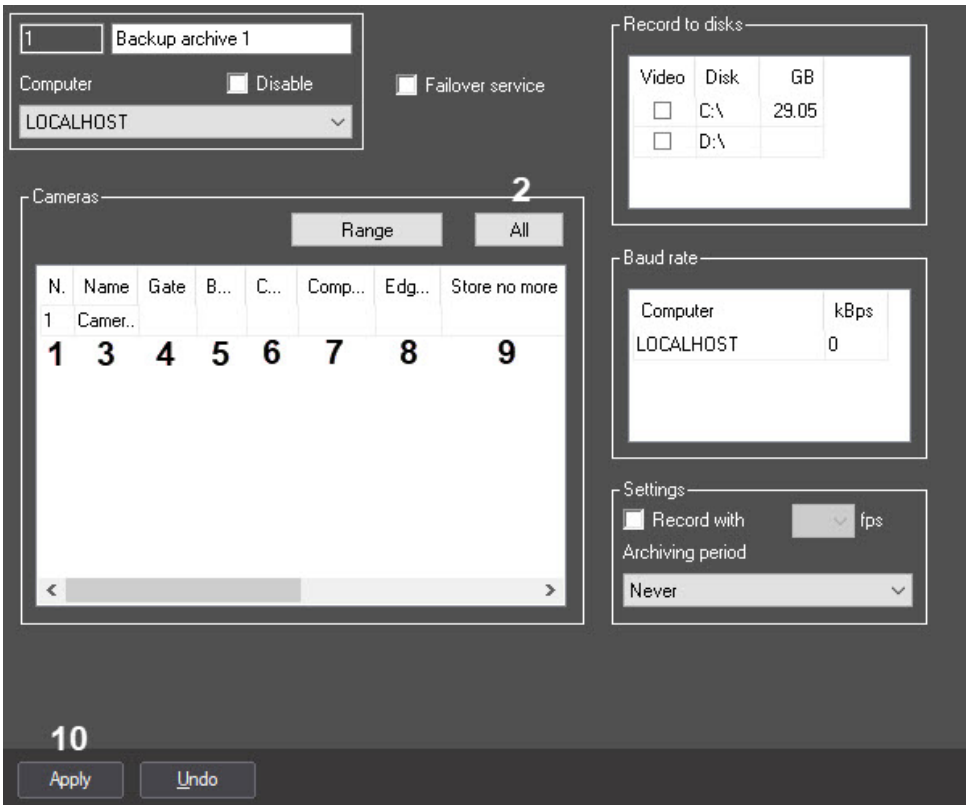
1. Separately. The settings panel for the **Backup archive** object is in use.
2. Integrated selection. The **Add/Edit cameras** dialog box is in use.

> **Note.**
>
> The order of cameras' complex selection for copying the video archive to the *Backup archive* is described in the Integrated selection of cameras for the Backup archive section.

To select cameras on the settings panel of the **Backup archive** object, do the following:

1. Go to the settings panel for the **Backup archive** system object.
2. In the **Number** column of the **Cameras** group, select the name of the required video camera (1).

> **Note.**
>
> To select all the cameras registered in the system, click the **All** button (2).



3. As a result the name of the selected camera is automatically displayed in the **Name** column of the **Cameras** group (3).
4. If a video archive from the selected camera is to be received via the **Videogate** object, then select the name of this object from the **Gate** drop-down list (4).
5. If a video archive from the selected camera is to be transmitted from another **Backup archive** object, select the name of this object in the **Backup archive** drop-down list (5).

6. To change the procedure of video signal compression during the record to the **Backup archive**, select the required procedure of compression from the **Compressor** drop-down list (7).The value in the **Compression** list is to be selected if the compressor is specified (6).
7. To change the level of video signal compression during the record to the *Backup archive*, select the required level of video signal compression from the drop-down list in the **Compression** column (6). The level of video signal compression will increase from 0 (no compression) to 5 (maximal compression).

   > **Note.**
   >
   > Re-compression is performed on the side of the *Backup archive*.

8. In the **External storage** dropdown list, select the name of the object corresponding to the external storage of IP device from which video recordings are to be imported to the Backup archive (8). For more details, see Configuring the access to the archive in edge storage section.
9. In the **Store no more than (hours)** field, enter the time period in hours, after which the archive entries of the corresponding camera should be deleted from the Backup archive (9). The rules for setting this parameter are the same as for the main archive – see Configuring camera archive depth.
10. Repeat steps 2-9 for all the cameras.
11. To save all the changes, click the **Apply** button (10).

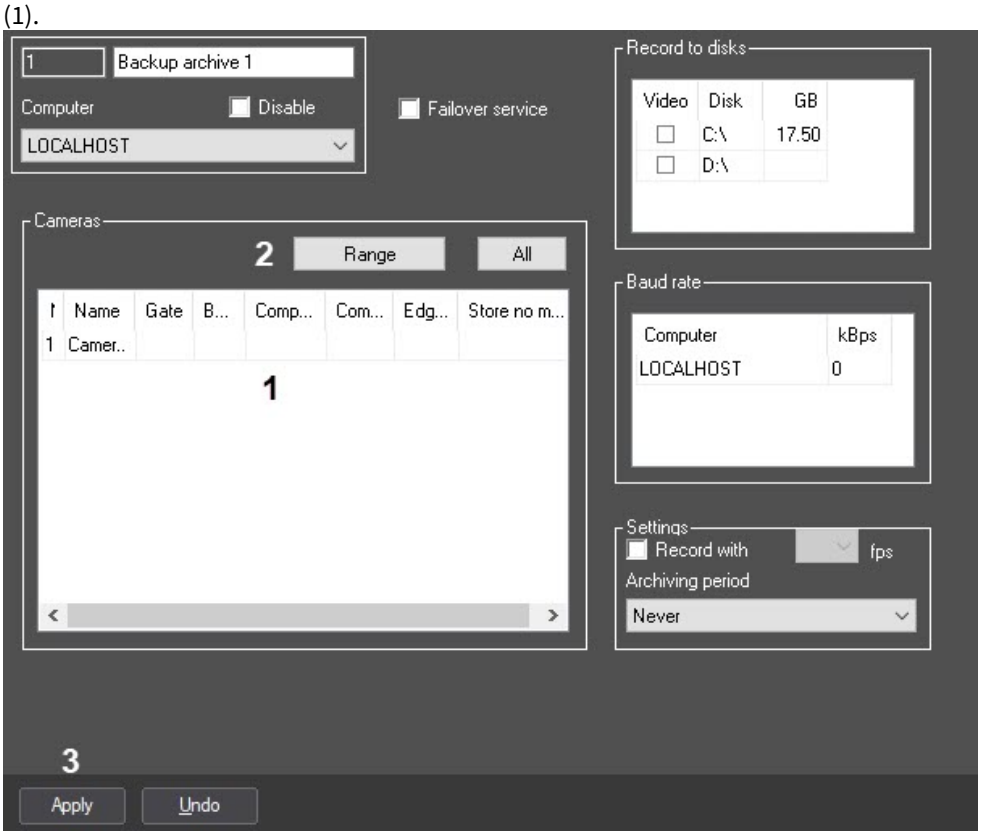
The cameras on the settings panel of the **Backup archive** object are now selected.

Selecting cameras as a group for the Backup archive

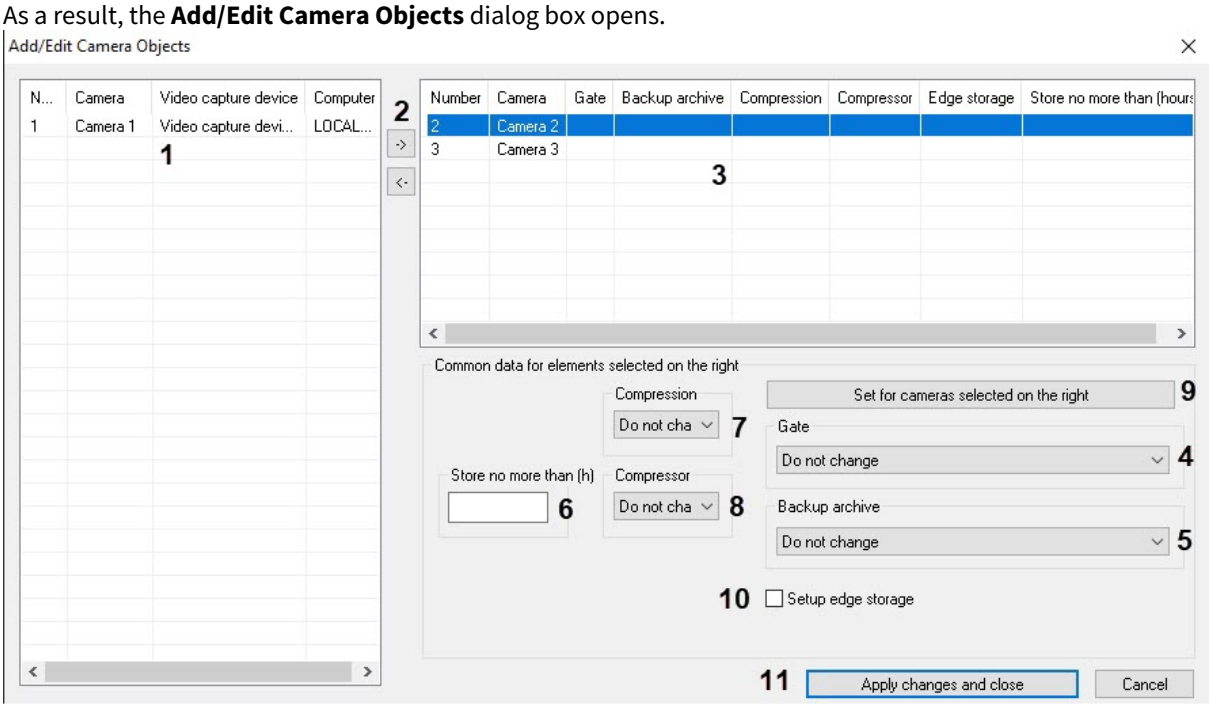
There is an opportunity of integrated selection and editing of cameras' parameters for copying the video archive to the *Backup archive*.

Integrated selection can be performed in the following way:

1. Go to the settings panel for the **Backup archive** system object, click the **Range** button in the **Cameras** group (1).



2. As a result, the **Add/Edit Camera Objects** dialog box opens.



3. Select the required cameras in the left list of the **Add/Edit Camera Objects** box (**1**).
4. Move the selected cameras to the right list by clicking the  button (**2**).

> **Note.**
>
> The list on the right is the list of cameras selected for copying the video archive to the *Backup archive*.
>
> The <- button is used for reverse action that is for moving the selected video cameras from the right list to the left one (**2**).

5. As a result, the selected cameras are displayed in the right list of the **Add/Edit Camera Object** box (**3**).
6. If it is necessary in the right list select the names of required cameras for complex editing their parameters (**3**).

> **Attention!**
>
> For all the selected cameras the same parameters will be set.

7. If a video archive from the selected camera is to be received via the **Videogate** object, then select the name of this object from the **Gate** drop-down list (**4**).

> **Note.**
>
> The **Gate**, **Backup archive**, **Setup Edge storage**, **Store no more than (h)**, **Compression**, and **Compressor** settings belong to the **Common data for elements selected on the right** group.

8. If a video archive from the selected camera is to be transmitted from another **Backup archive** object, select the name of this object in the **Backup archive** drop-down list (**5**).
9. In the **Store no more than (h)** field, enter the time period in hours after which it is necessary to delete the records from the corresponding camera from the *Backup archive* (**6**). The parameter should be set according to the same rules as for the main archive — see Configuring camera archive depth.
10. If it is necessary to change the video signal compression level when recording to the *Backup archive*, select the required video signal compression level from the **Compression** drop-down list (**7**). The video signal compression level increases from 0 (no compression) to 5 (maximum compression).
11. If it is necessary to change the video signal compression algorithm when recording to the *Backup archive*, select the required compression algorithm from the **Compressor** drop-down list (**8**). If a compressor is specified, it is necessary that a value be selected in the **Compression** list (**7**).

> **Note**
>
> Video signal recompression is performed on the *Backup archive* side.

12. Check the **Setup Edge storage** checkbox if it is necessary to apply external storages to the selected cameras, if any (**10**, for more details on external storages, see Importing from edge storages). In this case, the video recordings will be imported into the *Backup archive* from the external storage corresponding to each camera.
13. To save the parameters, click the **Set for cameras selected on the right** button (**9**).
14. As a result, the set parameters are shown in the list on the right of the **Add/Edit Camera Objects** box (**3**).
15. Repeat steps 6-13 for complex editing of all the required cameras.
16. To save the changes and close the **Add/Edit Camera Objects** box, click the **Apply changes and close** button (**11**).
17. Camera settings are shown in the **Cameras** table on the settings panel of the **Backup archive** object (**2**).
18. To save all the changes, click the **Apply** button (**3**).

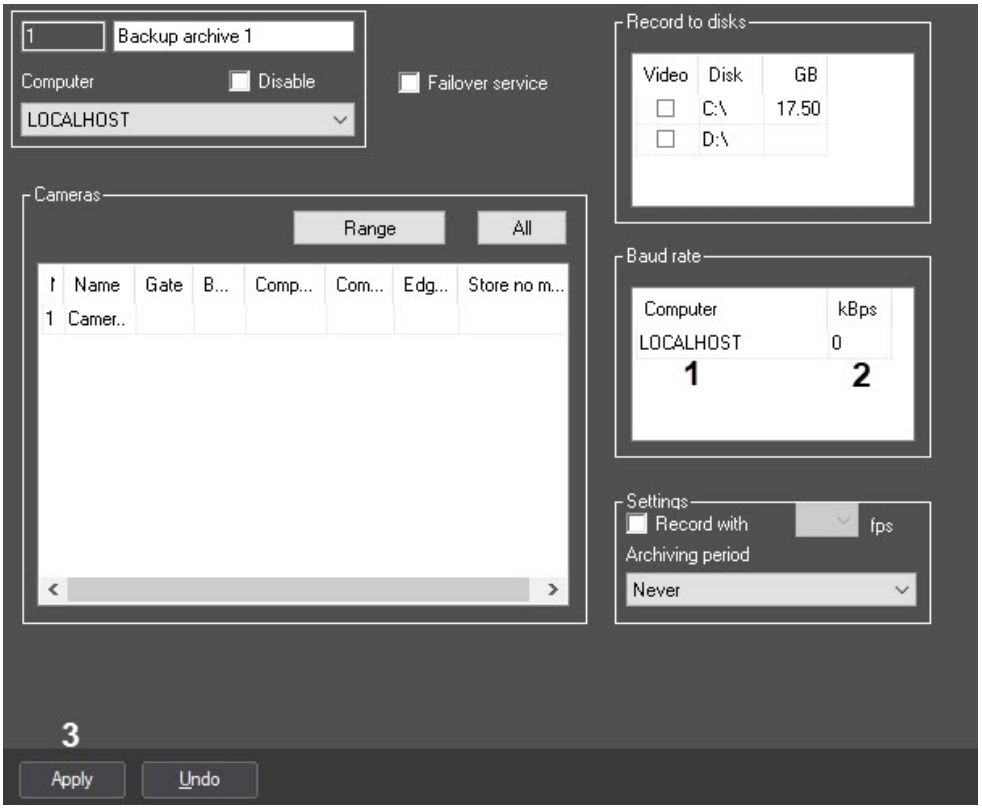
Integrated selection of video cameras is now over.

Setting the parameters of video archive transmission over LAN

There is a **Transfer rate** table in the setting panel for the **Backup archive** system object. This table limits the bandwidth over LAN for every Server transferring archive to the Backup archive module.

To set the bandwidth parameters, do the following:

1. Go to the settings panel for the **Backup archive** system object. In the **Transfer rate** table, there are computers transferring video data to the Backup archive (1). The list of computers is determined by cameras list.



2. In the **kBps** column for each of the computers specify the values of maximum bandwidth for transmitting video over LAN for the computer (2).
3. To save the changes, click the **Apply** button and restart Axxon PSIM™ software (3).

The parameters of transmitting video archive over LAN are now set.

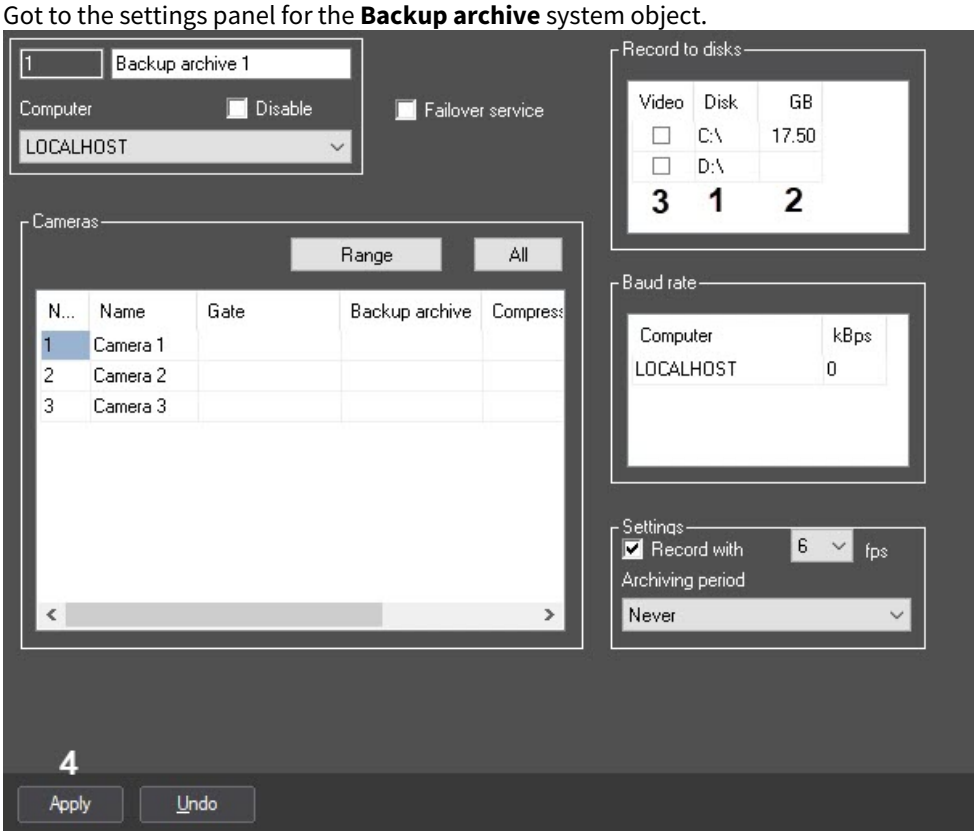
Selecting disks to store the archive of the Backup archive module

In Axxon PSIM™ software, the backup copy of the video archive for the *Backup archive* module is stored to local and network disks and to connected USB storage. Backup files are stored in the VIDEO folders on these disks.

By default, Backup archiving is disabled.

To select disks to store the archive of the *Backup archive* module, do the following:

1. Got to the settings panel for the **Backup archive** system object.



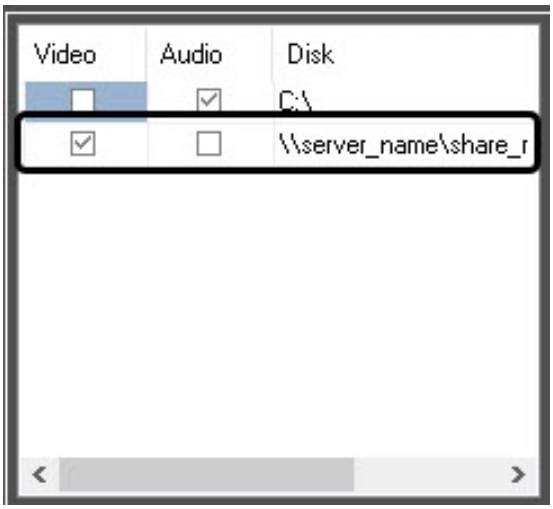
2. Names of local (net, USB) disks available for storing the archive of the *Backup archive* module are given in the **Disk** column of the **Record to disks** table (1).

> **Attention!**
>
> It is necessary to connect net disks via a command prompt with Administrator's rights for Windows Vista and Windows 7 OS with enabled UAC. The way of UAC enabling is described in the Connecting network disks in Windows Vista and Windows 7 OS section.

> **Note.**
>
> To use net disks for a Backup archive, set UNC paths to them in Axxon PSIM™ software. Details on working with net disks in Axxon PSIM™ software (installed as a Service) are given in Working with network disks of Axxon PSIM™ installed as a Service section.

3. Free space on disks (in GB) is given in the **GB** column (2).
4. In the **Video** column, set the checkboxes for disks selected for storing the archive of the *Backup archive* module (3).
5. To add a net disk by giving the UNC path, do the following:

a. Go to the last line in the **Disk** list and click the down key.

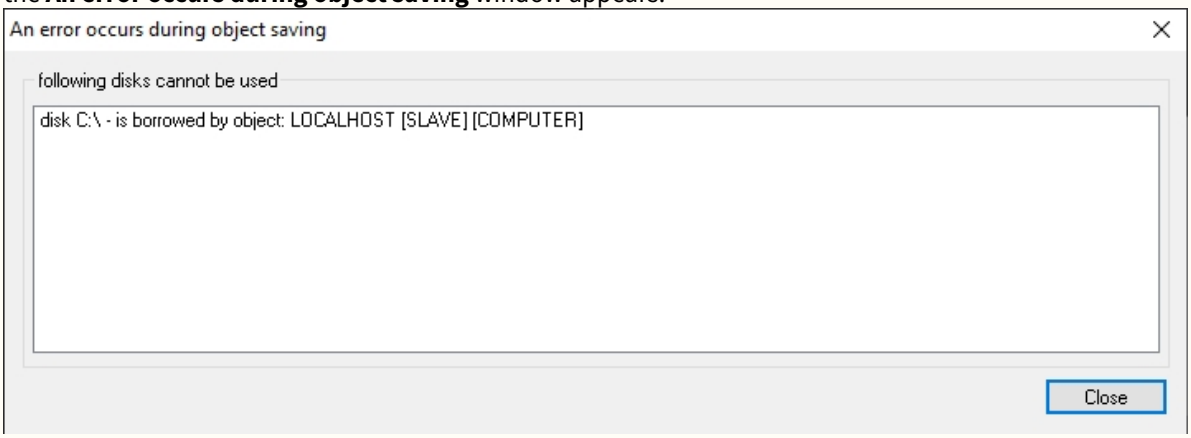


b. Specify the path to a net file in the appeared line in the **Disk** column. The UNC path is set in the "\\server_name\share_name" format, where the "server_name" is the name of file server and the share_name is the net name of general folder.
c. In the **Video** column, set the checkbox for the created disk.

6. To save the changes, click the **Apply** button (4).

Attention!

For storing the Backup archive, one should select disks that are not used for storing video archive from cameras (are selected in the settings panel of **Computer** object). Otherwise, after saving the given changes the **An error occurs during object saving** window appears.



The disks for storing the archive of the *Backup archive* module are now selected.

Note.

If no disks have been selected, the *Backup archive* backup is disabled.

Configuring the grooming of the video archive

Video signals can be groomed before they are copied to a backup archive of the *Backup archive* module. Grooming is performed at the Server from which the video signal is transmitted to the Backup archive.

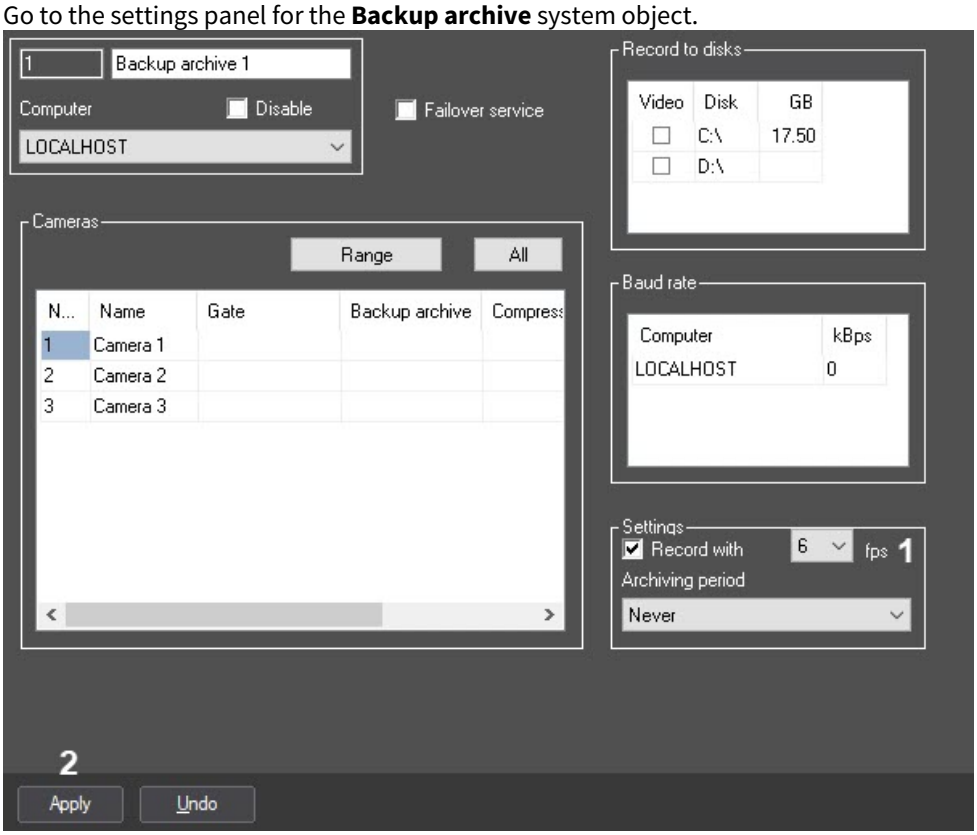
Note.

Grooming in the Backup archive may be performed with such codecs as MJPEG, Motion Wavelet, MPEG, H264 and MxPeg.
If the grooming rate is 25 fps, the video is processed at a lower rate for the first minute (~12 fps).
The maximum allowable grooming rate for MxPeg codec is 12 fps.

By default, a signal is copied from the server to the Backup archive without grooming.

To configure the grooming of video archive frames while copying them to the *Backup archive*, do the following:

1. Go to the settings panel for the **Backup archive** system object.



2. To enable the video archive grooming, set the **Record with ___ fps** checkbox in the **Settings** group (1).
3. In the **Record with ___ fps** drop-down list, select the required frame rate of video archive for transmitting to the *Backup archive* (1).

Note.

The selected **Record with ___ fps** value is to be less than frame rate of video signal digitized by a video capture card. Otherwise, the frame rate of a video signal will be the same as the frame rate of digitizing.

Note.

The selected frame rate value of the video archive that is to be transferred to the *Backup archive* is an average value. A real value of frame rate may be different from that one, indicated in the **Record with ___ fps** drop-down list.

4. To save the changes, click the **Apply** button (2)

Video grooming is now configured.

Configuring the schedule of the video archive copying

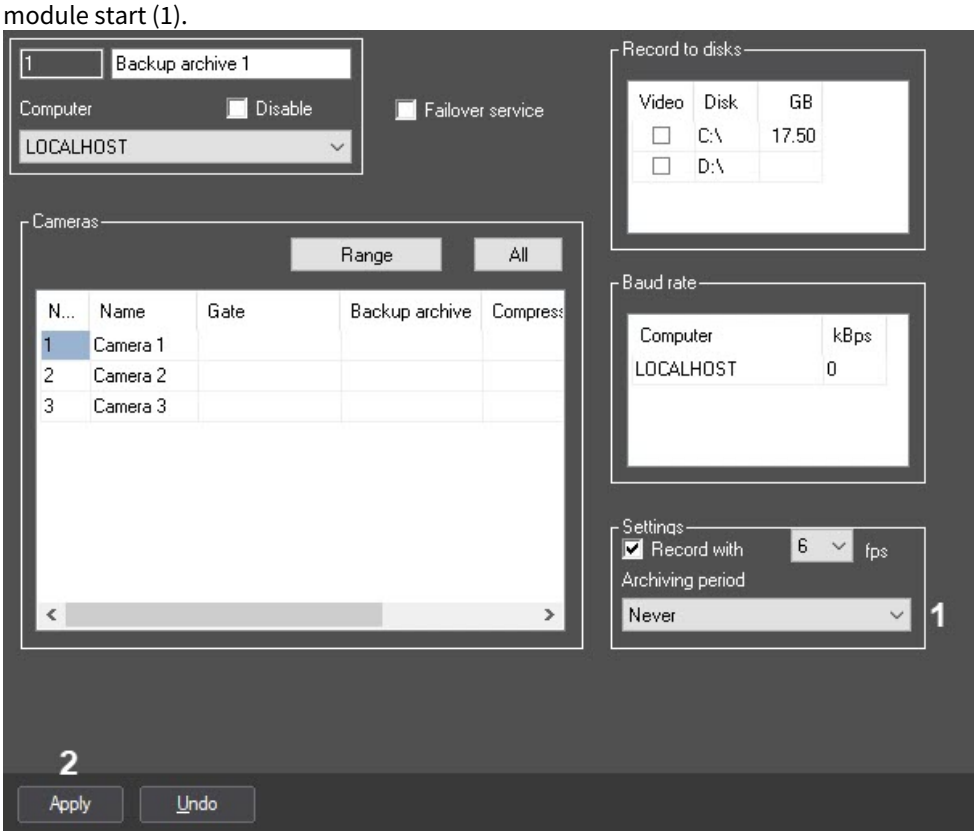
The *Backup archive* module can be started in two ways:

1. Automatically. Due to the schedule of copying on the settings panel of the **Backup archive** system object.
2. Manually. With the help of the **Backup archive panel** interface object.

The process of automatic video archive copying is implemented starting with the latest recordings of video fragments. By default, the automatic copying of video archive is not configured.

To configure the schedule of video archive's copying to the *Backup archive*, do the following:

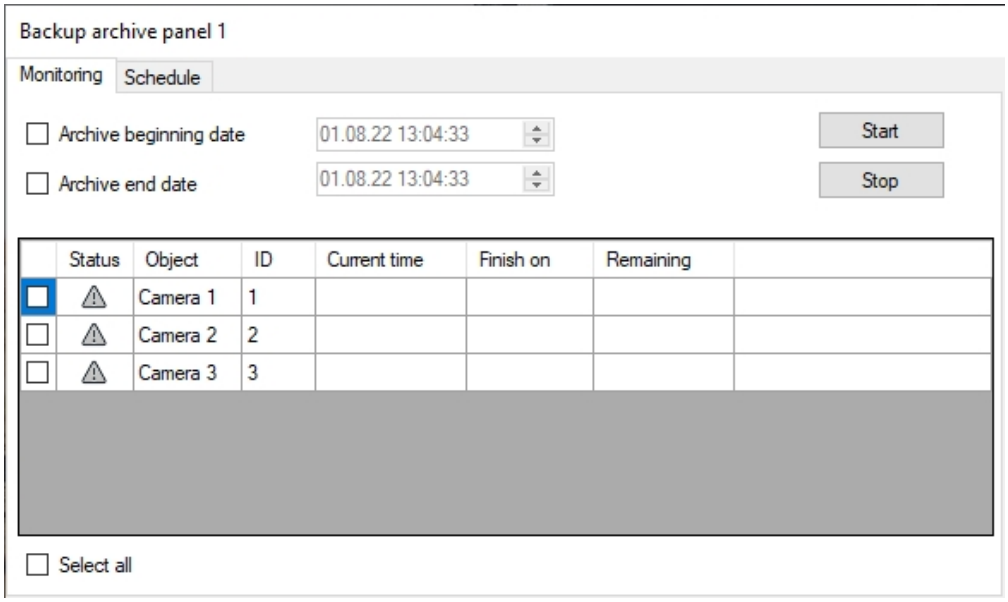
1. Go to the settings panel for the **Backup archive** system object.
2. In the **Archiving period** drop-down list, select the required time zone (time period) of the *Backup archive* module start (1).



3. To save the changes, click the **Apply** button (2).

The schedule of video archive copying to the *Backup archive* is now configured.

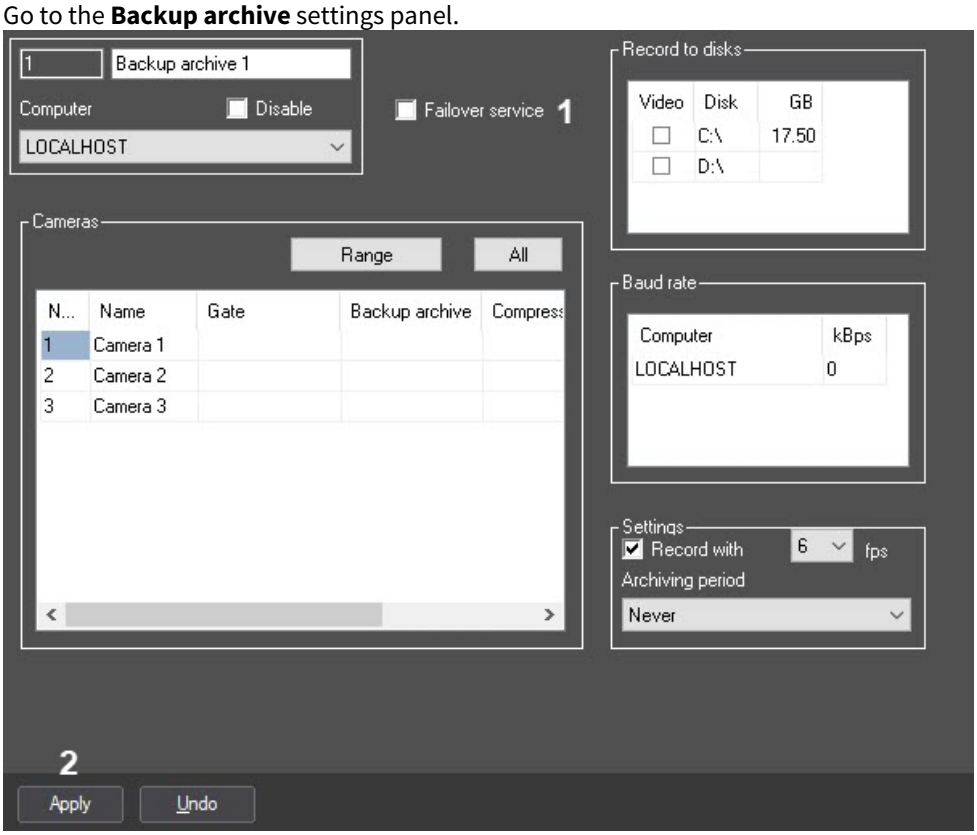
To start the archive backup manually, set the beginning and the ending dates of the archive to be copied and click the **Start** button.



Enabling cooperation of Backup archive with Failover service

If the Backup archive operates together with the Failover service, their cooperation is to be configured (see Configuring archive synchronization of main and backup Servers).
Cooperation of these modules is enabled as follows:

1. Go to the **Backup archive** settings panel.



2. Set the **Failover service** checkbox checked (1). The **Record to disks** table becomes unavailable for editing, and when the archive is requested from the main server, the Backup archive will be transferred from the

disks specified on the settings panel of the **Computer** object under which the **Backup archive** object is created.

3. Click the **Apply** button (2).

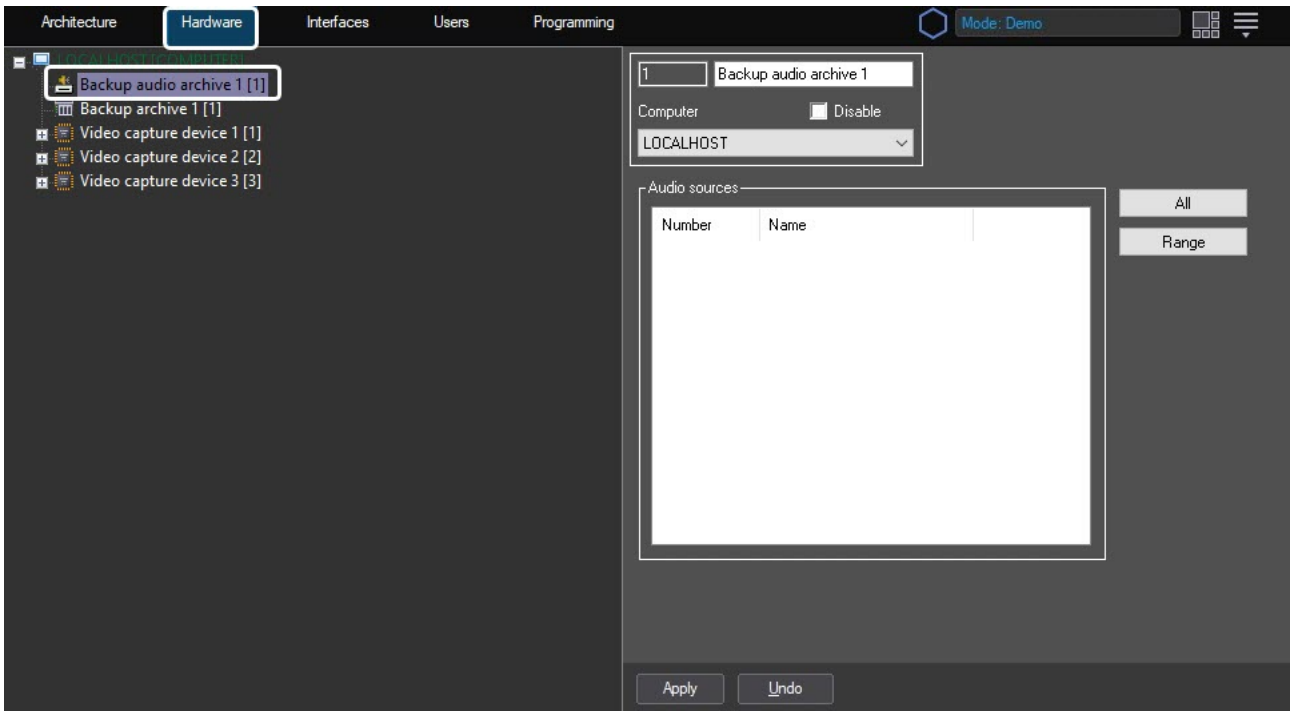
Cooperation of the Backup archive and the Failover service is now enabled.

Configuring the Backup audio archive module

The *Backup audio archive* program module is designed to create a backup copy of audio archive recorded synchronously with a video archive. When the *Backup audio archive* program module is in use the audio archive recorded synchronously with the video archive from selected cameras included into digital video monitoring system is copied to a storage selected while configuring the *Backup archive* module (see Selecting disks to store the archive of the Backup archive module section). Copying is performed synchronously with a video archive copying.

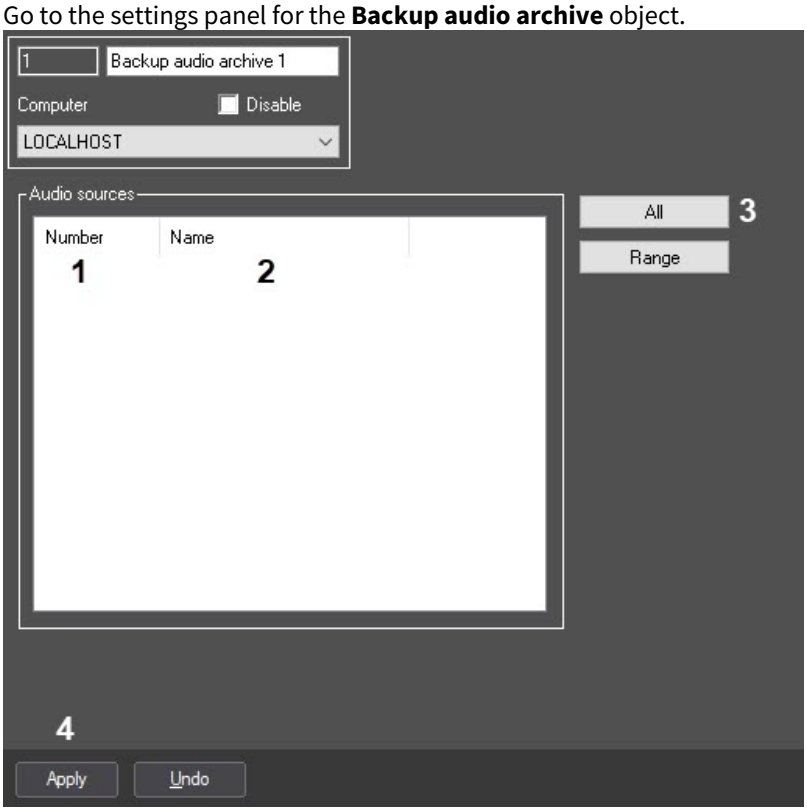
Configuration of the *Backup audio archive* is performed using the **Backup audio archive** system object. The **Backup audio archive** object is created automatically while creating the **Backup archive** object.

> **Note.**
>
> Deleting the **Backup archive** object the **Backup audio archive** object is deleted automatically.



To configure the Backup audio archive do the following:

1. Go to the settings panel for the **Backup audio archive** object.



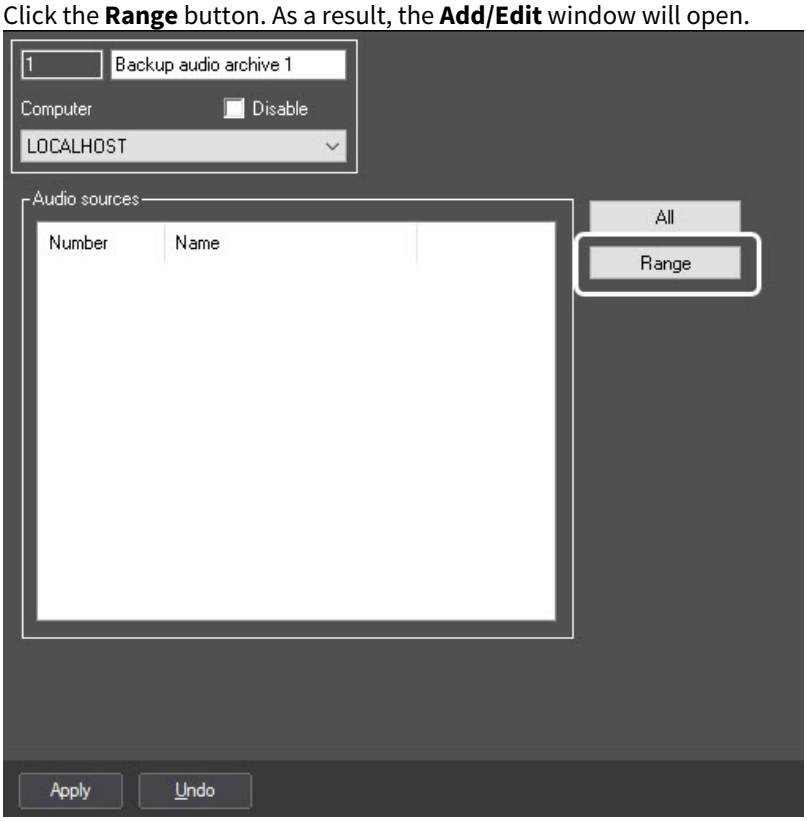
2. In the **Number** drop-downlist, select the ID of a microphone related to the camera the archive from which is to be moved to the backup archive (1).
3. Left-click in the **Name** field. It will be automatically filled with the name of the selected microphone (2).

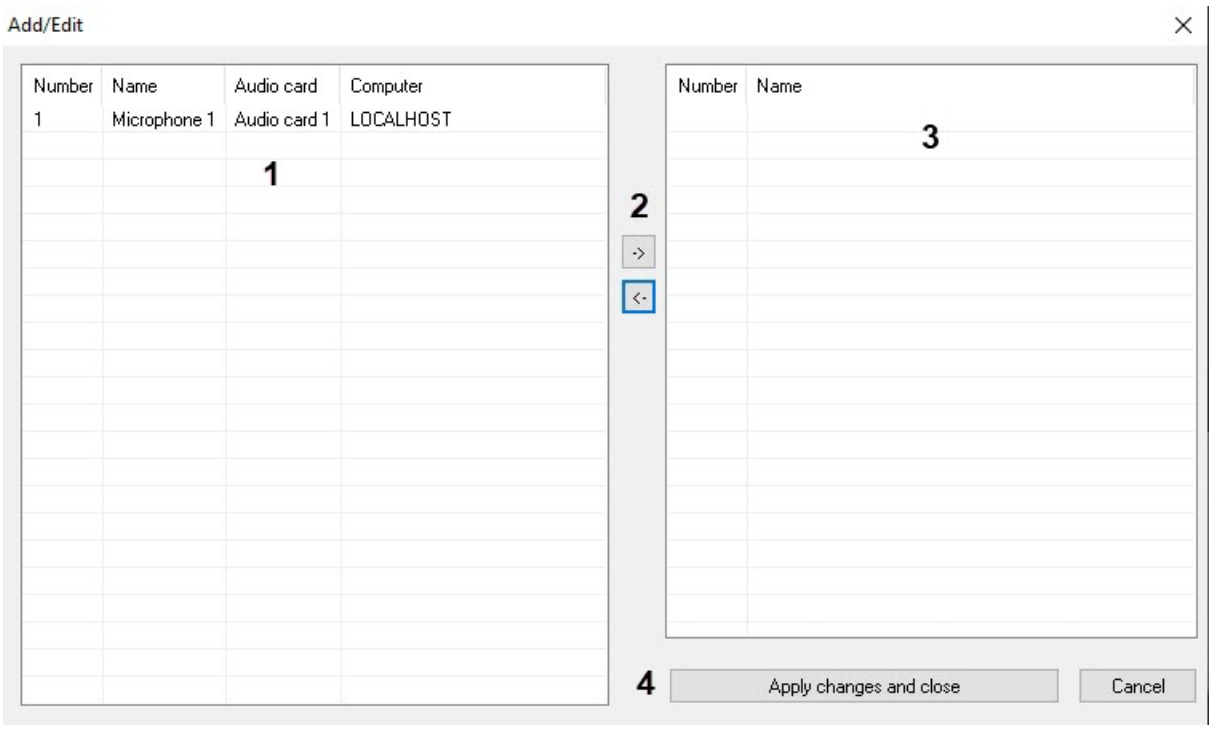
> **Note.**
>
> To add all **Microphone** objects created in the system to the list click the **All** button (3).

4. Repeat steps 2-3 for all required microphones.
5. Click the **Apply** button.

It is possible to add microphones to the list in a single package. To perform it, do the following:

1. Click the **Range** button. As a result, the **Add/Edit** window will open.





2. In the left part of the list, select required **Microphone** objects using the left mouse button (1). Use Shift and Ctrl keys to select several objects simultaneously.
3. Click the **->** button (2) to replace selected objects to the right part of list (3).

> **Note.**
>
> To replace objects from the right part of the list to the left part, select microphones in this list and click the **<-** button (2).

4. Click the **Apply changes and close** button (4). Microphones from the right part of the list will be added in the settings panel of the **Backup audio archive** object.

The *Backup audio archive* module is now configured.

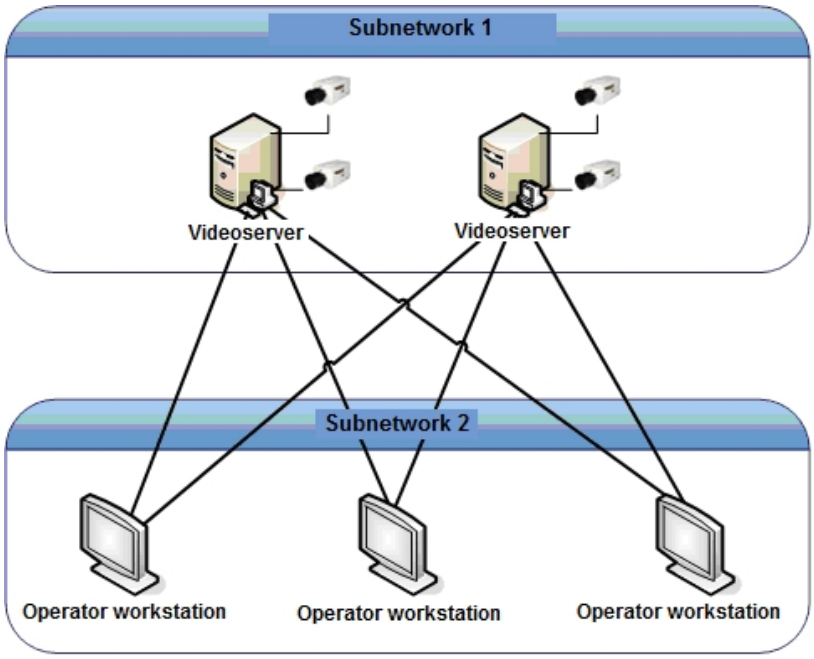
22.3.12 Configuring the Videogate module

General information on the videogate

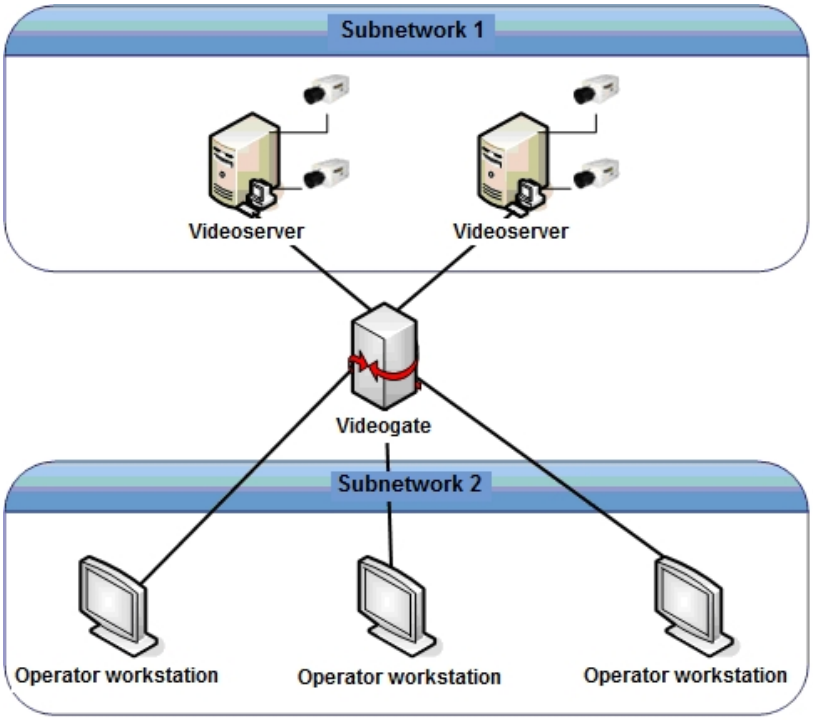
Videogate is used in large distributed video surveillance systems for routing the video signals among servers and clients (or administrator workstations used as operator workstations) located in different subnetworks. Servers and remote workstations are grouped into different subnetworks due to the following reasons:

1. Technical limitations leading to the servers being connected by low band channels and the clients using a high band connection. For example, the servers may be distributed over a large area, while the clients are located in one room of the monitoring center.
2. Security requirements. For example, to eliminate unauthorized access to administrative functions, the servers and clients are isolated into a different subnetwork from the operator workstations. When the subsystem interface uses the videogate, the clients(or rather administration workstations used as operator workstations) do not have access to the administrative functions of the servers and administration workstations of another subnetwork, but receive video signals from the servers.

Figures A and B show the schemes of construction of the video surveillance systems directly to the Videoservers with and via the videogate.



A. without the videogate



B. with the videogate

Note.

Video signal transfer to vertical modules on the basis of the Axxon PSIM software is not performing using the Video gate module. These modules always receive video signal directly as others modules.

Important!

There is no sound transmission to the RMW via the Videogate if different subnets are in use.

Order of setting up the Videogate object

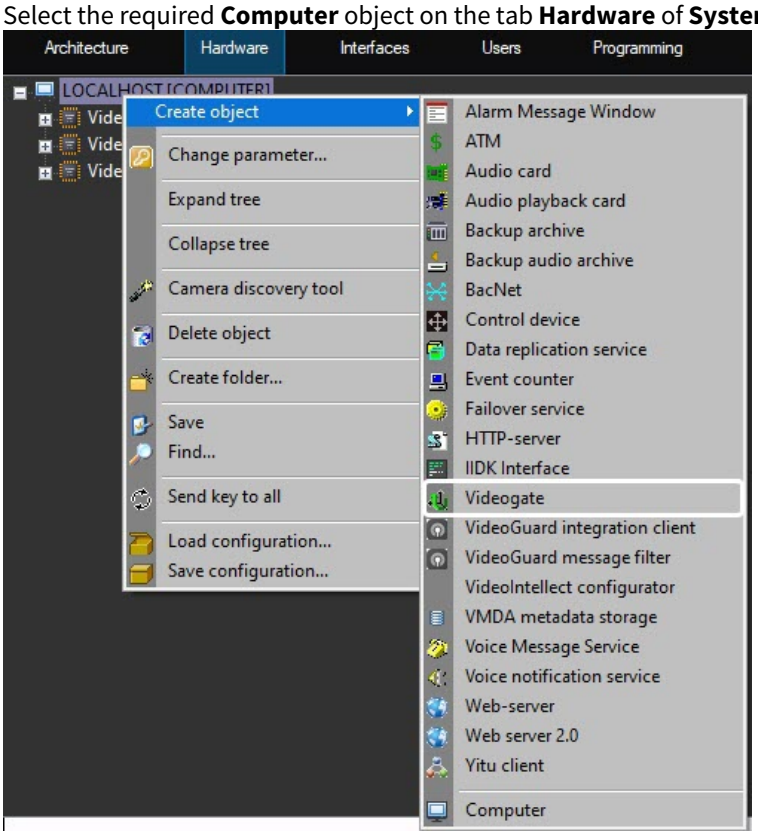
To set the **Videogate** object do the following:

1. Create the **Videogate** object on the basis of the **Computer** system object (see Creating the Videogate object).
2. Select and set cameras for transmitting the video signals through the *Videogate* (see Selecting and configuring the cameras for the Videogate module or Selecting video cameras in bulk for the Videogate module).
3. When necessary select the disks for storing archive of *Videogate* module (see Selecting disks for storing the archive of the Videogate module).

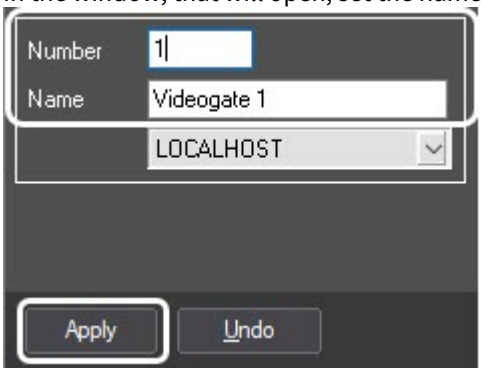
Creating the Videogate object

To create the **Videogate** object do the following:

1. Select the required **Computer** object on the tab **Hardware** of **System settings** dialog window.



2. Right mouse click upon the selected **Computer** object and select **Create object> Video gate** in the context menu that will open.
3. In the window, that will open, set the name and the number of **Videogate** object and the click **Apply** button.



> **Note.**
>
> In result settings panel of **Videogate** object will open.

4. Repeat steps 1-3 for all the required **Computer** and **Videogate** objects.

Creation of the **Videogate** object is completed.

Selecting and configuring the cameras for the Videogate module

You can select and configure cameras for transmitting the video signals through Videogate in two ways:

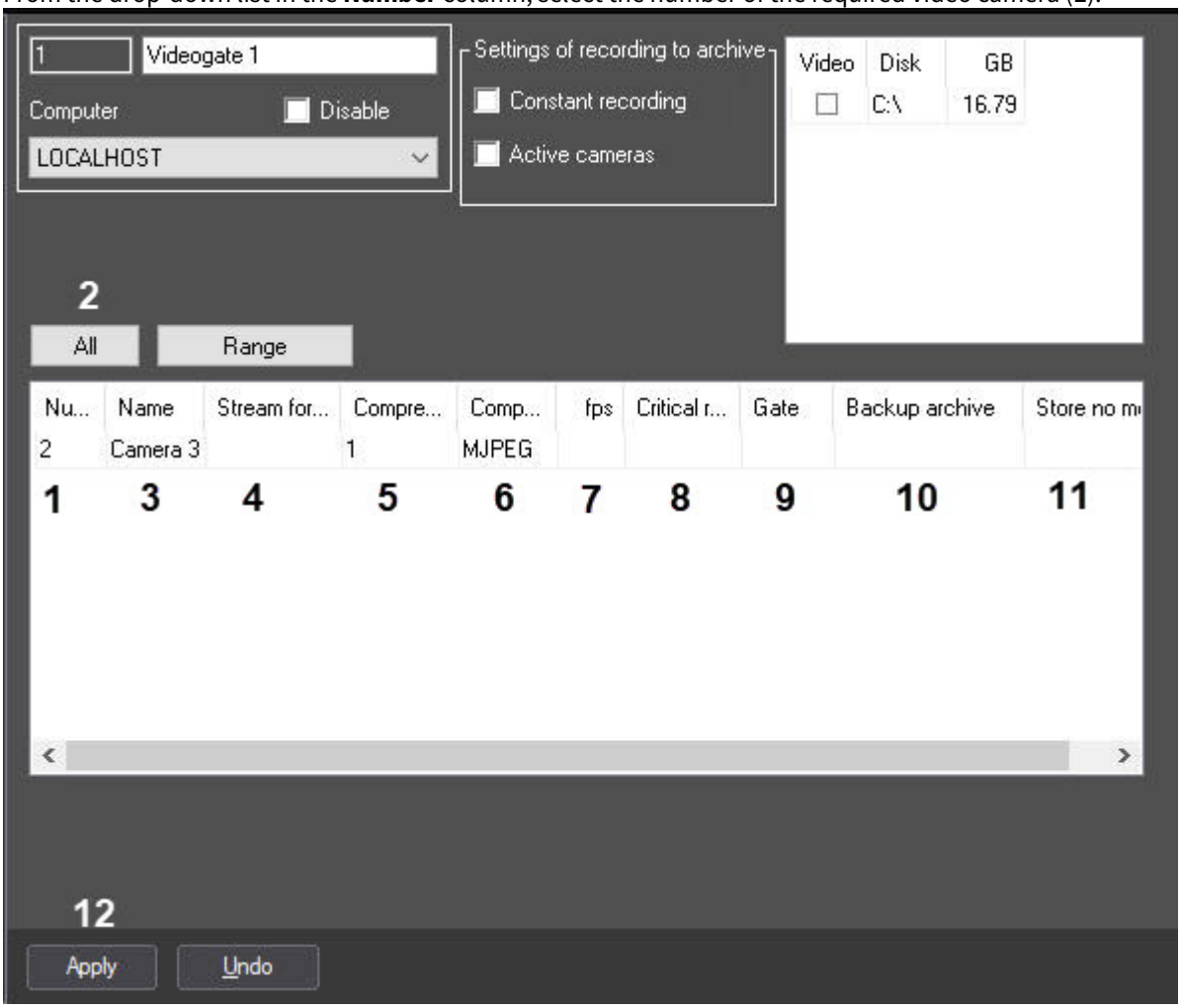
1. Separately. Use the settings panel of the **Videogate** object.

2. In bulk. Use the **Add/Edit Camera Objects** dialog box.

> **Note**
>
> Order of bulk selection of video cameras for transmitting video signals through the Videogate is described in Selecting video cameras in bulk for the Videogate module.

To select cameras on the settings panel of the **Videogate** object, do the following:

1. Go to the settings panel of the **Videogate** system object.
2. From the drop-down list in the **Number** column, select the number of the required video camera (**1**).



> **Note**
>
> To select all cameras, registered in the system, click the **All** button (**2**).

3. As a result, the **Name** column will display the name of the selected camera (**3**).
4. From the **Stream for archive** drop-down list, select the video stream from the Server that you want to use to record the videogate archive (**4**). By default, the **Archive** stream that the Server uses for constant recording is recorded (see also Configuring the multistream video).
5. In case, you want to change the compression level of the video signal for transmitting through the Videogate, from the drop-down list in the **Compression** column, select the required compression level of

video signal (**5**). Compression level of the video signal increases from 0 (no compression) to 5 (maximum compression).

> **Note**
>
> If you set the compression level, the video signal on the Server has to be preliminary decompressed, which significantly increases the load on the Server CPU.

6. To change the algorithm of video signal compression for transmitting through the Videogate, from the **Compressor** drop-down list, select the required compression algorithm (**6**). If you specify the compressor, the value in the **Compression** list must be selected (**5**). If you specify the compression level, but don't select the **Compressor**, the Motion Wavelet compressor is used.

> **Note**
>
> Recompression is performed on the Server side.

7. In case, you want to thin out the video signal for transmitting through the Videogate, in the field in the **fps** column, enter the required frame rate of the video signal (**7**).

> **Note**
>
> The specified fps value must be less than the frame rate of the video signal digitizing by the video input device. Otherwise the frame rate of video signal will be equal to the frame rate of digitizing. The specified fps value must not be less than 0.01 which corresponds to transmission of one frame in 100 seconds.

> **Note**
>
> For the correct thinning of a video stream compressed using the H.264 or MPEG4 codecs, the fps value must be equal to key frame rate specified in the device (IP camera) or *Axxon PSIM* settings (see Configuring video compression).

8. In case, you want to control the transmission of video signals through the local network from the Server to the Videogate, in the field in the **Critical rate** column, enter minimum available value of frame rate of video signals, transmitted to the Videogate (**8**).

> **Note**
>
> The value specified in the **Critical rate** column should not be greater than the frame rate of video signal, transmitted to the Videogate.
> The setting of critical rate on the Videogate must be combined with the settings of the **Alarm Messages Window** system object (see Setting up the Alarm Message window). In this case, with the reduction of rate of input signals below the given value, the Alarm messages window will be displayed with the message **Reduced input rate**.

9. In case, when video signal from the selected video camera should be received from another **Videogate** object, from the drop-down list in the **Gate** column, select the name of this object (**9**).
10. In case, when the video archive for the selected camera has to be received from the **Backup archive** object, from the drop-down list in the **Backup archive** column, select the name of this object (**10**).

> **Attention!**

> The selected value must coincide with the value that is specified when configuring video cameras that should be displayed on the Video surveillance monitor for this Camera—see Selecting and configuring video cameras.

11. In the **Store no more than (hours)** field, enter the time period in hours after which you want to delete the recordings of the corresponding camera from the Videogate (**11**). The parameter must be set according to the same rules as for the main archive—see Configuring camera archive depth.
12. Repeat steps 2-11 for all required cameras.
13. To save all the changes, click the **Apply** button (**12**).

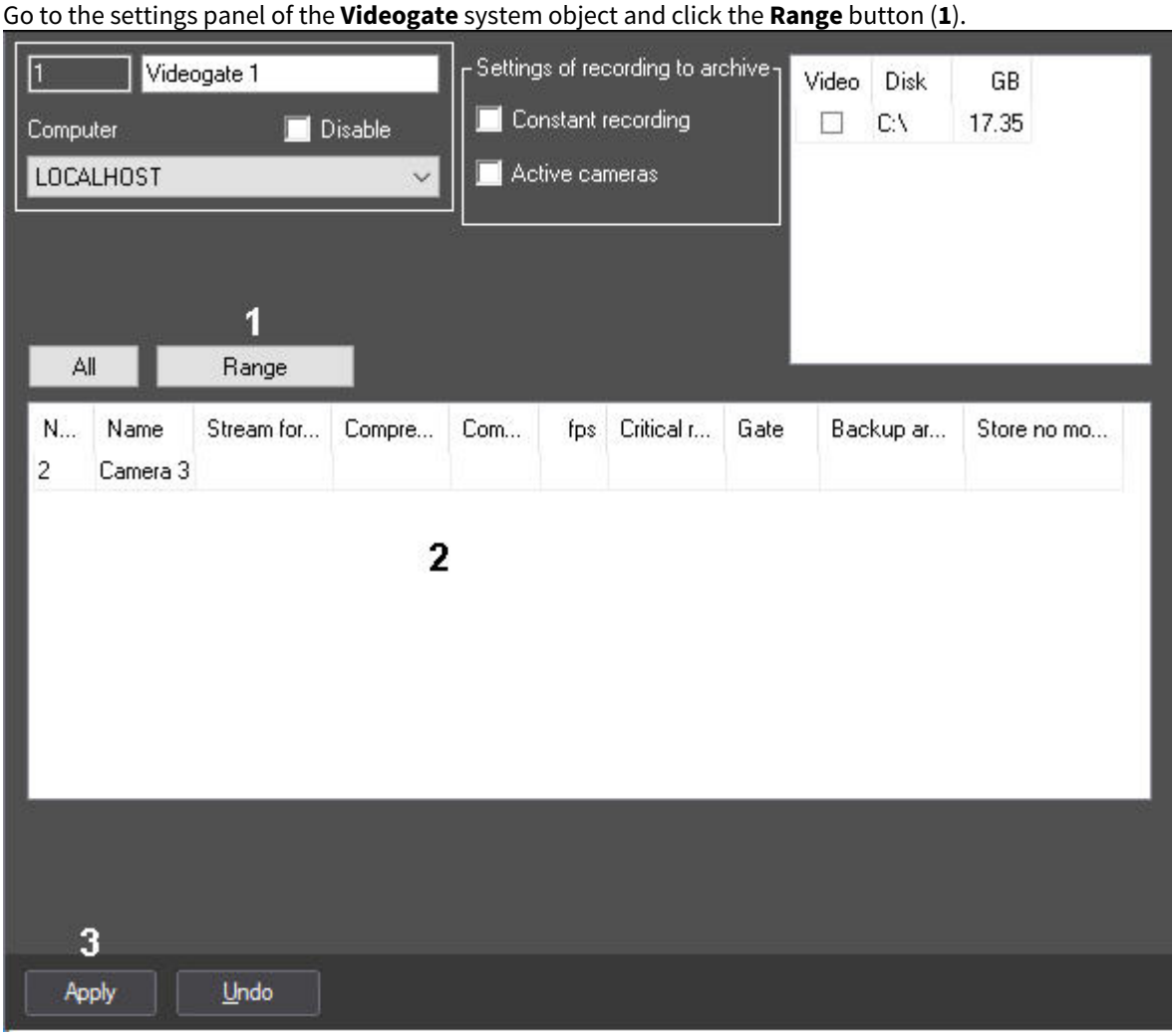
Selecting cameras on the settings panel of the **Videogate** object is completed.

Selecting video cameras in bulk for the Videogate module

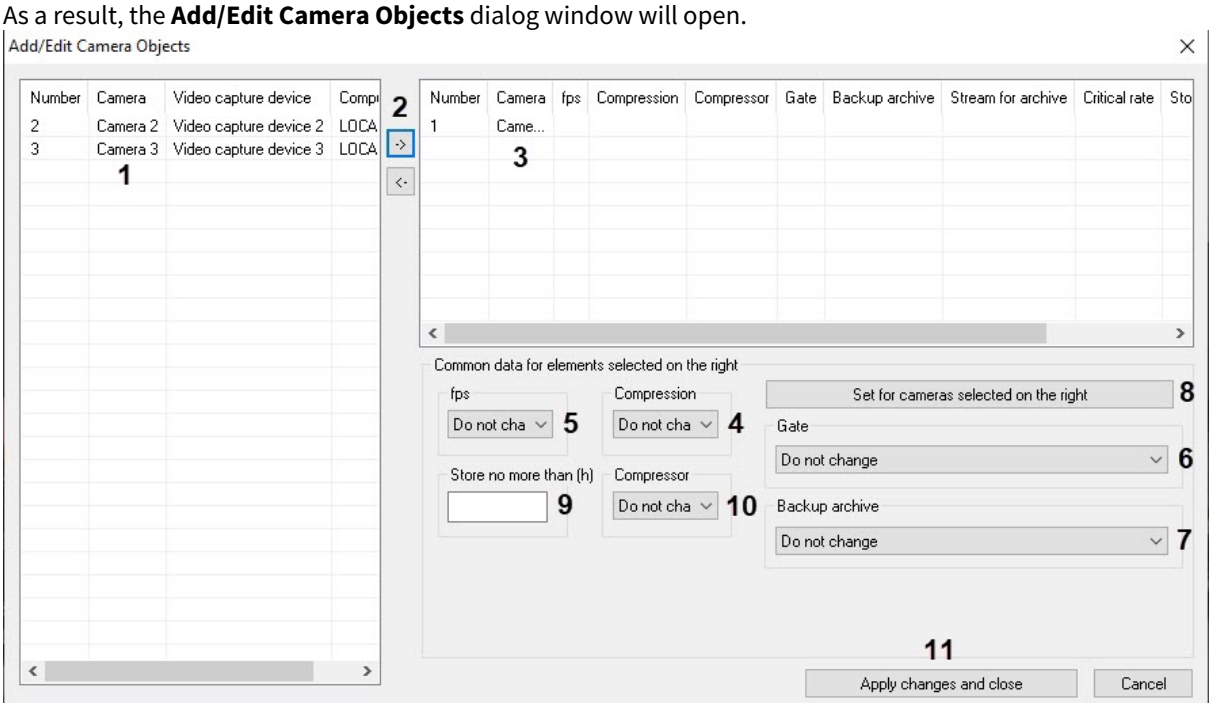
You can select and edit the parameters of video cameras in bulk for transmitting video signal through **Videogate**.

Bulk selection of cameras is performed in the following way:

1. Go to the settings panel of the **Videogate** system object and click the **Range** button (**1**).



2. As a result, the **Add/Edit Camera Objects** dialog window will open.



3. Select the required cameras in the left list of the **Add/Edit Camera Objects** window by clicking with the mouse and holding down the Ctrl key (**1**).
4. Remove the selected cameras to the right list by clicking the  button (**2**).

> **Note**
>
> The right list contains a list of cameras, selected for transmitting the video signals through the **Videogate**.
>
> The  button is used for back action i.e., for removing the selected cameras from the right list to the left list (**2**).

5. As a result, the selected video cameras will be displayed in the right list of the **Add/Edit Camera Objects** window (**3**).
6. If necessary, in the right list, select the names of the required cameras for bulk editing of the parameters by clicking them with the mouse with the Ctrl key pressed.

> **Attention!**
>
> For all selected cameras the same values of the parameters will be set.

> **Note**
>
> You cannot edit the **Critical rate** parameter using the **Add/Edit Camera Objects** window.

7. If it is necessary to change the video signal compression level for transmission through the **Videogate**, from the **Compression** drop-down list, select the required video signal compression level (**4**). The video signal compression level increases from 0 (no compression) to 5 (maximum compression). Selecting an empty value means that the initial compression level will be applied, the **Do not change** value means that the compression level of the device will be applied.

> **Note**
>
> If you set the compression level, the video signal on the Server has to be preliminary decompressed, which significantly increases the load on the Server CPU.
> The **Compression**, **fps**, **Gate**, **Backup archive** settings belong to the **Set for cameras selected on the right** group.

8. If it is necessary to thin out the video signal for transmission through the **Videogate**, select the required video frame rate from the **fps** drop-down list (**5**). Selecting an empty value means that the initial frame rate will be applied, the **Do not change** value means that the frame rate with which the device transmits the video signal will be applied.

> **Note**
>
> The specified fps value must be less than the frame rate of video signal digitizing by video capture card. Otherwise frame rate of video signal will be equal to the frame rate of digitizing.

9. In case, when video signal from the selected video camera should be received from another **Videogate** object, from the **Gate** drop-down list, select the name of this object (**6**).
10. In case, when the video signal from the selected camera has to be received from the **Backup archive** object, from the **Backup archive** drop-down list, select the name of this object (**7**).
11. If it is necessary to limit the storage time of the **Videogate** archive, enter the maximum number of hours of storage in the **Store no more than (h)** field (**9**). The parameter must be set according to the same rules as for the main archive—see Configuring video camera archive depth.
12. If it is necessary to change the video signal compression algorithm for transmission through the **Videogate**, select the required compression algorithm from the **Compressor** drop-down list (**10**). If a compressor is specified, it is necessary that a value be selected in the **Compression** list (**4**). If a compression level is specified but **Compressor** is not selected, then the *Motion Wavelet* compressor is used. Selecting an empty value means that the initial algorithm will be used, the **Do not change** value means that the algorithm that is used for recording on the device will be used.
13. To save the set parameters, click the **Set for cameras selected on the right** button (**8**).
14. As a result, the set parameters will be displayed in the right list of the **Add/Edit Camera Objects** window (**3**).
15. Repeat steps 6-11 for bulk editing of all required cameras.
16. To save all the changes and close the **Add/Edit Camera Objects** window, click the **Apply changes and close** button (**11**).
17. The specified settings will be displayed on the settings panel of the **Videogate** object (**2**).
18. To save the changes, click the **Apply** button (**3**).

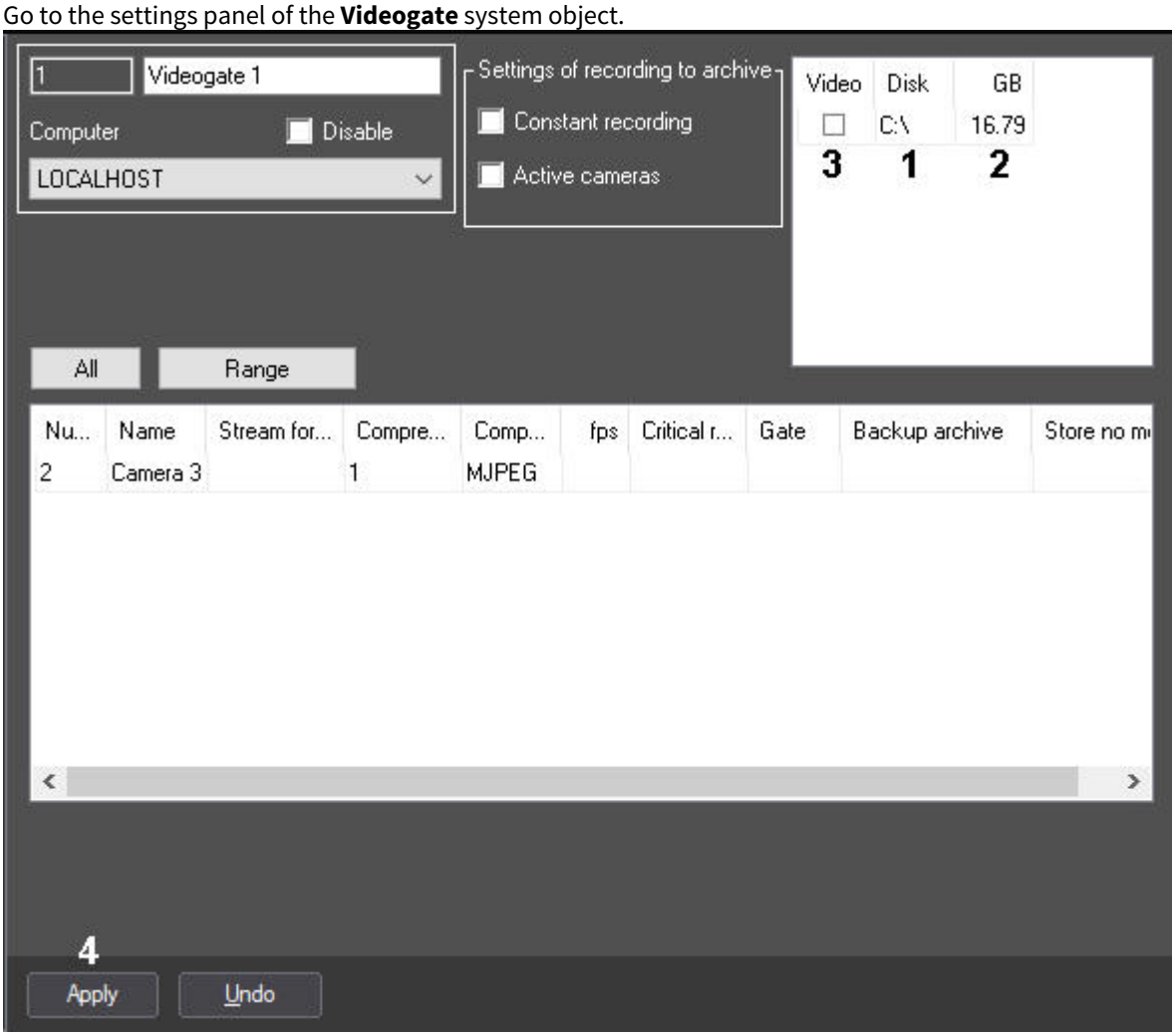
Bulk selection of cameras is completed.

Selecting disks for storing the archive of the Videogate module

To enable the archiving of the video signals, passing through the **Videogate,** it is necessary to select the disks for archive storing.

To select the disks for storing the archive of the **Videogate** module, do the following:

1. Go to the settings panel of the **Videogate** system object.



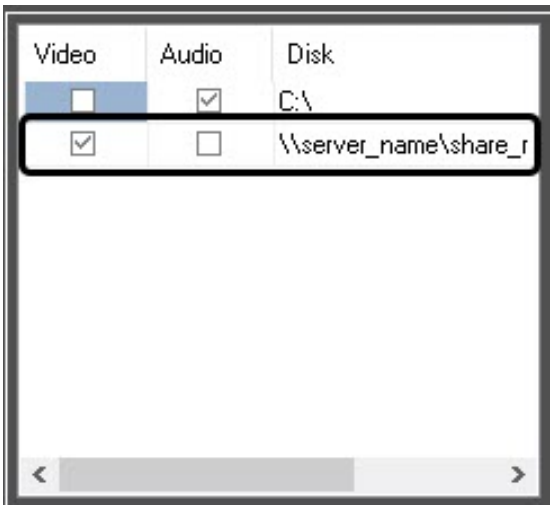
2. The names of the local (network, USB) disks, available for stroing the archive of the **Videogate** module are given in the **Disk** column (**1**).

> **Attention!**
>
> For Windows Vista and Windows 7 OS with UAC enabled, it's necessary to connect the network disks via the command line with Administrator's rights. The connection method is described in Connecting network disks in Windows Vista and Windows 7 OS.

> **Note**
>
> To use network disks as an archive, set the UNC paths to them in *Axxon PSIM*. For details on working with the network disks in *Axxon PSIM* that is installed as a Service, see Working with Windows OS services for operating Axxon PSIM™ installed as a Service.

3. In the **GB** column, you can see the free space on disk in GB (**2**).
4. In the **Video** column, set the checkboxes next to the disks, selected for storing the archive of the **Videogate** module (**3**).
5. To add a network disk via specifying the UNC path, do the following:

a. Go to the last line in the disks list and click the Down key.

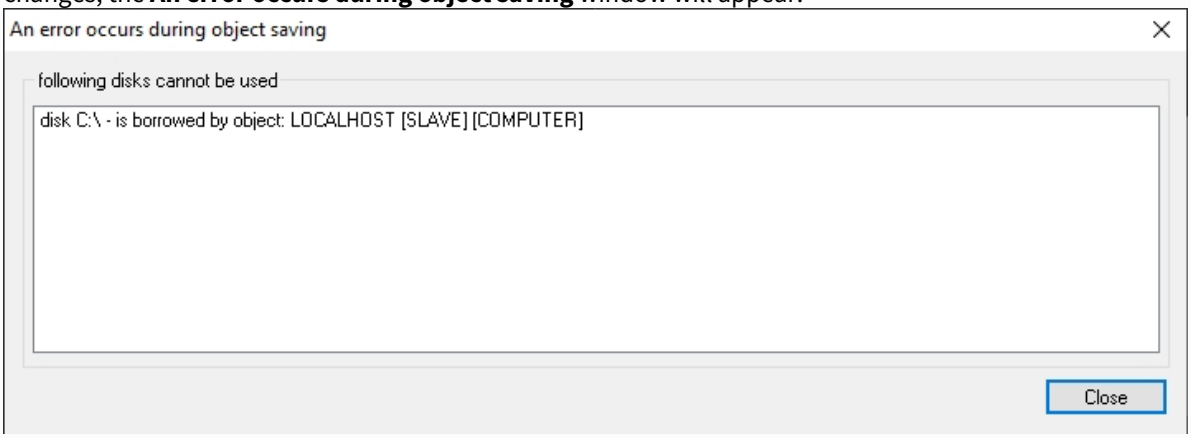


b. In the appeared line in the **Disk** column, enter the path to a network disk. The UNC path is set in the \\server_name\share_name format, where server_name is the name of the file server and share_name is the network name of shared folder.
c. In the **Video** column, set the checkbox next to the created disk.

6. To save the changes, click the **Apply** button (**4**).

Note

For storing the archive of the **Videogate** module, select the disks that are not used for storing video archive from cameras (selected in the settings panel of the **Computer** object). Otherwise, after saving the changes, the **An error occurs during object saving** window will appear.



Note

In case, when no disk is selected for storing video recordings, there is no recording of the video signals to the archive of the **Videogate** module.

Selecting disks for storing the archive of the **Videogate** module is completed.

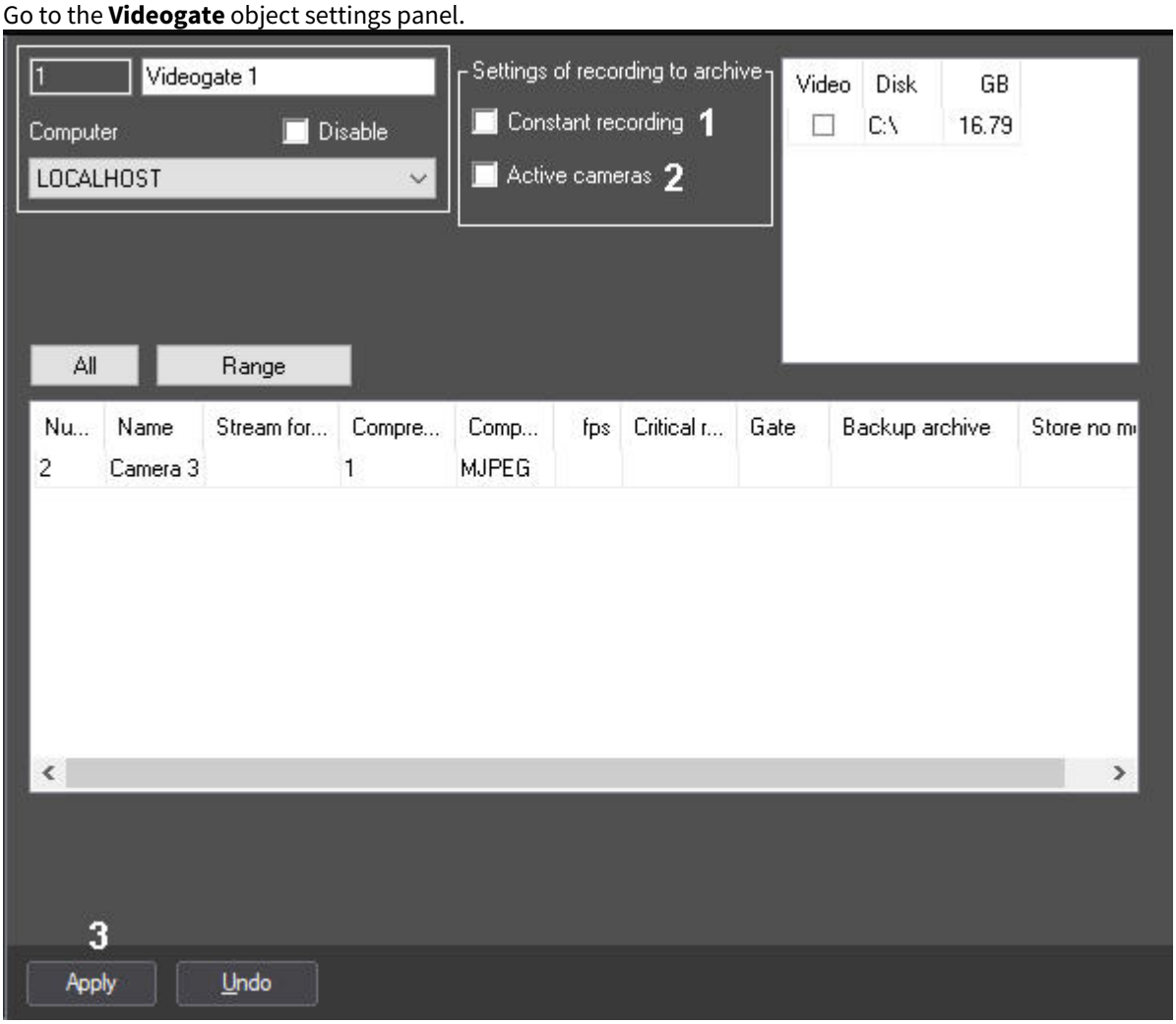
Free disk space (video archive size) required
Video gateway archive playback
Configuring the recording to the Videogate archive

Configuring the recording to the Videogate archive

By default, if disks are selected for recording (see Selecting disks for storing the archive of the Videogate module), the **Videogate** requests video streams for all selected cameras (see Selecting and configuring the cameras for the Videogate module) from Server and records archive if recording is configured for these cameras on the Server. You can configure **Videogate** archive recording by all added cameras regardless of Server configuration, as well as recording only on cameras requested on clients.

To configure the recording to the **Videogate** archive, do the following:

1. Go to the **Videogate** object settings panel.



2. If it is necessary to provide recording by all cameras added to the **Videogate** regardless of whether the data is recorded to the main archive of the Server, set the **Constant recording** checkbox (**1**).
3. If it is necessary to provide recording by the cameras the video stream from which is requested and displayed on the **Video surveillance monitor**, set the **Active cameras** checkbox (**2**).
4. Click the **Apply** button (**3**).

Configuring the recording to the **Videogate** archive is complete.

In case no disk is selected for recording, then:

- if the **Constant recording** checkbox is set, then there will be continuous video stream from the Server, and there will be no recording;

- if the **Active cameras** checkbox is set, then the video will stream from the Server only if it is displayed on the **Video surveillance monitor**, and there will be no recording.

Specifics of the **Videogate** operation with different combinations of set checkboxes for archive recording are described in the table:

Constant recording	Active cameras	Disk for storing the archive is selected	Result: video streams and recording
✗	✗	✗	Continuous video stream from the Server, no recording to the Videogate archive
✗	✓	✗	The video streams from the Server only if it is displayed on the Video surveillance monitor, no recording to the Videogate archive
✓	✗	✗	Continuous video stream from the Server, no recording to the Videogate archive
✓	✓	✗	The video streams from the Server only if it is displayed on the Video surveillance monitor, no recording to the Videogate archive
✗	✗	✓	Continuous video stream from the Server, recording to the Videogate archive is similar to the Server
✗	✓	✓	The video streams from the Server only if it is displayed on the Video surveillance monitor. Recording to the Videogate archive is similar to the Server, but only when the video is displayed on the Video surveillance monitor
✓	✗	✓	Continuous video stream from the Server, continuous recording to the Videogate archive
✓	✓	✓	The video streams from the Server only if it is displayed on the Video surveillance monitor. The video is recorded to the Videogate archive only when it is displayed on the Video surveillance monitor

Note

You can also manage the recording to the **Videogate** archive using the START_VIDEO and STOP_VIDEO commands (see GATE Videogate).

22.3.13 Notification services

Setting up the Alarm Message window

On the page:

- General description and usage details of the Alarm Message window
- Creating and setting up the Alarm Message Window object

General description and usage details of the Alarm Message window

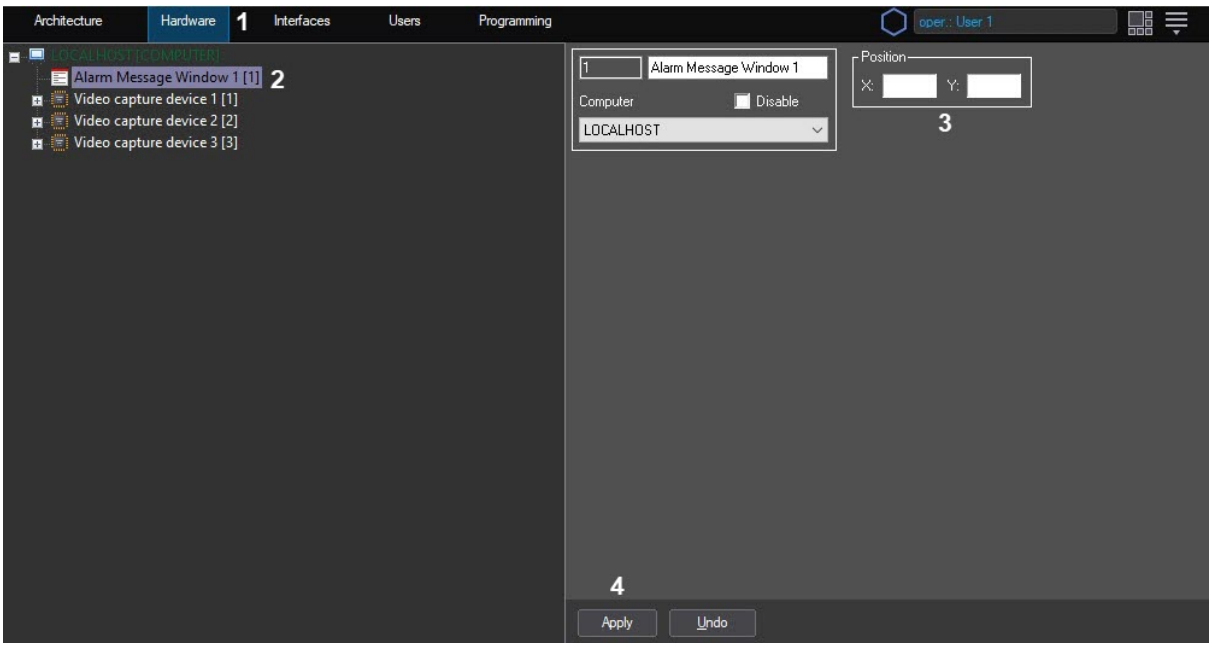
The **Alarm Message window** notifies the operator about alarms and opens above all other windows in case of an alarm event on a set device.

Creating and setting up the Alarm Message Window object

To set up the **Alarm Message window**, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Alarm Message Window** object in the **Computer** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System Setting**

window.

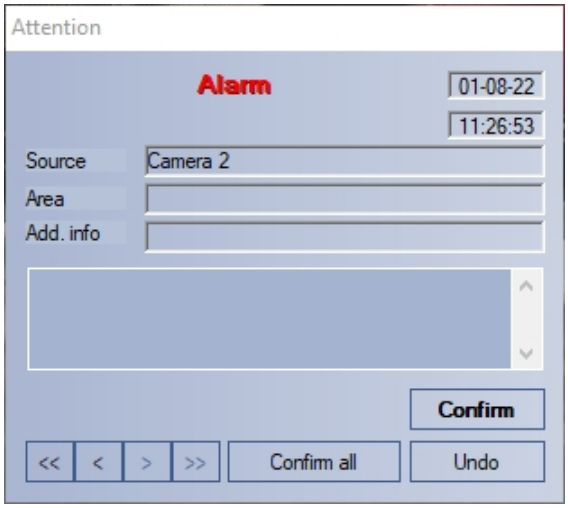


3. Set the coordinates (**X, Y**), in percent, for the position of the **Alarm Message window** (3).

> **Note.**
>
> By default, X and Y coordinates are 0, thus, if they are not changed, the window opens in the upper left corner of the screen.

4. Press the **Apply** button to save the settings for the **Alarm Message** object (4).

Figure below shows a general view of the **Alarm Message**: this window will open above all other windows at a set position (60, 60) upon receiving an alarm event from Camera 3.



> **Note.**
>
> To disable opening the **Alarm Message window**, check the **Disable** checkbox in the settings panel of the **Alarm Message Window** object.

Setting up the Short Message Service (SMS)

General description and usage details of the Short Message Service

The Short Message Service (SMS) is used for sending SMS messages to mobile phones about alarm events registered in *Axxon PSIM*. An SMS message is sent automatically upon registration of any events specified in the corresponding macro.

Actions on *Axxon PSIM* objects can be performed when an SMS is received. Macros, programs in the language embedded in *Axxon PSIM* or Jscript scripts are used for this. When an SMS message is received, the SMS object sends the RECEIVE event to *Axxon PSIM* (see SMS Short Message Service).

SMS messages are sent using the services of the mobile providers via GSM. To send SMS messages, the dedicated devices are used: GSM modems, GSM adapters and mobile phones or devices with Android operating system. SMS messages are sent to mobile phones by mobile service providers.

Note

When using SMS in *Axxon PSIM*, note the following: mobile service providers usually charge for sending SMS messages.

To be able to send SMS messages, a GSM modem, a GSM adapter, a mobile phone or a device with Android operating system supporting ETSI GSM 07.07 or ETSI GSM 07.05 should be installed on the computer (see Android-based Axxon PSIM SMS Sender Mobile Application. User Guide).

The following modem models are currently integrated into *Axxon PSIM*:

1. 3G-modem Huawei E160. In Windows OS it is identified as HUAWEI Mobile Connect-3G Modem. Modem control program is required to be run to work with this device.
2. 3G-modem ZTE MF626. In Windows OS it is identified as ZTE Proprietary HS-USB Modem.To use this device it is necessary to install the software. The software installation will run automatically after the modem is connected.
3. 3G-modem Huawei E173. The RECEIVE event is supported if using the ProcessFromSim registry key (see Registry keys reference guide).

Note

Many mobile service providers protect their USB-modems from use in other providers' networks. When you use the modem protected by the provider, run the utility included in the modem bundle simultaneously with *Axxon PSIM* to activate the SMS. You do not need to perform any other actions with the utility (connect to 3G, etc.).

Note

When using a modem control application, it takes 10 seconds to deliver a message.

The procedure for creating and sending an SMS message:

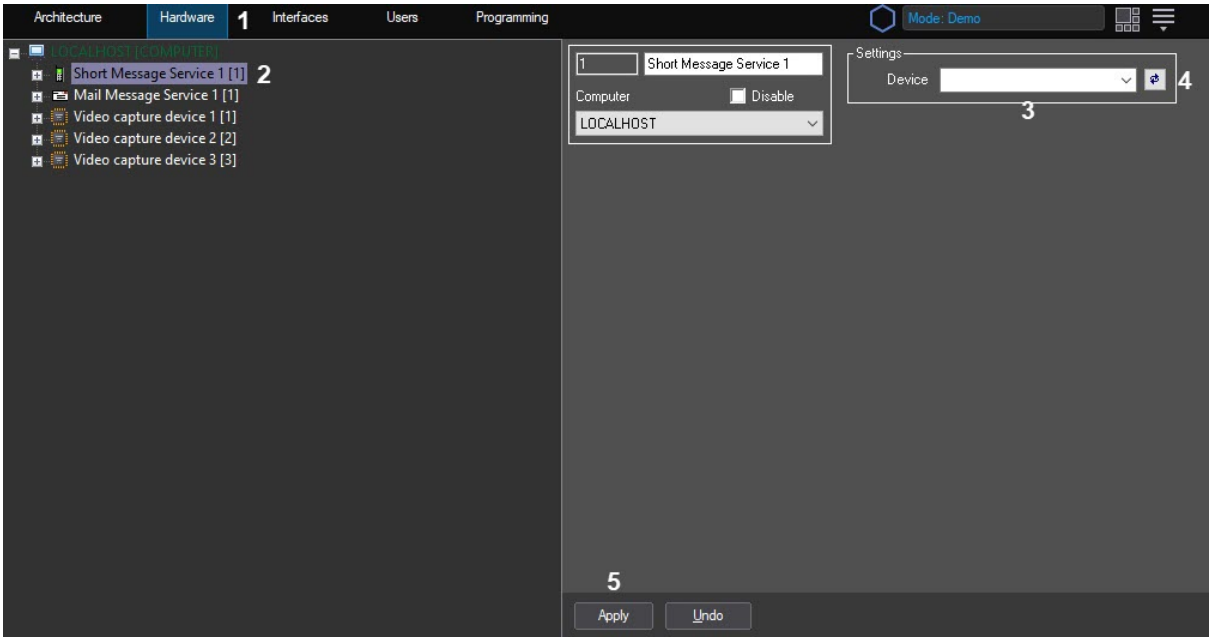
1. Create and set up the **Short Message Service** object.
2. Create and set up the **Short Message** object.
3. Create a macro for sending the short message.

Requirements for GSM Equipment

Creating and setting up the Short Message Service object

To set up the **Short Message Service** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Short Message Service** object in the **Computer** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System Setting** window.



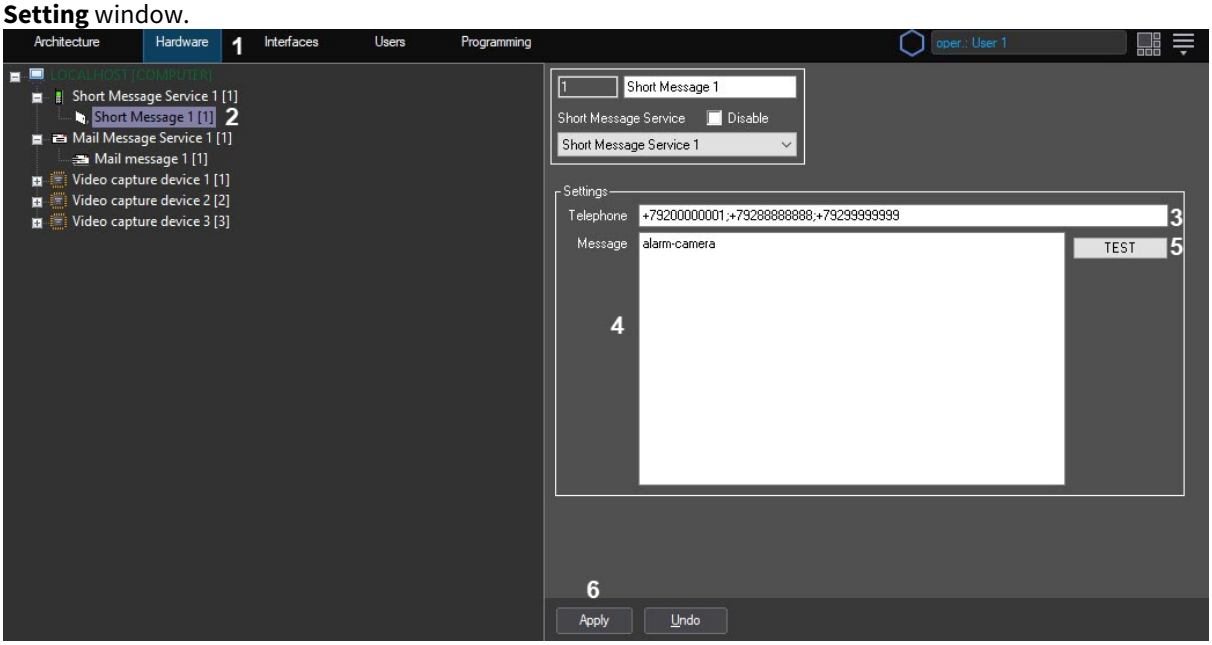
3. Select the GSM-device to be used for sending SMS, in the **Device** drop-down list (3).
4. Press the refresh button for the system to update the list if the device was not listed (4).
5. Press the **Apply** button to save the settings for the **Short Messages Service** object (5).

Creating and setting up the short messages

To set up the **Short Message** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Short Message** object in the **Short Message Service** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System**

Setting window.



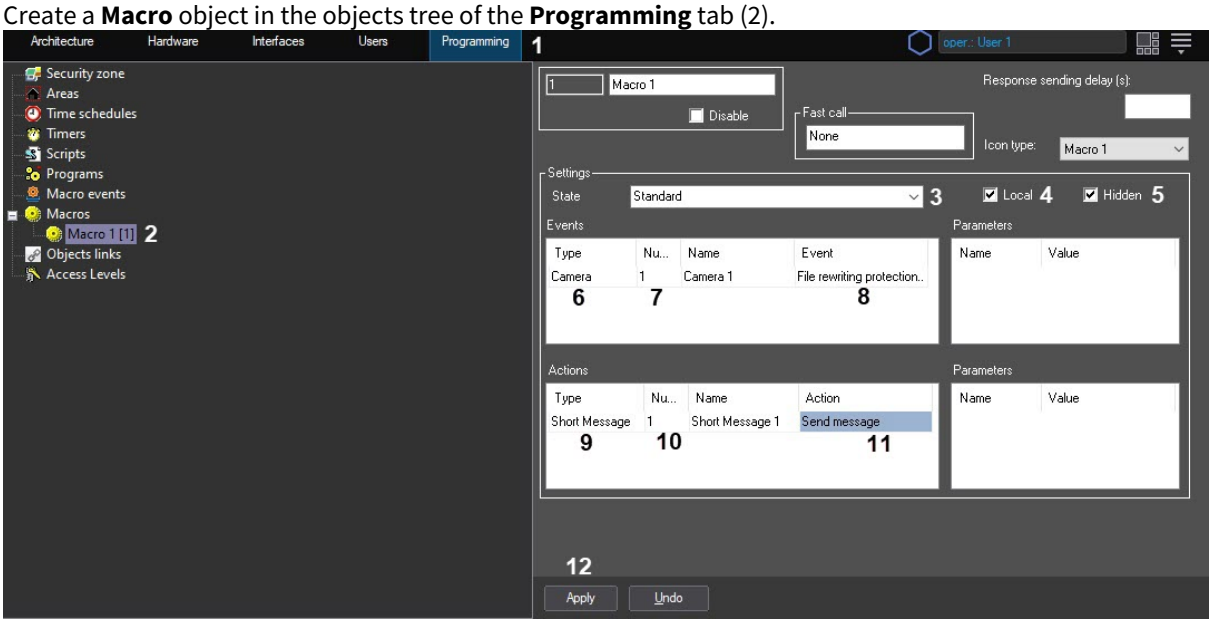
3. Enter the telephone number into the **Telephone** field in the following format: [prefix “+”] [country code] [city/provider code] [phone number] with no spaces or other delimiters (3). If it is necessary to send a message to several numbers, then enter the numbers separated by ";" (semicolon) with no spaces.
4. Enter the message text into the **Message** field (4).
5. If a short message is to be force sent, click the **TEST** button (5). Make sure the message has been received by the recipient. Otherwise check if **Short message service** and **Short message** objects have been configured correctly.
6. Press the **Apply** button to save the settings for the **Short Message** object. (6).

Creating and setting up the macro for sending the short message

The message is sent upon execution of a macro. The macro is executed immediately after a set event occurs. To create the macro for sending the short message:

1. Go to the **Programming** tab of the **System Settings** window (1).

2. Create a **Macro** object in the objects tree of the **Programming** tab (2).



3. Set the **State** parameter (3).
4. Check the **Local** checkbox to send the message from a local computer only (4).
5. Choose the event object type for the SMS macro to be related to (6).
6. Choose the event object number for the SMS macro to be related to (7).
7. Choose the event name which will trigger the sending of the short message (8).
8. Choose the **Short Message** object in the **Type** column (9).
9. Choose the number of the **Short Message** object to be sent by the macro (10).
10. Choose **Send Message** in the **Action** column (11).
11. Press the **Apply** button to save the settings for the **Macro** object (12).

Setting up the Mail Message Service (E-mail)

General description and usage details of the Mail Message Service

The Mail Message Service (E-Mail) is used for sending e-mail messages about the alarm events registered by Axxon PSIM software, to remote system users. Sending e-mail messages is triggered automatically upon registration of any of the events set in the macro.

To be able to send e-mail messages, the computer should be connected to the internet via a local area network or remote TCP/IP connection.

The e-mail messages are sent by the Mail Message Service. To send e-mail messages in Axxon PSIM, you should first register a mailbox in the Mail Message Service.

Note.

When registering your mailbox in the Mail Message Service, note the following:

1. Axxon PSIM's Mail Message Service does not support SMTP servers with Secure Password Authorization (SPA).
2. Axxon PSIM's Mail Message Service supports only the following authorization algorithms on SMTP servers: LOGIN, CRAM-MD5, PLAIN.
3. By default the Mail Message Service uses TLS encoding. If SMTP Server does not use TLS, then set the 0 value for the UseTls registry key (see Registry keys reference guide).

4. For proper operation of Mail Message Service two-factor authentication is to be in configured for the e-mail account in use.

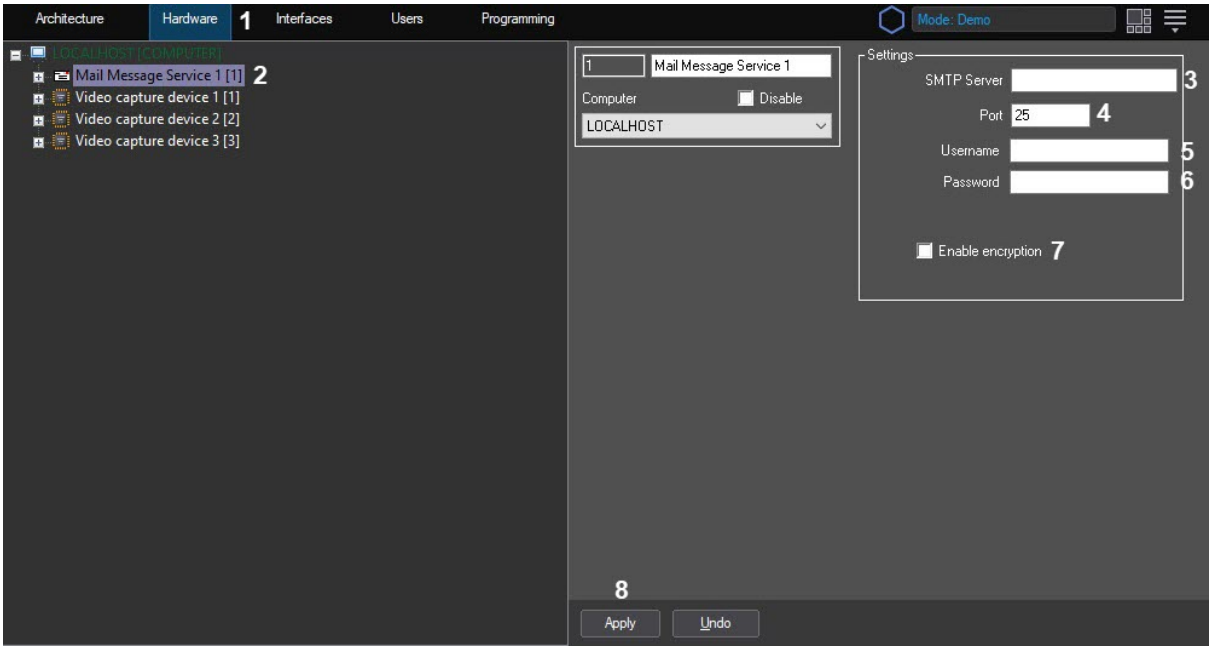
To create and send an e-mail message:

1. Create and set up the **Mail Message Service** object.
2. Create and set up the **Mail Message** object.
3. Create a macro for sending the e-mail message.

Creating and setting up the Mail Message Service

To set up the **Mail Message Service** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (**1**).
2. Create the **Mail Message Service** object in the **Computer** node in the objects tree (**2**). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System Settings** window.



3. Enter the URL address of the SMTP server (**3**).
4. Enter the port number for outgoing messages (**4**).
5. Enter the username for authorization on the SMTP-server (**5**).
6. Enter the password for authorization on the SMTP-server (**6**).
7. Enable encryption if necessary (**7**).
8. Press the **Apply** button to save the settings for the **Mail Messages Service** object (**8**).

Find information on how to set up mail servers in the table.

	Yandex	**Yahoo!**	**Outlook**	**Google**
SMTP Server	smtp.yandex.ru	smtp.mail.yahoo.com	smtp-mail.outlook.com	smtp.gmail.com

	Yandex	Yahoo!	Outlook	Google
Port	587	587	587	587
Username	username@yandex.ru	username@yahoo.com	username@outlook.com	username@gmail.com
Password	User account password	1. If 2-step verification is enabled: password generated for 2-step verification. 2. If 2-step verification is disabled: user password for the Yahoo account. In this case, it is important to let less secure apps access your account in Yahoo settings.	User account password	1. If 2-step verification is enabled: 16-symbols password generated for 2-step verification. 2. If 2-step verification is disabled: user password for the Gmail account. In this case, it is important to let less secure apps access your account in Gmail settings.
Encryption	Yes	Yes	Yes	Yes

Note

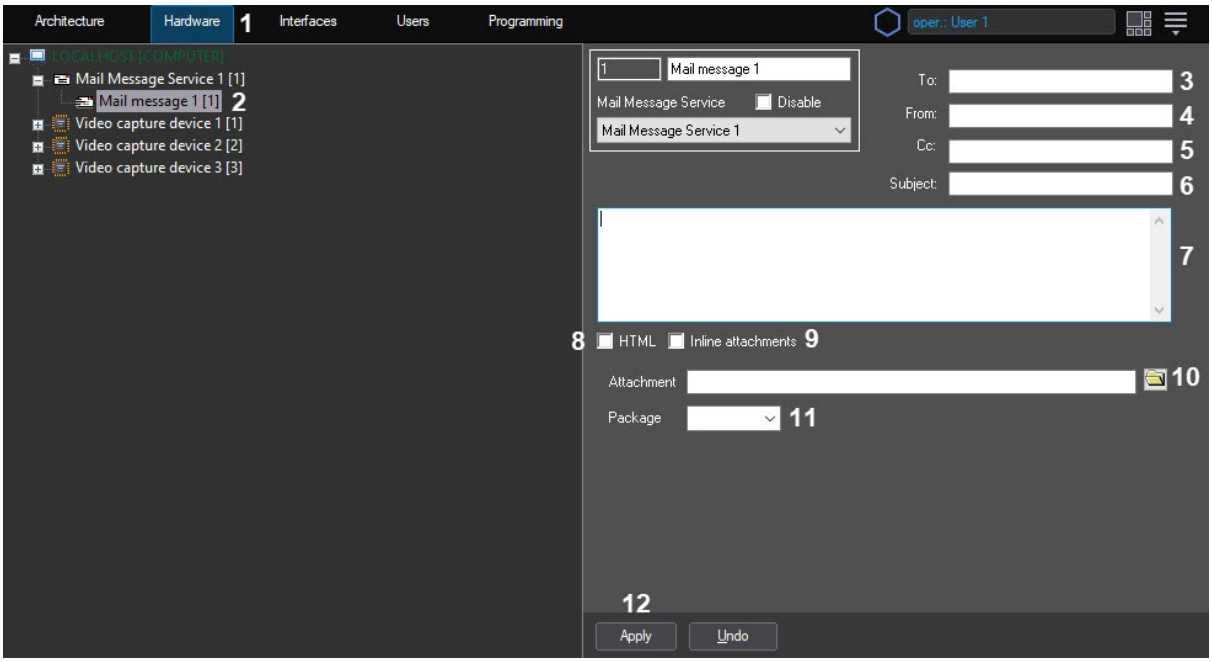
Each company sets a limit on the number of messages sent via the SMTP protocol. For example, Google has a limit of about 100 messages per day. You can try to increase the number of messages sent by using the **SendSync** registry key (for details, see Registry keys reference guide).

Creating e-mail messages

To set up the **Mail Message** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Mail Message** object in the **Mail Message Service** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System Setting**

window.



3. Enter the e-mail address of the recipient (3).
4. Enter the e-mail address of the sender (4).
5. Enter additional addresses (**Cc:**) to send this message to, if necessary (5).
6. Enter the subject of the message (6).
7. Enter the text of the message to be sent to the specified addresses (7).
8. If the message has HTML tags to be applied, set the **HTML** checkbox (8). If not set with HTML tags present, the tags are displayed in the message as plain text.
9. If images selected as **Attachment** (10) are mentioned in the message in HTML format, set the **Inline attachments** checkbox to exclude the images from attachment (9). See the table below for available options:

	HTML set	**HTML** not set
Inline attachments set	Images are shown in message text (if mentioned), NOT attached to the e-mail	Images not shown in the e-mail at all
Inline attachments not set	Images are shown in message text (if mentioned) AND in attachments	Images are shown in attachments

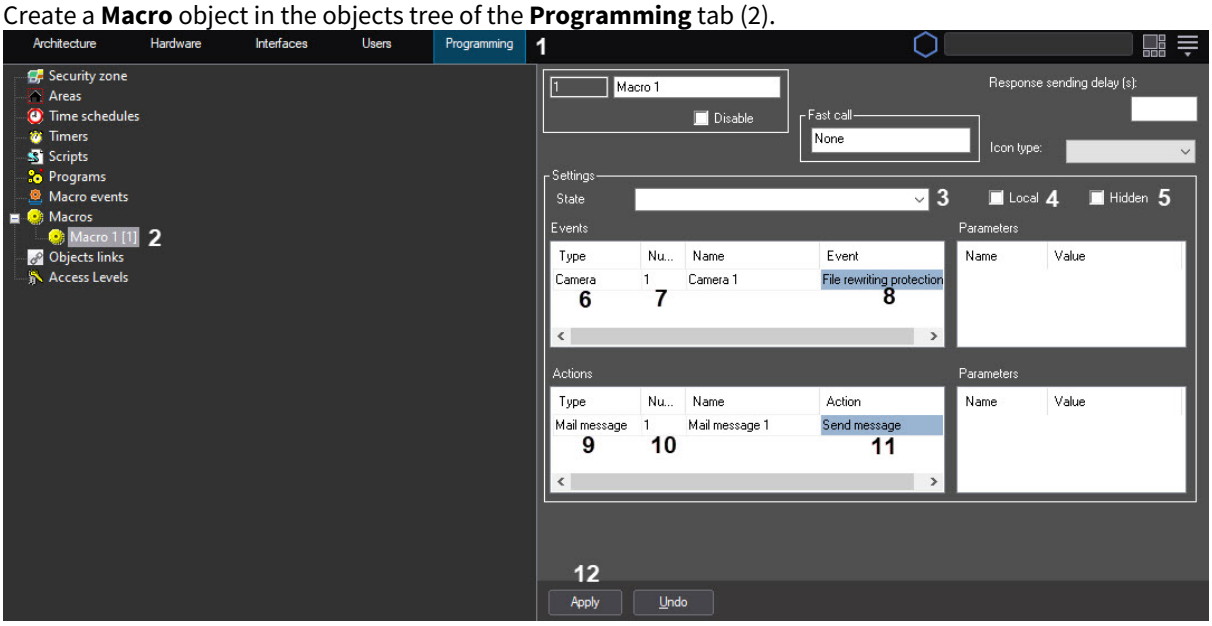
10. Attach a file to the alarm message (report, audio, image), if necessary (10). If several files are attached, their addresses are semicolon separated.
11. Specify if the attachment should be packaged (archived) (11).
12. Press the **Apply** button to save the settings for the **Mail Message** object (12).

Creating and setting up a macro for sending the e-mail message

The message is sent upon execution of a macro. The macro executes immediately after the registration of the event it is set for. To create the macro for sending the e-mail message:

1. Go to the **Programming** tab of the **System Settings** window (1).

2. Create a **Macro** object in the objects tree of the **Programming** tab (2).



3. Set the **State** parameter (3).
4. Check the **Local** checkbox to send the messages from a local computer only (4).
5. If the manual start of macros from the main control panel of Axxon PSIM software should be forbidden, set the **Hidden** checkbox (5).
6. Choose the event object type for the e-mail macro to be related to (6).
7. Choose the event object number for the e-mail macro to be related to (7).
8. Choose the name of the event to trigger the sending of an e-mail message (8).
9. Choose the **Mail Message** object in the **Type** column (9).
10. Choose the number of the **Mail Message** object to be sent by the macro (10).
11. Choose **Send Message** in the **Action** column (11).
12. Press the **Apply** button to save the settings for the **Macro** object (12).

Setting up the Voice Message Service (V-dial)

General information and usage details of the Voice Message Service

The Voice Message Service is used to transmit voice messages over telephone lines. The Service automatically dials up the specified phone numbers and plays the audio files. The following dialing options are available: until connection, until answer, until digital acknowledgement of message reception. To be able to send a voice message, a voice modem (V-Dial) should be installed on the computer.

> **Note.**
>
> For proper detection of a voice modem in Axxon PSIM™, the inf folder is to be created in the Axxon PSIM/Modules directory. The drivers of installed modem are to be copied to the Axxon PSIM/Modules directory. This action is to be performed for Windows 7 / Server 2012.

To create and send a voice message:

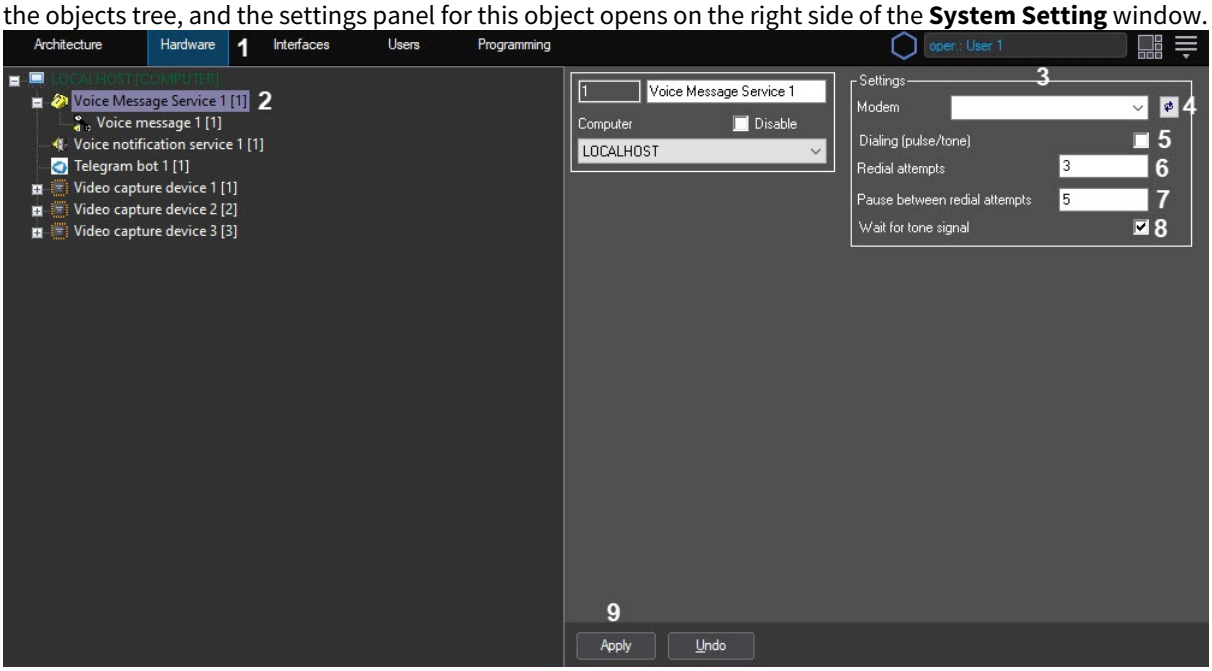
1. Create and configure the **Voice Message Service** object.
2. Create and configure the **Voice Message** object.
3. Create a macro for sending the voice message.

Requirements for voice modems

Creating and setting up the Voice Message Service object

To set up the **Voice Message Service** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Voice Message Service** object in the **Computer** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System Setting** window.



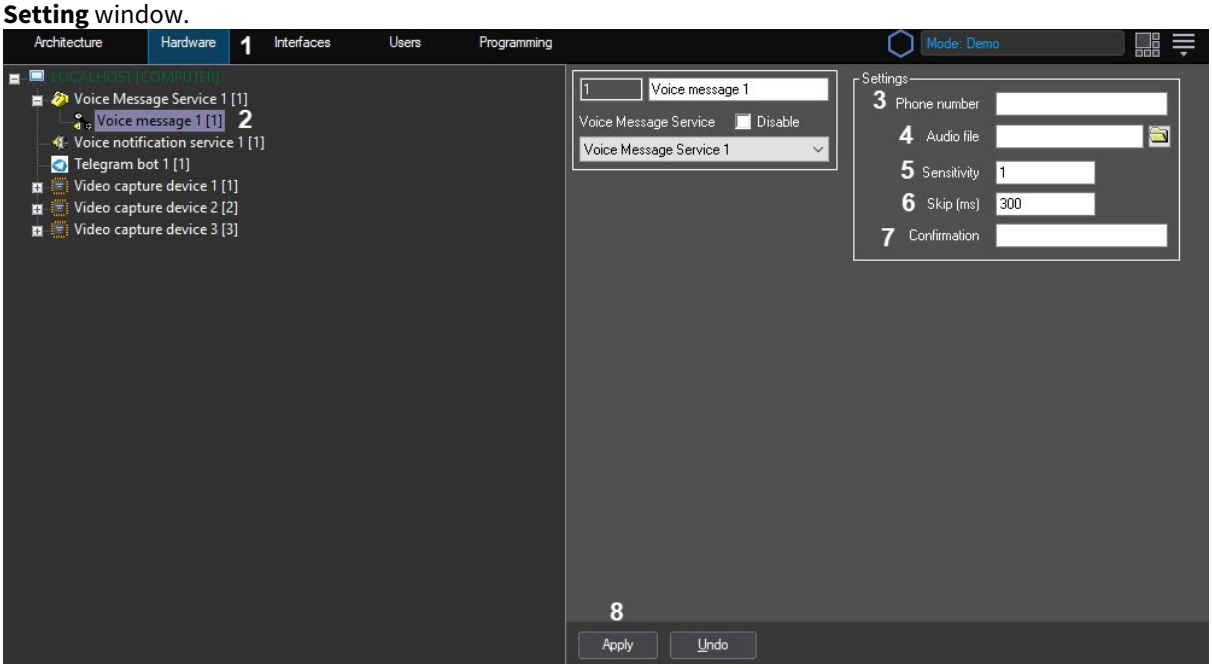
3. Choose a modem in the list of all modems available in the system (3).
4. If the modem is not in the list or there are no modems in the list, press the modem search button (4).
5. Check/uncheck the checkbox to choose the dialing mode (5).
6. Enter the number of dialing attempts (6).
7. Enter the delay between dialing attempts, in seconds (7).
8. Check the checkbox to wait for dial tone (8).
9. Press the **Apply** button to save the settings for the **Voice Messages Service** object (9).

Creating voice messages

To set up the **Voice Message** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Voice Message** object in the **Voice Message Service** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System**

Setting window.



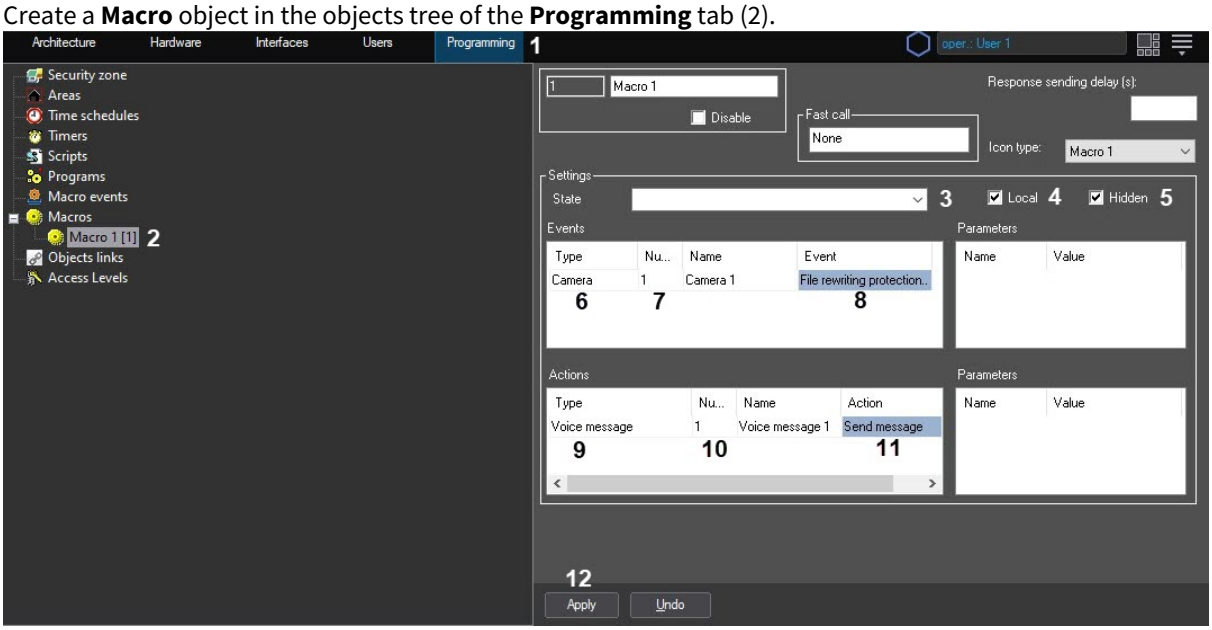
3. Enter the telephone number into the **Phone number** field in the following format: [prefix “+”] [country code] [city/provider code] [phone number] with no spaces or other delimiters (3).
4. Load the audio file to be sent as a voice message (4).
5. Specify the sensitivity level, which will eliminate noise on the telephone line, ensuring correct message transmission (5). Values from 1 to 10 are acceptable.
6. Specify the delay between the recipient answering and the beginning of the message (6). Set in milliseconds (1000 ms = 1 sec).
7. Enter the code for the recipient to confirm receipt of the message (7). This is a digital code set in the system which the recipient dials in tone mode to confirm receipt of the message.
8. Press the **Apply** button to save the settings for the **Voice Message** object (8).

Creating and setting up the macro for sending the voice message

The message is sent upon execution of the macro. The macro executes immediately after the registration of the event it is set for. To create the macro for sending the voice message:

1. Go to the **Programming** tab of the **System Settings** window (1).

2. Create a **Macro** object in the objects tree of the **Programming** tab (2).



3. Specify the **State** parameter (3).
4. Check the **Local** checkbox to send the voice messages from a local computer only (4).
5. If the manual start of macros from the main control panel of Axxon PSIM sofware should be forbidden, set the **Hidden** checkbox (5).
6. Choose the event object type for the voice message macro to be related to (6).
7. Choose the event object number for the voice message macro to be related to (7).
8. Choose the name of the event to trigger the sending of the voice message (8).
9. Choose the **Voice Message** object in the **Type** column (9).
10. Choose the number of the **Voice Message** object to be sent by the macro (10).
11. Choose **Send Message** in the **Action** column (11).
12. Press the **Apply** button to save the settings for the **Macro** object (12).

Setting up the Voice Notification Service

General description and usage details of the Voice Notification Service (VNS)

The voice notification service is used for audio notification of Axxon PSIM Operators about the alarm event registered by the system. This service allows voice notification of the remote workstations using the following devices: headphones (speakers) connected to the workstation's sound card, IP camera or LinuxHub. The service provides automatic transmission of the voice notification to the specified device IP address and audio file playback.

There are also other ways of configuring voice notification in *Axxon PSIM* software – see Setting up the voice notification.

To create and send the voice notification:

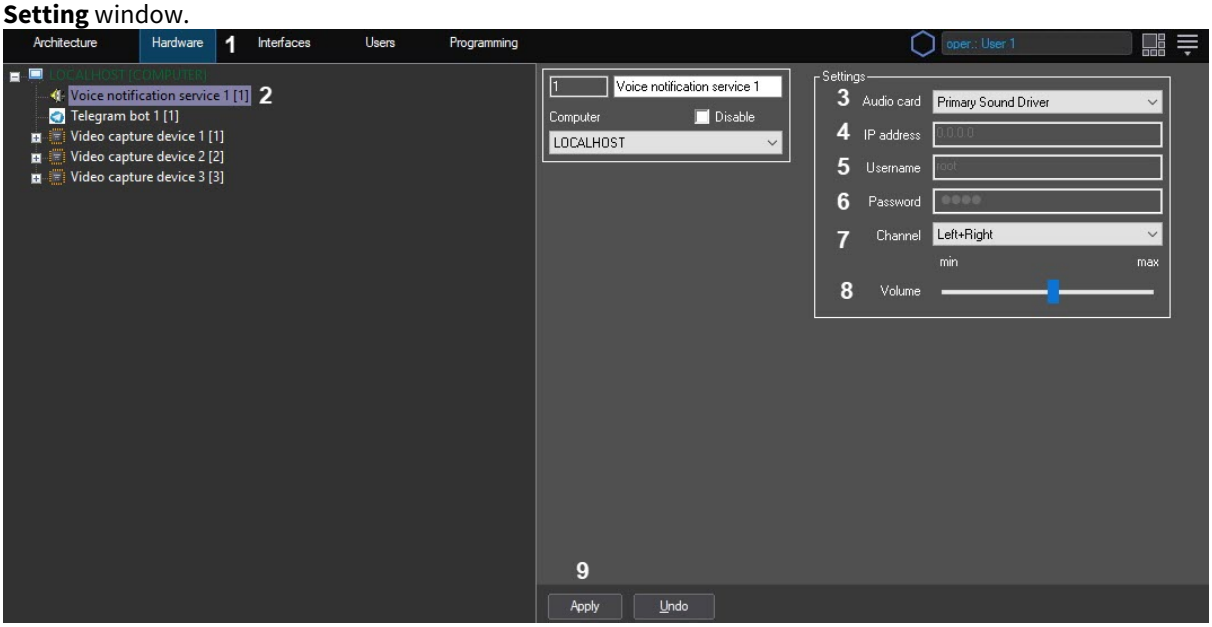
1. Create and set up the **Voice Notification Service** object.
2. Create a macro for sending and stop playing the voice notification.

Creating and setting up the Voice Notification Service object

To set up the **Voice Notification Service** object, do the following:

1. Go to the **Hardware** tab of the **System Settings** window (1).
2. Create the **Voice Notification Service** object in the **Computer** node in the objects tree (2). The object appears in the objects tree, and the settings panel for this object opens on the right side of the **System**

Setting window.



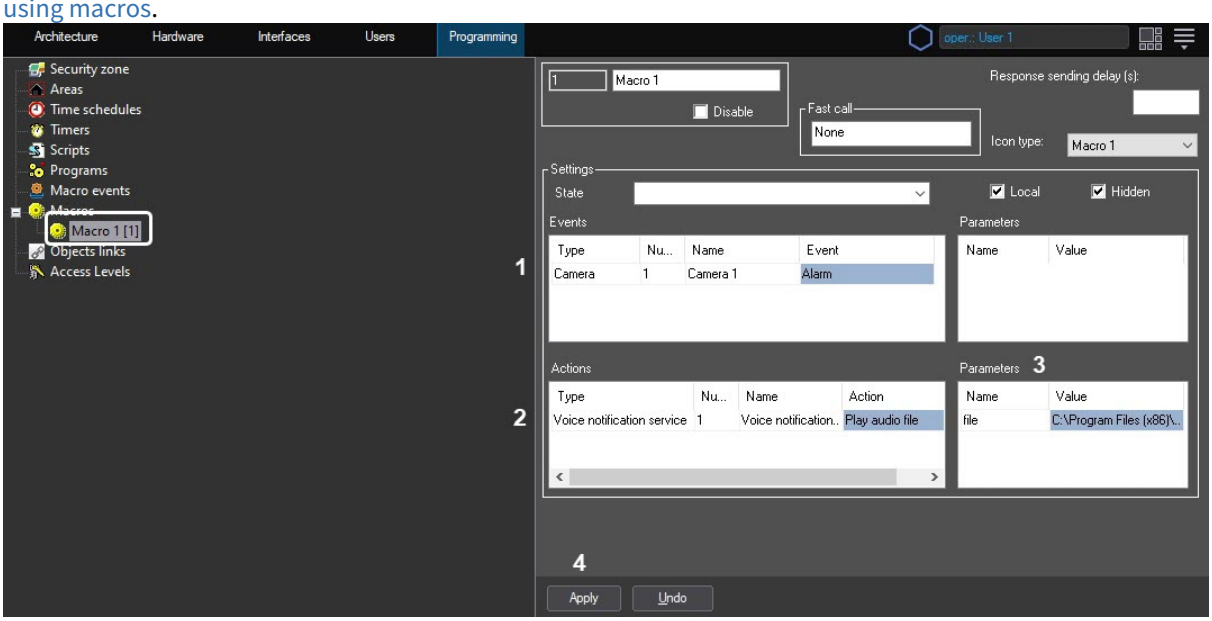
3. Choose the device in the **Sound card** list to send the notification to (3).
4. Specify the **IP address** of the network device (sound card, IP camera or Linux Hub), used to access this device over the network (4). If the sound card of the local computer is selected, this field is disabled.
5. Specify the **Username** of the network device (sound card, IP camera or Linux Hub), used to access this device over the network (5). If the sound card of the local computer is selected, this field is disabled.
6. Specify the **Password** of the network device (sound card, IP camera or Linux Hub), used to access this device over the network (6). If the sound card of the local computer is selected, this field is disabled.
7. Choose the headphones (speakers) playback option in the **Channel** drop-down list (7).
8. If the soundcard has two outputs (left/right), the list contains the following options: a) **Left**, b) **Left + Right**, c) **Right**.
9. If the sound card has N outputs, the list contains the numbered outputs from 0 to N-1.
10. Specify the **Volume** level using the slider (8).
11. Press the **Apply** button to save the settings for the **Voice Notification Service** object (9).

Creating a macro for sending and stop playing the voice notification

The voice notification is sent upon execution of the macro. The macro executes immediately after the registration of the event it is set for. To create the macro for sending the voice notification:

1. Go to the **Programming** tab of the **System Settings** window.

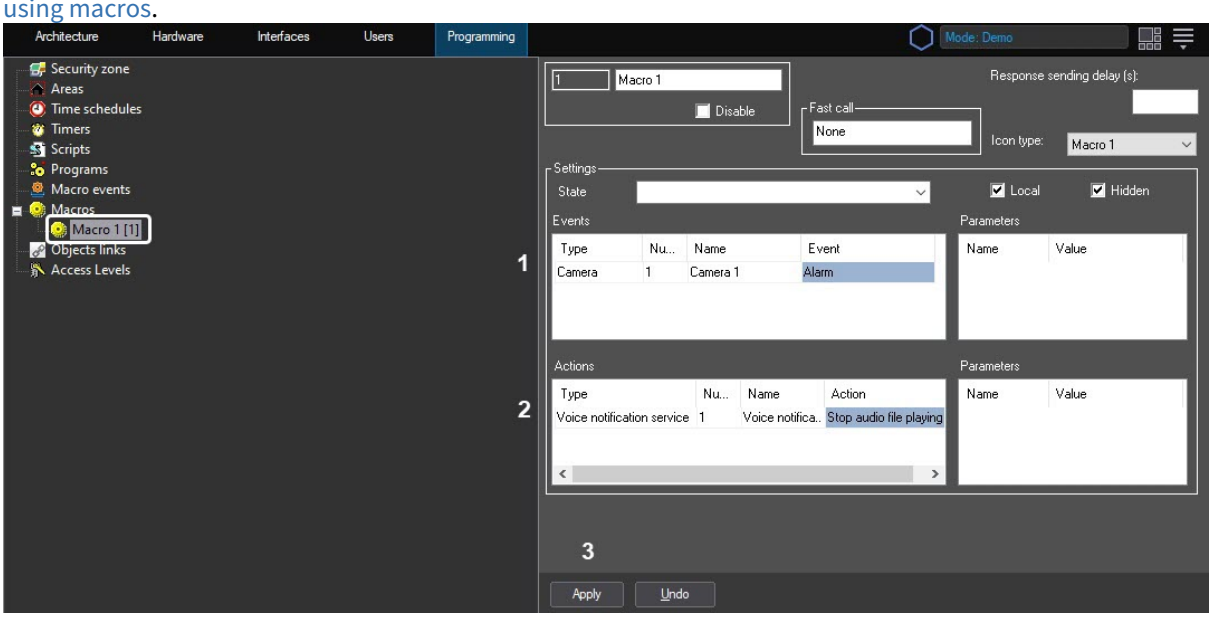
2. Create a **Macro** object in the objects tree of the **Programming** tab. For details on macros, see Creating and using macros.



3. Select the object and its number, for which the voice notification macro is related to, and also select the event name for which a voice notification will be sent (**1**).
4. Select the **Voice notification service** object and its number, and also select the **Play audio file** action (**2**).
5. In the **Parameters** table, left-click to activate the **Name** field. Then in the **Value** field specify the full path to the audio file in .wav format (indicating the name of the file being played, for example: C:\Program Files (x86)\Axxon PSIM\Wav\cam_alarm_1.wav), that should be used as a voice notification (**3**).
6. Click the **Apply** button to save the settings of the **Macro** object (**4**).

The voice notification will stop after the macro command execution is completed. The macro is executed immediately after the registration of the corresponding event. To create a macro command to stop the voice notification, do the following:

1. Go to the **Programming** tab of the **System Setup** dialog box.
2. Create a **Macro** object in the objects tree of the **Programming** tab. For details on macros, see Creating and using macros.



3. Select the object and its number, for which the stop voice notification macro is related to, and also select the event name for which a voice notification will be stopped (**1**).
4. Select the **Voice notification service** object and its number, and also select the **Stop audio file playing** action (**2**).
5. Click the **Apply** button to save the settings of the **Macro** object (**3**).

Sending messages via Telegram bot

On the page:

- Configuring message sending from Axxon PSIM to Telegram
- Examples of macros for sending a message to Telegram

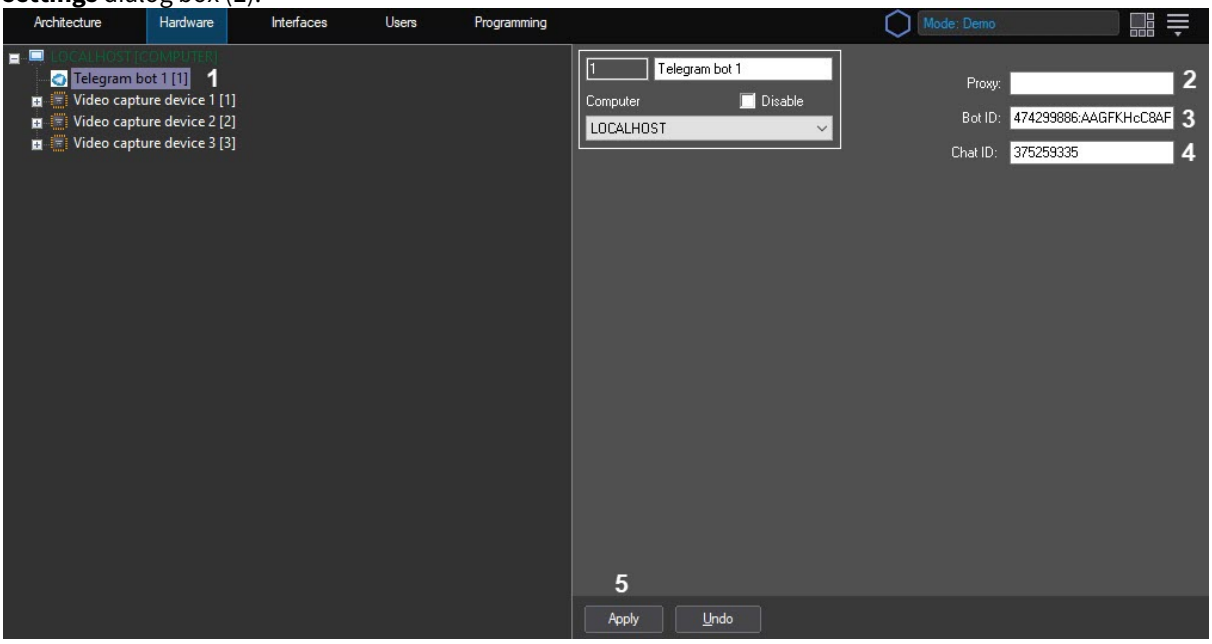
Axxon PSIM allows sending text messages, images, or geolocation to Telegram chat on any event from any object created in the *Axxon PSIM* objects tree. After configuration, the message sending is initiated by a macro or a script from *Axxon PSIM*.

Create the bot and the group chat with it in Telegram before configuring the message sending from *Axxon PSIM* to Telegram. You can use the pre-created and configured bot @Axxon PSIMNotificationsBot. For the distribution package and the user guide for Telegram messenger, see the developer official website telegram.org.

Configuring message sending from Axxon PSIM to Telegram

To configure message sending from *Axxon PSIM* to Telegram, do the following:

1. Create the **Telegram bot** object on the basis of the **Computer** object on the **Hardware** tab of the **System settings** dialog box (**1**).



2. If the Proxy server should be used to send messages, enter the Proxy server address in the **Proxy** field (**2**).
3. In the **Bot ID** field (**3**), enter the Telegram bot identification number.

   > **Note**
   >
   > The identification number is provided when creating the bot.
   > @Axxon PSIMNotificationsBot bot identifier is
   > 474299886:AAGFKHcC8ARX9ziXgTlvKnwNhxnwlDhmD3M

4. In the **Chat ID** field (**4**), enter the chat identification number.

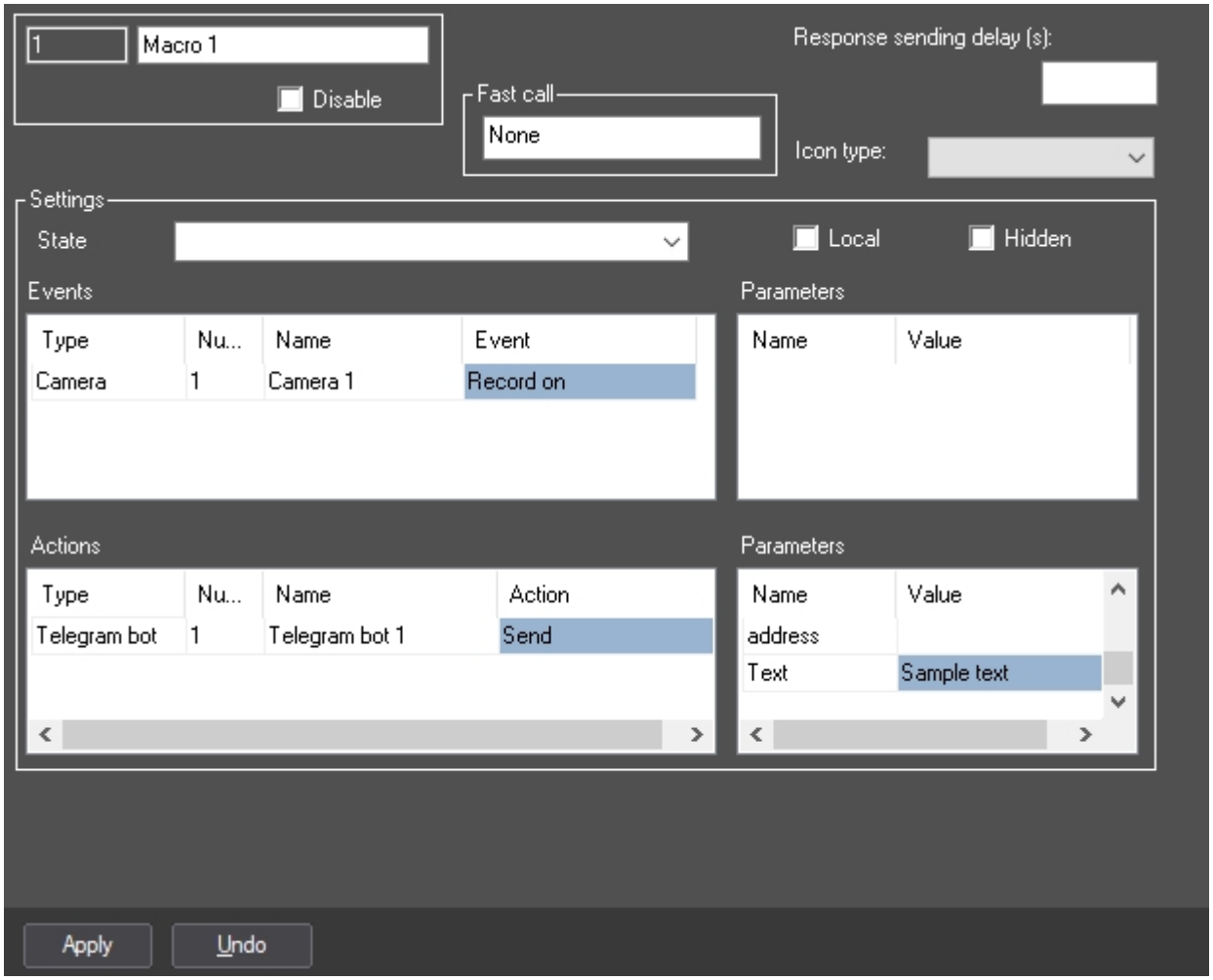
   > **Note**
   >
   > To find out the identifier of the chat, you can add @RawDataBot bot to the chat. After adding, the bot will send a message to the chat containing the result of the getUpdates function. Find ChatId in that message. Then the @RawDataBot bot can be removed from the chat.

5. Click the **Apply** button (**5**).

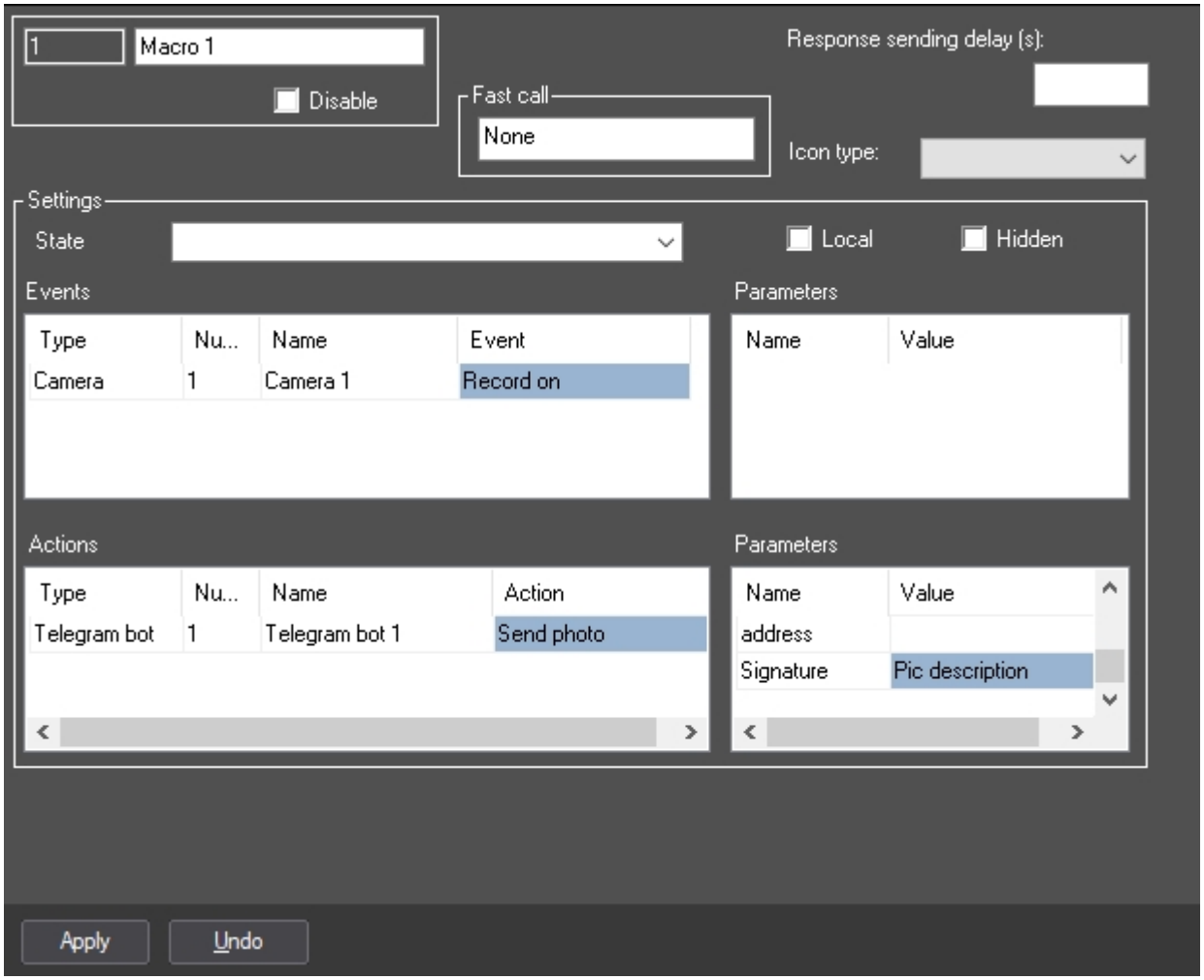
Configuring message sending from *Axxon PSIM* to Telegram is complete.

Examples of macros for sending a message to Telegram

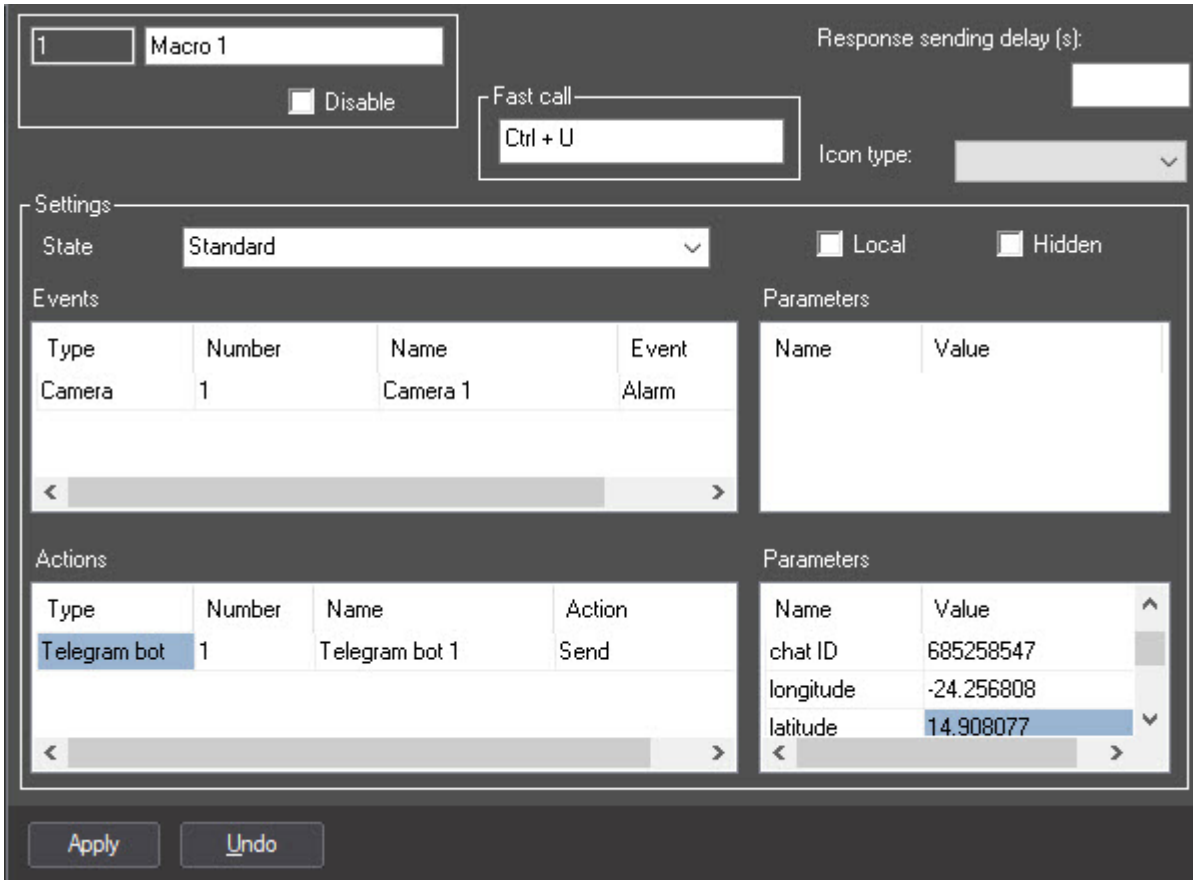
Macro to send a text message:



Macro to send an image:



Macro to send geolocation:



See also examples of commands in TELEGRAM Telegram bot.

22.3.14 Replicating archive from unconnected servers using the removable storage

Order of archive replication from unconnected servers

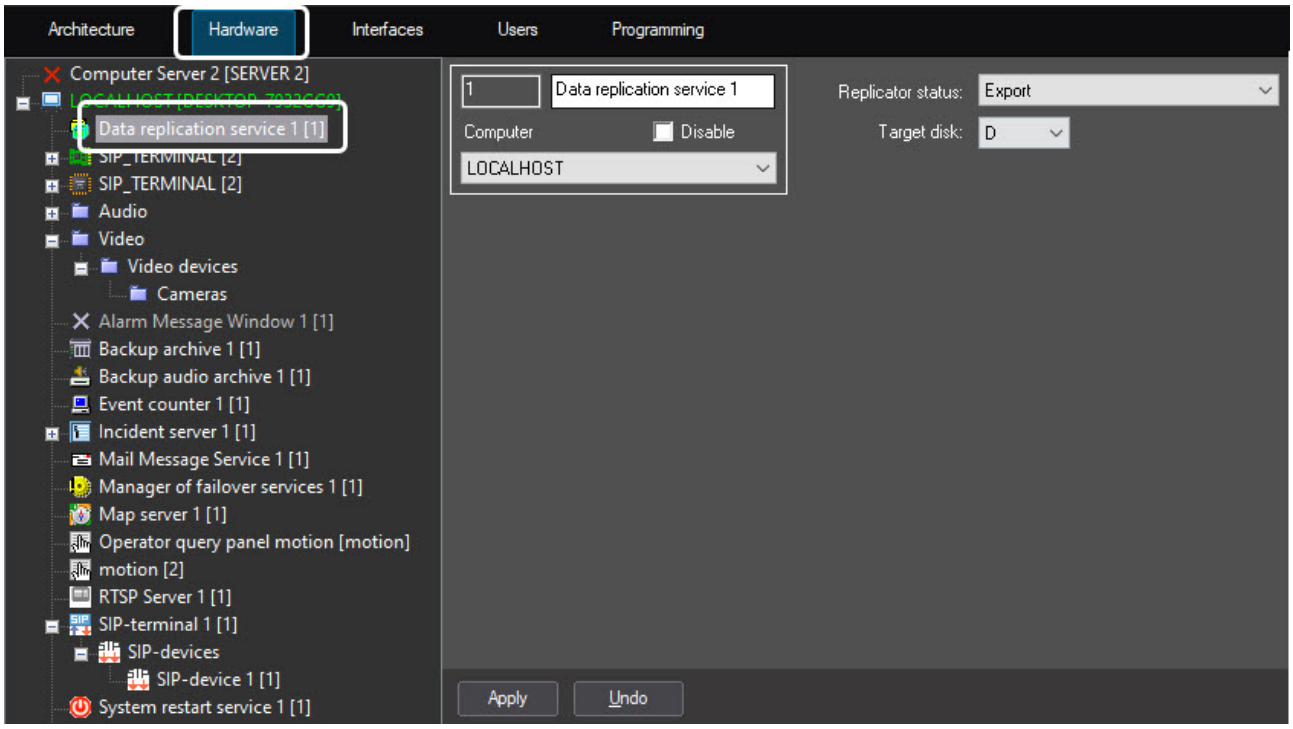
It is possible to receive video and audio archive from unconnected Servers in the *Axxon PSIM* software using the removable storage. Records over a specified period are copied from the Source-Server to the Target-Server while replicating archive.

Archive replication is performed in the following order:

1. Configure the **Data replication service** object on the Target and Source;
2. Configure the Target objects tree for data replication;
3. Create a query file on the Target using the schedule.exe utility;
4. Copy the archive from the Source to a removable storage;
5. Restore the archive from a removable storage on the Target.

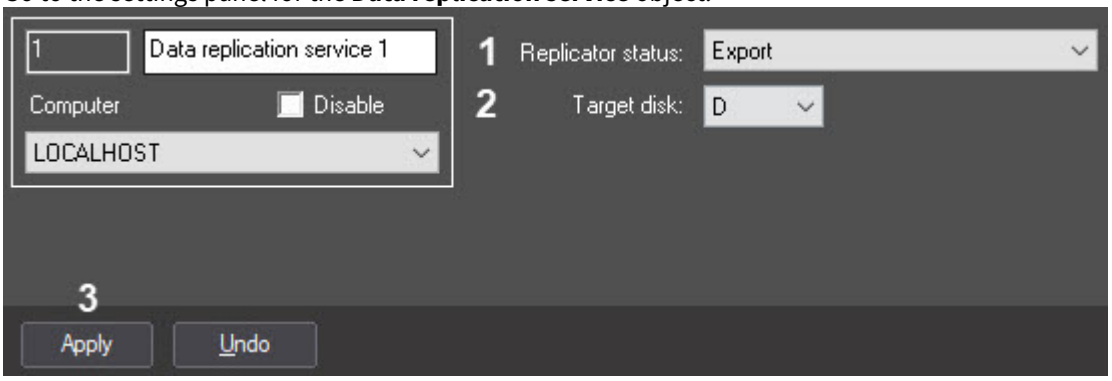
Configuring the Data replication service object

Data replication service is configured on the settings panel of the **Data replication service** object. This object is created under the **Computer** object in the **Hardware** tab of the **System settings** dialog box.



To configure the data replication service, do the following:

1. Go to the settings panel for the **Data replication service** object.



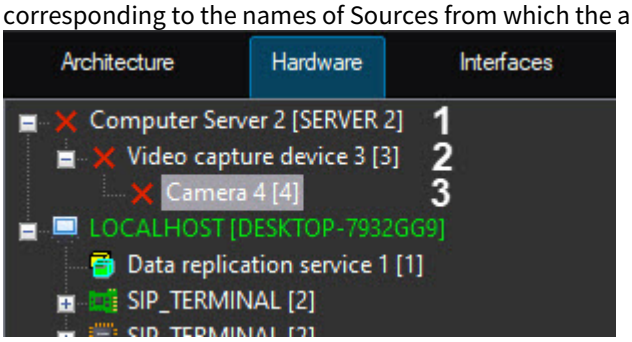
2. In the **Replicator's status** dropdown list select the **Export** value if the Server is an archive Source or the **Target** value if the Server is a target (**1**).
3. If the Server is a Source, then in the **Target disk** dropdown list select the name of a removable storage used for archive transfer. If the Server is a Target, then in the **Target disk** dropdown list select a disk where the archive form a removable storage is to be copied (**2**).
4. Click the **Apply** button (**3**).

Configuration of the data replication service is completed.

Configuring the Target objects tree for data replication

For proper replication operation the following objects are to be created in the objects tree of the Target objects:

1. In the **Hardware** tab of the **System settings** dialog box create the **Computer** objects with the names corresponding to the names of Sources from which the archive records are to be copied (**1**).



2. Under the **Computer** object create the **Video Capture Device** objects with the names that correspond to the same names on Sources (**2**).
3. Under the **Video Capture Device** objects create the **Camera** objects with numbers corresponding to the camera numbers the archive records from which are to be copied from Sources (**3**).

> **Note.**
>
> The **Camera** and **Video Capture Device** objects will be disabled because there is no connection between Source and Target.

When replication is completed the archive is available in the interface of Video surveillance monitor on cameras that are in the query.

Configuration of the Target objects tree is completed.

Creating the query file

The query file specifies Sources, cameras and time periods for archive replication. This file is created on the Target. To create the query file the following conditions are to be met:

1. Users are created in the Axxon PSIM™ (see User registration and removal section).

   > **Note.**
   >
   > Users with the same name and password are to be created on Source and Target for stable operation of the **Data replication service**.

2. Corresponding rights are assigned to users (see Registration of users' rights section).
3. At least one **Camera** object is created in the Target hardware tree.

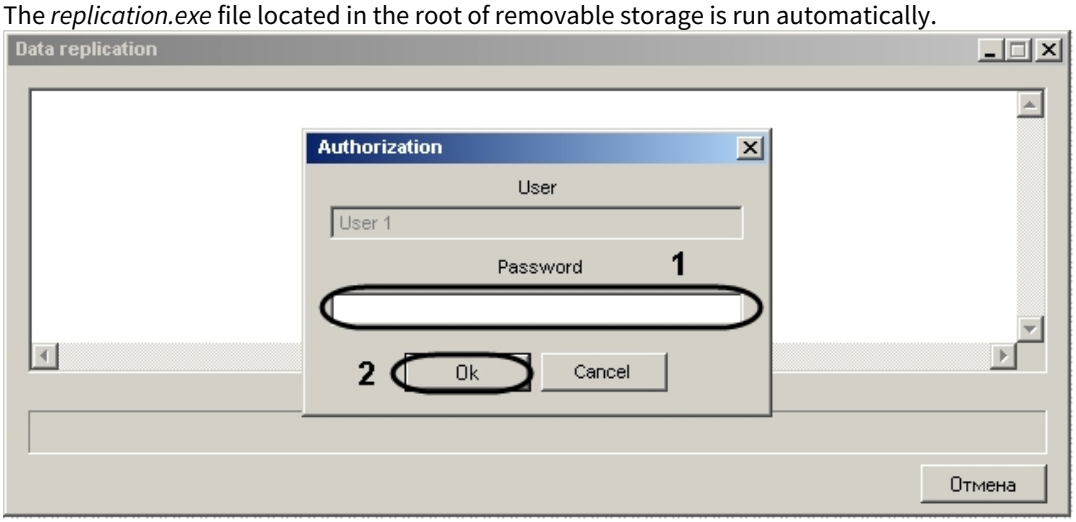
The query file is created using the *schedule.exe* utility (see The shedule.exe utility for creating a replication query file section).

Copying the archive from the Source

To copy the archive from the Source, do the following:

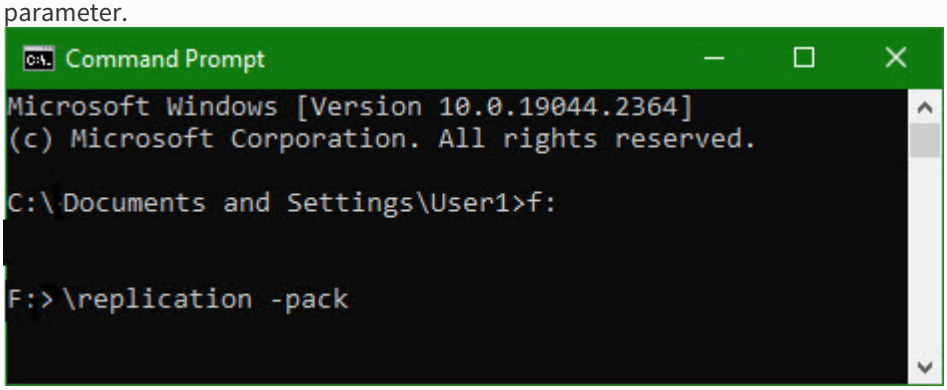
1. Connect the removable storage with a query file to the Source.

2. The *replication.exe* file located in the root of removable storage is run automatically.

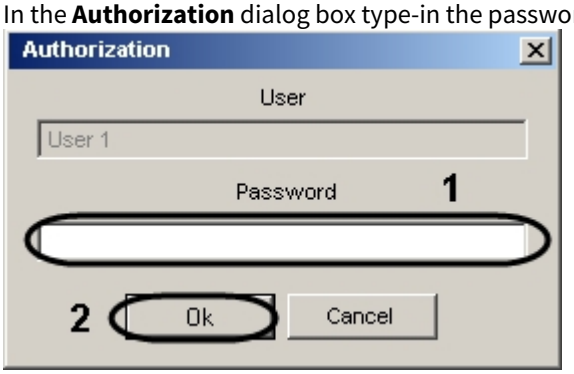


Note.

If the query file is not run automatically, then run it from the command prompt with the **-pack** parameter.



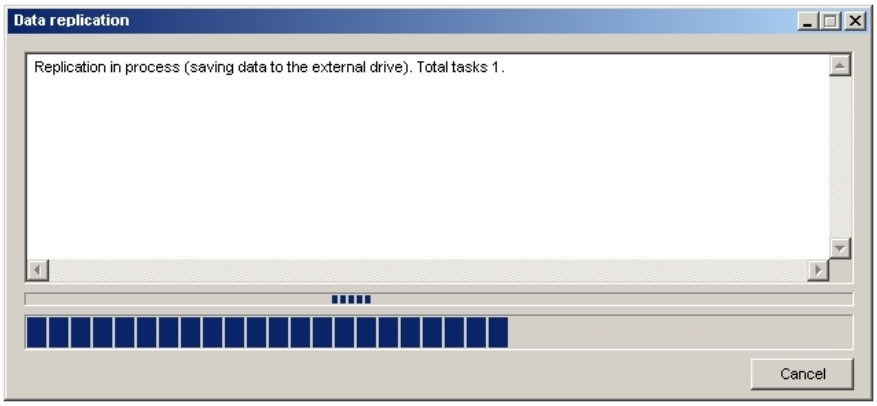
3. In the **Authorization** dialog box type-in the password of user who makes the replication (1).



4. Click the **OK** button (2).
5. Wait when the data copying is complete.

Note.

If there is no enough space for copying all required data, then there will be no copying.



6. Click the **Exit** button.

Requested part of the archive is copied to a removable storage and located in the Axxon PsimBackup/ Computer_name directory. Files of log replication with the .LOG extension are located in the PsimBackup directory.

Removable storage is automatically removed when the copying is complete.

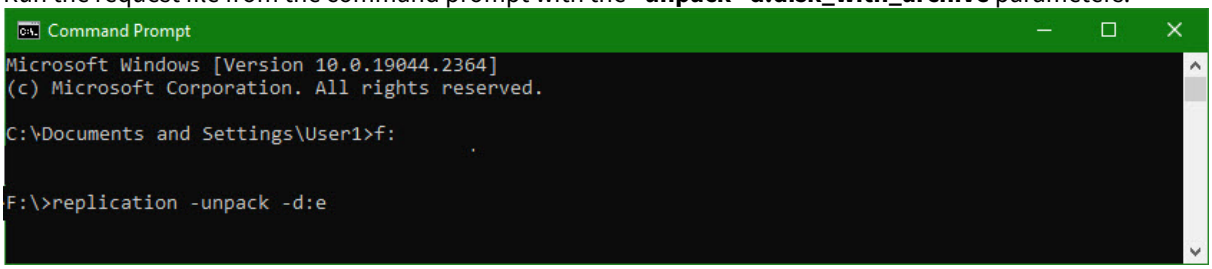
Archive copying from the Source is completed.

Restoring the archive on the Target

When the archive is restored data is copied from the removable storage to the Target.

To restore the archive do the following:

1. Connect the removable storage to the Target.
2. Run the request file from the command prompt with the **–unpack –d:disk_with_archive** parameters.



3. Wait when the data copying is complete.
4. Click **Exit**.

The archive restoring on the Target is completed.

22.3.15 Configuring the Web-server module

General information about the Web-server module

The *Web-server* module is used for video surveillance via a web browser and the TCP/IP communication environment.

Web-server partially provides some of the functions of an HTTP server, a gateway for transmitting video signals and control commands via the HTTP protocol.

Web-server provides the following functionality of the HTTP server:

1. Access control through authorization.
2. Working as a gateway for transferring video streams using the HTTP/HTTPS protocol.

3. Video monitoring and camera control through a web browser using the TCP/IP environment.
4. Control of PTZ devices through a web browser using the TCP/IP environment.
5. Setting the layout of the surveillance windows: 1, 4, 6, 9 windows per screen.
6. Viewing the server archives for each camera through the surveillance window.
7. Limiting access rights for viewing the video feed from the cameras, controlling the cameras, and viewing the server archive.
8. Displaying the video signal parameters (frame rate (FPS) and frame size (kB) in the surveillance window.
9. Listening to the audio signal from the microphones connected to the cameras through a web browser.

Attention!

Web-server displays video in MJPEG format only. When video is transmitted to the Web-server, the video stream is recompressed into MJPEG format on the Web-server side, which increases the traffic when transmitting video to the Video surveillance monitor of the Web-server.

The interface of the *Web-server* module is represented by the Video surveillance monitor. The Video surveillance monitor of the *Web-server* module is located on an HTML page. This HTML page is called the *Web-server* home page. A Java applet is used to display the Video surveillance monitor in a web browser, as well as to control cameras and PTZ devices.

If *Axxon PSIM* is configured accordingly, the *Web-server* module requires user authorization when connecting. Access to camera monitoring and control of cameras and PTZ devices using the monitor of the *Web-server* module is determined by the module settings.

Requirements for the computers of the video surveillance system
Video surveillance using the Web browser

Requirements for the computers of the video surveillance system

The Web-server module stable opration requires Java Runtime Environment version 1.6. 7 or higher (mentioned software is included into the Axxon PSIM software installation package) and browser Internet Explorer version 8.0 and higher (this software is available free of charge).

Installing Java Runtime Environment

Installing Java Runtime Environment

The Web-server module working on videoservers and workstations of the *Axxon PSIM*-based surveillance system requires Java Runtime Environment. This software is available free of charge.

The option for Java Runtime Environment installation is included in the *Axxon PSIM* software installation procedure.

Java Runtime Environment should be manually installed on the remote workstations. The Java installation package is available for downloading from https://www.java.com/en/. If the Web-server home page is accessed from a computer with no Java installed, the home page will contain a direct link to the Java Runtime Environment installation package ready for downloading.

Note.

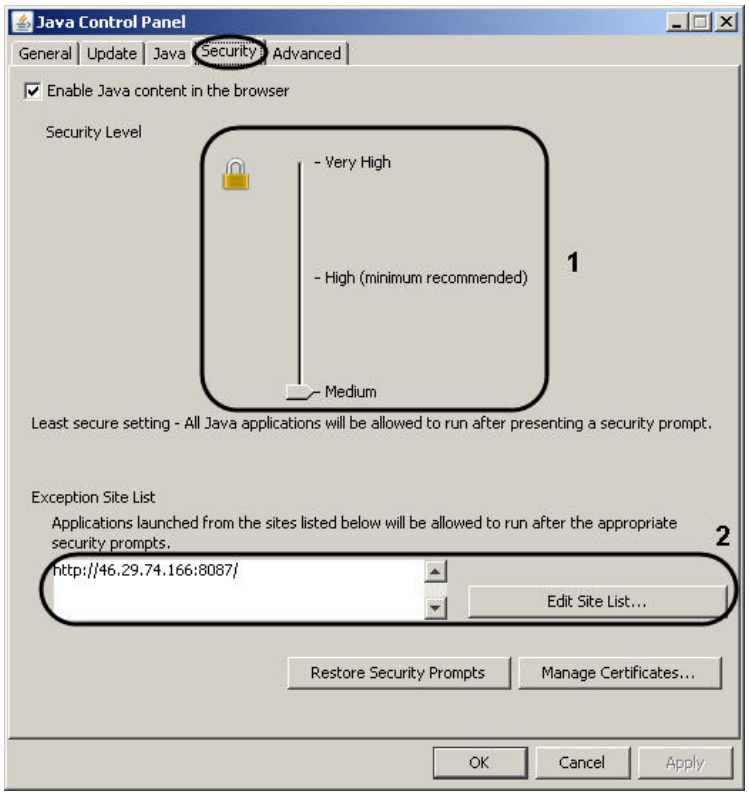
It is necessary to install Java Runtime Environment not in quiet mode. Otherwise the Axxon PSIM may not respond displaying two possible messages:

1. «Error applying transforms. Verify that the specified transform paths are valid» – alternate route s of this error are detailed on the site https://www.java.com/en/download/help/error_applying_transforms.html.
2. «Revocation information for the security certificate for this site is not available. Do you want to proceed?» – certificate installation query.

If the message appears when you try to access the Web-server saying that the application is blocked by security settings (see figure below), the Java security policy configuration is required for the computer on which you have received this message.



Configuring security policy is performed with the Java Control Panel utility. To run this utility, go to **Start** -> **Control Panel** -> **Java**. After the utility has been launched, go to the **Security** tab.



For Java Runtime Environment 7 update 45 and lower versions it is required to reduce security level (1).

Starting with Java Runtime Environment 7 update 51 version you need to add Web-server address to the list of Java exceptions (2).

Authorization on the Web-server home page

Access to the Web-server home page is restricted by an HTTP user authorization algorithm.

A user can be authorized by any of the passwords registered for the Axxon PSIM users. No additional authorization setup for Web-server HTTP server is required.

To authorize users with blank passwords, you need to change the **LimitBlankPasswordUse** registry key to **0** (for detailed description, refer to Working with Windows OS registry) on the PC where the *Web Server* is located. You can find the **LimitBlankPasswordUse** key in the following registry branch:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa\
```

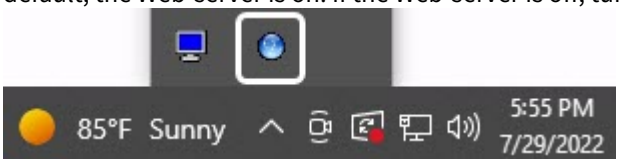
Access to viewing the video feed from the cameras and controlling the cameras, sensors and motion devices is restricted according to the Web-server-related settings of the videoserver.

Connection to the Server

Starting and setting up the Web-server module

Depending on its operative requirements, the Web-server module can be set up in the following optional stages:

1. Open the **Hardware** tab and select the **Web-server** object in the objects tree.
2. Check if the Web-server is on. This can be checked in the notification area of the Windows taskbar. By default, the Web-server is on. If the Web-server is off, turn it on before starting the setup procedure.



3. Set up the interface for the video surveillance monitor of the Web-server by changing the Java applet parameters shown on the Web-server home page.
4. Set up the display of the data for traffic estimation on the Web-server video surveillance monitor by changing the Java applet parameters shown on the Web-server home page.

Set up the Web-server to act as a gate on another HTTP-server by changing the Java applet parameters shown on the Web-server home page.

Configuring the videoserver to connect Clients via the Web-server module

The videoserver configuration to connect Clients via the Web-server is performed on the Server in the **System settings** box. In most cases, the default videoserver settings can be used for proper Web-server operation.

To configure the Web-server module, do the following:

1. Create the **Web-server** object on the basis of the **Computer** system object (see Creating the Web-server object).
2. Select and configure cameras for displaying on the Web-server home page (see Selecting and configuring cameras for the Web-server module or Bulk selecting and configuring cameras for the Web-server).
3. Select PTZ control priority for video surveillance in web browser (see Configuring priority of PTZ control using the Web-server module).
4. Set the connection parameters of Clients to the Web-server (see Parameters of connecting Clients to the Web-server).
5. Set the default user for Web-server module (see Configuring the authorization for the Web-server module. Default user).

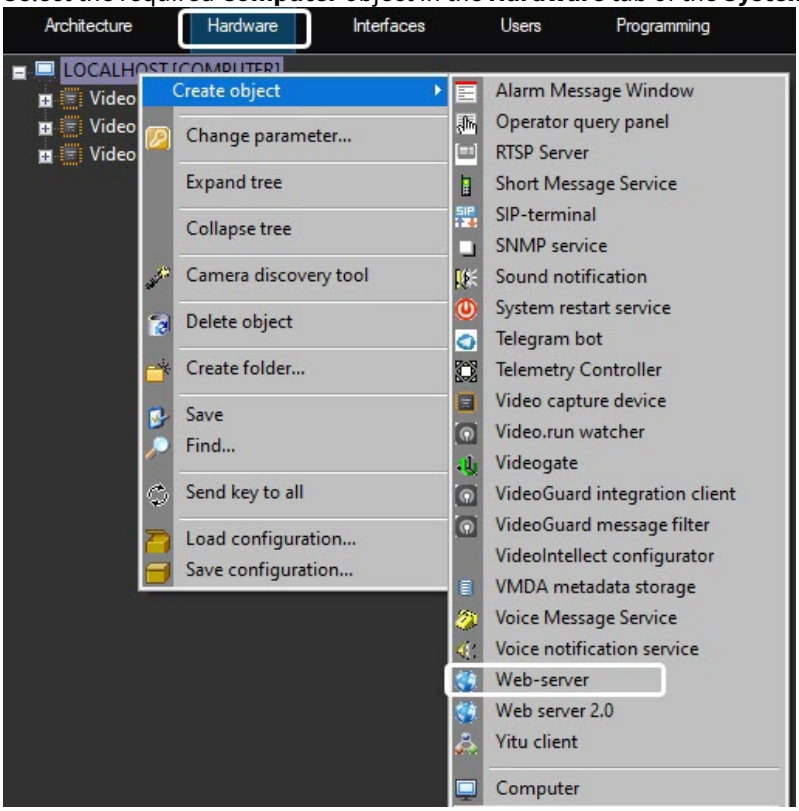
6. Set up the processing of ECHD requests (Enabling the processing of SDC (ECHD) requests and selecting the RTSP server).

Video surveillance using the Web browser

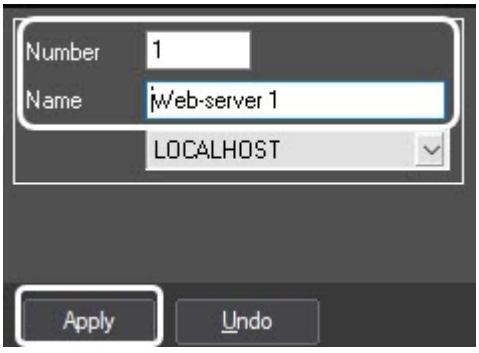
Creating the Web-server object

To create the **Web-server** object, do the following:

1. Select the required **Computer** object in the **Hardware** tab of the **System settings** dialog box (1).



2. Right-click upon the selected **Computer** object and select **Create object** -> **Web-server** in the context menu (2).
3. Set the number and name of **Web-server** object and then click **Apply** button.



Note.

As a result the settings panel for the **Web-server** object opens.

4. Repeat steps 1-3 for all required **Computer** and **Web-server** objects.

The **Web-server** object is now created.

Selecting and configuring cameras for the Web-server module

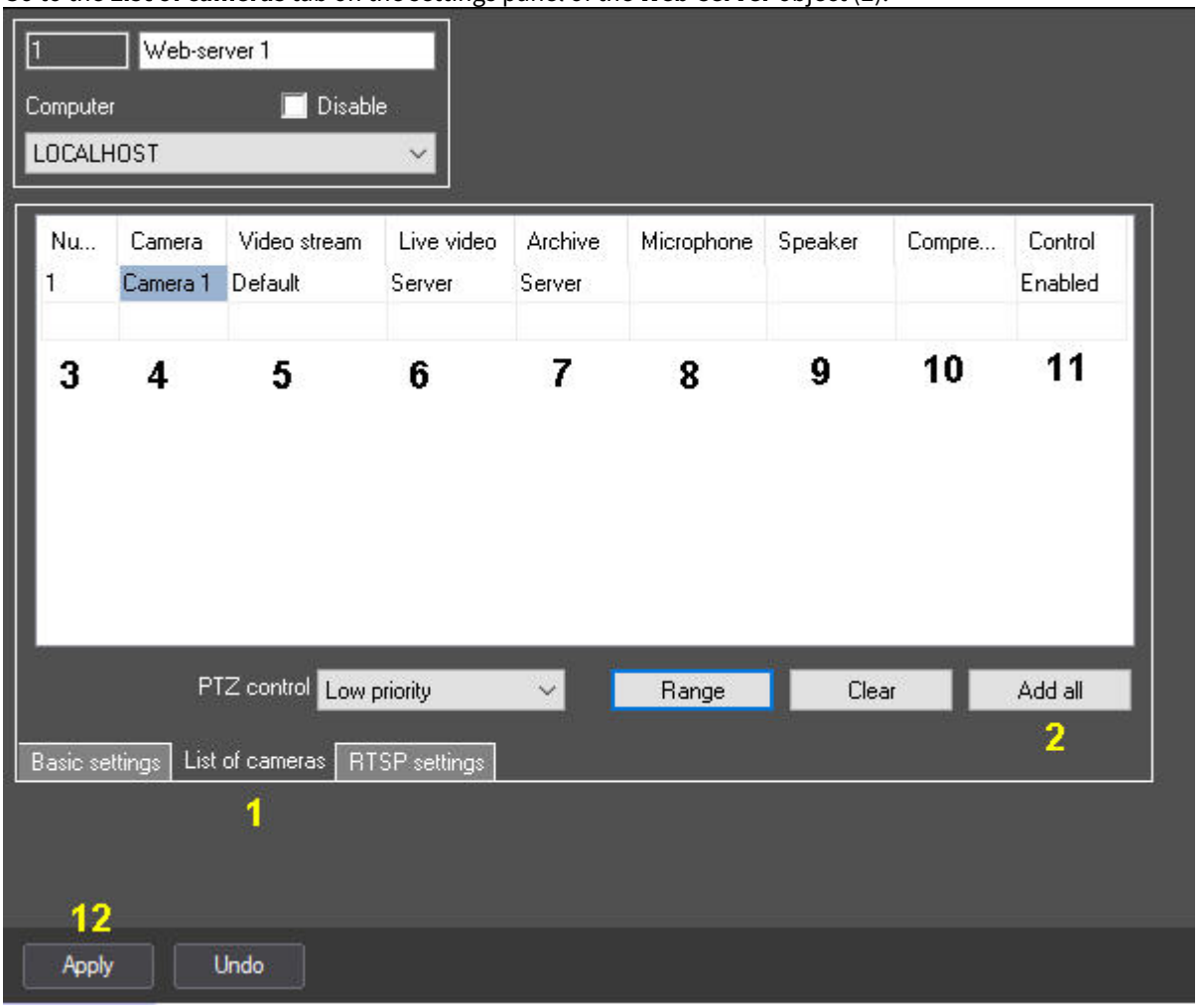
You can select and configure cameras for displaying on the **Web-server** home page in two ways:

1. Individually using the settings panel of the **Web-server** object.
2. In bulk using the **Add/Edit cameras** dialog window.

> **Note**
>
> The procedure of bulk selection of cameras to transmit video signals via the Web-server is described in Bulk selecting and configuring cameras for the Web-server.

To select cameras for displaying on the **Web-server** home page, do the following:

1. Go to the **List of cameras** tab on the settings panel of the **Web-server** object (**1**).



> **Note**
>
> To select all cameras created in the system use the **Add all** button (**2**).

2. From the **Number** drop-down list, select the number of a required camera (**3**). Of you left-click in the **Camera** field, it is automatically filled in with the camera name with the selected number (**4**).
3. From the **Video steam** drop-down list, select the number of the stream that you want to be displayed in the Web-server interface (**5**). For the information on configuring streams of a camera, see Configuring the multistream video.
4. From the **Live video** drop-down list, select the source of live video that you want to be displayed in the Web-server interface (**6**). If you select the **Server** value, then live video is received from the Server on the basis of which the corresponding **Camera** object is created. If you select the **Videogate** value, then video will be received from the corresponding videogate. A camera must be configured in the corresponding Videogate (see Selecting and configuring the cameras for the Videogate module).
5. From the **Archive** drop-down list, select the source of archive video that you want to be displayed in the Web-server interface (**7**). If you select the **Server** value, then archive video is received from the Server on the basis of which the corresponding **Camera** object is created. If you select the **Videogate** or **Backup archive** value, then archive video is received from the corresponding videogate or a backup archive. A camera must be configured in the corresponding Videogate or Backup archive.
6. If you want to send audio from a camera to the **Web server 2.0**, from the **Microphone** drop-down list, select the **Microphone** object connected to the camera (**8**).
7. If you want to playback the audio from the **Web server 2.0**, from the **Speaker** drop-down list, select the **Speaker** object connected to the camera (**9**).

   Attention!

   You must do steps 4 and 5 when the *Web-server* works together with the *Web-server 2.0* module, which in turn is used to work with an iOS or Android mobile Client. For more information on the *Web-server 2.0*, see Configuring the Server to connect the Clients via the Web server 2.0 module.

8. By default, the compression level of the video signal transmitted to the Video surveillance monitor of the *Web-server* module is the same as the compression level of the video signal before its recording to the disk or transmitting over the network (the blank value is selected in the **Compression** drop-down list). To change the compression level, select the required compression level from 1 to 5, where 1 is minimum compression level, and 5 is maximum level from the **Compression** drop-down list (**10**).

   Note

   The compression level parameter that corresponds to the level of video signal compression for its transmission to the Client via the *Web-server* module is inversely proportional to the **Recording quality** parameter specified in the settings of the **Camera** object.
   Increasing the video compression level reduces network traffic when the Client connects to the *Web-server.* However, if the compression level is set, the video signal on the Server must be recompressed, which leads to a significant increase in the load on the Server CPU. You must select the compression level empirically.

9. By default, the camera control (including arming/disarming, PTZ control, control over recording to the archive) is enabled according to the user rights. To disable the camera control, select the **Disabled** value from the **Control** drop-down list (**11**). As a result, the camera control from the Web-server interface is disabled regardless of the user rights.
10. Repeat steps 2-5 for all required cameras.
11. To save the changes, click the **Apply** button (**12**).

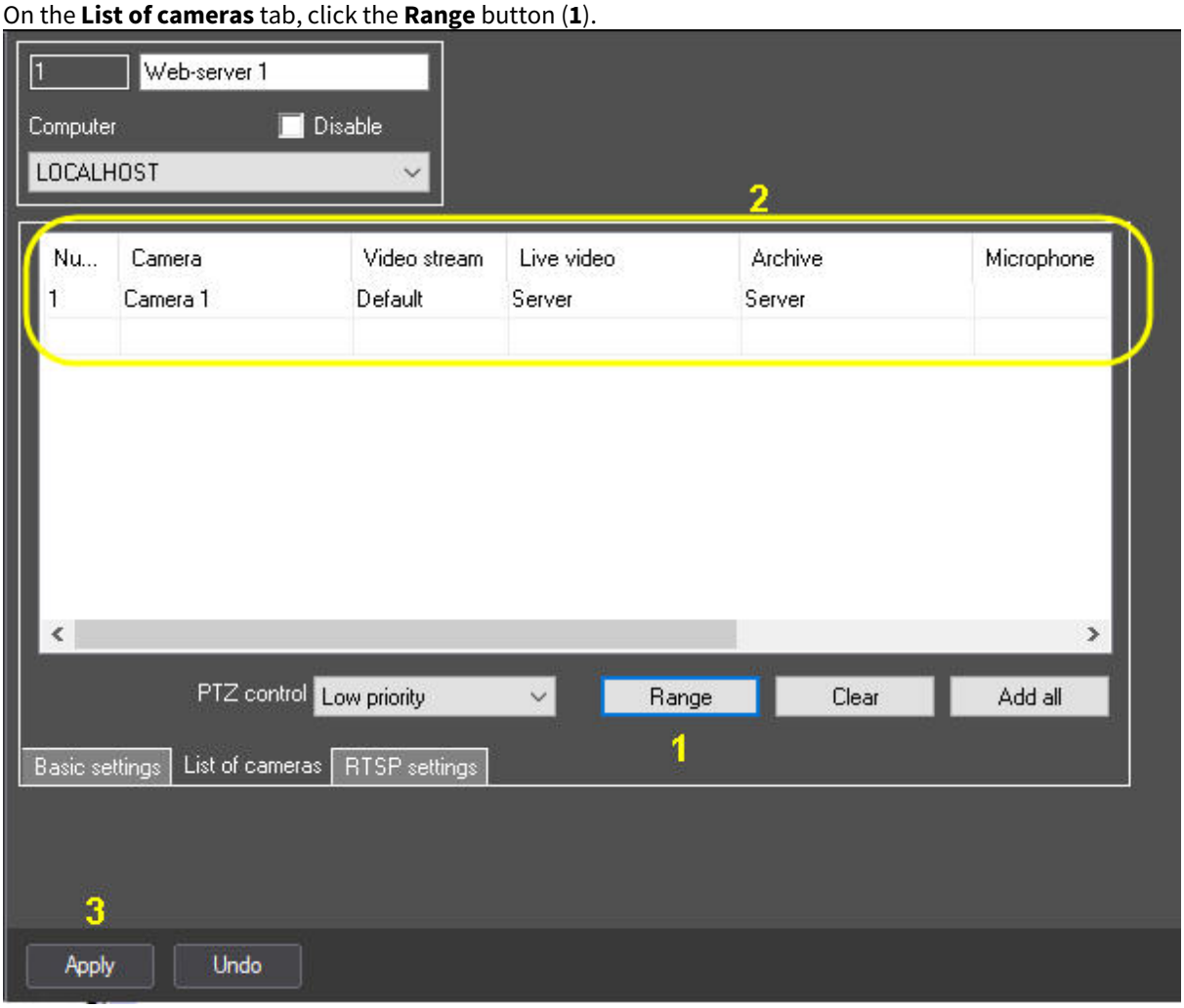
Cameras for displaying on the *Web-server* home page are now selected.

Bulk selecting and configuring cameras for the Web-server

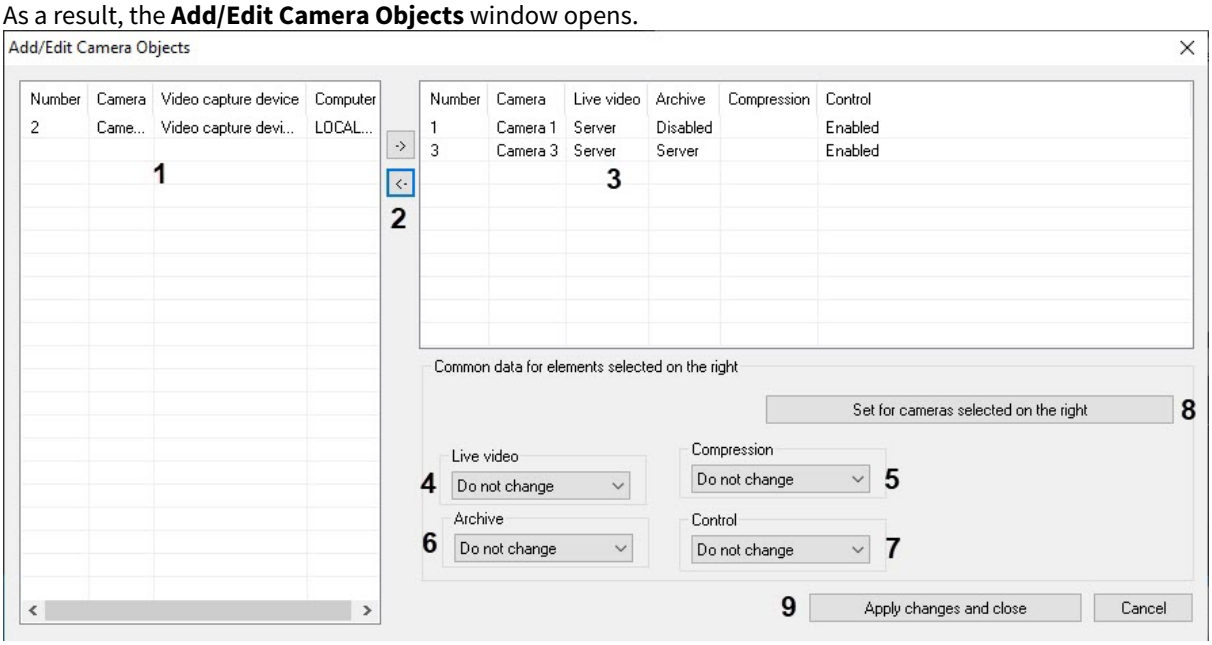
You can bulk select and edit the parameters of cameras for displaying on the **Web-server** home page.

To bulk select cameras, do the following:

1. Go to the settings panel of the **Web-server** object.
2. On the **List of cameras** tab, click the **Range** button (**1**).



3. As a result, the **Add/Edit Camera Objects** window opens.



4. Select the required cameras in the left list of the **Add/Edit Camera Objects** window (**1**).
5. Move the selected cameras to the right list by clicking the  button (**2**).

> **Note**
>
> The right list is the list of cameras selected to stream video via the Web-server.
>
> The  button performs reverse action. It is used to move the selected cameras from the right list to the left list (**2**).

6. As a result, the selected cameras are displayed in the right list of the **Add/Edit Camera Objects** window (**3**).
7. If necessary, select the names of the required cameras in the right list to bulk edit the parameters (**4**).

> **Attention!**
>
> The same parameter values will be set for all selected cameras.

8. From the **Live video** drop-down list, select the source of live video that you want to be displayed in the **Web-server** interface (**4**). If the **Server** value is selected, then video is received from the Server on the basis of which the corresponding **Camera** object is created. If the **Videogate** value is selected, then video is received from the corresponding videogate and the camera must be configured in the corresponding Videogate (see Selecting and configuring the cameras for the Videogate module).
9. By default, the compression level of the video signal transmitted to the Video surveillance monitor of the *Web-server* module is the same as the compression level of the video signal before its recording to the disk or transmitting over the network (the blank value is selected in the **Compression** drop-down list). To change the compression level, select the required compression level from 1 to 5, where 1 is minimum compression level, and 5 is maximum level from the **Compression** drop-down list (**5**).

> **Note**
>
> The compression level parameter that corresponds to the level of video signal compression for its transmission to the Client via the *Web-server* module is inversely proportional to the **Recording quality** parameter specified in the settings of the **Camera** object.

Increasing the video compression level reduces network traffic when the Client connects to the *Web-server*. However, if the compression level is set, the video signal on the Server must be recompressed, which leads to a significant increase in the load on the Server CPU. You must select the compression level empirically.

10. From the **Archive** drop-down list, select the source of archive video that you want to be displayed in the Web-server interface (**6**). If you select the **Server** value, then archive video is received from the Server on the basis of which the corresponding **Camera** object is created. If you select the **Videogate** or **Backup archive** value, then archive video is received from the corresponding videogate or a backup archive. A camera must be configured in the corresponding Videogate or Backup archive.
11. By default, the camera control (including arming/disarming, PTZ control, control over recording to the archive) is enabled according to the user rights. To disable the camera control, select the **Disabled** value from the **Control** drop-down list (**7**). As a result, the camera control from the Web-server interface is disabled regardless of the user rights.
12. To save specified parameters, click the **Set for cameras selected on the right** button (**8**).
13. As a result, the specified parameters are displayed in the right list of the **Add/Edit Camera Objects** window (**3**).
14. Repeat steps 4-13 to bulk edit all required cameras.
15. To save the changes and close the **Add/Edit Camera Objects** window, click the **Apply changes and close** button (**9**).
16. The specified camera settings will be displayed in the **List** table on the settings panel of the **Web-server** object (**2**).
17. To save the changes, click the **Apply** button (**3**).

Cameras are now bulk selected.

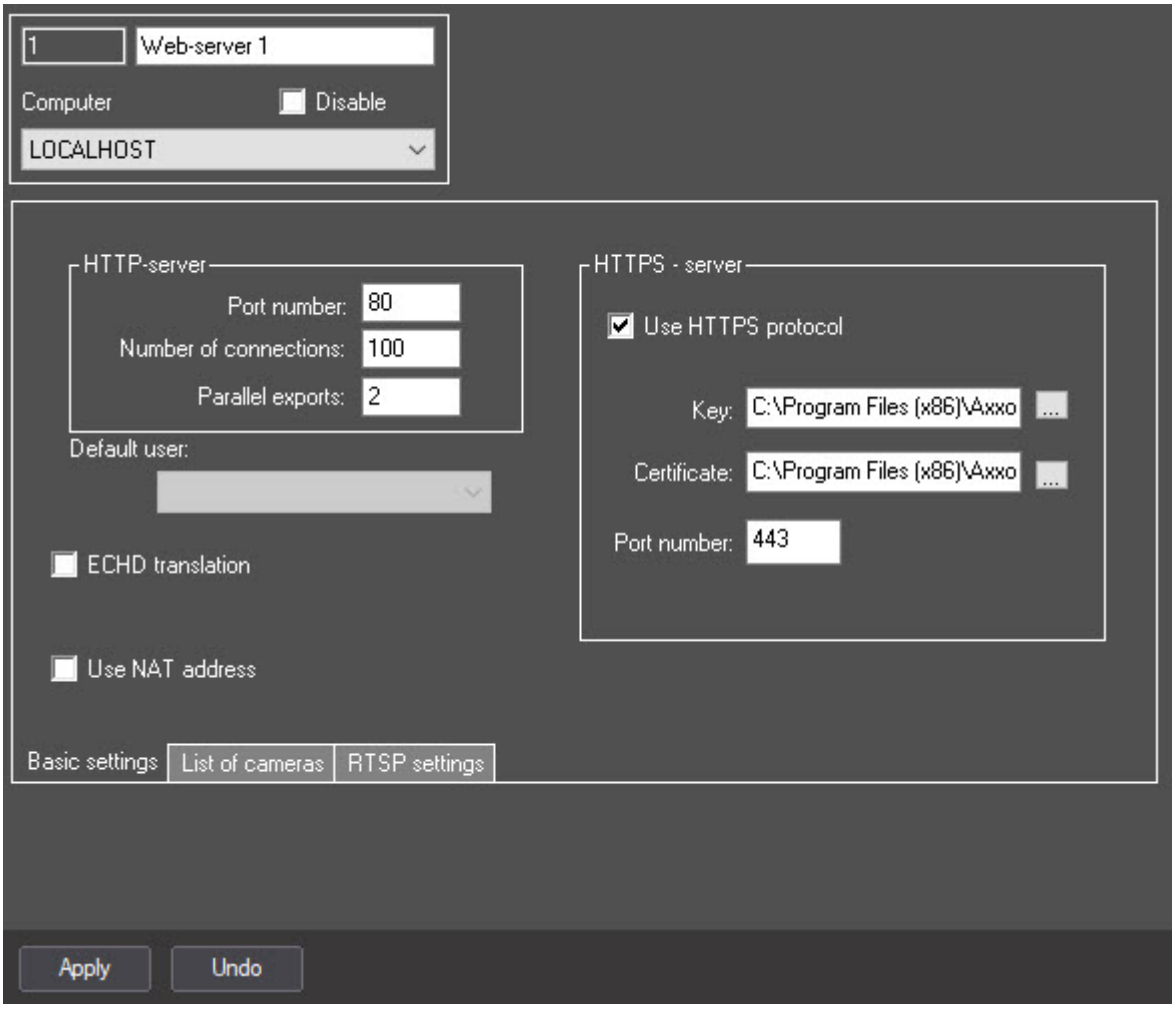
Parameters of connecting Clients to the Web-server

To set the parameters of connecting Clients to the *Web-server*, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Web-server** object.
2. In the **Port number** field of the **HTTP-server** group, specify the number of the port to connect to the HTTP server.

Attention!

This port is used to connect to the *Web-server* from a web browser. By default, the port 8085 is used to connect mobile Clients. You can change the port by editing the jetty.port parameter in the start_64.bat file (start_86.bat for 32-bit system) in the folder <*Axxon PSIM* installation directory>\Modules\Jetty\.



3. In the **Number of connections** field of the **HTTP-server** group, specify the maximum allowed number of simultaneous connections to the Web-server via HTTP protocol. The fewer connections, the less load on the server. You must select this parameter experimentally.

   Note

   Connections are used to receive video (live or archive), to receive audio (live or archive), to send audio to *Axxon PSIM*, to get data on configuration, to send commands to *Axxon PSIM*, and so on. The Client can use the same connection to perform several actions.

4. In the **Parallel exports** field of the **HTTP-server** group, specify the maximum allowed number of archive files to be uploaded simultaneously from the range of 1 and above. The default value is **2**. If you leave the field blank, the lowest possible value is used.
5. If you want to transmit data via the Web-server using HTTPS protocol, specify the following settings in the **HTTPS-server** group:
   a. Set the **Use HTTPS protocol** checkbox.
   b. Specify the path to the key file in the **Key** field using the ... button.
   c. Specify the path to the certificate file in the **Certificate** field using the ... button.
   d. In the **Port number** field of the **HTTPS-sever** group, specify the port number in order to connect to the HTTPS server.

> **Note**
>
> To connect Clients via HTTPS protocol, you must specify the following settings in the index.htm file located in the installation directory of *Axxon PSIM* in the ...\Modules\webroot folder:
> <param name="port.from" value="html">
> <param name="port" value="443">
> <param name="url.protocol" value="https">

6. To save the changes, click the **Apply** button.

The parameters of connecting Clients to the *Web-server* are now set.

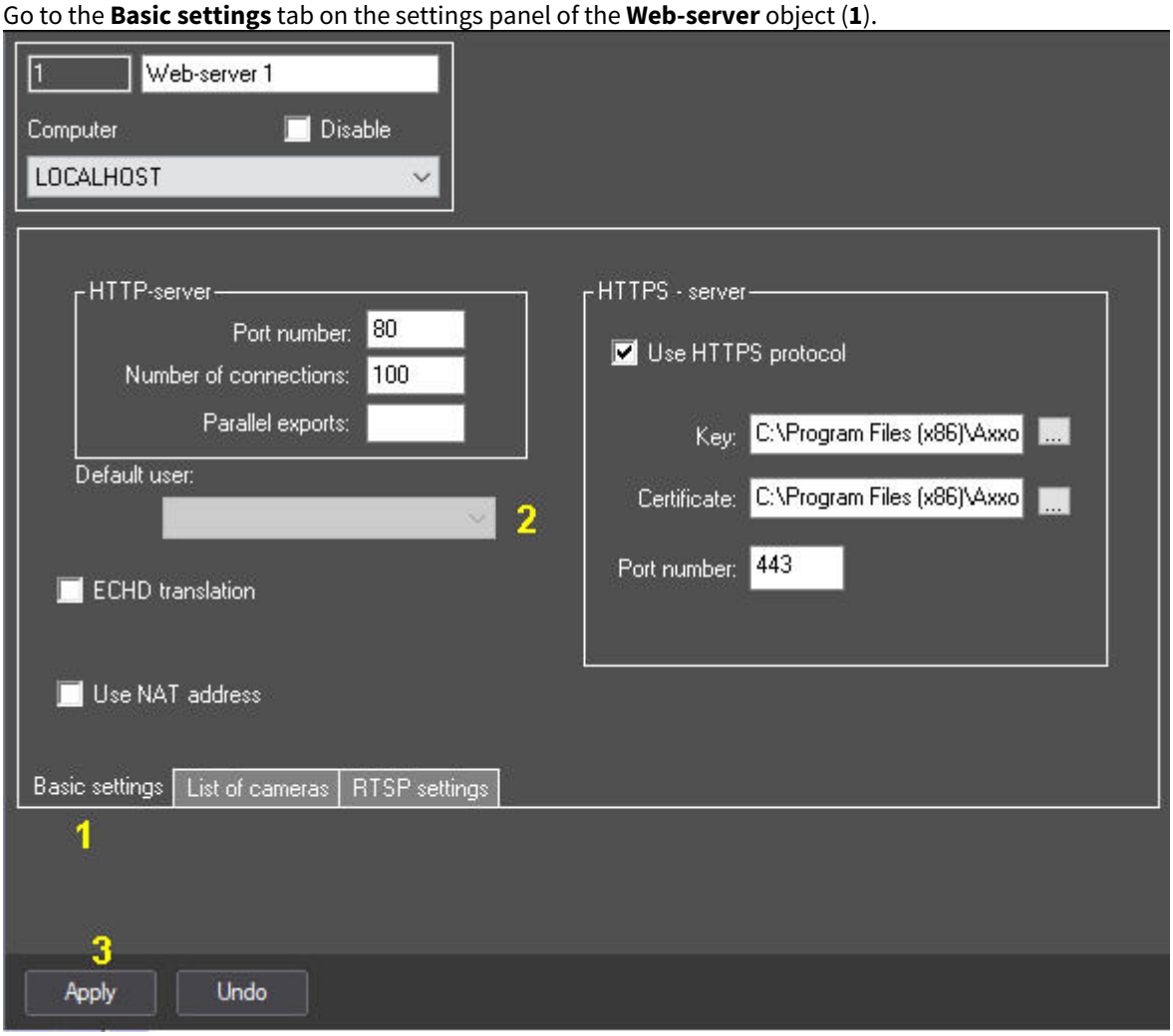
Configuring the authorization for the Web-server module. Default user

Default user is the user with rights to perform video surveillance from a web browser. If the default user isn't specified, you must enter a username and password when opening a Web-server page in the browser, and also when connecting via the HTTP API and mobile Clients.

Before specifying the default user, make sure that users are created and added to the rights in *Axxon PSIM* (see Rights administration).

To specify the default user, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Web-server** object (**1**).



2. From the **Default user** drop-down list, select the default user (**2**).
3. Click the **Apply** button (**3**).

The default user for the *Web-server* module is now set.

Enabling the processing of SDC (ECHD) requests and selecting the RTSP server

> **Attention!**
>
> In order to integrate with ECHD, you must use the credentials of *Axxon PSIM* user that don't contain special characters (\, /, :, *, *, ?, |, ", and so on) in the login and password. This is a feature of receiving a stream via RTSP.

Integration with Single Data Center (ECHD) is supported in *Axxon PSIM*. Requests to *Axxon PSIM* from ECHD are made via HTTP API (see Axxon PSIM HTTP API). Some requests have http/https interface. These requests are used to get info on configuration. The **RTSP Server** bound to the **Web-server** object streams live and archived video.

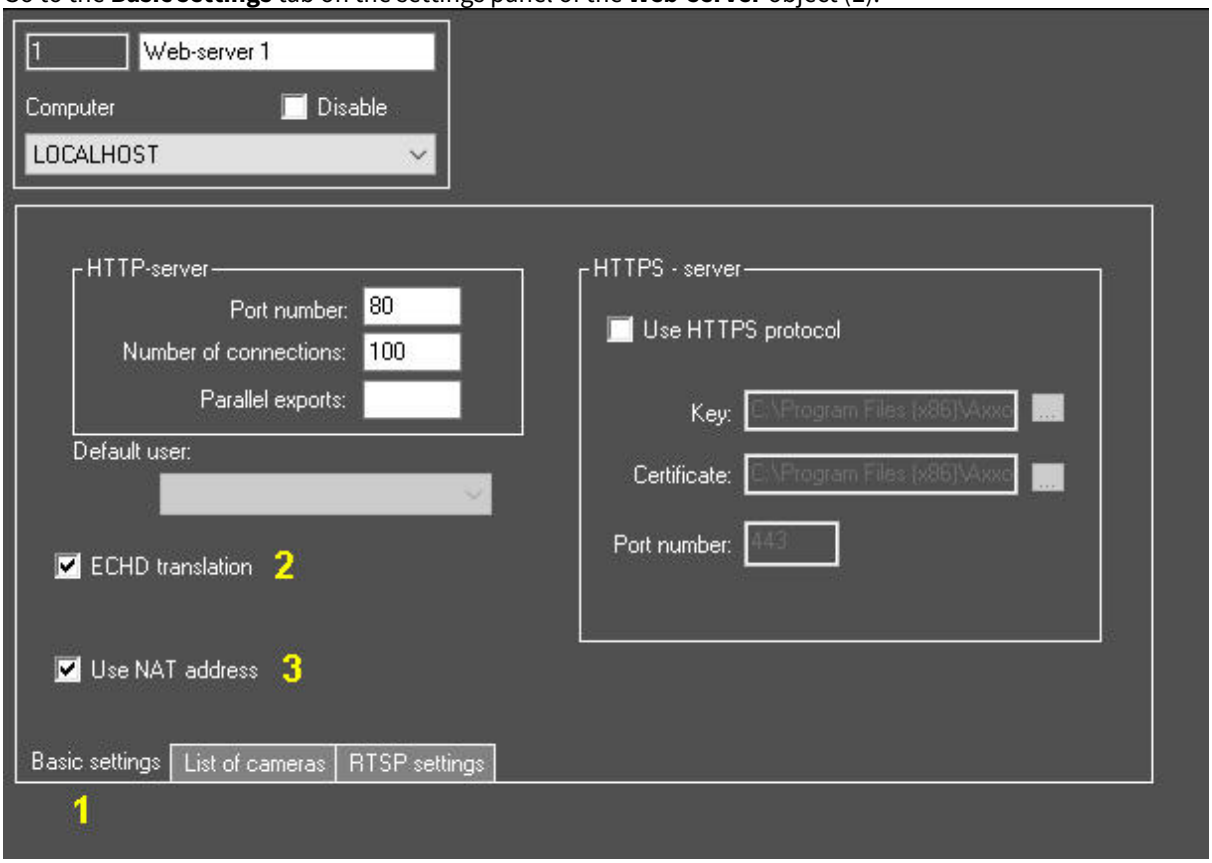
Besides binding of the RTSP server to the Web-server, the **ECHD channel** objects must be created on the basis of the required **Camera** objects for the operation of the ECHD requests.

Note

For the information on creating and configuring the **RTSP Server** object, see Configuring the RTSP Server module.

To enable the ECHD request processing and bind the **RTSP Server** object for ECHD request processing, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Web-server** object (**1**).

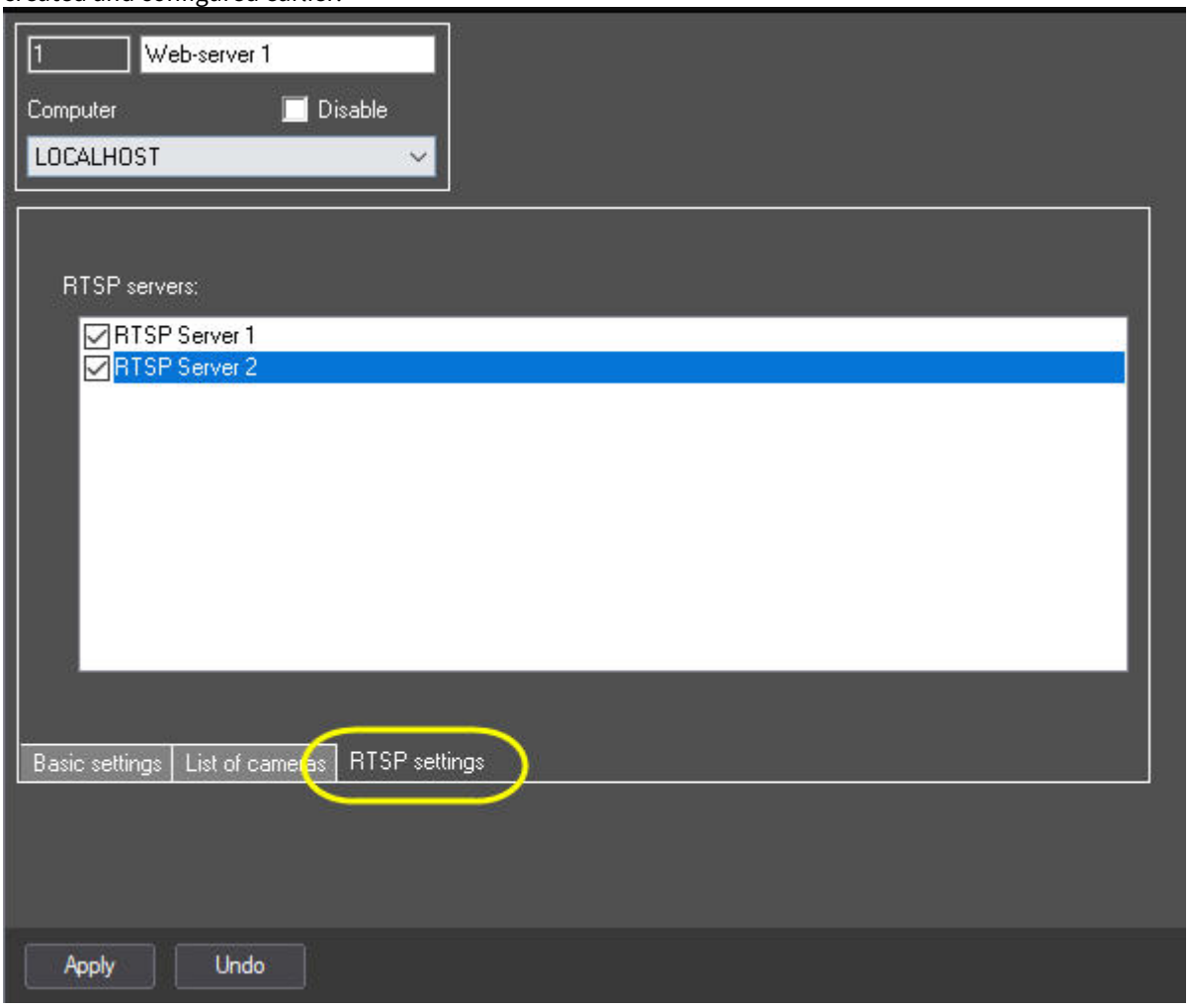


2. Set the **ECHD translation** checkbox (**2**).
3. If the Servers of the surveillance system are behind NAT when interacting with ECHD, set the **Use NAT address** checkbox to substitute the router address into the ECHD requests (**3**).

Note

The address and port of the router are set during the configuration of the **RTSP Server** object.

4. Go to the **RTSP settings** tab and set the checkboxes next to one or several **RTSP Server** objects that you created and configured earlier.



5. Click the **Apply** button.

The **RTSP Server** objects are now bound to the Web-server.

Configuring priority of PTZ control using the Web-server module

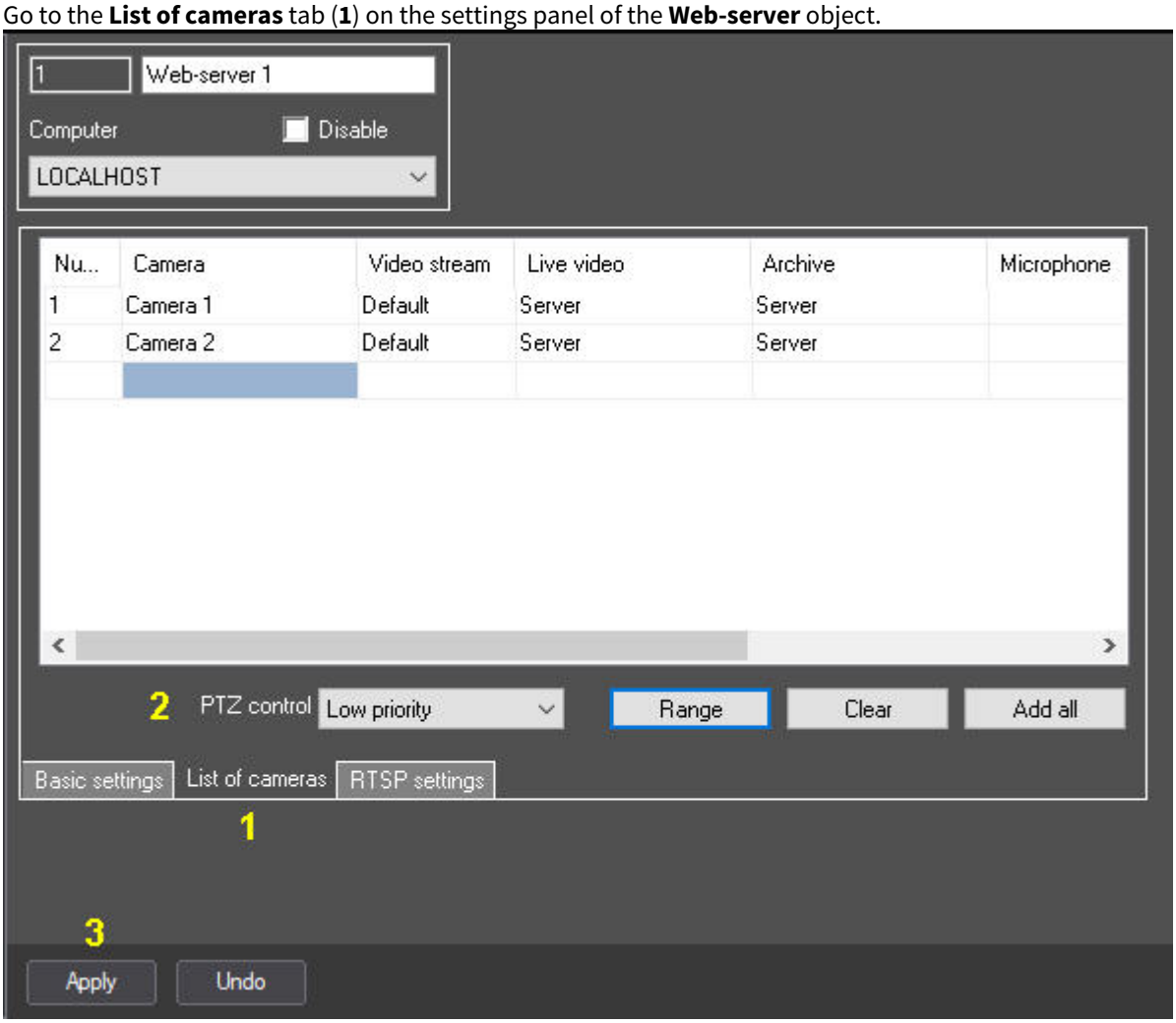
Axxon PSIM allows you to control PTZ devices during video surveillance from a web browser.

By default, PTZ devices are controlled from a web browser with a low priority (see Priorities of PTZ control). You can also specify the priority of PTZ control using the TelemetryPriority registry key (see Registry keys reference guide). When you specify this key, the setting parameter described below is ignored.

> **Note**
>
> To enable PTZ control when adding a camera, you must enable the general camera control functions (see Selecting and configuring cameras for the Web-server module).

Configure priority of the PTZ control using the *Web-server* module, do the following:

1. Go to the **List of cameras** tab (**1**) on the settings panel of the **Web-server** object.



2. From the **PTZ control** drop-down list (**2**), select the required priority.
3. Click the **Apply** button (**3**).

Priority of the PTZ control using the *Web-server* module is now configured.

Configuring the Server to connect the Clients via the Web server 2.0 module

The *Web server 2.0* module is used for video surveillance on the side of a mobile client application. Detailed information on such applications can be found in the corresponding documents (see AxxonSoft mobile Clients. Documentation).

The *Web server 2.0* has the following functions:

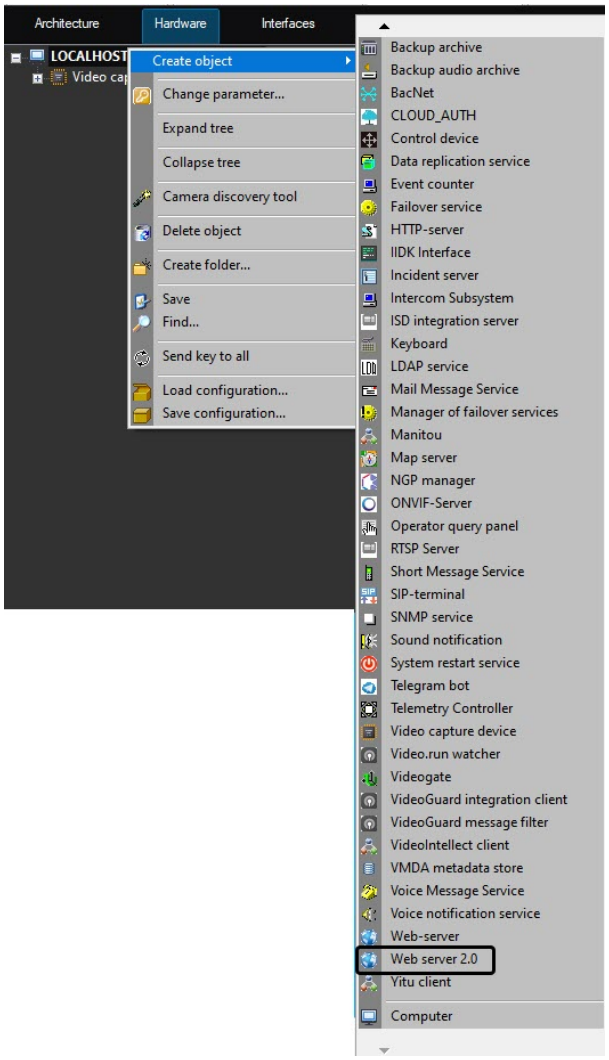
1. sends the video and audio coming from the camera to the mobile client;
2. sends the video and audio coming from the archive to the mobile client;
3. notifies the user about the alarms;
4. runs macros;
5. sends alarms to the mobile client and processes them;
6. controls PTZ cameras;
7. works with maps;
8. sends push notifications to the client.

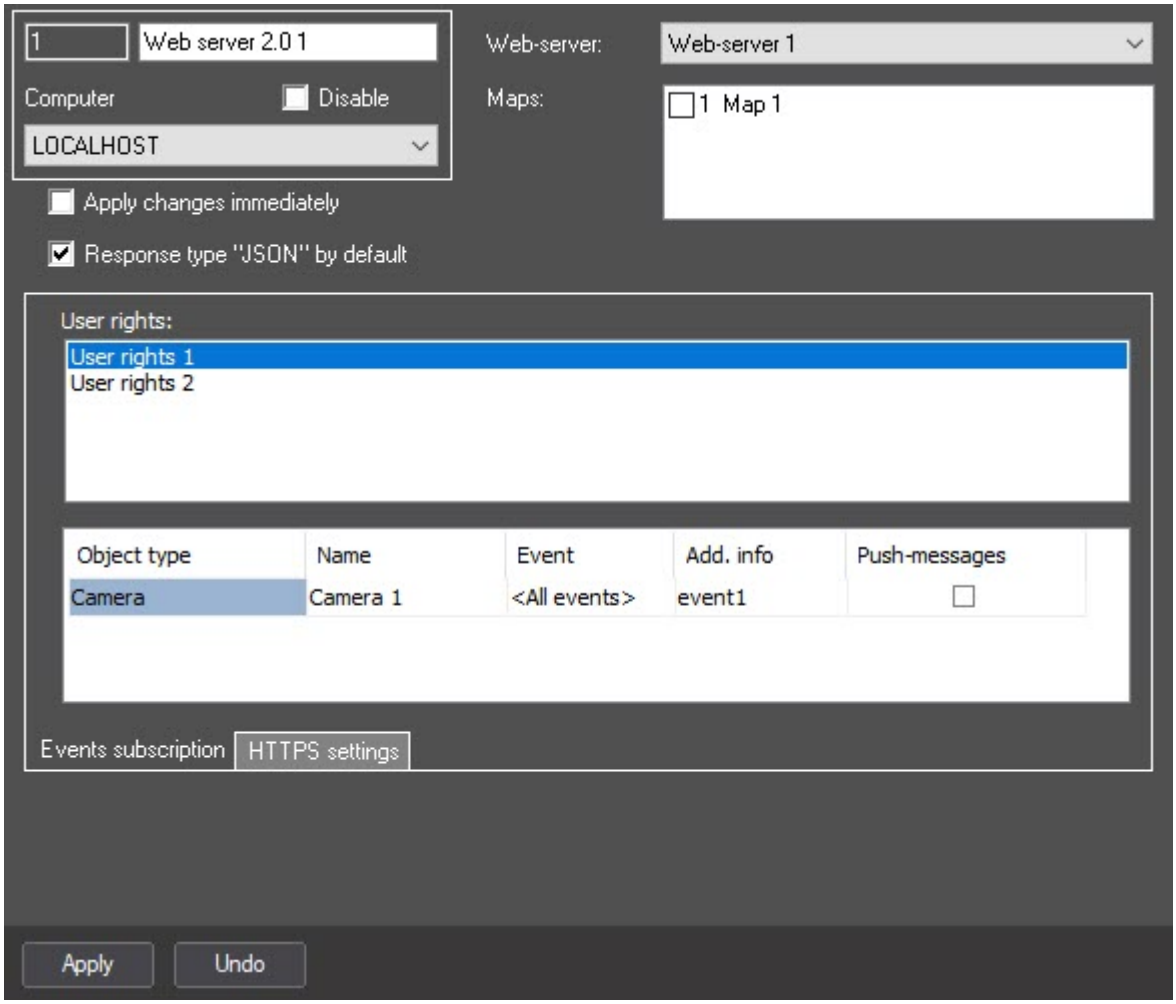
Also, *Web-server 2.0* is required to use the Axxon PSIM HTTP API.

The **Web server** object should be created and configured for the correct operation of the *Web server 2.0* module (see Configuring the videoserver to connect Clients via the Web-server module).

Create the Web server 2.0 object

In *Axxon PSIM*, the **Web server 2.0** object is created on the basis of the **Computer** object on the **Hardware** tab of the **System settings** window.

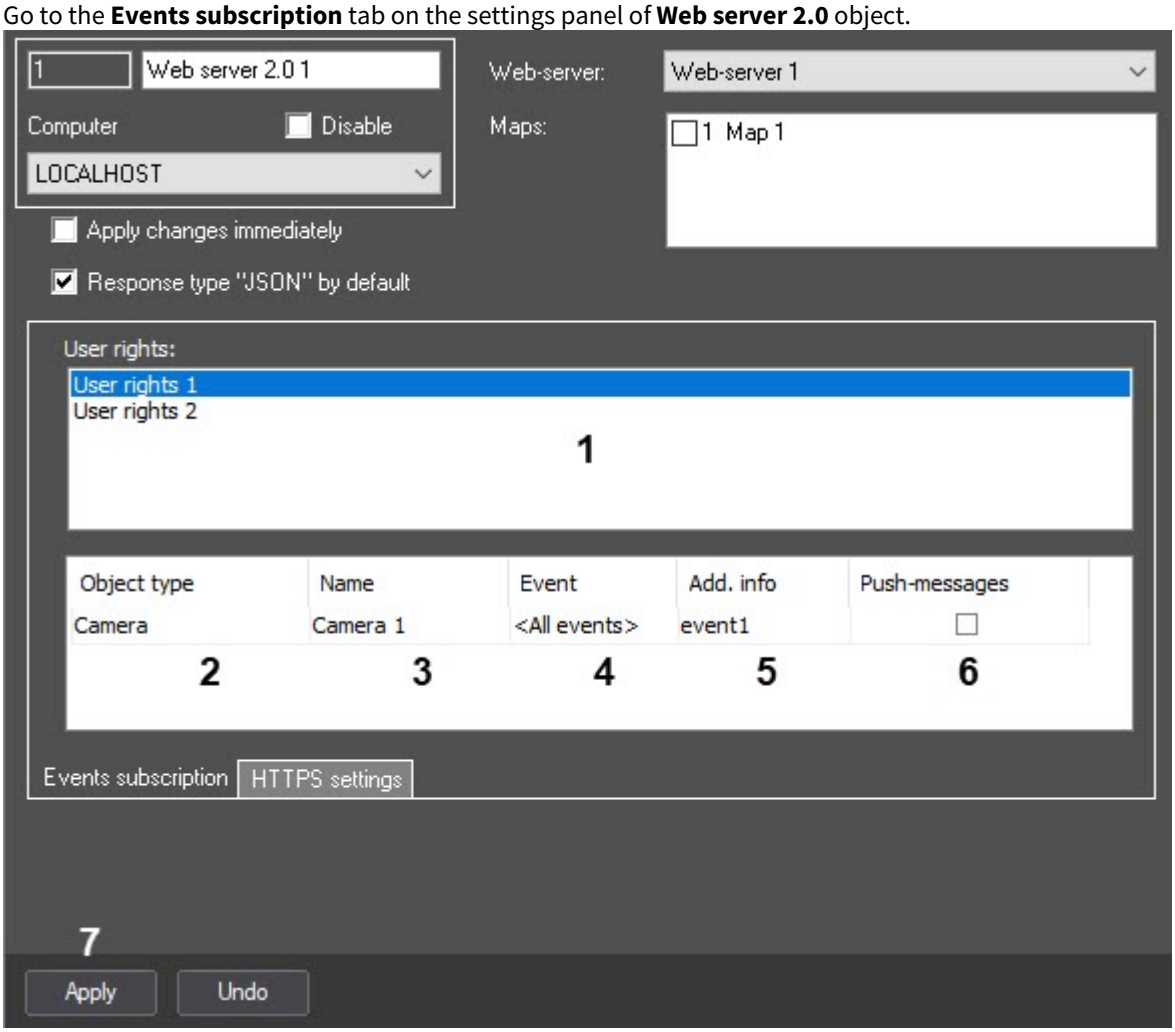

Architecture
Hardware
Interfaces
LOCALHOST
Video cap
Create object
Change parameter...
Expand tree
Collapse tree
Camera discovery tool
Delete object
Create folder...
Save
Find...
Send key to all
Load configuration...
Save configuration...
Backup archive
Backup audio archive
BacNet
CLOUD_AUTH
Control device
Data replication service
Event counter
Failover service
HTTP-server
IIDK Interface
Incident server
Intercom Subsystem
ISD integration server
Keyboard
LDAP service
Mail Message Service
Manager of failover services
Manitou
Map server
NGP manager
ONVIF-Server
Operator query panel
RTSP Server
Short Message Service
SIP-terminal
SNMP service
Sound notification
System restart service
Telegram bot
Telemetry Controller
Video capture device
Video.run watcher
Videogate
VideoGuard integration client
VideoGuard message filter
VideoIntellect client
VMDA metadata store
Voice Message Service
Voice notification service
Web-server
Web server 2.0
Yitu client
Computer



Configuring the event filter for the Web server 2.0 module

To configure the filter of events that the *Web server 2.0* module must send to the client, do the following:

1. Go to the **Events subscription** tab on the settings panel of **Web server 2.0** object.



2. In the **User rights** list, select the **User rights** object for which you want to configure the event filter (**1**). Events that match the filter will be sent only to clients on which users with the selected rights are connected. Different filters can be configured for different user rights.

> **Note**
>
> The **User rights** objects are created and configured on the **Users** tab of the **System settings** dialog window (see Rights administration).

> **Attention!**
>
> Only users added to the selected rights have access to the *Web server 2.0*.

3. From the **Object type** drop-down list, select the type of object from which you want to send events (**2**).

> **Note**
>
> The **Object type** list contains only the object types that are included in the user's current rights. If user rights have not been selected, the list of object types is empty.

4. From the **Name** drop-down list, select the name of the object of the specified type from which the events must be sent (**3**).

5. From the **Event** drop-down list, select the type of event coming from objects of the specified type, which must be sent (**4**).
6. If necessary, in the **Add. info** field, enter additional information about the event that must be displayed in the client (**5**).
7. If you want to authorize sending push notifications about events of the selected type to the mobile client, set the **Push-messages** checkbox (**6**). For push notifications to function, it is necessary for the mobile client to have connected to the server at least once. This enables the server to get user account information and the ID of the device to which push notifications must be sent. The device must also have an active Internet connection.

   Note

   - If sending push notifications is disabled and the client is not connected to the server, then when a message of the selected type appears, it will not be sent.
   - For push notifications to work in *Axxon PSIM*, the server must be registered in the *AxxonNet* cloud service (for details, see Cloud authorization for sending Axxon PSIM push notifications).
   - Sending notifications about events of the selected type is also possible using the WebSocket communication protocol. To do this, add the ActiveWebSocke registry key, see Registry keys reference guide.

8. Go to the next row of the table (arrow "down" on the keyboard) and repeat steps 3-6 for all required events.
9. Repeat steps 2-7 for all required user rights.
10. Click the **Apply** button to save settings in *Axxon PSIM* (**7**).

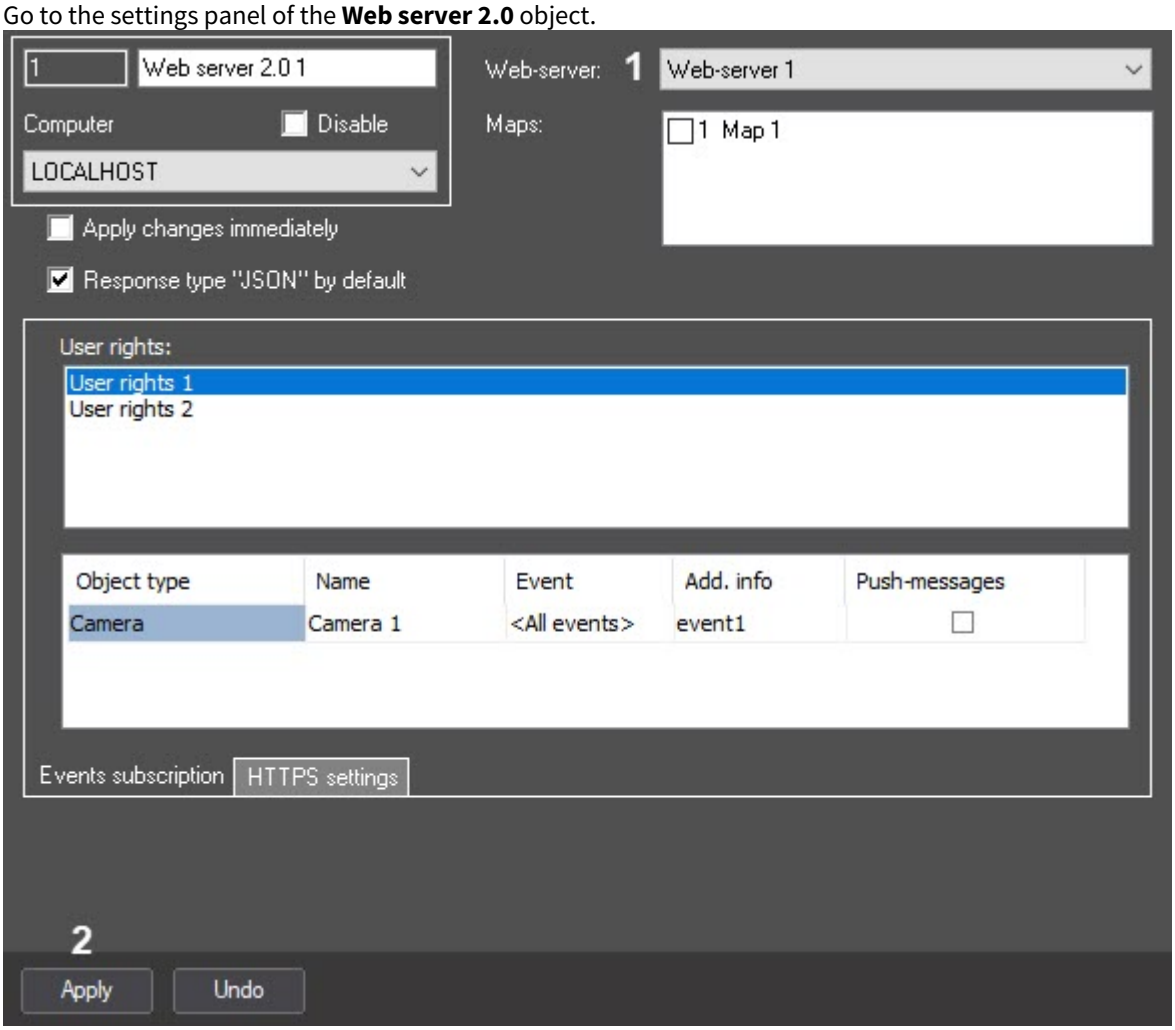
Configuration of the event filter for the *Web server 2.0* module is completed.

Using the Web server settings for the Web server 2.0 module

You must create and configure the **Web-server** object for the correct operation of the *Web server 2.0* module.

Binding the **Web server 2.0** to the **Web server** is performed in the following way:

1. Go to the settings panel of the **Web server 2.0** object.



2. From the **Web-server** drop-down list, select the required **Web-server** object (**1**).
3. Click the **Apply** button (**2**).

Binding the **Web-server** to the **Web server 2.0** object is completed.

Map selection

To ensure the correct operation of maps on a mobile client, it is necessary to select the maps used by the *Web server 2.0* module. All required objects must be previously created in the hardware tree and added to the map. If an object is added to the map after the map is selected in the *Web server 2.0* module, then it is necessary to restart *Axxon PSIM* or *Web server 2.0* module in order to make such an object available in a mobile client.

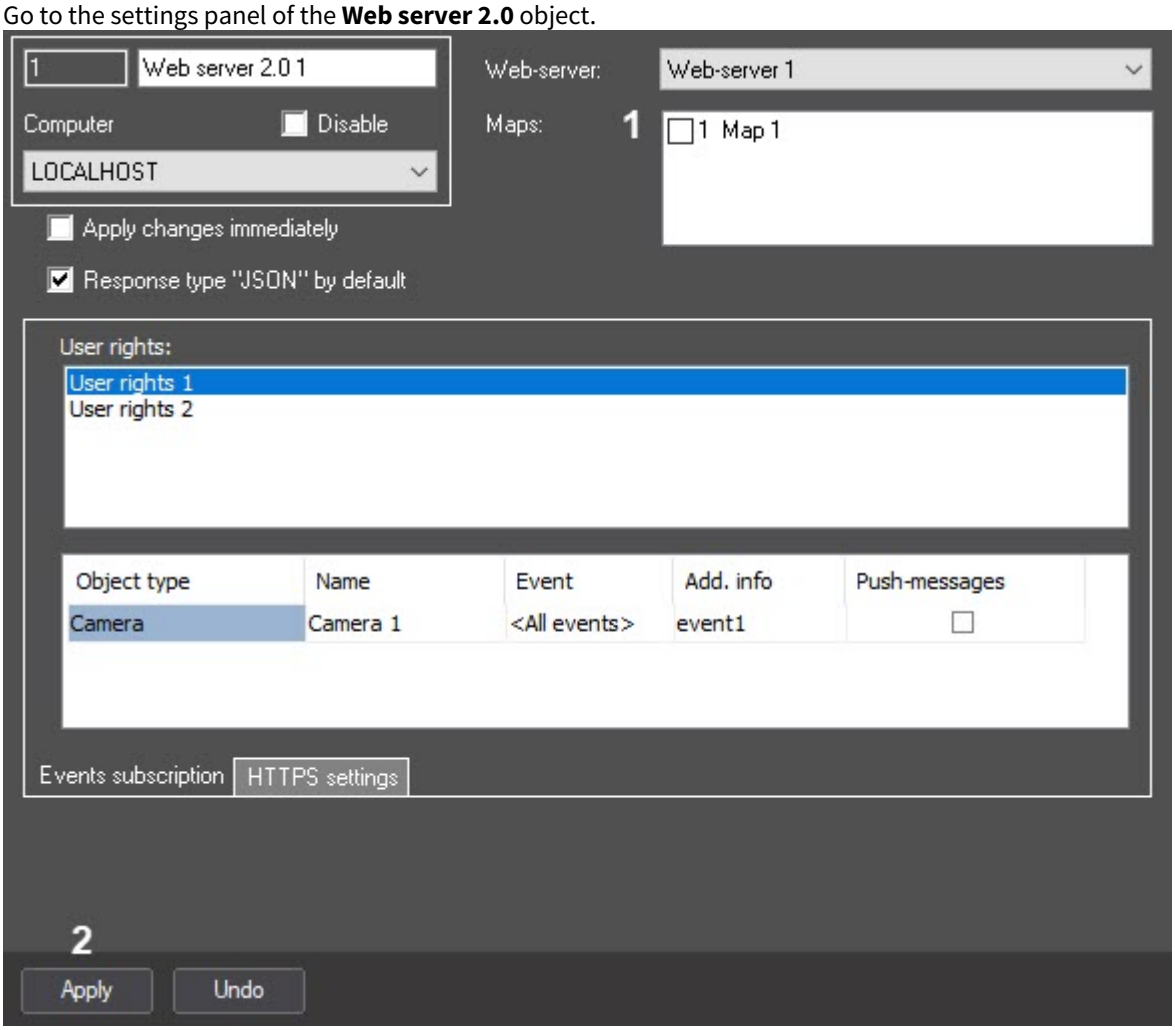
Creation and configuration of maps are described in Configuring the interactive map for object state indication and controlling the objects.

Note

Maps attached to the layers of the selected maps are included in the response to configuration request via HTTP API—see Getting a list of all server objects.

To select maps for *Web server 2.0*, do the following:

1. Go to the settings panel of the **Web server 2.0** object.



2. Set the checkboxes for the required **Map** objects (**1**).
3. Click the **Apply** button (**2**).

Maps are now selected.

Application of changes in user rights

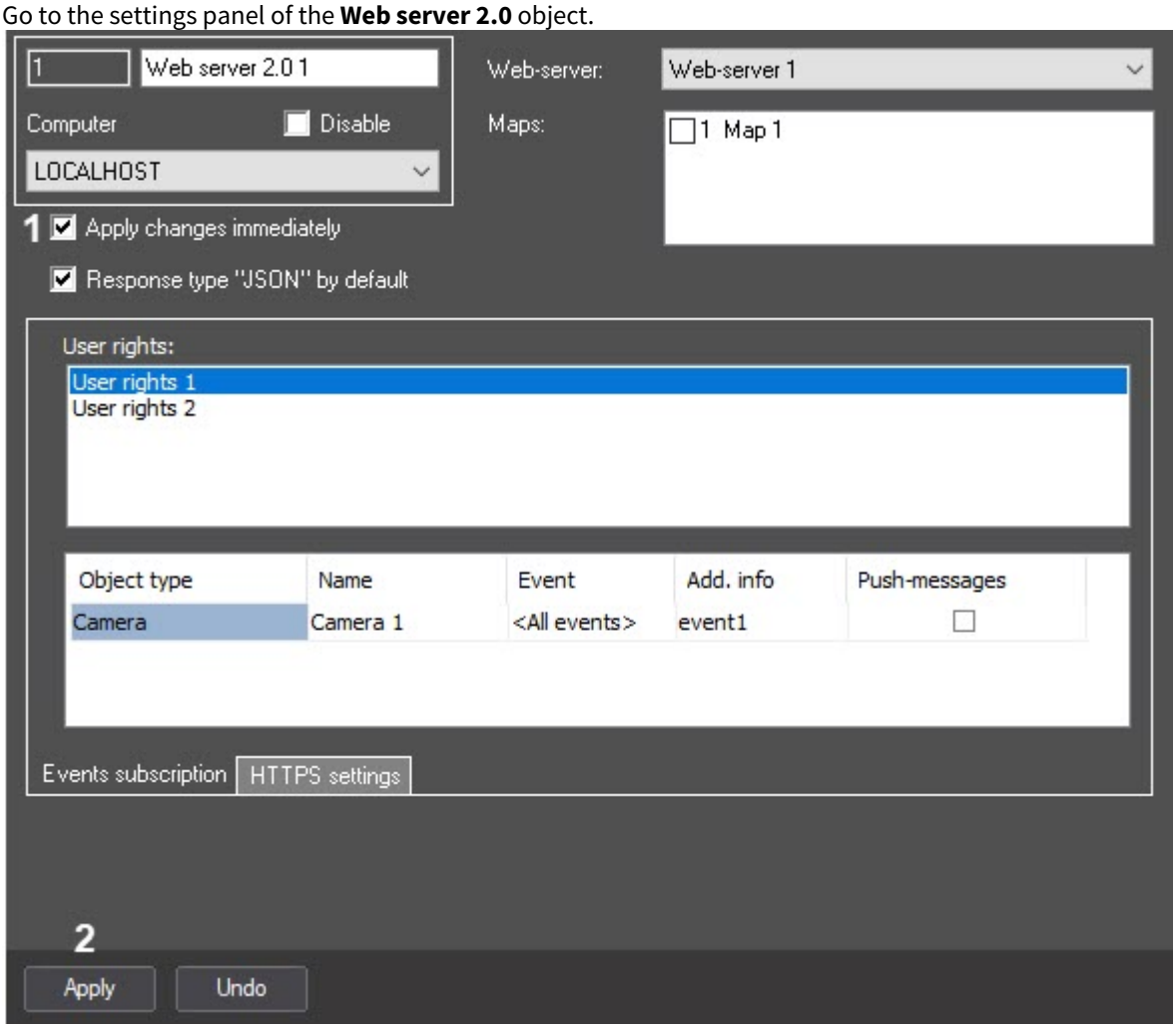
By default, when user rights are changed In *Axxon PSIM* (objects added or deleted), access rights are not changed in *Web-server 2.0* module until the **Apply** button is clicked on the settings panel of the **Web server 2.0** object or *Axxon PSIM* is restarted; otherwise, the mobile app operates as before.

It is possible to enable the **Apply changes immediately** feature. *Web server 2.0* module will immediately apply these changes of user rights.

> **Note**
>
> It is not recommended to use this feature in large distributed systems that use one Web server 2.0 for the entire system.
> If there are several servers in a distributed system and each server has its own Web server 2.0, the feature will work correctly on each server separately.

Enable the **Apply changes immediately** feature as follows:

1. Go to the settings panel of the **Web server 2.0** object.



2. Set the **Apply changes immediately** checkbox (**1**).
3. Click the **Apply** button (**2**).

The **Apply changes immediately** feature is now enabled.

Network settings of the Web Server 2.0 module

On the page:

- Changing the network interface used by the Web Server 2.0 module
- Changing the port used by the Web Server 2.0 module

Network settings of the *Web Server 2.0* module are set via the **start_86.bat** or **start_64.bat** file (depending on whether the 32-bit or 64-bit version of the *Web Server 2.0* module runs). The files are in the <Axxon PSIM installation

directory>\Modules\Jetty folder. Apart from the network settings the files provide run parameters such as allocated memory etc. Do not change those parameters.

Changing the network interface used by the Web Server 2.0 module

If the computer running *Web Server 2.0* has several network interfaces and the default interface is not the one required for the *Web Server 2.0* module, change the network interface in the following way:

1. Open the **start_86.bat** or **start_64.bat** file.
2. Add the **-Djetty.host=0.0.0.0** parameter, where 0.0.0.0 is the IP address of the desired network.
3. Save changes to the **start_86.bat** or **start_64.bat** file.

Changing the network interface for the *Web Server 2.0* module is complete.

Changing the port used by the Web Server 2.0 module

Web Server 2.0 uses 8085 port by default. If this port is already taken, change the port as follows:

1. Open the **start_86.bat** or **start_64.bat** file.
2. Set the **jetty.port** value to the required port number.
3. Save changes to the **start_86.bat** or **start_64.bat** file.

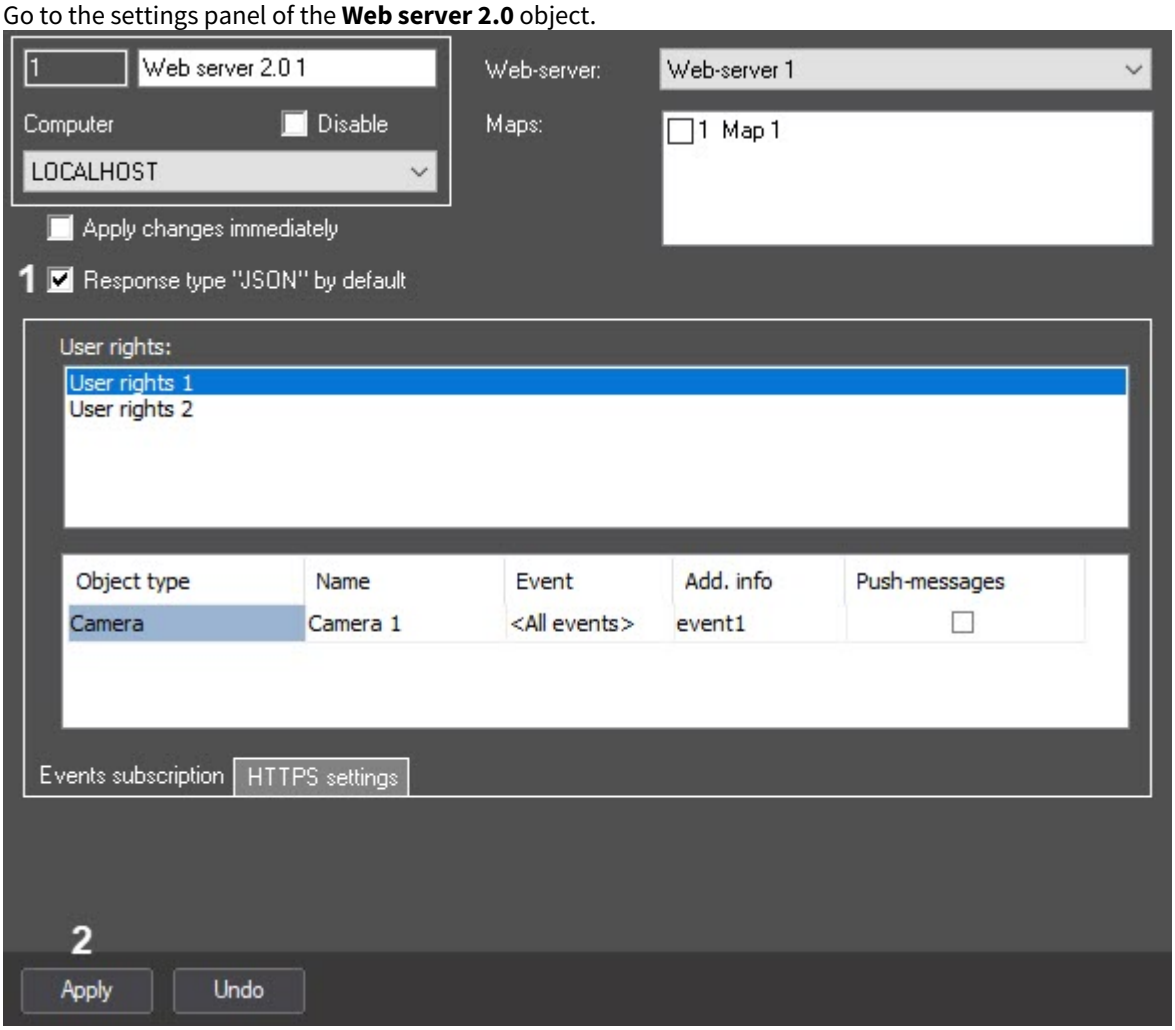
> **Note**
>
> To successfully connect via Microsoft Edge browser in Internet Explorer mode over HTTPS, you can select any unused and unblocked port except for port 443. Otherwise, authentication will not be successful.

Changing the port for the *Web Server 2.0* module is complete.

Configuring default response type for HTTP API requests

By default, if the response type is not specified explicitly in the request, HTTP API responses are sent in JSON format (see Axxon PSIM HTTP API). To enable XML response by default, do the following:

1. Go to the settings panel of the **Web server 2.0** object.



2. Clear the **Response type "JSON" by default** checkbox (**1**).
3. Click the **Apply** button (**2**).

> **Note**
>
> If response type is explicitly specified in the request, this setting is ignored.

Configuration of default response type for HTTP API requests is completed.

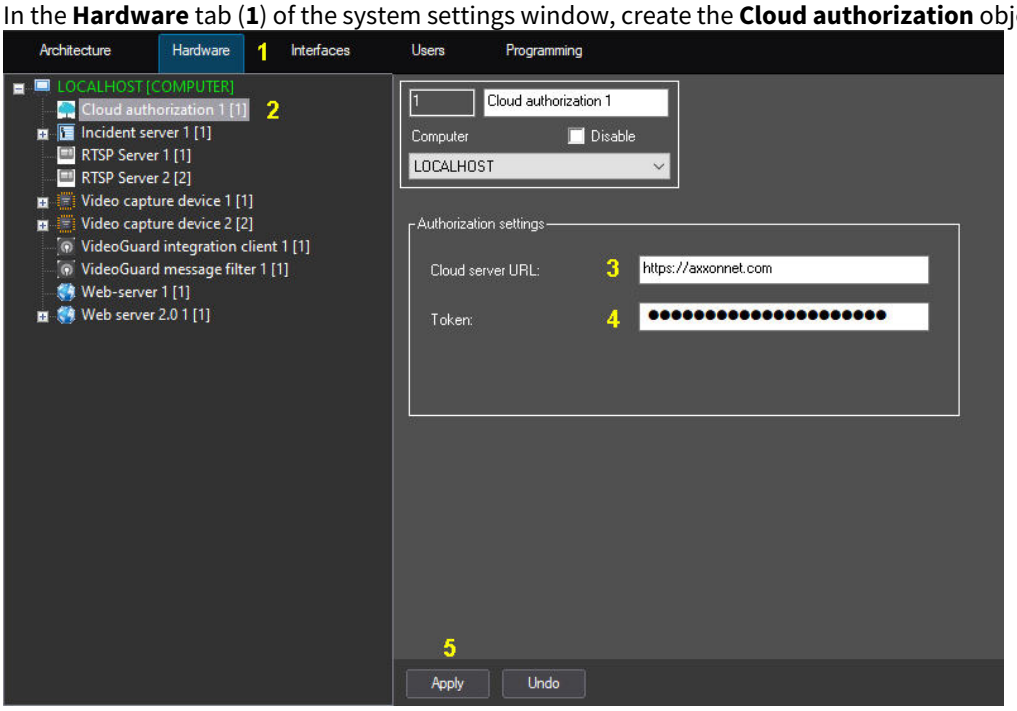
Cloud authorization for sending Axxon PSIM push notifications

For push notifications to work in *Axxon PSIM*, the server should be authorized in the AxxonNet cloud service (for details, see AxxonNet.com).

> **Attention!**
>
> To complete the authorization, the *Axxon PSIM* license key is required (see License key).
> If the **Web server 2.0** object is deleted, the server will be unauthorized automatically. If *Axxon PSIM* is uninstalled without unauthorizing the server (manually or automatically when deleting the **Web server 2.0** object), it will become impossible to authorize the server again using the same *Axxon PSIM* license key.

To authorize in the cloud service, do the following:

1. In the **Hardware** tab (**1**) of the system settings window, create the **Cloud authorization** object (**2**).



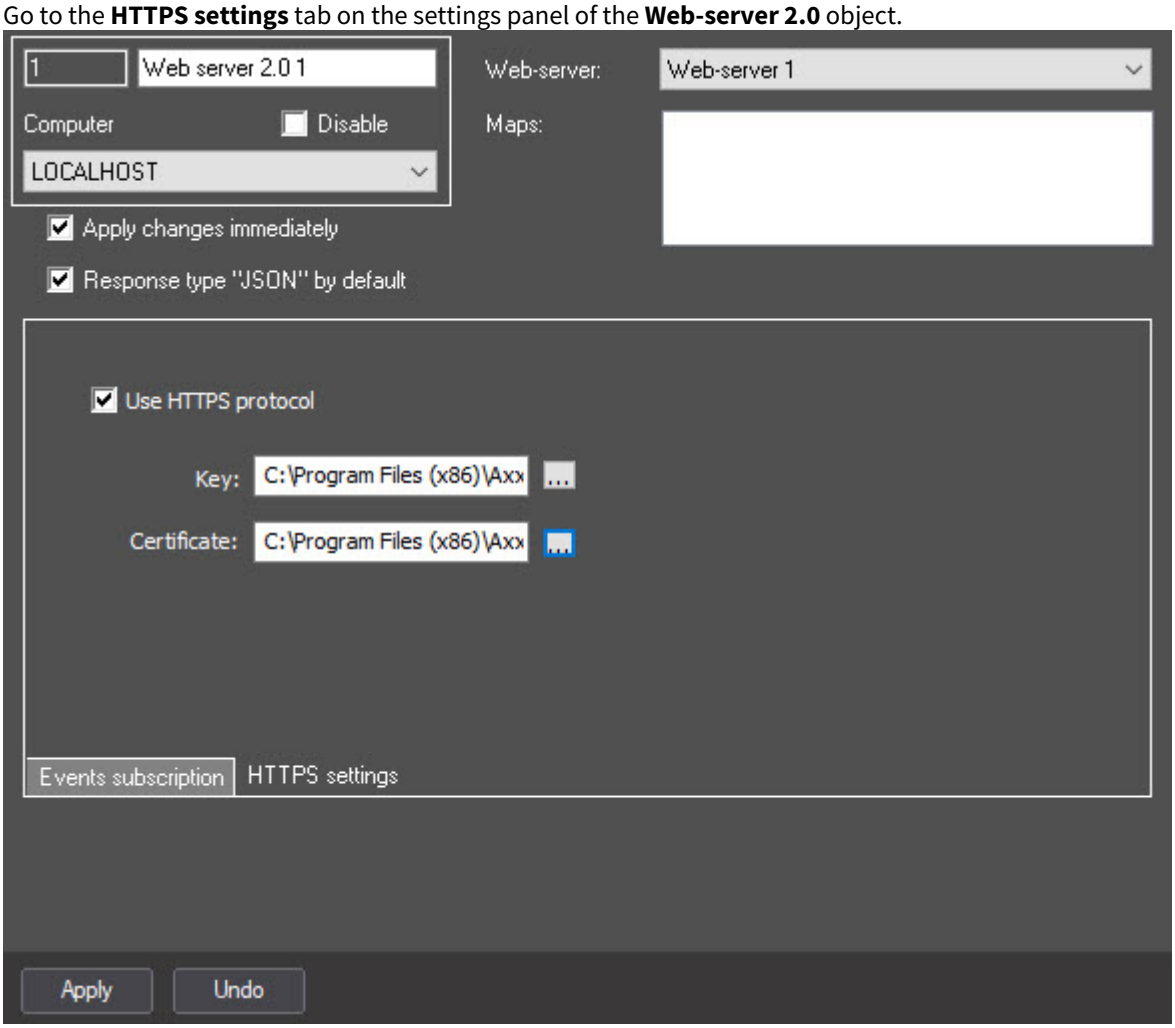
2. In the **Cloud server URL** field (**3**), enter the URL of the AxxonNet cloud service. Default: https://axxonnet.com.
3. In the **Token** field (**4**), enter the token for authorization obtained in the cloud. Obtaining a token for AxxonNet is described on the Configuring a domain in AxxonNet page.
4. Click the **Apply** button (**5**) to apply the settings.

Server authorization in the cloud for push notifications is complete.

HTTPS settings

By default, Web-server 2.0 uses the HTTP protocol. To transfer data using the HTTPS protocol, do the following:

1. Go to the **HTTPS settings** tab on the settings panel of the **Web-server 2.0** object.



2. Set the **Use HTTPS protocol** checkbox.
3. Specify the path to the key file in the **Key** field using the … button.
4. Specify the path to the certificate file in the **Certificate** field using the … button. It is used the 1.2 version of TLS protocol.
5. Click the **Apply** button.

Configuration of the data transfer using the HTTPS protocol is complete.

Web-server home page template and Java applet settings

The template for the Web-server home page is stored in the index.htm file located in the program folder of *Axxon PSIM* software, in the …\Modules\webroot subfolder. For example: C:\Program Files\Axxon PSIM\Modules\webroot.

The home page template holds the parameters of the page and of the Java applet displaying the surveillance windows.

By changing the Java applet parameters in the home page HTML-code, you can set the parameters of the video and control signal transmission through the gate (in case of using another HTTP-server), add or remove interface elements of the Web-server surveillance monitor, and enable showing the current frame size and frame rate for traffic estimation.

Each applet parameter description takes a separate line and consists of <param name=, followed by the quoted name of the parameter, and value=, followed by the quoted parameter value. The line ends with the > symbol.

The full line has the following format:

<param name=”Parameter name” value=”Parameter value”>.

Note.

If a parameter is not specified in the index.htm template, the default value is used.

Table 8.16—1 shows the available Java applet parameters.

Table 8.16—1

Parameter name	Possible values	Default value	Description
General data			
Version	-	-	HTML file version (must be the same as the client version)
Gate transmission parameters for video signals and controls			
port	number	80	Port number for the applet to receive the video feed and send the controls. The parameter is enabled if the “port.from” parameter has the value "html".
port.from	html|	url by default, this line is not included in index.htm	Specifies the source of the video feed port number for the applet to use: html – “port” parameter of the index.html file; url – URL by which the user accesses the index.html page.
path.from	html|	url by default, this line is not included in index.htm	Specifies the source of the path to the index.html page: html – URL, specified in index.html; url – URL by which the user accesses the index.html page.
path	string	- by default, this line is not included in index.htm	The path to index.html on the HTTP server, in case of a different HTTP server. The parameter is enabled if the “port.from” parameter has the value "html".

Parameter name	Possible values	Default value	Description
User interface display parameters			
layout.available	true|false	true	Enables (true) or disables (false) the windows layout panel on the surveillance monitor.
top.visible	true|false	true	Enables (true) or disables (false) the tools panel on the surveillance monitor.
layout.default	0|1|2|3	0	Specifies the default layout of surveillance windows when the Web-server home page opens. Possible values: 0 – one window 1 – four windows 2 – six windows 3 – nine windows
cam.default.id	number	1	The id of the camera whose window is displayed when the Web-server home page opens. This parameter is enabled, if the “layout.default” parameter has a value of 0.
messages	Text interface elements Visible text	see index.html file	The list of visible text elements of the interface: menu items, information strings in the surveillance window, etc. Only the visible text can be edited. IMPORTANT! The names of text elements are reserved. Editing them will result in their misinterpretation.
Parameters for displaying the data used in traffic estimation			
fs.fps	true|false	false by default, this line is not included in index.htm	Enables (true) or disables (false) the frame rate indication on the surveillance monitor.
fs.size	true|false	false by default, this line is not included in index.htm	Enables (true) or disables (false) the frame size indication on the surveillance monitor.

Setting up the surveillance monitor interface of the Web-server module

The interface of the surveillance monitor of the Web-server may be customized: removing the tools panel, choosing the default layout of the surveillance windows, changing the visible text on the menu item and service messages, etc.

Usually, the default interface settings provide quite a comfortable working environment. In case they need to be changed, do the following:

1. Using the text editor, for example Notebook, open the index.html file from the Axxon PSIM software program folder ...\Modules\webroot, for example, C:\Program Files\Axxon PSIM\Modules\webroot.
2. To remove the tool panel from the surveillance monitor, set the “top.visible” parameter to "false": <param name="top.visible" value="false">.
3. To remove the layout selection panel from the surveillance monitor, set the “layout.available” parameter to "false": <param name="layout.available" value="false">.
   To make the tools panel visible at the same time, set the "top.visible" parameter to "true":
   <param name="top.visible" value="true">.
4. By default, only one surveillance window is displayed when you open the Web-server home page. To open 4, 6, or 9 windows, set the “layout.default” parameter to 1, 2, or 3, respectively. For example, to display 9 windows:
   <param name="layout.default" value="3">.
5. By default, the surveillance window from camera 1 is displayed when you open the Web-server home page. To display the window from another camera, set the “cam.default.id” parameter to the number of the required camera. For example, to display the window from camera 9:
   <param name="cam.default.id" value="9">.
   To use this setting, the parameter “layout.default” must be set to 0 (default):
   <param name="layout.default" value="0">.
6. To change the visible text of the menu items in the surveillance windows or the texts of service messages, look in the “message” parameter for the text to be replaced and replace it with the required text.
   For example, to replace the message text “Cable detached from the camera…” with the text “No connection to the camera”, make the following changes to the “messages” parameter:
   replace
   <param name="messages" value="name=AxxonSoft WebServer client*detach=Cable detached from the camera…*disable=Camera is off…* ……..>
   with
   <param name="messages" value="name=AxxonSoft WebServer client*detach=No connection with the camera*disable=Camera is off…* ……..>
   When changing the texts in menu items and messages, do not use the following symbols: ‘ * ’, ‘ = ’, ‘ “ ‘.
7. Save changes to the index.htm file.

Setting up the display of the data for traffic estimation in the Web-server

Web-server operation uses network traffic. It’s important to estimate the traffic, because it must be paid for.

The volume of network traffic when using the Web-server depends on the following factors:

1. the number of cameras displayed on the surveillance monitor;
2. compression level of the video signal;
3. frame size of the video signal;
4. frame rate of the video signal.

The traffic volume can be monitored on the Web-server surveillance window. When set up, the current frame size and frame rate for each camera are shown in the surveillance windows. The traffic is approximately estimated by the following formula:

Traffic = {Viewing time} * {Number of cameras} * {Average frame size} * {Average frame rate}

By default, the traffic estimation data is not shown. To set up the Web-server module to display the traffic estimation data, do the following:

1. Using the text editor, for example Notebook, open the index.html file from the Axxon PSIM software program folder...Modules\webroot. For example, C:\Program Files\Axxon PSIM\Modules\webroot.
2. Add the following lines to the Java applet parameter list:
   <param name="fs.size" value="true">
   <param name="fs.fps" value="true">
3. Save changes to the index.htm file.

Setting up the Web-server module to act as a gate on a different HTTP-server

By default, the Web-server module is set up to work as an independent HTTP-server. If a different HTTP-server must be used to connect to the remote workstations, the Web-server should act as a gate only for that HTTP-server and additional parameters should be set up.

For example, to use the Web-server for video surveillance, the user must open the page http://www.*****.com:8080/video/index.htm (asterisks "*****" represent the domain name of the site where the cameras can be accessed). To set up the Web-server to act as a gate, do the following:

1. Using the text editor, for example Notebook, open the index.html file from the Axxon PSIM software program folder...\Modules\webroot. For example, C:\Program Files\Axxon PSIM\Modules\webroot.
2. By default, Java applet receives the video signal from http://www.*****.com address.
3. For Java applet to receive the signal from http://www.*****.com:222/reverse/proxy/, add the following lines to the index.htm file:
   <param name="port.from" value="html"> /add
   <param name="path.from" value="html">
   <param name="path" value="/reverse/proxy/">.
   Set the "port" parameter to 222:
   <param name="port" value="222">.
4. For Java applet to receive the signal from http://www.*****.com:222, add the following line to the index.htm file:
   <param name="port.from" value="html">.
   Set the "port" parameter to 222:
   <param name="port" value="222">.
5. For Java applet to receive the signal from http://www.*****.com/reverse/proxy/, add the following lines to the index.htm file:
   <param name="path.from" value="html">
   <param name="path" value="/reverse/proxy/">.
6. Save changes to the index.htm file.

22.3.16 Configuring the RTSP Server module

On the page:

- General information
- Creating the RTSP Server object

- Configuring the Unicast mode
- Configuring the Multicast mode
- Advanced settings
- Bulk settings for cameras

General information

The **RTSP Server** object is used for transmitting video from server to remote workstations using the RTSP protocol. The use of the RTSP protocol allows you to view video from IP cameras and video archive on remote clients by means of *Axxon PSIM* or use video players that support this protocol. Transmission of the archive of the **Videogate** and **Backup archive** is also supported.

If there is a live video with audio or the archive is recorded with audio, then video transmission with audio through **RTSP Server** is supported—for this specify the ID of microphone from which the archive is recorded when requesting video (see Examples of addresses to view video from RTSP Server). For the audio to play correctly in VLC Media Player, set the **VLC player compatibility mode** checkbox (see below).

Attention!

Transmitted video stream must be compressed using H.264, H.265, MPEG4, or MJPEG codecs.
When you use MJPEG codec, video of the height and/or width more than 2048 pixels is not supported.
Client must reconnect to URL when codec is changed.
To view the archive via **RTSP Server**, the archive must be recorded in the same codec. Otherwise, the archived video will not play back.
The **time_begin** and **time_end** time parameters must be specified in the UTC+0 format. If the archive is in a different time zone, you must specify the time taking into account the time difference.
On the settings panel of the **RTSP Server** object, you must select the specified **Backup archive** for the corresponding camera.
The **VLC player compatibility mode** must be enabled to view videos in VLC Media Player.

Note that when configuring, each **RTSP Server** loads only one CPU core. To increase the number of rtsp streams, you must create several **RTSP Server** objects and configure them on several cameras. Each RTSP Server entity runs in a separate process (StreamingServer.run).

Note

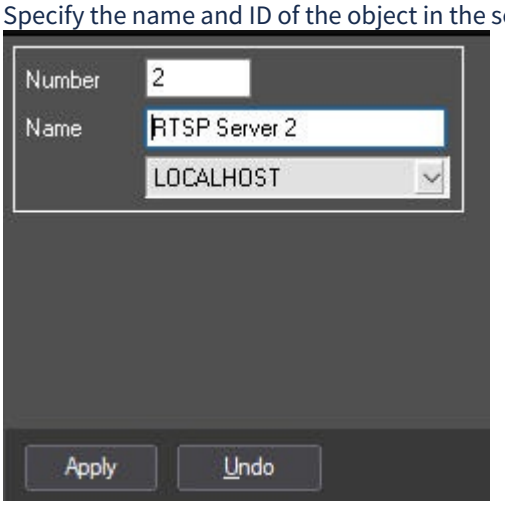
All ports mentioned below are specified using only natural numbers.

Creating the RTSP Server object

To create the **RTSP Server** object, do the following:

1. In the context menu of the **Computer** object, select **Create object** → **RTSP Server**.

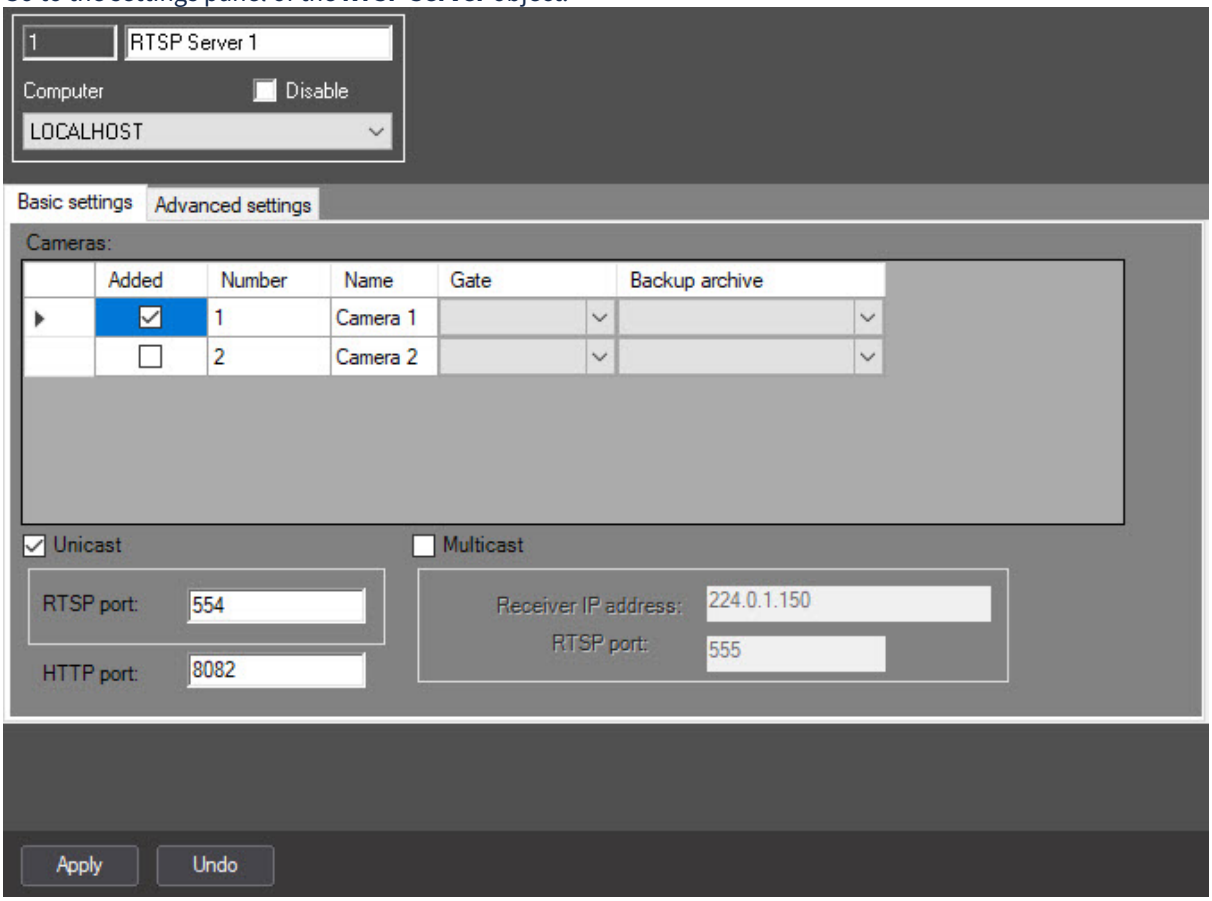
2. Specify the name and ID of the object in the settings panel that opens.



3. Click the **Apply** button to create the object.

Configuring the Unicast mode

1. Go to the settings panel of the **RTSP Server** object.



2. In the **Cameras** table, set the checkboxes next to cameras, video from which you want to display. If a camera has several streams, the default stream is transmitted.

> **Note**
>
> If the default stream is changed on the settings panel of the corresponding **Camera** object after you apply RTSP Server settings, you must click the **Apply** button on the settings panel of the **RTSP Server** object to apply changes to it as well. See also Configuring the multistream video.

3. If video from the camera must be received through the videogate, then select the **Videogate** object from the **Gate** drop-down list.
4. If archive from the camera must be received from the backup archive, then select the **Backup archive** object from the **Backup archive** drop-down list.
5. Set the **Unicast** checkbox if signals from all cameras must be broadcast through one port.
6. In the **RTSP port** field, specify the port via which the video is transmitted.

> **Note**
>
> The "Windows Media Player Network Sharing" service can use the default port 554. To enable broadcasting, you must change the port or disable this service.
> To disable the service, go to the **Control panel** → **Administrative Tools** → **Services** and double-click the service name and click the **Stop** button in the window that opens.

7. In the **HTTP port** field, specify the port for transmitting video via HTTP protocol.

Configuring the Multicast mode

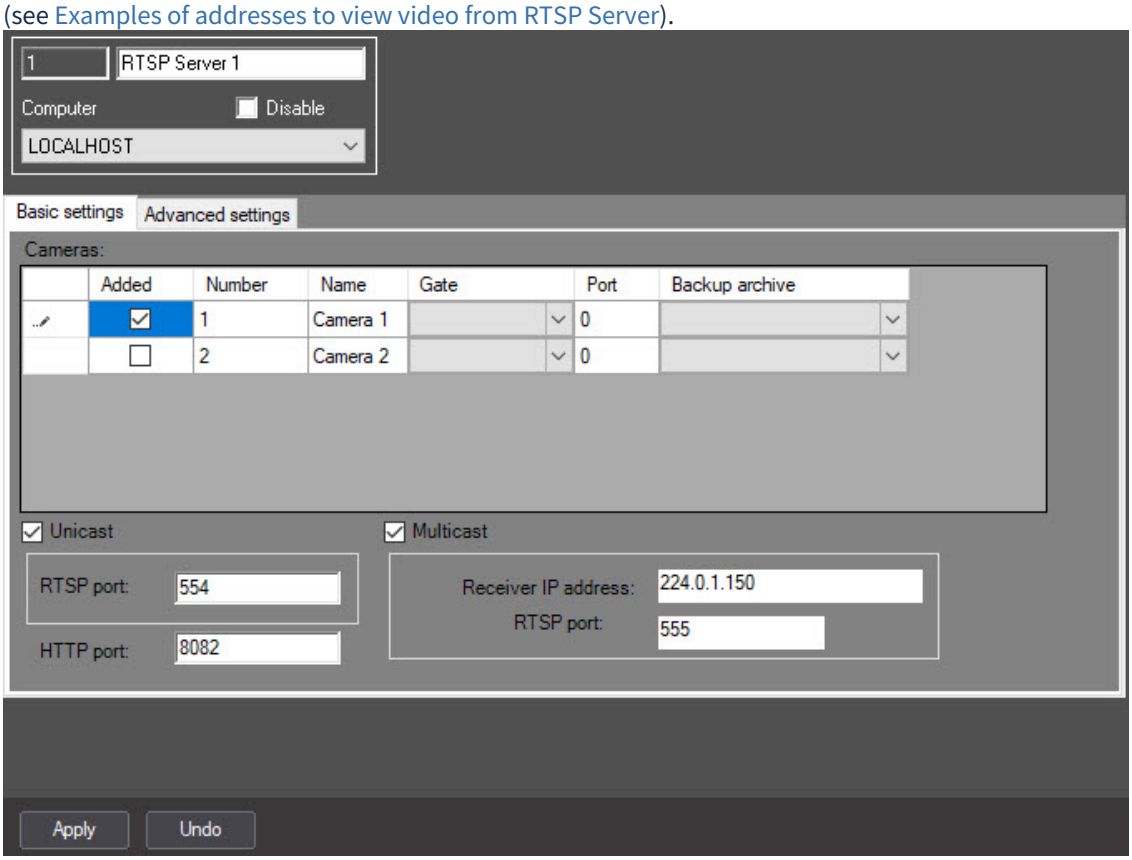
Features of the Multicast mode:

1. To get a multicast video in *Axxon PSIM* (see Configuring multimedia receipt using RTSP protocol), set the multicast value to the RTSP parameter in the HKEY_LOCAL_MACHINE \SOFTWARE\AxxonSoft\PSIM\Video\TransportProtocols registry section (for 64-bit system the path is HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AxxonSoft\PSIM\Video\TransportProtocols) on computer where the **Camera** object is created. For detailed information on this parameter, see Changing the transport protocol used by IP-device.
2. **RTSP Server** can broadcast simultaneously in **Multicast** and **Unicast** modes. Receiving both such streams on the *Axxon PSIM* client is impossible due to RTSP key, which determines the connection mode (see above). However, the VLC player allows receiving streams in both modes at the same time.
3. The ports that are assigned to each camera in this mode will not be displayed in the Windows OS Resource Monitor and other similar operating system resource monitors.

Using the **Multicast** mode allows you to reduce the load on the server by reducing the amount of transmitted data. To distribute the transmitted signal among different RTSP ports, do the following:

1. Go to the settings panel of the **RTSP Server** object.
2. Set the **Multicast** checkbox. The **Port** column is displayed in the **Cameras** table.
3. Specify a data transmission port for each camera in the **Port** field. When you specify ports, note the following:
    a. The following ports are used for each camera in the **Multicast** mode: nPort, nPort + 18000 (rtp), nPort + 19000 (rtcp), where nPort is a port number specified for camera in the **Port** column.
    For the correct operation of RTSP server in the **Multicast** mode, these ports must be free.
    b. Specified ports are not addressed directly. Use RTSP port to get video from all cameras in the **Multicast** mode (see step 5).

c. Even if you specify video data port, you still must specify camera number in the data source address (see Examples of addresses to view video from RTSP Server).

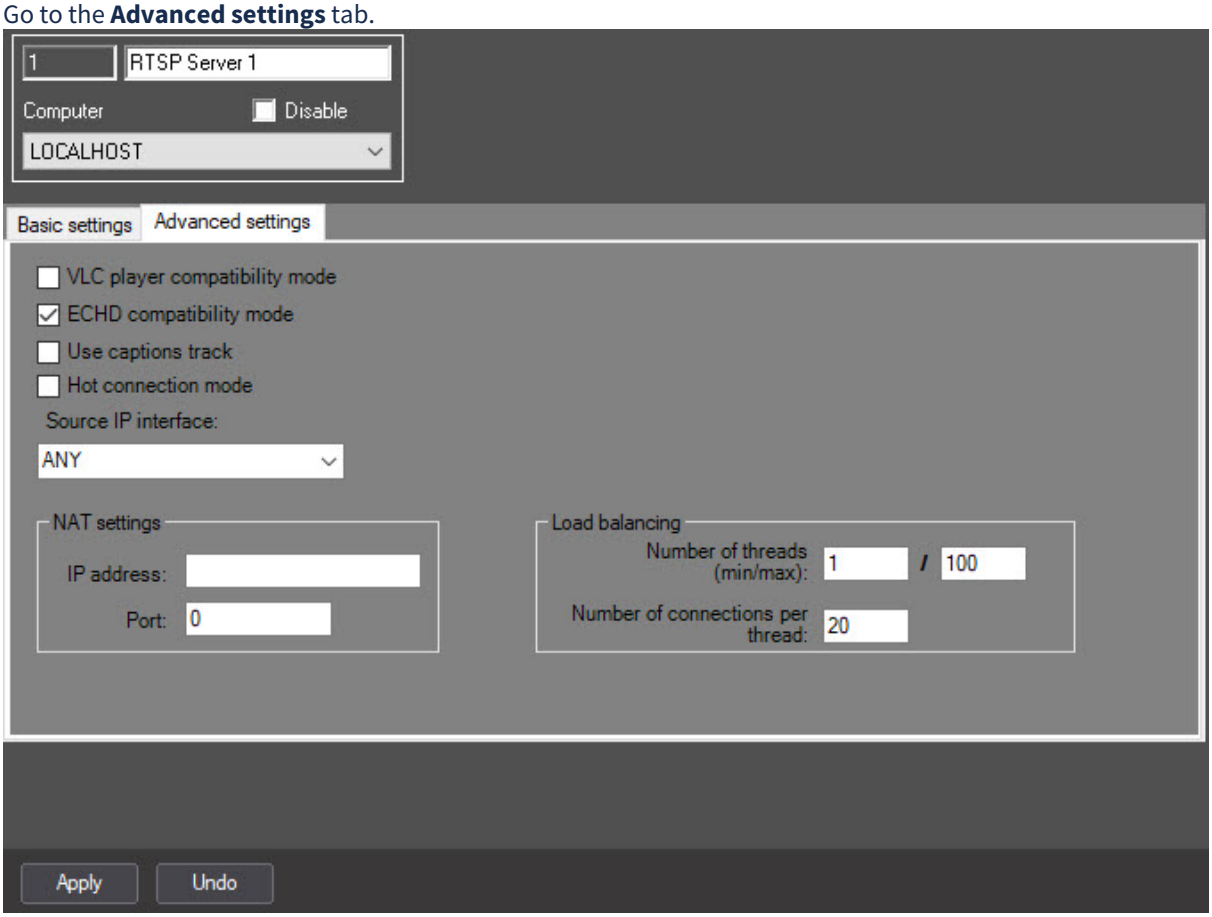


4. In the **Receiver IP address** field, specify the address from which the broadcast in the **Multicast** mode will be performed. Address must be in the range from 224.0.1.0 to 239.255.255.255. By default, the receiver IP is 224.0.1.150. When you specify **Receiver IP address**, note the following:
   a. 224.0.0.0-224.0.0.255 address range is reserved for routing protocols and other service protocols. You cannot set **Receiver IP address** from the specified range.
   b. RTSP server can broadcast only to one network simultaneously. The network with minimal metric is selected by default. To change the broadcast network, go to the **Advanced settings** tab (see below).
   c. When you configure several **RTSP Servers** in the **Multicast** mode, you must specify different values for them in the **Receiver IP address** and **RTSP port** fields.
5. In the **RTSP port** field, specify the number of port through which video signal will be sent in the **Multicast** mode. When requesting video data from the camera using the RTSP protocol, it is necessary to specify this port. The system forwards the request to the port of the requested camera.

Advanced settings

To specify the advanced settings of RTSP Server, do the following:

1. Go to the **Advanced settings** tab.



2. If the current time must be sent to VLC Media Player instead of the frame time, then set the **VLC player compatibility mode** checkbox. You can use this option when there are problems with playing back the archive received over RTSP in VLC Media Player.
3. If **RTSP Server** is used to broadcast video data to the ECHD system, then for the correct operation of navigation through the archive, set the **ECHD compatibility mode** checkbox.
4. If there are captions on the video (see Configuring captions display on a video image), set the **Use captions track** checkbox to send them together with video via **RTSP Server** and to display them in the receiving app —VLC player.
   Also, when this checkbox is set, time captions are added to the video image in the format YYYYMMDDTHHMMSSZ. If the video is archived (see Examples of addresses to view video from RTSP Server), then the captions show the archive time. However, if the **VLC player compatibility mode** checkbox is set together with the **Use captions track** checkbox, the time in the captions is current.

   Attention!

   Correct video playback and captions operation are guaranteed in VLC Media Player version 2.0.0. These features are not guaranteed to work in other versions of VLC Media Player or other programs.

5. If you want to eliminate a delay of several seconds when requesting a video via RTSP, set the **Hot connection mode** checkbox.

   Note

The delay when requesting a video via RTSP can also depend on the camera key frame rate (FPS) settings or the frame buffer size settings in the player.

6. From the **Source IP interface** drop-down list, select the name of the network interface that must be used to broadcast the RTSP server.
7. If the **RTSP Server** is used for broadcasting the video data to the ECHD system, and the Video surveillance servers are behind NAT, then it is necessary to specify the NAT settings:
   a. In the **IP address** field, specify the IP address of the router that performs the NAT broadcasting.
   b. In the **Port** field, specify the port of the router, which is accessed by the client when executing the ECHD requests.

   Note

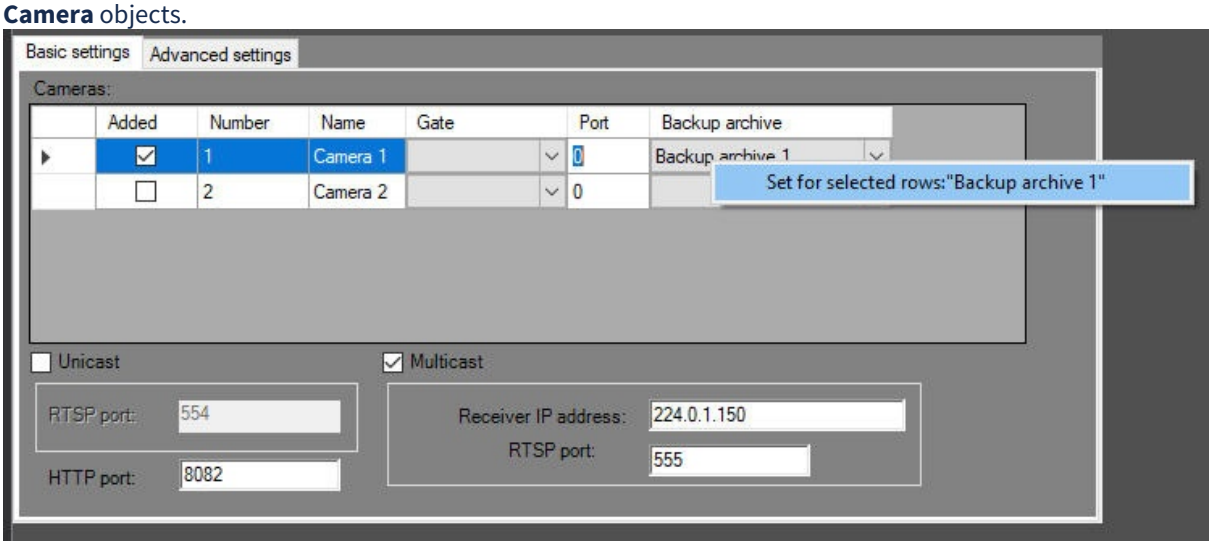
   To enable the substitution of the router's specified IP address and port to the ECHD requests, it is necessary to set the corresponding checkbox on the settings panel of the Web-Server object—see Enabling the processing of SDC (ECHD) requests and selecting the RTSP server.
8. In the **Number of threads (min/)** field, specify the value that corresponds to the initial number of threads that are created when the RTSP Server is started. The default value is **1**.
9. In the **Number of connections per thread** field, specify the value that corresponds to the maximum number of client connections per thread, with equal distribution. If this parameter is exceeded, a new thread is created. The default value is **20**.
10. In the **Number of threads (/max)** field, specify the value that corresponds to the maximum allowed number of threads that can be created. If there are too many threads, server rejects additional connections. The default value is **100**.
11. Click the **Apply** button to save the settings.

Bulk settings for cameras

In case any changeable setting must be the same for several cameras, it can be duplicated. This feature is available for editable columns: **Added, Gate, Port, Backup archive**.

To specify the bulk settings, do the following:

1. Go to the settings panel of the **RTSP Server** object.
2. Specify the value of one or more reference parameters **Added, Gate, Port, Backup archive** for one of the **Camera** objects.



3. Press the Ctrl key and select the full rows in the table, which must have the same values in the corresponding columns.
4. Right-click in the cell of the reference parameter.
5. In the function menu that opens, select **Set for selected rows: "Value"**. As a result, the corresponding column in all selected rows are filled with the value equal to the reference parameter.
6. Repeat steps 4-5 for all parameters that need to be applied to the selected lines.

Bulk settings are complete.

Examples of addresses to view video from RTSP Server

Examples of addresses to view video from RTSP Server

To connect to the server and display video in the video player that supports the RTSP protocol, specify the address of the data source in the format given in the table:

Address	Example	Description
rtsp://Server IP address[Port]**/** CameraNo[?stream_id=StreamNo]	rtsp://127.0.0.1/1	Viewing the default stream from Camera 1 if default port is used
	rtsp:// 127.0.0.1:555/1	Viewing the default stream from Camera 1 when broadcasting in the **Multicast** mode if default port 555 is used. *Note. Connection to the RTSP stream is performed via the IP address of the broadcasting adapter, not by the destination IP address that is specified in the settings panel of the **RTSP Server** object and is used in internal logic*
	rtsp:// 127.0.0.1:555/7? stream_id=7.2	Viewing second stream from Camera 7
rtsp://Login:Password@Server IP address[Port]/CameraNo	rtsp:// login:pass@127.0.0. 1:554/1	Viewing video signal from Camera 1 if users and rights are configured in *Axxon PSIM* (see Rights administration)
	rtsp:// login:pass@127.0.0. 1:555/1	Viewing video signal from Camera 1 in the **Multicast** mode if users and rights are configured in *Axxon PSIM*
rtsp://Server IP address[:Port]**/**CameraNo **?mic_id=**Microphone ID	rtsp:// 127.0.0.1:555/15? mic_id=1	Viewing video from Camera 15 with audio

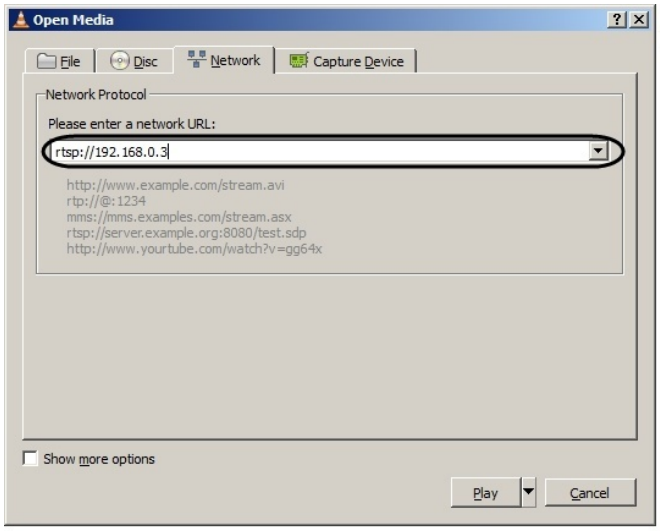
Address	Example	Description
rtsp://Server IP address[:Port]**/?mic_id=**Microphone ID	rtsp://127.0.0.1:555/?mic_id=1	Getting audio only from microphone 1 with no video from any camera
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&time_begin=**yyyy.mm.dd-hh:mm:ss**&time_end=**yyyy.mm.dd-hh:mm:ss	rtsp://127.0.0.1:554/archive?id=1&time_begin=2011.11.11-11:11:11&time_end=2011.11.11-11:12:00	Viewing the video archive of Camera 1 for the specified time period. **time_begin** and **time_end** in the request are the local time of the computer on which the archive was recorded
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&mic_id**=Microphone ID**&time_begin=**yyyy.mm.dd-hh:mm:ss**&time_end=**yyyy.mm.dd-hh:mm:ss	rtsp://127.0.0.1:554/archive?id=1&mic_id=1&time_begin=2011.11.11-11:11:11&time_end=2011.11.11-11:12:00	Viewing video archive of Camera 1 with audio from microphone 1 for a specified time period
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&time_begin=**yyyymmddThhmmssZ**&time_end=**yyyymmddThhmmssZ	rtsp://127.0.0.1:555/archive?id=1&time_begin=20160331T080000Z&time_end=20160331T080800Z	Viewing video archive of Camera 1 for the specified time period
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&time_begin=**yyyymmddThhmmssZ	rtsp://127.0.0.1:555/archive?id=4&time_begin=20160316T065000Z	Viewing video archive of Camera 4 from a specific start time till the archive end (as the value of time_end is not specified in the address)
rtsp://Server IP address[:Port]**/archive?id=**CameraNo	rtsp://127.0.0.1:555/archive?id=4	Viewing video archive of Camera 4 from the beginning till the end
rtsp://Server IP address[:Port]/**archive**?**id**=CameraNo**&long_term_archive**=BackupArchiveNo	rtsp://127.0.0.1:559/archive?id=1&long_term_archive=2	Viewing video archive of Camera 1 from Backup archive 2
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&gate**=VideogateNo	rtsp://127.0.0.1:559/archive?id=1&gate=3	Viewing video archive of Camera 1 from Videogate 3 archive

Address	Example	Description
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&time_begin=**yyyymmddThhmmssZ**&time_end=**yyyymmddThhmmssZ**&z=-1**	rtsp://127.0.0.1:554/archive?id=2&time_begin=20171120T102000Z&time_end=20171120T104000Z&z=-1	Viewing video archive of Camera 2 for the specified time period in reverse order **Note** You can adjust the speed of forward and reverse playback directly in the player that you use.
rtsp://Server IP address[:Port]**/archive?id=**CameraNo**&time_begin=**yyyymmddThhmmssZ**&time_end=**yyyymmddThhmmssZ**&long_term_archive=**BackupArchNo	rtsp://127.0.0.1:554/archive?id=2&time_begin=20241122T110200Z&time_end=20241122T114900Z&long_term_archive=1	Get Camera 2 recordings from Backup archive 1, starting from 11:02:00 on 11/22/2024 and ending at 11:49:00 on the same day. **time_begin** and **time_end** in the request are UTC+0 time. If the time zone of the archive is different, specify the time, taking into account the time difference. For example, if the archive is located in UTC+4 and you need a period from 15:02:00 to 15:49:00, the above example is suitable

Note

If 554 port is used (default value), it can be unspecified in the address line.
In the examples given above, specify the IP address of the computer hosting the **RTSP Server** object instead of 127.0.0.1.

The figure shows how to view video from the server.





22.3.17 Counting the system events

General Information on counting the system events

The **Events Counter** system object is designed for counting the specified types of events on the specified objects. Unlike other objects in the **Hardware** tab, this object is not a hardware component, and fulfils auxiliary functions in programming the *Axxon PSIM* system. It is most commonly used together with other system components, since it does not have a separate interface box for data input/output.

The counter notifies the system about the collected statistical data using the “Data Collected (SIGNAL_POINT)" message. Two notification modes are available: for a specified period of time and for a specified number of events. In the first case, the notification is issued upon expiration of a set time period after the start of counting. In the second case, the notification is issued when a certain amount of events has been counted.

An option for conditional count reset is available. Two reset modes are available: for a specified period of time and for a specified number of events. In the first case, the counter is reset upon expiration of a set time period after the start of counting. In the second case, the counter is reset when a certain amount of events has been counted. After resetting the statistic, the counter issues the “Counters have been reset (COUNTERS_FLUSHED)” message.

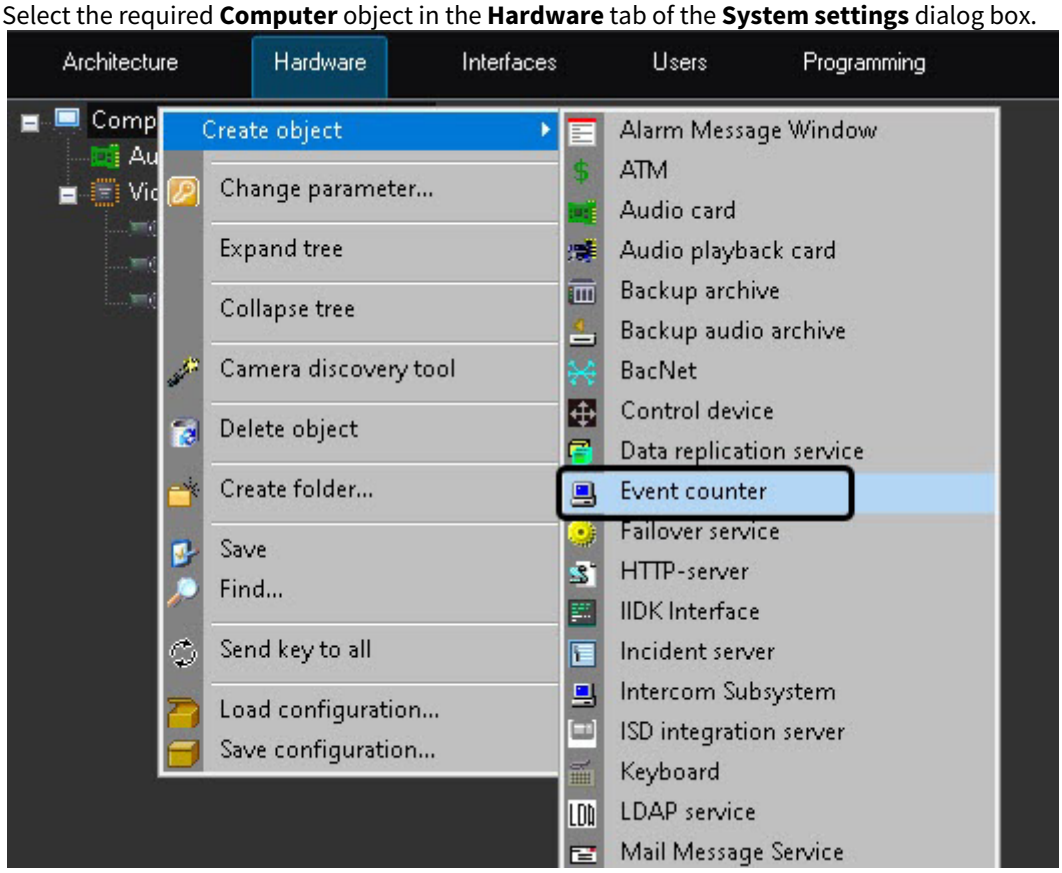
The start time for counting can be set manually, or automatically according to the last change of the **Events Counter** settings.

Besides, one **Events Counter** object allows setting a separate counter for each event.

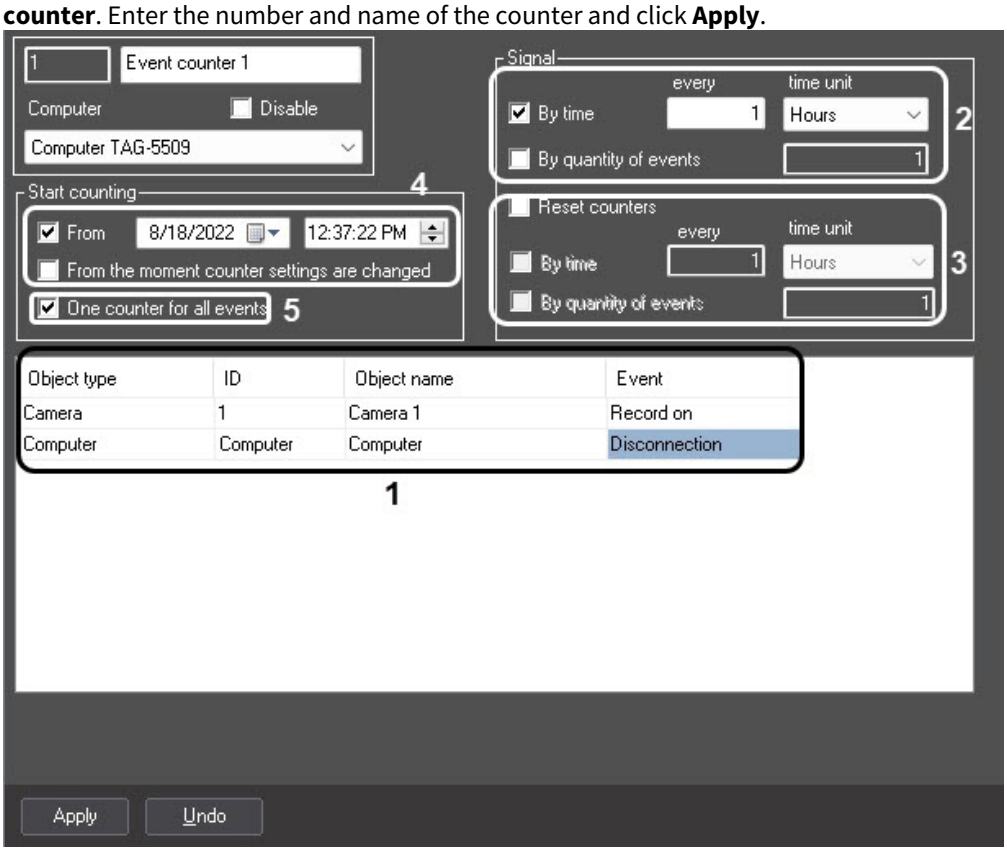
Configuring the Event counter

To configure the Event counter, do the following:

1. Select the required **Computer** object in the **Hardware** tab of the **System settings** dialog box.



2. Right-click the selected **Computer** object. In the drop-down menu, select **Create Object**, then **Event counter**. Enter the number and name of the counter and click **Apply**.



3. Select an object type in the **Object Type** column, and an ID in the **Identifier** column (**1**). Then, select an event in the **Event** column for the created object. Repeat these steps for all required objects and events.

> **Note**
>
> If no object is selected, then the Event counter will not count any events. If only the object type is specified, then the counter will count all events for objects of this type; if an identifier with no name is specified, then the counter will count all events of the selected identifier; if the object name with no event is specified, then then the counter will count all events of the selected object.

   To add a row to the table, select the last row and press the ↓ button on the keyboard. To delete rows from the table, use the Ctrl + Del key combination.

4. Select the notification mode and set the notification parameters (**2**).
5. Enable the counter reset option, if necessary. Select the reset mode and set the reset parameters (**3**).
6. Select the time setting mode and enter the date and time, if necessary (**4**).
7. Uncheck the option for individual events counting, if necessary (**5**).
8. Click **Apply** to save the settings (**6**).

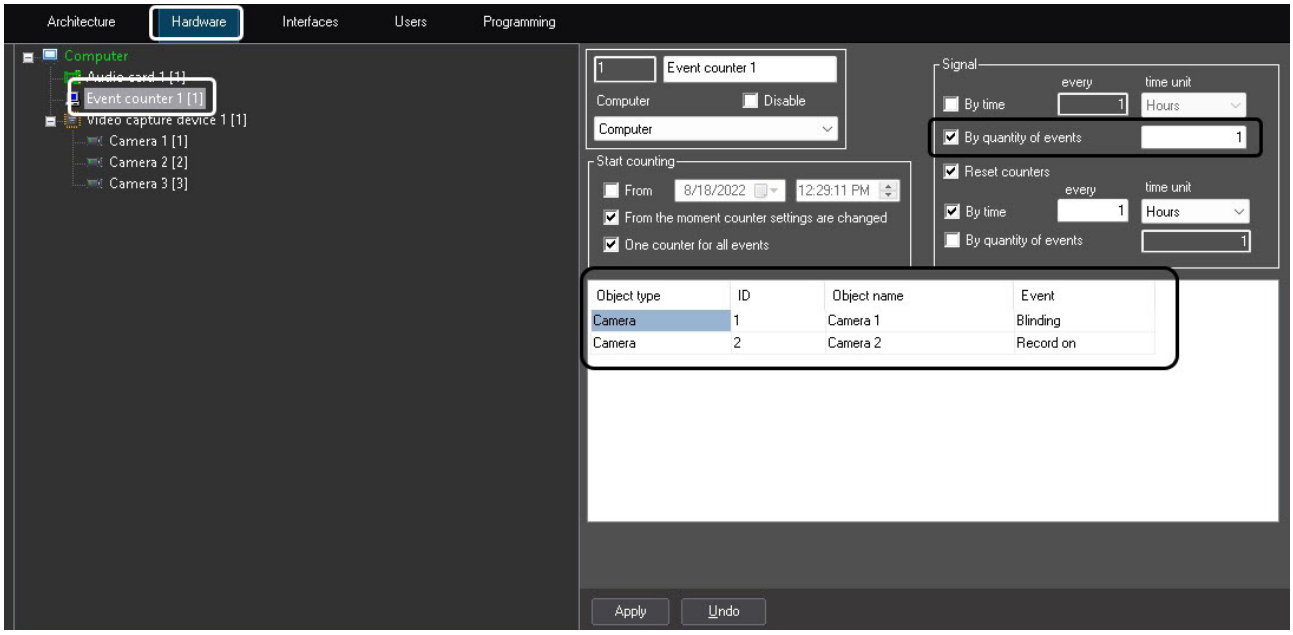
The **Event counter** is now configured.

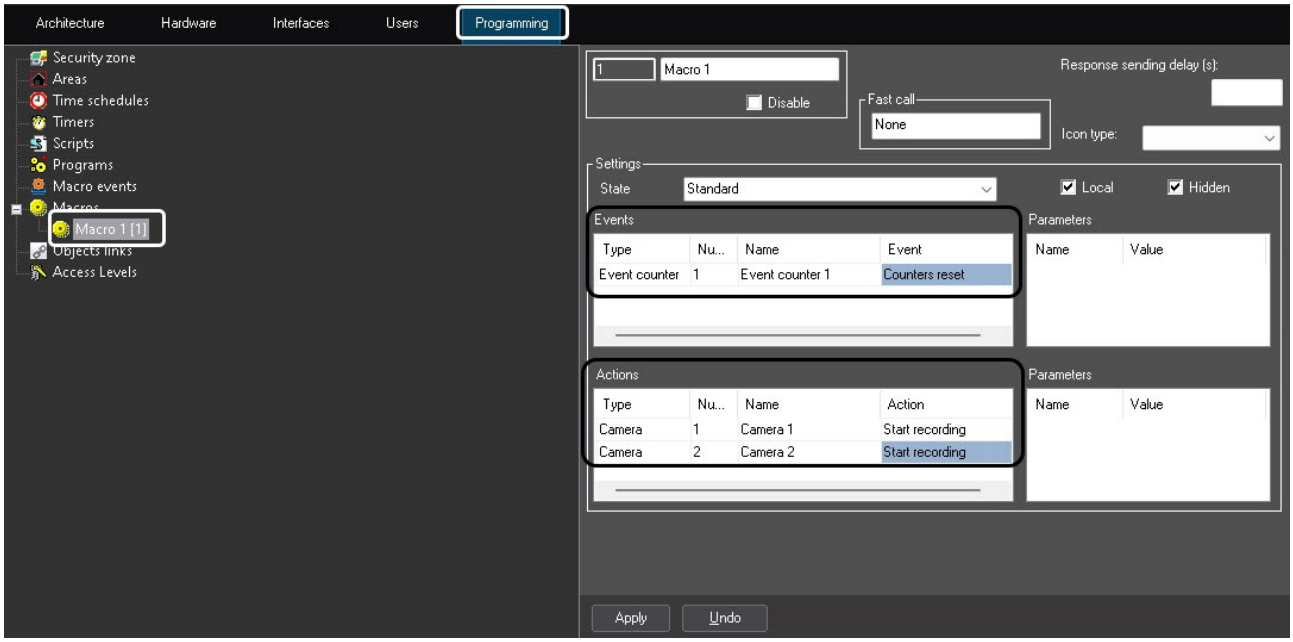
For a detailed description of the Event counter settings, see The settings panel of the Event counter object.

Data output and counter control

The **Event Counter** system object has no separate interface object for data input/output, thus it is used together with other system components. Usually, the data of the **Event counter** object is used in macros to initiate actions with objects.

Figures below show an example of using the **Event counter** object in a macro.





In this example, the counter issues a notification (sends a SIGNAL_POINT (Data collected) message) in any of the following cases: camera №1 is blocked, camera №2 is blocked, camera №1 is broken, camera №2 is broken, unauthorized access attempt, the number of access attempts exceeded the limit. If the Access Abuse Control macro is active at the moment of the counter notification, video recording automatically starts on cameras №1 and №2.

Note.

The macros are described in detail in the Creating and using macros section.

22.3.18 Configuring ONVIF-Server module

General information about ONVIF-Server module

The *ONVIF Server* module enables stream transmission in order to get it via ONVIF protocol supporting audio playback, playback of onboard archive with audio, PTZ control, metadata transmission and support of sensors and relays.

The *ONVIF Server* module supports Digest authentication, event filtering according to ONVIF standard as well as Onvif ImagingService specification.

Attention!

The WS-addressing authentication is not supported in the *ONVIF Server* module. To connect the clients which use this authorization method, it is necessary to create a user with the root/root username and password, or log in without authorization.

MPEG, MJPEG and H264 codecs are supported when transmitting video via ONVIF 1.X and H264, H265, MJPEG and MPEG4 codecs when transmitting video via ONVIF 2.X.

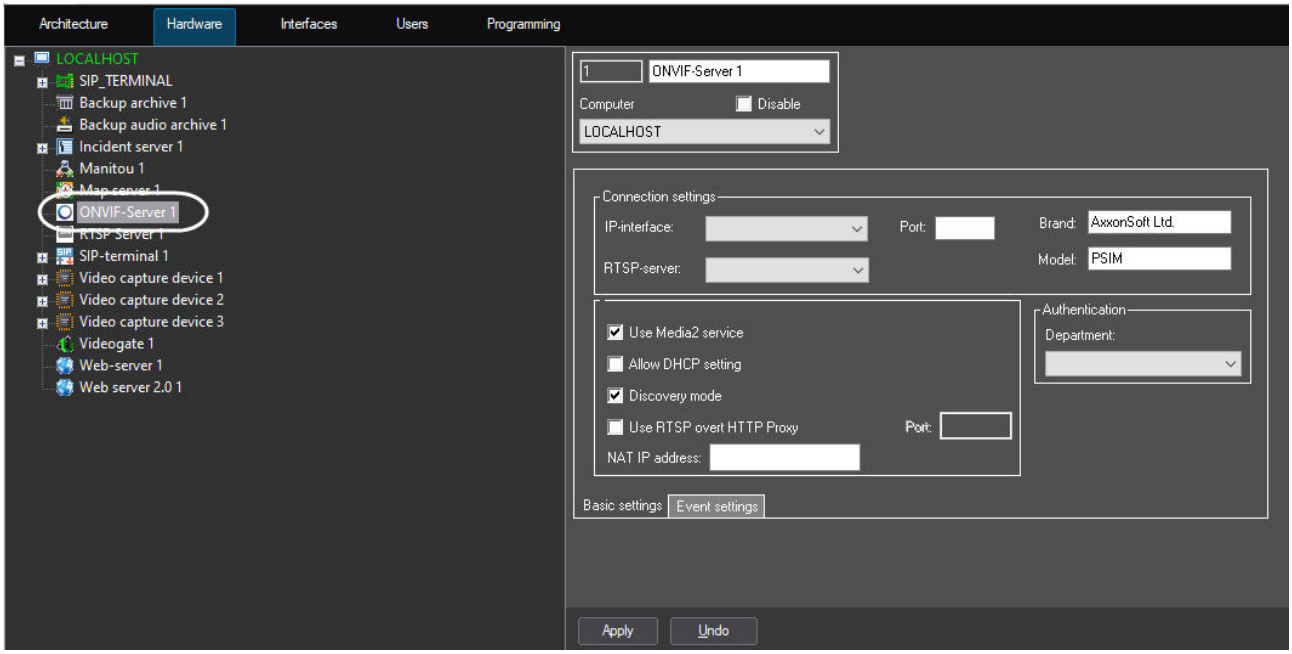
Video is also transmitted via *ONVIF Server* in the multistream mode.

Configure the correspondence between Axxon PSIM user rights and ONVIF rights in order to differentiate rights when Clients use *ONVIF Server* - see Configuring rights to work with the ONVIF server.

Configuring the ONVIF-Server object

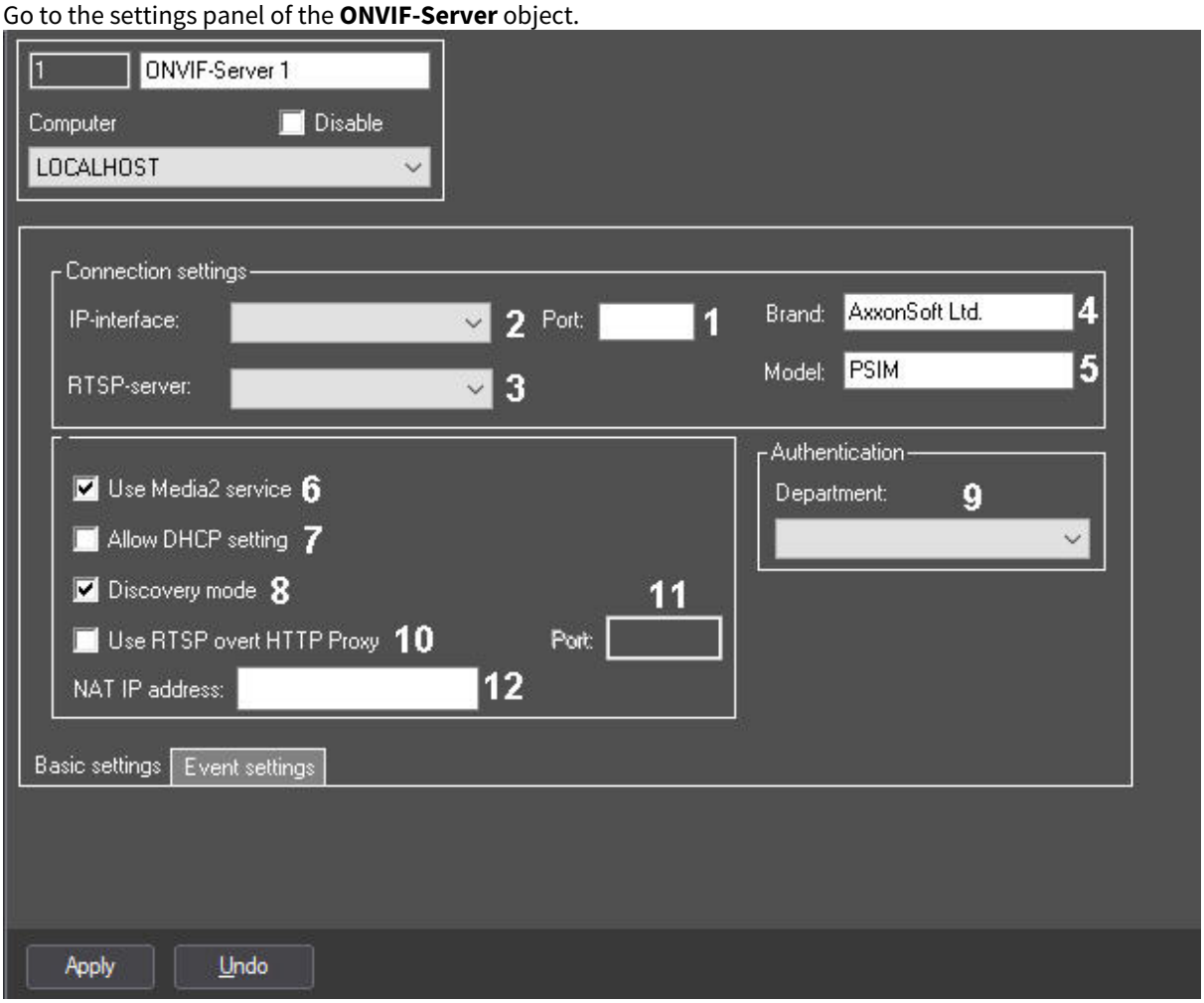
You must create and configure the **RTSP Server** object and add to it all the required cameras before you configure the *ONVIF-Server* module (see Configuring the RTSP Server module).

The **ONVIF-Server** object is created on the basis of the **Computer** object on the **Hardware** tab of the **System settings** window.



You can configure the **ONVIF-Server** object on the **Basic settings** tab as follows:

1. Go to the settings panel of the **ONVIF-Server** object.



2. Specify the port number used to connect to the server (**1**).
3. From the **IP-interface** drop-down list (**2**), select the network interface used to connect to the server.
4. From the **RTSP-server** drop-down list (**3**), select the **RTSP server** used together with this **ONVIF-Server** object.
5. In the **Brand** (**4**) and **Model** (**5**) fields, specify the names that are displayed while searching in various clients that support getting the stream over ONVIF, for example, ONVIF Device Manager.
6. By default, the ONVIF 1.X standard is used to transmit video. The ONVIF 1.X standard corresponds to ONVIF profile S and is used to transmit video in MPEG, MJPEG, and H264 formats (always enabled). If you want to transmit video in H265, H264, MPEG, or MJPEG formats according to the ONVIF 2.X standard that corresponds to ONVIF profile T, set the **Use Media2 service** checkbox (**6**). In this case, in addition to profile S, profile T is also enabled. For more information about ONVIF profiles, see Main ONVIF profiles.
7. Set the **Allow DHCP setting** checkbox (**7**) if the network uses the DHCP protocol.
8. By default, the WS-Discovery mode is enabled for the ONVIF server. Clear the **Discovery mode** checkbox (**8**) in order to disable it.

> **Note**
>
> All apps that use port 3702 must be shut down on the computer where the ONVIF-Server is started for proper operation of the Discovery mode.
> You can see processes and ports occupied by them using the *Netstat -ano -p udp* command.

9. From the **Department** drop-down list (**9**), select the department where the users are created when they are added via the *ONVIF-Server* interface.

   > **Note**
   >
   > You can create users in the *ONVIF-Server* interface using the third-party software, for example, ONVIF Device Manager. The Administrator rights are required to create users (see Configuring rights to work with the ONVIF server).

10. If it is required to redirect all RTSP server and ONVIF server requests to the specified port, set the **Use RTSP over HTTP Proxy** checkbox (**10**) and specify the port number in the **Port** field (**11**). This can be necessary for the ONVIF server operation behind NAT.
11. If it is necessary for the ONVIF server to use a specific IP address behind NAT in responses to clients, enter this address in the **NAT IP address** field (**12**). This can be necessary, for example, if clients connect not from the local network but from the internet via an external IP address.
12. Click the **Apply** button.

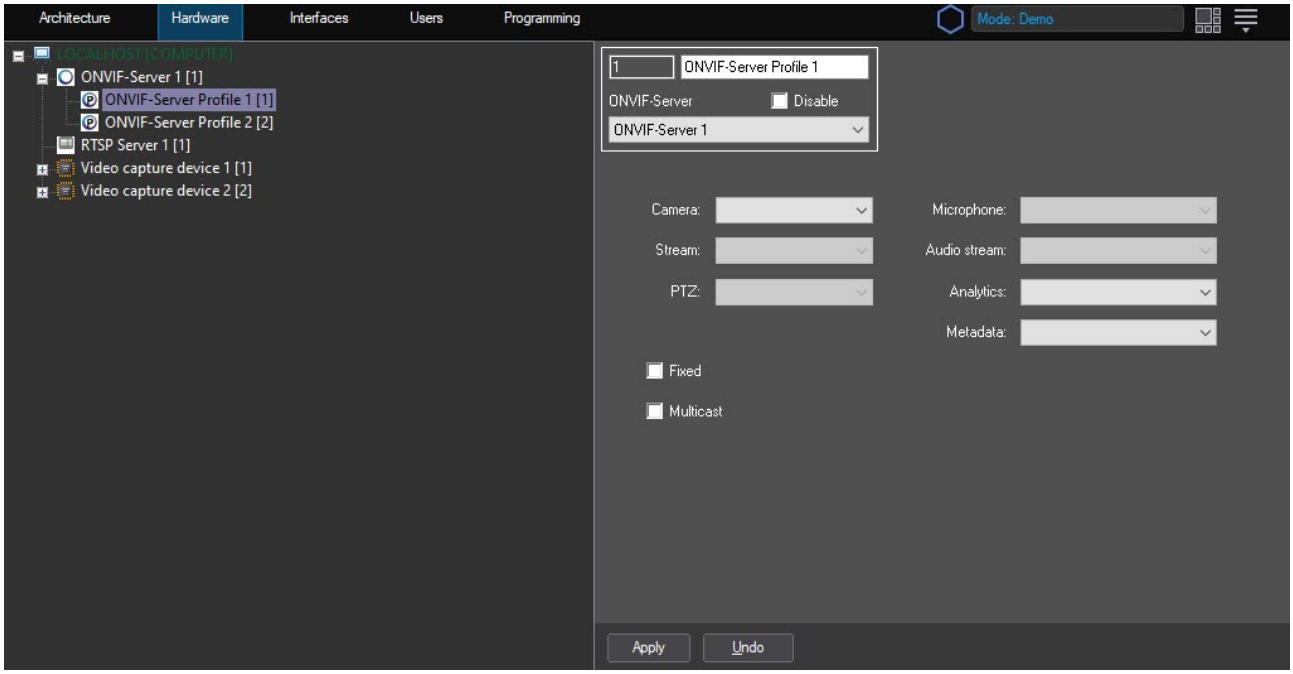
The **ONVIF-Server** object is configured. Now you can proceed to setting up video reception via the *ONVIF-Server* module.

Configuring getting video using ONVIF-Server module
The settings panel of the ONVIF-Server object

Configuring getting video using ONVIF-Server module

This page describes the setup using the example of receiving video from *Axxon One*.
Receiving video using the ONVIF-Server module is configured in *Axxon One*. Information on how to search and add IP devices to *Axxon One* is described in the Axxon One User Guide.

After adding a camera to *Axxon One*, in *Axxon PSIM* two **ONVIF-Server Profile** objects will be created under **ONVIF-Server** object for each camera added to the corresponding **RTSP Server.** These objects correspond to video streams of low and high quality in *Axxon One*.



Note

If multistreaming is disabled for the camera, then the parameters of both profiles corresponding to the camera are the same. See Configuring the multistream video.

If user rights are configured in *Axxon PSIM* (see Configuration of users and rights), then the login and password are to be specified in order to connect to the camera. Otherwise there is no need to specify any login or password.

If required it is possible to select the video stream in the **Stream** drop-down list. Available video streams are configured on the settings panel of the **Camera** object—see Configuring the multistream video.

When changing camera parameters in *Axxon One* the corresponding changes will be applied in *Axxon PSIM* too. For instance, if the microphone, analytics, metadata transmission and sensor/relays are enabled in *Axxon One*, then the corresponding settings are applied for the **ONVIF-Server Profile** object in *Axxon PSIM*:

1. **PTZ**. **PTZ** object is to be created and configured in *Axxon PSIM* in order to control PTZ on camera connected via ONVIF-Server on the client. See PTZ configuration section in Installing and configuring security system components guide).
2. **Microphone**, **Audio stream**. **Audio card** and **Microphone** objects are to be created and configured in *Axxon PSIM* in order to receive and record audio from ONVIF Server on the client. See Configuring audio acquisition from IP devices section in Installing and configuring security system components guide.
3. **Analytics**, **Metadata**. **Tracker** and **VMDA detection** objects are to be created and configured under the corresponding **Camera** object in *Axxon PSIM* in order to receive and record metadata and analytics data from ONVIF Server on the client. See Configuring smart video detection tools. In *Axxon One* the **ONVIF events** detection is to be created for the added camera.

Important!

Changes of the configuration of the **RTSP Server** object corresponding to the **ONVIF Server** object in *Axxon PSIM* will be applied in *Axxon One* only after the *Axxon One* Server is restarted or when the camera is deleted and added to *Axxon One* again.

Besides, there are the following checkboxes on the settings panel of the **ONVIF-Server Profile** object:

1. **Fixed**—disables deleting the **profile** using the driver.
2. **Multicast**—enables video transmission in the multicast mode. There are some extra actions besides setting the checkbox checked:

1. Set the registry key:
   HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AxxonSoft\PSIM\Video\TransportProtocols
   rtsp = multicast
2. Enable the multicast mode on the settings panel of the **RTSP Server** object corresponding to the **ONVIF-Server** object—see Configuring the RTSP Server module.

Features of embedded storage operation via ONVIF-Server

It should be noted that when you add an ONVIF-Server as a video camera to other *Axxon PSIM* or *Axxon One* Server, or to the third-party software, the embedded storage of the added ONVIF video camera will be associated with the *Axxon PSIM* archive and not directly with the video camera's embedded storage. See Configuring getting video using ONVIF-Server module.

If the *Axxon PSIM* archive is connected as a video camera's embedded storage on other *Axxon PSIM* or *Axxon One* Server, or the third-party software, the following features will be available:

1. Accelerated playback of the embedded storage's video archive.
2. Playback of the audio recorded synchronously with the video.

If the smart video detection tools are configured for the cameras which video is transmitted via the ONVIF-Server (see Configuring smart video detection tools), then if the are connected via the ONVIF-Server on other *Axxon PSIM* or *Axxon One* Server, or the third-party software, the smart video detection tools triggers will be transmitted as the events from the embedded video camera detectors. The procedure of setting up the embedded detectors in *Axxon PSIM* is described in the Embedded detectors section. The instructions for setting up the embedded detectors in *Axxon One* and the third-party software can be found in the corresponding documentation.

Filtering the events of the ONVIF server

On the page:

- General information about filtering messages and events
- ONVIF standard events
- Configuring the correspondence of messages for Topic Filter and the Axxon PSIM events

General information about filtering messages and events

The *ONVIF-Server* module supports filtering of messages and events transmitted in the metadata stream according to the ONVIF standard: Topic Filter and Message Content Filter. The ONVIF profiles S and T are used to transmit events.

You can configure the correspondence of messages for Topic Filter and the *Axxon PSIM* events. These are the *ONVIF-Server* events that start with *tns* and *tmk* in the examples below on this page. *Axxon PSIM* transmits only those events for which the correspondence is configured. The remaining events and messages are sent automatically according to the specification (for example, when changing the settings of the server, profile, or MotionAlarm, and so on).

ONVIF standard events

Profile S and **Profile T** are implemented for event transmission. These profiles include standard events described in the ONVIF documentation. You can get a full list of supported events by a corresponding request to the server or using the Onvif Device Test Tool utility.

tns1:VideoSource/MotionAlarm (MD_START/MD_STOP in *Axxon PSIM* terms)

tns1:RecordingConfig/JobState (RECORDER_ON/RECORDER_OFF in *Axxon PSIM* terms)

tt:VideoAnalyticsStream (only BoundingBox for the tracker is transmitted inside the events, this is MD_INFO in *Axxon PSIM* terms)

tns1:Device/Trigger/Relay

tns1:Device/Trigger/DigitalInput

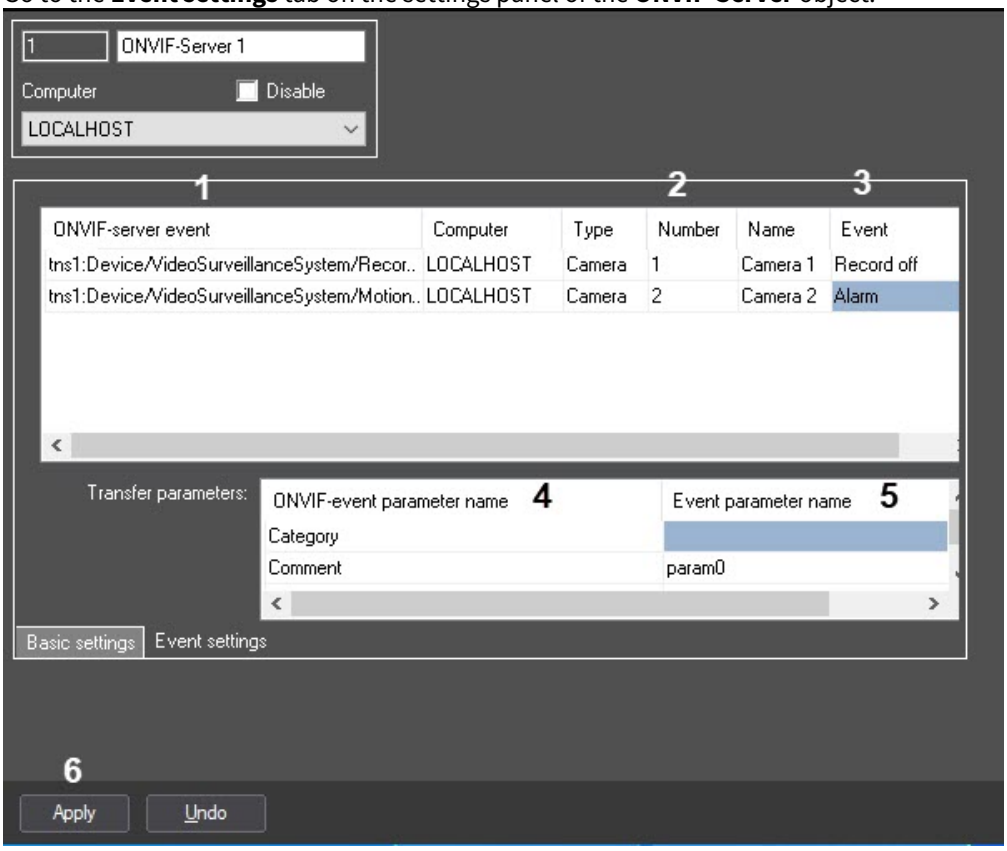
tns1:Configuration/Profile

tns1:Media/ProfileChanged

Configuring the correspondence of messages for Topic Filter and the *Axxon PSIM* events

The correspondence of messages for Topic Filter and the *Axxon PSIM* events is configured in the following order:

1. Go to the **Event settings** tab on the settings panel of the **ONVIF-Server** object.



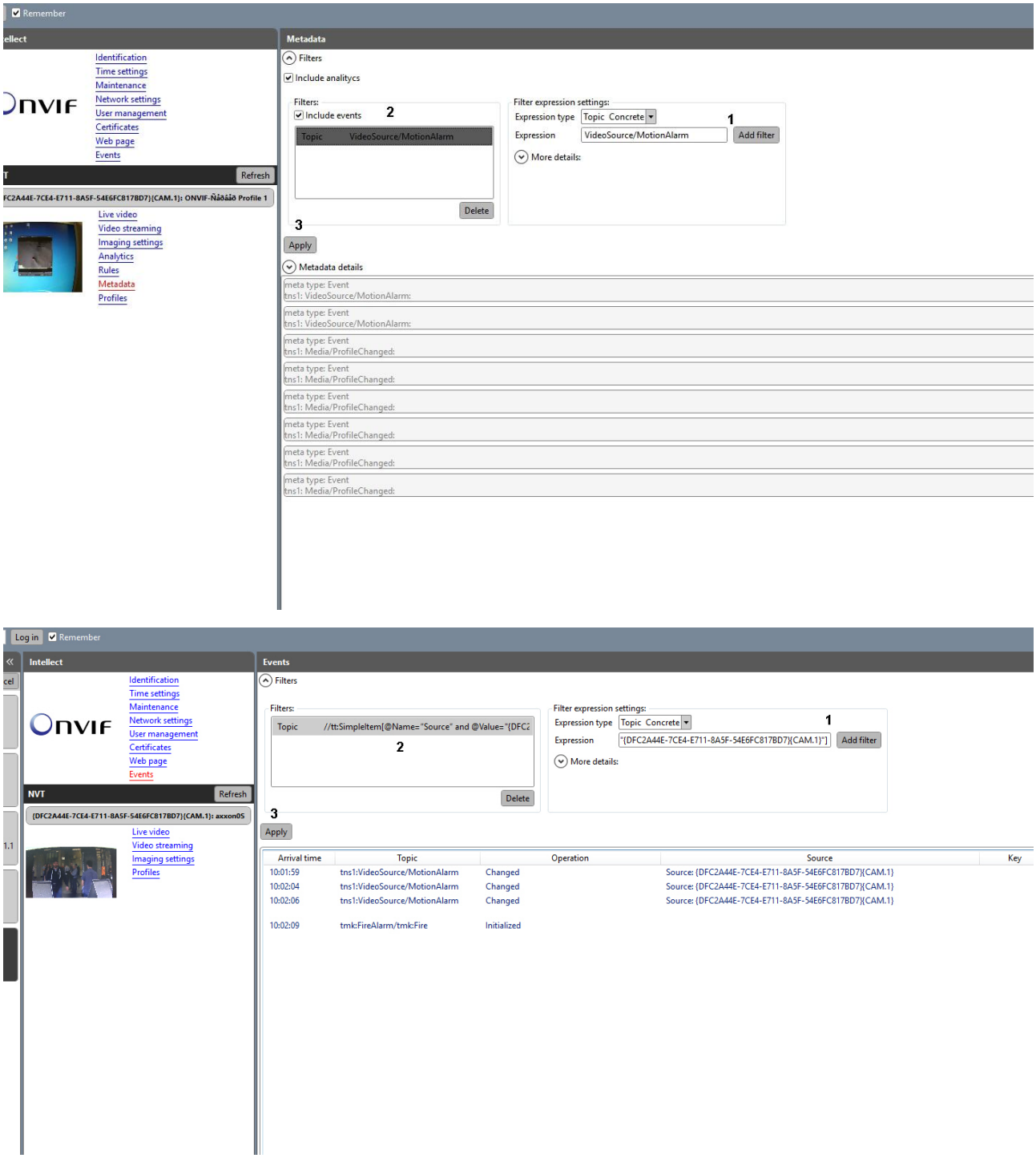
2. From the drop-down list in the **ONVIF-server event** column (**1**), select the ONVIF server event. See the event description in the table at the bottom of the page.

   > **Note**
   >
   > To add a row to the table, press the "down" button on the keyboard; to delete a row, use the Ctrl+Del key combination.

3. In the **Computer**, **Type**, and **Number** columns (**2**), specify the parameters of the object from which the corresponding event comes. The **Name** field is filled in automatically when you left-click it. If any column parameter is empty, it means that the message is sent for any value of the corresponding parameter.
4. From the **Event** drop-down list (**3**), select an event that comes from the selected object and corresponds to the specified ONVIF server message.
5. If the specification requires that the event contain certain parameters (see the table at the bottom of the page), it is necessary to specify their values or the correspondence to the *Axxon PSIM* event parameters in the **Transfer parameters** table:
   a. The **ONVIF-event parameter name** column (**4**) contains the required parameters of the ONVIF server event. They are set according to the specification.
   b. In the **Event parameter name** column (**5**), it is necessary to specify the parameter value or the parameter names of the *Axxon PSIM* event. Event parameters can be found in the Debug window, and some of them are described in Description of events and reactions of system objects (see Guide for creating scripts (programming)).
6. Repeat steps 2-5 for all required events.
7. Click the **Apply** button (**6**).

You can check the message and event filtering in the third-party software, for example, in the ONVIF Device Manager utility.

To do this, go to the **Events** or **Metadata** page, depending on what messages you want to see, set the filtering conditions (**1**) that are displayed in the list (**2**), and then click **Apply** (**3**). As a result, only the events that match the filter must be displayed.



Examples of filters used in the ONVIF Device Manager utility:

1. Topic Filter
   a. **tns1:VideoSurveillanceSystem//.**
      Events where the topic starts with **tns1**:VideoSurveillanceSystem/
   b. **tns1:VideoSource/MotionDetectorTrigger**
      MotionDetectorTrigger events only

c. **tns1:VideoSurveillanceSystem//.|tns1:FireAlarm/Alarm**
Events where the topic starts with **tns1**:VideoSurveillanceSystem/, as well as FireAlarm/Alarm events
d. **tns1:VideoSource/**
All events of the video system with a comment containing an *Axxon PSIM* event in its original form.

2. Message Content Filter
a. **//tt:SimpleItem[@Name="Source" and @Value="{DFC2A44E-7CE4-E711-8A5F-54E6FC817BD7}{CAM.1}"]**
Events only from the source with the identifier {DFC2A44E-7CE4-E711-8A5F-54E6FC817BD7}{CAM.1}

Note

When you restart the ONVIF server, the filters are reset, and they need to be set again.
Before changing the filter in the **Events** section, it is necessary to click the **Refresh** button for the camera in ODM.
All events from the filter of the **tns1:Device** type are configurable and created for a specific integration. You can configure and use them with the restriction that the list of parameters and the format of the event are fixed.

Event	Event description	Parameters	Configuration required
tns1:Device/AccessControl/Accident	Access Control System incident	Name Comment Place	Yes
tns1:Device/AccessControl/Fault	Access Control System failure		
tns1:Device/FireAlarm/Alarm	Fire Alarm System alarm	Category Zone Comment	Yes
tns1:Device/FireAlarm/Fire	Fire message from Fire Alarm System		
tns1:Device/FireAlarm/Fault	Fire Alarm System failure		
tns1:Device/GasAnalysis/ConcentrationExceeded	Increased concentration of hazardous gases	Place ConcentrationLimit GasType Concentration Comment	Yes

Event	Event description	Parameters	Configuration required
tns1:Device/Introscopy/ LimitExceeded	Detection of metal objects and organic matter	Account Picture Result	Yes
tns1:Device/NeutronProbing/ Detect	Detection of explosives	Place ExplosiveType Location Comment	Yes
tns1:Device/ RadiationMonitoring/Detect	Increased radiation	Picture Category Measures Account	Yes
tns1:Device/SteamDetector/ Detect	Detection of vapors and trace amounts of explosives that exceed the established threshold values	Measures Picture Account	Yes
tns1:Device/MetalDetector/ Detect	Detection of metal objects that exceed the specified values.	Picture Account	Yes
tns1:Device/ VideoSurveillanceSystem/ ChannelDisconnect	Video channel disconnection	Category Comment Priority	Yes
tns1:Device/ VideoSurveillanceSystem/ ChannelConnect	Video channel connection		
tns1:Device/ VideoSurveillanceSystem/ RecordTurnOff	Recording turned off		

Event	Event description	Parameters	Configuration required
tns1:Device/ VideoSurveillanceSystem/ RecordTurnOn	Recording turned on		
tns1:Device/ VideoSurveillanceSystem/ MotionDetectorTrigger	Motion detector triggering		
tns1:Device/ VideoSurveillanceSystem/ ReadRecordRequest	Request for the record reading		
tns1:Device/ VideoSurveillanceSystem/ DeleteRecordRequest	Request for the record deletion		
tns1:Device/ VideoSurveillanceSystem/ EditDbRecordRequest	Request for the event database editing		
tns1:Device/ VideoSurveillanceSystem/ CopyDbRecordRequest	Request for the event database copying		
tns1:Device/ VideoSurveillanceSystem/ Authorization	System user authorization		
tns1:Device/ VideoSurveillanceSystem/ ServerPowerOn	Server switched on		
tns1:Device/ VideoSurveillanceSystem/ ServerPowerOff	Server switched off		
axn:HDDrive/axn:Fault	Hard disk error (hard disk missing)	-	No
axn:HDDrive/ axn:RecordingFault	Hard disk failure	-	No

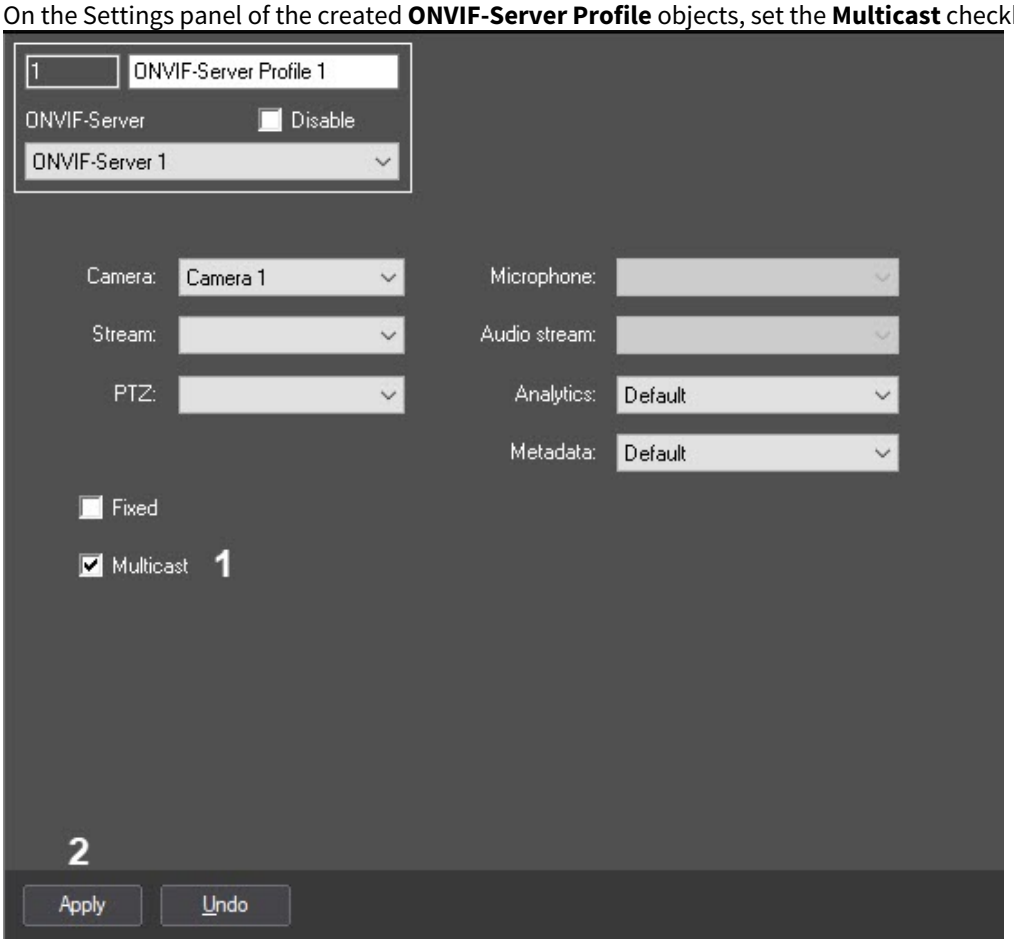
Event	Event description	Parameters	Configuration required
axn:HDDrive/axn:DriveFull	Hard disk full (if overwriting on a loop is not enabled)	-	No
axn:VideoSurveillanceSystem/ axn:ChannelDisconnect	Video camera disconnection	-	No
axn:VideoSurveillanceSystem/ axn:ChannelConnect	Video camera connection	-	No
axn:VideoSurveillanceSystem/ axn:ServerPowerOn	Connection of any *Axxon PSIM* servers in a distributed architecture	-	No
axn:VideoSurveillanceSystem/ ServerPowerOff	Disconnection of any *Axxon PSIM* servers in a distributed architecture	-	No
tns1:VideoSource	All events of the video system with a comment containing an *Axxon PSIM* event in its original form (for examples, see The Debug window)	-	No

Configuring ONVIF-Server module for the Multicast mode

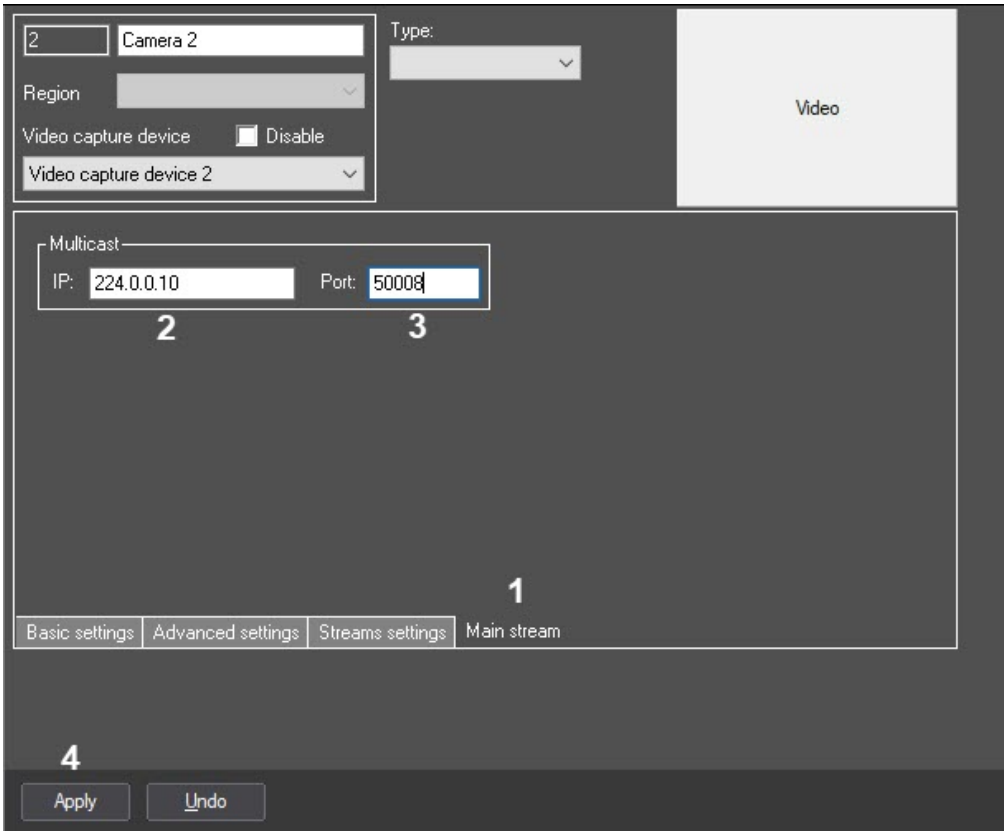
To configure the ONVIF-Server to operate in the Multicast mode, do the following:

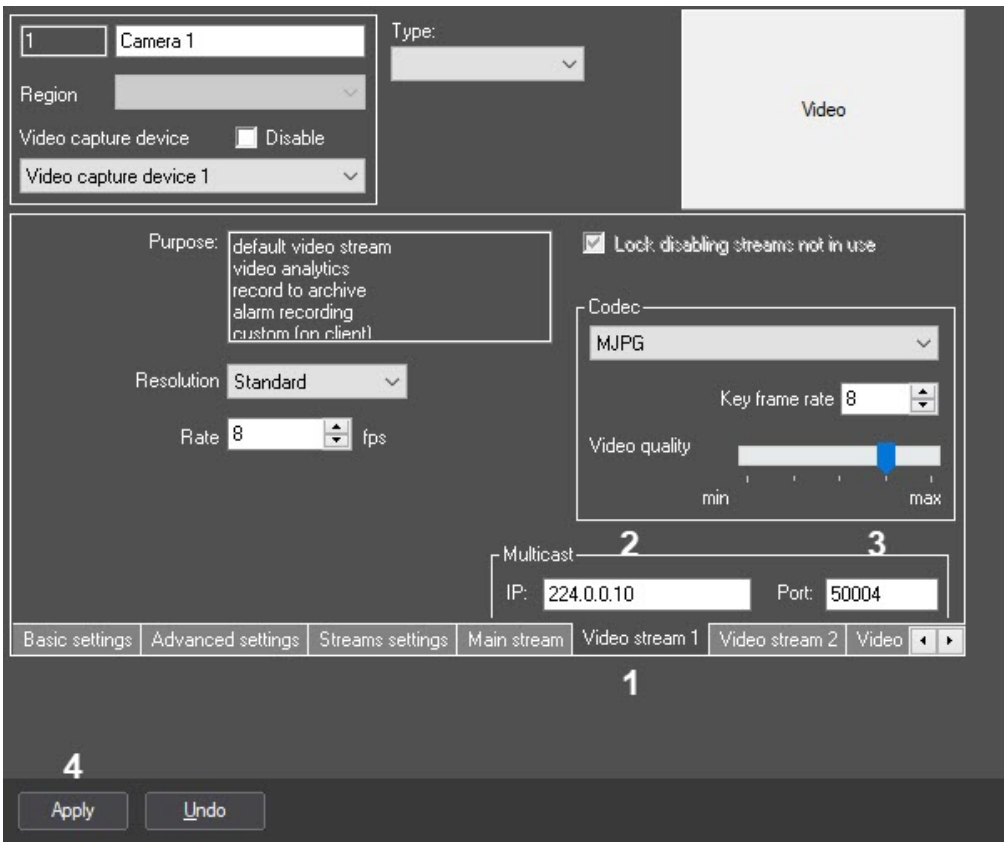
1. Configure the **ONVIF-Server** object (see Configuring the ONVIF-Server object).
2. Connect to the ONVIF-Server in the software that receives the ONVIF-Server stream (the *Axxon PSIM* or *Axxon One* Server, or the third-party software, for example, ONVIF Device Manager). For the information about setting up a connection, see the appropriate software documentation.
3. If the connection is established, the **ONVIF-Server Profile** objects will be created on the basis of the ONVIF-Server object (see Configuring getting video using ONVIF-Server module).

4. On the Settings panel of the created **ONVIF-Server Profile** objects, set the **Multicast** checkbox.



5. Go to the settings panel of the **Camera** object that corresponds to the video camera, which video stream is transmitted via the ONVIF-Server.
6. Go to the video stream tab. If multistreaming is not enabled on the camera, then go to the **Main stream** tab (**1**). If multistreaming is enabled, go to the corresponding video stream tab (see also Configuring the multistream video).


2
Camera 2
Type:
Region
Video capture device
Disable
Video capture device 2
Video
Multicast
IP:
224.0.0.10
Port:
50008
2
3
1
Basic settings
Advanced settings
Streams settings
Main stream
4
Apply
Undo


1
Camera 1
Type:
Region
Video capture device
Disable
Video capture device 1
Video
Purpose:
default video stream
video analytics
record to archive
alarm recording
custom (on client)
Lock disabling streams not in use
Codec
MJPG
Resolution
Standard
Key frame rate
8
Rate
8
fps
Video quality
min
max
2
3
Multicast
IP:
224.0.0.10
Port:
50004
Basic settings
Advanced settings
Streams settings
Main stream
Video stream 1
Video stream 2
Video
1
4
Apply
Undo

7. In the **IP** field, enter the IP address from which the client will receive the video data in the **Multicast** mode (**2**). The IP address should be in the range of 224.0.0.0 - 239.255.255.255.
8. In the **Port** field, specify the port number for transmitting the video data in the **Multicast** mode (**3**). For each camera, the following ports are used in the **Multicast** mode: nPort, nPort + 18000 (rtp), nPort + 19000 (rtcp), where nPort is the port number specified on the video stream tab.
   For the proper ONVIF-Server operation in the **Multicast** mode, it is necessary that these ports are not busy.
9. Click the **Apply** button (**4**).
10. Repeat steps 5-9 for all cameras, which video stream is transmitted via the ONVIF-Server.

The multicast stream can be received either via the http-request to the corresponding RTSP-Server (for the request examples, see Configuring the RTSP Server module), or directly using the multicasting IP address and Port specified in the streams settings. Using the link in the rtsp://ip:multicast_port/cam_num format, the client can receive the information via the RTSP protocol about the internal IP address and port used to transmit the stream.

The configuration of the ONVIF-Server to operate in the **Multicast** mode is completed.

Main ONVIF profiles

An ONVIF profile is a certified set of functions supported by the device.

Axxon PSIM has full support for profiles S, T, and G.

Main ONVIF profiles are described in the table:

Profile	Purpose	Function
Profile S	Streaming	Transmission of video, audio, PTZ control, events (main for IP cameras)
Profile G	Recording	Control of recording and playback, storage of videos on a device
Profile T	Advanced features	H.265, enhanced security, HDR, events
Profile C	Access control	Access, events, states of locks, and so on
Profile A	Access administration	Configuration of users, rights, schedules
Profile M	Metadata and analytics	Face recognition, line crossing, motion detectors, and so on

For more information about profiles of the ONVIF-Server, see the official documentation for the ONVIF standard https://www.onvif.org/profiles/.

22.3.19 Configuring integration with third-party systems

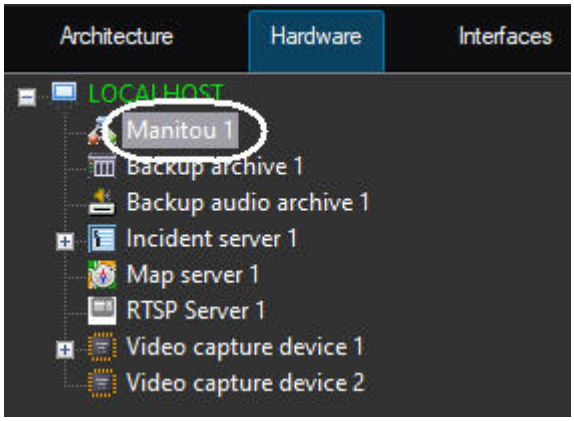
Configuring interaction with Manitou software

Interaction with *Manitou* software means sending messages on the event from *Axxon PSIM* to the Server with installed *Manitou* software. Messages contain info on the events and alarm video connected with the event can be attached to such a message.

> **Attention!**
>
> Non-stop recording should be performed on the corresponding camera in order to attach a video fragment to the message correctly—see Recording by Operator command.

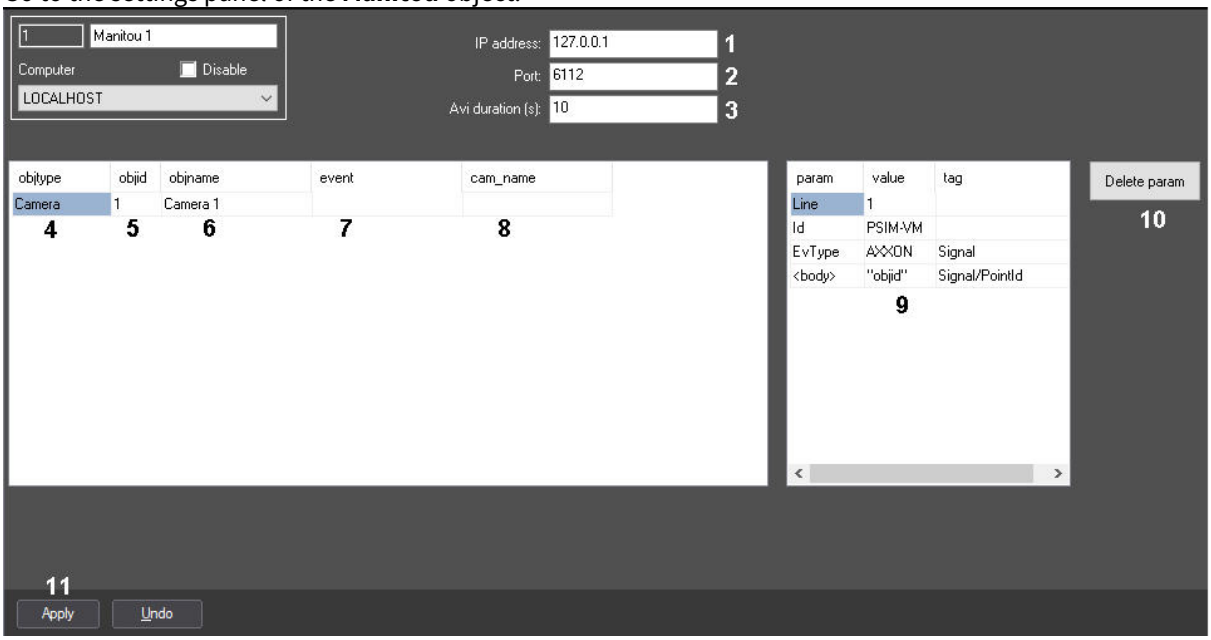
Manitou integration module stands as a client in *Axxon PSIM*.

Interaction with *Manitou* software is configured on the settings panel of the **Manitou** object created on the basis of the **Computer** object in the **Hardware** tab of the **System settings** dialog box.



To configure interaction with *Manitou* software, do the following:

1. Go to the settings panel of the **Manitou** object.



2. In the **IP address** field, specify the IP address of the Server where *Manitou* software is started and to which the connection should be performed (**1**).
3. In the **Port** field, specify the port number to connect to the Server with *Manitou* software (**2**).
4. In the **Avi duration (s)** field, specify the period of delay after the event happens and before sending the message with an attached video (**3**).

   > **Note**
   >
   > For the correct video export, in the Tweaki.exe utility set the maximum frames in one video file so the video fragment duration is shorter than the delay (for instance, 100). Otherwise it may happen that recording of the required fragment of video archive has not stopped yet when sending the message. See The Settings panel of the Video subsystem section (the **Frame count** parameter).

5. From the **objtype** drop-down list, select the type of object by the event from which the message should be sent to *Manitou* software (**4**).

   > **Attention!**
   >
   > If you don't select any object, messages about all objects of the system will be sent to *Manitou* software. This can significantly increase the system load, as a large number of video fragments will be generated.

6. From the **objid** drop-down list, select the ID of the object of the selected type (**5**).
7. Left-click in the **objname** field (**6**). It is automatically filled with the name of the corresponding object.
8. From the **event** drop-down list, select the event from the object of the selected type. When this event happens, the message will be sent to *Manitou* software (**7**). If the event is not selected, then messages will be sent on any event from the selected object.
9. From the **cam_name** drop-down list, select the **Camera** object the video fragment from which needs be attached to the message (**8**).
10. Repeat steps 5-9 for all required objects and events.

    > **Note**
    >
    > Press the down arrow ↓ on the keyboard to add a line to the table.

11. If necessary, set the transfer values of the tags in the table (**9**):
    a. The **tag** column determines in which tag the attribute will be created or its value set. If the field is left blank, the <Packet> root tag will be selected. This field should be left blank for a string—for it the <Packet> tag is selected by default. The format of setting the field: **Tag/Tag** (tag names with a slash) without specifying the root tag. Example: **Signal/PacketId** will be initialized as <Packet><Signal><PacketId></PacketId></Signal></Packet>.
    b. The **param** and **value** columns specify the value of the attribute and the attribute, respectively. Usage options:
    - if you specify <body> in the **param** column, and the required value in the **value** column, it will be specified directly in the tag. For example, if <body> is specified in the **param,** 2 is specified in the **value** and **Signal/PacketId** is specified in the tag, the result will be the following entry: <Packet><Signal><PacketId>2</PacketId></Signal></Packet>;
    - if <body> isn't specified in the **param** column, the value specified in the **value** column will be written to the attributes of the specified tag;
    - to specify a value from the objects table, you have to specify **value** in **"**quotation marks**"**. For example, if **"objid"** is specified, the object ID will be transferred. If **objid** is specified without quotation marks, the **objid** string will be transferred.

Note

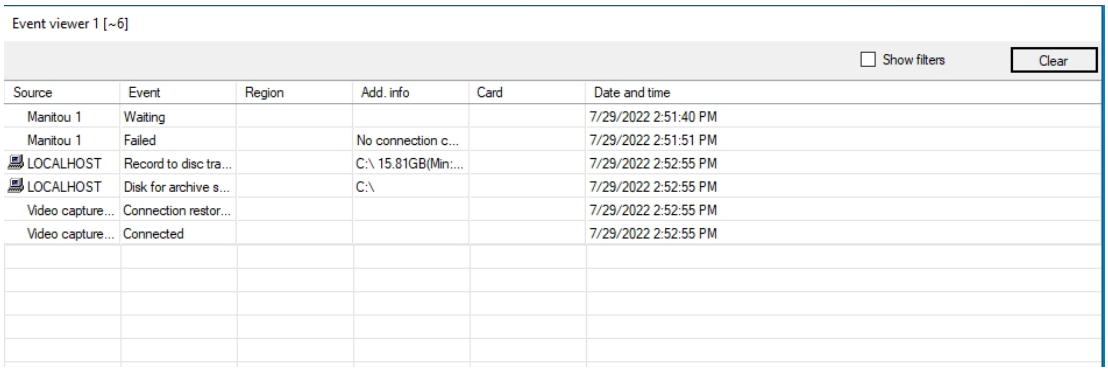
There are limitations caused by the XML syntax:

- you cannot set a value to a tag if it has child tags, and vice versa;
- you cannot use the following characters in the **value** field: '/', '\', 'space', 'quotes', '<', '>', '&', 'apostrophe';
- you cannot use the following characters in the **param** field: '<', '>', '&';
- you cannot use the following characters in the **tag** field: 'space', 'apostrophe', '<', '>', '&', 'quotes'.

If these characters are found, the parameter will not be saved and the reason will be logged.
To clear the tag table, click **Delete param** (**10**).

12. Click the **Apply** button (**11**).

The *Manitou* connection status is displayed in the **Event viewer**.



Interaction with *Manitou* software is now configured.

Configuring integration with VideoGuard system

Axxon PSIM allows sending events from the system objects to the VideoGuard server. In this case, *Axxon PSIM* acts as a client of the VideoGuard system.

On the page:

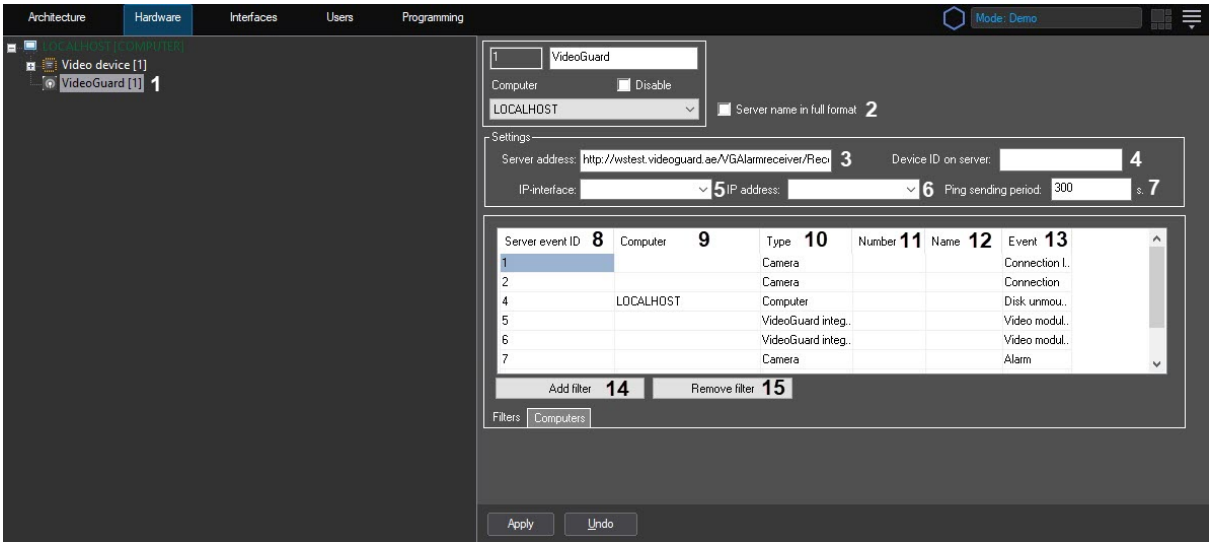
- Configuring integration
- VideoGuard message filter
- Event identifiers

Configuring integration

The integration with the VideoGuard system is configured as follows:

1. Create the **VideoGuard integration client** object on the basis of the **Computer** object on the **Hardware** tab of the **System settings** dialog box (**1**). If data from several *Axxon PSIM* servers in a distributed system should be sent to VideoGuard, then create and configure a separate **VideoGuard integration client** object on the basis of each server.

> **Note**
>
> A single **VideoGuard integration client** object is enough to send messages about the loss of connection with any server. See also step 7.



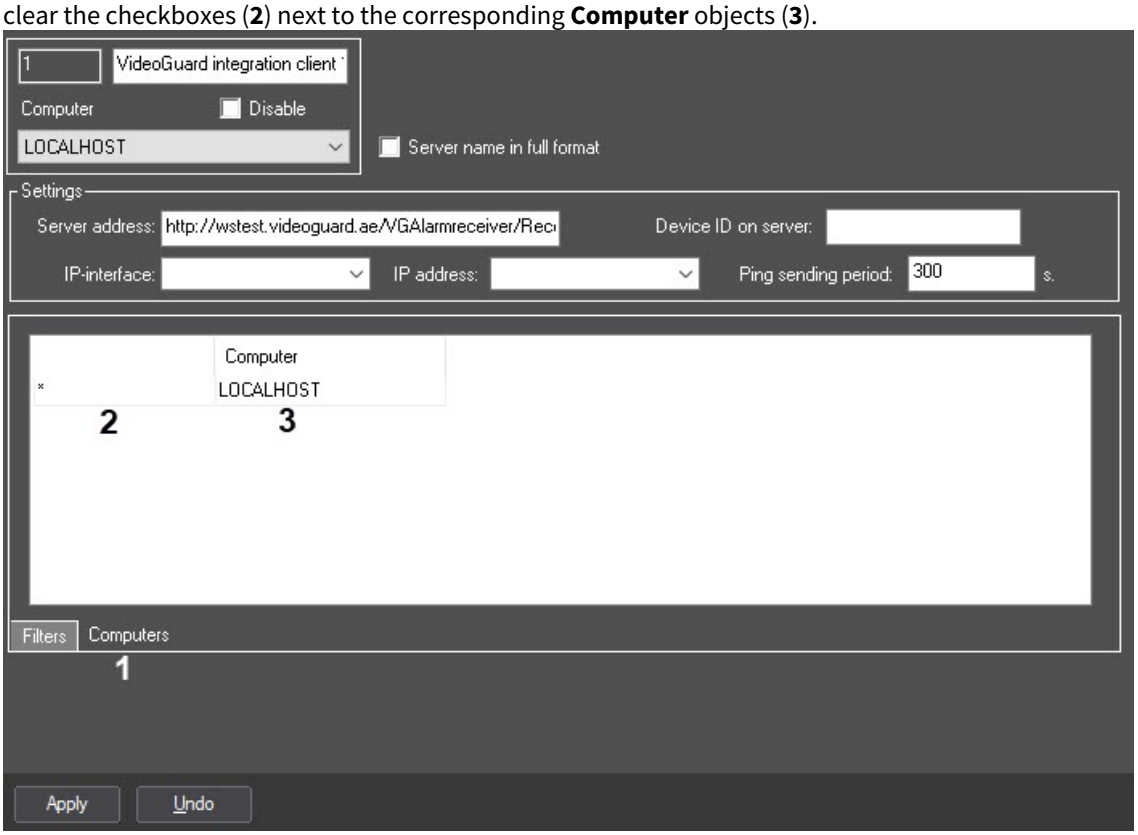
2. Set the **Server name in full format** checkbox (**2**), if it is necessary to display the full server name. By default, short server name is displayed.
3. In the **Server address** field, enter the connection address to the VideoGuard server (**3**).
4. In the **Device ID on server** field, enter the identifier which is assigned to *Axxon PSIM* on the **IP interface** server (**4**). There should be no more than 12 digits in this field.
5. From the **IP-interface** drop-down list, select the network adapter which is used to connect this computer to the VideoGuard server (**5**).
6. From the **IP address** drop-down list (**6**), select the IP address that will be sent to VideoGuard as *Axxon PSIM* server address.

> **Note**
>
> The IP address list displays all addresses from all available IP interfaces. If you specify an IP address that doesn't belong to the selected IP interface, the system will send a random IP address from those available in the selected IP interface.

7. In the **Ping sending period** field, specify the Heart Beat messages sending frequency in seconds (**7**). By default, the Heart Beat message is sent right after the *Axxon PSIM* starts and then every 5 minutes (300 seconds).
8. Configure the correspondence between the VideoGuard and *Axxon PSIM* events. By default, the correspondence table contains the mandatory events, and their correspondence with the *Axxon PSIM* objects events is configured. If necessary, you can change this correspondence, add or remove additional events:
    a. From the **Server event ID** drop-down list, select the event identifier on the VideoGuard server (**8**). See the supported values in the table below.
    b. From the **Computer** drop-down list, select the name of the **Computer** object. The selected events of the objects, which are based on this **Computer** object, will be sent to the VideoGuard (**9**). If the value is not specified, the events are sent from the specified objects, regardless of which **Computer** object they are based on; in this case such events may not be processed correctly in VideoGuard.
    c. From the **Type** drop-down list, select the *Axxon PSIM* object type, the events from which should be sent to the VideoGuard server (**10**).

d. From the **Number** drop-down list, select the *Axxon PSIM* object identifier, the events from which should be sent to the VideoGuard server (**11**). If the identifier is not specified, then events are sent from all objects of the selected type.
e. After you select the object type and identifier, the **Name** field will be automatically filled with the name of the selected *Axxon PSIM* object (**12**).
f. From the **Event** drop-down list, select the event which is coming from the *Axxon PSIM* object of the selected type and which corresponds to the VideoGuard server event with the specified identifier (**13**).
g. To add new event, click **Add filter** (**14**), then perform steps a-f to configure it.
h. To remove an event, select corresponding row in the table and click **Remove filter** (**15**).

9. If there is one **VideoGuard integration client** object and several **Computer** objects, then connection loss events from all computers in the distributed system are transmitted to VideoGuard software by default. If you do not need to transmit connection loss events from some computers, go to the **Computers** tab (**1**) and clear the checkboxes (**2**) next to the corresponding **Computer** objects (**3**).



10. Click the **Apply** button.

The integration with the VideoGuard system is configured.

Restart *Axxon PSIM* after connecting to the VideoGuard server to synchronize the time with the VideoGuard server. After *Axxon PSIM* restart, the time zone in Windows is synchronized with the specified VideoGuard server. Subsequently, the *Axxon PSIM* server will synchronize with the NTP server of the VideoGuard system (by calling the GetNTPServerInfo method). During synchronization, the VideoGuard system server will return the time synchronization period (120 seconds by default), and within 24 hours after synchronization with the NTP server, time synchronization will be performed at the specified interval.

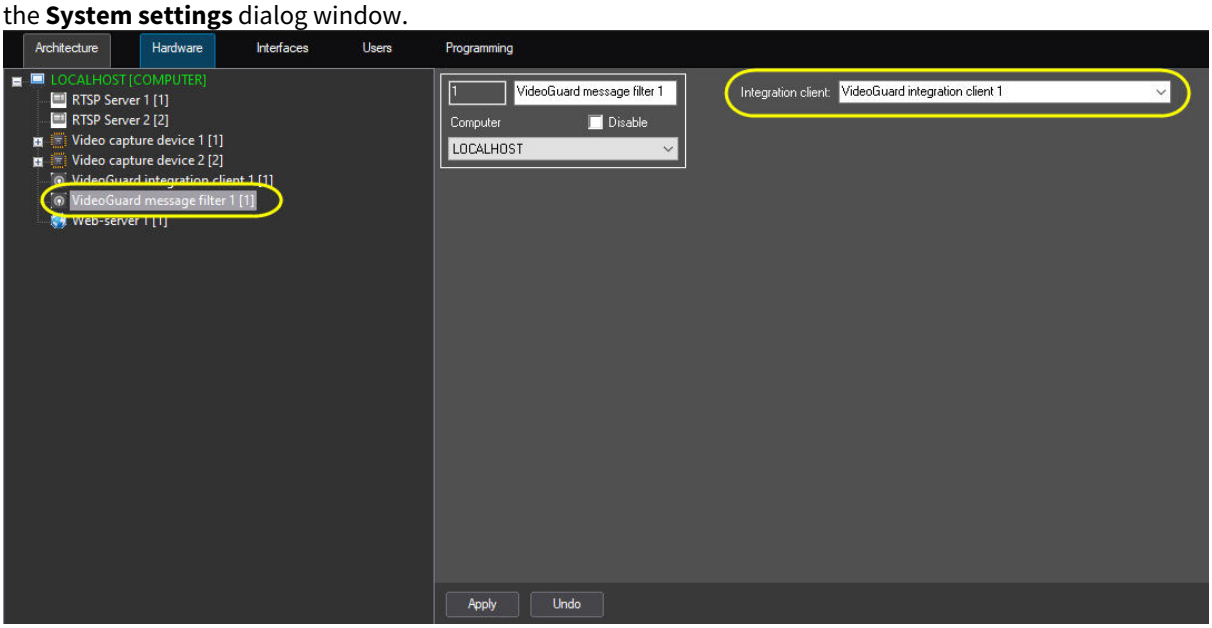
VideoGuard message filter

The **VideoGuard message filter** object is used to save the events of the **VideoGuard integration client** in case the Client loses connection with the Server. When connection with the Server is restored, the saved events are

transmitted to the Server. The **VideoGuard message filter** saves only those events that you select in the settings for the **VideoGuard integration client** (event filter described above).

Order of configuration:

1. Create the **VideoGuard message filter** object on the basis of the computer object on the **Hardware** tab of the **System settings** dialog window.



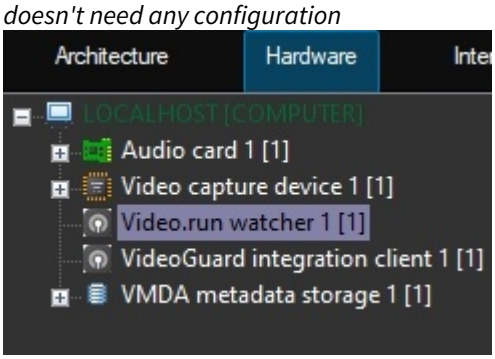
2. From the **Integration client** drop-down list, select **VideoGuard integration client** the events of which you want to save.
3. Click the **Apply** button.

As a result, the **VideoGuard message filter** object is created that saves the events of the selected **VideoGuard integration client** when connection is lost.

Event identifiers

The event identifiers supported on the server:

ID	Description	Corresponding Axxon PSIM event
1	No video signal	Camera: Connection lost
2	Video source connection	Camera: Connection
3	Disk overflow	-
4	Error writing to disk	Computer: Disc unmounted

ID	Description	Corresponding Axxon PSIM event
5	Client connection	VideoGuard integration client: Video module started *Note. The event is generated in the following cases:* • *If the video module has loaded. Create the **Video.run Watcher** object on the basis of each **Computer** object from which this event should be received. The object doesn't need any configuration*  • *If Axxon PSIM has loaded* • *If the network is on*
6	Client disconnection	VideoGuard integration client: Video module unloaded *Note. The event is generated in the following cases:* • *If the video module is unloaded. Create the **Video.run Watcher** object on the basis of each **Computer** object from which this event should be received. The object doesn't need any configuration* • *If Axxon PSIM has unloaded* • *If the network is off, the event is received after the network is turned on*
7	Motion detection trigger	Camera: Alarm
8	Case opening (Shelter Alarm)	-
9	Start of recording to the archive	Camera: Harddisk rec
10	End of recording to the archive	Camera: Record on disk stopped
11	Change of recording to the archive schedule	-

ID	Description	Corresponding Axxon PSIM event
100	Additional event	Used to send additional events to the VideoGuard server. In this case, the event source identifier is added to the event identifier Example:  The event with the 101 identifier will be sent to the VideoGuard server

Note

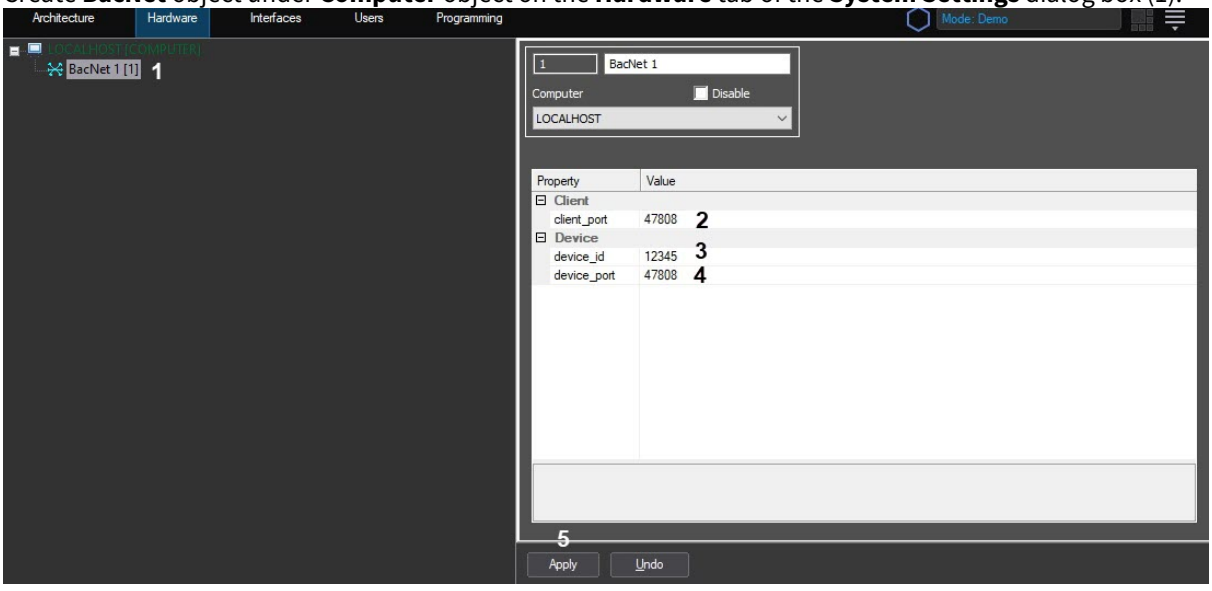
If several Servers are added to the configuration, then after the restart of the main Server, the events with the 5 identifier will be sent to those Servers that are turned on or were turned on at the time of the restart of the main Server. At the same time, the event with the 6 identifier won't be sent to those Servers that were turned off at the time of the restart of the main Server.

Configuring BACnet integration

Axxon PSIM base supports connection to external devices via BACnet protocol. See also BACnet Wrapper Settings Guide

Configure BACnet device connection as follows:

1. Create **BacNet** object under **Computer** object on the **Hardware** tab of the **System Settings** dialog box (1).



2. In the **client_port** field, enter the client connection port (2).
3. In the **device_id** field, specify the device identifier (3).
4. In the **device_port** field, specify the device port (4).
5. Click the **Apply** button (5).

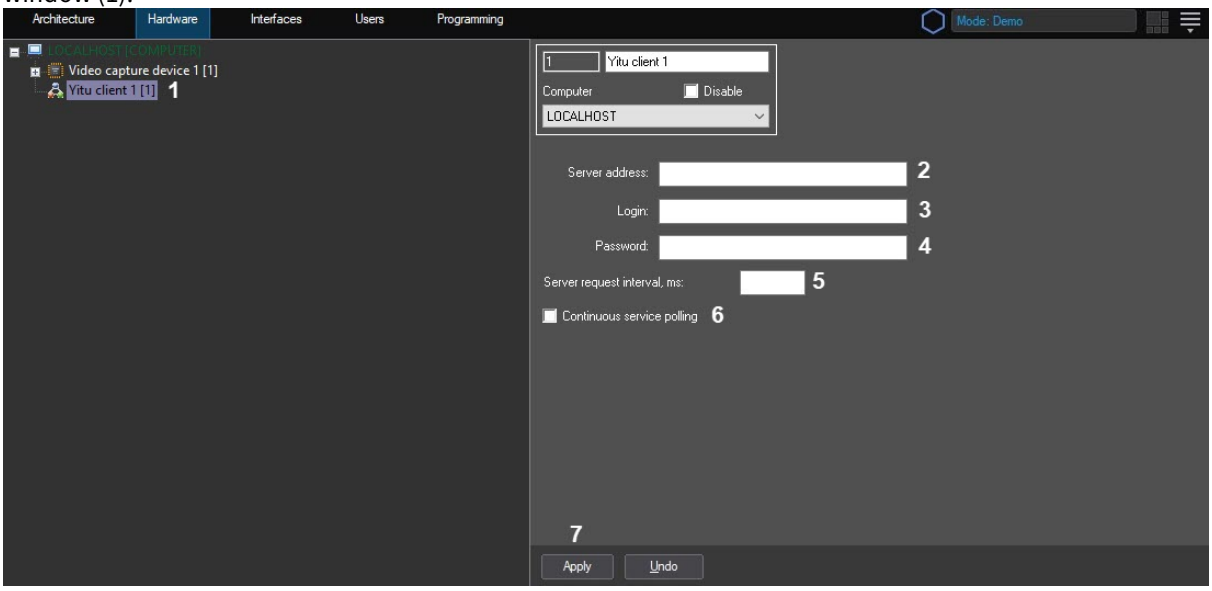
Further work with the BACnet device is carried out using scripts – see BACNET BacNet.

Configuring integration with YITU face recognition system

Integration with the YITU face recognition system is designed to request events about recognized faces from the YITU server.

Integration with the YITU face recognition system is configured in the following order:

1. Create the **Yitu client** object under the **Computer** object on the **Hardware tab** of the **System settings** window (1).



2. In the **Server address** field (2), enter the YITU server IP and port in the format https://IP:port, for example: https://192.168.7.107:9812
3. In the **Login** field, enter the YITU user name (3).
4. In the **Password** field, enter the YITU user password (4).
5. In the **Server request interval, ms** field enter the time period to send requests to the server (5).
6. If the YITU system is to be polled continuously, set the **Continuous service polling** checkbox (6).
7. Click **Apply** (7).

After completing these actions, *Axxon PSIM* will send an authorization request with the corresponding login and password to the specified address and receive an authorization token in response. If authorization is successful, *Axxon PSIM* software will be sending requests for new events to the YITU server at the specified frequency and output the information received to the Event Viewer.

> **Note.**
>
> Events are requested from the last request. If necessary, set the time from which to request events using the registry key:
> KEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\Axxon PSIM\Yitu\{**Yitu client** ID}
> \DefaultStartRequestTimestamp

Integration with the YITU face recognition system is now configured.

22.3.20 Configuring SIP-terminal

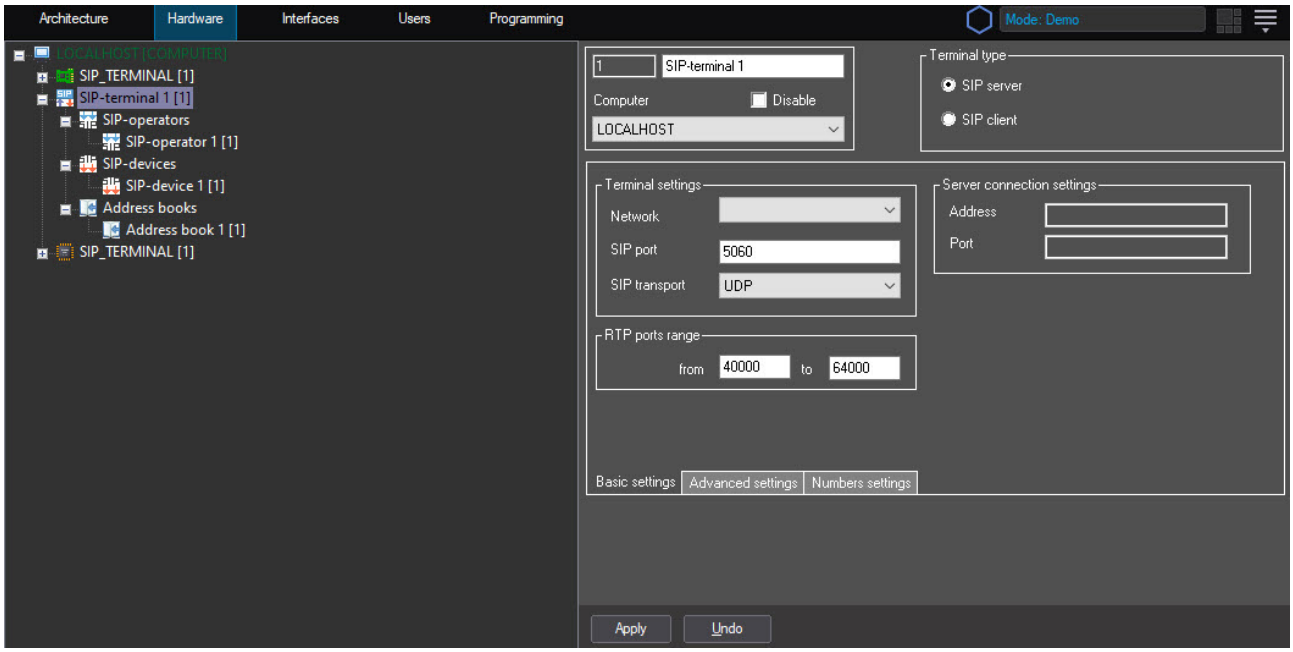
SIP-terminal is designed to implement IP telephony within the distributed system configuration. IP telephony can be implemented with or without physical SIP-devices. Thus, the SIP-terminal allows organizing single and group calls between operators and SIP-devices in the Server/Remote Admin Workstation/Remote Client configurations.

Note

SIP-devices are IP devices, mainly intercoms and call panels, connected to *Axxon PSIM* via the Session Initiation Protocol (SIP).
Axxon PSIM supports two codecs for data exchange with SIP-devices: PCMA and PCMU.

Axxon PSIM can act both as a server and as a client. The SIP server for the *Axxon PSIM* SIP client can be either third-party Asterisk software or the *Axxon PSIM's* SIP server.

SIP-devices are configured on the settings panel of the **SIP-terminal** object created on the basis of the **Computer** object on the **Hardware** tab of the **System Settings** dialog box, and also on the settings panel of its child objects.



The SIP-terminal (both server and client) is configured in the following order:

1. Configure the *Axxon PSIM* SIP server (see Configuring the Axxon PSIM's SIP server).
2. Configure the *Axxon PSIM* SIP client (see Configuring the Axxon PSIM's SIP client).
3. Create and configure objects corresponding to address books (see Configuring address book of SIP-terminal).
4. Configure special terminal numbers (see Configuring special numbers of SIP-terminal).
5. If necessary, create and configure macros for working with a SIP-terminal (see Macros for working with SIP-terminal).
6. Configure terminal numbers (see Configuring numbers of SIP-terminal).
7. Select a speaker, microphone, and camera for each SIP-operator (see Selecting speaker, microphone and camera for SIP-operator).
8. If you need to work with SIP-devices and SIP-operators from the map, add the corresponding objects to the map (see Attaching objects to the layers of interactive map).
9. Configure the **SIP-Panel** interface object (see Configuring the SIP-panel interface object).

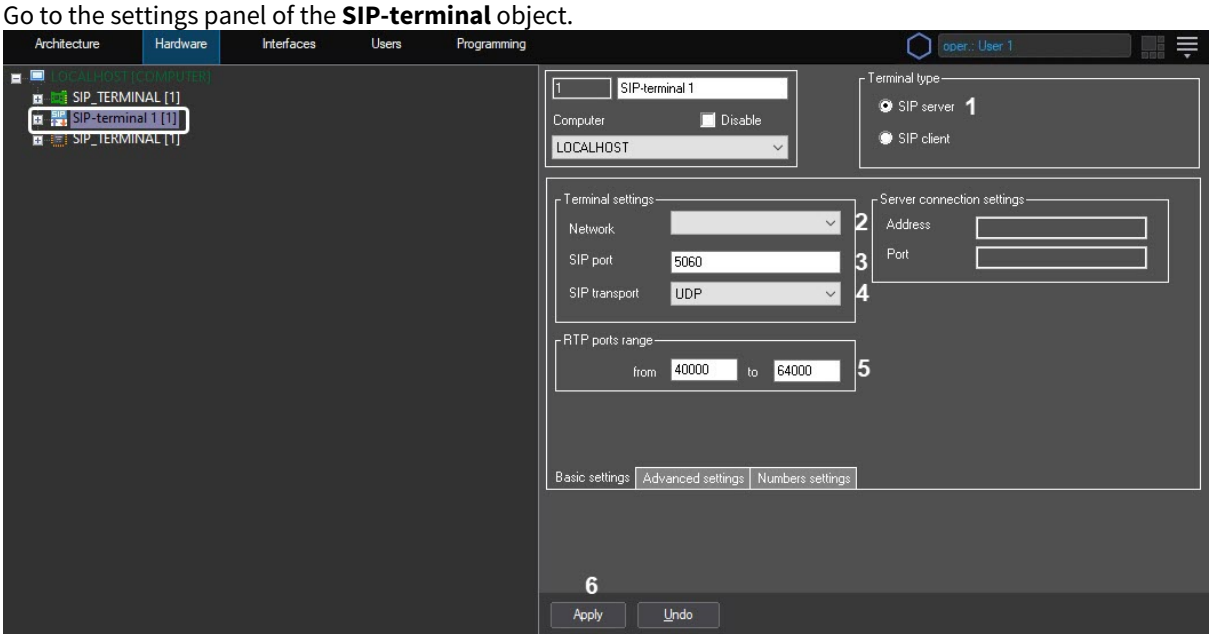
SIP-panel

Configuring the Axxon PSIM's SIP server

Network settings of the Axxon PSIM's SIP server

The network settings of the *Axxon PSIM* SIP server are set in the following order:

1. Go to the settings panel of the **SIP-terminal** object.



2. Set the **Terminal type** switch to the **SIP server** position (**1**) — the SIP-terminal acts as a server, any SIP-clients can be connected to it (both *Axxon PSIM*-based and the third-party SIP-devices).
3. From the **Network** drop-down list (**2**), select the IP address of the network adapter that will be used to connect to the network where the SIP-clients are located.
4. In the **SIP port** field (**3**), specify the port number which will receive the data from the SIP-clients.
5. From the **SIP transport** drop-down list (**4**), select the transport level protocol to be used: TCP or UDP.
6. If necessary, specify the RTP ports range in the corresponding text fields (**5**).
7. Click **Apply** (**6**).

The network settings of the *Axxon PSIM's* SIP server are set.

Configuring SIP-devices of the Axxon PSIM's SIP server

On this page:

- Configuring the SIP-device
- Configuring the SIP-device connection to Axxon PSIM
- Configuring the Video / Audio
- Configuring the tone DTMF commands

Configuring the SIP-device

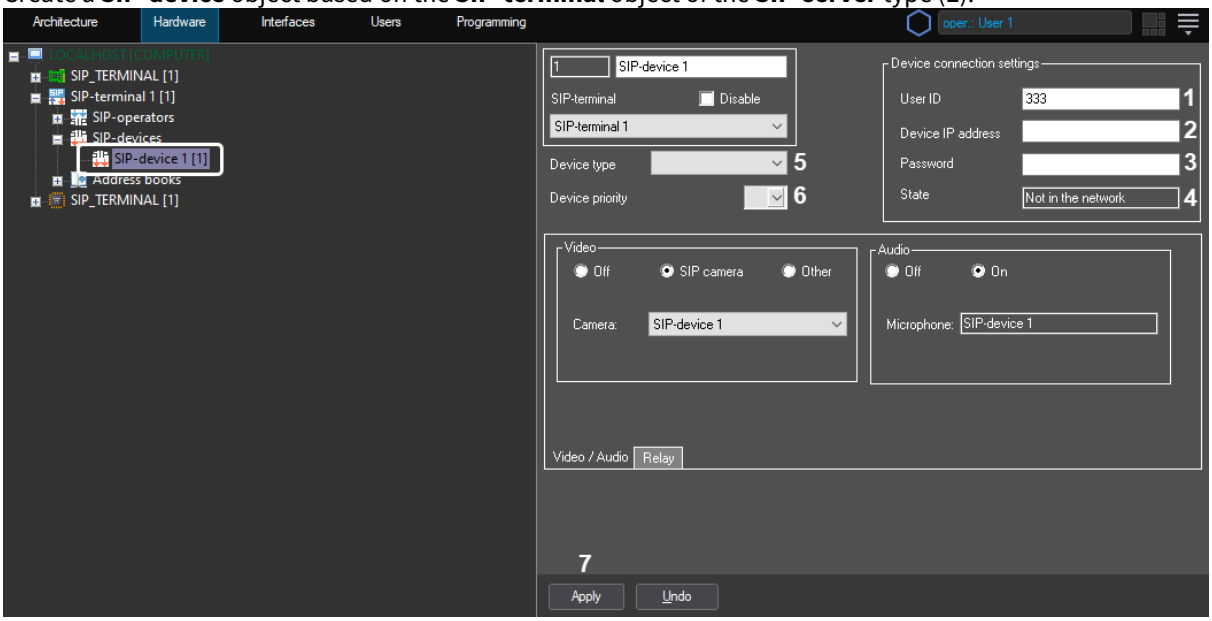
Before you start configuring the SIP-device connection to *Axxon PSIM*, it is necessary to configure the device itself. Each SIP-device is configured individually according to the manufacturer's documentation, however, it is always necessary to perform the following basic steps:

1. Specify the IP address of the *Axxon PSIM* server that acts as a SIP server.
2. Check or specify the SIP-device identification number (the number used for calls).
3. Set the password for the SIP-server connection.
4. If the SIP-device does not support dialing from the keyboard and has only one button for calling the concierge, it is necessary to configure this button to call the *Axxon PSIM* operator (see Configuring SIP-operators on the SIP server of Axxon PSIM).

Configuring the SIP-device connection to Axxon PSIM

The SIP-devices connection to the Axxon PSIM SIP-server is configured as follows:

1. Create a **SIP-device** object based on the **SIP-terminal** object of the **SIP-server** type (**1**).

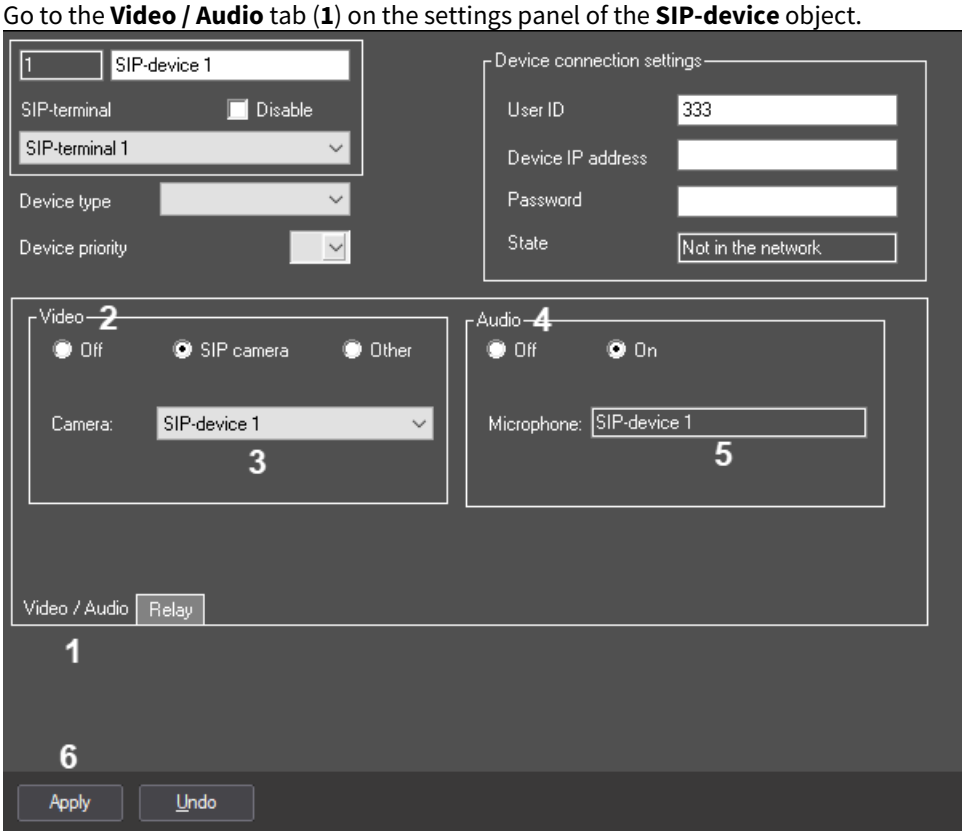


2. In the **User ID** field (**1**), enter the SIP-device identification number, i.e. the number to call it.
3. In the **Device IP address** field (**2**), enter the SIP-device IP address. If you are not going to send data to the SIP-device, this field is optional.
4. In the **Password** field (**3**), enter the password specified on the SIP-device. The SIP-device with the specified identifier will be connected to *Axxon PSIM* only if the passwords on the device and in *Axxon PSIM* are identical.
5. The **State** field (**4**) indicates the current status of the SIP-device.
6. From the **Device type** drop-down list (**5**), select the icon type used to display the device on the Map.
7. From the **Device priority** drop-down list (**6**), select the priority of calls from this device when displayed on the SIP panel. The lower the number, the higher the priority and, hence, the higher the call is displayed in the list. If the field is left blank, the priority is considered minimal. Calls from devices with the same priority will be sorted by the time of the call.
8. Click **Apply** (**7**).

Configuring the Video / Audio

Configure the SIP-device's video and audio in the following order:

1. Go to the **Video / Audio** tab (**1**) on the settings panel of the **SIP-device** object.



2. Set the **Video** switch (**2**) to the position corresponding to the video camera used for calls:
   a. **Off** — the video is not used during the call.
   b. **SIP camera** — a SIP-device camera connected via the SIP protocol is used. If the wrong device is selected by default in the **Camera** (**3**) drop-down list, change the selection. The corresponding **Camera** object may not be created in the *Axxon PSIM* objects tree at this step; in this case, it will be created automatically after clicking the **Apply** button.
   c. **Other** — any other camera from the *Axxon PSIM* hardware tree is used. In this case, select the name of the required **Camera** object from the **Camera** drop-down list (**3**).
3. Set the **Audio** switch (**4**) to the position corresponding to the microphone used for calls:
   a. **Off** — the audio is not used during the call.
   b. **On** — when making a call, the microphone of the SIP-device, displayed in the **Microphone** information field (**5**), is used. The corresponding **Microphone** object may not be created in the *Axxon PSIM* objects tree at this step; in this case it will be created automatically after clicking the **Apply** button.
4. Click **Apply** (**6**).

> **Note**
>
> If necessary, the pre-configured missing **Camera** and **Microphone** objects will be automatically created in the *Axxon PSIM* objects tree.

Configuring the tone DTMF commands

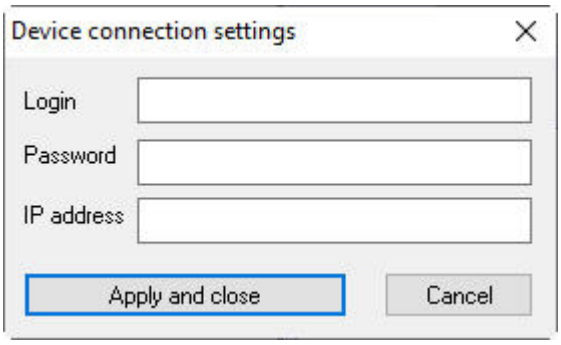
The setting of sending tone messages to a SIP-device (for example, a combination for opening a door) is carried out by setting the relay.

The SIP-device relays are configured in the following order:

1. Go to the **Relay** tab (**1**) on the settings panel of the **SIP-device** object.



2. Select the type from the **DTMF type** drop-down list (**2**):
   a. **sip_info** – signals are transmitted in the SIP INFO message.
   b. **sip_notify** – signals are transmitted in the SIP NOTIFY message.
   c. **in_band** – the signal is transmitted as normal sound in an audio stream.
   d. **http_bas** – signals are transmitted over HTTP. When this type of tone is selected, the **Device connection settings** button (**3**) becomes active. Click the button to open the connection settings window:



   In this window, specify the **Login**, **Password** and **IP address** of the SIP device. If the port is different from the actual one (for example, it's 8180, not 80), then specify the port in the **IP address** field also. If the **IP address** field is left blank, then the IP address will be taken from the session, and the port will be presumed to be **80.**
3. In the **Signal duration, ms** field (**4**) set the time period in milliseconds during which the command is to be sent. The field is unavailable if you select the **http_bas** tone signal**.**
4. In the **Name** field (**5**), enter the name of the command displayed on the SIP panel.
5. In the **Code** field (**6**), enter the unique command code.

> **Note**
>
> If the **http_bas** tone type is selected, then enter a request according to the documentation of the SIP device in the **Code** field, for example: GET access/general/lock/open/remote/accepted/1

6. Click **Apply** (**7**).

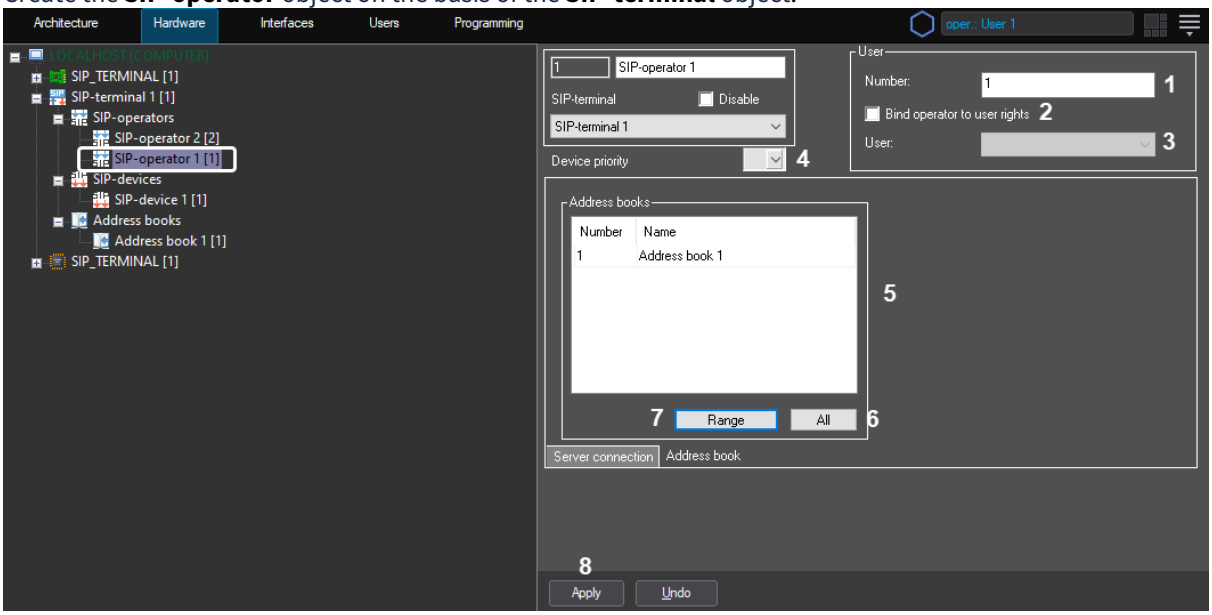
> **Note**
>
> The corresponding **Relay** object will be created in the *Axxon PSIM* hardware tree.

The SIP-device of the *Axxon PSIM's* SIP server is configured.

Configuring SIP-operators on the SIP server of Axxon PSIM

To configure SIP-operators, do the following:

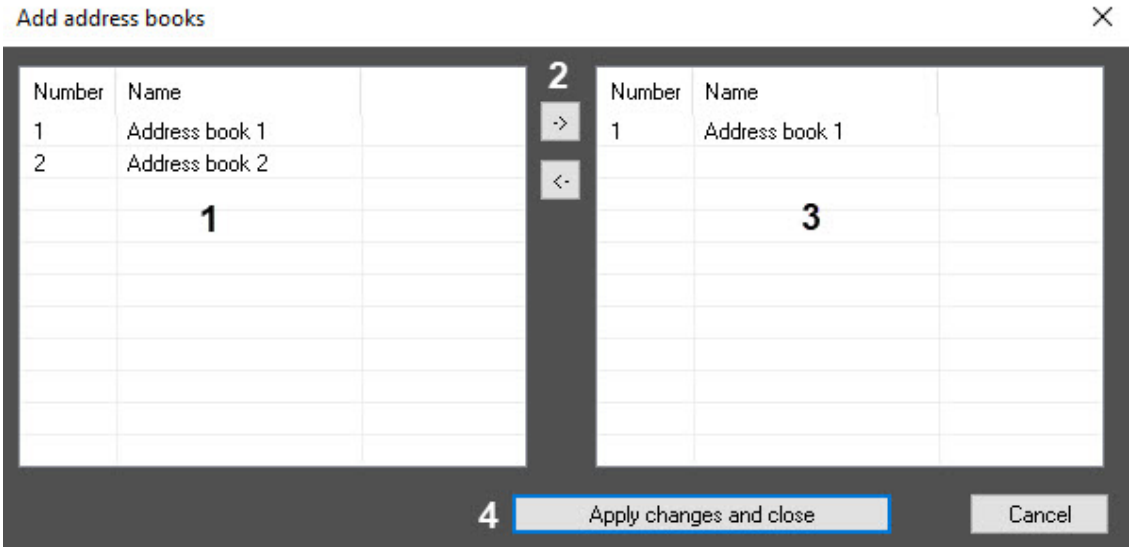
1. Create the **SIP-operator** object on the basis of the **SIP-terminal** object.



2. In the **Number** field (**1**), enter the identification number for calls.
3. If you want to bind the SIP-operator to the *Axxon PSIM* user rights, do the following:
   a. Set the **Bind operator to user rights** checkbox (**2**).
   b. From the **User** drop-down list (**3**), select the corresponding *Axxon PSIM* user. When you select the default operator on the SIP panel, the **User rights** are used (see Operator settings of the SIP-panel interface object).
4. From the **Device priority** drop-down list (**4**), select the priority of a call from this operator in the incoming calls window of the SIP panel. The lower the number, the higher the priority, and hence, the higher the call is displayed in the list. If you leave the field blank, the priority is considered to be minimal. Calls from operators with the same priority are sorted by the time of a call.
5. In the **Address books** table (**5**), select address books, the access to the numbers of which must be available for this SIP-operator (see Configuring address book of SIP-terminal).

> **Note**
>
> To add new lines to the table, use the "Down" key on the keyboard. To delete a line, use the Ctrl+Del key combination.

a. To add all address books, click the **All** button (**6**).
b. To add several address books, click the **Range** button (**7**). As a result, the **Add address books** window opens.



i. Select the required address books from the left list (**1**) and use the buttons (**2**) to move them to the right list (**3**).
ii. Click the **Apply changes and close** button (**4**).

6. Click the **Apply** button (**8**).

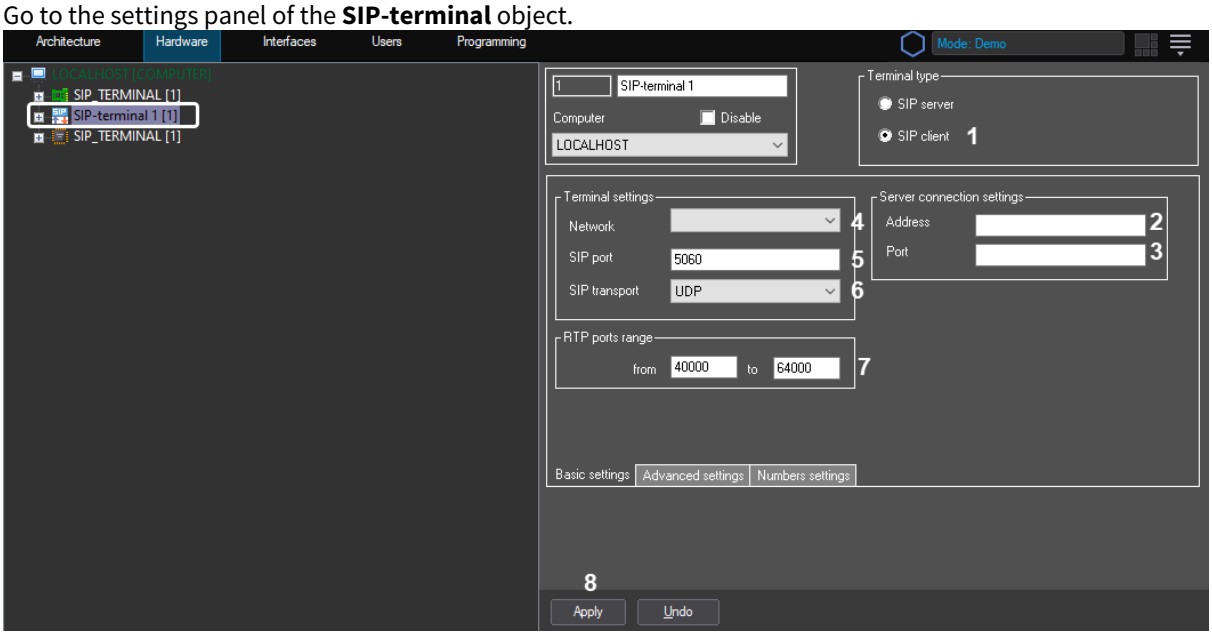
Configuring SIP-operators on the SIP server of *Axxon PSIM* is complete.

Configuring the Axxon PSIM's SIP client

Network settings of the Axxon PSIM's SIP client

The network settings of the *Axxon PSIM's* SIP client are set in the following order:

1. Go to the settings panel of the **SIP-terminal** object.



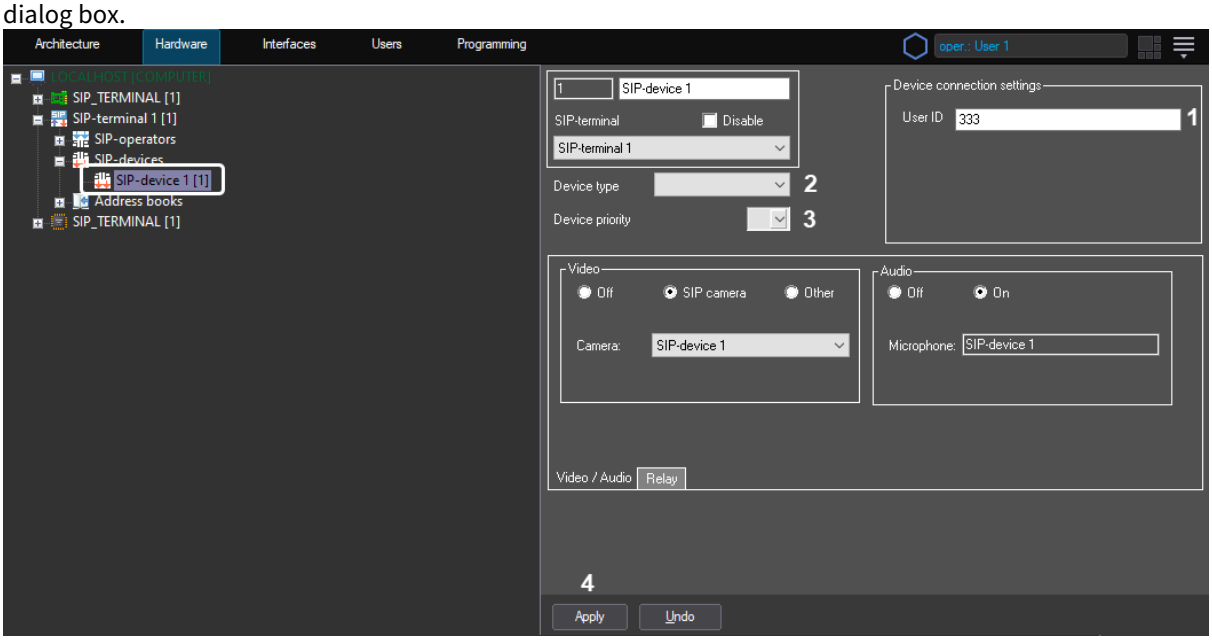
2. Set the **Terminal type** switch to the **SIP client** position (**1**) — the SIP-terminal acts as a client, it can be connected to any SIP-server (based on the *Axxon PSIM* or Asterisk software). If this terminal type is selected, the **Server connection settings** become editable.
3. In the **Address** field (**2**), specify the IP address of the SIP server.
4. In the **Port** field (**3**), specify the port for the SIP server connection.
5. In the **Terminal settings** group:
    a. From the **Network** drop-down list (**4**), select the IP address of the network adapter that will be used to connect to the network where the SIP clients are located.
    b. In the **SIP port** field (**5**), specify the port number which will receive the data from the SIP-clients.
    c. From the **SIP transport** drop-down list (**6**), select the transport level protocol to be used: TCP or UDP.
    d. If necessary, specify the **RTP ports range** in the corresponding text fields (**7**).
6. Click **Apply** (**8**).

The network settings of the *Axxon PSIM's* SIP client are set.

Configuring SIP-devices of the Axxon PSIM's SIP client

The SIP-device of the *Axxon PSIM's* SIP client is configured as follows:

1. Create a **SIP-device** object based on the **SIP-terminal** object on the **Hardware** tab of the **System Settings** dialog box.



2. In the **User ID** field (**1**), specify the SIP-device identification number, i.e. the number to call it.
3. From the **Device type** drop-down list (**2**), select the icon type used to display the device on the Map.
4. From the **Device priority** drop-down list (**3**), select the priority of calls from this device when displayed on the SIP panel. The lower the number, the higher the priority and, hence, the higher the call is displayed in the list. If the field is left blank, the priority is considered minimal. Calls from devices with the same priority will be sorted by the time of the call.
5. Click **Apply** (**4**).

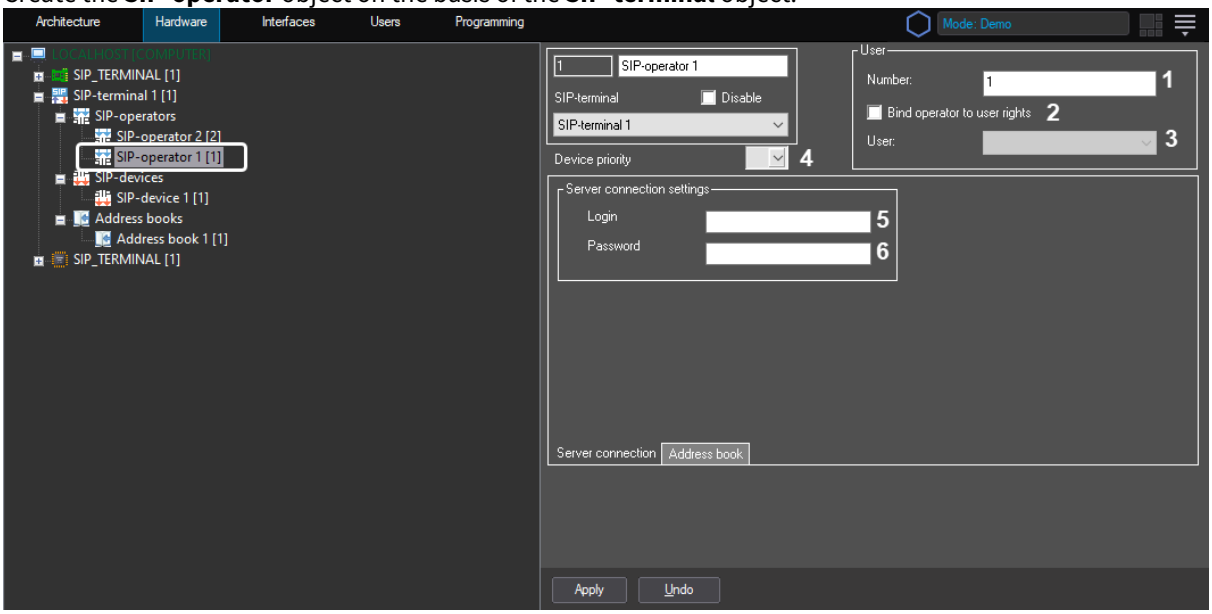
> **Note**
>
> The **Video / Audio** and **Relay** tabs are intended for configuring a SIP-device only for the **SIP server** terminal type (see Configuring SIP-devices of the Axxon PSIM's SIP server).

The SIP-device of the *Axxon PSIM's* SIP client is now configured.

Configuring SIP-operators on the SIP client of Axxon PSIM

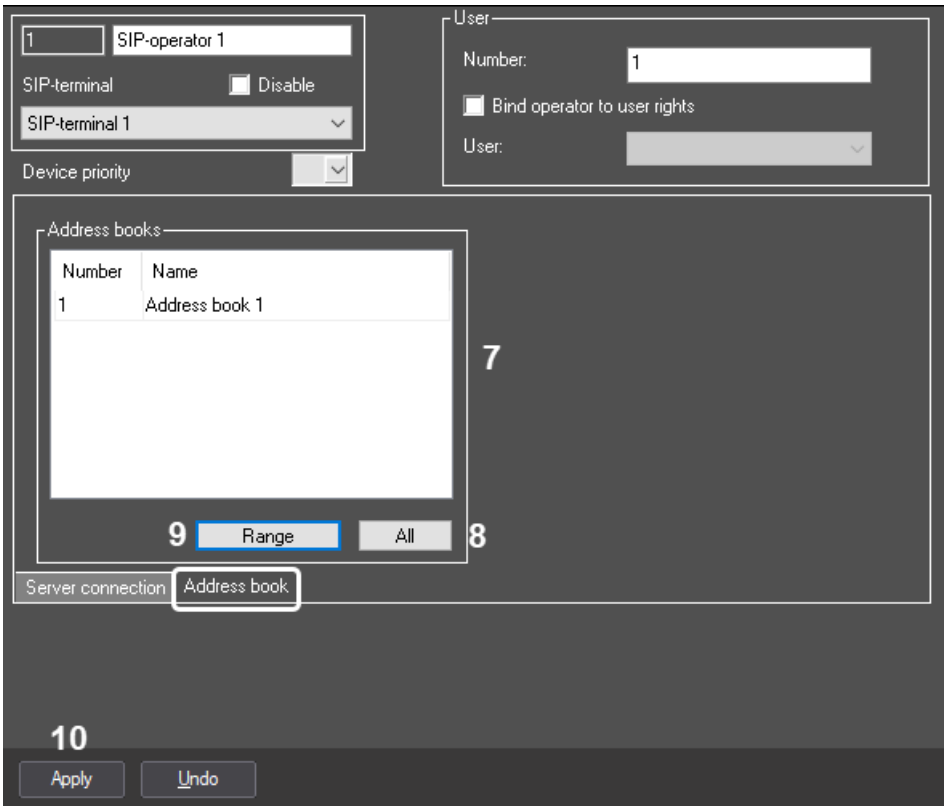
To configure SIP-operators on the SIP client of *Axxon PSIM*, do the following:

1. Create the **SIP-operator** object on the basis of the **SIP-terminal** object.



2. In the **Number** field (**1**), enter the identification number of the operator for calls.
3. If you want to bind the SIP-operator to the *Axxon PSIM* user rights, do the following:
    a. Set the **Bind operator to user rights** checkbox (**2**).
    b. From the **User** drop-down list (**3**), select the corresponding *Axxon PSIM* user. When you select the default operator on the SIP panel, the **User rights** are used (see Operator settings of the SIP-panel interface object).
4. From the **Device priority** drop-down list (**4**), select the priority of a call from this operator in the incoming calls window of the SIP panel. The lower the number, the higher the priority, and hence, the higher the call is displayed in the list. If you leave the field blank, the priority is considered to be minimal. Calls from operators with the same priority are sorted by the time of a call.
5. In the **Login** field (**5**), specify the username to connect to the SIP server.
6. In the **Password** field (**6**), specify the password to connect to the SIP server.

7. Go to the **Address book** tab.

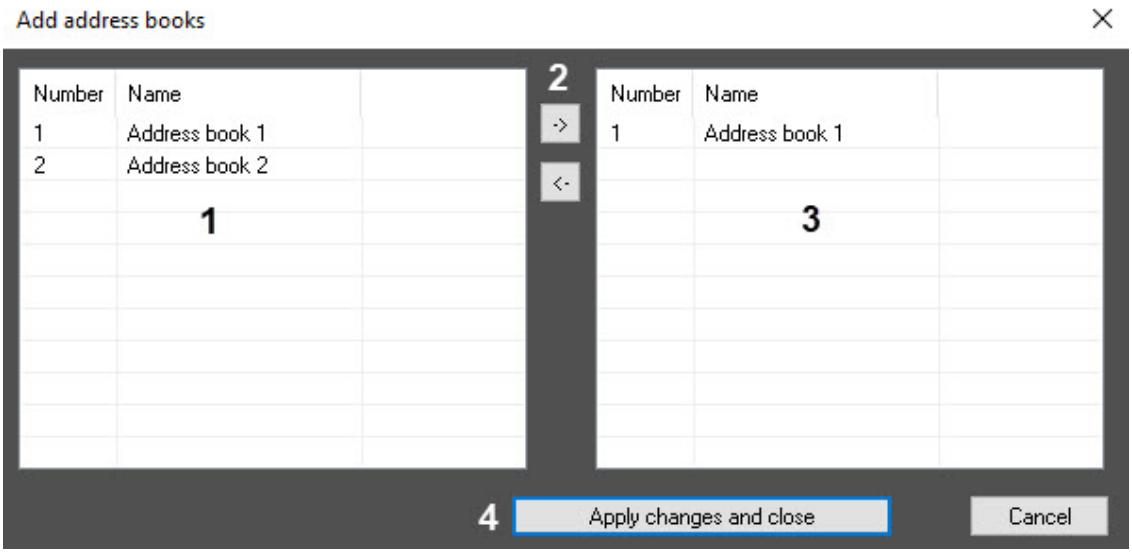


8. In the **Address books** table (**7**), select address books, the access to the numbers of which must be available for this SIP-operator (see Configuring address book of SIP-terminal).

> **Note**
>
> To add new lines to the table, use the "Down" key on the keyboard. To delete a line, use the Ctrl+Del key combination.

   a. To add all address books, click the **All** button (**8**).

b. To add several address books, click the **Range** button (**9**). As a result, the **Add address books** window opens.



i. Select the required address books from the left list (**1**) and use the buttons (**2**) to move them to the right list (**3**).
ii. Click the **Apply changes and close** button (**4**).

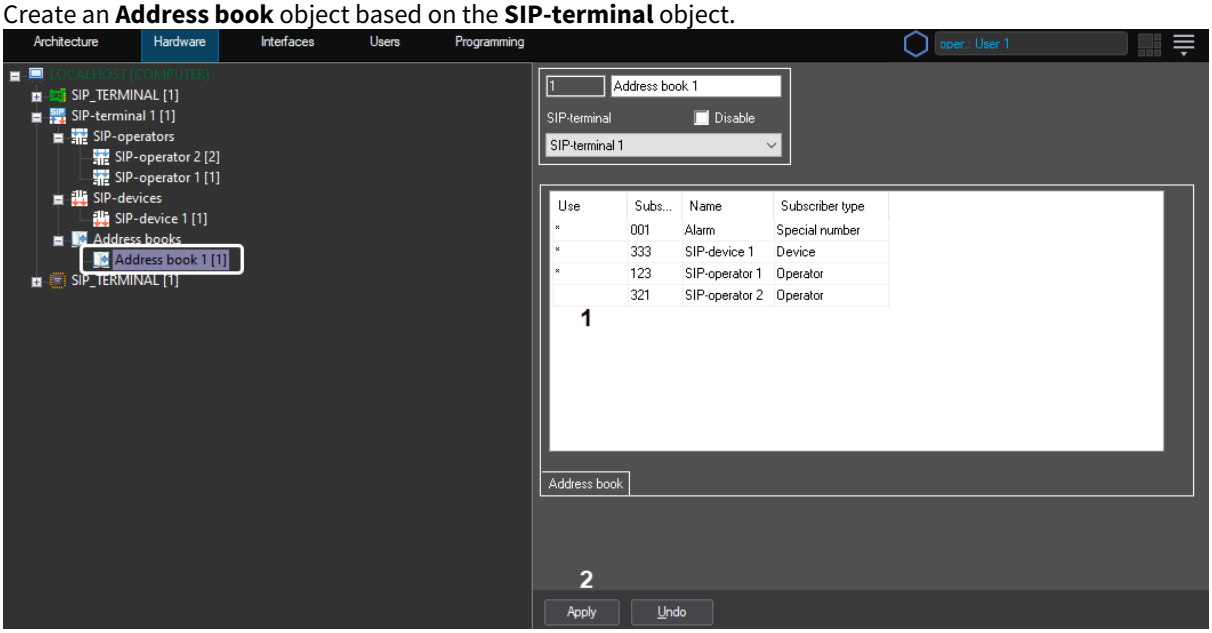
9. Click the **Apply** button (**10**).

Configuring SIP-operators on the SIP client of *Axxon PSIM* is complete.

Configuring address book of SIP-terminal

The address book of SIP-terminal is configured as follows:

1. Create an **Address book** object based on the **SIP-terminal** object.



2. In the **Use** column (**1**), select the required subscribers (SIP-operators, devices or special numbers), whose numbers should be available in this address book.
3. Click **Apply** (**2**).

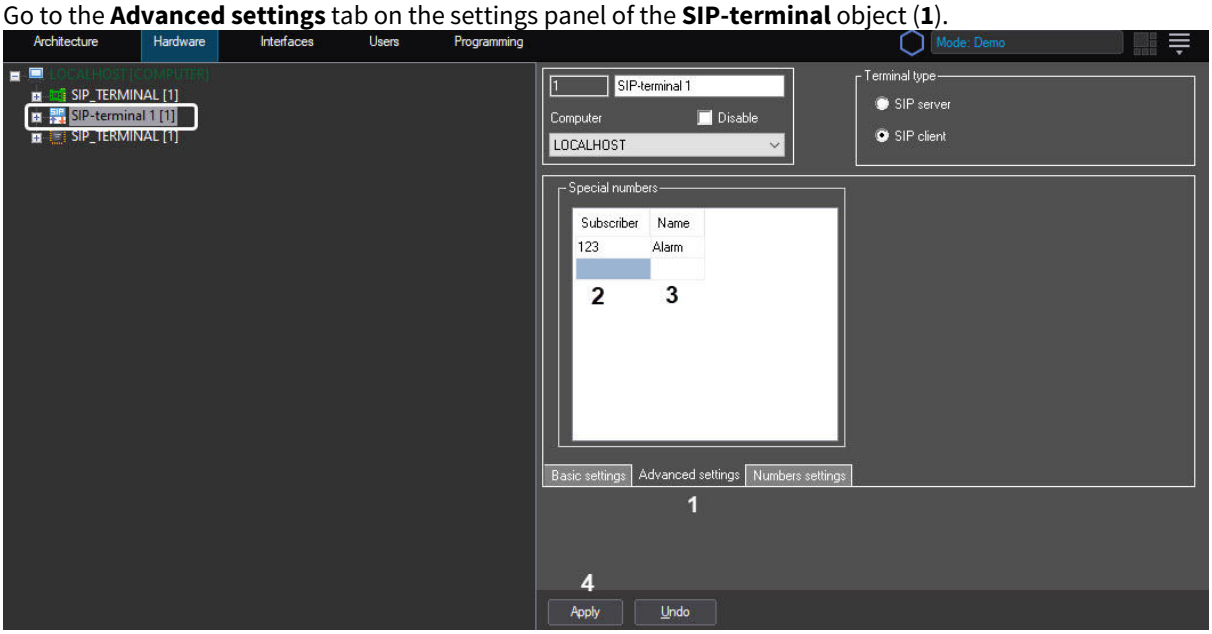
The address book of SIP-terminal is now configured.

Configuring special numbers of SIP-terminal

Special numbers do not correspond to certain devices or operators; they are designed to configure special functions, such as group calls or alarm messages.

The special numbers of the *Axxon PSIM*'s SIP-terminal are configured as follows:

1. Go to the **Advanced settings** tab on the settings panel of the **SIP-terminal** object (**1**).



2. Add special numbers to the **Special numbers** table:
   a. In the **Subscriber** field, enter a special number (**2**).
   b. In the **Name** field, enter the name of the special number (**3**).

> **Note**
>
> To add new rows to the table, use the "Down" key on the keyboard. To delete a line, use the keyboard shortcut Ctrl + Del.

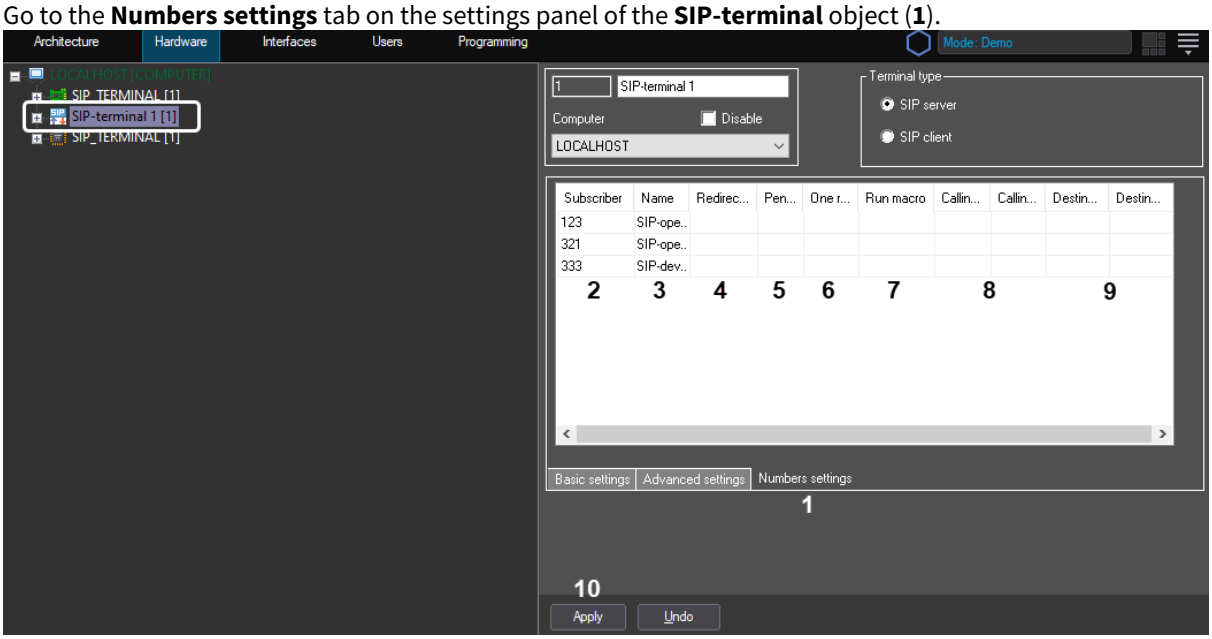
3. Click **Apply** (**4**).

The special numbers of the *Axxon PSIM*'s SIP-terminal are configured.

Configuring numbers of SIP-terminal

The numbers of the *Axxon PSIM*'s SIP-terminal are configured as follows:

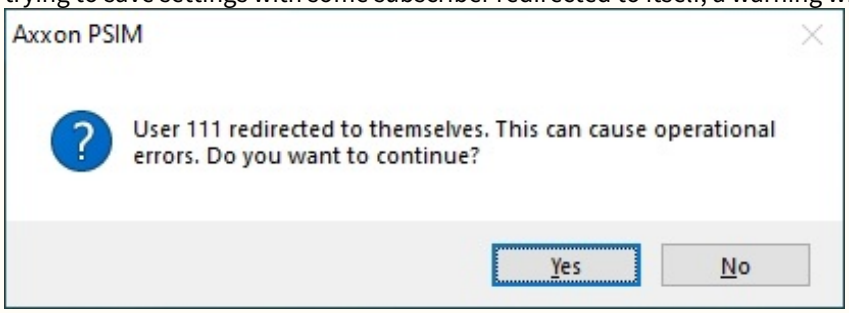
1. Go to the **Numbers settings** tab on the settings panel of the **SIP-terminal** object (**1**).



2. The **Subscriber** column (**2**) lists the numbers of all devices and operators registered on the SIP-terminal, as well as special numbers.
3. The **Name** field (**3**) lists the names of the corresponding devices, operators, and special numbers.
4. In the **Redirecting** field (**4**), enter the number to which the corresponding subscriber's calls should be forwarded to. Several numbers can be specified separated with semicolon allowing the call redirection to several devices or operators. This option enables conference calls.

   Important!

   It is strongly not recommended to redirect subscribers to themselves, i.e. specify the same number in the **Redirecting** and **Subscriber** fields. The system may not work correctly in this case. When trying to save settings with some subscriber redirected to itself, a warning window appears:



   Click **No** to clear the **Redirecting** field for affected subscribers or click **Yes** to continue configuration without changes.

5. In the **Pending, sec** field (**5**), enter the time period in seconds, during which it is necessary to wait for a response from the subscriber. If the value is not set in the field, it is defined by the CallTimeout registry key; 30 sec. by default (see Registry keys reference guide). The value greater than set by CallTimeout will not be applied, i.e. the least of **Pending, sec** and CallTimeout is selected as a timeout.
6. If several numbers were specified in the **Redirecting** field, and only one device or operator should be able to answer the call, set the **One responder** checkbox (**6**). When the checkbox is not set, the call can be answered by any and all devices and/or operators as per the redirecting list; this is the way to implement conference calls. When the checkbox is set, the call comes to all devices and/or operators until any one of them answers it to end the call for all the other devices and/or operators.

7. From the **Run macro** drop-down list (**7**), select the **Macro** object which should be run when calling the subscriber. See also Creating and configuring Macro events and Macros for working with SIP-terminal.
8. In the **Calling number multicast (video)** / **Calling number multicast (audio)** fields (**8**), specify the IP address for broadcasting the video stream and audio stream from the calling device in the multicast mode.
9. In the **Destination number multicast (video)** / **Destination number multicast (audio)** fields (**9**), specify the IP address for broadcasting the video stream and audio stream from the destination device in the multicast mode.
10. Click **Apply** (**10**).

The numbers of *Axxon PSIM*'s SIP-terminal are configured.

Macros for working with SIP-terminal

You can expand the functionality of SIP-terminal in *Axxon PSIM* using the flexible macros configuration (see Creating and using macros). Below is a description of the main available macros and their parameters.

> **Attention!**
>
> Macros are paired, that is, if you create a macro for an outgoing call, then you must create a macro for ending a call.

Macro	Parameter	Description
The **SIP-terminal** object		
Outgoing call	operator's camera id	Identification number of the operator's camera. If not specified, the camera of the selected operator is used
	operator's microphone id	Identification number of the operator's microphone **Attention!** The parameter is required.
	called subscriber	Identification number of the subscriber (operator or device), who receives a call **Attention!** The parameter is required.
	calling user (operator)	Identification number of the subscriber (operator or device), who makes a call **Attention!** The parameter is required.

Macro	Parameter	Description
	file playback volume	Playback volume of the selected file (see the **playback file** parameter), the drop-down list contains values from 0 to 45 dB with a 3 dB step
	play file on loop	Specifies whether a file must be played once (the **no** value) or on a loop until the call ends (the **yes** value)
	call ID	Unique identifier of the call in the system. It is used to end a call **Attention!** The parameter is required.
	multicast address for outgoing video	IP address and port to send video in the "multicast" mode. For example, 224.0.1.151:555
	multicast address for outgoing audio	IP address and port to send audio in the "multicast" mode. For example, 224.0.1.151:333
	playback file	Full path to the .wav file that must be played when receiving a call
Group call	operator's camera id	Identification number of the operator's camera. If not specified, the camera of the selected operator is used
	operator's microphone id	Identification number of the operator's microphone **Attention!** The parameter is required.
	subscribers (operators or devices)	Identification numbers of subscribers separated by "**;**" participating in a group call. To specify all subscribers (operators), use "#". To specify all devices, use "*". You can also use a combined entry that looks like this: *;1;2 or #;1;2, where 1 and 2 are identification numbers of subscribers (operators or devices)

Macro	Parameter	Description
	calling user (operator)	Identification number of the subscriber (operator or device), who makes a call **Attention!** The parameter is required.
	volume of file being played	Playback volume of the selected file (see the playback file parameter), the drop-down list contains values from 0 to 45 dB with a 3 dB step
	play file on loop	Specifies whether a file must be played once (the **no** value) or on a loop until the call ends (the **yes** value)
	group call ID	Unique identifier of the group call in the system. It is used to end the call **Attention!** The parameter is required.
	one responder	If **No** is selected, then one call can be answered by several operators or devices, and thus a group call can be organized. If **Yes** is selected, the call goes to operators or devices until it is accepted by any operator and device, after that it is automatically ended for others
	playback file	Full path to the .wav file that must be played when receiving a call
End a call	call ID	Unique identifier of the call in the system, specified when initiating the call
End all calls	-	-
The **SIP-device** and **SIP-operator** objects		
A call (make/ receive)	-	-
End a call	-	-
Hold	-	-

Note

You can configure loop playback of long and short beeps, as well as the files "There is an unanswered call" and "Call on hold" using the registry keys wavCallLooped, wavWaitLooped, wavTryingLooped, wavBusyLoopedCount (see Registry keys reference guide).

Selecting speaker, microphone and camera for SIP-operator

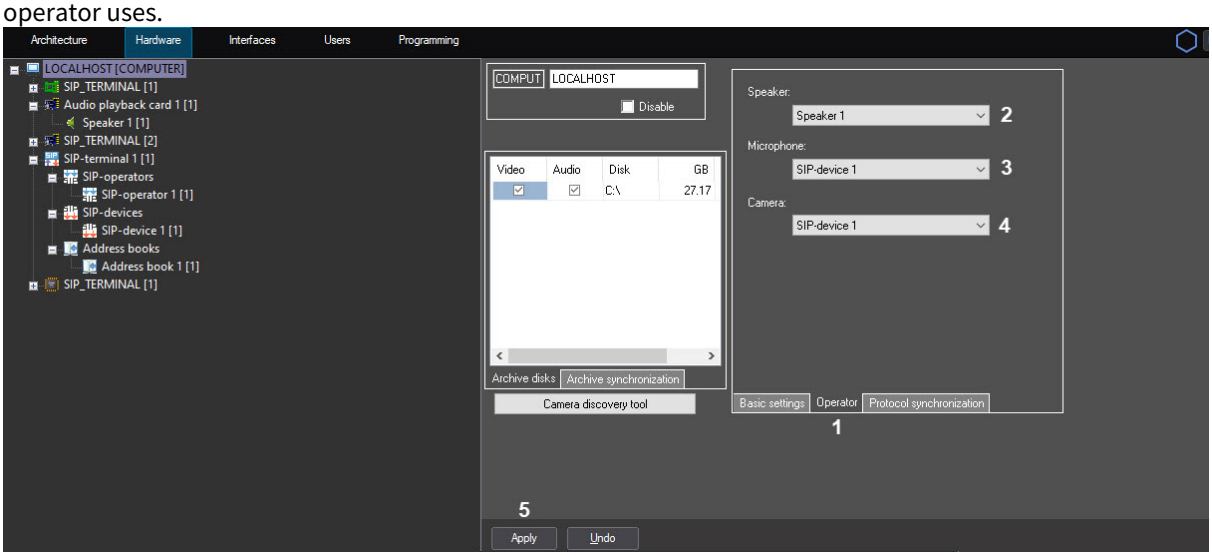
The speaker, microphone and camera are selected for calls via the SIP-panel.

Before selecting those, create and configure the corresponding objects as described in the following sections:

1. Creating and configuring the Speaker object
2. Creating and configuring the Microphone object
3. Configuring video acquisition from IP devices (for IP camera) or Creating and configuring the Camera object (for analog camera).

Having the objects created and configured, proceed as follows:

1. Go to the settings panel of the **Computer** object corresponding to the Client or Server which the SIP-operator uses.



2. Go to the **Operator** tab (**1**).
3. Select the operator's speaker from the **Speaker** drop-down list (**2**).
4. Select the operator's microphone from the **Microphone** drop-down list (**3**).
5. Select the operator's camera from the **Camera** drop-down list (**4**).
6. Click **Apply** (**5**).

Selecting a speaker, microphone and camera for SIP-operator is now complete.

Configuring SIP trunk

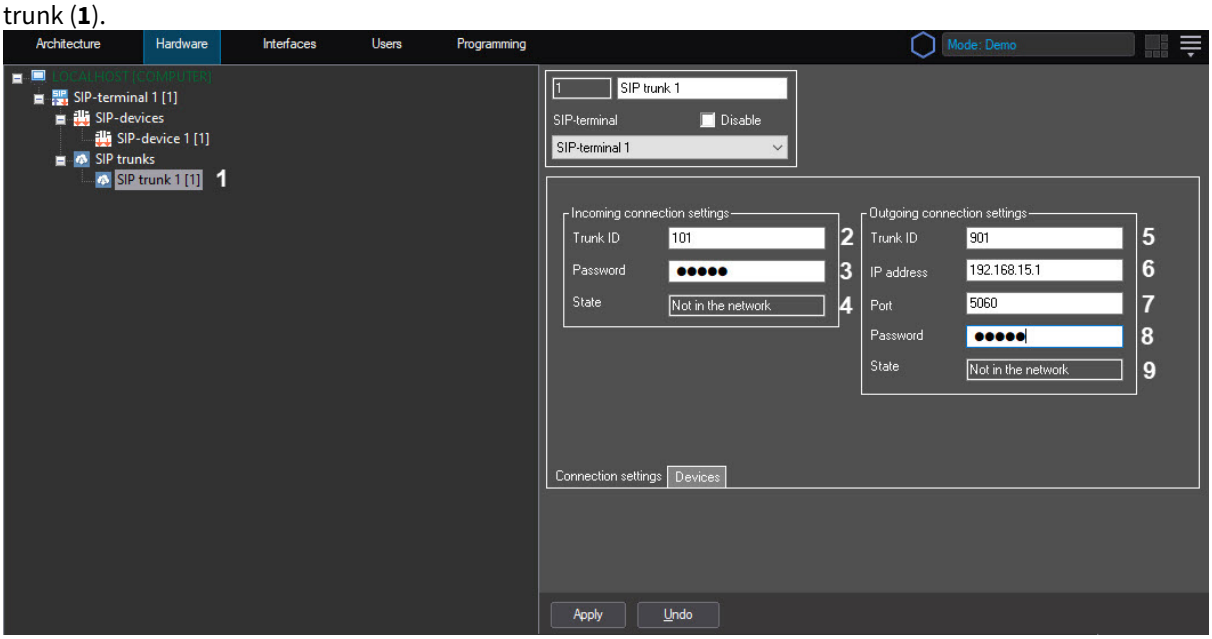
A SIP trunk is used to create a virtual communication channel between two SIP servers. It can be two *Axxon PSIM* SIP servers, or the *Axxon PSIM* SIP server and a third-party SIP server.

Before you start configuring the SIP trunk, it is necessary to add to *Axxon PSIM* the SIP-devices of a third-party server based on the same SIP-terminal on which the SIP trunk will be added (see Configuring SIP-devices of the Axxon PSIM's SIP server).

In the following description of the SIP trunk configuration procedure, the connection between the *Axxon PSIM* SIP server and a third-party SIP server is used as an example.

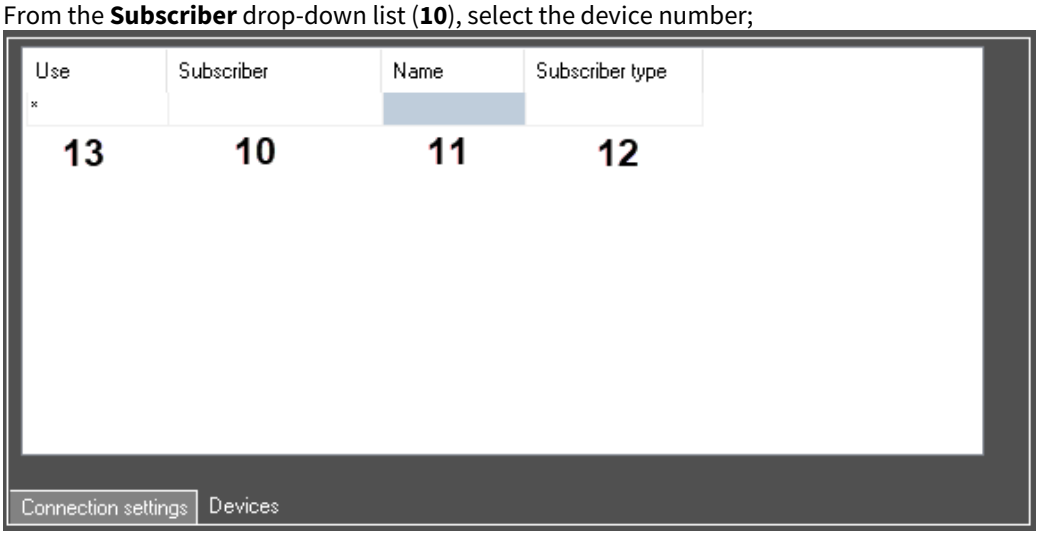
The SIP trunk is configured as follows:

1. Create a **SIP trunk** object on the basis of the **SIP-terminal** object which is to be connected with the SIP trunk (**1**).



2. On the **Connection settings** tab, in the **Incoming connection settings** group:
   a. In the **Trunk ID** field (**2**), specify the ID of the third-party SIP server that is registered in *Axxon PSIM*;
   b. In the **Password** field (**3**), enter the password for connecting to a third-party SIP server;
   c. The **State** field (**4**) displays the current status of the registered SIP server.
3. On the **Connection settings** tab, in the **Outgoing connection settings** group:
   a. In the **Trunk ID** field (**5**), specify the ID of the *Axxon PSIM* SIP server, which is registered on a third-party SIP server;
   b. In the **IP address** field (**6**), enter the IP address of the third-party SIP server;
   c. In the **Port** field (**7**), specify the port of the *Axxon PSIM* SIP server;
   d. In the **Password** field (**8**) specify the password for connecting to the *Axxon PSIM* SIP server;
   e. The **State** field (**9**) displays the current status of the *Axxon PSIM* SIP server.
4. On the **Devices** tab, select the devices of the third-party SIP server that will be used on the *Axxon PSIM* SIP server:

a. From the **Subscriber** drop-down list (**10**), select the device number;



b. The **Name** (**11**) and **Subscriber type** (**12**) fields will display the device name and type, respectively;
c. In the **Use** column (**13**), put ***** (asterisk) in front of the devices that will be used.

5. Click the **Apply** button.

> **Note**
>
> After you click the Apply button, the specified settings will be sent to the second server, and the registration will be received from it, that is, the connection will be updated. Then, the connection will be updated every 10 minutes. You can change this time interval using the **ClientExpires** key (see Registry keys reference guide).

The SIP trunk is configured.

> **Attention!**
>
> To ensure the SIP trunk operation, it is necessary that similar settings are made on the server, with which the communication should be set.

Configuring a SIP-terminal for Failover service

If **Failover service** is used in *Axxon PSIM*, then in order to maintain the operability of IP telephony if the connection with the main server is lost, it is necessary to configure the transfer of the SIP-terminal configuration to the backup server as follows:

1. Add the objects that should be transferred to a backup server in case of connection loss to **Failover service** (see Configuring failover service).
2. In the sip_terminal.config file located on the backup server, specify the IP address of this backup server: <sip_ip>IP_address_of_backup_server</sip_ip>.
   By default, the file is located in the <Axxon PSIM installation directory>\Modules folder. It should be filled out and saved in the same folder. Below is an example of a filled out file for a backup server with an IP address of 192.168.0.187:

```
<?xml version="1.0"?>
<configuration>
    <sip_ip>192.168.0.187</sip_ip>
```

```
</configuration>
```

Note

The operation principle is as follows: if **Failover service** is enabled, the value from this file will be used, and the current network settings of the **SIP-terminal** will be ignored. Therefore, it is not necessary to change the network settings in the **SIP-terminal** after enabling **Failover service**.

3. In the web interface of SIP devices used in the IP telephony configuration, specify the same IP address of the backup server as an additional address of the main SIP server.

As a result, if the connection with the main server is lost, the IP telephony configuration will be transferred to the backup server and it will remain operational.

22.3.21 Configuring Incident server and Incident handler

The **Incident server** is used for storing events that must be processed using the **Incident handler**. By default, the **Incident server** events are stored in the PROTOCOL_INC_SERVER table of the Axxon PSIM database. The event storage depth is set using the settings panel of the **Computer** object (see Configuring events logging).

Note

You can enable the database logging of the query execution duration of the *Incident server* module using the **LogDbQueryDuration**=**1** parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\PSIM\Inc_Server registry key (for more details, see Axxon PSIM base version, for information on how to work with the registry, see Working with Windows OS registry).

The **Incident handler** is used for selecting the events that must be processed and for configuring the processing rules for the operator.

Both of these modules are required for the **Incident manager** interface object operation—the operator can process events according to the specified rules by using this object.

To configure the **Incident server** and the **Incident handler**, do the following:

1. Create the **Incident server** and **Incident handler** objects (see Creating the Incident server object, Creating the Incident handler object).
2. Configure the logic of event handling (see Creating and configuring event handling logic).
3. Set the event priority (see Setting the events priority).
4. Select the events that must be handled (see Selecting events to display and handle).
5. Configure the display of logic (see Configuring the display of logic).
6. If you want to use the non-default database to store events, set the connection settings to the required database (see Configuring the use of an external database).

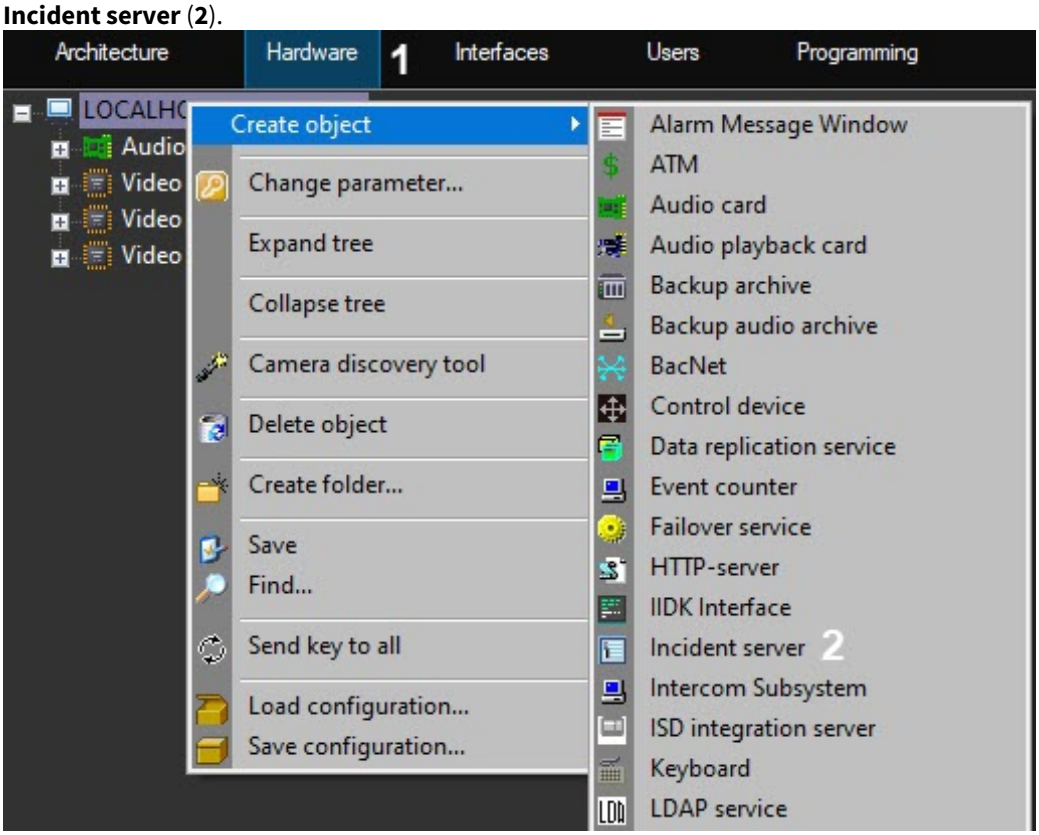
Configuring the Incident manager interface object
Events control and processing using the Incident manager

Creating the Incident server object

To create the **Incident server** object, do the following:

1. Select the required **Computer** object on the **Hardware** tab of the **System settings** dialog box (**1**).

2. Right-click on the selected **Computer** object and in the context menu that appears, select **Create object** -> **Incident server** (**2**).



3. In the window that appears, enter the number and name of the **Incident server** object.



4. Click the **Apply** button.

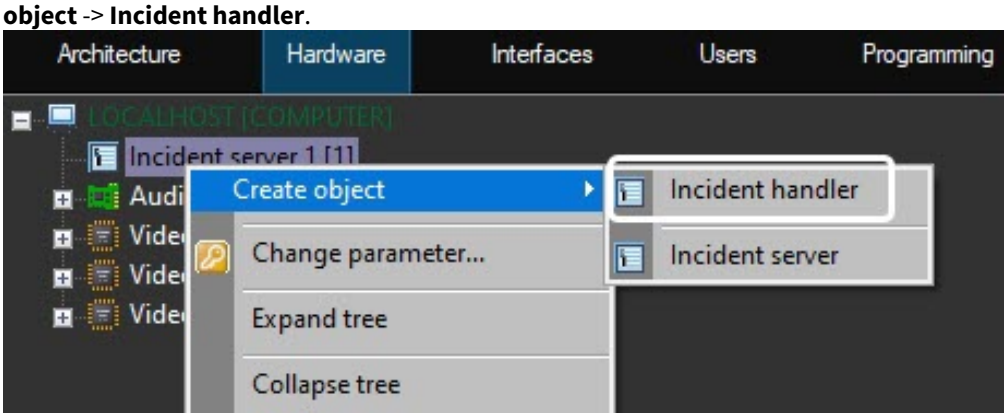
The **Incident server** object is created.

Creating the Incident handler object

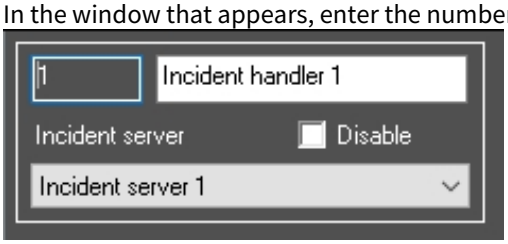
To create the **Incident handler** object, do the following:

1. Go to the **Hardware** tab of the **System settings** dialog box.

2. Right-click on the **Incident server** object and in the context menu that appears, select **Create object** -> **Incident handler**.



3. In the window that appears, enter the number and name of the **Incident handler** object.



4. Click the **Apply** button.

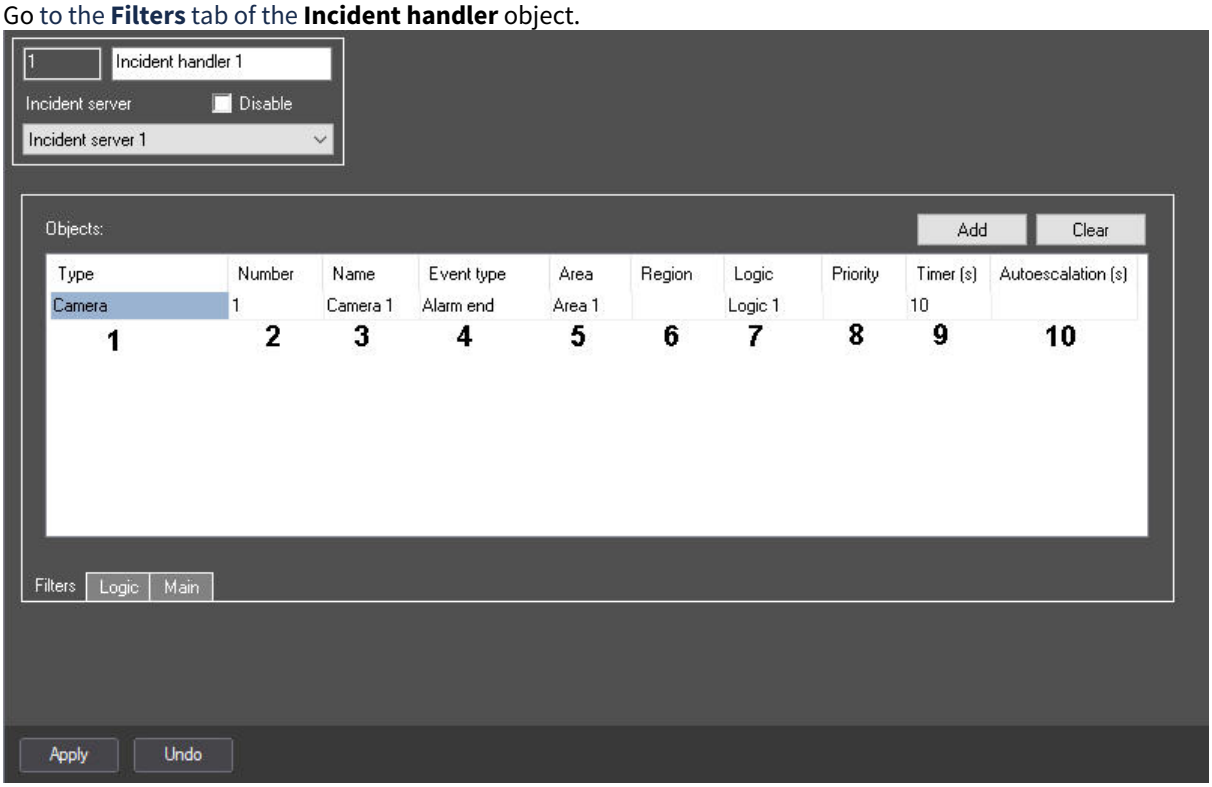
The **Incident handler** object is created.

Selecting events to display and handle

By default, no events are displayed in the **Incident manager**. It is necessary to explicitly specify the objects, the events from which should be received and processed.

This can be done in two ways: events can be selected as a group (this method is described in Displaying and handling events in bulk), or each event can be selected individually in the following way:

1. Go to the **Filters** tab of the **Incident handler** object.



2. In the **Objects** table, specify the objects, the events from which should be received and processed. If no objects are selected, no events will be displayed in the **Incident manager**.
   a. From the list in the **Type** column (**1**), select the object type.
   b. From the list in the **Number** column (**2**), select the object identification number. If the object number is not specified, events from all objects of the specified type will be logged. After you select the object type and number, the **Name** field (**3**) will be automatically filled in with the object name.
   c. From the list in the **Event type** column (**4**), select the events to be displayed in the **Incident manager**. If the event type is not specified, all events of the selected object will be sent to the module.
   d. From the list in the **Area** column (**5**), select an Area, the events from which will be displayed.
   e. From the list in the **Region** column (**6**), select a Region, the events from which will be displayed. The list of Regions depends on an Area that you selected previously.
   f. In the **Logic** list (**7**), select the logic that will be used to process the events of the selected object. Logics are created and configured on the **Logic** tab (see Creating and configuring event handling logic).

      Attention!

      It is required to select the logic, otherwise the object's events will not be displayed.

   g. In the **Priority** drop-down list (**8**), select the priority level for the events of the selected object (see Setting the events priority). The priority can be used by the operator to sort the events. If no priority is selected, priority level **0** will be used.
   h. In the **Timer (s)** field (**9**), set the time in seconds from the moment the event occurred, after which the **Time is over** event will be generated. The timer will also count down the specified time in the interface in the **Time(sec)** column until it reaches zero.

      Note

If grouping is enabled, then for groups the timer will apply to the last generated event with the specified timer.

i. In the **Autoescalation (s)** field (**10**), specify the time in seconds from the moment the event occurs, after which the event will be automatically escalated. Autoescalation is performed within one **Incident handler** and works if the operator has the escalation rights (see Configuring user rights in Incident manager).

> **Note**
>
> If grouping is enabled, autoescalation is applied to each event separately.

3. Repeat the actions described in step 2 for all required objects.

> **Note**
>
> To add a row to the table, select the last row and press the ↓ key on the keyboard. To delete rows from the table, use the Ctrl + Del key combination.
> To clear the objects table, click the **Clear** button.

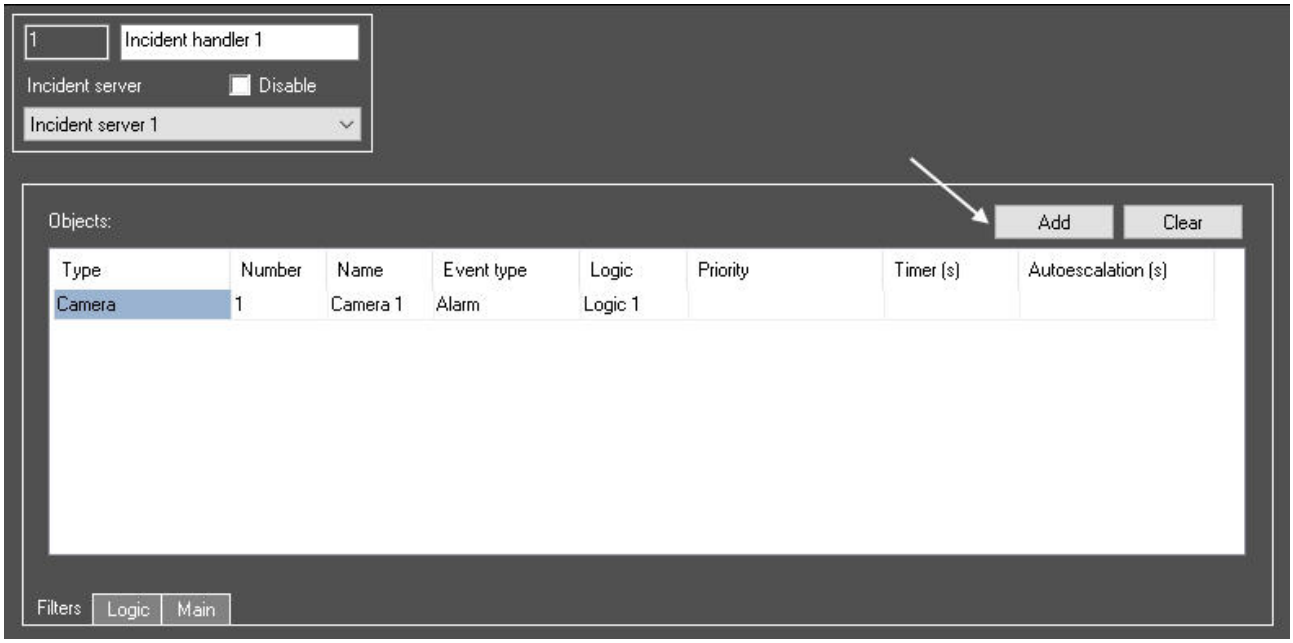
4. Click the **Apply** button.

As a result, the **Incident manager** will display the events from the objects that were selected on the **Filters** tab of the **Incident handler**.

Displaying and handling events in bulk

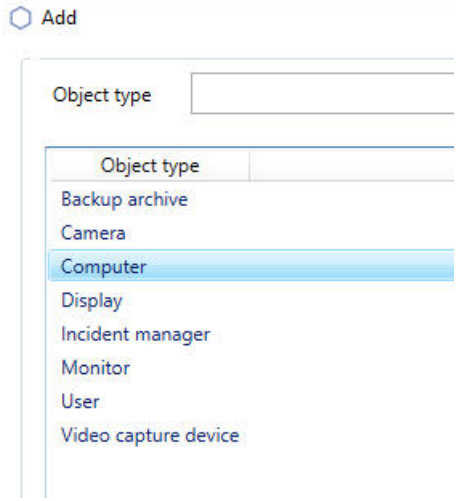
You can specify the objects from which you want to receive and handle events in the **Incident manager** in two ways: each event separately (this method is described in Selecting events to display and handle) or several events at once—this method is described below.

To add events as a group to the **Incident handler**, use the **Add** window that opens after clicking the **Add** button on the **Filters** tab of the **Incident handler** object:

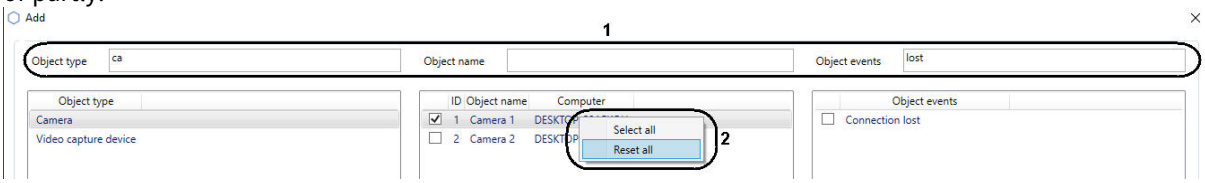


Functions used in this window

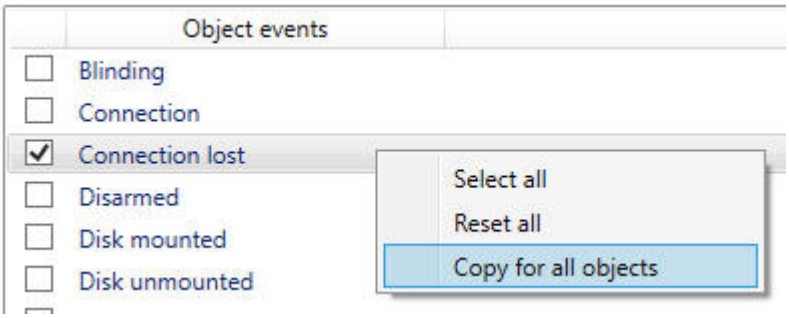
1. You can select only one of the specified object types (you cannot select several at once), because different events are used for different types. All types of objects that are available in your *Axxon PSIM* software will be listed in the table:



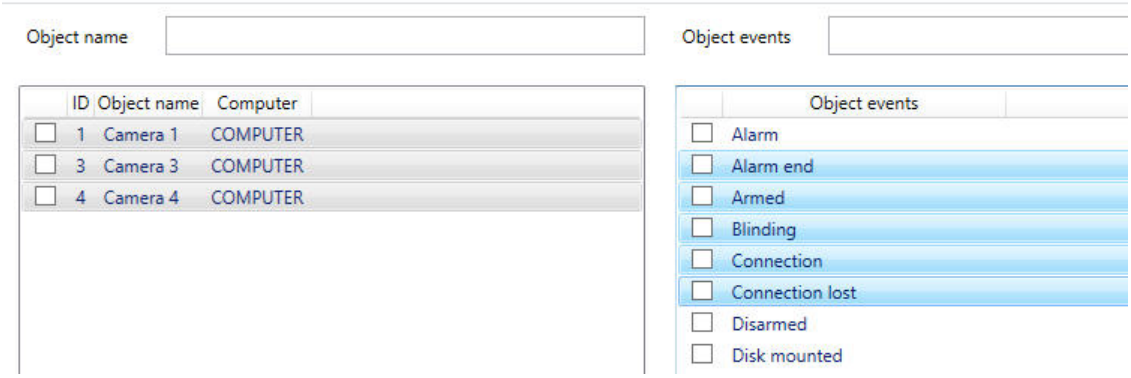
2. You can use the line with filters (**1**) to quickly find the required objects and events. Each filter applies only for the table below it. You can enter letters, numbers and characters to search. The names can be entered fully or partly.



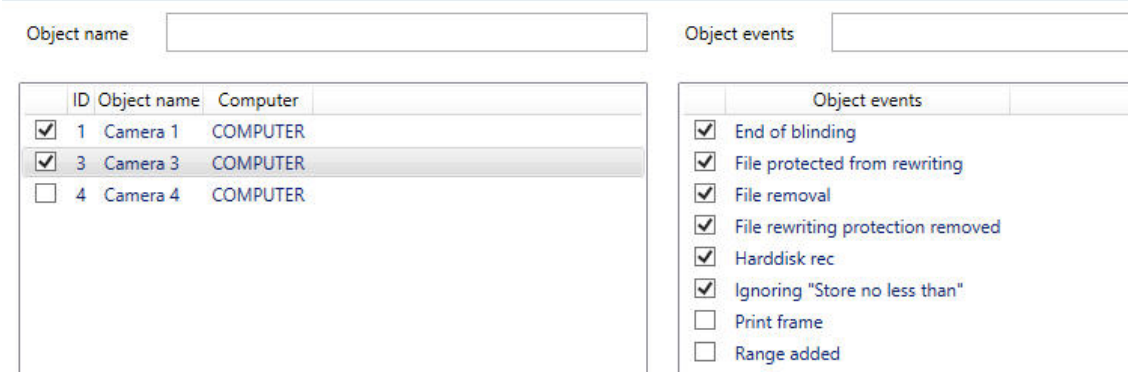
3. To set the checkboxes next to all names of objects of a particular type, right-click in any place of the **Object name** table, and in the context menu, click **Select all**. To clear all checkboxes, click **Reset all** (**2**).
4. To set/clear the checkboxes next to all events, you can click **Select all**/**Reset all** in the context menu of the **Object events** table. You can also select certain events for one object, and then copy the selection to other objects of this type. To do this, select **Copy for all objects** from the context menu. For example: **Camera 1** has the checkboxes set only next to the **Disarmed** and **Connection lost** events. After you click **Copy for all objects** in the context menu, only the checkboxes next to the **Disarmed** and **Connection lost** events will be set for all **cameras**.



5. You can select objects and events in two ways:
   a. Select them with the Ctrl key pressed. In this case, the lines of the selected objects and events will be highlighted in gray and blue:



b. Set the checkboxes next to the required objects and events:

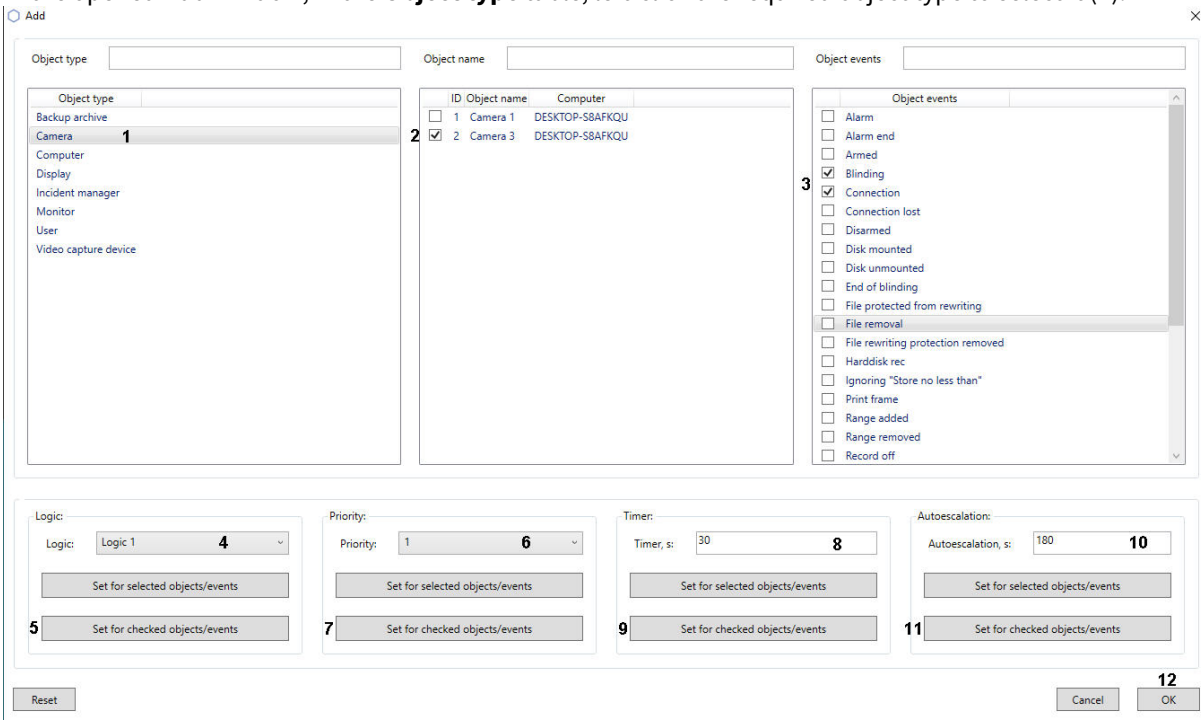


6. As a result, the buttons for setting **Logic**, **Priority**, **Timer**, and **Autoescalation** will be different:
   a. The Set for selected objects/events button applies the selected setting only for the objects and events that were selected with the Ctrl key pressed (regardless of the selection color—blue or gray);
   b. The Set for checked objects/events button applies the selected setting only for the objects and events next to which the checkboxes are set. ☐ The setting doesn't apply to objects and events highlighted in blue.
7. Depending on how you select the required **Object name**, the **Object events** table will display the following events:
   a. the events from the object selected by clicking its name. If several objects are selected in the **Object name** table, the events are displayed for the object that was selected first.
   b. the events from the object next to which the checkbox is set. If several checkboxes are set, the events from the object selected last will be displayed.
8. To clear all checkboxes in all tables, click the Reset button in the lower left corner. To exit without saving the changes, click the Cancel button.

Order of adding events to the Incident handler

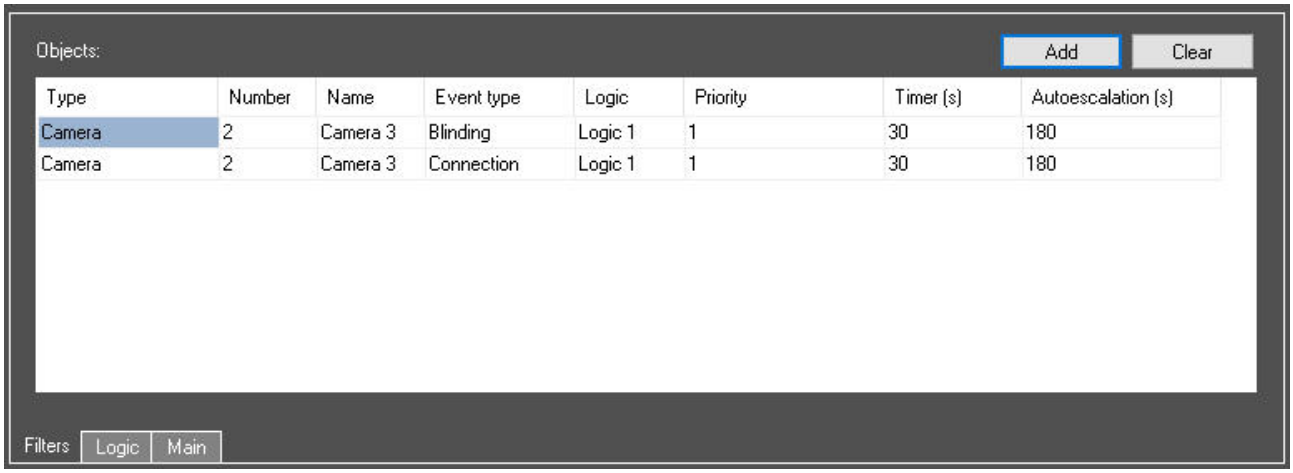
1. On the **Filters** tab of the **Incident handler** object, click the **Add** button.

2. In the opened **Add** window, in the **Object type** table, left-click the required object type to select it (**1**).



3. In the **Object name** table, set the checkbox next to the name of the object, the events from which you want to add (**2**).
4. The **Object events** table will display all possible events for this object. Select the events for displaying and handling by setting the checkboxes next to the necessary ones, without highlighting the line with color (**3**).
5. If necessary, set the **Logic** for the selected object events (the Logic must be created beforehand, see Creating and configuring event handling logic):
    a. Select the required **Logic** from the drop-down list (**4**);
    b. Click the **Set for checked objects/events** button (**5**).
6. If necessary, set the **Priority** (**6**, **7**), **Timer, s** (**8**, **9**), and **Autoescalation** (**10**, **11**), similar to **Logic**—see the previous step. The functionality and options for these settings are described in detail in Selecting events to display and handle.
7. Repeat steps 2-6 for all required objects.
8. Click the **OK** button (**12**).

As a result, the selected object events will be added to the **Filters** tab of the **Incident handler** with the specified logic, priority, timer and autoescalation settings. The example in the figure below shows the result after you click the **OK** button:



To save the result, click the Apply button.

Similarly, you can add events by selecting the required objects and events by clicking them (to select several at once—by clicking them with the Ctrl key pressed). In this case, to set the **Logic**, etc., the **Set for selected objects/events** button is used.

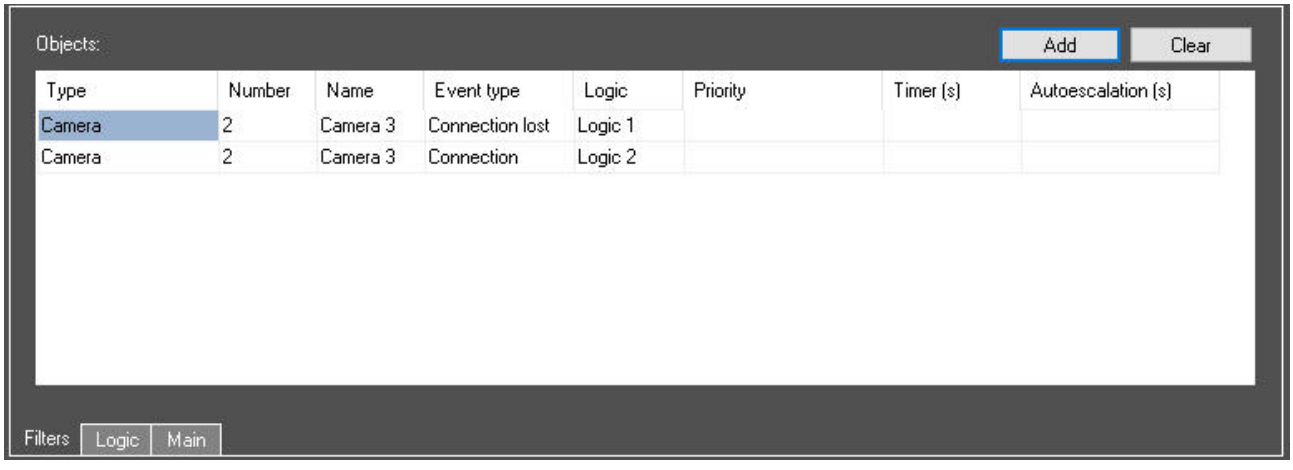
You can also combine checkboxes and object/event selection. Examples:

Task 1: Set different **Logics** (1 and 2) for the **Connection** and **Connection lost** events of the Camera 3.

Solution:

1. Select the **Camera** object type and select **Camera 3** object name by left-clicking.
2. Set the checkbox next to the **Connection lost** event.
3. Select **Logic 1** from the drop-down list and click the **Set for checked objects/events** button below it.
4. Set the checkbox next to the **Connection** event and highlight it with color by clicking it.
5. Select **Logic 2** from the drop-down list and click the **Set for selected objects/events** button below it.
6. Click the **OK** button.

The result:



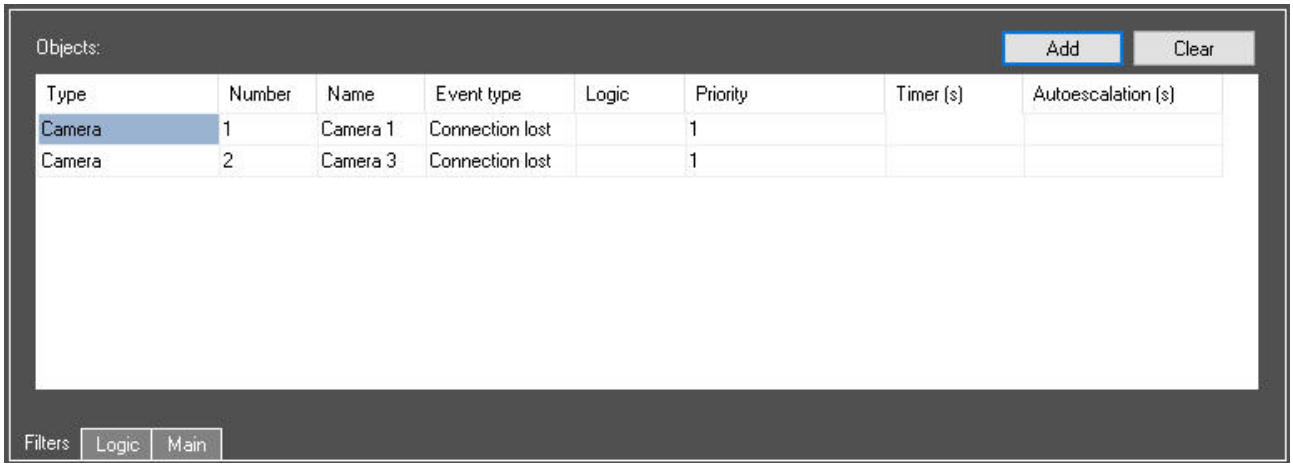
Task 2: Set the **Priority** "1" for the **Connection lost** event for all cameras that have this event selected.

Solution:

1. Select the **Camera** type and by clicking with the Ctrl key pressed, select **Camera 1** and **Camera 3** in the Object name table.

2. Set the checkbox next to the **Connection lost** event.
3. Select **Priority 1** from the drop-down list and click the **Set for checked objects/events** button below it.
4. Click the **OK** button.

The result:

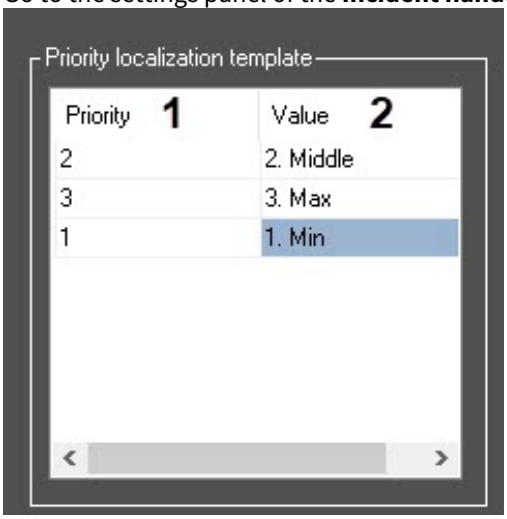


Setting the events priority

Each type of event in the **Incident handler** can be assigned a priority by which the operator can sort the events. By default, events have zero priority.

To do this:

1. Go to the settings panel of the **Incident handler** object and select the **Main** tab.



2. Add the required number of priorities to the **Priority localization template** table. To add a row to the table, select the last row and press the ↓ key on the keyboard. To delete rows from the table, use the Ctrl + Del key combination.
    a. The **Priority** column (**1**) is used to set the priority level.
    b. The **Value** column (**2**) is used to set the priority description. If the priority description is set, then it will be displayed in the **Incident handler**, otherwise the priority level will be displayed.

> **Note**

Create zero priority only if it is necessary to set a description for it that will be displayed in the **Incident handler**.

3. For each type of event, set the level of the corresponding priority (see Selecting events to display and handle).
4. Click the **Apply** button.

Creating and configuring event handling logic

On the page:

- Principle of logic operation
- Creating logic
- Configuring logic
- Resetting logic for processed events
- Removing logic

Principle of logic operation

The event processing logic is a sequence of actions that the operator must perform when processing an event in the incident manager.

Seven elements are used to perform actions:

1. **Image**. The operator can add a frame from a camera or an arbitrary image to the report. Images from maps or cameras can be added automatically.
2. **Button**. The button can be used to close the event handling interface and/or to open a report.
3. **Combobox**. The operator can select any values from one or several lists.
4. **Comment**. The operator can add a comment while processing an event.
5. **Radio button**. The operator can select one of the suggested values.
6. **Checkbox**. The operator can set one or more checkboxes.
7. **Date/time**. The operator can set the accurate date and/or time of the processed event.

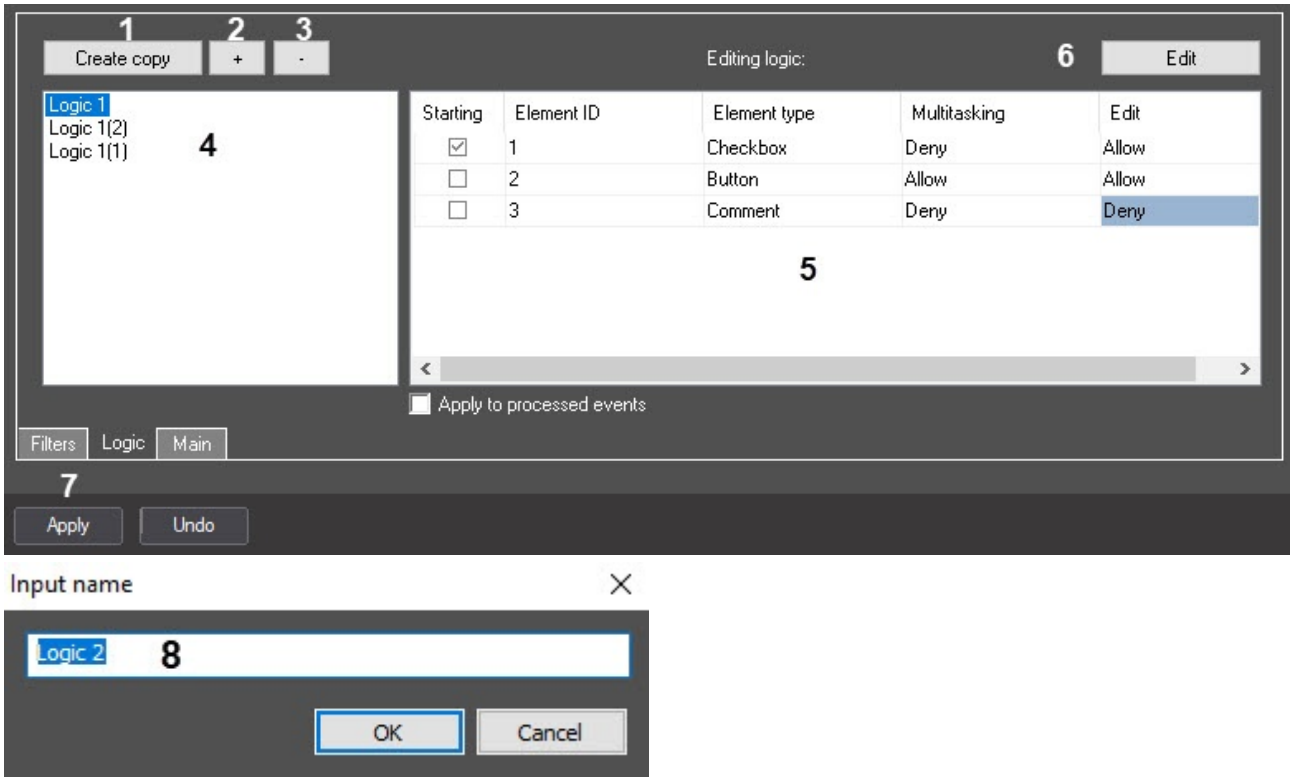
The number of elements that can be used in the logic and the number of actions that the operator must perform are unlimited. After the operator performs any action, the next action that the operator and, if necessary, a macro must perform is specified in the element settings. The sequence of actions can be determined by the operator's selection in the previous steps.

If there are several logics, you must create and configure each logic separately.

Creating logic

To create a logic, go to the settings panel of the **Incident handler** object, select the **Logic** tab, and create a logic in one of the following ways:

- Create a new logic: click the **+** button (**2**), and in the window that opens, enter the name for the new logic (**8**).
- Create a copy of the existing logic: select a logic in the list (**4**) and click the **Create copy** button (**1**). The name of the new logic consists of the name of the original logic and the copy number in brackets. For example, for the **Logic 1** object, the first copy will be named **Logic 1(1)**, the second copy will be named **Logic 1(2)**.



As a result, the new logic appears in the list (**4**).

Configuring logic

For the logic to work, you must add elements to it and configure each of them, as well as set the order in which elements are displayed for the operator:

1. In the list of logics (**4**), select the logic you want to configure.
2. Add the required number of elements to the logic (**5**). To add a row to the table, select the last row and press the ↓ key on the keyboard. To delete rows from the table, use the Ctrl + Del key combination.
3. In the **Element ID** column, enter the name of each element.
4. In the **Multitasking** column, set the ability to switch to processing other events while processing one event, being on the selected logic element:
    a. Select **Deny** so that when this element appears, the operator cannot switch to processing another event until the operator moves to the element with the **Allow** value or completes processing an event (default value);
    b. Select **Allow** so that when this element appears, the operator can proceed to processing another event.
5. In the **Edit** column, set the ability to step back when processing an event, being on the selected logic element:
    a. Select **Deny** so that the operator cannot step back when processing an event.
    b. Select **Allow** so that the operator can step back when processing an event.
6. Select the element that will be displayed first for the operator when processing an event. To do this:
    a. Select an element in the table.
    b. Click the **Edit** button (**6**).

c. In the **Starting element** drop-down list, select the **Yes** value.



d. Click the **OK** button.
As a result, the checkbox will be displayed next to the selected element in the **Starting** column of the element table.

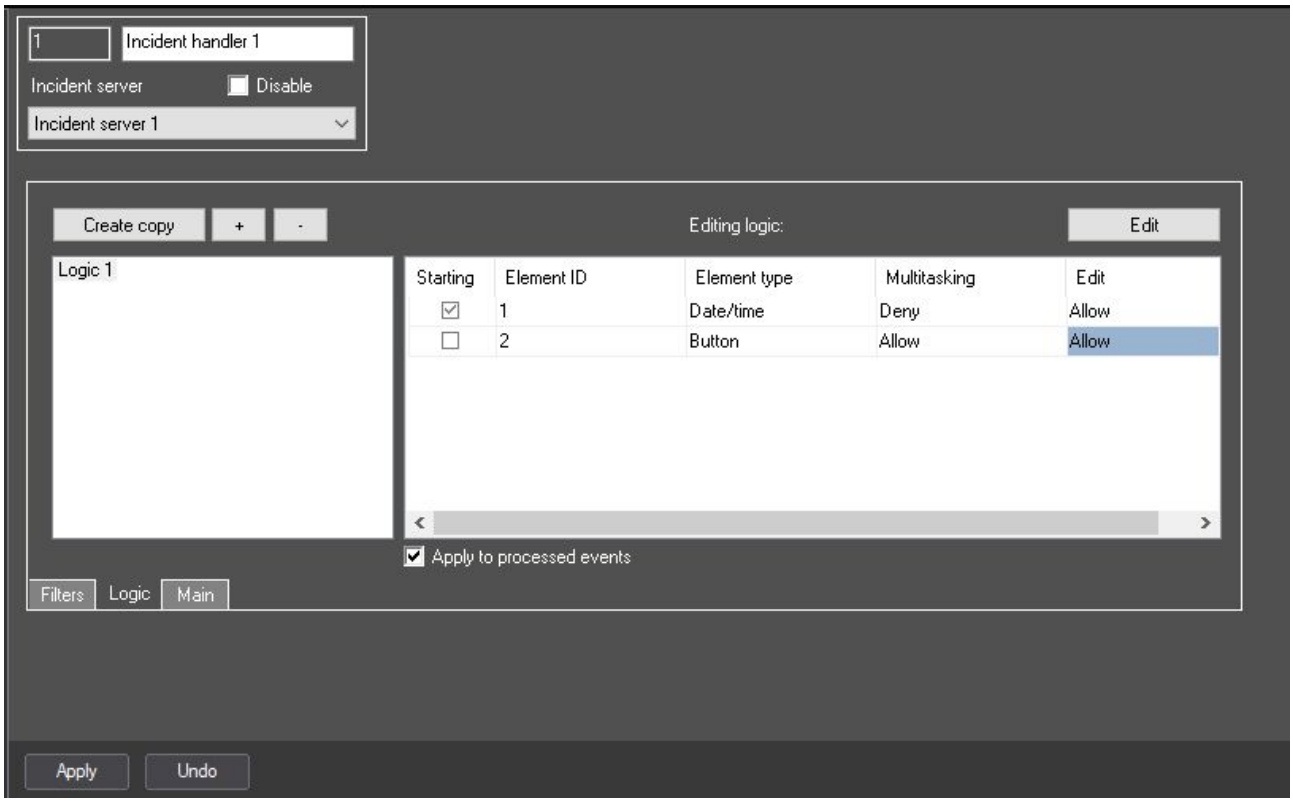
> **Note**
>
> If you don't select the starting element, then it will be the first element in the list.

7. Configure each element of the logic and their connection (see Configuring the elements).
8. Click the **Apply** button (**7**).

Configuring a logic is complete.

Resetting logic for processed events

If the administrator has created an incorrect or incomplete logic and wants to update or edit it, you can reset the event handling processes with this logic for operators so that the updated logic is applied to the event. To do this, change the logic settings by setting the **Apply to processed events** checkbox and click **Apply**.

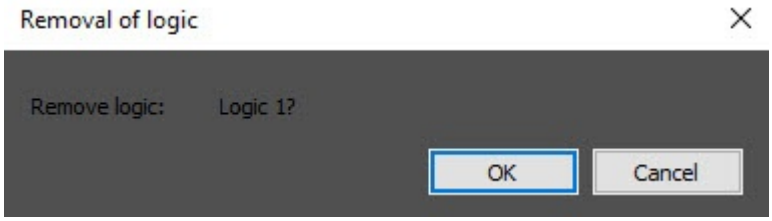


As a result, the current event processing with this logic will be reset for operators, and you can start the event processing again with the updated logic.

Example of applying the reset option: the administrator has created a two-step logic, in which the second step is the button without the set **Finish** parameter and disabled multitasking for this button (see Configuring the button). You cannot complete event processing with such logic. In this case, the administrator can allow **multitasking** for the button by setting the **Apply to processed events** checkbox and clicking **Apply**. As a result, the events processed with this logic will be reset to the **Waiting for handling** status, and operators can restart the event processing with the updated logic (see Events control and processing using the Incident manager).

Removing logic

To remove a logic, select it in the list of logics (**4**) and click the **-** button (**3**). In the window that opens, confirm the removal.



Note

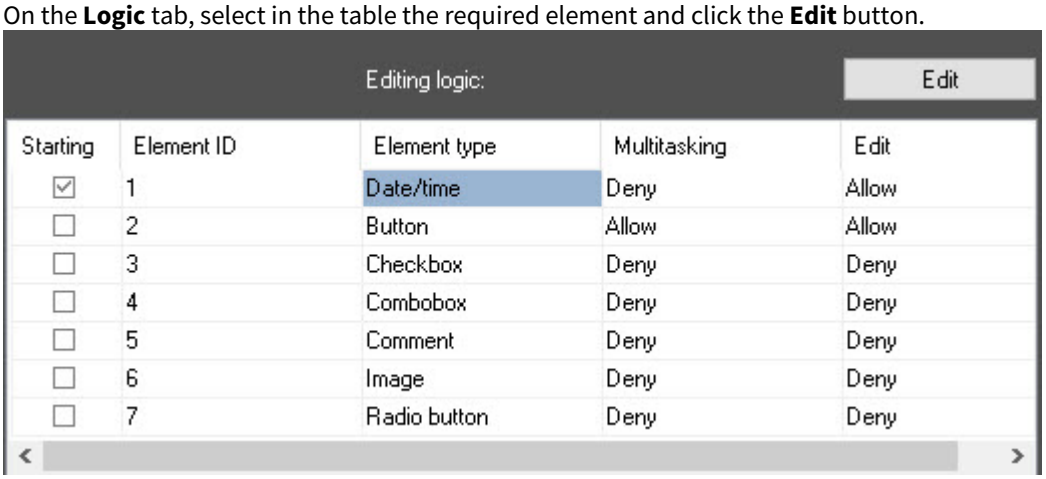
The logic of event processing is applied to an event at the moment when the event gets into the incident handler and is displayed in the incident manager. Accordingly, if you change the logic, the changed logic will be applied to the events that occurred after it was changed. If the group event processing is enabled, the updated logic will be applied to the new group of events after the existing group is closed.

Configuring the elements

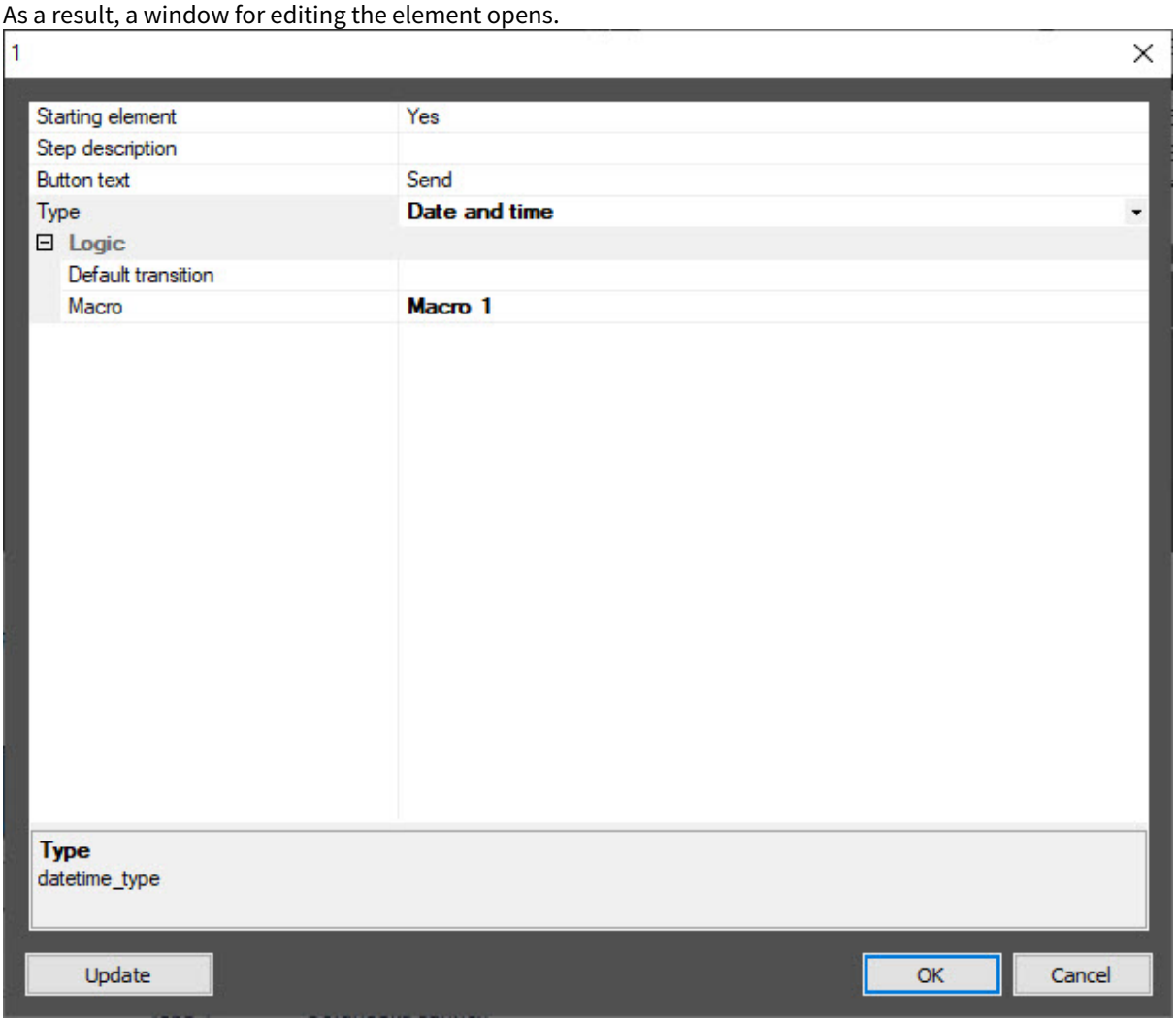
Configuring the date/time

To configure the **Date/time** element, do the following:

1. On the **Logic** tab, select in the table the required element and click the **Edit** button.

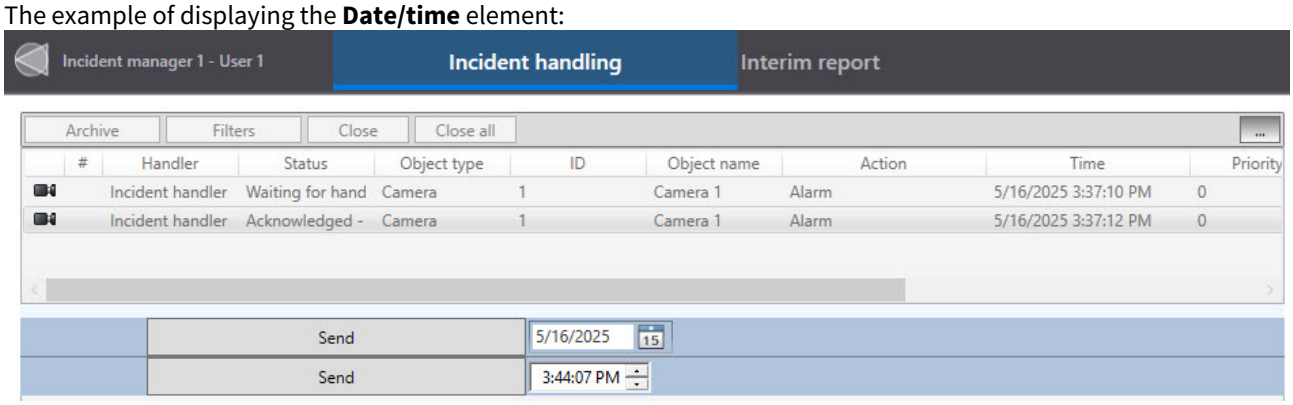


As a result, a window for editing the element opens.



2. In the **Step description** field, if necessary, enter the text that will be displayed in the column to the left of the element.
3. In the **Button text** field, enter the name of the button.
4. From the **Type** drop-down list, select the required value:
    a. **Date**,
    b. **Time**,
    c. **Date and time**.
5. If you want to display the same element at any selected values, specify its settings in the **Logic** group. If you use multiple logics, specify the settings for each logic in the **Logic [N]** group, where N is the logic number. To set it up, do the following:
    a. In the **Default transition** field, select the element that must be displayed next.
    b. If you need to execute a macro, select it from the **Macro** list.
6. Click the **OK** button.

The example of displaying the **Date/time** element:

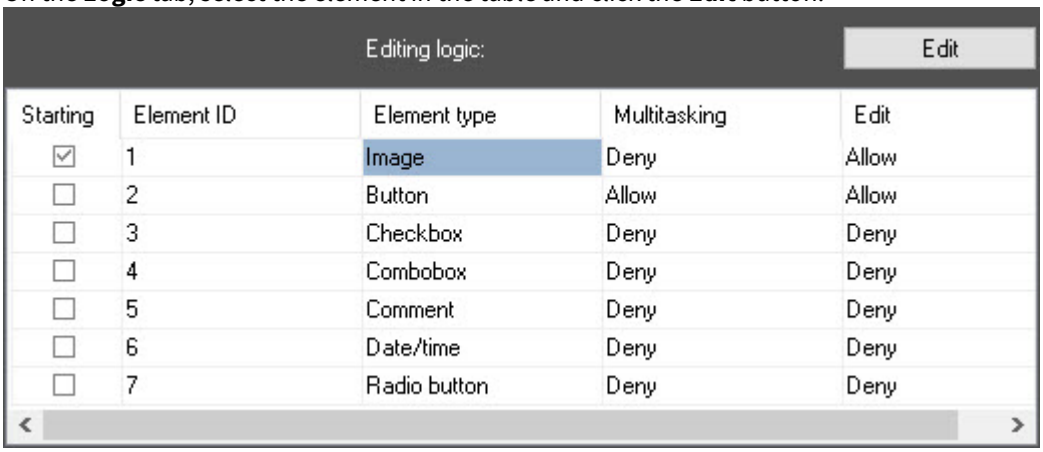


Configuring the date/time is complete.

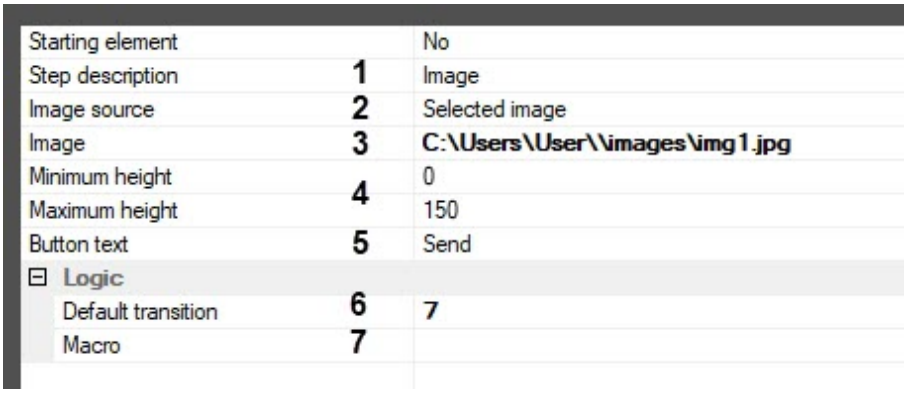
Configuring the image

Configure the image as follows:

1. On the **Logic** tab, select the element in the table and click the **Edit** button.



2. If necessary, in the **Step description** field (**1**), enter the text that will be displayed in the column to the left next to the element.



3. In the **Image source** drop-down list (**2**), select the image source:
   a. Images from cameras. When you process an event, images from cameras associated with the object that initiated an event will be displayed (see Connection of objects with cameras). If the event is initiated by a specific camera, the image will be used from it.
   b. Images from maps: an image from the associated map with the event will be displayed. If there are several layers on the map, the image from the layer to which the object is attached will be used. If the

object is attached to multiple layers, the layer on which the object was added earlier than other layers will be used.

> **Note**
>
> To use the image from the map, add the object to the map, and select the map in the incident manager settings (see Configuring the main parameters of the Incident manager).

c. Images from operator: operator uploads images on its own.
d. Selected image: the image specified in the **Image** field (**3**) will be displayed. In this case, specify the path to the image in the **Image** field, for example, C:\Users\User1\Folder1\img1.png. The image can be in the jpg, bmp, png format.

> **Note**
>
> The **Image** field (**3**) is displayed only if the **Selected image** source is selected.

4. In the **Minimum height** and **Maximum height** fields (**4**), enter the minimum and maximum image display height in pixels.
5. In the **Button text** field (**5**), enter the text that will be displayed on the button.

> **Note**
>
> If there are any event parameters, you can set them in the button text. To do this, enter %<parameter name>% in the **Button text** field. For example, when you specify %time%, the time of the event will be displayed on the button; when you specify %date%, the date will be displayed; when you specify %user_id%, the user ID will be displayed (see Database tables reference guide for Axxon PSIM and vertical solutions).

6. In the **Default transition** field (**6**), select the element that must be displayed after clicking the button.
7. If you want to execute a macro when clicking the button, select it from the **Macro** list (**7**).
8. Click the **OK** button.

Example of displaying the **Image** element:

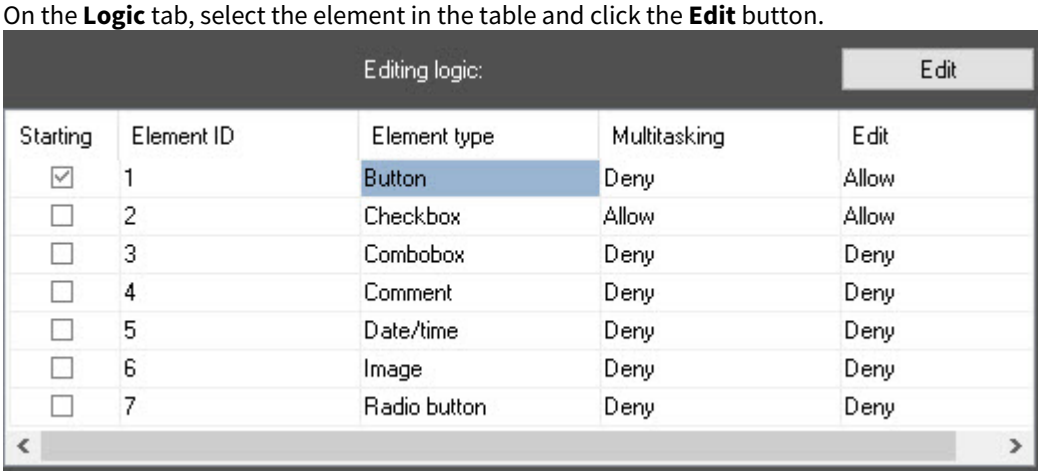


Configuring the **Image** element is complete.

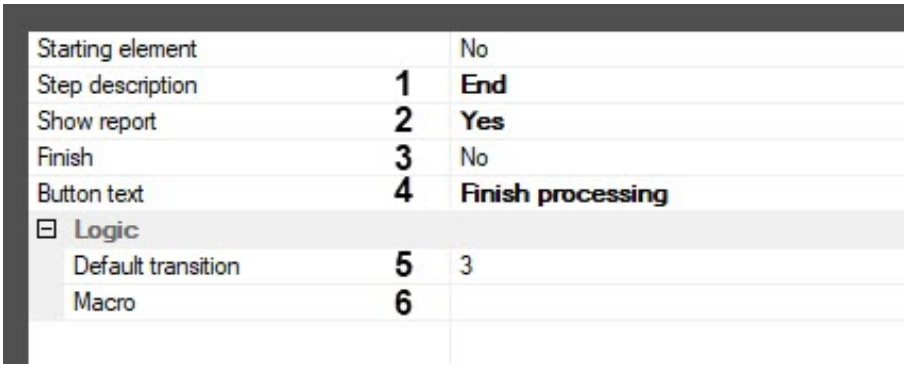
Configuring the button

Configure the button as follows:

1. On the **Logic** tab, select the element in the table and click the **Edit** button.



2. If necessary, in the **Step description** field (**1**), enter the text that will be displayed in the column to the left next to the element.

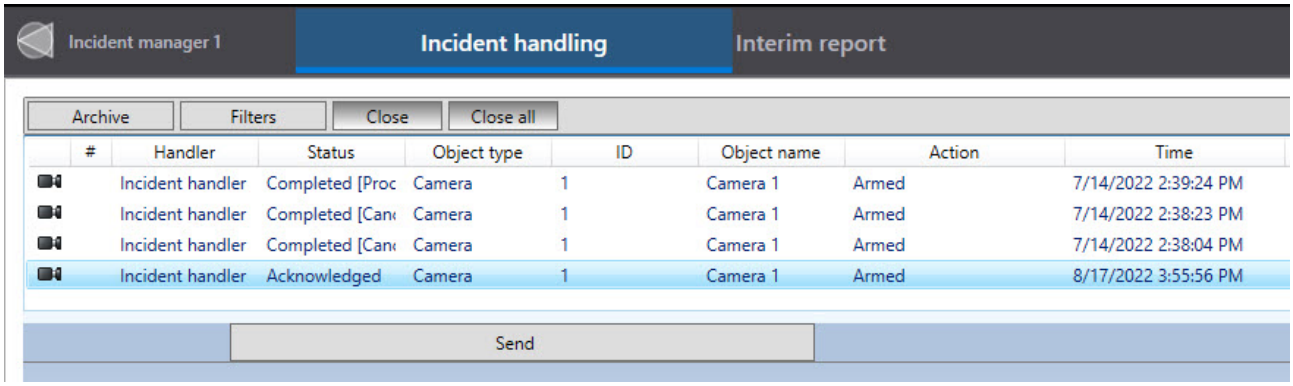


3. If you want to open a report by clicking the button, select **Yes** in the **Show report** parameter (**2**).
4. If you want to close the event handling interface after clicking the button, select **Yes** in the **Finish** parameter (**3**).
5. In the **Button text** field (**4**), enter the text that will be displayed on the button.

> **Note**
>
> If there are any event parameters, you can set them in the button text. To do this, enter $<parameter name>$ in the **Button text** field. For example, when you specify $time$, the time of the event will be displayed on the button; when you specify $date$, the date will be displayed; when you specify $user_id$, the user ID will be displayed (see Database tables reference guide for Axxon PSIM and vertical solutions).

6. In the **Default transition** field (**5**), select the element that must be displayed after clicking the button. If the **Finish** parameter is set to **Yes**, you cannot select the element.
7. If you want to execute a macro when clicking the button, select it from the **Macro** list (**6**).
8. Click the **OK** button.

Example of displaying the **Button** element:

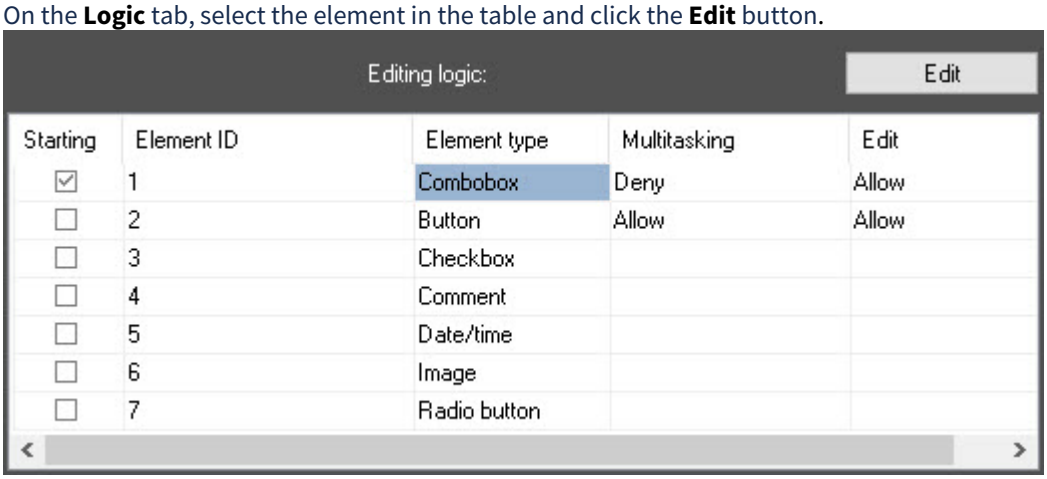


Configuring the **Button** element is complete.

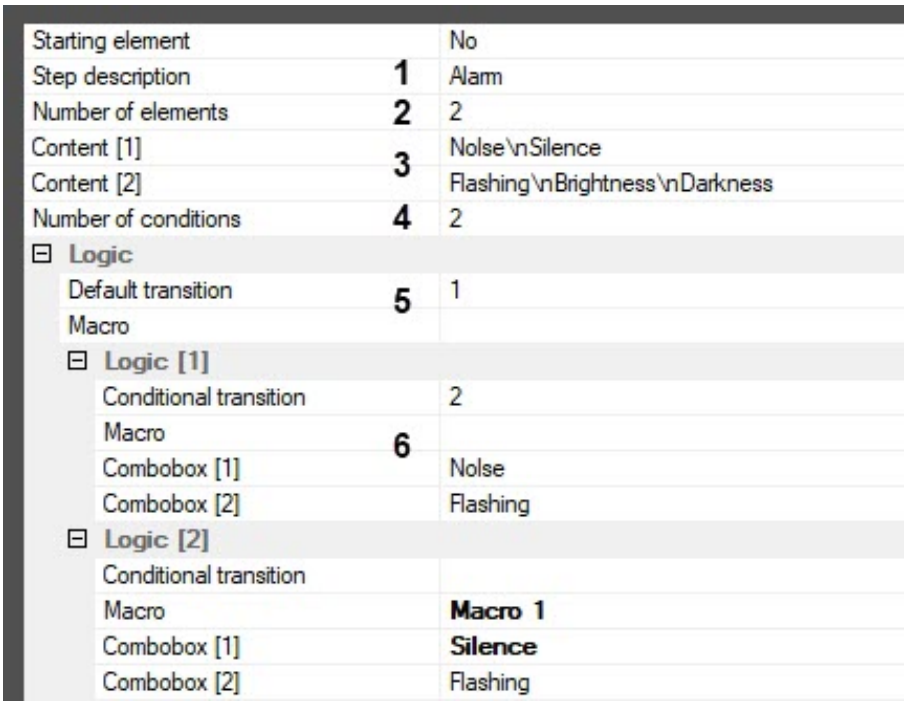
Configuring the combobox

Configure the combobox as follows:

1. On the **Logic** tab, select the element in the table and click the **Edit** button.



2. If necessary, in the **Step description** field (**1**), enter the text that will be displayed in the column to the left next to the element.



3. From the **Number of elements** list (**2**), select the required number of drop-down lists.

> **Note**
>
> The maximum number of elements is determined by the possible number of columns when you display the logic (see Configuring the display of logic).

4. In the **Content** fields (**3**), click the ... button and enter the values for the lists. Enter each value on the new line.



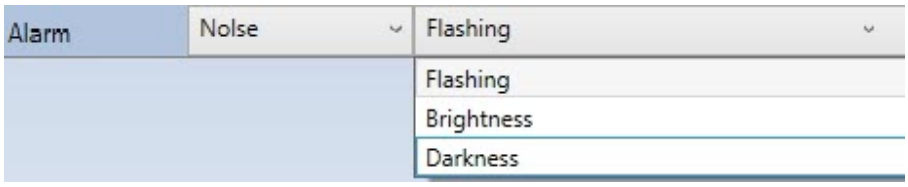
To save the values and close this window, click ×.

5. From the **Number of conditions** list (**4**), select the number of different logics used to proceed the event handling. In this case, each logic implies a set of values that the operator selected from the lists. For each such set of values, you can set the next element to display.
6. If you want to display the same element at any selected values, set up this element in the **Logic** group (**5**). If you use several logics, set up each logic settings in the **Logic [N]** group (**6**), where N is the logic number. To set it up, do the following:

a. In the **Conditional transition** field, select the element that must be displayed next.
b. If you also want to execute a macro, select it from the **Macro** list.
c. Select values from the lists at which the above actions will be performed.

7. Click the **OK** button.

Example of displaying the **Combobox** element:

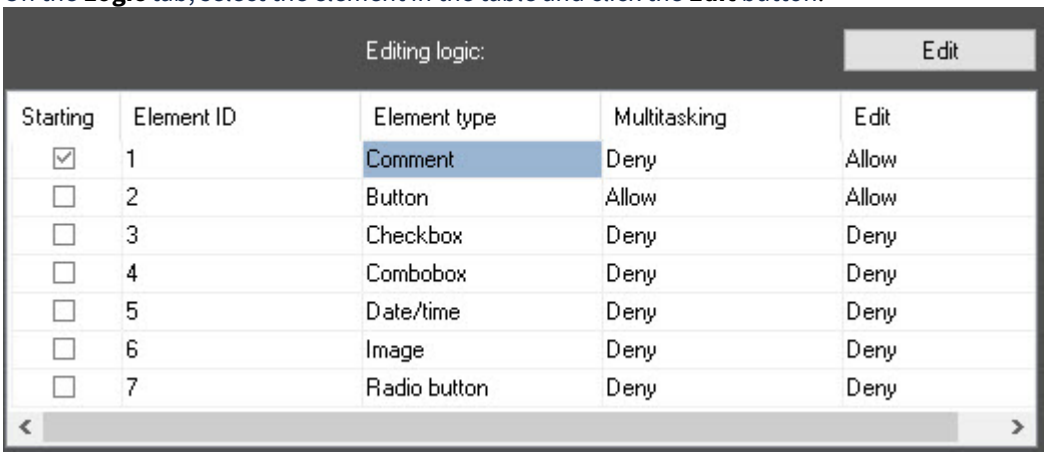


Configuring the **Combobox** element is complete.

Configuring the comment

Configure the comment as follows:

1. On the **Logic** tab, select the element in the table and click the **Edit** button.



2. If necessary, in the **Step description** field (**1**), enter the text that will be displayed in the column to the left next to the element.



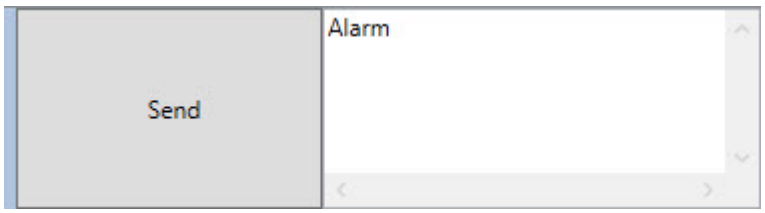
3. If necessary, in the **Text** field (**2**), enter the text that will be displayed in the comment input form.

Note

To display the current date and time in the input form, enter **%time%**. In this case, at the moment when the **Comment** element appears, the date and time of the computer will be automatically recorded.

4. In the **Button text** field (**3**), enter the text that will be displayed on the button.
5. If the comment is required, select **Yes** in the **Comment required** parameter (**4**).
6. If you want to disable the ability to edit the comment by the operator, select **Yes** in the **Read only** field (**5**).
7. In the **Minimum height** and **Maximum height** fields (**6**), enter the minimum and maximum height of the comment input field in pixels. When you exceed the maximum value, the scroll bar is displayed. The default value for both fields is 100.
8. In the **Default transition** field (**7**), select the element that must be displayed after clicking the button.
9. If you want to execute a macro when clicking the button, select it from the **Macro** list (**8**).
10. Click the **OK** button.

Example of displaying the **Comment** element:

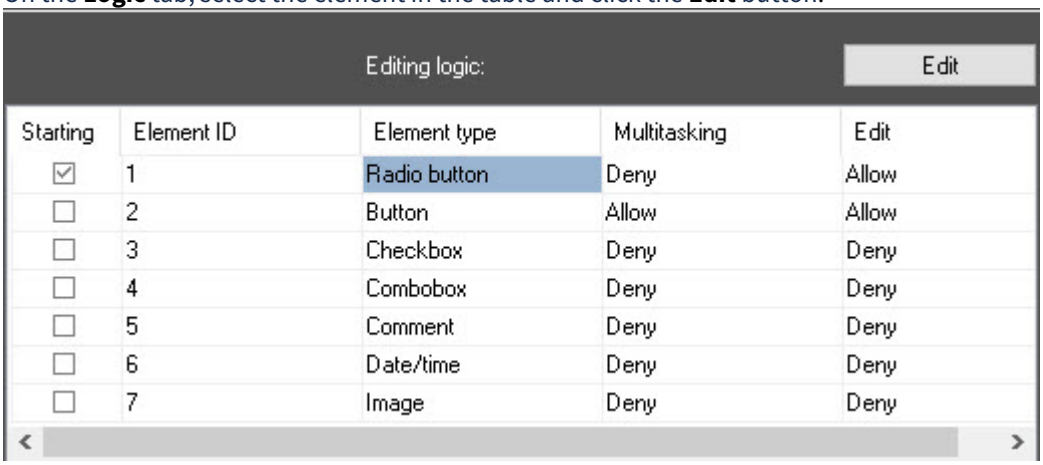


Configuring the **Comment** element is complete.

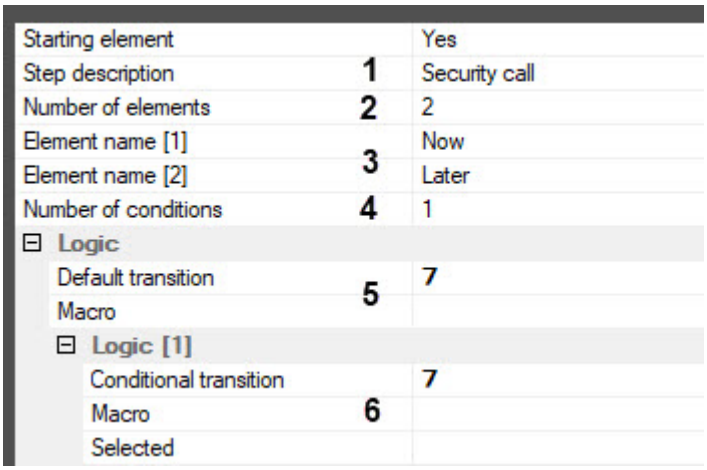
Configuring the radio button

Configure the radio button as follows:

1. On the **Logic** tab, select the element in the table and click the **Edit** button.



2. If necessary, in the **Step description** field (**1**), enter the text that will be displayed in the column to the left next to the element.

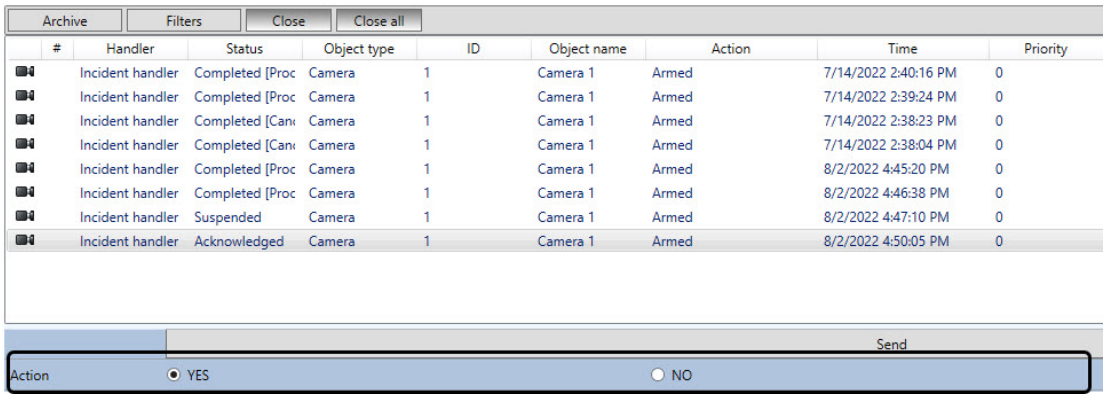


3. From the **Number of elements** list (**2**), select the required number of radio buttons.

> **Note**
>
> The maximum number of elements is determined by the possible number of columns when you display the logic (see Configuring the display of logic).

4. In the **Element name** fields (**3**), enter the values of the radio buttons.
5. From the **Number of conditions** list (**4**), select the number of different logics to proceed the event handling. In this case, each logic implies the value that the operator selected. For each value, you can set the next element to display.
6. If you want to display the same element at any selected value, set up this element in the **Logic** group (**5**). If you use several logics, set up each logic settings in the **Logic [N]** group (**6**), where N is the logic number. To set it up, do the following:
   a. In the **Conditional transition** field, select the element that must be displayed next.
   b. If you also want to execute a macro, select it from the **Macro** list.
   c. Select the value of the radio button, at which the above actions will be performed.
7. Click the **OK** button.

Example of displaying the **Radio button** element:

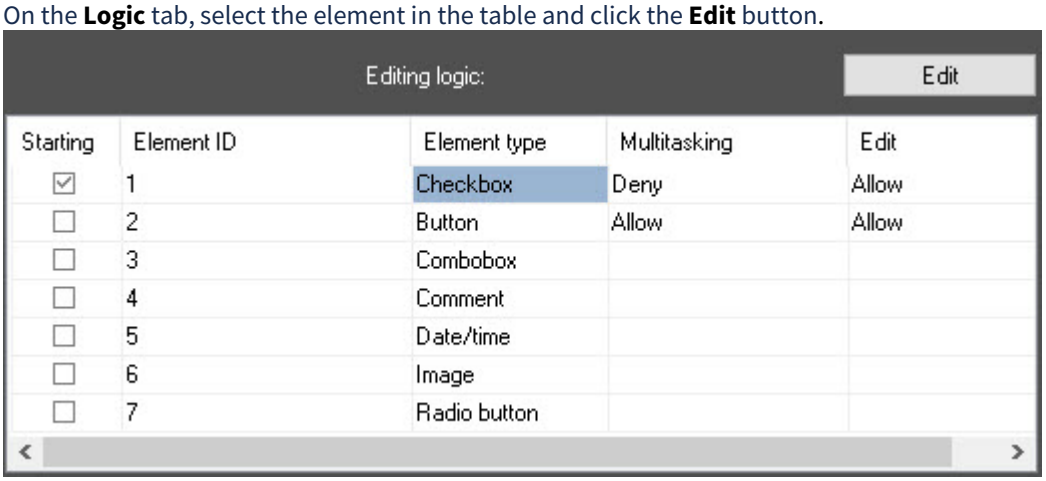


Configuring the radio button is complete.

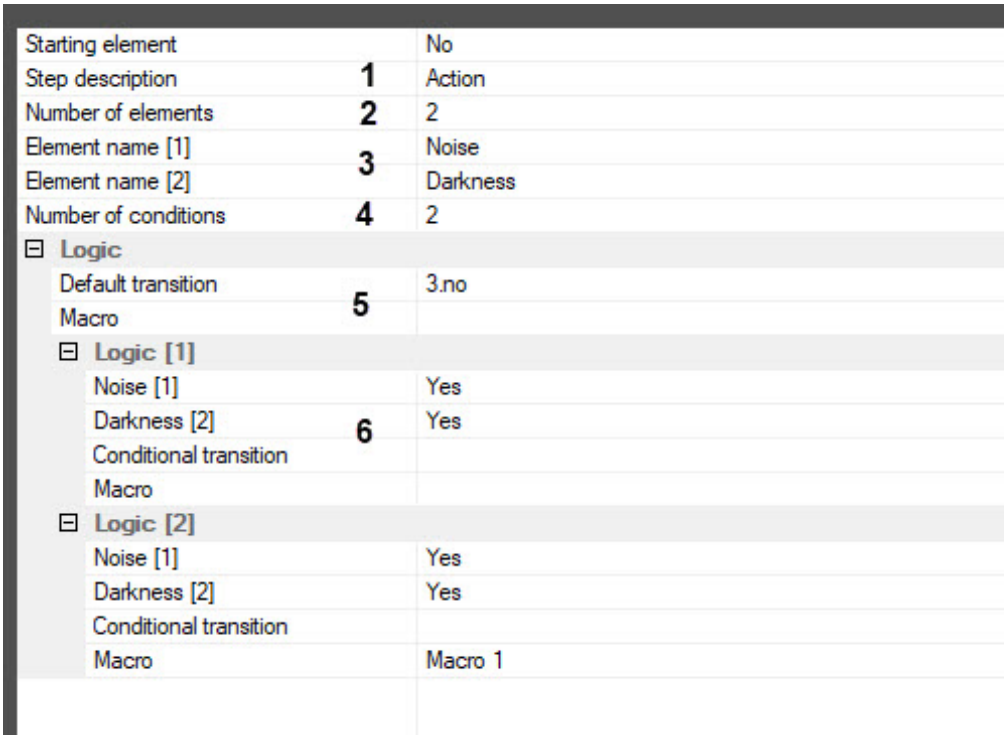
Configuring the checkbox

Configure the checkboxes as follows:

1. On the **Logic** tab, select the element in the table and click the **Edit** button.



2. If necessary, in the **Step description** field (**1**), enter the text that will be displayed in the column to the left next to the element.



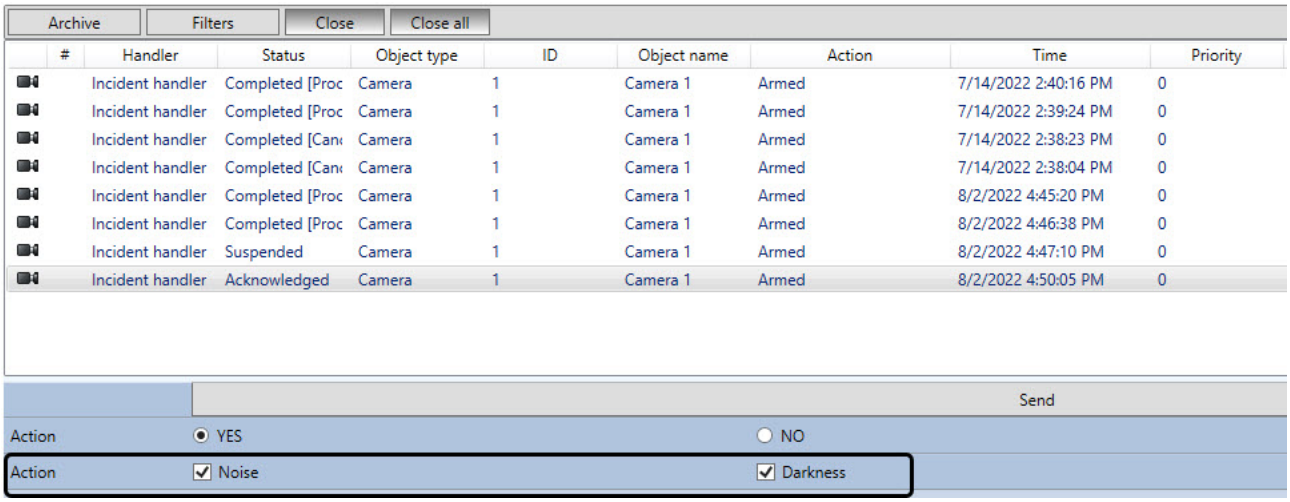
3. From the **Number of elements** list (**2**), select the required number of checkboxes.

> **Note**
>
> The maximum number of elements is determined by the possible number of columns when you display the logic (see Configuring the display of logic).

4. In the **Element name** fields (**3**), enter the names of the checkboxes.
5. From the **Number of conditions** list (**4**), select the number of different logics used to proceed the event handling. In this case, each logic implies a certain set of checkboxes that the operator set. For each such set of checkboxes, you can set the next element to display.

6. If you want to display the same element at any possible values of the checkboxes, set up this element in the **Logic** group (**5**). If you use several logics, set up each logic settings in the **Logic [N]** group (**6**), where N is the logic number. To set it up, do the following:
    a. In the **Conditional transition** field, select the element that must be displayed next.
    b. If you also want to execute a macro, select it from the **Macro** list.
    c. Set the values of each checkbox, at which the above actions will be performed.
7. Click the **OK** button.

Example of displaying the **Checkbox** element:

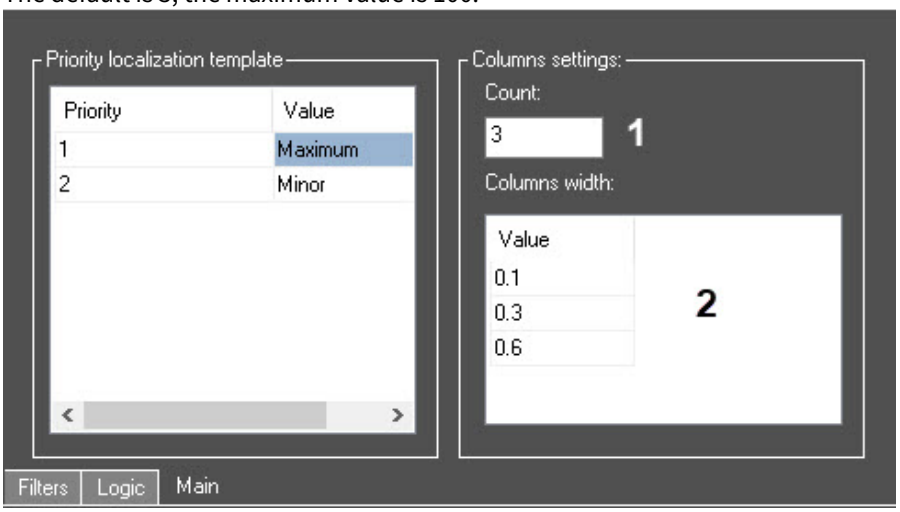


Configuring the **Checkbox** element is complete.

Configuring the display of logic

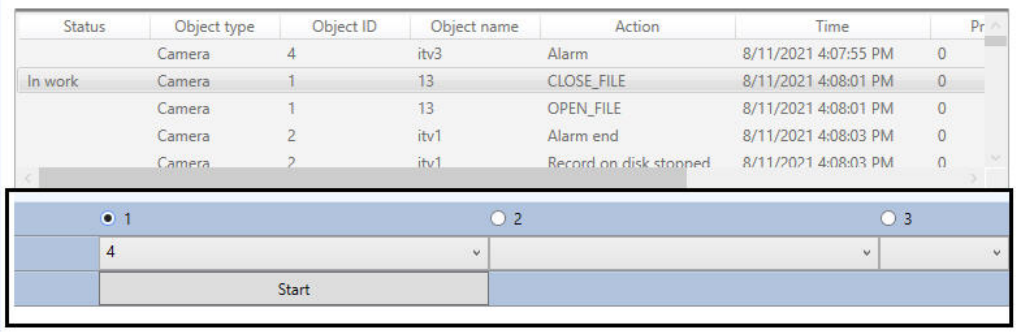
In **Incident manager**, the logic of event handling is displayed as a number of columns and rows with logic steps. To configure the display of logic, do the following:

1. Go to the **Main** tab of the **Incident handler** object.
2. Specify the **Columns settings**:
    a. In the **Count** field (**1**), specify the number of columns required to display the logic of event handling. The default is 3, the maximum value is 100.



> **Note**
>
> The number of columns determines how many **Radiobutton**, **Checkbox**, and **Combobox** elements can be created (see Configuring the elements).
> If the logic of event handling is created, but the number of columns is not set, then it will be displayed incorrectly when the operator will take the event into processing.

b. In the **Columns width** field (**2**), set the width of the columns when displaying the logic of event handling. The width is set in pixels or as a percentage of the entire width of the **Incident manager** interface. Percentage values should be set as fractions of 1, for example, 0.25. If you set a value greater than 1, then it will be considered as pixels. The default column width is 150 px.

> **Note**
>
> For example: **Count** — 4, **Columns width** — 100, 300, 300, 100.
> In this case, the logic of event handling is displayed as follows:
>
> 
>

3. Click the **Apply** button.

The display of the logic of event handling is configured.

Configuring the use of an external database

By default, **Incident server** events are stored in the PROTOCOL_INC_SERVER table of the *Psim* database.

If for the **Incident server** it is necessary to use a database that is different from the one used in *Axxon PSIM* by default, configure the connection as follows:

1. On the settings panel of the **Incident server** object, set the **Use** checkbox (**1**).



2. Configure the connection parameters in one of the following ways:
   a. Click the **Configure** button and set the parameters for connecting to an external database using the standard dialog box—see Configuring the connection to an external database in dialog mode (**2**).
   b. In the **Connection string**, manually enter the connection parameters separated by a semicolon without spaces (**3**).

Parameter	Possible values
Provider	**SQLOLEDB.1** when using MS SQL Server format database, **Microsoft.Jet.OLEDB.4.0** when using MS Access database
Integrated Security	**SSPI** when authenticating on MS SQL server using a Windows OS account. If MS SQL server is used and the parameter is missing, then username (login) and password will be used for authentication. When using a database in MS Access format, this parameter is not required
Persist Security Info	**True**—it is permitted to save the password for automatic connection to the database, **False**—it is prohibited to save the password for automatic connection to the database
Data Source	The name of the MS SQL server used to manage the database, or the path to the MDB file of the MS Access database

   All parameters, except for **Integrated Security**, are mandatory. Example: Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist Security Info=True;Data Source=SQLEXPRESS2014
3. Click the **Apply** button (**4**).

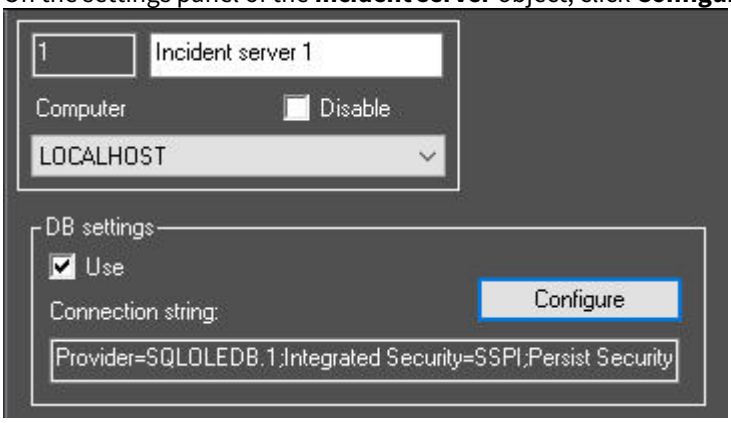
As a result, the specified database will be used for the **Incident server**.

> **Note**
>
> The settings described above are required only for connection to an external database. If the default database is used, then there is no need to additionally configure the connection.

Configuring the connection to an external database in dialog mode

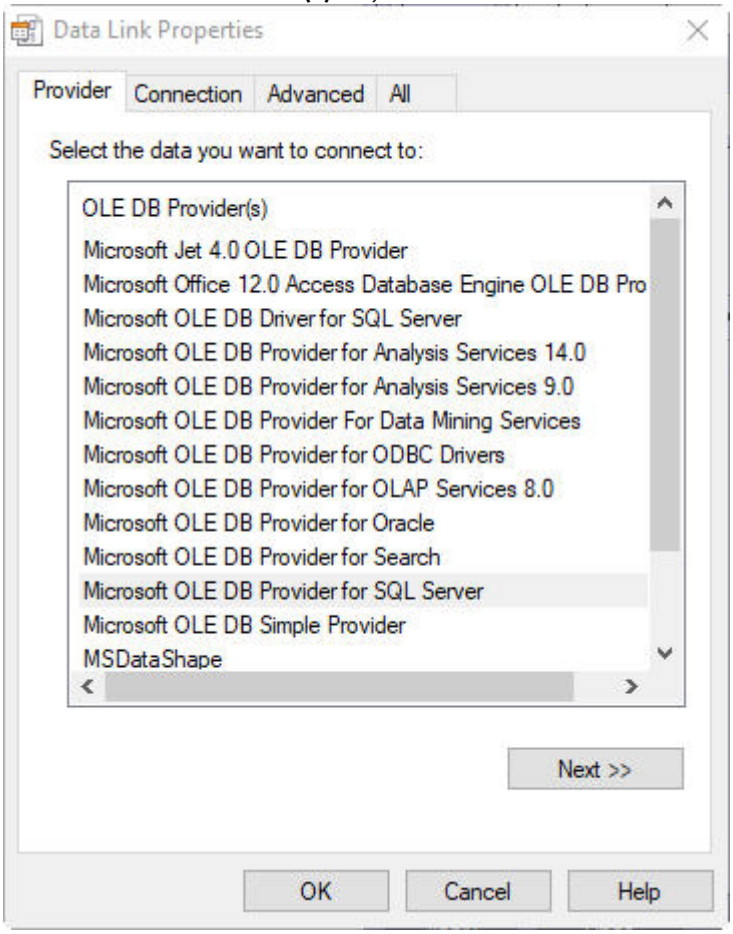
To configure the connection to an external database in dialog mode, do the following:

1. On the settings panel of the **Incident server** object, click **Configure**.

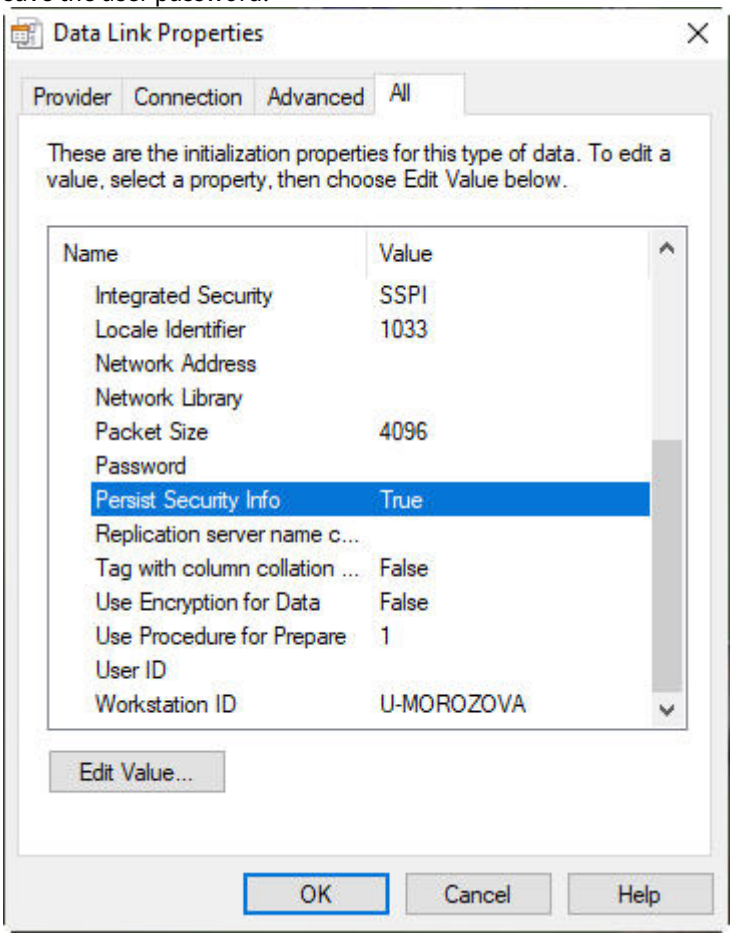


2. As a result, the **Data Link Properties** dialog box will open. Go to the **Provider** tab.

3. From the **OLE DB Provider(s)** list, select **Microsoft OLE DB Provider for SQL Server**.

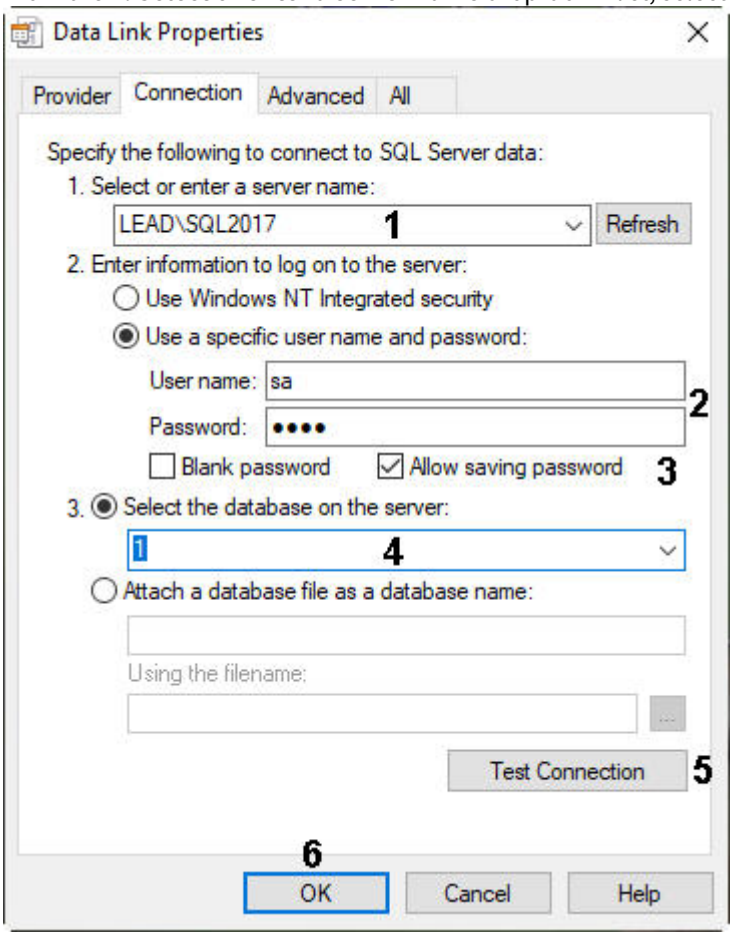


4. Go to the **All** tab and set the **Persist Security Info** parameter value to **True**. This is necessary to correctly save the user password:

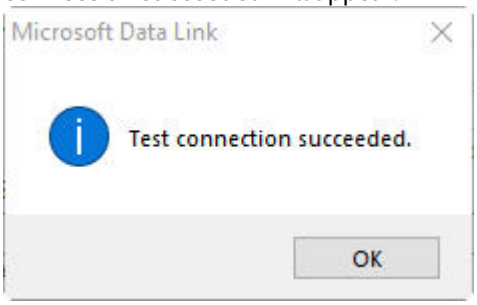


5. Go to the **Connection** tab:

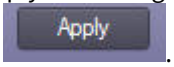
a. From the **1. Select or enter a server name** drop-down list, select the server name (**1**).



b. In parameter **2. Enter information to log on to the server**, set the **Use a specific user name and password** checkbox and enter the username and password to access the server in the corresponding fields (**2**).
c. Set the **Allow saving password** checkbox (**3**).
d. From the **3. Select the database on the server** drop-down list, select the database to be used (**4**).
e. Click the **Test Connection** button (**5**).
f. If the connection to the MS SQL server is successfully established, a window with the message **Test connection succeeded** will appear.



g. Click the **OK** button on the message box, which will automatically close the window.

6. To apply the settings, click the **OK** button (**6**).
7. Click 

.

As a result, the selected database will be used for the **Incident server**.

22.4 Configuration of interfaces

22.4.1 Axxon PSIM Software System's interface language

To change the interface language of the *Axxon PSIM* Software System, a language must be installed. This is done using a language pack. Language packs are available on the AxxonSoft website at https://www.axxonsoft.com/.

> **Note.**
>
> A language pack may be released later than the corresponding version of the *Axxon PSIM* Software System.

A language pack is collection of LP.msi files, each of which installs the localized product in one of the supported languages. Each file is located in a separate folder named using the ISO 639-1 two-letter code for the installer's language. Languages can be installed during the installation of the base product (see Installing Axxon PSIM™ software) or separately for each language (see Installing the language).

> **Important!**
>
> The operating system language must be the same as the language of the installed language pack. Otherwise, the *Axxon PSIM* settings and interfaces may be displayed incorrectly.

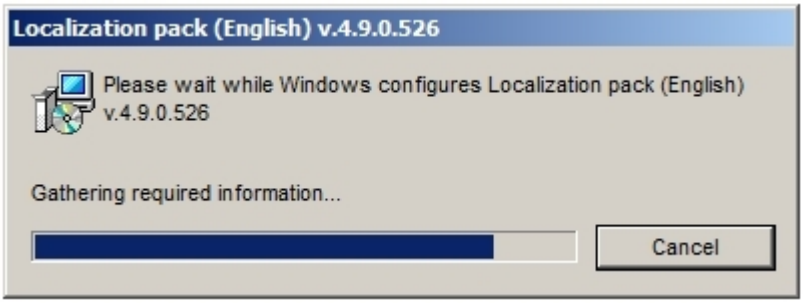
Installed languages are enabled in the *Axxon PSIM* Software System using the system's advance settings utility tweaki.exe (see Switching languages in the Axxon PSIM Software System).

> **Attention!**
>
> Localization files for Axxon PSIM-based vertical solution modules are not included into the language package

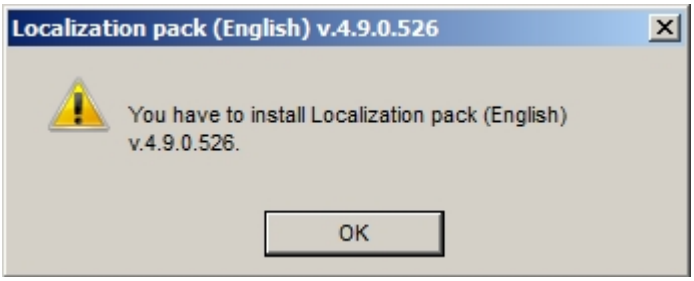
Installing the language

To install a new interface language for the *Axxon PSIM* Software System, do the following:

1. Download the latest version of the language pack from the AxxonSoft official website: https://www.axxonsoft.com/.
2. Unzip LP.zip in any directory, i.e. D:\LP\.
3. Go into the folder corresponding to the language you want to install, i.e. D:\LP\en to install English.
4. Launch LP.msi.
5. A window displaying the progress of the installation will be shown.



A language cannot be installed if the base product has not been installed. If the *Axxon PSIM* Software System has not been installed, a message indicating the need to install it will be shown.



Click **OK** to cancel the installation.

When the installation process is complete, a folder containing the required language files will be created in <*Axxon PSIM* installation directory>\Languages. Additionally, help files in the desired language will be placed in <*Axxon PSIM* installation directory>\Help.

Documentation in the installed language will also become available through **Start** –> **Axxon PSIM** –> **Documentation**.

Languages are uninstalled when the *Axxon PSIM* Software System is uninstalled.

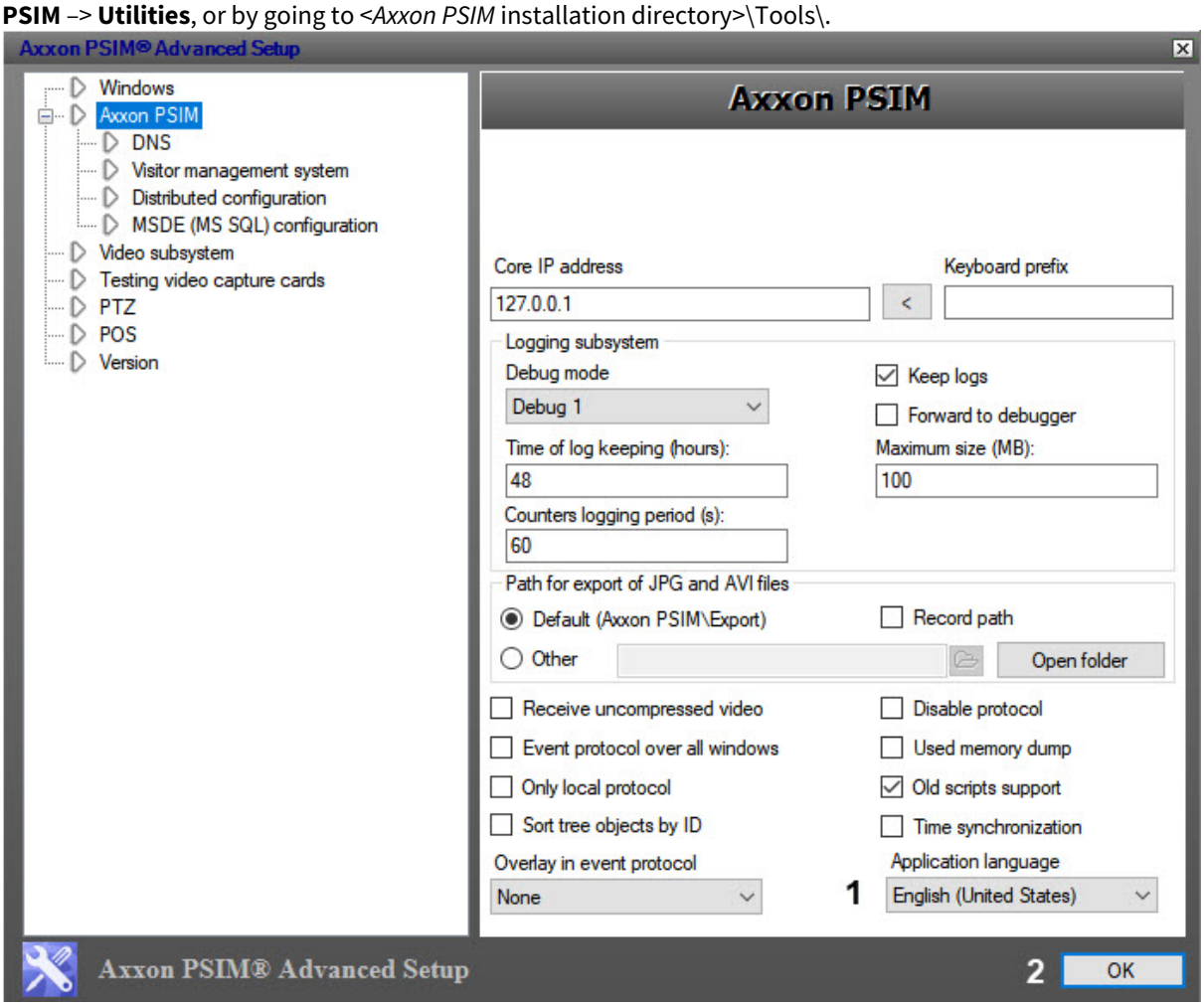
Switching languages in the Axxon PSIM Software System

Before switching languages, be sure the desired language has been installed (see Installing Axxon PSIM™ software or Installing the language).

To switch the *Axxon PSIM* Software System's interface language, do the following:

1. Shut down the *Axxon PSIM* Software System.

2. Launch the system's advanced settings utility tweaki.exe. The utility is accessed through **Start** –> **Axxon PSIM** –> **Utilities**, or by going to <*Axxon PSIM* installation directory>\Tools\.



3. From the **Application language** dropdown list, select the desired interface language for the *Axxon PSIM* Software System (1).
4. Click **OK** (2).
5. Launch the *Axxon PSIM* Software System.

This completes the process of switching languages.

22.4.2 Configuring the user interface

The user interface in the Axxon PSIM software

In the course of setting-up the video surveillance/audio monitoring system, the personal user interface is configured and personal (role-dependent) rights are assigned to each Operator for using the system functions and managing the system resources (see Configuration of users and rights).

The user interface of the Axxon PSIM-based video surveillance system is built under the **Display** hierarchical object.

The **Display** object groups and sets the position of the UI components on the Operator's workstation monitor.

The **Display** object represents the whole visible area of the computer monitor showing all the interface components according to their settings.

The **Display** object includes the following interface components:

1. HTML Interface;
2. Audio player;
3. External window;
4. Map;
5. Live sound switch;
6. Monitor;
7. Intercom Control Monitor;
8. Telemetry control panel;
9. Panel of Backup archive;
10. Search by captions;
11. Configuration check;
12. Event Viewer;
13. Incident manager;
14. Operator protocol;
15. Scene.

The following windows are created on the base of the **Computer** object and pop up on the **Display**:

1. Alarm Message Window.
2. Operator query panel.

Setup procedure for the displays

Display creation is an important stage of the surveillance system design as it is the main working instrument of the Operator.

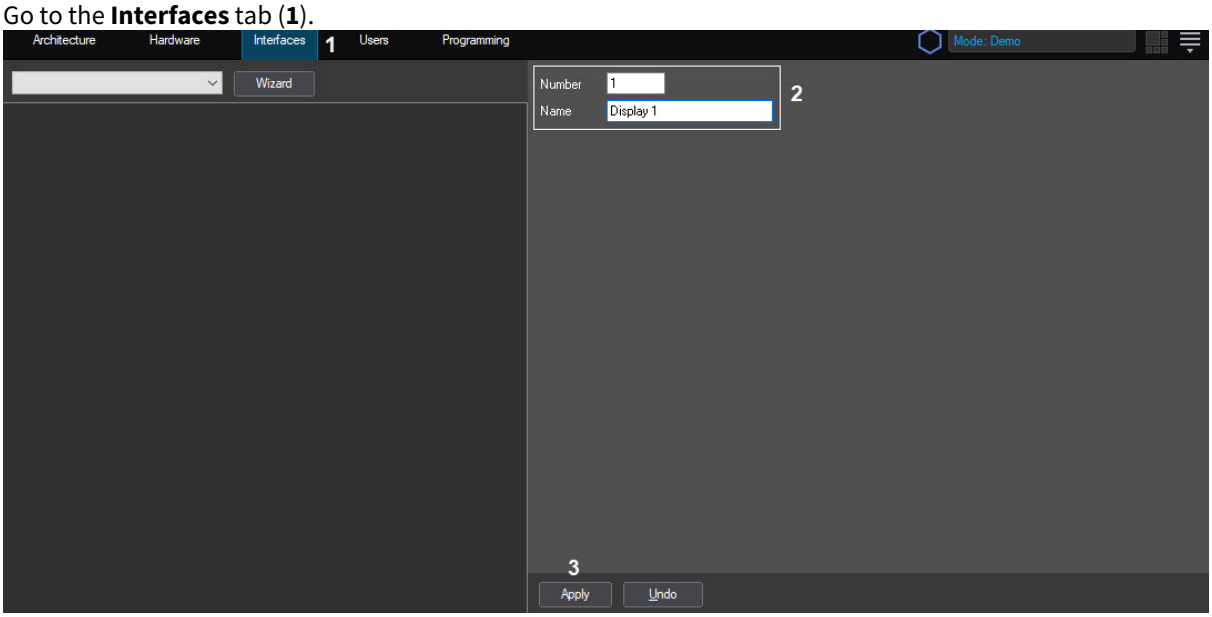
Display is created in the **Interfaces** tab and includes the following stages:

1. Creating **Display** objects.
2. Creating objects (interface components) on the base of the **Display** object in the **Interfaces** tab (see the list in the The user interface in the Axxon PSIM software section).
3. Placing the interface components on the screen in relation to each other.
4. Assigning the displays to the operator workstations.

Creating a Display object

The **Display** object is created on the **Interfaces** tab of the **System settings** dialog window. After the *Axxon PSIM* software is installed, no **Display** objects are created by default. To create the first **Display** object, do the following:

1. Go to the **Interfaces** tab (**1**).

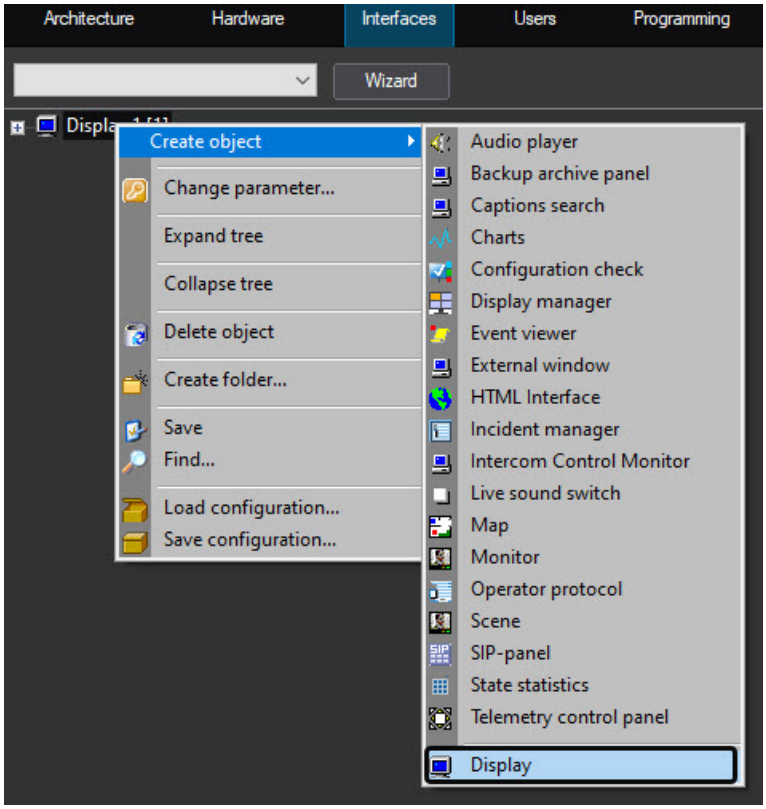


2. Specify number and name of the **Display** object (**2**).
3. Click the **Apply** button (**3**).

Created object will be displayed in the objects tree:



After creating the first **Display** object, the next **Display** objects are to be created on the basis of this or other **Display** objects. Right-click the **Display** object and select **Create object** → **Display** item in the functional menu.



Then follow the instruction presented above from the step 2.

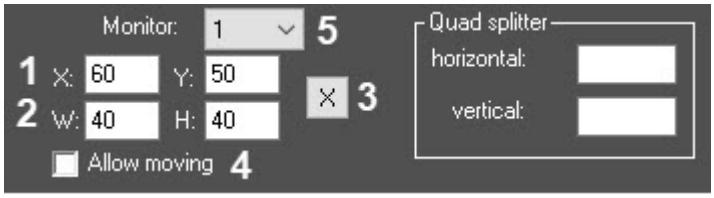
Placing the interface components on the screen

On this page:

- Window coordinates and size
- Moving a window and displaying on top of all windows
- Selecting a physical monitor for display
- Popup windows

Window coordinates and size

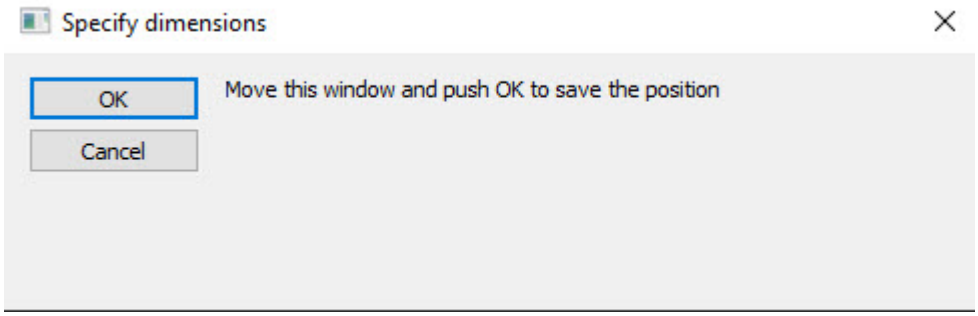
To place an interface component on the screen, its position coordinates **X** and **Y** (**1**) and window size **W** and **H** (**2**) are to be specified:



where

- **X** and **Y**—coordinates of the upper left corner of the window along the horizontal X axis and vertical Y axis;
- **W** and **H**—width and height of the window.

You may also set the interface window position and size with a template box. To do this, click X (**3**). The **Specify dimensions** box appears. Drag and resize it on the screen where the interface window should be, then click **OK**. The **X, Y, W, H** fields are automatically filled with values according to the **Specify dimensions** box position and size.



The size of some components (**Telemetry control panel**, etc.) is fixed. In this case the corresponding fields are not shown.

Note

The **Telemetry control panel** can also be half-transparent (see The settings panel of the Telemetry control panel object).

Moving a window and displaying on top of all windows

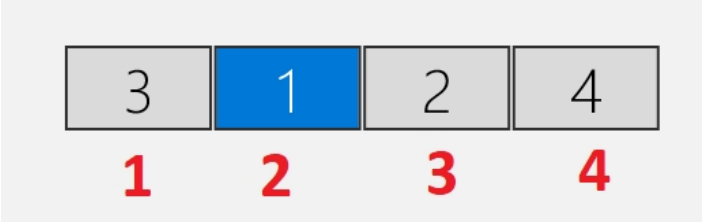
To enable the user to move the windows across the screen, set the **Allow moving** checkbox (**4**). Set the **Over all windows** to display the interface window always on top (**5**).

Selecting a physical monitor for display

When several monitors are connected to a computer, select from the **Monitor** drop-down list the identifier of monitor in the operating system, for displaying on which the object coordinates are set (**6**).

Monitors are numbered in physical order from left to right, top to bottom. So number 1 corresponds to the top left monitor, regardless of which monitor is considered primary or first in the operating system.

In the figure below, the monitor numbers in the operating system are gray, and *Axxon PSIM* monitors are red:



Consider this when choosing a physical monitor:

1. If there is no monitor selection for an object in the settings, then by default it will be displayed on Monitor 2 (2 in *Axxon PSIM* numeration), that is, on the same monitor where the *Axxon PSIM* settings window is displayed. An exception is the **Traffic Monitor** object in *Auto PSIM*, which is displayed on Monitor 1.
2. If there is no **Monitor** drop-down list on the object setting panel, you can adjust its position on non-primary monitor by specifying negative coordinates or coordinates greater than 100 depending on physical position of the monitor relative to the primary monitor. In this case it is strongly not recommended to set negative coordinates less than -200 (for example, -250, -300, etc.)
3. If you change the monitor numbering in the operating system settings while *Axxon PSIM* is running, then the interface objects will be placed in accordance with the OS monitor numbers configured at that moment. Linking to monitors will become correct again after restarting *Axxon PSIM*.

Note

Axxon PSIM supports NVIDIA® Mosaic™ multi-display technology when NVIDIA Quadro Sync is used additionally with it (see the related NVIDIA documentation). Without NVIDIA Quadro Sync there can be ~10-200 ms discrepancies in video playback time between monitors.

Popup windows

Popup windows (**Alarm notification window** and **Operator query panel**) have no position settings. They are displayed on top of other windows and can be moved to any place on the screen using the mouse.

For more details about the position settings for each interface object, refer to corresponding sections of Configuration of interfaces section, as well as the description of The Interfaces tab.

Assigning the displays to the operator workstations

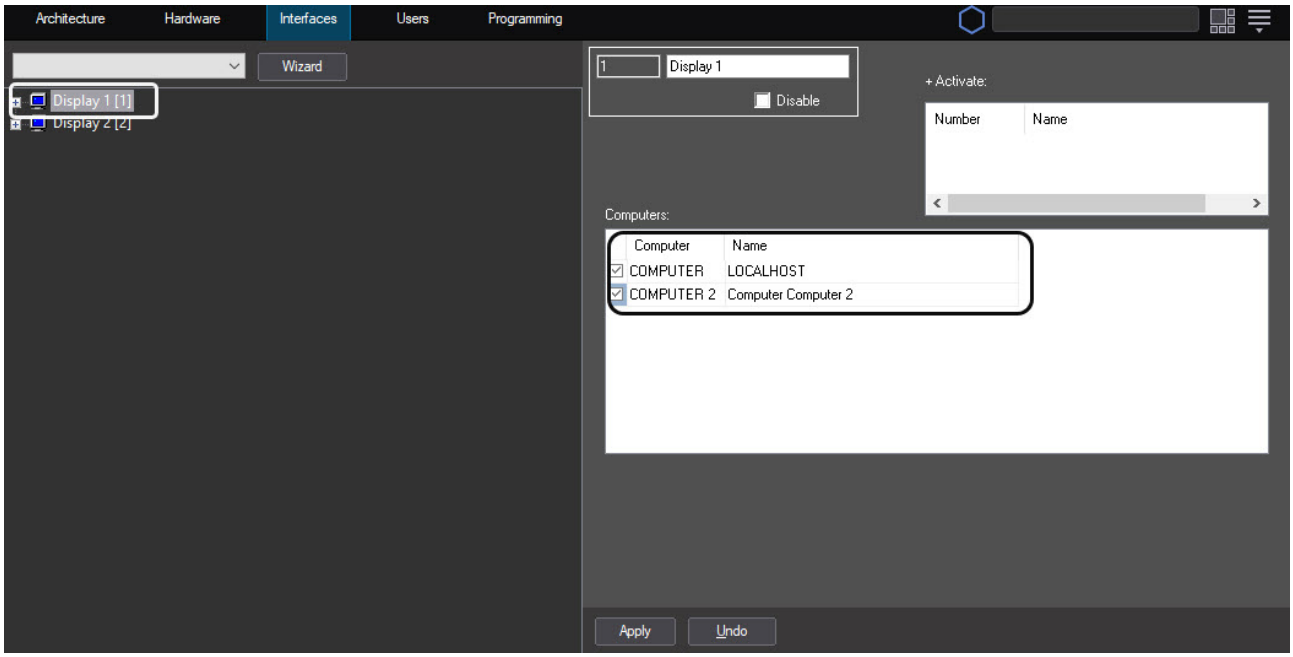
On the page:

- Assigning displays manually
- Assigning displays via Wizard
- Assigning displays via display activation

To configure the access of several operator workstations to the same interfaces, the corresponding displays should be assigned to these workstations. This can be done manually for each display, via the display assigning Wizard or via the display activation.

Assigning displays manually

The displays can be assigned to the workstations on the settings panel of the **Display** object. The figure below shows the configuration of two objects: **Display 1** and **Display 2**. According to the configuraton, the **Display 1** will be available to all computers of the video surveillance system, while the **Display 2** will be available only to the **COMPUTER 2** computer.



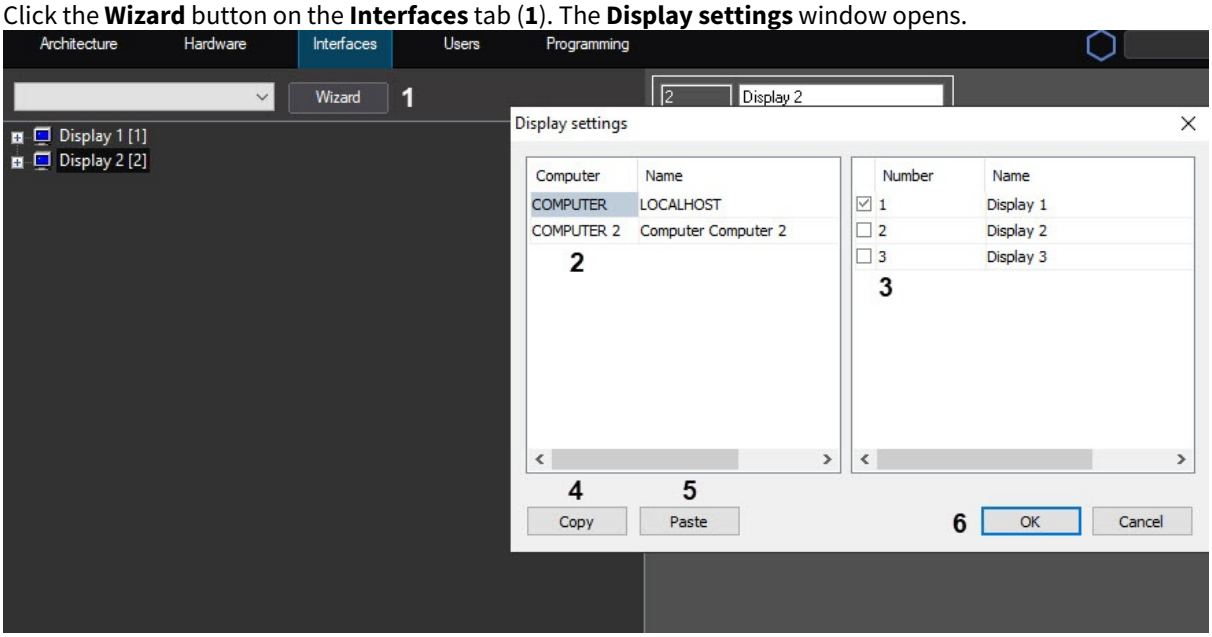
Note

If the display assigning is performed from the Server which is not connected with some Servers of the distributed system (the corresponding checkbox in the **Architecture** tab is not set — see Configuring the interaction of distributed system components), the data from this Server will not be displayed in the list of computers to which the current Display can be assigned. The settings of these Servers will not change after completing the display assignment.

Assigning displays via Wizard

To assign the displays via Wizard, do the following:

1. Click the **Wizard** button on the **Interfaces** tab (**1**). The **Display settings** window opens.



2. Select the computer in the **Computer** column (**2**).
3. Set the checkboxes next to the **Display** objects to assign them to the selected computer (**3**).
4. Repeat steps 2-3 for all required **Computer** objects.

> **Note**
>
> Use the **Copy** (**4**) and **Paste** (**5**) buttons to copy the display list. For example, to assign the same displays to the COMPUTER 2 computer as those assigned to the COMPUTER computer, do the following:
> 1. Select the COMPUTER computer in the **Display settings** dialog box.
> 2. Click the **Copy** button (**4**).
> 3. Select the COMPUTER 2 computer in the **Display settings** dialog box.
> 4. Click the **Paste** button (**5**).

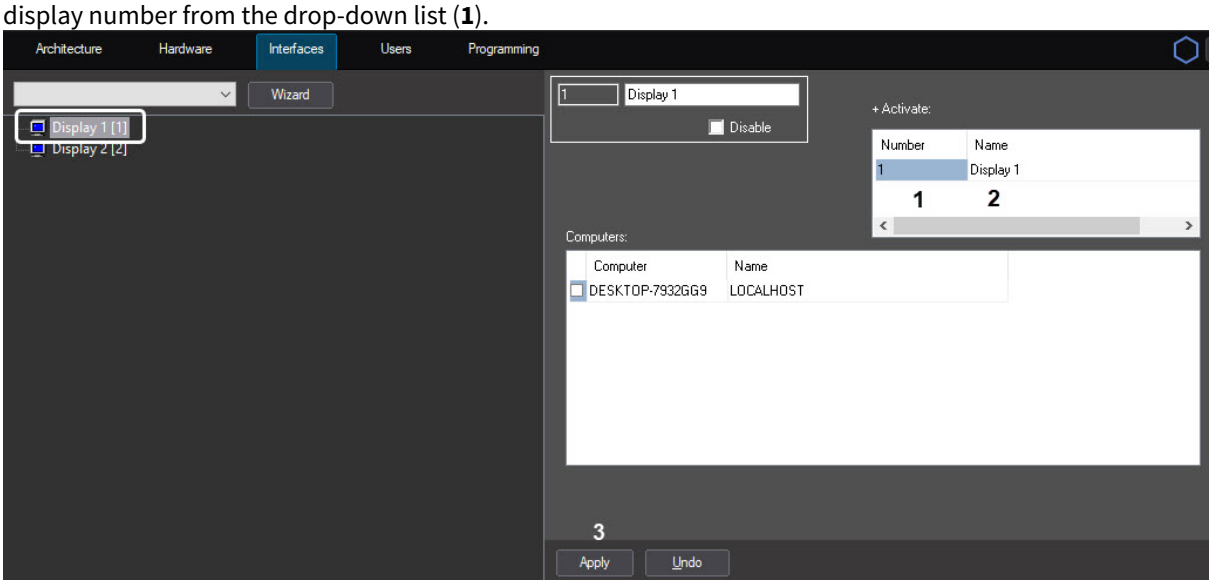
5. Click the **OK** button (**6**).

Assigning the displays via Wizard is now complete.

Assigning displays via display activation

Assigning the displays via the display activation allows displaying the objects of several displays simultaneously. Assign the displays via the display activation as follows:

1. Select the **Display** object on the **Interfaces** tab. In the **+Activate** table in the **Number** column, select the display number from the drop-down list (**1**).



2. In the **Name** column (**2**), select the display name from the drop-down list.
3. Click the **Apply** button (**3**).

According to this configuration, when the Display 1 is displayed, both the Display 1 and the Display 2 objects will be displayed.

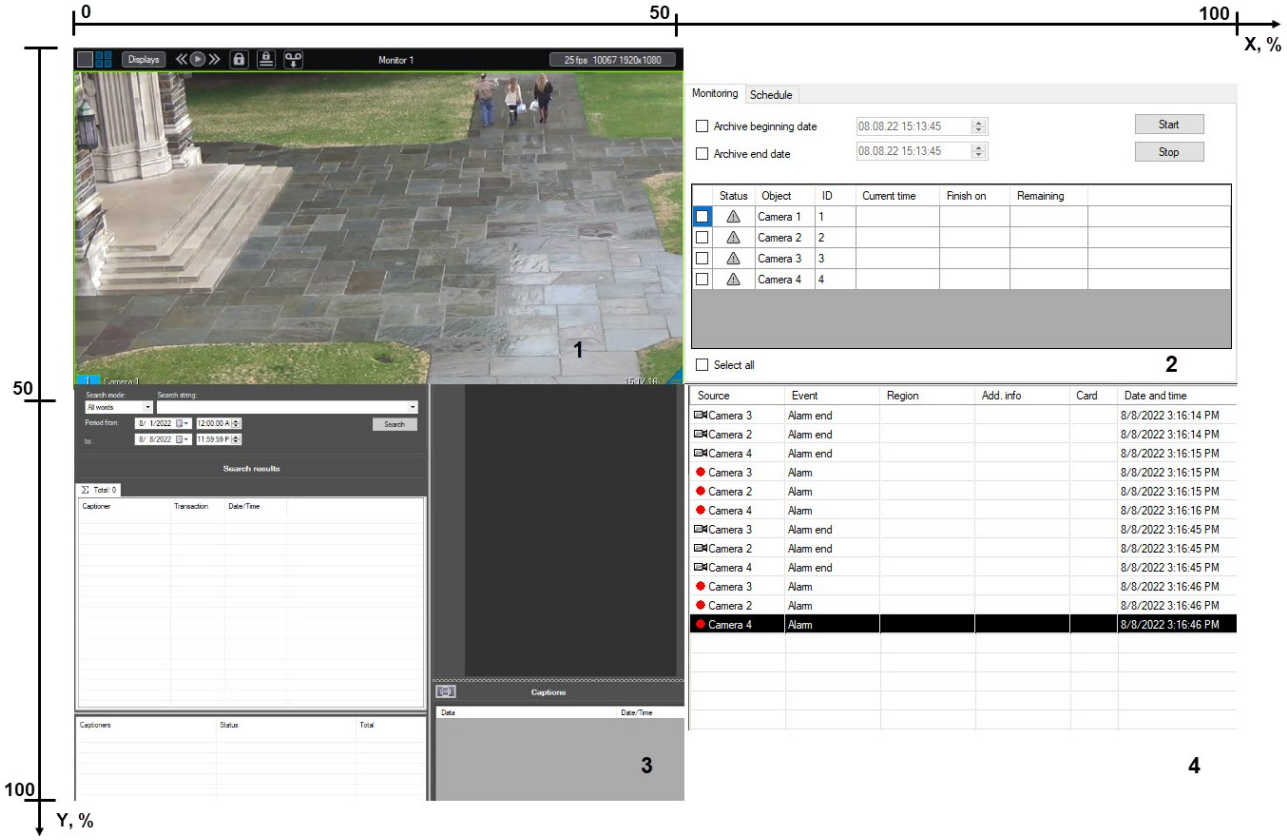
> **Note**
>
> To delete the display from the **+Activate** table, click on the corresponding line and press Ctrl+Del on the keyboard.

Assigning the displays via the display activation is now complete.

Examples of the user interface configuration

Figure below shows an example of the user interface components placed on the screen. Corresponding coordinates are given in the table.

	Interface component	**X, %**	**Y, %**	**W, %**	**H, %**
1	Monitor	0	0	40	40
2	Panel of Backup archive	40	0	41	60
3	Search by captions	0	40	60	60
4	Event Viewer	60	40	40	60



22.4.3 Configuration of video display

Configuring video display on Video Surveillance Monitor

General information on video signal displaying

With different video signal transmission modes, different video monitors are used:

1. Video server surveillance Monitor.
2. Video surveillance Monitor of the Remote Workstation, connected to the server via TCP/IP net.
3. Video monitor of the *Web-server*, displayed in web browsers on Remote Workstations, connected to the server via the web-server module over HTTP protocol.
4. Video monitor of the iOS or Android mobile client.

Video surveillance monitors on the server and Remote Workstations, connected to the videoserver via TCP/IP local net, are identical. Video surveillance monitors on the videoserver and on Remote Workstations are set up with the **System Setting** dialog box and is described below.

> **Important!**
>
> Specify the Server IP address (or DNS) while configuring the interaction between components in distributed architecture in order to transmit video to Video surveillance Monitors of the Remote Workstations – see Configuring the interaction of distributed system components.

To set up the video surveillance monitor of the Web-server module, Java-applet settings of its home page are changed (see the chapter Configuring the Web-server module).

The video monitor is used to:

1. display video signals;
2. play back the archives;
3. change the sequence of displaying video signals (surveillance windows layout, selection of video signals to be displayed in the surveillance windows, windows slide show, etc.);
4. process the displayed signals (deinterlacing, zooming, image sharpening and changing contrast);
5. export and hardcopy selected frames, export video and audio records;
6. control detectors, including camera alarm detectors (main motion detectors);
7. control video recording;
8. control PTZ devices and microphones.

Attention!

When you work with the Video Surveillance Monitor, it is not recommended to use automatic lock in Windows OS, because after each unlocking, the Server takes some time to restore the display of the video signal. Therefore, the more Displays, Video Surveillance Monitors and cameras are in your system, the longer the restore will take.

Video surveillance monitor operation

Setup procedure for the Monitor object

To configure the **Monitor** object, do the following:

1. Select the **Display** and create the **Monitor** object for it (see Creating the Monitor object).

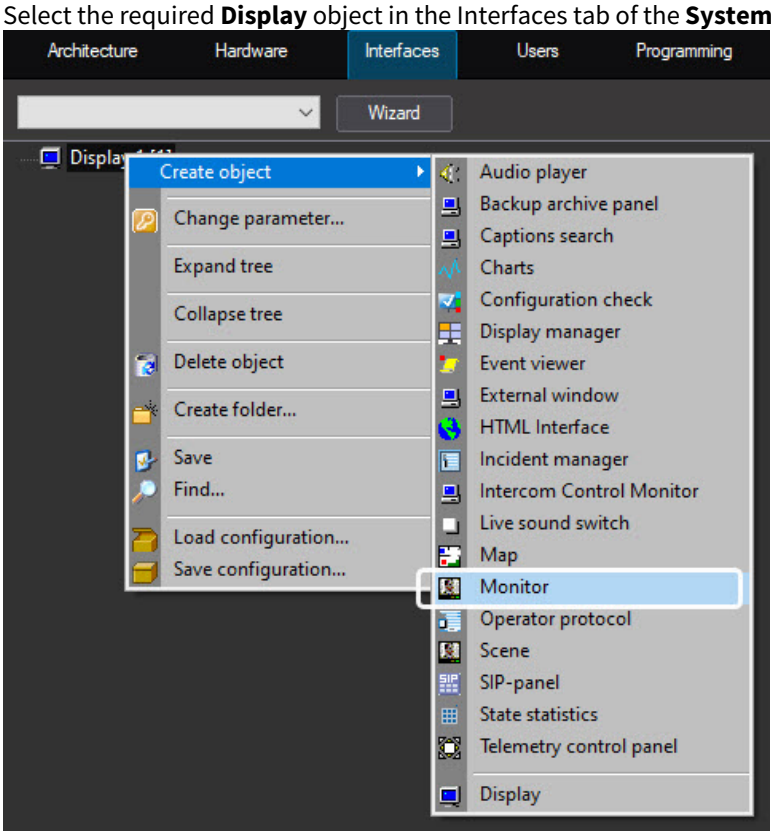
   Note

   The **Display** objects are created on the **Interfaces** tab of the **System setting** dialog box (see Creating a Display object).
2. Set the parameters of the **Monitor** interface box (see Setting the parameters of the Monitor interface window).
3. Select and configure cameras for displaying in the **Monitor** box (see Selecting and configuring video cameras or Selecting and configuring video cameras in bulk).
4. Configure an auto selection of video stream for displaying (see Configuring automatic selection of video stream for display).
5. Configure the camera displaying mode (see Configuring the display mode of camera windows).
6. Select the video display mode (see Selecting the display mode).
7. Set the priority of PTZ device control (see Setting the Telemetry control priority using the Monitor object).
8. Configure the captions showing (see Configuring the captions showing).
9. Bind an Audio player to the Monitor (see Binding Audio player to the Monitor).
10. Configure a rotation angle of video image (see Configuring a rotation angle of video image).
11. Configure the interface of the Surveillance windows (see Configuring the interface of the Surveillance window).
12. If necessary, enable and configure the display of Buttons (see Configuring buttons display on the Video surveillance monitor).

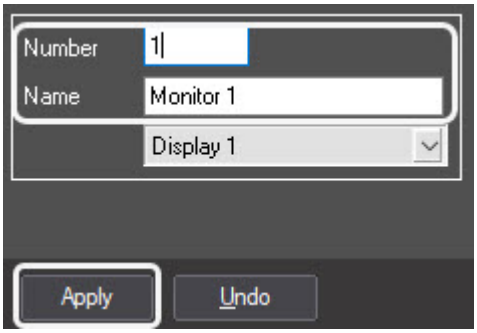
Creating the Monitor object

To create the **Monitor** object, do the following:

1. Select the required **Display** object in the Interfaces tab of the **System settings** dialog box.



2. Double-click the right mouse button upon the selected **Display** object and select **Create object > Monitor** in the contextual window.



3. Set the number and name of the **Monitor** object and click the **Apply** button. As a result, the settings panel for the **Monitor** object will be displayed.

> **Important!**
>
> The **Monitor** object number should be a positive integer. You should not use numbers containing commas, dots or any other characters, otherwise the Monitor will become non-functional.

The **Monitor** object is now created.

Setting the parameters of the Monitor interface window

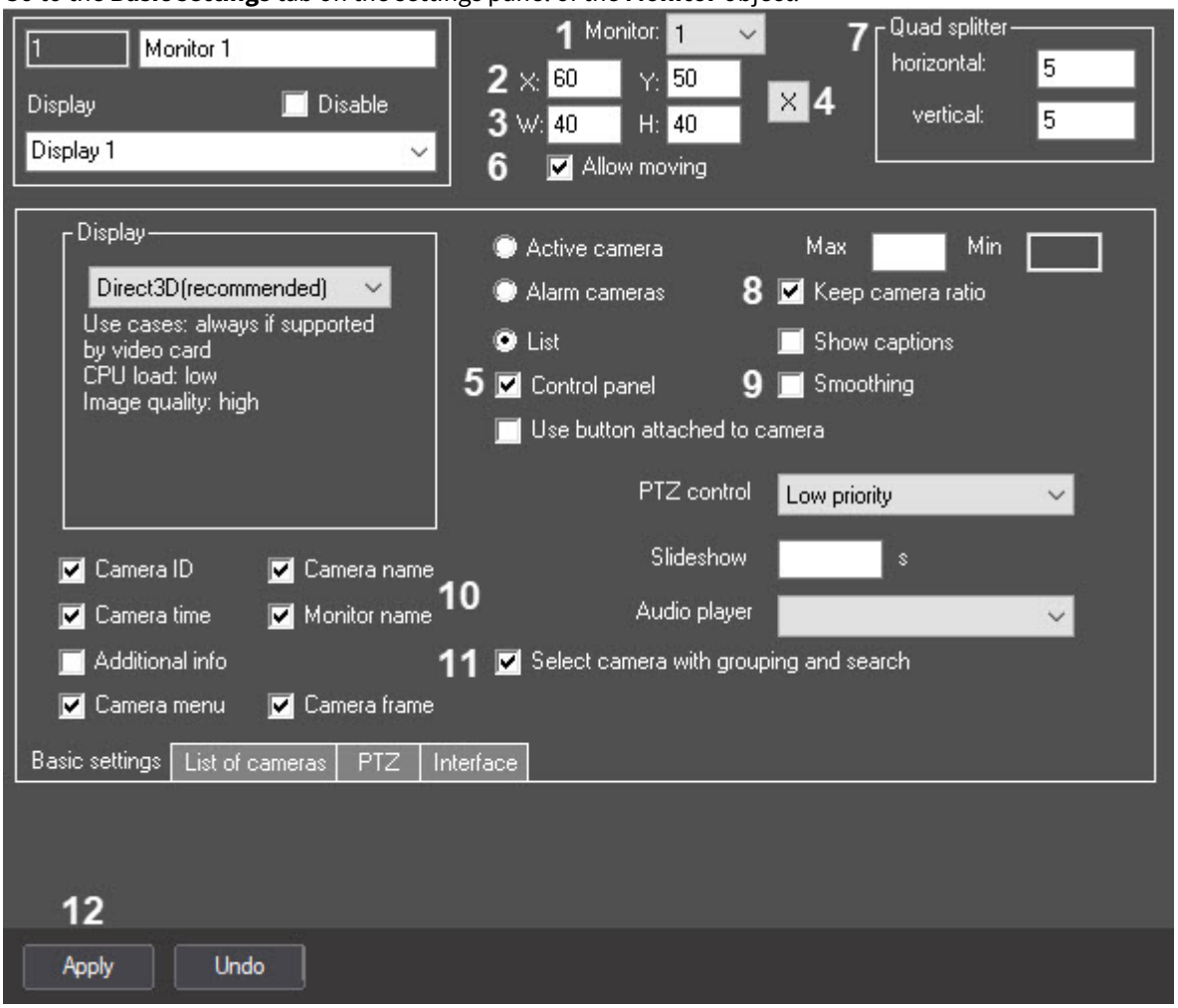
This page describes how to set the parameters of the **Monitor** interface window:

1. Screen coordinates and window size.
2. Toolbar (displayed only in the **List** mode—see Configuring the display mode of camera windows).

3. The display of the number, name, time, menu, camera frame, and additional information in surveillance windows displayed on the video surveillance monitor.
4. The ability to select cameras that you want to display in the surveillance window using the special menu in which cameras are grouped, and you can use a search.

The setup is performed in the following way:

1. Go to the **Basic settings** tab on the settings panel of the **Monitor** object.



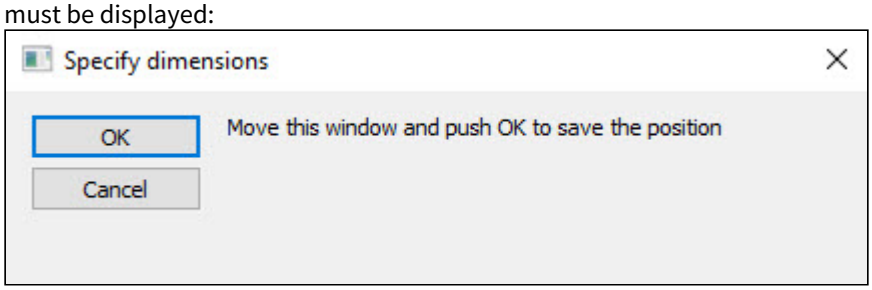
2. From the **Monitor** drop-down list (**1**), select the monitor number in the operating system (computer monitor), the coordinates for which must be set further.
3. Set the position of the monitor window in one of the following ways:
    a. Manually:
        i. Set the coordinates of the left upper corner of the **Monitor** window: the **X** (the horizontal indent from the left border of the image) and **Y** (the vertical indent from the upper border of the image) fields (**2**). Coordinates are expressed as a percentage relative to the screen size horizontally and vertically, respectively.
        ii. Set the size of the **Monitor** window: the **W** (window width) and **H** (window height) fields (**3**). Dimensions are expressed as a percentage relative to the screen size horizontally and vertically, respectively.
        To display the toolbar in the **Monitor** interface window, you must set the switch to the **List** position on the **Basic settings** tab and then set the **Control panel** checkbox (**5**).

> **Note**
>
> If the toolbar is enabled, the **H** window height is automatically equal to the **W** window width. You cannot set the width less than 20%. Such a setting is saved but isn't applied.

> **Note**
>
> By manually setting the coordinates, you can adjust the position of the **Monitor** interface window on several monitors at the same time. You can use it when setting up the video wall. For example, if you want to stretch one **Monitor** window to two computer monitors, you must set **X**=0, **Y**=0, **W**=200, **H**=100. If you want to stretch one **Monitor** window to four computer monitors, set **X**=0, **Y**=0, **W**=200, **H**=200.
> Note that if there is one computer monitor, and **X** and **Y** coordinates are greater than 100 or width and height are greater than 100, the **Monitor** window isn't displayed on this one monitor or is displayed incompletely.

> **Attention!**
>
> When you set up the video wall using Windows means, note that the load on video cards to which the physical monitors for the video wall are connected is distributed unevenly, and you cannot regulate it by using *Axxon PSIM* means.
> For an even load on the CPU and GPU, you must set up the video wall with the NVIDIA® Mosaic™ technology using the NVIDIA® Quadro® Sync device (see NVIDIA documentation).

b. Using the test window:
   i. Click the  button (**4**).
   ii. Place the opened **Specify dimensions** test window in the position where the **Monitor** window must be displayed:



   iii. Click the **OK** button. As a result, the coordinates in the **X**, **Y**, **W**, **H** fields are set in accordance with the size and position of the test window.

4. If you want to move the **Monitor** window, set the **Allow moving** checkbox (**6**).

> **Note**
>
> This setting is relevant only when you use the toolbar.

5. In the **horizontal** and **vertical** fields of the **Quad splitter** group (**7**), set the number of surveillance windows that are displayed in the **Video surveillance monitor** window horizontally and vertically, respectively. If you don't set one of these values, the default grid of surveillance windows, depending on the selected layout, is displayed in the **Video surveillance monitor** window. The maximum number of surveillance windows vertically and horizontally is 64 and 64, respectively.
If you create several layouts, use the CycleByLayouts=1 parameter of the

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\AxxonSoft\PSIM\ registry key (see Registry keys reference guide) to enable the layouts slideshow.

> **Note**
>
> Fields in the **Quad splitter** group are inactive if you select the **Alarm cameras** mode (see Configuring the display mode of camera windows).
> The quad splitter settings are ignored if the user is on the previously created layout.

6. If you want to save the ratio of the width and height of the video coming from the camera when it is displayed in the surveillance window, set the **Keep camera ratio** checkbox (**8**). If you set the checkbox, there can be an empty space in the surveillance window that isn't occupied by the video during the display. If you clear the checkbox, the video occupies all available space of the surveillance window, while the ratio can be affected.

> **Note**
>
> When you work with widescreen monitors, portrait-oriented monitors, or in other cases, it may be necessary to use other window proportions. For this, use the Monitor<monitor_id>_cw, monitor<monitor_id>_ch, monitor<monitor_id>_w43, monitor<monitor_id>_h43 registry keys (see Registry keys reference guide).

7. Set the **Smoothing** checkbox (**9**) to display the video of great resolution on which the ladder effect appears when it is displayed in the small window.

> **Note**
>
> When you use the smoothing function, the load on the CPU of the computer where the video is displayed increases significantly (up to 30%). As a result, if the computer lacks the resources to use this function, the video display speed (FPS) can decrease, the response to telemetry commands slows down, and so on. Due to this, we recommend using this setting only for displaying video from analog cameras or the low-resolution video. The function affects only the video display in the video surveillance monitor. The original video stream from the camera comes to the archive and to detectors.



The example of the video image received with the smoothing function



The example of the video image received without the smoothing function

8. By default, all elements of the surveillance window, such as number, name, time, menu, camera frame, and the name of the video surveillance monitor, are displayed except for the additional information (see Additional information on camera). To disable the display of these elements, clear the corresponding checkboxes in group **10**.

   > **Note**
   >
   > You can also enable the display of the date next to the camera time using the ShowDate registry key.

9. In the surveillance window, you can switch between cameras using the **Camera** submenu (see Selecting camera to display in Surveillance window). Set the **Select camera with grouping and search** checkbox (**11**) to group cameras in this menu by computers so that you can search among them.
10. To save the changes, click the **Apply** button (**12**).

Setting the parameters of the **Monitor** interface window is complete.

> Additional information on camera
> Video surveillance monitor

Selecting and configuring video cameras

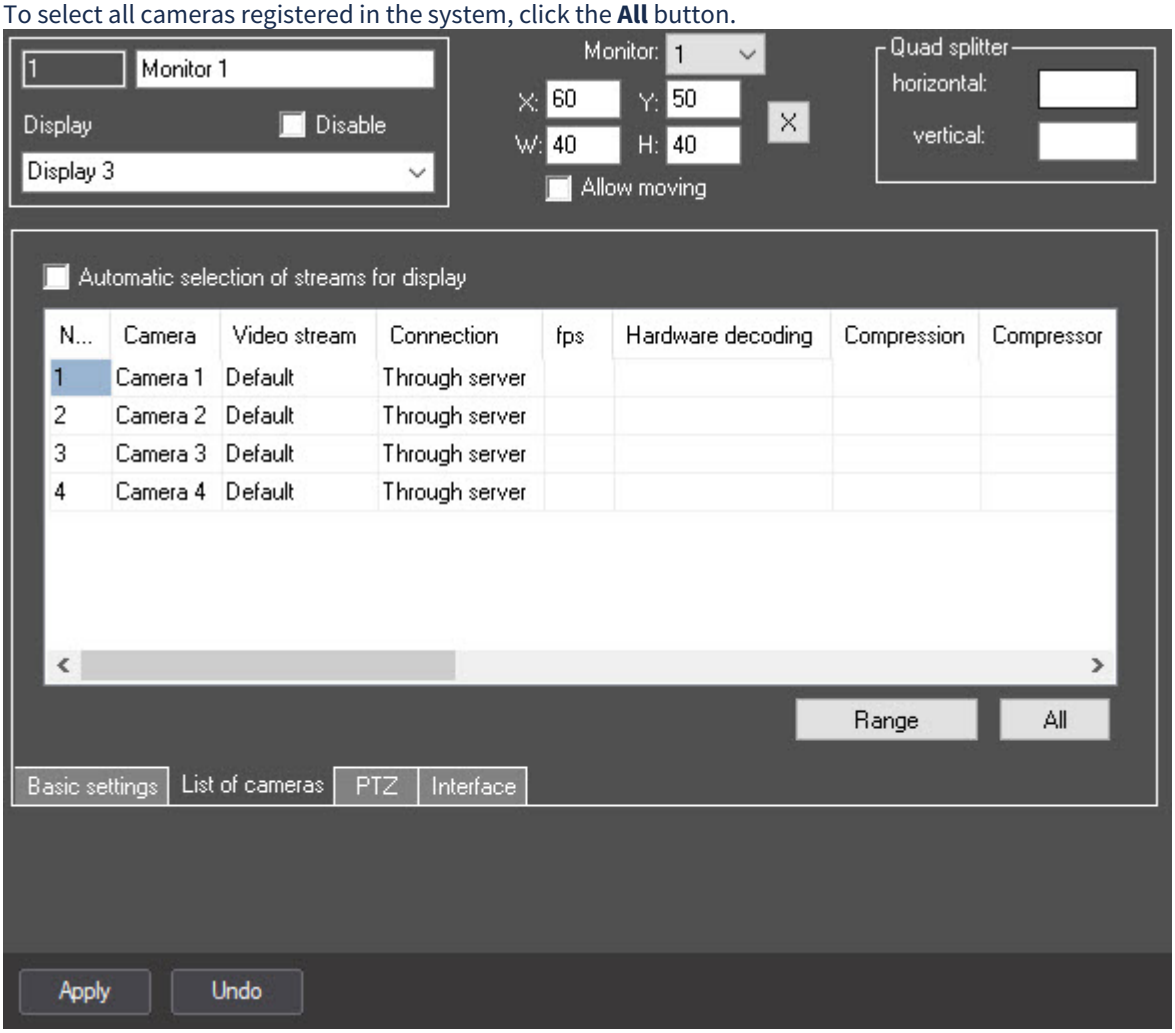
You can select and configure cameras for displaying in the **Monitor** window in two ways:

1. Separately. The settings panel of the **Monitor** object is used.
2. In bulk. The **Add/Edit Camera Objects** window is used (the **Range** button), see Selecting and configuring video cameras in bulk.

To select video cameras individually on the settings panel of the **Monitor** object, do the following:

1. Go to the **List of cameras** tab.

2. To select all cameras registered in the system, click the **All** button.



3. To add a separate camera, configure the following settings in the table:
   a. From the drop-down list in the **Number** column, select the number of the camera. As a result, the name of the selected camera will be automatically displayed in the **Camera** column.
   b. If multistream mode is enabled for the camera, in the **Video stream** drop-down list, select the number of the video stream that you want to display on the Monitor. If no stream is selected, the default stream is used.

> **Note**
>
> Configuration of the Server video streams is described in Configuring the multistream video. The selected video stream is requested when receiving a video signal both from the Server and via the Videogate.

   c. By default, the Monitor receives a video stream through the Server. If it is necessary to get the video stream directly from the camera, not through the Server, from the **Connection** drop-down list, select **Direct**.
   d. If a video signal needs to be decimated for its transmission to the Client Monitor, select the required frame rate of the video signal from the drop-down list in the **fps** column.

> **Attention!**

We strongly discourage you from setting additional decimation and/or compression for video signals displayed on the Server Monitor, as this results in unnecessary consumption of the Server resources while the video image quality deteriorates.

Features of **fps** selection:

i. The selected FPS value must be less than the frame rate of the video digitising by a video capture card. Otherwise, the frame rate of the video signal will be the same as the FPS of digitising.
ii. For the correct decimation of a video stream compressed using the H.264 or MPEG4 codecs, the FPS value must be equal to the frame rate of the key frames specified in the device settings (IP camera) or *Axxon PSIM* settings (see Configuring video compression).
iii. Four streams for a chip are processed on SC300Q16 (FX4) video capture card. If the chip processes a stream without a signal (blue screen), then the total FPS is 10 (4x2.5 FPS) for one chip.

e. From the **Hardware decoding** drop-down list, select default CPU decoder (blank value), **Nvidia decoder**, or **Intel Quick Sync**. Selecting a hardware decoder increases the load on the corresponding CPU.
f. If video signal compression level needs to be changed for transmission to the Client Monitor, select the required level of video signal compression from the drop-down list in the **Compression** column. The compression level of the video signal increases from 0 (no compression) to 5 (maximum compression).

Note

If you change the compression level for the Client, the video signal on the Server will be pre-decompressed, which will result in a great load increase on the CPU of the Server.

g. To change the algorithm of the video signal compression for transmission to the Client Monitor, select the required algorithm of compression from the **Compressor** drop-down list. If the compressor is selected, the value in the **Compression** list is must be selected as well.

Note

Recompression of the video signal is performed on the Videogate side.

h. If the Monitor must receive live and archive video from the selected camera via the **Videogate** object, select the name of this object from the drop-down list in the **Gate** column.
i. If a video archive from the selected camera must be transmitted to the Monitor from the **Backup archive** object, select the name of this object from the drop-down list in the **Backup archive** column.

Note

In case the access to the Backup archive is performed through the Videogate, the specified value must coincide with the selected value for this video camera when configuring the **Videogate** object—see Selecting and configuring the cameras for the Videogate module.

j. If the selected video camera is used for video archive viewing from the edge storage, select the required **Edge storage** object from the **Edge storage** drop-down list.
k. If the tansmission from the **Backup archive** object is performed via the **Videogate** object, select the name of this object from the drop-down list in the **Videogate for Backup archive** column.
l. To enable smart search in the archive of the corresponding camera, select the **VMDA metadata storage** object corresponding to the VMDA tracks database intended to be used for smart search from the **VMDA metadata storage** drop-down list.

m. If there is a fisheye or a panomorph lens on the camera (see Configuring fisheye cameras), in the **Display type** drop-down list, select the type of displaying video from the camera in the Surveillance window: virtual telemetry or panorama.

> **Note**
>
> Conversion is enabled in the Video surveillance monitor when zooming in (see Mouse PTZ control) or in the function menu of the Surveillance window (see Enabling fisheye).

This feature won't work if:

- only alarm cameras are displayed on the monitor (see Configuring the display mode of camera windows);
- PTZ control on the Video surveillance monitor is forbidden (see Setting the Telemetry control priority using the Monitor object).

n. If it is necessary to start macros from the camera function menu in the Surveillance window, select the corresponding **Macro** objects from the **Macro 1** and **Macro 2** lists. See also Creating and using macros.

o. The **Guid** column will automatically display the unique identifier of the selected camera. This value cannot be changed, it depends on the camera number.

p. Repeat steps a-n for all required cameras. To add new cameras to the table use the down arrow button ↓ on the keyboard. To delete a row, use the Ctrl+Del key combination.

4. To save all changes, click the **Apply** button.

Video cameras on the settings panel of the **Monitor** object are now selected.

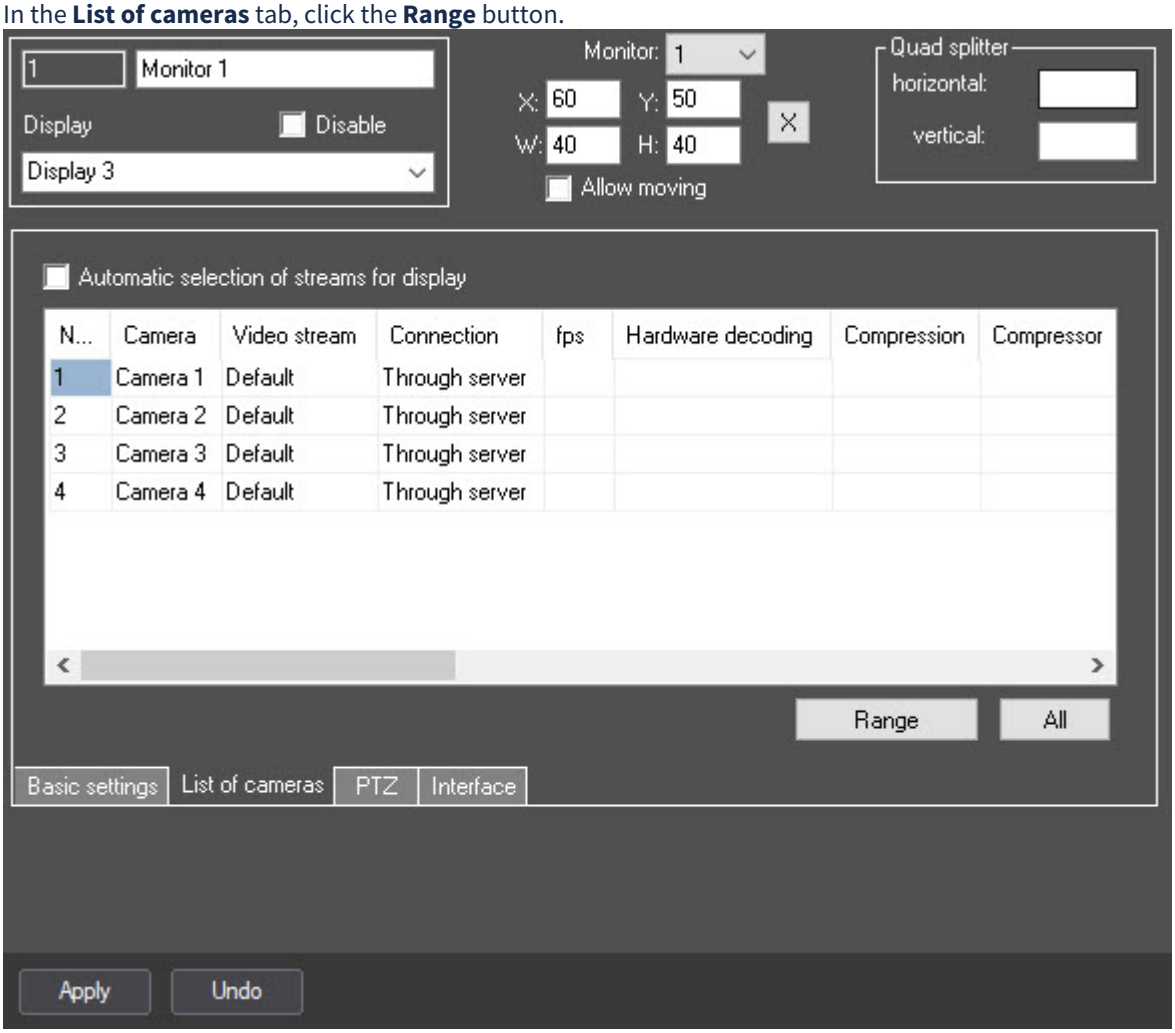
Selecting and configuring video cameras in bulk

You can select several cameras at once and edit their parameters to display them in the **Monitor** window.

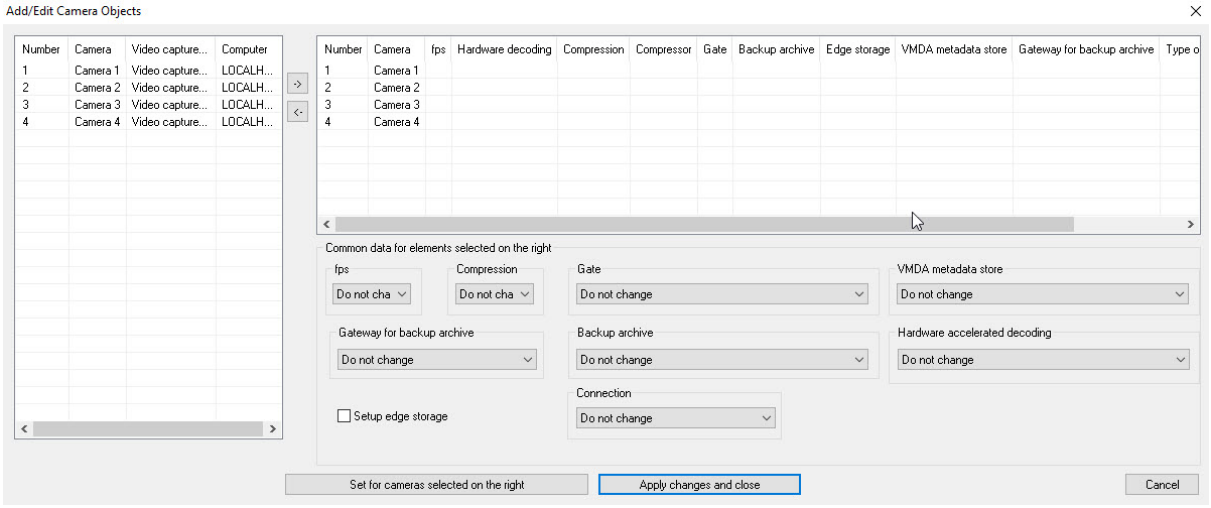
To select video cameras in bulk, do the following:

1. Go to the settings panel of the **Monitor** interface object.

2. In the **List of cameras** tab, click the **Range** button.



As a result, the **Add/Edit Camera Objects** window opens.



3. Select the required cameras in the left list of the **Add/Edit Camera Objects** window.
4. Move the selected cameras to the right list by clicking the  button.

> **Note**
>
> The right list is the list of cameras selected for displaying in the **Monitor** window.
>
> The <- button is used for inverse action, i.e. for moving the selected video cameras from the right list to the left one.
> In both lists, you can change the sorting by clicking the column names to make it easier to find the required cameras and their settings.

As a result, the selected cameras will be displayed in the list on the right of the **Add/Edit Camera Objects** window.

5. If it is necessary, select the names of required cameras in the right list for bulk editing of their parameters.

> **Attention!**
>
> The same parameters will be set for all selected cameras.

6. In the **fps** drop-down list, select the required frame rate of a video signal to enable decimation of a video signal for transmitting to the Monitor of the Client.

> **Attention!**
>
> We strongly discourage you from setting additional decimation and/or compression for video signals displayed on the Server Monitor, as this results in unnecessary consumption of the Server resources while the video image quality deteriorates.

> **Note**
>
> The selected fps value must be less than the frame rate of the video signal digitized by the video capture device. Otherwise, the frame rate of the video signal will be equal to the frame rate of the digitization.
> All settings described below belong to the **Common data for elements selected on the right** group.
> For correct decimation of a video stream compressed with the help of H.264 or MPEG4 codecs, the fps value must be equal to keyframe rate specified in the device (IP camera) or *Axxon PSIM* settings (see Configuring video compression).

7. If video compression level must be changed for transmitting to the Monitor of the Client, select the required level of video signal compression from the **Compression** drop-down list. Compression level is increased from 0 (no compression) to 5 (maximum compression).

> **Note**
>
> If the compression level is set for the Client, a video signal on the Server must be decompressed beforehand, which leads to a significant increase in the load on the Server CPU.

8. If the Monitor must receive live and archive video from the selected cameras via the **Gate** object, then select the name of this object from the **Gate** drop-down list.
9. To enable smart search in the archive of the selected cameras, select the **VMDA metadata storage** object corresponding to the VMDA tracks database for smart search from the **VMDA metadata storage** drop-down list.
10. From the **Hardware accelerated decoding** drop-down list, select Do no change (default value, hardware acceleration specified for each camera is used), CPU decoder (blank value), **Nvidia decoder**, or **Intel Quick Sync**. Selecting a hardware decoder increases the load on the corresponding CPU.

11. If a video archive from the selected camera must be transmitted to the Monitor from the **Backup archive** object, then select the name of this object from the **Backup archive** drop-down list.
12. If the transmission from the **Backup archive** object is performed via the **Gate** object, then select the name of this object from the **Gateway for backup archive** drop-down list.
13. If cameras are used to view video archive from external storage, set the **Setup edge storage** checkbox. As a result, for each selected camera, the external storage available to it will be applied.
14. By default, the Monitor receives a video stream through the Server. If it is necessary to get the video stream not through a Server, but from cameras directly, from the **Connection** drop-down list, select **Direct**.
15. To save the specified parameters, click the **Set for cameras selected on the right** button.
    As a result, the specified parameters will be displayed in the list on the right of the **Add/Edit Camera Objects** window.
16. Repeat steps 5-15 for bulk editing of all required cameras.
17. To save the changes and close the **Add/Edit Camera Objects** window, click the **Apply changes and close** button.
18. Specified camera settings will be displayed in the **List** table on the settings panel of the **Monitor** object.
19. To save the changes, click the **Apply** button.

Bulk selection of cameras is complete.

Configuring automatic selection of video stream for display

In *Axxon PSIM,* you can use scaling while displaying video signal on the Video surveillance monitor. This function allows choosing the optimal stream depending on the size of the video image. For example, if many cameras are simultaneously displayed on the Video surveillance monitor, it is not needed to receive the video from them in high resolution. Increasing the video image, the video stream must be requested in a higher resolution.

Video stream properties can be specified through the *Axxon PSIM* interface (see Configuring the multistream video) or through a camera's web interface.

For automatic video stream selection to work, the **Video stream setting** checkbox must be set in the configuration panel of the **Camera** object (see Configuring the multistream video) and more than one video stream from the camera must be integrated (refer to the list of IP devices integrated with *Axxon PSIM*, on the Documentation Drivers Pack page).

If the function of video stream auto select is enabled, *Axxon PSIM* selects video stream the following way:

1. The streams indicated on the **Advanced settings** tab of the **Camera** object are selected (all streams that are not disabled).
2. From the streams chosen during the previous step, the streams that have a resolution greater than the resolution requested by the Client are selected. If no such streams exist, the streams with the highest resolution are selected.
3. From the streams chosen during the previous step, the streams that have a frame rate higher than the frame rate requested by the Client are selected. If no such streams exist, the streams with the highest frame rate are selected.

   > **Note**
   >
   > The requested frame rate is specified during selection and configuration of cameras for the **Monitor** interface object, in the **fps** column on the **List of cameras** tab (see Selecting and configuring video cameras).

4. If multiple streams were selected during the previous steps, the stream among these that has the highest bitrate is selected.

If a stream is selected because it has the highest bitrate, another stream will be selected only if the new stream's bitrate is higher than the current bitrate by more than 5% (to avoid constant back-and-forth switching when bitrates are approximately equal).

When video stream properties change, a decision to display a different stream is made only if confirmation for making a change is received within 35 seconds. This feature is also designed to avoid constant back-and-forth switching between video streams.

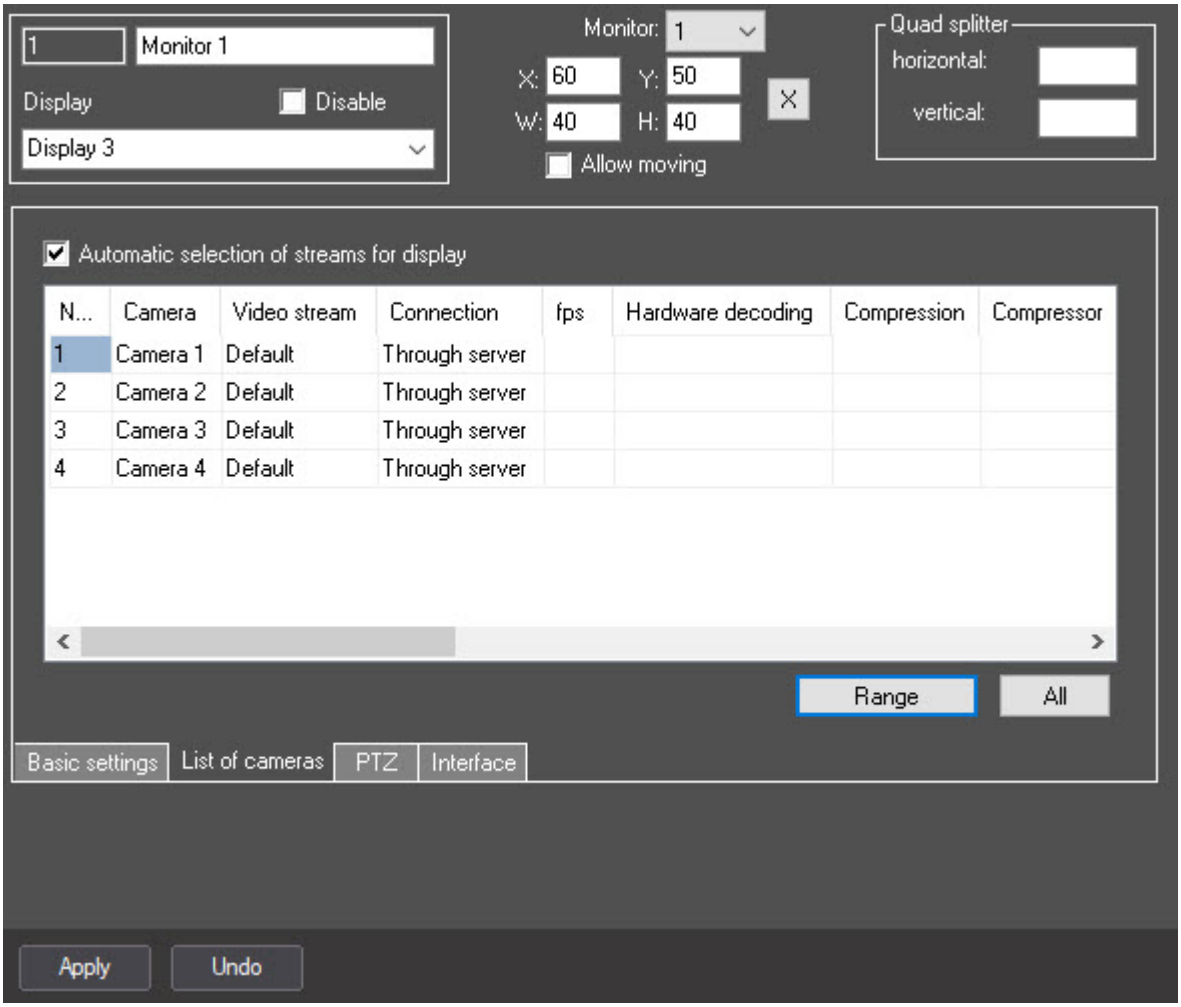
If automatic stream selection is enabled, selection will be performed for the cameras for which the **Default** video stream has been selected.

Any stream can be forbidden for display using the block_stream registry key (see Registry keys reference guide).

> **Note**
>
> When the layout of a Surveillance window is changed in the Video surveillance monitor, the width of the Surveillance window can change, causing another stream to be selected for display.

To enable automatic selection of video stream for display, do the following:

1. Go to the settings panel of the **Monitor** interface object.
2. Go to the **List of cameras** tab.



3. Set the **Automatic selection of streams for display** checkbox.
4. Click the **Apply** button.

Configuring automatic selection of video stream for display is complete.

Configuring the display mode of camera windows

To display camera windows (windows with video images) one of the following modes is used:

1. The **Active camera** mode. Only the active camera window is displayed in the **Monitor** interface window.

   > **Note**
   >
   > To make the camera window active, left-click it. A camera window is switched to the active mode using another **Video surveillance monitor**. So, when the **Active camera** display mode is used, more than one **Monitor** object must be created in the system. If only one **Monitor** object is created and the **Active camera** display mode is selected for it, then surveillance windows won't be displayed on the monitor.
   > Video from the camera selected on the Map or Operator protocol created on the basis of the same **Display** object as the **Video surveillance monitor** object is also displayed on the **Video surveillance monitor** in the **Active camera** mode.

2. The **Alarm cameras** mode. The windows of the alarm cameras are displayed in the **Monitor** interface window.
3. The **List** mode. Camera windows are displayed in the **Monitor** window according to the selected layout.

Functions available in the **List** mode:

1. Toolbar (see Setting the parameters of the Monitor interface window);
2. Slideshow.

The **toolbar** is displayed in the **Monitor** interface window and enables the following operations:

1. Select the number of the displayed cameras;
2. Set and use the layouts of cameras;
3. Control the slideshow.

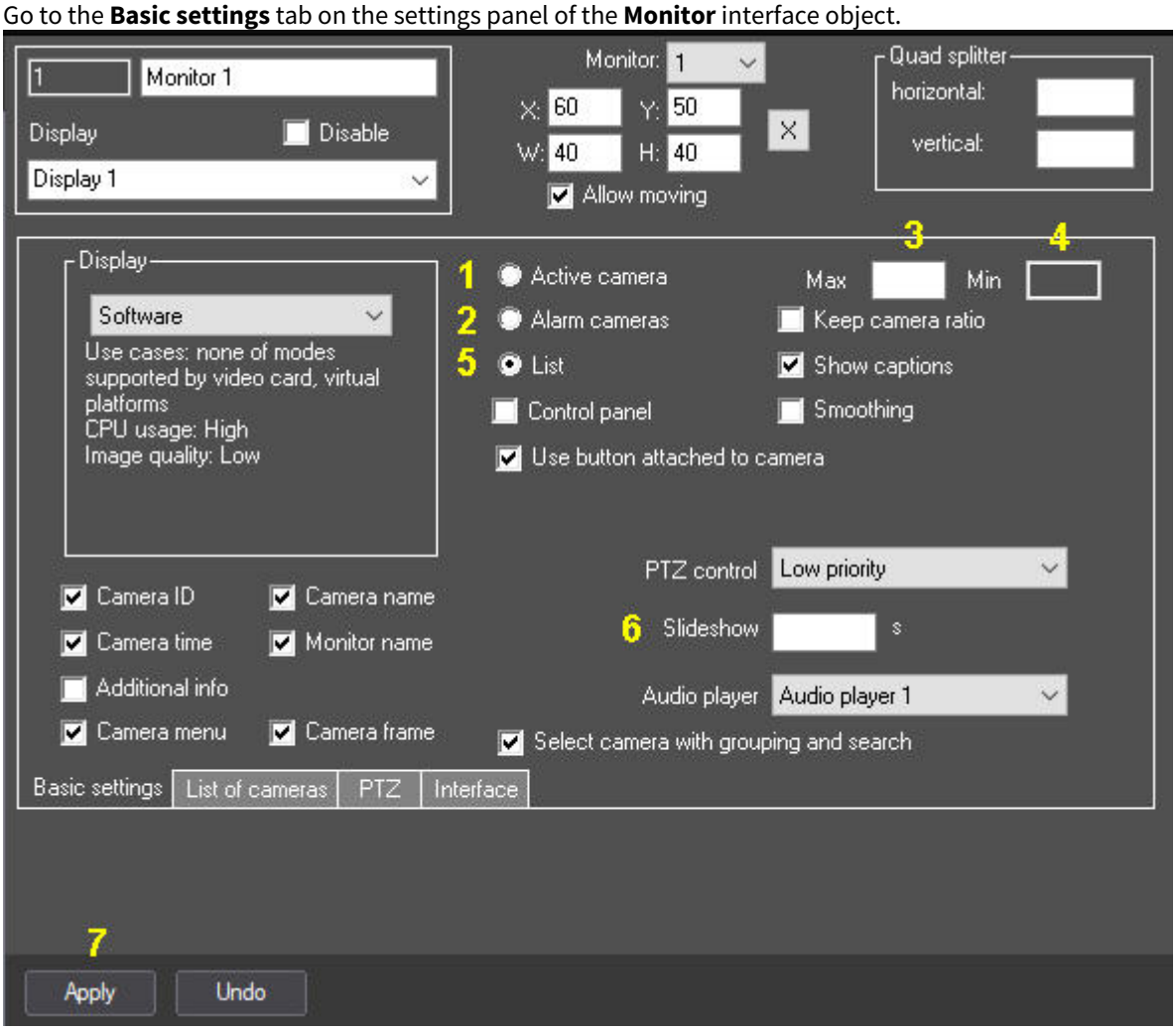
Current date and time are also displayed on the toolbar.

The **slideshow** is used for a successive close-up display of camera windows on the **Monitor.** Slideshow is performed with the help of the buttons on the toolbar of the **Monitor** in two ways:

1. Manually. Buttons for switching to the previous or next camera window are used.
2. Automatically. Switching to the next camera window is performed automatically in a set period of time.

To set the display mode for camera windows, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Monitor** interface object.



2. To enable the **Active camera** mode, set the **Active camera** radio button in the **Basic settings** tab (**1**).
3. To enable the **Alarm cameras** mode, set the **Alarm cameras** radio button in the **Basic settings** tab (**2**). As a result, the **Min** field will be available.
4. In the **Max** field, specify the required maximum number of camera windows that must be displayed on the **Monitor** in the **Alarm cameras** or **List** mode (**3**). If the number of alarm cameras exceeds the maximum number, then the display of the camera windows, the alarms on which were registered earlier, is stopped.

> **Example**
>
> The **Monitor** object is set for operation with the maximum number of alarm cameras, equal to five. The windows of four alarm cameras are displayed in the **Monitor** window. Alarm events on these cameras were registered in the following sequence: Camera 1, Camera 2, Camera 3 and Camera 4. When alarm is registered on three more cameras, seven cameras are alarmed at the same time. This exceeds the maximum acceptable number, so the display of Camera 1 and Camera 2 windows is stopped.

If the number of cameras is less than the maximum or not specified, then camera windows fill the maximum available space of the **Monitor.**

> **Note**

In order for the camera windows in the **Monitor** to be displayed as symmetrical folds (1, 2x2, 3x3, 4x4, etc.), it is necessary to add the **TrySquareLayout** registry key (see Registry keys reference guide).

5. If the **Alarm cameras** mode is selected, then in the **Min** field, specify the required minimum number of cameras to be displayed on the layout of the **Video surveillance monitor** (**4**). If the number of the alarm cameras is less than the minimum number, the **Monitor** will display fewer cameras than specified in the **Min** field. The fold of the **Monitor** will correspond to the **Min** field. The following folds (number of camera windows) are available: 1, 4, 9, etc.
   If there is no alarm, and if the default value of 0 (zero) is set for the **Min** parameter, the camera windows are not displayed in the **Monitor** window. By default, the **Min** field is empty.

   Example

   The **Monitor** object is set for operation with the minimum number of alarm cameras, equal to three. Windows of five alarm cameras are displayed in the **Monitor** window. When the alarm on four cameras is stopped in the sequence: Camera 1, Camera 2, Camera 3 and Camera 4, one camera is in the alarm mode. This is less than the minimum number, so Camera 5 will be displayed on the **Monitor**, and the **Monitor** will switch to the four-fold display.
6. To enable the **List** mode, set the **List** radio button in the **Basic settings** tab (**5**).
7. If necessary, specify the required value (in seconds) of automatic slideshow of the camera windows in the **Slideshow** field (**6**). The default camera windows scroll interval is 3 second. If you enter 0 in the field, the default value will be applied. The maximum possible value is 600 seconds.

   Note

   This setting is relevant only in the **List** mode when the toolbar is used.
   Instead of camera windows slideshow, you can enable layouts slideshow using the CycleByLayouts registry key (see Registry keys reference guide).
8. To save all the changes, click the **Apply** button (**7**).

The display mode of camera windows is now configured.

Selecting camera to display in Surveillance window
Setting the parameters of the Monitor interface window

Selecting the display mode

Axxon PSIM allows you to select the video image processing mode prior to displaying it using the video card resources and DirectX libraries.

The video image processing improves the quality of the displayed image due to optimization of the color settings, spatial smoothing, and other processes of the graphics optimization. At the same time, the CPU load is reduced, as the video image is processed with the resources of the video card.

When you select a display mode, consider if it is supported by the installed video card. If you select a mode that is not supported by the video card, the video signal will not be displayed correctly on the **Video surveillance monitor** (with a strong slowdown).

There are three display modes in *Axxon PSIM*:

1. **Direct3D** is a recommended mode and selected by default. This mode uses the most advanced Windows graphics libraries for rendering 2D and 3D graphics. You must use this mode when displaying a video signal from fisheye cameras or a signal decoded with the Intel QuickSync technology.

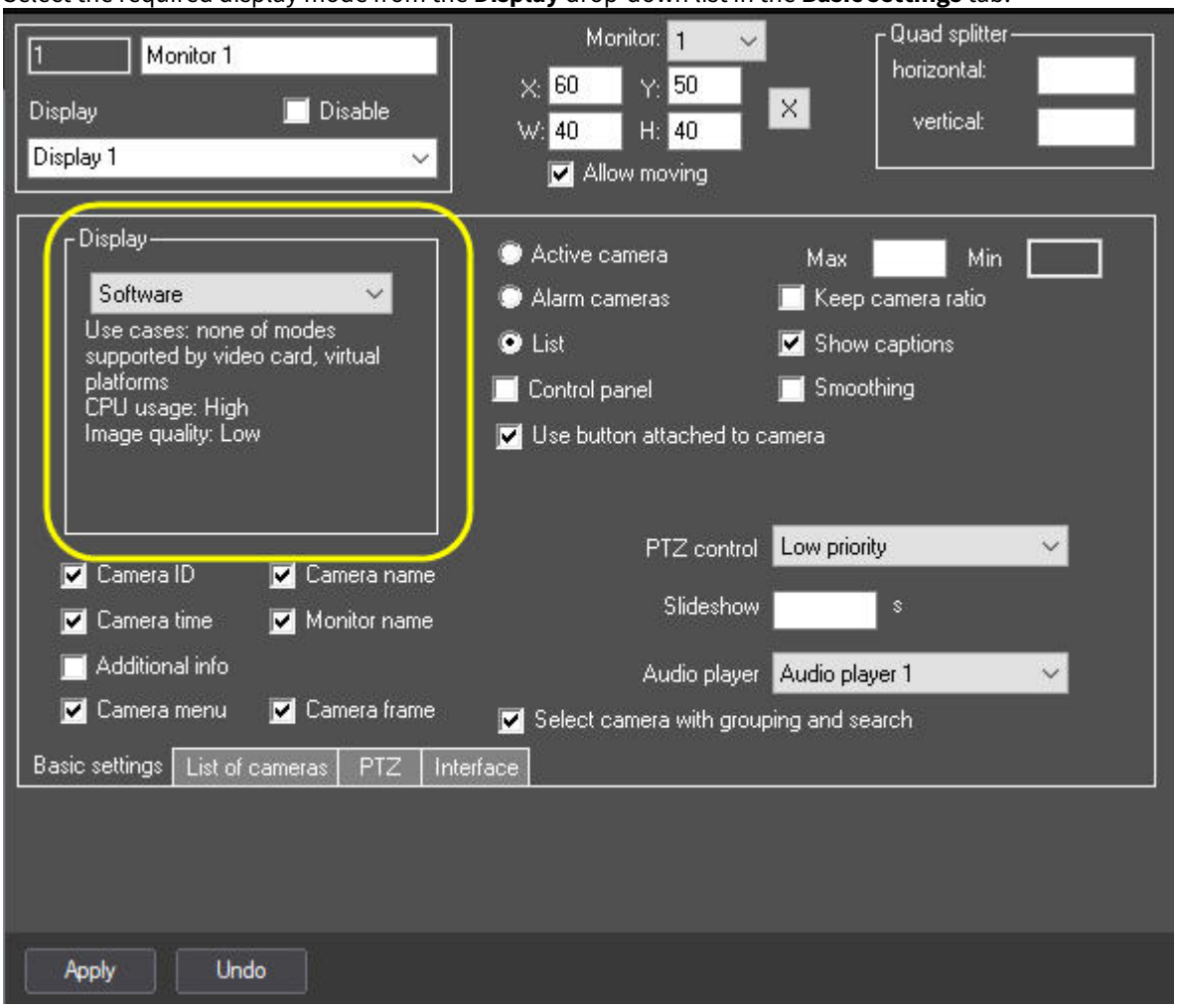
> **Note**
>
> If the fisheye camera added to the Monitor has the corresponding settings described on the Configuring fisheye cameras page, the Monitor switches to the Direct3D mode automatically.

2. **DirectDraw** is a deprecated version of DirectX for processing 2D graphics. You must use this mode if the capacity of the video card is not enough to process in the **Direct3D** mode.
3. **Software**. Video signals from cameras are not processed by a video card. You must use this mode if *Axxon PSIM* is installed on a virtual platform (for example, VMware).

> **Note**
>
> For correct operation of display mode in *Axxon PSIM* installed as a service, set the **0** value for the **NoDesktop** text parameter in the *HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Policies\Explorer* registry section. This parameter is responsible for displaying icons on the user's desktop.

To select a display mode, do the following:

1. Go to the settings panel of the **Monitor** interface object.
2. Select the required display mode from the **Display** drop-down list in the **Basic settings** tab.



> **Note**
>
> There is a description of the selected display mode in the field below the **Display** drop-down list.

3. To save the changes, click the **Apply** button.

The display mode is now selected.

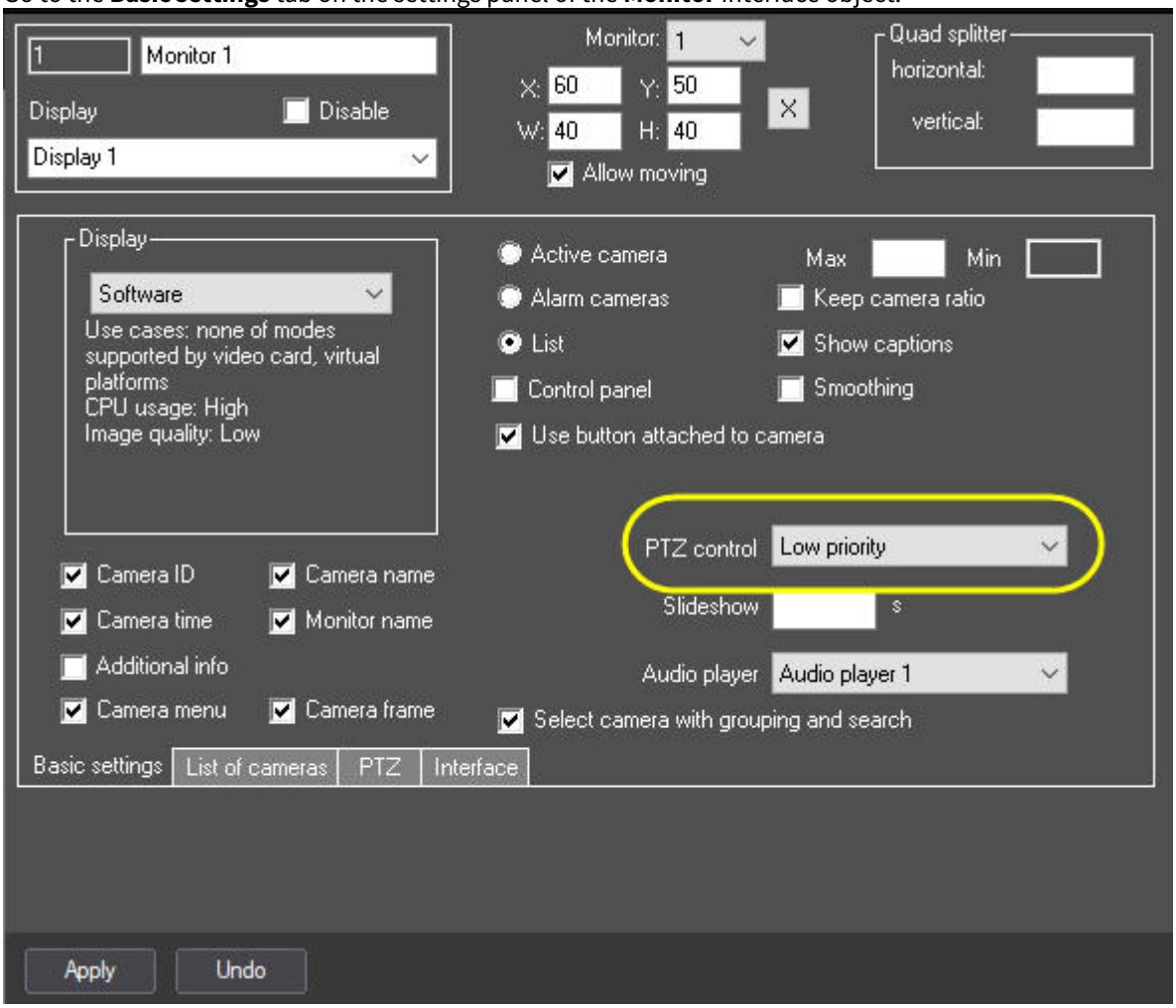
Setting the Telemetry control priority using the Monitor object

Axxon PSIM has an option of Telemetry control using the **Monitor** object. The control is performed with the help of a mouse or joystick.

By default, the **PTZ control** option with the use of the **Monitor** object is disabled. To enable the **PTZ control** option, the control priority must be set for the **Monitor** object (see Installing and configuring security system components guide).

To set **PTZ control** priority using the **Monitor** object, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Monitor** interface object.



2. From the the **PTZ control** drop-down list, select the required Telemetry control priority.

> **Note**

To disable **PTZ control** option using the **Monitor** object, select the **Forbidden** value.

3. To save the changes, click the **Apply** button.

Telemetry control priority using the **Monitor** object is now set.

Configuring the captions showing

Enabling the captions showing

Axxon PSIM has the option of showing captions for a list of cameras that are displayed in the **Monitor** interface window. This option is enabled by default. In large distributed systems, it is recommended to disable captions on those monitors where captions are not planned to be shown in order to decrease the number of events.

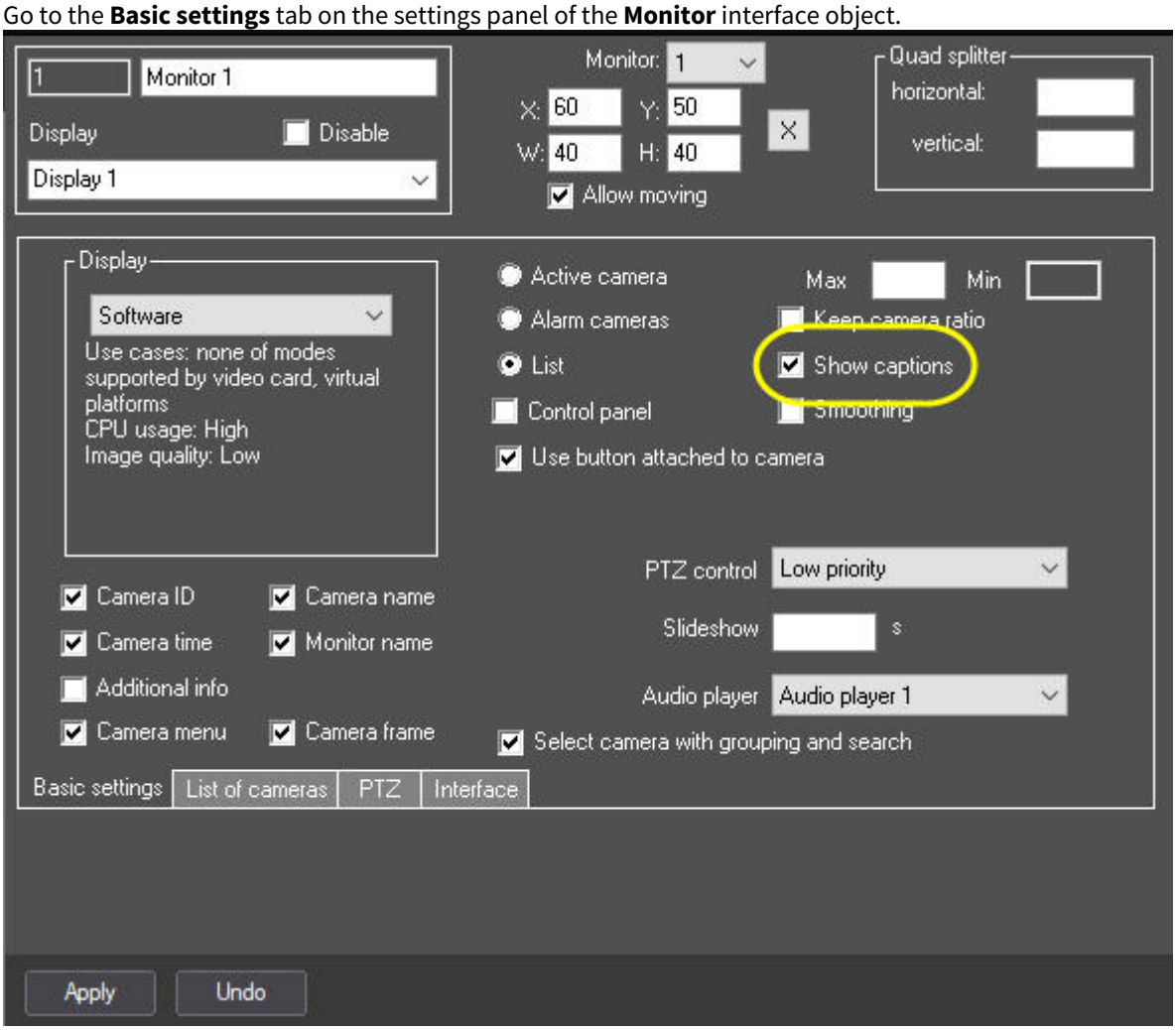
Attention!

This setting affects the display of frames around detected objects or abandoned objects (see Smart video detection tools operation) when viewing archive:

- if the **Show captions** checkbox is clear, the frames generated by the VMDA smart video detection tools aren't displayed;
- if the **Show captions** checkbox is set, the frames will be displayed.

To disable the option of captions showing, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Monitor** interface object.



2. Clear the **Show captions** checkbox.
3. Click the **Apply** button to save the changes.

The option of captions showing is disabled.

Configuring captions display on a video image

The **Captioner** object is a child object of the **Camera** system object. It is designed for configuring titles display on a video recording and maintaining titles database.

This object allows setting the limits of titles output, font parameters and color of words. Titles are output into the field on a video recording from a camera.

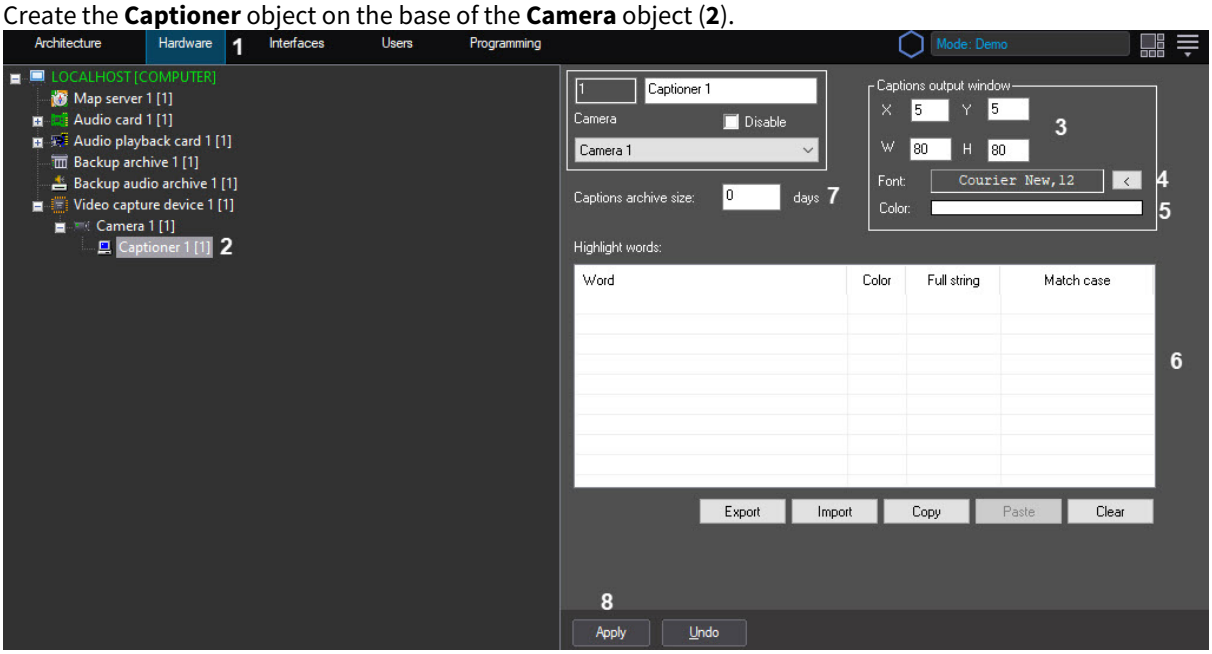
If the **Captioner** object is not created in the system, then titles are not displayed.

> **Note.**
>
> Titling on a video recording can be performed, for instance, using the scripts or programs in Axxon PSIM™ embedded language (see The Script object. Programming using the JScript language).

To configure the **Captioner** object, do the following:

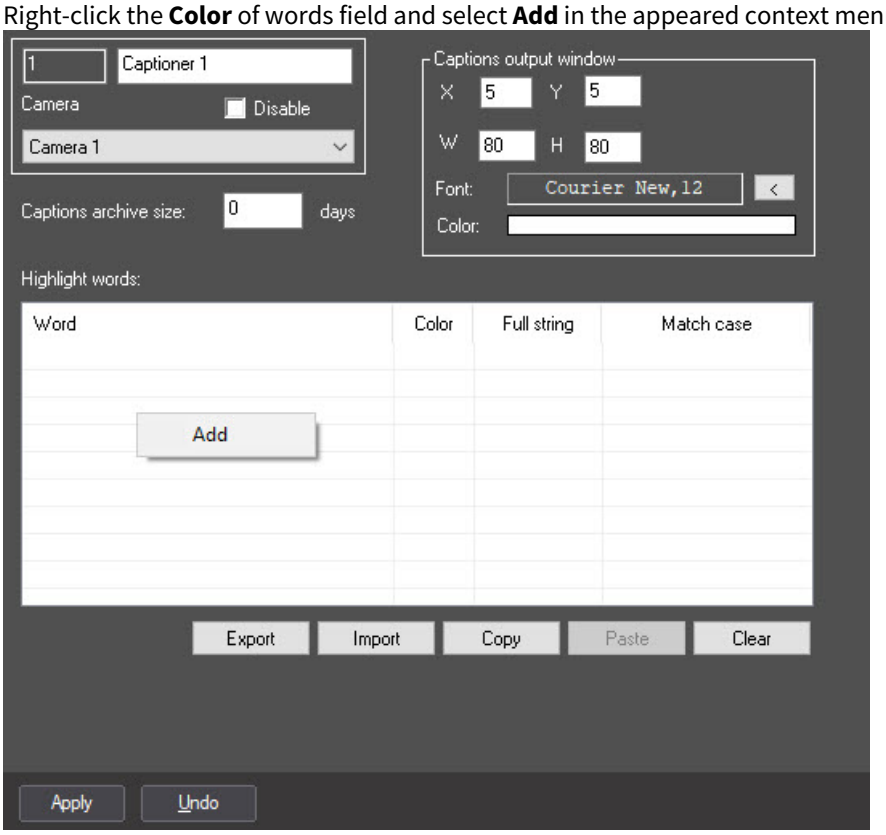
1. Go to the **Hardware** tab of the **System settings** dialog box (**1**)

2. Create the **Captioner** object on the base of the **Camera** object (**2**).

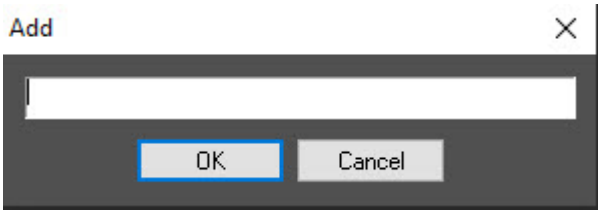


3. Specify the parameters of the titles output window (**3**):
   a. Set coordinates of the upper left corner of the titles output window: **X** (horizontal indent from left border of screen) and **Y** (vertical indent from top border of screen) fields.
   b. Set measurement of the titles output window: **W** (width of the titles output window) and **H** (height of the titles output window) fields.
4. Specify the parameters of font used for titles output:
   a. Click the  button (**4**).
   b. In the appeared Windows dialog box, specify font parameters and click **OK.**
   c. Double left-click the **Color** field (**5**)
   d. In the appeared Windows dialog box, select color and click **OK.**
5. Specify the parameters for words highlighting (**6**):

a. Right-click the **Color** of words field and select **Add** in the appeared context menu.



b. In the appeared dialog box, type-in a required word and click **OK**. The word is added to the **Color** of words table.



c. Specify the color with which the word will be highlighted by double left-clicking the **Color** field next to the specified word. In the appeared Windows dialog box, select color and click **OK.**
d. If the full string with a word is to be highlighted, then set the **Full string** checkbox.
e. If the case of word characters is to be matched, then set the **Match case** checkbox.
f. Repeat steps 5.1-5.5 for all required words.

> **Note.**
>
> Use the context menu for operations with words in the table (right-click a word). If the table is to be cleared, then click **Clear**.

6. If necessary, specify the maximum number of days as the difference between the newest and the oldest entry in the titles database for the given captioner in the **Captions archive size__days** field (**7**). Entries which were added earlier than the specified number of days before the most recent entry will be automatically deleted "in a loop". If the **0** (default) value is specified, the entries are deleted "in a loop" together with the video archive.

> **Example**

For example, the titles archive size is 1 day. On Friday, the titles from the Captioner 1 were added to the titles database. On Saturday and Sunday the camera was turned off, and the titles were not recorded. On Monday the camera was turned on, and the titles from the Captioner 1 from Friday remained in the titles database until the new record was added to the titles database of the Captioner 1. In 3 minutes after the new record was made on Monday, the captions from Friday were deleted.

7. Click the **Apply** button (**8**).

The **Captioner** object is now configured.

Note.

Use the **Copy** and **Paste** buttons to import all settings from one **Captioner** object to another. The **Color of words** table can be saved and imported from a file. The **Export** and **Import** buttons are used to save and import the table.

Configuring buttons display on the Video surveillance monitor

Enable button display on the Monitor

In *Axxon PSIM,* you can add buttons that will be displayed in the interface window of the **Video surveillance monitor**.

The actions when you click such a button are the following:

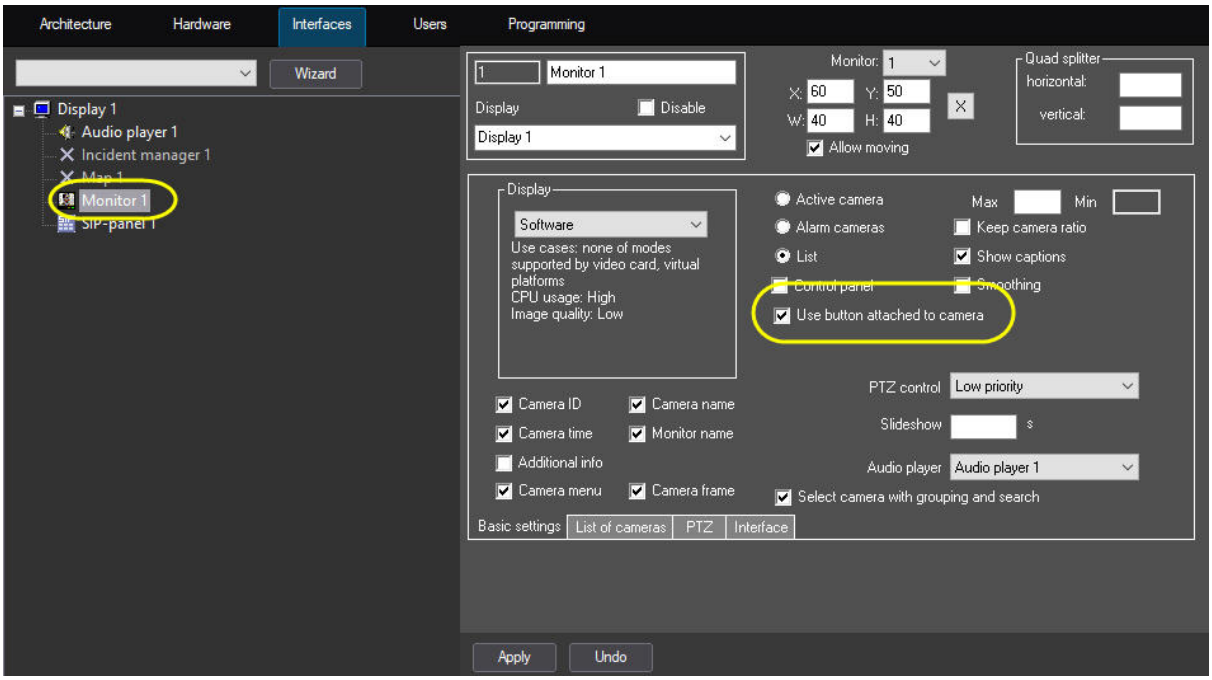
- switching to another camera;
- running a macro.

The **Button** object can also perform no actions. The number of buttons is unlimited. By default, the button display is disabled.

To enable the button display, do the following:

1. Go to the settings panel of the **Monitor** interface object.

2. Set the **Use button attached to camera** checkbox.



3. Click the **Apply** button.

As a result, buttons are displayed in the **Video surveillance monitor** over the video from the cameras for which you created the buttons (see Configuring a button to display in the Video surveillance monitor).

> **Note**
>
> You can configure the mode of display of a button in the **Video surveillance monitor** using the **AllowHideActionButtons** parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\Axxon PSIM\Video registry. To always display a button, set AllowHideActionButtons=0 (see Registry keys reference guide. For the information on working with the registry, see Working with Windows OS registry).
> When you use buttons, we recommend selecting the **Direct3D (recommended)** mode of monitor display. Otherwise, we cannot guarantee correct operation (see Selecting the display mode).

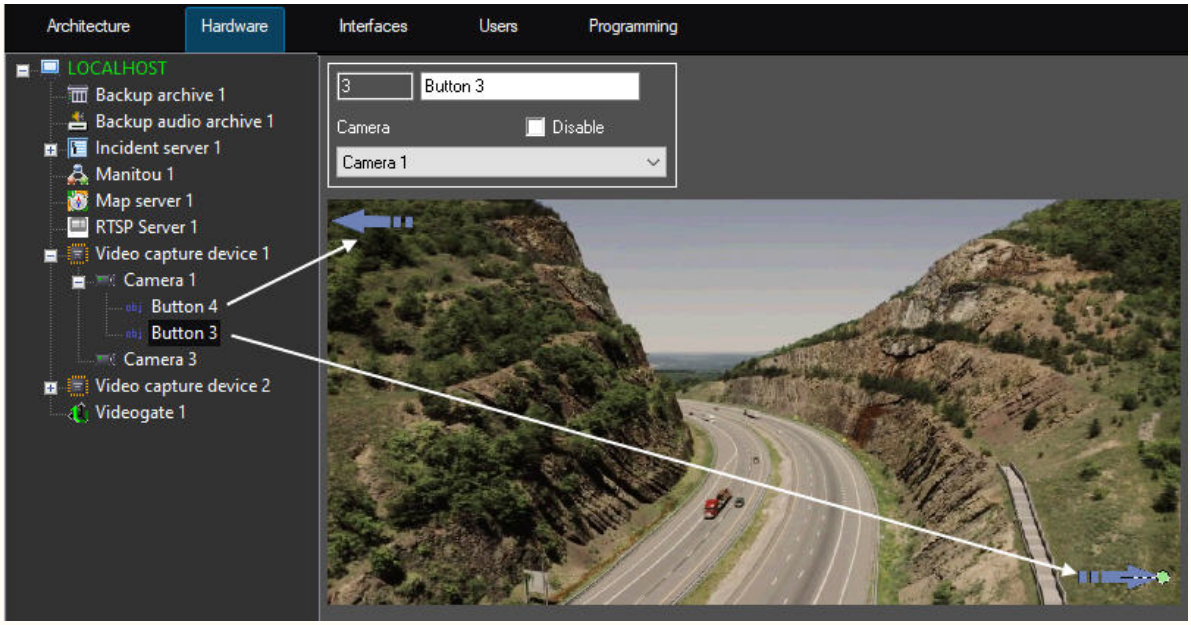
The display of a button is configured.

Configuring a button to display in the Video surveillance monitor

The **Button** object is a child object of the **Camera** object and is used to display a button on top of the video image received from the parent camera. This page describes how to configure the appearance of a button, as well as how to choose the action that will occur when you click the button.

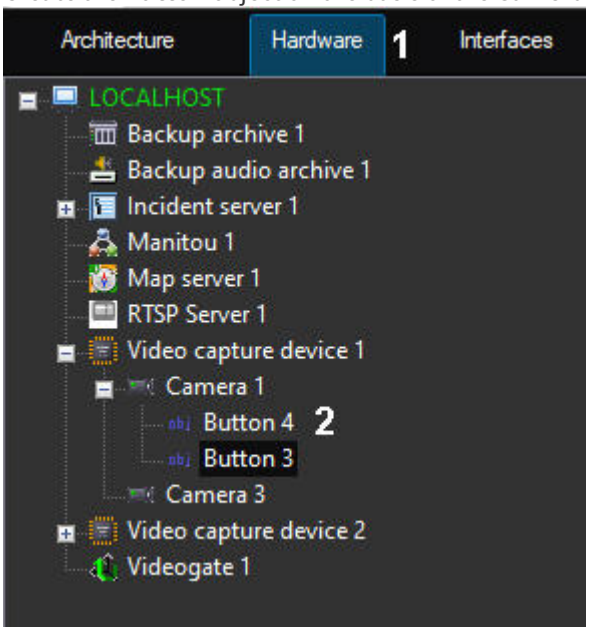
The button display in the **Video surveillance monitor** must be enabled beforehand. If no **Button** objects are created in the system, they are not displayed.

> **Attention!**
>
> You can create several **Button** objects for the **Camera** object. In this case, the preview window will display all created buttons, and the setting described below will be applied only to the current (selected in the objects tree) button, that is, each button must be configured separately.

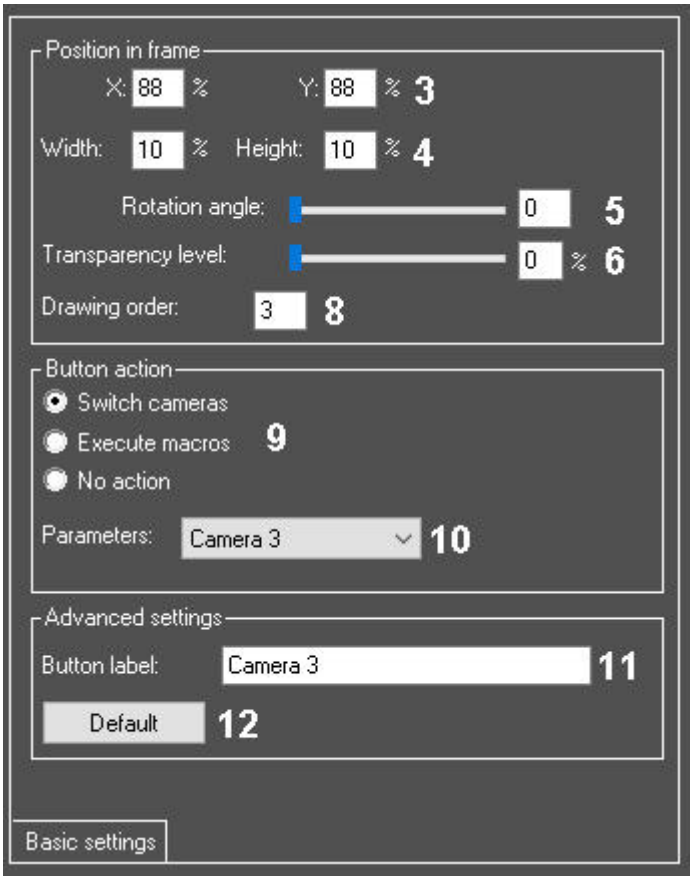


To configure the **Button** object, do the following:

1. Go to the **Hardware** tab of the **System settings** window (**1**).
2. Create the **Button** object on the basis of the **Camera** object (**2**).



3. Configure the position and display of the button in the **Surveillance window**:
    a. The position of the top left corner of the button is set by the **X** and **Y** fields (**3**). **X** is the horizontal indent from the left border as a percentage, and **Y** is the vertical indent from the top border as a percentage. For example, if you set 50 and 50, then the left top corner of the button will be in the middle of the **Surveillance window**.



b. In the **Width** and **Height** fields (**4**), set the size of the button as a percentage of the size of the **Surveillance window**.
c. Set the **Rotation angle** of the button in degrees from -180 to 180. By default, it is assumed that the button isn't rotated, the angle is zero (**5**).
d. Set the **Transparency level** of the button as a percentage (**6**). The feature of this setting: the real transparency is displayed in the preview area (**7**) only when transparency is being edited with the slider. The rest of the time, the button is completely opaque during configuration.



Note

You can configure the size and position of the button not only by entering values but also manually. To do this, in the preview area, after clicking the button, you can:

- drag the button with the mouse;
- stretch or shrink the button and rotate it, using the green anchor points on its perimeter.

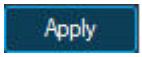
You can fine-tune the button size and rotation angle manually: when Shift is pressed and when you drag the green circle with the mouse, the button changes only its size. When Ctrl is pressed, the button changes only its angle. When Shift+Ctrl are pressed, the button doesn't change.

e. Set the **Drawing order** of the configured button in the corresponding field if several **Button** objects are created for one **Camera** object (**8**). The setting determines the order in which the buttons are drawn in the **Surveillance window**.

4. Select the **Button action**—what will happen when the operator clicks the button in the **Video surveillance monitor** (**9**):
   a. Switch between the video images of the cameras. The cameras that are controlled by the button must be added to the **Monitor** (see Selecting and configuring video cameras), otherwise, you won't be able to switch between the video images when you click the button.
   b. Execute macros. You must create macros beforehand (see Creating and using macros).
   c. No action.
5. From the **Parameters** drop-down list (**10**), select a specific action that is performed when you click the button. Possible values are determined by the action that you selected in the previous step: it can be both available macros and the list of cameras between which you can switch.
6. If necessary, set the **Button label** in the corresponding field (**11**). To display a default label for the button depending on the selected action, click the **Default** button (**12**). In this case, the label will contain the name of the camera, macro, or current object.

   Note

   In the **Video surveillance monitor** interface, the label is displayed only as a tooltip when you hover the cursor over the button.

7. Click the 

button.

As a result, the **Monitor** will display the button on top of the video image received from the camera, on the basis of which this button was created.

You can configure the mode of displaying the button in the **Video surveillance monitor** using the AllowHideActionButtons parameter of the HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\Axxon PSIM\Video registry. To always display a button, set AllowHideActionButtons=0 (see Registry keys reference guide. For the information on working with the registry, see Working with Windows OS registry).

Configuring a button to display in the **Video surveillance monitor** is complete.

Attention!

When you upgrade *Axxon PSIM* 1.0 to *Axxon PSIM* 2.0, the button changes position, since the coordinates in version 2.0 are set for the center of the button and not for the upper left corner. This is done so that the button can be partially hidden behind the screen.

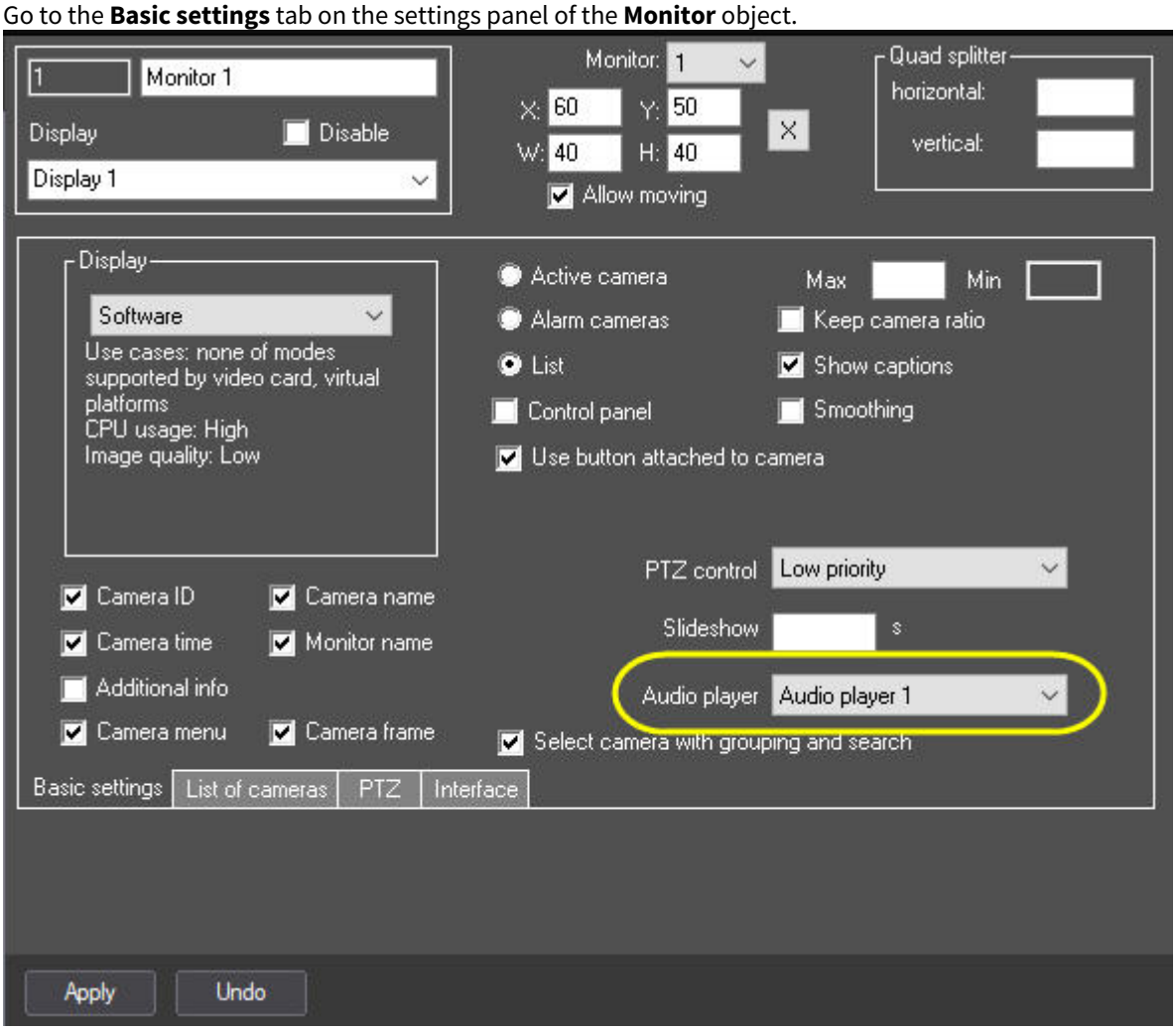
Binding Audio player to the Monitor

Binding **Audio player** to the **Video surveillance monitor** is required to playback and export video with audio from the **Monitor** interface. **Audio player**, configured to playback audio received from microphones bound to cameras on which the audio playback and export must be performed, to the **Video surveillance monitor**.

For the information on how to create and configure the **Audio player** object, see Configuring audio signals playback using the Audio player object.

To bind the **Audio player** to the **Video surveillance monitor**, do the following:

1. Go to the **Basic settings** tab on the settings panel of the **Monitor** object.



2. From the **Audio player** drop-down list, select the previously created **Audio player** object that must be used for playback and export of video with audio from the **Monitor** interface.
3. Click the **Apply** button.

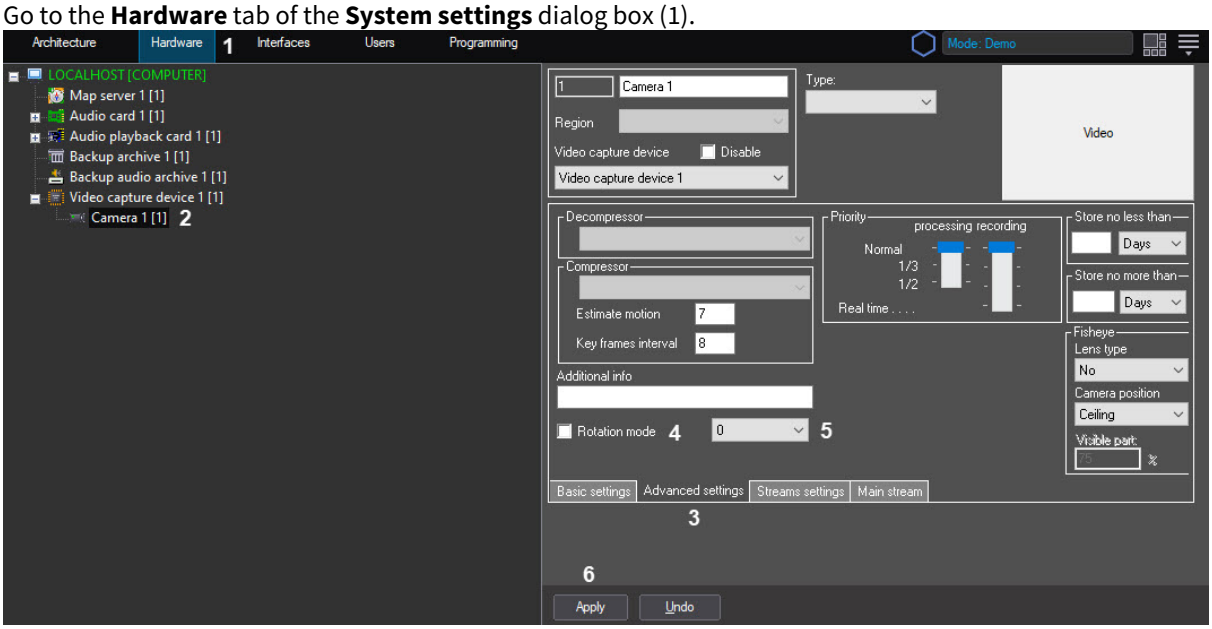
The **Audio player** is now bound to the **Video surveillance monitor**.

Configuring a rotation angle of video image

In the Axxon PSIM software the image from the video camera can be panned while displaying it on the Video surveillance monitor and viewing the video archive. Available rotation angles are 90, 180 and 270 degrees.

To configure the rotation angle, do the following:

1. Go to the **Hardware** tab of the **System settings** dialog box (1).



2. Select the **Camera** object corresponding to the video camera from which the video image is to be rotated while displaying (2).
3. Go to the **Advanced settings** tab (3).
4. Set the **Rotation mode** checkbox to activate the rotation function (4).
5. From the drop-down list, select the rotation angle (5).
6. To save settings in the Axxon PSIM software, click the **Apply** button (6).

> **Note.**
>
> On default the video signal is displayed in the Video surveillance window in initial non-rotated state. To rotate the video image, select the **Pan** function in the **Processing** sub-menu of the Video surveillance window – see the Operator's Guide document.

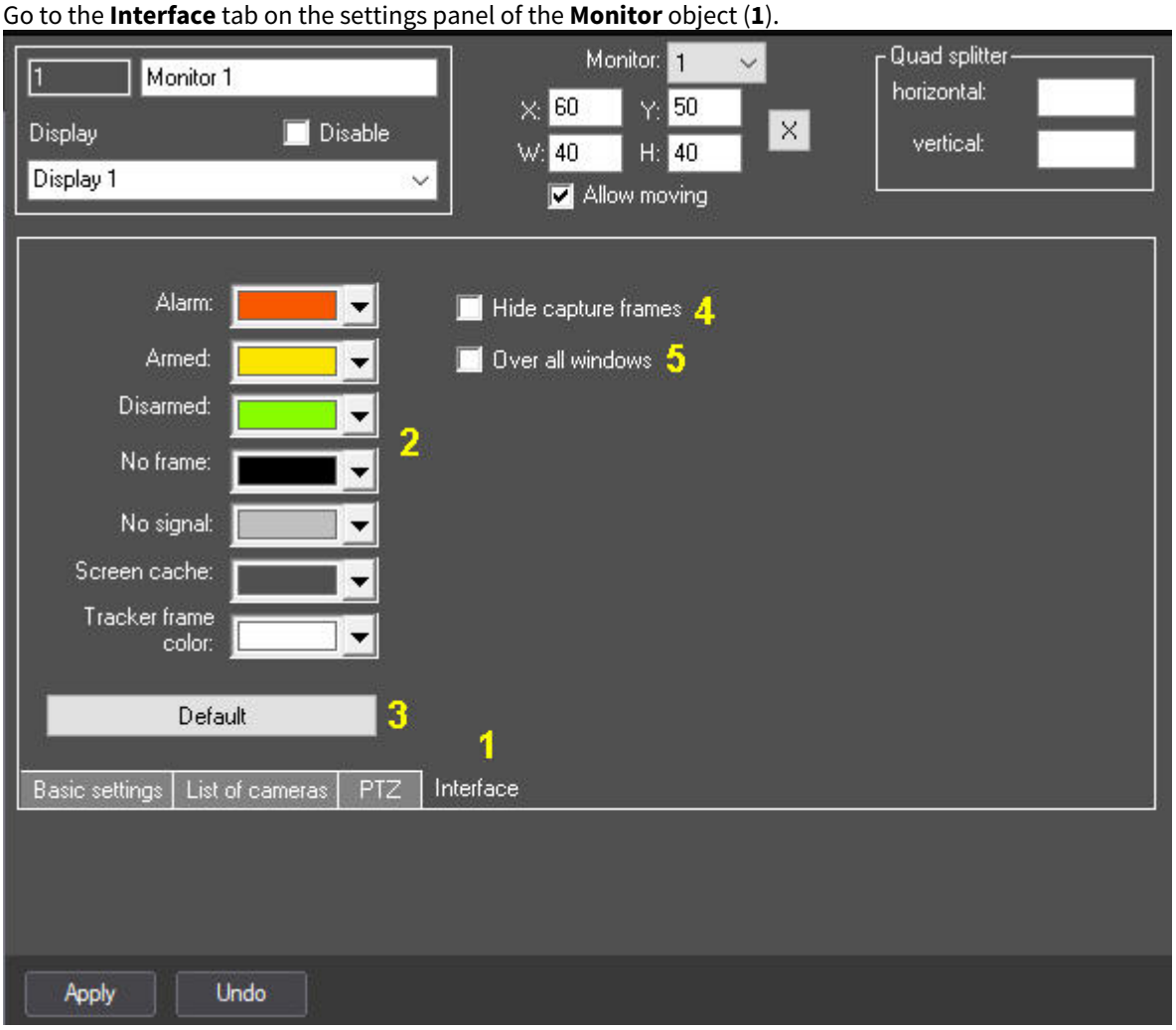
Configuring a rotation angle of the video image is completed.

Configuring the interface of the Surveillance window

In *Axxon PSIM*, you can configure the interface of the **Surveillance window**: the camera frame color in various states (alarm, armed, disarmed, no frame, no signal), displaying the frames of the Face Detection, and also displaying the **Video surveillance monitor** window on top of all windows.

To configure the interface of the **Surveillance window**, do the following:

1. Go to the **Interface** tab on the settings panel of the **Monitor** object (**1**).



2. From the drop-down lists (**2**), select:
   a. **Alarm**: the frame color of the Surveillance window if there is an alarm on the camera. By default, it is red.
   b. **Armed**: the frame color of the Surveillance window when the camera is armed and there are no alarms. By default, it is yellow.
   c. **Disarmed**: the frame color of the Surveillance window when the camera is disarmed. By default, it is green.
   d. **No frame**: the frame color of the Surveillance window when there is no frame from the camera in the Surveillance window. By default, it is black.
   e. **No signal**: the frame color of the Surveillance window when there is no signal from the camera. By default, it is grey.
   f. **Screen cache**: the background color of the Surveillance window that is displayed when the video from the camera doesn't cover the Surveillance window completely, for example, when the camera proportions are kept.
   g. **Tracker frame color**: the color of the frame used to highlight the tracking objects detected by smart detection tools on the video image. See also Configuring smart video detection tools. In addition, you can enable the detection of the frame color depending on the background on which it is displayed using the DrawDetectorColors registry key (see Registry keys reference guide).
3. Click the **Default** button to restore the default settings (**3**).
4. If you want to hide the frames of the Face detection tool, set the **Hide capture frames** checkbox (**4**). See also Configuring Face detection tool.

5. In order to show the Video surveillance monitor on top of all windows, set the **Over all windows** checkbox (**5**).
6. Click the **Apply** button to save the changes.

Configuring object's panoramic view by means of the Scene object

Panoramic view window is designed for creating and using the panoramic image, composed from several cameras' view fields. Setting up the panoramic view window is performed by **Scene** object settings panel.

The **Scene** object setup is performed in the following way:

1. Select a screen and create the **Scene** object.
2. Set the parameters of the **Scene** interface box.
3. Select and setup cameras for displaying in the **Scene** window.

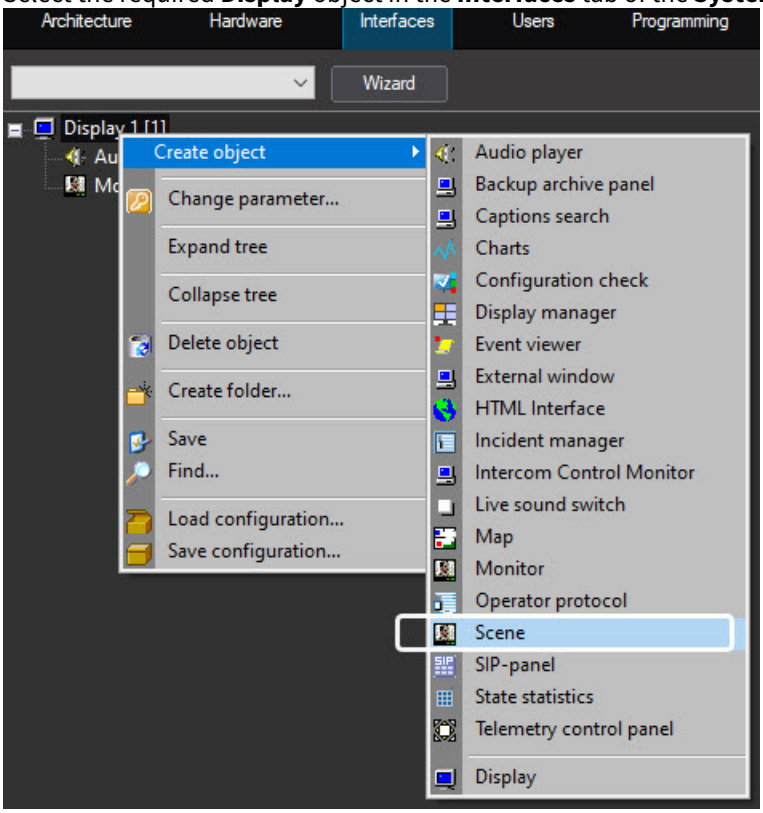
> **Note.**
>
> Working with Panoramic view window is described in detail in Operator's Guide.

> Working with panoramic video surveillance window

Creating the Scene object

To create the **Scene** object, do the following:

1. Select the required **Display** object in the **Interfaces** tab of the **System settings** dialog box.



2. Make a right mouse click upon the selected **Display** object and select **Create object -> Scene** in the appeared context menu.
3. Set the name and number of the **Scene** object in the appeared window and then click the **Apply** button.

> **Note.**
>
> The settings panel for the **Scene** object will be displayed as a result.

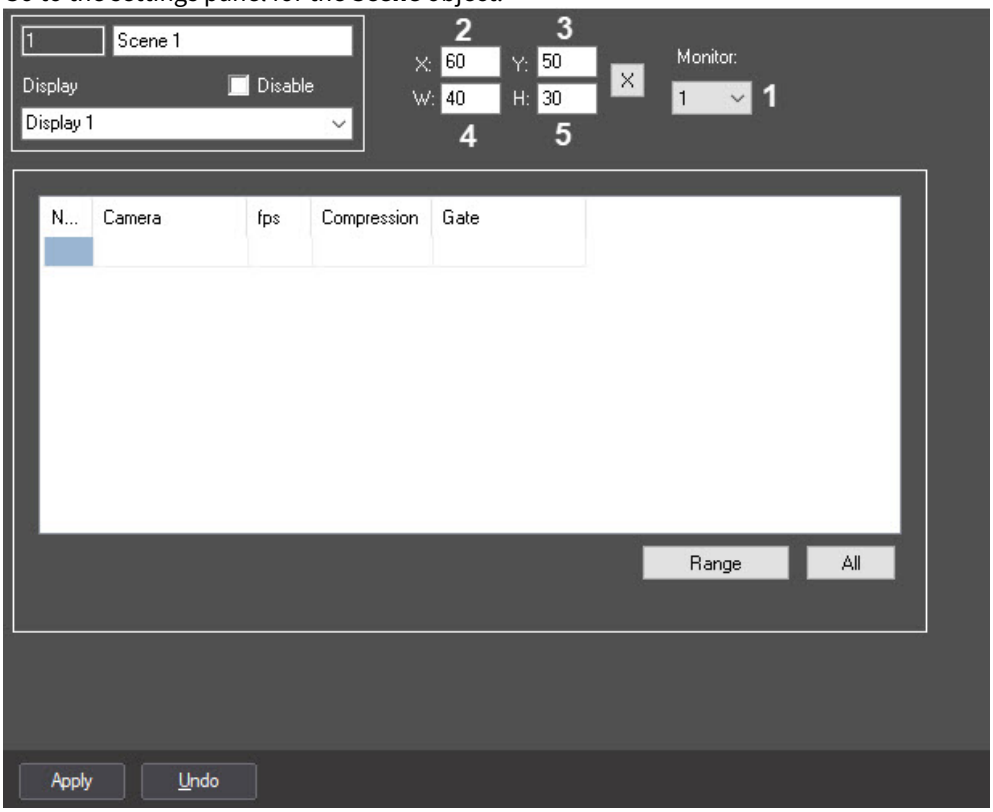
4. Repeat steps 1-3 for all required **Display** and **Scene** objects.

The **Scene** object is now created.

Setting the parameters of the Scene interface box

Setting the parameters of the **Scene** interface box is done in the following way:

1. Go to the settings panel for the **Scene** object.



2. Select the number of physical monitor on which screen there will be displayed the panoramic view from the **Monitor** dropdown list (1).
3. Set the coordinates of the left upper corner in the **Scene** interface box: fields **X** (horizontal shift from the left image border) and **Y** (vertical shift from the upper image border) – see 2-3. The coordinates are given in percentage according to vertical and horizontal screen size.
4. Set the sizes of the **Scene** interface box: fields **W** (window's width) and **H** (window's height) – 4-5. The sizes are given in percentage according to vertical and horizontal screen size.
5. Click the **Apply** button to save the changes.

Parameters of the **Scene** interface box are now set.

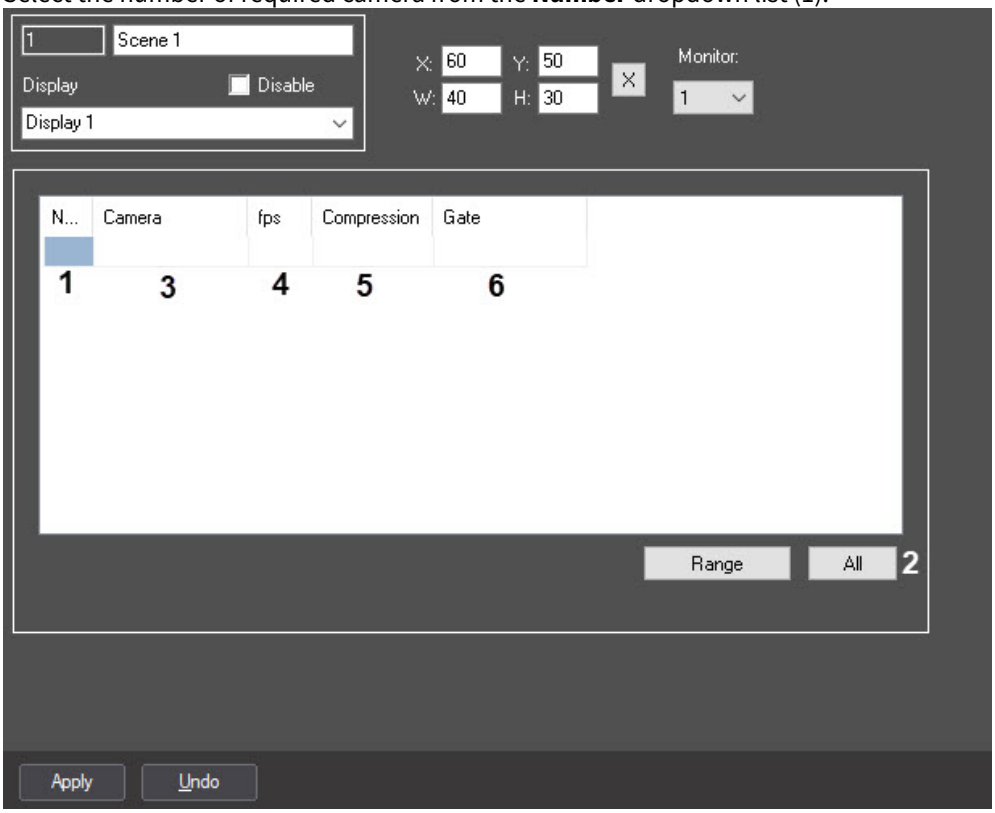
Selecting and configuring cameras for the Scene object

One can select and configure cameras for displaying in the interface box in two ways:

1. Separately. The settings panel of the **Scene** object is used.
2. In a complex way. The **Add/edit cameras** dialog box is used.

To select a camera on the settings panel of the **Scene** object, do the following:

1. Go to the settings panel of the **Scene** object.
2. Select the number of required camera from the **Number** dropdown list (1).



> **Note.**
>
> To select all the cameras, registered in the system, click the **All** button (2).

3. The name of the selected camera will automatically be displayed in the **Camera** column (3)
4. If a signal is to be groomed, the required fps is to be selected from the fps dropdown list (4).

> **Note.**
>
> It's not recommended to change **fps** value while using H.264 codec

5. If a compression level of video signal is to be changed, the required compression level is to be selected from the **Compression** dropdown list (5). The compression level increases from 0 (no compression) to 5 (maximum compression).
6. If the archive from the selected camera is to be received via the **Gate** object, then select the name of this object from the **Gate** dropdown list (6)
7. Repeat steps 2-6 for all the required cameras.

> **Note.**
>
> To add a new camera, go to the last line in the selected cameras list and press "down" on the keyboard.

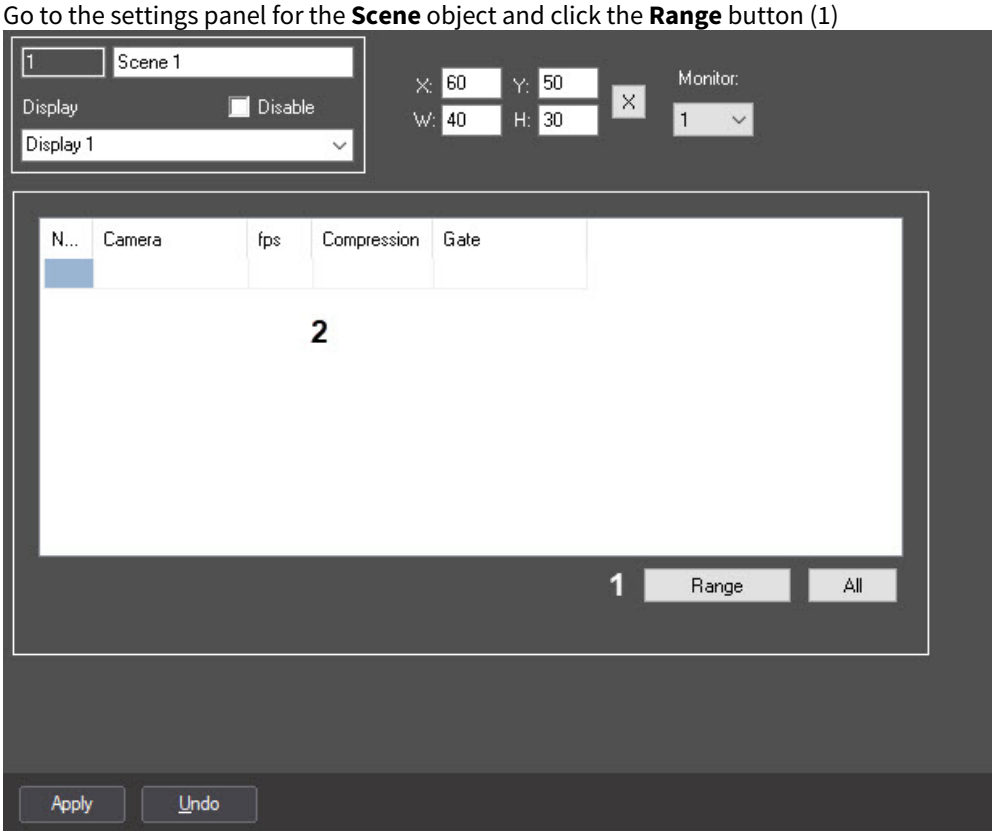
8. Click the **Apply** button to save the changes.

Cameras selection on the settings panel of the **Scene** object is completed.

There is possibility to select and edit parameters of cameras for displaying in the **Scene** interface box in a complex way.

Complex cameras selection is performed in the following way:

1. Go to the settings panel for the **Scene** object and click the **Range** button (1)



2. The **Add/edit cameras** dialog box will open as a result.

> **Note.**
>
> The **Add/edit cameras** dialog box is described in the Selecting and configuring video cameras in bulk section.

3. Cameras settings, set in the **Add/edit cameras** dialog box will be displayed on the settings panel of the **Scene** object (2).
4. Click the **Apply** button to save the changes.

Complex cameras selection is completed.

Configuring video transmission to Remote Workstations

Axxon PSIM software supports transmitting the digital video signal from the Server to the Remote Workstations for remote video surveillance, archiving, routing via the video gate, transmitting via the Web-server by HTTP protocol (Internet), to a mobile device with iOS or Android operation system. Both real-time and archive video signals may be transmitted to the Remote Workstations.

Real-time video signals are transmitted by Remote Workstation demand for displaying, archiving, routing via the video gate or transmitting via the Web-server by HTTP protocol (Internet), to a mobile device with iOS or Android

operation system. By default, transmitted video signals have the same parameters (resolution, color depth, frame rate etc.) as they have during digitizing and processing by the video capture card or IP-device.

Prior to transmitting to Remote Workstations, video signals are compressed. By default, video signals, transmitted to the TCP/IP place via local net, and archived video signals are compressed at the same rate. For the setup procedure of video signal compression rate, see Configuring video compression section.

Real-time video displaying may lag if the connection is unstable and/or transmitting rate via network connection is low. To eliminate or minimize this effect, use the following registry keys:

- AcsStdLimit – the registry key used for setting the upper frame sequence limit in MJPEG format. It possesses the values from 1 to 30.
- AcsMpegLimit – the registry key used for setting the upper frame sequence limit in H.264/MPEG4 format. It possesses the values from 1 to 30.

If sequence of frames transmitted to a Remote Workstation rises to the value specified in the registry key, then grooming is enabled.

Note.

Keys are to be created in the HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\PSIM\Video for 32-bit system (HKEY_LOCAL_MACHINE\Software\Wow6432Node\AxxonSoft\PSIM\Video for 64-bit system) registry section on the Server.The process of key creation is described in Working with Windows OS registry section.

When video signals are transmitted to Remote Workstations for displaying, archiving and routing with video gate, it is possible to reduce their frame rate and to increase their compression rate.

When video signals are transmitted to Remote Workstations for displaying, their frame rate reduction and their compression rate increase are set on the settings panel of the Monitor object for each camera individually.

When video signals are transmitted to Remote Workstations for archiving, their frame rate reduction and compression rate increase are set on the settings panel of the **Backup archive** object for each camera individually.

When video signals are transmitted to the video gate, their frame rate is reduced and compression rate is increased on the settings panel of the **Video gate** object for each camera individually.

When video signals are transmitted via a web-server by HTTP protocol to a Remote Workstation, a mobile device with iOS or Android operating system, its compression rate is set on the settings panel of the **Web-server** object that corresponds to the Web-server module. For the setup procedure of the video signal compression rate, see the chapters on Web-server or the documentation on the mobile clients.

22.4.4 Configuration of audio

Configuring audio signals playback using the video monitor

The video monitor has the facility to play back audio signals only from the microphones that have been set to synchro video and audio recording. Axxon PSIM™ software provides an audio playback option for real-time audio signal and for audio signals, archived in the synchro recording mode.

To enable the option of audio signals playback by the video monitor, do the following:

1. Configure synchro video and audio recording with a camera − see Configuring audio and video synchro recording.
2. Bind the **Audio player** object to the **Monitor**. The configuration of binding is described in Binding Audio player to the Monitor section.

This option is deactivated automatically, when the synchro video and audio recording option is disabled for the selected camera and microphone or when the Audio player binding to the video surveillance monitor is disabled.

Synchronous playback of video and audio recordings

Configuring audio signals playback using the Audio player object

Audio player setup sequence

Audio player object is a subclass of the **Display** interface object and is designed for implementing the following functions:

1. Perform recording of sound activated audio signals;
2. Record audio signals by Operator command;
3. Play back input audio signals;
4. Play back audio signals, recorded by sound level or by Operator command;
5. Perform voice notification.

To set the **Audio player** object, do the following:

1. Select the screen and create for it the **Audio player** object.
2. Set the parameters of the **Audio player** interface object.
3. Set the recording and playback of audio signals from microphones.
4. Set the voice notification during alarms registration by cameras' motion detectors (see Setting up the voice notification using Audio player object).

Note

Setup sequence of **Audio player** object for transmission of audio signals to IP-device is described in Setting up the transmission of audio signals to IP devices.

Note

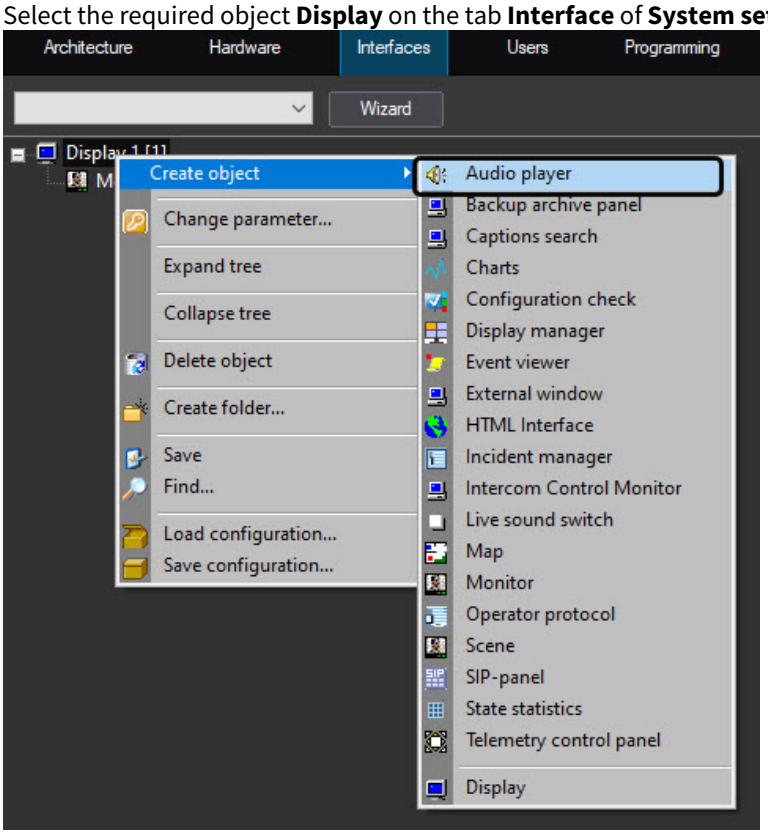
The Audio player uses PCM (preferrable) or GSM (legacy) codecs. The codec is selected automatically. Audio bitrate does not change when played back via the Audio player.

Audio player operation

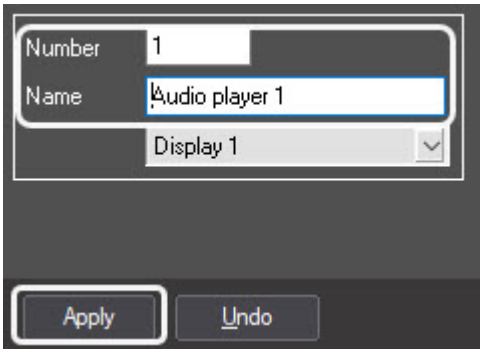
Creating the Audio player object

To create the **Audio player** object, do the following:

1. Select the required object **Display** on the tab **Interface** of **System settings** dialog window.



2. Click with the right mouse button upon the selected object **Display** and in the contextual menu, that will open, select **Create object -> Audio player**.
3. In the window, that will open, set the name and number of the object **Audio player** and then click **Apply** button.



> **Note.**
>
> In result Settings panel of **Audio player** object will be shown.

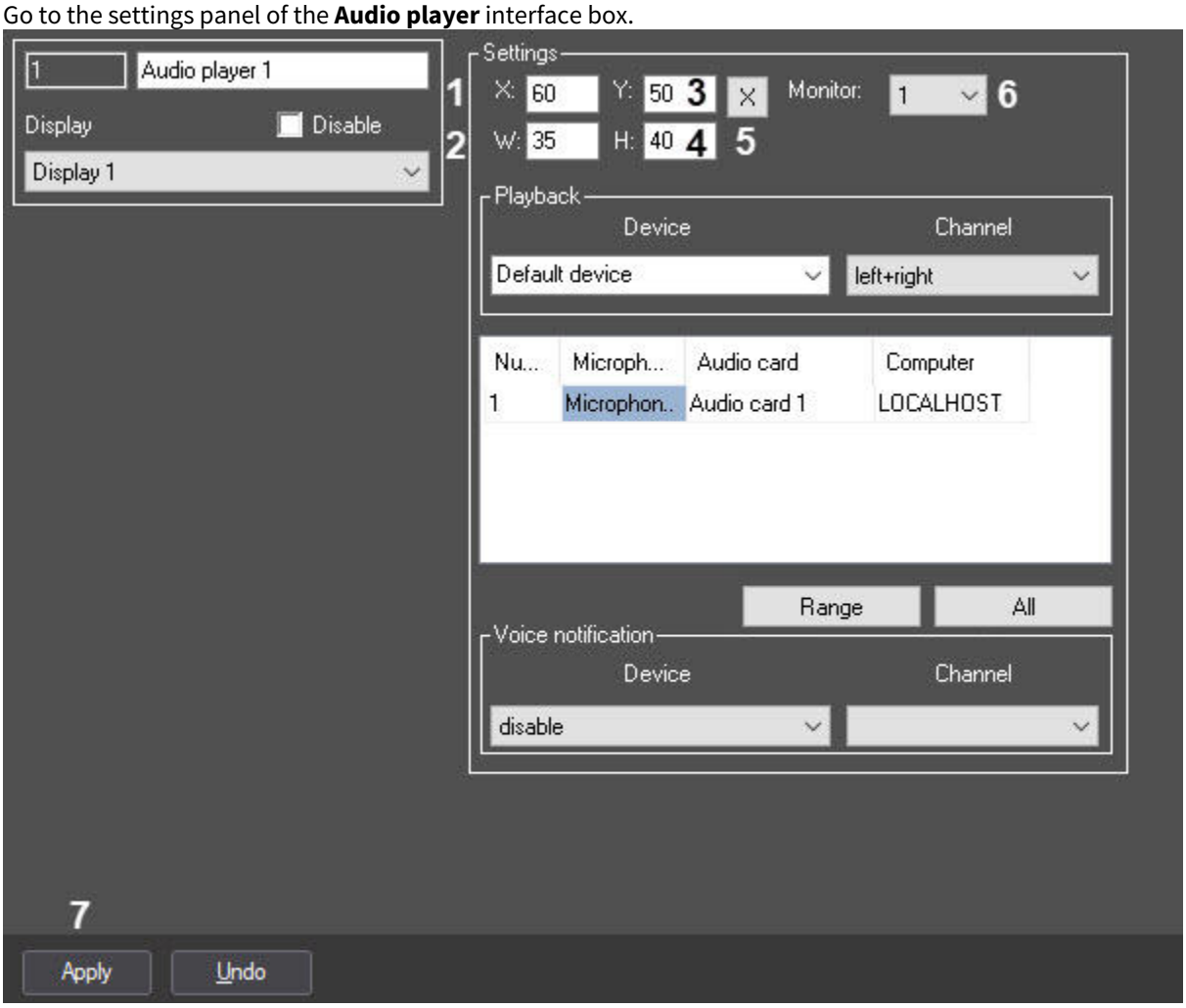
4. Repeat steps 1-3 for all the required objects **Display** and **Audio player.**

Creation of **Audio player** object is over.

Setting the parameters of the Audio player interface box

To set the parameters of the **Audio player** interface box, do the following:

1. Go to the settings panel of the **Audio player** interface box.

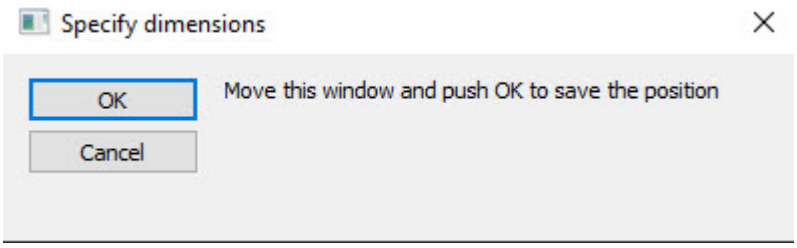


2. Set the **Audio player** interface box position in one of the following ways:
   a. Manually:
      i. Set the coordinates of **Audio player** window's left upper corner: fields **X** (horizontal indent from the left image border) and **Y** (vertical indent from the upper image border - 1 and 2. Coordinates are given in percentage in relation to screen size horizontally and vertically.
      ii. Set the dimensions of the **Audio player** interface box: fields **W** (window's width) and **H** (window's height) – 3 and 4. Dimensions are given in percentage in relation to screen size horizontally and vertically.

      > **Note.**
      >
      > Minimal allowed value of parameter **W** is 35%, **H** – 40%. With lesser value displayed width or height of the window will correspond to minimal allowed value.

   b. With a test window:
      i. Click **X** (5).

ii. Position the **Set dimensions** test window where the Audio player window should be displayed.



iii. Click **OK**. As a result, the coordinates in the fields **X, Y, W, H** will be set in accordance with the size and position of the test window.

3. From the **Monitor** drop-down list, select the number of monitor for which coordinates are specifying (6).

> **Note.**
>
> The monitors are numbered from left to right, from top to bottom, i.e. the 1st monitor is the one in the upper left corner regardless of which monitor is assigned as main or what number the monitor has in OS.

4. Click **Apply** button to save all the changes (7).

Setting the parameters of the **Audio player** interface box is completed.

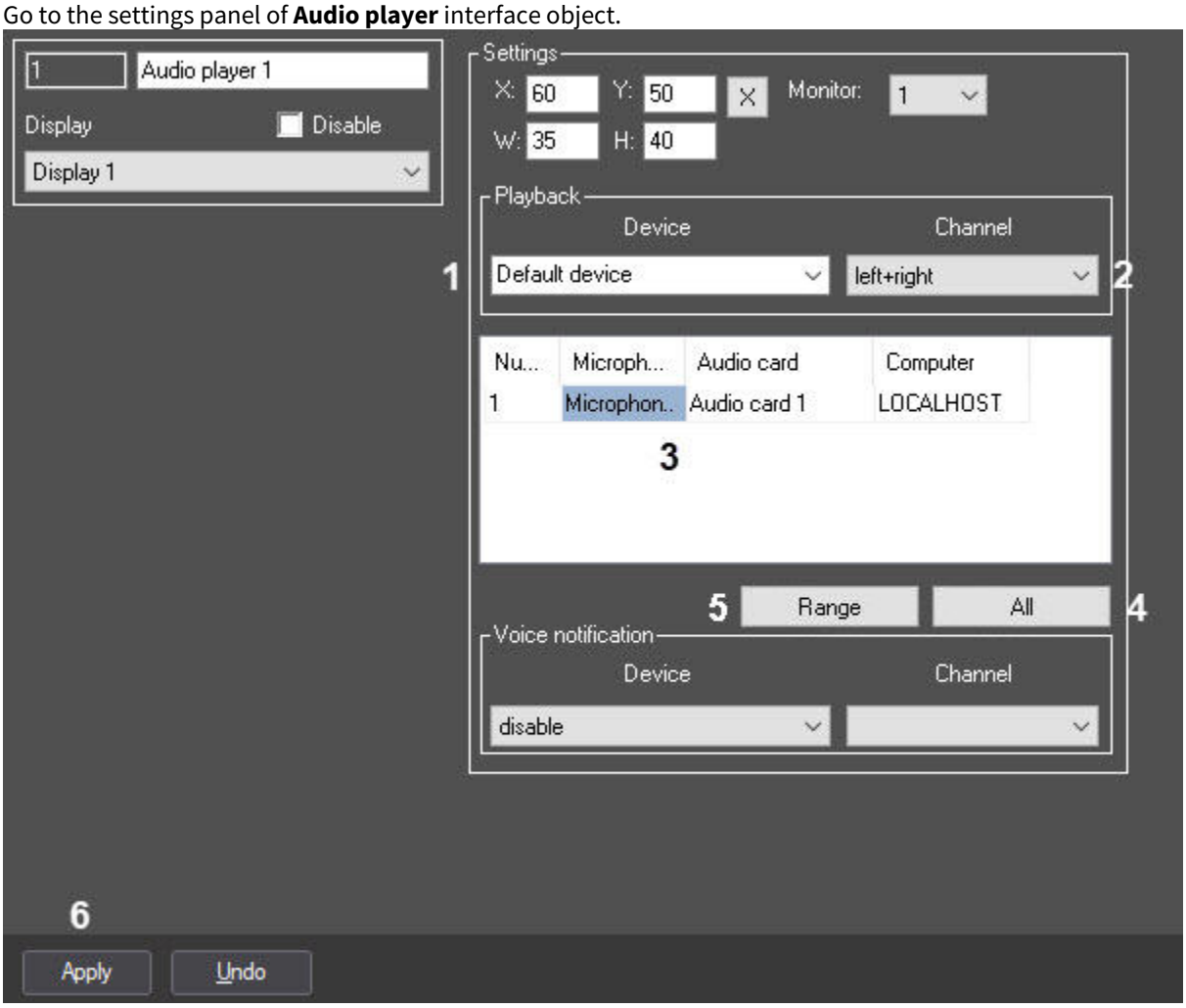
Setting up the recording and audio signals' playback

With the help of **Microphone** object the following opportunities of **Audio player** object are realized:

1. Playback of audio signals from the microphones.
2. Recording of audio signals by sound level or by Operator command.

To set up the recording and playback of audio signals from the microphones, do the following way:

1. Go to the settings panel of **Audio player** interface object.



2. From the dropdown list **Device** of **Playback** group, select the required device of audio signals backup (1).

> **Note**
>
> Standard sound map corresponds to the value **Default device**.

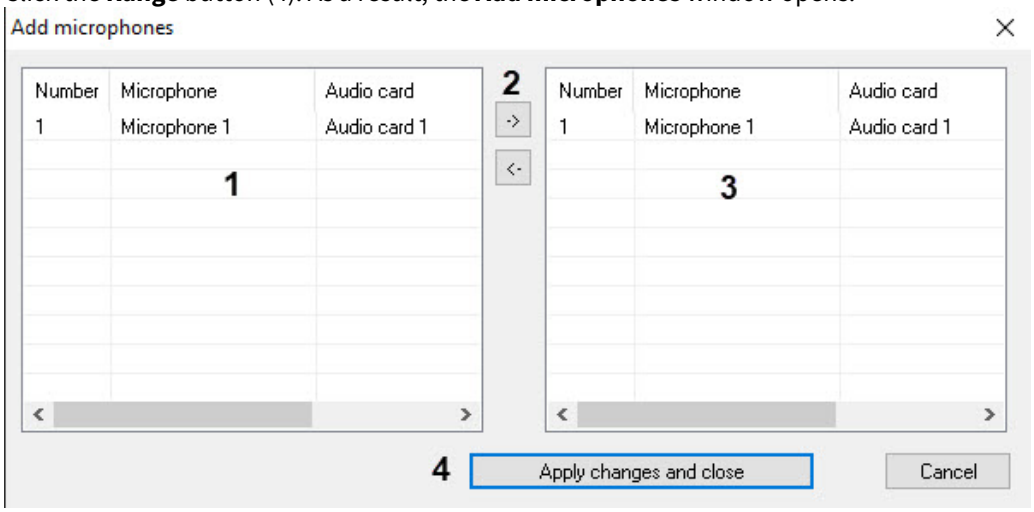
3. From the dropdown list **Channel** of **Playback** group select the required channel of audio signals backup (2).

> **Important.**
>
> The **Device** and **Channel** settings are available only if the **Display** with this Audio Player is assigned to one computer in the distributed system (see Assigning the displays to the operator workstations). If the Display is assigned to multiple computers, these settings cannot be changed and only the **Default device** can be used.

4. Add microphones for recording and playing back audio from in one of the following ways:
   a. One by one:
      i. From the dropdown lit in the column **Name,** select the name of **Microphone** object, which audio signals are suggested to be recorded/played back (3).
      ii. Repeat step 4 for all the required **Microphone** objects.

> **Note**
>
> Use "down" arrow on a keyboard to add a line to the table. Press Ctrl+Del after selecting a line to delete it.

b. All microphones created in the hardware tree: click on the **All** button (3).
c. Several microphones from the list:
   i. Click the **Range** button (4). As a result, the **Add microphones** window opens.



   ii. In the list on the left, select the necessary microphones to add (1). To select several lines, left-click them while holding the Ctrl key on the keyboard.
   iii. Move the microphones to the list on the right (3) using the **->** button (2).
   iv. Click **Apply changes button and close** (4).
   v. As a result, the selected microphones are added to the list on the settings panel of the **Audio player** object.
5. Click **Apply** button to save all the changes (6).

Setting up the recording and playback of audio signals from the microphones is completed.

Features of audio signals export using the video monitor

The video monitor has the facility to export audio signals only from the microphones that have been set to synchro video and audio recording.

In order to provide synchro audio export when a video recording is exported from the video monitor interface, the **Audio player** object is to be bound to the **Monitor**. The configuration of binding is described in Binding Audio player to the Monitor section. If audio player is not bound, then video from the **Monitor** interface will be exported without sound even if the archive is recorded with sound. Information on how to create and configure the **Audio player** object is given in the Configuring audio signals playback using the Audio player object section of this manual.

Detailed information on how to export video recordings from the video monitor interface is given in the Export of video recording with audio section of Operator's Guide.

Setting up the audio signal transmission to Remote Workstations and servers

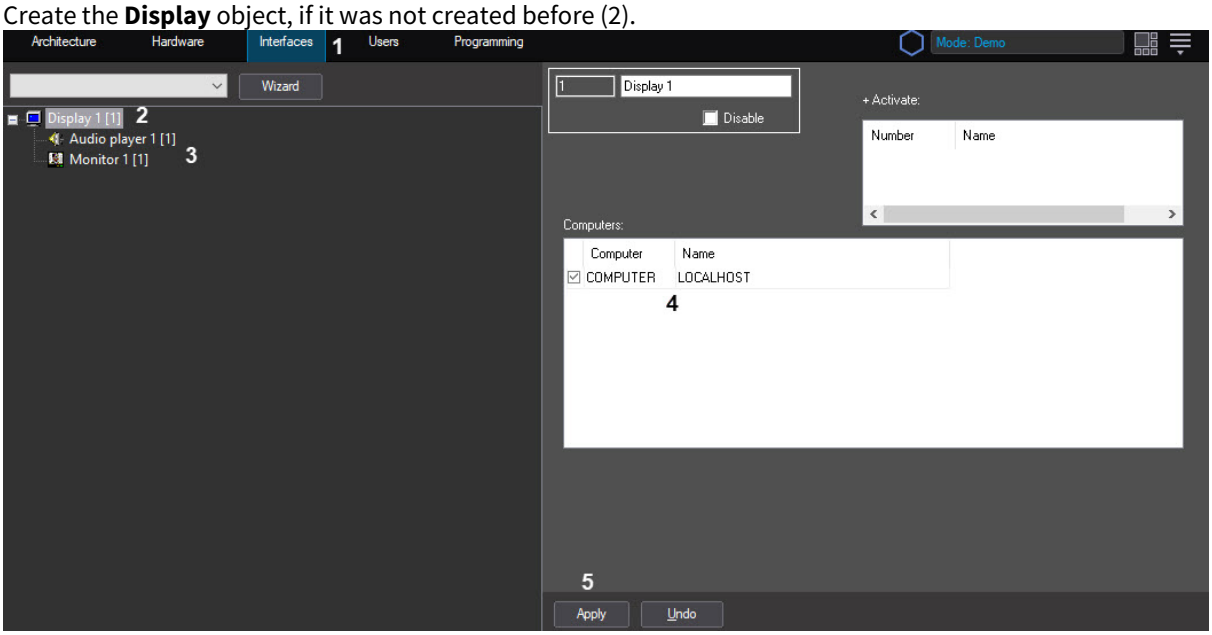
Axxon PSIM™ software has the facility to transmit audio signals both from microphones and from the archive to Remote Workstations and servers.

Audio signal transmission to Remote Workplaces and servers, connected by the TCP/IP net, is performed only via **Video surveillance monitor** or **Audio player** interface objects.

The video monitor has the facility to transmit only audio signals from the microphones that have been set to synchro video and audio recording. The Audio player may be configured to transmit audio signals from all video surveillance system microphones to the Remote Workstations and servers.

To enable audio signal transmission to Remote Workplaces and servers, follow the steps:

1. Go to the **Interfaces** tab in the **System Settings** dialog box (1).
2. Create the **Display** object, if it was not created before (2).



3. Set the checkmarks in the **Computers** table for those Remote Workplaces and servers, where audio signals should be transmitted (4).
4. Click the **Apply** button (5).
5. Create and set up **Monitor** and/or **Audio player** objects (for description of setting up these objects see the relevant sections) (3).

Setup of audio signal transmission to Remote Workplaces and servers is completed.

22.4.5 Configuring the interactive map for object state indication and controlling the objects

General information on the structure of the interactive map of the protected facility

The interactive map of the *Axxon PSIM* system uses graphical diagrams of the protected territory to navigate among the surveillance system components. The interactive map allows controlling the objects from the context menus of the graphical symbols on the map showing the states of the corresponding objects.

The interactive map can be comprised of a set of plans (layers) with one of the following background:

1. Images: photographs, maps, diagrams, drawings in bmp, gif, jpeg, jpg, png, tiff, emf, or svg format. The size and resolution of the images is not limited, however, please note that a large image may not fit into the screen, or the objects shown on it may look indiscernible.

Note

> We recommend creating the images in third-party graphical software packages (Microsoft Paint, Adobe Photoshop, etc.), as the standard delivery configuration of *Axxon PSIM* software does not include tools for image editing.

2. Solid background of a given color.
3. External maps, for example, OpenStreetMap, Google Maps, Yandex Maps, etc. The use of external maps may be charged. In this case, please contact the map provider to pay for its use.

Working with the Map

Configuring the interactive map

Setup procedure for the interactive map

To configure interactive map, do the following:

1. Create and set the **Map** interface object (see Setting up the position of the Map on the screen).
2. Create and set objects Layer on the basis of interface object **Map** (see Creating the layers of the interactive map).
3. Attach required objects to the Layers of interactive map (see Attaching objects to the layers of interactive map).
4. Place the object symbols of the assigned objects on the map's layers (see Operations with objects in the Map editor utility).
5. Set up the links between the layers, to be used for interactive card navigation (see Linking the layers of the interactive map).
6. Configure object ID displaying (see Configuring object ID is displaying).

Setting up the position of the Map on the screen

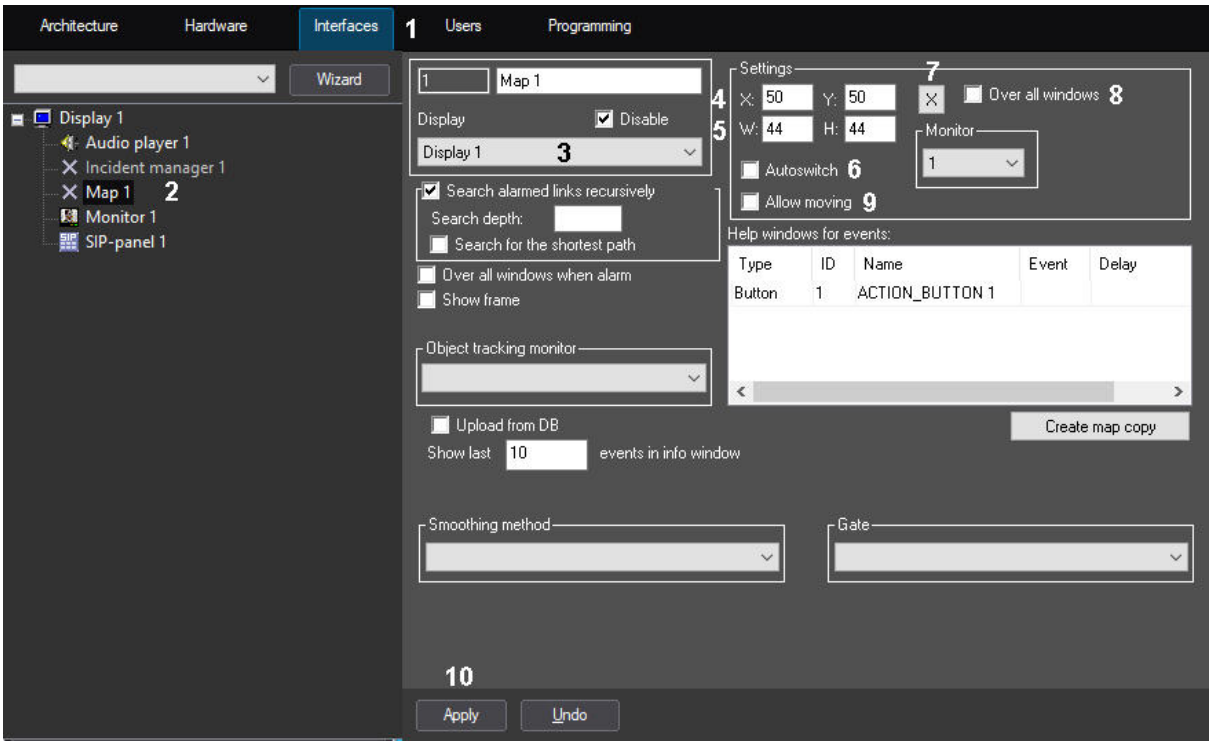
To register the interactive map in the *Axxon PSIM* system, create the **Map** interface object.

When setting up the **Map** object, specify the position of the Map interactive window on the screen.

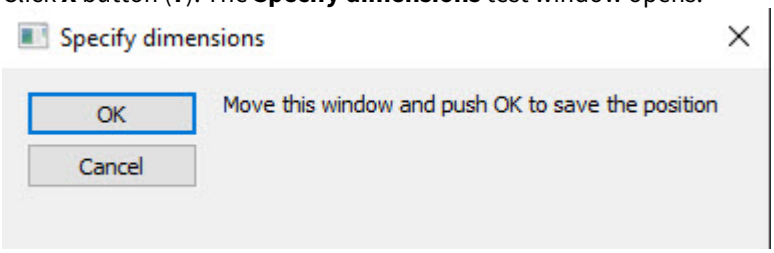
To register the Map and specify its position on the screen, do the following:

1. Open the **Interfaces** tab of the **System Settings** window (**1**).

2. Create a **Map** object (**2**) on the basis of the **Display** object, or select the corresponding object in the object tree on the **Interfaces** tab.



3. When creating a **Map** object, specify the ID and the name for the object, and select the **Display** object on the basis of which the **Map** object is created (**3**).
4. Set the **Map** window position on screen in one of the following ways:
    a. Manually:
        i. Set the coordinates of the position of the interactive **Map** window by changing the values in the **X** and **Y** fields (**4**). The values in the **X** and **Y** fields correspond to the coordinates of the top left corner of the interactive **Map** window on the screen and are expressed as a percentage of the horizontal and vertical screen dimensions, respectively.
        ii. Set the width and the height of the interactive **Map** window displayed on the screen (**5**). The values in the **W** and **H** fields are expressed as a percentage of the horizontal and vertical screen dimensions, respectively.
        iii. From the **Monitor** drop-down list (**6**), select the number of the monitor in the system for which the coordinates are set.
    b. Using the test window:
        i. Click **X** button (**7**). The **Specify dimensions** test window opens.



        ii. Position the test window on screen, set the required size.
        iii. Click the **OK** button. As a result, the coordinates in the **X, Y, W, H** and **Monitor** fields will be set according to the dimensions and position of the test window.
5. Set the **Over all windows** checkbox (**8**), if the **Map** window should always be displayed over all windows.
6. Set the **Allow moving** checkbox (**9**), if you want to change the position and the size of the **Map** manually.

7. Click the **Apply** button (**10**) to save the changes.

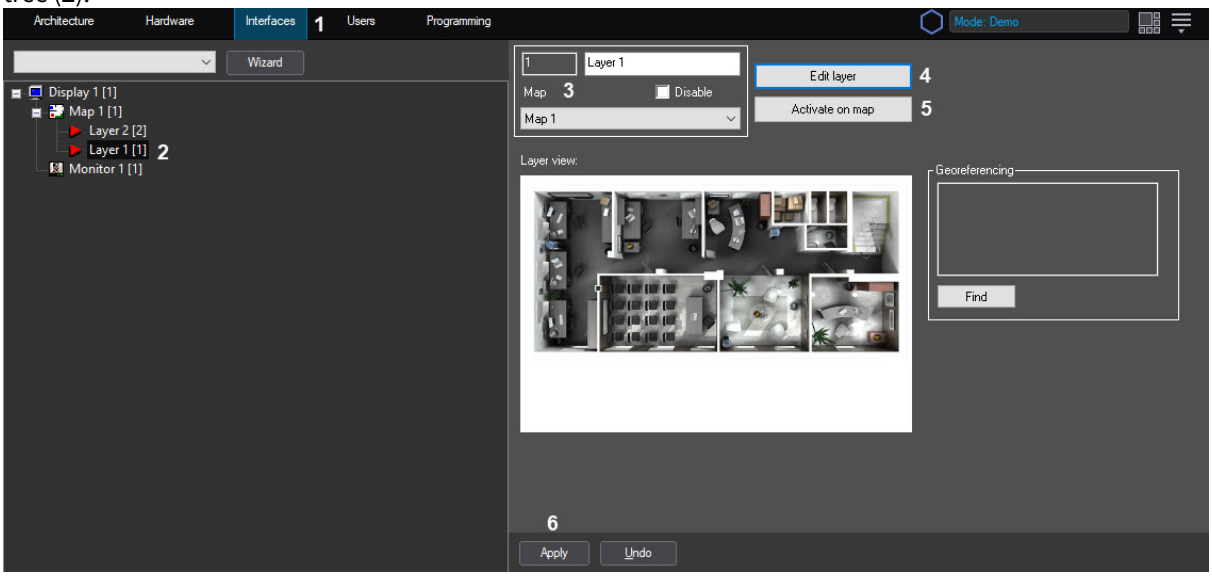
Setting up the position of the **Map** on the screen is complete.

Creating the layers of the interactive map

You can place several graphical plans of protected facilities in one window of the interactive map. Each graphical plan is represented by the **Layer** object.

Create and configure the **Layer** object as follows:

1. Go to the **Interfaces** tab of the **System settings** dialog window (**1**).
2. Create the **Layer** object on the basis of the **Map** object or select the existing **Layer** object in the objects tree (**2**).



3. Specify the ID and name of the **Layer** object, and select the **Map** object on the basis of which you want to create the **Layer** object (**3**).
4. To edit the graphical plan of the protected facility, click the **Edit layer** button (**4**). The *Map editor* utility will open, in which you can edit the graphical plan of the protected facility (layer).

> **Note**
>
> When the *Map editor* utility is started, the **System settings** dialog window is inactive. Close the *Map editor* utility to continue working with the **System settings** dialog window.
> You cannot start the *Map editor* utility for several layers.

5. To display this layer on top of all other layers, click the **Activate on map** button (**5**).
6. To save all changes, click the **Apply** button (**6**).

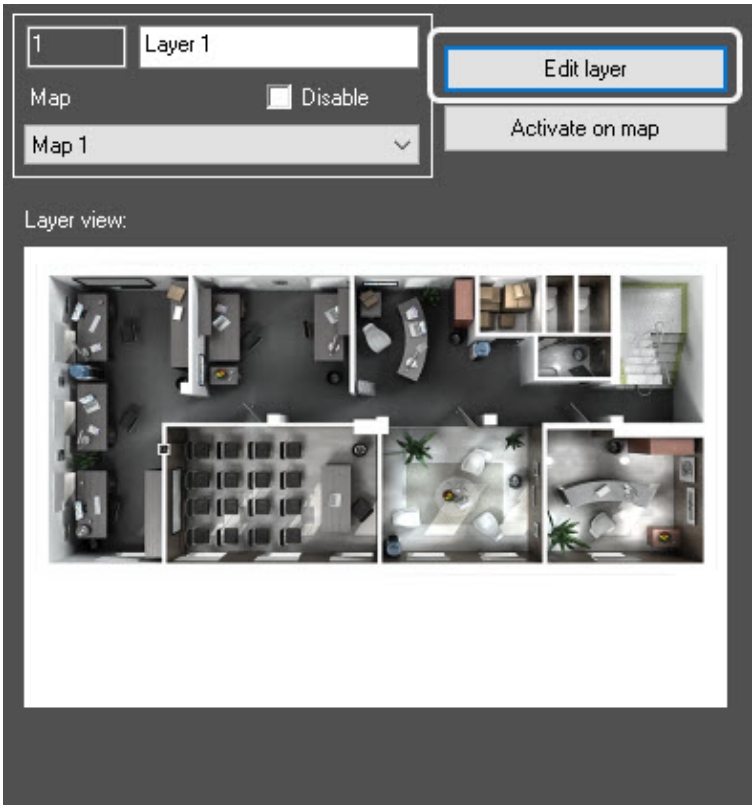
After you create and configure a new layer, you must attach a graphical plan of the protected facility to the created layer, select the background color for the layer, or select a map server to be used as a background for an external map. These types of backgrounds are mutually exclusive, you can select only one of them. For example, if you select a file or an external map, the background color will not be applied.

Attach the graphical plan of the protected facility or select the background color as follows:

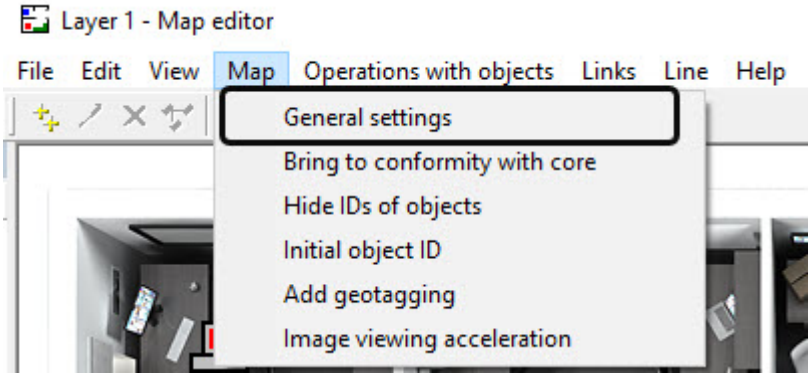
1. Go to the settings panel of the **Layer** object.
2. Open the *Map editor* utility and click the **Edit layer** button.

Note

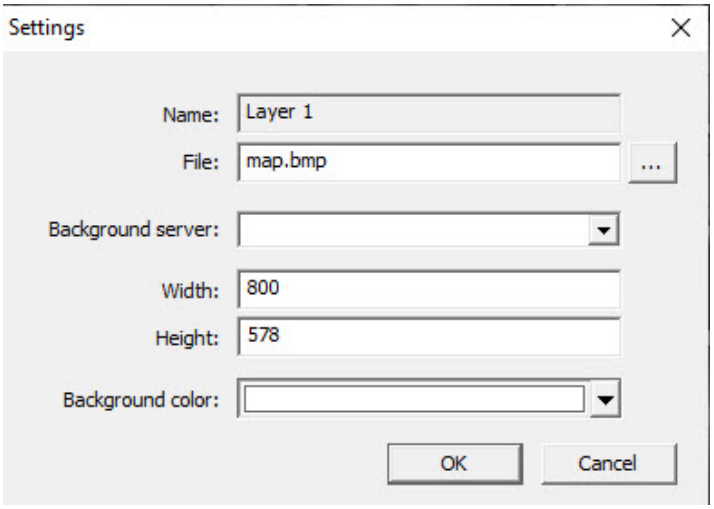
The *Map editor* utility allows you to select the plan of the protected facility, create the devices icons and place them on the map, as well as other settings.



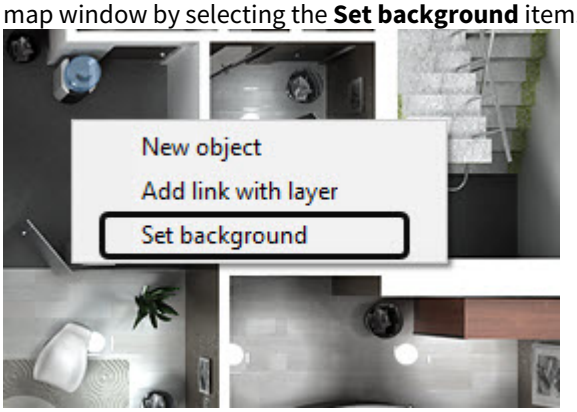
3. In the main menu of the *Map editor* utility, select **Map** → **General settings**.



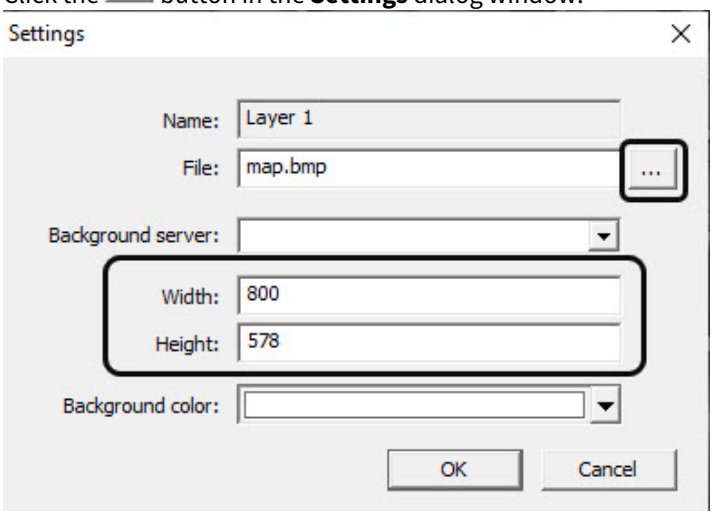
As a result, the dialog window will open, in which you can select a graphical file used as a plan of the protected facility.



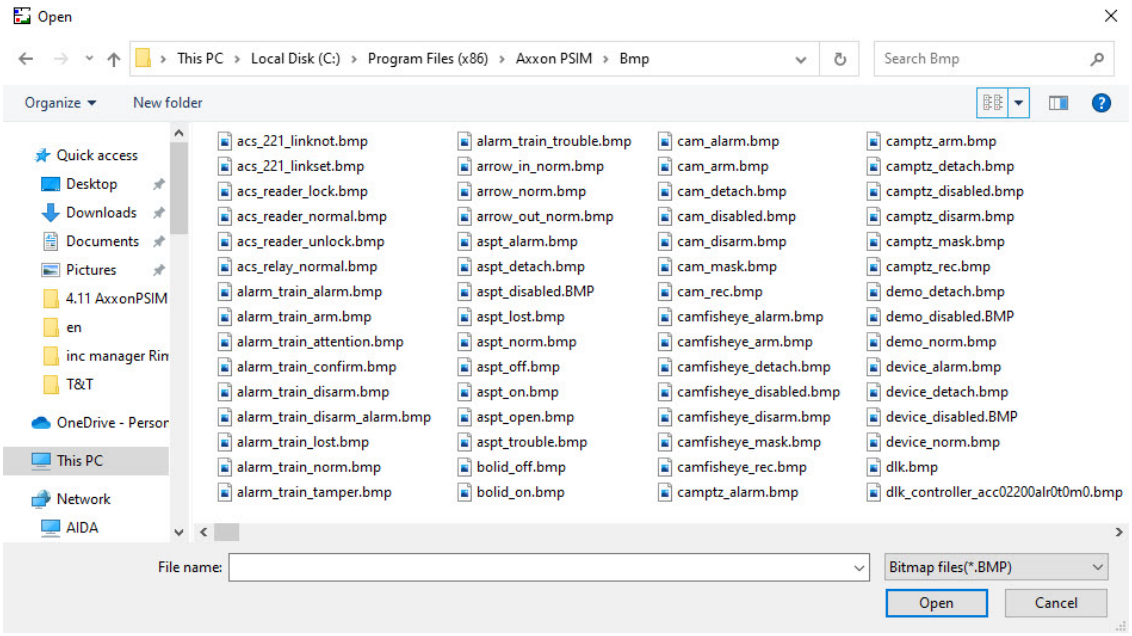
You can open the panel for attaching a graphical plan of the protected facility from the context menu of the map window by selecting the **Set background** item.



4. Select the graphical file as a background as follows:
   a. Click the ... button in the **Settings** dialog window.



   As a result, the standard dialog window for selecting files will open:

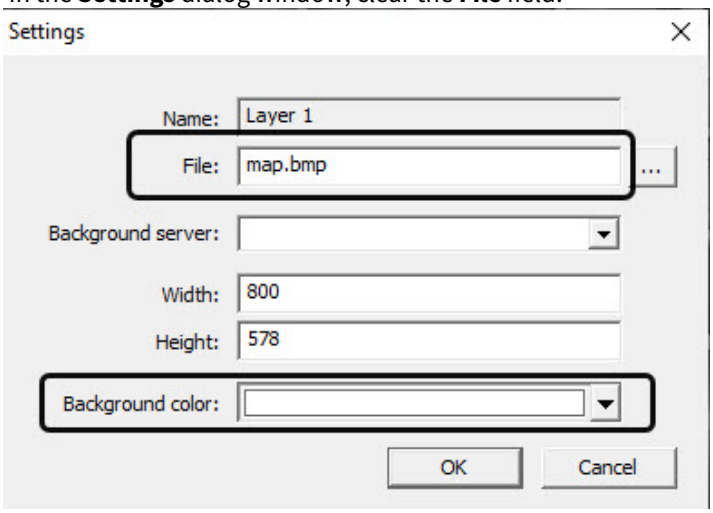


Select the required file in the window and click the **Open** button. You can use a bmp, gif, jpeg, jpg, png, tiff, emf or svg file.
After you select the background file, it will be copied to the **Bmp** folder in the *Axxon PSIM* installation directory.

> **Attention!**
>
> For the correct operation of the interactive map in the distributed configuration, the **Bmp** folders must be synchronized on all computers in the distributed system. The folders are synchronized automatically. For this you need to start the Client as an Administrator.

b. In the **Width** and **Height** fields, specify the resolution of the selected file in pixels. The values specified in the **Width** and **Height** fields must correspond to the real resolution of the selected file.

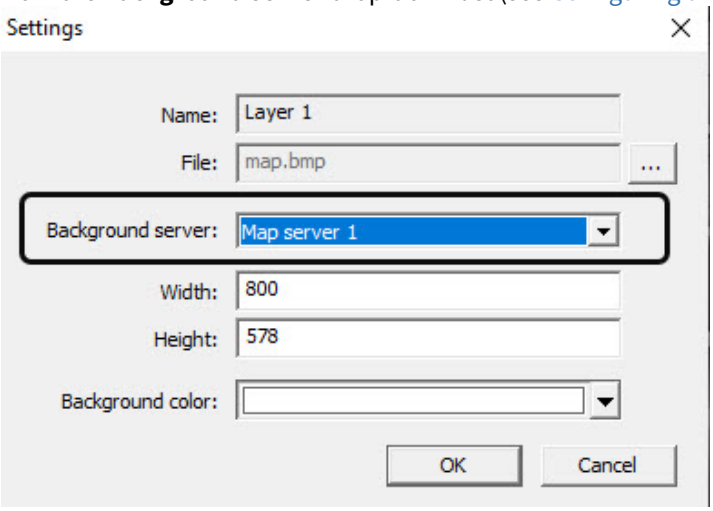
5. Select the layer background as follows:
   a. In the **Settings** dialog window, clear the **File** field.



   b. From the **Background color** drop-down list, select the background color.

> **Note**
>
> The background color will be applied only after you close the *Map editor* utility window and opening it again.

6. To select an external map as a background, select the previously created and configured **Map Server** object from the **Background server** drop-down list (see Configuring the external Map server).



> **Note**
>
> If you select an external map as a background, the layer is automatically binded to the geographical coordinates (see Configuring map binding to coordinate grid).

7. To apply all changes, click the **OK** button in the **Settings** dialog window.

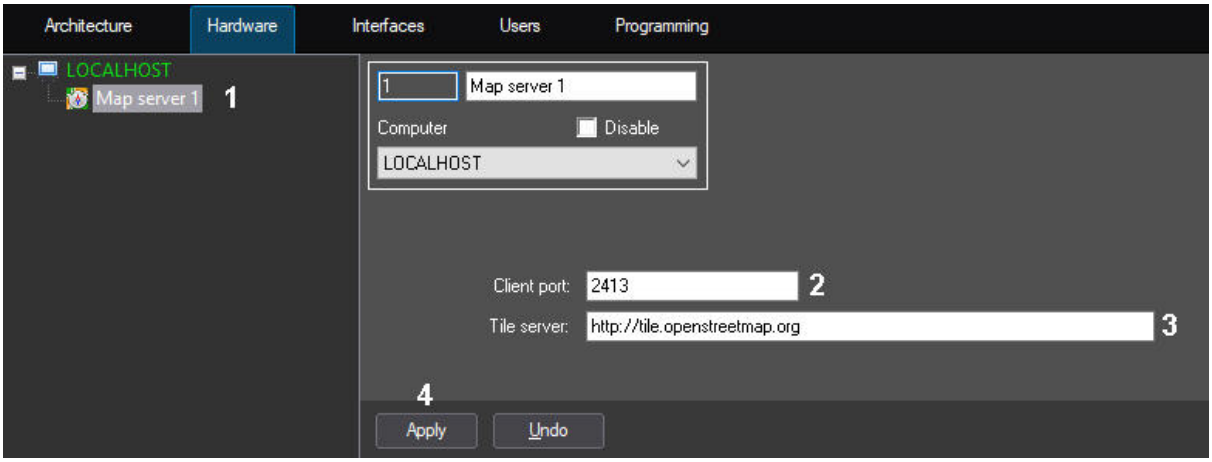
The *Map editor* utility will display a new graphical plan of the protected facility.

Configuring the external Map server

The external Map server corresponds to the source from which the *Axxon PSIM* Map layer receives images for the layer background.

Configure the external Map server as follows:

1. Create the **Map server** object on the basis of the **Computer** object on the **Hardware** tab of the **System settings** dialog box (**1**).



2. In the **Client port** field (**2**), enter the port value. By default, the port value is 2413.
3. In the **Tile server** field (**3**), enter a link to the external map. By default, a link to the OpenStreetMap free map is set http://tile.openstreetmap.org.
4. Click the **Apply** button (**4**).

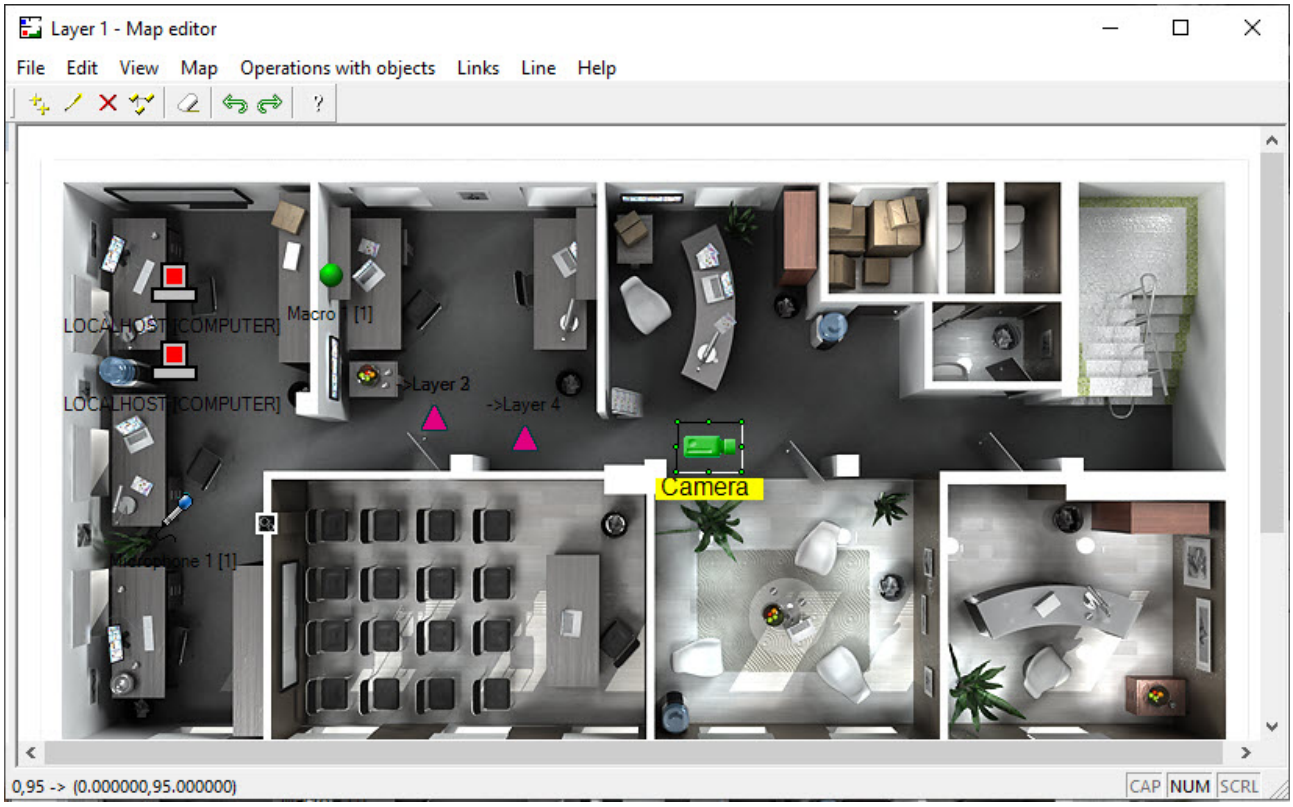
When creating a layer, select the Map server as the background – see Creating the layers of the interactive map.

The external Map server configuration is complete.

Attaching objects to the layers of interactive map

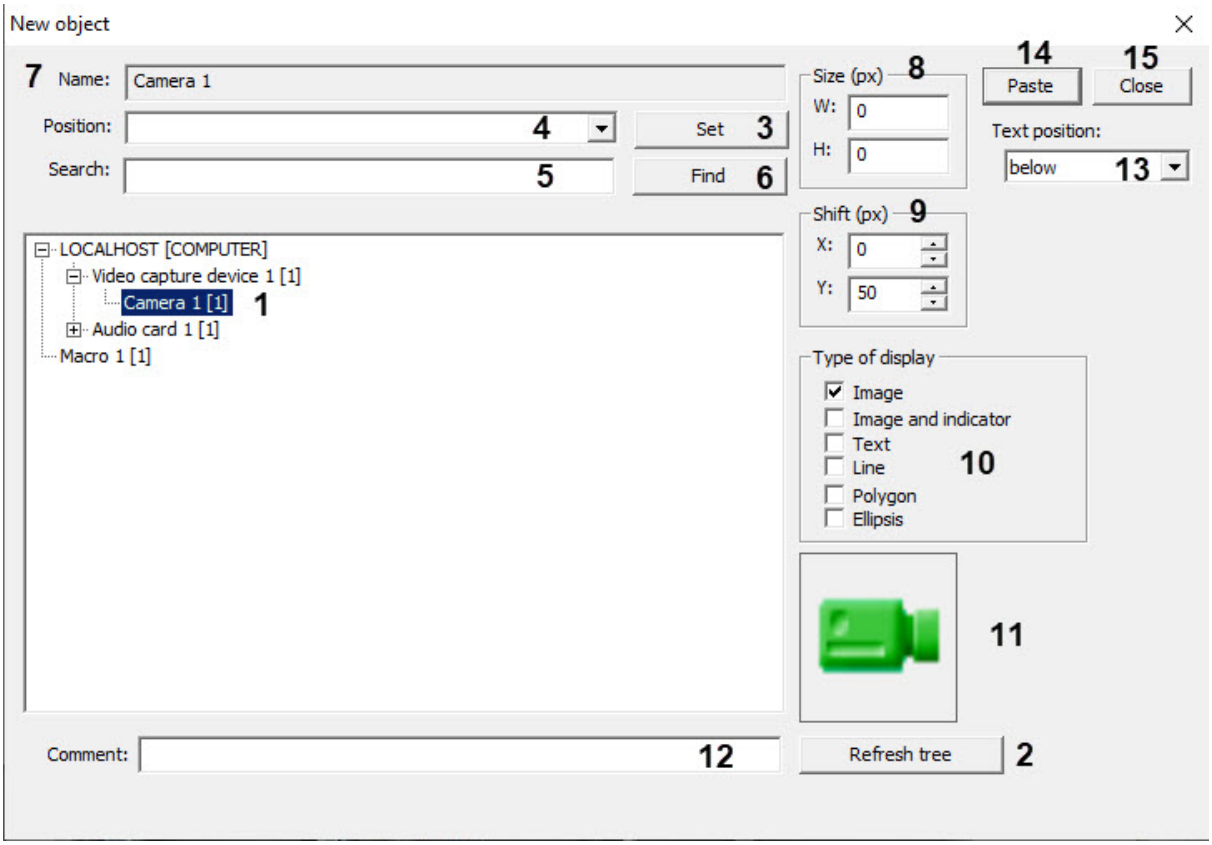
You can attach the objects to a layer of the interactive map using the *Map editor* utility.

> **Note**
>
> To open the *Map editor* utility window, click the **Edit layer** button on the settings panel of the **Layer** object (see Creating the layers of the interactive map).



Attach the objects to the layers of the interactive map as follows:

1. Open the **New object** dialog window of the *Map editor* utility in one of three possible ways:
   a. In the main menu, select **Operations with objects** → **New object**.
   b. Click the  button on the toolbar.
   c. In the context menu, select **New object** (to open it, right-click anywhere on the graphic plan).
2. Select the required object in the objects tree of the **New object** dialog window (**1**). The objects tree displays only the objects that can be added to a layer, or objects whose child objects can be added to a layer.



After selecting an object, you can:

a. Refresh the objects tree by clicking the **Refresh tree** button (**2**).
b. Click the **Set** button (**3**) to put in bold the objects in the objects tree which were already added to any layer of any map. When you select an object in the objects tree, the layers and the maps to which this object is added, will be displayed in the **Position** drop-down list (**4**).
c. To search the object by the name or a part of the name, enter it in the **Search** field (**5**) and click the **Find** button (**6**). If you leave the search field blank and click the **Find** button, then the top object in the objects tree will be selected. You can use the **Find** button to move through the objects tree, including the child objects.
As a result, the name of the selected object will be automatically displayed in the **Name** field (**7**).

3. Enter the object icon size in the **W** (icon width) and **H** (icon height) fields (**8**). The size is specified in pixels. If 0 is set for **W** and **H**, the icon is displayed in the original scale.
4. Enter the icon shift along the **X** and **Y** axes in pixels (**9**). The first icon is added in such a way that the upper left corner of its rectangle is the point of the last mouse click. The subsequent icons are added with the specified shift.

> **Note**
>
> If 0 value is specified in the **X** and **Y** fields, the object icons are displayed on top of one another.

5. In the **Type of display** group (**10**), set the checkboxes next to the required types of display. If several types are selected, then several separate icons of the selected object will be simultaneously added to the map. These icons can then be removed and edited independently of one another.

Type of display item	Object icon display type	Usage
Image	Object schematic view	Objects of base configuration
Image and indicator	Object schematic view and indicator of object state	SCADA objects
Text	Object name and text that is set using the script (see the Examples of scripts in the JScript language section of the The Script object. Programming using the JScript language). The icons with the **Text** type of display can be used to place a comment on the map (descriptions, notes, additional information). The text of the comment can be specified after adding the object using the **Text information** parameter on the **Properties** panel (see Editing object properties using the Properties panel). *Note. If the **Text** type of display is selected, the object value will be displayed on the map as "Value = <value>". In order for an object value to be displayed without "Value =", it is necessary to change the **HideAnalogName** parameter value in the Windows OS registry to **1** (see Registry keys reference guide)*	SCADA objects
Line	Object images in the form of a straight line or a polyline	SCADA objects
Polygon	Object representation as the polygon with the specified color and transparency with arbitrary number of apexes	SCADA objects
Ellipsis	Object representation as the ellipse with the specified color and transparency	SCADA objects

The object icon is automatically displayed in the **Preview** field (**11**) in accordance with the selected type of display.

Note

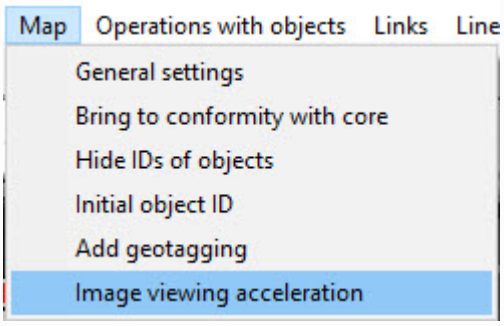
If the **Image and indicator** or **Text** type of display is selected, the object values and states will be saved after *Axxon PSIM* restarts only if the object receives new values/states during the Map operation. If no new values/states were received before *Axxon PSIM* closing, they are not saved.

6. In the **Comment** field (**12**), enter the additional information about the object if necessary.

7. From the **Text position** drop-down list (**13**), select the object name display position relative to the icon: none (only icon without the name is displayed), above, to the right, below, to the left.
8. Click the **Paste** button (**14**) or press **Insert** on the keyboard to attach the object to the layer of the interactive map.
9. Repeat steps 2-8 for all required objects.
10. Click the **Close** button (**15**) to close the **New object** dialog window.

Note

If many objects (1-2 thousand) are attached to a layer, there may be problems when they are displayed in the interactive map window due to operating system limitations. In this case, enable the **Image viewing acceleration** in the **Map** menu.



If even more objects are attached to the layer, increase the values of the following registry keys to improve their display:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Windows\GDIProcessHandleQuota and USERProcessHandleQuota.
However, it is not recommended to attach more than a thousand objects to a layer.

Attaching the objects to the layers of the interactive map is complete.

Operations with objects in the Map editor utility

On the page:

- Operations with the objects added to the layer
- Editing the additional data and type of icon display
- Editing the font, color, background or frame size of object name
- Editing the object size
- Editing the position of object
  - Using the Position of

object dialog window
- Using the mouse
- Using the Properties panel

- Changing the camera angle display
- Editing color and transparency (polygon and ellipsis)
- Editing the line thickness
- Adding or removing apexes to polygon or polyline
- Setting the order of objects display on map
- Configuring the objects states display (polygon and ellipsis)

The *Map editor* utility is used to configure the display of objects added to map layers.

> **Note**
>
> To open the *Map editor* utility, click the **Edit layer** button on the settings panel of the **Layer** object (see Creating the layers of the interactive map).

For any of the described operations, you can:

1. Configure several objects at once. To do this, select them on the layer by holding down the Ctrl key on the keyboard (exception—the **Object position** operation).
2. In the drop-down menus of the utility settings (File, Edit, View, and so on), you can select operations using the keyboard letters that the operation name begins with. For example, if you select an object on a layer, click **Operations with objects** and press **D** on the keyboard, the object will be deleted (the **D**elete object operation that is in this menu).

Operations with the objects added to the layer

The *Map editor* utility toolbar:



Possible operations with the objects added to the layer.

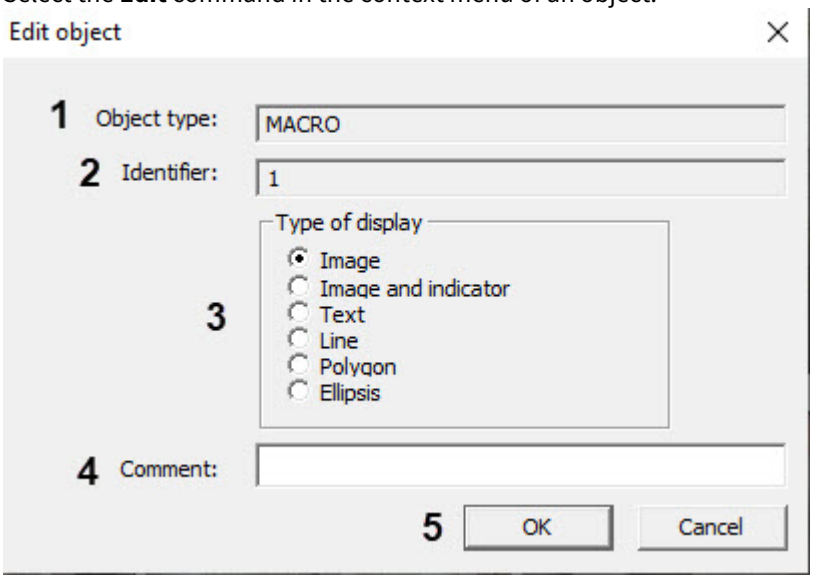
Description of operation	**Operation call**			**Note**
	In the Operations with objects main menu	**In the context menu**	**On the toolbar**	
Deletes the selected object	Delete object	Delete	The 1 button	The Del key
Copies the selected object. The copy is placed above the original	Copy object	Make a copy	The 2 button	The Ctrl+C keyboard shortcut
Edits additional data and type of icon display for the selected object	Edit object	Edit	The 3 button	The **Edit object** dialog window will open
Sets the display of the selected objects on the Map only in alarmed state (when there is no alarm, the objects are hidden)	Hide the selected	Hide	-	-
Cancels the hiding of the selected objects	Show the selected	Unhide	-	-
Edits the font for the selected object name	Set the font	-	-	The standard Windows **Font** dialog window will open
Restores the deleted name of the selected object	Restores the title object	-	-	-
Edits the size of the selected object	Objects size	-	-	The **Object size** dialog window will open
Edits the position of the selected object	Object position	Object position	-	The **Object position** dialog window will open. You can also change the position of an object by dragging it on the layer with the mouse
Selects objects of one group	-	Select all similar	-	Example: all **Camera** objects are selected

Description of operation	Operation call			Note
	In the Operations with objects main menu	In the context menu	On the toolbar	
Selects all identical objects within a group	-	Select all identical	-	Example: all **Sensor** objects of the **Gerkon** type are selected

Editing the additional data and type of icon display

Edit the additional data and type of object icon display as follows:

1. Select the required object. As a result, green-pointed frame will appear around the image.
2. Call for the **Edit object** dialog window in one of the three ways:
   a. In the main menu, select **Operations with objects → Edit object**;
   b. Click the  button on the toolbar;
   c. Select the **Edit** command in the context menu of an object.



3. The type of the selected object is automatically displayed in the **Object** field (**1**).
4. ID of the selected object is automatically displayed in the **Identifier** field (**2**).
5. If necessary, change the type of object icon display with the help of the **Type of display** switch (**3**).

The Type of display switch position	Type of object icon display	Note
Image	Schematic object image	Basic configuration objects, SCADA objects
Image and indicator	Schematic image and identifier of object state	SCADA objects
Text	Object name and text set on the **Properties** panel or by script (see Editing object properties using the Properties panel or Examples of scripts in the JScript language)	SCADA objects
Line	Object display in the form of a straight line	SCADA objects
Polygon	Object display in the form of a polygon	Basic configuration objects, SCADA objects
Ellipsis	Object display in the form of an ellipsis	Basic configuration objects, SCADA objects

Note

Line object transformed to text will no longer be displayed on the Map, if **Text info** property is empty (see Editing object properties using the Properties panel).

6. If necessary, change the object additional data in the **Comment** field (**4**).
7. To save the changes, click the **OK** button (**5**).

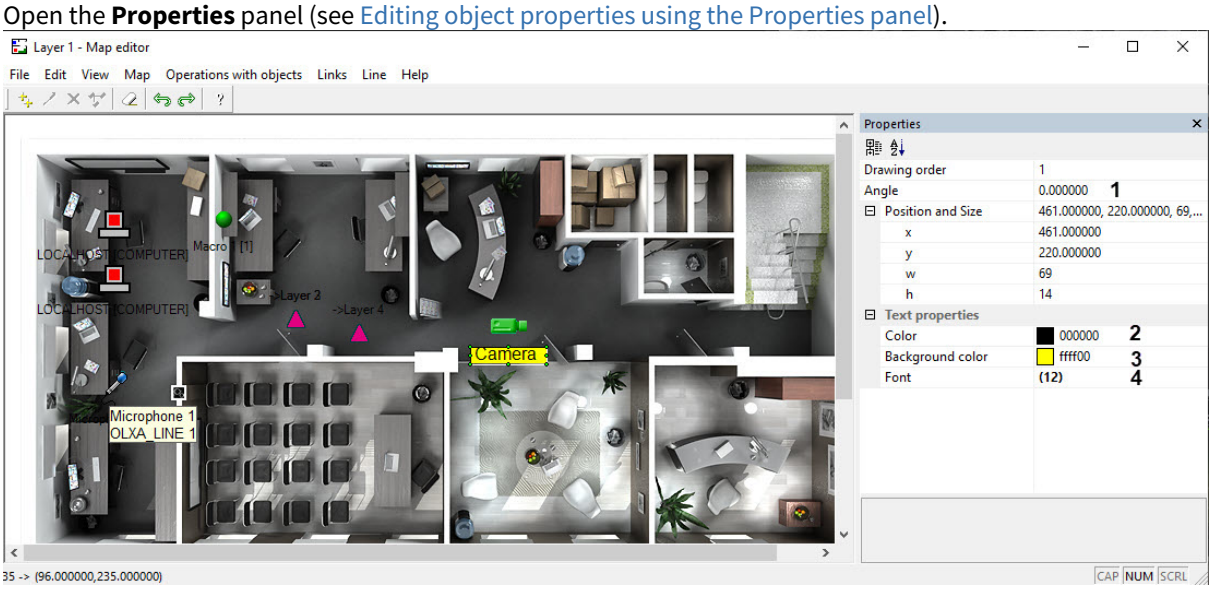
Editing the additional data and type of object icon display is completed.

Editing the font, color, background or frame size of object name

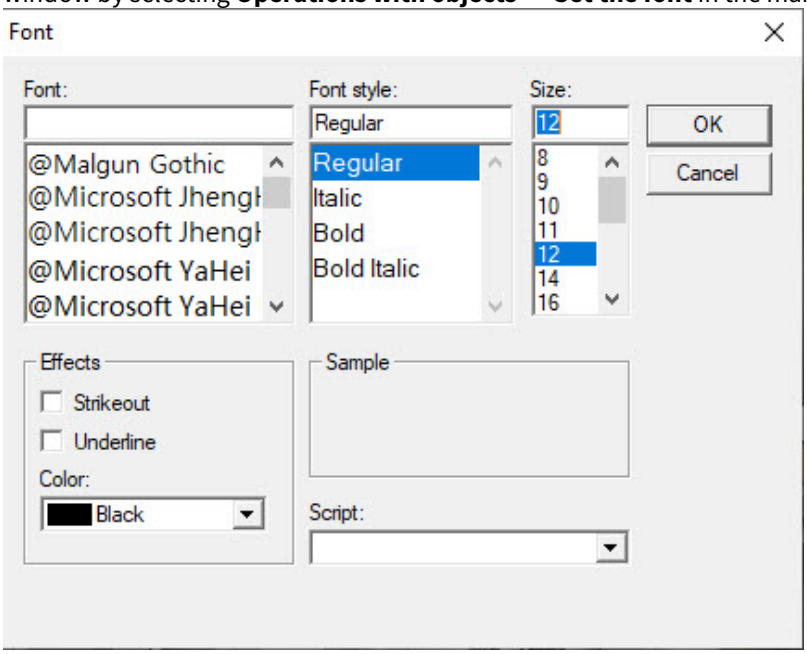
Edit the font, color, background or frame size of object name as follows:

1. Select the required object. As a result, green-pointed frame will appear around the image.

2. Open the **Properties** panel (see Editing object properties using the Properties panel).



3. Set **x** and **y** coordinates of the left upper corner of the text frame, as well as frame height and width (**w** and **h**) and clockwise rotation **Angle** (**1**).
4. In the **Color** field, select the font color of the object name (**2**).
5. In the **Background color** field, select the background color of the object name (**3**).
6. Click **...** in the **Font** field (**4**). The standard Windows **Font** dialog window will open. You can also open this window by selecting **Operations with objects** → **Set the font** in the main menu.



7. In the opened window, set the parameters of the font or object name color.
8. Click the **OK** button to save the changes.

Editing the font, color or background of object name is complete.

Editing the object size

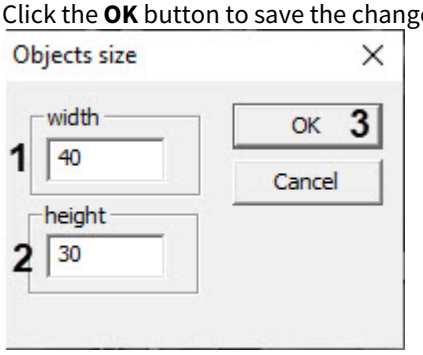
Edit the object size as follows:

1. Select the required object. As a result, green-pointed frame will appear around the image.

2. In the main menu, select **Operations with objects → Objects size**.
3. Specify the size of the object icon in pixels: **width** (icon width) and **height** (icon height) fields (**1**, **2**).

> **Note**
>
> If you enter the 0 value in the **width** and **height** fields, object icon will be displayed in the original size.

4. Click the **OK** button to save the changes (**3**).



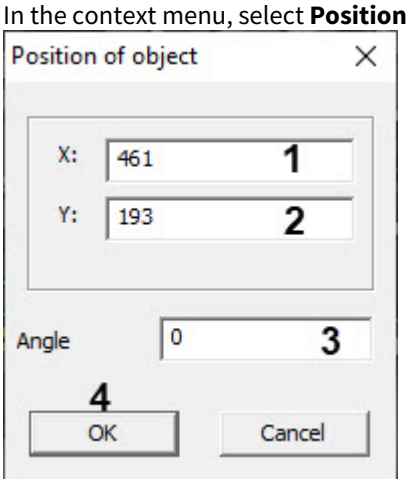
Editing the object size is complete.

Editing the position of object

Using the Position of object dialog window

Edit the position of object with the help of the **Position of object** dialog window as follows:

1. Select the object, the position of which you want to edit.
2. Call for the **Position of object** dialog window in one of two ways:
   a. In the main menu, select **Operations with objects → Position of object**;
   b. In the context menu, select **Position of object**.



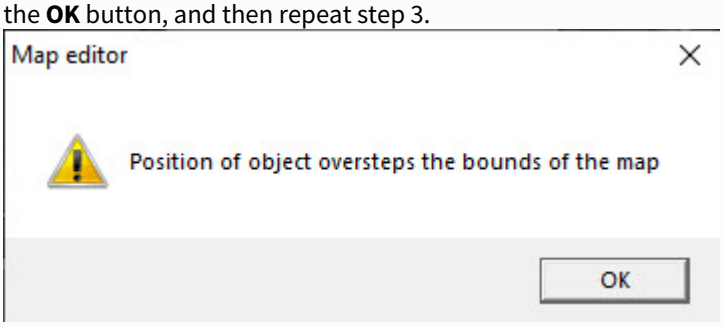
3. Set the coordinates of the object center: **X** (horizontal indent from the left border of graphic plan, **1**) and **Z** (horizontal indent from the bottom border of graphic plan, **2**) fields.

> **Note**
>
> The **In Meters** switch position is relevant when real parameters of the protected facility are set, to which this layer corresponds (see Creating the layers of the interactive map).

4. Enter the angle in degrees of object image turn in the **Angle** field. The angle is set counterclockwise from the contour line (**3**).
5. To save the changes, click the **OK** button (**4**).

Note

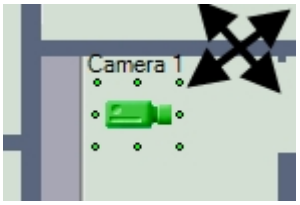
If at least one coordinate oversteps the bounds of the map, the message window will be displayed. Click the **OK** button, and then repeat step 3.



Editing the object position with the help of the **Position of object** window is completed.

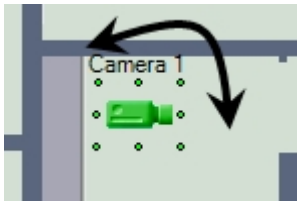
Using the mouse

You can move an object on the map by clicking it and holding down the mouse button.



To rotate the object icon, do the following:

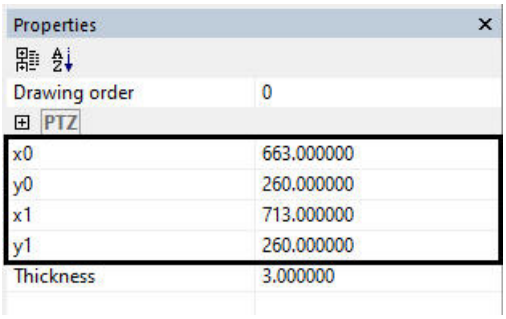
1. Click it, green-pointed frame will appear around the image.
2. Point the mouse cursor to one of the corner dots. A circular arrow will appear instead of the cursor.
3. Hold down the left mouse button and rotate the icon to the required angle.



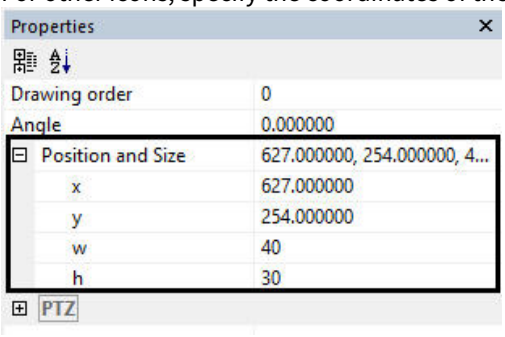
Using the Properties panel

You can also change the coordinates, rotation angle and the icon size of the **Line**, **Image**, **Image and indicator** and **Text** object types using the **Properties** panel:

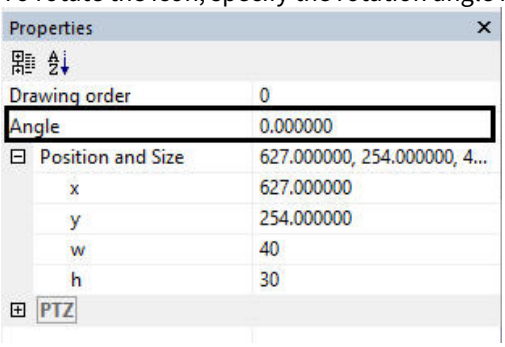
1. Open the **Properties** panel of the required object (see Editing object properties using the Properties panel).
2. Expand the **Position and Size** settings group. For the **Line** icon type, specify the coordinates of the initial point (**x0, y0**) and end point **(x1, y1**) of the line in this group.



For other icons, specify the coordinates of the upper left corner (**x, y**), width (**w**) and height (**h**).



3. To rotate the icon, specify the rotation angle in degrees in the **Angle** field.



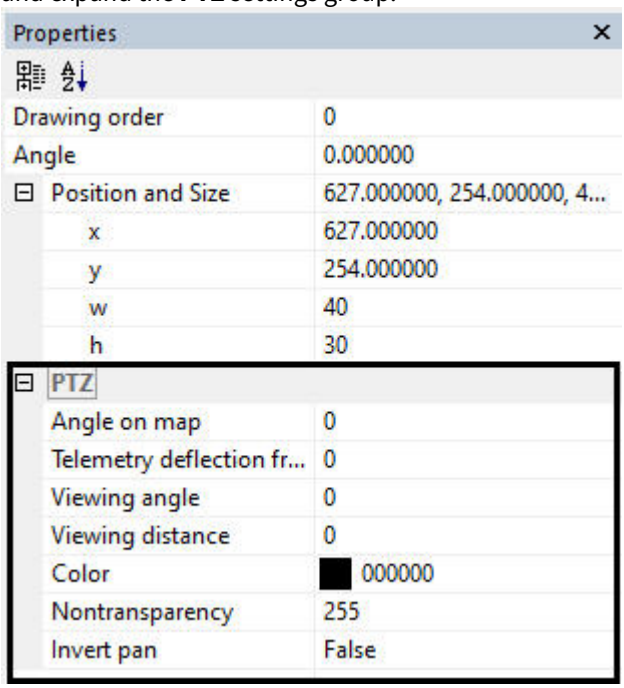
Editing the object position using the **Properties** panel is complete.

Changing the camera angle display

To display the camera angle on the map, do the following:

1. Select the required object. As a result, green-pointed frame will appear around the image.

2. Open the **Properties** panel for the required object (see Editing object properties using the Properties panel) and expand the **PTZ** settings group.



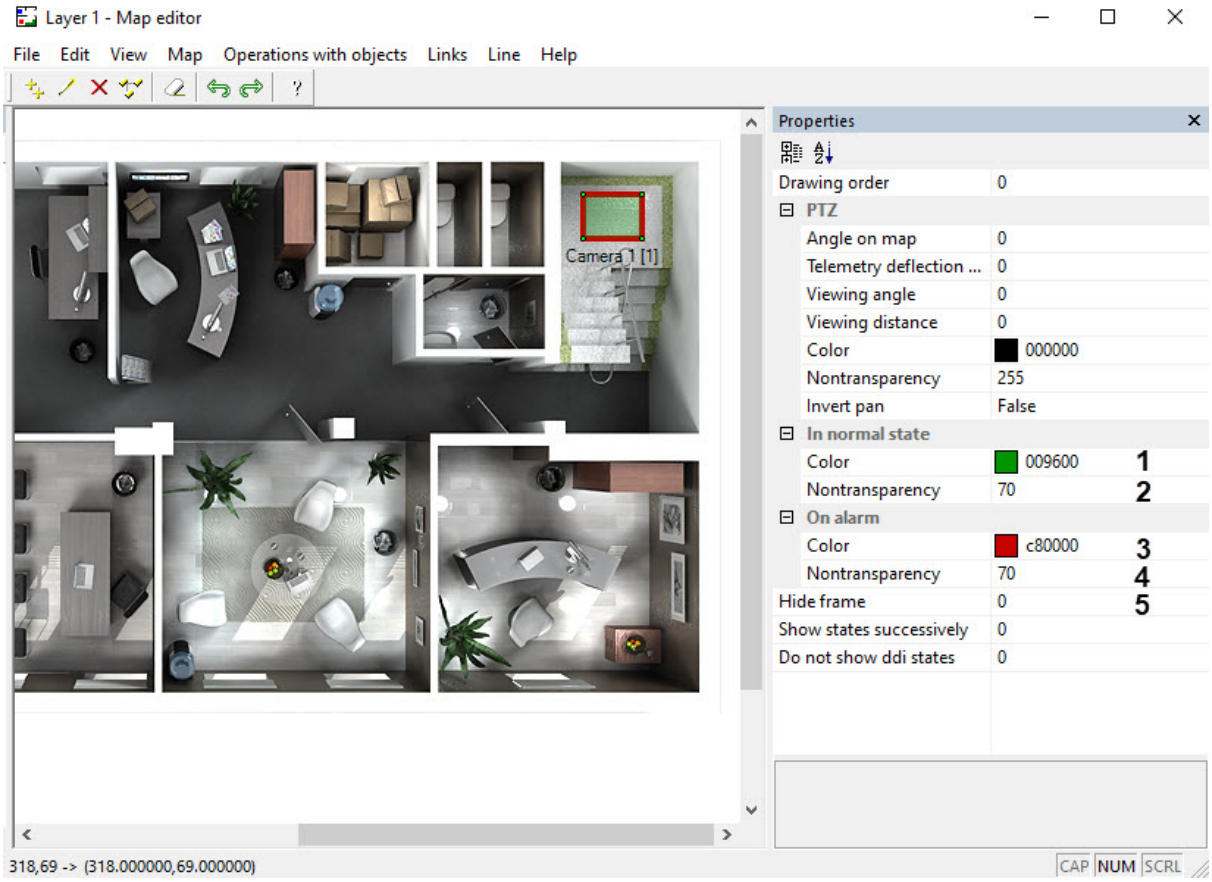
3. Set the required field values:
   a. **Angle on map**—the direction of the display vector on the map. A value of 0 is the actual position of the camera at the time of setting the parameters.
   b. **Telemetry deflection from zero**—the actual offset of the camera.
   c. **Viewing angle**—the angle of the view display vector.
   d. **Viewing distance**—the size of the the view display vector.
   e. **Color**—the color of the view display vector.
   f. **Nontransparency**—the transparency of the view display vector.
   g. **Invert pan**—select **True** from the drop-down list if it is necessary to invert the camera rotation.

Changing the camera angle display is complete.

Editing color and transparency (polygon and ellipsis)

Edit the color and transparency of objects added to the map as polygons and ellipsis as follows:

1. Open the **Properties** panel (see Editing object properties using the Properties panel).



2. From the drop-down list, select the fill color of the polygon or ellipsis (**1**).
3. Set the degree of transparency of the polygon or ellipsis in the normal state (**2**). The smaller the number, the higher the degree of transparency. 0 corresponds to full transparency, 255—full opacity.
4. From the drop-down list, select the fill color of the polygon or ellipsis in case of alarm (**3**).
5. Set the degree of transparency of the polygon or ellipsis in the alarm state (**4**). The smaller the number, the higher the degree of transparency. 0 corresponds to full transparency, 255—full opacity.
6. If the frame of the polygon must be hidden, then set the value to **1** in the **Hide frame** field (**5**).

Editing the line thickness

To edit the thickness of the object icons added to the map in the form of a line, do the following:

1. Select the required object. As a result, green-pointed frame will appear around the image.

2. In the *Map editor* utility window, select **Line** → **Thickness**.



3. In the **Thickness window**, specify the line thickness.



4. Click the **OK** button.

Editing the object line thickness is complete.

Adding or removing apexes to polygon or polyline

To add apexes to an object icon in the form of a polygon or polyline, do the following:

1. Call the context menu of the object icon by right-clicking and holding down the Ctrl key in the polygon area or on the polyline.



2. Select **Add apex**.
3. Select the required position of a new apex and left-click.
4. The apex will be added to the polygon or the polyline.

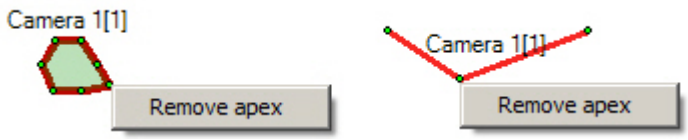


Adding apexes to an object icon in the form of a polygon or polyline is complete.

Note

Maximum number of apexes in the polygon is 51.

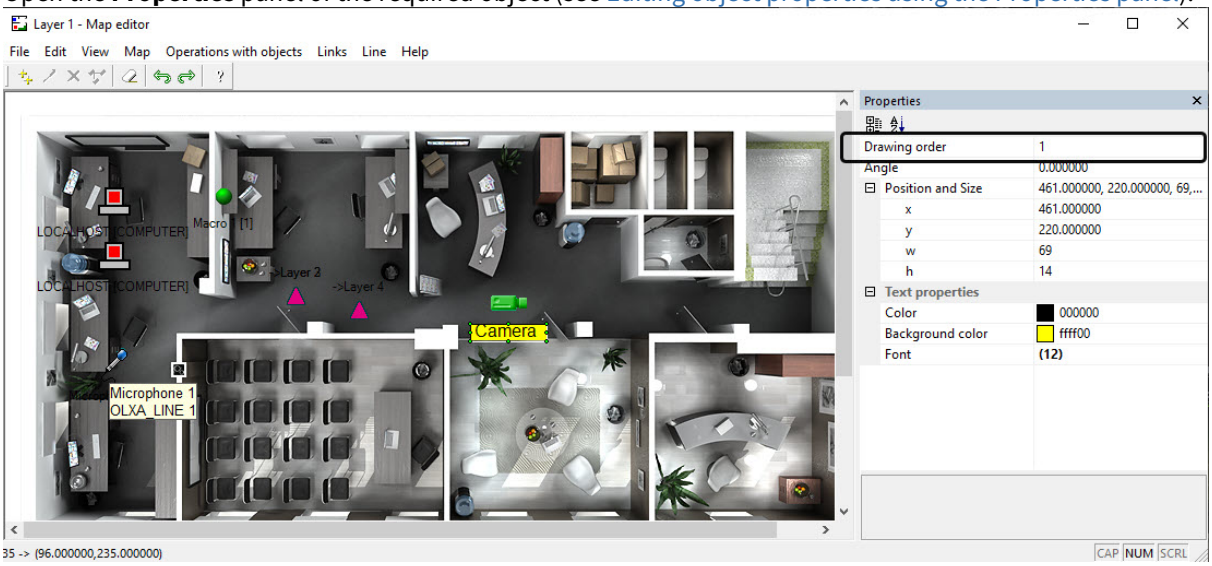
To remove the apex, right-click it holding down the Ctrl key and select **Remove apex**.



Setting the order of objects display on map

You can set the order of object icons display when they overlay. To do this, do the following:

1. Open the **Properties** panel of the required object (see Editing object properties using the Properties panel).



2. Set the value of the **Drawing order** parameter. The icons with higher value of this parameter will be displayed over the icons with lower value.

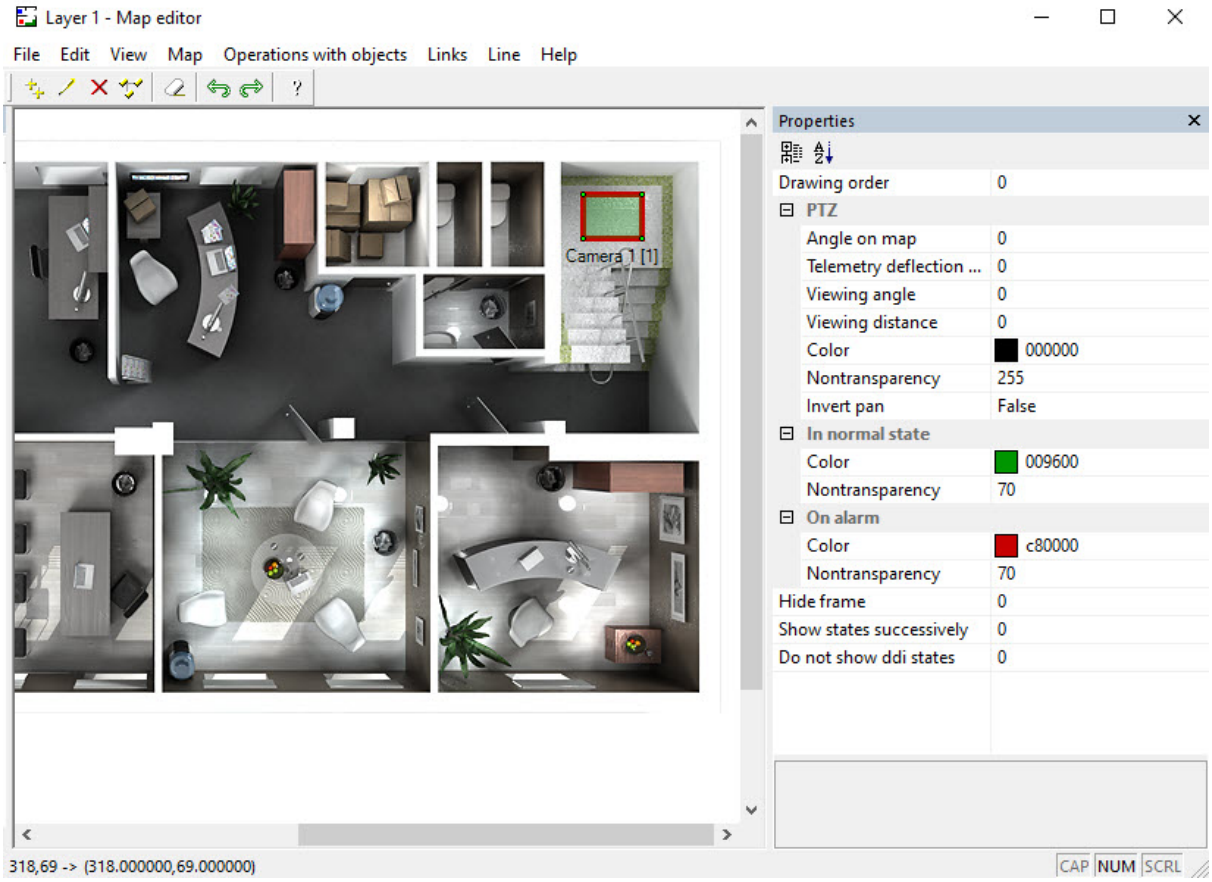
Setting the order of object icons display is complete.

Configuring the objects states display (polygon and ellipsis)

By default, if the object is in several states at the same time, the device icon changes according to these states in a short time, and when the object is selected on the map all its states are displayed as the thumbnails next to it (see Graphic objects on the Map).

It is possible to disable the display of the states thumbnails. To do this, do the following:

1. Open the **Properties** panel for the required object (see Editing object properties using the Properties panel).



2. Select the **1** value from the **Show states successively** drop-down list. To enable their display, select the **0** value from this drop-down list.

Configuring the display of the objects states is complete.

Linking the layers of the interactive map

Axxon PSIM system allows creating multilevel maps comprised of several layers.

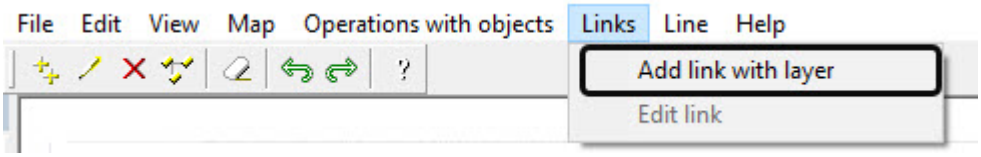
In case of multiple layers, the links should be established between the layers. These links help move to other layers for operative control and viewing of the device objects located on them.

The links are created in the **Map editor**. To run the **Map editor**, click **Edit selected layer** in the settings panel of the **Layer** object. When a link is established, a special symbol appears on the map. Clicking on this symbol takes the operator from the current layer to another layer.

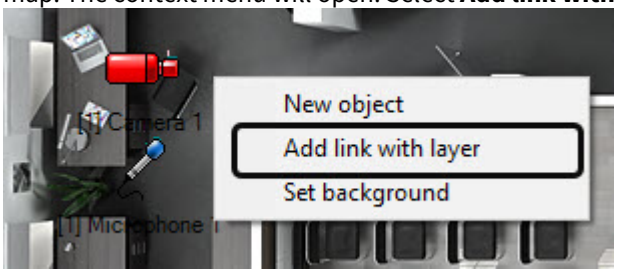
> **Note**
>
> The link symbols also notify the operator about alarms coming from devices located on the linked layer.

To create a new link from the current layer to another, do the following:

1. Select **Links** in the **Map editor** main menu, then select **Add link with layer**.

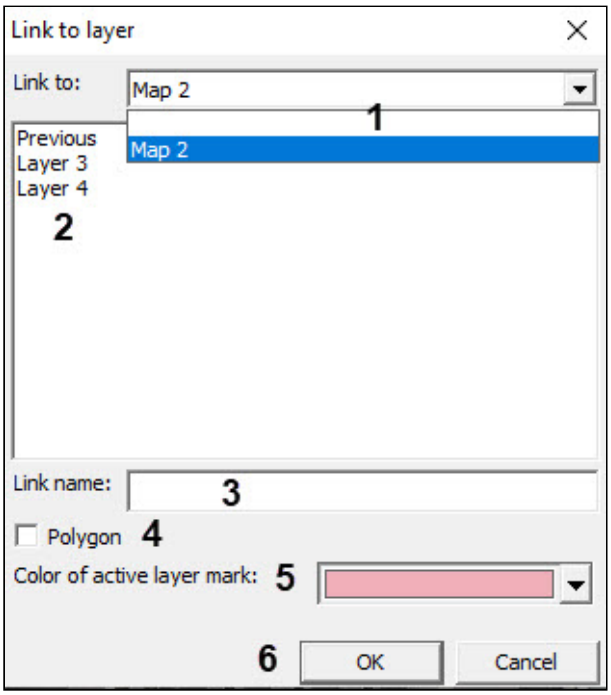


The **Link to layer** window opens, allowing to choose the layer to link to.
There is another way of opening the **Link to laye**r window. In the **Map editor,** click anywhere on the layer map. The context menu will open. Select **Add link with layer** from this menu.



2. Do the following in the **Link to layer** window:
   a. If the switch to the layer of another map is to be performed, then select the required **Map** object in the **Link** dropdown list (1). If the switch to the layer of the same map is to be performed, then select an empty value in the dropdown list.

> **Note**
>
> The layer of another map is opened in this map box and not in the box where there is the layer the switch is performed from.



   b. Select a layer the switch is to be performed to (2).
   c. Enter the name for this link in the **Link name** field (3).
   d. If the link on the map is to be displayed as a polygon, set the **Polygon** checkbox checked (4).

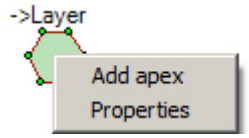
> **Note**
>
> The color and shape of the polygon are set after adding it to the layer. By default, the link is represented by a green hexagon.

e. If the selected layer the switch will be performed to, is on another map, then in the **Color of active layer** dropdown list select the color the link will be marked when this layer is active on the map (5).
f. Click the **OK** button to create the link (6).

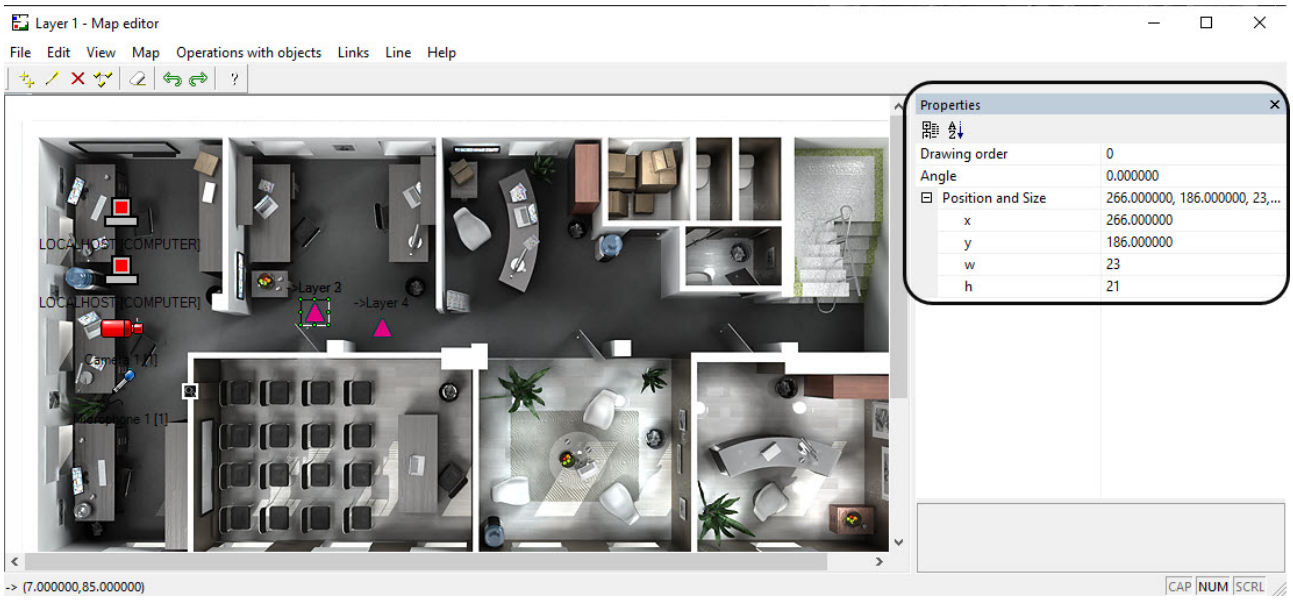
A symbol will appear on the map representing the link. The icon of the link is represented by a red triangle or a polygon if the **Polygon** checkbox was checked (see step 2.d):



The feature menu appears when right clicking the polygon holding down the Ctrl key. The following features are available:



1. **Add apex** – add a new apex to the polygon. A new apex appears when selecting this menu item. One is to locate it left clicking on the map.
2. **Properties** – display the properties panel of the icon on the right of the **Map editor**. Using this panel one can set the color and opacity of the normal and alarm states of the layer icon, as well as configure whether to hide frame limiting the polygon.



By default, the symbol of connection with this layer starts to flash if alarm is detected on the layer. If additional indication is required it is possible to configure alarm symbol of connection with layer. To do this place the file link_alarm.bmp containing some image characterizing alarm on the layer to the <*Axxon PSIM* installation

directory>/Bmp folder. If such file is in the Bmp folder then symbol of connection with this layer will changed to image from the link_alarm.bmp file and start to flash while alarm on this layer.

Note

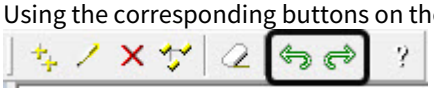
If the link with the layer is represented by the polygon, then it starts changing its color (blinking) when there is an alarm on the layer.

Switching between layers of the Map

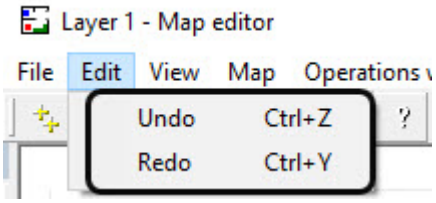
Cancelling the last action in Map editor

While configuring interactive map in the *Map editor* utility it's possible to cancel the last action and redo the last cancelled action in one of the following ways:

1. Using the corresponding buttons on the toolbar of the *Map editor* utility.



2. Using combination of Ctrl+Z and Ctrl+Y buttons.
3. Using the corresponding commands in the **Edit** menu.



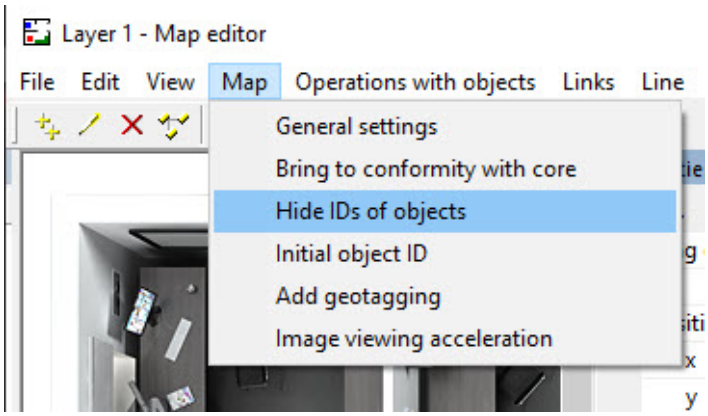
It is possible to cancel not more than 30 actions.

Configuring object ID is displaying

By default the object ID is displayed in square brackets next to the object name on the interactive map.



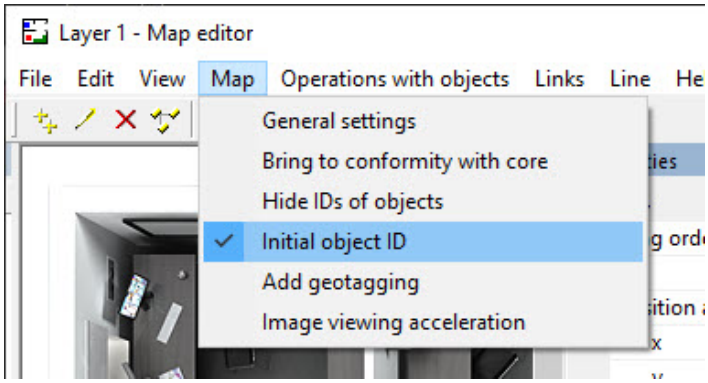
One can hide object IDs on each layer of the interactive map. For this set the **Hide object ID** checkbox checked in the **Map** menu of *Map editor*.



As a result object IDs are hidden on the layer that being edited on the interactive map.



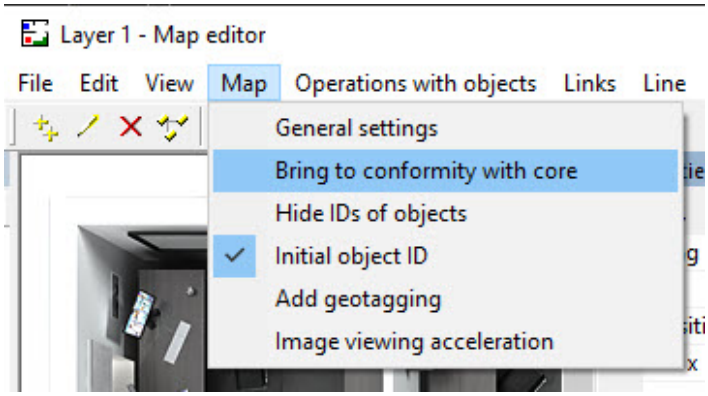
Object ID can also be configured to display before object's name. For this, set the **Initial object ID** checkbox checked in the **Map** menu of *Map editor*.



If no space is displayed between object name and object ID, or the "]" symbol is not displayed after ID, select **Bring to conformity with core** in the **Map** menu. This will bring the text field to a standard size in case is it was somehow reduced or enlarged earlier.

Note.

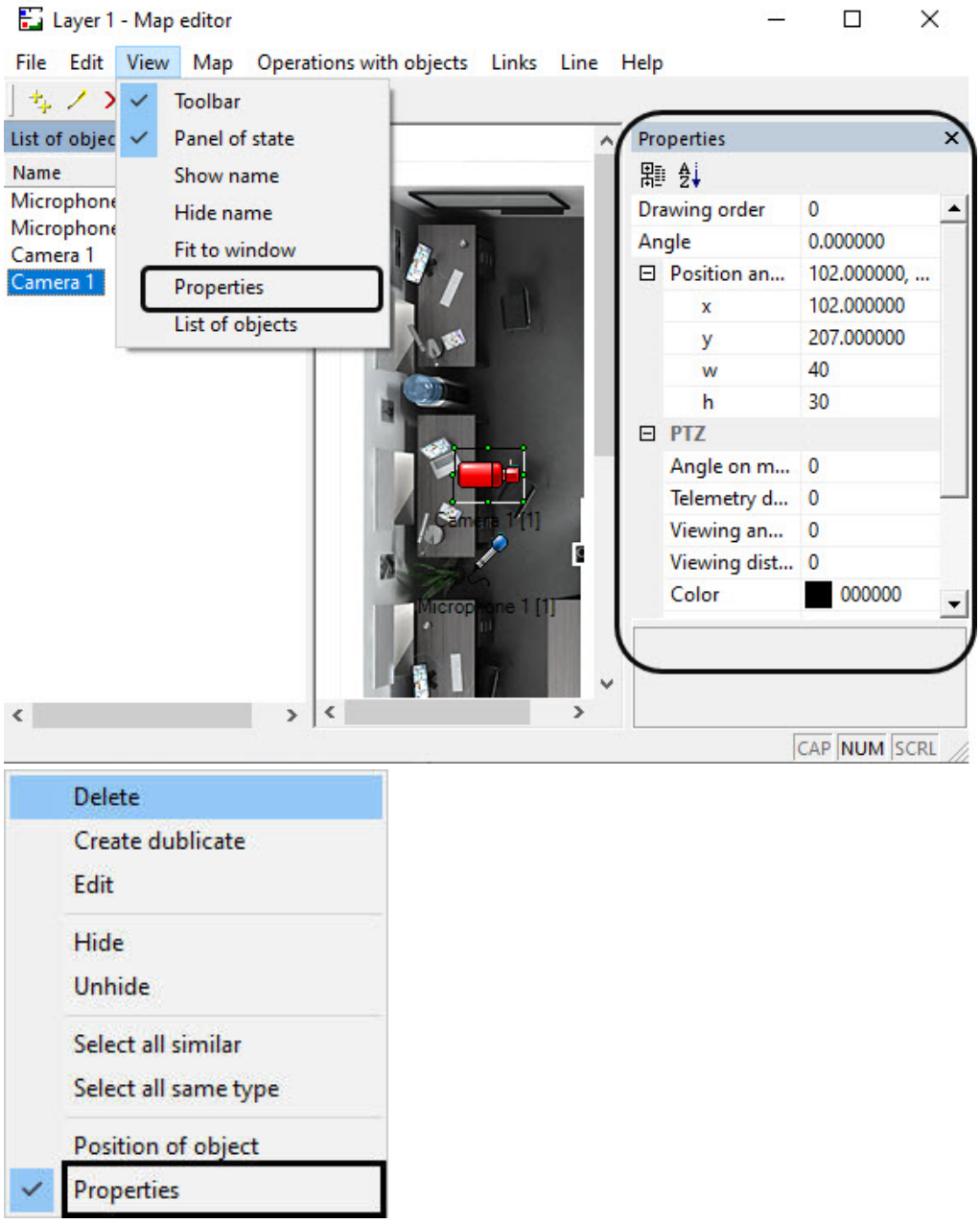
This will also delete icons of non-existing objects from the layer.



Editing object properties using the Properties panel

The **Properties** panel is displayed on the right side of the **Map editor** utility dialog box when you select **View -> Properties**.

This panel can also be opened by selecting the **Properties** item in the context menu of any object.



When selecting an object on the layer of the interactive map, the list of the object parameters is displayed on the **Properties** panel. These parameters can also be edited with the help of this panel.

For example, using this panel, you can set the color and the font of the object caption, as well as the color and other parameters of the object icon in the form of polygon.

When selecting an object on the **Properties** panel, you can control the display of this object parameter list by using the following buttons:

 — expands the object parameters tree.

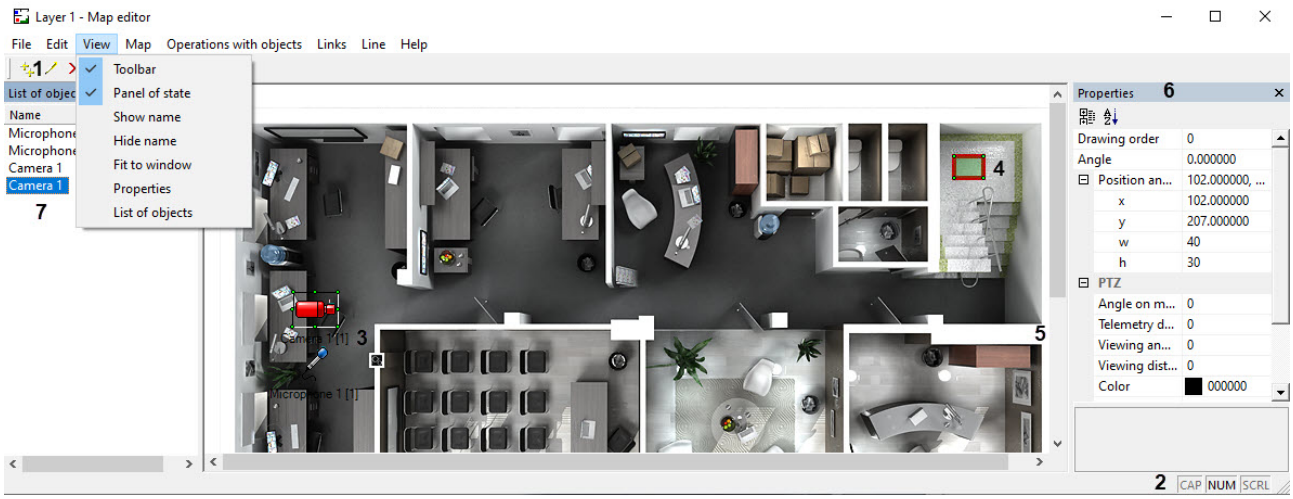
 — sorts the parameters in alphabetical order.

To edit the display parameters of several similar object icons simultaneously, select the icons with the left mouse button while holding down the Ctrl key on the keyboard. Further editing of the parameters is performed in the same way as for a single object.

If several different object icons are selected (for example, image and line, or polygon and text), then group editing of their properties is not available.

Configuring viewing Map editor utility

Configuration of viewing the *Map editor* window is performed using the **View** menu.



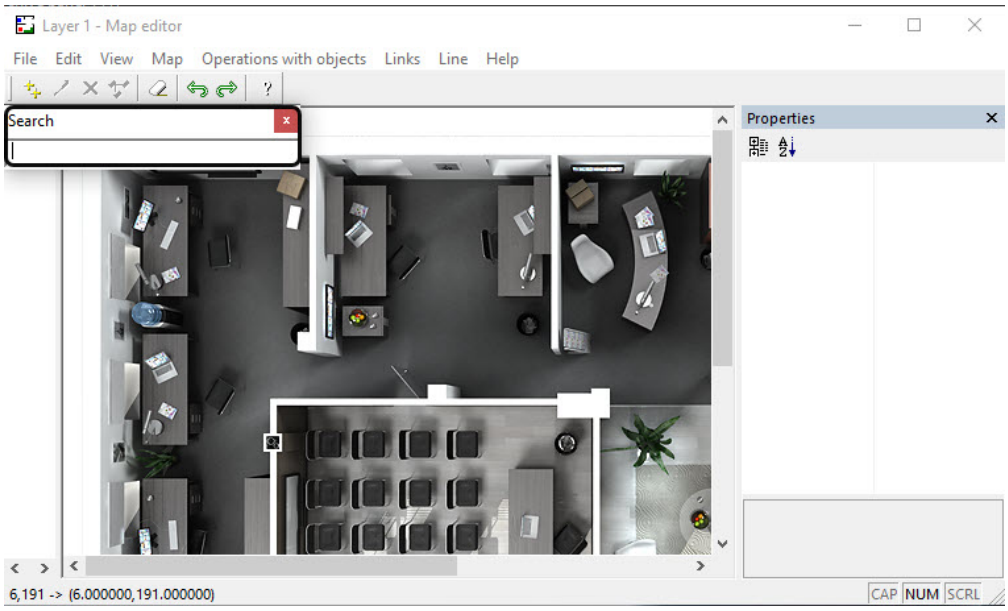
Find the description of menu items in the table.

Menu item	**Function**
Tools panel	Show and hide the tools panel (1).
State panel	Show and hide the state panel (2).
Show name	Enable showing the name of selected object (3).
Hide name	Disable showing the name of selected object (4).

Fit the window	To change the image scale this way, set the checkbox unchecked. Set a scale at which the image of the Map fits perfectly into the window of the *Map editor* utility (5). If this checkbox is set checked, the scale of the map image cannot be changed by scrolling with the Ctrl key held down on the keyboard. The checkbox is to be set unchecked to change the scale this way. *Note 1. Setting this checkbox checked does not affect the scale of the Map image in the Map window. This scale is set independently.* *Note 2. If this checkbox was previously set for any layer, it is automatically set for all other layers. To disable the automatic activation of the **Fit the window** checkbox, it is necessary to set the **0** value for the **InscribeEditor** key (see Registry keys reference guide, for details about working with the registry, see Working with Windows OS registry).*
Properties	Displaying the Properties panel (6).
List of objects	Displaying the list of objects added to the map (7).

Searching object in the Map editor utility by its name and ID

To search for an object in the *Map editor* utility by its name or ID, press Ctrl+F on the keyboard. The **Search** box is displayed in the upper-left corner of the **Map editor** window.



Specify the name or ID of the object and press Enter. If an object ID is specified for the search, then the search is performed both by the ID and by name. Press F3 on the keyboard to show the next search result, press Shift+F3 to show the previous result.
The found objects are outlined with green dots, while the icon of the object is positioned in the center of the **Map editor** window. After the object is found, its icon flashes for a few seconds.

Configuring the mechanism for searching and processing alarm signals on multilayer maps

On this page:

- Displaying the Map over all windows
- Autoswitch to the alarm layer
- Recursive search for the alarm layer

When you use multilayer interactive maps in *Axxon PSIM*, you can set rules for moving to the layers containing objects that generate an **alarm.**

Ways of how you can search the layer from whose object an alarm signal occurs:

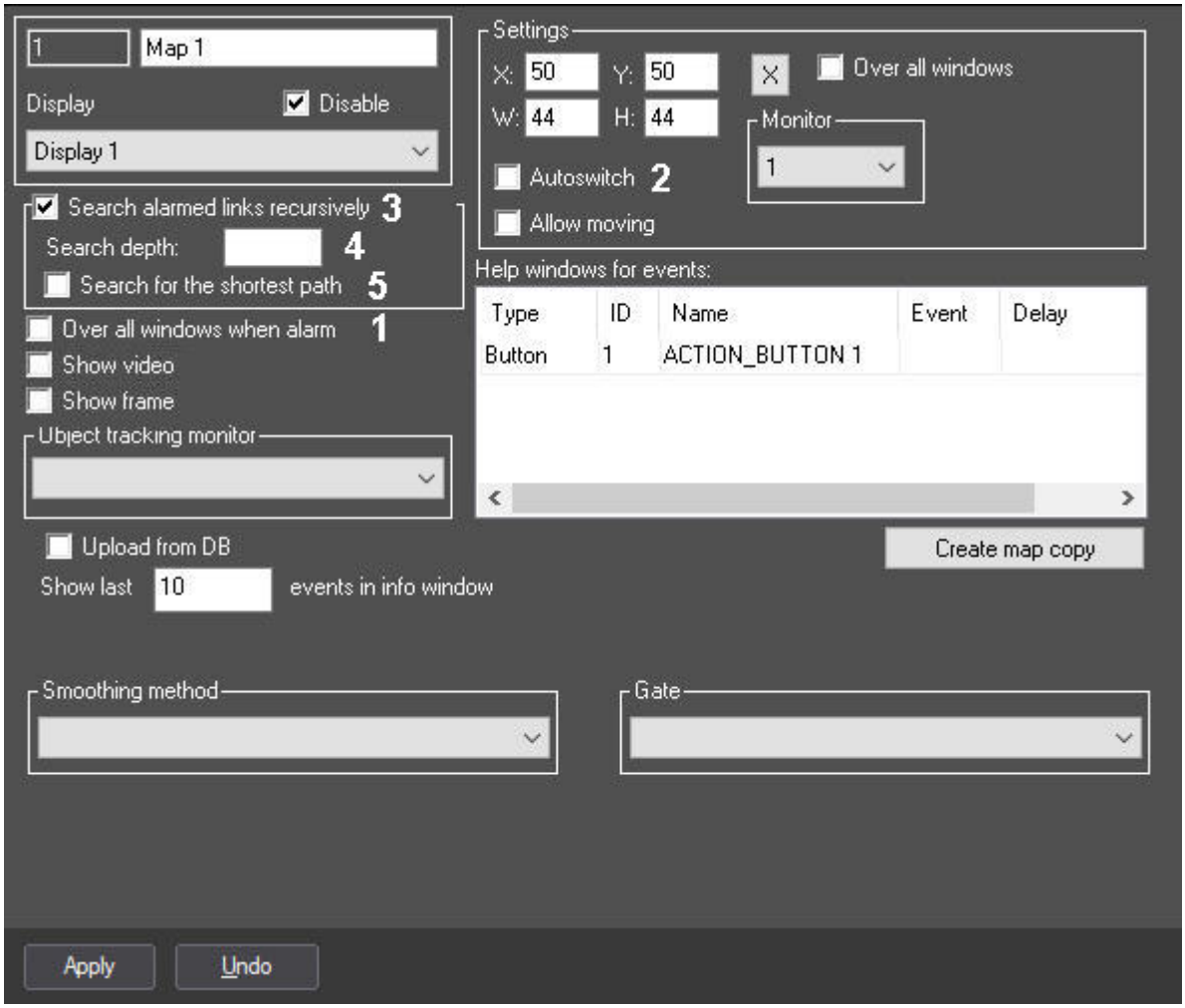
1. Open the interactive map window above all other active windows if the **Alarm** event occurs, corresponding to the characters located on the layer, by displaying the corresponding layer and characters.
2. The layer with a registered **Alarm** event displays automatically.
3. Recursive search for the layer from whose objects the alarm signal occurs.

Displaying the Map over all windows

To display the map window over all interface windows, set the **Over all windows when alarm** checkbox (**1**) and click **Apply** in the settings panel of the **Map** object. After you set the checkbox, the map window is displayed over all active windows if the **Alarm** event occurs on the objects located on the graphic map.

Note

If the map has multiple layers, this setting will only work for the active layer.
Example 1: layer 1 is active, alarm occurs on layer 2. Map isn't displayed over all windows.
Example 2: layer 2 is active, alarm occurs on layer 2. Map is displayed over all windows.
If you want to display a map over all windows regardless of the active layer, enable **Autoswitch** (described below). For more details, see point 8 on the page The settings panel of the Map object.



Autoswitch to the alarm layer

To automatically switch to the layer with the **Alarm** source object, set the **Autoswitch** checkbox (**2**) and click the **Apply** button. As a result, the layer with an alarm object will be activated when the **Alarm** event occurs.

Recursive search for the alarm layer

When you use multilayer maps, you must specify sequential links to other layers to be able to move from the active layer to any other layer of the map. If the above condition is met, you can use recursive links when the **Alarm** event occurs on one of the layers. To enable recursive search of the layer with the registered **Alarm** event, set the **Search alarmed links recursively** checkbox (**3**) and click **Apply** in the settings panel of the **Map** interface object. If there are many layers, you can limit the **Search depth** for links across layers by specifying the required value in the field (**4**):

- empty field—search across layers is unlimited;
- 0—no search by related layers, that is, in case of alarm, only the alarm layer will blink;
- >0—indicates the number of layers through which the search is performed. For example, the map has six interconnected layers and the alarm occurs on the third layer. If the key value=1, the alarm will blink on the third layer, as well as on the second and the fourth layers.

The recursive search of objects on the map is a type of search where you can switch to the layer with an alarm from the layer where the indicator is located by moving sequentially to adjacent layers with the help of sequential links. If

the **Search for the shortest path** checkbox is set (**5**), the shortest possible path to the layer with an alarm will be automatically selected.

Example

The first layer contains the indicator only on the second layer, and the second layer contains the indicator on the third layer. The first layer is currently active. The **Alarm** signal occurs on the third layer. If the recursive search mode is enabled, the indicator on the first layer will blink to the second layer, and from the second layer to the third one. If the recursive search is disabled, the indicator will blink from the second layer to the third layer, not allowing you to monitor the **Alarm** signal on the first layer.

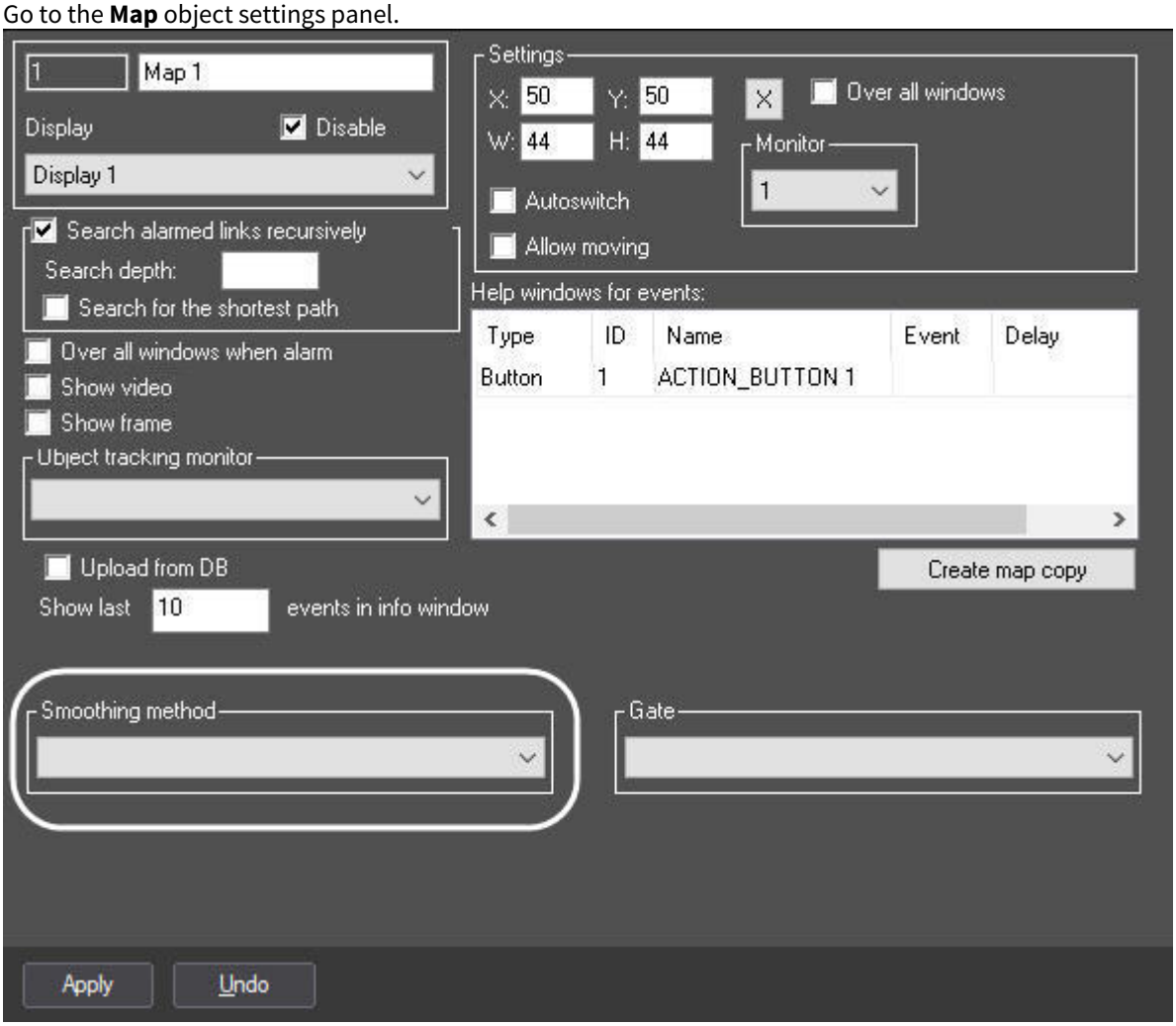
Example

The first layer contains the indicators on the second and the third layers, and the second layer contains the indicator on the third layer (that is, there are two ways to reach the third layer from the first layer: via the second layer or directly to the third one). Let's make the first layer active. The **Alarm** signal occurs on the third layer. At the recursive search mode with the set **Search for the shortest path** checkbox on the first (active) layer, only the indicator of the direct path to the third layer will blink. If the **Search for the shortest path** checkbox is cleared, both indicators on the first layer will blink (to the third and the second layers).

Configuring the smoothing method of the Map when scaling

To configure the smoothing method of the Map when scaling, do the following:

1. Go to the **Map** object settings panel.



2. From the **Smoothing method** drop-down list, select the necessary smoothing method:
   - low quality
   - high quality
   - bilinear interpolation
   - bicubic interpolation
   - nearest neighbor method
   - high quality bilinear interpolation
   - high quality bicubic interpolation

> **Note**
>
> Smoothing minimizes the ragged diagonal edges of the image and creates the impression of softer image borders and higher resolution.

3. Click the **Apply** button.

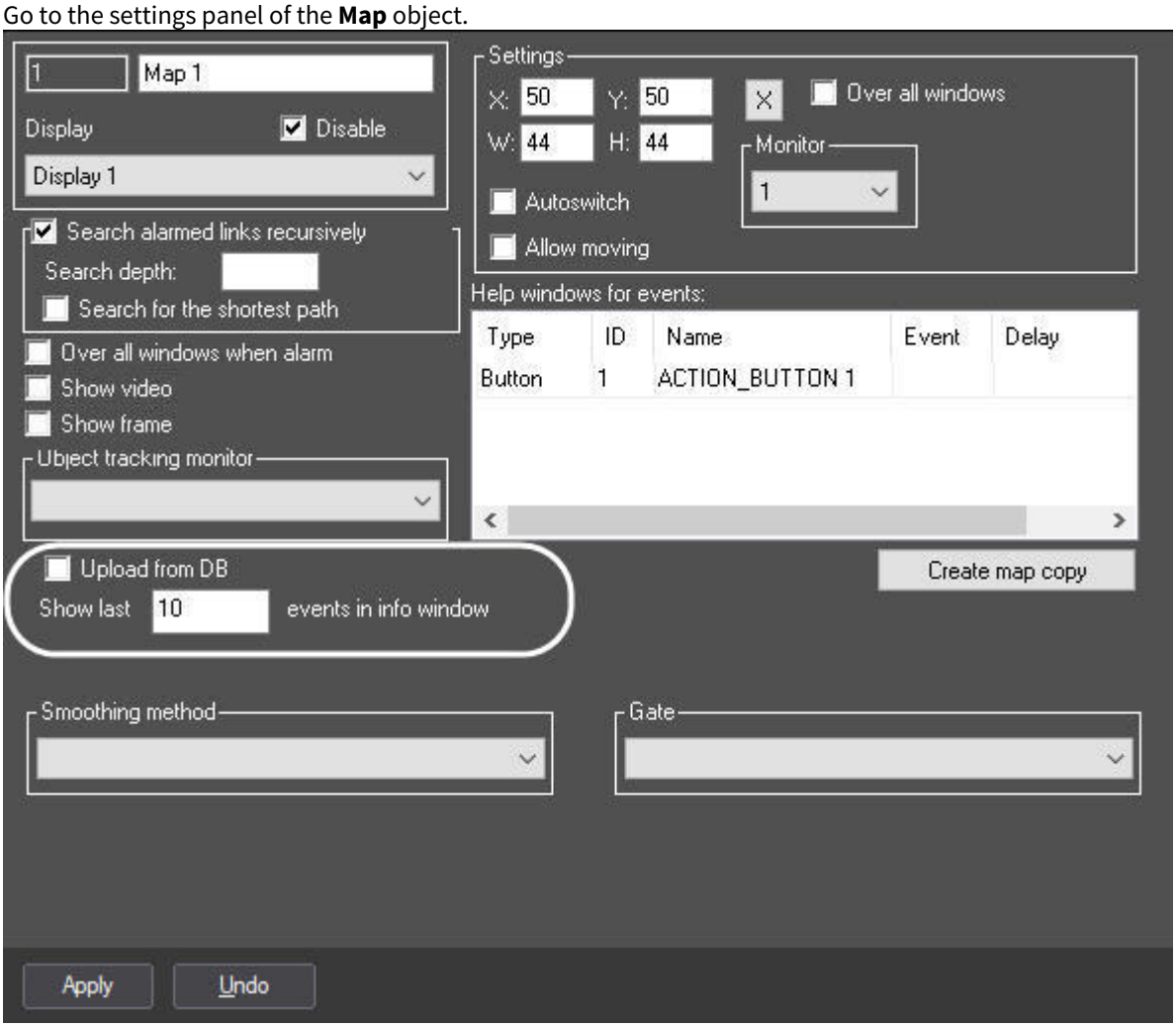
The smoothing method of the Map when scaling is configured.

Configuring the number of events displayed in the Map window

Several recent events of the selected object can be displayed in the Map window (see Viewing the last events of an object on the map).

Configure the number of events to be displayed as follows:

1. Go to the settings panel of the **Map** object.



2. In the **Show last ____ events in info window** field specify the number of events that should be displayed in the info window on the Map. The value must be strictly less than 100.
3. Set the **Upload from DB** checkbox in order to upload last events from database on the *Axxon PSIM* startup to display in the Map window. If the checkbox is cleared, only events registered after the *Axxon PSIM* start are displayed.
4. Click the **Apply** button.

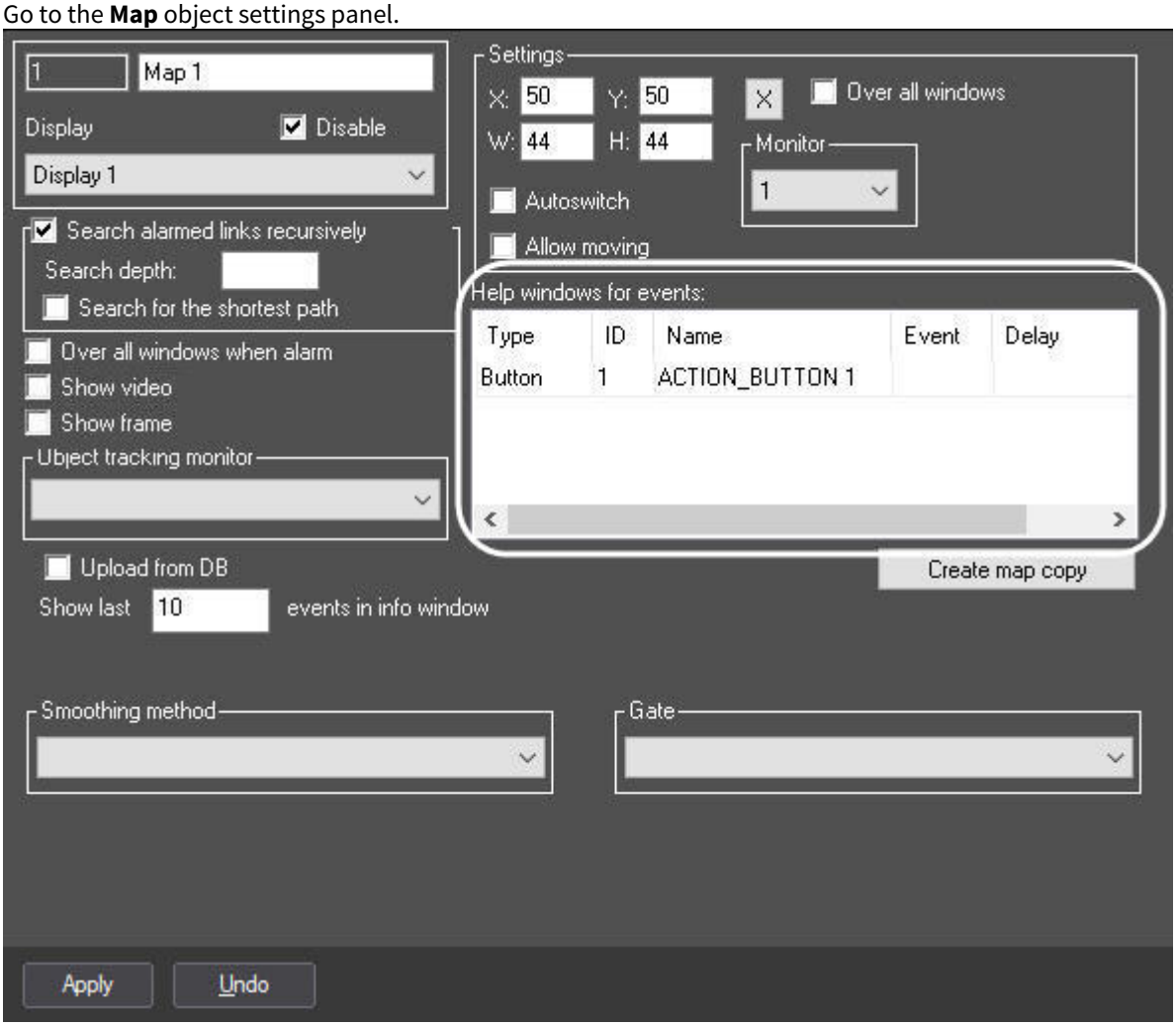
The number of events to be displayed in the Map window is now configured.

Configuring the event tooltips

The map allows you to set a list of events. When these events come in, the tooltip with the event name is displayed for a certain time above the corresponding object.

To configure the event tooltips, do the following:

1. Go to the **Map** object settings panel.



2. From the **Type** drop-down list, select the object type from which the required event comes.
3. From the **id** drop-down list, select the object identifier. If no identifier is selected, the event tooltips will be displayed above all objects of the selected type.
4. After the type and identifier are selected, the **Name** field will be filled automatically.
5. From the **Event** drop-down list, select the event name. When the event incomes from the object name specified in this parameter, the tooltip with the name of the event is displayed. If no event is selected, the event tooltips will be displayed for all events which come in from the selected object(s).
6. In the **Delay** field, enter the time period in seconds during which the tooltip will be displayed after registering the event. If another event which should also be displayed on the tooltip comes in from the object within the specified time interval, the newer event will be displayed, and the older one will be hidden.
7. Click the **Apply** button.

The event tooltips are configured.

Configuring the order of reactions in the object menu

The object management on the map is performed using the feature menu (see Graphic objects on the Map section in Operator's Guide). If one needs to put the most frequently used commands (reactions) at the top of the menu for ease of use, then it is possible to customize the sorting of commands. For this, use the **map_react_sort.ini** file created in the *Axxon PSIM* installation directory when the Map is started.

Important!

Reactions are ordered as specified in **map_react_sort.ini** file only on the computer where this file is. To show the same order of reactions, place **map_react_sort.ini** file onto all computers that will use the **Map** interface (Servers, AWS, Clients).

Initially, this file contains an unsorted list of reactions:

```
[CAM]
REC_STOP=0
MUX1=1
ARM=2
REC=3
SIP_DISCONNECT=4
DISARM=5
SIP_CONNECT=6
```

The number after the "=" sign indicates the command number in the feature menu.

Change the order of commands in the menu as follows:
1. Shut down *Axxon PSIM*.
2. Number the reactions in the **map_react_sort.ini** file as required. The smaller the number, the higher the command will be in the list. If there are two identical values, the corresponding commands will follow one another.
3. Save the changes in the **map_react_sort.ini** file.
4. Start *Axxon PSIM*.

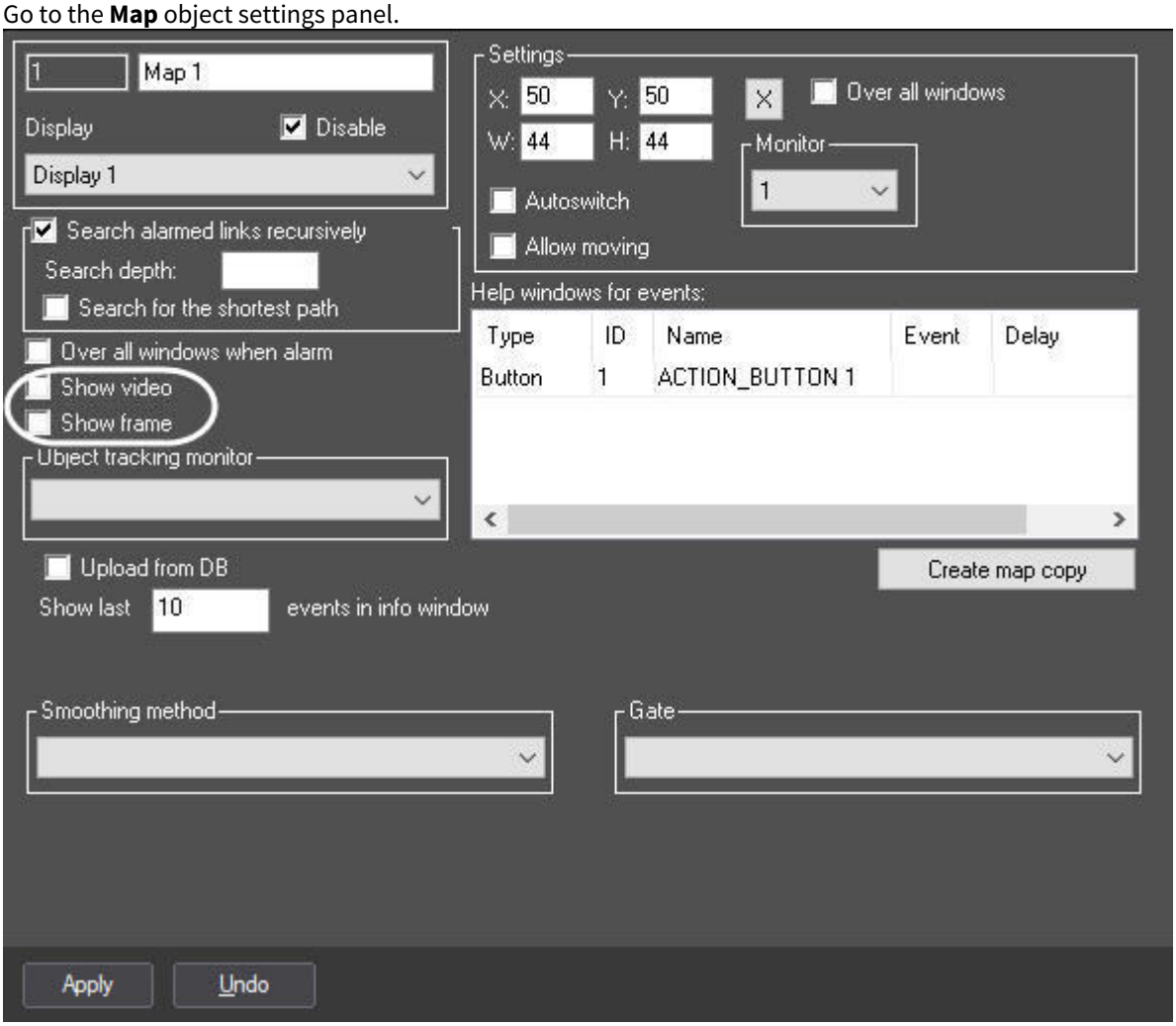
After starting the Map, this file will be rewritten: the reactions will be numbered according to sorting, starting with 0, the same numbers will be eliminated.

Enabling the frame or video request function

Axxon PSIM allows to request frames as well as live and archive video from cameras and for object linked to cameras (see Connection of objects with cameras for details on linking object with cameras). See Operator's Guide for details on operation of the frame/video request function.

The frame and video request functions are disabled by default. To enable them, proceed as follows:

1. Go to the **Map** object settings panel.



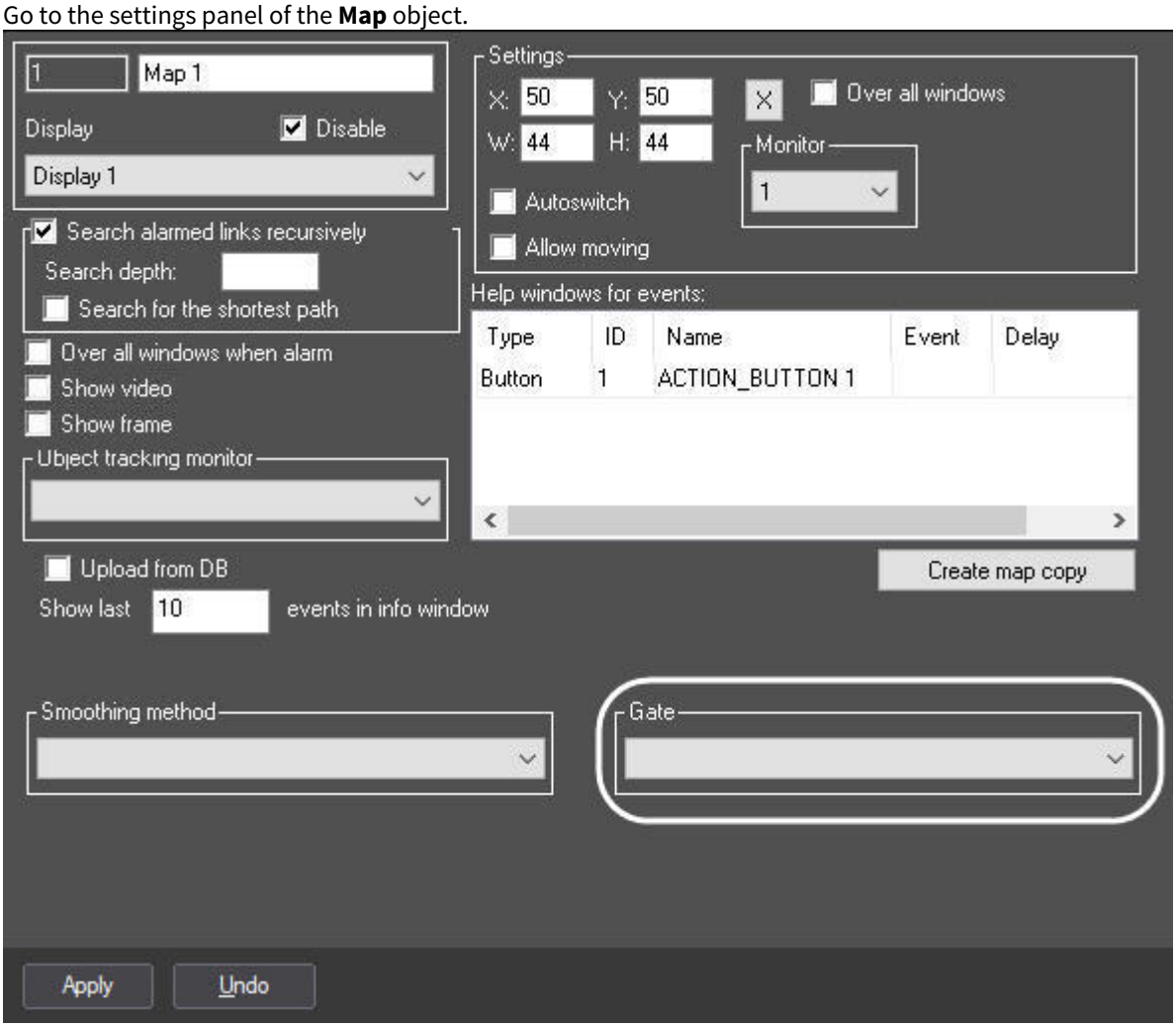
2. Set the **Show video** checkbox in order to enable live and archive video request.
3. Set the **Show frame** checkbox in order to enable frame request.
4. Click **Apply**.

Enabling frame and video request functions is completed.

Selecting a Video Gate to display video on the map

To select the Video gateway through which the video will be displayed on the map (see Configuring the Videogate module), do the following:

1. Go to the settings panel of the **Map** object.



2. From the **Gate** drop-down list, select the required Videogate.
3. Click the **Apply** button.

The Video gateway is now selected.

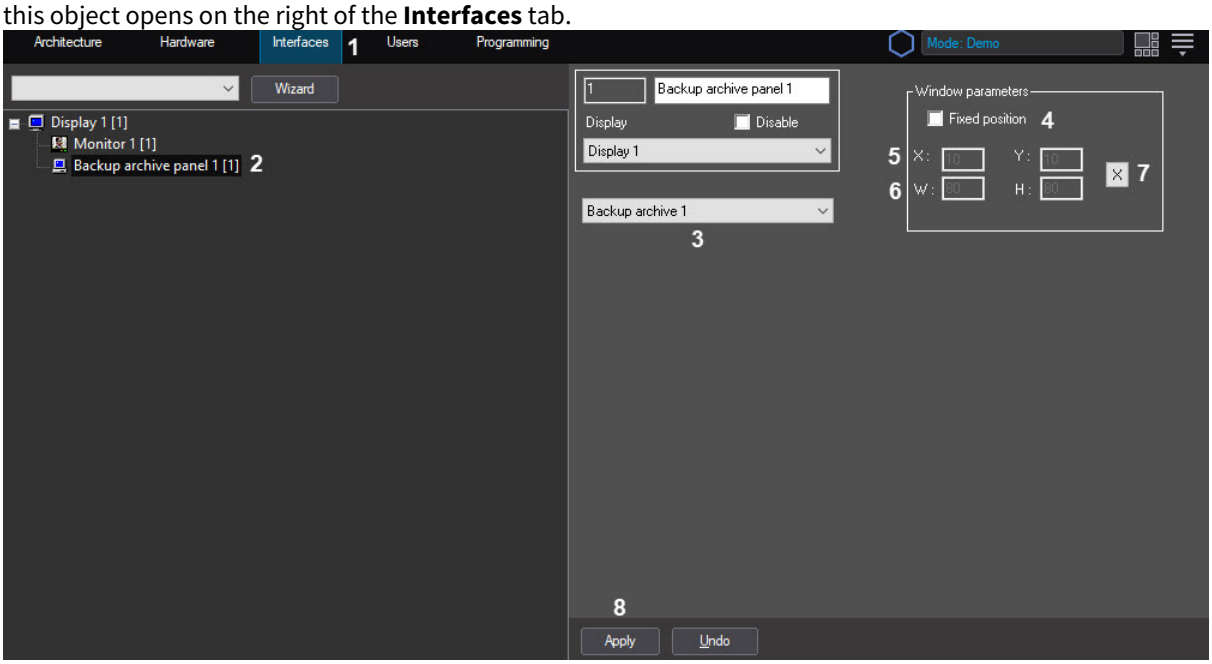
22.4.6 Configuring the Backup archive panel object

The **Backup archive panel** interface object is designed for configuring the Backup archive panel, which is used for starting the backup archiving, changing its parameters and monitoring the backup process.

To configure the main parameters of the **Backup archive panel** object, do the following:

1. Go to the **Interfaces** tab in the **System Settings** dialog box (1)

2. Select the **Backup archive panel** object in the objects tree of the **Interfaces** tab (2). The settings panel for this object opens on the right of the **Interfaces** tab.



3. In the object list, select that **Backup archive** object for which this panel is to be created (3).
4. To set the exact position of the **Backup archive panel** box on the screen, set the **Fixed position** checkbox (4).
   As a result, the **X, Y, W** and **H** fields are available for editing.
5. Specify **X** and **Y** coordinates of the upper left corner of the box, in percentage of the corresponding screen dimensions (5).
6. Specify the width (**W**) and height (**H**) of the window, in percentage of the corresponding dimensions of the screen (6).
7. Click the **Apply** button (8).

The **Backup archive panel** interface object is now configured.

Archiving video recordings to the Backup archive
Configuring backup archiving

22.4.7 Configuring the Operator protocol interface object

The **Operator protocol** object is for processing events from security system objects and searching in an event archive.

The **Operator protocol** object performs the following features:

1. Displaying the events registered by the security system objects in the interface box.
2. Assigning a status (type) to a registered event.
3. Adding a comment to an event.
4. Recording events to an archive.
5. Searching events in an archive.
6. Viewing video of an event.
7. Escalating non-processed events to an operator protocol of a higher level.

Configuration procedure for the **Operator protocol** object is as follows:

1. Creating the Operator protocol object.

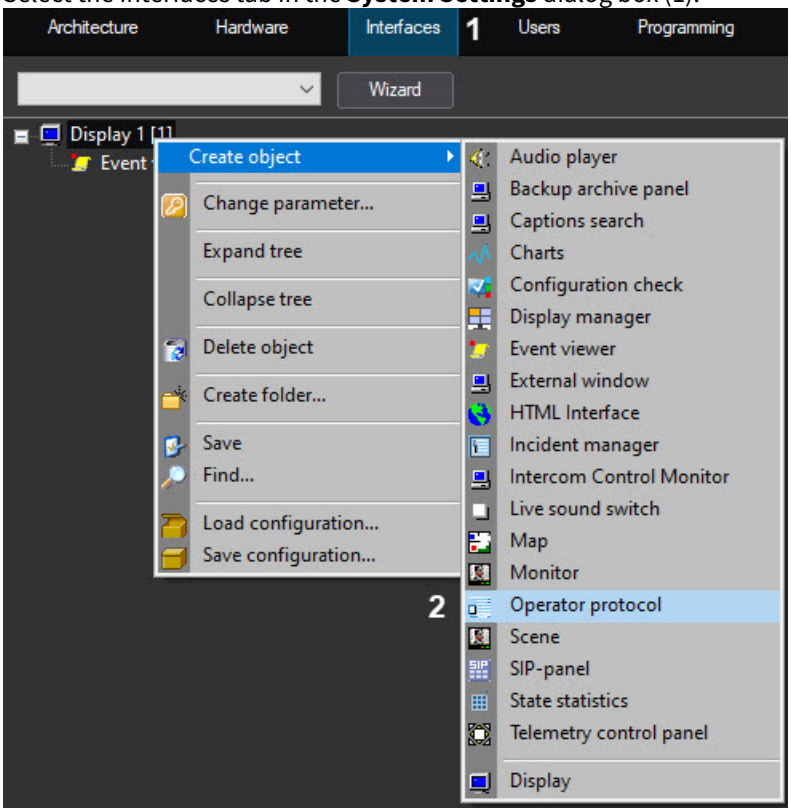
2. Configuring the position of the Operator protocol object.
3. Setting up the event filter for the Operator protocol.
4. Setting the options for handling events in the Operator protocol.
5. Optional: Configuring the checklist.
6. Optional: Configuring the interface of the Operator protocol.
7. Optional: Connecting external DBs.

Event processing using the operator protocol

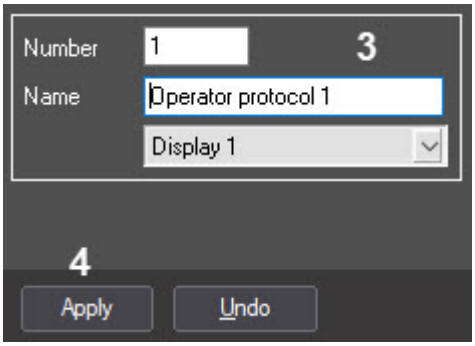
Creating the Operator protocol object

To create the **Operator protocol** object, do the following:

1. Select the Interfaces tab in the **System Settings** dialog box (1).



2. In the context menu of the **Display** object on which the created object is to be based, select the **Operator protocol** item in the **Create** object submenu (2).
3. Set the number and name of the created object (3).



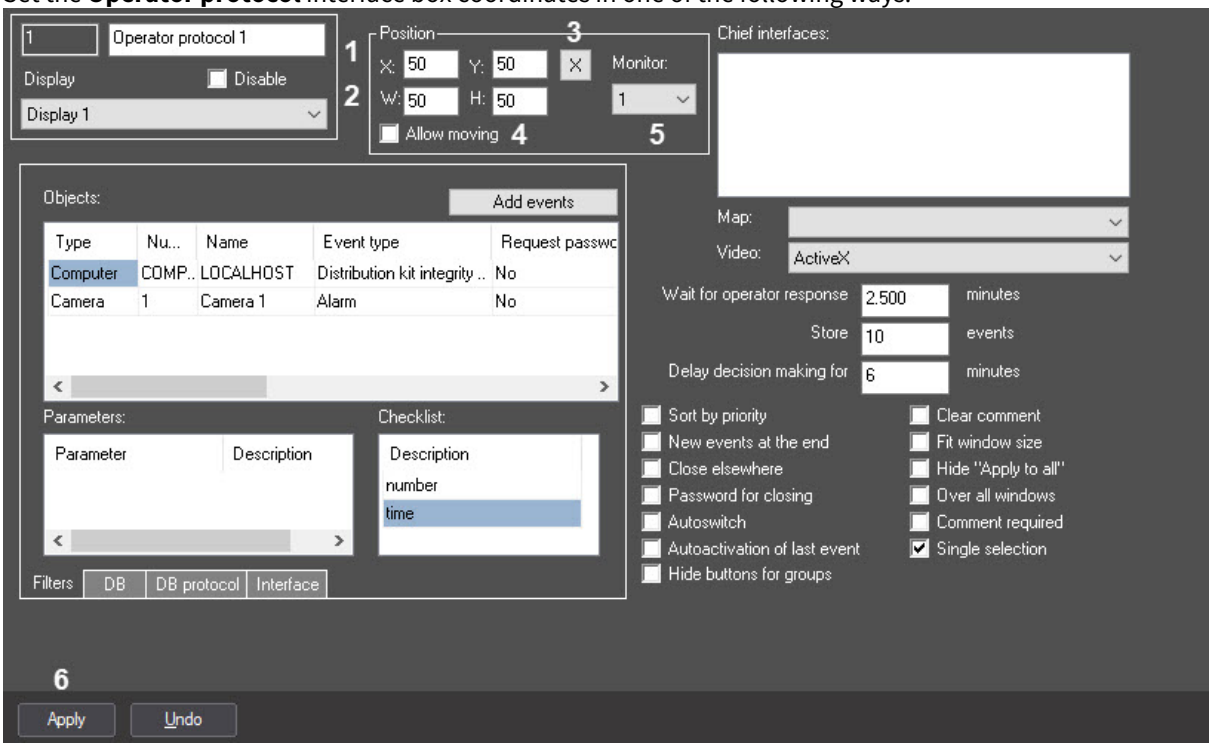
4. To create an object, click the **Apply** button (4).

As a result, the settings panel for the Operator protocol is displayed.

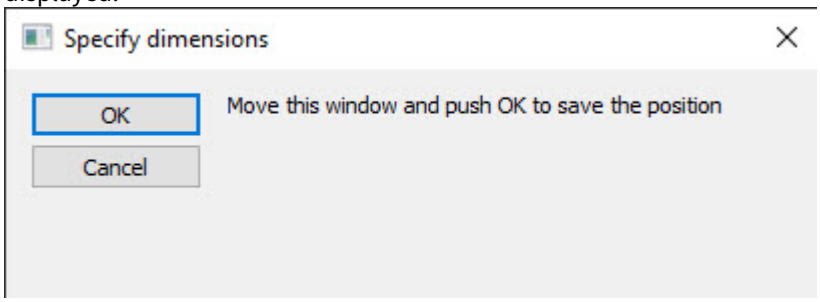
Configuring the position of the Operator protocol object

To configure the **Operator protocol** object position, do the following on the settings panel of the object:

1. Set the **Operator protocol** interface box coordinates in one of the following ways.



   a. Manually:
      i. Set the **X** (horizontally indented from screen's left border) and **Y** (vertically indented from screen's upper border) coordinates of the upper left corner of the **Operator protocol** interface box. Coordinates are set as a percentage of the corresponding screen dimensions horizontally and vertically as follows (1).
      ii. Set the dimensions of the **Operator protocol** interface box: window's width «**W**» and window's height «**H**». Dimensions are set as a percentage of the corresponding screen dimensions horizontally and vertically as follows (2).
   b. With a test window:
      i. Click **X** (3).
      ii. Position the **Set dimensions** test window where the **Operator protocol** window should be displayed.



iii. Click **OK**. As a result, the coordinates in the fields **X, Y, W, H** will be set in accordance with the size and position of the test window.

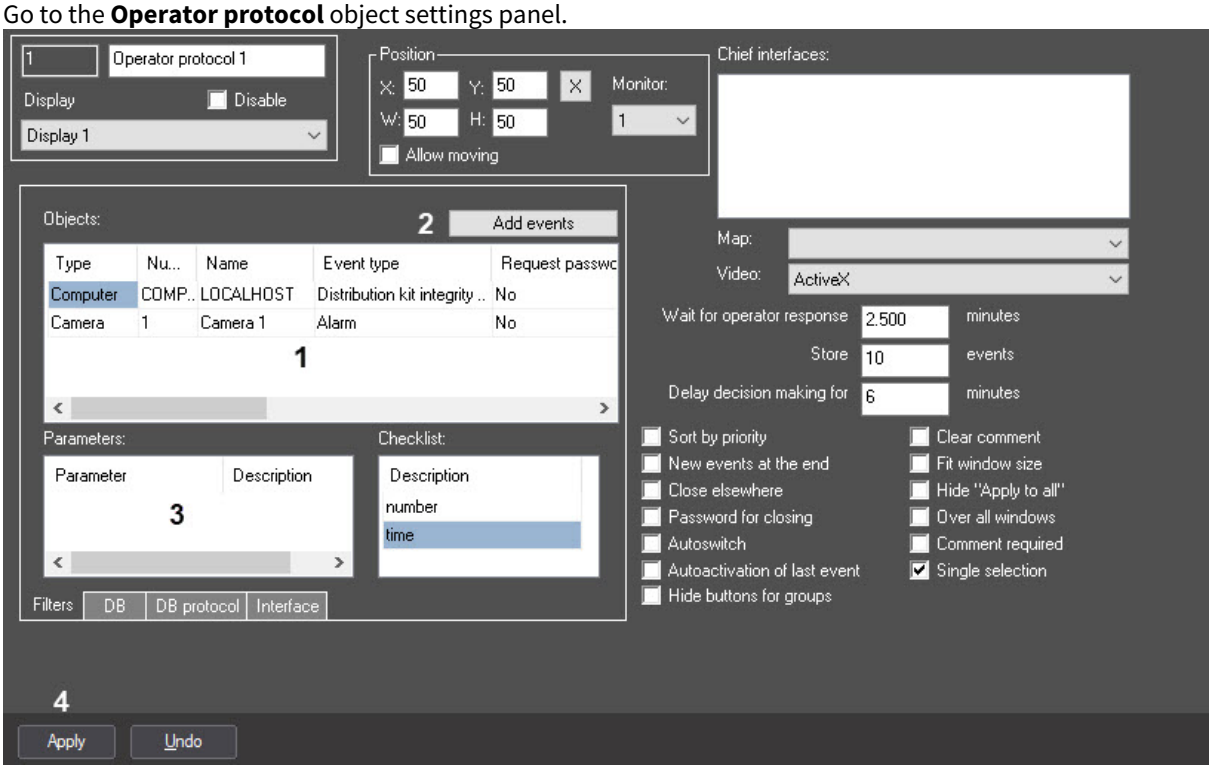
2. Set the **Allow moving** checkbox if the position and size of the **Operator protocol** interface box are to be changed manually (4).
3. In the **Monitor** dropdown list, select the system ID of a monitor for which the coordinates are set and on which the **Operator protocol** interface box is to be displayed (5).
4. Click **Apply** (6).

The **Operator protocol** object position is now configured.

Setting up the event filter for the Operator protocol

To display the events in the Operator Protocol, it is necessary to explicitly specify the objects the events from which are to be received and processed:

1. Go to the **Operator protocol** object settings panel.



2. Specify the objects the events from which are to be received and processed in the Objects table (1):

> **Attention!**
>
> Events are not displayed in the **Operator protocol** if not any objects selected.

   a. Select the object type in the list of the **Type** column.

> **Note**
>
> Only objects for which the "INFORMATION" or "ALARM" value is selected in the **Processing messages** column on the **Events** tab in the ddi.exe utility are available for selection (see The Events tab section).

   b. In the list of the **Number** column, select the object ID. The object name will be set automatically. If the object number is not specified, then events from all objects of selected type will get to the

protocol. After you select the type and number, the **Name** field will be automatically filled with the object name.

c. In the list of the **Event type** column, select events that are to be displayed in the protocol box. If the event type is not specified, then all events registered by the selected object will get to the protocol.

d. If the processing of an event is to be confirmed with a password, select the **Yes** value in the **Request password** dropdown list. If there is no need to confirm the processing with a password, select the **No** value in this dropdown list.

> **Note**
>
> If the processing of all events is to be confirmed with a password, set the **Password for closing** checkbox checked (see Setting the options for handling events in the Operator protocol).

e. In the **Region** dropdown list, select the **Section** object corresponding to the object.

f. If an event of specified type is to be received and processed only when its specific parameter has a specific value, then set the parameter and value in the **Parameter** and **Value** fields respectively.

g. If it is necessary to display the helping guide about the event processing, in the **Help file** field specify the full path to the text file in pdf, doc, docx, txt or other format which contains the required information. The Operator will be able to access the helping guide upon request. The installed application for viewing the files of the corresponding type is required to open the helping guide.

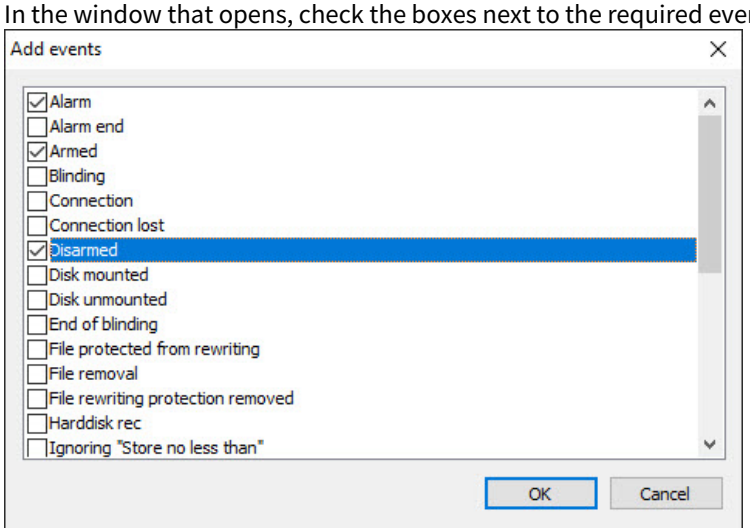
h. In the **Priority** list, select the priority of events of the selected type, which is used when sorting by importance (see Setting the options for handling events in the Operator protocol).

i. If it is necessary to add one or more events from the same object, do the following:

   i. Select a line in which at least the type of object has already been selected.

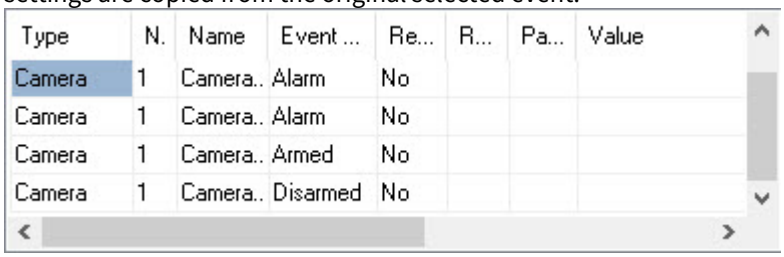
   ii. Click the **Add events** button (2).

   iii. In the window that opens, check the boxes next to the required events.



   iv. Click **OK**.

   v. As a result, rows corresponding to the selected events are added to the table. All event settings are copied from the original selected event.



3. Repeat actions described in step 2 for all required objects. To add a line, go to the last line of the table and click the ↓ key.

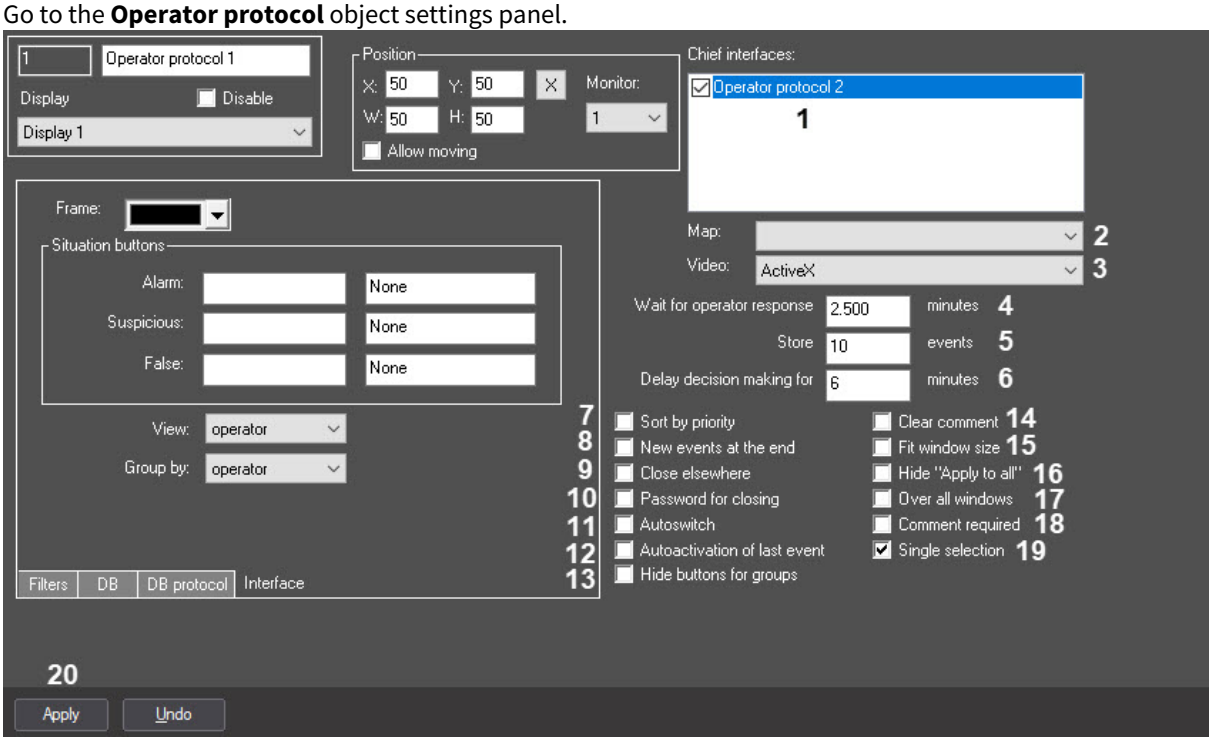
> **Note**
>
> To add a row to the table, select the last row and press the ↓ button on the keyboard. To remove the lines from the table, use the Ctrl + Del key combination.

4. In the **Parameters** table, specify additional settings for an object event. These settings are to be displayed in the **Operator protocol** interface box (3).
   a. In the **Parameter** field, set the parameter name. To specify the parameters sent by the event, use a debug box or a ddi file.
   b. In the **Description** field, set a short description of the parameter.
5. Click **Apply** (4).

Setting the options for handling events in the Operator protocol

Configure the options for handling events in the Operator protocol as follows:

1. Go to the **Operator protocol** object settings panel.



2. In the **Chief interfaces** list (**1**) set the checkboxes checked next to **Operator protocol** objects to which events are to be sent when the specified time period expires.
3. In the **Map** drop-down list (**2**) select the previously created **Map** object for event monitoring.
4. From the **Video** drop-down list (**3**), select the method of the video displaying from the operator's protocol:
   a. **ActiveX** – archive and live video will open in a separate window.
   b. **Monitor** – archive and live video will open on the selected Video Surveillance Monitor. In this case, the Video Surveillance Monitor will operate in **Active camera** mode regardless of the corresponding setting – see Configuring the display mode of camera windows.
5. In the **Wait for the operator response___minutes** field (**4**) specify the time period at the end of which an event will have the **Non-processed** event type or it will be escalated. Time period is set in minutes – non-integer values can be set (use the decimal point to separate integer and fractional parts). For instance,

specify 0.5 to set the waiting period for response equal to 30 seconds. The maximum period is 10000 minutes.

6. In the **Store___events** field (**5**), set the maximum of events displayed in the Operator protocol interface box.

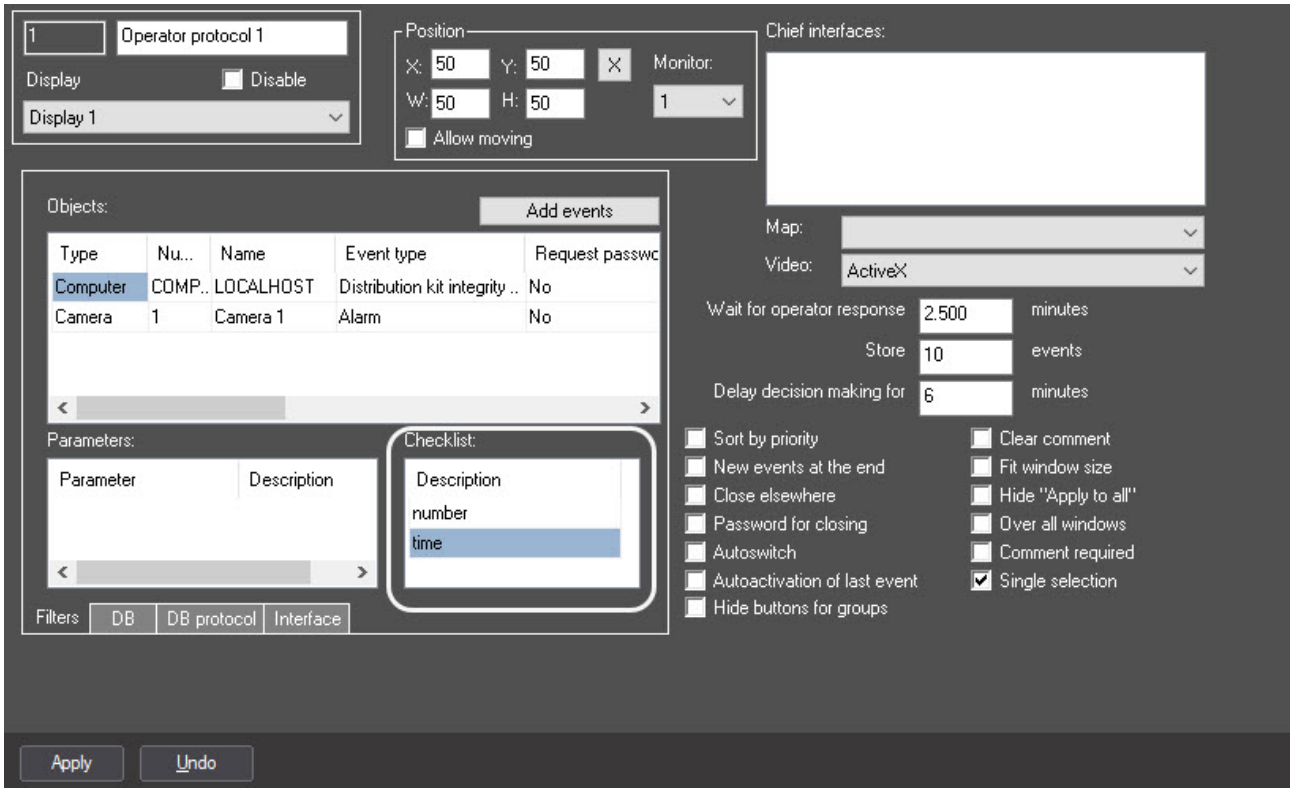
   > **Important!**
   >
   > The number of events displayed in the Operator protocol interface box affects the main memory capacity. If 100 non-processed events are displayed in the interface box, then the **Operator protocol** module can use up to 200 Mb of main memory. When the value of the **Store___events** parameter is increased, the main memory capacity is increased too.

7. If the decision on the event classification is to be delayed once for the operator, then in the **Delay decision making for___minutes** field (**6**) specify the time period (in minutes) for which the event procession will be delayed. The time period is specified in minutes, though non-integer values can be set - in this case the dot is used to separate integer and non-integer parts of the number. For instance, to delay decision making for 15 seconds 0.25 is to be specified in the field.
8. If events are to be sorted by priority (not by time they are received) in the Operator protocol, then set the **Sort by priority** checkbox (**7**). The descending sorting is performed in this order: Escalated, Alarm, Information and Standard (three latest event parameters can be set in the DDI file - see The Events tab). Inside these groups the sorting is performed according to the priority assigned in the **Objects** table (see 18.h).
9. Set the **New events at the end** checkbox (**8**) if new events are to be added to the end of the list of current events.
10. If after processing an event in one of Operator protocols it is to be removed from other Operator protocols, then set the **Close elsewhere** checkbox (**9**).
11. If the processing of all events is to be confirmed with a password, set the **Password for closing** checkbox (**10**).
12. If autoswitch to the **Current events** tab when a new event occurs is to be performed in the Operator protocol, then set the **Autoswitch** checkbox (**11**).
13. If it is necessary to automatically activate the last received event, set the **Autoactivation of last event** checkbox (**12**).
14. If it is necessary to hide the buttons for handling events when selecting a group of events, set the **Hide buttons for groups** checkbox (**13**).
15. By default, the comment entered by the operator when assigning a type to an event, is not deleted. If it is necessary to clear the comment field after processing the event, set the **Clear comment** checkbox (**14**).
16. By default, the alarms are displayed in the Operator Protocol window as the tiles of a specified size. If it is necessary to enlarge the alarm tile to the entire window size (except for the event control panel), set the **Fit window size** checkbox (**15**).
17. If it is necessary to prohibit the Operator from processing all alarms at once, set the **Hide "Apply to all"** checkbox (**16**).
18. If the Operator protocol interface window is to be displayed on top of all other windows, set the **Over all windows** checkbox (**17**).
19. To prevent the Operator from processing the event without entering a comment, set the **Comment required** checkbox (**18**). The buttons for classifying events (**Alarm situation**, **Suspicious situation**, **False alarm**) will not appear until the **Comment** field is filled if this checkbox is set.
20. If it is necessary to prohibit the Operator from selecting multiple events using the Shift and Ctrl keys, set the **Single selection** checkbox (**19**).
21. Click **Apply** to save changes (**20**).

The options for handling events in the Operator protocol are now configured.

Configuring the checklist

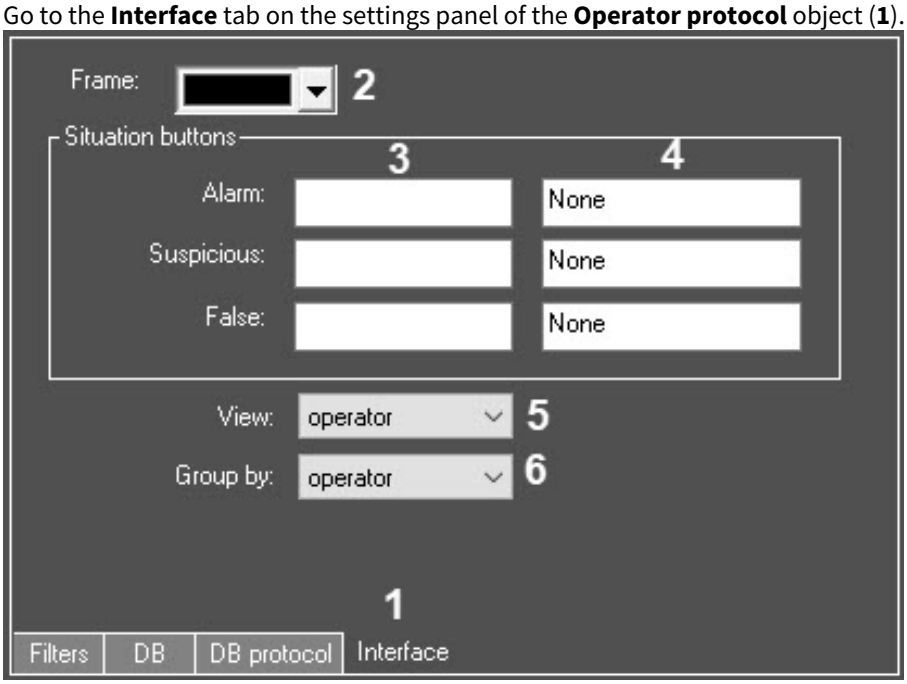
When configuring the Operator protocol, it is possible to set a checklist of the actions that the operator must perform when processing an event. For that, enter the description of the actions that the operator must perform before assigning the status to an event in the **Checklist** table. These actions will be displayed in a special field in the Operator Protocol interface, and the Operator will be able to mark their completion.



Configuring the interface of the Operator protocol

To configure the interface of the Operator protocol, do the following:

1. Go to the **Interface** tab on the settings panel of the **Operator protocol** object (**1**).



2. From the **Frame** drop-down list, select the frame color of the active event cell (**2**).
3. If you want to set the custom names for the alarm processing buttons, enter the button names in the left fields of the **Situation buttons** group (**3**).
4. If you want to assign hot keys for the alarm events processing, set the cursor in the right field of the **Situation buttons** group (**4**) and press the required key combination. You can combine the Ctrl, Alt and Shift keys with any other keys on the keyboard. For example, the Ctrl+Shift+Alt+A or the Ctrl+A shortcuts are allowed, but the D+A or D+Ins shortcuts are not allowed, etc.
5. From the **View** drop-down list, select a way of displaying events on the **Current events** tab (**5**):
   a. **operator**: the operator can choose a full or simple view;
   b. **full**: the events are displayed as cells with screenshots;
   c. **simple**: the events are displayed as strings without screenshots.
6. From the **Group by** drop-down list, select a way of grouping events on the **Current events** tab (**6**):
   a. **operator**: the operator can choose the grouping options;
   b. **default**: the event grouping is disabled;
   c. **object**: the events are grouped by object;
   d. **event**: the events are grouped by event type;
   e. **region**: the events are grouped by region.
7. Click the **Apply** button to save the settings.

The interface of the Operator protocol is now configured.

Note

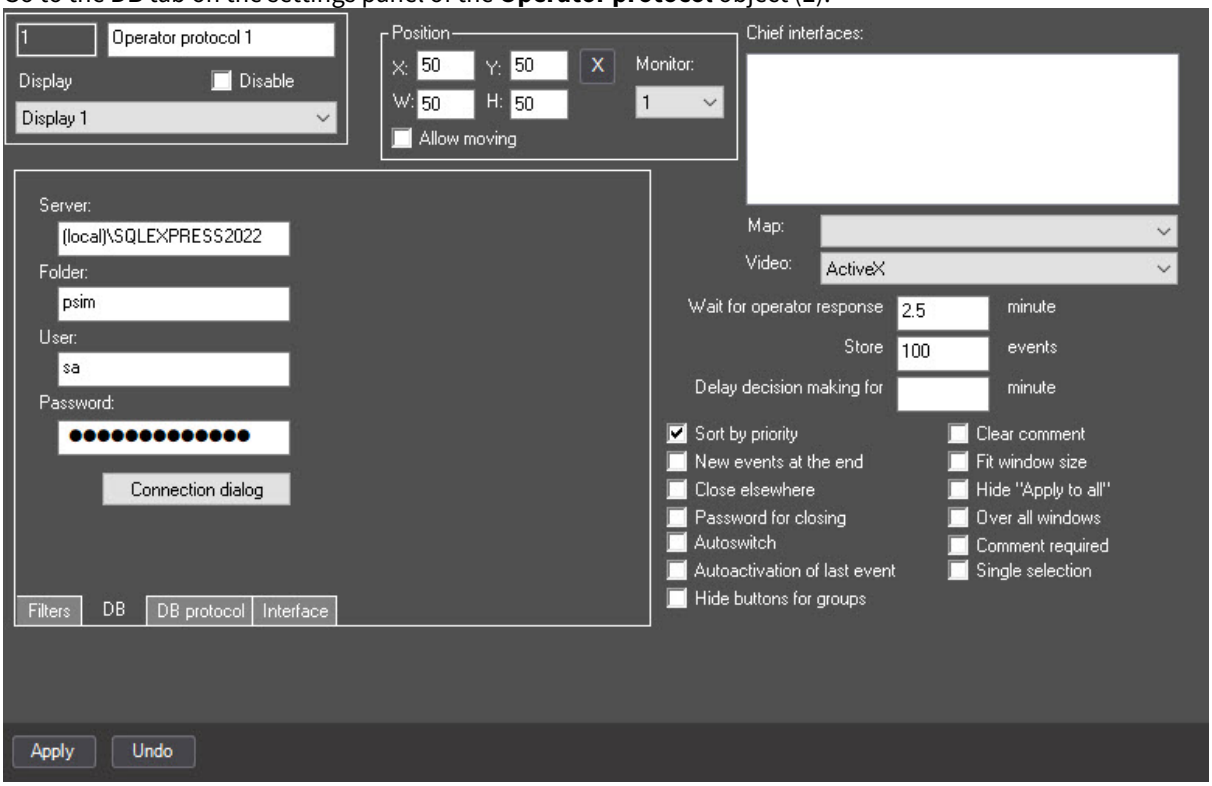
You can change the display of the date and time format in the interface of the **Operator protocol**. You can do this in the **Security zone** object, on the **Date and time format** tab (see The settings panel of the Security zone object). After you select the required formats, you must restart *Axxon PSIM*.

Connecting external DBs

Configuring connection to the external database of the configuration

If the operator protocol requires using an external database that is different from the default one used in *Axxon PSIM*, configure the connection to such an external database as follows:

1. Go to the **DB** tab on the settings panel of the **Operator protocol** object (**1**).



> **Note**
>
> Parameters set at *Axxon PSIM* installation are used by default to connect to the database server.

2. Set the connection parameters in one of the following ways:
   a. Click the **Connection dialog** button (**2**) and set the parameters for connecting to the external database using the standard dialog window (see Configuring the database server connection in a dialog mode).
   b. Set connection parameters manually:
      i. In the **Server** field (**3**), enter the name of the database server to connect to.

> **Note**
>
> When you work in the distributed configuration, you must enter the name of the computer where the database is stored without the (local) value. For example, "WS1\SQLEXPRESS", where WS1 is the name of the computer on which the database is stored.

Connection is performed only to the database that is specified in the settings. The data about the objects is requested from this database and matched with the data sent from the server that contains these objects. That is why you cannot display the operator protocol set to the computer with the installed vertical solution and database on the computer where they aren't present.

ii. In the **Folder** field (**4**), enter the name of the database to store events.
iii. In the **User** field (**5**), enter the username for the authorization on the database server.
iv. In the **Password** field (**6**), enter the password for the authorization on the database server.

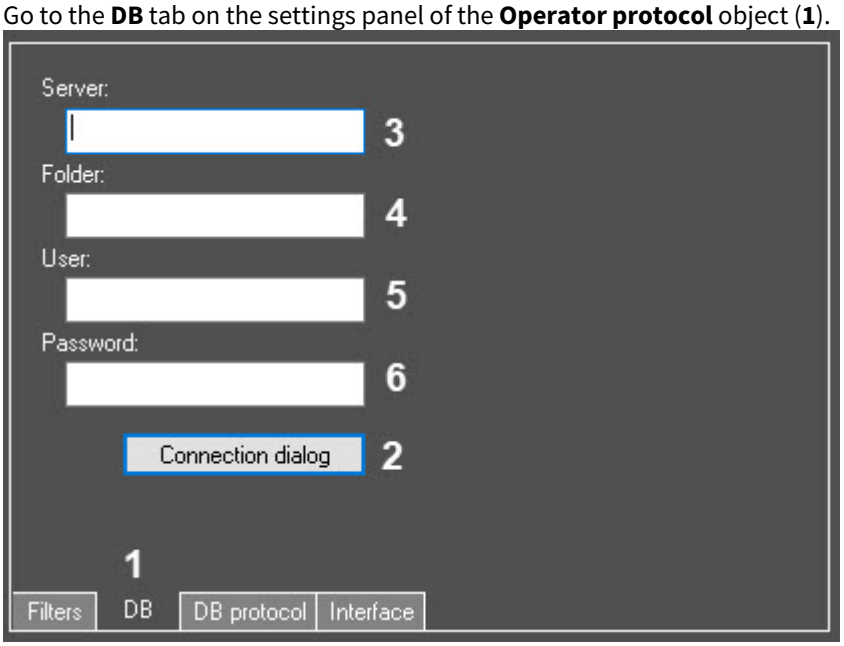
3. Click the **Apply** button.

Configuring the connection to the external database of the configuration is complete.

Configuring connection to the external database of the Event Viewer

If the database of the Event Viewer is extracted to a separate database (see Extracting event protocol into an individual database), configure the connection to the database of the Event Viewer as follows:

1. Go to the **DB** tab on the settings panel of the **Operator protocol** object (**1**).



2. Set the connection parameters in one of the following ways:
   a. Click the **Connection dialog** button (**2**) and set parameters for connecting to an external database using the standard dialog window (see Configuring the database server connection in a dialog mode).
   b. Set connection parameters manually:
      i. In the **Server** field (**3**), enter the name of the database server to connect to.

Note

When you work in the distributed configuration, you must enter the name of the computer where the database is stored without the (local) value. For example, "WS1\SQLEXPRESS", where WS1 is the name of the computer on which the database is stored.

Connection is performed only to the database that is specified in the settings. The data about the objects is requested from this database and matched with the data sent from the server that contains these objects. That is why you cannot display the operator protocol set to the computer with the installed vertical solution and database on the computer where they aren't present.

ii. In the **Folder** field (**4**), enter the name of the database to store events.
iii. In the **User** field (**5**), enter the username for the authorization on the database server.
iv. In the **Password** field (**6**), enter the password for the authorization on the database server.

3. Click the **Apply** button.

Configuring the connection to the external database of the Event Viewer is complete.

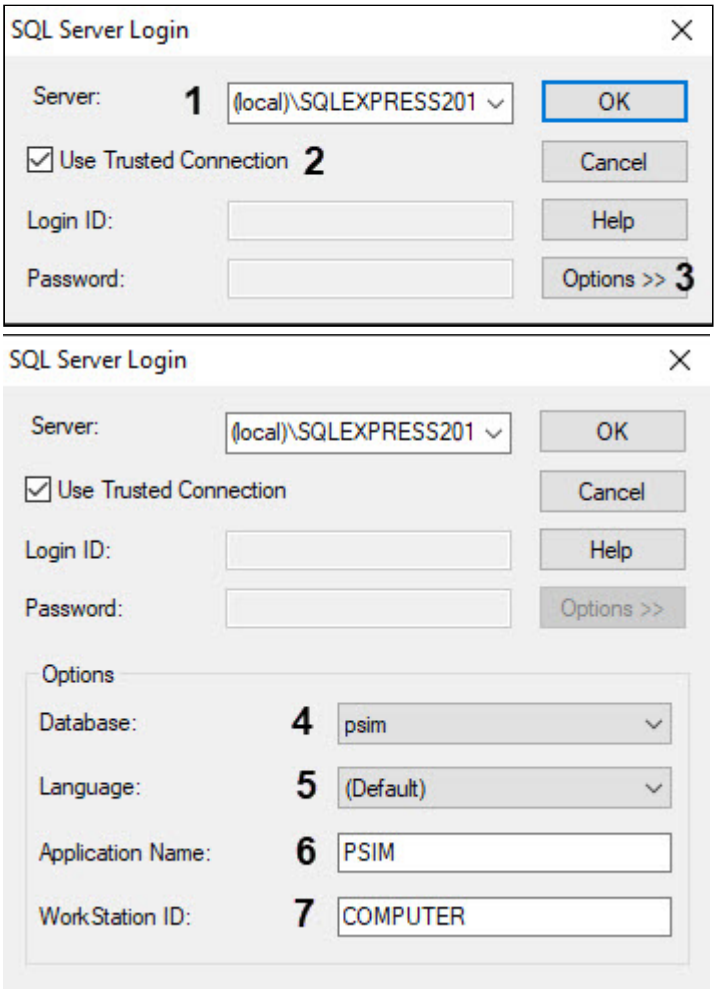
Configuring the database server connection in a dialog mode

To configure the database server connection in a dialog mode, do the following:

1. Go to the **DB** or **DB protocol** tab on the settings panel of the **Operator protocol** object (**1**).



2. Click the **Connecting dialog** button (**2**).
The **SQL Server Login** dialog window is displayed.



3. In the **Server** list, specify the SQL server to which you want to connect (**1**).

> **Note**
>
> To ensure stable and proper operation of *Axxon PSIM* on the Windows 11 OS, we recommend using the Microsoft SQL Server 2019 Express database server or the newer version.

> **Note**
>
> When you work in the distributed configuration, you must specify the name of the computer without using the (local) value where the database is stored. For example, "WS1\SQLEXPRESS", where WS1 is the name of the computer on which the database is stored.

4. If you want to specify the login and password to authorize the SQL server, then set the **Use Trusted Connection** checkbox (**2**). As a result, the **Login ID** and **Password** fields are available for editing.

> **Note**
>
> If you set the **Use Trusted Connection** checkbox, then the authorization on the SQL server is performed using Windows credentials.

5. To set advanced connection options, click the **Options >>** button (**3**).
   a. In the **Database** drop-down list (**4**), select the database to store events.

b. From the **Language** list (**5**), select the language of SQL system messages.
c. In the **Application Name** field (**6**), set the application name (Axxon PSIM by default).
d. In the **WorkStation ID** field (**7**), set the computer name (Windows ID by default).

6. To save the settings, click the **OK** button.

> **Note**
>
> To view the help information about the **SQL Server Login** dialog window, click the **Help** button.

Configuring the database server connection is complete.

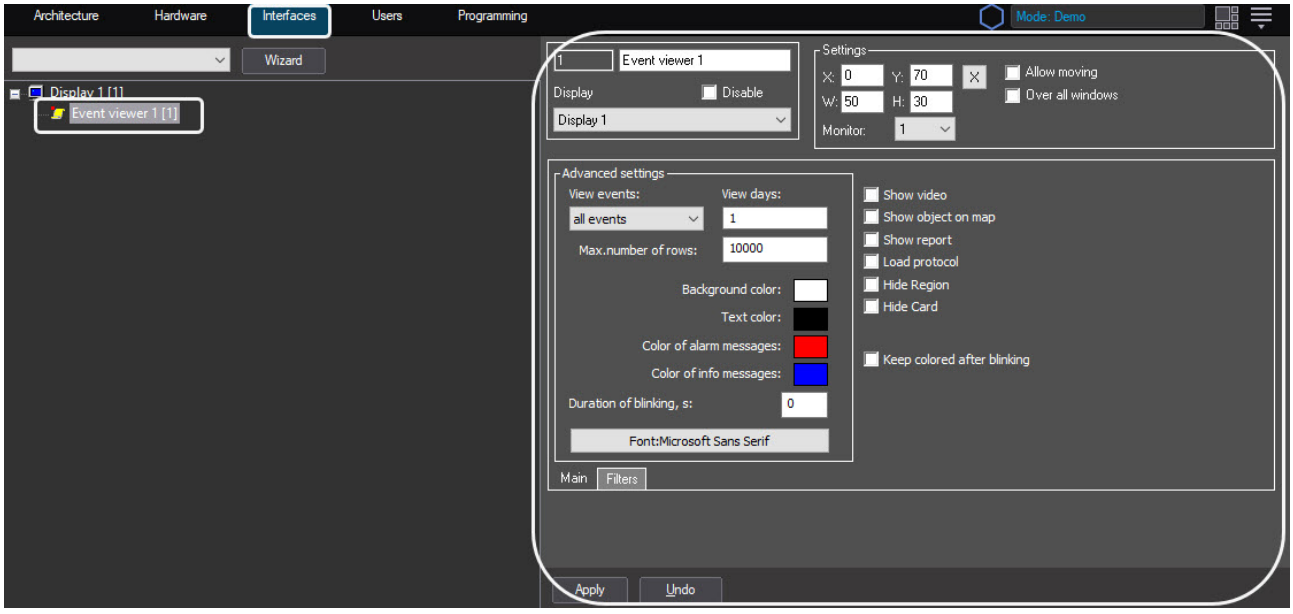
22.4.8 Configuring the Event Viewer interface object

Order of configuring the Event Viewer interface object

The **Event viewer** object is a child-object of the **Display** interface object and is used for displaying information about registered events in the interface box. Events may be registered both locally and on the computers in the distributed system.

> **Note**
>
> Events transmission among computers is set in the Architecture tab in the Systems settings dialog box (see the Configuring the interaction of distributed system components section).

The **Event viewer** interface object is created and configured in the **Interfaces** tab of the **System settings** dialog box.



To configure the **Event viewer** interface object, do the following:

1. Choose the events, information on which should be logged to the **Events viewer** interface object in case of its registration in the system (see Configuring event filters for displaying in the Event viewer).
2. Set the parameters of the event viewer (see Event viewer parameters).

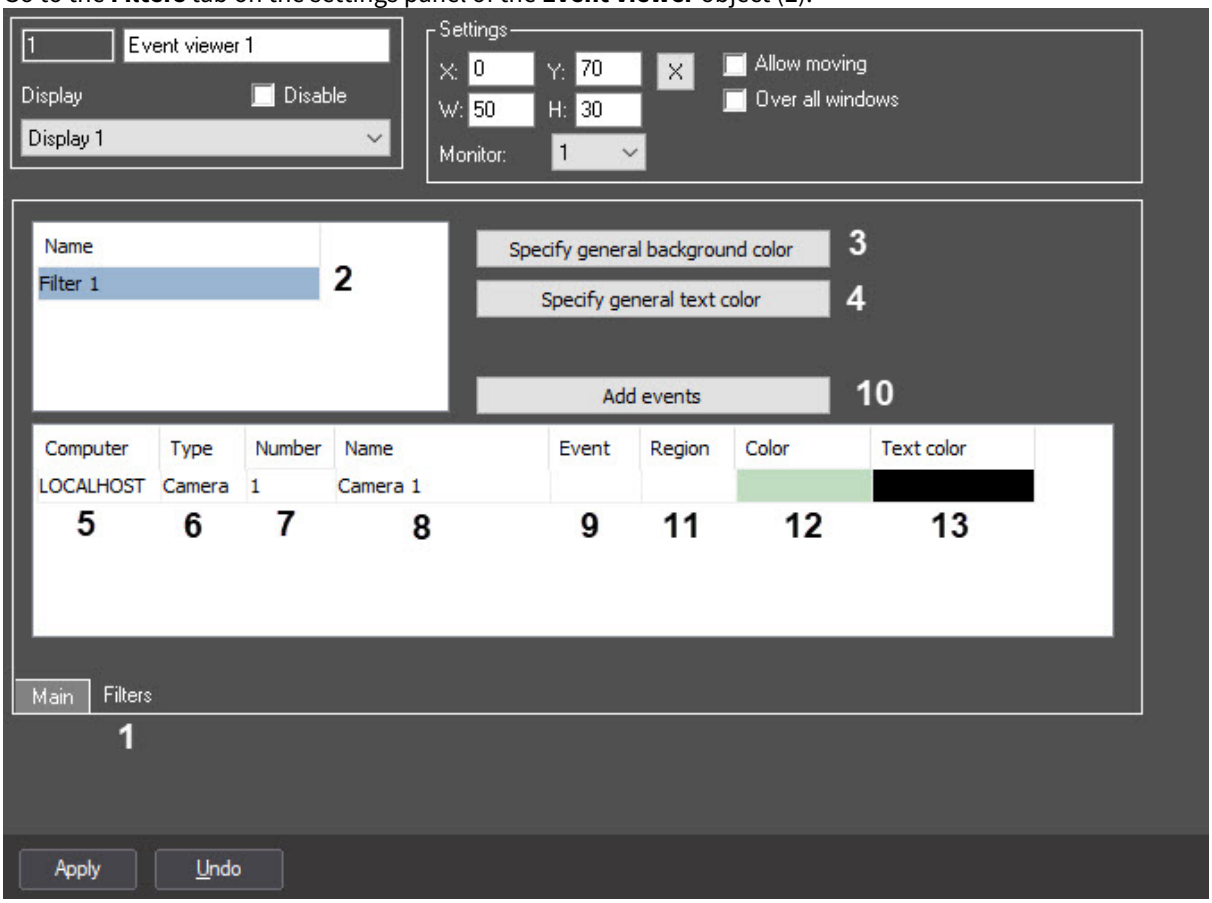
3. Configure the displaying of the **Event viewer** interface box (see Parameters of displaying the Event Viewer interface box).

Event control via Event Viewer

Configuring event filters for displaying in the Event viewer

To select the events that are to be logged in the **Events viewer** interface object, do the following:

1. Go to the **Filters** tab on the settings panel of the **Event viewer** object (**1**).



2. Set filter name in the **Name** field (**2**). By default **Filter1**, **Filter2**, etc. are created. To add a new filter select the end line in the list of filters and click the “down” key on the keyboard.

Note

The created filters can be copied by selecting the filter name, using Ctrl + C and Ctrl + V

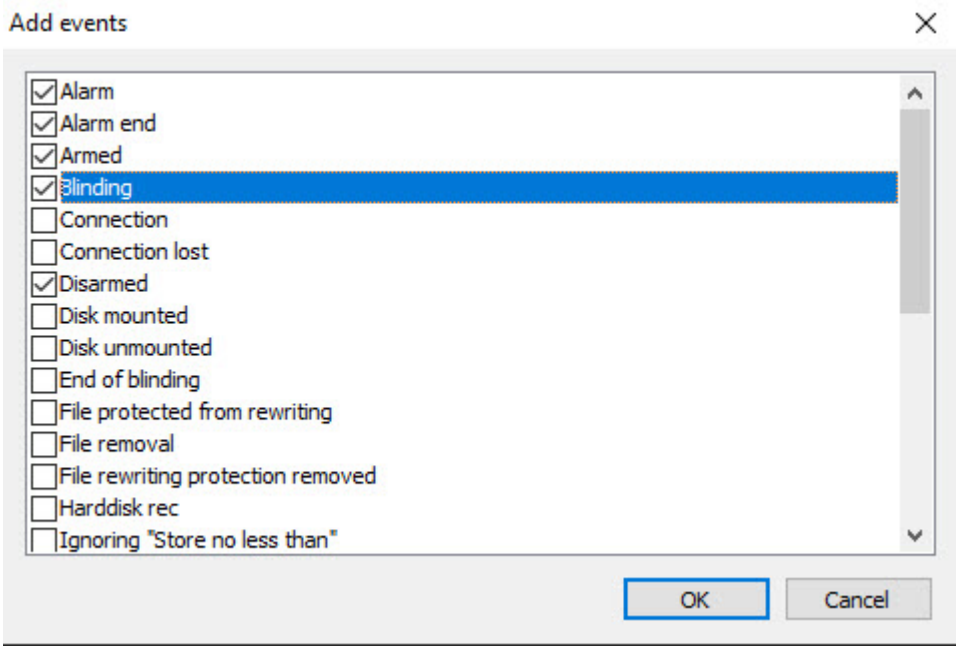
Attention!

A blank filter (i.e. filter with blank columns) should be created in order to display all events for all objects in the system in the Event viewer. All events are also displayed in the Event viewer when there is no filter at all.
If you delete all previously created filters, an empty filter will be left. When selected, it will display all events.

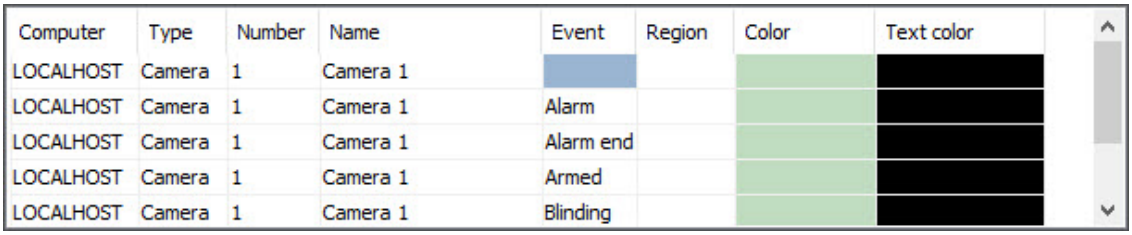
3. To set the background color that will be used by default for all filter events, click the **Specify general background color** (**3**) button and select the required color in the standard dialog box. The default background color is white.
4. To set the text color that will be used by default for all filter events, click the **Specify general text color** (**4**) button and select the required color in the standard dialog box. The default text color is black.
5. In the **Computer** drop-down list, select the **Computer** object under which the objects included in the filter are to be created (**5**). If filtering by computer is not required or the required object is created not under the Computer object, then the empty value is to be selected in this drop-down list.
6. In the drop-down list of the **Type** column in the **Objects** tab, select the type of an object for which the required event may be logged (**6**). If the field is empty, the Events viewer will display all the events for all the objects in the system.

   > **Note**
   >
   > To activate the drop-down list in the **Objects** tab and in the **Areas** list, left-click on the corresponding cell. Detailed description of actions with tabs and lists is in the Object settings panel.

7. In the drop-down list of the Number column in the **Objects** tab, specify the ID for an object of the type selected in step 1 (**7**). If the field is empty, the interface **Events viewer** will log all the events of the specified type.
8. Object name is set automatically on the basis of the values selected in step 1-2 and displayed in the Number column of the **Objects** tab (**8**). You can not edit the **Name** column.
9. In the drop-down list of the **Event** column of the **Objects** tab, specify the required event for the selected object in step 1-2 (**9**). If the field is empty, the interface **Events viewer** will log all the events of the specified type.
10. To add one or more events from the same object, proceed as follows:
    a. Select a line in which at least the type of object has already been selected.
    b. Click the **Add events** button (**10**).
    c. In the window that opens, check the boxes next to the required events.



    d. Click the **OK** button.
    e. As a result, rows corresponding to the selected events are added to the table. All event settings including colors and object type and ID etc. are copied from the original selected event.



11. In the **Areas** table select the region which object's events are to be logged (**11**). If the objects are identified (see step 7) or no region is set, then the events are logged without object's belonging to any region.
12. In the **Color** drop-down list select the background color for the message about event in the Event viewer (**12**).
13. In the **Text color** drop-down list select the text color of the event message in the Event Viewer (**13**).
14. Repeat steps 3-9 for all required objects and sections in the filter.
15. Repeat steps 2-10 for all required objects and regions.
16. Click the **Apply** button to save all the changes.

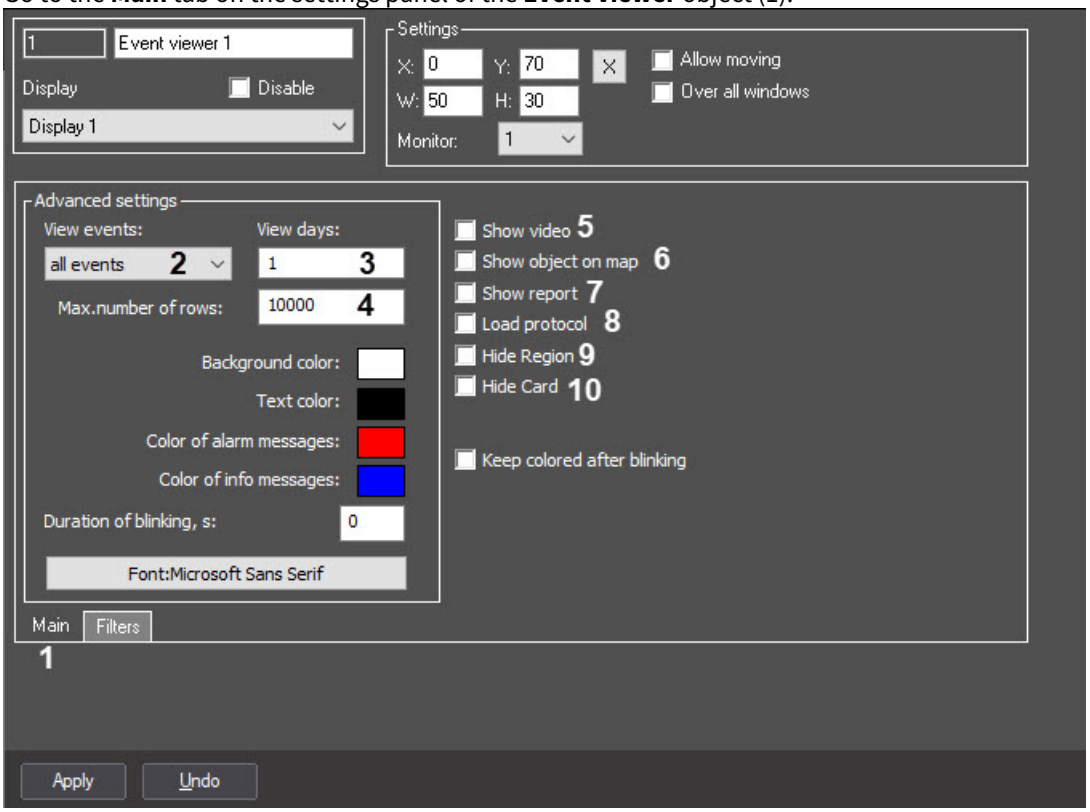
Events for logging to the **Events viewer** interface object are now selected.

Event control via Event Viewer

Event viewer parameters

To set the event viewer parameters, do the following:

1. Go to the **Main** tab on the settings panel of the **Event viewer** object (1).



2. If it is necessary to display only one latest event or all latest events in **Event Viewer** interface box, select **One latest** or **All events** in the **View events:** list (2).

> **Note**
>
> If **All events** item is selected and the event is repeated for the object, there is time changing of present event recording and a new recording line is not created.

> **Note**
>
> By default all events are displayed in the **Event Viewer** interface box.

3. In the **View days** text field specify the time period (in days) over which the events are to be displayed in the Event Viewer interface window if there are more events than the number set in the **Max.number of rows** field (3). If there are less events than set in the **Max.number of rows** field, in the Event Viewer, events will be displayed for all days, regardless of this setting. And the events are excluded from being displayed until their number becomes equal to the **Max.number of rows** value. Verification of the fulfillment of this condition and exclusion of events from being displayed happens every 50 events.
4. In the **Max.number of rows** field, enter the maximum number of events to be displayed in the Event Viewer (4). The default value is 10,000, the maximum possible value is 50,000. The value in this field should be increased if you notice that events of objects that rarely generate events are deleted from the log when switching the filters.
5. Set the **Show video** checkbox to enable viewing the video recordings from the **Event viewer** interface box (5). Viewing the events of the **Record to disk** type of the **Camera** objects is only possible.
6. Set the **Show object on map** checkbox to enable viewing the logged events on the map (6).
7. Set the **Show report** checkbox to enable creating a printed report about events in the **Events viewer** interface box for a specified time period (7).
8. If the last 1000 logged events are to be displayed in the Event Viewer interface box, then set the **Load protocol** checkbox (8).

> **Note**
>
> When the **Load protocol** checkbox is set, the events of those objects that have been deleted without giving a source (the name of a deleted object is not displayed) can be displayed. Such operation of the Event Viewer allows the extra control over system objects.

> **Note**
>
> A thousand of last events for each object or each object type is loaded when the **Load protocol** checkbox is set if the filter of Event log is configured for displaying events from several objects or several object types.
> For example, if the Event log is receiving events from **Camera 1** object and from all **Macros** objects, a thousand of events from **Camera 1** object and a thousand of events from **Macros** objects will be loaded.

9. Set the **Hide Region** checkbox checked if there is no need to show the **Region** column in the **Event viewer** (9).
10. Set the **Hide Card** checkbox checked if there is no need to show the **Card** column in the **Event viewer** (10). This column is in use for displaying the access card number for events coming from ACS integration modules included in *ACFA PSIM* subsystem. See Displaying card number for access events in the Event viewer section in Introduction into the Guide for configuring and working with the Access Manager integration module.

> **Note**
>
> The card code is saved in the PROTOCOL table in the param1 field of the event associated with access (for instance, ACCESS_IN).

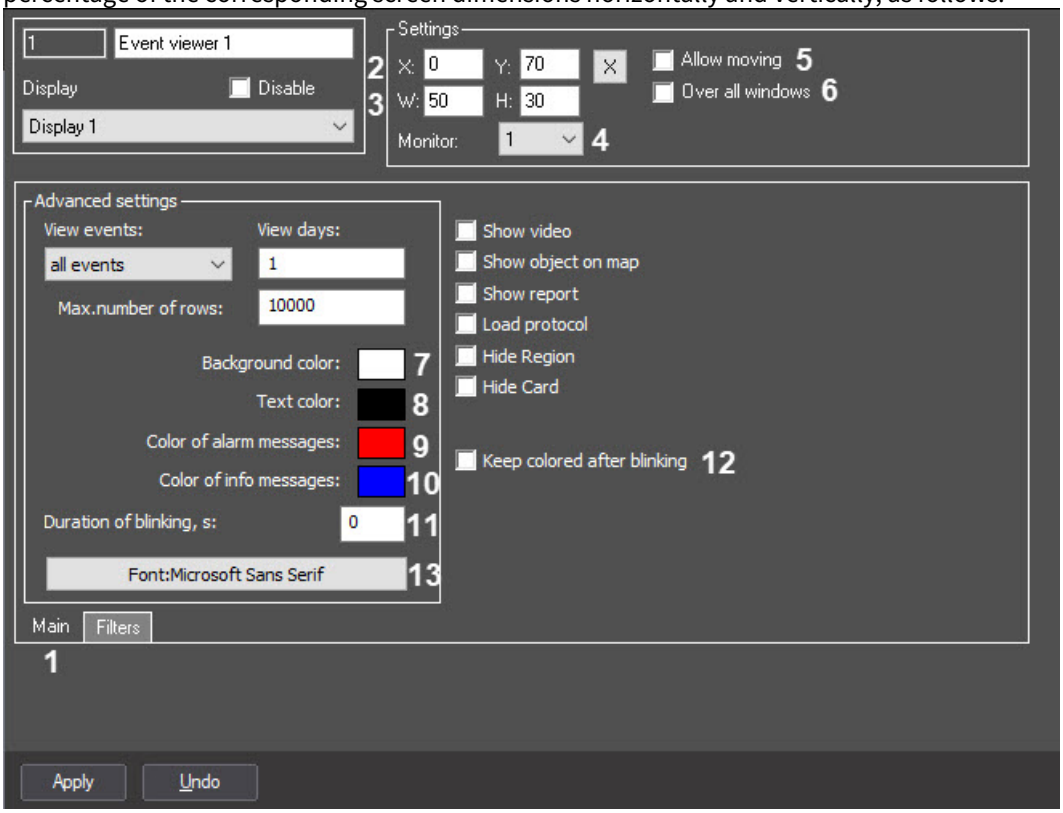
11. Click the **Apply** button to save all the changes.

Event viewer parameters are now set.

Parameters of displaying the Event Viewer interface box

To configure displaying the **Event viewer** interface box, do the following:

1. Go to the **Main** tab on the settings panel of the **Event viewer** object (**1**).
2. Set the **X** (horizontally indented from screen's left border) and **Y** (vertically indented from screen's upper border) coordinates of the upper left corner of the Event Viewer interface box (**2**). Coordinates are set as a percentage of the corresponding screen dimensions horizontally and vertically, as follows.



3. Set the dimensions of the **Event viewer** interface box: window's width «**W**» and window's height «**H**» (**3**). Dimensions are set as a percentage of the corresponding screen dimensions horizontally and vertically, as follows.
4. From the **Monitor** drop-down list, select the number of monitor for which coordinates are specifying (**4**).
5. By default, the position of the **Event viewer** interface box is fixed. To allow the **Operator** to move the **Event viewer** by left-clicking on it, set the **Allow moving** checkbox (**5**).
6. If it is necessary for the Event viewer box to be displayed on top of all windows, set the **Over all windows** checkbox (**6**).
7. Set the background color of the Event viewer box (**7**).
8. Set the text color in the Event viewer box (**8**).
9. Set the color of alarm message rows in the **Event viewer** interface box (**9**). For this double-click upon the **Color of alarm messages** field. Standard Windows dialog box will open, select the required color and click **OK.**

> **Note**
>
> To apply the setting, the **Duration of blinking, sec** (**11**) parameter value must be different from 0.

10. Specify the color of information message rows in the **Event viewer** interface box (**10**). For this double-click upon the **Color of info messages** field. Standard **Color** Windows dialog box will open, select the required color and click **OK.**

    > **Note**
    >
    > To apply the setting, the **Duration of blinking**, **sec** (**11**) parameter value must be different from 0.

11. Enter the duration of blinking for alarm messages in seconds in the **Duration of blinking**, **sec** field of the **Event viewer** interface box (**11**). The blink rate is 2 seconds, the blink duration is 1 second. To ensure the blinking, it is recommended to set the parameter value to at least 2.
12. By default, when the alarm message has finished blinking, it is no longer highlighted by the alarm message color in the Event viewer box; it becomes highlighted by the color specified in the filter (see Configuring event filters for displaying in the Event viewer). To continue highlighting the message by the alarm message color after the blinking stops, set the **Keep colored after blinking** checkbox (**12**).
13. Set the font of messages displayed in the **Event viewer** interface box. For this click the **Font:**<current font> button (**13**). Standard **Font** Windows dialog box will open, set the font and click **OK.**
14. Click the **Apply** button to save all the changes.

Parameters of displaying the **Event viewer** interface box are now set.

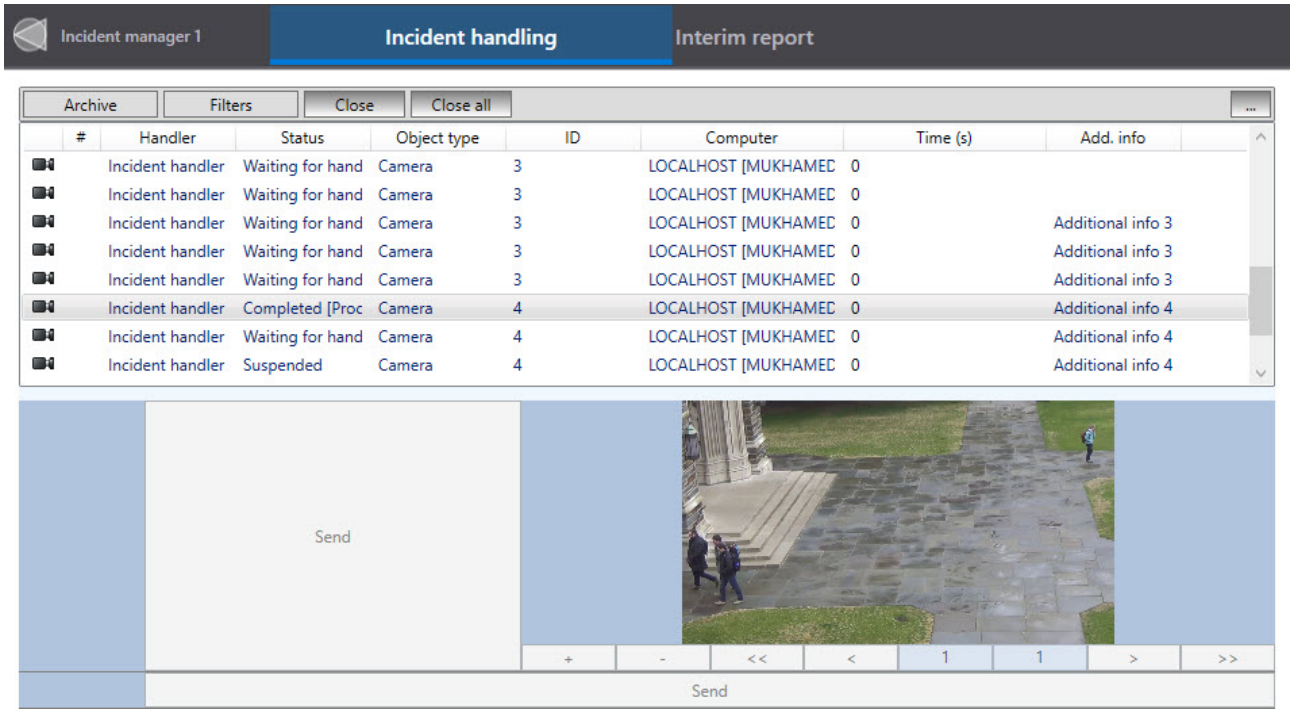
> **Note**
>
> The display of the **Event viewer** icon on the Windows taskbar is set by the **ShowInTaskbar** registry key (see Axxon PSIM base version).

22.4.9 Configuring the Incident manager interface object

The **Incident manager** interface module is intended for:

- event handling by the operator according to a pre-configured script;
- automatic execution of macros that are triggered by certain operator actions;
- generating a report on the event and operator actions.

Example of displaying the Incident manager interface:



Example of displaying the report:

Operator actions report

Event	
Object	Camera 4
Name	Alarm end
Time	24.07.2025 10:10:19
Add. info	Additional info 4

Operator		
	Name	
	Surname	

Operator actions		
Action description	**User action**	**Time**
	Images added : 1	24.07.2025 10:11:24



	Send	24.07.2025 10:11:25

The **Incident manager** interface module is configured in the following order:

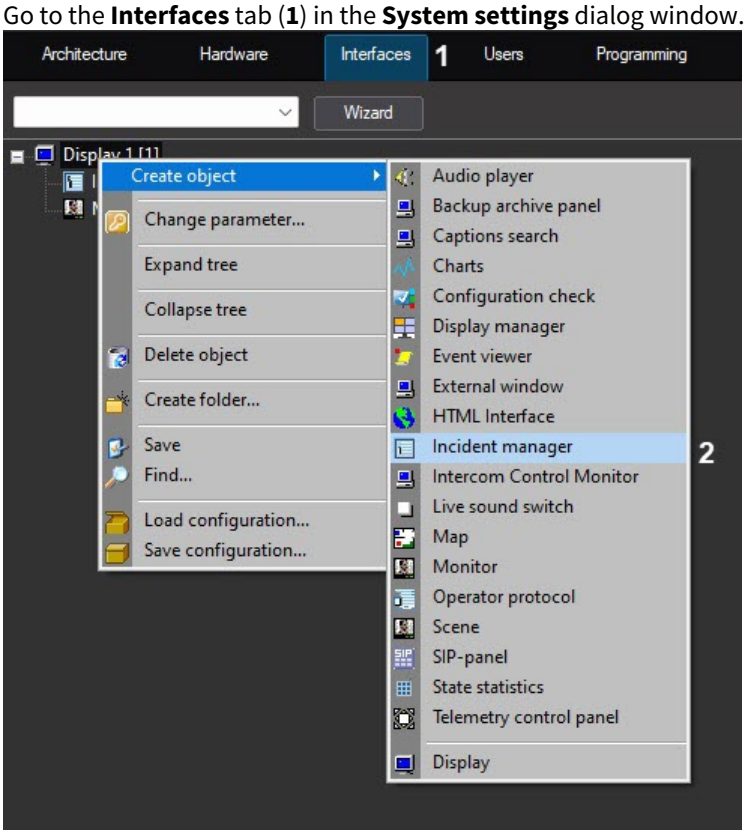
1. Creating the Incident manager object.
2. Configuring the Incident manager position on the screen.
3. Configuring the main parameters of the Incident manager.
4. Configuring the events filtering and grouping in Incident manager.
5. Configuring user rights in Incident manager.

Configuring Incident server and Incident handler
Events control and processing using the Incident manager

Creating the Incident manager object

To create the **Incident manager** object, do the following:

1. Go to the **Interfaces** tab (**1**) in the **System settings** dialog window.



2. Open the context menu of the **Display** object on the basis of which you want to create the object. In the **Create object** submenu, select the **Incident manager** item (**2**).
3. Enter the number and name of the object you want to create.



4. Click the **Apply** button.

As a result, the settings panel of the **Incident manager** object is displayed.

Note

A separate log file is also automatically created for each **Incident manager** object in the Modules64 folder located at the path C:\Program Files (x86)\Axxon PSIM.
The Incident manager configuration file in JSON format is automatically saved at the path C:\Users\%current username%AppData\Local\Temp\IncManager and in the folder of the Support.exe utility C:\Users\%current username%Documents\Support\ (see Collecting information about videoservers and remote workstations using the Support.exe utility).

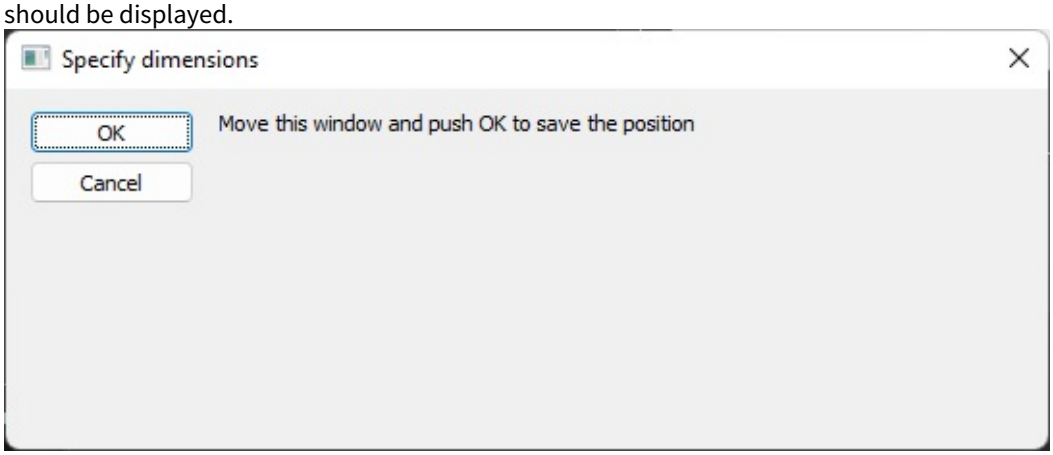
Configuring the Incident manager position on the screen

To configure the **Incident manager** position on the screen, do the following:

1. Go to the settings panel of the **Incident manager** object.
2. Set the window coordinates in one of the following ways:



   a. Manually:
      i. Enter the coordinates of the upper left corner: **X** field (horizontal offset from the left border of the screen) and **Y** field (vertical offset from the upper border of the screen). Coordinates are expressed as a percentage of the horizontal and vertical screen sizes, respectively (**1**).
      ii. Specify the window dimensions: **W** field (window width) and **H** field (window height). Dimensions are expressed as a percentage of the horizontal and vertical screen sizes, respectively (**2**).
   b. Using a test window:
      i. Click the **X** button (**3**).
      ii. Place the opened **Specify dimensions** test window where the **Incident manager** window should be displayed.



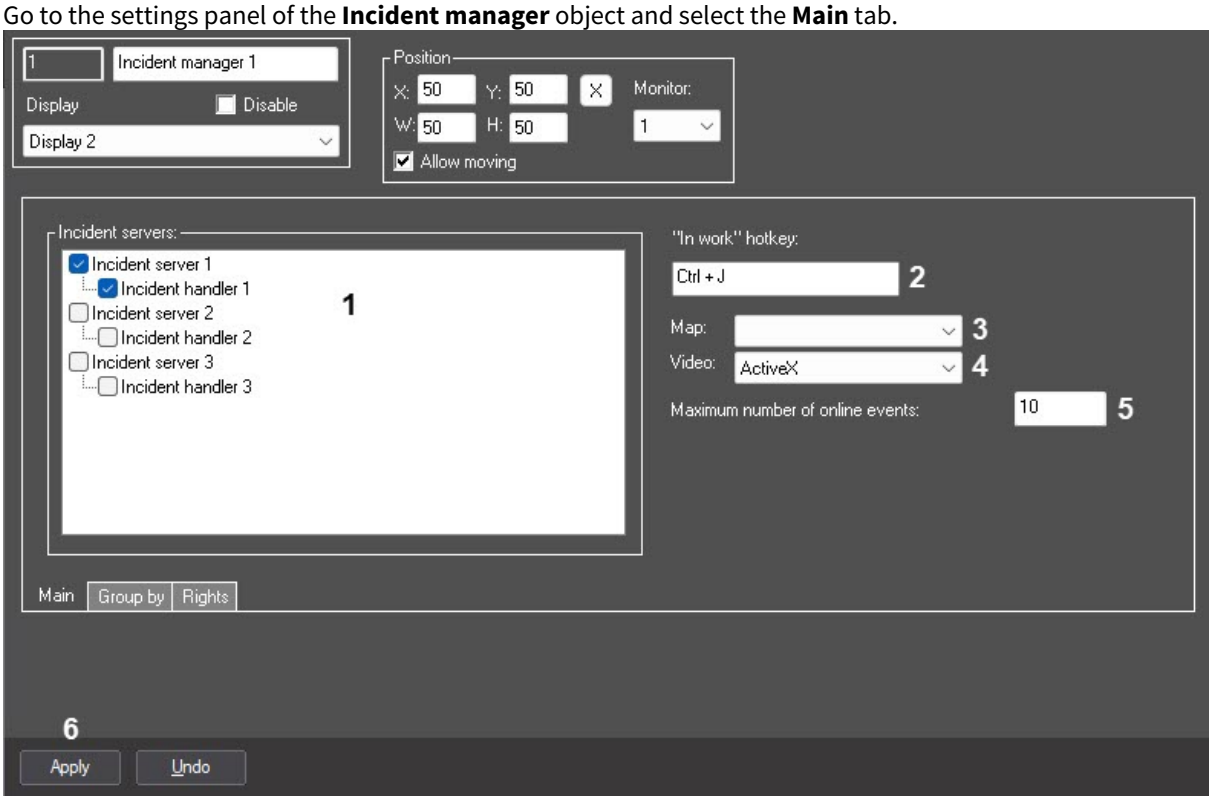
      iii. Click the **OK** button. As a result, the coordinates in the **X**, **Y**, **W**, **H** fields will be set in accordance with the size and position of the test window.
3. Set the **Allow moving** checkbox to manually change the position and size of the **Incident manager** (**4**).
4. From the **Monitor** drop-down list, select the number of the monitor in the system for which these coordinates are set and on which the **Incident manager** should be displayed (**5**).
5. Click the **Apply** button.

Configuring the **Incident manager** position on the screen is now complete.

Configuring the main parameters of the Incident manager

Configure the main parameters of the Incident manager as follows:

1. Go to the settings panel of the **Incident manager** object and select the **Main** tab.



2. In the **Incident servers** window, set the checkboxes next to those **Incident server** and **Incident handler** objects, the events and processing logic from which will be displayed in the interface (**1**) (see Configuring Incident server and Incident handler).
3. If necessary, set a hotkey, using which the operator can start processing the event. To do this, place the mouse cursor in the **"In work" hotkey** field (**2**) and press the required key or key combination on the keyboard.
4. From the **Map** drop-down list (**3**), select the previously created **Map** object, which will be linked with the Incident manager. At the operator's direction, an object from which the event came can be highlighted on the map in the Incident manager.
5. From the **Video** drop-down list (**4**), select a video display mode:
   a. **ActiveX**—archive and live video will open in a separate window.
   b. **Monitor**—archive and live video will open in the selected Video surveillance monitor. In this case, the Video surveillance monitor will operate in the **Active camera** mode, regardless of the corresponding setting (see Configuring the display mode of camera windows).
6. In the **Maximum number of online events** field (**5**), set the maximum number of events that can be simultaneously displayed in the interface. The default is 10 (minimum value), the maximum value is 50000.
7. Click the **Apply** button (**6**).

The main parameters of the **Incident manager** are configured.

Note

You can change the display of the date and time format in the reports of the **Incident manager**. You can do this in the **Security zone** object, on the **Date and time format** tab (see The Settings panel of the Security zone object). After you select the required formats, you must restart *Axxon PSIM*.

Configuring the events grouping in Incident manager

To configure grouping of events in the Incident manager, do the following:

1. Go to the settings panel of the **Incident manager** object and select the **Group by** tab.



2. In the **Group by** drop-down list (**1**), select the event grouping option for the **Incident manager** interface:
   a. **Operator** — the operator can choose the grouping method in the **Incident manager** interface.
   b. **Disabled** — the event grouping is disabled.
   c. **Region** — the events are grouped by region.
   d. **Event** — the events are grouped by event type.
   e. **Object** — the events are grouped by object.
3. Set the **Process whole group** checkbox (**2**), which sets two options:
   a. in case one operator takes an event from a selected group for processing, all events of this group will be blocked for processing by other operators. When the checkbox is set, all events of the selected group, including new incoming events, will be available for processing by only one operator until he finishes processing all the events of the group. Other operators will not be able to take events from this group for processing — when they try to do that, the warning message "Group is blocked" will be displayed.

      Note

      If the operator took one event from the group for processing and released it without processing, then the events blocked by the group become released for other operators.

   b. when one event of the selected group is escalated, all events of this group will be escalated too.
4. From the **Grouping in list** drop-down list (**3**), select the event grouping option:
   a. **no grouping** — all events will be displayed in the event display window without grouping. If filtering is set, then all events of the selected filter will be displayed.
   b. **by event** — the events will be grouped by object type / object ID / event type / logic ID.

5. Set the **Show only first event in the group. Close others without processing** checkbox (**4**), it is necessary to show only the first event from the group and close the rest of the events without processing after the first event is processed.
6. Click the **Apply** button.

Configuring user rights in Incident manager

To configure user rights in Incident manager, do the following:

1. Go to the settings panel of the **Incident manager** object and select the **Rights** tab.



2. In the **Users** table:
   a. From the list in the **Number** column, select the user identification number (**1**). After selecting a number, the **Name** field (**2**) will be automatically filled in with the user's name (usually first or last name).
   b. Set the checkboxes in the required columns next to the user (**3**):
      i. **Take in work**, so that the user can process the event;
      ii. **Close**, so that the user can close the event without processing;
      iii. **Suspend**, so that the user can suspend the processing of the event;
      iv. **Track handling**, so that the user can see the processing steps of the event taken by other users;
      v. **Take any**, so that the user can process the events with any status;
      vi. **Escalate**, so that the user can escalate the event (i.e., pass it to another user for processing);
      vii. **Work with escalated**, so that the user can process the event escalated (passed) from another user.
      viii. **Change filter**, so that the user can apply their own event filters in the interface (see **Filtering events** in Event information).
      ix. **Auto-removal of executors**, so that when logging out of the system, the user's right as an executor is automatically cleared in all events. The processing steps already made by the user are saved, and the events in processing change their status to Suspended.
3. Repeat step 2 for all required users.

> **Note**
>
> To add a row to the table, select the last row and press the ↓ button on the keyboard. To delete rows from the table, use the Ctrl + Del key combination.

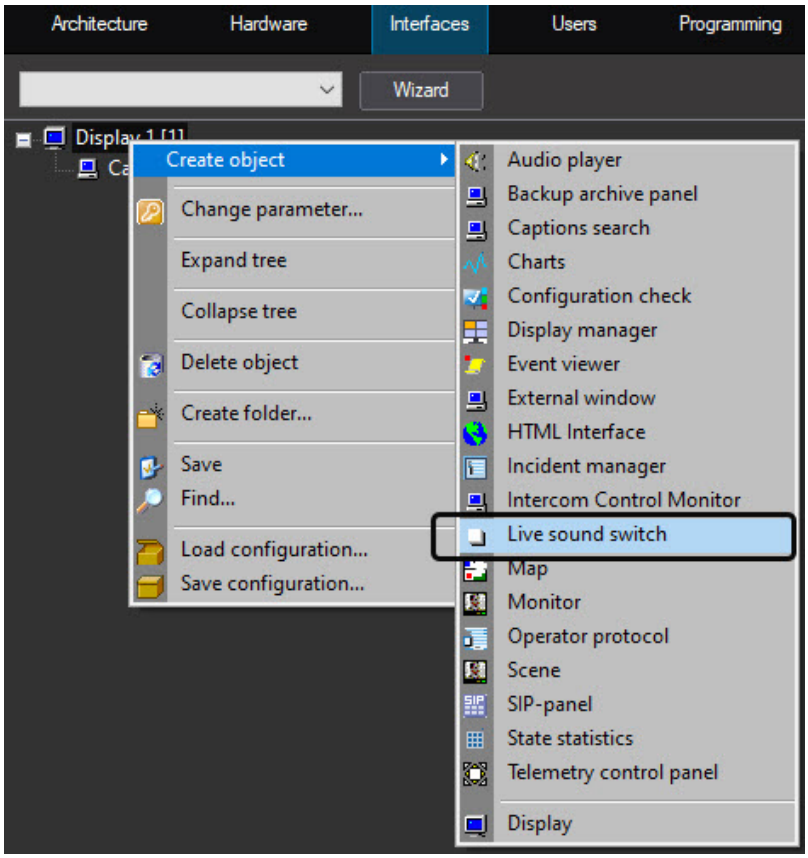
4. Click the **Apply** button.

22.4.10 Setting up the sound switch

You can direct audio signal that arrives from any sound source (microphone) to any sound detector (speaker) in order to play it back in Axxon PSIM™ software. The **Live sound switch** object is used for that.

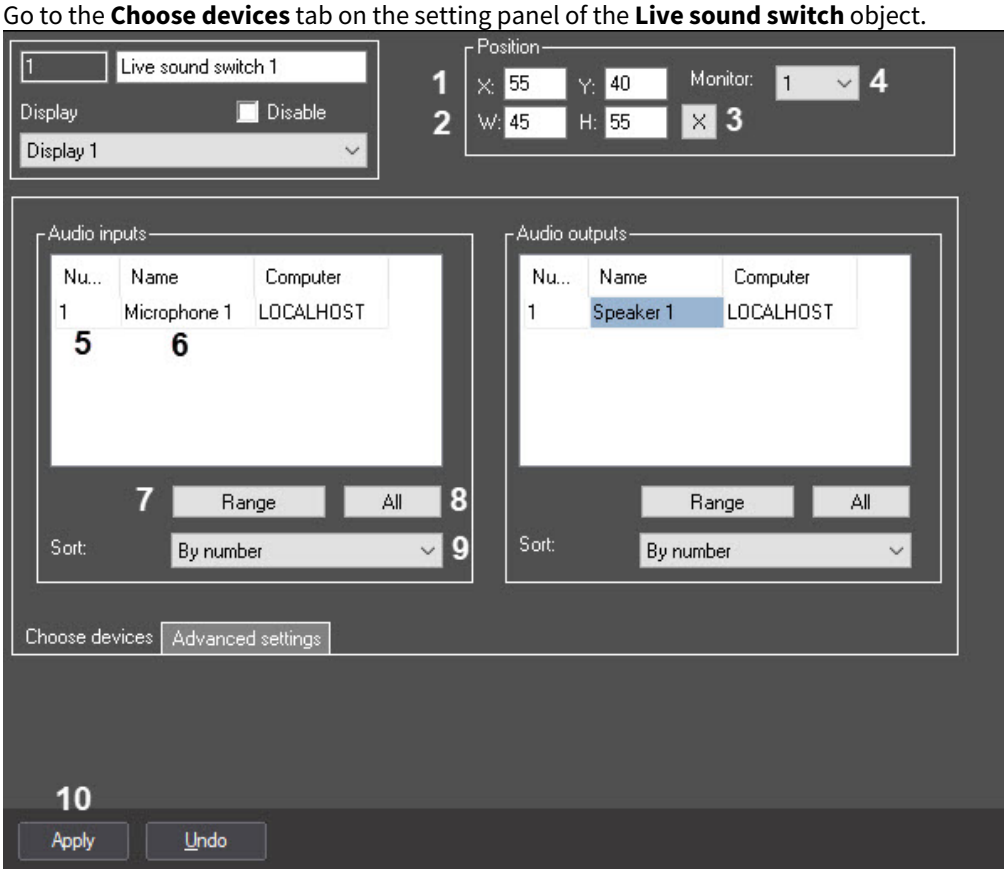
Creating and configuring the Live sound switch object

The **Live sound switch** object is created on the basis of **Display** object in **Interfaces** tab of **System setting** dialog box.

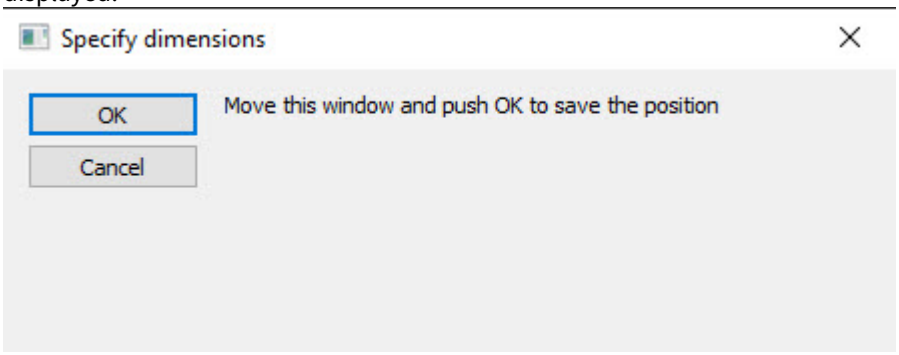


To set up the **Live sound switch** object, do the following:

1. Go to the **Choose devices** tab on the setting panel of the **Live sound switch** object.



2. Adjust the position of the **Live sound switch** object dialog box in one of the following ways:
   a. Manually:
      i. Enter the coordinates of the upper left corner: the **X** (horizontal indent from the left screen border) and **Y** (vertical indent from the top screen border) fields (**1**). The coordinates are expressed as a percentage relative to the screen size horizontally and vertically, respectively.
      ii. Enter the dialog box dimensions: the **W** (window width) and **H** (window height) fields (**2**). The dimensions are expressed as a percentage relative to the screen size horizontally and vertically, respectively.
   b. With a test window:
   c. Click the **X** button (**3**).
   d. Position the **Specify dimensions** test window where the **Live sound switch** window should be displayed.

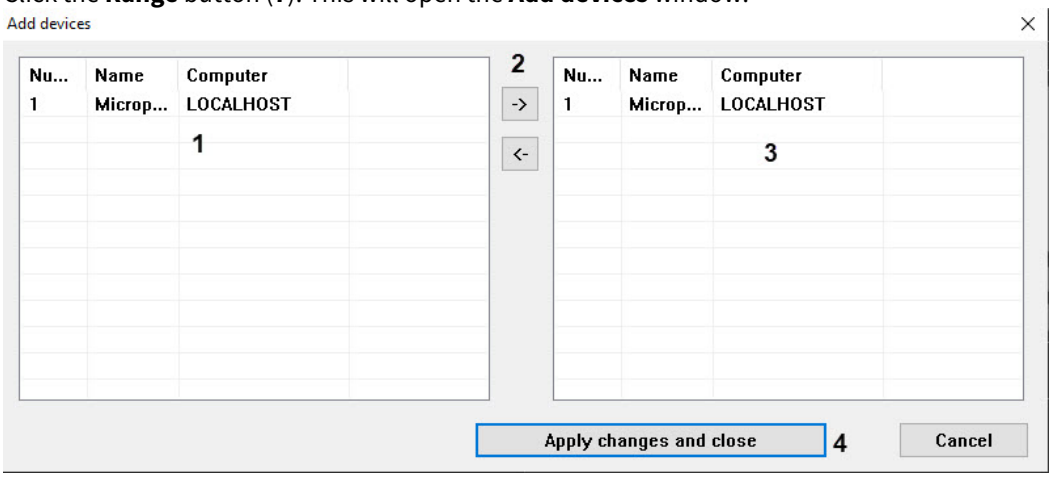


   e. Click **OK**. As a result, the coordinates in the fields **X**, **Y**, **W**, **H** will be set in accordance with the size and position of the test window.

3. From the **Monitor** drop-down list (**4**), select the number of the monitor in the system for which the coordinates are set and on which the **Live sound switch** should be displayed.
4. In the **Audio inputs** field, add the audio sources in one of the following ways:
   a. One by one:
      i. From the drop-down list in the **Number** column (**5**), select the number of the **Microphone** object, or in the **Name** column (**6**), select the name of the **Microphone** object. The rest of the columns will be filled in automatically.
      ii. Repeat step i for all required **Microphone** objects.

      > **Note**
      >
      > To add a new row to the table, press the "down" button on the keyboard. To delete a row, select it and press Ctrl+Del.

   b. Several microphones at once:
      i. Click the **Range** button (**7**). This will open the **Add devices** window.



      ii. In the list on the left (**1**), select the necessary microphones to add. To select multiple lines, left-click on them while holding down the Ctrl key on the keyboard.
      iii. Move the microphones to the list on the right (**3**) using the **->** button (**2**).

      > **Note.**
      >
      > To remove the audio sources from the list on the right, select them and click **<-**.

      iv. Click the **Apply changes and close** button (**4**).
      v. As a result, the selected microphones will be added to the list on the settings panel of the **Live sound switch** object.
   c. All microphones created in the hardware tree: click the **All** button (**8**).
5. From the **Sort** drop-down list (**9**), select the sorting method for the Audio inputs list: by number or by name.
6. In the **Audio output**s field, add audio receivers and set up sorting similarly to audio sources in steps 4 and 5.
7. Go to the **Advanced settings** tab and set the **External window when playing files** check box, if it is necessary that a window with playback progress opens in the **Live sound switch** interface when playing files:



If the checkbox is not set, then the progress will be displayed as a percentage in the speaker name during the playback.

8. Click the **Apply** button to save the changes (**10**).

Setting up the **Live sound switch** object is now completed.

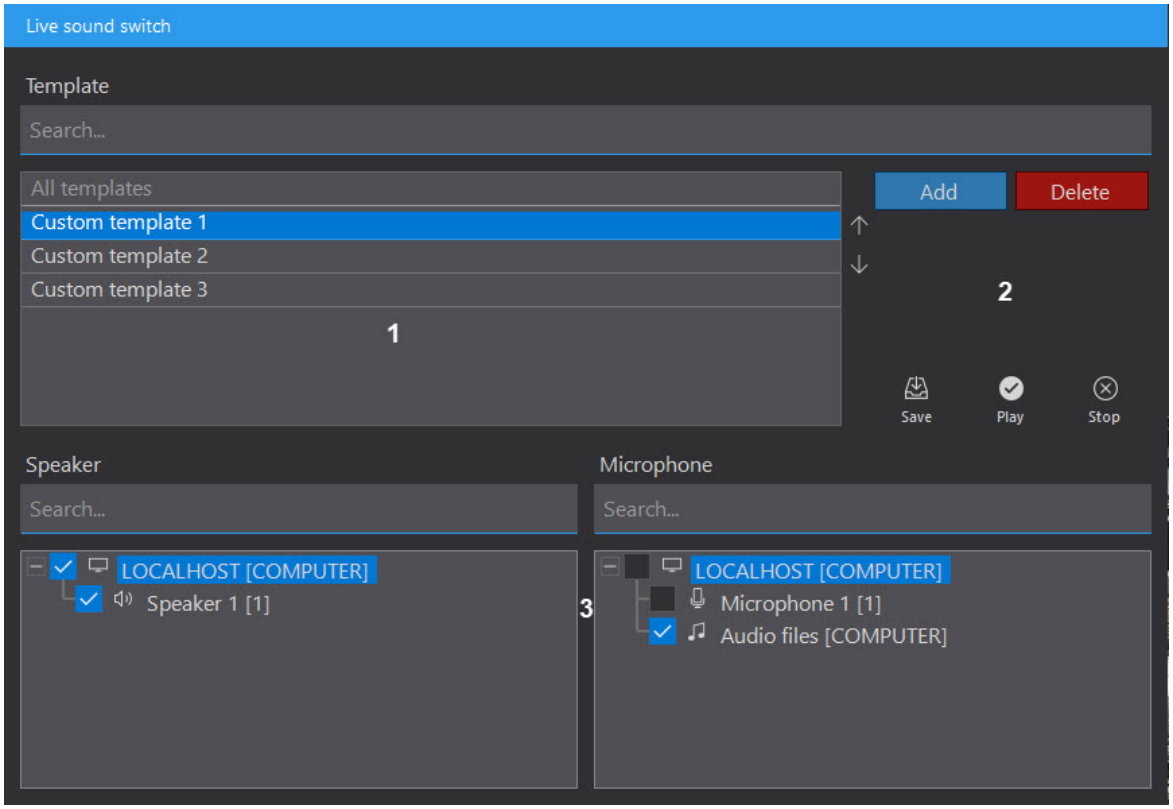
Using the Live sound switch object

On this page:

- Template configuration
- Managing templates
- Playing audio by template
- Adding audio files as sound sources

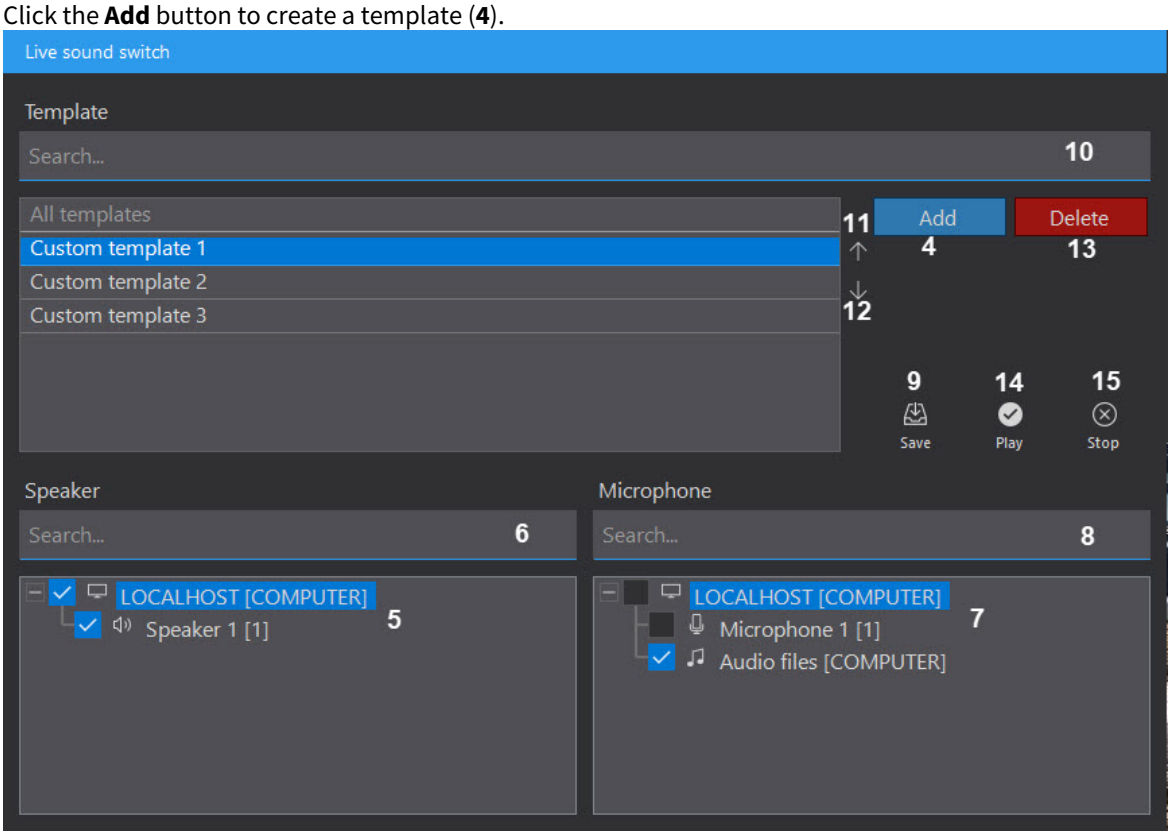
The **Live sound switch** operation is based on templates, each of which specifies the necessary interconnections between microphones and speakers. You can set an unlimited number of templates.

The display window of the **Live sound switch** object contains a list of templates (**1**), template control buttons (**2**) and template settings (**3**):


Live sound switch
Template
Search...
All templates
Custom template 1
Custom template 2
Custom template 3
1
Add
Delete
2
Save
Play
Stop
Speaker
Search...
LOCALHOST [COMPUTER]
Speaker 1 [1]
3
Microphone
Search...
LOCALHOST [COMPUTER]
Microphone 1 [1]
Audio files [COMPUTER]

Template configuration

1. Click the **Add** button to create a template (**4**).



2. In the **Speaker** list (**5**), set the checkboxes for the speakers which should play sound. You can use the search box (**6**) to find the required speaker by writing its name or part of it.
3. In the **Microphone** list (**7**), set the checkboxes for the microphones or audio files, the sound from which should be sent to the speaker (the procedure of adding them to the list is described below). Similarly, you can find the required microphone or audio file by name in the search box (**8**).

> **Note**
>
> The sound on the speaker is mixed if multiple sound sources are selected. You cannot select both a microphone and an audio file as the audio source at the same time, but you can select multiple microphones.

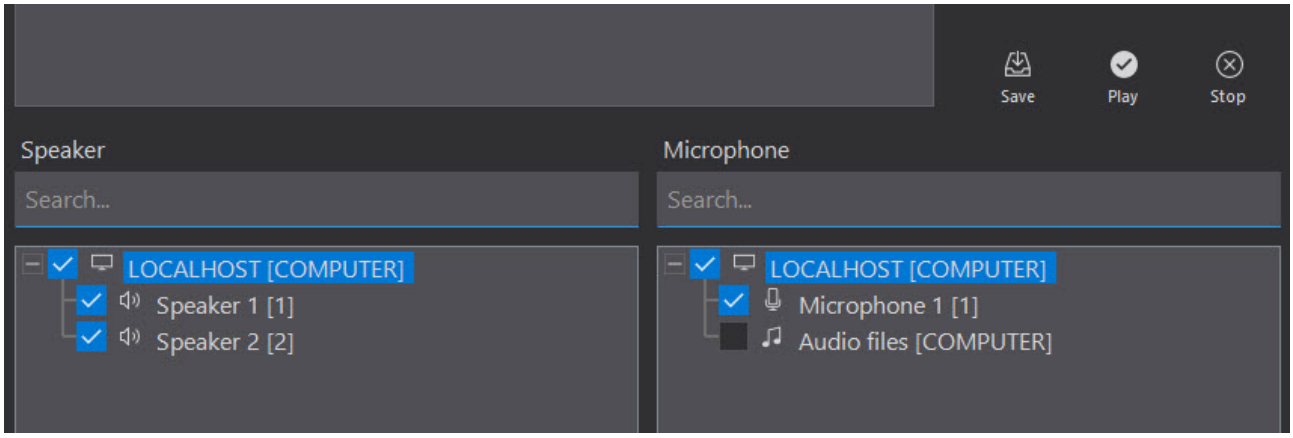
4. Click the **Save** button (**9**) to save the template settings.
5. Repeat steps 1-4 to configure the required number of templates.

Managing templates

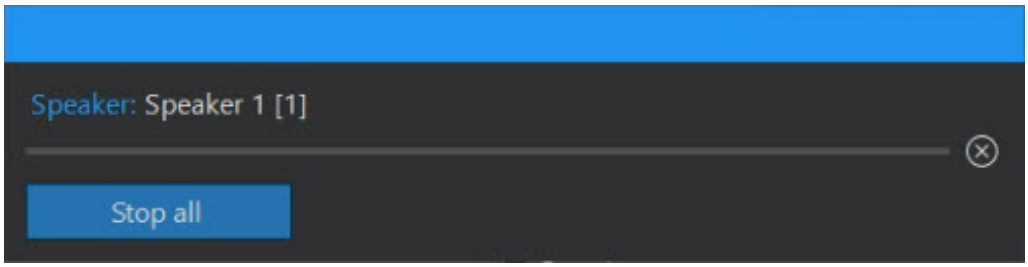
1. To search for a required template, enter the template name or part of it in the **Search** field (**10**).
2. To change the playback order of templates, select a template in the list and click the **Up** or **Down** button (**11**, **12**). The first template in the list will be played first.
3. To rename a template, select it in the list and left-click on it once. You can also right-click on the template and select **Edit** from the context menu.
4. To delete a template, select the required template and click the **Delete** button (**13**). You can also right-click on the template and select **Delete** from the context menu.

Playing audio by template

To play sound on speakers, select a template in the list and click the **Play** button (**14**). As a result, the sound from the selected microphones will be sent to the selected speakers, and the names of active devices will be highlighted with red:



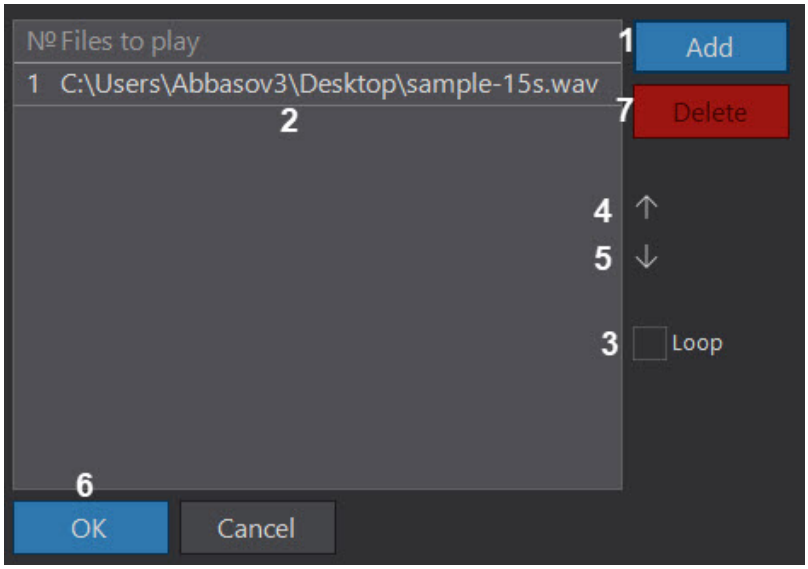
When playing sound from audio files, the sound transmission progress will be shown as a percentage next to the file name or in the form of a separate window illustrating the playback progress (depends on the settings, see Creating and configuring the Live sound switch object):



To stop sound transmission, click the **Stop** button (**15**).

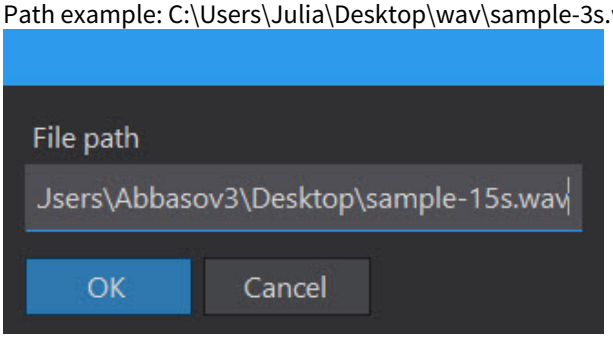
Adding audio files as sound sources

To send custom sounds to the speakers, set the checkbox for **Audio files** when selecting sound sources. The window for adding files will open:



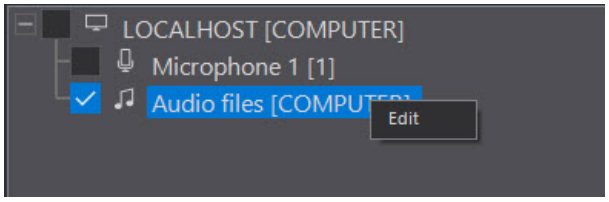
Add audio files as follows:

1. Click the **Add** button (**1**).
2. In the window that opens, specify the path to the audio file with its name. Files in wav format are supported. Path example: C:\Users\Julia\Desktop\wav\sample-3s.wav.



3. Click **OK**. As a result, the selected file (**2**) will appear in the list of files for playback.
4. If it is necessary to loop the file during playback, select it in the list and set the **Loop** check box (**3**).
5. Repeat steps 1-4 for the required number of audio files.
6. If necessary, adjust the playback order of files by selecting the required file in the list and moving it using the **Up** and **Down** buttons (**4**, **5**). The first file in the list will be played first.
7. To edit the added file, right-click on it and select **Edit** from the context menu. To delete the file, select it in the list and click the **Delete** button (**7**) or right-click on it and select **Delete** from the context menu.
8. Click the **OK** button (**6**).

Adding audio files is now complete. To edit the list of audio files, right-click on **Audio files** object and select **Edit** from the context menu:

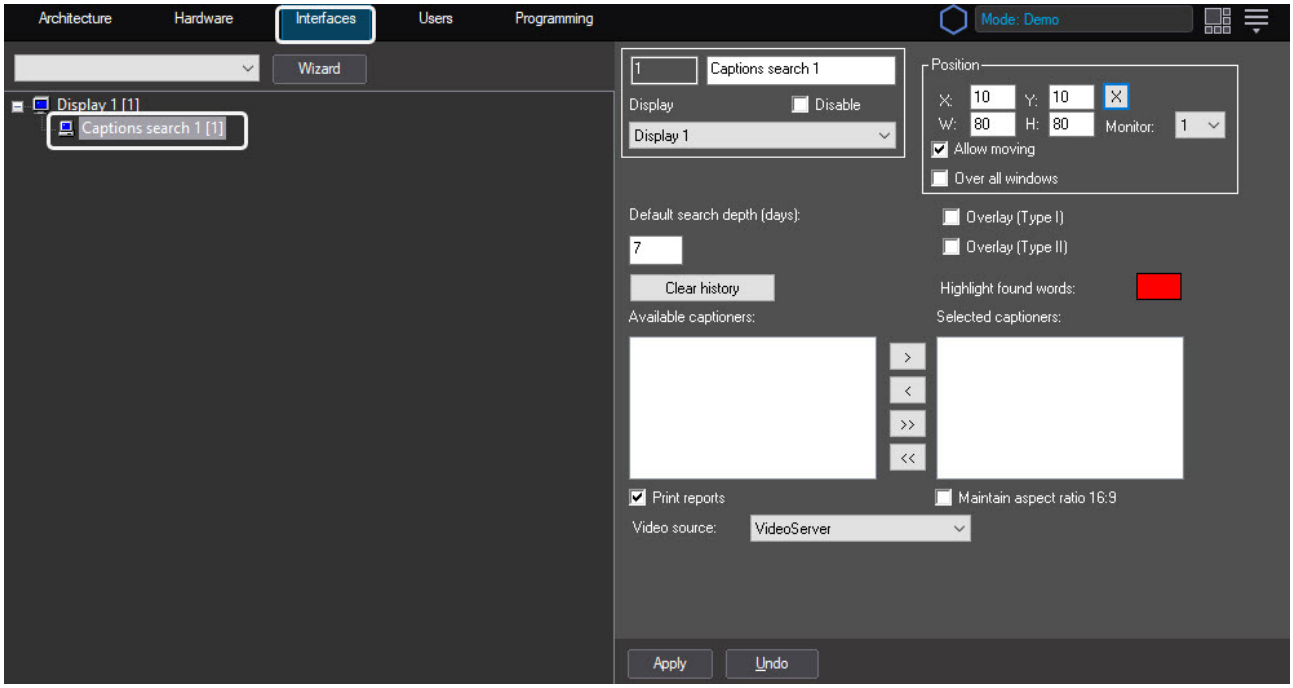


22.4.11 Setting up the Captions search window

The Captions search interface object setup procedure

The **Captions search** object is a child of the **Display** system object. It is used to search for user queries in the captions database.

To create and set up the **Captions search** object, use the **Interfaces** tab in the **System Settings** window.



The **Captions search** interface object setup includes the following steps:

1. Select the captioners.
2. Specify the search criteria.
3. Set up the **Captions search** interface window.

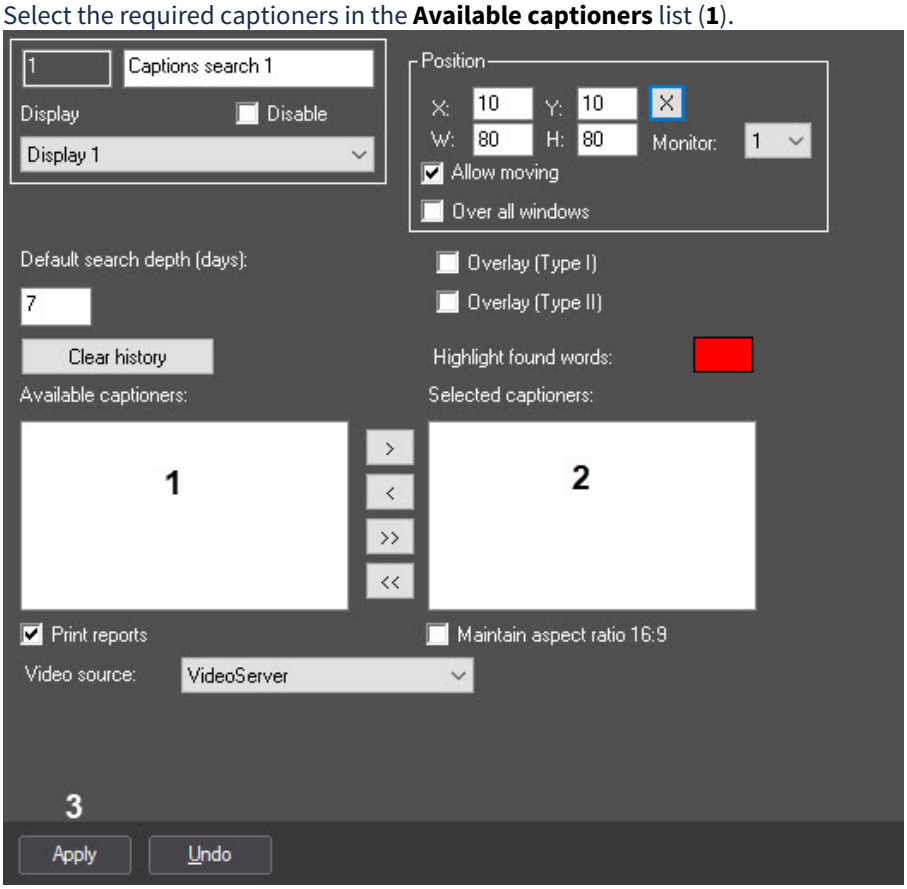
> **Attention!**
>
> The **Captions search** object also uses the **ElasticSearch** service (see Features of ElasticSearch service operation). If search by captions does not operate correctly, we recommend you to disable the **ElasticSearch** service using the SearchIndex parameter in the **cam_title.run.config** file (see XML-file parameters reference guide).

Working with the Captions search interface object

Selecting the captioners

Selecting the captioners allows you to select the captioners archive where the search should be performed. To select the captioners, do the following:

1. Select the required captioners in the **Available captioners** list (**1**).



2. Click the [>] button to move the selected captioners, or the [>>] button to move all captioners from the list of the **Available captioners** to the **Selected captioners** list (**2**).

> **Note**
>
> Alternatively, the [<] and [<<] buttons are used to move the selected or all captioners from the **Selected captioners** list to the **Available captioners** list.

3. Click the **Apply** button (**3**).

The captioners are now selected.

Specifying the captions search parameters

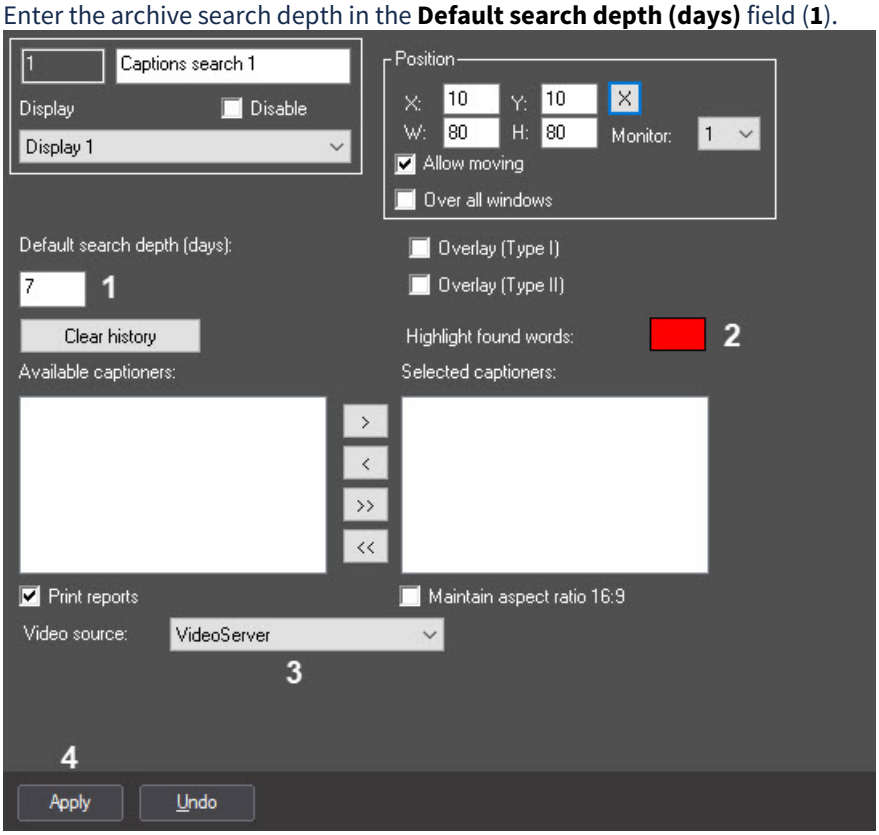
To configure the captions search, specify the following parameters:

1. **Search depth** – the captions search depth.
2. **Highlight found words** – the option for highlighting the found words in the search results.
3. **Video source** – select an archive from which video data is received: main or backup archive.

> **Note**
>
> Storing captions can be disabled by **NoSaveTitles** registry key – see Registry keys reference guide.

To specify the captions search parameters, do the following:

1. Enter the archive search depth in the **Default search depth (days)** field (**1**).



2. To enable highlighting of found words, double-click the **Highlight found words** color box and select the color in the standard Windows color selection box that opens (**2**).
3. From the **Video source** drop-down list select an archive from which video data is displayed as search results: video server main archive or backup archive (**3**).

> **Note**
>
> If the backup archive is selected as the Video source, and not all cameras have records in it, then only the search results for cameras that have records in the backup archive will be displayed.
> If there is no backup archive for all cameras, but it is selected as the Video source, the archive from the video server for all cameras is used by default.

4. Click the **Apply** button (**4**).

The captions search parameters are now configured.

Setting up the Captions search interface window displaying

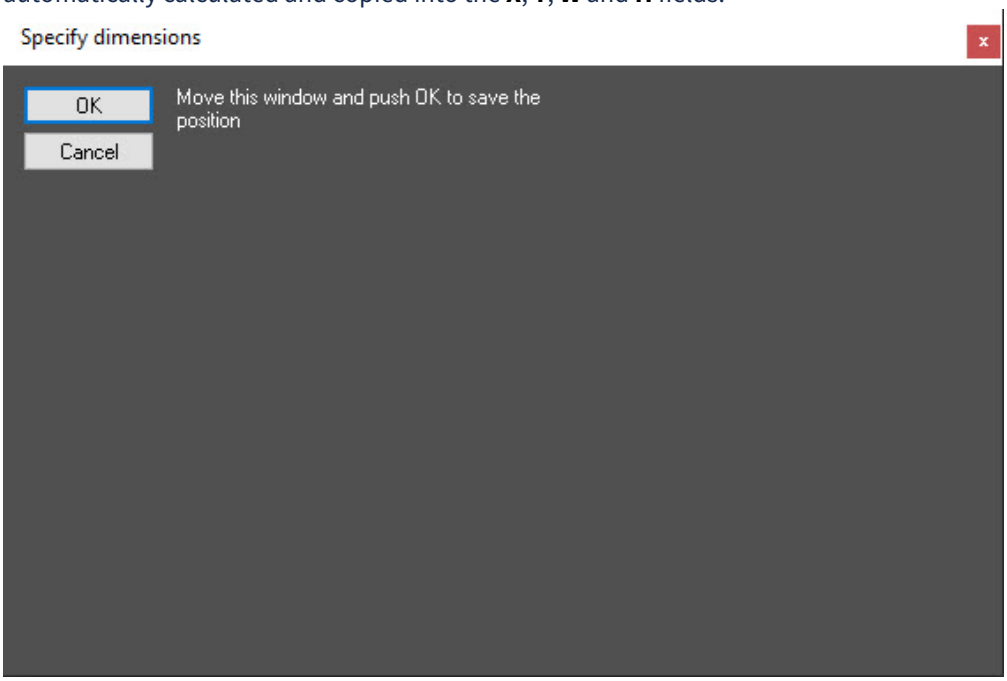
To set up the **Captions search** interface window displaying, the following parameters should be specified:

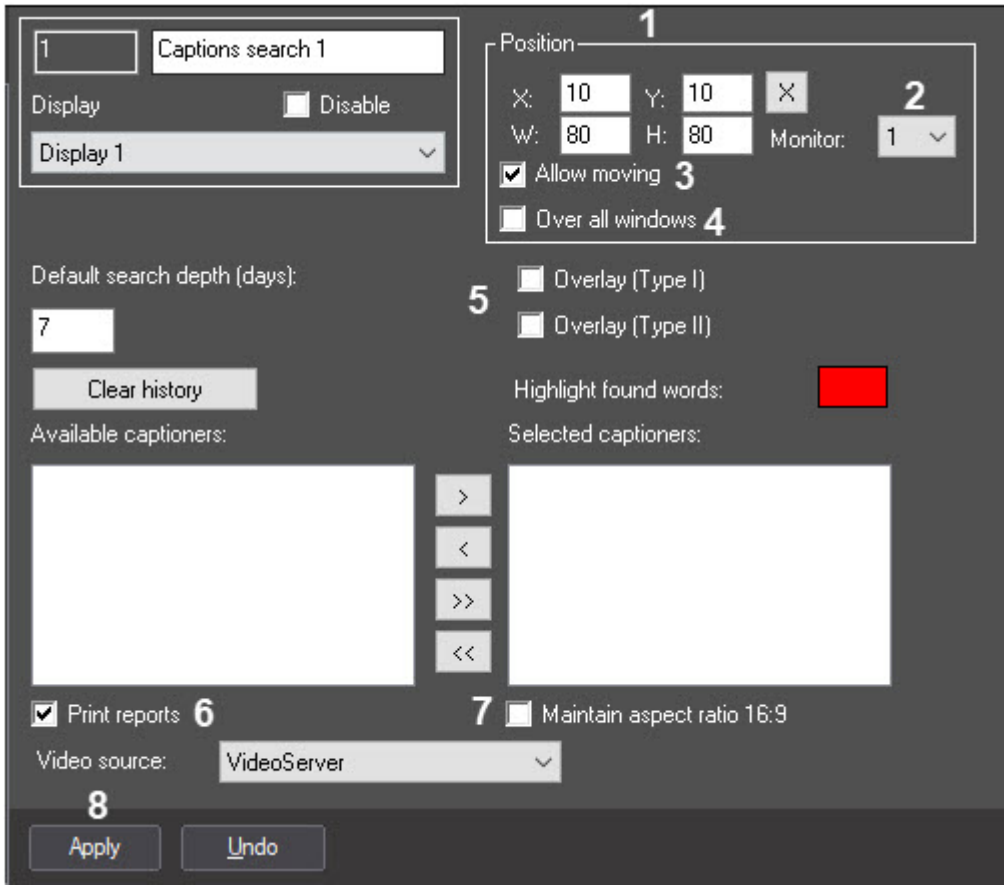
1. **Position** – the position and the size of the **Caption search** interface window.
2. **Overlay type** – the type of the overlay of the synchronous display of video image and search results.
3. **Print reports** – allows the operator to print the search results.

To set up the **Captions search** interface window displaying, do the following:

1. Specify the position and the size of the **Captions search** interface window: the **X** field (the horizontal indent from the left border of the computer screen), the **Y** field (the vertical indent from the top border of the computer screen), the **W** field (the window width), the **H** field (the window height) (**1**).

The coordinates can be set up using the visual method. Click the  button and use the mouse to set the location and size of the test window, then click the **OK** button. The coordinates of the test window will be automatically calculated and copied into the **X**, **Y**, **W** and **H** fields.





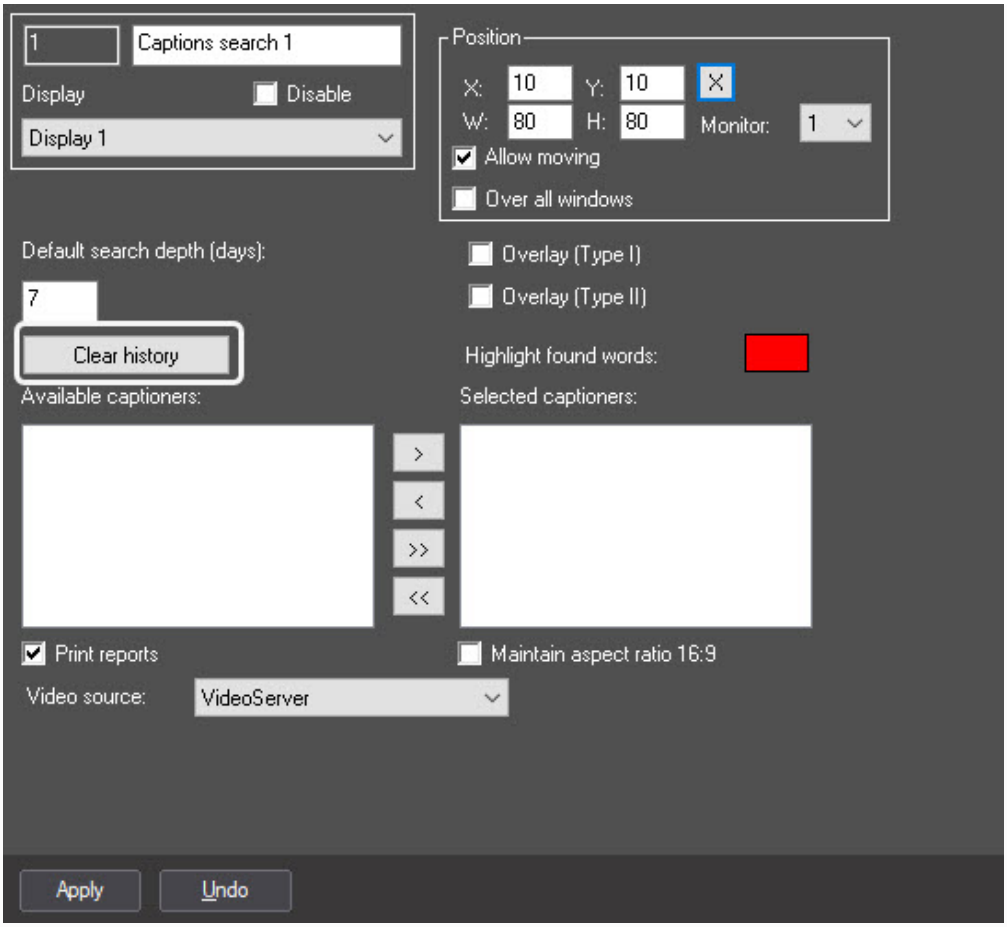
2. In the **Monitor** drop-down list, select the number of the computer monitor on which you want to display the **Captions search** interface window (**2**).
3. By default, it is possible to move the **Captions search** interface window using drag&drop. To disable it, clear the **Allow moving** checkbox (**3**).
4. To display the **Captions search** interface window over all windows, set the **Over all windows** checkbox (**4**).
5. Select the overlay type by setting the **Overlay (Type I)** or **Overlay (Type II)** checkbox (**5**).

   > **Note**
   >
   > In most cases, the optimal mode of processing the video image is DirectDraw — **Overlay (Type II)**. If it is necessary to display the video signal from the Fisheye cameras or the signal decoded using the Intel QuickSync technology, select the **Overlay (Type I)** — Direct3D. The overlay can also be disabled completely.

6. To allow the operator to print the search results, set the **Print reports** checkbox (**6**).
7. If it is necessary to display the archive video in the **Captions search** interface window in the 16:9 format, then set the **Maintain aspect ratio 16:9** (**7**) checkbox. If the checkbox is clear, then the 4:3 aspect ratio is set even for the widescreen video.
8. Click the **Apply** button (**8**).

The **Captions search** interface window is now set.

> **Note**
>
> To clear the history of user queries in the **Captions search** interface window, click the **Clear history** button.



22.4.12 Configuring HTML interface

General description of HTML interface in Axxon PSIM software

The HTML interface object is designed for displaying web-pages, text files, images and more data, displaying of which is supported by Internet Explorer browser, in the *Axxon PSIM* interface window.The Chromium browser can also be used – see the **process** key description in the Registry keys reference guide.

It is possible to create one or several html-pages performing the following functions on the basis of the **HTML interface** object:

1. Loading web-pages and other files by URL or from the file.
2. Saving web-pages and other files and images to the file.

Note

Web-page creating and editing is performed using the specialized editor programs.

If there is video displaying or sound playing back on the web-page, it will be also available in the **HTML interface** window.

HTML interface

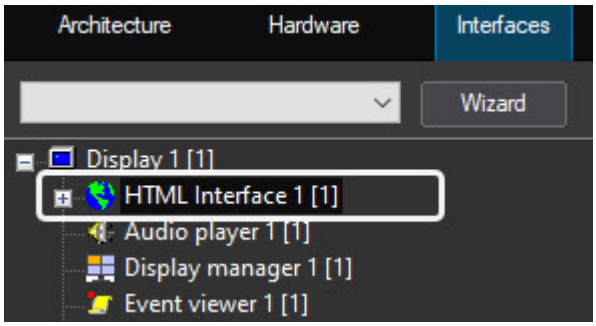
Procedure of HTML interface configuring

To configure HTML interface in the *Axxon PSIM* software, do the following:

1. Create the **HTML Interface** object and set its position.
2. Create and configure one or several **HTML page** objects.
3. Select start page for displaying in HTML interface.
4. Select objects to track their states in HTML interface window.

Creating HTML interface object and setting its position

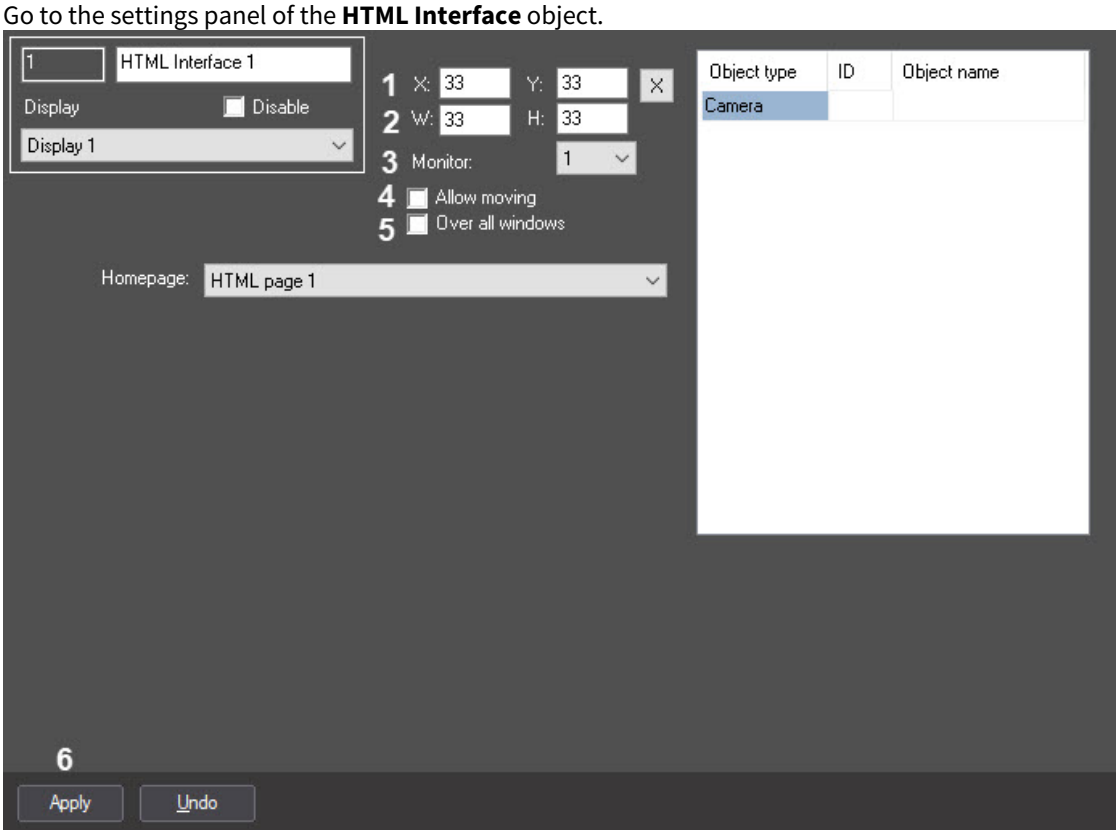
The **HTML interface** object is created on the basis of the **Display** object on the **Interfaces** tab of the **System settings** dialog window.



Object's settings panel will display on the right part of the **System settings** dialog window after the object creation.

To set the position of the **HTML Interface** object on the screen, do the following:

1. Go to the settings panel of the **HTML Interface** object.



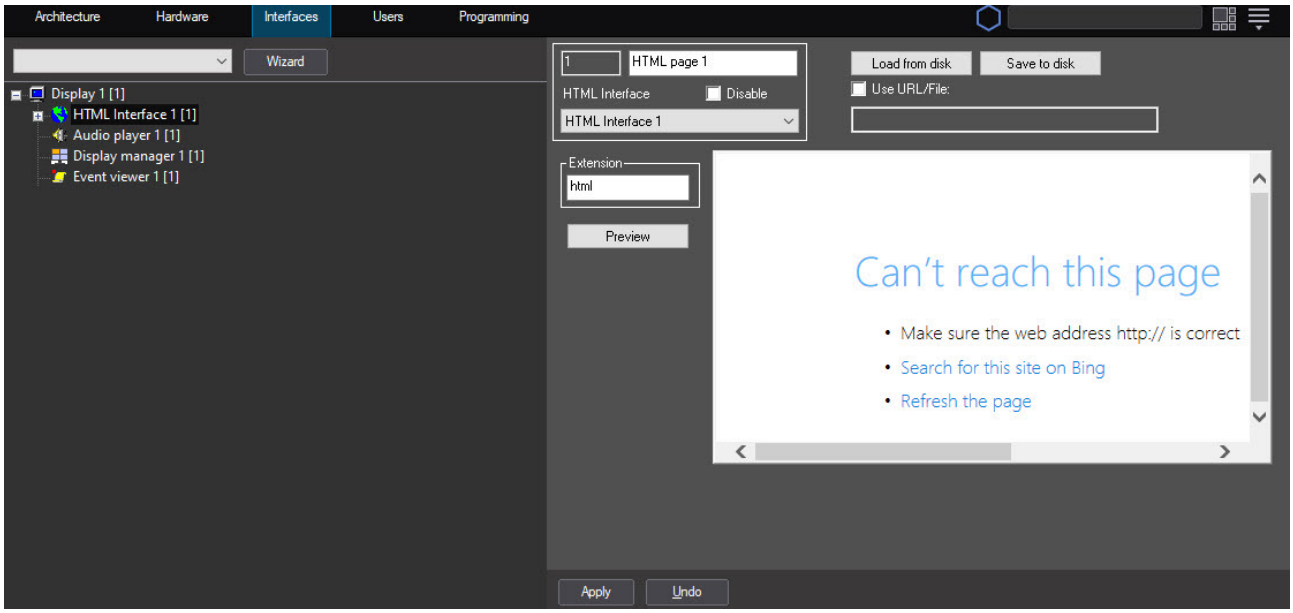
2. In the **X:** and **Y:** fields specify coordinates of the interface window's upper left corner (**1**). Coordinates are counting from the display's upper left corner and expressing as a percentage of the screen width and height respectively.
3. In the **W:** and **H:** fields specify width and height of the HTML interface window as a percentage of the screen width and height respectively (**2**).
4. From the **Monitor** drop-down list select number of the monitor on which the **HTML Interface** object is to be displayed via a mouse click (**3**).
5. Set the **Allow moving** checkbox to allow operator changing position of the **HTML Interface** window via a mouse click (**4**).
6. If it is necessary for the **HTML Interface** window to be displayed on top of all windows, set the **Over all windows** checkbox (**5**).
7. Click **Apply** button (**6**).

Setting position of the **HTML Interface** object on the screen is completed.

Creating and configuring the HTML page object

Creating the HTML page object

The **HTML page** object is created on the basis of the **HTML Interface** object on the **Interfaces** tab of the **System settings** dialog window.



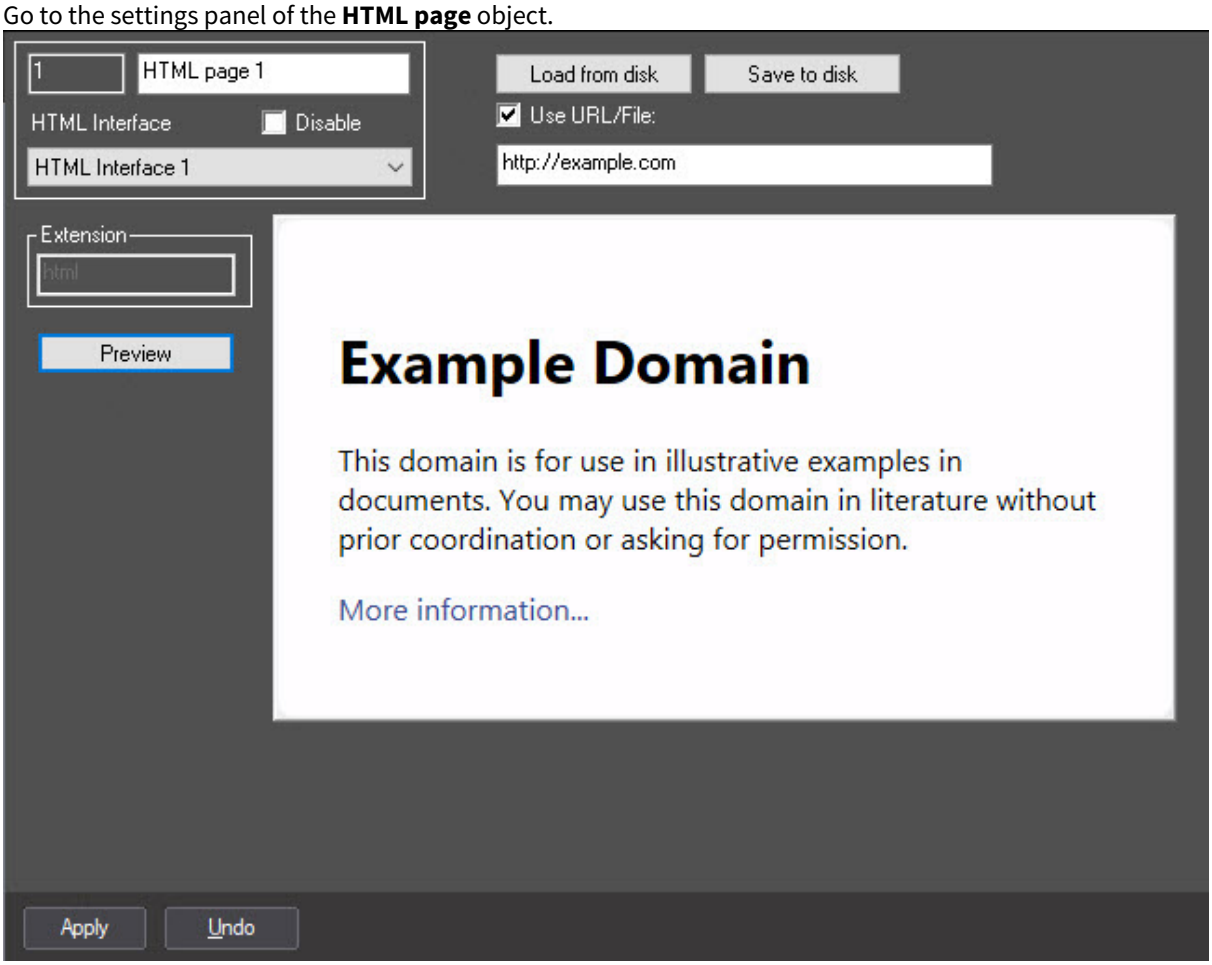
After the object is created, the object's settings panel is displayed in the right part of the **System settings** dialog window.

The default **HTML page** contains an example of a code that allows you to arm and disarm cameras. To check out this example, you must save the page (see Loading a file from disk and saving it to disk) and open it in any text editor.

Open a web page by URL

To go to the specified URL when a web page is opened in the **HTML Interface** window, do the following:

1. Go to the settings panel of the **HTML page** object.



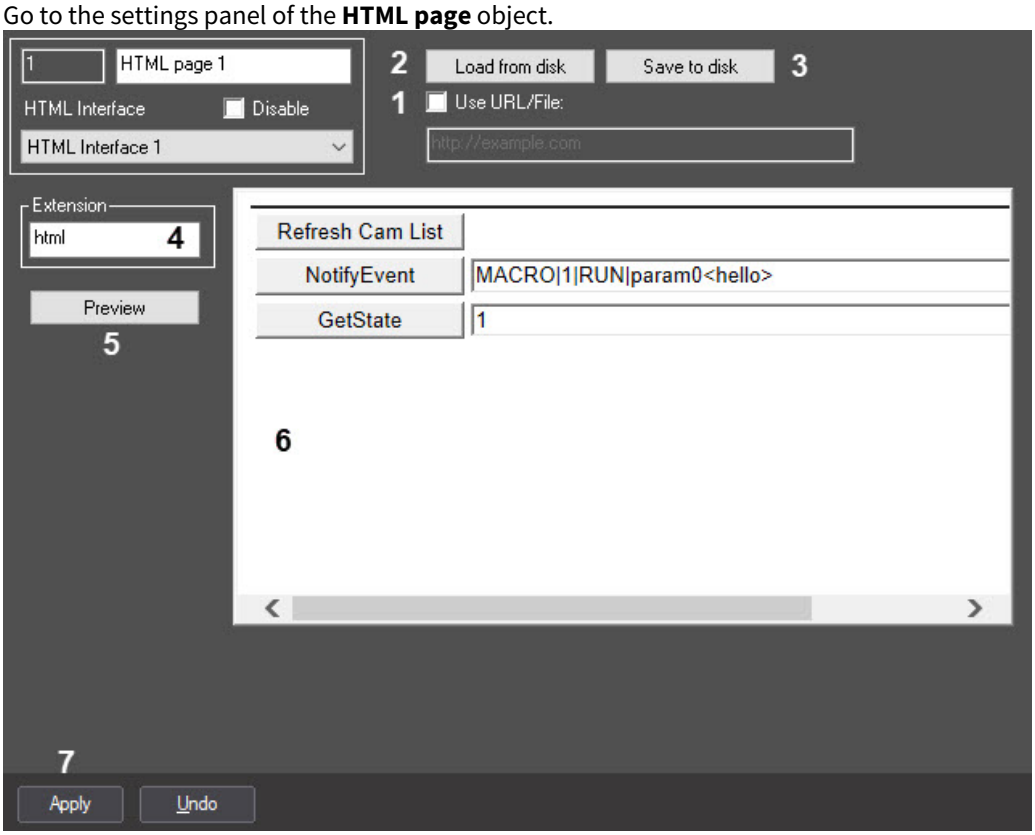
2. Set the **Use URL/File** checkbox.
3. In the text field, enter the URL address of the required page.
4. Click the **Preview** button to preview the HTML page. As a result, the preview window will display the contents of the linked page. Using the Ctrl key and mouse scroll or Ctrl key and +/- keys, you can zoom in/out the page.
5. Click the **Apply** button.

Configuration of opening a web page by the specified URL is complete.

Loading a file from disk and saving it to disk

To load the specified file of the web page, text file or image when you open a web page in the **HTML Interface** window, do the following:

1. Go to the settings panel of the **HTML page** object.



2. Clear the **Use URL/File** checkbox (**1**).
3. Click the **Load from disk** button (**2**).
4. In the standard Windows dialog window, select the required file (**3**).

> **Note**
>
> Extension of the selected file is displayed in the **Extension** field (**4**).

5. Click the **Preview** button (**5**) to preview the HTML page. As a result, the page content is displayed in the preview window (**6**).
6. Click the **Apply** button (**7**).

> **Note**
>
> To save the opened file to a disk, click the **Save to disk** button.

Configuration of loading a file from disk is complete.

Link to the HTML page object

When you apply settings, that is, when you click the **Apply** button or go to the settings panel of another object, the web page is saved in the <*Axxon PSIM* installation directory>\OPCIEFolder\ folder in a file the name of which is formed as follows: OPCIEPAGE<id of the HTML page object>_<id of the HTML interface object>.html, for example, OPCIEPAGE2_1.html.

You can refer to such a page in the usual way using the <a> tag, for example:

HTML page 2

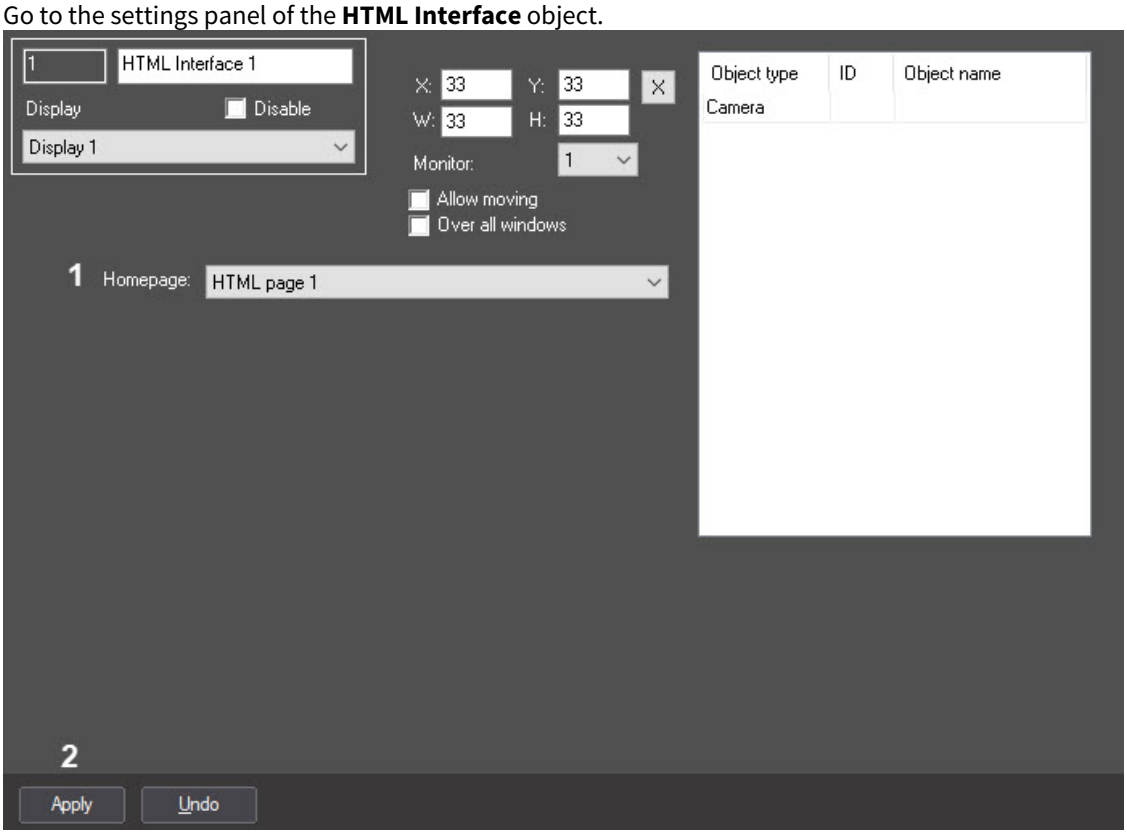
Note

If a web page is opened by URL, an empty file is saved.

Selecting start page for displaying in HTML interface

To select the start page for displaying in the HTML interface, do the following:

1. Go to the settings panel of the **HTML Interface** object.



2. From the **Homepage** drop-down list, select the created HTML page object (1).
3. Click **Apply** button (2).

Configuring the start page is complete.

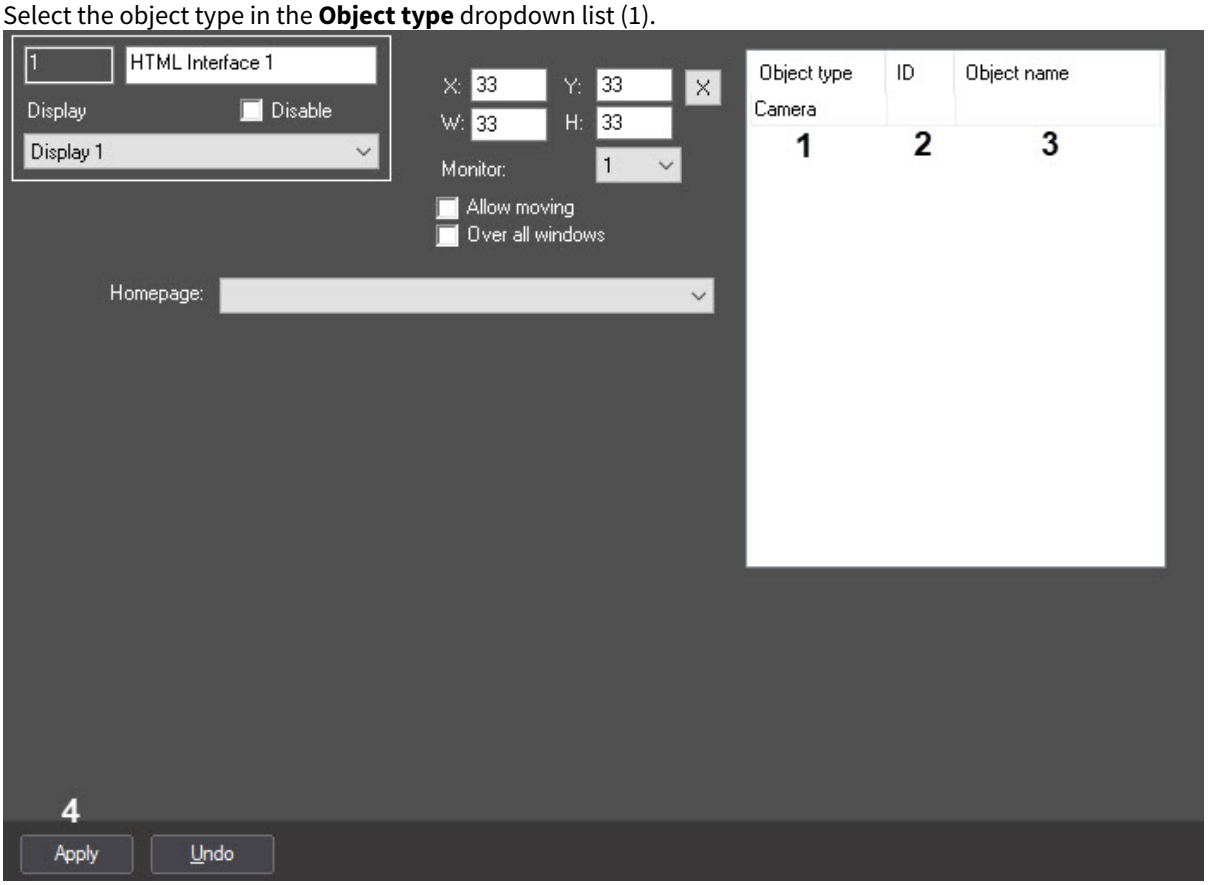
Selecting objects to track their states

An HTML page created by default has OnObjectState and GetState functions aimed to get object states. GetState function requires object state and OnObjectState function aims to get info on states.

Select objects states of which are to be tracked using these functions as follows:

1. Go to the settings panel of the **HTML Interface** object.

2. Select the object type in the **Object type** dropdown list (1).



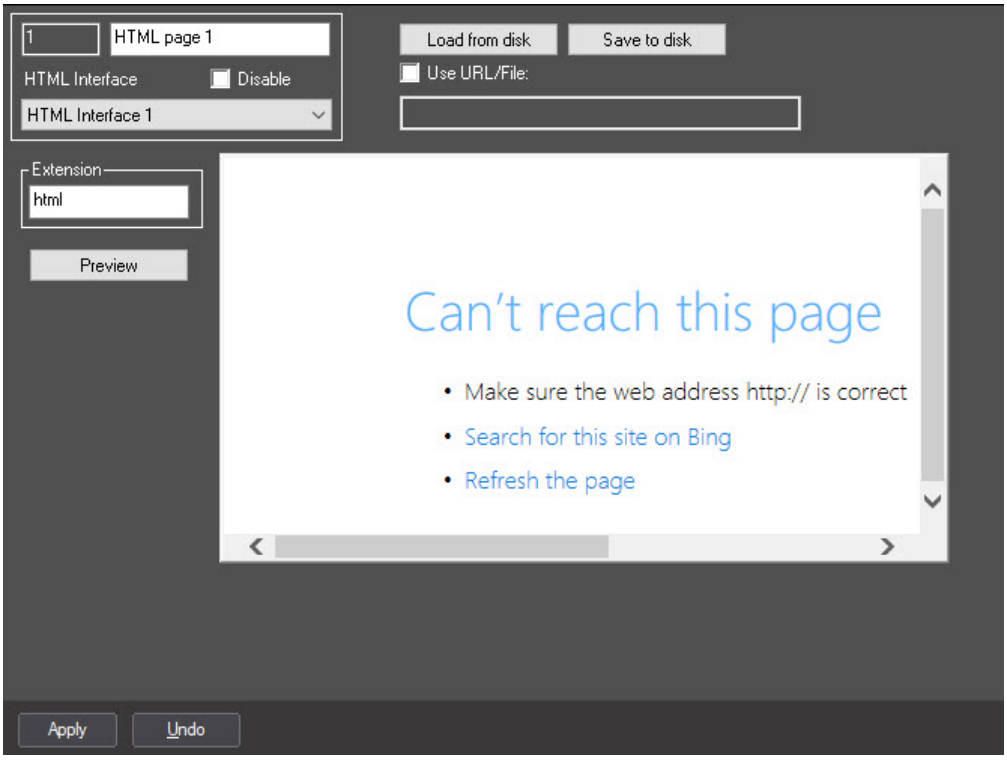
3. If states from the specific object are to be received, then select its ID in the **ID** dropdown list (2).
4. When left-clicking in the **Object name** field it is automatically filled with the name of the object with this ID (3).
5. Repeat steps 2-4 for all required objects.
6. To save the settings, click the **Apply** button (4).

Objects states of which are to be tracked are now selected.

Changing the displayed version of Internet Explorer

If there are messages saying that you need to update the Internet Explorer browser, you can change the displayed version without updating the browser itself. As a result, there will be no more messages about the update. To change the displayed version of Internet Explorer, do the following:

1. Change the displayed version of the Internet Explorer browser in the settings window of the **HTML page** object.



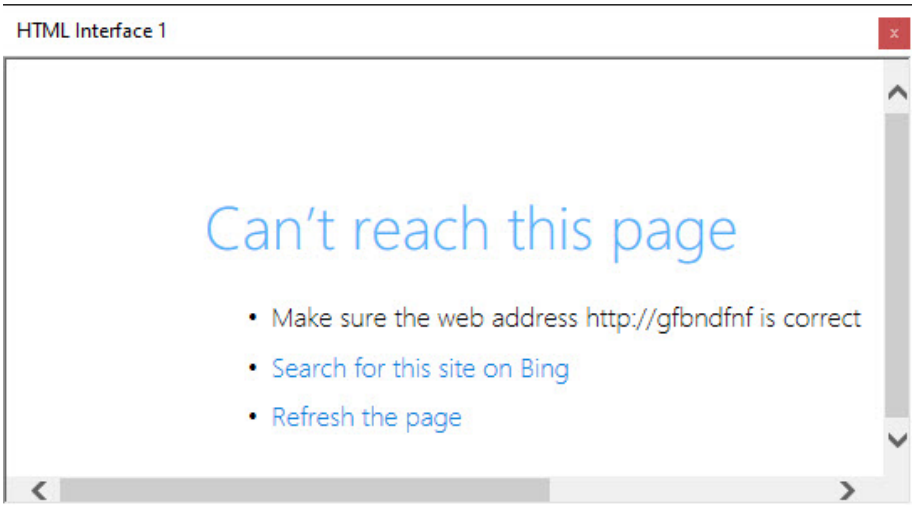
To do this, change the values of the **OpcIe.run** and **psim.exe** parameters to the required ones from the table below:

Internet Explorer version	Decimal value
11	11001
9	9000
8	8888
7	7000

The **OpcIe.run** and **psim.exe** parameters are located in the following registry key branch:

```
Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet
Explorer\Main\FeatureControl\FEATURE_BROWSER_EMULATION
```

2. Change the displayed version of the Internet Explorer browser in the **HTML Interface** window.



To do this, change the value of the **OpcIe.run** parameter to the required one from the table below:

Internet Explorer version	Decimal value
11	11001
9	9000
8	8888
7	7000

The **OpcIe.run** parameter is located in the following registry key branch:

```
Computer\HKEY_CURRENT_USER\Software\Microsoft\Internet
Explorer\Main\FeatureControl\FEATURE_BROWSER_EMULATION
```

Attention!

It is necessary to specify the same value corresponding to the required Internet Explorer version in all the parameters described above.

Note

For more information about working with the registry, see Working with Windows OS registry.

Changing the displayed version of Internet Explorer is complete.

22.4.13 Setting up the voice notification

It is possible to transmit voice notification with the registration of alarms by main motion detectors of cameras.

When motion detector works, audio file which is situated in Wav subdirectory in Axxon PSIM™ software root directory, is played. The files have .wav extension and are called cam_md_start_N, where N is a number of a video camera.

> **Note**
>
> By default Axxon PSIM™ software provides 16 audio files for 16 cameras, respectively. You can add your own audio file if the number of cameras is greater one specified by default. It is enough to move a new audio file (wav format required) to a Wav subdirectory and change its name to: cam_md_start_N, where N is a number of a video camera (> 16). If there is no file with name corresponding to camera, then there is a standard sound of Windows OS - **Ding**.

Before setting up the voice notification, it's necessary to make sure that the following conditions are carried out:

1. Standard sound card is installed on the required computer (also integrated into the motherboard);
2. The devices of audio signals playback (dynamics and headphones) are connected to audio outputs of the sound card.

Setting up the voice notification is carried out in two ways:

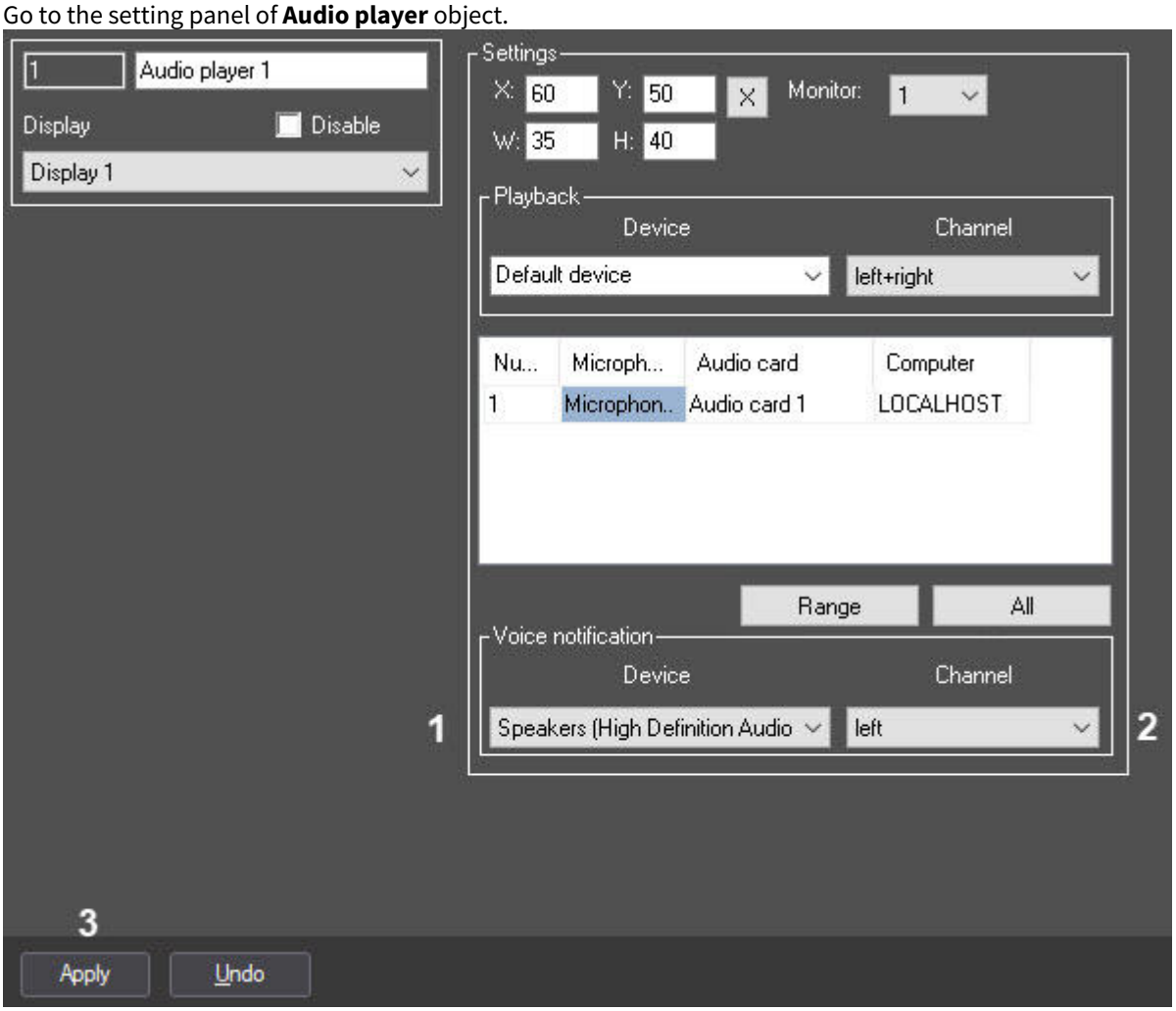
1. Using **Audio player** object;
2. Using **Sound notification** object;
3. Using **Voice Notification Service** object – this way allows selecting any audio file for voice notification, including a custom one.

It's recommended to use only one variant.

Setting up the voice notification using Audio player object

To set up the voice notification using **Audio player** object, do the following:

1. Go to the setting panel of **Audio player** object.



2. Select required voice notification device in **Device** dropdown list of **Voice notification** group (1).

> **Note**
>
> Standard sound card corresponds to **Default device**.
> To switch the voice notification off, select **Switch off**.

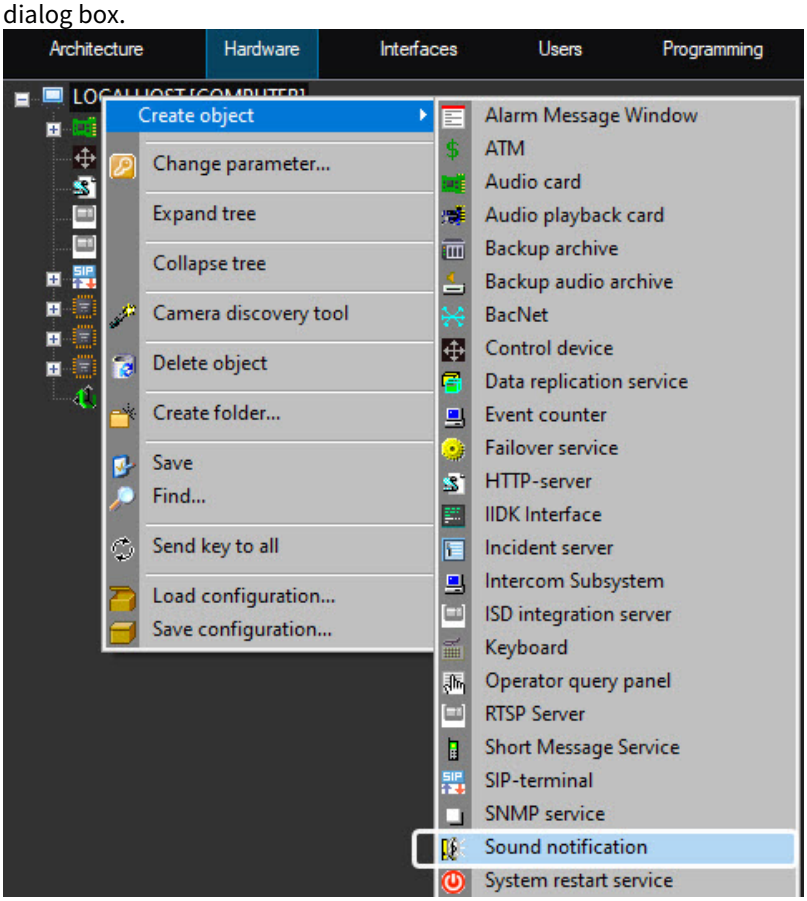
3. Select required voice notification channel in **Channel** dropdown list of **Voice notification** group (2).
4. Click **Apply** button to save all the changes (3).

Setting up the voice notification using **Audio player** object is complete.

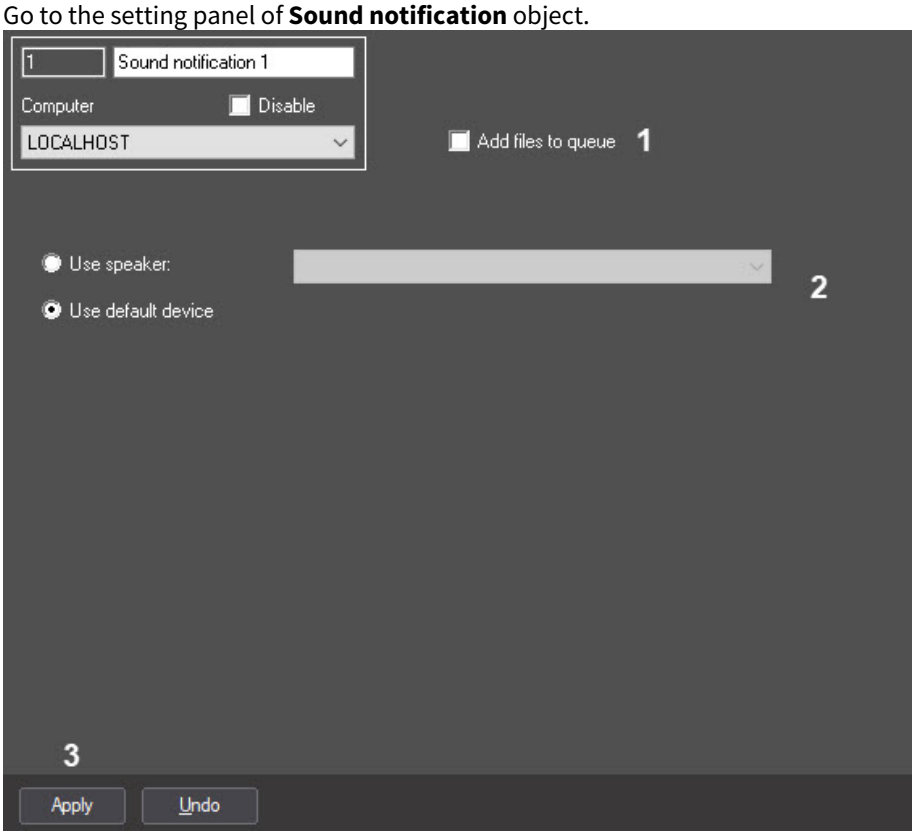
Setting up the voice notification using Sound notification object

To set up the voice notification using **Sound notification** object, do the following:

1. Create **Sound notification** object on the basis of **Computer** object in **Hardware** tab of **System setting** dialog box.



2. Go to the setting panel of **Sound notification** object.



3. If it's necessary, set **Enqueue files** check box in order to play alarm sound notification files that appear simultaneously one after another (1).
4. If the voice notification device is a standard sound card, set the switch into **Use default device** mode. Otherwise, set the switch into **Use speaker** mode and select the voice notification device in the dropdown list (2).
5. Click **Apply** button to save all the changes (3).

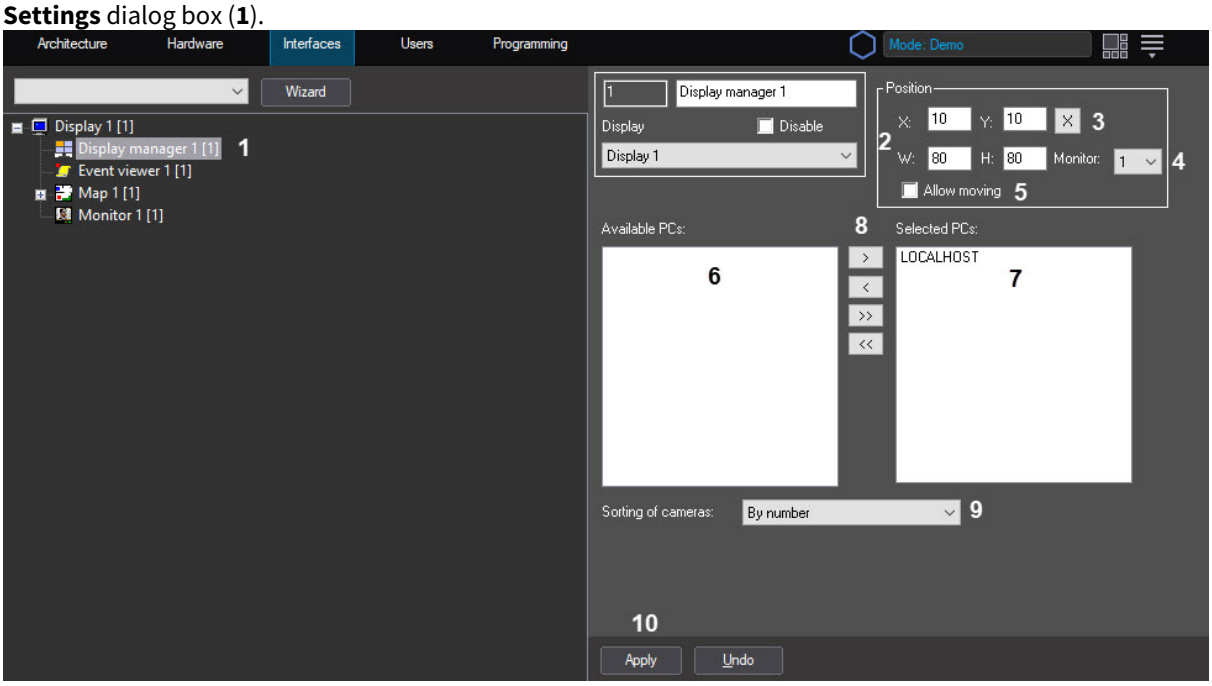
Setting up the voice notification using **Sound notification** object is complete.

22.4.14 Configuring the Display manager

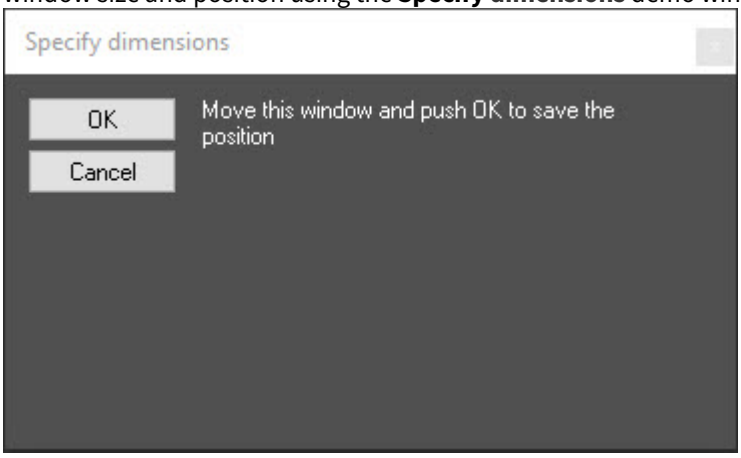
The **Display manager** interface object is designed to manage the video walls. It allows the Operator to conveniently configure the Video surveillance monitor layouts on the specified computers.

The **Display manager** object is configured as follows:

1. Create a **Display manager** object on the basis of the **Display** object on the **Interfaces** tab of the **System Settings** dialog box (**1**).



2. The settings panel of this object will appear in the right part of the **System Settings** dialog box.
3. Set the **Display manager** window size and position manually (**2**), or click the **X** button (**3**) and specify the window size and position using the **Specify dimensions** demo window:



   After the window size and position are set, click **OK**.
4. From the **Monitor** drop-down list (**4**), select the number of the computer monitor on which the **Display manager** window should be displayed.
5. If it is necessary to allow the Operator to move the **Display manager** interface window, set the **Allow moving** checkbox (**5**).
6. Select the computers which screens should be managed from the **Display manager**. To do this, select the required computers in the **Available PCs** list (**6**) and click the **>** (**8**) button to move them to the **Selected PCs** list (**7**). All available computers can be moved to the list of selected ones at once by clicking the **>>** button. To move the computers from the **Selected PCs** list back to the **Available PCs** list, use the **<** and **<<** buttons respectively.

   Note

Add to this list computers on which the video signal is displayed on the Video Surveillance monitor. For example, if there is a **Server** computer in a distributed system with corresponding **Camera** objects created under it, and there is also a **Client** computer to which a **Display** with a **Monitor** is assigned while cameras from the **Server** are selected in that **Monitor**, then you should add the **Client** computer to the **Selected PCs** list.

7. Select the sorting method for the cameras list: **By number** or **By name** (**9**).
8. Click the **Apply** button (**10**).

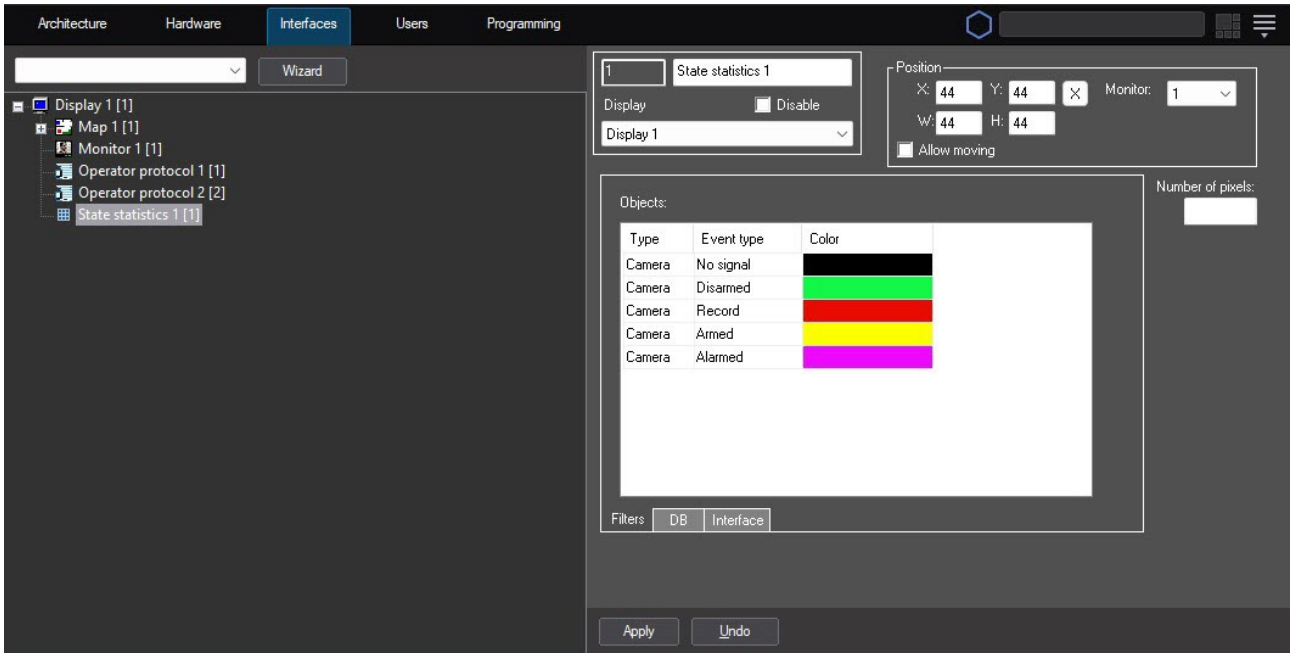
Configuring the **Display manager** interface object is complete.

Managing the displays using the Display manager

22.4.15 Configuring the State statistics display

The **State statistics** interface object is designed to monitor the states of selected system objects.

This object is created on the basis of the **Display** object on the **Interfaces** tab of the **System Settings** dialog box.



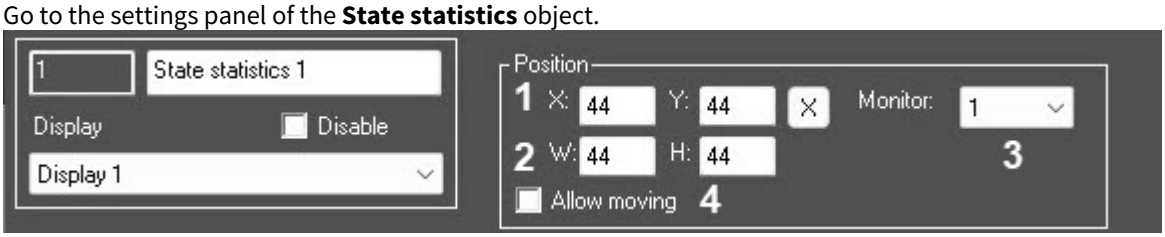
The **State statistics** display is configured in the following order:

1. Configuring the State statistics window position on the screen
2. Selecting the objects to be included in State statistics and configuring the pixels number
3. Configuring connection to the database
4. Configuring the interface parameters of the State statistics window

Configuring the State statistics window position on the screen

The **Status statistics** interface window position on the screen in configured as follows:

1. Go to the settings panel of the **State statistics** object.



2. In the **X** and **Y** fields (**1**), specify the coordinates of the upper left corner of the interface window.
3. In the **W** and **H** fields (**2**), specify the width and height of the interface window.
4. From the **Monitor** drop-down list (**3**), select the physical monitor where the interface window should be displayed. The monitors are numbered in the order of physical placement from left to right and from top to bottom, regardless of the operating system numbering.
5. Set the **Allow moving** check box (**4**) to allow the Operator to change the **State statistics** window position.
6. Click **Apply** to save the settings.

Configuring the **State statistics** interface window position on the screen is complete.

Selecting the objects to be included in State statistics and configuring the pixels number

Selecting the objects to be included in **State statistics** and configuring the pixels number is performed as follows:

1. Go to the **State statistics** object settings panel.



2. From the **Type** drop-down list (**1**), select the object type.
3. From the **Event type** drop-down list (**2**), select the state of objects of the selected type which should be included in the statistics. If the state is not selected, then the statistics on all states will be displayed.

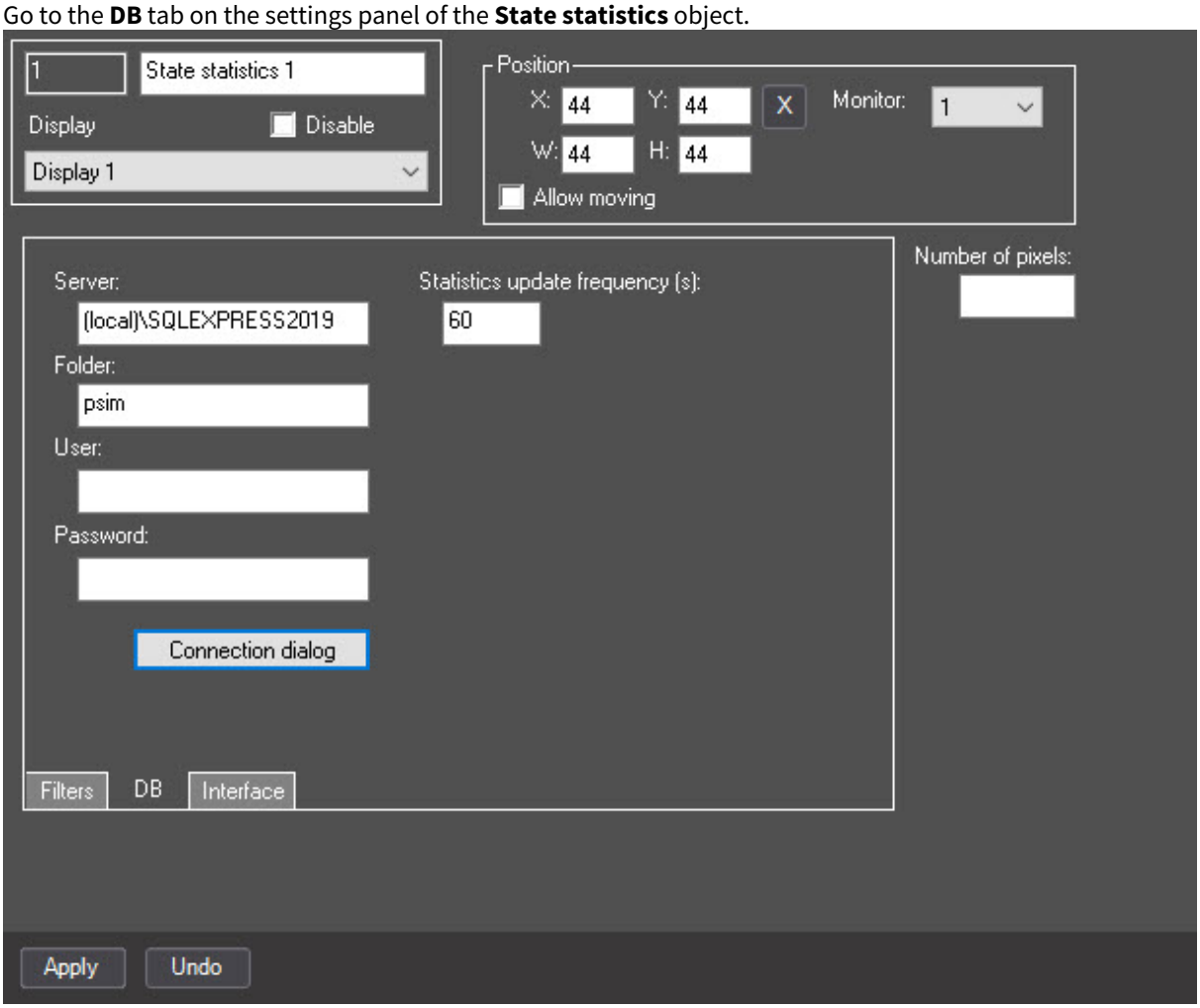
4. From the **Color** drop-down list (**3**), select the color to highlight the selected state in the table and the graph in the **State statistics** window.
5. In the **Number of pixels** field (**4**), enter the number of pixels to be displayed on the graph.
6. Click **Apply** (**5**).

Selecting the objects to be included in **State statistics** and configuring the pixels number is complete.

Configuring connection to the database

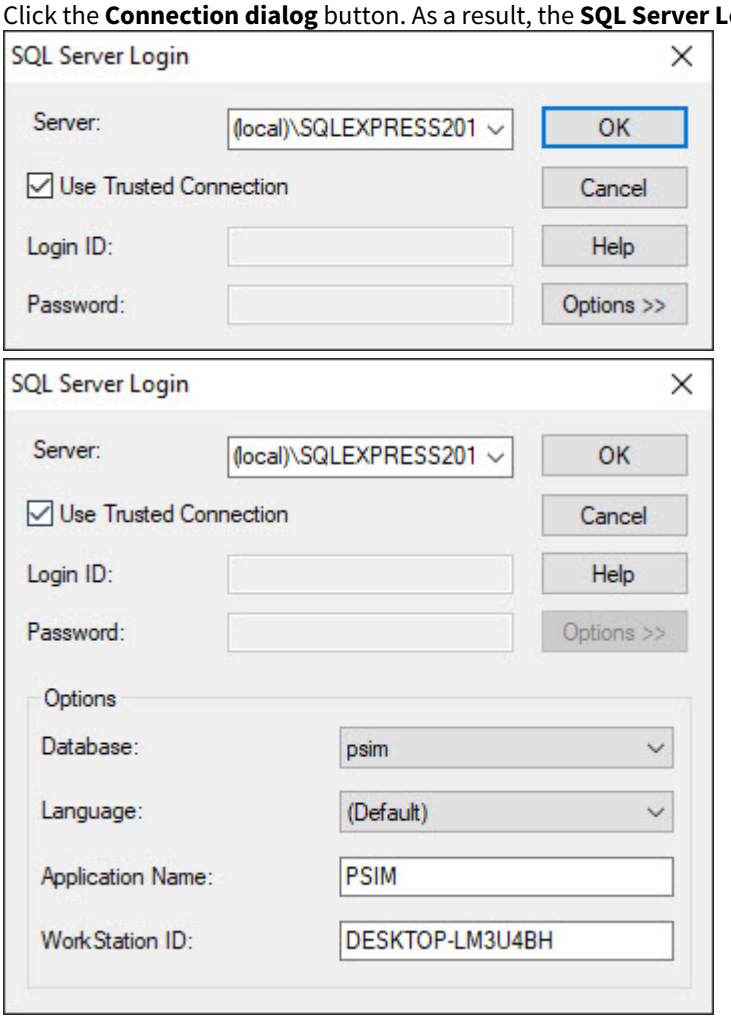
By default, the *Axxon PSIM* local database is used as a data source to display the state statistics. If you want to use a remote database, configure the connection to it in the following way:

1. Go to the **DB** tab on the settings panel of the **State statistics** object.



2. By default, statistics are updated once every 60 seconds. If necessary, you can change the update frequency by entering a new value in seconds in the **Statistics update frequency (s)** field. We don't recommend setting the frequency to less than 5 seconds.

3. Click the **Connection dialog** button. As a result, the **SQL Server Login** window opens.



4. In the **Server** list, specify the SQL server to which you want to connect.

> **Note**
>
> If the **Server** list contains the required SQL server, then no further connection configuration is required.
> When you work in a distributed configuration, you must specify the name of the computer on which the database is located without using the (local) value. For example, "WS1\SQLEXPRESS", where WS1 is the name of the computer on which the database is located.

5. If you want to enter the login and password for the SQL server authorization, clear the **Use Trusted Connection** checkbox. As a result, the **Login ID** and **Password** fields become editable.

> **Note**
>
> If you set the **Use Trusted Connection** checkbox, then the SQL server authorization is performed with Windows credentials.

6. To specify the additional connection parameters, click the **Options >>** button.
   a. From the **Database** drop-down list, select the database where the events must be stored.
   b. From the **Language** drop-down list, select the language of the SQL server system messages.
   c. In the **Application Name** field, enter the application name (the default value is PSIM).

d. In the **WorkStation ID** field, enter the computer name (the default value is the computer identifier in Windows OS).

7. Click the **OK** button to save the settings.

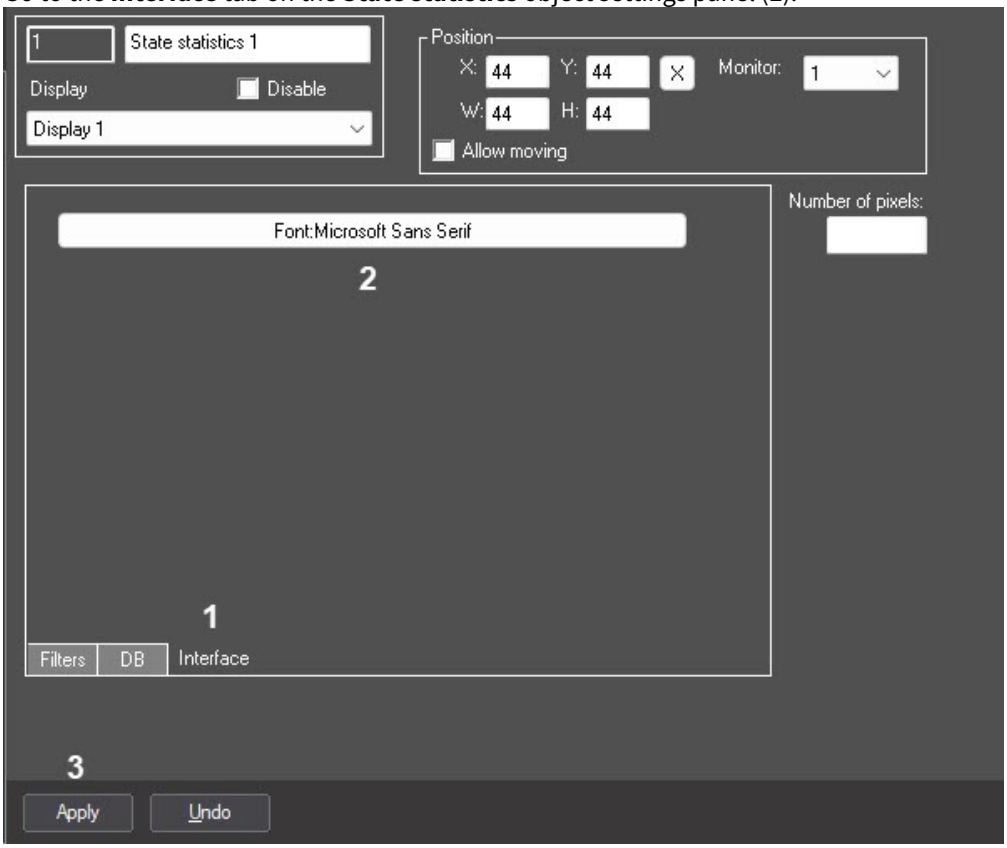
> **Note**
>
> For help information about the **SQL Server Login** window, click the **Help** button.

Configuring connection to the database is complete.

Configuring the interface parameters of the State statistics window

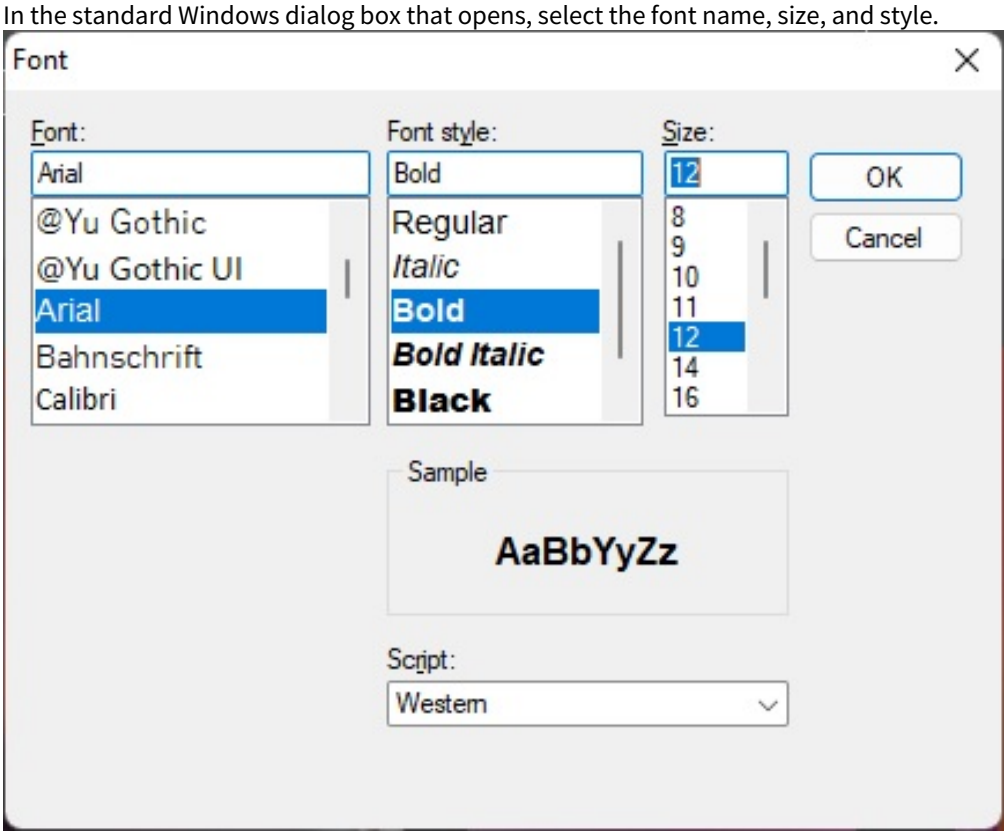
Configuring the interface parameters of the **State statistics** window means selecting the text font for the table and the graph (except for the legend). To select a font, do the following:

1. Go to the **Interface** tab on the **State statistics** object settings panel (**1**).



2. Click the **Font** button (**2**).

3. In the standard Windows dialog box that opens, select the font name, size, and style.



4. Click **OK**.
5. Click **Apply** to save the settings (**3**).

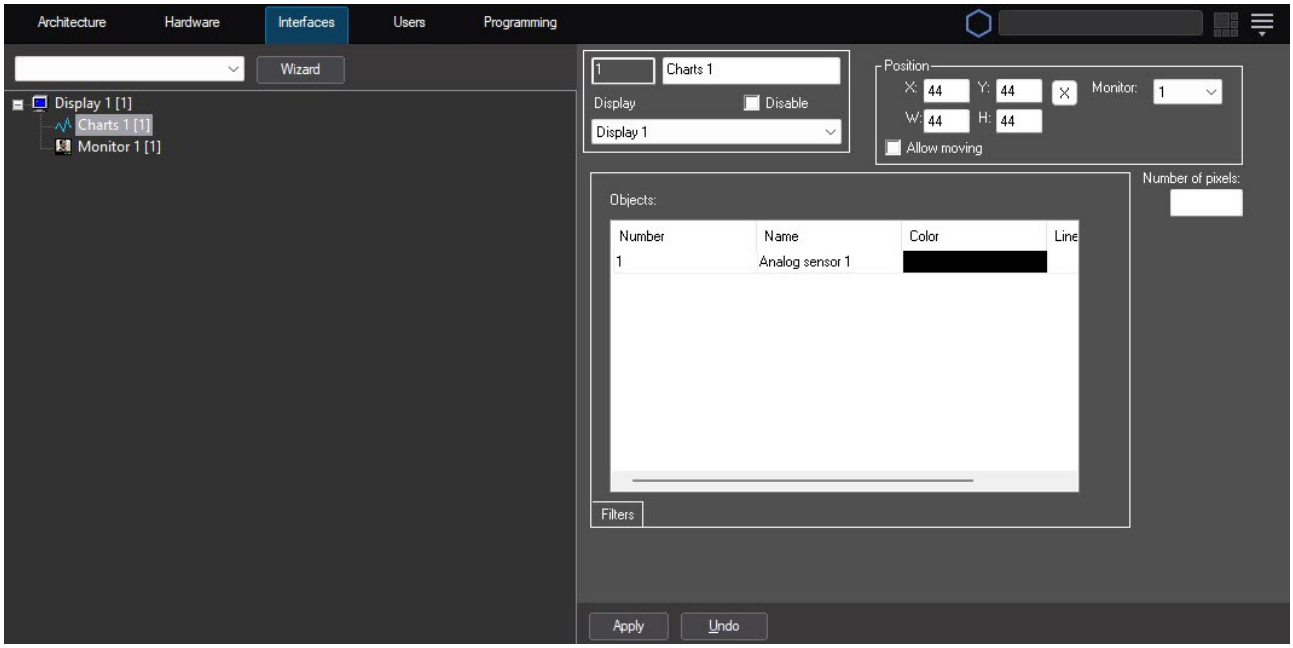
Configuring the interface parameters of the **State statistics** window is complete.

22.4.16 Configuring the Charts to display analog sensor readings

The *Axxon PSIM* software allows displaying data from the analog sensors (such as temperature humidity, etc. sensors) on a chart. For example, this function is available for the Tibbo sensor/relay cards integrated via Drivers Pack. Please check the Documentation Drivers Pack to find out if the analog sensors can be used for a particular device.

Create and configure all required analog sensors before configuring Charts – see Creating and configuring connection with the Analog sensor (input).

The analog sensor readings chart is configured on the **Charts** object settings panel. This object is created under the **Display** object on the **Interfaces** tab of the **System Settings** dialog box.



The analog sensor readings chart is configured in the following order:

1. Setting the Charts window position on the screen.
2. Selecting objects to display on chart and setting the number of points.

Setting the Charts window position on the screen

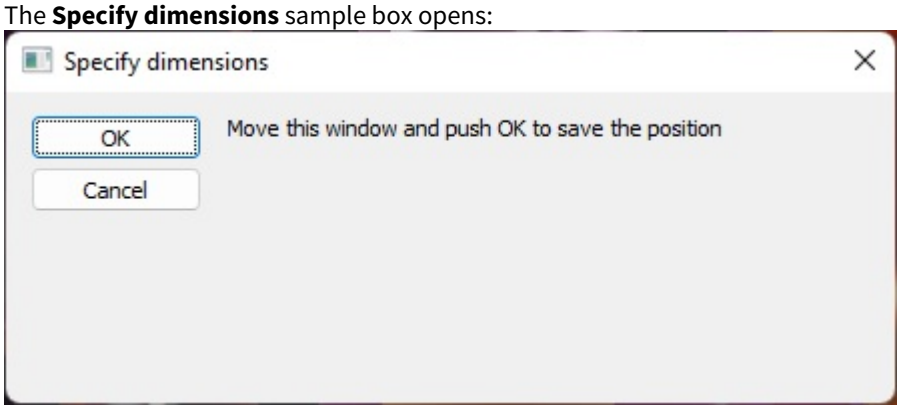
Set the **Charts** window position on the screen as follows:

1. Go to the **Charts** object settings panel.



2. There are two options to set the window coordinates:
   a. Manually:
      i. Set the interface window top left corner coordinates as a percentage of the screen size in the **X** and **Y** fields (1).
      ii. Set the interface window width and height as a percentage of the screen size in the **W** and **H** fields (2).
      iii. Select physical monitor of the computer to display interface window from the **Monitor** drop-down list (3). The monitors are numbered as they are positioned physically from the left to the right and from the top to the bottom regardless the numbering in the operating system.
   b. With a sample box:
      i. Click the **X** button (4).

ii. The **Specify dimensions** sample box opens:



iii. Drag the **Specify dimensions** box to the position where the **Charts** interface window should be and stretch to desired size.
iv. Click **OK** to confirm.
v. The **X**, **Y**, **W, H** and **Monitor** fields are filled automatically according to the position set.

3. If an Operator should be able to move the **Charts** window on the screen, set the **Allow moving** checkbox (5).
4. Click **Apply** to save settings.

Setting the **Charts** window position on the screen is now complete.

Configuring the chart display

Select objects to display on the chart and set the number of points as follows:

1. Go to the **Charts** object settings panel.



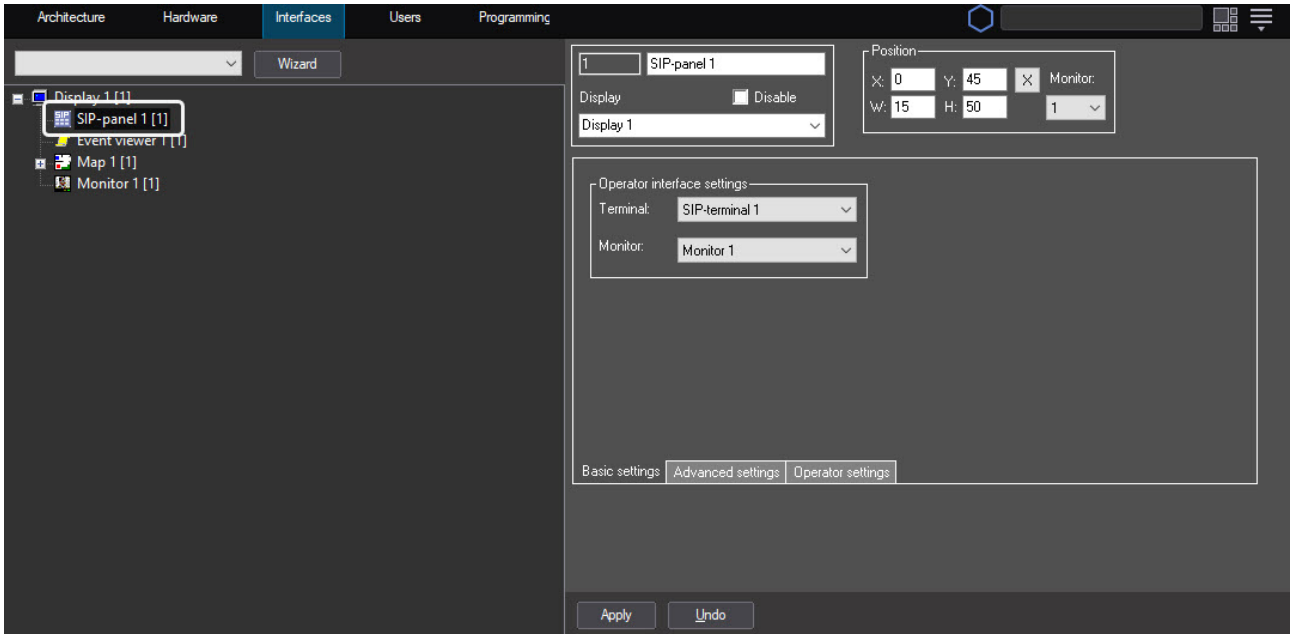
2. From the **Number** drop-down list, select the **Analog sensor** object ID according to the preset analog sensor (1). See also Creating and configuring connection with the Analog sensor (input).
3. The **Name** is filled automatically after ID selection (2).
4. From the **Color** drop-down list, select the color to mark the sensor readings on the chart in the **Charts** window (3).
5. In the **Line width** field, enter the line width in pixels (4). The value must be integer: if you enter an incorrect value, the default line width (5 pixels) is applied.
6. In the **Number of pixels** field, set the number of points to display on the chart (5).
7. Click **Apply** (6).

Selecting objects to display on the chart and setting the number of points is now complete.

22.4.17 Configuring the SIP-panel interface object

The **SIP-panel** interface object is used to work with SIP-devices in *Axxon PSIM* (see SIP-panel). For details about configuring these devices, see Configuring SIP-terminal.

Operator microphone, speaker and camera should also be selected on the **Computer** object settings panel for the SIP-panel operation – see Selecting speaker, microphone and camera for SIP-operator.



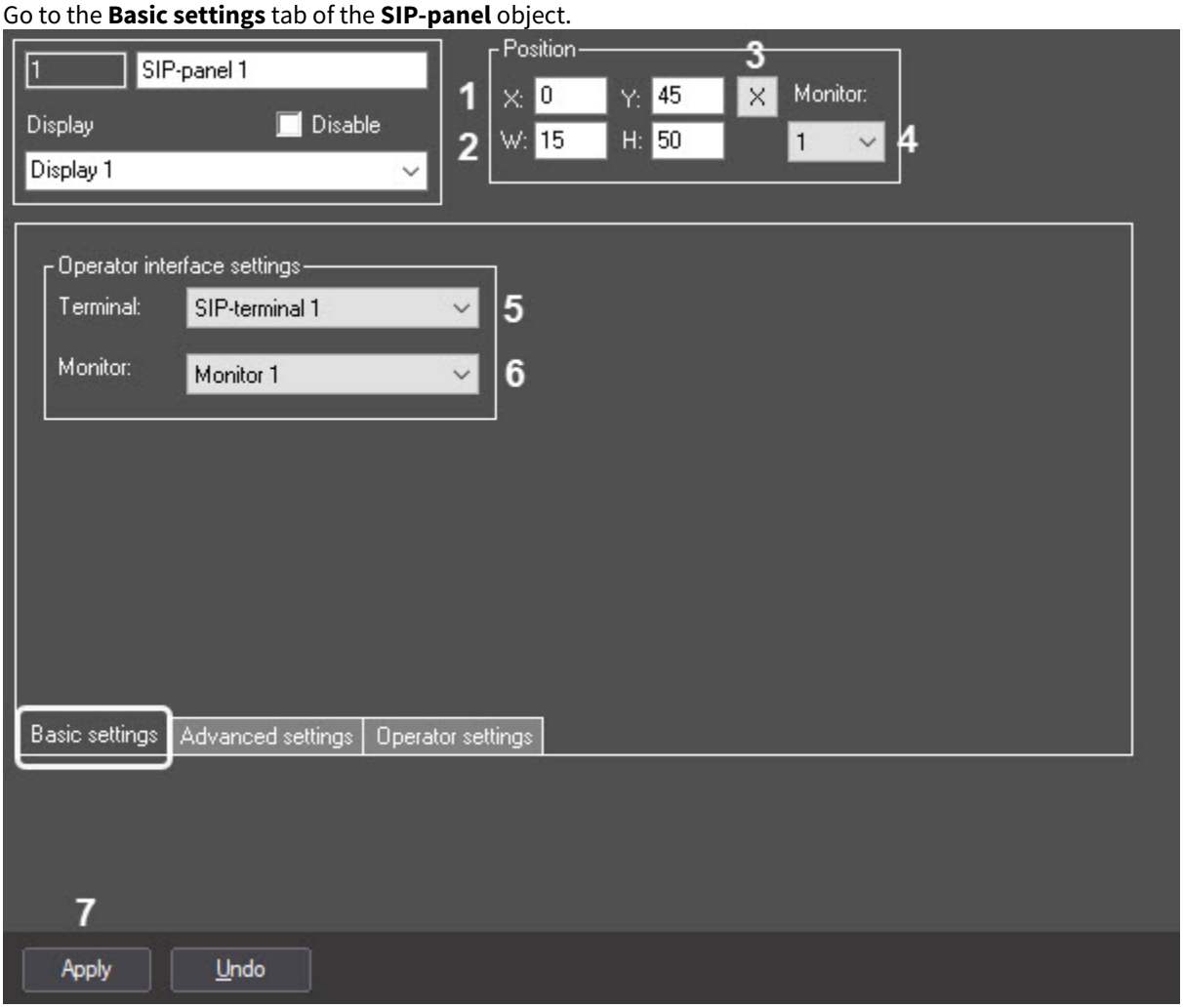
Note

By default, the SIP-device will be disconnected if during a call you hide or change the screen with the SIP-panel. To prevent this, set the **1** value for the **NotEndCallWhenDeactivate** registry key (for details, see Registry keys reference guide).

Basic settings of the SIP-panel interface object

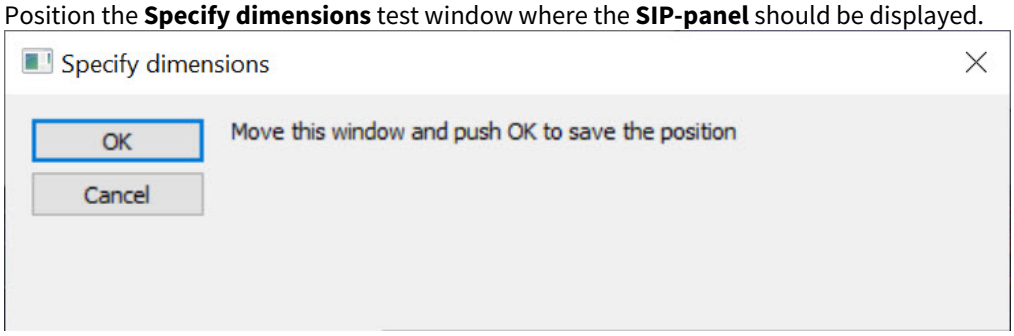
The **SIP-panel** is configured as follows:

1. Go to the **Basic settings** tab of the **SIP-panel** object.



2. Set the coordinates of the **SIP-panel** interface window in one of the following ways:
   a. Manually:
      i. Set the coordinates of the upper left corner of the interface window: the **X** (horizontal indent from the left edge of the screen) and **Y** (vertical indent from the upper edge of the screen) fields. The coordinates are expressed as a percentage of the horizontal and vertical screen dimensions, respectively (**1**).
      ii. Set the dimensions of the interface window: the **W** (window width) and **H** (window height) fields. The dimensions are expressed as a percentage of the horizontal and vertical screen dimensions, respectively (**2**).
   b. Using the test window:
      i. Click the **X** button (**3**).

ii. Position the **Specify dimensions** test window where the **SIP-panel** should be displayed.



iii. Click the **OK** button. As a result, the coordinates in the **X, Y, W, H** fields will be set according to the dimensions and position of the test window.

3. From the **Monitor** drop-down list (**4**), select the computer monitor on which the interface window will be displayed.
4. From the **Terminal** drop-down list (**5**), select the SIP-terminal object which SIP-devices use the SIP-panel.

> **Note**
>
> Each Server/Remote Client should have its own display with its own SIP-panel (see Assigning the displays to the operator workstations). If the display with this SIP-panel is already selected for any computer, the **Terminal** drop-down list will be inactive. It is necessary to fix the incorrect configuration of the Server/Remote Client.

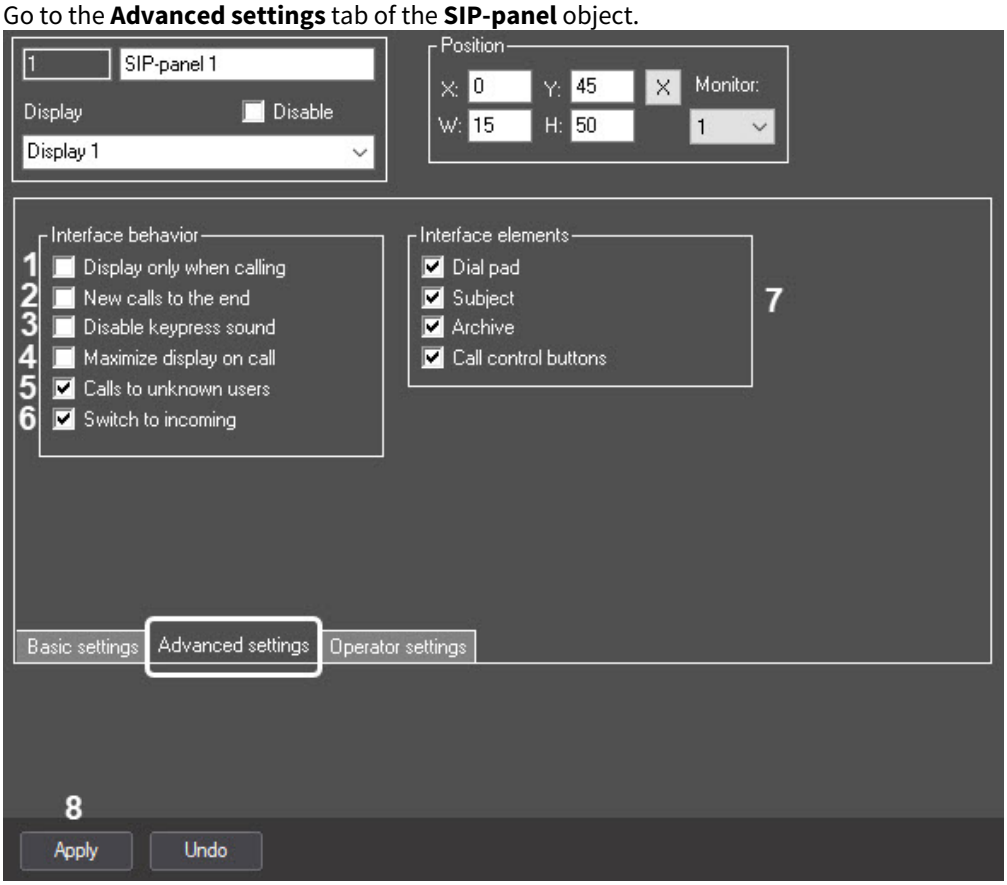
5. From the **Monitor** drop-down list (**6**), select the **Monitor** object corresponding to the Video Surveillance Monitor to which the video cameras associated with the corresponding SIP-devices are added. For details, see Selecting and configuring video cameras.
6. Click the **Apply** button (**7**).

The basic settings of the **SIP-panel** interface object are now configured.

Advanced settings of the SIP-panel interface object

The advanced settings of the SIP-panel are configured as follows:

1. Go to the **Advanced settings** tab of the **SIP-panel** object.



2. If it is necessary to display the SIP-panel only during a call, set the **Display only when calling** checkbox (**1**).
3. If new calls should be added to the end of the list on the SIP-panel, set the **New calls to the end** checkbox (**2**). By default, new calls are added to the top of the list.
4. To turn off sound when pressing the keys on the SIP-panel, set the **Disable keypress sound** checkbox (**3**).
5. To display the screen to which the SIP-panel is added when making a call, set the **Maximize display on call** checkbox (**4**). If this checkbox is not set, there is a chance to miss a call to the SIP-panel when the corresponding screen is hidden.
6. If it is necessary to enable the option to call unknown subscribers, set the **Calls to unknown users** checkbox (**5**).

   > **Note**
   >
   > Unknown subscriber is a number that is present in the SIP-terminal, but not present in the address book of the current SIP-operator.

7. If it is necessary to automatically switch to the SIP-panel tab with the incoming calls, set the **Switch to incoming** checkbox (**6**). By default, the checkbox is set. Automatic switching happens at incoming calls or calls on hold.
8. Set the checkboxes for the elements that should be displayed in the SIP-panel interface (**7**).
9. Click the **Apply** button (**8**).

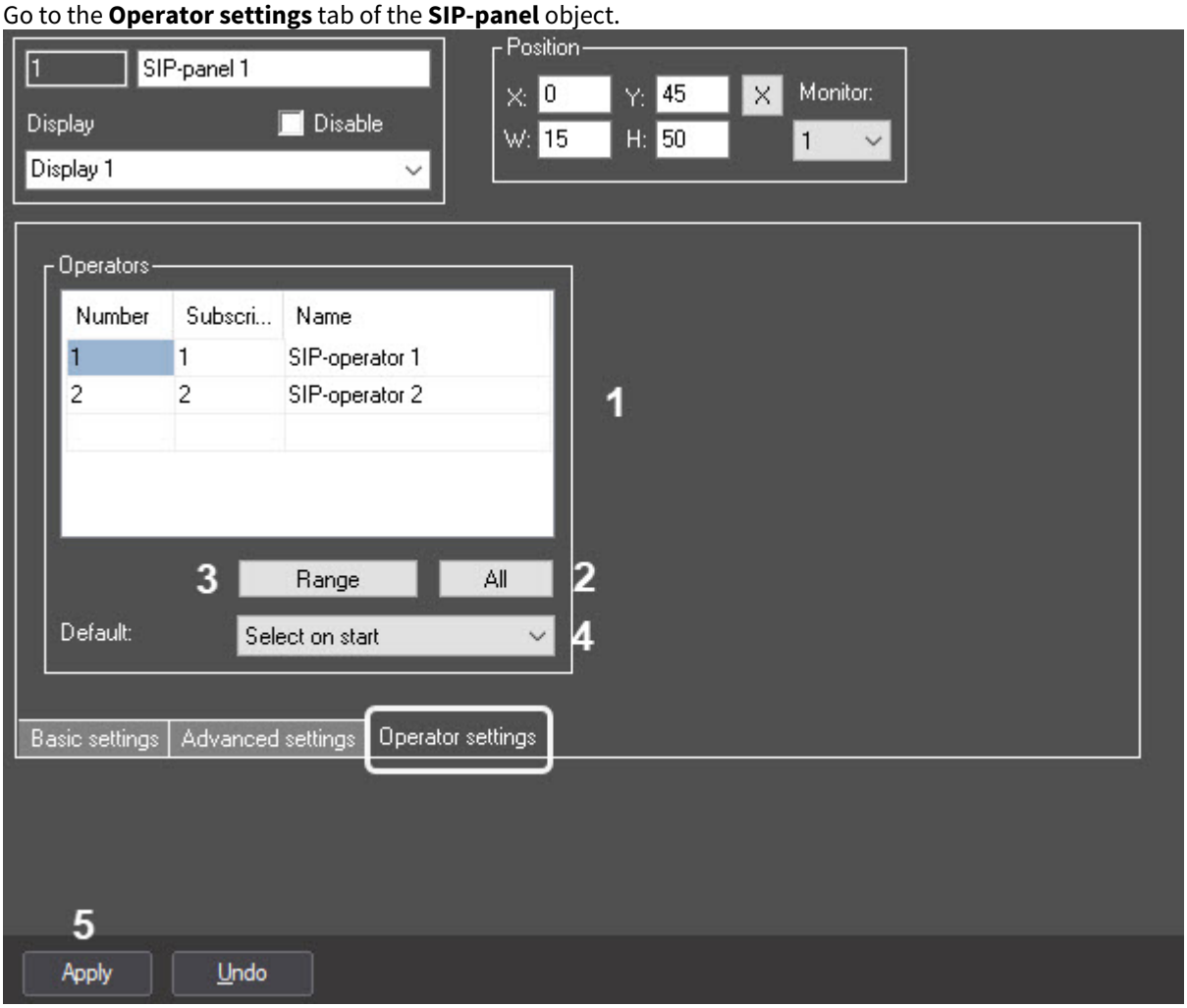
The advanced settings of the SIP-panel are now configured.

Operator settings of the SIP-panel interface object

On the **Operator settings** tab, you can specify a default operator and a list of operators who can work with this SIP-panel.

To configure the operator settings of the SIP-panel, do the following:

1. Go to the **Operator settings** tab of the **SIP-panel** object.

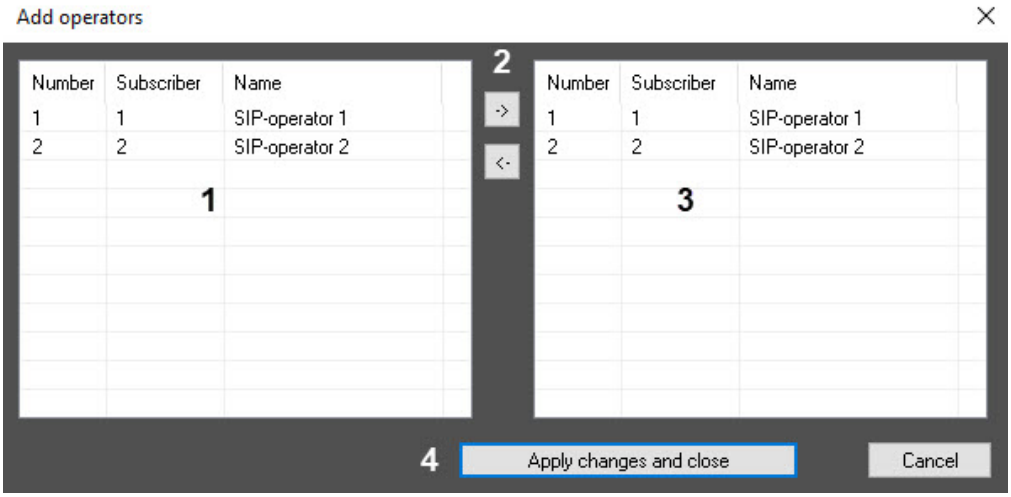


2. In the **Operators** table (**1**), select the required SIP-operators who can work with this SIP-panel:

> **Note**
>
> To add new lines to the table, use the "Down" key on the keyboard. To delete a line, use the Ctrl+Del key combination.

   a. To add all SIP-operators, click the **All** button (**2**).

b. To add several SIP-operators, click the **Range** button (**3**). As a result, the **Add operators** window opens.



i. Select the required SIP-operators from the left list (**1**) and use the buttons (**2**) to move them to the right list (**3**).
ii. Click the **Apply changes and close** button (**4**).

3. From the **Default** drop-down list (**4**), select the default SIP-operator:
   a. **Select on start**—when you first start the SIP-panel, you must select the appropriate SIP-operator in the authorization window. Next time, you will log in under the previously selected SIP-operator.
   b. **User rights**—you will log in to the SIP-panel under the SIP-operator that is linked to the *Axxon PSIM* user rights. Also, you must register in *Axxon PSIM* with the rights of the corresponding user.
   c. **SIP-operator**—you will log in to the SIP-panel under the selected SIP-operator.

> **Note**
>
> You can select the SIP-operator from the list if the display is enabled for only one computer of the video surveillance system (see Assigning the displays to the operator workstations).

4. Click the **Apply** button (**5**).

Configuring the operator settings of the SIP-panel is complete.

22.5 Configuration of users and rights

22.5.1 Rights administration

The users' rights

The following user categories are available in the surveillance system based on the Axxon PSIM software:

1. Administrator.
2. Operator who may optionally be granted some rights for administration, control, and viewing.

> **Important!**
>
> Make sure to register Administrator for the full and secure use of the users' rights. If the Administrator password is not registered in the system, in some cases, users with limited rights can access all the functions of the system.

See Administrator password registration for details on registering Administrator password.

The administrator has full control over the setup and usage of all components of the system.

Any other registered user of the system is an operator who may optionally be granted the rights for administration, controlling, and viewing of particular components of the system.

To register an operator, a user account is created, which holds this user's rights for administration, control, and viewing. A password is assigned to each user at the time of registration, used for authorization at system start-up and exit. An operator can be optionally forbidden to shut the system down.

User registration and removal

General information about user registration in Axxon PSIM software

The registration procedure depends on the user category.

To register an administrator, an administrator password should be specified. An administrator password gives access to administrative functions of all system components. Only one administrator password may be registered in the system.

No account is created for the administrator, so the administrator password cannot be used for authorization on system start-up. The administrator password is used to access the **System Settings** window and the settings panels of system objects, to change the current user and to shut the system down.

To register operators, the corresponding accounts should be created. A **Person** system object is created for each operator account. Each operator has his (her) own user account, which holds all the data about the rights and authorization password.

The account also indicates to which department the operator belongs. A **Department** system object is created for each department of the company.

The **Department** and **Person** objects form a hierarchy of two levels.

User registration procedure

The following user registration procedure is recommended for setting up the system:

1. Administrator password registration.

   Note

   You must register the administrator password prior to registering the operators and granting the rights to them. This is a mandatory system requirement.

2. Registering departments by creating the **Department** objects.
3. Registering operators by creating the **User** objects.

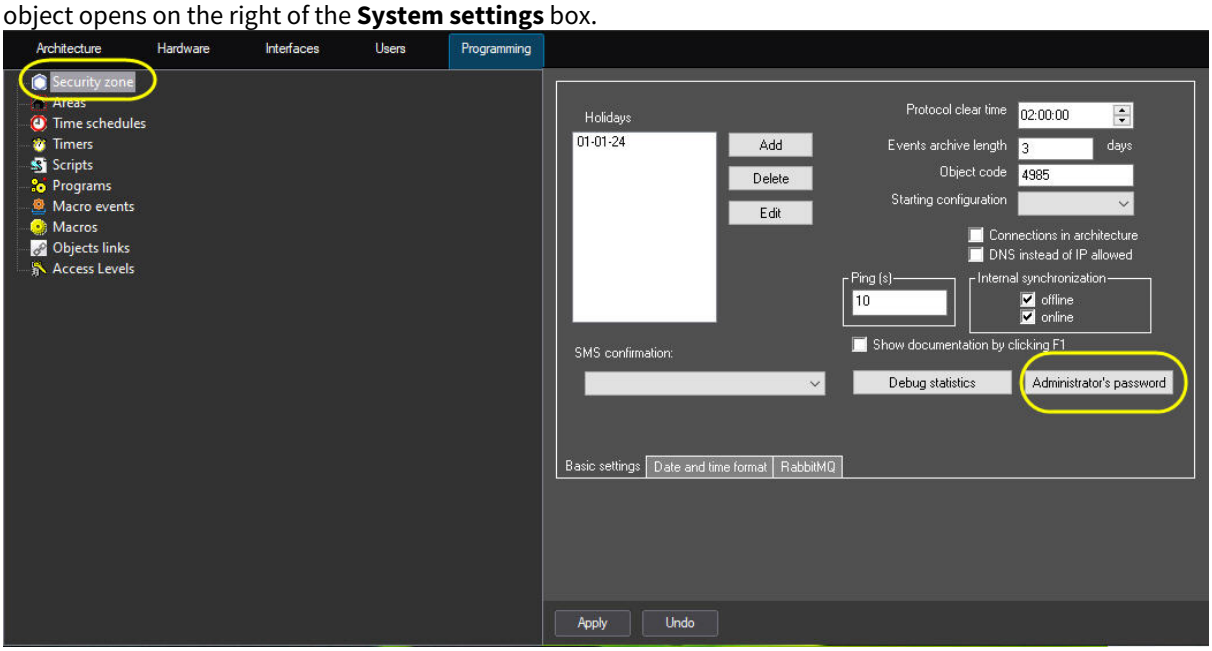
Administrator password registration

The administrator password gives access to administrative functions of all system components. Only one administrator password can be registered in the system. The administrator password is to be registered on the administration server when the system is configured.

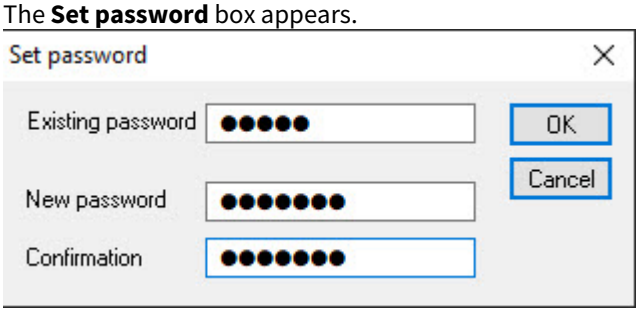
To register the administrator password, do the following:

1. Go to the **Programming** tab in the **System setting**s dialog box.

2. Select the **Security zone** object in the objects tree of the **Programming** tab. The settings panel for this object opens on the right of the **System settings** box.



3. Click the **Administrator's password** button.
4. The **Set password** box appears.



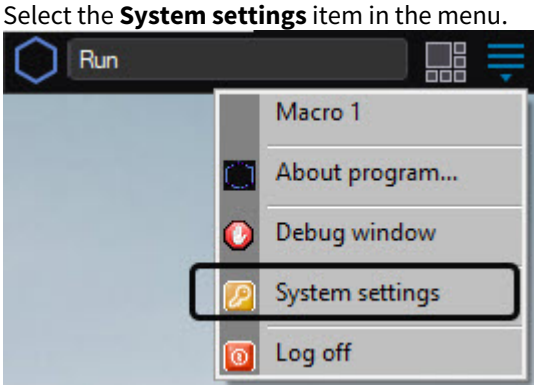
5. Specify the existing administrator's password in the **Existing password** field. If there is no administrator's password, leave this field blank.
6. Type in the sequence of letters and figures that will be used as administrator's password in the **New password** field.
7. Retype in the new administrator's password in the **Confirmation** field.
8. Click the **OK** button. The **Set password** box is closed.
9. Click the **Apply** button in the **System settings** box.

The administrator's password is now registered.

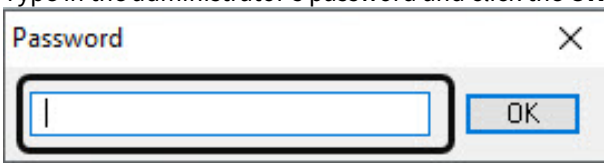
When the administrator's password is registered, one with restricted access rights can access the **System settings** dialog box:

1. Open the **Main** control panel.
2. Press the Ctrl key on the keyboard.

3. Select the **System settings** item in the menu.



4. Type in the administrator's password and click the **OK** button.



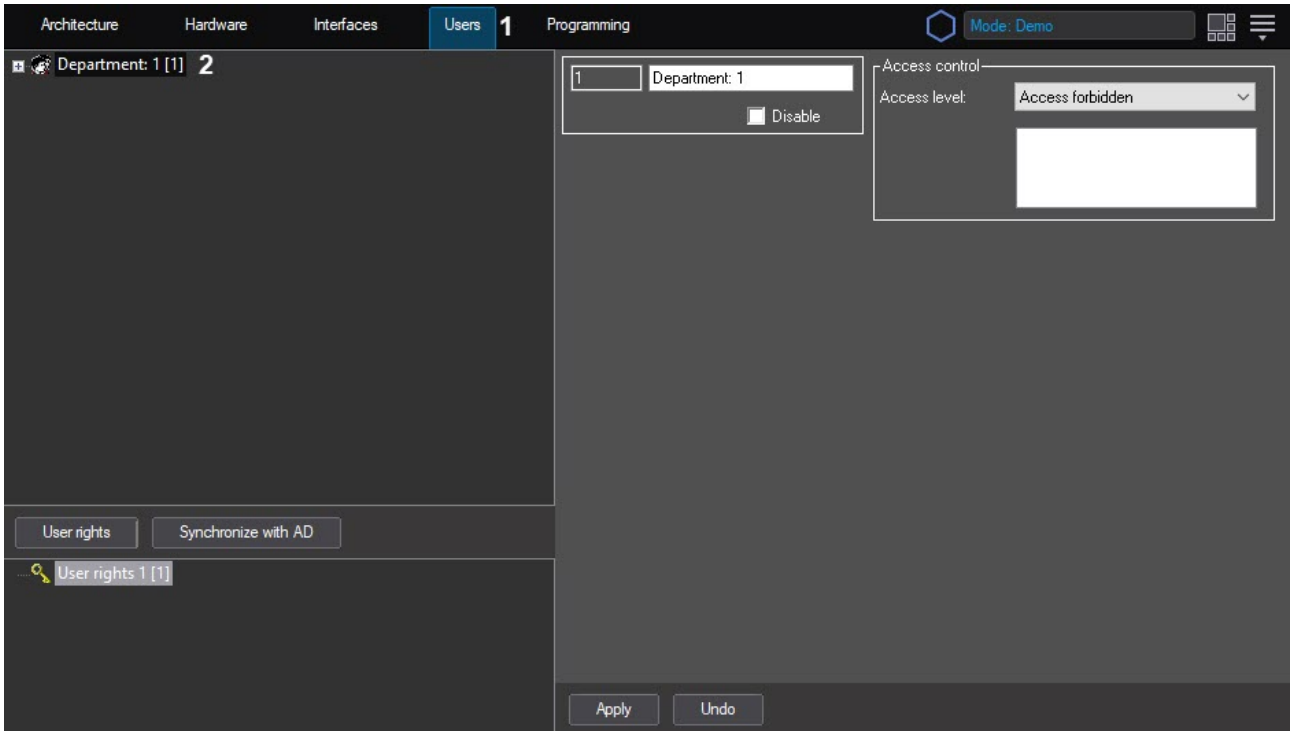
Department registration

To register departments, you must create the **Department** objects. The **Department** account consists of the department name and the list of its employees.

A separate account is created for each department. To register a department account, do the following:

1. Open the **Users** tab in the **System settings** window (**1**).
2. Create a **Department** object in the object tree of the **Users** tab (**2**).

The settings panel for this object opens to the right of the **System settings** window.



This completes registration of the department account.

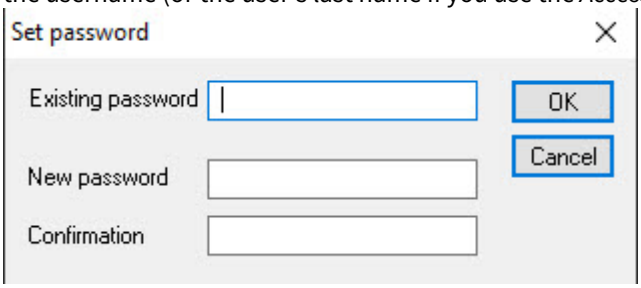
> **Note**
>
> Settings on the settings panel of the **Department** object are used to configure the access control system (see Guide for configuring and working with the Access Manager module).

Registration of operator accounts

To register operator accounts, you must create the **User** objects.

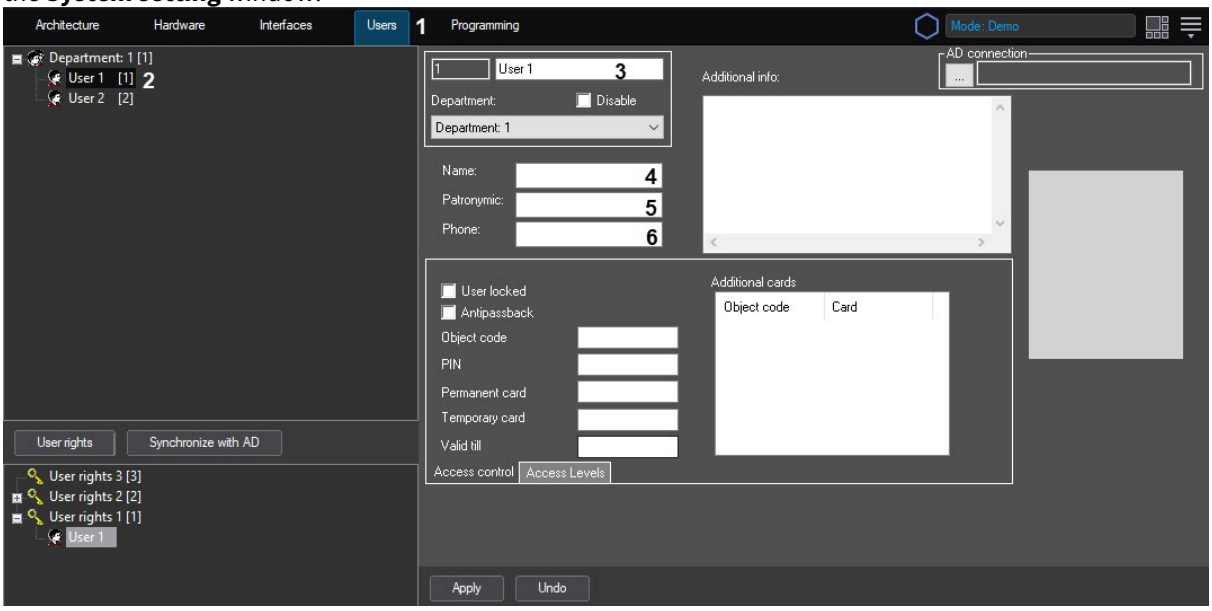
An individual account must be created for each operator. To register an operator account, do the following:

1. Open the **Users** tab in the **System settings** window (**1**).
2. Create a **User** object on the basis of the **Department** object in the object tree (**2**). In the **Name** field, enter the username (or the user's last name if you use the *Access Manager* module).



> **Note**
>
> Do not use **rs** as a username when registering operator accounts, as this name is used by default in the *Axxon PSIM Web Report System*. If the user with such a name is created in *Axxon PSIM*, then the error can occur when the *Axxon PSIM Web Report System* is started.

3. The created object appears in the object tree, and the settings panel for this object opens on the right side of the **System setting** window.



4. You can change the user's last name if necessary (**3**).
5. Enter the user's **Name** (**4**) and/or **Patronymic** (**5**) if necessary.

6. If two-factor authentication is configured in the system, enter the user's phone number in the **Phone** field (**6**). See also Configuring two-factor authentication.
7. Click the **Apply** button.

> **Note**
>
> If you enter the user's name or patronymic, they are displayed in the tree together with the last name (**2**).

The operator account is now registered.

> **Note**
>
> The settings of the **User** object are used to configure the access control system. They are usually set using the *Access Manager* module in the *ACFA PSIM* subsystem (see Introduction into the Guide for configuring and working with the Access Manager integration module). In the *Access Manager* you can also add the photo displayed on the settings panel of the **User** object.
> *Face recognition and search* interface being part of *Face PSIM* software also allows adding and editing a user's photo (see *Face PSIM* documentation in AxxonSoft documentation repository for details on its setting up and configuration).

Removing user accounts

The removal procedure depends on the user category.

To remove operator accounts, delete the corresponding **User** objects from the objects tree of the **Users** tab.

To remove the administrator account, remove the administrator password. The administrator password is removed in the same way as it is created (see Administrator password registration). To remove the administrator password, specify the current Administrator password in the **Existing Password** field and then clear the **New Password** and **Confirmation** fields in the **Set Password** box.

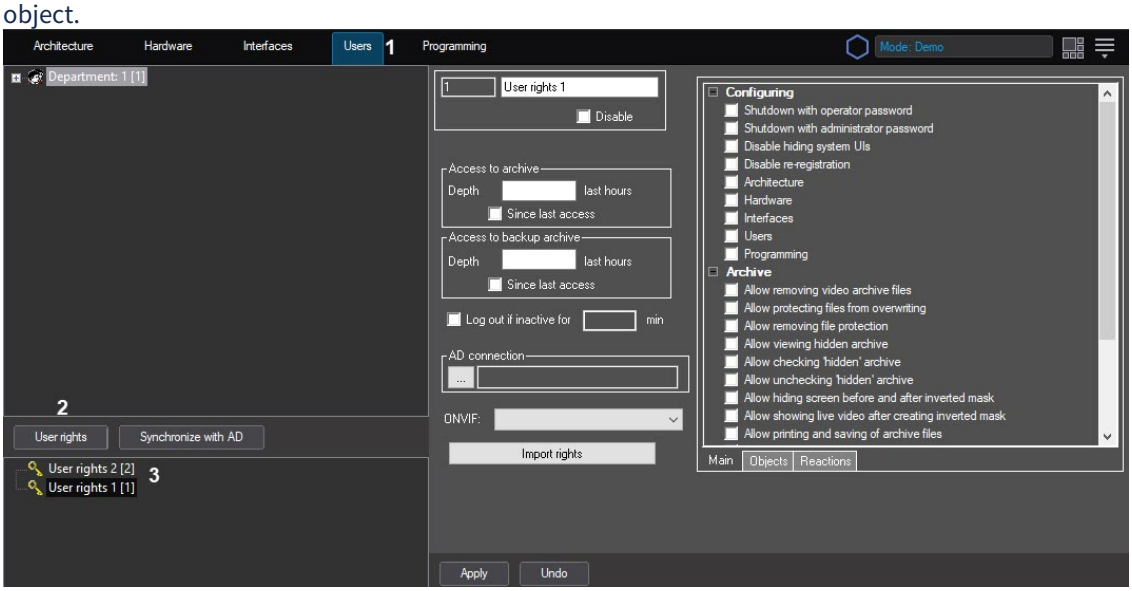
Registration of users' rights

Registration of operator rights

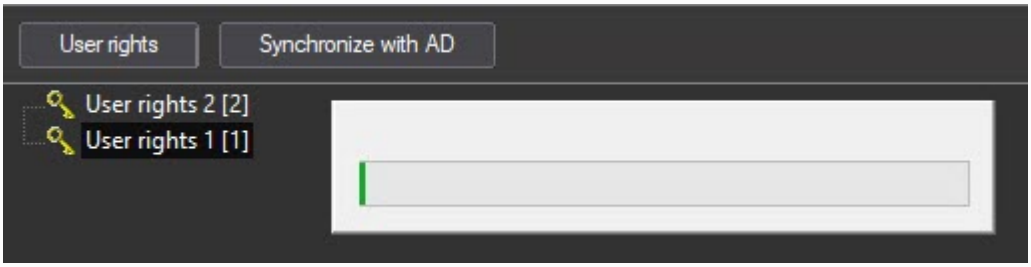
To register operator rights, do the following:

1. In the **System settings** window, go to the **Users** tab (**1**).
2. Create the **User rights** object in one of the following ways:
   a. If no user rights have been created yet, click the **User rights** button (**2**).
   b. If at least one user right is registered in the system, and there is at least one object in the object tree located below the **User rights** button on the **Users** tab, then the creation of the **User rights** object is performed in the standard way from the context menu that you can open by clicking the existing

object.



3. The created object appears in the object tree below the **User rights** button, and the settings panel for this object opens on the right side of the **System setting** window (**3**).

> **Note**
>
> If the **User rights** are created in the system, then when you open the **Users** tab, an indicator of the rights loading process can be displayed. Wait until this indicator disappears before you perform any actions on this tab.
>
> 
>

This completes registration of the operator rights.

General information on the limits to the administrative functions

The administrative functions include:

1. Creation or removal of system objects;
2. Editing the settings of the system objects;
3. Moving the system objects across the objects tree.

By default, the operator has access to all administrative, control and viewing functions of all system objects. Administration of specific objects and groups of objects can be forbidden for an operator.

The objects are grouped according to the tabs of the **System Settings** window.

When an operator receives administration rights for an object, they also receives the control and viewing rights for that object. The forbidden tabs are blacked out in the System Settings window.

Figure below shows a tabs panel of the **System Settings** window where the **Architecture**, **Hardware**, **Interfaces** and **Users** tabs are allowed for editing by the current operator, while the objects in the **Programming** tab cannot be edited by the current operator.



If an operator is forbidden to access any of the tabs, they cannot open the **System Settings** window altogether, and cannot use any of the administrative functions.

> **Note**
>
> Lack of administrative rights for the **System Settings** tabs does not imply any limitation on control or viewing of the corresponding objects.

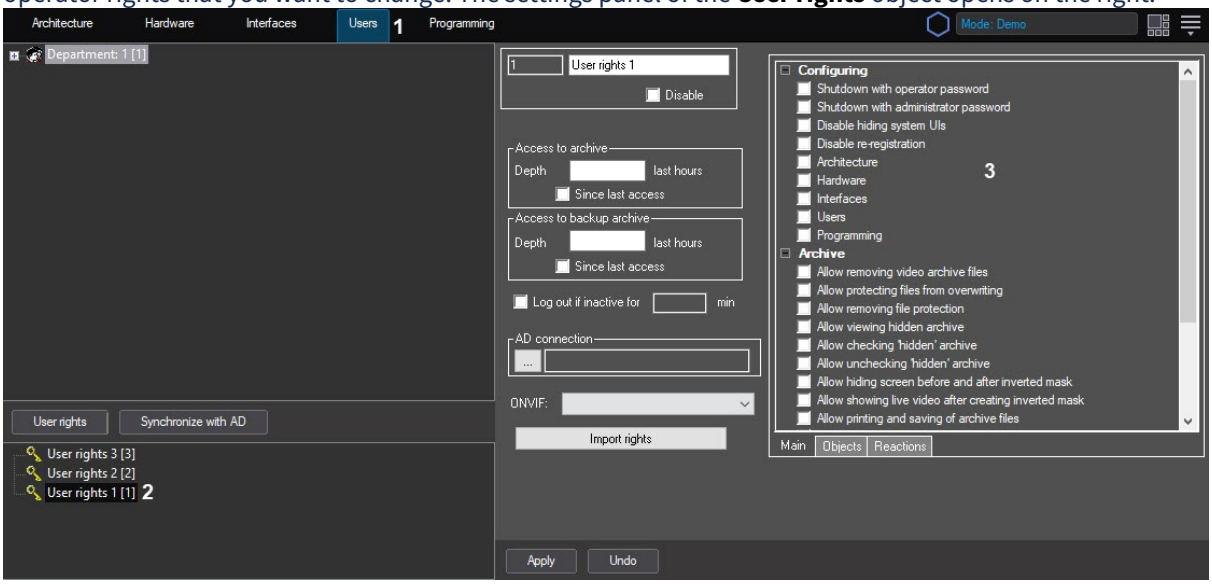
Limiting access to the tabs of the System settings window

By default, the operator has no access to the administrative functions of the system objects on any tabs of the **System settings** window.

The operator can be granted administrative rights to the system objects of one or more tabs of the **System settings** window. In this case, the operator can open the **System settings** window.

To allow the operator to administer system objects on one or more tabs, do the following:

1. Open the **Users** tab in the **System settings** window (**1**).
2. In the object tree in the lower left part of the screen, select the user rights corresponding to the account of operator rights that you want to change. The settings panel of the **User rights** object opens on the right.



   The last five checkboxes in the **Configuring** group, which have the same names as the tabs, correspond to the rights to access the tabs in the **System settings** window.
   In the **Configuring** group, set the checkboxes corresponding to those tabs of the **System settings** window to which you want the operator to have access (**3**).
3. Click the **Apply** button.

Configuring the operator access to the tabs of the **System settings** window is complete.

Restriction of administration, control, and monitoring rights

If an operator is granted access to one or more tabs of the **System settings** window, they automatically receive the rights to administer, control, and view all system objects on these tabs.

When the operator has the rights for control functions, they can use the buttons, menu items, and other interface elements allowing to control the corresponding objects (cameras, microphones, telemetry, event viewer, and others). In addition to overall restriction of object control functions, the separate commands can be prohibited (see Limiting rights to send commands (reactions)).

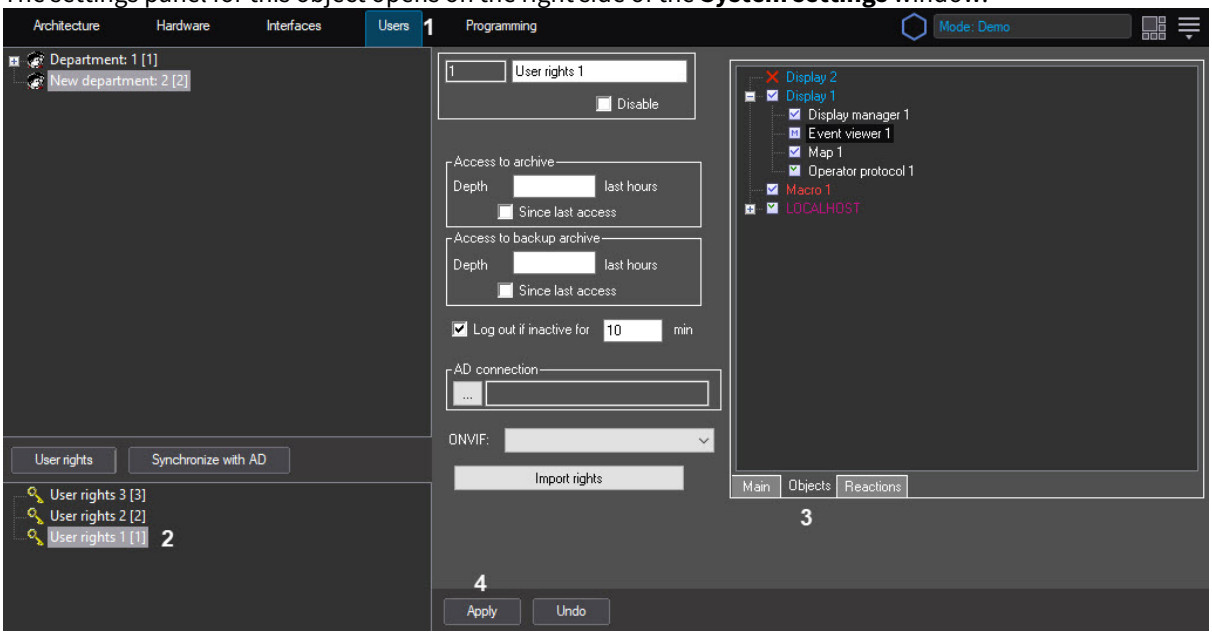
Viewing functions allow the operator to view the interface components (user screens, surveillance monitors, Backup archive window, microphone indicators, etc.).

By default, an operator can have full access to administrator, operator, and control functions of the objects with the given functions. It is possible to prohibit the operator from administering one or several objects, limit the list of available functions of object control, and also limit monitoring opportunities.

> **Note**
>
> If the administrator password is not set (see Administrator password registration) and the access to the required tabs of the **System settings** dialog window is limited (see Limiting access to the tabs of the System settings window), then the limitation of the object configuration rights will not be available.

To limit operator access to the administration of certain objects of *Axxon PSIM*, do the following:

1. Open the **Users** tab in the **System Settings** window (**1**).
2. Open the required **User rights** object in the objects tree under the **User rights** button (**2**).
   The settings panel for this object opens on the right side of the **System settings** window.



3. Go to the **Objects** tab (**3**). The object tree corresponds to the rights of the current *Axxon PSIM* operator. In the object tree, to the left of each object, there is a field that can be edited—it indicates the jperator's rights to administer, control, and view system objects. The names of the icons correspond to the names of objects, the administration, control, and viewing of which can be available to the operator with the appropriate rights. The correspondence of the icon type to the operator's rights is given in the table

Icon	Icon image	Right to administer	Right to control the object	Right to view the object
Large grey-blue flag		Yes	Yes	Yes
Small green flag		No	Yes	Yes
An **M** mark		No	No	Yes
A cross mark **X**		No	No	No

Note

The administrative, control, or viewing rights to interface objects depend on the rights to the **Computer** objects. The rights to the **Computer** object have a higher priority. For example, if the user rights allow the administration of the **Display** object but prohibit the administration of the **Computer** object to which this **Display** is assigned, then a user logged on to the computer prohibited for administration will not be able to administer the **Display** object (see also Assigning the displays to the operator workstations).

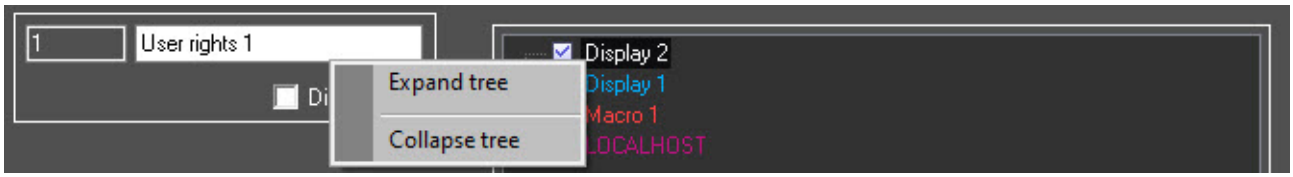
4. After finishing the setting, click the **Apply** button (**4**).

The following hotkeys can be used for object tree control:

Key	Function
+	Grants all rights to the selected objects (sets the gray mark)
-	Forbids the selected object (sets the red cross)
Space	Sequential change of the rights to the selected object in the direction of increasing (forbidden-monitoring-control-administration and then cyclically)
Left and right arrows	Expand / collapse the selected tree branch
/	Fully collapse the selected branch of the objects tree
*****	Fully expand the selected branch of the objects tree
Shift + **/**	Fully collapse all branches of the object tree. This view will be saved for the current user even after *Axxon PSIM* restart

Shift + *****	Fully expand all branches of the object tree. This view will be saved for the current user even after *Axxon PSIM* restart

Expanding and collapsing the tree functions are also available when you right-click an object in the object tree (see The Expand tree function and The Collapse tree function).



Access restriction to shutting down the system

To prevent unauthorized shutdown of the video surveillance and audio control system, you can configure *Axxon PSIM* to shut down after you enter a password.

The following options for system shutdown are available:

1. Shutdown with a password of any operator registered in *Axxon PSIM*.
2. Shutdown with a password of a specific operator.
3. Shutdown with an administrator password.
4. Shutdown with an administrator password or a password of a specific operator.
5. Operator cannot shut down the system.

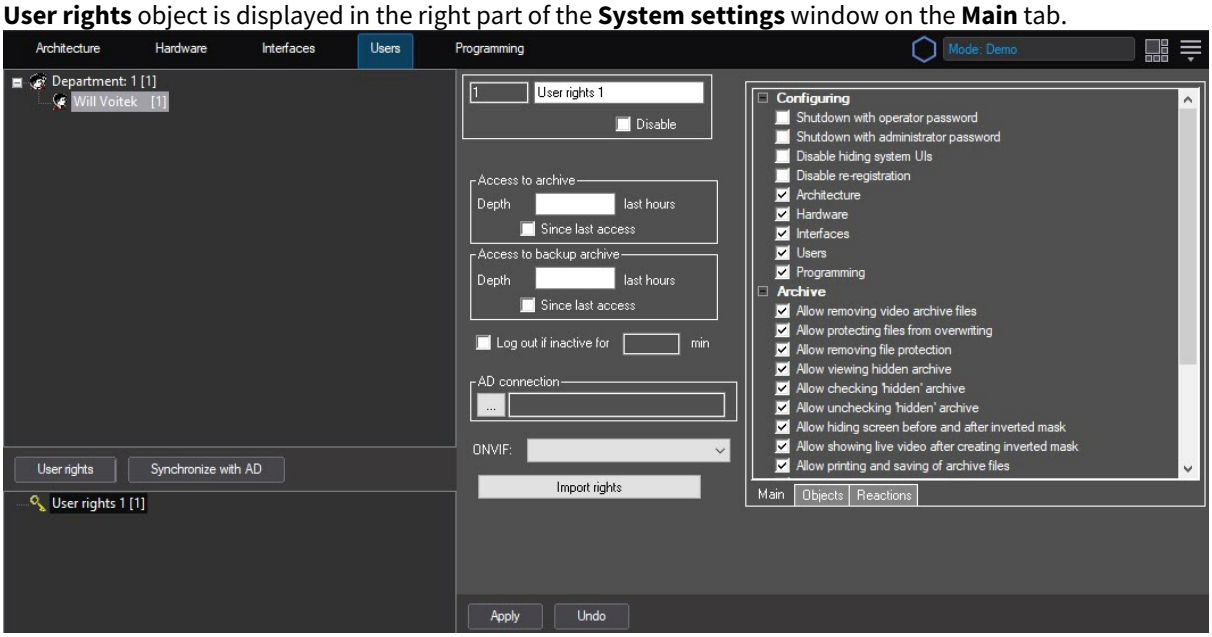
If an operator cannot shut down the system, the **Run** menu of the **Main control panel** doesn't contain the **Shut Down** option. This menu item appears only after you enter the administrator password in the password query window. To shut down the system, you must enter the password again. Thus, we recommend additionally using the option of shutting down *Axxon PSIM* with an administrator password only.

By default, the system is set to shut down with a password of any operator registered in *Axxon PSIM*, regardless of the operator who is authorized in the current session.

To select a different shutdown option, do the following:

1. Go to the **Users** tab in the **System settings** window.
2. In the object tree that is below the **User rights** button on the **Users** tab, select the same-name object that corresponds to the account of operator rights that you want to change. As a result, the settings panel of the

User rights object is displayed in the right part of the **System settings** window on the **Main** tab.



3. Configure the shutdown of *Axxon PSIM:*
   - Set the **Shutdown with operator password** checkbox to shut down the system with a password of this operator only.
   - Set the **Shutdown with administrator password** checkbox to shut down the system with an administrator password only.
   - Set the **Shutdown with operator password** and **Shutdown with administrator password** checkboxes to shut down the system with either a password of this operator or an administrator password.
   - Set the **Shutdown with administrator password** and the **Disable re-registration** checkboxes to prohibit this operator from shutting down the system.
   - Clear the **Shutdown with operator password**, **Shutdown with administrator password**, **Disable re-registration** checkboxes to shut down the system with a password of any registered operator. This option is used by default.
4. Click the **Apply** button.

Configuration is complete.

Limiting access to hiding the components of the user interface from the screen

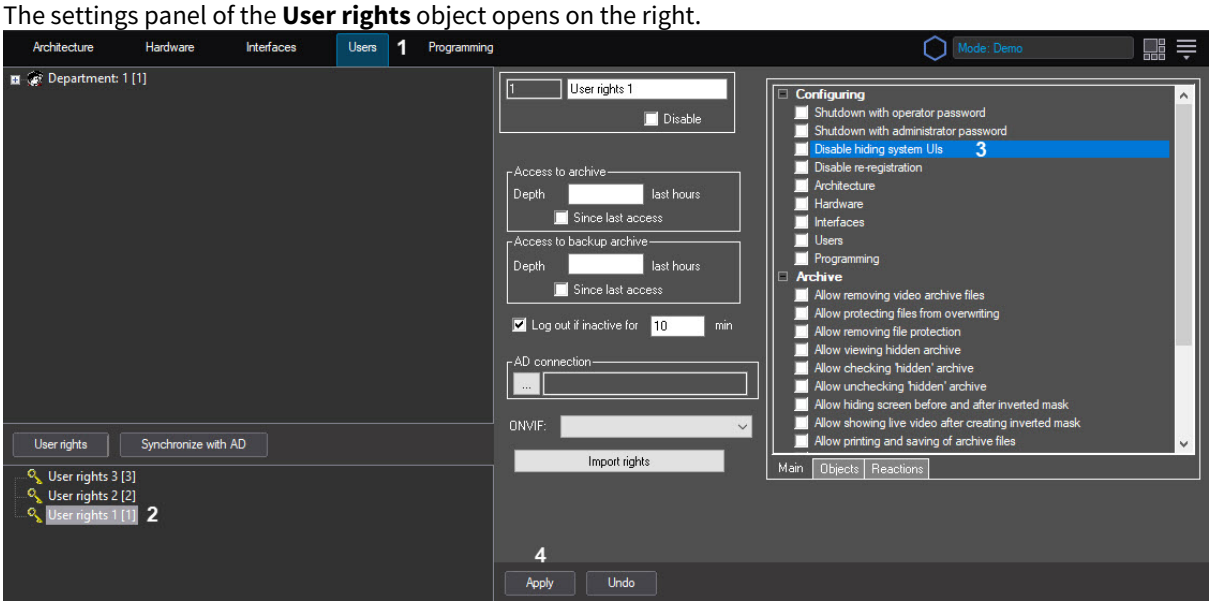
The functionality of *Axxon PSIM* allows you to prohibit hiding all elements of the user interface. In this case, the **Hide All** button on the Main control panel becomes inactive. The monitor of the user who has rights with a prohibition on hiding interface elements always displays at least one **Display** object that is available to the user.

By default, the user is allowed to hide all user interface components from the screen at the same time.

To forbid the operator to hide all interface components, do the following:

1. In the **System settings** window, go to the **Users** tab (**1**).
2. In the object tree in the lower left part of the screen, select the user rights (**2**) corresponding to the operator access rights that you want to change.

3. The settings panel of the **User rights** object opens on the right.



4. Set the **Disable hiding system UIs** checkbox (**3**).
5. Click the **Apply** button (**4**).

Limiting access to hiding all components of the user interface by the operator is complete.

Rights to work with archives

In *Axxon PSIM*, you can prohibit the operator from playing back video archives using the video surveillance monitor (server archives and backup archive).

If the operator is denied access to video archives, the button for accessing the archive isn't displayed in the video surveillance monitor window, and the functions described in this section are also unavailable.

By default, operators are allowed access to archive playback.

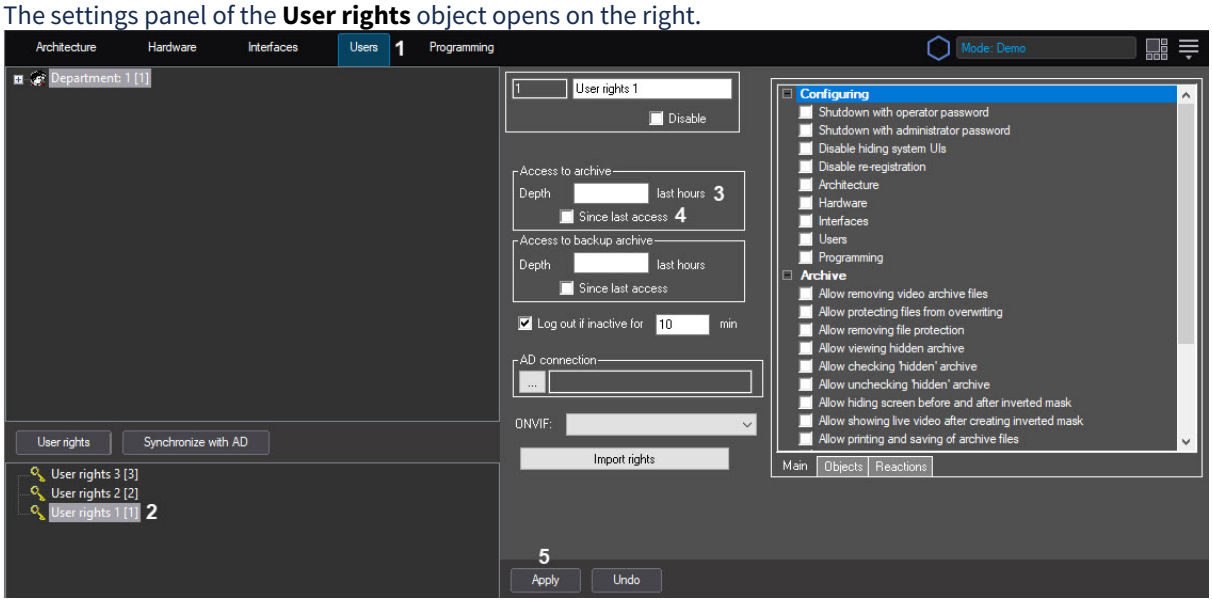
> Working with the archives

Limiting access to archive playback

To limit access for the operator to play back the video archive, do the following:

1. Go to the **Users** tab in the **System settings** window (**1**).
2. In the object tree that is below the **User rights** button in the **Users** tab, select an object corresponding to the operator access rights that you want to change (**2**).

The settings panel of the **User rights** object opens on the right.



3. Specify the number of hours for viewing in the **Depth ___ last hours** field (**3**).

> **Note**
>
> The number of the last hours of video archive available for viewing must be an integer.

> **Note**
>
> Enter the 0 value in the **Depth ___ last hours** field to disable access to the archive.

4. If hours are counted since the last login to the system, set the **Since last access** checkbox (**4**). If hours must be counted since the current moment, don't set the **Since last access** checkbox.

> **Note**
>
> If you set the **Since last access** checkbox and specify the number of hours available for viewing, the last hours are counted until the registration moment.

> **Note**
>
> If you set the **Since last access** checkbox but leave the **Depth ___ last hours** field blank, the access to the main archive playback isn't limited.

5. Click the **Apply** button (**5**).

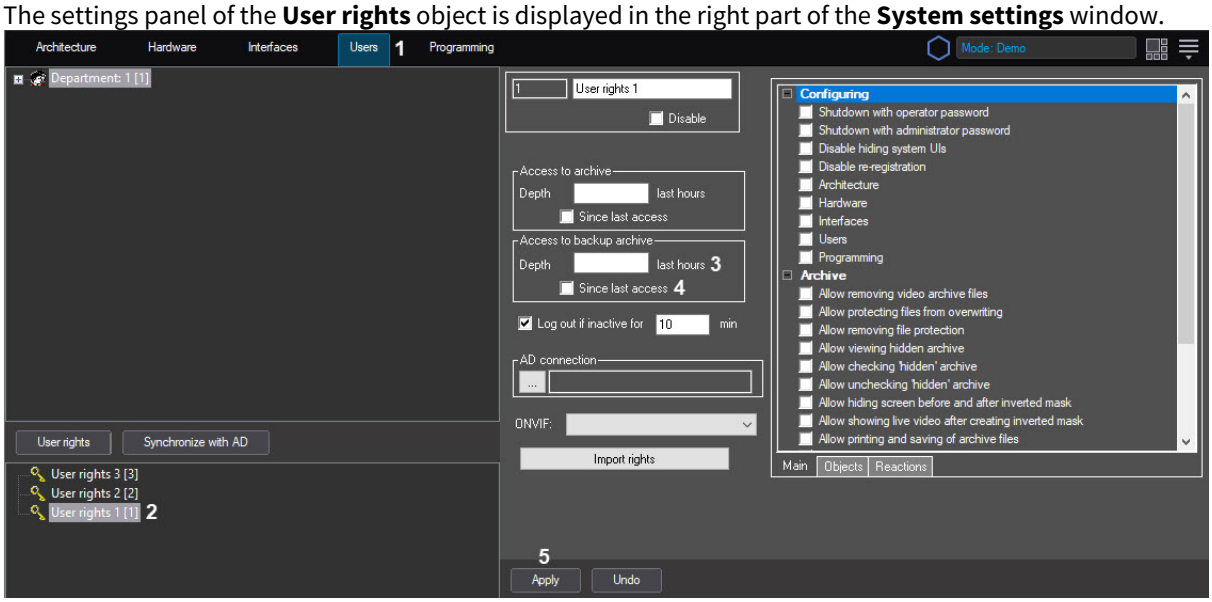
Limiting access to the video archive playback for the operator is complete.

Limiting access to backup archive playback

To limit the access for the operator to play back the backup archive, do the following:

1. Go to the **Users** tab in the **System settings** window (**1**).
2. In the object tree that is below the **User rights** button on the **Users** tab, select an object with the same name corresponding to the operator access rights that must be changed (**2**).

3. The settings panel of the **User rights** object is displayed in the right part of the **System settings** window.



4. In the **Depth ___ last hours** field (**3**), enter the number of hours available for viewing.

> **Note**
>
> The number of last video archive hours available for viewing must be an integer.

> **Note**
>
> Enter the 0 value in the **Depth ___ last hours** field to forbid access to the backup archive.

5. If hours are counted since the last login in the system, set the **Since last access** checkbox (**4**). If you want to set the hours countdown since the current moment, then don't set the **Since last access** checkbox.

> **Note**
>
> If you set the **Since last access** checkbox and specify the number of hours available for viewing, the last hours are counted until the registration moment.

> **Note**
>
> If you set the **Since last access** checkbox but leave the **Depth ___ last hours** field blank, the access to the backup archive playback isn't limited.

6. Click the **Apply** button (**5**).

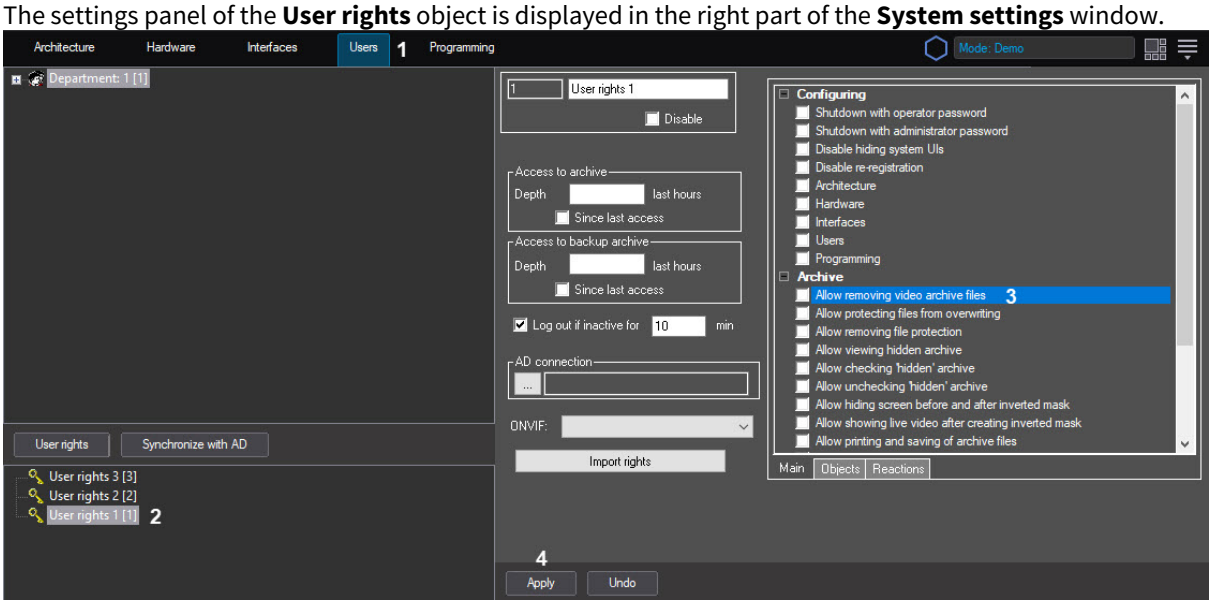
Limiting the backup archive playback by the operator is complete.

Rights to remove files from archive

To allow the operator to remove files from the archive (both main and backup), do the following:

1. Go to the **Users** tab in the **System settings** window (**1**).
2. In the object tree that is below the **User rights** button in the **Users** tab, select an object corresponding to the operator access rights that you want to change (**2**).

The settings panel of the **User rights** object is displayed in the right part of the **System settings** window.



3. To allow the operator to remove files from the archive, set the **Allow removing video archive files** checkbox (**3**). If the operator is not allowed to remove video archive files, leave this checkbox clear.
4. To save the changes in *Axxon PSIM,* click the **Apply** button (**4**).

> **Note**
>
> Videos can be deleted in one of the following ways:
> 1. From the interface of the video surveillance monitor—see Deleting video recordings from the archive.
> 2. Using the ARCH_DEL_RECORD reaction of the CAM object that is executed using the script or program—see CAM Camera.

The operator now can remove video archive files.

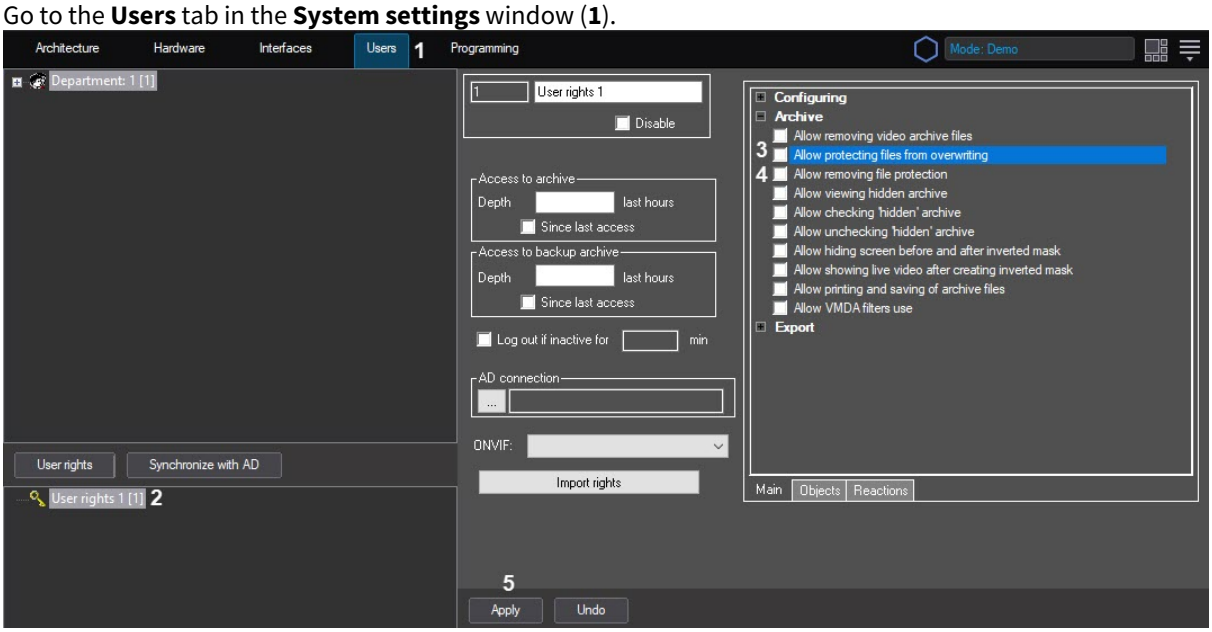
Rights to protect archive files from overwriting

In *Axxon PSIM*, archive recording is performed on a loop (see General information on video archiving). Due to this, old archive recordings can be replaced by new ones. But sometimes it is required to protect important recordings from loop recording. In such a case, you must grant the operator the rights to protect files from overwriting.

Protected files are moved to the PROTECTED folder in the VIDEO folder on the disk with the archive. When you remove file protection, it is moved back to the folder from which it was taken if it still exists. If you have already removed this folder since all files in it were overwritten, the file remains in the PROTECTED folder but isn't displayed in the surveillance monitor. Later, this file is deleted by loop recording.

To give rights to protect archive files from overwriting:

1. Go to the **Users** tab in the **System settings** window (**1**).



2. In the object tree located under the **User rights** button in the **Users** tab, select the same-name object corresponding to the operator access rights that you want to change (**2**).
   The settings panel of the **User rights** object is displayed in the right part of the **System settings** window.
3. To allow the operator to protect archive files from overwriting, set the **Allow protecting files from overwriting** checkbox (**3**). Don't set this checkbox if the operator must not have this right.
4. To allow the operator to disable protection of files protected from overwriting, set the **Allow removing file protection** checkbox (**4**). Don't set this checkbox if the operator must not have this right.
5. Click the **Apply** button (**5**).

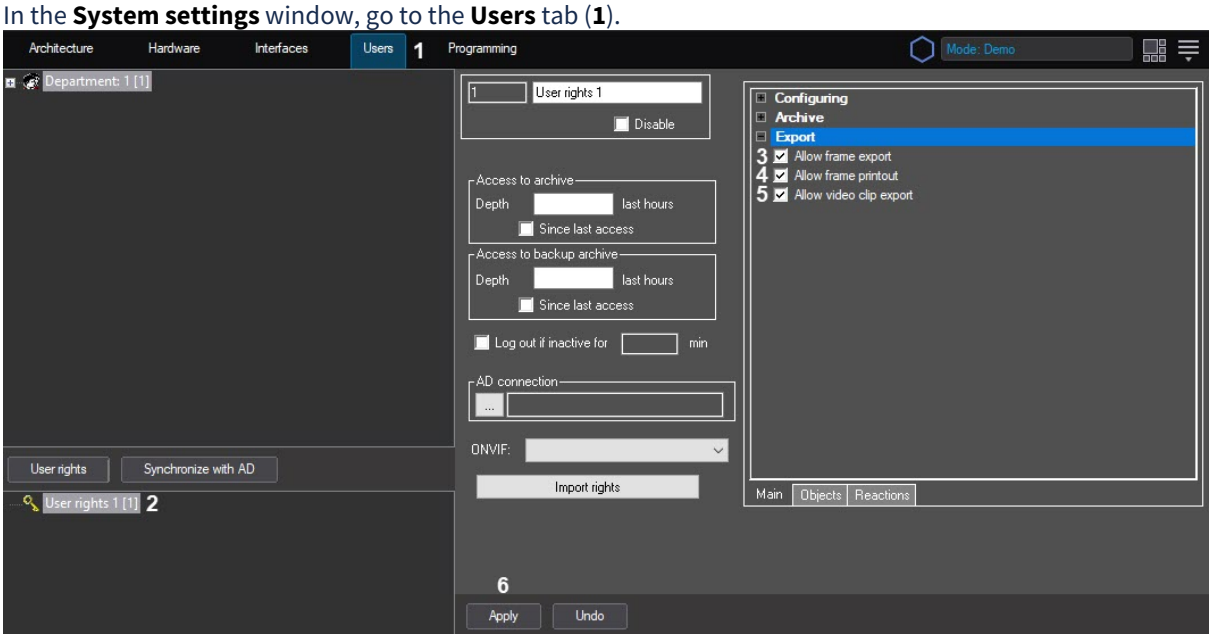
Configuring operator rights for protecting archive files from overwriting is complete.

Rights to export and printout

By default, the operator is allowed to export video recordings and video frames from the archive, as well as send video archive frames for printing using the **Export** item from the camera menu in the surveillance window.

You can forbid export or printout as follows:

1. In the **System settings** window, go to the **Users** tab (**1**).



2. In the object tree located below the **User rights** button, select the object corresponding to the operator access rights that you want to change (**2**).
   The settings panel of the **User rights** object opens on the right.
3. To forbid the operator to export archive frames, clear the **Allow frame export** checkbox (**3**).
4. To forbid the operator to print archive frames, clear the **Allow frame printout** checkbox (**4**).
5. To forbid the operator to export archive clips, clear the **Allow video clip export** checkbox (**5**).
6. Click the **Apply** button (**6**).

Export and printout rights are now set.

> See also Rights to print and save archive files from the video surveillance monitor that allow hiding the export buttons on the toolbar.

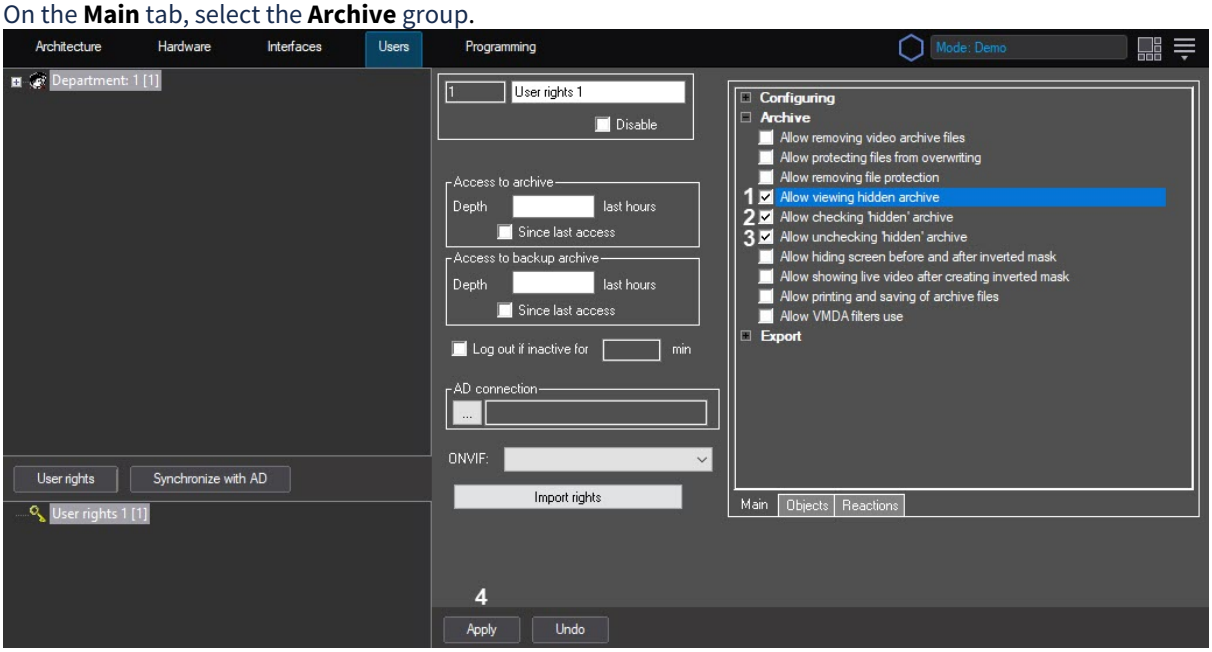
Rights to work with the hidden archive

The hidden archive is not displayed in the video surveillance monitor depending on the operator rights but is stored on the hard drive in the same way as the main archive. By default, the operator has no rights to view the hidden archive as well as to set or unset the "hidden" label to the archive records.

In order to allow the operator to perform operations with the hidden archive, do the following:

1. Go to the settings panel of the **User rights** object.

2. On the **Main** tab, select the **Archive** group.



3. Set the **Allow viewing hidden archive** checkbox (**1**) in order for the operator with these rights to be able to view a hidden archive.
4. Set the **Allow checking "hidden" archive** checkbox (**2**) in order for the operator to be able to hide archive entries.
5. Set the **Allow unchecking "hidden" archive** checkbox (**3**) in order for the operator to be able to unhide archive entries.
6. Click the **Apply** button (**4**).

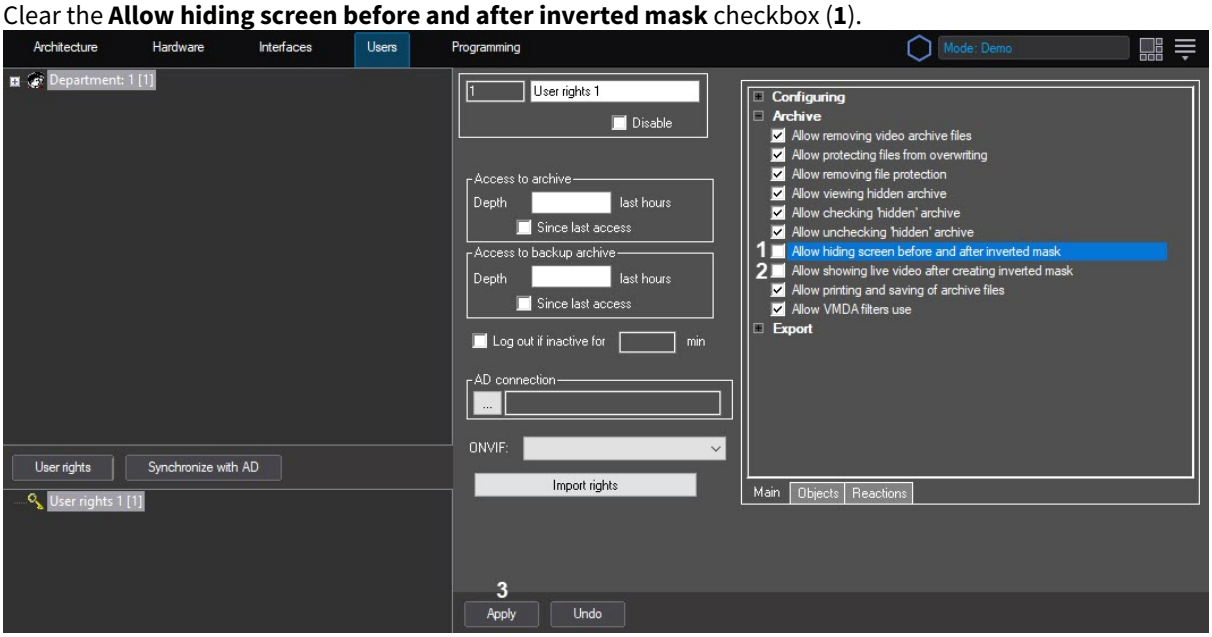
Restriction of rights to hide the archive is complete.

Rights to view video before and after inverted mask

In the interface of the video surveillance monitor, when you create an inverted mask, the **Hide screen completely before and after mask** checkbox is displayed, which allows the operator to choose whether to hide the screen before or after masking (see Masking areas on video at export). To hide this option for the operator, do the following:

1. Go to the settings panel of the **User rights** object.
2. On the **Main** tab, select the **Archive** group.

3. Clear the **Allow hiding screen before and after inverted mask** checkbox (**1**).



4. Click the **Apply** button (**3**).

At the same time, you can allow the operator to view live video before and after the specified mask by setting the **Allow showing live video after creating inverted mask** checkbox (**2**) and clicking the **Apply** button (**3**).

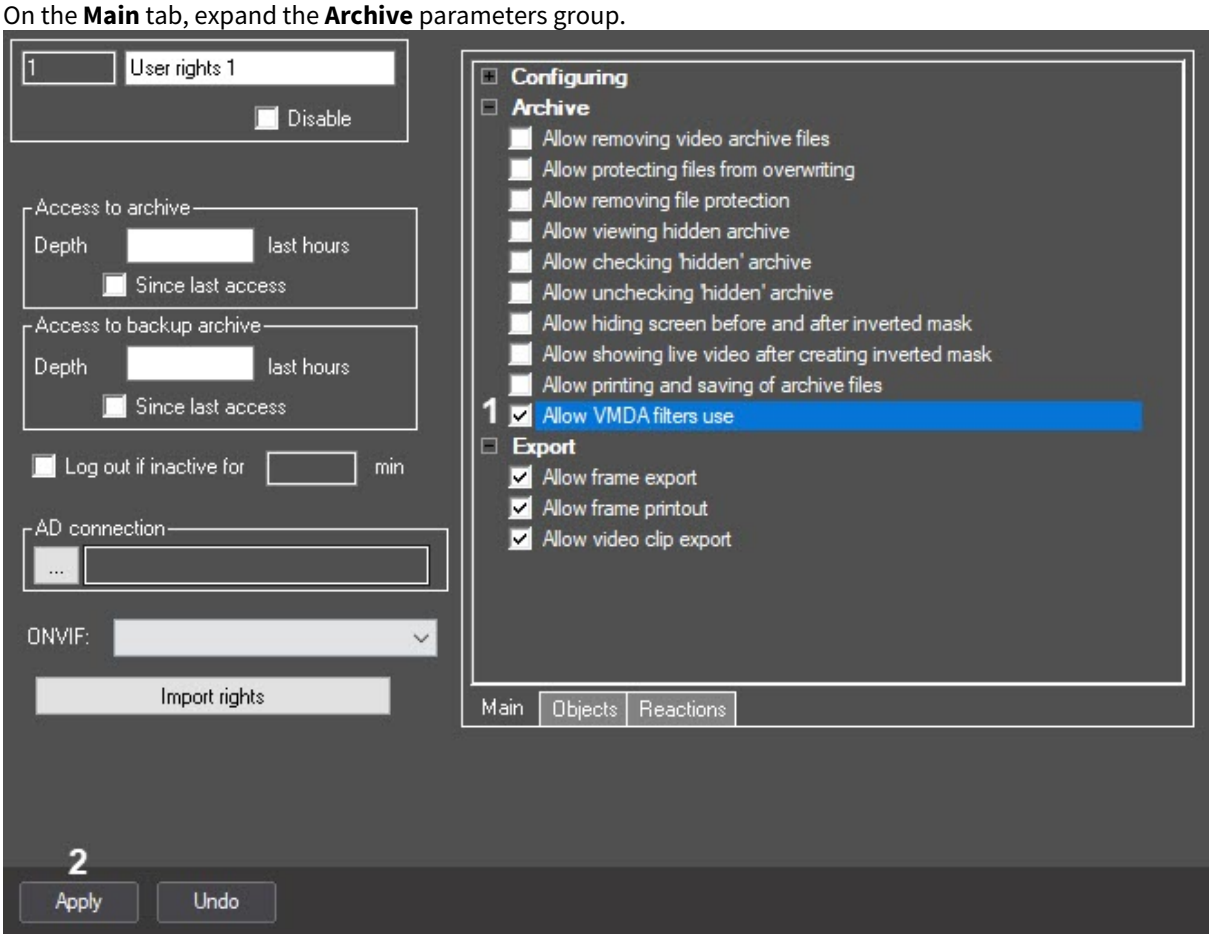
Configuring the rights to view video before and after the inverted mask is completed.

Rights to use VMDA filters

By default, the operator cannot save and load archive search templates when working with the video surveillance monitor (see Archive search templates). To allow the operator to use templates, do the following:

1. Go to the settings panel of the **User rights** object.

2. On the **Main** tab, expand the **Archive** parameters group.



3. Set the **Allow VMDA filters use** checkbox (**1**).
4. Click the **Apply** button (**2**).

Now the **Save the template** and **Load the template** items in the **Archive search** menu are available for the operator with the appropriate rights in the video surveillance monitor.

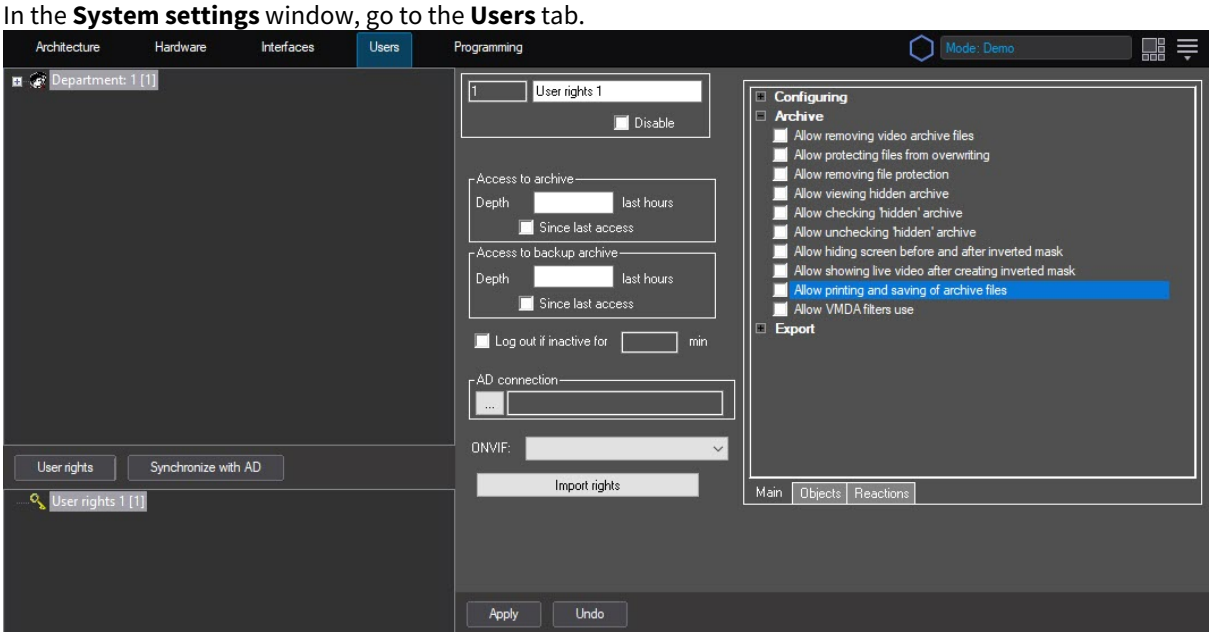
> **Note**
>
> The display of the **Save the template** and **Load the template** buttons is also configured by the CanUseVmdaFilters registry key (see Registry keys reference guide).

Rights to print and save archive files from the video surveillance monitor

By default, the operator can see the print, export, and zoom buttons in the video surveillance monitor in the archive viewing mode.

To hide these buttons, do the following:

1. In the **System settings** window, go to the **Users** tab.



2. In the object tree in the lower left part of the screen, select the user rights corresponding to the operator access rights that you want to change.
   The settings panel of the **User rights** object opens on the right.
3. Clear the **Allow printing and saving of archive files** checkbox.
4. Click the **Apply** button.

Configuring the display of buttons for printing and saving archive files in the video surveillance monitor is complete.

> **Note**
>
> User rights take precedence over the HideArchSaveAndPrintButtons registry key that performs the same function (see Registry keys reference guide). Use the registry key if there are no users and rights created in the system.

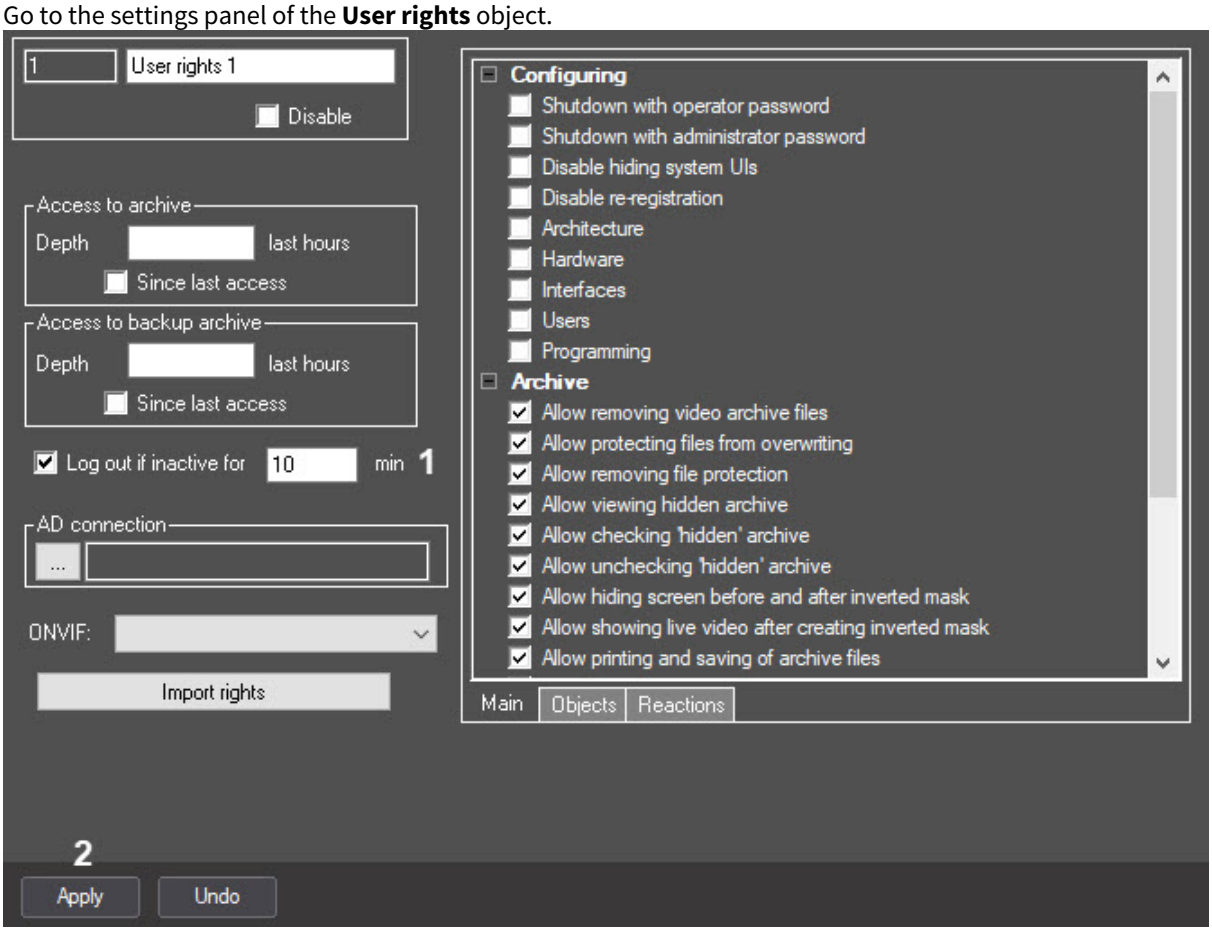
> See also Rights to export and printout, which control the ability to export via the camera menu in the surveillance window.

Configuring automatic logout if the user is inactive

In *Axxon PSIM*, you can configure the automatic logout if the operator is inactive for a certain period of time.

For this, do the following:

1. Go to the settings panel of the **User rights** object.



2. Set the **Log out if inactive for __ min** (**1**) checkbox, and in the corresponding field specify the time period (in minutes) at the end of which the session is terminated after the last action of the user and the login window is displayed (see Axxon PSIM start and shutdown).
3. Click the **Apply** button (**2**).

Configuration of the automatic logout if the user is inactive is complete.

Configuring rights to work with the ONVIF server

If you use the *ONVIF server* module, you can configure the user authorization when connecting to it.

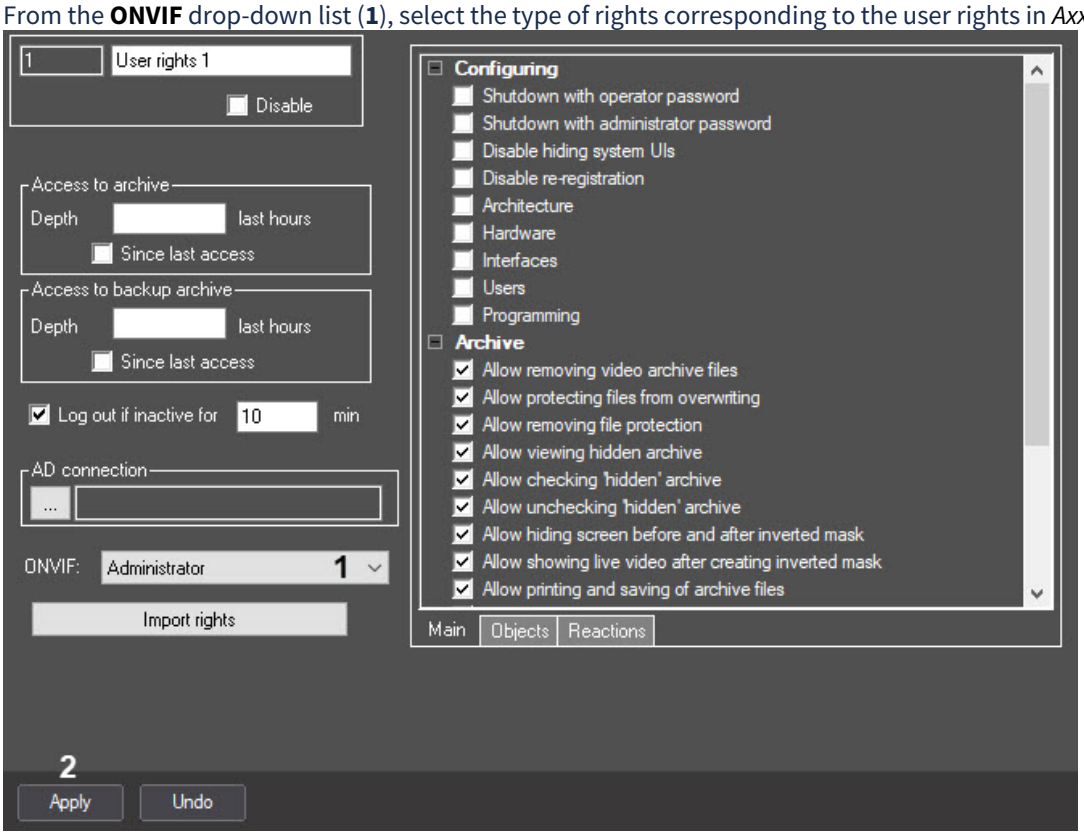
There are four types of rights in the ONVIF specification: **Administrator**, **Operator**, **User**, and Anonymous user. Users with the Anonymous user rights can get data via the ONVIF server without authentication. For the other three types, you must configure the correspondence of the *Axxon PSIM* user rights with user rights according to the specification of the ONVIF protocol.

> **Note**
>
> Find details about types of rights in ONVIF Core specification at https://www.onvif.org/profiles/specifications/

To configure the *Axxon PSIM* rights to work with the ONVIF server, do the following:

1. Go to the settings panel of the **User rights** object.

2. From the **ONVIF** drop-down list (**1**), select the type of rights corresponding to the user rights in *Axxon PSIM*.



3. Click the **Apply** button (**2**).

Configuration of *Axxon PSIM* rights to work with the ONVIF server is complete.

Combining (importing) user rights

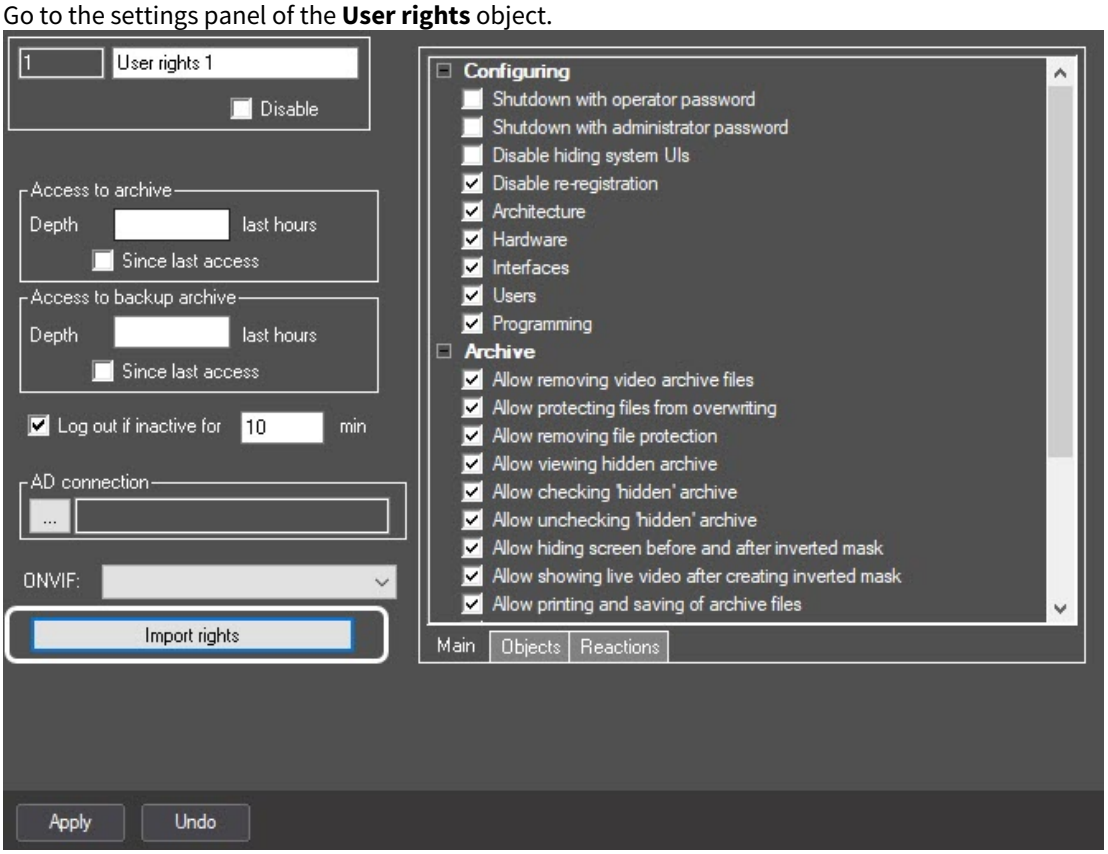
In *Axxon PSIM*, you can combine several user rights if you create the new **User rights** object. In contrast to the copying and pasting object function (Ctrl+C - Ctrl+V), when all parameters of user rights are simply copied, the combining function allows selecting several user rights that are combined in the configured object.

The user rights are combined in the following way:

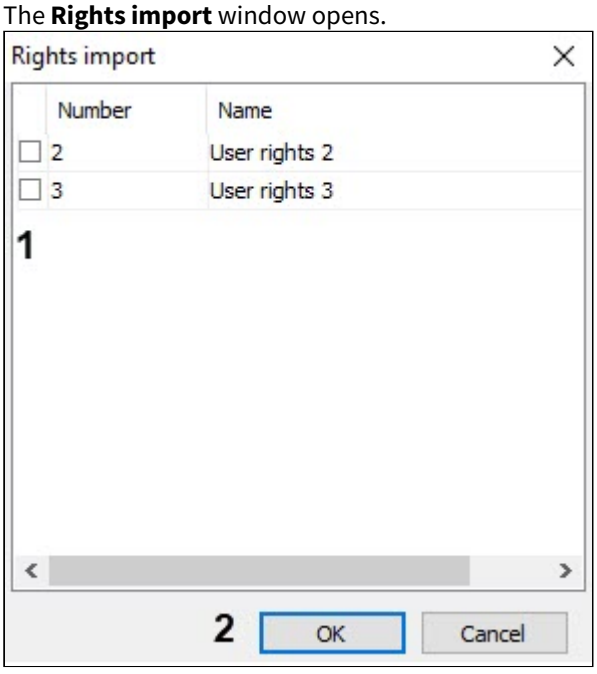
1. The rights of the selected template rights are added, that is, if an action is prohibited in one of the rights but is permitted in the other, the action is allowed in the new rights as a result of their combination.
2. The rights for the administration, control, and monitoring are set with the maximum rights among the specified ones in the combined rights.
3. The archive depth uses the maximum value in hours among the selected template rights.

To combine user rights when you create new rights, do the following:

1. Go to the settings panel of the **User rights** object.



2. Click the **Import rights** button.
3. The **Rights import** window opens.



4. Set the checkboxes next to the **User rights** objects, the rights of which you want to combine (**1**).
5. Click the **OK** button (**2**). The settings panel displays the results of the rights combination.
6. Click the **Apply** button to save the changes.

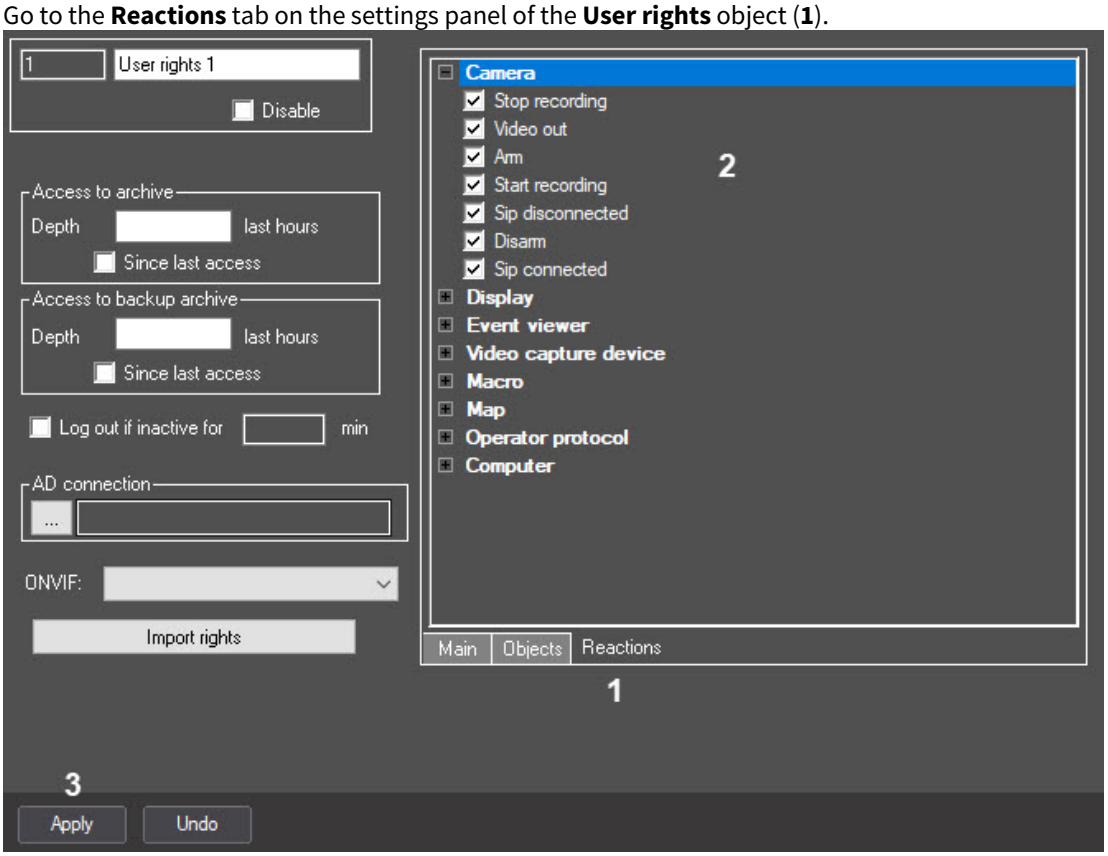
Combining user rights is complete.

Limiting rights to send commands (reactions)

By default, *Axxon PSIM* operators have rights to run any commands for objects that operators can control (see Restriction of administration, control, and monitoring rights). Execution of commands can be limited from the map.

Set limits to execution of selected commands as follows:

1. Go to the **Reactions** tab on the settings panel of the **User rights** object (**1**).



2. Clear the checkboxes next to the reactions that you want to prohibit the operator from performing (**2**).
3. Click the **Apply** button (**3**).

Limiting the rights to run certain commands is complete.

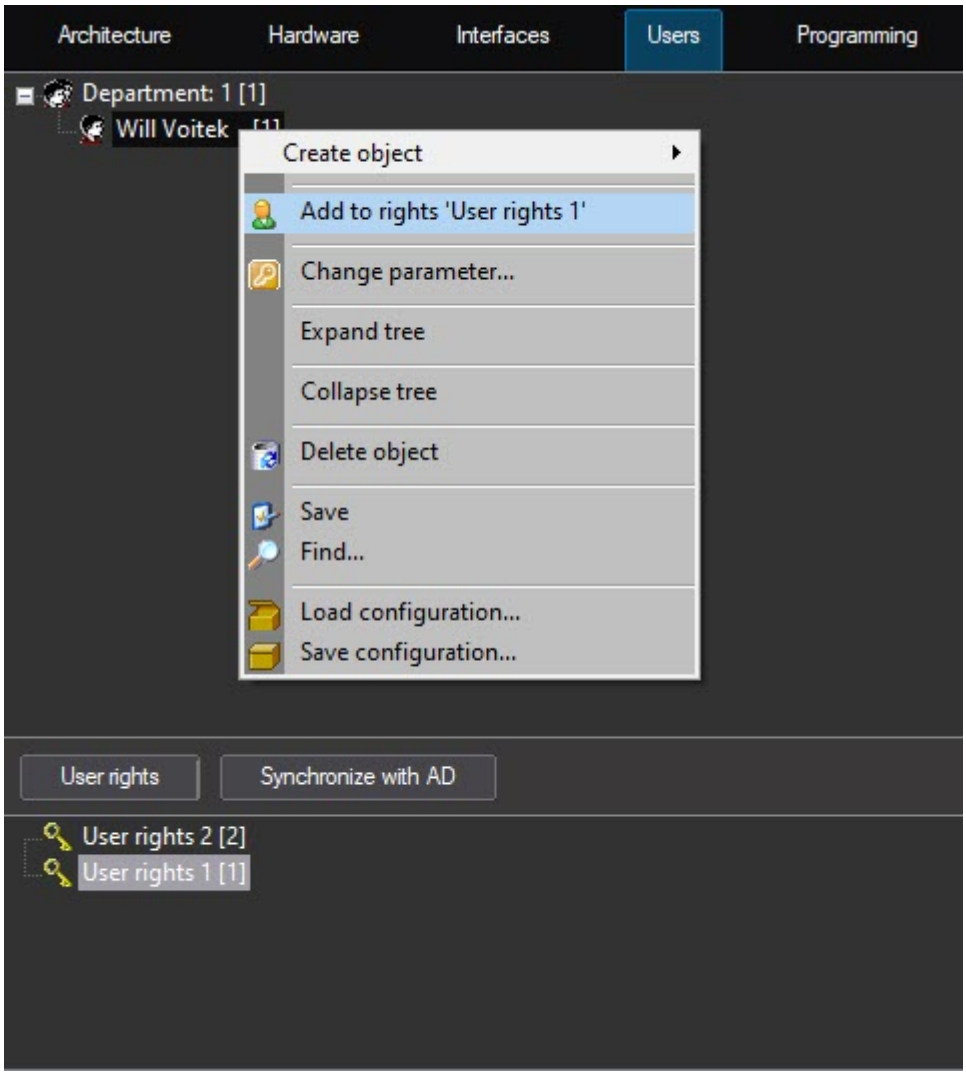
Assigning rights and password to operators for authorization in Axxon PSIM

User accounts are stored separately from operator accounts in *Axxon PSIM*. The same rights can be assigned to several operators. The operator can be assigned only one right.

To assign rights and a password to the operator for authorization in *Axxon PSIM*, do the following:

1. Go to the **Users** tab in the **System settings** window.
2. To add the operator to the user rights, you can use either of two ways:
    a. The first way:
        i. In the object tree located in the lower left corner, select the **User rights** object corresponding to the rights account that must be assigned to the operator.

ii. In the **Department** objects tree, open the context menu by right-clicking the name of the selected user.

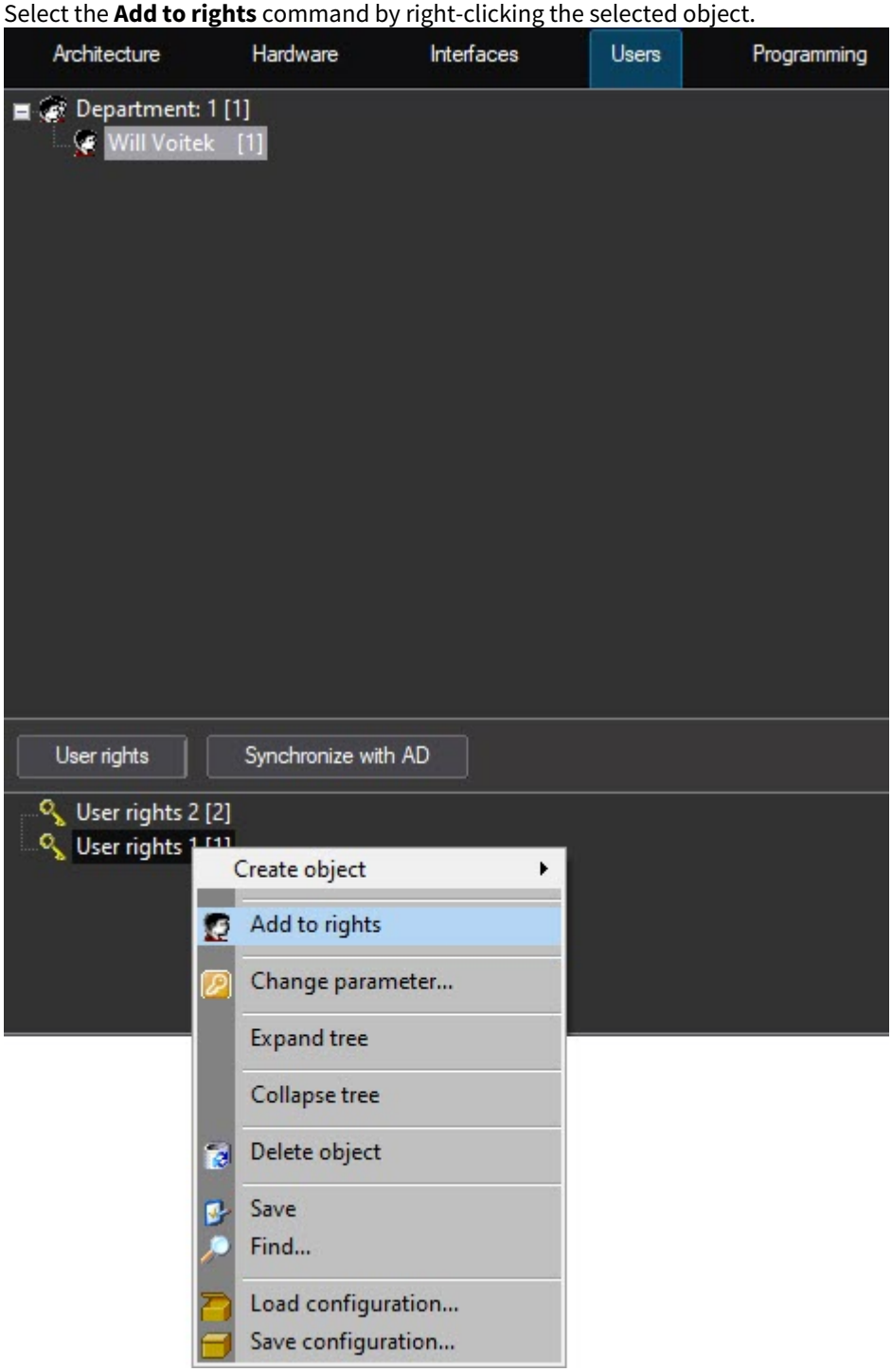


iii. Select the **Add to rights "User rights"** command in the menu.

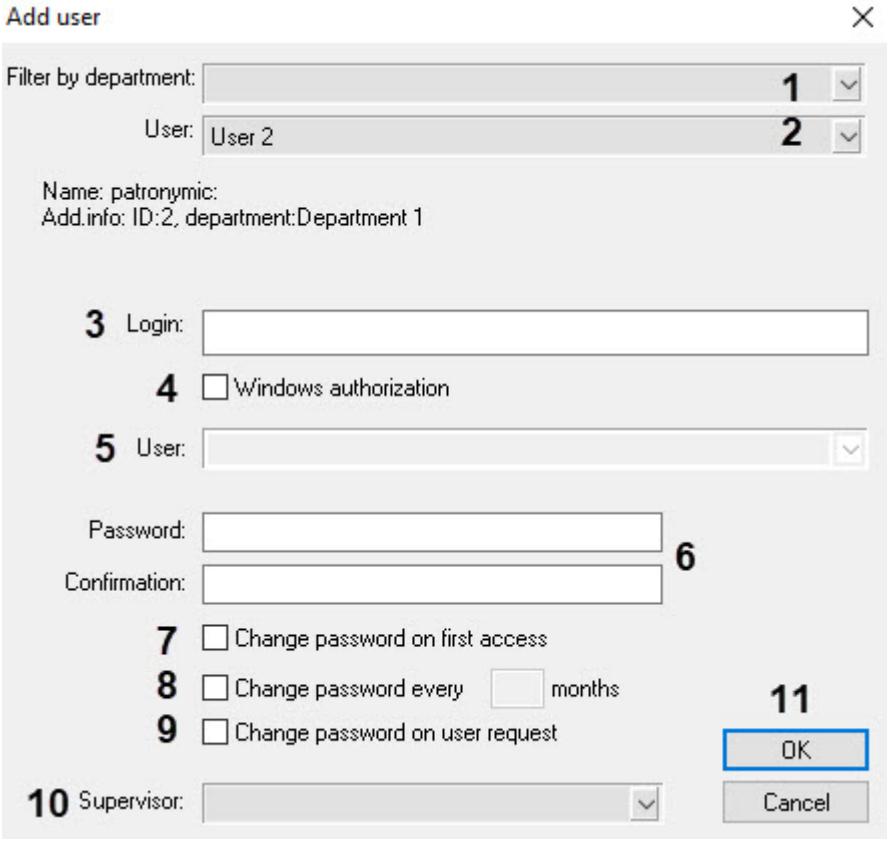
b. The second way:

i. In the object tree located in the lower left corner, select the **User rights** object corresponding to the rights account that must be assigned to the operator.

ii. Select the **Add to rights** command by right-clicking the selected object.



As a result, the **Add user** window is displayed on the screen.



3. If you want to use the Windows OS account for the user authorization in *Axxon PSIM*, set the **Windows authorization** checkbox (**4**) and select the name of the account from the **User** list (**5**).

   Note

   When you select this way of authorization, all other fields aren't edited. Also, you mustn't enter any data in the login and password query panel when starting or shutting down *Axxon PSIM*. To start *Axxon PSIM* when a password is requested, click the **Registration** button. To shut down *Axxon PSIM*, click the **Shutdown** button.

4. Select the operator account in the **User** (**2**) drop-down list or use **Filter by department** (**1**), after which select the name of the registered account for the operator from this department.
5. In the **Login** field (**3**), specify the login that is assigned to the operator for identification in *Axxon PSIM*.
6. In the **Password** field (**6**), specify the password that is assigned to the operator for authorization in *Axxon PSIM*.

   Note

   Without a password, access rights aren't assigned to the operator.

7. Repeat the operator password in the **Confirmation** field (**6**).
8. Configure the rules of password change by the user:
   a. Set the **Change password on first access** checkbox (**7**) to ask the user to change the password on the first login to the system.
   b. Set the **Change password every __ months** checkbox (**8**) to ask the user to change the password periodically. After you set the checkbox, the text field becomes editable. Enter the request period of password change in months.

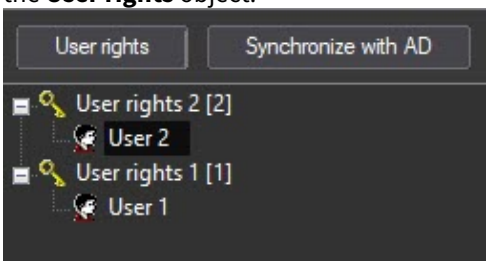
c. Set the **Change password on user request** checkbox (**9**) if you want to allow the user to change its password at any system startup.

9. If you want to confirm the user login to the system by another user, select it from the **Supervisor** drop-down list (**10**).

> **Note**
>
> The user-supervisor must be added to rights.

> **Attention!**
>
> If the system uses the authorization type by the four-eyes rule (that is, with the supervisor confirmation), all system users, including supervisors, must log in to the system by login and password instead of the Windows user account (see steps 4-8).

10. Click the **OK** button (**11**).
11. The object with the name of the user account registered for the operator is displayed in the child branch of the **User rights** object.



Assigning rights and a password to the operator for authorization in *Axxon PSIM* is complete.

Setting up the default user

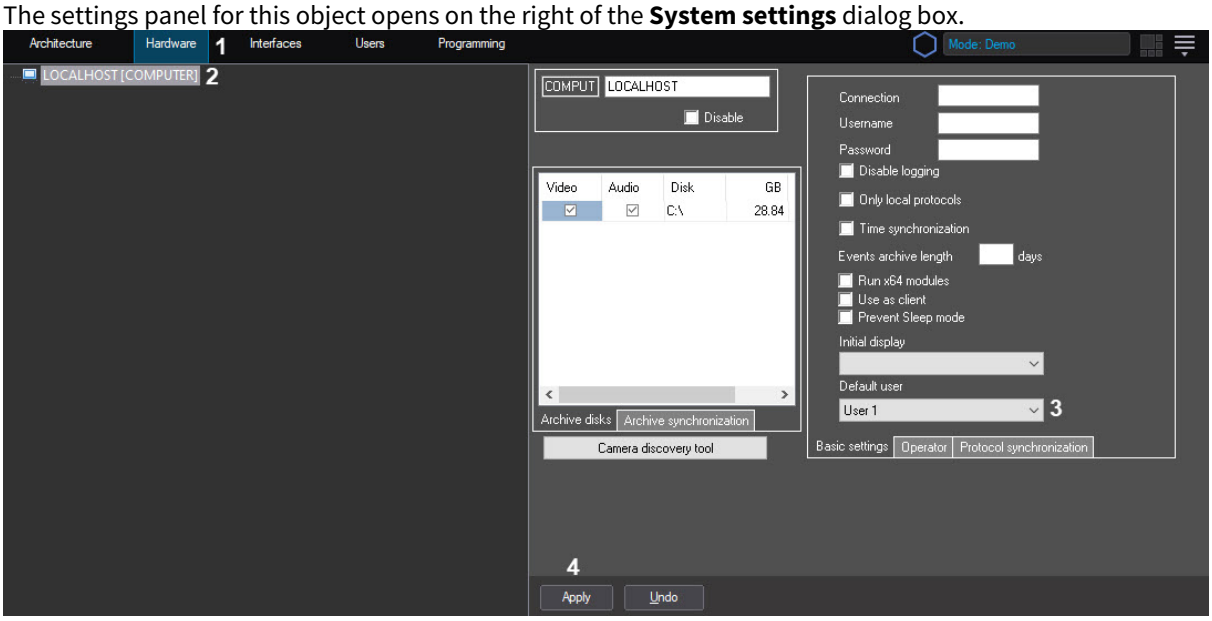
To allow starting the system without specifying the password, default user is to be set up. The administrative, controlling and viewing functions will be limited according to the rights of the default user.

The user is to be registered in the system before becoming the default user.

To set the default user, do the following:

1. Go to the **Hardware** tab in the **System settings** dialog box (**1**).

2. Select the **Computer** object, representing the workstation the default user will be assigned to (**2**).
   The settings panel for this object opens on the right of the **System settings** dialog box.



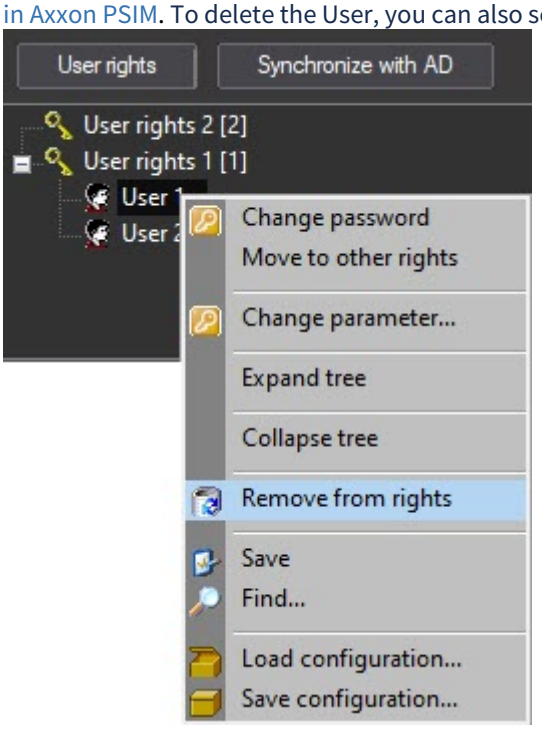
3. Select the user account in the **Default user** list (**3**).
4. Click the **Apply** button (**4**).

The administrative, controlling and viewing functions will then be limited according to the rights of the default user.

Changing rights assigned to operator

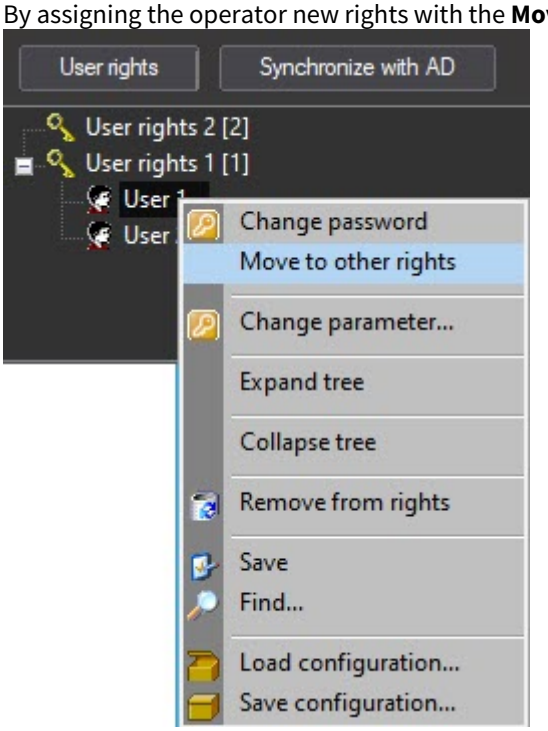
You can change the rights assigned to the operator in one of the following ways:

- By deleting the operator from the old rights using the **Remove from rights** item in the **User** object context menu and assigning new rights as described in Assigning rights and password to operators for authorization in Axxon PSIM. To delete the User, you can also select the User in the list and press Ctrl+Del on the keyboard.



> **Note**
>
> When you click the **Remove from rights** item in the menu, the confirmation is not requested. The operator rights are deleted immediately.

- By assigning the operator new rights with the **Move to other rights** item in the **User** object context menu.



As a result, the **Move to other rights** window opens.



Select the **User rights** object from the drop-down list, then click the **OK** button. The operator is assigned the selected rights.

- Edit the settings of the **User rights** object specified when registering user's rights.

> **Attention!**
>
> The changes to user rights do not apply "on the fly", that is, the operator logged into the system must re-login in order for the changes to be applied.

CamMonitor (ActiveX) rights

CamMonitor.ocx is an ActiveX component (see more about ActiveX in the Microsoft documentation https://support.microsoft.com/), which is a complete analogue of the **Video surveillance monitor** interface object. It is used to control the cameras, view the archive, etc.

CamMonitor can be used as an alternative to the **Video surveillance monitor** in the **Operator protocol** and **Incident manager** interface objects. Which component is used to display video is determined by the settings of these objects:

1. The settings panel of the Operator protocol object

2. The settings panel of the Incident manager object

CamMonitor is also used in the **Event Viewer**, **Map**, and **Captions search** interface objects.

CamMonitor has specific access rights settings:

- the rights of the default user are applied firsthand (see Setting up the default user);
- if the default user is not specified, the rights of the last user in the list of user rights are used;
- if the user logs into *Axxon PSIM* with their login and password, the rights assigned to this user will be applied.

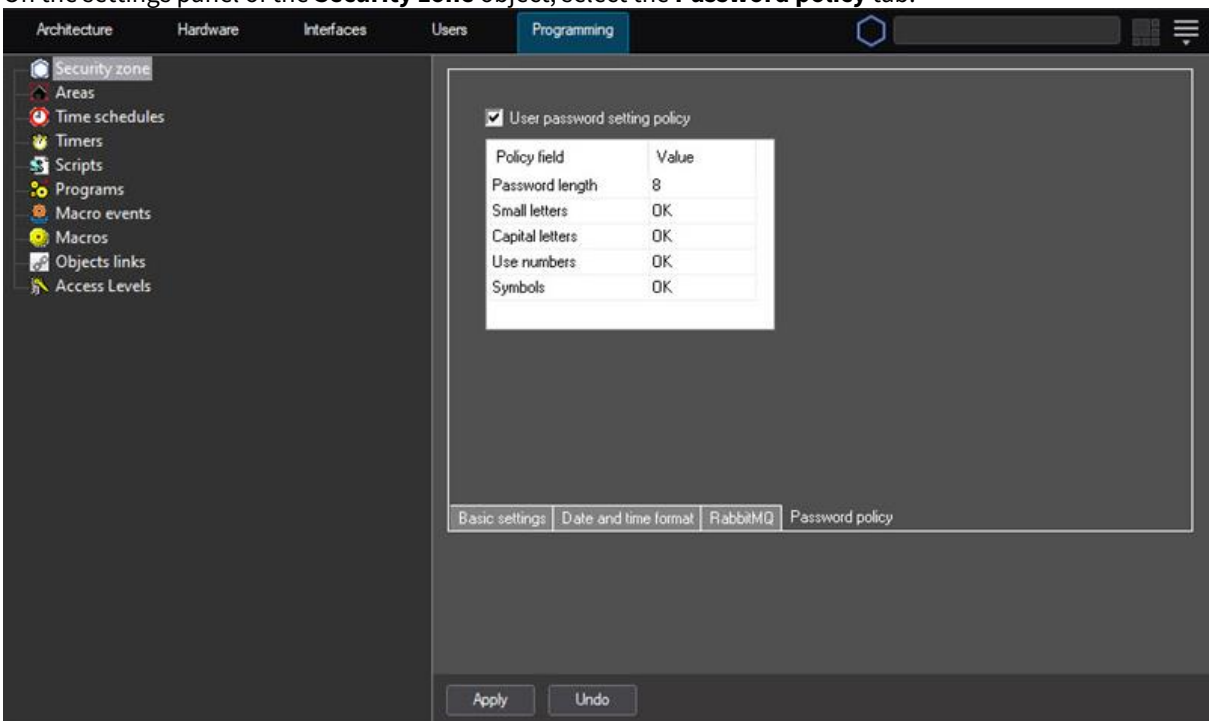
Note the following specifics of CamMonitor (ActiveX) rights:

- when you restrict user rights, it does not hide buttons in CamMonitor, it only limits the functionality of these buttons;
- when different user logs in, the rights do not switch immediately, it is required to restart *Axxon PSIM*: for example, if *Axxon PSIM* was launched with default user rights, then for the operator to log in and user their rights, it is necessary to restart *Axxon PSIM* and specify operator's login and password at launch;
- if the cameras are registered on the Server and are displayed in CamMonitor on the Remote Client, then the Remote Client will use the rights of the user on the Server, not the user authorized on the Remote Client. The exceptions are **Map** and **Captions search** interface objects.

Configuring password policy

To configure the password policy, do the following:

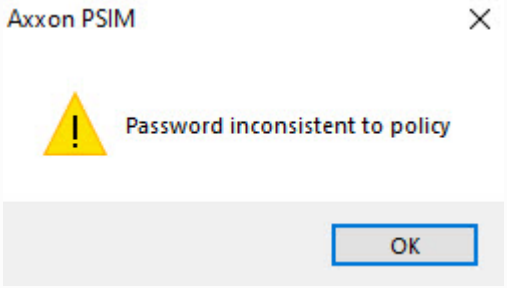
1. Go to the **Programming** tab and select the **Security zone** object.
2. On the settings panel of the **Security zone** object, select the **Password policy** tab.



3. If you want to change password settings, set the **User password setting policy** checkbox.
4. In the **Password length** field, enter the password length. The default value is eight characters.
5. Select the **OK** or **No** value for each parameter depending on the requirements for the password complexity:
    a. **Small letters**—a password must contain at least one letter of the lower case.
    b. **Capital letters**—a password must contain at least one letter of the upper case.
    c. **Use numbers**—a password must contain at least one number.
    d. **Symbols**—a password must contain at least one special symbol.

> **Note**
>
> We recommend setting the **OK** value for all parameters to ensure the maximum security.

6. Click the **Apply** button.

> **Note**
>
> Changes take effect after you click the **Apply** button, and then you cannot enter a password that doesn't meet the requirements.
> If you enter an inconsistent password, the following message appears:
>
> 
>

Configuring the password policy is complete.

> **Note**
>
> If you create the user account before changing the password policy and its password doesn't meet the new requirements, you must not change it.

22.5.2 Configuration of the LDAP Service

General information about the Service LDAP module

The *Service LDAP* module allows you to:

1. Import data from an LDAP address book into the *Axxon PSIM* database.
2. Synchronize the *Axxon PSIM* database with an LDAP address book.

> **Attention!**
>
> All entries in the LDAP directory must have the uid (unique user ID) and ou (user department) attributes. If these attributes are absent, the *Service LDAP* fails to import and synchronize users from the LDAP address book and the *Axxon PSIM* database. If other attributes are used as unique ID and department name in the address book, you must specify these attributes when configuring the **Service LDAP** object (see Configuration of correspondence between address attributes and Axxon PSIM DB fields).

When importing or synchronizing, the users that have been manually created in *Axxon PSIM* before or after the import operation are not affected.

You can import data and synchronize the *Axxon PSIM* database with the LDAP address book using macros (the **Get all employees** action of the **Service LDAP** object, see Example macro for importing users from LDAP address book. For more information on macros, see Creating and using macros). Use a **Timer** object for scheduled synchronization (see Creating and using the Timer object).

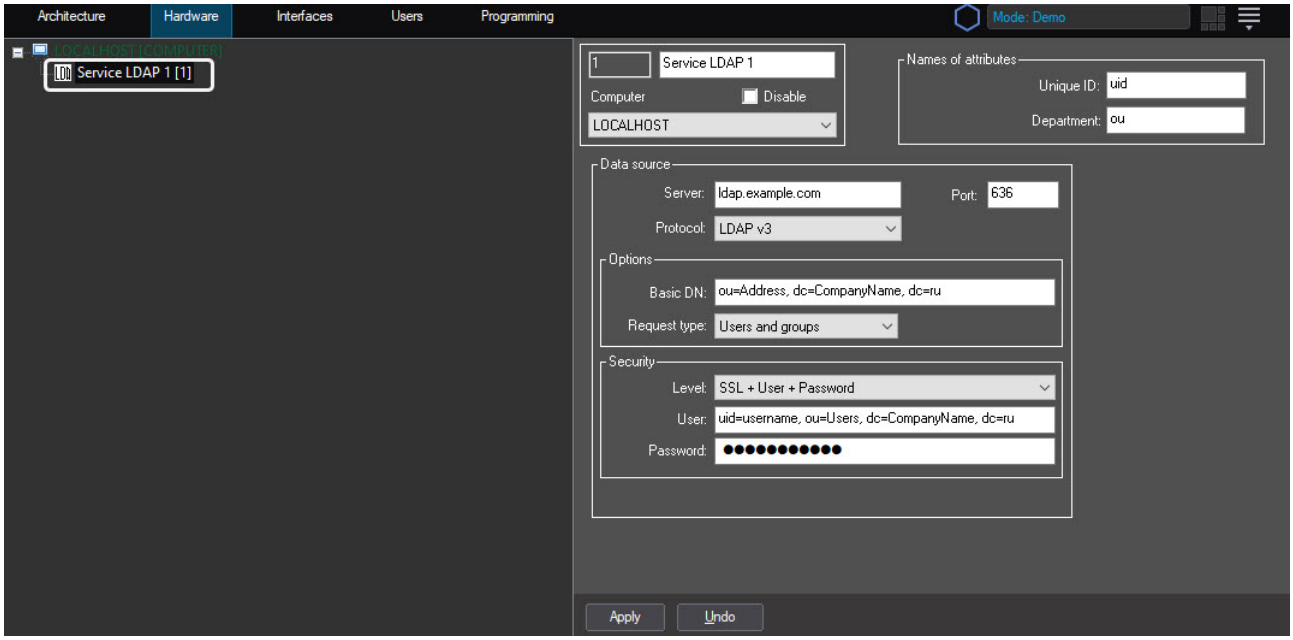
The following LDAP attributes are supported by *Axxon PSIM:*

LDAP attribute	**Field in Axxon PSIM**	**Commentary**
User		
sn	Surname (the **User** object, the name parameter)	If there is no sn attribute in the returned data, such an entry is ignored. Note that the last name of the user is stored in the "name" field in the *Axxon PSIM* database
givenname	Name (the **User** object, the surname parameter)	Note that the first name of the user is stored in the "surname" field in the *Axxon PSIM* database
uid	ID in the external DB (the **User** object, the external_id parameter)	If there is no attribute with a unique ID in the returned data, then a new employee is created, that is, there is duplication of employee. If another attribute is used as a unique ID in the address book, then you must specify this attribute when configuring the **Service LDAP** object (see Configuration of correspondence between address attributes and Axxon PSIM DB fields)
mail	Email address (the **User** object, the email parameter)	
telephoneNumber	Phone (the **User** object, the phone parameter)	
title	Title (the **User** object, the post parameter)	
Department		
ou	Department name (the **Department** object, the name parameter)	If there is no attribute with a department name in the returned data, a department named **Service LDAP** is created and the user is placed in that department. If another attribute is used as a department name in the address book, then you must specify this attribute when configuring the **Service LDAP** object (see Configuration of correspondence between address attributes and Axxon PSIM DB fields)
Group		

group	User group in **Request type** (see Configuring the connection to the LDAP address book)	The attribute is used to import user groups when selecting the request type **Group** or **Users and groups**

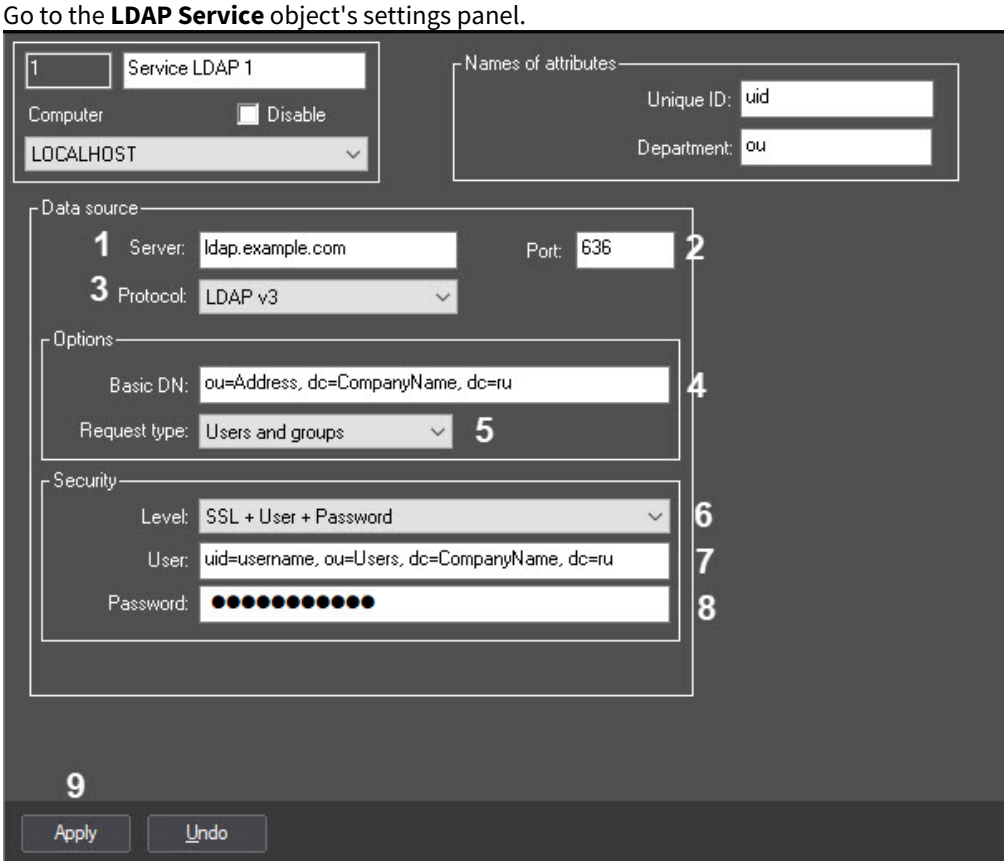
Configuring the connection to the LDAP address book

The connection to an LDAP address book is configured on the **LDAP Service** object's settings panel. This object is created based on a **Computer** object on the **Hardware** tab of the **System Settings** dialog.



The connection to an LDAP address book is configured as follows:

1. Go to the **LDAP Service** object's settings panel.



2. In the **Server** field, specify then name of the server on which the LDAP is started (1).
3. In the **Port** field, enter the number of the LDAP server port, specified in the previous step, designed to receive incoming connections (2).
4. Select the version of the LDAP protocol being used from the **Protocol** dropdown list (3).
5. In the **Basic DN** field, specify the unique identifier of the LDAP base entry that will be the first when the search for users starts (4).

> **Example**
>
> The example of how to fill in the **Basic DN** field: ou=Address, dc=MyCompany, dc=com

6. From the **Request type** drop-down list, select the type of user import (5):
   a. **Users**: only users are imported.
   b. **Groups**: only groups are imported.
   c. **Users and groups**: both groups and users are imported.
7. Select the connection security method being used by the LDAP server from the **Level** dropdown list (6).
8. In the **User** field, specify the unique name of the user with rights to access the LDAP address book (7). *Axxon PSIM* will access the LDAP address book under this username. Up to 255 characters.

> **Example**
>
> The example of how to fill in the **User** field: uid=user.name,ou=Users,dc=MyCompany,dc=com

9. Enter the user's LDAP address book password in the **Password** field (8).

> **Note**

> The username and password should not be entered if the selected connection security method does not require them.

10. To save the settings, click the **Apply** button (9).

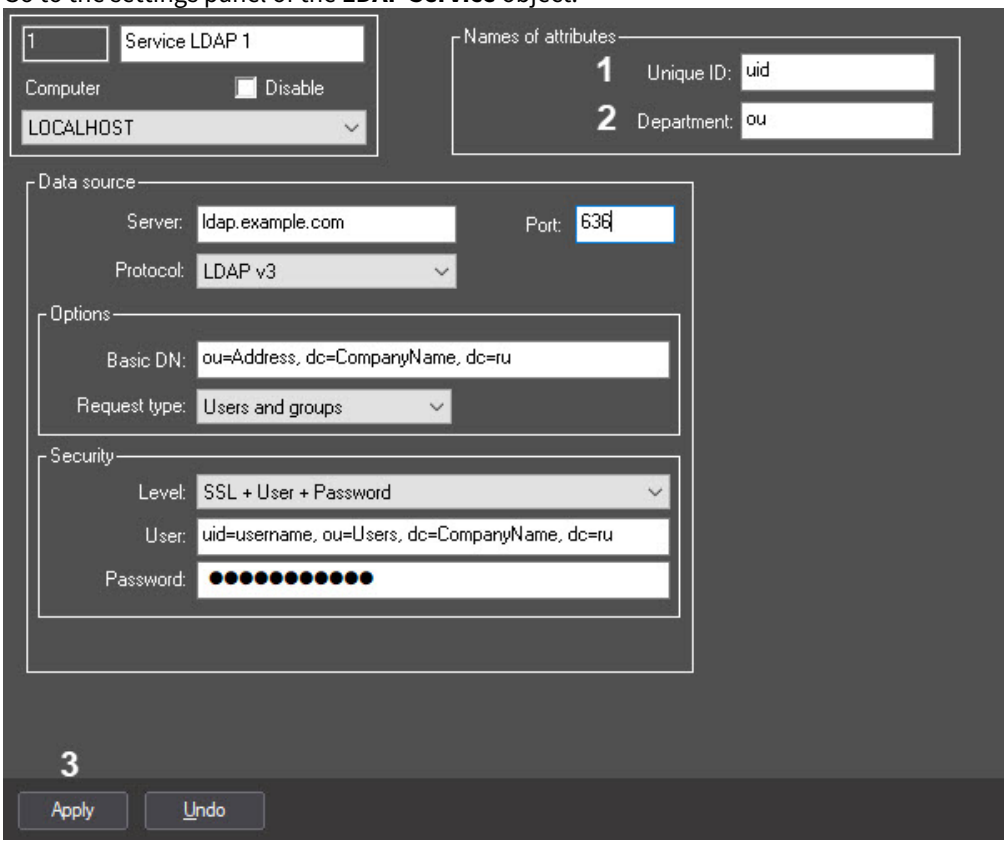
This completes the process of configuring the connection to an LDAP address book.

Configuration of correspondence between address attributes and Axxon PSIM DB fields

Default correspondence between address attributes and *Axxon PSIM* DB fields is given in General information about the Service LDAP module section. The correspondence between attributes and fields for unique ID and department name can be modified.

Configure correspondence between address attributes and *Axxon PSIM* DB fields as follows:

1. Go to the settings panel of the **LDAP Service** object.



2. In the **Unique ID** field specify the attribute name that is a unique ID corresponding to external_id parameter of the **User** object in *Axxon PSIM* (1).
3. In the **Department** field specify the attribute name that is the name of the department and corresponding to the name field of the **Department** object in *Axxon PSIM* (2).
4. To save the changes click the **Apply** button (3).

Configuration of correspondence between address attributes and *Axxon PSIM* DB fields is now complete.

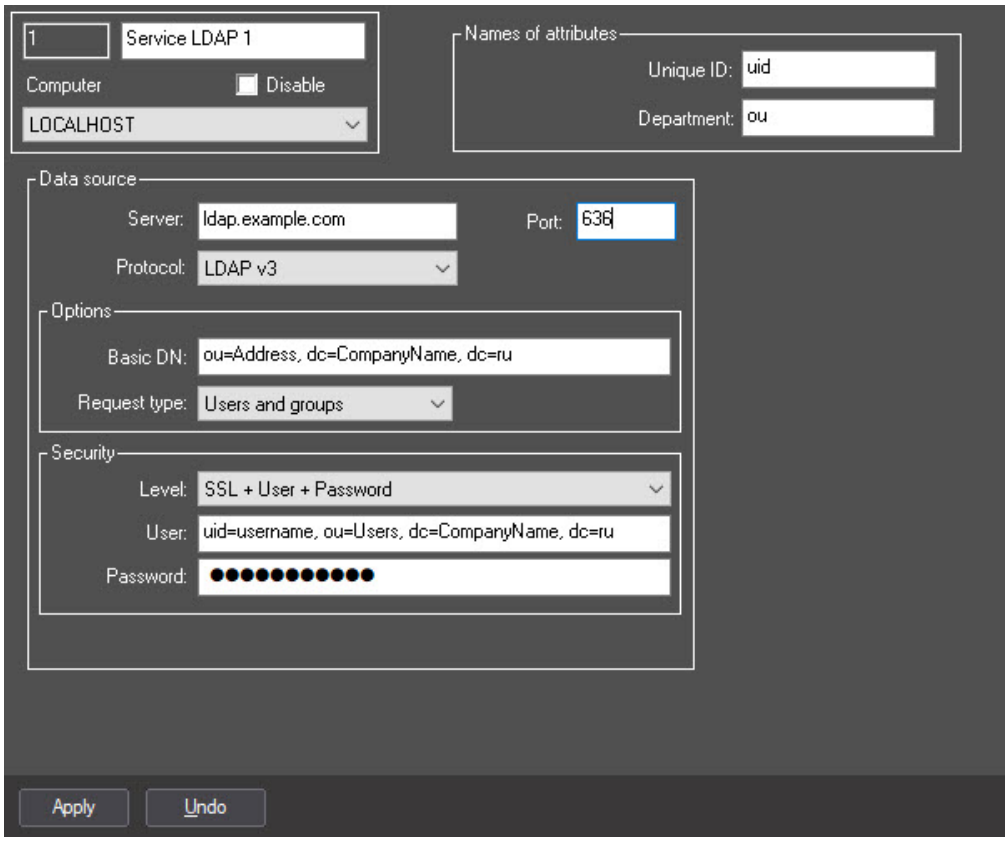
Examples of LDAP Service configuration

Find below examples of configuring the **Service LDAP** object to work with different systems.

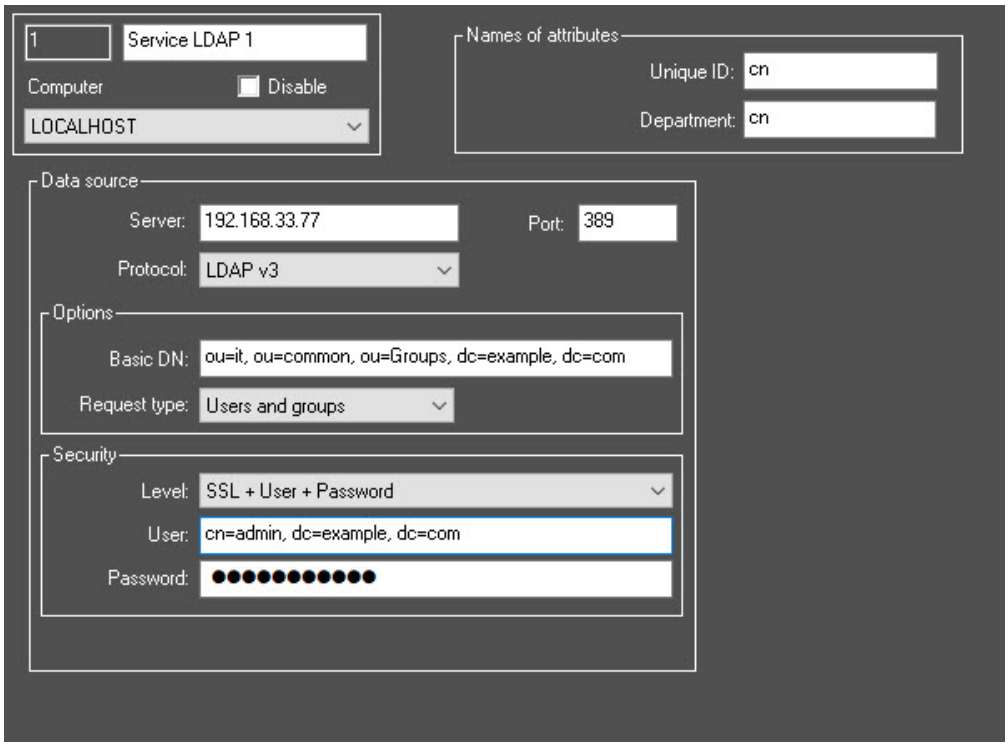
Features of configuration for the given examples:

- in the two lower examples, the Unique ID and Department special attributes are specified (not uid and ou by default). You must use them in the Data source settings;
- for the examples with LDAP and OpenLdap, typical names are used. For the example with Active Directory, the data of our test database is used;
- dc is the domain of the client. The ready attributes are taken from the Active Directory **Attribute Editor** or Ldap in the "distinguishedName" string. The string is displayed in the properties of the required section or user. You can also call the properties from the context menu;
- you can specify a user through attributes, as in the examples, or directly by specifying the domain and user login with a backslash, for example, "Domain\Name", "LDAP\Admin". This way of specifying can result in longer synchronization time;
- in the settings of an account used for user synchronization, the "Password validity is not limited" checkbox must be set if you plan to synchronize all the time.

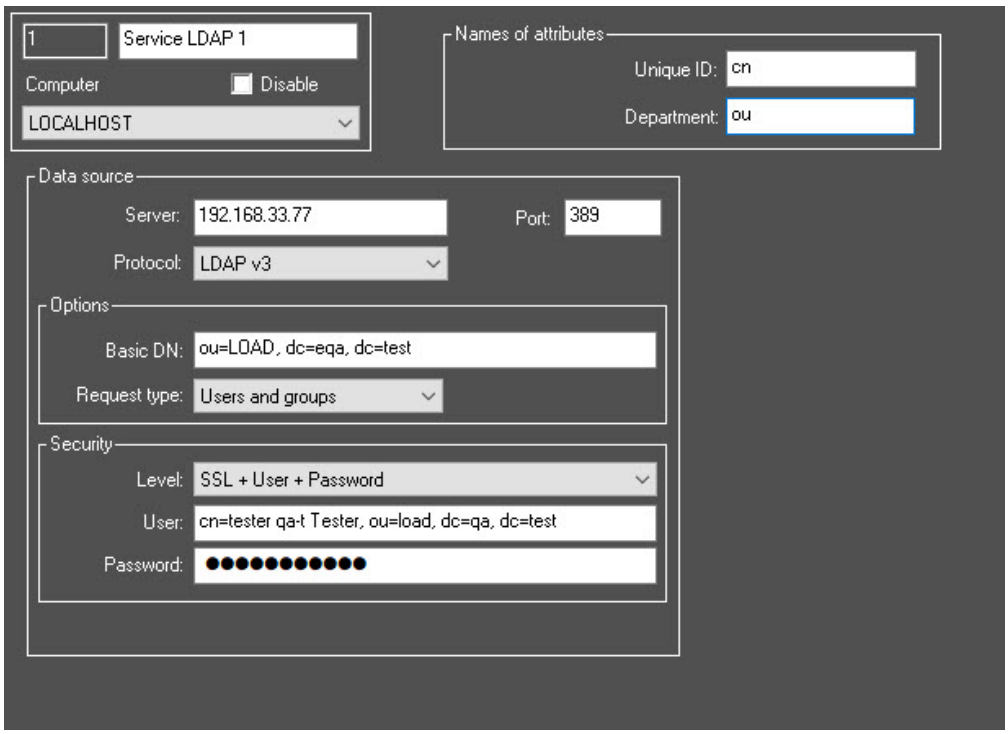
For working with the LDAP address book



For working with OpenLdap

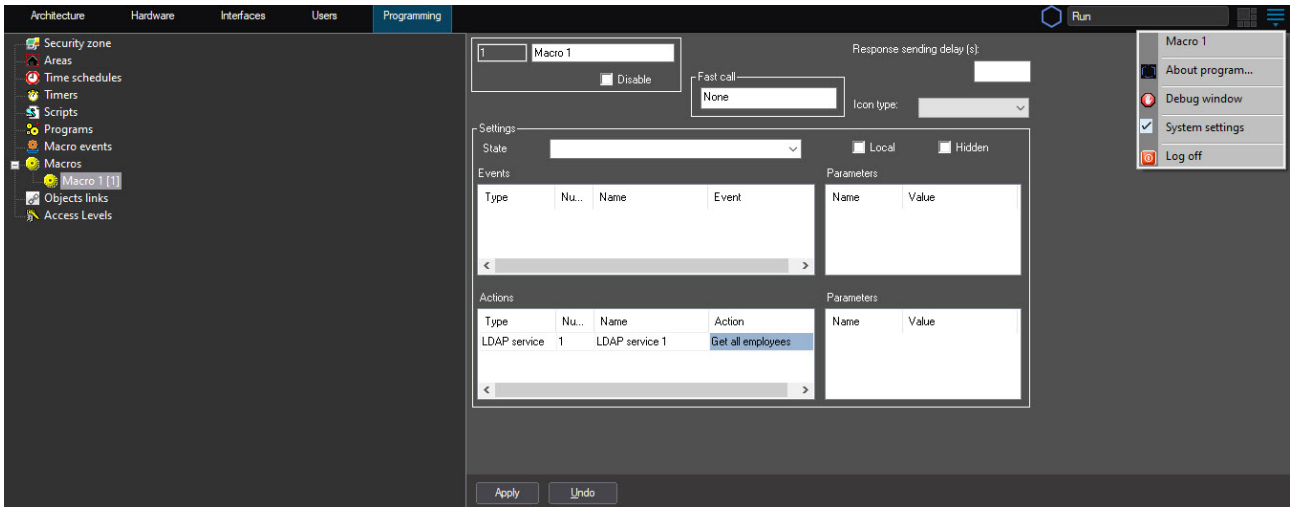


For working with Active Directory based on Windows Server 2012 R2



Example macro for importing users from LDAP address book

After configuring the **Service LDAP** object, you must create and manually run a macro of the **LDAP service** type with the **Get all employees** action to start importing user accounts from the LDAP address book into the *Axxon PSIM* database. To run a macro, use the **Run** menu in the upper right corner.



For more information about macros, see Creating and using macros.

22.5.3 Active Directory configuration

General information about Active Directory and Axxon PSIM operation

The joint operation of *Axxon PSIM* and Active Directory means that the *Axxon PSIM* users and user rights are connected with the Active Directory users and security groups. User accounts are pre-imported into *Axxon PSIM* from the LDAP address book—see Configuration of the LDAP Service.

Prior to configuring the *Axxon PSIM* and Active Directory joint operation, it is necessary to create the groups in Active Directory that correspond to the user rights in *Axxon PSIM*. It is not recommended to use the Active Directory groups created earlier for other purposes. Each user must be included in only one of the created groups, otherwise, the correct joint operation of *Axxon PSIM* and Active Directory is impossible.

The Active Directory operation is configured as follows:

1. Configuration of the LDAP Service.
2. Users import from the LDAP address book to the *Axxon PSIM* database—see Example macro for importing users from LDAP address book.
3. Connecting the Axxon PSIM and Active Directory users.
4. Connect the Axxon PSIM user rights to Active Directory groups.
5. Starting the Active Directory synchronization.

> **Attention!**
>
> The connection between the *Axxon PSIM* user rights and Active Directory security groups must be configured by an administrator who has full Active Directory rights in Windows.

After the *Axxon PSIM* and Active Directory joint operation is configured, the Active Directory users are able to launch, use, and configure *Axxon PSIM* using their Windows account in accordance with the *Axxon PSIM* user rights. The

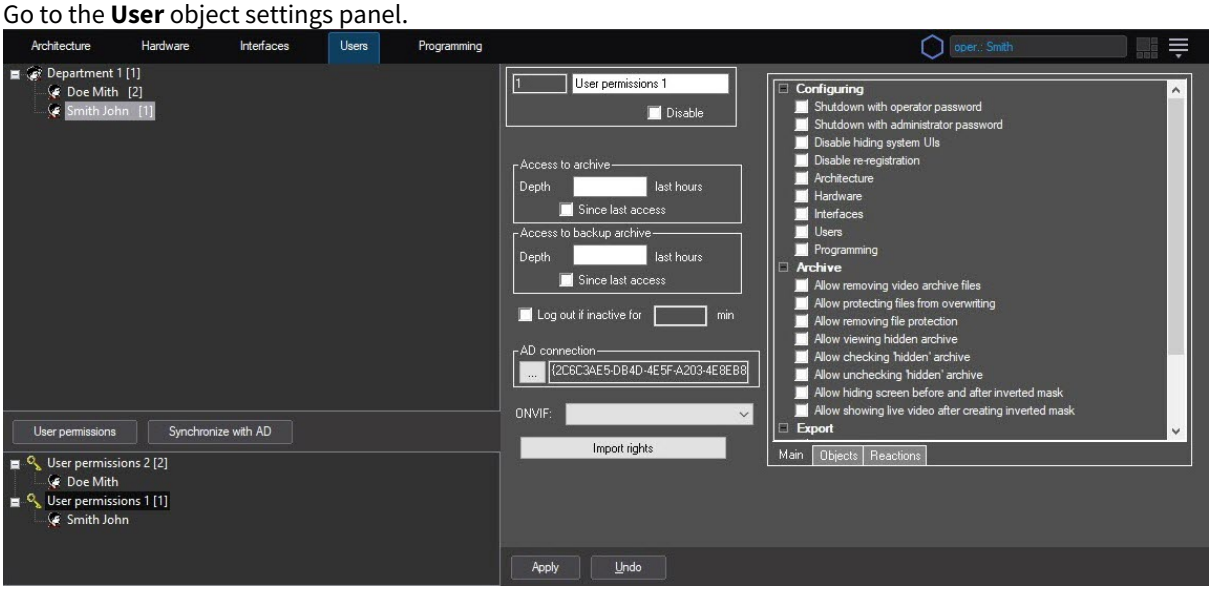
Active Directory users who are connected with the *Axxon PSIM* users but do not belong to any of the groups associated with the *Axxon PSIM* user rights will not be able to launch *Axxon PSIM*.

Important! The automatic changes synchronization is not supported, that is, if the Active Directory user is deleted, disabled, moved to another group, etc., it is necessary to perform the Active Directory synchronization in order to apply these changes in *Axxon PSIM*.

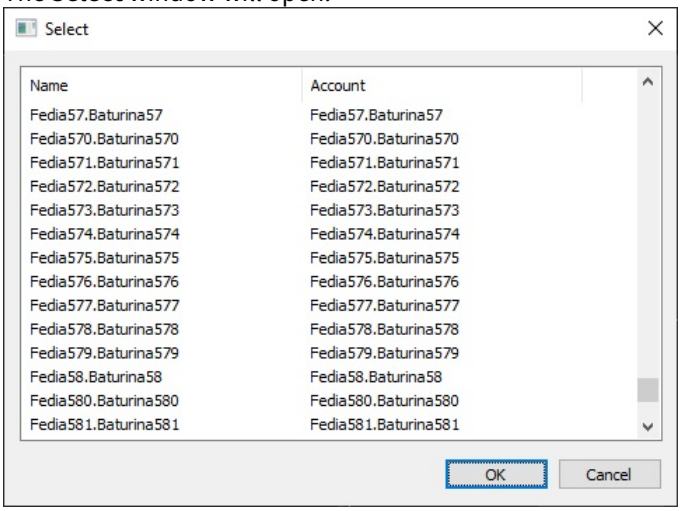
Connecting the Axxon PSIM and Active Directory users

Configure the connection between the *Axxon PSIM* users and the Active Directory users as follows:

1. Go to the **User** object settings panel.



2. Click the **...** button in the **AD connection** group.
3. The **Select** window will open.



4. In this window, select the Active Directory user and click the **OK** button.
5. As a result, the Active Directory user identifier will be displayed in the **AD connection** field.



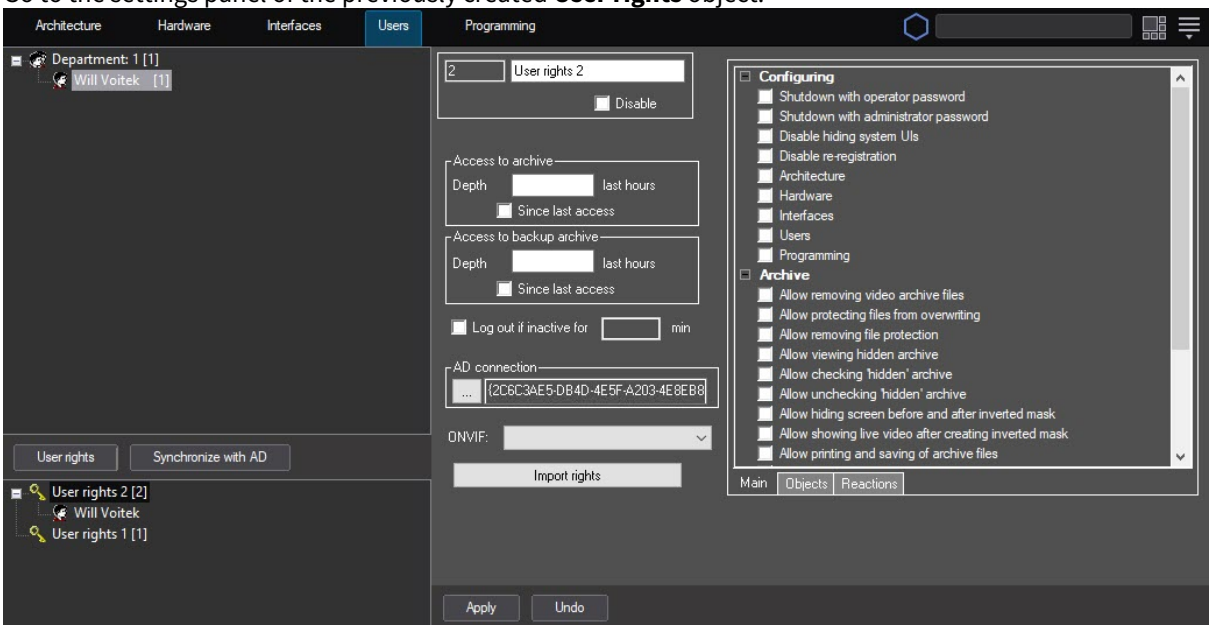
6. Click the **Apply** button.
7. Repeat steps 1-6 for all required users.

The connection between the *Axxon PSIM* users and the Active Directory users is configured.

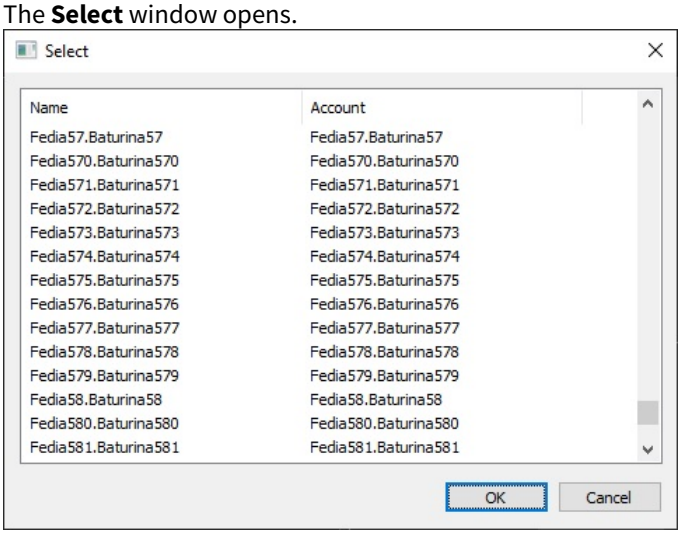
Connect the Axxon PSIM user rights to Active Directory groups

Configure the connection between the *Axxon PSIM* user rights and Active Directory security groups as follows:

1. Go to the settings panel of the previously created **User rights** object.



2. Click the **...** button in the **AD connection** group.
3. The **Select** window opens.



4. In this window, select the Active Directory security group and click **OK**.
5. As a result, the Active Directory security group identifier is displayed in the **AD connection** field.



6. Click the **Apply** button.
7. Repeat steps 1-6 for all required user rights.

The connection between the *Axxon PSIM* user rights and Active Directory security groups is configured.

Starting the Active Directory synchronization

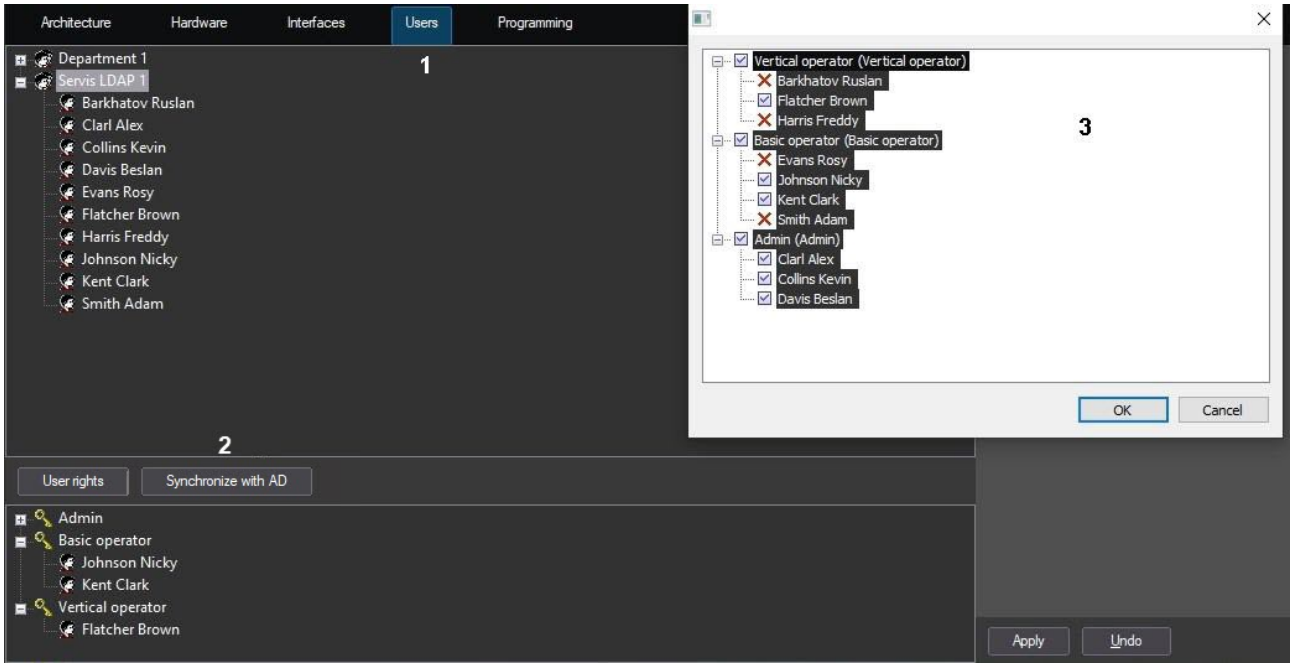
You can start the Active Directory synchronization both after connecting the *Axxon PSIM* users and user rights with the corresponding Active Directory objects and when the Active Directory users and security groups are changed, for example, when the user is deleted, disabled, moved to another group, and so on.

The following methods of Active Directory synchronization are available:

1. In the **Users** tab in *Axxon PSIM*.
2. Using scripts and macros.
3. Using the ADSyncOnStart registry key (see Registry keys reference guide).

To start the Active Directory synchronization in *Axxon PSIM*, do the following:

1. In the **Users** tab (**1**), click the **Synchronize with AD** button (**2**).
2. The updated structure of the *Axxon PSIM* users and user rights is displayed in the window that opens (**3**). Set the checkboxes next to the objects that need to be synchronized.
3. Click the **OK** button.



To start the Active Directory synchronization using a script or a macro, use the following values: objtype = SLAVE, action = AD_SYNC. Example: SLAVE|<Server name>|AD_SYNC.

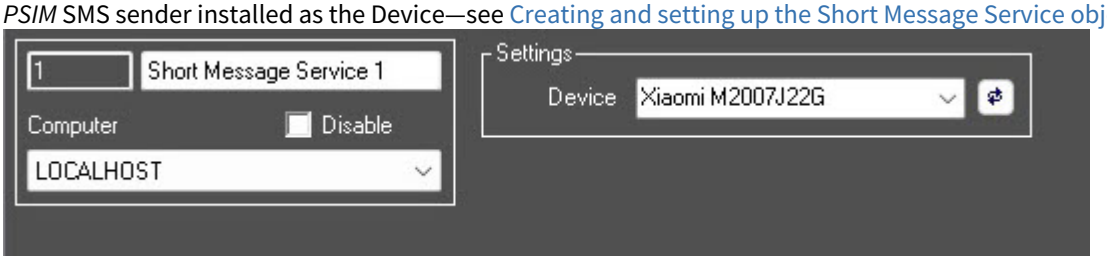
22.5.4 Configuring two-factor authentication

Axxon PSIM allows the use of two-factor authentication when a user logs in at startup. In this case, the user will have to enter login+password credentials and a code from a short message (SMS), which is sent to the user's phone number.

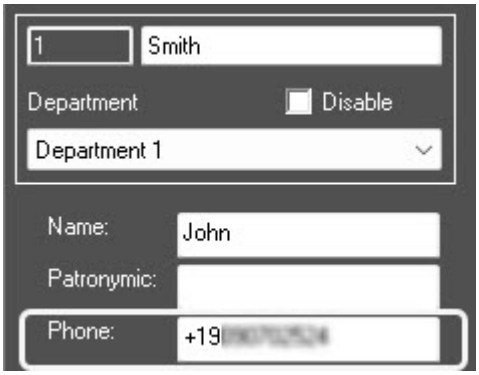
Configure two-factor authentication as follows:

1. Install and configure the *Axxon PSIM* SMS Sender app on the smartphone—see Android-based Axxon PSIM SMS Sender Mobile Application. User Guide. This smartphone will be further used as modem, i.e. the short messages will be sent from its SIM card. Please notice that the mobile operator can charge for the SMS service.

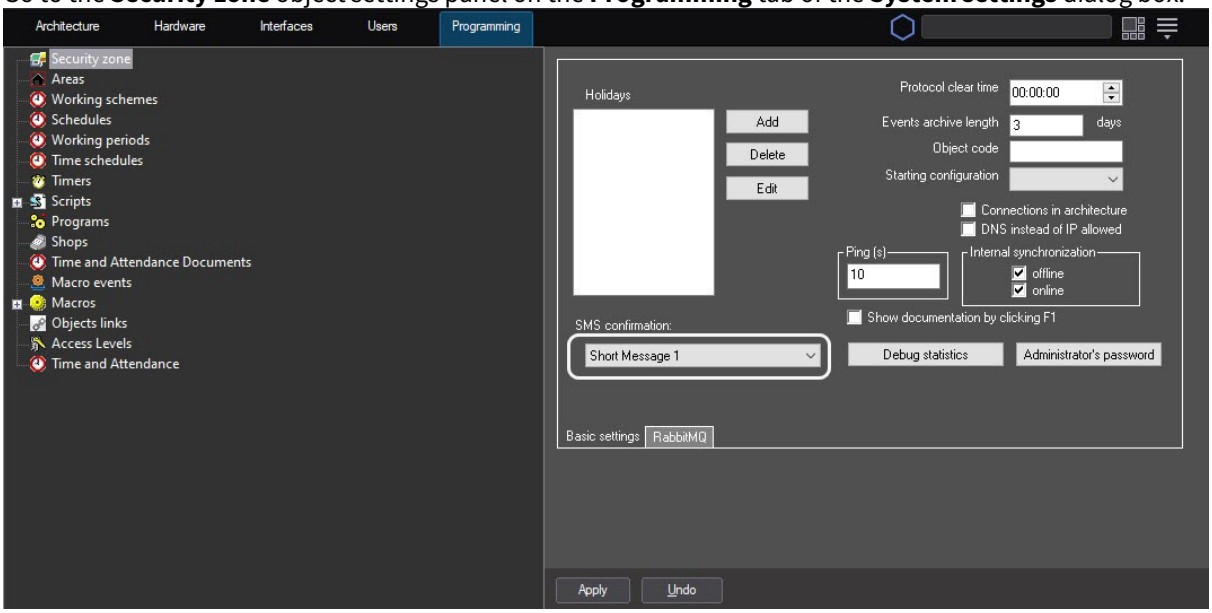
2. Create and configure the **Short message service** object; make sure to select the smartphone with *Axxon PSIM* SMS sender installed as the Device—see Creating and setting up the Short Message Service object.



3. Create the **Short message** object; all settings may be left with default values—see Creating and setting up the short messages.
4. Create and configure users and rights, make sure to enter the phone number for the users—see Rights administration.

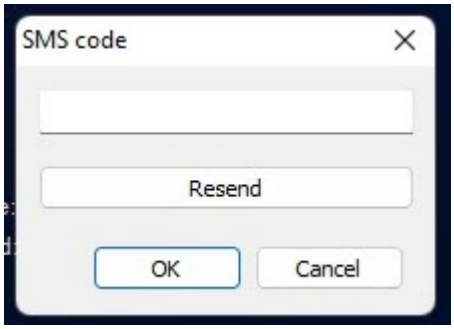


5. Go to the **Security zone** object settings panel on the **Programming** tab of the **System settings** dialog box.



6. From the **SMS confirmation** drop-down list, select the **Short message** object created on step 3.
7. Click the **Apply** button.

As a result, a randomly generated code from SMS automatically sent to the user's phone number will be requested after entering the password when starting *Axxon PSIM*:



See also Axxon PSIM start and shutdown.

The two-factor authentication is now configured.

22.6 System settings (the Programming tab)

22.6.1 Configuring the Security zone

The **Security zone** is used for the general configuration of *Axxon PSIM*.

For the description of general settings, see The settings panel of the Security zone object.

To configure the connection to RabbitMQ, see Configuring RabbitMQ.

For the features of internal synchronization, see Configuring internal synchronization.

Configuring internal synchronization

By default, *Axxon PSIM* uses internal synchronization. There is data interchange between computers in the distributed configuration (see Configuring the interaction of distributed system components):

1. If a computer is in the distributed system, then all the events are sent just as they occur. This is online synchronization.
2. If a computer in the distributed system lost connection with the distributed system and cannot interchange the events with other computers, then events that must be sent to this computer are stored in the database and sent on it after the computer is reconnected. This is offline synchronization.

If the computer has not been in the distributed system for too long, then the accumulated sequence of events can be quite long and processing of all these events can take much time. Thus, offline synchronization can be disabled.

Online synchronization can also be disabled, i.e. events won't be sent.

Note

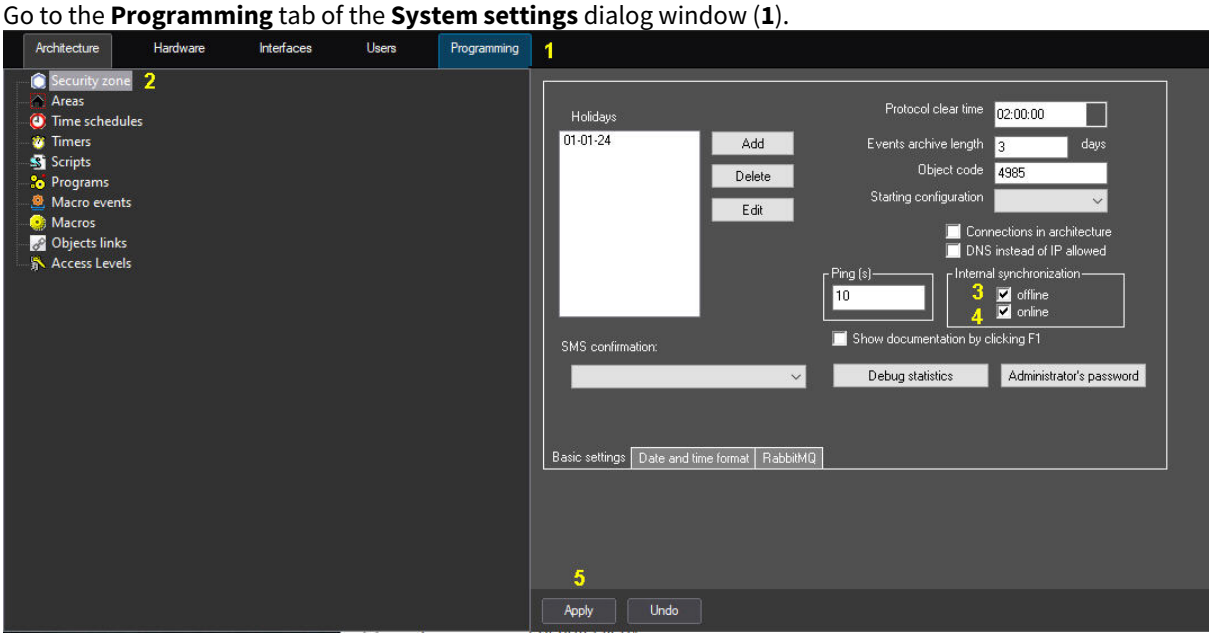
Internal synchronization, both offline and online, can be enabled and disabled for all computers in the distributed system.

Attention!

DB synchronization must be configured when any internal synchronization mechanism is disabled—see Configuring database synchronization and Configuring the Event Viewer databases synchronization.

Configure internal synchronization as follows:

1. Go to the **Programming** tab of the **System settings** dialog window (**1**).



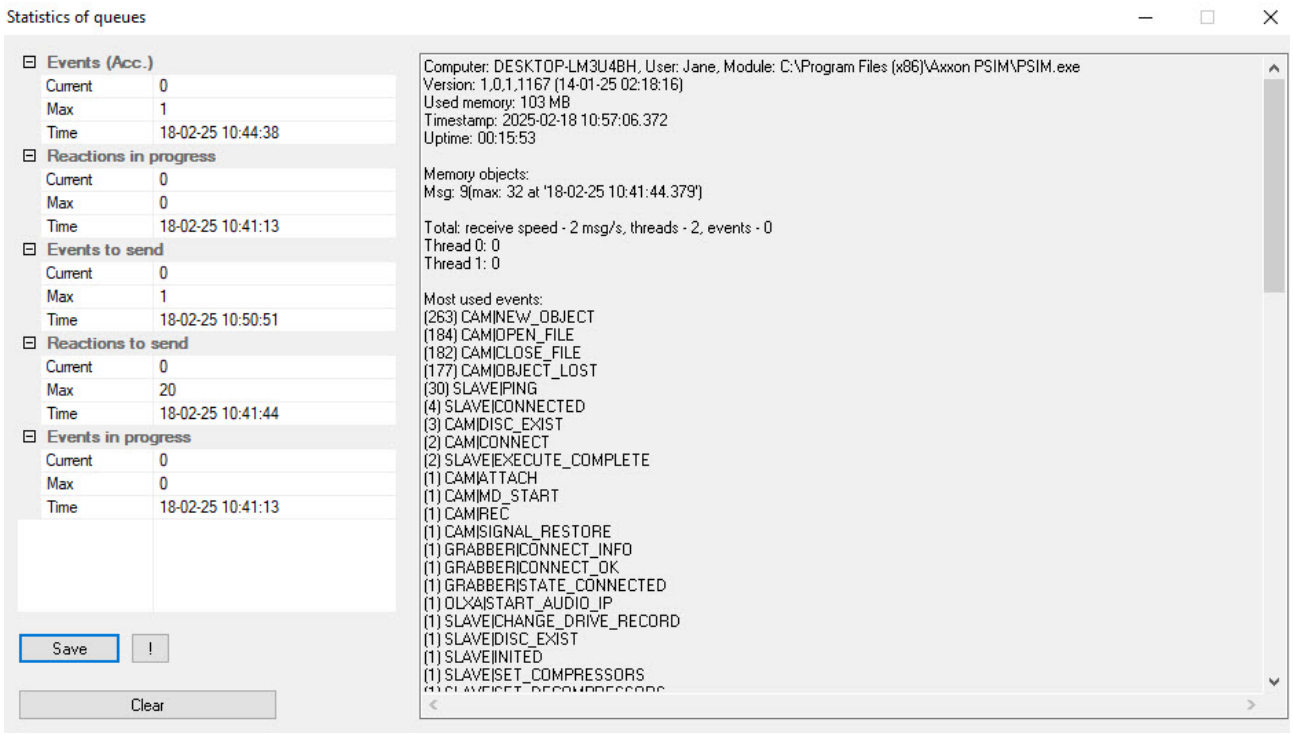
2. In the objects tree, select the **Security zone** object (**2**). The settings panel of this object is displayed on the right side of the **System settings** dialog window.
3. To disable offline synchronization, clear the **offline** checkbox in the **Internal synchronization** group (**3**).
4. To disable online synchronization, clear the **online** checkbox in the **Internal synchronization** group (**4**).
5. Click the **Apply** button (**5**).

Internal synchronization is now configured.

Viewing the Statistics of queues window

When you click the **Debug statistics** button on the settings panel of the **Security zone** object, the **Statistics of queues** window opens (see The settings panel of the Security zone object).

This window displays statistical information about event and reaction queues, such as their quantity. This can be useful for diagnostics of the system with a large number of objects.



22.6.2 Subdivision of the protected facility into areas and regions

About areas and regions

If the *Axxon PSIM* system is used to protect the large territory of complex topology (buildings, groups of buildings), we recommend dividing the whole territory into smaller zones. This allows to group relevant devices by location and makes it easier to view and control them, as well as to analyze the reports.

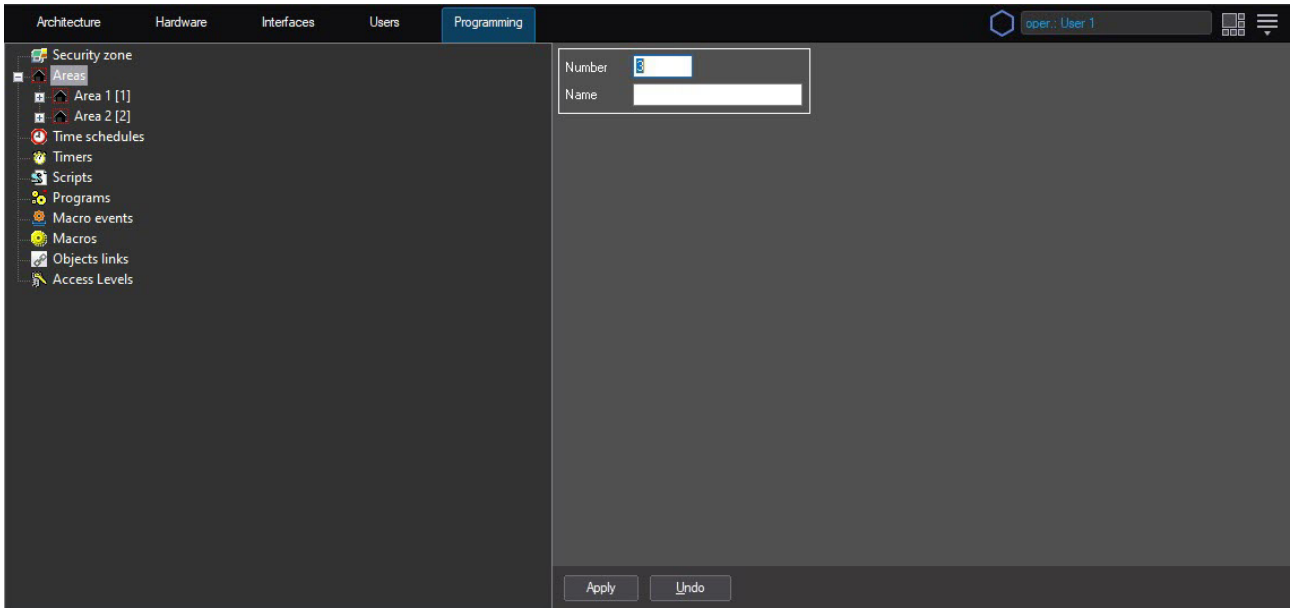
There are two levels of division: area and region. The region is the smallest element. The area is a set of regions grouped by location or by function. For example, if the protected territory is the building, it can be divided in this way: the floors make the areas, while the rooms become the regions.

We recommend dividing the protected territory into areas and regions at the time of designing the video surveillance system, before the actual system configuration.

Creating areas

The areas are represented by **Areas** objects created in the **Programming** tab. The **Area** object has no parameters of its own and is only used to group the regions.

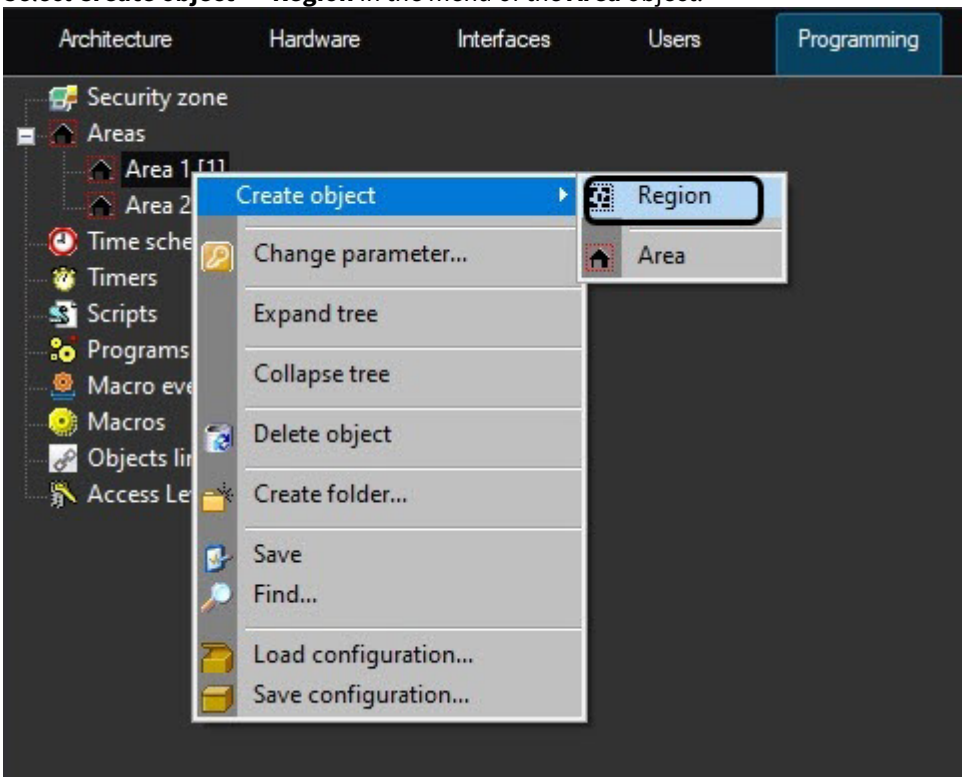
The figure below shows the process of creating an **Area** object.



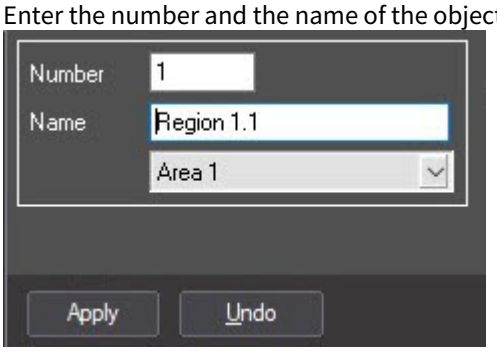
Creating regions

To create a region, do the following:

1. Create the **Region** object.
    a. Select **Create object** → **Region** in the menu of the **Area** object.



b. Enter the number and the name of the object in the corresponding fields.



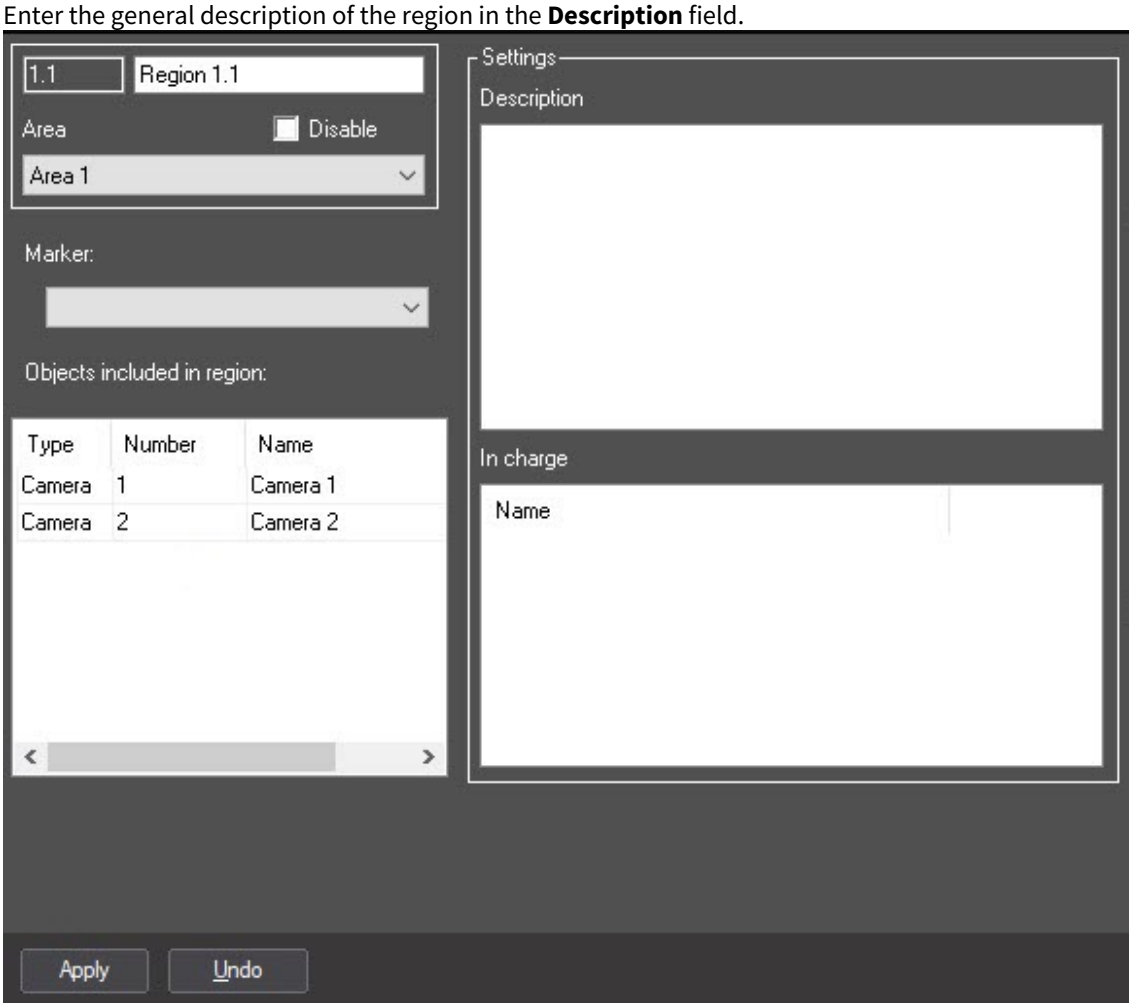
> **Note**
>
> The number of the object should be in the range from 1 to 65534.

c. Click the **Apply** button.

> **Note**
>
> As a result, the settings panel of the **Region** object will be displayed.

2. Configure the created **Region** object.

a. Enter the general description of the region in the **Description** field.



b. From the **Name** list of the **In charge** table, select the user responsible for this region.

> **Note**
>
> The **Name** list consists of the names of the users registered in the system (see User registration and removal).

c. Click the **Apply** button to save the changes.

3. Create the links between the **Region** object and the objects in the **Hardware** tab that will be included into the region. For this select the name of the created **Region** object on the settings panel of the object selected in the **Region** list (see Examples of using areas and regions). After creating the links, the list of the objects added to the region will be displayed in the **Objects included in region** table on the **Region** object settings panel. This table cannot be edited.

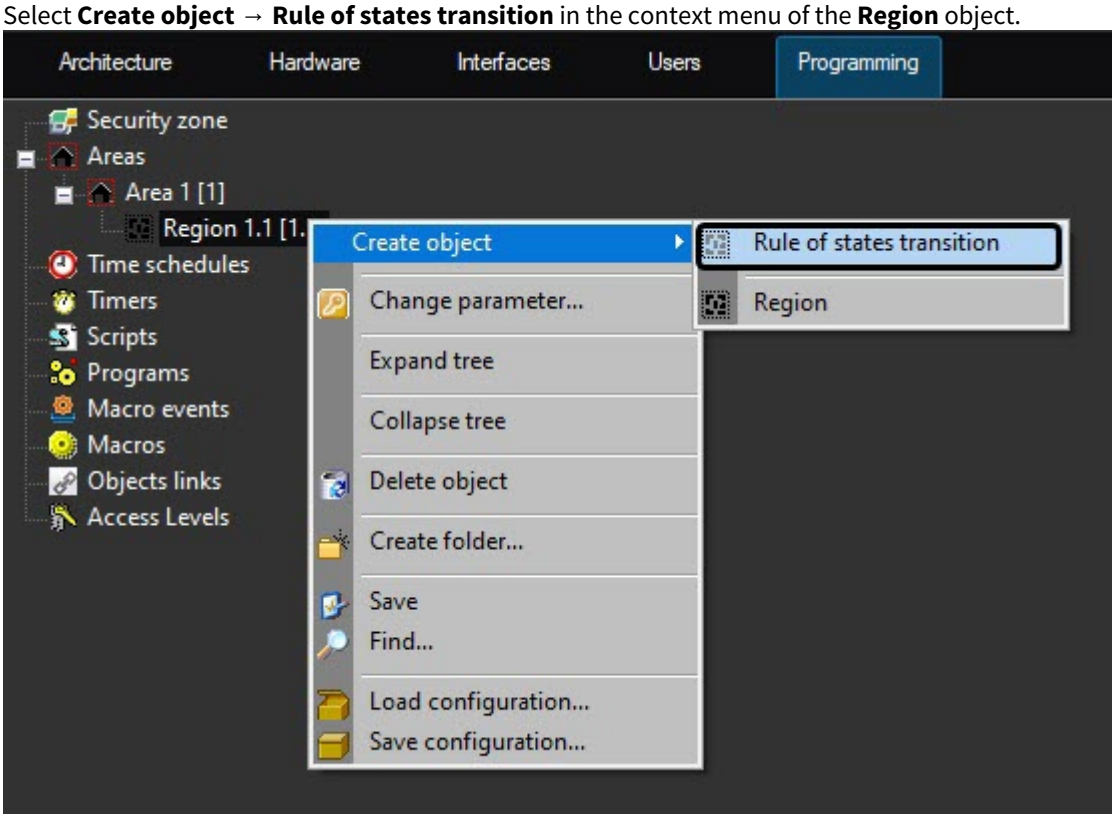
The region is now created.

Creating the rule of states transition

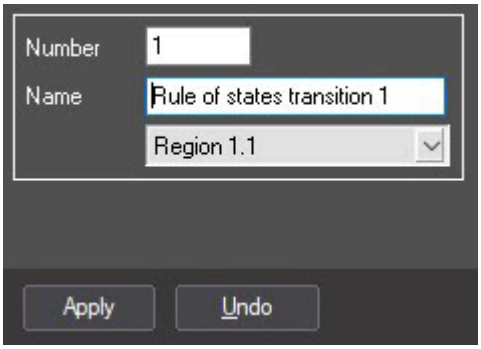
To create the rule of states transition, do the following:

1. Create the **Rule of states transition** object.

a. Select **Create object** → **Rule of states transition** in the context menu of the **Region** object.



b. Enter the number and the name of the created object.

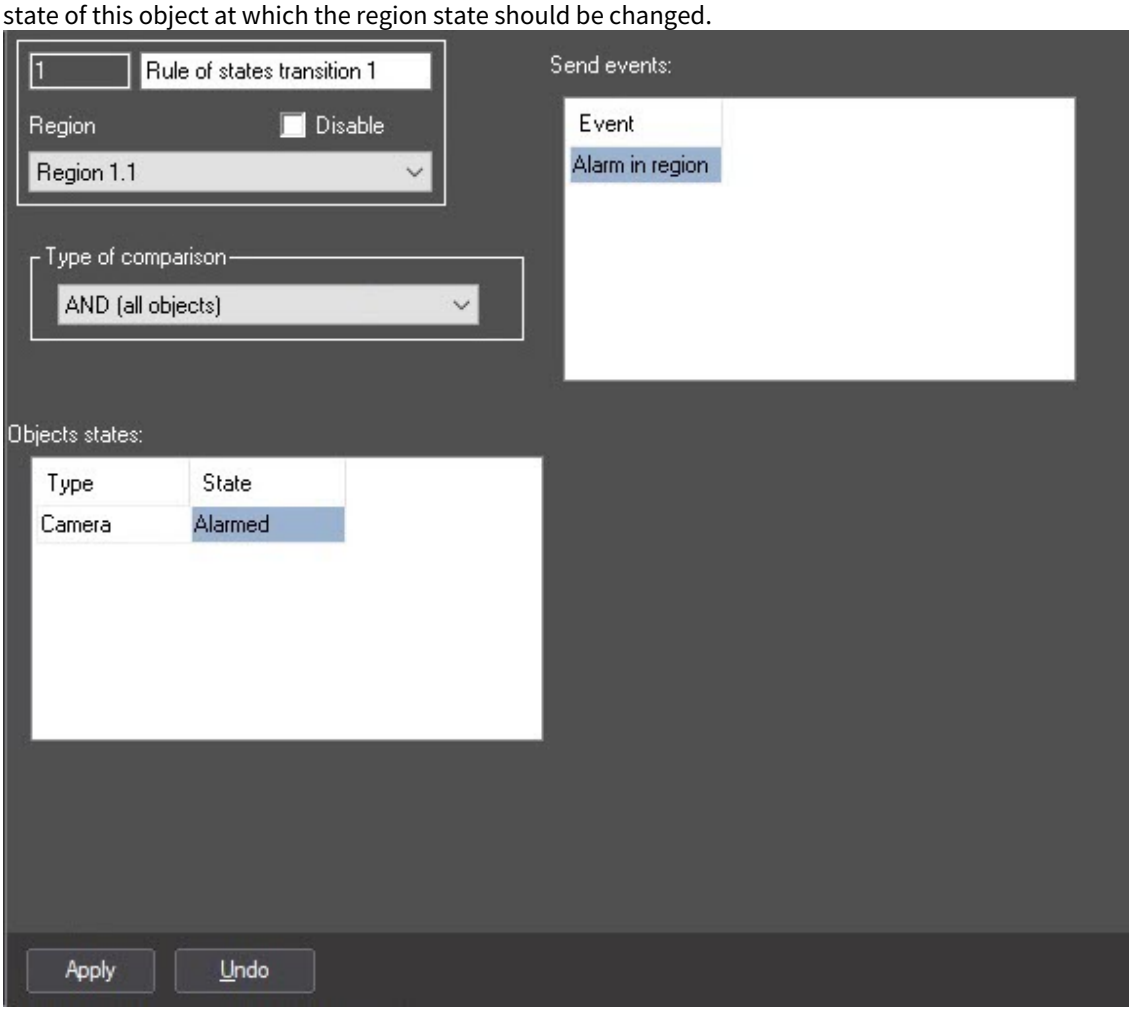


> **Note**
>
> The number of the object should be in the range from 1 to 65534.

c. Click the **Apply** button.
As a result, the settings panel for the **Rule of states transition** object will be displayed.

2. Set the condition for triggering the rule on the settings panel of the **Rule of states transition** object.

a. Select the object type from the **Type** list in the **Objects states** table and in the **State** list specify the state of this object at which the region state should be changed.



b. Repeat step 2.a for all required object types.
c. From the **Type of comparison** list, select a required value:
   i. **AND (all objects)**—to change the state of the region if all objects of the specified types are in all specified states.
   ii. **OR (at least one object)**—to change the state of the region if at least one object of the specified type is in at least one of the specified states.
d. In the **Event** list of the **Send events** table, select the event generated by the **Region** object when the rule condition is met.

3. Click the **Apply** button to save the changes.

The **Rule of states transition** is now created.

Examples of using areas and regions

On the page:

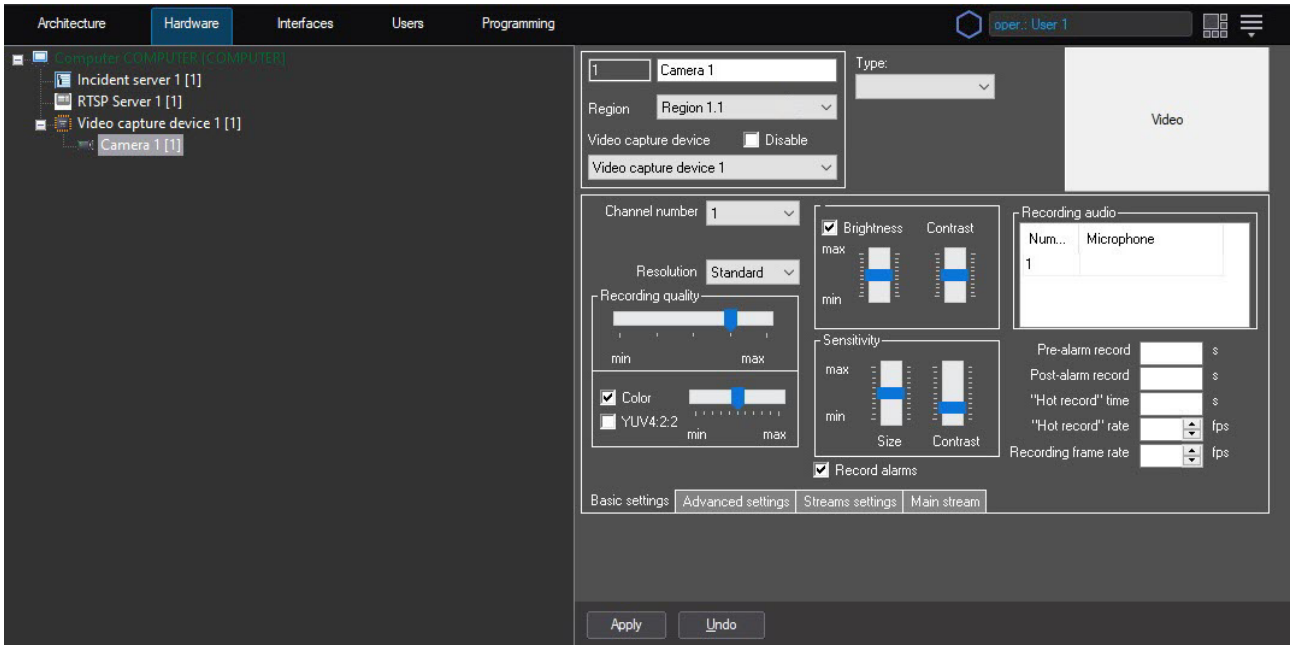
- Example 1

- Example 2
- Example 3

Example 1

The regions created in the system are used to group *Axxon PSIM* system objects, representing the security devices by their location on the protected territory.

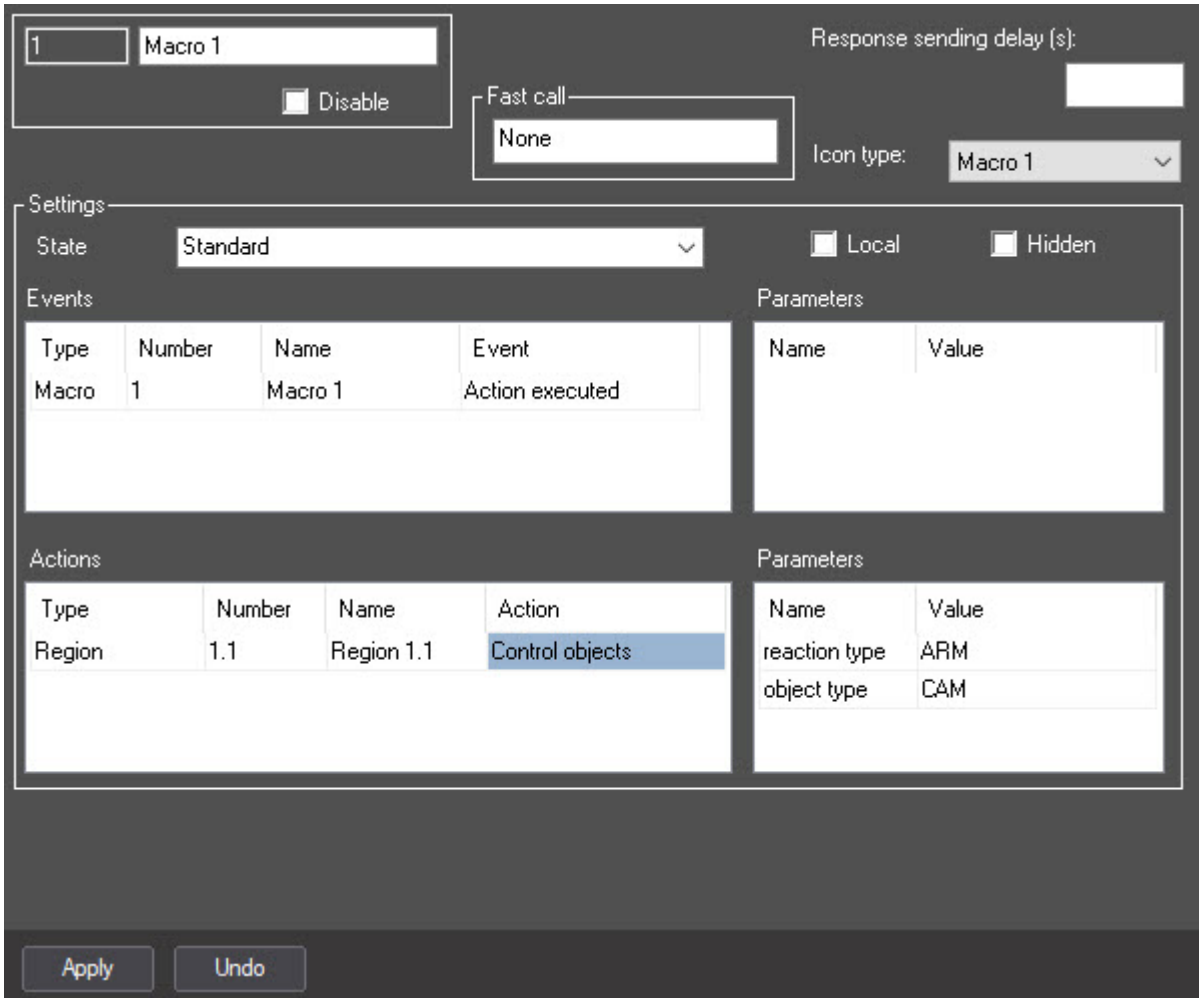
To include a device into the region, select an appropriate **Region** in the **Region** field on the identification panel of the corresponding object on the **Hardware** tab.



Example 2

Arming all cameras included into the **Region 1.1** when the Macro 1 is run. The parameters of the macro are given in the table.

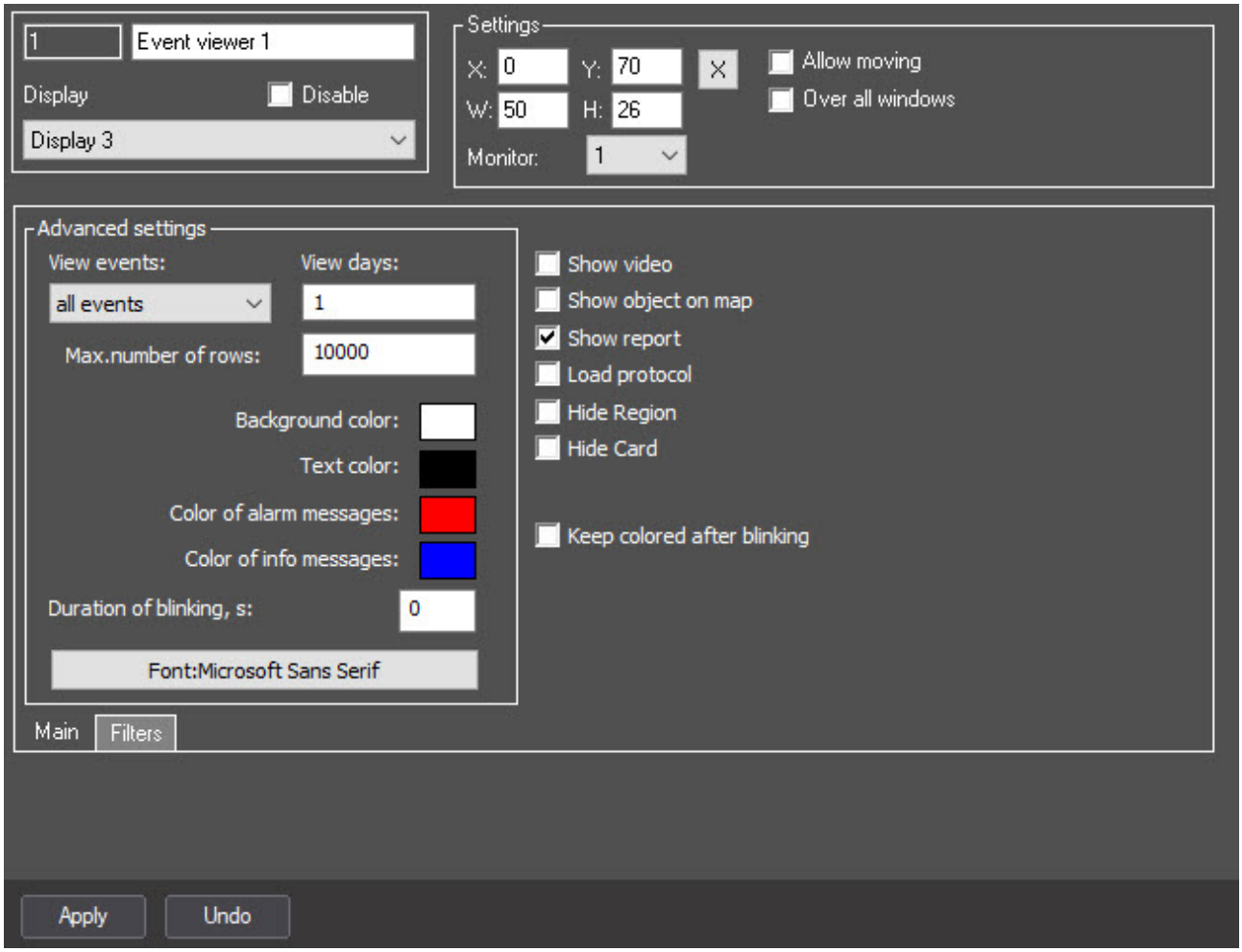
Event	Action	Parameters
Macro is executed	The **Control objects** action of the **Region 1.1** is executed	Reaction type = ARM Object type = CAM

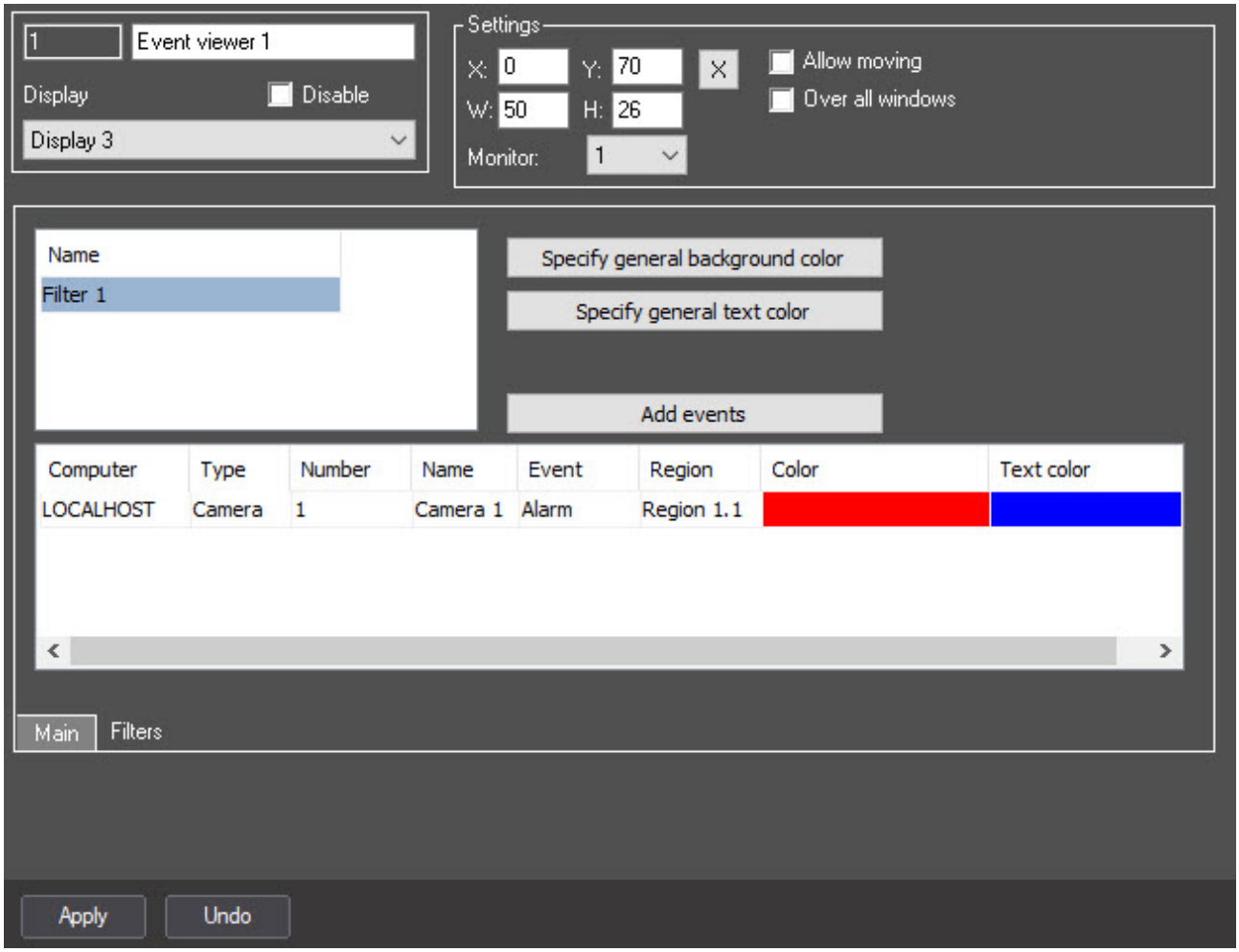


Example 3

Axxon PSIM allows displaying the reports about the devices grouped in the regions.

The figures below show the configuration of the **Event viewer** object, which allows you to display a report on the **Alarm** event from any video camera related to the **Region 1.1**.


1
Event viewer 1
Display
Disable
Display 3
Settings
X: 0
Y: 70
W: 50
H: 26
Monitor:
1
Allow moving
Over all windows
Advanced settings
View events:
all events
View days:
1
Max.number of rows:
10000
Background color:
Text color:
Color of alarm messages:
Color of info messages:
Duration of blinking, s:
0
Font:Microsoft Sans Serif
Show video
Show object on map
Show report
Load protocol
Hide Region
Hide Card
Keep colored after blinking
Main
Filters
Apply
Undo



22.6.3 Connection of objects with cameras

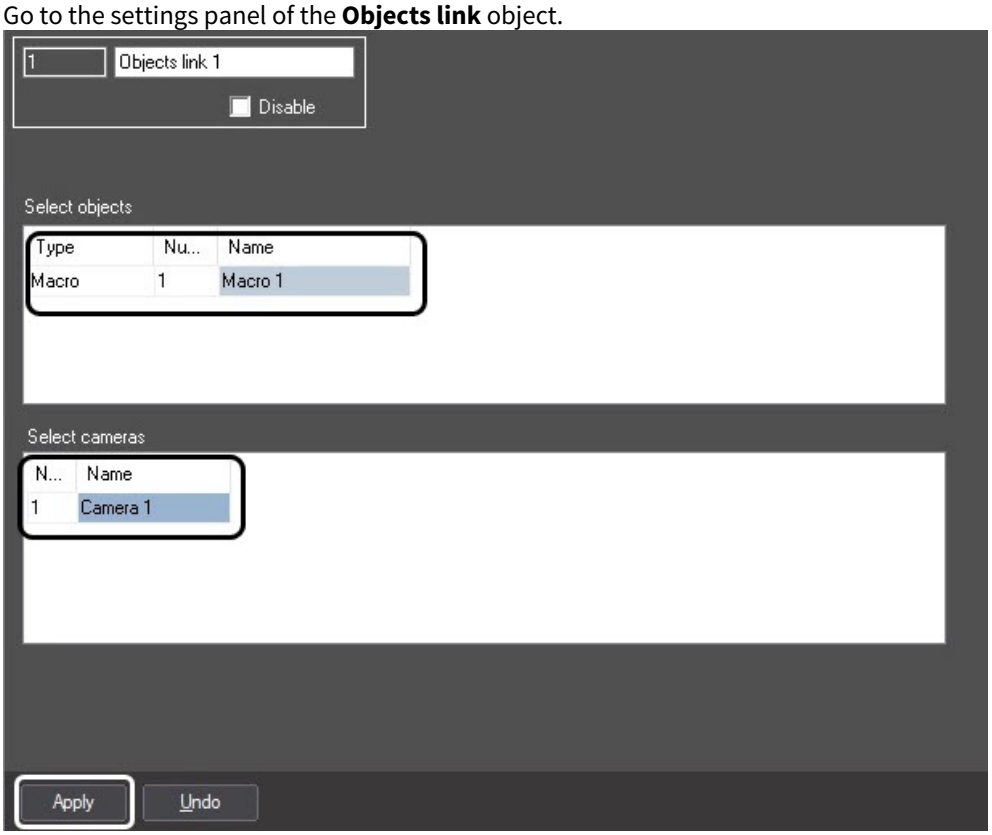
In the Axxon PSIM software package, it is possible to link cameras to objects.

Objects assigning is performed on the settings panel of the **Objects link** object on the **Programming** tab of the **System settings** dialog window.

It is possible to link several cameras to each object and several objects to each camera. Also, it is possible to link groups of objects and cameras.

To configure the connection of objects with cameras, do the following:

1. Go to the settings panel of the **Objects link** object.



2. In the **Select objects** table, specify the type, identification number, and name (is entered automatically after selecting the type and ID of the camera) of all required objects.
3. In the **Select cameras** table, specify the identification number and names of all required cameras.
4. To save changes, click the **Apply** button.

To get a list of objects linked to the camera and a list of cameras linked to the object, use the script (see The GetLinkedObjects method section).

Configuring of connection objects with cameras is completed.

22.6.4 Creating and using time schedules

A time schedule is comprised of a set of any number of time intervals during a day (24 hours) defined for several days (1 to 366), and the time intervals during specific dates.

The **Time schedule** object is used in conjunction with the **Macro** object and for setting up other system objects.

An unlimited number of **Time schedule** objects can be created in the system.

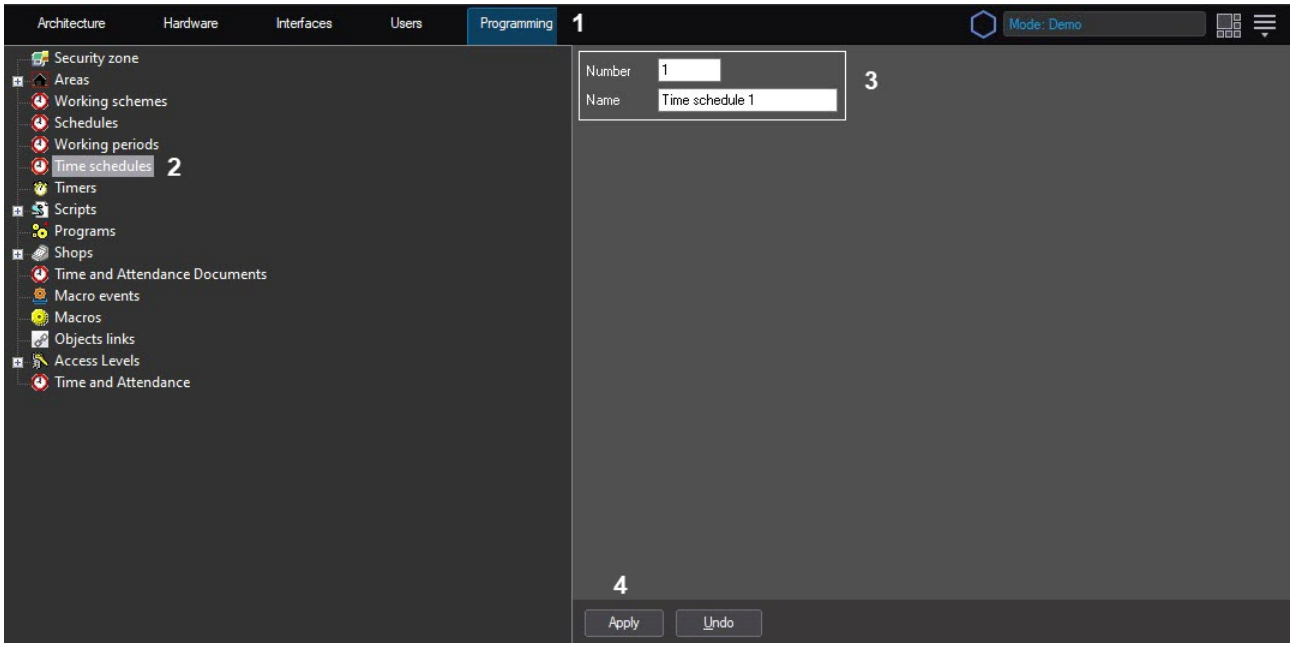
Creating and configuring Time schedules

To create the **Time schedule** object, do the following:

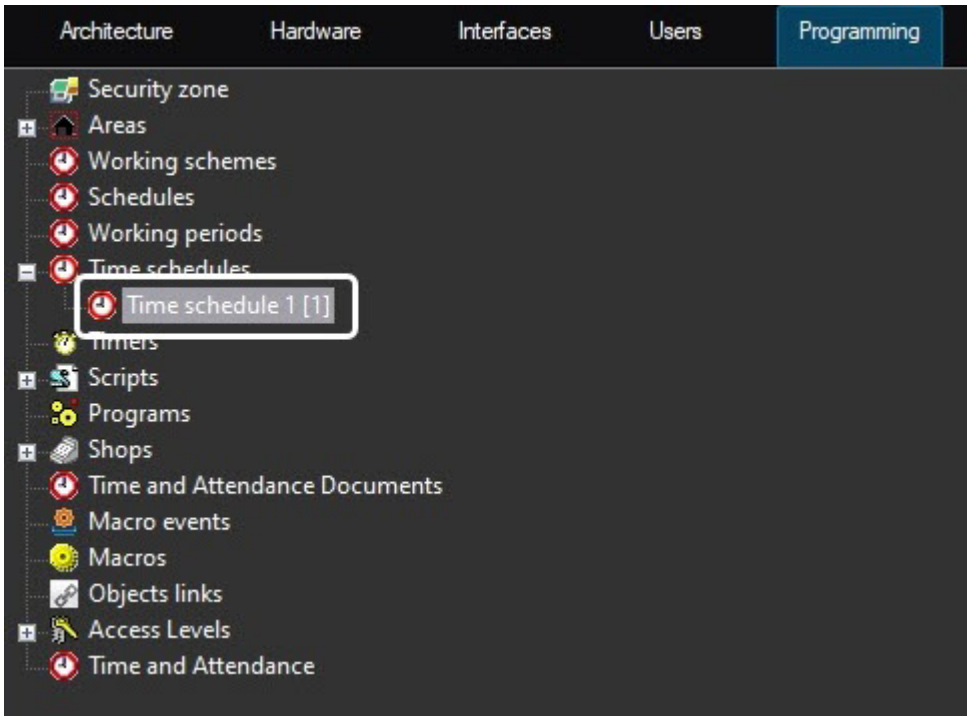
1. Open the **Programming** tab (**1**).
2. Create the **Time schedule** object on the basis of the **Time schedules** object in the objects tree (**2**).
3. Specify the number and the name of the time schedule in the corresponding fields of the **Time schedule** identification panel (**3**).

> **Note**
>
> The object number should be in the range from 1 to 65534.

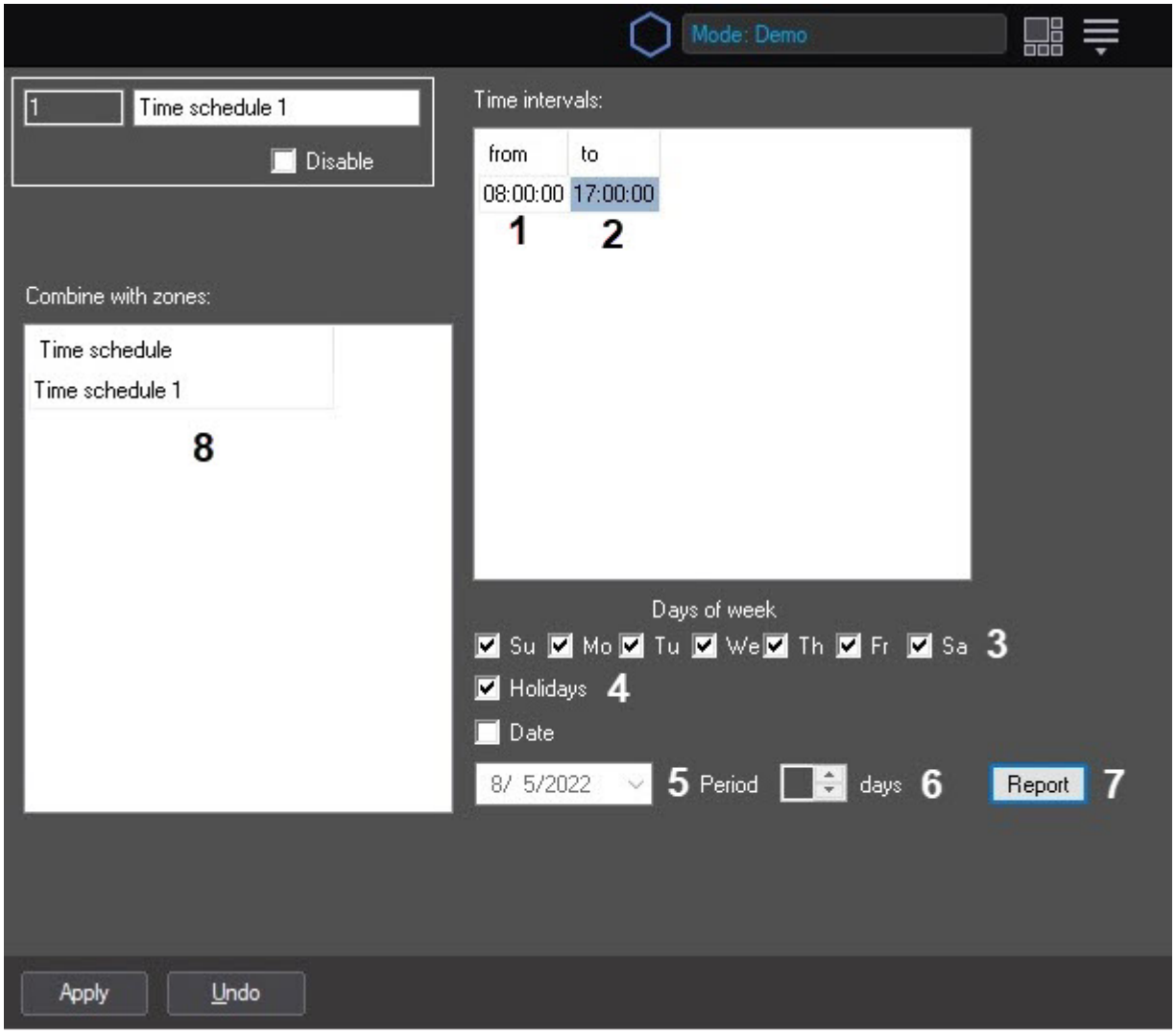
4. Click the **Apply** button (**4**).



The **Time schedule** object will appear in the objects tree.



To configure the **Time schedule** object, specify the values of the following parameters:



No	Parameter name	Method for entering the parameter	Parameter description	Format	Default value	Value range
The **Time intervals** group						
1	The **from** column	Enter the value in the field	Exact time of starting the macro execution	Mask: HH:MM:SS	00:00:00	From 00:00:00 to 23:59:59
2	The **to** column	Enter the value in the field	Exact time of ending the macro execution	Mask: HH:MM:SS	00:00:00	From 00:00:00 to 23:59:59
The **Days of week** group						

No	Parameter name		Method for entering the parameter	Parameter description	Format	Default value	Value range
3	The checkboxes group: **Mon Tue Wed Thu Fri Sat Sun**		Set the checkbox	Adds days to the timetable. The days of the week are added individually for each time interval	-	Clear	Set – the day of the week is included in the timetable Clear – the day of the week is not included in the timetable
The **Holidays** group*							
4	The **Holidays** checkbox		Set the checkbox	Adds holidays to the timetable. The holidays are added individually for each time interval	-	Clear	Set – the list of holidays is included in the timetable Clear – the list of holidays is not included in the timetable
The **Date** group							
5	**Date**	Checkbox	Set the checkbox	Makes the **Period__days** field active. If set, the **Days of week** group is disabled. The days are added individually for each time interval	-	Clear	Set – makes the **Period__days** field active Clear – the **Period__days** field is inactive
		Field	Enter the value in the field	Specifies the exact date. The days are added individually for each time interval	Mask: DD.MM.YYYY	Current date	From 00.00.0000 to 31.12.9999

No	Parameter name	Method for entering the parameter	Parameter description	Format	Default value	Value range
6	The **Period** field	Enter the value in the field	Sets the periodicity in N days of time schedule triggering, starting from the specified date (i.e. the time schedule triggers every N-th day)	Numeric value	Inactive	From 0 to 999999999999999. Periodicity is set individually for every time interval
7	The **Report** button	-	Displays the dialog box with the time schedule activity table	-	-	-
The **Combine with zones** table						
8	The **Time schedule** drop-down list	Selected from the list	Sets the time schedule with which the given time schedule should be combined	Names of the registered **Time schedule** objects	-	Depends on the number of the registered **Time schedule** objects

* The **Holidays** checkbox adds the list of days to the timetable specified in the **Security zone** object in the **Programming** tab.

If the moment of time interval beginning is set later than the moment of ending, then time schedule will cover the present day (from the time interval beginning) and part of the following day (to the time interval ending) on conditions that the Time schedule is set for the present and following day. If the Time schedule is set only for the present day, then the Time schedule will end at 0:00:00.

Note

Time schedule combination can be used for correction of the main time schedule on special days, for example, days before holidays. The date of a special day and the time interval, that should be added to the interval of the main schedule, should be set on the settings panel of the additional time schedule.

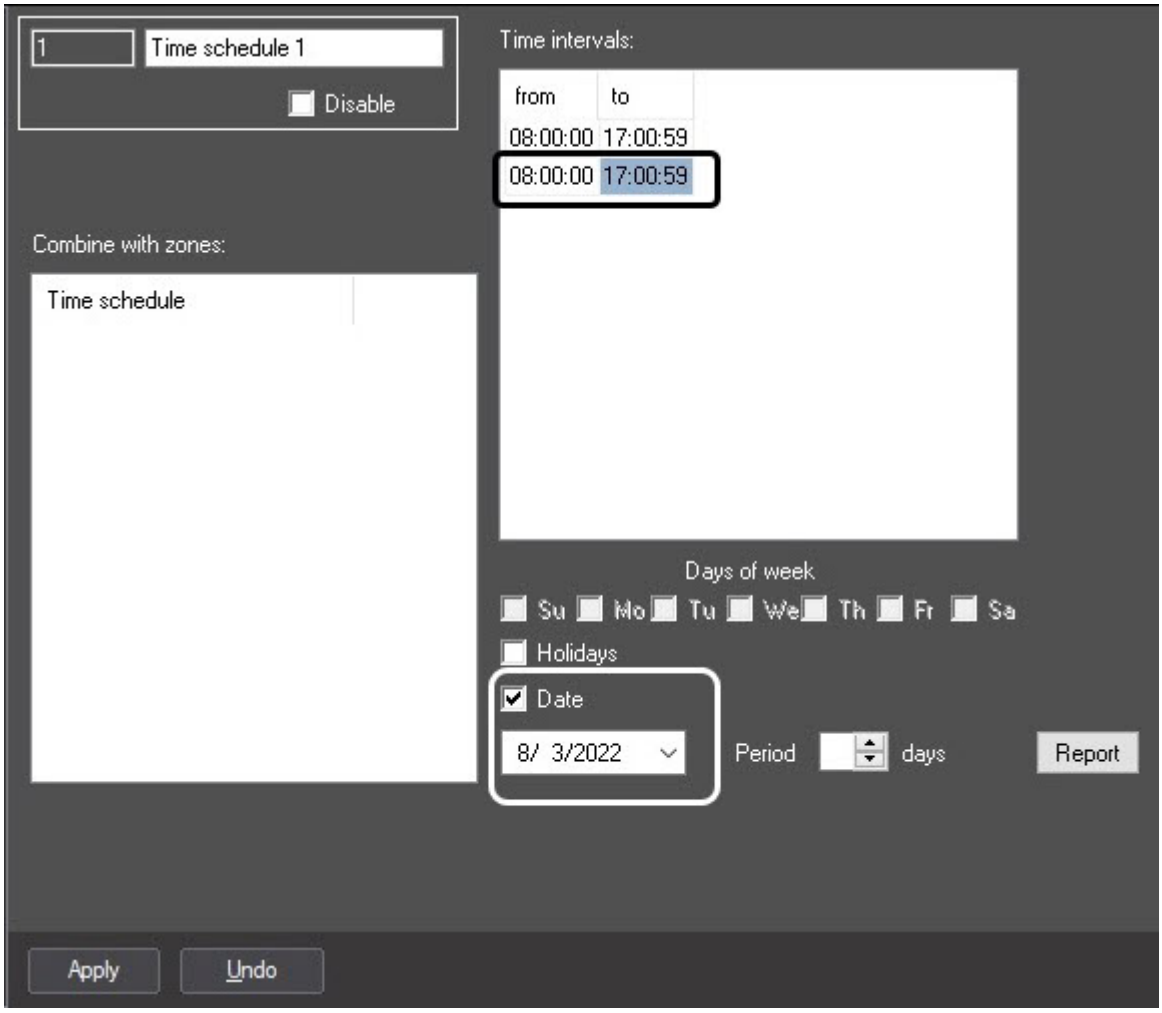
Attention!

If the time schedule parameters are changed to a disabled state, the changes will come into effect after you restart *Axxon PSIM*.
Example: Now it is 16:00. The time schedule end time (the **to** column) was set to 20:00. Then it was changed to 16:00. In this case in order for the changes to come into effect, you should restart *Axxon PSIM*. Otherwise, the time schedule will be until 20:00.

Attention!

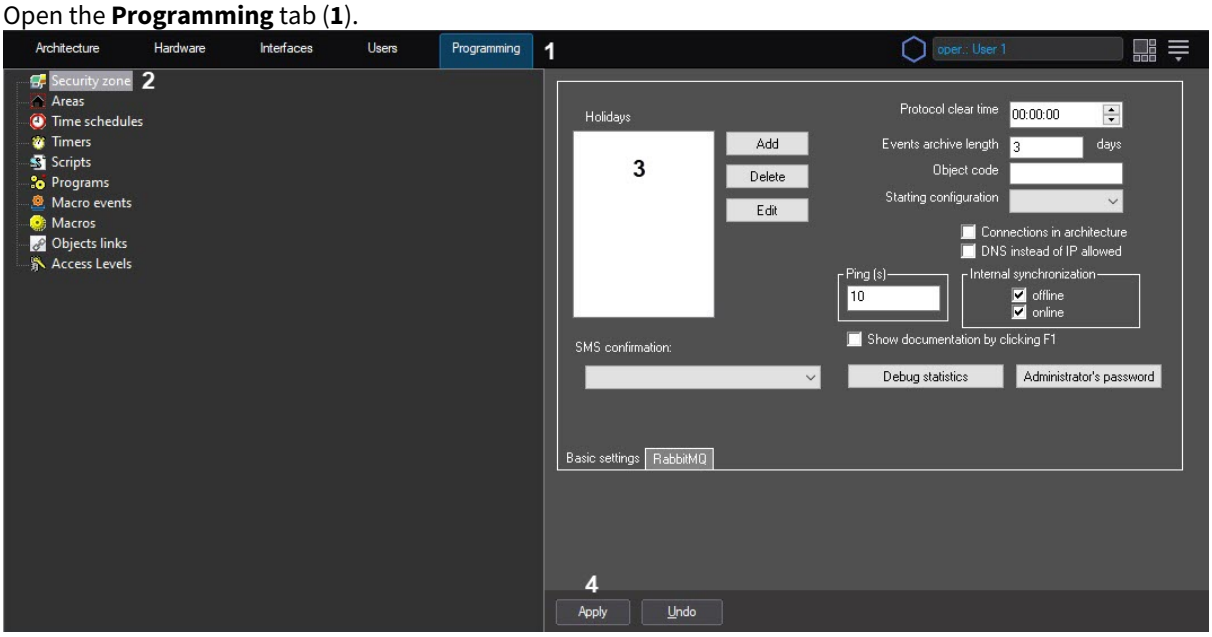
The duration of the time schedule usage in days is not set on the settings panel. So the time schedule combining should be disabled right after its application.

Configuration of the additional time interval:



To create the list of holidays, do the following:

1. Open the **Programming** tab (**1**).



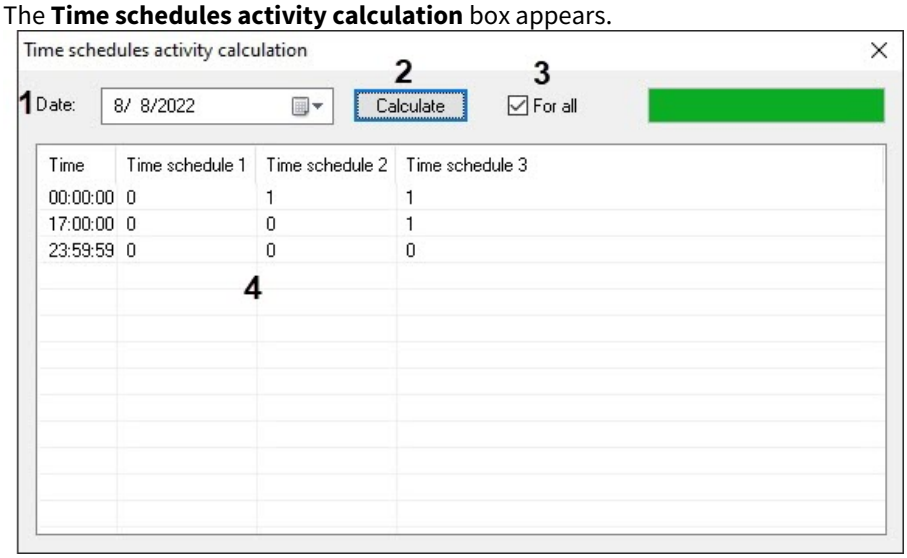
2. Select the **Security zone** object (**2**).
3. Specify the holiday date in the DD.MM.YYYY format (**3**).
4. Click the **Apply** button (**4**).

Viewing time schedules states

In Axxon PSIM™ one can view time schedules states by all specified time intervals.

To view time schedules states, do the following:

1. Click the **Report** button on the settings panel of the **Time schedule** object.
   The **Time schedules activity calculation** box appears.



2. Select the required date in the **Date** list (1).
3. If the data on all time schedules created in the system is to be displayed, then set the **For all** checkbox (3).
4. Click the **Calculate** button (2).

As a result, the table with active time schedules (marked 1) and inactive time schedules (marked 0) is created (4).

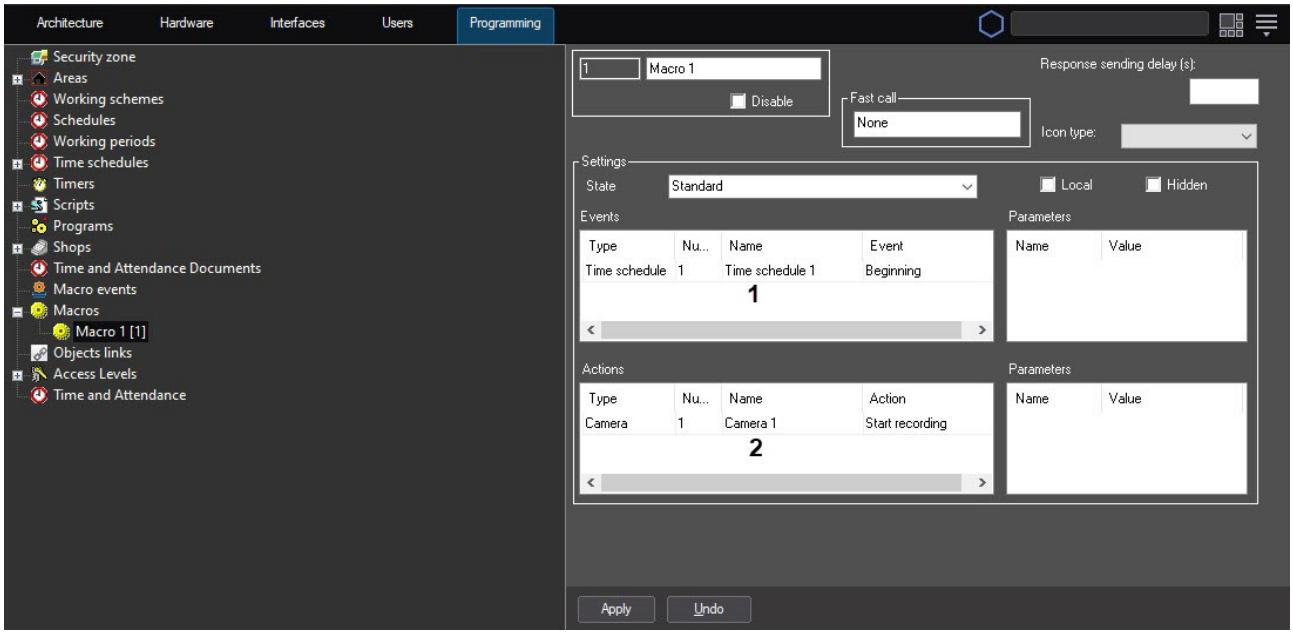
Examples of time schedules usage

Example 1. Consider two micros which work together and allow recording a video within the time schedule limits.

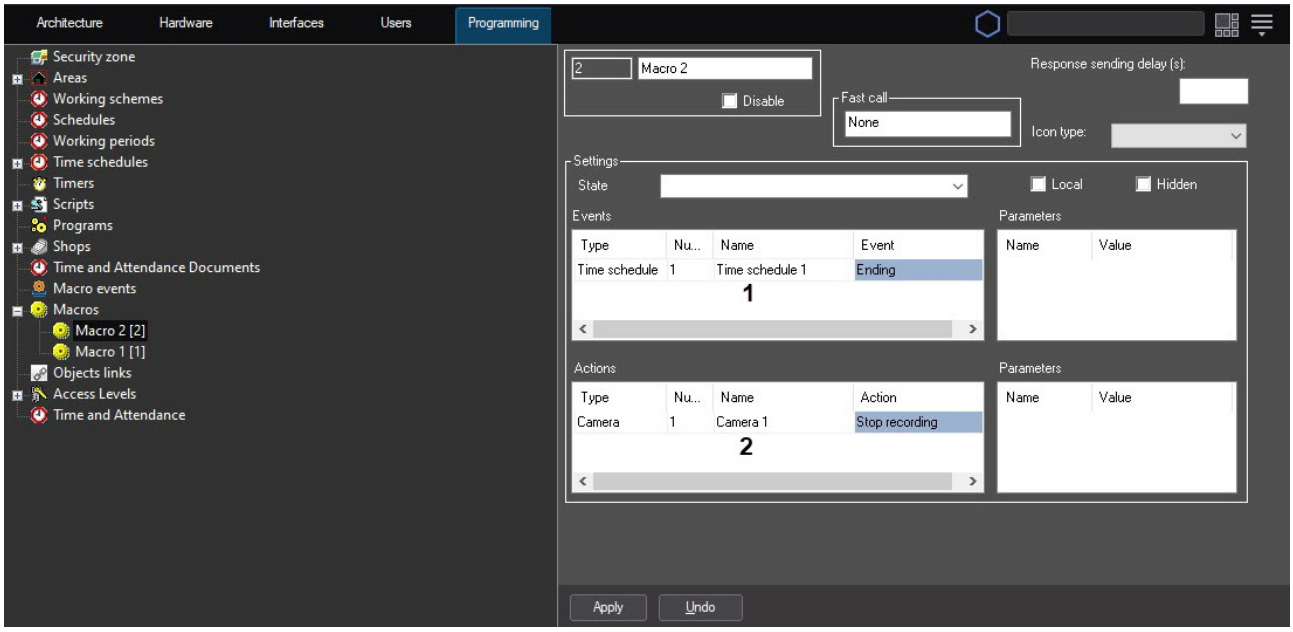
Set the events and actions values in **Macro** setting window that is given in the table.

№	Event	Action
1	Time schedule 1 begin (1)	Start recording from Camera 1 (2)
2	Time schedule 1 end (1)	Stop recording from Camera 1 (2)

Example of a macro with a time schedule. Time schedule beginning.



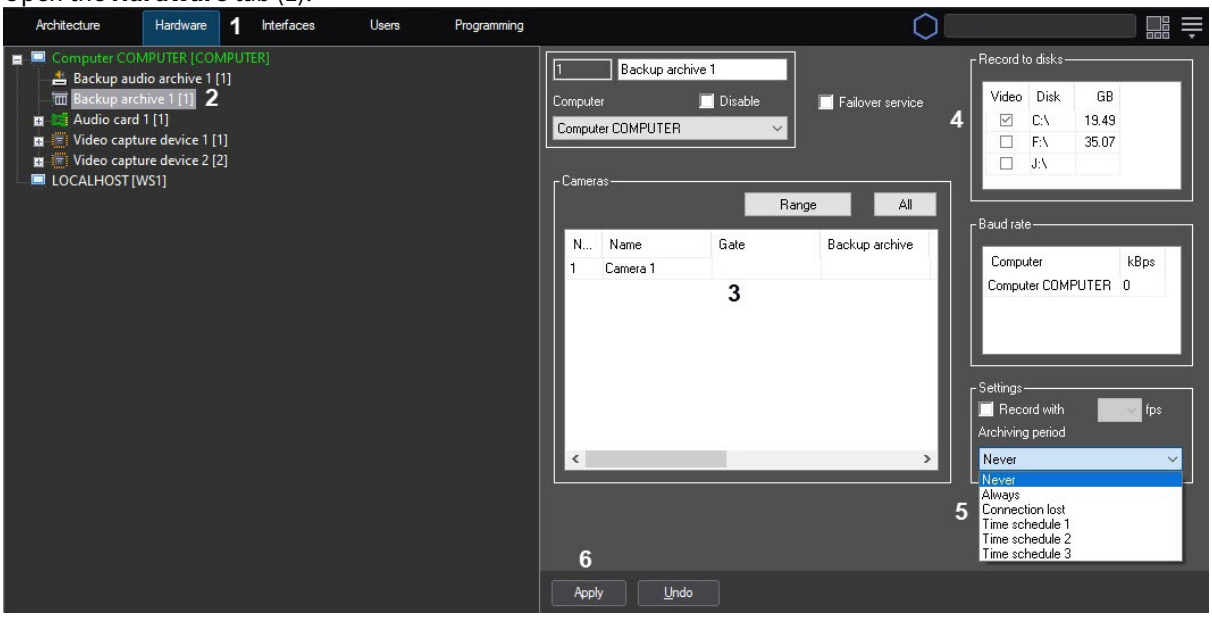
Example of a macro with a time schedule. Time schedule ending.



Example 2. Time schedules can be used for the Backup archive. Consider an example of scheduling the archiving of the video feed from a camera at a specific time.

To configure the Backup archive object, do the following:

1. Open the **Hardware** tab (1).



2. Select the **Backup archive** object (2).
3. Select the disk to record the video to (3).
4. Specify the camera to record from (4).
5. Select the **Time schedule 1** value in the **Archiving period** list (5).
6. Click the **Apply** button (6).

22.6.5 Creating and using macros

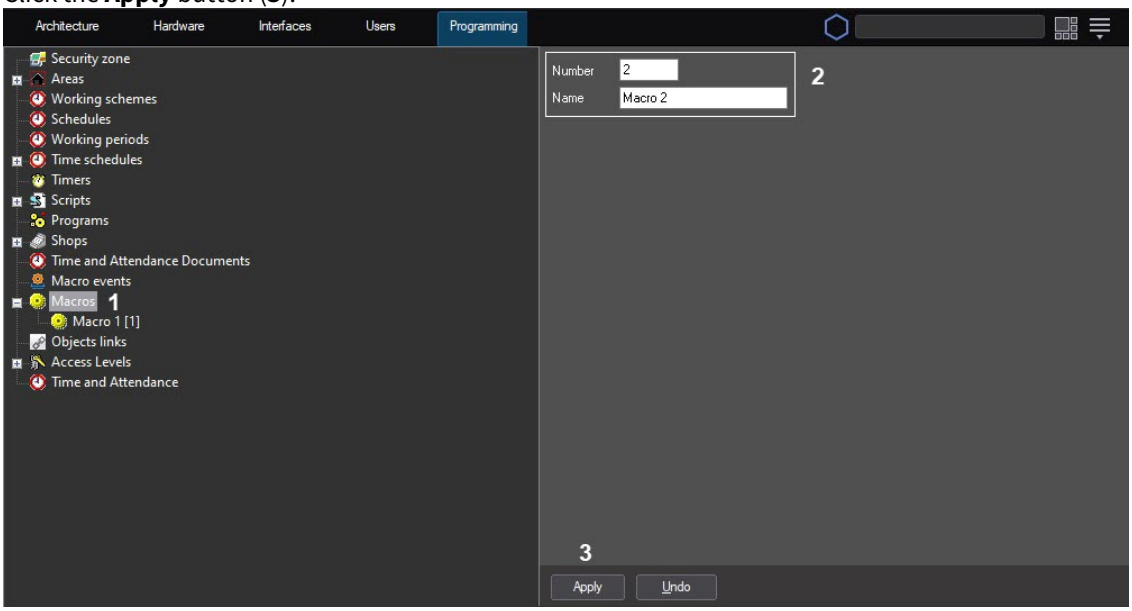
A macro in the *Axxon PSIM* system is a system object, designed to maintain logic interaction among other system objects. The **Macro** object settings define the conditions and the corresponding actions. The **Macro** objects are used for automatic controlling of the surveillance system.

An unlimited number of **Macro** objects can be created in the system.

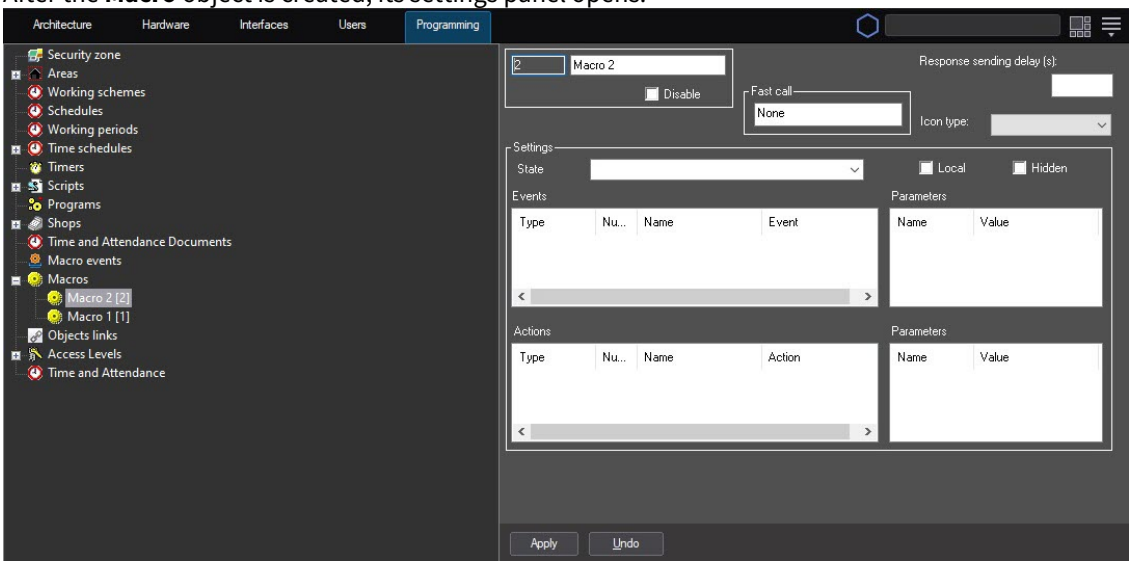
Creating macros

To create a macro, do the following:

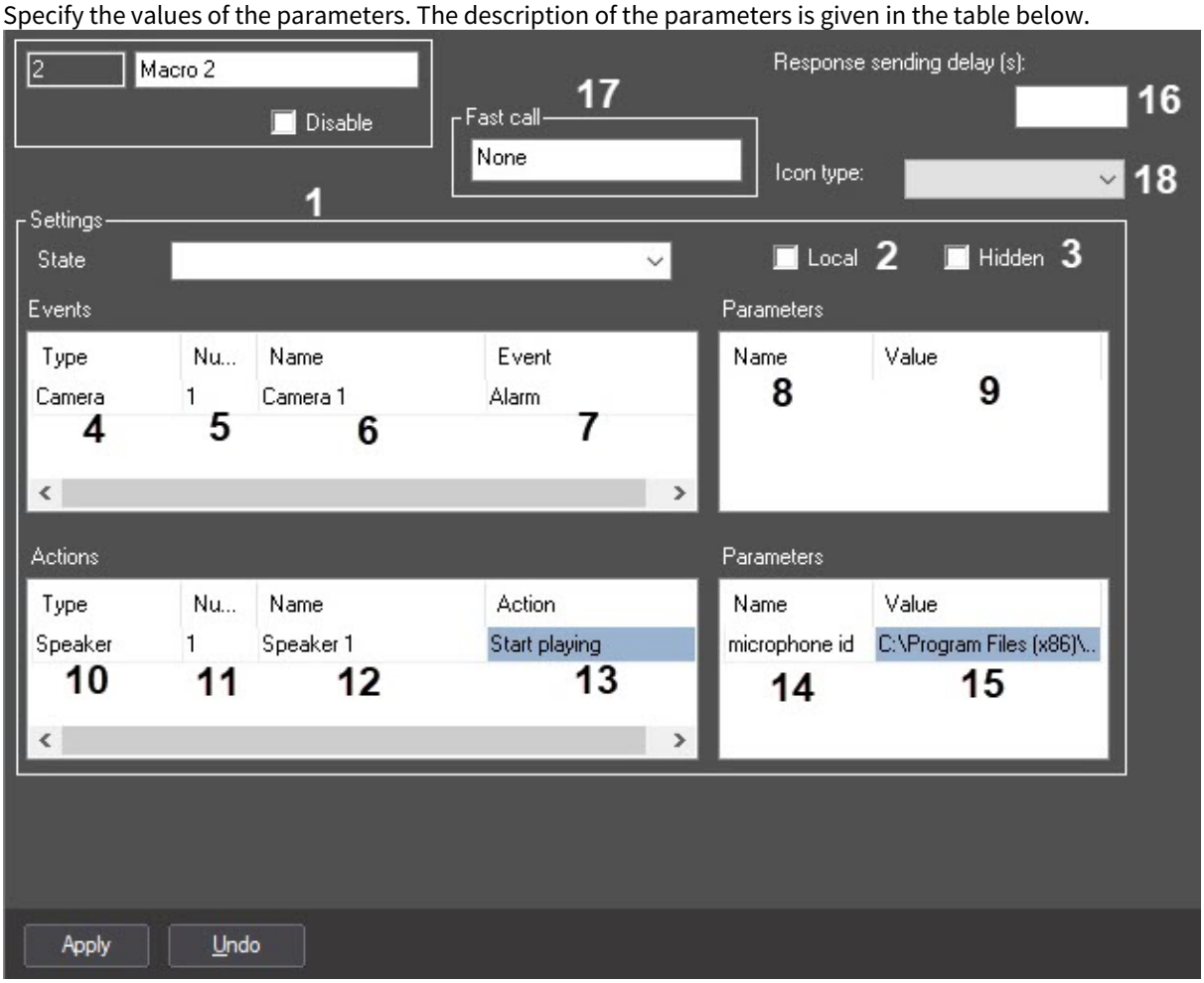
1. Create the **Macro** object.
    a. Select the **Macros** object in the objects tree on the **Programming** tab (**1**).
    b. Specify the name of the **Macro** object (**2**).
    c. Click the **Apply** button (**3**).



After the **Macro** object is created, its settings panel opens.



2. Specify the values of the parameters. The description of the parameters is given in the table below.



Note

To add a row to the **Events** or **Actions** table, select a cell in the bottom row of the table and press the "down" arrow on your keyboard.
To delete a row, select a cell in the row and press the Ctrl+Del buttons on the keyboard.

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **Settings** group						

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	**State**	Select the value from the drop-down list or enter the value from the keyboard	A message is displayed by the system in the data display when the macro is executed. If the **Standard** value is selected, no message is displayed	-	Blank field	A list of available messages and **Standard**
2	**Local**	Set the checkbox	If the checkbox is set, the macro cannot run on any other network computer except the local computer. *Note. This checkbox does not apply to Hide and Show reactions of any Display. When you call these reactions from the Server/Remote Administrator's workstation, they will run on the Server/ Remote Administrator's workstation and on all Clients connected to it. When you call these reactions from the Client, the reactions will run on the Client only, regardless of whether the checkbox is set or clear*	-	Clear	Set—local only Clear—any computer

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
3	**Hidden**	Set the checkbox	Set the checkbox for those macros that are not intended to be run manually	-	Clear	Set—run Clear—don't run
The **Events** table						
4	**Type**	Select the value from the drop-down list	Specifies the object. When an event is received from this object, a macro is run	-	Blank field	All active objects that correspond to hardware and modules
5	**Number**	Select the value from the drop-down list	Specifies the number of the object. When an event is received from this object, a macro is run	-	Blank field	Sequence numbers of all active objects that correspond to hardware and modules. If you select the **Computer** object in the **Type** column, select its name instead of the number
6	**Name**	Content of the field is generated by right-clicking the field	Information field	-	Blank field	The field id formed automatically depending on the values that you select in the **Type** and **Number** columns
7	**Event**	Select the value from the drop-down list	Sets the type of event	-	Blank field	The list of registered event types
The **Parameters** table (it is set if you want to specify event parameters from the **Events** table)						

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
8	**Name**	Automatically	Displays the name of event parameter	Latin alphabet, numerals and service characters	Blank field	Depends on the event selected in the **Events** table
9	**Value**	Enter text in the field	Set the value of event parameter	Latin alphabet, numerals and service characters	Blank field	A line containing a sequence of any characters. The number of characters is from 1 to 250
The **Actions** table						
10	**Type**	Select the value from the drop-down list	Specifies the object for which a macro is run when a registered event is received	-	Blank field	All active objects that correspond to hardware and modules

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
11	**Number**	Select the value from the drop-down list	Specifies the number of the object for which a macro is run when a registered event is received	-	Blank field	Sequence numbers of all active objects that correspond to hardware and modules. If you select the **Computer** object in the **Type** column, select its name instead of the number. If you leave the field blank, the reaction is performed for all objects of the selected type. The type of objects in the **Events** and **Actions** tables may not coincide. When you run a macro manually from the main control panel, the # symbol is equivalent to an empty field,

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
						If you enter the **#** symbol in the field, the identifier of the object from which the event was received will be substituted in the response. Example of using the # symbol: disarm the camera, if the "Detach" event is received from it
12	**Name**	Automatically	Displays name of the selected object	Name of the objects registered in the system of the specified type	Blank field	A line containing a sequence of any characters. The number of characters is from 1 to 60
13	**Action**	Select the value from the drop-down list	Specifies the action that is performed for the object selected in the **Type** column when a registered event is received	-	Blank field	List of actions that can be performed for the object selected in the **Type** column
The **Parameters** table (it is set if a parameter must be specified to perform the action selected in the **Actions** table)						
14	**Name**	Automatically	Displays the name of the action parameter	Latin alphabet, numerals and service characters	Blank field	Depends on the action selected in the **Actions** table

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
15	**Value**	Enter text in the field	Specifies the value of the action parameter	Latin alphabet, numerals and service characters	Blank field	A line containing a sequence of any characters. The number of characters is from 1 to 255
Outside the groups						
16	**Response sending delay (s)**	Enter the value into the field	Specifies the time period in seconds that must pass after the events specified in the **Events** column occur and before running the reactions specified in the **Actions** column. ***Note.*** *If the events reoccur before the specified time period expires, the reaction execution wait period is prolonged, i.e. reactions will be executed only once when events do not reoccur over the specified period*	Natural number series	-	>0

№	Parameter name	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
17	**Fast call**	Left-click in the field and press the required key combination	Specifies a keyboard shortcut to quickly call a macro. If you specify the same keyboard shortcuts for several macros, all macros will run if you press the key combination. *Note. You can disable the processing of the specified keyboard shortcuts for macros using the UseHotKeys key—see* Registry keys reference guide	Key combinations	None	Individual keys on the main or numeric keyboard, and these keys in combination with Shift, Ctrl, Alt
18	**Icon type**	Select the value from the drop-down list	Specifies a set of icons for displaying a macro on the map. By default, an empty value is set for all macros which corresponds to the Macro 1 icon. *Note. Changing the icon appearance will take effect after you reastart the map interface. To restart the interface, restart Axxon PSIM or log in once again under the corresponding Operator account*	Available icon types on the map	-	Macro 1–Macro 7, empty value

Attention!

Only WAV files can be used as the **Play sound file** action parameter. Otherwise, the **Play sound file** action isn't run. Note that compressed audio in WAV format can playback incorrectly, so we recommend playing back only PCM WAV files. The maximum values of frequency and sampling depth of files for playback are determined by the DAC specifications of the installed sound card.

Note

If required action, event or parameter is absent in the corresponding table, add it to the ddi-file with the ddi.exe utility (see Editing the external setting file (Axxon PSIM.ddi) using the ddi.exe utility).

3. Click the **Apply** button to save the settings.

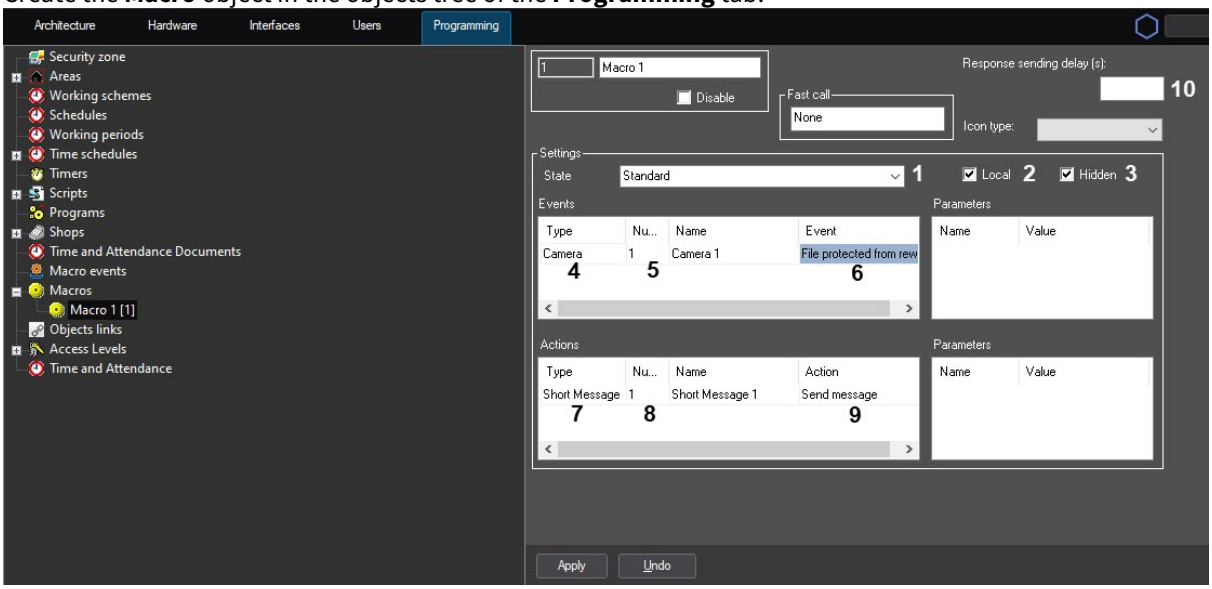
Examples of macros

Macros are used to automate the work of the Operator. In *Axxon PSIM*, macros help to inform the Operator/ administrator about software and hardware failures, automate the backup archiving process, and much more.

Let's consider an example of a macro that generates an SMS and sends it to the specified phone number. A message is sent if a condition is met—an error occurs when video from Camera 1 is written to a disk.

To create a macro for sending a message, do the following:

1. Create the **Macro** object in the objects tree of the **Programming** tab.



2. Specify the **State** parameter (**1**).
3. Set the **Local** checkbox to send voice message from the local computer only if necessary (**2**).
4. Set the **Hidden** checkbox to prevent a macro from being run manually from the Main control panel of *Axxon PSIM* (**3**).
5. Select an object the event from which sends a voice message (**4**).
6. Select the number of an object the event from which sends a voice message (**5**).
7. Select an event from a selected object that starts a macro to send a voice message (**6**).
8. Select the **Short Message** object in the **Type** column (**7**).
9. Select a number of the **Short Message** object that will be sent on a macro (**8**).
10. Select the **Send Message** action (**9**).

11. Specify the **Response sending delay (s)** parameter value if you want to send a message after a certain period after an event has occurred (**10**).
12. Click the **Apply** button.

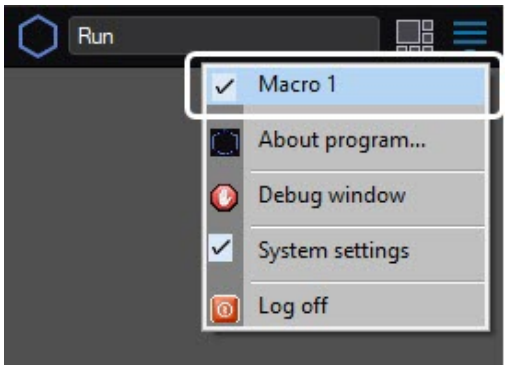
If the **Hidden** checkbox isn't set (**3**), you must start a macro manually. To do this, click the **Run** button in the Main control menu and select a macro from the list (**2**).



Note

You can also open the menu by left-clicking the icon in the Windows notification area (system tray), or by briefly pressing the F8 hotkey.

If a macro is force run, there is a checkmark next to the macro name in the list of the **Run** menu on the Main control panel.



Note

You can also run macros from the **Map** or **Surveillance window** (see Operations with macros and Running macros from the Surveillance window).

22.6.6 Creating and using the Timer object

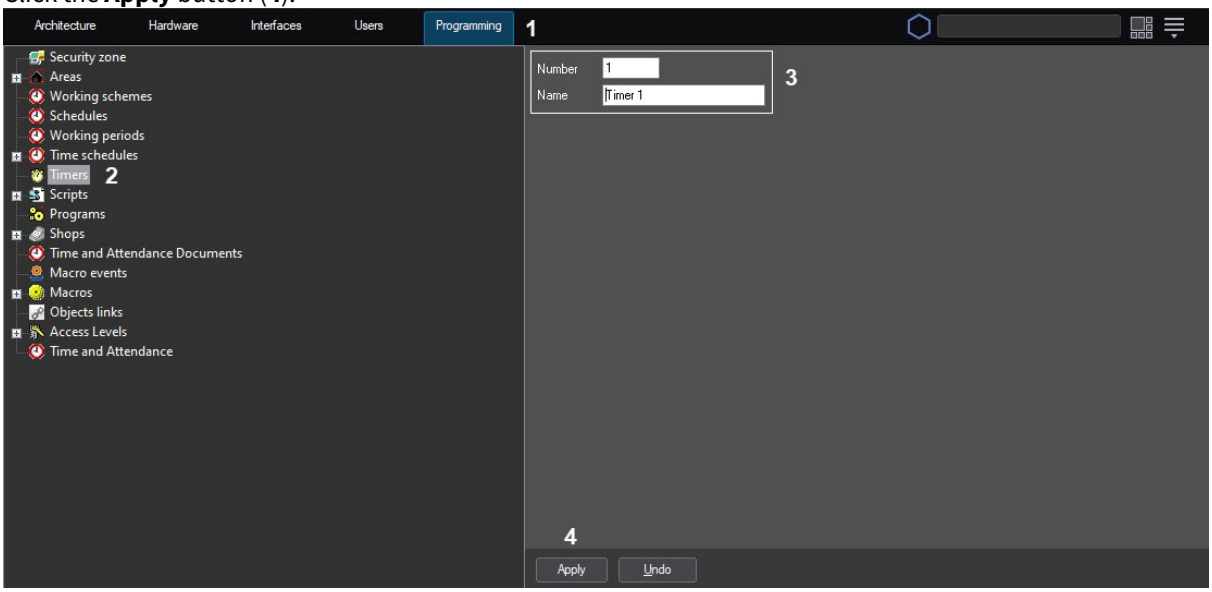
The **Timer** object sets a time point upon reaching which an action (a macro) is executed. Thus, the **Timer** object is used together with the **Macro** object and for other objects setup.

Creating and configuring the Timer object

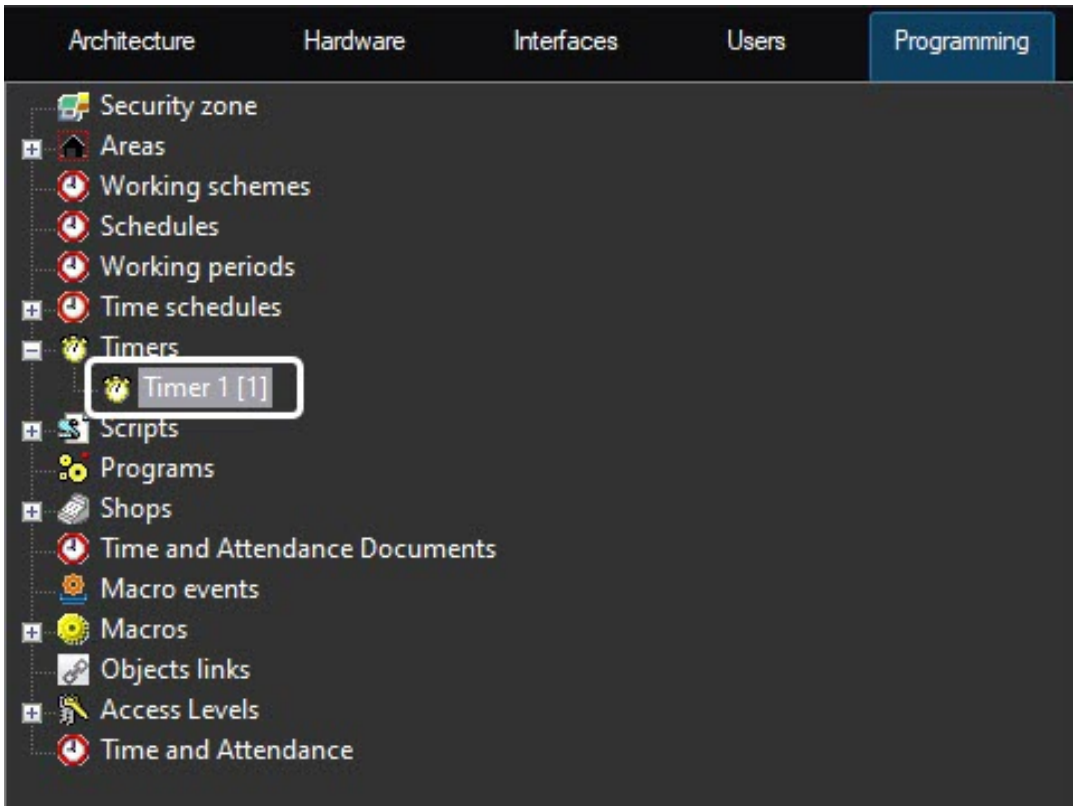
To create the **Timer** object, do the following:

1. Open the **Programming** tab (**1**).

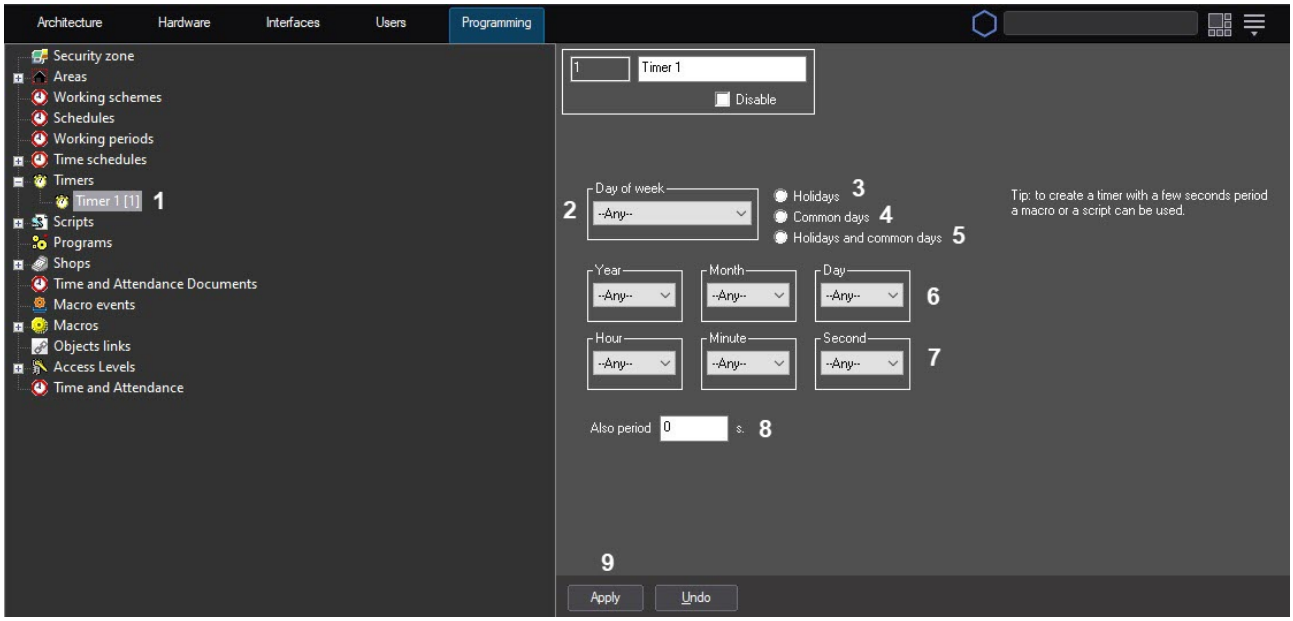
2. Create the **Timer** object on the basis of the **Timers** object in the objects tree (**2**).
3. Enter the number and the name of the **Timer** object in the corresponding fields of the identification panel (**3**).
4. Click the **Apply** button (**4**).



The **Timer** object will appear in the objects tree.



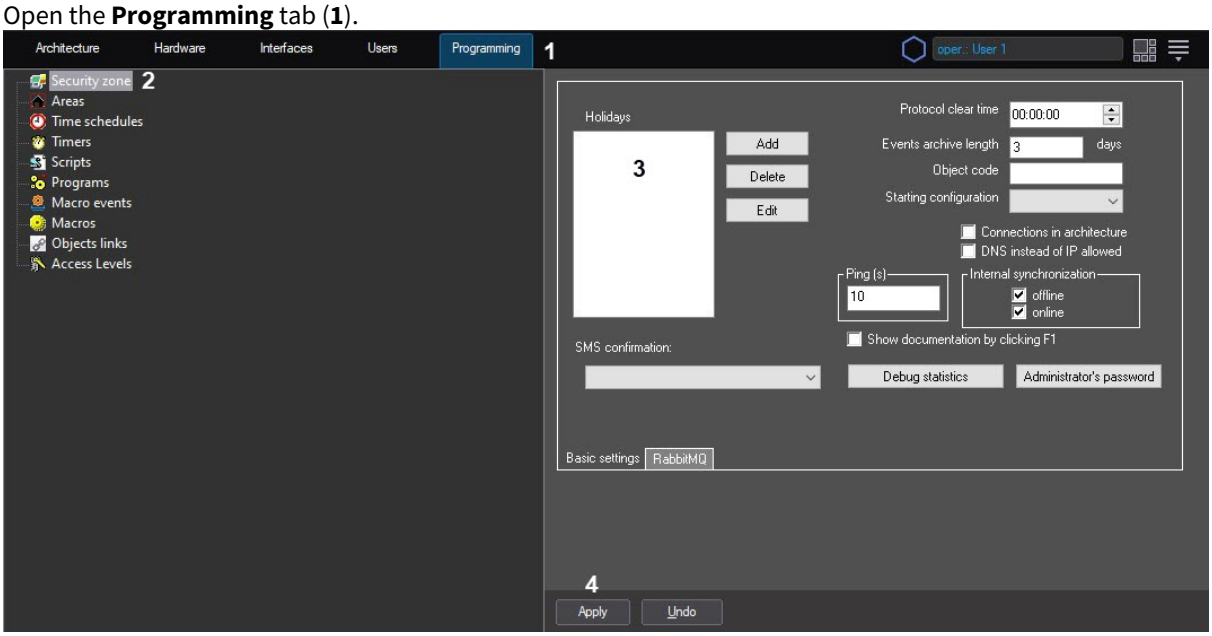
To configure the **Timer** object, do the following:



1. Select the **Timer** object (**1**) in the objects tree.
2. Set the time point using one of the following methods:
    a. select the day of the week from the drop-down list (**2**) and the exact time (hour, minute, second) in the corresponding fields (**7**).
    b. select the exact date (year, month, day) from the corresponding fields (**6**) and the exact time (hour, minute, second) in the corresponding fields (**7**).
3. To enable the timer triggering with the specified periodicity in seconds after the first triggering, enter the required interval in seconds in the **Also period** field (**8**).
4. Set the radio button to one of the following positions:
    a. **Holidays** (**3**), if you want to take into account the dates/days of the week that fall on holidays (set in the **Security zone** object settings).
    b. **Common days** (**4**), if you don't want to take into account the dates/days of the week that fall on holidays.
    c. **Holidays and common days** (**5**), if you want to take into account both the common days and the dates/days of the week that fall on holidays.
5. Click the **Apply** button (**9**) to save the settings.

To create the list of holidays, do the following:

1. Open the **Programming** tab (**1**).



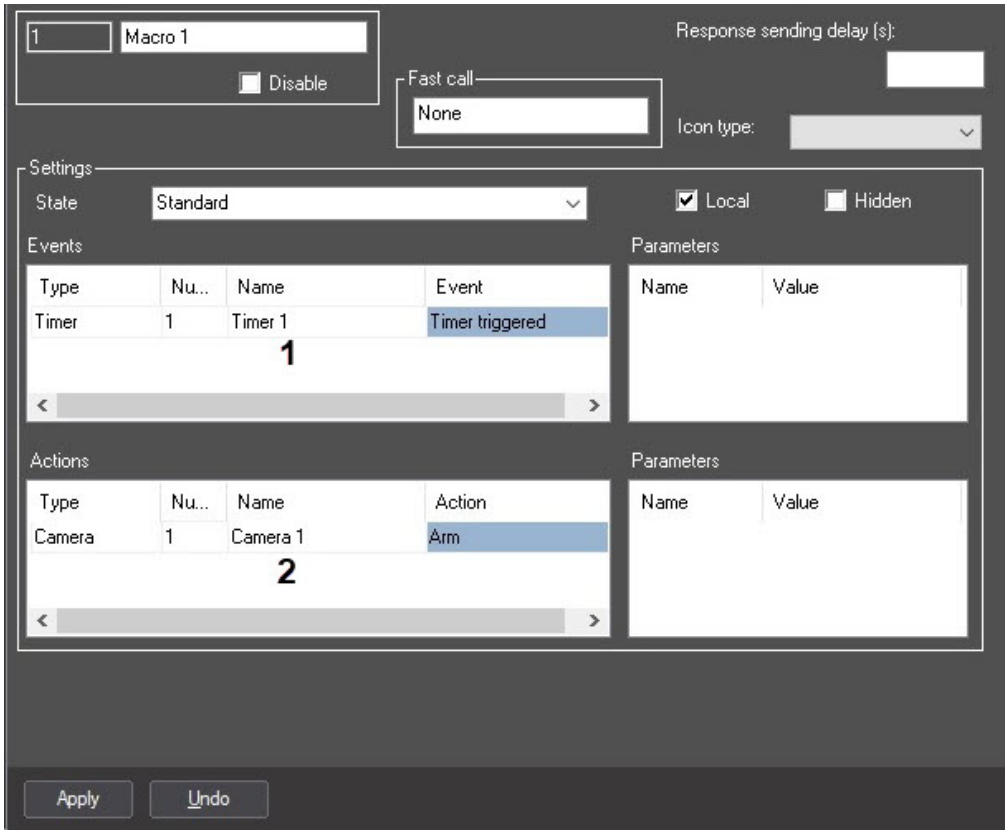
2. Select the **Security zone** object (**2**).
3. Enter a holiday date in the DD.MM.YYYY format (**3**).
4. Click the **Apply** button (**4**).

Creating and configuring the **Timer** object is complete.

Using the Timer object

Example 1. Consider a macro that activate an arming mode in selected camera when the timer triggers.

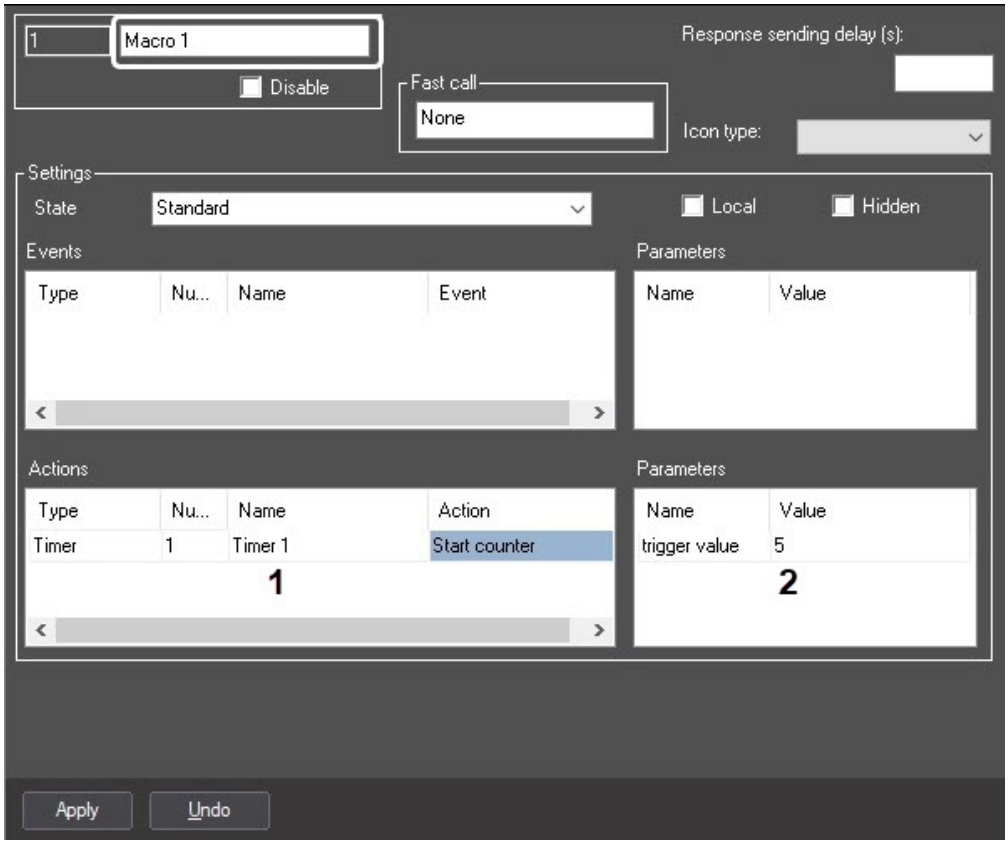
No	Event	Action
1	The timer triggered (1).	Activate an arming mode (2)



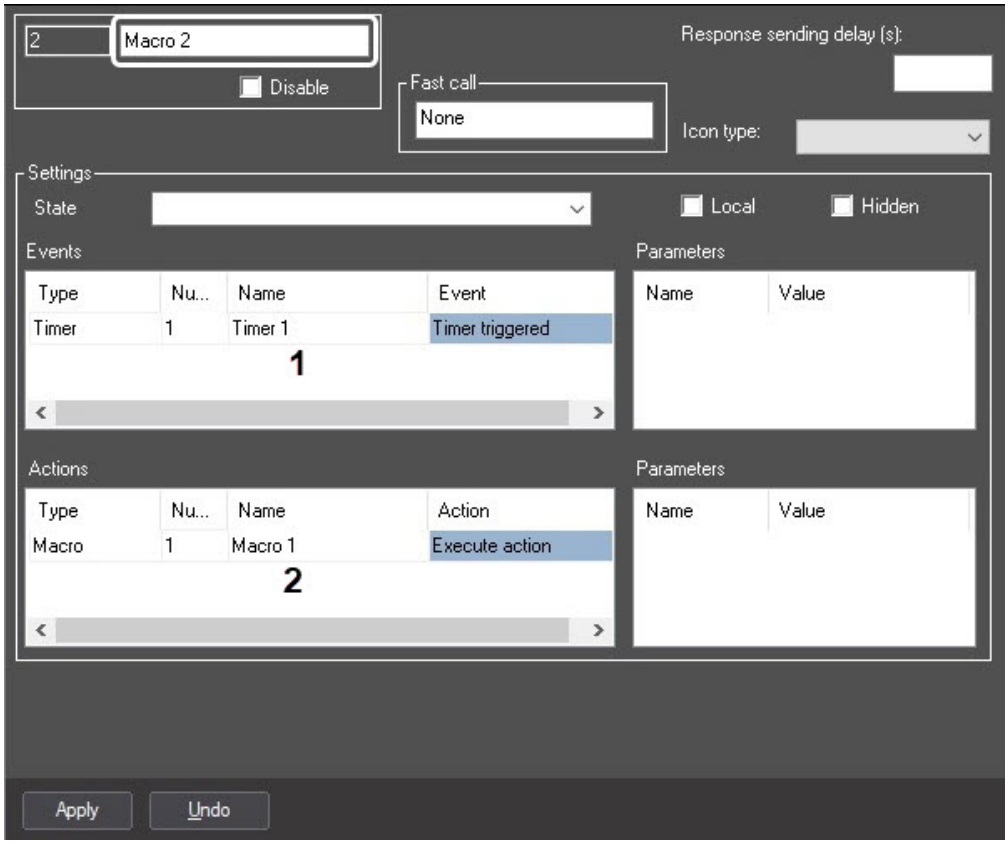
Example 2. Consider macros that allow to set the timer with trigger period of several seconds.

Macro	Event	Action	Parameters
1		Start counter of Timer 1 (1)	Trigger value is 5 seconds (2)
2	The timer 1 triggered (1)	Macro 1 execution (2)	

Macro 1 object setting window



Macro 2 object setting window



Note

After starting the macro (**Macro 1**) in menu of Axxon PSIM software main control panel, the timer will trigger every 5 seconds and also in accordance with the **Timer 1** object settings which are specified on its seting panel. To avoid the timer triggering in the latter case, it is necessary to specify the date of triggering in the past.

Note

To stop the timer, set **Disable** check box in **Timer 1** object setting window.

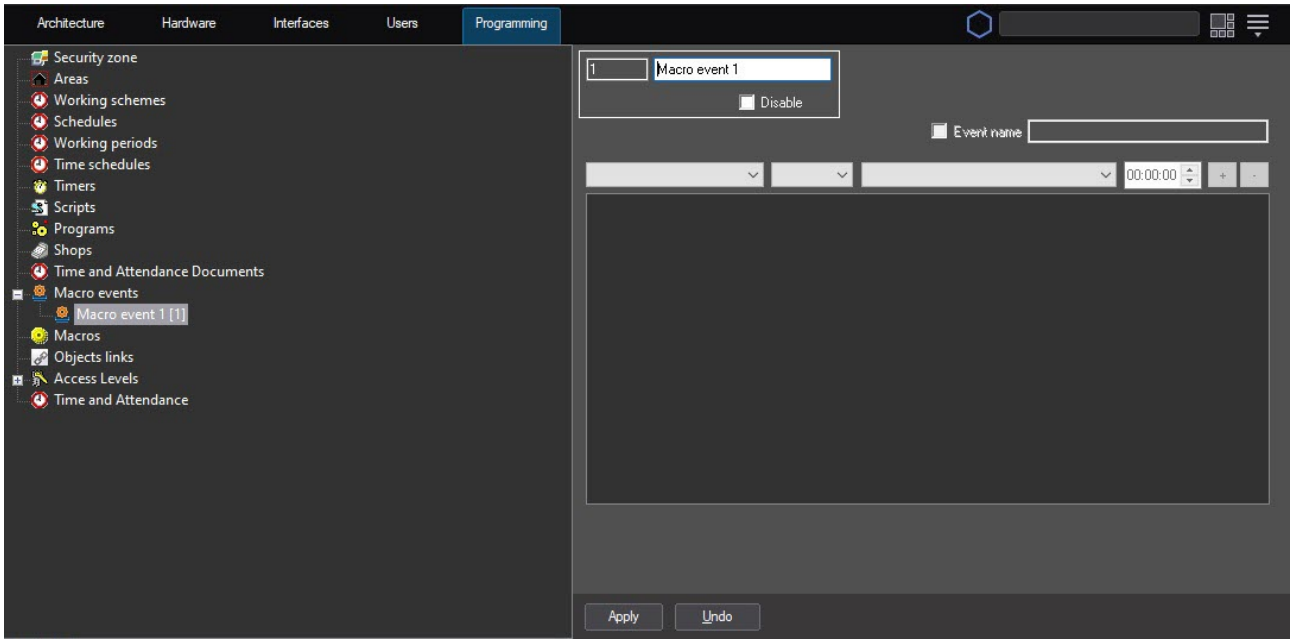
22.6.7 Creating and configuring Macro events

Macro events are designed for controlling required events in the defined time interval and for generating new events in the system in case of appearing or not some chain of events.

Macro events are presented by **Macro event** objects in the *Axxon PSIM* software.

Generated macro event can be used in macros or scripts to perform some actions.

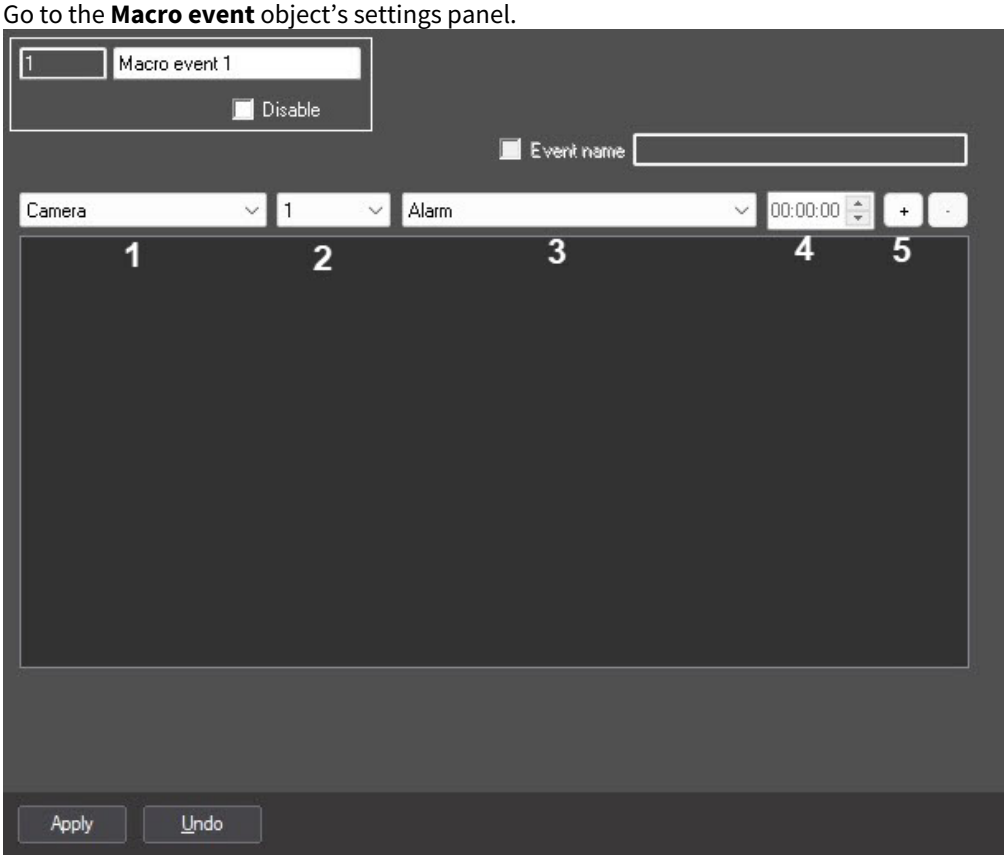
The **Macro event** object is created and configured on the basis of **Macro events** object on the **Programming** tab of the **System settings** dialog box.



Configuring the macro events

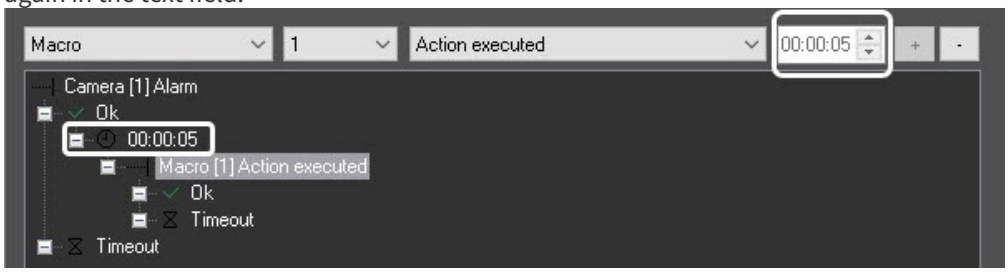
To configure macro events, do the following:

1. Go to the **Macro event** object's settings panel.

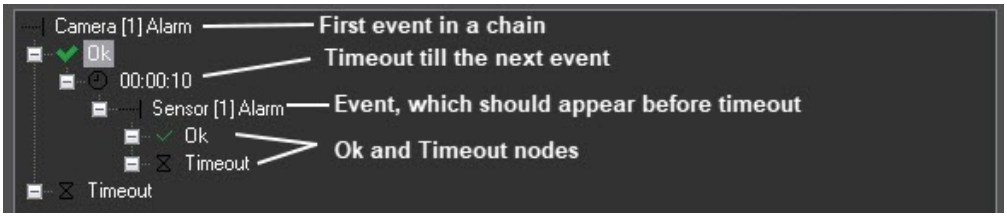


2. Select the object type from the drop-down list (1).

3. Select the object ID from the drop-down list (2) if it's required. If the object ID is not selected, then events from all objects of such type will be considered in.
4. Select the event type from the drop-down list (3). All events from the selected object or objects will be considered if the event type is not selected.
5. In the field (4), enter the time period in HH:MM:SS format during which the selected event occurrence is waiting for the occurrence of the previous one. The occurrence time for the first event in the chain is not specified. For other events the time of waiting is 15 seconds by default.

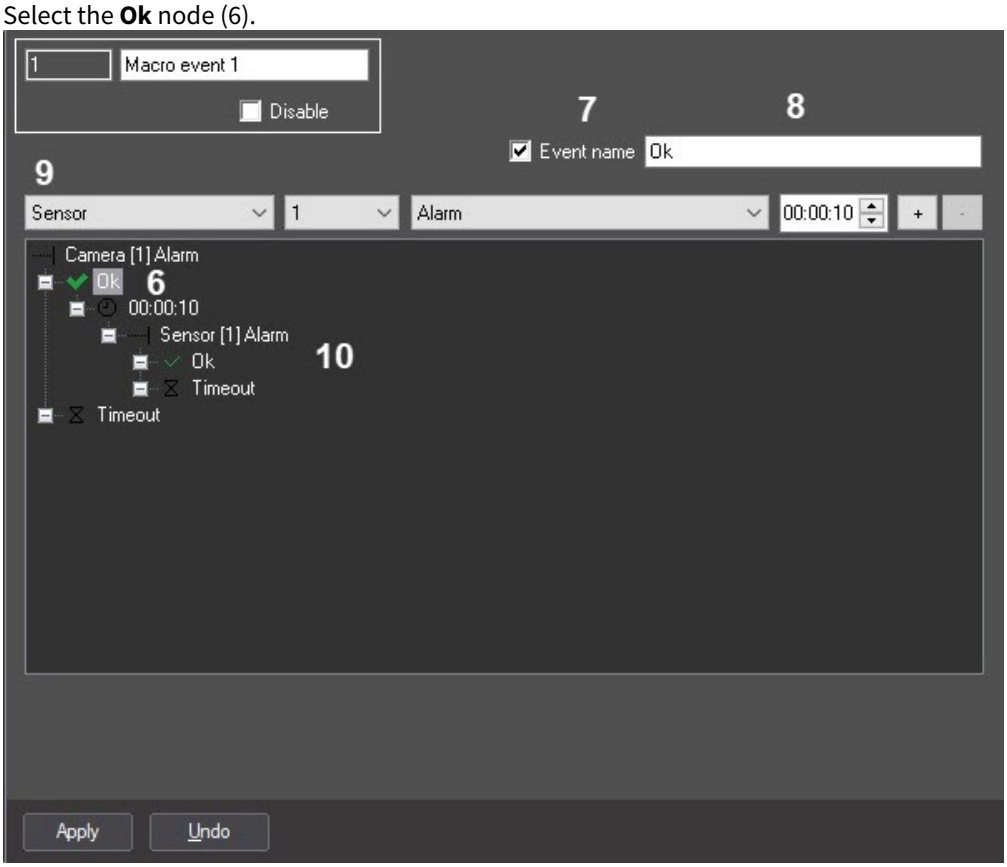
> **Note.**
>
> To edit the time-out period, select the occurrence time of the event in the chain and enter the time again in the text field.
>
> 
>

6. Click the **+** button (5). The event will be added to the chain with the name in the "Object type [object number] Event type" format. Nodes corresponding to the event occurrence on the specified time interval (**Ok**) and nodes corresponding to the expiration of the time-out for the event waiting (**Timeout**) will be created on the basis of the event.



7. Set the next event in the chain in case of performing the previous chain of conditions:

a. Select the **Ok** node (6).



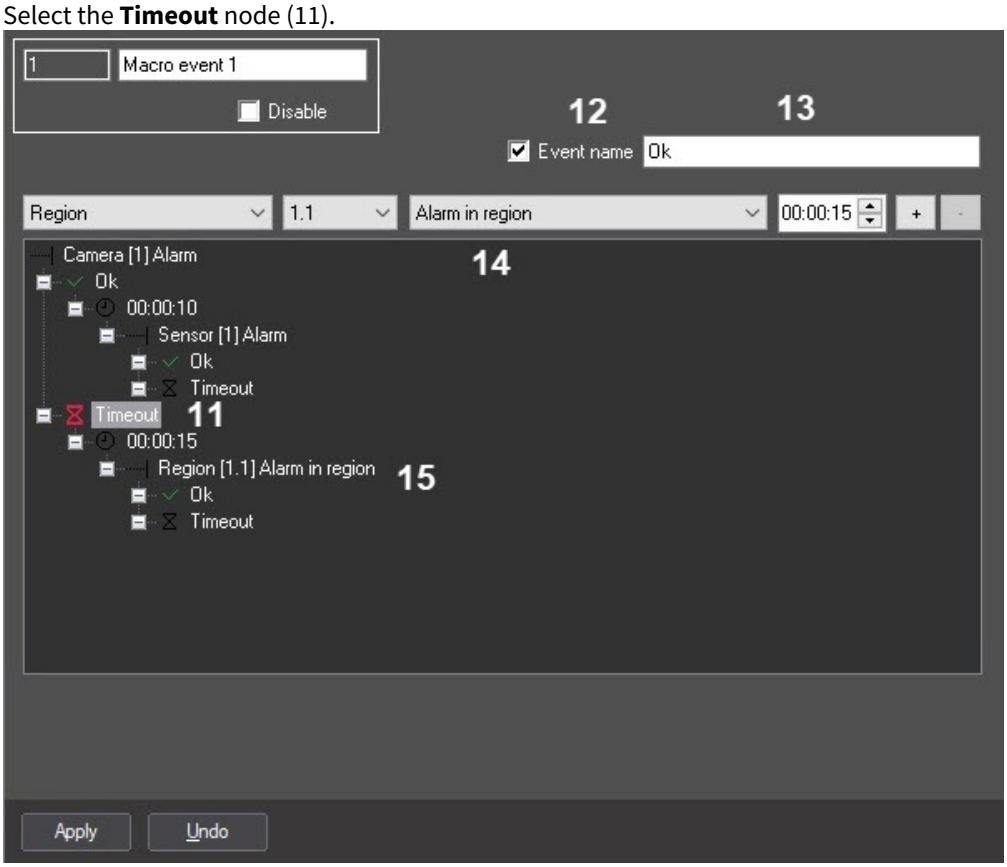
b. Set the **Event name** (7) checkbox and enter the name of the generated event in the text field (8) in case a macro event is to be generated when all previous events in the chain have occurred. The node will be marked by the ✔ sign.

> **Note.**
>
> The **Event name** is limited to 120 symbols.

c. Set the Event type (9) as it was performed in 1-5 steps.
The event will be added to the chain on the basis of the **Ok** node (10).

8. Set the next event in the chain in case the timeout of waiting for the execution of the previous chain of conditions has expired:

a. Select the **Timeout** node (11).



b. Set the **Event name** (12) checkbox and enter the name of the generated event in the text field (13) in case a macro event is to be generated when all previous events in the chain except the last one have occurred. The node will be marked by the ⧖ sign.

> **Note.**
>
> The **Timeout** condition created on the basis of the first event in the chain is performed if only the first event of the chain has occurred for the specified time.

> **Note**
>
> The Event name is limited to 120 symbols.

c. Set the **Event** type (14) as it was performed in 1-5 steps.
The event will be added to the chain on the basis of the **Timeout** node (15).

9. Repeat steps 7 and 8 with **Ok** and **Timeout** nodes created on the basis of new events if it's required.
10. Click the **Apply** buttons.

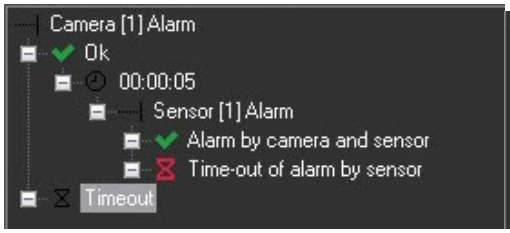
> **Note**
>
> To delete the event from the chain, select its name or occurrence time and click the **–** button. All underneath events in the chain will also be deleted.

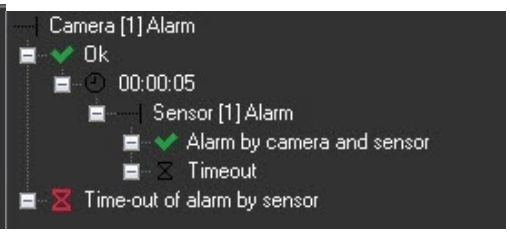
Configuring the macro events is completed.

Example of macro event

It is required to generate events with the “Alarm by camera and sensor” name, when alarm by Sensor 1 is initiated less than in 5 seconds after alarm by Camera 1. Generate the event with the “Time-out of alarm by sensor” name if alarm by sensor is not initiated or initiated more than in 5 seconds after alarm by camera.

To perform it, create the **Macro event** object and configure the chain of events by one of the following ways:





23 Administrator's Guide. Conclusion

More detailed information on the Axxon PSIM software package is presented in the documents titled:

1. Operator’s Guide.
2. The Script object. Programming using the JScript language.
3. Installing and configuring security system components guide.

If while operating the given software product you have faced difficulties and problems, you are welcome to contact us. However before addressing us, we kindly ask you to answer the following questions:

1. What is the problem?
2. When did the problem occur and what had happened before it occurred?
3. Which conditions gave rise to the problem?

Remember, that the more detailed and precise information you give us, the faster our experts will resolve your problem.

We are striving to improve the quality of our products, and hence welcome any proposals and suggestions how to improve our software and documentation.

24 Appendices

24.1 Appendix 1. Interface

Working with the system settings dialog box

24.1.1 Description of the Main control panel Interface

24.1.2 Description of the System settings dialog box

- Tabs panel
- Objects tree
- Context menu of the system object
  - The Create object function
  - The Change parameter function
  - The Camera discovery tool function
  - The Delete object function
  - The Create folder function
  - The Move to folder function
  - The Save function
  - The Find function
  - The Reconnect function
  - The Send key to all function
  - The Send key function
  - The Save configuration function
  - The Load configuration function
  - The Collapse tree function
  - The Expand tree function
- The object settings panel
- The Apply and Undo buttons
- The elements of the System settings dialog box
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- The Hardware tab
  - The Hardware tab components
  - The settings panel of the Computer object
  - The settings panel of the Video capture device object
  - The settings panel of the Camera object
  - The settings panel of the Detection zone object
  - The settings panel of the Audio card object
  - The settings panel of the Microphone object
  - The settings panel of the Telemetry controller object
  - The settings panel of the PTZ device object
  - The settings panel of the Control panel object
  - The settings panel of the Backup archive object
  - The settings panel of the Keyboard object
  - The settings panel of the System restart service object
  - The settings panel of the Voice notification service object
  - The settings panel of the Voice Message Service object
  - The settings panel of the Voice message object

    - The settings panel of the Short Message Service object
    - The settings panel of the Short Message object
    - The settings panel of the Mail Message Service object
    - The settings panel of the Mail message object
    - The settings panel of the Web-server object
    - The settings panel of the RTSP Server object
    - The settings panel of the Operator query panel object
    - The Settings panel of the Alarm Message Window object
    - The settings panel of the Videogate object
    - The settings panel of the Event counter object
    - The Settings panel of the Data replication service object
    - The settings panel of the Failover service object
    - The settings panel of the Backup audio archive object
    - The settings panel of the Web server 2.0 object
    - The settings panel of the Edge storage object
    - The settings panel of the Manager of failover services object
    - The settings panel of the ONVIF-Server object
    - The settings panel of the ONVIF-Server Profile object
    - The settings panel of the Telegram bot object
    - The settings panel of the SIP-terminal object
    - The settings panel of the SIP-device object
    - The settings panel of the SIP-operator object
    - The settings panel of the Address book object
    - The settings panel of the Incident handler object
- The Interfaces tab
    - Interfaces tab components
    - The settings panel of the Display object
    - The settings panel of the Monitor object
    - The settings panel of the Audio player object
    - The settings panel of the Telemetry control panel object
    - The settings panel of the Backup archive panel object
    - The settings panel of the Map object
    - The settings panel of the Layer object
    - The settings panel of the Event viewer object
    - The settings panel of the Operator protocol object
    - The settings panel of the External window object
    - The Settings panel of the Scene object
    - The settings panel of the HTML Interface object
    - The settings panel of the HTML page object
    - The settings panel of the Display manager object
    - The settings panel of the State statistics object
    - The settings panel of the Charts object
    - The settings panel of the SIP-panel object
    - The settings panel of the Incident manager object
- The Users tab
    - The Users tab components
    - The settings panel of the Department object
    - The settings panel of the User object
    - The settings panel of the User rights object
- The Programming tab
    - The settings panel of the Security zone object
    - The settings panel of the Macro object
    - The settings panel of the Program object

- The settings panel of the Time schedule object
- The settings panel of the Script object
- The settings panel of the Region object
- The settings panel of the Rule of states transition object
- The settings panel of the Macro event object

24.1.3 Information about program

24.1.4 Description of the Main control panel Interface

As a part of the **System settings** interface window, the **Main control panel** has a fixed position and is located in the upper right corner of the **System settings** interface window.



> **Note**
>
> If the **Main control panel** is hidden, move the mouse cursor to the upper right corner of the screen to display it. By default, the **Main control panel** is displayed on the main monitor. The number of the monitor for displaying the **Main control panel** can also be set by the cur_monitor registry key (see Registry Keys Reference Guide).

Axxon PSIM **Main control panel** is small (for the purpose of saving the useful screen space) and contains only the information window and two buttons to the right of it.

Axxon PSIM **Main control panel** elements and their descriptions are given below:

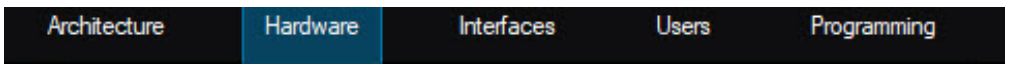
1. 

—**Information window** or help window. This window displays comments (brief information) to the interface elements on mouse hover, and the system error messages. If *Axxon PSIM* is running in demo mode, the text in the window says "Mode: Demo".
2. 
—The **Screens** button. The button is used to control virtual screens.
3. 
—The **Execute** button. The button is used to
   - display or hide the **System settings** interface window,
   - manually execute the macros,
   - open the system info window,
   - display or hide the **Debug window**,
   - shut down the system.

24.1.5 Description of the System settings dialog box

Tabs panel

The Tabs panel is located in the upper left corner of the **System settings** dialog box and is used for switching between the settings groups of different types of *Axxon PSIM* objects. The Tabs panel is shown in the figure.



The table below presents a list and a short description of the tabs of the **System settings** dialog box.

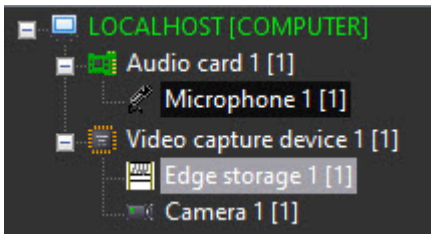
№	Section (tab) of the System settings dialog box	Features of the section (tab)
1	**Architecture**	The tab describes the system structure, the network settings of communication between computers and the parameters of events transmission between the computers of the distributed network
2	**Hardware**	The tab is used to connect and configure hardware and program modules. This tab is also used to connect and configure the special components of the Operator user interface—the **Operator query panel** and **Alarm message window** objects
3	**Interfaces**	The tab is used to create and configure virtual screens and components of the Operator user interface—Video surveillance monitors, audio players and control panels of various devices and modules
4	**Users**	The tab is used to create user accounts (registration) of the digital video surveillance and audio monitoring system, classify the levels (rights) of their access to the system resources and assign passwords to the users
5	**Programming**	This tab is used to create macros and scripts, as well as to create time schedules, shift schedules, subdivision areas of the protected facility, access levels for the access points, which are equipped with readers

To switch from one tab to another, use the mouse. To do this, do the following:

1. Hover the mouse cursor over the tab.
2. Click the left mouse button.

Objects tree

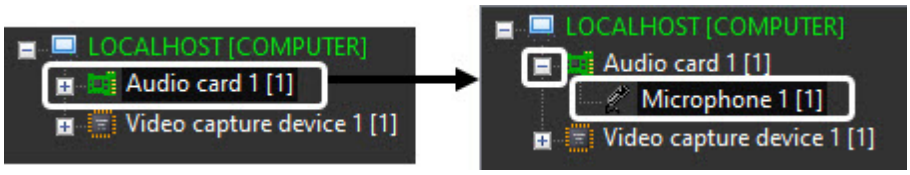
The system is based on the tree-like structure of the objects arrangement (objects tree). The objects tree is a multi-level nested list of objects.



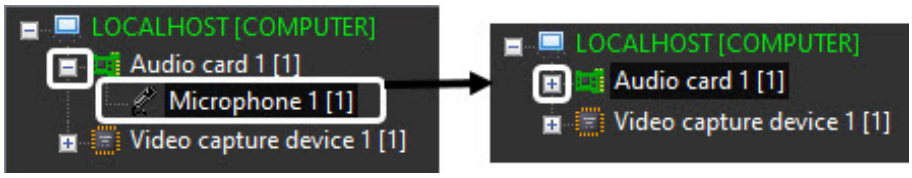
The objects structure is hierarchical. The low-order (child) objects can only be created on the basis of the higher-order (parent) object. The objects in the tree are sorted by name in the following order: Cyrillic characters, spaces, symbols, numbers, Latin characters. If folders are created in the objects tree (see The Create folder function), then the folders are located in the tree above the objects at the corresponding hierarchy level and are sorted in the same order.

The objects tree can be expanded. You can open and view the contents of all its groups (branches), collapse it, hiding the objects not required to be seen at the moment.

To get to a lower level and see the list of the child objects, click the left mouse button hovering over the **+** icon to the left of the parent object.

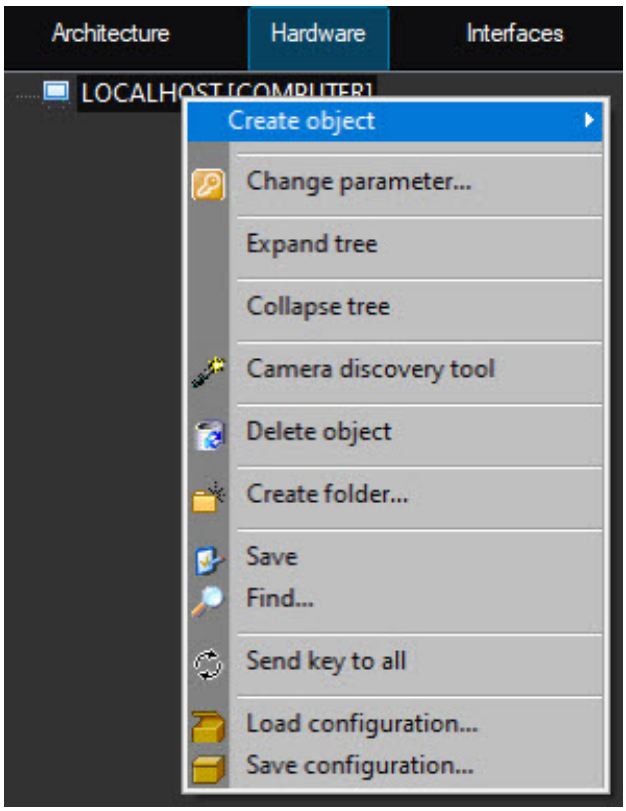


To collapse the branch of the objects tree with the child objects, click the left mouse button hovering over the **-** icon.



Context menu of the system object

The context menu of the system object is available when working with the objects tree. To display the menu, click the right mouse button, hovering over the name of the system object in the objects tree.



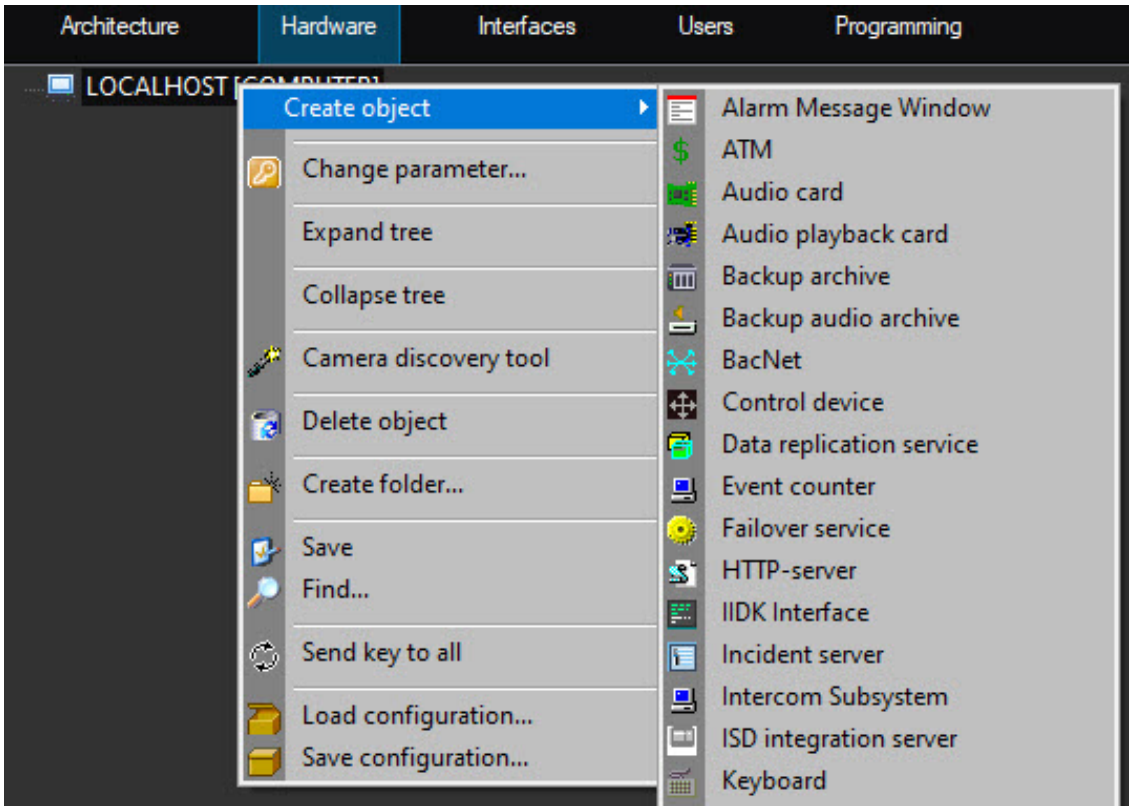
The number of the menu items varies depends on the video surveillance system complexity and object tasks. The context menu items of a system object are described below.

Note

If the Settings panel of any object is open (see Object Setting Panel), and you right-click on an empty space in the objects tree area, this panel will close and the context menu will open, and the object will be deselected in the objects tree.

The Create object function

The **Create object** function is used to create a new system object in the objects tree in the **Hardware** tab. The function is selected from the context menu of the parent system object.



When you select the **Create object** menu item, the submenu will open with a list of the system objects. The figure shows a list of some objects that can be created on the basis of the **Computer** object.

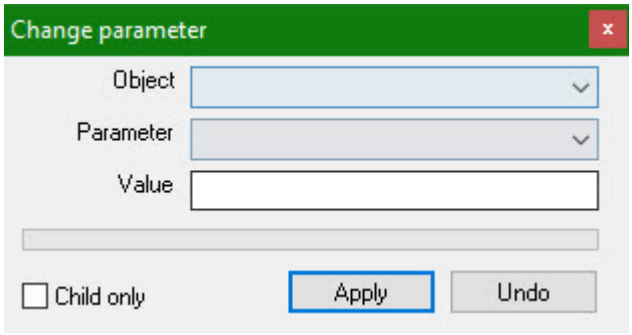
The Change parameter function

You can use the **Change parameter** function to group edit the parameter values of the *Axxon PSIM* objects in the database. To use this function, you must know the structure of the *Axxon PSIM* database. We don't recommend using this function by beginning users.

Note

The **Change parameter** function may not be displayed in the context menu if its display is disabled by the GlobalParamChange registry key (see Registry keys reference guide).

When you select the **Change parameter** function in the context menu of the system object, the **Change parameter** window opens.



Change order:

1. From the **Object** drop-down list, select the type of the system objects, the parameter of which you want to change. This list contains only the objects that are the child objects to the object, the context menu of which you used to open the **Change parameter** window. To change the parameters of the **Computer** object, select the **Change parameter** item in the context menu that opens when you right-click the area with no objects of *Axxon PSIM* objects tree.
2. From the **Parameter** drop-down list, select the name of the object parameter in the *Axxon PSIM* database.

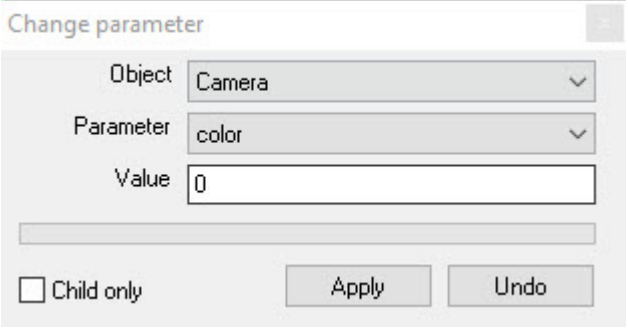
   Attention!

   The parameter will be changed for all objects of the selected type in the distributed configuration.
3. In the **Value** field, specify a new value of the parameter in the format in which it will be saved in the database. You can find out the data type of the parameter using the ddi.exe utility (see Editing psim.dbi and psim.ext.dbi database templates using the ddi.exe utility). You can find out the format of the parameter when viewing the *Axxon PSIM* database (see Viewing Axxon PSIM database).
4. The **Child only** checkbox is set by default, which means that the parameter will change only for child objects of the object selected in the tree (for example, if the checkbox is set, the parameter will change on the computer selected in the tree). If you want to change the parameter for all objects in the system, clear the checkbox.
5. Click the **Apply** button.

Example. All cameras in the system must be set to black-and-white display mode.

For this, do the following:

1. Open the **Change parameter** window from the context menu of the **Video capture device** or **Computer** object.
2. Fill in the fields in the **Change parameter** window as shown in the figure.



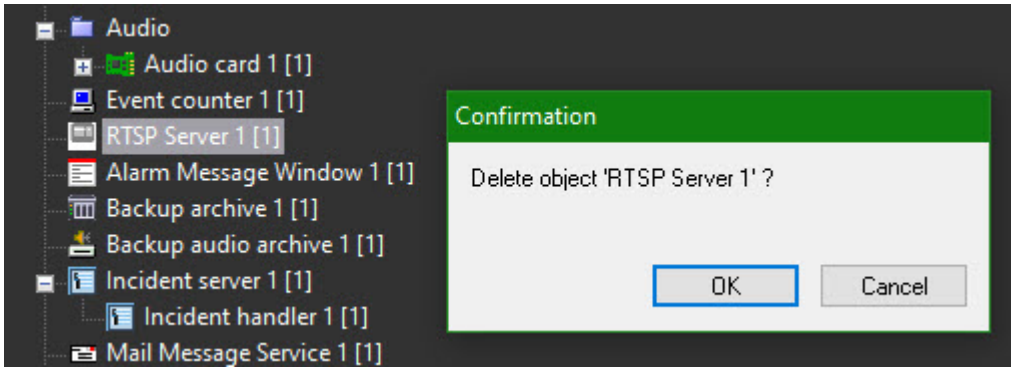
3. Click the **Apply** button.

The Camera discovery tool function

When you select the **Camera discovery tool** function in the context menu of the **Computer** system object, the *Camera discovery tool* utility starts. Its operation is described in Camera discovery tool.

The Delete object function

To delete an object from the tree, hover the mouse cursor over the object and open the context menu. Select the **Delete object** menu item. A dialog box asking you to confirm the deletion of the system object will open.



To confirm the object deletion, click the **OK** button. To cancel the deletion, click the **Cancel** button. As soon as deletion is confirmed, the system object, as well as all its child objects, will be deleted.

The delete system object function applies to all objects, including the **Computer** object, created by default when *Axxon PSIM* is installed.

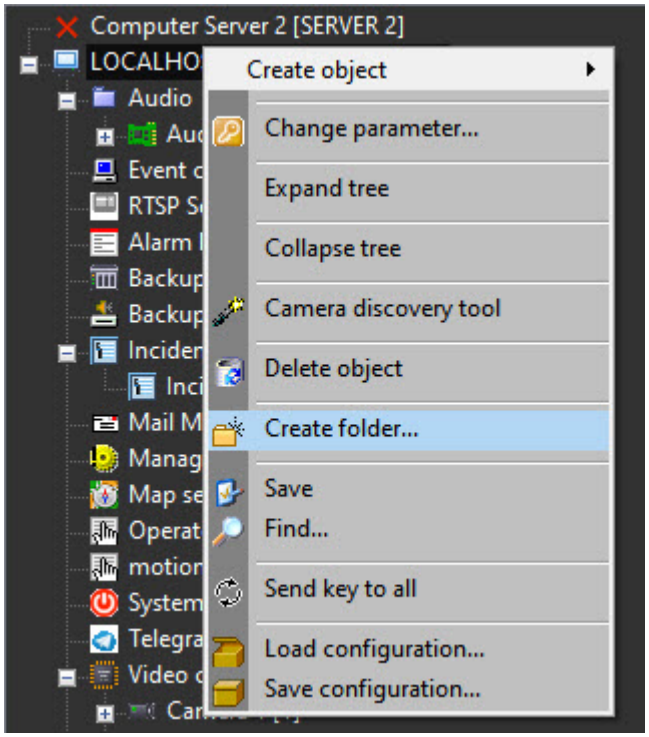
> **Note**
>
> Note that after deleting a parent object, like the **Computer** object corresponding to the local computer, it will be difficult to restore it. That is why it isn't recommended deleting objects such as **Computer** created by *Axxon PSIM*.

The Create folder function

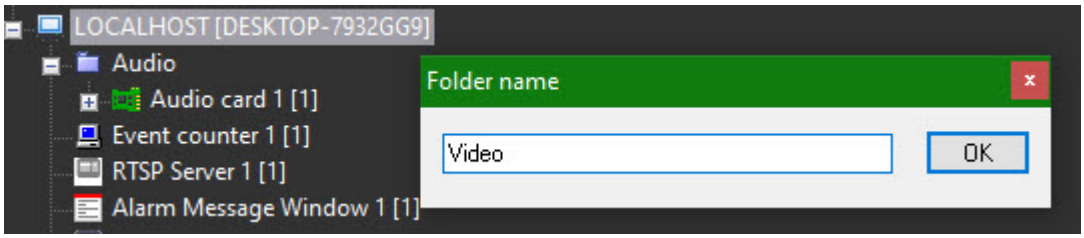
The create folder function is used to arrange the display of the system objects in the objects tree when there are many objects of different types. The objects are grouped into folders arbitrarily. The function is available on all tabs of the **System settings** dialog box except for the **Architecture** tab.

To create a folder, open the context menu of an object or a folder and select the **Create folder** item.

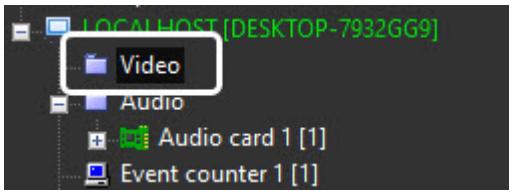
> **Note.**
>
> A folder can be created on the basis of the object that has child objects or on the basis of other folder. For example, you can create a folder on the basis of the **Computer** or **Video capture device** object, but you cannot create a folder on the basis of the **Captioner** or **Detection zone** object.



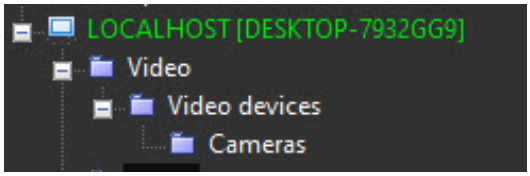
The **Folder name** dialog box for entering a folder name will open. Enter the folder name in the dialog box, click the **OK** button.



A folder will be created in the objects tree on the basis of the selected object.



To create a folder nested in another folder, select the **Create folder** item in the function menu that opens by right-clicking a previously created folder.



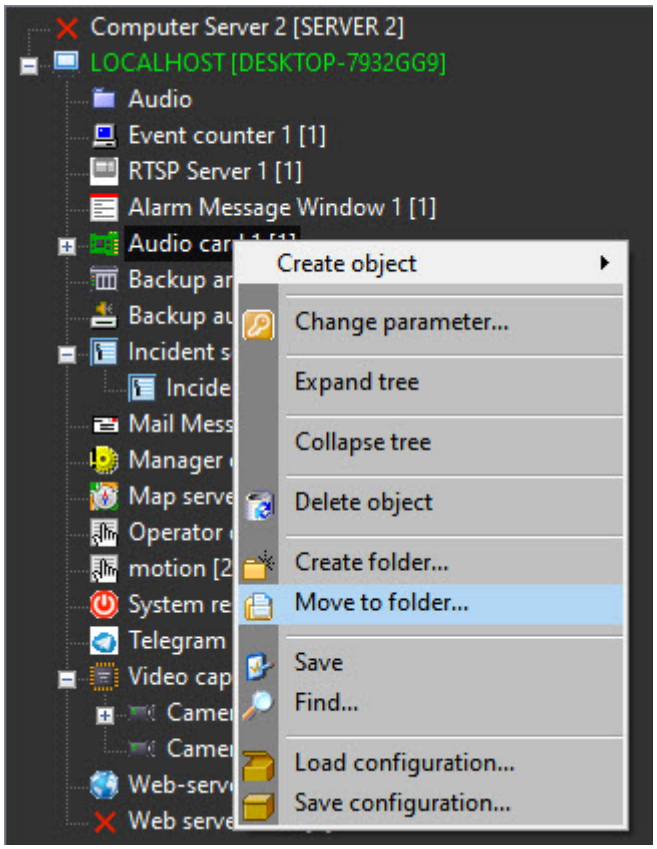
The Move to folder function

This function allows moving system objects to the objects tree folder.

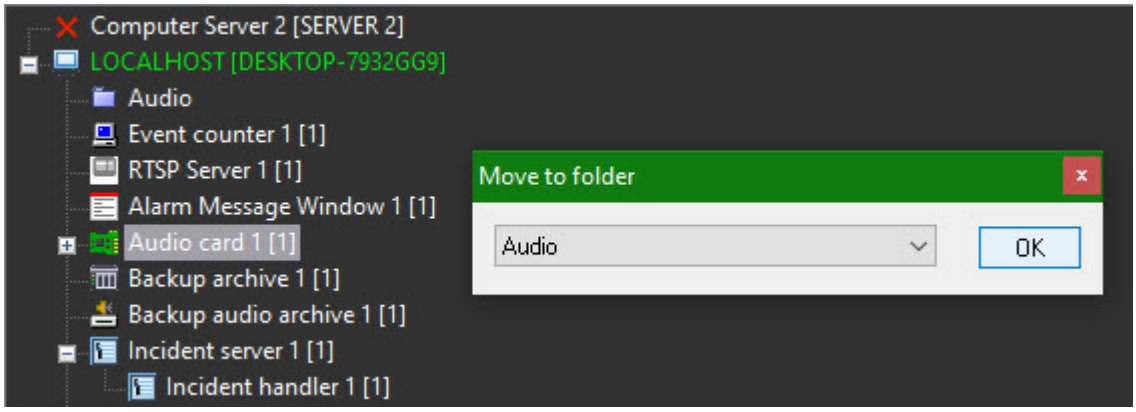
Attention!

When working in a distributed system, objects are grouped into folders individually on each Server/RAW and aren't displayed on other Servers/RAWs. The folders synchronize between Servers/RAWs.
To synchronize the contents of folders on all Servers/RAWs, set up database synchronization.

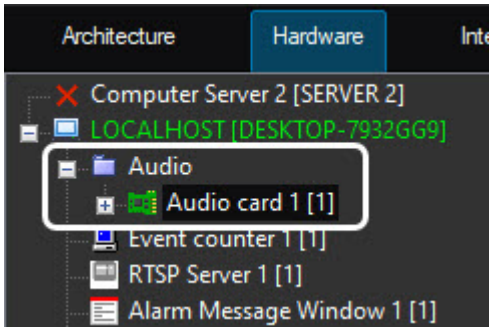
To move objects to the folder, select the object that you want to move, open the context menu and select the **Move to folder** item.



A window will open for selecting a folder, where you want move the selected system object.



To confirm the selected folder, click the **OK** button. The object will be moved to this folder.



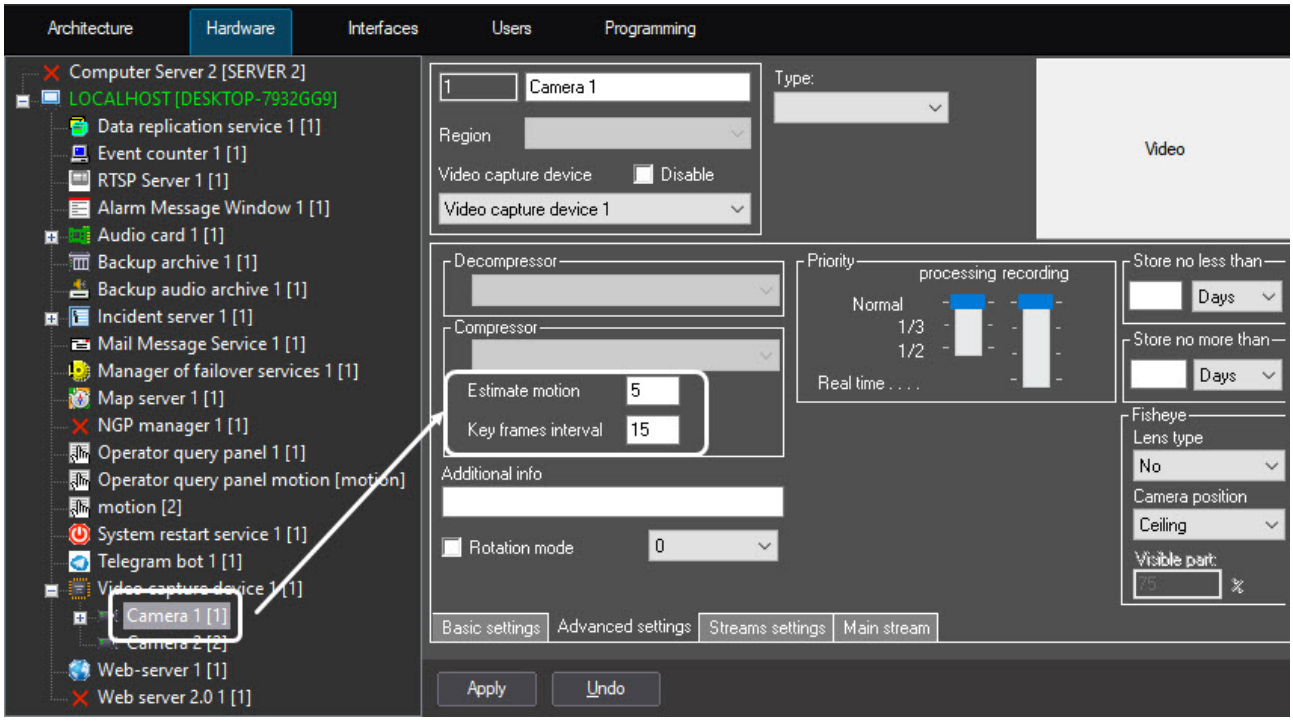
The Save function

Axxon PSIM allows creating objects based on a template. A template is created using the **Save** function accessible in the main function menu.

> **Note**
>
> Objects can also be copied and pasted using the Ctrl+C and Ctrl+V key combinations (see **Copy objects** in Setting procedure for system objects). If you use Ctrl+C and Ctrl+Shift+V, the object will be pasted together with its child objects.
> Once copied, object can be pasted multiple times. The copied object will be stored in the clipboard until *Axxon PSIM* restart, or until the clipboard clipping is replaced with a new copied object.

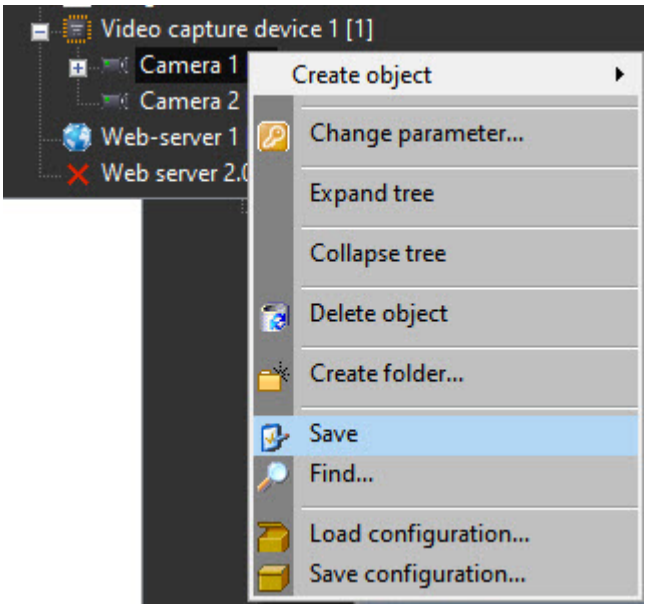
Below you can see how to create the **Camera** object by a template using the **Save** function.

First of all, select an object that has already been created and configured, for example, the **Camera 1** object. The figure displays a settings panel with the highlighted parameters of the **Camera 1** object that were edited (differ from the default settings).



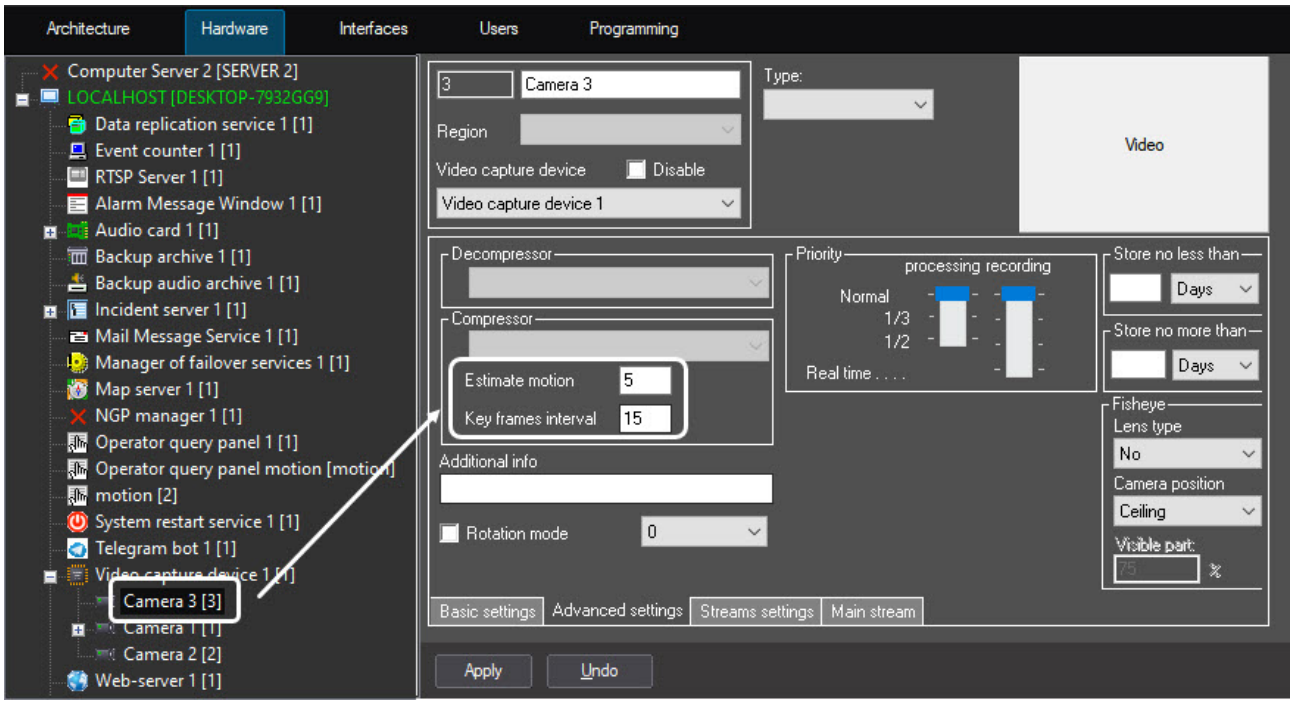
To create a template based on this object, do the following:

1. Open the context menu of the **Camera 1** object.
2. Select the **Save** menu item.



As a result, the template of the **Camera** object with the settings of the **Camera 1** object will be created.

Now it is necessary create the **Camera 3** object based on the **Video Capture Device 1** object (see The Create object function). By default, the newly created **Camera 3** object will have the same settings as the **Camera 1** object.

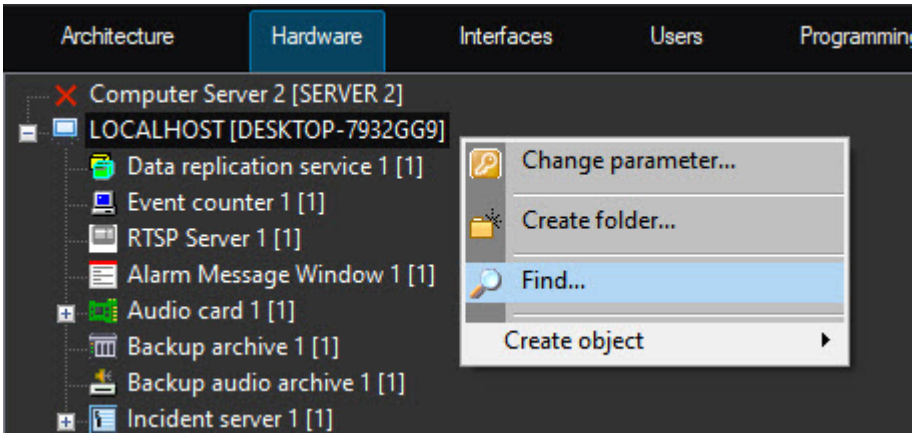


The created object template is preserved until the clipboard is cleared (for example, when you restart *Axxon PSIM*) or replaced with new content. Thus, if you continue to create the **Camera** objects, they will have the settings of the **Camera 1** object as long as the clipboard contains the saved template.

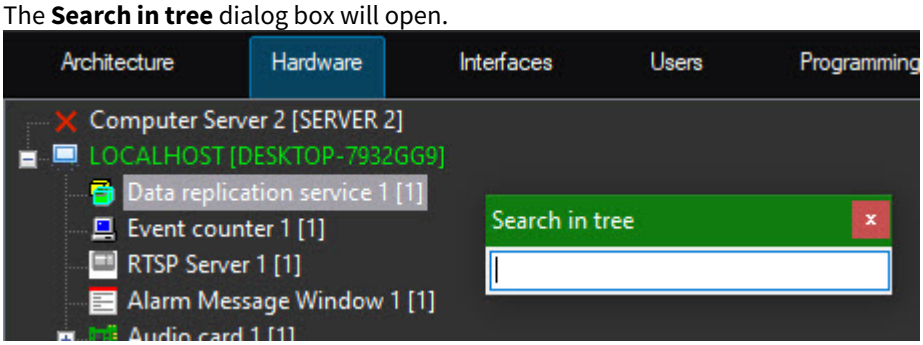
The Find function

The **Find** item of the menu is used to search for an object in the tree. *Axxon PSIM* has two methods of searching for an object:

1. Searching within a tree. This method is used when only an object name (type) is known. To find an object, do the following:
   a. Open the context menu of the objects tree.
   b. Select **Find** in the menu.

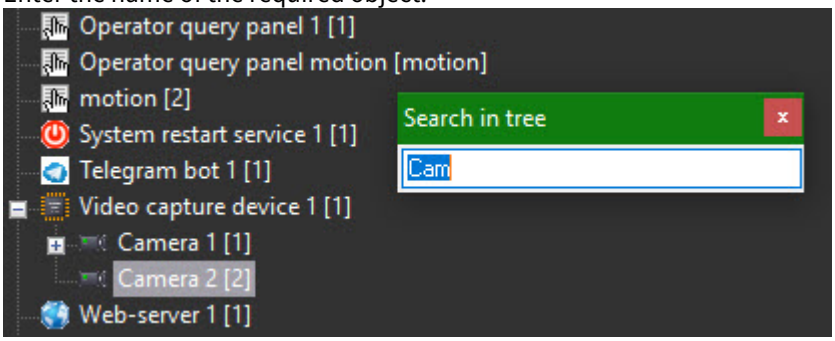


The **Search in tree** dialog box will open.

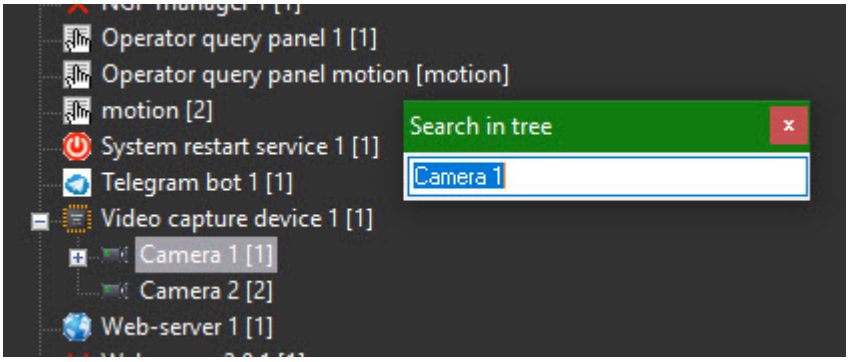


> **Note**
>
> It is also possible to open this window using the Ctrl+F key combination.

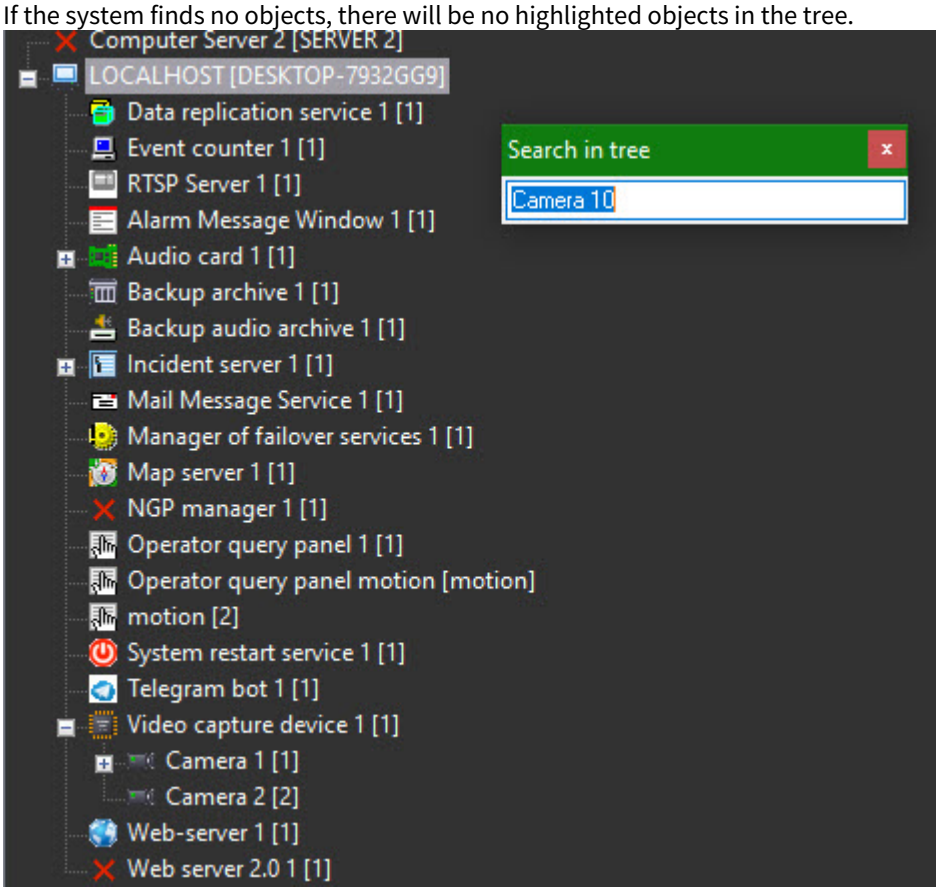
   c. Enter the name of the required object.



   d. Press **Enter** on the keyboard to start searching.
   If the object is found, it will be highlighted grey in the objects tree.



If the system finds no objects, there will be no highlighted objects in the tree.



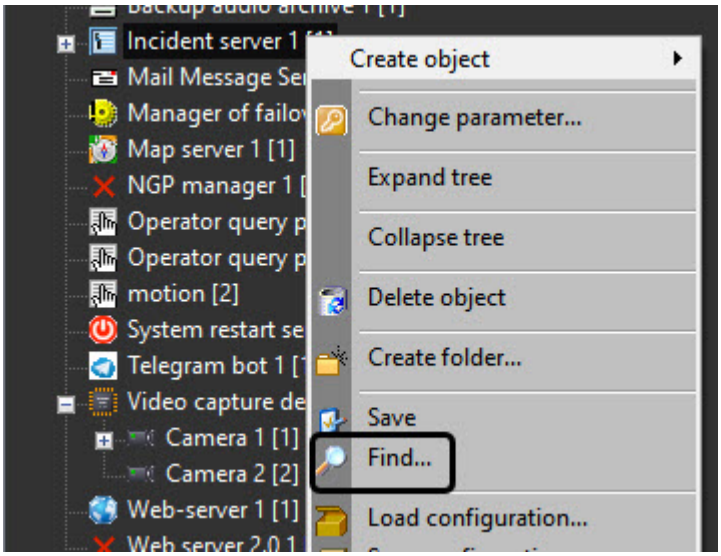
To close the window for entering the object name, when the search is complete, click the left mouse button, hovering over the window field displaying the objects tree.

2. Search from a selected object.
   To find an object, whose location in the objects tree is known approximately, do the following:
   a. Select an object in the tree, below which you want to search.

> **Note**
>
> To search for an object in the tree, it is better to select an object that is a child to the **Computer** object. Otherwise, the search will be performed down the branch of the selected object.

   b. Open the context menu of the objects tree.

c. Select **Find** in the menu.

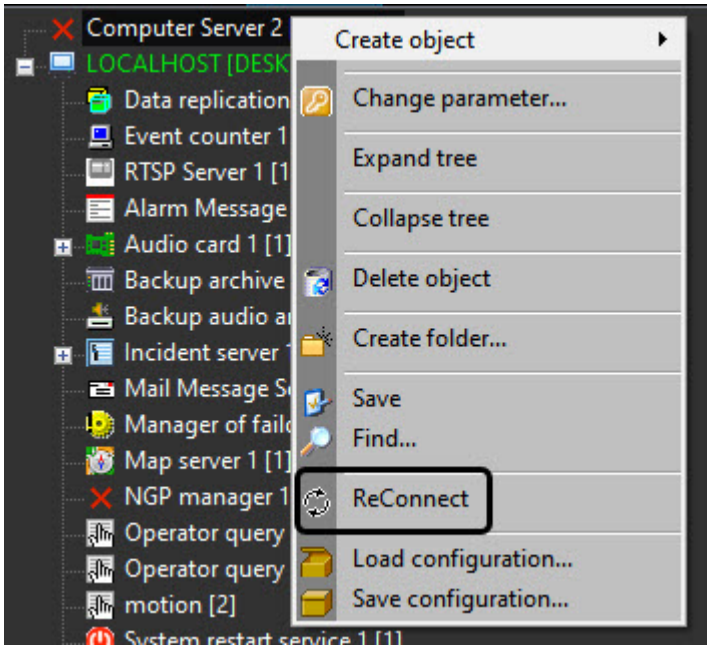


Then perform the search in the order described in the method 1.

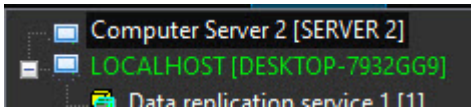
The Reconnect function

This menu item appears if, in addition to the object corresponding to the base computer with the Server/Remote administrator's workstation installation type, there is at least one additional **Computer** object of the same Server/Remote administrator's workstation type, ready to connect to the base computer via the network, but the connection isn't established for some reason.

To establish a connection between two **Computer** objects with the Server/Remote administrator's workstation installation type, open the menu of the additional **Computer** object ready for connection via the network, and select the **Reconnect** item.



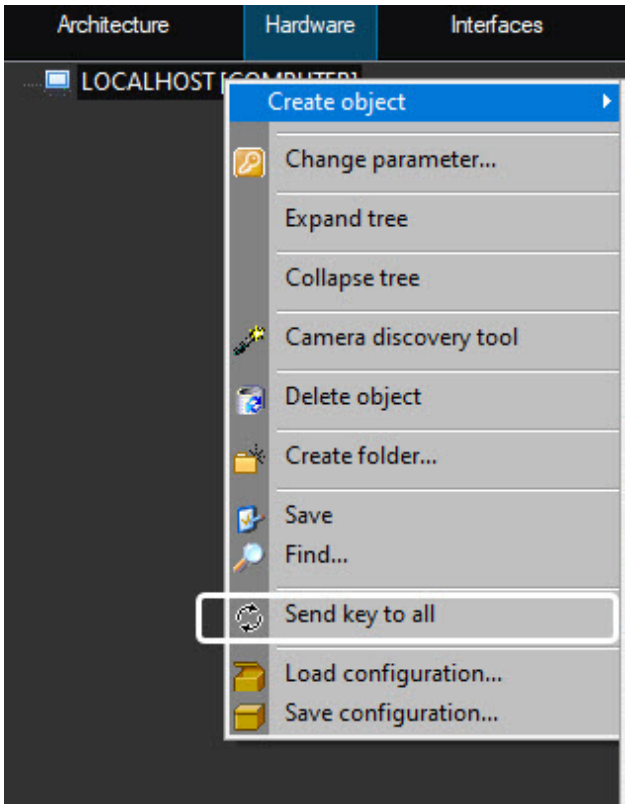
As a result, the objects of the base computer connect to the objects of the remote computer via the network.



The Send key to all function

This function allows you to send the *psim.sec* activation key that regulates the system configuration to all computers that are part of the distributed digital video surveillance and audio control system. If the system functionality was updated and a new activation key was received, you need to update it on all computers that are part of the system, using the **Send key to all** function.

This function is available only from the context menu of the **Computer** object, corresponding to the local computer that performs the administrator functions.



Note

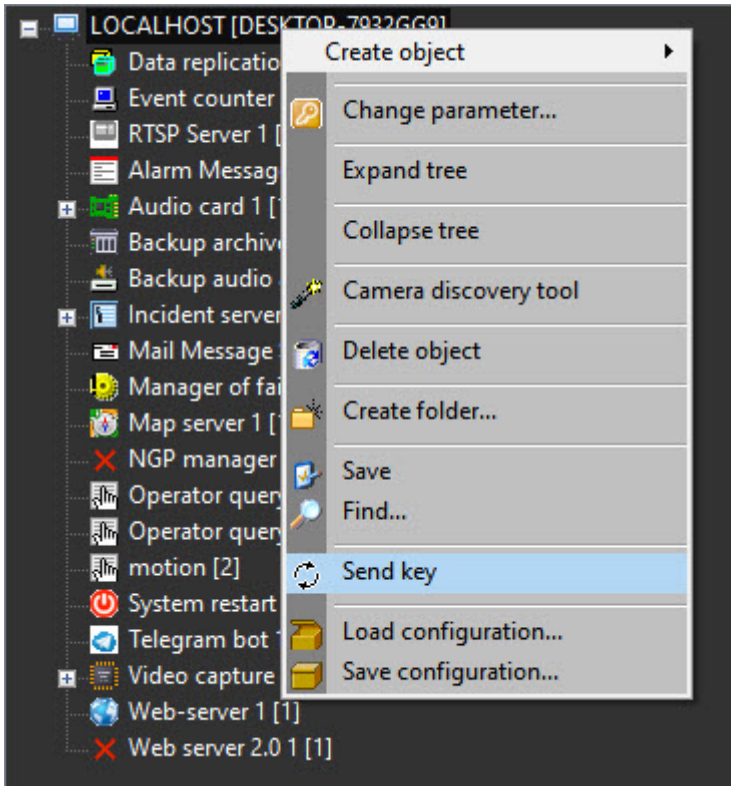
If an updated activation key isn't sent to all computers in the system in time, *Axxon PSIM* won't start after the restart, because when the activation key data is read, there will be discrepancies with the information contained in the database.

If the key is successfully applied on a particular computer in the distributed system, the "Key updated" message will be displayed in the Event Viewer. However, if the key has expired or the number of the objects in the key is less than the number of the objects created in the objects tree on the corresponding computer, then this information won't be displayed in the Event Viewer, but an error will occur the next time *Axxon PSIM* starts. See also Specifics of the Axxon PSIM operation when the object limit is exceeded and What should I do if I'm getting the 'key file expired' error when running?

If the activation key cannot be applied on any computer because of the HID codes mismatch, the message "Key rejected (HID incompliance)" will be displayed in the Event Viewer. See also What should I do if I'm getting the 'Key file is not corresponding cards' error when running?

The Send key function

This function allows you to update the activation key on the remote computer that is a part of the system. The function is available only from the main function menu of the object, such as **Computer**, corresponding to the remote computer.



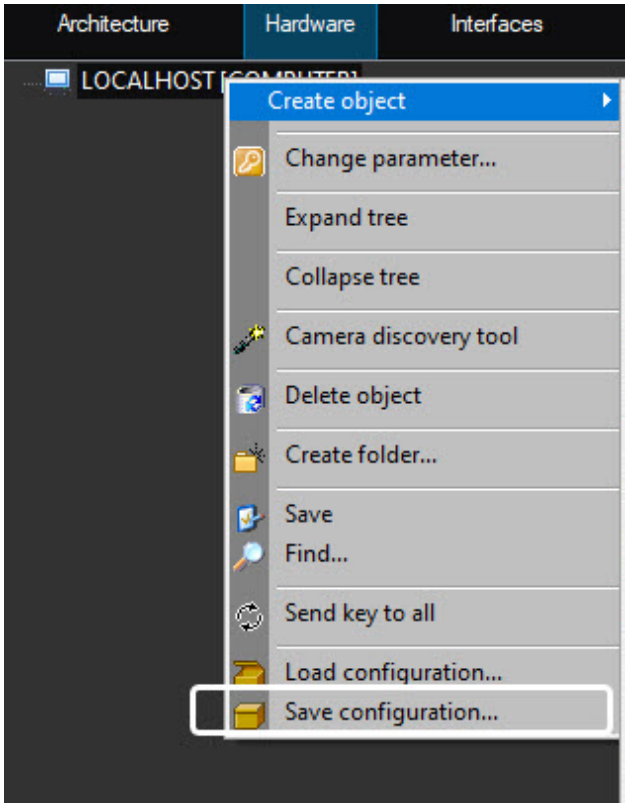
Note

If an updated activation key isn't sent to this computer in time, *Axxon PSIM* won't start after the restart, because when the activation key data is read, there will be discrepancies with the information contained in the database.

The Send key to all function

The Save configuration function

The **Save configuration** function allows you to save the current configuration parameters of an object to a file with the .cfg extension, so that these parameters can be used to configure other objects or to restore the configuration parameters of the current object after unexpected loss (for example, if an object is accidentally deleted).

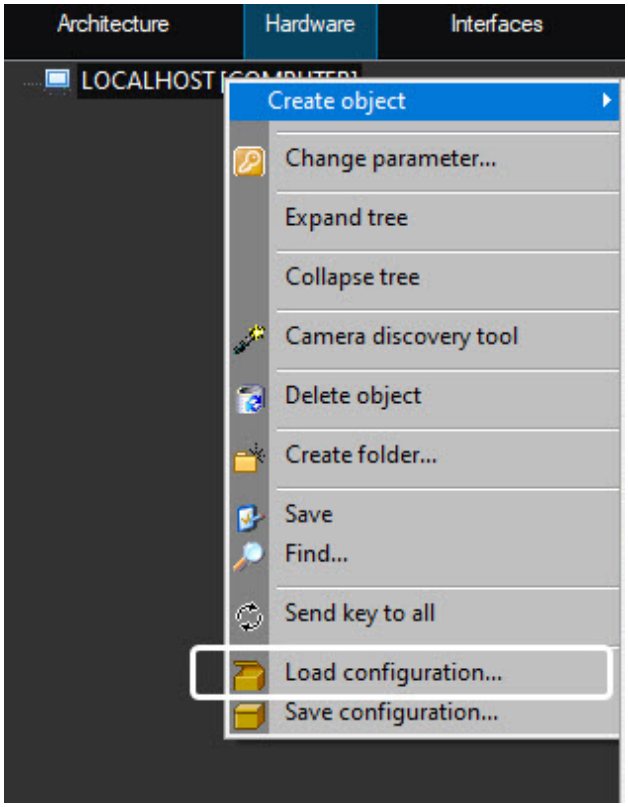


After you select the **Save configuration** menu item, the standard Windows dialog box appears, in which you can specify the name of the configuration file and where you want to save it. By default, the file name includes the name of the object type and its number, for example **CAM.1.cfg** or **GRABBER.3.cfg**.

The saved configuration can be applied to any object of the same type that was used to create the configuration file. To do so, use the **Load configuration** function (see The Load configuration function).

The Load configuration function

The **Load configuration** function allows you to load the configuration parameters from a file with the .cfg extension that was created using the **Save configuration** function (see Save configuration function). The configuration parameters can be applied only to the objects of the same type as an object used to create the configuration file.

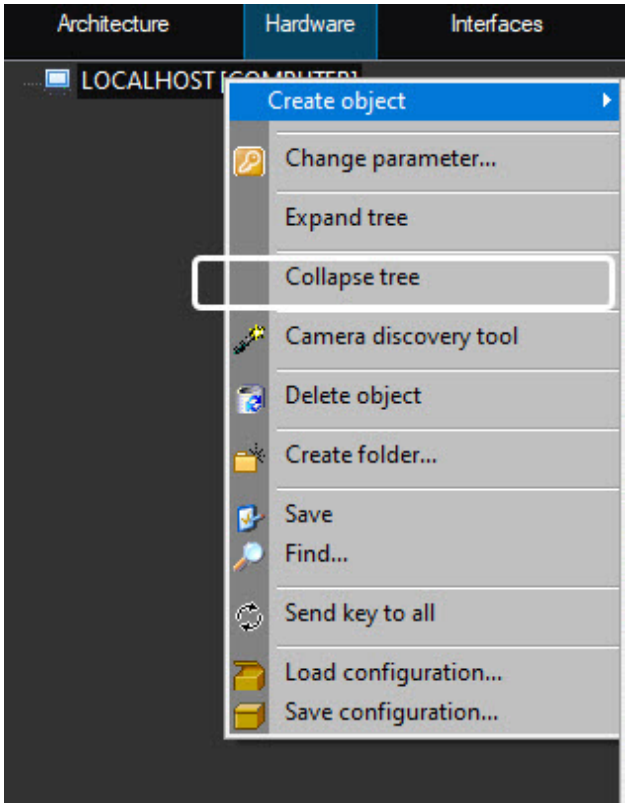


After you select the **Load configuration** menu item, a standard Windows dialog box appears, in which you can specify the necessary configuration file.

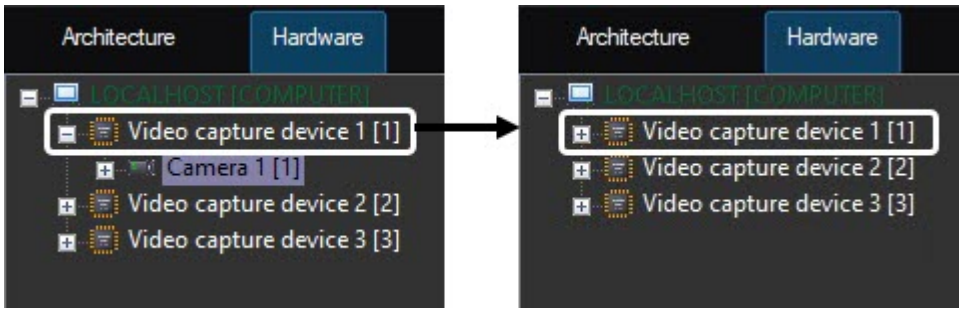
> **Note**
>
> Some configuration parameters that are unique for the objects of the given type may not be applied when the configuration is loaded.
> For example, the **PCI channel** parameter of the **Video Capture Device** object won't be changed according to the configuration file if there is already a **Video Capture Device** object in the objects tree that has the same **PCI channel** parameter value. For more information on allocation of the PCI channels between the **Video Capture Device** objects, see Creating and configuring the Video Capture Device object in the Installing and configuring security system components guide.

The Collapse tree function

The **Collapse tree** function allows you to collapse the objects tree (see Objects tree).



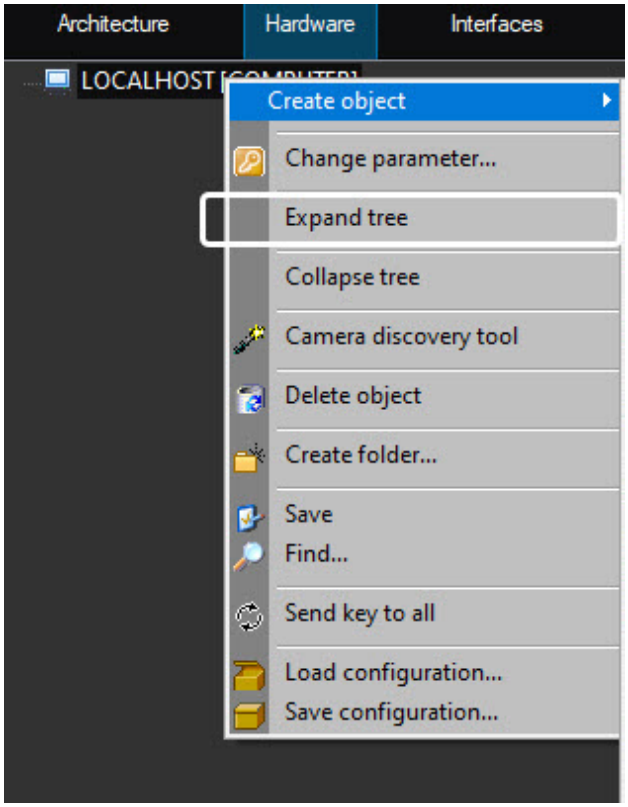
When you use this function, only the branch of the tree under the object from the function menu of which the function was called will collapse.



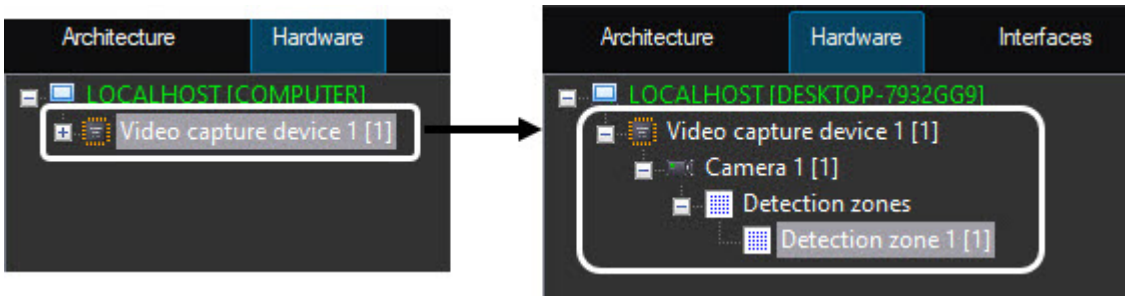
To collapse all branches of the objects tree, select the **Collapse tree** menu item holding down the Shift key.

The Expand tree function

The **Expand tree** function allows you to expand the branches of the objects tree (see Objects tree).



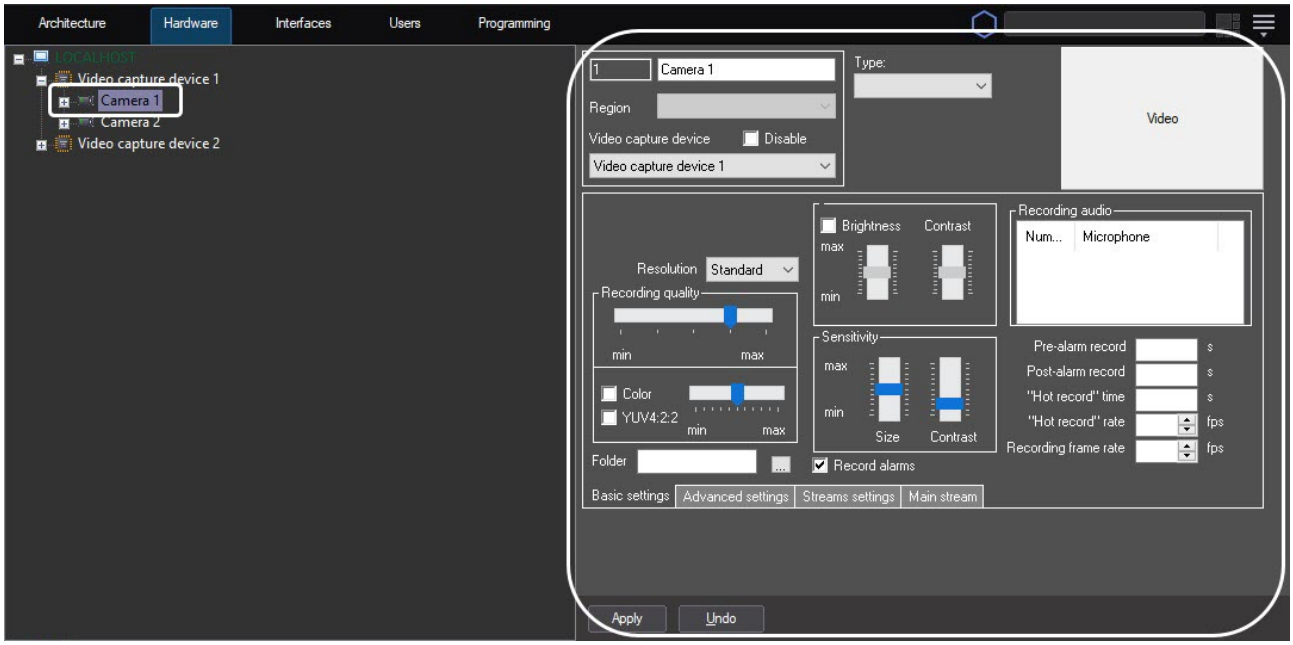
When you use this function, only the branch of the tree under the object from the function menu of which the function was called will expand.



To expand all branches of the objects tree, select the **Expand tree** menu item holding down the Shift key.

The object settings panel

The settings panel of the system object is located on the right side of the **System settings** dialog box and is used to activate and configure the object selected in the tree.



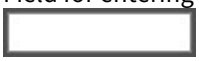
Depending on the type of the selected object, the settings panel of this object displays the necessary fields for entering the parameter values—the elements of the settings panel.

The elements of the settings panel are described below:

1. Field for entering a numerical value of the parameter



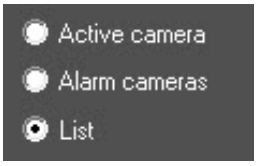
2. Field for entering a string value of the parameter



3. Checkbox



4. Radio button



5. Slider



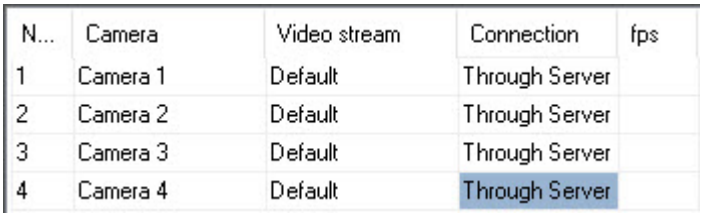
6. Drop-down list



7. Information table



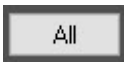
8. Table



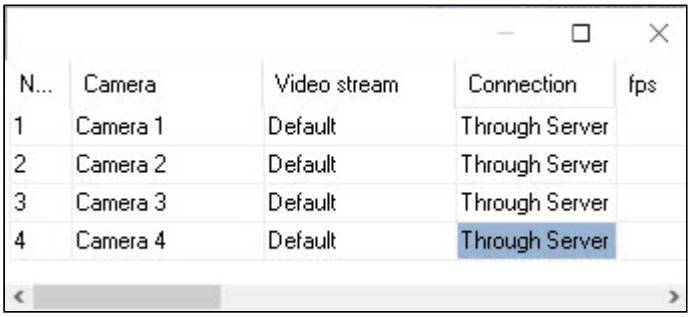
9. Information field



10. Button



11. Extended information table



12. Video thumbnail button / preview area



Element name	Options for using the element
Field for entering a numerical value of the parameter	Enter a numerical value of the parameter: place the mouse cursor in the field, click the left mouse button and enter the required number from the keyboard
Field for entering a string value of the parameter	Enter a string value of the parameter: place the mouse cursor in the field and enter the required number from the keyboard
Checkbox	Set/clear the checkbox. Set the checkbox in the field and clear the field by clicking it with the left mouse button
Radio button	Set the radio button to the required position: click the required field with the left mouse button. Other fields get cleared automatically
Slider	Set the slider to the required position: drag the slider cursor along the scale with the mouse
Drop-down list	Select an item from the drop-down list. The list opens when you click the **down arrow** button located on the right side of the element and looking like a triangle. To select from the list, click the required item with the left mouse button
Information table	This table has automatically filled fields. Working with the table means activating the lines (columns) using the checkbox on the left side of the table. Text fields cannot be edited. The number of lines cannot be edited. *Note. The table for selecting the hard disk for the archive storage is an exception. You can add new lines to this table when configuring recording to network disks.* When you right-click any area of the information table, a separate extended window with this information table opens (see item 11 above). This window is intended to improve the process of working with small tables. In order to set all checkboxes in the column of the information table, select a cell in this column and press Ctrl+A. In order to clear all checkboxes in the column, select a cell and press Shift +A

Element name	Options for using the element
Table	To enter data, do the following: 1. Place the cursor in the table cell 2. Enter/select the required values in the fields/from the list in the column lines of the table. As you move to the next cell, the entered parameter values are saved in the table 3. To add new lines to the table, select any field of the filled line and press the down arrow button on the keyboard 4. To delete a line from the table, press the Ctrl+Delete key combination
Information field	The field displays information messages. It cannot be edited
Button	It starts the function corresponding to this button. To click the button with the mouse, hover the mouse cursor over the button and click the left mouse button
Extended information table	See Information table
Video thumbnail button	After you click the button, the preview area will be displayed in its place: a thumbnail of the video image corresponding to the customizable object. If you press Shift on the keyboard and right-click on the thumbnail, an enlarged window with a video image will open

The Apply and Undo buttons

The **Apply** and **Undo** buttons are located at the bottom of the **System settings** dialog box and are used to confirm or cancel the entered parameter values of the object settings.



The **Apply** button is used to save the set object identification and setting parameters. The **Undo** button is used to return to the previous values of the object identification and setting parameters.

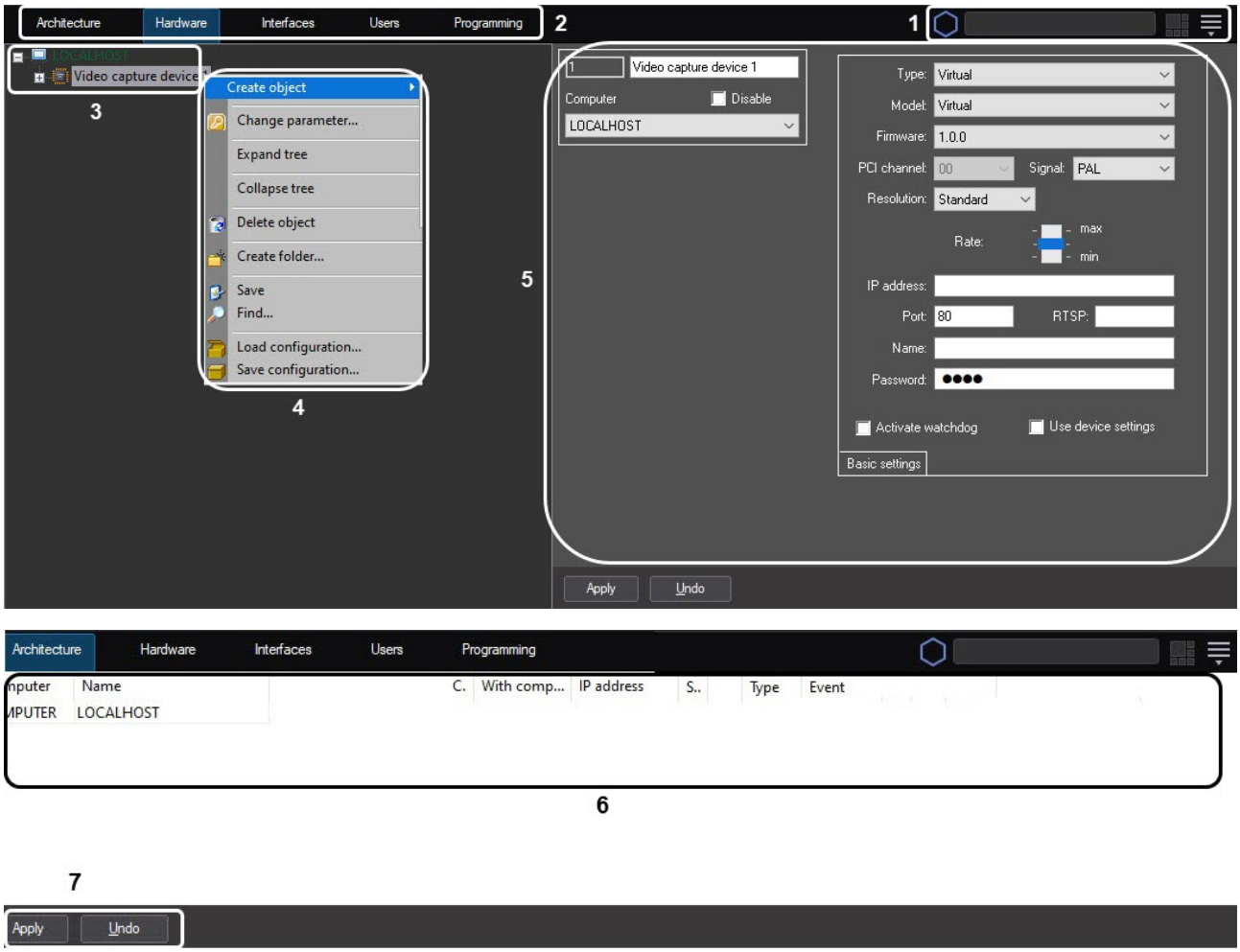
> **Note**
>
> After you click the **Apply** button, you cannot cancel the actions with the **Undo** button.

The elements of the System settings dialog box

The interface of the **System settings** dialog box consists of the following elements:

1. Main control panel.
2. Tabs panel.

3. Objects tree.
4. Context menu.
5. Objects settings panel.
6. Connection settings table.
7. The **Apply** and **Undo** buttons.



The **System settings** dialog box contains the following tabs:

1. **Architecture**.
2. **Hardware**.
3. **Interfaces**.
4. **Users**.
5. **Programming**.

These tabs are used while creating and configuring the digital video surveillance and audio control system.

The Architecture tab

The **Architecture** tab allows you to create a distributed video surveillance and audio control system and is used to configure connection parameters and data exchange between the system components.

The connection settings table can be accessed from the **Architecture** tab. This table is used to configure the connection between computers in the distributed system and distribute the information about the events registered in the system. The connection settings table is shown in the figure.

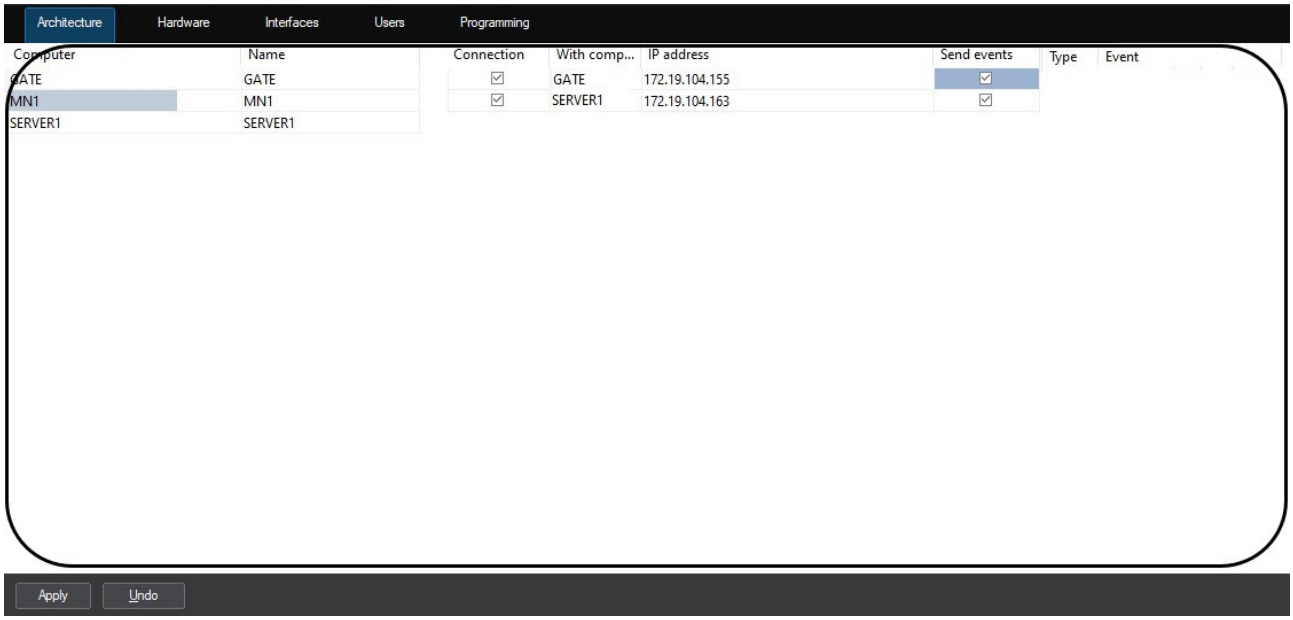


Table describes the elements of the connection settings table.

№	Column	Description	Value
1	**Computer**	Network name of the computer	Determined by OS
2	**Name**	Computer name in the system	Set in the **Hardware** tab
3	**Connection**	Checkbox	If the checkbox is set—the computer is connected If the checkbox is clear—connection wasn't established
4	**With computer**	List of names of the network computers	Determined by OS

№	Column	Description	Value
5	**IP address**	IP address of the computer in the local network (if connected via the internet, then public IP address)	Determined by OS or assigned manually. When the IP address of the server/remote administrator's workstation is edited, the IP address for the current server/remote administrator's workstation only is changed. For other servers/remote administrator workstations, the IP addresses must be changed individually. If the entered address is already assigned to a computer in the system, the address is assigned to the computer being configured, and the corresponding warning message is displayed. The address of the computer that previously had this address is reset
6	**Send events**	Checkbox	If the checkbox is set—there is a permission to send events to the computer it is connected to If the checkbox is clear—there is no permission to send events
7	**Type**	List of the system objects, from which the events are transmitted to the selected computers	Determined by the list of the registered objects
8	**Event**	Checkbox in the list next to each item in the event list, corresponding to the device selected in the **Type** column	If the checkbox is set—this event is transmitted If the checkbox is clear—this event isn't transmitted

Note

To enter the IP address of the computer of a distributed system, enter the "?" character in the **IP address** column while holding down the Shift key. After this, you must restart *Axxon PSIM*.

The Hardware tab

The **Hardware** tab is used to create and configure the system objects corresponding to different types of hardware, used as components of the video surveillance and audio control system being created.

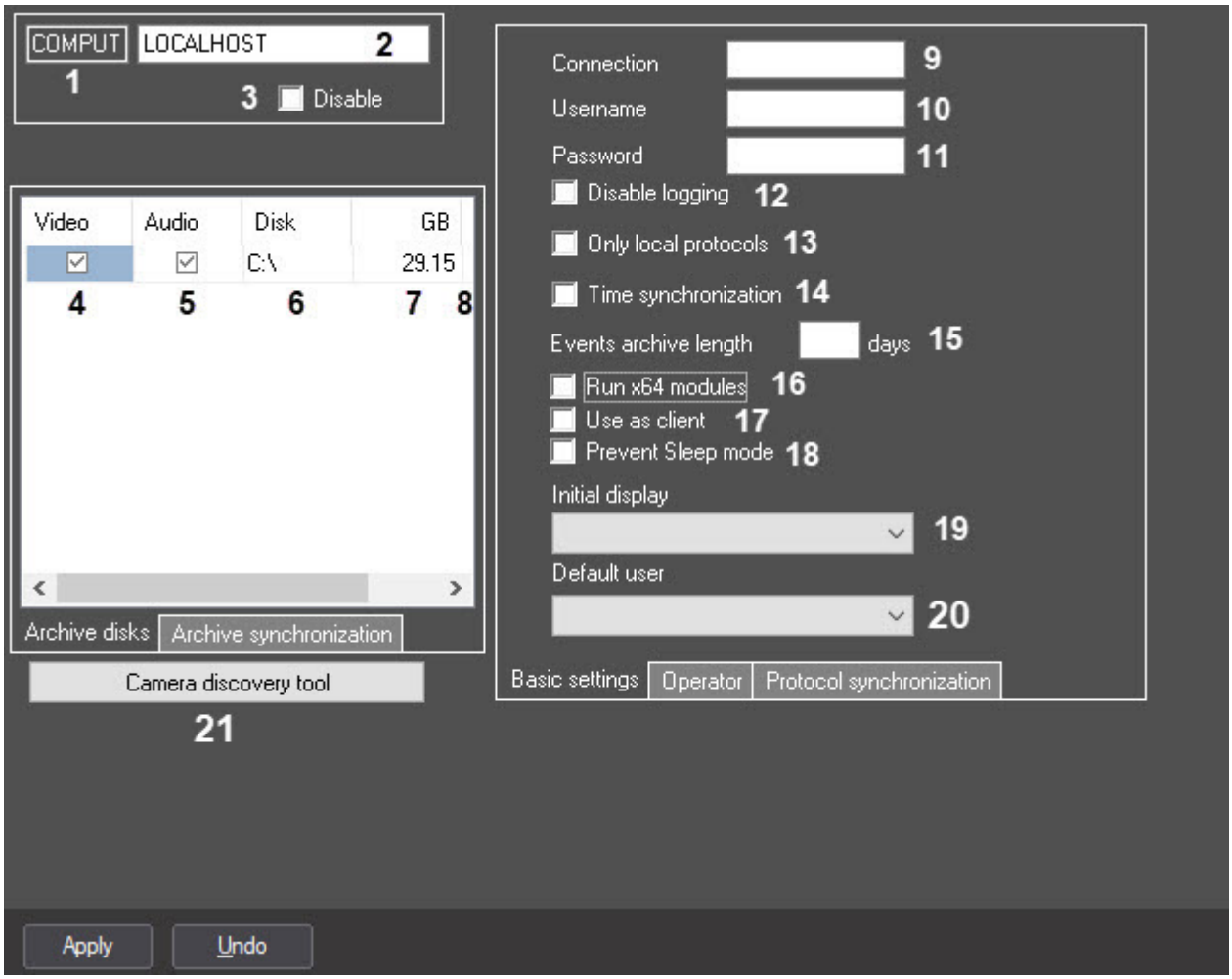
The Hardware tab components

The **Hardware** tab displays the tree of the system objects belonging to the **Hardware** group and the settings panel of the object selected in the tree. The settings panels of each object used in the video surveillance and audio control system are described in the following sections.

The settings panel of the Computer object

The appearance of the settings panel of the **Computer** system object is shown in the figures. The description of the settings of the **Computer** system object is given in the table.

The **Archive disks** and **Basic settings** tabs



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the computer name in the local network	Digits, letters, periods, hyphen, dash, underscore, and any characters	Depends on the number of the **Computer** objects registered in the system	A line containing digits, letters, periods, hyphen, dash, underscores, and any characters. Number of characters—from 1 to 15
2	The Name* field	Enter the value in the field	Sets the name of the **Computer** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Computer	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Computer** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Computer** object is disabled and isn't used **Clear**—the **Computer** object is enabled and used
The **Archive disks** tab						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Video** checkbox	Set the checkbox	Sets the disk for storing the video archive from cameras and also audio archive during synchronous audio and video recording	Boolean type	Clear	**Set**—the disk is used for storing the video archive **Clear**—the disk isn't used for storing the video archive
5	The **Audio** checkbox	Set the checkbox	Sets the disk for storing the audio archive from microphones	Boolean type	Clear	**Set**—the disk is used for storing the audio archive from microphones **Clear**—the disk isn't used for storing the audio archive from microphones
6	The **Disk** column	Automatically, enter the value in the field	Displays the names of the local disks available for storing the video and audio archives and also used to enter the names of the network disks used for archive storage	Names of the local disks (Latin alphabet), names of the network disks (UNC paths)	NA	Depends on the total number of the local and network disks
7	The **GB** column	Automatically	Displays the amount of free space on each available disk	Disk space in GB	NA	Depends on the total free disk space

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The **Recording** column	Automatically	Displays the current disk for the archive recording	Boolean type	NA	**Set**—the archive is currently recorded on the specified disk **Clear**—the archive isn't currently recorded on the specified disk
The **Basic settings** tab						
9	The **Connection** field	Enter the value in the field	Sets the name of the modem connection used in Windows	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters). Number of characters from 1 to 30
10	The **Username** field	Enter the value in the field	Sets the login of the modem connection used in Windows	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-sensitive. Number of characters from 1 to 30

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **Password** field	Enter the value in the field	Sets the password of the modem connection used in Windows	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-sensitive. Number of characters from 1 to 30
12	The **Disable logging** checkbox	Set the checkbox	Disables the event logging to the event viewer database on the local computer	Boolean type	Clear	**Set**—events aren't logged into the event viewer database **Clear**—events are logged into the event viewer database
13	The **Only local protocols** checkbox	Set the checkbox	Enables logging to the events viewer database only the information about the events registered on this computer	Boolean type	Clear	**Set**—only the events registered on this computer are logged into the event viewer database **Clear**—all required events are logged into the event viewer database

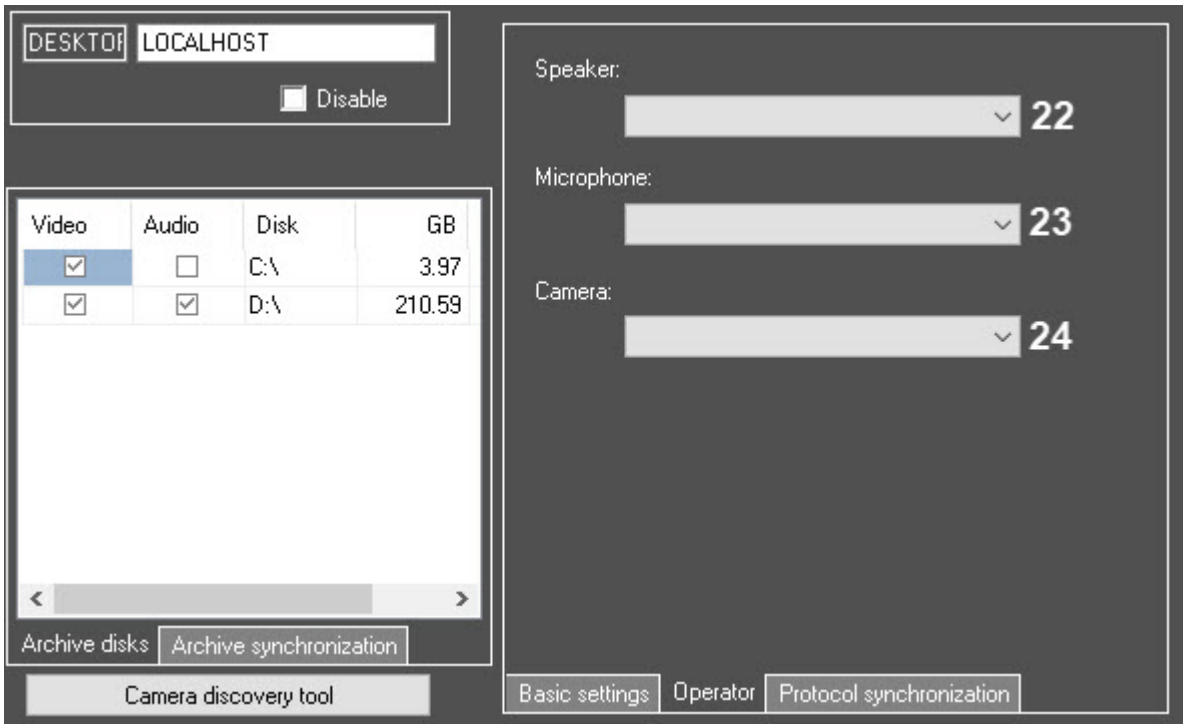
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
14	The **Time synchronization** checkbox	Set the checkbox	Sets the time synchronization of all computers in the distributed system with the system time of this computer. Time is automatically synchronized at midnight every 24 hours or when *Axxon PSIM* is started on the server that is the source of the time synchronization	Boolean type	Clear	**Set**—time is synchronized **Clear**—time isn't synchronized
15	The **Events archive length** field	Enter the value in the field	Sets simultaneously the event storage period for: • events registered in the system on the local computer (Protocol table in the *PSIM* database or in a separate database); • Incident server events (PROTOCOL_INC_SERVER table in the *PSIM* database)	Days	NA	More than 1

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
16	The **Run x64 modules** checkbox	Set the checkbox	Sets the way to run the 64-bits modules	Boolean type	Up to 4.10.2 —**Clear**, starting from 4.10.3 —**Set**	**Set**—when you attempt to run a module, the 64-bit module variant runs. If such variant isn't found, the 32-bits module runs **Clear**—64-bits modules don't run
17	The **Use as client** checkbox	Set the checkbox	Indicates that the computer is a client in the distributed video surveillance system	Boolean type	Clear	**Set**—computer is used as a client **Clear**—computer is used as a server or a RAW
18	The **Prevent Sleep mode** checkbox	Set the checkbox	If you set the checkbox, then if Axxon PSIM is running, the Windows OS sleep mode settings are blocked and the computer doesn’t switch to the sleep mode	Boolean type	Set	**Set**—computer doesn’t switch to the sleep mode **Clear**—computer switches to the sleep mode
19	The **Initial display** drop-down list	Select a value from the list	Sets the default display to be displayed after starting *Axxon PSIM*. If you don't select the display, the last active display is displayed after *Axxon PSIM* starts	Names of the display objects registered in the system	NA	Depends on the number of the display objects registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
20	The **Default user** drop-down list	Select a value from the list	Sets the default user, that is, the user with the rights to start *Axxon PSIM* without a password	Names of the users registered in the system	NA	The list of users registered in *Axxon PSIM*
21	The **Camera discovery tool** button	Click the button	Access to create, configure, and edit IP devices	NA	NA	The **Camera discovery tool** window that opens displays all available settings. For more details, see Camera discovery tool

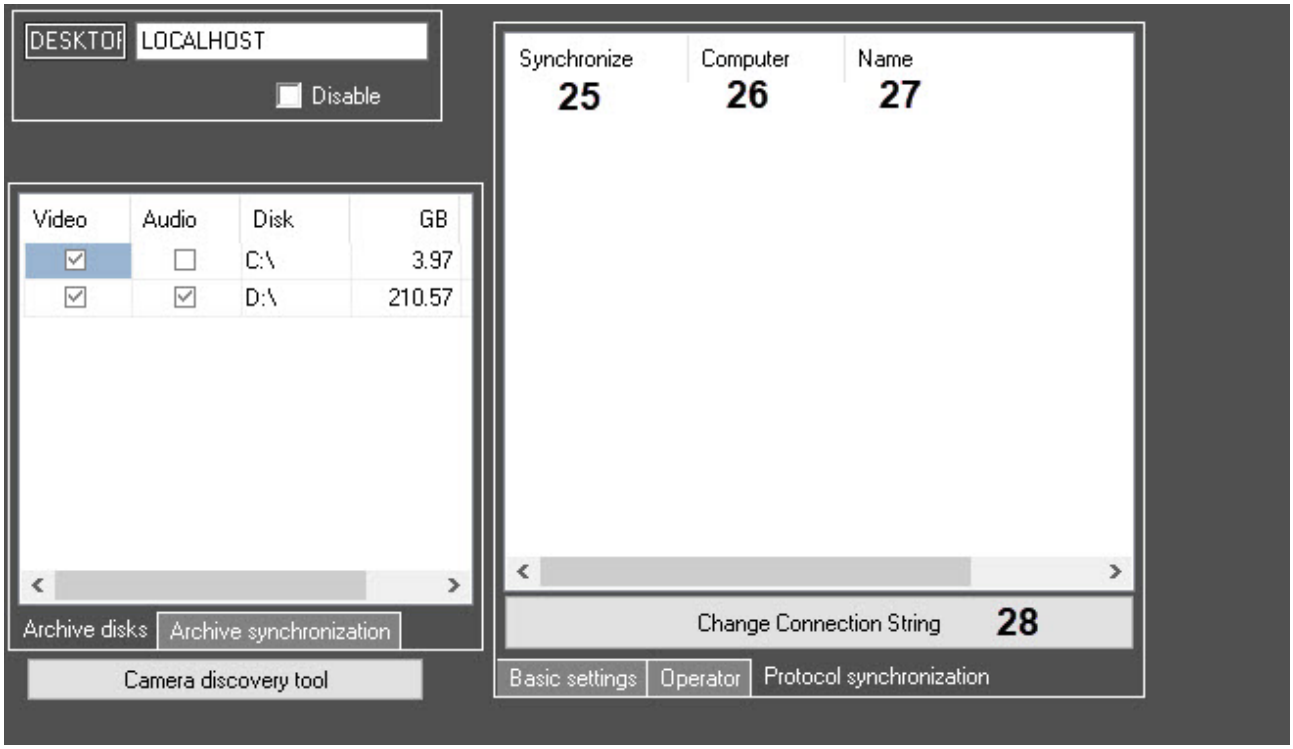
*Name of the element isn't displayed in the settings panel of the given object

The **Operator** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
22	The **Speaker** drop-down list	Select a value from the list	Selects the speaker that must be used for the audio signal playback (it is used when organizing a video surveillance system using SIP-devices, see Configuring SIP-terminal)	Names of the **Speaker** objects registered in the system	NA	Depends on the number of the **Speaker** objects registered in the system
23	The **Microphone** drop-down list	Select a value from the list	Selects the microphone that must be used for the audio signal transmission (it is used when organizing a video surveillance system using SIP-devices, see Configuring SIP-terminal)	Names of the **Microphone** objects registered in the system	NA	Depends on the number of the **Microphone** objects registered in the system
24	The **Camera** drop-down list	Select a value from the list	Selects the camera that must be used for the video signal transmission (it is used when organizing a video surveillance system using SIP-devices, see Configuring SIP-terminal)	Names of the **Camera** objects registered in the system	NA	Depends on the number of the **Camera** objects registered in the system

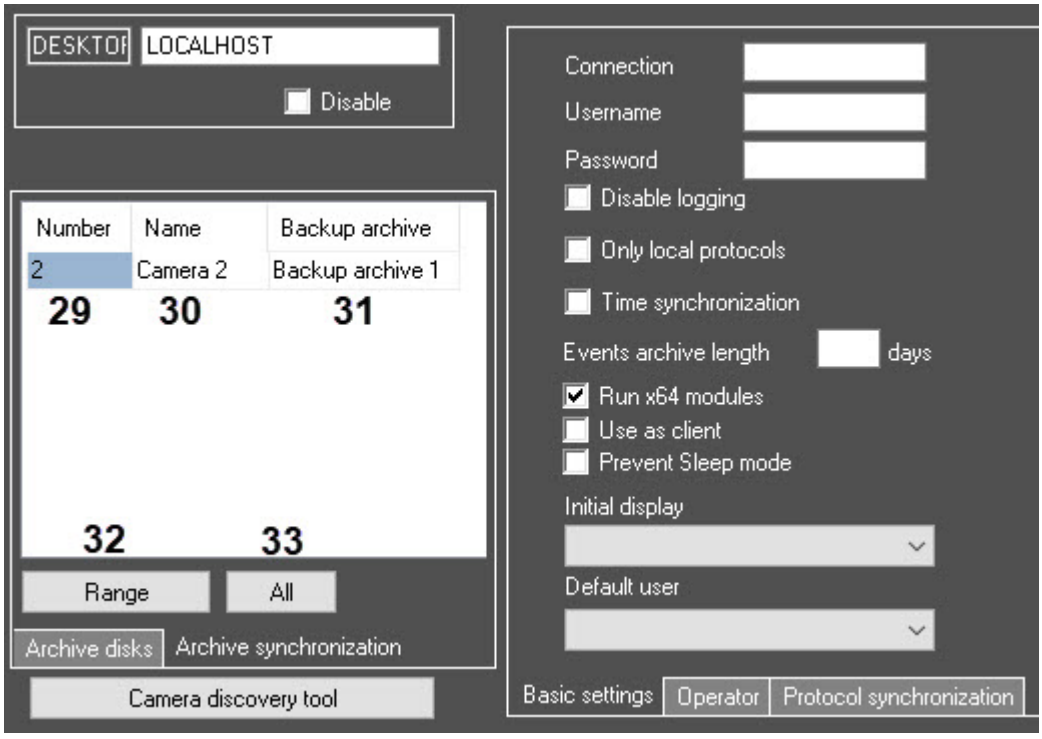
The **Protocol synchronization** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
25	The **Synchronize** checkbox	Set the checkbox	Activates the synchronization of the event viewer databases between the local and remote computers	Boolean type	Clear	**Set**—event viewer databases of the local and remote computers are synchronized **Clear**—event viewer databases of the local and remote computers aren't synchronized
26	The **Computer** field	Automatically	Displays the network name of the remote computer with which you must synchronize the event viewer database	Latin alphabet and service characters	NA	Depends on the number of the **Computer** objects registered in the system

27	The **Name** field	Automatically	Displays the name of the remote computer in the network	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60
28	The **Change Connection String** button	Click the button	Enables the options of configuring and editing the connection parameters to the remote computer event viewer database	NA	NA	NA

The **Archive synchronization** tab

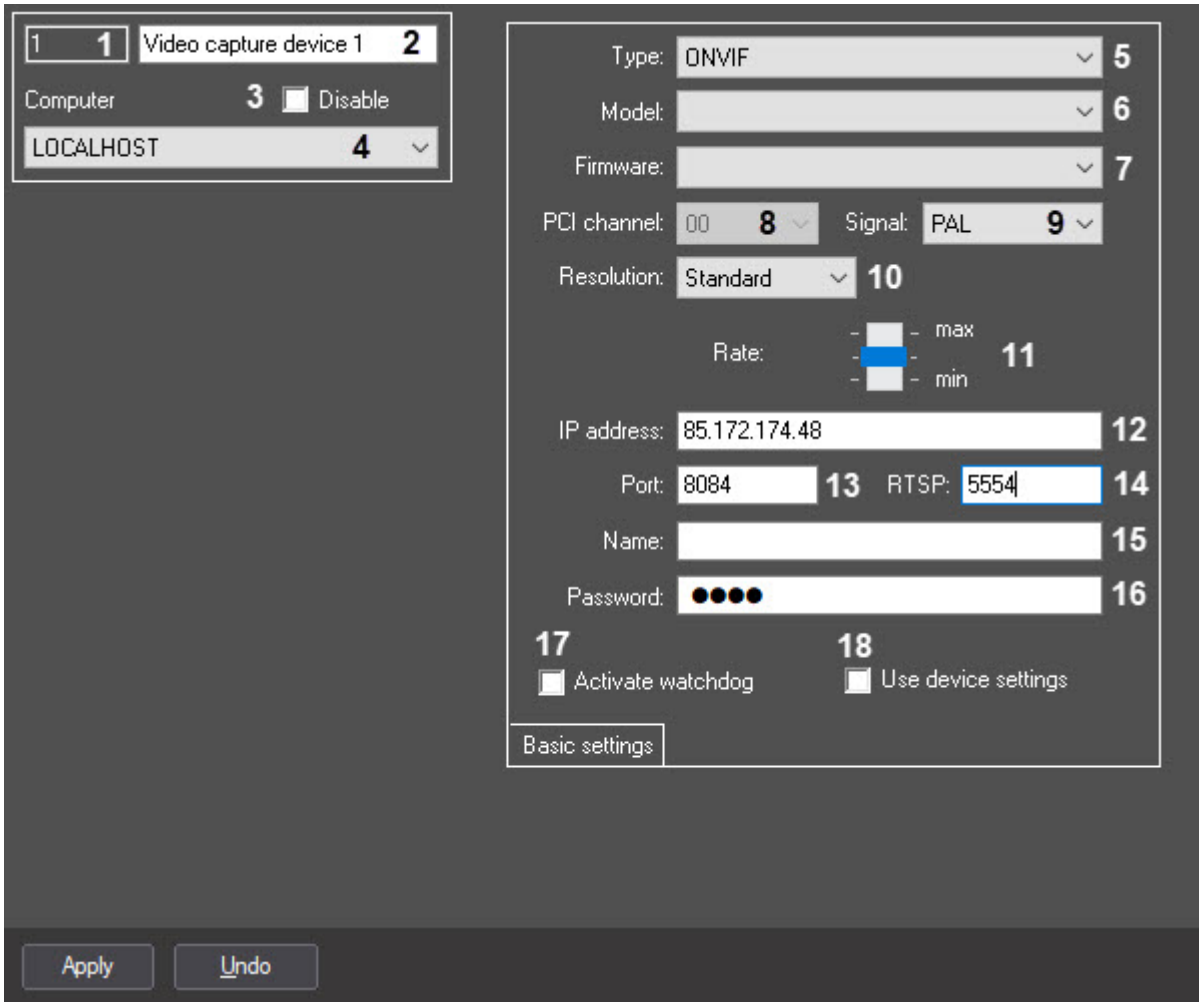


№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

29	The **Number** drop-down list	Select a value from the list	Sets the ID of the camera, the archive of which must be synchronized when you restore the main server (see also Configuring archive synchronization of main and backup Servers)	Names of the **Camera** IDs created in the objects tree of the main server	NA	Depends on the number of the **Camera** objects registered in the system
30	The **Name** drop-down list	Select a value from the list	Sets the name of the camera, the archive of which must be synchronized when you restore the main server (see also Configuring archive synchronization of main and backup Servers)	Names of the **Camera** objects created in the objects tree of the main server	NA	Depends on the number of the **Camera** objects registered in the system
31	The **Backup archive** drop-down list	Select a value from the list	Sets the **Backup archive** object configured to cooperate with the failover service and used to synchronize the archives of the main and backup servers (see also Configuring archive synchronization of main and backup Servers)	Names of the **Backup archive** objects registered in the system	NA	Depends on the number of the **Backup archive** objects registered in the system
32	The **Range** button	Click the button	Opens a dialog window for bulk cameras adding and editing	NA	NA	NA
33	The **All** button	Click the button	Adds all available cameras to the table	NA	NA	NA

The settings panel of the Video capture device object

The settings panel of the **Video capture device** system object is shown in the figure.



The table describes the setting parameters of the **Video capture device** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Video capture device** system object	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **Video capture device** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Video capture device** object	Latin alphabet, Cyrillic, digits and service characters	Video capture device	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Video capture device** object	Boolean type	Clear	**Set**—the **Video capture device** object is disabled and isn't used **Clear**—the **Video capture device** object is enabled and used
4	The **Computer** drop-down list	Select a value from the list	Sets the **Computer** parent object for the given **Video capture device** object	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system
The **Basic settings** group						
5	The **Type** drop-down list	Select a value from the list	Sets the type of the video capture board or the manufacturer of the IP device	Names of the types of the video capture boards and the manufacturers of the IP devices	NA	• Video capture boards (FS-3, FS-5, FS-6, FS-8, WS–4, WS-7/17, and so on); • Network video hubs (WaveHub); • Network devices (Axis, Panasonic, and others); • Virtual, Virtual bench

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Model** drop-down list	Select a value from the list	Sets the model of the IP device	Names of the models of the IP devices	NA	Integrated models of the IP devices of the selected manufacturer
7	The **Firmware** drop-down list	Select a value from the list	Sets the firmware of the IP device	Numbers of the integrated firmwares of the IP device	NA	Integrated firmware of the selected IP device
8	The **PCI channel** drop-down list	Select a value from the list	Sets the number of the **PCI channel** of the ADC video capture board	List of connected channels for video capture	NA	From 0 to 31, depending on the number of the **PCI channels** on the server and on the number of the installed ADCs
9	The **Signal** drop-down list	Select a value from the list	Sets the format of the incoming video signal	List of video signal formats	PAL	**PAL, NTSC**
10	The **Resolution** drop-down list	Select a value from the list	Sets the resolution of the video frame	List of video frame resolutions	Standard	• **Standard**; • **High**; • **Full**. Specific values depend on the camera model

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **Rate** slider	Set in the position	Sets the frame rate of the video stream	Permissible changes of the total frame rate of the video signal transmission	Average	Depends on the capabilities of the IP camera or video capture board. For boards with software compression: • **Max**—maximum permissible total frame rate of the video signals; • **Average**—half of the maximum permissible total frame rate of the video signals; • **Min**—one-third of the maximum permissible total frame rate of the video signals
12	The **IP address** field	Enter the value in the field	Sets the IP address of the network device	IP address	NA	A line presented as xxx.xxx.xxx.xxx contains the values from 0.0.0.0 to 255.255.255.255 and depends on the network settings of the IP devices registered in the system. When you get live video from the ECHD server, specify the following line in the field <ECHD server address>:<GUID cameras in the system>:<external account>
13	The **Port** field	Enter the value in the field	Sets the connection port of the network IP device	Non-negative integer	NA	From 0 to 65535. Depends on the network settings of the IP device

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
14	The **RTSP** field	Enter the value in the field	Sets the RTSP connection port of the network IP device	Non-negative integer	NA	From 0 to 65535. Depends on the network settings of the IP device
15	The **Name** field	Enter the value in the field	Sets the user name to connect to the network IP device	NA	NA	Depends on the network settings of the IP device
16	The **Password** field	Enter the value in the field	Sets the password to connect to the network IP device	NA	NA	Depends on the network settings of the IP device
17	The **Activate watchdog** checkbox	Set the checkbox	Activates the Windows reset function when *Axxon PSIM* main modules freeze	Boolean type	Clear	**Set**—the reset function of the Windows OS is enabled **Clear**—the reset function of the Windows OS is disabled
18	The **Use device settings** checkbox	Set the checkbox	Allows using the settings specified in the web server or other software of the IP device	Boolean type	Clear. *Note. When you create the **Video capture device** object using the Camera discovery tool, the value of the checkbox depends on the settings configured in the discovery tool*	**Set**—the settings of the IP device are used **Clear**—the settings of *Axxon PSIM* are used

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Camera object

The settings panel of the **Camera** system object is shown in the figures.



The **Basic settings** tab

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Camera** system object	Sequence of numbers	NA	From 1 to 2147483647
2	The Name* field	Enter the value in the field	Sets the name of the **Camera** object	Latin alphabet, Cyrillic, digits and service characters	Camera	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Region** drop-down list	Select the value from the list	Sets the **Region** structural element to which the given **Camera** object belongs	Names of the **Region** objects registered in the system	Region	Depends on the number of the **Region** objects registered in the system
4	The **Disable** checkbox	Set the checkbox	Disables the **Camera** object in the system	Boolean type	Clear	**Set**—the **Camera** object is disabled and isn't used **Clear**—the **Camera** object is enabled and used
5	The **Video capture device** drop-down list	Select the value from the list	Sets the **Video capture device** parent object for the given **Camera** object	Names of the **Video capture device** objects registered in the system	Name of the **Video capture device** parent object	Depends on the number of the **Video capture device** objects in the system
6	The **Type** drop-down list	Select the value from the list	Sets the type of the used camera. This setting affects the set of icons used to display a camera on the map	List of available camera types	NA	• **Fisheye**; • **PTZ**; • **Standard**

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Video** video image window	Left-click	Displays video image with the specified settings. When you click on it while pressing the Shift key on the keyboard: • left-click it to open the Web server page of the IP device in the default browser (doesn't work with Internet Explorer); • right-click it to open an enlarged window with a video image	Video image	NA	NA
The **Basic settings** tab						
8	The **Channel number** drop-down list	Select the value from the list	Sets the number of the channel	Sequence of numbers	1	From 1 to 64

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Resolution** drop-down list	Select the value from the list	Sets the resolution of the video frame	List of resolutions of the video frame	Standard	• **Standard**; • **High**; • **Full**. Specific values and their application depend on the camera model. If you want to use video streams with the exact resolution, it is better to use the streams configuring setting (see below)
10	The **Discwrite quality (analog camera)** slider	Set the slider in the position	Sets the quality of the recorded frame. The value is inverse to the video signal compression level. Note. This parameter is applicable only for analog cameras	NA	Above average	**Min**—maximum compression level and the minimum video signal quality **Max**—minimum compression level and the maximum video signal quality
11	The **Color** checkbox	Set the checkbox	Set the type of the video image received from a camera (color or black and white)	Boolean type	Set	**Set**—the image from a camera is in color **Clear**—the image from a camera is black and white
12	The **YUV 4:2:2** checkbox	Set the checkbox	Sets the format of the color representation of the video signal	Boolean type	Clear	**Set**—the video signal is represented in the YUV 4:2:2 format **Clear**—the video signal is represented in the YUV 4:2:0 format

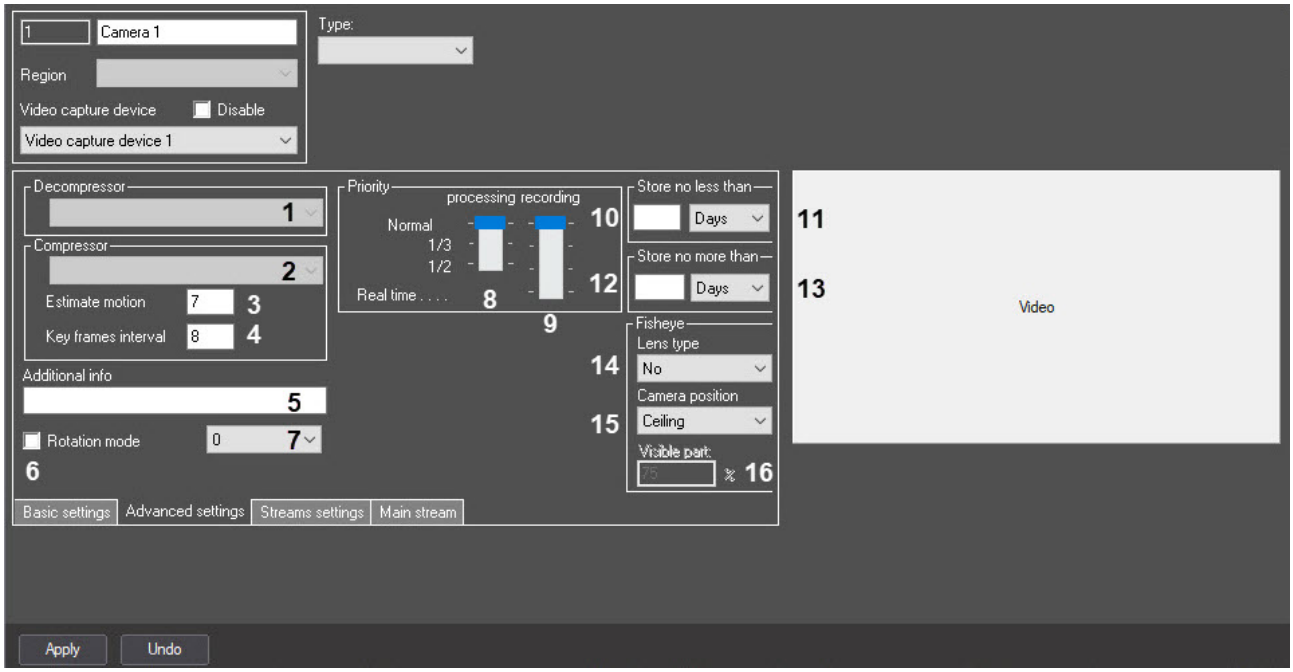
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
13	The **Color** slider	Set the slider in the position	Sets the color saturation of the color video image	From the maximum color saturation to the black and white video image	Average	**Max**—corresponds to the maximum color saturation of the video image **Min**—corresponds to the black and white video image
The **Brightness –Contrast** group						
14	The **Brightness – Contrast** checkbox	Set the checkbox	Sets the mode for adjusting brightness and contrast of the video image	Types of modes for adjusting brightness and contrast of the video image	Automatic	• Automatic (Position ☐)—**Brightness** and **Contrast** parameters are set automatically; • Manual (Position ☑)—**Brightness** and **Contrast** parameters are set manually; • Manual setting with automatic optimization (Position ☑)—**Brightness** and **Contrast** parameters are set manually with subsequent automatic optimization
15	The **Brightness** slider	Set the slider in the position	Sets the brightness of the video image	From the maximum brightness (white video image) to the minimum brightness (black video image)	Average	**Max**—corresponds to the maximum brightness of the video image **Min**—corresponds to the minimum brightness of the video image

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
16	The **Contrast** slider	Set the slider in the position	Set the contrast of the video image	NA	Average	**Max**—corresponds to the maximum contrast of the video image **Min**—corresponds to the minimum contrast of the video image
The **Sensitivity** group						
17	The **Size** slider	Set the slider in the position	Sets the minimum size of an object at which the main motion detector generates an event	% of the screen height	Average	**Min**—0% of the video surveillance window size **Max**—100% of the video surveillance window size
18	The **Contrast** slider	Set the slider in the position	Set the minimum contrast of an object at which the motion detector generatees an event	NA	Less than average	**Max**—correspond to maximum contrast of the object **Min**—corresponds to the minimum contrast of the object
Out of the group						
19	The **Record alarms** checkbox	Set the checkbox	Starts automatic video signal recording on the alarms from a camera	Boolean type	Set	**Set**—automatic video signal recording on the alarm from a camera is enabled **Clear**—automatic video signal recording on the alarm from a camera is disabled

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
20	The **Pre-alarm record** field	Enter the value in the field	Set the time period that precedes the alarm registration during which the prehistory of the event is recorded	Time in seconds (s)	NA	Recommended time from 0 to 20
21	The **Post-alarm record** field	Enter the value in the field	Sets the time period, during which the video is recorded after an alarm is registered	Time in seconds (s)	NA	Recommended time from 0 to 20
22	The **"Hot record" time** field	Enter the value in the field	Sets the time period from the moment when the alarm is registered or recording begins, during which the video is recorded at the frame rate set in the **"Hot record" rate** field	Time in seconds (s)	NA	Recommended time from 0 to 30
23	The **"Hot record" rate** field of allowable values	Enter the value in the field/ Select the value from the list	Sets the frame rate of the alarm hot recording	FPS	NA	Depends on the capabilities of the used camera. Recommended value from 0 to 20
24	The **Recording frame rate** field of allowable values	Enter the value in the field/ Select the value from the list	Sets the frame rate of the video signal recording	FPS	NA	Depends on the capabilities of the used camera. Recommended value from 1 to 25 for PAL; from 1 to 30 for NTSC
The **Recording audio** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
25	The **Number** column	Select the value from the list	Sets the number of the microphone, the audio from which must be recorded simultaneously with the video signal from a camera	Numbers of the **Microphone** objects registered in the system	NA	Depends on the number of the **Microphone** objects registered in the system
26	The **Microphone** column	Select the value from the list	Sets the name of the microphone, the audio from which must be recorded simultaneously with the video signal from a camera	Names of the **Microphone** objects registered in the system	NA	Depends on the number of the **Microphone** objects registered in the system

The **Advanced settings** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Decompressor** drop-down list	Select the value from the list	Sets the technology using which the compressed video stream is decompressed when displaying the video signal on the video surveillance monior. *Note. By default the parameter is not available for editing. To change the value of this parameter, set the 1 value for the EnableCodecSettings registry key (see Registry keys reference guide)*	List of available decompressors	No	• **BOSCH**; • **FfmpegAllInOneDecoder**; • **H263IppDecoder**; • **H264InterlacedIppDecoder**; • **H264IppDecoder**; • **MJPEGIpp**; • **Motion Wavelet 3.5**; • **Motion Wavelet 7.1**; • **MPEG2IppDecoder**; • **MPEG4IppDecoder**; • **MxPEG Mobotix**; • **RGB24toYUV420**; • **StreamLabs**; • **VWV**; • **WMVIppDecoder**
2	The **Compressor** drop-down list	Select the value from the list	Sets the algorithm of the video stream compression. *Note. By default the parameter isn't available for editing. To change the value of this parameter, set the 1 value for the EnableCodecSettings registry key (see Registry keys reference guide)*	List of available algorithms	No	Depends on the camera model
3	The **Estimate motion** field	Enter the value in the field	Determines the threshold of the camera sensitivity to motion depending on the change of the object brightness. The delta frame of the video signal is formed according to this criterion	Sequence of numbers	7	From 2 to 255

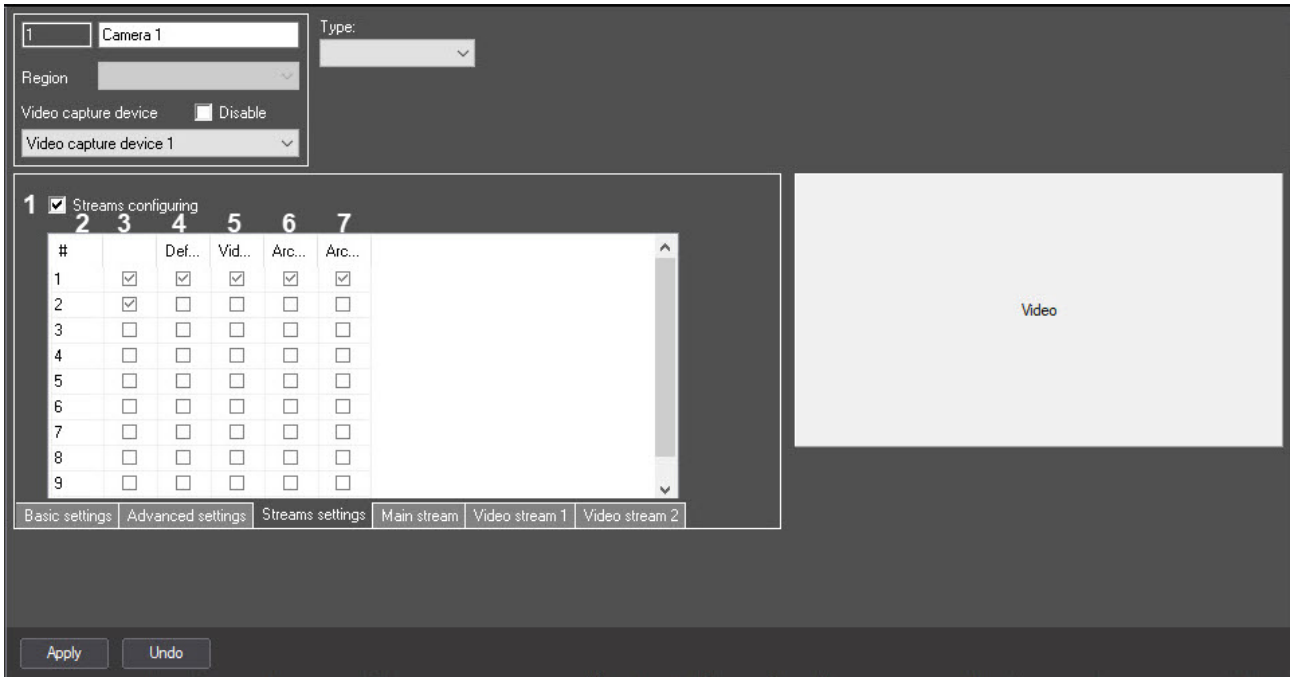
4	The **Key frames interval** field	Enter the value in the field	Sets the rate of the key frames	Sequence of numbers	8	Depends on the capabilities of the used camera
Out of the group						
5	The **Additional info** field	Enter the value in the field	Sets the information displayed on the video surveillance monitor above the camera name. This information is added to the name of the export file and when the frame is printed. Also it is displayed in the event viewer when an event is received from a camera	Line not longer than 100 characters	Blank line	Many Latin and Cyrillic letters, digits
6	The **Rotation mode** checkbox	Set the checkbox	Enables the rotation of the video image displayed on the video surveillance monitor	Boolean type	Clear	**Set**—rotation is enabled **Clear**—rotation is disabled
7	The Rotate on* drop-down list	Select the value from the list	Sets the angle of the video image rotation when the rotation mode is enabled	Sequence of numbers	0	**0, 90, 180, 270**
The **Priority** group						
8	The **Processing priority** slider	Set the slider in the position	Sets the priority of the video signals processing by ADC from a camera	Order of video signals processing	Normal	**Normal**—normal video signals processing order; **1/3**—1/3 processing order; **1/2**—1/2 processing order

9	The **Recording priority** slider	Set the slider in the position	Set the priority of video signals processing by ADC in the recording mode	Order of video signals processing in the recording mode	Normal	**Real time—**all ADC resources are used for video signals recording **Normal**—normal video recording order; **1/3**—1/3 processing order; **1/2**—1/2 processing order;
The **Store no less than** group						
10	The **Store no less than** field	Enter the value in the field	Sets the time period for keeping the video archive and audio archive from a camera (in case of synchronous recording) on the server. The parameter allows storing the large archive for the selected camera using the archive of other cameras. *Note. We recommend setting the **Store no less than** parameter for no more than 30% of cameras in the system, as this setting is only ADVISORY. If there isn't enough space for the archive recording, the setting is ignored and the recording doesn't stop anyway.* *If you create more than 10 cameras in the system, then when you attempt to set this parameter for more than 30% of the cameras in the system, after you click the **Apply** button, a corresponding warning message appears. You can disable it using the NotifyAbout_arch_days registry key (see Registry keys reference guide)*	Day or hour, depending on the value selected in the drop-down list	NA	More than 1
11	The **Store no less than** drop-down list	Select the value from the list	Sets the units for the time period specified in the **Store no less than** field	List of available time units	Days	**Days** **Hours**

The **Store no more than** group						
12	The **Store no more than** field	Enter the value in the field	Sets the time period for storing the camera archive, after which the camera archive must be deleted. *Note. The archive can be deleted before the specified time if it is required for the loop recording*	Day or hour, depending on the value selected in the drop-down list	NA	More than 1
13	The **Store no more than** drop-down list	Select the value from the list	Sets the units for the time period specified in the **Store no more than** field	List of available time units	Days	**Days** **Hours**
The **Fisheye** group						
14	The **Lens type** drop-down list	Select the value from the list	Sets the used lens type	Supported lens types	No	• **No**—select if there are neither fisheye nor panomorph lenses on the camera; • **Standard fisheye lens**—select if there is a fisheye lens on the camera; • **Autocalibration**—select if there is a fisheye lens on the camera and you want to determine the video conversion parameters automatically for artifacts elimination; • **A0*V, A1UST, A8TRT, B0QQV, B4QQV, B5SST, B6SST**—types of the panomorph lenses

15	The **Camera position** drop-down list	Select the value from the list	Sets the position of a camera	Supported camera position options	Ceiling	• **Ceiling**; • **Wall**; • **Floor**
16	The **Visible part** field	Enter the value in the field	Determines which part of the frame is visible on the video surveillance monitor after conversion	Percentage	75% for the **Ceiling** position 66% for the **Wall** position *Note. The default value may not appear in the field*	From 0 to 100%

The **Streams settings** tab



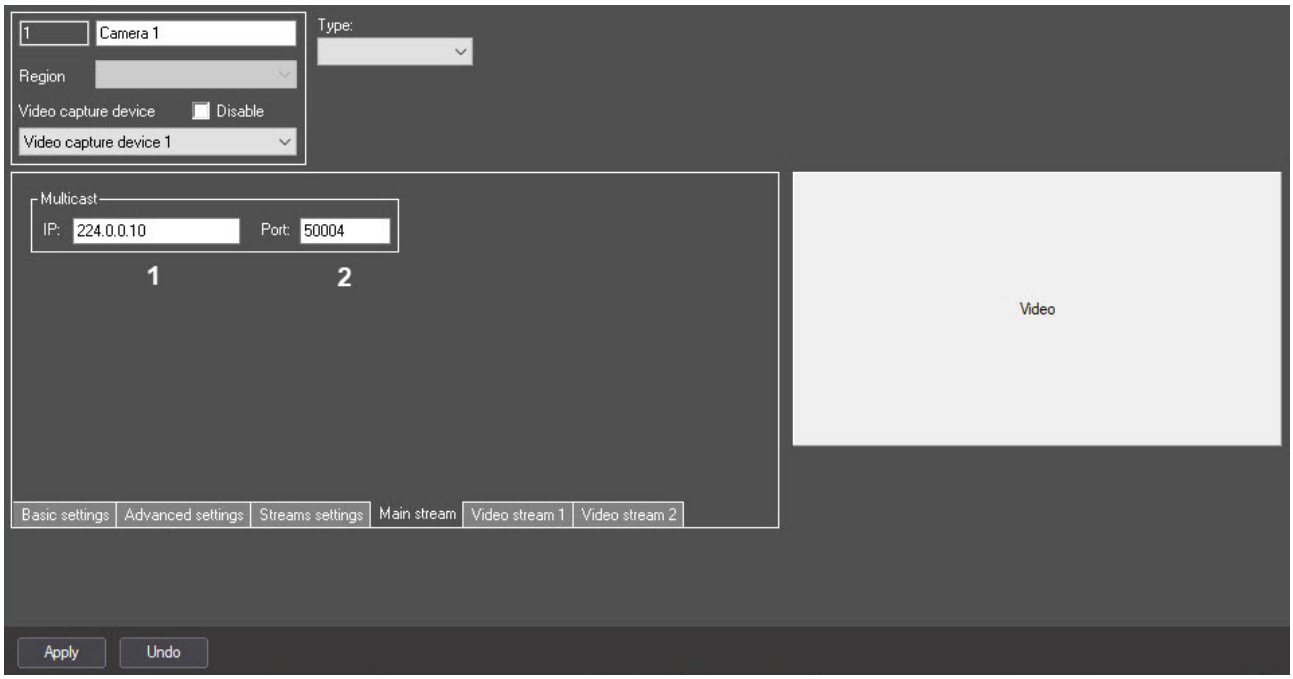
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Streams configuring** checkbox	Set the checkbox	Enables the video signal multistream option	Boolean type	Clear	**Set**—video signal multistreaming is enabled; different streams can be used for analytics, archiving, and display **Clear**—video signal multistreaming is disabled; a single stream is used for analytics, archiving, and display
The Streams configuring group*						
2	The **#** field	Automatically	Sets the number of the stream	Integer number	NA	From 1 to 10

3	The **Enabled*** column	Set the checkbox	Sets the used camera streams	Boolean type	Clear	**Set**—the stream is used **Clear**—the stream isn't used
4	The **Default** column	Set the checkbox	Sets the video stream that is used in the following cases: 1. To display video locally and on the remote clients. 2. To send the video stream to the remote clients, including the videogate that can record this video stream. 3. In cases when a video request doesn't specify the stream	List of available streams	Clear	**Set**—the stream is used by default **Clear**—the stream isn't used by default
5	The **Video analytics** column	Set the checkbox	Sets the video stream used for video analytics. This stream is used by the standard motion detector, zone detectors, tracking detectors, face detectors (if an external recognizer isn't used). The **Video Analytics** stream is used for the LPR server, face detectors (if an external recognizer is used), and detectors that are part of the *Detector Pack* subsystem. You can select the **Default** stream using the **VMDA.ignoreAnaliticStream** registry key (see Axxon PSIM base version). The **Archive**/**Archive (alarms)** stream is used for the backup archive	List of available streams	Clear	**Set**—the stream is used for video analytics **Clear**—the stream isn't used for video analytics
6	The **Archive** column	Set the checkbox	Sets the video stream that is recorded to the archive not upon alarm, but, for example, at continuous recording	List of available streams	Clear	**Set**—the stream is used for archive recording **Clear**—the stream isn't used for archive recording

7	The **Archive (alarms)** column	Set the checkbox	Sets the video stream recorded to the archive upon alarm	List of available streams	Clear	**Set**—the stream is used for archive recording upon alarm **Clear**—the stream isn't used for archive recording upon alarm

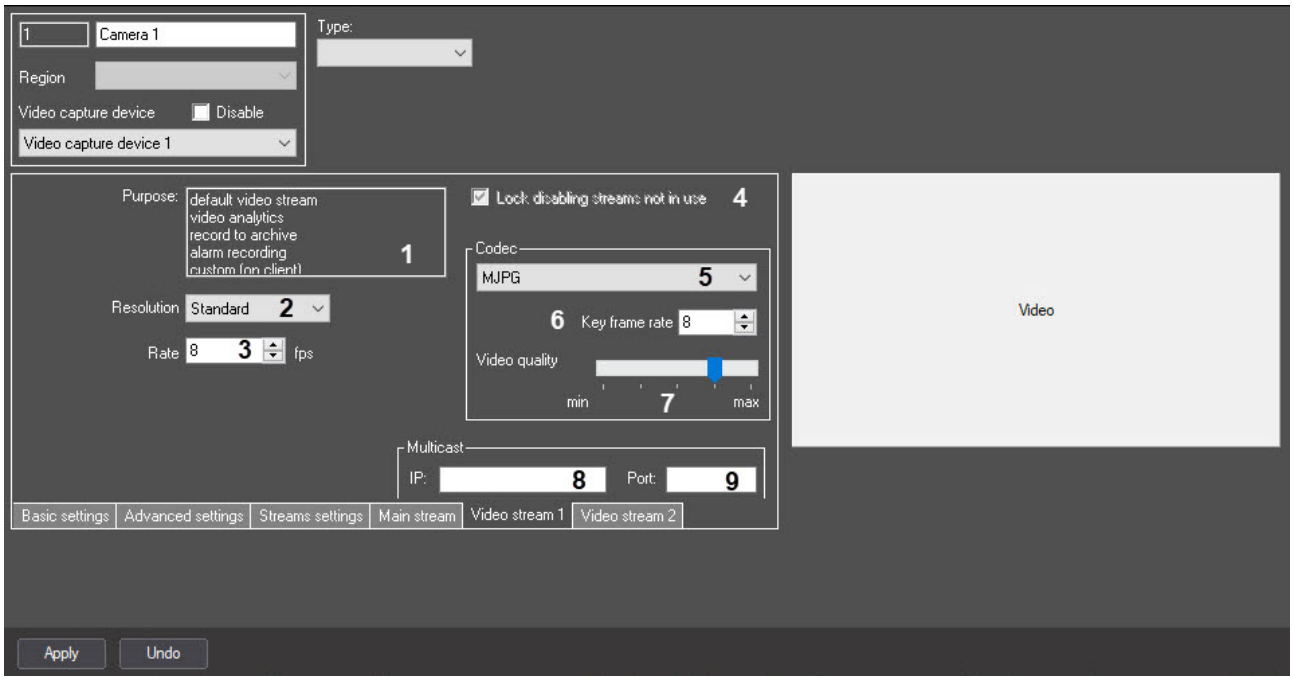
*Name of the element isn't displayed in the settings panel of the given object

The **Main stream** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **IP** field	Enter the value in the field	Sets the IP address from which the client receives the video data from the ONVIF server in the **Multicast** mode	IP address	224.0.0.10	224.0.0.0—239.255.255.255
2	The **Port** field	Enter the value in the field	Sets the port for transferring the video data in the **Multicast** mode	Sequence of numbers	Depends on the number of cameras and streams in the system	Any valid unused port numbers. The number of ports is determined by the system administrator

The **Video stream** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Purpose** field	NA	Provides an information about the use of the video stream	String	Depends on the video stream's selected purpose	Many Latin and Cyrillic characters, digits
2	The **Resolution**** drop-down list	Select the value from the list	Sets the video frame resolution	List of the video frame resolutions	Standard	• **Standard**; • **High**; • **Full**. Specific values depend on the camera model
3	The **Rate**** field of allowable values	Enter the value in the field	Sets the frame rate of the video stream	Frame rate in FPS	8	Depends on the capabilities of the used camera

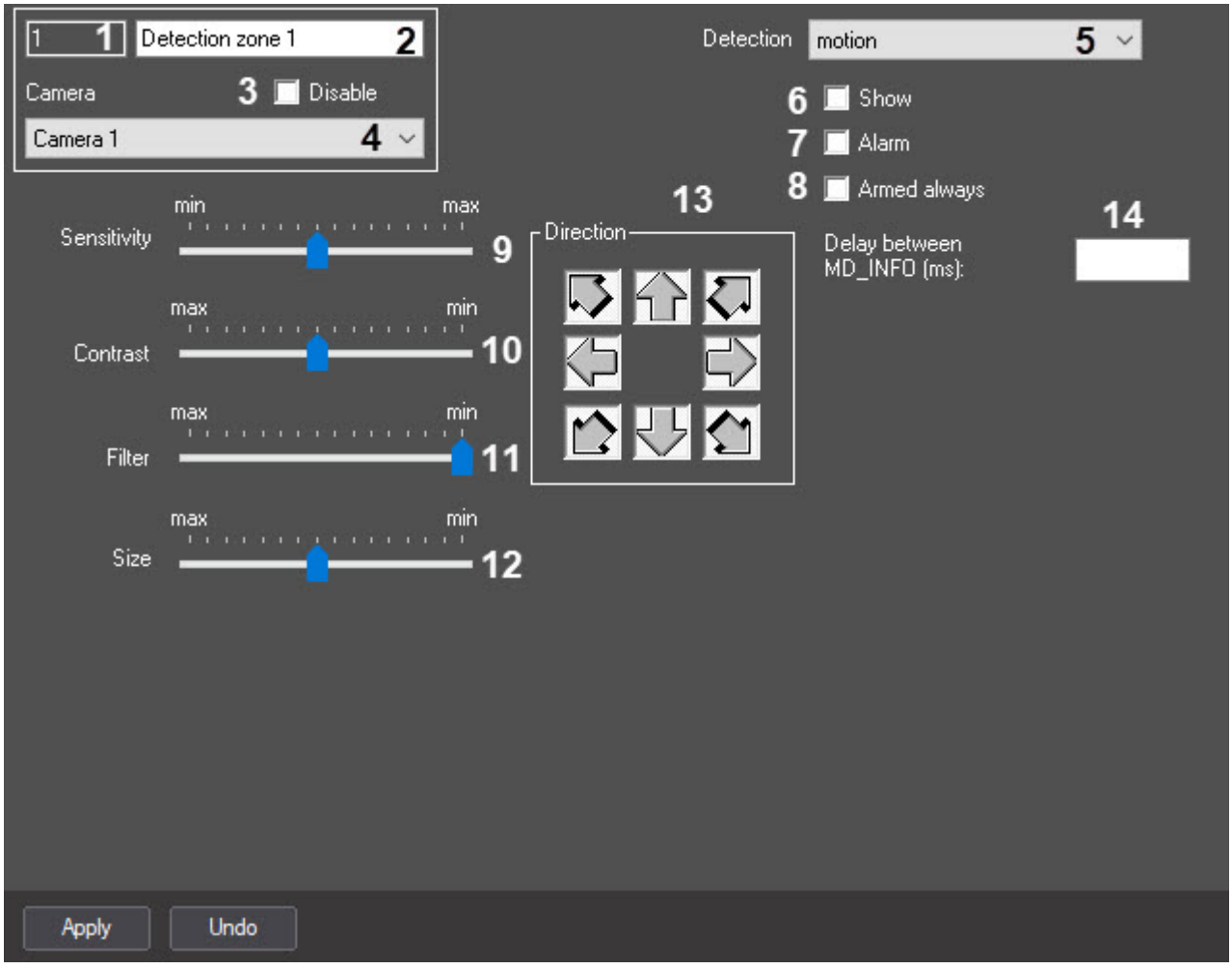
4	The **Lock disabling streams not in use** checkbox	Set the checkbox	Locks disabing the unused streams *Note. Sets the checkbox if the purpose isn't specified for the configured stream, but it is used for recording by a macro or a script*	Boolean type	Clear	**Set**—if you don't specify the stream purpose, the stream is in the "sleep" mode, and you cannot use it for recording by a macro or a script **Clear**—if you don't specify the stream purpose, you can use it for recording by a macro or a script
The **Codec** group						
5	The Codec** drop-down list	Select the value from the list	Sets the technology used to encode and decode the video stream	List of supported codecs	Depends on the camera model	Depends on the camera model
6	The **Key frame rate**** field of allowable values	Enter the value in the field	Sets the key frame rate	Sequence of numbers	8	Depends on the capabilities of the used camera
7	The **Video quality***** slider	Set the slider in the position	Sets the frame quality	NA	More than average	**Min**—maximum compression level and minimum video signal quality **Max**—minimum compression level and maximum video signal quality
The **Multicast** group						
8	The **IP** field	Enter the value in the field	Sets the IP address from which the client receives the video data from the ONVIF Server in the **Multicast** mode	IP address	224.0.0.10	224.0.0.0—239.255.255.255

9	The **Port** field	Enter the value in the field	Sets the port for transmitting the video data in the **Multicast** mode	Sequence of numbers	Depends on the number of cameras and streams in the system	Any valid unused port numbers. The number of ports is determined by the system administrator

** Similar settings on the **Basic settings** and the **Advanced settings** tabs, as well as on the settings panel of the **Video capture device** object, are ignored

The settings panel of the Detection zone object

The **Detection zone** object is used to register and configure smart video detectors. The settings panel of the **Detection zone** object is shown in the figure:



The table describes the parameters of the settings corresponding to the elements of the settings panel of the **Detection zone** object:

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Detection zone** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Detection zone** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Detection zone** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Detection zone	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters— from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Detection zone** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**— the **Detection zone** is disabled and isn't used **Clear**— the **Detection zone** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Camera** drop-down list	Select the value from the list	Sets the **Camera** parent object of the video surveillance system with distributed architecture to which the given **Detection zone** object belongs	Names of the **Camera** objects registered in the system	Name of the **Camera** parent object	Depends on the number of the **Camera** objects in the video surveillance system with distributed architecture
5	The **Detection** drop-down list	Select the value from the list	Sets the type of the used detector	Names of the detectors in the system	Motions	• **Motion**; • **Focus**; • **Stability**; • **Background change**; • **Blind**; • **Cover**; • **Infrared**
6	The **Show** checkbox	Set the checkbox	Displays the frame border of an object in the camera field of view. This parameter is active only when you select the following detectors from the **Detection** drop-down list: **motion**, **infrared**	Boolean type	Clear	**Set**—the object frame border is displayed in the video surveillance area **Clear**—the object frame border isn't displayed in the video surveillance area

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Alarm** checkbox	Set the checkbox	Enables alarm generation on the camera and automatic recording of the video signal from the camera upon alarms of the selected detector	Boolean type	Clear	**Set**—on alarm received from the selected detector, an alarm is generated on the camera, and automatic recording of the video signal is performed **Clear**—alarm isn't generated on the camera, and automatic recording of the video signal isn't performed on the alarm received from the selected detector
8	The **Armed always** checkbox	Set the checkbox	Sets the **Armed always** state for the selected detector	Boolean type	Clear	**Set**—the detector is always in the **Always armed** state **Clear**—the operator can disarm the detector

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Sensitivity** slider	Set the slider in the position	Sets the setting parameter of the same name for the selected detector. Depends on the type of the selected detector. • **Motion detector** The value of this parameter corresponds to the minimum value of the averaged brightness of the moving object, at which the detector generates an event only at its motion and not at the video signal noise (including snow, rain, and so on). The HIGHER the sensitivity value, the more sensitive the detector is. • **Focus detector** The value of this parameter characterizes the minimum degree of accuracy loss, expressed in the difference between the average number of outlines and the number of outlines in the incoming frame at which the detector must generate an event. • **Stability detector**	NA	Average	NA

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
			The value of this parameter characterizes the minimum degree of accuracy loss, expressed in the difference between the average number of outlines and the number of outlines in the incoming frame at which the detector must generate an event. • **Background change detector** This parameter characterizes the deviation of the integral brightness of the frame from the average value at which the detector must generate an event. • **Blind detector** This parameter corresponds to the rate of illumination of the video expressed in the difference between the positions of medians of the brightness chart of the incoming frame and the reference illumination frame at which the detector must generate an event. • **Cover detector**			

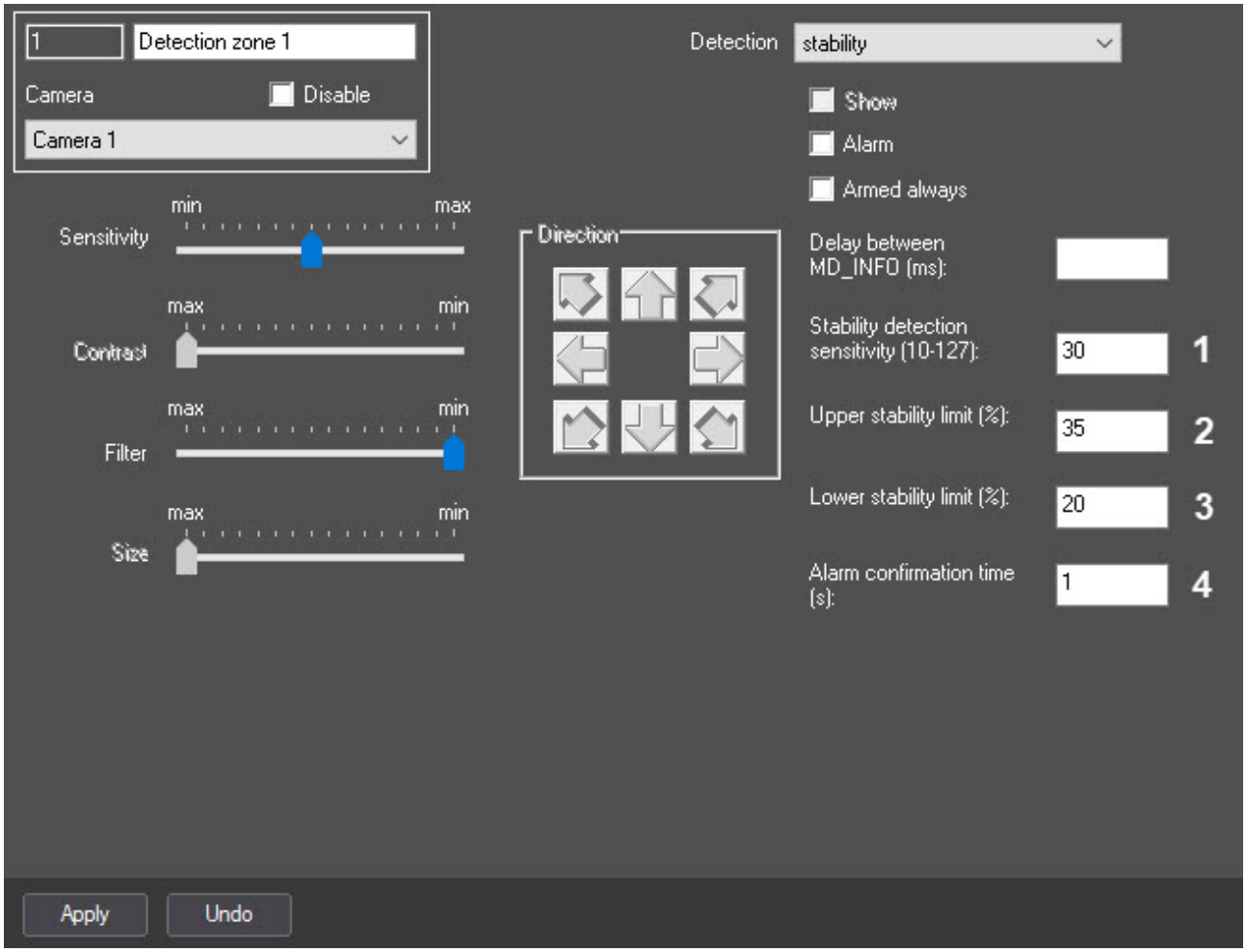
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
			This parameter corresponds to the rate of narrowing of the brightness chart of the frame, that is, the estimation of the frame filling with gray color, at which the detector must generate an event. • **Infrared detector** The value of this parameter corresponds to the minimum value of the averaged brightness of the moving object, at which the detector generates an event at its motion			
10	The **Contrast** slider	Set the slider in the position	Sets the minimum contrast of the object at which the detector generates an event at its motion. The HIGHER the specified contrast value, the more different the neighboring b/w elements must be so that the detector considers them as different objects. *Note. It isn't used for all detector types*	NA	Average	NA

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **Filter** slider	Set the slider in the position	Sets the setting parameter of the same name for the selected detector. Depends on the type of the selected detector. • **Motion detector, infrared detector** The value of this parameter corresponds to the threshold of color processing of objects, at which the detector must generate an event. The HIGHER the filtering, the more different the neighboring elements (pixels) of the image must be so that the detector considers them as different objects. • **Background change detector, Stability detector** The value of this parameter corresponds to the contrast threshold of the detected object. *Note. It isn't used for other detector types*	NA	Minimum	NA

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
12	The **Size** slider	Set the slider in the position	Sets the setting parameter of the same name for the selected detector. The value of this parameter corresponds to the minimum size of the detected object relative to the frame size. *Note. It isn't used for all detector types*	NA	Average	NA
13	The **Direction** set of buttons	Press the arrow button	Sets the direction of search for the motion detector	8 possible directions of object movement in the frame	All directions are included: up, down, to the left, to the right, up and to the left, up and to the right, down and to the left, down and to the right	Up, down, to the left, to the right, up and to the left, up and to the right, down and to the left, down and to the right
14	The **Delay between MD_INFO (ms)** field	Enter the value in the field	Sets the time period in milliseconds between the MD_INFO events of the CAM_ZONE detector in the Event viewer (if the MD_INFO event is included in ddi)	Integer number	NA	>=0

*Name of the element isn't displayed in the settings panel of the given object

Detection stability



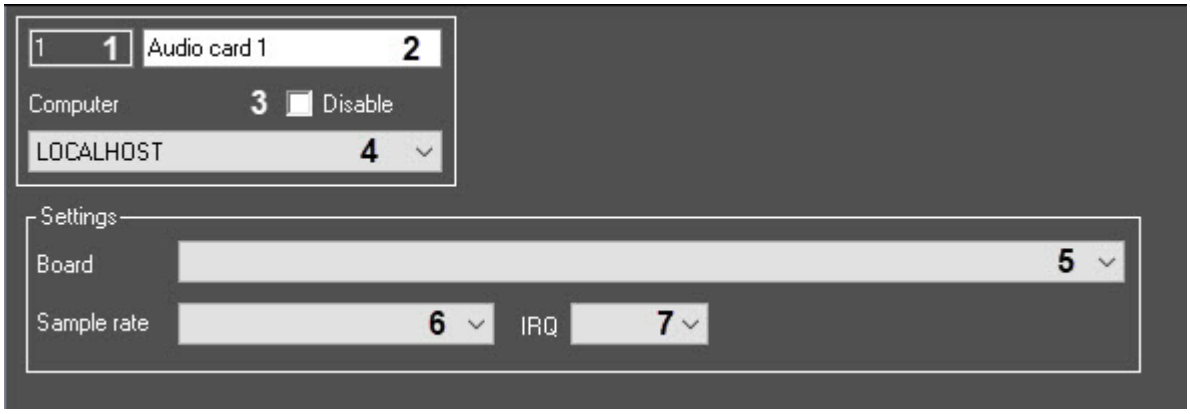
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Stability detection sensitivity (10-127)** field	Enter the value in the field	Sets the threshold of difference between the brightness of the pixel in the current frame and the background	Integer number	30	From 10 to 127

2	The **Upper stability limit (%)** field	Enter the value in the field	Sets the maximum permissible percentage of the stabilized frame pixels that differ from the background by more than the value in the **Stability detection sensitivity field**, exceeding which the system starts monitoring the alarm status	Integer number	35	From 0 to 100%
3	The **Lower stability limit (%)** field	Enter the value in the field	Sets the maximum permissible percentage of the stabilized frame pixels that differ from the background by more than the value in the **Stability detection sensitivity** field before reaching which the frame is considered stable	Integer number	20	From 0 to 100%
4	The **Alarm confirmation time (s)** field	Enter the value in the field	Sets the time period in seconds during which the **Upper stability limit** must be exceeded to generate an alarm	Integer number	1	>0

The settings panel of the Audio card object

The **Audio card** object is used to register and configure audio signal digitization devices installed on the server in *Axxon PSIM*.

The settings panel of the **Audio card** object is shown in the figure.



The table describes the parameters of the settings corresponding to the elements of the settings panel of the **Audio card** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Audio card** object in the video surveillance system with distributed architecture	Sequence of numbers	Depends on the number of the **Audio card** objects in the video surveillance system with distributed architecture	From 1 to 2147483647
2	The Name* field	Enter the value in the field	Sets the name of the **Audio card** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic and service characters	Audio card	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Audio card** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Audio card** object is disabled and isn't used **Clear**—the **Audio card** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the video surveillance system with distributed architecture to which the given **Audio card** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
The **Settings** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	The **Board** drop-down list	Select the value from the list	Sets the type of the sound digitization device. Digitization devices include various sound cards, such as SoundBlaster, ADC of the video capture cards, USB devices for the audio signal digitization	List of the types of the sound digitization devices	NA	Depends on the number of audio signal digitization devices installed on the server. • for sound cards such as **SoundBlaster**—the name of the card; • for the ADC of the video capture cards—the name of the video capture card, including the number of the audio channel; • for the USB devices—the name of the video capture card, including the number of the audio channel;

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						• for network devices—the type of the network device: AX, IpCamAxis

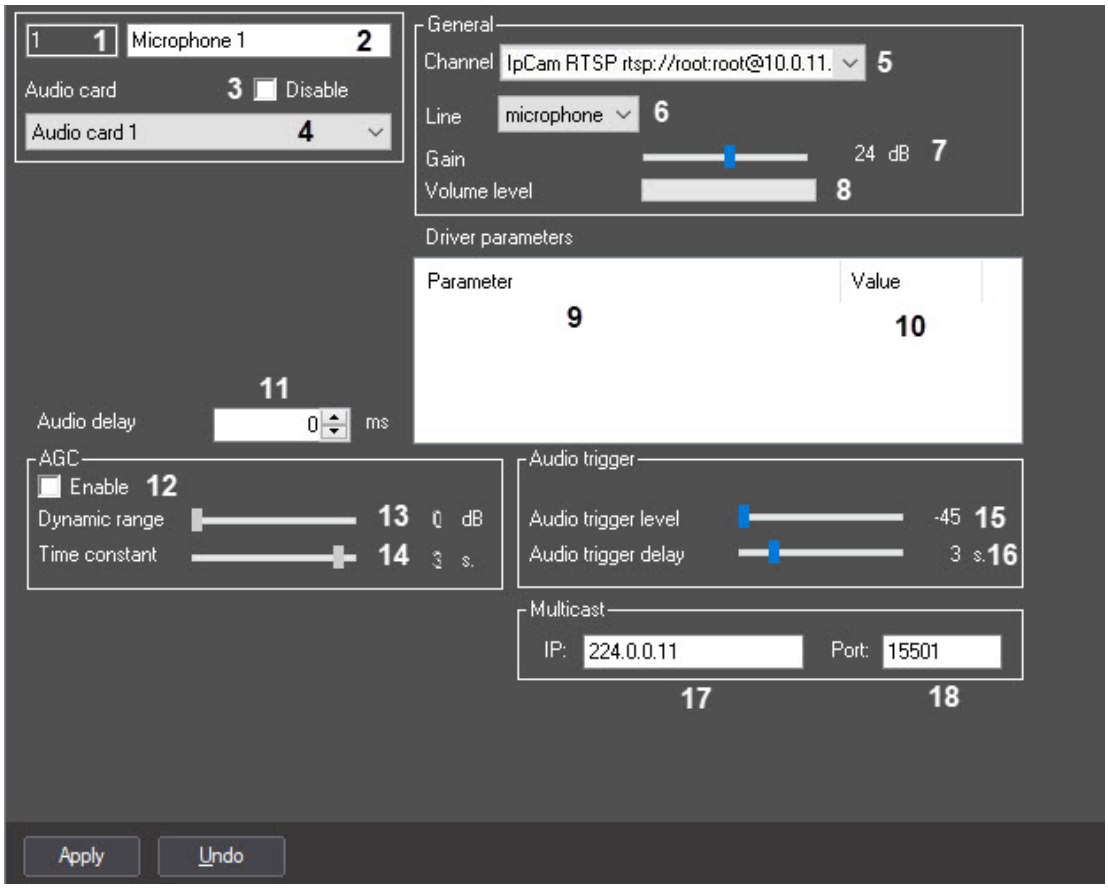
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Sample rate** drop-down list	Select the value from the list	Sets the frequency rate at which a device digitizes the audio signal	Hz	For audio cards such as SoundBlaster—8000. For the ADC of the video capture cards—8000	• For audio cards such as SoundBlaster, the frequency range of the digitization depends on the type of audio card; • 48000 is the maximum value for any card; • For the ADC of the video capture cards—8000, 16000, 32000; • For the USB devices, the frequency range of the digitization depends on the type of the device used; 48000 is the maximum value

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **IRQ** drop-down list	NA	NA	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Microphone object

The settings panel of the **Microphone** system object is shown in the figure.



The table describes the settings parameters of the **Microphone** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Microphone** system object	Sequence of numbers	NA	From 1 to 32767. Depends on the number of the **Microphone** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Microphone** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Microphone	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Microphone** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Microphone** object is disabled and isn't used **Clear**—the **Microphone** object is enabled and is used
4	The **Audio card** drop-down list	Select the value from the list	Sets the **Audio card** parent object for the given **Microphone** object	Names of the **Audio card** objects registered in the system	Name of the **Audio card** parent object	Depends on the number of the **Audio card** objects in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **General** group						
5	The **Channel** drop-down list	Select the value from the list	Sets the number of the audio signal input channel according to the number of the RCA-F connector to which the microphone is connected	Right, left channel	0	Depends on the type of audio signal digitization card. For AxxonSoft ADC audio signal digitization cards and audio cards such as **SoundBlaster**: **0**—Left channel; **1**—Right channel
6	The **Line** drop-down list	Select the value from the list	Sets the source of audio signal	Types of the audio signal source	Microphone	**Microphone**—audio signal comes from the microphone **Phone**—audio signal comes from the phone line
7	The **Gain** slider	Set the slider in the position	Sets the audio signal power gain	Sound power in decibels (dB)	24	From 0 to 45
8	The **Volume level** indicator	Automatically	Displays the power volume of the incoming audio signal	Sound power in decibels (dB)	NA	From 0 to 45
The **Driver parameters** table						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Parameter** column	Automatically	Displays the available parameters of the IP device driver	NA	NA	Depends on the connected IP device
10	The **Value** column	Select the value from the list	Sets the values of the IP device parameters	NA	NA	Depends on the connected IP device and parameter
Out of the group						
11	The **Audio delay** field with button	Enter the value in the field using the **up** and **down** buttons	Sets the delay in milliseconds between the receiving of an audio signal from the audio input device and its output to the speaker or its recording to the archive synchronously with the video signal. This parameter is used if the video image comes delayed or advanced and the sound is ahead or falls behind it	Integer numbers	0	-10000—10000
The **AGC** group (set using the Olkha sound cards: Olkha-9P, Olkha-10LP, Olkha-12U, Olkha-14)						
12	The **Enable** checkbox	Set the checkbox	Enables the automatic adjustment of the audio signal gain	Boolean type	Clear	**Set**—automatic adjustment of the audio signal gain is enabled **Clear**—automatic adjustment of the audio signal gain is disabled

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
13	The **Dynamic range** slider	Set the slider in the position	Sets the level of audio signal power after the automatic adjustment	Sound power in decibels (dB)	0	From 0 to 45
14	The **Time constant** slider	Set the slider in the position	Sets the time period during which the audio signal is brought to the set power level during automatic adjustment	Time in seconds (s)	3	From 0.1 to 6
The **Audio trigger** group						
15	The **Audio trigger level** slider	Set the slider in the position	Sets the level of the sound power above which the recording of the audio signal starts automatically (registration of the alarm event)	Sound power in relative units	-45	-45—audio trigger is disabled From -44 to 0—audio trigger is enabled
16	The **Audio trigger delay** slider	Set the slider in the position	Sets the time period during which the audio signal is post-recorded after the end of the alarm event	Time in seconds (s)	3	From 1 to 16
The **Multicast** group						
17	The **IP** field	Enter the value in the field	Sets the IP address from which the client receives the audio data from the ONVIF server in the **Multicast** mode	IP address	224.0.0.11	224.0.0.0—239.255.255.255

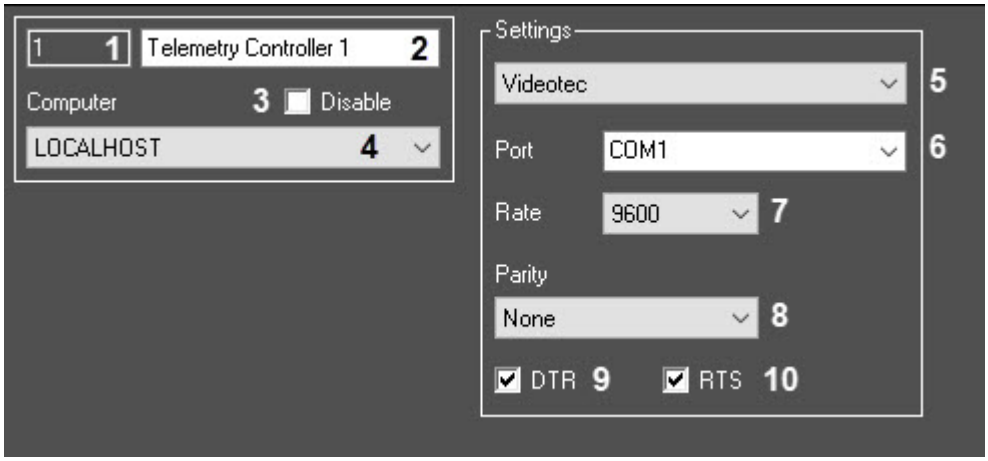
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
18	The **Port** field	Enter the value in the field	Sets the port for transmitting the audio data in the **Multicast** mode	Sequence of numbers	Depends on the number of cameras and streams in the system	Any valid unused port numbers. The number of ports is determined by the system administrator

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Telemetry controller object

The **Telemetry Controller** object is used to register and configure the serial (COM) ports used for connecting the PTZ devices in *Axxon PSIM.*

The settings panel of the **Telemetry Controller** object is shown in the figure:



The table describes the parameters corresponding to the elements of the settings panel of the **Telemetry Controller** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Telemetry Controller** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Telemetry Controller** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Telemetry Controller** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic and service characters	Telemetry Controller	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Telemetry Controller** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Telemetry Controller** object is disabled and isn't used **Clear**—the **Telemetry Controller** object is enabled and is used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the given **Telemetry Controller** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Settings** group						
5	The Controller type* drop-down list	Select the value from the list	Sets the data communication protocol with the PTZ device via the serial (COM) port. Data communication protocols are supplied by the PTZ devices manufacturers	Names of the PTZ devices integrated in the system	Videotec	Corresponds to the list of the PTZ devices integrated in the system
6	The **Port** drop-down list	Select the value from the list	Sets the number of the computer COM port used to connect the PTZ devices	List of the available COM ports	COM1	Depends on the number of COM ports on the server or Remote Administrator's workstation. If you select a non-empty value, the local COM port has a higher priority than other devices when processing commands to the PTZ device. Otherwise, the COM port priority is set by default
7	The **Rate** drop-down list	Select the value from the list	Sets the data communication rate via the COM port	kB/s	9600	From 300 to 256000
8	The **Parity** drop-down list	Select the value from the list	Sets the parity check mode for the data transfer via the COM port	Names of the parity check modes	None	**Even, Odd, None, Mark, Space**

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **DTR** checkbox	Set the checkbox	Sets the power supply to the PTZ device via the output of the DTR COM port	Boolean type	Set	**Set**—the power is supplied via the DTR port output **Clear**—the power isn't supplied via the DTR port output
10	The **RTS** checkbox	Set the checkbox	Sets the power supply to the PTZ device via the output of the RTS COM port	Boolean type	Set	**Set**—the power is supplied via the RTS port output **Clear**—the power isn't supplied via the RTS port output

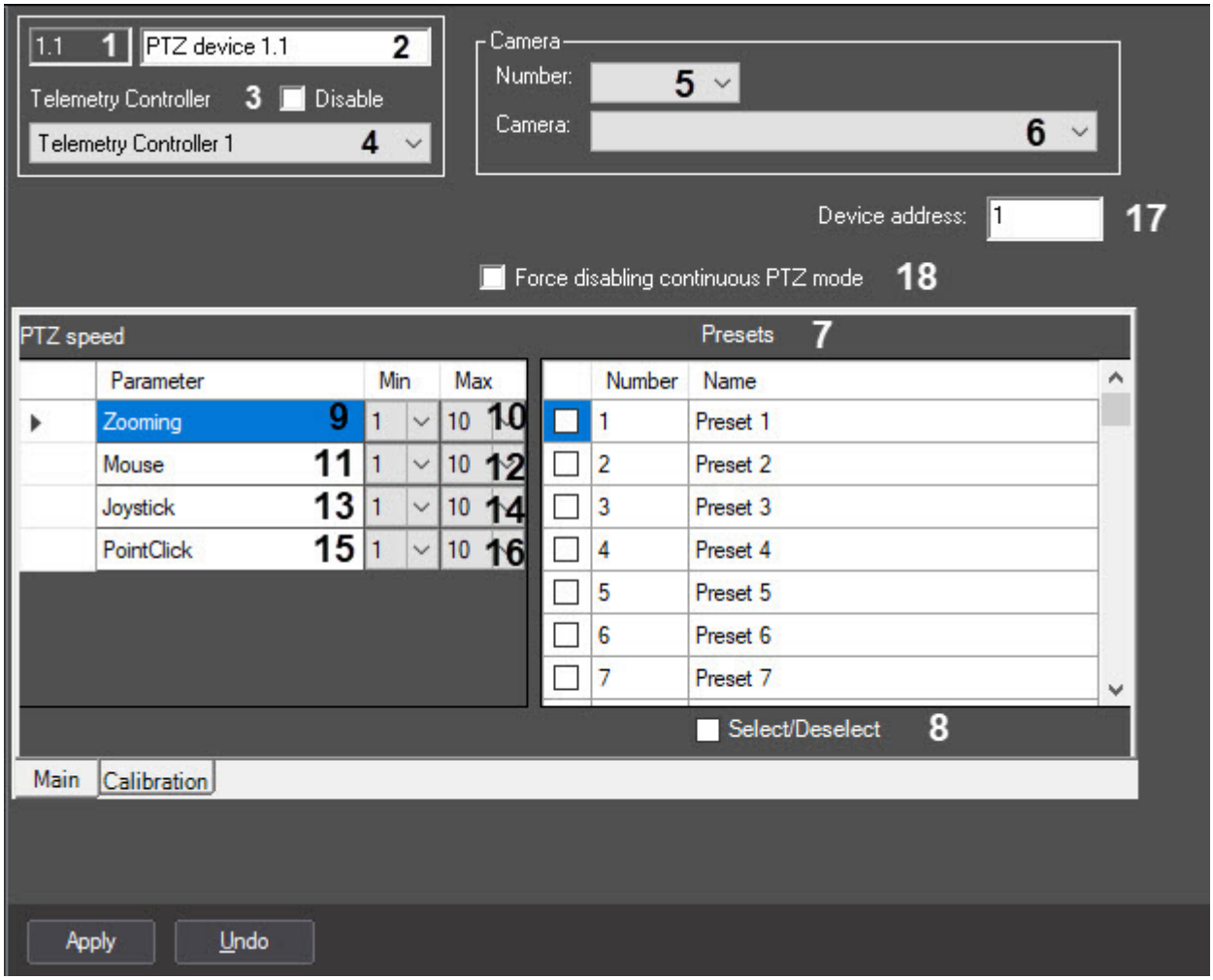
*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the PTZ device object

The **PTZ device** object is used to register and configure the PTZ device in *Axxon PSIM*.

The table describes the parameters corresponding to the elements of the settings panel of the **PTZ device** object. The settings panel of the **PTZ device** object is shown in the figures.

The **Main** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **PTZ device** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **PTZ device** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **PTZ device** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic and service characters	PTZ device	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **PTZ device** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **PTZ device** object is disabled and isn't used **Clear**—the **PTZ device** object is enabled and is used
4	The **Telemetry Controller** drop-down list	Select the value from the list	Sets the **Telemetry Controller** parent object of the system with distributed architecture to which the given **PTZ device** object belongs	Names of the **PTZ device** objects registered in the system	Name of the **Telemetry Controller** parent object	Depends on the number of the telemetry controllers in the video surveillance system with distributed architecture
The **Camera** group						
5	The **Number** drop-down list	Select the value from the list	Sets the identification number of the camera on which the PTZ device is installed	Sequence of numbers	NA	Depends on the number of cameras in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Camera** drop-down list	Select the value from the list	Matches the PTZ device with the camera where it is installed. The parameter is used by the video surveillance monitor and the telemetry panel to control the PTZ devices of the cameras	Names of the **Camera** objects registered in the system	Clear	Depends on the number of the **Camera** objects in the video surveillance system with distributed architecture
The **Presets** table						
7	The Presets* checkbox	Set the checkbox	Selects the presets that must be displayed in the **Telemetry control panel**	Boolean type	Clear	You can use up to 355 presets. The maximum number depends on the device, see Maximum number of presets for IP devices. **Set**—the preset name is displayed in the telemetry control panel **Clear**—the preset name isn't displayed in the telemetry control panel
	The **Name** field	Enter the value in the field	Sets the name of the preset for displaying in the telemetry control panel	Latin alphabet, Cyrillic and service characters	Preset	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive
Out of the groups						

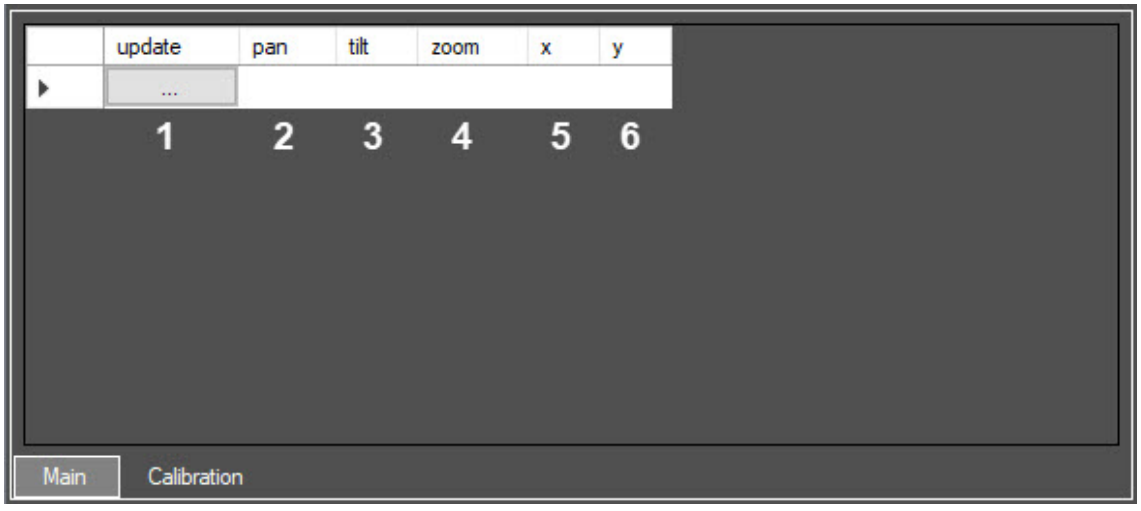
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The **Select/ Deselect** checkbox	Set the checkbox	Sets/clears the checkboxes next to all elements in the **Presets** table	Boolean type	Clear	**Set**—select all presets **Clear**—clear checkboxes from presets
The **PTZ speed** group						
The **Zooming** group						
9	The **Min** drop-down list	Select the value from the list	Sets the minimum possible speed of optical zoom on the PTZ device	Speed in relative units	1	From 1 to 10
10	The **Max** drop-down list	Select the value from the list	Sets the maximum possible speed of optical zoom on the PTZ device	Speed in relative units	10	From 1 to 10
The **Mouse** group						
11	The **Min** drop-down list	Select the value from the list	Sets the minimum possible rotation speed of the PTZ devices from the Video surveillance monitor	Speed in relative units	1	From 1 to 10
12	The **Max** drop-down list	Select the value from the list	Sets the maximum possible rotation speed of the PTZ devices from the Video surveillance monitor	Speed in relative units	10	From 1 to 10

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Joystick** group						
13	The **Min** drop-down list	Select the value from the list	Sets the minimum possible rotation speed of the PTZ devices using the joystick	Speed in relative units	1	From 1 to 10
14	The **Max** drop-down list	Select the value from the list	Sets the maximum possible rotation speed of the PTZ devices using the joystick	Speed in relative units	10	From 1 to 10
The **Point&Click** group						
15	The **Min** drop-down list	Select the value from the list	Sets minimum possible rotation speed of the PTZ device in the direction of the mouse click (Point&Click)	Speed in relative units	1	From 1 to 10
16	The **Max** drop-down list	Select the value from the list	Sets maximum possible rotation speed of the PTZ device in the direction of the mouse click (Point&Click)	Speed in relative units	10	From 1 to 10
Out of the groups						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
17	The **Device address** field	Enter the value in the field	Sets the address of the PTZ device installed via the hardware (with jumpers on the PTZ device board) or via the software (with special software for the PTZ device's firmware upgrade)	Sequence of numbers	1	Integer number from 1 to 255. Depends on the PTZ device protocol
18	The **Force disabling continuous PTZ mode** checkbox	Set the checkbox	Sets the PTZ control mode: continuous or discrete	Boolean type	Clear	**Clear**—the continuous PTZ control mode is enabled **Set**—the discrete PTZ control mode is enabled

*Name of the element isn't displayed in the settings panel of the given object

The **Calibration** tab



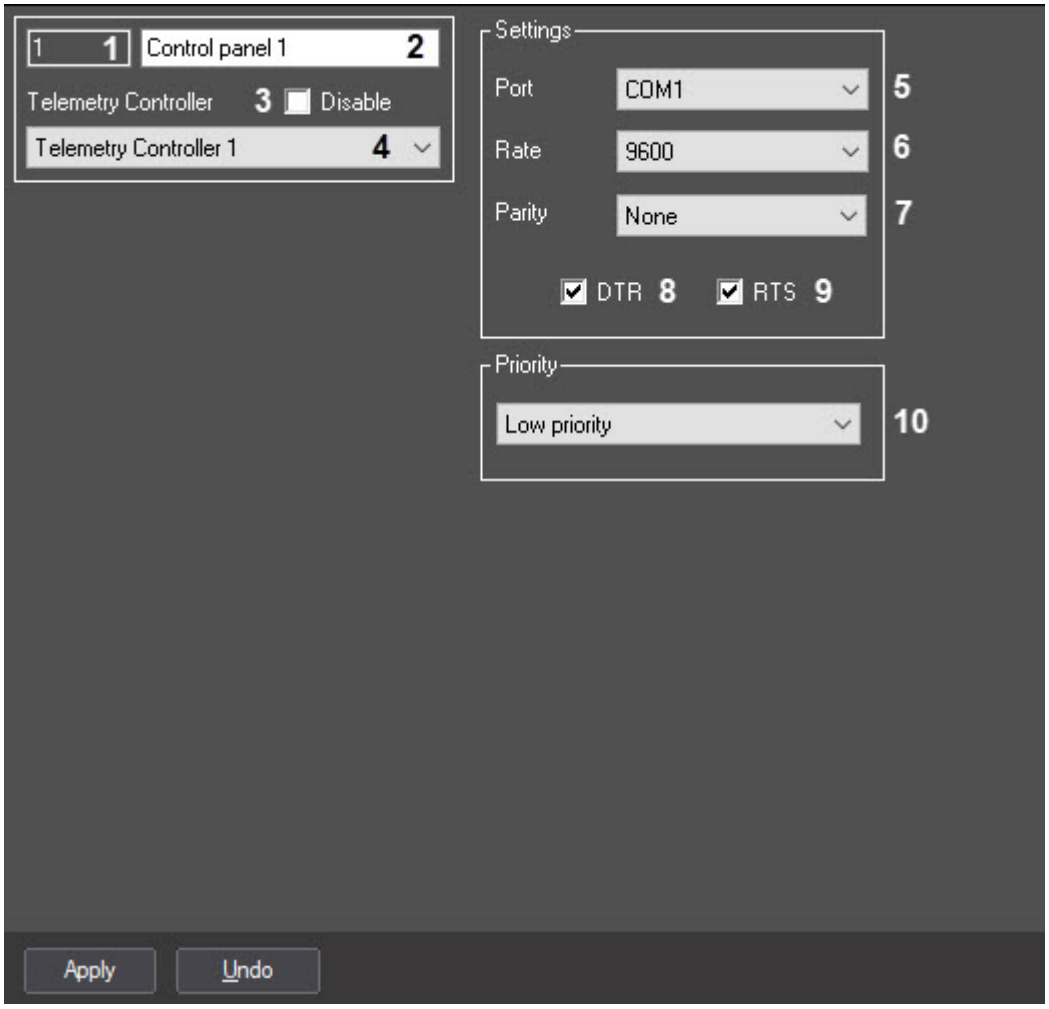
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

1	The **update** button	Click the button	Displays the data of the current camera position in the **pan, tilt, zoom** fields	NA	NA	NA
2	The **pan** field	Automatically when you click the **update** butt on	Sets the panoraming of the PTZ device	Integer numbers	NA	Depends on the model of the connected PTZ device
3	The **tilt** field	Automatically when you click the **update** butt on	Sets the tilt of the PTZ device	Integer numbers	NA	Depends on the model of the connected PTZ device
4	The **zoom** field	Automatically when you click the **update** butt on	Sets the scaling (zooming) of the PTZ device	Sequence of numbers	NA	Depends on the model of the connected PTZ device
5	The **x** field	Enter the value in the field	Sets the X coordinate of the point on the map corresponding to the selected position of the camera	Integer numbers	NA	Depends on the map size
6	The **y** field	Enter the value in the field	Sets the Y coordinate of the point on the map corresponding to the selected position of the camera	Integer numbers	NA	Depends on the map size

The settings panel of the Control panel object

The **Control panel** object is used to register and configure a specialized control panel used to manage the PTZ devices in *Axxon PSIM*.

The settings panel of the **Control panel** object is shown in the figure.



The table describes the parameters of the settings corresponding to the elements of the settings panel of the **Control panel** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Control panel** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Control panel** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Control panel** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic and service characters	Control panel	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Control panel** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Control panel** object is disabled and isn't used **Clear**—the **Control panel** object is enabled and is used
4	The **Telemetry Controller** drop-down list	Select the value from the list	Sets the **Telemetry Controller** parent object of the system with distributed architecture to which the given **Control panel** object belongs	Names of the **Telemetry Controller** objects registered in the system	Name of the **Telemetry Controller** parent object	Depends on the number of telemetry controllers in the video surveillance system with distributed architecture
The **Settings** group						
5	The **Port** drop-down list	Select the value from the list	Sets the number of the computer serial (COM) port used to connect the control panel	List of available COM ports	COM1	Depends on the number of COM ports on the server or Remote Administrator's workstation

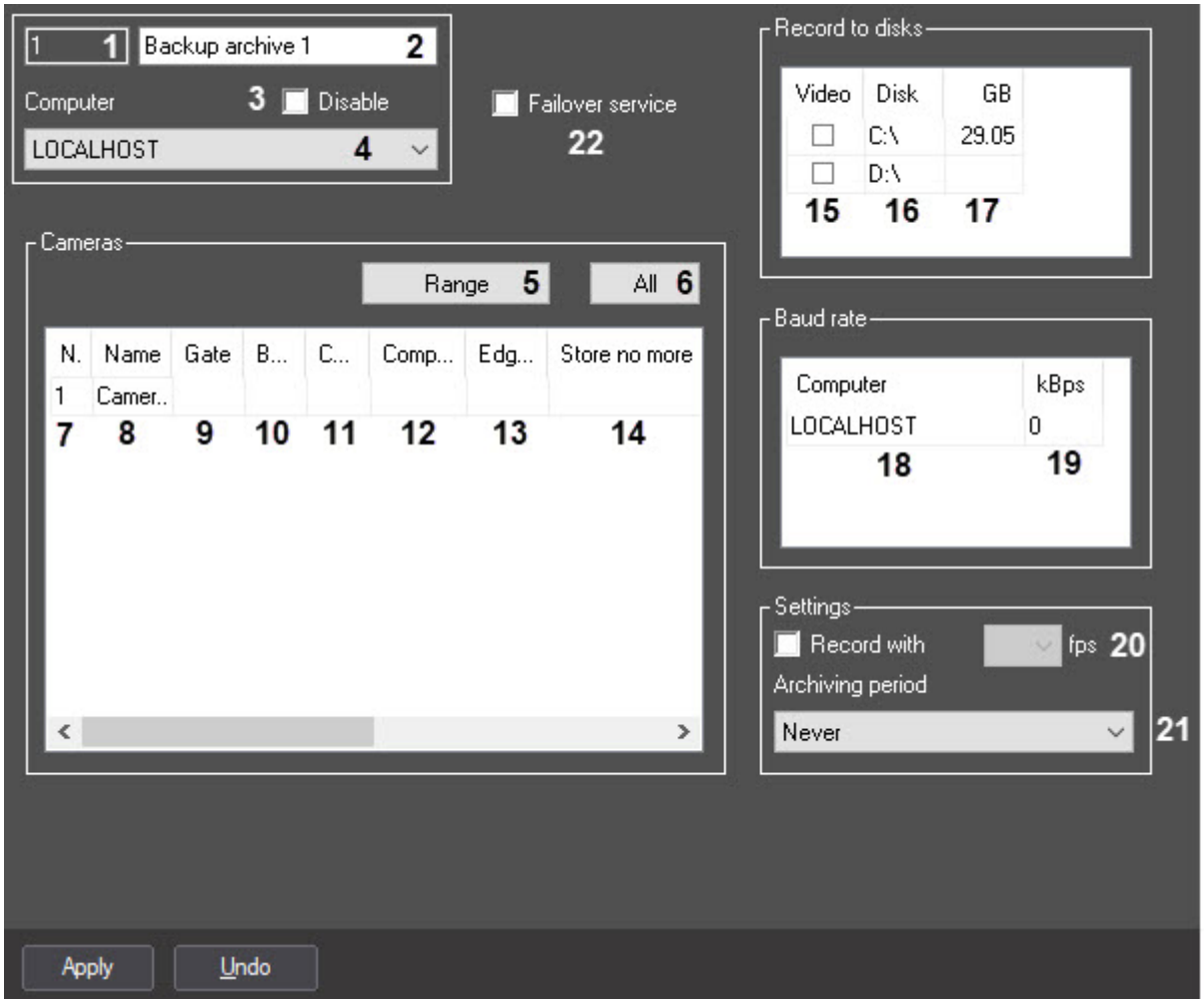
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Rate** drop-down list	Select the value from the list	Sets the data communication speed via the serial (COM) port	Kb/s	9600	From 300 to 256000
7	The **Parity** drop-down list	Select the value from the list	Sets the parity check mode for the data transmission over the serial (COM) port	Names of the parity check modes	None	**Even, Odd, None, Mark, Space**
8	The **DTR** checkbox	Set the checkbox	Enables power supply to the control panel via the output of the serial DTR (COM) port	Boolean type	Set	**Set**—the power is supplied via the DTR port output **Clear**—the power isn't supplied via the DTR port output
9	The **RTS** checkbox	Set the checkbox	Enables power supply to the control panel via the output of the serial RTS (COM) port	Boolean type	Set	**Set**—the power is supplied via the RTS port output **Clear**—the power isn't supplied via the RTS port output

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
10	The **Priority** drop-down list	Select the value from the list	Sets the priority for controlling the PTZ devices via the control panel	Names of priorities used to control the PTZ devices	Low	• **Control prohibited**—you cannot control the PTZ device using the control panel; • **Low**—you can control the PTZ device after it is controlled by the devices with the standard or high priority; • **Standard**—you can control the PTZ device after it is controlled by the device with the high priority; • **High**—the PTZ device is controlled first

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Backup archive object

The settings panel of the **Backup archive** system object is shown in the figure.



The table describes the setting parameters of the **Backup archive** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Backup archive** system object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Backup archive** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Backup archive** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Backup archive	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Backup archive** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Backup archive** object is disabled and isn't used **Clear**—the **Backup archive** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object for the backup archive	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system
The **Cameras** group						
5	The **Range** button	Click the button	Provides access to the complex selection of video cameras for copying the video archive to the backup archive	NA	NA	NA
6	The **All** button	Click the button	Selects all cameras registered in the system for copying the video archive to the backup archive	NA	NA	NA

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Number** drop-down list	Select the value from the list	Sets the number of the camera for copying the video archive to the backup archive	Sequence of numbers	NA	Depends on the number of cameras registered in the system
8	The **Camera** drop-down list	Select the value from the list	Sets the name of the camera for copying the video archive to the backup archive	Names of the cameras registered in the system	NA	Depends on the number of cameras registered in the system
9	The **Gate** drop-down list	Select the value from the list	Sets the **Videogate** object through which the video archive from the selected camera is transferred to the backup archive	Names of the **Videogate** objects registered in the system	NA	Depends on the number of the **Videogate** objects registered in the system
10	The **Backup archive** drop-down list	Select the value from the list	Sets the **Backup archive** object, which transfers the video archive from the selected camera to the given backup archive	Names of the **Backup archive** objects registered in the system	NA	Depends on the number of **Backup archive** objects registered in the system
11	The **Compression** drop-down list	Select the value from the list	Sets the level of the video signal compression to write to the backup archive	Sequence of numbers	NA	In order of increasing the compression level from 0 to 5 **0**—no compression **5**—maximum compression

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
12	The **Compressor** drop-down list	Select the value from the list	Sets the algorithm of the video stream compression used for the video signal recompression when writing to the backup archive. If you specify the compressor, select the compression value in the list	List of available algorithms	NA	**MJPEG, Motion Wavelet 3.5, MPEG4**
13	The **Edge storage** drop-down list	Select the value from the list	Sets the **External storage** object used to import the archive from the external storage of the IP device	Names of the **External storage** objects registered in the system	NA	Depends on the number of the **External storage** objects registered in the system
14	The **Store no more than (hours)** field	Enter the value in the field	Sets the time period in hours after which the records must be deleted from the backup archive	Non-negative integer	NA	>0
The **Record to disks** group						
15	The **Video** checkbox	Set the checkbox	Sets the disk to store the backup archive	Boolean type	Clear	**Set**—the disk is used to store the backup archive **Clear**—the disk isn't used to store the backup archive

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
16	The **Disk** field	Automatically	Displays the names of the local (network, USB) disks available for storing the backup archive	Names of the available disks (Latin characters)	NA	Depends on the total number of the available disks
17	The **GB** field	Automatically	Displays the amount of free space on each available disk	Disk space in GB	NA	Depends on the amount of free disk space
The **Baud rate** table						
18	The **Computer** field	Automatically	Sets the list of computers from which the archive is transferred to the backup archive	List of computers in the hardware tree	NA	Depends on the number of the **Computer** objects created in the system and on the list of cameras selected for transferring the archive
19	The **kBps** field	Enter the value in the field	Sets the maximum data transfer speed from this computer to the backup archive via the LAN	Speed value in kbyte/s	100	Depends on the bandwidth of the local network and resources of the used computers. **0**—the video archive data transfer speed is unlimited
The **Settings** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
20	The **Record with** checkbox	Set the checkbox	Enables the decimation of the video archive for transferring it to the backup archive	Boolean type	Clear	**Set**—the decimation is enabled **Clear**—the decimation is disabled
	The **Record with** drop-down list	Select the value from the list	Sets the frame rate of the video archive during decimation	Frame rate in frame/s	NA	**1, 2, 3, 4, 6, 8, 12, 25**

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
21	The **Archiving period** drop-down list	Select the value from the list	Sets the schedule of copying the video archive to the backup archive	List of available archiving periods	Never	• **Never**— video archive isn't copied to the backup archive; • **Always**— video archive is always copied to the backup archive; • **Connection lost**—the video archive is copied to the backup archive from the external storage when the connection is restored; • **Time schedule**— video archive is copied to the backup archive according to the specified time schedule
Out of the group						

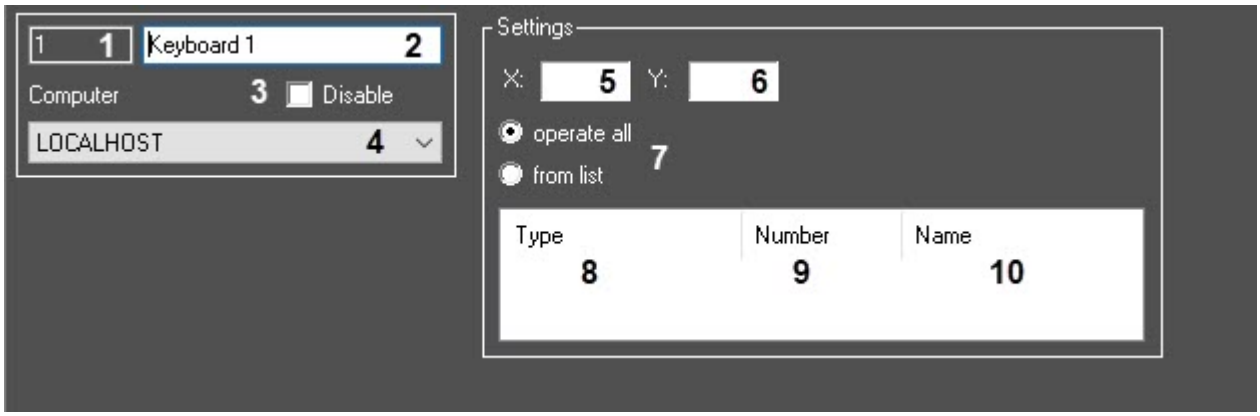
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
22	The **Failover service** checkbox	Set the checkbox	Enables the cooperation of the *Backup archive* module with the failover service (see also Configuring archive synchronization of main and backup Servers)	Boolean type	Clear	**Set**—the *Backup archive* module is used to synchronize the archives of the main and backup servers in the failover mode **Clear**—the *Backup archive* module operates as usual

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Keyboard object

The **Keyboard** object is used to register and configure a special keyboard in *Axxon PSIM*. The keyboard is used for the operational control of the main functions of the digital video surveillance system with the distributed architecture based on *Axxon PSIM*.

The settings panel of the **Keyboard** object is shown in the figure.



The table describes the parameters of the settings corresponding to the elements of the settings panel of the **Keyboard** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Keyboard** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Keyboard** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Keyboard** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Keyboard	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Keyboard** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Keyboard** object is disabled and isn't used **Clear**—the **Keyboard** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the given **Keyboard** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
The **Settings** group						

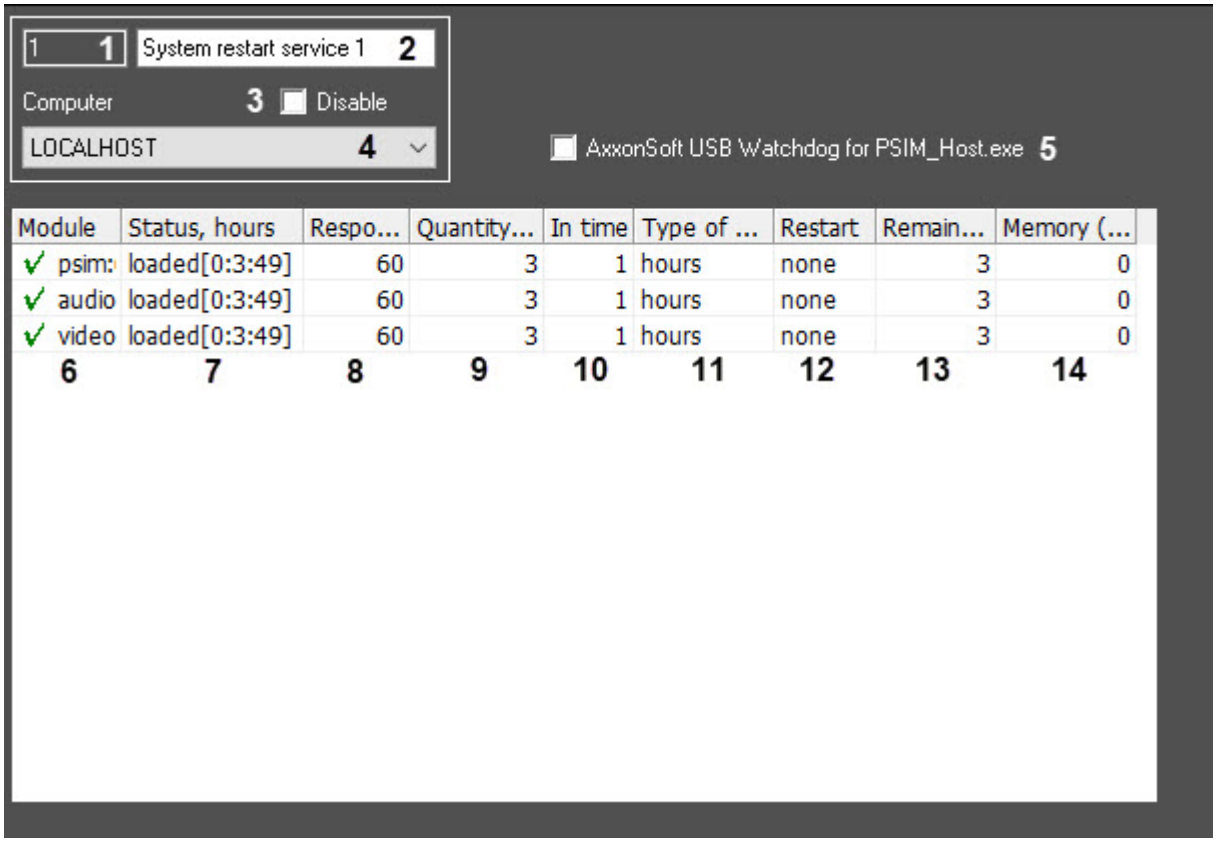
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	The **X** field	Enter the value in the field	Sets the coordinate on the horizontal X axis of the upper left corner of the object selection window to which the given command refers	% of the screen width	NA	From 0 to 100%
6	The **Y** field	Enter the value into the field	Sets the coordinate on the vertical Y axis of the upper left corner of the object selection window to which the given command refers	% of the screen height	NA	From 0 to 100%
7	Control devices*	Set the switch in the required position	Sets the interface objects that can be controlled using the keyboard	List of device types for control	Operate all	**Operate all**—the operator can control all interface objects according to the settings in the keyboard configur ation file **From list**—the operator can control only those interface objects that are specified in the list below
8	The **Type** drop-down list	Select the value from the list	Sets the type of the interface object that can be controlled using the keyboard	Names of the object types registered in the system	NA	Depends on the number of the interface object types created in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Number** drop-down list	Select the value from the list	Sets the identification number of the interface object that can be controlled using the keyboard	Sequence of numbers	NA	Depends on the number of the created devices of the type selected in item 8 in the video surveillance system with distributed architecture
10	The **Name** drop-down list	Automatically	Indicates the name of the device selected in the item 9	Name of the objects of the selected type registered in the system	NA	Depends on the number of the created devices of the type selected in item 8 in the video surveillance system with distributed architecture

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the System restart service object

The settings panel of the **System restart service** system object is shown in the figure:



The table describes the setting parameters of the **System restart service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **System restart service** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **System restart service** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **System restart service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	System restart service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **System restart service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **System restart service** object is disabled and isn't used **Clear**—the **System restart service** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object in the system to which the given **System restart service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Name of the **Computer** parent object (you cannot edit the **System restart service** object remotely)
5	The **AxxonSoft USB Watchdog for PSIM_Host.exe** checkbox	Set the checkbox	Activates the system of the automatic computer restart when the slave.exe. process isn't active	Boolean type	Clear	**Set**—the system of automatic restart is activated **Clear**—the system of automatic restart isn't activated

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
Table of the performance monitoring of the *Axxon PSIM* modules						
6	The **Module** column	Automatically	Displays the list of the modules running on the computer	Names of the running modules	NA	Depends on the number of modules registered in the system
7	The **Status, hours** column	Automatically	Displays the current state of the modules	Names of the current states of the modules	NA	• **loaded**—the module runs; • **unloaded** (red field)—no response from the module after the time period expires; • **unloaded**—the module is unloaded. *Note. The module's run time since the last restart is displayed in the HH:MM:SS format in the square brackets*
8	The **Response time, s** column	Enter the value in the field	Sets the time interval in seconds while waiting for a response from the module. If there is no response after the specified time, you can restart the system	Non-negative integers	60	From 0 and above

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Quantity of restarts** column	Enter the value in the field	Sets the maximal quantity of restarts for the time period specified in the **In time** and **Type of period** columns	Non-negative integers	3	From 0 and above
10	The **In time** column	Enter the value in the field	Sets the time period during which the maximum quantity of system restarts can be performed	Non-negative integers	1	From 0 and above
11	The **Type of period** column	Select the value from the list		Names of time period units	hours	**hours**—the time period is measured in hours **days**—the time period is measured in days
12	The **Restart** column	Select the value from the list	Sets the type of system restart	Names of the possible restart types	none	**none**—restart isn't performed **module**—module restart is performed **core**—*Axxon PSIM* core restart is performed
13	The **Remains of restarts** column	Automatically	Displays the quantity of the remaining restarts for the time period specified in the **In time** and **Type of period** columns	Non-negative integers	NA	Depends on the maximum quantity of restarts and on the number of restarts that are performed for the current time period

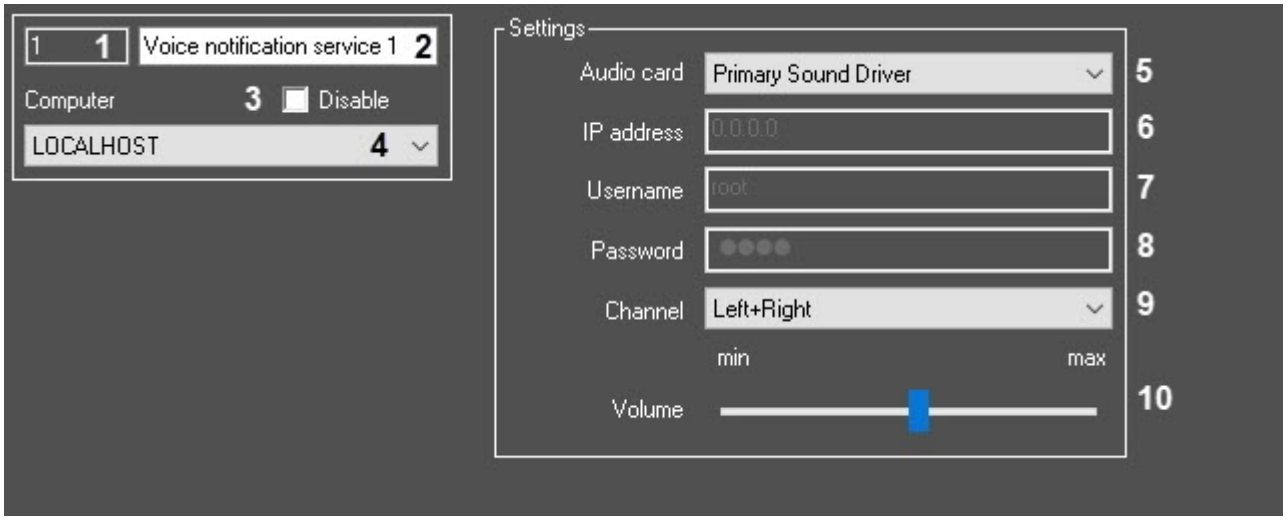
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
14	The **Memory (Mb)** column	Enter the value in the field	Sets the memory consumption threshold used by the module above which it must be restarted	Non-negative integers	0	From 0 and above

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Voice notification service object

The **Voice notification service** object is used to register the program module that implements the voice notification of the security system operators upon certain events.

The settings panel of the **Voice notification service** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Voice notification service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Voice notification service** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Voice notification service** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name to the **Voice notification service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Voice notification service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Voice notification service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Voice notification service** object is disabled and isn't used **Clear**—the **Voice notification service** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the given **Voice notification service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
The **Settings** group						
5	The **Audio card** drop-down list	Select the value from the list	Sets the device to which the audio signal is sent for processing during voice notification	List of the audio device types registered in the system	Name of the installed audio card	Name of the installed audio card—specifies the audio card on the server or on the Remote Administrator's workstation, which processes the audio signal for the voice notification. **LinuxHub**—specifies the **LinuxHub** device type on which the audio signal of the voice notification is played back. **Axis**—specifies the **Axis** device type on which the audio signal of the voice notification is played back

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **IP address** field	Enter the value in the field	Sets the IP address of the LinuxHub and Axis devices. *Note. This field is active if you select the LinuxHub or Axis item in the **Sound card** menu*	Sequence of numbers	0.0.0.0	From 0.0.0.0 to 255.255.255.255, depending on the local network settings. Expressions like: xxx.xxx.xxx.xxx
7	The **Username** field	Enter the value in the field	Sets the username used to connect to the LinuxHub and Axis devices. *Note. This field is active if you select the LinuxHub or Axis item in the **Sound card** menu*	Latin alphabet, digits, and service characters	root	A line containing a sequence of any characters (letters, digits, service characters), case-sensitive. Number of characters—from 1 to 60
8	The **Password** field	Enter the value in the field	Sets the password used to connect to the LinuxHub and Axis devices. *Note. This field is active if you select the LinuxHub item or the Axis speaker in the **Sound card** menu*	Latin alphabet, digits, and service characters	root	A line containing a sequence of any characters (letters, digits, service characters), case-sensitive. Number of characters—from 1 to 60

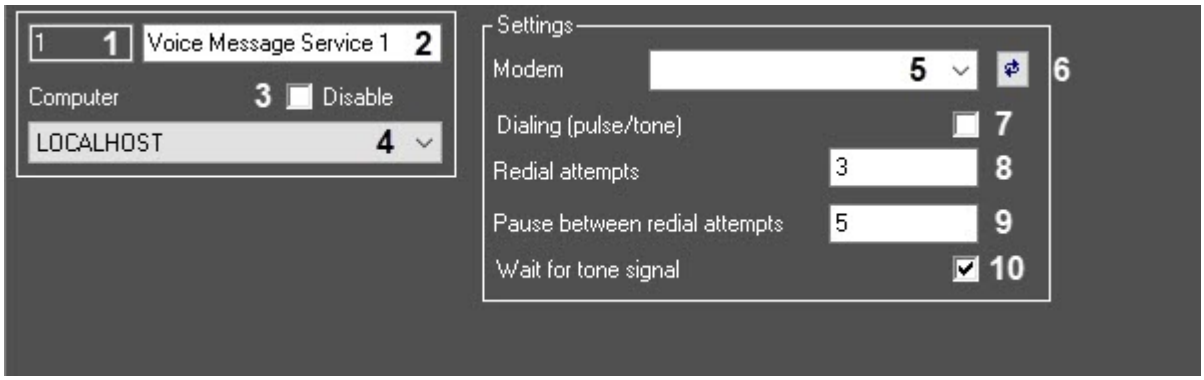
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Channel** drop-down list	Select the value from the list	Sets a channel in the server sound card to play back the audio signal	List of the audio channels to which a sound can be transmitted	Left+Right	• **Left+Right**—the sound notification signal is transmitted to both channels of the sound card; • **Left**—the sound notification signal is transmitted to the left channel of the sound card; • **Right**—the sound notification signal is transmitted to the right channel of the sound card
10	The **Volume** slider	Set the slider in the position	Sets the volume of the audio signal transmitted to the sound card. *Note. This field is active if you select the sound card in the **Sound card** menu*	dB	24 dB	**Min**—0 **Max**—45

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Voice Message Service object

The **Voice Message Service** is used for registration of the program module, which supports transmission of voice messages over the telephone lines. This service provides automatic redial of the specified telephone numbers and playback of the audio files.

The settings panel of the **Voice Message Service** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Voice Message Service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Voice Message Service** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Voice Message Service** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Voice Message Service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Voice Message Service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Voice Message Service** object in the video surveillance system with distributed architecture	Boolean type	Clear	Set—the **Voice Message Service** object is disabled and isn't used Clear—the **Voice Message Service** object is enabled and used

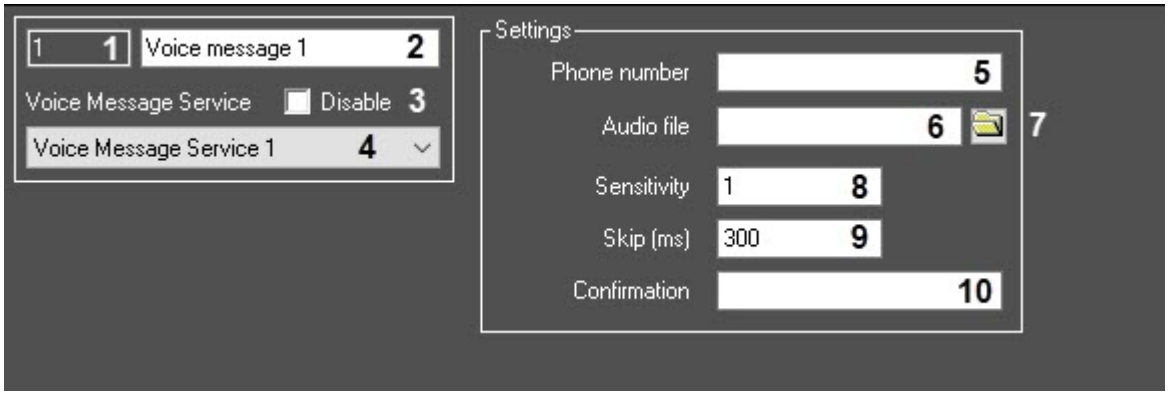
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with the distributed architecture, to which the given **Voice Message Service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
The **Settings** group						
5	The **Modem** drop-down list	Select the value from the list	Sets the voice modem used for transmitting the voice messages	Names of the voice modem registered in Windows OS	NA	Depends on the number of the connected voice modems
6	The  button	Click the button	Scans connected devices to identify the voice modems and put them in the **Modem** list	NA	NA	NA
7	The **Dialing (pulse/ tone)** checkbox	Set the checkbox	Sets the number dialling mode: pulse or tone	Boolean type	Clear	**Set**— tone **Clear**— pulse

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The **Redial attempts** field	Enter the value in the field	Sets the maximum number of redial attempts to establish a connection	Sequence of numbers	3	From 1 to 10. Recommended from 1 to 5
9	The **Pause between redial attempts** field	Enter the value in the field	Sets the length of a pause between redial attempts	Sequence of numbers	5	From 3 to 600. Recommended from 30 to 120
10	The **Wait for tone signal** checkbox	Set the checkbox	Enables the tone signal wait function in the phone line before dialling the number	Boolean type	Set	**Set**— waiting for a tone signal in the phone line before dialling the number **Clear**— waiting for a tone signal in the phone line before dialling the number isn't required

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Voice message object

The **Voice message** object is used to create a voice message that can be sent over the telephone lines. The settings panel of the **Voice message** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Voice message** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Voice message** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Voice message** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Voice message** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Voice message	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Voice message** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Voice message** object is disabled and isn't used **Clear**—the **Voice message** object is enabled and used
4	The **Voice Message Service** drop-down list	Select the value from the list	Sets the **Voice Message Service** parent object of the system with distributed architecture to which the given **Voice message** object belongs	Names of the **Voice Message Service** objects registered in the system	Name of the **Voice Message Service** parent object	Depends on the number of the **Voice Message Service** objects in the video surveillance system with distributed architecture
The **Settings** group						
5	The **Phone number** field	Enter the value in the field	Sets the phone number of the voice message recipient	Sequence of numbers	NA	A line, containing a sequence of digits. Depends on the voice modem used
6	The **Audio file** field	Enter the value in the field	Sets the path to the audio file, which will be played back when the recipient picks up the phone	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive

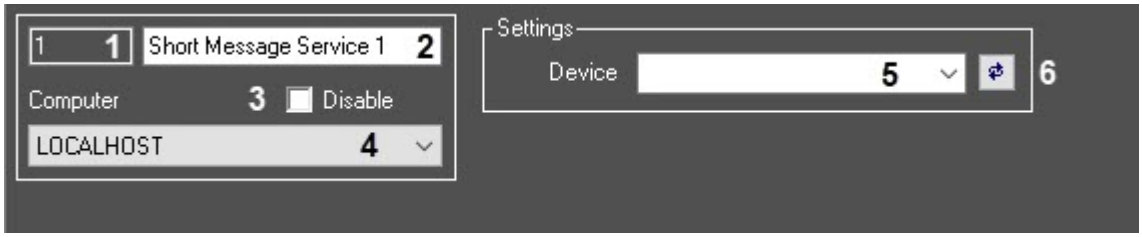
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The file picker* button	Click the button	Sets the path to the audio file, which will be played back when the recipient picks up the phone, by selecting a file directly from the standard file selection menu	NA	NA	NA
8	The **Sensitivity** field	Enter the value in the field	Sets the maximum noise level in the phone handset, which prevents false identification of the noise as a reply of the voice message recipient	Sequence of numbers	1	From 1 to 10
9	The **Skip (ms)** field	Enter the value in the field	Sets the delay time between redial attempts	ms	300	More than 1
10	The **Confirmation** field	Enter the value in the field	Sets the digital code, which the recipient must enter to confirm the voice message reception	Sequence of numbers	NA	A line, containing a sequence of digits. Number of characters—from 1 and above

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Short Message Service object

The **Short Message Service** object is used to register and configure the program module, which supports the short message (SMS) transmission to mobile phones via cellular communication.

The settings panel of the **Short Message Service** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Short Message Service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Short Message Service** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Short Message Service** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value into the field	Sets the name of the **Short Message Service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Short Message Service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Short Message Service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Short Message Service** object is disabled and isn't used **Clear**—the **Short message service** object is enabled and used

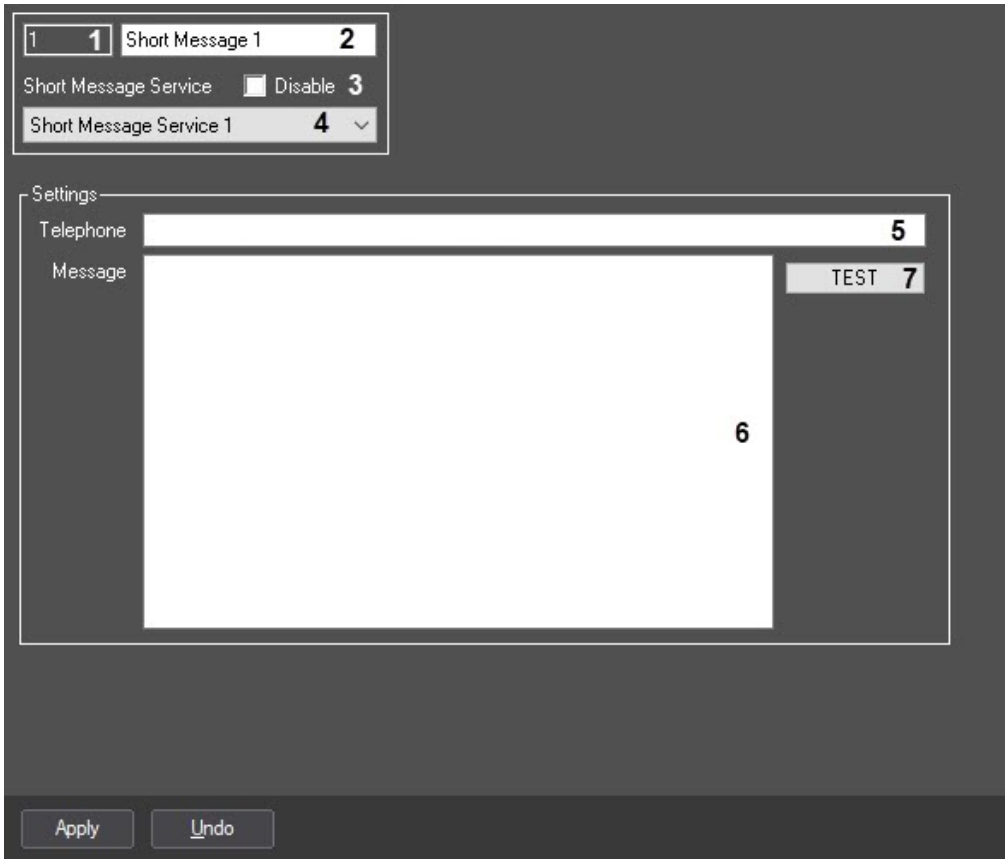
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the given **Short Message Service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
The **Settings** group						
5	The **Device** drop-down list	Select the value from the list	Sets the GSM device used to send short messages (SMS)	Names of the GSM devices registered in Windows OS	NA	Depends on the number of the connected GSM devices
6	The device picker*  button	Click the button	Scans the connected devices to find the GSM devices and put them in the **Devices** list	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Short Message object

The **Short Message** object is used to create a short message (SMS) that can be sent to a mobile phone via cellular communication.

The settings panel of the **Short Message** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Short Message** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Short Message** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Short Message** objects in the video surveillance system with distributed architecture

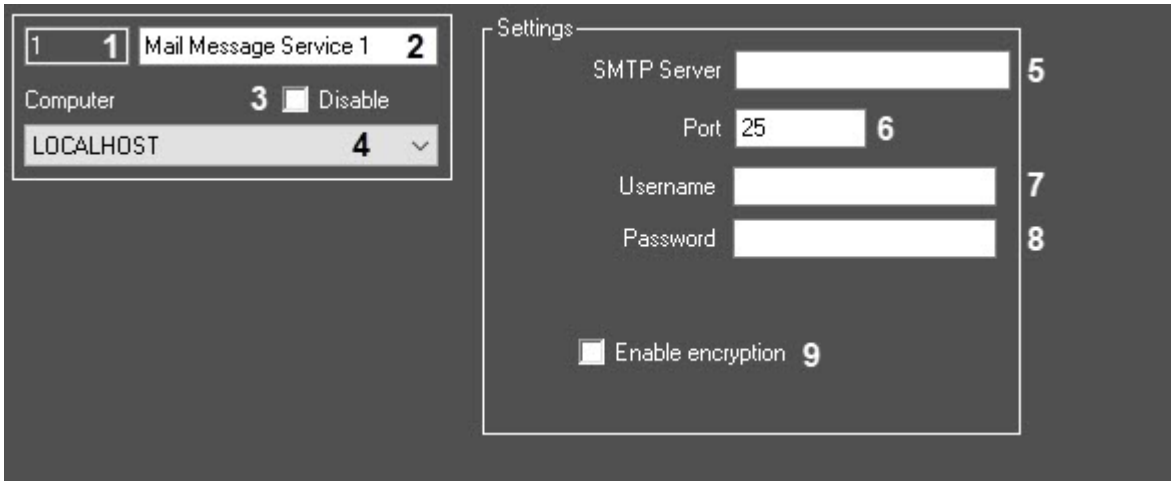
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Short Message** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Short Message	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Short Message** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Short Message** object is disabled and isn't used **Clear**—the **Short Message** object is enabled and used
4	The **Short Message Service** drop-down list	Select the value from the list	Sets the **Short Message Service** parent object of the system with distributed architecture to which the given **Short Message** object belongs	Names of the **Short Message Service** objects registered in the system	Name of the **Short Message Service** parent object	Depends on the number of the **Short Message Service** objects in the video surveillance system with distributed architecture
The **Settings** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	The **Telephone** field	Enter the value in the field	Sets the mobile phone number of the short message (SMS) recipient	Sequence of numbers	NA	Number in the international format. Multiple numbers are listed, separated by a semicolon. Example: +79061234567;+79271112233
6	The **Message** field	Enter the value in the field	Sets a text of the short message (SMS), which will be sent via cellular communication	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60
7	The **TEST** button	Click the button	Forced sending of the short message to the specified number	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Mail Message Service object

The **Mail Message Service** object is used to register the program module, which supports e-mail message transmission to the e-mail boxes of the remote system users. The settings panel of the **Mail Message Service** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Mail Message Service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Mail Message Service** object in the video surveillance system with the distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Mail Message Service** objects in the video surveillance system with the distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Mail Message Service** object in the video surveillance system with the distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Mail Message Service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Mail Message Service** object in the video surveillance system with the distributed architecture	Boolean type	Clear	**Set**—the **Mail Message Service** object is disabled and isn't used **Clear**—the **Mail Message Service** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with the distributed architecture to which the given **Mail Message Service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with the distributed architecture
The **Settings** group						
5	The **SMTP Server** field	Enter the value in the field	Sets the SMTP server address used for sending the e-mail messages	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters from 1 to 100
6	The **Port** field	Enter the value in the field	Sets the number of the SMTP server port used for sending the e-mail messages	Sequence of numbers	25	Determined by the system administrator

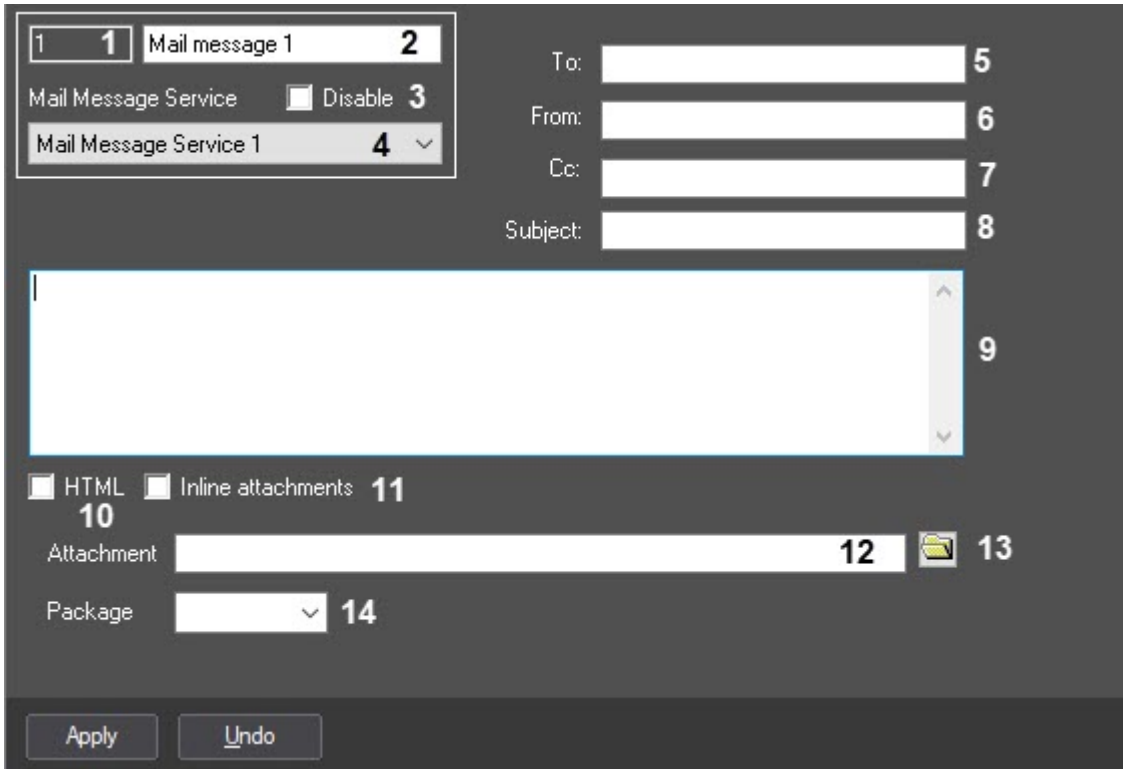
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Username** field	Enter the value in the field	Sets the username (login) for authorization on the SMTP server. The username matches the unique name of the e-mail box on the mail server	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-sensitive. Number of characters from 1 to 100
8	The **Password** field	Enter the value in the field	Sets the password for authorization on the SMTP server	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-sensitive. Number of characters from 1 to 100
9	The **Enable encryption** checkbox	Set the checkbox	Enables the TLS encryption	Boolean type	Clear	**Set**—encryption is enabled **Clear**—encryption is disabled

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Mail message object

The **Mail message** object is used to create an e-mail message that is sent to the e-mail boxes of the remote system users.

The settings panel of the **Mail message** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Mail message** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Mail message** object in the video surveillance system with the distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Mail message** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Mail message** object in the video surveillance system with the distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Mail message	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Mail message** object in the video surveillance system with the distributed architecture	Boolean type	Clear	**Set**—the **Mail message** object is disabled and isn't used **Clear**—the **Mail message** object is enabled and used
4	The **Mail Message Service** drop-down list	Select the value from the list	Sets the **Mail Message Service** parent object, to which the given **Mail message** object belongs	Names of the **Mail Message Service** objects registered in the system	Name of the **Mail Message Service** parent object	Depends on the number of the **Mail Message Service** objects in the video surveillance system with the distributed architecture
The **Settings** group						
5	The **To** field	Enter the value in the field	Sets the e-mail box address of the mail message recipient	Latin alphabet, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters from 1 to 30

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **From** field	Enter the value in the field	Sets the e-mail box address of the mail message sender	Latin alphabet, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters from 1 to 30
7	The **Cc** field	Enter the value in the field	Sets the recipient e-mail box address to which the mail message copy is sent	Latin alphabet, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters from 1 to 60. If you want to send the mail message copy to several e-mail addresses, enter the e-mail addresses separated by a comma
8	The **Subject** field	Enter the value in the field	Sets the subject of the mail message	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The Text message* field	Enter the value in the field	Sets the text content of the mail message	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 250
10	The **HTML** checkbox	Set the checkbox	Enables the HTML formatting in the message text	Boolean type	Clear	**Set**—the HTML formatting is applied **Clear**—the HTML tags are displayed as text
11	The **Inline attachments** checkbox	Set the checkbox	Excludes the attachments from the "Attachment" section in the mail message. The attachments are displayed only in the text of the mail message	Boolean type	Clear	**Set**—the attachments are excluded from the "Attachment" section and displayed only in the text of the mail message (if mentioned) **Clear**—the attachments are included both in the text of the mail message (if mentioned) and in the "Attachment" section of the email message

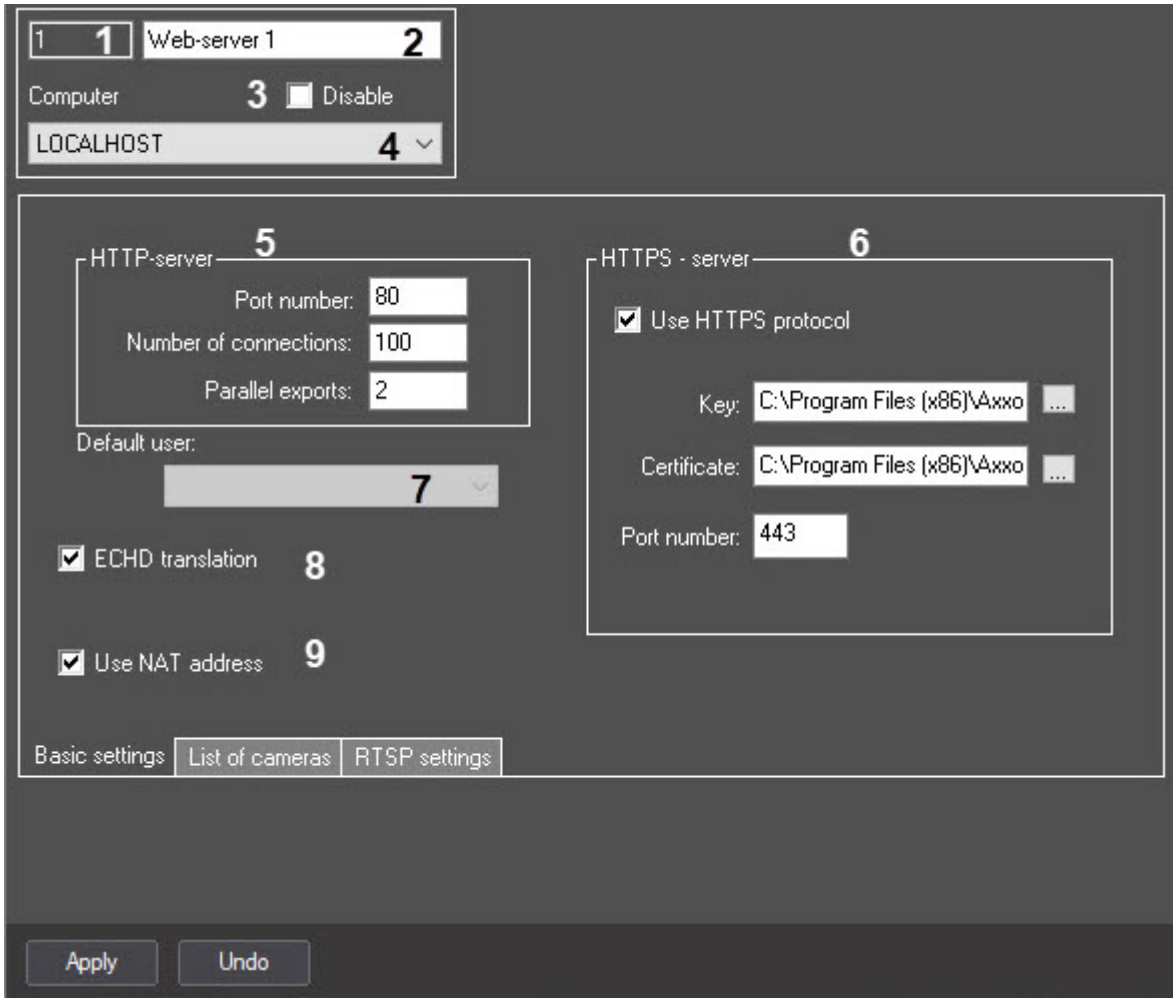
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
12	The **Attachment** field	Enter the value in the field	Sets a path to the file, which is attached to the mail message	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 250
13	The Select file*  button	Click the button	Sets a path to the file, which is attached to the mail message, by selecting the file using the standard file selection menu	NA	NA	NA
14	The **Package** drop-down list	Select the value from the list	Sets the compression format for archiving the file attached to the mail message	Names of the archive type	Empty field	**Empty field**—a file attached to the mail message is sent without compression **GZIP**—a file attached to the mail message is sent, compressed in the gzip format beforehand

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Web-server object

The **Web-server** object is used for video surveillance via a web browser and the TCP/IP communication environment. The settings panel of the **Web-server** object and its description are given below.

The **Basic settings** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Web server** object in the video surveillance system with distributed architecture	Sequence of numbers	Depends on the number of the **Web server** objects in the video surveillance system with distributed architecture	From 1 to 2147483647

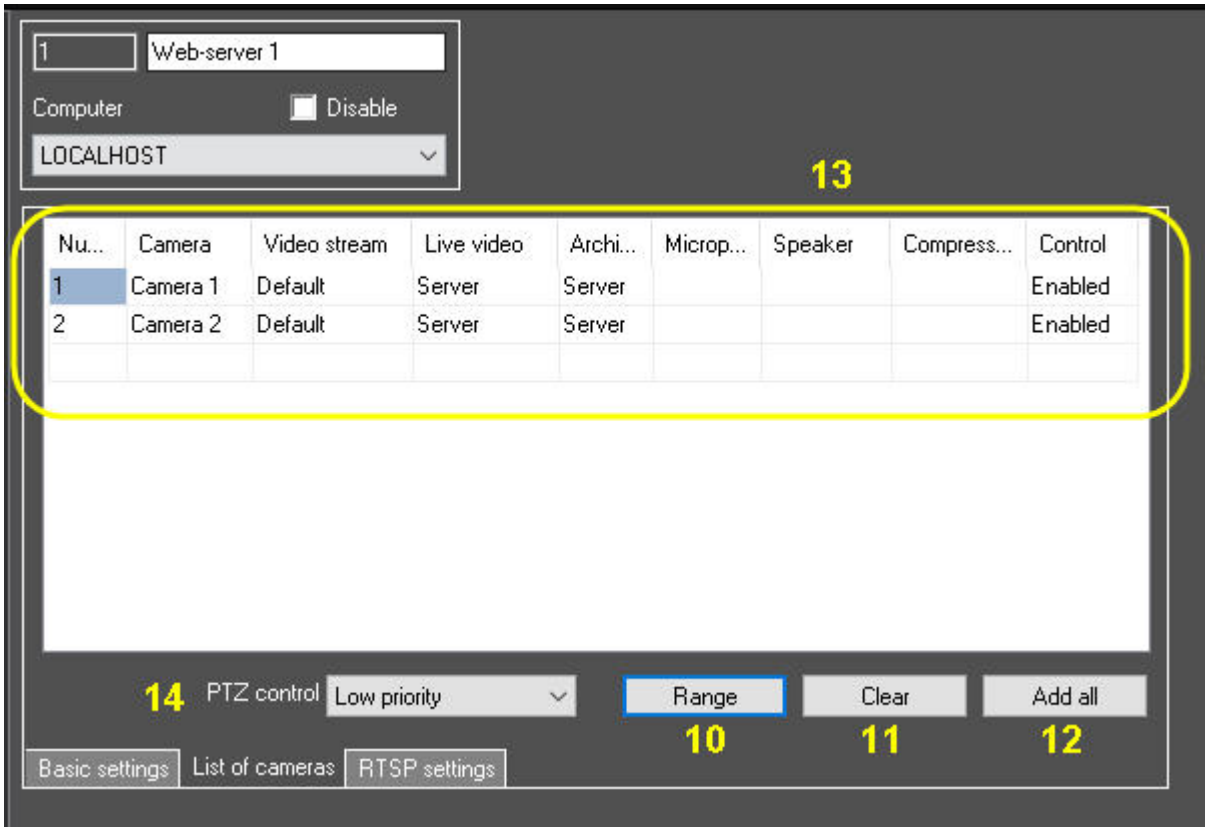
2	The Name* field	Enter the value in the field	Sets the name of the **Web server** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Web-server	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Web server** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Web server** object is disabled and isn't used **Clear**—the **Web server** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the given **Web server** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
The **HTTP-server** group						
5	The **Port number** field	Enter the value in the field	Sets the number of the port used by the HTTP server (used for video surveillance via a web browser, including through the internet)	Sequence of numbers	80	Any valid unused port numbers. The number of ports is determined by the system administrator

	The **Number of connections** field	Enter the value in the field	Sets the maximum possible number of connections to the server via the *Web server* module. Each request to view the video signal from each camera and each request to control all PTZ devices, regardless of their number, is considered as a connection	Sequence of numbers	100	Any integer. If you specify the 0 value in the video surveillance monitor of the *Web-server* module, video signals aren't displayed
	The **Parallel exports** field	Enter the value in the field	Determines the maximum allowed number of archive files to be uploaded simultaneously	Sequence of numbers	2	From 1 and above. If you leave the field blank, the lowest possible value is used
The **HTTPS-server** group						
6	The **Use HTTPS protocol** checkbox	Set the checkbox	Enables the HTTPS protocol when you transmit data via the *Web server* module	Boolean type	Clear	**Set**—the HTTPS protocol is used **Clear**—the HTTPS protocol isn't used
	The **Key** field	Enter the value in the field	Sets the path to the folder of the key for data transmission via the HTTPS protocol	Latin alphabet, Cyrillic and service characters	C:\Program Files (x86)\Axxon PSIM\Modules\SSL\ssl_internal.key	Depends on the location of data encryption key when you transmit data via the HTTPS protocol

	The **Certificate** field	Enter the value in the field	Sets the path to the folder of the certificate for data transmission via the HTTPS protocol	Latin alphabet, Cyrillic, and service characters	C:\Program Files (x86)\Axxon PSIM\Modules\SSL\ssl_internal.cert	Depends on the location of certificate file when you transmit data via the HTTPS protocol
	The **Port number** field	Enter the value in the field	Sets the number of the port used for the HTTPS server (used for video surveillance in a web browser and via the internet)	Sequence of numbers	443	Any available unused port numbers. The number of ports is determined by the system administrator
Out of the group						
7	The **Default user** drop-down list	Select the value from the list	Sets the user with rights and authority to conduct the video surveillance from the Remote workstation using the *Web server* module	Names of the users registered in the system and added to the rights	NA	Depends on the number of users registered in *Axxon PSIM*
8	The **ECHD translation** checkbox	Set the checkbox	Enables the use of the HTTP requests used for integration with ECHD	Boolean type	Clear	**Set**—requests used for integration with ECHD are executed for the **Camera** objects on the basis of which the **ECHD channel** objects are created **Clear**—requests used for integration with ECHD aren't executed

9	The **Use NAT address** checkbox	Set the checkbox	Enables the router address substitution in the ECHD requests	Boolean type	Clear	**Set**—when you request the URL streams via the HTTP API, the IP address of the router specified in the settings panel of the **RTSP Server** object is substituted in the response to the request **Clear**—when you request the URL streams via the HTTP API, the IP address of the server in its local network is returned in response to the request

The **List of cameras** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
10	The **Range** button	Click the button	Opens the window for bulk addition of cameras (see Bulk selecting and configuring cameras for the Web-server)	NA	NA	NA
11	The **Clear** button	Click the button	Clears the list of the added cameras	NA	NA	NA
12	The **Add all** button	Click the button	Adds to the list of cameras all **Camera** objects created in the system	NA	NA	NA
13	The **Number** drop-down list	Select the value from the list	Sets the number of the camera the video from which is transmitted to the remote workstation via the *Web server* module	Identifiers of the **Camera** objects registered in the system	NA	Depends on the number of cameras in the video surveillance system with distributed architecture
	The **Camera** drop-down list	Select the value from the list	Sets the name of the camera the video from which is transmitted to the remote workstation via the *Web server* module	Names of the **Camera** objects registered in the system	NA	Depends on the number of cameras in the video surveillance system with distributed architecture
	The **Video stream** drop-down list	Select the value from the list	Sets the number of the video stream used for displaying in the interface of the *Web server* module	Numbers of video streams enabled on the camera and the By default value	By default	Depends on the number of the camera enabled streams

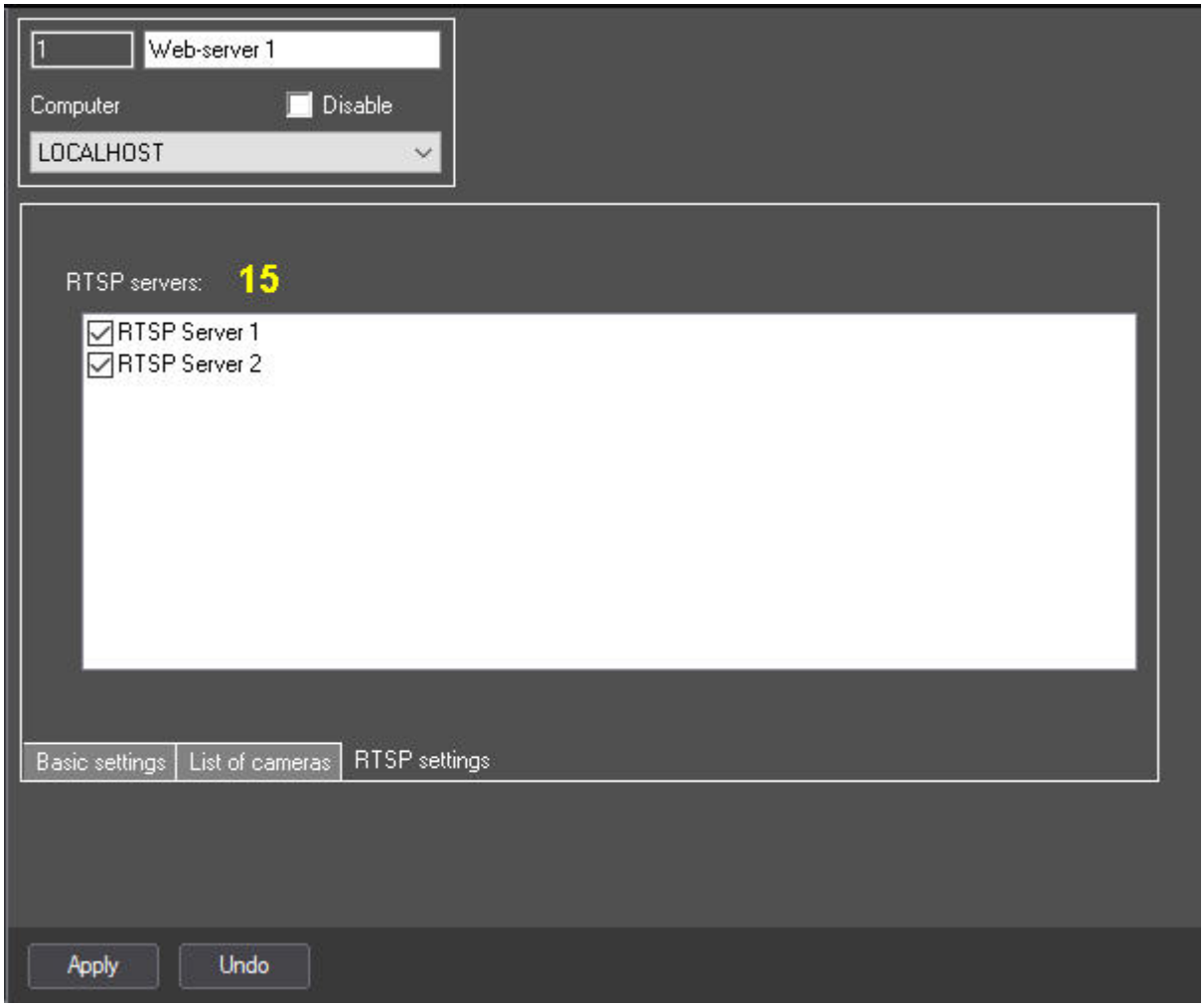
The **Live video** drop-down list	Select the value from the list	Sets the source of live video that is displayed in the interface of the *Web server* module	Available means to get live video	server	**Server**—live video is received from the server to which the camera is connected. **Videogate**—live video is received through the videogate. *Note. If a camera isn't configured to transmit video through the videogate, this item is unavailable in the list*

The **Archive** drop-down list	Select the value from the list	Sets the source of the archive video that is displayed in the interface of the *Web server* module	Available means to get archive video	server	• **Disabled**— archive video isn't transmitted; • **Server**— archive video is received from the server to which the camera is connected; • **Backup archive**— archive video is received from the backup archive; • **Videogate**— archive video is received from the videogate archive. If a camera isn't configured to transmit video through the videogate, this item is unavailable in the list
The **Microphone** drop-down list	Select the value from the list	Sets the name of the microphone associated with the camera, the audio from which is transmitted through the *Web server* module	Names of the **Microphone** objects registered in the system	NA	Depends on the number of the **Microphone** objects in the video surveillance system with distributed architecture

The **Speaker** drop-down list	Select the value from the list	Sets the name of the speaker associated with the camera, which is used to play back the audio received from the client	Names of the **Speaker** objects registered in the system	NA	Depends on the number of the **Speaker** objects in the video surveillance system with distributed architecture
The **Compression** drop-down list	Select the value from the list	Sets the compression level of the video signal transmitted to the remote workstations using the *Web server* module. Increasing the level of compression leads to the deterioration of the video signal quality	Reference compression levels	NA	Not defined, from 1 to 5. The 1 value corresponds to the minimum compression level, the 5—to the maximum compression level. If the compression level isn't specified, the video signal is transmitted with the same compression level as set for recording and transmitting videos to the network
The **Control** drop-down list	Select the value from the list	Enables the camera control (arm/disarm, PTZ, recording to the archive) according to the user rights	Boolean type	Enabled	**Enabled**—camera control according to the user rights is enabled **Disabled**—camera control is disabled regardless of the user rights

14	The **PTZ control** drop-down list	Select the value from the list	Sets the priority of the PTZ control during video surveillance using a web browser	Names of the PTZ control priorities	Low priority	• **Forbidden**—option of the PTZ control with a web browser at video surveillance; • **Low priority**—low priority of control; • **Medium priority**—medium priority of control; • **High priority**—high priority of control

The **RTSP settings** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
15	The **RTSP server** list	Automatically	Displays the list of the **RTSP Server** objects registered in the system to process ECHD requests	Name of the **RTSP Server** objects	NA	List of the **RTSP Server** objects registered in the system to process ECHD requests

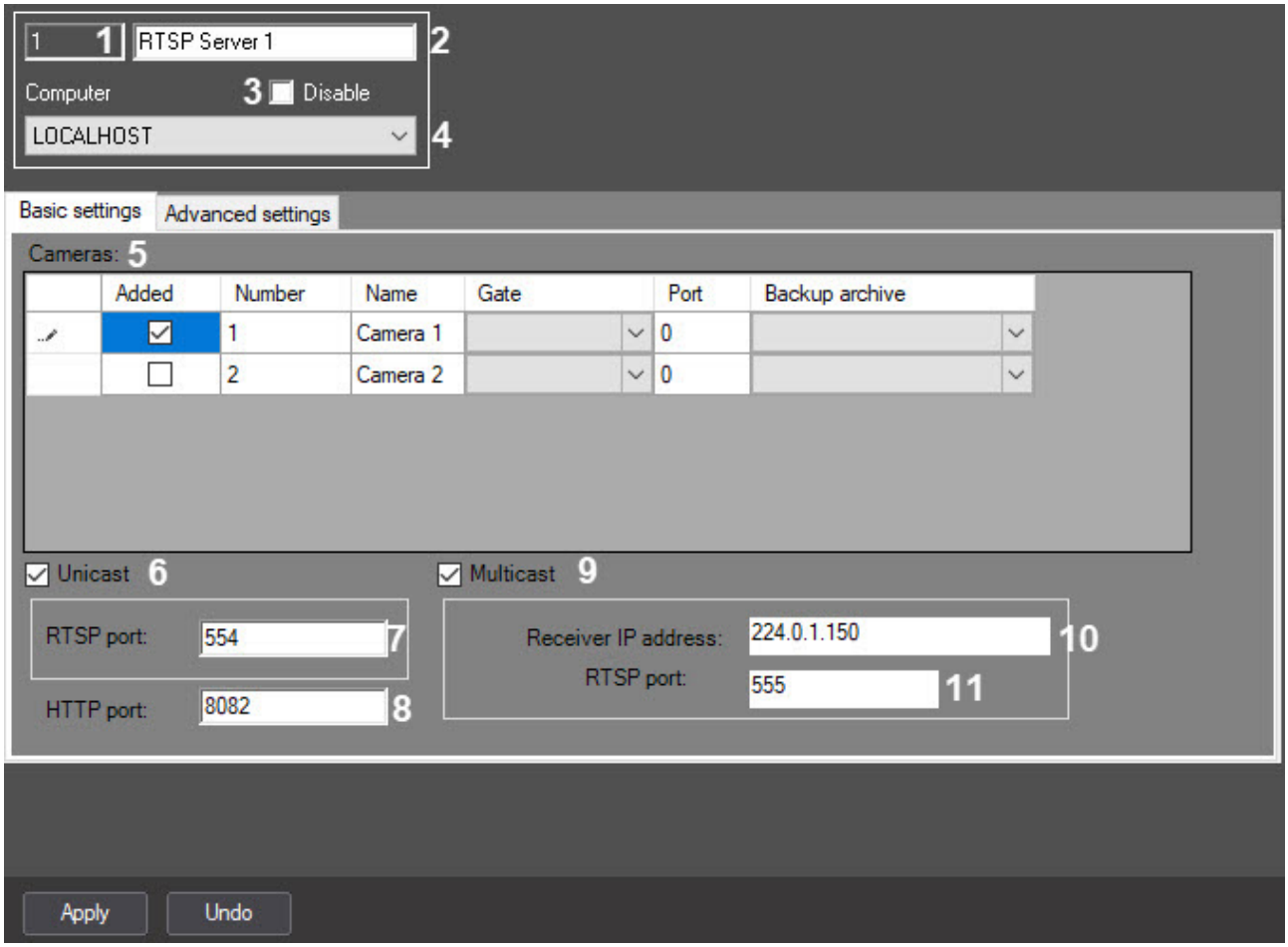
	The **RTSP server** checkbox	Set the checkbox	Selects from the list (one or several) the **RTSP Server** objects registered in the system to process ECHD requests	Boolean type	Clear	**Set**—RTSP server is used to process ECHD requests **Clear**—RTSP server isn't used to process ECHD requests

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the RTSP Server object

The settings panel of the **RTSP Server** object is shown in the figure. The tables below describe the setting parameters of the **RTSP Server** system object.

The **Basic settings** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **RTSP Server** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **RTSP Server** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Determines the name of the **RTSP Server** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	RTSP Server	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **RTSP Server** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **RTSP Server** object is disabled and isn't used **Clear**—the **RTSP Server** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object to which the given **RTSP Server** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of servers in the video surveillance system with distributed architecture
The **Basic settings** tab						
5	The **Cameras** table					

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Added** column	Set the checkbox	Specifies the cameras, the video signals from which must be transmitted to the remote workstations	Boolean type	Clear	**Set**—the video stream can be viewed at a remote workstation **Clear**—the video stream cannot be viewed at a remote workstation
	The **Number** column	Automatically	Displays the identification number of the **Camera** object in the video surveillance system with distributed architecture	Identification numbers of the **Camera** objects registered in the system	NA	Depends on the number of the **Camera** objects registered in the system
	The **Name** column	Automatically	Determines the name of the **Camera** object in the video surveillance system with distributed architecture	Names of the **Camera** objects registered in the system	NA	Depends on the number of the **Camera** objects registered in the system
	The **Gate** column	Select the value from the list	Specifies the videogate through which video is received from the camera	Names of the **Videogate** objects registered in the system	NA	Depends on the number of the **Videogate** objects registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Port** column	Enter the value in the field	Determines the port through which the video signal is transmitted. *Note. This column is available only if you set the **Multicast** check box.* *Specified ports aren't addressed directly. Use the RTSP port to get the video data from all cameras in the **Multicast** mode*	Sequence of numbers	NA	Any available unused port numbers. The number of ports is determined by the system administrator
	The **Backup archive** column	Select the value from the list	Specifies the backup archive from which the archive is received for the camera	Names of the **Backup archive** objects registered in the system	NA	Depends on the number of the **Backup archive** objects registered in the system
6	The **Unicast** checkbox	Set the checkbox	Enables the **Unicast** transmission mode	Boolean type	Set	**Set**—the video is transmitted in the **Unicast** mode **Clear**—the video isn't transmitted in the **Unicast** mode
7	The **RTSP port** field	Enter the value in the field	Determines the port through which the video signal is transmitted	Sequence of numbers	554	Any available unused port numbers. The number of ports is specified by the system administrator

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The **HTTP port** field	Enter the value in the field	Determines the port that must be used for transmitting the video signal through the HTTP protocol	Sequence of numbers	8082	Any available unused port numbers. The number of ports is specified by the system administrator
9	The **Multicast** checkbox	Set the checkbox	Enables video transmission through different RTSP ports. The **Multicast** mode allows reducing the server load by reducing the amount of the transmitted data	Boolean type	Clear	**Set**—the video is transmitted in the **Multicast** mode **Clear**—the video isn't transmitted in the **Multicast** mode
10	The **Receiver IP address** field	Enter the value in the field	Determines the IP address from which the video is transmitted in the **Multicast** mode	IP address	224.0.1.150	From 224.0.0.0 to 239.255.255.255
11	The **RTSP port** field	Enter the value in the field	Determines the port number through which the video signal is transmitted in the **Multicast** mode. When you request the video data from the camera via the RTSP protocol, you must specify exactly this port. The system forwards the request to the port of the required camera	Sequence of numbers	555	Any available unused port numbers. The number of ports is specified by the system administrator

*Name of the element isn't displayed in the settings panel of the given object

The **Advanced settings** tab



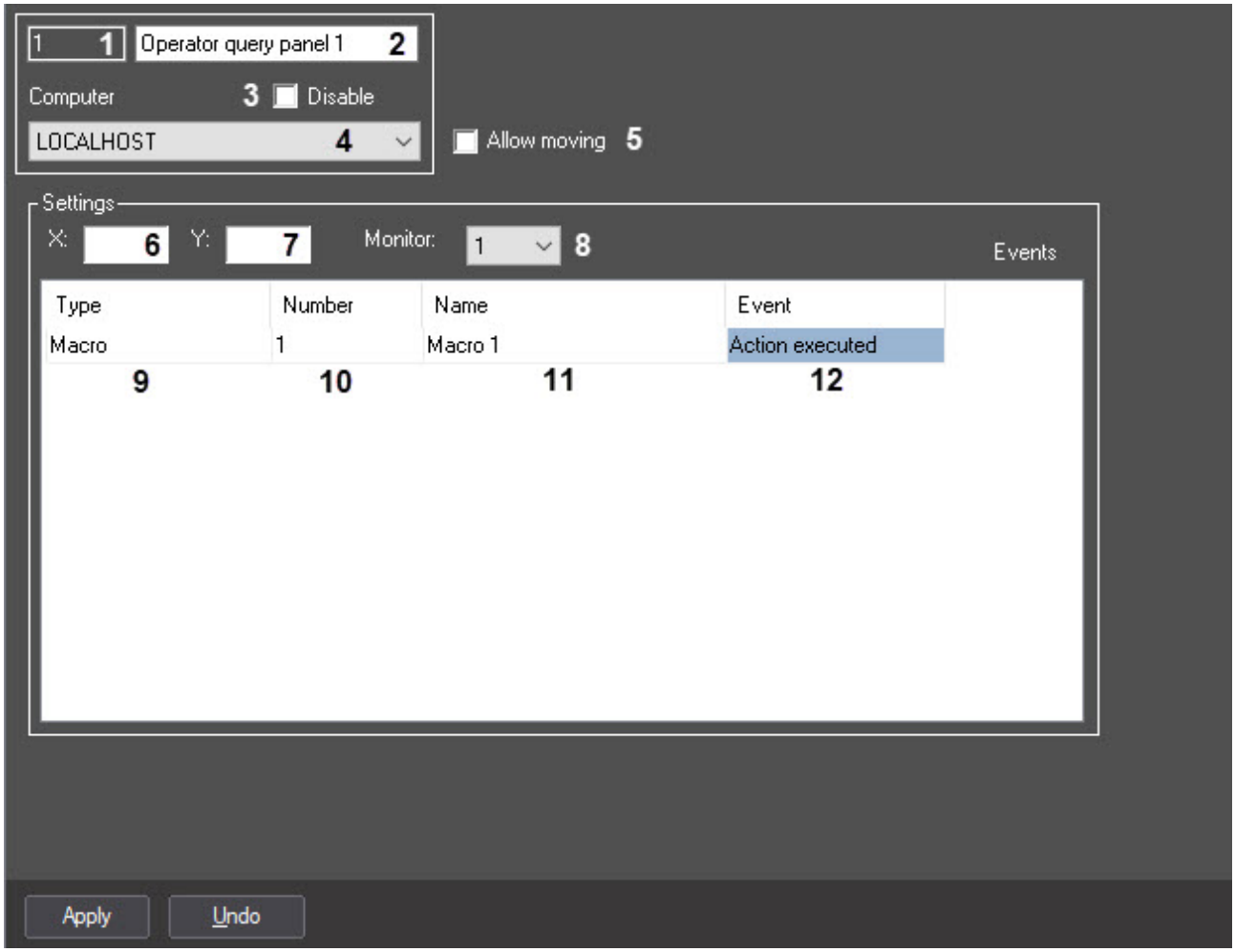
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **VLC player compatibility mode** checkbox	Set the checkbox	Enables sending the current time to VLC Media Player instead of the frame time	Boolean type	Clear	**Set**—the current time is sent to VLC Media Player **Clear**—the frame time is sent to VLC Media Player

2	The **ECHD compatibility mode** checkbox	Set the checkbox	Enables the mode that is required for the correct operation of navigation through the archive if the RTSP server is used to broadcast video data to the ECHD system	Boolean type	Clear	**Set**—the ECHD compatibility mode is enabled **Clear**—the ECHD compatibility mode is disabled
3	The **Use captions track** checkbox	Set the checkbox	Enables sending the video captions along with video image through the RTSP server	Boolean type	Clear	**Set**—if there are captions on the video image, they are sent to the receiving app **Clear**—the video captions aren't sent through the RTSP server
4	The **Hot connection mode** checkbox	Set the checkbox	Eliminates a delay of several seconds when requesting a video via RTSP	Boolean type	Clear	**Set**—when you request video via RTSP, the delay is minimum (~1 sec) **Clear**—when you request video via RTSP, the delay is ~1–5 sec
5	The **Source IP interface** list	Select the value from the list	Determines the name of the network interface that must be used to transmit the RTSP server	Names of the network interfaces	ANY	The list of the available computer network interfaces. **ANY**—the default network interface is used
The **NAT settings** group						
6	The **IP address** field	Enter the value in the field	Determines the IP address of the router that performs the NAT transmission	IP address	NA	IP addresses range for the local network

7	The **Port** field	Enter the value in the field	Determines the port of the router that performs the NAT transmission	Integer numbers	0	From 0 to 65535
The **Load balancing** group						
8	The **Number of threads (min/)** field	Enter the value in the field	Determines the initial number of threads that are created when the RTSP server is started	Integer numbers	1	>=0
9	The **Number of threads (/ max)** field	Enter the value in the field	Determines the maximum allowed number of threads that can be created. If there are too many threads, server rejects additional connections	Integer numbers	100	>=0
10	The **Number of connections per thread** field	Enter the value in the field	Determines the maximum number of client connections per thread, with equal distribution. If this parameter is exceeded, a new thread is created	Integer numbers	20	>=0

The settings panel of the Operator query panel object

The **Operator query panel** object is used to perform the specified user functions and contains a custom set of elements. The elements are configured by the *Axxon PSIM* administrator using the *ArpEdit* utility (see User's Manual for ArpEdit). The settings panel of the **Operator query panel** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Operator query panel** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the name of the file used to control a certain PTZ device. The file name is usually the same as the name of the PTZ device	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Operator query panel** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Operator query panel** object in the video surveillance system with the distributed architecture. The object name is usually the same as the name of the PTZ device	Latin alphabet, Cyrillic, digits and service characters	Operator query panel	A line containing a sequence of characters (Latin and service characters, digits, except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Operator query panel** object	Boolean type	Clear	**Set**—the **Operator query panel** object is disabled and isn't used **Clear**—the **Operator query panel** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with the distributed architecture to which the given **Operator query panel** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with the distributed architecture
5	The **Allow moving** checkbox	Set the checkbox	Allows moving the **Operator query panel** around the screen using the mouse	Boolean type	Clear	**Set**—allow moving **Clear**—don't allow moving

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Settings** group						
6	The **X** field	Enter the value in the field	Sets the coordinate in the horizontal X axis of the upper left corner of the operator query panel on the screen	% of the screen width	NA	From 0 to M*100, where M is the number of the installed video monitors
7	The **Y** field	Enter the value in the field	Sets the coordinate in the vertical Y axis of the upper left corner of the operator query panel on the screen	% of the screen height	NA	From 0 to M*100, where M is the number of the installed video monitors
8	The **Monitor** drop-down list	Select the value from the list	Sets the number of the computer monitor for which the coordinates are set	Sequence of numbers	1	From 1 to 16
The **Events** table						
9	The **Type** drop-down list	Select the value from the list	Sets the object type that opens the operator query panel	Types of the objects registered in the system	NA	Depends on the number of the object types created in the video surveillance system with the distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
10	The **Number** drop-down list	Select the value from the list	Sets the number of the object that opens the operator query panel	Sequence of numbers	NA	Depends on the number of the objects created in the video surveillance system with the distributed architecture
11	The **Name** field	Automatically	Sets the name of the object that opens the operator query panel	Names of the objects of the selected type registered in the system	NA	Depends on the number of the objects types created in the video surveillance system with the distributed architecture
12	The **Event** drop-down list	Select the value from the list	Sets the name of the event that opens the operator query panel	Names of the event types for the selected type of devices	Empty line	Empty line—the operator query panel isn't opened. The list of events depends on the selected object

*Name of the element isn't displayed in the settings panel of the given object

The Settings panel of the Alarm Message Window object

The **Alarm Message Window** object is used to display an interface box with the text message about alarm events that were initiated by the *Axxon PSIM* digital video surveillance system.

The settings panel of the **Alarm Message Window** object is shown in the figure.

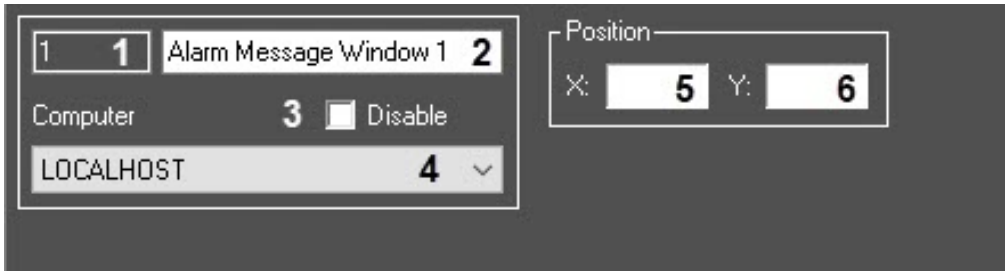


Table describes the setting parameters corresponding to the elements of the settings panel of the **Alarm Message Window** object.

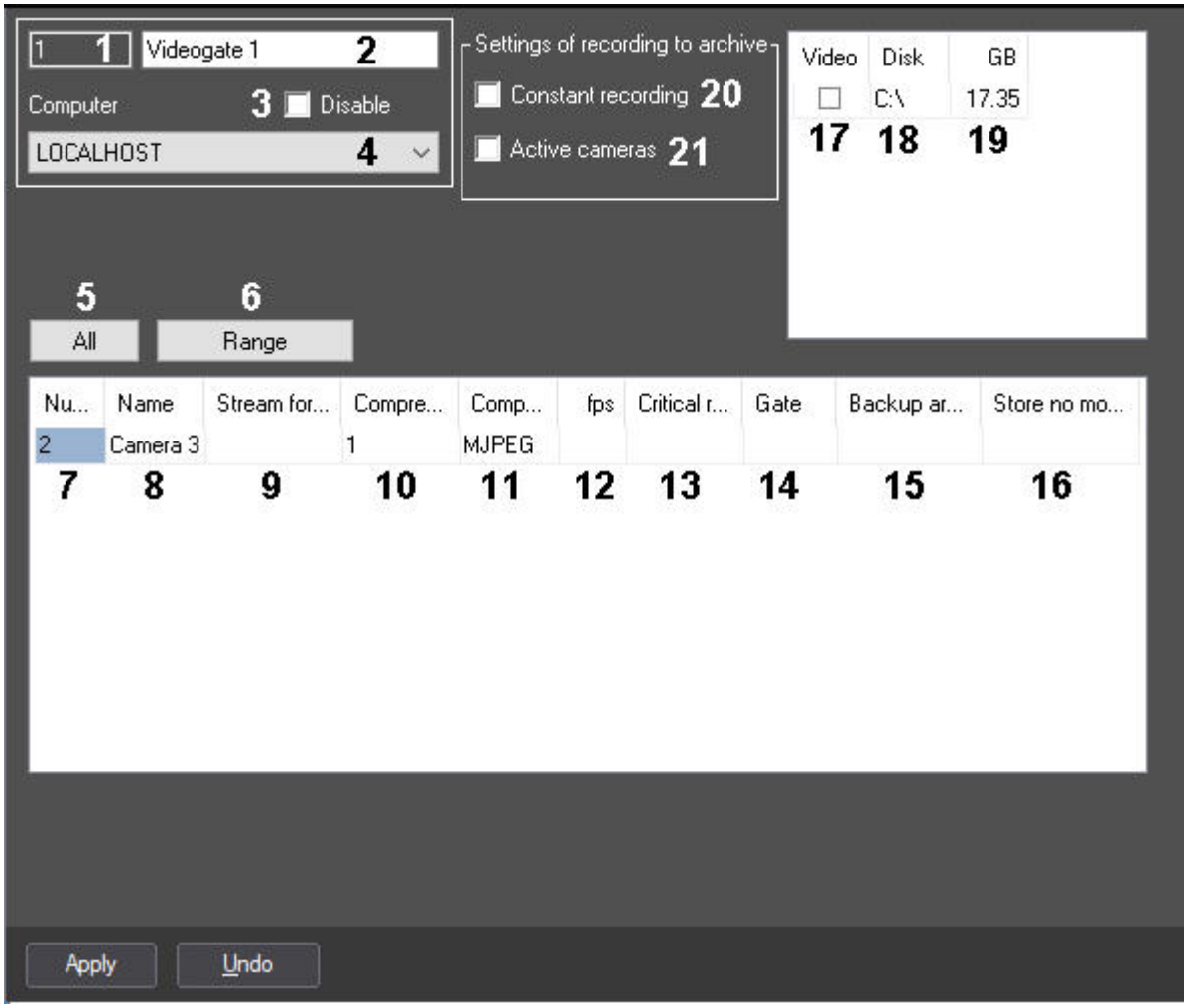
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	Identification number*	Automatically	Displays the identification number of the **Alarm Message Window** object in the digital video surveillance system with the distributed architecture	Numbers, letters, periods, hyphen, dash and underscore	-	Depends on the number of the **Alarm Message Window** objects in the digital video surveillance system with the distributed architecture
2	Name*	Enter the value into the field	Sets the name of the **Alarm Message Window** object in the digital video surveillance system with the distributed architecture	Latin, Cyrillic and service characters	Alarm Message Window	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	**Disable**	Set the checkbox	Sets the state (enabled or disabled) of the **Alarm Message Window** object in the digital video surveillance system with the distributed architecture	Boolean type	Clear	Set—the **Alarm Message Window** object is disabled and isn't used Clear—the **Alarm Message Window** object is enabled and used
4	**Computer**	Select the value from the list	Sets the **Computer** parent object of the digital system with the distributed architecture, to which the given **Alarm Message Window** object belongs	Name of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the digital video surveillance system with the distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	**X**	Enter the value into the field	Sets the coordinate in the horizontal X axis of the upper left corner of the **Alarm Message Window** on the screen	% of the screen width	Not defined	From 0 to M*100, where M is the number of the installed Video Monitors
6	**Y**	Enter the value into the field	Sets the coordinate in the vertical Y axis of the upper left corner of the **Alarm Message Window** on the screen	% of the screen height	Not defined	From 0 to M*100, where M is the number of the installed Video Monitors

*Name of the element isn't displayed in the settings panel of the given object.

The settings panel of the Videogate object

The settings panel of the **Videogate** system object is shown in the figure.



The table describes the setting parameters of the **Videogate** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Videogate** system object	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **Videogate** objects in the video surveillance system with the distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Videogate** object in the video surveillance system with the distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Videogate	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Videogate** object in the video surveillance system with the distributed architecture	Boolean type	Clear	**Set**—the **Videogate** object is disabled and isn't used **Clear**—the **Videogate** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object for the given **Videogate** object	Name of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system
5	The **All** button	Click the button	Selects all video cameras registered in the system for transmitting the video signals through the videogate	NA	NA	NA
6	The **Range** button	Click the button	Gives the access to the complex selection of cameras for transmitting video signals through the videogate	NA	NA	NA
The Camera* table						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Number** list	Select the value from the list	Sets the number of the camera for transmitting video signals through the videogate	Sequence of numbers	NA	Depends on the number of cameras registered in the system
8	The **Name** list	Select the value from the list	Sets the name of the camera for transmitting video signals through the videogate	Names of the cameras registered in the system	NA	Depends on the number of cameras registered in the system
9	The **Stream for archive** list	Select the value from the list	Sets the video stream to record the archive of the *Videogate* module	Names of streams transmitted by the server	NA	Depends on the number of the streams configured on the server
10	The **Compression** list	Select the value from the list	Sets the level of video signal compression for transmitting through the videogate. If the value is set, the additional consumption of the server resources occurs	Sequence of numbers	NA	In order of increasing the compression level from 0 to 5. **0**— no compression **5**—maximum compression
11	The **Compressor** list	Select the value from the list	Sets the algorithm of the video stream compression, used to recompress the video signal when transmitting through the videogate. If the compressor is specified, you must select the value in the **Compression** list	List of available algorithms	NA	**MJPEG, Motion Wavelet 3.5, MPEG4**. If you select compression and don't select compressor, the Motion Wavelet algorithm is used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
12	The **fps** field	Enter the value in the field	Sets the video signal frame rate for transmitting through the videogate	Sequence of numbers	NA	No less than 0.01, but no more than the rate of the video signal digitized by the video capture card. For detailed information about determining the current video signal frame rates, see Frame rate settings
13	The **Critical rate** field	Enter the value in the field	Sets the minimum permissible rate of the video signal frame's arrival in the videogate to control the transmission of the video signal through the local network	Sequence of numbers	NA	No more than the frame rate of the video signal that is transmitted to the videogate

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
14	The **Gate** list	Select the value from the list	Sets the **Videogate** object from which the video signal from the selected camera must be transmitted to the given videogate. **Attention!** The selected **Videogate** object must differ from the configured one, otherwise there will be no video transmission via the videogate	Names of the **Videogate** objects registered in the system	NA	Depends on the number of the **Videogate** objects registered in the system
15	The **Backup archive** list	Select the value from the list	Sets the **Backup archive** object, from which the archive from the selected camera must be transmitted to the given videogate	Names of the **Backup archive** objects registered in the system	NA	Depends on the number of the **Backup archive** objects registered in the system
16	The **Store no more than (hours)** field	Enter the value in the field	Sets the time period in hours, after which you must delete the recordings of the corresponding camera from the videogate	Sequence of numbers	NA	>0

The Discs for storing video archives* table

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
17	The **Video** checkbox	Set the checkbox	Sets the disk for storing the archive of the video signals transmitted through the videogate	Boolean type	Clear	**Set**—the disk is used for storing the archive of the *Videogate* module **Clear**—the disk isn't used for storing the archive of the *Videogate* module
18	The **Disk** list	Automatically	Displays the names of the local (network, USB) disks available for storing the archive of the *Videogate* module	Available disks (Latin characters)	NA	Depends on the total number of the available disks
19	The **GB** list	Automatically	Displays the information about free space on every available disk	Disk space in GB	NA	Depends on the amount of free disk space
The **Settings of recording to archive** group						
20	The **Constant recording** checkbox	Set the checkbox	Enables constant recording on all cameras added to the videogate	Boolean type	Clear	**Set**—constant recording is enabled on all cameras added to the videogate **Clear**—recording is enabled on the cameras that are recorded on the server

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
21	The **Active cameras** checkbox	Set the checkbox	Enables recording only on the cameras the video stream from which is requested and displayed on the video surveillance monitor	Boolean type	Clear	**Set**—recording is enabled on the cameras, the video stream from which is requested (displayed) on the video surveillance monitor **Clear**—recording is enabled on the cameras that are recorded on the server

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Event counter object

The **Event counter** object is used to register and count *Axxon PSIM* events at selected objects of a specified type.

The settings panel for the **Event counter** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Event counter** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Event counter** object in the video surveillance system with the distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Event counter** objects in the video surveillance system with the distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Event counter** object in the video surveillance system with the distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Event counter	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Event counter** object in the video surveillance system with the distributed architecture	Boolean type	Clear	**Set**— the **Event counter** object is disabled **Clear**— the **Event counter** object is enabled
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with the distributed architecture to which the given **Event counter** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with the distributed architecture
The **Start counting** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	The **From** (activation) checkbox	Set the checkbox	Allows setting manually the date and time of the count start	Boolean type	Set	**Set**— the date and time of the count start are set manually **Clear**—the date and time of the count start are set at the date and time when the **Event counter** object was last modified
	The **From** (date) field/drop-down list	Enter the value in the field/ select the value from the list	Sets the date of the count start	date:month:year	The current system date value	01.09.1752 — 01.12.9999
	The **From** (time) field	Enter the value in the field	Sets the time of the count start	hours:minutes:seconds	The current system time value	00:00:00— 23:59:59

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **From the moment counter settings are changed** checkbox	Set the checkbox	Sets the date and time of the count start at the date and time when the **Event counter** object was last modified	Boolean type	Clear	**Set**—the date and time of the count start are set at the date and time when the **Event counter** object was last modified **Clear**—the date and time of the count start are set manually
7	The **One counter for all events** checkbox	Set the checkbox	Sets the same counter for all events presented in the **Objects** group and events of the given **Event counter** object	Boolean type	Set	**Set**—only one counter is used for counting all events specified in the **Objects** group **Clear**—different events are counted by different counters (each event is counted by a separate counter)
The **Signal** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The Counter notification group*					
	The **By time** (activation) checkbox	Set the checkbox	Enables a regular notification in a set period of time	Boolean type	Set	**Set**—the notification by time is enabled **Clear**—the notification by time is disabled (notification by quantity of events is enabled)
	The **By time (every)** field	Enter the value in the field	Sets the notification period as a time interval. Notification is performed regardless of the count start time at 00 minutes 00 seconds of every hour (or at 00 hours 00 minutes 00 seconds of every day, depending on the **time unit** settings)	Integer numbers	0	0—2147483648
	The **By time (time unit)** drop-down list	Select the value from the list	Sets a time unit for the notification	Line	Hours	**Hours** **Days**

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **By quantity of events** (activation) checkbox	Set the checkbox	Enables a regular notification about events starting from the set one	Boolean type	Clear	**Set**—the notification by the quantity of events is enabled **Clear**—the notification by the quantity of events is disabled (the notification by time is enabled)
	The **By quantity of events** (quantity of events) field	Enter the value in the field	Sets the number of the event starting from which the notification is performed. Example: if the parameter has the 5 value, then notification is performed by every event starting from 5 (5, 6, 7, 8, and so on)	Integer numbers	0	0—2147483648
9	The Reset counters group*					
	The **Reset counters** checkbox	Set the checkbox	Enables counters reset	Boolean type	Clear	**Set—** counters reset is enabled **Clear**— counters reset is disabled

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **By time** (activation) checkbox	Set the checkbox	Enables a cyclic counter reset in a set time period. *Note. Enables only after you set the **Reset counters** checkbox*	Boolean type	Set	**Set**—a cyclic reset in a set time period is enabled **Clear**—a cyclic reset in a set time period is disabled (a cyclic reset by the quantity of events is enabled)
	The **By time (every)** field	Enter the value in the field	Sets a reset period as a time interval. Reset is performed regardless of the time of the count, starting at 00 minutes 00 seconds of every hour (or at 00 hours 00 minutes 00 seconds of every day, depending on the **time unit** settings). *Note. Enables only after you set the **By time** checkbox (activation)*	Integer numbers	0	0—2147483648
	The **By time (time unit)** drop-down list	Select the value from the list	Sets a time unit for the counters reset. *Note. Enables only after you set the **By time** checkbox (activation)*	Line	Hours	**Hours** **Days**

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **By quantity of events** (activation) checkbox	Set the checkbox	Enables a counter reset when it reaches a specified number of event. *Note. Enables only after you set the **Reset counters** checkbox*	Boolean type	Clear	**Set**—a cyclic reset after a specified number of events is enabled **Clear**—a cyclic reset after a specified number of events is disabled (a cyclic reset after a specified period of time is enabled)
	The **By quantity of events** (quantity of events) field	Enter the value in the field	Sets a reset period for counters as the quantity of events. *Note. Enables only after you set the **Reset counters** checkbox*	Integer numbers	0	0—2147483648
The Objects and events group*						
10	The **Object type** drop-down list	Select the value from the list	Sets the type of object for which the events are counted	Names of the types of objects registered in the system	NA	Depends on the types of objects registered in the video surveillance system with the distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **ID** drop-down list	Select the value from the list	Sets the identification number of an object of the selected type for which the events are counted	Sequence of numbers	NA	Depends on the number of objects of the given type in the video surveillance system with the distributed architecture
12	The **Object name** field	Automatically	Displays the identification number of the selected object	Latin alphabet, Cyrillic, and service characters	NA	Object name with the specified identifier
13	The **Event** drop-down list	Select the value from the list	Sets an event that must be counted	Latin alphabet, Cyrillic, and service characters	NA	Depends on the types of objects registered in the video surveillance system with the distributed architecture

*Name of the element isn't displayed in the settings panel of the given object

The Settings panel of the Data replication service object

The **Data replication service** object is used for archive replication on the unconnected servers.

The settings panel of the **Data replication service** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Data replication service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identifiation number of the **Data replication service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Data replication service** objects in the video surveillance system
2	The Name* field	Enter the value in the field	Sets the name of the **Data replication service** object	Latin alphabet, Cyrillic, digits and service characters	Data replication service	A line containing a sequence of characters (Latin and service characters, digits, except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Data replication service** object	Boolean type	Clear	**Set**—the **Data replication service** object is disabled and isn't used **Clear**—the **Data replication service** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the **Data replication service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
5	The **Replicator status** drop-down list	Select the value from the list	Sets the role of the server in replication	Names of the existing roles in replication	Export	**Export**—server is the source

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identifiation number of the **Data replication service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Data replication service** objects in the video surveillance system
2	The Name* field	Enter the value in the field	Sets the name of the **Data replication service** object	Latin alphabet, Cyrillic, digits and service characters	Data replication service	A line containing a sequence of characters (Latin and service characters, digits, except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Data replication service** object	Boolean type	Clear	**Set**—the **Data replication service** object is disabled and isn't used **Clear**—the **Data replication service** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the **Data replication service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
						Target—server is the data receiver

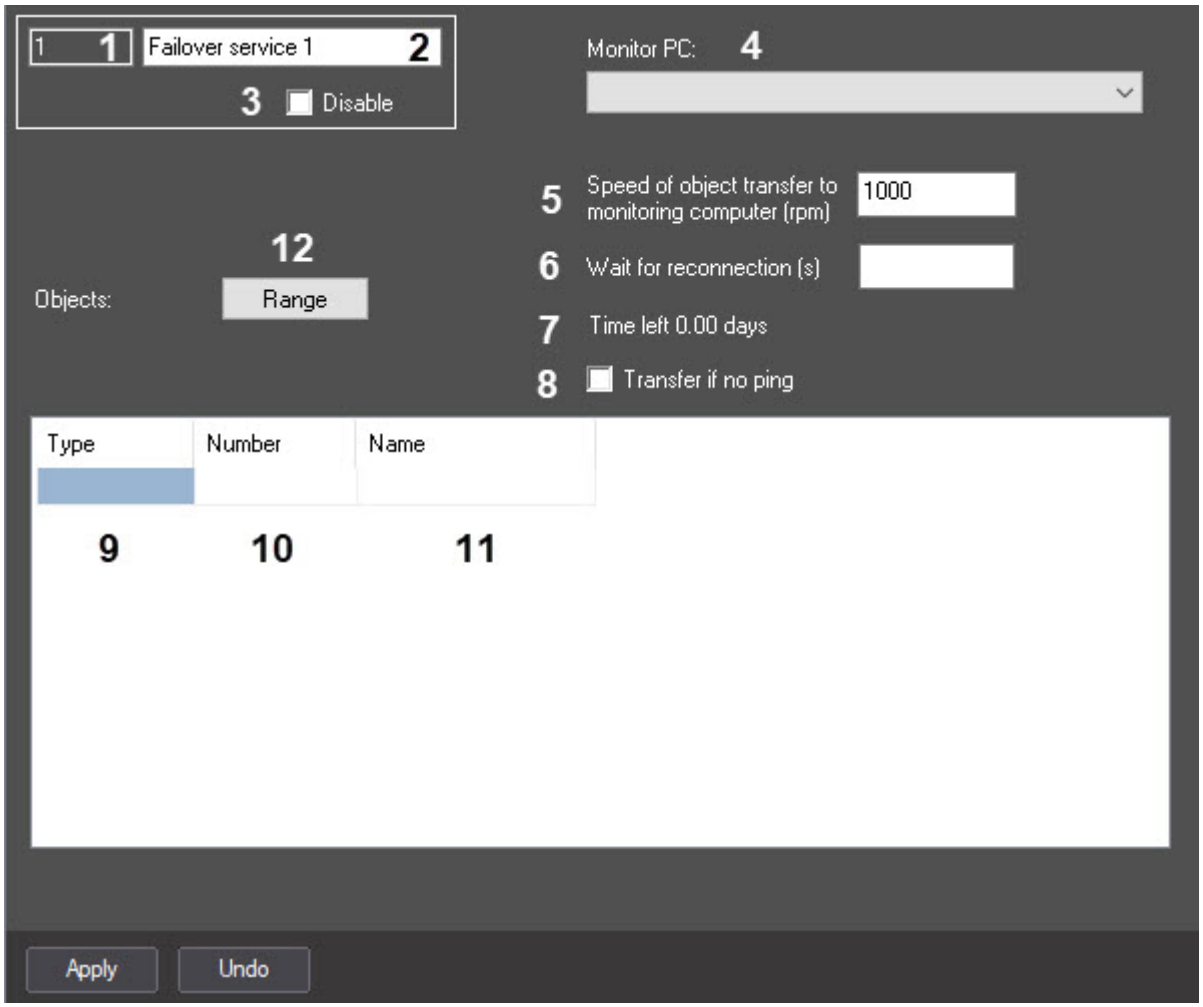
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Data replication service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Data replication service** objects in the video surveillance system
2	The Name* field	Enter the value in the field	Sets the name of the **Data replication service** object	Latin alphabet, Cyrillic, digits and service characters	Data replication service	A line containing a sequence of characters (Latin and service characters, digits, except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Data replication service** object	Boolean type	Clear	**Set**—the **Data replication service** object is disabled and isn't used **Clear**—the **Data replication service** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object of the system with distributed architecture to which the **Data replication service** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture
6	The **Target disk** drop-down list	Select the value from the list	Sets the removable storage used to move the data	Names of the disks connected to the server	NA	Depends on the number of disks connected to the server

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Failover service object

The **Failover service** object is used to ensure the operation of the distributed system in the failover mode.

The settings panel of the **Failover service** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Failover service** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
4	The **Monitor PC** drop-down list	Select the value from the list	Sets the name of the server, the state of which is monitored by the object	Names of the **Computer** objects registered in the system	NA	Depends on the number of the **Computer** objects registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
5	The **Speed of object transfer to monitoring computer (rpm)** field	Enter the value in the field	Sets the speed of transferring objects if the connection is lost. This setting is necessary so that the failover server sends messages at a certain speed and the receiving server has time to process them. The transfer speed must be set depending on the network speed, server	Sequence of numbers	1000	From 0 and above

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
6	The **Wait for reconnection (s)** field	Enter the value in the field	Sets the time period in seconds after which the configuration will be transferred to the backup server after the loss of connection with the monitored server	Sequence of numbers	NA	From 0 to 65535

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
7	The **Time left 0.00 seconds** string	Automatically	Displays the period of time in days remaining to restore the configuration from the backup server to the main server and restore the license	Days	0.00	From 0.00 to 50.00

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
8	The **Transfer if no ping** checkbox	Set the checkbox	When you log out and reload the backup server, the system sets the necessity to transfer the configuration if there is no ping from the main monitored server during the time specified in the **Wait for reconnection (s)** field (the FORCED_START reaction of the forced transfer, see FAILOVER	Boolean type	Clear	**Set**—when you log out and reload the backup server, the forced configuration transfer occurs if there is no ping from the main server during the time specified in the **Wait for reconnection (s)** field

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
						Clear—when you log out and reload the backup server, a response from the main server isn't monitored and the configuration isn't transferred even if the main server is unavailable

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
9	The **Type** drop-down list	Select the value from the list	Sets the object type in the configuration of the monitored server that must be transferred to the backup server in case of connection loss	Types of objects registered on the basis of the main server	NA	Depends on the configuration created on the basis of the main server

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
10	The **Number** drop-down list	Select the value from the list	Sets the identifier of the object of the selected type that must be transferred to the backup server in case of connection loss	Identifiers of the objects of the selected type that are present in the configuration of the monitored server	NA	Depends on the number of the objects of the selected type in the configuration of main server

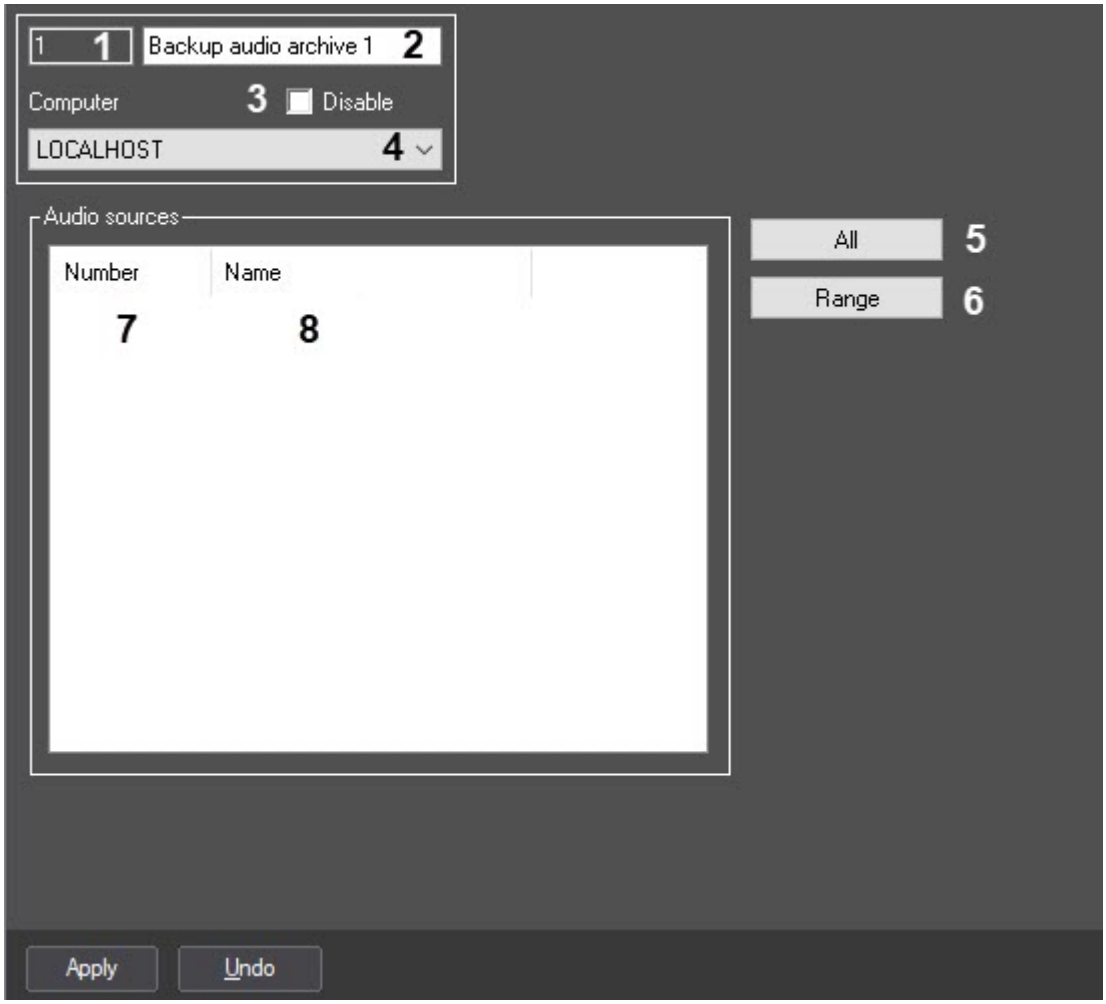
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
11	The **Name** field	Automatically	Sets the name of the object that must be transferred to the backup server in case of connection loss	Names of the objects of the selected type that are present in the configuration of the monitored server	NA	Depends on the configuration created on the basis of the main server

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Failover service** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Failover service** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Failover service** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Failover service	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Failover service** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Failover service** object is disabled and isn't used **Clear**—the **Failover service** object is enabled and used
12	The **Range** button	Click the button	Opens the dialog window for the complex selection of the monitored objects	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Backup audio archive object

The settings panel of the **Backup audio archive** system object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Backup audio archive** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Backup audio archive** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Backup audio archive** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Backup audio archive** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Backup audio archive	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Backup audio archive** object	Boolean type	Clear	**Set**—the **Backup audio archive** object is disabled and isn't used **Clear**—the **Backup audio archive** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object for the given **Backup audio archive** object	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system
5	The **All** button	Click the button	Adds all **Microphone** objects created in the system	NA	NA	NA
6	The **Range** button	Click the button	Opens the window for the bulk adding of microphones to the list of the backup audio archive	NA	NA	NA
The **Audio sources** table						
7	The **Number** drop-down list	Select the value from the list	Sets the name of the microphone to copy the audio archive	Sequence of numbers	NA	Depends on the number of microphones registered in the system

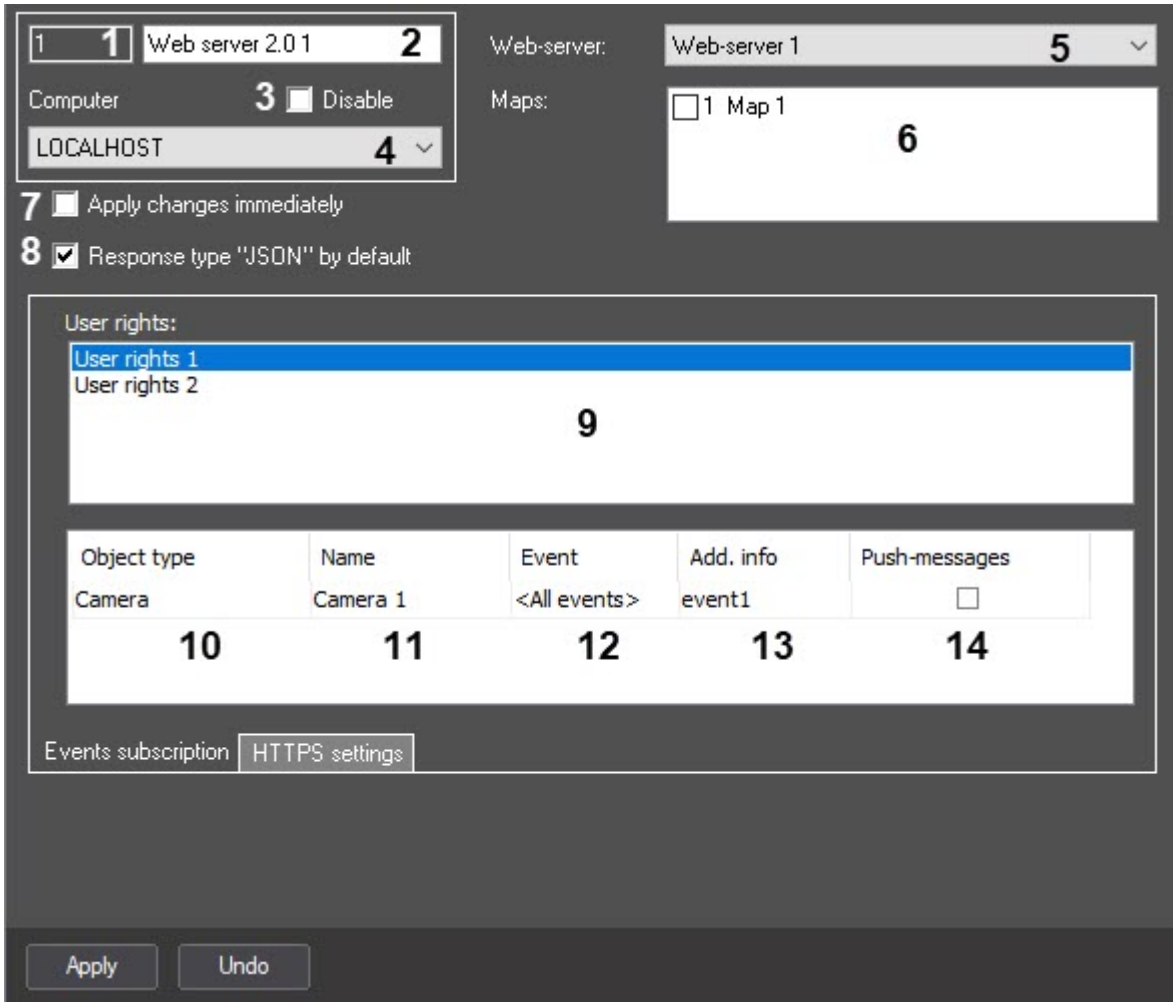
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Backup audio archive** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Backup audio archive** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Backup audio archive** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Backup audio archive	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Backup audio archive** object	Boolean type	Clear	**Set**—the **Backup audio archive** object is disabled and isn't used **Clear**—the **Backup audio archive** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object for the given **Backup audio archive** object	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system
5	The **All** button	Click the button	Adds all **Microphone** objects created in the system	NA	NA	NA
6	The **Range** button	Click the button	Opens the window for the bulk adding of microphones to the list of the backup audio archive	NA	NA	NA
The **Audio sources** table						
8	The **Name** drop-down list	Automatically	Displays the name of the microphone to copy the audio archive	Names of the registered microphones in the system	NA	Depends on the number of microphones registered in the system

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Web server 2.0 object

The settings panel of the **Web server 2.0** system object is shown in the figures. The table describes the setting parameters of the **Web-server 2.0** system object.

The **Events subscription** tab:



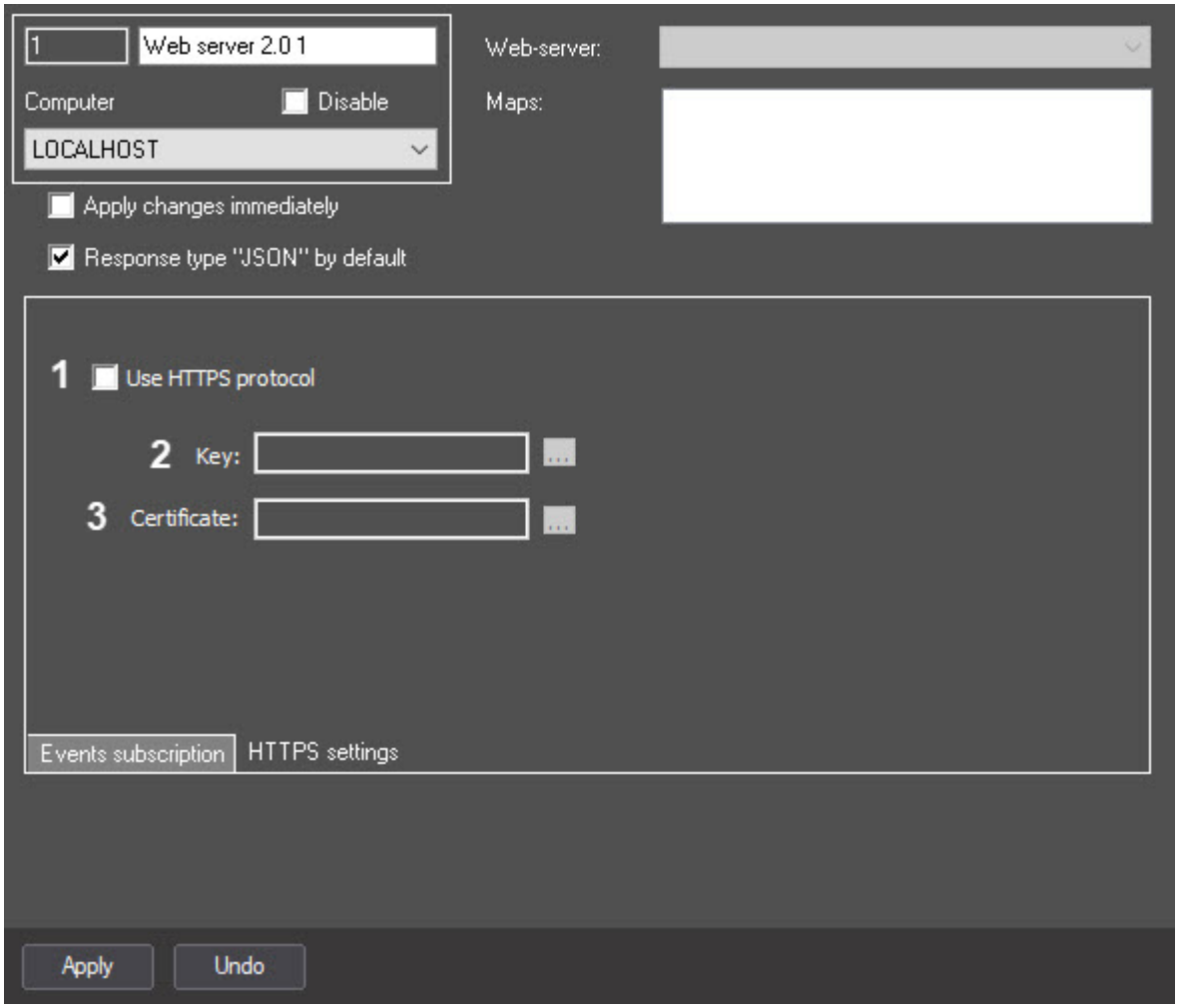
No.	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

1	The Identification number* field	Automatically	Displays the identification number of the **Web server 2.0** system object	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **Web server 2.0** objects in the video surveillance system with the distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Web server 2.0** object in the video surveillance system with the distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Web-server 2.0	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Web server 2.0** object in the video surveillance system with the distributed architecture	Boolean	Clear	**Set**—the **Web server 2.0** object is disabled and isn't used **Clear**—the **Web server 2.0** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object for the given **Web server 2.0** object	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system
5	The **Web-server** drop-down list	Select the value from the list	Sets the **Web-server** object whose settings must be used for the operation of the Web-server 2.0	Names of the **Web-server** objects registered in the system	NA	Depends on the number of the **Web-server** objects registered in the system

6	The **Maps** list	Select the value from the list	Sets the list of maps used by the *Web-server 2.0* module and available on the mobile clients	Names of the **Map** objects registered in the system	NA	Depends on the number of the **Map** objects registered in the system
7	The **Apply changes immediately** checkbox	Set the checkbox	Enables the function to apply the changes to the user rights immediately	Boolean type	Clear	**Set**—the **Web-server 2.0** object will immediately apply changes to the user rights **Clear**—when user rights are changed (adding or removing rights to objects in rights/ from rights), access rights aren't changed in the **Web-server 2.0** object until the **Apply** button is clicked on the settings panel of the **Web-server 2.0** object or *Axxon PSIM* is restarted
8	The **Response type "JSON" by default** checkbox	Set the checkbox	Sets the default HTTP API response type	Boolean type	Clear	**Set**—the response is sent in the JSON format if the format isn't specified explicitly in the request **Clear**—the response is sent in the XML format if the format isn't specified explicitly in the request
9	The **User rights** list	Select the value from the list	Sets the **User rights** object for which the events filter is configured	Names of the **User rights** objects registered in the system	NA	Depends on the number of the **User rights** objects registered in the system

10	The **Object type** list	Select the value from the list	Sets the type of objects whose events must be sent to the clients	Names of the types of objects registered in the system that are allowed by the selected user rights	NA	Depends on the selected user rights
11	The **Name** list	Select the value from the list	Sets the name of the object whose events must be sent to the clients	Names of the objects of the selected type that are registered in the system	NA	Depends on the number of objects of the selected type that are registered in the system
12	The **Event** list	Select the value from the list	Sets the event type that must be sent to the clients	Names of the events that are available for the objects of the selected type	NA	Depends on the selected object type
13	The **Add. info** list	Enter the value in the field	Enters an additional information about the transmitted event in the field	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters)
14	The **Push-messages** checkbox	Set the checkbox	Specifies whether to send push messages about the events of the selected type	Boolean	Clear	**Set**—push-messages are sent **Clear**—push-messages aren't sent

The **HTTPS settings** tab:



No.	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Use HTTPS protocol** checkbox	Set the checkbox	Enables the use of the HTTPS protocol when transferring data via the web-server 2.0	Boolean	Clear	**Set**—the HTTPS protocol is used **Clear**—the HTTPS protocol isn't used
2	The **Key** field	Enter the value in the field	Specifies the path to the key file for transferring data over the HTTPS protocol	Latin alphabet, Cyrillic, and service characters	Clear	Depends on the location of the key for encrypting data when you transfer data over the HTTPS protocol

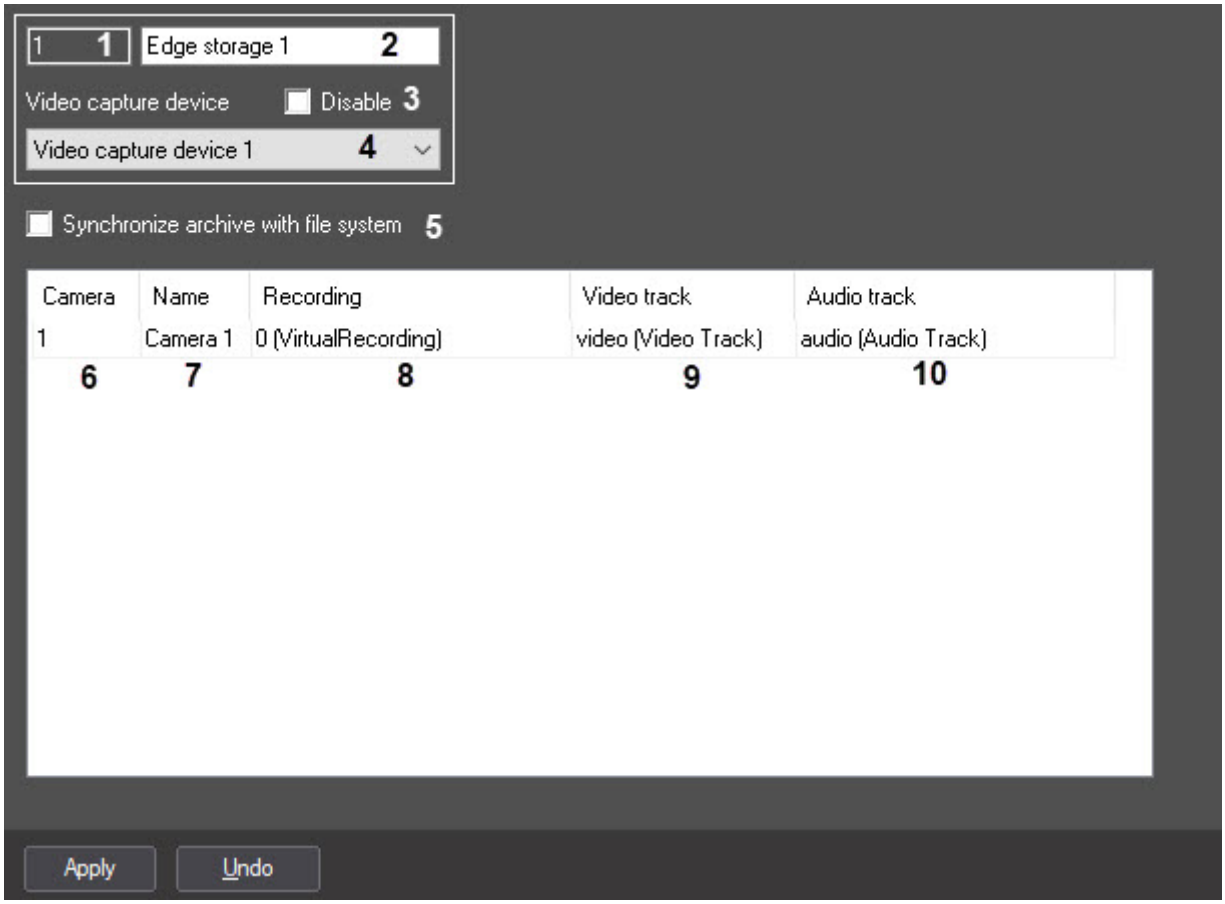
	The Select file button* ...	Click the button	Sets the path to the key file for transferring data over the HTTPS protocol	NA	NA	NA
3	The **Certificate** field	Enter the value in the field	Specifies the path to the certificate file for transferring data over the HTTPS protocol	Latin alphabet, Cyrillic, and service characters	Clear	Depends on the location of the certificate file when you transfer data over the HTTPS protocol
	The Select file button* ...	Click the button	Sets the path to the certificate file for transferring data over the HTTPS protocol	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Edge storage object

The **Edge storage** object is used for viewing the video archive in the edge storages on IP devices.

The **Edge storage** object settings panel is shown in the figure.



The table describes the settings parameters corresponding to the elements of the **Edge storage** object settings panel.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Edge storage** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Edge storage** objects in the video surveillance system with the distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Edge storage** object	Latin alphabet, Cyrillic digits, and service characters	Edge storage <ID>	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Edge storage** object in the system	Boolean type	Clear	**Set**—the **Edge storage** object is disabled and isn't used **Clear**—the **Edge storage** object is enabled and used
4	The **Video capture device** drop-down list	Select the value from the list	Sets the **Video capture device** parent object for the given **Edge storage** object	Names of the **Video capture device** objects registered in the system	Name of the **Video capture device** pare nt object	Depends on the number of the **Video capture device** objects in the system
5	The **Synchron ize archive with file system** checkbox	Set the checkbox	Enables importing the archive from the edge storage to the *Axxon PSIM* file system	Boolean type	Clear	**Set**—archive import is enabled **Clear**—archive import is disabled
6	The **Camera** drop-down list	Select the value from the list	Sets the number of the **Camera** obj ect used for archive viewing	Sequence of numbers	NA	Depends on the number of cameras registered in the system

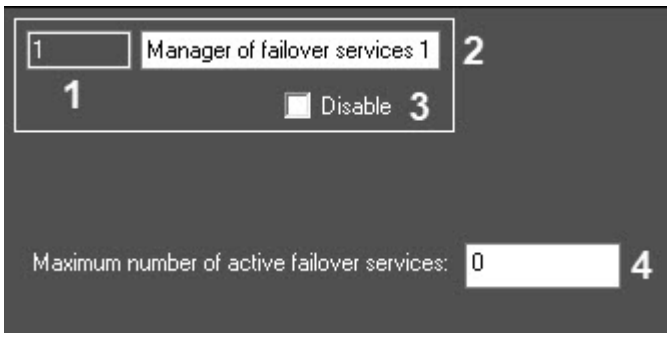
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Name** field	Automatically	Displays the name of the **Camera** object	Names of the **Camera** objects registered in the system	NA	Depends on the number of the **Camera** objects registered in the system
8	The **Recording** drop-down list	Select the value from the list	Sets the recording in the device, which corresponds to the one data source	Names of recordings supported by the device	NA	Depends on the number of recordings supported by the device
9	The **Video track** field	Automatically	Displays the channel of the video data within the recording	Names of the video tracks within the recording	NA	Depends on the number of video tracks within the recording
10	The **Audio track** drop-down list	Select the value from the list	Sets the channel of the audio data within the recording	Names of the audio tracks within the recording	NA	Depends on the number of audio tracks within the recording

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Manager of failover services object

The **Manager of failover services** object is used to control the maximum number of the active failover services operating simultaneously in the distributed system.

The settings panel of the **Manager of failover services** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Manager of failover services** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Manager of failover services** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Manager of failover services** objects in the video surveillance system with the distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Manager of failover services** object in the video surveillance system with the distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Manager of failover services	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Manager of failover services** object in the system	Boolean type	Clear	**Set**—the **Manager of failover services** object is disabled and isn't used **Clear**—the **Manager of failover services** object is enabled and used
4	The **Maximum number of active failover services** field	Enter the value in the field	Sets the maximum number of inactive servers above which the migration of the configuration must be stopped until one of the busy failover services is released	>=0	0	**0**—the maximum number of the simultaneously running failover services is unlimited **>0**—the maximum number of the simultaneously running failover services is limited by the specified value

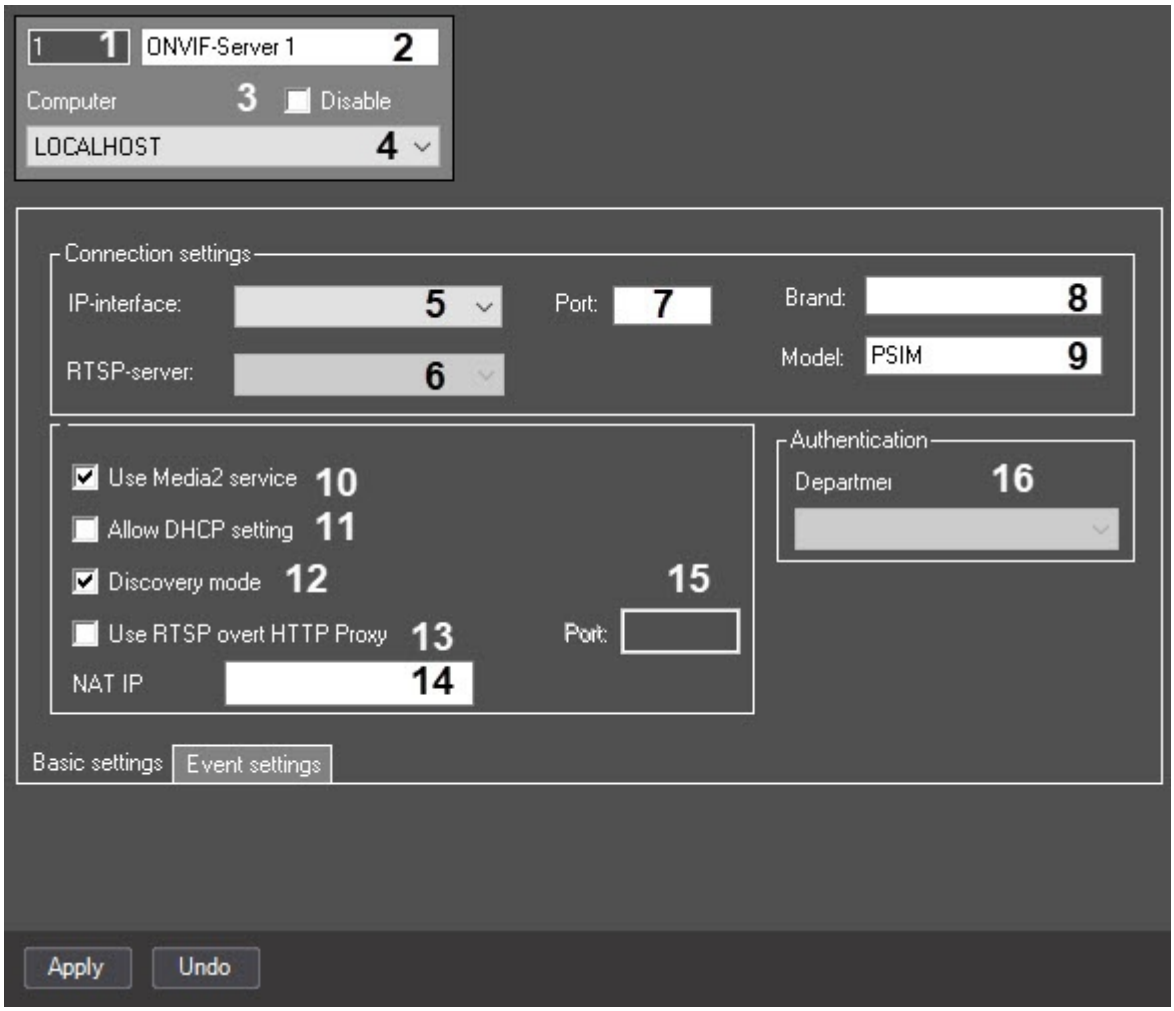
*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the ONVIF-Server object

The **ONVIF-Server** object is used to transmit a video signal from *Axxon PSIM* via the ONVIF protocol.

The settings panel of the **ONVIF-Server** object is shown in the figure.

The **Basic settings** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

1	The Identification number* field	Automatically	Displays the identification number of the **ONVIF-Server** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **ONVIF-Server** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **ONVIF-Server** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	ONVIF-Server	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **ONVIF-Server** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **ONVIF-Server** object is disabled and isn't used **Clear**—the **ONVIF-Server** object is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object in the system with distributed architecture to which the given **ONVIF-Server** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the computers in the video surveillance system with distributed architecture
The **Basic settings** tab						
The **Connection settings** group						

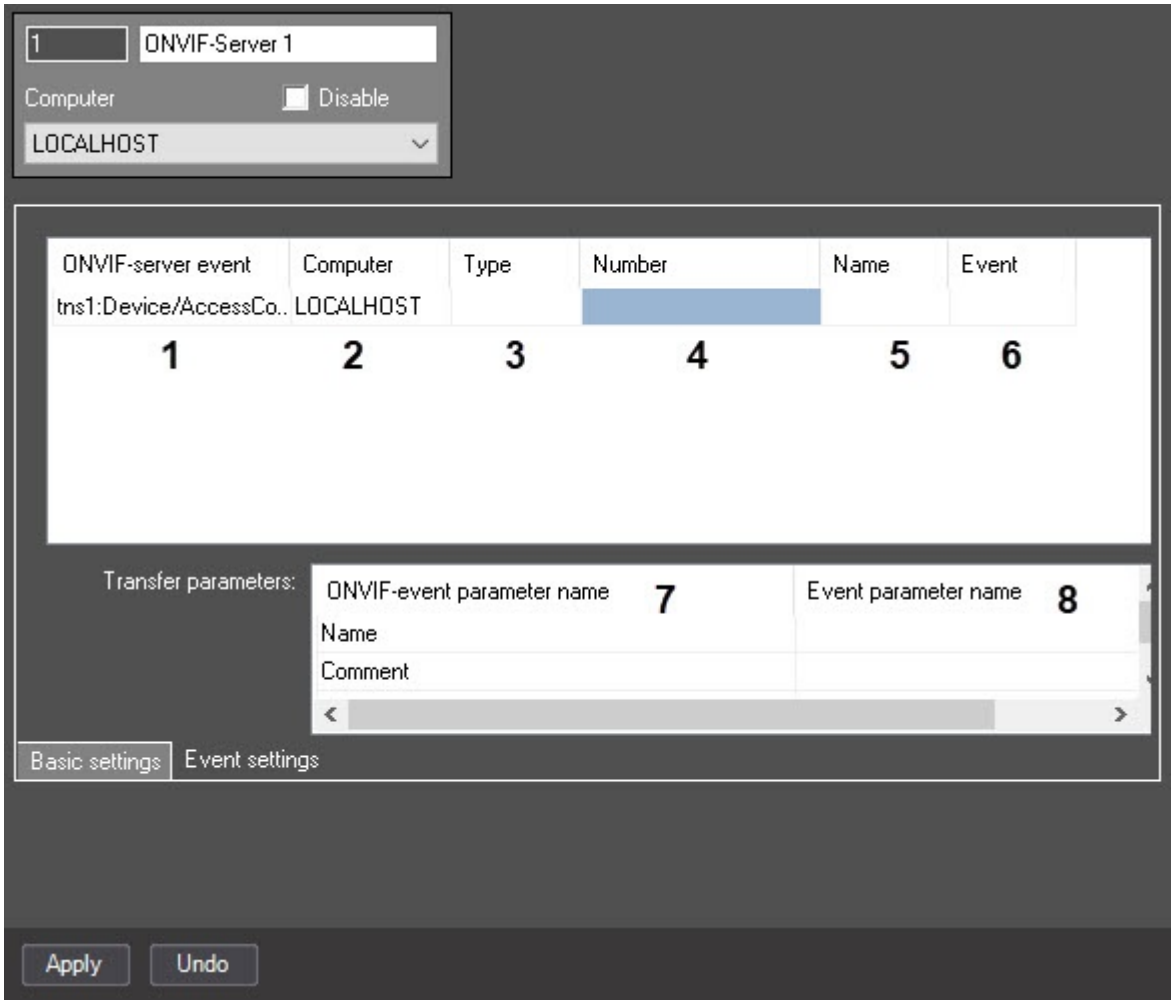
5	The **IP-interface** drop-down list	Select the value from the list	Sets the network interface (network adapter) used to connect to the server	List of available network interfaces	NA	The list of values depends on the network adapters available in the system
6	The **RTSP-server** drop-down list	Select the value from the list	Sets the **RTSP-Server** object, the settings of which are applied by the **ONVIF-Server** object when you transmit the video signal	Names of the **RTSP-Server** objects registered in the system	NA	Depends on the number of the **RTSP-Server** objects created in *Axxon PSIM*
7	The **Port** field	Enter the value in the field	Sets the port number used to connect to the server	Integer numbers	NA	From 1 to 65535
8	The **Brand** field	Enter the value in the field	Sets the name of the brand that is displayed in the third-party clients that support video transmission via the ONVIF protocol	Latin alphabet, Cyrillic, digits and service characters	AxxonSoft	A line containing a sequence of any characters (letters, digits, and service characters)
9	The **Model** field	Enter the value in the field	Sets the name of the model that is displayed in the third-party clients that support video transmission via the ONVIF protocol	Latin alphabet, Cyrillic, digits and service characters	PSIM	A line containing a sequence of any characters (letters, digits, and service characters)
Out of the group						

10	The **Use Media2 service** checkbox	Set the checkbox	Enables the ONVIF 2.X standard instead of ONVIF 1.X	Boolean type	Set	**Set**—the ONVIF 2.X standard is used. The video is transmitted in the H264, H265, MJPEG, or MPEG4 formats **Clear**—the ONVIF 1.X standard is used. The video is transmitted in the MPEG, MJPEG, or H264 formats
11	The **Allow DHCP setting** checkbox	Set the checkbox	Enables the DHCP support	Boolean type	Clear	**Set**—DHCP is used **Clear**—DHCP isn't used
12	The **Discovery mode** checkbox	Set the checkbox	Enables the WS-Discovery mode	Boolean type	Set	**Set**—the WS-Discovery mode is enabled **Clear**—the WS-Discovery mode is disabled
13	The **Use RTSP over HTTP Proxy** checkbox	Set the checkbox	Redirects requests to the RTSP server and ONVIF server on the specified port for the operation behind NAT	Boolean type	Clear	**Set**—the RTSP server and ONVIF server requests are redirected to the specified port (item 15) **Clear**—the RTSP server and ONVIF server requests are transmitted to the port specified in the **Connection settings** group (see item 5 above)
14	The **NAT IP** field	Enter the value in the field	Sets the IP address that the ONVIF server will transmit in responses to clients if clients are behind NAT	IP address	NA	Depends on the network settings behind NAT

15	The **Port** field	Enter the value in the field	Sets the port number for the RTSP server and ONVIF server requests redirection for the operation behind NAT	Integer numbers	NA	From 1 to 65535
The **Authentication** group						
16	The **Department** drop-down list	Select the value from the list	Sets the department in which users are created when they are added via the ONVIF server interface	Names of the **Department** objects registered in the system	NA	Depends on the number of the departments registered in *Axxon PSIM*

*Name of the element isn't displayed in the settings panel of the given object

The **Event settings** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The ONVIF-server event group*						
1	The **ONVIF-server event** drop-down list	Select the value from the list	Sets the ONVIF server event according to the ONVIF specification	List of available events	NA	According to the ONVIF specification

2	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** object on the basis of which the object is created, that is, the event source in *Axxon PSIM*	Names of the **Computer** objects registered in the system	NA	Depends on the number of computers in the video surveillance system with distributed architecture
3	The **Type** drop-down list	Select the value from the list	Sets the event type, which is the event source in *Axxon PSIM*	Names of the object types registered in the system	NA	Depends on the number of the created objects in the video surveillance system with distributed architecture
4	The **Number** drop-down list	Select the value from the list	Sets the object number, which is the event source in *Axxon PSIM*	Sequence of numbers	NA	Depends on the number of the created objects in the video surveillance system with distributed architecture
5	The **Name** field	Automatically	Sets the object name, which is the event source in *Axxon PSIM*	Names of the object of the selected type registered in the system	NA	Depends on the number of the created objects in the video surveillance system with distributed architecture
6	The **Event** drop-down list	Select the value from the list	Sets the event name in *Axxon PSIM*	Event names received from the objects of the selected type	NA	Depends on the object type
The **Transfer parameters** group						

7	The **ONVIF-event parameter name** field	Automatically	Sets the ONVIF-event parameter name according to the specification	Parameter names of the selected ONVIF event	NA	According to the ONVIF specification
8	The **Event parameter name** field	Enter the value in the field	Sets the event parameter name in *Axxon PSIM*	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, and service characters)

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the ONVIF-Server Profile object

The **ONVIF-Server Profile** object is used to configure the ONVIF device channel.

The settings panel of the **ONVIF-Server Profile** object is shown in the figure.



The table describes the setting parameters of the **ONVIF-Server Profile** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **ONVIF-Server Profile** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **ONVIF-Server Profile** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **ONVIF-Server Profile** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	PTZ device	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **ONVIF-Server Profile** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **ONVIF-Server Profile** object is disabled and isn't used **Clear**—the **ONVIF-Server Profile** object is enabled and used
4	The **ONVIF-Server** drop-down list	Select the value from the list	Sets the **ONVIF-Server** parent object in the system with distributed architecture to which the given **ONVIF-Server Profile** object belongs	Names of the **ONVIF-Server** objects registered in the system	ONVIF-Server	Depends on the number of the **ONVIF-Server** objects in the video surveillance system with distributed architecture

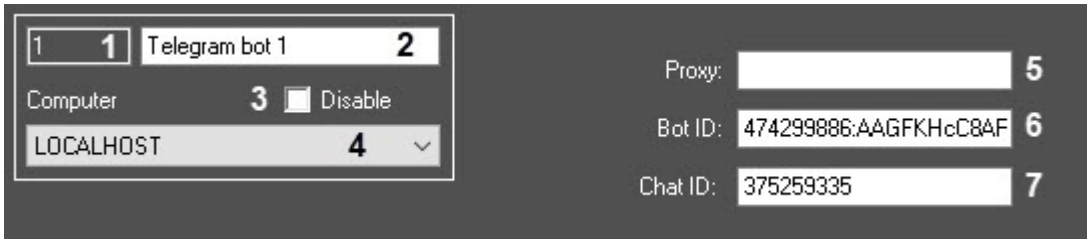
5	The **Camera** drop-down list	Select the value from the list	Sets the **Camera** object to which the given **ONVIF-Server Profile** object corresponds	Names of the **Camera** objects registered in the system	NA	Depends on the number of the **Camera** objects in the video surveillance system with distributed architecture
6	The **Stream** drop-down list	Select the value from the list	Sets the camera stream that is transmitted via the given **ONVIF-Server Profile** object	List of available camera streams	NA	Depends on the number of the activated camera streams
7	The **PTZ** drop-down list	Select the value from the list	Sets the **PTZ** object, used for the PTZ control of the camera, corresponding to the **ONVIF-Server Profile** object	List of **PTZ** objects corresponding to the selected **Camera** object	NA	Depends on the number of the **PTZ** objects created and configured in the system
8	The **Microphone** drop-down list	Select the value from the list	Sets the **Microphone** object corresponding to the selected **Camera** object	List of the **Microphone** objects corresponding to the selected **Camera** object	NA	Depends on the number of the **Microphone** objects created and configured in the system
9	The **Audio stream** drop-down list	Select the value from the list	Sets the audio stream to be synchronously transmitted with video signal	List of available audio streams	NA	Depends on the number of the available audio streams
10	The **Analytics** drop-down list	Select the value from the list	Sets the stream to transmit data analytics	List of available streams	NA	Depends on the number of available streams
11	The **Metadata** drop-down list	Select the value from the list	Sets the stream to transmit metadata	List of available streams	NA	Depends on the number of available streams

12	The **Fixed** checkbox	Set the checkbox	Disables deleting the **ONVIF-Server Profile** object using the driver	Boolean type	Clear	**Set**—the **ONVIF-Server Profile** object cannot be deleted using the driver **Clear**—the **ONVIF-Server Profile** object can be deleted using the driver
13	The **Multicast** checkbox	Set the checkbox	Enables video transmission via the *ONVIF-Server* in the **Multicast** mode	Boolean type	Clear	**Set**—video can be transmitted in the **Multicast** mode. *Note. There are some extra actions needed besides setting the checkbox in order to enable video transmission in the **Multicast** mode—see* Configuring getting video using ONVIF-Server module **Clear**—video cannot be transmitted in the **Multicast** mode

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Telegram bot object

The **Telegram bot** object is used for sending messages to Telegram. The settings panel of the **Telegram bot** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Telegram bot** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Telegram bot** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Telegram bot** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Telegram bot** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Telegram bot	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Telegram bot** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**— the **Telegram bot** object is disabled and isn't used **Clear**— the **Telegram bot** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object to which the given **Telegram bot** object belongs	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The Settings group*						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	The **Proxy** field	Enter the value in the field	Sets the proxy server for sending the message	Latin alphabet, digits, service characters	NA	A line containing a sequence of any characters (latin letters, digits, service characters). Number of characters—from 1 to 60

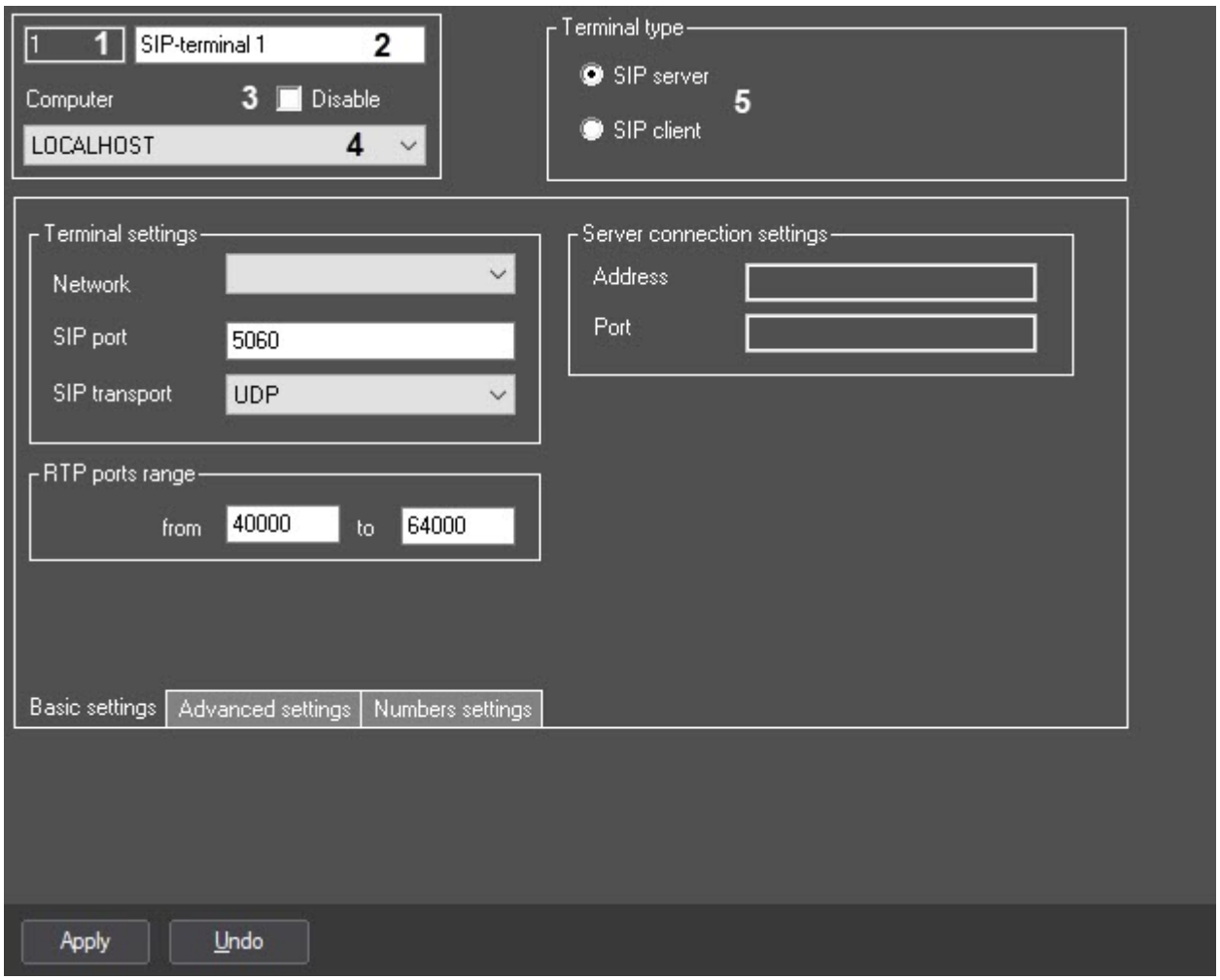
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Bot ID** field	Enter the value in the field	Sets the bot identifier in Telegram	Latin alphabet, digits, service characters	NA	A line containing a sequence of any characters (latin letters, digits, service characters). Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Chat ID** field	Enter the value in the field	Sets the chat identifier in Telegram	Latin alphabet, digits, service characters	NA	A line containing a sequence of any characters (latin letters, digits, service characters). Number of characters—from 1 to 60

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the SIP-terminal object

The settings panel of the **SIP-terminal** system object is shown in the figures below.



The table describes the setting parameters of the **SIP-terminal** system object.

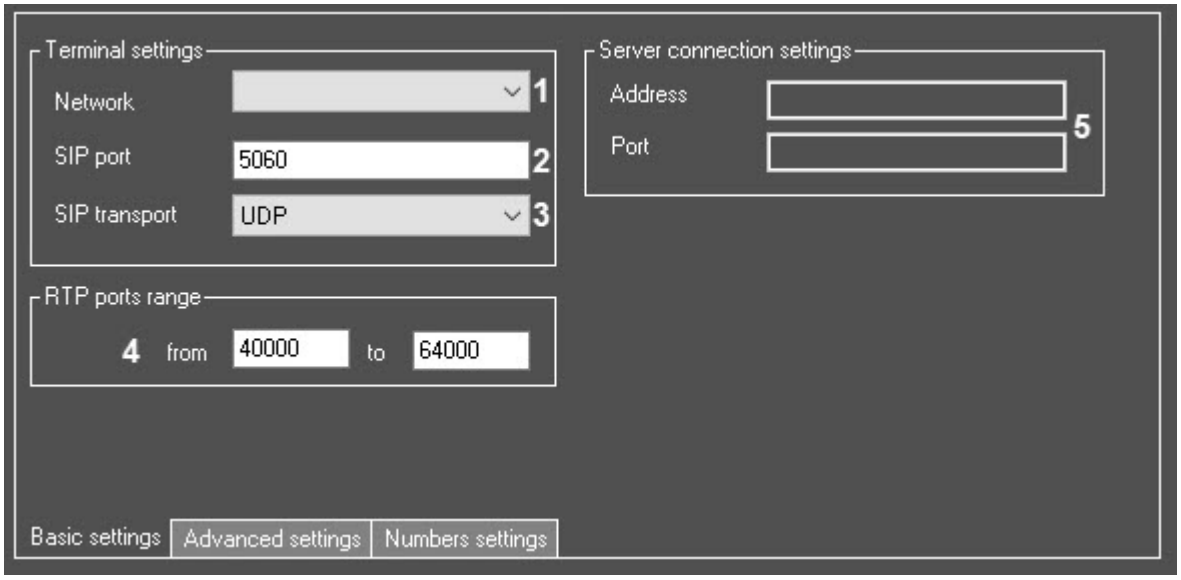
№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-terminal** system object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-terminal** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **SIP-terminal** object in the system	Latin alphabet, Cyrillic, digits, and service characters	SIP-terminal	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters— from 1 to 60

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-terminal** object in the system	Boolean type	Clear	**Set**— the **SIP-terminal** object is disabled and isn't used **Clear**— the **SIP-terminal object** is enabled and used
4	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** parent object for the given **SIP-terminal** object	Names of the **Computer** objects registered in the system	Name of the **Computer** parent object	Depends on the number of the **Computer** objects in the system

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
5	The **Terminal type** switch	Set the switch in the required position	Sets the **SIP-terminal** type	Supported **SIP-terminal** types	SIP server	**SIP server** — the **SIP-terminal** acts as a server, any SIP clients can be connected to it **SIP client** — the **SIP-terminal** acts as a client, it can be connected to any SIP server

*Name of the element isn't displayed in the settings panel of the given object

The **Basic settings** tab



The table describes the setting parameters of the **Basic settings** tab.

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
1	The **Network** drop-down list	Select the value from the list	Sets the IP address of the network adapter that is used to connect to the network in which the SIP clients are located	IP address	Default network adapter	The list of the available network adapters of the computer
2	The **SIP port** field	Enter the value in the field	Sets the port number which will receive the data from the clients via the SIP protocol	Integer numbers	5060	From 0 to 65535
3	The **SIP transport** drop-down list	Select the value from the list	Sets the used transport layer protocol	Supported transport layer protocols	UDP	**TCP** **UDP**
4	The **RTP ports range, from** and **to** fields	Enter the value in the field	Sets the RTP ports range	Integer numbers	from 40000 to 64000	From 0 to 65535

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
5	The **Address** field	Enter the value in the field	For the SIP client terminal type only. Sets the IP address of the SIP server	IP address	NA	1.0.0.0 — 255.255.255.255
	The **Port** field	Enter the value in the field	For the SIP client terminal type only. Sets the port for the SIP server connection	Integers	NA	From 0 to 65535

The **Advanced settings** tab

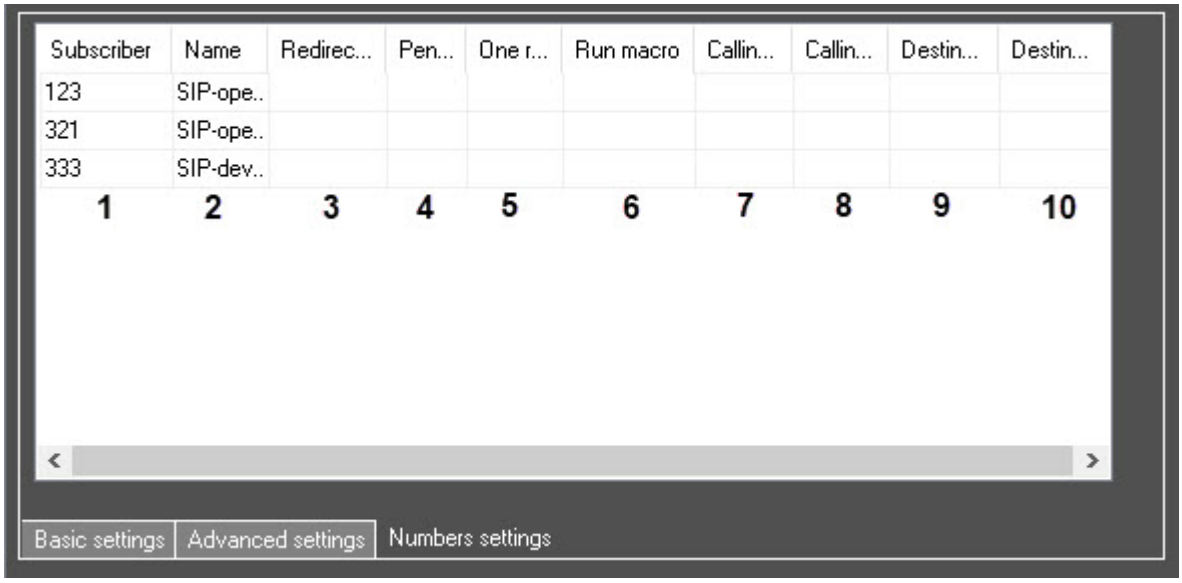


The table describes the setting parameters of the **Advanced settings** tab.

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
1	The **Subscriber** field	Enter the value in the field	Sets the SIP server special number	Integer numbers	NA	>=0

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
2	The **Name** field	Enter the value in the field	Sets the name of the SIP server special number	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters

The **Numbers settings** tab



The table describes the setting parameters of the **Numbers settings** tab.

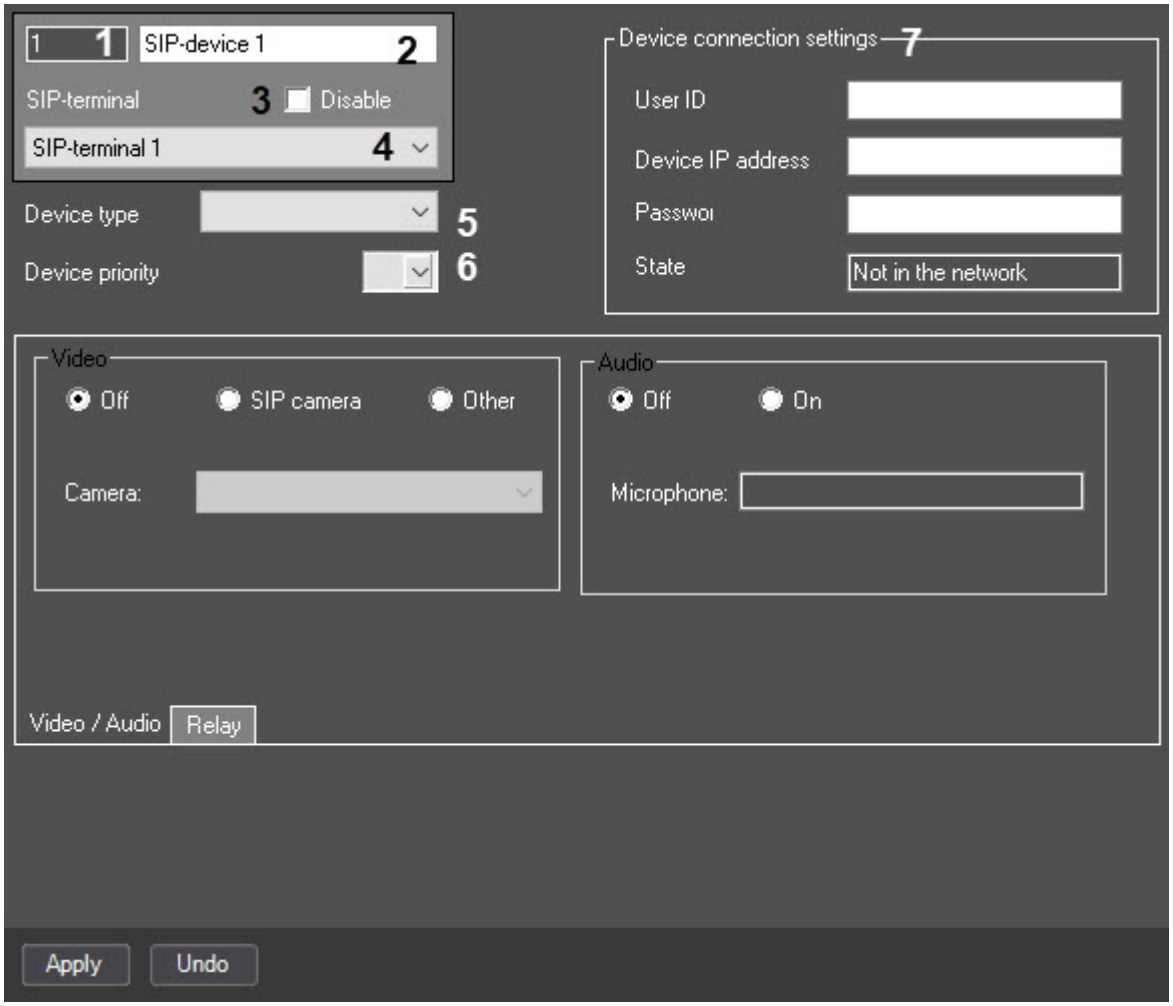
№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
1	The **Subscriber** field	Automatically	Displays the numbers of all devices and operators registered on the SIP terminal, as well as special numbers	NA	NA	Depends on the number of devices and operators registered on the SIP terminal, as well as special numbers

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
2	The **Name** field	Automatically	Displays the names of the corresponding devices, operators, and special numbers	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters
3	The **Redirecting** field	Enter the value in the field	Sets the number or numbers to which the corresponding subscribers' calls must be forwarded	Sequence of numbers	NA	Numbers of all devices and operators registered on the SIP terminal, as well as special numbers. If you want to specify several numbers, use a semicolon as a separator, for example, 234;12;0983
4	The **Pending, s** field	Enter the value in the field	Sets the time period in seconds during which you must wait for a response from the subscriber	Sequence of numbers	NA	>0
5	The **One responder** checkbox	Set the checkbox	Enables the reset of a group call forwarded to several numbers after one of the recipients answers	Boolean type	Clear	**Set**—the group call is reset for all recipients after the response of any operator or a device **Clear**—the group call isn't reset after the answer of the first or subsequent operators and/or devices, that is, all recipients can join the call

№	Parameter	Method for setting the parameter value	Description	Representation	Default value	Value range
6	The **Run macro** drop-down list	Select the value from the list	Sets the **Macro** object, which must be run when calling to a subscriber	Names of the **Macro** objects registered in the system	NA	Depends on the number of the **Macro** objects in the system
7	The **Calling number multicast (video)** field	Enter the value in the field	Sets the IP address for transmitting the video stream from the calling device in the **Multicast** mode	IP address	NA	1.0.0.0—255.255.255.255
8	The **Calling number multicast (audio)** field	Enter the value in the field	Sets the IP address for transmitting the audio stream from the calling device in the **Multicast** mode	IP address	NA	1.0.0.0—255.255.255.255
9	The **Destination number multicast (video)** field	Enter the value in the field	Sets the IP address for transmitting the video stream from the destination device in the **Multicast** mode	IP address	NA	1.0.0.0—255.255.255.255
10	The **Destination number multicast (audio)** field	Enter the value in the field	Sets the IP address for transmitting the audio stream from the destination device in the **Multicast** drop-down list mode	IP address	NA	1.0.0.0—255.255.255.255

The settings panel of the SIP-device object

The settings panel of the **SIP-device** system object is shown in the figures below.



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-device** system object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-device** objects in the system

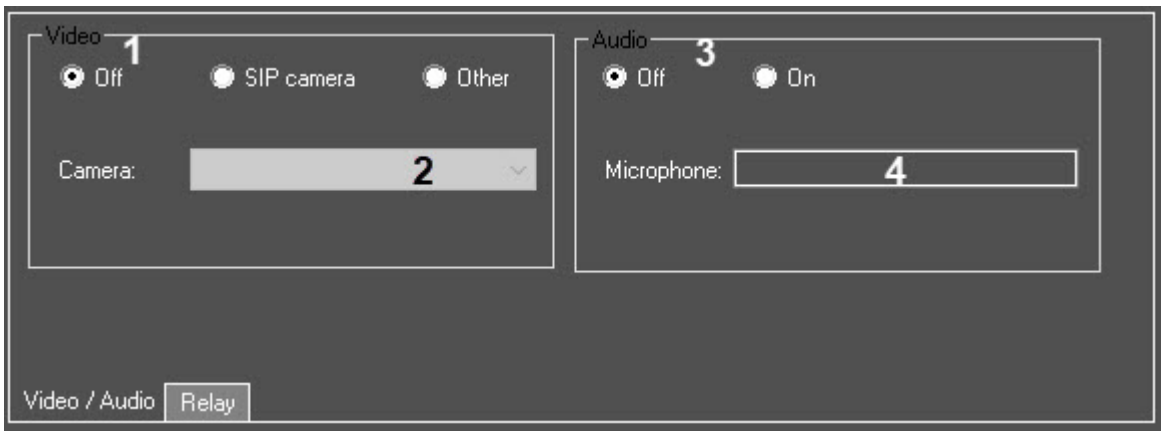
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **SIP-device** object system	Latin alphabet, Cyrillic, digits and service characters	SIP-device	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-device** object in the system	Boolean type	Clear	**Set**—the **SIP-device** object is disabled and isn't used **Clear**—the **SIP-device** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object for the given **SIP-device** object	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the **SIP-terminal** objects in the system
5	The **Device type** drop-down list	Select the value from the list	Sets the icon type to display the device on the map	Names of the available icon types	Empty line	• **Empty line** (no value); • **touch panel**; • **speaker**; • **camera**; • **microphone**; • **default**

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Device priority** drop-down list	Select the value from the list	Sets the priority of a call from this device in the incoming calls window of the SIP panel	Sequence of numbers	Empty line	From 1 to 10. • The lower the number, the higher the priority and, accordingly, the higher the display in the list; • If the field is left blank, then the priority is considered to be minimal; • Calls from devices with the same priority are sorted by the time of the call
The **Device connection settings** group						
7	The **User ID** field	Enter the value in the field	Sets the SIP device identification number, that is, the number to call it	Integer numbers	NA	>=0
	The **Device IP address** field	Enter the value in the field	Enters the SIP device IP address. For the **SIP-server** terminal type only	IP address	NA	From 1.0.0.0 to 255.255.255.255

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Password** field	Enter the value in the field	Sets the password to connect to the SIP device. For the **SIP-server** terminal type only	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters)
	The **State** field	Automatically	Displays the SIP device state. For the **SIP-server** terminal type only	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

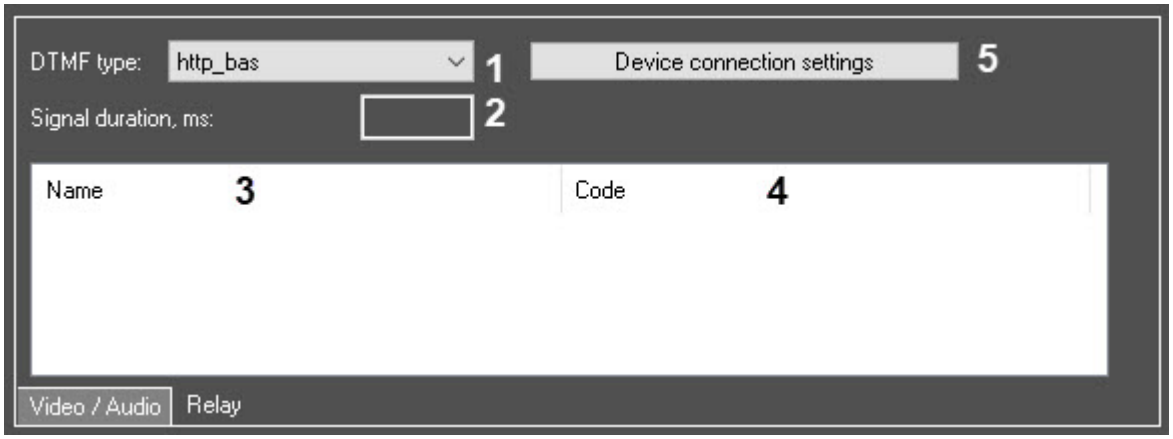
The **Video/Audio** tab (only for the **SIP-server** terminal type)



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

1	The **Video** switch	Set the switch to the required position	Sets the camera used for calls	Supported options of camera usage	Off	• **Off**—video isn't used during the call; • **SIP camera**—the SIP device camera connected via the SIP protocol is used; • **Other**—any other camera from the *Axxon PSIM* hard ware tree selected from the **Camer a** drop-down list is used
2	The **Camer a** drop-down list	Select the value from the list	Sets any camera used for calls	Names of the **Camera** ob jects registered in the system	NA	Depends on the number of the **Cameras** objects in the system
3	The **Audio** switch	Set the switch to the required position	Enables the audio during a call	Supported options of audio usage	Off	**Off**—the audio isn't used during the call **On**—the microphone of the SIP device is used during the call
4	The **Micro phone** field	Automatically	Displays the name of the **Microphon e** object corresponding to the SIP device	NA	NA	NA

The **Relay** tab (only for the **SIP-server** terminal type)



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **DTMF type** drop-down list	Select the value from the list	Sets the type of the tone signal	Supported signal types	sip_info	• **sip_info** — signals are transmitted in the INFO

message of the SIP protocol;

- **sip_notify** — signals are transmitted in the N

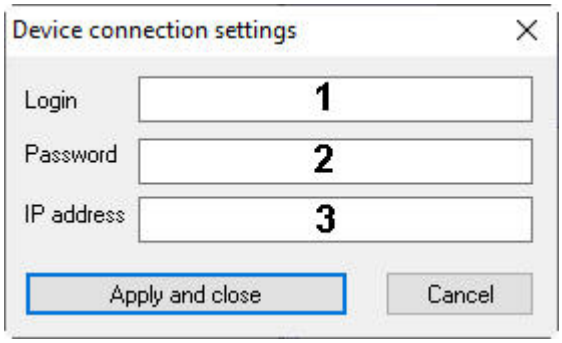
OTIFYmessageoftheSIPprotocol;

- **in_band** — the signal is transmitted as normal sound in the audio stream;

- **http_bas** — signals are transmitted via the HTTP protocol separately from

						the voice stream
2	The **Signal duration, ms** field	Enter the value in the field	Sets the time period in milliseconds during which the DTMF signal must be sent	Sequence of numbers	NA	>0
3	The **Name** field	Enter the value in the field	Sets the name of the command that will be displayed on the SIP panel	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters)
4	The **Code** field	Enter the value in the field	Sets the unique command code	Sequence of numbers or HTTP request (for **http_bas**)	NA	A line containing a sequence of numbers or HTTP request
5	The **Device connection settings** field	NA	Opens the **Device connection settings** pop-up window only when the **http_bas** type of tone is selected	NA	Inactive by default	NA

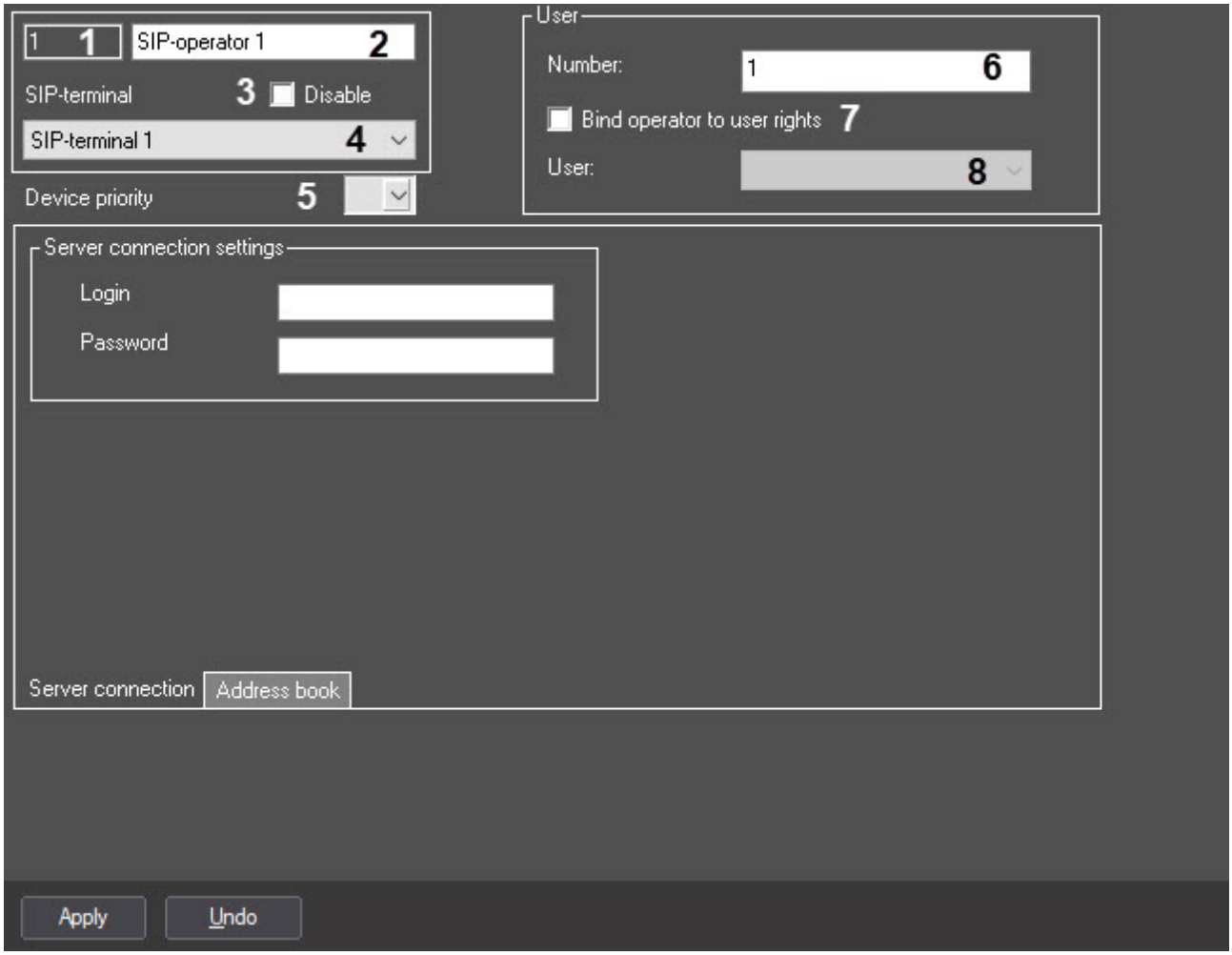
The table below describes the fields of the **Device connection settings** pop-up window.



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Login** field	Enter the value in the field	Sets the username to connect to the SIP device (BasIP)	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters)
2	The **Password** field	Enter the value in the field	Sets the password to connect to the SIP device (BasIP)	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters)
3	The **IP address** field	Enter the value in the field	Sets the IP address of the SIP device (BasIP)	IP address	NA	From 1.0.0.0 to 255.255.255.255

The settings panel of the SIP-operator object

The settings panel of the **SIP-operator** system object is shown in the figures below.



The table describes the setting parameters of the **SIP-operator** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-operator** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-operator** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **SIP-operator** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	SIP-operator	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-operator** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **SIP-operator** object is disabled and isn't used **Clear**—the **SIP-operator** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **SIP-operator** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the **SIP-terminal** objects in the video surveillance system with distributed architecture
5	The **Device priority** drop-down list	Select the value from the list	Sets the priority of a call from this operator in the incoming calls window of the SIP panel	Sequence of numbers	Clear	From 1 to 10. • The lower the number, the higher the priority and, accordingly, the higher the display in the list; • If the field is

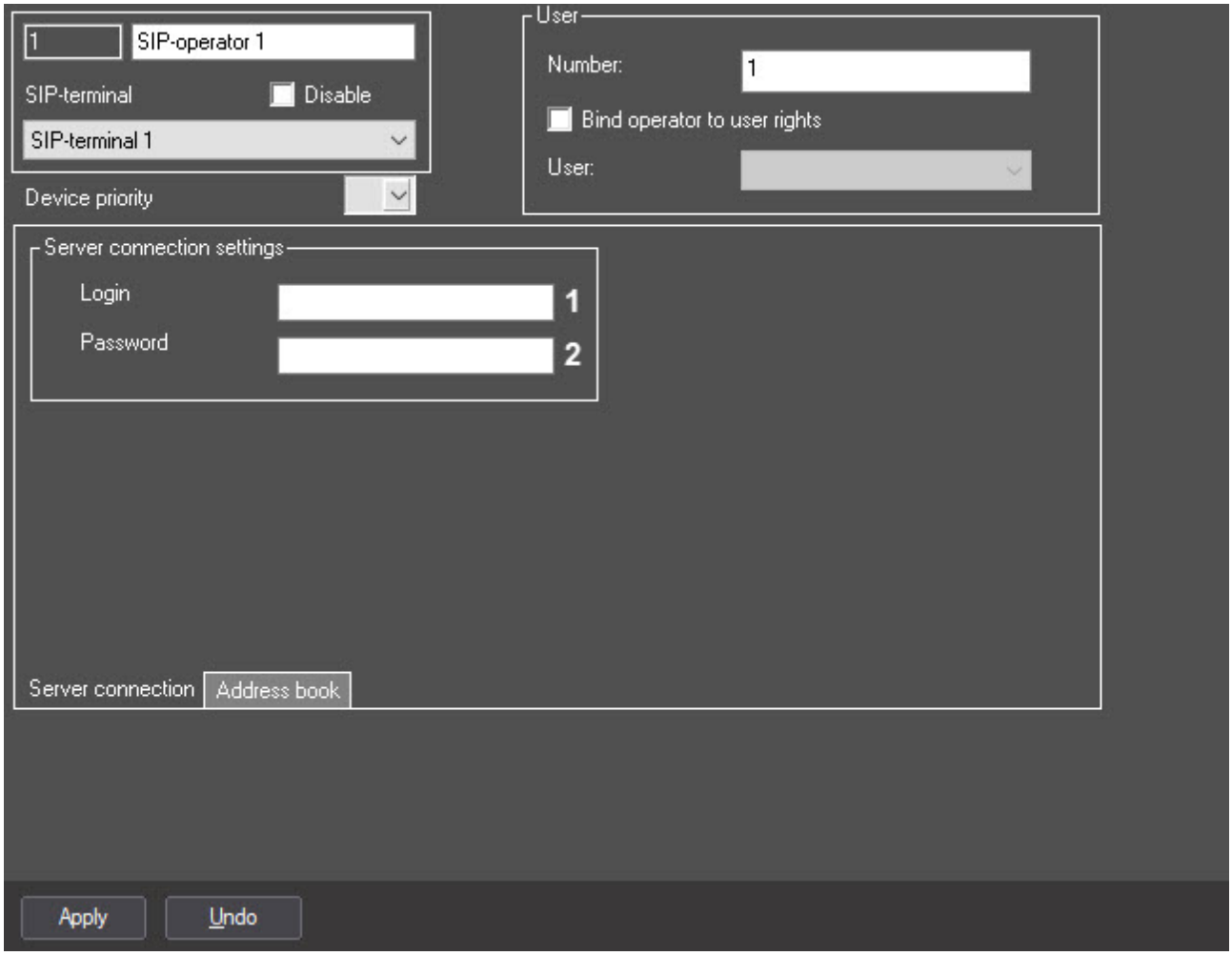
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-operator** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-operator** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **SIP-operator** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	SIP-operator	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-operator** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **SIP-operator** object is disabled and isn't used **Clear**—the **SIP-operator** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **SIP-operator** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the **SIP-terminal** objects in the video surveillance system with distributed architecture
5	The **Device priority** drop-down list	Select the value from the list	Sets the priority of a call from this operator in the incoming calls window of the SIP panel	Sequence of numbers	Clear	From 1 to 10. • The lower the number, the higher the priority and, accordingly, the higher the display in the list; • If the field is

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-operator** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-operator** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **SIP-operator** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	SIP-operator	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-operator** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **SIP-operator** object is disabled and isn't used **Clear**—the **SIP-operator** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **SIP-operator** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the **SIP-terminal** objects in the video surveillance system with distributed architecture
5	The **Device priority** drop-down list	Select the value from the list	Sets the priority of a call from this operator in the incoming calls window of the SIP panel	Sequence of numbers	Clear	From 1 to 10. • The lower the number, the higher the priority and, accordingly, the higher the display in the list; • If the field is

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-operator** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-operator** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **SIP-operator** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	SIP-operator	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-operator** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **SIP-operator** object is disabled and isn't used **Clear**—the **SIP-operator** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **SIP-operator** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the **SIP-terminal** objects in the video surveillance system with distributed architecture
5	The **Device priority** drop-down list	Select the value from the list	Sets the priority of a call from this operator in the incoming calls window of the SIP panel	Sequence of numbers	Clear	From 1 to 10. • The lower the number, the higher the priority and, accordingly, the higher the display in the list; • If the field is

*Name of the element isn't displayed in the settings panel of the given object

The **Server connection** tab (only for the **SIP-client** terminal type)

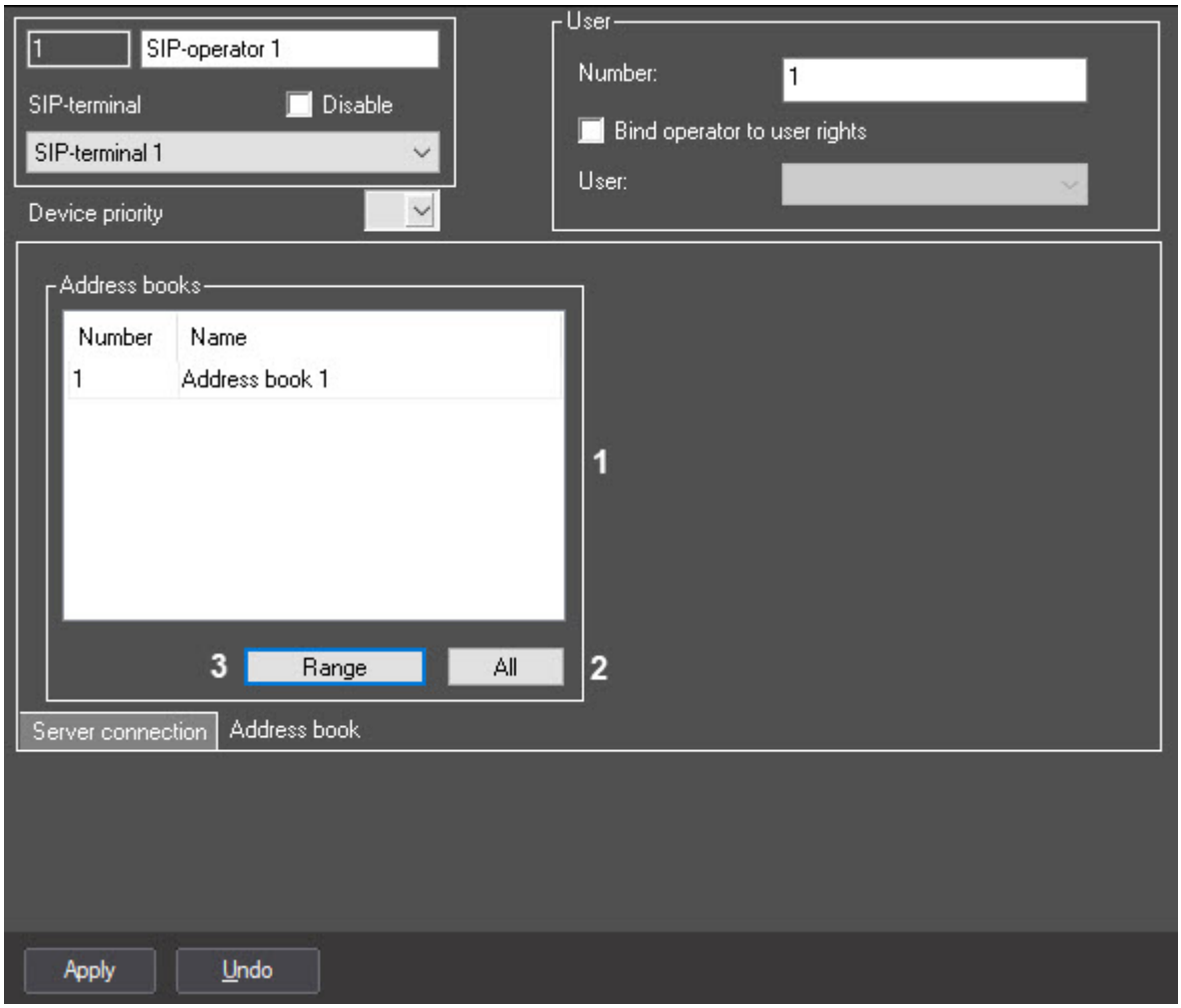


The table describes the setting parameters of the **Server connection** tab.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Log in** field	Enter the value in the field	Sets the username for connecting to the SIP server. Only for the **SIP-client** terminal type	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters)

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The **Password** field	Enter the value in the field	Sets the password for connecting to the SIP server. Only for the **SIP-client** terminal type	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters

The **Address book** tab

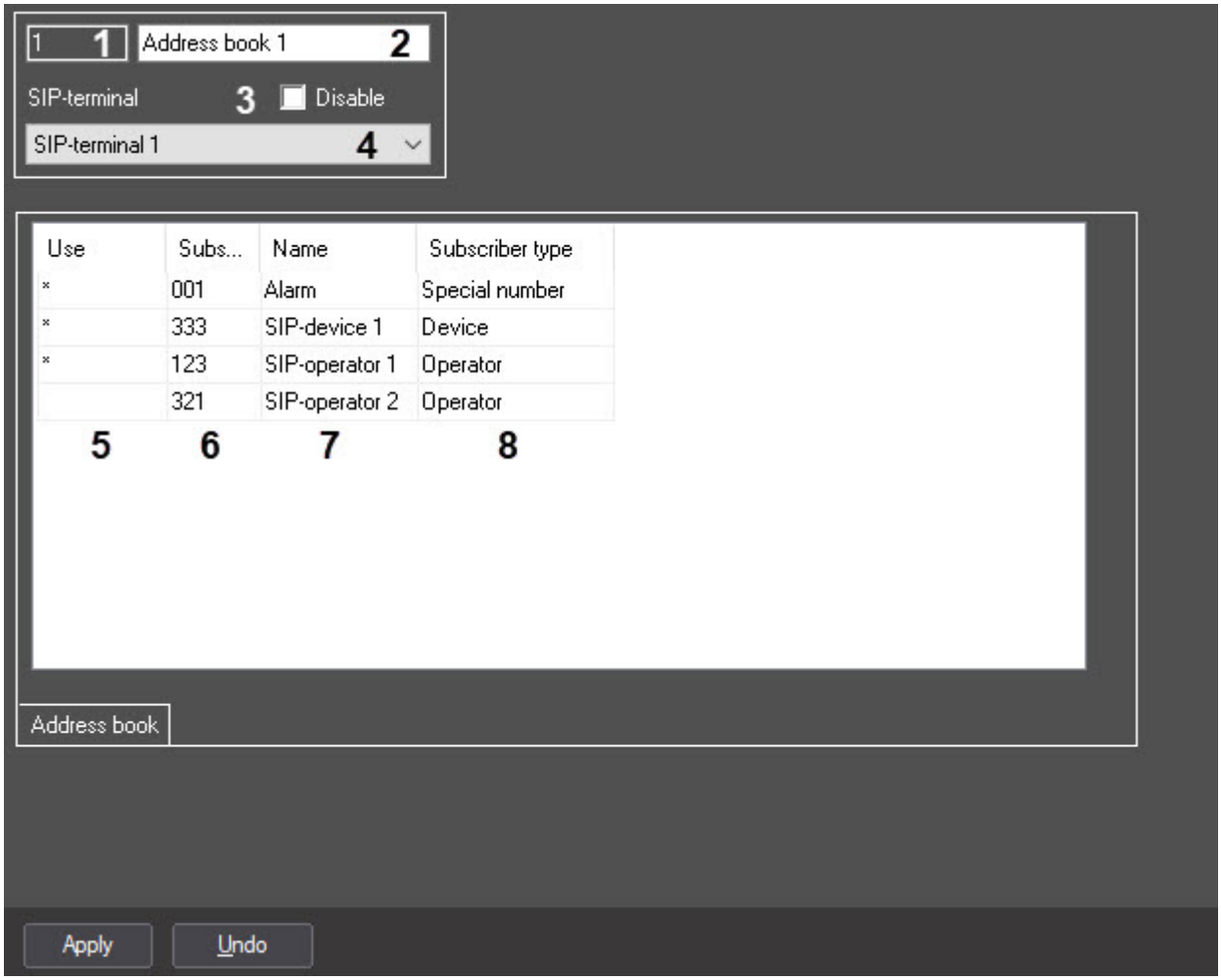


The table describes the setting parameters of the **Address book** tab.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Address books** table						
1	The **Number** drop-down list	Select the value from the list	Selects the identifier of the **Address book** object	Identifiers of the **Address book** objects registered in the system	NA	Depends on the number of the **Address book** objects in the system
	The **Name** drop-down list	Select the value from the list	Selects the name of the **Address book** object in *Axxon PSIM*, the numbers of which are available for this SIP operator	Names of the **Address book** objects registered in the system	NA	Depends on the number of the **Address book** objects in the system
2	The **All** button	Click the button	Adds all existing **Address book** objects to the table	NA	NA	NA
3	The **Range** button	Click the button	Opens the **Add address books** window to add several address books	NA	NA	NA

The settings panel of the Address book object

The settings panel of the **Address book** system object is shown in the figure below.



The table describes the setting parameters of the **Address book** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
5	The **Use** checkbox	Set the checkbox	Sets the list of subscriber numbers that must be available in this address book	Boolean type	Clear	**Set**—the number is available in the address book

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
						Clear—the number isn't available in the address book

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
6	The **Subscriber** field	Automatically	Displays the subscriber number	Numbers of the subscribers registered in the system	NA	Depends on the number of subscribers in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
7	The **Name** field	Automatically	Displays the name of the object in *Axxon PSIM*	Names of the subscribers registered in the system	NA	Depends on the number of subscribers in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
8	The **Subscriber type** field	Automatically	Displays the type of subscriber	Subscriber types registered in the system	NA	• **Operator**,

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
						• **Device**,

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Address book** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Address book** object in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Address book** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Address book	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Address book** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Address book** object is disabled and isn't used **Clear**—the **Address book** object is enabled and used
4	The **SIP-terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** parent object of the system with distributed architecture to which the given **Address book** object belongs	Names of the **SIP-terminal** objects registered in the system	Name of the **SIP-terminal** parent object	Depends on the number of the SIP terminals in the video surveillance system with distributed architecture
The Address book table						
						• **Special number**

*Name of the element isn't displayed in the settings panel of the given object

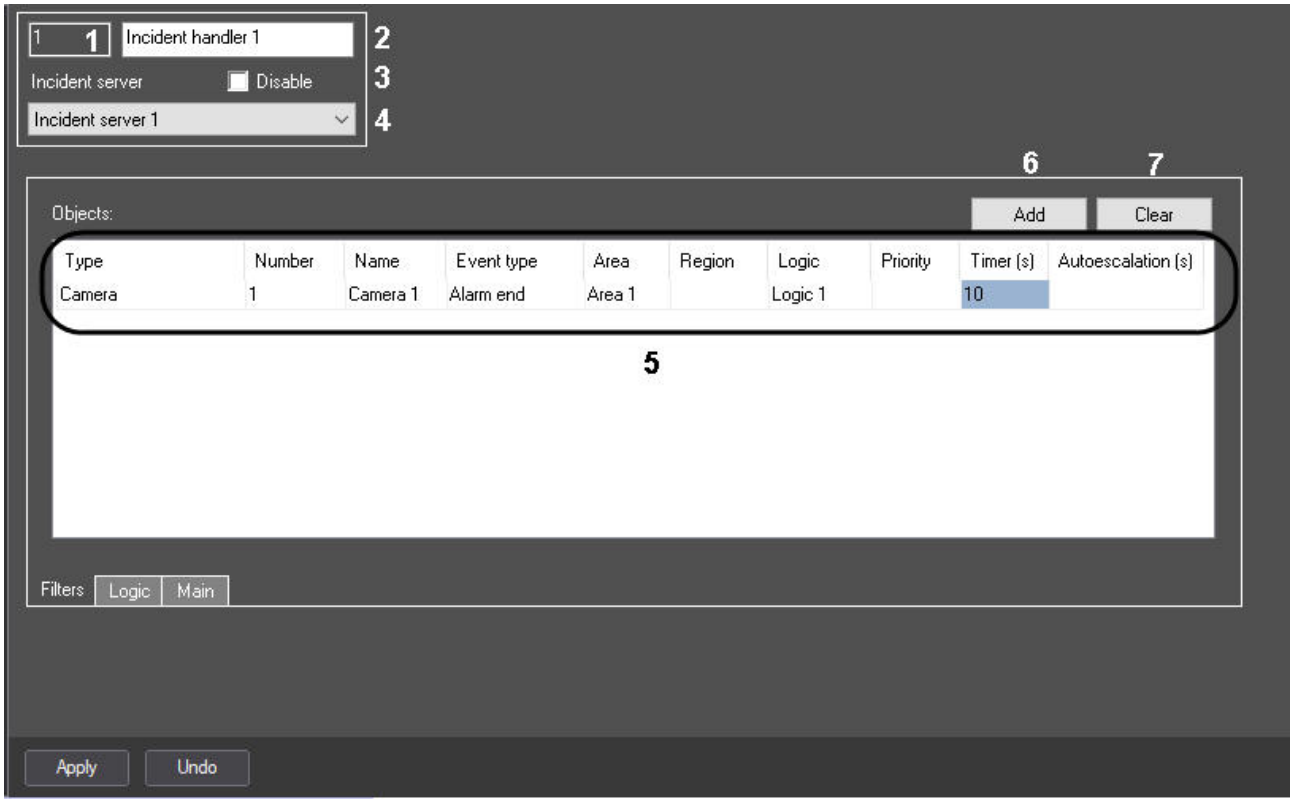
The settings panel of the Incident handler object

On this page:

- Object general settings and the Filters tab
- The Logic tab
- The Main tab

The settings panel for the **Incident handler** object is shown in the figures. The description of the **Incident handler** setting parameters is given in the tables.

Object general settings and the **Filters** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Incident handler** interface object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	Depends on the number of the **Incident handler** objects in the video surveillance system with distributed architecture	A line containing numbers, letters, periods, hyphen, dash, and underscore

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Incident handler** object in the system	Latin alphabet, Cyrillic, digits and service characters	Incident handler	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Incident handler** object	Boolean type	Clear	**Set**— the **Incident handler** object is disabled and isn't used **Clear**— the **Incident handler** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Incident server** drop-down list	Select the value from the list	Sets the **Incident server** parent object for the given **Incident handler** object	Name of the **Incident server** objects registered in the system	Name of the **Incident server** parent object	Depends on the number of the **Incident server** objects in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Filters** tab						
The **Objects** table						
5	The **Type** drop-down list	Select the value from the list	Sets the type of objects for which the events must be displayed in the **Incident manager** window	Available object types	NA	Depends on the objects registered in the system. Only those object types are available for selection for which the "INFORMATION" or "ALARM" value is selected on the **Events** tab in the **Processing messages** column in the ddi.exe utility (see The Events tab)

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Number** drop-down list	Select the value from the list	Sets the number of the object for which the events must be displayed in the **Incident manager** window	Sequence of numbers	NA	Depends on the number of the objects of the specified type registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Name** field	Automatically	Sets the name of the object for which the events in the **Incident manager** window must be displayed	Name of the object registered in the system	NA	Depends on the objects registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Event type** drop-down list	Select the value from the list	Sets the events displayed in the **Incident manager** interface window	Events available for the selected object	NA	Depends on the selected object type

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Area** drop-down list	Select the value from the list	Sets the area, the events from which are displayed in the incident manager window	Area available for the selected object	NA	Depends on the selected object type and areas registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Region** drop-down list	Select the value from the list	Sets the region, the events from which are displayed in the incident manager window	**Regions** available for the selected object	NA	Depends on the selected area

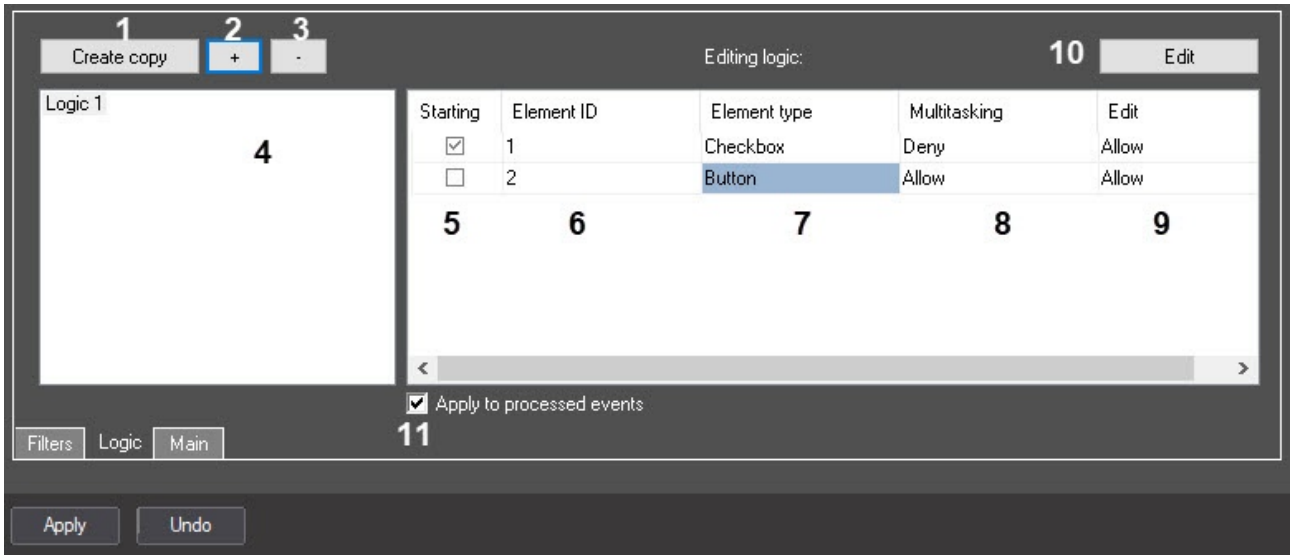
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Logic** drop-down list	Select the value from the list	Sets the logic that is used to handle the events of the corresponding object. *Note. The logic must be specified. Otherwise, the selected events aren't displayed*	**Logic** objects	NA	Depends on the created **Logic** objects on the **Logic** tab

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Priority** drop-down list	Select the value from the list	Sets the priority level for events of the corresponding object	Priority levels specified on the **Main** tab	NA	Depends on the priority templates created on the **Main** tab

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Timer (s)** field	Enter the value in the field	Sets the time in seconds from the moment the event occurs, after which the **TIME_IS_OVER** event is generated. The timer will also count down the specified time in the interface in the **Time (s)** column until it reaches zero	Time in seconds	NA	>=0
	The **Autoescalation (s)** field	Enter the value in the field	Sets the time in seconds from the moment the event occurs, after which the event is automatically escalated. Autoescalation is performed within one incident manager and works if the operator has the escalation rights	Time in seconds	NA	>=0
6	The **Add** button	Click the button	Opens the window for selecting events as a group (see Displaying and handling events in bulk)	NA	NA	NA
7	The **Clear** button	Click the button	Clears the table with the selected objects and events	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The **Logic** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Create copy** button	Click the button	If you select a logic in the list and click on this button, a copy of the selected logic is created. It will appear in the list of logics. The name of the new logic consists of the name of the original logic and the copy number in brackets. For example, for **Logic 1**, the first copy is named **Logic 1(1)**, the second copy is named **Logic 1(2)**	NA	NA	NA
2	The + button	Click the button	Creates a new logic	NA	NA	NA
3	The - button	Click the button	Removes the logic selected in the logic list	NA	NA	NA

4	List of logics* area	Select the value from the list	Selects the logic which elements are displayed in the list on the right	List of the created logics	NA	Depends on the number of the created logics
The **Editing logic** table						
5	The **Starting** checkbox	Set the checkbox	Selects the element that is displayed first for the operator when processing the event. To set the checkbox, do the following: 1. Select an element in the table. 2. Click the **Edit** button. 3. In the **Starting element** drop-down list, select **Yes**. 4. Click the **OK** button	Boolean type	Clear	Only one element in the logic can be the starting one. **Set**—the element is the starting element in the logic **Clear**—the element isn't a starting element in logic
6	The **Element ID** field	Enter the value in the field	Sets the element name	Latin alphabet, Cyrillic, and service characters	NA	From 0 to 255 characters

7	The **Element type** drop-down list	Select the value from the list	Sets the element type (see Configuring the elements)	Available element types	NA	• **Image**; • **Button**; • **Radiobutton**; • **Comment**; • **Combobox**; • **Date/time**; • **Checkboxes**

8	The **Multitasking** drop-down list	Select the value from the list	Limits the ability to switch to processing another event if the operator is on the selected element	Available multitasking values	By default, when processing an event, you can move on to processing other events from any element of logic	• **Deny** — when the selected element appears, the operator cannot switch to

processing another event until the operator moves to the element with the

Allow value or completes processing the event;

- **Allow** — when this element ap

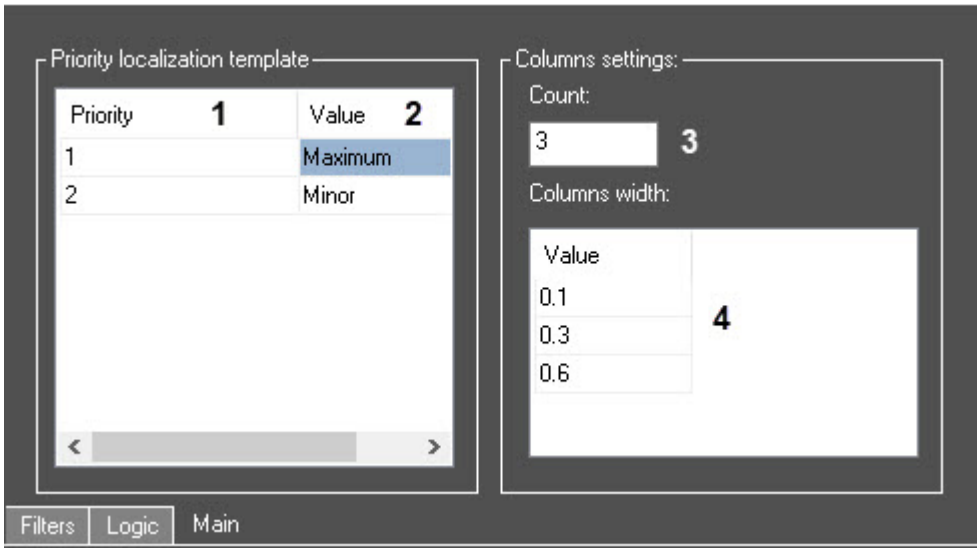
						pears, the operator can proceed to processing another event

9	The **Edit** drop-down list	Select the value from the list	Allows stepping back when processing an event	Available values	By default, when processing an event, you can step back	• **Deny** — you cannot step back • **Allow** — you can step back
Out of the group						
10	The **Edit** button	Click the button	Opens a window for editing the selected element (see Configuring the elements)	NA	NA	NA

11	The **Apply to processed events** checkbox	Set the checkbox	Resets the event processing. The option works if the administrator has changed the Logic, clicked **Apply,** and wants to use the updated logic for events in the incident manager	Boolean type	Clear	**Set**—the event processing with the selected logic is reset, and the event can be processed again with the updated logic **Clear**—the logic will change, but the started event processing operation with this logic isn't reset. The updated logic is applied only to subsequent new events

*Name of the element isn't displayed in the settings panel of the given object

The **Main** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Priority localization template** table						
1	The **Priority** field	Enter the value in the field	Sets the priority level	Priority level	NA	Numeric value, positive integer
2	The **Value** field	Enter the value in the field	Sets the priority description. If the priority description is set, then it is displayed in the incident manager, otherwise, the priority level is displayed	Priority description	NA	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 255
The **Columns settings** group						

3	The **Count** field	Enter the value in the field	Sets the number of columns when displaying the event processing logic in the incident manager interface	Sequence of numbers	4	From 0 to 100
4	The **Columns width** field	Enter the value in the field	Sets the width of the columns when displaying the event processing logic in the incident manager interface	Pixels or fractions	150 pixels	Percentage values must be set in fractions of 1, for example, 0.25. If a value greater than 1 is set, then it is taken in pixels

The Interfaces tab

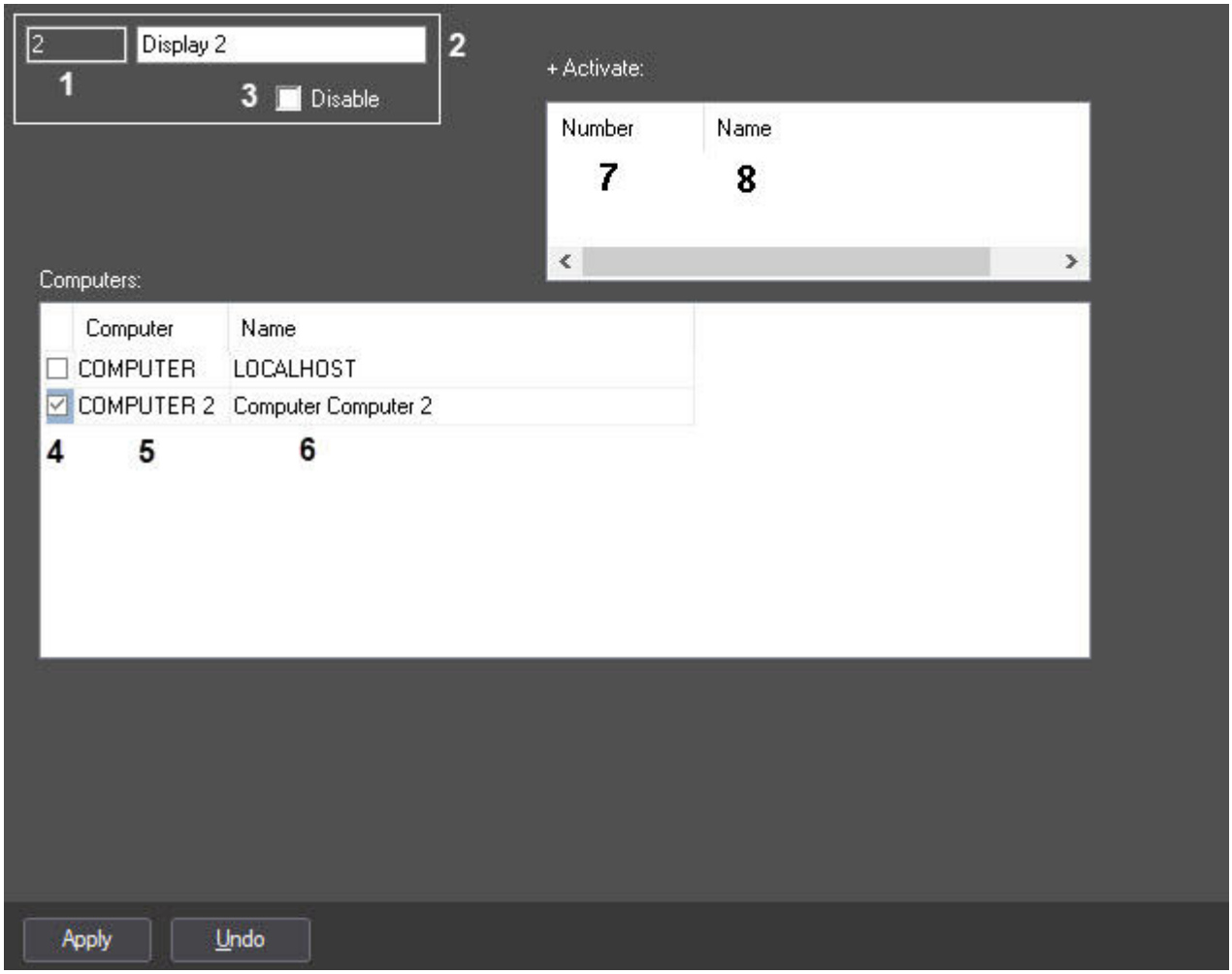
The **Interfaces** tab is used to create and configure the user interface of the video surveillance and audio monitoring system.

Interfaces tab components

The **Interface** tab displays a tree of objects corresponding to user interface components and a settings panel for the system object selected in the tree. The settings panels of the system objects that relate to the created video surveillance and audio monitoring system are described in the following sections.

The settings panel of the Display object

The **Display** object is used to register virtual displays in the system, which are used as a basis for interface components created in *Axxon PSIM.* The settings panel of the **Display** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Display** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Display** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Display** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Display** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Display	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Displays the **Display** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Display** object is disabled and isn't used **Clear**—the **Display** object is enabled and used
The **Computers** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The Select an element* checkbox	Set the checkbox	Contains a list of computers (server, Remote Administrator's workstation, Remote workstation) connected to the given server (Remote Administrator's workstation). The checkboxes corresponding to the computers determine whether the computers must display the **Monitor** objects created on the basis of the given **Display** object	Boolean type	Clear	**Set**— the **Monitor** object created on the basis of the **Display** object is displayed in the selected computer **Clear**— the **Monitor** object created on the basis of the **Display** object isn't displayed in the selected computer
5	The **Computer** field	Automatically	Sets the computer name in the local network	Computer names in the local network	Computer name in the local network	Depends on the number of objects in the local network. A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

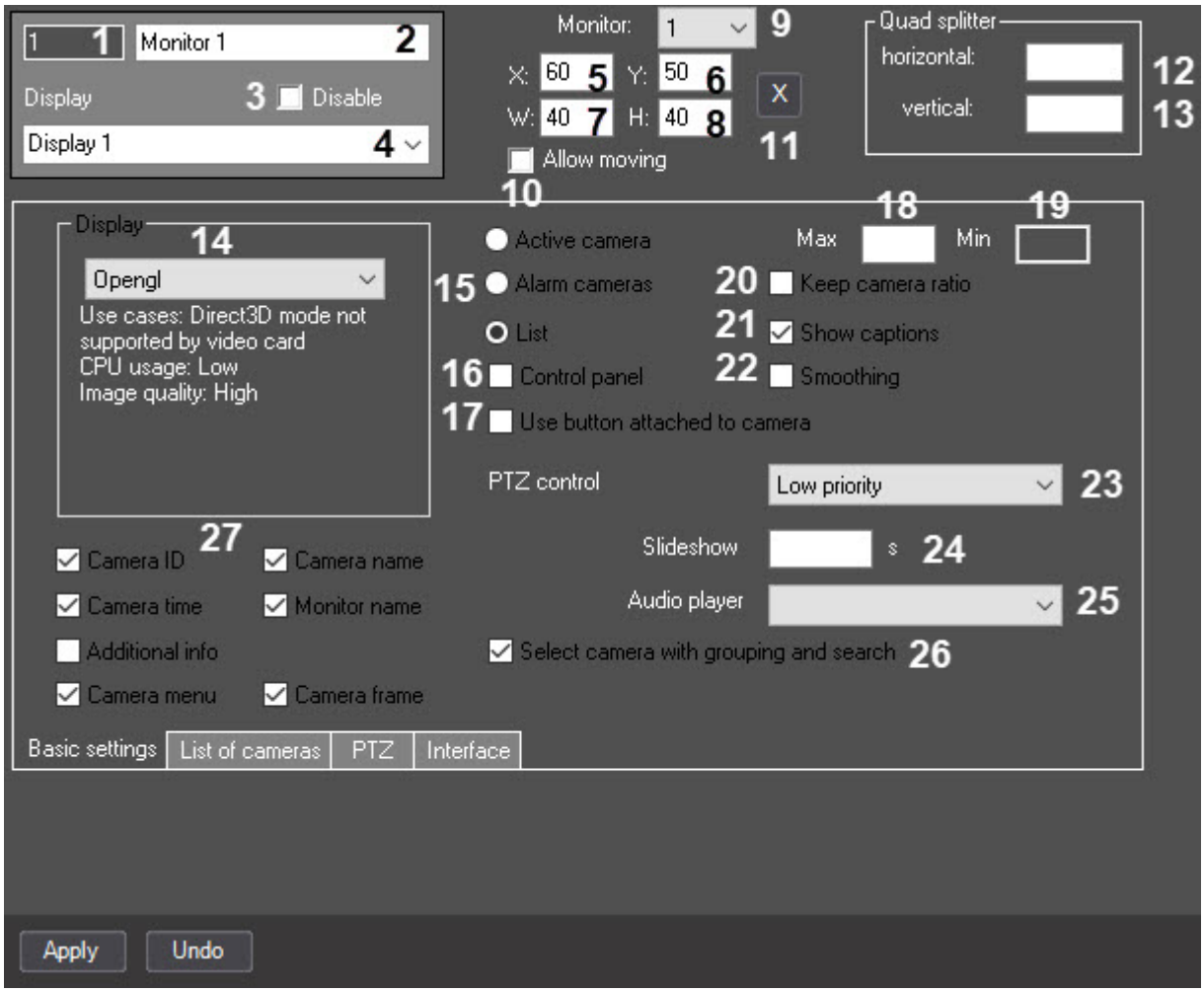
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Name** field	Automatically	Sets the name to the computer in the video surveillance system with distributed architecture	Names of the **Computer** object registered in the system	Name of the **Computer** object registered in the system	Depends on the number of objects in the video surveillance system with distributed architecture. A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
The **+Activate** group						
7	The **Number** drop-down list	Select the value from the list	Sets the number of the display, the objects of which are displayed on the configured display at the same time with its objects	Identifiers of the **Display** type objects registered in the system	NA	Depends on the number of objects registered in the system
8	The **Name** field	Automatically	Sets the name of the display, the objects of which are displayed on the configured display. It is filled out automatically after you select the number	Names of the **Display** objects registered in the system	NA	Depends on the number of objects registered in the system

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Monitor object

The settings panel of the **Monitor** interface object is shown in the figures.

The **Basic settings** tab

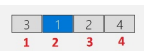


№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Monitor** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing numbers, letters, periods, hyphen, dash, and underscore Depends on the number of the **Monitor** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **Monitor** object in the system	Latin alpabet, Cyrillic, digits and service characters	Monitor	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Monitor** object in the system	Boolean type	Clear	**Set**— the **Monitor** object is disabled and isn't used **Clear**— the **Monitor** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **Monitor** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The Coordinates group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the **Monitor** window	% of the screen width	60	From 0 to M*100, where M is the number of the installed computer monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the **Monitor** window	% of the screen height	50	From 0 to M*100, where M is the number of the installed computer monitors
7	The **W** field	Enter the value in the field	Sets the width of the **Monitor** window	% of the screen width	40	From 20 to 900 if control panel is enabled. Otherwise, from 0 to 900. You can disable this restriction using the UnlimitMonitorSize registry key (see Registry keys reference guide)

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The **H** field	Enter the value in the field	Sets the height of the **Monitor** window if the control panel is disabled	% of the screen width	40	From 0 to 900. You can disable this restriction using the UnlimitMonitorSize registry key (see Registry keys reference guide)

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Monitor** drop-down list	Select the value from the list	Sets the number of the physical monitor, the coordinates for which are set. The monitors are numbered in the order of their physical location from left to right, from top to bottom. The number 1 corresponds to the upper left monitor regardless of which monitor is the main one or the first one in OS. In the figure below, the monitor numbers in OS are given in gray while the numbers in *Axxon PSIM* are red. 	Sequence of numbers	1	From 1 to 16

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
			Attention! We recommend setting the same resolution for all monitors in the system. Different resolution is only allowed if all monitors are			

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
			aligned along any border (for example, the upper border)			
10	The **Allow moving** checkbox	Set the checkbox	Allows moving the the **Monitor** window object using the mouse, if the control panel is enabled	Boolean type	Clear	**Set**— allow moving the **Monitor** window object using the mouse **Clear**— forbid moving the **Monitor** window object using the mouse

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The  button	Click the button	Opens the window for setting the position and size of the **Monitor** window	NA	NA	NA
The **Quad splitter** group						
12	The **horizontal** field	Enter the value in the field	Sets the number of the surveillance windows that must be displayed horizontally on the monitor. If the value isn't specified (the field is blank), then the default grid of the surveillance windows depending on the selected layout is displayed	Sequence of numbers	NA	From 1 to 64

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
13	The **vertical** field	Enter the value in the field	Sets the number of the surveillance windows that must be displayed vertically on the monitor. If the value isn't specified (the field is blank), then the default grid of the surveillance windows depending on the selected layout is displayed	Sequence of numbers	NA	From 1 to 64
The **Basic settings** tab						
14	The **Display** drop-down list	Select the value from the list	Sets the mode for processing the video signals from cameras by the graphics card	Names of the display modes	Direct3D	• **Direct3D** is the recommen

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						d e d m o d e t h at u s e s t h e m o st a d v a n c e d W in d o w s gr a p hi c s li b ra ri e s.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						• **DirectDraw** is used if the graphics card does not support Direct3D;

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						• **Software** — video signal sare n't processed by the graphics card. It is

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						used if *Axxon PSIM* is installed on a virtual platform

№	Parameter		Method for setting the parameter value	Parameter description	Representation	Default value	Value range
15	The switch of displaying the camera window*	**Active camera**	Sets in the position	Sets the display mode for an active camera window only	Boolean type	Clear	**Set**— the **Active camera** mode is enabled and used **Clear**— the **Active camera** mode is disabled and isn't used
		Alarm cameras		Sets the display mode for alarm cameras windows		Clear	**Set**— the **Alarm cameras** mode is enabled and used **Clear**— the **Alarm cameras** mode is disabled and isn't used

№	Parameter		Method for setting the parameter value	Parameter description	Representation	Default value	Value range
		List		Sets the display mode of the camera windows according to the selected layout		Set	**Set**— the **List** mode is enabled and used **Clear**— the **List** mode is disabled and isn't used
16	The **Control panel** checkbox		Set the checkbox	Enables the display of the toolbar on the monitor in the **List** mode	Boolean type	Clear	**Set**— the control panel is enabled and used **Clear**— the control panel is disabled and isn't used
17	The **Use button attached to camera** checkbox		Set the checkbox	Enables the display of the **Button** objects attached to cameras in the surveillance windows	Boolean type	Clear	**Set**— buttons are displayed in the surveillance windows **Clear**— buttons aren't displayed

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
18	The **Max** field	Enter the value in the field	Sets the maximum number of the cameras windows that can be simultaneously displayed on the monitor in the **Alarm cameras** and **List** modes. If the number of alarm cameras is greater than the maximum number, the monitor will display the number of cameras no more than specified in the **Max** field	Sequence of numbers	NA	>0 Depends on the number of the cameras registered in the system. There are no restrictions on the number of cameras

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
19	The **Min** field	Enter the value intthe field	Sets the minimum number of video cameras windows that can be displayed on the monitor in the **Alarm camers** mode. If the number of the alarm cameras is less than the minimum number, the monitor will display fewer cameras than specified in the **Min** field. At the same time, the monitor fold will remain consistent with the **Min** field	An integer from zero and greater (for example, 0, 2, 50)	NA	>=0 Depends on the number of the cameras registered in the system. There are no restrictions on the number of cameras. **0**—when there are no alarms, the camera windows aren't displayed in the monitor window

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
20	The **Keep camera ratio** checkbox	Set the checkbox	Sets the ratio of the width and height of the video image in the surveillance windows on the video surveillance monitor	Boolean type	Clear	**Set**—the ratio of the width and height of the video image corresponds to the ratio of the camera **Clear**—video image occupies the entire area of the surveillance window, while the ratio maynot be saved

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
21	The **Show captions** checkbox	Set the checkbox	Shows the captions for the cameras of the **Monitor** window. In large distributed systems, we recommend disabling captions on those monitors where you don't need to show captions. This checkbox also affects the display of frames around detected objects or abandoned objects (see Smart video detection tools operation) when viewing the archive	Boolean type	Set	**Set**—the captions submenu is available in the context menu of the monitor window, captions are displayed. The frames generated by the VMDA smart video detectors are displayed

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						Clear— the captions submenu is unavailable in the context menu of the **Monitor** window, captions aren't displayed. The frames generated by the VMDA smart video detectors aren't displayed

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
22	The **Smoothing** checkbox	Set the checkbox	It is used when you need to display a video with greater resolution on which the ladder effect appears when displaying in the small window. *Note. When this feature is enabled, the CPU load of the computer where the display is performed increases. We recommend displaying video from analog cameras or low-resolution video only*	Boolean type	Clear	**Set**— smoothing is applied **Clear**— smoothing isn't applied

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
23	The **PTZ control** drop-down list	Select the value from the list	Sets the priority to control the PTZ devices using the **Monitor** object	Names of the PTZ devices control priorities	Low priority	• **Forbidden** — the option of the PTZ control using the **Monitor** object is disabled;

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						• **Low priority** — low priority of control;

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						• **Normal priority** — medium priority of control;

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
						• **High priority** — high priority of control

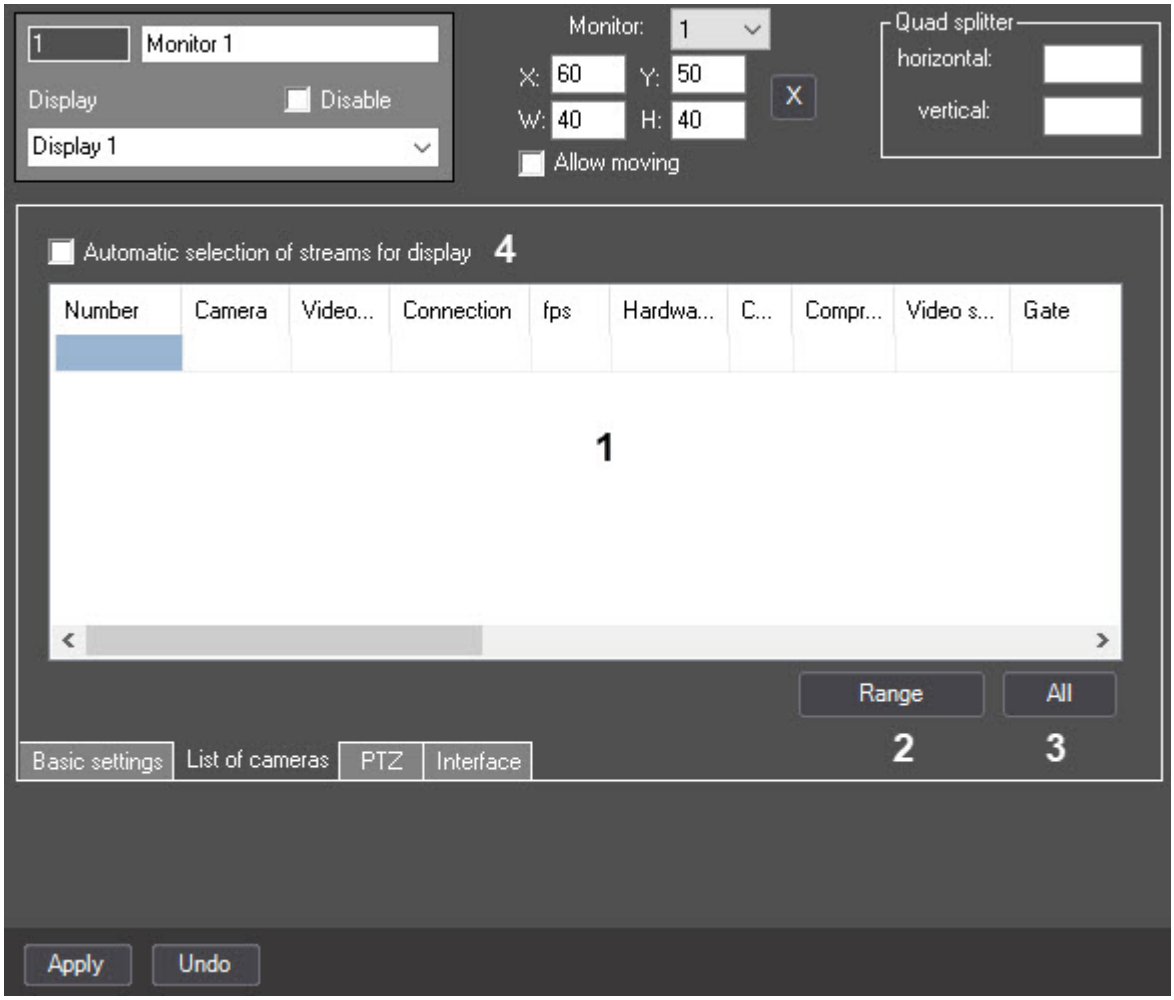
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
24	The **Slideshow__ s** field	Enter the value in the field	Sets the period of the automatic slideshow of the camera windows when the control panel is enabled	Time in seconds (s)	Blank field	**Blank field** or **0**—the camera windows are scrolled every 3 seconds **An integer from 1 to 600**—the camera windows are scrolled at the specified interval
25	The **Audio player** drop-down list	Select the value from the list	Sets the **Audio player** object used to playback the audio signals and export video recordings with audio from the monitor interface	Names of the **Audio player** objects registered in the system	NA	Depends on the number of the audio players registered in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
26	The **Select camera with grouping and search** checkbox	Set the checkbox	Enables a dialog window for switching a camera in the surveillance window in which cameras are grouped by computers, and you can search them by their name (see Selecting camera to display in Surveillance window)	Boolean type	Set	**Set**—to switch to another camera, a special dialog window in which cameras are grouped and has a search line opens **Clear**—camera is selected in the function menu of the surveillance window without opening a special dialog window

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
27	Group of checkboxes used to display the elements of the **Surveillance windows**	Set the checkboxes	Allows enabling and disabling the display of various elements of the surveillance window such as number, name, time, menu, camera frame and additional info on the camera, as well as the name of the video surveillance monitor	Boolean type	All checkboxes are set except of the **Additional info** checkbox	**Set**—the corresponding element is displayed in the surveillance windows of all cameras added to the video surveillance monitor **Clear**—the corresponding element isn't displayed in the surveillance windows on the video surveillance monitor

*Name of the element isn't displayed in the settings panel of the given object

The **List of cameras** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The Cameras* table						
1	The **Number** drop-down list	Select the value from the list	Sets the number of the camera to display on the monitor	Sequence of numbers	NA	Depends on the number of the cameras registered in the system
	The **Camera** drop-down list	Select the value from the list	Sets the name of the camera to display on the monitor	Names of the cameras registered in the system	NA	Depends on the number of the cameras registered in the system

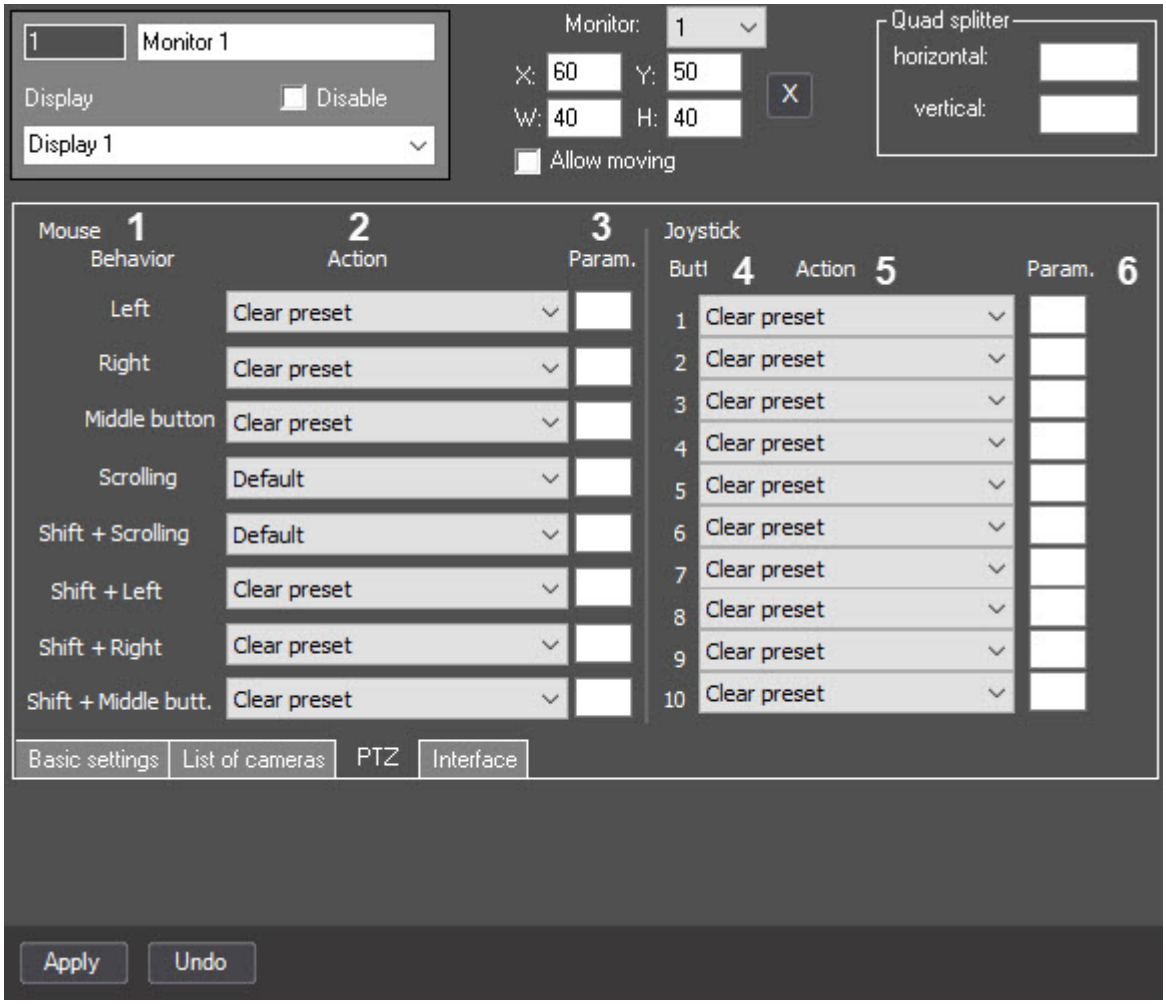
The **Video stream** drop-down list	Select the value from the list	Sets the number of the video stream displayed from the camera when connected directly. If connected via the server, this setting doesn't affect anything	Numbers of the video streams	Default	**1**, **2**, **3**, **4**—video streams numbers **Default**—default video stream
The **Connection** drop-down list	Select the value from the list	Sets the way of receiving video image from the camera	Ways of receiving video from camera	Through server	**Direct**—the video stream is received directly from camera **Through server**—the video stream is received from the server, to which the camera is connected
The **fps** drop-down list	Select the value from the list	Sets the fps for transmitting the video signal to the client monitor	Sequence of numbers	Blank field	**1**, **2**, **3**, **4**, **6**, **8**, **12**, **16**, **20**, **25**, **30** **Blank field**—fps value from the camera settings
The **Hardware decoding** drop-down list	Select the value from the list	Sets the hardware decoder of the video signal. When you select a hardware decoder, it increases the load on the corresponding CPU	List of available decoders	Blank field	• **Blank field** (default CPU decoder), • **Nvidia decoder**, • **Intel Quick Sync**
The **Compression** drop-down list	Select the value from the list	Sets the compression level for transmitting the video signal to the client monitor. The given value leads to extra consumption of server resources	Sequence of numbers	NA	In the order of increasing the compression level from 0 to 5. **0**—no compression **5**—maximum compression

The **Compressor** drop-down list	Select the value from the list	Sets the algorithm for the video stream compression which is used for the video signal recompression when displaying on the monitor**.** If you set the compressor, you must set the value in the **Compression** list	List of available algorithms	NA	• **MJPEG**, • **Motion Wavelet 3.5**, • **MPEG4**
The **Gate** drop-down list	Select the value from the list	Sets the **Videogate** object via which the live and archive video from the selected camera must be transmitted to the monitor	Names of the **Videogate** objects registered in the system	NA	Depends on the number of the **Videogate** objects registered in the system
The **Backup archive** drop-down list	Select the value from the list	Sets the **Backup archive** object from which the video archive from the selected camera must be transmitted to the monitor	Names of the **Backup archive** objects registered in the system	NA	Depends on the number of the **Backup archive** objects registered in the system
The **Edge storage** drop-down list	Select the value from the list	Sets the **Edge storage** object from which the video archive must be transmitted to the monitor via the selected camera	Names of the **Edge storage** objects registered in the system	NA	Depends on the number of the **Edge storage** objects registered in the system
The **Gateway for Backup archive** drop-down list	Select the value from the list	Sets the **Videogate** object via which the video archive from the **Backup archive** object must be transmitted to the monitor	Names of the **Videogate** objects registered in the system	NA	Depends on the number of the **Videogate** objects registered in the system

	The **VMDA metadata storage** drop-down list	Select the value from the list	Sets the **VMDA metadata storage** object used for the forensic search in the archive of the corresponding camera	Names of the **VMDA metadata storage** objects registered in the system	NA	Depends on the number of the **VMDA metadata storage** objects registered in the system
	The **Type of display** drop-down list	Select the value from the list	Sets the type of conversion performed in the surveillance window on the video surveillance monitor	Supported conversion types	PTZ	**PTZ**—virtual telemetry **Panorama**—panoramic view of the image
	The **Macro1** drop-down list	Select the value from the list	Sets the first macro to be displayed in the function menu of the camera in the surveillance window	Names of the **Macro** objects registered in the system	NA	Depends on the number of the **Macro** objects registered in the system
	The **Macro2** drop-down list	Select the value from the list	Sets the second macro to be displayed in the function menu of the camera in the surveillance window	Names of the **Macro** objects registered in the system	NA	Depends on the number of the **Macro** objects registered in the system
	The **Guid** field	Automatically	Displays the unique identifier of the camera in the system	Sequence of numbers, Latin alphabet, digits and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters) enclosed in {curly brackets}
2	The **Range** button	Click the button	Opens the **Add/ Edit cameras** window and appears the access to complex selection and editing of cameras parameters for displaying on the monitor	NA	NA	NA

3	The **All** button	Click the button	Selects all cameras registered in the system for displaying on the monitor	NA	NA	NA
4	The **Automatic selection of streams for display** checkbox	Set the checkbox	Enables the function of automatic selection of video stream for displaying on the monitor. Affects cameras for which the **Default** video stream is selected—see item 28	Boolean type	Clear	**Set**—video stream for display is selected depending on the size of the video image on the monitor and the required frame frequency **Clear**—video stream is selected depending on the **Video stream** and **Connection** settings (item 28) and on the settings of the server and camera from which the stream is required

The **PTZ** tab

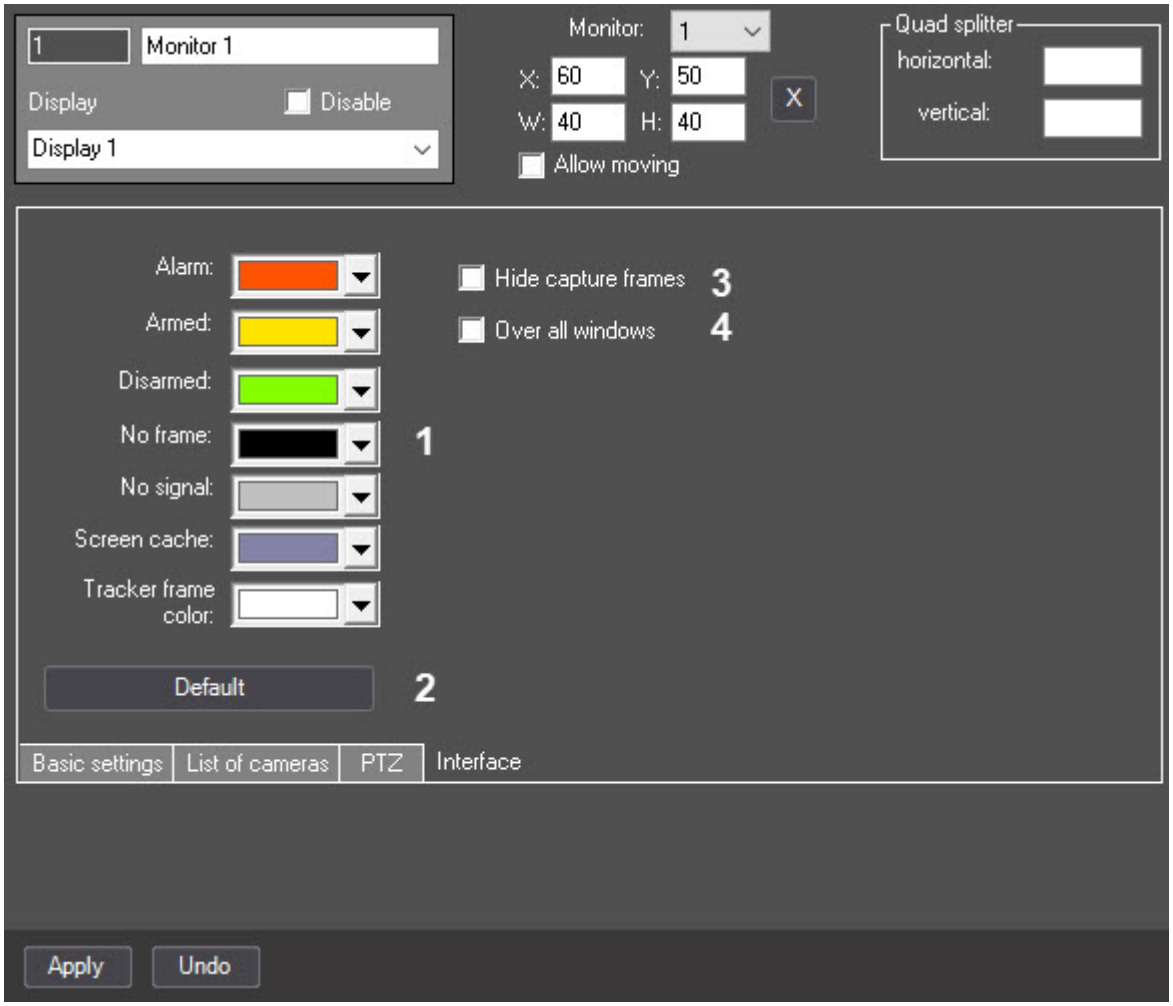


№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Mouse** group						
1	The **Behavior** list	NA	The list of possible actions with a mouse	NA	NA	NA
2	The **Action** drop-down lists	Select the value from the list	Sets the reaction performed when executing the corresponding action with a mouse	Reaction list of the **PTZ device** object	(Default)	Reaction list of the **PTZ device** object

3	The **Param.** fields	Enter the value in the field	Sets the value of the reaction parameter if it's required	Depends on the selected action	NA	Depends on the selected reaction. For the reactions connected with the presets, it is a preset number. For other reactions, it is speed if the selected reaction allows specifying speed as a parameter. If the parameter isn't specified, the speed value from the settings of the **PTZ device** object that is connected with the **Camera** seleected on the **Monitor**, is used
The **Joystick** group						
4	The **Butt.** list	NA	List of joystick buttons	NA	NA	NA
5	The **Action** drop-down lists	Select the value from the list	Sets the reaction which must performed when you click the joystick button	List of reaction of the **PTZ device** object	(Default)	List of reaction of the **PTZ device** object

6	The **Param.** fields	Enter the value in the field	Sets the value of the reaction parameter if it is required	Depends on the selected action	NA	Depends on the selected reaction. For the reactions connected with the presets, it is the preset number. For other reactions, it is speed; if the selected reaction allows specifying speed as a parameter. If the parameter isn't specified, the speed value from the settings of the **PTZ device** object that is connected with the camera and selected on the monitor, is used

The **Interface** tab

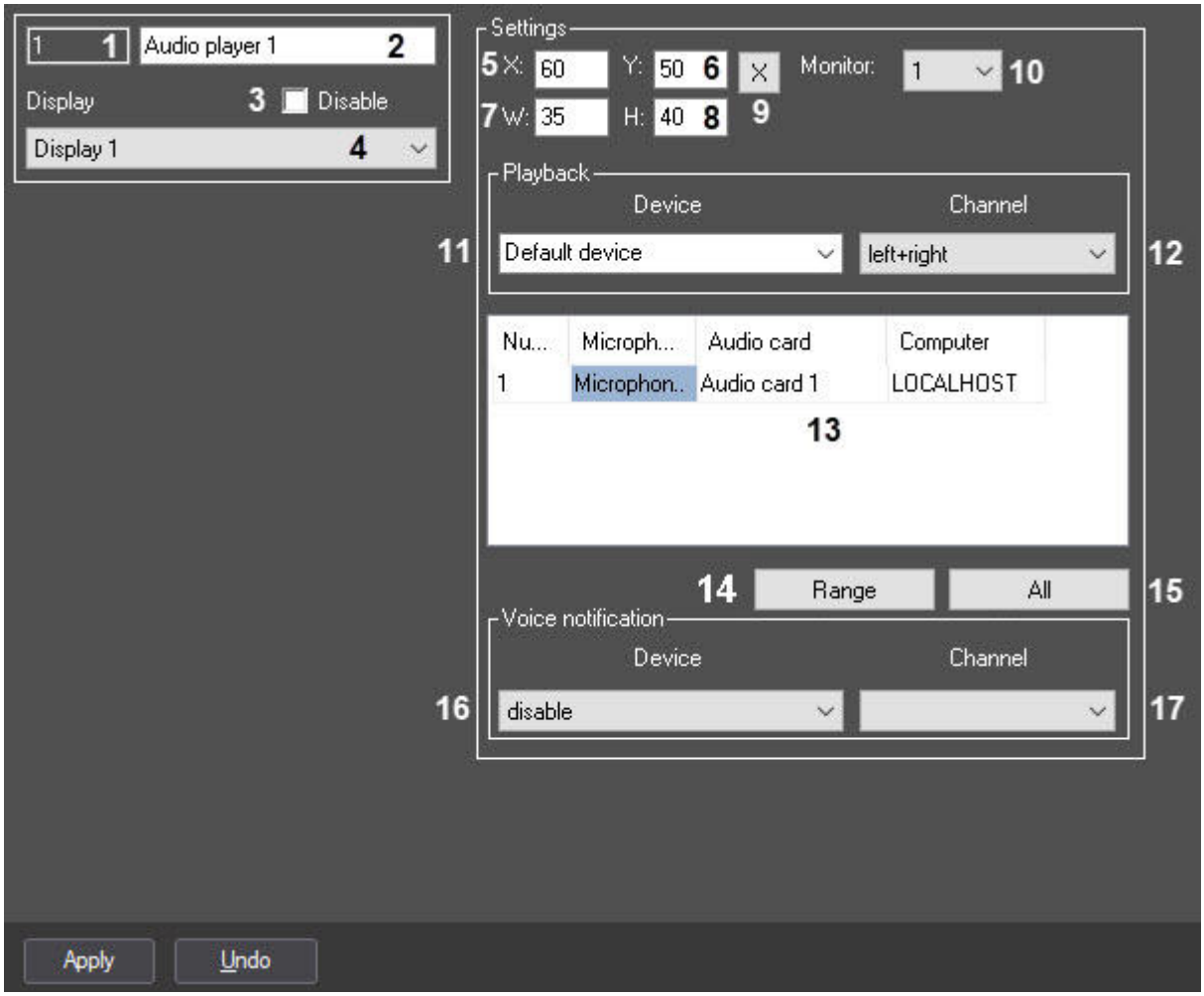


№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Alarm** drop-down window	Select the color	Sets the frame color of the surveillance window in the alarm state	RGB colors	Red	RGB color palette
	The **Armed** drop-down window	Select the color	Sets the frame color of the surveillance window when the camera is armed	RGB colors	Orange	RGB color palette
	The **Disarmed** drop-down window	Select the color	Sets the frame color of the surveillance window when the camera is disarmed	RGB colors	Green	RGB color palette
	The **No frame** drop-down window	Select the color	Sets the frame color of the surveillance window when there is no frame in it	RGB colors	Black	RGB color palette
	The **No signal** drop-down window	Select the color	Sets the frame color of the surveillance window when there is no signal from camera	RGB colors	Grey	RGB color palette

	The **Screen cache** drop-down window	Select the color	Sets the surveillance window background color that is displayed when video doesn't cover completely the surveillance window, for example, when the camera proportions are maintained	RGB colors	Purple	RGB color palette
	The **Tracker frame color** drop-down window	Select the color	Sets the frame color to highlight the tracking objects on the video	RGB colors	White	RGB color palette
2	The **Default** button	Click the button	Sets the default frame colors of the surveillance window	NA	NA	NA
3	The **Hide capture frames** checkbox	Set the checkbox	Hides the frames displayed by the *Face detector* module when a person's face is detected on the video image	Boolean type	Clear	**Set**—the face detector frames aren't displayed **Clear**—the face detector frames are displayed
4	The **Over all windows** checkbox	Set the checkbox	Enables the display of the video surveillance monitor over all windows	Boolean type	Clear	**Set**—the video surveillance monitor is displayed over all windows **Clear**— the video surveillance monitor is displayed in the default mode

The settings panel of the Audio player object

The settings panel of the **Audio player** interface object is shown in the figure.



The table describes the setting parameters of the **Audio player** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Audio player** interface object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing numbers, letters, periods, hyphen, dash, and underscore Depends on the number of the **Audio player** objects in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Audio player** object in the system	Latin alphabet, Cyrillic, digits and service characters	Audio player	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Audio player** object in the system	Boolean type	Clear	**Set**—the **Audio player** object is disabled and isn't used **Clear**—the **Audio player** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **Audio player** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Settings** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the audio player window	% of the screen width	60	From 0 to M*100, where M is the number of the installed monitors
6	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the audio player window	% of the screen height	50	From 0 to M*100, where M is the number of the installed monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **W** field	Enter the value in the field	Sets the width of the audio player window	% of the screen width	35	From 35 to M*100, where M is the number of the installed monitors
8	The **H** field	Enter the value in the field	Sets the height of the audio player window	% of the screen height	40	From 40 to M*100, where M is the number of the installed monitors
9	The  button	Click the button	Opens a window to set the position and size of the audio player window using the mouse	NA	NA	NA
10	The **Monitor** drop-down list	Select the value from the list	Sets the number of the physical monitor, the coordinates for which are set. The monitors are numbered in the order of their physical location, from left to right, from top to bottom. The 1 number corresponds to the upper left monitor, regardless of which monitor is set as main or what number the monitor has in OS	Sequence of numbers	1	From 1 to 16
The **Playback** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **Device** drop-down list	Select the value from the list	Sets the audio device to which the audio signals must be transmitted for playback. This setting is available only if the display with this audio player is assigned to one computer in the distributed system (see Assigning the displays to the operator workstations). If the display is assigned to multiple computers, this setting cannot be changed, and only the default device can be used	Names of audio devices registered in the system	Default device	Depends on the number of audio devices in the system. Standard sound card is the default device
12	The **Channel** drop-down list	Select the value from the list	Sets the channel for the audio signal playback. This setting is available only if the display with this audio player is assigned to one computer in the distributed system (see Assigning the displays to the operator workstations). If the display is assigned to multiple computers, this setting cannot be changed	Audio signal playback channels	left+right	**Left+right**—audio signal is transmitted to the left and right channels of the audio device **Left**—audio signal is transmitted to the left channel of the audio device **Right**—audio signal is transmitted to the right channel of the audio device

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The Microphones group*						
The Microphones selection table*						
13	The **Number** drop-down list	Select the value from the list/ Automatically	Sets the microphone number, the audio signals from which must be recorded and/or played back	Sequence of numbers	NA	Depends on number of the **Microphone** objects in the system
	The **Microphone** drop-down list	Automatically/ Select the value from the list	Sets the microphone, the audio signals from which must be recorded and/or played back	Names of the **Microphone** objects registered in the system	NA	Depends on number of the **Microphone** objects in the system
	The **Audio card** field	Automatically	Displays the name of the **Audio card** object	Name of the **Audio card** object	NA	NA
	The **Computer** field	Automatically	Displays the name of the **Computer** object	Name of the **Computer** object	NA	NA
14	The **Range** button	Click the button	Opens the window for bulk addition of microphones	NA	NA	NA
15	The **All** button	Click the button	Adds all microphones created in the hardware tree to the list	NA	NA	NA
The **Voice notification** group						

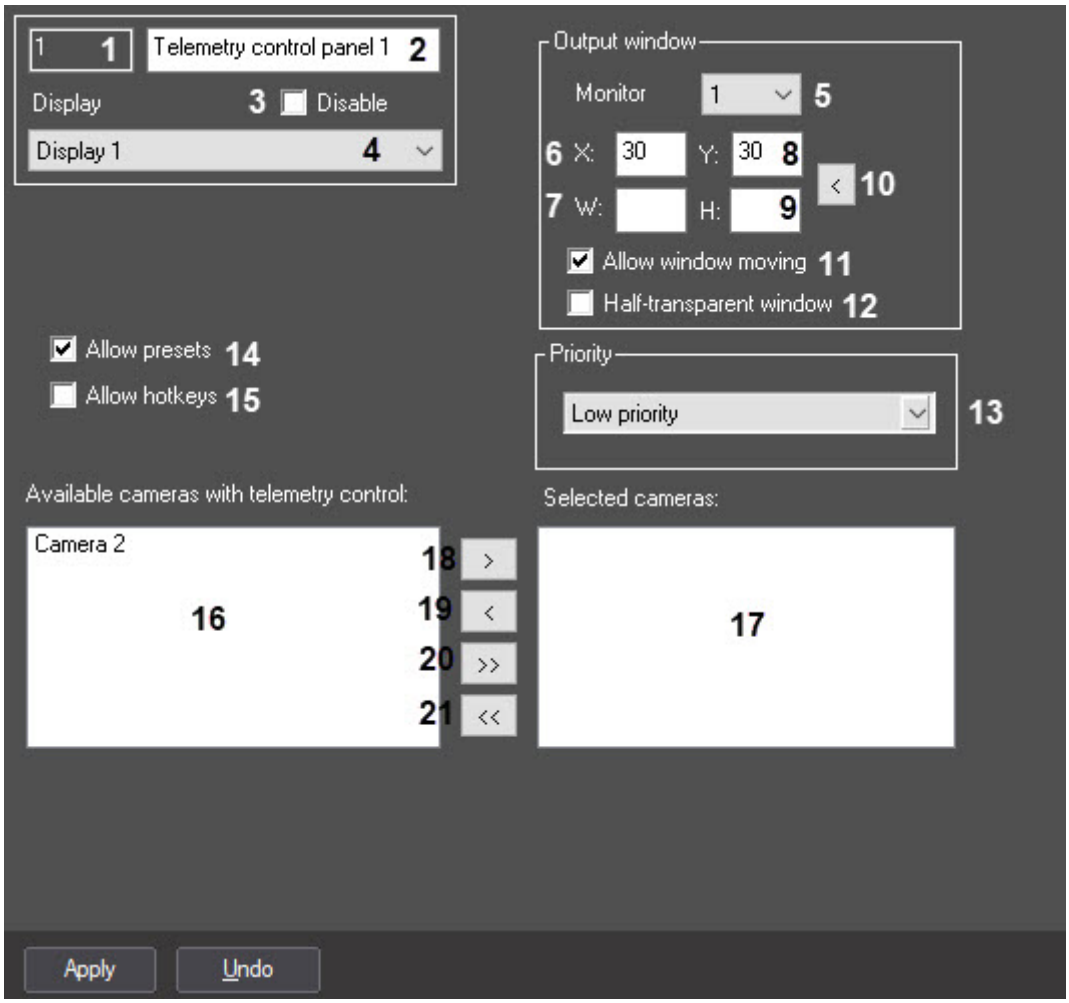
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
16	The **Device** drop-down list	Select the value from the list	Sets the voice notification device when an alarm is registered by cameras	Names of the voice notification devices registered in the system	disable	Depends on the voice notification devices registered in the system. Standard sound card is the default device
17	The **Channel** drop-down list	Select the value from the list	Sets the channel of the voice notification when an alarm is registered by cameras	Channels to which the audio signal is sent	NA	• **Left+right**—audio signal is transmitted to the left and right channels of the voice notification device; • **Left**—audio signal is transmitted to the left channel of the voice notification device; • **Right**—audio signal is transmitted to the right channel of the voice notification device

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Telemetry control panel object

The **Telemetry control panel** object is used to register and configure the **Universal PTZ control panel** interface object in *Axxon PSIM* that is used to control the PTZ devices.

The settings panel of the **Telemetry control panel** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Telemetry control panel** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Telemetry control panel** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing numbers, letters, periods, hyphen, dash, and underscore Depends on the number of the **Telemetry control panel** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **Telemetry control panel** object in the system	Latin alphabet, Cyrillic, digits and service characters	Telemetry control panel	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Telemetry control panel** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Telemetry control panel** object is disabled and isn't used **Clear**—the **Telemetry control panel** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object in the system with distributed architecture to which the given **Telemetry control panel** object belongs	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Output window** group						
5	The **Monitor** drop-down list	Select the value from the list	Sets the number of the monitor for which the coordinates are set	Number of the monitor in OS	1	From 1 to 16
6	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the telemetry control panel window on the screen	% of the screen width	30	From 0 to M*100, where M is the number of the installed monitors
7	The **W** field	Enter the value in the field	Sets the width of the telemetry control panel window	% of the screen width	NA	From 18 to M*100, where M is the number of the installed monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
8	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the telemetry control panel window on the screen	% of the screen height	30	From 0 to M*100, where M is the number of the installed monitors
9	The **H** field	Enter the value in the field	Sets the height of the telemetry control panel window	% of the screen height	NA	From 34 to M*100, where M is the number of the installed monitors
10	The Current coordinates*  button	Click the button	Sets the current coordinates of the **Telemetry control panel** object in the X, Y, W, and H fields	NA	NA	NA
11	The **Allow window moving** checkbox	Set the checkbox	Allows moving the telemetry control panel using the mouse	Boolean type	Set	**Set**—allow moving the telemetry control panel window **Clear**—disable moving the telemetry control panel window
12	The **Half-transparent window** checkbox	Set the checkbox	Sets the display of the telemetry control panel in the half-transparent way	Boolean type	Set	**Set**—display the half-transparent telemetry control panel window **Clear**—don't display the half-transparent telemetry control panel window

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
Out of the group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
13	The **Priority** drop-down list	Select the value from the list	Sets the priority of the PTZ devices' control	Names of the priorities to control the PTZ devices	Low	• **Forbidden**—control of the PTZ device using the telemetry control panel is forbidden; • **Low priority**—control of the PTZ device using the telemetry control panel is performed after it controls the devices with normal or high priority; • **Normal priority**—control of the PTZ device using the telemetry control panel is performed after it controls devices with high priority; • **High priority**—control of the PTZ device using the telemetry control panel is performed in the first order

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
14	The **Allow presets** checkbox	Set the checkbox	Allows saving the position of the PTZ device in the presets	Boolean type	Set	**Set**—allow saving the position of the PTZ device in the presets **Clear**—disable saving the position of the PTZ device in the presets
15	The **Allow hotkeys** checkbox	Set the checkbox	Enables the PTZ device control using the keyboard	Boolean type	Clear	**Set**—keyboard can be used to control the PTZ device **Clear**—keyboard hotkeys cannot be used to control the PTZ device
16	The **Available cameras with telemetry control** field	Automatically	Specifies the cameras with the PTZ devices	Names of the **Camera** objects registered in the system	List of all **Camera** objects registered in the system	Depends on the number of the PTZ devices in the system with distributed architecture
17	The **Selected cameras** field	Select by clicking the arrow keys	Sets the cameras with the PTZ devices that can be controlled using the telemetry control panel	Names of the **Camera** objects registered in the system	NA	Depends on the number of the PTZ devices in the system with distributed architecture
18	The One to the right*  button	Click the button	Moves the selected PTZ device from the **Available cameras with telemetry control** list to the **Selected cameras** list	NA	NA	NA

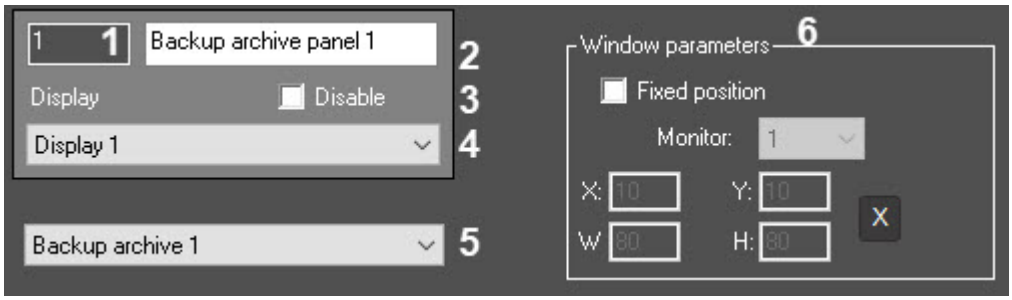
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
19	The One to the left* < button	Click the button	Moves the selected PTZ device from the **Selected cameras** list to the **Available cameras with telemetry control** list	NA	NA	NA
20	The All to the right* >> button	Click the button	Moves all PTZ devices from the **Available cameras with telemetry control** list to the **Selected cameras** list	NA	NA	NA
21	The All to the left* << button	Click the button	Moves all PTZ devices from the **Selected cameras** list to the **Available cameras with telemetry control** list	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Backup archive panel object

The **Backup archive panel** object is used to register and configure the **Backup archive panel** interface object in *Axxon PSIM*, which allows the operator to configure video data archiving.

The settings panel of the **Backup archive panel** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Backup archive panel** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the number of the **Backup archive panel**	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Backup archive panel** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Backup archive panel** object	Latin alphabet, Cyrillic, digits and service characters	Backup archive panel	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Backup archive panel** object	Boolean type	Clear	**Set**—the **Backup archive panel** object is disabled and isn't used **Clear**—the **Backup archive panel** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object of the system with distributed architecture to which the given **Backup archive panel** object belongs	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the video surveillance system with distributed architecture
5	The Backup archive* drop-down list	Select the value from the list	Sets the backup archive, which the operator will control using the **Backup archive panel** object	Names of the **Backup archive** objects registered in the system	Backup archive 1	Depends on the number of the **Backup archive** objects in the video surveillance system with distributed architecture
The **Window parameters** group						
6	The **Fixed position** checkbox	Set the checkbox	Allows moving the backup archive panel on the screen using the mouse	Boolean type	Clear	**Set**—the backup archive panel cannot be moved **Clear**—the backup archive panel can be moved
	The **X** field	Enter the value in the field. *Note. Automatically, if the **Fixed position** checkbox is set*	Sets the X coordinate in the horizontal axis for the upper left corner of the backup archive panel on the screen	% of the screen width	10	From 0 to M*100, where M is the number of the installed monitors

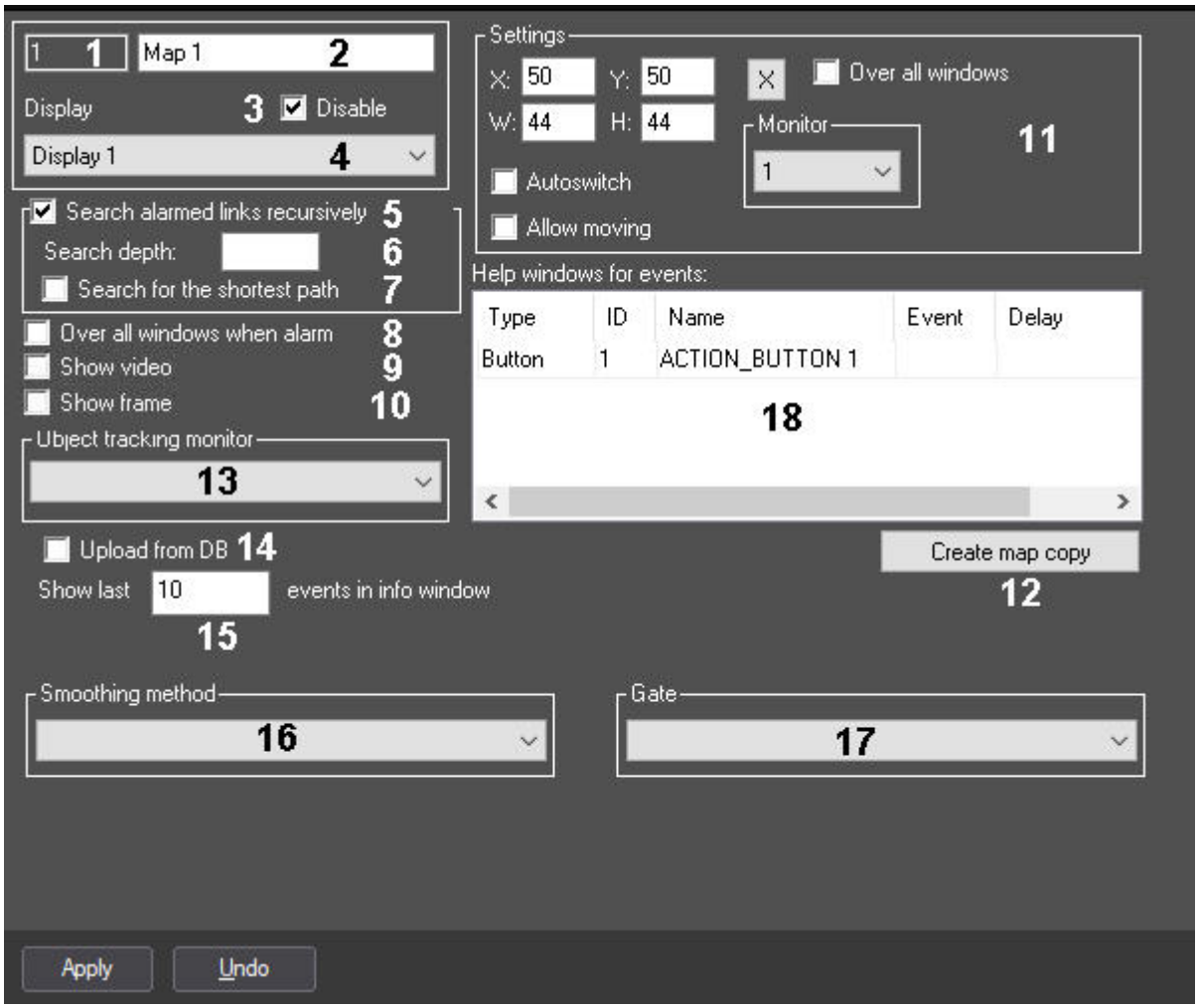
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Y** field	Enter the value in the field. *Note. Automatically, if the **Fixed position** checkbox is set*	Sets the Y coordinate in the vertical axis for the upper left corner of the backup archive panel on the screen	% of the screen height	10	From 0 to M*100, where M is the number of the installed monitors
	The **W** field	Enter the value in the field. *Note. Automatically, if the **Fixed position** checkbox is set*	Sets the width of the **Backup archive panel**	% of the screen width	80	From 0 to M*100, where M is the number of the installed monitors
	The **H** field	Enter the value in the field. *Note. Automatically, if the **Fixed position** checkbox is set*	Sets the height of the **Backup archive panel**	% of the screen width	80	From 0 to M*100, where M is the number of the installed monitors
	The  button	Click the bottom	Opens the window for setting the position and size of the **Backup archive panel** object using the mouse	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Map object

The **Map** object is used to register and configure the **Map** interface object in *Axxon PSIM*, which allows creating and positioning the icons of the installed devices on the map of the protected area and using the icons to operate the

devices.
The settings panel of the **Map** object is shown in the figure:



The table describes the setting parameters corresponding to the elements of the settings panel of the **Map** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Map** object in the video surveillance system with distributed architecture	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **Map** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Map** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Map	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Sets the status of the **Map** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Map** object is disabled and isn't used **Clear**—the **Map** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object of the system with distributed architecture to which the given **Map** object belongs	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
5	The **Search alarmed links recursively** checkbox	Set the checkbox	Sets the recursive search for the objects on the layers. The recursive search is a search where the transition from one layer, containing an object, to another layer, containing an icon, is performed by successive jumps to the neighboring layers, using sequential links	Boolean type	Clear	**Set**—a recursive search is enabled **Clear**—a recursive search is disabled

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **Search depth** field	Enter the value in the field	Sets the search depth for alarms across map layers if the map is multi-layered. This parameter determines how many layers will indicate the alarm. The value can only be entered if the **Search alarmed links recursively** checkbox is set	Sequence of numbers	0	• **Empty field**—search across layers isn't limited; • **0**—related layers aren't taken into account during the search, that is, in case of alarm, only the layer on which the alarm occurs will blink; • **>0**—indicates the number of layers through which the search is performed. For example, the map has six interconnected layers, and the alarm appears on the third layer. If the key value is 1, the alarm will blink on layer 3, as well as on layers 2 and 4

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Search for the shortest path** checkbox	Set the checkbox	Enables the search for the shortest path to the alarmed layer. If there are several paths from the active layer to the alarmed layer, then the shortest path is automatically found and selected when the **Alarm** signal is received (only one icon, that is, the **Link to layer**, will blink on the active layer, indicating the shortest path). Works together with the **Search alarmed links recursively** option only	Boolean type	Clear	**Set**—search for the shortest path is enabled **Clear**—search for the shortest path is disabled
8	The **Over all windows when alarm** checkbox	Set the checkbox	Displays the window of the **Map** interface object over all windows of active applications only for the currently active map layer if the **Alarm** signal is received from any object on this map layer For more details about the **Layer** object, see The settings panel of the Layer object	Boolean type	Clear	**Set**—the window of the **Map** object of the currently active layer is displayed over all active applications if the **Alarm** signal is received from any object on this map layer **Clear**—the window of the **Map** object of the currently active layer isn't displayed over all active applications if the **Alarm** signal is received from any object on this map layer

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The **Show video** checkbox	Set the checkbox	Enables the function of live and archive video request from the map for cameras and objects linked with cameras	Boolean type	Clear	**Set**—the functions to request live and archive video are available in the menu of the **Camera** objects and objects linked with cameras **Clear**—the functions to request live and archive video aren't available in the menu of the **Camera** objects and objects linked with cameras
10	The **Show frame** checkbox	Set the checkbox	Enables the function of frame request from the map for cameras and objects linked with cameras	Boolean type	Clear	**Set**—the function to request archive frame is available in the menu of the **Camera** objects and objects linked with cameras **Clear**—the function to request archive frame isn't available in the menu of the **Camera** objects and objects linked with cameras
The **Settings** group						
11	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the **Map** object on the screen	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the **Map** object on the screen	% of the screen height	50	From 0 to M*100, where M is the number of the installed monitors
	The **W** field	Enter the value in the field	Sets the width of the **Map** object window	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The **H** field	Enter the value in the field	Sets the height of the **Map** object window	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The **Autoswitch** checkbox	Set the checkbox	Sets autoswitch to the **Alarm** source-layer in the **Map** object	Boolean type	Clear	**Set**—when the **Alarm** signal is received from an object, the system will switch to the layer where the object is located **Clear**—when the **Alarm** signal is received from an object, the system doesn't switch to the layer where the object is located
	The **×** button	Click the button	Opens a window to specify the position and size of the map	NA	NA	NA
	The **Over all windows** checkbox	Set the checkbox	Allows displaying the **Map** window on top of all windows	Boolean type	Clear	**Set**—the map is displayed on top of all windows **Clear**—the map is displayed in standard mode

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
	The **Monitor** drop-down list	Select the value from the list	Sets the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 9
	The **Allow moving** checkbox	Set the checkbox	Allows moving the map window manually	Boolean type	Clear	**Set**—allow moving the map window manually **Clear**—disable moving the map window manually
Out of the group						
12	The **Create map copy** button	Click the button	Creates another **Map** object with all parameters identical to the given object	NA	NA	NA
13	The **Object tracking monitor** drop-down list	Select the value from the list	Selects the object tracking monitor. For details, see Using absolute telemetry of the Installing and configuring security system components guide section	Names of the available **Monitor** objects	NA	Depends on the number of the **Monitor** objects created in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
14	The **Upload from DB** checkbox	Set the checkbox	Enables uploading events from database to show on the map	Boolean type	Clear	**Set**—when *Axxon PSIM* starts, the events are uploaded from the database before and after its startup **Clear**—only the events that occurred after the start of *Axxon PSIM* are displayed on the map
15	The **Show last ____ events in info window** field	Enter the value in the field	Sets the number of events for the selected object to be displayed in the info window on the map	Sequence of numbers	10	From 1 to 99
16	The **Smoothing method** drop-down list	Select the value from the list	Sets the map smoothing method when scaling *Note. Smoothing minimizes ladder-like diagonal edges of the image and gives the impression of softer borders and higher resolution*	Names of the smoothing methods	NA	• **low quality**; • **high quality**; • **bilinear interpolation**; • **bicubic interpolation**; • **nearest neighbor method**; • **high-quality bilinear interpolation**; • **high-quality bicubic interpolation**
17	The **Gate** drop-down list	Select the value from the list	Sets the videogate through which the video is displayed on the map	Names of the **Videogate** objects registered in the system	NA	Depends on the number of the **Videogate** objects in the video surveillance system with distributed architecture

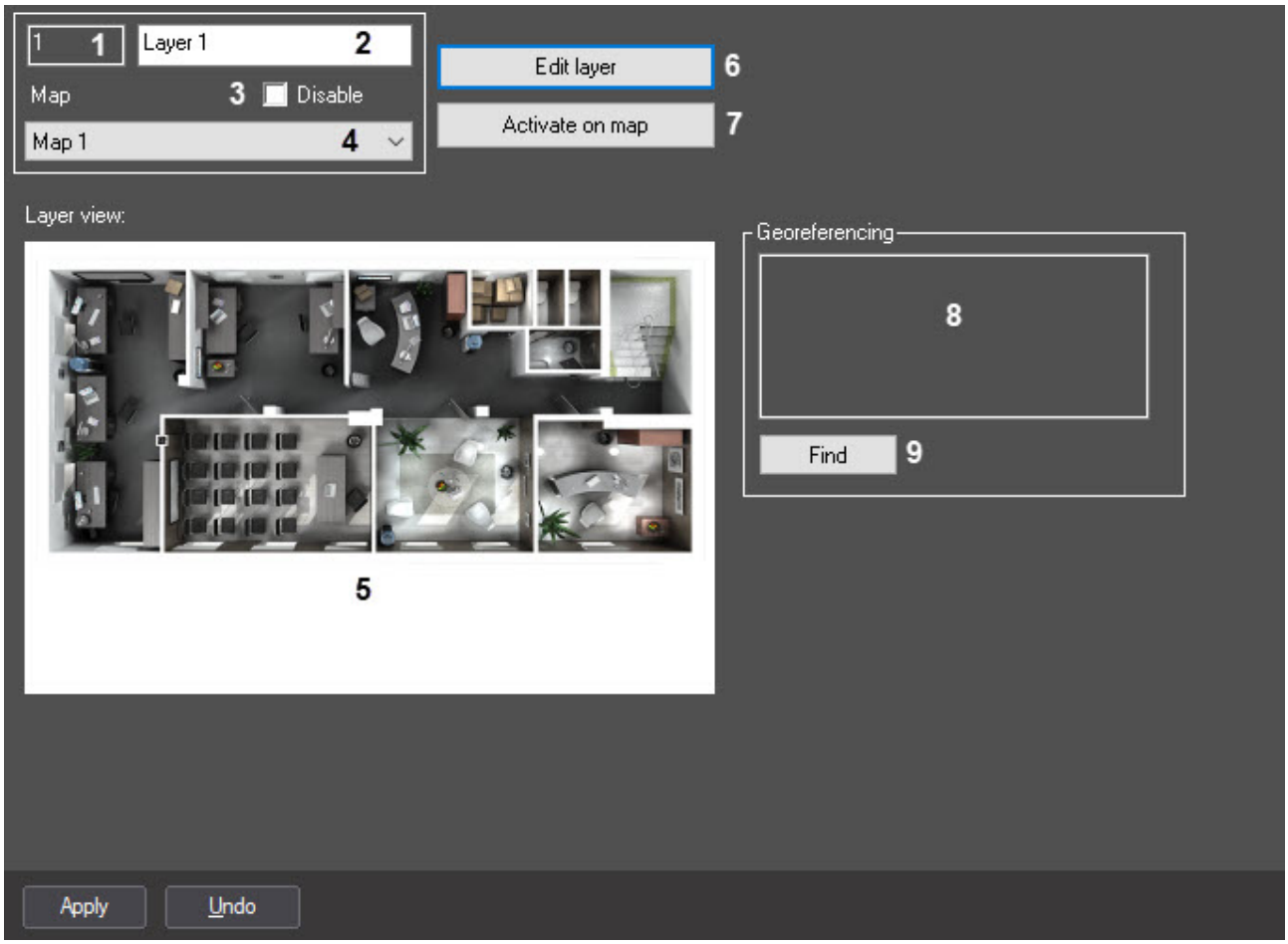
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Help windows for events** table						
18	The **Type** drop-down list	Select the value from the list	Sets the type of object. When an event is received from this object, a pop-up tip with the name of the event is displayed	Types of objects registered in the system	NA	Depends on the number of the objects registered in the system
	The **ID** drop-down list	Select the value from the list	Sets the object identifier. When an event is received from this object, a pop-up tip with the name of the event is displayed	Identifiers of the objects of the selected type registered in the system	NA	Depends on the number of the objects registered in the system
	The **Name** field	Automatically	Sets the name of an object. When an event is received from this object, a pop-up tip with the name of the event is displayed	Names of the objects of the selected type registered in the system	NA	Depends on the number of the objects registered in the system
	The **Event** drop-down list	Select the value from the list	Sets the name of an event. When this event is received, a pop-up tip is displayed	Events of the objects of the selected type	NA	Depends on the object type
	The **Delay** field	Enter the value in the field	Sets the time period in seconds for the pop-up tip to be displayed after the event is received	Integer number	NA	>=0

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Layer object

The **Layer** object is used to create and configure the layers of the map of the protected facilities in *Axxon PSIM.*

The settings panel of the **Layer** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Layer** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Layer** object in the video surveillance system with distributed architecture	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **Layer** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Layer** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits and service characters	Layer	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Layer** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**— the **Layer** object is disabled and isn't used **Clear**— the **Layer** object is enabled and used
4	The **Map** drop-down list	Select the value from the list	Sets the **Map** parent object to which the given **Layer** object belongs	Names of the **Map** objects registered in the system	Name of the **Map** parent object	Depends on the number of the **Map** objects in the video surveillance system with distributed architecture
5	The **Layer view** window	NA	Displays the schematic view of the protected territory	NA	NA	NA
6	The **Edit layer** button	Click the button	Opens the panel, which allows adding/removing and configuring the icons of the installed devices on the schematic view of the protected territory	NA	NA	NA

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Activate on map** button	Click the button	Displays the given layer over all layers on the **Map** object	NA	NA	NA
8	The **Georeferencing** field	Using the **Map editor** utility	Displays the coordinates set using the **Map editor** utility—see Configuring map binding to coordinate grid	Coordinates	NA	Latitude and longitude coordinates accurate to the fourth digit, with a point as a decimal separator. Value example: 53.2273N,50.206E
9	The **Find** button	Click the button	Displays a Google map by the coordinates specified in the **Georeferencing** field	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Event viewer object

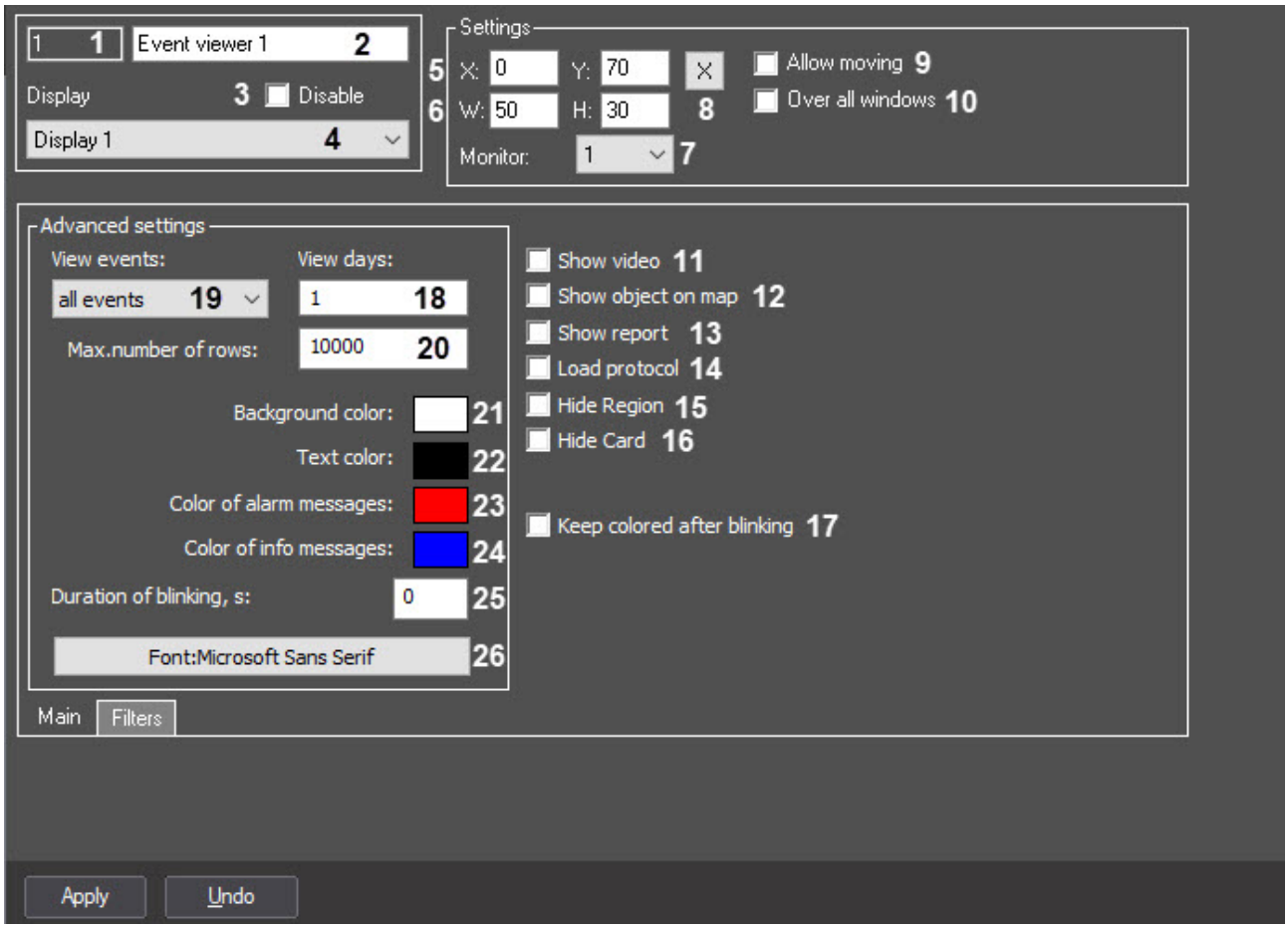
On the page:

- The Main tab
- The Filters tab

The **Event viewer** object is used to register and configure an interface object in *Axxon PSIM.* The interface object is used to display text information about the specified events initialized by the video surveillance system with distributed architecture.

The settings panel of the **Event viewer** object is shown in the figures below. Tables describe the setting parameters corresponding to the elements of the settings panel of the **Event viewer** inteface object.

The Main tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Event viewer** object in the video surveillance system with distributed architecture	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Event Viewer** objects in the video surveillance system with distributed architecture

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Event viewer** object in the video surveillance system with distributed architecture	Latin alphabet, Cyrillic, digits, and service characters	Event viewer	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Event viewer** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Event viewer** object is disabled and isn't used **Clear**—the **Event viewer** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object of the system with distributed architecture to which the given **Event viewer** object belongs	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the video surveillance system with distributed architecture
The **Settings** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the window of the **Event viewer** object on the screen	% of the screen width	0	From 0 to M*100, where M is the number of the installed monitors
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the window of the **Event viewer** object on the screen	% of the screen height	70	From 0 to M*100, where M is the number of the installed monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
6	The **W** field	Enter the value in the field	Sets the width of the window of the **Event viewer** object	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors
	The **H** field	Enter the value in the field	Sets the height of the window of the **Event viewer** object	% of the screen width	26	From 0 to M*100, where M is the number of the installed monitors
7	The **Monitor** drop-down list	Select the value from the list	Sets the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
8	The  button	Click the button	Opens the window to set the **Event viewer** window size and position using the mouse	NA	NA	NA
9	The **Allow moving** checkbox	Set the checkbox	Allows the operator to change the position of the **Event viewer** window using the mouse	Boolean type	Clear	**Set**—the operator can change the position of the **Event viewer** window **Clear**—the operator cannot change the position of the **Event viewer** window
10	The **Over all windows** checkbox	Set the checkbox	Allows displaying the **Event viewer** window over all windows	Boolean type	Clear	**Set**—the **Event viewer** window is displayed over all windows **Clear**—the **Event viewer** window is displayed in the standard mode
Out of the group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **Show video** checkbox	Set the checkbox	Allows the operator to view the events archive initialized by the event viewer as record to disk using the **Event viewer** window	Boolean type	Clear	**Set**—the operator can view the events archive using the **Event viewer** window **Clear**—the operator cannot view the events archive using the **Event viewer** window
12	The **Show object on map** checkbox	Set the checkbox	Allows the operator to view the objects, displayed in the **Event viewer** window, on the map	Boolean type	Clear	**Set**—the operator can view the objects, displayed in the event viewer window, on the map **Clear**—the operator cannot view the objects, displayed in the event viewer window, on the map

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
13	The **Show report** checkbox	Set the checkbox	Allows the operator to create a printed form of the report and print the information about all events in the event viewer over the specified period of time	Boolean type	Clear	**Set**—the operator can create a printed form of the report and print the information about all events in the event viewer over the specified period of time **Clear**—the operator cannot creat a printed form of the report and print the information about all events in the event viewer over the specified period of time
14	The **Load protocol** checkbox	Set the checkbox	Determines the latest 1000 events registered by the **Event viewer** with the latest system start, must be downloaded with the start of *Axxon PSIM*	Boolean type	Clear	**Set**—the latest 1000 events registered by the **Event viewer** with the latest system start, are downloaded with the start of *Axxon PSIM* **Clear**—the latest events registered by the **Event viewer** with the latest system start, aren't downloaded with the start of *Axxon PSIM*

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
15	The **Hide Region** checkbox	Set the checkbox	Disables the display of the **Region** column in the **Event viewer** window	Boolean type	Clear	**Set**—the **Region** column isn't displayed **Clear**—the **Region** column is displayed
16	The **Hide Card** checkbox	Set the checkbox	Disables the display of the **Card** column in the **Event viewer** window. See also Guide for configuring and working with the Access Manager module the Displaying card number for access events in the Event viewer section	Boolean type	Clear	**Set**—the **Card** column isn't displayed **Clear**—the **Card** column is displayed
17	The **Keep colored after blinking** checkbox	Set the checkbox	Sets the highlighting of the alarm messages by the selected color after the blinking stops	Boolean type	Clear	**Set**—the alarm messages are highlighted by the selected color after the blinking stops **Clear**—the alarm message isn't highlighted by the selected color after the blinking stops. It is highlighted by the color specified in the filter
The **Advanced settings** group						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
18	The **View days** field	Enter the value in the field	Sets the period over which the events must be displayed in the **Event viewer** window, if there are more than 10,000 events (or another value set for the **Max.number of rows** parameter). If there are fewer events, then all events are displayed regardless of the value of this parameter	Days	1	More than 1
19	The **View events** drop-down list	Select the value from the list	Sets the events that must be displayed in the **Event viewer** window	Displayed events	all events	• **all events**—all events are displayed in the **Event viewer** window; • **last event**—one last event is displayed in the **Event viewer** window; • **all last events**—all last events for all selected objects are displayed
20	The **Max.number of rows** field	Enter the value in the field	Sets the maximum number of events to display in the event viewer	Sequence of numbers	10000	From 1 to 50000

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
21	The **Background color** field	Select the value from the list or on the **Select color** panel *Note. Double click the field to open the **Color** window*	Sets the background color in the **Event viewer** window	RGB, CMY or HSL	White	Corresponds to the standard range of the selected color system
22	The **Text color** field	Select the value from the list or on the **Select color** panel. *Note. Double click the field to open the **Color** window*	Sets the text color in the **Event viewer** window	RGB, CMY or HSL	Black	Corresponds to the standard range of the selected color system
23	The **Color of alarm messages** field	Select the value from the list or on the **Select color** panel. *Note. Double click the field to open the **Color** window*	Sets the color of the alarm message lines in the **Event viewer** window. To apply the setting, the **Duration of blinking, sec** parameter must be other than 0	RGB, CMY or HSL	Red	Corresponds to the standard range of the selected color system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
24	The **Color of info messages** field	Select the value from the list or on the **Select color** panel. *Note. Double click the field to open the **Color** window*	Sets the color of the information message lines in the **Event viewer** window. To apply the setting, the **Duration of blinking, sec** parameter must be other than 0	RGB, CMY or HSL	Blue	Corresponds to the standard range of the selected color system
25	The **Duration of blinking, sec** field	Enter the value in the field	Sets the time of the alarm message blinking in the **Event viewer** window	seconds	NA	More than 0
26	The **Font:<current font>** button	Click the button	Sets the font of the nformation messages in the **Event viewer** window	Standard Windows Font dialog window	Depends on OS settings	NA

The Filters tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Name** field	Enter the value in the field	Sets the filter name in the **Event viewer** window	Latin alphabet, Cyrillic, and service characters	Filter 1, Filter 2, and so on	Depends on the number of the created filters
2	The **Specify general background color** button	Click the button	Opens the window to select the message background color in the default filter	NA	NA	NA

3	The **Specify general text color** button	Click the button	Opens the window to select the message text color in the default filter	NA	NA	NA
4	The **Add events** button	Click the button	Opens the window for bulk adding the events from the object of the selected type	NA	NA	NA
The Event filters table*						
5	The **Computer** drop-down list	Select the value from the list	Sets the **Computer** object on the basis of which the objects included in the filter must be created	Names of the **Computer** objects registered in the system	Empty field	Depends on the number the **Computer** objects in the distributed video surveillance system
6	The **Type** drop-down list	Select the value from the list	Sets the types of a device that must be displayed in the event viewer. *Note. If the field is blank, the **Event viewer** window displays all events of all objects in the system*	Types of objects registered in the system	NA	Depends on the number of the device types created in the video surveillance system with distributed architecture
7	The **Number** drop-down list	Select the value from the list	Sets the identification number of the device. *Note. If the field is blank, the **Event viewer** window displays all events of all objects of the selected type*	Sequence of numbers	NA	Depends on the number of the created devices of the selected type in the video surveillance system with distributed architecture
8	The **Name** field	Automatically	Displays the name of the device selected in the previous item	Name of the objects of the selected type registered in the system	Name of specified system object	Depends on the number of devices of the selected type in the video surveillance system with distributed architecture

9	The **Event** drop-down list	Select the value from the list	Sets the event received from the selected devices that must be logged into the event viewer. *Note. If the field is blank, the **Event viewer** window displays all events received from the specified devices*	Names of the event types for the selected type of devices	NA	Depends on the type of device
10	The **Region** drop-down list	Select the value from the list	Sets the region. The events from the devices located in this region are displayed in the event viewer	Names of the **Region** elements registered in the system	NA	Depends on the number of the **Region** structure elements created in the video surveillance system with distributed architecture
11	The **Color** drop-down list	Select the value from the list	Sets the messages highlighting color in the **Event viewer** window	RGB, CMY or HSL	White	Corresponds to the standard range of the selected color system
12	The **Text color** drop-down list	Select the value from the list	Sets the messages text color in the **Event viewer** window	RGB, CMY or HSL	Black	Corresponds to the standard range of the selected color system

*Name of the element isn't displayed in the settings panel of the given object

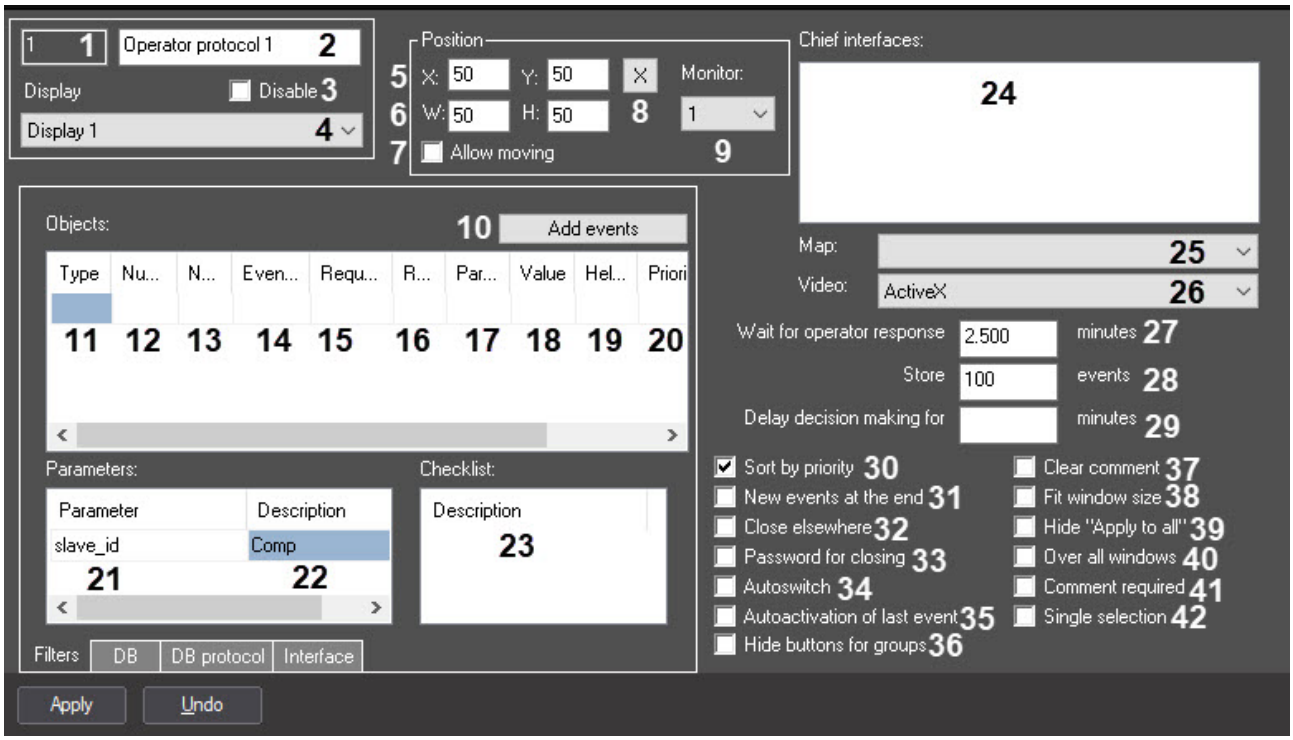
The settings panel of the Operator protocol object

On the page:

- The Filters tab
- The DB tab
- The DB protocol tab
- The Interface tab

The settings panel of the **Operator protocol** interface object is shown in the figures. Tables below describe the setting parameters corresponding of the **Operator protocol** object.

The Filters tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Operator protocol** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Operator protocol** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **Operator protocol** object in the system	Latin alphabet, Cyrillic, digits, and service characters	Operator protocol	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Operator protocol** object in the system	Boolean type	Clear	**Set**—the **Operator protocol** object is disabled and isn't used **Clear**—the **Operator protocol** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **Operator protocol** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Position** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the **Operator protocol** window	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the **Operator protocol** window	% of the screen height	50	From 0 to M*100, where M is the number of the installed monitors
6	The **W** field	Enter the value in the field	Sets the width of the **Operator protocol** window	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors
	The **H** field	Enter the value in the field	Sets the height of the **Operator protocol** window	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Allow moving** checkbox	Set the checkbox	Allows moving the **Operator protocol** window using the mouse	Boolean type	Clear	**Set**—allow moving the **Operator protocol** window using the mouse **Clear**—disable moving the **Operator protocol** window using the mouse
8	The  button	Click the button	Opens the window to set the position of the **Operator protocol** window using the mouse	NA	NA	NA
9	The **Monitor** drop-down list	Select the value from the list	Determines the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
The **Filters** tab						
10	The **Add events** button	Click the button	Opens the window for bulk adding the events from an object of the selected type	NA	NA	NA
The **Objects** table						

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
11	The **Type** drop-down list	Select the value from the list	Sets the type of objects, the events from which must be displayed in the **Operator protocol** window	Available object types	NA	Depends on the objects registered in the system. Only the objects for which the "INFORMATION" or "ALARM" value is selected in the **Messages processing** column on the **Events** tab in the ddi.exe utility are available for selection (see The Events tab)
12	The **Number** drop-down list	Select the value from the list	Sets the number of the object, which events must be displayed in the **Operator protocol** window	Sequence of numbers	NA	Depends on the number of the objects of the specified type registered in the system
13	The **Name** field	Automatically	Sets the name of the object, which events must be displayed in the **Operator protocol** window	Names of the objects registered in the system	NA	Depends on the objects registered in the system
14	The **Event type** drop-down list	Select the value from the list	Sets the events displayed in the **Operator protocol** window	Events available for the selected object	NA	Depends on the object type
15	The **Request password** drop-down list	Select the value from the list	Determines the necessity of a password to process the event	Boolean type	NA	**Set**—password confirmation is required to process the event **Clear**—password confirmation isn't required to process the event

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
16	The **Region** drop-down list	Select the value from the list	Sets the **Region** object corresponding to the monitored object	List of the **Region** objects created in the system	NA	Depends on the number of the **Region** objects created in the system
17	The **Parameter** field	Enter the value in the field	Sets the parameter of the monitored object	Depends on the event type	NA	Depends on the event type
18	The **Value** field	Enter the value in the field	Sets the parameter value of the monitored object	Depends on the event type	NA	Depends on the event type
19	The **Help file** field	Enter the value in the field	Sets the full path to the text file in PDF, DOC, DOCX, TXT which contains the help guide about the event processing	File address in the file system	NA	In accordance with the file system limitations
20	The **Priority** drop-down list	Select the value from the list	Sets the event priority when sorting by importance	Sequence of numbers	NA	From 1 to 10. The lower the value, the higher the priority
The **Parameters** table						
21	The **Parameter** field	Enter the value in the field	Sets the name of the parameter, the value of which must be displayed in the **Operator protocol** window	Latin alphabet, Cyrillic, digits, and service characters	NA	Depends on the parameters sent by the event
22	The **Description** field	Enter the value in the field	Enters a short description of the specified parameter	Latin alphabet, Cyrillic, digits, and service characters	NA	From 0 to 255 characters

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Checklist** table						
23	The **Description** field	Enter the value in the field	Sets the description of the action that the operator must perform before assigning a status to the event	Latin alphabet, Cyrillic, digits, and service characters	NA	From 0 to 255 characters
Out of the group						
24	The **Chief interfaces** checkbox	Set the checkbox	Sets the **Operator protocol** object, to which the events must be sent after the time specified by the **Wait for operator response for** parameter	List of the available **Operator protocol** objects in the system	NA	Depends on the number of the **Operator protocol** objects created in the system
25	The **Map** drop-down list	Select the value from the list	Sets the **Map** object used to display the monitored object	List of the available **Map** objects in the system	NA	Depends on the number of the **Map** objects created in the system
26	The **Video** drop-down list	Select the value from the list	Sets the method of the archive and live video display by the event in the operator protocol	Available display methods	ActiveX	**ActiveX**—archive opens in a separate window **Monitor**—archive will open in the selected video surveillance monitor

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
27	The **Wait for operator response __ __ minutes** field	Enter the value in the field	Sets the time after which the event is assigned the **Non-processed event** type or the event is escalated	Min	2.5	From 0 to 10000. Fractional values can be specified; integer and fractional parts are point-separated. For example, to set 2 minutes 30 seconds time period, enter 2.5
28	The **Store ____ events** field	Enter the value in the field	Enters the maximum number of events that can be displayed simultaneously in the list of the current events	Integer numbers	100	Any integer starting from 0

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
29	The **Delay decision making for ____ minutes** field	Enter the value in the field	Sets the time for which the operator can delay the event processing	Min	NA	From 0 to 600. • The value isn't specified or 0—the operator cannot delay the event processing; • Greater than 0—the parameter sets the time for which the operator can delay the event processing; • Fractional values can be specified; integer and fractional parts are point-separated. For example, to set 2 minutes 30 seconds time period, enter 2.5

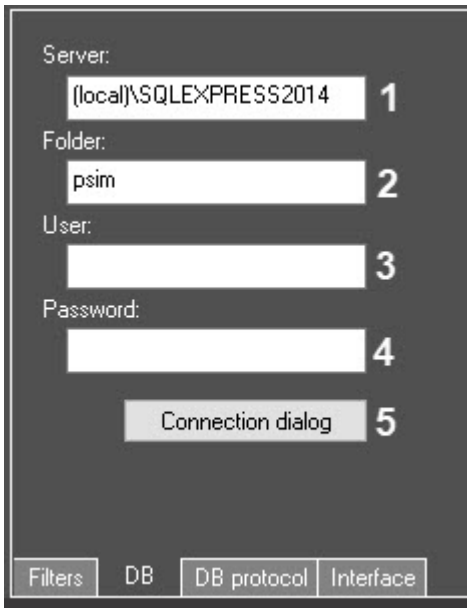
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
30	The **Sort by priority** checkbox	Set the checkbox	Enables the sorting of events by priority. The descending sorting: • Escalated, • Alarm, • Information • Standard The last three event parameters can be set in the DDI file—see The Events tab	Boolean type	Set	**Set**—sorting by priority is enabled **Clear**—sorting by order the events are received is enabled
31	The **New events at the end** checkbox	Set the checkbox	Places new events at the end of the current events list	Boolean type	Clear	**Set**—new event is placed at the end of the list **Clear**—new event is added at the beginning of the list
32	The **Close elsewhere** checkbox	Set the checkbox	Deletes the event from other operator protocols when it is processed in one of the operator protocols	Boolean type	Clear	**Set**—when the event is processed in one of the operator protocols, it is deleted from other operator protocols **Clear**—after the event is processed, it stays unprocessed in other operator protocols

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
33	The **Password for closing** checkbox	Set the checkbox	Determines the necessity to enter the password to process the event	Boolean type	Clear	**Set**—the event processing must be confirmed with a password **Clear**—password isn't required for event processing
34	The **Autoswitch** checkbox	Set the checkbox	Enables autoswitch to the **Current events** tab of the **Operator protocol** window when a new event occurs	Boolean type	Clear	**Set**—autoswitch is enabled **Clear**—autoswitch is disabled
35	The **Autoactivation of last event** check box	Set the checkbox	Enables the automatic cell activation of the last received event	Boolean type	Clear	**Set**—the cell of the last received event is automatically activated **Clear**—when the event is received, the cell selected by the operator remains active
36	The **Hide buttons for groups** checkbox	Set the checkbox	Hides the event processing buttons when a group of events is selected	Boolean type	Clear	**Set**—the event processing buttons are displayed when a group of events is selected **Clear**—the event processing buttons are hidden when a group of events is selected

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
37	The **Clear comment** checkbox	Set the checkbox	Clears the comment field after the event is processed by the operator	Boolean type	Clear	**Set**—the comment field is automatically cleared after the event is processed by the operator **Clear**—the comment text remains in the comment field after the event is processed by the operator
38	The **Fit window size** checkbox	Set the checkbox	Enables the automatic resizing of the cell according to the **Operator protocol** window	Boolean type	Clear	**Set**—the cell size is set equal to the size of the **Operator protocol** window area, that isn't occupied by the event control panel **Clear**—the cell size is set according to the content size
39	The **Hide "Apply to all"** checkbox	Set the checkbox	Disables the **Apply to all** button	Boolean type	Clear	**Set**—the **Apply to all** button is unavailable in the **Operator protocol** window, and the operator cannot process all events at once **Clear**—the **Apply to all** button is available

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
40	The **Over all windows** checkbox	Set the checkbox	Enables the **Operator protocol** to be displayed over all windows	Boolean type	Clear	**Set**—the **Operator protocol** window is displayed over all windows **Clear**—the **Operator protocol** window is displayed in the standard mode
41	The **Comment required** checkbox	Set the checkbox	Prevents event processing without entering a comment	Boolean type	Clear	**Set**—the buttons for classifying the events (alarm situation, suspicious situation, false alarm) don't appear until the **Comment** field is filled **Clear**—the operator can classify (process) the event without entering a comment
42	The **Single selection** checkbox	Set the checkbox	Prevents the operator from selecting multiple events using the Shift and Ctrl keys	Boolean type	Clear	**Set**—the operator cannot select multiple events using the Shift and Ctrl keys **Clear**—the operator can select multiple events using the Shift and Ctrl keys

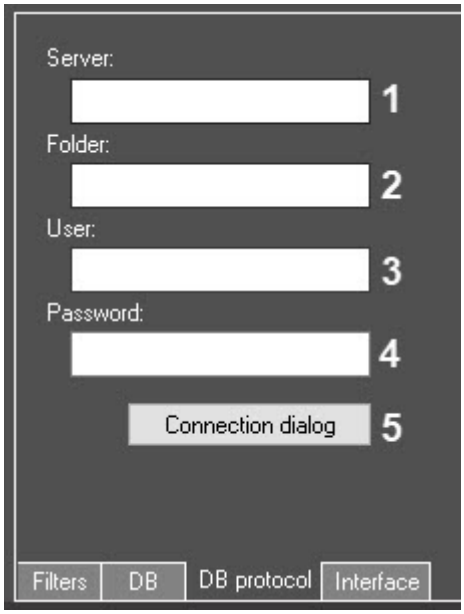
The DB tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Server** field	Enter the value in the field	Sets the name of the database server, in which the required database is stored	Latin alphabet, Cyrillic, digits, and service characters	Name of the server used by the system	Depends on the number of servers in the system
2	The **Folder** field	Enter the value in the field	Sets the name of the database, in which the events must be stored	Latin alphabet, Cyrillic, digits, and service characters	Name of the main database used by the system	Depends on the number of databases used by the system
3	The **User** field	Enter the value in the field	Sets the username for authorization in the database server	Latin alphabet, Cyrillic, digits, and service characters	NA	NA
4	The **Password** field	Enter the value in the field	Sets the password for authorization in the database server	Latin alphabet, Cyrillic, digits, and service characters	NA	NA

5	The **Connection dialog** button	Click the button	Opens the window of the database server connection	NA	NA	NA

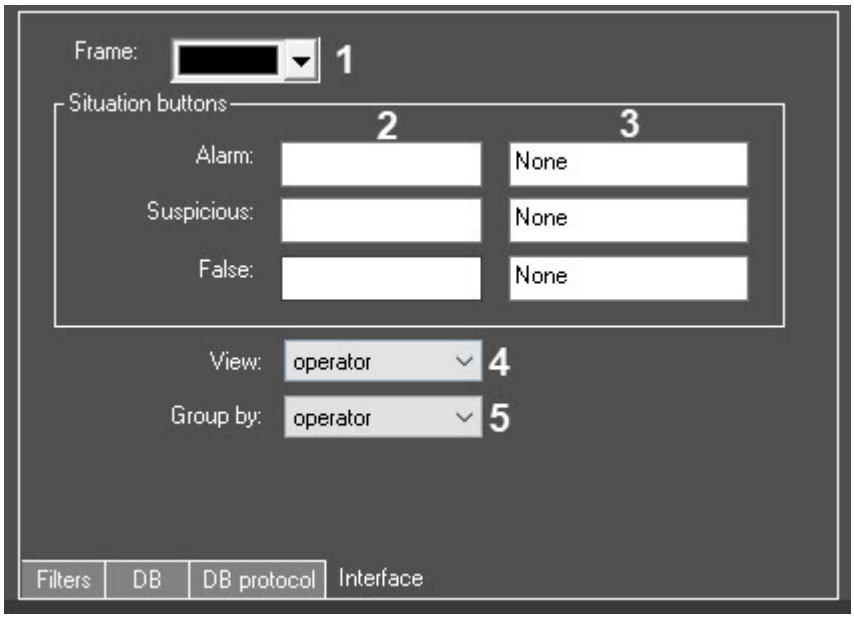
The DB protocol tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Server** field	Enter the value in the field	Sets the name of the database server, in which the required event viewer database is stored (if it is extracted to a separate DB)	Latin alphabet, Cyrillic, digits, and service characters	Name of the server used by the event viewer database (if it is extracted to a separate DB)	Depends on the number of servers in the system
2	The **Folder** field	Enter the value in the field	Sets the name of the event viewer database (if it is extracted to a separate DB), in which the events must be stored	Latin alphabet, Cyrillic, digits, and service characters	Name of the event viewer database (if it is extracted to a separate DB) used by the system	Depends on the number of the event viewer databases used by the system

3	The **User** field	Enter the value in the field	Sets the username for authorization in the event viewer database server (if it is extracted to a separate DB)	Latin alphabet, Cyrillic, digits, and service characters	NA	NA
4	The **Password** field	Enter the value in the field	Sets the password for authorization in the event viewer database server (if it is extracted to a separate DB)	Latin alphabet, Cyrillic, digits, and service characters	NA	NA
5	The **Connection dialog** button	Click the button	Opens the window of event viewer database server connection (if it is extracted to a separate DB)	NA	NA	NA

The Interface tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Frame** drop-down list	Select the value from the list	Sets the frame color of the active cell	Color palette	Black	RGB color
The **Situation buttons** group						
2	The **Alarm** field	Enter the value in the field	Sets the name for the alarm assessing button	Latin alphabet, Cyrillic, digits, and service characters	NA	From 0 to 255 characters
	The **Suspicious** field	Enter the value in the field	Sets the name for the suspicious assessing button	Latin alphabet, Cyrillic, digits, and service characters	NA	From 0 to 255 characters
	The **False** field	Enter the value in the field	Sets the name for the false assessing button	Latin alphabet, Cyrillic, digits, and service characters	NA	From 0 to 255 characters
3	The Keyboard shortcut* field	Press the key combination	Sets the key shortcuts for the events assessment	Keyboard combinations	None	• **None**, • You can combine the Ctrl, Alt and Shift keys with any other keys on the keyboard. For example, the Ctrl+Shift+Alt+A or the Ctrl+A shortcuts are allowed, but the D+A or D+Ins shortcuts aren't allowed, and so on
Out of the group						

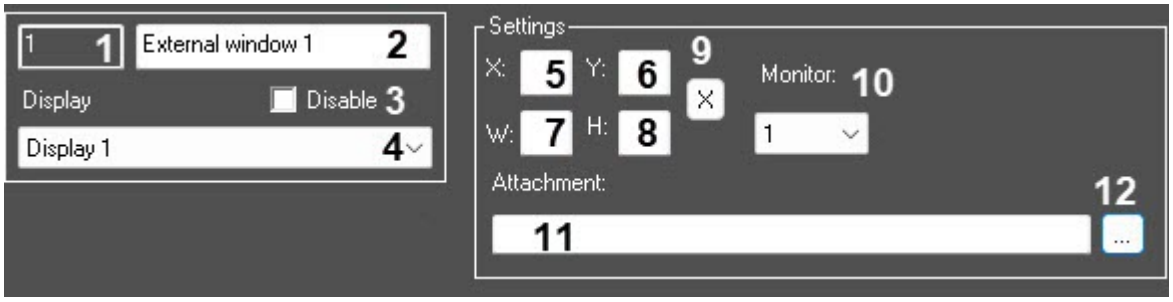
4	The **View** drop-down list	Select the value from the list	Sets the option of displaying events on the **Current events** tab	Available display options	operator	• **operator**: the operator can select a full or a simple view on its own; • **full**: the events are displayed as cells with a screenshot; • **simple**—the events are displayed as lines without screenshots
5	The **Group by** drop-down list	Select the value from the list	Sets the option of grouping events on the **Current events** tab	Available grouping options	operator	• **operator**: the operator can elect the grouping options on its own; • **default**: event grouping is disabled; • **object**: the events are grouped by object; • **event:** the events are grouped by event types; • **region:** the events are grouped by regions

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the External window object

The **External window** object is used to display the dialog window of various applications in the specified screen area. The applications can be either AxxonSoft applications or third-party applications.

The settings panel of the **External window** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **External window** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **External window** object	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **External window** objects
2	The Name* field	Enter the value in the field	Sets the name of the **External window** object	Latin alphabet, Cyrillic, digits, and service characters	External window	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **External window** object	Boolean type	Clear	**Set**—the **External window** object is disabled and isn't used **Clear**—the **External window** object is enabled and used

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object to which the given **External window** object belongs	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects
The **Settings** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the window of the **External window** object on the screen	% of the screen width	60	From 0 to M*100, where M is the number of the installed monitors
6	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the window of the **External window** object on the screen	% of the screen height	50	From 0 to M*100, where M is the number of the installed monitors
7	The **W** field	Enter the value in the field	Sets the width of the window of the **External window** object	% of the screen width	40	From 0 to M*100, where M is the number of the installed monitors
8	The **H** field	Enter the value in the field	Sets the height of the window of the **External window** object	% of the screen width	40	From 0 to M*100, where M is the number of the installed monitors

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
9	The  button	Click the button	Opens the window for specifying the size and position of the **External window** object using the mouse	NA	NA	NA
10	The **Monitor** drop-down list	Select the value from the list	Sets the number of monitor, which is used to display the window of the third-party application	Number of monitors	1	From 1 to 16
11	The **Attachment** field	Enter the value in the field	Sets the path to the application, which must be launched. *Note. All windows of the application are opened simultaneously if the application contains several windows*	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters, case-insensitive. Number of characters—from 1 to 250
12	The  button	Click the button	Displays the standard Windows dialog window to specify the path to the application that you must run	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The Settings panel of the Scene object

The settings panel of the **Scene** interface object is shown in the figure.

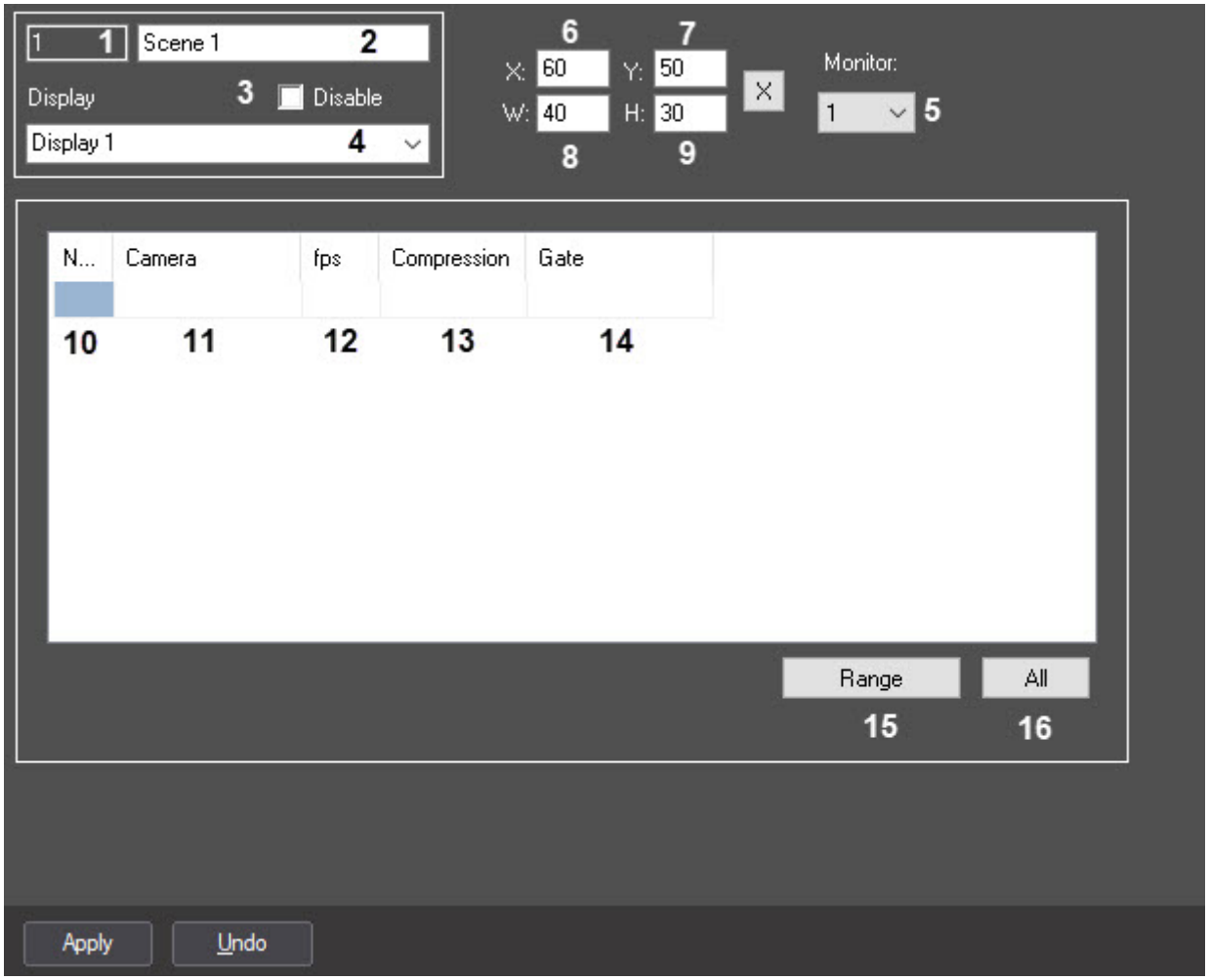
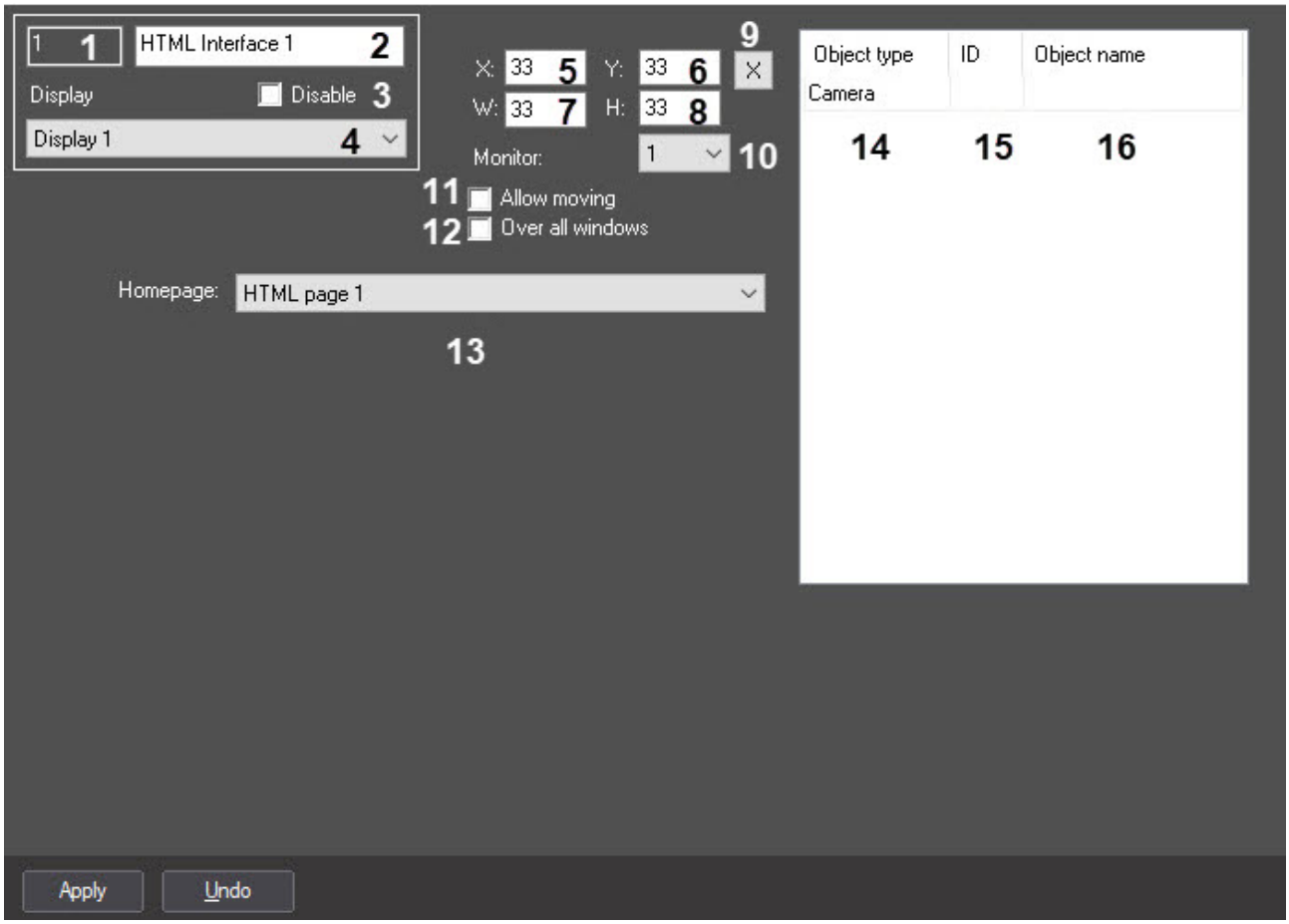


Table describes the elements of the settings panel of the **Scene** object.

The settings panel of the HTML Interface object

The **HTML Interface** object is used to display the content of web pages and other files in the *Axxon PSIM* interface window. The settings panel of the **HTML Interface** object is shown in the figure.



The table describes the setting parameters of the **HTML Interface** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **HTML Interface** object in the system	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **HTML Interface** objects in the system

2	The Name* field	Enter the value in the field	Sets the name of the **HTML Interface** object in the system	Latin alphabet, Cyrillic, digits, and service characters	HTML Interface	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **HTML Interface** object in the system	Boolean type	Clear	**Set**—the **HTML Interface** object is disabled and isn't used **Clear**—the **HTML Interface** object is enabled used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **HTML Interface** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The Coordinates group*						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the HTML Interface window	% of the screen width	33	From 0 to M*100, where M is the number of the installed (computer) monitors
6	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the HTML Interface window	% of the screen height	33	From 0 to M*100, where M is the number of the installed (computer) monitors

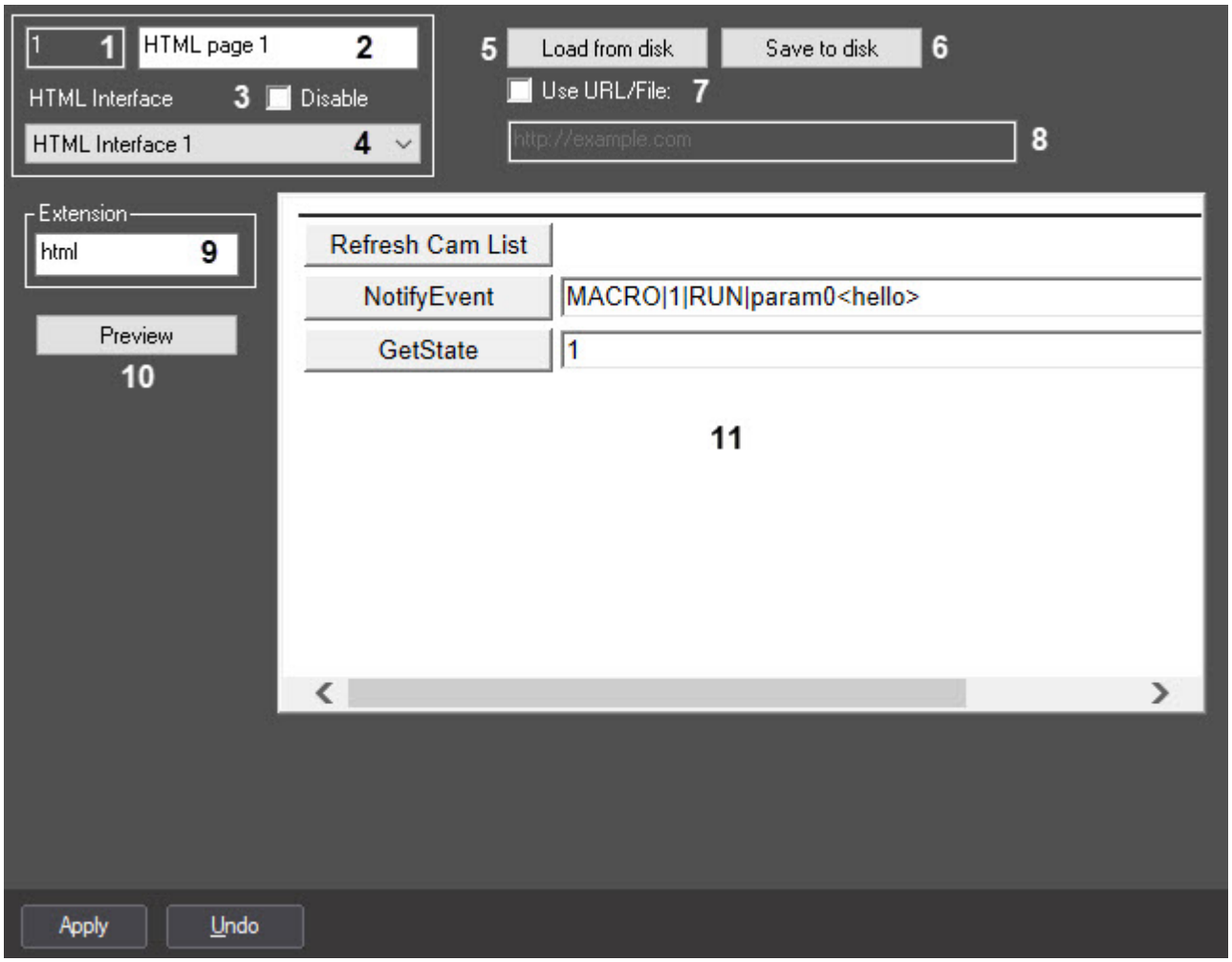
7	The **W** field	Enter the value in the field	Sets the width of the HTML Interface window	% of the screen width	33	From 0 to M*100, where M is the number of the installed (computer) monitors
8	The **H** field	Enter the value in the field	Sets the height of the HTML Interface window	% of the screen width	33	From 0 to M*100, where M is the number of the installed (computer) monitors
9	The  button	Click the button	Opens the window for specifying the size and position of the HTML Interface using the mouse	NA	NA	NA
10	The **Monitor** drop-down list	Select the value from the list	Sets the number of the monitor that must display the interface object	Sequence of numbers	1	Depends on the number of the connected computer monitors
11	The **Allow moving** checkbox	Set the checkbox	Allows changing the position of the **HTML Interface** object using the mouse	Boolean type	Clear	**Set**—you can change the position of the **HTML Interface** interface object using the mouse **Clear**—you cannot change the position of the **HTML Interface** interface object using the mouse

12	The **Over all windows** checkbox	Set the checkbox	Allows displaying the HTML Interface window over all windows	Boolean type	Clear	**Set**—the HTML Interface window is displayed over all windows **Clear**—the HTML Interface window is displayed in the standard mode
Out of the group						
13	The **Homepage** drop-down list	Select the value from the list	Sets the homepage that must be displayed in the HTML interface window	Name of the **HTML page** objects registered in the system	NA	Depends on the number of the **HTML page** objects in the system
The Objects table*						
14	The **Object type** drop-down list	Select the value from the list	Sets the type of object, the state of which must be monitored using the HTML interface	Types of objects created in the system	NA	Depends on the number of objects created in the system
15	The **ID** drop-down list	Select the value from the list	Sets the ID of the object, the state of which must be monitored using the HTML interface	Sequence of numbers	NA	Depends on the number of objects created in the system
16	The **Object name** field	Automatically	Displays the name of the object, the state of which must be monitored using the HTML interface	Name of the object of the selected type with the specified ID	NA	Depends on the number of objects created in the system

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the HTML page object

The **HTML page** object is used to configure the web pages displayed in the **HTML Interface** interface window. The settings panel of the **HTML page** object is shown in the figure.



The table describes the setting parameters of the settings panel of the **HTML page** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **HTML page** interface object in the system	Sequence of numbers	NA	From 1 to 2147483647. Depends on the number of the **HTML page** objects in the system

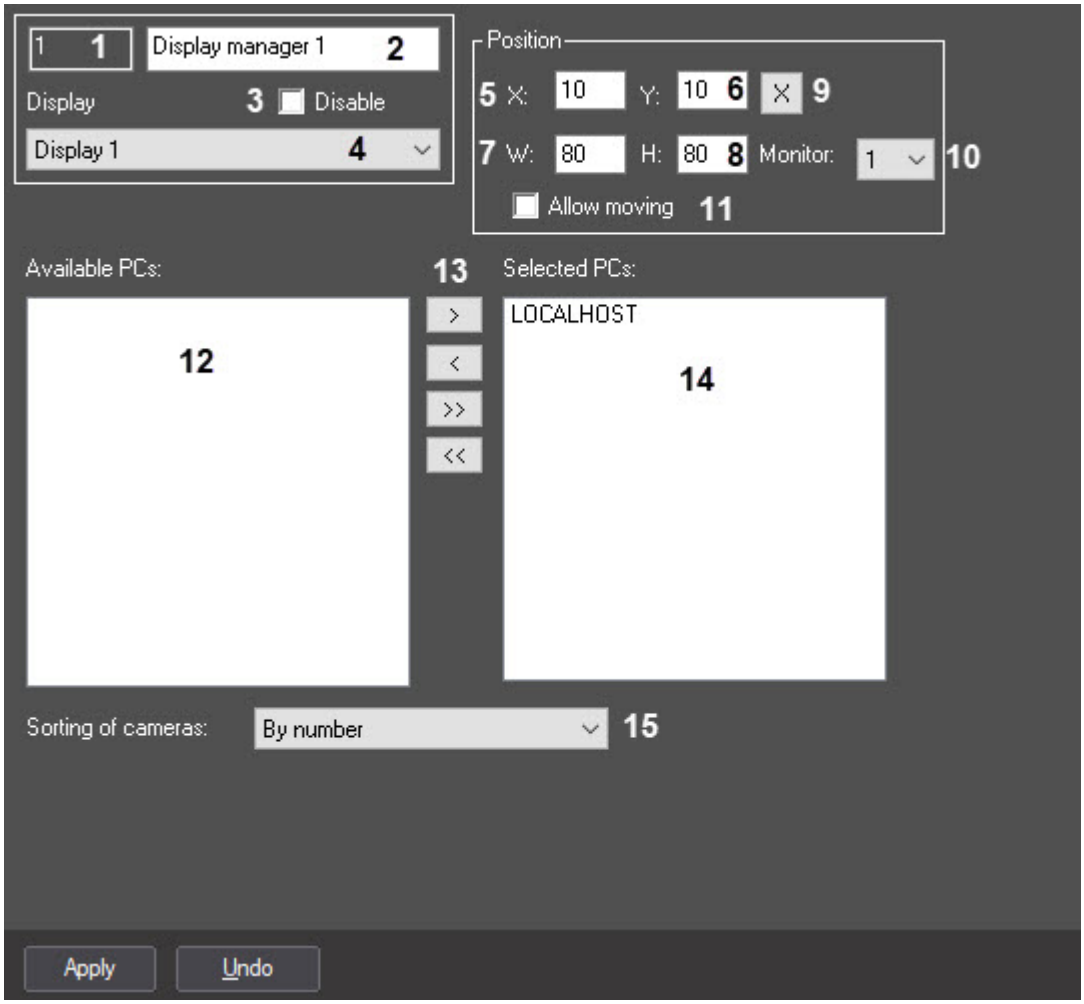
2	The Name* field	Enter the value in the field	Sets the name of the **HTML page** object	Latin alphabet, Cyrillic, digits, and service characters	HTML page	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **HTML page** object in the system	Boolean type	Clear	**Set**—the **HTML page** object is disabled and isn't used **Clear**—the **HTML page** object is enabled and used
4	The **HTML Interface** drop-down list	Select the value from the list	Sets the **HTML Interface** parent object for the given **HTML page** object	Names of the **HTML Interface** objec ts registered in the system	Name of the **HTML Interface** parent object	Depends on the number of the **HTML Interface** objects in the system
5	The **Load from disk** button	Click the button	Opens the standard open file dialog window to load a file of a web page or some other file type from disk	NA	NA	NA
6	The **Save to disk** button	Click the button	Opens the standard open file dialog window to save a file of a web-page or some other file type to disk	NA	NA	NA

7	The **Use URL/File** checkbox	Set the checkbox	Enables or disables downloading a web page or other file type by URL	Boolean type	Clear	**Set**—the specified URL is opened when addressing to the HTML page **Clear**—the saved file of the HTML page is opened when addressing to the HTML page (see Link to the HTML page object)
8	The **Use URL/File** field	Enter the value in the field	Specifies the link to the web page or a file that will open when addressing to the configured HTML page	Link in the URL format	NA	The number of characters is unlimited
9	The **Extension** field	Automatically	Displays the extension of the opened file	Extensions of files supported by the Microsoft Edge browser (Internet Explorer)	html	From 0 to 16 characters
10	The **Preview** button	Click the button	Displays the selected web page or a file in the preview window	NA	NA	NA
11	The Preview window*	Automatically	Preview of a web page or a file	NA	Not displayed	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Display manager object

The settings panel of the **Display manager** interface object is shown in the figure.



The table describes the setting parameters of the **Display manager** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Display manager** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Display manager** objects in the system

2	The Name* field	Enter the value in the field	Sets the name of the **Display manager** object in the system	Latin alphabet, Cyrillic, digits, and service characters	Display manager	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Display manager** object in the system	Boolean type	Clear	**Set**—the **Display manager** object is disabled and isn't used **Clear**—the **Display manager** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **Display manager** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Position** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the display manager window	% of the screen width	10	From 0 to M*100, where M is the number of the installed monitors
6	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the display manager window	% of the screen height	10	From 0 to M*100, where M is the number of the installed monitors

7	The **W** field	Enter the value in the field	Sets the width of the display manager window	% of the screen width	80	From 0 to M*100, where M is the number of the installed monitors
8	The **H** field	Enter the value in the field	Sets the height of the display manager window	% of the screen width	80	From 0 to M*100, where M is the number of the installed monitors
9	The  button	Click the button	Opens the window for changing the size and position of the display manager object window	NA	NA	NA
10	The **Monitor** drop-down list	Select the value from the list	Determines the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
11	The **Allow moving** checkbox	Set the checkbox	Allows moving the display manager window using the mouse	Boolean type	Clear	**Set**—allow moving the display manager window **Clear**—disable moving the display manager window
Out of the group						
12	The **Available PCs** area	Click the button	Contains a list of the **Computer** objects that aren't selected to be managed via the display manager	Names of the **Computer** objects registered in the system	Depends on the number of the **Computer** objects registered in the system	Depends on the number of the **Computer** objects registered in the system

13	The < > >> << buttons	Click the button	Moves the computers from the **Available PCs** list to the **Selected PCs** list and back	NA	NA	NA
14	The **Selected PCs** area	Click the button	Contains a list of the **Computer** objects that are selected to be managed via the display manager	Names of the **Computer** objects registered in the system	NA	Depends on the number of the **Computer** objects registered in the system
15	The **Sorting of cameras** drop-down list	Select the value from the list	Sets the cameras' sorting method in the display manager interface	Available sorting methods	By number	• **By number**, • **By name**

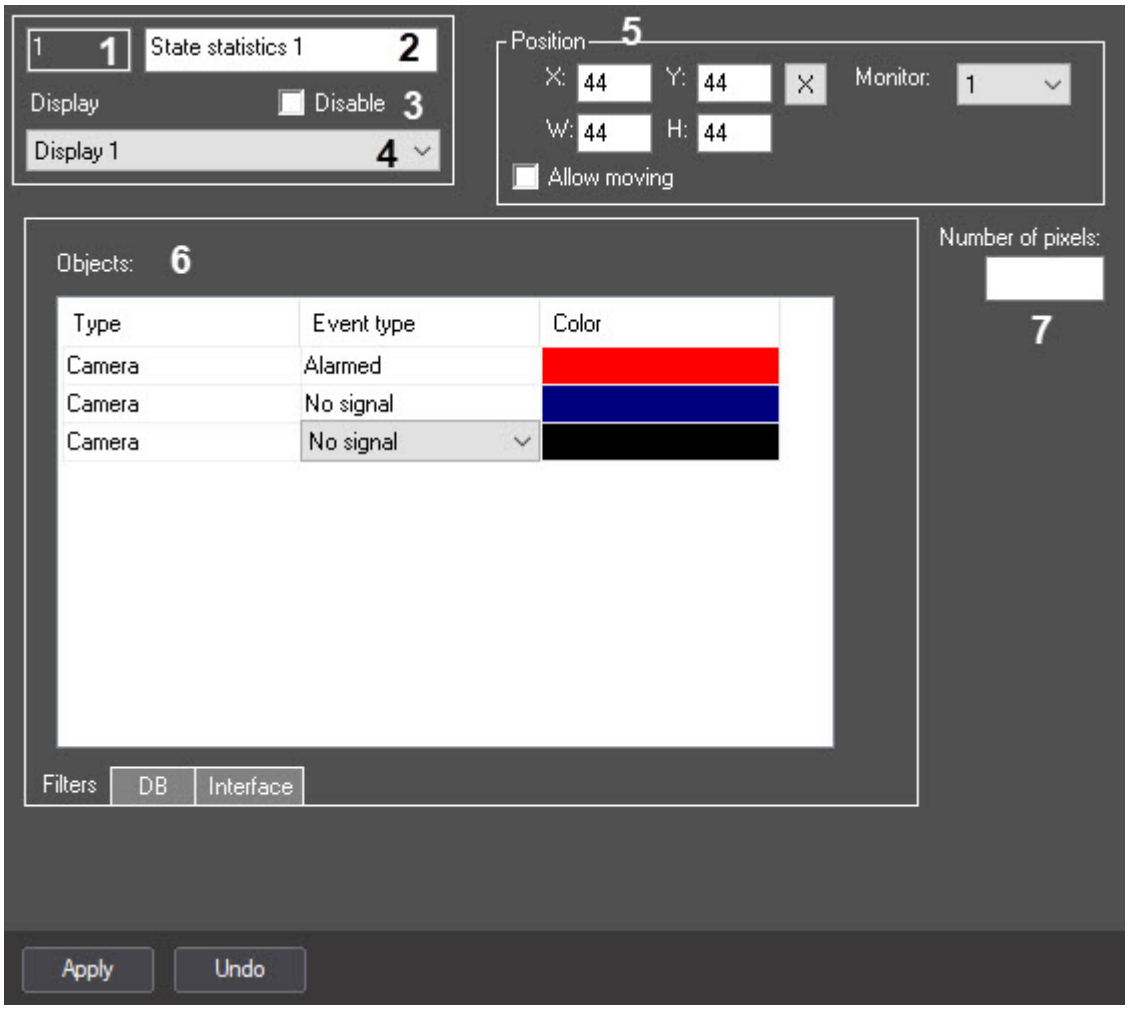
*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the State statistics object

The settings panel of the **State statistics** interface object is shown in the figures.

The table describes the setting parameters of the **State statistics** interface object.

The **Filters** tab



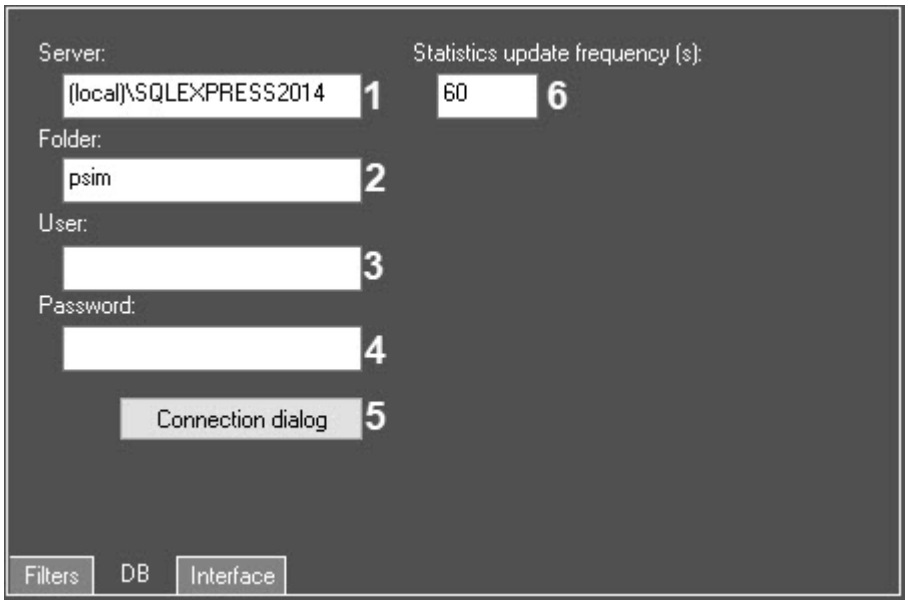
№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Filters** tab						
1	The Identification number* field	Automatically	Displays the identification number of the **State statistics** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **State statistics** objects in the system

2	The Name* field	Enter the value in the field	Sets the name of the **State statistics** object in the system	Latin alphabet, Cyrillic, and service characters	State statistics	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **State statistics** object in the system	Boolean type	Clear	**Set**—the **State statistics** object is disabled and isn't used **Clear**—the **State statistics** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **State statistics** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Position** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the **State statistics** window	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the **State statistics** window	% of the screen height	44	From 0 to M*100, where M is the number of the installed monitors

	The **W** field	Enter the value in the field	Sets the width of the **State statistics** window	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The **H** field	Enter the value in the field	Sets the height of the **State statistics** window	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The  button	Click the button	Opens the window for changing the size and position of the **State statistics** window	NA	NA	NA
	The **Allow moving** checkbox	Set the checkbox	Allows moving the **State statistics** window using the mouse	Boolean type	Clear	**Set**—allow moving the **State statistics** window using the mouse **Clear**—disable moving the **State statistics** window using the mouse
	The **Monitor** drop-down list	Select the value from the list	Determines the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
The **Objects** table						

6	The **Type** drop-down list	Select the value from the list	Sets the type of the objects whose events must be displayed in the **State statistics** window	Available object types	NA	Depends on the objects registered in the system. You can select only those object types that have the "INFORMATION" or "ALARM" value selected in the **Processing messages** column on the **Events** tab of the ddi.exe utility (see The Events tab)
	The **Event type** drop-down list	Select the value from the list	Sets the events that must be displayed in the **State statistics** window	Events available for the selected object	NA	Depends on the object type
	The **Color** drop-down list	Select the value from the list	Sets the color of the state displayed in the table and on the graph in the **State statistics** window	Color palette	Black	RGB color
Out of the group						
7	The **Number of pixels** field	Enter the value in the field	Sets the number of pixels to be displayed on the state statistics graph	Integer numbers	0	>=0

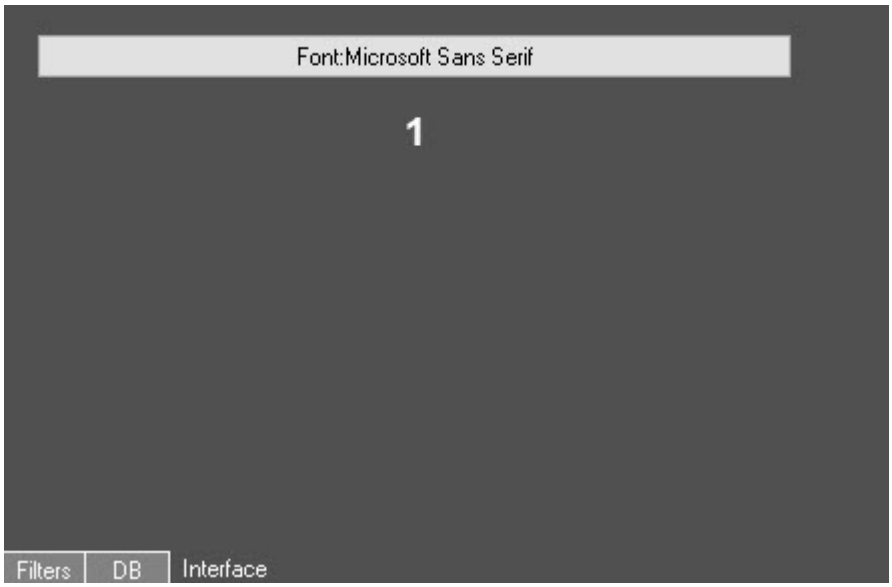
The **DB** tab



№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Server** field	Enter the value in the field	Sets the name of the database server where the required database is stored	Latin alphabet, Cyrillic, digits, and service characters	Name of the server used by the system	Depends on the number of servers in the system
2	The **Folder** field	Enter the value in the field	Sets the name of the database where the events must be stored	Latin alphabet, Cyrillic, digits, and service characters	Name of the main database used by the system	Depends on the number of databases used by the system
3	The **User** field	Enter the value in the field	Sets the username to authorize on the database server	Latin alphabet, Cyrillic, digits, and service characters	NA	NA
4	The **Password** field	Enter the value in the field	Sets the password to authorize on the database server	Latin alphabet, Cyrillic, digits, and service characters	NA	NA

5	The **Connection dialog** button	Click the button	Opens the window to connect the database server	NA	NA	NA
6	The **Statistics update frequency (s)** field	Enter the value in the field	Sets the update frequency of the state statistics	Integers	60	>=0

The **Interface** tab

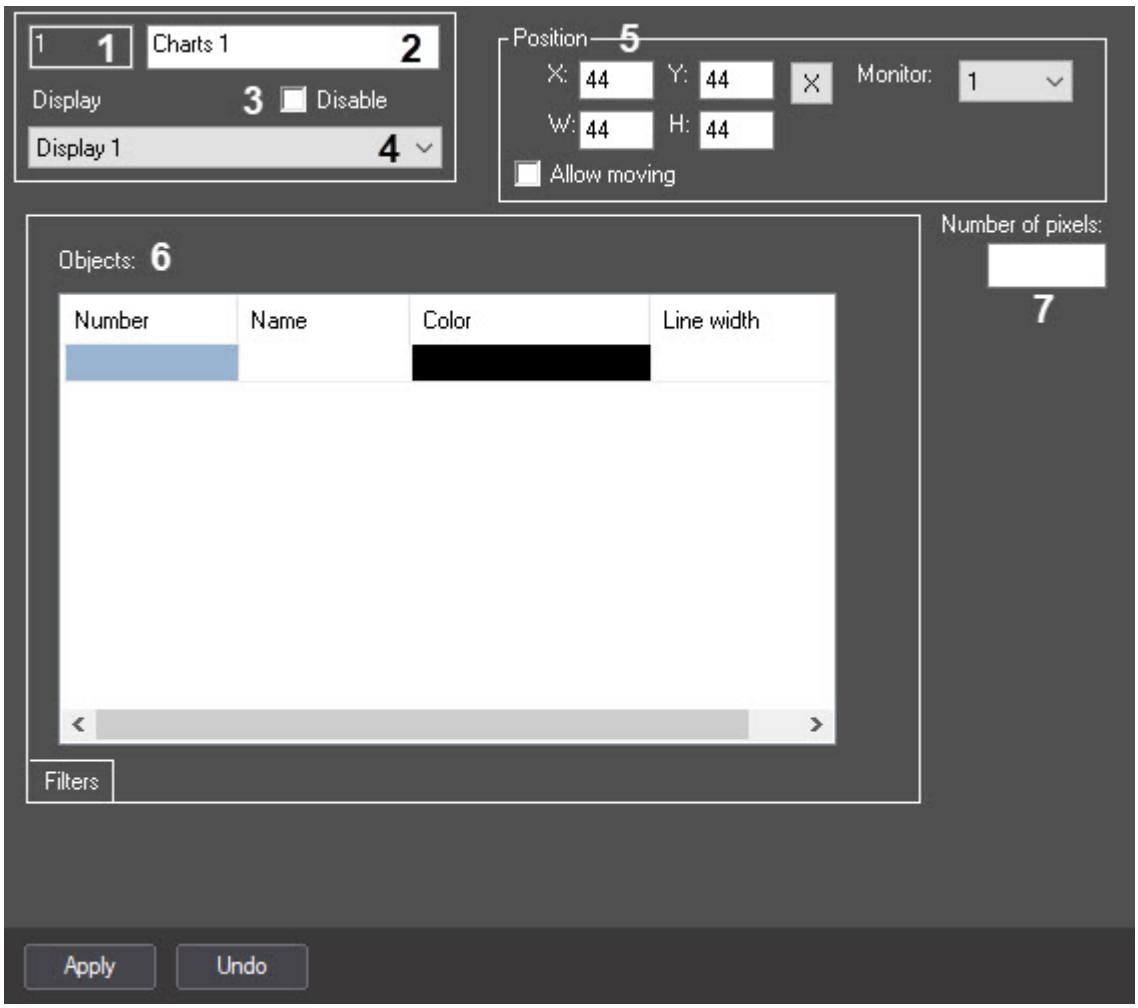


№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Font** button	Click the button	Opens the dialog for setting the text font in the table and on the graph (except for the legend—a short list or table with data) in the **State statistics** window	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Charts object

The settings panel of the **Charts** interface object is shown in the figure.



The table describes the setting parameters of the **Charts** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Charts** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Charts** objects in the system

2	The Name* field	Enter the value in the field	Sets the name of the **Charts** objec t in the system	Latin alphabet, Cyrillic, digits, and service characters	Charts	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Charts** objec t in the system	Boolean type	Clear	**Set**— the **Charts** object is disabled and isn't used **Clear**— the **Charts** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** pare nt object for the given **Charts** obj ect	Names of the **Display** obj ects registered in the system	Name of the **Disp lay** pare nt object	Depends on the number of the **Display** objects in the system
The **Position** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the **Charts** wind ow	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the **Charts** wind ow	% of the screen height	44	From 0 to M*100, where M is the number of the installed monitors
	The **W** field	Enter the value in the field	Sets the width of the **Charts** wind ow	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors

	The **H** field	Enter the value in the field	Sets the height of the **Charts** window	% of the screen width	44	From 0 to M*100, where M is the number of the installed monitors
	The **Allow moving** checkbox	Set the checkbox	Allows moving the **Charts** window using the mouse	Boolean type	Clear	**Set**—allow moving the **Charts** window using the mouse **Clear**—disable moving the **Charts** window using the mouse
	The  button	Click the button	Opens the window for setting the position and size of the **Charts** window	NA	NA	NA
	The **Monitor** drop-down list	Select the value from the list	Determines the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
The **Objects** table						
6	The **Number** drop-down list	Select the value from the list	Sets the identifier of the **Analog sensor** object, the data from which must be displayed in the chart	Names of the **Analog sensor** objects	NA	Depends on the **Analog sensor** objects in the system
	The **Name** drop-down list	Select the value from the list	Sets the name of the **Analog sensor** object, the data from which must be displayed in the chart	Names of the **Analog sensor** objects	NA	Depends on the **Analog sensor** objects in the system

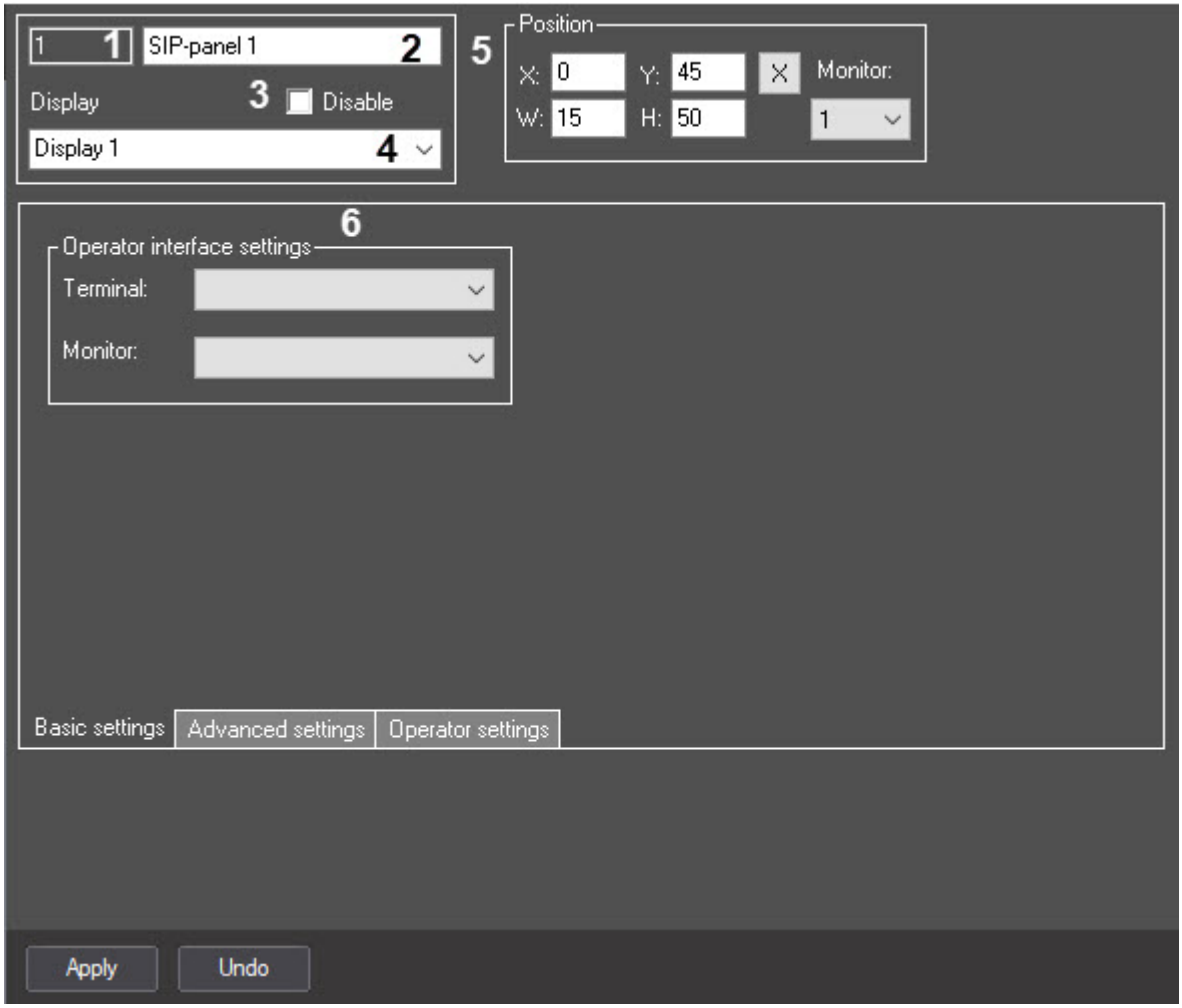
	The **Color** drop-down list	Select the value from the list	Sets the display color of the corresponding analog sensor in the chart in the **Charts** wind ow	Color palette	Black	RGB color
	The **Line width** field	Enter the value in the field	Sets the width of the line in the chart	Sequence of numbers	5	>0
Out of the group						
7	The **Numbe r of pixels** field	Enter the value in the field	Sets the number of pixels to be displayed in the chart	Integer numbers	0	>=0

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the SIP-panel object

The settings panel of the **SIP-panel** interface object is shown in the figure.

The **Basic settings** tab



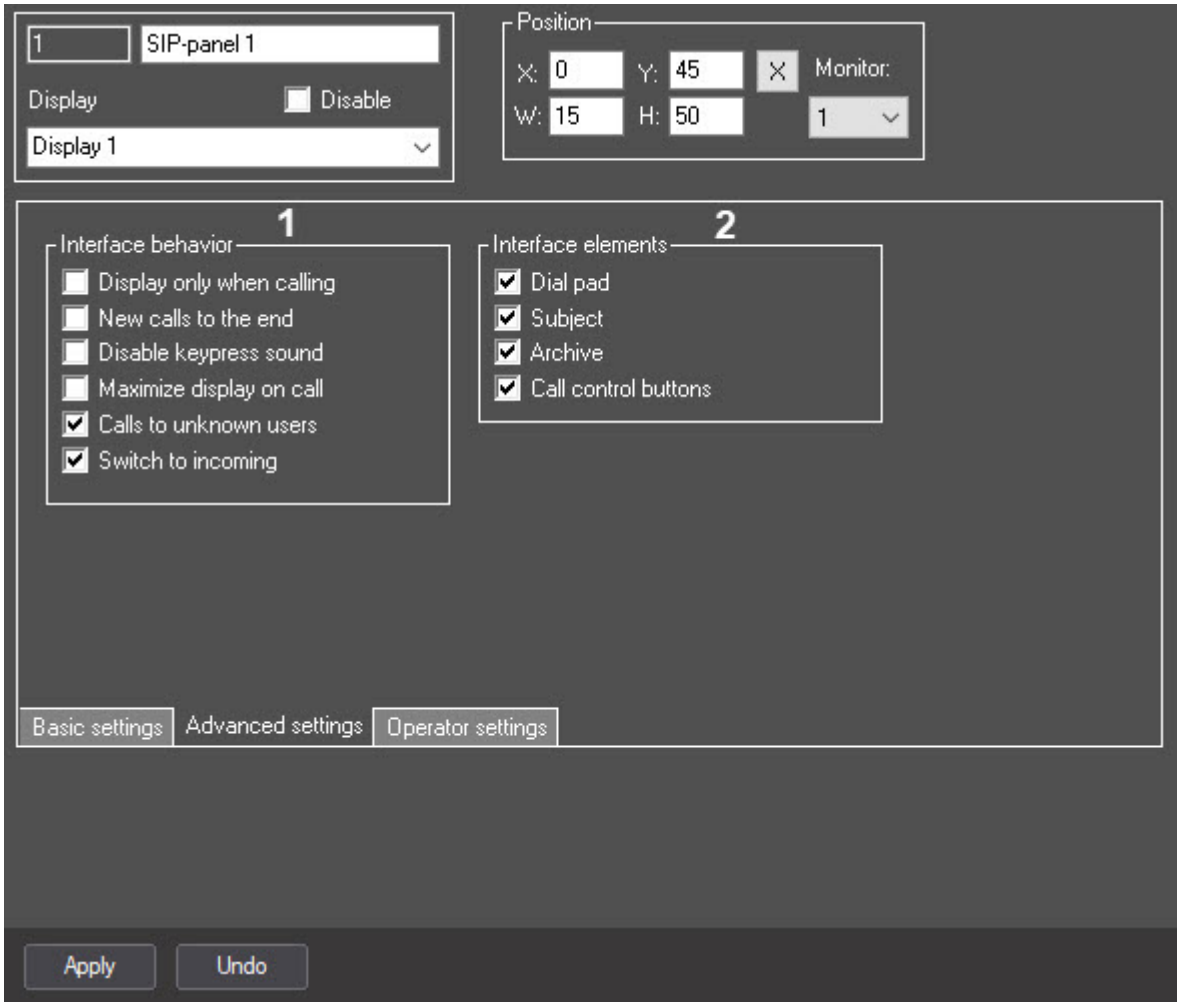
The table describes the setting parameters of the **SIP-panel** interface object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **SIP-panel** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **SIP-panel** objects in the system

2	The Name* field	Enter the value in the field	Sets the name of the **SIP-panel** object in the system	Latin alphabet, Cyrillic, digits, and service characters	SIP-panel	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **SIP-panel** object in the system	Boolean type	Clear	**Set**—the **SIP-panel** object is disabled and isn't used **Clear**—the **SIP-panel** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **SIP-panel** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Position** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the SIP-panel window	% of the screen width	0	From 0 to M*100, where M is the number of the installed monitors
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the SIP-panel window	% of the screen height	45	From 0 to M*100, where M is the number of the installed monitors
	The **W** field	Enter the value in the field	Sets the width of the SIP-panel window	% of the screen width	15	From 0 to M*100, where M is the number of the installed monitors

	The **H** field	Enter the value in the field	Sets the height of the SIP-panel window	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors
	The  button	Click the button	Opens the window for changing the position and size of the SIP-panel window	NA	NA	NA
	The **Monitor** drop-down list	Select the value from the list	Determines the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
The **Operator interface settings** group						
6	The **Terminal** drop-down list	Select the value from the list	Sets the **SIP-terminal** object, which SIP devices use the SIP-panel	Names of the **SIP-panel** objects registered in the system	NA	Depends on the number of the **SIP-terminal** objects in the system
	The **Monitor** drop-down list	Select the value from the list	Sets the **Monitor** object corresponding to the video surveillance monitor to which the cameras associated with the corresponding SIP devices are added	Names of the **Monitor** objects registered in the system	NA	Depends on the number of the **Monitor** objects in the system

The **Advanced settings** tab



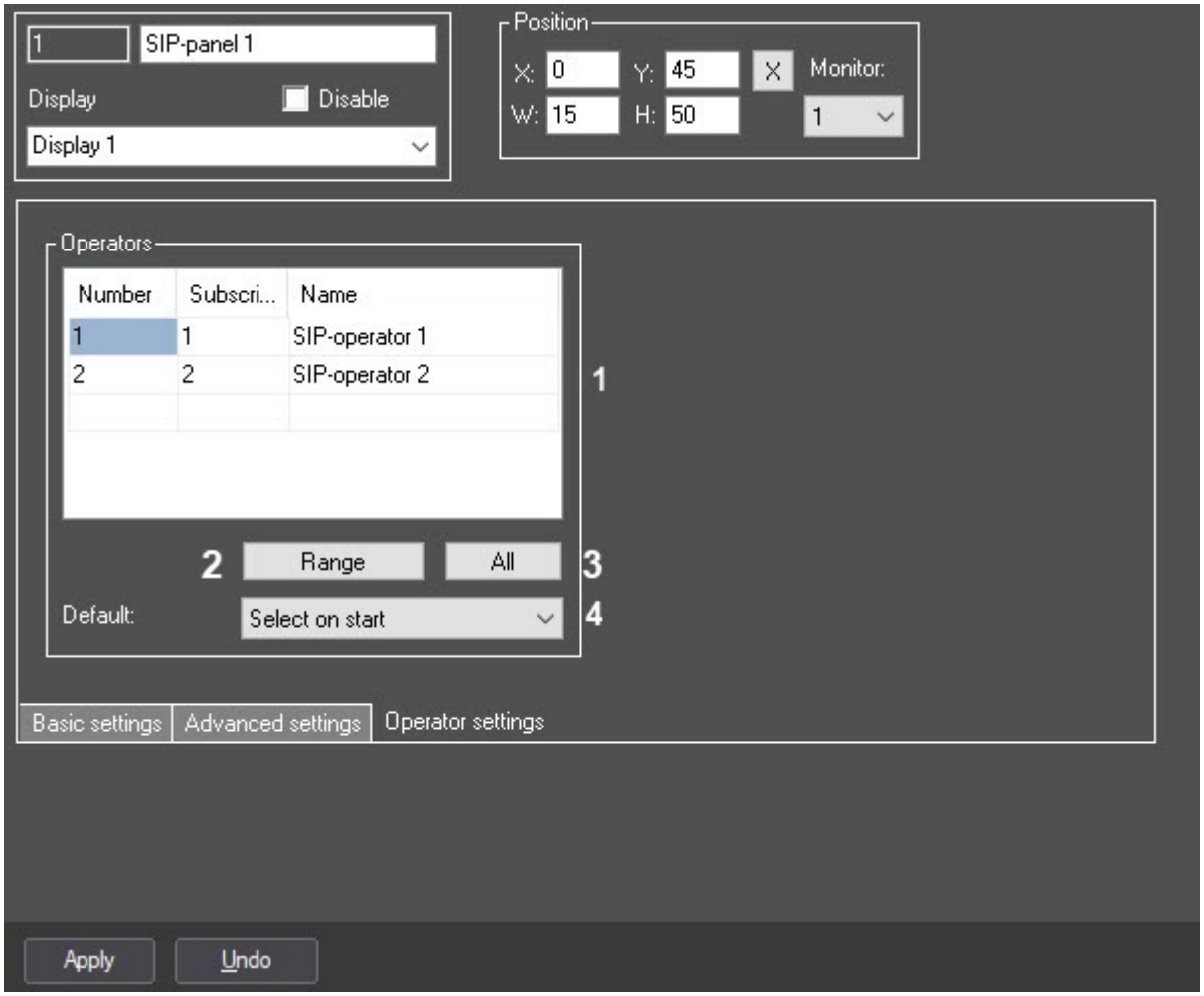
The table describes the parameters of the **Advanced settings** tab.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Interface behavior** group						
1	The **Display only when calling** check box	Set the checkbox	Displays the SIP-panel only when calling	Boolean type	Clear	**Set**—the SIP-panel is only displayed when calling **Clear**—the SIP-panel is always displayed

The **New calls to the end** checkbox	Set the checkbox	Enables adding new calls to the end of the list	Boolean type	Clear	**Set**—new calls are added to the end of the list **Clear**—new calls are added to the top of the list
The **Disable keypress sound** checkbox	Set the checkbox	Disables keypress sound on the SIP-panel	Boolean type	Clear	**Set**—keypress sound is disabled **Clear**—keypress sound is enabled
The **Maximize display on call** checkbox	Set the checkbox	Enables automatic display switching on call	Boolean type	Clear	**Set**—when a call is made to the SIP-terminal that corresponds to the SIP-panel, the screen to which the SIP-panel is added is displayed automatically **Clear**—when a call is made to the SIP-terminal that corresponds to the SIP-panel, screens aren't switched automatically
The **Calls to unknown users** checkbox	Set the checkbox	Enables the option to call the unknown users. *Note. Unknown user is a number that is present in the SIP-terminal but not in the address book of the current SIP-operator*	Boolean type	Set	**Set**—calls to unknown users are allowed **Clear**—calls to unknown users are forbidden

	The **Switch to incoming** che ckbox	Set the checkbox	Automatically switches to the **SIP-panel** tab with the incoming calls, which occurs during incoming calls or calls on hold	Boolean type	Set	**Set**—automatic switch to the tab with incoming calls is enabled **Clear**—automatic switch to the tab with incoming calls is disabled
The **Interface elements** group						
2	The **Dial pad** checkbox	Set the checkbox	Displays the dial pad in the interface	Boolean type	Set	**Set**—the dial pad is displayed **Clear**—the dial pad is hidden
	The **Subject** c heckbox	Set the checkbox	Displays the tab names in the interface. When disabled, only the **Call** tab is displayed without displaying the name	Boolean type	Set	**Set**—the tab names are displayed **Clear**—only the **Call** tab is displayed without displaying the name
	The **Archive** c heckbox	Set the checkbox	Displays the **Archive** tab in the interface	Boolean type	Set	**Set**—the **Archive** tab is displayed **Clear**—the **Archive** tab is hidden
	The **Call control buttons** chec kbox	Set the checkbox	Displays the buttons at the bottom of the panel to control a call	Boolean type	Set	**Set**—call control buttons are displayed **Clear**—call control buttons are hidden

The **Operator settings** tab



The table describes the parameters of the **Operator settings** tab.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
The **Operators** table						
1	The **Number** drop-down list	Select the value from the list	Selects the SIP-operator identifier	Identifiers of the **SIP-operator** objects registered in the system	NA	Depends on the number of the **SIP-operator** objects in the system

	The **Subscriber** drop-down list	Select the value from the list	Selects the SIP-operator number	Numbers of the **SIP-operator** objects registered in the system	NA	Depends on the number of the **SIP-operator** objects in the system
	The **Name** drop-down list	Select the value from the list	Selects the SIP-operator name in *Axxon PSIM*	Names of the **SIP-operator** objects registered in the system	NA	Depends on the number of the **SIP-operator** objects in the system
Out of the group						
2	The **Range** button	Click the button	Opens the **Add operators** window to add multiple SIP operators	NA	NA	NA
3	The **All** button	Click the button	Adds all existing SIP operators to the table	NA	NA	NA

4	The **Default** drop-down list	Select the value from the list	Sets the default SIP operator	NA	Select on start	• **Select on start**—when you first start the SIP panel, you must select the appropriate SIP operator. Next time, you are logged in under the previously selected SIP operator. • **User rights**—you will log into the SIP-panel as the SIP operator that is linked to the *Axxon PSIM* user rights. You must also be logged into *Axxon PSIM* with the corresponding user rights • **SIP-operator**—you will log in to the SIP-panel under the selected SIP-operator

*Name of the element isn't displayed in the settings panel of the given object

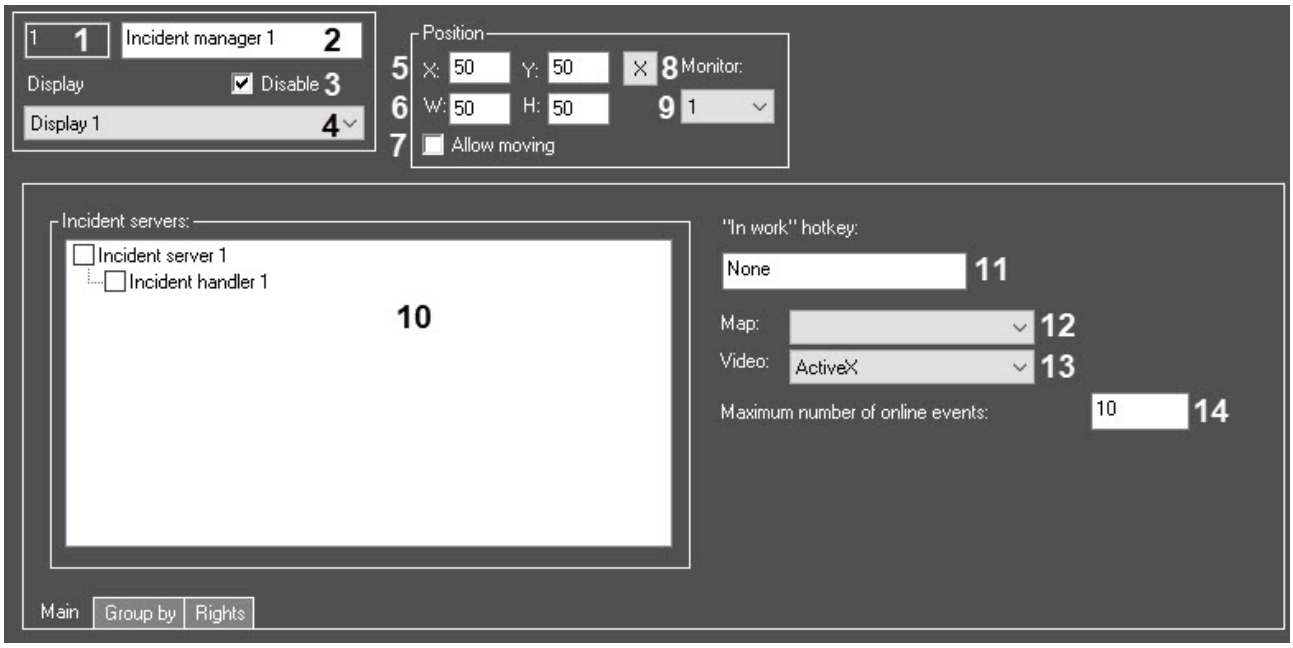
The settings panel of the Incident manager object

On this page:

- General object settings and the Main tab
- The Rights tab

The settings panel for the **Incident manager** interface object is shown in the figures. The description of the setting parameters of the **Incident manager** interface object is given in the corresponding tables.

General object settings and the Main tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Incident manager** object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	Depends on the number of the **Incident manager** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **Incident manager** object in the system	Latin alphabet, Cyrillic, digits, and service characters	Incident manager	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
3	The **Disable** checkbox	Set the checkbox	Disables the **Incident manager** object in the system	Boolean type	Clear	**Set**—the **Incident manager** object is disabled and isn't used **Clear**—the **Incident manager** object is enabled and used
4	The **Display** drop-down list	Select the value from the list	Sets the **Display** parent object for the given **Incident manager** object	Names of the **Display** objects registered in the system	Name of the **Display** parent object	Depends on the number of the **Display** objects in the system
The **Position** group						
5	The **X** field	Enter the value in the field	Sets the X coordinate in the horizontal axis for the upper left corner of the **Incident manager** window	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors
	The **Y** field	Enter the value in the field	Sets the Y coordinate in the vertical axis for the upper left corner of the **Incident manager** window	% of the screen height	50	From 0 to M*100, where M is the number of the installed monitors
6	The **W** field	Enter the value in the field	Sets the width of the **Incident manager** window	% of the screen width	50	From 0 to M*100, where M is the number of the installed monitors
	The **H** field	Enter the value in the field	Sets the height of the **Incident manager** window	% of the screen height	50	From 0 to M*100, where M is the number of the installed monitors

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
7	The **Allow moving** checkbox	Set the checkbox	Allows moving the **Incident manager** window using the mouse	Boolean type	Clear	**Set**—allow moving the **Incident manager** window using the mouse **Clear**—disable moving the **Incident manager** window using the mouse
8	The  button	Click the button	Opens the template window for setting the position and size of the **Incident manager** window	NA	NA	NA
9	The **Monitor** drop-down list	Select the value from the list	Determines the number of the monitor in the system for which the coordinates are specified	Numbers of the monitors in OS	1	From 1 to 16
The **Main** tab						
10	The **Incident servers** tree	Set the checkbox	Sets the **Incident server** and **Incident handler** objects, the events and processing logics from which are displayed in the interface. Set the checkboxes next to the required ones	Boolean type	Clear	**Set**—use the selected incident server or incident handler **Clear**—don't use the selected incident server or incident handler
11	The **"In work" hotkey** field	Enter the value in the field	Sets a hotkey, using which the operator can start processing the event. To set the hotkey, place the mouse cursor in the field and press the required key or key combination on the keyboard	Keyboard keys	NA	All possible keyboard keys and key combinations using Ctrl, Shift, and Alt

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
12	The **Map** drop-down list	Select the value from the list	Sets the **Map** object, which is linked with the incident manager. In the incident manager, the operator can highlight the object on the map from which the event was received	List of **Map** objects available in the system	NA	Depends on the number of the **Map** objects created in the system
13	The **Video** drop-down list	Select the value from the list	Sets the video display mode for archive and live video on event in the incident manager	Available display modes	ActiveX	**ActiveX**—archive opens in a separate window **Monitor**—archive opens on the selected video surveillance monitor
14	The **Maximum number of online events** field	Enter the value in the field	Sets the maximum number of events that can be simultaneously displayed in the interface	Sequence of numbers	10	From 10 to 50000

*Name of the element isn't displayed in the settings panel of the given object

The Group by tab

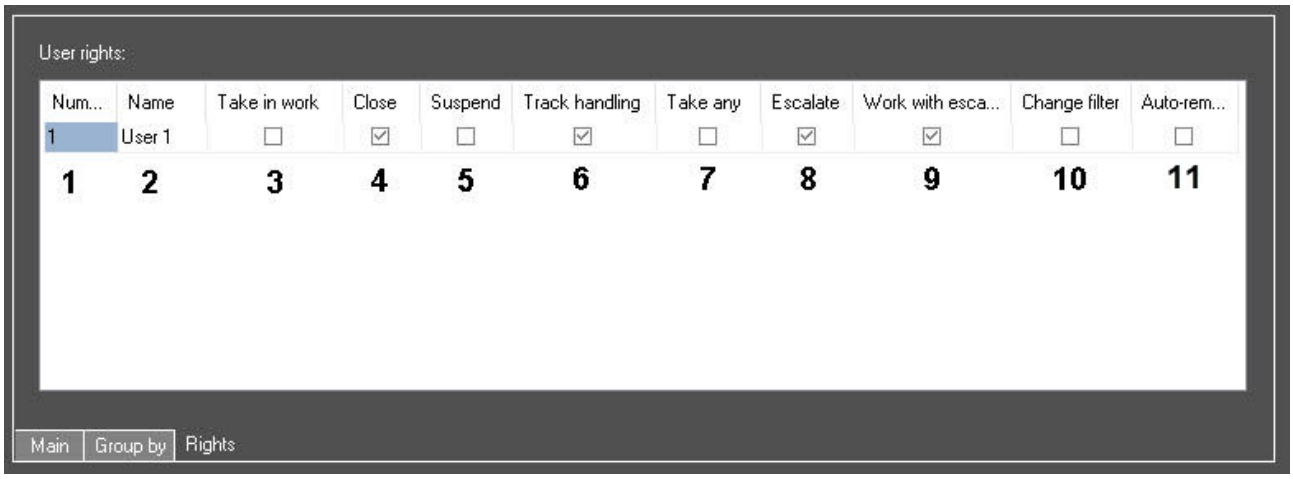


№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **Group by** group						
1	The **Group by** drop-down list	Select the value from the list	Sets the method of events grouping in the incident manager	Available grouping methods	disabled	• **operator's selection**—the operator can select the grouping method in the **Incident manager** interface on its own; • **disabled**—the event grouping is disabled; • **region**—the events are grouped by region; • **event**—the events are grouped by event type; • **object**—the events are grouped by object

2	The **Process whole group** checkbox	Set the checkbox	Sets two options: 1. Blocking the of group events for processing by other operators in case one operator took the event from the group into processing. In this case, the events of the group remain available for processing only by this operator; 2. When one event of the selected group is escalated, all events of this group are escalated too	Boolean type	Clear	**Set**—events of the filtered group are blocked for other operators if one operator has already started processing an event from the group. When one event from a group is escalated, the whole group is escalated **Clear**—events of the filtered group aren't blocked if the operator has already started processing an event from the group. When one event is escalated, the whole group isn't escalated
The **Grouping in list** group						
3	The **Grouping in list** drop-down list	Select the value from the list	Sets the method of events grouping in the event list	Available grouping methods	no grouping	**no grouping**—all events are displayed in the event display window without grouping. If filtering is set, then all events of the selected filter are displayed **by event**—the events are grouped by object type/ object ID/event type/logic ID

4	The **Show only first event in the group. Close others without processing** ch eckbox	Set the checkbox	Sets the event display options within a group	Boolean type	Clear	**Set**—only the first event from the group is displayed, the rest of the events are closed without processing after the first event is processed **Clear**—all events of the group are displayed

The Rights tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **User rights** table						
1	The **Numbe r** drop-down list	Select the value from the list / Automatically	Sets the number of the user for whom the rights must be set. Filled in automatically when selecting a username	Sequence of numbers	NA	Depends on the number of users registered in the system

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **User rights** table						
2	The **Name** drop-down list	Select the value from the list / Automatically	Displays the name of the user (usually first or last name) for whom the rights must be set. Filled in automatically when selecting a user number	Names of the registered users	NA	Depends on the users registered in the system
3	The **Take in work** check box	Set the checkbox	Sets the right for the corresponding user to take events into processing	Boolean type	Clear	**Set**—the user can take events into processing **Clear**—the user cannot take events into processing
4	The **Close** checkbox	Set the checkbox	Sets the right for the corresponding user to close the event without processing	Boolean type	Clear	**Set**—the user can close an event without processing **Clear**—the user cannot close an event without processing
5	The **Suspend** checkbox	Set the checkbox	Sets the right for the corresponding user to suspend the event processing	Boolean type	Clear	**Set**—the user can suspend the event processing **Clear**—the user cannot suspend the event processing

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **User rights** table						
6	The **Track handling** checkbox	Set the checkbox	Sets the right for the corresponding user to see the event handling steps taken by other users	Boolean type	Clear	**Set**—the user sees the event handling steps taken by other users **Clear**—the user doesn't see the event handling steps taken by other users
7	The **Take any** checkbox	Set the checkbox	Sets the right for the corresponding user to take into processing the events with any status	Boolean type	Clear	**Set**—the user can take into processing the event with any status **Clear**—the user cannot take into processing the event with any status
8	The **Escalate** checkbox	Set the checkbox	Sets the right for the corresponding user to escalate the events (escalate them to other users for processing)	Boolean type	Clear	**Set**—the user can escalate events **Clear**—the user cannot escalate events
9	The **Work with escalated** checkbox	Set the checkbox	Sets the right for the corresponding user to process the escalated events	Boolean type	Clear	**Set**—the user can take into processing the escalated events **Clear**—the user cannot take into processing the escalated events

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **User rights** table						
10	The **Change filter** checkbox	Set the checkbox	Sets the right for the corresponding user to apply their own event filters in the interface (see **Filtering events** in Event information)	Boolean type	Clear	**Set**—the user can apply event filters **Clear**—the user cannot apply event filters
11	The **Auto-removal of executors** checkbox	Set the checkbox	If the checkbox is set, then when the corresponding user logs out of the system, this user is automatically cleared in all events. The processing steps already made by the user are saved, and the events in processing change their status to **Suspended**	Boolean type	Clear	**Set**—when logging out of the system, the user is cleared in all events, the processing steps already made by the user are saved **Clear**—when logging out of the system, the user isn't cleared in all events

The Users tab

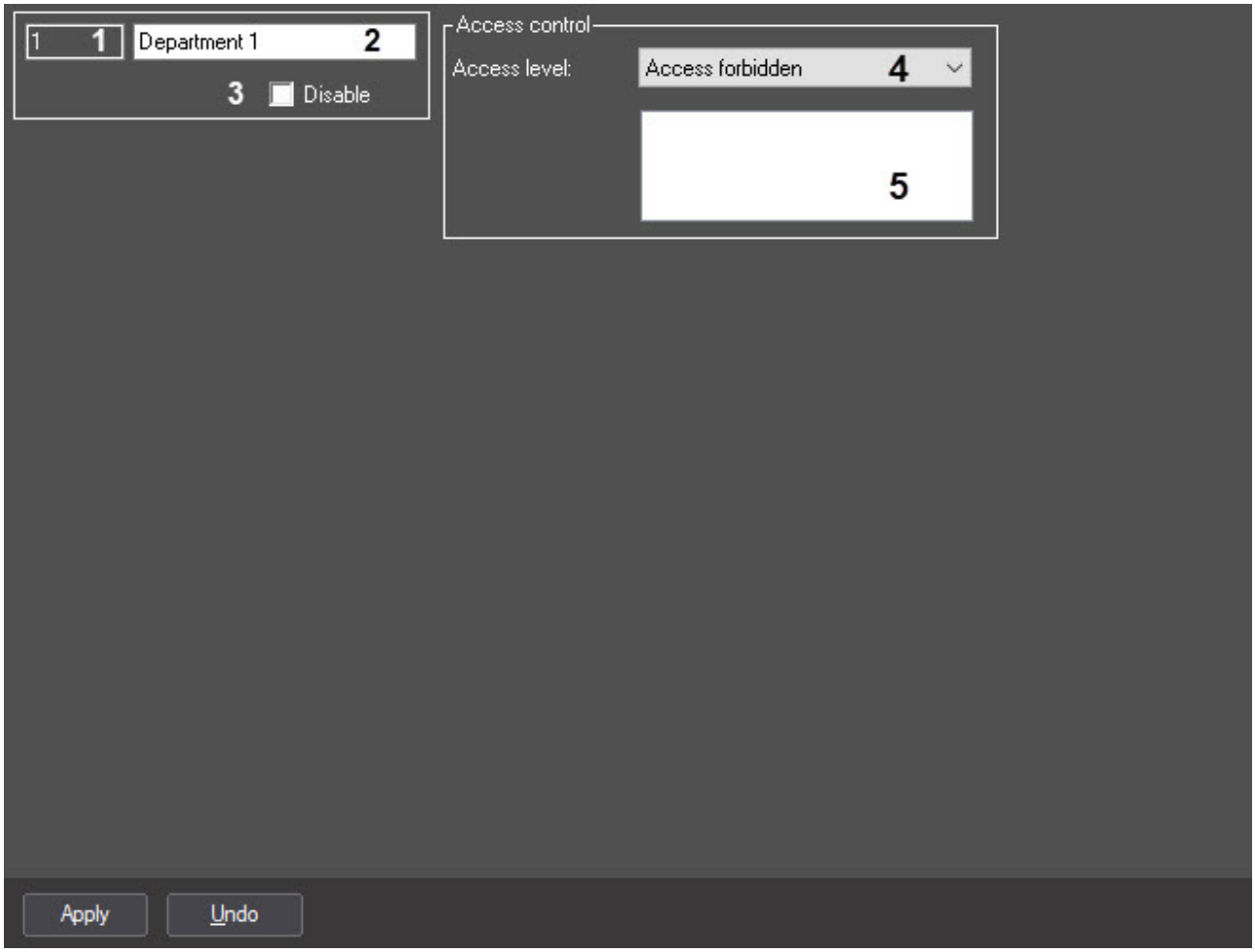
The Users tab components

The **Users** tab has the following elements:

1. The tree of departments and users in them. The settings panel of the **User** and **Department** objects contains the parameters used when configuring *ACFA PSIM (see* Guide for Configuring and Working with the ACFA PSIM Integration Modules*,* Guide for Configuring and Working with the ACFA PSIM Service Modules*).* That is why only the main settings of these objects are described in this document.
2. The list of user rights.

The settings panel of the Department object

The settings panel of the **Department** system object is shown in the figure.



The table describes the setting parameters of the **Department** system object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Department** system object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing numbers, letters, periods, hyphen, dash, and underscore. Depends on the number of the **Department** objects in the system

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
2	The Name* field	Enter the value in the field	Sets the name of the **Department** object in the system	Latin alphabet, Cyrillic, and service characters	Department	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Department** object in the system	Boolean type	Clear	**Set**— the **Department** object is disabled and isn't used **Clear**— the **Department** object is enabled and used
The **Access control** group						
4	The **Access level** drop-down list	Select the value from the list	Sets the access level for the department	Access level types	Access forbidden	• **Access forbidden,** • **Full access,** • Access levels created in the system
5	The Access level* drop-down list	Select the value from the list	Sets the access level for the department	Access level types	NA	Depends on the number of the created **Access level** objects in the system

*Name of the element isn't displayed in the settings panel of the given object

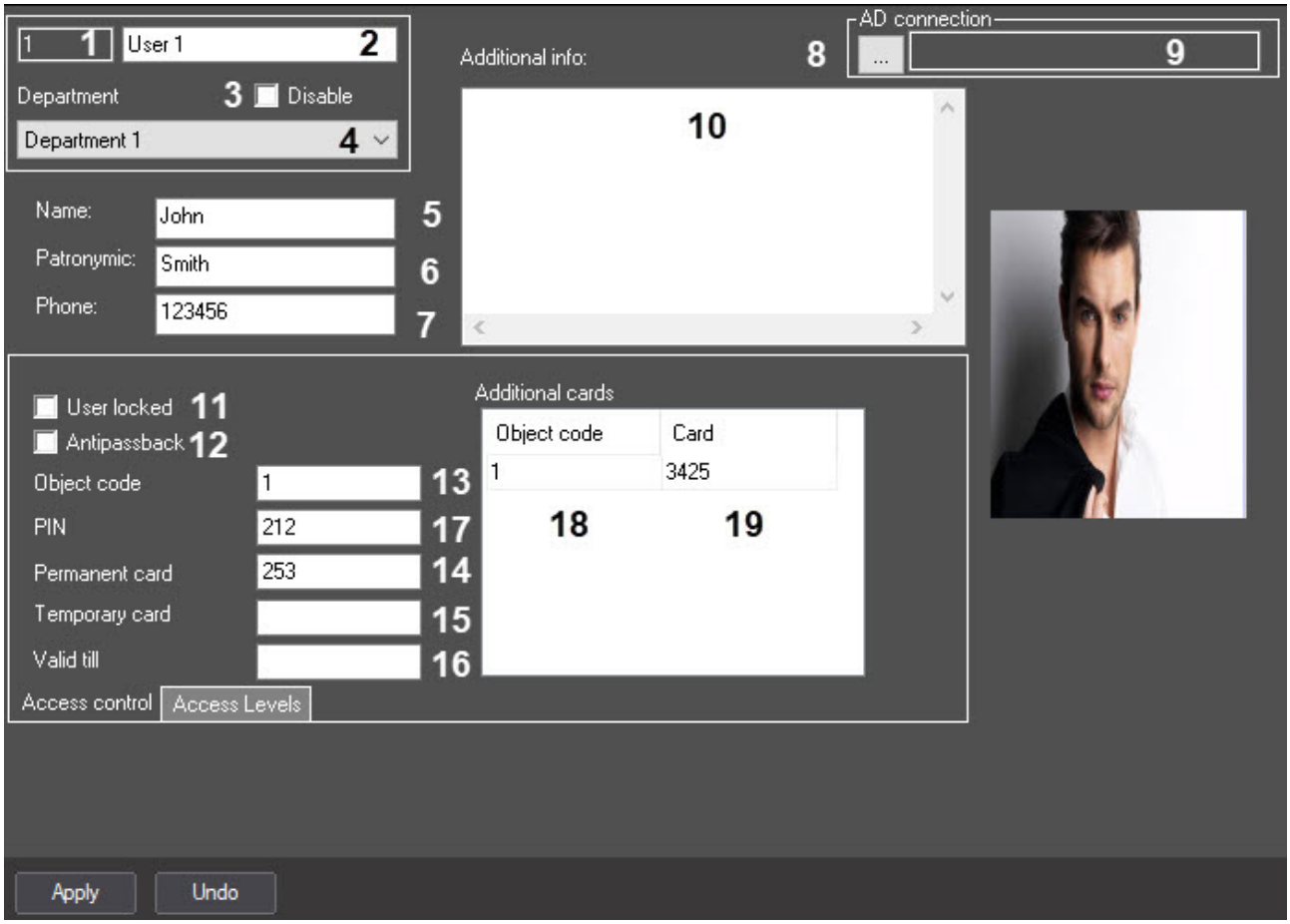
The settings panel of the User object

Attention!

> For full operation of the settings of the **User** object, we recommend installing the *Access Manager* module as part of the *ACFA PSIM* subsystem (for details, see ACFA PSIM Installation Guide. Introduction, Guide for configuring and working with the Access Manager module). If you installed the *Access Manager* module, the values of the fields are synchronized.

You can use the settings of the **User** object to configure the access control system.

The **Access control** tab



The table describes the main setting parameters of the **User** system object.

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **User** system object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing digits, letters, periods, hyphen, dash, and underscores. Depends on the number of the **User** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **User** object in the system (usually the user's last name)	Latin alphabet, Cyrillic, digits, and service characters	User	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60. Do not enter "**rs"** in this field when registering Operator accounts, as this value is used as a default username in *Axxon PSIM Web Report System*
3	The **Disable** checkbox	Set the checkbox	Disables the **User** object in the system	Boolean type	Clear	**Set**— the **User** object is disabled and isn't used **Clear**— the **User** object is enabled and used

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
4	The **Department** drop-down list	Select the value from the list	Sets the **Department** parent object for the given **User** object	Names of the **Department** objects registered in the system	Name of the **Department** parent object	Depends on the number of the **Department** objects in the system
5	The **Name** field	Enter the value in the field	Sets the user's name	Latin alphabet, Cyrillic, and service characters	NA	A line containing a sequence of any characters
6	The **Patronymic** field	Enter the value in the field	Sets the user's patronymic	Latin alphabet, Cyrillic, and service characters	NA	A line containing a sequence of any characters
7	The **Phone** field	Enter the value in the field	Sets the user's phone number for the two-factor authentication	Phone number	NA	+ [country code] [city code] [subscriber number] For example, +11234567890
8	The **AD connection** button	Click the button	Opens a window to configure the connection between the *Axxon PSIM* user and the Windows Active Directory user	NA	NA	NA
9	The **AD connection** field	Automatically	Displays the Active Directory user identifier connected with the *Axxon PSIM* user	Latin alphabet and service characters	NA	Depends on the values of Active Directory identifiers

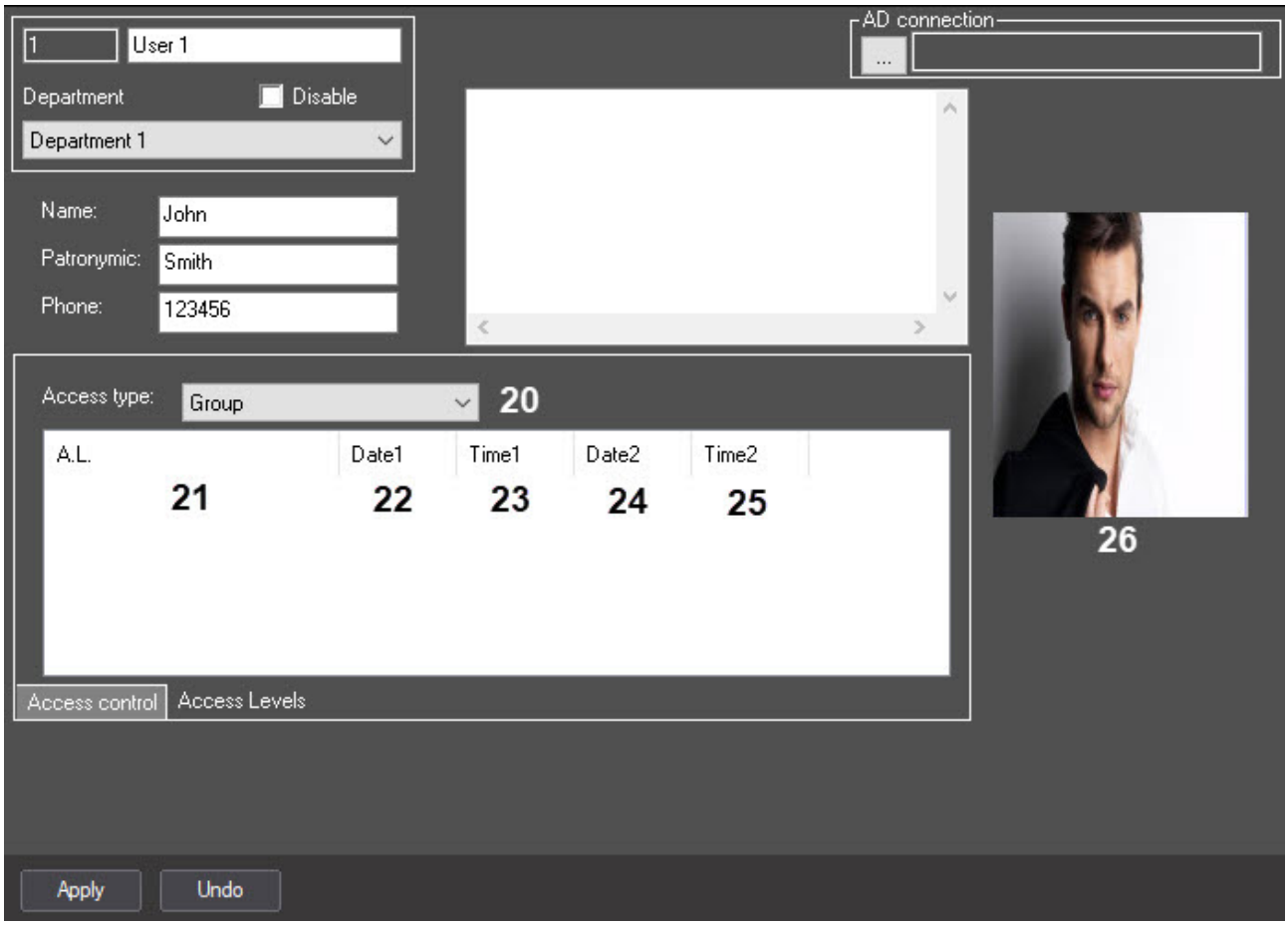
№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
10	The **Additional info** field	Enter the value in the field	Specifies additional information about the user. When you hover the mouse cursor over the user's photo, a pop-up window with the full content of this field is displayed	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters
11	The **User locked** checkbox	Set the checkbox	Enables the function of locking the **User** object in the system	Boolean type	Clear	**Set**— the **User** object is locked **Clear**— the **User** object is active
12	The **Antipassback** checkbox	Set the checkbox	Enables the function of antipassback	Boolean type	Clear. *Note. If you have the Access Manager module installed, the default value will depend on the module settings (see* Configuring the rights to manage objects in Access Manager*)*	**Set**— antipassback is prohibited **Clear**— antipassback is allowed

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
13	The **Object code** checkbox	Enter the value in the field	Sets the object code of the access control	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters, letters, and digits *Note. If you have the Access Manager module installed, the value range will depend on the module settings (see Configuring access cards)*
14	The **Permanent card** field	Enter the value in the field	Sets the number of the permanent card of the **User** object	Latin alphabet, Cyrillic, digits, and service characters	NA	
15	The **Temporary card** field	Enter the value in the field	Sets the number of the temporary card of the **User** object	Latin alphabet, Cyrillic, digits, and service characters	NA	
16	The **Valid till** field	Enter the value in the field	Sets the date after which the validity of the temporary card of the **User** object is limited	Digits and service characters. Date in the format: • DD mmm YYYY; • HH:MM:SS	NA	NA
17	The **PIN** field	Enter the value in the field	Sets the PIN code of the user card	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters. *Note. If you have the Access Manager module installed, the value range will depend on the module settings (see Configuring the user PIN code)*

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
The **Additional cards** table						
18	The **Object code** column	Enter the value in the column	Sets an additional object code of access control	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters. *Note. If you have the Access Manager module installed, the value range will depend on the module settings (see Configuring access cards)*
19	The **Card** column	Enter the value in the column	Specifies an additional card code of access control	Latin alphabet, Cyrillic, digits, and service characters	NA	

*The name of the element isn't displayed on the settings panel of the object

The **Access Levels** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
20	The **Access type** drop-down list	Select the value from the list	Sets the access level for the user	List of access types	Group	• **Group**; • **Access forbidden**; • **Full access**; • **List**. If you set the **Group** access level, the user is assigned the access level of the department to which they belong

21	The **A.L.**** drop-down list	Select the value from the list	Sets the user's access level	List of access types	NA	NA
22	The **Date1**** field	Automatically	Displays the start date of the temporary access level. Format: DD.MM.YYYY	Digits and service characters except: < | >	NA	NA
23	The **Time1**** field	Automatically	Displays the start time of the temporary access level. Format: HH:MM:SS	Digits and service characters except: < | >	NA	NA
24	The **Date2**** field	Automatically	Displays the end date of the temporary access level. Format: DD.MM.YYYY	Digits and service characters except: < | >	NA	NA
25	The **Time2**** field	Automatically	Displays the end time of the temporary access level. Format: HH:MM:SS	Digits and service characters except: < | >	NA	NA
26	Photo area*	Automatically	Displays a photo of the **User** object	Graphical representation	NA	NA

Note

Using the *Access Manager* module as part of the *ACFA PSIM* subsystem (see Guide for configuring and working with the Access Manager module), you can specify the photo displayed on the settings panel of the **User** object. You can also add or change the user's photo using the *Face recognition and search* module that is a part of *Face PSIM* (for details on how to configure and work with this module, see *Face PSIM* documentation in the AxxonSoft documentation repository).

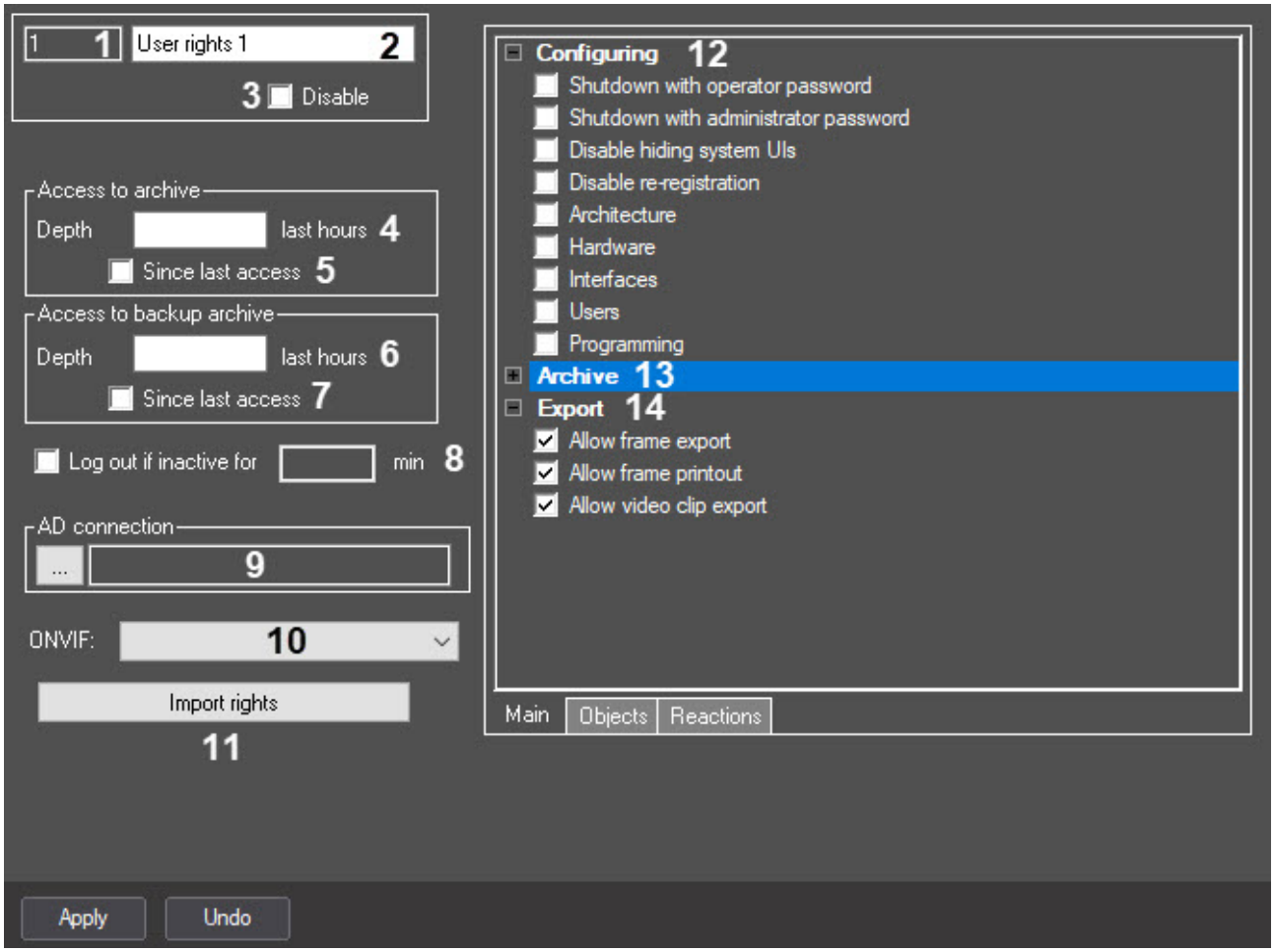
*The name of the element isn't displayed on the settings panel of the object.

** To change these parameters, you can use the *Access Manager* module as part of the *ACFA PSIM* subsystem (see Assigning a temporary access level to a user).

The settings panel of the User rights object

The settings panel of the **User rights** system object is shown in the figure.

The **Main** tab



The table describes the setting parameters of the **User rights** system object.

№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range

1	The Identification number* field	Automatically	Displays the identification number of the **User rights** system object in the system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing a sequence of numbers, letters, periods, hyphens, dash, and underscores. Depends on the number of the **User rights** objects in the system
2	The Name* field	Enter the value in the field	Sets the name of the **User rights** object in the system	Latin alphabet, Cyrillic, digits, and service characters	User rights	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters —from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **User rights** object in the system	Boolean type	Clear	**Set**—the **User rights** object is disabled and isn't used **Clear**—the **User rights** object is enabled and used
The **Access to archive** group						
4	The **Depth __ last hours** field	Enter the value in the field	Sets the number of the last hours of the video archive that can be viewed	Non-negative integer	NA	>=0 The **0** value means that you aren't allowed to view the archive
5	The **Since last access** checkbox	Set the checkbox	Sets the time to determine the archive depth	Boolean type	Clear	**Set**—the number of hours available for viewing are counted from the moment the user logged in **Clear**—the number of hours available for viewing are counted from the current moment

The **Access to backup archive** group						
6	The **Depth __ last hours** field	Enter the value in the field	Sets the number of the last hours of the backup archive that can be viewed	Non-negative integer	NA	>=0 The **0** value means that you aren't allowed to view the backup archive
7	The **Since last access** checkbox	Set the checkbox	Sets the time to determine the backup archive depth	Boolean type	Clear	**Set**—the number of hours available for viewing are counted from the moment the user logged in **Clear**—the number of hours available for viewing are counted from the current moment
Out of the group						
8	The **Log out if inactive for __ minutes** checkbox	Set the checkbox	Enables the automatic system shutdown if the operator is inactive during the specified period of time	Boolean type, integer number	Clear	**Set**—when the operator is inactive for the specified time period, the session is automatically terminated. To continue operation, log in the system, specifying the username and password **Clear**—session isn't automatically terminated when the operator is inactive
	The **Log out if inactive for __ minutes** field	Enter the value in the field	Sets the period of operator inactivity in minutes after which you must log out the system	Non-negative integer	Inactive	>=0

9	The **AD connection** button	Click the button	Opens the window to configure the connection between user rights and Windows Active Directory groups	NA	NA	NA
	The **AD connection** field	Automatically	Displays the ID of the Active Directory user bound to the *Axxon PSIM* user	Latin alphabet and service characters	NA	Depends on the ID values in Active Directory
10	The **ONVIF** drop-down list	Select the value from the list	Matches the *Axxon PSIM* user rights with ONVIF rights according to the specification	Supported types of rights	NA	• **Administrator**, • **Operator**, • **User**
11	The **Import rights** button	Click the button	Imports the settings of the user rights from other **User rights** objects	NA	NA	NA
The **Main** tab						
The **Configuring** group						
12	The **Shutdown with operator password** checkbox	Set the checkbox	Allows shutting down *Axxon PSIM* using the password of the currently authorized operator	Boolean type	Clear	**Set**—operator with these rights can shut down *Axxon PSIM* **Clear**—operator with these rights is forbidden to shut down *Axxon PSIM*

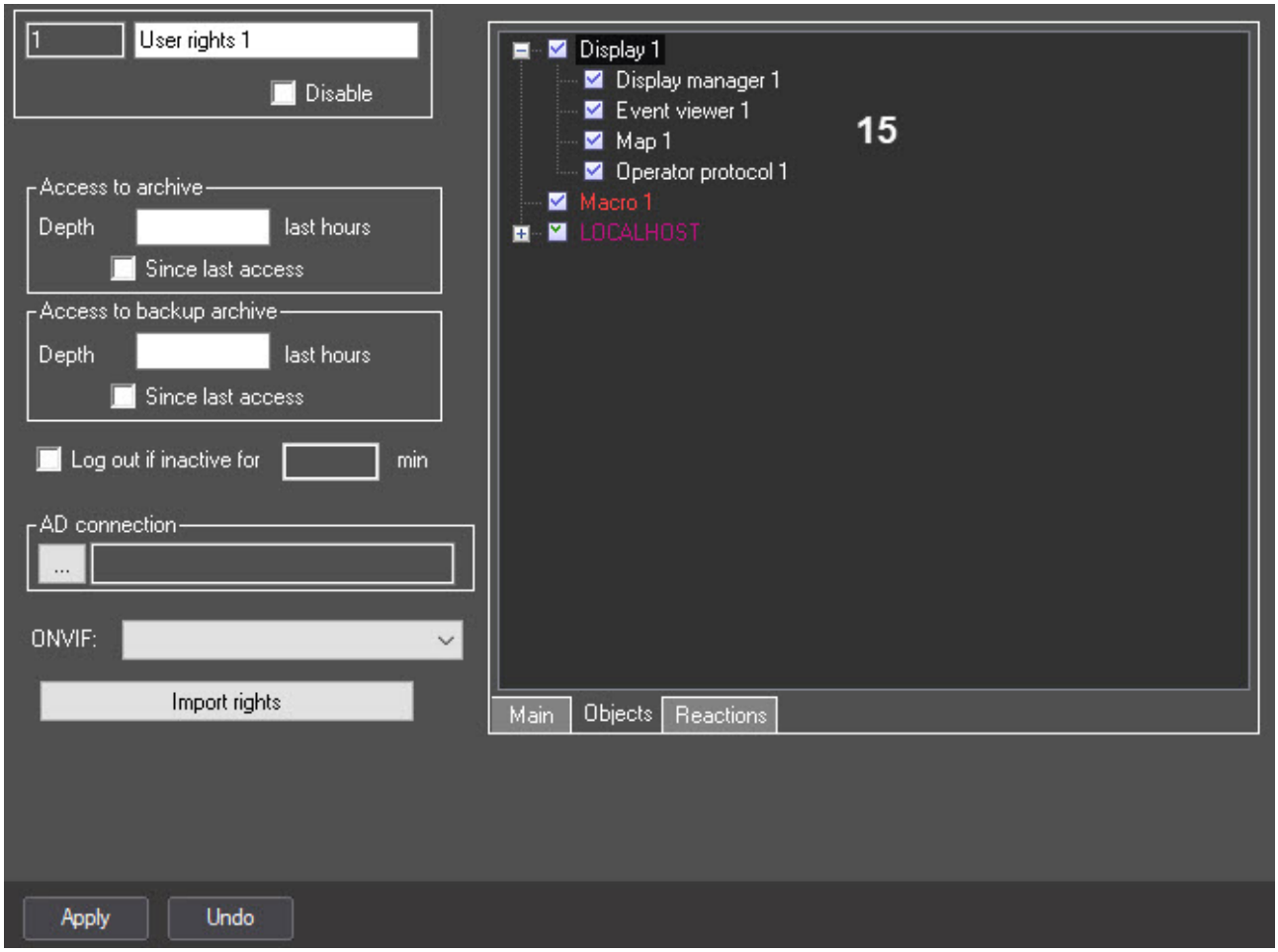
	The **Shutdown with administrator password** checkbox	Set the checkbox	Allows shutting down *Axxon PSIM* using the password of the administrator	Boolean type	Clear	**Set**—*Axxon PSIM* shuts down only when the administrator password is used **Clear**—you can shut down *Axxon PSIM* in other ways
	The **Disable hiding system UIs** checkbox	Set the checkbox	Allows hiding windows in *Axxon PSIM*	Boolean type	Clear	**Set**—hiding interface windows is forbidden **Clear**—hiding interface windows is allowed
	The **Disable re-registration** checkbox	Set the checkbox	Allows changing the user in *Axxon PSIM*	Boolean type	Clear	**Set**—user cannot be changed **Clear**—user can be changed
	The group of **Tabs*** checkboxes	Set the checkbox	Specifies the tabs of the **System settings** window to which the access is allowed if the user is assigned these rights	Boolean type	Clear	The following values are available for each tab: **Set**—operator is allowed to manage objects located on the tab **Clear**—operator is forbidden to access the tab
The **Archive** group						
13	The **Allow removing video archive files** checkbox	Set the checkbox	Removes video archive files from the video surveillance monitor interface	Boolean type	Clear	**Set**—the **Remove** item is available in the monitor functional menu **Clear**—you cannot remove video from the video surveillance monitor interface

The **Allow protecting files from overwriting** checkbox	Set the checkbox	Allows protecting files from being overwritten	Boolean type	Clear	**Set**—operator added to these rights can protect archive records from loop recording **Clear**—operator cannot protect archive records from loop recording
The **Allow removing file protection** checkbox	Set the checkbox	Allows removing protection from files that are protected from being overwritten	Boolean type	Clear	**Set**—operator added to these rights can remove protection from files that are protected from being overwritten **Clear**—operator cannot remove protection from files that are protected from being overwritten
The **Allow viewing hidden archive** checkbox	Set the checkbox	Allows viewing the hidden archive	Boolean type	Clear	**Set**—operator added to these rights can view the hidden archive **Clear**—operator cannot view the hidden archive
The **Allow checking "hidden" archive** checkbox	Set the checkbox	Allows hiding the archive	Boolean type	Clear	**Set**—operator added to these rights can hide the archive **Clear**—operator cannot hide the archive
The **Allow unchecking "hidden" archive** checkbox	Set the checkbox	Allows unhiding the archive	Boolean type	Clear	**Set**—operator added to these rights can unhide the archive **Clear**—operator cannot unhide the archive

The **Allow hiding screen before and after inverted mask** checkbox	Set the checkbox	Allows hiding the screen before and after the inverted mask	Boolean type	Clear	**Set**—operator added to these rights can hide the screen before and after the inverted mask **Clear**—operator cannot hide the screen before and after the inverted mask
The **Allow showing live video after creating inverted mask** checkbox	Set the checkbox	Allows viewing live video before and after the inverted mask	Boolean type	Clear	**Set**—operator added to these rights can view live video before and after the inverted mask **Clear**—operator cannot view live video before and after the inverted mask
The **Allow printing and saving of archive files** checkbox	Set the checkbox	Determines the display of print, export, and zoom buttons in the video surveillance monitor in the archive viewing mode	Boolean type	Clear	**Set**—operator added to these rights can see buttons for printing, zooming, and exporting archive files in the monitor **Clear**—the buttons for printing, zooming, and exporting archive files are hidden for the operator
The **Allow VMDA filters use** checkbox	Set the checkbox	Allows saving and loading archive search templates when working with the video surveillance monitor	Boolean type	Clear	**Set**—operator added to these rights will have access to the **Save the template** and **Load the template** menu sub-items of the **Search in the archive** item in the monitor **Clear**—the **Save the template** and **Load the template** menu sub-items are hidden fo the operator

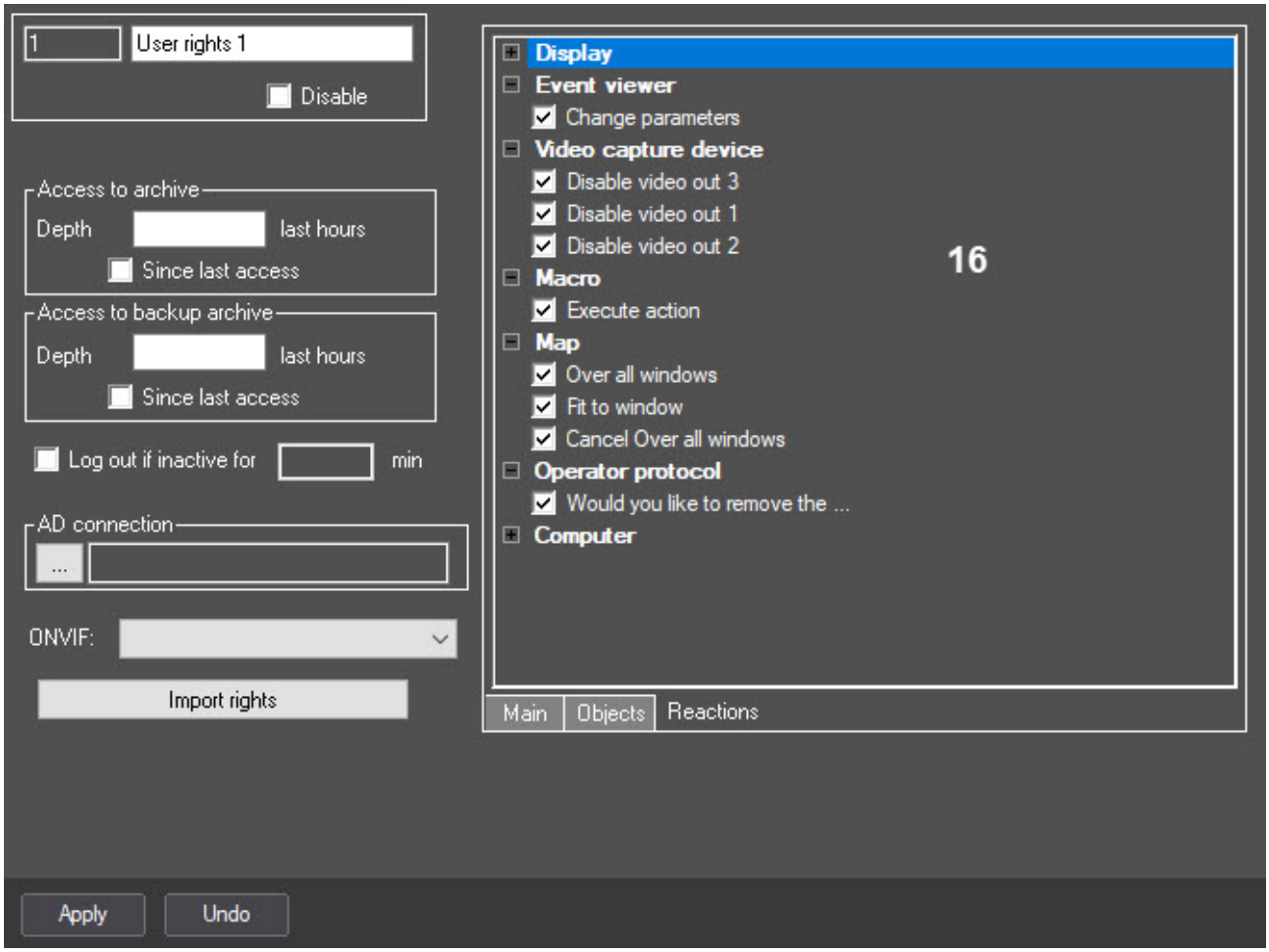
The **Export** group						
14	The **Allow frame export** checkbox	Set the checkbox	Allows exporting the archive frames	Boolean type	Set	**Set**—operator added to these rights can export frames **Clear**—operator cannot export frames
	The **Allow frame printout** checkbox	Set the checkbox	Allows printing archive frames	Boolean type	Set	**Set**—operator added to these rights can print frames **Clear**—operator cannot print frames
	The **Allow video clip export** checkbox	Set the checkbox	Allows exporting video recordings	Boolean type	Set	**Set**—operator added to these rights can export video recordings **Clear**—operator cannot export video recordings

The **Objects** tab



№	Parameter	Method of setting the parameter value	Parameter description	Represent ation	Default value	Value range
15	The list of system objects*	Set the checkbox	Displays the objects created in the system and allows setting rights for administration and monitoring	NA	NA	See Restriction of administration, control, and monitoring rights

The **Reactions** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
16	The list of reactions*	Set the checkbox	Sets the list of reactions that the operator can run	Boolean type	Set	**Set**—operator can run the reaction **Clear**—operator cannot run the reaction

* Name of the element isn't displayed on the settings panel

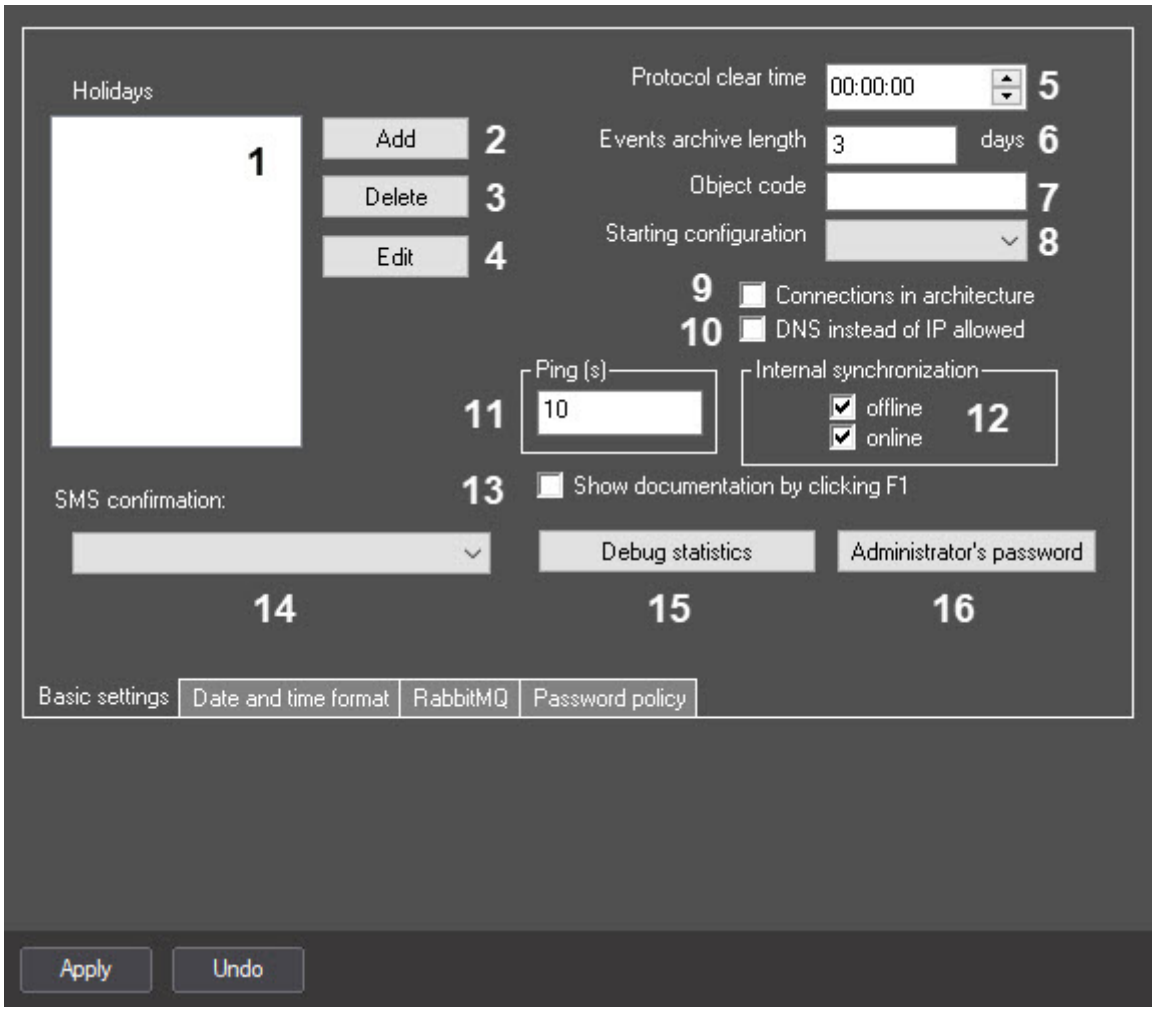
The Programming tab

The settings panel of the Security zone object

The **Security zone** object is used for the general configuration of *Axxon PSIM*.

The settings panel of the **Security zone** object is shown in the figures with tabs. The tables describe the settings.

The **Basic settings** tab:



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Holidays** field	Automatically	Displays the list of calendar days that are determined as holidays in *Axxon PSIM*	List of dates. Date format: DD-MM-YY	NA	NA
2	The **Add** button	Click the button	Opens the **Calendar** window to select the date of a new holiday	NA	NA	NA

3	The **Delete** button	Click the button	Deletes the selected holiday date from the holidays list	NA	NA	NA
4	The **Edit** but ton	Click the button	Opens the **Calendar** win dow to change the date of the selected holiday in the list	NA	NA	NA
5	The **Protocol clear time** field	Enter the value in the field using the **up** and **down** buttons	Sets the time of the day at which to start cleaning up the event viewer database according to the **Events archive length** parameter	HH:MM:SS	Current system time at the moment of opening the object settings panel	From 00:00:00 to 23:59:59
6	The **Events archive length days** field	Enter the value in the field	Sets the number of days to store information about the events registered by *Axxon PSIM* and recorded into both the event viewer and the incident server. This parameter affects all computers in a distributed system	Days	3	>=1
7	The **Object code** field	Enter the value in the field	Sets the number of the access control card, which is automatically displayed in the settings panel of the **User** object when the object is created in the **Object code** field	Sequence of numbers	NA	More than 1

8	The **Starting configuration** drop-down list	Select the value from the list	Sets the macro, which runs automatically when starting *Axxon PSIM*	Names of the **Macro** objects registered in the system	NA	Depends on the number of the **Macro** objects created in the video surveillance system with distributed architecture
9	The **Connections in architecture** checkbox	Set the checkbox	Sets the computers with which the **Computer** object must exchange the data about the system configuration parameters: with all computers in the video surveillance system with distributed architecture or only with the **Computer** object on the basis of which the given object is created	Boolean type	Clear	**Set**—when you create a new computer, the **Connection** checkboxes on the **Architecture** tab are set for all computers in the architecture **Clear**—when you create a new computer, the **Connection** checkbox on the **Architecture** tab is set only for the computer from which this new object is created

10	The **DNS instead of IP allowed** checkbox	Set the checkbox	Sets the address of the server/ Remote Administrator's workstation/ Remote client on the **Architecture** tab as DNS name, not only IP address	Boolean type	Clear	**Set**—when you configure the interaction of the computers in the distributed system, you can specify the DNS name of the server/Remote Administrator's workstation/ Remote client instead of its IP address on the **Architecture** tab. At the same time, the verification of the entered address is disabled **Clear**—when you configure the interaction of the computers in the distributed system, specify the IP address of the server/Remote Administrator's workstation/ Remote client on the **Architecture** tab

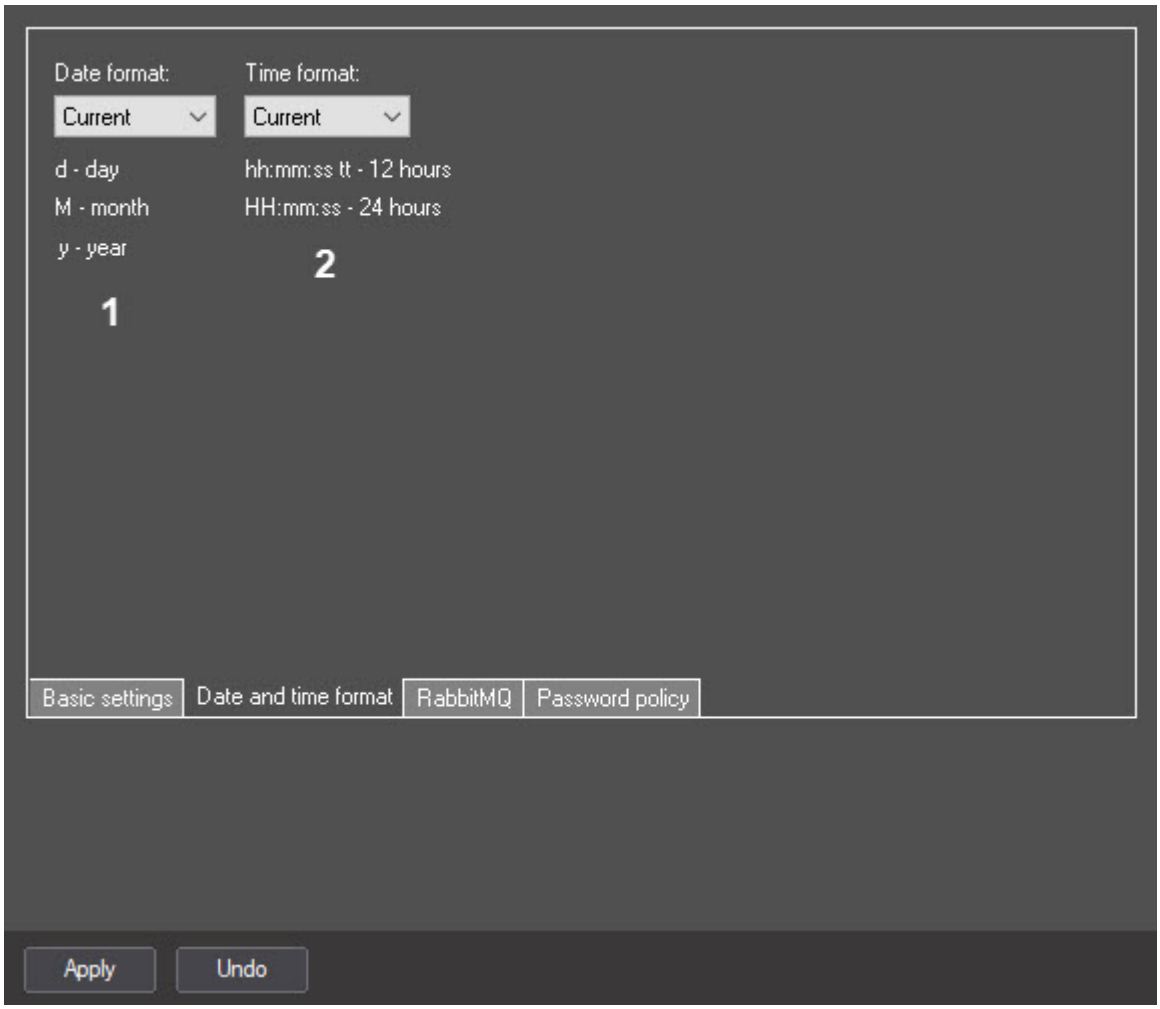
11	The **Ping (s)** field	Enter the value in the field	Sets the check period for the computer connection to the server *Note. For servers, this value is saved automatically in the CheckPingPeriod parameter. For the Remote client, you can specify the value manually in the CheckPingPeriod parameter (see Registry keys reference guide)*	Sequence of numbers	10	>=1
12	The **Internal synchronization: offline** checkbox	Set the checkbox	Enables the offline synchronization of events	Boolean type	Set	**Set**—the offline synchronization is enabled. When the computer is reconnected, it gets all events for the no-connection time period **Clear**—the offline synchronization is disabled. When the computer is reconnected, it doesn't get the events for the no-connection time period

	The **Internal synchronization: online** checkbox	Set the checkbox	Enables the online synchronization of events	Boolean type	Set	**Set**—the online synchronization is enabled. Events are sent right after they occur according to the configuration parameters of the computer interaction in the distributed system **Clear**—the online synchronization is disabled. Events aren't sent
13	The **Show documentation by clicking F1** checkbox	Set the checkbox	Enables opening documentation in the pdf format by pressing the F1 button when *Axxon PSIM* is running. The Administrator's Guide section is opened on the server and the Remote Administrator's workstation; the Operator's Guide section is opened on the Remote client	Boolean type	Clear	**Set**—the documentation is displayed by pressing the F1 button **Clear**—the feature of displaying the documentation by pressing the F1 button is disabled
14	The **SMS confirmation** drop-down list	Select the value from the list	Sets the **Short Message** object for the two-factor authentication—see Configuring two-factor authentication	Names of the **Short Message** objects registered in the system	NA	Depends on the number of the **Short Message** objects created in the system
15	The **Debug statistics** button	Click the button	Opens the window with the events queue statistics	NA	NA	NA

16	The **Administrator's password** button	Click the button	Opens the **Set password** window used for changing the administrator's password	NA	NA	NA

*Name of the element isn't displayed in the settings panel of the given object

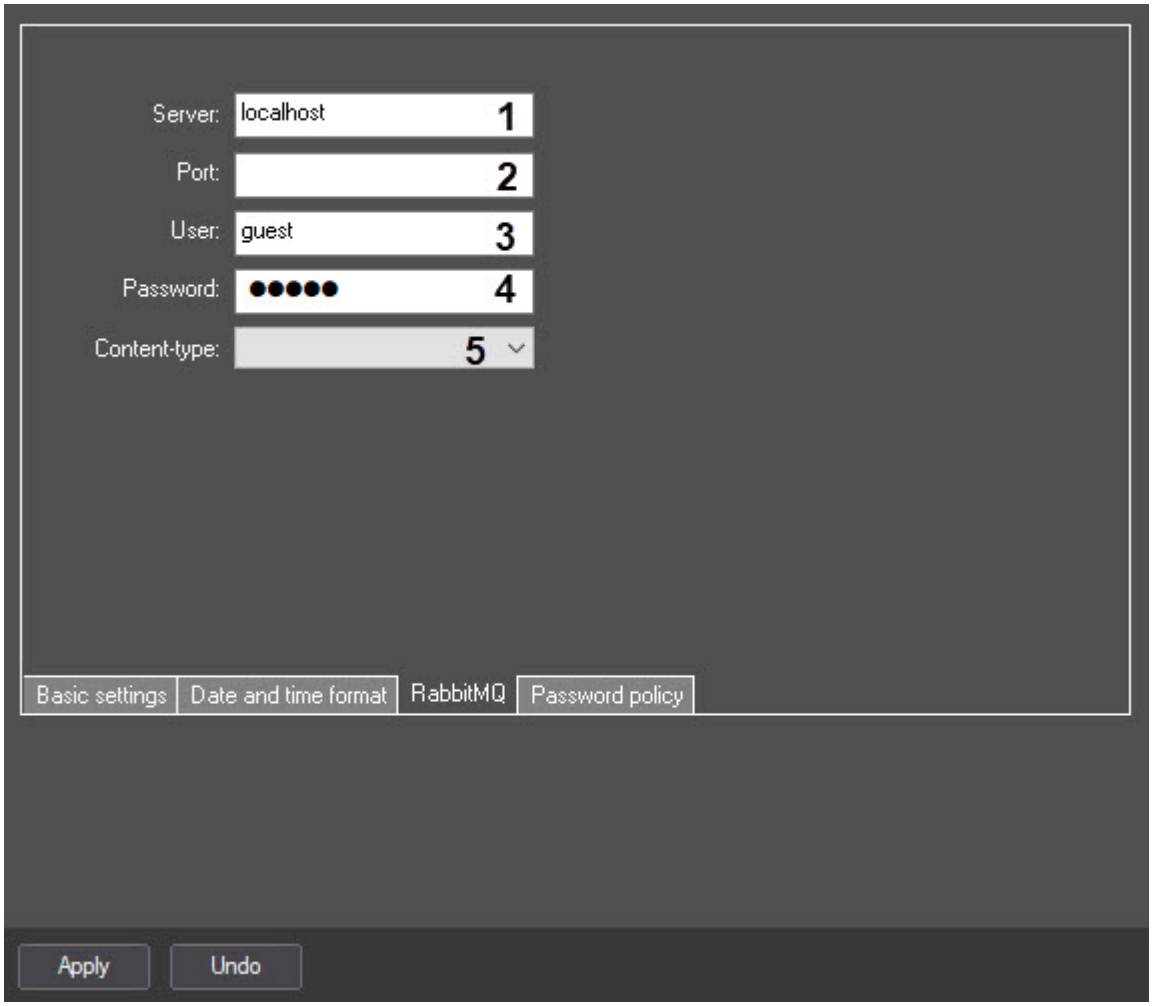
The **Date and time format** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range

1	The **Date format** drop-down list	Select the value from the list	Sets the format of the date that is displayed in the incident manager, operator protocol, and video surveillance monitor in the current date field and when you work with the archive	List of types of date format	Current	• **Current**—the date format set in the OS; • **dd/MM/yy**—the day/month/year format; • **MM/dd/yy**—the month/day/year format; • **yyyy-MM-dd**—the year/month/day format
2	The **Time format** drop-down list	Select the value from the list	Sets the format of the time that is displayed in the incident manager, operator protocol, and video surveillance monitor in the current date field and when you work with the archive	List of types of time format	Current	• **Current**—the time format set in the OS; • **HH:mm:ss**—24-hour format; • **hh:mm:ss** tt—12-hour format

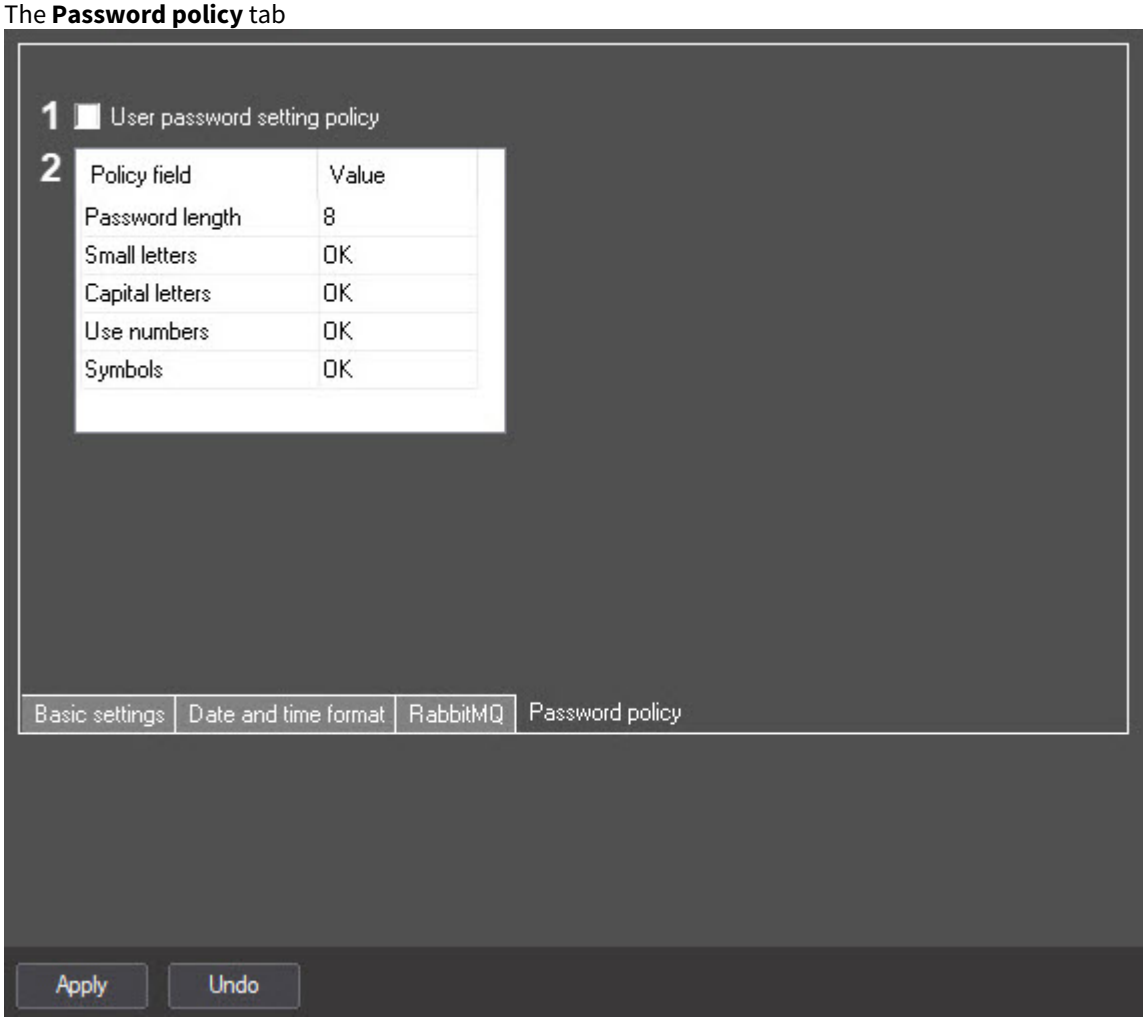
The **RabbitMQ** tab



№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **Server** field	Enter the value in the field	Sets the RabbitMQ server address	Latin alphabet, digits, and service characters	localhost	Server IP address or name
2	The **Port** field	Enter the value in the field	Sets the RabbitMQ server port	Non-negative integers	NA	From 0 to 65535 If the port is 0 or not specified, RabbitMQ won't run

3	The **User** field	Enter the value in the field	Sets the RabbitMQ server username	Latin alphabet, digits, and service characters	guest	Depends on the registered RabbitMQ users
4	The **Password** field	Enter the value in the field	Sets the RabbitMQ server user password	Latin alphabet, digits, and service characters	guest	Depends on the registered RabbitMQ users
5	The **Content-type** drop-down list	Select the value from the list	Sets the type of the sent/ received content	Available types of content	plain/text	• **application/json**— a message in JSON format is sent; • **plain/text**—The *Axxon PSIM* event is sent in the "TYPE|ID|EVENT" format

The **Password policy** tab



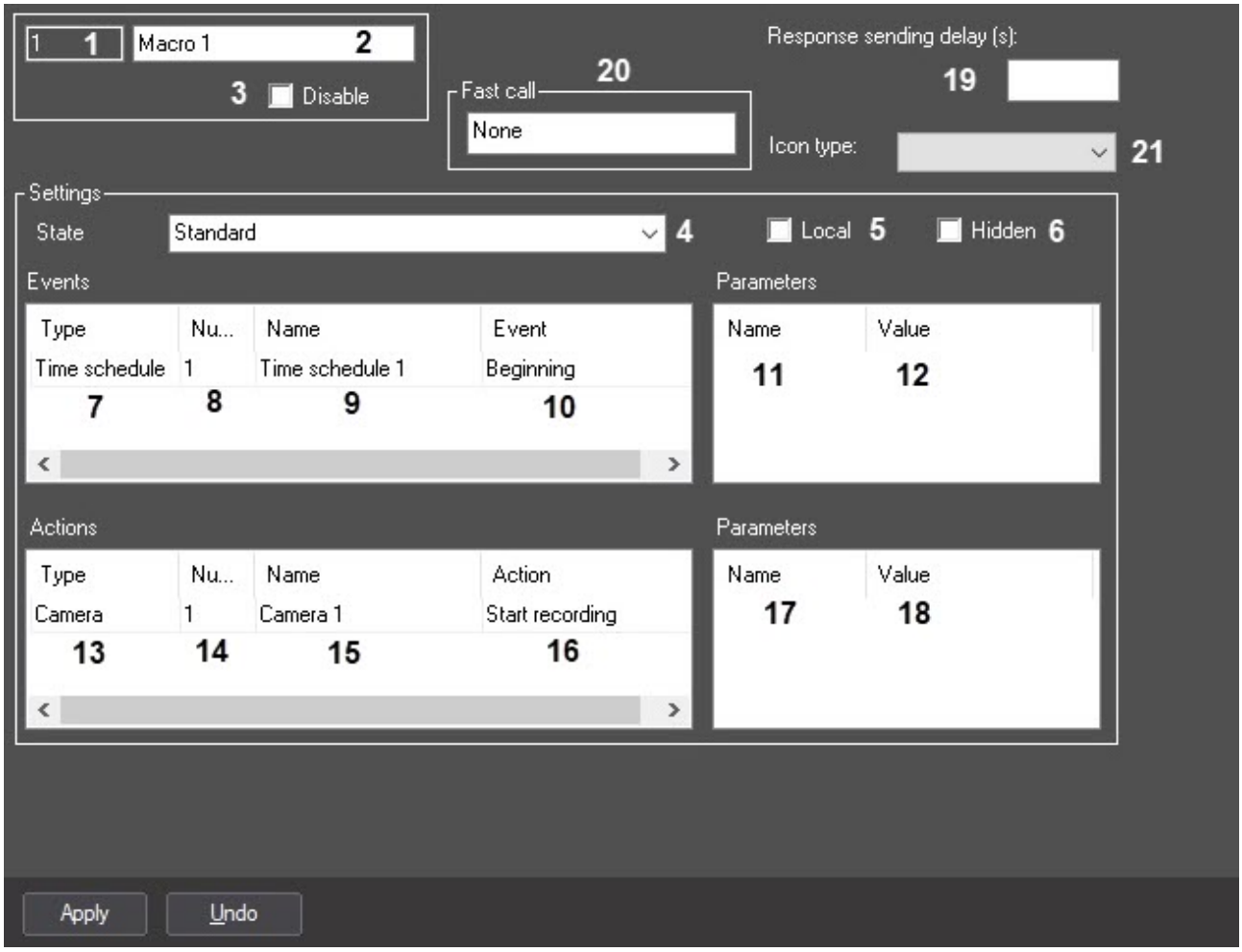
№	Parameter	Method of setting the parameter value	Parameter description	Representation	Default value	Value range
1	The **User password setting policy** checkbox	Set the checkbox	Changes the user password settings	Boolean type	Clear	**Set**—you can change the user password settings **Clear**—you cannot change the user password settings

The User password policy table* *Note. The User password policy table* is active only after you set the **User password setting policy** checkbox*						
2	The **Password length** field	Enter the value in the field	Sets the password length	Sequence of numbers	8	>0
	The **Small letters** drop-down list	Select the value from the list	Uses small letters when creating a password	Boolean type	OK	**OK**—you can use small letters **No**—you cannot use small letters
	The **Capital letters** drop-down list	Select the value from the list	Uses capital letters when creating a password	Boolean type	OK	**OK**—you can use capital letters **No**—you cannot use capital letters
	The **Use numbers** drop-down list	Select the value from the list	Uses numbers when creating a password	Boolean type	OK	**OK**—you can use numbers **No**—you cannot use numbers
	The **Symbols** drop-down list	Select the value from the list	Uses symbols when creating a password	Boolean type	OK	**OK**—you can use symbols **No**—you cannot use symbols

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Macro object

The **Macro** object is used to support the automatic execution of a predefined sequence of commands upon the occurrence of certain events registered by *Axxon PSIM.* The settings panel of the **Macro** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Macro** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Macro** object in the video surveillance system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing numbers, letters, periods, hyphen, dash, and underscore Depends on the number of the **Macro** objects in the video surveillance system with distributed architecture

2	The Name* field	Enter the value in the field	Sets the name of the **Macro** object	Latin alphabet, Cyrillic, digits, and service characters	Macro	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Macro** object	Boolean type	Clear	**Set**— the **Macro** object is disabled and isn't used **Clear**— the **Macro** object is enabled and used
The **Settings** group						
4	The **State** drop-down list	Enter the value in the field	Sets the message displayed in the information board of the main menu of *Axxon PSIM* when the given macro is running	Latin alphabet, Cyrillic, digits, and service characters	NA	**Standard**—no message is displayed in the information board of the main menu of *Axxon PSIM.* A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60

5	The **Local** checkbox	Set the checkbox	Sets the computers, which will execute the given macro (on all computers of the video surveillance system with distributed architecture or only on the given computer). *Note. This checkbox doesn't apply for hiding and showing reactions of any Display. Regardless of the checkbox, when calling from the Server/RAW, the reactions are executed on the Server/RAW and all connected Clients; when calling on the Client, the reactions are executed only on the Client*	Boolean type	Clear	**Set**—the macro is executed only on the given computer **Clear**—the given macro is executed on all computers of the video surveillance system with distributed architecture
6	The **Hidden** checkbox	Set the checkbox	Determines whether the name of this macro is displayed in the main control panel of *Axxon PSIM* to be started manually	Boolean type	Clear	**Set**—the name of the macro isn't displayed in the main control panel of *Axxon PSIM* **Clear**—the name of the macro is displayed in the main control panel of *Axxon PSIM*
The **Events** subgroup						
7	The **Type** drop-down list	Select the value from the list	Sets the type of objects in the video surveillance system with distributed architecture, in which the event registration triggers a macro	Types of objects registered in the system	NA	Depends on the total number of the types of objects created in the video surveillance system with distributed architecture

8	The **Number** drop-down list	Select the value from the list	Sets the identification number of the object in the video surveillance system with distributed architecture, in which the event registration triggers a macro	Sequence of numbers	NA	Depends on the total number of the objects of the specified type created in the video surveillance system with distributed architecture
9	The **Name** field	Automatically	Displays the name of the selected object in the video surveillance system with distributed architecture	Names of the objects of the specified type registered in the system	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60
10	The **Event** drop-down list	Select the value from the list	Sets the event that triggers a macro for the specified object	Names of the events available for the given type of objects	NA	A list of events is created individually for each type of object
The **Parameters** subgroup *Note. The given subgroup isn't active for all types of objects*						
11	The **Name** field	Automatically	Sets the name of the additional parameter for the selected type of object in the **Events** subgroup	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60

12	The **Value** field	Enter the value in the field	Sets the value for the parameter in the **Name** column	Latin alphabet, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 250
The **Action** subgroup						
13	The **Type** drop-down list	Select the value from the list	Sets the type of objects in the video surveillance system with distributed architecture to which the command is forwarded when the conditions set in the **Events** subgroup to trigger a macro are met	Names of the types of objects registered in the system	NA	Depends on the total number of the types of objects created in the video surveillance system with distributed architecture

14	The **Number** drop-down list	Select the value from the list	Sets the identification number of the object in the video surveillance system with distributed architecture to which the command is forwarded when the conditions set in the **Events** subgroup to trigger a macro are met	Sequence of numbers	Empty field	Depends on the total number of the objects of the specified type in the video surveillance system with distributed architecture. If the field is left blank, the reaction is performed for all objects of the selected type. If you enter the **#** symbol in the field, the identifier of the object from which the event was received is substituted into the reaction. The object types in the **Events** and **Actions** tables may differ. When the macro is run manually from the main control panel, the # symbol is treated as if the field is blank, that is, the macro is executed for all objects of the selected type. Example of using the # symbol: disarm the camera if the **Detach** event is received from it

15	The **Name** field	Automatically	Displays the name of the selected object in the video surveillance system with distributed architecture	Names of the objects of the selected type registered in the system	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60
16	The **Action** drop-down list	Select the value from the list	Sets the action that the given device performs when the conditions to trigger the given macro are met	Names of the actions available in the system for the objects of the specified type	NA	A list of events is created individually for each type of object
The **Parameters** subgroup *Note. The given subgroup isn't active for all types of objects*						
17	The **Name** field	Automatically	Sets the name of the additional parameter for the selected type of object in the **Actions** subgroup	Latin alphabet, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60
18	The **Value** field	Enter the value in the field	Sets the value for the parameter in the **Name** column	Latin alphabet, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 250
Out of the group						

19	The **Response sending delay (s)** field	Enter the value in the field	Sets the time period in seconds that must pass after the events specified in the **Events** column occur and before executing the reactions specified in the **Actions** column . *Note. If the events re occur before the spe cified time period ex pires, the reaction e xecution waiting per iod is prolonged, that is, reactions are executed only once when events don't reoccur over the specified period*	Sequence of numbers	NA	>0
20	The **Fast call** field	Left-click in the field and press the required key combination	Sets a keyboard shortcut for a macro. *Note. If the same combination of keys is set for several macros, then when pressing a key combination, all of these macros will run*	Key combinations	Clear	Individual keys of the main or numeric keyboard, as well as the given keys in combination with Shift, Ctrl, and Alt

21	The **Icon type** drop-down list	Select the value from the list	Sets a set of icons for displaying a macro on the map. By default, an empty value is set for all macros, which corresponds to the **Macro 1** icon. *Note. Changing the icon type will take effect after restarting the map interface. To restart the interface, restart Axxon PSIM or log in once again under the corresponding Operator account*	Available icon types on the map	Empty value	• Empty value, • **Macro 1**—**Macro 7**

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Program object

The **Program** object is used to create specialized programs in the embedded programming environment of *Axxon PSIM.*

The settings panel of the **Program** object is shown in the figure.

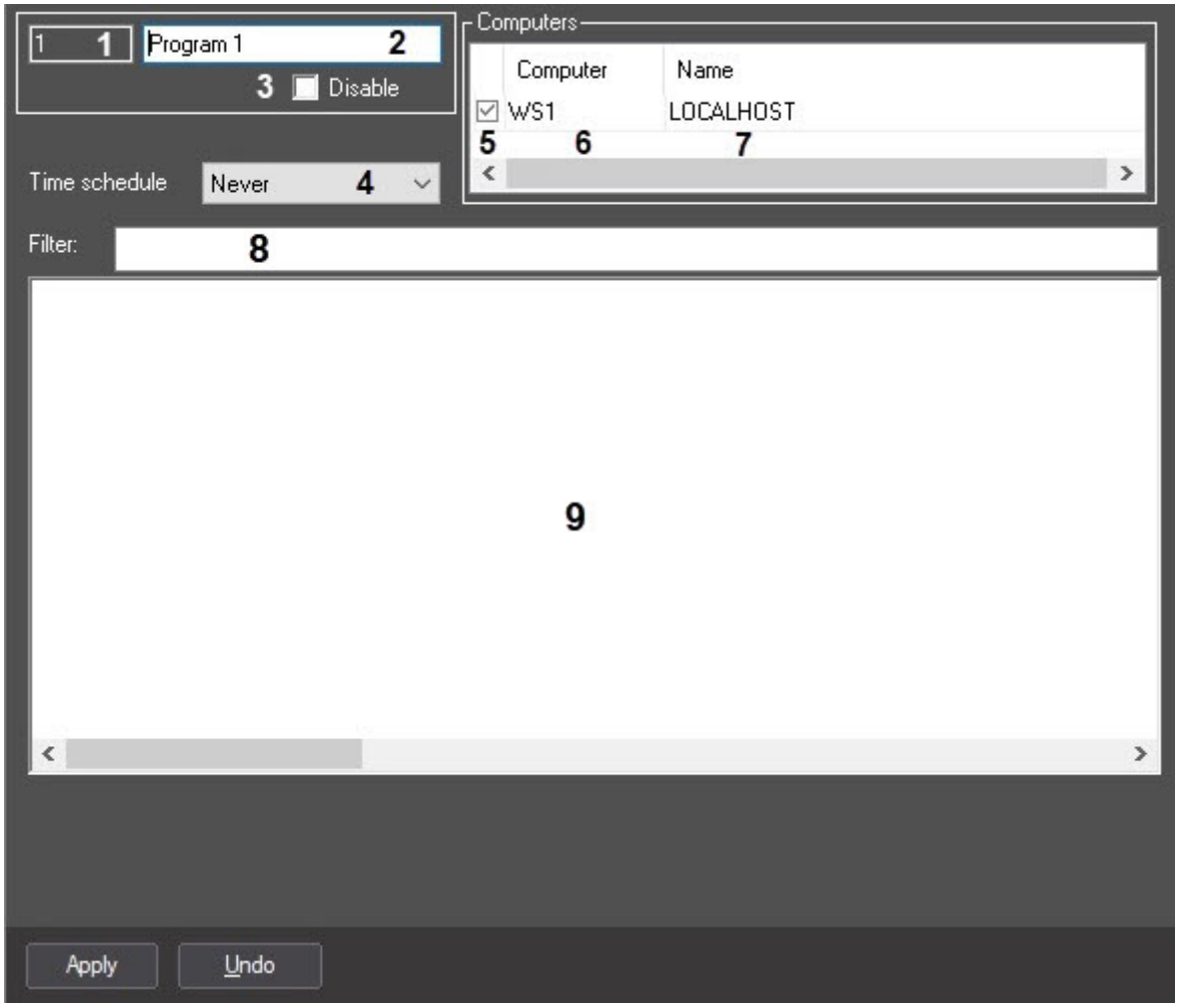


Table describes the setting parameters corresponding to the elements of the settings panel of the **Program** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

1	The Identification number* field	Automatically	Displays the identification number of the **Program** object in the video surveillance system	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing digits, letters, periods, hyphen, dash, and underscores. Depends on the number of the **Program** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Program** object	Latin alphabet, Cyrillic, digits and service characters	Program	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Program** object	Boolean type	Clear	**Set**—the **Program** object is disabled and isn't used **Clear**—the **Program** object is enabled and used

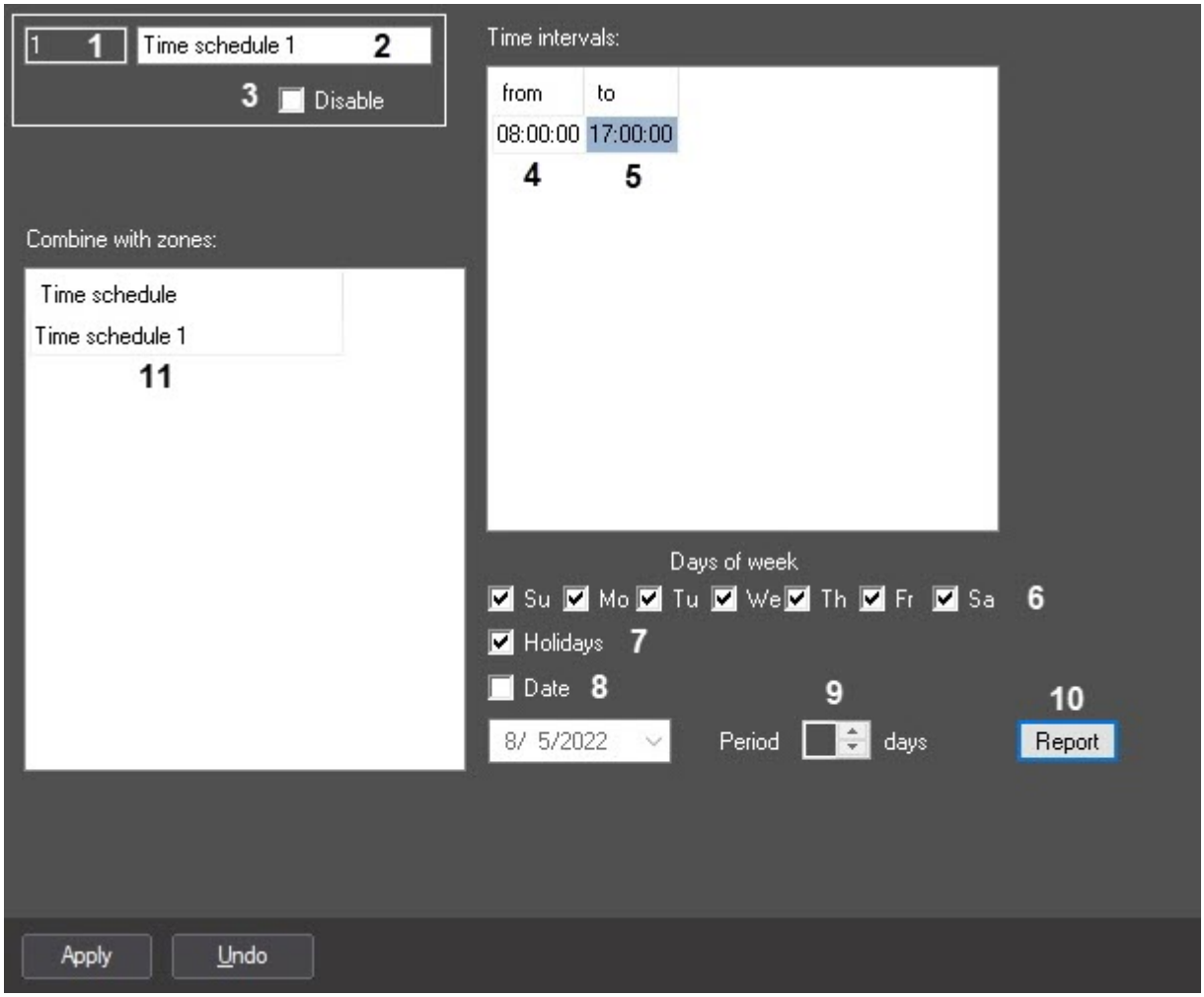
4	The **Time schedule** drop-down list	Select the value from the list	Sets the time period during which the given program operates	Name of the time schedule registered in the system	Never	• **Never**—this program isn't executed; • **Always**—this program is always executed; • List of the created time schedules—the program is executed within the time period specified in the time schedule
The **Computers** group						
5	The **Select an element** checkbox	Set the checkbox	Sets the computer on which the given program is executed	Boolean type	Clear	**Set**—the program is executed on the specified computer **Clear**—the program isn't executed on the specified computer
6	The **Computer** field	Automatically	Sets the computer in the local network	Computer names in the local network	Computer name in the local network	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—60

7	The **Name** field	Automatically	Sets the name of the computer	Names of the **Computer** object registered in the system	Name of the **Computer** object registered in the system	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—60
Out of the group						
8	The **Filter** field	Enter the value in the field	Sets to pre-filter events processed by the program	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (Latin letters, digits, service characters), case-insensitive. Number of characters—unlimited. The filter format is TYPE|ID|EVENT divided by semicolon. For example, the CAM||MD_STOP;CAM||MD_START format filters **Alarm** and **Alarm end** events from all **Camera** objects
9	The **Text editor** field	Enter the value in the field	Enters the text of the executed program	Latin alphabet, Cyrillic, digits and service characters	NA	A line containing a sequence of any characters (Latin letters, digits, service characters), case-insensitive. Number of characters—unlimited

* Name of the element isn't displayed on the settings panel of this object

The settings panel of the Time schedule object

In *Axxon PSIM,* the **Time schedule** object is used to set the time parameters for any actions, which must be initiated at a certain time. The settings panel of the **Time schedule** object is shown in the figure.

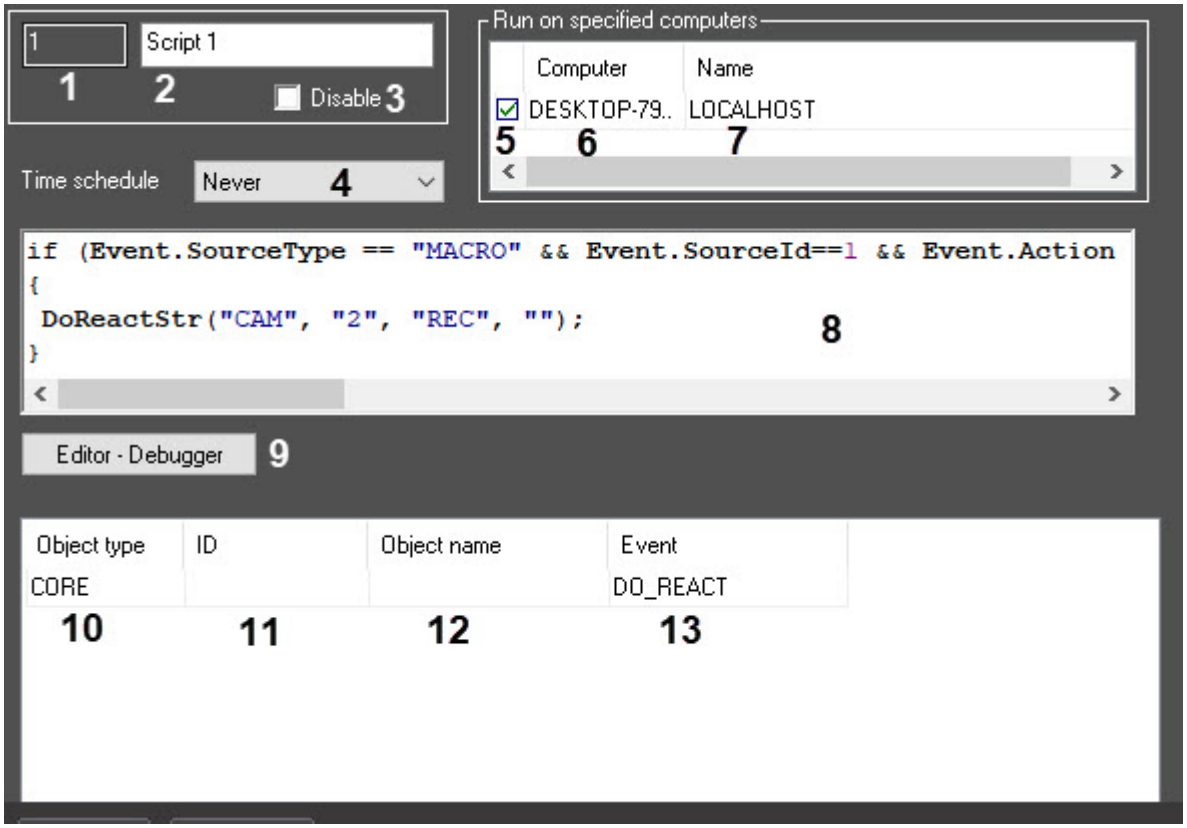


The table describes the setting parameters corresponding to the elements of the settings panel of the **Time schedule** object.

*Name of the object isn't displayed on the settings panel

The settings panel of the Script object

The **Script** object is used to create specialized programs in the JScript language. The settings panel of the **Script** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Script** object.

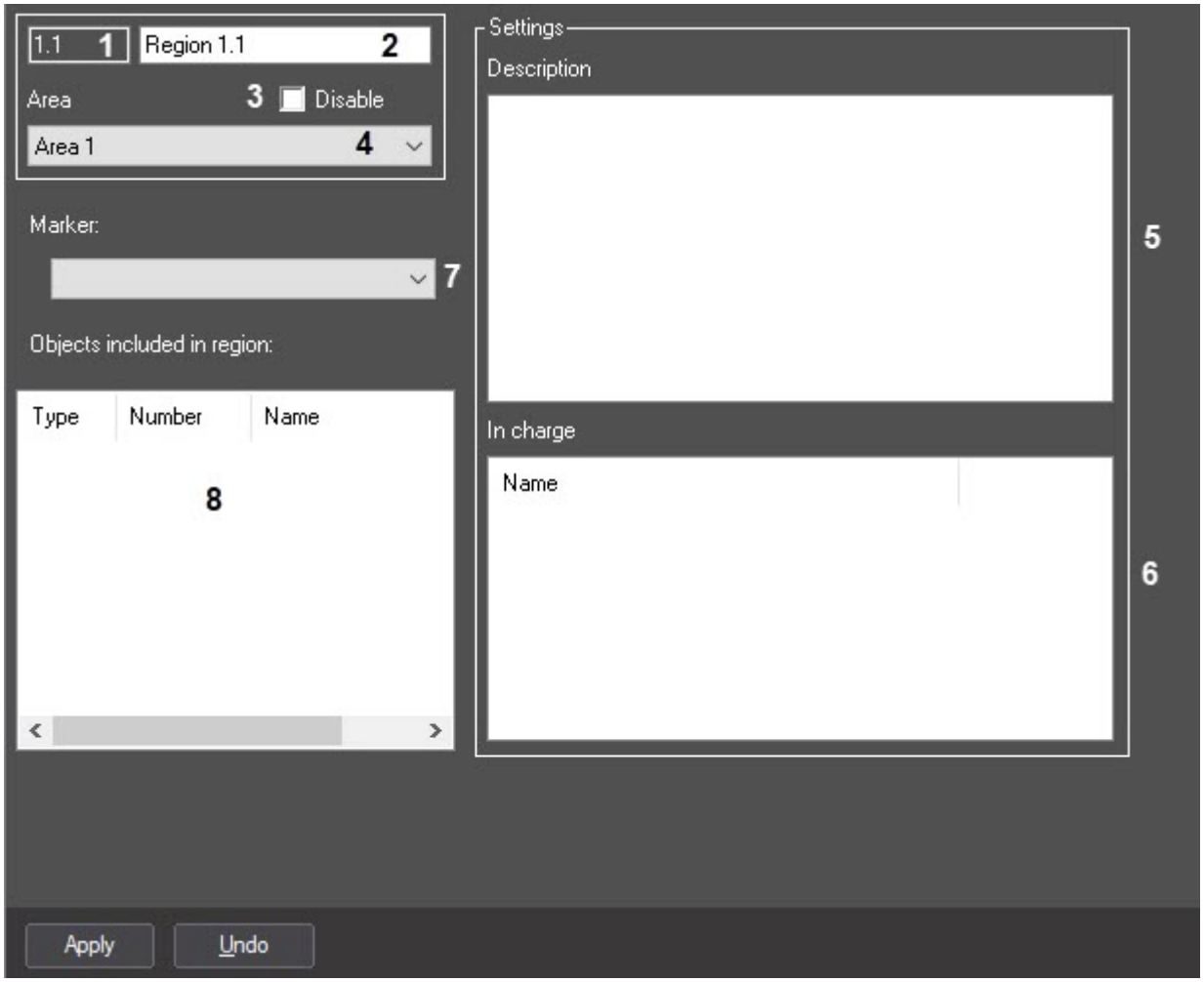
*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Region object

The **Region** object is used to create the zones, which break down the protected areas into structural elements.
The **Region** objects allow:

1. Grouping the hardware based on the attributes of a certain region;
2. Executing certain operations simultaneously with all objects of the same type belonging to the same region.

The settings panel of the **Region** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Region** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range
1	The Identification number* field	Automatically	Displays the identification number of the **Region** object in the video surveillance system	Sequence of numbers	NA	From 1 to 65534. Depends on the number of the **Region** objects in the video surveillance system

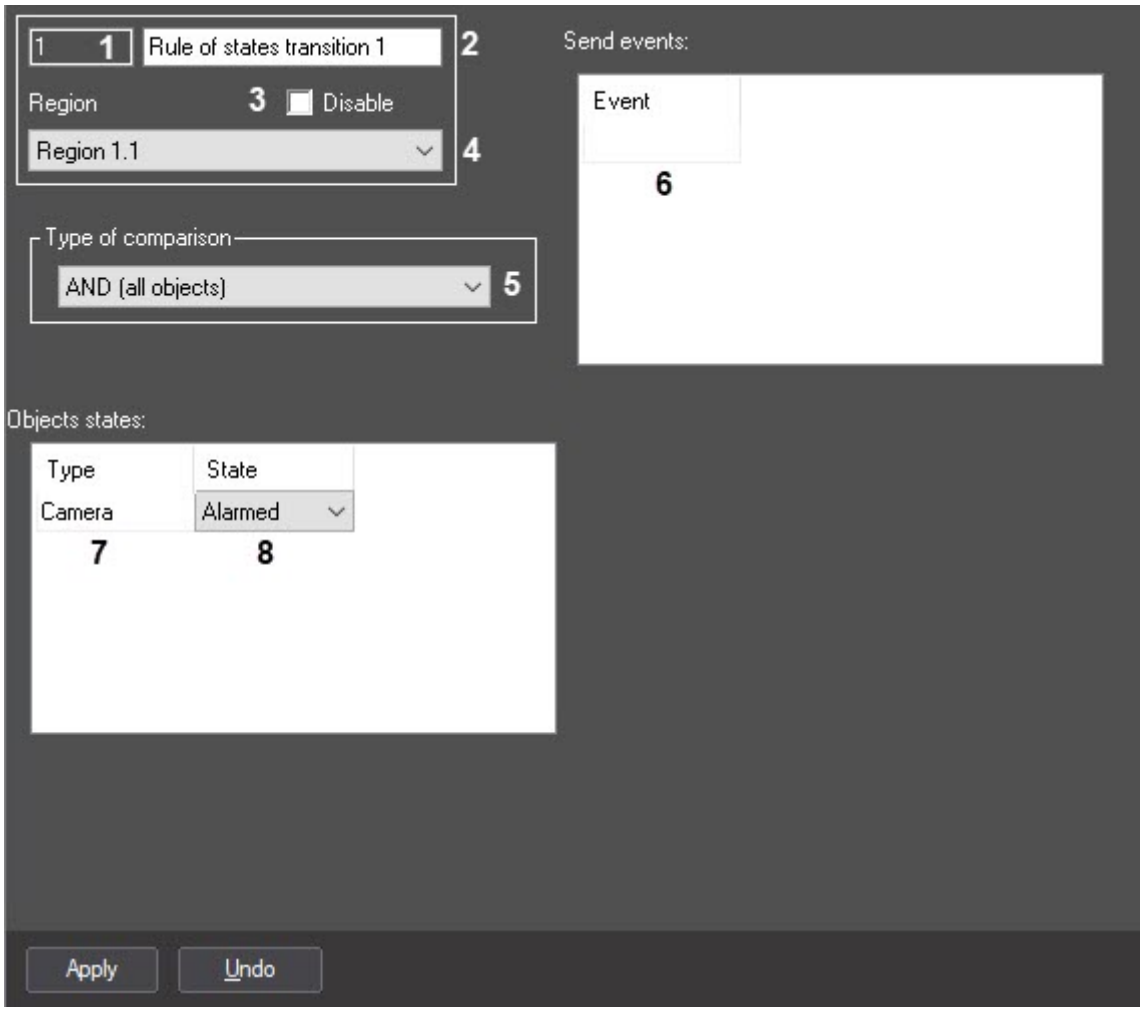
2	The Name* field	Enter the value in the field	Sets the name of the **Region** object	Latin alphabet, Cyrillic, digits, and service characters	Region	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Region** object in the video surveillance system with the distributed architecture	Boolean type	Clear	**Set**— the **Region** object is disabled and isn't used **Clear**— the **Region** object is enabled and used
4	The **Area** drop-down list	Select the value from the list	Sets the **Area** parent object to which the given **Region** object belongs	Names of the **Area** objects registered in the system	Name of the **Area** parent object	Depends on the number of the **Area** objects in the system
The **Settings** group						
5	The **Description** field	Enter the value in the field	Sets the description of the given region	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. Number of characters—from 1 to 60
6	The **In charge** field					
	The **Name** drop-down list	Select the value from the list	Sets the users registered in the system as responsible for the given region	Latin alphabet, Cyrillic, digits, and service characters	NA	Depends on the number of the users registered in the system

7	The **Marker** drop-down list	Select the value from the list	Specifies the set of the icons which is used to display the region on the interactive map	Available set of the icons specified by the ddi.exe utility	NA	Depends on the number of the available sets of the icons
8	The **Objects included in region** table	Automatically	Displays the list of the objects related to this region	Types, numbers, and names of the objects included in region	NA	Depends on the number of the objects related to this region

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Rule of states transition object

The settings panel of the **Rule of states transition** object is shown in the figure.



The table describes the setting parameters of the **Rule of states transition** object.

*Name of the element isn't displayed in the settings panel of the given object

The settings panel of the Macro event object

The **Macro event** object is used for creating events in case of the occurrence of the event chain in the specified time period. The settings panel of the **Macro event** object is shown in the figure.



The table describes the setting parameters corresponding to the elements of the settings panel of the **Macro event** object.

№	Parameter	Method for setting the parameter value	Parameter description	Representation	Default value	Value range

1	The Identification number* field	Automatically	Displays the identification number of the **Macro event** object	Digits, letters, periods, hyphen, dash, and underscore	NA	A line containing numbers, letters, periods, hyphen, dash, and underscore. Depends on the number of the **Macro event** objects in the video surveillance system with distributed architecture
2	The Name* field	Enter the value in the field	Sets the name of the **Macro event** object	Latin alphabet, Cyrillic, digits, and service characters	Macro event	A line containing a sequence of any characters (letters, digits, service characters except > and < characters), case-insensitive. Number of characters—from 1 to 60
3	The **Disable** checkbox	Set the checkbox	Disables the **Macro event** object in the video surveillance system with distributed architecture	Boolean type	Clear	**Set**—the **Macro event** object is disabled and isn't used **Clear**—the **Macro event** object is enabled and used
4	The **Event name** checkbox	Set the checkbox	The checkbox indicates whether the macro event is generated when the event chain occurs or when the event timeout expires	Boolean type	Clear	**Set**—event is generated **Clear**—event isn't generated

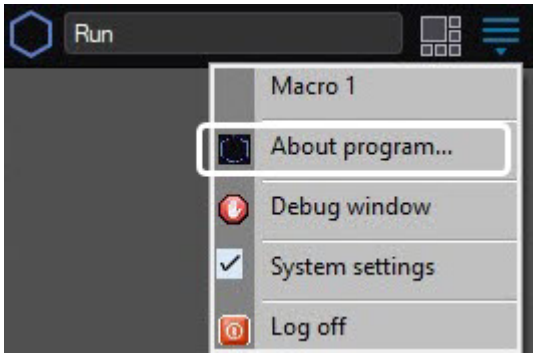
5	The Event name* field	Enter the value in the field	Sets the name of the macro event, which is transmitted in the param0 parameter	Latin alphabet, Cyrillic, digits, and service characters	NA	A line containing a sequence of any characters (letters, digits, service characters), case-insensitive. No more than 120 characters
6	The Object type* drop-down list	Select the value from the list	Sets the type of objects, the events from which must be monitored	Object types created in the system	NA	Depends on the objects created in the system
7	The Number* drop-down list	Select the value from the list	Sets the number of the object of the selected type, the event from which must be monitored	Identifiers of the objects of the selected type registered in the system	NA	Depends on the number of the objects of the selected type
8	The Event type* drop-down list	Select the value from the list	Sets the event type of the selected object, which must be monitored	List of events available for the object of the selected type	NA	Depends on the selected object type
9	Timeout*	Enter the value in the field	Sets the timeout of waiting for the event of the selected type to occur	HH:MM:SS	NA	Time in the HH:MM:SS format
10	**+** button	Click the button	Adds an event to the chain	NA	NA	NA
11	**-** button	Click the button	Removes an event from the chain with all events that are lower in the chain	NA	NA	NA
12	Events viewing window*	Automatically	Displays the set actions and events	List of set actions and events	NA	NA

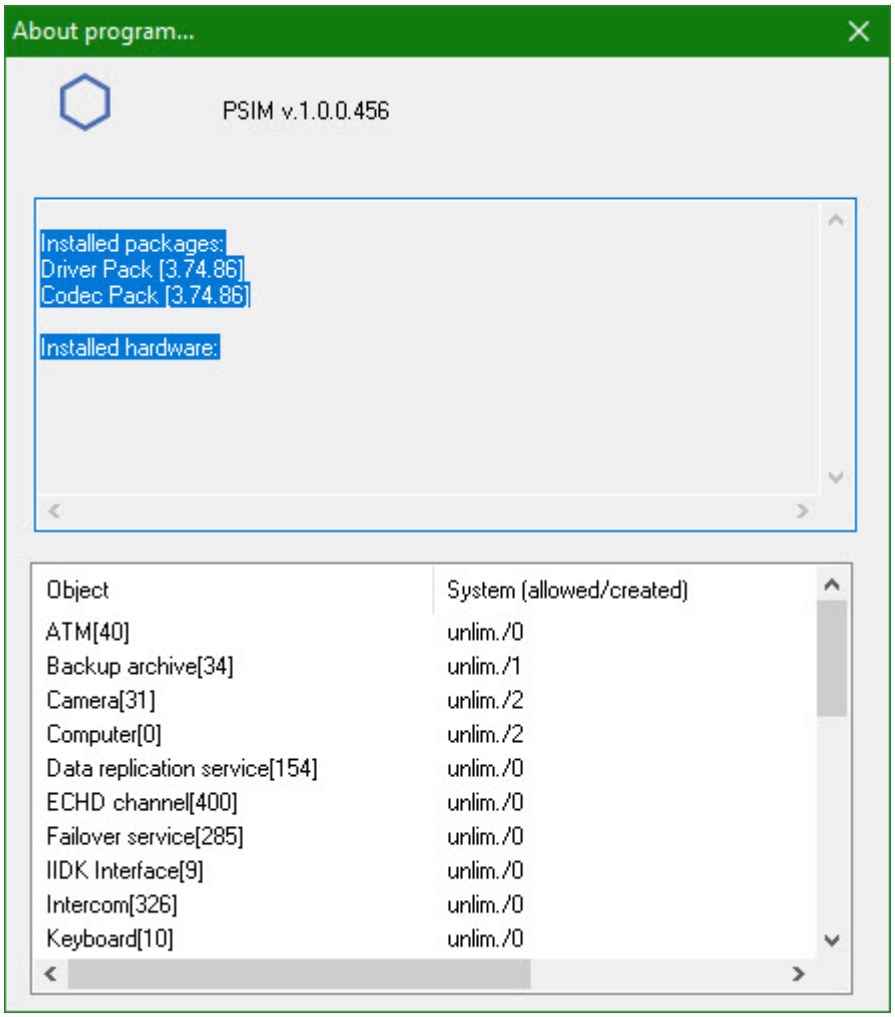
*Name of the element isn't displayed in the settings panel of the given object

24.1.6 Information about program

The information about the program includes *Axxon PSIM* version, installed packages (vertical solutions, Drivers Pack, Codec Pack, etc.) and hardware and restrictions to object count set by the license key.

Click the **Execute** button on the Main control panel, then select **About program...** to open this window.





Note

It is possible to hide the **Save** button from the **About program...** window. To do this, change the **Shell** key value to any other one that does not contain the "**explorer**" string (see Registry keys reference guide, for more information about working with the registry, see Working with Windows OS registry).

24.2 Appendix 2. Relevant information on using Windows operating system

24.2.1 Working with Windows OS registry

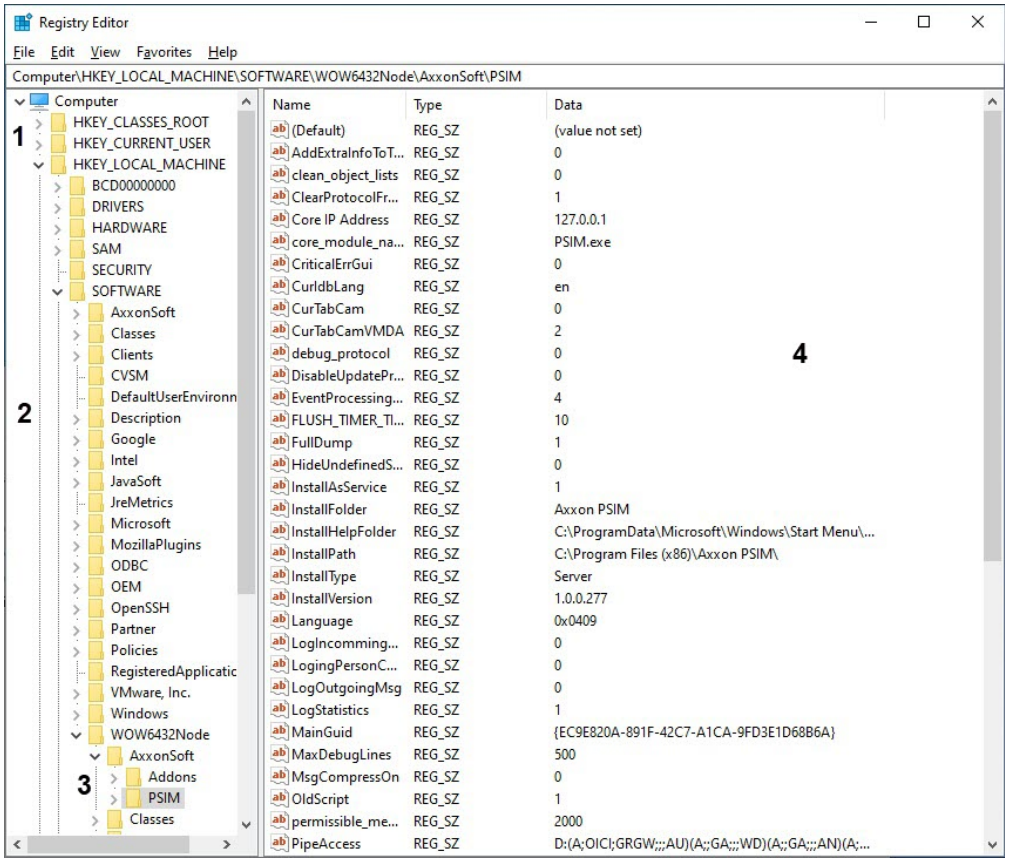
General information about Windows OS registry

Windows system registry is a database containing the settings of the operating system (hardware, software, users). When system parameters of the operating system are changed, the system registry is updated.

You can edit the registry using the regedit.exe utility included in the standard set of service programs in Windows. The information about the OS settings is stored in two hidden files in the Windows directory: system.dat and user.dat. The registry is a hierarchical structure, the branches of which constitute the keys that contain parameters and subkeys. The registry has six main branches described in the table.

Branch name	**Description**
HKEY_CLASSES_ROOT	Contains the information about the software configuration, including the ties of the file types to certain applications, drag-and-drop parameters, printer parameters and COM
HKEY_CURRENT_USER	Contains user system configuration settings. This section is created and populated with information from the HKEY_USERS section upon user login
HKEY_LOCAL_MACHINE	Contains the parameters of the computer, drivers and other hardware. The information in this section is common to all users of the computer
HKEY_USERS	Contains the information about all users who have accounts on this computer. Contains two types of parameters: common to all users and specific to each user
HKEY_CURRENT_CONFIG	Contains the information about the current hardware configuration
HKEY_DYN_DATA	Indicates the part of the HKEY_LOCAL_MACHINE section that is needed for Plug & Play devices. This section changes when you add or remove devices from the system

The branches, keys and subkeys are visually similar to the structure of the user folders, allowing nested branches. The figure shows the main elements of the registry.



1. Branch.
2. Key.
3. Subkey.
4. Parameter.

A parameter has three characteristics: name, data type and value. A key can have only one parameter with no name, which serves as a default value for the key. It is recommended to give the parameter of the registry key a meaningful name, indicating its purpose.

Windows has a set of registry data types. The most commonly used types are described in the table.

Data type	**Description**	**Purpose**
REG_DWORD	A parameter of this type takes 4 bytes and is displayed in hexadecimal and decimal format	Many service or driver parameters are of this type. Example: 0x00000240(576) — decimal value of the parameter is given in parenthesis
REG_BINARY	Binary data in an arbitrary form. Maximum length of the parameter of this type is 16 bytes	Most information on hardware components is stored as binary data and displayed in the registry editor in the hexadecimal format, for example "01 00 00 00"
REG_SZ	A string ending with a null character	Example: "C:\Windows"

Data type	Description	Purpose
REG_MULTI_SZ	Multiline text. An array of strings ending with a null. An array ends with two null characters	This type usually has lists and other records in an easy-to-read format. The records are separated by spaces, commas, or other characters
REG_EXPAND_SZ	Data string of variable length ending with a null character	This type contains undisclosed links to environment variables
REG_FULL_RESOURCE_DESCRIPTOR	A sequence of nested arrays	This type is used for storing the list of device resources or drivers

Note

The settings in the Tweaki utility affect the values of the registry keys — see Tweaki.exe utility for advanced setup of the Axxon PSIM software system.

Registry keys reference guide

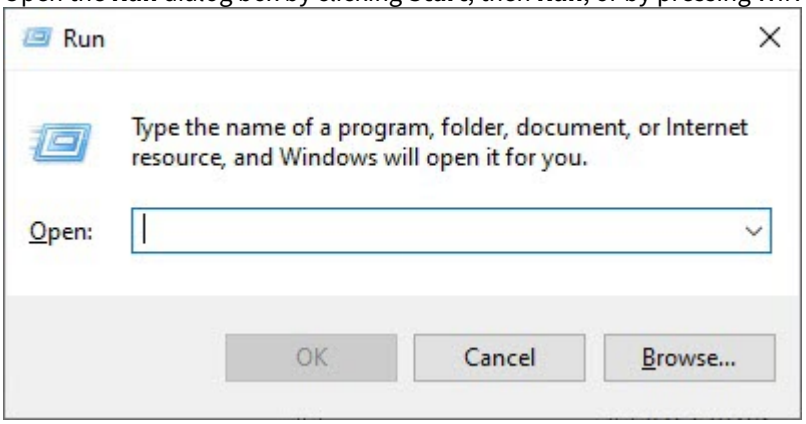
Using the registry editor

Starting and shutting-down the editor

Several programs allow editing the system registry. The regedit.exe utility is included in the standard set of Windows service programs.

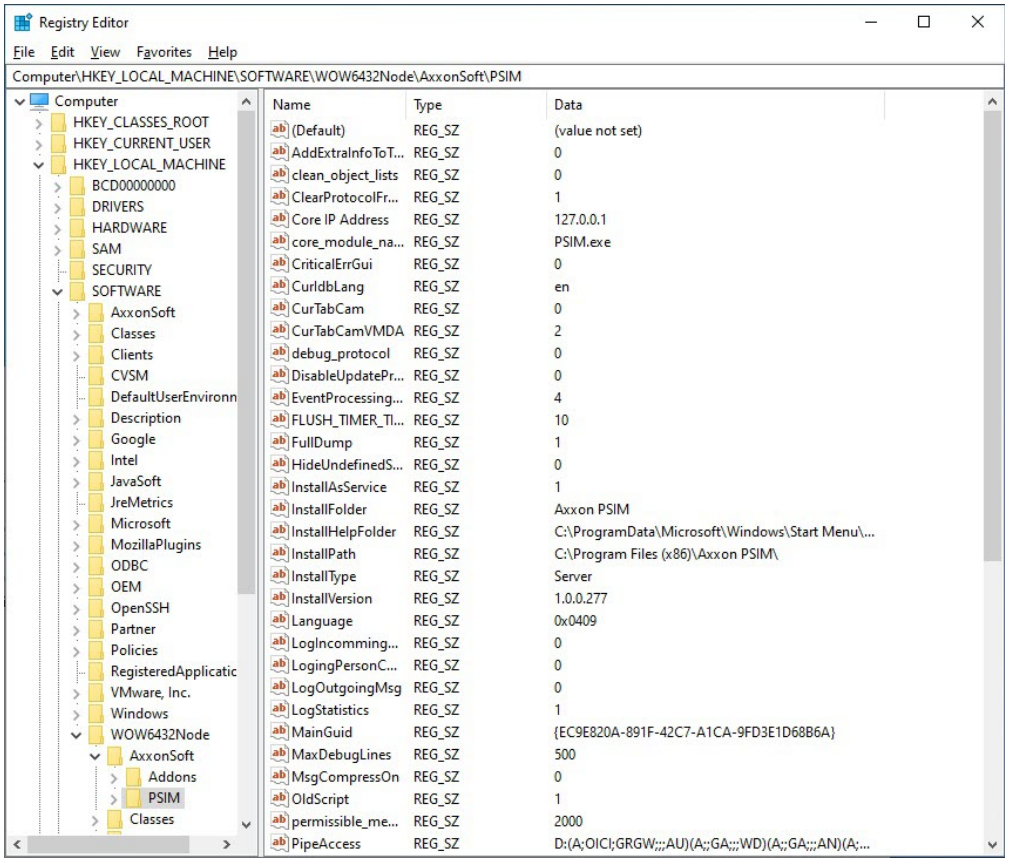
To start the editor, do the following:

1. Open the **Run** dialog box by clicking **Start**, then **Run**, or by pressing WIN+R keys on the keyboard.

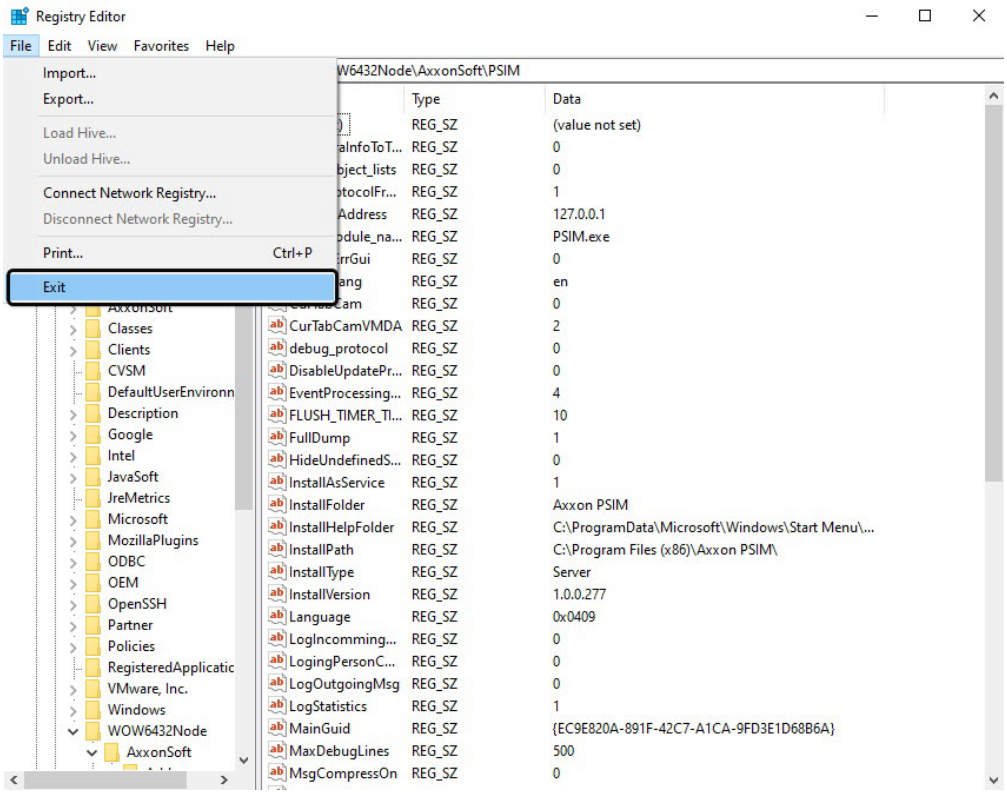


2. Enter “regedit” in the **Open** field of the dialog box.
3. Click **OK.**

The registry editor window will open.

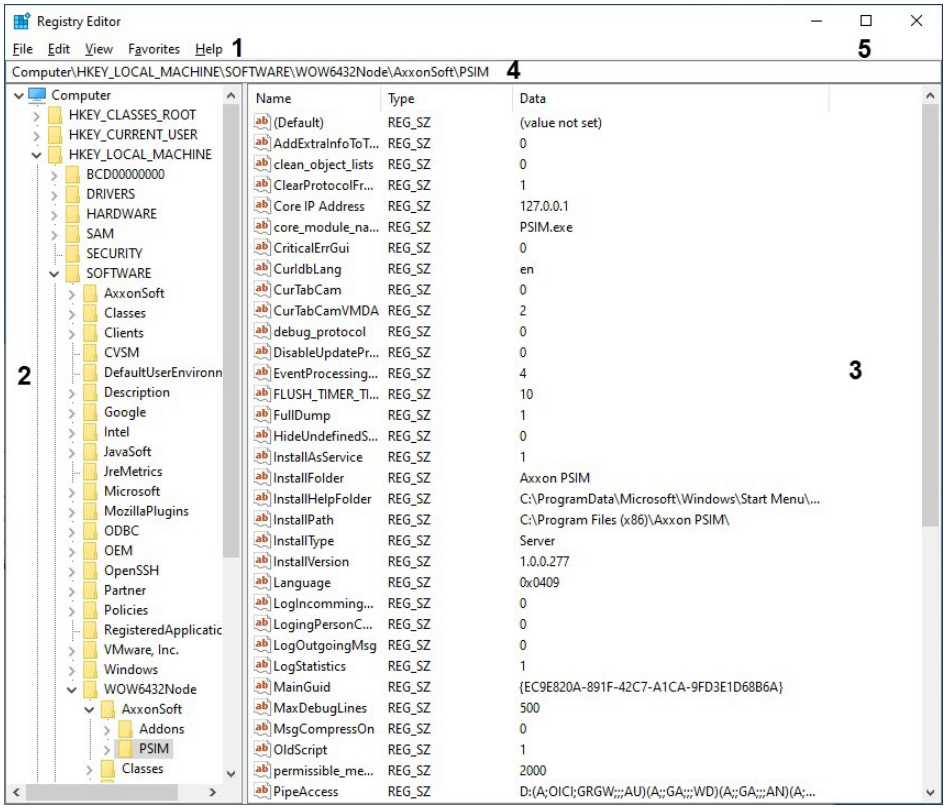


To close the registry editor, click the ⨯ button, or select **Exit** from File menu.



Interface elements of the registry editor

Figure shows the elements of the registry editor window.

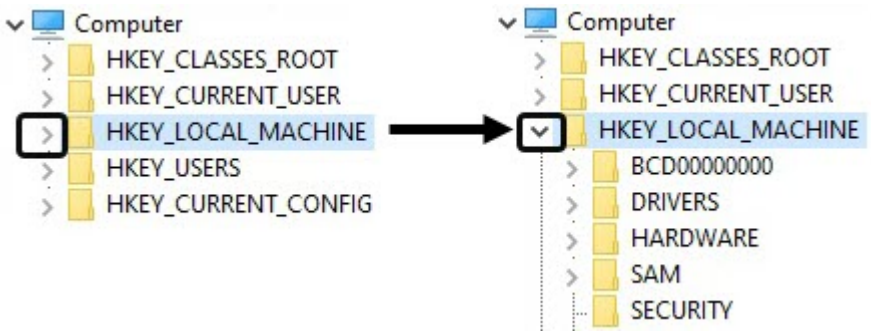


1. Main menu. Contains the commands and settings.
2. Registry tree. Displays the structure of the registry.
3. Parameters table. Displays the parameters of the selected key.
4. Information line. Displays the path name of the selected object.
5. Control buttons (left to right): Minimize, Restore, Close.

Navigating the registry tree

The registry structure is shown on the left of the window in a tree similar to the folders tree in Explorer. The tree contains six main branches, each of which contains keys, subkeys and parameters shown in the right panel of the window.

To enter a lower level folder (key), click the plus icon next to the parent folder.

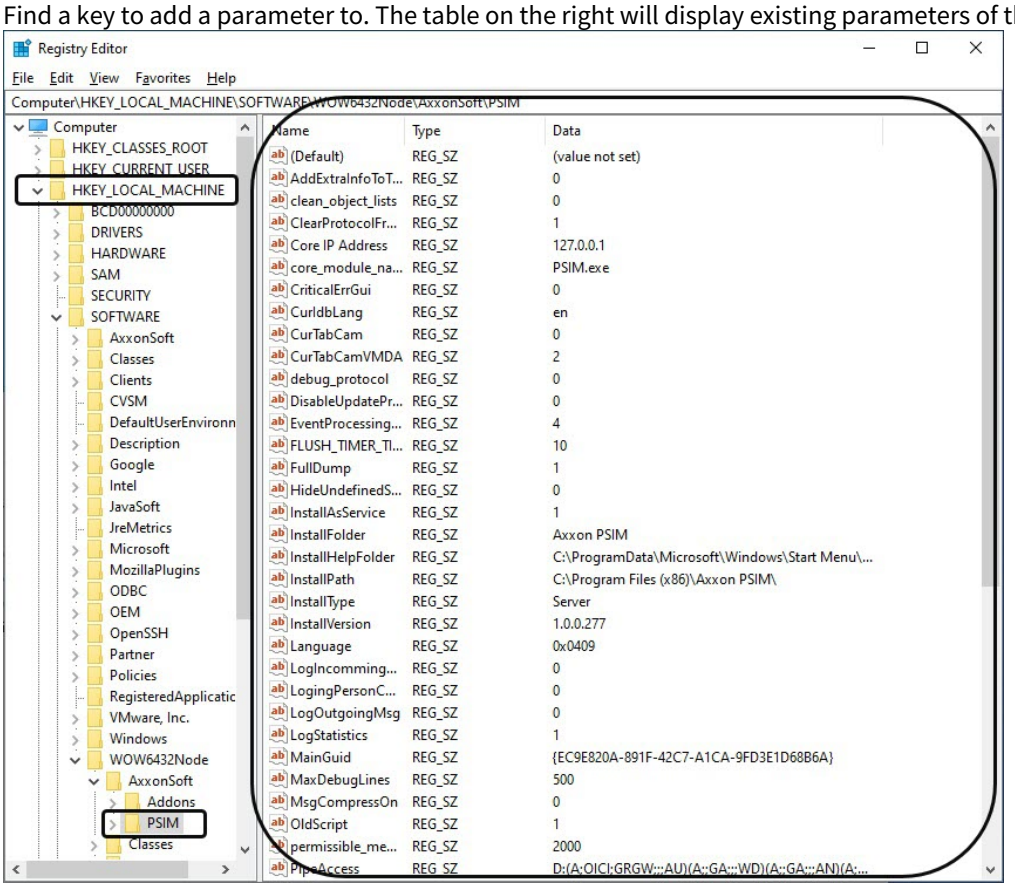


To contract the branch, click the minus icon next to it.

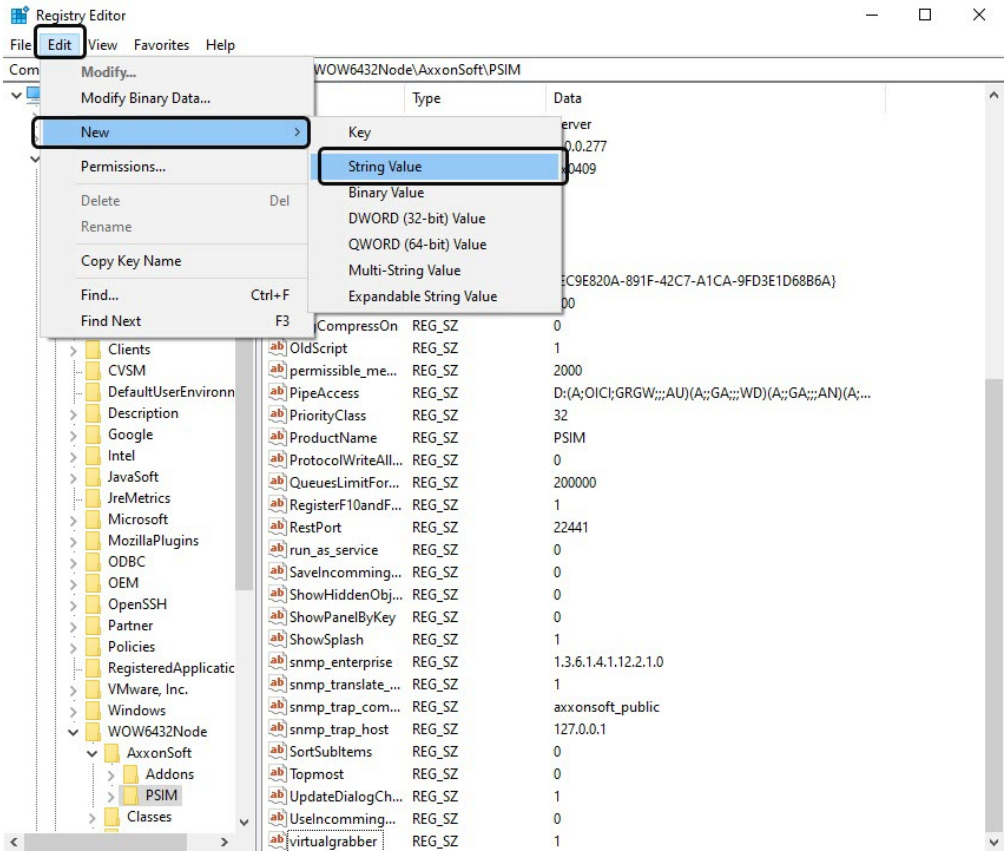
Adding string parameters to the registry

To add a string parameter to a key, do the following:

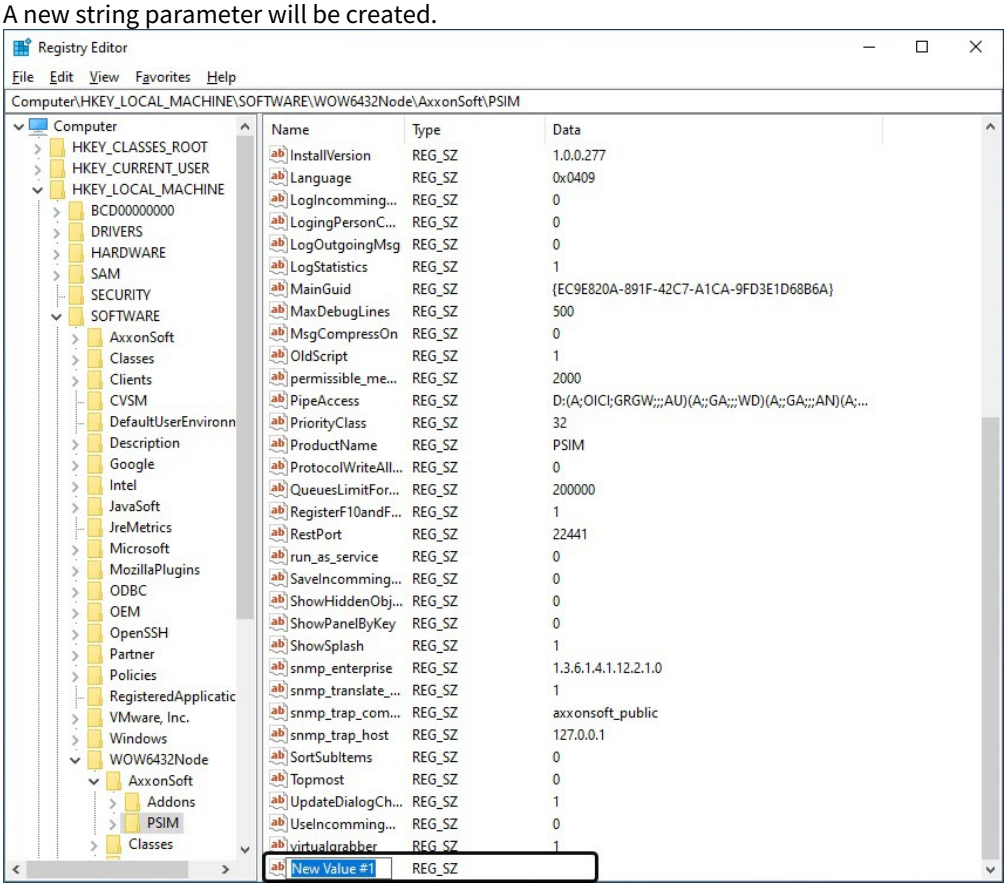
1. Select the required branch and click the plus icon. All folders (keys) inside this branch will be displayed.
2. Find a key to add a parameter to. The table on the right will display existing parameters of this key.



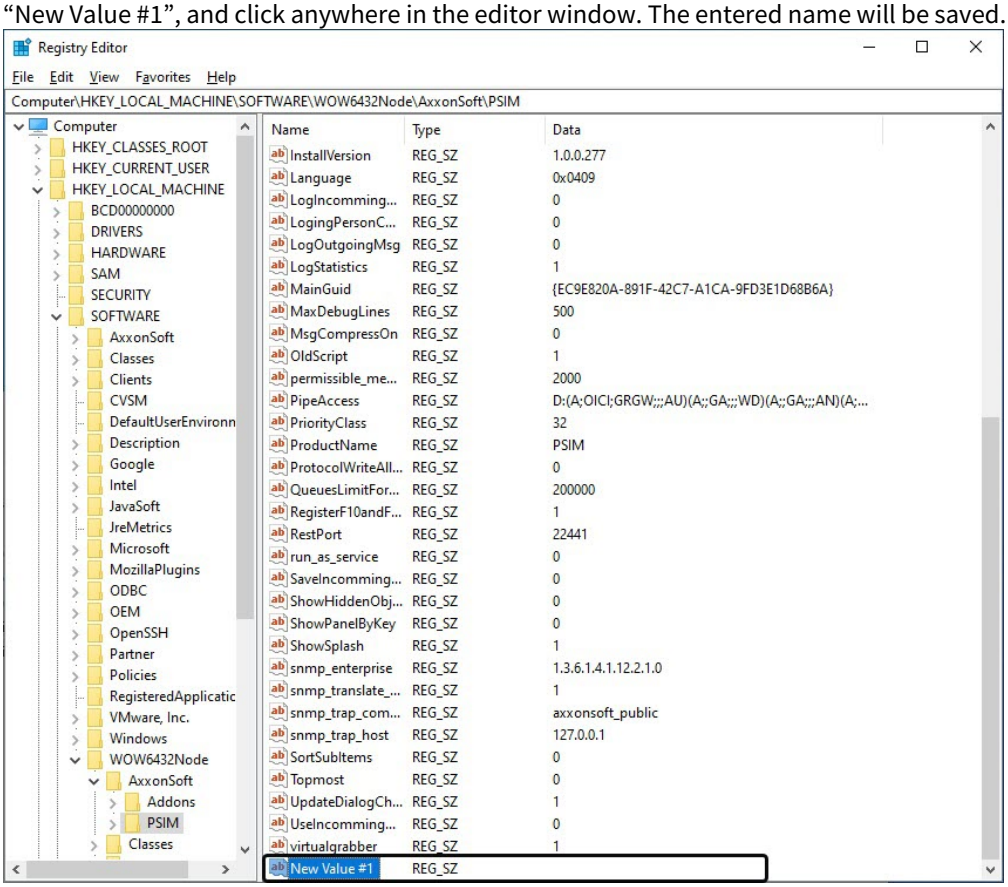
3. In the main menu, select **Edit**, then **New**, then **String Value**.



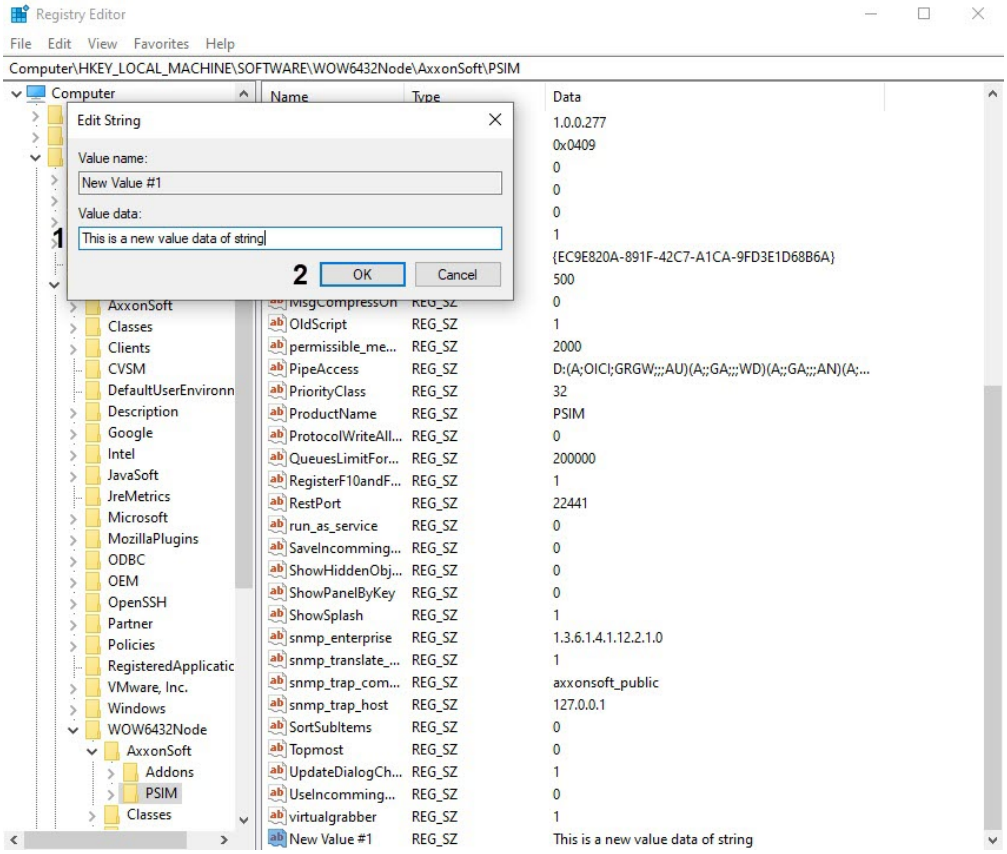
4. A new string parameter will be created.



5. Assign a name to the new parameter. Enter the name in the highlighted name field, which by default reads “New Value #1”, and click anywhere in the editor window. The entered name will be saved.

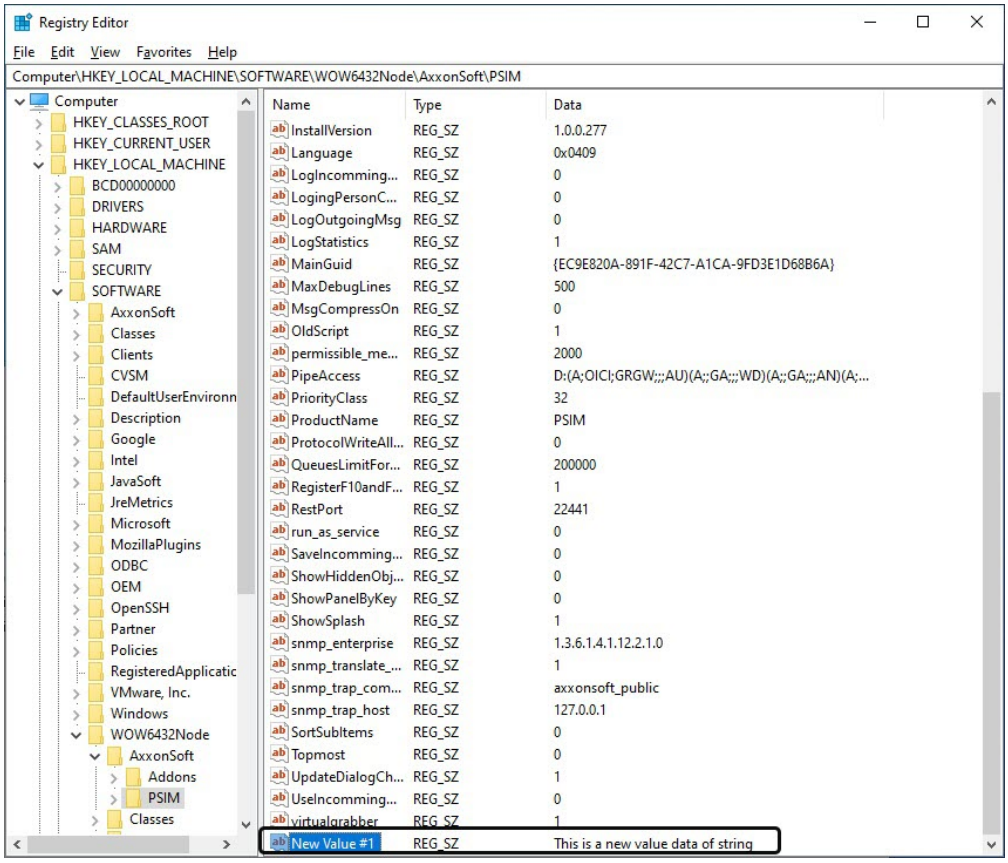


6. Specify the value of the new parameter. Double-click the parameter name. The **Edit String** dialog box will open.



Enter the value into the **Value Data** field (1) and click **OK** (2).

A string parameter with a specified value will be created. To edit the value, repeat step 5.

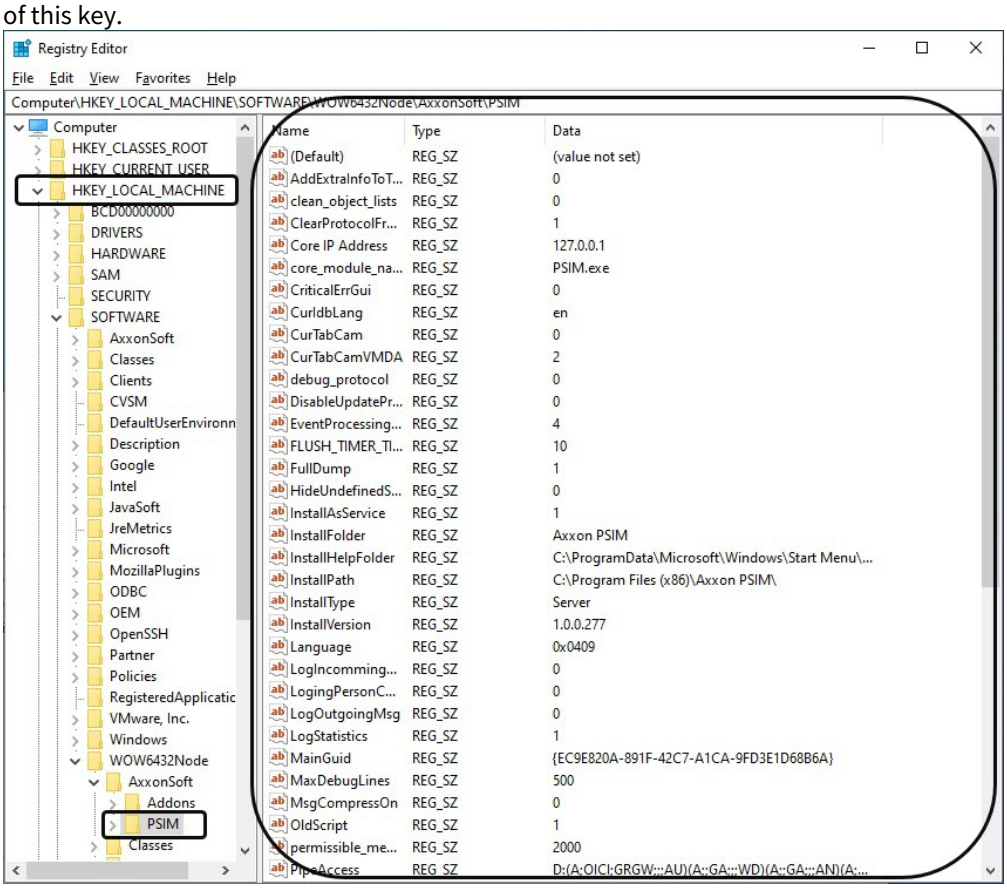


Modifying the value of string parameters in Windows OS registry

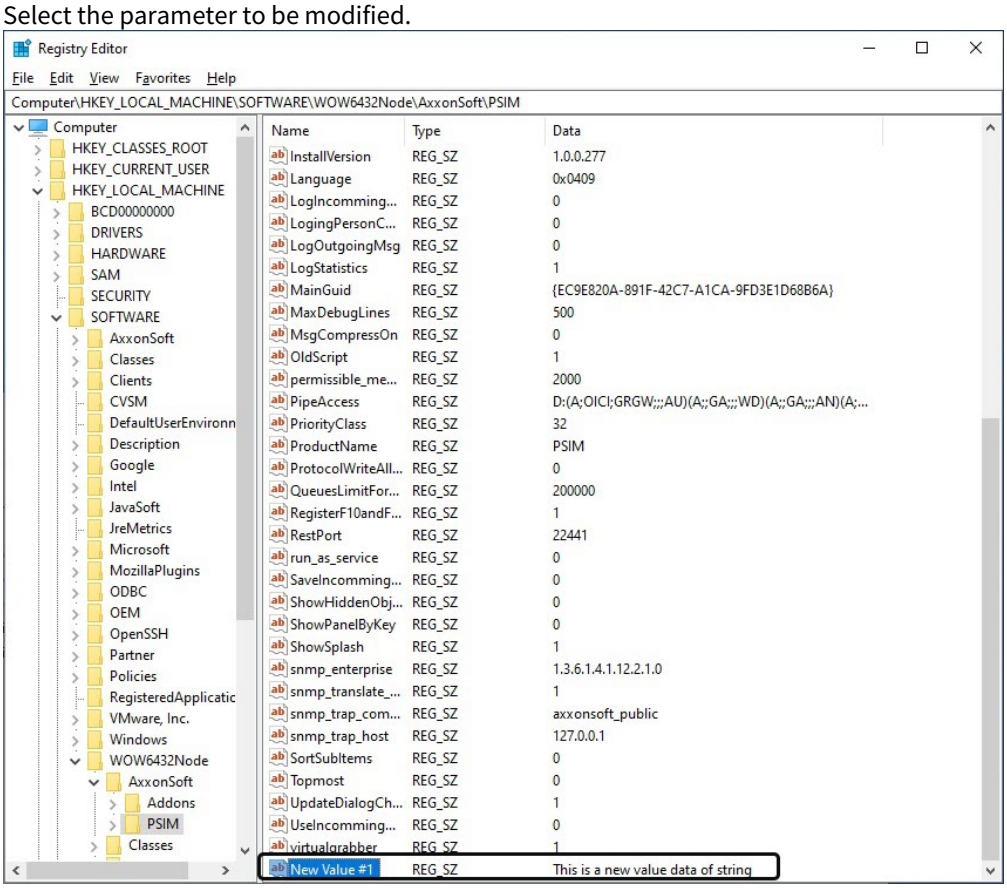
To modify the value of a string parameter, do the following:

1. Select the required branch and click the plus icon. All folders (keys) inside this branch will be displayed.

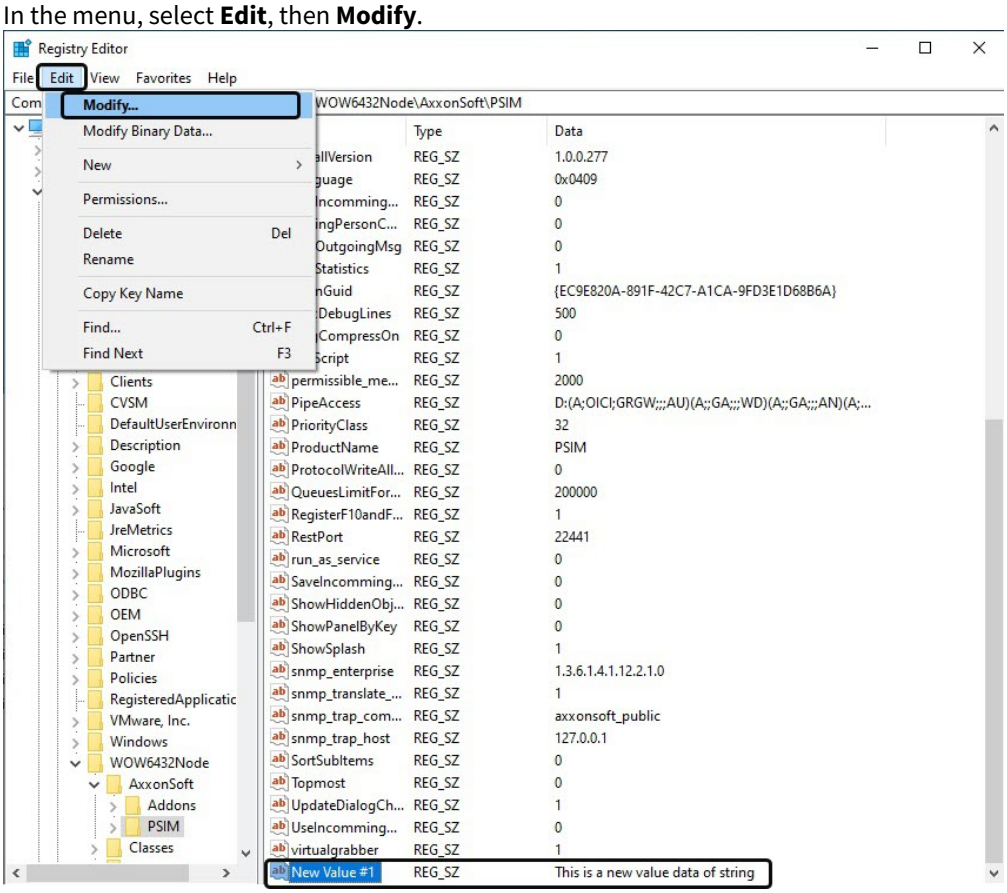
2. Find a key containing the parameter to be edited. The table on the right will display the existing parameters of this key.



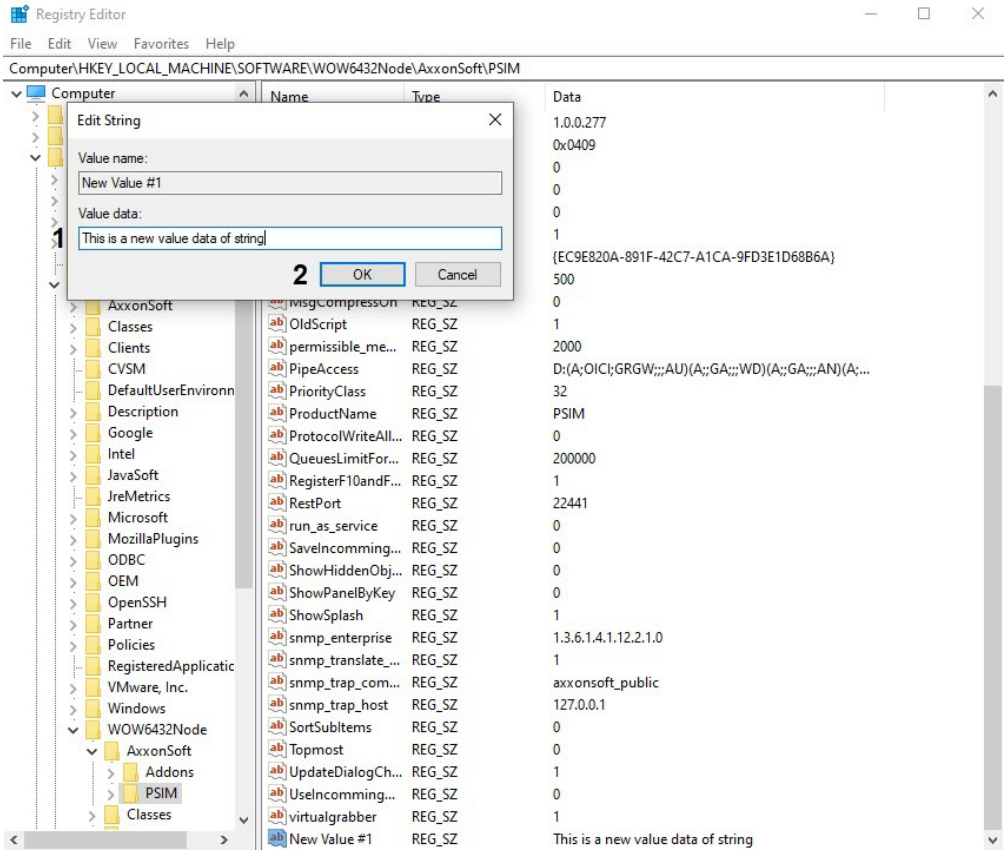
3. Select the parameter to be modified.



4. In the menu, select **Edit**, then **Modify**.

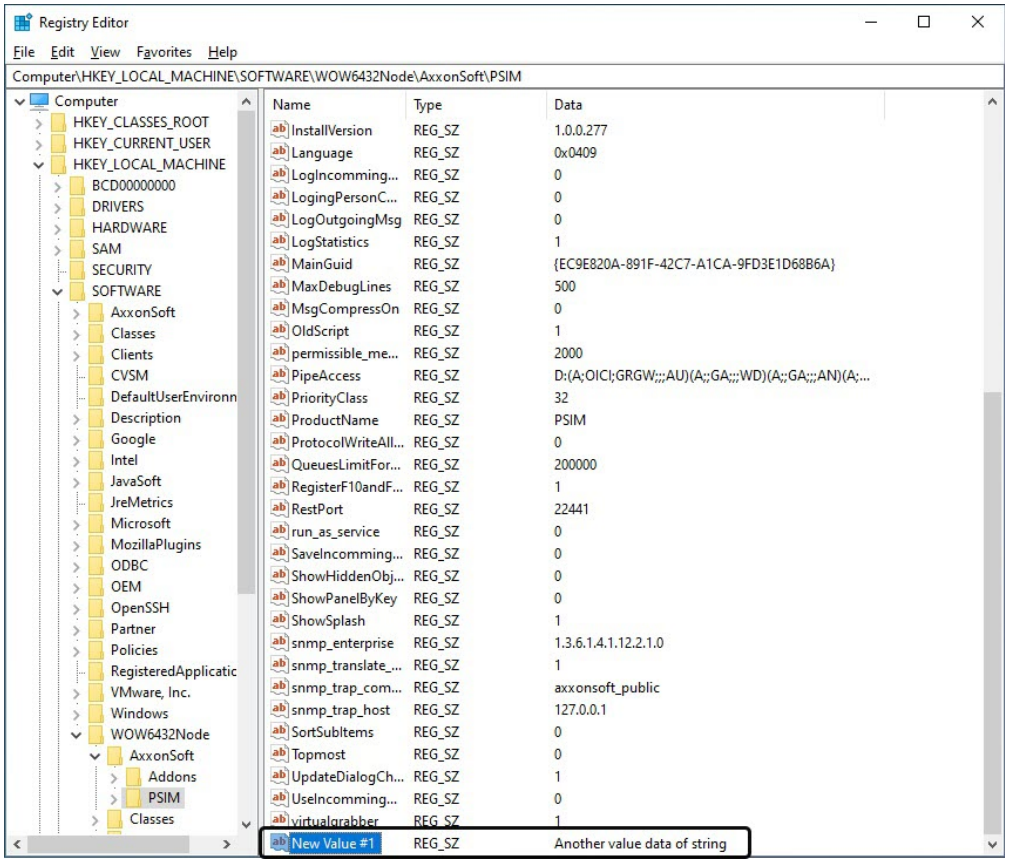


The **Edit String** dialog box will open.



5. Modify the value of the parameter. Delete the old value and enter a new one into the **Value Data** field (1). Click **OK** (2).

The value of the parameter will be changed.

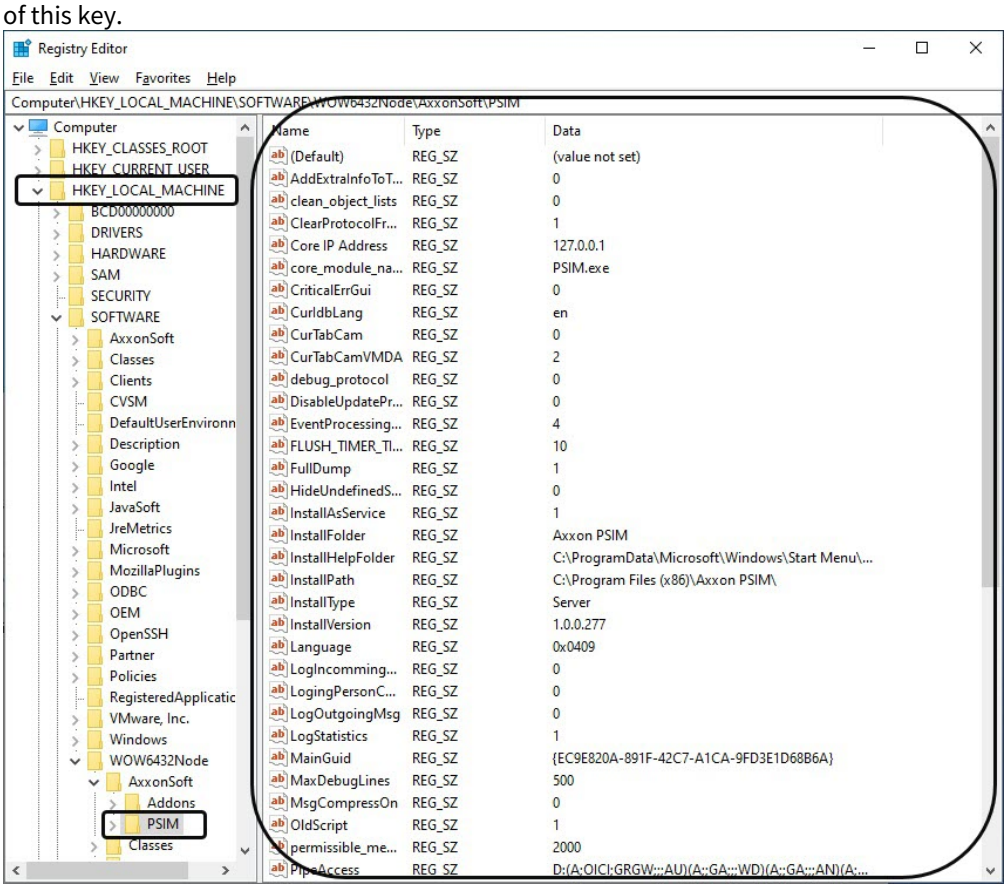


Deleting parameters from the Windows OS registry

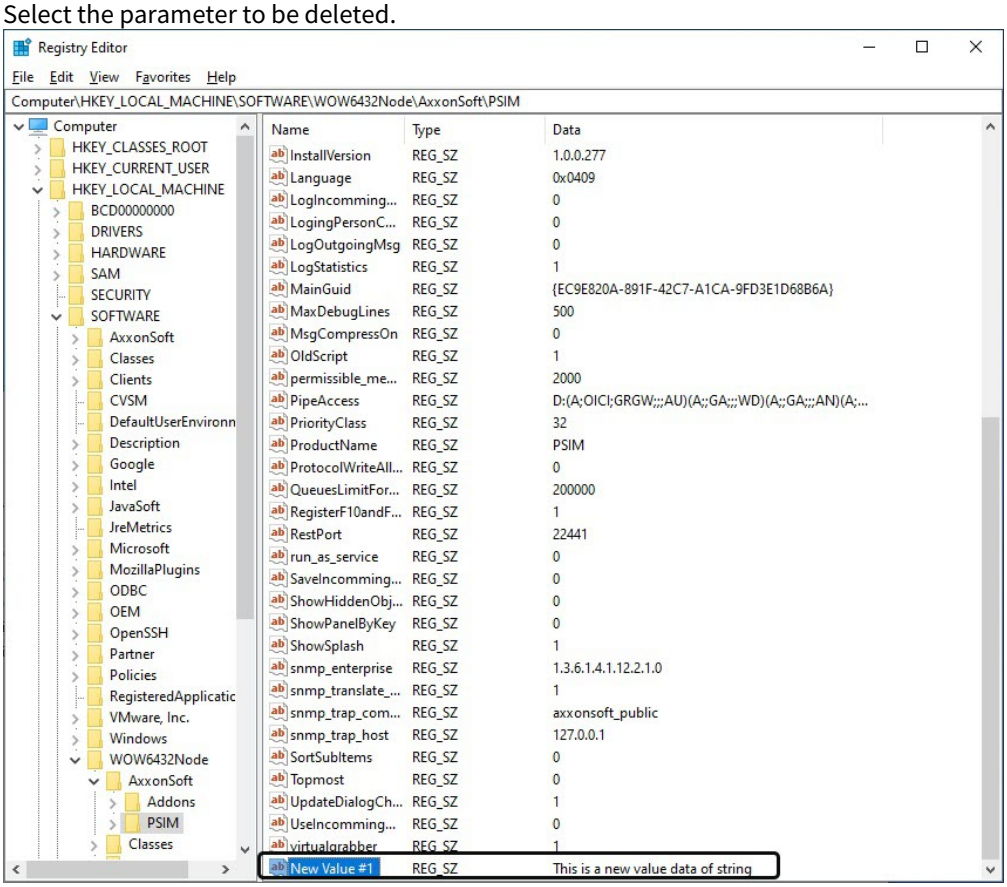
To delete a string parameter from the registry, do the following:

1. Select the required branch and click the plus icon. All folders (keys) inside this branch will be displayed.

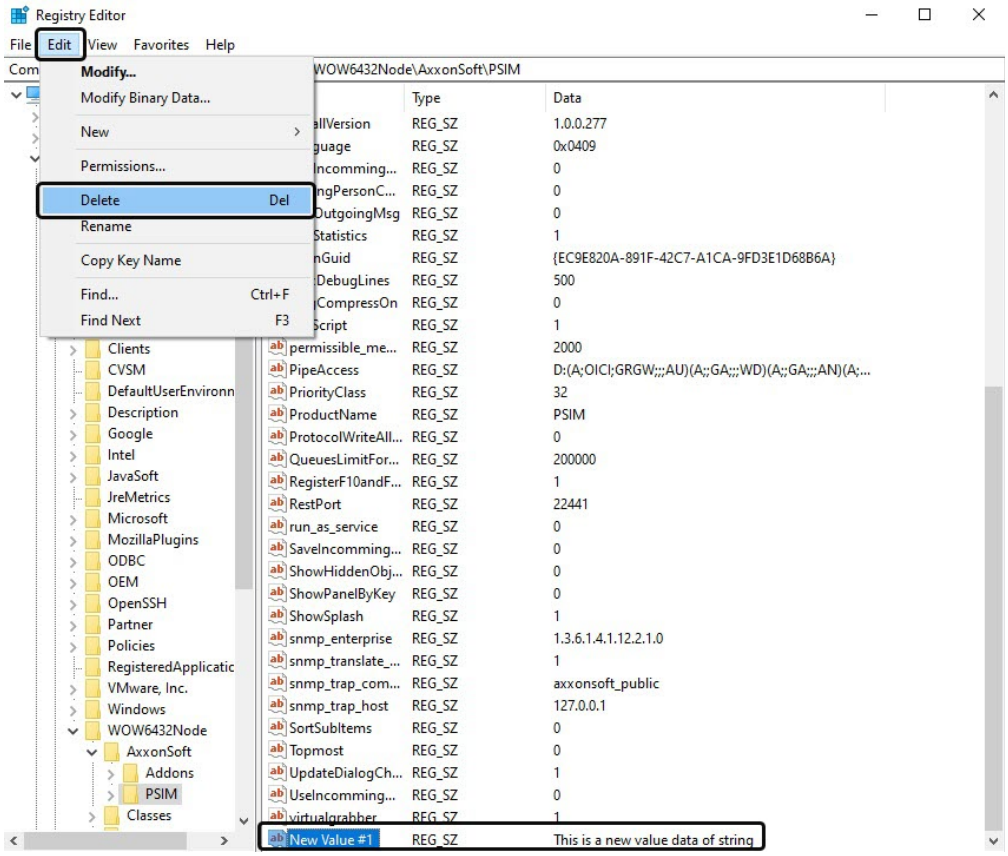
2. Find a key containing the parameter to be deleted. The table on the right will display the existing parameters of this key.



3. Select the parameter to be deleted.



4. In the menu, select **Edit**, then **Delete**.



The string parameter will be deleted from the registry.

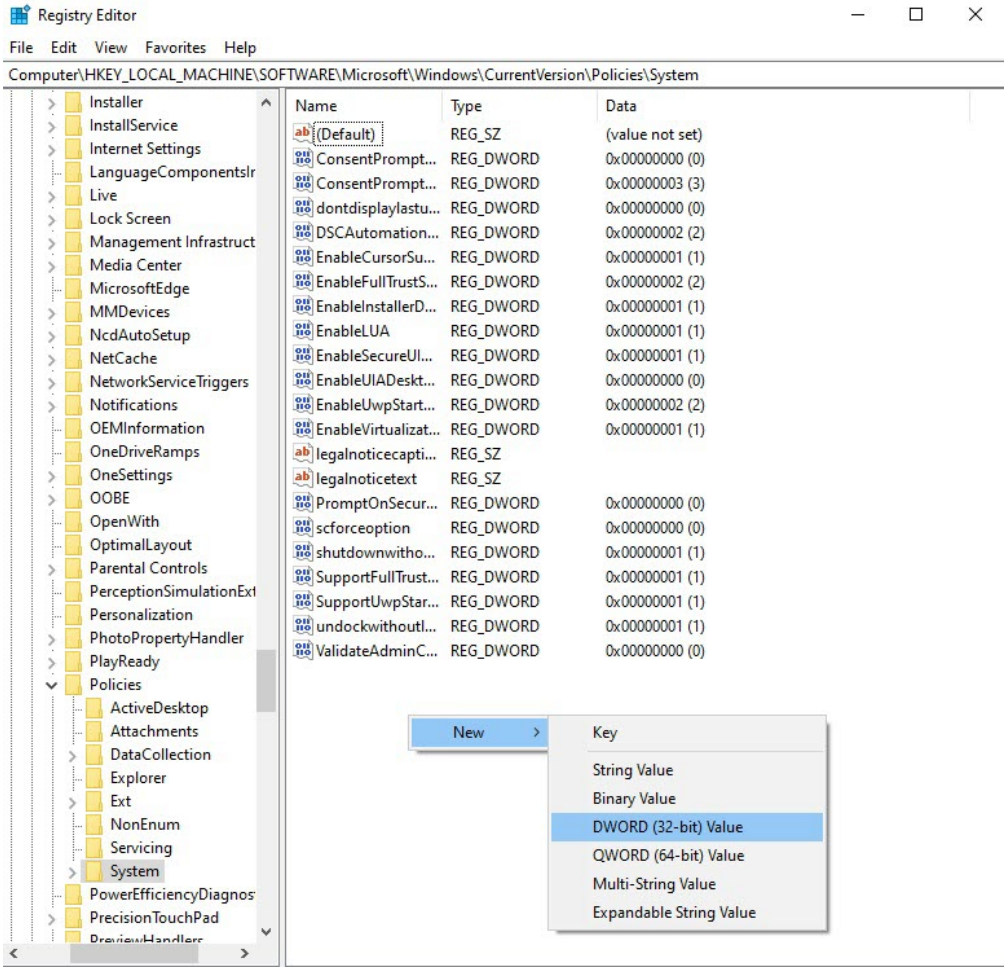
> **Note.**
>
> The **Edit** menu can also be opened as a context menu by right-clicking the required parameter.

Configuring network drives visibility when UAC is enabled in Windows OS

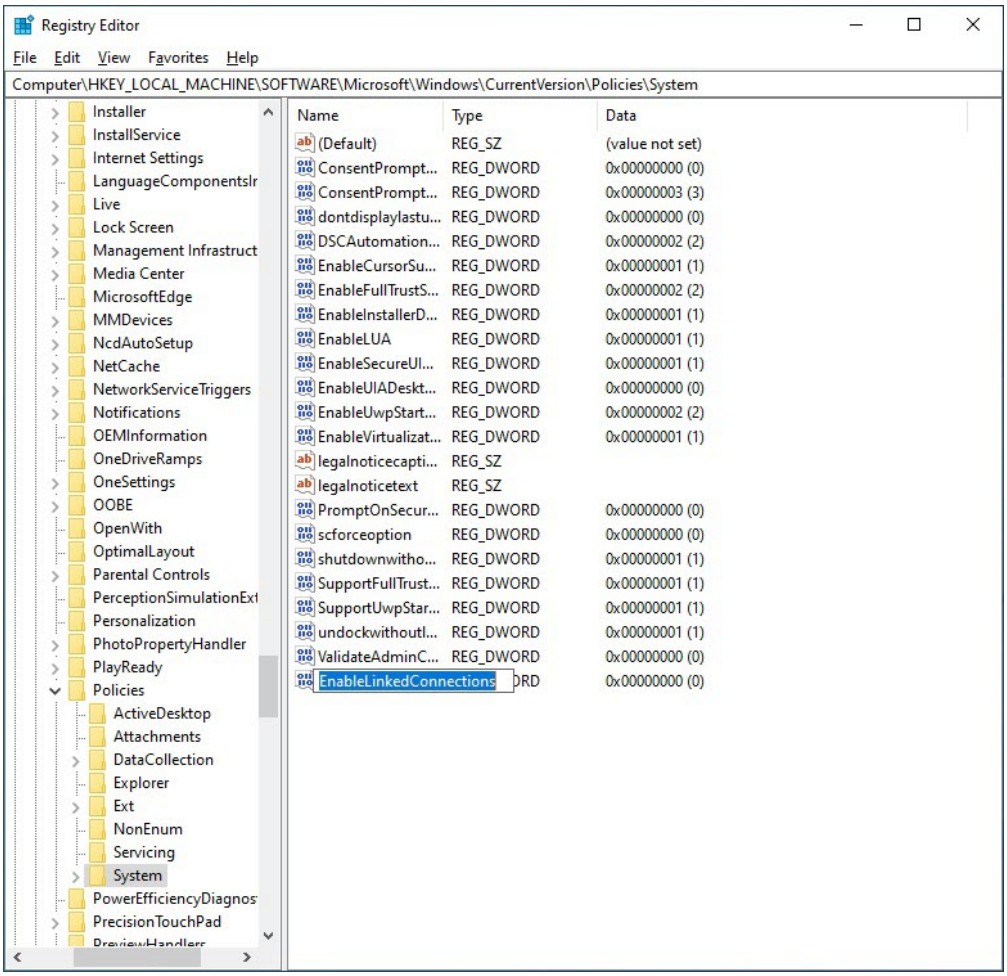
To configure archive storing to network drives when UAC is enabled in *Axxon PSIM,* create the EnableLinkedConnections key in the registry. For this do the following:

1. Open subsection of HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Policies\System registry.

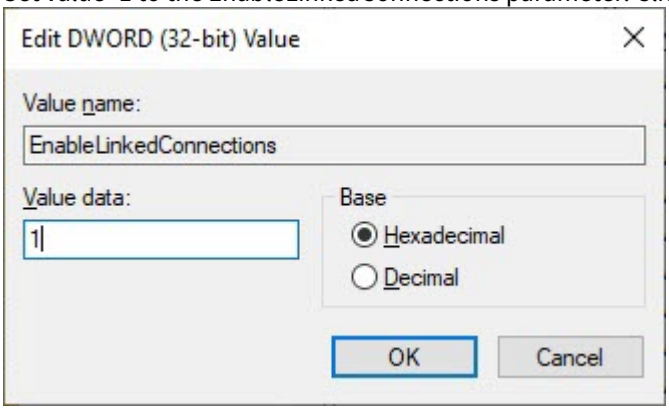
2. Create a new DWORD value.



3. Set EnableLinkedConnections name to the new value and click Enter.



4. Set value=1 to the EnableLinkedConnections parameter. Click the **OK** button.



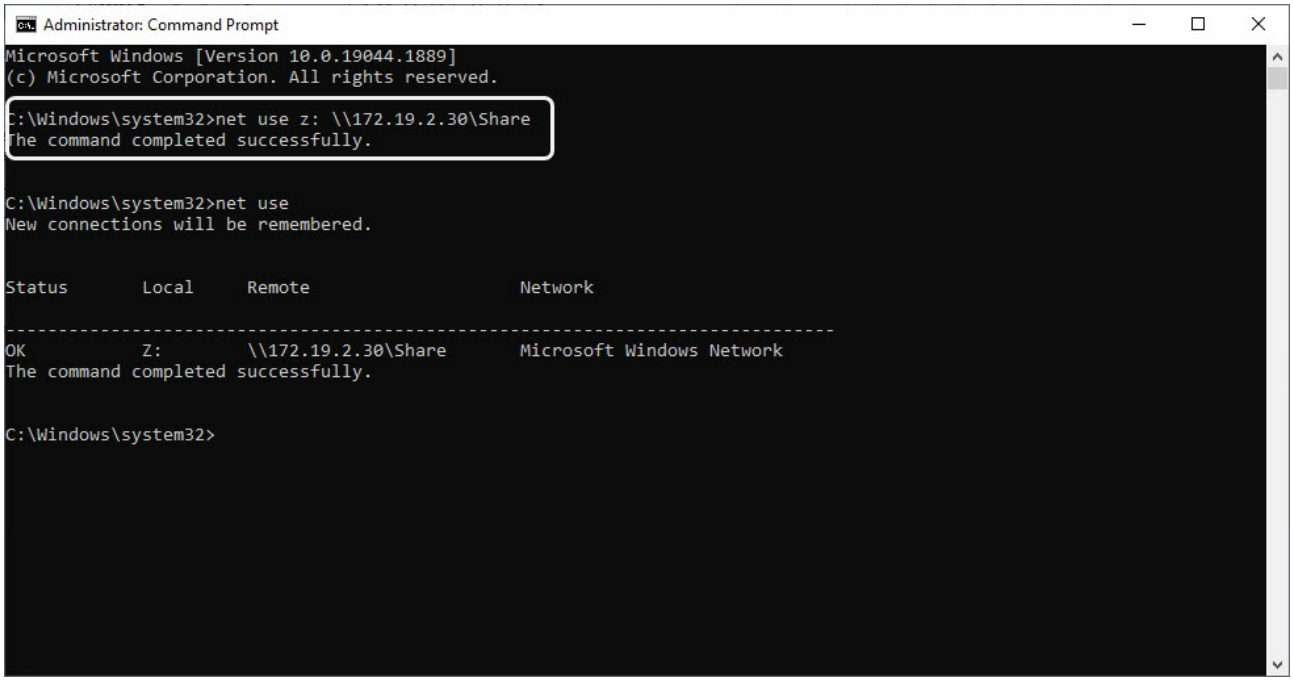
5. Exit the registry editor and restart your computer.

The EnableLinkedConnections registry key is created.

24.2.2 Connecting network disks in Windows Vista and Windows 7 OS

In some cases, network disks are not displayed in *Axxon PSIM* software settings in Windows Vista and Windows 7 OS when UAC is on. In order for the network disks to appear in *Axxon PSIM* settings, connect them in Windows OS as the administrator or as the user on whose behalf the video module will be launched, as follows:

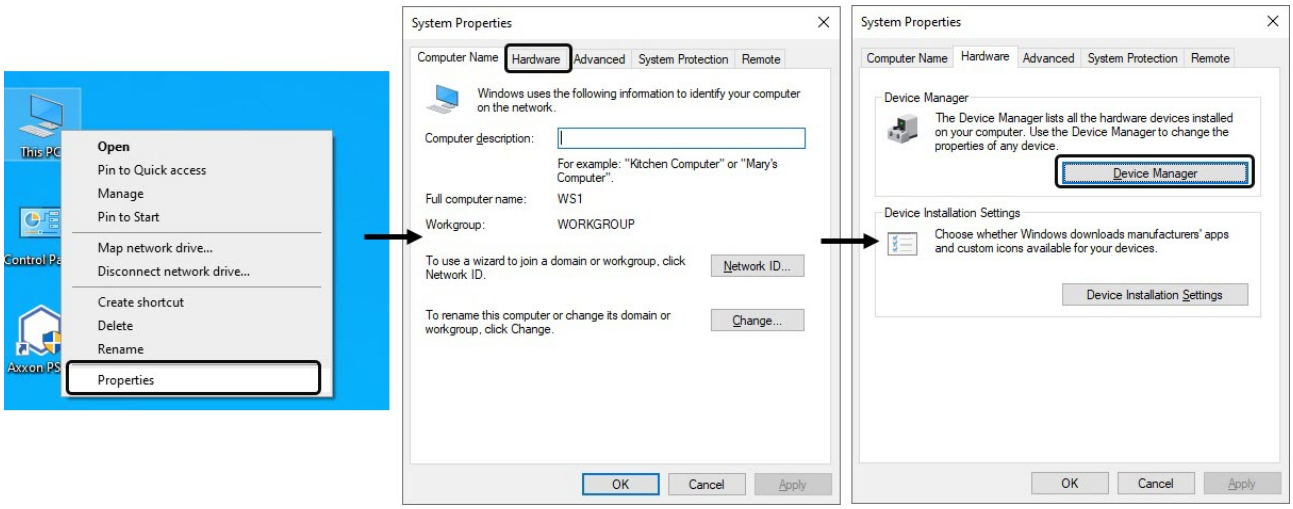
1. Call a command prompt. Select **Run** in **Start** menu and enter «cmd» in entry field and click **OK**.
2. Enter «net use Z: \\Address\Folder» in the command prompt; **Z** is letter of Roman alphabet that will represent net disk in the system, **Address** is IP-address of net disk, **Folder** is a name of folder.



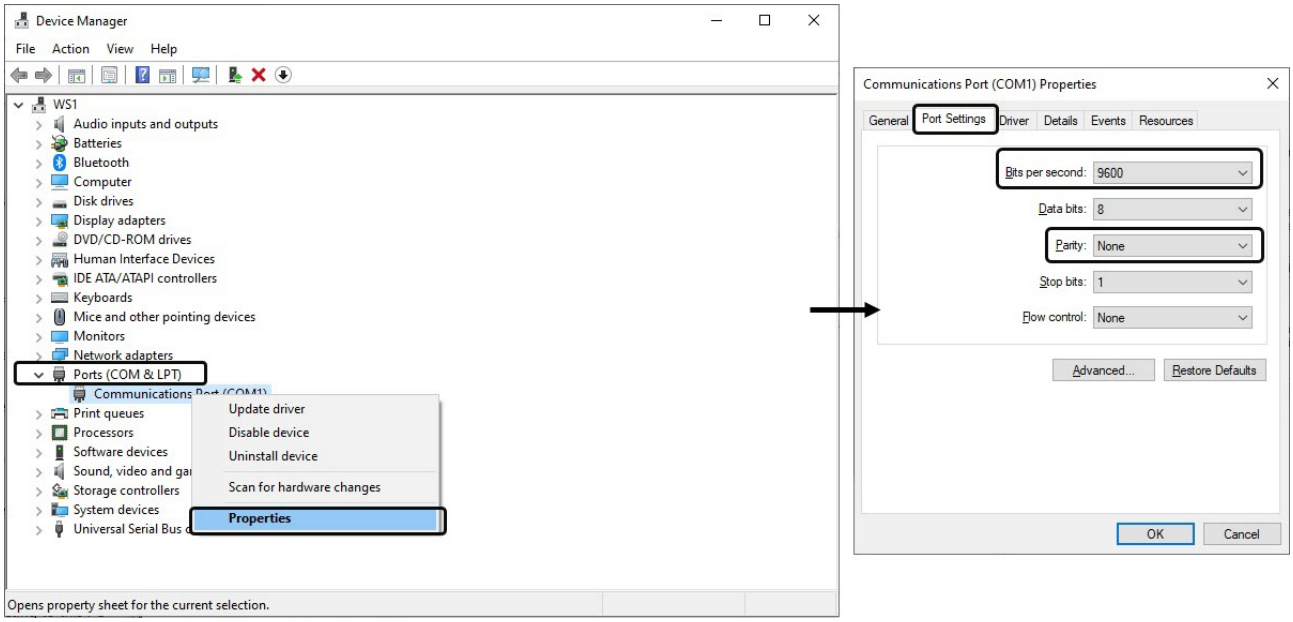
Net disk appears in *Axxon PSIM* settings after being connected.

24.2.3 Setting up serial (COM) ports in Windows

To view and edit the settings of COM ports, start the **Device Manager**. Right-click the **My Computer** icon on the **Desktop** and select **Properties** in the drop-down menu. The **System Properties** window will open. Open the **Hardware** tab and click the **Device Manager** button.



The **Device Manager** window will open. Expand the **Ports (COM & LPT)** branch and select the COM port to which the device to be set up is connected. Then, right-click the required COM port in the tree to open the drop-down menu and select **Properties**. The settings of the port will open in a dialog window. Go to the **Port Settings** tab to view and edit the **Bits per Second** and the **Parity** parameters.



24.2.4 Working with Windows OS services for operating Axxon PSIM installed as a Service

General information on Axxon PSIM operation as a Service

Starting the Service

Axxon PSIM installed as a Service, is started before user authorization in Windows OS and before Windows applications are launched (including the Explorer application which is used for starting up such applications as Windows OS and various other applications installed on the Server). The **PSIM Core Server** service performs the

start. The **PSIM Core Server** service is created when *Axxon PSIM* is installed as a Service. By default, the psim.exe executable module is used to start *Axxon PSIM.*

> **Note**
>
> When you work with *Axxon PSIM* installed as a Service, you can shut down *Axxon PSIM* normally while the service remains running, and *Axxon PSIM* can be restarted.

> **Note**
>
> If psim64.exe must be started when the **PSIM Core Server** service starts, you need to change the value of the core_module_name registry key (see Registry keys reference guide) and restart the service.

Users

When installing *Axxon PSIM* as a Service in Windows, the PsimUsers user group will be created, and the user who performed the installation will be added to this group. To add other users to the PsimUsers group, use the Windows OS means. The users in the PsimUsers group have the rights to configure *Axxon PSIM* installed as a Service and access its interfaces. When it is necessary to provide access to *Axxon PSIM* interfaces for a large number of users, it may be convenient to use the Active Directory (AD)—see Configuring Axxon PSIM™ as a Service to work with Active Directory (AD).

> **Note**
>
> To start *Axxon PSIM* as a different user, you must either assign administrator rights to this user or increase the rights, as described in OS settings for correct operation of Remote Admin Workstation or Server.

> **Note**
>
> For more information about user groups and working with them, see Microsoft Help website http://windows.microsoft.com.

When a user from the PsimUsers group logs in, *Axxon PSIM* restarts as this user. If you don't want to start *Axxon PSIM* as this user (in other words, *Axxon PSIM* must remain running as the SYSTEM user), disable the restart using the Tweaki.exe utility—see The Settings panel of the Windows section.

> **Note**
>
> If *Axxon PSIM* is running as some user (not as SYSTEM), if you change the user to any other user without logging out the first user, *Axxon PSIM* won't restart. It will remain running as the first user.

Access to the database

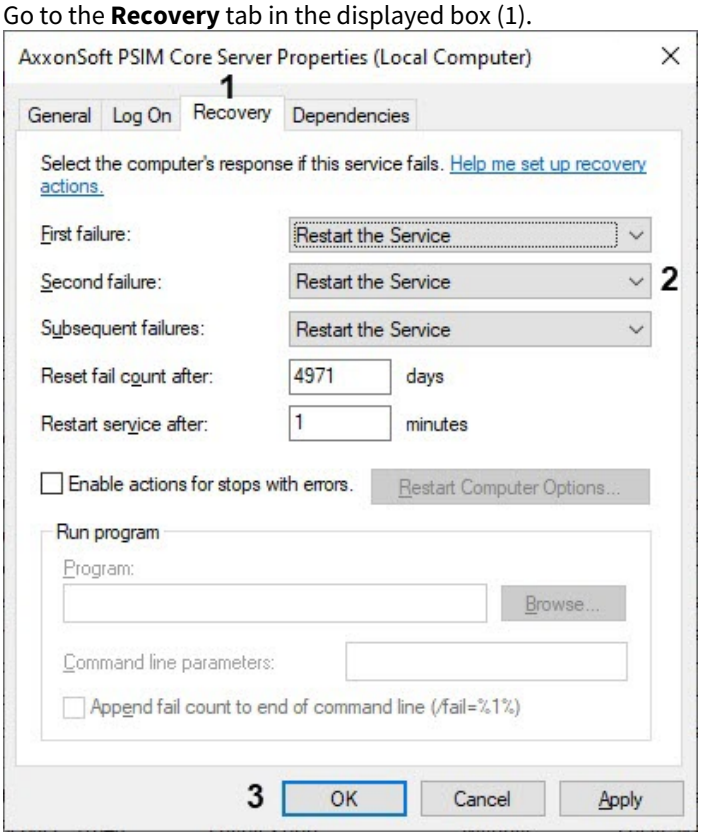
If *Axxon PSIM* is installed as a Service and the database connection is performed using Windows credentials, then to work as any user different from the user who installed *Axxon PSIM,* it is necessary that this user have the corresponding SQL server rights.

> Installation of Axxon PSIM as a Server/Remote Administrator's workstation

Configuring the restart of the AxxonSoft Axxon PSIM Core Server service

If the AxxonSoft Axxon PSIM Core Server service is to be restarted, do the following:

1. Go to the Windows **Control Panel** in the **Start** menu.
2. Select **System and Security -> Administrative Tools -> Services**. The list of services registered in the system is displayed.
3. Select the **Properties** item in the context menu of the Axxon PSIM Core Server service.
4. The context menu is called with the right click on the name of the service.
5. Go to the **Recovery** tab in the displayed box (1).



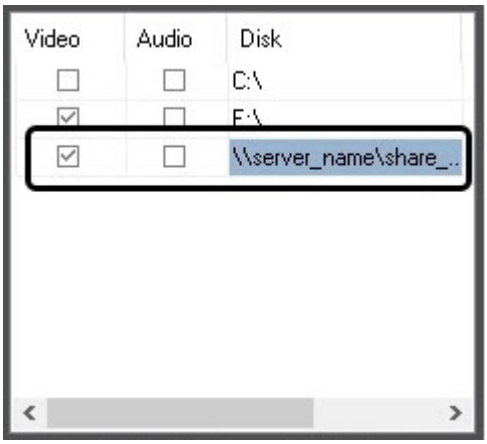
6. In the corresponding drop-down lists select the actions to be performed in case of the first, second and subsequent system failures (2).
7. To save the changes, click the **OK** button (3).

The restart of the AxxonSoft Axxon PSIM Core Server service is now configured.

Using network disks of Axxon PSIM installed as a Service

If it is necessary to use network disks for working with archive in *Axxon PSIM* that is installed as a Service you should add them by setting UNC path, the following way:

1. Go to the last line in the list of disks and click the “↓” key.



2. Set a path to the network disk in appeared line in the **Disk** column. UNC path is set in “\ \server_name\share_name” format where the “server_name” is the name of file server and the “share_name” is the network name of public folder.
3. Set the checkbox for created disk in the **Video** column.

Note.

If network disk is added not by setting the UNC path, then recording on it is unavailable in **Axxon PSIM is installed as a Service** mode.

Attention!

If *Axxon PSIM* is installed as a Service on Windows XP OS, it is impossible to record on network disks.

Recording on network disks in *Axxon PSIM* installed as a Service is performed only in case when *Axxon PSIM* is started under some user (not under SYSTEM) and the user is logged in the system. When the user who belongs to the PSIM Users group logs in the system, *Axxon PSIM* is restarted automatically on behalf of this user. Both network disks and UNC path are available for recording. If the user logs off the system, *Axxon PSIM* will restart under system account and all network disks are unavailable.

Starting Axxon PSIM as a Service

If *Axxon PSIM* was not installed as a Service, and you want to make it such, do one of the following:

1. Reinstall *Axxon PSIM* and set the **Install Axxon PSIM as a service** checkbox (see Installing and removing Axxon PSIM).
2. Use the command line. In this case, do the following:
    a. Run the Windows cmd.exe command line in one of the following ways:
        i. Under the administrator account with disabled UAC.
        ii. Under the administrator account or user account with enabled UAC as administrator.
    b. Go to the *Axxon PSIM* installation directory.
    c. Run the "PSIMRunService.exe -i" command in the Windows command line. As a result, the **PSIM Core Server** service will be registered in the system.
    d. Restart the computer. The service will start automatically immediately after the reboot.

As a result, *Axxon PSIM* will be installed as a Service, the **PSIM Core Server** service will be in the "Running" status.

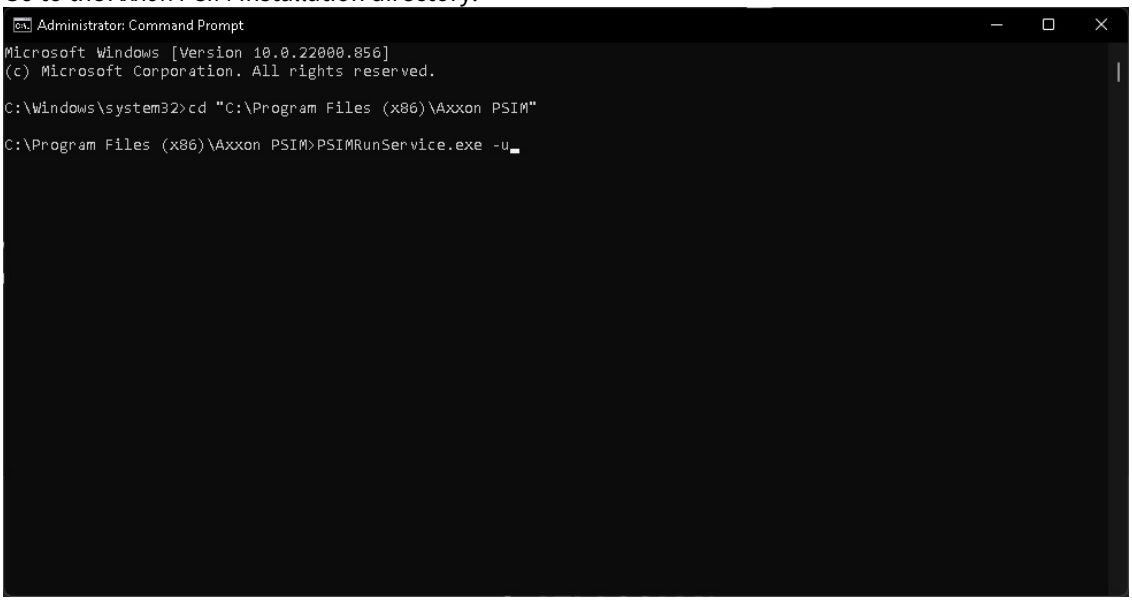
Note

You can monitor the operation of the **PSIM Core Server** service in the Windows **Task Manager** on the **Services** tab.

Disabling Axxon PSIM as a Service startup

There are two ways to disable the startup of *Axxon PSIM* as a Service:

1. By restarting *Axxon PSIM*:
   a. Remove *Axxon PSIM* (see Removing Axxon PSIM software section).
   b. Install *Axxon PSIM* without setting the Server checkbox (see Installing Axxon PSIM software section).
2. By using the command prompt:
   a. Run the Windows cmd.exe command prompt:
      i. Under the administrator account with disabled UAC.
      ii. As administrator under the administrator account or user account with enabled UAC.
   b. Go to the *Axxon PSIM* installation directory.



   c. Run **PSIMRunService.exe –u** command with the Windows command prompt.

Axxon PSIM as a Service startup is now disabled.

Configuring Axxon PSIM as a Service to work with Active Directory (AD)

In order to run *Axxon PSIM* that was installed as a Service using the users from an Active Directory (AD) domain without adding them to the local PSIM Users group, it is necessary to specify the user group name in the **PSIMUserGroup** key of the Windows registry (for details, see Registry keys reference guide. For details on working with the registry, see Working with Windows OS registry).

This configuration may be useful for arranging the access to the *Axxon PSIM* as a Sevice interfaces for a large number of users. In this case, it will not be necessary to register all the required users in the local PSIM Users group on each Server.

It is also necessary for this user group to have access and permission to inherit the subdirectories rights to the following directories:

1. Root directory on disk;
2. Windows registry branches:
   - For (x32): HKEY_LOCAL_MACHINE\SOFTWARE\AxxonSoft\

- For (x64): HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\AxxonSoft\

After you log in to Windows within an AD domain using the AD user account, this setting will allow you to provide the *Axxon PSIM* interface without adding a user to the Axxon PSIM Users group. It does not require any additional user configurations to grant the access rights to the necessary Windows branches, the folder with the installed *Axxon PSIM*, the Video archive folders, or other service folders according to the access rights assigned to the user in *Axxon PSIM*.

Note

Please note that only one user at a time can operate *Axxon PSIM* running as a Service. Log out before logging in with other user's credentials. If a user just locks the display without logout before logging in with new credentials, *Axxon PSIM* interfaces are not available to such new user.

Updating Axxon PSIM installed as a Service

If *Axxon PSIM* as a Service was started manually after its installation (see Starting Axxon PSIM as a Service), do the following to update it:

1. Change the **INSTALL_AS_SERVICE** registry key by setting the value to **1**. It is necessary to start the **Axxon PSIM Core Server** service after the update.
2. Update according to the manual: Updating Axxon PSIM™ software.

If *Axxon PSIM* was initially installed as a Service (i.e. the **Install Axxon PSIM as a service** checkbox was set when installing *Axxon PSIM),* you don't need to change the registry key, you can go straight to updating according to the manual.

As a result, *Axxon PSIM* will be updated and continue to operate as a Service.

24.2.5 The list of TCP ports used in Axxon PSIM

On the page:

- Axxon PSIM base
- Monitoring PSIM
- Auto PSIM
- DetectorPack PSIM
- Face PSIM
- POS PSIM
- ACFA PSIM subsystem

The list of TCP ports used in *Axxon PSIM* is given in the table. The ports can be changed using the ChangePort registry key (see Registry keys reference guide for details).

MS SQL Server also uses TCP port 1433 and UDP port 1434 (by default) for database synchronization.

Note

MS SQL can use dynamical ports to synchronize databases.

To specify which ports are in use go to the **Start** → **Microsoft SQL Server Express 2014** → **Configuration Tools** → **SQL Server Configuration Manager** → **SQL Server Network Configuration** → **Protocol for SQLEXPRESS** → **TCP/IP** → **IP Addresses** menu and check which type and number of port are specified in the **IPAII** parameter.
Configure using of fix ports according to the manual on the http://technet.microsoft.com/en-gb/library/ms177440.aspx Microsoft web-site if using the dynamical ports is unacceptable.

Ports 8085 and 8087 are used to connect clients to Web Server 2.0 module.

Note

This data is necessary for setting security system and firewall on the Server. The **Corresponding module to which connection is made** parameter is set for client-server modules. If there is the "-" sign in this column, this means connection to the psim.exe kernel.

Axxon PSIM base

Module name	Name of the corresponding object in Axxon PSIM	Connection port	Corresponding module to which connection is made
ARCHPANEL.RUN	Backup archive panel	22118	-
ATM	ATM	21090	-
AUDIO.RUN	Microphone	21008	-
AUDIO.RUN	Microphone	20903	VIDEO.RUN
AUDIO.RUN	Microphone	20904	VIDEO.RUN
AUDIO.RUN	Backup audio archive	20911	-
AUDIO.RUN	Audio playback card	20910 and 24008	-
CAM_TITLE.RUN	Captioner	21077	-
CAM_TITLE.RUN	Captioner	20900	VIDEO.RUN
CONFCHEKUTIL.RUN	Configuration check	22220	-

DIALOG.RUN	Operator query panel	21058	-
DRS.RUN	Data replication service	22175	-
EVENT_COUNTER.RUN	Event counter	22153	-
EVENT_VIEWER.RUN	Event viewer	21055	-
IIDK_TEST.EXE	IIDK interface	21030	-
INC_MANAGER.RUN	Incident manager	22401	-
INC_MANAGER.RUN	Incident manager	22440	System
INC_SERVER.RUN	Incident server	22432, 22439	-
JAVA.EXE	Web-server 2.0	22212	-
KEYB.RUN	Keyboard	21005	-
LDAPIMPORT.RUN	LDAP service	22252	-
LIVEPLAYER.RUN	Live sound switch	22199	-
MAP.RUN	Map	21051	-
MC_CLIENT.RUN	Intercom Control Monitor	22179	-
MESSAGE.RUN	Alarm Message Window	21056	-
MMS.RUN	Mail Message Service	21031	-
OPERATORPROTOCOL.RUN	Operator protocol	22215	-

PLAYER.RUN	Audio player	20910	AUDIO.RUN
PLAYER.RUN	Audio player	21060	-
PSIM_HOST.EXE	Computer	21111	-
SMS.RUN	Short Message Service	21035	-
STREAMINGSERVER.RUN	rtsp Server	22228	-
TELEMETRY.RUN	Telemetry Controller	21010	-
TELEMETRY_PANEL.RUN	Telemetry control panel	22101	-
TITLEVIEWER.RUN	Search by captions	20978	CAM_TITLE.run
TITLEVIEWER.RUN	Search by captions	22112	-
VIDEO.RUN	-	20900	-
VIDEO.RUN	Video Capture Device	21050	-
VIDEO.RUN	Video stream archiever	20901	-
VIDEO.RUN	Video stream gate	20902	-
VMDADB.RUN	VMDA metadata storage	22219	-
VMS.RUN	Voice Message Service	21032	-
VNS.RUN	Voice notification service	21004	-
WEBSERVER.RUN	Web-server	21034	-
WINDOW.RUN	External window	21053	-

OPCIE.RUN	HTML Interface	22141	-
Manitou.run	Manitou software	22302	-
QueuesManager.run	Queues Manager	22322	-
display_manager.run	Display Manager	22323	-
SipPanel.run	SIP panel	22331	-
StreamTerminal.run	SIP terminal	22332, 22537	-
BacNetInt.run	BacNet	22350	-
ADataCenter.Web.exe	Axxon PSIM Data Webservice	5000	-
YITUClient.run	YITU Client	22452	-

Monitoring PSIM

Module name	Name of the corresponding object in Axxon PSIM	Connection port	Corresponding module to which connection is made
VIDEOSRV.EXE	IIDK interface	21030	-
VIDEOSRV.EXE	VideoServer	20900	VIDEO.RUN
VIDEOSRV_C.RUN	Agent of Control	22001	
VIDEOSRV_E.RUN	Search in archive	22003	-
VIDEOSRV_M.RUN	Monitoring	22222	-
VIDEOSRV_R.RUN	Monitoring reports	22223	-

VIDEOSRV_S.RUN	Server of Control	22002	
VIDEOSRV.EXE	Server of Control	7777	VIDEOSRV.EXE
STATEUPS.EXE (UPS operation)	-	8888	VIDEOSRV.EXE
BATDISCH.EXE (UPS operation)	-	8888	VIDEOSRV.EXE
POWEROFF.EXE (UPS operation)	-	8888	VIDEOSRV.EXE
POWERON.EXE (UPS operation)	-	8888	VIDEOSRV.EXE
CentralNetServer.exe	CSC	7755	VIDEOSRV.EXE
forward.run	Data gateway	22327	-

Note

If *CSC (Central Server of Control)* is in use, then between *CSC* communication server and *Server of Control* the 20 and 21 TCP ports are used to provide FTP operation.

Auto PSIM

Module name	Name of the corresponding object in Axxon PSIM	Connection port	Corresponding module to which connection is made
DT_SERVER.RUN	Traffic Detector	22151	-
DT_SERVER.RUN	Traffic Detector	20900	VIDEO.RUN
DT_SERVER.RUN	Traffic Detector	22152	-
DT_SERVER.RUN	Traffic Detector	20988	-
DT_VIEWER.RUN	Traffic Monitor	22152	-

VEHICLE_DETECTOR.RUN	Vehicle Detector	22182	-
LPRDB.RUN	External Plates DB	22100	-
RADAR.RUN	Speed traps server	22157	-
ROSSI_FLOW.RUN	Potok recognition server	22119	-
TRAFFIC_PROCESSOR.RUN	Vehicle Processor	22181	-
URMLPR.RUN	LPR channel	22137	-
URMLPR.RUN	LPR channel	20900	VIDEO.RUN
URMLPR.RUN	LPR channel	10001	-
VEHICLE_TRACER.RUN	Vehicle Tracer	22187	-
VEHICLE_TRACER.RUN	Vehicle Tracer	20986	-
DETECTOR_EXT.RUN	Traffic Light Detection	20993	-

DetectorPack PSIM

Module name	Name of the corresponding object in Axxon PSIM	Connection port	Corresponding module to which connection is made
DETECTOR_EXT.RUN	Fluid level detection	20993	-

Face PSIM

Module name	Name of the corresponding object in Axxon PSIM	Connection port	Corresponding module to which connection is made
FACE_MONITOR.RUN	Face Monitor	21919	-
FACE_RECOGNITION_PROXY.RUN	Face Search Server	22207	-
FACE_RECOGNITION_WEB_PROXY.RUN	Web access to face search	22214	-
FIR_MONITOR.RUN	Recognized Faces Monitor	22135	-
FIR_MONITOR.RUN	Recognized Faces Monitor	20985	FIRSERVER.RUN
FIR_MONITOR.RUN	Recognized Faces Monitor	20900	VIDEO.RUN
FIRSERVER.RUN	Face Recognition Server	22136, 10000	-
WEBVIEWER.RUN	Web-interface viewing module	22216	-
FACE_CLIENT.RUN	Face recognition and search interface	22297, 20985	FIRSERVER.RUN via 20985

POS PSIM

Module name	Name of the corresponding object in Axxon PSIM	Connection port	Corresponding module to which connection is made

ALERTNURSES.RUN	Alert nurse	22196	-
POS.RUN	POS terminal	21012	-
POSAGGREGATOR.RUN	POS Replicator	22245	-
POSVIEWER.RUN	Receipt viewer	22111	-
POSVIEWER.RUN	Receipt viewer	20977	POS.RUN
McMixer.run	McMixer	22321	-

ACFA PSIM subsystem

Module name	**Name of the corresponding object in Axxon PSIM**	**Connection port**	**Corresponding module to which connection is made**
abc.run	ABC	22031	-
abc_cr.run	ABC control reader *	**22235**	-
agency_person.run	Visitor Management System	**21057**	-
aiu.run	"777 ROVALANT" system *	**22145**	-
aiu3.run	Rovalant 777 ISS *	**22217**	-
anson.run	Anson ACS *	**22267**	-
APDA.run	Tempo Reale ACS *	**22188**	-

apollosdk.run	ApolloSdk	**22204**	-
Bagulnik2.run	Bagulnik2 *	**22195**	-
biosmart.run	BioSmart	**22236**	-
bolid.run	"Bolid" (COM server)	**21025**	-
castle.run	Castle server	**22183**	-
castle_cr.run	CASTLE control reader *	**22231**	-
chrysantemum.run	PRHK *	**22198**	-
DB_Import.run	Data import	**21022**	-
Dunai2.run	Dunai 2 *	**22255**	-
dunai3.run	Dunai 3 *	**22255**	-
Elsys.run	Elsys *	**22206**	-
forsec.run	ForSec *	**22166**	-
forteza.run	Forteza	22237	-
Galaxy.run	Galaxy Dimension	**22189**	-
galaxy2.run	Honeywell ACS/SGPS	**22239**	-
gate_cr_z2.run	Z2 control reader *	**21222**	-
Hid.run	VertX / Edge ACS	22220	-

hunter.run	HUNTER PRO SFA	**22256**	-
intrepid.run	Intrepid Interface Module	**22172**	-
Intrepid2.run	Intrepid Grunt	**22229**	-
Intrepid3.run	Intrepid II System	22240	-
keyking.run	KeyKing ACS	**22244**	-
keywatcher.run	KeyWatcher ACS	22258	-
keywatcher_interface.run	KeyWatcher ACS Interface	22259	-
kodos.run	Kodos server *	**22130**	-
kodos_cr.run	KODOS control reader *	**22155**	-
kronverk.run	Kronverk *	**22139**	-
ksu_cr.run	KSU control reader *	**22338**	-
legos2.run	"Octagram" ACS/SFA *	**22190**	-
Magistrator.run	Magistrator *	**22161**	-
nac.run	"NAC" ACS *	**21020**	-
nc.run	HoneyWell N1000	**21052**	-
ncg9.run	Controller NCG-9	**22266**	-

net.run	"Net" system *	**22185**	-
nskat.run	SKAT ACS *	**22248**	-
opc_wrapper.run	OPC Wrapper	22263	-
Optex.run	Optex System	22232	-
orion.run	Bolid (SDK Orion) *	**22173**	-
paradox.run	Paradox SFA/ACS	22192	-
parsec_pr_x08.run	PR-x08 control reader *	**22226**	-
Paxton_NET2.run	ACS Paxton NET2	**22233**	-
pelco.run	PELCO	**22234**	-
perco.run	"Perco" ACS *	**21019**	-
PercoS20.run	Perco S20 controller *	**22246**	-
PhotoIdentification.run	Photo Identification	**22163**	-
pl.run	Polon Alfa System	22242	-
pnet3.run	ParsecNET 3 ACS/SFA *	**22264**	-
ravelin.run	Gate Parking ACS	22227	-
RifString.run	RifString system *	**22197**	-
Rosslare.run	Rosslare ACS *	**22203**	-

rovalant_a6_a16.run	"ROVALANT (A6, A16)" system *	**22165**	-
rubeg8_isb.run	Rubeg 8 ISS *	**22256**	-
rubezh.run	Rubeg SFA *	**22261**	-
rubicon.run	Rubicon SFA *	**22209**	-
rusguard.run	"RusGuard" ACS *	22250	-
salto.run	SALTO Server	22208	-
satel.run	"Satel"	**21998**	-
securiton.run	"Securiton" ACS *	**22247**	-
sintegral.run	Strelec-Integral SFA *	**22257**	-
sphinx.run	Sphinx server	22177	-
strelec.run	"Strelec" SFA *	**22162**	-
topol.run	Topol PSS *	**22241**	-
trombon.run	Trombone SFA	**22224**	-
tss2.run	"TSS" ACS/SFA *	**22218**	-
unipos.run	"UniPos" 7002	22184	-
nipos5xxx.run	UniPos ACFA 5100-5200	**22211**	-

vers_rs.run	VERS ACS*	**22126**	-
WorkTime.run	Work Time Accounting	**22133**	-
xabc.run	Fortecia ACS *	22260	-
zline.run	"ZLine" FSA *	**22243**	-
account_manager.run	Access Manager	22291 32291	-
event_manager.run	Event Manager	22287	-
dsc.run	"DSC" FSA	22292	-
PSIMToNextBridge.run	ACFA PSIM − Axxon One bridge	22293	-
rubezh_global.run	"Rubezh Global" FSA	**22294**	-
satel2.md	"Satel INTEGRA" FSA	22296	-
Unicard.run	"Unicard" ACS	22298	-
zk.run	"ZK Teco" ACS	22299	-
glx2.run	"Galaxy Dimension v.2" FSA	22300	-
sintegral_web.run	"Strelec Integral Web Api" ACS *	**22301**	-
XTralis2WayProtocol.run	"ADPRO" PID	**22303**	-
Chomtech.run	"Chomtech" ACS	**22304**	-

Rbg08.run	"Rubezh-08" ACS *	**22305**	-
topol3.run	"Topol-3" PID	**22306**	-
nedap_retail.run	"Nedap retail" FSA	**22307**	-
WinPak.run	"HoneyWell WinPak" ACFA	22308	-
fs80cr.run	BioSmart FS80 control reader	**22309**	-
evs_sk.run	"EVS" ACS *	**22310**	-
acfa_emulator.run	Virtual Access Server	**22311**	-
pvscr.run	PVS control reader	**22312**	-
bsveins.run	"Biosmart UniPass" ACS *	22313	-
RubezhGlobal.run	Third-party integration for R3 protocol of the Rubezh company. Not included to ACFA PSIM	**22314**	-
an.run	OPC Wrapper	**22315**	-
nedap_aeos.run	"Nedap AEOS" ACS	22317	-
parsec_pr_p08.run	Parsec PR-P08 control reader	**22318**	-
suprema_cr.run	Suprema BioMini control reader	22319	-
UfdVolna.run	"Volna Alpha" PID	**22320**	-
SCardDriver.run	PCSC Wrapper control reader	**22324**	-

NoderEe12.run	"Aritech FP2000" FSA	22325	-
LockerBox.run	"LockerBox" ACS *	**22326**	-
suprema_2.run	"Suprema 2" ACS	22328	-
NoderEw1.run	"Noder EE12" ACS	**22329**	-
hikvision.run	"HikVision" ACS	22330	-
suprema_realscan.run	Suprema Realscan control reader	22333	-
stalt.run	"Stalt-SV" ACS *	**22334**	-
percoS20v2.run	"PERCo-S-20" ACS *	**22340**	-
dingo.run	Dingo *	**22346**	-
snmpwrapper.run	SNMP Wrapper Parent object	22277	-
MorphoLite.run	MorphoAccess SIGMA Lite	22345	-
ratek.run	Ratek *	**22352**	-
safekey.run	SafeKey Panel	22380	-
dahua.run	Dahua	22393	-
fft.run	FFT	22289	-
risco.run	RISCO	22399	-

onguard.run	OnGuard	22400	-
Symmetry.run	Symmetry	22404	-
Teltonika.run	Teltonika	22410	-
bosch.run	Bosch APE	22263	-
bosch_bis.run	Bosch BIS	22424	-
cerberus.run	Cerberus ECO controller	22268	-
CerberusPro.run	CerberusPro	22397	-
fibersensys.run	FiberSensys	**22388**	-
aritech.run	"Aritech FP2000" FSA	22275	-
telsap.run	"Telsap 2100" FSA	**22272**	-
Polon6000.run	"Polon6000" FSA	**22347**	-
NoderEw2.run	"Noder EW2/EWE2" ACS	22390	-
Esser.run	"ESSER by Honeywell" FSA	22396	-
nedap_aeos.run	Nedap AEOS	22317	-
Nitgen.run	NITGEN	**22288**	-
ansondb.run	AnsonDB	**22270**	-

rubezh_strazh.run	Rubezh Strazh *	**22419**	-
dozor.run	Dozor-1A *	**22147**	-
fsg.run	FSG	**22286**	-
suprema.run	Suprema Biometrical ACS	**22276**	-
senstar.run	Senstar	22418	-
velocity.run	Velocity	22274	-
abc_2.run	Controller ABC v2 *	22353	-
intellico.run	Intelliko *	**22411**	-
sdk_orion.run	SDK Orion *	**22284**	-
rusguard_2.run	Rusguard v2 *	**22363**	-
perco_cr.run	PERCO control reader *	**21999**	-
mion.run	M-ION *	**22387**	-
sphinx_oko.run	Sphinx Oko Base Unit *	**22366**	-
oko.run	Oko *	**22359**	-
lyrix.run	Lyrix *	**22385**	-
pui32.run	PUI 32 *	**22290**	-
UProxIP400.run	UProx IP-400 Server *	22392	-

keyguard.run	KeyGuard System *	**22421**	-
orlan.run	Orlan System *	**22398**	-
raskat.run	Raskat System *	**22283**	-
axrbc.run	Rubikon System *	**22337**	-
Start7.run	Start7 System *	**22265**	-
groza.run	Groza Detection Tool *	**22412**	-
alcoBarrier.run	AlcoBarrier *	**22415**	-
bas_ip.run	BAS-IP	22429	-
axacfa.run	AxACFA	22428	-
microengine.run	MicroEngine	22409	-
kaba_exos.run	Kaba Exos 9300 ACS	22450	-
SatelGprsa.run	Satel GPRS-A	22912	-
vanderbilt_spc.run	Vanderbilt	6880	-

* These integrations are not included into the English version of *ACFA PSIM* subsystem and are given here for information only.

24.2.6 Configuring Windows Firewall

If the Axxon PSIM software works when the Windows firewall is enabled, then the firewall is to be configured in the following way:

1. Add all processes connected to the Axxon PSIM software working to the exceptions list (of allowed programs and components). At standard settings the firewall requires the permission to start the process at first attempt of the module launch.
   Attempt of the module launch is performed at creation the corresponding object in the hardware tree. It is needed to allow the access to the network when the request appears.

If the access request is not displayed at the module launch attempt, add the needed processes to the allowed list manually.

2. While the *Axxon PSIM* software working in the distributed environment it is needed to add the SQLservr.exe and sqlbrowser.exe processes to the exceptions list (of allowed programs and components) on the Server with which the database synchronization is performed.

Note.

Detailed information on Windows Firewall configuration is presented in the Microsoft web-site: http://windows.microsoft.com/

24.2.7 Disable the Data execution prevention (DEP) function for Axxon PSIM software package

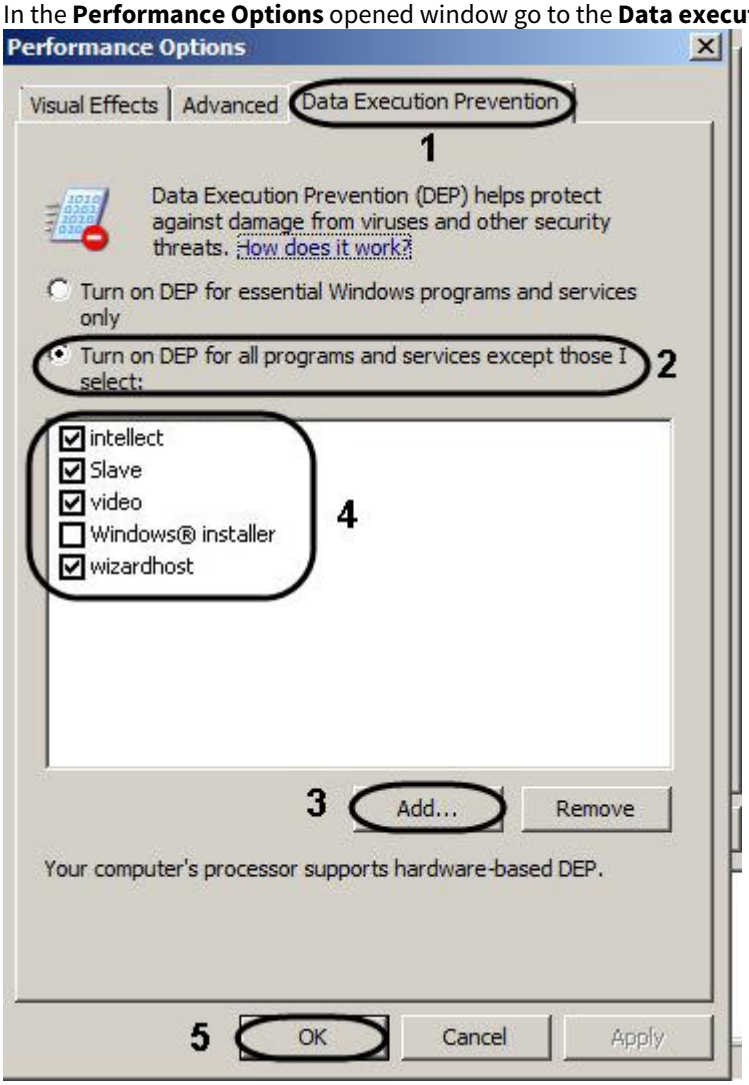
Attention!

Disabling Data Execution Prevention (DEP) should be made only on the recommendation of AxxonSoft technical support specialists.

To disable the DEP function for the Axxon PSIM software package, do the following:

1. Go to the **Start – Control panel – System** menu.
2. In the opened window go to the **Additional** tab and click the **Parameters** button in the **Performance** group.

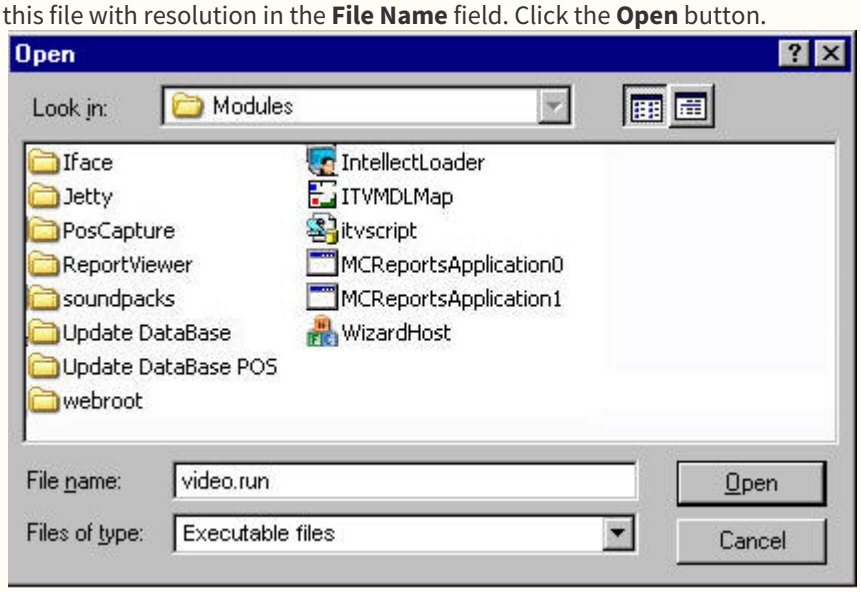
3. In the **Performance Options** opened window go to the **Data executing prevention** tab (1).



4. Set a switch in **Turn on DEP for all programs and services except those I select:** (2).
5. Click the **Add...** button and using the standard diolog of files opening specify the path to the psim.exe executable file which is located in the Axxon PSIM installation directory.
6. **Axxon PSIM** item will appear in the programs list. Ensure that the checkbox is set opposite of this item (4).
7. Repeat 5-6 staps for Modules\video.run, psim_host.exe and Modules\wizardhost.exe files.

Attention!

To add the video.run file go to the Modules folder in the files opening dialog and enter the name of this file with resolution in the **File Name** field. Click the **Open** button.



8. Click the **OK** button in the **Performance Options** window(5).
9. Click the **OK** button in the **System** window.

Disabling of DEP for Axxon PSIM is completed.

Note.

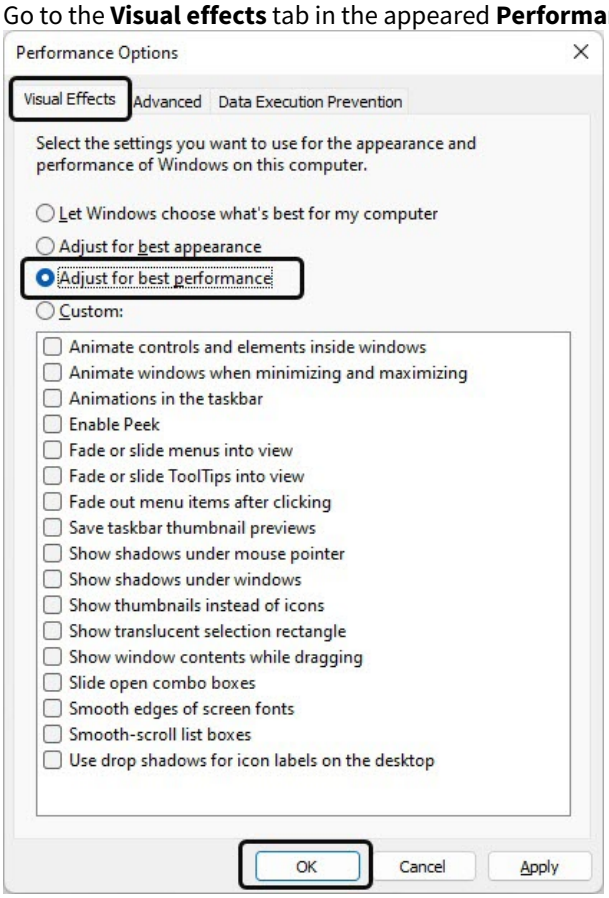
It is also possible the full DEP disabling on the computer. For full DEP disabling perform the **bcdedit.exe / set {current} nx AlwaysOff** command using the Windows command line from the <Windows>\system32 directory.

24.2.8 Configuring the best performance mode

On video Servers and Clients with installed *Axxon PSIM* Windows OS is to be set to the best performance mode:

1. Go to **Start – Control panel – System – About – Advanced system settings**.
2. In the appeared window, go to the **Advanced** tab and click the **Settings** button in the **Performance** group.

3. Go to the **Visual effects** tab in the appeared **Performance Options** window.



4. Set the switch to **Adjust for best performance** position.
5. Click the **OK** button.

The best performance has been adjusted.

24.2.9 Features of ElasticSearch service operation

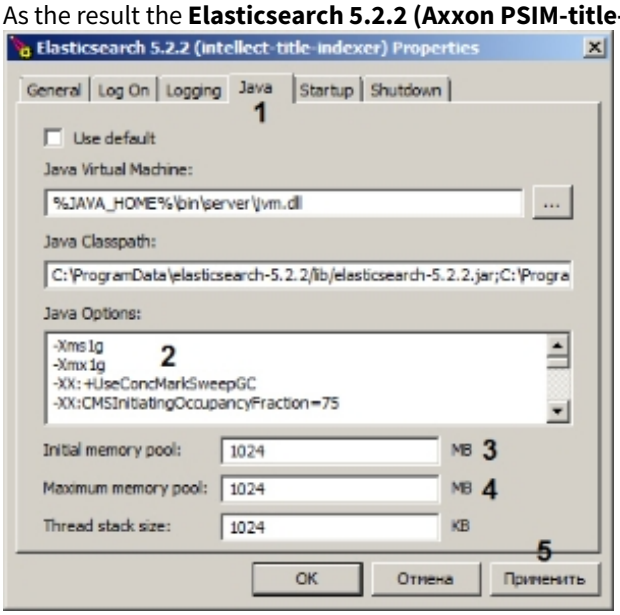
The ElasticSearch service is required for search by captions. It is included into the *Axxon PSIM* installation kit. If there is no need in search by captions, the service can be disabled at **Control panel - Administrative Tools - Services**. There is also SearchIndex parameter in the cam_title.run.config file to disable the use of the Elastic Search – see XML-file parameters reference guide.

Limiting RAM for Elasticsearch service

When installing *Axxon PSIM* in order to ensure the correct start of the Elasticsearch service, RAM allocated to this service is automatically limited on 32-bit systems.
If more RAM that Elasticsearch provides is required, do the following:

1. In the Windows command line go to the Elasticsearch installation directory, to the bin folder (by default, c:\ProgramData\elasticsearch-5.2.2\bin\).
2. Run the elasticsearch-service.bat batch file with "manager Axxon PSIM-title-indexer" parameters:
   `elasticsearch-service.bat manager Axxon PSIM-title-indexer`

3. As the result the **Elasticsearch 5.2.2 (Axxon PSIM-title-indexer) Properties** window appears.



4. Go to the **Java** tab (1).
5. Reduce the value of the **Xms** (memory pool at the start of Java virtual machine) and **Xmx** (maximum memory pool for Java virtual machine) parameters (2). For instance, set them to 1 GB as follows:
   -Xms1g
   -Xmx1g
6. In the **Initial memory pool** field, specify the size (in megabytes) of the memory pool at the start of Java virtual machine (3).
7. In the **Maximum memory pool** field, specify the maximum memory pool size (in megabytes) for Java virtual machine (4).
8. Click the **Apply** button (5).

RAM for the Elasticsearch service is now limited.

Running titles database update for restoration of ElasticSearch

In some cases, ElasticSearch can stop working after continuous period of operation. If this happens, run titles database update in one of the following ways:

1. With a macro and **Reindex** reaction of the **Captioner** object – see Creating and using macros.
2. With a script – see CAM_TITLE Captioner.

24.3 Appendix 3. Axxon PSIM software database management

24.3.1 Axxon PSIM software database functions

Axxon PSIM software database provides:

1. Data storage:
   a. data on registered system objects and their settings;
   b. departments and user accounts and rights;
   c. on registered system events;
   d. on changes in servers and Remote Admin Workstations configuration;
   e. on changes in registered system object specifications and their settings;

   f. data on network names and IP-addresses of distributed system servers, Remote Admin Workstations, Remote Clients and their interaction parameters;
2. Data replication from different servers and Remote Admin Workstations.

The main and the single default database of the *Axxon PSIM* software is the Configuration database. The Configuration database is used to realize all the above-listed functions.

Axxon PSIM software can be configured to store the registered system events not in the default Configuration database, but in the Events log database.

> **Note**
>
> To configure *Axxon PSIM* databases, use the idb.exe utility, which is described in the The idb.exe utility for converting databases, selecting database templates and making backup copies of databases section.

24.3.2 Guidelines on using the Axxon PSIM database

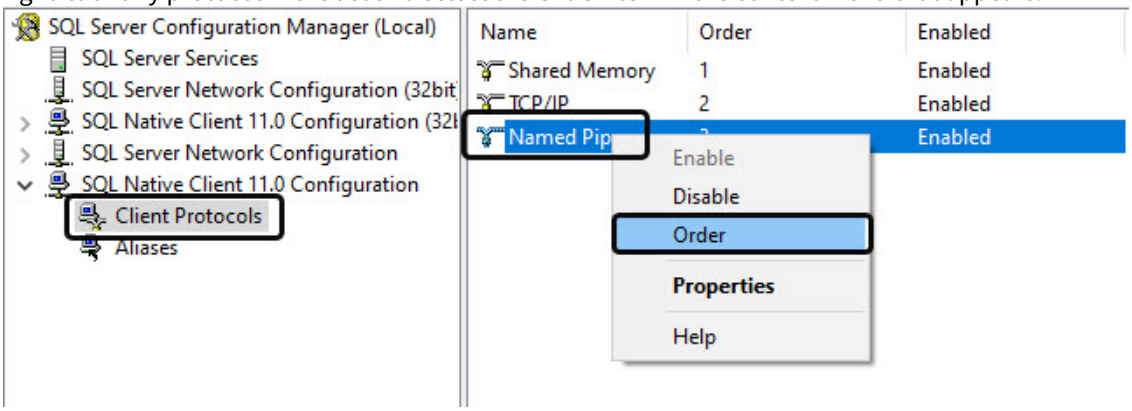
To provide the effective and stable performance of *Axxon PSIM*, take into account the following recommendations on using the database:

1. You must synchronize the databases of servers and Remote Administrator Workstations with the administration server database to provide the ability of the centralized administering of the video surveillance and audio control system.

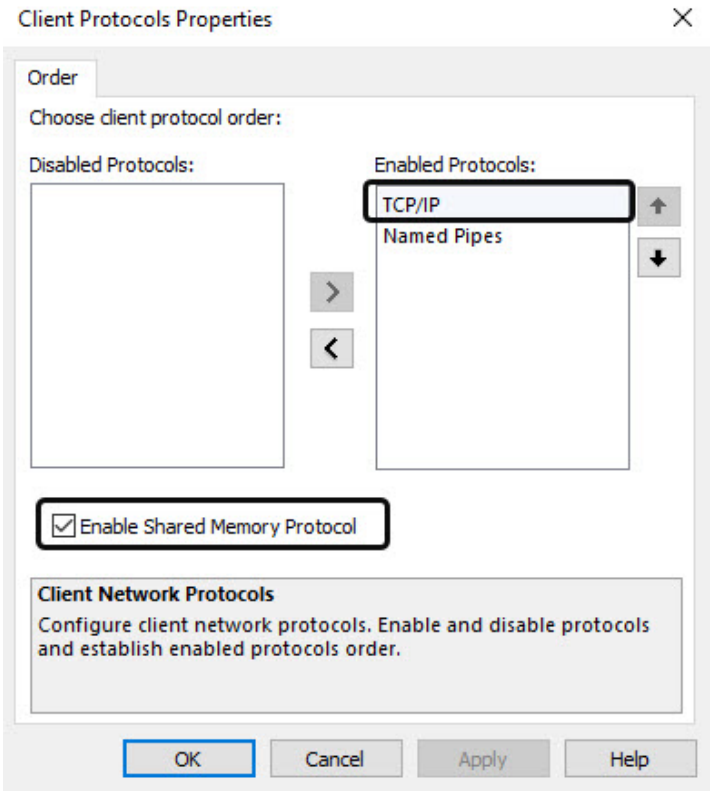
   > **Note**
   >
   > We recommend configuring the automatic backup of the *Axxon PSIM* database in MS SQL Server, for example, once a week (by default, the automatic backup isn't configured).

2. If you want to store the registered events in the system in a centralized way during the long-term period, we recommend configuring *Axxon PSIM* on servers and Remote Administrator Workstations to store events in the **Events log** database separately from the **Configuration** database (see Extracting event protocol into an individual database).
3. If you use the protocol of the dynamic host configuration (DHCP), make sure that the TCP/IP protocol priority for local databases is the highest. Otherwise, if you disconnect the network cable, the communication between *Axxon PSIM* and its local database located on the same computer where *Axxon PSIM* is installed can be lost. To view and prioritize network protocols, use the *SQL Server Configuration Manager* utility:
   a. Run the *SQL Server Configuration Manager* utility (**Start** → **Microsoft SQL Server Express 2019** → **Configuration Tools**).
   b. In the left part of the utility's interface window, click the title of the **SQL Native Client Configuration** list, and then select the **Client Protocols** item in the drop-down list. In the right part of the window,

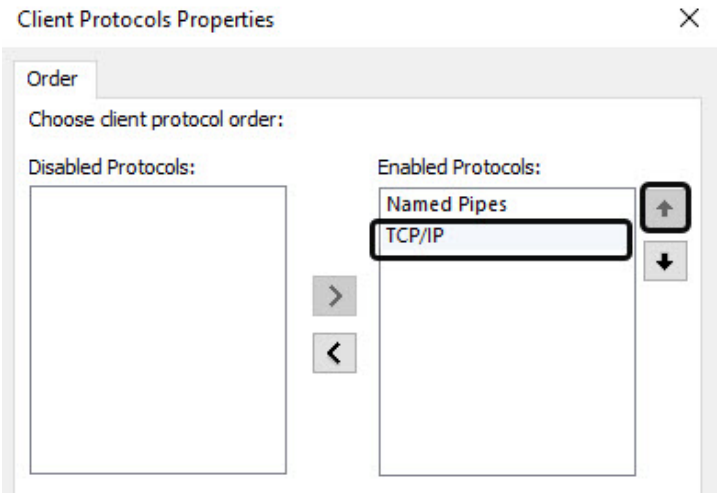
right-click any protocol in the list and select the **Order** item in the context menu that appears.



c. In the **Client Protocols Properties** window that opens, the list of client protocols for the local SQL databases in descending priority order is displayed in the **Enabled Protocols** field. The **TCP/IP** line must be located at the very top of the **Enabled Protocols** list. Also, you must set the **Enable Shared Memory Protocol** checkbox.



d. If the **TCP/IP** line isn't located at the very top of the **Enabled Protocols** list, use the **Up** button to move it.



24.3.3 Connecting the Axxon PSIM database

When *Axxon PSIM* is installed, it is configured to operate with the *Axxon PSIM* MS SQL server database.

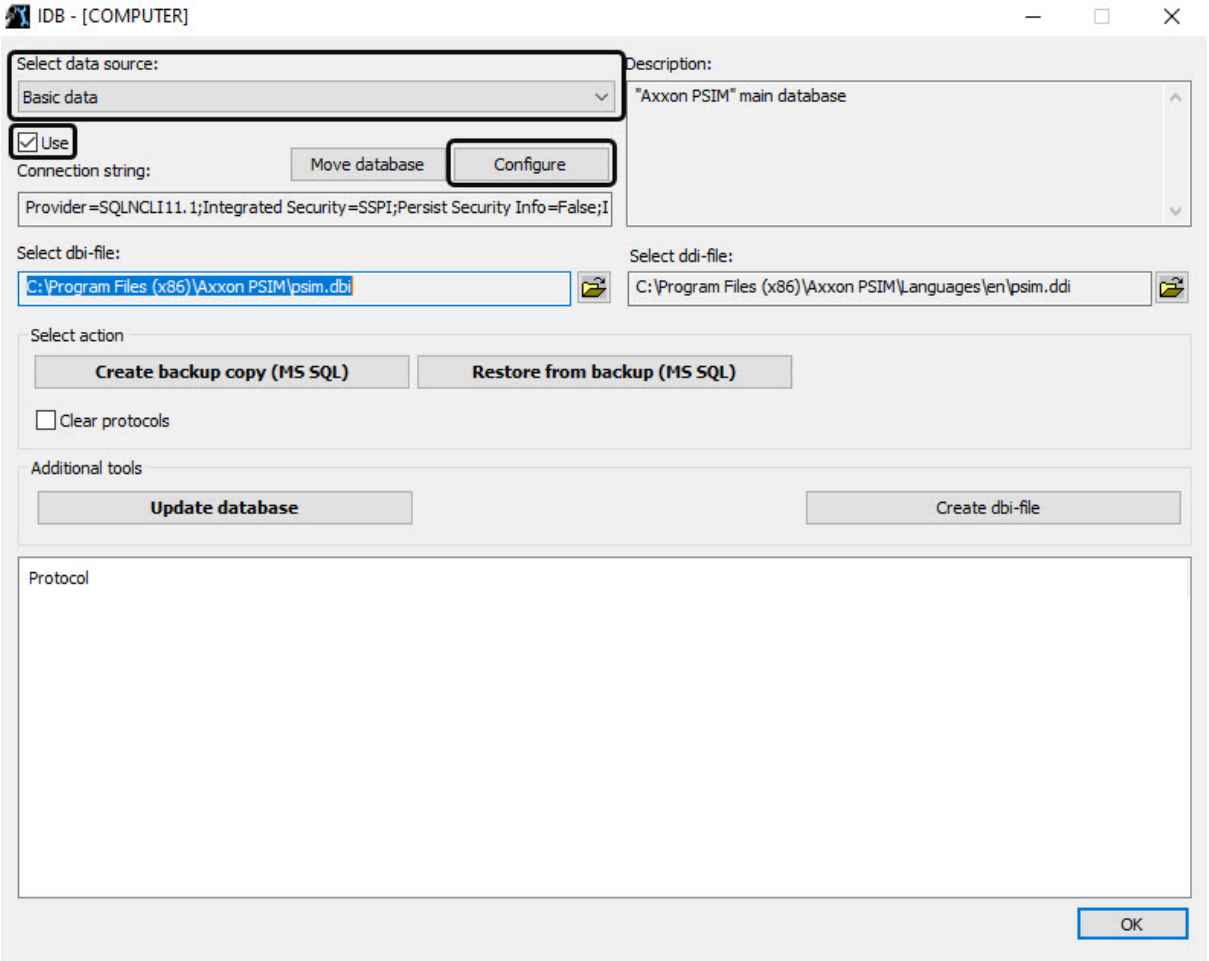
> **Note**
>
> If the current database is stored in MS Access format, it needs to be converted to MS SQL format before *Axxon PSIM* connection setup.

> **Note**
>
> If Turkish Windows OS language pack and English localization of *Axxon PSIM* are used, then the connected database must have the Latin1_General_100_CI_AS value of the **Collation** parameter.
> In most cases, the default value of the parameter must be used. Ensure that you have the correct language settings in the operating system.

To connect the *Axxon PSIM Configuration* database, do the following:

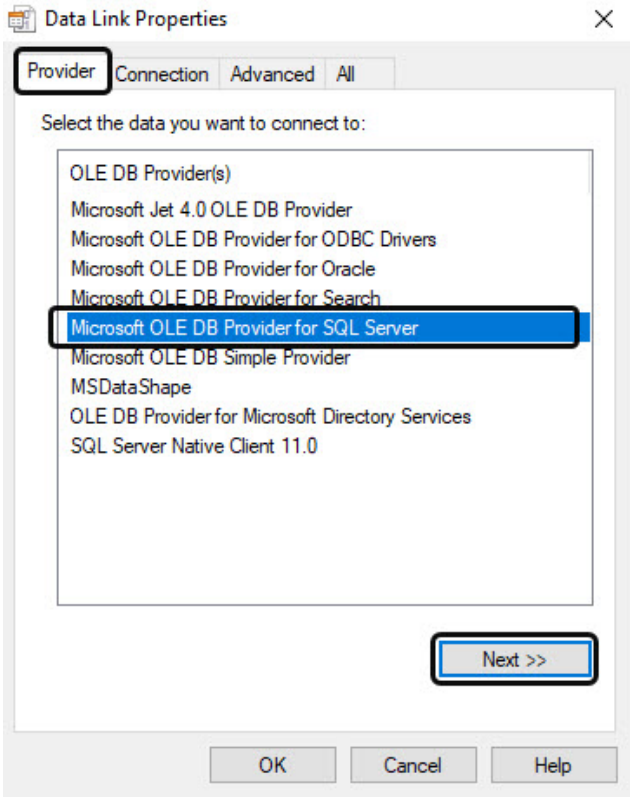
1. Make sure that MS SQL Server software operates.

2. Start the idb.exe utility in the root of *Axxon PSIM* installation directory (for example, C:\Program Files (x86)\Axxon PSIM). The dialog window of the idb.exe utility opens.



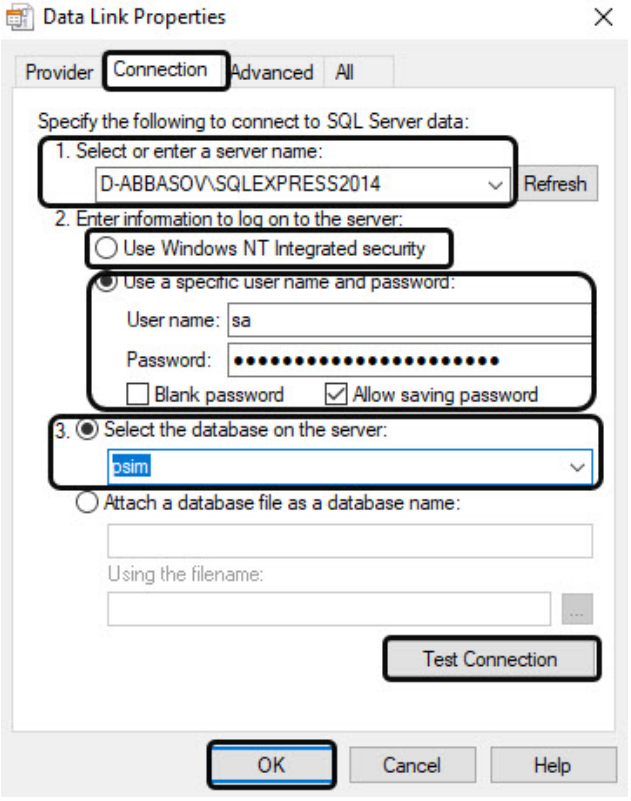
3. Choose the **Basic data** item in the **Select data source** list.
4. Set the **Use** checkbox, if not set before.
5. Click the **Configure** button.

6. The **Data Link Properties** dialog window opens. Go to the **Provider** tab in the **Data Link Properties** dialog window.



7. Select **Microsoft OLE DB Provider for SQL Server** in the **OLE DB Provider(s)** list.
8. Click the **Next** button.

9. After you click the **Next** button, you are automatically redirected to the **Connection** tab.



10. In the **1.Select or enter a server name** line, select from the list or enter the name of MS SQL server that is used to store the database to which you want to connect.

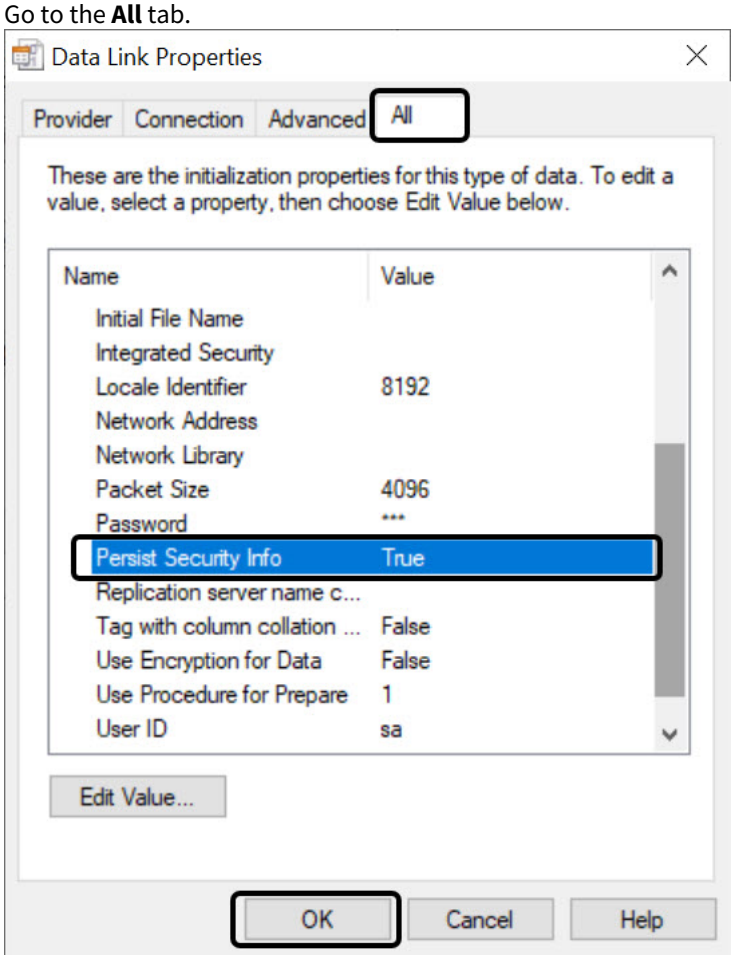
> **Note**
>
> In case you use dynamic host configuration protocol (DHCP) for the local database, set **127.0.0.1** IP address (without using computer names and **local** value) in the **1.Select or enter a server name**. Set **127.0.0.1** value when the static IP address is used. Otherwise, *Axxon PSIM* is disconnected with its local database when network cable is disconnected.
> If *Axxon PSIM* is connected to remote database configuration by IP address (for example, **192.168.0.68\SQLEXPRESS**), you cannot change and save *Axxon PSIM* settings when there is a network connection break. If event protocol is extracted into an individual database, use any functioning way to specify a server name.

11. The **2.Enter information to log on to the server** group is used to specify the type and authentication parameters of the MS SQL server connection. MS SQL server authentication is performed through the user account, authorized in Windows OS, or by user name (login) and password that protect the MS SQL server connection.
The method and parameters of authentication at the MS SQL server are set during MS SQL server installation.
Different parameters must be specified with different authentication techniques for MS SQL server connection:
    a. If MS SQL server authentication is performed through the user Windows OS account, switch to the **Use Windows NT Integrated security** position.

> **Note**

If conversion is performed via the remote SQL server, the computer with MS SQL server installed must show the current user account. And the user is logged on under this account at the computer that performs the database connection.

b. If MS SQL server authentication is performed through the user login and password, do the following:
   i. Switch to the **Use a specific user name and password**;
   ii. Specify the user name (login) to connect to the MS SQL server in the **User name** field.
   iii. If access to the MS SQL server is protected with a password, clear the **Blank password** checkbox and specify the database access password in the **Password** field.
   iv. Set the **Allow saving password** checkbox.
   v. Go to the **All** tab.

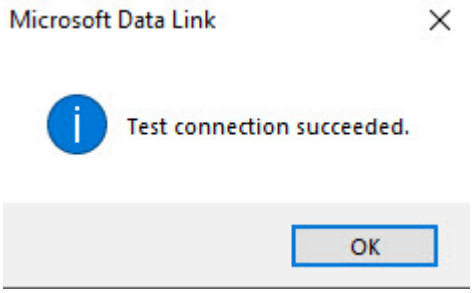


   vi. In the **Persist Security Info** field, set the **True** value. This is necessary to correctly save the user password.

> **Note**
>
> Each time you change the server connection parameters, you must set the **Persist Security Info** field value to **True**.

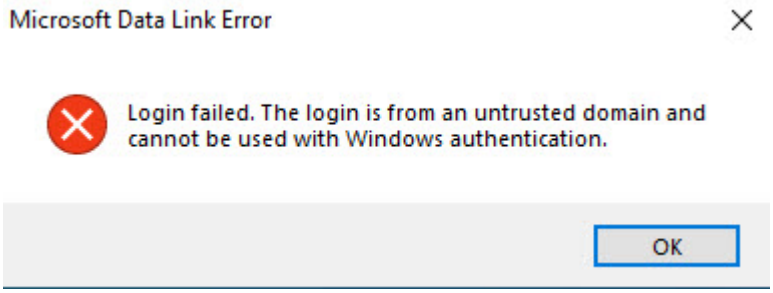
12. Click the **Test Connection** button.

13. If MS SQL server is successfully connected, then the **Test connection succeeded** message is displayed.



Click the **OK** button to close the window.

14. If the MS SQL server name and/or authentication parameters of the MS SQL server connection were specified incorrectly, the error message will appear.

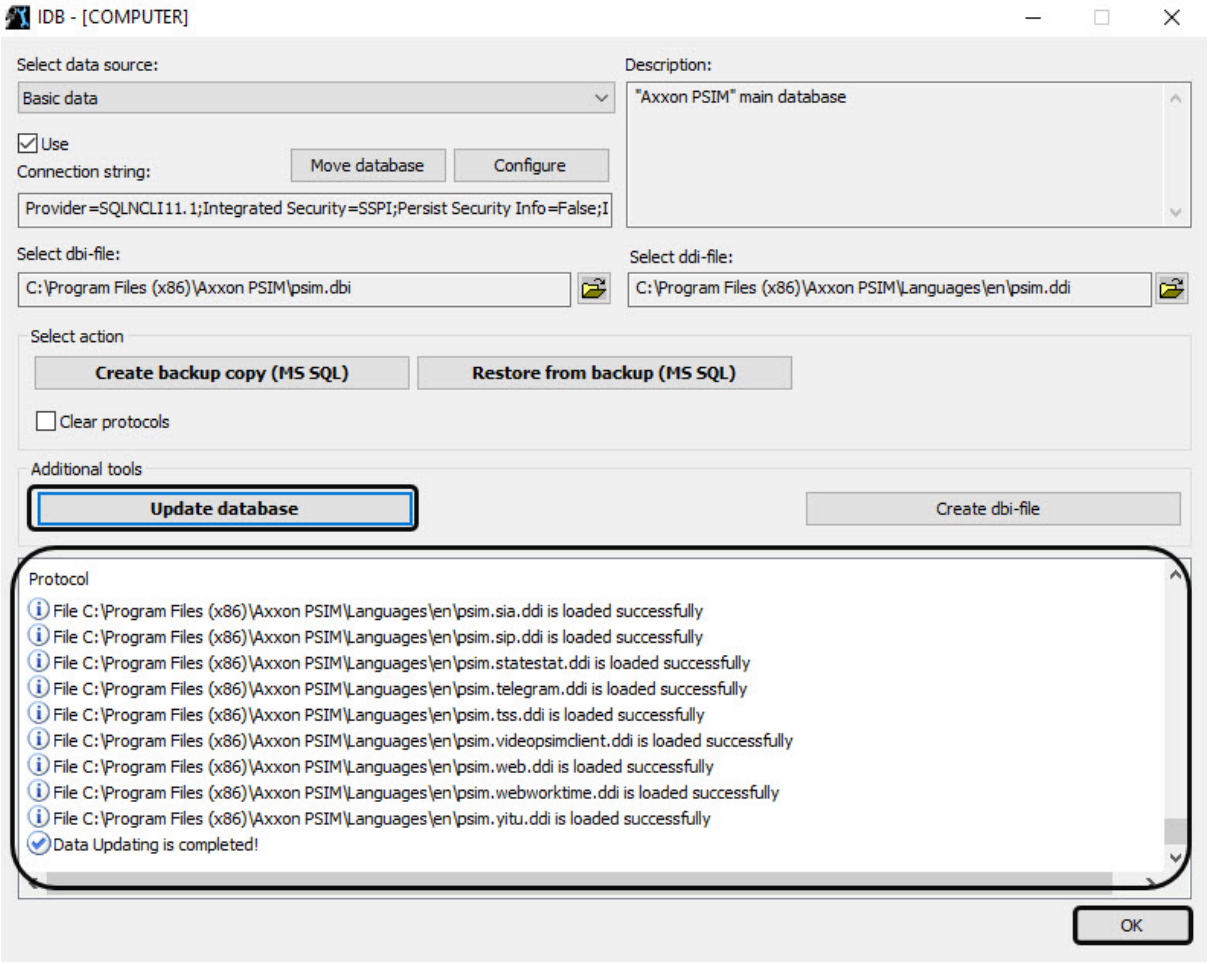


15. Click the **OK** button to close the window. Then specify the correct password and try the MS SQL server connection again.
16. Select the name of the database that you want to connect in the **Select the database on the server** list.

> **Note**
>
> You must select a database at this step. If you leave the database field blank, after you close the **Data Link Properties** window, the line "Database is not set in connection settings" appears in the database description window of the IDB.exe utility and the **OK** button to save changes is inactive.

17. Click the **OK** button in the **Data Link Properties** dialog window. The window closes.
18. We strongly recommend updating the database structure after this. For this, click the **Update database** button in the idb.exe utility dialog window. If DB is not updated at this step, the update is automatically performed at *Axxon PSIM* start-up, however, it might be difficult to track errors in this case.

> **Attention!**
>
> If the Event Viewer is in the individual database (see Extracting event protocol into an individual database), then the Event Viewer database structure will be updated when updating the main database structure. So we recommend checking the connection to the Event Viewer database before updating the main database structure in order to prevent any errors.



19. As a result, the database structure update process starts, and the corresponding messages appear in the **Protocol** table.
20. When the conversion process is successfully completed, the **Data Updating is completed!** message appears in the **Protocol** table of the idb.exe utility.
21. Click the **OK** button.

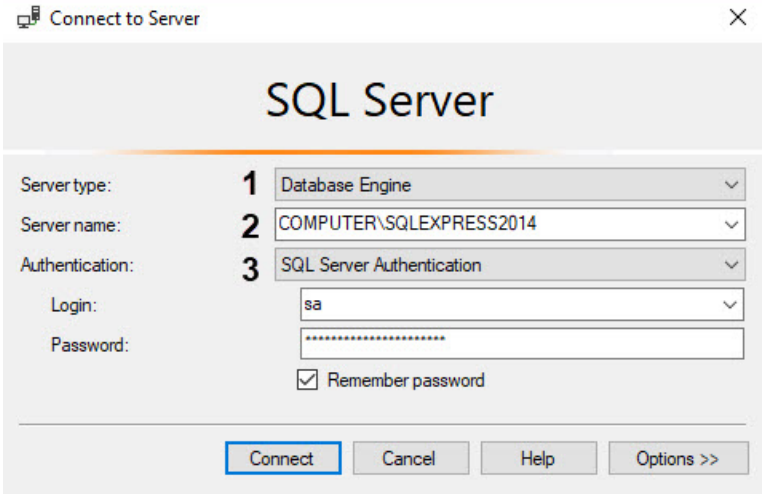
Axxon PSIM database is now connected.

24.3.4 Viewing Axxon PSIM database

To view the database stored on MS SQL server, do the following:

1. Download (from Microsoft website) and install *SQL Server Management Studio 2014* (see Microsoft documentation).
2. Start SQL Server Management Studio utility. Click **Start -> All Programs -> Microsoft SQL Server 2014 -> SQL Server Management Studio**.

3. Specify parameters of connection to MS SQL server in the **Connect to Server** window.

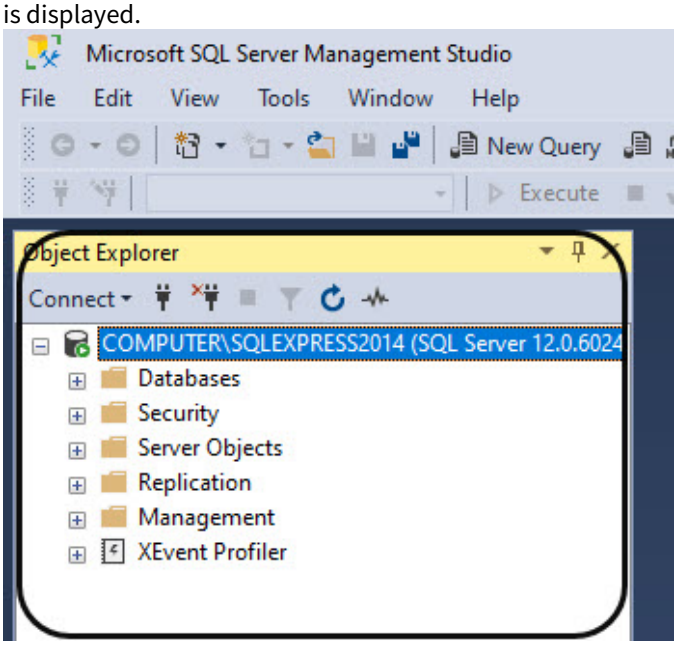


   a. Select the **Database Engine** type in the **Server type** list (**1**).
   b. Select the name of MS SQL server to which it is necessary to connect in the **Server name** list (**2**).
   c. Select authentication type used for connection to MS SQL server in the **Authentication** list (**3**).

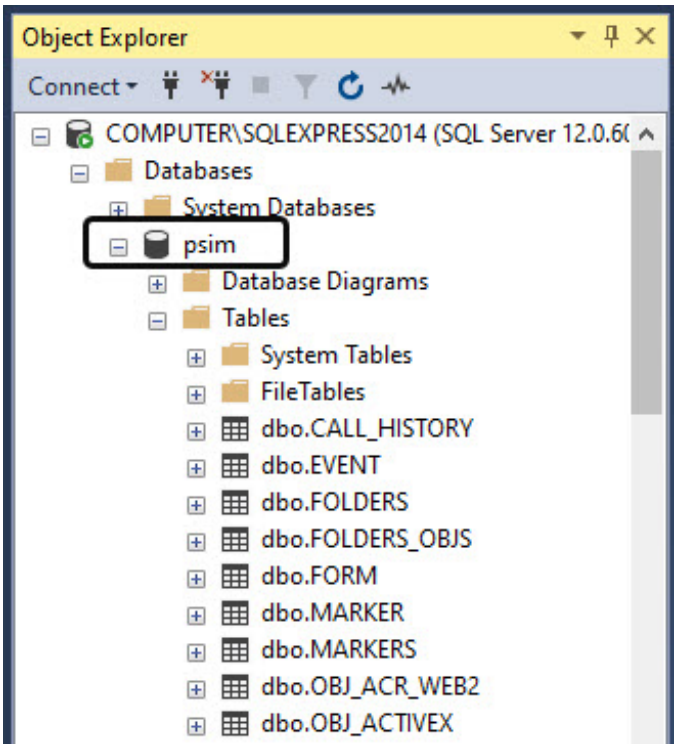
> **Note**
>
> The type of authentication that was selected while creating MS SQL server is specified.

> **Note**
>
> If SQL Server Authentication type is used, then select the user in the **Login** list and type-in the required password in the **Password** field (3).

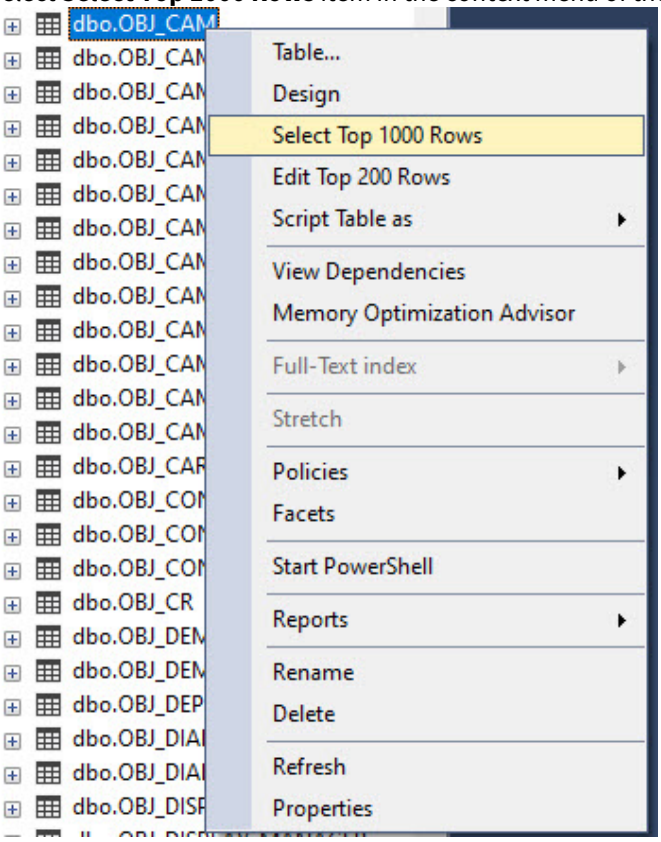
4. Click **Connect** to connect to MS SQL server. If the connection is successful, then the **Object Explorer** window is displayed.



5. Open the embedded list of the Databases catalogue in the Object Explorer box and go to the required database.



6. Select the table for viewing in the **Tables** catalogue.
7. Select **Select Top 1000 Rows** item in the context menu of the table.



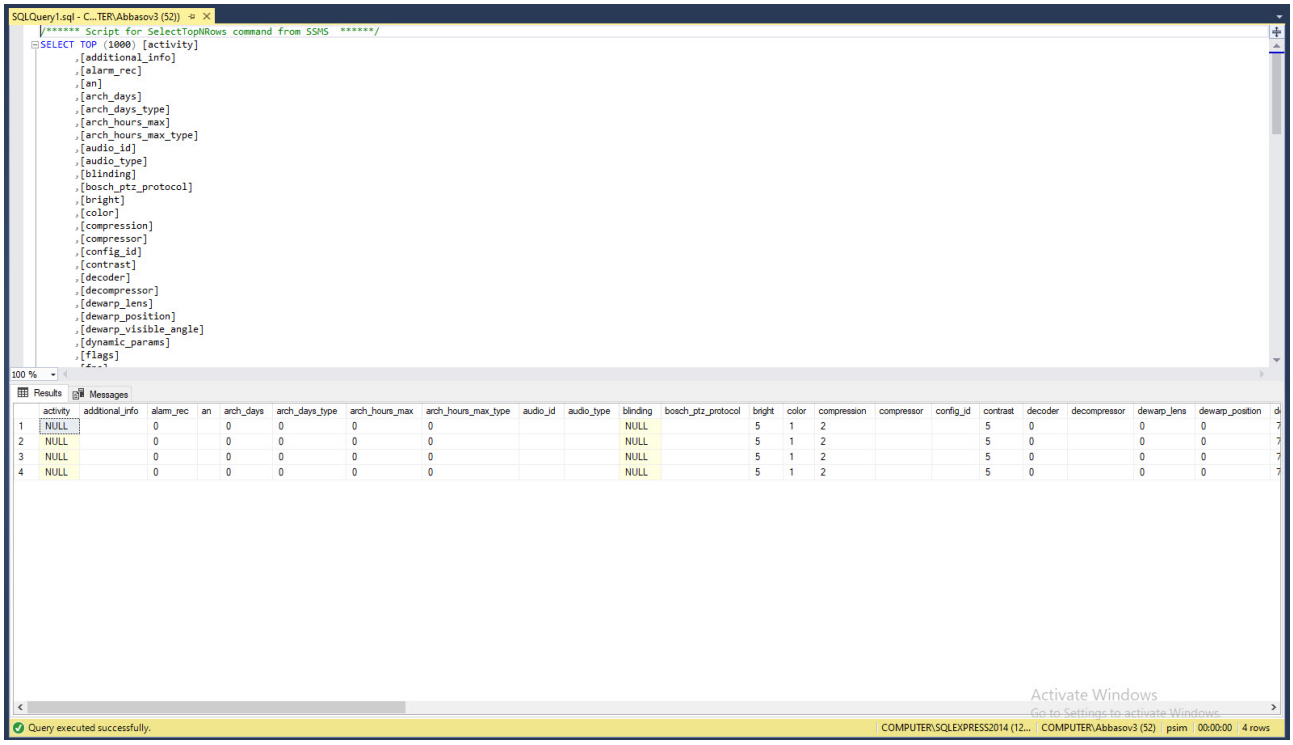
As a result, the box with SQL Query on top of it and the table data selected by the query will be displayed.

Note

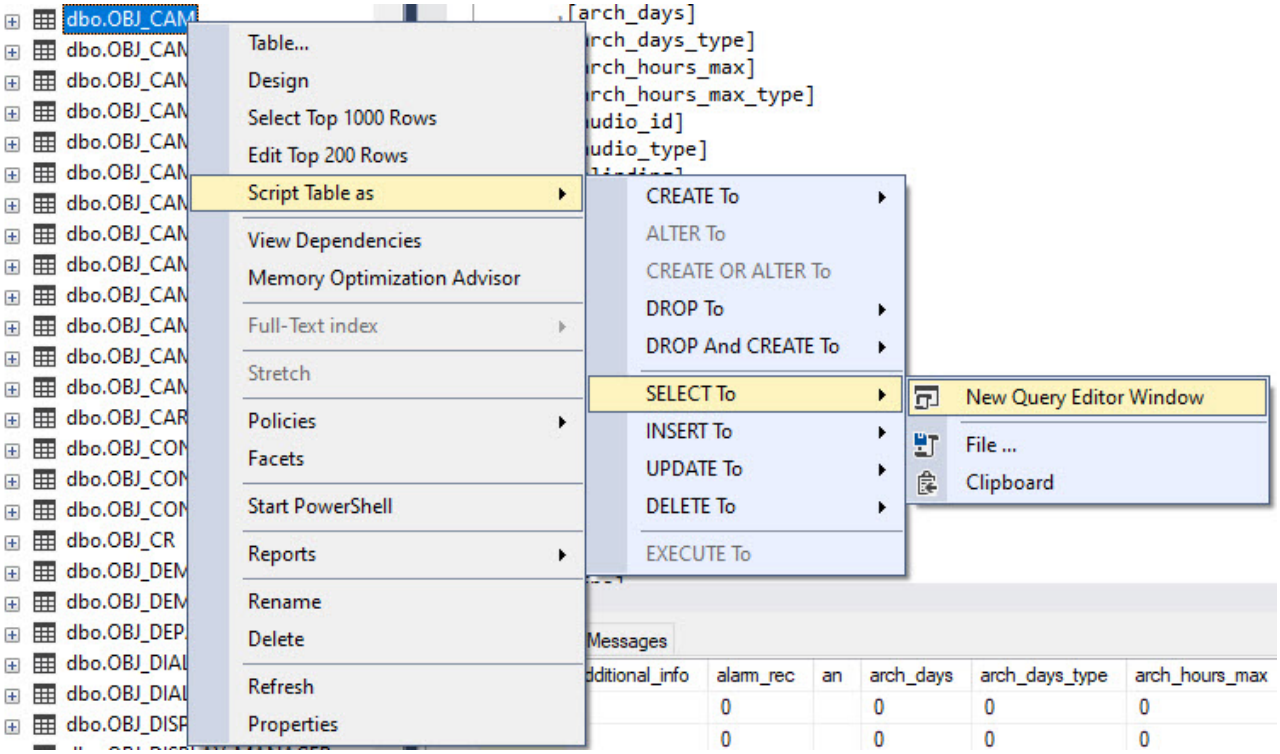
Using **Select Top 1000 Rows** command one can query the latest rows stored into the table. Not more than 1000 rows respond to a query.

Note

One can change the quantity of rows and set of fields requested in the table by editing SQL Query. To start modified SQL Query click Execute on the toolbar.



If one need to create his own query, then select **Script Table as -> SELECT To -> New Query Editor Window** in the context menu and type in SQL Query in the box.

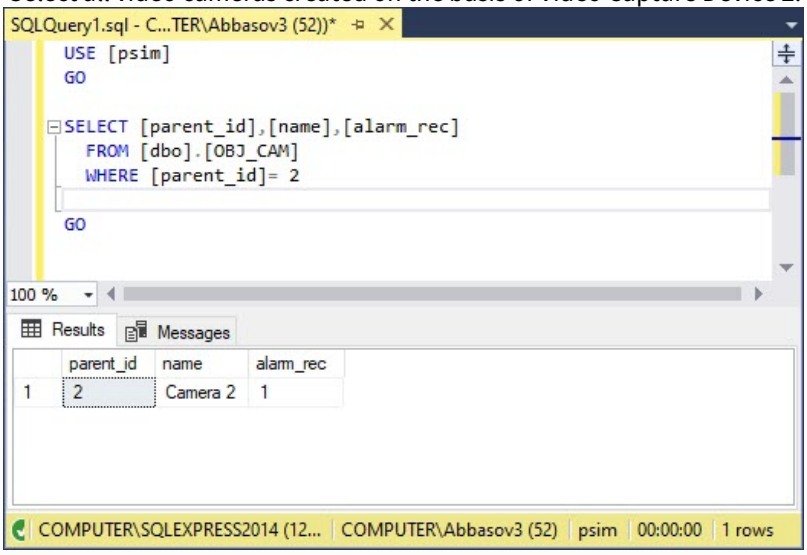


Note

To execute the query, click Execute on the toolbar.

Example

Select all video cameras created on the basis of Video Capture Device 2.



Viewing *Axxon PSIM* database is now completed.

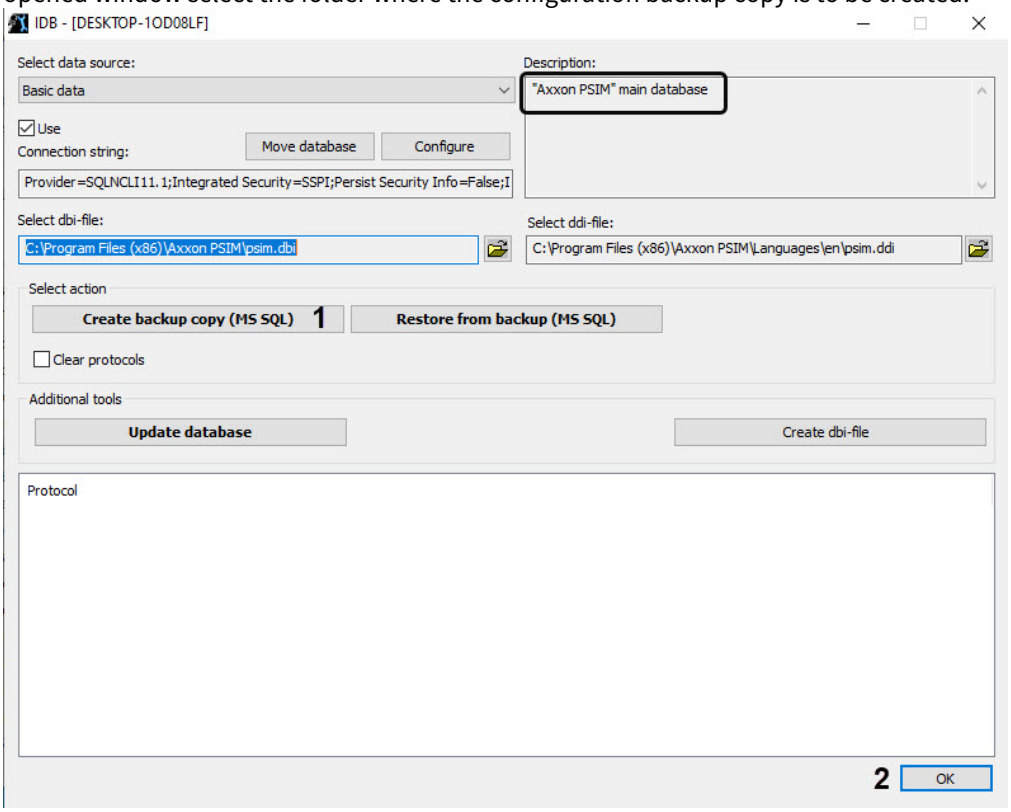
Note

To view databases of other formats, the SQL Server Management Studio utility can also be used. For this install the package of ODBC drivers and OLE DB provider that can be found at http://www.microsoft.com. To connect to database Server, use sp_addlinkedserver stored procedure. Its description and examples of use are at http://msdn.microsoft.com.

24.3.5 Moving Axxon PSIM configuration database to the latest version of MS SQL Server

To move configuration database to the latest version of MS SQL Server after Axxon PSIM™ update, do the following:

1. Run the idb.exe utility from the Axxon PSIM installation directory (e.g., C:\Program Files (x86)\Axxon PSIM). The dialog box of the idb.exe utility is opened.
2. To create backup copy of Axxon PSIM configuration database click **Create backup copy (MS SQL)** (1). In opened window select the folder where the configuration backup copy is to be created.

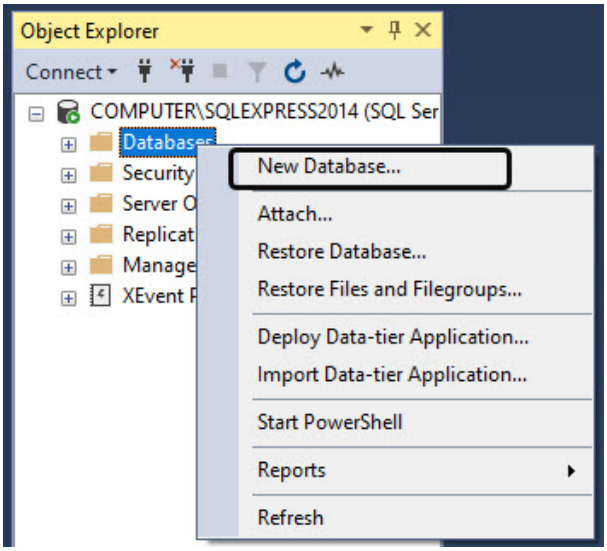


Note.

Configuration backup copy is a file with bak. extension.

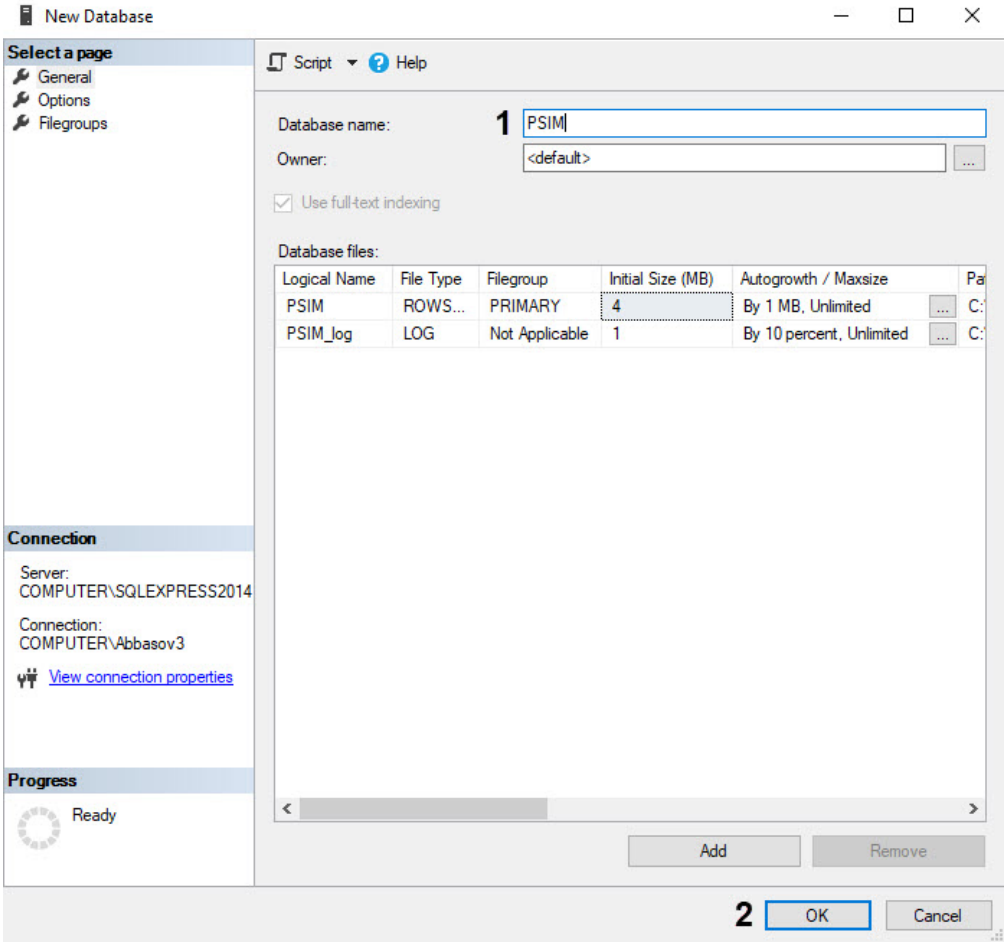
3. If the configuration backup copy is created without any errors (see the protocol of the idb.exe utility), then click **OK** (2). If there are some errors, then repeat 2 step or use MS SQL Server 2005 tools for creating database backup copies.
4. Remove previous version of MS SQL Server from computer.
5. Install a new version of MS SQL Server with SQL Server Management Studio (see Microsoft documentation).
6. Create an empty database.

a. Run the SQL Server Management Studio utility. Click **Start => All Programs => Microsoft SQL Server => SQL Server Management Studio**.
b. Select **New Database** in the context menu of the **Databases** directory.



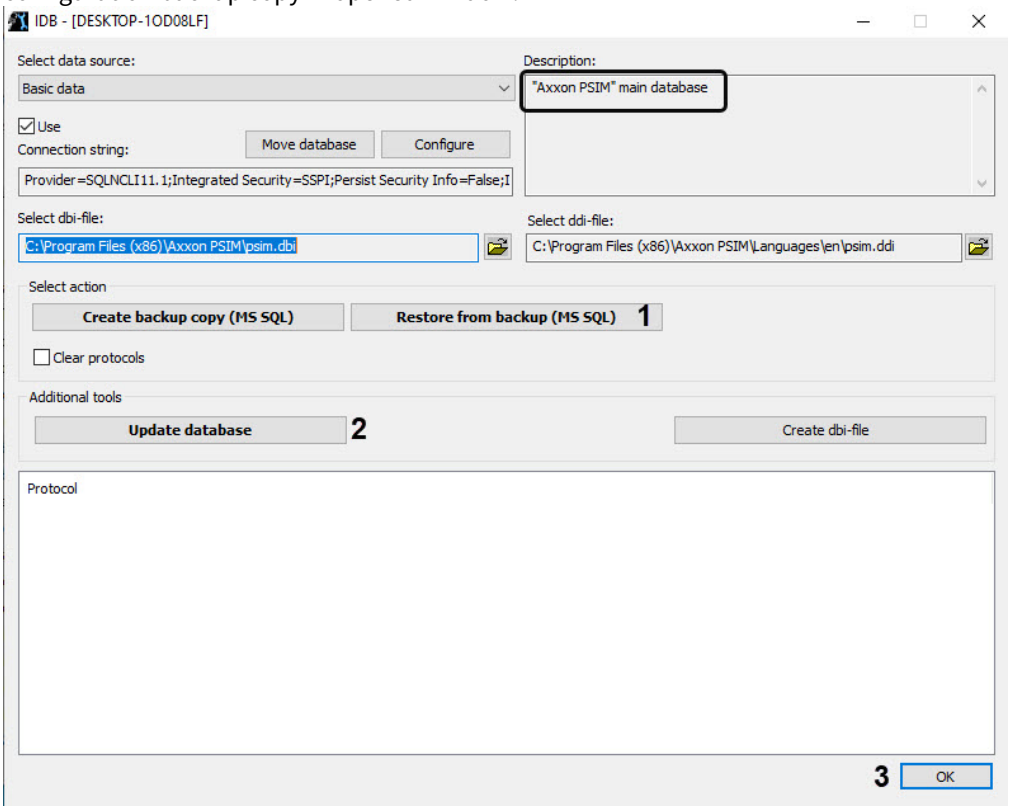
As the result, the **New Database** window opens.

c. Type in a name of a new database in the **Database name** field (1).



d. Click **OK** (2).

7. Connect created database to Axxon PSIM using the idb.exe utility (see 1-16 steps in *Axxon PSIM™ software database connection* section).
8. To restore Axxon PSIM configuration database, click **Restore from backup (MS SQL)** (1). Select configuration backup copy in opened window.



9. To update database, click **Update database** (2).
10. Click **OK** to shut down the idb.exe utility (3).

Moving Axxon PSIM configuration database is completed.

24.3.6 Configuring database synchronization

When *Axxon PSIM* is used in a large-scale system with distributed architecture, databases of Servers and Remote Admin Workstations must be synchronized. Database synchronization allows storing data both centrally (on a single server or Remote Admin Workstation) and in a distributed manner (data replication from different servers and Remote Admin Workstation databases of the video surveillance system). Database synchronization provides parallel operation with servers and Remote Admin Workstations databases and their automatic updating after they have been modified.

By default, *Axxon PSIM* databases on servers and Remote Admin Workstations are not synchronized. Usually, *Axxon PSIM* is configured to synchronize all databases with a single centralized database hosted on the Administration Server.

Note

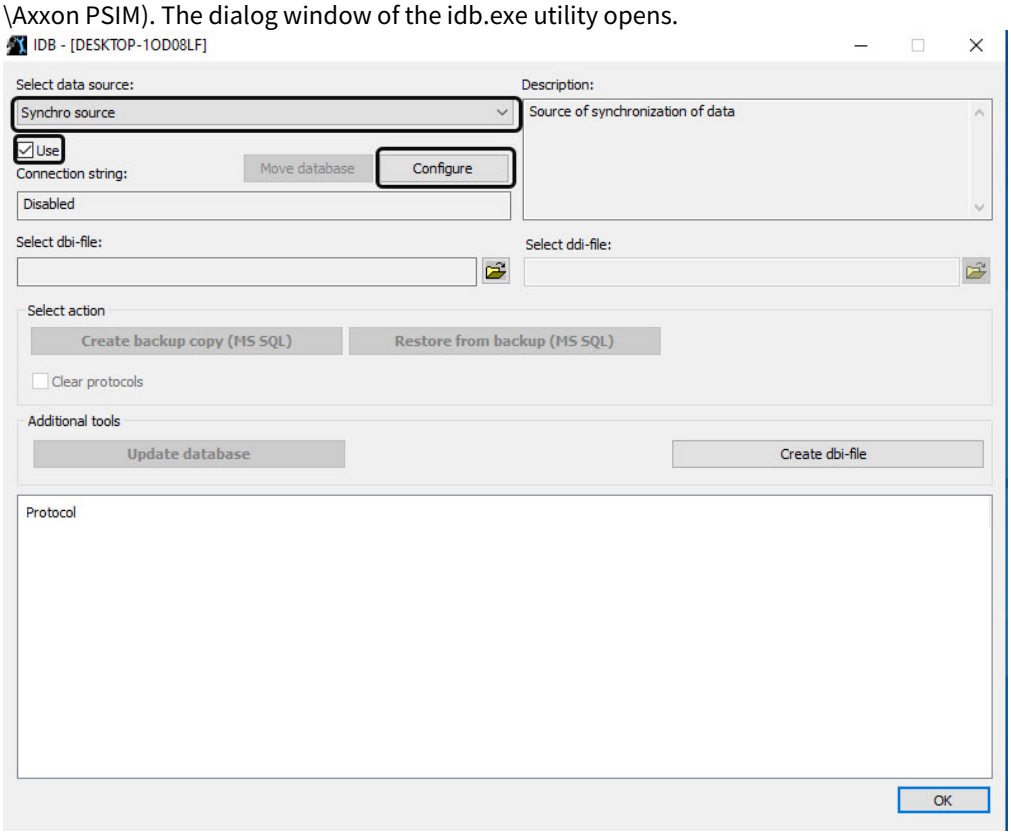
If one or more databases are stored in MS Access format, they need to be converted to MS SQL format before the synchronization setup.

The Administration Server acts as a synchronization source. The second-level Server/RAW will accept all database changes from the Administration Server. Synchronization must always be performed from the second-level Server to the Administration Server, or from the RAW to the Administration Server.

> **Attention!**
>
> **You must install all vertical solutions used for the particular distributed system on your Administration Server, or all .ddi and .dbi files as well as the updated database containing these files must be present there.**

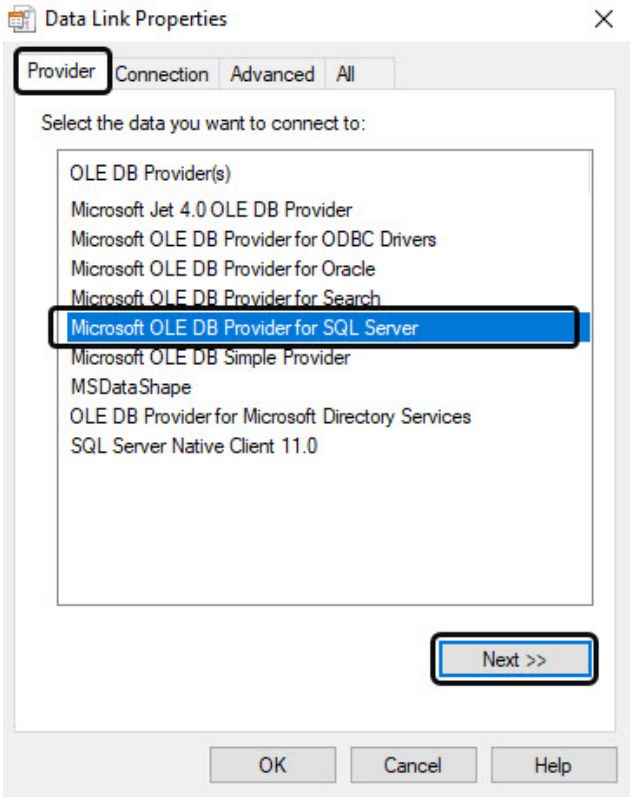
To synchronize the *Axxon PSIM Configuration* database with the Administration Server database (or any other database), do the following on RAW/second-level Server:

1. Make sure that MS SQL Server software is running.
2. Start the idb.exe utility from the root of *Axxon PSIM* installation directory (for example, C:\Program Files (x86)\Axxon PSIM). The dialog window of the idb.exe utility opens.



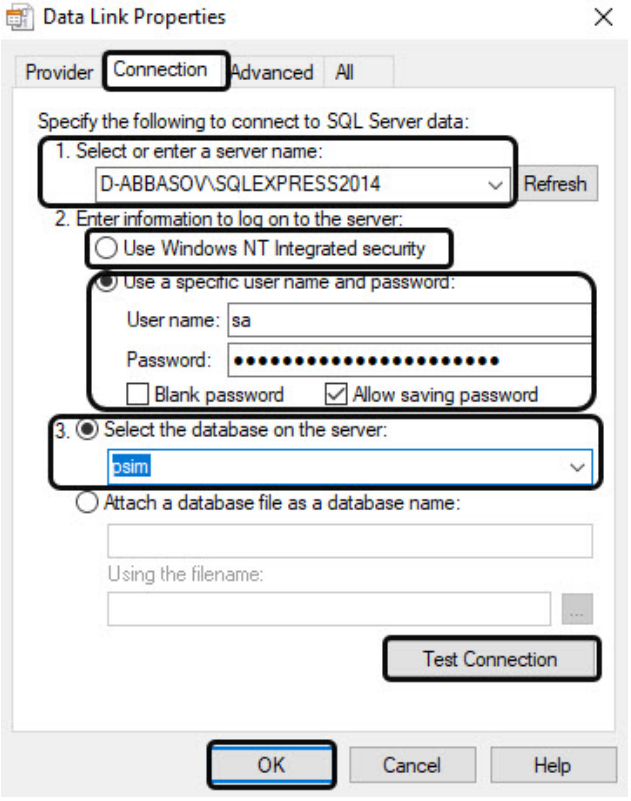
3. Select the **Synchro source** item from the **Select data source** list.
4. Set the **Use** checkbox.
5. Click the **Configure** button.

6. The **Data Link Properties** dialog window opens. Go to the **Provider** tab in the **Data Link Properties** dialog window.



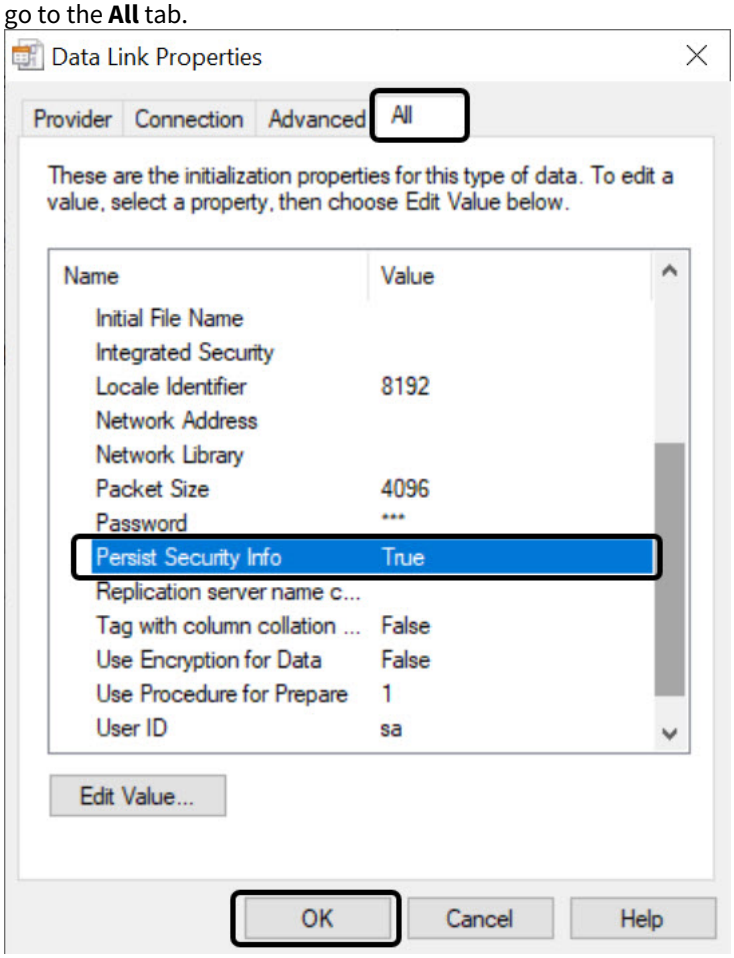
7. Select **Microsoft OLE DB Provider for SQL Server** from the **OLE DB Provider(s)** list.
8. Click the **Next** button.

9. After you click the **Next** button, you are automatically redirected to the **Connection** tab.



10. In the **1.Select or enter a server name** select from the list or input manually the address of MS SQL server containing the database that is used as a source to sync with the current database.
11. The **2.Enter information to log on to the server** group is used to enter the type and authentication parameters of the MS SQL server connection. MS SQL server authentication is performed through the user account, authorized in the Windows OS, or by user name (login) and password that protect the MS SQL server connection.
    The method and parameters of authentication at the MS SQL server are set during MS SQL server installation.
    Different parameters need to be entered, with different authentication techniques for MS SQL server connection:
    a. If MS SQL server authentication is performed through a user's Windows OS account, switch to the **Use Windows NT Integrated security** position. The user's current account on the computer, from which the synchronization is performed, must be logged into the computer with MS SQL server and the database to be synced with.
    b. If MS SQL server authentication is performed through user login and password, follow the sequence:
        i. switch to the **Use a specific user name and password** position;
        ii. in the **User name** field, enter the user name (login) to connect to the MS SQL server.
        iii. if access to the MS SQL server is password protected, clear the **Blank password** checkbox and enter the database access password into the **Password** field.
        iv. set the **Allow saving password** checkbox.

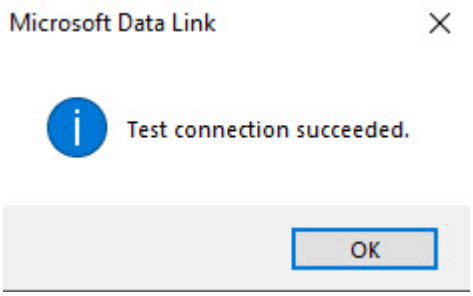
v. go to the **All** tab.



vi. in the **Persist Security Info** field, set the **True** value. This is necessary to correctly save the user password.

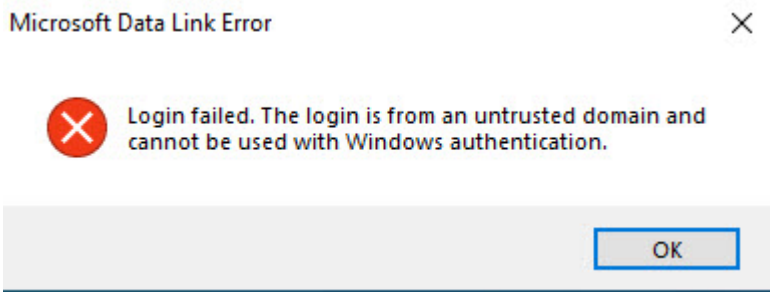
> **Note**
>
> Each time you change the server connection parameters, you must set the **Persist Security Info** field value to **True**.

12. Click the **Test Connection** button.
13. If the MS SQL server was successfully connected, the “Test connection succeeded” message is displayed.



Click the **OK** button to close the window.

14. If the MS SQL server name and/or authentication parameters of MS SQL server connection were specified incorrectly, the error message will appear.



Click the **OK** button to close the window. Then enter the correct password and try MS SQL server connection again.

15. From the **Select the database on the server** list, choose the name of the database to be synced with the current base.

> **Note**
>
> You must select a database at this step. If you leave the database field blank, after you close the **Data Link Properties** window, the line "Database is not set in connection settings" appears in the database description window of the IDB.exe utility and the **OK** button to save changes is inactive.

16. Click the **OK** button in the **Data Link Properties** dialog window. The window closes.
17. Click the **OK** button in the right bottom corner of the idb.exe utility window.

Database synchronization setup is completed.

Requirements for TCP/IP Network

24.3.7 Stored procedures for adding or deleting a large number of objects

On the page:

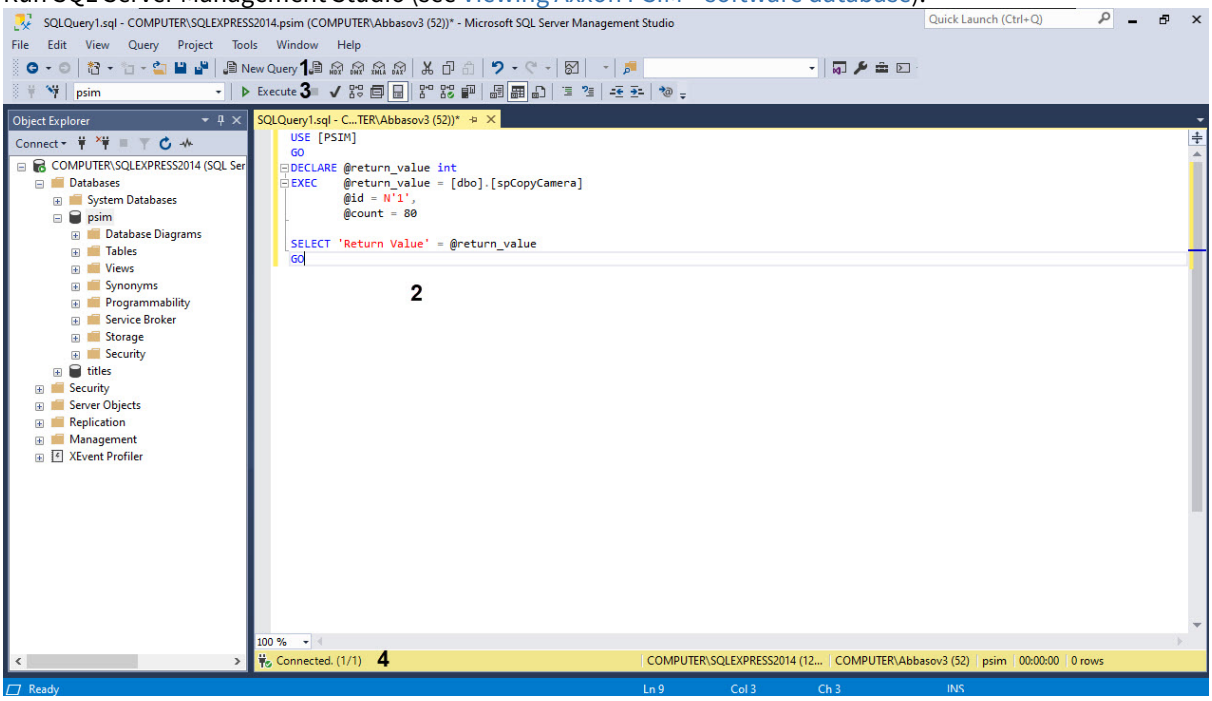
- Running stored procedures
- Examples of stored procedures use for adding or deleting Camera objects
- Example of stored procedure use for adding Tracker objects
- Example of stored procedure use for adding VMDA Detection objects

Axxon PSIM database has built'in pre-installed stored procedures for adding and deleting a large number of **Camera**, **Tracker**, **VMDA Detection** objects.

Running stored procedures

Run stored procedures in SQL Server Management Studio as follows:

1. Run SQL Server Management Studio (see Viewing Axxon PSIM™ software database).



2. Click the **New Query** button (1).
3. Specify the SQL query (2, see examples below).
4. Click the **Execute** button (3). If the query is executed successfully, then the corresponding message appears at the bottom of the window (4).

You can find examples of using stored procedures below.

Examples of stored procedures use for adding or deleting Camera objects

If lots of **Camera** objects are to be created or deleted, this can be done using dbo.spCopyCamera and dbo.spDeleteCameras stored procedures correspondingly.

1. Take Camera 1 as an example and create 80 cameras with the same settings as Camera 1 has.

```
USE [Axxon PSIM]
GO
DECLARE @return_value int
EXEC @return_value = [dbo].[spCopyCamera]
    @id = N'1',
    @count = 80
SELECT 'Return Value' = @return_value
GO
```

2. Delete cameras from 3 to 33.

```
USE [Axxon PSIM]
```

```
GO
DECLARE @return_value int
EXEC @return_value = [dbo].[spDeleteCameras]
    @fromId = 3,
    @toId = 33
SELECT 'Return Value' = @return_value
GO
```

Example of stored procedure use for adding Tracker objects

Take Tracker 1 based on Camera 1 as an example and copy under all other cameras.

```
USE [Axxon PSIM]
GO
DECLARE @return_value int
EXEC @return_value = [dbo].[spCopyVmda]
  @id = N'1'
SELECT 'Return Value' = @return_value
GO
```

Example of stored procedure use for adding VMDA Detection objects

Take VMDA Detection 1 based on Tracker 1 as an example and copy under all other trackers.

```
USE [Axxon PSIM]
GO
DECLARE @return_value int
EXEC @return_value = [dbo].[spCopyVmdaDetector]
  @id = N'1'
SELECT 'Return Value' = @return_value
GO
```

24.3.8 Removing the events from the PROTOCOL table using SQL queries

You can manually remove the events from the PROTOCOL table using SQL queries as follows:

> **Attention!**
>
> Once you remove the events, it cannot be undone. We recommend you to create a backup before removal (see Creating the database backup copy).

1. Shut down *Axxon PSIM*.
2. Determine the events which should be removed from the events database.
3. Open the Axxon PSIM.ddi file using the ddi.exe utility (see The ddi.exe utility for editing database templates and external settings files):
    a. select the object of the events from which you want to delete;
    b. go to the **Events** tab to view the names of the events to be deleted in the database.
4. In SQL Server Management Studio, run a query to remove the selected events:

```
delete FROM [Axxon PSIM].[dbo].[PROTOCOL] where action = 'action'

where

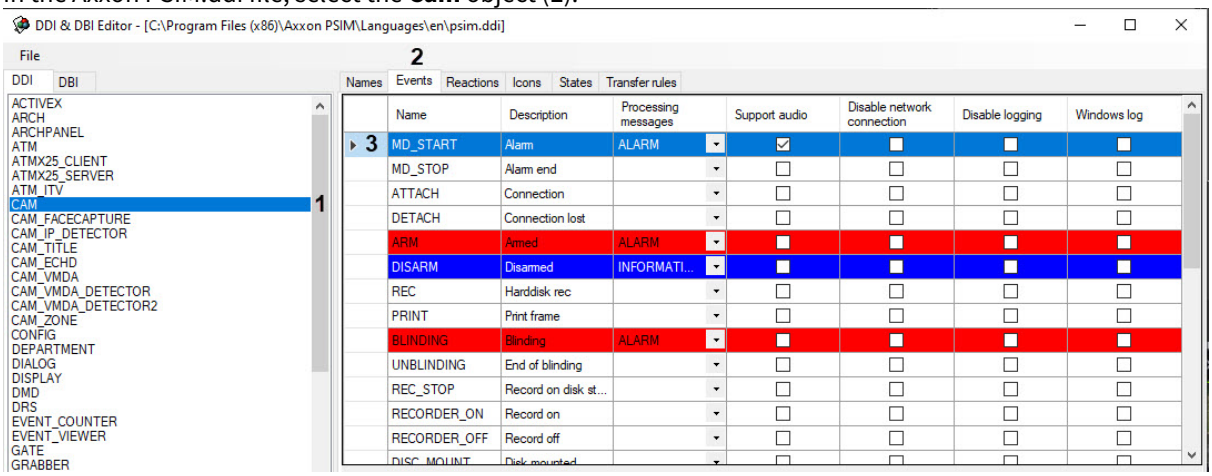
[Axxon PSIM].[dbo].[PROTOCOL] – is the name of the table with events;

action – is the name of the event to be deleted in the database.
```

As a result, the selected events will be removed from the PROTOCOL table using an SQL query.

For example, if it is necessary to remove all the **Alarm** events of the **Camera** object, then do the following:

1. In the Axxon PSIM.ddi file, select the **Cam** object (**1**).



2. Go to the **Events** tab (**2**).
3. Find the name of the **Alarm** event to be deleted in the database: **MD_START** (**3**).
4. In SQL Server Management Studio, run the query:

```
delete FROM [Axxon PSIM].[dbo].[PROTOCOL] where action = 'MD_START'
```

As a result, the **Alarm** events from cameras will be removed from the events table.

24.3.9 Removing the event table from the Axxon PSIM database

If necessary, you can clear the table with events from the **Axxon PSIM** database. For example, if the database has become very large.

> **Attention!**
>
> Once you remove the event table, it cannot be undone. We recommend you to create a backup before removal (see Creating the database backup copy).

To remove the events table from the *Axxon PSIM* database, do the following:

1. Shut down *Axxon PSIM* on the server where the database to be cleared is stored.
2. Launch the *SQL Server Management Studio* utility and connect to the server. For details, see Viewing Axxon PSIM database.
3. Go to the folder with tables Databases/Axxon PSIM/Tables.

4. Delete the **PROTOCOL** table.
5. Quit *SQL Server Management Studio*.
6. Run the **idb.exe** utility (Start -> Programs -> Axxon PSIM -> Update database).
7. Click the **Update database** button in the utility and wait for the message about the completion of the update (see Interface elements of the idb.exe window).
8. Close the **idb.exe** utility with the **OK** button.

As a result, the event table will be deleted.

24.3.10 Compressing the database size

> **Attention!**
>
> The article provides an example of advanced settings. We recommend that you do not perform them if you do not have the appropriate qualifications, and instead contact AxxonSoft staff for help.
> You cannot compress the database if the **Report System** is used (see The Report System).

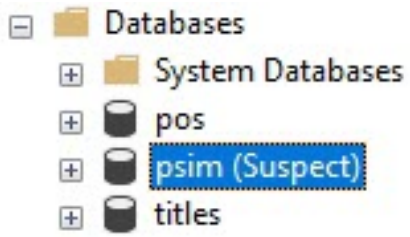
To compress the database and reduce the size of the log files, do the following:

1. Shut down *Axxon PSIM.*
2. Launch the *SQL Server Management Studio* utility and connect to the server. For details, see Viewing Axxon PSIM database.
3. Open the **Databases** list.
4. Adjust the compression settings:
   a. Right-click on the name of the database to be compressed and select **Properties** from the context menu.
   b. In the window that opens, go to the **Options** tab.
   c. Set the **Recovery Model** parameter to **Simple.**
   d. In the **Automatic** section, set the **Auto Shrink** parameter to **True**.
   e. Click **OK**.
5. Start the compression process:
   a. For database:
      i. right-click on the name of the database;
      ii. in the drop-down menu, sequentially select **Tasks** → **Shrink** → **Files**;
      iii. in the window that opens, in the **File type** column, select **Data**;
      iv. click **OK**.
   b. For log file:
      i. right-click on the name of the database;
      ii. in the drop-down menu, sequentially select **Tasks Shrink File**;
      iii. in the window that opens, in the **File type** column, select **Log**;
      iv. click **OK**.

The database is now compressed.

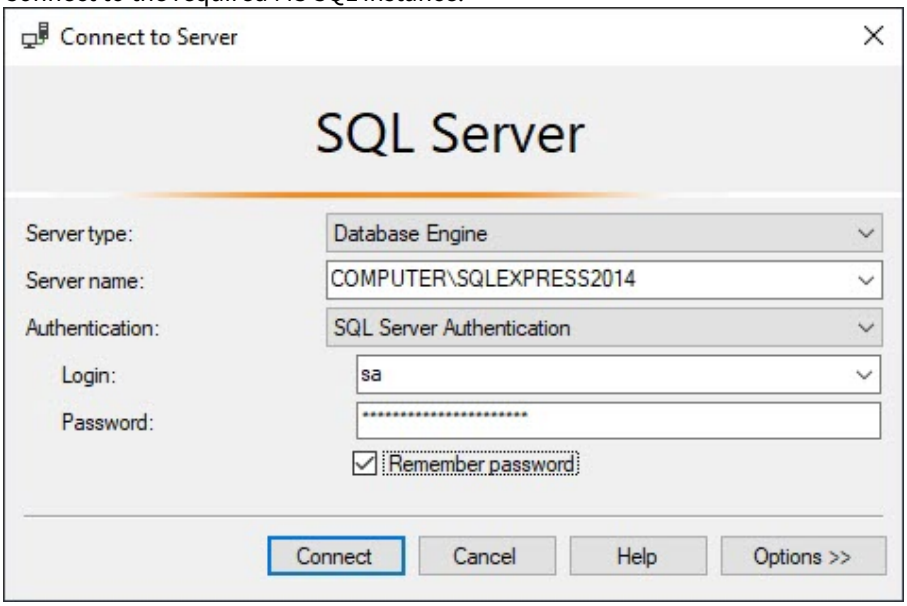
24.3.11 Restoring the Axxon PSIM database from the Suspect mode

The *Axxon PSIM* database can go into Suspect mode because of a sudden server reboot or file system damage.

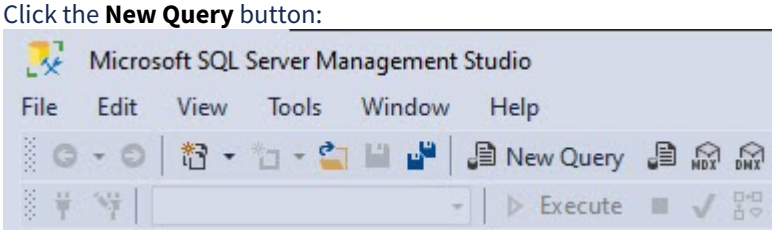


To restore the database from this mode, do the following:

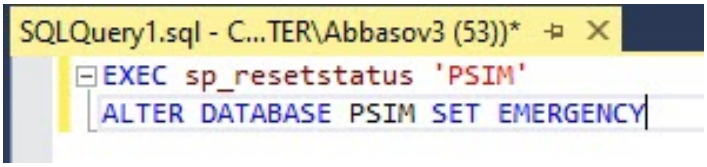
1. Check system disk for errors:
   a. run command line as administrator;
   b. enter the command <chkdsk c:> to search for errors;
   c. if there are errors, use the </f> parameter to fix them;
   d. perform step b again to recheck the system disk.
2. If no errors were found at step 1, start the recovery:
   a. Launch Microsoft SQL Server Management Studio Express (SSMSE).
   b. Connect to the required MS SQL instance.



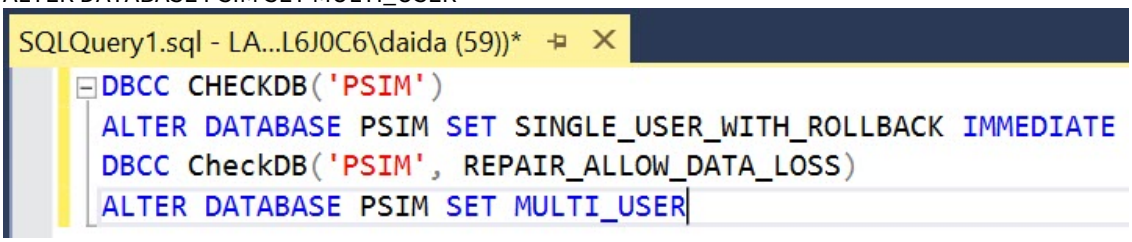
   c. Click the **New Query** button:



   d. In the window that opens, enter the following commands:
   EXEC sp_resetstatus 'PSIM'
   ALTER DATABASE PSIM SET EMERGENCY



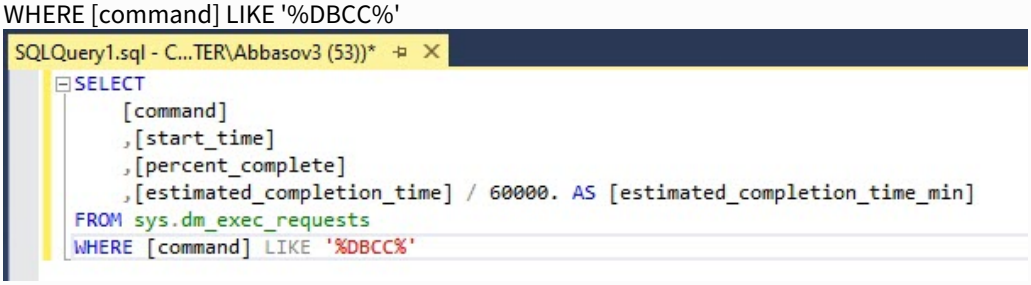
e. After you enter the commands, click the Execute button.
f. Click the **New Query** button.
g. In the window that opens, enter the following commands:
DBCC CHECKDB('PSIM')
ALTER DATABASE PSIM SET SINGLE_USER_WITH_ROLLBACK IMMEDIATE
DBCC CheckDB('PSIM', REPAIR_ALLOW_DATA_LOSS)
ALTER DATABASE PSIM SET MULTI_USER



h. After you enter the commands, click the Execute button.
The recovery process will start.

Note

To check the recovery status, you need to create a request. You can do it by clicking the **New Query** button in a new window and entering the following command:
SELECT
[command]
,[start_time]
,[percent_complete]
,[estimated_completion_time]/60000. AS [estimated_completion_time_min]
FROM sys.dm_exec_requests
WHERE [command] LIKE '%DBCC%'



After you enter the commands, click the Execute button (or pressing **F5** on the keyboard). After that, a line containing the percentage of completion and the remaining time will appear in the window below. To refresh the line, click the Execute button (**F5**).

As a result, the *Axxon PSIM* database will be restored.

24.4 Appendix 4. Updating Java time zones for proper operation with archive in iOS client

Issues affecting the ability to access archive video from the iOS client may occur due to changes in Russian time zones.

These issues are due to discrepancies in how Windows and Java handle time zones. The inconsistency is only indirectly related to Axxon PSIM and will be solved in the next official Java release.

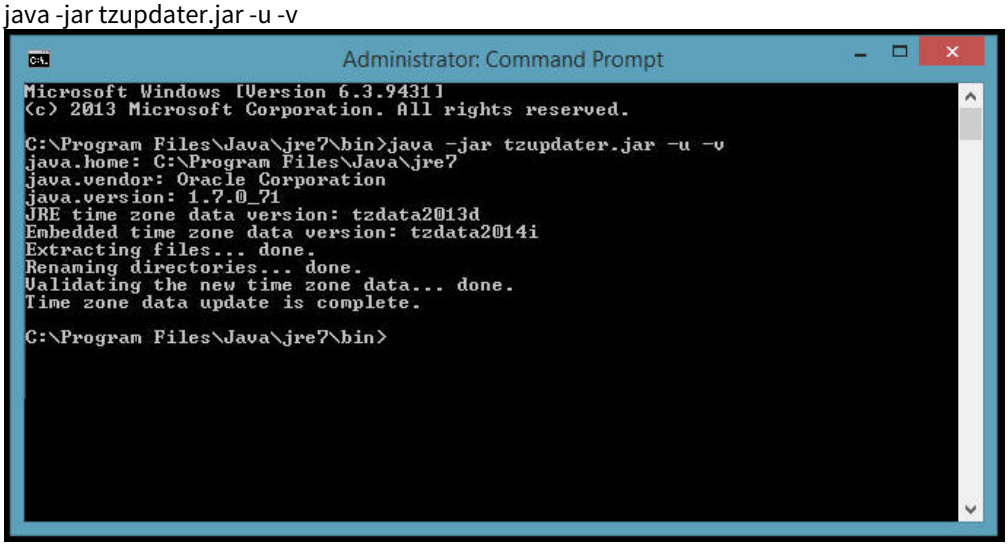
As a temporary workaround, perform the following actions:

1. Quit *Axxon PSIM*.
2. Update Java to the latest version from the official website http://www.oracle.com/.
3. Download the update tzdata2014i.1.4.9, or newer, for Java time zones.

> **Note.**
>
> See the official site for details on the update: http://www.oracle.com/technetwork/java/javase/tzdata-versions-138805.html?ssSourceSiteId=ocomen.
> Download the utility for updating time zones at http://www.oracle.com/technetwork/java/javase/downloads/tzupdater-download-513681.html.

4. Update Java time zones with the help of tzdata2014i.1.4.9 (or newer). To do this, you must:

1. Copy tzupdater.jar from downloaded tzupdater-1_4_9-2014i.zip to the folder JRE_HOME /bin (where JRE_HOME represents your Java install directory).
2. In the command line, run the following command with administrator rights:
   java -jar tzupdater.jar -u -v



If the update is successful, you will view a message: "Time zone data update is complete".