Intercom Subsystem Reference and Information Guide

PSIM 1.0.0-1.0.1 (english)

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Table of Contents

1 Intercom Subsystem Reference and Information Guide. Introduction 5
2 Configuration of the Intercom subsystem 6
3 Working with the Intercom Subsystem 7
4 Intercom Subsystem Reference and Information Guide. Conclusion 8
5 Appendix. Hot keys at keyboard control 9
6 Intercom Subsystem Reference and Information Guide. Introduction 10
6.1 Purpose of document 10
6.2 Purpose and structure of the Intercom subsystem 10
7 Configuration of the Intercom subsystem 12
7.1 Configuration of the SIP-device 12
7.1.1 Configuration of the GAI - Tronics HelpPoint SIP-device 12
7.1.2 Configuration of the LinkSys SPA-2102 SIP-device 15
7.1.3 Configuration of the AxisQ7401 video server 17
7.1.4 Configuration of the Beward DS06/DS91406M/DSN23215PS SIP-device 18
7.2 Configuration of the Intercom Subsystem of security intercom terminals 19
7.2.1 Select disks for storing the archive of audio and video subsystem of security intercom terminals 20
7.2.2 Configuration of SIP-devices in the Axxon PSIM software 20
Configuration of the Video Capture Device object corresponding to the SIP-device 21
Configuration of the SIP-device audio subsystem in the Axxon PSIM software 22
Configuration of the Sensor object corresponding to the operator call button on the SIP-device 26
Arm the SIP-device sensors 28
7.2.3 Configuring SIP devices with streaming video over RTSP to Axxon PSIM 29
Configuring the Video capture device object corresponding to a SIP device with streaming video over RTSP 29
Configuring SIP device sensor with streaming video over RTSP protocol to Axxon PSIM 30
Configure SIP device relay with streaming video over RTSP protocol to Axxon PSIM 31
Configuring audio subsystem of SIP device with streaming video over RTSP protocol to Axxon PSIM 31
Configuring SIP device camera with streaming video over RTSP protocol to Axxon PSIM 34
7.2.4 Configuration of the security intercom terminals video subsystem in the Axxon PSIM software 35
7.2.5 Configuration of the security intercom terminals monitoring in the Axxon PSIM software 36
Configuration of the Intercom Subsystem system object 36
Configuration of the Intercom object 38

7.3 The Client configuration (operator workstation) 40
7.3.1 Registration and configuration of interaction between Clients and Intercom Subsystem 41
7.3.2 Configuration of the Client audio subsystem 41
7.3.3 Configuration of the Client user interface 42
Configuration of the typical interface objects in the Axxon PSIM software 43
Configuration of the Intercom Control Monitor interface object 45
7.3.4 Setting the operator rights for working with Intercom Subsystem 50
8 Working with the Intercom Subsystem 51
8.1 Calls acceptance 51
8.2 Viewing the video image from video camera of security intercom terminal 54
8.3 Modes of call processing 54
8.4 Call of the SIP-device using the Video surveillance monitor 54
8.5 Reports log 55
9 Intercom Subsystem Reference and Information Guide. Conclusion 59
10 Appendix. Hot keys at keyboard control 60

Note.

This document describes the older version of SIP protocol integration. Please refer to Configuring SIP-terminal section in the Administrator's Guide for the most relevant information about SIP devices configuration and operation.

1 Intercom Subsystem Reference and Information Guide. Introduction

2 Configuration of the Intercom subsystem

- Configuration of the SIP-device
  - Configuration of the GAI - Tronics HelpPoint SIP-device
  - Configuration of the LinkSys SPA-2102 SIP-device
  - Configuration of the AxisQ7401 video server
  - Configuration of the Beward DS06/DS91406M/DSN23215PS SIP-device
- Configuration of the Intercom Subsystem of security intercom terminals
  - Select disks for storing the archive of audio and video subsystem of security intercom terminals
  - Configuration of SIP-devices in the Axxon PSIM software
    - Configuration of the Video Capture Device object corresponding to the SIP-device
    - Configuration of the SIP-device audio subsystem in the Axxon PSIM software
    - Configuration of the Sensor object corresponding to the operator call button on the SIP-device
    - Arm the SIP-device sensors
  - Configuring SIP devices with streaming video over RTSP to Axxon PSIM
    - Configuring the Video capture device object corresponding to a SIP device with streaming video over RTSP
    - Configuring SIP device sensor with streaming video over RTSP protocol to Axxon PSIM
    - Configure SIP device relay with streaming video over RTSP protocol to Axxon PSIM
    - Configuring audio subsystem of SIP device with streaming video over RTSP protocol to Axxon PSIM
    - Configuring SIP device camera with streaming video over RTSP protocol to Axxon PSIM
  - Configuration of the security intercom terminals video subsystem in the Axxon PSIM software
  - Configuration of the security intercom terminals monitoring in the Axxon PSIM software
    - Configuration of the Intercom Subsystem system object
    - Configuration of the Intercom object
- The Client configuration (operator workstation)
  - Registration and configuration of interaction between Clients and Intercom Subsystem
  - Configuration of the Client audio subsystem
  - Configuration of the Client user interface
    - Configuration of the typical interface objects in the Axxon PSIM software
    - Configuration of the Intercom Control Monitor interface object
  - Setting the operator rights for working with Intercom Subsystem

3 Working with the Intercom Subsystem

- Calls acceptance
- Viewing the video image from video camera of security intercom terminal
- Modes of call processing
- Call of the SIP-device using the Video surveillance monitor
- Reports log

4 Intercom Subsystem Reference and Information Guide. Conclusion

5 Appendix. Hot keys at keyboard control

6 Intercom Subsystem Reference and Information Guide. Introduction

On the page:

- Purpose of document
- Purpose and structure of the Intercom subsystem

6.1 Purpose of document

This Intercom Subsystem Reference and Information Guide is a reference manual designed for Intercom subsystem configuration technicians and operators. This subsystem built on the basis of the *Axxon PSIM* Software System.

This Guide presents the following materials:

1. General information about the Intercom subsystem;
2. Configuration of the Intercom subsystem;
3. Working with the Intercom subsystem.

6.2 Purpose and structure of the Intercom subsystem

The Intercom subsystem built on the basis of the *Axxon PSIM* software system and designed for operative communication of people with Emergency Control Centre.

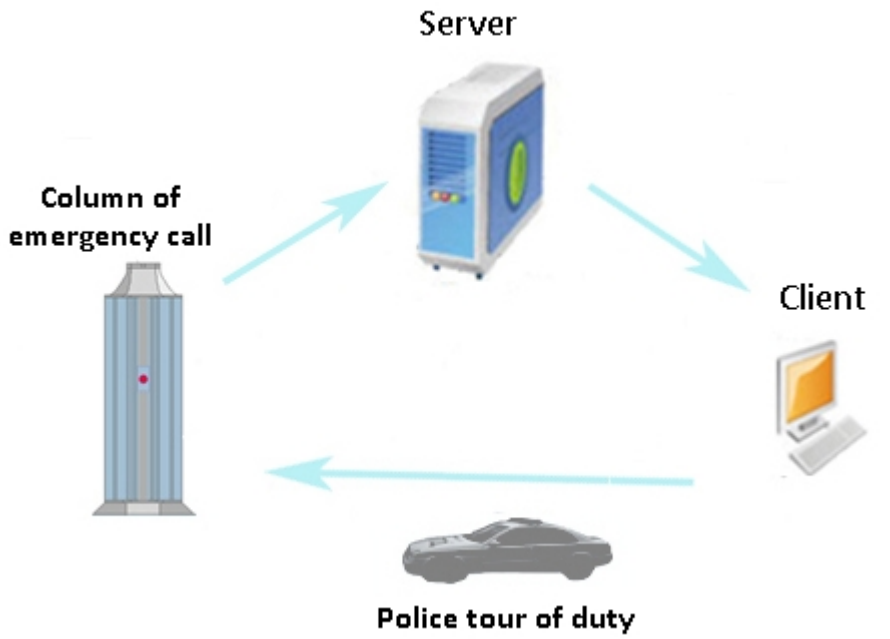
The subsystem consists of following structure elements:

1. Security intercom terminal (security intercom terminal with installed SIP-devices);
2. Intercom subsystem Servers on the basis of *Axxon PSIM* software;
3. Operator workplaces (intercom subsystem Clients) on the basis of *Axxon PSIM* software.

Principle of working with the Intercom subsystem is follows:

1. The call is forwarding to the Intercom subsystem while clicking the button of emergency call on security intercom terminal. The record is automatically initiated to the archive of audio- and video information by call.

> **Note.**
>
> Call is passed by SIP protocol using the TCP/IP network protocol.
> On the security intercom terminal the playback of audio record located in the «<Axxon PSIM installation directory>\Wav\monitoring.wav» file on the security intercom terminal is also initiated. Playback is performed around a circle until the call receiving by operator.
> In the monitoring.wav file, the single-channel PCM sound with frequency and depth of sampling equals to 8 kHz and 16 kHz correspondingly.



2. The call is displayed on Clients with video image from the camera in security intercom terminal.
3. Operator processes the call in accordance with the established procedure and communicates with injured person.
4. The police tour of duty is sent to the emergency site if it's needed.

7 Configuration of the Intercom subsystem

Attention!

Time on all computers in the *Axxon PSIM* distributed system is to be synchronized. Otherwise, the following effects can occur:

1. Audio signal is not playback or delay on the workstation with **Client** configuration;
2. Video image from the camera on security intercom terminal is not displayed in the **Intercom Control Monitor** interface box;
3. Auto restart of psim_host.exe application is disabled (configuration of **Client** workstation);
4. Time past the call to Intercom Subsystem becomes negative in the **Intercom Control Monitor** box.

7.1 Configuration of the SIP-device

SIP-devices of security intercom terminals are to be properly configured for correct working of the Intercom Subsystem.

Note

StreamLabs (jpg) and StreamLabs (wxv) vendors can be in use instead of SIP-devices (e.g. WaveServer WH1501 video server). The firmware of 2.0.0.0 version and above is to be applied.

Note.

Configuring of SIP-devices is performed through the Web-interface.

Information about configuring the SIP-device can be found in the official documentation for this device.

Configuring of SIP-device is performed the following way:

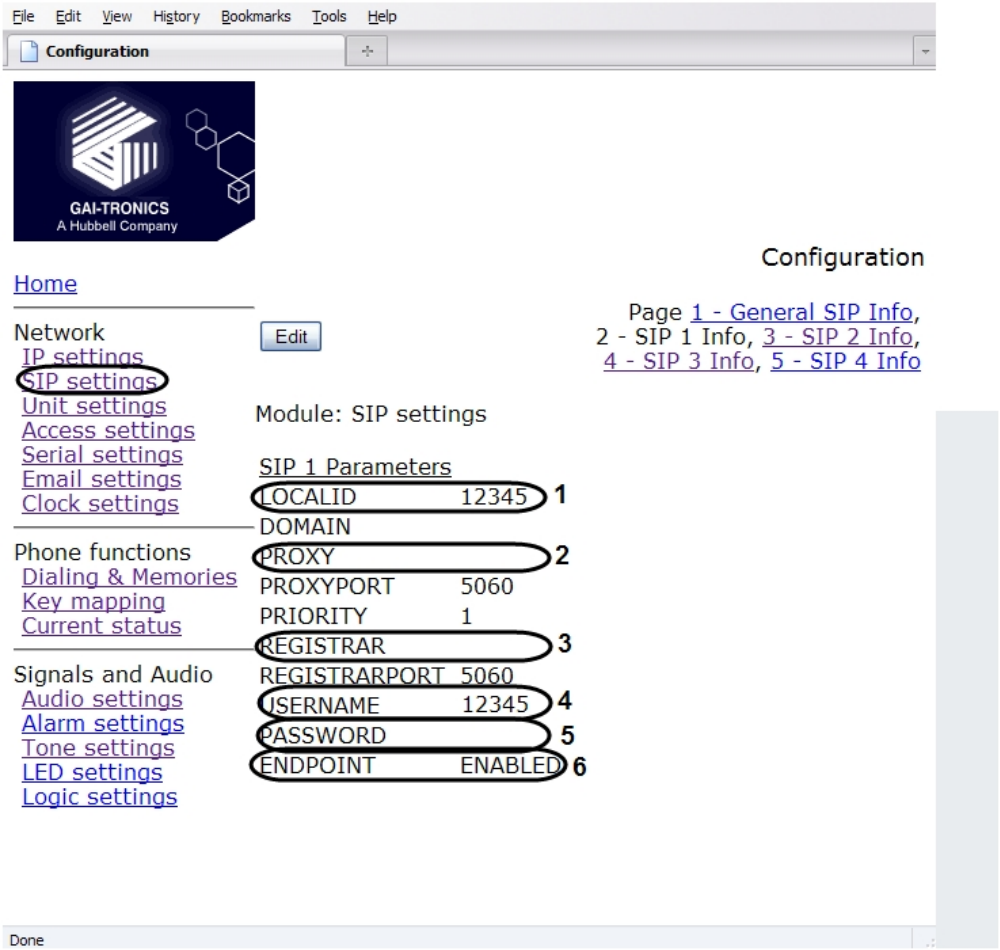
1. Change IP-address of SIP-device if it's needed;
2. Set parameters of SIP protocol;
3. For GAI – Tronics HelpPoint: add the Intercom Subsystem Server of security intercom terminals to the SIP-device contact list;
4. For GAI – Tronics HelpPoint: set the call direction (to the Intercom Subsystem Server) while clicking the call button on the SIP-device;
5. For LinkSys SPA-2102: configure IP video server;
6. For Beward DS06/DS91406M/DSN23215PS: set default symbols for relay commands.

7.1.1 Configuration of the GAI - Tronics HelpPoint SIP-device

The "GAI-Tronics HelpPoint" SIP-device is configured through the Web-interface the following way:

1. Change IP-address of SIP-device on the "IP Settings" tab if it's needed;

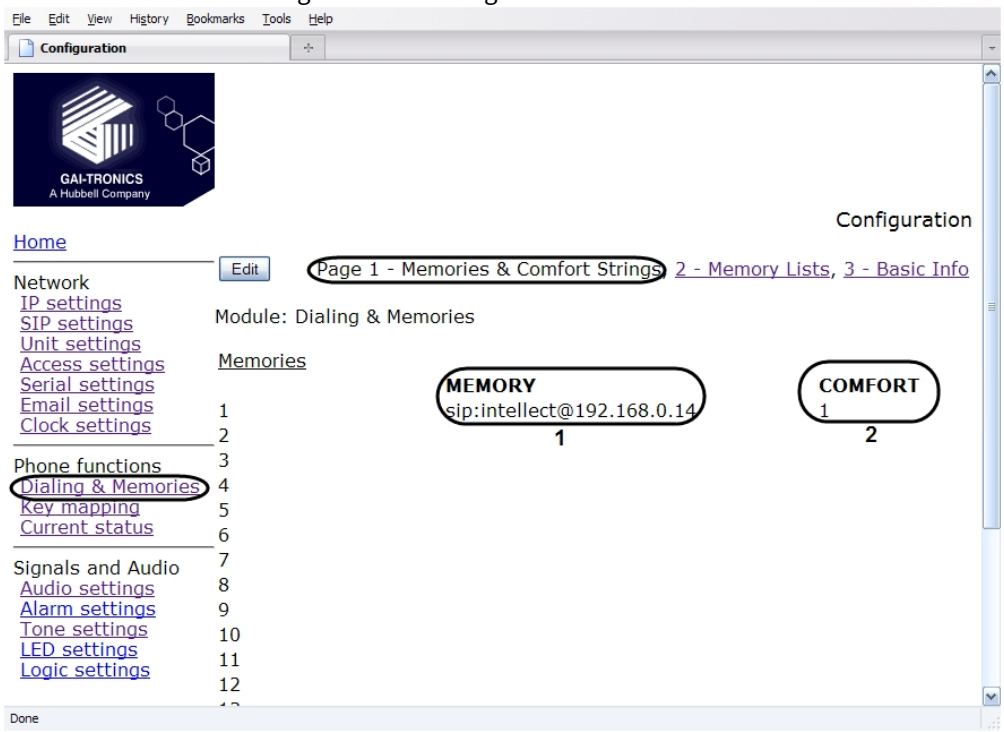
2. Specify parameters of SIP protocol on the “SIP Settings” tab.



№	Parameter	Parameter value	Information	
1	LOCALID	Sequence of symbols (letters, digits etc.)	User ID for connecting to the SIP-device	
2	PROXY	Empty field	Proxy-server is not in use	Call from the SIP-device readdresses directly to the Intercom Subsystem Server
3	REGISTRAR	Empty field	Readdress Server is not in use	
4	USERNAME	Sequence of symbols (letters, digits etc.)	User name of SIP-device. Should coincide with “LOCALID” parameter value	

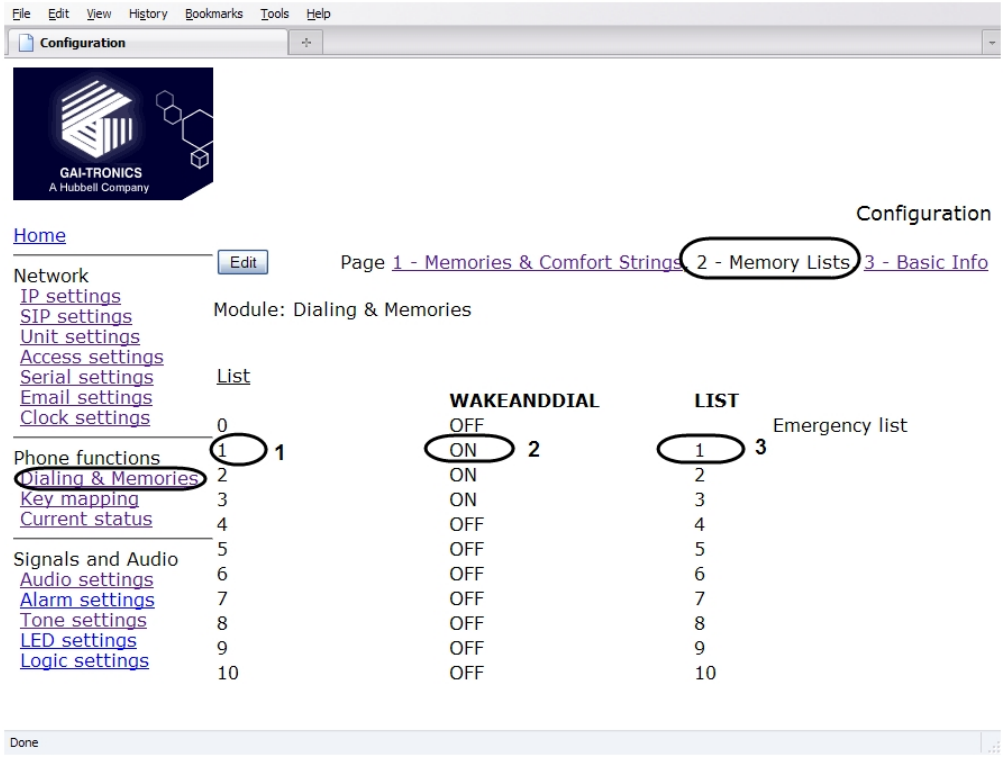
№	Parameter	Parameter value	Information
5	PASSWORD	Sequence of symbols (letters, digits etc.)	Password to connect to the SIP-device
6	ENDPOINT	ENABLED	SIP-device activated

3. Add the Intercom Subsystem Server of security intercom terminals to the contact list of SIP-device on page 1 «Memories & Comfort Strings» of the «Dialing & Memories» tab.



№	Parameter	Parameter value	Information
1	MEMORY	sip:<name>@<IP address>	SIP URL consists of two parts: <name> -user name. It is ignored while calling <IP address> - IP-address of Intercom Subsystem Server
2	COMFORT	Sequence of numbers	Use to configure calls addressing from SIP-device (see step 4)

4. Set the call direction while clicking the call button on page 2 «Memory Lists» of the «Dialing & Memories» tab.



№	Parameter	Parameter value	Information
1	Number	Sequence of numbers	Number of required call button
2	WAKEANDIAL	ON	Includes the call addressing to the Intercom Subsystem Server while clicking the required button
3	LIST	Sequence of numbers	Should coincide with “COMFORT” parameter value, corresponding to the SIP URL of required Intercom Subsystem Server (see step 3).

Configuring of the «GAI-Tronics HelpPoint» SIP-device through the Web-interface is completed.

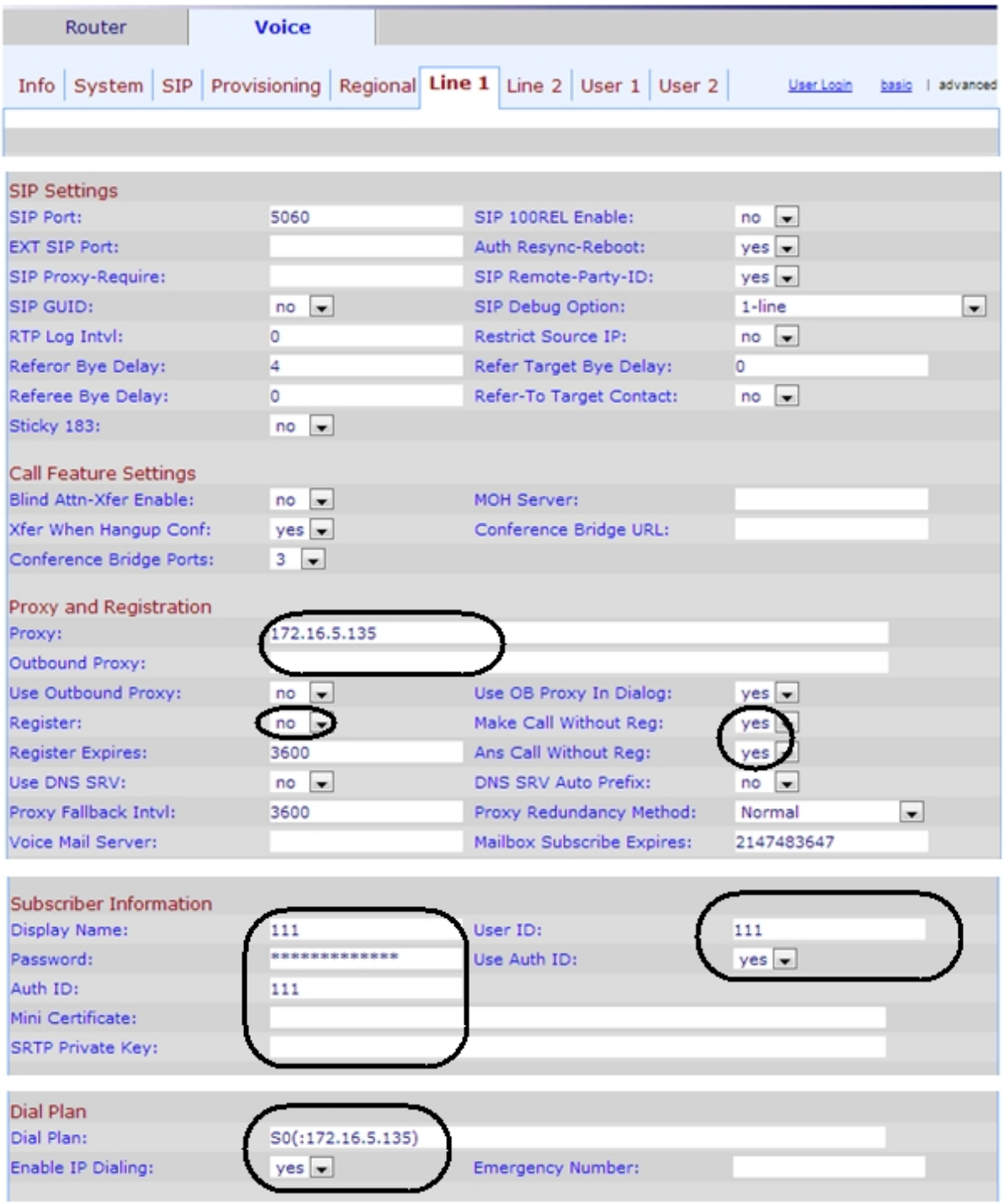
7.1.2 Configuration of the LinkSys SPA-2102 SIP-device

The “LinkSys SPA-2102” SIP-device is configured through the Web-interface the following way:

1. The configuration is performed with connected SIP-device through the Ethernet port. Change IP-address of SIP-device on the **Wan Setup** tab if it’s needed and allow its administrating from outside (**Enable WAN web**

server – yes, disabled on default).

2. It is recommended to switch the internal “Ethernet” port of SIP-device which is in use to connect video server to the “Bridge” mode on the **LAN Setup** tab. The device administrating through this port is available only through the “Internet” port. To define the current IP address on the internal device port, connect the telephone to the Line1 port, listen to the voice answer and enter ****, then 210 and # in the tonal mode. To define the external IP address enter **** 110 #.
3. Set parameters of the SIP protocol on the **Line1** tab.



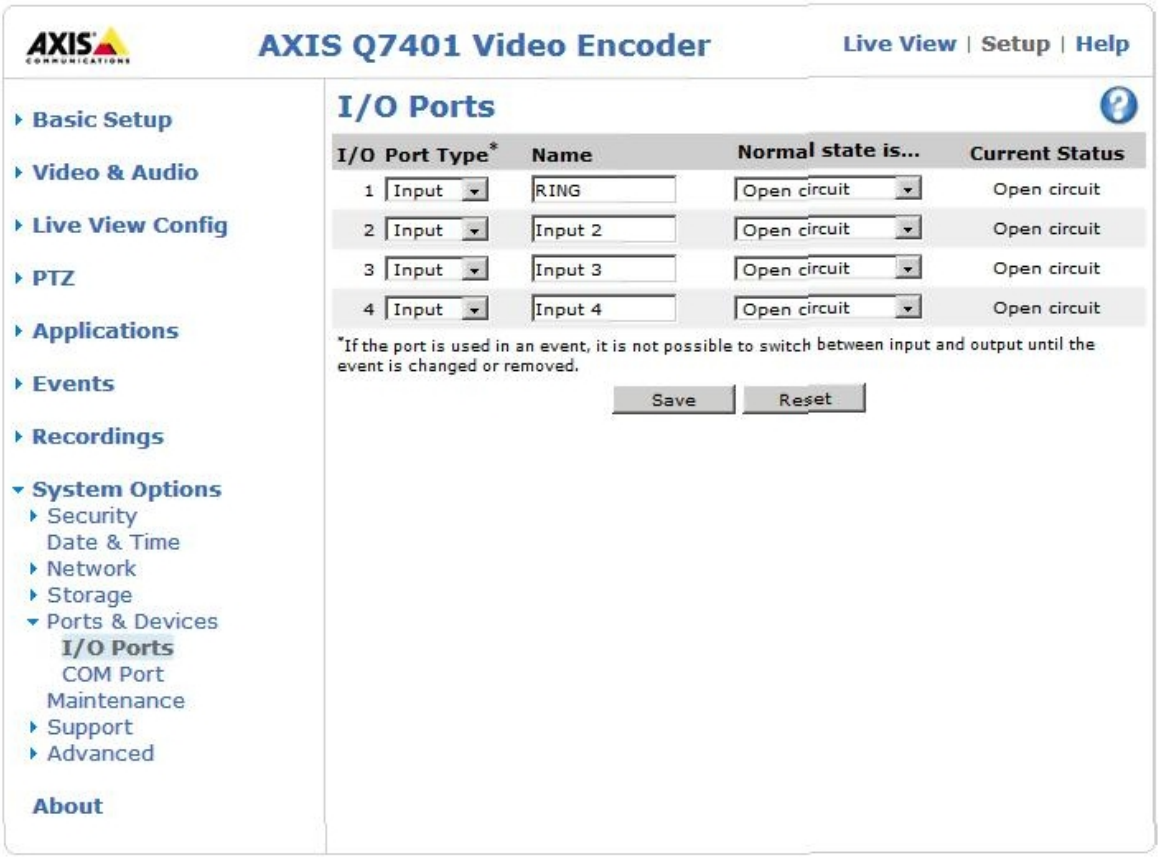
Configuring of the *LinkSys SPA-2102* SIP-device through the Web-interface is completed.

7.1.3 Configuration of the AxisQ7401 video server

The *AxisQ7401* video server is performed the following way:

1. Go to the **Setup > System Options > Ports & Devices > I/O Ports** section.

2. Set required port name, on which the “call duplication” DBL signal from security intercom terminal is connected. On default, port 0 for the *Axis Q7401*.
3. Set the type for it: input **(Input) Normal State is: open circuit** (open circuit state is normal – short circuit of the port is performed by call initiation).



4. To check, assure that the port state is changed into the **Active** while the call button clicking on the **Setup >System Options > Port & Devices > I/O Ports** tab.

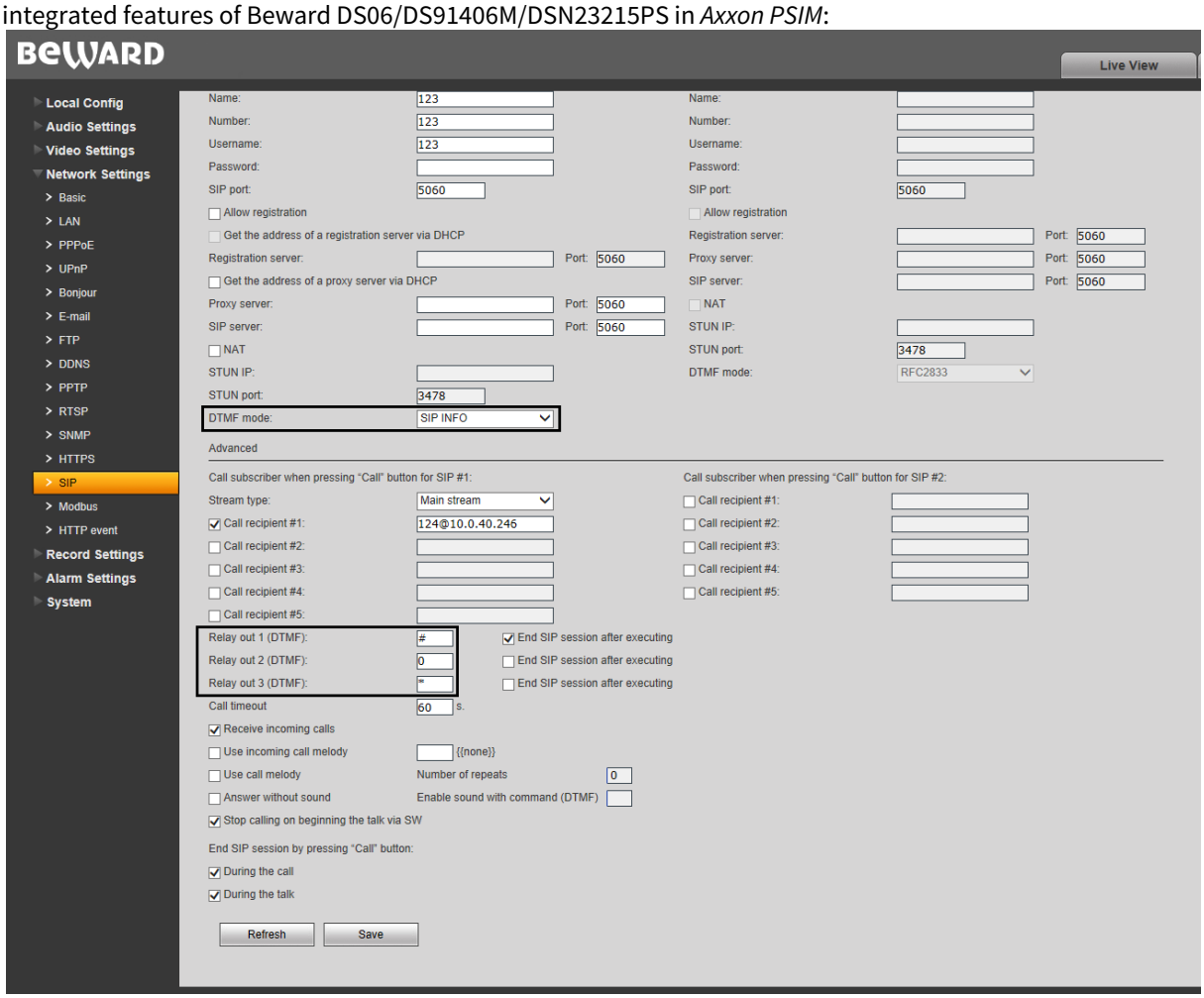
This contact can be in use to show automatically the camera in full screen while the call receiving.

7.1.4 Configuration of the Beward DS06/DS91406M/DSN23215PS SIP-device

The Beward DS06/DS91406M/DSN23215PS SIP-device is configured through the Web-interface the following way:

1. Change IP-address of SIP-device on the **LAN** tab if it’s needed.
2. Specify parameters of SIP protocol on the **SIP** tab according to the vendor's documentation. However, the following parameters marked on the picture below are to be set exactly as follows in order to use all

integrated features of Beward DS06/DS91406M/DSN23215PS in *Axxon PSIM*:



3. In the **DTFM mode** drop-down list, select **SIP INFO**.
4. Set the default symbols for the Relay output commands:
    a. **Relay out 1 (DTFM)** – #
    b. **Relay out 2 (DTFM)** – 0
    c. **Relay out 3 (DTFM)** – *
5. Click **Save** to save changes.

The Beward DS06/DS91406M/DSN23215PS SIP-device configuration through the Web-interface is now completed.

7.2 Configuration of the Intercom Subsystem of security intercom terminals

> **Note.**
>
> Ports 80 (http) and 23 (telnet) are to be opened for correct working of Intercom Subsystem on the computer where the **Intercom Subsystem** object is created.

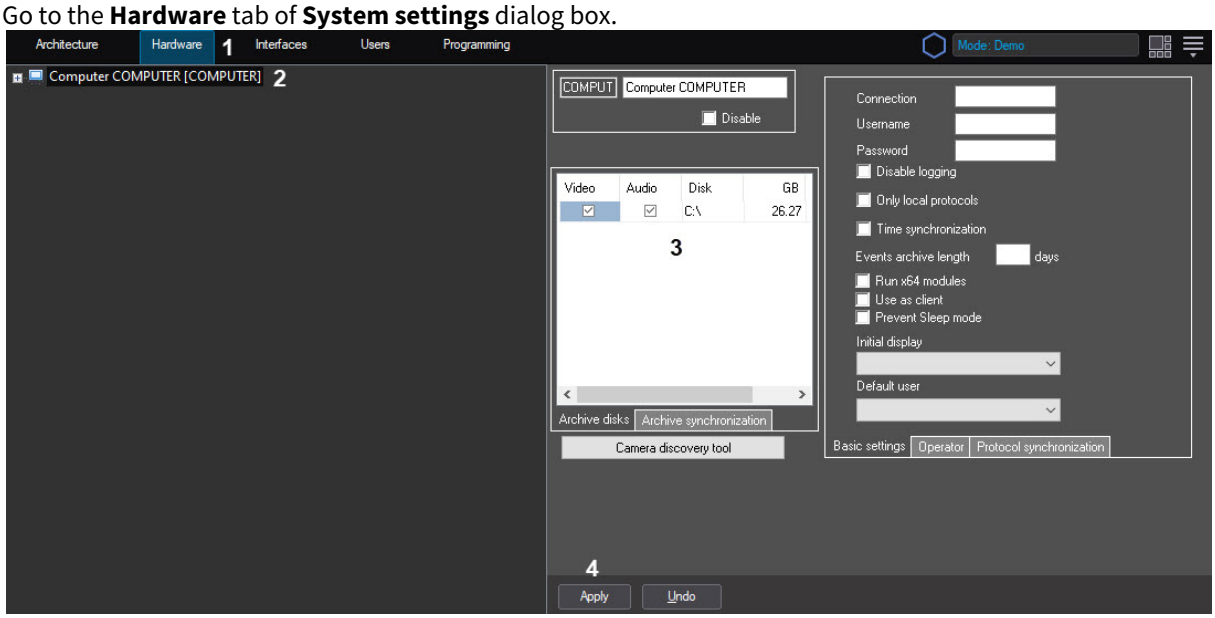
Configuring the Intercom Subsystem is performed the following way:

1. Configure the **Computer** system object corresponding to the Intercom Subsystem in the *Axxon PSIM* software (see Select disks for storing the archive of audio and video subsystem of security intercom terminals);
2. Configure the SIP-device in the *Axxon PSIM* software;
3. Configure the video subsystem of security intercom terminals in the *Axxon PSIM* software;
4. Configure the monitoring of security intercom terminals in the *Axxon PSIM* software.

7.2.1 Select disks for storing the archive of audio and video subsystem of security intercom terminals

To select disks for storage the archive of video and audio subsystem of security intercom terminals, do the following:

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



2. In object tree of the **Hardware** tab, select the **Computer** object corresponding to the Intercom Subsystem Server (1).
3. As a result, the settings panel of the selected object will display.
4. Names of local disks available for storage the archive of video and audio subsystem of security intercom terminals are presented in the **Disk** column of **Disks for storing the archive** table. The corresponding disks spaces in gigabytes (GB) are presented in the **GB** column (3).
5. Set the checkbox in the **Video** column close to those disks which are to be selected for storing the video records archive and synchronous video and audio records (3).
6. Set the checkbox in the **Audio** column close to those disks which are to be selected for storing the audio records archive (3).
7. To save changes, click **Apply** button (4).

Disks selection for storing the archive of video and audio subsystem of security intercom terminal is completed.

7.2.2 Configuration of SIP-devices in the Axxon PSIM software

To configure SIP-devices in the *Axxon PSIM* software, do the following:

1. Configure the **Video Capture Device** system object corresponding to the SIP-device.
2. Configure audio subsystem of SIP-device in the Axxon PSIM software.
3. Configure the **Sensor** object corresponding to the operator call button on the SIP-device.

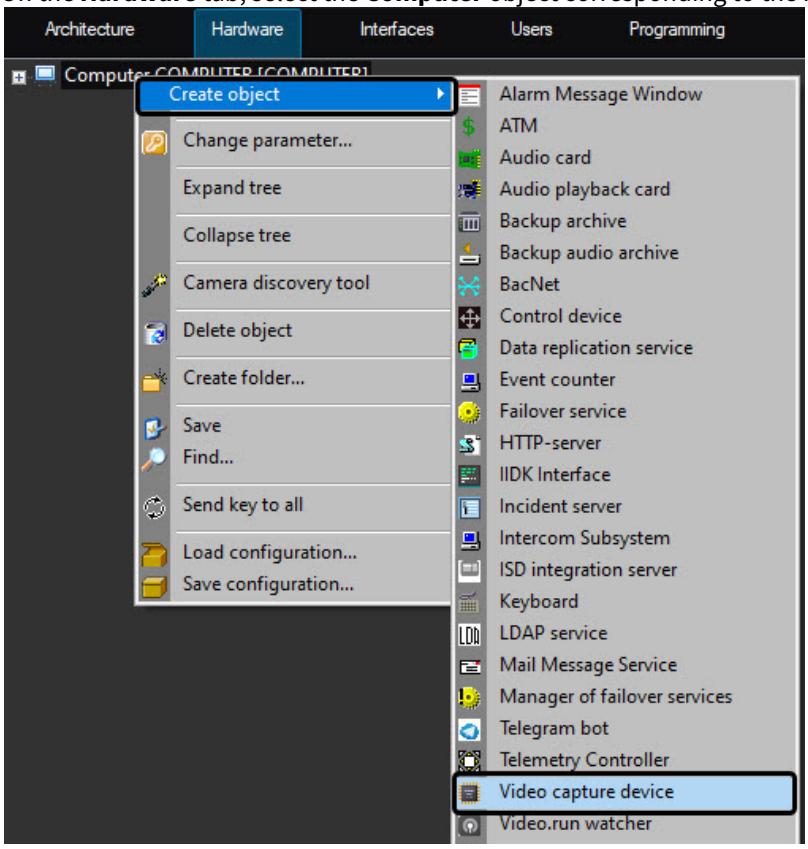
4. Arm the **Sensor** object.

> **Note.**
>
> The **Sensor** object of SIP-device is program generated and is not connected directly with relay outputs of SIP-device, call button and “call duplicate” of security intercom terminal card.

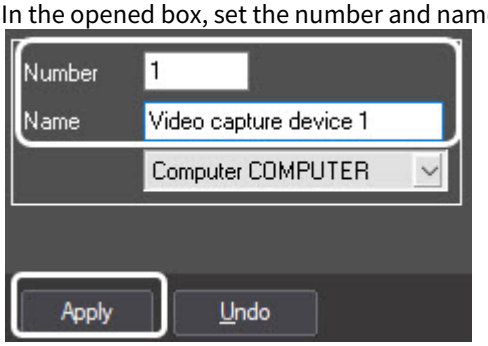
Configuration of the Video Capture Device object corresponding to the SIP-device

To configure the **Video Capture Device** object corresponding to SIP-device, do the following:

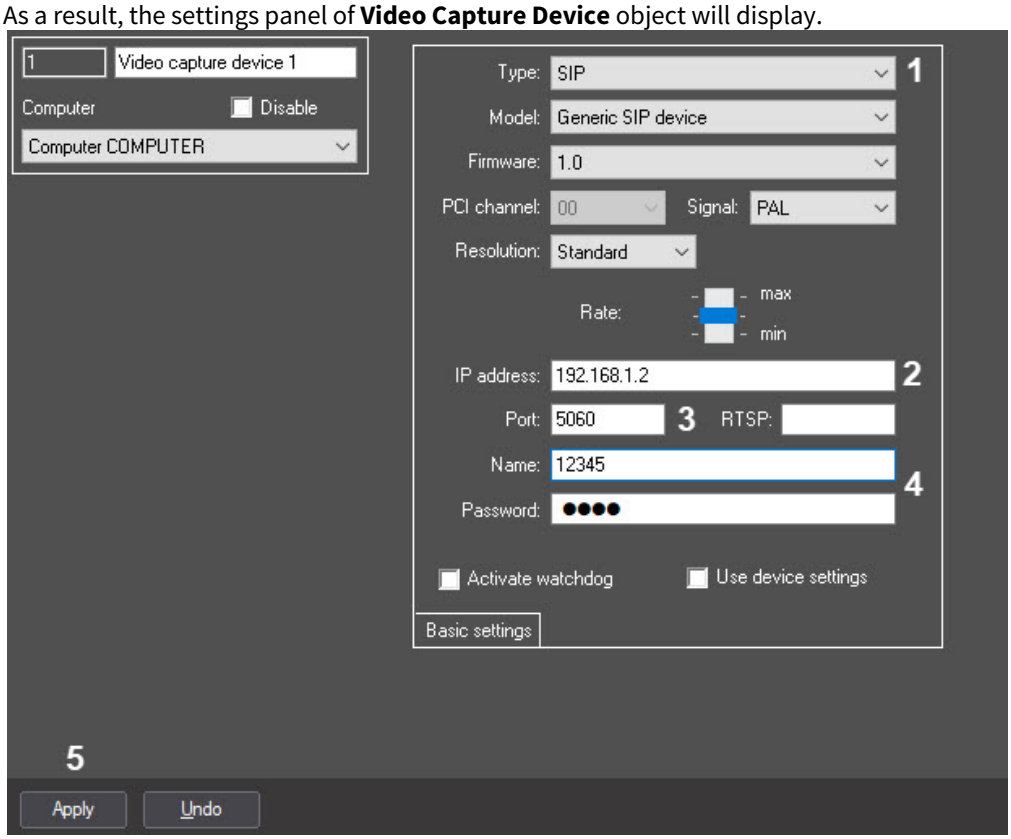
1. On the **Hardware** tab, select the **Computer** object corresponding to the Intercom Subsystem Server.



2. Click the right mouse button on the **Computer** selected object and choose the **Create object** - > **Video Capture Device** item in the context menu.
3. In the opened box, set the number and name of **Video Capture Device** object and then click **Apply** button.



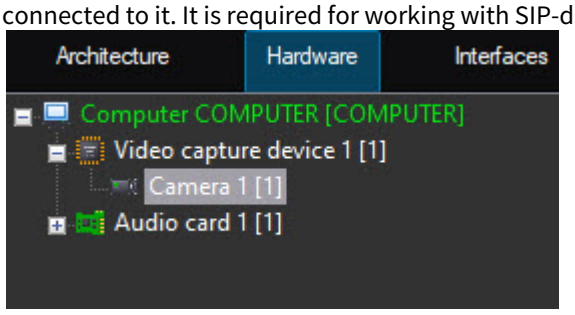
4. As a result, the settings panel of **Video Capture Device** object will display.



5. From the **Type** drop-down list, select the **SIP** value (1).
6. In the **IP-address** and **Port** fields, enter the IP-address and port of SIP-device (2,3).
7. In the **Name** and **Password** fields, specify the phone number and password for the line (4).

> **Important!**
>
> Do not specify login information (login and password) in these fields – specify SIP attributes.

8. To save changes, click **Apply** button (5).
9. Create the **Camera** object on the basis of the **Video Capture Device** object even if the camera is not connected to it. It is required for working with SIP-device audio subsystem.



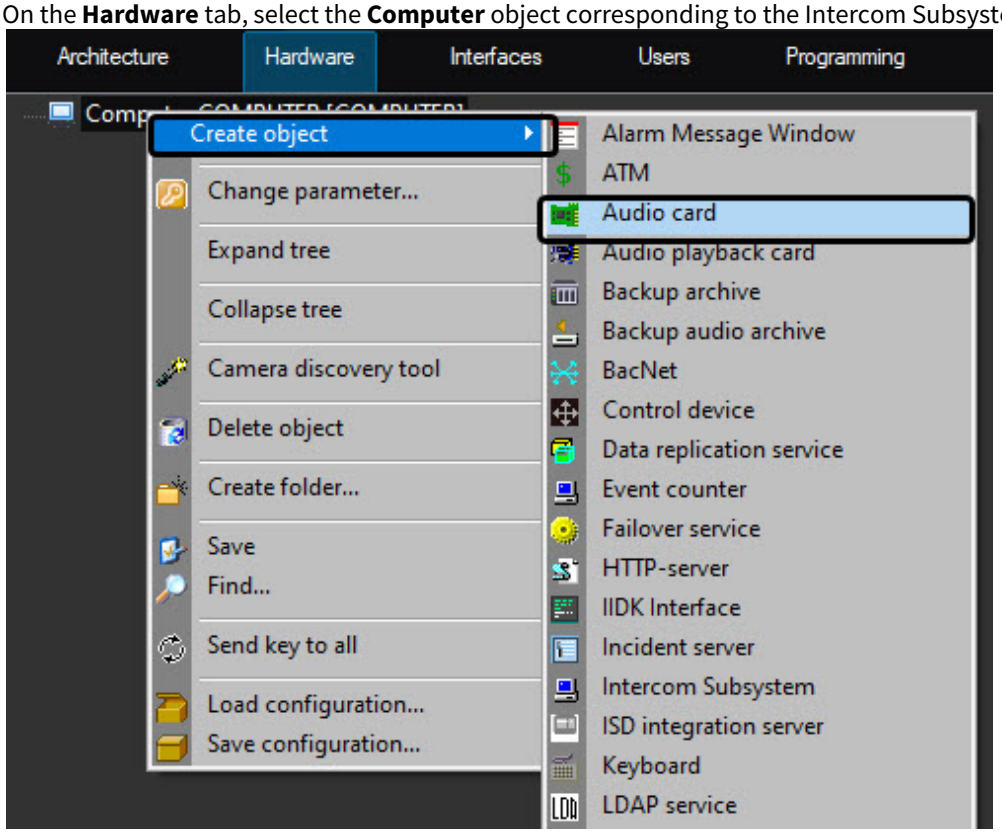
10. Repeat steps 1-9 for all required SIP-devices.

Configuring of **Video Capture Device** object corresponding to the SIP-device is completed.

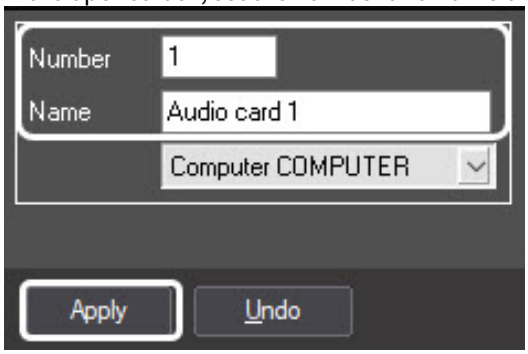
Configuration of the SIP-device audio subsystem in the Axxon PSIM software

To configure the audio subsystem if SIP-device in the Axxon PSIM software, do the following:

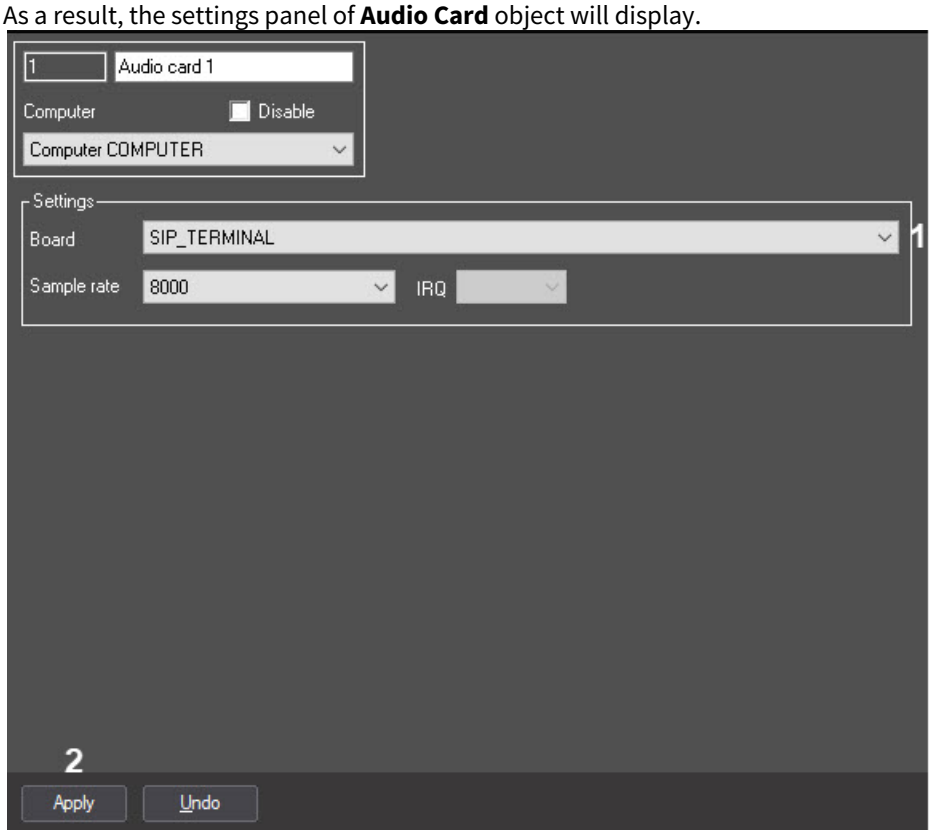
1. On the **Hardware** tab, select the **Computer** object corresponding to the Intercom Subsystem Server.



2. Click the right mouse button on the **Computer** selected object and choose the **Create object** - > **Audio Card** item from the context menu.
3. In the opened box, set the number and name of **Audio Card** object and then click **Apply** button.

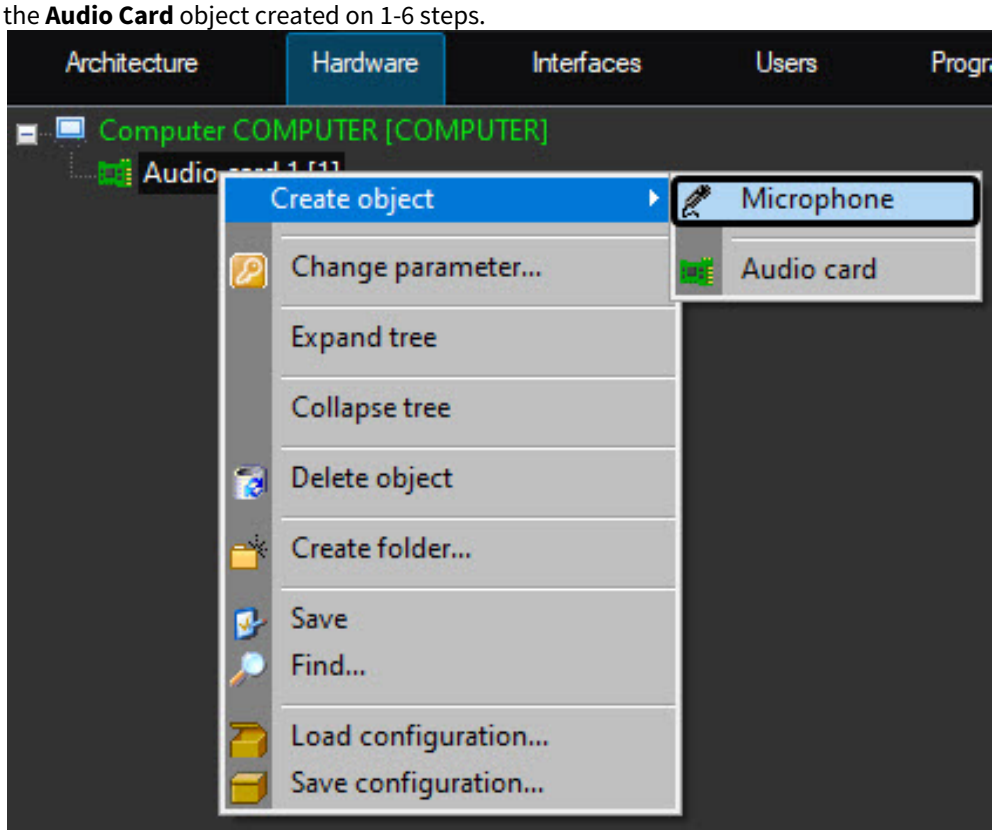


4. As a result, the settings panel of **Audio Card** object will display.

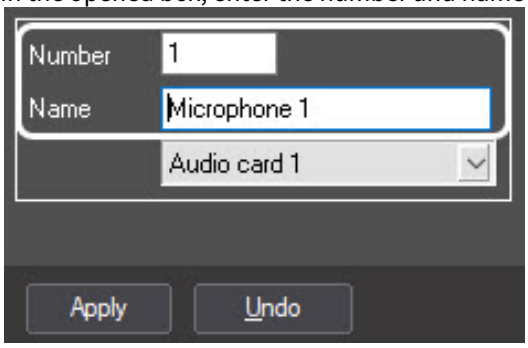


5. From the **Plate** drop-down list, select the **IpCam SIP <IP-address>** value where <IP-address> - IP-address of SIP-device (1).
6. To save changes, click **Apply** button (2).

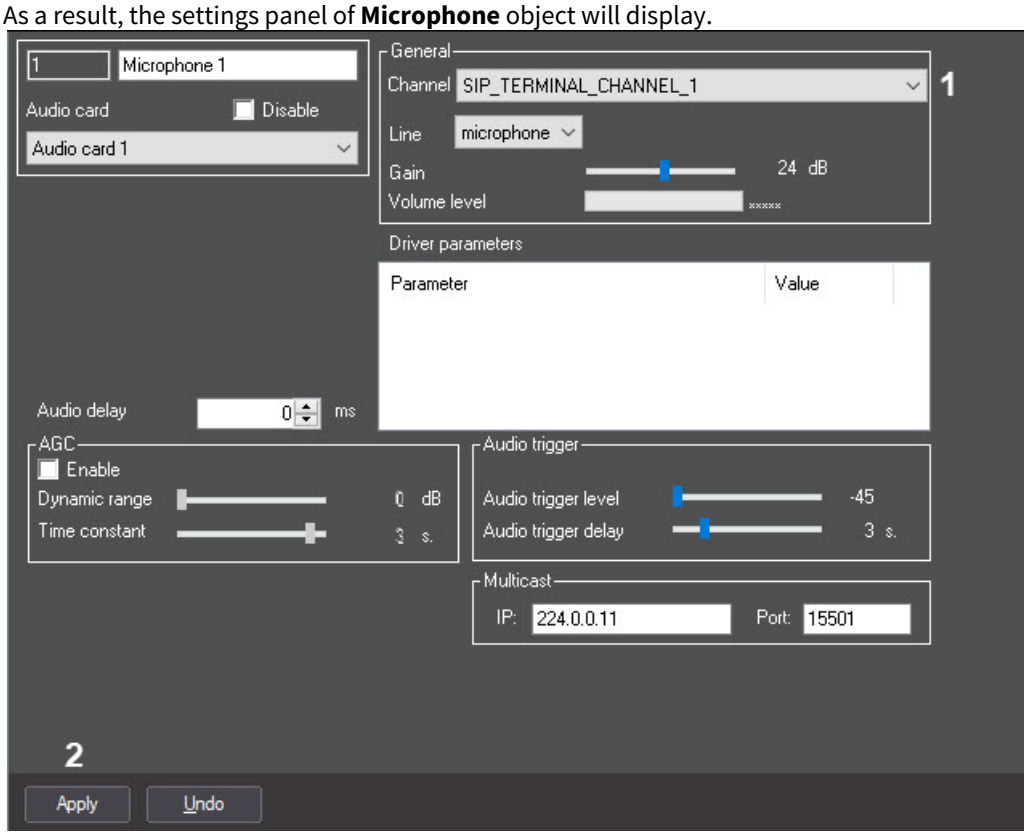
7. Create the **Microphone** object corresponding to the microphone of SIP-device. On the **Hardware** tab, select the **Audio Card** object created on 1-6 steps.



8. Click the right mouse button on the selected **Audio Card** object and choose the **Create object** - > **Microphone** item from the context menu.
9. In the opened box, enter the number and name of **Microphone** object and then click **Apply** button.



10. As a result, the settings panel of **Microphone** object will display.



11. From the **Channel** drop-down list, select the *IpCam SIP <IP-address> LineIn(#0)* value, where *<IP-address >* - IP address of SIP-device.
12. To save changes, click **Apply** button.
13. Create the virtual microphone for mixing audio stream from the microphone and audio stream receiving to speaker of SIP-device to the single audio stream. Repeat steps 7-10 for it.
14. From the **Channel** drop-down list, select the *IpCam SIP <IP-address> LineIn(#1)* value where *<IP-address >* - IP address of SIP-device and click **Apply** button.

15. Repeat steps 1-14 for all required SIP-devices.

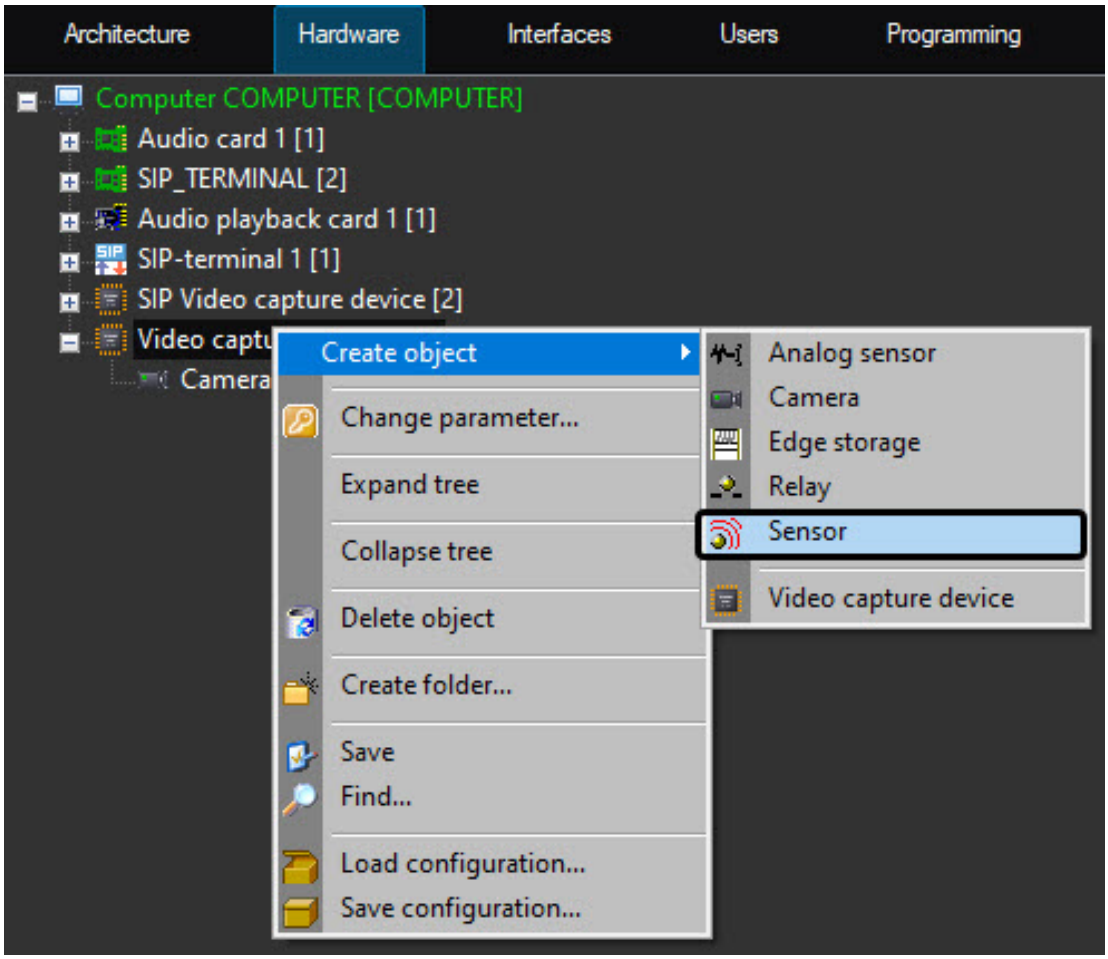
Configuring of SIP-devices audio subsystem in the *Axxon PSIM* software is completed.

Configuration of the Sensor object corresponding to the operator call button on the SIP-device

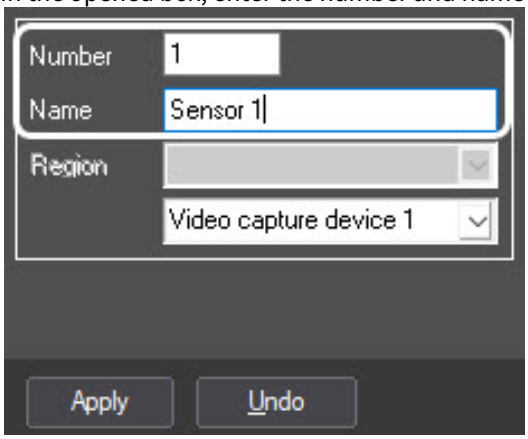
To configure the **Sensor** object corresponding to the operator call button on the SIP-device, do the following:

1. On the **Hardware** tab, select the **Video Capture Device** object corresponding to the SIP-device.

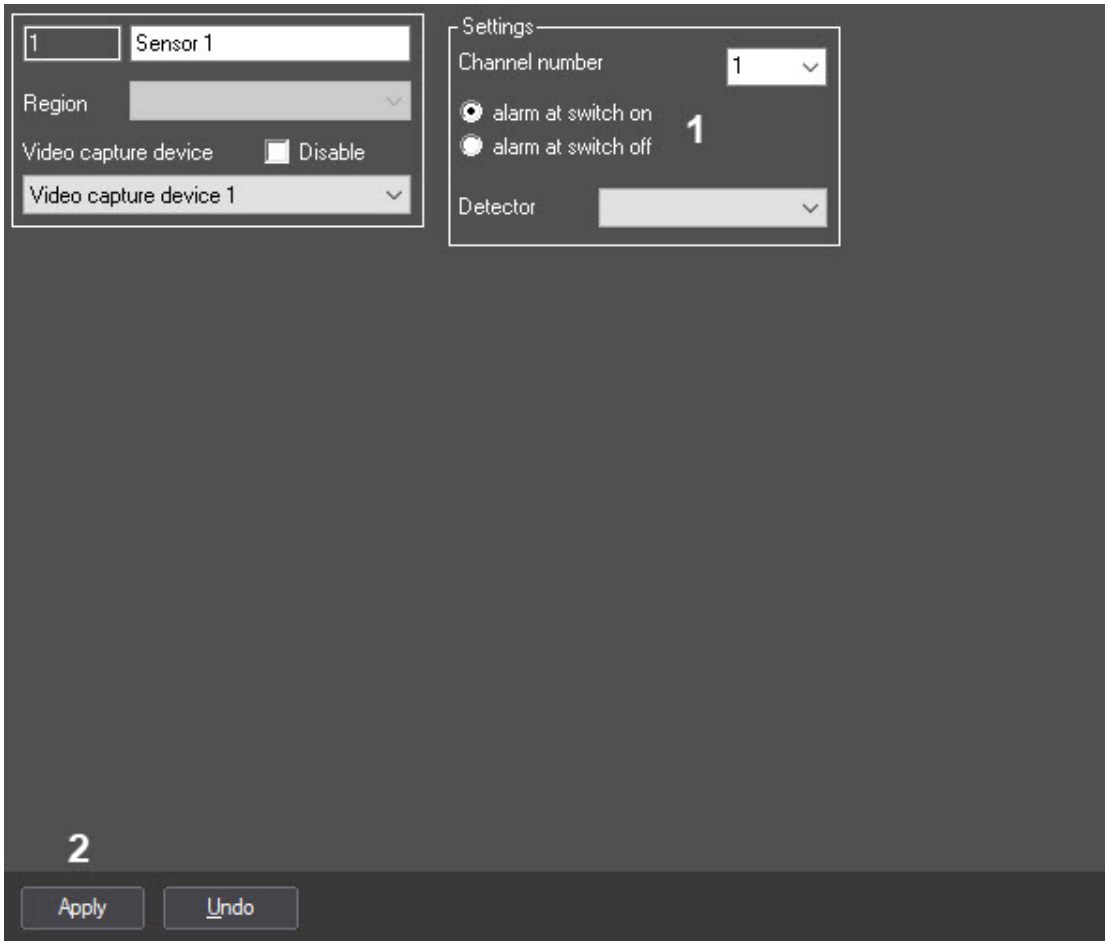
2. Click the right mouse button on the selected **Video Capture Device** object and choose the **Create object -> Sensor** item from the context menu.



3. In the opened box, enter the number and name of the **Sensor** object and then click **Apply.**



4. As a result, the settings panel of **Sensor** object will display.



5. Set the **Alarm at switch on** checkbox (1).
6. To save changes, click **Apply** button (2).

Configuring of the **Sensor** object corresponding to the operator call button on SIP-device is completed.

> **Note.**
>
> The **Sensor** object of SIP-device is program generated and is not connected directly with relay outputs of Axis video server, call button and “call duplicate” of security intercom terminal card.

Arm the SIP-device sensors

Sensors corresponding to the operator call button on SIP-devices are to be armed for correct working of Intercom Subsystem.

Arming of SIP-device sensors is performed with the help of following objects:

1. **Map** (the **Interface** tab);
2. **Macro** (the **Programming** tab);
3. **Program** (the **Programming** tab);
4. **Script** (the **Programming** tab).

Working with these objects and sensors arming is described in detail in Administrator's Guide, and Operator's Guide.

7.2.3 Configuring SIP devices with streaming video over RTSP to Axxon PSIM

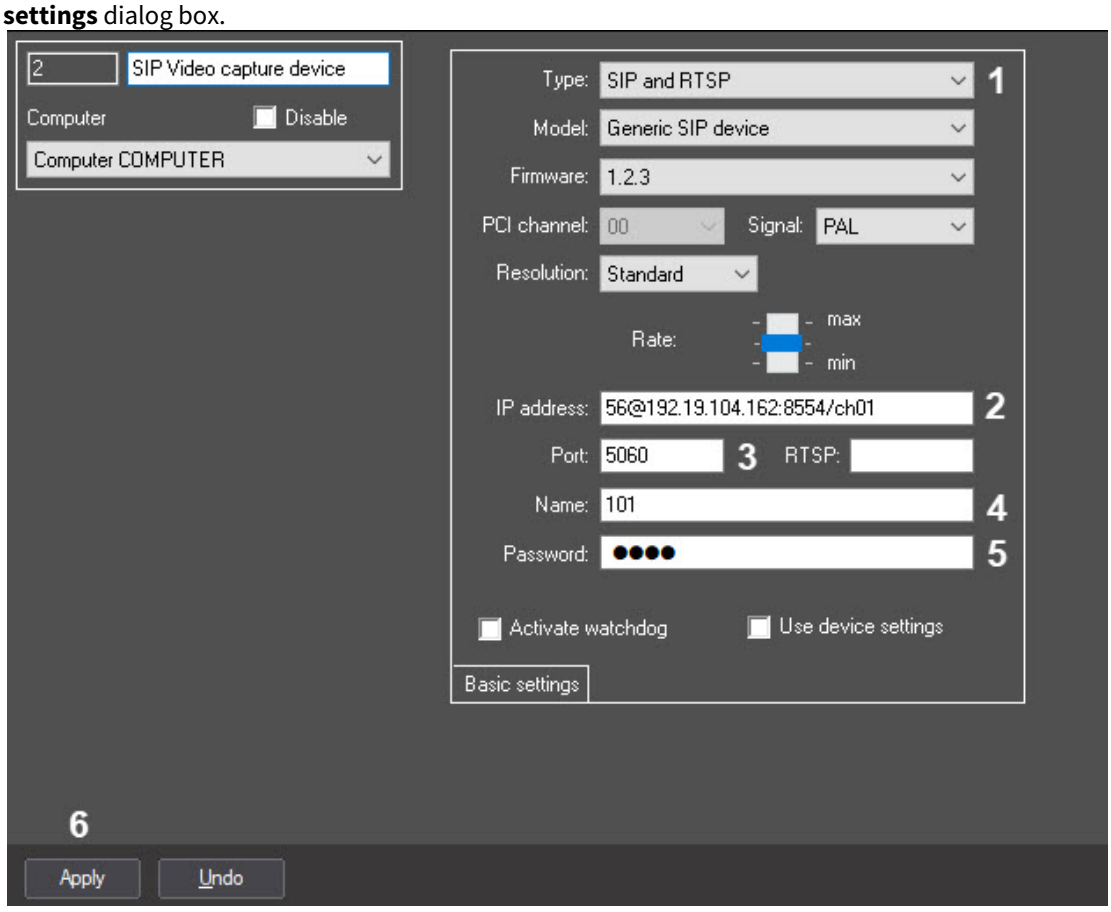
Configure SIP devices with video streaming over RTSP as follows:

1. Configure the **Video capture device** object corresponding to a SIP device with streaming video over RTSP protocol to *Axxon PSIM*.
2. Configure a SIP device sensor with streaming video over RTSP protocol to *Axxon PSIM*.
3. Configure a SIP device relay with streaming video over RTSP protocol to *Axxon PSIM*.
4. Configure the audio subsystem of a SIP device with streaming video over RTSP protocol to *Axxon PSIM*.
5. Configure a SIP device camera with streaming video over RTSP protocol to *Axxon PSIM*.

Configuring the Video capture device object corresponding to a SIP device with streaming video over RTSP

Configure the **Video capture device** system object corresponding to a SIP device with streaming video over RTSP protocol as follows:

1. Create a **Video capture device** object under the **Computer** object in the **Hardware** tab of the **System settings** dialog box.



2. Go to the settings panel of the created object.
3. Select the **SIP and RTSP** (1) video capture device type in the **Type** dropdown list.
4. In the **IP address** field specify the address of RTSP stream with parameters of connection used for getting video over RTSP protocol: login, password, port and URL (2).
   Example: rtsp://admin:123456@192.168.1.63:8554/ch01

> **Note.**
>
> Parameters of SIP connection (the same as for other SIP devices) are specified in the **Port** (3), **Name** (4) and **Password** (5) fields.

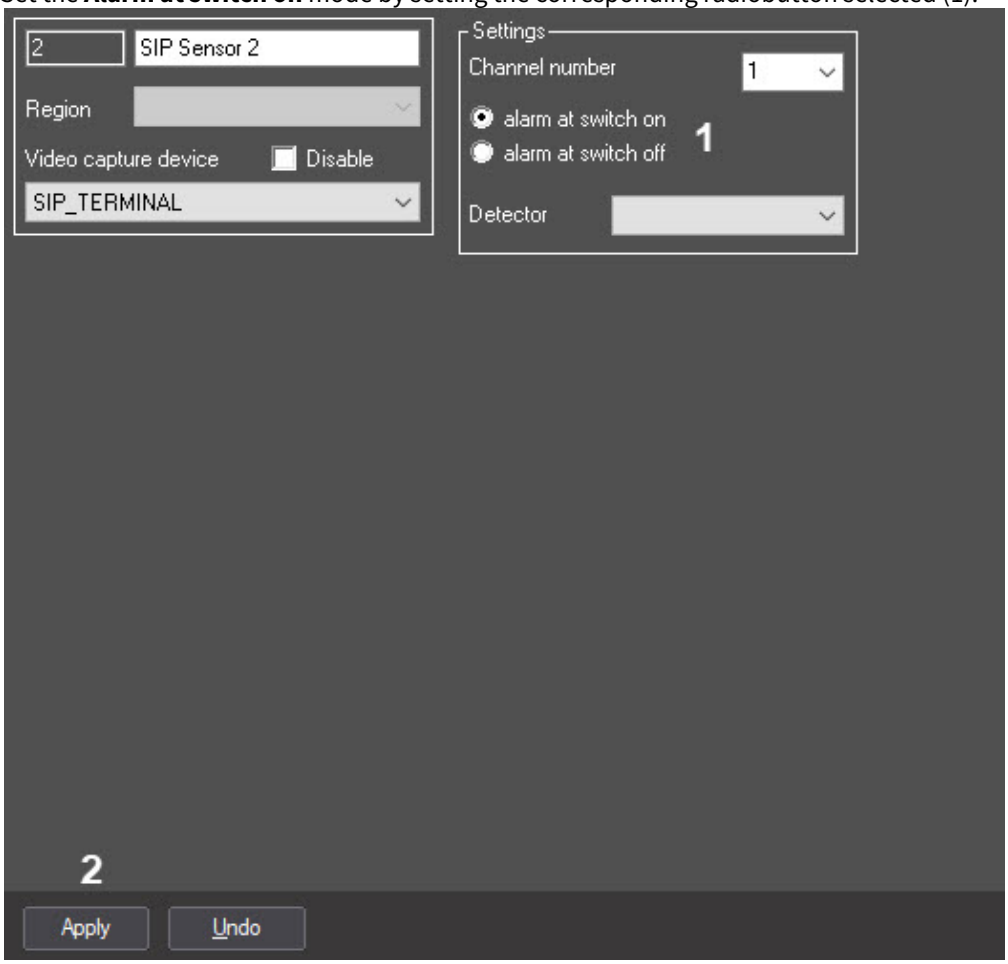
5. Click the **Apply** button (6).

The **Video capture device** system object corresponding to a SIP device with streaming video over RTSP protocol is now configured.

Configuring SIP device sensor with streaming video over RTSP protocol to Axxon PSIM

Configure the **Sensor** object corresponding to the call button on a SIP device as follows:

1. Create a **Sensor** object under the **Video capture device** object corresponding to a SIP device.
2. Go to the settings panel of the created object.
3. Set the **Alarm at switch on** mode by setting the corresponding radiobutton selected (1).



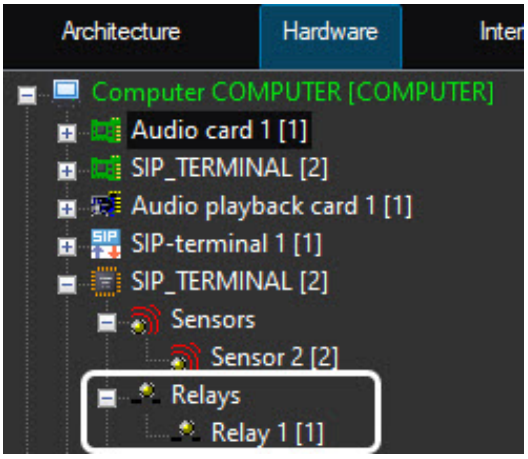
4. Click the **Apply** button to save the changes (2).

The **Sensor** object corresponding to the call button on a SIP device is now configured.

Configure SIP device relay with streaming video over RTSP protocol to Axxon PSIM

If there is a relay on a SIP device that can be connected to the lock control circuit and be used for door opening, then create a corresponding **Relay** object in *Axxon PSIM*. Use the interactive map to control a relay (see Operations with the relay section in Operator's Guide).

The **Relay** object corresponding to the call button on a SIP device is created under the **Video capture device** object corresponding to a SIP device.

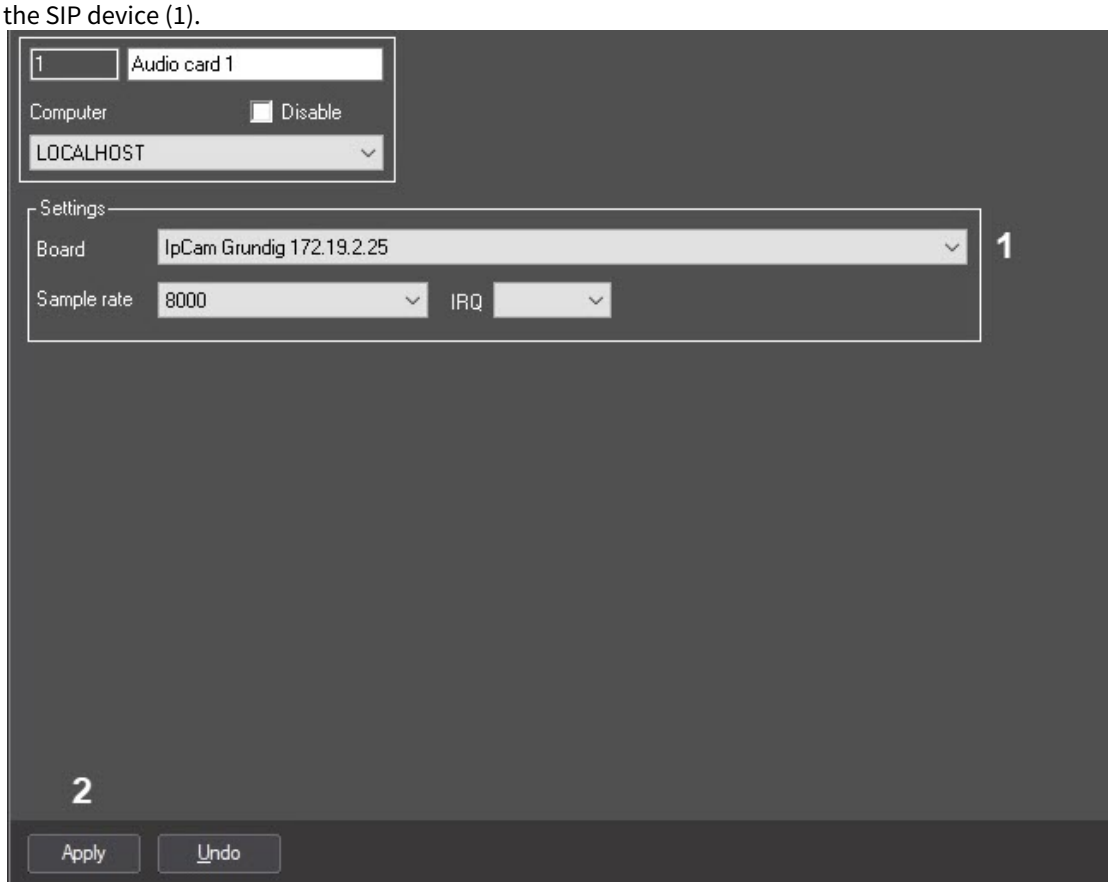


Configuring audio subsystem of SIP device with streaming video over RTSP protocol to Axxon PSIM

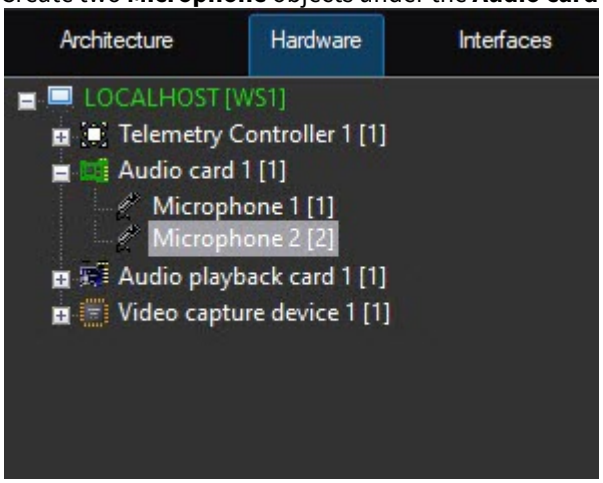
Configure the audio subsystem of a SIP device in *Axxon PSIM* as follows:

1. Create an **Audio card** object corresponding to a SIP device under the **Computer** object in the **Hardware** tab of the **System settings** dialog box.
2. Go to the settings panel of the created object.

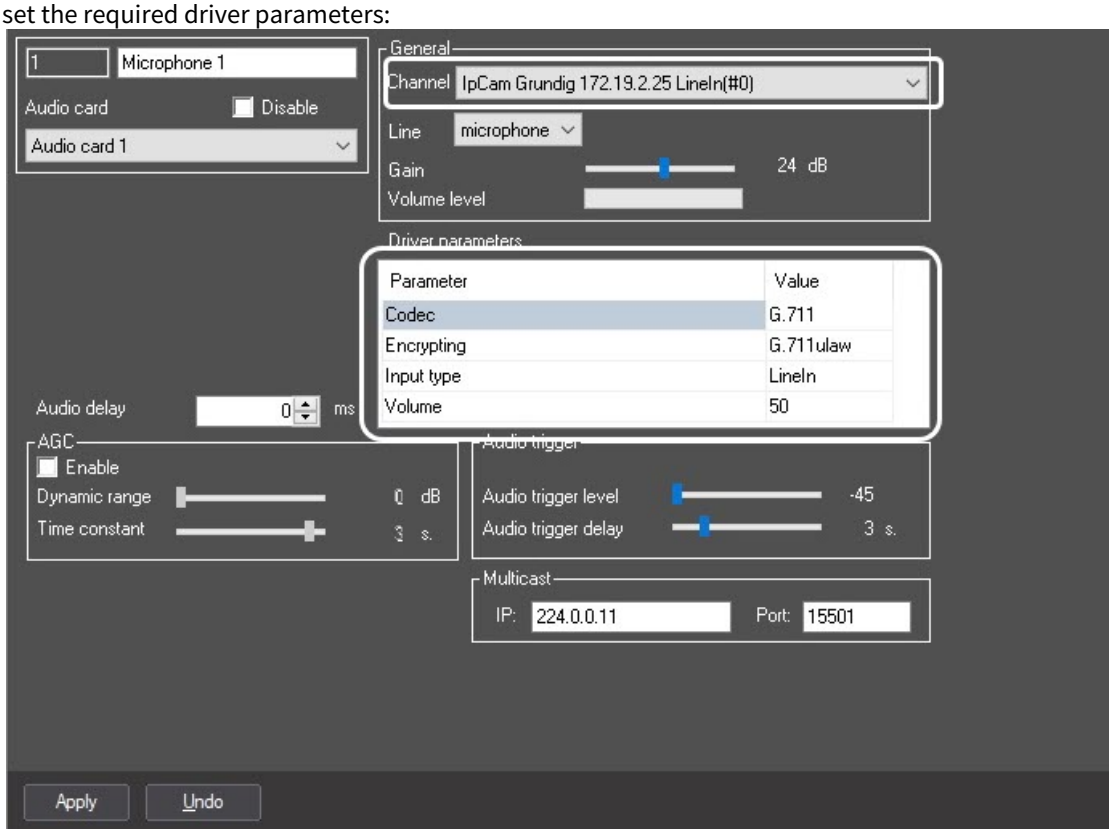
3. In the **Card** dropdown list, select **IpCam SIP and RTSP <IP address>** where IP address is the IP address of the SIP device (1).



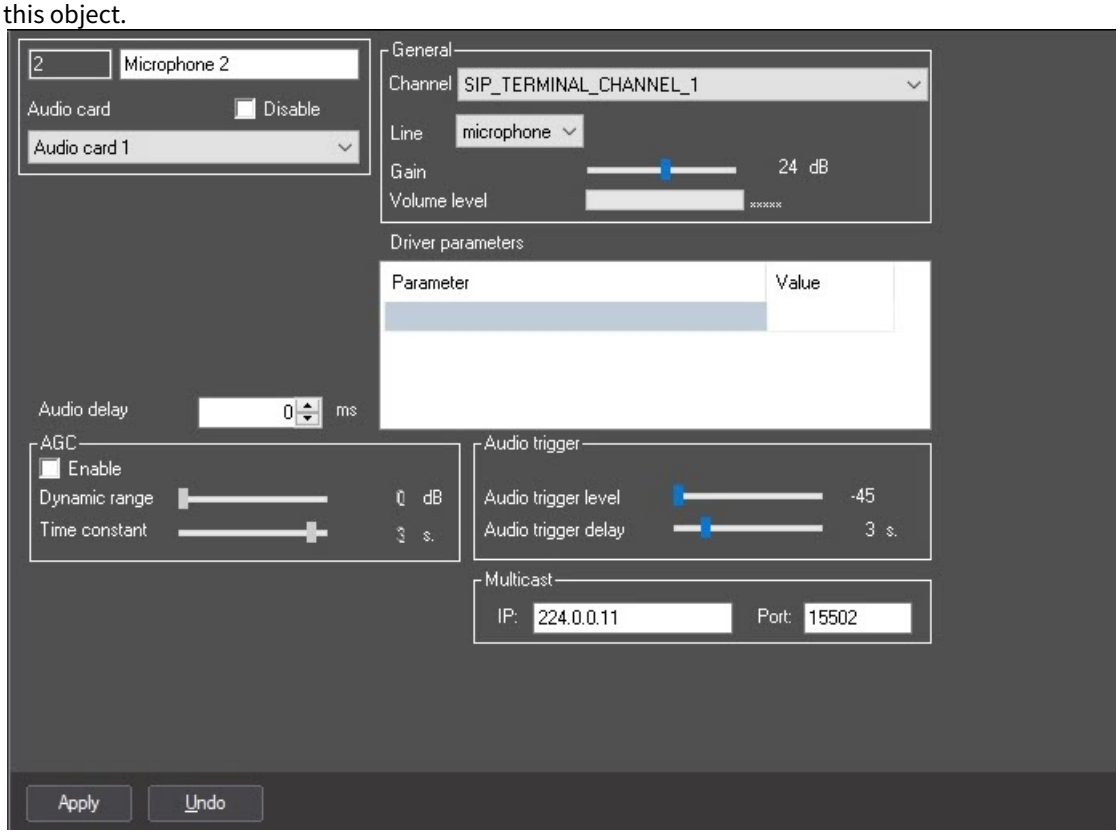
4. Click the **Apply** button (2).
5. Create two **Microphone** objects under the **Audio card** corresponding to the SIP device:



6. Object corresponding to a microphone of SIP device. This object is to configured – select LineIn channel and set the required driver parameters:



7. Object corresponding to a virtual microphone of SIP device. Select LineOut channel on the settings panel of this object.



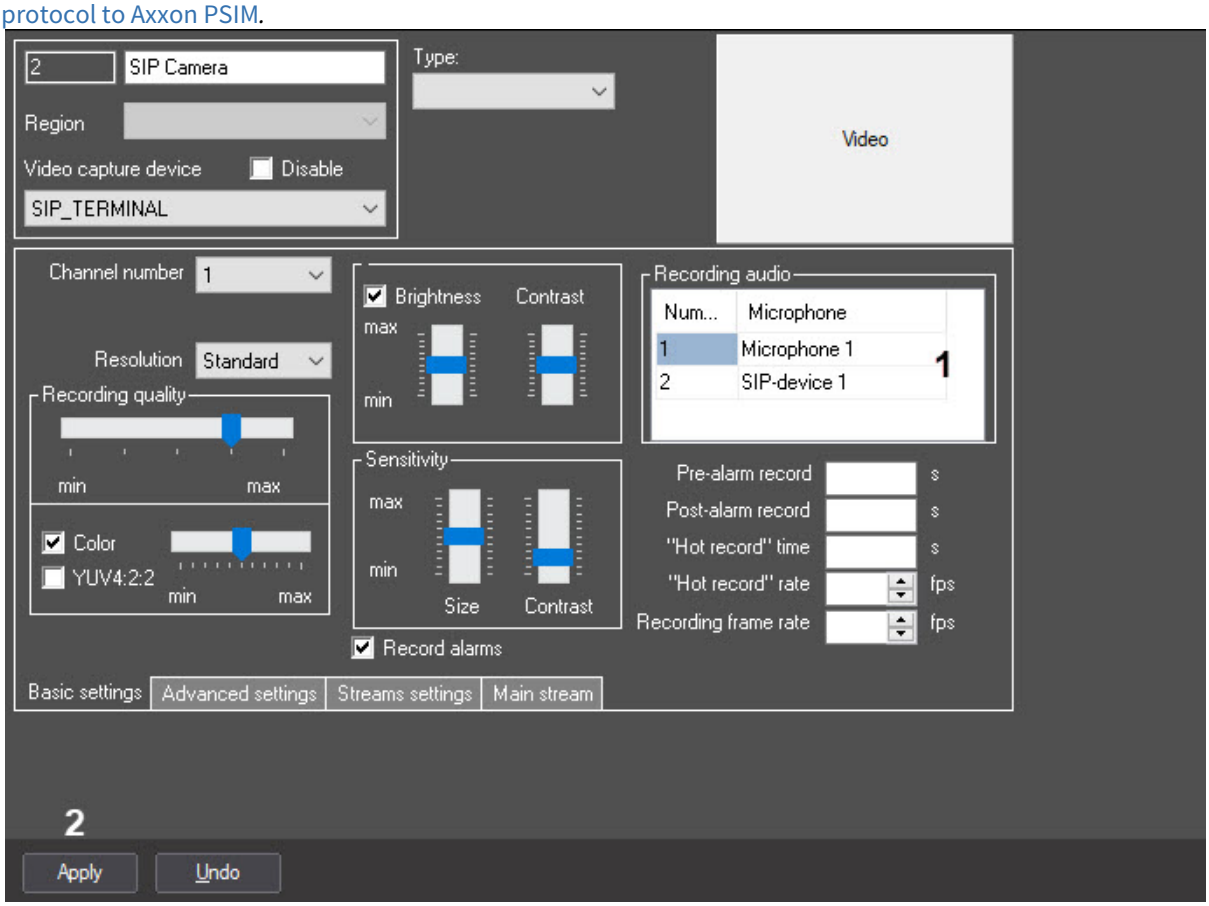
The audio subsystem of a SIP device in *Axxon PSIM* is now configured.

Configuring SIP device camera with streaming video over RTSP protocol to Axxon PSIM

Configure a SIP device camera in *Axxon PSIM* as follows:

1. Create a **Camera** object under the **Video capture device** object corresponding to a SIP device.
2. Add **SIP Microphone**, **Virtual Microphone** and **Client Microphone** objects to the **Recording audio** table (1). The latter object is created when configuring the client audio subsystem – see Configuration of the Client audio subsystem. See also Configuring audio subsystem of SIP device with streaming video over RTSP

protocol to Axxon PSIM.



3. Click the **Apply** button (2).

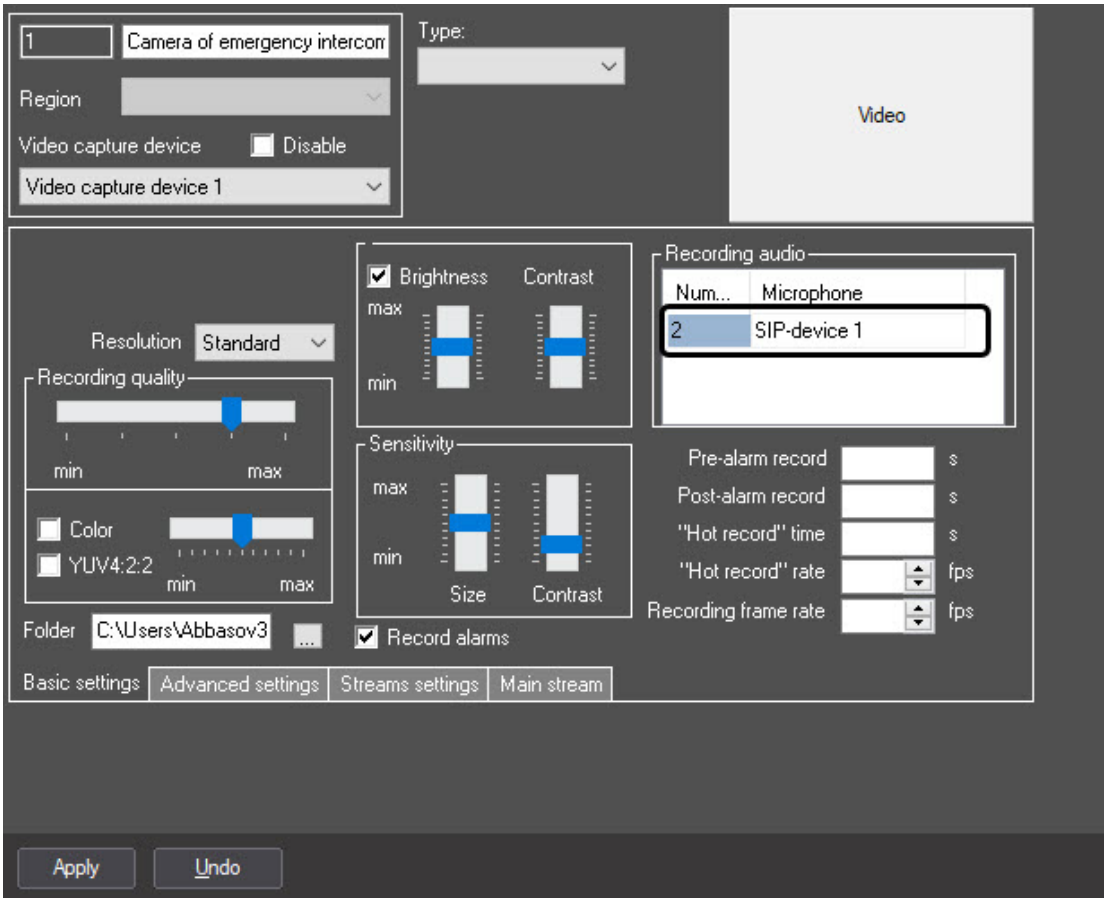
The SIP device camera in Axxon PSIM is now configured.

7.2.4 Configuration of the security intercom terminals video subsystem in the Axxon PSIM software

Configuring the video subsystem of security intercom terminals in the Axxon PSIM software is performed by standard configuring procedure of acceptance and processing video signals from IP-devices (see Administrator's Guide).

IP-devices of all security intercom terminals which are to be monitored are registered on the computer where the **Intercom Subsystem** object is created (Intercom Subsystem Server).

Specify the corresponding settings on settings panel of the **Camera** object for synchronous record of mixed audio stream and video signal from security intercom terminals. From the **Recording audio** drop-down list, select the name of **Microphone** object corresponding to virtual microphone of security intercom terminals.



7.2.5 Configuration of the security intercom terminals monitoring in the Axxon PSIM software

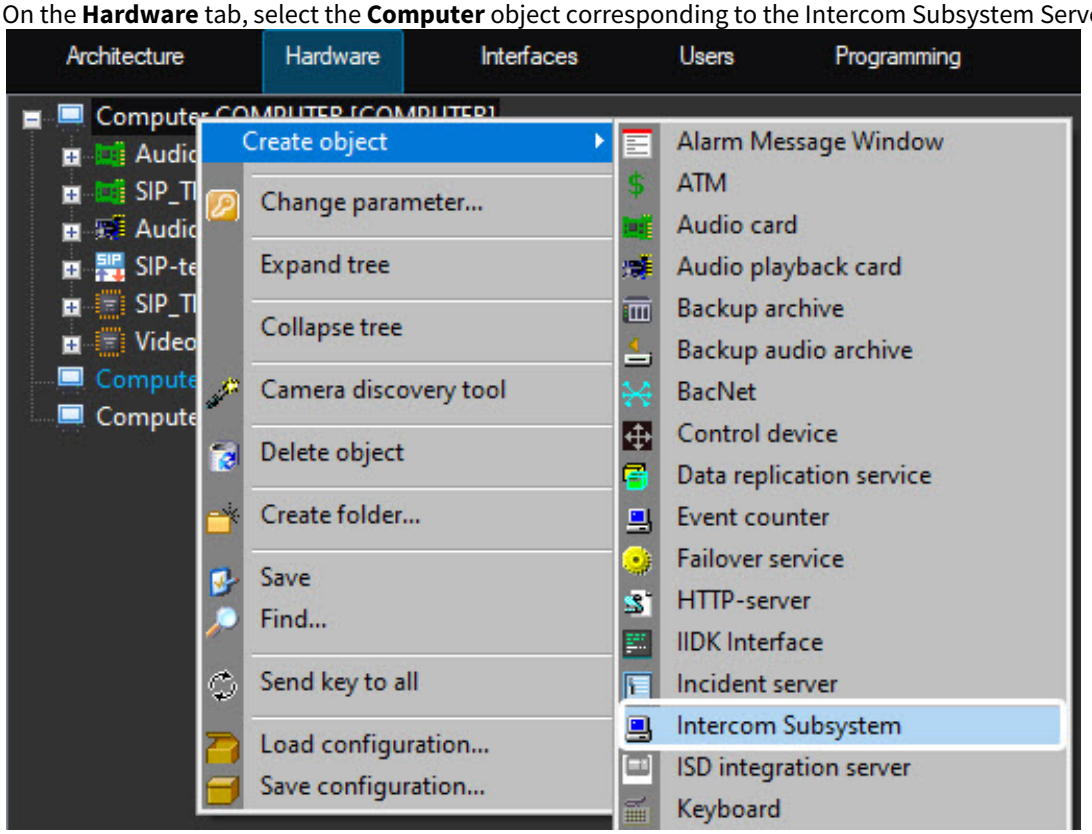
Configuration of security intercom terminals monitoring in the *Axxon PSIM* software is performed the following way:

1. Configure the **Intercom Subsystem** object.
2. Create and configure the **Intercom** object on the basis of **Intercom Subsystem** object.

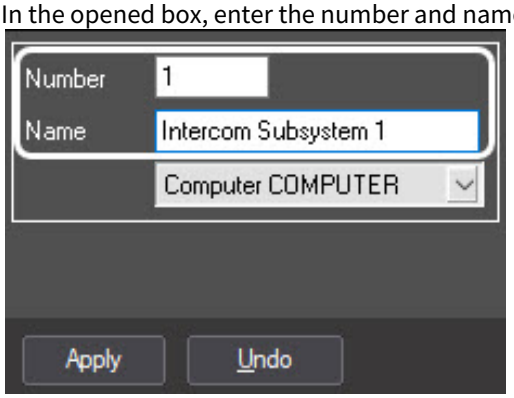
Configuration of the Intercom Subsystem system object

To configure the **Intercom Subsystem** system object, do the following:

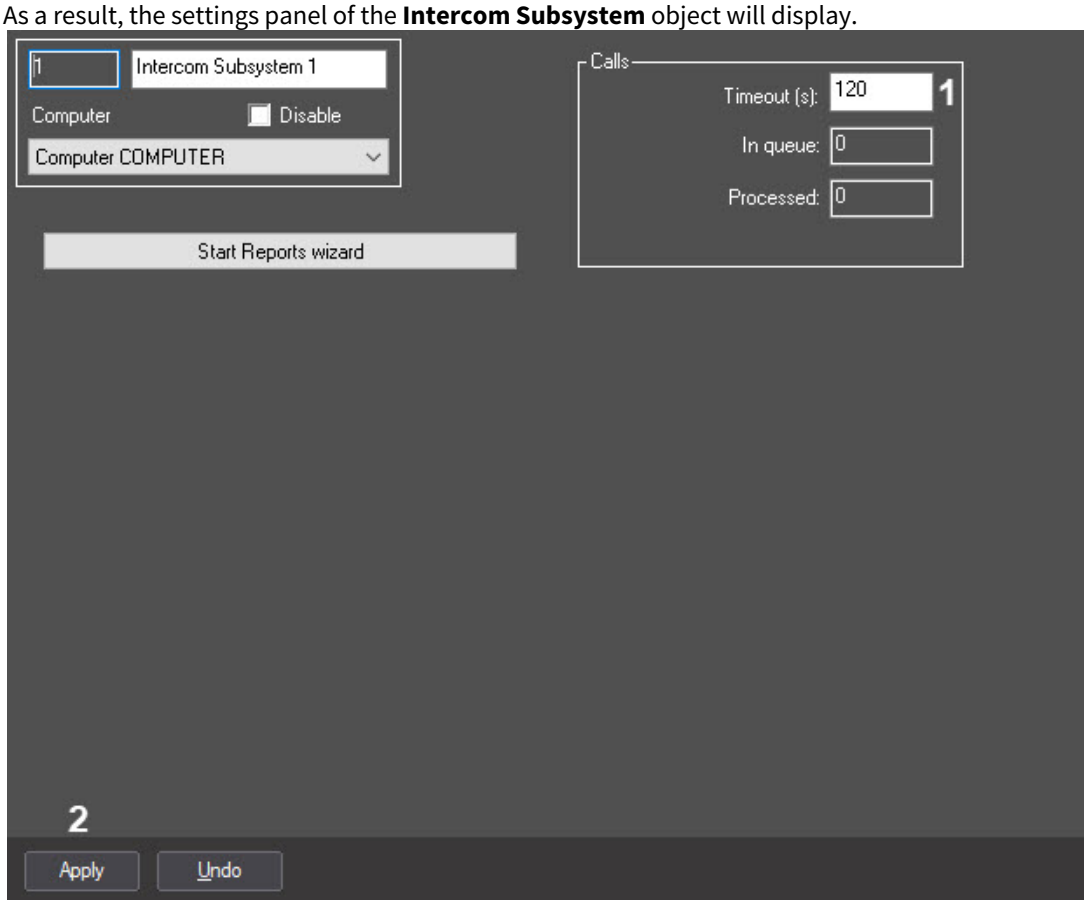
1. On the **Hardware** tab, select the **Computer** object corresponding to the Intercom Subsystem Server.



2. Click the right mouse button on the selected **Computer** object and choose the **Create object - > Intercom Subsystem** item from the context menu.
3. In the opened box, enter the number and name of **Intercom Subsystem** object and then click **Apply** button.



4. As a result, the settings panel of the **Intercom Subsystem** object will display.



5. In the **Timeout (sec):** field, enter the time in seconds after which the call from SIP-device will be deleted from the processing queue (1).
6. To save changes, click **Apply** button (2).

Configuration of the **Intercom Subsystem** object is completed.

Configuration of the Intercom object

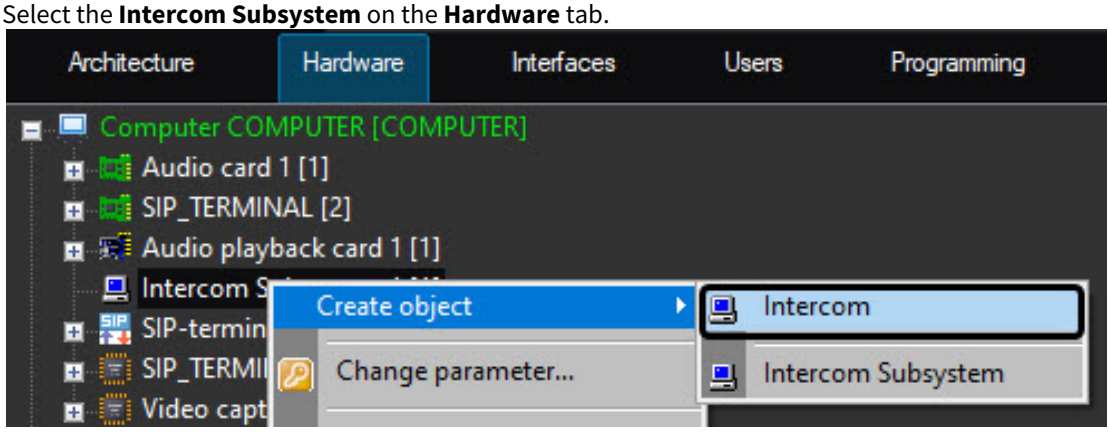
The Intercom performs the following functions:

1. Provides the interaction between the security intercom terminals and the Axxon PSIM software;
2. Provides the coordinated functioning of devices installed on the security intercom terminals:
   2.1. Microphone of SIP-device;
   2.2. Speakers of SIP-device;
   2.3. Operator call button on SIP-device;
   2.4. IP-video camera.

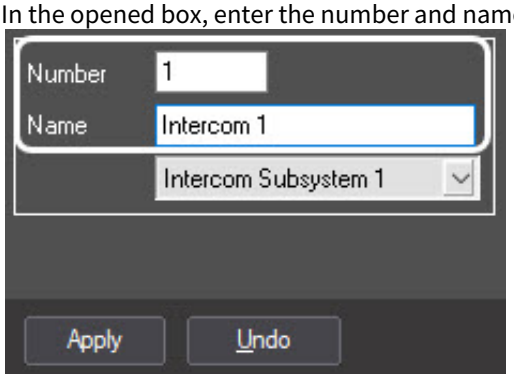
> **Note.**
>
> **Intercom** is created and configured separately for each security intercom terminal which is to be connected to the Intercom Subsystem.

To configure the **Intercom**, do the following:

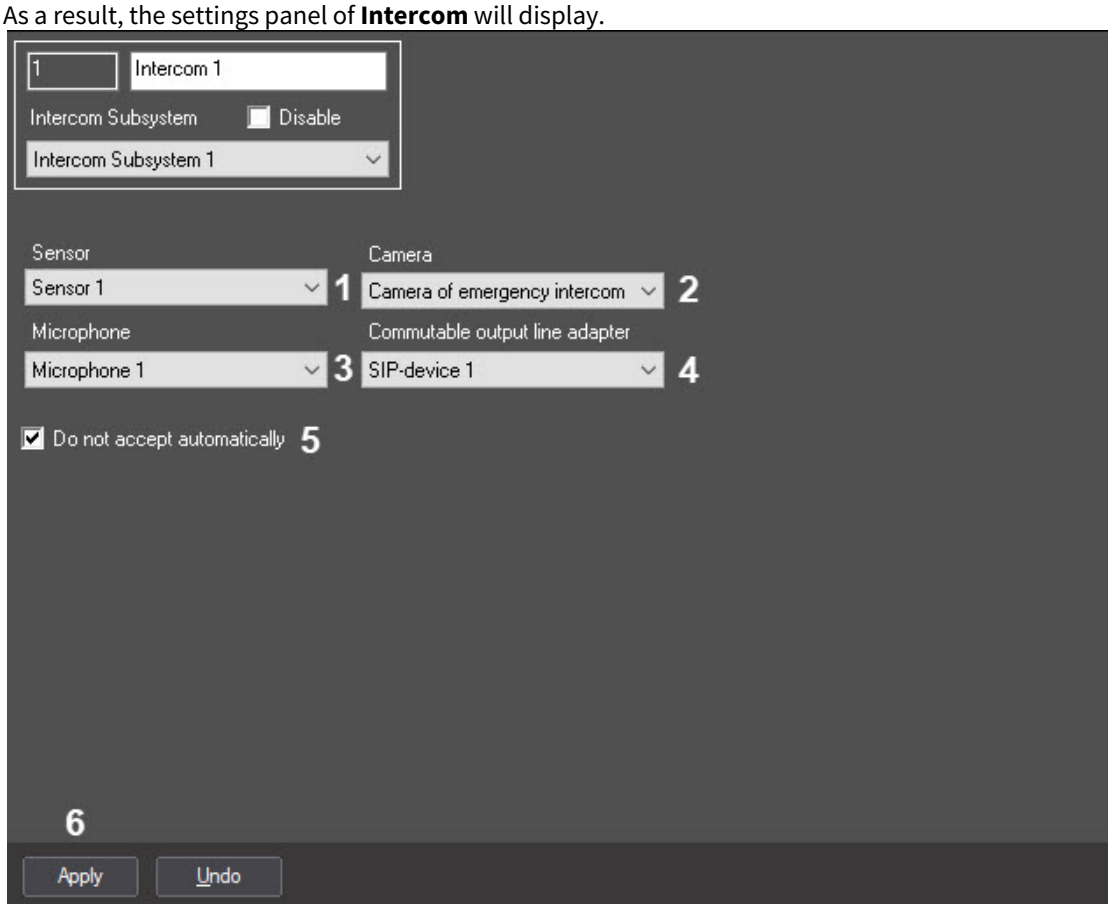
1. Select the **Intercom Subsystem** on the **Hardware** tab.



2. Click the right mouse button on the selected Intercom and choose the **Create object - > Intercom** item from the context menu.
3. In the opened box, enter the number and name of **Intercom** and then click **Apply** button.



4. As a result, the settings panel of **Intercom** will display.



5. From the **Sensor** drop-down list, select the **Sensor** object corresponding to the operator call button on SIP-device of security intercom terminals (1).
6. From the **Camera** drop-down list, select the **Camera** object corresponding to the video camera of security intercom terminal (2).
7. From the **Microphone** drop-down list, select the **Microphone** object corresponding to the microphone on SIP-device of security intercom terminals.
8. From the **Commutable output line adapter** drop-down list, select the **Microphone** object corresponding to the virtual microphone – mixer of audio streams of SIP-device (see the Configuration of the SIP-device audio subsystem in the Axxon PSIM software section) - 4).
9. If confirmation by operator is required to initiate connection and start communication session when sensor is closed on the intercom device, set the **Do not accept automatically** checkbox (5).
10. To save changes, click **Apply** button (6).
11. Repeat steps 1-9 for all required security intercom terminals.

Configuration of the **Intercom** is completed.

7.3 The Client configuration (operator workstation)

Procedure of the Client configuration is follows:

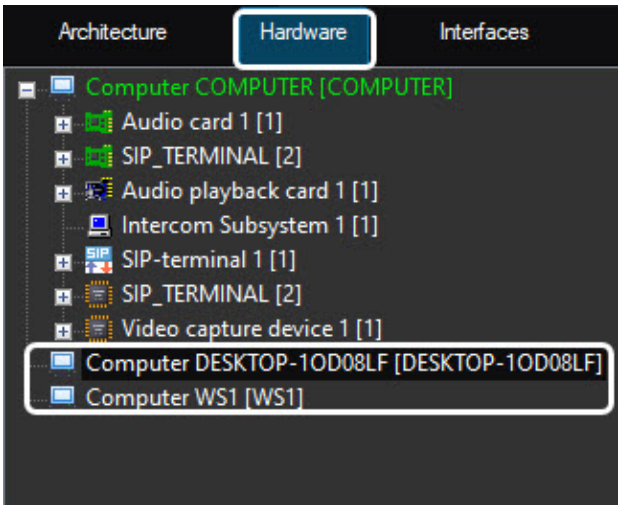
1. In the Axxon PSIM software register Clients including to the sub-network as the computer where the **Intercom Subsystem** object is created (see Registration and configuration of interaction between Clients and Intercom Subsystem).

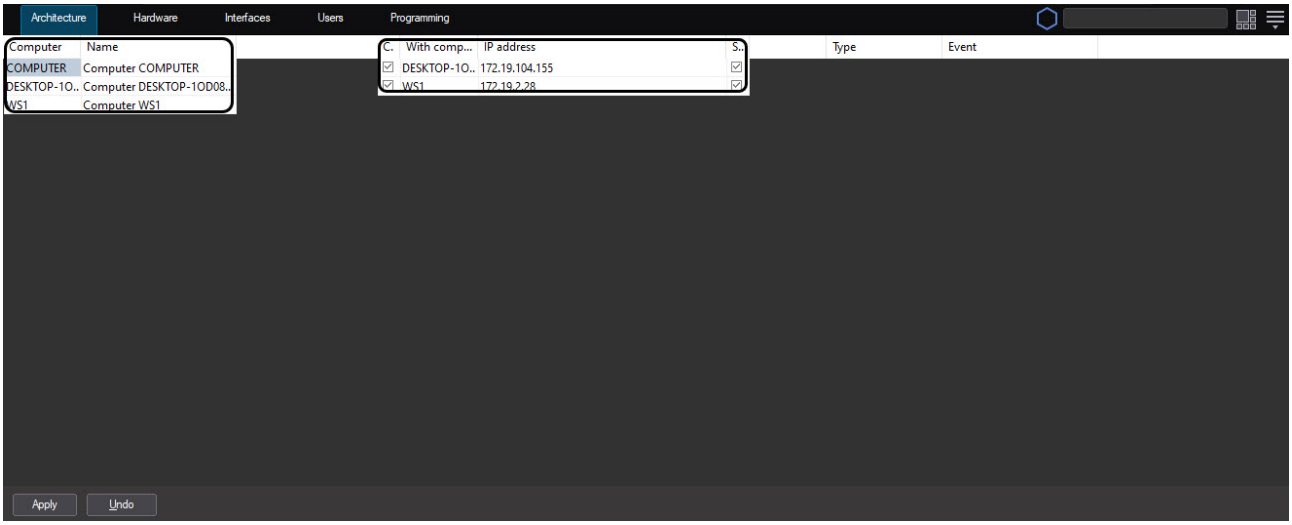
2. On the **Architecture** tab, configure the interaction between the computer where the **Intercom Subsystem** object is created and Clients (see Registration and configuration of interaction between Clients and Intercom Subsystem).
3. Configure the Client audio subsystem (see Configuration of the Client audio subsystem).
4. Configure the Client user interface (see Configuration of the Client user interface).
5. Configure the operator rights for working with Intercom Subsystem (optionally) (see Setting the operator rights for working with Intercom Subsystem).

7.3.1 Registration and configuration of interaction between Clients and Intercom Subsystem

Registration and configuration of the interacting between Clients and Intercom Subsystem is performed by standard procedure of configuring the distributed system (see the Administrator's Guide document).

Example of configuring the distributed system of security intercom terminals monitoring with one Server and two Clients is follows.



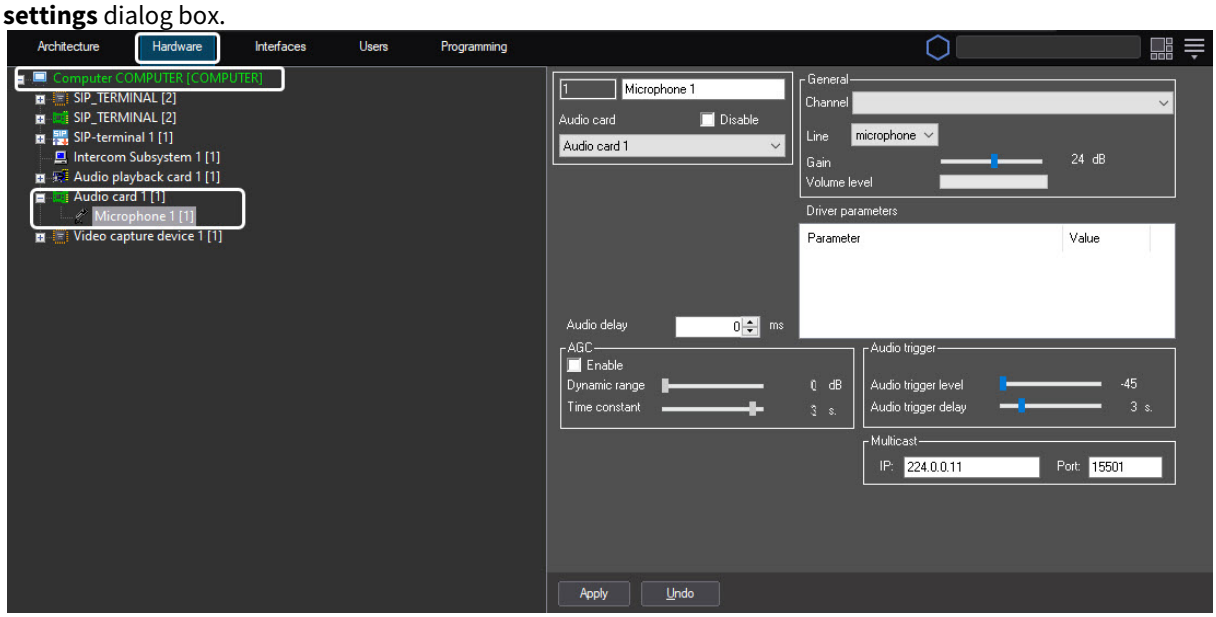


7.3.2 Configuration of the Client audio subsystem

To configure the Client audio subsystem, do the following:

> **Note.**
>
> Detail information about audio subsystem configuration can be found in the Administrator's Guide document.

1. On the Intercom Subsystem Server of security intercom terminal, go to the **Hardware** tab of **System settings** dialog box.



2. Select the **Computer** object corresponding to the configured **Client** from the object tree on the **Hardware** tab.
3. On the basis of this object, create and configure the **Audio card** object corresponding to the audio card installed on the Client.
4. On the basis of **Audio Card** object, create and configure the **Microphone** object corresponding to the Client microphone which will be in use while communication sessions with SIP-device.
5. Repeat steps 1-4 for all required Clients.

Configuration of the Client audio subsystem is completed.

7.3.3 Configuration of the Client user interface

Procedure of configuring the Client user interface is follows:

1. Create the **Display** interface object on the computer corresponding to the Intercom Subsystem Server (see Configuration of the typical interface objects in the Axxon PSIM software).

   > **Note.**
   >
   > The **Display** object is created on the Server for each Client separately.

2. In the basis of **Display** object, create and configure the **Monitor** interface object on which the video image from video camera of security intercom terminal will display while calling (see Configuration of the typical interface objects in the Axxon PSIM software).
3. On the basis of **Display** object, create and configure the **Audio player** interface object for audio signals record and playback (see Configuration of the typical interface objects in the Axxon PSIM software).
4. On the basis of **Display** object, create and configure the **Intercom Control Monitor** interface object (see Configuration of the Intercom Control Monitor interface object).

> **Note.**
>
> It's needed to create **Monitor**, **Audio player** and **Intercom Control Monitor** interface objects on the basis of **Display** object available for the selected Client.
> Avoid intercrossing of windows of **Monitor**, **Audio player** and **Intercom Control Monitor** interface objects for efficient operator working.

5. Repeat steps 2-4 for all required Clients.

Configuration of the typical interface objects in the Axxon PSIM software

The following typical interface objects are in use for monitoring of security intercom terminal:

> **Note.**
>
> Typical objects of the Axxon PSIM software – are widely used objects in digital systems of video surveillance and audio control built on the basis of Axxon PSIM software.

1. Display – displays components of user interface which are in use for security intercom terminals;
2. Monitor – displays video from the video camera of security intercom terminals while calling;
3. Audio player – records and playbacks audio signals from the operator and/or SIP-device.

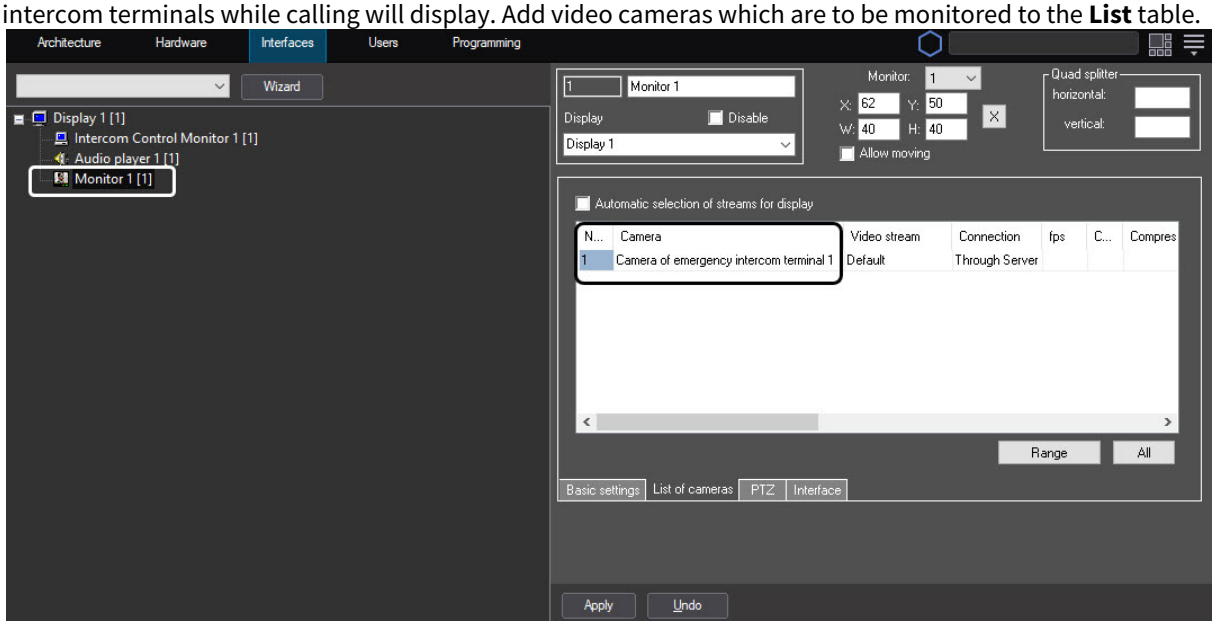
Configuration of typical interface objects in the Axxon PSIM software is performed as follows:

> **Note.**
>
> Detail information about typical interface objects configuration can be found in the Administrator's Guide document.

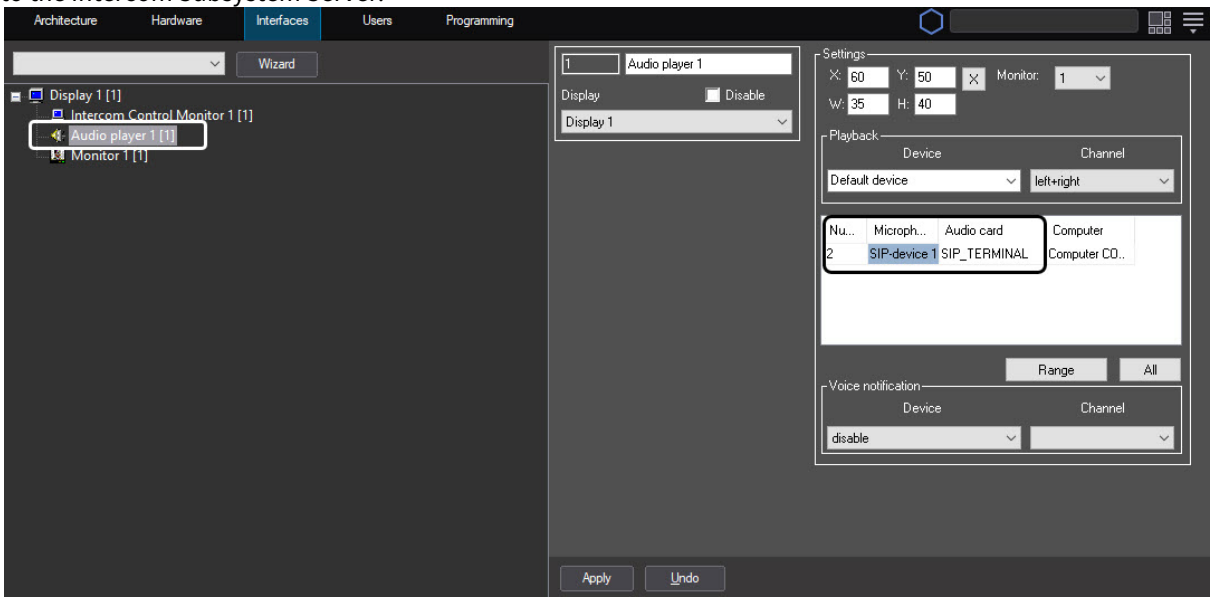
> **Attention!**
>
> "Display 4321", "Monitor 4321" and "Audio player 4321" names are reserved for objects which are in use to view the archive by calls from the "Reports wizard for security intercom terminal" window (see the Report log). It is not recommended to use these names for typical interface objects configuration to avoid the incorrect working of the system.

1. Create the **Display** object on the Intercom Subsystem Server. On settings panel of the **Display** object, set the checkbox close to a Client for which this object will be available.

2. On the basis of **Display** object, create the **Monitor** object on which video from the video camera of security intercom terminals while calling will display. Add video cameras which are to be monitored to the **List** table.



3. Create the **Audio player** object on the basis of the **Display** object. From the **Name** column, select the **Microphone** object corresponding to the Client microphone for which the **Display** object is available. Then select **Microphone** objects corresponding to physical and virtual microphones of all SIP-devices connected to the Intercom Subsystem Server.



> **Note.**
>
> Voice notification of the Audio player is to be enabled because it is in use for notification of operator.

Configuration of typical interface objects of the *Axxon PSIM* software is completed.

Configuration of the Intercom Control Monitor interface object

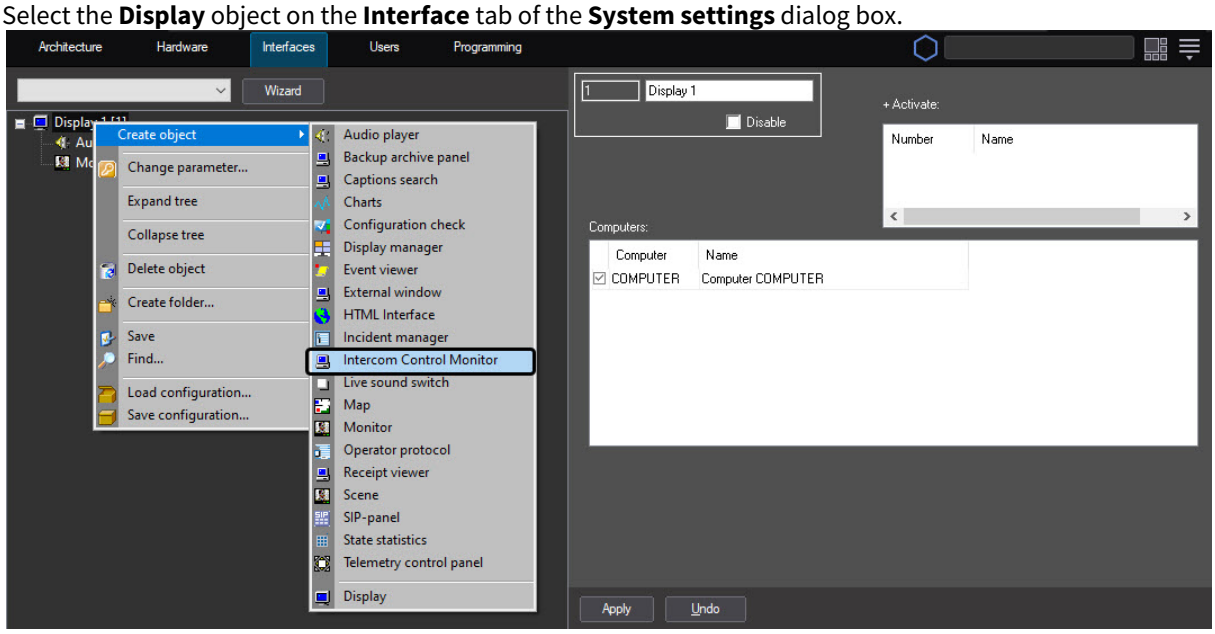
Procedure of configuring the **Intercom Control Monitor** interface object is follows:

1. Create the **Intercom Control Monitor** object on the basis of **Display** object (see Create the Intercom Control Monitor object).
2. Set parameters of **Intercom Control Monitor** interface object (see Set parameters of Intercom Control Monitor interface object).
3. Select Intercom Subsystems with which the Client will interact (see Select Intercom Subsystems).
4. Configure displaying the list of calls in the **Intercom Control Monitor** interface object (see Configure displaying the list of calls).
5. Build the Client configuration (see Client configuration).
6. Configure the video transfer to the Intercom Subsystem through the video gate (see Configure the video transfer to the Intercom Subsystem through the gate).

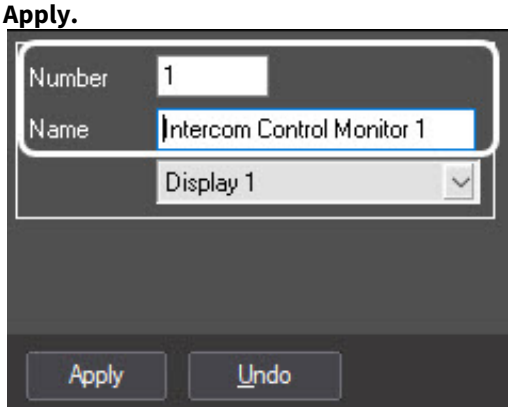
Create the Intercom Control Monitor object

To create the **Intercom Control Monitor** object, do the following:

1. Select the **Display** object on the **Interface** tab of the **System settings** dialog box.



2. Click the right mouse button on the selected **Display** object and choose the **Create objects** - > **Intercom Control Monitor** item from context menu.
3. In the opened box, enter the number and name of the **Intercom Control Monitor** object and then click **Apply.**



> **Note.**
>
> As a result, the settings panel of the created object will display.

Creation of the **Intercom Control Monitor** object is completed.

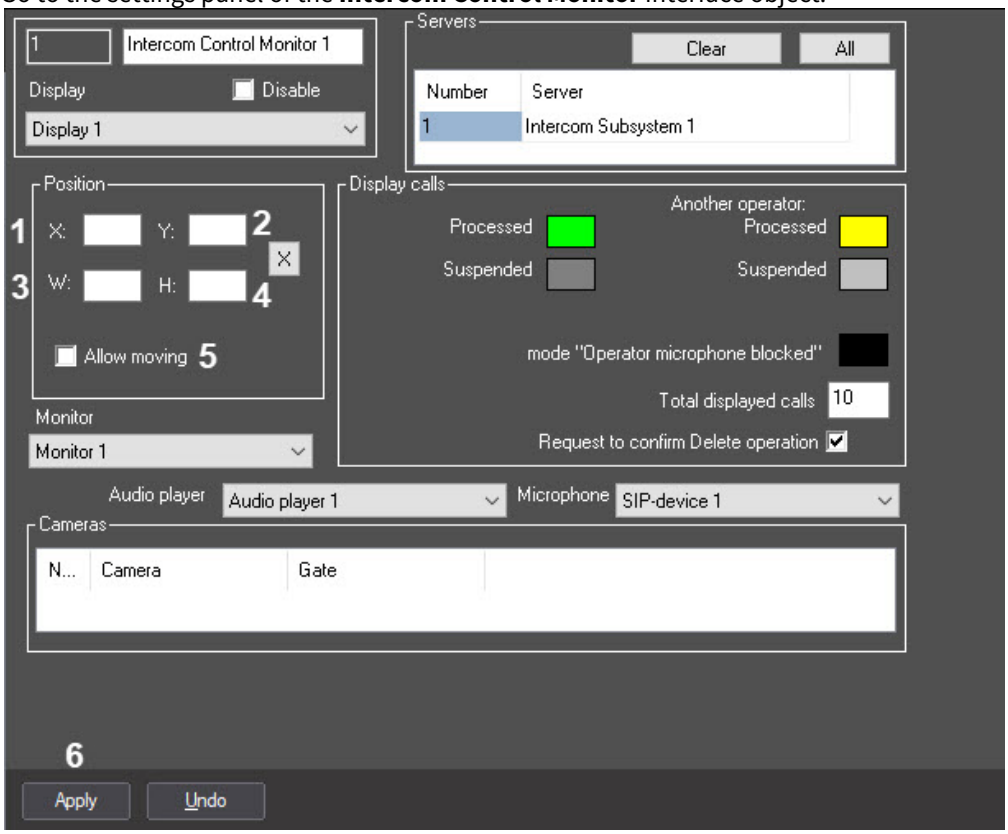
Set parameters of Intercom Control Monitor interface object

It is possible to configure the following parameters of the **Intercom Control Monitor** interface object:

1. Coordinates of the window;
2. Size of the window.

To set parameters of the **Intercom Control Monitor** interface object, do the following:

1. Go to the settings panel of the **Intercom Control Monitor** interface object.



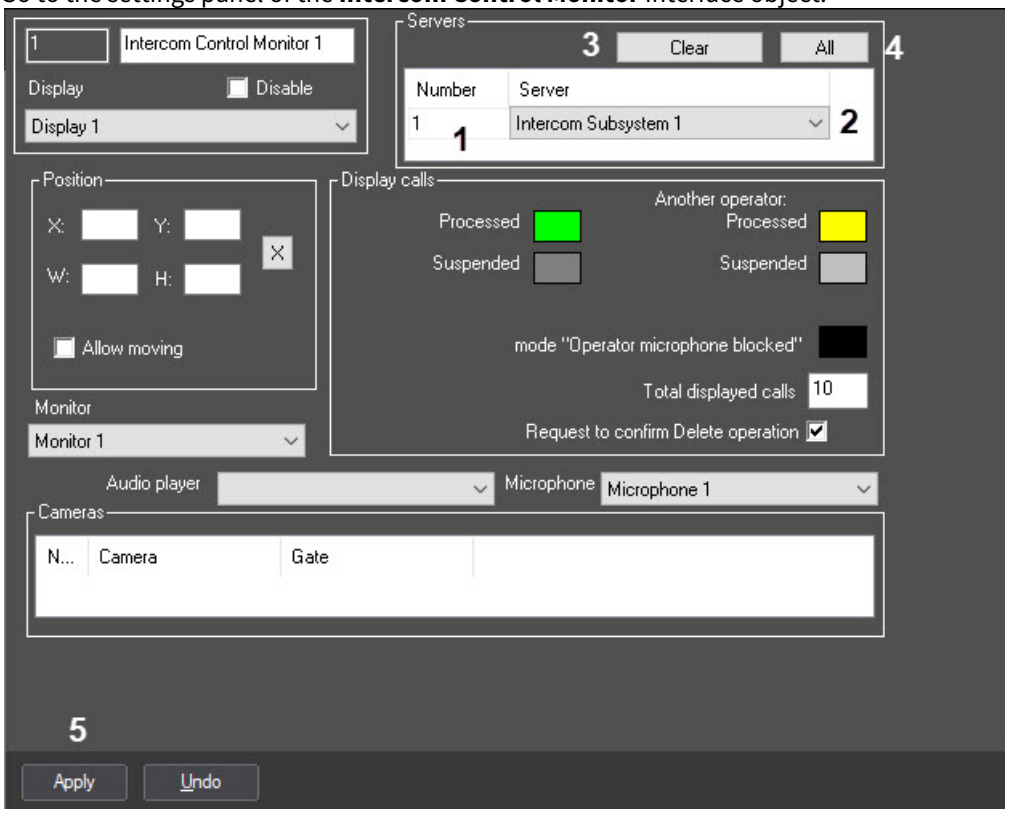
2. Set the coordinates of the left upper corner of the **Intercom Control Monitor** interface window: field «X» (horizontal indent from the left border of the computer's screen) and «Y» (vertical indent from the upper border of the computer's screen) (1-2). Coordinates are set in percentage in according to screen's size horizontally and vertically respectively.
3. Set the sizes of the **Intercom Control Monitor** interface component: fields «W» (component's width) and «H» (component's height) (3-4). Coordinates are set in percentage in according to screen's size horizontally and vertically respectively.
4. Set the **Allow moving** checkbox to allow moving of the **Intercom Control Monitor** interface window.
5. To save changes, click **Apply** button (6).

Setting parameters of the **Intercom Control Monitor** interface object is completed.

Select Intercom Subsystems

To select Intercom Subsystems for working with Client, do the following:

1. Go to the settings panel of the **Intercom Control Monitor** interface object.



2. From the drop-down list in the **Number** column of **Servers** group, select the number of required **Intercom Subsystem** object.
3. As a result, the name of the selected object will automatically display in the **Server** column of **Servers** group.
4. Repeat steps 2-3 for all required **Intercom Subsystem** objects.

> **Note.**
>
> To clear the table, click the **Clear** button.
> To select all registered **Intercom Subsystems** in the system, click the **All** button.

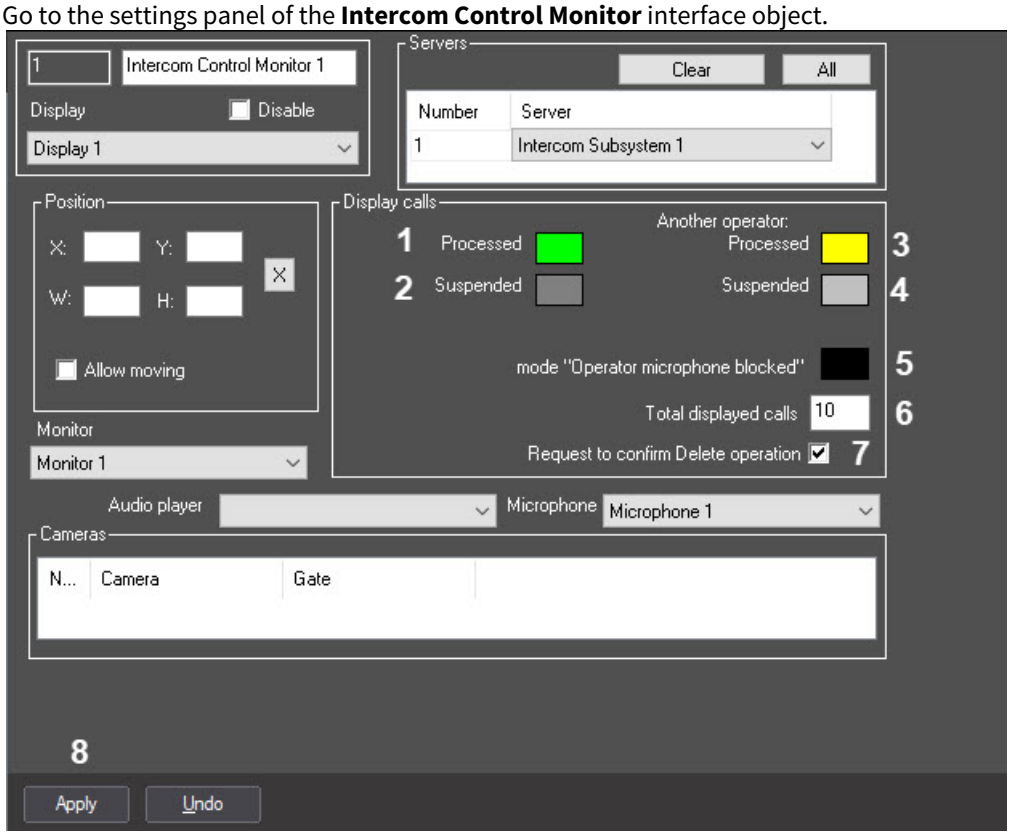
5. To save changes, click the **Apply** button.

Selecting of Intercom Subsystems for working with Client is completed.

Configure displaying the list of calls

To configure displaying the list of calls from security intercom terminals in the **Intercom Control Monitor** interface object, do the following:

1. Go to the settings panel of the **Intercom Control Monitor** interface object.



2. Choose the selection color of accepted call by operator in the **Intercom Control Monitor** interface object. Double-click the left mouse button on the **Processed** field of the **Signalization display** group (1).

> **Note.**
>
> The **Processed** term means that connection between operator and person which use the SIP-device of security intercom terminal established.

3. In the opened Windows OS standard dialog box, select the required color and click **OK**.
4. Choose the selection color of suspended call by operator in the Intercom Control Monitor interface object. Double-click the left mouse button on the **Suspended** field of the **Signalization display** group (2).
5. In the opened Windows OS standard dialog box, select the required color and click **OK**.
6. Choose the selection color of a call received by another operator in the Intercom Control Monitor interface object. Double-click the left mouse button on the **Another operator: Processed** field of the **Signalization display** group (3).
7. In the opened Windows OS standard dialog box, select the required color and click **OK**.
8. Choose the selection color of a call suspended by another operator in the Intercom Control Monitor interface object. Double-click the left mouse button on the **Another operator:Suspended** field of the **Signalization display** group (4).
9. In the opened Windows OS standard dialog box, select the required color and click **OK**.
10. Choose the selection color of a call processed in half-duplex mode (audio signal transmitting only in "**Termina**l **-> Operator**" direction). Double-click the left mouse button on the **Channel "Operator -> communication terminal" disabled** field of the **Signalization display** group (5).
11. In the opened Windows OS standard dialog box, select the required color and click **OK**.
12. In the **Total displayed calls** field, enter the number of calls (waiting for, received, suspended) displayed in the list of the **Intercom Control Monitor** interface object (6).

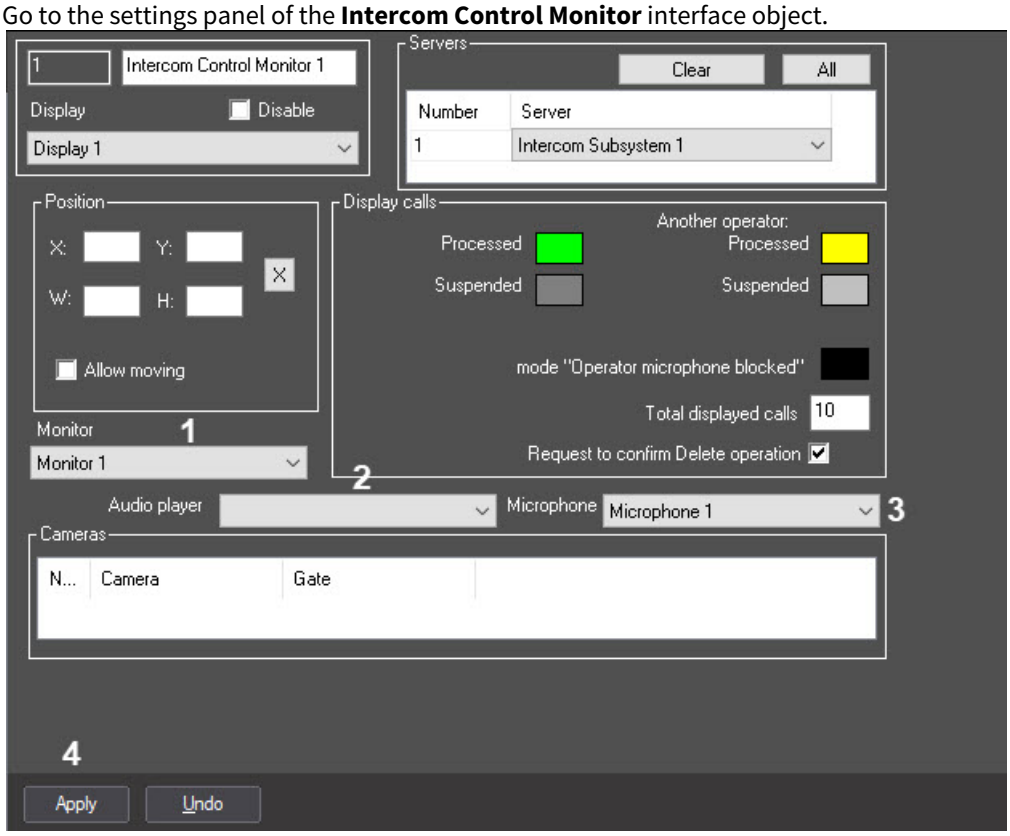
13. Set the **Request to confirm Delete operation** checkbox if it's needed to confirm the deleting if call from the list (7).
14. To save changes, click **Apply** button (8).

Configuration of displaying the list of calls from security intercom terminals in the **Intercom Control Monitor** interface object is completed.

Client configuration

To configure the Client, do the following:

1. Go to the settings panel of the **Intercom Control Monitor** interface object.



2. From the **Monitor** drop-down list, select the **Monitor** object available for this Client (1).

> **Note.**
>
> If you notice image fluttering on the video from intercom displayed on the selected Monitor, and Image de-interlacing function doesn't help, try using registry keys in Video\Deinterlace section (see Registry keys reference guide for more details).

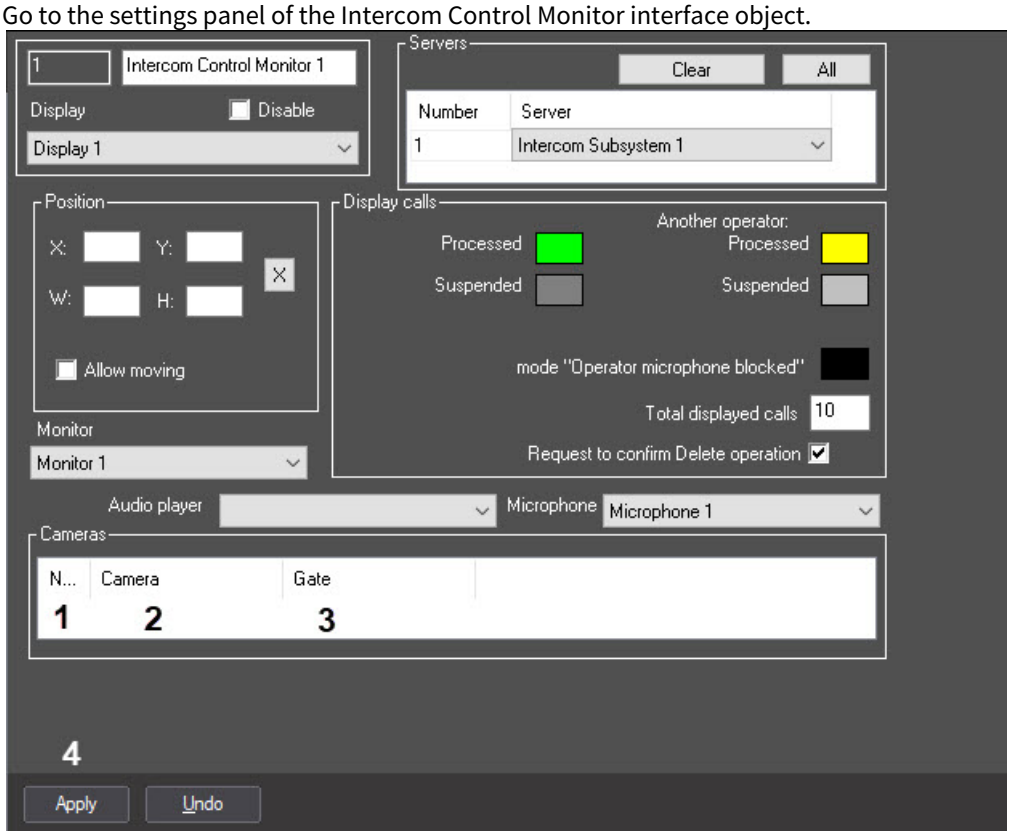
3. From the **Audio** player drop-down list, select the **Audio player** object available for this Client (2).
4. From the **Microphone** drop-down list, select the **Microphone** object corresponding to the Client microphone which will be in use during the communication sessions with SIP-device (3).
5. To save changes, click **Apply** button (4).

The Client configuration is completed.

Configure the video transfer to the Intercom Subsystem through the gate

To configure the video transfer to the Intercom Subsystem through the video gate, do the following:

1. Go to the settings panel of the Intercom Control Monitor interface object.



2. From the **Number** drop-down list of **Cameras** table, select the number of video camera from which the video image is to transferred to the Intercom Subsystem through the gate (1).
3. As a result, the name of the selected video camera will automatically display in the **Camera** column of **Cameras** table (2).
4. From the **Gate** drop-down list, select the name of the required **Video gate** object (3).

> **Note.**
>
> Detail information about the **Video gate** object can be found in the Administrator's Guide document.

5. Repeat steps 2-4 for all required video cameras of security intercom terminals.
6. To save changes, click the **Apply** button (4).

Configuring the video transfer to the Intercom Subsystem through the gate is completed.

7.3.4 Setting the operator rights for working with Intercom Subsystem

It is recommended to restrict the operator rights for the following actions:

1. Select microphones for listening to sound;
2. Control the record of video and audio archive;
3. Change the system settings (in case of Server configuration of Axxon PSIM software is in use on the Client).

Detail information about administrating the user rights can be found in the Administrator's Guide document.

8 Working with the Intercom Subsystem

The following interface objects are used to work with the Intercom Subsystem:

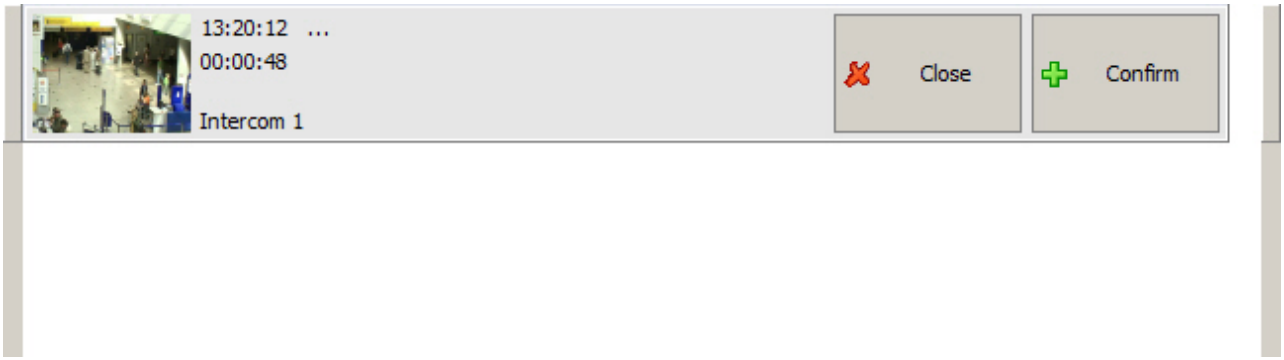
1. **Monitor**;
2. **Audio player**;
3. **Intercom Control Monitor**

Information about working with these interface objects is presented in the Operator's Guide.

8.1 Calls acceptance

Acceptance of calls received on the Intercom Subsystem is performed in the **Intercom Control Monitor** interface object.

> **Note.**
>
> Calls in the **Intercom Control Monitor** interface object are displayed as a list. Completed calls are not displayed.
> The **Intercom Control Monitor** is activated while the new call receipt.



One of the following statuses can be assigned to the received call:

Call status	Status description
Waiting	Call is received to the Intercom Subsystem but is not accepted by operator. Assigns automatically while the call receipt to the Intercom Subsystem
Accepted	Call on which the operator is communicating the current moment
Accepted by another operator	Call on which another operator is communicating the current moment
Suspended	Call which was accepted by operator but lately was suspended for a time

Call status	Status description
Suspended by another operator	Call which was accepted by another operator but lately was suspended for a time
Completed	Call on which the operator broke the connection or finished the communicating

Operator can accept the following calls:

1. Waiting;
2. Suspended;
3. Suspended by another operator.

Operator can complete the following calls:

1. Waiting;
2. Suspended;
3. Suspended by another operator;
4. Accepted.

It is impossible to change the status of call accepted by another operator.

The operator hears the repeated audio record stored in the <Axxon PSIM installation directory>\Wav\client.wav file if only waiting, suspended and/or suspended by another operator calls are present. If there is the accepted call this audio record is not playback.

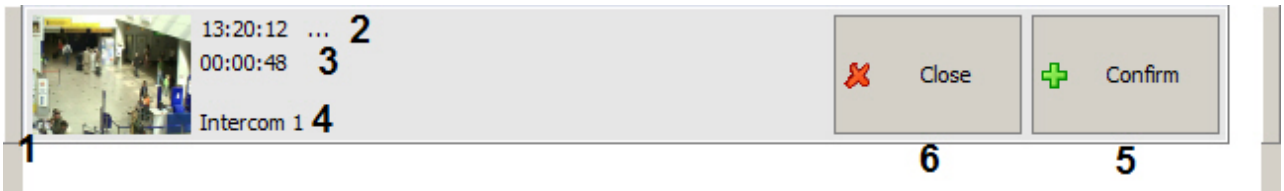
Note.

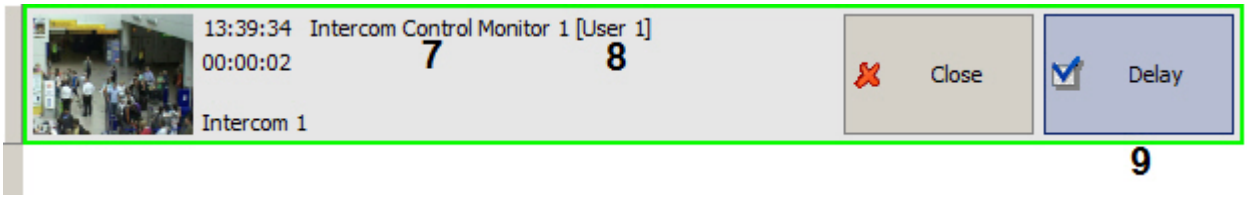
Parameters of «client.wav» and «monitoring.wav» files (<Axxon PSIM installation directory>\Wav folder) are coinciding: one channel (15kbit/s) PCM sound with the frequency and discretization depth equals to 8kHz and 16 bits correspondingly is stored in files.
The time interval in seconds between two sequent repeats of «client.wav» audio record is specified as a value of «notification_repeat_delay» string parameter in the HKLM\SOFTWARE\AxxonSoft\PSIM\MonitoringCenter registry key of OS Windows.

The call displaying for different statuses.

Note.

The color of the frame corresponds to his status and depends on settings of **Intercom Control Monitor** object (see the Configure displaying the list of calls section).





Functions of call displaying elements are presented in the table.

№	Executed function	Information
1	The field displays the video image from the video camera of security intercom terminal	The video image frequency is 1 fps
2	The field displays the time of call receiving to the Intercom Subsystem	-
3	The field displays the time from the moment of call receipt	-
4	The field displays the name of Intercom object corresponding to the security intercom terminal	-
5	To accept the call	Displays for waiting and suspended calls
6	To complete the call	-
7	The field displays the name of Intercom Control Monitor object in which the call was received	Displays for accepted calls
8	The field displays the name of user who accepted the call	Displays for accepted calls in case of users have rights and passwords for authorization in the Axxon PSIM software
9	To assign the “Suspended” status to accepted call	Displays for accepted calls

Note.

How to assign user rights and passwords for authorization in the *Axxon PSIM* software is described in the Axxon PSIM Software System: Administrator's Guide.
While clicking the **Close** button, the following dialog box can be displayed (this function depends on the system settings – see the Configure displaying the list of calls section). To complete the call click **Yes**, to cancel the operation – click **No** button.

8.2 Viewing the video image from video camera of security intercom terminal

For the accepted call, the video image from the video camera of the security intercom terminal is automatically displayed on the Video surveillance monitor.

It is possible to view the video image from video camera manually without change the call status to the “Accepted”.

This possibility is enabled for the following calls:

1. Waiting;
2. Suspended;
3. Suspended by another operator;
4. Accepted by another operator.

To view the video image from the video camera of the security intercom terminal, do the following:

1. Double-click the left mouse button on the field with video image of the corresponding call in the **Intercom Control Monitor** interface window.

2. As a result, the video image from the video camera of the security intercom terminal will display in the Monitor interface window.

Viewing the video image from video camera of security intercom terminal is completed.

8.3 Modes of call processing

There are two modes of call processing:

1. Duplex mode. Simultaneous translation of audio signal in “Operator - Security intercom terminal” and “Security intercom terminal - Operator” directions.
2. Half-duplex mode. Translation of audio signal only in “Security intercom terminal - Operator” direction is enabled.

To switch over the modes, click the **Space** key.

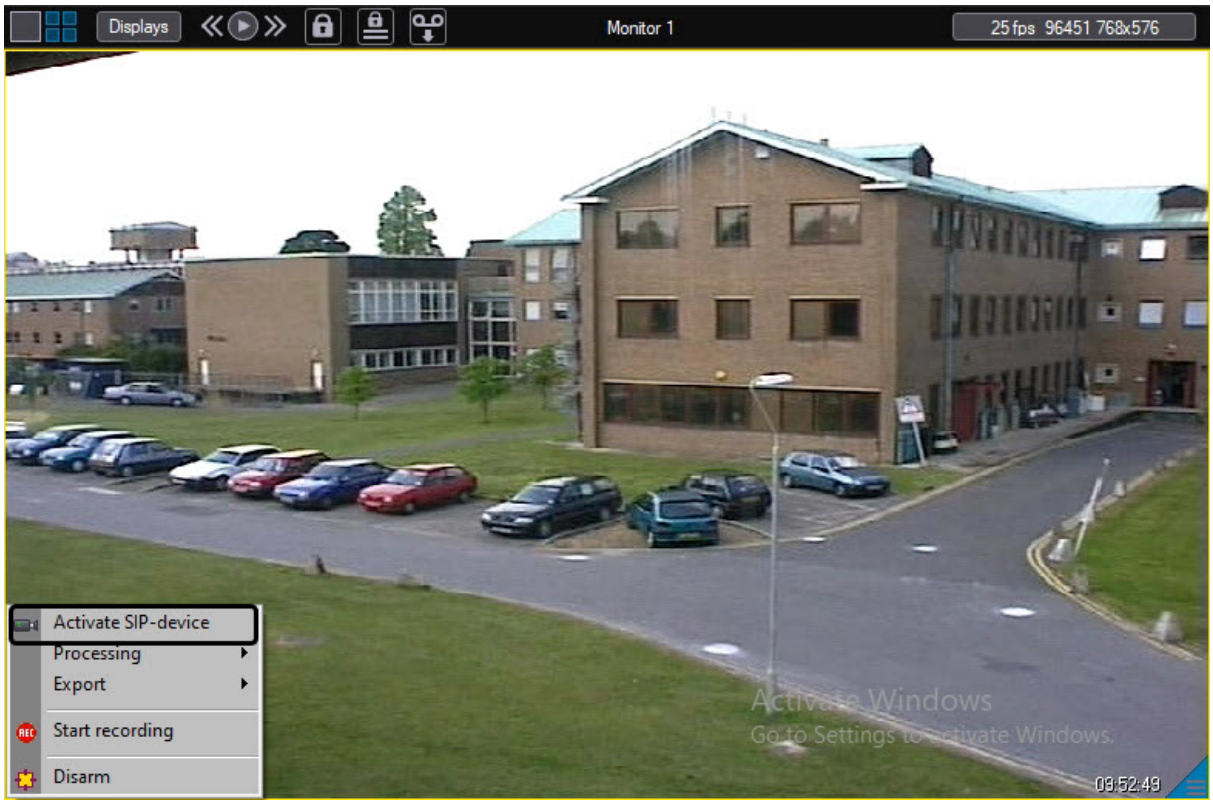
> **Note.**
>
> Color of frame for selection the call processing in a half-duplex mode is specified on the settings panel of the **Intercom Control Monitor** object (see the Configure displaying the list of calls section).

8.4 Call of the SIP-device using the Video surveillance monitor

It is possible to send a call to the SIP-device of security intercom terminal using the Video surveillance monitor.

To call the SIP-device, do the following:

1. Open the functional menu of the Video surveillance monitor corresponding to the video camera of security intercom terminal.



2. Select the **Activate the SIP-device** item in the opened functional menu.
3. As a result, the call will be sent to the security intercom terminal.
4. Communication between the operator and security intercom terminal is established after the clicking of call button on the security intercom terminal.

> **Note.**
>
> Receiving and processing of this call is performed in the **Intercom Control Monitor** window according to Calls acceptance andCall of the SIP-device using the Video surveillance monitor sections.

The SIP-device call is completed.

8.5 Reports log

Reports log displays information about working of Intercom Subsystem for the specified time period.

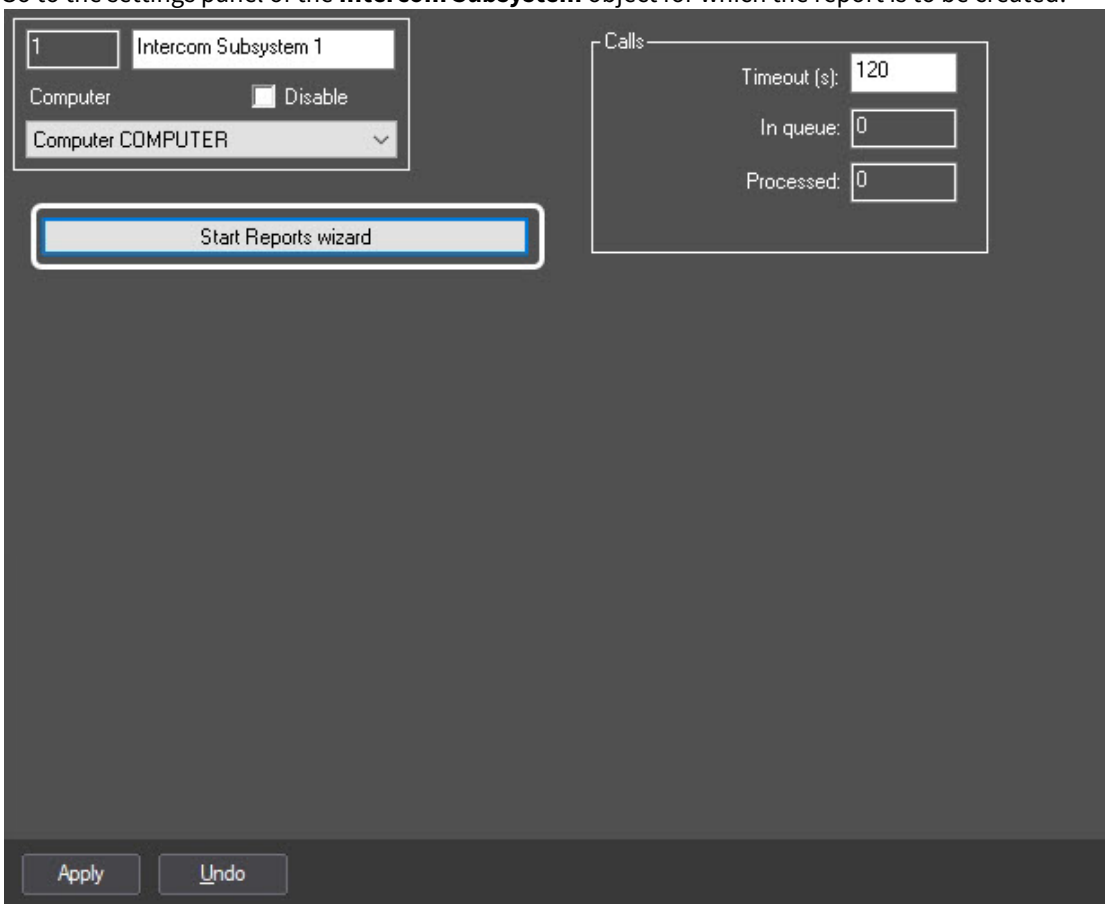
It is possible to form the following reports:

1. By calls. Contains detail information about each call for the specified period.
2. By security intercom terminal. Contains detail statistics by calls from each security intercom terminal for the specified period.

Working with the reports log is performed the following way:

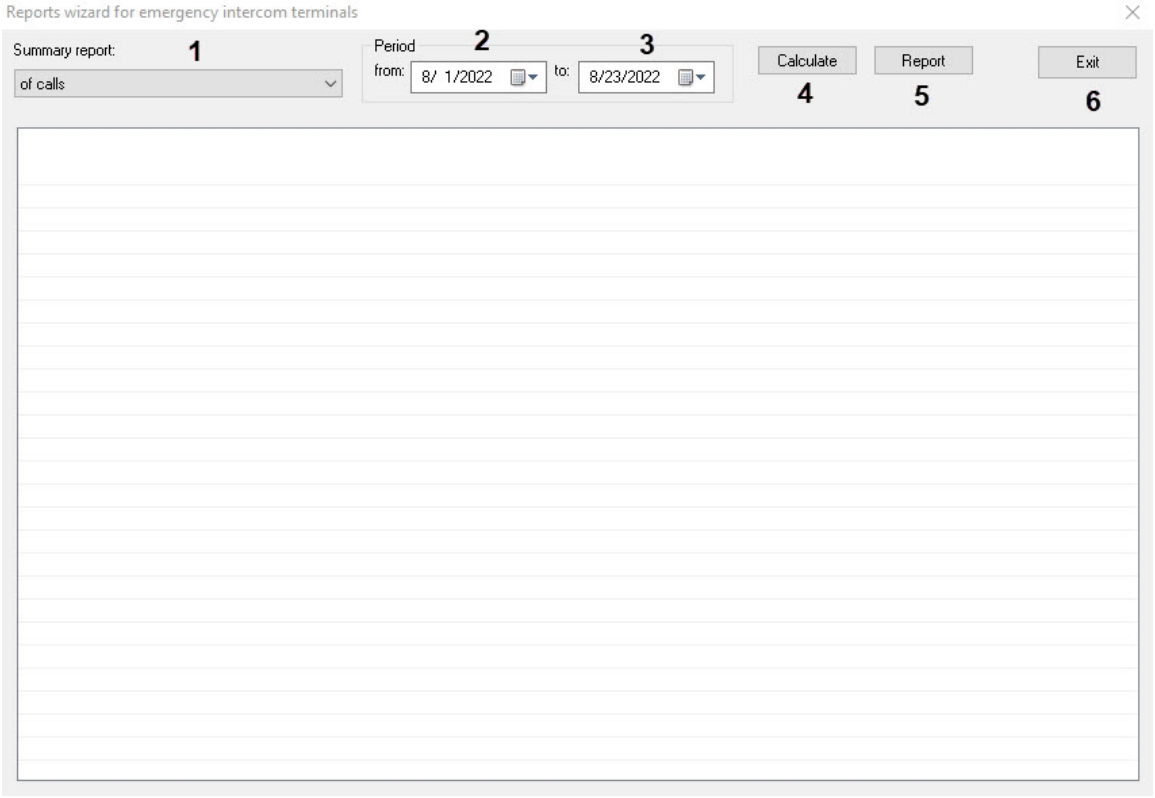
> **Note.**
>
> This function is available on the Intercom Subsystem Server only.

1. Go to the settings panel of the **Intercom Subsystem** object for which the report is to be created.



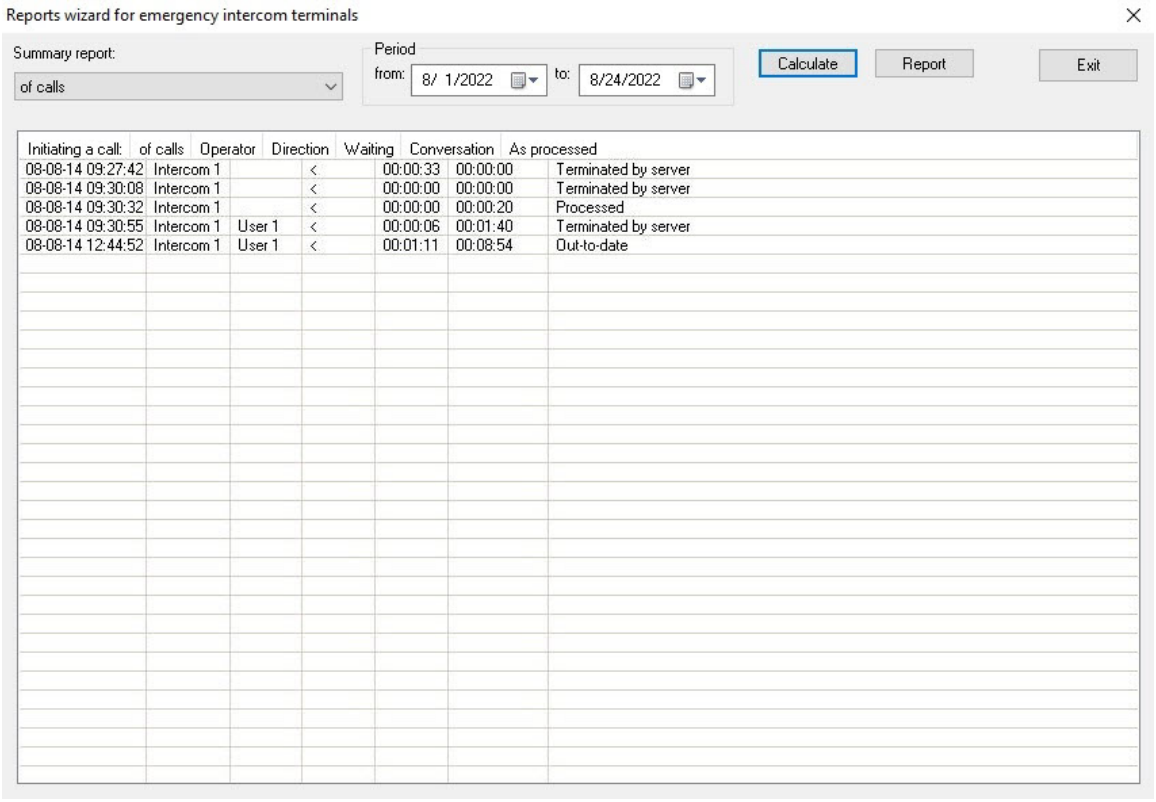
2. To start the reports wizard, click the **Start Reports wizard** button.

3. As a result, the **Reports wizard for security intercom terminal** dialog box will display.



4. From the **General report:** drop-down list, select the required report type (1).
5. Select borders of time period for which the report is to be created in calendars available in **from** and **to** drop-down lists of **Period** group (2,3).
6. To create the report, click the **Calculate** button (4).
7. As a result, the general report will be displayed as a table.

> **Note.**
>
> To view the archive data by calls, double-click the corresponding table line. As a result, the **Display 4321** interface object with located **Monitor 4321** and **Audio player 4321** objects will be activated. Playback of archive video record starts automatically.
> **Display 4321**, **Monitor 4321** and **Audio player 4321** objects are automatically created and configured at the first view of archive.



8. To export and print the report, click the **Report** button (5).
9. To close the Reports wizard for security intercom terminal dialog box, click the **Exit** button (6).

Working with the reports log is completed.

9 Intercom Subsystem Reference and Information Guide. Conclusion

More detailed information on the Axxon PSIM software package is presented in the documents titled:

1. Administrator's Guide;
2. Operator's Guide;
3. Installing and configuring security system components guide;
4. Programming Guide (JScript).

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.

10 Appendix. Hot keys at keyboard control

Description of “hot” keys at control the Intercom Control Monitor interface object using the keyboard is presented in the table.

«Hot» keys	**Executed function**	**Main method of function implementation**	**Type of “hot” key**
NumPad 8	Activates the **Intercom Control Monitor** interface window	Via a mouse click	Global for Axxon PSIM software (function is implemented at some active window)
Space	For transfer from half-duplex mode of calls processing to duplex mode and v.v.	-	Local (function is implemented if the **Intercom Control Monitor** window is active)
Enter	For assigning the “Receive” or “Suspend” status to the selected call depending on its current status	“Receive” and “Suspend” buttons in the Intercom Control Monitor interface window	Local (function is implemented if the **Intercom Control Monitor** window is active)
Esc	For finishing the selected call	“Close” button in the Intercom Control Monitor interface window	Local (function is implemented if the **Intercom Control Monitor** window is active)

Note.

Detail information about duplex and half-duplex modes can be found in the Modes of call processing section.