IPInput

Rebroadcasting
Streaming Audio/Video Data
on Full Screen

*Revision as of
November 28, 2014*

User's Guide

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FCC ID:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

Shielded cables and I/O cards must be used for this equipment to comply with the relevant FCC regulations. Changes or modifications not expressly approved in writing by SoftLab-NSK Ltd. may void the user's authority to operate this equipment.

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This warranty is in lieu of any other warranty expressed or implied. In no event shall we be held liable for incidental or consequential damages, such as lost revenue or lost business opportunities arising from the purchase of this product.

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Introduction

The FDOnAir program provides with a possibility to control full-screen audio and video data broadcasting. Video, for example, can be received from IP cameras or TV programs transmitted by the main broadcasting station via IP protocol.

For this the Videoinput N command in the FDOnAir program (N is index from 1 to 6) is used. Source of a passthrough video for the command of the IPInput type is assigned.

The IPInput function is supported by the following products:

- ForwardTx products line: Forward TT, Forward TA, ForwardTP;
- ForwardTS products line: products for inserting commercials and titles overlaying.

The IPInput function requires additional customizing. This guide provides with information on customizing and use of IPInput.

General Information

1. Ways of IP Data Streaming

There are two ways of IP audio and video data streaming basing on ForwardTx and ForwardTS products:

- in the form of titles – in one or several «windows» of desirable size over background. In this case the IPCamera title element for customizing and control streaming is used.
  This case requires IPCamera plugin. Detailed information on requirements and customizing you may find in the «IPCamera. Rebroadcasting Streamed Audio/Video in the Form of Titles» guide.
- in the form of audio and video background – on a full screen. In this case the Videoinput N command (N=1–6) in FDOnAir is used to control playback of audio and video data from IP stream.
  Instructions on use and customizing see in the subsequent sections.

Each way has both benefits and limitations (for more information see the table below).

Table 1.   Ways of streaming

Characteristic	Way of broadcasting	
	Titles	Background
Tool for adjusting and control	Title element, IPCamera title element.	Video input in FDOnAir, IPInput type.
Possible quantity of broadcasting channels (where you may switch quickly)	Any amount. Limited by PC resources.	6 – according to quantity of buttons assigned to video inputs in the FDOnAir program.
Quantity of windows where audio/video stream data is displayed simultaneously	Any amount. Limited by PC resources.	Only one full-screen window.
Possibility of adjusting windows sizes and location	Present.	Absent.
Possibility of broadcasting several programs (channels) from one/different IP streams simultaneously	Present.	Absent.

Characteristic	Way of broadcasting	
	Titles	Background
Possibility of switching among channels in one window	Present. Switching is made with several seconds delay. Delay occurs because when new channel is switched on a corresponding data starts to be received and processed. Receiving and processing take time.	Present. Implemented without delay because all channels (where switching is planned) are decoded all the time (corresponding schemes work continuously).
Use of PC resources when working with several channels	Less resource-demanding because channels broadcasted on air are decoded at the moment.	More resource-demanding because all channels are decoded at the moment that increases PC load.

2. Preparation and Control Over Broadcasting. General Scheme

Adjusting and control over broadcasting and required tools for these depend on selected way of broadcasting video data from IP stream – titles or background (see the table below).

In any case you must first adjust scheme of receiving and processing data: specify network address of data source and IP interface, type of protocol; adjust if necessary parameters of demultiplexing; select program (channel) for broadcasting, etc. All configurations are implemented in the SLStreamer Pro program by creating and editing graphs.

Let MPTS (multi program transport channel) is transmitted to input from which you need to decode one TV program. In this case when creating graph you may use either the Input_IP_FDExt template (if broadcasting server works basing the FD322/FD422/FD842/FDVrt boards) or the Input_IP template (if Videoprocessor is used). In case if SPTS (single program transport channel) is received, for example, video from IP camera then create graph by adding and customizing its nodes yourself (because appropriate template in current software set is absent).

Note: For more information on the SLStreamer Pro application, see the «SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital Broadcasting Schemes. User's Guide».

General Information

Table 2.   Customizing and control over streaming IP data

Steps and operations	Way of streaming	
	Titles	Background
1. Preparation		
1.1 Adjusting scheme of receiving and processing audio/video data from IP stream.	Prepared in the SLStreamer Pro application by creating graph.	
1.2 Saving scheme to XML file.	Prepared in the SLStreamer Pro program via the Save graph command.	Not required.
1.3 Adjusting schedule for stream data receiving and processing.	Not required. Data receiving and processing are implemented according to broadcasting schedule working in the FDOnAir application.	Prepared in the SLStreamer Pro program by adding tasks to schedule.
1.4 Configuring size and location of region with IP stream data on the screen.	Prepared in the FDTitleDesigner program (title projects editor). IPCamera title element is used.	Not required.
1.5 Configuring correspondence among receiving data and broadcast control.	Prepared in the FDTitleDesigner program. IP-Camera title element is used. Task here is XML file created at the step 1.2.	Prepared in the FDOnAir program. Configure video input (the Videoinput N command) of the IPInput type.
2. Control over receiving and processing audio/video data from IP stream		
	Schemes are automatically launched when tasks are loaded to the IPCamera title elements in the FDOnAir program (according to schedule/manually).	Schemes start/stop when tasks start/stop in the SLStreamer Pro program (according to schedule/manually automatically).
3. Control over output of data on air in the FDOnAir* program		
3.1 Enabling/disabling displaying data.	Commands to control title objects: Title object on/ Tile object off/ Title object abort	Objects are displayed by Videoinput N commands for which IP source is specified. Objects are not displayed by any commands of launching a full-screen video from other sources.

Steps and operations	Way of streaming	
	Titles	Background
3.2 Switching among channels in one window.	Command of loading new task for the IPCamera** title element.	Videoinput N command, where N is index of necessary input (1–6).

* – use FDOnAir buttons or schedule commands to control.

** – note that another channel requires some time to start.

Software Set Requirements

There is no necessity to purchase some options additional to the basic software set to use the IPInput video input type in FDOnAir. However probably you need installing additional software because graphs customizing (shemes of receiving and processing stream data) requires specific applications that can be excluded from the basic set.

✔ **Important:** If you work with product from ForwardTx set then programs necessary for graphs customizing are excluded from ForwardT Software set, additional software must be installed in this case.

1. ForwardTx Product Line

Complete the following steps if you work with product from the ForwardTx set:

1. Be sure that ForwardT Software set of the latest version with all available updates is installed. In case of its absence see the «ForwardT Software. Setup» guide.

2. Install IPOut Option software. For more details, see the «IPOut, ASIOut: Digital Streaming Options for ForwardT Products» guide.

Note: All listed above software components and additional instructions can be found at the Download page: http://www.softlab-nsk.com/forward/download.html

2. ForwardTS Product Line

ForwardTS software set does not require installing some additional software.

✔ **Important:** At customizing solutions for receiving/transmitting data via IP channels you must adjust Firewall and add the following exceptions in advance:
1) the SLGraphInstance.exe, SLGraphScheduler.exe, SLGraphWrapper.exe programs (are located in the ~\Bin folder, where ~ is a default folder where ForwardTS software set is installed:
C:\Program Files\ForwardTS);
2) port that is opened to receive/transmit stream. Starting from version 5.05.345 Windows Firewall exceptions are added at installation of software plugin automatically.

Broadcasting TV Program From IP Stream on Full Screen

1. General Workflow

The section contains general information on preparation and control over streaming audio and video data from IP stream on a full screen. Steps in details are given below:

1. Be sure that video stream with necessary program is transmitted to broadcasting server. For this you may start playback of media data from IP source in VLC player.

✔ **Important:** Configure scheme of receiving stream (graph) when IP stream is being transmitted to PC network card at the moment.

2. Launch the SLStreamer Pro program. Complete steps 3–5 in this program.

Note: For more information on the SLStreamer Pro application, see the «SLStreamer Lite, SLStreamer Pro. Programs program Configuring, Monitoring & Managing Digital Broadcasting Schemes» user's guide.

3. Create graph for streaming program from IP to broadcasting server and specify task. The graph must have 4 nodes:

1. Input device (1) – node parameters specify where from and how stream is transmitted to broadcasting server.
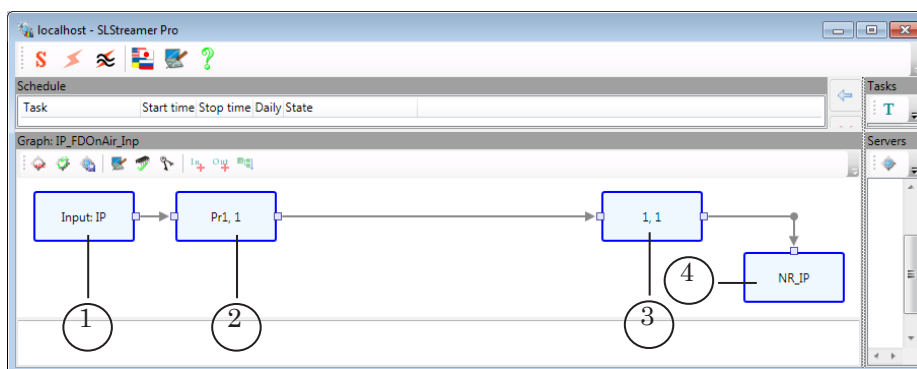
2. Input program (2) – identifiers of program that is selected from input stream, PIDs of audio and video streams.

3. Output program (3) – identifiers assigned to processed program, its audio and video packages, etc. Default values are equal to values of the Input program node.

4. Output device (4) – parameters of scheme of output device. Specify named region in title layer of board used for broadcasting (specified in FDOnAir) as output device.

Note: Graph can be created in the following ways:
1. Via template (appropriate not for all cases). Standard software set includes templates of graphs for receiving and decoding TV programs received by MPTS (multi program transport stream). Selection of template depends on used board on broadcasting server:

- Input_IP – FD300 board or Videoprocessor module;
- Input_IP_FDExt – FD322/FD422/FD842/FDVrt board.

Template is graph template with all needed nodes ordered specifically. User should only adjust nodes according to a concrete situation: specify stream, program index, etc. (see section «4. Creation and Customizing Graph With Template (step 3)»).
2. Without template by adding nodes to graph manually. For example, for receiving video stream from IP camera you should create graph with nodes without template (see the «5. Creation and Customizing Graph Without Template (step 3)» section).

4. Switch graph configuration mode off.

5. Add task with graph to schedule. The task is executed according to schedule automatically.

6. Launch the FDOnAir program. Complete steps 7–9 in this program.

7. Open the Settings window. Customize control over sources of passthrough video via buttons and Videoinput N command (N=1–6). Select named region specified as graph output device (step 3) for one of the commands.

Note: If there are several channels (not more than 6) with streaming data then create and launch for execution corresponding graphs by repeating steps 3–5. Then distribute graphs to different Videoinputs at step 7.

8. Create broadcasting schedule. Insert commands to control passthrough video (Videoinput N, N=1–6) if it is necessary to playback full-screen video received from IP sources according to schedule.

9. Launch created schedule in the FDOnAir application. Use buttons for interactive control (Videoinput N, N=1–6) if needed to switch channels on/off, toggle among them operatively.

2. Testing Stream (Step 1)

Use, for example, the VLC media player to check that there is stream with audio and video data. Complete the following:

Note: VLC media player is a free cross-platformed media player (project and non commercial organization VideoLAN).

1. Open the player. Select the Media > Open Media in the main menu.

2. Specify network address of media stream source in the appeared window (1) (UDP protocol is in our case, 234.5.5.5 is stream IP address, 20000 is port).
Then click Play (2).
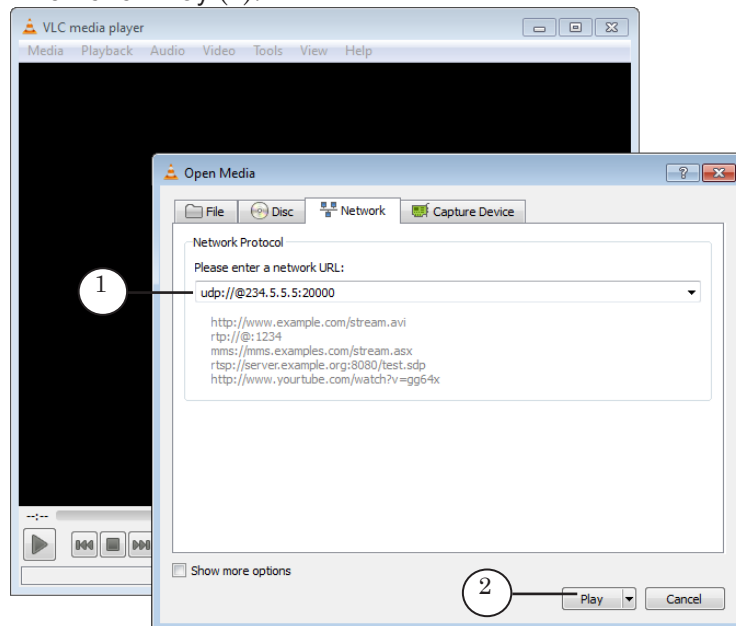
3. If protocol and address are specified correctly and IP stream has media data then player displays corresponding video (3).
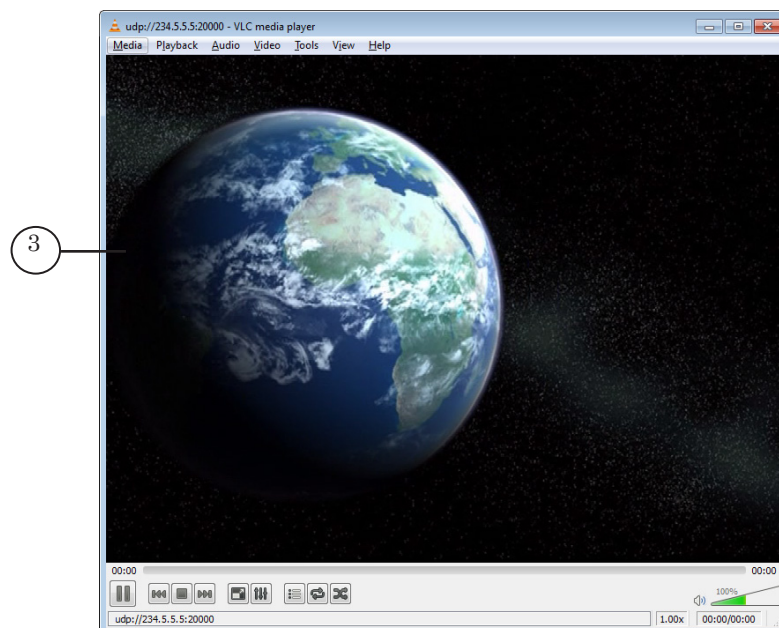
4. Close the player.

3. Launch of the SLStreamer Pro Application (Step 2)

1. Launch the SLStreamer Pro application (1) via the Start menu command: Programs > ForwardT Software > IPOutOption > SLStreamer Pro or program shortcut located on desktop.

2. Adjust connection to Scheduler at first launch.

Note: Scheduler is a service from software set used to control schemes of receiving, processing, transmitting stream audio and video data and to store their description.

Complete the following:

1. Click the Connection Settings button (1) on the main toolbar.
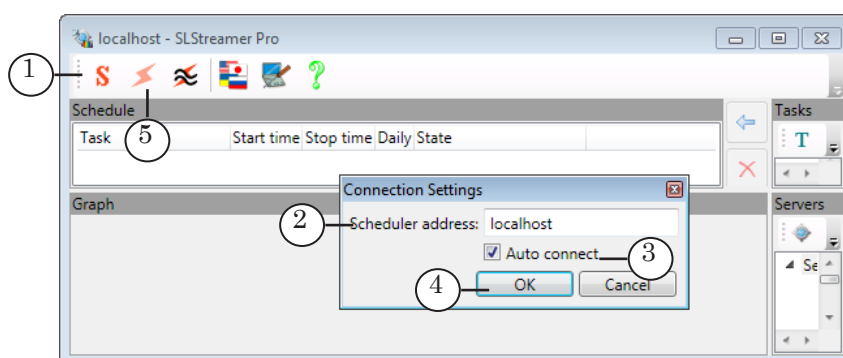
2. Specify PC IP address (or DNS) (2) where necessary Scheduler is started. Local PC in our example is used.

3. Put the Auto connect mark (3) to connect with the server with specified address automatically.

4. Click OK (4).

3. Click the (5) button to connect with Scheduler manually if automatic connection is not executed.

4. Creation and Customizing Graph With Template (Step 3)

Note: Templates can be used if necessary to customize receiving and decoding TV programs transmitted in MPTS. If there is a single program stream on input (for example, IP camera is a source) then avoid using template to create graph. Pass to the «Creation and Customizing Graph Without Template (Step 3)» section.

4.1. Adding Graph and Task

1. Click the Create new graph button (1) on the toolbar in the Servers window.
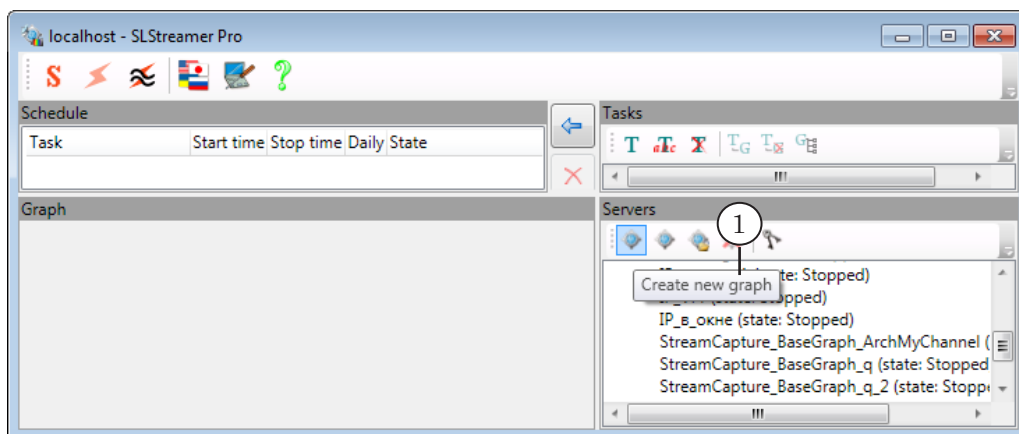
2. Specify graph name in the appeared window (2).
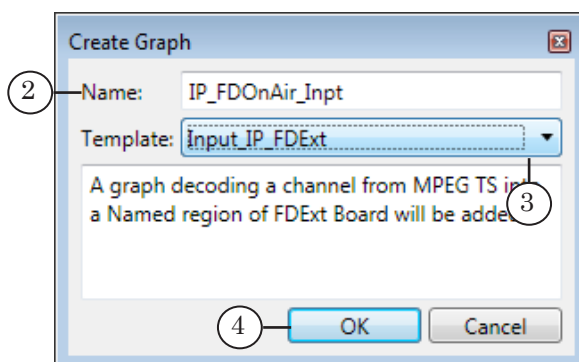
3. Select template via the drop-down list (3):
   - Input_IP if broadcasting server deals with FD300 board or Videoprocessor module;
   - Input_IP_FDExt if broadcasting server deals with FD322/FD422/FD842/FDVrt board.

4. Click OK (4).

5. Click Yes (5) in the appeared window to create new task.
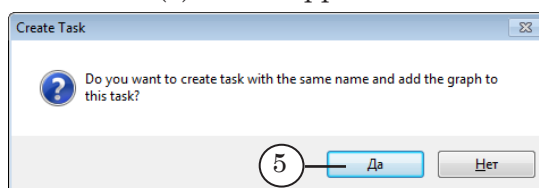
6. New graph from the selected template and new task are created. Its name is added to the graphs list (6). The graph is displayed in graph work area (7). Name of new task is added to tasks list (8). Mode of graph configuration is switched on automatically.
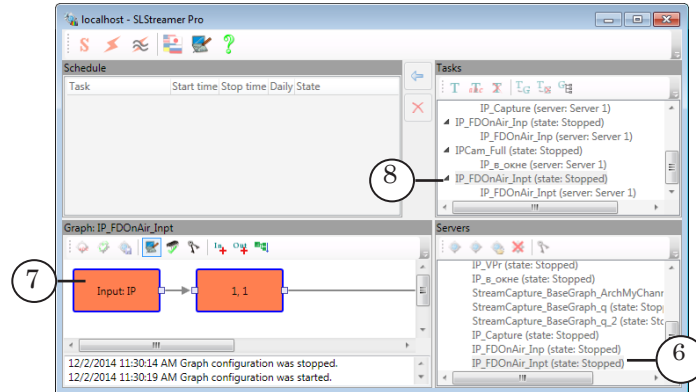
7. Configure graph nodes consequently in configuration mode. Next section contains detailed information on this procedure.

   We recommend customizing nodes as they are ordered in graph – in a left-right direction because settings of graph depend on settings of previous nodes in the majority of cases.

✔ **Important:** Configure graph nodes obligatory.

✔ **Important:** Customize graph when stream is being receiving from IP source to network adapter.

4.2. Input Device

Node of input device is the first in the order.

1. Open the context menu by right-clicking node.
    Select Properties... (1).
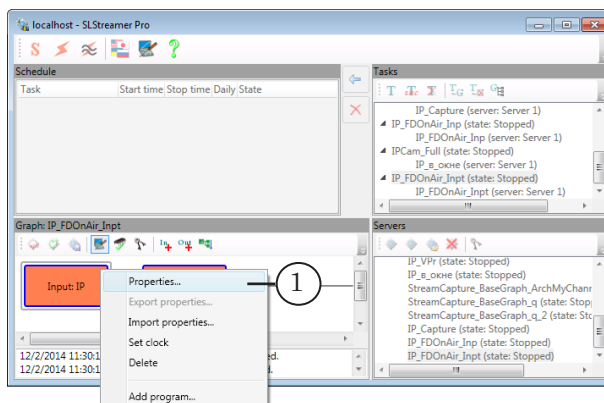
In the Input Device Properties window:

2. Specify name of node (2).
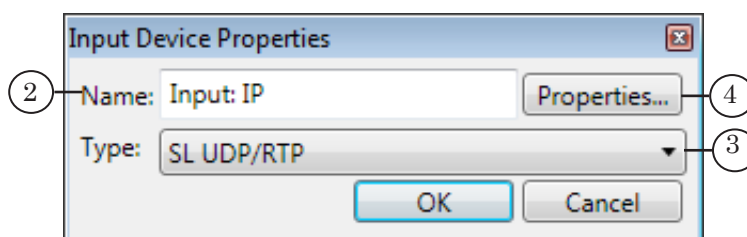
3. Be sure that type of device in the Type drop-down list (3)
    is selected. The type depends on used protocol of data
    transmitting, for example, select SL UDP/RTP if stream is
    transmitted via UDP.

Note: 1. You can find a list of supported types of devices with detailed
       description in the «SLStreamer Lite, SLStreamer Pro. Programs
       program Configuring, Monitoring & Managing Digital Broadcasting
       Schemes» user's guide.
       2. See lists of configured parameters for different types of input
       devices with comments in corresponding tables in the same guide.

4. Click Properties... (4) to configure device working parameters.

5. Select transport protocol in the appeared window. For
    example, if UDP is selected:

    1. Specify IP address in case of a multicast broadcasting in
    the IP address field (5), 234.5.5.5 is in our example.
    Specify IP address or DNS name of receiver node in case of
    unicast broadcasting.

    2. Specify port index used for receiving data in the Port field (6).

    3. Select IP address used for receiving stream data in
    the Interface drop-down list (7).

4. Specify protocol for transmitting data (8), UDP is in our case.
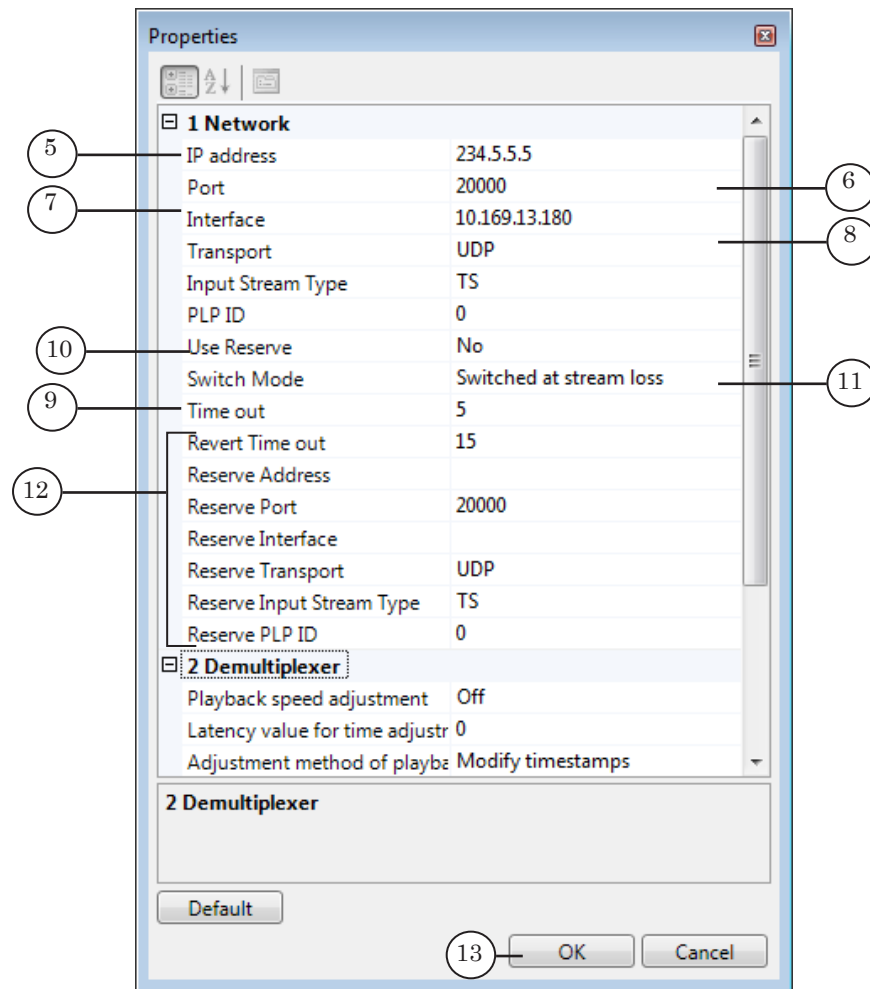
5. Specify timeout (in seconds) in the Timeout field (9), 5 sec is specified by default.
If stream is lost then in specified time period attempt to reconnect with graph occurs (graph is stopped and restarted again). If reserving mode is on then switching to reserve stream happens.

6. If necessary switch reserving mode on via the Use Reserve line (10) by selecting Yes. Specify mode of switching to reserve stream (11) and customize reserve stream parameters (12).

7. Remain default values in the Demultiplexer area.

6. Close windows with properties consequently by clicking OK (13, 14). All modifications are saved.
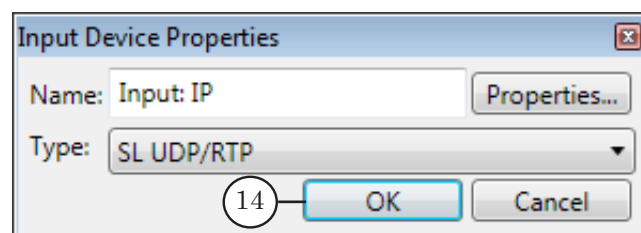
4.3. Input Program

Node of input program is the second in order. Configure the node when IP stream is being received by network adapter and when the Input Device node is configured.

1. Open context menu by right-clicking node. Select Properties... (1).
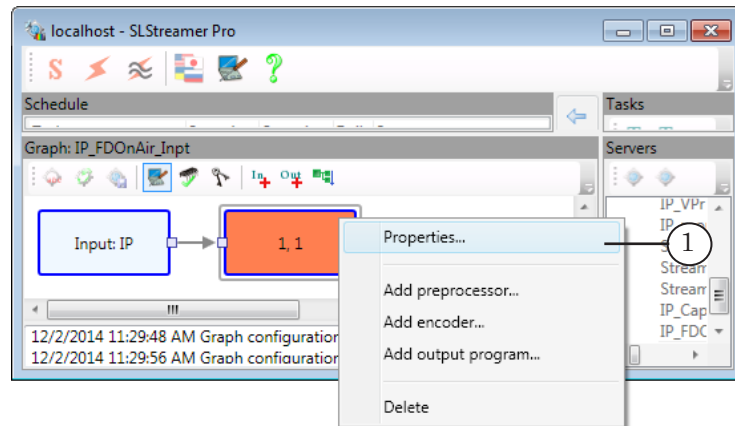
Configure parameters in the Input Program Properties window:

2. Select necessary program from stream according to number (2).
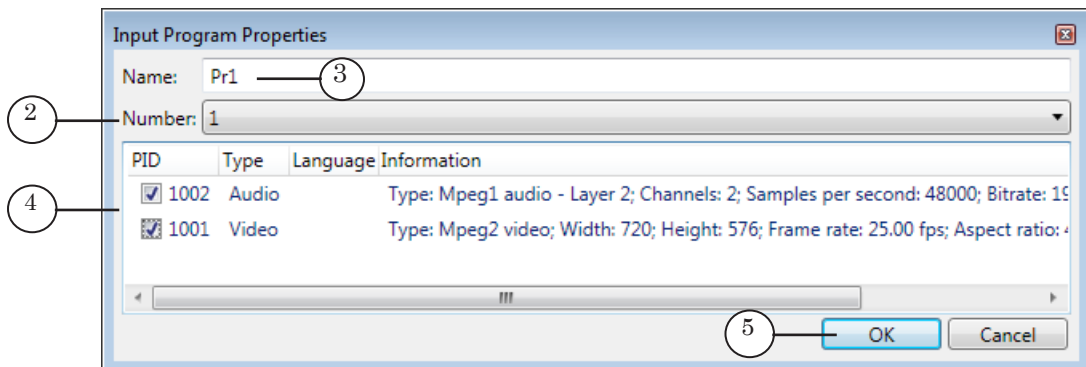
3. Specify program name (3).

4. Select audio and video streams in the (4) table by putting corresponding check marks, video with PID=1001 and audio with PID=1002 streams are in our example.

5. Click OK (5) to save properties and close the window.

4.4. Output Program

Node of output program is the third node in graph.

1. Open context menu by right-clicking node. Select Properties... (1).
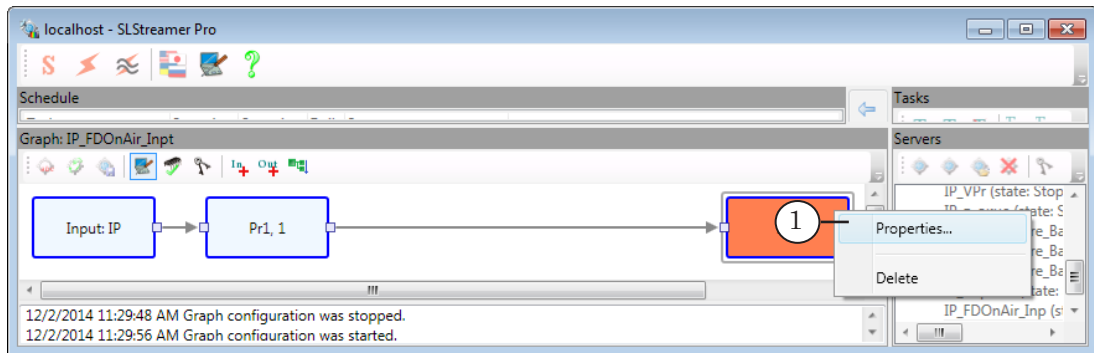
Specify parameters in the Output Program Properties window:

2. Specify program name (2).
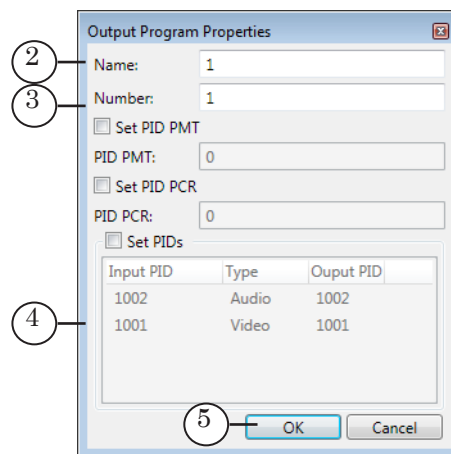
3. Specify program number (3). The number is used to identify this program.

4. PIDs in our example are specified automatically (4).

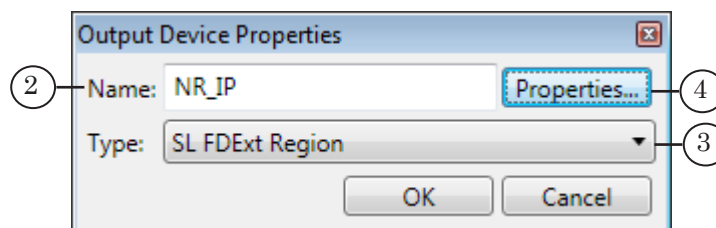5. Click OK (5) to save properties and close the window.

4.5. Output Device

Node of output device is the fourth node in graph.

1. Open context menu by right-clicking node. Select Properties... (1).
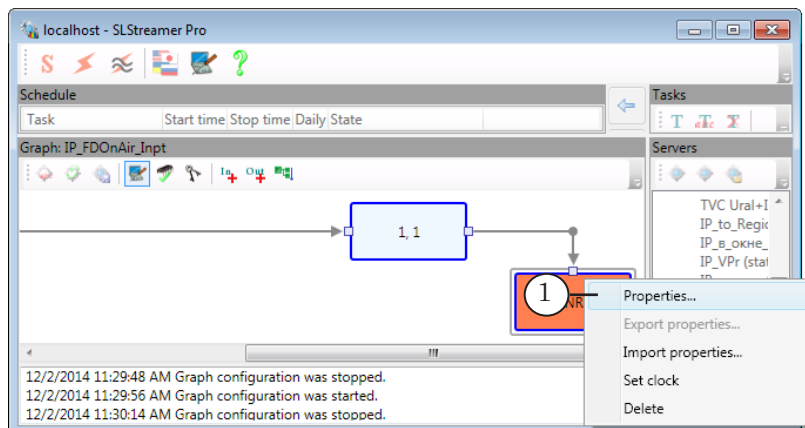
In the Output Device Properties window:

2. Specify node name (2).

3. Select type of output device that corresponds to named region (depending on used board) in the drop-down list (3):

   - Named Region – FD300 board or Videoprocessor module are used;
   - SL FDExt Region – FD300/FD422/FD842/FDVrt board are used.

Note: You can find list of output device types with detailed description in the «SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital Broadcasting Schemes» user's guide.

4. Click Properties... (4).

5. In the Properties window:

1. Be sure that device used for broadcasting in FDOnAir is selected. The device is selected in the list indicated as:

- Engine Name (5) if SL FDExt Region is specified at the previous step;
- Device Type if Named Region is specified.
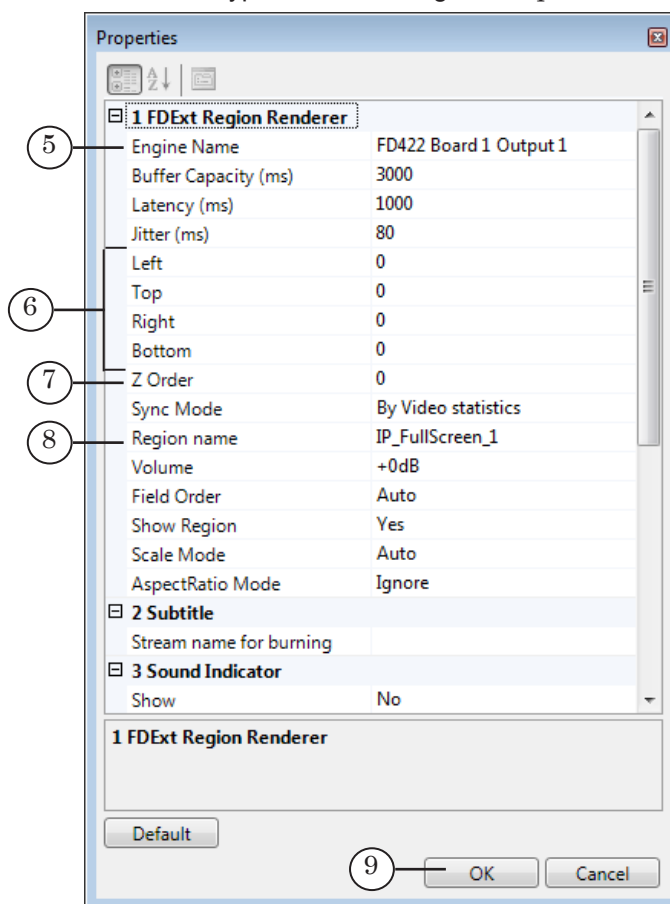
2. We recommend remaining default values in the (6) fields where region coordinates are specified. Such coordinates correspond to a full-screen region.

3. Specify Z order of region in the Z Order field (7). The coordinate determines location of title layer with this region in set of all processed layers vertically.
The value must be unique among other values specified for regions and titles. Integer negative and positive numbers (–32768; 32768) are allowed.

Note: Take the following into account when specifying Z coordinate: as this is a background video then layer must be located in the lowest layer comparing with other layers with titles overlayings (all layers are ordered vertically according to Z coordinate).

4. Specify region name in the Region name field (8). The name is necessary at further customizing. Source of audio and video data at customizing Videoinput N command in FDOnAir is specified by this name.

✔ **Important:** If you customize broadcasting several IP channels then specify named regions with Z coordinates (7) and names (8) for each of the channels.

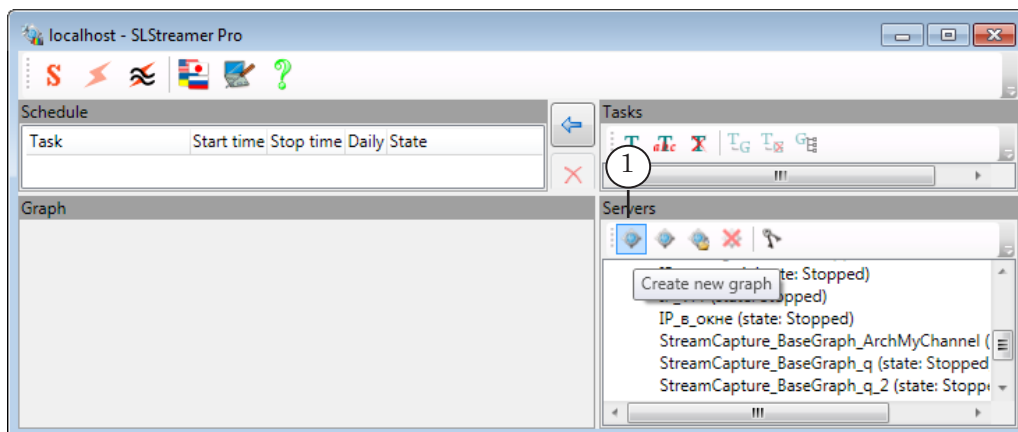6. Click OK (9, 10) to save properties and close windows.
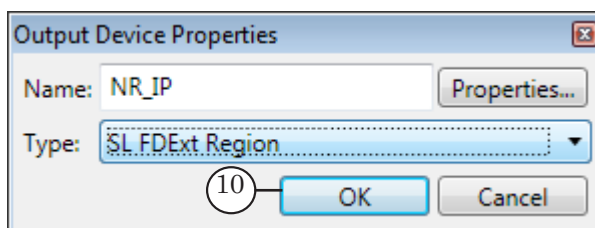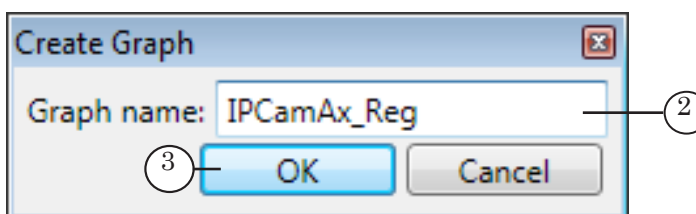

5. Creation and Customizing Graph Without Template (Step 3)

The present section describes work order on customizing receiving RTSP stream from Axis IP camera.

5.1. Adding Empty Graph and Task

1. Click the Create new graph button (1) on toolbar in the Servers window.

2. Specify graph name in the appeared window (2). Click OK (3).
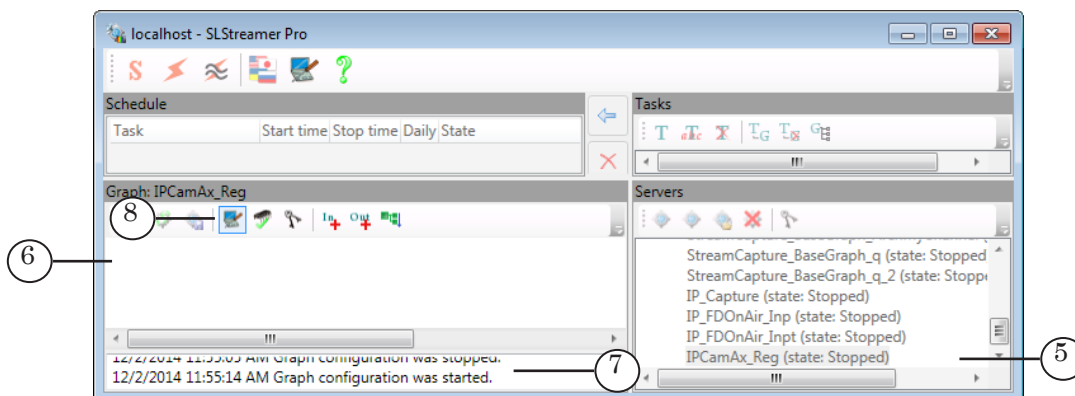
3. Create new task by clicking Yes (4) in the appeared window.
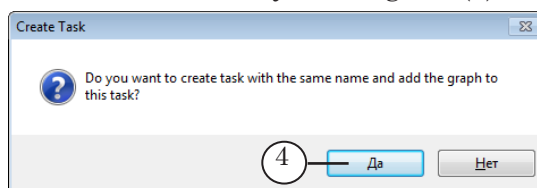
4. New graph with specified name (5) is added to list with graphs. Graphs section (6) is empty because graph has no nodes yet.

Mode of graph configuration is switched on automatically, i.e. record in a protocol area (7) and the (8) button appear. The button is used as switcher in this case – if the mode is on, the button is released, if the button is not released – the mode is off. Click once the button to change state.
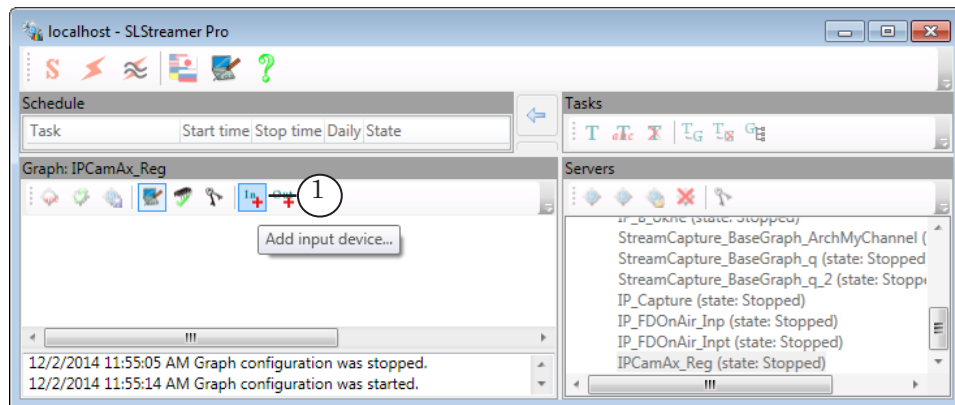
7. Add and configure graph nodes consequently in configuration mode. Next sections provide with a detailed information.
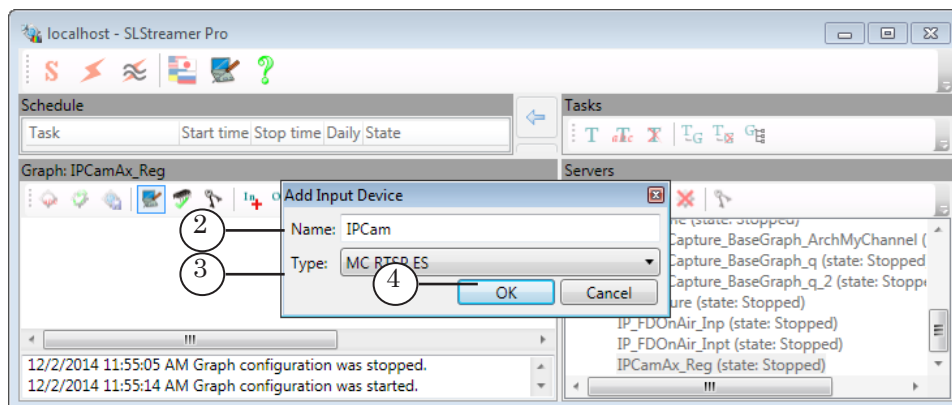
5.2. Input Device

✔ **Important:** By the moment of adding and customizing input node there must be data on input. In our case it denotes that camera must be connected to IP network and must be switched on.

1. Click Add input device... (1).

In the appeared window:

1. Specify name of node (2). It can be any set of characters.

2. Specify type of device in the drop-down list (3), MC RTSP ES is in our case.
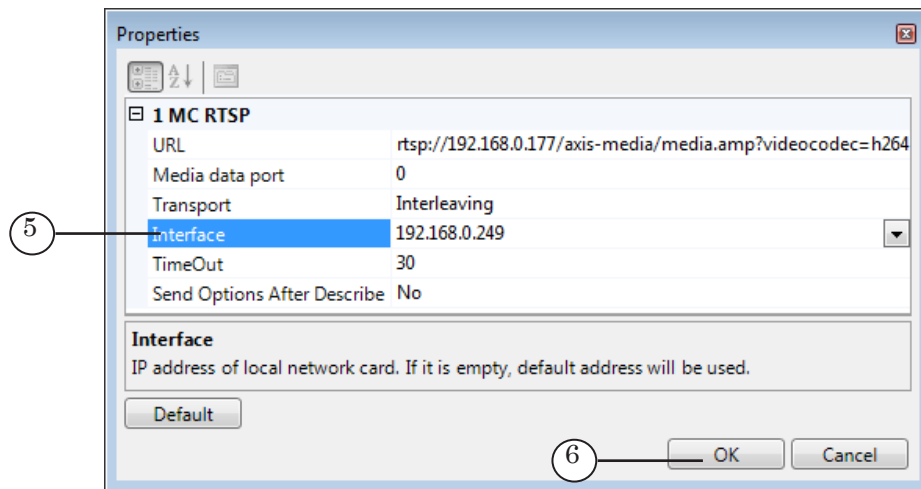

Note: You can find a list of supported types of devices with detailed description in the «SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital Broadcasting Schemes» user's guide.

3. Click OK (4) to pass to the next step.

3. In the Properties window:

1. Customize properties of specified device (5):

- URL – stream URL. In our case this is camera URL (format of line see in the guide supplied with IP camera);
- Media data port – is port number used for receiving stream;
- Transport – type of stream and transport protocol;
- Interface – IP address of PC network adapter;
- TimeOut – timeout (in seconds) if input audio and video stream is absent then graph is stopped and restarted again in specified time period.

2. Click OK (6) when customizing is finished.

4. Window with. Customized node in the Graphs window appears.
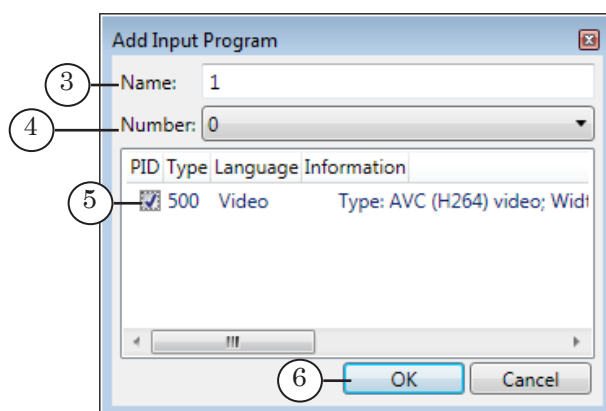
5.3. Input Program

Configure node when IP stream is being received by network adapter and when the Input device node is configured. If input stream is absent you can not add the Input program node.

1. Open context menu by right-clicking the Input device node (1). Select Add program... (2).
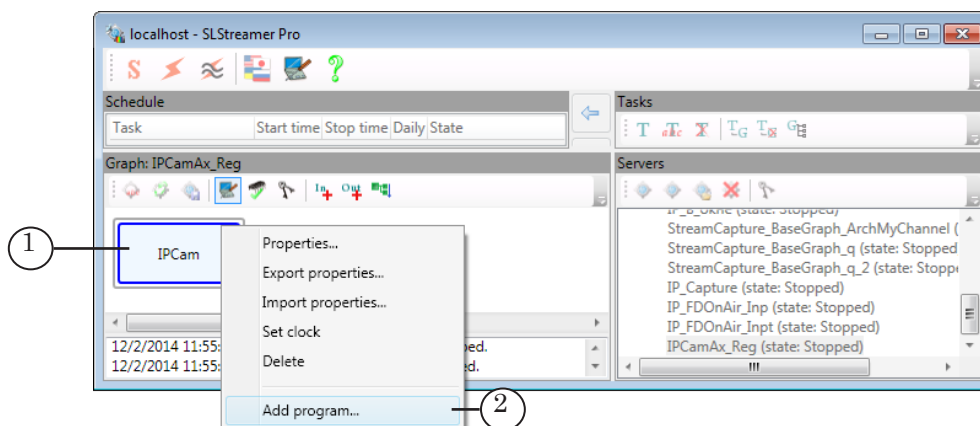
2. In the appeared window:

1. Specify name of the Input program node (3).

2. The Number drop-down list (4) has numbers of all programs detected in input stream. Select program for further processing in the list. In our case input receives stream from camera with one program.

3. The (5) area has list of PIDs – identifiers of audio and video packets of specified program detected in input stream. Specify necessary ones by putting corresponding marks.

4. Click OK (6).

3. Window with elements for program customizing is closed. Node with specified name in the Graphs area appears.
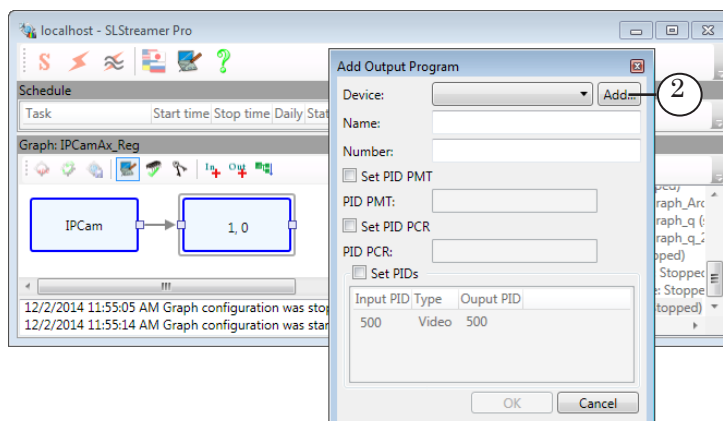
5.4. Output Program and Output Device

1. Right-click Input program node and select Add output program... (1) in the context menu.
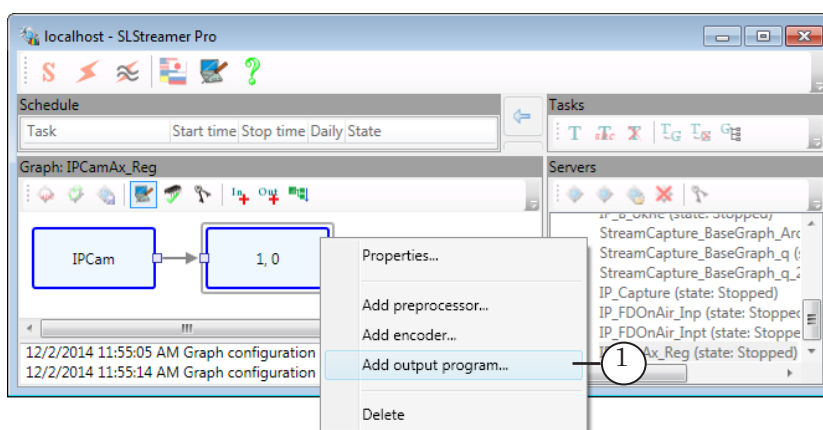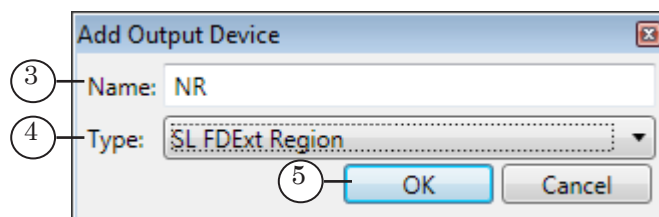
2. Click Add... (2) in the appeared window.

3. The Add Output Device window appears:

   1. Specify name of node (3).

   2. Select type of output device depending on used board in the (4) drop-down list:
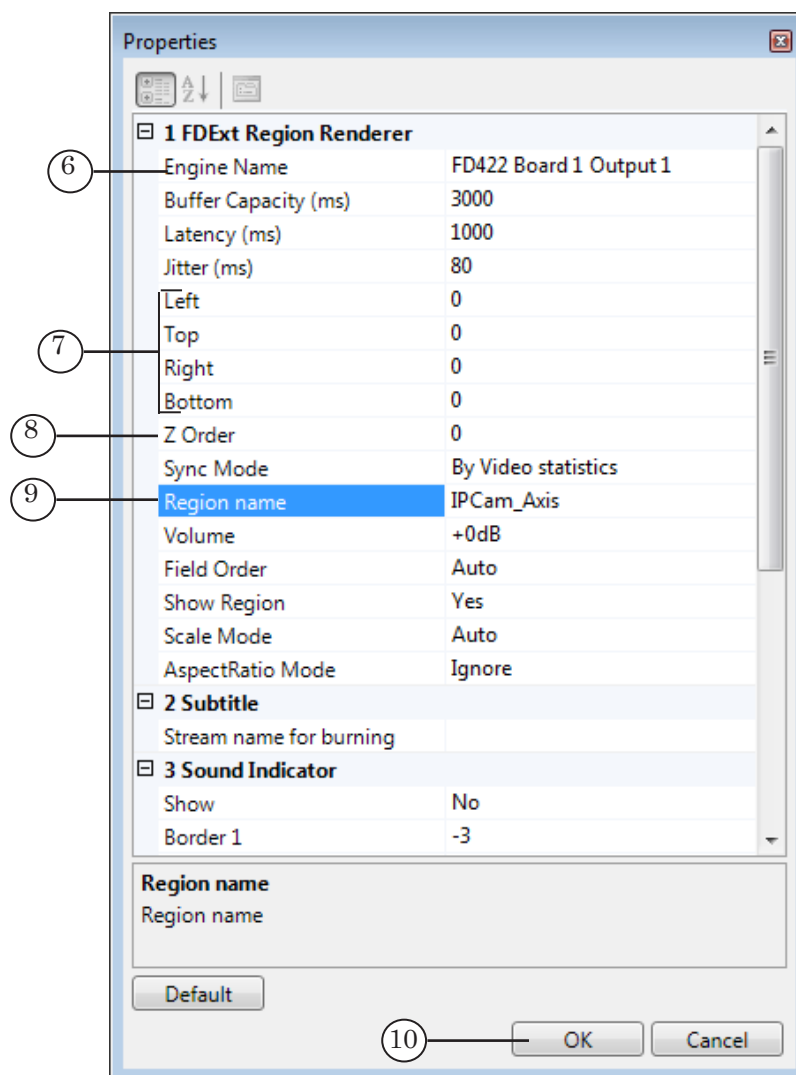
   - Named Region – FD300 board or Videoprocessor module are used;
   - SL FDExt Region – FD300/FD422/FD842/FDVrt boards are used.

   3. Click OK (5) to pass to customizing region parameters.

4. In the appeared window in the FDExt Region Rendered table:

   1. Engine Name (6) – select device used by FDOnAir program (broadcasting server).
   For example, select FD422 Board 1 Output HD when dealing with FD422 board in HD mode.

Properties

1 FDExt Region Renderer	
Engine Name	FD422 Board 1 Output 1
Buffer Capacity (ms)	3000
Latency (ms)	1000
Jitter (ms)	80
Left	0
Top	0
Right	0
Bottom	0
Z Order	0
Sync Mode	By Video statistics
Region name	IPCam_Axis
Volume	+0dB
Field Order	Auto
Show Region	Yes
Scale Mode	Auto
AspectRatio Mode	Ignore
2 Subtitle	
Stream name for burning	
3 Sound Indicator	
Show	No
Border 1	-3

Region name
Region name

Default

OK   Cancel

2. We recommend remaining default values in the (7) fields where region coordinates are specified. Such coordinates correspond to a full-screen region.

3. Specify Z order of region in the Z Order field (8). The coordinate determines location of title layer with this region in set of all processed layers vertically.
The value must be unique among other values specified for regions and titles. Integer negative and positive numbers (–32768; 32768) are allowed.

Note: Take the following into account when specifying Z coordinate: as this is a background video then layer must be located in the lowest layer comparing with other layers with titles overlayings (all layers are ordered vertically according to Z coordinate).

4. Specify region name in the Region name field (9). The name is necessary at further customizing. Source of audio and video data at customizing Videoinput N command in

FDOnAir is specified by this name.

Important: If you customize broadcasting several IP channels then specify named regions with Z coordinates (7) and names (8) for each of the channels.

Note: For more information on **FDExt Region Renderer** see in the «SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital Broadcasting Schemes» user's guide.

5. Click **OK** (10) to finish customizing **Output device** and return to customizing **Output program**.

5. Continue customizing in the window:

1. Be sure that name of node added at the previous step is added to the **Device** list (11).
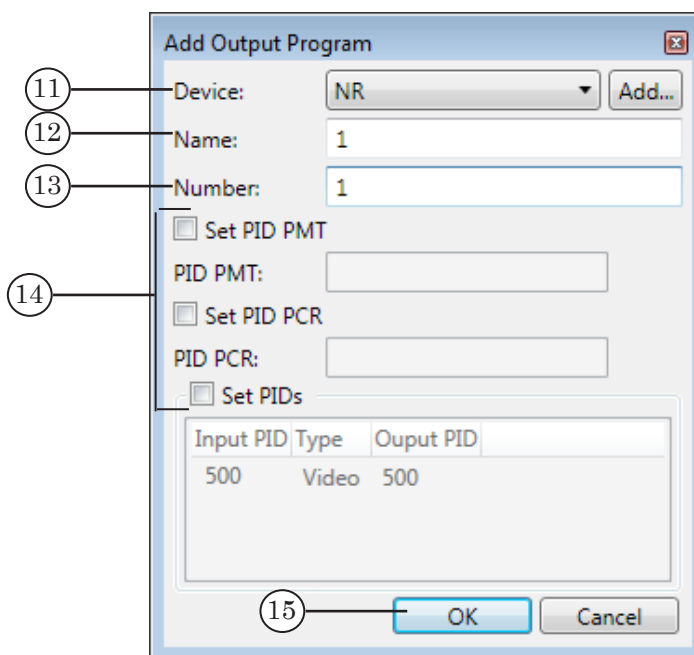
2. Specify name (12) and number (13) of output program. Name must be specified with Latin characters.

3. If the (14) marks are not put then PIDs are specified automatically.
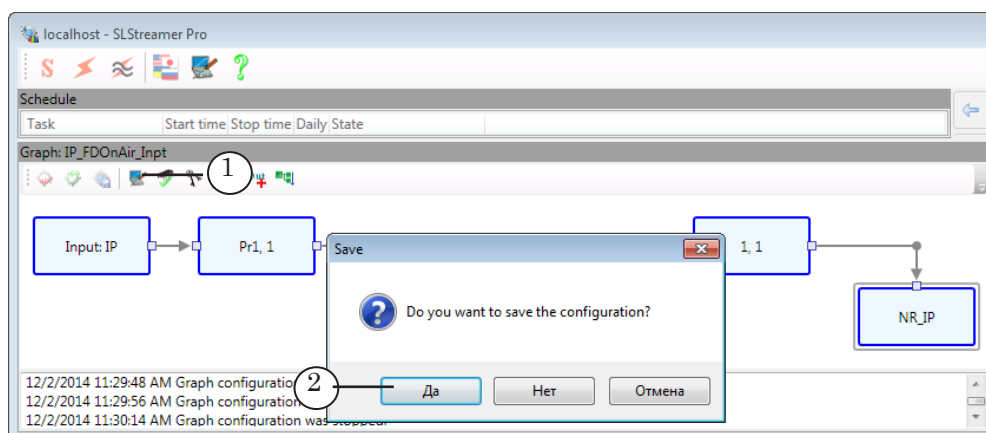
4. Click **OK** (15) to finish customizing.

6. The window is closed. Nodes are appeared in the Graphs area (16).
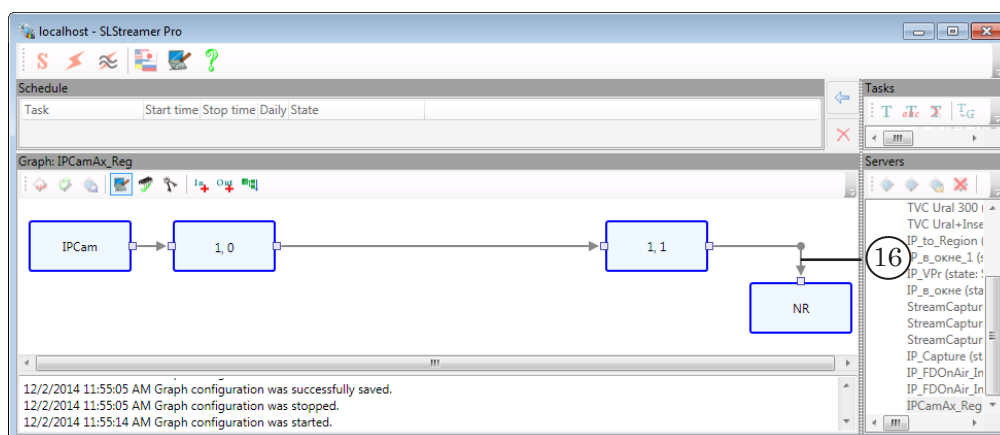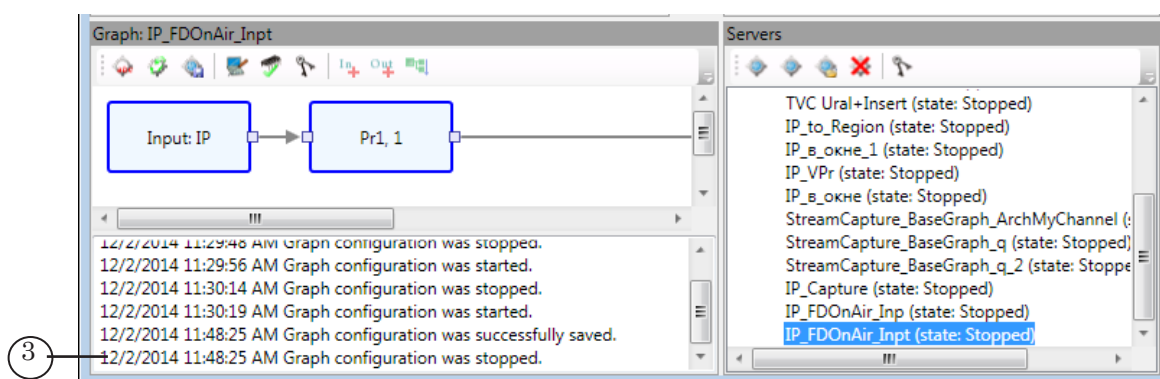

6. Finish Graph Configuration (Step 4)

1. Click Finish Graph Configuration (1) to complete graph configuration and quit configuration mode.

2. Save configuration in the appeared window by clicking Yes (2) in the appeared window.

3. Graph is configured. Corresponding message (3) appears in protocol area.

7. Adding Task to Schedule (Step 5)

In our example task is created automatically at step 3 (creation of graph).

Note: Create task if it is not created yet. For more information see the «SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital Broadcasting Schemes» user's guide.

Complete the following steps to add task to schedule:

1. Select task in the list (1).
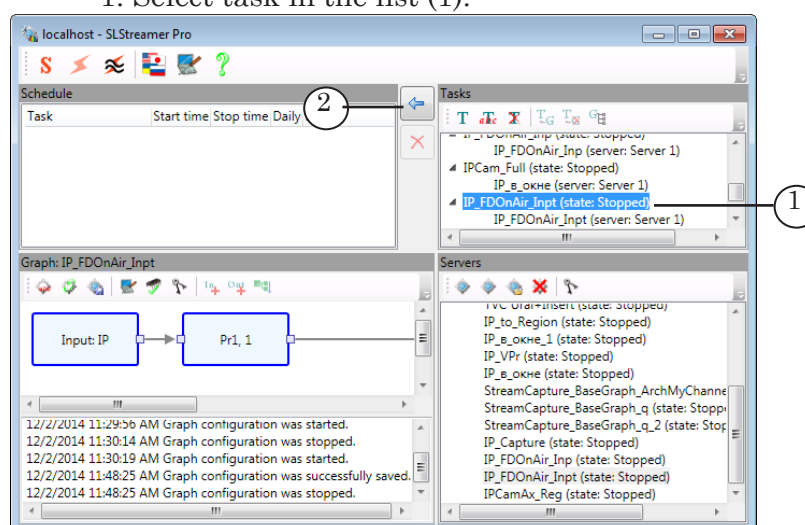
2. Click the Add Task to Schedule button (2).

3. In the Add task to schedule window:

    1. Specify way of task start by putting corresponding mark (3):

        • Once – task is started once at a specified time (day, time) and is executed till specified moment (day, time);

        • Every day – task is started every day at the same time;

        • Weekly – task is started every day according to schedule created for weekends and working days;

- Daily – task is started according to schedule created for each day of week.

2. Specify time of start and stop of task in the (4) fields. Customize time of start/stop of task each day if variant with timetable for several days is specified.
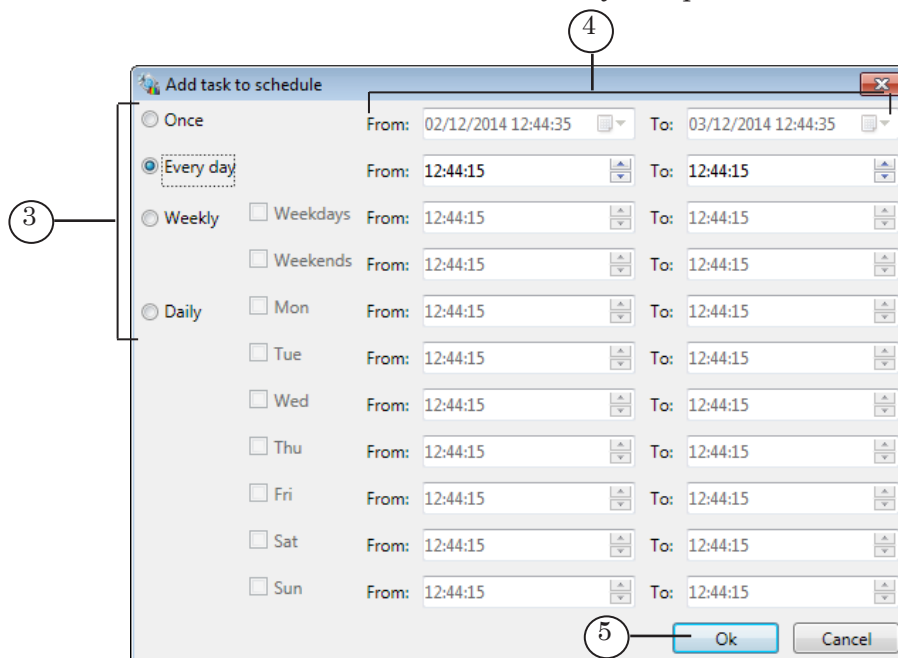

Note: Take into account the following limitations:
1. It is necessary that the To: value is later than the From: value in 10 sec.
2. For all modes where date of start/stop is not specified explicitly (all except Once) stop time can not coincide with start time. The values must have 1 second difference at least (for example, specify From: 00.00.00, To: 23.59.59 if necessary to record data during one full day).
3. Take into account when customizing that start may require several seconds.

3. Click OK (5) to close the window and add task to schedule.

4. Task is added to table with schedule (6).
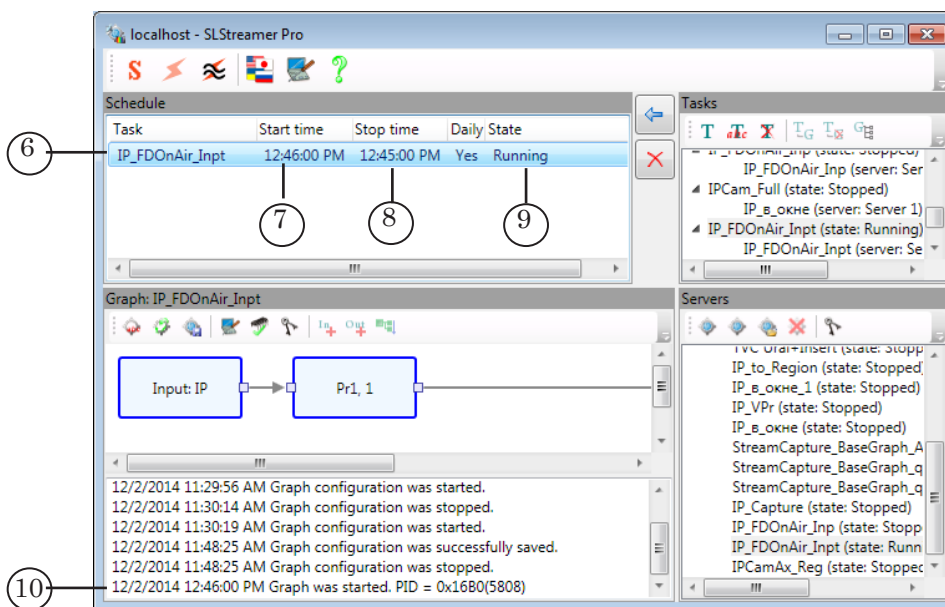
Graph starts and stops according to task automatically: time of start and stop, information on current state of task are displayed in the table (7–9). Information on work of graphs is displayed in protocol area (10).

Be sure that graph started correctly. If at graph launch some errors appear there is a service message in protocol area (11). In this case you should find problems and correct them.
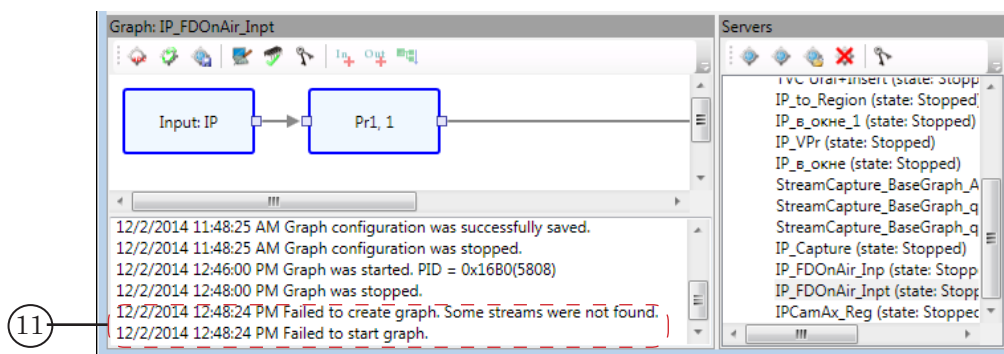
Closing the SLStreamer Pro application window does not influence current state of tasks and graphs.

5. Task can be stopped at any moment manually. For this you should delete task from schedule via the Delete button (12).
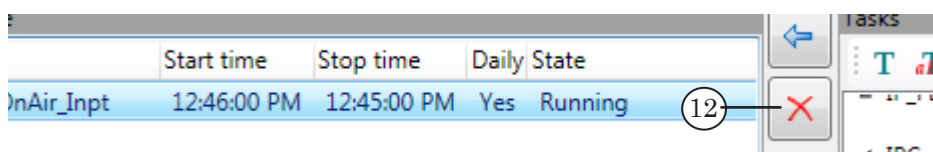
8. Launching and Customizing FDOnAir Program (Steps 6, 7)

1. Launch the FDOnAir application via the the Start menu command: Programs > ForwardT Software > OnAir.

2. Click Settings (1) in the main program window.

3. Open the Configuration tab (2) and be sure that FDOnAir program instance is customized and ready for work in a background mode (3). Be sure that in the (4) list of the Video device group of elements and in settings of Output device node in graph the same output line is specified (see item 4.5 or 5.4 above depending on way of graph creation).
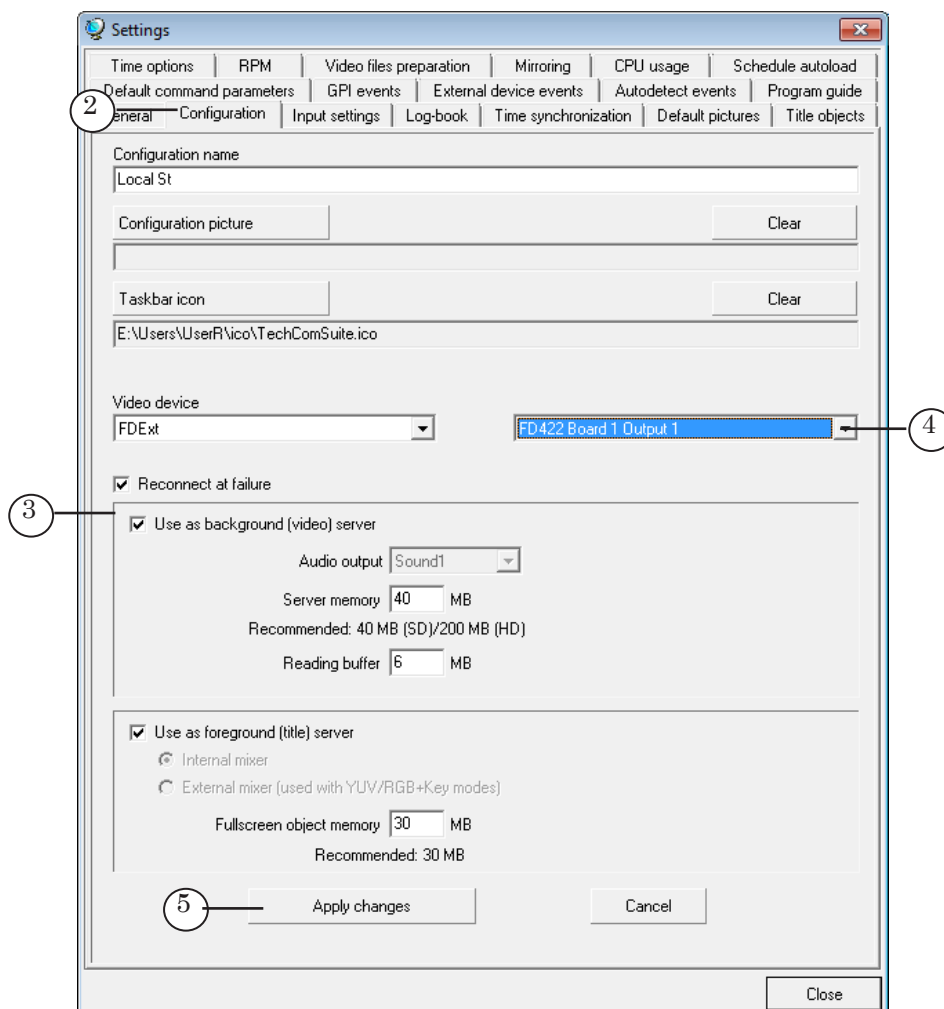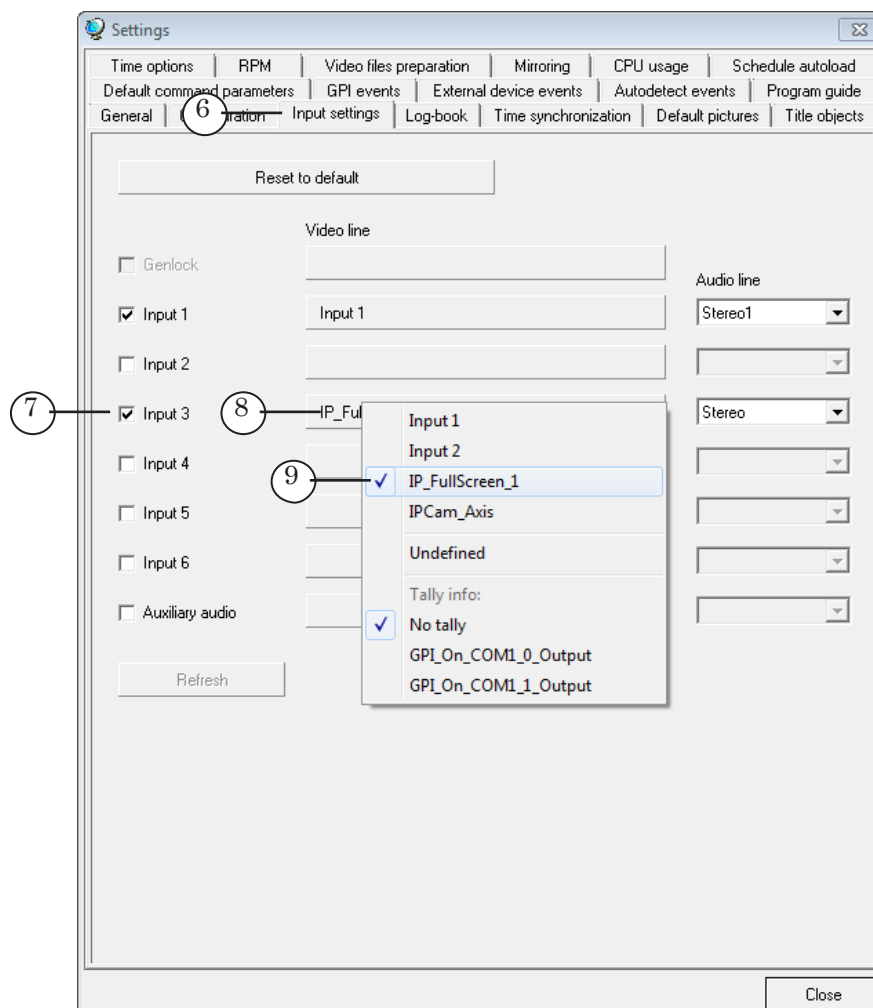


4. Click the Apply button (5) if some changes are made.

✔ **Important:** Clicking Apply is obligatory for changes to become active.

5. Pass to the Input settings tab (6).
Customize the Videoinput N command (N=1–6).
For example, to customize the Videoinput 3 command:

1. Put the Input 3 mark (7) to enable input 3.

2. Click button located near of necessary input in the Video line bar (8). Select line with name of region where data from IP stream is received in the appeared menu (9). The region was specified at customizing graph for receiving stream from IP source (see item 4.5 or 5.4 above depending on way of graph creation).

3. Specify audio line that transmits sound on air in the Audio line area in the (10) drop-down list.
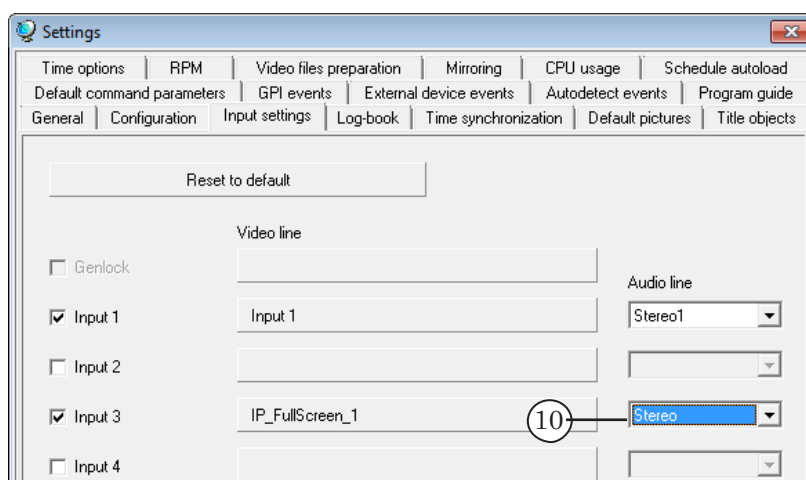
6. If necessary enable other video inputs by putting corresponding marks and selecting necessary sources of a passthrough video (11) for them.
    These can be named regions or devices plugged to input of used board.
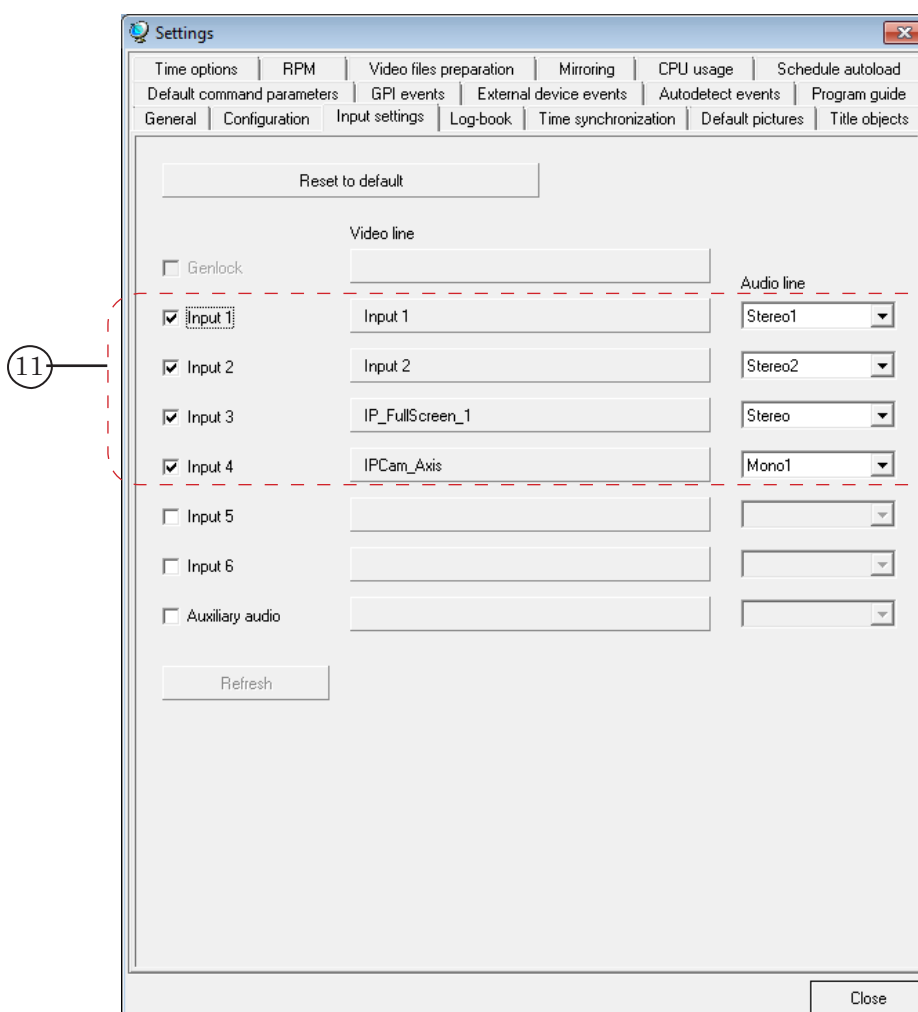
7. Click the Close button (12) to close the Settings window.

9. Control Over Broadcasting in FDOnAir (Steps 8,9)

Create broadcasting schedule in the FDOnAir program. If necessary insert to the schedule commands of switching a passthrough video on: Videoinput N (N=1–6).

In our example: for switching broadcasting video from IP stream on the Videoinput 3 command (1) is customized. The F5 button (2) can be used to switch to video input manually.

Preview data via the FDPreviewMonitor.

Useful Links

ForwardT Software set: description, download, documentation, solutions

http://www.softlab-nsk.com/forward/index.html

Support

e-mail: forward@softlab.tv

      forward@sl.iae.nsk.su

      forward@softlab-nsk.com

Forum

http://www.softlab-nsk.com/forum (currently available in Russian only)

Documentation for more information:

1. ForwardT Software Setup. User's Guide.

2. IPOut, ASIOut: Digital Streaming Options for Forward T Products. User's Guide.

3. ForwardTS Setup. User's Guide.

4. SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital Broadcasting Schemes. User's Guide.

5. FDOnAir. Broadcast Automation. User's Guide.

6. IPCamera. Rebroadcasting Streamed Audio/Video Data in the Form of Titles.

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