Forward Tx Plugins

IP2PostPlay



Recording streaming audio and video into PostPlay storages

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User's Guide

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Introduction

The IP2PostPlay plugin is designed to record streaming audio and video data, received through an IP or ASI interface, into the PostPlay storage.

Note: PostPlay is a broadcast delay system based on the FD300/FD322/ FD422/FD842 board. The PostPlay system is designed to record and store audio and video data received through a TV signal, as well as allowing access to PostPlay storages for viewing and playing audio and videos.

The system supports broadcasting with time shifts, from several minutes to several days in two different modes:

- fixed time shift without a schedule change (the FDTimeShift program is used);
- with a schedule change (the FDOnAir program is used).

For more information on working with the PostPlay system and a description of the programs it contains, see the «<u>PostPlay System</u>» user's guide.

The IP2PostPlay plugin is an additional program option, and can be purchased as an addition to the following SoftLab-NSK products:

- Forward TA;
- Forward TP;
- Forward TS-IP, Forward TS-ASI.

There are different versions of the plugin that differ in their licenses for the video format they work with:

- IP2PostPlay (SD) SD-video;
- IP2PostPlay (HD) HD-video.

The plugin contains one license that allows the recording of one program into storage.

This guide contains the following information: general procedure of plugin installation, short description of the PostPlayStorageConfig program, general workflow of setting up the recording streaming data

into PostPlay storage.



Plugin General Information

Plugin characteristics

The installation of the IP2PostPlay plugin adds the following features:

- an interface for creating and managing PostPlay storages PostPlayStorageConfig program;
- an interface for creating and managing graphs for receiving/editing/transmitting streaming audio and video (if these functions are not present in the main product) the SLStreamer Lite and SLStreamer Pro programs;
- a function of capturing from TS data into PostPlay storage. The typical product delivery includes 1 license for 1 input channel.
- Note: For more information on working with the SLStreamer Pro and SLStreamer Lite programs, see the «<u>SLStreamer Lite, SLStreamer</u> <u>Pro. Programs for Configuring, Monitoring & Managing Digital</u> <u>Broadcasting Schemes</u>» user's guide.



Installing and registering the plugin

1. Installation variations

The IP2PostPlay set and its installation procedure depend on the main product, to which the plugin is to be added. The following variations will have different installation procedures (see below sections):

- Forward TA/Forward TP based on the FD300 board;
- Forward TA/Forward TP based on a FDExt board: FD322/FD422/FD842;
- Forward TS-IP/Forward TS-ASI.

The installation of the plugin software is done by a plugin installer. The installer file: ForwardTxPlugins_Setup_xx_xx_exe, where xx_xx_xx is the software version.

Note: All necessary software components and additional instructions can be found on the SoftLab-NSK website, on the Downloads page: <u>http://</u> www.softlab.tv/forward/download.html.

2. Main Product: Forward TA/Forward TP (FD300 board)

If the plugin is to be added to a Forward TA/Forward TP product based on a FD300 board, the plugin set will contain a USB HASP HL key as well as a registration file.

Note: The registration file can be recorded on the installation disk or sent over via email. The registration file will have the reg extension. On the installation disk the file will be in the Registration folder.

In order to install the plugin, complete the following:

- 1. Make sure that the main product's registration is active. If not, activate it. For more information, see the <u>«ForwardT</u><u>Software setup</u>» user's guide.
- 2. Activate the IP2PostPlay plugin registration:

1. Double-click on the registration file – the necessary information will be added to the Windows system registry. Restart the computer.

2. Install the HASP HL key driver onto the computer using an installer. The driver installer is located in the HASPDrivers folder on the installation disk.

Note: The HASP HL key drivers are also available on the SoftLab-NSK website, on the Downloads page: <u>http://www.softlab.tv/forward/download.html</u>.

3. Insert the HASP key into the computer's USB port.

Important: The key must be inserted in the USB port and remain inserted continuously while installing and using the software!



- 3. Install the ForwardT Software in the following situations:
 - the software is not installed;
 - the installed software version is outdated (it is necessary for the main product's and plugin installer versions to be identical);
 - the software components already installed are intended only for work with Forward TA product.

Use the current version of the ForwardTxSoftware_Setup_x_xx_xxx.exe installer to install the software.

During the installation make sure to flag the Forward TP Files option.

🗞 Setup - ForwardT Software	—		×
Select Components Which components should be installed?			
Select the components you want to install; clear the components you install. Click Next when you are ready to continue.	u do not	want to	
Forward TN Files		164.8 MB	
Forward TT Files		175.0 MB	
Forward TA Files		179.1 MB	
Forward TP Files		181.5 MB	
Current selection requires at least 245.0 MB of disk space.			
ForwardT Software 5.7.2220			
< <u>B</u> ack <u>N</u> ex	ct >	Can	cel

For more information on installing software see the «<u>ForwardT Software setup</u>» user's guide.

 Install the IP2PostPlay software components: start the plugin installer and follow the Wizard's instructions. During the installation flag the IP2PostPlay files option.

Select the components you want to install; d	lear the components you do not want to
Install. Click Next when you are ready to con	iunue,
SCTE 35 AutoDetect files	2.1 MB /
	4.8 MB
St Telephone files	4.6 MB
	2.1 MB
	2.5 MB
SLStreamCapture files	0.7 MB
IPCamera files	0.5 MB
PostPlay Export files	10.4 MB
IPOut/ASIOut files	
IP2PostPlay files	1.7 MB
	6 k l
Current selection requires at least 50.5 Mb d	n uisk space.

5. The SLStreamer Lite, SLStreamer Pro, and PostPlayStorageConfig shortcuts will be added to the desktop.



3. Main Product: Forward TA/Forward TP (FD322/FD422/FD842 board)

If the plugin is to be added to a Forward TA/Forward TP product based on a FD322/FD422/FD842 board, the plugin set will contain a registration file.

Note: The registration file can be recorded on the installation disk or sent over via email. The registration file will have the **reg** extension. On the installation disk the file will be in the **Registration** folder.

In order to install the plugin, complete the following:

- 1. Make sure that the main product's registration is active. If not, activate it. For more information, see the <u>«ForwardT</u><u>Software setup</u>» user's guide.
- 2. Activate the IP2PostPlay plugin registration: double-click on the registration file – the necessary information will be added to the Windows system registry. Restart the

computer.

- 3. Install the ForwardT Software in the following situations:
 - the software is not installed;
 - the installed software version is outdated (it is necessary for the main product's and plugin installer versions to be identical);
 - the software components already installed are intended only for work with Forward TA product.

Use the current version of the

ForwardTxSoftware_Setup_x_xx_xxx.exe installer to install the software.

During the installation make sure to flag the Forward TP $\ensuremath{\mathsf{Files}}$ option.

🞄 Setup - ForwardT Software	—		×
Select Components Which components should be installed?			
Select the components you want to install; clear the components yo install. Click Next when you are ready to continue.	u do not	t want to	_
Forward TN Files		164.8 MB	
Forward TT Files		175.0 MB	
Forward TA Files		179.1 MB	
Forward TP Files		181.5 MB	
			_
Current selection requires at least 245.0 MB of disk space.			
ForwardT Software 5.7.2220			
< <u>B</u> ack <u>N</u> ex	t >	Can	cel

For more information on installing software see the «<u>ForwardT Software setup</u>» user's guide.

4. Install the IP2PostPlay software components: start the plugin installer and follow the Wizard's instructions. During the installation flag the IP2PostPlay files option.

Select Components Which components should be installed?		į
Select the components you want to install; clear the con install. Click Next when you are ready to continue.	mponents you do not want	to
SCTE 35 AutoDetect files	2.1 M	в 🔺
SLNewsLine files	4.8 M	в
SLTelephone files	4.6 M	в
SLNewsTitler files	2.1 M	в
RemoteOnAir files	2.5 M	в
SLStreamCapture files	0.7 M	в
IPCamera files	0.5 M	в
PostPlay Export files	10.4 M	в
IPOut/ASIOut files		
☑ IP2PostPlay files	1.7 M	
Current selection requires at least 30.5 MB of disk space ardT Plugins 5.7.2220	e.	
< Back	Next >	Can

5. The SLStreamer Lite, SLStreamer Pro, and PostPlayStorageConfig shortcuts will be added to the desktop.



4. Main Product: Forward TS-IP/Forward TS-ASI

If the plugin is to be added to a Forward TS-IP/Forward TS-ASI product, the plugin set will contain a registration file.

Note: The registration file can be recorded on the installation disk or sent over via email. The registration file will have the reg extension. On the installation disk the file will be in the Registration folder.

In order to install the plugin, complete the following:

- 1. Make sure that the main product's registration is active. If not, activate it.
- Important: The Forward TS software needs a HASP key in order to work. The key must be inserted in the USB port and remain inserted continuously while installing and using the software!
 - 2. Activate the IP2PostPlay plugin registration: double-click on the registration file the necessary information will



be added to the Windows system registry. Restart the computer.

- 3. Install the ForwardTS Software in the following situations:
 - the software is not installed;
 - the installed software version is outdated (it is necessary for the main product's and plugin installer versions to be identical);
 - PostPlay software components were not installed.

Use the current version of the ForwardTS_Setup_x_xx_xx.exe installer to install the software (for more information, see the <u>«ForwardTS Software Setup.</u> <u>Installation & Setup Procedures</u>» user's guide).

During the installation make sure to flag the Install PostPlay Components (Forward TP Software Components) option.

 Install the IP2PostPlay software components: start the plugin installer and follow the Wizard's instructions. During the installation flag the IP2PostPlay files option.

💑 Setup - ForwardT Plugins	—		×
Select Components Which components should be installed?			
Select the components you want to install; dear the components you install. Click Next when you are ready to continue.	u do not	want to	
SCTE 35 AutoDetect files	2	2.1 MB 🔺	
SLNewsLine files	4	1.8 MB	
SLTelephone files	4	1.6 MB	
SLNewsTitler files	2	2.1 MB	
RemoteOnAir files	2	2.5 MB	
SLStreamCapture files	0).7 MB	
IPCamera files	0).5 MB	
PostPlay Export files	10).4 MB	
IPOut/ASIOut files			
✓ IP2PostPlay files		l.7 MB 🗸	
Current selection requires at least 30.5 MB of disk space.			
ForwardT Plugins 5.7.2220			
< <u>B</u> ack <u>N</u> ext	t >	Car	ncel

5. The PostPlayStorageConfig shortcut will be added to the desktop.





Recording streaming audio and video data into storage

General Procedure

When recording audio and video from a transport stream (TS) into a PostPlay storage, it is recommended to use the following procedure:

- Using the PostPlayStorageConfig program:
 Set up the audio and video parameters.
 - 2. Configure the storage.
- Note: For a description of the program, see the «PostPlayStorageConfig. Storages management» section.
 - Using the SLStreamer Pro program:
 Set up the receiving of streaming data from an external source into a storage.

2. At the right time, start/stop recording the stream into the storage.

Note: For more information see the «Receiving a stream from an IP source. Settings and management» section of this user's guide, as well as the «<u>SLStreamer Lite, SLStreamer Pro. Programs for Configuring,</u> <u>Monitoring & Managing Digital Broadcasting Schemes</u>».

The next steps are as standard for working with video and audio data recorded into PostPlay storage:

- 1. If it is necessary to view the storage contents, make clips, export audio and video from the storage into files use the PostPlay Preview program.
- 2. In order to transmit audio and video to air, use the FDTimeShift or FDOnAir program, depending on the broadcasting mode.
- Note: For more information see the <u>«PostPlay System</u>»; <u>«FDTimeShift. TV</u> <u>Broadcast Time Shifting</u>»; <u>«FDOnAir Application: FDTimeShift Video</u> <u>Line. Rebroadcasting with a Time Shift via FDOnAir</u>».

PostPlayStorageConfig. Storages management

1. Purpose

The PostPlayStorageConfig program is designed to be an interface for managing PostPlay storages: creation, deletion, clearing. It is included in the IP2PostPlay plugin.

2. Start

To start the PostPlayStorageConfig program:

- use the Start menu: Programs > ForwardT Software > Plugins > PostPlayStorageConfig;
- or the shortcut located on the desktop.



3. Main Window

The program's main window displays information on the PostPlay storages on the computer, as well as elements to manage them.



Main Program Window. Control element purpose:

 $1-{\rm list}$ of storages; $2-{\rm information}$ on the selected storage; $3-{\rm storage}$ management; $4-{\rm audio}$ and video parameter settings; $5-{\rm exit}.$



In the Parameters (4) group the current audio and video settings values will be displayed. These values will be used when creating a new storage (see section «Creating and configuring storages. General procedure» below).

By default, the parameter values are identical to the parameters of the storage selected in the RPM Storage list (1).

Note: The first time the program is launched, when no storage is selected in the RPM Storage list (1), default parameter values are set.

4. Creating and configuring storages. General procedure

Creating a PostPlay storage is reserving space on a computer's hard drive. Other than the audio and video data, the following will also be recorded in the storage: information on time markers, frames for previews, and other service information.

To create/configure a storage, complete the following in the program's main window:

- 1. Make sure the current parameter values of the video and audio in the Parameters group (1) are correct. If this is the case, go on to step 4, otherwise continue to step 2.
- 2. Press Modify (2) the editable elements will become active.

	•	PostPlay Storage Configuration	
		RPM Storage	
		Storage1	Configure
		Storage: Storage1 Capacity: 1 hr 0 min Video: 720 x 576, 25.00 fps Codec: SoftLab-NSK advanced I-frames Data rate: 15188 KBytes/sec, Quality 40%- D:\ 56251 MB Audio: 48000 Hz, 2 Channel(s), 16 Bit D:\ 661 MB	80%
2)-	/	Parameters Modify Modify Press 'Modify' button if you change storage video/audio before configuring or creati Video	need to parameters Reset ng storage. Audio
	ł.	Format: PAL 25 fr/sec 👻	
$\overline{1}$	1	Width: 720 pixels	Sample rate, Hz: 48000 👻
		Height: 576 in pixels	Channels: Stereo 💌
		Frame rate: 25.00 📩 frames/sec	
			Exit

PostPlayStorageConfig. Storages management



3. Set the necessary parameter values for video (3) and audio (4).

	Parameters Modify Press 'Modify' button if you need to change storage video/audio parameters before configuring or creating storage. Reset	-5
	Video Audio	
	Format: PAL 25 fr/sec 🔻	
\bigcirc	Width: 720 pixels Sample rate, Hz: 48000 V	
U	Height: 576 pixels Channels: Stereo 🔻	4
	Frame rate: 25,00 🚔 frames/sec	

The Format list in the Video element group contains the Custom option, which allows you to set any necessary width, height, frame rate.

If it is necessary to bring back the original values, press Reset (5).

4. Press Create new (6) to create a new storage, or press Configure (7) to change the parameters of an existing storage.



Follow the Storages Configuration Wizard's instructions.

Important: After editing the audio and video parameters press Create new to continue on to creating a new storage with the set parameters or press Configure to apply the set values to the existing storage.



5. Storages Configuration Wizard

Press Create new or Configure to start the Storage Configuration Wizard. Use the Next (go to the next page) and Back (return to previous page) buttons to navigate the Wizard. By pressing Cancel the set up will be canceled.

Note: For additional recommendations for PostPlay storage parameters set up see the «<u>PostPlay System</u>» user`s guide.

5.1. Storage Number

On the Storages Number (1) page, in the corresponding fields (2, 3) set the capacity of the storage – the duration of the stored audio and video in hours and minutes.

_	Storages Configuration	x
1)	Storages Number Time Shift Storage Names Video Preview Codec Settings Audio Settings Disk Space Allocation Storage Summary	Number of Storages: 1 Capacity Hours: Minutes: 0 2 3 Specify capacity (maximum value is 999 hours 59 minutes) of storages.
		< Back Next > Cancel

5.2. Time Shift

On the Time Shift (1) page set a time shift if necessary. The time markers recorded into the storage with the video and audio will be shifted by the set amount (2): decreased if the shift is negative (3) or increased if the shift is positive (4).

A time shift makes it easier for an operator to take time zone differences into account when retransmitting TV programs between cities located in different time zones.

Time Shift Storage Names Video Preview Codec Settings Audio Settings Disk Space Allocation Storage Summary	Hours: Minutes: Seconds: Frames: Offset
--	---

5.3. Storage Names

On the Storage Names (1) page set the storage name.

A PostPlay storage name must be unique, and can contain any symbols. By default the storages will be named StorageX where X is their order number. To change the name, double-click on the line with the name (2) and set a new one.

	Time Shift	# Storage 1 Storage2
)—	Storage Names Video Preview	
	Codec Settings	
	Audio Settings Disk Space Allocation	
	Storage Summary	
		Enter the name of each storage. Double-click storage name to edit it.

5.4. Video Preview

On the Video Preview page (1) set the parameters for recording preview video into the storage:

- 1. In the Width (2) and Height (3) fields set the width and height of the preview frames (in pixels).
- 2. If it is necessary for the preview frames aspect ratio to be identical to the original video, flag the Keep aspect ratio (4) option.
- 3. In the Sec/frame (5) field set the time interval between the preview frames, in seconds.

Storages Configuration		×
Time Shift Storage Names Video Preview Codec Settings Audio Settings Disk Space Allocation Storage Summary	Preview Frame Size Width: Height: 72 Keep aspect ratio 4	Sec/frame: $10 - 5$ Compression ratio: $16 - 10$ Min required preview size: $1 \text{ MB} - 7$
	Choose preview frame size and pre preview video frame width/height r	eview frame rate. If 'Keep aspect ratio' is checked then ratio is the same as for input video frame.
		< Back Next > Cancel

- 4. In the Compression ratio field (6) set the compression coefficient for the preview video.
- 5. The amount of RAM (in MBs) necessary for storing the preview video, taking into account the storage capacity and set parameters, is displayed in the Min required preview size field (7).

5.5. Codec Settings

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On the Codec settings page (1) set the coding and compression parameters for the video:

- **Tip:** It is highly advised to use the same settings for all storages.
 - 1. In the Codec drop-down list (2) choose the codec that will be used to compress the video.

Tip: It is recommended to use the SoftLab-NSK advanced I-frames codec.

	Storages Configuration X
1)	Storages Number Storage name: Storage2 Time Shift Codec: Storage Names 2 Codec: SoftLab-NSK advanced I-frames Ocdec Settings Audio Settings Audio Settings 4 Disk Space Allocation Storage Summary Frame Properties: 720 (Width) x 576 (Height) x 25.00 (F(5) ste) Choose codec (if needed, dick the 'Configure' button to call codec configuration dialog), data rate (maximum value is 30 000 KByte/sec), minimum and maximum compression quality.
	< Back Next > Cancel

2. Press Configure (3) in order to manage the parameters of the chosen codec.



3. If the chosen codec supports a variable bitrate:

1. In the Data Rate (KB/sec) field (4) set the desired data rate. The maximum allowed value is 30 000 KB/sec.

2. In the Min and Max fields (5) set the minimum and maximum compression quality (in percents). When inputting data into the storage, the application will dynamically change the current value of the compression quality within the minimum and maximum values, trying to keep the specified average data rate.

5.6. Audio parameters

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On the Audio Settings page (1) set the audio data parameters:

- 1. In the Frequency (Hz) drop-down list (2) choose the frequency of the audio sampling to be recorded in the storage. By default this is set to 48000 Hz.
- 2. In the Channels drop-down list (3) select the audio type mono or stereo, for example 2 Stereo.
- 3. If the audio stream contains several language streams, flag the Enable multichannel audio (4) option and set the Number of audio lines (5). Then using the Audio names (languages) dropdown lists (6) set language identifiers for the lines.
- 4. In the Ratio (7) list choose the audio quality coefficient for audio previews, for example 1:100. The coefficient sets the amount (ratio) of audio units, selected from the total audio signal values, chosen for the preview.

Tip: It is recommended to use the default coefficient -1:100.

5. The amount of RAM (in MBs) necessary for storing the preview audio data, taking into account the storage capacity and other parameters, is displayed in the Min required preview size (8) field.



5.7. Disk space

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Storage disk space allocation is carried out on the $\ensuremath{\mathsf{Disk}}$ Space Allocation pages.

The amount of disk space necessary is calculated automatically depending on the storage settings: the storage amount, video and audio parameters, preview parameters, etc.

Tip: When allocating storage disk space it is highly recommended:

1. To not allocate storages on a system disk.

2. To not take up all the free storage space – leave 5-10 GB for service needs.

	Storages Number	Disk Allocation Method:	Manually - 2)
)—	Time Shirt Storage Names Video Preview Codec Settings Audio Settings Disk Space Allocation Storage Summary	Disk Disk (C:) Disk (D:)	Free (MB) 777 576509	
		Required: 58230 MB, Avail Choose disks where stora Choose disk space allocat 1. Uniformly - storages wi	able: 575345 MB iges you want to be placed. ion method: ill be distributed uniformly on selected disks.	* •

On the Disk Space Allocation (1) pages complete the following:

1. In the drop-down list (2) choose the space allocation method:

- Auto (uniformly) automatic distribution. The storage space will be allocated on every disk flagged in the main list (3) in even, equal parts;
- Auto (sequentially) automatic distribution. An attempt will be made to allocate the storage on one disk, starting from the last in the list (3). If there isn't enough disk space, the disk above the last will be used, etc.;
- Manually the user allocates the space on disks manually (see below).
- 2. Flag (3) the disks on which it is allowed to allocate storages.
- Important: Pay attention to the Required and Available fields. The first field displays the amount of memory necessary to save the storage, while the second displays the total amount of free space on the selected disks.
 - 3. Press Next (4) to continue to the next step:



- if an automatic distribution method is chosen, the Storage Summary page will open. Skip step 4, continue onto step 5;
- if the Manually distribution method is chosen, the next Disk Space Allocation page will open.
- When manually distributing the storage space take into account the information displayed in the Total used (5, 6) lines in the Video and Audio element groups. The line will show the total amount of space allocated for storing video and audio data, respectively, at this time and in the parentheses next to it the necessary space needed.

In order to allocate space on the disks chosen in step 2 for storage, complete the following:

1. In the Video table choose the disk by left-clicking once on the corresponding line (7).

2. Left-click the line again and the Used (MB) cell will be available to edit (8).

3. Repeat steps 1, 2 for other disks until the necessary amount of space is allocated.

4. Repeat steps $1{-}3$ in the Audio table to allocate the space for audio data.

ime Shift	Storage na Video	ame: Storage1		Audio (3 lin	ies)	
Storage Names Video Preview	Disk	Free (MB)	Used (MB)	Disk	Free (MB)	Used (MB)
Iodec Settings (7) -	Disk (D:)	519597	56251	Disk (D:)	519597	661
Audio Settings			\bigcirc			
Disk Space Allocation			\odot			
itorage Summary	Total used 56	5251 MB (Min req	uired 56250 MB)	Total used	661 MB (Min red	quired 1980 MB)
	Allocate o desired s	disk space manua ize on correspond	lly: dick on 'Used' v ling disk.	alue to edit it ar	nd set required	size to allocate

5.8. Storage Summary

The Storage Summary page will display information on the results of disk storage space allocation.

	Storage Name	Used (MB)
torage Names ideo Preview odec Settings udio Settings	Storage1 (Video) Storage1 (Audio, 3 lines)	D: 56251 MB D: 1983 MB
isk Space Allocation torage Summary		
	There you can see total disk want to change something o	space allocation for all storages. Click the 'Back' button if you r click the 'Finish' button to apply changes.

5.9. Finishing set up

1. Press Finish (1) in order to finish managing the storages and exit the Wizard.

There you can see total disk space allocation for all storages. Click the 'Bad' button if you want to change something or click the 'Finish' button to apply changes.
< Back Finish Cancel

2. Information on the created storage will be displayed in the program's main window (2).

	PostPlay Storage Configuration						
	RPM Storage						
	Storage 1	Configure					
2	Storage: Storage 1 Capacity: 1 hr 0 min Video: 720 x 576, 25.00 fps Codec: SoftLab-NSK advanced I-frames Data rate: 15188 KBytes/sec, Quality 40%-80% D:\56251 MB Audio: 48000 Hz, 2 Channel(s), 16 Bit D:\661 MB						
	Parameters Press 'Modify' button if you change storage video/audio before configuring or creati	need to parameters Reset ng storage.					
	Video	Audio					
	Format: PAL 25 fr/sec 👻						
	Width: 720 pixels	Sample rate, Hz: 48000 💌					
	Height: 576 pixels	Channels: Stereo 💌					
	Frame rate: 25.00 rames/sec						
		Exit					



6. Deleting a storage

Deleting a storage deletes all the information on it and frees up the disk space it took up.

To delete a storage, complete the following:

1. Select the storage in the drop-down list (1) in the main window.

Storage1 Configure Storage: Storage1 Capacity: 1 hr 0 min Capacity: 1 hr 0 min Video: 720 x 576, 25.00 fps Codec: SoftLab-NSK advanced I-frames Create new Data rate: 15188 KBytes/sec, Quality 40%-80% Create new D:\56251 MB Audio: 48000 Hz, 2 Channel(s), 16 Bit Delete D:\661 MB Parameters Press 'Modify' button if you need to change storage video/audio parameters before configuring or creating storage. Reset Video Audio Audio Format: PAL 25 fr/sec Videh: Width: 720 m pixels Sample rate, Hz: 48000 m Height: 576 m pixels Channels: Stereo m	RPM Storage			
Storage: Storage1 Capacity: 1 hr 0 min Video: 720 x 576, 25.00 fps Codec: SoftLab-NSK advanced I-frames Data rate: 15188 KBytes/sec, Quality 40%-80% Create new D:\56251 MB Audio: 48000 Hz, 2 Channel(s), 16 Bit Delete D:\661 MB Parameters Press 'Modify' button if you need to change storage video/audio parameters before configuring or creating storage. Reset Video Audio Format: PAL 25 fr/sec Sample rate, Hz: 48000 w Height: 576 pixels Channels: Stereo w	Storage 1		▼ Configur	e
Parameters Press 'Modify' button if you need to change storage video/audio parameters before configuring or creating storage. Reset Video Audio Format: PAL 25 fr/sec Sample rate, Hz: 48000 Width: 720 pixels Channels: Stereo	Storage: Stora Capacity: 1 hr Video: 720 x 5 Codec: SoftLat Data rate: 151 D:\ 56251 M Audio: 48000 H D:\ 661 MB	ge 1 0 min 76, 25.00 fps 38 KBytes/sec, Quality 40 8 B Iz, 2 Channel(s), 16 Bit	0%-80%	e
Video Audio Format: PAL 25 fr/sec Width: 720 Pixels Sample rate, Hz: Height: 576 Total Channels: Stereo	Parameters Modify	Press 'Modify' button if change storage video/a before configuring or cr	you need to udio parameters eating storage.	t
Format: PAL 25 fr/sec Width: 720 Pixels Sample rate, Hz: Height: 576 Pixels Channels: Stereo	Video		Audio	
Width: 720 implexels Sample rate, Hz: 48000 Height: 576 implexels Channels: Stereo	Pormat:	AL 25 fr/sec		
Height: 576 pixels Channels: Stereo	Width:	720 pixels	Sample rate, Hz: 4800	D 👻
		576 pixels	Channels: Stere	• •
Frame rate: 25.00 Frames/sec	Height;			

- 2. Press Delete (2).
- 3. A warning will pop up. Press Yes (3) to delete the storage.



Important: You can not undo storage deletion! It might take a long time to complete the storage deletion.

7. Clearing a storage

Clearing a storage is completely deleting all of its contents, but the storage still takes up disk space.

To clear a storage, complete the following:

- 1. Select the chosen storage in the drop-down list (1) in the main window.
- 2. Press Clear (2).
- 3. A warning will pop up. Press Yes (3) to clear the storage.



Important: You can not undo storage clearing! It might take a long time to complete the clearing.

Receiving a stream from an IP source. Settings and management

Setting up and managing the receiving of an audio and video data stream from an IP source is done using the SLStreamer Pro program.

General procedure:

- 1. Start the SLStreamer Pro program.
- 2. Create an input graph using the Input_IP template.
- 3. Set up the graph nodes.
- 4. Finish graph set up.
- 5. Create a task by adding the graph. Add the task to the schedule. Start the schedule.
- Note: For more information on working with the SLStreamer Pro and SLStreamer Lite programs, see the «<u>SLStreamer Lite, SLStreamer</u> <u>Pro. Programs for Configuring, Monitoring & Managing Digital</u> <u>Broadcasting Schemes</u>» user's guide.

1. Starting the SLStreamer Pro program

- Start the SLStreamer Pro program (1). Use the desktop shortcut or Start menu command: Programs > ForwardTS > SLStreamer Pro.
- 2. When starting the program for the first time it is necessary to connect it to the Scheduler. Complete the following:
 - 1. Press Connection settings (2) on the toolbar.

2. In the opened window set the IP address or DNS name (3) of the computer on which the necessary Scheduler is running. In our example we set a local computer.

3. To connect to the server with the set address automatically each time the program is opened, flag the Auto connect (4) option.

- 4. Press OK (5).
- 3. If the connection is not done automatically, press the shown button (6) in order to connect to the Scheduler manually.





A template is a standard blank graph. To create a graph using the Input_IP template, complete the following:

1. On the toolbar, in the Servers window, press Create new graph from template (1).

🝇 localhost - SLStre	amer Pro				
S メ 🜫	😫 🛃 🤋				5
Schedule					Tasks
Task Start time	Stop time	Daily	State		ET all X TG TS GE
				 ×	1
Graph					Servers
					i 🗇 🤣 💥 🏷 📙
					Server 1 (address localbost) Create new graph from template

- 2. In the opened window set a convenient name (2) for the graph. The name must be unique.
- 3. Select the Input_IP template in the drop-down list (3).

	Create Grap	h 📧	
(2)-	Name:	IP2Storage	
)	Template:	Input_IP	3
	A graph d a Named	lecoding a channel from MPEG TS into region of Videoprocessor will be added	
		(4)—OK Cancel	

- 4. Press OK (4).
- 5. In the opened window decline creating a new task: press No (5).

Create Tas	ik X)
?	Do you want to create task with the same name and add the graph to this task?	
	Yes No	5



6. A new graph based on the chosen template is created: the graph name will be added to the server graph list (6); the work area will show the graph (7). The Configuration mode will turn on automatically.



7. While in the Configuration mode, set up all the graph nodes in order. For more information on setting up graph nodes see the next section.

Important: Make sure to set up the graph nodes before using it as a task!

✓ Important: The set up must occur when the data from the source is incoming to the input device.



3. Graph node set up

It is recommended to set up the nodes in order, from left to right, because in most cases the node settings depend on the settings of the previous node.

3.1. Input device

The Input Device node is the first in the sequence order.

1. Right-click the node to open the context menu and press Properties (1).

🗞 localhost - SLStreamer Pro		
S ≯ ≈ 😫 🕊 ?		5
Schedule		Tasks
Task Start time Stop time Daily State		T T T T T T T T T T T T T T T T T T T
	×	
Graph: IP2Storage		Servers
🐼 🕫 🌜 🛃 🐬 🛠 14 og 🛤		1 🔶 🧄 🌺 🕅 🍾
Input: Properties Export properties 1 Import properties NR Set clock Delete 7/27/2017 11:5: ed.		 Server 1 (address: localhost) IP2Storage (state: Stopped)
Add program		

In the Input Device Properties window:

- 2. Set the node name (2).
- 3. Make sure that necessary item is chosen in the drop-down list (3). For example, to receive a stream that is transmitted using the UDP protocol select the SL UDP/RTP item.
- Note: For a list of all the supported device types and more information, see the «<u>SLStreamer Lite, SLStreamer Pro. Programs for Configuring,</u> Monitoring & Managing Digital Broadcasting Schemes» user's guide.
 - 4. Press Properties (4) to start setting up the device parameters.

	Input De	evice Properties		x	
2	Name:	Input: IP		Properties	4
	Type:	SL UDP/RTP			3
			OK	Cancel	

- 5. In the opened window set up the device parameters.
- Note: For a list of all the parameters for different device types and more information, see the «<u>SLStreamer Lite, SLStreamer Pro. Programs for</u> <u>Configuring, Monitoring & Managing Digital Broadcasting Schemes</u>» user`s guide.



When working with UDP:

1. If using multicast method, set the IP address of the multicast group in the IP address (5) field. In our example this is set as 234.5.5.5.

If using unicast method, set the address (IP or DNS name) of the receiving node.

2. In the Port (6) field set the number of the port that will be used to receive data.



3. Select the IP address of the interface which will be used to receive streaming data in the Interface (7) drop-down list.



4. Select the necessary protocol for transmitting data (8). In our example UDP is chosen.

5. In the Time out (9) field set a time limit (in seconds) for waiting in the case of the absence of an input stream. By default this is 5 sec.

If the input stream disappears, then after the time set has elapsed there will be reconnection attempt (the graph will be stopped and restarted) or, if the reserve mode is turned on, then the graph will switch to a reserve stream.

6. If necessary, turn on reserve mode by choosing Yes (11) in the Use Reserve (10) list. Set the method of switching to the reserve stream (11) and set up the reserve stream parameters (12).

7. In the Demultiplexer table (13), leave everything as is.

6. Close the settings window by pressing OK (14, 15) to save all changes.

Input D	evice Properties 🛛 🗾
Name:	Input: IP Properties
Type:	SL UDP/RTP
	15 OK Cancel

3.2. Input program

The Input program node is second in the sequence order. The set up must be done when the IP stream is being received onto the network card and the Input Device node is set up.

1. Right-click the node to open the context menu and press Properties (1).

🐁 localhost - SLStreamer Pro					
S 🗲 🜫 😫 🛃 🤋					
Schedule					Tasks
Task Start time Stop time Daily S	State				T are X TG TS G
				×	
Graph: IP2Storage					Servers
	Properties, Add preprocessor Add encoder Add splicer	-)>t <mark>ı</mark>	1.1	NR	Server 1 (address: localhost) IP2Storage (state: Stopped)
7/27/2017 11:52:24 AM Graph configuration w	Add output program Delete				

In the Input Program Properties window:

2. Select the necessary program from the stream using its number (2).

- 3. Set a convenient name (3) for the program.
- 4. Select the audio and video streams in the table (4) by flagging them. In our example the video stream has a PID=1001 and the audio stream has a PID=1002.

	Input Program Properties
3	Name: 1
(2)-	Number: 1
(4)-	PID Type Language Information
\bigcirc	☑ 1001 Video Type: Mpeg2 video; Width: 720; Height
	1002 Audio Type: Mpeg1 audio - Layer 2; Channels
	* >
	5 OK Cancel

5. Press OK (5) to save all changes and close the settings window.

3.3. Output program

The Output Program node is third in the sequence order.

1. Right-click the node to open the context menu and press Properties (1).

Valocalhost - SLStreamer Pro		
S 🗲 🙊 🖳 🐭 ?		5
Schedule	4	Tasks
Task Start time Stop time Daily State	<u> </u>	T T T T T TG T G T
	X	
Graph: IP2Storage		Servers
🐼 🖉 🏡 🛃 🐬 🛠 14 og 🛤		i 🔶 🧄 💥 🦻 🌾 🌔
Input: IP 1,1 Imput: IP 1,1]	 Server 1 (address: localhost) IP2Storage (state: Stopped)

In the Output Program Properties window set the program parameters:

- 2. Name (2).
- 3. Number (3). The number will serve as the output program's identificator.

	Output Program Properties				
+	Name: Output Program				
+	Number: 1				
	Set PID PMT				
	PID PMT: 0				
	Set PID PCR				
	PID PCR: 0				
	Set PIDs				
	Input PID Type Ouput PID				
╀	1001 Video 1001				
	1002 Audio 1002				
	5 OK Cancel				

- 4. The audio and video packets identificators are set automatically (4) in our example because the Set PID options are not flagged.
- 5. Press OK (5) to save all changes and close the settings window.

3.4. Output Device

The Output Device node is fourth one in the sequence order. In our case we need to set the Output Device as RPM Storage – a PostPlay storage.

1. Right-click the node to open the context menu and press Properties (1).

Valoalhost - SLStreamer Pro		
S 🗡 🙊 🖳 🛣 ?		
Schedule	6	Tasks
Task Start time Stop time Daily State	_	T T T T T T T T T T T T T T T T T T T
	X	
Graph: IP2Storage		Servers
🖗 🕫 🌜 🔣 😎 🔁 📭 📭		i 🔶 🧄 💥 🦻 🌾 🏺
Input: IP 1,1 NR 7/27/2017 1:10:01 PM Graph configuration was started.	F	Server 1 (address: localhost) IP2Storage (state: Stopped) Properties ixport properties iet clock
	(Delete

In the Output Device Properties window:

- 2. Set the node name (2).
- 3. Choose the RPM Storage item in the Type drop-down list (3).
- 4. Press Properties (4).

	Output	Device Properties 🛛 🛛	
\bigcirc	Name:	RPM Storage Properties	4
	Type:	RPM Storage	3
		OK Cancel	

5. In the Properties window set the parameters:

1. In the Storage drop-down list (5) choose the storage for storing audio and video data created in the PostPlayStorageConfig program window. In our example we chose the previously created Storage1.

2. The rest of the parameters (6) can be left as is.

	Pro	perties	×
	•	£↓	
		1 RPM	
(5)		Storage	Storage1 🔹
	Ιг	Field Order	Auto
(6)	+	Scale Mode	Auto
\smile	ΙL	AspectRatio Mode	Ignore
		Sound Volume	+0dB
		Output Aspect Ratio	Auto
		2 SCTE35	
		Delay time InPoint [msec	0
		Delay time OutPoint [ms	0
		Ad duration [msec]	0
		*	
		torage	
	2	torage	
		Default	
		(7)	OK Cancel

6. Close the settings window by pressing OK(7, 8) to save all changes.

Output Device Properties					
Name:	RPM Storage	Properties			
Туре:	RPM Storage	•			
	8 ОК	Cancel			

4. Finish graph set up

- 1. To finish creating the graph and exit the Settings mode, press Finish graph configuration (1).
- 2. In the opened window, confirm changes (2).

Nocalhost - SLStreamer Pro			
S 🗲 ≋ 🖺 😴 ?	Save		9
Schedule Task Start time Stop time Daily	Do you want to save the configuration?	(= X	Tasks
Graph: IP2Storage	2 Yes No Cancel		Servers
Input: IP	□>□Outpu	t Program, 🗆	 Server 1 (address: localhost) IP2Storage (state: Stopped)
		RPM Storage	
7/27/2017 1:10:01 PM Graph configuration was s	arted.		

3. The graph set up is completed. The protocol area will display a corresponding message (3).

S 🚿 🙈 📲 🐭 ?		
Schedule		Tasks
Task Start time Stop time Daily State		T T T T T T T T T T
	×	
Graph: IP2Storage		Servers
🐼 🍄 🍓 🛃 🦻 🏠 14 04 mil		s 🔅 🔶 🌾 😵
Input IP		 Server 1 (address: localho: IP2Storage (state: Stop
RPM S	itorage	
7/27/2017 1:10:01 PM Graph configuration was started. 7/27/2017 2:06:09 PM Graph configuration was successfully saved.		

5. Task. Creating and managing

To start the IP2Storage graph created in the previous section, complete the following:

- 1. Create a new task.
- 2. Add the graph to the task.
- 3. Add the task to the schedule and start the schedule.

5.1. Creating a task

To create a new, blank task, complete the following:

1. In the Task window press Create new task (1).

	+ 40 000
	2 ++i
2	5

🗞 localhost - SLStreamer Pro	
S 🗲 🐔 🛃 🖉 ?	5
Schedule	Tasks
Task Start time Stop time Daily State	Create new task
Graph: IP2Storage	Servers
🐼 🤣 🔩 🛃 🍠 🗞 🖳 👊 📖	
Input: IP	 Server 1 (address: localhost) IP2Storage (state: Stopped)

2. In the opened window name the new task (2). The name must be unique. Press OK (3).

Create Task		
Task name:	IP2Storage	-2
3-	ОК	Cancel

3. The new task will be added to the list (4).

Na localhost - SLStreamer Pro	
S 🗲 ≋ 😫 🐭 ?	
Schedule	Tasks
Task Start time Stop time Daily State	4 [P2Storage (state: Stopped)
Graph: IP2Storage	Servers
	r 💥 🤌 🚸 👘
Input IP 0	Coutput Program, D BPM Storage

5.2. Adding the graph to the task

To add the graph to the task, complete the following:

- 1. In the Servers window, in the graph list left-click the necessary graph, in our case IP2Storage (1).
- 2. In the Tasks window press Add graph to task (2).

🗞 localhost - SLStreamer Pro	
S 🗲 🙊 😫 🐭 ?	9
Schedule	Tasks
Task Start time Stop time Daily State	
	IP2Storage (st Add graph to task
Graph: IP2Storage	Servers
Input: IP	Sener 1 (address: localhost) 1
	RPM Storage



Valle Iocalhost - SLStreamer Pro	
S 🗲 🕿 😫 🐭 ?	
Schedule	Tasks
Task Start time Stop time Daily State	T T T T T T
	3
Graph: IP2Storage	Servers
🏟 🤣 🕿 🥏 🦒 🖳 🗤	1
Input IP D	Coutput Program, D E

5.3. Adding the task to the schedule. Starting task

In order to add the task to the schedule, complete the following:

- 1. Choose the task in the task list (1).
- 2. Press Add selected task to schedule (2).

Valocalhost - SLStreamer Pro	
S 🗲 缓 😫 🕵 ?	3
Schedule	2 Tasks
Task Start time Stop time Daily State	Add selected task to schedule
	1 IP2Storage (state: Stopped)
	IP2Storage (server: Server 1)
Graph: IP2Storage	Servers
🖗 🗇 🎕 😾 🐬 🏷 📭 📭 💷	1 × + + + + + + + + + + + + + + + + + +
	✓ ✓ Server 1 (address: localhost)
Input: IP	IP2Storage (state: Stopped)
	RPM Storage

3. In the opened window, if necessary, set the date and time of the task start/stop. If no date/time is set the task will be started as soon as it is added to the schedule and will not stop unless manually removed from the schedule.

Add Task To Sch	edule 📧
 Set start time Daily 	e 🔲 Set stop time
27.07.2017	▼ 27.07.2017
14:34:56	14:34:56
3-0	K Cancel

4. Press OK (3) to add the task to the schedule and close the window.



S 🗲 🗲 🛃 🛃	?			
Schedule			4	Tasks
Task Start time	Stop time	Daily State		T T T T T T T T
rzstorage		no nummy	<u> </u>	 IP2Storage (state: Running) IP2Storage (server: Server 1)
Graph: IP2Storage				Servers
	m ∔ o m t =ett			A Server 1 (address: localhost)
Input: IP 🗆 🛶 🗆	1, 1	P		IP2Storage (state: Running)
			Ξ	
		RPM Storage		
7/27/2017 2:06:09 PM Graph c	onfiguration wa	s surressfully saved	-	
7/27/2017 2:06:10 PM Graph cc 7/27/2017 2:06:10 PM Graph cc	onfiguration wa	s storped. - 0-2012(11268)	-	
172172017 201841 W Glaph W	as started. TID	- 0.2010(10200)		
		(duration) the data is recorded sequentially. recorded data is more than the capacity of th "oldest" data will be erased to make room for	If he s r n	the amount of storage, then the ew data.
	Note:	If the IP stream needs to be recorded only at cer the Add Task To Schedule window set the date at the task:	rtai nd	n hours, then in time of start/stop
		1. To set a start time, flag the Set start time (1) below (2) will become active. Use them to set the time	op e ne	tion. The fields ecessary date and
		2. To set a stop time, flag the Set stop time (3) below (4) will become active. Use them to set the	opt e ne	ion. The fields ecessary date and
		time.		
		3. In order to start of the task periodically even	ry o	lay, flag the Dai-
		ly (5) option.		
		Add Task To Schedule		
	_			
	(1)-	Set start time Set stop time	3)	
	\smile			
		27.07.2017 💷 7 27.07.2017 💷 🗸		
	(2)-	14:45:17	¥)	
		14:43:10		
		OK Cancel		

The start and stop of the graph will be automatic according to its settings and the current status of the task that is a part of. Exiting from the SLStreamer Pro program does not affect the graphs current status.

Useful links

Description of products, software download, documentation, ready solutions for ForwardT products

http://www.softlab.tv/forward/index.html

Technical Support

e-mail: forward@softlab.tv

forward@sl.iae.nsk.su

forward@softlab-nsk.com

Forums

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

Recommended documents:

- 1. ForwardT Software setup. User's guide
- 2. ForwardTS Software Setup. Installation & Setup Procedures. User's guide
- 3. Plugins Setup. User's guide
- 4. FDPostPlay. Retransmitted signal delay server. User's guide
- 5. <u>SLStreamer Lite, SLStreamer Pro. Programs for Configuring, Monitoring & Managing Digital</u> <u>Broadcasting Schemes. User's guide</u>
- 6. FDTimeShift. TV Broadcast Time Shifting. User's guide
- 7. <u>FDOnAir Application. FDTimeShift Video Line. Rebroadcasting with a Time Shift via</u> <u>FDOnAir. User`s guide</u>

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