ForwardT Software

SoftLab-NSK
Video Codecs

Properties and Settings

Version current as of 26/06/2015

User's Guide

FCC Information

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.

Limited Warranty

Our company warrants this product against defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period, products determined by us to be defective in form or function will be repaired or replaced at our option, at no charge. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or as a result of service or modification other than by us.

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

A video codec is a software or device that provides encoding and decoding for digital video, and which is typically used for video compression and/or decompression.

The set of video codecs that is developed and supported by the SoftLab-NSK company allows you to work with the most common AVI file formats. All of the codecs work within the Video for Windows framework.

This guide contains information about the video codecs from SoftLab-NSK's set as well as the utility programs that are included in the ForwardT software:

- SLCodecConfig: for displaying information about the codecs installed in the system and the settings of some codec parameters;
- rifflist: for collecting information about the AVI file parameters (FourCC, frame rate, frame height and width, amount of video channels, etc.)

SoftLab-NSK Video Codecs: Full Set and Characteristics

The set provided to users with the ForwardT Software contains the following codecs:

- SoftLab-NSK DV: for work with files in the DV (DVCAM, DVCPRO and DVCPRO50) format;
- SoftLab-NSK DVCPRO100: for work with files in the DVCPRO100 format;
- SoftLab-NSK Forward JPEG: for work with files in the Forward JPEG format;
- SoftLab-NSK Forward JPEG + Alpha: for work with files in the Forward JPEG format with transparency (alpha channel);
- SoftLab-NSK MJPEG: for work with files in the Motion JPEG format w(analog of the standard JFIF format);
- SoftLab-NSK elementary I-frames (SoftLab-NSK MPEG2 I-frames in versions of the software earlier than version 5.5.0): for work with files in the MPEG2 I-frames format (only the keyframes are used). Compatible with the Matrox MPEG2 I-frames format;
- SoftLab-NSK advanced I-frames: for work with files in the MPEG2 I-frames format (only the keyframes are used). This codec is optimized specifically for HD video. Incompatible with the Matrox MPEG2 I-frames format.

Note: The SoftLab-NSK Forward Uncompressed codec is not supported in versions of the software newer than version 5.5.0.

Table 1.   Characteristics of SoftLab-NSK codecs.

Codec name	File format	FourCC*		Default field order / First field	Frame size
		Default field order	Most common counterpart used by other manufacturers		
SoftLab-NSK DVCAM (YUV 4:1:1)	DV, DVCAM	SLDV	dvsd (Microsoft DV standard), CDVC (Canopus DV co-dec)	Lower	720x576 (PAL) and 720x480 (NTSC)
SoftLab-NSK DVCPRO (YUV 4:2:0)	DVCPRO	SL25	dv25 (Microsoft DVCPRO)	Lower	
SoftLab-NSK DVCPRO50 (YUV 4:2:2)	DVCPRO50	SL50	dv50 (Microsoft DVCPRO50)	Lower	
SoftLab-NSK DVCPRO100	DVCPRO100	SLH1	dv100 (Microsoft DVCPRO100)	Upper	1920x1080; 1280x720 (HD-video)
SoftLab-NSK Forward JPEG	JPEG	FRWD		Upper	The height and width reduction ratio is 2.
SoftLab-NSK Forward JPEG + Al-pha	JPEG (picture) RLE (transparancy)	FRWT		Upper	
SoftLab-NSK MJPEG	JFIF	FRWT	MJPG (Motion JPEG)	Upper	
SoftLab-NSK Forward Uncom-pressed** (YUV 4:2:2)	Uncompressed	FRWU		Upper	
SoftLab-NSK elementary I-frames	MPEG2 I-frames (keyframes)	slif	MMES (Matrox MPEG2 I - frames)	Lower	
SoftLab-NSK advanced I-frames	MPEG2 I-frames (keyframes)	sles		Lower	

Note: * When comparing two FourCCs, written in upper and lower case letters (for example DVSD and dvsd) the SoftLab-NSK codecs do not take the case of the letters into account.
** The SoftLab-NSK Forward Uncompressed codec is not supported in versions of the software newer than version 5.5.0.

SLCodecConfig Program

1. Purpose

The SLCodecConfig program is designed for the following tasks:

- to display a list of all Video For Windows format video codecs installed in a system (this includes SoftLab-NSK codecs as well as codecs of any other manufacturer);
- to display the parameter settings of the SoftLab-NSK codecs as well as any supported FourCCs and their field order

The program is included in the ForwardT Software.

2. Starting the Program

The executable file for the program is ~\Tools\SLCodecConfig\SLCodecConfig.exe where ~ is the full path to the folder where the ForwardT Software is installed (in case of a default installation it would be C:\Program Files\ForwardT Software).

3. Main Program Window

The main window of the program contains a list of Video For Windows video codecs installed on the computer.
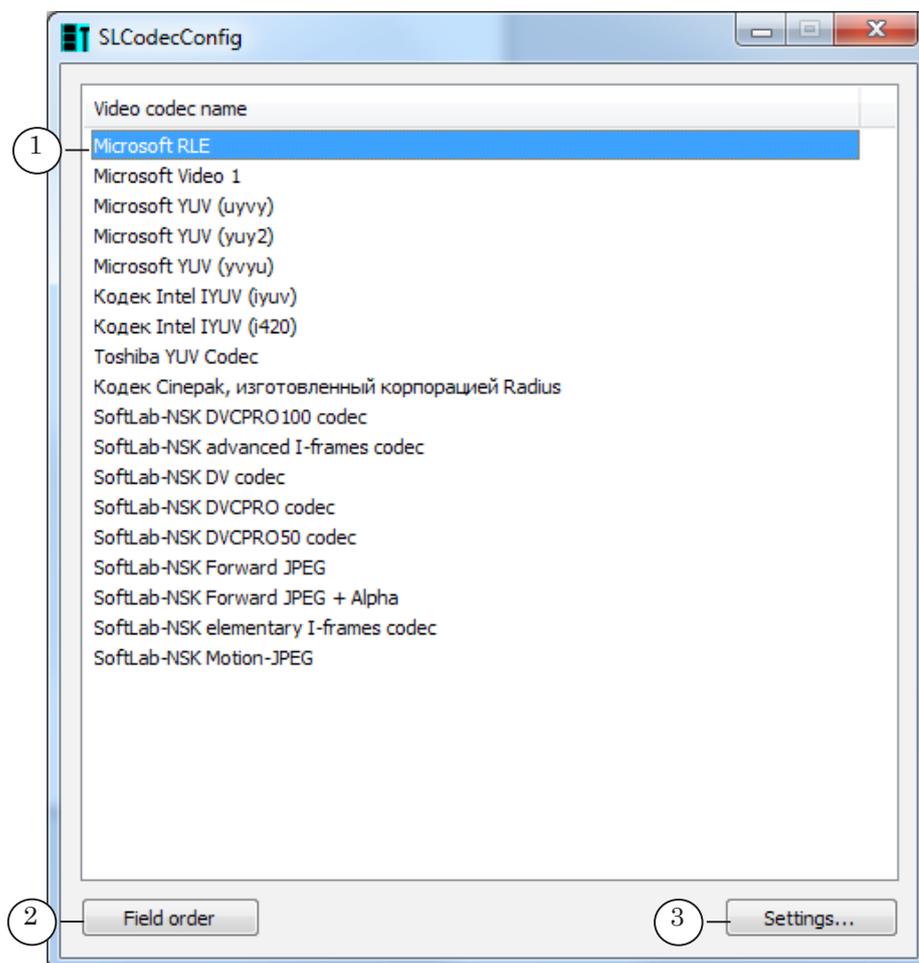
Main window of the program:
1 – List of installed codecs; 2 – Opens the Field order settings window;
3 – Opens the parameter settings window of the selected video codec (only works for SoftLab-NSK codecs)

The program interface language can be changed in the menu (1), which can be accessed by clicking the left or right mouse button on the header of the main window.
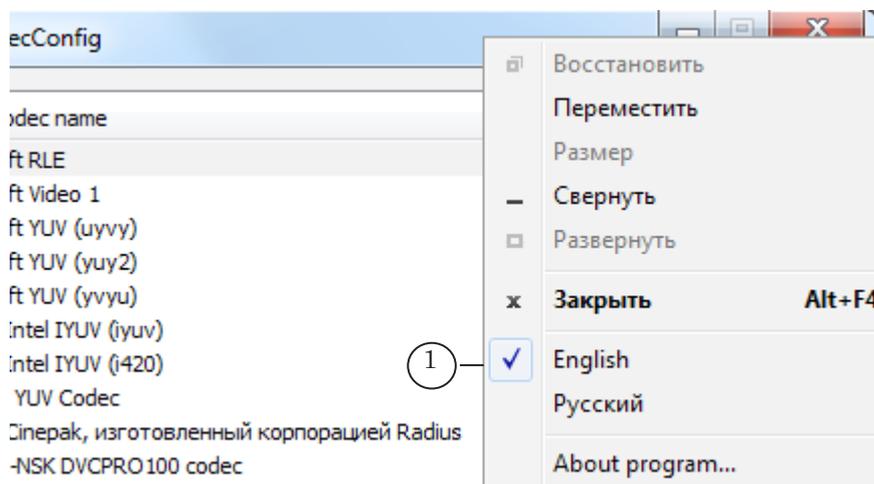
4. FourCCs and Field Order; Adding to and editing FourCCs and Field Order

To add/delete or edit a FourCC and to assign it a corresponding field order, complete the following steps:

1. In the main window of the program, press the Field Order (1) button.
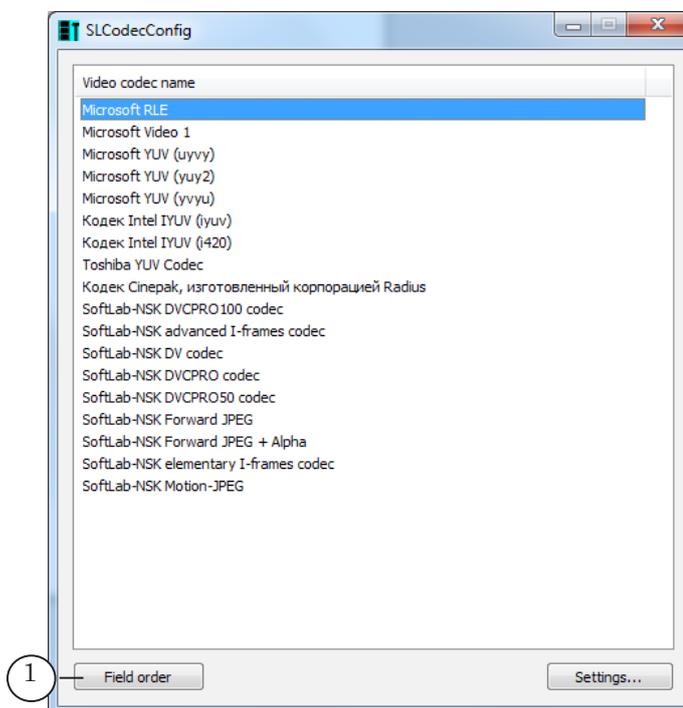
2. In the opened window the list of FourCCs will be displayed (2) with their assigned field order. The original list (if the user has not made any edits) will contain the FourCCs used by the SoftLab-NSK codecs by default.
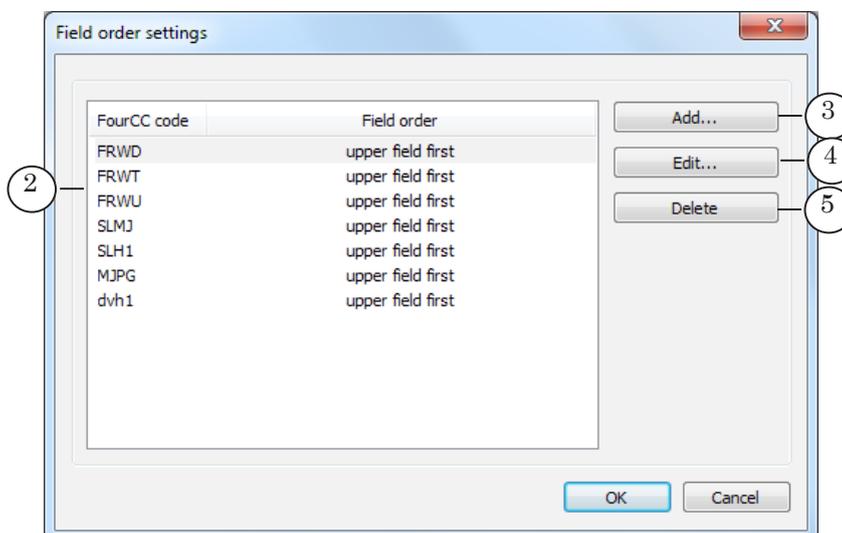
To edit it, use the following buttons:

- Add (3) – add a new code to the list after you assign it a field order;
- Edit (4) – change the selected code or its assigned field order;
- Delete (5) – delete the selected code from the list.

3. In the window of adding or editing a code:

   1. Enter the code. (6)
   2. Enter the field order for the code. (7)
   3. Press OK (8) to save any changes and close the window.
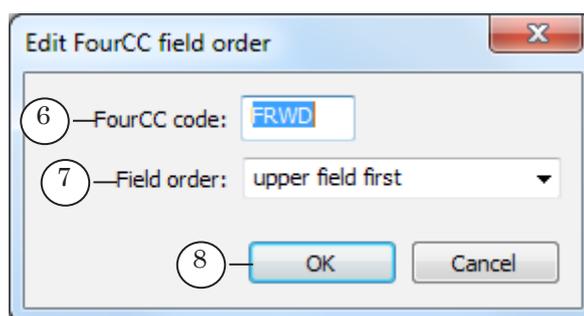
5. Video Codec Settings

5.1. Opening the Settings Window

To open the window in which you can view and edit the settings of the selected video codec (FourCCs, field order), in the main window of the program select the name of the video codec in the list (1) and press the Settings (2) button or double click on the name of codec.

Note: This function is available only for SoftLab-NSK codecs.
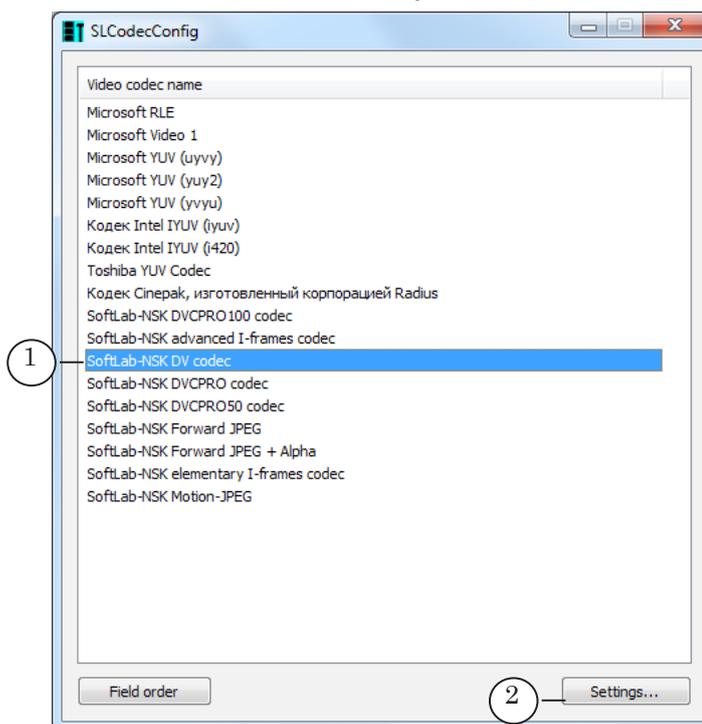

5.2. Supported FourCCs

Note: This function is available only for SoftLab-NSK codecs that are compatible with formats of other manufacturers.
To allow a codec to handle AVI files with a certain FourCC, add the code to the list of codes supported by the codec. This is done in the codec settings window:

1. Enter the name of the FourCC into the text field (1). Press the Add (2) button.
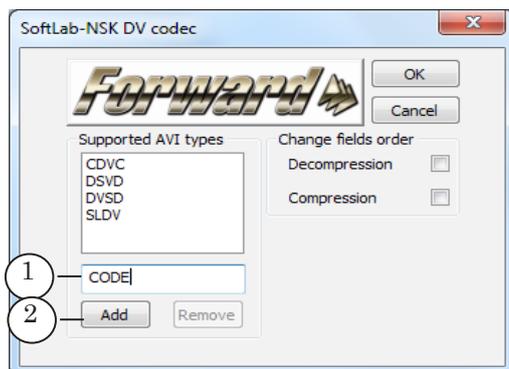
The code will be added to the list of codes supported by the codec (3).
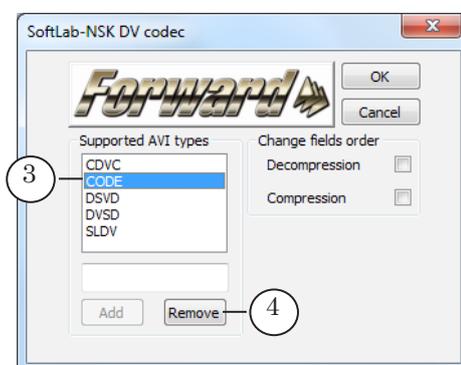
2. If you need to remove a code from the list, select it in the list and press the Remove (4) button.

5.3. Field order during compression/decompression

In the codec settings window, select the group Change fields order if the default field order for the codec needs to be changed:
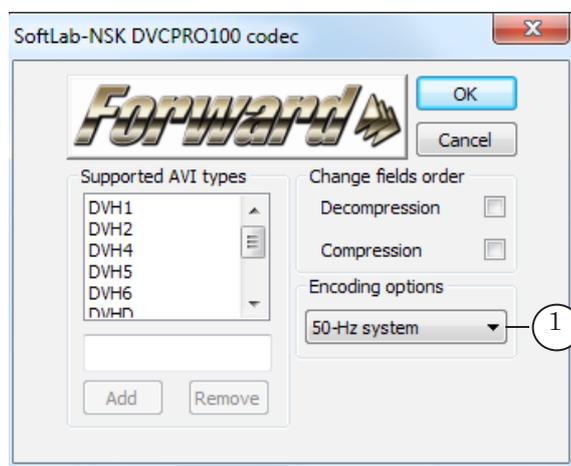
- during decoding (1, 3);
- during encoding (2, 4).
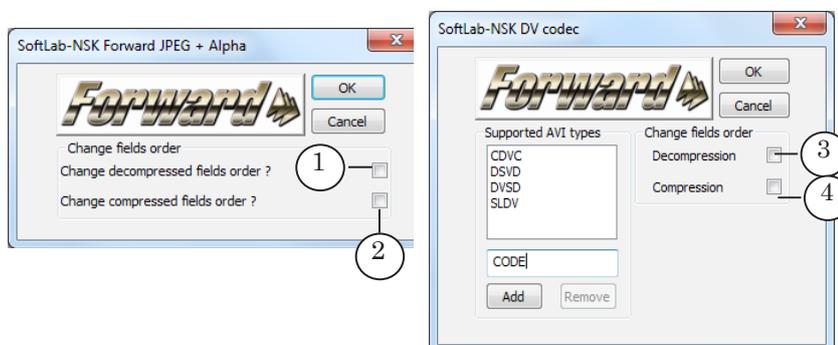
Note: Pictured are the possible versions of the codec settings window for different codecs.

5.4. SoftLab-NSK DVCPRO100 Codec Settings

The codec is used to work with data in the DVCPRO100 format. This format is used only for HD video. Use the Encoding Option (1) to choose between the scanning frequency of 50 Hz and 60 Hz.

5.5. SoftLab-NSK MJPEG Codec Settings

The SoftLab-NSK MJPEG Codec has additional settings.
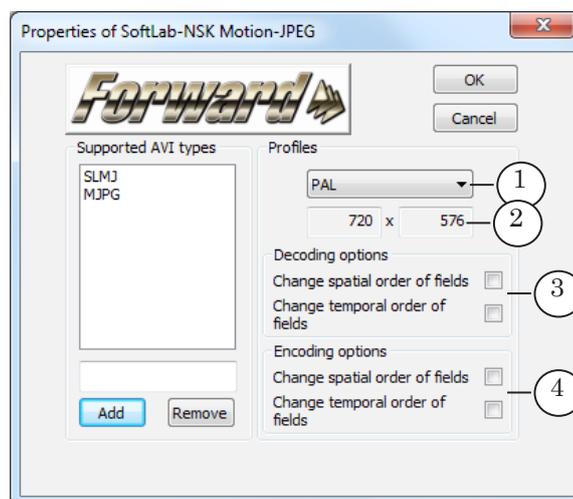
1. The drop-down list (1) is for choosing between the size of the frame: one that conforms to the the standard (PAL/NTSC) or a nonconforming one (Common).

2. The width and height of the frame is displayed in the text fields (2). If the size of your frame is Common, enter the necessary values in these fields.

3. In the group of settings Decoding option (3) select the necessary option if during decoding the default field order needs to be changed to the reverse.

4. In the group of settings Encoding option (4) select the necessary option if during encoding the default field order needs to be changed to the reverse.

RIFFlist program: parameters of the AVI file

1. General Information

The program's purpose is to collect information about the main parameters of the AVI file: the FourCC used, the frame height/width, the frame frequency, the duration of the video and audio data, etc. The information is saved in a text file.

The executable file can be found at ~\Tools\rifflist.exe where ~ stands for the full path to the folder in which the software is installed. In a default installation it would be C:\Program Files\ ForwardT Software.

2. Operating Procedure

To get the file with information about the main parameters of the AVI file, complete the following steps:

1. Start the rifflist program.
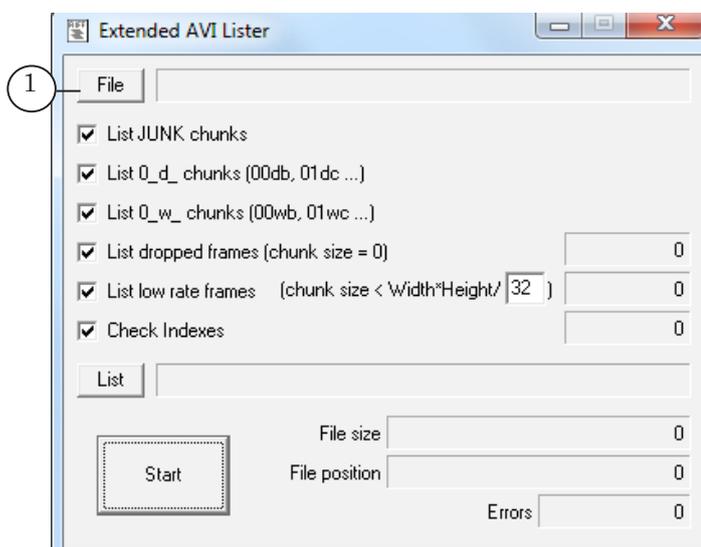
2. In the program window, press the File (1) button.

3. With the standard dialog window, select the AVI file that you wish to know the parameters of, and press the Open (2) button.
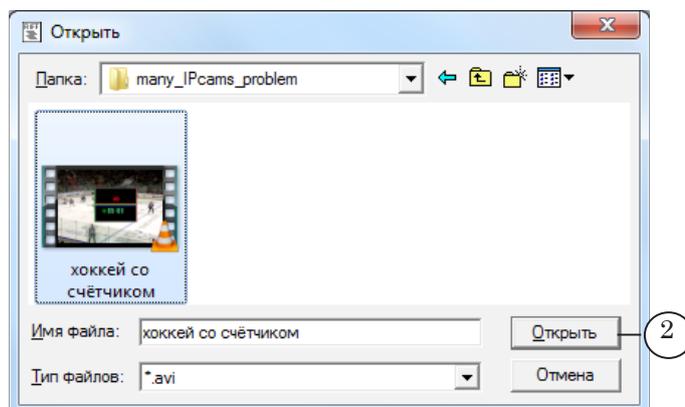
4. The full path to the selected AVI file will be displayed in a text field next to File (3) button. The full path to the file where the information will be stored will be displayed in the field next to the List (4) button. If you need to change the name of this file, press the List (5) button.
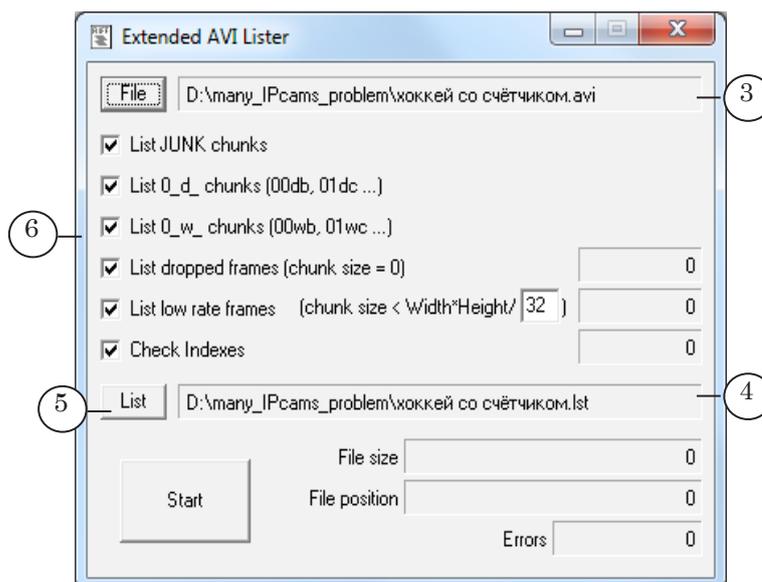
5. To receive the full amount of information about the file, flag all options (6).

6. The file with the collected information (.lst) can be opened in any text editor, for example the Notepad. To view the decoded designations used in the file, see the picture and table below.

3. LST file Designations

The picture shows a fragment of the LST file opened in Notepad. The parameters whose decoded designations are shown in the table are marked with numbers.

Table 2.   LST file Designations

Number	Decoded Designations
1	Duration of one frame in microseconds, frame rate
2	Total amount of frames, duration of the file in seconds
3	Amount of data streams in the file
4	Width of the frame in pixels
5	Height of the frame in pixels
6	FourCC
7	Frame rate
8	Total amount of frames, duration of video data in seconds
9	Width of the frame in pixels
10	Height of a frame in pixels
11	Color depth
12	FourCC
13	Type of compression of audio data
14	Audio data rate
15	Duration of sound in seconds
16	Amount of sound channels
17	Amount of sound samples per second

Useful Links

Set of ForwardT products: description, software downloads, documentation, ready solutions:

http://www.softlab-nsk.com/rus/forward

Technical support:

e-mail: forward@sl.iae.nsk.su

forward@softlab-nsk.com

Forums:

http://www.softlab-nsk.com/forum

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