

# SoftLab-NSK VFW Codecs

Properties and Settings



*Revision as of March 09, 2007.*

User's Guide



---

## Notice

The information in this document is subject to change without prior notice in order to improve reliability, design, or function and does not represent a commitment on the part of this company.

In no event will we be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or the inability to use the product or documentation, even if advised of the possibility of such damages.

Copyright © 1997 - 2007 SoftLab-NSK, Ltd.  
All Rights Reserved.

No part of this reference manual may be reproduced or transmitted in any form or by any means without the prior written permission of this company.

Throughout this manual, we make reference to product names that are trademarks of other companies. We are using these names for identification purposes only, with no intention of infringement of the trademarks.

## 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.

---



---

## Table of Contents

Introduction.....	4
SoftLab-NSK video codecs. Brief description .....	5
Opening the Video Codecs Properties dialog.....	6
1. Using the My Computer icon .....	6
2. Using the Control Panel .....	9
Changing video codec settings.....	11
Using the rifflist.exe program to get information of an AVI file main parameters .....	26





## Introduction

Video codec is a program allowing to perform video data compression.

The set of video codecs the SoftLab-NSK company develops and supports allows you to work with the most common formats of AVI files. All the codecs work in the Video For Windows subsystem under the Windows OS.

Presently the set meant for a user contains the following codecs:

- SoftLab-NSK DV – to work with the DV (DVCAM, DVCPR0 and DVCPR050) format files;
- SoftLab-NSK Forward JPEG – to work with the Forward JPEG format files;
- SoftLab-NSK Forward JPEG + Alpha – to work with the Forward JPEG (with transparency) format files;
- SoftLab-NSK Forward Uncompressed – to work with the UYVY (YUV 4:2:2) format files;
- SoftLab-NSK Forward MJPEG – to work with the Motion JPEG format (a counterpart to the standard JFIF format) files;
- SoftLab-NSK Forward MPEG2 I-frames – to work with the MPEG2 I-frames format files.



## SoftLab-NSK video codecs. Brief description

The table below lists the codecs along with their main characteristics: the file format a codec works with; the FourCC code by which a codec recognizes the video file format; the default field order, and the frame size.

Codec name	Format	FourCC code		Default field order	Frame size
		default	most common counterparts of other producers		
SoftLab-NSK DVCAM (YUV 4:1:1)	DV, DVCAM	SLDV	dvsd (Microsoft DV standard), CDVC (Canopus DV codec)	bottom field first	the DV format codecs let compress/decompress 720x576 (PAL) and 720x480 (NTSC) frame format files only
SoftLab-NSK DVCPRO (YUV 4:2:0)	DVCPRO	SL25	dv25 (Microsoft DVCPRO)	bottom field first	
SoftLab-NSK DVCPRO50 (YUV 4:2:2)	DVCPRO50	SL50	dv50 (Microsoft DVCPRO50)	bottom field first	
SoftLab-NSK Forward JPEG	JPEG	FRWD		top field first	frame width must be divisible by 16, frame height must be divisible by 16
SoftLab-NSK Forward JPEG + Alpha	JPEG (image) RLE (transparency)	FRWT		top field first	
SoftLab-NSK Forward MJPEG	JFIF	SLMJ	MJPG (Motion JPEG)	top field first	
SoftLab-NSK Forward MPEG2 I - frames	MPEG2 I-frames	slif	MMES (Matrox MPEG2 I - frames)	bottom field first	
SoftLab-NSK Forward Uncompressed (YUV 4:2:2)	Uncompressed	FRWU		top field first	

Note: When reading equal codes written with uppercase and lowercase letters (e.g. DVSD and dvsd), the SoftLab-NSK codecs do not consider the case.

To get information of an AVI file main parameters, use the rifflist.exe program (see [Using the rifflist.exe program...](#)).

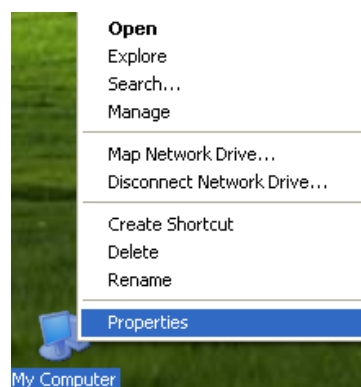


## Opening the Video Codecs Properties dialog

The quality of copression/decompression process depends on the proper selection of a codec as well as on its proper settings. To set up a codec, open the Video Codecs Properties dialog. That may be done by several ways.

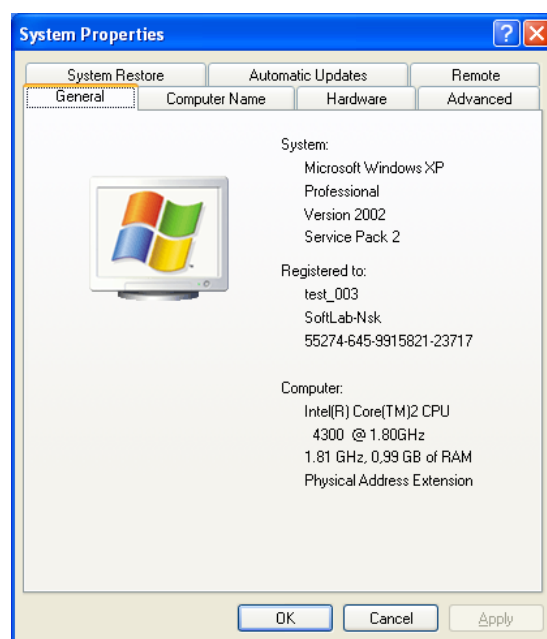
### 1. Using the My Computer icon

Right-click on the My Computer icon to open the contextual menu.



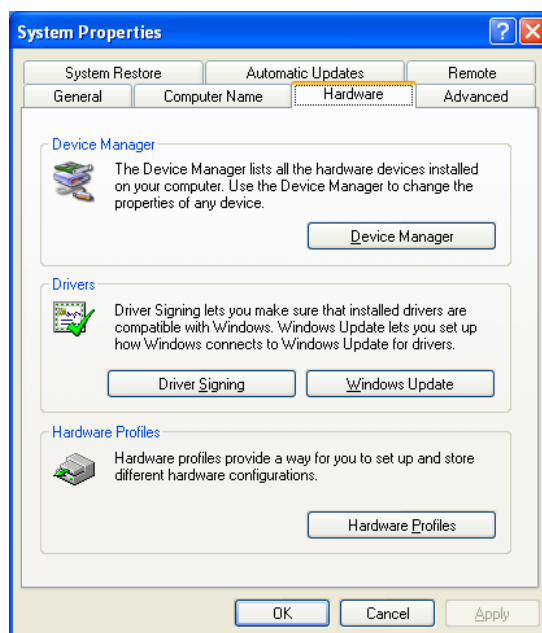
Left-click on the Properties line.

The System Properties conventional dialog opens.



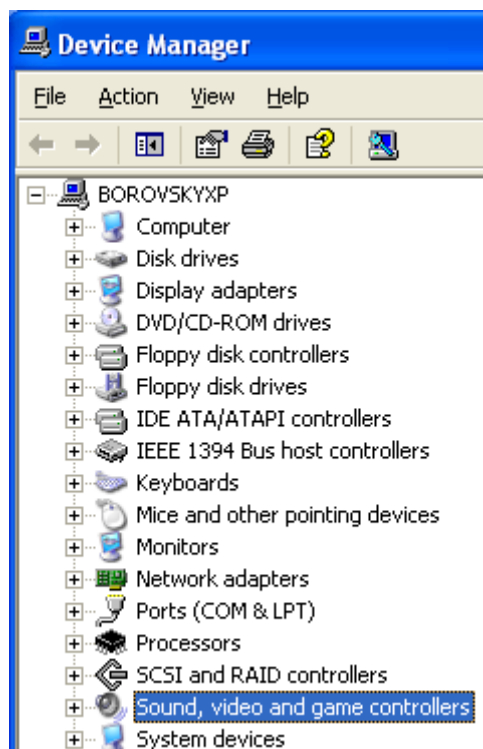


Select the Hardware tab.

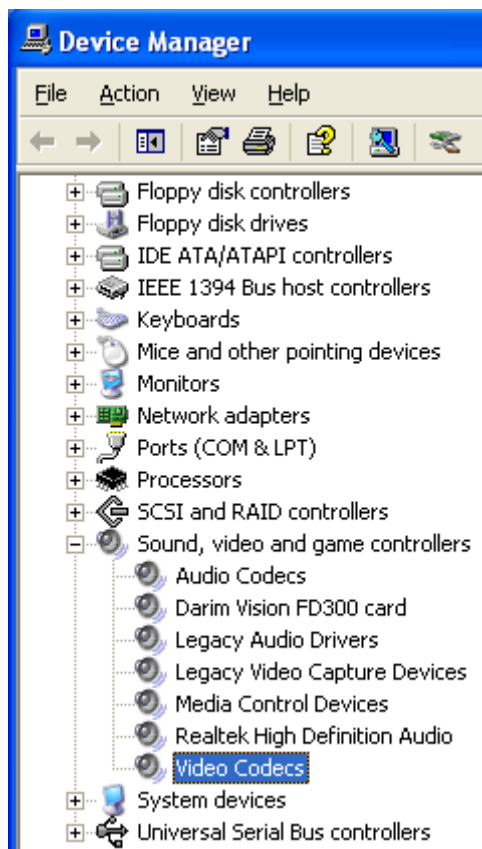


Press the Device Manager button in the Hardware page.

The Device Manager dialog window opens.



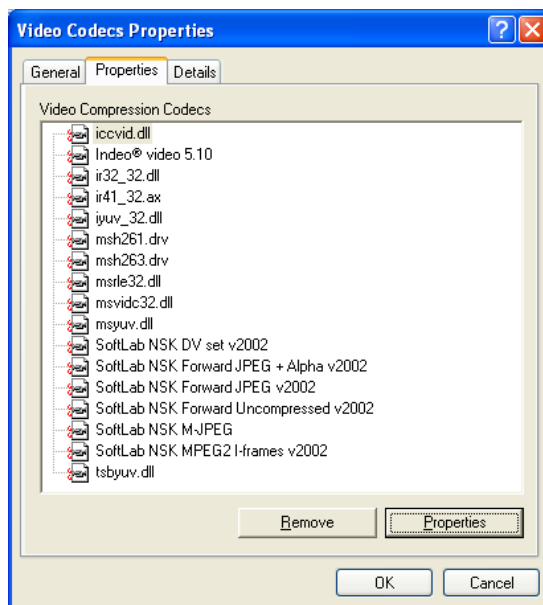
Select the Sound, video and game controllers node on the tree.



Open the Video Codecs child node.

The Video Codecs Properties window opens.

Select the Properties tab, containing the list of video codecs installed on the computer.

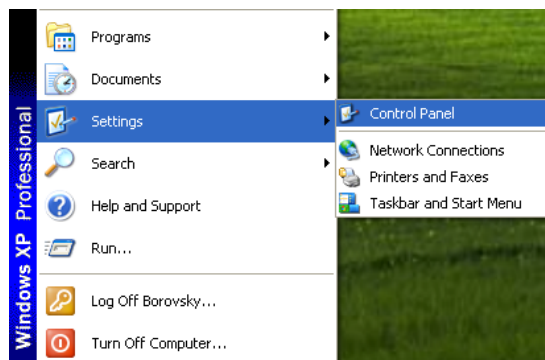


Select a required codec in the list and press the Properties button to change its settings when necessary.



## 2. Using the Control Panel

Press the Start button. The menu opens on the desktop.



Select the Settings submenu, then – the Control Panel command.

The Control Panel opens.

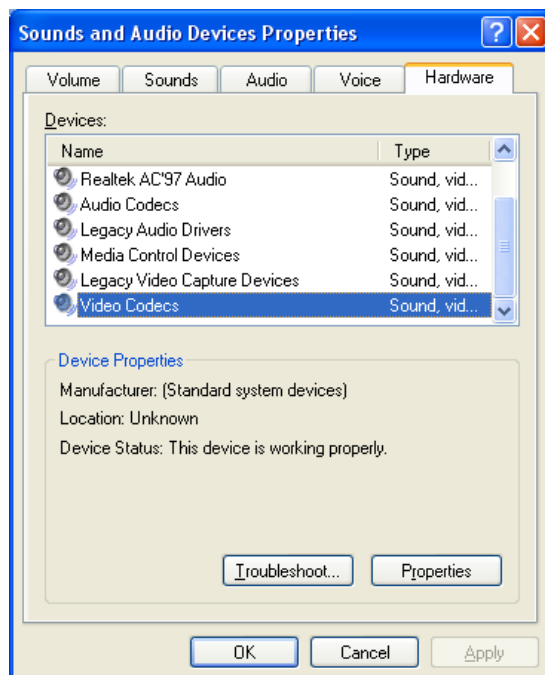


Select the Sounds and Audio Devices item.



The Sounds and Audio Devices Properties dialog opens.

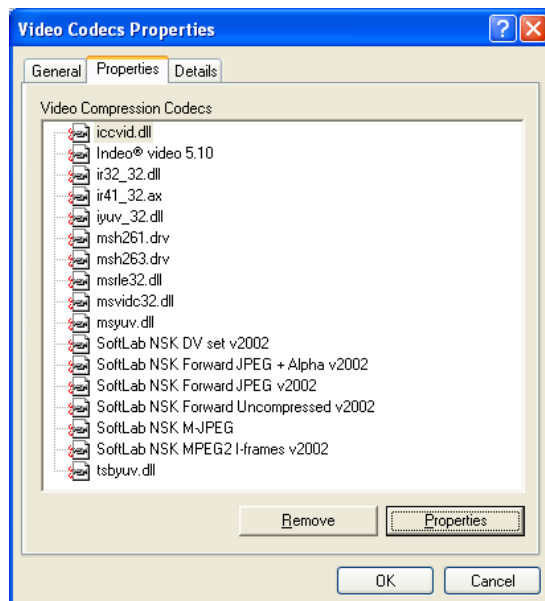
Select the Hardware tab.



In the Devices list select Video Codecs and press the Properties button.

The Video Codecs Properties window opens.

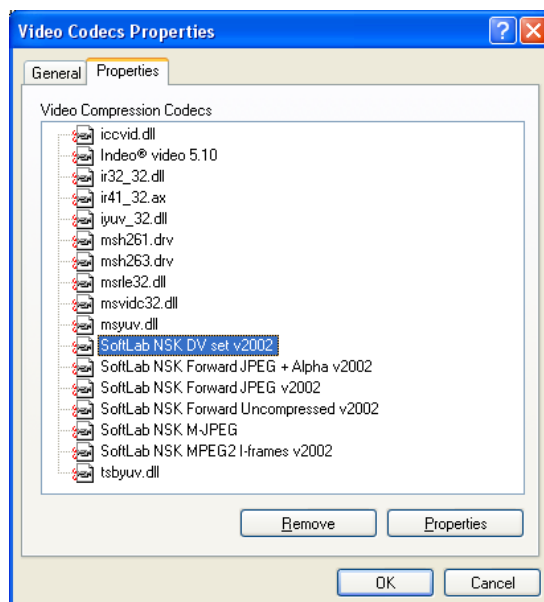
Select the Properties tab, containing the list of video codecs installed on the computer.



Select a required codec in the list and press the Properties button to change its settings when necessary.

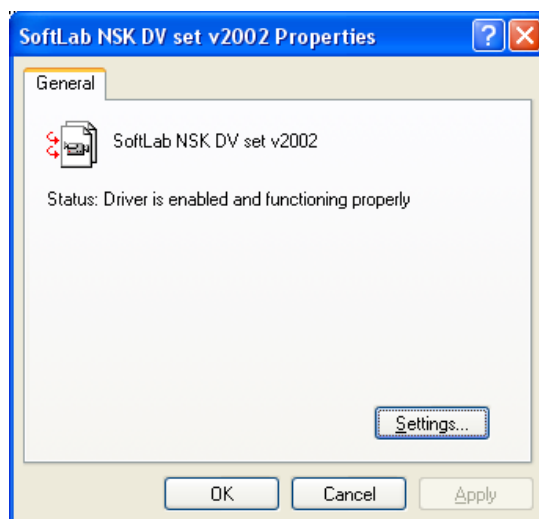
## Changing video codec settings

Open the list of video codecs using one of the ways as indicated above (see [Opening the Video Codecs Properties dialog](#)).



Select a codec in the list (e.g. when working with the DV format data, select the SoftLab-NSK DV codec), press the Properties button.

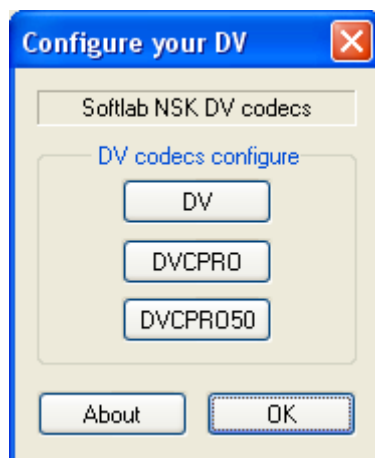
The SoftLab-NSK DV Properties dialog window opens.



Press the Settings button to call the Configure your DV window.

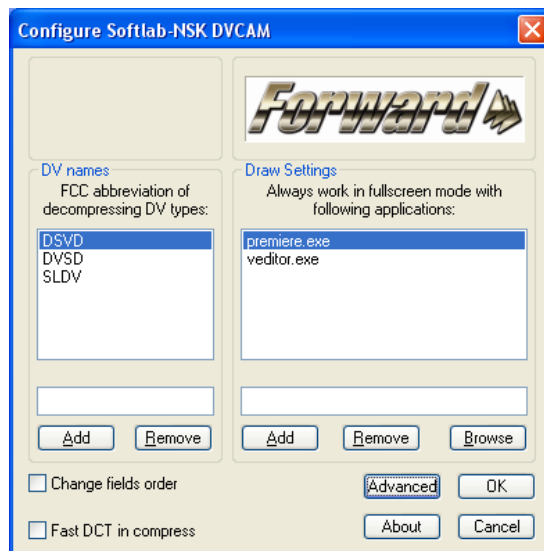


The Configure your DV dialog allows you to configure three video codecs of the DV format.



The DV codecs configure area of the window contains the DV, DVCPRO, DVCPRO50 three buttons. Select the one corresponding to the required video data format. Press the About button to open a window containing supplemental information of the codecs.

At pressing the DV button of the previous dialog, the Configure SoftLab-NSK DVCAM dialog opens.



The DV names area contains a list of the FourCC codes the codec can work with. If a FourCC code indicated in the file is absent in the list, type it manually in the text field below and add to the list by pressing the Add button. To remove a codec from the list, use the Remove button located alongside.

The Draw Settings area contains a list of applications which incorrectly interpret frame frequency when working with the codec in “full-screen mode” (the codec itself displays video on the external monitor from the board output).

Note: The problem is actual only when working with an FD100 Board in some applications (e.g., Adobe Premiere) in “full-screen mode”. When working with an FD300 Board and newer ones, the list is not used.

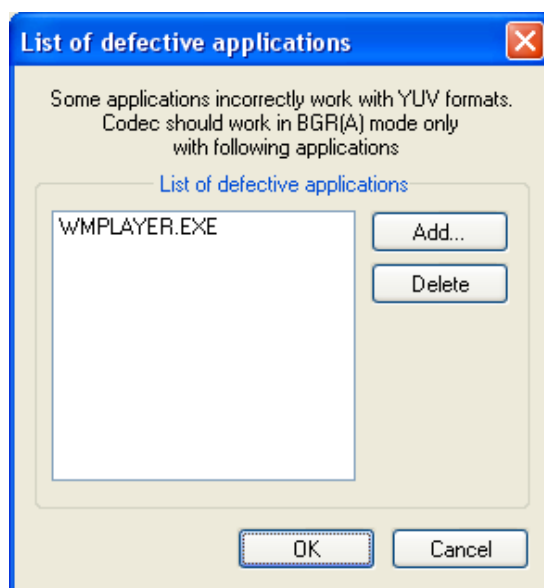
If necessary, the list can be expanded. For that, type manually the name of a new application and press the Add button. Press the Browse button to select an application in the standard directory tree. To remove an application from the list, use the Remove button located alongside.

When the Change fields order check box is checked, files are compressed/decompressed by the field order opposite to the standard.

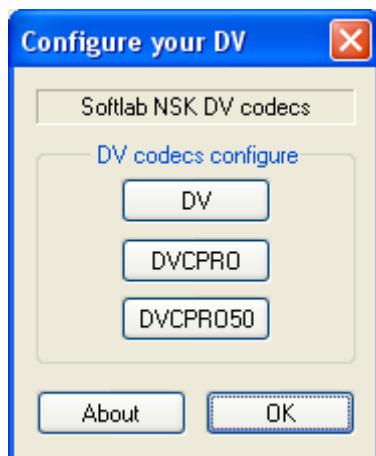
Note: By the DV format standard, the bottom field is produced on screen first.

When the Fast DCT in compress option is checked, the compression speed is increased along with a possible loss of quality.

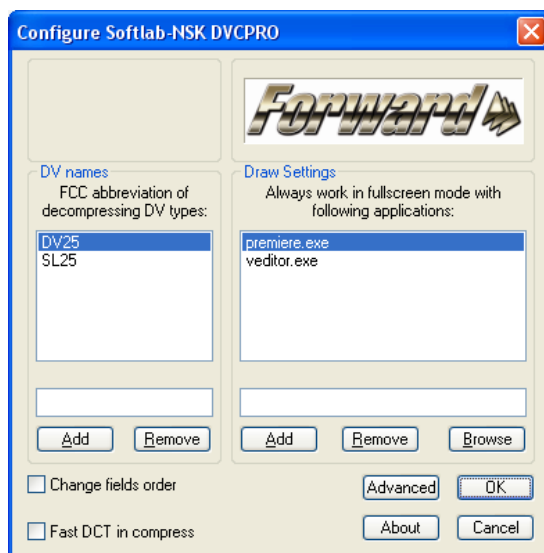
Pressing the About button opens a window containing supplemental information of the codec. Pressing the Advanced button opens the List of defective applications dialog intended for the constraint of applications working incorrectly with the YUV format.



The dialog contains a list of applications working incorrectly with the YUV format (e.g. turning the image «upside down»). For such applications, codec uses the BGR/BGRA format data. To add an item to the list, press the Add.. button and select the application in the directory tree.



Pressing the DVCPRO or DVCPRO50 button of the Configure your DV dialog opens the Configure SoftLab-NSK DVCPRO window.



The DV names area contains a list of the FourCC codes the codec can work with. If a FourCC code indicated in the file is absent in the list, type it manually in the text field below and add to the list by pressing the Add button. To remove a codec from the list, use the Remove button located alongside.

The Draw Settings area contains a list of applications which incorrectly interpret frame frequency when working with the codec in “full-screen mode” (the codec itself displays video on the external monitor from the board output).

**Note:** The problem is actual only when working with an FD100 Board in some applications (e.g., Adobe Premiere) in “full-screen mode”. When working with an FD300 Board and newer ones, the list is not used.

If necessary, the list can be expanded. For that, type manually the name of a new application and press the Add button. Press the Browse button to select an application in the standard directory tree. To remove an application from the list, use the

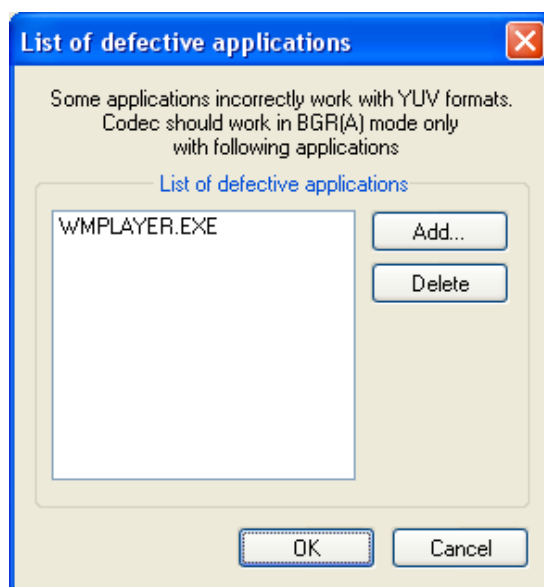
Remove button located alongside.

When the Change fields order option is checked, files are compressed/decompressed by the field order opposite to the standard.

Note: By the DV format standard, the bottom field is produced on screen first.

When the Fast DCT in compress option is checked, the compression speed is increased along with a possible loss of quality.

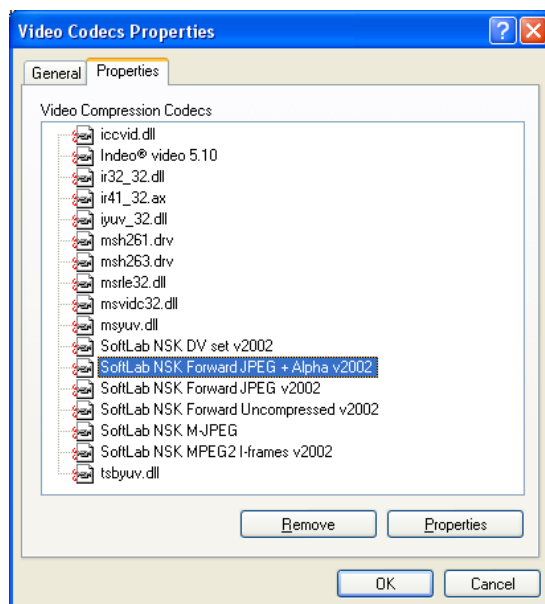
Pressing the About button opens a window containing supplemental information of the codec. Pressing the Advanced button opens the List of defective applications dialog intended for the constraint of applications working incorrectly with the YUV format.



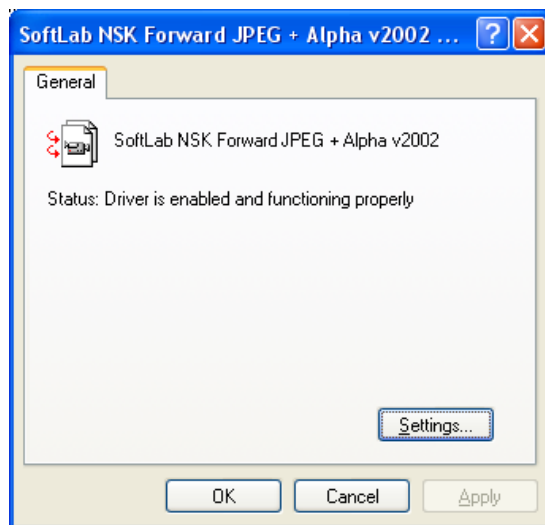
The dialog contains a list of applications working incorrectly with the YUV format (e.g. turning the image «upside down»). For such applications, codec uses the BGR/BGRA format data. To add an item to the list, press the Add... button and select the application in the directory tree.



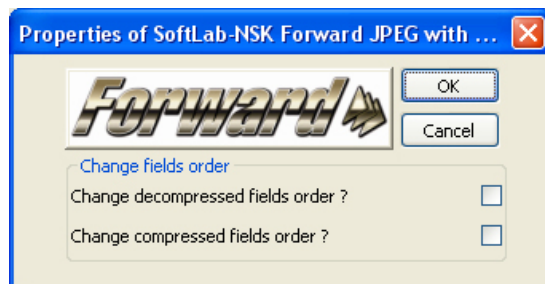
When working with the JPEG (with transparency) format data, select the SoftLab-NSK Forward JPEG + Alpha codec.



Press the Properties button to open the SoftLab-NSK Forward JPEG + Alpha dialog.



Press the Settings... button to proceed to the settings dialog.



The codec has only the field order settings. Checking the Change decompressed fields order? option changes the field order

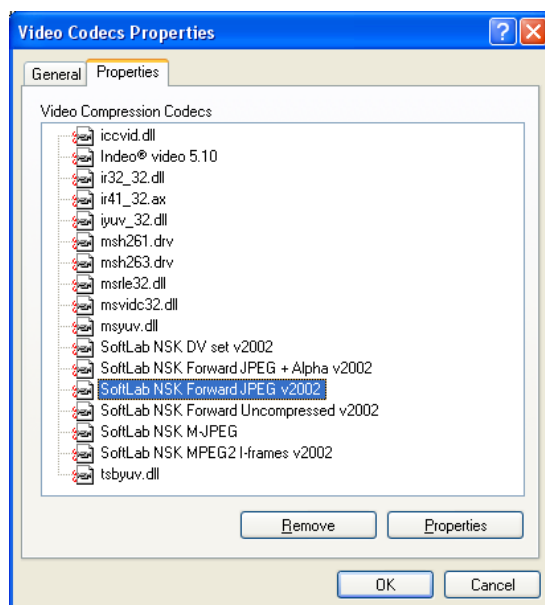


relative to the DV format standard when decompressing data.

Note: By the DV format standard, the bottom field is produced on screen first.

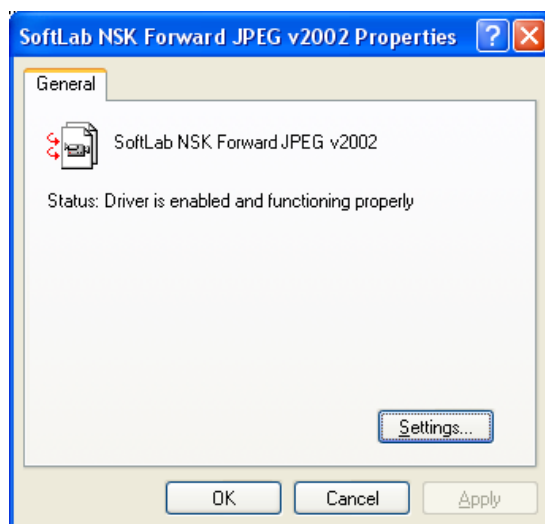
Checking the Change compressed fields order? option – when compressing data.

When working with the JPEG format data, select the SoftLab - NSK Forward JPEG codec.



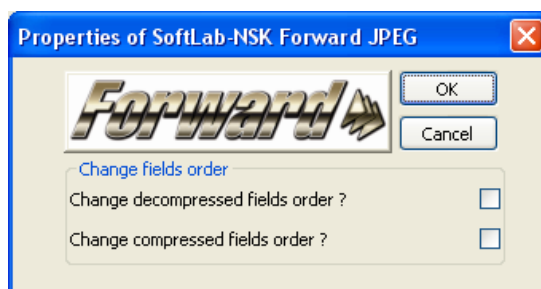
Press the Properties button.

The SoftLab-NSK Forward JPEG Properties window opens.



Press the Settings... button to proceed to the settings dialog.

The codec has only the field order settings.

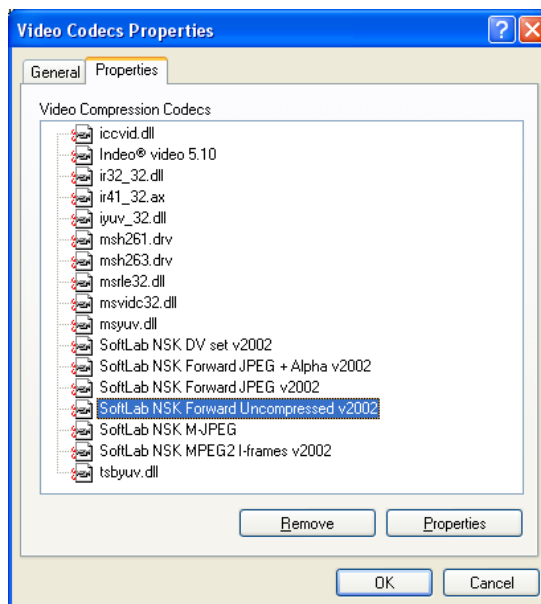


Checking the Change decompressed fields order? option changes the field order relative to the DV format standard when decompressing data.

Note: By the DV format standard, the bottom field is produced on screen first.

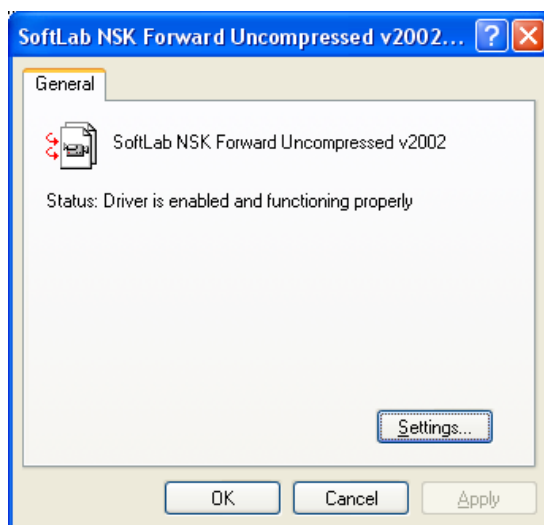
Checking the Change compressed fields order? option – when compressing data.

When working with uncompressed data, select the SoftLab-NSK Forward Uncompressed codec.

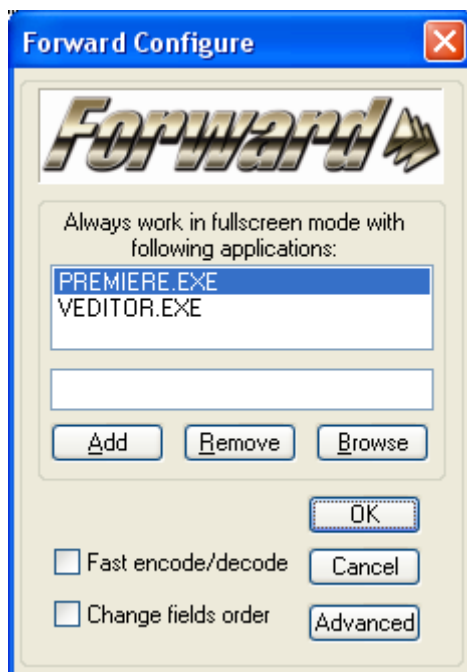


Press the Properties button.

The SoftLab-NSK Forward Uncompressed... window opens.



Press the Settings button to proceed to the settings dialog.



The Forward Configure window contains a list of applications which incorrectly interpret frame frequency when working with the codec in “full-screen mode” (the codec itself displays video on the external monitor from the board output).

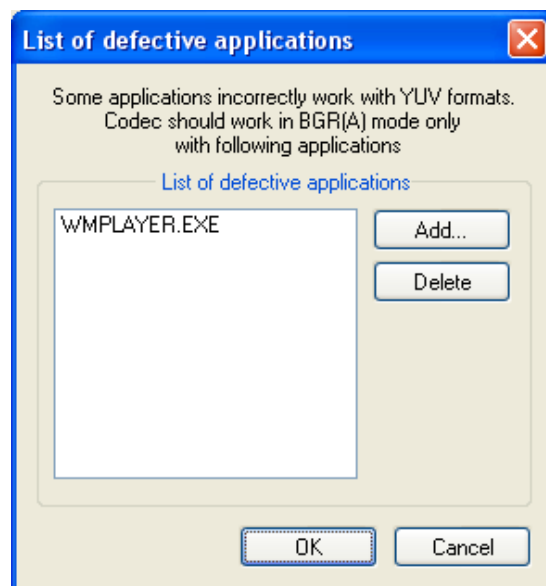
**Note:** The problem is actual only when working with an FD100 Board in some applications (e.g., Adobe Premiere) in “full-screen mode”. When working with an FD300 Board and newer ones, the list is not used.

If necessary to add an application to the list, type the name manually in the text field below and press the Add button. Press the Browse button to select an application in the standard directory tree. To remove an application from the list, use the Re-

move button located alongside.

When the Fast encode/decode option is checked, fast coding/decoding along with a possible loss of quality is performed, and checking the Change fields order option changes the field order relative to the standard.

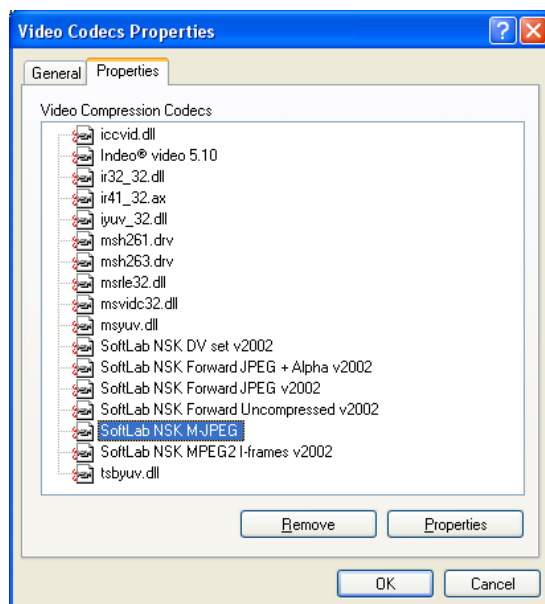
Note: For uncompressed data, the top field is produced on screen first. Pressing the Advanced button opens the List of defective applications dialog.



The dialog contains a list of applications working incorrectly with the YUV format (e.g. turning the image «upside down»). For such applications, codec uses the BGR/BGRA format data. To add an item to the list, press the Add... button and select the application in the directory tree.

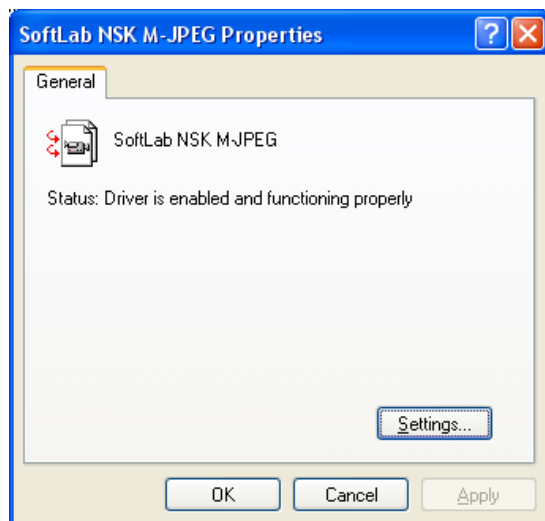


When working with the Motion JPEG format data, select the SoftLab-NSK MJPEG codec.



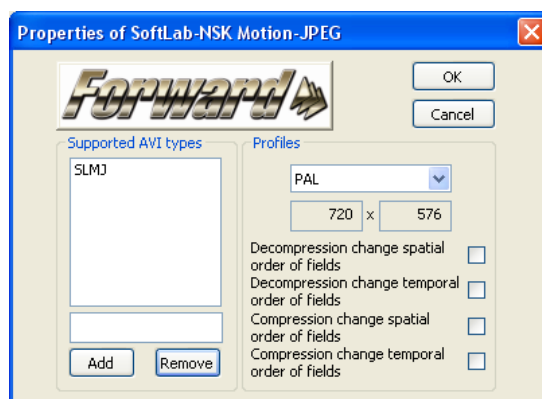
Press the Properties button.

The SoftLab-NSK MJPEG Properties dialog window opens.



Press the Settings button.

The Properties of SoftLab-NSK Motion-JPEG dialog window opens.



The Supported AVI types area contains a list of FourCC codes the codec can work with. If necessary to add a code to the list, type it in the text field below and press the Add button. To remove an item from the list, press the Remove button.

The Profiles area contains a drop-down list of the standard video frame formats. The last line – Common – means an input format different from the ones given in the list. Directly under the list is displayed information of the frame size corresponding to the specified format.

Note: For the MJPEG format files, the top field is produced on screen first by the standard.

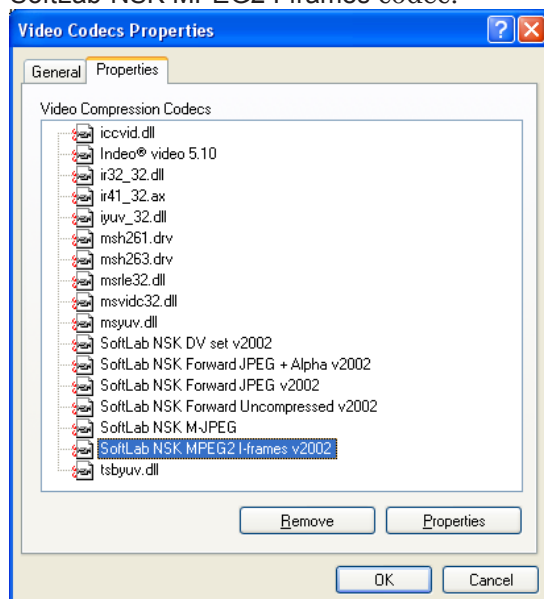
The dialog also allows you to set the reverse field order in space (spatial) and time (temporal) by checking the respective options.

Checking the Change spatial order of fields (decompression),  
Change temporal order of fields (decompression) options  
changes the field order when decompressing data.

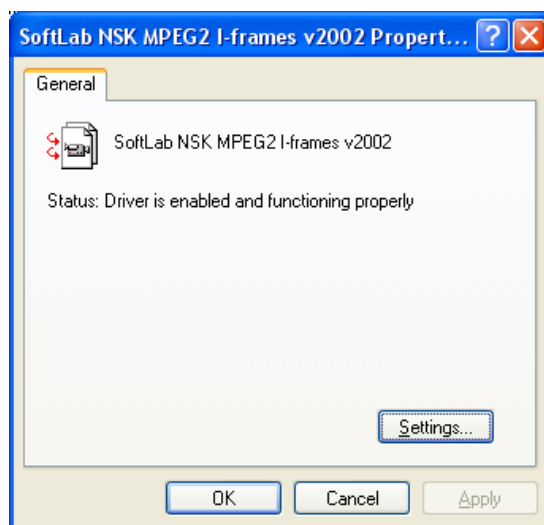
Checking the Change spatial order of fields (compression),  
Change temporal order of fields (compression) options changes the  
field order when compressing data.



When working with the MPEG2 I-frames format data, select the SoftLab-NSK MPEG2 I-frames codec.



Press the Properties button to open the SoftLab - NSK MPEG2 I-frames Properties dialog.



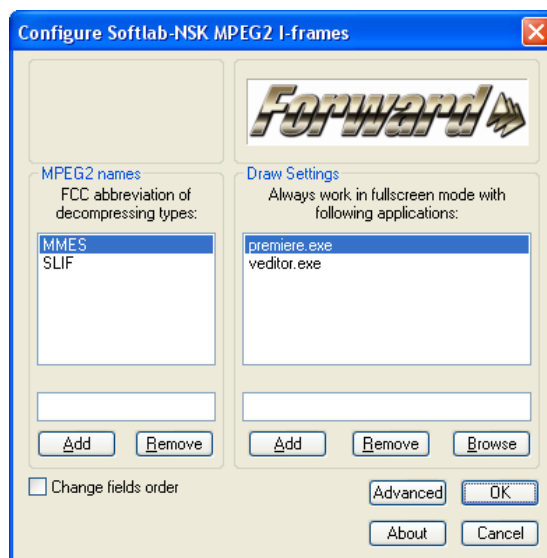
Press the Settings... button.

The Configure your MPEG2 dialog opens.



Press the About button to open a window, containing supplemental information of the codec.

Press the I frames only button to proceed to the Configure SoftLab-NSK MPEG2 I-frames dialog allowing you to change the codec parameters.



The MPEG2 names area contains a list of FourCC codes the codec can work with. If a FourCC code specified in the file is absent in the list, type it manually in the text field below and add to the list by pressing the Add button. To remove an item from the list, use the Remove button located alongside.

The Draw Settings area contains a list of applications which incorrectly interpret frame frequency when working with the codec in “full-screen mode” (the codec itself displays video on the external monitor from the board output).

**Note:** The problem is actual only when working with an FD100 Board in some applications (e.g., Adobe Premiere) in “full-screen mode”. When working with an FD300 Board and newer ones, the list is not used.

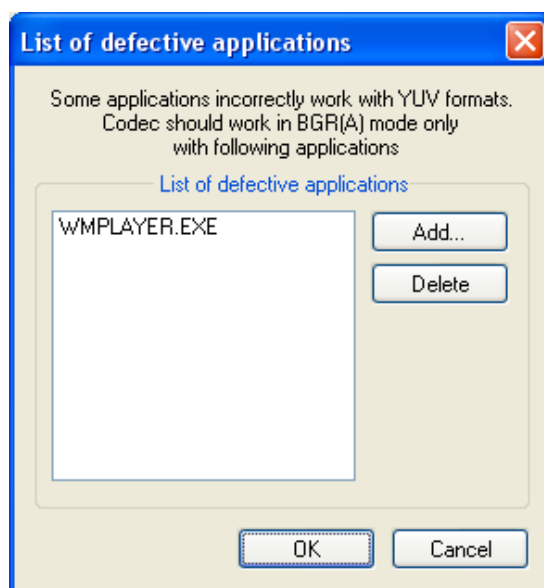


If necessary to expand the list, type the name of a new application and press the Add button. Press the Browse button to select an application from the directory tree. To remove an item from the list, use the Remove button located alongside.

When the Change fields order option is checked, files are compressed/decompressed by the field order reverse to the standard.

Note: By the MPEG2 standard, the bottom field is produced on screen first. Press the About button to open a supplemental information window of the codec.

Pressing the Advanced button opens the List of defective applications dialog.



The dialog contains a list of applications working incorrectly with the YUV format (e.g. turning the image «upside down»). For such applications, codec uses the BGR/BGRA format data. To add an item to the list, press the Add... button and select the application in the directory tree.



## Using the rifflist.exe program to get information of an AVI file main parameters

The program is intended to get information of an AVI file main parameters: the FourCC code, frame size, frame rate, audio/video duration, and others.

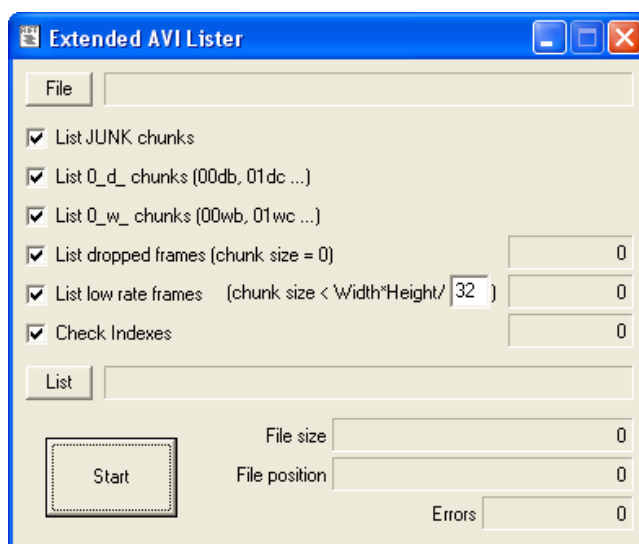
The ForwardT Software installer places the rifflist.exe program by default into the following folder: ...\\Program Files\\ForwardT Software\\Tools.

The information of an AVI file parameters is written into a file with the 'lst' extension. The name of the 'lst' file is taken from the original AVI file name (by default). The 'lst' file is created in the same folder as the original AVI file (by default).

To get a file with the information of an AVI file main parameters, perform the following steps:

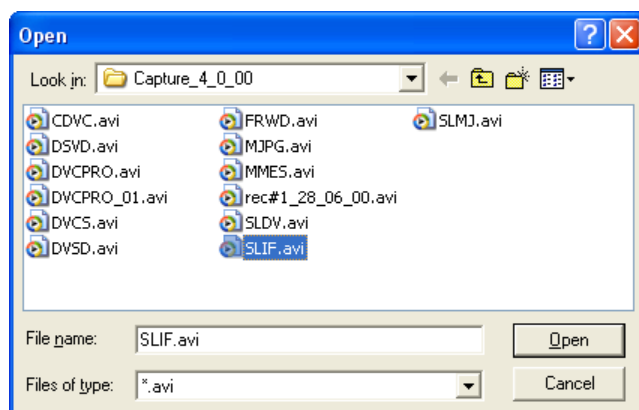
1. Launch the rifflist.exe program.

The Extended AVI Lister dialog window opens.



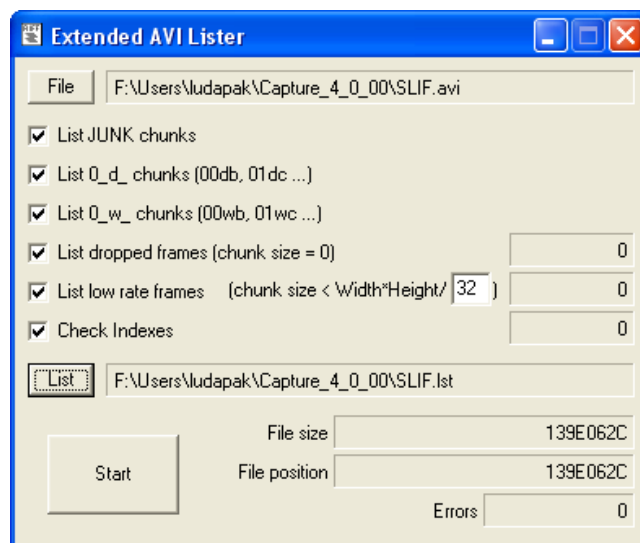
2. Press the File button.

The Open dialog window opens.





3. Select the AVI file the information of which you need to get.
4. Press the Open button.



The name and full path to the file with the 'lst' extension propositioned by default are displayed in the edit line on the right of the List button.

4. If necessary, press the List button to select a new path and name for the file.
5. To get the complete information of the file, turn on all the options.
6. Press the Start button to launch creating the 'lst' file.

The created 'lst' file can be opened for overview in a text editor, e.g. Notepad.



The information of an AVI file is presented in the following way (by the example of a 'lst' file fragment):

```
SLIF.lst - Notepad
File Edit Format View Help
F:\Users\ludapak\Capture_4_0_00\SLIF.avi
0000000000000000 RIFF 139E0624
AVI
000000000000000C LIST 00007F62
hdr1
0000000000000018 avih 00000038
dwMicroSecPerFrame 00009C40 (40000), Fps 25 //---->1
...
dwTotalFrames 00000BBE (3006), Seconds 120.24 //---->2
...
dwStreams 2 //---->3
...
dwWidth 000002D0 (720) //---->4
dwHeight 00000240 (576) //---->5
0000000000000058 LIST 00003FF0
str1
0000000000000064 strh 00000040
fccHandler "slif" //---->6
dwRate 000061A8 (25000), Sps 25 //---->7
dwLength 00000BBE (3006), Seconds 120.24 //---->8
00000000000000AC strf 000000FC
...
biWidth 000002D0 (720) //---->9
biHeight 00000240 (576) //---->10
...
biBitCount 24 //---->11
biCompression 66696C73 "slif" //---->12
00000000000001B0 indx 00003E98
...
00000000000004050 LIST 00003F06
str1
0000000000000405C strh 00000040
fccHandler " " //---->13
...
dwRate 0000AC44 (44100), Sps 44100 //---->14
dwLength 0050E938 (5302584), Seconds 120.24 //---->15
000000000000040A4 strf 00000012
...
wf.nChannels 2 //---->16
wf.nSamplesPerSec 44100 //---->17
.....
```

Lines containing less important information are removed from the given example and presented by dots. Lines bearing the main information of the AVI file are numbered on the right (in the given example only):

1. The frame duration (in microseconds per frame), the number of frames per second.
2. The total number of frames, the file duration in seconds.
3. The number of streams in the file.
4. The frame width (in pixels).
5. The frame height (in pixels).
6. The FourCC code.
7. The number of frames per second.
8. The total number of frames, the video data duration in seconds.
9. The frame width (in pixels).
10. The frame height (in pixels).



11. The number of bits per pixel.
12. The video data compression type.
13. The audio data compression type.
14. The number of audio samples per second.
15. The audio data duration (in seconds).
16. The number of audio channels.
17. The number of audio samples per second.



---

## Useful Links

<http://www.softlab-nsk.com/forward/docs.html>