



Elecard MPEG Player 5.7

User Guide

Notices

Elecard MPEG Player 5.7 User Guide

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CONTENTS

1. INTRODUCTION.....	4
1.1 PREFACE.....	4
1.2 DESCRIBING ELECARD MPEG PLAYER.....	5
1.2.1 Specifications.....	5
1.2.1.1 Supported Formats.....	5
1.2.1.2 Audio.....	6
1.2.2 Features.....	6
1.2.2.1 Standard Features.....	6
1.2.2.2 Exclusive Features.....	6
1.3 USING THIS GUIDE.....	9
1.3.1 Purpose.....	9
1.3.2 Topics Covered.....	9
1.4 SYSTEM REQUIREMENTS.....	9
1.4.1 Hardware Requirements.....	9
1.4.2 Software Requirements.....	9
1.5 LICENSING AND TECHNICAL SUPPORT.....	9
2. GETTING STARTED.....	11
2.1 INSTALLING ELECARD MPEG PLAYER.....	11
2.1.1 Ecard MPEG Player Registration.....	11
2.2 UNINSTALLING ELECARD MPEG PLAYER.....	12
2.3 RUNNING ELECARD MPEG PLAYER.....	12
3. USING ELECARD MPEG PLAYER.....	13
3.1 INTRODUCTION.....	13
3.2 DESCRIBING ELECARD MPEG PLAYER GUI.....	13
3.3 SHORTCUT MENU.....	15
3.4 PLAYER SETTINGS.....	16
3.4.1 General Settings.....	17
3.4.1.1 Filename Extensions.....	18
3.4.1.2 Hot Keys.....	18
3.4.1.3 Skins.....	20
3.4.2 Playlist.....	20
3.4.3 Playback.....	21
3.4.4 Video.....	23
3.4.4.1 Decoder.....	23
3.4.4.2 Grab.....	25
3.4.5 Network.....	25
3.4.6 Filters.....	26
3.4.6.1 Built-in.....	27
3.4.7 Indexing.....	28
3.5 BASIC PLAYER OPERATIONS.....	29
3.5.1 File and Stream Opening.....	29
3.5.1.1 File Opening – File Mode.....	29
3.5.1.2 File Opening – List Mode.....	30
3.5.1.3 Stream Opening – UDP/RTP Mode.....	31
3.5.1.4 Stream Opening – RTSP Mode.....	32
3.5.2 File and Stream Playback.....	33
3.5.3 Trimming Clips.....	34
3.5.4 Grabbing Frames.....	35
3.5.5 Start in Full-screen Mode (Command Line).....	35
3.5.6 Play List Usage.....	35
3.6 INFORMATION WINDOW.....	36

1. Introduction

1.1 Preface

Elecard MPEG Player is a real time, software-only player, providing high resolution, full quality decoding of MPEG-1, MPEG-2, MPEG-4 SP/ASP and AVC/H.264 (if Elecard AVC PlugIn is installed) files and streams, optimized for the most efficient CPU usage.

The built-in DirectShow® compatible decoders enable Elecard MPEG Player to play a number of common multimedia formats such as AVI, WAV, MP3, and MOV.

Elecard MPEG Player includes the following components:

Table 1. Elecard MPEG Player Components

Component	File Name	Description
Elecard MPEG-2 Video Decoder	em2vd.ax	Software-only, real-time MPEG-2 (ISO/IEC 13818-2) and MPEG-1 (ISO/IEC 11172-2) video stream decoder. Provides high resolution, full quality decoding, optimized for the most efficient CPU usage.
Elecard MPEG-4 Video Decoder	em4vdec.ax	Software-only decoding solution for MPEG-4 (ISO/IEC 14496-2) streams.
Elecard MP4 Demultiplexer	emp4demux.ax	Designed for software-only demultiplexing of MPEG-4 (Intermedia Format (MP4)), 3GPP2 System.
Elecard MPEG Demultiplexer	empgdmx.ax	DirectShow filter for splitting of MPEG-1 System Streams (ISO/IEC 11172-1), MPEG-2 Program and Transport Streams (ISO/IEC 13818-1) into video and audio streams.
Elecard MPEG Audio Decoder	emad.ax	DirectShow filter for the software-only decoding of MPEG-1, MPEG-2, MPEG-2.5 and LPCM audio streams.
Elecard Sink Filter	esf.ax	Dumps stream data to file.
Elecard RTSP Net source	ertspnws.ax	DirectShow filter for receiving media data from network. It is capable of receiving and sending RTSP commands, receiving RTP, UDP, TCP packets.
Elecard NW Source-Plus	enwsplus.ax	DirectShow filter for receiving media data from network. It is capable of receiving RTP and UDP packets and feeding the filter graph with stream data contained in these packets.
Elecard MPEG Push Demultiplexer	empgpdmx.ax	DirectShow filter for splitting Transport, Program, or System Streams into video and audio streams in a push mode.
Elecard File List Source	efls.ax	DirectShow filter for merging files with similar format.

Component	File Name	Description
Elecard XMuxer Engine	exmuxenginepro.dll	COM object that allows fast and lossless nonlinear editing. It supports all popular formats like MPEG-1 System Stream (SS), MPEG-2 Program Stream (PS) (including SVCD and DVD), MPEG-2 Transport Stream (TS), Sony AVCHD, MP4 (Sony PSP, ISMA, iPod), ASF, WMV, AVI (DV, XviD, DivX, 3ivX), and some types of video and audio elementary streams (VES and AES).
Elecard MPEG Multiplexer	empegmux.ax	DirectShow filter that provides the MPEG-2 Transport Stream (TS) or MPEG-2 Program Stream (PS) generation.
Elecard MP4 Multiplexer	emp4mux.ax	DirectShow filter intended for the generation of MPEG-4 (Intermedia Format (MP4)) System Streams.

The non-registered version of Elecard MPEG Player has some functionality restrictions. If you have not purchased the player and would like to do so, see our website: <http://www.elecard.com>.

1.2 Describing Elecard MPEG Player

The following section defines the specifications and standard and exclusive features of Elecard MPEG Player.

1.2.1 Specifications

1.2.1.1 Supported Formats

- MPEG-1 System Stream including VideoCD-compliant
- MPEG-1 Video Only
- MPEG-2 Program Stream including DVD-compliant (VOB) and SuperVCD-compliant (SVCD)
- MPEG-2 Video Only
- MPEG-2 Transport Stream
- MPEG-2 HDTV (including ATSC)
- PIM2 (AVI including MPEG-2 format)
- All 18 ATSC formats
- AVC/H.264 (if Elecard AVC PlugIn is installed)
- Sony PSP MP4
- MP4 System

- MPEG-4 SP-ASP (ISO/IEC 14496-2)

1.2.1.2 Audio

- MPEG-1, MPEG-2, MPEG-2.5, LPCM
- AAC, HE-AAC (SBR, PS) (if Elecard AVC PlugIn is installed)
- LATM AAC (ISO/IEC 14496-3) (if Elecard AVC PlugIn is installed)
- S/PDIF output if available

1.2.2 Features

1.2.2.1 Standard Features

- Correct aspect ratio displaying
- Full Screen mode
- Video frame capturing (pixel-by-pixel, aspect ratio or user defined) and saving in BMP/JPEG/GIF format
- DirectShow and ActiveMovie compliance
- MPEG-1, MPEG-2, MPEG-2.5, LPCM audio support
- Play list support
- Sound control
- Support of multiple Player instances
- Compatibility with the video card supporting the YUV overlay
- Always on top – prevents other windows from covering the program window
- Playback of all of the well-known and widespread multimedia formats (AVI, WAV, MOV etc.)

1.2.2.2 Exclusive Features

- High definition video decoding and playback
- Ability to decode MPEG-2 video in multithread mode on multiprocessor systems
- Real-time, high resolution video playback at D1 720x480 at 30fps for NTSC and 720x576 at 25fps for PAL playback on Pentium II 450 MHz with DirectX
- Brightness control

- Deinterlace vertical filter
- Deinterlace field interpolation
- Seek forward and Seek backward options – ability to look through a movie by step. You can define step size as an interval of time (1, 2, 5, 10, 15 and 30 seconds) or as a number of frames.
- Quarter resolution playback (Preview mode)
- Detailed stream information from the video sequence and system headers and from the audio sample headers, statistics from the decoders and render filters
- URL opening for playback
- Ability to work as an RTSP client
- Fast forward/backward rewind in the RTSP client mode
- Ability to save the result of video trimming as an uncompressed raw data file (YV12, YUY2, UYVY, RGB24, RGB565, RGB555, RGB32)
- File trimming and saving into MPEG-2 and MP4 formats
- Ability to select elementary streams for saving in a file after trimming
- Playback can be started in Full Screen mode at startup. This mode is switched off after movie ends.
- Tracing of video resolution changes and corresponding adjustment of the Video Window size
- Audio stream output statistics (from Audio Renderer)
- MPEG-4 support
- MP4 System support
- AVC/H.264 and AAC support (if Elecard AVC PlugIn is installed)
- Improved DXVA hardware acceleration support - full bitstream decoding mode is supported (most recent nVidia & ATI cards support this mode known as VLD or BitStreamRaw)
- Closed Captions support
- DVD subtitles support
- DVB subtitles support
- Auto-shrink of the video window (important for HD video)

- Play list merging
- Multimedia hot keys support
- Full Screen media controls
- GOP-accurate AVI (DV, XviD, DivX, 3ivX, etc) trimming
- Support of Sony PSP and Apple iPod compatible streams
- M3U list support
- Multi language support
- Skins support
- Support of black/white filter lists
- Shortcut menu in the main panel, in the video window and in the full-screen mode
- Ability to minimize the player in system tray
- Ability to disable the file history displaying
- Fast stream switching using the special selection mode (selection of one video and one audio channels)
- Multi channel mode (available only to registered users)
- Registration of filename extensions (file association)
- Hot keys settings
- Playback stop, if the player window is minimized
- Screensaver disabling, if playback is started
- MPEG-2 files indexing
- Support of the player window docking to the screen edge
- Ability to hide the player window, when the video window is displayed
- Ability to display GOP timecodes (in place of current position)
- AES3 (SMPTE 302M) support
- Storing playlist and current stream position at the time of the player closing (when the player is run next time, the stream playback is started from this position)
- Time settings for automatic jump to the next playlist item

Note: The play list merging feature is available only for files with similar format (resolution, profile and level, multiplexing type, PIDS, etc).

1.3 Using this Guide

1.3.1 Purpose

This guide is intended to help you play and view video files using Elecard MPEG Player. It describes the Player GUI, settings and functions and provides instructions for using the player.

1.3.2 Topics Covered

- **Section 1: Introduction** – provides a general overview of the Player and describes the purpose of the document and its contents.
- **Section 2: Getting Started** – describes how to install, uninstall and run the Player.
- **Section 3: Using Elecard MPEG Player** – describes the Player GUI and provides instructions for basic Player operations.

1.4 System Requirements

1.4.1 Hardware Requirements

- SSE-enhanced CPU (Intel® Pentium III, Celeron, AMD® Athlon, Opteron etc.)
- 128 MB RAM
- Any VGA card
- About 15 MB of free disk space

1.4.2 Software Requirements

- Windows® 2000/XP/2003 Server/Vista

1.5 Licensing and Technical Support

Elecard MPEG Player is available as shareware or as a registered product. Shareware Elecard MPEG Player includes unregistered Elecard decoder filters and has a limited functionality. For using all functions you have to register the Elecard MPEG Player.

By installing, copying, or otherwise using the SOFTWARE PRODUCT or any UPDATES, you agree to be bound by the terms of the "Elecard" End-User License Agreement ("EULA"). This EULA is a legal agreement between you (either an individual or a single



entity) and Elecard for the "Elecard" software product(s) accompanying this EULA, which include(s) computer software and may include "online" or electronic documentation, associated media, and printed materials ("SOFTWARE PRODUCT").

For sales and licensing information contact the Elecard sales department:

sales@elecard.net.ru

For technical support, please contact the Elecard Technical Support Team:

tsup@elecard.net.ru

2. Getting Started

The following section details the procedures for installing and running Elecard MPEG Player.

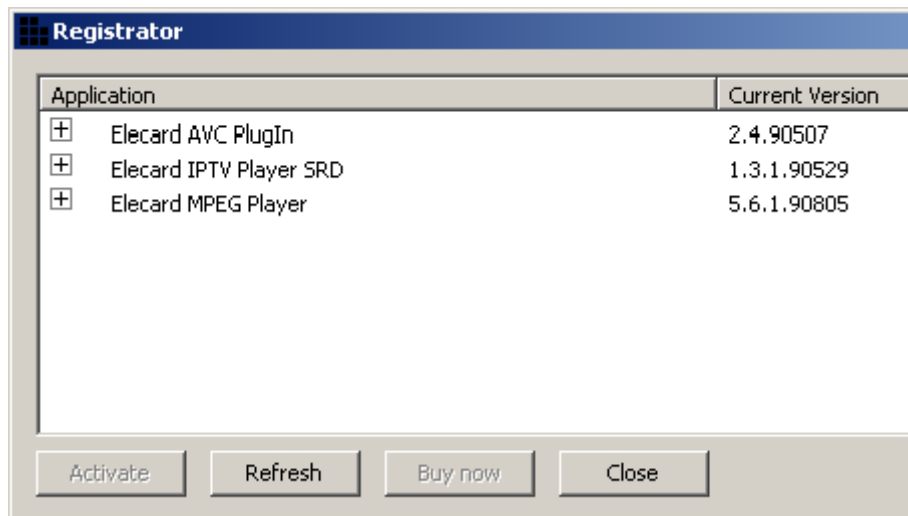
2.1 Installing Elecard MPEG Player

1. Download the Elecard MPEG Player installation file from the Elecard download page or its mirrors.
2. Run **Elecard MPEG Player Setup**.
To run, unzip the Player and run the application *Elecard MPEG Player X.X.exe* (*X.X* is the version number).
3. The *Elecard MPEG Player setup* window will appear. Read the recommendations and warnings. Click **Next**.
4. The license agreement will appear. Read the agreement and if you accept the terms within, check the “*Yes I agree with the terms of this license agreement*” check box. Click **Next**.
5. Select the installation folder in which you want to install Elecard MPEG Player. To select an installation folder, click **Browse** and find the folder in which you would like to install Elecard MPEG Player. Click **Next**.
6. Select program group. Click **Next** twice.
7. To complete installation, follow the onscreen instructions.
When setup has finished installing all of the necessary files on your computer, the *Elecard MPEG Player has been successfully installed* dialog box will appear, and the program is ready to run. You do not need to reboot your computer.

2.1.1 Elecard MPEG Player Registration

1. Run the Elecard Registrator. Click *Start->Programs->Elecard->Elecard MPEG Player X.X->Registrator*. The **Registrator** window opens.

Figure 1. Registrator Window



2. Select the Elecard MPEG Player from the product list and press **Activate** button.
3. Use your Serial number to complete the activation process.

2.2 Uninstalling Elecard MPEG Player

To uninstall Elecard MPEG Player

1. Click *Start->Programs->Elecard->Elecard MPEG Player X.X->Uninstall Elecard MPEG Player X.X.*
2. Select *Uninstall Elecard MPEG Player* option.
3. Follow the onscreen instructions to complete the removal of Elecard MPEG Player.

2.3 Running Elecard MPEG Player

To run Elecard MPEG Player, click *Start->Programs->Elecard->Elecard MPEG Player X.X->Elecard MPEG Player X.X.*

3. Using Elecard MPEG Player

3.1 Introduction

The following section describes the Player GUI (graphic user interface), its features, and instructions for playing back files, trimming clips, grabbing frames, using the play list, and viewing property pages.

3.2 Describing Elecard MPEG Player GUI






The following section describes, in detail, the Player features and controls.















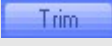

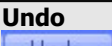
Figure 2. Elecard MPEG Player GUI

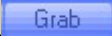






The following table describes each button, its function and its hot key, when available.

Table 2. Elecard MPEG Player GUI Description

Button	Function	Hot Key
 Open/hide Play List	Opens or hides the Play List window.	CTRL+L
 Interface and Video Settings	Displays interface and video settings. Allows you to choose/define settings.	
 Stream information	Displays information about the currently played streams.	CTRL+I
 Exit Player	Closes the player.	ESC or CTRL+Q or ALT+F4
 Open File	Opens the Open dialog box.	CTRL+O
Go to the Start Position	Sets pointer to the start position for playback and trimming.	HOME

Button	Function	Hot Key
		
Rewind/Backward Playback 	Click to rewind and look through the file by time or frame step.	CTRL+LEFT ARROW
Step Backward by Frame 	Shows movie by frame backward. Click to look backwards through movie by frame or number of seconds.	LEFT ARROW
Stop 	Stops playback of a file.	
Play 	Starts playback of a file from the current position.	SPACEBAR or PAUSE for switching between <i>Play</i> and <i>Pause</i> modes
Pause 	Pauses playback of a file.	SPACEBAR or PAUSE for switching between <i>Play</i> and <i>Pause</i> modes
Step Forward by Frame	Shows movie by frame forward. Click to view movie forwards by frame or number of seconds.	RIGHT ARROW
Forward Playback 	Allows fast forward and search through the movie by time or frame step.	CTRL+RIGHT ARROW
Set to the End Position 	Sets pointer to the end position for playback and trimming.	END
Advanced	Opens or hides the Advanced Options window.	
Step	Allows you to choose a step size. You can determine a step size by time (<i>1, 2, 5, 10, 15, 30 sec</i>) or by every frame. This control is located in the Advanced Options window.	
Speed 	Specifies the playback rate. This control is located in the Advanced Options window.	PLUS SIGN (+) increases the playback rate, MINUS SIGN (-) decreases the playback rate, CTRL+N restores the normal playback rate
Graph 	Shows the built filter graph. This control is located in the Advanced Options window.	CTRL+F
Full Screen 	Toggles the Full Screen mode On/Off.	ALT+ENTER or F (ESC switches off the <i>Full Screen</i> mode)
Pointer 	Marks the current playback position.	
Start Position Flag 	Marks the start position for trimming.	
Stop Position Flag 	Marks the end position for trimming.	
Trim 	Trims an MPEG file (MPEG-1, 2) in the range defined by the <i>Start position</i> and <i>Stop position</i> flags.	
Save As 	Saves the trimmed part of the MPEG file as another file (available only to registered users).	
Undo 	Allows you to undo trimmed actions BEFORE saving the selection.	
Grab	Grabs current frame and saves it as a	CTRL+G

Button	Function	Hot Key
	Windows Bitmap file.	
Volume 	Adjusts sound level.	UP ARROW, DOWN ARROW
About 	Opens About dialog box.	
Help 	Opens Help file.	F1
Minimize window 	Minimizes Player window.	

3.3 Shortcut Menu

The shortcut menu appears when the user right-clicks the main player window, the icon in Taskbar Notification Area (system tray), or any video window. The menu provides quick access to the player main control commands.

The following section describes all of the shortcut menu commands.

Play/Pause – Toggles between Play/Pause

Stop – Stops playback

FullScreen – Turns the full-screen mode On/Off

Grab – Saves the current frame to a file

Open Source... – Invokes the **Open** dialog box

Open – Submenu that contains the following commands:

Open File(s)... – Displays the **File** page of the **Open** dialog box

Open Folder... – Displays the **Folder** page of the **Open** dialog box

Open URL... – Displays the **Network** page of the **Open** dialog box

Bookmarks – Submenu that contains all saved bookmarks and the following command:

Add Bookmark – Creates a new bookmark in the current file

History – Displays the file history

Previous File – Opens the previous file from the playlist

Next File – Opens the next file from the playlist

Close File – Closes the currently opened file

Streams – Submenu that contains the following commands:

Video Streams – Submenu that contains all video streams from the current file – allows user to enable/disable any stream

Audio Streams – Submenu that contains all audio streams from the current file – allows user to enable/disable any stream

Subtitles – Allows user to select subtitles

Closed Captions – Turns on/off Closed Captions (for each video stream)

Windows – Submenu that contains the following commands:

On Top – Turns on/off mode that provides player position over other windows

Main window – Hides the player main window (only video window is displayed)

Playlist – Shows/hides the **Playlist** window

Information – Shows/hides the **Information** window

Graph – Shows/hides the built filter graph

Language – Allows user to specify the player user interface language

Settings... – Invokes the **Settings** dialog box


About... – Invokes the **About** dialog box

Help – Displays the help file

Exit – Closes the player

3.4 Player Settings

The following section describes the **Settings** window.

To open the **Settings** window, click the **Settings** button .

All of the settings are sorted into groups (displayed on the left pane of the **Settings** dialog box).

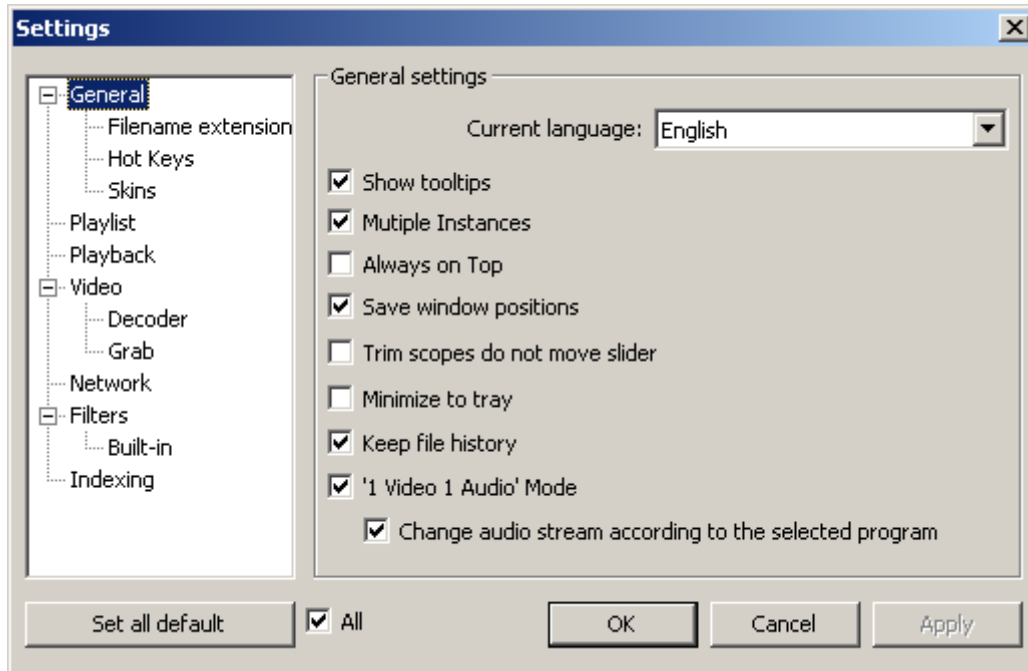
If the **Apply** button is clicked after any setting change, the new settings are applied immediately (before the **Settings** dialog box closing).

The **Set default** button restores the default values for the selected settings group. If the **All** check box is selected, the **Set all default** button restores the default values for all of the settings groups.

3.4.1 General Settings

To adjust the main settings, click **General**.

Figure 3. General Settings



The following table defines the General Settings options.

Table 3. General Settings Options

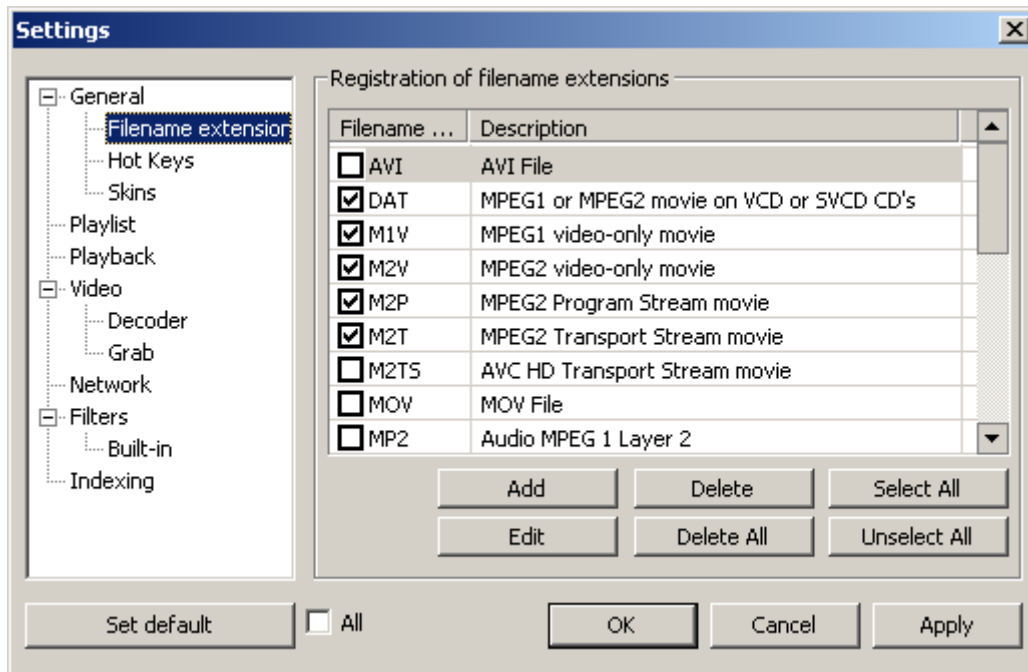
Option	Description
Current language	Specifies the player user interface language.
Show tooltips	Enables/disables the tooltips.
Multiple Instances	Allows several players' instances use.
Always on Top	Provides player position over other windows.
Trim scopes do not move slider	Prohibits movement of the current position pointer while trimming flag is moving.
Save window positions	Saves Main Video window, Play List window and Information window positions. Next time player is used, it sets the positions in the order they were last saved.
Minimize to tray	Enables/disables the player window minimizing into the system tray.
Keep file history	Enables/disables the opened files history displaying on the History pane of Playlist dialog box and in the Open->History menu. If the option is disabled, the file history is cleared automatically.
'1 Video 1 Audio' Mode	Enables/disables the fast channel switching mode. In this mode only one video and one audio channels (if the stream is multichannel) is used for playback. If the option is enabled, the first available video and audio channels are activated. Selection of active channels is performed with option buttons. If the option is disabled, any quantity of channels (from available) can be used for playback.
Change audio stream according to the selected program	Enables automatic change of audio stream according to the selected video stream. The feature is available only for multichannel streams, if the '1 Video 1 Audio' mode is enabled.

3.4.1.1 Filename Extensions

The **Filename Extensions** settings group allows you to associate media files with the player by extensions and to change the list of customized extensions.

To open the **Filename Extensions** settings, click **Filename Extensions**.

Figure 4. Filename Extensions Settings



Check boxes near filename extensions allow association of the selected file type with the player.

The following table defines the Filename Extensions Settings options:

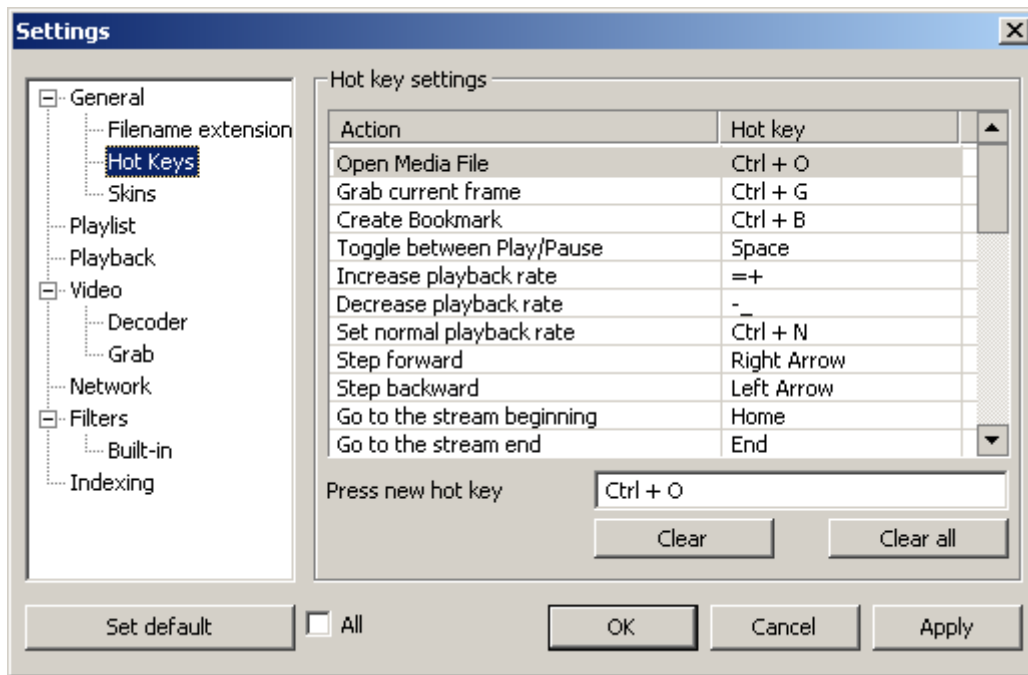
Table 4. Filename Extensions Settings Options

Option	Description
Add	Allows adding new file extension and description to the list.
Delete	Deletes selected file extension from the list.
Edit	Allows description editing of the selected file extension in the list.
Select All	Selects all file extensions in the list.
Unselect All	Unselects all file extensions in the list.
Delete All	Deletes all file extensions from the list.

3.4.1.2 Hot Keys

The **Hot Keys** settings group allows user to set and edit hot key combinations.

Figure 5. Hot Keys Settings



To set the hot key, select action from the list, set focus to the **Press new hot key** text box, and press the desired key combination. The **Clear** button removes hot key from the selected action. The **Clear all** button removes hot keys from all listed actions.

The following table describes the changeable hot keys.

Table 5. Changeable Hot Keys

Default Hot Key	Description
CTRL+O	Open media file.
CTRL+G	Grab the current frame.
CTRL+B	Create bookmark.
SPACEBAR or PAUSE	Toggle between Play/Pause.
PLUS SIGN	Increase the playback rate.
MINUS SIGN	Decrease the playback rate.
CTRL+N	Set the normal playback rate.
RIGHT ARROW	Step forward.
LEFT ARROW	Step backward.
HOME	Go to the stream beginning.
END	Go to the stream end.
UP ARROW	Increase volume.
DOWN ARROW	Decrease volume.
CTRL+M	Sound On/Off.
F	Full-screen mode On/Off.
CTRL+K	Show/Hide main window.
CTRL+L	Show/Hide PlayList window.
CTRL+I	Show/Hide Information window.
CTRL+F	Show the built filter graph.
CTRL+S	Set original Video Window size.
F1	Display Help.
CTRL+Q	Close program.
DELETE	Delete selected files from PlayList.
INSERT	Add file to PlayList.

Default Hot Key	Description
CTRL+A	Select all PlayList items.
CTRL+V	Display main window over video window.
CTRL+RIGHT ARROW	Fast forward.
CTRL+LEFT ARROW	Fast backward.
CTRL+UP ARROW	Previous file.
CTRL+DOWN ARROW	Next file.
CTRL+T	Toggle 'On Top' mode

The following table describes the unchangeable hot keys.

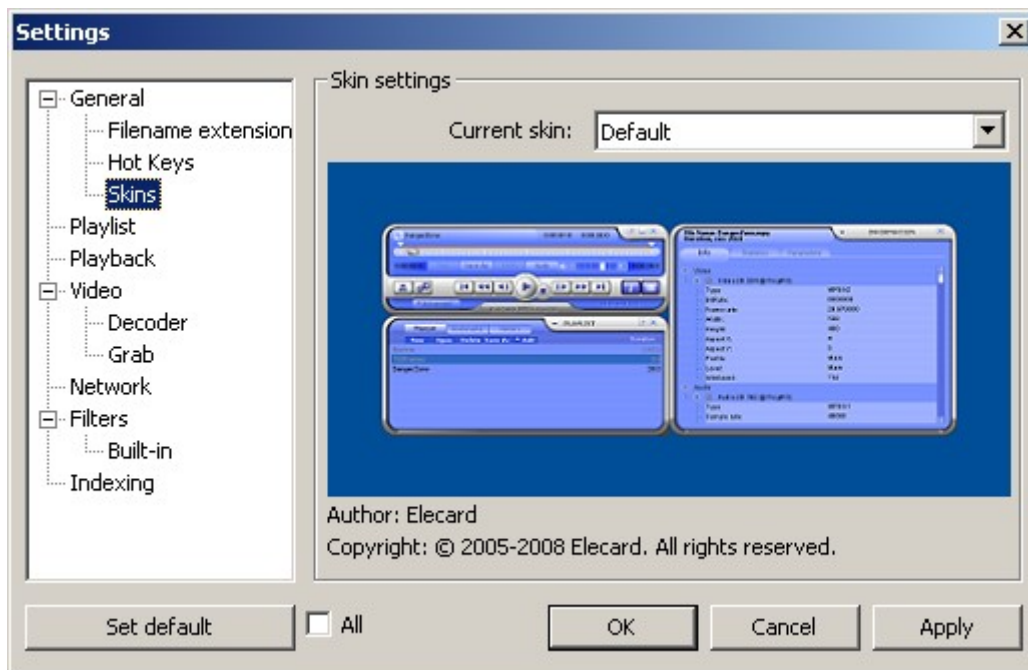
Table 6. Unchangeable Hot Keys

Default Hot Key	Description
ESC	Turn the full-screen mode Off (if the player operates in the full-screen mode).
ALT+ENTER	Toggle the full-screen mode On/Off.
ESC or ALT+F4	Close program.
PLAY/PAUSE (Media Button)	Toggle between Play/Pause.
STOP (Media Button)	Stop playback.
NEXT/PREVIOUS (Media Button)	Next/Previous file.

3.4.1.3 Skins

The **Skins** settings group allows user to select the player GUI appearance.

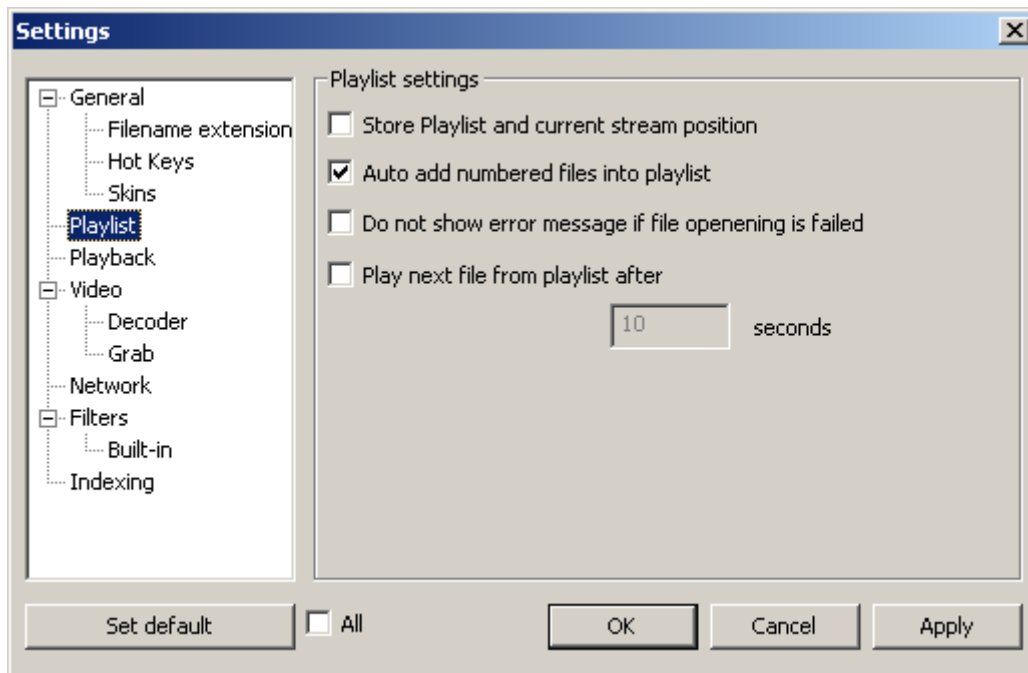
Figure 6. Skins Settings



3.4.2 Playlist

To adjust the playlist settings, click **Playlist**.

Figure 7. Playlist Settings



The following table defines the Playlist Settings options:

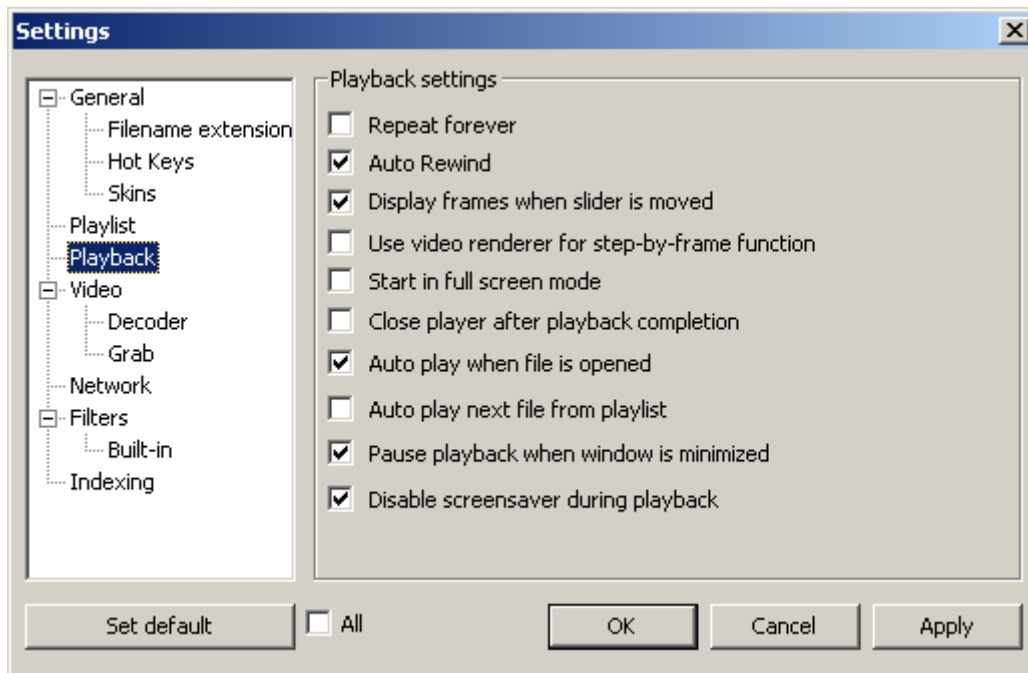
Table 7. Playlist Settings Options

Option	Description
Store Playlist and current stream position	Enables storing the current Playlist and stream position at the time of the player closing. When the player is run next time, the stream playback is started from this position.
Auto add numbered files into playlist	Enables addition to the playlist of all numbered file parts, if any part is opened (for instance, if the folder contains files <i>file_01.mpg</i> , <i>file_02.mpg</i> , <i>file_03.mpg</i> , the <i>file_01.mpg</i> opening adds the <i>file_02.mpg</i> and <i>file_03.mpg</i> files to the playlist automatically.
Do not show error message if file opening is failed	Disables displaying of the error message, if any file opening error occurs. The option is useful, if the automatic jump to the next playlist item is enabled.
Play next file from playlist after N seconds	Enables the automatic jump to the next playlist item after the specified time.

3.4.3 Playback

To adjust the playback settings, click **Playback**.

Figure 8. Playback Settings



The following table defines the Playback Settings options:

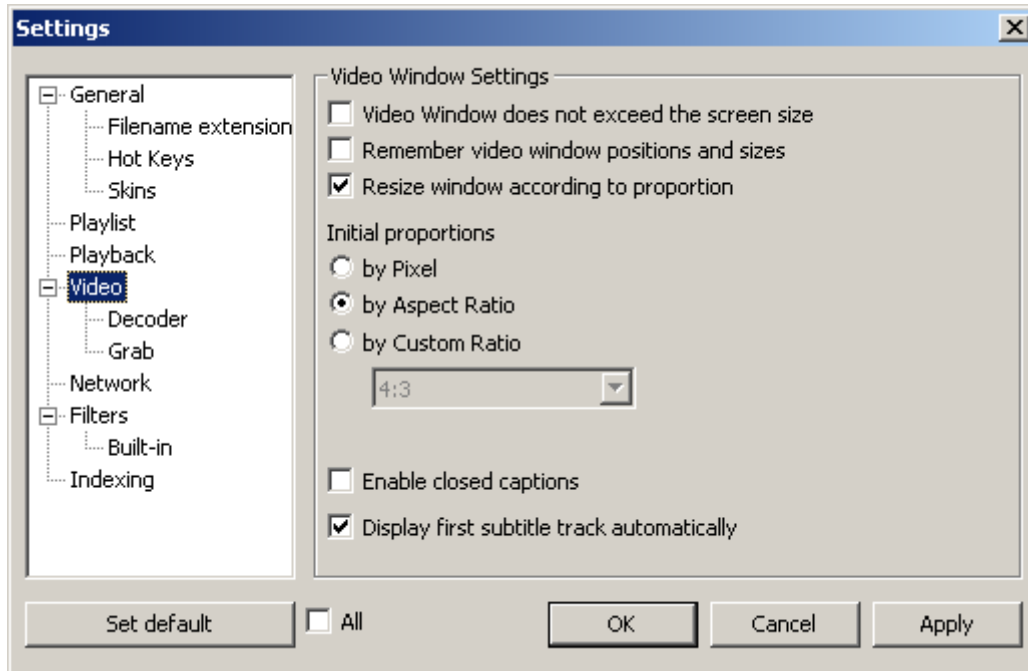
Table 8. Playback Settings Options

Option	Description
Repeat forever	Plays file or play list in a loop.
Auto Rewind	In <i>Stop</i> mode, rewinds playback position to the beginning of the stream.
Display frames while moving slider	Displays frames when the slider is moving.
Use video renderer for step-by-frame function	Uses a step-by-frame function. It is realized in the <i>Renderer</i> filter.
Start in full screen mode	Starts playback in the <i>Full Screen</i> mode.
Close player after playback completion	Closes the player, when the file playback ends.
Auto play when file is opened	Player automatically starts playback after the file opening.
Auto play next file from playlist	Plays next file from play list after the previous file ends.
Pause playback when window is minimized	Pauses playback, if the player window is minimized.
Disable screensaver during playback	Disables screensaver, if playback is started.

3.4.4 Video

To adjust the main video settings, click **Video**.

Figure 9. Video Settings



The following table defines the Video Window Settings options:

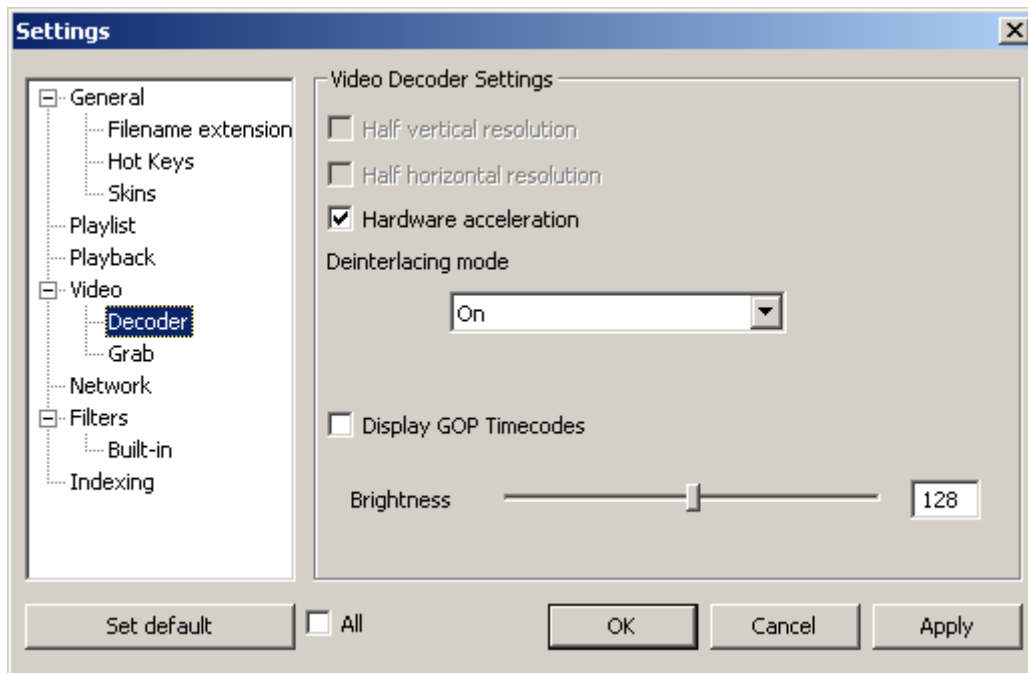
Table 9. Video Window Settings Options

Option	Description
Video Window does not exceed the screen size	Automatically shrinks the video window not to go outside the screen boundaries (important for HD video).
Remember video window size	Remembers current video window size. The size is restored, when the next video stream is opened.
Resize window according to proportion	Maintains original proportions of video window even if the window's physical size is changed.
Enable closed captions	Enables the Closed Captions data displaying.
Display first subtitle track automatically	Enables the automatic displaying of the first DVD or DVB subtitle track.
Initial proportions	
By Pixel	Video is displayed with 'pixel-by-pixel' initial proportions.
By Aspect Ratio	Video is displayed with the aspect ratio value contained in the stream.
By Custom Ratio	Video is displayed with the aspect ratio selected from the list.

3.4.4.1 Decoder

To adjust the video decoder settings, click **Decoder**.

Figure 10. Video Decoder Settings



The following table defines the Video Decoder Settings options:

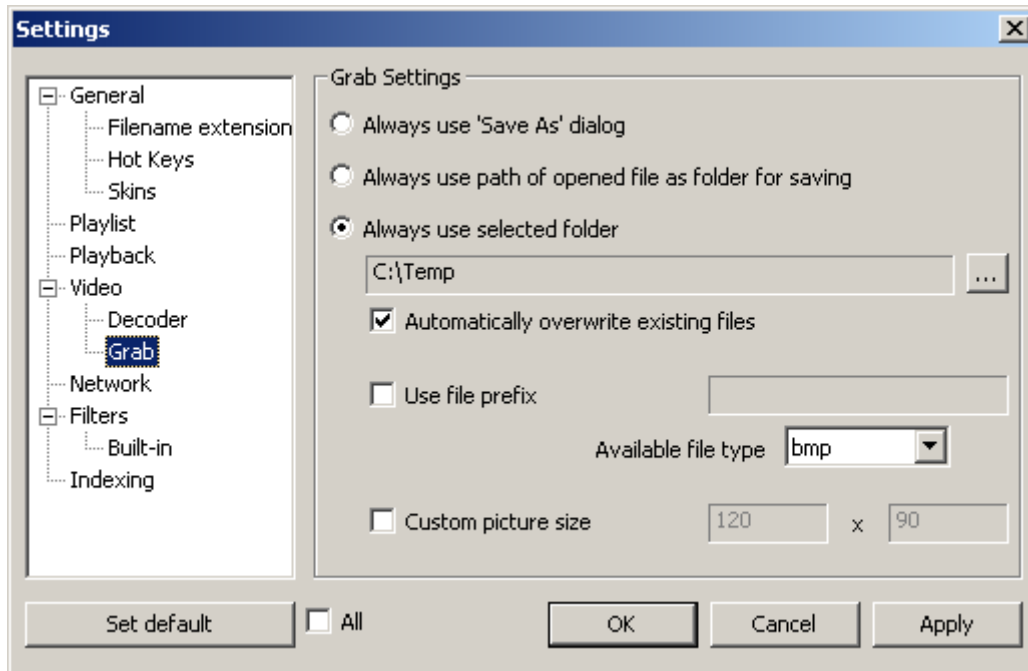
Table 10. Video Decoder Settings Options

Option	Description
Half vertical resolution	Sets half vertical resolution.
Half horizontal resolution	Sets half horizontal resolution.
Hardware acceleration	Enables hardware acceleration via the DirectX Video Acceleration interfaces (if available).
Deinterlacing mode	<p>Sets the deinterlacing method. The following values are available:</p> <ul style="list-style-type: none"> <i>Auto</i> – In software mode (when Hardware Acceleration is Off) performs deinterlacing on interlaced frames and does not deinterlace progressive frames. In hardware mode, puts correct interlacing flags on output samples and allows VMR (Video Mixing Renderer) to control deinterlacing process. <i>On</i> – In software mode (when Hardware Acceleration is Off) performs deinterlacing on all types of frames (both interlaced and progressive). In hardware mode, puts correct interlacing flags on output samples and allows VMR (Video Mixing Renderer) to control deinterlacing process. <i>Off</i> – Does not perform deinterlacing process on all types of frames. <i>Double Rate</i> – Generates one progressive frame from every field. <i>Double Weave</i> – Generates interlaced frames with doubled frame rate.
Display GOP Timecodes	Enables the GOP timecode displaying (in place of current position). The option is available only for MPEG-2 streams.
Brightness	Adjusts the video brightness.

3.4.4.2 Grab

To adjust the grab settings, click **Grab**.

Figure 11. Grab Settings



The following table defines the Grab Settings options:

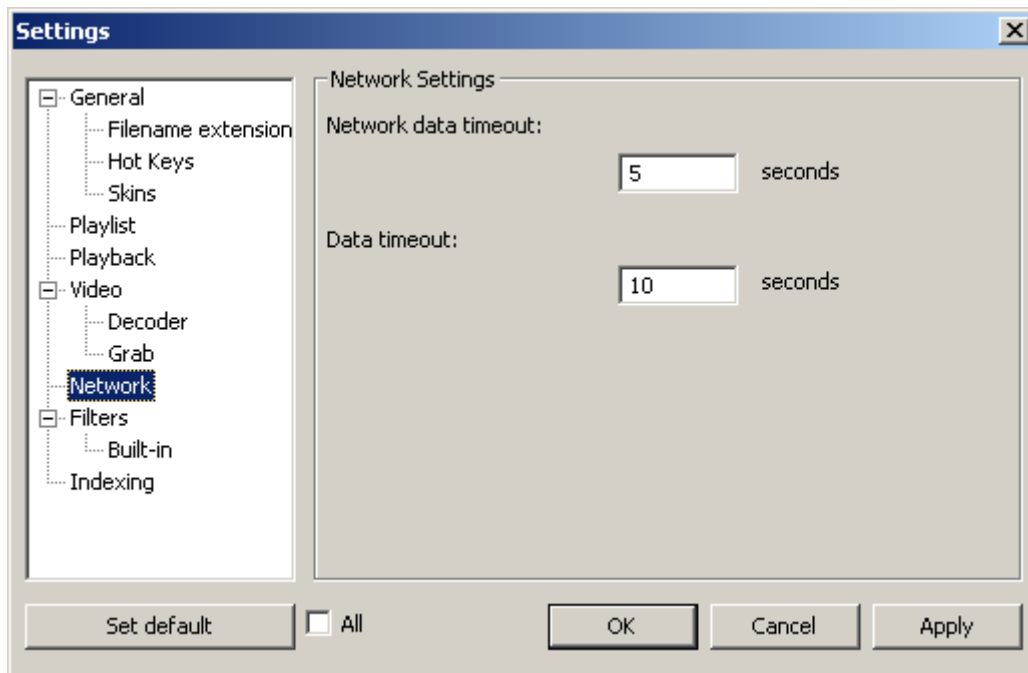
Table 11. Grab Settings Options

Option	Description
Always use 'Save As' dialog	Always invokes <i>Save as</i> dialog box for picture saving.
Always use path of opened file as folder for saving	Folder name for the grabbed bitmap files saving is generated from the opened file path.
Always use selected folder	Enables selection of the fixed folder for saving.
Browse button	Specifies the fixed folder for the grabbed bitmap files saving.
Automatically overwrite existing files	If a file with a generated name already exists, it is overwritten automatically with a new one.
Use file prefix	Sets the filename prefix for the grabbed and saved bitmap files.
Available file type	Sets the format type for picture saving (bmp/jpeg/gif).
Custom picture size	Allows you to adjust the grabbed picture size.

3.4.5 Network

To adjust the network settings, click **Network**.

Figure 12. Network Settings



The following table defines the Network Settings options:

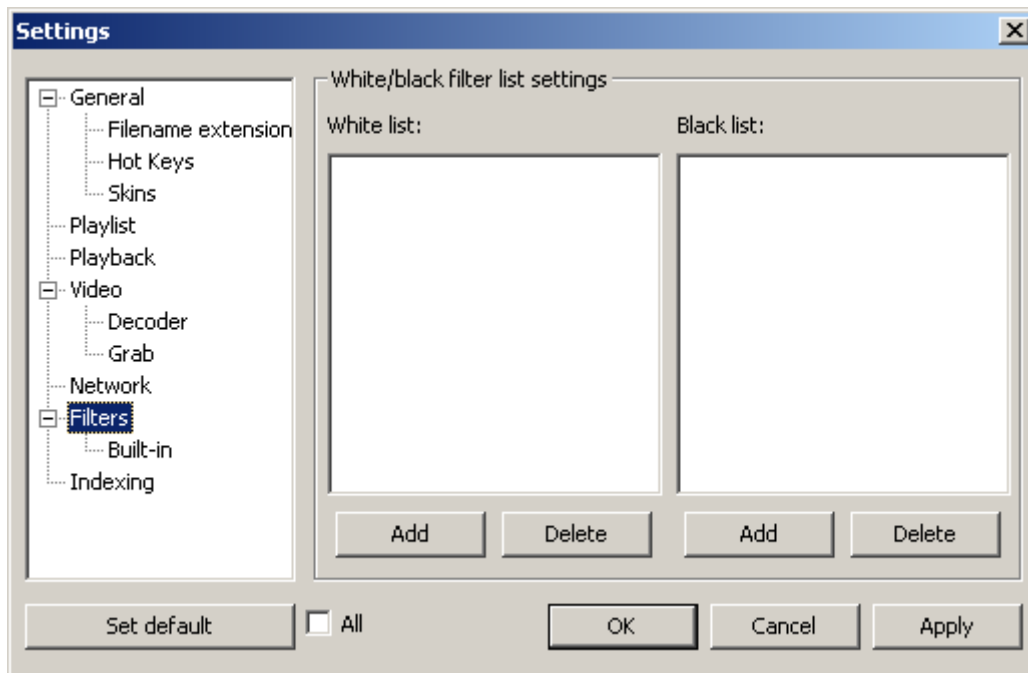
Table 12. Network Settings Options

Option	Description
Network data timeout	Sets the data waiting time (in sec) during a broadcast stream opening.
Data timeout	Sets the time interval (in sec) for data waiting, if the broadcast data receiving is lost. If the specified time interval is expired and the broadcasting is not restored, the player turns into the stop state.

3.4.6 Filters

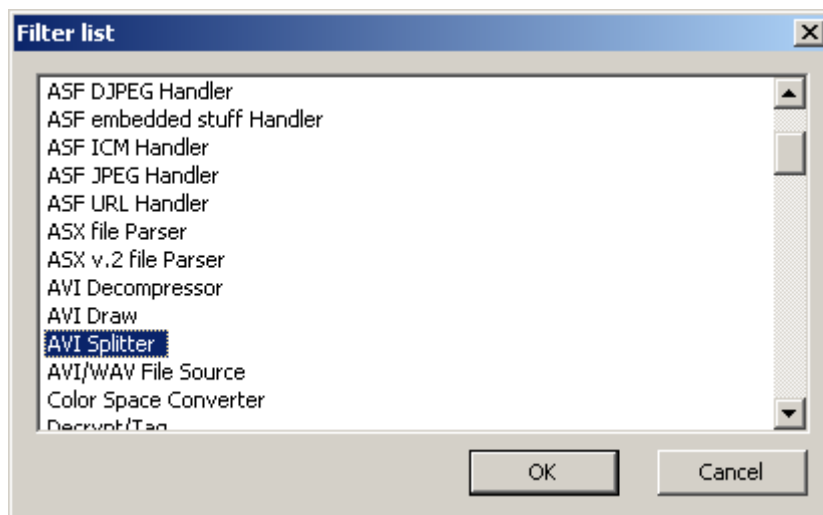
The Filters Settings group allows user to separate the DirectShow® filters (registered in the system) into two categories – **White list** (permitted for use with the player) and **Black list** (forbidden for use with the player).

Figure 13. Filters Settings



To add filters to the White or Black list, click the corresponding **Add** button and select available filter (or filters) in the **Filter list** dialog box.

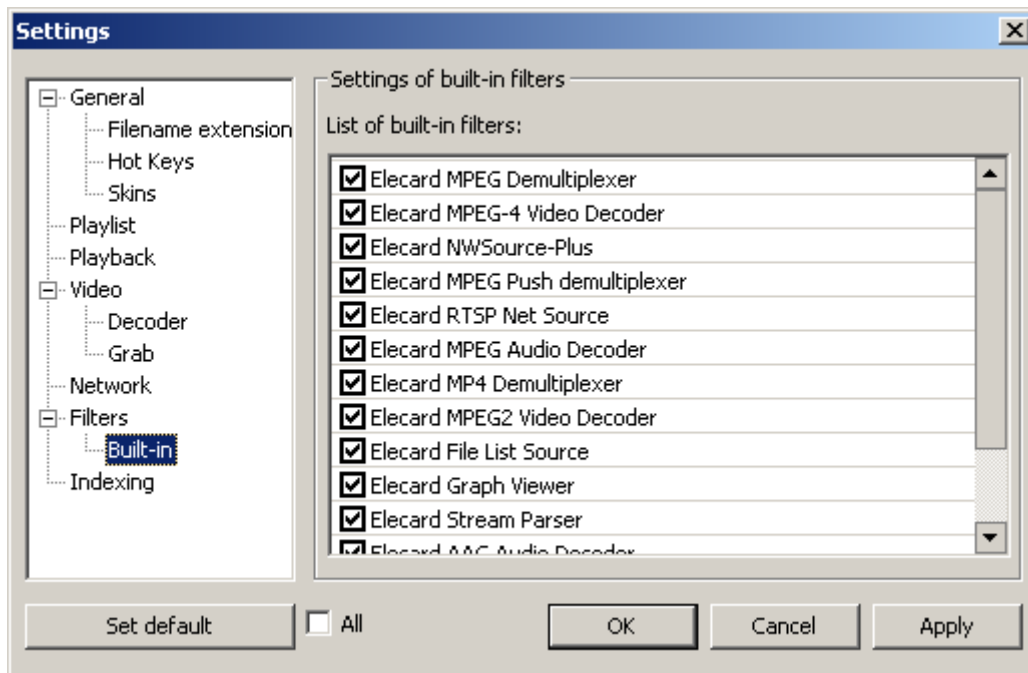
Figure 14. Filter List



3.4.6.1 Built-in

The Built-in Filter Settings group allows user to enable or disable use of the filters included into the player package.

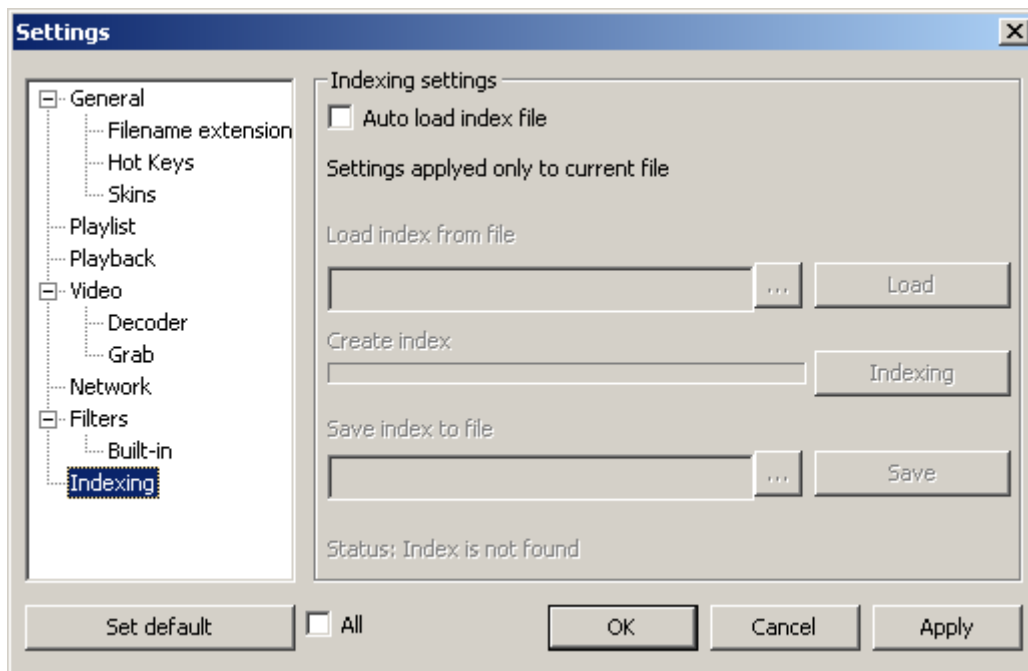
Figure 15. Built-in Filters Settings



3.4.7 Indexing

The indexing process is used for MPEG-2 files and provides extended precision of the stream positioning and duration determination.

Figure 16. Indexing Settings



The following table defines the Indexing Settings options:

Table 13. Indexing Settings Options



Option	Description
Auto load index file	Enables/disables the index file auto search (in the media file folder) and loading.
Load index from file	Allows the manual index file selection and loading.
Create index	Indexes the opened MPEG-2 file.
Save index to file	Saves the created index to file.
Status	Indicates state of the file indexing. The following values are available: <ul style="list-style-type: none"> • Index is not found • Index is loaded • Indexing • Index is created • Index is saved • Index is not saved • Indexing is stopped

3.5 Basic Player Operations

3.5.1 File and Stream Opening

The **Open** dialog box allows user to open for playback any file (singly or in groups) from disk or stream from network.

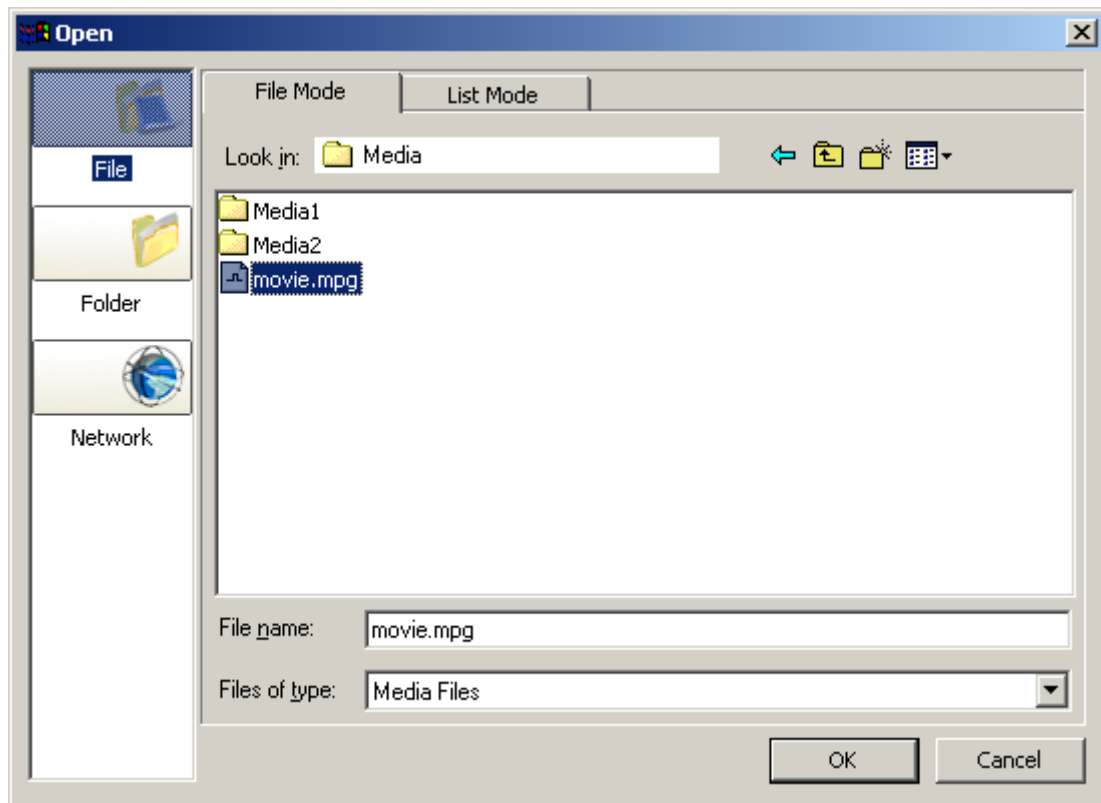
To invoke the **Open** dialog box, do one of the following actions:

- Click the **Open**  button in the player main window
- Right-click in the player main window and click the **Open** command on the appeared short-cut menu
- Click the **Add**  button in the **Playlist** window

3.5.1.1 File Opening – File Mode

To open file (singly or in groups) for playback, open the **Open** dialog box, click the **File** icon, and select the **File Mode** tab.

Figure 17. File Opening – File Mode



Select file (singly or in groups) and click **OK**.

The **File of type** list allows user to select the type of files that are displayed in the file list:

- *Media Files* – all media files are displayed
- *Registered Media Files* – only files associated with the player (i.e. with registered filename extensions) are displayed (see the Filename Extensions section)
- *Lists of Files* – only file lists are displayed (i.e. files with *.XPL *.M3U filename extensions)
- *All Files* - all files are displayed

3.5.1.2 File Opening – List Mode

To open files for playback in the list mode, open the **Open** dialog box, click the **File** icon, and select the **List Mode** tab.

In the list mode all opened files are played as a single file.

Note: *The list mode playback is possible only for MPEG files of the same resolution, profile, level, and multiplexing type (i.e. either program stream, transport stream, or systems stream). In case of multiplexed streams, PIDs and stream IDs for the elementary streams rendered must be the same in all files of the play list. These requirements ensure correct*

playback and adequate positioning in play list.

Figure 18. File Opening – List Mode

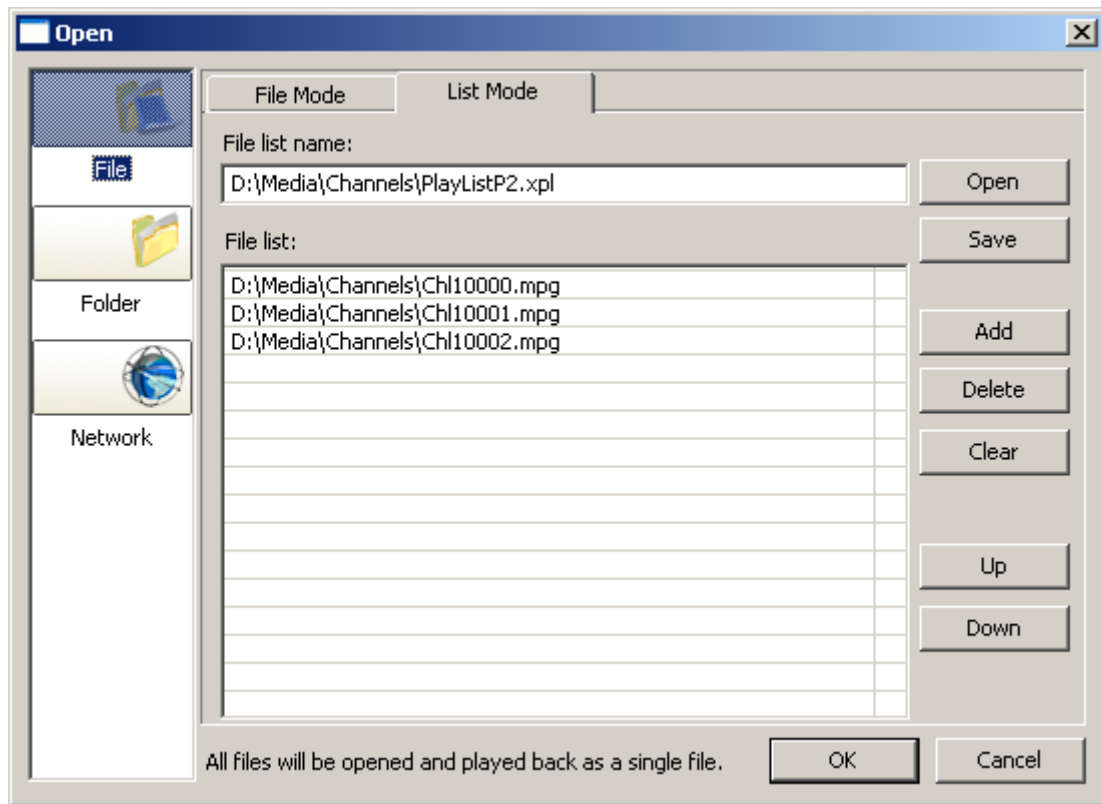


Table 14. File Opening – List Mode Options

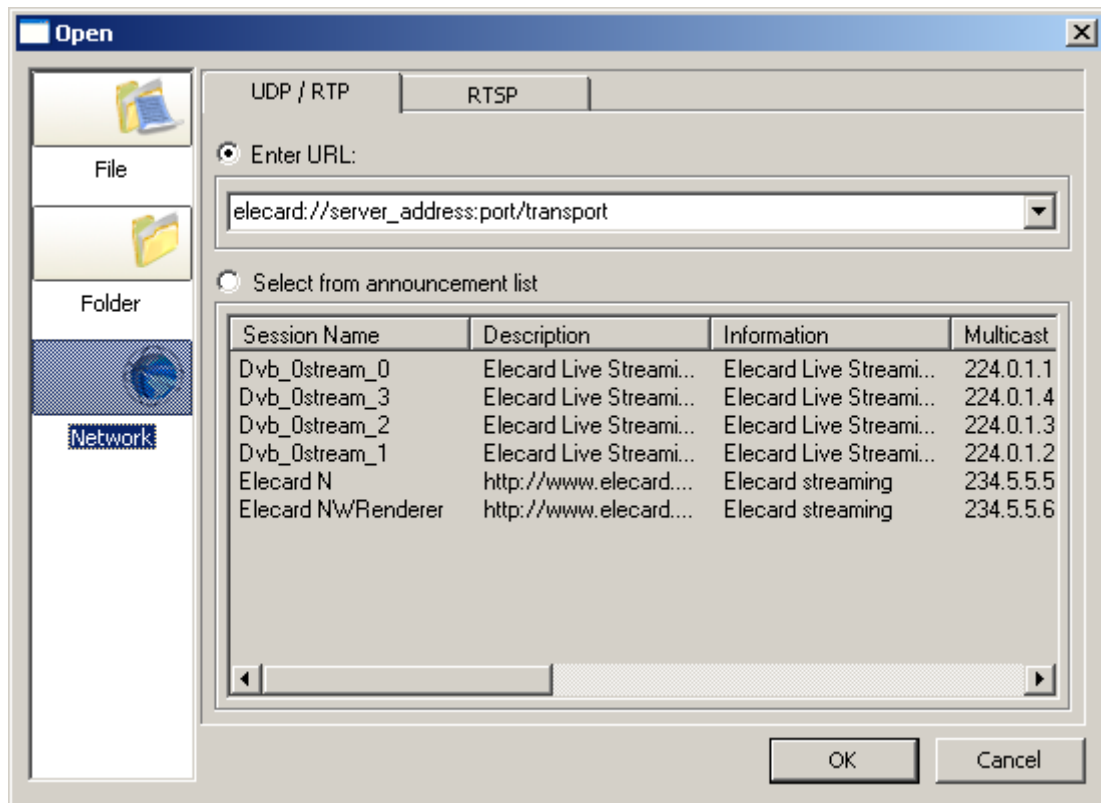
Option	Description
File list name	Specifies a path of file for the list saving.
Open	Opens a previously saved list.
Save	Saves the list to a file.
Add	Adds the selected file to the list.
Delete	Removes the selected file from the list.
Clear	Clears the list.
Up	Moves up the selected file in the list.
Down	Moves down the selected file in the list.

When the file list is compiled, click **OK**.

3.5.1.3 Stream Opening – UDP/RTP Mode

To open a stream for playback in the URP/RTP mode, open the **Open** dialog box, click the **Network** icon, select the **UDP/RTP** tab, and type URL or select broadcast stream from the announcement list.

Figure 19. Stream Opening – UDP/RTP Mode



URL examples:

```
http://<www.sitename.com>/<filename.mpg>
```

```
elecard://234.5.5.5:10201/udp
```

```
elecard://234.5.5.5:10201/rtp
```

```
rtsp://192.168.1.72:554/rbk.mpg
```

***Note:** If multiple items are selected in the announcement list and the **OK** button is pressed, all of the selected items will be added to the playlist.*

3.5.1.4 Stream Opening – RTSP Mode

To open a stream for playback in the RTSP mode, open the **Open** dialog box, click the **Network** icon, select the **RTSP** tab, and type URL in the following form:

```
rtsp://server_address:port[/data_path]
```

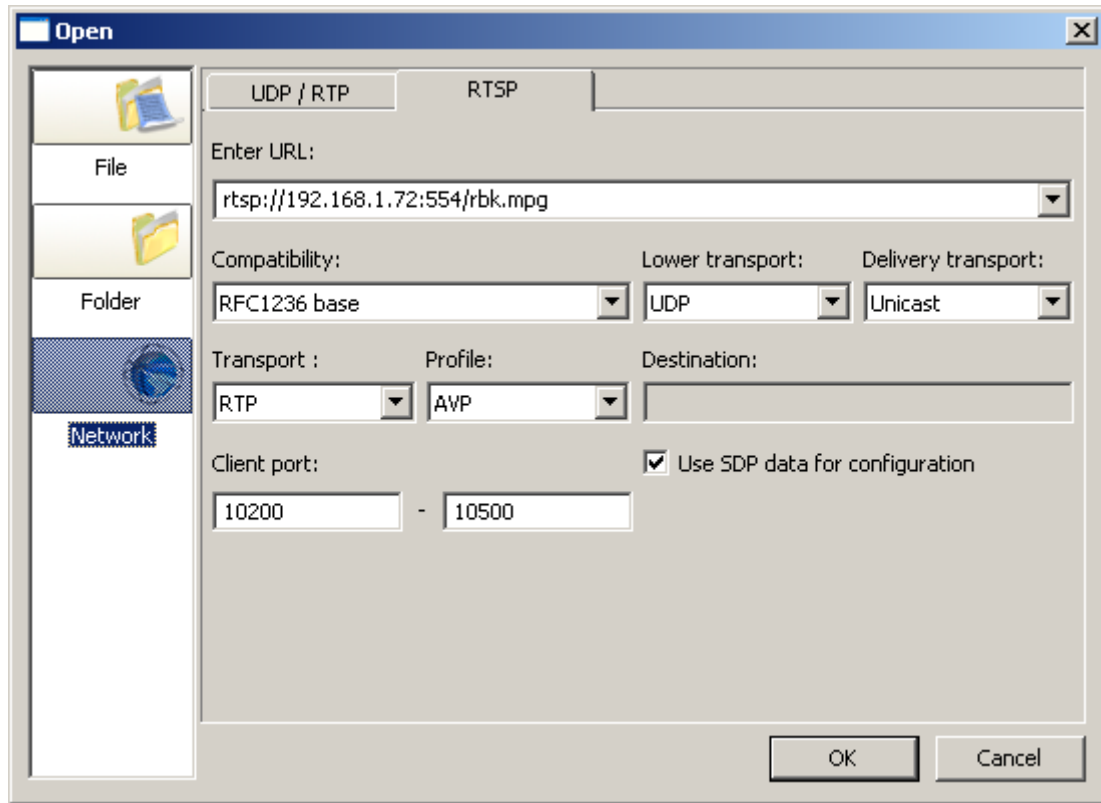
where:

server_address – data source server IP or DNS name

port – server port number for RTPS commands (unsigned integer value from 1 to 65535; 554 - default value)

data_path – any user data.

Figure 20. Stream Opening – RTSP Mode





The following table describes the RTSP source adjustable parameters:

Table 15. RTSP Source Options



Option	Description
Compatibility	Selects the server compatibility mode.
Transport	Specifies the transport type.
Profile	Specifies the profile type.
Lower transport	Specifies the lower transport type – TCP or UDP packets.
Delivery transport	Specifies the unicast/multicast for RTSP request.
Destination	Specifies the destination for RTSP request.
Use SDP data for configuration	Enables/disables the filter adjustment using the SDP information received from server.
Client port	Specifies the first and last port number in the range for the RTSP request.



3.5.2 File and Stream Playback



To play any file or stream, open it using the **Open** dialog box and click the **Play**  button.

To stop playback, click **Stop**  button. (Available only for file and RTSP playback.)

To pause playback, click **Pause**  button.

To set the current playback position at the beginning or the end of a file, use the **Start**  or **End**  buttons.

For fast forward or rewind and viewing the movie by step, click the **Rewind/Backward Playback**  or **Forward Playback**  buttons. (Available only for file and RTSP playback.)

To view a movie by frame or by number of seconds, click the **Step backward by frame**  or **Step forward by frame**  buttons. (Available only for file playback.)

3.5.3 Trimming Clips

The trim function allows user to cut (trim) sections of a movie file.

To trim a clip, do the following actions:





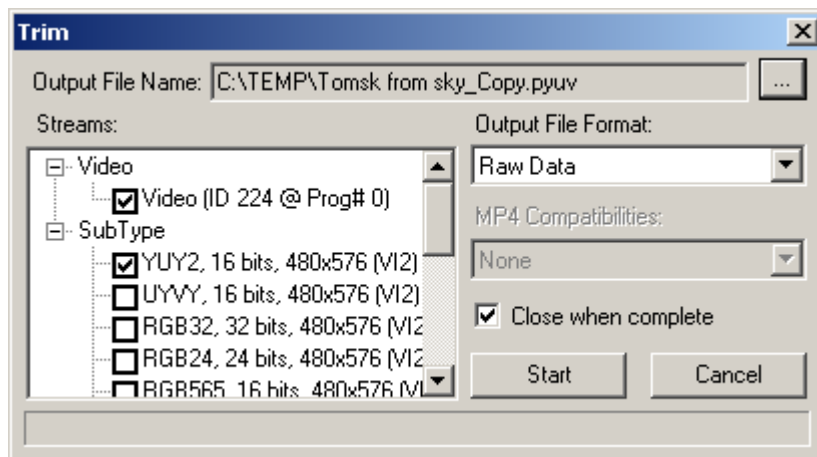
1. Open the file for trimming.
2. Set **Start Position Flag**  at the beginning and **Stop Position Flag**  at the end of the clip you wish to cut.
3. Click **Trim**  button.
4. Click **Save As**  button and save the trimmed part of the file using the **Trim** dialog box.

Figure 21. Trim Dialog Box



The following table describes the **Trim** dialog box options:

Table 16. Trim Dialog Box Options



Option	Functions
Output File Name	Specifies the output file name.
Output File Format	Specifies the output file format.
Streams	Allows user to select elementary streams for multiplexing into the output stream.
MP4 Compatibility	Compatibility of MP4 file.
Close when complete	Closes dialog when the trimming is completed.

Note: Trimming is available only to registered users.

3.5.4 Grabbing Frames

The grab function allows user to take an image from a movie file.

To grab a frame, do the following actions:

1. Set the **Pointer**  at the position of the selected frame.
2. Click the **Grab**  button.

According to the **Grab Settings**, the frame will be saved as a file of selected type in the current directory next to the movie or in the directory specified in the **Grab Settings**. The name of the file will consist of the movie's file name and the number of the frame.

Note: Grabbing is available only to registered users.

3.5.5 Start in Full-screen Mode (Command Line)

To start playback in the full-screen mode, create a command line as follows:

```
C:\Program Files\Elecard MPEG-2 Player\MpgPlayer.exe G:\Video\mpeg.mpg /fs /cl
```

here:

/fs – key to start playback in the full-screen mode

/cl – key to close the player, when the movie ends

/deint_on – key to enable the deinterlacing mode of video decoder (*vertical filter* value is set)

/deint_off – key to disable the deinterlacing mode

3.5.6 Play List Usage

The play list option allows user to use an already existing list or to create a new file list.

To open the play list, click **Play List**  button.

Figure 22. Play List Panel



The following table describes the **Play List** panel options:


Table 17. Play List Panel Options

Option	Functions
Play List Play List	Views play list.
Bookmarks Bookmarks	Creates and saves bookmarks.
History History	Shows a list of previously played movies.
New New	Opens a new play list.
Open Open	Opens a file or a saved play list (in XPL or M3U format).
Save as Save As	Saves a play list (in XPL or M3U format).
Add Add	Adds a file, folder or URL to the current play list.
Delete Delete	Deletes selected files from the current play list or bookmark list.
Save Save	Saves file path and position to bookmark list.
Clear Clear	Clears history list.
Help ?	Opens the Help file.
Minimize Window ↓	Minimizes the Player window.
Close X	Closes the play list.

3.6 Information Window

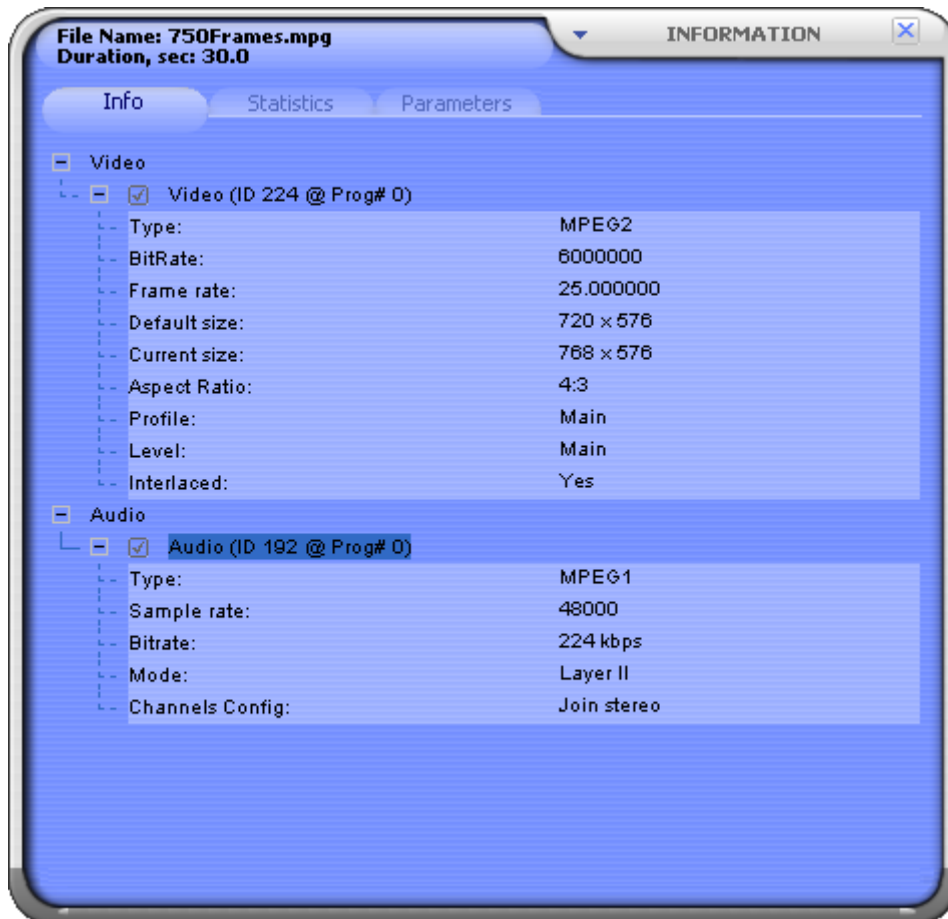
The following section describes the **Information** window.

The window indicates information regarding the available streams, provides decoders and renderers statistics, allows the decoder parameter adjustment and the stream control (enables/disables any stream, controls displaying of subtitles).

To open the **Information** window, click the **Information**  button or right-click in the player window.

To view the stream information, click the **Info** tab, and open the selected video or audio branch.

Figure 23. Information Window – Info Tab



The following table describes the **Info** parameters displayed for any video branch.

Table 18. Information Window – Video Info Parameters

Parameter	Description
Type	Video stream type.
BitRate	Bit rate (bits/sec) specified in the video sequence header.
Frame rate	Frame rate (frames/sec) specified in the video sequence header.
Default size	Video size (pixels) specified in the video sequence header.
Current size	Real size of video window.
Aspect Ratio	Aspect ratio specified in the video sequence header.
Profile	MPEG profile.
Level	MPEG level.
Interlaced	Type of video sequence (interlaced or progressive).
User Data	Presence of User Data in the video sequence.

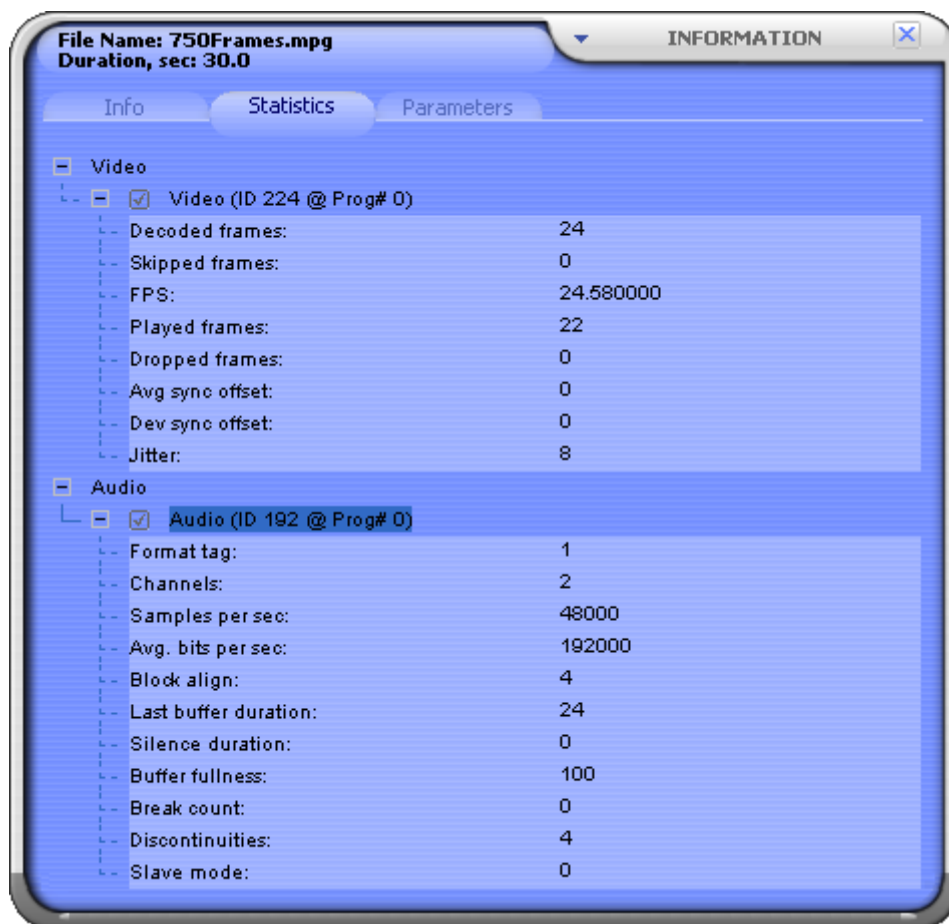
The following table describes the **Info** parameters displayed for any audio branch.

Table 19. Information Window – Audio Info Parameters

Parameter	Description
Type	Audio stream type.
Sample rate	Sampling frequency (Hz).
Bitrate	Bit rate (kbits/sec).
Mode	Audio MPEG Layer.
Cannels Config	Configuration of channels.

To view the statistics information, click the **Statistic** tab, and open the selected video or audio branch.

Figure 24. Information Window – Statistics Tab



The following table describes the **Statistics** parameters displayed for any video branch.

Table 20. Information Window – Video Statistics Parameters

Parameter	Description
Decoded frames	Total number of decoded frames.
Skipped frames	Number of skipped frames.
FPS	Average frame rate achieved during the playback.
Played frames	Number of frames displayed since the streaming start.
Dropped frames	Number of frames dropped by the renderer.
Avg sync offset	Average time difference between the moments when a frame is due for rendering and when the rendering actually occurs (milliseconds).

Parameter	Description
Dev sync offset	Average time difference between the moments when a frame is due for rendering and when the rendering actually occurs (standard deviation).
Jitter	Average time between successive frames delivered to the video renderer (milliseconds).

The following table describes the **Statistics** parameters displayed for any audio branch.

Table 21. Information Window – Audio Statistics Parameters

Parameter	Description
Format tag	Waveform-audio format type. Format tags are registered with Microsoft Corporation for many compression algorithms.
Channels	Number of channels in the waveform-audio data.
Samples per sec	Sampling frequency (Hz).
Avg. bits per sec	Average data-transfer rate required for the format tag (bits per second).
Block align	Block alignment (bytes). The block alignment is the minimum atomic unit of data for the Format tag format type.
Last buffer duration	Duration of the most recent audio buffer (milliseconds).
Silence duration	Amount of data dropped to stay in sync (milliseconds).
Buffer fullness	Audio data level in the audio buffer (percentage).
Break count	Cumulative number of breaks in the audio stream.
Discontinuities	Cumulative number of discontinuities in the audio stream.
Slave mode	Current rate-matching mode.

To view and set the decoder parameters, click the **Parameters** tab, and open the selected decoder.

The video branch allows user to adjust parameters of video decoders and to select Closed Captions and DVD subtitles.

Figure 25. Information Window – Parameters Tab

