



MPEG Audio ES Viewer User's Guide

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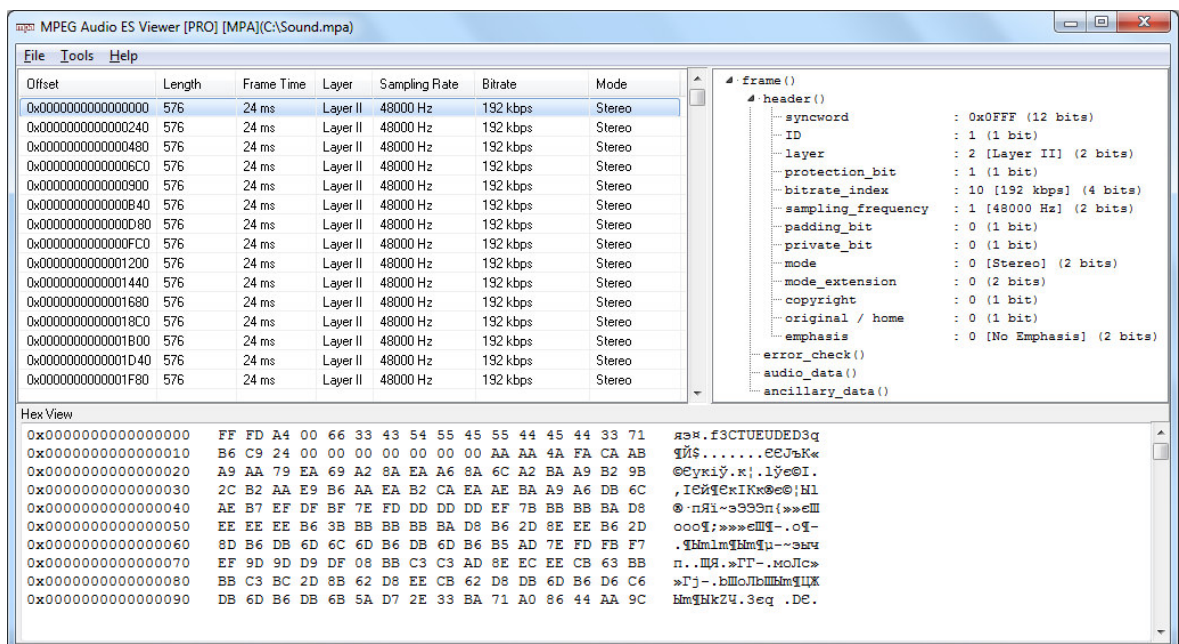
The logo for Jongbel Media Solutions features the word "JONGBEL" in a bold, blue, sans-serif font. The letter "O" is stylized with a yellow and orange circular graphic element. Below "JONGBEL" is the phrase "MEDIA SOLUTIONS" in a smaller, blue, sans-serif font.

TABLE OF CONTENTS

1. Overview.....	4
1.1 General Features	5
1.2 Supported Structures	5
2. Installation.....	6
2.1 Installing MPEG Audio ES Viewer	6
2.2 Uninstalling MPEG Audio ES Viewer	9
3. Functions	9
4. Validation	14

1. Overview

MPEG Audio ES Viewer application provides a visual representation of the structure of MPEG audio elementary stream according to the ISO/IEC 11172-3 and ISO/IEC 13818-3 specification. The application supports the most popular broadcast MPEG-1 Audio Layer I and MPEG-1 Audio Layer II formats as well as the most popular end-user MPEG-1 Audio Layer III format. MPEG Audio ES Viewer Pro supports MPEG-1 Layer I and Layer II audio elementary stream validation. Invalid header fields and stream decoding errors are easily detectable. The Pro version of the product supports MPEG audio stream import from MPEG-2 Program Stream, MPEG-2 Transport Stream, MP4 and MXF multiplexed media files.



The MPEG audio frames sequence can be investigated along with the most common parameters of each audio frame in the application's list view. Detailed MPEG audio frame header information is available in the application's tree view. Hexadecimal representation of the MPEG audio elementary stream file is available in the Hex View module.

MPEG Audio ES Viewer solution is useful for detailed MPEG Audio Layer I/II/III elementary streams investigation and error detection.

1.1 General Features

- Visual representation of MPEG audio elementary stream
- MPEG 1 Audio Layer I support
- MPEG1 Audio Layer II support
- MPEG1 Audio Layer III support
- MPEG audio frames list view representation
- MPEG audio frames tree view representation
- MPEG audio header tree view representation
- Hexadecimal data representation of the file
- Automatic hex positioning of the selected audio frame
- Hex data editing of the selected MPA audio frame
- MPEG audio Layer I and Layer II stream validation – available in MPEG Audio ES Utils Pro
- MPEG audio elementary stream import from MPEG-2 Program Stream media file – available in MPEG Audio ES Utils Pro
- MPEG audio elementary stream import from MPEG-2 Transport Stream media file – available in MPEG Audio ES Utils Pro
- MPEG audio elementary stream import from MP4 media file – available in MPEG Audio ES Utils Pro
- MPEG audio elementary stream import from MXF media file – available in MPEG Audio ES Utils Pro

1.2 Supported Structures

- MPEG audio elementary bit stream
- MPEG audio frame header

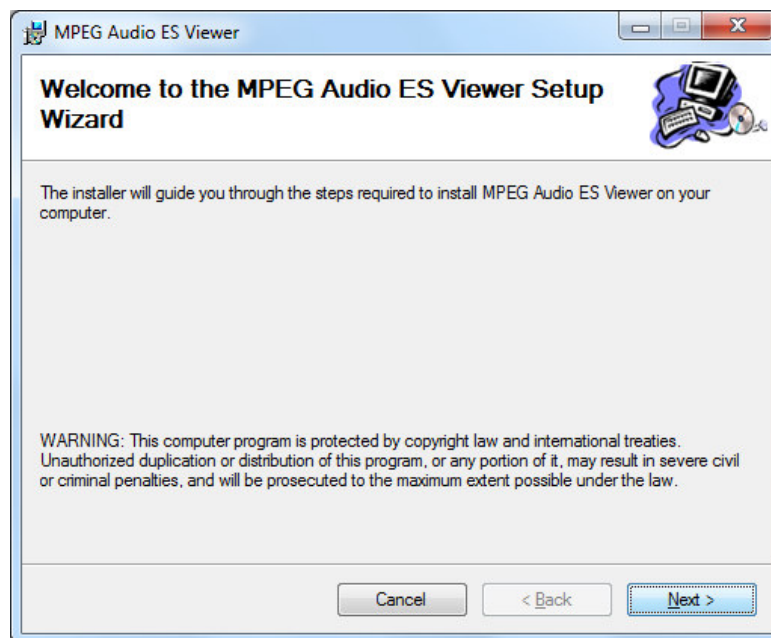
2. Installation

2.1 Installing MPEG Audio ES Viewer

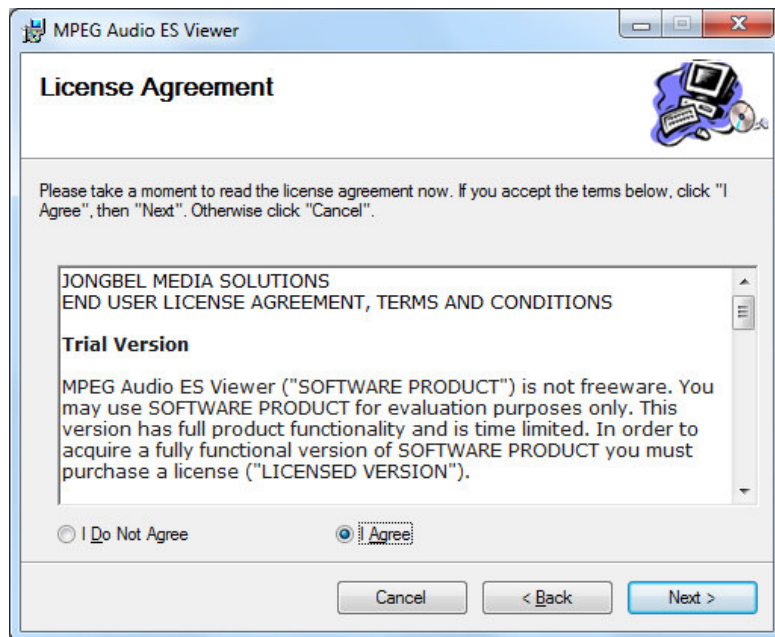
Before installing the **MPEG Audio ES Viewer** solution, make sure that any previous version of the product has been uninstalled refer 2.2.

The installation package of **MPEG Audio ES Viewer** is distributed in msi file. After downloading the file from the official Jongbel Media Solutions web site – www.jongbel.com, execute the installation by starting the msi file.

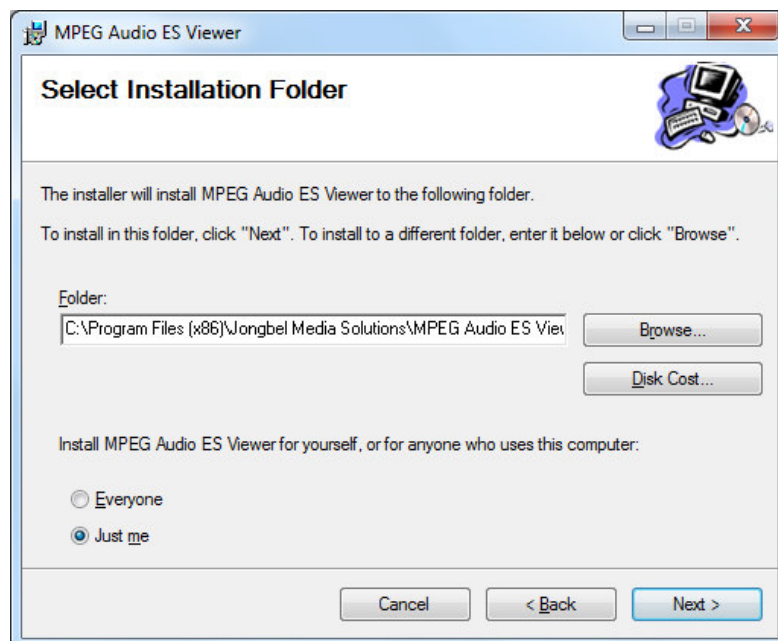
First a Welcome dialog pops up. Click “Next” in order to proceed.



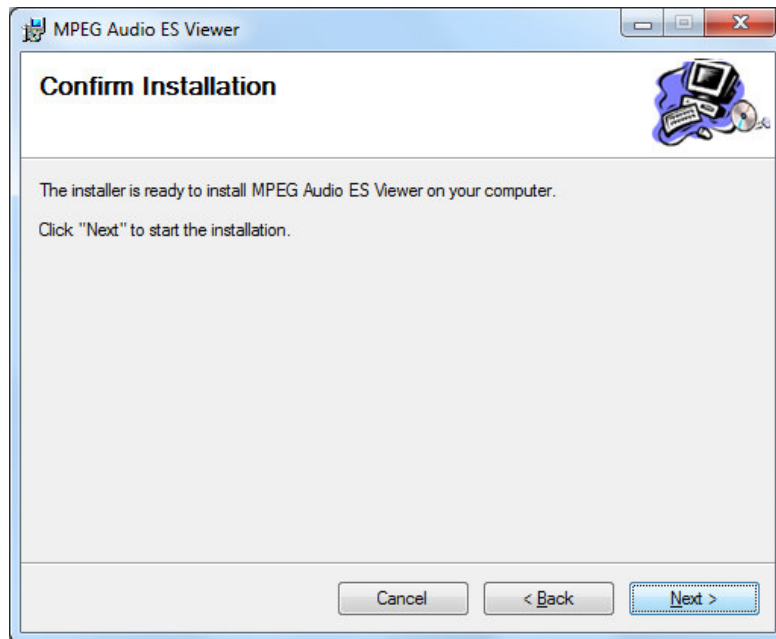
After this a License Agreement dialog pops up. Read the agreement carefully, select “I Agree” if you agree all the terms and click “Next” to proceed.



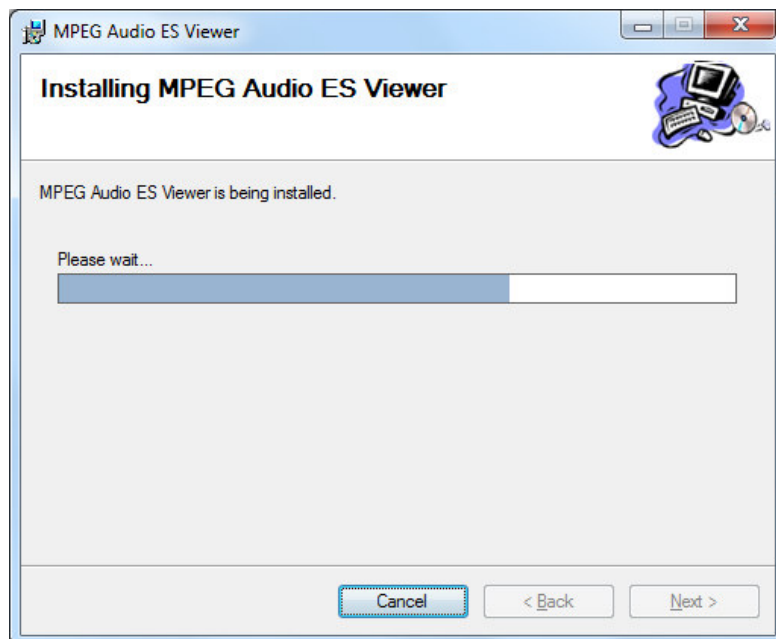
The next window shown specifies the installation product location and user access to the product. Change the destination product folder and user access if needed and click "Next" to proceed.



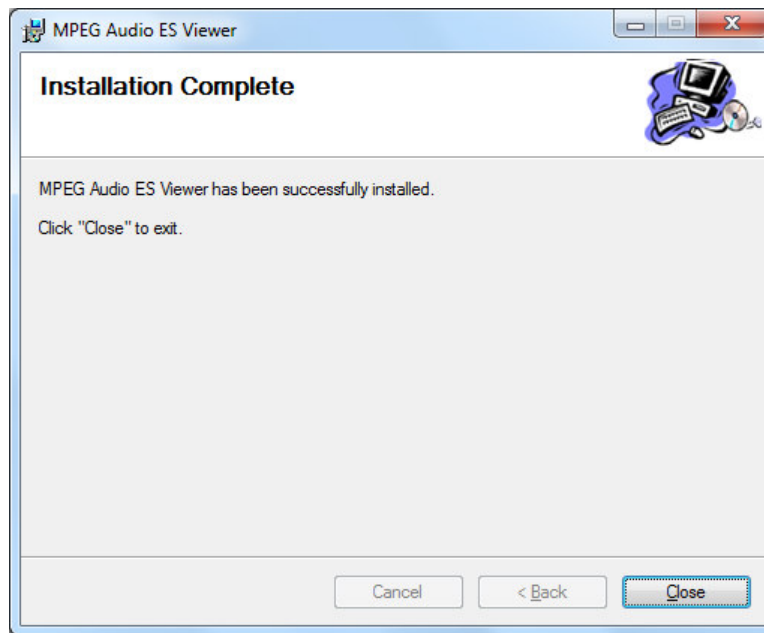
The next dialog is a confirmation dialog. Confirm by clicking "Next" in order to start the installation procedure.



While the product is being installed an "Installing" window shows the installation progress. Wait until the product is being installed.



At the end an "Installation Complete" dialog pops up, which denotes the successful MPEG Audio ES Viewer installation. Click "Close" to finalize the process.



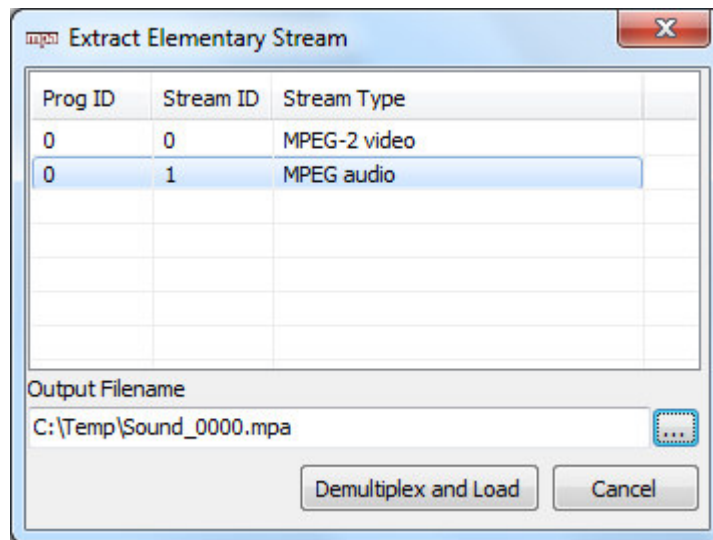
2.2 Uninstalling MPEG Audio ES Viewer

The application can be removed opening the Control Panel – Programs and Features. Select the **MPEG Audio ES Viewer** application and click Uninstall.

3. Functions

The following functions are available from the application **File** menu.

Open – Opens a file open dialog box for selecting media file for loading. MPEG Audio ES Viewer supports MPEG audio elementary streams, MP4 multiplexed MPEG audio streams, MPEG-2 Program Stream multiplexed MPEG audio streams and MPEG-2 Transport Stream multiplexed MPEG audio streams. Demultiplex and import of MPEG audio streams from multiplexed media files is available only in MPEG Audio ES Viewer Pro. In case of multiplexed media file loading Extract Elementary Stream dialog opens.



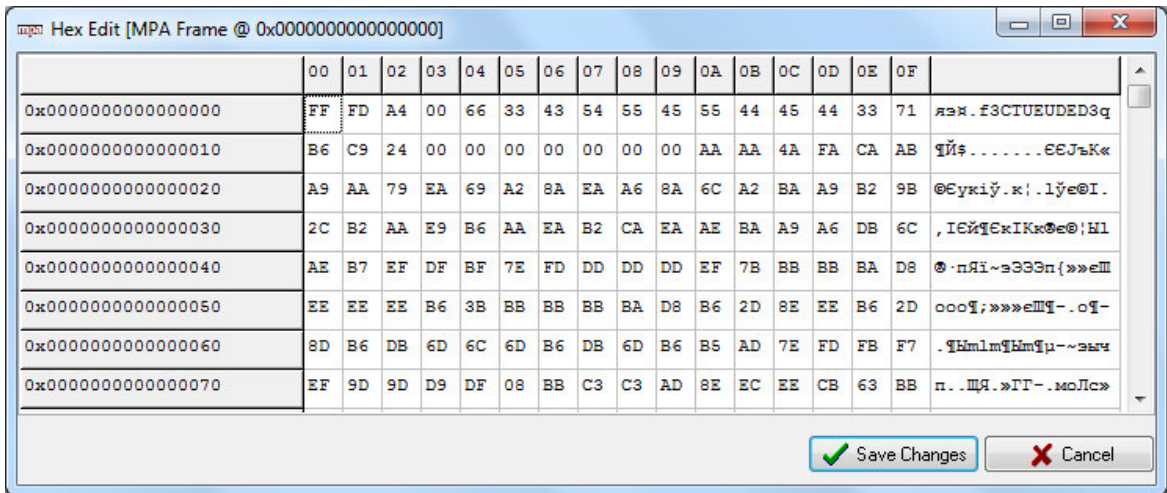
The dialog lists all elementary streams in the selected multiplexed media file with its internal program ID information, stream ID information and elementary stream type. “Output File Name” denotes the output folder and file name which will be used as a destination for the elementary stream demultiplexing. “Demultiplex and Load” button performs the elementary stream extraction and loading into the MPEG Audio ES Viewer Pro.

Close – Closes the opened file and clears the tree and hex views.

Exit – Closes the application.

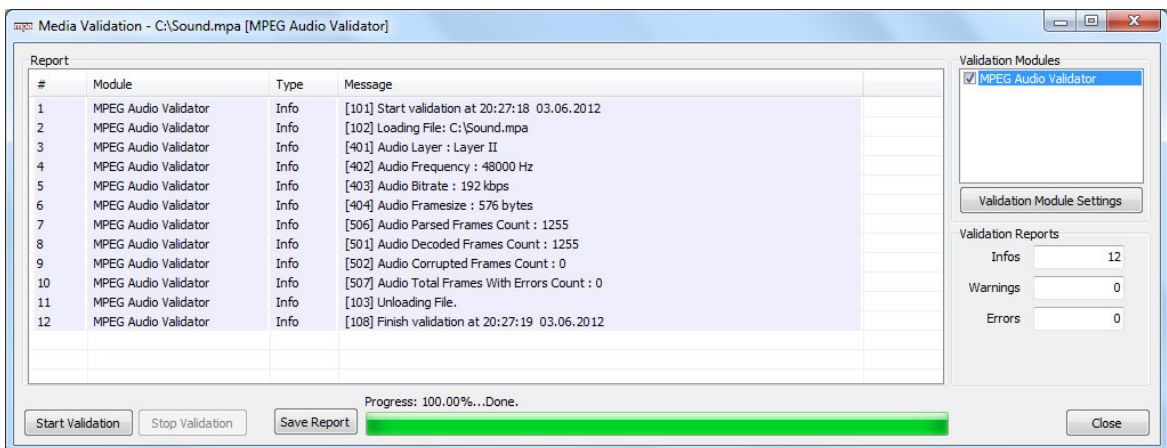
The following functions are available from the application **Tools** menu.

Hex Edit Selected Frame – Opens a Hex Edit dialog box for byte hex manipulating the binary data of the selected MPEG audio frame from the list view.



By double-clicking on the byte cell, the form will enter into byte editing mode, making it possible to change the value of the selected byte cell. The byte cells with values different from the values of the original file are marked in red. **Save Changes** button will save the altered bytes to the original file. **Cancel** button will exit the form, without altering the original file.

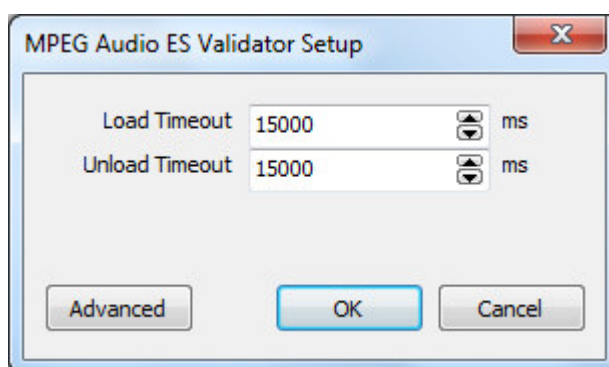
Validation – Performs validation and verification of the MPEG Layer I or Layer II audio elementary stream. The function opens the media validation dialog from where the validation process can be started.



Once the Media Validation dialog is opened, the validation process can be started by pressing the “Start Validation” button. During the validation, the process can be stopped by pressing the “Stop Validation” button. The validation Report table contains four columns. The first column is the index

of the validation report starting from 1. The second column denotes the validation module name. At this point MPEG Audio ES Viewer supports only “MPEG Audio Validator” module. The third column denotes each report type, which can be “Info” for informational report, “Warning” for warning report and “Error” for error report. The fourth column contains the Validation ID and the report message. The button “Save Report” saves the current report into a XML validation report file. The XML validation report file can be used for integration with third-party systems. “Validation Reports” box represents the information about the total informational, warning and error reports in the current validation.

The button “Validation Module Settings” opens the validation module settings dialog.

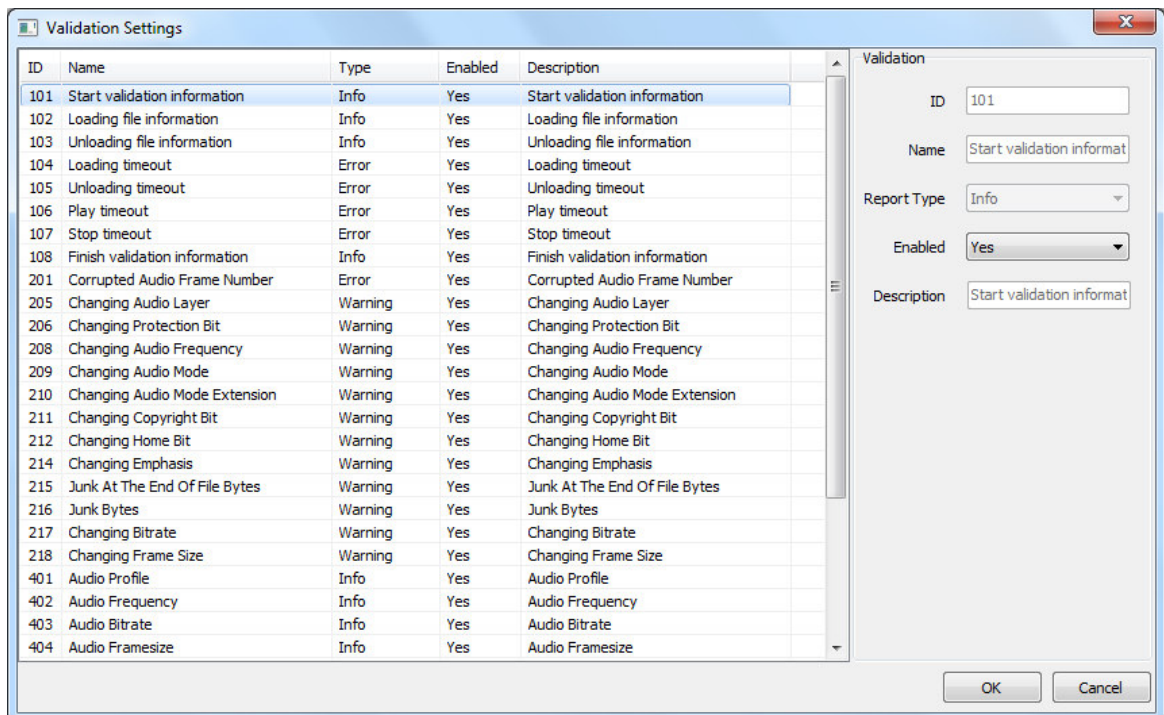


From the validation module settings dialog it is possible to control the loading and unloading timeout.

Load Timeout denotes the timeout, in milliseconds, for the media file loading process.

Unload Timeout denotes the timeout, in milliseconds, for the media file unloading process.

The advanced settings are also accessible from this dialog by pressing the “Advanced” button.



From the Validation Settings dialog it is possible to control all validation procedures. All validation procedures can be Disabled/Enabled and the report type of some can be switched to “Info”, “Warning” or “Error” depending on each custom workflow. The validation customization allows easy integration of the product in every workflow.

For more information about the validation checks go to Chapter 4.

The following functions are available from the application **Help** menu.

Registration – Opens the product registration form. This function is available only in the full licensed version of the product.

Check For Updates – Enables/Disables automatic check for updates.

About – Opens the About dialog box of the product.

4. Validation

MPEG Audio ES Viewer Pro can perform validation of the MPEG audio Layer I and Layer II elementary stream. Incorrect header structure and errors during decoding process can be detected by this validation module. The supported MPEG audio streams are MPEG elementary streams Layer I and Layer II according to the ISO/IEC 11172-3 and ISO/IEC 13818-3 specifications.

The following validation checks are available for this module:

ID : 101

Name : 'Start validation information'

Type : Info

Description : Reports information on file validation start.

ID : 102

Name : 'Loading file information'

Type : Info

Description : Reports information on file load.

ID : 103

Name : 'Unloading file information'

Type : Info

Description : Reports information on file unload.

ID : 104

Name : 'Loading timeout'

Type : Error

Description : Reports load timeout if the loading time is greater than the maximum loading time specified in the main property page of the validation module.

ID : 105

Name : 'Unloading timeout'

Type : Error

Description : Reports unload timeout if the unloading time is greater than the maximum unloading time specified in the main property page of the validation module.

ID : 106

Name : 'Play timeout'

Type : Error

Description : Reports validation start timeout.

ID : 107

Name : 'Stop timeout'

Type : Error

Description : Reports validation stop timeout.

ID : 108

Name : 'Finish validation information'

Type : Info

Description : Reports information on file validation finish.

ID : 201

Name : 'Corrupted Audio Frame Number'

Type : Error

Description : Reports each corrupted MPA audio frame number.

ID : 205

Name : 'Changing Audio Layer'

Type : Warning

Description : Reports changing audio Layer value throughout the audio elementary stream.

ID : 206

Name : 'Changing Protection Bit'

Type : Warning

Description : Reports changing Protection Bit value throughout the audio elementary stream.

ID : 208

Name : 'Changing Audio Frequency'

Type : Warning

Description : Reports changing audio Frequency value throughout the audio elementary stream.

ID : 209

Name : 'Changing Audio Mode'

Type : Warning

Description : Reports changing audio Mode value throughout the audio elementary stream.

ID : 210

Name : 'Changing Audio Mode Extension'

Type : Warning

Description : Reports changing audio Mode Extension value throughout the audio elementary stream.

ID : 211

Name : 'Changing Copyright Bit'

Type : Warning

Description : Reports changing Copyright Bit value throughout the audio elementary stream.

ID : 212

Name : 'Changing Home Bit'

Type : Warning

Description : Reports changing Home Bit value throughout the audio elementary stream.

ID : 214

Name : 'Changing Emphasis'

Type : Warning

Description : Reports changing audio Emphasis value throughout the audio elementary stream.

ID : 215

Name : 'Junk At The End Of File Bytes'

Type : Warning

Description : Reports junk data block at the end of the elementary stream.

ID : 216

Name : 'Junk Bytes'

Type : Warning

Description : Reports junk data block in the elementary stream.

ID : 217

Name : 'Changing Bitrate'

Type : Warning

Description : Reports changing Bitrate value throughout the elementary stream.

ID : 218

Name : 'Changing Frame Size'

Type : Warning

Description : Reports changing audio frame size throughout the elementary stream.

ID : 219

Name : 'Invalid File Padding'

Type : Warning

Description : Reports invalid use of file padding at sampling frequency different than 44100 Hz.

ID : 401

Name : 'Audio Profile'

Type : Info

Description : Reports audio Profile value of the stream.

ID : 402

Name : 'Audio Frequency'

Type : Info

Description : Reports audio Frequency value of the stream.

ID : 403

Name : 'Audio Bitrate'

Type : Info

Description : Reports audio Bitrate value of the stream.

ID : 404

Name : 'Audio Frame Size'

Type : Info

Description : Reports audio frame size value of the stream.

ID : 501

Name : 'Audio Decoded Frames Count Information'

Type : Info

Description : Reports the successfully decoded audio frames count.

ID : 502

Name : 'Audio Corrupted Frames Count Information'

Type : Info

Description : Reports the corrupted audio frames count.

ID : 503

Name : 'Stream Index To Validate Information'

Type : Info

Description : Reports the stream index of the elementary stream, which is being validated, in case of multiplexed media file.

ID : 504

Name : 'Program ID To Validate Information'

Type : Info

Description : Reports the program ID of the elementary stream, which is being validated, in case of multiplexed media file.

ID : 505

Name : 'Stream ID To Validate Information'

Type : Info

Description : Reports the stream ID of the elementary stream, which is being validated, in case of multiplexed media file.

ID : 506

Name : 'Audio Parsed Frames Count Information'

Type : Info

Description : Reports the total parsed frames count.

ID : 507

Name : 'Audio Total Frames With Errors Count Information'

Type : Info

Description : Reports the total frames with errors count.

ID : 508

Name : ' Demo Restrictions Information'

Type : Info

Description : Reports the 30 seconds limitation in case of trial mode of the validation module.

ID : 509

Name : 'MPA Frame Information'

Type : Info

Description : Reports the MPEG Audio frame information.