



# **Elecard Buffer Analyzer**

## **User Guide**

**Version 2.0**

## Notices

Elecard Buffer Analyzer User Guide

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# 1. Introduction

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## 1.1 Preface

Elecard Buffer Analyzer is a tool designed for professionals and prosumers in the video compression field. Elecard Buffer Analyzer allows analyzing of the decoder video buffer parameters.

## 1.2 Describing Elecard Buffer Analyzer

The following section defines the specifications and features of Elecard Buffer Analyzer.

### 1.2.1 Supported Formats

The program analyzes the decoder video buffer parameters for the following formats:

- MPEG-2 Video (ISO/IEC 13818-2)
- AVC/H.264 video stream (ISO/IEC 14496-10)
- VC-1 Video (SMPTE 421M-2006)

Buffer Analyzer supports the following multiplexed formats:

- MPEG-1 System Stream (ISO/IEC 11172-1)
- MPEG-2 Program Stream (ISO/IEC 13818-1)
- MPEG-2 Transport Stream (ISO/IEC 13818-1)
- MP4 Stream (ISO/IEC JTC1/SC29/WG11)

Buffer Analyzer plots curve of the buffer fullness. To facilitate buffer usage analysis and parsing, the application allows chart scaling.

### 1.2.2 Features

Elecard Buffer Analyzer implements the following features:

- Plotting of the buffer fullness curve
- Ability to save chart as a bitmap file
- Ability to select a stream for analysis, if the file contains several streams

- Ability to save the analysis report to .TXT file. Generated report contains the following information:
  - Buffer size
  - Bitrate value
  - Frame rate
  - Detected buffer overflow and underflow errors
  - Bitrate type (CBR, VBR)
  - Total and average padding (for MPEG-2 and AVC streams)
  - Specific format information
- Displaying (and saving to .TXT file) of the following frame information:
  - The frame number in the stream order
  - The time of frame arriving into the buffer
  - The time of frame removal from the buffer.
  - Frame size
  - Padding size (for MPEG-2 and AVC streams)
  - Frame type (for MPEG-2 and AVC streams)
- Ability to interrupt and resume stream parsing

### 1.2.3 Components

The following components are used by Buffer Analyzer:

- Elecard MPEG Demultiplexer (DirectShow® filter)
- Elecard MP4 Demultiplexer (DirectShow® filter)
- ESBufferAnalyzer.dll (COM object in DLL)
- SICore.dll (COM object in DLL)

## 1.3 System Requirements

Elecard Buffer Analyzer has the following system requirements:

- SSE-enhanced CPU (Intel® Pentium III, Celeron, AMD® Athlon, Opteron etc.)
- 128 MB RAM
- Windows® 2000/XP/2003 Server

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## 2. Using Elecard Buffer Analyzer

### 2.1 Introduction

The following section describes the Elecard Buffer Analyzer GUI (graphic user interface).

### 2.2 Describing Elecard Buffer Analyzer GUI

The following section describes features and controls of the Elecard Buffer Analyzer GUI.

Figure 1. Elecard Buffer Analyzer GUI – Main Window

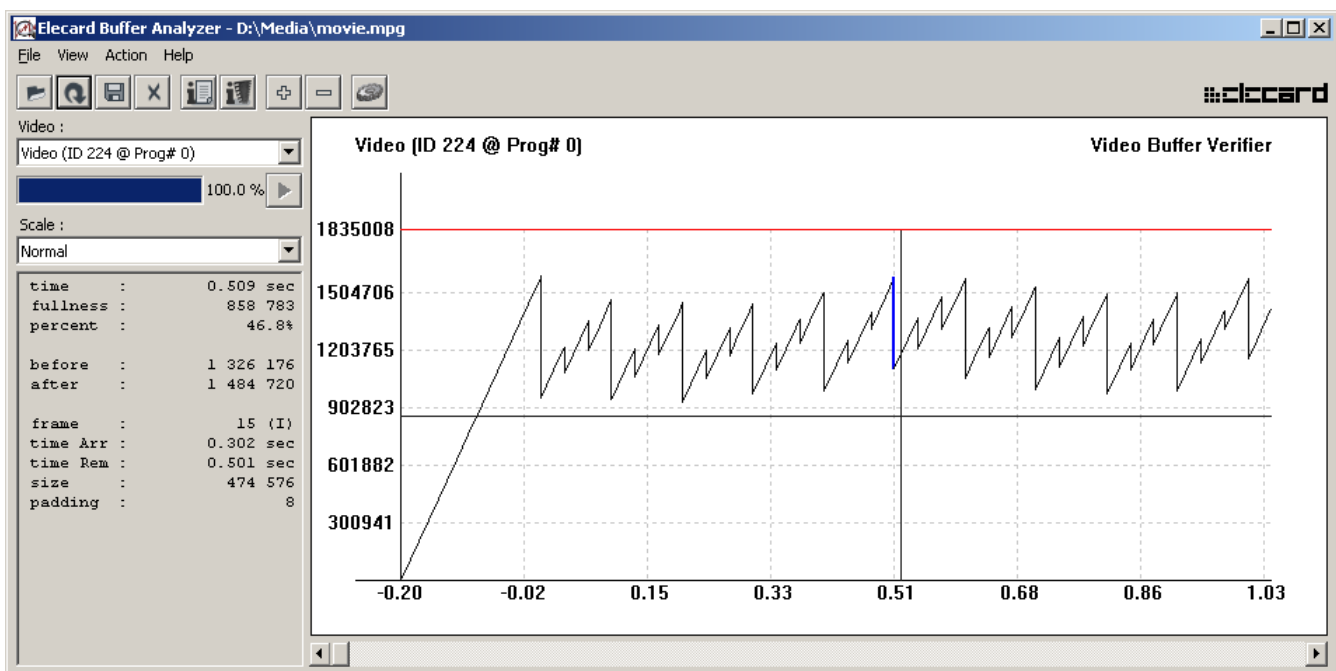


Table 1. Buffer Analyzer GUI - System Menu










System menu	
<b>Save to .bmp file</b>	Saves the chart as a bitmap file.
<b>About ...</b>	Displays the program version number.

Figure 2. Elecard Buffer Analyzer GUI - Toolbar



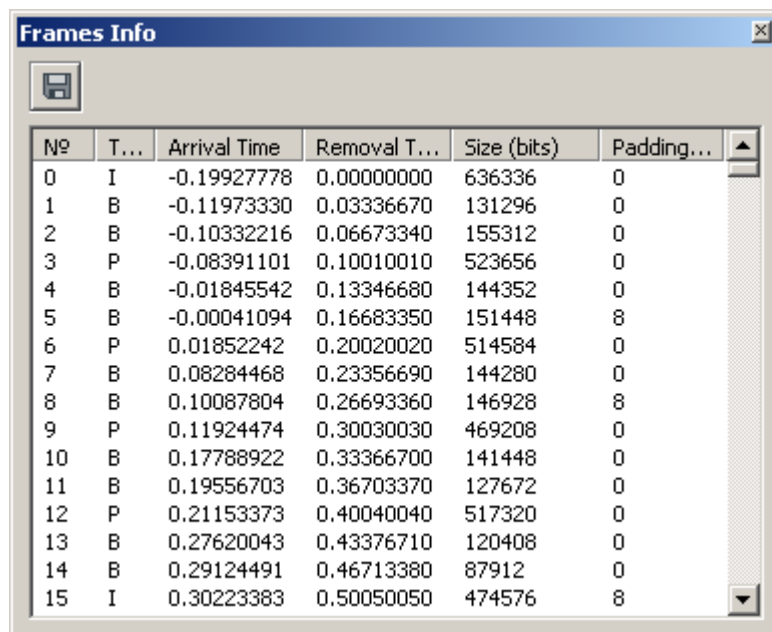
The following table describes the Buffer Analyzer Toolbar.

Table 2. Elecard Buffer Analyzer Toolbar

Button	Function
 <b>Open Video</b>	Opens the media file for analysis.
 <b>Save</b>	Saves the stream information.
 <b>Recent files</b>	Opens recent files.
 <b>Close file</b>	Closes the media file.
 <b>Report</b>	Opens/closes the <b>Report</b> dialog box.
 <b>Frame Info</b>	Opens/closes the <b>Frame Info</b> dialog box.
 <b>Zoom In</b>	Decreases the displayed time interval.
 <b>Zoom Out</b>	Increases the displayed time interval.
 <b>Settings</b>	Opens the <b>Settings</b> dialog box.

The **Frames Info** dialog box displays the frames attributes. Double-click the line to set position in the main window to the selected frame.

Figure 3. Frames Info Dialog

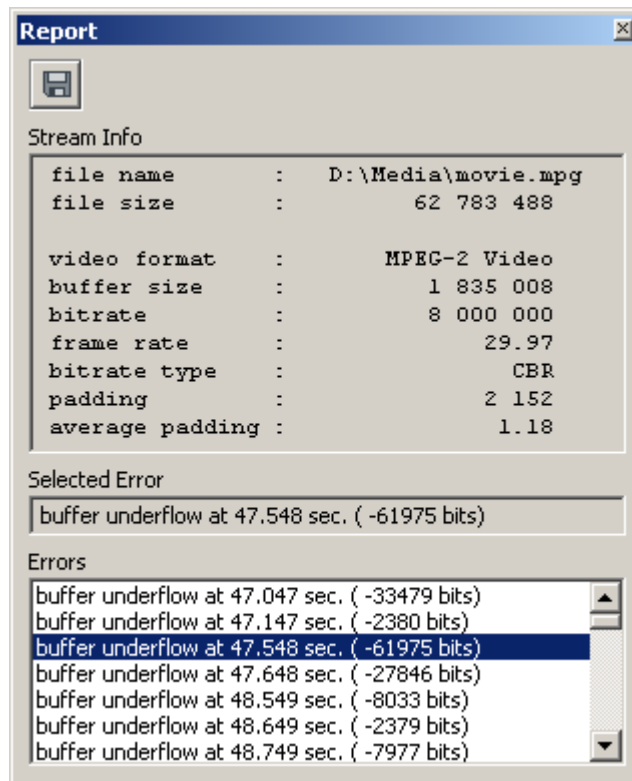


Nº	T...	Arrival Time	Removal T...	Size (bits)	Padding...
0	I	-0.19927778	0.00000000	636336	0
1	B	-0.11973330	0.03336670	131296	0
2	B	-0.10332216	0.06673340	155312	0
3	P	-0.08391101	0.10010010	523656	0
4	B	-0.01845542	0.13346680	144352	0
5	B	-0.00041094	0.16683350	151448	8
6	P	0.01852242	0.20020020	514584	0
7	B	0.08284468	0.23356690	144280	0
8	B	0.10087804	0.26693360	146928	8
9	P	0.11924474	0.30030030	469208	0
10	B	0.17788922	0.33366700	141448	0
11	B	0.19556703	0.36703370	127672	0
12	P	0.21153373	0.40040040	517320	0
13	B	0.27620043	0.43376710	120408	0
14	B	0.29124491	0.46713380	87912	0
15	I	0.30223383	0.50050050	474576	8

The **Save** button  saves the table as a .CSV file.

The **Report** dialog box displays the information about stream and buffer overflow and underflow error messages. Double-click the error message line to set position in the main window to the error frame.

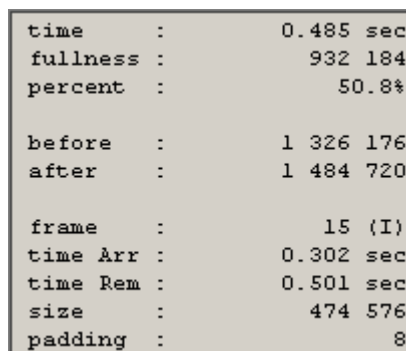
Figure 4. Report Dialog Box



The **Save** button  saves the report information as a .CSV file.

The **Information** panel displays the time, buffer fullness of the current stream position and details of the selected frame.

Figure 5. Information Panel



The **Scale** control allows viewing the chart of the underflow and overflow data.

Figure 6. Scale Control



The Settings dialog box allows the program adjustment.

Figure 7. Settings Dialog Box

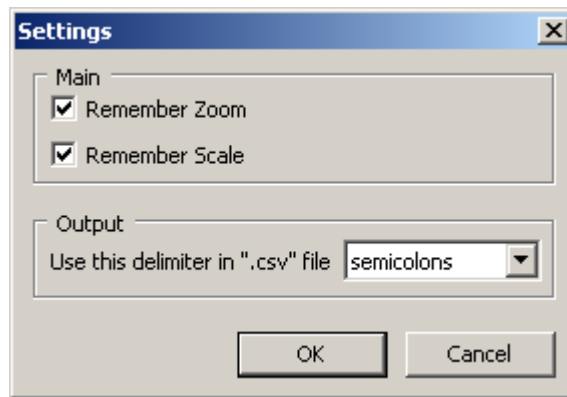


Table 3. Settings Dialog Box Controls

Button	Function
<b>Remember Zoom</b>	Enables/disables the storing of the diagram points number that are displayed in the visible area of the chart window.
<b>Remember Scale</b>	Enables/disables the storing of scale value.
<b>Use this delimiter in ".csv" file</b>	Specifies the delimiter type for the information saved to file.