Scout

User Guide

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Introduction

Product Description

A comprehensive QC tool, FilePro Scout allows broadcasters and post production facilities to run automated validation tests on MXF AS-02 bundles with speed and efficiency. Manual follow-up features are also included, providing intuitive and insightful views into bundle structure, essence, and metadata with unique clarity and precision.

FilePro Scout can be utilized by facilities to ensure that MXF AS-02 bundles completely meet contribution standards prior to ingest into a play-out library or delivery to distribution partners. FilePro Scout flags potential issues with bundle structure, essence, and metadata with precise locators and makes each aspect of the file available for detailed manual evaluation, including frame-by-frame video and audio, raw and decoded ancillary data, detailed closed captioning features, categorized metadata, and visualization of the bundle file structure. Additional features and benefits of FilePro Scout from EEG include:

- Flexible profile creation to tailor inspection results to custom contribution requirements
- Detects proper wrapping of each media essence component in the bundle
- Detects mismatches between top-level metadata and bundle contents
- Detects common problems with closed captioning and ancillary data
- Decodes and displays JPEG 2000 video essence in all common frame rates
- Visualization of closed captions, AFD, and time code
- Inspection results fully exportable in PDF or XML-based formats
- Inspection locators for flagging specific frames

Significant time and cost savings when ingesting MXF AS-02 bundles can be realized by facilities employing FilePro Scout. For example, user-defined profiles within Scout establish a delivery spec which can be communicated to vendors, allowing them to adjust their encoding workflow and deliver error-free bundles moving forward. This process significantly reduces errors that can complicate storage, editing and distribution of assets later on.

Getting Started

System Requirements

- ✓ Windows 7, Windows 8
- ✓ 1GB RAM, 2GB or more recommended

Installation

A Windows installer file (.exe) will be provided via download after purchasing this software. Installation steps are as follows:

1. Double click the installer file to begin installation. You should see a license agreement screen as shown in Figure 1.

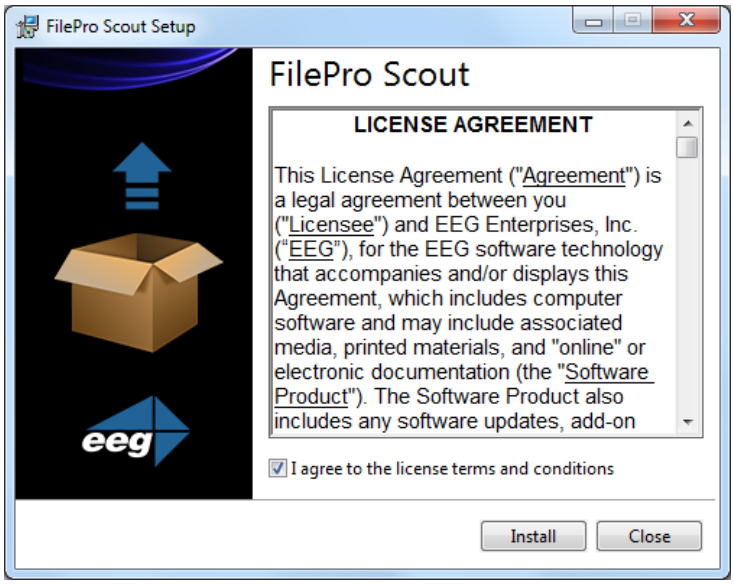


Figure 1: Installer Welcome Screen

2. After reviewing the terms, check the "I agree" box and click **Install** to continue with installation.

3. Once completed the window will say that installation has been successful.

USB Dongle

FilePro Scout is licensed via a USB dongle similar to the one pictured in Figure 2. The dongle should be provided with your software. Insert the supplied dongle into the USB port on the computer – this is required for operation of FilePro Scout.

Figure 2: USB Dongle

Using Scout

Workflow

Scout provides a powerful set of inspection and analysis tools for AS-02 bundles. A common use case would be as follows:

1. Load AS-02 Bundle into Scout
2. Select Profile Desired for Bundle Analysis
3. Run Profile
4. Export Results to XML/PDF File for Record Keeping

In addition to loading and running a profile, the bundle can also be inspected manually. Each frame can be viewed and scrolled through. The current frame is displayed along with basic video properties in the Video Properties tab. Audio can be set to scrub on each frame. The bundle's file structure can be inspected and verified using the Bundle Explorer. The bundle's VANC data can be stepped through and verified frame by frame in raw hex byte and decoded formats.

Supported Video Types

AS-02 bundles with JPEG2000 encoding are supported by Scout

Menus and Toolbar Overview

FilePro Inspector has a series three basic dropdown menus and a toolbar located at the top of the application window. These menus include File, View, and Help

File Menu

Open Movie	Open an AS-02 Bundle with the tool. Will be prompted to load profile.
Load Profile	Select a profile which will perform an analysis on the bundle which is loaded. Item is grayed out if no bundle has been loaded.
Export Current Frame	Exports the current frame of video to a full resolution image file format BMP, TIFF, JPEG, or PNG.
Export Results	Export results to a report in XML or PDF format.
Locators	Save/Import Locators to/from various file types.

- **Import Locators** – Locators can be imported from an EEG Scout Locator File (.lctr) or from an Amberfin® QCML File (.qcml). Imported locators will be added to the list of pre-existing locators (if any).
- **Save Locators to File** – Locators loaded in the Locator list can be saved to an EEG Scout Locator File (.lctr).
- **Exit** – Exits the application

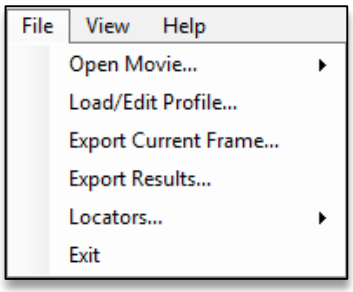


Figure 3: File Menu

View Menu

The View menu provides display options for Scout as seen in Figure 4.

Timecode Display Toggles between SMPTE timecode display and a frame number display. All visual representations of units of the current frame in the application are toggled with this control. Frame numbers begin at 1.

AFD Display Toggles on/off the display of the AFD code on each frame of video in the application.

Closed Captioning Toggles the display of closed captioning on each frame of video in the application. Closed Captioning service channels CC1-CC4 and S1/S2 can be selected or the display can be turned off completely.

Scanning Mode Toggles between Field and Frame displays. Frame display will display complete interlaced frames. Field display will display each frame as a series of fields.

Locators Save/Import Locators to/from various file types.

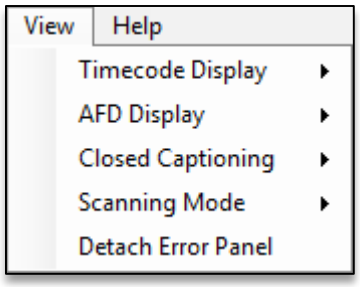


Figure 4: View Menu

View Toolbar

The View Toolbar, as seen in Figure 5, is a more accessible version of the View Menu options discussed on this page. Options include Timecode Display, AFD Display, Closed Captioning, and Scanning Mode. The toolbar is always visible in the Scout Window directly under the menus for quick toggling between view options.

Figure 5: View Toolbar

Tabs Overview

Video Tab

The Video Tab, as shown in Figure 6 is a split screen view. The left side of the split is an enlarged render of the current frame, with optional overlays displayed (based on View Settings). The right side of the split is a list of video/audio/metadata properties such as:

- Frame Rate
- Scan Format
- Aspect Ratio
- Color Space
- Chroma Sub-Sampling
- Video Component Bit Depth
- Video Average Bit Rate per Frame
- Video Peak Bit Rate per Frame
- Video Codec
- Audio Track Count
- Audio Channel Count (per track)
- Audio Sampling Rate
- Audio Bit Depth
- VANC Data (type/location)

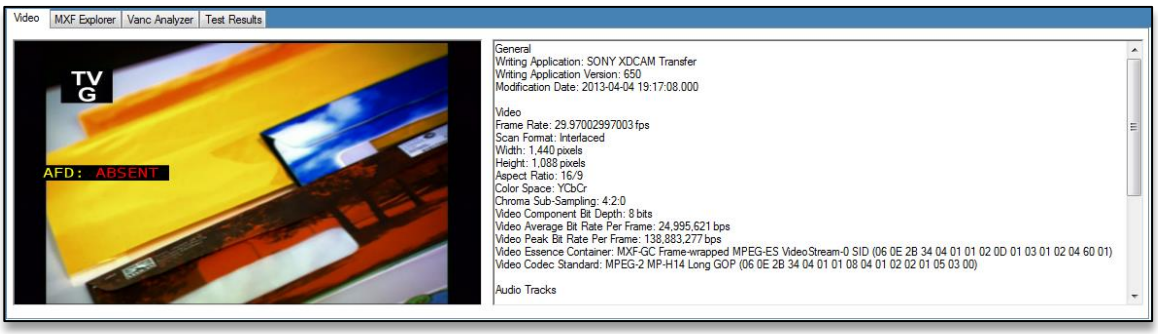


Figure 6: Video Properties Tab

MXF Explorer Tab

The MXF Explorer tab provides a tree-view of the bundle structure, as seen below in Figure 7. All version, media, and VANC file metadata is viewable in a hierarchical format. Shim and Manifest file contents are also viewable.

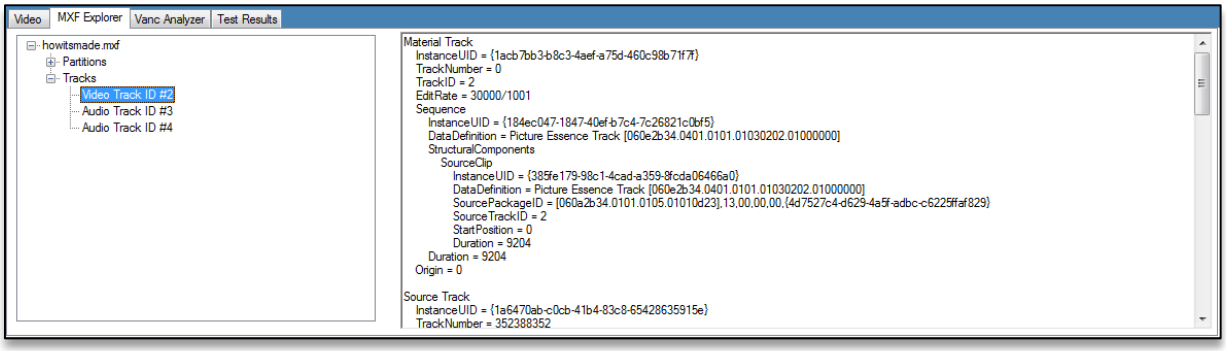


Figure 7: MXF Explorer Tab

VANC Analyzer Tab

The VANC Analyzer tab provides a frame by frame breakdown of the VANC data present in the VANC track of the bundle. Each frame is broken down by VANC packet type (DIDSID). When selected in the packet list the packet's contents will be highlighted in a raw hex viewer, as seen in Figure 8. The decoded fields of the packet will also be displayed in the window to the right of the packet list and hex viewer.

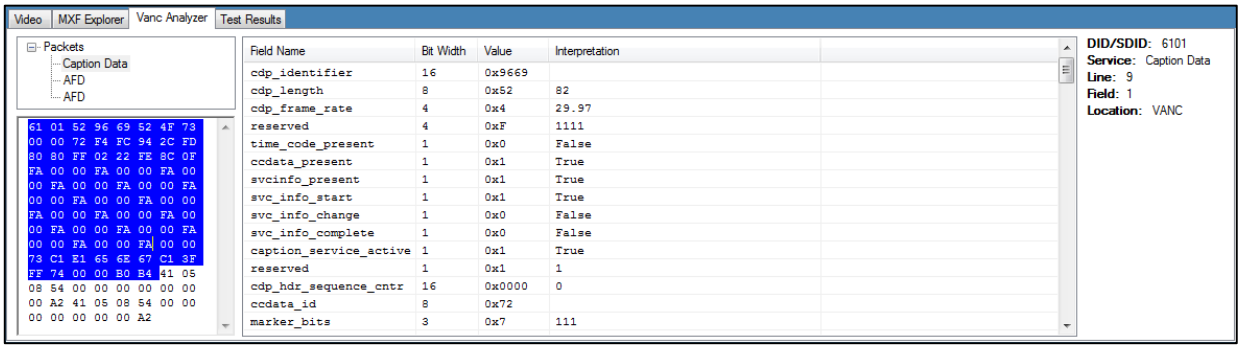


Figure 8: VANC Analyzer Tab

Test Results Tab

The test results tab displays the results from all tests included in the current profile. Each test gets a pass/fail result and failures are followed by details of each error.

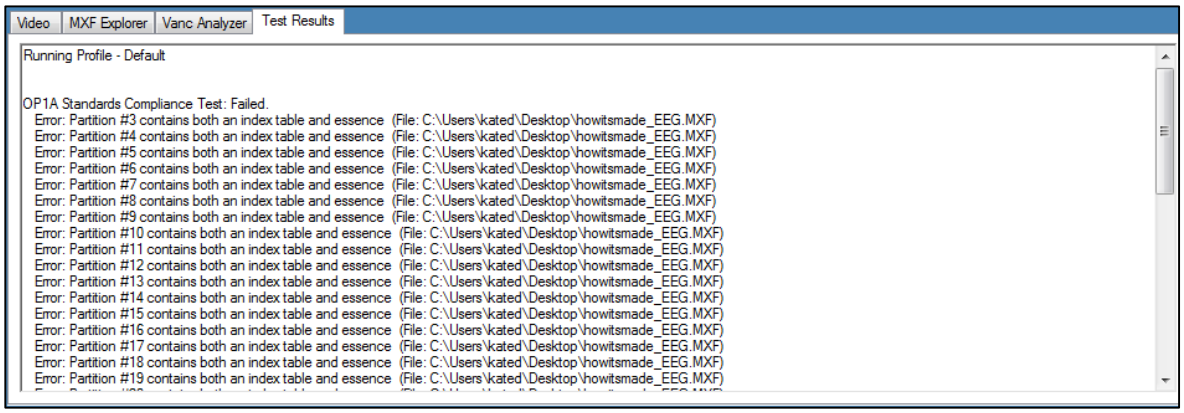


Figure 9: Test Results Tab

Video Frame Viewing

The Video Frame Viewer provides a means for viewing and scrolling through multiple frames of video simultaneously. Frames can be jumped to by timecode/frame number and basic video properties are displayed. Locaters can also be added to any frame for easy access and note keeping. These features will be described in more detail in the following sections.

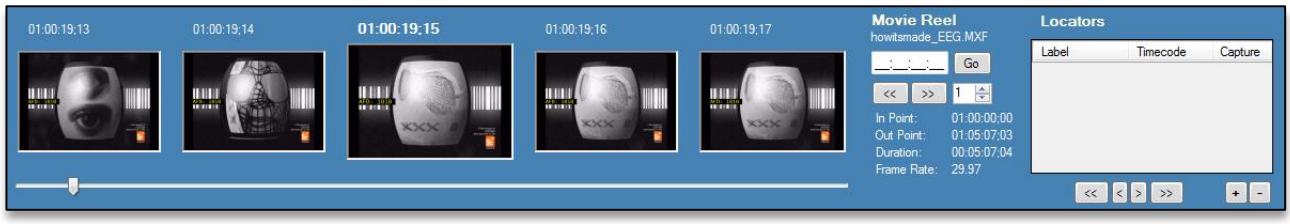


Figure 10: Video Frame Viewing Tools

Frames and Scrolling

The video frame viewer displays 5 video frames simultaneously, as seen below in Figure 11. The current frame is in the middle of the frames and is slightly larger to indicate it as such. Dragging the scrollbar underneath will update the current frame. Ancillary data such as AFD and closed captioning will be displayed on these frames. Double-clicking and frame in the video frame viewer will break out the frame into a full resolution image in a separate window for detailed inspection.

Figure 11: Video Frames

Movie Reel / Fast Navigation

The Movie Reel control displayed in Figure 12 can be utilized for precise navigation forward and backward through the video frames, as well as gathering basic information about the timing of the video such as in and out points, duration and frame rate.

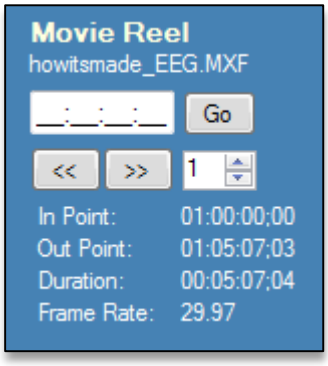


Figure 12: Jump to Frame and Time Info in Movie Reel

Jump to Frame — A timecode or frame can be jumped to immediately using the input box and "Go" button directly to the right of it. The input box will accept timecode of frame number formats, depending on the current Scanning Mode selected in the View Menu.

Skip Frames — The video frames can be stepped through by a configurable amount of frames for fine and course grained frame seeking. The << and >> buttons will skip the amount of frames forward/backward (respectively) as entered in the box directly to the right of the buttons.

Time Properties — Basic time based properties are viewable in the Movie Reel section, including the video In Point, Out Point, Duration and Frame Rate. These will be displayed as timecodes or frame numbers depending on the current Scanning Mode selected in the View menu.

Using Locators

Locators are frame/timecode reference/labels available to the user. Locators can be added from a .qcml file, an EEG Scout file (.lctr), a Scout profile, or manually by the user. A locator includes a frame number/timecode, a label (optional), and an option to include the frame as a thumbnail image in the output report. If a locator label is included the label will show up in red under the frame in the Video Frame Viewer.

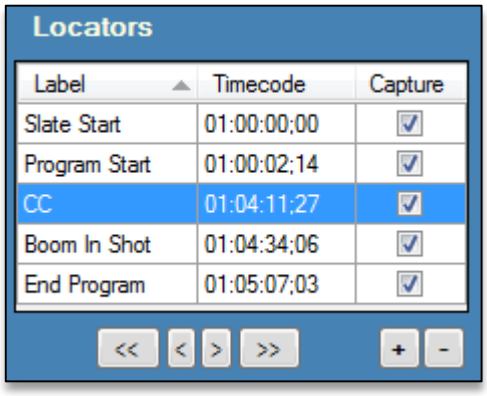


Figure 13: Locators

Add/Remove Locators

A new locator can be added by clicking the "+" button under the locator list. This will bring up the dialog shown in Figure 14. In this dialog a timecode or frame number must be selected for the new locator to add. These fields will be auto-populated with the current frame/timecode. A text label can be entered in the "Locator Text" field or left blank if desired. The "Include Caption in Report" checkbox can be selected if a thumbnail of the locator is required for the output report (when generated). Once added, a locater can be removed by selecting it and clicking the "-" button. Locator text can be edited by selecting the locator and right-clicking "Add/Modify Text."

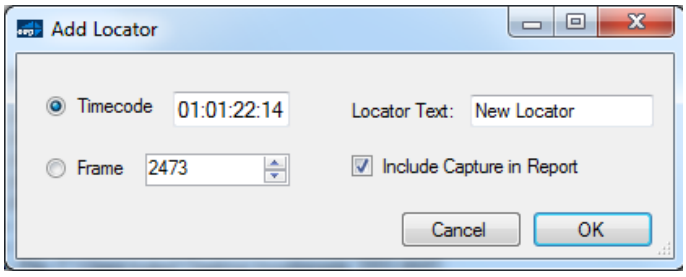


Figure 14: Locators

Jump/Step Through Locators

Double clicking a locator in the list will automatically jump to that frame. Locators can be stepped through backwards and forwards using the < and > buttons, respectively. The first and last locators can be jumped to directly by clicking the << and >> buttons, respectively.

Duration Between Locators

The duration between two locators can be acquired by selecting two locators in the list and right clicking "Get Duration." This will prompt a box to appear containing the duration information in terms of frame number and timecode difference.

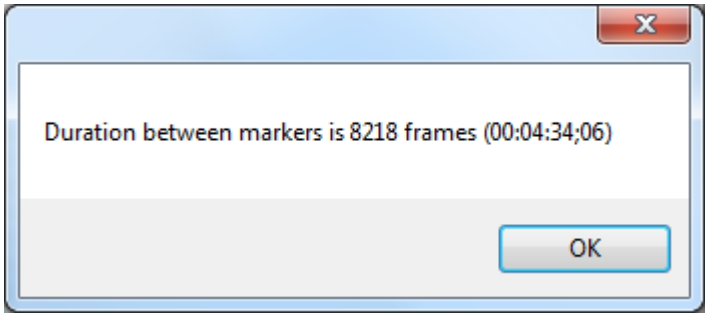


Figure 15: Duration Between Locators Pop-Up Window

Audio Waveform Viewing

The Audio Waveform Viewer allows the display of any channel of audio in the AS-02 bundle as a left and right audio waveform on a timeline, as seen in Figure 16. The audio can also be set to a configurable scrub.

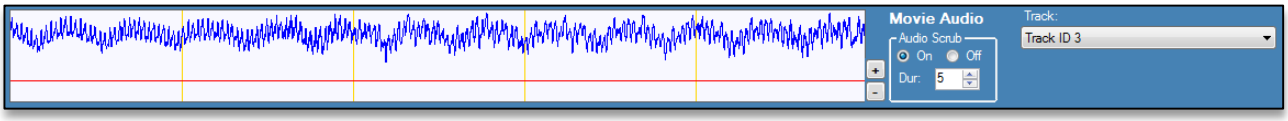


Figure 16: Audio Viewing Tools

Waveform

The audio waveform for the selected channel is shown in Figure 17. The display contains a visual representation of the left (blue) and right (red) audio waveform for that channel. The waveform length corresponds with the frames in the Video Frame Viewer. The audio waveforms scroll with the video. The +/- buttons in the lower right hand corner of the audio waveform viewer can be used to increase/decrease the vertical size of the waveforms. This can be helpful if a waveform with a low amplitude needs to be viewed in greater detail.

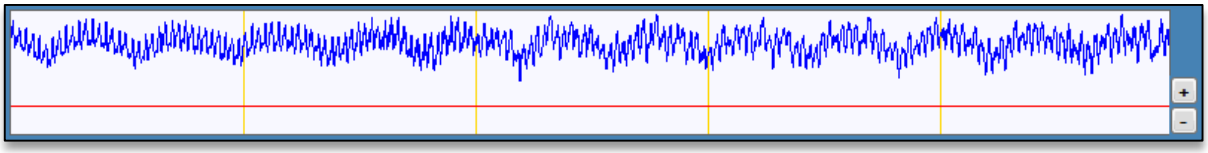


Figure 17: Audio Waveform

Scrub

The audio scrub can be turned on/off by the control shown in Figure 18. When enabled, audio will be played for a configurable amount of frames whenever a new frame is loaded (starting at the newly loaded frame). The configurable frame length is also shown in Figure 18.
Note: A large frame scrub size may cause a decrease in performance.

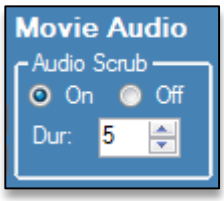


Figure 18: Audio Scrub

Audio Tracks

All audio tracks present in the loaded bundle can be selected for viewing/scrubbing via a drop down menu shown in Figure 19.

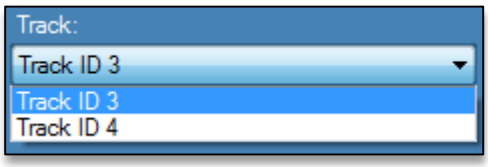
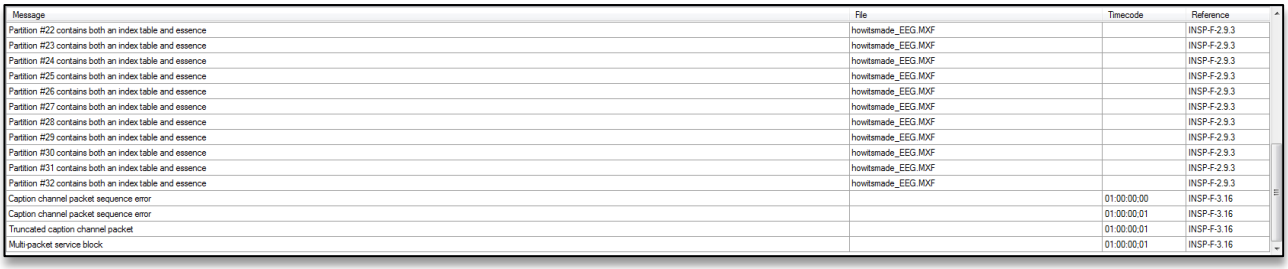


Figure 19: Audio Tracks

Message Panel

The Message Panel, as seen in Figure 20, displays a list of messages for Scout. Most commonly these message are profile analysis errors. Each message has a corresponding file, timecode, and reference (when applicable). Double clicking a message will take a relevant action to display more information about the error (i.e. double clicking an error in the manifest file will load the manifest file into the Bundle Explorer).



Message	File	Timecode	Reference
Partition #22 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #23 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #24 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #25 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #26 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #27 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #28 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #29 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #30 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #31 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Partition #32 contains both an index table and essence	howitsmade_EEG.MXF		INSP-F-2.9.3
Caption channel packet sequence error		01:00:00;00	INSP-F-3.16
Caption channel packet sequence error		01:00:00;01	INSP-F-3.16
Truncated caption channel packet		01:00:00;01	INSP-F-3.16
Multi-packet service block		01:00:00;01	INSP-F-3.16

Figure 20: Message Panel

Loading Profiles

Profiles can be configured by the user to include specific tests and test options. This allows a customized analysis of each bundle based on a set of criteria. The Profile window shown in Figure 21 pops up once a bundle has been loaded. A profile from the list can be selected and run by clicking Continue or the window can be closed if no profile is required for the bundle. A profile can also be loaded anytime from the File menu at the top.

Profiles will include a set of tests with customized options and a set of locators.

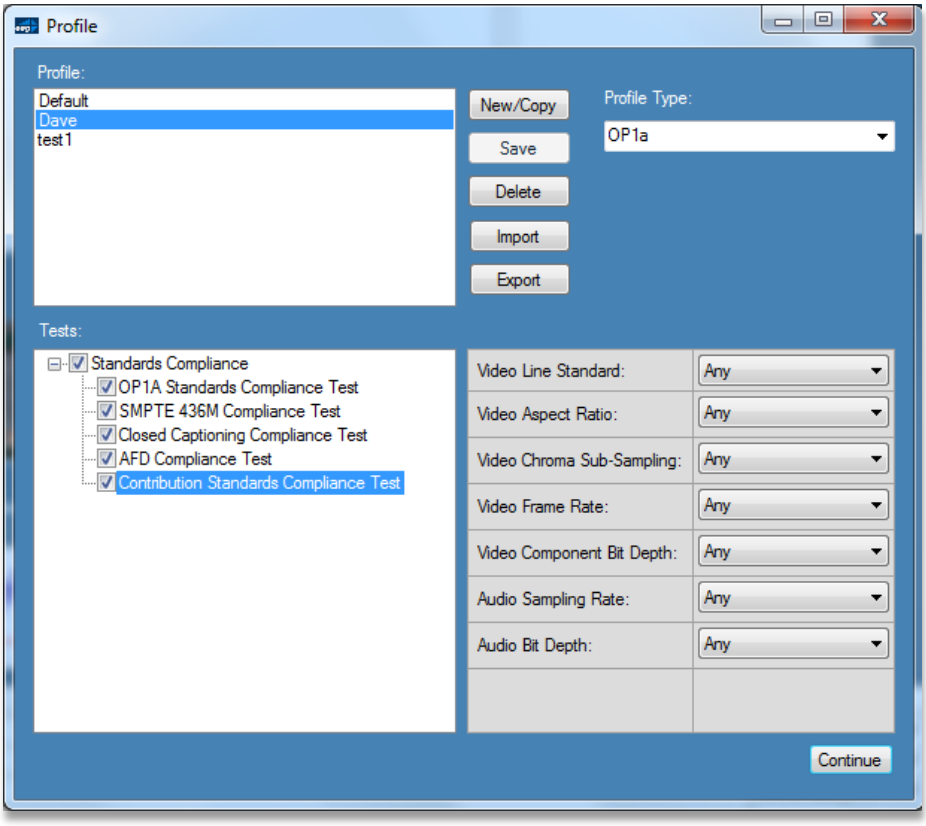


Figure 21: Profile Window

Profile List

The profile list is shown in Figure 22. New profiles can be created and added to this list. Profiles can also be imported to this list from an EEG Scout Profile file (.insp). Existing profiles can be saved, exported, and deleted.

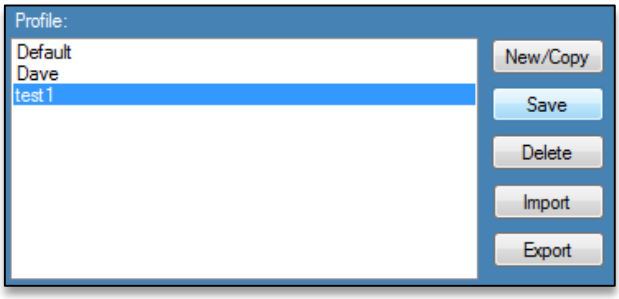


Figure 22: Profile Selection and Options

New/Copy Creates a new profile. The option is provided to copy the settings from a pre-existing profile as a timesaving feature.

Save Saves an edits to the selected profile.

Delete Deletes the selected profile.

Export Exports the profile to an EEG Scout Profile file (.insp). This file can then be used to import the profile to another machine.

Import Imports a profile from an EEG Scout Profile file (.insp).

Tests

Each profile selected has a set of tests which can independently be selected for inclusion in the profile. Some of these tests have properties which are user configurable, as shown in Figure 23.

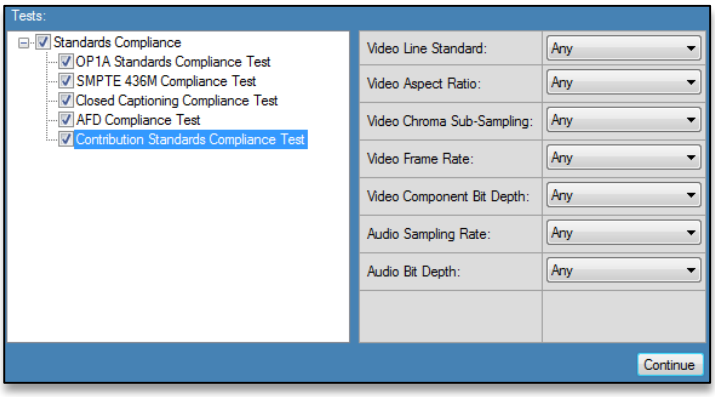


Figure 22: Profile Selection and Options

Locators

Locators can be saved to the current profile as discussed on *Page 14*. Once locators are saved to a profile they will be loaded automatically with that profile every time it is used.

Output Reports

The EEG FilePro Scout report includes basic bundle video/audio information, profile information, profile test results, locators, and frame captures. You can export this report to either an XML or PDF by selecting **Export Results** in the File menu.

The report begins with the date/time it was created, as well as the bundle and profile name it was created for. The following video/audio properties are included.

- Frame Rate
- Scan Format
- Aspect Ratio
- Color Space
- Chroma Sub-Sampling
- Video Component Bit Depth
- Video Average Bit Rate per Frame
- Video Peak Bit Rate per Frame
- Video Codec
- Audio Track Count
- Audio Channel Count (per track)
- Audio Sampling Rate
- Audio Bit Depth
- VANC Data (type/location)

Next, each test is listed with a pass/fail as well as details about each error detected (if any). A locator list is next, with each entry containing the locator's timecode, frame number and label. Any locators selected to capture, as well as any frames captured manually during user inspection, are included at the end of the report.

Exporting Report to XML

For reports exported in XML format - Image capture thumbnails will be placed in a folder titled *bundle-name*_files.

Exporting Report to PDF

For reports exported in PDF format - Image capture thumbnails are included as embedded inline graphics in the report.