ARRI Reference Tool 0.4.0 (CMD)

ALEXA 35 / ALEXA 265 / ALEXA Mini LF

including ALEXA Mini/LF/SXT/65 & AMIRA

RELEASE NOTES

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1 Introduction

The ARRI Reference Tool is a command line tool that supports the processing of ARRICORE, ARRIRAW and Apple ProRes recording formats of all current ALEXA cameras.

1.1 ARRI Reference Tool CMD 0.4.0

The following processing functions are included in this version:

1.1.1 Trim mode

- creation of a trimmed RDD54/55 compliant MXF file for ARRIRAW, HDE and Apple ProRes
- reading of legacy ARRIRAW .ari and output as RDD54/55-compliant MXF file
- creation of a trimmed RDD61/55 compliant MXF file for ARRICORE

1.1.2 Verification mode

- for individual ARRIRAW & HDE clips by recalculating the checksums of the individual video frames and comparing them with the checksums in the clip metadata
- for two clips by comparing the checksums of the audio and video data for Apple ProRes
- for two clips by comparing the checksums of the audio and video data for ARRICORE

1.1.3 Process mode

- OpenEXR 16-bit and 32-bit with compression mode in scenes linear
- Tiff in 16-bit integer in LogC and video color spaces
- Apple ProRes in LogC and video color spaces & embedded look

1.1.4 Export mode

- original audio tracks as .wav file
- Static and dynamic camera metadata as .json file
- Processing of ARRICORE, ARRIRAW, HDE and Apple ProRes to Apple ProRes as RDD55 compliant MXF file.

1.1.5 MXF Recovery

- recovery of a not-finalized RDD54/55/61 compliant MXF clip
- recovery is only supported for MXF clips
- the original clip is opened as readonly
- MXF recovery may fail on broken clips

All functions are supported for the following recording formats:

- ARRIRAW & HDE in **MXF** according to **RDD 54/55** and **ARRI V3 header,** as well as individual **.ari** or**.arx** files

- Apple ProRes formats in **MXF** according to **RDD 54/55** and **ARRI V3** header,

and

- ARRICORE in **MXF** according to **RDD 61/55**

Note: Currently not supported input format

- Apple ProRes Quick Time in .mov format.

The range of functionality will be consistently expanded in future releases.

2 Supported Operating System

Mac:

- macOS Universal (macOS10.15 and higher)

Windows:

- 64 bit Windows 10 & 11

Linux:

- Rocky 8

3 Feature Overview and Bug Fixes

3.1 New Release

Version	0.4.0
Additions	• [IS-8902] Added support for reading MXF/ProRes files and apply some look transformation (if in LogC colorspace). • [IS-8866] Added possibility to parameterize processing from JSON files, that may contain parameters for both ARRIRAW and ARRICORE processing. • [IS-8866] Added support for processing ARRICORE essence containers. • [IS-8670] Added support for MXF/ProRes rendering output (option --video-codec=prores*). • [IS-8401] Added support for ARRICORE essence container. • [IS-8836] Added '--verbose' option to specify the level of verbosity and extended logging with info about progress of batch.
Changes	Nothing
Fixed	• [IS-8650] Fixed incorrect read out and conversion of Lens Converter values for legacy clips. • [IS-8668] Fixed unknown MXF labels containing LUT keys. • [IS-8733] Fixed unknown MXF labels containing deprecated Image Processing Model Parameter Table keys. • [IS-8813] Fixed unknown MXF labels containing deprecated Video Codec Version key. • [IS-8805] Fixed unknown MXF labels containing Described Track IDs key. • [IS-8674] Fixed Instance UID being the same for multiple MXF Identification Sets
Removed	Nothing

3.2 Past Changes

Version	0.3.2
Additions	• [IS-8529] Added support to read out unknown MXF labels in MxfSource. • [IS-8539] Added support to read and write "timecode" additional to the "frameNo" in the frame based JSON metadata.
Changes	• [IS-8600] When unknown MXF labels are present in a clip provided for 'export' mode, execution will fail producing an error telling to update the software. In other modes, a warning will be logged in this case. • [IS-8539] Updated metadata extraction format to 2.1.0, which replaces "frameId" by "frameNo" and adds "timecode" to the dynamic JSON metadata.
Fixed	• [IS-none] Fixed not exiting with error result when a single explicitly stated input clip cannot be read. • [IS-8567] Fixed flip/flop confusion. • [IS-8608] Fix conversion of e.g. "Lens Converter" metadata in DescriptiveMxfConverter by adding fallback to nlohmann conversion, if the JSON string to write in MXF is empty. • [BUG-9529] Fix frame size calculation in MxfWriter, if the image size perfectly aligns with the grid and no fill item is needed. • [BUG-9534] Fixed regex error with '--cli' option on macOS
Removed	Nothing

Version	0.3.1

Additions	• [IS-8549] Added the commandline argument '--logpath' to specify a path for the log file.
Changes	Nothing
Fixed	• [IS-8549] Fixed aborting program execution when logpath was not writable, now continuing without writing log to file in this case.
Removed	Nothing

Version	**0.3.0**
Additions	• [IS-8126] Added 'export' mode for extracting metadata to JSON and audio to WAV. • [IS-8223] Added ability to render files with letterboxed frames using black bars (e.g. TIF) or via metadata (e.g. OpenEXR) via recipe argument '--letterbox-size'. • [IS-8402] Added rendering support for monochrome ALEXA35 and ALEXA265 clips. • [IS-8410] Added support for rendering 32bit OpenEXR files.
Changes	Nothing
Fixed	• [IS-8438] Fixed out-folder structure when processing batches (directories were missing or duplicated) and output file numbering, which now always start from filename '0' (or '--start' number if given as argument). • [IS-8333] Fixed misleading warnings and false errors while reading MXF clips.
Removed	Nothing

Version	**0.2.3**
Additions	Nothing
Changes	• [IS-8311] When batch processing multiple input clips, a subfolder for each input clip will be created. • [IS-8294] Consider parameter *--video-codec* for OpenExr compression method.
Fixed	Nothing
Removed	Nothing

Version	**0.2.2**
Additions	• [IS-8116] Implemented functionality for the following command line arguments: *mode process, --processing-mode, --processing-device, --ls-devices, --embedded-look, --target-colorspace, --ls-target-colorspaces*`. This basically enables the art-cmd to render arriraw clips into OpenExr and TIF output format.
Changes	Nothing
Fixed	Nothing
Removed	Nothing

Version	**0.2.1**
Additions	Noting
Changes	• [IS-7954] Changed structure generated when batch processing multiple inputs to an output folder, which had the filename duplicated when input was %07d.ari and generated *ari_filename*%07d.mxf which is now just

	ari_filename.mxf. • [IS-7954] Default output folder is now just the mode, which is deterministic in contrast to the timestamps used before. If the output folder already exists and is not empty, processing into it will be skipped to not overwrite existing MXF files.The current directory as output argument is now explicitely forbidden so source files cannot be overwritten while being read.
Fixed	Nothing
Removed	Nothing

Version	**0.1.2**
Additions	Nothing
Changes	Nothing
Fixed	• [IS-8096] Fixed wrong handling of duration argument in trim mode.
Removed	Nothing

Version	**0.1.1**
Additions	• [IS-7993] Implemented support for batch processing all clips from an input folder to an output folder. • [IS-7855] Implemented *trim* mode functionality. • [IS-7896] Implemented *verify* mode functionality. • [IS-7657] Initial artcmd application and schema as json, --help text generation from schema and --version.
Changes	Nothing
Fixed	Nothing
Removed	Nothing

4 Known Issues

- No support for HDE encoded ARRIRAW footage

5 Questions and Contact

If you have any questions about the application, please contact us via digitalworkflow@arri.de.

6 External Libraries

This software uses the following external libraries:

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Note: Currently not supported input and output formats

- Apple ProRes Quick Time in.mov format

- Processing of ARRIRAW and HDE to Apple ProRes as RDD54/55-compliant MXF file