



**ALEXA SXT / 65 / SXT W / LF**

**AMIRA & Mini / LF**

**ARRIRAW Converter 4.1.1.0 Beta (GUI)**

**RELEASE NOTES**

**Date: 19 July 2019**

1	Introduction	3
2	System Requirements	3
3	Feature Overview	4
3.1	ARC 4.1. Beta Release	4
3.2	ARC 4.0. Beta Release	4
3.3	ARC 3.5.3.3/4/5 Release	5
3.4	ARC 3.5.0.9 Release	5
3.5	ARC 3.4.5.3 Release	5
3.6	ARC 3.4 Release	5
3.7	ARC 3.2 Release	6
3.8	ARC 3.2 Open Beta	7
3.9	ARC 3.1 Release	7
3.10	ARC 3.0 Release	7
3.11	ARC 3.0 Open Beta 2	7
3.12	ARC 3.0 Open Beta 1	8
4	Bug Fixes	8
4.1	ARC 4.1 Beta Release	8
4.2	ARC 4.0 Beta Release	8
4.3	ARC 3.5.3.3/4/5 Release	8
4.4	ARC 3.5.0.9 Release	9
4.5	ARC 3.4.5.4 Release	9
4.6	ARC 3.4.5.3 Release	9
4.7	ARC 3.4.0.b9 Release	10
4.8	ARC 3.4.0.b7 Release	10
5	Getting started	10
6	Known Issues	10
7	Questions and Contact	10
8	External Libraries	11
8.1	Libtiff	11
8.2	libjpeg	11
8.3	libzlib	11
8.4	libbzip2	12
8.5	Boost	13
8.6	Tinyxml	13
8.7	Glew	14
8.8	Mesa 3-D graphics library Version: 7.0	15
8.9	OpenEXR	16

## 1 Introduction

The ARRIRAW Converter 4.0.0.0 introduces a new geometry interface provided by the ARRIRAW SDK 6.0.3.0, along with faster rendering on NVIDIA GPUs using CUDA.

### ARRI's Reference Tool

Since its debut, the ARRIRAW Converter has been ARRI's free reference tool for processing ARRIRAW files to produce output of optimal quality. The ARRIRAW Converter application, available for Mac OS X and Windows, provides a graphical user interface (GUI) 'wrapper' of the reference SDK — the same SDK that is used in postproduction tools such as Colorfront OSD/Transkoder, FilmLight BaseLight, Blackmagic DaVinci Resolve, Filmmaster Nucoda, Quantel Pablo, Autodesk Lustre, The Foundry Nuke, Adobe Premiere Pro and many others.

### Not all tools use the ARRIRAW SDK

The ARRIRAW files are not encrypted, allowing applications to provide custom debayering tools in addition to or instead of ARRI's reference SDK. Such applications that implement their own debayering process might have default settings which lead to results that differ from those of the reference SDK in their sharpness or in their format and/or size of scaled output. Thus you can perceive the value of a reference tool: you can see the "true" images, as ARRI intended them to be processed, for your consideration.

Whenever you are not sure about the image quality you are achieving with a post production tool capable of processing ARRIRAW, use the ARC to verify the images. Load the images, set all values to their defaults, and you will see pictures that are as pure and faithful to the captured image as possible.

## 2 System Requirements

### Mac Systems:

- OS X 10.11
- OS X 10.12
- OS X 10.13
- OS X 10.14

### PC Systems:

- 64 bit Windows 7
- 64 bit Windows 8
- 64 bit Windows 10

## Linux Systems:

- 64 bit Ubuntu 16.04.6
- 64 bit Ubuntu 18.04.2

For GPU or CUDA processing:

- AMD/ATI or NVIDIA graphics adapter with at least 2048 MB of RAM. If processing ALEXA65 footage, 3072 MB of VRAM are recommended
- Latest AMD/ATI or NVIDIA GPU driver installed

A display with at least 1920x1080 resolution

## 3 Feature Overview

Features added in the new release version:

### 3.1 ARC 4.1. Beta Release

- Support of all new ALEXA Mini LF MXF/ARRIRAW recording formats:
  - ALEXA Mini LF Open Gate: 4.5K MXF/ARRIRAW
  - ALEXA Mini LF 16:9: UHD MXF/ARRIRAW
  - ALEXA Mini LF 2.39:1: 4.5K MXF/ARRIRAW
- Support of the CODEX HDE (High Density Encoding) file format .arx, which was created with the Codex Device Manager 5.0 and higher.

### 3.2 ARC 4.0. Beta Release

New graphical user interface for image scaling and cropping

- Input format selection for cropping images by frame lines or custom crop.
  - Output format with pre-defined scaling templates for standard target resolutions or by userdefined resolutions.
  - Using ARRIRAW SDK 6.0.3.0
- New scaling filters and algorithms. For this reason, result images with the same settings may differ from the results of previous versions.
- New detail parameter to have more control over frequency handling in the scaler. See Texture Control white paper for details:

<https://www.arri.com/service/search/en/49664?query=texture%20white>

### **3.3 ARC 3.5.3.3/4/5 Release**

- Support of all new ALEXA LF ARRIRAW recording formats:
  - ALEXA LF Open Gate: 4.5K ARRIRAW
  - ALEXA LF 16:9: UHD ARRIRAW
  - ALEXA LF 2.39:1: 4.5K ARRIRAW
- New graphical representation of dynamic Lens Data (Iris, Focal length and Focus distance)

### **3.4 ARC 3.5.0.9 Release**

- New HDR colourspace Rec2100/PQ and Rec2100/HLG
- Support of extended white balance CC values from -16 to +16

### **3.5 ARC 3.4.5.3 Release**

- New option for ANR-1 Noise Reduction of images with higher Exposure index New anamorphic factor 1.33
- Anamorphic desqueeze available for all native formats in combination with any anamorphic factor
- In the version number the 'b', standing for 'build', is omitted as it caused quite some confusion.

### **3.6 ARC 3.4 Release**

- Support of new MXF/ARRIRAW recording formats
  - 2.8K (2880x1620 pixel)
  - Open Gate 3.4K (3424x2202 pixel)
- For MXF/ARRIRAW Open Gate 3.4k are several recording aspect ratios available:
  - 4:3 2.8K (2880x2160 pixel)
  - 2.39:1 2K Ana. (2560x2145 pixel)
  - 16:9 HD Ana. (1920x2160 pixel)
- Support of new ALEXA SXT 16by9 3.2K (3168x1782 pixel) ARRIRAW.
- New ARRI Look File 2 (ALF-2) support for ALEXA Mini and ALEXA SXT footage.
- New ALF-2 look wide gamut color space support. Rec2020, DCI P3, DCI D60 and DCI D65 are selectable for View room display.
- New Look library for ALF-2 Looks in View room.
- New Metadata group below the Processing group in View room. Configurable in preferences tab Metadata.
- New media cache for better play back and render performance. Configurable in preferences tab Browser and Display.
- New file export format: ARRIRAW (.ari)

- Is available only for MXF/ARRIRAW files to convert .mxf files into .ari file sequences.

## ATTENTION!

MXF/ARRIRAW files converted into .ari files are not supported in ARRIRAW SDK 5.1. Only ARRIRAW SDK 5.3 and higher can read ALEXA Mini .ari files.

- Export format ARRIRAW is selectable in the Render Target Format settings.
- New file export format: ProRes (.mov)
  - The 4444 XQ, 4444, 422 HQ, 422; 422 LT, and 422 Proxy codecs are supported.
  - ProRes can be exported as Quick Render Clip in the View room.
  - ProRes is now selectable in the Render Target Format settings.
  - Exported ProRes Files will keep the original metadata of the ARRIRAW source file. (Please see: ARRI Metadata White Paper for ALEXA Mini and SXT)
- New Color Space configurations for ProRes file exports available. In Render Target tab Format & Color Space the color space of the embedded ALF-2 look can be used by selecting “Prefer Look Master Color Space”.
- Additional metadata attributes stored in file header of exported OpenEXR files. Exported OpenEXR Files will keep all the original metadata of the ARRIRAW source file. (Please see: ARRI Metadata White Paper for ALEXA Mini and SXT).
- New “input file name” variable in Output Directory. Variable “input file name” is selectable in the Render Target tab Format Location & Naming setting and will create a separate clip name directory for each .mxf ARRIRAW clip.

### 3.7 ARC 3.2 Release

- Support of new render output formats (aspect ratios and resolutions) for ALEXA 65 footage
- Improved color processing for ALEXA 65 footage
- Bins, sequences and clips that are not part of a sequence now appear in alphanumeric order in the Project Files area
- Various bug fixes

### **3.8 ARC 3.2 Open Beta**

- Support for new debayering mode ADA-5 HW. This is the hardware compatible version of the ADA-5 SW, which will be implemented in ARRI cameras from early 2015 on
- Support for ALEXA65 Open Gate (6560 x 3100 px): native, 4K and 2K resolution
- Support for ALEXA65 16:9 (1.78) (5120 x 2880 px): native resolution
- Support for ALEXA65 3:2 (1.50) (4320 x 2880 px): native resolution

### **3.9 ARC 3.1 Release**

- Support for new debayering mode ADA-5 SW, including parameters for ADA-5 SW-specific fine-tuning. This debayering mode eliminates the issue of overshooting at image edges mentioned in the ARRIRAW SDK 4.5 release notes under 'Known Bugs & Limitations' and the use of ADA-5 is strongly recommended for process photography, especially bluescreen or redscreen photography.
- Support for 4:3 cropped (ALEXA software version SUP 10.0) image format: 2:1 anamorphic desqueeze from full-height 2578 x 2160 4:3 capture to HD, 2K, Quad HD and 4K resolutions
- Support for image rotation, assisting the use of UWZ lenses or upside-down mounted cameras
- Various bug fixes, especially in format handling

### **3.10 ARC 3.0 Release**

- New render output formats of aspect ratio 2.39 for all sensor formats
- DPX multi chunk header now contains the ARRI V3 header and the applied render settings. The render settings are automatically extracted from the DPX sequence into a text file when using the latest ARRI Meta Extract (3.0.0.b128 or above)
- Enhanced usability of the look feature
- Enhanced stability of the software

### **3.11 ARC 3.0 Open Beta 2**

- 4K, 4K DCP and UHD-1 for 16:9, 4:3 and OpenGate ARRIRAW formats (ALEXA SUP9 feature)
- Extended tint value range from -12 to +12 (ALEXA SUP9 feature)
- User Pixel Masking (ALEXA SUP9 feature) New metadata panel design
- Monochrome sensor support (only suitable for footage shot with monochrome ALEXA cameras)

### **3.12 ARC 3.0 Open Beta 1**

- New user interface
- Projects containing bins and sequences
- Timeline for sequences
- Look editor now part of ARC
- Metadata panel
- Multiple render queues and render targets
- Extract metadata from ARRIRAW files
- Preview of ARRIRAW files in Mac OS X Finder (plugin is installed automatically)

## **4 Bug Fixes**

### **4.1 ARC 4.1 Beta Release**

- Fixed render queue error "cache full"
- Bug fixes

### **4.2 ARC 4.0 Beta Release**

- Fixed OpenCL rendering on various GPUs, especially ATI and Intel
- A lot of GUI fixes
- Processing fixes included with the ARRIRAW SDK 6.0.3.0

### **4.3 ARC 3.5.3.3/4/5 Release**

- Fixes in half size proxy scalings
- Corrected colourspaces LogC\_Film in processing version 5 Fixes in edge handling of 3414px downscale formats on CPU
- Fixed a bug in the check of whitebalance coefficients, which could lead to a false positive error when using extreme values for cct and tint
- Fix in denoiser: enhanced ghosting reduction Corrected colour matrix for ALEXA LF footage



#### **4.4 ARC 3.5.0.9 Release**

- Fixes in half size proxy scaling
- Fixes in B/W footage processing on CUDA
- <globaldir> in output directory field is now resolved correctly Corrected edge handling in CUDA
- Corrections in the CPU and CUDA processing parameterisation, which leads to subtle differences using ADA5-HW, ADA-3 HW and ADA-3 SW
- ADA5-HW DeBayering: some subtle corrections for Alexa65 and Alexa Mini bayer patterns, both on CPU and GPU
- ADA5-SW DeBayering: some subtle corrections for Alexa65 and Alexa Mini bayer patterns, both on CPU and GPU
- ADA5-SW DeBayering: corrections of visible colour fringes of Alexa Mini footage on GPU
- ADA5-SW and ADA5-HW DeBayering on CPU: due to arithmetic corrections, very subtle differences may occur with any footage

#### **4.5 ARC 3.4.5.4 Release**

- General improvements in stability
- General improvements in performance for Windows GUI version Fixes in look handling misbehaviours
- Fixes in underlying ARRIRAW SDK
- Improvements in performance of mxf file handling and caching
- The scaler in proxy mode have been modified, so deviations with respect to previous releases are expected. This change also affects some native formats

#### **4.6 ARC 3.4.5.3 Release**

- General improvements in stability
- General improvements in performance for Windows GUI version Fixes in look handling misbehaviours
- Fixes in underlying ARRIRAW SDK
- Improvements in performance of mxf file handling and caching
- The scaler in proxy mode have been modified, so deviations with respect to previous releases are expected. This change also affects some native formats

## 4.7 ARC 3.4.0.b9 Release

- Error reading look LUT data from buffer
- General improvements in stability

## 4.8 ARC 3.4.0.b7 Release

Creates QT files with correct Master TC from ALEXA Mini MXF/ARRIRAW files

## 5 Getting started

To get you up to speed quickly, we have created a screencast series that you can watch on our website <https://www.arri.com/en/learn-help/learn-help-camera-system/tools/arriraw-converter> . It gives you a short overview of the ARC 4.x geometry interface and detailed hands-on information about each feature. There is no written manual available at this time.

## 6 Known Issues

- .ari files with a file name containing the # character cannot be displayed or rendered
- Closing ARC while a render process is active in the RENDER room does not lead to a message dialog which informs about the active render process but instead closes ARC without any warning
- The Clip Settings Override tab in the RENDER room shows values that are not related to any clip in the render queue. The parameter values are "default" values (e.g. Exposure Index = 800 ASA) which are also shown (but not applied) if the respective checkbox is not activated
- Under Windows, ARC might not start and will not show any error message if an outdated graphics adapter (cf. System Requirements) is installed
- File Name variable "inputfile" cuts off file names for ALEXA Mini MXF/ARRIRAW files when the four digit camera ID contains a number for the last digit. (e.g. A001C001\_YMMMDD\_R000.mxf >>> A001C001\_YMMMDD\_R.mov)

## 7 Questions and Contact

If you have any questions about the application, please contact us via [digitalworkflow@arri.de](mailto:digitalworkflow@arri.de).

## 8 External Libraries

This software uses the following external libraries:

### 8.1 Libtiff

[www.libtiff.org](http://www.libtiff.org)

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### 8.2 libjpeg

[www.jpeg.org](http://www.jpeg.org)

This software is based in part on the work of the Independent JPEG Group

### 8.3 libzlib

[www.zlib.net](http://www.zlib.net)

License:

Interface of the 'zlib' general purpose compression library version 1.2.7, May 2nd, 2012

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Jean-loup Gailly: [jloup@gzip.org](mailto:jloup@gzip.org)

Mark Adler: [madler@alumni.caltech.edu](mailto:madler@alumni.caltech.edu)

## 8.4 libbzip2

[www.bzip.org](http://www.bzip.org)

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Julian Seward: [jseward@bzip.org](mailto:jseward@bzip.org)

bzip2/libbzip2 version 1.0.6 of 6 September 2010

## 8.5 Boost

[www.boost.org](http://www.boost.org)

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## 8.6 Tinyxml

[www.grinninglizard.com/](http://www.grinninglizard.com/)

License:

[www.sourceforge.net/projects/tinyxml](http://www.sourceforge.net/projects/tinyxml)

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[glew.sourceforge.net](http://glew.sourceforge.net)

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## **8.8 Mesa 3-D graphics library Version: 7.0**

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