AJA Desktop Software Release Notes - v16.2

Linux RedHat / CentOS v16.2 drivers and software for KONA

Introduction

AJA Desktop Software

This unified software, driver and firmware package contains the necessities to start using AJA video I/O hardware.

The following AJA applications are installed:

- AJA Control Panel v16.2:
  - For setup and control of your AJA KONA hardware, including firmware updates.
- AJA Control Room v16.2:
  - For high quality capture, monitoring, playback and output.
- AJA System Test v16.2:
  - For testing storage to determine if it will be possible to sustain frame rates for chosen format(s).
- AJA NMOS v16.2:
  - Optional SMPTE ST 2110 application providing discovery, registration and control for KONA IP.

Operating System

- This driver/software version is compatible with Redhat/CentOS 7 and Redhat/CentOS 8.
- Redhat/CentOS 8 is EOL as of Dec 2021.
  - AJA SDK v16.2 will be the final official SDK version supporting Redhat/CentOS 8.
- Redhat/CentOS 7 is not EOL.
- Note that some new features may not work with older distributions.
- Before running this installer, uninstall all previous versions of AJA software:
  - sudo yum remove ajantv2-dkms (also removes ajaretail since it depends on the ajantv2-dkms package)
- Two packages that must be installed: DKMS driver and AJA Retail Software.
  - The DKMS Driver installer requires the following package:
    - sudo yum install epel-release
  - The driver installer must run either in a root shell or with root permissions.
    - sudo yum install ajantv2-dkms-16.2-00.noarch.rpm
- The AJA Retail software must run either in a root shell or with root permissions.
  - sudo yum install ajaretail-16.2-00.x86_64.rpm
- For GPU accelerated desktop display, an Open CL version 1.2 or greater capable GPU is required.
- Check the Known Issues, Limitations and Additional Details section near the end of this document.
- For host system examples, recommendations and requirements, please see:
  - http://www.aja.com/en/support/kona-pc-system-configuration/

Third Party Software

AJA KONA hardware is used by many software and systems manufacturers, who provide their own software for user installation. The links below provide a guide to software support AJA is aware of, with additional software support being added frequently. Please contact the appropriate software vendor for information on whether AJA software or drivers are required when using their application. AJA recommends the latest released versions of 3rd party software for best performance:

https://www.aja.com/compatibility/kona

In all cases, AJA recommends checking the system and OS requirements for 3rd party software packages with the software creator/vendor directly, to ensure a supportable configuration.

Relevant Products

The following products benefit from this update:

- KONA 5
- KONA IP
- KONA 4
- KONA 1
- KONA HDMI
- KONA LHi
- KONA LHe Plus

Recommendations in v16.2

- Using older drivers in combination with a newer software version (or vice versa) is not a supported configuration and will likely cause disruptive results.
- For I/O with AJA Control Panel and AJA Control Room, it is recommended to set the Genlock setting to Auto for all AJA devices.

New Features and Changes in v16.2

- A new high quality bitfile personality for KONA 5 is now available. "KONA 5 (12-bit)" enables working with a 4K/UHD RGB 4:4:4 12-bit path from capture, to color correction to output. Designed for 4K/UHD high quality color grading, finishing and playback.
- A new ST 2110 bitfile personality for KONA IP is now available. "KONA IP s2110 RGB12" enables working with a 2K/HD RGB 4:4:4 12-bit path from capture, to color correction to output. Specifically designed for Post Production

workflows for feature film and Episodic TV using film rates with file based material for RGB 444 12-bit editorial and playback.

- LUT functionality enhancements for AJA Control Panel. All current KONA products which support LUTs now have the ability to import and export LUTs as .cube files for greater interoperability with other systems and software which also use the .cube format. The legacy method of supporting LUTs via CSV is still supported for import in Control Room, but no longer for export.
    - The following AJA Product / Firmware combinations support 12-bit LUTS, for other combinations and other products, LUT support is 10-bit:
        - KONA 5 with KONA 5 (12-bit) firmware
        - KONA IP with KONA IP s2110 RGB12 firmware
- AJA Control Room Playback Buffering. Functionality designed to protect critical playback from dropped frames. In some situations the host system may be challenged by interruptions to media file storage connectivity. This new feature enables the allocation of RAM towards ensuring consistent playback even during storage connectivity interruptions. This is a complementary feature to the existing Capture Buffering also available in AJA Control Room.
- AJA Control Room now supports H.265 and H.264 progressive Capture and Playback up to HD 1920x1080, including Timecode, Closed Captions and HDR metadata.
    - Multiple data rates (6) can be selected; Low, Med-Low, Med, Med-High, High, Max
    - The application will seek out the best method for encode/decode based on the attributions of the host environment where it is installed. See the Control Room section under “Known Issues, Limitations and Additional Details” in the Release Notes below. Additional information available in the Control Room Manual.
    - Note: Interlaced material will be captured as progressive, this is as designed.
- AJA Control Room now supports playback of 16-bit RGB 'b64a' media (12-bit on the wire).
- AJA Control Panel Info Screen will now flag (red text) to warn when newer firmware is installed but not yet running (i.e. the host system needs to be power-cycled).

Fixes and Improvements in v16.2

Note: Items below are identified against the main AJA products affected.
These same issues may have also affected other AJA products that are not specifically called out.

- Solved cosmetic non-display of VU levels in AJA Control Panel
- Fixed Control Room problem with capturing DNxHD/HR 444 (10bit and 12bit) resulting in bad media files.

Features, Fixes, Changes and Improvements in Prior Releases

Note: Items below are identified against the main AJA products affected.
These same issues may have also affected other AJA products that are not specifically called out.

v16.1

- Additional visual feedback in AJA Control Panel
    - Tooltips on hover over input and output widgets and for quickly seeing status.
    - Nuances that are taken care of automatically are called out explicitly in the Control Panel block diagram.

        - One example is that when outputting 4K, HFR, YCbCr 4:2:2 10-bit from the framebuffer, if the HDMI transmitter is version 1.4b then the video is adjusted to 4:2:0 8-bit (e.g. KONA 4, KONA IP).
- Added 2SI alignment pattern in AJA Control Panel, consisting of 1-pixel diagonal crosshairs plus a 3-pixel rectangle.
    - Whenever there is a misalignment, the diagonal crosshairs will be wrong, not a continuous line.
    - If it is a top-bottom misalignment, the top and bottom of the square line will be broken, with white between time. This is easily simulated by clicking the "Quad Swap" buttons in the control panel "Video Setup" tab.
    - If it is a left-right misalignment, the left and right lines of the square will be fuzzy, or broken.
- Solved inaccurate reporting of read/write speeds in AJA System Test for 4K and 8K formats.
- Rectified non-display of LTC Input Widget in AJA Control Panel with KONA 4.
- Fixed bad audio when capturing 2K LFR (Low Frame Rate) with AJA KONA HDMI.
- Solved bug causing 12-bit RGB HDMI video input to have no audio with AJA KONA HDMI Inputs 3/4.
- Rectified interface issue whereby AJA Control Panel SDI Output drop-down menu was blank after initial installation.
- Optimizations across AJA NMOS and SDPs for AJA KONA IP and AJA Io IP (and Avid DNxIP):
    - Solved memory leak in AJA NMOS
    - Improved SDP and NMOS format for interlaced video
    - Fixed initialization of sender IP address in AJA NMOS
    - Fixed path bugs in AJA NMOS

v16.0.2

- v16.0.2 is the final version of AJA Desktop Software supporting KONA IP firmware for JPEG 2000 and the optional license required to use that functionality. ST 2022-6 and ST 2110 firmwares are not affected and remain valid.
- Improved HDMI Output bit-depth signaling on playback in AJA Control Panel.
- Solved problem in AJA Control Panel DownStream Keyer functionality, whereby loading a png_alpha file in the Graphic Over Frame Buffer Mode, resulted in a red "DS Keyer" message in the Frame Buffer and a message that states: "Foreground video does not have alpha channel".
- Fixed issue in AJA Control Panel causing High Frame Rate HD-DL (dual BNC) to be captured and output incorrectly.
- Resolved NMOS behaviour where SDPs sometimes required refresh in AJA Control Panel with AJA KONA IP.
- Fixed problem with AJA KONA IP where despite being able to display video in Capture mode (manually entering SDP), when changing a route using LAWO VSM software, the video stops and IP 1 in AJA Control Panel displays "Unknown".
- Rectified SDP files generated via AJA Control Panel with AJA KONA IP to support increased NMOS compatibility.
- Increased filtering of PTP messaging to solve PTP not locking events in AJA Control Panel with AJA KONA IP.

v16.0

- HDR Over SDI with KONA 5, KONA 4, and KONA 1 via AJA Control Room.
    - VPID signaling is now available for SDR/HDR Transfer Characteristics, Colorimetry and Luminance over SDI, bringing flexible output options to your AJA device. HDMI ports that were already HDR compatible will work simultaneously, resulting in HDR output via both SDI and HDMI.
- HDR Metadata Capture with KONA 5, KONA 4, KONA 1, KONA HDMI via AJA Control Panel and Control Room.
    - AJA Control Room software adds support for HDR metadata capture from an incoming SDI or HDMI signal. The captured .mov video file will have embedded HDR metadata, allowing the file to be played back at its intended dynamic range.
- HDR Auto Playback Detection with KONA 5, KONA 4, KONA 1 via AJA Control Panel and AJA Control Room.

    - Embedded HDR metadata in a recorded .mov file, is read and used to automatically set the HDR format on the monitor(s) connected to the AJA HDMI and/or SDI outputs.
    - Support for file-based .mov HDR outputs with metadata from Adobe Premiere Pro / Adobe Media Encoder HDR files is also available.
- KONA 5 now supports fast-bitfile-switching. In under 10 seconds you can flip between a KONA 5 personality tuned for 8K operations, to one dedicated to 4K and below. No waiting for firmware to update, no reboots required.
- 4K Closed Caption Support added to AJA Control Room with KONA 5, KONA 4.
- New KONA HDMI feature for enabling incoming audio channels 3/4 to be swapped, on HDMI inputs 1 and 2.
    - This is useful for aligning audio channels coming from different sources in a mixed HDMI 1.4b and 2.0 environment.
- NMOS support updated to 1.3 for KONA IP.
- AJA NMOS application new features and functionality, see KONA IP Manual for details.
- Added LLDP (Link Layer Discovery Protocol) to provide for better NMOS compatibility and improved debugging abilities for KONA IP (reporting via AJA Control Panel)
- Implemented parsing of source-filter parameter in SDPs for source IP address for KONA IP.
- Continued optimization for 8K playback with AJA Control Room solved for dropped frames on first playback of HFR 8K/4K clips with AJA KONA 5.
- Continued optimization for 8K playback with AJA Control Room fixed frame dropping on playback with 8K HFR (p59.94, p60) with AJA KONA 5.
- Solved for a problem where RGB 12-bit 3G-SDI Level A was not behaving properly with AJA Control Panel and Control Room running with Io 4K Plus.
- Rectified behaviour whereby Time of Day Timecode in Control Room did not match burn in Timecode.
- Fixed Edit to Tape functionality with AJA Control Room and AJA devices, whereby performance would degrade and become non-functional when toggling to/from different application tabs.
- Solved poor 8K and 4K playback performance when displaying video in AJA Control Room with AJA 8K and 4K capable PCIe devices. Uninstallation and reinstallation of Nvidia drivers required as part of this fix.
- Resolved 2SI alignment issue with LFR 8K with AJA KONA 5 (8K bitfile).
- Fixed issue causing LTC Input from break-out-cable with AJA KONA 5 (4K bitfile) to not report in AJA Control Panel.
- Fixed behaviour where HDMI output of AJA KONA 5 was not following the quad-swap feature when selected in AJA Control Panel.
- Fixed behaviour where with AJA KONA 5 (4K bitfile) Input Quad Swap was not being respected in AJA Control Panel.
- Rectified audio playback problem in AJA Control Room, where audio channel-pairs could become swapped when KONA HDMI was present in the host system.
- Fixed problem where some host systems were unable to Output AES 1-8 with AJA KONA 4 (UFC bitfile).
- Fixed cosmetic reporting issue in AJA Control Panel, whereby AJA KONA LHi and would not show HDMI input, even though signal is present and capturable.
- Rectified Control Room fixed timecode on output where it was 1 frame late vs. currently visible frame after Play>Stop cycle
- Resolved cosmetic reporting issue in AJA Control Panel, whereby LTC / REF did not update per settings with AJA devices.
- Fixed ability to capture and playout MXF media when running AJA Control Room on Linux OS.
- Fixed potential crashing with KONA LHi during an SD MXF capture.

v15.5.3

- KONA IP with AJA Control Panel: Removed Genlock/Reference setting when using ST 2110 firmware, since only PTP is relevant. (Note: ST 2022-6 firmware will still display the Genlock/Reference setting, as no PTP is used with those workflows).
- KONA 5: Solved green tint on Fill + Key output with ARGB.

v15.5.1

- KONA 5: Resolved item causing bad SDI audio output on RGB clips when using 8K bitfile.
- KONA 5: Fixed interface error whereby AJA Control Panel presented a selectable option for 2-wire square division when using 8K bitfile.
- KONA 5: Removed redundant interface choice whereby AJA Control Panel presented a selectable option for 2-wire 2SI, (which is auto-sensed and thus no manual option is required) when using 8K bitfile.
- KONA 5: Solved audio problem for 1080i I/O when using 8K bitfile.
- KONA IP: Added hardware filtering on PTP delay response packets (clock ID) to fix PTP issues seen on networks with large numbers of ST 2110 devices.
- KONA IP: Resolved some anomalies in how dual SDPs were being handled.

v15.5

- KONA 5, KONA 4:
    - HDR over SDI via VPID now supported in a new combined HDR Tab, for both HDMI and SDI, in AJA Control Panel.
- AJA Control Panel:
    - Variety of HDR test patterns are now available for UHD2/UHD/HD.
- AJA KONA 5 (and Corvid 44 12G):
    - 8K firmware now also supports RGB (up to 30p), rather than YCbCr only.
- AJA KONA 5 (and Corvid 44 12G):
    - 8K firmware now also supports a full 2SI path (rather than Square Division only). Sometimes referred to as "8K SMPTE", this full 2SI path means that each of the four 12G-SDI links (which are themselves 2SI) can now be presented as either 2SI or Square Division to deliver 8K output.
- AJA NMOS:
    - Now supporting multiple devices attached to a single host system.
- AJA Control Room Clip Countdown Duration:
    - Meaning operators can see how much time is left until either the Clip Out Point or Clip End Point, making live playback contributions easier.
- KONA 5 bitfile name change:
- There remain two bitfiles for KONA 5. "KONA 5" supports up to 4K (YCbCr and RGB). "KONA 5 (8K)" supports up to 8K (YCbCr and RGB). See more detail near the end of these Release Notes in the section "Known Issues, Limitations and Additional Details".
- KONA 5: fixed unstable signal/bad color with 12-bit 4K/UHD HDMI output.
- KONA 5: solved problem with SDI output integrity across 4K p29.97/30 RGB (Square Division & 2SI)
- KONA 5 & KONA HDMI: Resolved issue with HDMI input not detecting 4K 47.95p & 4K 48p.
- KONA 4: Solved problem with HDMI output being detected as DVI by some devices.

- KONA 1: Rectified bad audio on embedded SDI channels 9-16 with an SD input.
- KONA IP: Resolved problem reading SDP files whereby source IP address was being reported as “/r”.
- KONA IP: Rectified transmission of ANC data.
- AJA Control Panel: Solved issue whereby KONA LHi Break-out-Box AES settings were not persistent when toggling between “AES-XLR” and “AES-BNC”.
- AJA Control Panel: Fixed lack of expected E-E for LTC inputs.
- AJA Control Panel: Resolved problem when Transport set to Auto and selecting RGB 4:4:4 would cause Level B to be set (instead of Level A)
- AJA Control Panel: Overcame issue with HDMI output not respecting switch to RGB
- AJA Control Room: Solved problem with frame dropping during playback of HFR media following enablement of Show Closed Captioning.
- KONA 5, KONA 4, KONA HDMI: Numerous stability and communication updates for HDMI I/O.

v15.2.3

- KONA IP: Improvements to PTP locking functionality.
- KONA 5: Resolved issue whereby HDMI 2.0 output was 8-bit rather than 10-bit.
- KONA cards: Performance enhancements for when multiple AJA cards are present in a single host system.

v15.2.2

- KONA HDMI: New Firmware and software components to improve input compatibility and stability.

v15.2

- Cross-Platform Apple ProRes family available for Capture and Playback with AJA Control Room using macOS, Windows, or Linux.
- AJA KONA 5 now has two firmware choices.
    - The original “KONA 5” (4K bitfile) remains as-is with support for up to 4K 60p I/O via either single-channel Capture, Pass-Through and Output over 12G-SDI, or four-channel (2SI) Capture or Output over 3G-SDI.
    - A new “KONA 5 - 4x 12G” (8K bitfile) supports up to four simultaneous channels of 12G-SDI Capture or Output for 8K/UHD2 60p, or multi-channel Ingest or Playout. Check which firmware you have loaded.
- 8K/UHD2 logic added to AJA Control Panel for KONA 5.
- 8K/UHD2 Capture or Playback with AJA Control Room and KONA 5.
- AJA KONA IP has the following SMPTE ST 2110 feature enhancements:
    - SMPTE ST 2110-40 for ANC data; for transmittal and reception of timecode, closed captioning and more.
    - SMPTE ST 2110-23 for combining multiple ST 2110-20 Streams into a single video essence for 4K/UltraHD support. Essentially, 4K 2SI over ST 2110 using both 10 GigE links.
    - Redundancy support for ST 2110 Transmit as defined in ST 2022-7 up to 2K/HD.
- NMOS support and the new AJA NMOS application. During installation of the AJA Desktop Software package, you can choose to install an optional component. This application (which can be set to autorun on boot/restart) will announce and attempt to register the host with an NMOS control system. See KONA IP or Io IP manual for more detail.
- Rectified ability to playback ProRes 422 HQ media exported from Autodesk Flame in AJA Control Room, which would hang on import.
- Removed references to Analog Audio I/O when controlling AJA KONA 5 with AJA Control Panel.

- Fixed ability to properly read/write drop-frame vs. non-drop-frame timecode with AJA KONA IP with SMPTE ST 2110.
- Rectified a problem when, following capture or playback of a 2K 25p clip in AJA Control Room, audio mapping upon playback would now be incorrect (channels swapped).
- Eliminated problem when capturing from VTRs with no RP188 embedded TC (i.e. send TC via RS422), such that AJA Control Room would Capture DF (Drop Frame) clips as NDF (Non-Drop-Frame). Applies to analog VTRs, or older digital VTRs (e.g. DVW-A500 or DVCAM decks with machine control).
- Fixed item whereby following capture or playback of a 2K 25p clip in AJA Control Room, audio mapping upon playback would now be incorrect (channels swapped).
- Fixed problem where audio output from AJA Control Room was missing, until either reboot or device disconnected and reconnected.

v15.1

- AJA Control Room has numerous user interface enhancements including, but not limited to:
    - Full screen monitoring of video Playback or Capture including new keyboard shortcuts for fast toggling.
    - The ability to add/remove AJA Control Room windows to create custom interface layouts.
    - Please see manual for more details including a full list of all new functionality, icons and keyboard shortcuts.
- AJA Control Panel now includes the ability to use TOD (Time-of-Day) Timecode during Capture. Time is based on the host system clock which the AJA KONA or Io is connected to/installed within.
- KONA 5 now provides a simultaneous down-convert of 4K/UHD to 2K/HD via SDI #4, when outputting 4K/UHD over 12G-SDI (from SDI #3). When using 2SI (two sample interleave) the image will be subsampled, when using square division the image is down-converted.
- KONA 5 now supports RGB 444 UHD Level A and Level B.
- KONA 5 and KONA 4 now support 47.95/48P for 2K, and 4K, for both Level A and Level B.
- KONA IP SMPTE ST 2110 firmware and software combination now supports SDP grouping.
- Fixed failure to save "Follow Input" within a preset in AJA Control Panel.
- Solved problem in AJA Control Panel, where inputs would be detected as 'sf' instead of 'i', when the frame buffer progressive/interlace setting didn't match the incoming signal.
- Overcame problem in AJA Control Panel causing a Firmware update progress-bar malfunction along with a delay in update completion.
- Resolved problem following a Preferences Reset in AJA Control Room, whereby if a capture path was not set, initiating a capture could cause a disabled state.
- Rectified issue with 2K HDMI inputs on various AJA devices such that when in input-passthrough, the result was PSF on SDI outputs.
- Solved item where Closed Captioning output ceased upon switching between clips of differing frame rates/rasters in AJA Control Panel.
- Fix applied to the Analog Video Setup contextual menu in AJA Control Panel, removing incorrect options (for relevant AJA hardware).
- Fixed behavior in AJA Control Room with various AJA devices such that closed-captions were playing back formatted for 708 instead of 608 ANC.
- Overcame issue where RGB Output over 3G-SDI Level A, produced bad color from several AJA 3G-SDI capable cards and devices. Important Note: AJA desktop cards and devices do not at this time support RGB 3G-SDI Level A Input.
- Overcame problem with numerous products getting into a state where Closed Captions incoming to AJA Control Panel would not display correctly.

- Rectified HD HFR inputs not routing correctly for RGB capture in AJA Control Panel across several desktop products
- Solved issue with AJA Control Panel where Reference input would switch to LTC, when right-clicking to select a different SDI input, across some devices.
- Solved incorrect field-order for HDMI interlaced captures with Io 4K Plus, DNxIV, Io4k, and KONA HDMI.
- Fixed visual artifacts on right side of picture with KONA 4 and Io 4K when outputting HFR Level B.
- Solved problem where SD analog video output was not being setup correctly with KONA 4.
- Fixed AJA Control Panel crash triggered via selection of DSK, while a 12G-SDI 4K signal is presented for input when using KONA 5.
- Rectified problem in AJA Control Room where Timecode on output is 1 frame late vs. currently visible frame after Play>Stop cycle.
- Fixed AJA Control Panel behavior so that inputs no longer show blue (indicating a signal present) when no video is yet present (False Positive) with KONA IP running SMPTE ST 2110 firmware.
- Solved problem whereby transmission (output) will sometimes stop packetizing on certain IP Addresses with KONA IP running SMPTE ST 2110 firmware.
- PTP optimizations for KONA IP running SMPTE ST 2110 firmware.
- Fixed duplicate output from Channel #4 when outputting on Channel #3 with 2K/HD with KONA IP running SMPTE ST 2110 firmware.
- Fixed slight bounce in 1080 HFR image with KONA IP running SMPTE ST 2022 firmware.

v15.0.1

- Solved crashing with AJA Control Room when successively playing back clips of different frame rates from the bin.
- Overcame issue with AJA KONA LHi, where RP 188 timecode was not capturable using AJA Control Room or 3rd party applications. Note however, this board does not support EE pass-through of RP188 LTC.
- Resolved 4K capture problem with AJA KONA 4, such that picture was scrambled in AJA Control Room due to problems with respecting “quad swap” feature.
- Achieved resolution to AJA Control Panel problem whereby saving a preset with Follow Input turned off then resulted in Follow Input being on when recalling the preset, and vice versa.
- Resolved issue with AJA Control Panel whereby LTC displayed on input widget doesn't increment/display hours and minutes. Note that the display in the Timecode tab did display correctly.
- Rectified issue with AJA KONA 4, where HFR level B output had visual artifacts on right side of frame
- Rectified long wait times when updating AJA device firmware with AJA Control Panel. The updates would finish fine, but it could appear to a user as if the updating process had frozen.
- Solved problem where changing frame buffer was not setting up the inputs for 4K capture with AJA KONA IP running SMPTE 2110 firmware. Note this functionality is not on general release and is not currently supported outside of direct engagement with AJA Product Management.

v15.0

- Introduction of support for AJA KONA 5 (12G-SDI, 8-lane PCIe Gen 3 video I/O card with HDMI 2.0 monitoring)
    - Note that AJA KONA 5 requires ATX power from the motherboard. Unlike other KONA cards, AJA KONA 5 does NOT use PCIe bus power.
- AJA KONA HDMI is now able to simultaneously ingest dual 4K 60p streams (vs. one 4K 60p plus one 4K 30p as in previous releases).

- For playback, AJA Control Room can now be used as a fully independent media player, meaning video and audio assets can be played back without AJA hardware attached.
- Video will be played back on the host monitor within AJA Control Room, and audio can be monitored using the host system audio. Note however, AV sync cannot be guaranteed when using host system audio monitoring. To set the audio to host system:
- AJA Control Room: Preferences > General > Host Audio monitor > “Built-in Output”.
    - Note: You will also need to change your OS settings to use system audio (speakers / headphones) rather than AJA device
- For capture, AJA Control Room can now be set to enable audio monitoring via host system audio. This is especially useful when ingesting material using a capture-only device such as KONA HDMI.
    - Note: You will also need to change your OS settings to use system audio (speakers / headphones) rather than AJA device
    - To set the audio host system
    - AJA Control Room: Preferences > General > Host Audio monitor > “Built-in Output”.
    - Note: You will also need to change your OS settings to use system audio (speakers / headphones) rather than AJA device.
- Rectified problem with AJA KONA 4, where HDMI output of 4444 video (UHDp30 4444) shows blotchy areas.
- Rectified issue when using AJA Control Panel with AJA KONA 4, whereby 2K HFR Format Options not reading correctly.
- Fixed problem when using AJA KONA IP with ST 2022 firmware, such that intermittently an IP address can become stale and stop working until switching to a new IP address.

v14.3

- Introduction of SMPTE 2110 support for AJA KONA IP (receive and transmit) up to HD/2K 60p.
- Solved problem in AJA Control Panel when using AJA Control Panel, where swapping sources to different inputs can take up to 20 seconds for the signal to be detected from some Panasonic cameras.
- Solved problem in AJA Control Panel when using AJA Control Panel where inputs 1 & 2 are incorrectly reporting incoming source as DVI (RGB 8 bit) from some Panasonic cameras.
- Solved problem in AJA Control Panel when using AJA KONA HDMI, where inputs 3 & 4 are incorrectly reporting incoming source as DVI (RGB 8 bit) from KONA 4 HDMI output.
- Solved problem in AJA Control Panel when using AJA KONA HDMI, where right clicking on the inputs within Control Panel brings up the window for the input options, but fails to switch to the desired input change.
- Solved problem in AJA Control Panel when using AJA KONA HDMI, where 4K/UHD playback will crash the application.
- Resolved issue in AJA Control Panel when using AJA KONA HDMI, where HDMI sources from MacBook Pro were not locking successfully as inputs.
- Resolved issue in AJA Control Panel when using AJA KONA 1, where Follow Input is not functioning correctly when source format changes.
- Resolved issue in AJA Control Panel when using KONA IP, KONA 4, where Info tab reports bitfile as "bad bitfile type”.

v14.2.1

- Lack of audio when capturing Deep Color with HDMI ports 3 and 4 in AJA Control Room, is now resolved with KONA HDMI.

v14.2

- Introduction of AJA KONA 1 support (new AJA PCIe card).
- Introduction of AJA KONA HDMI support (new AJA PCIe card).
- Support for V4L2:
    - Compile the AJA V4L2 driver components per desired platform (Ubuntu / CentOS).
        - Downloads and instructions here: https://github.com/aja-video/ntv2-v4l2.
- “Deep Buffer” setting in AJA Control Panel, improves handling of storage interruptions during ingest with AJA Control Room.
    - User can now allocate RAM for caching to protect media being written during ingest:
        - AJA Control Room: Preferences > Capture > “Reserve buffer size for deep capture queues”
- AJA Desktop Software firmware and software versions are tightly integrated. If back-revving to an earlier version for example, then you may be prompted to update your firmware to match; i.e. update to an earlier version of the firmware than you currently have installed. AJA Control Panel firmware update notification language has now changed to reflect this more accurately.
- Important updates have been added to the Known Issues and Limitations section near the end of this document. See items relating to Sleep / Hibernation / Fast Boot.
- AJA Control Room now provides a confirmation dialog if the application is quit or exited during capture.
- Solved problem in AJA Control Room causing 720p TGA and BMP sequences to either not play back or else play back incorrectly (i.e. flipped or flopped).
- Fixed issue when using SMPTE 2022-6/7 firmware, whereby a receiving KONA IP would not reestablish video streams following a manual disable and then re-enable of Video Output (in AJA Control Panel) on the transmitting KONA IP.
- Solved transmit (playback) and receive (ingest) problems with 2K formats (up to p30 max) when using SMPTE 2022 firmware and JPEG 2000 firmware, with KONA IP.
- Solved problem in AJA Control Panel where switching from 2K to SD formats could interrupt transmit (playback) when using SMPTE 2022-6/7 firmware, with KONA IP.
- Fixed intermittent black frames showing across HDMI and SDI output with Downstream Keyer when using FrameBuffer over Video In, with either HDMI or SDI In selected as the source (and setting Match Frame Buffer format to Source), with KONA LHi.
- Solved locking to input problem with Downstream Keyer when using FrameBuffer over Video In, with HDMI In selected as the source, with KONA LHi.
- Solved problem where buffer format selections in AJA Control Panel intermittently provided incorrect output raster and corrupted imagery, with KONA LHi.

v14.0.1

- General Linux Installation Optimization
- Added SDI Input Quad Swap feature to AJA Control Panel for KONA 4.
    - When checked (default setting), changes the input Quad to SDI quadrant mapping from 1 to 1 to: Quad1 SDI3 Quad2 SDI4 Quad3 SDI1 Quad4 SDI2.
- Added SDI Output Quad Swap to AJA Control Panel for KONA 4
    - When checked (default setting), changes the output Quad to SDI quadrant mapping from 1 to 1 to: Quad1 SDI3 Quad2 SDI4 Quad3 SDI1 Quad4 SDI2.
- Fixed UltraHD HDMI output in 2SI.

- Fixed lack of Quarter Res output on SDI 3.
- Fixed Closed Captioning for SD output.
- Fixed input pass-through widget in Control Panel to show correct activity (HDMI down convert).
- Reinstated Python models.
- Fixed issue whereby Control Room would display an AV sync issue during capture (but capture OK).

v14.0

- Added Audio Mixer to AJA Control Panel.
- Added VTR on/offline icon to Batch Capture bin window in AJA Control Room.
- Fixed issue whereby device offline dialog gets stuck in loop for batch captures when clicking "OK" in AJA Control Room.
- Fixed bad timecode with playback of DPX Cineon header sequences in AJA Control Room.
- Fixed problem deleting a clip if loaded in the playback viewer in AJA Control Room.
- Fixed problem with KONA LHi and KONA LHe Plus Analog inputs not detecting HD formats.
- When using Square Division with KONA 4, Quad link SDI sources are no longer viewable in UltraHD via HDMI, instead these sources will be down-converted for HD monitoring via HDMI.
    - NOTE: This limitation does not apply to 2SI sources.
    - When using 2SI, Quad link SDI sources can be monitored in UltraHD via HDMI.
- It is no longer possible to decimate HFR material in order to facilitate HDMI playback on a monitor not capable of HFR when using KONA 4.

v13.0

- Initial full-release supporting Linux Ubuntu for KONA firmware, drivers and software including AJA Control Panel, AJA Control Room, AJA System Test and more.
- Added KONA IP SMPTE 2022-6/7 firmware.
- Added KONA IP Optional firmware for TR-01 complaint JPEG 2000 workflows.
- Capture, monitoring and output for DNxHD and DNxHR (mov) up to 4K 60p using AJA Control Room.
- Application presets can be saved and recalled in AJA Control Room.
- In cases where AJA Control Room won't launch, holding SHIFT during startup allows users to reset preferences or use software only mode.
- Upon enabling scripting, the preference to "hold onto device in background" is automatically engaged in AJA Control Room.
- 16- and 24-bit audio capture support in AJA Control Room.
- Timecode burn-in for video playback and application player in AJA Control Room.
- Closed caption burn in for video playback and application player in AJA Control Room.
- VTR control in AJA Control Room.
- Audio track re-routing now available for QuickTime file playback in AJA Control Room.
- 4K / UltraHD down-convert to HD now available via SDI 3 output contextual menu – including new drop-down menus and ability to save presets in AJA Control Panel.

Known Issues, Limitations and Additional Details

General

- “System Sleep” and “Hibernation” should not be used with KONA cards. All sleep and power efficiency modes should be disabled in the operating system settings.

12-bit RGB support (4K/UHD)

- For working with 4K/UHD RGB 4:4:4 12-bit, use KONA 5 with the “KONA 5 (12bit)” firmware for the greatest flexibility via 12G-SDI and HDMI 2.0. 12-bit RGB functionality also exists with T-TAP Pro, Io 4K Plus and Avid DNxIV, but to a lesser extent. 12-bit RGB via HDMI from KONA or Io will deliver 12-bit to the downstream (sink) device provided it is capable, otherwise the bit depth can be down-rated based on the capabilities of the monitor or other sink (communicated to KONA via sink device’s EDID):
    - In AJA Contxrol Panel “Auto Detect” will put out the signal that works with the receiving monitor.
    - In AJA Control Panel “Auto-Set” will use what the Frame Buffer is set to.

AV Sync

- For highest accuracy, always use the Video and Audio coming from your AJA device for monitoring. Using an AJA device for Video monitoring, but using the host for Audio monitoring may result in AV sync or drift issues. If these issues arise it is a function of your host system/OS, and AJA recommends monitoring Audio via AJA device.

KONA 5

- KONA 5 bitfile
    - There are three KONA 5 bitfiles, each tuned to harness the capabilities of the KONA 5 hardware in different ways’“KONA 5”, “KONA 5 (12bit) and “KONA 5 (8K)”.
- "KONA 5" bitfile supports:
    - Up to 4K I/O YCbCr & RGB (including Color Space Conversion)
    - AJA Control Panel (including AJA Audio-Mixer)
    - AJA Control Room
    - Video Mixer/Keyer up to HD 60p
- "KONA 5 (12bit)" bitfile supports:
    - Up to 4K I/O RGB (including 12-bit LUT support)
    - AJA Control Panel (including AJA Audio-Mixer)
    - AJA Control Room
    - Video Mixer/Keyer up to HD 60p
- "KONA 5 (8K)" bitfile supports:
    - Up to 8K I/O YCbCr *or* RGB (no Color Space Conversion)
    - Full 2SI path for the 8K raster (in additional to a Square Division presentation of 4x 4K 2SI)
    - 8K to 4K subsample via HDMI 2.0 out
    - AJA Control Panel (not including AJA Audio-Mixer)

- AJA Control Room
- Video Mixer/Keyer not supported

KONA IP

- AJA Desktop Software v16.2 will be the final official release for KONA IP.
- KONA IP can be used with three different firmwares:
  - s2110 (ST 2110 YCbCr firmware)
    - 4K/UHD/2K/HD
    - Supports ST 2022-7 for Transmit (set SFP 2 to “true”).
    - Does not support ST 2022-7 for Receive.
    - The maximum resolution and frame rate supported via ST 2022-7 is 2K/HD 60p.
    - There is no ST 2022-7 support when using ST 2110-23 for 4K/UHD
  - s2110 RGB12 (ST 2110 RGB firmware)
    - 2K/HD
    - Supports ST 2022-7 for Transmit (set SFP 2 to “true”).
    - Does not support ST 2022-7 for Receive.
  - S2022-6 (ST 2022-6 YCbCr firmware)
    - 2K/HD
- Supports ST 2022-7 for Transmit and Receive.
  - Notes
    - It is currently necessary to enable Closed Captioning in AJA Control Room in order to Capture Time Code.
    - It is recommended to disable channels not in use i.e. disable Ch 3 when Ch 4 is desired.
    - The s2110 RGB12 (ST 2110 RGB firmware) is designed for post-production workflows and thus supports playback only for 2K/HD at 23, 24, 25.
    - A restart of AJA NMOS is always required following a firmware change.

KONA LHi

- Card does not support EE pass-through of RP188 LTC.
- When using level A 1080p50/59.94/60 YUV input to an RGB frame buffer for capture, the image is scrambled or non-working for various NLEs. Note that Level B works correctly with all supported NLEs.
- KONA LHi has only one audio system and is limited to capturing or outputting one channel at a time with audio. In applications where multiple video inputs and outputs can be used at the same time, the SDI input will have audio and the HDMI input will not. Additionally, if both input and output are used simultaneously and independently (as opposed to output passed through from input) only one channel will have audio.

KONA HDMI

- Audio channel configurations differ between Ports 1 and 2, vs. Ports 3 and 4.
  - AJA Control Panel has an audio channel swap feature to ensure compatibility.
- Some SD sources do not work correctly when using Ports 1 and 2. Please use Ports 3 and/or 4 for SD ingest.
- Occasionally, HDMI sources do not work correctly. Please contact AJA Support to report this issue if you run into it.

AJA Control Panel

- AJA Control Panel/Services may surface incorrect routing after a Dynamic Reconfiguration with KONA 5 followed by a restart.
    - Workaround:
        - Ensure that Fast Boot is disabled via system BIOS.
        - Apply KONA 5 Dynamic Reconfiguration for 4K Bitfile, and this will fix the issue.

AJA Control Room

- H.264 and H.265 capture and playback introduced as of v16.2:
    - Create or playback HD media with Timecode, Closed Captioning and HDR metadata support.
        - YCbCr 4:2:0, 8-bit video.
        - AAC audio encoding for multiple tracks of Stereo and/or Mono.
    - All H.264 and H.265 encoding/decoding is courtesy of hardware acceleration on the host system.
    - For Windows based systems, Control Room will seek hardware resources in the following order:
        - NVIDIA
        - AMD (AMF)
        - INTEL (QSV)
    - For macOS based systems, Control Room will seek VideoToolbox resources.
        - For Apple Silicon systems
            - built-in Apple Metal GPU
        - For Apple Intel-based systems:
            - NVIDIA
    - For Linux (UBUNTU) based systems, Control Room will seek hardware resources in the following order:
        - NVIDIA
        - INTEL VAAPI
        - INTEL (QSV)
    - In each case, if the resource being sought is not found, the next resource possibility will be tried. If none of these resources are located on the system, then capture/playback of H.264 and H.265 will not be possible.
    - Notes:
        - You must be using the latest NVIDIA, AMD or INTEL drivers. In some situations you may need to disable using a resource in order to update its driver version, and then re-enable.
        - H.264 and H.265 can behave differently as compared with uncompressed media or iframe codecs, especially during scrubbing and looping operations. This is to be expected with Long-GOP media.
        - Interlaced material will be captured as progressive, this is as designed.
- When the Deep Buffer feature is being used for playback protection, note that changes to settings may take some time to be reflected. For example, muting an audio channel can take many seconds between the mouse click and the desired result. This is normal when using the Deep Buffer feature.
- MXF OP-1A capture in AJA Control Room does not support the following formats: 720p60, 1080i30, 1080p30, 1080p60.

Technical Support

AJA Technical Support is free and available to help you answer questions or resolve issues with any of your AJA products.

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