

AJA FS-HDR Release Notes - v2.6

Firmware for FS-HDR

General

This release of FS-HDR firmware v.2.6 provides several new features for enabling various HDR workflows as well as a number of bug fixes. It is recommended that users upgrade to this version of firmware.

Be sure to consult the Installation and Operation Guide (user manual) for detailed information about features and configuration guidelines. The most current documentation can always be found in the Support section of www.aja.com.

New Features in v2.6

- Additional Colorfront Engine™ Transform options:
 - Added two Output Dynamic Range & Gamut selections:
 - Sony SLog3 BT.2020
 - ARRI Log C Wide Gamut

 - Enhanced BBC LUT transform options:
 - Upgraded the v1.1 LUTs to the BBC's latest v1.2 LUTs
 - Added four additional BBC LUTs:
 - BBC SDR SR UC to HLG v1.2
 - BBC SDR DR UC to HLG v1.2
 - BBC PQ 4000 nit to HLG v1.2
 - BBC Slog3 200% (SR-Live) to HLG v1.2
- Note:
SR = Scene Referred
DR = Display Referred
UC = Up-Conversion (SDR to HDR)
- New User LUT feature:
 - Upload and store up to ten custom 3D LUTs (33 point .cube format)
 - User LUTs can be used in Single Channel and Four Channel modes
 - Configurable LUT processor controls include:
 - Input Colorspace (709/2020)
 - Output Colorspace (709/2020)
 - Input Scale (SMPTE/Full)
 - Output Scale (SMPTE/Full)
 - Output HDR Transfer Characteristic (SDR/PQ/HLG)

- New Dynamic LUT feature:
 - Dynamic LUT operation allows a third party device/application to transfer 3D LUTs (33 point .cube format) to the FS-HDR over Ethernet without user intervention. As changes are made to the LUT in the third party application, the new LUT is instantly loaded into the FS-HDR's 3D LUT processor.
 - Dynamic LUT operation is only supported in Single Channel Mode.
 - The following third party applications support FS-HDR Dynamic LUTs:
 - TVLogic WonderLookPro v4.0
 - Pomfort LiveGrade Pro support in 1Q2019
- Updated VPID support for Transfer Characteristic (HLG/PQ) and Colorimetry (BT.2020) per recently published SMPTE SDI standards, including 1080i.
- New Colorfront Engine Ganging feature:
 - An update to the free **AJA FS-HDR Control Link** application supports ganged operation of the Colorfront Engine in multiple FS-HDRs.
 - Ganging operation is only supported in Single Channel Mode.
 - This feature can be used to enable 8K workflows by simultaneously controlling four FS-HDRs.
 - The FS-HDR Control Link v1.1 app is available on the AJA website under FS-HDR's Support page: <https://www.aja.com/products/support/fs-hdr>

Improvements in v2.6

- Fixed a v2.5 bug for Freeze or Black on loss of input signal. This bug causes video artifacts when operating in Single Channel mode and using a 4K/UltraHDp25/50 signal.

New Features added in previous releases

v2.5

- Additional Colorfront Engine™ Parameter Controls for:
 - ITU-R BT.2408 SDR to HDR and HDR to SDR mapping
 - Color Temperature
 - Tint
 - Exposure
- An Enhanced Single Channel mode for 4K/UltraHD workflows provides simultaneous 4K/UltraHD and 2K/HD outputs with independent format and HDR settings

- HDMI Monitor Output now supports HDR Infoframe generation
- BBC HLG LUTs provide additional HDR conversion options conforming to ITU-R BT.2408
- HDR Color Bar Test Patterns per ITU-R BT.2111
- An additional free AJA software application to interface a Tangent Kb panel to an FS-HDR for remote control of the Colorfront Engine parameters. This *FS-HDR Control Link* app is available on the AJA website under FS-HDR's Support page: <https://www.aja.com/products/support/fs-hdr>

v2.0

- A key new feature is parametric control of the Colorfront Engine™ transform algorithm. Seventeen individual controls have been added that enable the following:
 - Adjusting R,G,B, and Master color controls for Lift, Gamma, and Gain
 - Adjusting Saturation
 - Guiding the algorithm's color volume expansion from SDR to HDR
 - Adjusting for the Ambient Light in the mastering or viewing environment
 - Managing how SDR highlights and speculars are expanded into HDR
 - Controlling the overall look of camera log inputs between cinematic and television
- Added two new S-Log camera input formats in addition to the existing S-Log3 S-Gamut3 selection, these include:
 - S-Log3 S-Gamut3 Cine
 - S-Log3 BT.2020

Improvements in previous releases

v2.5

- Video output is improved to remove possible artifacts when downscaling.
- Video output is improved for motion when converting from progressive to interlaced formats. The GPI control for SDR Preview Mode has changed from edge triggered to level triggered.
- The Hidden Menu control has been removed. This function is used for menu development and debugging purposes, and can be confusing for normal operation.

v2.0

- Fixed a video quality issue that occurs when down-converting to 625i or 525i. This issue occurs when down-converting from source video formats of 4K, UltraHD, 2K, or HD at low frame rates; p25 and p29.97.
- The SDI Output Payload IDs (ST 352 VPIDs) always indicate BT.709 colorimetry, even when BT.2020 or S-Gamut3 output is selected. This has now been fixed.
- Fixes some incorrect Output Payload IDs (ST 352 VPIDs) for 4K/UltraHD PsF formats.

Additional Information

For additional information, please refer to the FS-HDR section of the AJA website:

<https://www.aja.com/products/fs-hdr>

Updating FS-HDR Firmware

Although the FS-HDR comes from the factory pre-installed with the latest firmware as of the time of manufacture, it may be necessary to re-flash the factory firmware or update to new firmware that has been posted on our AJA website. The following topics in these notes describe the steps required to upgrade the firmware in your AJA FS-HDR.

Download the Latest Firmware

Current and past releases of FS-HDR firmware are available on AJA's website. To get the firmware, point your browser to:

<https://www.aja.com/products/support/fs-hdr>

Once you see the update page, FS-HDR firmware files can be selected for downloading to your Mac or PC for upgrading your local machine.

Unpack the Firmware

The firmware update files are "ZIP" files, which you can open with a number of standard and third party uncompressor applications. The firmware image that you'll install on the FS-HDR is a file with a name like FSHDR_ver_2.0.0.0.bin or similar. Depending on your Mac or Windows operating system settings, the ".bin" extension may not be visible to you in a file directory.

In the archive there will be a README.TXT file. Please open and read the file so you will be aware of any updates or information that did not get in the manual or release notes.

Uploading and Installing the Firmware to the FS-HDR

Uploading and installing the firmware update only requires a Mac or Windows computer that can "see" the FS-HDR via its Ethernet connection. Follow this procedure to install the firmware:

1. Point your browser at the FS-HDR's upgrade page by clicking on the "Firmware" menu link at the bottom of the navigation box on the left-hand side of any FS-HDR web page. The FS-HDR web pages are discussed in the FS-HDR User Manual.
2. Click the "Browse..." button to select the file you previously downloaded.
3. After you have selected a valid FS-HDR image file, click the "OK" button in the "Upload Firmware" prompt. The file you select will upload to the FS-HDR and be tested for validity. Incomplete, corrupted, or non-FS-HDR firmware files are rejected.
4. Click "Commit Uploaded Firmware" on the FS-HDR Update Firmware web page after the upload is finished.
5. Wait for the procedure to complete. When done, the FS-HDR Update Firmware web page will prompt you to restart your FS-HDR. Click the "Restart FS-HDR with New Firmware" button to begin the restart. Restart progress is shown on the front panel of the FS-HDR only. After the restart completes, the FS-HDR front panel "Status" menu is displayed, and the FS-HDR will be running the new firmware.
6. Once these steps are complete, the FS-HDR will be running the firmware you just uploaded until the next time you upgrade it. The configuration of the FS-HDR prior to the upgrade will be preserved. Ensure the new firmware is running by bringing up the FS-HDR web page again; the firmware version is displayed at the top of all FS-HDR web screens. If for some rare reason it didn't update, you can then run through the update steps again.

Important Note: If there is a power outage or glitch during the firmware download, the FS-HDR will boot the older version and the upgrade process can then be restarted by the user. This happens because the FS-HDR has been designed with a safety feature where an internal "safe" copy of the previous firmware is retained in the event of any error in the updating.

Important Note: If upgrading from v2.5 (or older firmware) to v2.6 (or newer firmware), the ten USER LUT slots can be pre-loaded with a Unity LUT. This is a simple operation that can be performed in the FS-HDR web GUI. In the "User LUT" menu, select "Overwrite All" in the "Overwrite with Unity" parameter at the bottom of the page.

Technical Support

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

To contact AJA Technical Support:

Email: support@aja.com

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