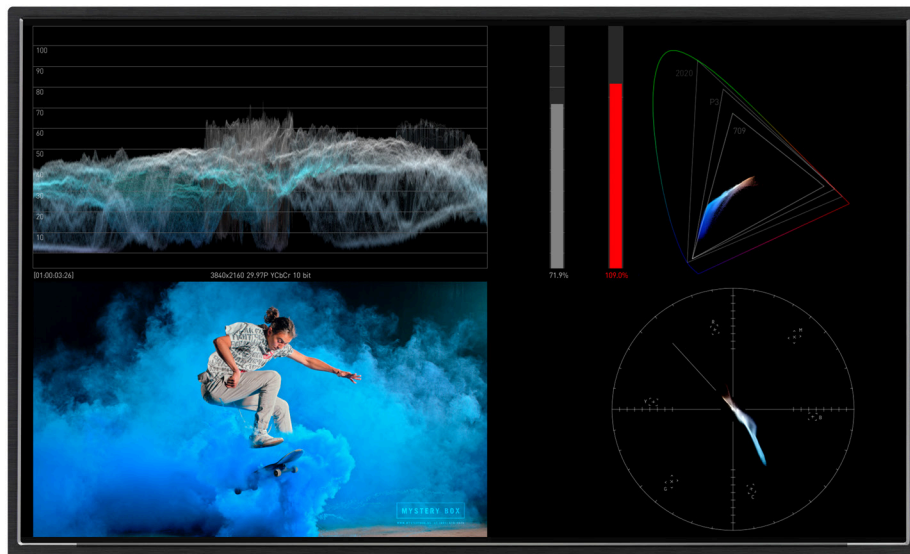


HDR Image Analyzer 12G

HDR Monitoring Solution



Installation and Operation Guide

Version 3.0
Published November 7, 2023

colorfront

AJA
VIDEO SYSTEMS

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Support Email: support@aja.com

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Grass Valley, CA 95945, USA

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Chapter 1 – Introduction

Overview

HDR Image Analyzer 12G delivers a comprehensive array of tools for the effective analysis of up to 4x 4K/UltraHD signals, utilizing both 12G-SDI and NDI connectivity.

Analyze HLG, PQ, Rec.2020, Rec.709, and native camera Log color spaces – from 8K/UltraHD2/4K/UltraHD/2K/HD content in a powerful, real time, 1RU device.

Developed in partnership with Colorfront, the AJA HDR Image Analyzer 12G supports a wealth of inputs from camera Log formats to SDR (Rec. 709), PQ (ST 2084), and HLG and offers Wide Color Gamut (WCG) support for BT.2020 alongside traditional BT.709 and P3, with Dolby Vision® dynamic metadata inspection and analysis for advanced HDR mastering and QC applications. AJA hardware prowess ensures high reliability and performance, with 4x 12G-SDI inputs, dual 10 GigE, and DisplayPort connections.

Specifically designed to be used wherever high performance color analysis is needed, the 1RU form factor excels in a range of environments, providing the confidence you need for consistent and predictable HDR production and mastering.

Software Features

- HDR Waveform, Histogram, and Vectorscope Monitoring
- Multi-channel signal analysis of up to 4x 4K/UltraHD HDR/WCG simultaneously via 4x 12G-SDI inputs
- Single channel signal analysis of 8K/UltraHD2 HDR/WCG
- Mix and match SDI and NDI signal monitoring and analysis
- UltraHD UI for high resolution picture display including PQ support for HDR capable displays via integrated DisplayPort
- Configurable layouts allow you to put the tool you need in the window you need it
- Support for display referred SDR (Rec.709), HDR ST 2084/PQ, and HLG analysis
- Support for scene referred ARRI, Canon, Panasonic, RED and Sony camera color spaces
- Dolby Vision dynamic metadata inspection and presentation
- Precision CIE graph, vectorscope, waveform, and histogram support
- False color mode to easily spot out of gamut/out of brightness pixels
- NIT levels and audio phase metering
- Line mode to focus a region of interest onto a single horizontal or vertical line
- File base error logging with timecode
- ARRI LogC4 WideGamut4 LUT support
- Scope LUT applies a 3D LUT to signal being analyzed
- Display LUT applies a 3D LUT to only the monitoring display
- Three year warranty

Hardware Features

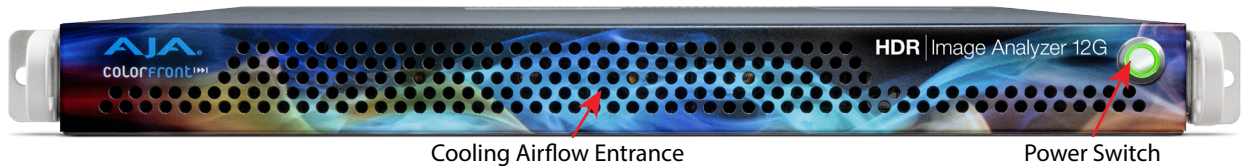
- One RU height rack mountable chassis
- Hot swappable redundant power supplies
- HD-BNC twist-lock SDI connectors, HD-BNC to BNC adapters included
- Three DisplayPort outputs plus one DisplayPort over USB-C output
- Two Network Interface Cards
- Four USB connectors, two USB 3.0 and two USB 2.0

HDR Image Analyzer 12G Hardware

AJA's HDR Image Analyzer 12G is a 1RU hardware appliance equipped with AJA input and output. The system is designed for immediate use, automatically powering up to the Colorfront Analyzer application.

Chassis Front

Figure 1. HDR Image Analyzer 12G Chassis Front View

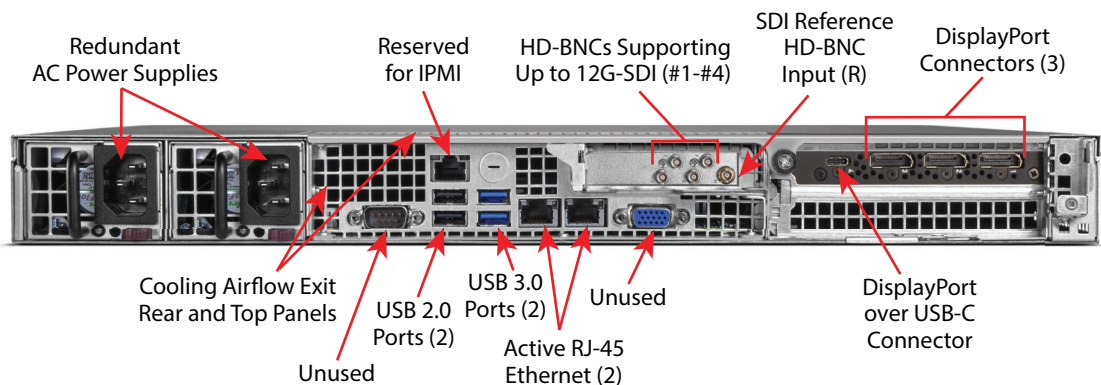


Chassis Power Button

The main power switch is used to apply or remove power from the power supply to the system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug all system power cords before servicing.

Chassis Rear

Figure 2. HDR Image Analyzer 12G Chassis Rear View



Rear Panel Power Supply LEDs

On the rear of each power supply module an LED indicates its status as follows.

- Solid Green: When illuminated, indicates that the power supply is on.
- Solid Amber: When illuminated, indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.
- Blinking Amber: When blinking, this system power supply temperature has reached 63°C. The system will automatically power-down when the power supply temperature reaches 70°C and restarts when the power supply temperature goes below 60°C.

Chapter 2 – System Installation

Installation Summary

1. Unpack the shipping box, removing the HDR Image Analyzer 12G, two power cords, and five HD-BNC adapter cables.
2. Mount the physical chassis as desired, using the provided sliding rails. Cooling airflow enters the chassis from the front, and exits from the rear and top panels. Do not obstruct these air vents.
3. Connect the two HDR Image Analyzer 12G power cords to AC mains. For redundancy, use both power supplies and connect them to separate branch circuits so that the HDR Image Analyzer 12G will continue to operate even if a circuit breaker opens on one branch.
4. Connect a computer monitor (user supplied) to one of the rear DisplayPort ports.
5. Connect a keyboard and mouse (user supplied) to available rear USB connectors.
6. Connect the BNC adapter cables to the HDR Image Analyzer 12G connectors.
7. Connect the HDR Image Analyzer 12G inputs to your video source, and outputs to your mastering display monitor, if used.
8. Power up the chassis. The system will boot up to the Analyzer application.

Hardware Installation

Shipping Box Contents

An HDR Image Analyzer 12G is shipped with two AC power cords and BNC adapter cables. Rackmount brackets are provided as part of the chassis.

As you unpack the shipping box, carefully examine the contents. Make sure you received everything and that nothing was damaged during shipment. If you find any damage, immediately notify the shipping service and supply them with a description of the damage. AJA will repair or replace damaged items.

If you find shipping damage, contact your AJA dealer or distributor for details on how to have your HDR Image Analyzer 12G repaired or replaced.

NOTE: Save packing materials and the shipping box. If your HDR Image Analyzer 12G ever requires service or you move your system, use the packaging materials and box for safe shipment.

Rack Mounting the Chassis

Install the HDR Image Analyzer 12G chassis into a standard 19-inch wide equipment rack, allowing space for cooling airflow. The chassis occupies only one vertical rack unit.

Two rack rail assemblies are included in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

The rail assemblies are shipped with rack adapters installed for use with IT (square hole) style rack frames. For IT racks, simply slide the unit into place, as the rails will lock automatically. For use with a standard round hole rack frame, you will need to remove the adapters using a small Phillips head screwdriver.

Network Configuration

The HDR Image Analyzer 12G ships configured for DHCP operation. If your facility uses DHCP, simply connect one of the active Ethernet RJ-45 connectors to your network.

To manually configure your HDR Image Analyzer 12G's IP addresses, on the Analyzer application press the Tab key on the keyboard when no dropdown menu is visible to open the Settings screen, and select NETWORK.

See "[NETWORK Tab](#)" on [page 41](#) for more information.

Initial System Startup

On initial system startup, no login is required, but you will need to accept End User License Agreements (EULA) for Microsoft and NVidia. The EULAs are displayed on the first startup and after every update.

Software Update

AJA's HDR Image Analyzer 12G ships with Analyzer software preinstalled with the latest version.

Updates to the software are available at:

<https://www.aja.com/products/hdr-image-analyzer-12g#support>

IMPORTANT: When upgrading from an earlier version of firmware (before v3.0), all Setups should be deleted (they are incompatible). You will need to recreate them. The default setup will also be reset to factory default values.

Update Using USB Stick and Chassis

1. Download the .zip file and extract and copy the .ajas file to a USB stick.
2. Disconnect the HDR Image Analyzer 12G from the internet.
3. Manually power cycle unit two times, waiting until UI is ready for use each time.
4. Insert the USB stick into a rear USB port on the HDR Image Analyzer 12G chassis.
5. Go to **Help > Update Analyzer**.
6. Select the downloaded .ajas file and click **Select File**.
7. The firmware will be copied to the HDR Image Analyzer 12G, and when complete the message "Preparation Complete, please restart Analyzer" appears.
8. Click on the Analyzer > Application Restart menu item to complete the update, which might involve several system restarts. A screensaver will be displayed with an "Updating Do Not Shutdown" precautionary message.

IMPORTANT: Do not power off the system during the firmware update. Please be patient, this upgrade could take up to 20 minutes. Interrupting the upgrade process will have adverse effects.

9. When done, an "Update complete. Auto Shutdown in 20 seconds" message appears, and the chassis will power down.
10. Power up the HDR Image Analyzer 12G using the front panel power button. One or more end user license agreement screens will appear. Scroll down and click on the **Accept** button for each agreement.
11. The HDR Image Analyzer 12G application will then launch, ready for operation.

Update Using Web Browser

Since v1.1, HDR Image Analyzer 12G supports software update using a Web Browser running on a separate network connected computer.

1. Download the .zip file and extract the .ajas file to a location on a network connected computer.
2. Disconnect the HDR Image Analyzer 12G from the internet.
3. Manually power cycle unit two times, waiting until UI is ready for use each time.
4. Open a web browser on that computer and enter the IP address of your HDR Image Analyzer 12G. A web page will be displayed.
5. Go to the Firmware menu and click **Choose File**.
6. Navigate to the saved location on the computer, select the .ajas file, click **Open**, and then click **Upload**.

NOTE: Proper display of status messages will require reloading the web page. While the HDR Image Analyzer 12G is restarting, the web page will not be connected or updated. After each restart completes, refreshing the web page will reconnect and display the current progress of the update, with prompts for actions to take.

7. The software will be uploaded and installed, with status messages indicating the progress, and the HDR Image Analyzer 12G may restart several times during the upgrade.

IMPORTANT: Do not power off the system during the firmware update. Please be patient, this upgrade could take up to 20 minutes. Interrupting the upgrade process will have adverse effects.

8. When the installation completes the HDR Image Analyzer 12G may reboot automatically.

NOTE: If updating from v2.0 to 3.0 firmware, a "System shutdown is required to complete updates" message appears. Restart the HDR Image Analyzer 12G's computer to shut down the system, and then power up the HDR Image Analyzer 12G using its front panel power button.

9. One or more end user license agreement (EULA) screens will appear. Scroll down and click on the **Accept** button for each agreement.
10. The HDR Image Analyzer 12G application will then launch, ready for operation.

Licensing

The HDR Image Analyzer 12G comes with an internal license already activated. No user involvement is required for licensing, other than accepting end user license agreements.

Chapter 3 – HDR Image Analyzer 12G GUI

Overview

HDR Image Analyzer 12G is a real time video analyzer for QC, Mastering, Grading and Broadcast. The simple, easy to use graphical user interface (GUI) features unique options designed specifically for HDR work. When the HDR Image Analyzer 12G hardware starts up, the GUI automatically launches.

HDR Image Analyzer 12G interface provides a Quadrant layout for viewing your tools and footage as you work. Full Screen and Multiple Channel views are also available.

Quick key shortcuts provide pre-configured common layouts for how your tools and views are presented. For further customization, you can also choose a particular tool to be shown in any of the quadrants by either right-clicking on the quadrant itself and choosing your preferred tool, or by accessing quadrant choices from the Analyzer > Tools menu.

After you have created a layout view matching your work requirements, it can be saved as a unique Setup for easy reuse.

Input Source Routing and Views

In addition to single input video analysis of quad-link 8K/UltraHD2 or 4K/UltraHD signals, HDR Image Analyzer 12G version 3.0 firmware supports the simultaneous analysis of four input Channels, up to 4x single-link 4K/UltraHD. The four inputs can be different video formats (for example, 4K, UltraHD, 2K, HD) and even different compatible frame rates (for example, 59.94, 29.97, 23.98). The Video>Input Setup dropdown menu is used to select which of these operating modes the HDR Image Analyzer 12G will use.

In Four SDI Inputs mode, each input signal can be routed to one of four Channels, which can then be selected for image viewing or assigned an analysis tool and displayed full screen, or in any quadrant, creating an analysis View. Once you have created an arrangement of images and tools, you can save that View as a Setup for easy recall.

HDR Image Analyzer 12G version 3.0 has also added support for the analysis of NDI streams present on the network. Each detected NDI stream can be routed to any of the four Channels, assigned to an analysis tool in a View and saved as a Setup, the same as an individual SDI input.

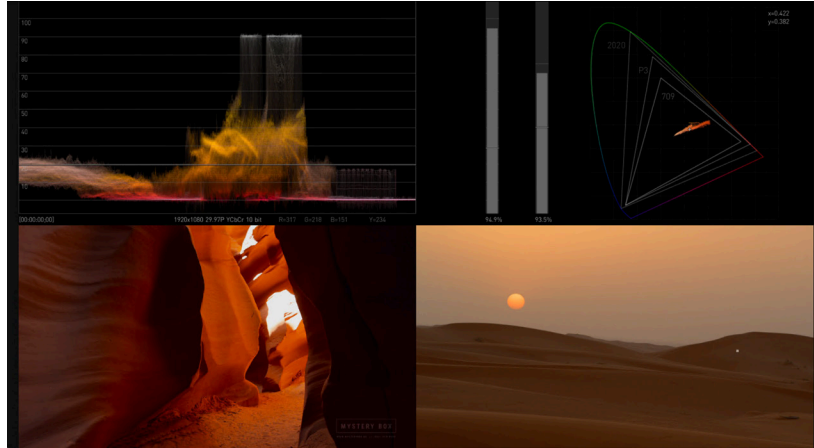
Four Channel Input Analysis

HDR Image Analyzer 12G version 3.0 firmware supports the simultaneous analysis of four input Channels, up to 4x 4K/UltraHD. The four inputs can be different video formats (for example, 4K, UltraHD, 2K, HD, and even different compatible frame rates (for example, 59.94, 29.97, 23.98).

A Four Channel View is available to monitor each signal simultaneously, with each Channel showing the image, waveform, and vectorscope, plus audio metering (see "[Four Channel View](#)" on page 14).

A Quadrant View is also available that can be customized. When analyzing multiple Channels, each quadrant is individually configurable to present an analysis tool for any of the four Channels. In [Figure 3](#), two different Channels are examined by two different tools simultaneously.

Figure 3. Quadrant View of Two Input Channels Analyzed With Different Tools



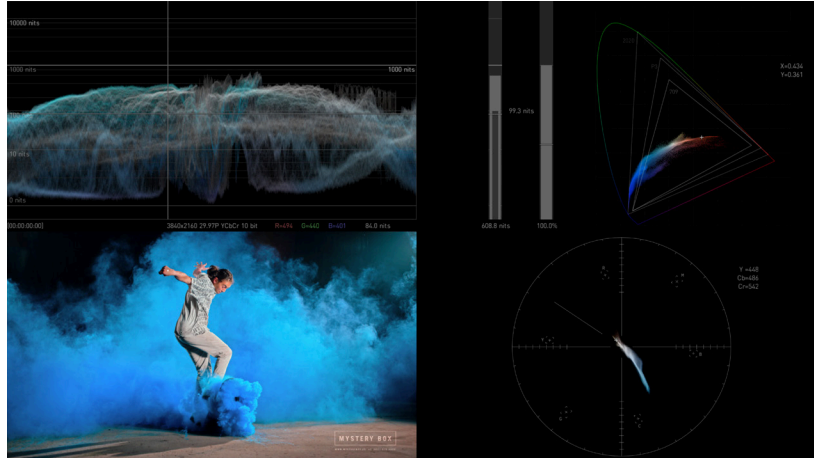
Views

The Analyzer uses screen layouts with either a Quadrant view, Full Screen view, or Four Channel view.

Quadrant View

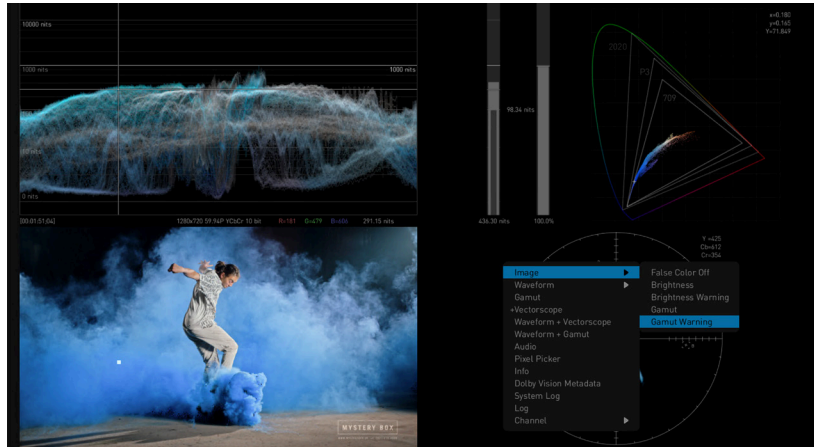
Each screen quadrant can be configured to display the image being examined, or display any of the available analysis tools for any of the HDR Image Analyzer 12G's Channels (Figure 4).

Figure 4. Quadrant View Example



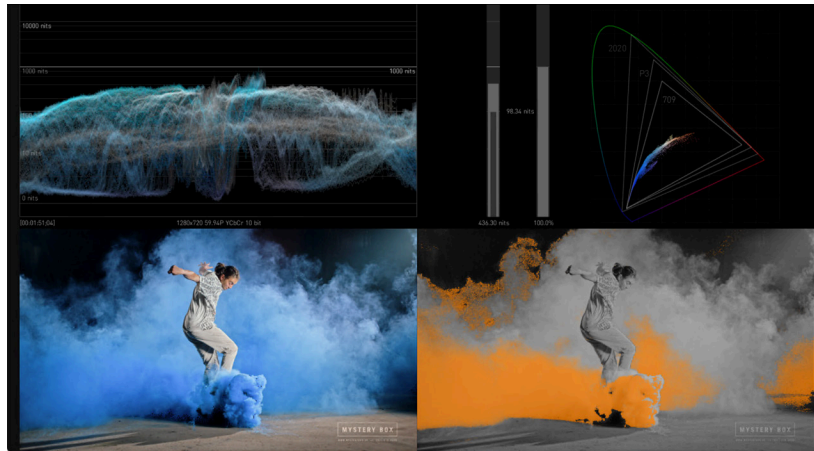
The tool or image in each quadrant can be selected by right-clicking on that quadrant to open a drop-down selection menu (Figure 5).

Figure 5. Right-Click Configuration, Lower Right Quadrant



After the selection that quadrant will display the new image or tool (Figure 6).

Figure 6. Alternate View After Right-Click Configuration

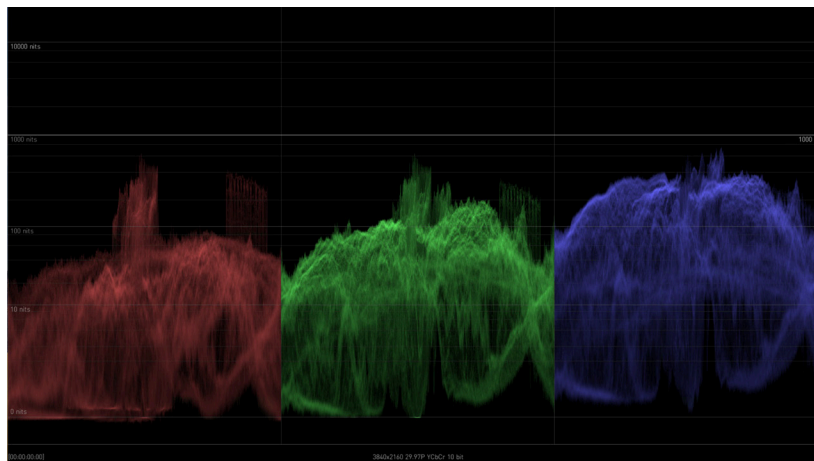


Quadrants can also be configured using the Analyzer menu drop-down lists.

Full Screen View

In Full Screen View, the image being examined, or some of the selected measurement tools, can be displayed full screen.

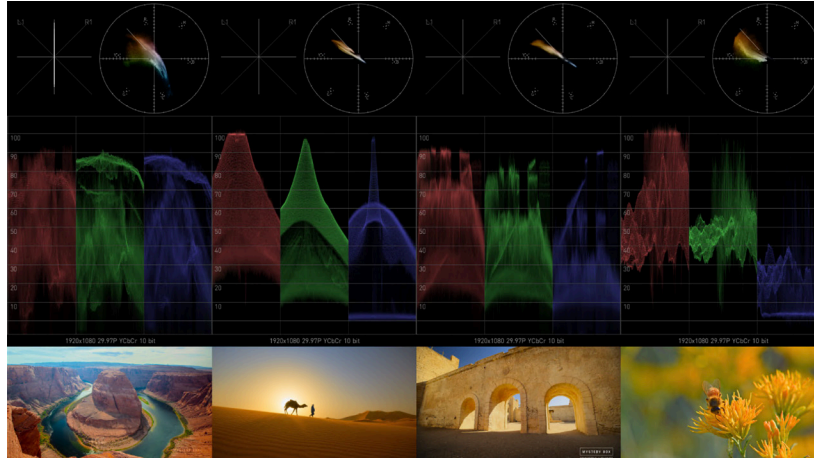
Figure 7. Full Screen View Example, Waveform RGB Color



Four Channel View

Pressing the Shift-Enter keystroke combination when multiple Channels are active displays all the Channels side by side simultaneously. Pressing Shift-Enter again restores the previous view. This viewing mode can also be turned on and off via the Analyzer>Tools>Views>Four Channel View menu selection. This view is not customizable.

Figure 8. Four Channel View Example, Analysis of Four Inputs



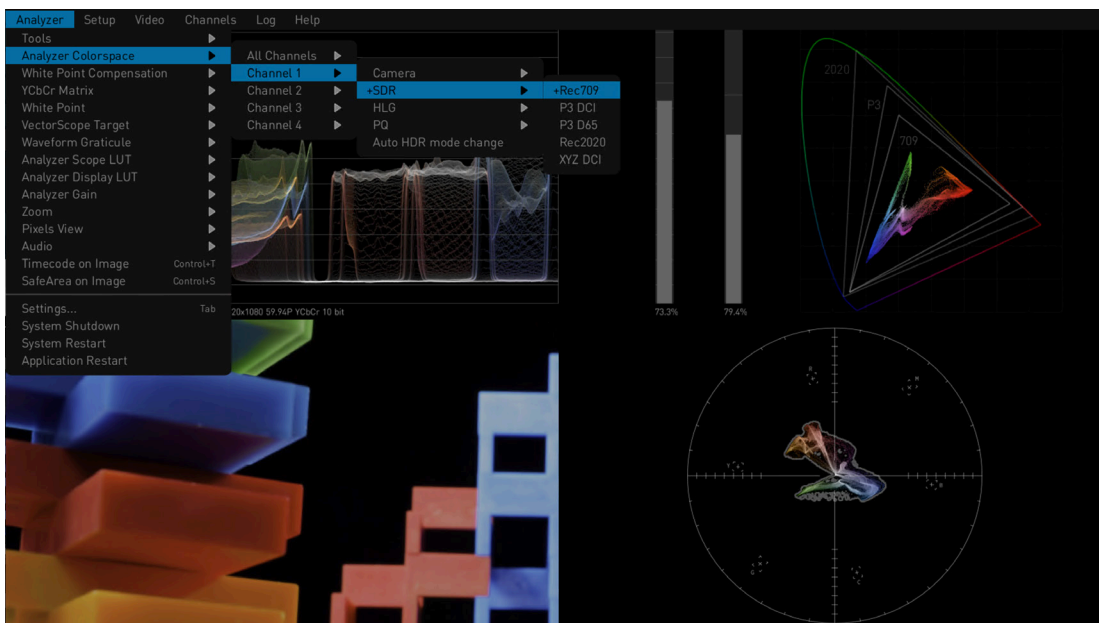
Drop-Down Menu Navigation

A top menu bar appears when the cursor is moved to the top of the screen. These menus can be used to select layouts and configure settings. Clicking on a menu name opens that menu.

Pressing the ESC key also displays the drop-down menus.

The menu item with a "+" indicates the current setting.

Figure 9. Selecting Colorspace Using Drop-Down Menu



When a drop-down menu is displayed:

- The left and right arrow keys can be used to move to an adjacent menu, or open an additional parameter menu for the current menu selection.
- The up and down arrow keys move the selection up or down that drop-down menu.
- Pressing the TAB key when the top menu bar is present selects the next drop-down menu to the right. Shift+TAB selects the drop-down menu to the left.

NOTE: When the menu bar is not displayed, the TAB key opens the Settings screen. See "Settings Screen" on page 40 for more information.

Selecting Views with Keyboard

When a drop-down menu is not open, the computer keyboard can be used to activate layouts and to access the Settings and Multiple Channel screen displays. Keystrokes for each shortcut are listed in the drop-down menus.

When variations of an image or tool are available, the keyboard shortcuts will display the currently selected variation by default.

Table 1. Analyzer Mode Function Key Actions

F1	Show/Hide Full Screen View Waveform.
F2	Show/Hide Full Screen View Gamut.
F3	Show/Hide Full Screen View Video Image.
F4	Show/Hide Full Screen View Vectorscope.
F5	Cycles only Q1 through Image, Waveform, Gamut, Vectorscope, and Audio views.
F6	Cycles only Q2 through the five views above.
F7	Cycles only Q3 through the five views above.
F8	Cycles only Q4 through the five views above.

Table 2. Current View Shortcuts

CTRL+F5	Cycles Q1 tool variant. The Image display cycles through Brightness and Gamut tools, and the Waveform display cycles through Luminance and Color tools.
CTRL+F6	Cycles Q2 tool variant as above.
CTRL+F7	Cycles Q3 tool variant as above.
CTRL+F8	Cycles Q4 tool variant as above.
CTRL+v	Toggle on/off magnification of the Vectorscope display.
CTRL+NumPad Plus Sign	Increase Analyzer display gain.
CTRL+NumPad Minus Sign	Decrease Analyzer display gain.
CTRL+ENTER	Reset Analyzer gain.
CTRL+w	Apply a 4x magnification to the Waveform display.

Table 3. Capture Image Shortcuts

Alt+1	Capture on Channel 1 and show it immediately.
Alt+2	Capture on Channel 2 and show it immediately.
Alt+3	Capture on Channel 3 and show it immediately.
Alt+4	Capture on Channel 4 and show it immediately.
Shift+1	Show Live input on Channel 1.
Shift+2	Show Live input on Channel 2.
Shift+3	Show Live input on Channel 3.
Shift+4	Show Live input on Channel 4.
CTRL+NumPad 1	Recall captured image on Channel 1.
CTRL+NumPad 2	Recall captured image on Channel 2.
CTRL+NumPad 3	Recall captured image on Channel 3.
CTRL+NumPad 4	Recall captured image on Channel 4.

Table 4. Additional Shortcuts

CTRL+F10	Sets Colorspace to SDR Rec 709.
CTRL+F11	Sets Colorspace to HLG Rec 2020.
CTRL+F12	Sets Colorspace to HDR Rec 2020.
CTRL+space	Toggles Single Line Mode ON and Off.

Table 5. Screen Display Shortcuts

TAB	Displays the Settings Screen, with Tabs.
Shift+Enter	Shows the Four Channel Full Screen View Waveform.
CTRL+p	Show/Hide Performance window.

Analyzer Modes

The waveform, histogram, and vectorscope are a form of oscilloscope and are used to monitor video brightness, contrast, hue, and color saturation.

- The waveform displays the luminosity or brightness and contrast of the pixels in the video frame, with the top of the y-axis indicating a high luminosity level, and the bottom indicating a low luminosity level.

NOTE: Waveform views can be magnified 4x using the Waveform Zoom control. Use the mouse to move up and down the display.

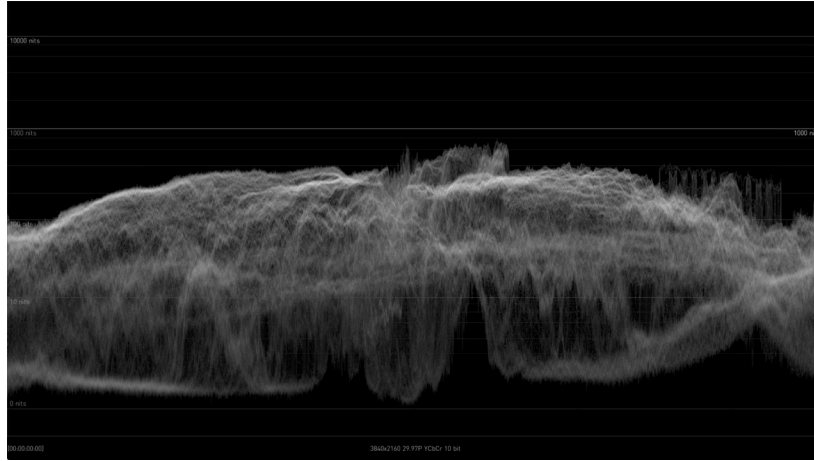
- The histogram shows the number of pixels in relation to a given list of luminance, or colors in a specific colorspace.
- The vectorscope displays values for hue and color saturation. The color saturation of each pixel in the video frame is shown, with the middle of the circle indicating a lower saturation level, and the edge of the circle indicating a higher saturation level. Hue is represented by placement in the 360 degree angle of the circle.

NOTE: The Vectorscope view can be displayed at either a 75% or 100% size (the percentage changes the graticules on the Vectorscope, not the rasterized image), and can be magnified with the Vectorscope Zoom control.

- The gamut screen shows a CIE xy gamut graph reporting the color values present in the image, with a graticule showing the limits for various standards (709, P3, 2020).

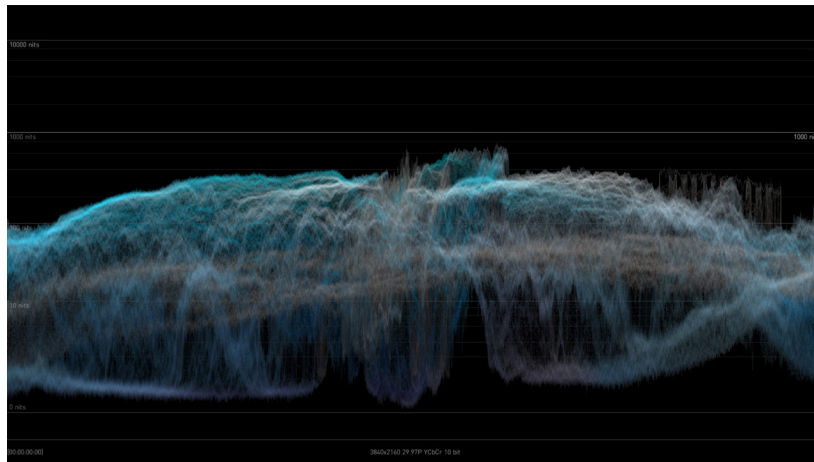
Several Analyzer view modes are available.

Figure 10. Waveform Luminance Mode



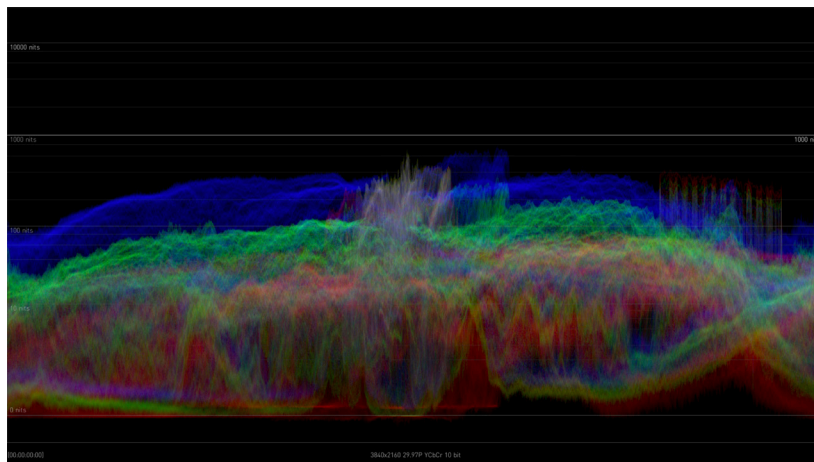
Waveform showing only luminance (Y) and no color information. Each pixel on the graph shows the frequency of the corresponding luminance value in the given column. Higher luminance value means lighter image content, lighter pixel means higher frequency of that luminance value.

Figure 11. Waveform Lumi Color Mode



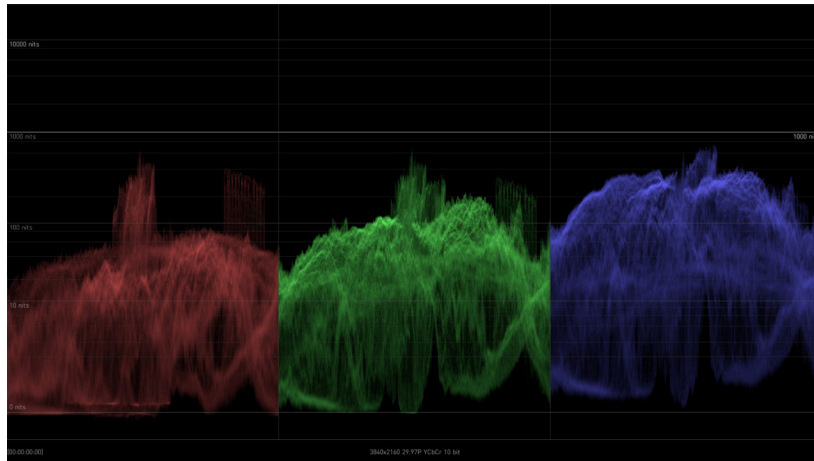
Waveform showing both luminance and color information. Here, in addition to the Waveform Luminance mode, the graph is colored according to color information. The hue and saturation of a pixel shows the sum of the dominant colors having the corresponding luminance value.

Figure 12. Waveform Color Mode



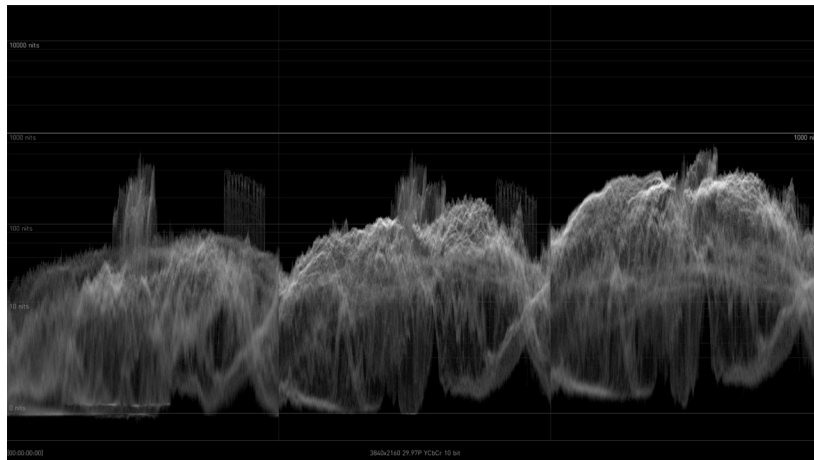
Waveform showing the RGB channels superposed in one graph.

Figure 13. Waveform RGB Color Mode



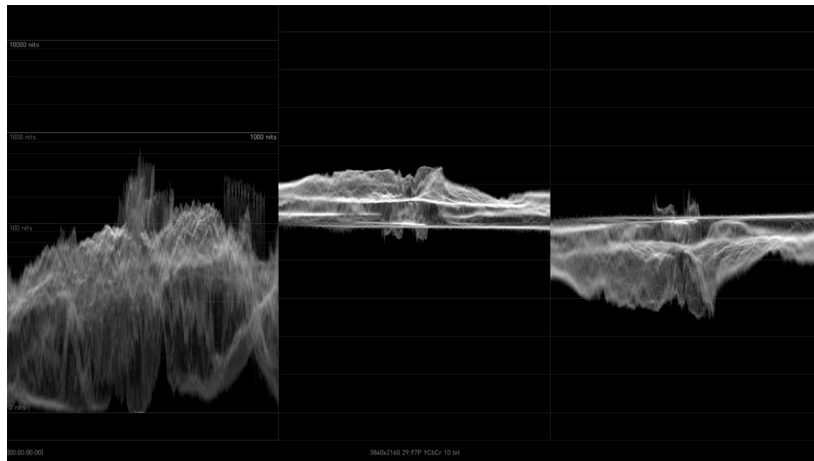
Waveform showing the RGB channels in a split view, where each graph is shown in its respective color.

Figure 14. Waveform RGB Mode



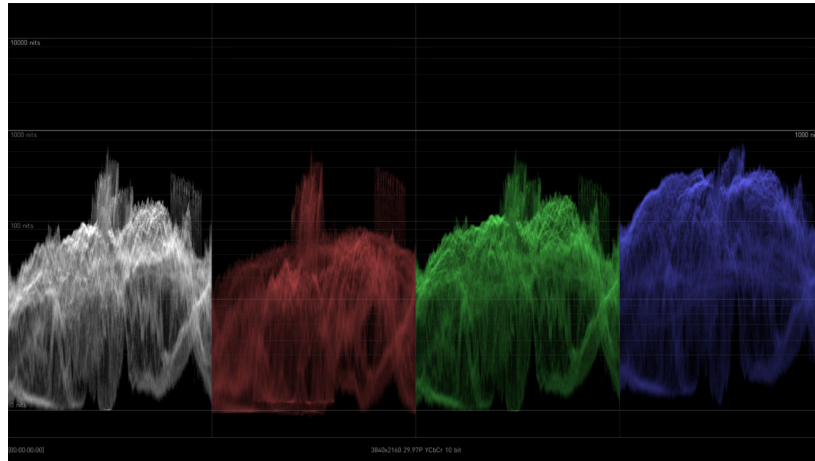
Waveform showing the RGB channels in a split view, where each graph is shown in monochrome.

Figure 15. Waveform YCbCr Mode



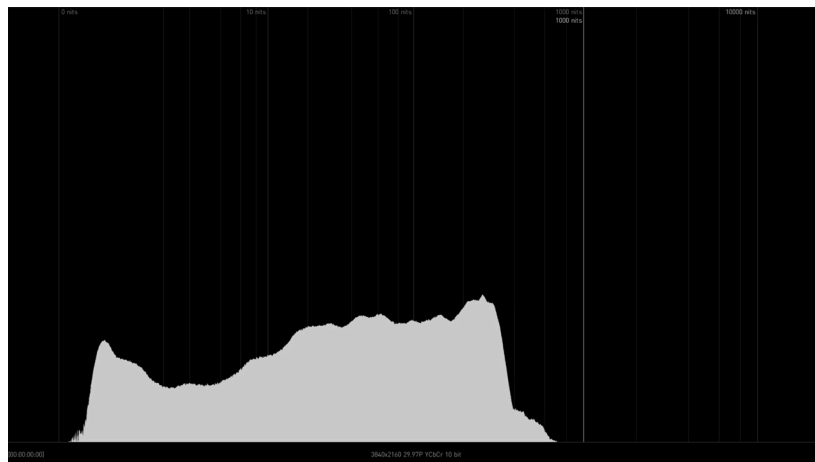
Waveform showing luma (Y), blue minus luma (Cb), and red minus luma (Cr) in a split view.

Figure 16. Waveform YRGB Mode



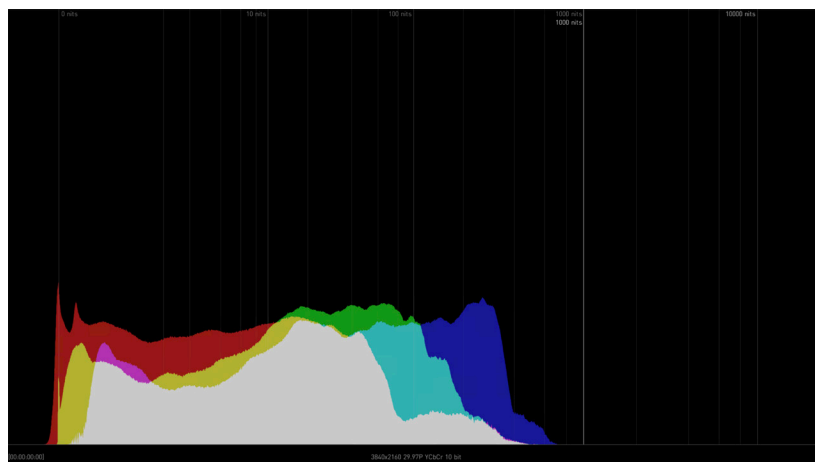
Waveform showing luminance and RGB channels in a split view, where each color channel graph is shown in its respective color.

Figure 17. Histogram Luminance Mode



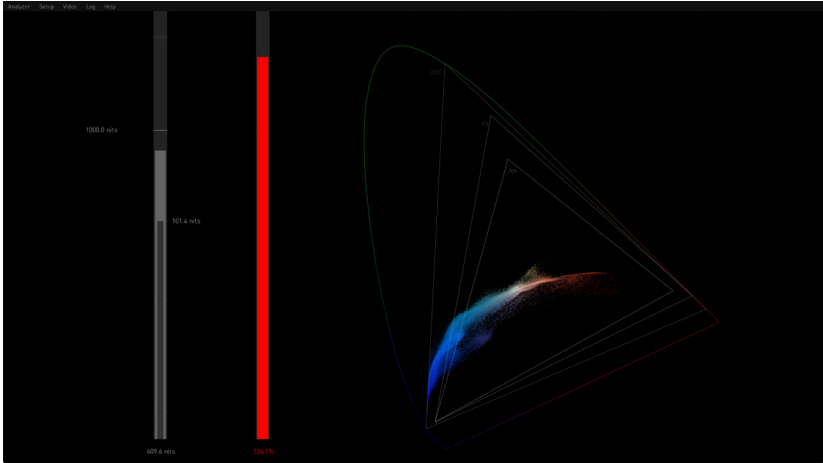
Histogram Luminance is showing the frequency of luminance values throughout the current image content. Left-hand part is for darker, right-hand part is for lighter image content.

Figure 18. Histogram Color YCbCr Mode



Histogram Color showing the frequency of RGB channel values throughout the current image content, superposed. For each channel, the left-hand part represents image content for "0" or Black, while right-hand part represents image content for "1" and White. The 0-1 range is a scale, also represented as code values: (0 = 0,0,0 and 1 = 1023,1023,1023) in 10 bit code value for R, G & B.

Figure 19. Gamut Mode (CIE xy Graph) with Gamut Error

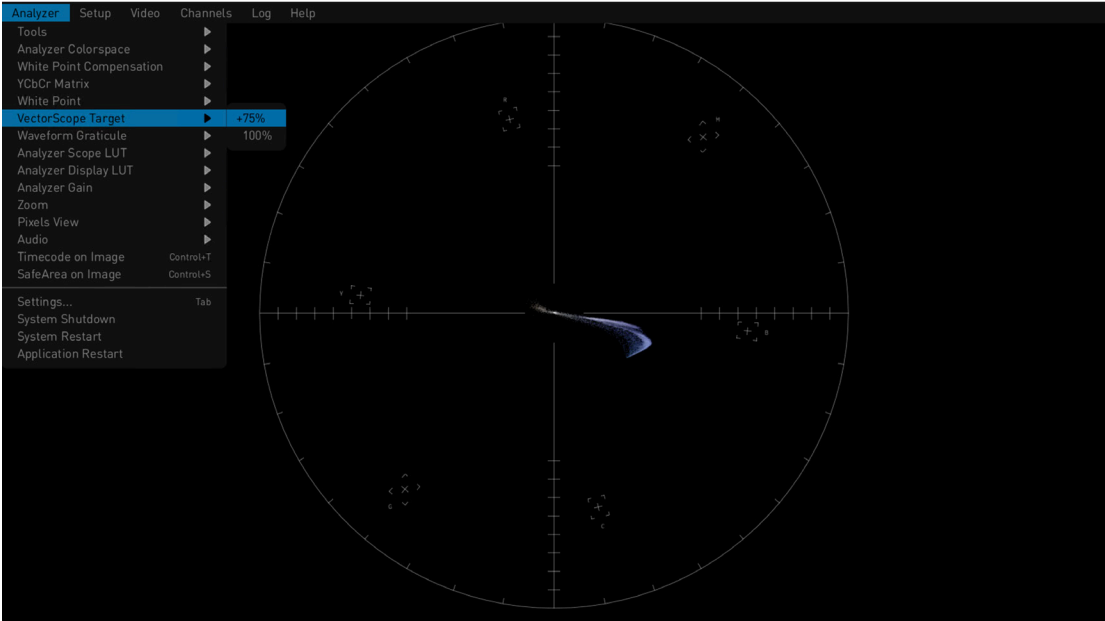


This mode displays a CIE xy Gamut, showing various output referred color gamut standard limits, and also has Brightness and Gamut bars.

Brightness and Gamut Bars

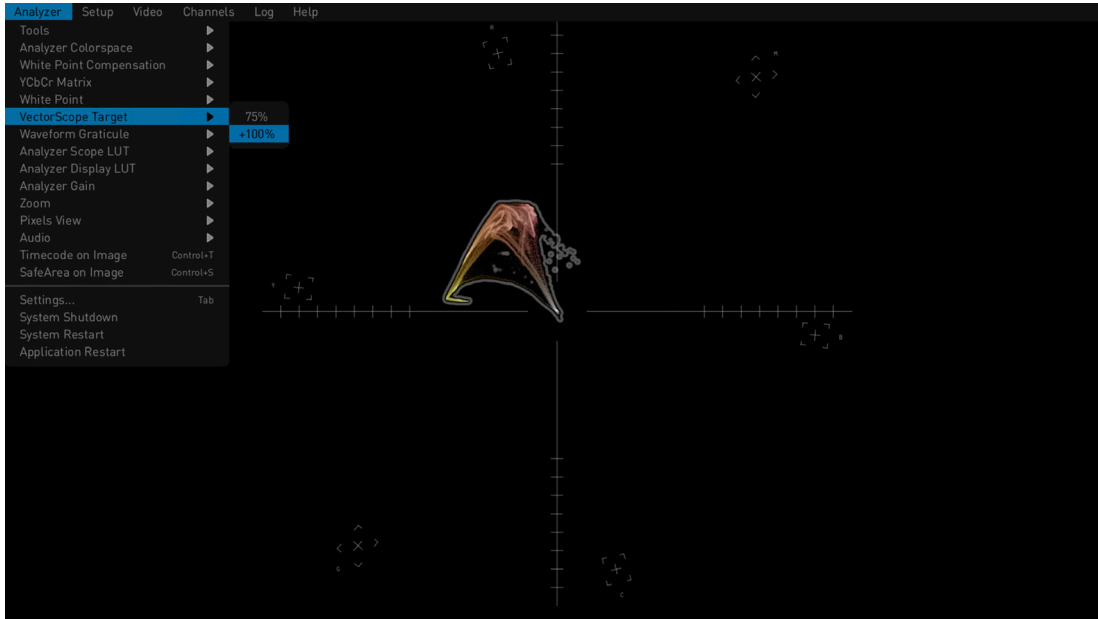
This view also contains two bars: the brightness bar on the left indicates the brightest pixel detected, the gamut bar on the right shows if the colors are within the legal color gamut. See "CIE xy Gamut View" on page 33 for more information.

Figure 20. Vectorscope with markers indicating 75% values



Vectorscope is showing the hue and saturation of all pixels throughout the current image content. The middle of the circle indicates a lower level of saturation, while the edge of the circle indicates a higher level of saturation. The brightness of the graph shows the frequency of the respective color in the image content.

Figure 21. Vectorscope with markers indicating 100% values, Vectorscope Aid



Skin Tone Line

A skin tone line is also available on the Vectorscope graticule, adjustable using the Skin Tone X and Y controls in the Settings menu.

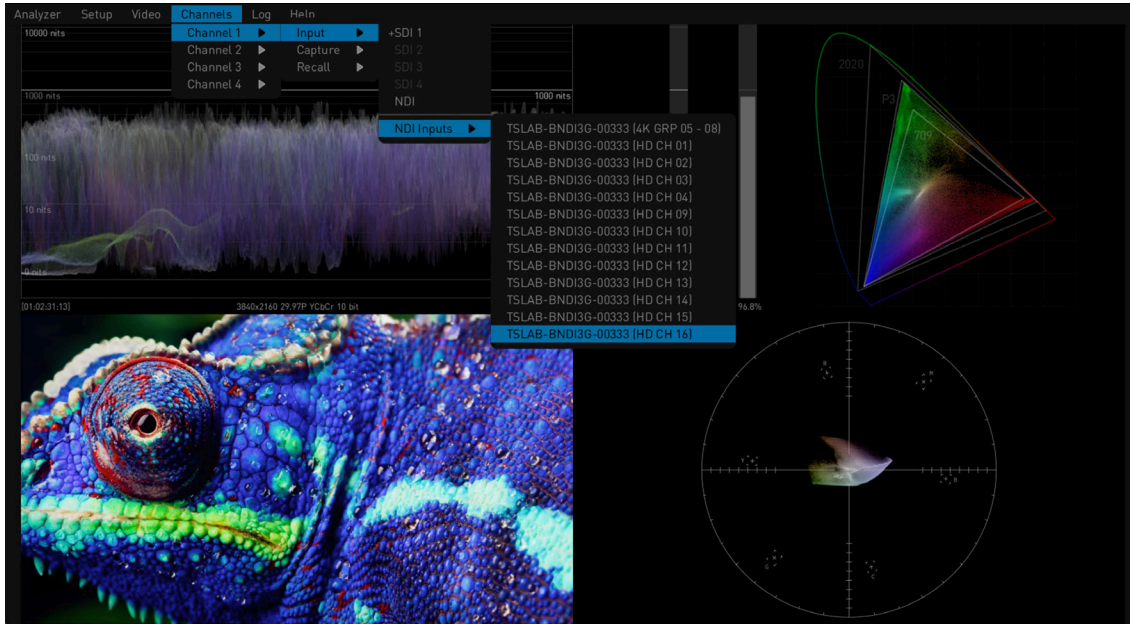
Vectorscope Aid

A Vectorscope Aid feature is available in the Settings menu, which draws a gray bounding area around the chroma on the Vectorscope, which can be useful when trying to examine individual pixels

NDI Support

HDR Image Analyzer 12G version 3.0 firmware supports receiving Full NDI 4K/ UltraHD/2K/HD signals over an Ethernet connection. These NDI signals can be run through the HDR Image Analyzer 12G's robust image analysis toolset as they would with an SDI signal. No external conversion technology is required, offering space, power, and cost savings.

Figure 22. NDI Source Selection Example.

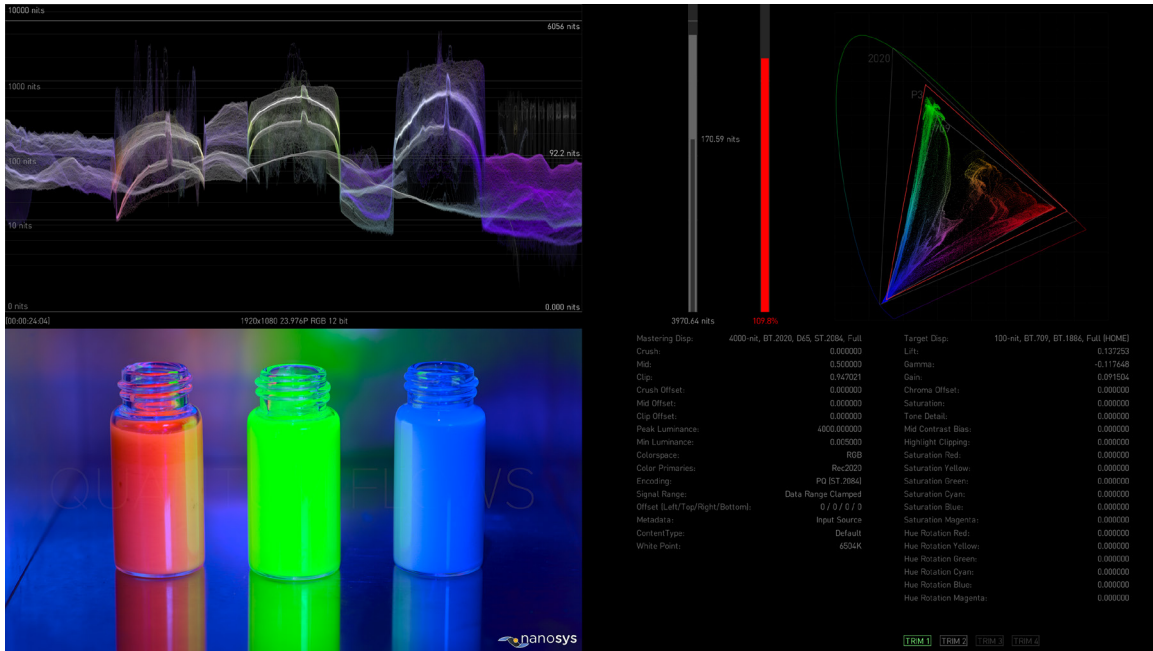


Any NDI stream detected on the network will be displayed on the NDI dropdown list. If a stream is not actually carrying video, that NDI source can still be selected, but will not show any image. If video is present, it will be shown with the appropriate video format information.

Dolby Vision Analysis Capabilities

HDR Image Analyzer 12G v3.0 introduces Dolby Vision dynamic metadata inspection and presentation, with support for Dolby Vision v4.0 and v2.9, through automatic detection. The improvement allows users to take in an SDI signal with embedded Dolby Vision metadata and view the Dolby Vision metadata in various ways. For example, L1 metadata is presented visually in the waveform as NIT markers and all of the metadata is displayed in the Dolby Vision metadata analysis tool as readable text. It can be seen in real-time on a scene-by-scene/shot-by-shot basis or as the metadata is changed upstream of the HDR Image Analyzer. Helping to accelerate color and QC workflows, this new feature addition gives professionals greater confidence that they've generated and validated the correct Dolby Vision metadata.

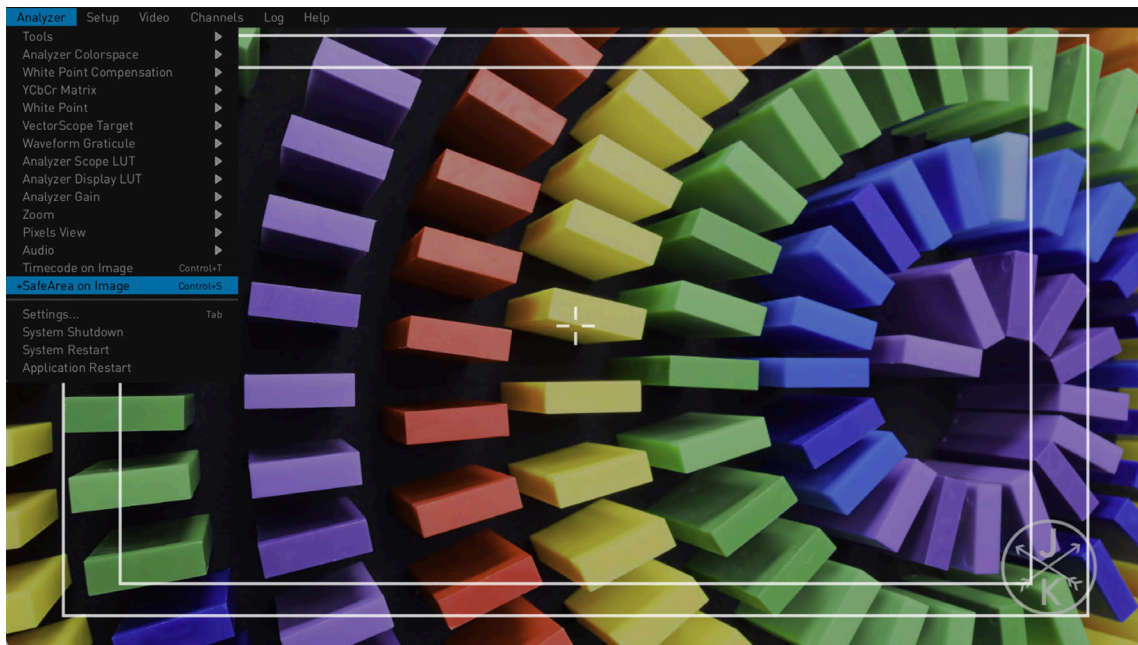
Figure 23. Dolby Vision Analysis, Lower Right Quadrant



Framing Guides

HDR Image Analyzer 12G supports two framing guides, Safe Title and Safe Action. Enabling "Safe Area on Image" displays the guides configured in the SAFEAREA sub-page of the Settings screen. You can display either the Safe Title, Safe Action, or both boundaries. The CTRL+s hotkey combination enables and disables the framing guide display.

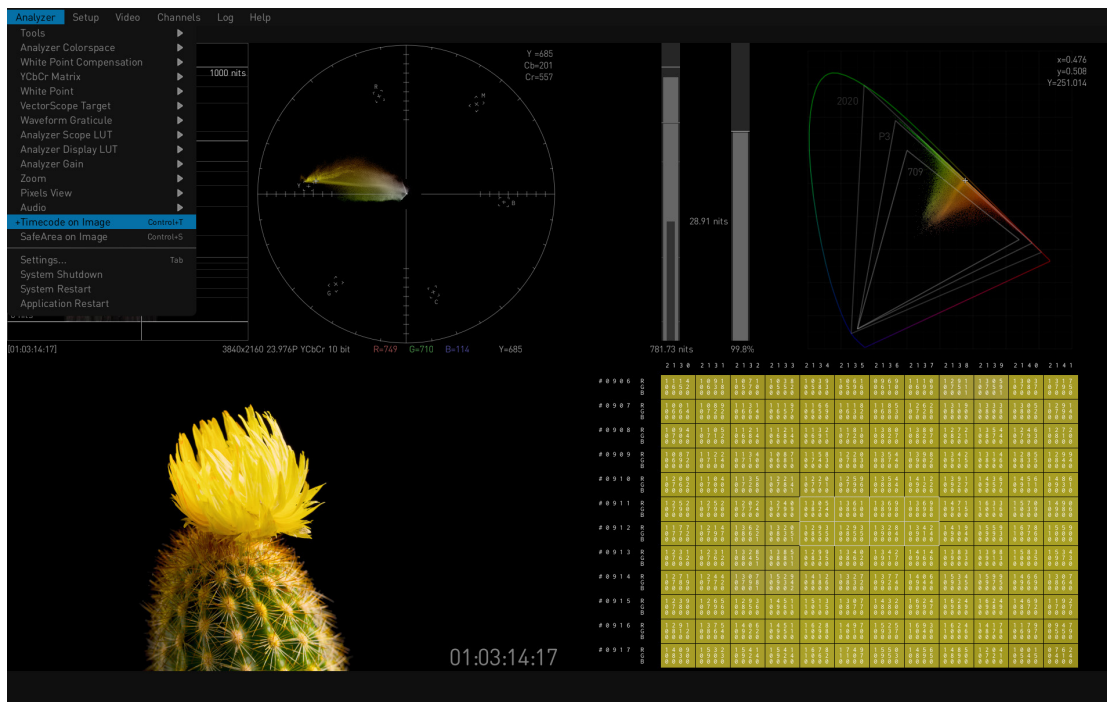
Figure 24. Framing Guides



Timecode on Image

The timecode is captured from several areas including the SDI and may be displayed on the image by selecting the Window > Timecode on Image menu option.

Figure 25. Timecode on Display Image (Lower Right Corner of Quadrant)



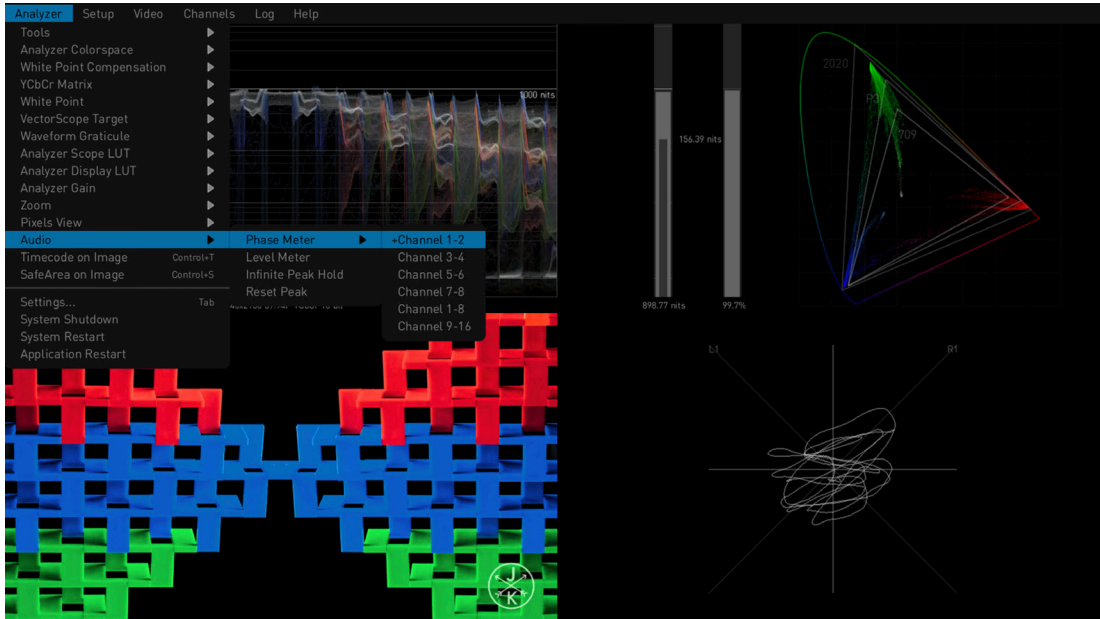
Audio Monitoring

Any quadrant of the HDR Image Analyzer 12G GUI can display one of the audio monitoring screens. In the following examples the various tools are shown in the lower right quadrant (Q4).

Audio Phase Meter

Analyzer supports an audio phase meter which can be configured to display either two channel (stereo) or eight channel (surround) audio. When configured to display two channels, channels 1-2, 3-4, 5-6, or 7-8 may be displayed. When configured to display 8 channels, channels 1-8, or 9-16 may be displayed.

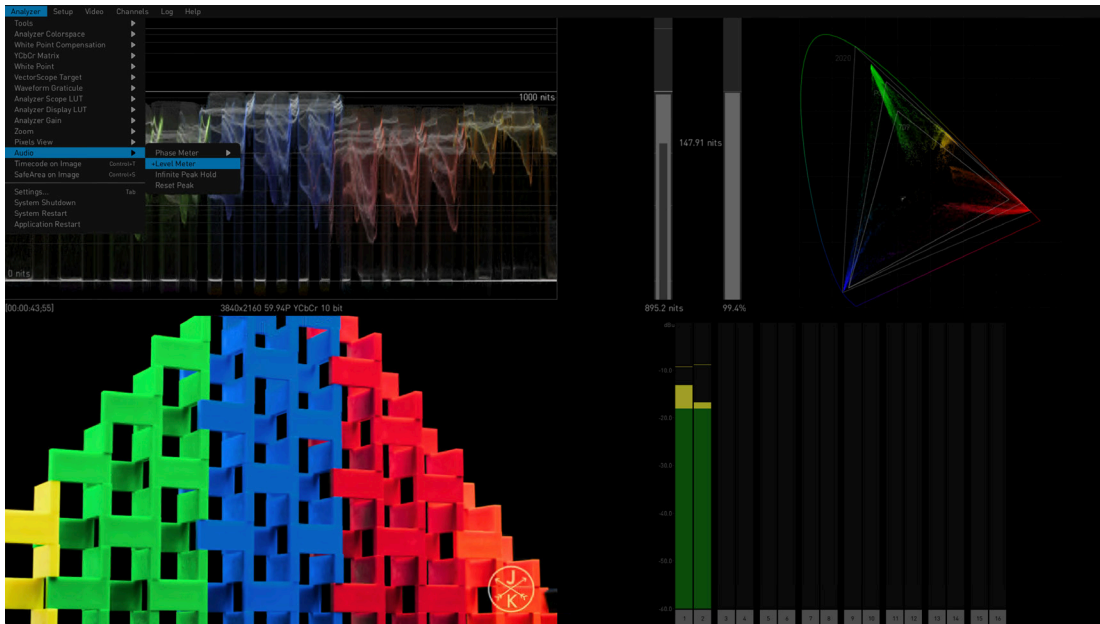
Figure 26. Audio Phase Meter



Audio Level Meter

Analyzer supports an audio level meter with up to 16 channels which can be used to monitor audio levels and also display peak dB levels. You can keep the highest peak displayed with the Audio Infinite Peak Hold feature available in the Settings/QC screen.

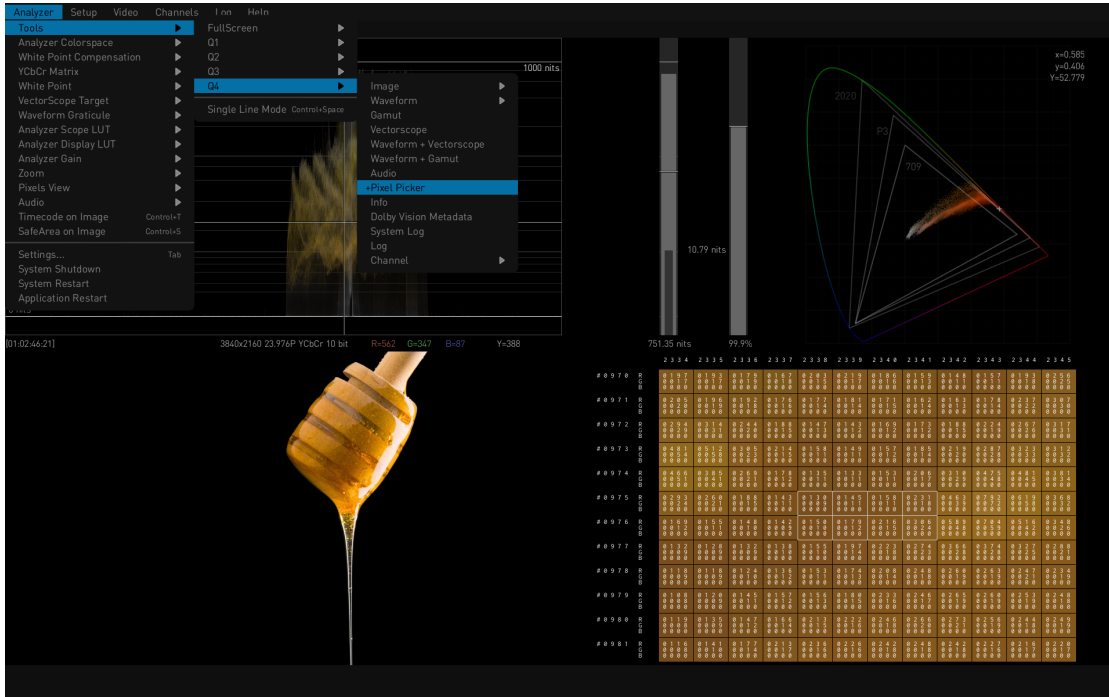
Figure 27. Audio Level Meters



Pixel Picker

The HDR Image Analyzer 12G GUI can display Pixel Picker information. See "[Pixel Picker](#)" on page 36 for more information.

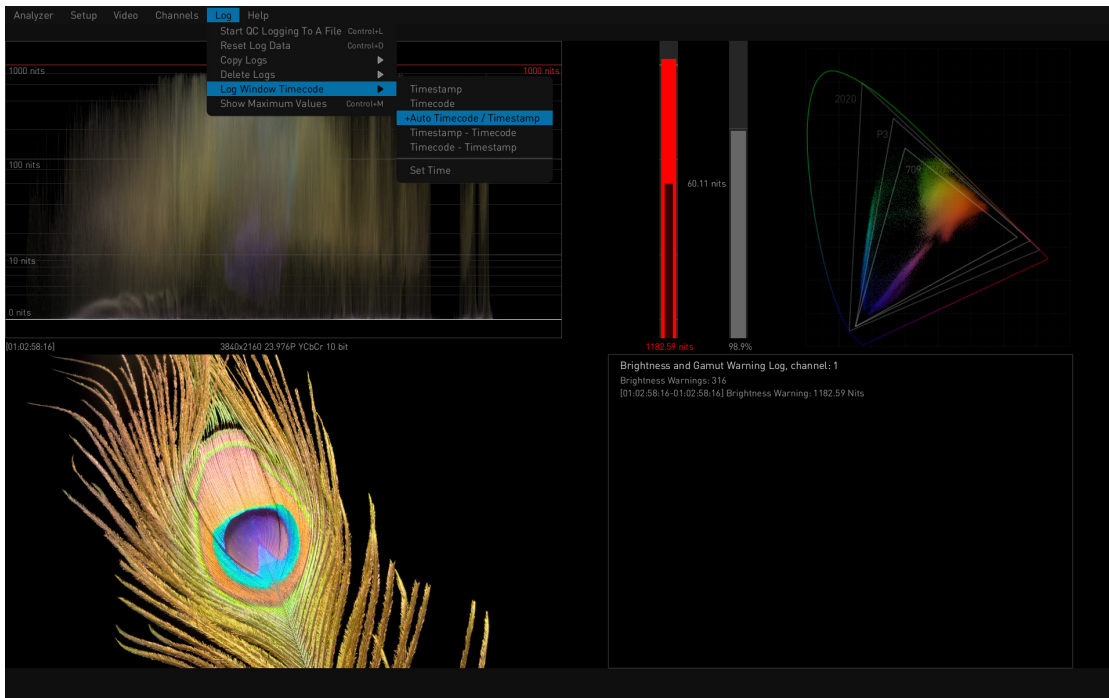
Figure 28. Pixel Picker Quadrant View



Log Data

When Log is selected for a quadrant, the current log data is displayed. This information can be saved to log files. See ["Logging" on page 39](#) for more information.

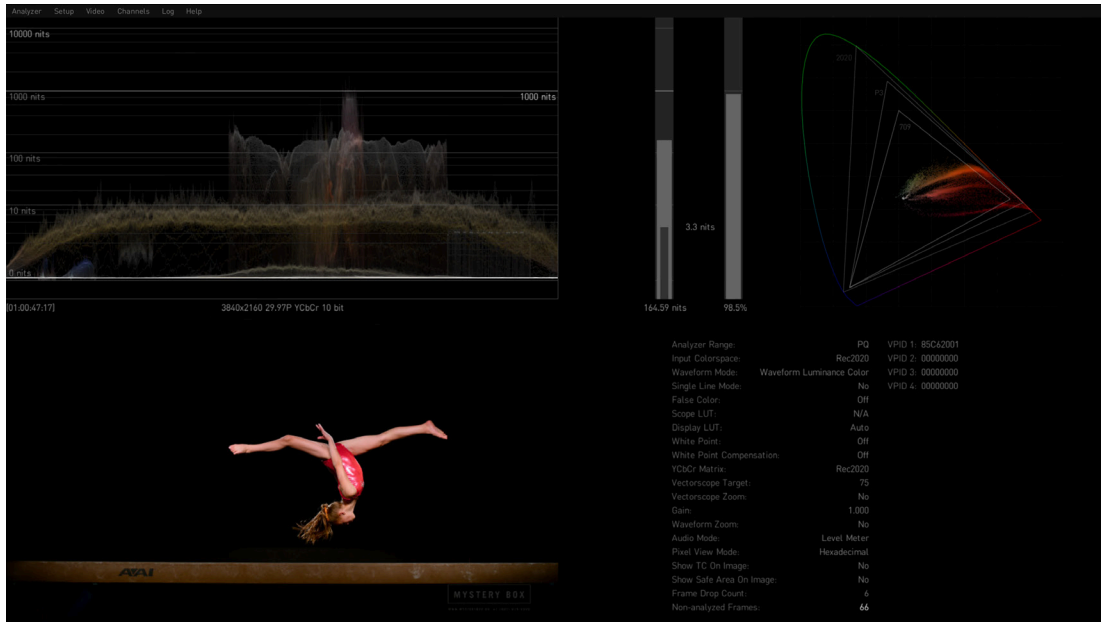
Figure 29. Log Data Quadrant View



Info Page

When Info is selected for a quadrant, useful information about the current HDR Image Analyzer 12G settings is displayed.

Figure 30. Info Page Quadrant View



Other Features

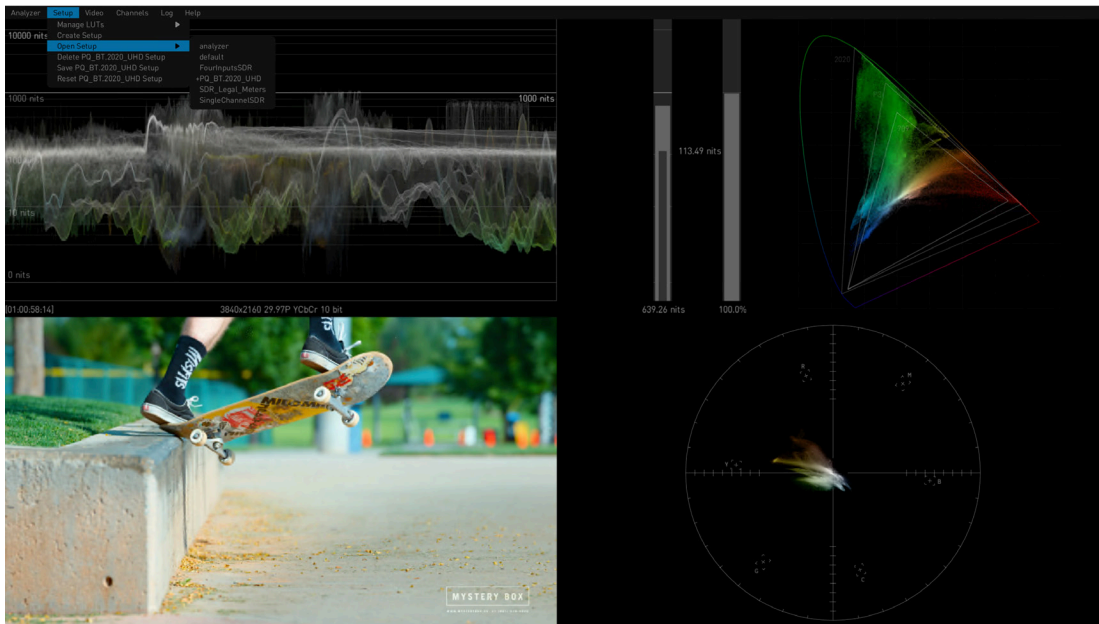
Other configuration options are available in the various HDR Image Analyzer 12G menus. See "[Chapter 6 Menu Reference](#)" for additional information.

Chapter 4 – Using HDR Image Analyzer 12G

HDR Image Analyzer 12G Setups

The Setup menu of the top menu bar is used to create, open, save, and reset Setups of views and parameter settings.

Figure 31. Setup Menu



About Setups

When a Setup is created and/or saved, the current View settings are saved to that named setup. Each saved Setup includes the Channel configuration, video settings, view settings, analyzer tool settings, and the configured values on the settings screen (except for NETWORK settings, which are unaffected by Setups).

NOTE: If a LUT file that was used as part of a Setup is deleted, it will not be restored when a Setup that used it is opened.

When a Setup is Opened, those saved View and Settings values are recalled. Changing those settings on the UI does not change the previously saved settings, unless you save them again.

NOTE: The manner in which Setups are saved and recalled has significantly changed in v3.0 from earlier HDR Image Analyzer 12G firmware versions.

Setup Controls

Create Setup

Opens a window to name and create a setup of the current View and Settings parameters.

Open Setup

Displays a list of the current Setups for selection.

Delete <Name> Setup

When a Setup has been recalled, you can delete it with this choice.

Save <Name> Setup

Saves the current View and Settings parameters for this Setup.

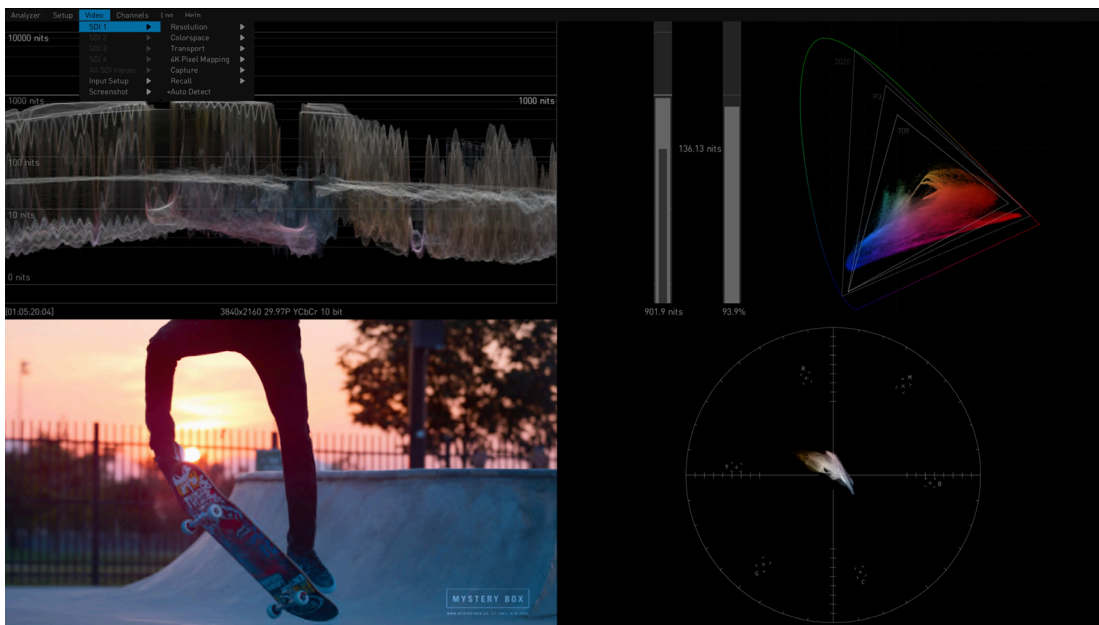
Reset <Name> Setup

Restores the last saved settings for this Setup.

Video Menu

The Video drop-down menu of the top menu bar is used to define the characteristics of the SDI video input signal(s) being analyzed, select single or four Channel input, and can be used to capture and recall still video images for detailed analysis.

Figure 32. Video Menu



NOTE: If Auto Detect is On, the HDR Image Analyzer 12G will automatically select (if possible) the incoming video's Resolution, Colorspace, Transport, and Square Division settings.

Video Input Setup

HDR Image Analyzer 12G supports two modes of operation, Quad-link SDI Input mode or Four SDI Inputs mode. The operating mode affects how the four SDI Input connectors on the HDR Image Analyzer 12G chassis are used.

Quad-link SDI Input

Quad-link mode is required for legacy 4K/UltraHD signals that utilize four 3G-SDI links with either 2SI or SQD pixel mapping, or 8K/UltraHD2 signals which require four 12G-SDI links, usually with 2SI pixel mapping (early products may have used SQD, however). In this mode all four SDI input connectors are used for one SDI input source. NDI sources can also be selected for additional analysis.

SDI inputs 2, 3, and 4 are unavailable when operating in this mode. The only input signal selection available in this mode is either SDI 1, or an NDI signal stream present on the network.

Four SDI Inputs

Four Inputs mode allows analysis of up to four SDI input signals simultaneously. Only single link formats are supported, and all four SDI inputs 1, 2, 3, and 4 and any NDI streams are all available to be selected for analysis. Any combination of four inputs, SDI or NDI, can be accessed for analysis, and these sources, and tools for these sources, can be assignment to a Quadrant view or Full Screen view.

Selecting Analyzer>Tools>Four Channel View (or use the Shift+Enter keyboard shortcut) presents a four Channel view, showing each image accompanied by a waveform RGB color, vectorscope, and audio tool.

Resolution

A drop-down menu permits selecting a resolution to manually match the incoming video being analyzed. Select from:

- 720p
- HD
- 2K
- UHD
- 4K
- UHD2
- 8K

Colorspace

A drop-down menu permits selecting from YCbCr 10 bit, RGB 10 bit, or RGB 12 bit colorspaces to manually match the incoming video being analyzed. Select from:

- YCbCr 10 bit
- RGB 10 bit
- RGB 12 bit
- RGB Range is Legal

Transport

A drop-down menu permits selecting the SDI transport to manually match the incoming video being analyzed. Select from:

- Single Link
- Dual Link
- Quad Link

4K Pixel Mapping

A drop-down menu permits selecting the pixel mapping of incoming SDI video. Select from:

- SQD - Square Division
- 2SI - Two Sample Interleave

2SI LFR and HFR Input

For LFR (Low Frame Rate) 2SI video the Analyzer only uses SDI input 1 and 2 (four wire LFR 2SI is not supported at this time).

For HFR (High Frame Rate) 2SI video all 4 SDI inputs are used.

Auto Detect Options

The Auto Detect Options setting is used to make the HDR Image Analyzer 12G automatically select the number of incoming video signals to be used depending on the detected video, or to force the use of only the first BNC input connector, or to force the use of all four input connectors. The auto detection is based on the VPID video payload identifier (SMPTE 352M).

Auto Detect - HDR Image Analyzer 12G automatically detects incoming video and uses either one link, or four links as appropriate.

Forced 1x SDI Connection Mode - Forces use of only BNC input connector one.

Forced 4x SDI Connection Mode - Forces use of all four input BNC connectors.

Input Setup

This setting determines whether the HDR Image Analyzer 12G operates in Single Channel or Four Channel Mode.

Quad-link SDI Input - The unit operates as a single input analyzer.

Four SDI Inputs - The unit allows analysis of up to four inputs.

NOTE: In either operating mode, the Shift+Enter keyboard shortcut toggles to and from a Four Channel view layout. When operating in Four Channel mode all four Channels are displayed. When operating as a single Channel analyzer, only the first Channel will be displayed.

Screenshot

The Screenshot menu lets you capture the current Analyzer UI screen displayed on the connected computer. Screenshots are saved as .png files to the local host computer, and can then be copied into a different folder (for example an attached USB flash drive).

Save Screenshot

Captures the current Analyzer UI screen. You can also use the CTRL+e hotkey.

Copy Screenshots

Copy All Screenshots - Opens a file browser window allowing you to select the drive and folder into which all the currently captured screenshots will be copied.

Copy Today's Screenshots - Copies only the screenshots captured today.

Copy All Except Today's Screenshots - Copies all captured screenshots except those captured today.

Delete Screenshots

Delete All Screenshots - Deletes all currently captured screenshots. Does not affect screenshot files that have been copied into another folder.

Delete Today's Screenshots - Deletes only the screenshots captured today.

Delete All Except Today's Screenshots - Deletes all captured screenshots except those captured today.

Analyzer Colorspace and Range

You can find the analyzer range configuration options in Analyzer > Analyzer Colorspace menu.

The Analyzer supports Camera Log, and SDR and HDR (HLG and PQ) colorspace modes. Select the appropriate option from the Analyzer > Analyzer Colorspace menu that matches the current image.

Auto HDR Mode Change

This parameter can be used to make the HDR Image Analyzer 12G automatically configure the Transfer Characteristic and Colorspace settings, based on the VPID of the incoming SDI signal.

NOTE: Not all signals carry HDR related VPID settings, and so may default to SDR Rec 709.

Camera Log Analysis

Several original camera log curves are supported for processing media in the original capture colorspace. Supported formats are the following:

- ARRI LogC WideGamut
- ARRI LogC4 WideGamut4
- CanonLog2
- CanonLog3
- Panasonic VLog/VGamut
- Red WideGamut/Log3G10
- Sony SLog3/BT2020
- Sony SLog3/SGamut3
- Sony SLog3/SGamut3Cine
- ACEScct

For scene referred input (Camera Log colorspace modes) CIE xy Gamut Graph values are clipped to the primaries of the colorspace.

In these modes, the waveform graticules are displayed in camera stops. To set up the base level and the warning level, adjust the following settings in the QC section of the Settings page (open with Tab):

CameraBaseGrey - Base grey level in nits; the 0 exposure line will be drawn at this level

CameraWhiteStopsOverGrey - Brightness warning level; it stops over base level

SDR Analysis

For working with SDR gamma encoded broadcast or cinema signal, set the Analyzer Range to SDR. Possible color primary options are the following:

- Rec709
- P3 DCI
- P3 D65
- Rec2020
- XYZ DCI

HLG Analysis

HLG mode supports variable Hybrid Log-Gamma color encoding. In this mode, code values range from 0 to 1 and pixels do not have a specific nit level interpretation. Possible color primary options are the following:

- Rec709
- Rec2020 (with gamut warning for colors outside of P3)

NOTE: The settings QC tab has a Gamut Warning parameter that allows setting when the HDR Image Analyzer 12G will trigger out-of-gamut warnings. You can choose Rec 709, P3, Rec2020 or none.

HDR Analysis

HDR mode supports High Dynamic Range analysis. Peak brightness values above the maximum allowed nit level are indicated in red on all graphs.

Possible color primary options are the following:

- Rec709
- P3 D65

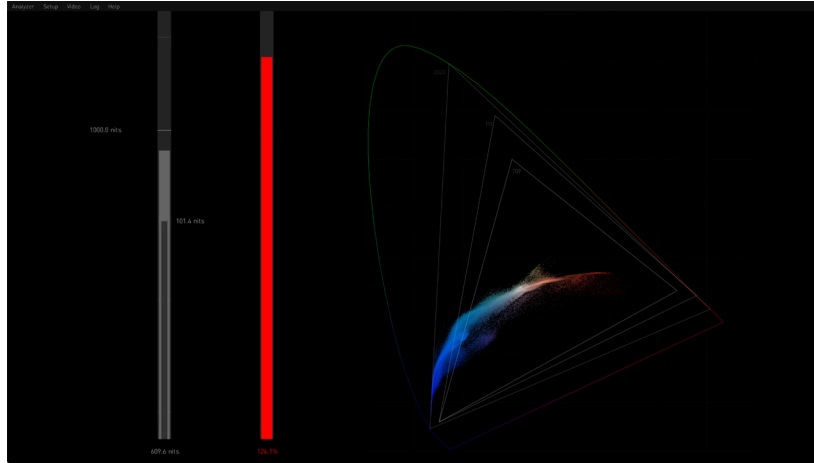
NOTE: By default, the peak brightness threshold is set to 1000 nits according to the HDR10 standard. When working with PQ masters of higher peak brightness, the corresponding maximum brightness needs to be adjusted on the QC section of the Settings page (open with Tab).

- Rec2020 (with gamut warning for colors outside of P3)
- XYZ DCI
- XYZ D65

CIE xy Gamut View

The CIE xy Gamut View can be used to check the encoded colors on a standard CIE xy graph, and to see if they are within the valid color range in case a specific gamut constraint is to be enforced. This is relevant when working in the Rec2020 colorspace, so the operator can identify that the colors are outside of the P3 gamut. This is a requirement for several currently popular delivery formats.

Figure 33. CIE xy Graph with Brightness and Gamut Bars



This view also contains two bars. Illegal colors are indicated when a bar is colored red.

The bar on the left is the brightness bar that indicates the brightest pixel detected on the actual frame. When properly configured, an inner vertical bar on the left with a nits value shows the Frame Average Light Level (FALL) of the current frame, which allows the operator to inspect the average brightness of the image.

The bar on the right is the gamut bar that shows if the colors of the actual frame are within the configured Gamut Warning parameter and tolerance.

The maximum values are calculated using the Tolerance parameters available in the Settings Screen. HDR Image Analyzer 12G uses thresholds when detecting these extremes, so when using the default settings a few pixels are allowed to exceed the legal limits without triggering a warning.

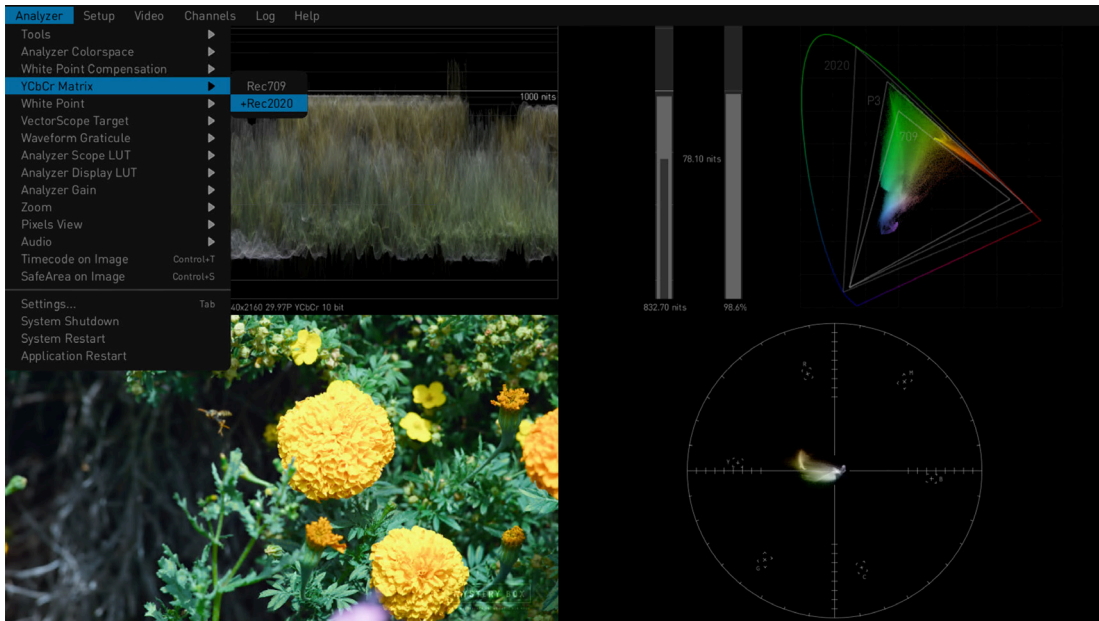
NOTE: Cumulative maximum values can be displayed on the Brightness and Gamut bars using the Log > Show Maximum Values parameter.

YCbCr Matrix

For the purpose of showing YCbCr components in various graphs (such as the vectorscope or the waveform YCbCr), the result image is converted to the YUV space. Select from the following formats for the specific matrix transformation:

- Rec2020
- Rec709

Figure 34. Signal Analysis with CIE xy Gamut Graph and Vectorscope



NOTE: The above settings will be reflected in the CIE xy graph and the gamut meter.

White Point Compensation

White point is a marker on the CIE graph. White point compensation D65, however, is an option to change processing. Thus, if you are in XYZ Gamma2.6 colorspace (Digital Cinema), you can change the Vectorscope and Waveform processing so that the balanced white would be D65 instead of DCI. By default, DCI white would be in the center of the Vectorscope, and DCI white would have the same level in the three channels of the waveform. If you turn on White Point Compensation to D65, then D65 white would be in the center of the Vectorscope, and D65 white would have the same level in the three channels.

- The **White Point Compensation** parameter in the Analyzer menu turns compensation On and Off, which will change the analysis of the incoming video.
- The **White Point** parameter simply displays a box for either D65 or DCI on the CIE graph, and does NOT alter the analysis of the incoming video.

False Color

You can check for illegal or near-illegal brightness and gamut levels by enabling the False Color mode. The available False Color display modes are the following:

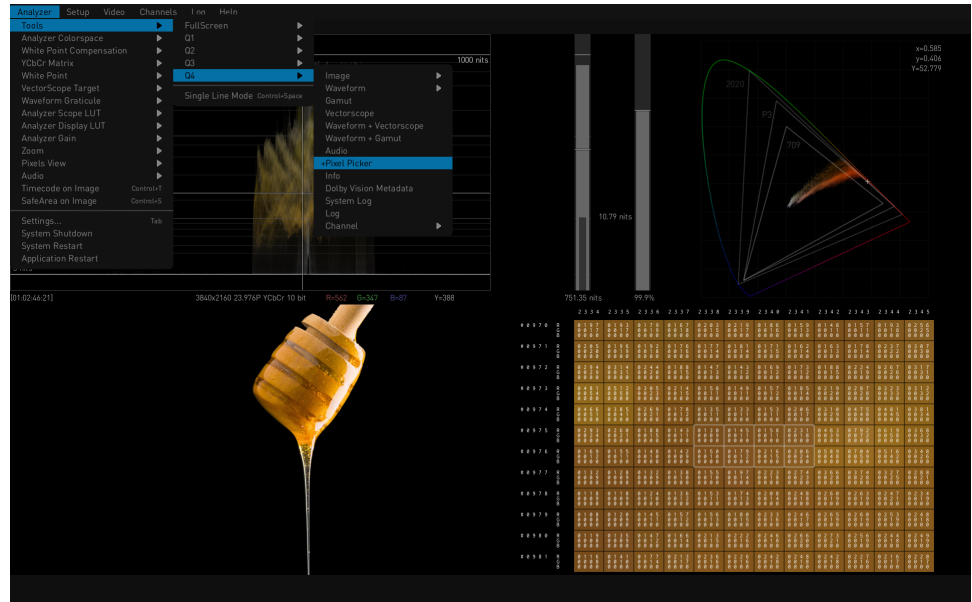
- Brightness
- Brightness Warning
- Gamut
- Gamut Warning

In the Warning modes, pixels that are too bright or out-of-gamut are colored red. Values at 90% of threshold are orange. The rest of the pixels are displayed in gray scale.

Pixel Picker

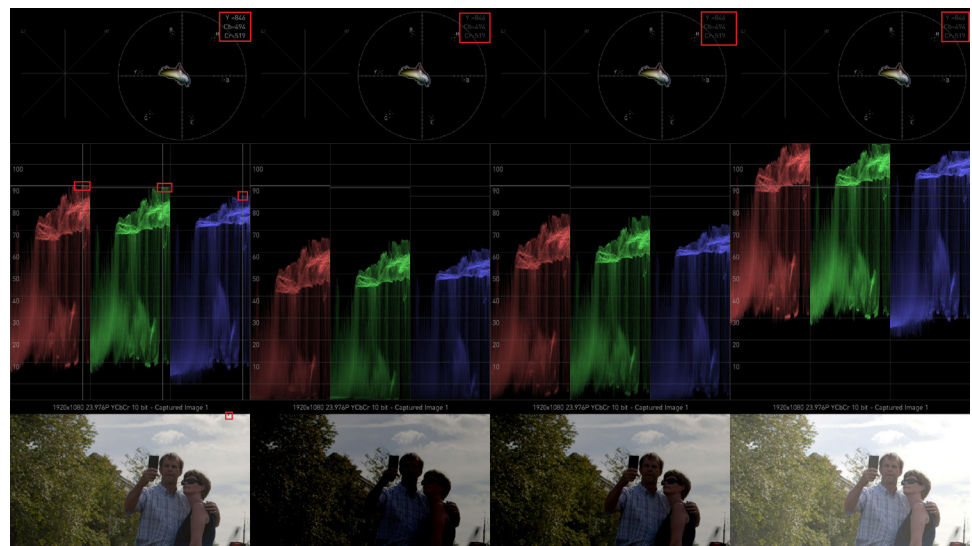
The Pixel Picker is always active. With a left click of the mouse you can pick any pixel on the image. The Pixel Picker view provides an extra precision view with per-pixel granularity.

Figure 35. Pixel Picker, Lower Right Quadrant



In Four Channel Input mode, the selected pixel values are displayed at the same location on all input displays. The source pixel value of the actually selected pixel is displayed with vertical and horizontal lines and pixel values. The corresponding pixel value on the other Channels are indicated with only horizontal lines, and dimmed values (Figure 36).

Figure 36. Pixel Picker, Four Channel View Mode



Pixel Picker Modes

From the menu the operator can choose how to inspect the pixel color values. The options are:

Hexadecimal mode - Displays the hex code values of the pixels.

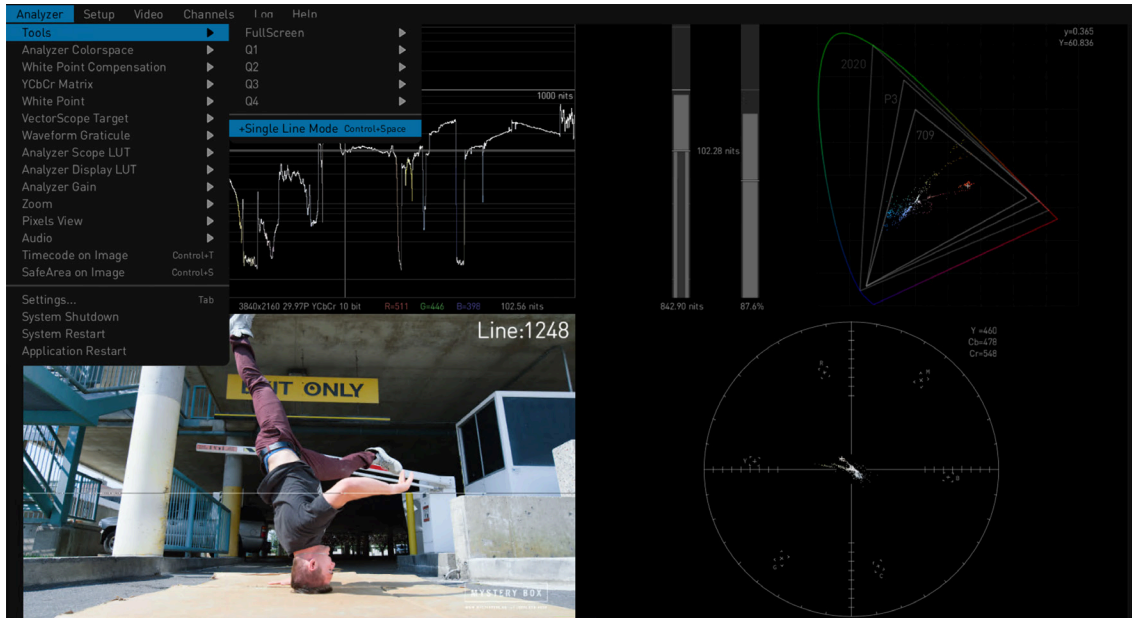
Decimal mode - Displays the decimal code values of the pixels.

Nit value mode - Displays the pixel brightness in nit level.

Single Line Mode

Single Line Mode limits the analysis to a single horizontal line of video. This mode can be used by a QC operator to verify blanking.

Figure 37. Single Line Mode



The line being analyzed is indicated with a contrastingly colored line, and the number of the line is shown on the upper right.

Single Line Mode is turned on and off with the Analyzer Mode menu, or with the CTRL+space hotkeys. Additionally the hotkey CTRL + Up/Down Arrow moves the single line mode up and down one line at the time.

LUTs

Overview

Lookup Tables (LUTs) allow the mapping of colors between colorspaces.

The HDR Image Analyzer 12G allows external Lookup Tables (LUTs) to be used for two different purposes:

- A Display LUT is only applied to the image being shown and does not affect the actual analysis of the pixel values. This can allow an operator to look at a correct image on a display device that does not match the current video signal type.
- A Scope LUT is applied to the video signal being processed, so all scopes, waveforms etc. will be based on the remapped image.

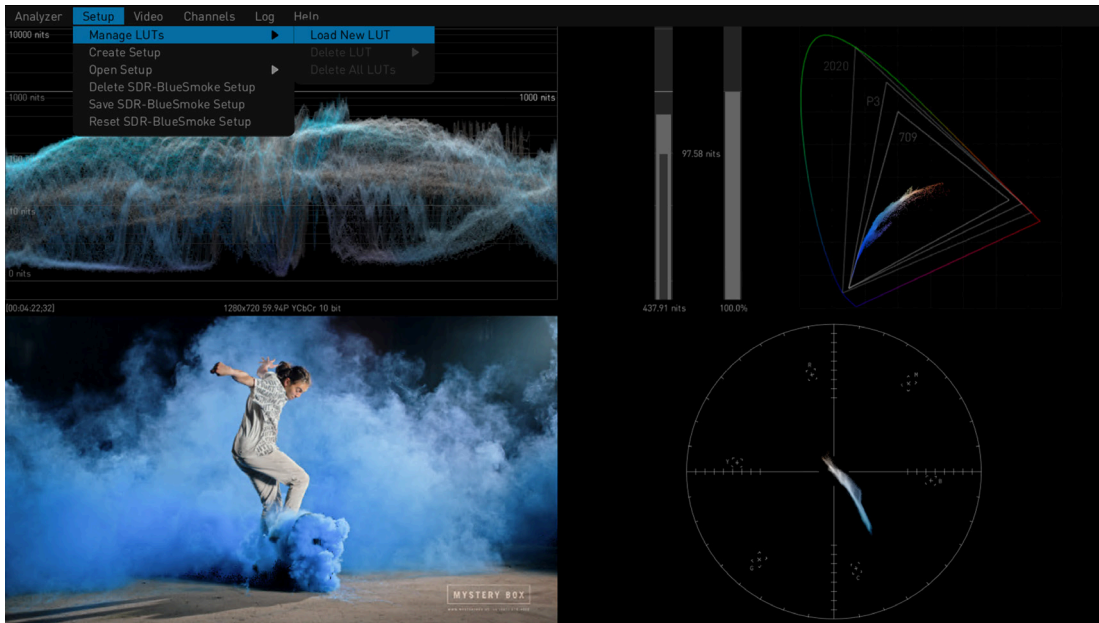
No external LUTs are provided with the HDR Image Analyzer 12G. Users can create and load custom LUTs, if desired, provided they are formatted as either a *.cube or *.3dmesh LUT file.

LUT File Management

LUT files are loaded into and deleted using the Setup > Manage LUTs menu (Figure 38). One easy way to install LUT files is to copy them to a USB stick, insert it into the HDR Image Analyzer 12G, and load them from that media or to load them through the Web UI.

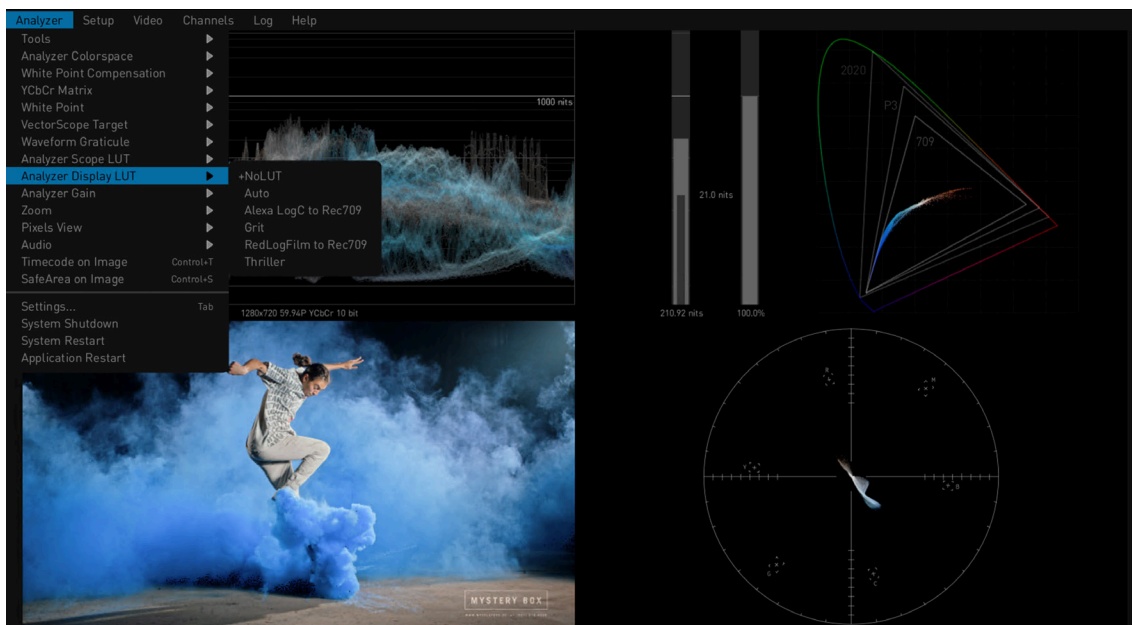
NOTE: The HDR Image Analyzer 12G will automatically restart after a LUT has been loaded.

Figure 38. Manage LUTs Menu



LUTs are not active until selected for use as either an Analyzer Scope LUT or an Analyzer Display LUT, using the Analyzer menu selections (Figure 39).

Figure 39. Analyzer Display LUT Menu



Analyzer Scope LUT

Generally the **No LUT** Analyzer Scope LUT setting should be used to maintain the correct color analysis.

Display Scope LUT

Generally the **Auto** Analyzer Display setting should be used, which enables HDR Image Analyzer 12G to use its internal, calibrated LUTs for proper display.

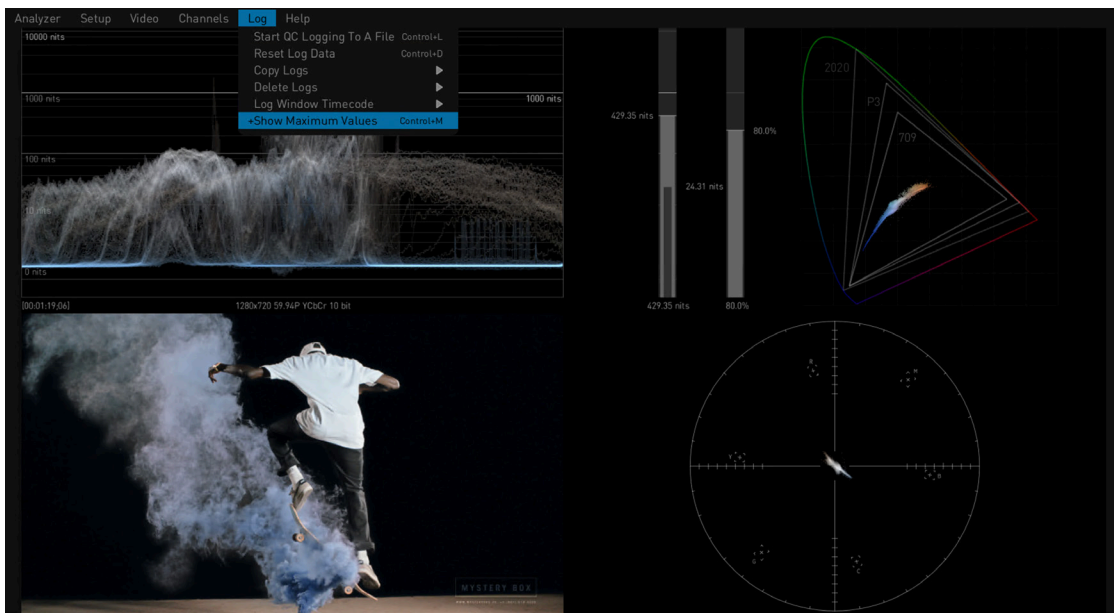
Logging

The HDR Image Analyzer 12G supports two types of logging. System Logs can help with HDR Image Analyzer 12G troubleshooting, while QC Logs relate to Channel analysis (for example, out of gamut warnings). Log files include information for all four Channels.

The HDR Image Analyzer 12G can detect the events below, with time stamps, include that information in a log file, and display the results on screen:

- Gamut violations of the current colorspace.
- For HDR, P3 Gamut violation if HDR Colorspace is set to Rec2020.
- For HDR, Brightness violation. Max brightness for HDR is configured in the Settings > QC tab.
- Timecode break

Figure 40. Logging with Show Maximum Values Selected



A new log file can be created by starting a QC session from the Log drop-down menu:

- Start Log to File (CTRL+I)
- Clear Log Data (CTRL+d)

You can also select the timecode or session clock to be used in the log:

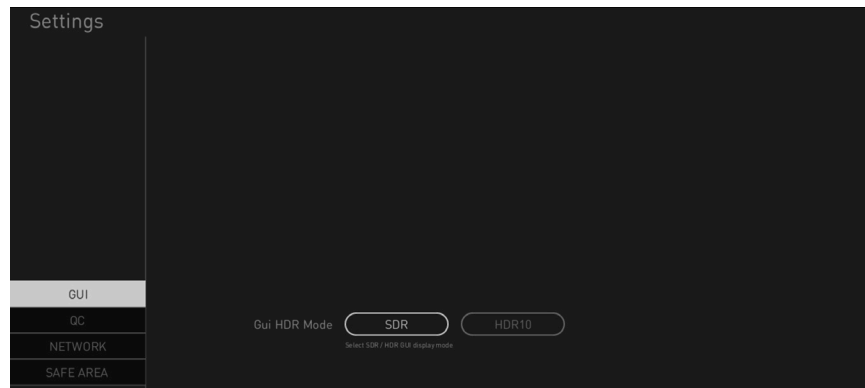
- Log Window Timecode

Settings Screen

Advanced features are available on the Settings screen, allowing customization of the HDR Image Analyzer 12G GUI for special purposes. The Settings screen is accessed by pressing the TAB key when the top menu line is not displayed. Click on the desired tab to display the available parameters.

GUI Tab

Figure 41. Setting Screen, GUI Tab



GUI HDR Mode

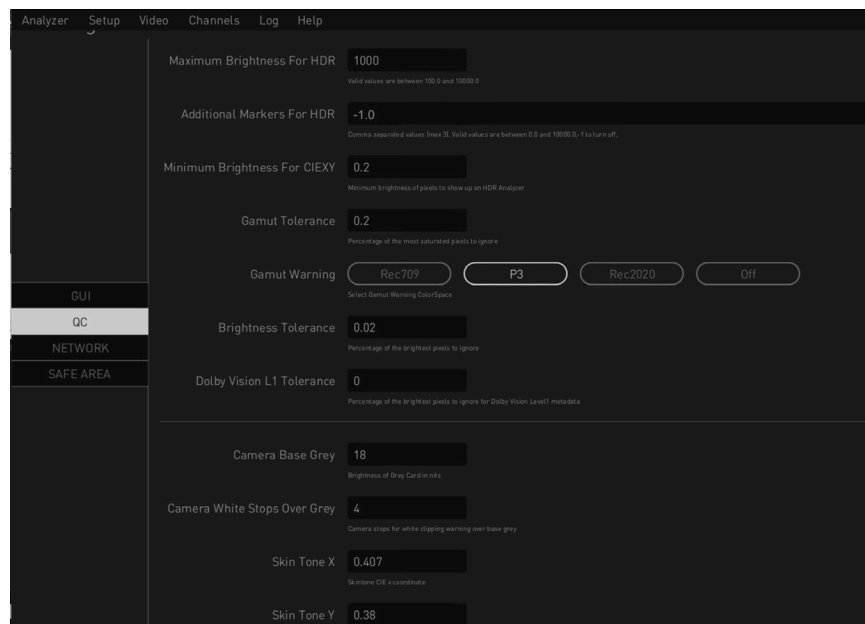
The Settings/GUI menu lets you choose between SDR and HDR10 (use HDR10 if you have an HDR enabled DisplayPort monitor).

QC Tab

These advanced settings are for experienced colorists and QC professionals, permitting customization of the values used for analysis.

The QC parameters are saved in Setups. If you Reset a Setup, all values in QC are returned to Defaults.

Figure 42. Setting Screen, QC Tab Scrolled Up



NOTE: The lower QC parameters may not initially be visible. Scroll down the screen to see it, using the mouse's scroll wheel or by holding down right-click and moving the mouse up and down.

The parameters are largely self explanatory, but the following special features are available.

Additional Marker for HDR

This control lets you add up to three custom level marker lines to the Waveform view. As an example, if mastering for 600 nits Rec2020, you may want to add a "600" line for visual reference.

- Range 100.0 to 10,000.0
- Enter -1 to hide the custom level marker line

Gamut Warning

The Gamut Warning parameter allows setting when the HDR Image Analyzer 12G will trigger out-of-gamut warnings. You can choose from:

- Rec709
- P3
- Rec2020
- Off

Skin Tone

You can adjust the location of the skin tone line on the vectorscope display by entering X and Y CIE coordinates. The default location of the skin tone line varies depending on the colorspace being used.

Dolby Vision L1 Tolerance

Allows you to specify the percentage of the brightest pixels to be ignored for Dolby Vision Level 1 metadata analysis.

Audio Infinite Peak Hold

Enabling the display of the peak audio hold indicator infinitely on the level meter.

Audio Level Warning

Customizes the audio level warning threshold, which can vary depending on the country standard.

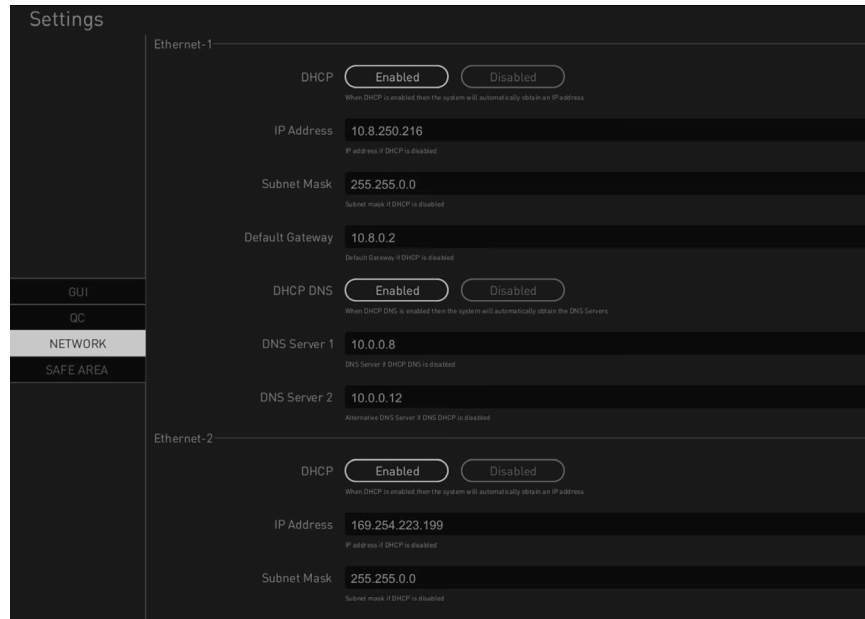
Vectorscope Aid

When On, draws a gray bounding area around the chroma on the Vectorscope, which can be useful when examining individual pixels.

NETWORK Tab

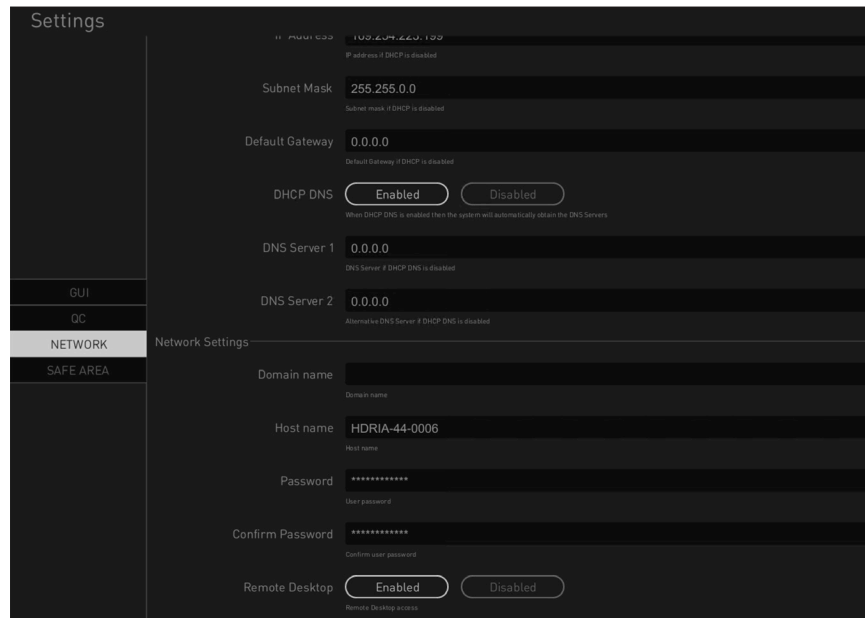
The Network settings are used to configure the two network interface cards (NICs) installed in the HDR Image Analyzer 12G chassis.

Figure 43. Setting Screen, Network Tab, Scrolled Up



NOTE: The lower Network Settings parameters may not initially be visible. Scroll down the screen to see it, using the mouse's scroll wheel or by holding down right-click and moving the mouse up and down.

Figure 44. Setting Screen, Network Tab, Scrolled Down



Domain and Host Names

By default the HDR Image Analyzer 12G is configured for DHCP operation. If a DHCP server is found on power up, these fields will be filled in automatically. You can change these names if you need to adjust the configuration for your network environment.

NOTE: Changing the Domain Name and/or Host Name requires a system reboot.

Password Fields

IMPORTANT: On the very first HDR Image Analyzer 12G startup, a unique password is generated when the serial number is entered in the Web UI. The password is "hdria<last four digits of serial number>" (for example, "hdria1234"). The default HDR Image Analyzer 12G User Name is "kiosk", and it cannot be changed by the user.

The password is required for login and Remote Desktop operation. You can change the default password with the Password and Confirm Password fields.

NOTE: You must exit Setup screen (press Tab) to enable a password change. No system or application reset or reboot is required.

If a Remote Desktop connection was active when the password is changed, that connection will immediately be dropped.

Remote Desktop

HDR Image Analyzer 12G supports Remote Desktop, allowing control from a separate computer running an RDP client. HDR Image Analyzer 12G supports one connection at a time. Connecting via Remote Desktop will disable the local computer's Analyzer application or any other remote connection. Control can be reacquired at any time from the local computer, or from any remote computer.

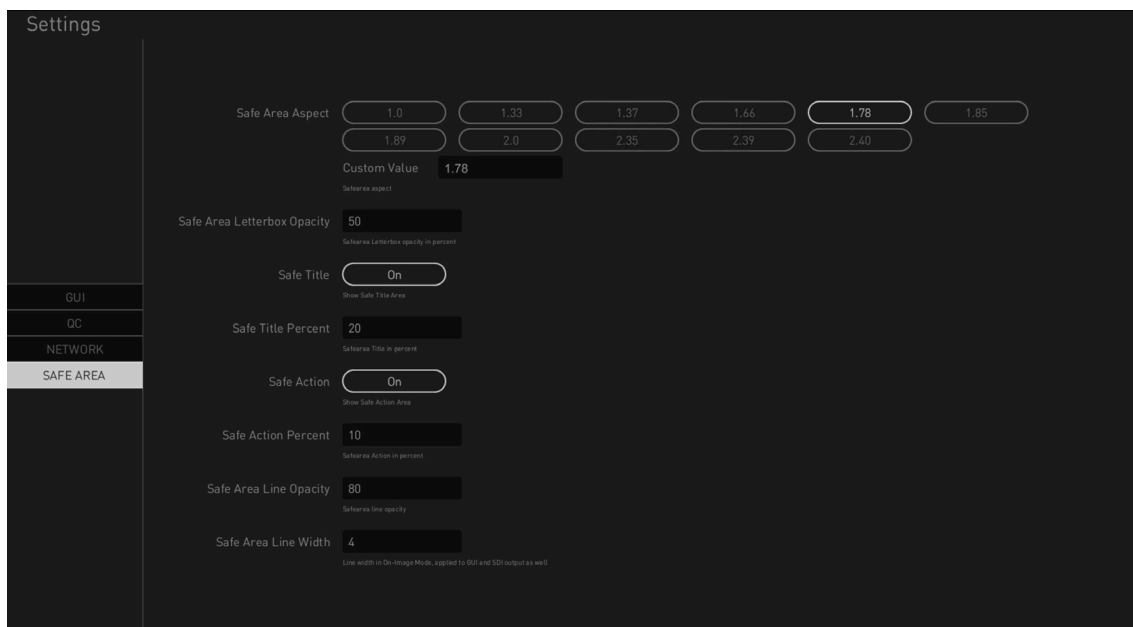
Click on the Enabled button on the computer running HDR Image Analyzer 12G. After launching your RDP client on a remote networked computer, simply type in the IP address of the HDR Image Analyzer 12G and enter your login credentials.

SAFE AREA Tab

These settings are used to customize the Safe Area box displays, including the ability to choose which (or both) regions to display.

The Safe Area parameters are saved in Setups. If you Reset a Setup, The Safe Area values in QC are returned to Defaults.

Figure 45. Settings Screen, Safe Area Tab



Chapter 5 – Web Interface

Overview

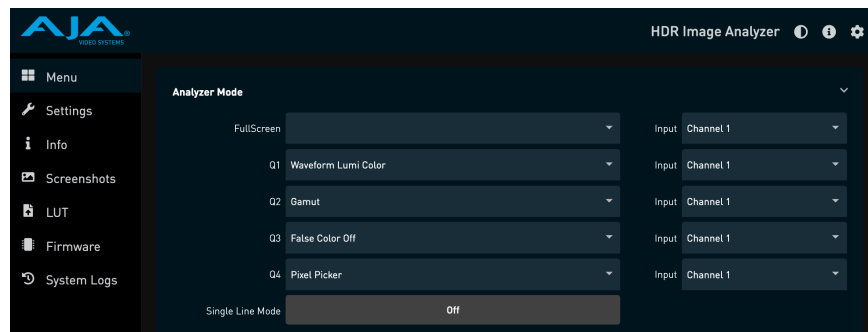
The web user interface (Web UI) allows a remote user to configure the HDR Image Analyzer 12G from a web browser on a remote networked computer, in much the same way a user could from the local main User Interface (UI).

To use the web interface, simply connect the HDR Image Analyzer 12G to your network (or directly to a computer) via its rear panel RJ-45 connector, and enter its IP address into a browser running on your remote computer.

NOTE: The web interface may not actively update the display of information or screenshot images when these settings change on the HDR Image Analyzer 12G. Reloading the web page will show the latest information.

Web Interface General Description

Figure 46. Web Interface Menu Screen Example



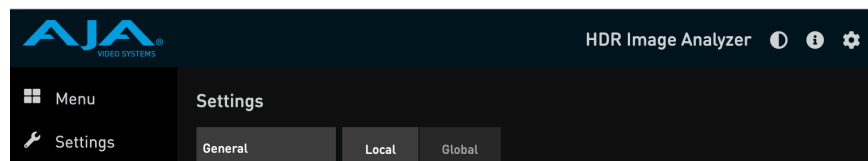
Main Display

In the center of each screen is the main display showing the status and menu selections for the screen you are viewing. The content of the HDR Image Analyzer 12G web screens closely mirrors the parameter menus displayed on the HDR Image Analyzer 12G user interface.

Top Line Controls

Three information and control function icons are located at the upper right side of the top line of the screen.

Figure 47. Web Interface Top Line Settings Screen



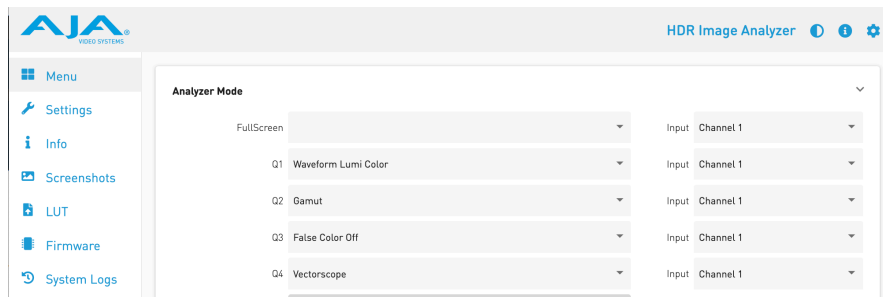
Change Theme

The HDR Image Analyzer 12G web UI has two color themes available, Dark and Light. Clicking the Change Theme button (half filled circle) toggles the display between these two themes.

Figure 48. Web Interface, Dark Theme



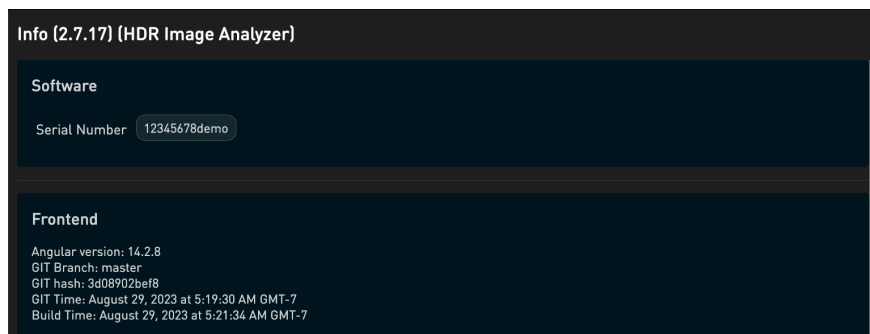
Figure 49. Web Interface, Light Theme



Information Icon

Clicking on the center Information icon on the upper right corner of the web UI screen displays information about your HDR Image Analyzer 12G.

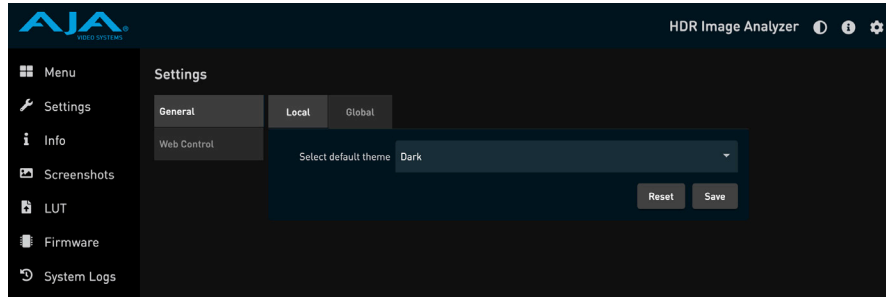
Figure 50. Information Screen



Settings Icon

Clicking on the Settings gear icon on the upper right corner of the web UI screen opens a separate Settings screen for selecting a UI theme, and for defining remote machine credentials.

Figure 51. Web Interface, Top Line Accessed Settings Screen, Local



General

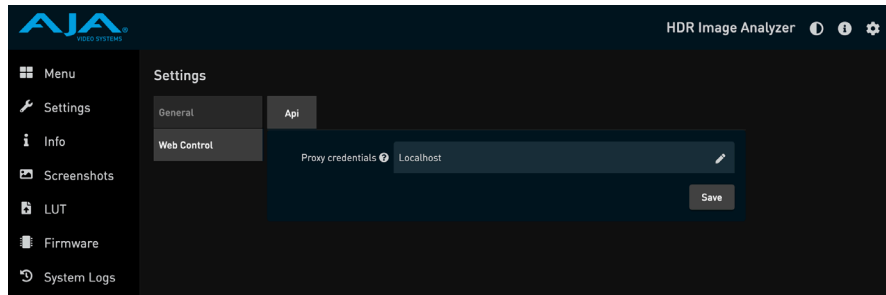
Allows you to select a Dark or Light UI theme.

Local - Applies the theme to the local computer's UI.

Global - Applies the theme to the UI of all computers accessing the unit.

Web Control

Figure 52. Web Interface, Top Line Accessed Settings Screen, Web Control



Because a secure API is used to communicate with Colorfront servers, you need to configure credentials when controlling Colorfront software remotely.

NOTE: Clicking on the Help (?) icon displays additional proxy information.

Screen Navigation

On the left of each screen is a navigational list of the available screens. Click any of these items to jump to that screen.

- Menu
- Settings
- Info
- Screenshots
- LUT
- Firmware
- System Logs

Web Interface Screens

Menu Screen

Figure 53. Web Interface Menu Screen Scrolled Up

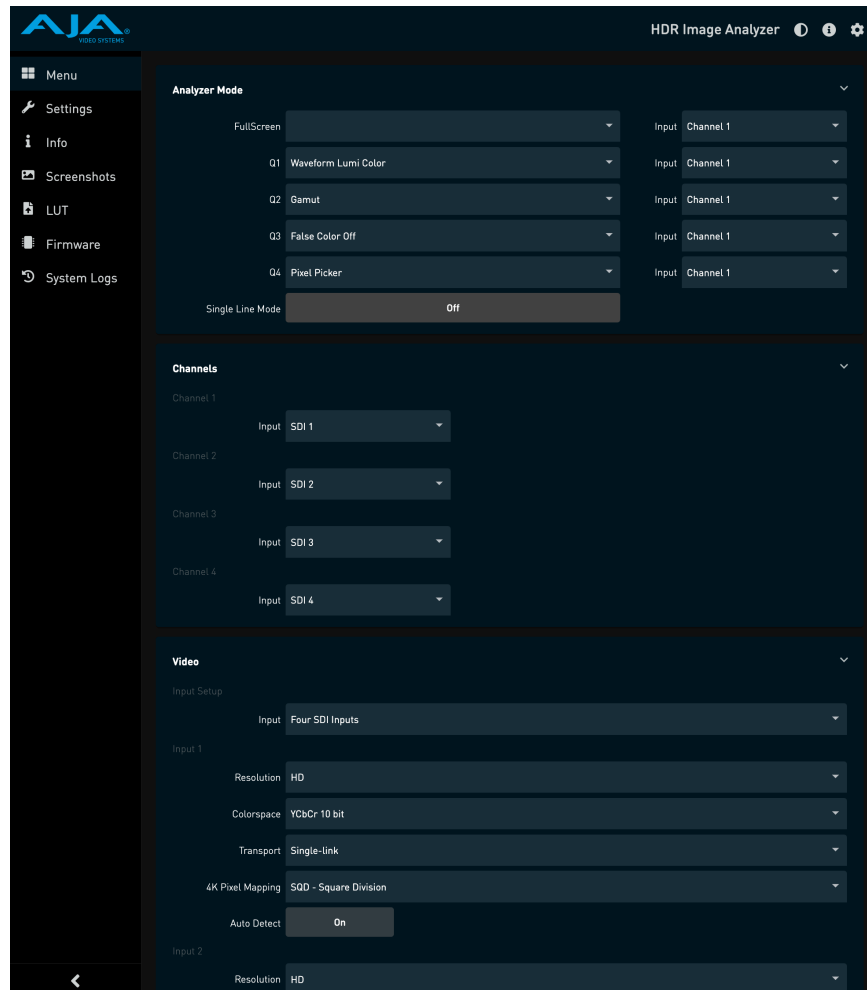
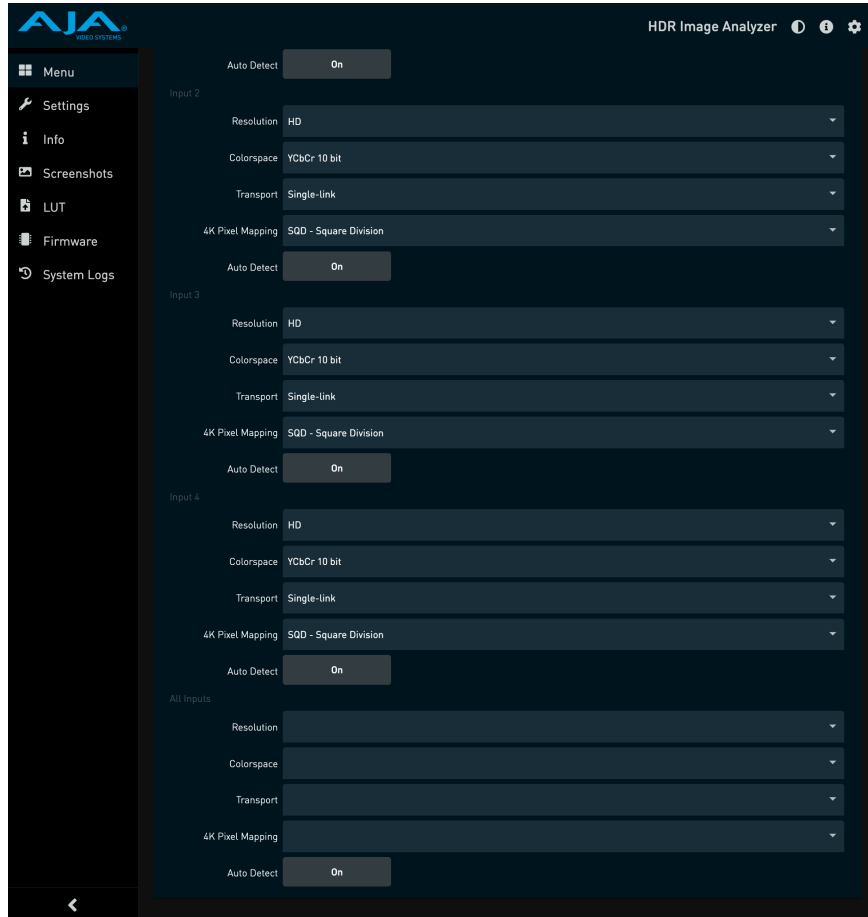


Figure 54. Web Interface Menu Screen, Scrolled Down



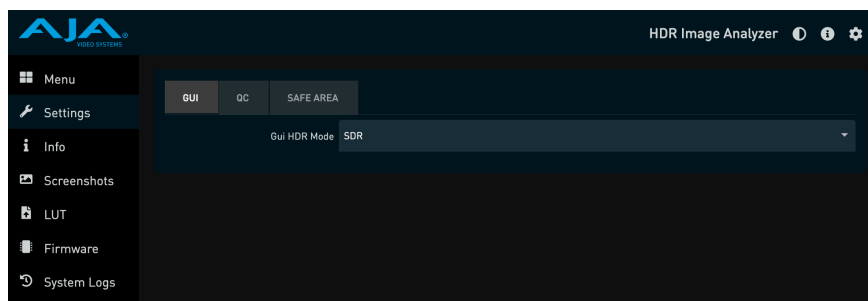
The parameters on this screen correspond to the settings available on the local or host UI display, albeit arranged slightly differently (see ["Video Menu" on page 29](#)).

Settings Screens

Clicking on the Settings tab will display tabs for the three available Settings screens. The parameters on this screen correspond to those available on the UI Setting screen (see ["Settings Screen" on page 40](#)).

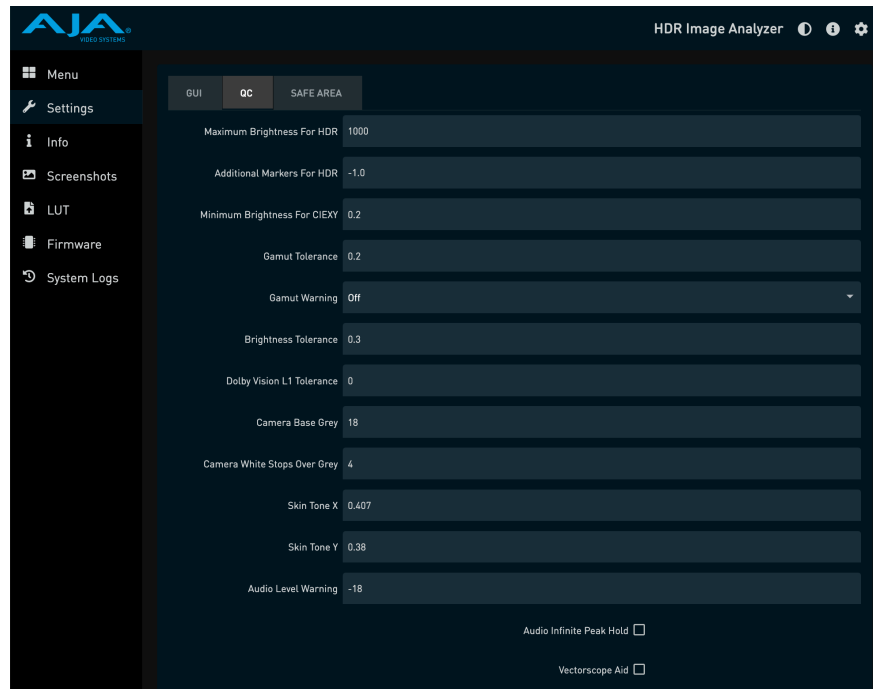
GUI Screen

Figure 55. Web Interface Settings, GUI Screen



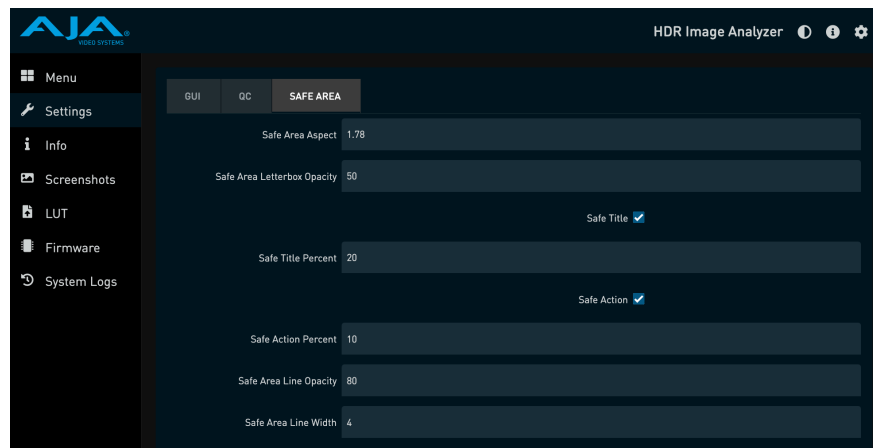
QC Screen

Figure 56. Web Interface Settings, QC Screen



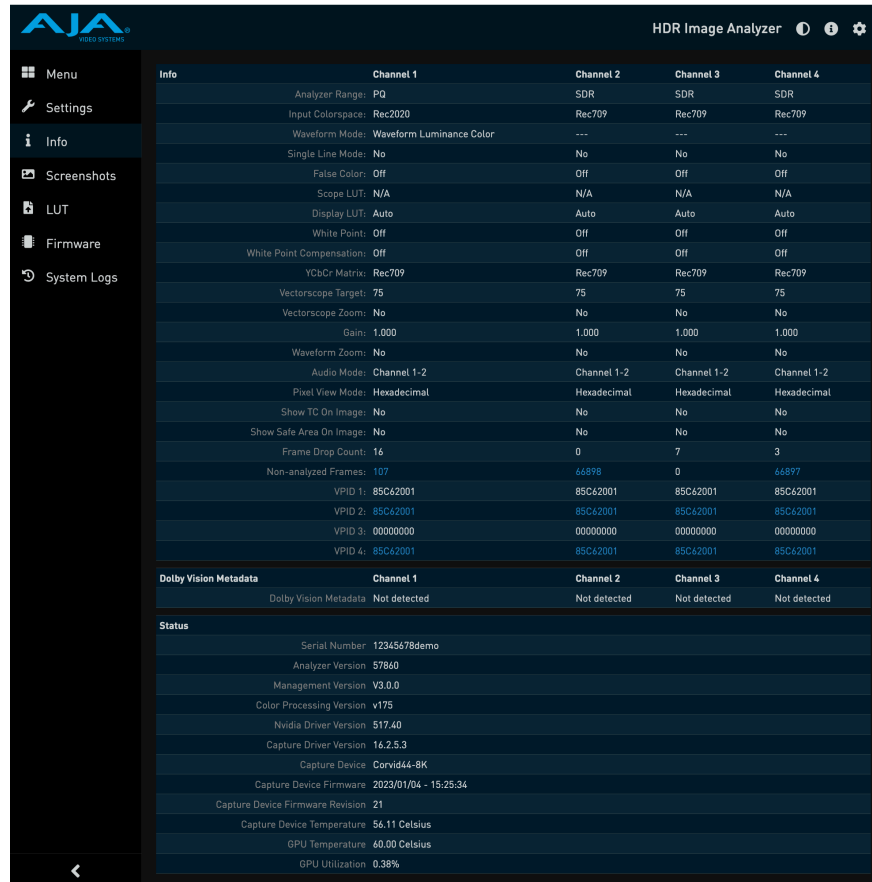
Safe Area Screen

Figure 57. Web Interface Settings, Safe Area Screen



Info Screen

Figure 58. Web Interface Info Screen

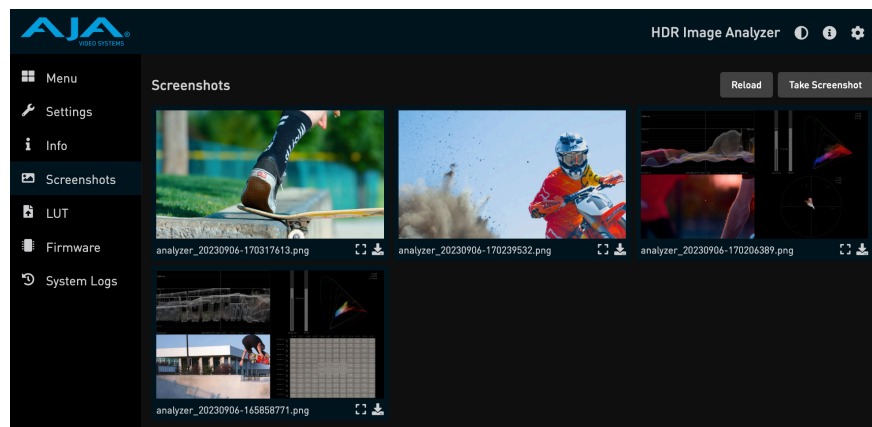


The parameter settings shown cannot be changed on this screen. The settings on this screen correspond to the Info page information (see "Info Page" on page 27).

Screenshots Screen

The web UI Screenshots screen displays all the screenshots that have been captured. The HDR Image Analyzer 12G's main UI does not have a corresponding multiple image screen, but commands are available for capturing, saving, and deleting screenshots.

Figure 59. Web Interface Screenshots Screen



Screenshot Operations

The last captured screenshot (if any) is displayed on the upper left side this screen. Each screenshot image has a view button and a download button below the lower left side of the image.

Show Button (Four Box Corners)

Clicking on the Show button displays that screenshot in a window.

Download icon (Down Arrow)

Clicking on the Download icon (down arrow) for a screenshot Icon saves that screenshot to the downloads folder on your computer.

Reload Button

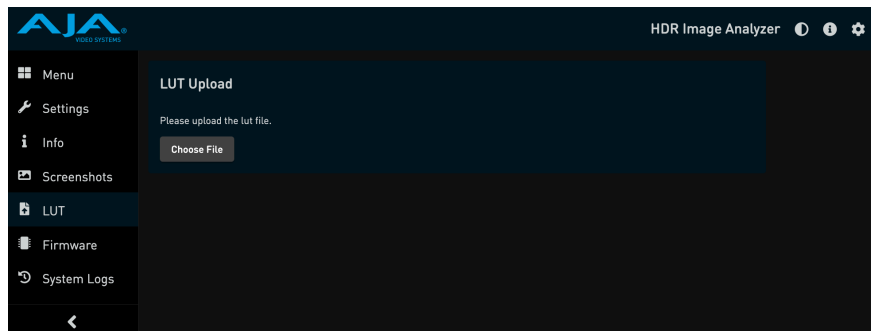
This reloads the screen to show all screenshots, similar to refreshing a web page.

Take Screenshot Button

Clicking on the **Take Screenshot** button captures the HDR Image Analyzer 12G 's current local computer screen (less any displayed drop-down menus).

LUT Screen

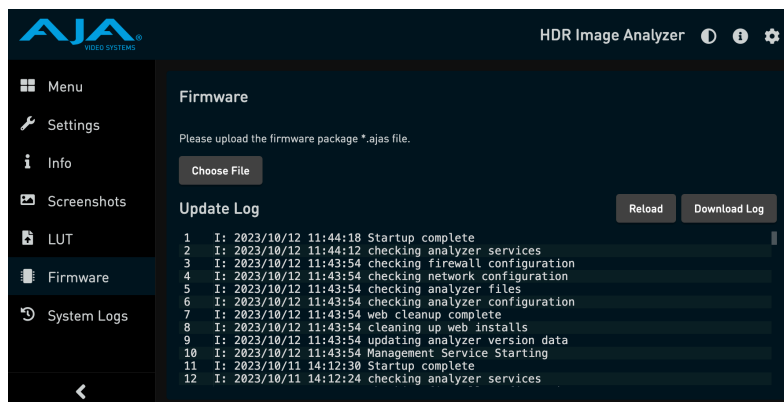
Figure 60. Web Interface LUT Screen



The control on this screen corresponds to "[LUTs](#)" on page 37).

Firmware Screen

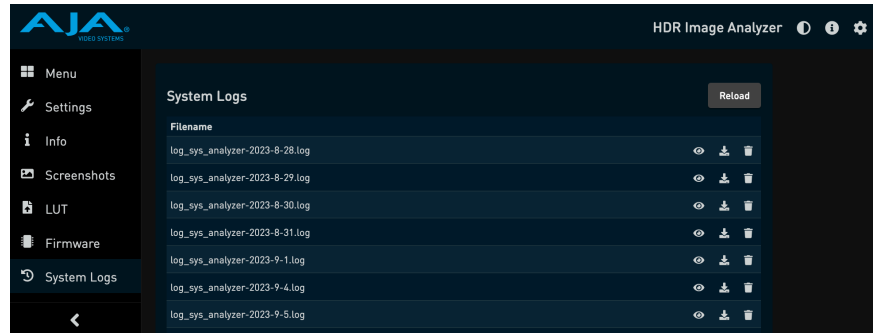
Figure 61. Web Interface Firmware Screen



This screen can be used to update the firmware of your HDR Image Analyzer 12G by navigating to a location where a downloaded .ajas file can be chosen for installation.

System Logs Screen

Figure 62. Web Interface System Logs Screen



This screen displays a list of system logs that have been saved. Each log file can be viewed, saved, or deleted using the three icons in the right column. The last log file shown cannot be deleted.

Chapter 6 – Menu Reference

Analyzer Menu Guide

Table 6. Analyzer Menu > Tools

Sub Menu	Menu Option 1	Menu Option 2	Menu Option 3 or Description	Keyboard Shortcut	
Tools	FullScreen	Image	Full Screen Image with False Color Off		
			Full Screen Image with Brightness		
			Full Screen Image with Brightness Warning		
			Full Screen Image with Gamut		
			Full Screen Image with Gamut Warning		
		Waveform	Full Screen Waveform Luminance		
			Full Screen Waveform Lumi Color		
			Full Screen Waveform Color		
			Full Screen Waveform RGB Color		
			Full Screen Waveform RGB		
			Full Screen Waveform YCbCr		
			Full Screen Waveform YRGB		
			Full Screen Histogram Luminance		
			Full Screen Histogram Color		
		Gamut	Full Screen Gamut		
		Vectorscope	Full Screen Vectorscope		
		Waveform + Vectorscope	Full Screen Waveform + Vectorscope		
		Waveform + Gamut	Full Screen Waveform + Gamut		
		Channel	Select Input Channel 1, 2, 3, or 4 for Full Screen		
		Q1, Q2, Q3, or Q4	Same as Full Screen, but applies only to Quadrant, with added:		
	Audio		Quadrant Audio tool		
	Pixel Picker		Quadrant Pixel Picker tool		
	Info		Quadrant Info Tool		
	Dolby Vision Metadata		Quadrant Display Dolby Vision metadata		
	Log		Quadrant Log tool		
	Channel		Select Input Channel 1, 2, 3, or 4 in Quadrant.		
	Four Channel View	Enable Four Channel View.		Shift+Enter	
	Single Line Mode	Enable Single Line Mode.		CTRL+space	
		Move the single line mode analysis up and down one line at the time.		CTRL+Up/Down Arrow	

Table 7. Analyzer Menu > Analyzer Colorspace, White Point Compensation, YCbCr Matrix, White Point

Menu	Menu Option 1	Menu Option 2	Menu Option 3 or Description	Keyboard Shortcut
Analyzer Colorspace	Select from: All Channels Channel 1 Channel 2 Channel 3 Channel 4	Camera	Arri LogC Wide Gamut	
			Arri LogC4 Wide Gamut4	
			Canon Log2	
			Canon Log3	
			Panasonic VLog/Gamut	
			Red WideGamut/Log3G10	
			Sony SLog3/BT2020	
			Sony SLog3/SGamut3	
			Sony SLog3/SGamut3Cine	
			ACEScct	
			SDR	Rec709
	P3DCI			
	P3D65			
	Rec2020			
	XYZ DCI			
	HLG	Rec709		
		Rec2020	CTRL+F11	
	PQ	Rec709		
		P3D65		
		Rec2020	CTRL+F12	
XYZ DCI				
XYZ D65				
	Auto HDR mode change	When On, colorspace is adjusted automatically according to the SDI flagging between Rec709, HLG Rec2020 and HDR Rec.		
White Point Compensation	Off	No white point compensation		
	D65	Apply D65 white point compensation to the analysis.		
YCbCr Matrix	Rec709	Image is converted to the YUV space, using Rec709.		
	Rec2020	Image is converted to the YUV space, using Rec2020.		
White Point	D65	Display a box on the CIE xy graph showing the D65 white point. Analysis is not affected.		
	DCI	Display a box on the CIE xy graph showing the DCI white point. Analysis is not affected.		
	Off	Hide the white point box on the CIE xy graph.		

Table 8. Analyzer Mode > Vectorscope Target, Waveform Graticule, Scope and Display LUTs, Analyzer Gain, Zoom, Pixels View

Menu	Menu Option 1	Description	Keyboard Shortcut
Vectorscope Target	75%		
	100%		
Waveform Graticule	Default		
	Code Values		
	Percentage		
Analyzer Scope LUT	NoLUT	No LUT applied to input signal.	
	(selection list)	Optionally apply a variety of LUTs to the input signal being analyzed.	
Analyzer Display LUT	NoLUT	No LUT applied to display signal.	
	Auto	The LUT is automatically selected in a way that the incoming image looks correct on a 709 SDR monitor.	
	(selection list)	Optionally apply a variety of LUTs to the displayed video image, analysis is not affected.	
Analyzer Gain	Increase Gain	Simple increase of display gain.	CTRL+NumPad Plus Sign
	Decrease Gain	Simple decrease of display gain.	CTRL+NumPad Minus Sign
	Reset Gain	Simple reset of display gain.	CTRL+ENTER
Zoom	Vectorscope Zoom	Apply a 5x magnification to the Vectorscope display.	CTRL+v
	Waveform Zoom	Apply a 4x magnification to the Waveform display.	CTRL+w
Pixels View	Hexadecimal	Color picker displays hexadecimal values	
	Decimal	Color picker displays decimal values	
	Nits	Color picker displays nits (RGB only)	

Table 9. Analyzer Mode > Audio, Timecode, SafeArea

Menu	Menu Option 1	Menu Option 2	Description	Keyboard Shortcut
Audio	Phase Meter	Channel 1-2	Show audio phase between Ch 1 & 2.	
		Channel 3-4	Show audio phase between Ch 3 & 4.	
		Channel 5-6	Show audio phase between Ch 5 & 6.	
		Channel 7-8	Show audio phase between Ch 7 & 8.	
		Channel 1-8	Show four phase diagrams Ch 1 & 2, thru Ch 7 & 8.	
		Channel 9-16	Show four phase diagrams Ch 9 & 10, thru Ch 15 & 16.	
	Level Meter		Display Level Meter	
	Infinite Peak Hold		Turns on Infinite Peak Hold	
Reset Peak		Resets audio peak level to the current audio level.		
Timecode on Image	Enable (on/off)		Show Timecode box on the image.	CTRL+t
SafeArea on Image	Enable (on/off)		Show framing guides on the image.	CTRL+s
System Shutdown			Closes the application and powers off the system.	

Menu	Menu Option 1	Menu Option 2	Description	Keyboard Shortcut
System Restart			Restarts the system and automatically relaunches the application.	
Application Restart			Restarts the application without shutting down the system.	

Setup Menu Guide

Table 10. Analyzer Mode > Audio, Timecode, SafeArea

Menu	Menu Option 1	Description	Keyboard Shortcut
Manage LUTs	Load New LUT	Opens the Windows Explorer browser used to navigate to and load a 3d Mesh or a .cube LUT file.	
	Delete LUT	Opens a list of the currently loaded LUTs that you can select for deletion.	
	Delete All LUTs	Deletes all currently loaded LUTs.	
Create Setup		Opens a dialog box for naming and saving a new Setup file. This file will have the current operational settings.	
Open Setup	(selection list)	Opens the selected Setup file.	
Delete <name>		Deletes the currently open Setup file.	
Reset <name>		Resets the currently open Setup file to the settings it had when saved.	

Video Menu Guide

Table 11. Video Menu Options

Menu	Menu Option 1	Menu Option 2	Description	Keyboard Shortcut
Select from: SDI1 SDI2 SDI3 SDI4 All SDI Inputs Only SDI1 is available for Quad-Link SDI Input.	Resolution	720P	Defines input video signal selected input Channel(s).	
		HD		
		2K		
		UHD		
		4K		
		UHD2		
	Colorspace	YCbCr 10Bit	Defines the input video colorspace.	
		RGB 10 Bit		
		RGB 12 Bit		
		RGB Range is Legal		
	Transport	Single-link	Defines input video transport type.	
		Dual-link		
		Quad-link		
4K Pixel Mapping	SQD	Square Division mapping		
	2SI	Two Sample Interleave mapping		
Auto Detect	Toggles Auto Detect of the incoming SDI link On or Off.			
Input Setup	Quad-Link SDI Input		Configure for single input Channel analysis.	
	Four SDI Inputs		Configure for four input Channel analysis	
Screenshot	Save Screenshot		Captures a screenshot of the Analyzer UI to the host computer.	CTRL+e
	Copy Screenshots (Opens a file browser for selection of a folder to copy to.)	Copy All	Copies all captured screenshots into the selected folder.	
		Copy Today's	Copies only screenshots captured today into the selected folder.	
		Copy All Except Today's	Copies all screenshots except those captured today into the selected folder	
	Delete Screenshots	Delete All	Deletes all captured screenshots from the host computer.	
		Delete Today's	Deletes only screenshots captured today from the host computer.	
Delete All Except Today's		Deletes all screenshots except those captured today from the host computer.		

Channels Menu Guide

Table 12. Channels Menu Options

Menu	Menu Option 1	Menu Option 2	Description	Keyboard Shortcut
Select from: Channel 1 Channel 2 Channel 3 Channel 4	Input	Select from: SDI 1, SDI 2, SDI 3, or SDI 4 Only SDI 1 is available for Quad-Link SDI	Selects that SDI video as input.	2
		NDI Inputs	Displays a list of NDI sources available on the network for selection as video input.	
	Capture	Capture 1	Capture Channel 1 and show immediately.	ALT+ NumPad 1
		Capture 2	Capture Channel 2 and show immediately.	ALT+ NumPad 2
		Capture 3	Capture Channel 3 and show immediately.	ALT+ NumPad 3
		Capture 4	Capture Channel 4 and show immediately.	ALT+ NumPad 4
	Recall	Show Live	Show live input signal for selected Channel.	
			Show live input signal for Channel 1.	SHIFT+ NumPad 1
			Show live input signal for Channel 2.	SHIFT+ NumPad 2
			Show live input signal for Channel 3.	SHIFT+ NumPad 3
			Show live input signal for Channel 4.	SHIFT+ NumPad 4
		Show Captured 1	Show captured image for Channel 1.	CTRL+ NumPad 1
		Show Captured 2	Show captured image for Channel 2.	CTRL+ NumPad 2
		Show Captured 3	Show captured image for Channel 3.	CTRL+ NumPad 3
Show Captured 4	Show captured image for Channel 4.	CTRL+ NumPad 4		

Log Menu Guide

Table 13. Log Menu Options

Menu	Menu Option 1	Description	Keyboard Shortcut
Start/Stop Logging To A File		Selecting "Start" creates a new file for a QC session log. The parameter name then changes to "Stop", and pressing it then stops logging to that file.	CTRL+I
Reset Log Data		Clears current log data.	CTRL+d
Copy Logs (Opens a file browser for selection of a folder to copy to.)	Copy All Log Files	Copies all log files into the selected folder.	
	Copy Today's Log Files	Copies only log files captured today into the selected folder.	
	Copy All Except Today's Log Files	Copies all log files except those captured today into the selected folder	
Delete Logs	Delete All Log Files	Deletes all log files from the host computer.	
	Delete Today's Log Files	Deletes only log files captured today from the host computer.	
	Delete All Except Today's Log Files	Deletes all log files except those captured today from the host computer.	
Log Window Timecode	Timestamp	Comments in the Log Window to be tagged based on session clock.	
	Timecode	Comments in the Log Window to be tagged based on SDI timecode.	
	Auto Timecode/ Timestamp	Shows timecode, timestamp, or both in the Log Window if the information is present on the incoming signal.	
	Timestamp - Timecode	Show both time stamps with session clock priority.	
	Timecode - Timestamp	Show both time stamps with SDI timecode priority.	
	Set Time	Opens a window that allows you to change the time used by the local computer, which will be entered into logs.	
Show Maximum Values		Toggles maximum value display on the Gamut tool on and off.	CTRL+m

Help Menu Guide

Table 14. Help Menu Options

Menu	Description	Keyboard Shortcut
About	Displays the Application name and Version information.	ALT+Forward Slash (/)
Update Analyzer	Opens a browser allowing HDR Image Analyzer 12G software update.	
License Utility	Open a pane allowing HDR Image Analyzer 12G license update.	

Appendix A – Specifications

HDR Image Analyzer 12G Tech Specs

Log/SDR/HDR Image Analysis Tool

Multi-Channel HDR Waveform, Histogram and Vectorscope Monitoring

Video Formats

- (8K) 8192x4320p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (UltraHD2) 7680x4320p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (4K) 4096x2160p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (UltraHD) 3840x2160p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (2K) 2048x1080p 23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60
- (2K) 2048x1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 1080p 23.98, 24, 25, 29.97, 30, 50, 59.94, 60
- (HD) 1080PsF 23.98, 24, 25, 29.97, 30
- (HD) 720p 50, 59.94, 60

Video Codec

- NDI SpeedHQ (High Bandwidth)

Audio Streams/Codec

- NDI (uncompressed float)
- SDI (PCM)

SDI Video Input Digital

- 4x 12G-SDI BNC
- 12G-SDI, SMPTE-259/292/296/424/425/2081/2082/2036, 12-bit, 10-bit, and 8-bit

NDI Video Input

- 2x 10 GigE RJ-45
- 4x NDI (approx. 105-250Mbit/s per channel)
 - UYVY, 4:2:2, 10-bit and 8-bit
 - UYVA, 4:2:2, 10-bit and 8-bit

Note: Interlaced formats are not supported.

Video Inputs

- SDI connections are input only
 - 8K/UltraHD2 with 12G-SDI, all four connections are used
 - 4K/UltraHD with 12G-SDI, all four connections can be used
 - 4K/UltraHD with 3G-SDI, all four connections are used
 - 2K/HD with 3G-SDI, all four connections can be used

Note: When connections are configured for 12G-SDI or 6G-SDI, only 8K/UltraHD2/4K/UltraHD formats are supported.

- NDI connections are input only
 - 4K/UltraHD/2K/HD

Audio Input/Output Digital

- 16-channel 24-bit SDI embedded, 48 kHz synchronous

NDI Audio Input

- 16-channel, uncompressed float, 48 kHz sample rate, per NDI connection

Computer Monitor Output

- 4x Display Port Outputs:
 - Up to UltraHD 60p
 - Supports HDR10/PQ output

Network Interface

- 2x RJ-45, 10 GigE
- Embedded web server for remote control
- Remote Desktop Protocol (RDP)

Size: (w x d x h)

- 1RU form factor
- 17.2" x 16.9" x 1.7" (436.88 x 429.26 x 43.18 mm)

Weight

- 28 lb (12.7kg) in box
- 18 lb (8.2kg) server only

Power

- 100-240 VAC 50/60 Hz (Dual, redundant power supplies)
- 190W typical, 245W Maximum

Environment

- Safe Operating Temperature: 5 to 35 C (41 to 95 F)
- Safe Storage Temperature (Power OFF): -40 to 60 C (-40 to 140 F)
- Operating Relative Humidity: 8-90% noncondensing
- Nonoperating Relative Humidity: 5-95% noncondensing

Appendix B – Safety and Compliance

Federal Communications Commission (FCC) Compliance Notices

Class A Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian ICES Statement

Canadian Department of Communications Radio Interference Regulations

This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

Règlement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique du ministère des Communications du Canada. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

European Union, European Free Trade Association (EFTA) and United Kingdom Regulatory Compliance

This equipment may be operated in the countries that comprise the member countries of the European Union, European Free Trade Association and the United Kingdom. These countries, listed in the following paragraph, are referred to as The European Community throughout this document:

AUSTRIA, BELGIUM, BULGARIA, CROATIA, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, ICELAND, IRELAND, ITALY, LATVIA, LIECHTENSTEIN, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, NORWAY, POLAND, PORTUGAL, REPUBLIC OF CYPRUS, ROMANIA, SLOVAK REPUBLIC, SLOVENIA, SPAIN, SWEDEN, SWITZERLAND, UNITED KINGDOM

Declaration of Conformity

Marking by these symbols indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2014/30/EU.



This equipment meets the following conformance standards:

Safety

EN 62368-1: 2014 + A11 (T-Mark License),
IEC 62368-1: 2014; (CB Scheme Certificate).

Emissions

EN 55032: 2015 + A11: 2020, CISPR 32: 2015,
EN 61000-3-2: 2014, EN 61000-3-3: 2013

Immunity

EN 55035: 2017 + A11: 2020, EN 61000-4-2: 2009, EN 61000-4-3: 2006+ A1: 2008 +
A2: 2010, EN 61000-4-4: 2012, EN 61000-4-5: 2014/A1: 2017, EN 61000-4-6: 2014,
EN 61000-4-8: 2010, EN 61000-4-11: 2020

Environments: E2, E3 and E4

The product is also licensed for additional country specific standards as required for the International Marketplace.



Warning! This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take appropriate measures.

Achtung! Dieses ist ein Gerät der Funkstörgrenzwertklasse A. In Wohnbereichen können bei Betrieb dieses Gerätes Rundfunkstörungen auftreten, in welchen Fällen der Benutzer für entsprechende Gegenmaßnahmen verantwortlich ist.

Attention! Ceci est un produit de Classe A. Dans un environnement domestique, ce produit risque de créer des interférences radioélectriques, il appartient alors à l'utilisateur de prendre les mesures spécifiques appropriées.

Recycling Notice



This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste for recycling, please contact your local authority, or where you purchased your product.

Korea KCC Compliance Statement

사용자안내문

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

Taiwan Compliance Statement

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Japan Compliance Statement

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

This is a Class A product based on the standard of the VCCI Council (VCCI 32: 2016). If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

China Compliance Statement

This product has been tested to the following Chinese standards:

GB/T 9254.1-2021; GB 4943.1-2022; GB 17625.1-2022

This is to certify that the above mentioned product(s) complies with the requirements of certification rules of CQC12-045800-2022 under certificate number CQC22001369272.

Translated Warning and Caution Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual.



Warning Symbol



Hazard Symbol



Caution Symbol

Before Operation Please Read These Instructions



Warning! Read and follow all warning notices and instructions marked on the product or included in the documentation.

Avertissement! Lisez et conformez-vous à tous les avis et instructions d'avertissement indiqués sur le produit ou dans la documentation.

Warnung! Lesen und befolgen Sie die Warnhinweise und Anweisungen, die auf dem Produkt angebracht oder in der Dokumentation enthalten sind.

¡Advertencia! Lea y siga todas las instrucciones y advertencias marcadas en el producto o incluidas en la documentación.

Aviso! Leia e siga todos os avisos e instruções assinalados no produto ou incluídos na documentação.

Avviso! Leggere e seguire tutti gli avvisi e le istruzioni presenti sul prodotto o inclusi nella documentazione.



Warning! Do not use this device near water and clean only with a dry cloth.

Avertissement! N'utilisez pas cet appareil près de l'eau et nettoyez-le seulement avec un tissu sec.

Warnung! Das Gerät nicht in der Nähe von Wasser verwenden und nur mit einem trockenen Tuch säubern.

¡Advertencia! No utilice este dispositivo cerca del agua y límpielo solamente con un paño seco.

Aviso! Não utilize este dispositivo perto da água e limpe-o somente com um pano seco.

Avviso! Non utilizzare questo dispositivo vicino all'acqua e pulirlo soltanto con un panno asciutto.



Warning! Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

Avertissement! Ne bloquez aucune ouverture de ventilation. Suivez les instructions du fabricant lors de l'installation.

Warnung! Die Lüftungsöffnungen dürfen nicht blockiert werden. Nur gemäß den Anweisungen des Herstellers installieren.

¡Advertencia! No bloquee ninguna de las aberturas de la ventilación. Instale de acuerdo con las instrucciones del fabricante.

Aviso! Não obstrua nenhuma das aberturas de ventilação. Instale de acordo com as instruções do fabricante.

Avviso! Non ostruire le aperture di ventilazione. Installare in conformità con le istruzioni del fornitore.



Warning! Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

Avertissement! N'installez pas l'appareil près d'une source de chaleur telle que des radiateurs, des bouches d'air de chauffage, des fourneaux ou d'autres appareils (amplificateurs compris) qui produisent de la chaleur.

Warnung! Nicht in der Nähe von Wärmequellen wie Heizkörpern, Heizregistern, Öfen oder anderen Wärme erzeugenden Geräten (einschließlich Verstärkern) aufstellen.

¡Advertencia! No instale cerca de fuentes de calor tales como radiadores, registros de calor, estufas u otros aparatos (incluidos amplificadores) que generan calor.

Aviso! Não instale perto de nenhuma fonte de calor tal como radiadores, saídas de calor, fogões ou outros aparelhos (incluindo amplificadores) que produzam calor.

Avviso! Non installare vicino a fonti di calore come termosifoni, diffusori di aria calda, stufe o altri apparecchi (amplificatori compresi) che emettono calore.



Warning! Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

Avertissement! La sécurité de la prise polarisée ou de la prise de type mise à la terre ne doit en aucun cas être empêchée de fonctionner. Une prise polarisée a deux broches, l'une étant plus large que l'autre. Une prise de type mise à la terre a deux broches et une troisième broche pour la mise à la terre. La broche large ou la troisième broche sont fournies pour votre sécurité. Si la prise fournie ne s'insère pas dans votre prise femelle, consultez un électricien pour le remplacement de la prise femelle obsolète.

Warnung! Der Sicherheitszweck des gepolten bzw. Schukosteckers ist zu berücksichtigen. Ein gepolter Stecker verfügt über zwei Pole, von denen einer breiter als der andere ist. Ein Schukostecker verfügt neben den zwei Polen noch über einen dritten Pol zur Erdung. Der breite Pol bzw. der Erdungspol dienen der Sicherheit. Wenn der zur Verfügung gestellte Stecker nicht in Ihren Anschluss passt, konsultieren Sie einen Elektriker, um den veralteten Anschluss zu ersetzen.

¡Advertencia! No eche por tierra la finalidad del tipo de enchufe polarizado con conexión a tierra. Un enchufe polarizado tiene dos espigas, una más ancha que la otra. Un enchufe con conexión a tierra tiene dos espigas iguales y una tercera espiga que sirve para la conexión a tierra. La espiga ancha, o la tercera espiga, sirven para su seguridad. Si el enchufe suministrado no encaja en el tomacorriente, consulte con un electricista para reemplazar el tomacorriente obsoleto.

Aviso! Não anule a finalidade da segurança da ficha polarizada ou do tipo ligação terra. Uma ficha polarizada tem duas lâminas sendo uma mais larga do que a outra. Uma ficha do tipo de ligação à terra tem duas lâminas e um terceiro terminal de ligação à terra. A lâmina larga ou o terceiro terminal são fornecidos para sua segurança. Se a ficha fornecida não couber na sua tomada, consulte um electricista para a substituição da tomada obsoleta.

Avviso! Non compromettere la sicurezza della spina polarizzata o con messa a terra. Una spina polarizzata ha due spinotti, di cui uno più largo. Una spina con messa a terra ha due spinotti e un terzo polo per la messa a terra. Lo spinotto largo o il terzo polo sono forniti per motivi di sicurezza. Se la spina fornita non si inserisce nella presa di corrente, contattare un elettricista per la sostituzione della presa obsoleta.



Warning! Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.

Avertissement! Puisque la prise principale est utilisée pour débrancher l'appareil, elle doit rester aisément accessible et fonctionnelle.

Warnung! Da der Netzstecker als Trennvorrichtung dient, muss er stets zugänglich und funktionsfähig sein.

¡Advertencia! Puesto que el enchufe de la red eléctrica se utiliza como dispositivo de desconexión, debe seguir siendo fácilmente accesible y operable.

Aviso! Dado que a ficha principal é utilizada como a desconexão para o dispositivo, esta deve manter-se prontamente acessível e funcional.

Avviso! Poiché il cavo di alimentazione viene usato come dispositivo di sconnessione, deve rimanere prontamente accessibile e operabile.



Warning! Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

Avertissement! Protégez le cordon d'alimentation pour que l'on ne marche pas dessus ou qu'on le pince, en particulier au niveau des prises mâles, des réceptacles de convenance, et à l'endroit où il sort de l'appareil.

Warnung! Vermeiden Sie, dass auf das Netzkabel getreten oder das Kabel geknickt wird, insbesondere an den Steckern, den Steckdosen und am Kabelausgang am Gerät.

¡Advertencia! Proteja el cable de corriente para que no se le pise ni apriete, en especial cerca del enchufe, los receptáculos de conveniencia y el punto del que salen del equipo.

Aviso! Proteja o cabo de alimentação de ser pisado ou de ser comprimido particularmente nas fichas, em tomadas de parede de conveniência e no ponto de onde sai do dispositivo.

Avviso! Proteggere il cavo di alimentazione in modo che nessuno ci cammini sopra e che non venga schiacciato soprattutto in corrispondenza delle spine e del punto in cui esce dal dispositivo.



Warning! Unplug this device during lightning storms or when unused for long periods of time.

Avertissement! Débranchez cet appareil pendant les orages avec éclairsou s'il est inutilisé pendant de longues périodes.

Warnung! Das Gerät ist bei Gewitterstürmen oder wenn es über lange Zeiträume ungenutzt bleibt vom Netz zu trennen.

¡Advertencia! Desenchufe este dispositivo durante tormentas eléctricas o cuando no se lo utilice por largos periodos del tiempo.

Aviso! Desconecte este dispositivo da tomada durante trovoadas ou quando não é utilizado durante longos períodos de tempo.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore, quali il treppiedi e l'esoscheletro.



Warning! Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

Avertissement! Référez-vous au personnel de service qualifié pour tout entretien. L'entretien est exigé quand l'appareil a été endommagé de quelque manière que ce soit, par exemple lorsque le cordon d'alimentation ou la prise sont endommagés, que du liquide a été versé ou des objets sont tombés dans l'appareil, que l'appareil a été exposé à la pluie ou à l'humidité, ne fonctionne pas normalement ou est tombé.

Warnung! Das Gerät sollte nur von qualifizierten Fachkräften gewartet werden. Eine Wartung ist fällig, wenn das Gerät in irgendeiner Weise beschädigt wurde, wie bei beschädigtem Netzkabel oder Netzstecker, falls Flüssigkeiten oder Objekte in das Gerät gelangen, das Gerät Regen oder Feuchtigkeit ausgesetzt wurde, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.

¡Advertencia! Consulte al personal calificado por cuestiones de reparación. El servicio de reparación se requiere cuando el dispositivo ha recibido cualquier tipo de daño, por ejemplo cable o espigas dañadas, se ha derramado líquido o se han caído objetos dentro del dispositivo, el dispositivo ha sido expuesto a la lluvia o humedad, o no funciona de modo normal, o se ha caído.

Aviso! Remeta todos os serviços de manutenção para o pessoal de assistência qualificado. A prestação de serviços de manutenção é exigida quando o dispositivo foi danificado mediante qualquer forma, como um cabo de alimentação ou ficha que se encontra danificado/a, quando foi derramado líquido ou caíram objectos sobre o dispositivo, quando o dispositivo foi exposto à chuva ou à humidade, quando não funciona normalmente ou quando foi deixado cair.

Avviso! Fare riferimento al personale qualificato per tutti gli interventi di assistenza. L'assistenza è necessaria quando il dispositivo è stato danneggiato in qualche modo, ad esempio se il cavo di alimentazione o la spina sono danneggiati, è stato rovesciato del liquido è stato rovesciato o qualche oggetto è caduto nel dispositivo, il dispositivo è stato esposto a pioggia o umidità, non funziona correttamente o è caduto.



Warning! Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

Avertissement! Ne pas ouvrir le châssis. Aucun élément à l'intérieur du châssis ne peut être réparé par l'utilisateur. La garantie sera annulée si le châssis est ouvert par toute autre personne qu'un technicien d'un centre de service ou d'un établissement agréé AJA.

Warnung! Öffnen Sie das Gehäuse nicht. Keine der Geräteteile können vom Benutzer gewartet werden. Durch das Öffnen des Gehäuses wird die Garantie hinfällig, es sei denn, solche Wartungsarbeiten werden in einem AJA-Service-Center oder einem lizenzierten Betrieb vorgenommen.

¡Advertencia! No abra el chasis. El interior no contiene piezas reparables por el usuario. El abrir el chasis anulará la garantía a menos que se lo haga en un centro de servicio AJA o en un local autorizado.

Advertência! Não abra o chassi. Não há internamente nenhuma peça que permita manutenção pelo usuário. Abrir o chassi anula a garantia, a menos que a abertura seja realizada por uma central de serviços da AJA ou por um local autorizado.

Avvertenza! Non aprire lo chassis. All'interno non ci sono parti riparabili dall'utente. L'apertura dello chassis invaliderà la garanzia se non viene effettuata da un centro ufficiale o autorizzato AJA.



Warning! Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

Avertissement! Retirez le ou les cordons d'alimentation en CA de la source d'alimentation principale lorsque vous déplacez l'appareil.

Warnung! Trennen Sie die Wechselstrom-Versorgungskabel vom Netzstrom, bevor Sie das Gerät verschieben.

¡Advertencia! Cuando mueva la unidad desenchufe de la red eléctrica el/los cable(s) de la fuente de alimentación CA tipo brick.

Advertência! Remova os cabos CA de alimentação brick da rede elétrica ao mover a unidade.

Avvertenza! Scollegare il cavo dell'alimentatore quando si sposta l'unità.



Warning! Only use attachments and accessories specified and/or sold by the manufacturer.

Avertissement! Utilisez seulement les attaches et accessoires spécifiés et/ou vendus par le fabricant.

Warnung! Verwenden Sie nur Zusatzgeräte und Zubehör angegeben und / oder verkauft wurde durch den Hersteller.

¡Advertencia! Utilice solamente los accesorios y conexiones especificados y/o vendidos por el fabricante.

Aviso! Utilize apenas equipamentos/acessórios especificados e/ou vendidos pelo fabricante.

Avviso! Utilizzare soltanto i collegamenti e gli accessori specificati e/o venduti dal produttore.



Hazard! High Voltage. This situation or condition can cause injury due to electric shock.

Avertissement! Tension élevée. Cette situation ou condition peut causer des blessures dues à un choc électrique.

Warnung! Hochspannung. Diese Situation oder Bedingung kann zu Verletzungen durch Stromschlag führen.

¡Advertencia! Alto voltaje . Esta situación o condición puede causar lesiones debidas a una descarga eléctrica.

Aviso! Alta Tensão . Esta situação ou condição pode causar danos devido a choques elétricos.

Avviso! Alta tensione. Questa situazione o condizione può causare lesioni a causa di scosse elettriche.



Warning! Dual Power Cord Notice—please read this. To reduce the risk of electrical shock, disconnect both power cords before servicing equipment.

Avertissement! Avis concernant la double alimentation électrique — à lire soigneusement. Pour éviter tout risque d'électrocution, débranchez les deux câbles électriques avant d'intervenir sur l'équipement.

Achtung! Hinweis auf Doppel-Netzkabel—bitte lesen. Um das Risiko eines Elektroschocks zu verringern, müssen beide Netzkabel ausgestöpselt werden, bevor die Vorrichtung gewartet wird.

Avvertenza. Avviso concernente il cavo di alimentazione doppio – leggere attentamente. Per ridurre il rischio di elettrocuzione, scollegare entrambi i cavi di alimentazione prima di eseguire la manutenzione o riparazioni di questo apparecchio.

Aviso! Aviso de Cabo Elétrico Duplo - por favor, leia isto. Para reduzir o risco de choque elétrico, desconecte ambos os cabos elétricos antes de fazer manutenção ao equipamento.

¡Advertencia! Aviso del doble cable de alimentación - leer esto por favor. Para reducir el riesgo de descarga eléctrica, desconecte ambos cables de alimentación antes de dar servicio al equipo.



Caution! To meet safety regulations for leakage current, connect the dual power supplies to separate branch circuits.

¡Advertencia! Para cumplir con las normas de seguridad para la corriente de fuga, conecte las dos fuentes de alimentación para circuitos derivados diferentes.

Attention! Pour répondre aux mesures de sécurité concernant le courant de fuite, raccorder les sources d'alimentation doubles à des circuits de dérivation distincts.

Warnung! Zur Erfüllung der Sicherheitsbestimmungen bezüglich Reststrom schließen Sie bitte die zwei Netzteile an unterschiedlichen Abzweigungen an.

Cuidado! Para atender aos regulamentos de segurança para correntes de fuga, conecte as fontes duplas a circuitos elétricos separados.

Attenzione! Per soddisfare le norme di sicurezza sulla corrente di perdita, collegare i doppi alimentatori a circuiti derivati separati.



Warning! Hazardous Voltages! The safe operation of this product requires that a protective earth connection be provided. This protective earth is provided by the grounding conductor in the equipment's supply cord. To reduce the risk of electrical shock to operator and service personnel, this ground conductor must be connected to an earthed ground.

Avertissement : tensions dangereuses — Pour utiliser ce produit en toute sécurité, il faut un raccordement à la terre. Ce raccordement s'effectue par l'intermédiaire du connecteur de terre dans le cordon d'alimentation de l'équipement. Pour réduire le risque d'électrocution de l'opérateur ou du personnel de maintenance, ce cordon avec conducteur de terre doit être branché sur une prise reliée à la terre.

Achtung! Gefährliche Spannungen — Sichere Bedienung dieses Geräts erfordert, dass ein Schutzleiteranschluss vorgesehen wird. Dieser Schutzleiteranschluss wird mittels der Erdungsleitung im Netzkabel der Vorrichtung vorgesehen. Um die Gefahr eines Elektroschocks für Bedien- und Wartungspersonal zu verringern, muss diese Erdungsleitung mit einer geerdeten Masse verbunden werden.

Avvertenza – Alte tensioni – Il funzionamento in sicurezza di questo prodotto richiede una presa di terra, che viene fornita dal conduttore di messa a terra presente nel cavo di alimentazione dell'apparecchio. Per ridurre il rischio di elettrocuzione per l'operatore e il personale di manutenzione, tale conduttore deve essere collegato a un punto al potenziale di terra.

Advertencia de voltajes peligrosos — El funcionamiento seguro de este producto requiere que se proporcione una conexión terrestre protegida. Esta protección terrestre es proporcionada por el conductor de conexión en la tierra del cable de alimentación del equipo. Para reducir el riesgo de descarga eléctrica al operador y el personal de servicio, este conductor de conexión de la tierra debe ser conectado a la misma tierra.

Colorfront Copyright Notices

Freetype 2.3.9, 2.3.5

FreeType License (FTL)

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<http://www.freetype.org/FTL.TXT>

FTGL 2.1.3

GNU LESSER GENERAL PUBLIC LICENSE

Version 2.1, February 1999

FTGL - OpenGL font library

Copyright © 2001-2023 Henry Maddocks <ftgl@opengl.geek.nz>

Copyright © 2008 Sam Hocevar <sam@zoy.org>

Copyright © 2008 Sean Morrison <learner@brlcad.org>

<http://ftgl.sourceforge.net/docs/html/index.html>

Inconsolata font

SIL OPEN FONT LICENSE

Version 1.1 - 26 February 2007

Created by Raph Levien using his own tools and FontForge. Copyright 2006 Raph Levien. Released under the SIL Open Font License, <http://scripts.sil.org/OFL>.

3 Year Warranty and Liability Information

Limited Warranty on Hardware

AJA Video Systems, Inc. (AJA Video) warrants that the hardware product, not including storage modules or software components, will be free from defects in materials and workmanship for a period of three years from the date of purchase. AJA Video warrants that the storage modules provided as part of the hardware product will be free from defects in materials and workmanship for a period of one year from the date of purchase. AJA Video provides a separate software warranty as part of the license agreement applicable to software components.

If the Customer brings a valid claim under this limited warranty for a hardware product or storage module (hereafter, a "product") during the applicable warranty period, AJA Video will, at its sole option and as the Customer's sole remedy for breach of the above warranty, provide one of the following remedies:

- Repair or facilitate the repair the product within a reasonable period of time, free of charge for parts and labor.
- Replace the product with a direct replacement or with a product that performs substantially the same function as the original product.
- Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

To obtain service under this warranty, the Customer must notify AJA Video of the defect before expiration of the warranty period and make suitable arrangements for the performance of service by contacting AJA Video support through the channels set forth on the support contacts web page at <https://www.aja.com/support>.

Except as stated, the Customer shall bear all shipping, packing, insurance and other costs, excluding parts and labor, to effectuate repair. Customer shall pack and ship the defective product to a service center designated by AJA Video, with shipping charges prepaid. AJA Video shall pay to return the product to Customer, but only if to a location within the country in which the AJA Video service center is located. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

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