

POMFORT<sup>fn</sup>

## User Manual



***Livegrade*** **STUDIO**

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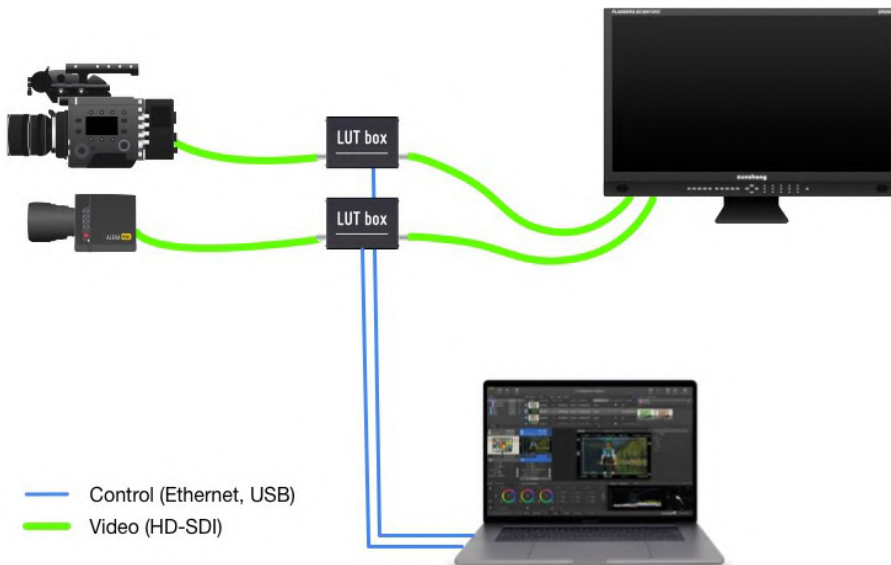
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## Getting Started

### Basic Hardware Setup



Basic hardware setup with Livegrade and LUT boxes

### Video Signals on Set

Typical digital film cameras on a film set have HD-SDI outputs for external display and processing of the live image. In comparison with other video standards, HD-SDI has the following advantages:

- HD-SDI allows **long cable length** (e.g. 30m – 100m for 1080p, depending on cable type), and
- HD-SDI is **easily routable and switchable**.

Usually the live signals of all cameras on set end up at a DIT cart or similar setup for monitoring, inspecting, and further processing.

### Basic Device Requirements

For most use cases a setup with Livegrade is built on top of an existing HD-SDI monitoring setup. You will need:

- HD-SDI signals (via BNC cables) coming from the cameras on set, and
- a good and calibrated HD-SDI monitor of decent size (e.g. 24 inch) with 1-2 HD-SDI inputs.

Livegrade uses LUT boxes for processing the live signals. A LUT box is a device with one (or more) HD-SDI inputs and one (or more) HD-SDI outputs. When powered up, the device applies a lookup table (LUT) when the signal passes through. Livegrade controls that LUT and thus controls the appearance of the live image.

Using LUT boxes for processing has the following advantages:

- **Hardware solution for signal processing:** If the computer with Livegrade is closed, shut down, or restarted, the signal is still being processed in the LUT box (with the last loaded LUT).
- **Scalable multi-channel setup:** Adding one more HD-SDI signal channel to the setup can be achieved by simply adding one more LUT box. As the computer running Livegrade is not busy with processing any image (as this is done in LUT boxes), a setup with for example six live signals being processed at the same time can be implemented with a notebook running Livegrade and six LUT boxes for the signal processing.

### Additional Features of LUT Boxes

In addition to applying a LUT, some LUT boxes have additional features:

- **Time Code:** Some LUT boxes can provide time code to the software. This helps when looks are stored in the software, as an associated timecode can help match the looks to recorded clips later, e.g. for dailies creation.
- **Framegrabs:** Some LUT boxes can provide framegrabs to the software. This helps to store visual references in Livegrade for alter review and comparison, or simply as a visual reference when transferring looks to post production.
- **Camera Metadata:** Some LUT boxes can provide camera metadata from the ancillary (ANC) data parts of the HD-SDI signal. This metadata allows to monitor camera settings within Livegrade, and can also act as reference information for later shooting days.

### More Options For HD-SDI Connectivity

For information about additional HD-SDI setup options with Livegrade please see the article [HD-SDI Setup Options](#).

The following topics are covered there:

- Using HD-SDI capture devices in the application for framegrabs and recording.
- Using HD-SDI output devices for viewing reference material and live signals on HD-SDI.
- Controlling an HD-SDI router from the application.

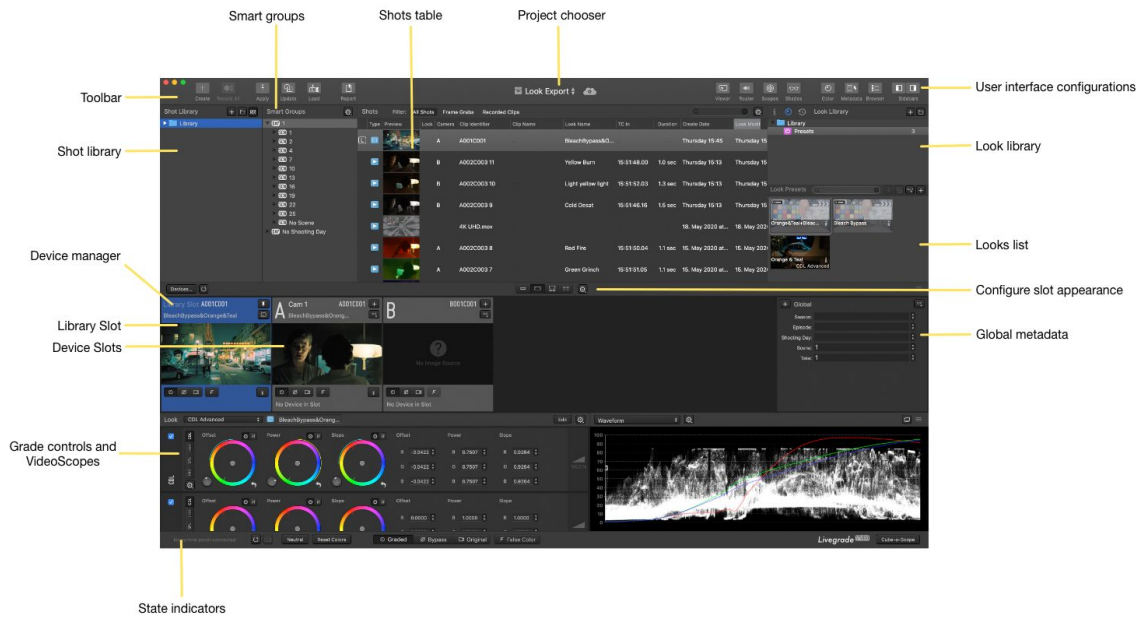
### The Main Screen

The main screen of Livegrade contains all primary controls for operating the software. You switch between devices, control the look of live signals, work with stored looks, and add entries to the shot library.

A lot of the controls have tooltips, that further describe what the control is doing. Tooltips are shown when you move the mouse over a control without clicking it.

Some elements offer a context menu when right-clicking, for example shot entries in the shot library, the current image in slots, or look presets in the look library. These context menus offer additional options for the right-clicked element.

Most of the actions triggered from controls in the main window can also be found in the main menu and can be triggered by keyboard shortcuts. The keyboard shortcuts are designed for quick interaction with the application, and can be customized to your specific needs.



Livegrade's main screen (click to enlarge)

### Shot library:

The shot library stores snapshots of the look settings and the settings of attached devices such as cameras. Over the course of a project the shot library grows to a detailed camera log and acts as a reference database for the camera department.

New shot entries can be created in various ways and detail. For some projects where camera settings and the set and lighting is not changing often throughout the day, you may want to only create a few shot entries, in projects with complex setup changes and varying camera and lighting conditions, a regular creation of shots is necessary to create all needed records for covering the shooting day.

Shots always reside in bins, and bins can be grouped in folders. Folders and bins can be used to give your project a logical structure by for example grouping shots in shooting days, cameras, units, or scenes.

You can create bins and folders with the corresponding buttons above the shot library. Drag and drop bins for grouping bins in folders or reordering bins and folders.

Right-click on a bin or folder in the shot library for more options.

### Smart groups:

There is an advanced "Smart Groups" view accessible from the shot library window, that displays a hierarchical structured outline of the currently selected folder level of the shot library. Smart groups are auto-generated based on shot metadata. You can define the hierarchy levels for the outline in a gear menu, that provides the metadata fields "Season", "Episode", "Flagged", "Label", "Crew Unit", "Shooting Day", "Scene", "Shot", "Take", "Camera", "Caption", "Location" and "Rating" to choose from. You can also apply from predefined layouts or save custom layouts.

Note: Smart groups are pre-filtered by the selected folder/bin in the shot library sidebar. When you want to view all available items in the library, make sure to select the "Library" look home folder in the shot library sidebar.

### Shots table:

The shots table displays the shot entries of the currently selected bin or folder in the shot library.

A shot can contain various metadata fields shown in columns. Fields for metadata include color correction metadata from the grade controls, timecode information and clip names, slate information such as scene and take, camera settings, manual comments and notes, and a preview image if available. You can edit most of the metadata by clicking or double clicking the metadata field in the table.

You can change the list shown columns with the gear menu on top of the shots table. You can reorder the table columns by dragging them.

You can sort by a metadata field by clicking on the header of a column.

You can set the row height in the shots table by changing "Shot Thumbnail Size" in the "View" menu.

You can choose to only view shots with framegrabs or recorded clips by choosing the filter buttons above the shot list. You can search for specific shots in the currently displayed list of shots with the search field.

Right-click on the row of a shot for more options.



### Toolbar:

The toolbar contains important controls for main tasks in Livegrade, including actions to manage shots, to create a shot report from the shot library, to open the image viewer, and to configure the user interface.

The toolbar offers specific access to the important actions to create new shots in the shot library (including creating framegrabs and recording clips), apply the look of a stored shot on the current slot, update existing shots, and load shots into the library slot for reference.

The “Shades” button dims the entire main window. This can be useful when working in very dark studio environments. You can set the level of dimming in the preferences.

### Look library:

In the look library you can store specific settings of the grade controls for later use as “look presets” and “node presets”.

Look presets contain the settings for a full set of grade settings and a preview image, if available. Examples for look presets are the show looks (a hand full of looks predefined by a colorist or prepared in pre-production), or specific looks that may be reused regularly for certain setups.

Node presets only contain settings of a single or a few grade nodes. Node presets are specific, single transforms that are applied to already created looks. Examples are ASC-CDL adjustments for a certain lens or filter that shall be applied on a live signal in addition to the creative look, or a pre-LUT that needs to be applied to the signals of a specific camera.

The look and node presets are stored in bins, bins can be grouped in folders. You can create bins and folders with the corresponding buttons above the look library. Drag and drop bins for grouping bins in folders or reordering bins and folders.

Right-click on a bin or folder in the look library for more options.

Note: The right panel with the look library has different tabs. To display the look library switch to the “Look Library” tab, or choose the “Color” user interface configuration.

### Looks list:

The looks list displays look presets and node presets of the currently selected bin or folder in the look library. The presets are created with settings from the grade controls of the currently displayed slot by clicking the corresponding “+” button. Double click a preset to apply it to the grade controls of the current slot.

You can also create a look from a stored shot by dragging the shot from the shots table to the looks list.

You can update presets with the buttons above the looks list. Drag the thumbnail icon of a preset to move it into another bin. You can search for text in the currently displayed list of presets with the search field.

You can lock shots in order to prevent updating them. Choose “Lock Selected Shots” from the “Library” menu.

Right-click on a thumbnail icon of a preset for more options.

### Project chooser:

With the project chooser you can switch projects. Each project has its own shot and look library.

### User interface configurations:

In Livegrade you can manually adjust the user interface to your needs, e.g. by resizing panels, switching tabs, and hiding and showing user interface elements.

Additionally you can also switch to a certain configuration in the toolbar of the user interface (UI), that is targeted for a particular task. Available UI configurations are:

- Color: This UI configuration puts the color correction and adjusting of looks into the main focus of the application’s user interface
- Metadata: This UI configuration puts monitoring metadata received from live signals and devices in the main focus.
- Browser: This UI configuration puts browsing and inspecting stored shots and their metadata in the main focus.

### Device slots:

Slots contain controls and metadata for independent hardware systems. Each slot can represent one camera in multi-camera setups for example. You can imagine slots as independent tabs of a web browser – changes in one slot don’t affect the state of other slots.

Slots are automatically assigned characters, starting with “A” for the first device slot. Additionally you can add a slot label to describe their function or contained devices.



You can also use a custom character (A-Z) for as slot character.

Each slot has a configured set of hardware devices attached. The slot user interface shows a short list of configured devices and indicators that display connection issues.

You can quickly add a device to the current slot by choosing “Add device” from the “Slots” menu.

Some devices are capable of offering either framegrabs or live image. The current image is shown in the slot user interface. Livegrade also can display this image in a separate viewer window.

For each slot you can maintain a set of metadata. This metadata is then stored in the shot library whenever you create a new shot entry from that slot. Metadata can be edited manually (such as information about used filters), or automatically updated from the attached devices (such as camera settings).

You can create a shot entry in the shot library with the information from current slot by clicking the “+” button in the slot user interface of each slot.

Slots consist of the slot user interface, as well as the grade controls and the video scopes below, e.g. for controlling and inspecting the look of a slot. You can change the height of the slot and its controls by dragging the bar above the slot.

## Device Manager:

The configuration of devices and slots is done in the device manager. Open the device manager with “Devices...” button above the slot bar or by choosing “Manage Devices...” from the “Slots” menu.

## Global metadata:

While the device slots display metadata that is specific to the slot’s devices, the global slot allows you to see and edit metadata that is valid for all device slots. These are slate information with scene and take fields, production information such as episode and unit, and time and date information. This information is stored together with the slot specific metadata to the shot library with every new shot created for any slot.

You can create new shots for every slot by clicking the “+” button in the global slot. You can configure the shown metadata field with the options menu button above the global metadata.

Note: In the slots appearance “Tabs Only” the global slot is not visible. Switch to another slot appearance or to the metadata user configuration to see the global metadata slot.

## Configure slot appearance:

The slot user interface can have different appearances. You can change between appearances with or without a live image, metadata, and primary controls, and choose different height and size settings.

## Library slot:

The library slot is a special slot that cannot contain devices. You can use it to inspect shots from the shot library, and for example for permanently outputting a shot’s framegrab on HD-SDI for reference.

You load a shot into the library slot by clicking the “Load” button from the toolbar, choose “Load in Library Slot” from the “Library” menu, or use the context menu of the shot table.

Note: The library slot is not shown by default. You can show and hide it by choosing “Show Library Slot” from the “View” menu.

The library slot has two option buttons that influence the behavior of selecting shots and slots together with the library slot:

- “Fix HD-SDI output to this slot” (pin button): When enabled, the viewer window and the HD-SDI output always show then content of the library slot – also when another slot is selected. This option can be used to permanently show a reference image from the library slot to HD-SDI output, e.g. in order to compare the live image to this reference image in side-by-side mode of a HD-SDI monitor. When disabled (default behavior), the viewer and HD-SDI output always show the image of the currently selected shot.
- “Load the currently selected shot in the library slot” (“L” button): When enabled, the library slot always loads the selected shot in the shot library. This allows quick browsing of shots and immediately seeing them on the HD-SDI output or viewer. When disabled (default behavior), you need to manually load an image

## State indicators:

State indicators display the state of three device categories:

- Status of attached hardware control panels (such as Tangent panels),
- status of the video output device, and
- status and activity indication for automation events and actions.

## Grade Controls

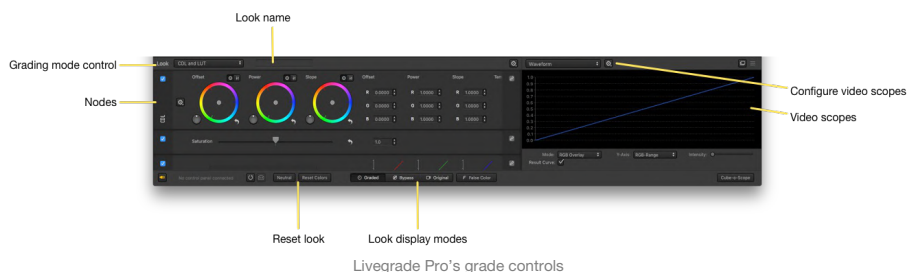
With Livegrade Pro you can interactively change the color appearance of live signals. The processing of the image is in general not performed within the computer, but with the use of external processing devices such as LUT boxes, cameras systems, or monitors.

Livegrade Pro’s color grading feature focus on primary color correction transforms (e.g. ASC-CDL, 3D and 1D LUT and curve editor). For these transforms typical controls are available and grouped in the user interface as “nodes”.

For most of the attached devices such as LUT boxes, the transforms of all nodes are combined into one transform whenever you change anything in the grade. That transform is then automatically converted into a 3D LUT and sent to the device, often multiple times per second – as long as you modify the controls, such as turning a knob.

With some devices such as cameras, ASC-CDL values and lookup tables are updated independently in the camera.

The automatic and continuous update of the attached device allows interactive look control and fine adjustments of the appearance of the live image.



## Nodes:

The grade controls for the currently selected slot are grouped in “nodes”. A node can for example contain controls for a ASC-CDL transform, or for loading a 3D LUT preset. Nodes are applied to the live signal from top to bottom, the top node is applied first, and the following nodes subsequently. If the grade node is reset or freshly added, it doesn’t affect the image. Change the controls of a node to give the node effect to the image. Each control or group of controls in grade nodes has a button with a little arrow that resets the controls.

You can enable and disable single nodes by using the checkbox on the left of each node. Disabled nodes are greyed out.



Nodes can have names. Click on the small pen symbol that appears when you move the mouse over the column on the left of each node. You can use names to better identify nodes with different roles (e.g., “pre LUT” and “post LUT”). Node names are also used when applying node presets from the look library for identifying nodes to be updated.

Note: Grade controls can be invisible, if the entire slot and control area is minimized in height. Drag the bar above the grade controls or the slots in order to make space for displaying grade controls.

The video scopes have a minimum height that also influences the minimum height of the grade controls. Open the scopes in a separate window or hide the video scopes in order to resize the grade controls to smaller height.

#### Grading mode control:

Livegrade Pro comes with a set of grading modes, targeted to different color pipelines. There are basically four different groups of grading modes:

- ASC-CDL + 3D LUT modes, (typical color pipelines for a broad range of cameras and projects)
- ACES modes (for use in projects that choose the ACES pipeline),
- device specific modes (targeted to the capabilities of certain devices), and
- freestyle modes (without any limitations in color pipeline, but reduced compatibility).

With some grading modes you can edit the list of used nodes in the grade controls. An “Edit” button appears in the bar with the grading mode if the grading mode allows modification of the grade nodes. For example in the “CDL Advanced” mode you can add more grade nodes, e.g. for additional 3D LUTs or ASC-CDL nodes.

Note: In order to match looks with clips for dailies creation and create the same color appearance on dailies as on the live image, it is needed to coordinate the grade mode and the node pipeline with the dailies creation process.

#### Look name:

When creating a look preset in the look library or a shot entry in the shot library, a look name will be added. You can prepare and edit this look name in the look name field of the grade controls.

#### Look display modes:

In a slot you can switch between different look display modes. Look display modes temporarily enable and disable specific grade nodes:

- Graded: All nodes are enabled. The result image shows the original image with all nodes applied.
- Bypass: Only 3D and 1D LUT nodes are enabled. The result image shows the original image with only these nodes applied, this will result in a “neutral” image.
- Original: All nodes are disabled. The result image shows the original image with no nodes applied.

Disabled nodes are greyed out.

With the “False Color” control you can enable and disable the false color mode. The false color mode is always applied to the current result image.

Each slot also has controls to switch look display modes in the slot user interface.

#### Reset look:

With the reset look controls you can reset a look. “Neutral” clears and resets all nodes. “Reset colors” leaves 3D and 1D LUT nodes untouched and only clears all other nodes such as ASC-CDL nodes.

#### Video scopes:

The video scopes panel offers histogram, waveform, and vectorscope inspection tools with individual settings. The video scopes show the analysis of the current image of a slot with the current grade nodes applied.

The histogram and vectorscope also include a curve overlay that display the result curve of the combined transforms of all active grade nodes in the slot. The result curve is always shown, also when there is no current image available in a slot.

You can show and hide the video scopes from the main menu and from the toolbar. You can open the video scopes in a separate window by clicking on the “Toggle Windowed / Docked View” button in the bar above the video scopes.

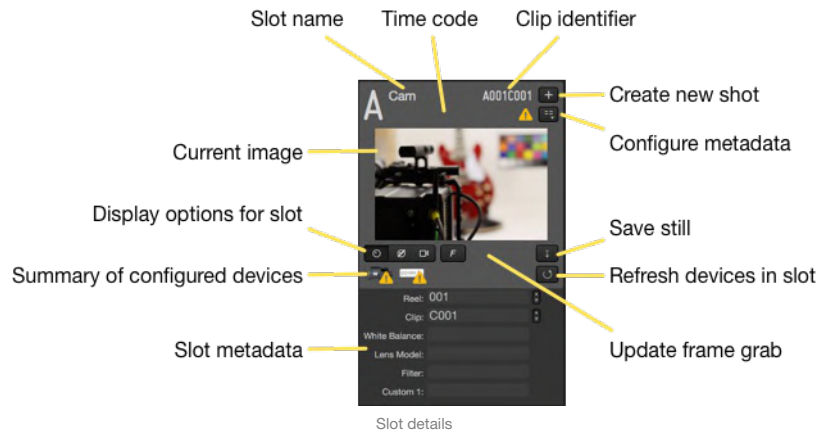
#### Configure video scopes:

To switch between different types and combinations of video scopes choose the controls in the bar above the video scopes.

You can configure the update frequency of the video scopes from the wedge menu in the bar above the video scopes. The update frequency can have an impact on CPU use of your computer. Lower update frequency (e.g. less updates per second) lead to less CPU usage.

## Slot User Interface

The slot UI summarizes all information for a slot, and acts as a tab user interface element to switch between tabs. The selection of a tab is indicated by a blue background.



#### Slot name:

Each slot has a character and a label. You can edit the slot character and the slot label in the device manager.

#### Clip identifier:

The clip identifier can be used to uniquely identify shots in the look library. It can be considered as the default name for an entry in the shot library, and acts as the default name for exported looks, CDLs, stills etc. A common clip identifier format consists of a camera character, reel number, and clip number (e.g. A003C012).

There are different ways keeping the clip identifier updated, so that each created shot gets a meaningful and unique clip identifier:

- Increase clip and reel numbers: By default the clip name is assembled from the slot character, the “Clip” field and the “Reel” field of the slots metadata. There are shortcuts in the main menu for increasing the clip number and increasing the reel number (and resetting the clip number to 1) in the “Slot” menu.
- Clip name from camera metadata: If the attached devices provide camera metadata, the actual clip name from the camera is often available. This automatically will use the clip name of the camera as the clip name for a saved shot.
- Edit the clip name manually: You can also edit the clip name manually.

You can configure clip identifier updating for each slot separately in the menu of the “Configure metadata” button of each slot. Clip identifiers can be “Slot-Reel-Clip” (as a clip filename), the clipname metadata field coming through HD-SDI ANC data, or your custom wildcard configuration, e.g. made up of shot and scene names. There is also a setting for the default behavior for new slots in the preferences.

#### Summary of configured devices:

Small icons represent the configured devices in a slot. The number of icons shown is limited to three, if more devices are configured, only the first three are shown.

If a device has a connection problem, a yellow warning symbol is shown. The device icons offer tooltips for quick access of the device name, and the warning message in case of a problem.

Below the clip name, a summary indicator is shown, that is also visible, when the slot is in “Tabs only” mode.

You can configure the devices, add new and remove devices of a slot in the device manager.

#### Reload devices:

Clicking this button manually triggers a reconnect to all devices of a slot. Sometimes this can solve connection problems, e.g. when a connection was lost due to bad Wifi.

#### Current image:

If one of the configured devices of a slot provides framegrabs (e.g. from a LUT boxes or attached camera) or live image (e.g. from a capture device), the current image is updated in the slot.

The image shown here can also be shown larger in the viewer window.

The image shown here is also the image that is analyzed by the videoscope.

You can use any framegrab stored or imported image from the shot library to be shown here. This can be used to review the current look of a slot with other images. Choose “Set as Image for Current Slot” from the context menu of a shot row in the shot list, or drag a shot from the shot list on to the image of the slot.

A little “A/B” icon on the current image indicates, that a reference image is set, that is used in the image viewer for comparison. You can remove a reference image by choosing “Remove reference” from the context menu of the current image.

#### Update framegrab:

With the update framegrab button you can manually request a new framegrab from the attached device. If the shown image is a live image (e.g. from a capture device) or no current image is shown, the update framegrab button is hidden.

#### Save still image:

With the save still image button you can save the current image as an image file to the file system. A temporary overlay will show the path the image file is saved to.

You can configure the file system location, the format, as well as the naming convention of the still image file in the preferences.



### Display options for slot:

In a slot you can switch between different look display modes. Look display modes temporarily enable and disable specific grade nodes:

- Graded: All nodes are enabled. The result image shows the original image with all nodes applied.
- Bypass: Only 3D and 1D LUT nodes are enabled. The result image shows the original image with only these nodes applied, this will result in a “neutral” image.
- Original: All nodes are disabled. The result image shows the original image with no nodes applied.

Disabled nodes are greyed out.

With the “False Color” control you can enable and disable the false color mode. The false color mode is always applied to the current result image.

The controls for the display options of the currently selected slot are also accessible from the bottom bar of the main window.

### Slot metadata:

The fields in the slot metadata table can either be edited manually, or updated automatically with camera metadata from the attached devices:

- An “A” icon indicates, that the metadata field is updated automatically from the device,
- a little pen icon indicates, that the metadata field is edited manually, although metadata for that field is sent by a device, and
- no icon indicates, that the metadata field needs to be edited manually, because no metadata for that field is available from any device.

You can switch between editing and automatic update by clicking on the little icons.

For the “Clip” and “Reel” fields you can use the up and down buttons to quickly increase the clip and reel numbers.

You can configure which metadata field is shown in the menu of the “Configure metadata” button.

You can reorder the displayed metadata fields by dragging and dropping the fields to another position.

You can configure how many rows of metadata are shown in the menu of the “Configure slot appearance” button.

You can configure, which device should be the source of the metadata (if multiple devices provide metadata) in the menu of the “Configure metadata” button.

### Time code:

Time code is shown, if one of the attached devices provides time code information.

You can configure which device should provide time code (if multiple devices provide metadata) in the menu of the “Configure metadata” button.

Timecode can later be used in workflows where stored shot and look information shall be matched to recorded camera clips.

### Configure metadata:

When clicking the “Configure metadata” button, a menu with all available metadata fields is being displayed, as well as options for the metadata processing, merging, and display.

“Metadata from...” and “Timecode from...” let you choose what should be used as the source for that information in case multiple devices provide that information. When “Combine metadata from all devices” is checked, metadata fields from multiple devices are merged.

The “Clip identifier” submenu lets you choose a scheme for the updating of the clip identifier. You can choose either predefined schemes, or create your own by choosing “Edit custom clip identifier...”.

The metadata fields are grouped in sections, you can show and hide a single metadata field by checking or unchecking it. You can show and hide entire sections by clicking on the section heading.

If a metadata field’s value is automatically updated from a device, the value is shown behind the field’s name.

“Add entries with values from devices” adds all metadata fields that currently have values from devices.

“Apply selection to all slots” will set the selection of displayed fields of all other slots to the selection of displayed fields of the current slot.

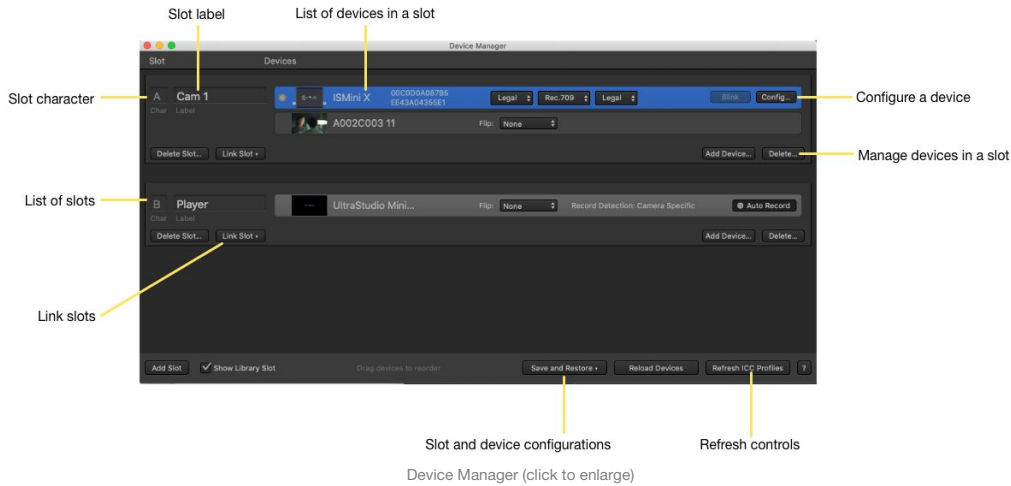
## The Device Manager

The device manager contains all controls to setup devices and slots, and represents the core configuration dialog for attached and controlled hardware devices.

You can open the device manager either by clicking on the “Devices...” button in the slot bar, or by choosing “Manage Devices...” in the “Slots” menu.

The device setup is saved and restored on every application restart. So once the devices are configured, they will show up in the same way after the computer, the devices, or just the application performed a restart.





### List of Slots:

The device manager shows the same list of slots as the slot bar in the main window.

You can add a slot by clicking the “Add Slot” button on the bottom of the window. You can delete a slot by clicking the “Delete Slot...” button in the slot.

### Slot character:

When creating a slot the next available letter (A-Z) is being used as slot character. The slot character also appears in the slot user interface in the main window.

## STUDIO

**Custom slot character:** You can also use a custom slot character by clicking into the “Char” field and typing in a letter (A-Z) that is still available.

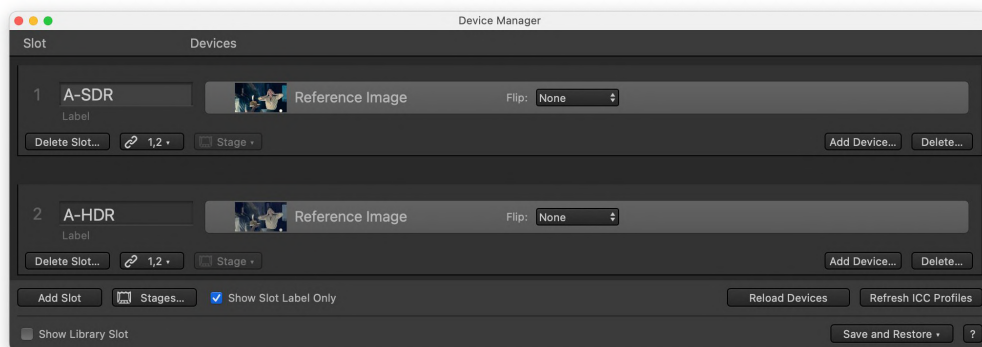
### Slot label:

In addition to the slot character each slot can also have a descriptive name (slot label). Type into the “Label” text field to edit the slot label. The slot label also appears in the slot user interface in the main window.

If you prefer to use multi-digit slot names instead of one slot character, you can enable the “Show Slot Label Only” option, which hides the slot character from the UI and indicates slots consistently using your custom slot label text within

- the slot interface,
- all slot-based menu items,
- and the device manager.

Furthermore, slot-based menu items and the device manager interface display a slot index number for quick referencing associated controller actions, (e.g., for Stream Deck controller actions).



Device manager with “Show Slot Label Only” enabled

**Note:** If “Show Slot Label Only” is enabled the automatic camera value is set up to use the slot label value automatically.

**Tip:** Consider updating your wildcards and Stream Deck layout when using this option, e.g., set the clip identifier naming scheme “D4” (Slot Label – Reel – Clip).

### List of devices in a slot:

Each slot contains a list of devices. Each device is represented by a device row with an icon. You can move devices from one slot to another by dragging and dropping the device rows.

Some devices also can act as an image source, such as LUT boxes that support framegrabs. For these devices an additional row is added that represents the image source.

Each device shows information about the identity or the connection of the device, such as a device name or IP address.

Capture devices also show up as devices of a slot. You can enable and disable auto-record behavior of each capture device in the device manager.

### Manage devices in a slot:

You can add devices by clicking the “Add Device...” button, and choose the device type from the shown menu.

You can delete a selected device by clicking the “Delete...” button.

### Configure a device:

Devices can have different configuration options.

- LUT boxes can be identified with the “Blink” button, a cycle of primary colors will be displayed on the output image of the LUT box to identify the right physical device.
- With the “Config...” button you can configure connection options of the specific device.
- Some devices offer the possibility to set video range options and color management options.

### Slot and device configurations:

You can save and restore entire configurations of slots and devices with the “Save and Restore” button. The list of slots and devices with their configurations can be stored in an external file, and restored from such a file at a later time.

This can be used either to transfer your hardware setup to another computer (e.g. when replacing a computer), or to switch between different hardware setups with the same computer (e.g. when switching between an advanced setup in a DIT cart and a smaller, more mobile setup).

### Refresh controls:

“Reload Devices” re-initializes the connections to all devices.

“Refresh ICC Profiles” reloads the list of ICC profiles for color management settings.

### Link slots:

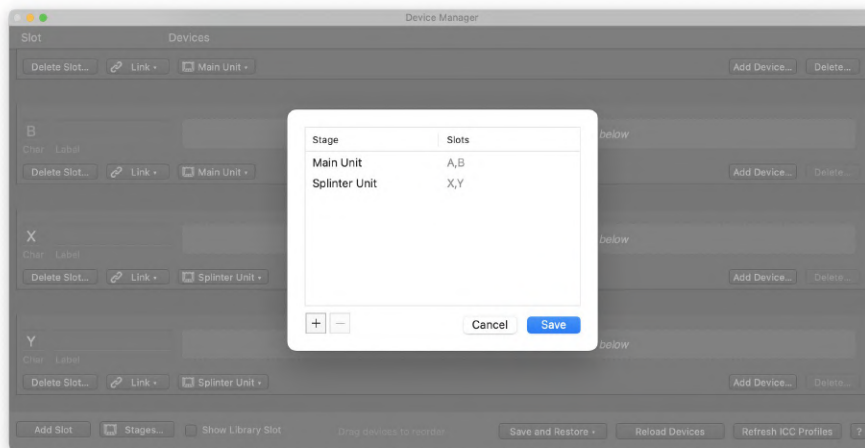
You can link slots to interact with multiple slots simultaneously. This can be used e.g. for parallel processing of signals, for parallel SDR and HDR viewing of the same signal, or for interacting with multiple camera signals at the same time.

### Stages:

#### STUDIO

Livegrade Studio lets you group slots into stages for handling independent scenes (e.g., from multiple units) within one project.

You can configure stages in the device manager. You can set a custom name for your stages, e.g., “Main Unit” and “Splinter Unit”. Slots are automatically assigned to the first configured stage. You can change the assignment individually for each slot in the device manager. See detailed article [Grouping Slots into Stages](#).



Configuring stages within the device manager

## Exporting Shot Information

The shot library can contain a lot of information, that is valuable for other steps and roles in the workflow.

The most important destination for look information is the dailies creation process. For that there are two possibilities of exporting the look of stored shots:

- Exporting a shot log PDF report.
- Exporting single look files in various formats, such as ASC-CDL, 3D LUT, AMF (for ACES looks), and camera specific look files.
- Exporting entire folders or bins of the shot library for matching the looks to recorded camera clips in other applications such as Silverstack Lab.

### Exporting a shot log PDF report:

You can export the shots of the currently selected bin or folder with their metadata as a PDF report. Either choose the “Report” button in the toolbar, choose “Export Folder as Look Report...” from the “File” menu, or use the context menu of the bin or folder to create a PDF report.

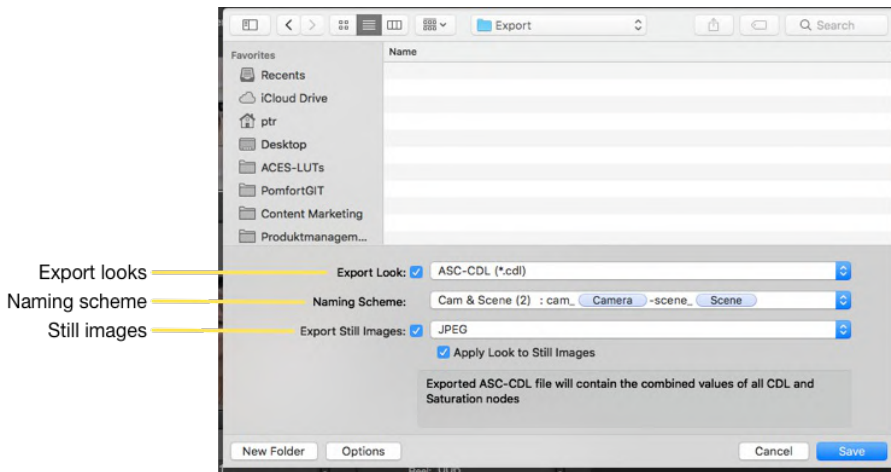
The report consists of a table of shots with metadata columns. The selection of columns follows the selection of columns in the shot table of the main window. You can change the columns in the report by changing the columns in the shot table.

### Exporting Shot Metadata as CSV:

You can export the shots of the currently selected bin, folder, or smart group as a CSV metadata sheet by choosing “Export as Shot Metadata (CSV)” from the “File” menu or from the associated contextual menu items in the shot library.

The shot metadata sheet includes all columns of the shots table’s current view. The clip-identifier is used to identify the shot and is therefore displayed as the first column. You can change the columns in the sheet by changing the columns in the shots table.

### Exporting single look files:



By choosing “Save selected shots as...” from the “Library” menu, a file save dialog opens that contains options for the exported file formats.

The “Export looks” setting lets you choose from a list of formats, containing ASC-CDL, various 3D LUT formats, and device specific files such as Alexa look files.

Note: Not all export formats are available for all shots. The list of offered export formats depends on the grading modes of the looks stored with the selected shots.

The “Naming scheme” lets you choose a scheme for the use of file names for the to-be-exported shots. You can either choose one of the predefined schemes, or create your own scheme based on metadata from the shot.

You can also export a still image for each shot, based on the available framegrab for a shot. You can choose which format the image file shall be, and if the look shall be applied, or of the original image should be exported.

Additionally, you can share graded still images of shots via Airdrop for instant communication with other team members on set.

You can enable and disable the export of both look files and image files, so that you can export only look files, only image files, or both.

You can find more information about exporting look metadata in the article [Exporting Look Metadata](#).

### Exporting folders of shots for look matching:

You can export a look archive that contains information of multiple shots with thumbnail, and all metadata and look information. You can use this look archive to export a folder (e.g. a shooting day) of your shot library to Silverstack Lab for automatic matching of look and camera metadata with the recorded camera clips.

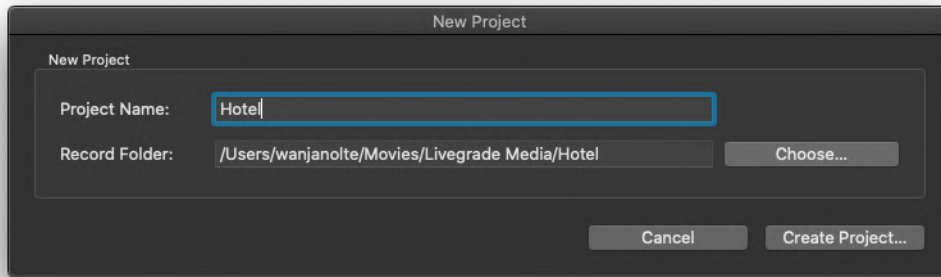
For exporting a look archive, choose “Export Folder as Look Archive...” from the “File” menu, or use the context menu of a folder or bin in the shot library.

## Media Folders and Record Folder

Media files imported or recorded within Livegrade are stored in a designated “Media Folder”. Each project uses one media folder as the current “Record Folder.” When you import new media files or generate new recordings within Livegrade, the corresponding media files are saved into the currently set record folder.

Media folders and the current record folder are project-depending settings. Consequently, it makes sense to use a separate media folder/record folder for each project.

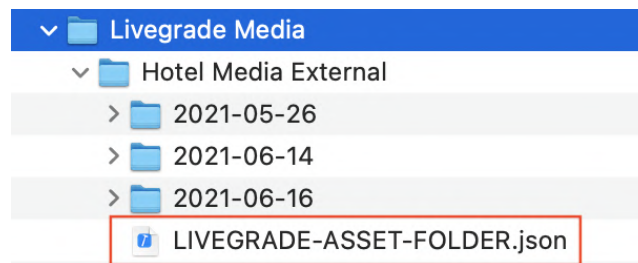
You can set the record folder when creating a new project or change the record folder in the “Recording” preferences. The default parent directory for project Media is “Livegrade Media” in ~/Movies.



"New Project" window with suggested record folder

### Unique media folder references and media status

Each Livegrade media folder contains a "LIVEGRADE-ASSET-FOLDER.json" file holding an UUID for unambiguous referencing of media assets in Livegrade projects.



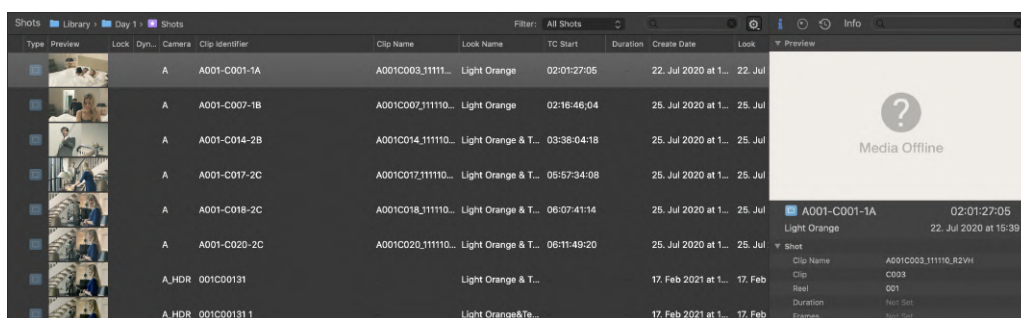
JSON file in media folder holds UUID

Note: Livegrade detects a media folder by reading the UUID stored in the JSON file of the folder. Make sure that the corresponding JSON file always remains in its media folder.

When you change a project's media folder in the recording preferences, Livegrade automatically detects the UUID of the new media folder and reconnects any matching media if the project holds media files that are associated with the UUID.

Removing a media folder that contains project media files results in an offline media status for the associated shots. When you add a matching media folder again, offline media files reconnect immediately, also if the directory was renamed or moved in Finder or it is a copy of the original directory on another drive.

You can see if a media file for a shot is offline by checking the opacity of the type icon in the shots table or the info tab. A light-grey "Media Offline" image indicates the offline media status also in the info tab and in slots using the media as current image source.



Shots with offline media status

The offline media status of media folders (and volumes) is also indicated by a lower opacity of the rows in the table of the recording preferences.

	Macintosh HD	~/Movies/Livegrade Media/Hotel Media	26	26.05.21
	Seagate HDD	/Volumes/Seagate HDD/P...121-945E-BD34469E85F9	104	07.04.21

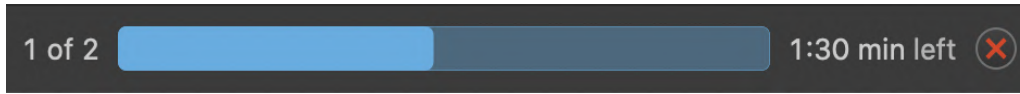
Offline media folder in recording preferences

Livegrade's media storage system also allows sharing Pomfort look archives (.pfla), including media; see [Sharing look archives with media](#).

### Progress bar for monitoring media import/export tasks

You can monitor running media import or media export jobs in the progress bar. If required you can cancel running jobs. All jobs are also canceled automatically when you quit Livegrade and will not be resumed when Livegrade is opened again.

Note: Already copied files will not be deleted after canceling a job. Make sure to delete redundant files manually in the Finder if necessary.



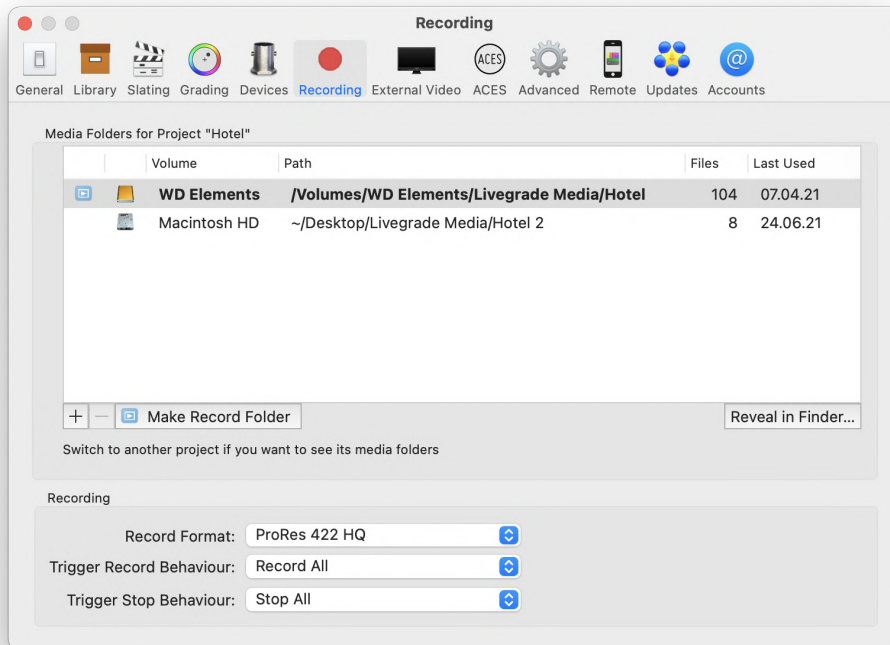
Progress bar indicates status of running import/export jobs

### Multiple media folders

Livegrade Pro is limited to one active media folder (record folder) per project, while Livegrade Studio also supports using multiple media folders in one project simultaneously:

#### STUDIO

In Livegrade Studio you can add multiple media folders to the same project. In the media folders table of your project's recording preferences you can add and remove media folders. One media folder can be made the current record folder. You can remove all media folders with the exception of the currently set record folder. When importing PFLAs with media you can add the corresponding media folder to your project's recording preferences and use it immediately without copying the files to your record folder. Learn more about [Sharing look archives with media](#).



Recording Preferences Livegrade Studio

Note: When adding a media folder from another project to your project's recording preferences and you delete shots and the associated media files within one of the projects, the files will be offline in both projects

### Direct import of a directory with media

#### STUDIO

With the menu item "Add Media Folder and Import Media...", you can add a directory with media as a new media folder to your project's recording preferences and import all containing media files directly into your shot library (without copy process). All importable media files, including files in subdirectories, will be imported as new shots.

**Important Note:** The media folder will be managed by Livegrade so that deleting a shot will also delete the associated media file on your hard drive.

### Handling media files

Livegrade provides various options to handle the media files of your recordings and framegrabs:

- **Duplicate As Shot With Still Image:** You can duplicate shots with movie recordings as new shots with still images (e.g., to save disk space or to create a duplicate with reference image for working in mobile environments with reduced equipment). The still image is created at the position of the shot's thumbnail frame and is stored in the currently active record folder, even if the original movie recording is stored in a different media folder.

- **Delete Shots:** When deleting shots, you can choose to delete the shot and the associated media file or to delete the shot and keep the media file (e.g., to avoid conflicts with files in a shared media folder).
- **Delete Media of Selected Shots:** If you do not need the media files of some shots anymore, you can delete the associated media files of shots and convert your shots with media into “look-only” shots.
- **Reveal Media In Finder:** A “Reveal Media In Finder” item in the contextual menu of the shot library lets you quickly reveal the associated media file of a selected shot in its media folder in the Finder.

## The Image Viewer

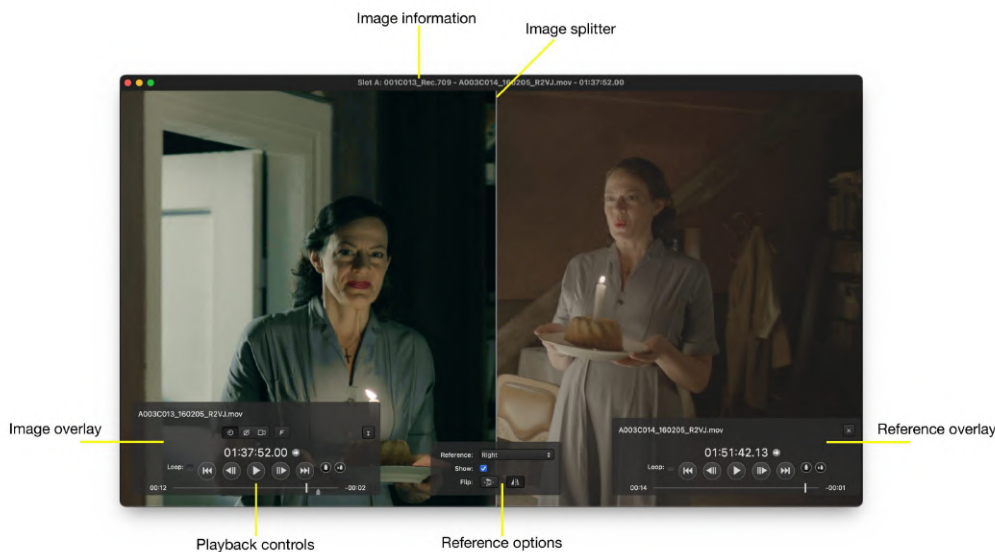
The image viewer shows the image of the currently selected shot or the library slot.

When an HD-SDI output device is configured, the HD-SDI output of that device always shows the same image as the image viewer.

You can set the image viewer to fullscreen on the screen where the viewer is currently shown by clicking the green little icon in the window header bar, or click “Fullscreen” in Livegrade Pro’s toolbar.

In a setup with two computer screens attached to your Mac (or a notebook screen with an additional external monitor) the viewer can go fullscreen on one computer screen, while the Livegrade Pro main window is shown on the other screen. To do so, move the image viewer window to the second screen and then go to fullscreen.

The image viewer can display a second image or look (e.g. from a framegrab or a movie of a shot) for reference in a split-screen or overlay mode.



### Image Overlay:

The image overlay displays the display options for switching between “Graded”, “Bypass”, and “Original” image. These controls double the controls from the slot user interface.

The image overlay also offers a “Export image” button. This button saves the current image in the file system of your Mac. This control doubles the control from the slot user interface.

### Reference Overlay:

The reference overlay shows the name of the image shown for reference, and allows to remove the reference.

### Reference Options

In the reference options you can choose which compositing mode should be used for displaying the reference image with the viewers image.

Options are

- Left – Right: Side-by-side with movable image splitter, viewer image is left, reference image is on the right.
- Overlay: Reference image is composited over the viewer image with variable opacity.
- Show / hide the reference
- Flip (mirror vertically) and flop (mirror horizontally) the reference image for improved arrangement

### Image Splitter:

You can move the image splitter (e.g. shown in “Left – Right” mode) by dragging it.

### Image Information:

The header of the image viewer displays the current slot name, the name of the image and the name of the reference image.

### Playback Controls:

The playback controls provide buttons for play, next frame, previous frame and go to start/end of the movie.

A timeline slider indicates the current position and allows scrubbing to a specific position. Playback can also be controlled using the keyboard shortcuts J, K and L:



- Playback: Press L to play forward, K to stop and J to play reverse
- Shuttle: Pressing the keys L or J two or multiple times increases the playback speed by factors 2x up to 64x
- Jog: Holding K and pressing L or J allows users to frame-step through a clip forwards (L) and backwards (J)

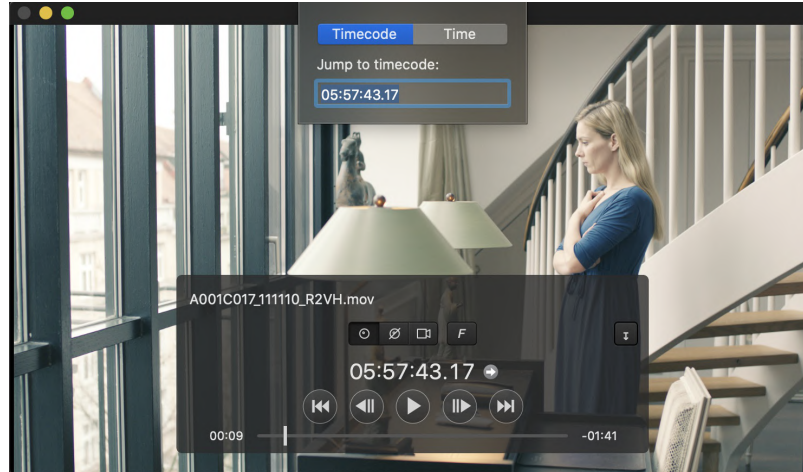
Other shortcuts for navigation in movies are available from the main menu.

JKL keyboard navigation works for all movies loaded in slots, either in the viewer window or via SDI connected monitoring devices.

A “Loop” checkbox lets you enable/disable loop playback.

#### Jump To Timecode:

The player HUD displays the timecode for recordings and imported movies. There is an arrow button on the right hand side of the timecode display. Pressing the arrow button opens the “Jump to Timecode or Time” sheet with two tabs “Timecode” (displays current timecode) and “Time” (displays current clip runtime calculated from starting timecode 00:00:00:00).



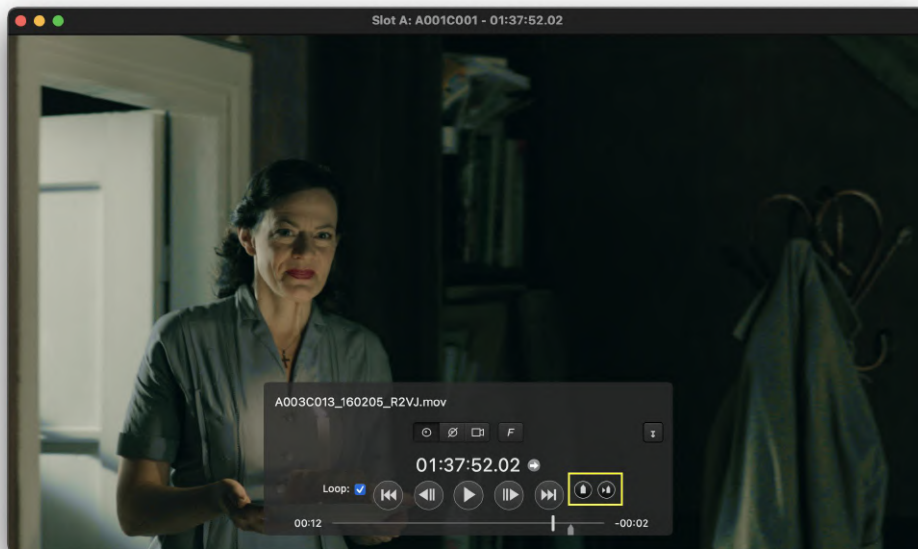
“Jump to Timecode or Time” sheet

- Copied timecode references can be pasted in various formats, e.g. “05:57:45:12” or “05:57:45;12” or “05574512”. Pressing Enter moves the playback position to the desired frame in the video.
- In the “Timecode” tab you can type in a timecode in the format “HH:MM:SS:FF” (e.g. “10012212” = TC “10:01:22:12”). If you enter less than 8 digits, the timecode will automatically fill in the first timecode digits of the current movie, e.g. if the video has a starting timecode of “10:00:00:00” and you enter “2315” the playback position jumps to TC “10:01:23:15”.
- In the “Time” tab you can enter the clip runtime, you want to move the playback position to. The clip runtime is always calculated from starting timecode 00:00:00:00, so that entering e.g. “0124” moves the playback position to the clip runtime 1 second, 24 frames.

“Jump to Timecode or Time...” can also be accessed via the “Edit” menu.

#### Set Thumbnail Frame and Jump To Thumbnail Frame:

There are buttons for “Set Thumbnail Frame” and “Jump To Thumbnail Frame” in the player HUD. A little marker icon in the time slider indicates the current position of the thumbnail frame. “Set Thumbnail Frame” changes the thumbnail for the shot in the shot library. “Jump To Thumbnail Frame” moves the playhead to the current position of the thumbnail frame.



“Set Thumbnail Frame” and “Jump To Thumbnail Frame” in Player HUD



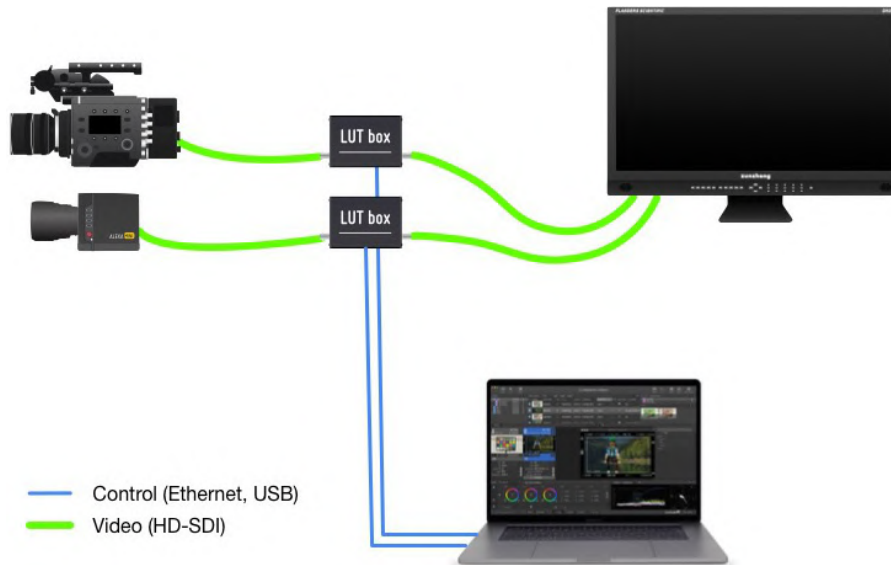




## Setting up Devices

### HD-SDI Setup Options

#### Basic Hardware Setup



Basic hardware setup with Livegrade and LUT boxes

The article [Basic Hardware Setup](#) covers the most common hardware setup with Livegrade for live color grading.

The article explains:

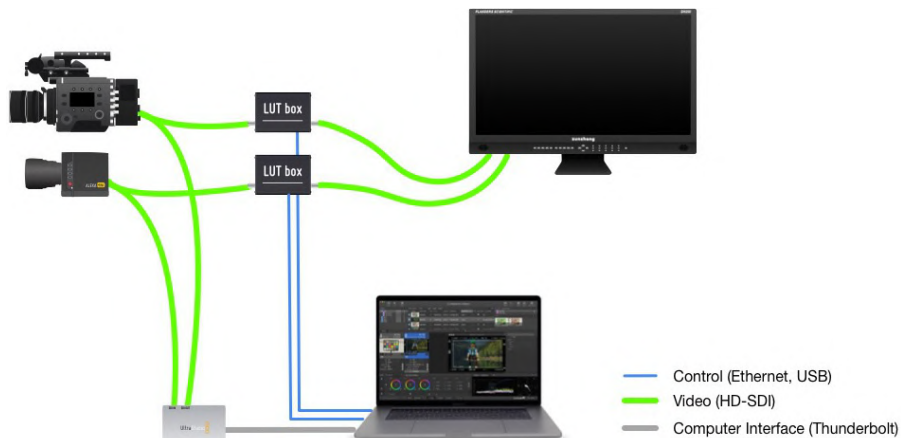
- Video signals on set (HD-SDI for video signals)
- Basic Device Requirements (monitor and LUT boxes)
- Additional features of LUT boxes (time code, frame grab, and metadata)

Please make sure you read the article [Basic Hardware Setup](#) first, before you proceed with more advanced options below.

In addition to LUT boxes some cameras and monitors can also perform the look processing (“in-camera grading” and “in-monitor grading”). See the article [All Supported Devices](#) for an overview of all supported devices and their capabilities.

#### Using HD-SDI capture devices

The application can use connected capture devices to get access to live image within the software.



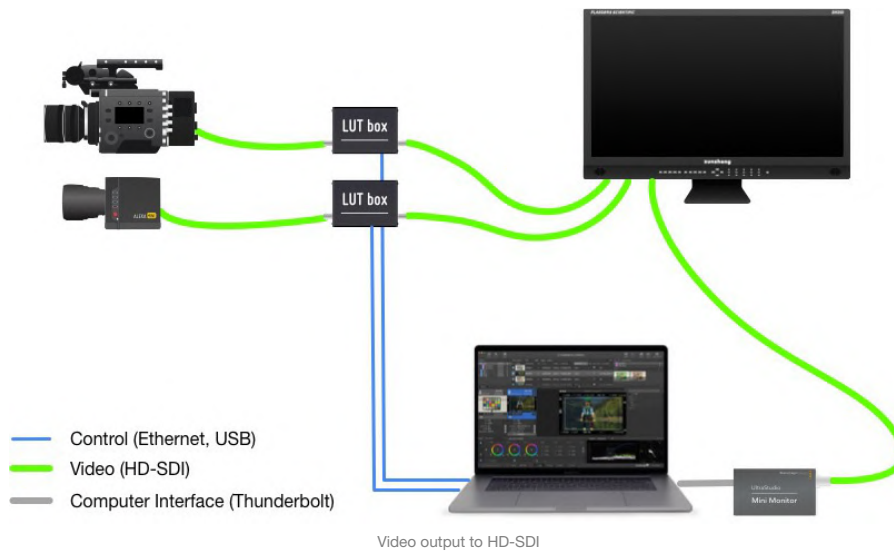
Capturing video signals with a capture device with Livegrade

By capturing live signals you can:

- Monitor live signals in the application’s [image viewer](#).
- store thumbnails of the current image in the [shot library](#), and
- [store frame grabs and record clips](#) for later reference.

#### Using HD-SDI output devices

The application can use connected video output devices to output image from within the software to HD-SDI.



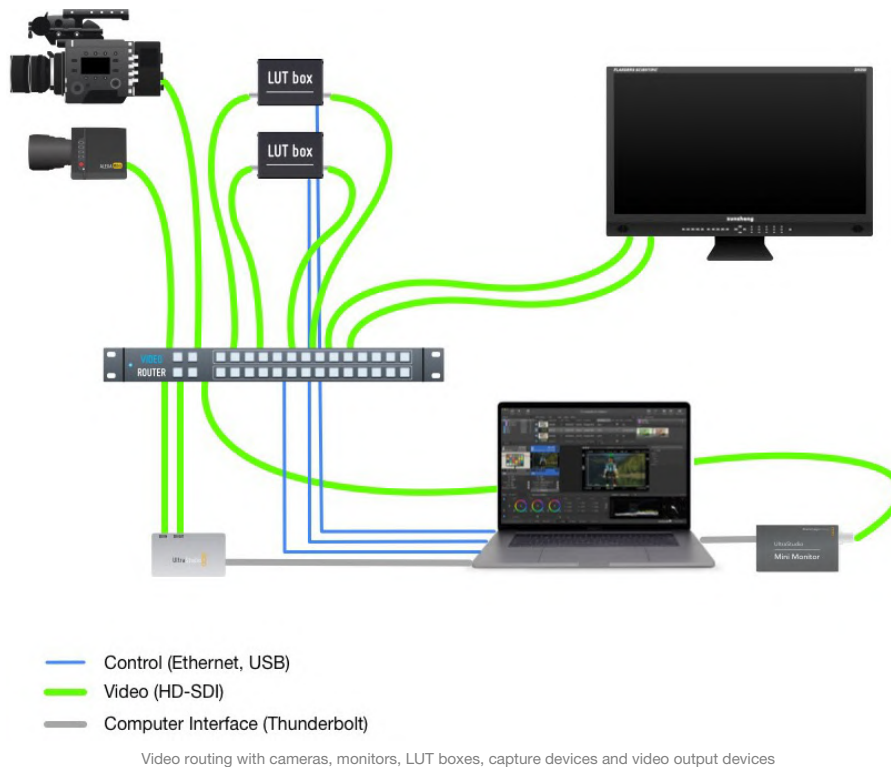
You can output:

- Stored frame grabs and for reference output,
- playback of recorded clips,
- processed live image (when also using a capture device), and
- combined and split view of frame grabs and live image

Learn more about video output in the article [Image View Output to HD-SDI](#).

#### Controlling an HD-SDI router

HD-SDI video routers allow to route signals from any source to any destination. The application can control a video router and automate routings depending on the state (e.g. selection of slots) in the user interface.

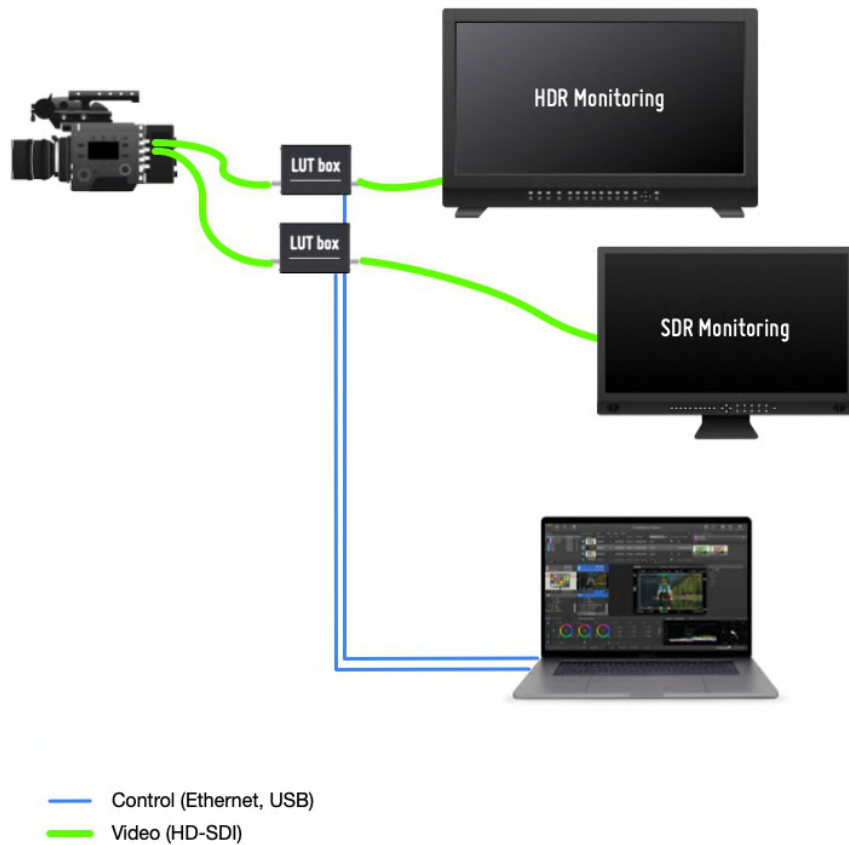


Video routing with cameras, monitors, LUT boxes, capture devices and video output devices

Please see the article Controlling an [External Video Router](#) for learning more about controlling a video router.

#### Setting up HDR/SDR dual monitoring

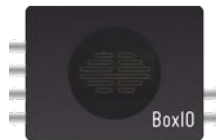
For HDR/SDR dual monitoring the camera's video signal can be wired to one grading device configured to display the signal in Rec.2020 HDR colorspace on an HDR monitor and another grading device (or second LUT box channel) to display the signal in Rec.709 colorspace on an SDR monitor. Alternatively, the camera's video signal can also be distributed to two devices via a video router (see above).



Video setup for HDR/SDR dual monitoring

## Setting up Flanders Scientific BoxIO

Livegrade comes with support for Flanders Scientific's BoxIO LUT box.



FSI BoxIO

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

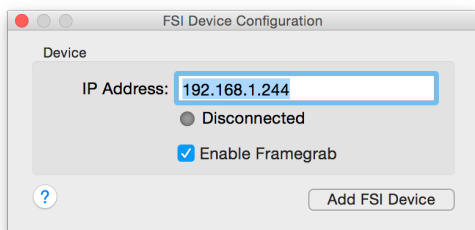
### Adding the FSI BoxIO as a Device

In order to exchange look information with Livegrade, the FSI BoxIO needs to have a working network connection with the Mac where Livegrade is running on.

The default IP address for BoxIO can be found on the bottom of the device (e.g. 192.168.1.244).

Once you obtained the correct IP address, launch Livegrade and you can proceed to add the BoxIO as a device. In order to do that, you can choose "Slots" in the main menu and then "Add Device". Alternatively, you can add the device through the [Device Manager](#).

After that, a wizard window opens:



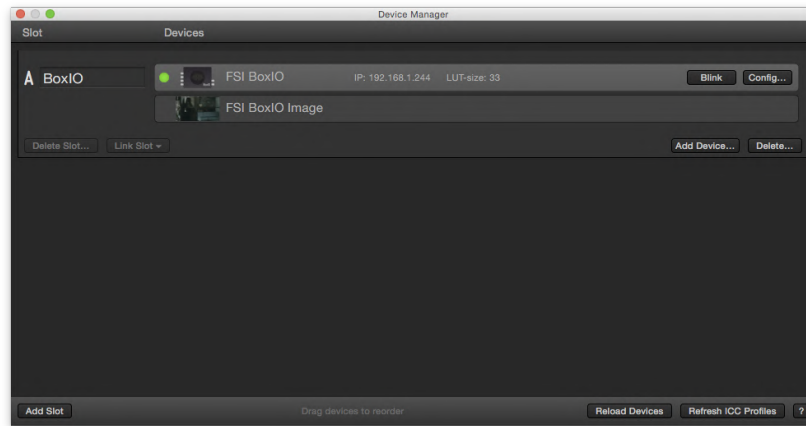
- Enter the IP address of the BoxIO
- Click on "Add FSI Device"

## Single- vs. Dual-Channel Mode

The BoxIO possesses two separate processing chains and can be used in so called **single- or dual-channel mode**. You can learn more about the different modes on the [FSI web page](#).

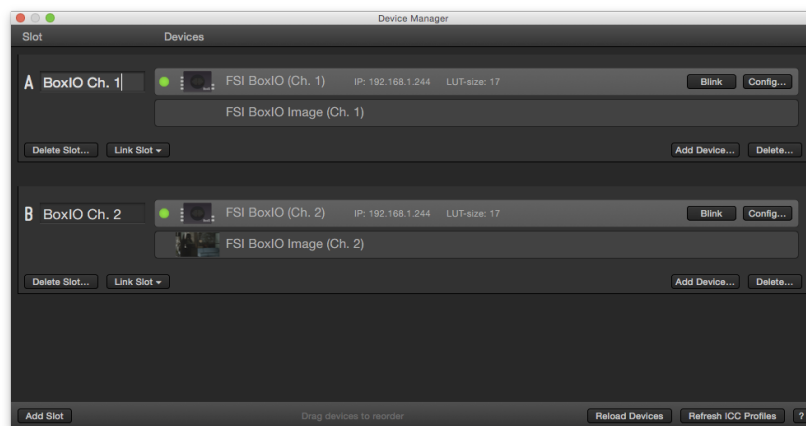
You can change the mode of the device via the BoxIO utility provided by FSI.

In single-channel mode Livegrade will use BoxIO as a usual device and will add it to a slot:



BoxIO in the Device Manager in single-channel mode.

In dual-channel mode BoxIO will generate two device instances named with “Ch. 1” (Channel 1) and “Ch. 2” (Channel 2) that will be added to successive slots in the Device Manager:



BoxIO in the Device Manager in dual-channel mode.

Please be aware that you will have to re-add the BoxIO device after changing modes. Once the gradin mode is changed, hit the refresh button in Livegrade and you will see the device name indicate the status in the Slots view.

While transitioning from single-channel to dual-channel mode delete the BoxIO from the slot and add it again to see two channels populate. While transitioning from dual-channel to single-channel mode simply erase the second device (Channel 2) from the slot.

When initially connecting the device in dual channel mode you can switch back and forth between the two modes while always refreshing the devices. Switching into single-channel mode will activate channel one to work solely while channel two will immediately work again when switching to dual-channel mode and refreshing the devices in the slots in Livegrade.

## Getting the FSI BoxIO Image in Livegrade

BoxIO is capable of taking a framegrab from the SDI signal that is connected to it.

In the main Livegrade window, the FSI BoxIO is now displayed in the corresponding [grading slot](#) as a device, as well as the FSI BoxIO image as an Image Source of the same slot.

You can open the [Image Viewer](#) to display the image by double clicking on the «FSI BoxIO Image» thumbnail.

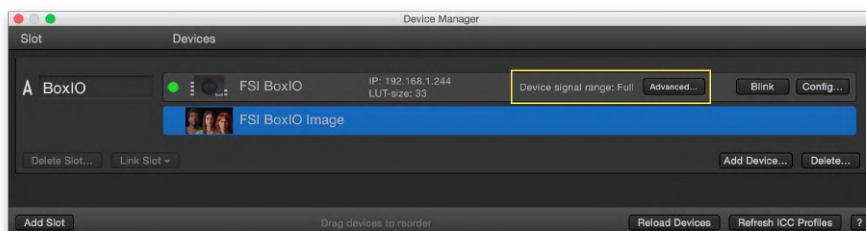


The FSI BoxIO's image in the Image Viewer

In case that the live image has changed, you can update the image shown in Livegrade by clicking on the «Refresh Image» button. After that you will have the latest frame of the live image.

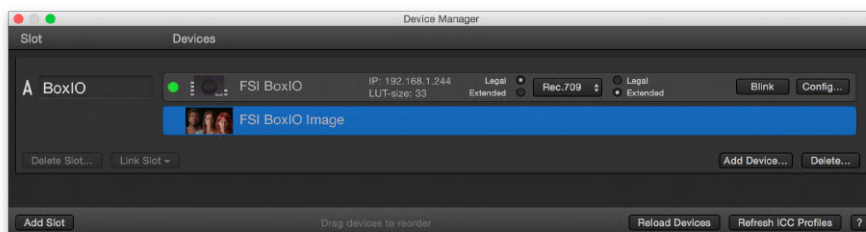
### Controlling the SDI Signal Range Through Livegrade

Livegrade allows to control the SDI signal range through the device manager. When controlling the SDI signal range through the BoxIO application, Livegrade will display the selected range in the Device Manager:



The signal range set through the BoxIO app.

Click the “**Advanced...**” button (highlighted in yellow) to enable the signal range control by Livegrade:



Controlling the signal range through the Livegrade Device Manager.

You will now be able to control the signal range inside of Livegrade. Please refer to the article [Legal and Extended – SDI-Signals and LUTs in Livegrade](#) to learn more about the range control in Livegrade.

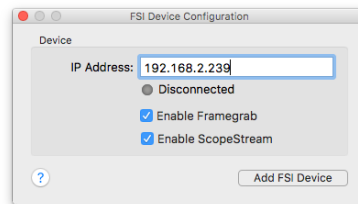
You can generally check if the FSI BoxIO is properly connected by going to the Device Manager. A green indicator shows a positive connection status. You can use the «Blink» button to send a red-green-blue screen flash sequence to check if the BoxIO is ready for the use with Livegrade.

FSI BoxIO can also be connected via Wifi. For best performance concerning fluid look interaction and framegrabs we recommend a tethered ethernet connection.

## ScopeStream

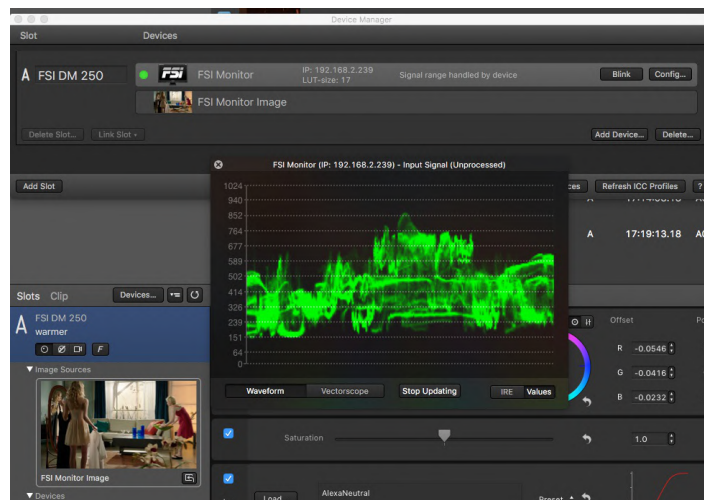
The FSI device provides a technology called “ScopeStream” that calculates scopes for the signal on the hardware device and provides it for display on your Mac.

When adding a FSI device (DM monitor series or BoxIO) you can choose to enable the ScopeStream with the according checkbox:



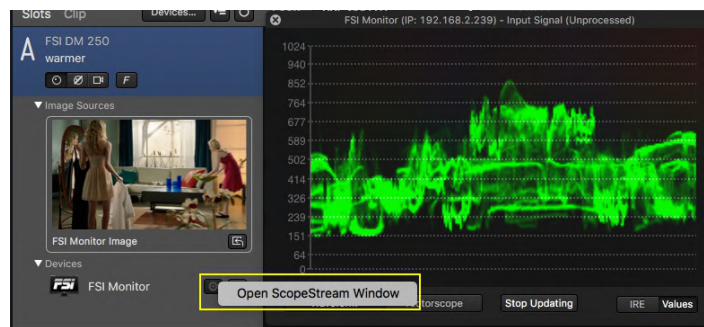
Enable ScopeStream when adding a FSI device.

Livegrade automatically opens the ScopeStream window:



The ScopeStream window showing a waveform

After closing the ScopeStream window it can be reopened again by clicking the gear button next to the device in the slot view:



Reopening the ScopeStream window.

**Please be aware** that the scopes are drawn from the unprocessed signal. Looks that are applied to the FSI device are not taken into account for the ScopeStream scopes.

Tags: waveform, vectorscope

## Setting up Teradek COLR

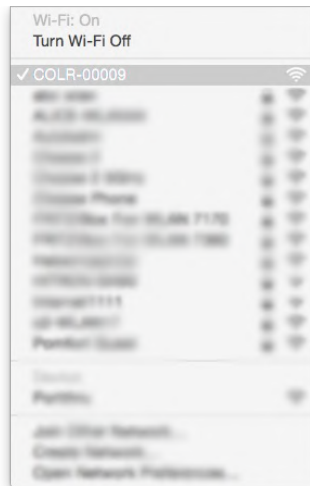
Livegrade comes with support for Teradek COLR. The Teradek COLR is a LUT-Box that can be controlled wirelessly by Livegrade and offers a LUT size of 33 x 33 x 33.

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

### Adding the Teradek COLR as a Device

In order to exchange look information with Livegrade, the Teradek COLR needs to have a working network connection with the Mac where Livegrade is running on.

It's possible to wirelessly connect Livegrade to the Teradek COLR by choosing the wireless network the COLR device is producing from the list of networks on your computer:

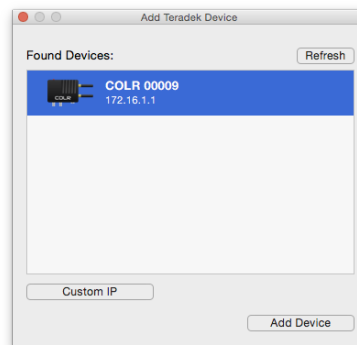


Choose the wireless network of the Teradek COLR from the list of networks.

The COLR device can also be connected via USB or Ethernet for a tethered connection.

Once a correct connection is established, launch Livegrade and you can proceed to add the COLR as a device. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

After that, a configuration window opens:

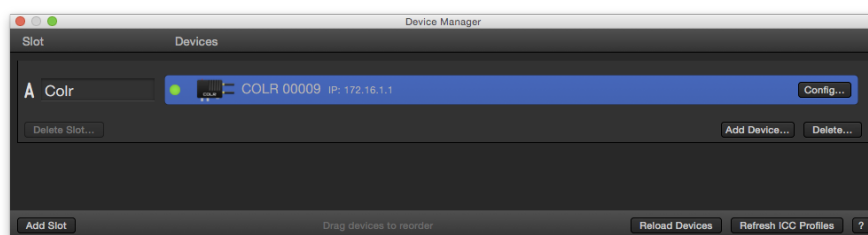


Add Teradek Device

By hitting “Refresh” you can search for compatible devices connected to your network. All devices found will show up in the table view. Select the intended device and click “Add Device” to add the device to the selected slot.

If you want to add devices by a certain IP-address rather than letting Livegrade search for them in your network you can hit the button “Custom IP” to reveal a text field where you can enter the IP-address of the chosen device.

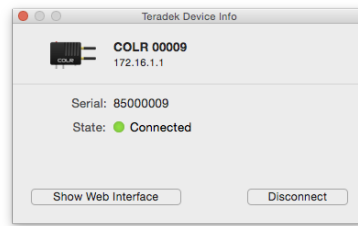
If connected properly the Teradek COLR will show up as a “Device” row in the Device Manager with a green button indicating a positive connection status :



The Device Manager shows a properly connected Teradek COLR.

By clicking on the button “Config...” an info window opens where you can see all information available on your device:





Teradek Device Info

The Teradek COLR has a web interface where you can make changes to the configuration of the device. You can access the web interface by clicking on the button “Show Web Interface”. There you can e.g. alter the name of the Teradek COLR as shown in the Device Manager.

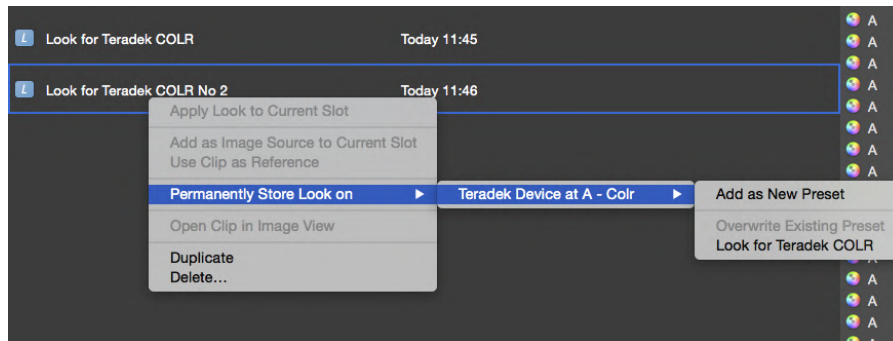
### Working with the Teradek COLR in Livegrade

In the main Livegrade window, the Teradek COLR is now displayed in the corresponding [grading slot](#) as a device.

After selecting the correct grading slot you will be able to adjust the look that is sent to the COLR by modifying it in the Main Window of Livegrade.

**Note:** The Teradek COLR can be used with different grading modes such as e.g. “CDL and LUT”, “CDL Advanced” or “ACES CDL”. The interaction speed may vary in different modes: As the COLR device natively supports CDL plus LUT grading modes, a setup with CDL plus LUT node in this order will interact fluently. Other more complex grading modes may interact a bit slower.

You can permanently store up to 32 looks on the Teradek COLR. In order to store a new look on the COLR perform a right click on a look from the Look Library and choose “Permanently Store Look on... -> Teradek Device at A – Colr... -> ...” to either add the look as a new preset or overwrite an existing preset:



Permanently store a look on the Teradek COLR.

You can also manage the looks (rename, delete) in COLR’s web interface.

Above all, a look can also be applied to the HDMI output of the Teradek COLR. That even allows a conversion from HD-SDI to HDMI containing looks.

### Setting up IS-Mini

Livegrade comes with support for the following IS-mini LUT box devices:

- IS-mini 4K
- IS-miniX
- IS-mini
- IS-miniX Rack4K
- IS-mini Rack4K

**Note:** As the IS-mini integration does not run under M1 natively, make sure to install Rosetta on your machine. However, you do not need to open Livegrade using Rosetta as the IS-mini integration will run in its dedicated service in the background.

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

#### Configuring an IS-mini device

It is recommended to connect the IS-mini via USB. Once a correct connection between the IS-mini device and your computer is established, launch Livegrade and then proceed to add the IS-mini as a device. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

Set up your camera type for appropriate ANC metadata transfer. You can also choose to “Continuously refresh framegrab and metadata” and set an update interval for refreshing.

**Note:** When using the IS-mini 4K it is only recommended to enable frame grab for HD video signals due to hardware limitations.

### Setting up AJA ColorBox

Livegrade comes with support for AJA’s ColorBox LUT box devices.





AJA ColorBox

For general information about setting up Livegrade with HD-SDI devices, please refer to the article [HD-SDI Setup for Livegrade](#).

#### Adding the AJA ColorBox as a device:

To exchange look information with Livegrade, the AJA ColorBox needs to have a working network connection with the Mac where Livegrade is running.

**Note:** It is strongly recommended to connect the device hard-wired via Ethernet.

Please refer to the manufacturer's documentation for setting up the ColorBox in your network with a dedicated IP address.

The ColorBox has a web interface for configuring the device's IP address, watching a preview of the live video signal, configuring the system settings, and more.

Once you have obtained the device's IP address, you can add the ColorBox to any slot using the [Device Manager](#) or the associated "Add Device..." menu item.

#### Configuring AJA ColorBox:

While adding the AJA ColorBox, you have the following options to configure the device:

- **IP Address:** Enter the device's IP address
- **ANC Metadata:** Choose your camera's manufacturer for appropriate detection of ANC metadata
- **System Settings:** Open the device's web interface for configuring system settings such as signal range and color conversion
- **Framegrab:** Enable a continuous framegrab (ungraded 16-bit Tiff at native resolution) and choose an update interval

**Note:** A high update interval at 4K resolutions requires a high performant hard-wired network connection.

### Setting up AJA FS-HDR

Livegrade comes with support for AJA FS-HDR devices. Livegrade can control the FS-HDR via a network connection in two different modes:

"**Dynamic 3D LUT**" can be used to apply a grade as a 3D LUT to the live signal.

#### STUDIO

"**Colorfront Film**" can be used to apply processing of the Colorfront Engine to the live signal. See [Using the Colorfront Film Grading Mode](#) on details about using the Colorfront Engine with FS-HDR.

A list of all devices supported in Livegrade can be found in the Knowledge Base article [All Supported Devices in Livegrade](#).

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

#### Adding the AJA FS-HDR as a Device

In order to receive look information from Livegrade, the AJA FS-HDR needs to have a working network connection with the Mac where Livegrade is running on. Once a correct connection is established, launch Livegrade and you can proceed to add the AJA FS-HDR as a device. In order to do that, you can choose "Slots" in the main menu and then "Add Device". Alternatively, you can add the device through the [Device Manager](#).

After that, a configuration window opens:

By hitting "**Refresh**" you can search for compatible AJA FS-HDR devices connected to your network. All AJA FS-HDR devices found will show up in the table view. Select the intended device and click "**Add Device**" to add the box to the selected slot.

#### Working with the AJA FS-HDR device

In the main Livegrade window, the AJA FS-HDR device is now displayed in the corresponding [grading slot](#) as a device.

After selecting the correct grading slot you will be able to adjust the look that is sent to the AJA FS-HDR device by modifying it in the Main Window of Livegrade.

FS-HDR's "Dynamic 3D LUT" mode is available in "Single Channel" mode for 4K applications (the same 3D LUT will be applied to all four channels of the device) as well as in "Multi-Channel" mode for independent LUTs for each of the four HD channels of the device. In order to use the four channels independently from Livegrade, you need to add the FS-HDR device multiple times, each configured with a different channel.

#### Checking the Connection Status in the Device Manager

To learn more about the connection state of the AJA FS-HDR device, you can open the Device Manager by clicking on "Devices" above the Grading Slots view.

If connected properly the AJA FS-HDR will show up as a "Device" row in the Device Manager with a green indicator confirming a positive connection status. By clicking on "Config..." an info window opens where you can see all information available about the connection of Livegrade with your AJA FS-HDR device.

### Setting up ARRI Cameras

Livegrade comes with support for remote look control of ARRI cameras. This includes the following ARRI Alexa camera types:

- ARRI Alexa SXT
- ARRI Alexa Mini
- ARRI Amira



- ARRI Alexa 65
- ARRI Alexa LF
- ARRI Alexa Mini LF
- ARRI Alexa 35

With this feature set you can send looks (as ASC-CDL and LUT) to be applied on the outputs of the camera by using a network connection (LAN or WiFi depending on your setup).

Additionally, it's possible to receive metadata and framegrabs from the current live image of the camera. This way you can include camera and lens metadata to your shots and include the graded framegrabs to the [Look Reports](#).

Furthermore, you can use the camera's image source as an image reference in the [Image Viewer](#), allowing the fine tuning of the looks later – even if the camera is not available.

**Note:** The in-camera grading integration requires working in the ARRI CAP Compatible grading mode and does not support working within an ACES pipeline. However, you can use a basic setup with a LUT box or another real-time grading device for working in the ACES CDL or ACES CDL Advanced grading modes.

### Adding the ARRI Camera as a Device

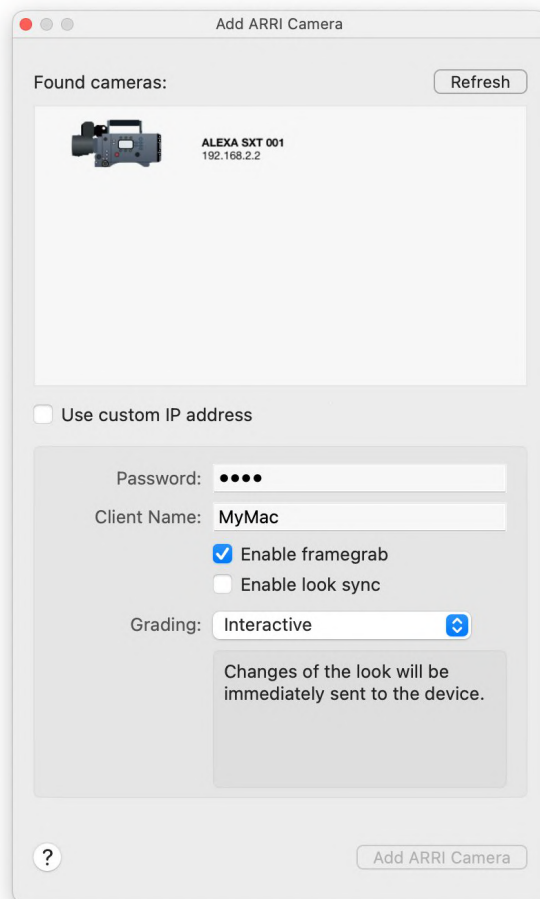
In order to exchange look information with Livegrade, the camera needs to have a working network connection with the Mac where Livegrade is running on.

In order to connect Livegrade to the camera you have to enable the **“Camera Access Protocol”** in the ARRI camera's network menu at “System -> Network”. You can also set a password there to protect access to the camera.

Make sure that you have set the monitor output to “Look File” in the camera's Color menu, in order to have the look applied to your monitor out.

Once a correct connection is established, launch Livegrade and you can proceed to add the ARRI Camera as a device. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

After that, a wizard window opens:



Add ARRI Camera wizard

- Choose your ARRI camera from the list of automatically discovered cameras by clicking on the entry in the “Found Cameras” box
- Alternatively you can enter the IP address or the camera's serial number based host name (e.g. serial number: 6712 -> host name: alexa6712.local) manually. To do so click the checkbox “Use Custom IP Address” and fill in the information in the text field that appears.
- Enter the password for that camera (if you set any in the network settings of the camera)
- Enter a client name that should be shown in the camera menu (e.g. your name)
- Click on “Add ARRI Camera”

You can enable / disable, if you want to receive framegrabs from this camera by checking the “Enable Framegrab” checkbox.

Under “Grading” you can choose between different ways to add the camera as a device:

- “Interactive” for grading the camera’s signal interactively
- “Manual” to upload looks onto the camera manually
- “Disabled (Metadata Only)” to add the camera as a metadata only device (also available in other grading modes)

### Working with the Camera in Livegrade

In the main window of Livegrade, the ARRI camera is now displayed in the corresponding [grading slot](#) as a device.

On connect, Livegrade will load the look currently selected in the camera. Furthermore if you change the selected look in the camera, Livegrade will load the new look automatically.

Once you alter the initial look loaded from the camera the Alexa will show a \* next to the look name to indicate that it is changed.

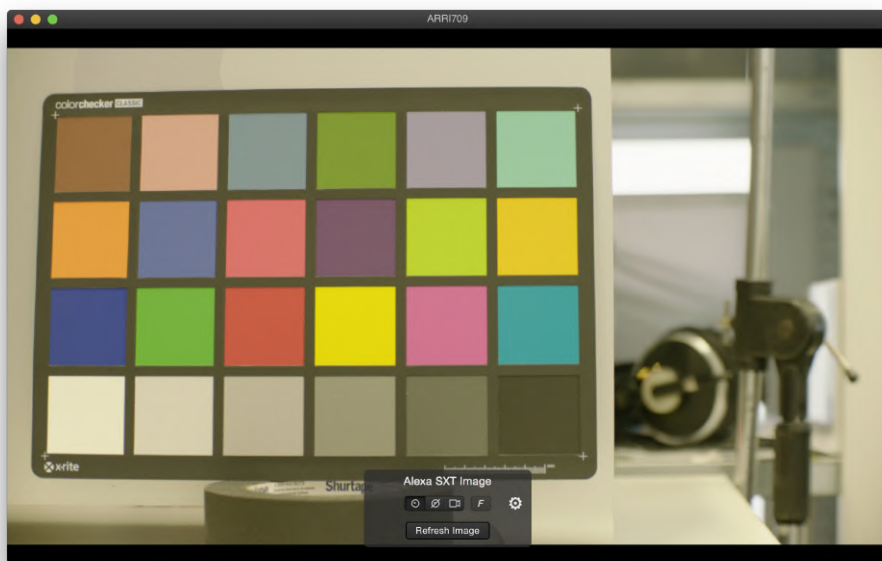
When creating new looks in Livegrade you can choose if they should be stored to the camera as well.

While the current active look settings will be added as metadata to the recorded clips, you have to store the look to the camera in order to change the look name displayed on the camera and written to the metadata.

### Getting the Camera’s Image in Livegrade

If framegrabs are enabled the camera image will be shown as an image source of the slot.

You can open the [Image Viewer](#) to display the current image by double clicking on the framegrab thumbnail in the Image Sources section.



The Livegrade Image Viewer

In case that you want to display an updated live image, you can perform a framegrab in Livegrade by clicking on the «Refresh Image» button. After that you will have the latest frame of the live image.

You can generally check if the ARRI camera is properly connected by going to the Device Manager. A green indicator shows a positive connection status.

Please be aware that due to the frame size (especially of the ARRI Alexa 65), taking framegrabs can take longer than maybe expected. Please grant the camera and application some time to process the framegrab.

Search Code: LG-SA1

### Further Reading

For more information, also visit [ARRI's workflow page](#). In the downloads section, you will, for example, find the “ALEXA 35 – How to set up Pomfort Livegrade” workflow guideline with step-by-step instructions on how to set up ARRI’s ALEXA 35 camera with Livegrade.

Search Code: LG-SU1

## Sony VENICE 2 Remote Grading

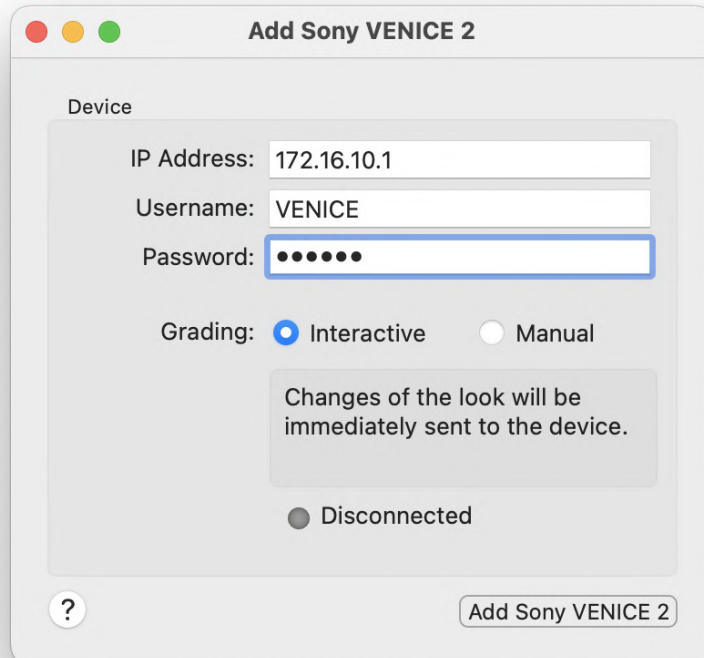
Livegrade integrates with the remote grading features of Sony VENICE 2 cameras. You can configure the camera as interactive grading device to grade via ASC-CDL compliant grading nodes in real-time, or as non-interactive grading device to upload looks as User 3D LUT.

### 1. Connect Sony VENICE 2 to Livegrade

- **Sony VENICE 2:** Configure the camera’s authentication and network settings and make sure the Mac machine running Livegrade can access the camera’s network.



- **Livegrade:** Set the grading mode of your slot to “CDL + LUT” and add the Sony VENICE 2 camera as a device to your slot in the device manager. Make sure to specify the correct authentication and network settings and choose the desired grading method “Interactive” or “Manual”:
  - The “Interactive” grading method adds the camera as interactive grading device and lets you grade in real-time via ASC-CDL compliant nodes (CDL, SAT) in the grading mode “CDL + LUT”.
  - The “Manual” grading method adds the camera as non-interactive grading device, so that you can upload the look from your current slot as User 3D LUT manually.



## 2. Setup Interactive Grading

- **Sony VENICE 2:** In the Home View, click on the “LOOK” button, select “Edit Look” and choose the desired LUT file in the “User 3D LUT” menu. Then, go to “ASC CDL Process” and select “CDL -> Look”, then go to “ASC CDL Select” and select the “Livegrade.cdl” from the menu.



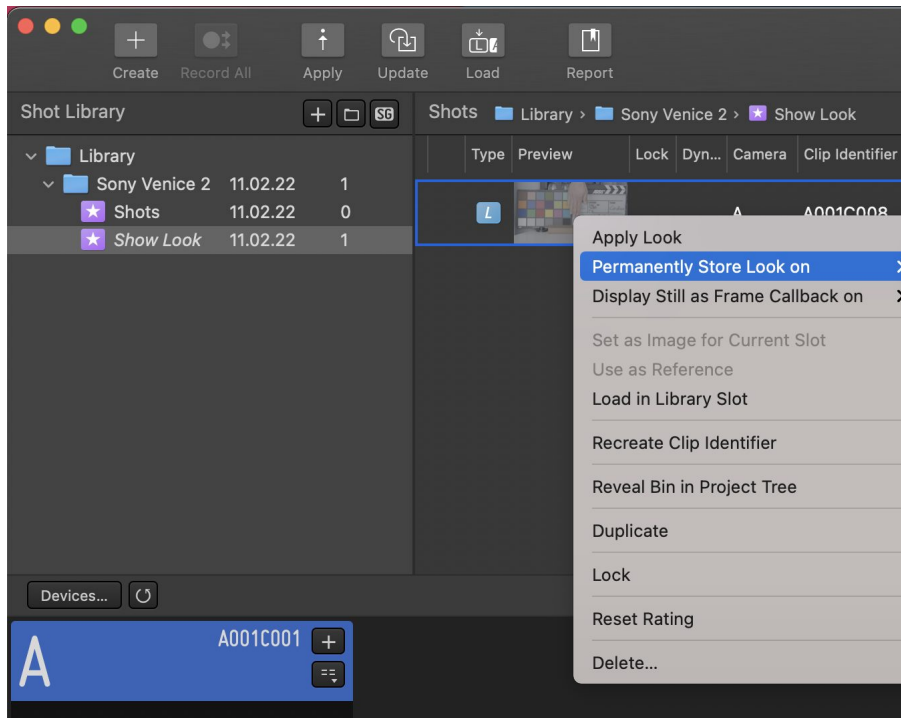
Note: Make sure to use the same LUT in the Livegrade LUT node as in the camera, e.g., use a Sony LUT preset (Sony Look Profile) or a Show LUT from your colorist.



- **Livegrade:** Load the desired LUT into the Livegrade LUT node or choose from a pre-installed LUT preset (“Sony Look Profiles”). You can now start interactive grading on your Sony VENICE 2 camera from Livegrade via the ASC-CDL compliant nodes “CDL” and “Saturation”.

### 3. Look Upload From Shot Library

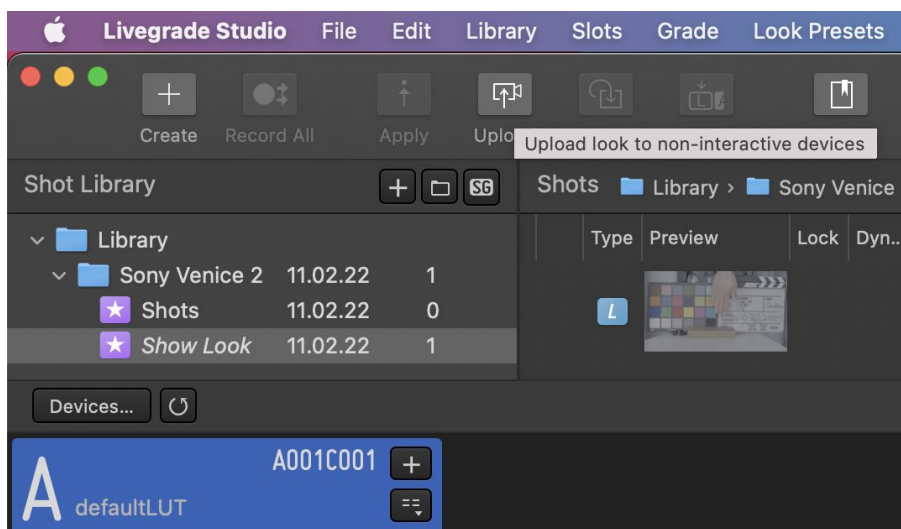
- **Livegrade:** In addition to the interactive grading via CDL, you can also upload saved looks from Livegrade’s shot library as a User 3D LUT onto a connected Sony VENICE 2 camera by using the menu item “Permanently Store Look On” and choosing the camera’s desired User 3D LUT memory slot as target. This option is also compatible for looks created with other grading modes.



- **Sony VENICE 2:** To apply the uploaded look in the Sony VENICE 2 camera, select the appropriate User 3D LUT memory slot in the camera’s “User 3D LUT” menu.

### 4. Manual Look Upload

- **Livegrade:** If you configure the grading method for the camera as “Manual”, you can also upload the current look from your slot to the Sony VENICE 2 camera directly by pressing the “Upload” button in the toolbar or by choosing the menu item “Upload Current Look to Non-Interactive Grading Devices”.



- **Sony VENICE 2:** To apply the uploaded look in the Sony VENICE 2 camera, select the appropriate User 3D LUT memory slot in the camera’s “User 3D LUT” menu.

**Note:** The in-camera grading integration does support working within an ACES pipeline. However, you can use a basic setup with a LUT box or another real-time grading device for working in the ACES CDL or ACES CDL Advanced grading modes.

**Tip:** Learn more about Livegrade’s Sony VENICE 2 integration by watching the [On-Set Workflows with Sony VENICE 2 and Pomfort Livegrade Webinar](#)

### Setting up Panavision DXL 2





Livegrade comes with support for Panavision DXL 2 cameras. The application can send CDL values and 3D LUTs that are applied on the live image processed in the Panavision DXL 2 camera via a network connection (LAN and WiFi depending on camera hardware and setup).

A list of all the Panavision DXL models supported in Livegrade can be found in the Knowledge Base article [All Supported Devices in Livegrade](#).

For general information about setting up the application with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

#### Adding the Panavision DXL 2 as a Device

In order to receive look information from Livegrade, the Panavision DXL 2 needs to have a working network connection with the Mac where the application is running on.

#### SETUP THE NETWORK ON THE CAMERA

- Go to the Panavision DXL 2 Menu
- Choose Lan or Wlan depending on your setup

Once a correct connection is established, launch Livegrade and you can proceed to add the Panavision DXL 2 as a device. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

After that, a configuration window opens. By hitting “**Refresh**” you can search for compatible Panavision DXL 2 cameras connected to your network. All Panavision DXL 2 cameras found will show up in the table view. Select the intended device and click “**Add Device**” to add the box to the selected slot.

#### Updating the Look in the Panavision DXL 2 Camera

In the main Livegrade window, the Panavision DXL 2 camera is now displayed in the corresponding [grading slot](#) as a device.

After selecting the correct grading slot you will be able to adjust the look. The look is not updated in the camera interactively, you need to click “Upload” in the toolbar, or choose “Upload Current Look to Non-Interactive Devices” in the Slot menu. The look metadata is then sent to the camera.

#### Updating Slate Metadata in the Panavision DXL 2 Camera

When enabling the “Auto-update slate info in camera” checkbox in the connection dialog of the Panavision DXL 2 camera, every change in the global metadata area of the application is automatically sent to the camera.

#### Checking the Connection Status in the Device Manager

To learn more about the connection state of the Panavision DXL 2, you can open the Device Manager by clicking on the button “Devices” above the Grading Slots view.

If connected properly the Panavision DXL 2 will show up as a “Device” row in the Device Manager with a green indicator confirming a positive connection status. By clicking on the button “Config...” an info window opens where you can see all information available on the connection of Livegrade with your Panavision DXL 2.

#### Setting up Panasonic Varicam

Livegrade comes with support for the Panasonic Varicam. Livegrade can send CDL values and 3D LUTs that are applied on the live image and recordings in the camera using a network connection (LAN and WiFi depending on camera hardware and setup).

The following Varicam models are supported:

- Varicam 35
- Varicam Pure
- Varicam LT
- Varicam HS

A list of all the Panasonic Varicam cameras supported can be found in the Knowledge Base article [All Supported Devices in Livegrade](#).

#### Setting up the camera

In order to receive look information from Livegrade the Varicam needs to have a working network connection with the Mac where Livegrade is running on. The grading mode on the Varicam 35 has to be enabled.

#### SETUP NETWORK

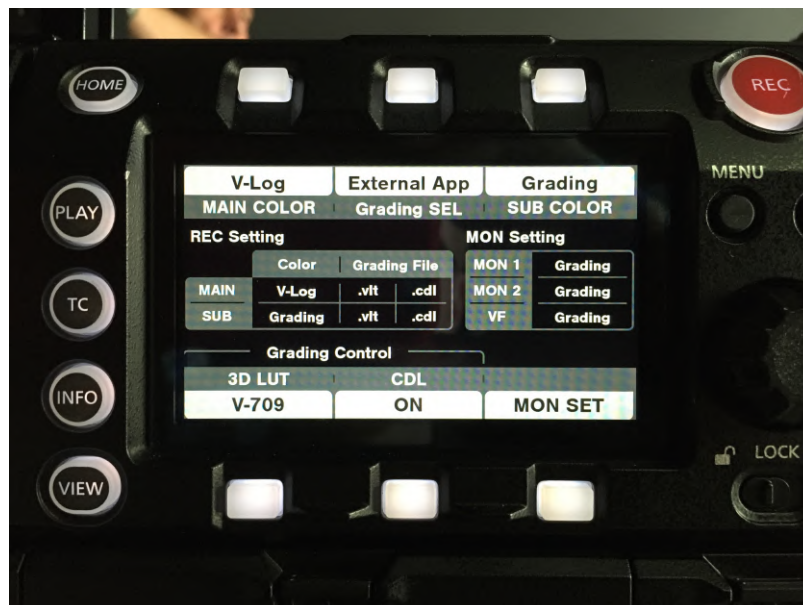
- Go to Varicam Menu -> Peripheral -> Network Sel.
- Choose Lan or Wlan depending on your setup
- Go to Varicam Menu -> Peripheral -> Lan Property to see the IP Address if using DHCP or set an IP Address if DHCP is disabled (see Picture)
- Note the IP Address. We will need it later in Livegrade



Varicam 35 network settings

## ENABLE GRADING

- From the home screen press the Color button (upper middle)
- Set the main color to V-Log by pressing the upper left button until Main Color reads V-Log
- Turn on grading by pressing the Grading SEL (upper middle) button until it reads On
- If CDL grading is Off, enable CDL grading by pressing the CDL button (lower middle) and pressing the upper right CDL button until the title reads On => go back to the color view.
- Set the 3D Lut setting to V-709 (for other setups see advanced Lut modes below) by pressing the lower left button. In the 3D Lut view press the upper left button 3D Lut Sel until it reads V-709
- Back in the grading view press Mon Set (lower right) to configure on which output you want to see the graded image instead of the log image. For example to see the graded image on the Mon Out 1, press the Mon Out 1 (upper left) button until it reads Graded
- The final settings are shown in the next image:



Enabling the grading mode on the Varicam 35

## ADVANCED LUT MODES

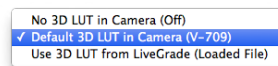
There are three 3D LUT modes you can use.

1. Off: no LUT is applied to the V-Log image (not recommended)
2. V-709: the default log to video LUT is applied by the camera (recommended)
3. Loaded File: the LUT can be configured in Livegrade (more flexibility but slower)



Advanced LUT modes on the Varicam 35

The LUT mode you want to use depends on your workflow and needs to be specified in the Livegrade device configuration:

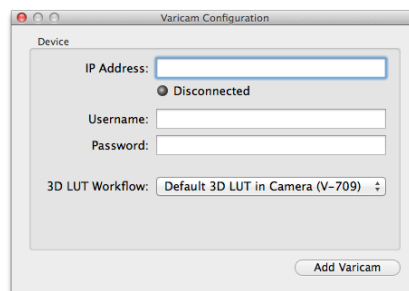


Varicam 35 settings

### Setting Up Livegrade

Once a correct connection is established, launch Livegrade and you can proceed to add the Varicam as a device. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

After that, a configuration window opens:



Varicam 35 configuration

- Enter the IP address of the Varicam as well as user name and password
- Optional: choose the LUT mode if you want to use an advanced LUT mode
- Click on “Add Varicam”

Livegrade will check the connection and show a green “connected” message if the camera was successfully added.

You can now use the CDL grading mode of Livegrade to control the live image of the Varicam Mon Out 1. While using the default LUT workflow option the 3D LUT section in Livegrade shows the default V-709 LUT applied by the camera. If you want to use a custom LUT or want to add a custom curve you will have to set the camera to loaded file and change the setting using the device manager.

### Setting up SONY F65

Livegrade comes with support for remote look control of the SONY F65 cinema camera. This feature enables the user to **control the ASC-CDL values** inside the SONY F65 that affect the look of the SDI1 output signal of the camera. Livegrade is connected to the SONY F65 via a network connection (LAN or WiFi depending on your setup).



## Content

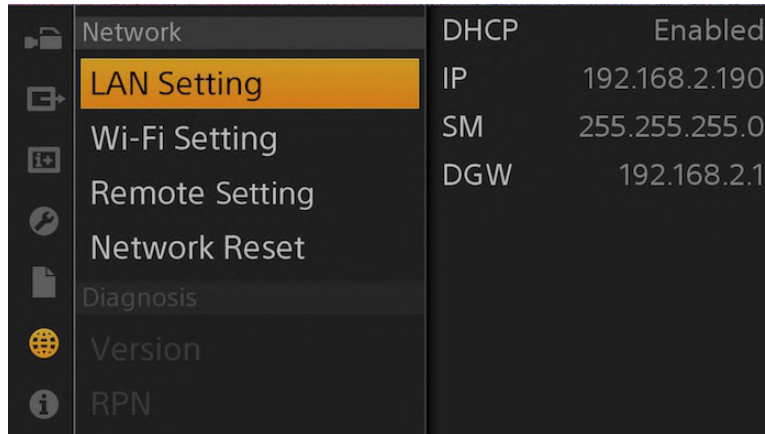
### This article covers the following topics:

- How to set up the network settings in the camera to connect to Livegrade.
- How to set the look configuration in the camera to work with Livegrade.
- Guide through the process of adding the SONY F65 as a device in Livegrade.
- How to export a compatible 3D LUT from Livegrade and load it into the F65.

### Setting Up the SONY F65 Network Connection

In order to exchange look information with Livegrade, the SONY F65 camera needs to have a working network connection with the Mac where Livegrade is running on.

The SONY F65 is capable of using DHCP to set its IP address automatically. Go to the “Network” settings of the camera and enable DHCP:



The network settings of the F65.

If not using DHCP, configure the IP and subnet mask manually for the Mac and the SONY F65 to be in the same network.

The shown IP address in the network settings of the camera (in this case 192.168.2.190) will be used in Livegrade to connect to the F65.

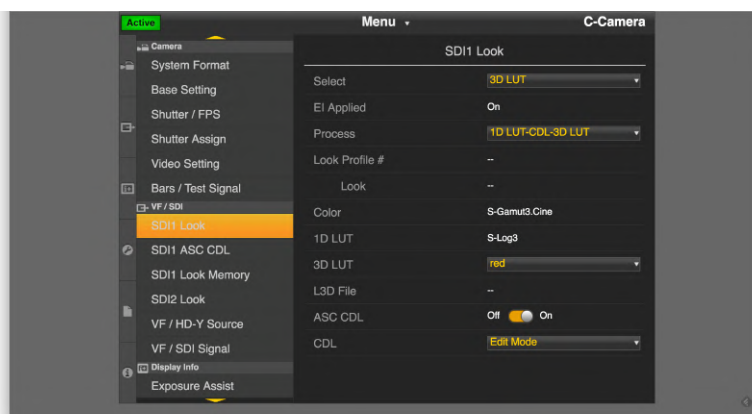
### Setting Up the Look Configuration of the SONY F65

In order for the interactive control of the ASC-CDL values of the camera to work the color control of the SDI1 output of the F65 has to be set to a certain state.

The camera settings can be reached either directly on the camera to be output through the SDI or you can access them via a web interface. If the network settings are set up correctly you can access the web interface by entering the IP address of the camera into a web browser and hitting enter. Please note that those interfaces may have slightly different appearance.

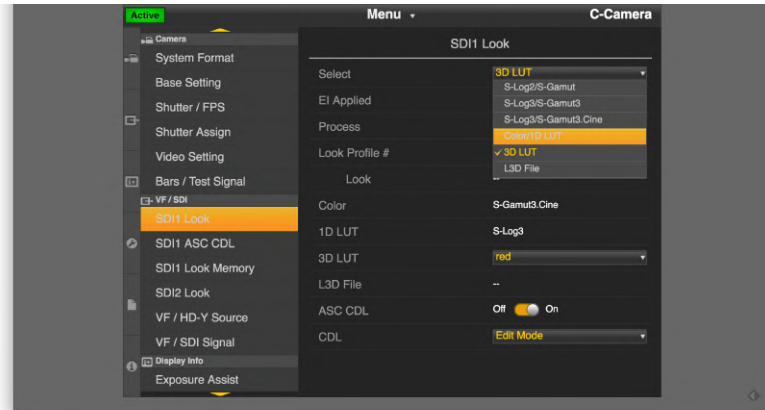
**In order to set the look settings of the camera for the use with Livegrade follow these steps:**

1. Access the settings of the F65
2. Navigate to the section “VF / SDI”
3. Navigate to the page “SDI1 Look”:



“VF/ SDI” > “SDI1 Look”

4. From the “**Select**” dropdown choose “**3D LUT**”:



1.

“Select” > “3D LUT”

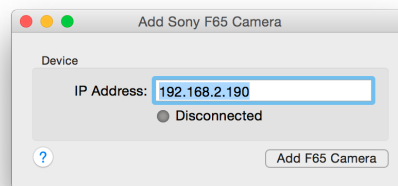
5. Make sure the “**Process**” is set as “**1DLUT – CDL – 3D LUT**”
6. At the entry “**3D LUT**” choose the intended 3D LUT (in this case called “**red**”). Scroll down to learn how to load a custom 3D LUT to the camera.
7. Make sure the “**ASC-CDL**” is set to “**On**”
8. Make sure the dropdown at “**CDL**” is set to “**Edit Mode**”

Please note that due to hardware limitations Livegrade is not capable of controlling the 3D LUT inside the SONY F65 as it is possible with other integrated devices in Livegrade. Please read on to learn how to load a custom 3D LUT into the SONY F65 (see section “Export a Custom 3D LUT from Livegrade to Load it to the SONY F65”).

#### Adding the SONY F65 Camera as a Device

Once a correct connection is established, launch Livegrade and you can proceed to add the Sony F65 camera as a device. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

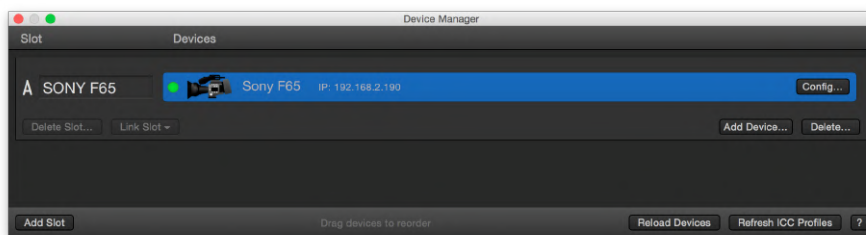
A window will appear that asks for an IP address of the camera to add it as a device:



Enter the IP address of the camera.

Enter the IP address of the camera as displayed in the camera settings. Hit “**Add F65 Camera**”.

Open the Device Manager in Livegrade by clicking the button “**Devices...**” on the left side of the Livegrade user interface. The Device Manager will show a connected SONY F65 camera:



The SONY F65 is connected to Livegrade.

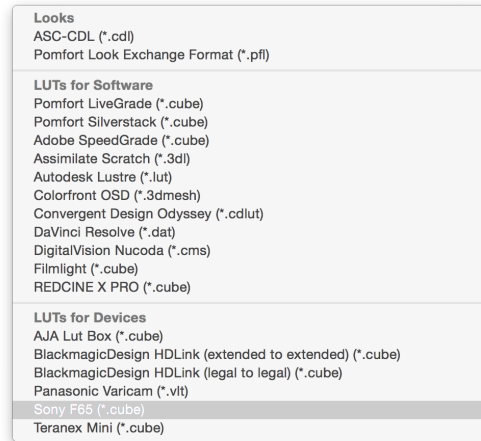
Livegrade is now able to control the ASC-CDL values of the camera SDI1 output. Please refer to the article [Using the CDL Grade Mode in Livegrade](#) for more information on grading controls in Livegrade.

#### Export a Custom 3D LUT from Livegrade to Load it to the SONY F65

Please note that due to hardware limitations Livegrade is NOT capable of controlling the 3D LUT that is set inside the camera. However it is possible to load a custom 3D look up table to the camera via an SD card.

Livegrade is able to export a 3D LUT that is compatible with the SONY F65 (\*.cube). Please refer to the article [Exporting Grades](#) to learn how to export 3D LUTs from Livegrade.

You will find an entry in the list called “**SONY F65 (\*.cube)**”:

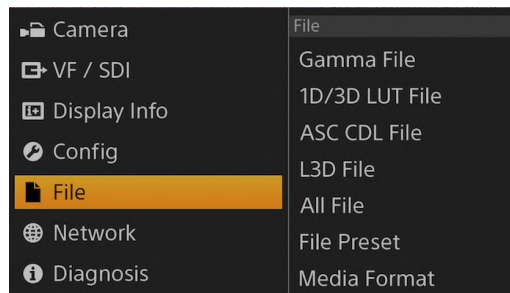


Exporting a 3D LUT compatible with F65.

Now you can **copy the 3D LUT to the SD card** to load it to the camera.

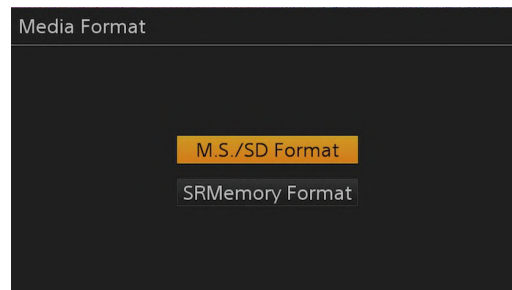
First format the SD card inside the camera:

1. Put the SD card in the SD card slot of the F65
2. Go to the **"File"** menu of the camera settings and select **"Media Format"**



"File" > "Media Format"

3. In the **"Media Format"** page select **"M.S./SD Format"**. This formats the card with the needed SONY folder structure:

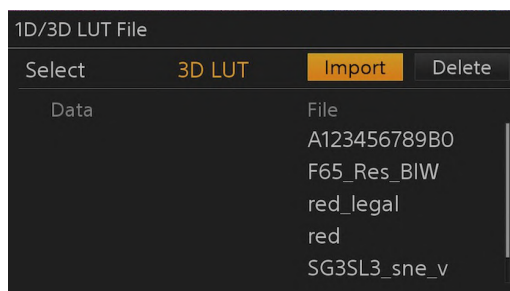


1.

Formatting the SD card

Put the SD card into your Mac. Inside the folder structure on the SD card copy the LUT you exported from Livegrade into the **"F65"** folder that should be located inside the **PRIVATE/SONY/PRO/CAMERA/** directory.

Insert the SD card into the camera again. You will be able to import the 3D LUT from the **"File" > "1DLUT/3DLUT File"** Menu:



Import the 3D LUT into the F65.

After a successful import the imported 3D LUT will be available from the 3D LUT dropdown of the **"SDI1 Look"** settings.



## Setting up FSI CM and DM Monitors

Livegrade comes with support for the Flanders Scientific FSI DM monitor series. With these features you can send looks as 3D LUT to be applied on the image in the monitor by using a network connection (LAN and WiFi depending your setup).

Additionally, it's possible to get frame grabs of the graded image shown in the FSI DM series monitor. This way you can include the graded frame grab to the [Look Reports](#).

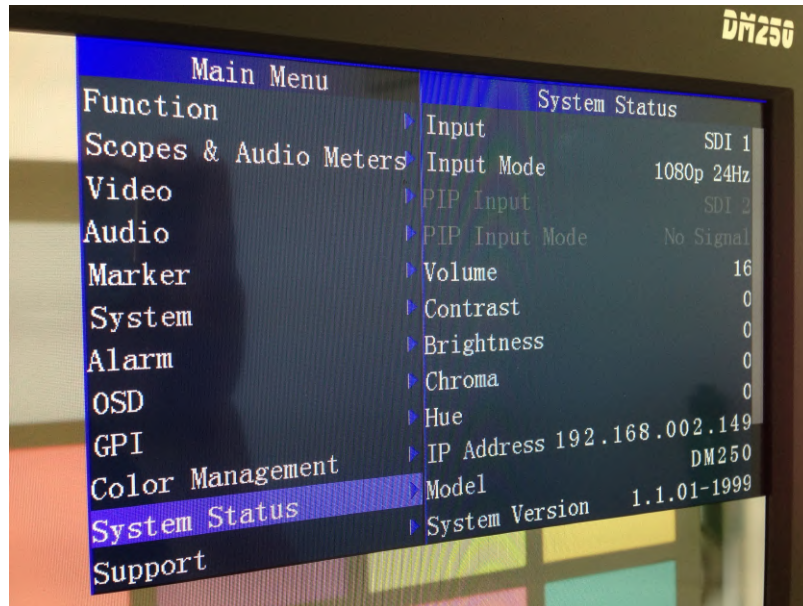
Furthermore, you use the FSI DM series monitor's image source as an image reference on the [Image Viewer](#), allowing the fine tuning of the looks.

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

This article is representatively tailored to the Flanders Scientific DM 250. A list of all the FSI DM monitors supported can be found in the Knowledge Base article [All Supported Devices in Livegrade](#).

### Adding the FSI DM Monitor as a Device

In order to receive look information from Livegrade the FSI DM monitor needs to have a working network connection with the Mac where Livegrade is running on. Once the network connection has been established, you can check the IP address of the monitor.



Finding the monitor's IP address

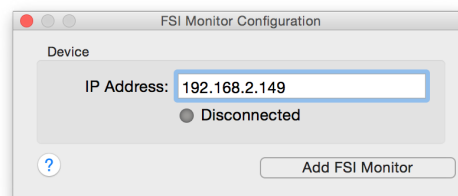
In order to find the monitor's IP address:

- Go to the Main Menu -> System Status -> IP address
- Note the IP address. We will need it later in Livegrade

### Setting up Livegrade

Once a correct connection is established, launch Livegrade and you can proceed to add the FSI DM monitor as a device. In order to do that, you can choose "Slots" in the main menu and then "Add Device". Alternatively, you can add the device through the [Device Manager](#).

After that, a wizard window opens:



Entering the IP address

- Enter the IP address of the FSI DM250 monitor
- Click on "Add FSI Monitor"

### Getting the Monitor's Image in Livegrade

In the main Livegrade window, the FSI DM250 is now displayed in the corresponding [grading slot](#) as a device, as well as the Monitor Image as an Image Source of the slot. You can open the [Image Viewer](#) to display the image by double clicking on the «Monitor Image» thumbnail in the slot.



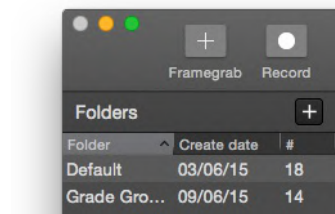
the FSI DM monitor's feed shown in the Image Viewer

In case that the live image has changed, you can update the image shown in Livegrade by clicking on the «Refresh Image» button. After that you will have the latest frame of the live image.

You can generally check if the FSI DM monitor is properly connected by going to the Device Manager. A green indicator shows a positive connection status. You can use the «Blink» button to send a red-green-blue screen flash sequence to check if the FSI DM monitor is ready for the use with Livegrade.

### How to store a Framegrab

You can take frame grabs from the video signal by clicking on the «Framegrab» button. This takes a frame from the video stream and saves it on the Clip Library with the associated grade for further reference.



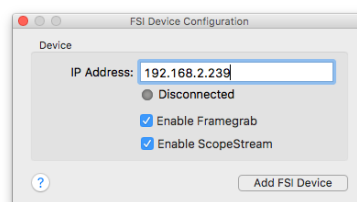
Record and grab frames

More about this setup in use can be seen in FSI's video [FSI DM250 OLED and Pomfort Live Grade Pro Integration](#) [via [Flanders Scientific, Inc.](#)].

### ScopeStream

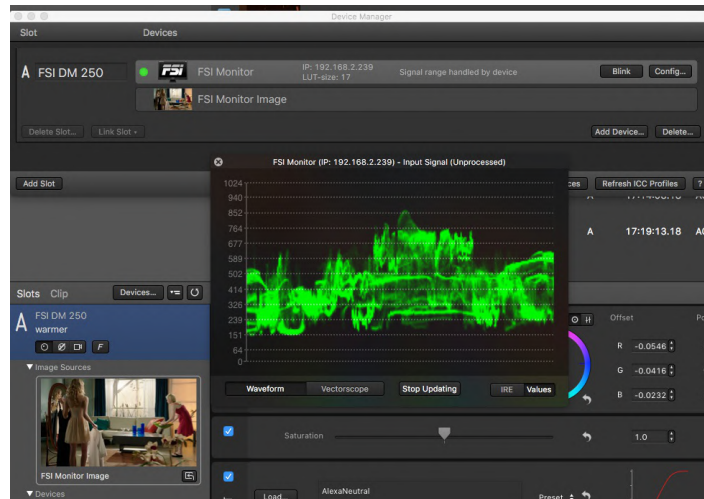
The FSI device provides a technology called «ScopeStream» that calculates scopes for the signal on the hardware device and provides it for display on your Mac.

When adding a FSI device (DM monitor series or BoxIO) you can choose to enable the ScopeStream with the according checkbox:



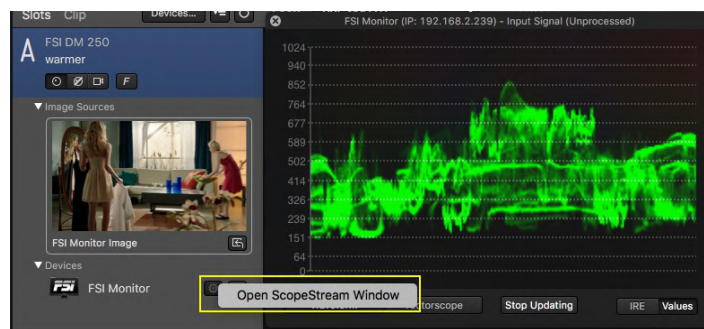
Enable ScopeStream when adding a FSI device.

Livegrade automatically opens the ScopeStream window:



The ScopeStream window showing a waveform

After closing the ScopeStream window it can be reopened again by clicking the gear button next to the device in the slot view:



Reopening the ScopeStream window.

**Please be aware** that the scopes are drawn from the unprocessed signal. Looks that are applied to the FSI device are not taken into account for the ScopeStream scopes.

## Setting up Canon Monitors

Livegrade comes with support for Canon broadcast monitors. You're able to send looks as 3D LUT to be applied on the monitor image by using a network connection (LAN or WiFi depending on your setup). Additionally Livegrade is capable of taking a framegrab from the monitor that can be saved to the Clip Library as a reference along with the look. In Dual Mode the monitors are capable of grading only one input.

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).

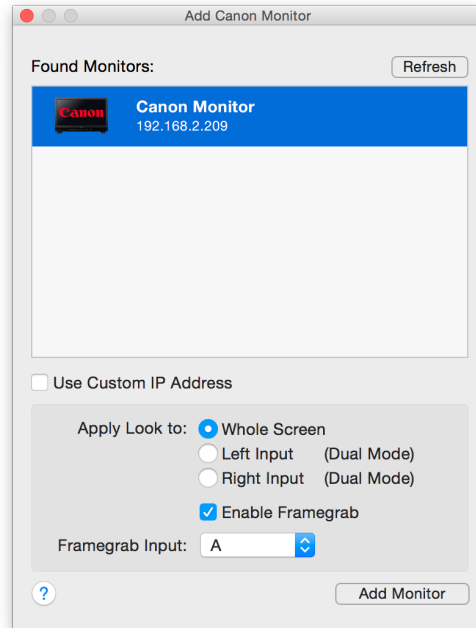
A list of all the Canon Monitors supported can be found in the Knowledge Base article [All Supported Devices in Livegrade](#).

### Adding the Canon Monitor as a Device

Based on the example of the Canon DP-V2410 it will be demonstrated how to add a compatible Canon monitor as a device. In order to receive look information from Livegrade, the Canon monitor needs to have a working network connection with the Mac where Livegrade is running on. Once a correct connection is established, launch Livegrade and you can proceed to add the Canon monitor as a device. In order to do that, you can choose "Slots" in the main menu and then "Add Device". Alternatively, you can add the device through the [Device Manager](#).

After that, a configuration window opens:





Add Canon Monitor

By hitting **“Refresh”** you can search for compatible monitors connected to your network. All monitors found will show up in the table view. Select the intended device and click **“Add Monitor”** to add the monitor to the selected slot.

#### Working with the Canon monitor in Livegrade

In the main Livegrade window, the Canon monitor is now displayed in the corresponding [grading slot](#) as a device.

After selecting the correct grading slot you will be able to adjust the look that is sent to the monitor by modifying it in the Main Window of Livegrade.

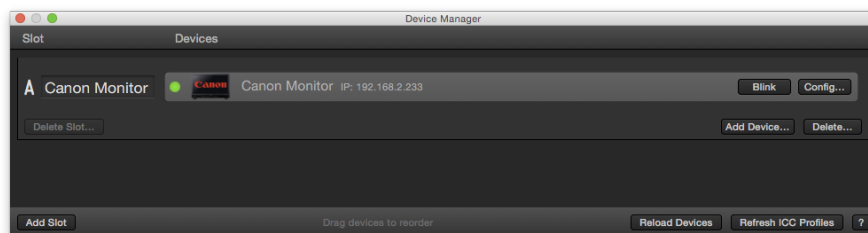
As the monitor permanently stores the last look that was sent, there is no need for the “Permanently Store Look on Device” functionality of Livegrade.

The Canon DP-V2410 and DP-V3010 monitors support a LUT size of 17 x 17 x 17.

#### Checking the Connection Status in the Device Manager

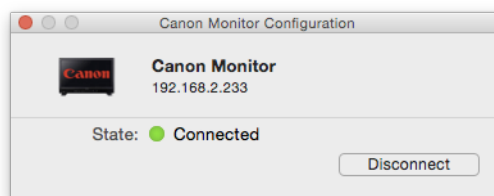
To learn more about the connection state of the Canon monitor you can open the Device Manager by clicking on the button “Devices” above the Grading Slots view.

If connected properly the Canon monitor will show up as a “Device” row in the Device Manager with a green indicator confirming a positive connection status :



The Device Manager shows a properly connected Canon DP-V2410.

By clicking on the button “Config...” an info window opens where you can see all information available on the connection of Livegrade with your monitor:



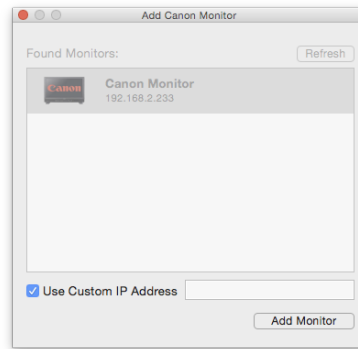
Canon monitor configuration window

By hitting “Disconnect” you can temporarily disconnect and reconnect the selected monitor.



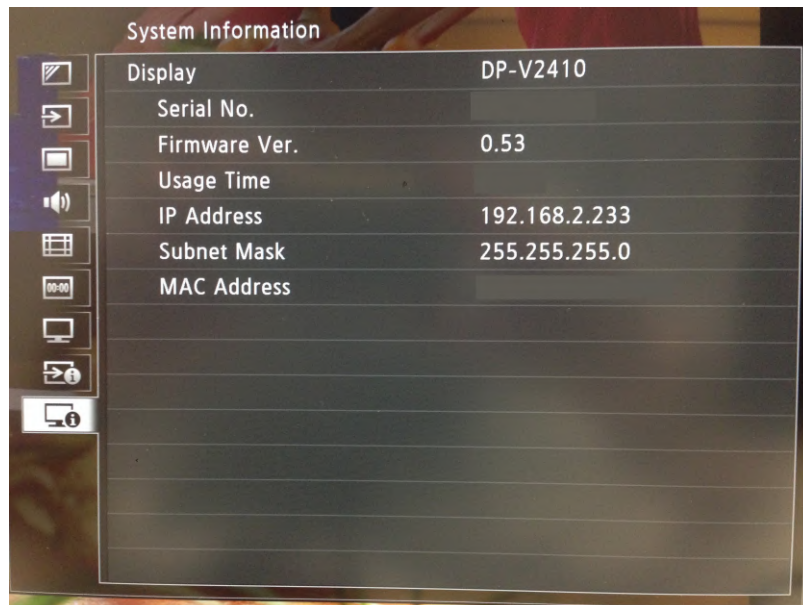
### Adding a Canon Monitor by Using a Custom IP Address

If you want to add devices by a certain IP address rather than letting Livegrade search for them in your network you can select the checkbox “Use Custom IP Address” to reveal a text field where you can enter the IP address of the chosen device:



Use a custom IP address to add a monitor

You can find out about the IP address of the monitor in the menu of the Canon monitor:



Finding the monitor's IP address

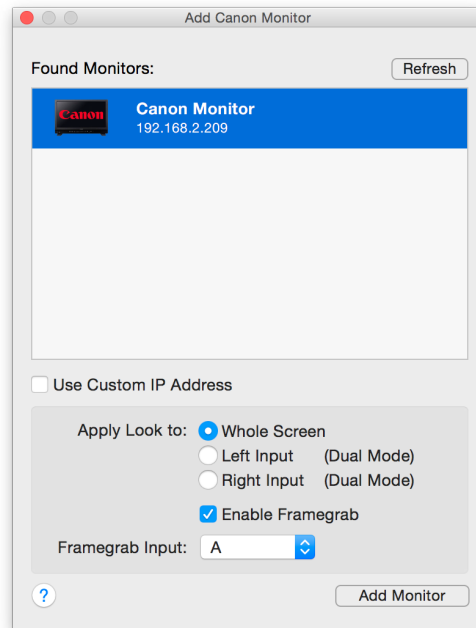
In order to find the monitor's IP address:

- Go to the Main Menu of the DP-V2410 by hitting the physical button “Menu” on the monitor
- Switch to the System Information tab by using the control knob of the monitor
- Note the IP address and insert it into the “Use Custom IP Address” text field in Livegrade

### Grading on a Specific Input in Dual Input Mode

When adding a Canon monitor to Livegrade you can select a certain input when the monitor is running in “Dual Mode”. Choose the according radio button to add the left or the right input as the desired target.





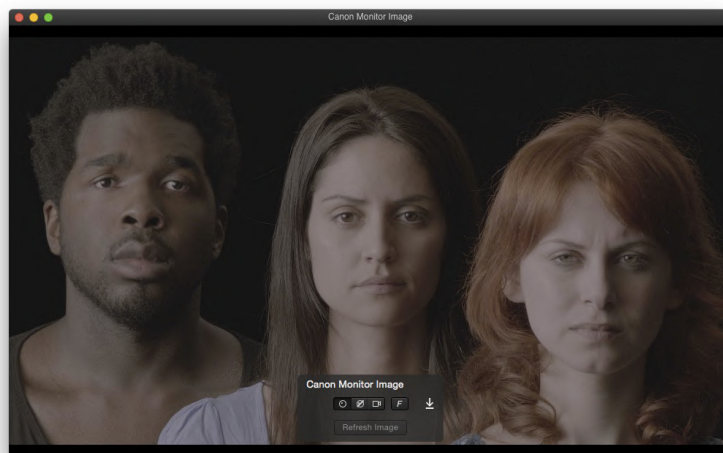
An additional panel when adding the monitor as a device lets you control the input selection in Dual Mode, the enablement of a framegrab and the framegrab input source.

### Enabling the Framegrab functionality

The supported Canon monitors are capable of taking a framegrab from the screen. To enable the framegrab functionality, please make sure to have the **“Enable Framegrab”** checkbox set when adding the Canon monitor as a device. The Framegrab Input dropdown lets you select the input the framegrab is taken from.

In the main Livegrade window, the Canon monitor is now displayed in the corresponding [grading slot](#) as a device, as well as the Canon monitor image as an Image Source of the slot.

You can open the [Image Viewer](#) to display the image by double clicking on the **“Canon Monitor Image”** thumbnail shown in the corresponding slot.



The Canon Monitor Image in the Image Viewer

In case that the live image has changed, you can update the image shown in Livegrade by clicking on the **“Refresh Image”** button. After that you will have the latest frame of the live image.

Select the monitor image and click the **“Framegrab”** button on the top right of the Livegrade task bar. This will send a look to the library that includes a reference still.

### Setting up QTake Interaction

Livegrade Studio can provide look metadata to QTake systems. Therefore the application treats the QTake system similar to a LUT device and sends updated look metadata to the QTake system whenever the user applies or manipulates a look in Livegrade.

QTake supports one ASC-CDL and one 3D LUT (in that order or operation). So Livegrade will send ASC-CDL as well as LUT information to QTake (e.g. when being used in the CDL and LUT grading mode). Multiple CDL nodes from Livegrade will be merged and provided as one single CDL. Non-CDL nodes will be merged and provided as one 3D LUT. In QTake the look metadata shows up in a “LOOK” effect. For information about setup and use in QTake, please see the QTake manual.

For general information about setting up Livegrade with HD-SDI devices please refer to the article [HD-SDI Setup for Livegrade](#).



### Adding QTake as a Device

In order to receive look information from Livegrade Studio, the computers running Livegrade and QTake need to have a working network connection.

Once network is set up, launch Livegrade and you can proceed to add the QTake system as a device in device manager. In order to do that, you can choose “Slots” in the main menu and then “Add Device”. Alternatively, you can add the device through the [Device Manager](#).

After that, a configuration window opens. By hitting “Refresh” you can search for QTake systems connected to your network. All QTake systems found will show up in the table view. Select the intended device and click “Add Device” to add the box to the selected slot.

You can also specify a custom IP address.

### Setup in QTake

Here are a few starting points for the setup in the QTake system:

- Make sure “QTAKE LUT server” is enabled in the QTake preferences.

Once a connection is made:

- Load a “Look VFX” filter with the right channel.
- Assign the “QTAKE LUT server” to the grading controls.

Please refer to the QTake documentation for further details.

### Working with the QTake connection

In the main window, the connected QTake system is now displayed in the corresponding grading slot as a device icon.

After selecting the correct grading slot you will be able to adjust the look that is sent to the QTake system.

### Checking Connection Status in the Device Manager

To learn more about the connection state of the QTake system, you can open the Device Manager by clicking on “Devices” above the Grading Slots view.

If connected properly the QTake system will show up as a “Device” row in the Device Manager with a green indicator confirming a positive connection status.

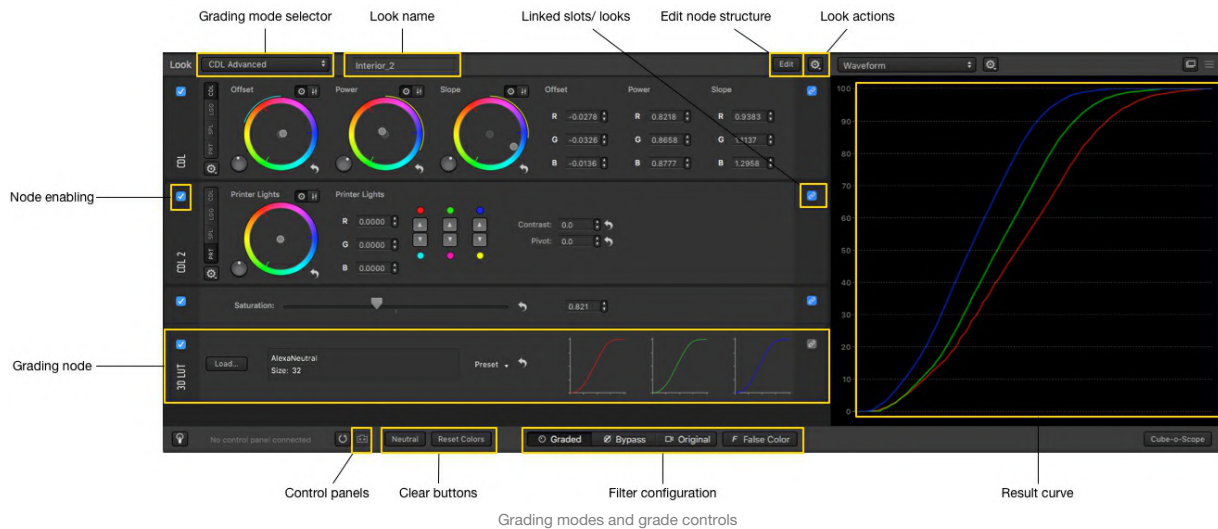
## Color Grading Features

### Color Controls and Grading Modes

Color correcting live signals and reference media is done in the grade controls area of the main window.

Grade controls are grouped in grading nodes, a grading node can be understood as one image filter with one or more parameters. A certain set of grading nodes belong to a grading mode. A grading mode is a color pipeline for a certain purpose or tailored to a certain hardware device (e.g. "CDL and LUT", or "ACES CDL").

#### Grade controls



The grade controls consist of the following elements:

- **Grading node:** Grouping element containing the actual grade controls
- **Node enabling:** Enable or disable the effect of a grading node
- **Look name:** The name of the currently applied look
- **Grading mode selector:** Switch between the different grading modes available on the drop down menu
- **Edit node structure:** Some grading nodes can have variable grading nodes, you can add and reorder grading nodes in the edit mode.
- **Look actions:** The look action menu contains actions for interacting with looks stored in the shot library.
- **Control panels:** The control panels button and indicator shows the attached grading panel. You can disable / lock the attached grading panel to prevent unwanted changes.
- **Clear buttons:** Clear either all grading nodes ("Neutral") or just the creative color manipulation nodes (e.g. CDL node) and not LUTs or tone mapping curves (Reset Colors)
- **Filter configuration:** Temporarily bypass creative color manipulation nodes, or show the original signal with no filtering at all, or enable the false color mode.
- **Result curve:** The video scopes shows the resulting curves for all enabled grading nodes in the three RGB channels.

#### Copy And Paste Looks Between Slots

You can copy a look from a slot to another slot. Choose from "Grade" in the main menu:

- "Copy Look from Current Slot" to copy a look
- "Paste Look to Current Slot" to paste a look
- "Paste Look to All Slots" to paste a look to all slots

Pasting a look to a slot replaces any existing grades.

Note: Looks can only be pasted, if the grading mode of the two slots is the same. When the grading mode is different the user will be asked, if the grading mode should be changed before the copied look is being applied.

#### Grading Modes

The application supports different grading modes designed for specific camera setups and workflow environments.

The node-based design allows you to disable and reorder individual filter nodes to have greater grading freedom. You can disable a certain node by unchecking the blue check box. Have in mind that the processing order is from «top to bottom» when reordering the nodes.

Each mode allows different levels of grade customization, as the compatibility of the grades down the workflow creates some restrictions on how the color information has to be processed. For example, the camera compatible grading modes can have the nodes locked in a certain position to ensure the compatibility of the grade when being uploaded into the camera.

The available grading modes are:

- **CDL and LUT:** More information in the article [Using the CDL Grade mode.](#)
- **CDL Advanced:** Allows you to add and reorder multiple nodes on advanced workflows.
- **ACES CDL:** A mode adapted to the ACES standard. More information in the article [Using the ACES grading mode.](#)
- **ACES CDL Advanced:** A mode adapted to the ACES standard. Allows you to add and reorder multiple nodes on advanced workflows.



- **Alexa Looks (Deprecated):** This mode is designed to create .xml ALEXA Looks compatible with ARRI ALEXA cameras. More information in the article [Using the ALEXA Looks grading mode](#).
- **Amira Compatible:** This mode is designed to create .aml AMIRA Looks compatible with ARRI AMIRA cameras.
- **ARRI CAP Compatible:** This mode is designed to interact with an ARRI camera via the CAP protocol. See [Setting up ARRI Cameras](#) for more information.
- **Varicam Compatible:** This mode is designed to create 3D LUTs and looks compatible with Panasonic Varicam cameras. See [Setting up Panasonic Varicam](#) for more information.
- **Freestyle:** This grading mode has been created to allow complete grading freedom. For this reason, there are some limitations on the available export formats for looks created on this mode.
- **Freestyle ACES:** This grading mode has been created to allow complete grading freedom for ACES based workflows.
- **STUDIO**  
**FilmLight BLG:** This grading mode allows to grade natively in FilmLight's proprietary color pipeline and allows creating looks in the BLG format for round-tripping with FilmLight applications. See [Using the FilmLight BLG Grading Mode](#) for more information.
- **STUDIO**  
**Colorfront Film:** This mode is designed to interact with an AJA FS-HDR device in the Colorfront Film mode. See [Using the Colorfront Film Grading Mode](#) for more information.

## Node Editing

Some grading modes allow you to reorder, add and delete filter nodes. To start customizing the grading nodes, you have to click on «Edit».

Once you are in the «Edit» mode, it is possible to reorder the nodes using drag and drop. You can remove a node by clicking on the «x» button. The «+» button allows you to add new filter nodes to the grading mode.

In order to maximize the compatibility of the grades along the production workflow, as well as the ability to export the grades in a certain format, there are some limitations on how you can reorder the grading nodes. The Freestyle modes do not have these limitations, but you can only export those looks as 3D LUTs and not as CDL files. These are the limitations:

	Nodes	Reordering	Default Nodes	Export Options
<b>CDL and LUT</b>	(not editable) 1CDL, 1Sat, 1LUT3D	(not editable), CDL + Sat + LUT3D	CDL + Sat + LUT3D	ASC-CDL, 3D LUT
<b>CDL Advanced</b>	xCDL, xSat, xLUT1D, xLUT3D, x2ndary	(not editable), CDL + Sat + LUT3D	CDL + CDL + Sat + LUT3D	ASC-CDL, 3D LUT
<b>ACES CDL</b>	(not editable) 1IDT, 1CDL, 1Sat, 1ODT	(no edit) IDT + CDL + Sat + ODT		ASC-CDL, 3D LUT, AMF
<b>ACES CDL Advanced</b>	1IDT, xCDL, xSat, xLUT1D, xLUT3D, x2ndary, 1ODT	xCDL + xSat (All CDL nodes together, all saturation nodes together), IDT before ODT,		ASC-CDL, 3D LUT
<b>Alexa Look (deprecated)</b>	Alexa Look has fixed nodes	Alexa Look has fixed nodes		3D LUT, Alexa Look (deprecated)
<b>Amira Compatible</b>	xCDL, xSat, xLUT1D, xLUT3D, x2ndary, xLUT3D	xCDL + xSat (All CDL nodes together, all saturation nodes together), nothing before xCDL+xSat		ASC-CDL, 3D LUT, ALF-2
<b>ARRI CAP Compatible</b>	xCDL, xSat, xLUT1D, xLUT3D, x2ndary, xLUT3D	xCDL + xSat (All CDL nodes together, all saturation nodes together), nothing before xCDL+xSat		ASC-CDL, 3D LUT, ALF-2
<b>Varicam Compatible</b>	xCDL, xSat, xLUT1D, xLUT3D, x2ndary, xLUT3D	xCDL + xSat (All CDL nodes together, all saturation nodes together), nothing before xCDL+xSat	CDL, Sat, LUT3D	ASC-CDL, 3D LUT
<b>FilmLight BLG</b>	1In, xCDL, xSat, 1Grade, 1Out	xCDL + xSat, before and/or after Grade Stack		BLG, 3D LUT
<b>Colorfront Film</b>	1CFEIn, xCDL, xSat, 1CFELook, 1CFEOut			CFE
<b>Freestyle</b>	xCDL, xSat, xLUT1D, xLUT3D, x2ndary			3D LUT
<b>ACES Freestyle</b>	1IDT/1ODT, xCDL, xSat, xLUT1D, xLUT3D, x2ndary	IDT before ODT		3D LUT

\* xCDL, xSat, where «x» means multiple nodes.

For more details regarding export options see also [Exporting Look Metadata](#).

## Available Grading Nodes

### CDL Node

The CDL node holds controls for the slope, offset, and power (SOP) values of the ASC-CDL formula.

The CDL node has several interaction types with different controls for different interaction styles. The interaction types of one CDL node all work on the same set of CDL values, so changing controls in one interaction type might change control positions also in the other interaction types.

The available interaction types:

### CDL interaction type:



CDL node – CDL interaction type

The CDL interaction type allows to manipulate the nine values of the SOP triples (for each color channel R, G, B) of the CDL. The values in the nine text fields are the same values as in an exported ASC-CDL file.

The color wheels have a global control (in the bottom left of each wheel), an indicator around the ring shows if the global control is modified. Changing the wheel control doesn't change the global luma of that control, e.g. the channels are balanced and the global control doesn't change by changing the wheel position.

### Lift, Gamma, Gain (LGG) interaction type:



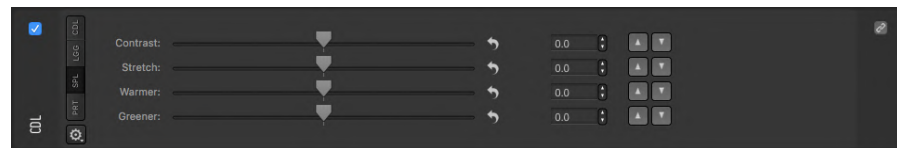
CDL node – LGG interaction type

The LGG interaction type allows to manipulate lift, gamma, and gain (LGG) values as known from other grading systems. These control values are mapped to CDL values in the background. The nine text fields show lift, gamma, and gain values (not ASC-CDL values) – switch back to the CDL interaction type to see the CDL values of a certain setting of LGG values.

Note: Although ASC-CDL doesn't specify limits of its values, some 3rd party software products limit values in their ASC-CDL grade controls. An indicator ("i") on the very right of the grade UI Livegrade indicates that values are out of the range that is commonly accepted.

The color wheels have a global control (in the bottom left of each wheel), an indicator around the ring shows if the global control is modified. Changing the wheel control doesn't change the global luma of that control, e.g. the channels are balanced and the global control doesn't change by changing the wheel position.

### Simplified (SPL) interaction type:

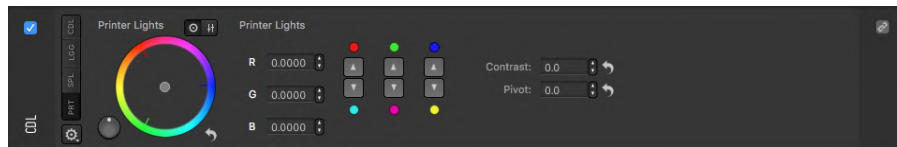


CDL node – SPL interaction type

The SPL interaction type allows to manipulate the values of the CDL filter with the controls Contrast, Stretch, Warmer and Greener.

Increasing the contrast control makes the resulting curve steeper by clipping black and white. Increasing the stretch control increases contrast in the highlights, while decreasing stretch increases contrast in the shadows. Increasing the warmer control gives the image a warmer appearance by giving the shadows a warmer tint while the whites stay unmodified. Increasing the greener control gives the image a greener appearance by giving the shadows a greener tint while the whites stay unmodified.

### Printer Lights (PRT) interaction type:



CDL node – PRT interaction type

The PRT interaction type allows to simulate a color correction based on printer lights. Printer lights can be approximated by an offset in camera log encodings. Additional buttons for each color channel allow for changes in fixed steps.

ASC-CDL files can be directly loaded and saved to/from the CDL node (supported format: \*.cdl). Click the gear button on the left side of the CDL node and select if you want to load or save a CDL.

Please be aware that the ASC-CDL specification always includes a saturation value. When one saturation node is present CDLs will be loaded and saved from/to the present saturation node. When multiple CDL and saturation nodes are present you will be pointed choose the saturation node you want to load the saturation to (indicators A,B,C etc.).

The size of the color wheels can be adjusted in the Preferences menu. Just choose a size that fits your display resolution.

The CDL node can be controlled by an external hardware grading panel. To have more information on how to use it, please check the following articles:

- [Tangent Element setup](#)
- [Tangent Wave setup](#)
- [Avid Artist Color setup](#)



### Saturation Node

Just drag the slider to either side to increase or decrease the saturation on your look.



figure 7: Saturation node

### 3D LUT Node

The 3D LUT node is designed to load your own 3D LUTs by pressing the «Load...» button. Alternatively, you can also use one of the available preset 3D LUTs to convert the image to a Rec.709 color space.



figure 8: 3D LUT node

Supported formats for loading into the 3D LUT node are:

- Adobe Speedgrade (.cube; size 32,33, 65)
- Assimilate Scratch (.3dl; size 32)
- Panasonic Varicam (.vlt)
- Autodesk Lustre (.lut)
- Truelight (.cub)

### 1D LUT Node

The 1D LUT lets you load your own 1D LUT file. Click the **“Load...”** button and select the 1D LUT you want to load to the node.



figure 9: 1D LUT Node

In contrast to the curve node the LUT in the 1D LUT node can not be edited afterwards.

Supported formats are:

- \*.txt
  - channels: 3
  - range: 0.0 ... 1023.0 (float)
  - header: “R G B – HDLINK GAMMA TABLE”
  - entries: 1024
  - row example: “221.37 221.37 221.37”
- \*.data
  - channels: 4
  - range: 0 ... 16383 (integer)
  - entries: 16384
  - row example: 15040,15040,15040,15040
- \*.lut
  - channels: 3 (4 columns with leading index (0...65535, R, G, B))
  - range: 0 ... 65535 (integer)
  - header: “LUT16”
  - entries: 65536
  - row example: 45490 58366 58366 58366

### RGB Curves Node



figure 10: RGB Curves node

The RGB Curves node lets you apply precise curve adjustments to master RGB values or to individual luma, red, green, blue and/or custom color channels. Click on **“Edit”** to open the RGB Curves Editor window, which allows you to precisely grade your footage:

- There are two modes to choose from:
  - “RGB-Based” adjusts the selected color channel including its luma and saturation values, while the “Master” curve is a ganged RGB curve influencing the red, green and blue channel at the same time
  - “Luma-Based” adjusts the colors red, green, blue and/or the custom set color without influencing their luma and saturation values, while the “Luma” curve can be adjusted independently
- In the “Custom” color curve you can pick a custom target hue, for adjusting a certain color in your image precisely
- To add a curve point just click on a curve, and in order to modify it’s value just drag and drop. You can adjust curve points using the left/right and up/down arrow keys as well.
- To remove a point, select the point and press Backspace.
- When you move your mouse over the curve editor, the graph shows you the value of the exact point where it is. When the mouse pointer is not moving or it is outside of the curve editor window the values of the currently selected curve point are being displayed.



- There is a color picker tool, that lets you pick a specific target color value in the viewer window. Picking a color automatically creates a curve point in the graph of the current tab. The color picker tool can also be used to pick the target hue of the “Custom” color curve.

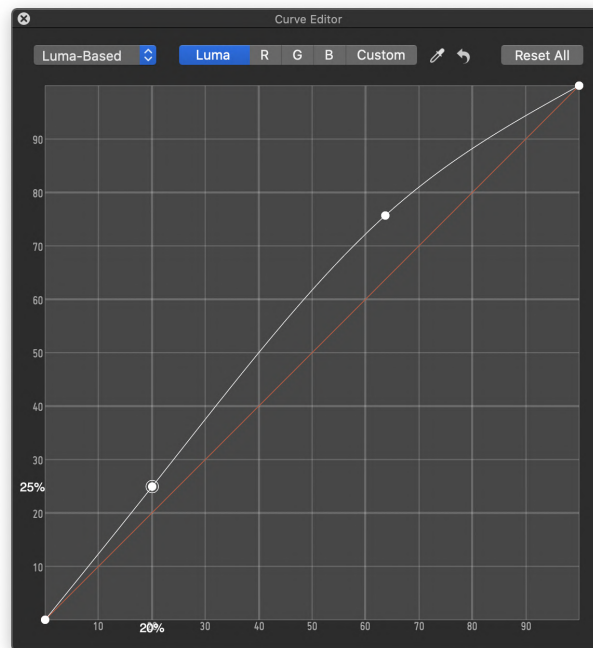


figure 11: RGB Curve Editor

### Hue-Sat-Lum Curves node

The Hue-Sat-Lum (HSL) Curves node lets you apply precise secondary curve adjustments based on hue vs. hue, hue vs. saturation, hue vs. luma, luma vs. saturation and saturation vs. saturation values. The associated tabs in the HSL Curves node allow you to precisely grade your footage:

- The graphs on the x-axis in the individual mode windows (Hue vs. Hue, Hue vs. Sat, Hue vs. Lum, Lum vs. Sat, Sat vs. Sat) represent the target values of the associated mode. Added curve points can be dragged to change the values accordingly along x and y-axis.
- To add a curve point just click on a curve, and in order to modify its value just drag and drop. You can adjust curve points using the left/right and up/down arrow keys as well.
- To remove a point, select the point and press Backspace.
- When you move your mouse over the curve window, the graph shows you the value of the exact point where it is. When the mouse pointer is not moving or it is outside of the curve editor window the values of the currently selected curve point are being displayed.
- There is a color picker tool, that lets you pick a specific target color range in the viewer window. Picking a color automatically creates curve points in the graph of the current tab.

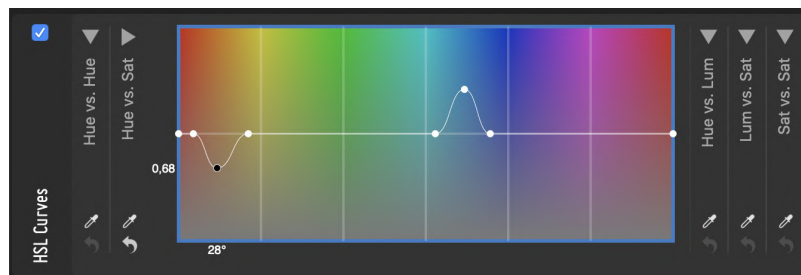
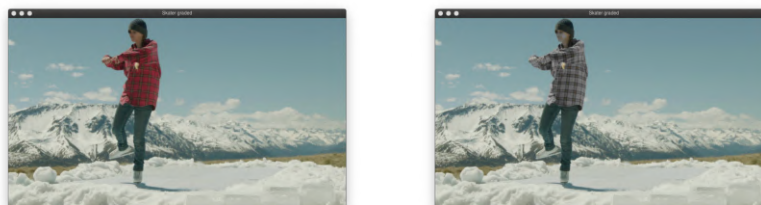


figure 12: HSL Curves nodes

### HHS Node

The HHS node –Hue to Hue and Saturation– is a new kind of node that allows you to map a certain hue on the image and replace it by another color with different hue and saturation. Here is an example where the red has been desaturated, but the other colors remain the same:



The HHS editor allows you to drag and drop the hue circles to another location on the color space to replace the original color with another one.



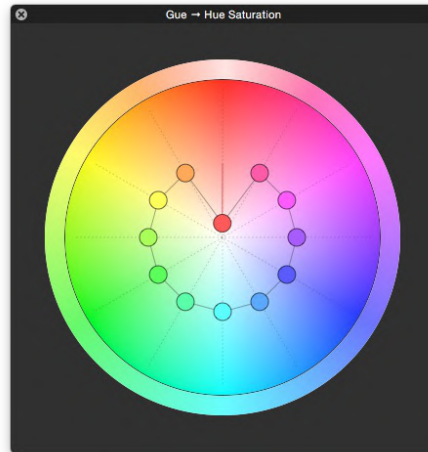


figure 13: HHS editor

### Knee Curve Node

The Knee Curve node lets you create simple technical curve adjustments with three parameters for “Black (toe)” and “White (knee)”:

- **Limit:** Increases/decreases the limit for white or black on the curve’s y-axis
- **Offset:** Increases/decreases the offset between limit and knee or toe curve point
- **Threshold:** Increases/decreases the x + y coordinates of the knee or toe curve point

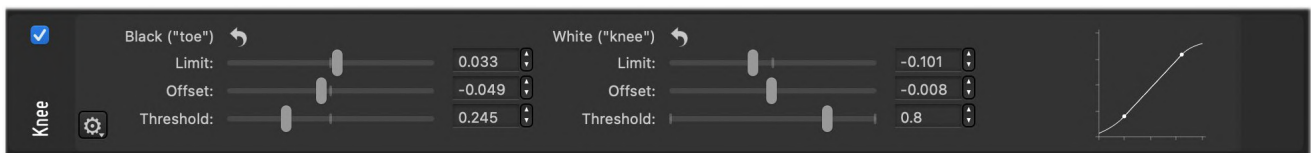


figure 14: Knee Curve Node

You can save your curve correction as a 1D LUT (.cube) file (or the inverse 1D LUT) for loading the adjustment in other color grading systems.

### Amount Slider

CDL nodes, RGB curve nodes, HSL curve nodes and HHS nodes have an amount slider which allows to fine-tune the effect of the associated grading node. There is an intensity level indicator on the right hand side of the node. When clicking on it, you can adjust the intensity in a popover window, either with a slider or by typing in a value from 0-100%.

Note: The initially set values in CDL nodes remain the same when changing the intensity. When you create a shot, the values of the grade are re-calculated with the applied intensity amount and saved as new resulting values in the shot table.

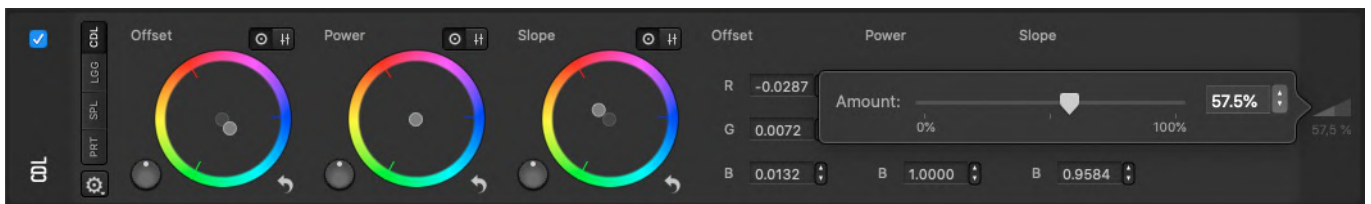


figure 15: CDL node with amount slider

### Grading modes with custom color pipelines

The ACES grading modes have special grading nodes representing the specific transforms of the ACES pipeline, e.g. IDT and ODTs. You can learn more about these grading modes in the article [Using the ACES CDL Grading Mode](#).

The Colorfront Film grading mode that’s used with AJA FS-HDR (Studio only) has specific transforms, e.g. CFE In and CFE Look. You can learn more about these grading modes in the article [Using the Colorfront Film Grading Mode](#).

### Linked Looks

You may have noticed that on the right side of each node in the grading panel a chain symbol appeared. It indicates the synchronization state of the node:

- **Blue chain button:** Node is **synced** between linked slot (*indicated with a red frame*)
- **Grey chain button:** Node is **unsynced** between linked slots and therefore controlled independently (*indicated with a grey frame*)

It’s possible to switch the linked state of a node by clicking on the chain buttons. For more detailed information about the node synchronization, please check the article [Linked Looks](#).

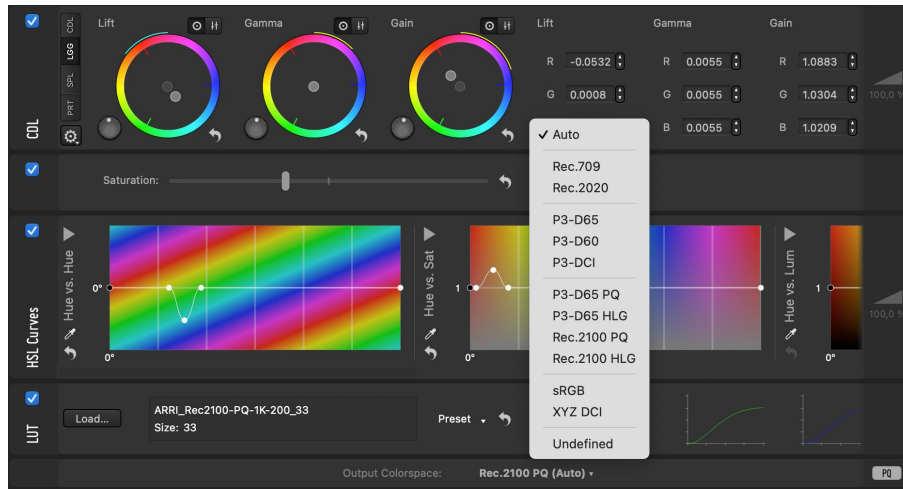
### Output Colorspaces

Livegrade lets you manage looks with an output colorspace attribute for streamlined handling of looks and video signals within multi-monitoring setups and advanced color pipelines.



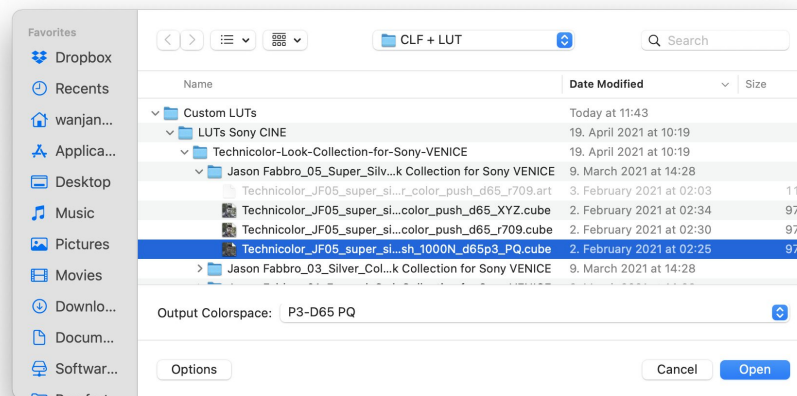
## Assigning an Output Colorspace

You can assign the desired output colorspace in the output colorspace node at the bottom of the grade editor. Livegrade automatically detects the correct output colorspace of built-in LUT presets, ACES ODTs, FilmLight Viewing Colorspaces or Colorfront CFE Out transforms.



Output colorspace node in grade editor

For custom LUTs you can assign the correct output colorspace on loading. Once the output colorspace for a custom LUT is defined Livegrade handles the output colorspace for your custom LUT automatically.



Choosing output colorspace when loading custom LUT

On look export Livegrade adds the output colorspace attribute as a LUT comment to all 3D LUT formats so that other Livegrade systems auto-detect the appropriate output colorspace of your custom LUT on import.

## Handling shots using the Output Colorspace attribute

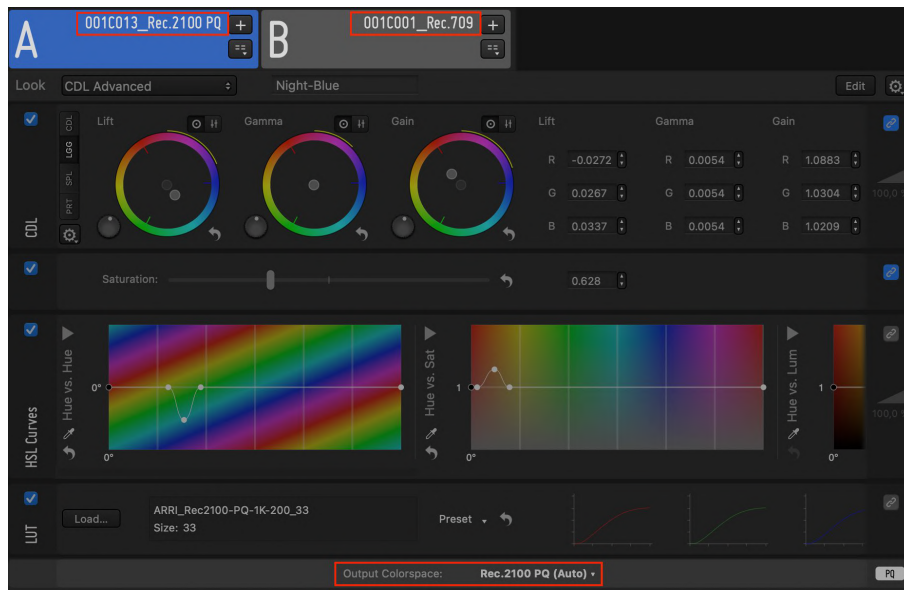
A look's output colorspace is stored as shot attribute in the shot library so that you can

- view and sort the output colorspace column in the shots table,
- inspect a shot's output colorspace in the info tab,
- or include it in reports.

Furthermore, you can filter your shot library using the output colorspace smart group (e.g., when applying looks for HDR/SDR dual monitoring setups).

## Output Colorspace Smart Groups

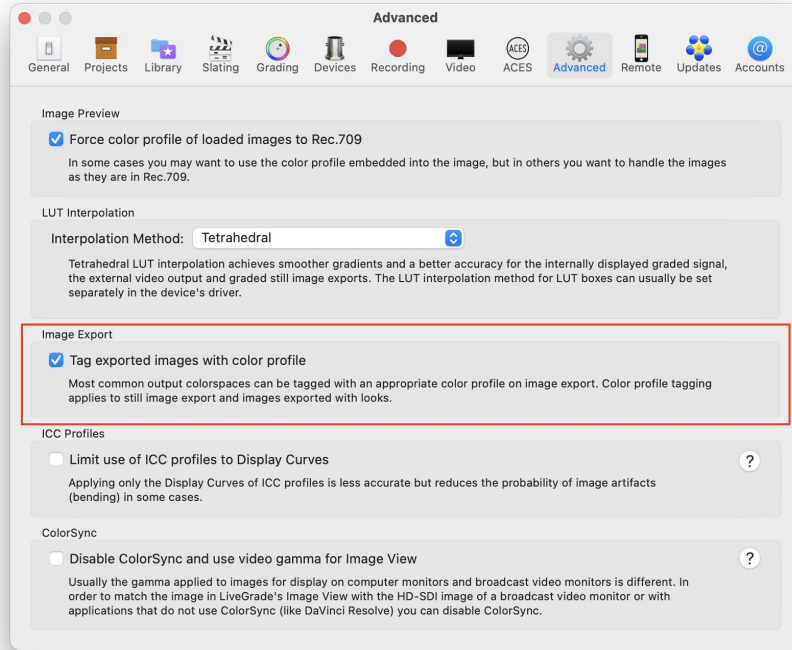
For further communicating the output colorspace attribute, you can use the output colorspace token within the wildcards for the Clip Identifier, in the file naming scheme for saving shots and for the still image export.



Output colorspace token used in clip identifier wildcards

## Tag Still Images with a Color Profile depending on Output Colorspace

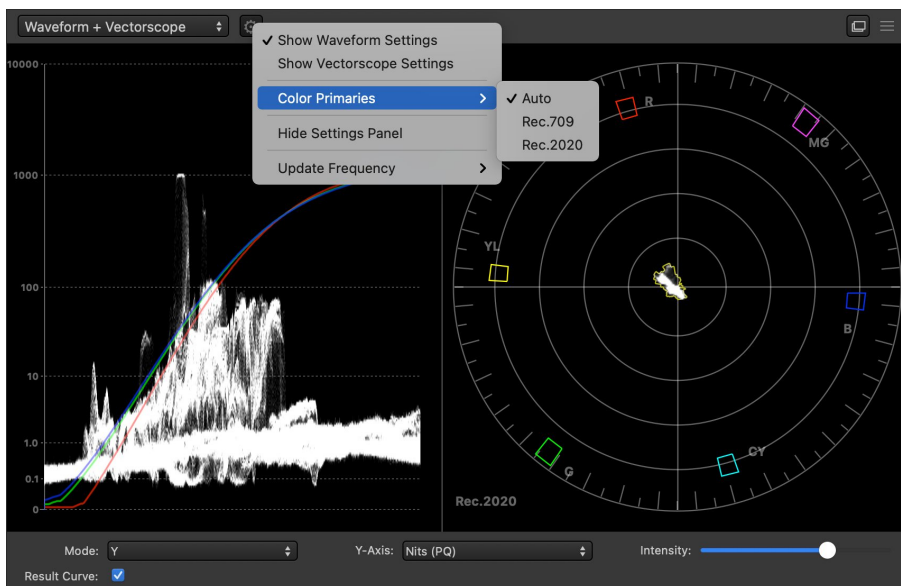
You can enable the color profile tagging for still images within the “Advanced” preferences. Livegrade then tags still images with an appropriate color profile for most common output colorspace (Rec.709/Rec.2020/Rec.2100 PQ/Rec.2100 HLG/sRGB) on export. The image tagging applies to still images exported from the viewer window as well as when saving shots from the shot library.



Enable color profile tagging for most common output colorspace in advanced preferences

### Auto-configure Video Scopes depending on Output Colorspace

The correct color primaries value for video scopes can be detected automatically depending on the current look's output colorspace so that the video scopes are always configured appropriately for the currently selected slot (e.g., when working with HDR/SDR dual monitoring setups).



Auto-configure video scopes depending current output colorspace

### Collect Shot and Look Information

The shot library can stores shot entries in order to maintain a complete shooting history.

Each shot can include a broad range of metadata fields, e.g.






- clip name,
- camera identification,
- look metadata,
- slate information,
- exposure information,
- lens information,
- comments, and
- ratings, flags.

Note: You can customize the behavior for editing the slate info fields in the “Slating” preferences, see the article [Application Preferences](#) for further information.

Shot entries can also have media assets attached. So a shot can be stored as:

- **Still:** Still images stored as captured (may be “log”), with look metadata
- **Clip:** Movie recordings as captured (may be “log”), with look metadata

The icon in the “**Type**” column will help you differentiate them:

-  Shoot with look (no media asset available)
-  Still (captured or imported frame in full resolution available)
-  Clip (captured clip in full resolution available)
-  Pre-graded still (look has already been applied to still before capturing (e.g. by a LUT box)
-  Pre-graded clip (look has already been applied to still before capturing (e.g. by a LUT box)

Additionally every Type can have a chain icon overlay that symbolizes a linked look (e.g. a still with a linked look):

-  Linked Look Still

Read more about linked looks in the article [Linked Looks](#).

### Adding items to the shot library

There are different ways to add an item to the shot library. The create buttons behave differently depending on the current mode:

- **Create:** Create a new shot with metadata and capture a frame grab
- **Record All:** Start recording a new clip

See the article HD-SDI [Signal Recording and Frame Grabs](#) for more information about capturing stills and clips.

Additionally, you can import images from .JPEG, .TIFF and .DPX files. Still frames can also be imported from .MOV files. This way you can use them to create looks on your computer display or as a reference to compare against the live video signal.

To import an image into the Library, select “Import Image / Movie File...” or drag a file onto the application’s dock icon.

It is possible to enable/disable the forcing of the color profile to Rec.709 of the loaded images. This setting tells the application not to use the embedded color profile of the imported media asset and use Rec.709 instead. You can modify this setting in Preferences>Advanced.

### Adding metadata to a new shot

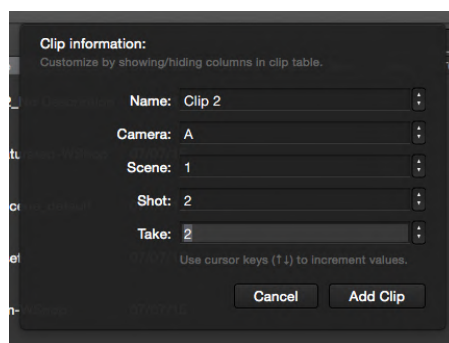
When creating a new shot (with the “Create Shot” menu entry in the Library menu, or with one of the “+” buttons in the slot UI), the global metadata (e.g. for slate information), and metadata from each slot (e.g. technical metadata) is used for the new shot.

In case the metadata table in the slot UI is currently not shown, a quick entry panel is shown in order to review metadata before storing it in the shot library.

You can

- always show the quick entry panel by choosing “Create Shot With Entering Information...”, or
- never show the quick entry panel by choosing “Create Shot Without Entering Information”

in the “Library” menu.



Metadata quick entry panel

### Review a recording in the library slot and create new shots with stills

You can review a movie recording by loading it into the library slot. You can playback or scrub through the clip to find significant frames that are valuable to keep as reference. With the library menu item “Create Shot With Still at Playhead Position” or an associated controller action you can create a new standalone shot with a still taken at the playhead’s position. The new shot will inherit the metadata from the original movie recording.

**Note:** Similarly, you can duplicate a shot with a recording as a new shot with a still image taken at the thumbnail frame’s position directly in the shot library.



## Working with Look Presets

Presets are files that contain specific look settings that you can apply to an image. You create, store, and modify your custom looks. Looks can be only stored directly in Bins, and Bins can be grouped in Folders.

### The Look Presets library

All actions with Look Presets are grouped in the Look Presets panel in the upper right of the Livegrade UI.

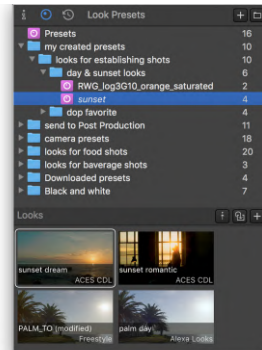


Figure 1: Look Presets

The Look Preset panel's toolbar contains controls to switch between **Information Tab**, **Look Presets Tab**, and **History Tab**. The “plus” icon creates a new Bin and the “folder” icon creates a new Folder. A “**Presets**” bin is already created for each project.

When you right click a bin or folder you have the options to add new folders, bins, and delete items in the Look Preset library and set the Default Bin. You can also access same actions from the drop down menu on the main menu toolbar.

“**⌘B**” the default shortcut assigned to create a “**New Look Preset Bin**”.

### The Default Bin

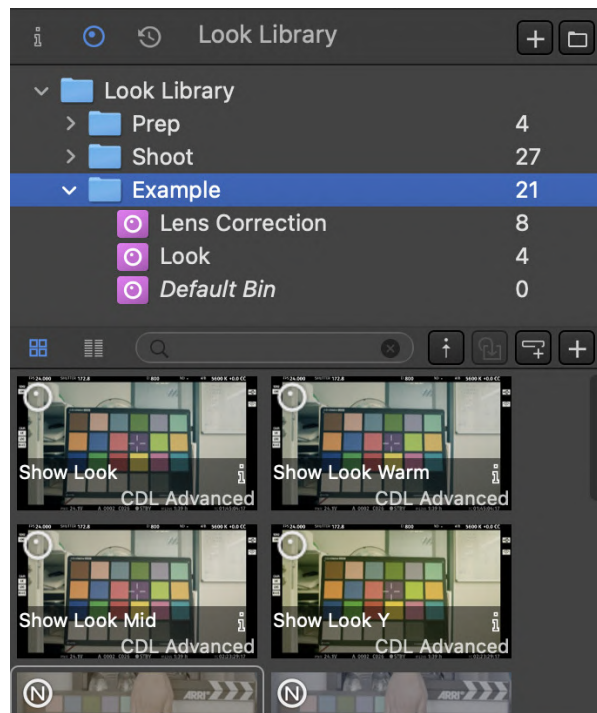
When you collect a set of bins in different sub folders/folders in order to categorise them you have to choose which bin should be act as the “**Default Bin**”. This helps you to target where to add a new look in a selected folder. If you skipped this decision, the moment you add a new look in **Looks** panel, a “**Default Bin**” will be created automatically within selected folder on the **Look Presets** panel. A “**Default Bin**” is distinguished from other bins by his name converted in *italic*.

### The Look Presets

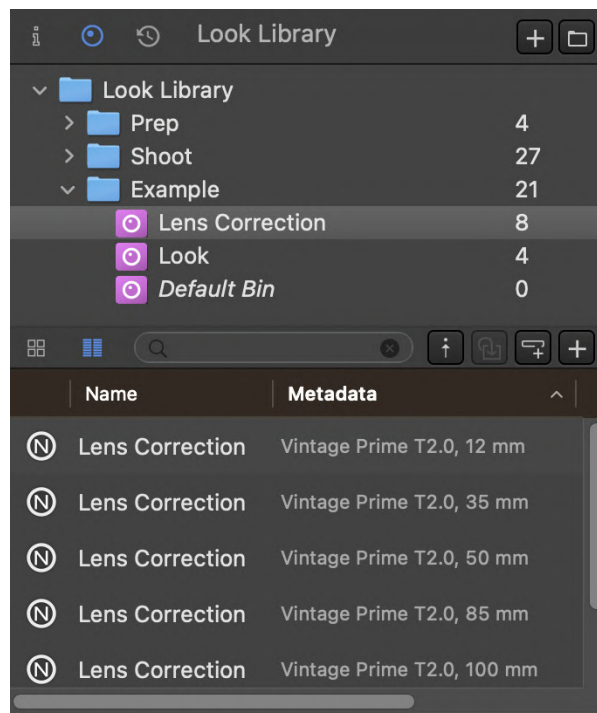
Below the **Look Presets** library, the **Look** panel is ready to collect your new looks with thumbnails and quick informations like name of the created look and Look configuration source, your colour management starting point. A Look Preset has a thumbnail, a name, and the grading mode it has been created in.

### Inspecting Presets in the Look Library

- **Collection view.** In the Look Library's collection view look and node presets are indicated by a little icon top-left corner. You can click on the little “i” in the bottom left of a preset to display information about the presets.
- **List view.** To see all your presets listed including metadata, switch to the list view.



Presets Collection View



Presets List View

### How to create a new Look Preset

There are several ways of creating Look Preset.

- Choose a Slot. When you are done with adjusting the current look of the slot, give a name to your look and click the "+" button above the Look Presets collection. When the new Look Preset has been created you can edit its name.
- You can also use Livegrade main menu toolbar, choose **Create Look Preset** from the **Look Presets** menu. (Default Shortcut **G**).
- You can also create a Look Preset from a shot in the Shot table. Drag and drop directly on the **Look Presets** panel.

Both of these actions will create a thumbnail which contain the same image and look with the **Slot** panel or **Shots** panel.

- Navigate **Main Menu toolbar** > **Import Look As Look Preset** > **select the look** > **select Grading Mode**. Choose your Look in .cdl or .xml from your desired look archive.

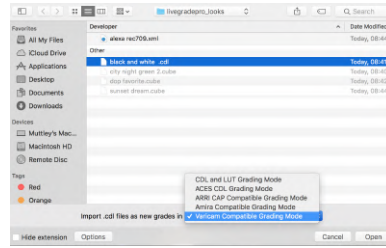


Figure 2: Import Look As Look Preset

Then the new imported look file goes to the currently selected bin or to the assigned **Default Bin**. If there is no **Default Bin** in the folder, it's automatically created.

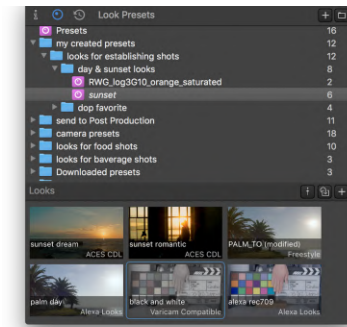


Figure 3: Import Look As Look Presets

Every look that you store on the **Looks** panel is also stored in a bin selected by user on the **Look Presets** panel. Numbers indicates how many looks are in that bin or folder. You can reorder any time your **Look Presets** panel simply by drag and drop bins or folder within each other. Thumbnails also can be dragged to the desired bin.

#### HOW TO UPDATE A PRESET AND REPLACE A THUMBNAIL LOOK

There are several ways to update a preset and replace a thumbnail look.

- Select the thumbnail that you want to update on the **Looks** panel toolbar. Click on the middle icon.



Figure 4: Update selected look preset

- Or Select from the main Menu toolbar **Look Presets > Update selected Look Preset**

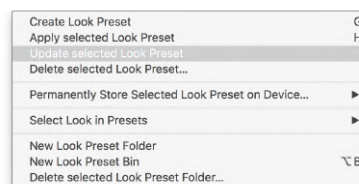


Figure 5: Menu toolbar-Look Presets-Update selected Look Preset

- You can select the thumbnail that you want to update on the **Looks** panel. Right click on the thumbnail. Select **Update Preset** from the drop down menu.

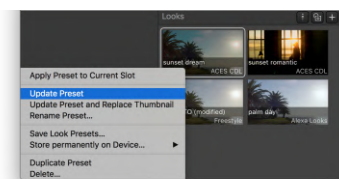


Figure 6: Looks panel-Update Preset

These actions replace only the old look with the new one from the selected slot. The original Thumbnail (image) remains the same.

- On the Looks panel you can also right click on the thumbnail. Select **Update Preset and Replace Thumbnail** from the drop down menu.



This action replace either the look and the thumbnail with the same image and look based on the selected **Slot**.

## HOW TO APPLY SELECTED LOOK PRESET

You have multiple choices to apply selected look preset. Select the **Slot** that you want to update look.

- Click on the first icon.

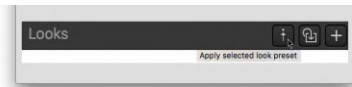


Figure 7: Looks-Apply selected look preset

- Navigate main menu toolbar **Look Preset > Apply selected Look Preset .** (shortcut **H**)

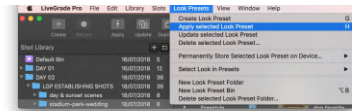


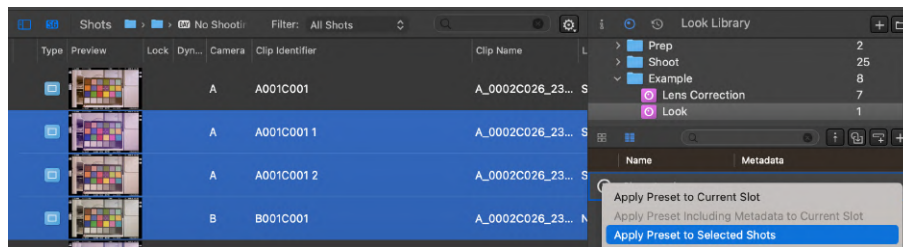
Figure 8: Apply selected Look Preset drop down menu

If **Library Slot** is selected **Apply selected Look Preset** is disabled.

## HOW TO APPLY SELECTED LOOK PRESET TO MULTIPLE SHOTS IN YOUR LIBRARY

You can apply a Look Preset to update Shots in your library.

- Select the shots in your Library you would like to update
- Right-Click on the Look preset that you would like to be applied
- Choose **Apply Preset to Selected Shots**



Apply Look Preset to Selected Shots

## HOW TO DELETE A SELECTED LOOK PRESET

- Select the thumbnail that you want to clear from the bin or folder on the **Looks** panel
- Main menu toolbar **Look Presets > Delete selected Look Preset Folder > confirm**

Deleted look is also removed from the associated bin on the **Look Presets** panel.

*This action cannot be undone!*

You can also duplicate a selected thumbnail. They will have the same name as the original file with and additional number 1,2,3... and so on.

It could be easier to navigate between thumbnails via shortcuts **1, 2, 3, ... 9**.

## HOW TO STORE SELECTED LOOK PRESET ON DEVICE

- Main Menu toolbar > Look Preset > Permanently store Selected look Preset on Device > choose proper device from the drop down menu**
- Or just **Right Click** on the thumbnail > **Store permanently on Device > choose proper device from the drop down menu.**

## HOW TO SAVE SELECTED LOOK PRESET

- Choose your look or looks to export on the **Looks** panel.
- Main Menu toolbar > File > save selected Preset Look As > choose one from the drop down menu.**

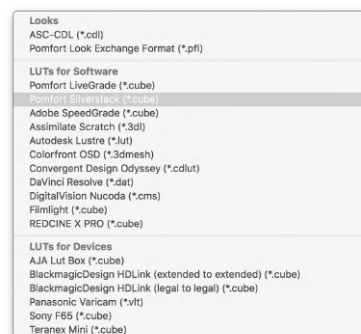


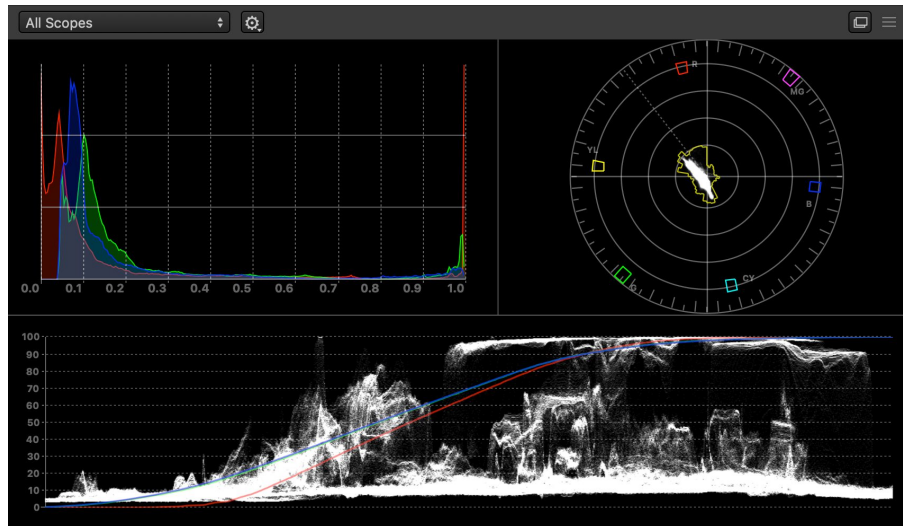
Figure 9: save selected Preset Look As

## Using Video Scopes

Livegrade comes with a set of typical video scope tools:

- Waveform,
- histogram, and
- vector scopes.

You can switch between different selections of tools in the List above the scopes area.



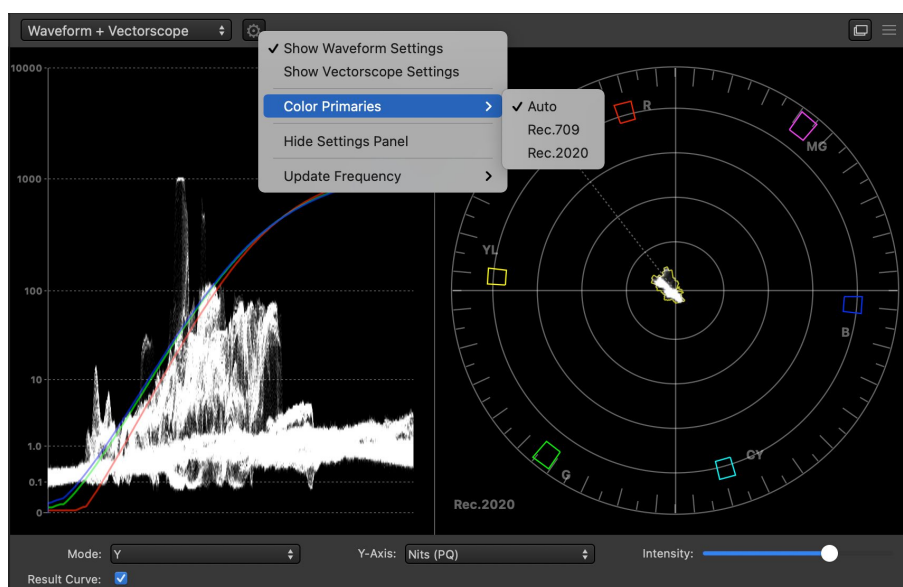
Video scopes with view "All Scopes" enabled

### Show and hide scopes

You can show and hide the scopes area with the "Scopes" button in the toolbar. You can also "undock" the scopes area from the main window by clicking the window button on the right on top of the scopes area.

### Settings

Each tool comes with its own settings. You can choose to show the desired settings panel in the gear menu besides the tool selection above the scopes area. The "Color Primaries" menu allows choosing the appropriate colorimetry (Rec.709 / Rec.2020) for your incoming video signal. With the "Auto" setting enabled the scopes switch to the correct colorimetry automatically based on the current slot's output colorspace.



Video scopes with settings

## Processing

The scopes always process the image currently shown in the selected slot. This can be a still frame as well as a live captured signal.

The video scopes in Livegrade always analyze the currently processed image. In order to see scopes of the original image, switch to the “Original” viewing mode for the slot.

## Result curve

The waveform panel shows also a RGB curve of the resulting color transform. It represents the curve of all combined transforms including 3D LUTs and CDL transforms. You can disable the result curve in the Settings panel of the scopes.

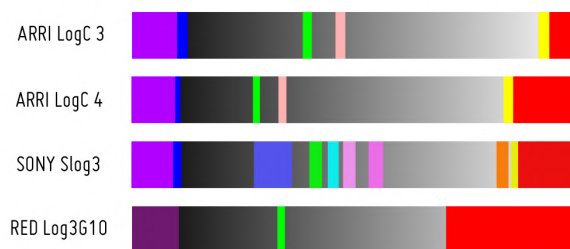
## Using the False Color Mode

### What is False Color?

False color is an exposure tool that colorizes different luminance values to quickly evaluate the quality of an image.

Different manufacturers have integrated this tooling into their cameras in different ways and tailored it to their respective original log formats.

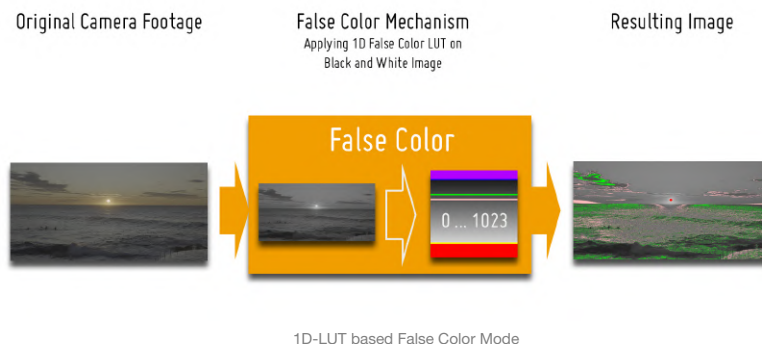
### False Color Ranges of Different Log Formats



### How does Livegrade's False Color work?

To accommodate different log formats, color scales, and individual user needs, Livegrade introduces an **1D LUT-based False Color mode**.

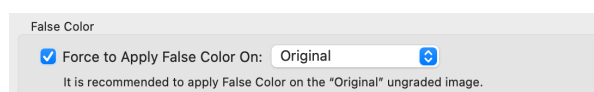
This mechanism converts the incoming image into a black-and-white image version first. After that, a selected 10bit 1D LUT that defines certain color ranges will be applied to output the false color image.



### Setting up Livegrade's False Color Mode

Go to **Settings > Grading** to adjust Livegrade's false color mode to your individual needs by going through the following settings:

#### Force to Apply False Color On



This setting determines **when** the false color mechanism should take effect.

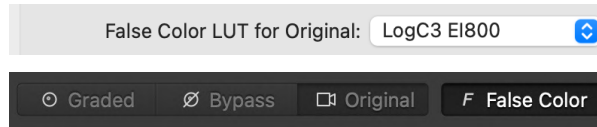
- Original (recommended)**  
 Apply false color always to the original image (without grading and LUT). This ensures that you always check the actual image regardless of the selected LUT and grading.
- Bypass**  
 Apply false color always to the image after the output transform (last LUT node) has been applied – any grading is bypassed for the moment.
- Graded**  
 Apply false color always to the graded image

- **Uncheck**

If you want to apply false color depending on your current mode (Graded / Bypass / Original), uncheck this option.

Based on the selection for the **when**, you can use the following settings to select **which** false color LUT should be applied.

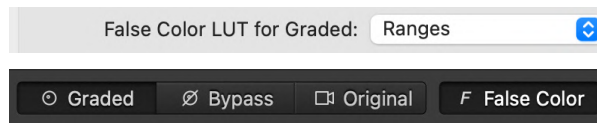
#### False Color LUT for Original



With this selection, you set the false color LUT which will be applied when you are in **Original** mode. Since each log format distributes color and luminance differently, Livegrade offers many manufacturer LUTs out-of-the-box to get the same result in Livegrade as it would be the case in the internal false color processing of the respective camera.

Note: If you have previously activated the option “Force to Apply False Color On” and set it to “Original”, False Color will always use this LUT and apply it to the original image.

#### False Color LUT for Graded



Use this drop-down to select which false color LUT is applied to the graded or bypassed image at the end of your pipeline.

#### False Color User LUTs

It is possible to include your 10bit 1D LUTs in the .cube format. This option is available for the original as well as the graded selection.

To create your own false color LUT, we recommend our [Pomfort False Color LUT Creator](#).

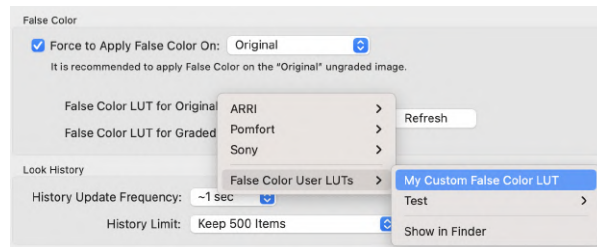
With this you can load existing presets of common log formats, edit and download them as 10-bit 1D LUT to your computer.

To load the created False Color LUT in Livegrade select for Original or Graded

- **False Color User LUTs > Show in Finder.**

This is the folder where you can save your LUTs.

Click the **Refresh** button to be able to list your LUT in the hierarchy.



False Color User LUTs

#### Common False Color Setups

To give you an example how your setup could look like, check the following table:

Alexa 35	Alexa Classic	Sony Venice 2
<b>Force Apply False Color On:</b> Original	Uncheck	Original
<b>False Color LUT for Original:</b> ARRI > LogC4 EI 800	ARRI > LogC3 EI 800	Sony > SonySlog3
<b>False Color LUT for Graded:</b> disabled	Pomfort > Ranges	disabled
<b>Note:</b> Choose False Color LUT for Original according to the selected EI		Choose False Color LUT for Original according to the selected EI



## Advanced Grading Features

### Using Node Presets for Looks and Offsets

In contrast to Look Presets, which store an entire look with all nodes in the look library, a node preset only contains one or several nodes of a look.

When a node preset is applied to the current slot, only the nodes of the current look with the same name are updated, while other nodes are left untouched.

An important detail: **Node presets can also include metadata.** This makes them a powerful tool for managing offsets of lenses, filters, or camera bodies.

#### Use Cases for Node Presets

Node presets can be used to store and apply single aspects of a look. Common use cases for node presets could be:

- **Look adjustment:** A single CDL node, that corrects a look just to be a little warmer or cooler
- **Correction for a camera-, lens- or filter offset:** A single CDL node including metadata, that represents the correction of a certain color cast
- **Change of colorspace:** a 3D-LUT node with a LUT representing a color space conversion
- **Replacing the look:** a CDL and a saturation node representing a creative look without the log-to-video conversion LUT
- **Replacing the LUT:** a 3D-LUT node with a specific log-to-video conversion LUT

#### Naming nodes

When working with node presets the naming of the single nodes becomes very important, because node presets will always override look nodes with the same name. If a matching node can't be found, the node(s) will be added to the current look.

To edit the name of a node, move the mouse cursor over the name and click the little pen icon that appears to change it to your needs.



Naming Nodes

**Note:** Nodes need to have **unique** names within a look and we recommend carefully choose meaningful names.

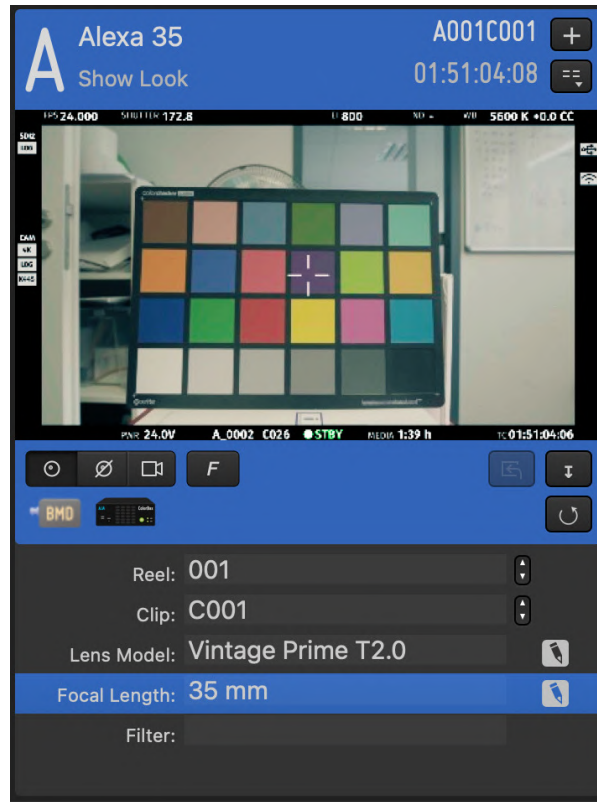
#### Managing Slot Metadata

If you are going to use metadata within your node presets, you can manage them via your slot.

It's possible to save the following fields into a node preset

- Camera Model
- Lens Model
- Focal Length
- Aperture
- Filter
- Custom 1
- Comment

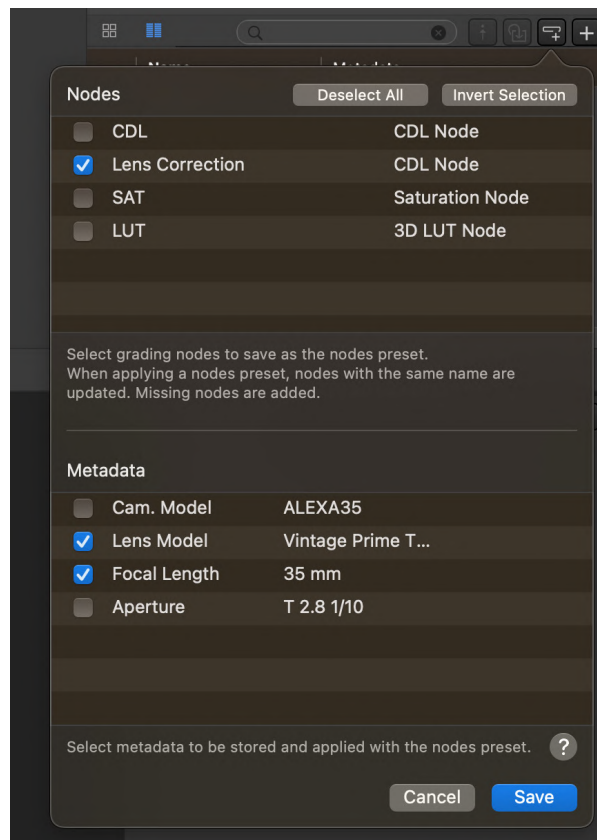
If fields are set to be automatically set by the SDI signal of the camera (indicated by an 'A' icon instead of a pen next to your slot metadata field), those fields won't be overridden when applying a node preset including metadata. Change them to be manually set by clicking on the 'A' so the pen-icon is shown next to the metadata field.



Managing Slot Metadata

### Saving a Node Preset

To save a node preset, click the **Color** button in the toolbar to show the **Look Library** in the right bar. You can then save a node preset by clicking the **"Add Node Preset"** button above the Look Presets.



Save a Node Preset

A panel is displayed where you can choose, which grading node(s) and which metadata should be stored in the node preset.



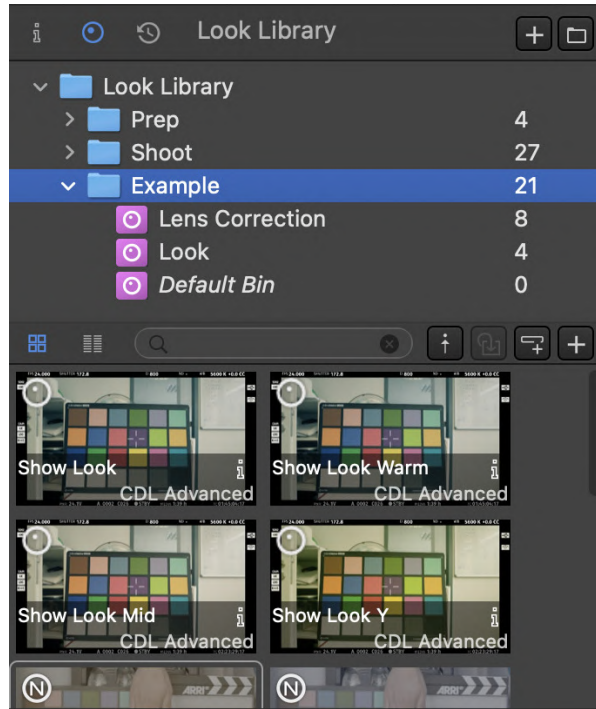


- **Nodes.** The nodes list shows all nodes of the current grade together with their names and types. Check them on the left of each row if you want that node to be part of the node preset.
- **Metadata.** Below the grading nodes, you find slot metadata of your current slot. Check those you want to save with your node preset. If you want to change certain values, close the dialog again and change the values via the slot metadata.

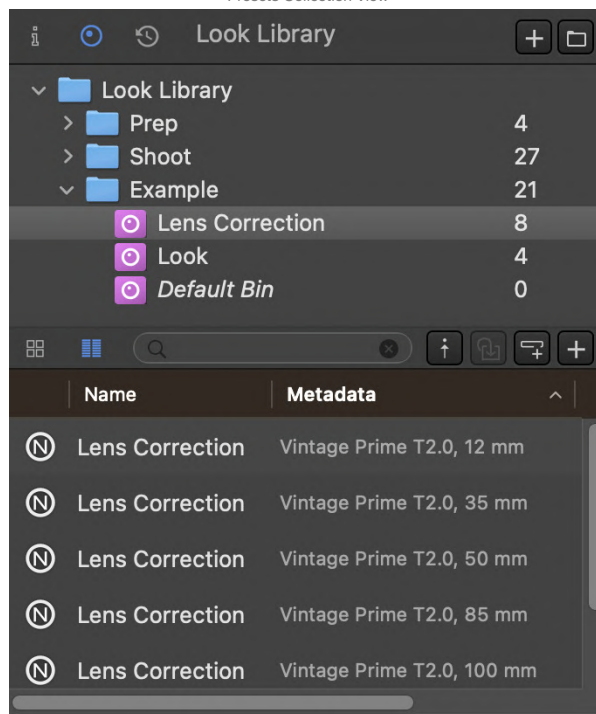
Clicking “Save” saves a new node preset into the look library.

#### Inspecting Node Presets in the Look Library

- **Collection view.** In the Look Library’s collection view, node presets are indicated by a little icon with an N in the top-left corner. You can click on the little “i” in the bottom left of a preset to display information about the nodes of the node presets.
- **List view.** To see all your presets listed including metadata, switch to the list view.



Presets Collection View



Presets List View





## Apply Preset To Current Slot

You can apply the look information (without metadata) of a node preset by simply double-clicking it or via the contextual menu by selecting **Apply Preset to Current Slot**.

The selected node preset is also applied when clicking the **Apply** button above the Look Presets or via the menu

- Look presets > **Apply selected Look Preset**

Note: If the current look doesn't have nodes that match by name with the node preset, additional nodes will be added. This can also result in a necessary change of the grading mode, e.g. from CDL and LUT to CDL Advanced mode.

## Apply Preset Including Metadata to Current Slot

To override slot metadata with saved values of your node preset, open the contextual menu from your node preset and choose **Apply Preset Including Metadata to Current Slot**.

Look information will also be applied to the current slot by using this functionality.

If fields are set to be automatically set by the SDI signal of the camera (indicated by an 'A' within your slot metadata), those fields won't be overridden. Change them to be manually set by clicking on the 'A' so the pen-icon is shown next to the metadata field.

Note: If the current look doesn't have nodes that match by name with the node preset, additional nodes will be added. This can also result in a necessary change of the grading mode, e.g. from CDL and LUT to CDL Advanced mode.

## Apply Preset To Selected Shots

You can also update existing shots in your library with a node preset. The behavior will be the same:

- If there is a node with the same name in the shot(s) you selected, the grading of the certain node will be overridden
- If there is no matching node, the grading node of the node preset will be added

This functionality is also provided for Look Presets.

Metadata won't be overridden with this function.

Note: When there is no matching and the node has to be added, this can result in a necessary change of the grading mode, e.g. from CDL and LUT to CDL Advanced mode.

## Example: Lens Correction

Let's illustrate the use of a node preset with an example.

You have a look consisting of a creative CDL node, a second CDL node correcting the color cast of the lens, and a 3D LUT node with the log-to-video conversion.



Example Grade Setup for Node Presets

Let's assume you have to switch between three lenses regularly, which all have different color casts. You want to save a node preset for each lens, that only consists of the CDL node representing the correction of the lens's color cast.

1. **Prepare**
  - Switch to "CDL Advanced" grading mode, click on "Edit", and remove all nodes except two CDL nodes and one 3D-LUT node.
  - Click on the right bar of the second CDL node "CDL 2", and rename it to "Lens Correction". You should now have one CDL node named "CDL", and one "Lens Correction".
  - Use the color controls and set a creative look in the "CDL" node and a 3D LUT for the log-to-video conversion.
2. **Color correct**
  - Use the color controls of node "Lens Correction" and set it to correct the color cast for your lens
3. **Edit slot metadata**
  - Use slot metadata and change the field for Lens Model (e.g. "Vintage Prime T2.0") and Focal Length (e.g. "35mm")
4. **Add Node Preset**
  - Click on the "Add node preset" button above the presets.
  - In the appearing panel with the list of nodes select the "Lens Correction" node.
  - As metadata to be saved, choose the fields Lens Model and Focal Length and double-check them for the correct values. If the values are not correct, close the dialog, change the values via the slot metadata fields, and open the dialog by pressing the "Add node preset" again.
  - Check that all unused nodes and metadata fields are unchecked.
  - Click "Save" and give the new node preset a name (e.g. "Lens Correction").
5. **Repeat** steps 2 to 4. for two more lenses.



You now should have three new node presets containing only the lens correction for your three lenses including their descriptions.

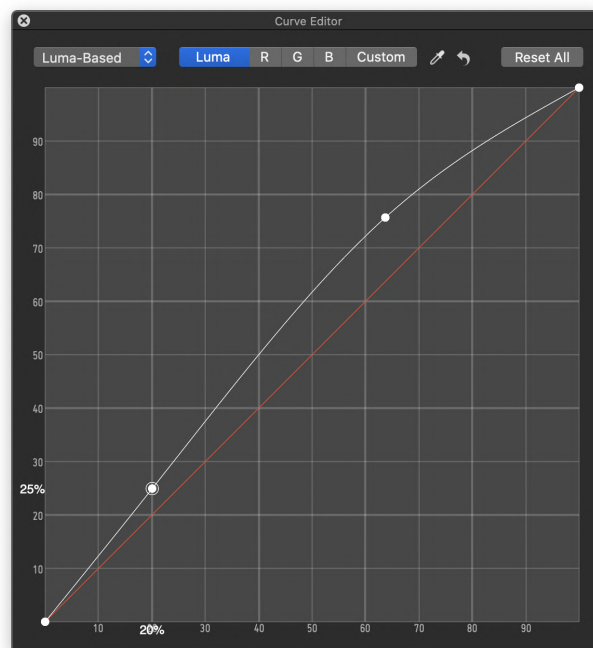
To get a better overview of your corrections, switch to the list view that will show you their metadata as well.

When lenses are switched next time, you can simply right-click on your node preset and choose **'Apply Preset Including Metadata to Current Slot'** for the corresponding lens in the look library. The node with the name "Lens Correction" will then be updated with the correction for that particular lens as well as the slot metadata fields.

## Using the RGB Curves Editor

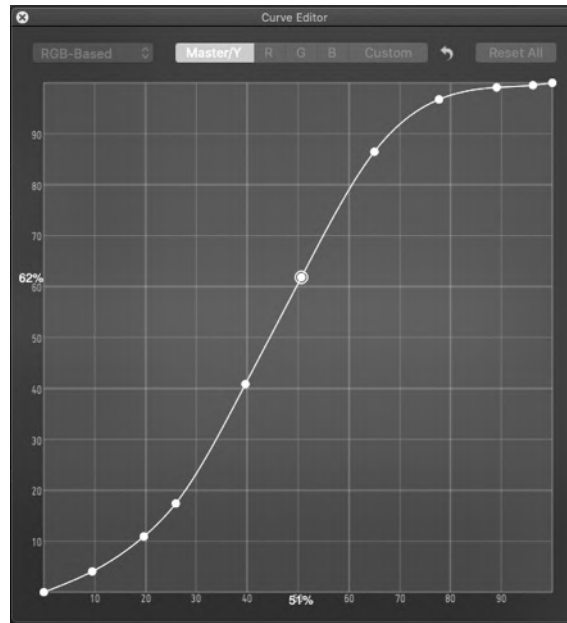
The RGB curves editor allows you to precisely grade your footage, either by applying a single master curve or by creating curves for individual channels luma, red, green, blue and/or a custom color.

- There are two modes to choose from:
  - "RGB-Based" adjusts the selected color channel including its luma and saturation values, while the "Master" curve is a ganged RGB curve influencing the red, green and blue channel at the same time
  - "Luma-Based" adjusts the colors red, green, blue and/or the custom set color without influencing their luma and saturation values, while the "Luma" curve can be adjusted independently
- In the "Custom" color curve you can pick a custom target hue, for adjusting a certain color in your image precisely
- To add a curve point just click on a curve, and in order to modify it's value just drag and drop. You can adjust curve points using the left/right and up/down arrow keys as well.
- To remove a point, select the point and press Backspace.
- When you move your mouse over the curve editor, the graph shows you the value of the exact point where it is. When the mouse pointer is not moving or it is outside of the curve editor window the values of the currently selected curve point are being displayed.
- There is a color picker tool, that lets you pick a specific target color value in the viewer window. Picking a color automatically creates a curve point in the graph of the current tab. The color picker tool can also be used to pick the target hue of the "Custom" color curve.



RGB Curve Editor

Note: There is another curve editor in the Alexa grading mode, that is limited to a "Master" curve.



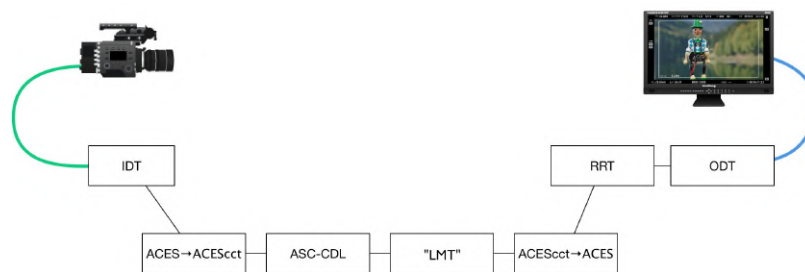
RGB Curve Editor Alexa grading mode

### Using the ACES CDL Grading Mode

Livegrade implements the ACES color pipeline including IDT transforms, working color spaces such as ACEScct and ACEScc, LMT, RRT and ODT transforms to be used on camera live signals and still images (e.g. for reference) on the film set.

The ultimate goal is to create the same visual result on an on-set monitor (showing the ACES-processed live signal of a camera) compared to the monitors in a color corrector (showing the ACES-processed recorded source clips from the camera). Livegrade also offers export of ACES-based looks in the ACES Metadata File format (for ACES version 1.2 and newer).

The following diagram shows an example ACES pipeline as implemented in Livegrade.



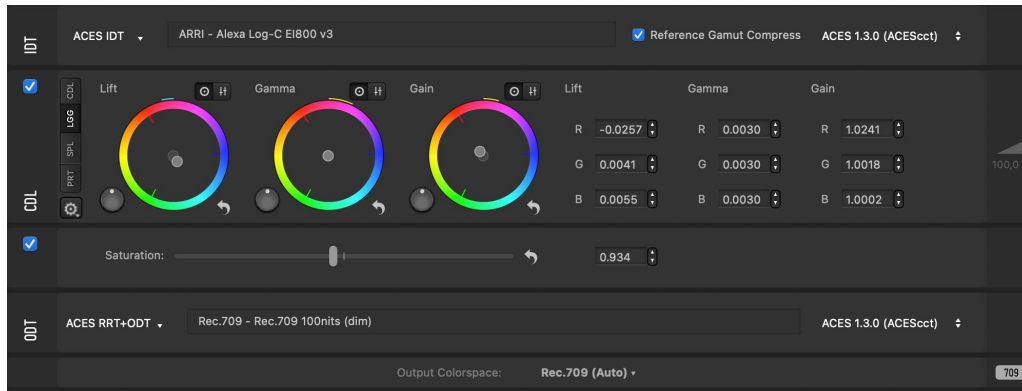
Example ACES pipeline in Livegrade

### Step-by-Step: How to Configure Livegrade to Start Using ACES

1. Open the Livegrade Pro or Livegrade Studio application.
2. Go to the the "ACES" section in the application preferences (Main Menu: "Livegrade > Preferences...") to set the ACES version for new looks and download desired ACES versions.
3. Choose the grading mode "ACES CDL" or "ACES CDL Advanced" by selecting it from the dropdown positioned on top of the grading interface next to the label "Look".
4. Select the intended input and output transform for your setup depending on camera input and display output. That can be done with of the IDT and RRT+ODT nodes of the grade.
5. You will now be able to preview and manipulate the image signal in the selected ACES working space (ACEScc or ACEScct).

### ACES grading modes

Livegrade implements this pipeline in the ACES (Academy Color Encoding System) grading modes. You can see the nodes and controls of the "ACES CDL" grading mode in the screenshot below. On every interaction with the color controls of the ACES grading mode (e.g. change of IDT, modify of ASC-CDL) all transforms are baked together automatically and sent to an attached LUT box.



ACES CDL Grading Mode

Livegrade also offers the “ACES CDL Advanced” grading mode. This grading mode lets you add multiple grading nodes between the IDT and ODT and LMTs for advanced workflows.

You can take a look at how to use the advanced modes in the article [Grading Modes in Livegrade](#).

The CDL controls behave the same way as in the CDL Grade mode and can also be exported as usual from a saved grade. ACES grades can also be exported as 3D LUTs, including the CDL values, IDT and ODT.

## Using the FilmLight BLG Grading Mode

Livegrade Studio supports using the FilmLight color pipeline and round-tripping with the FilmLight product family via BLG import/export and a dedicated “FilmLight BLG” grading mode.

### Activate FilmLight BLG grading features

To activate the FilmLight BLG grading features you need to install

- a compatible Livegrade Studio version,
- a compatible Daylight version, with a valid Daylight license or a free “BLG Tools” license, available on the [FilmLight website](#).

As soon as you have installed the compatible versions of Livegrade Studio and Daylight and activated the required license the FilmLight BLG grading features will be unlocked in Livegrade Studio.

### THE FILMLIGHT BLG GRADING MODE

Livegrade Studio comes with a dedicated grading mode supporting the FilmLight color pipeline.

You can import a BLG (.blg.exr) file as a shot into your shot library and apply the look to your slot. The FilmLight BLG grading mode automatically applies all parameters set in the loaded BLG, including input transform, working color space, grade stack and viewing color space.

To import a BLG into your shot library choose “File” > “Import Look As Shot...” > “FilmLight BLG (blg)”.

**Note:** Spatial layers such as shapes will be skipped on import.

If you apply the imported look to your slot you are able to use its parameters as a starting point for creating a new look in the FilmLight BLG grading mode.

The grade editor in the FilmLight BLG grading mode lets you apply the following color controls:

**In:** This section includes all available input transforms (“Input Colorspace”) and working colorspace transforms (“Working Colorspace”) of the FilmLight color pipeline.

**CDL:** This is a creative grading node compatible with ASC-CDL. The ASC-CDL is applied in the selected working colorspace (e.g., FilmLight’s E-Gamut/T-Log). The CDL correction can be passed on as an additional CDL-layer into the FilmLight grade stack via BLG look export.

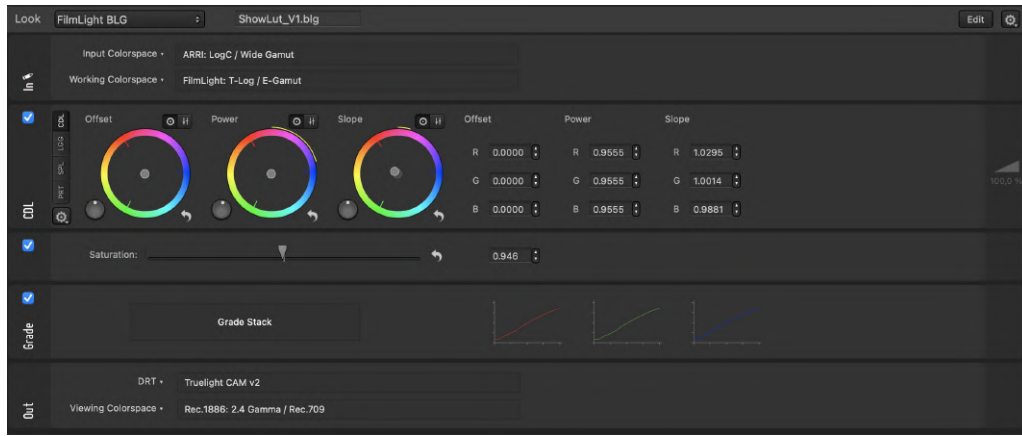
Click “Edit” in the header bar of the grade controls to add additional CDL-based nodes (CDL or Saturation nodes) or remove nodes.

**Note:** Several CDL-based nodes that are applied after another are combined into one CDL node when transferring look metadata as BLG file.

You can also move an additional CDL node after the “Grade” node, which will result in an additional CDL node in the target FilmLight application that is applied between the current grade stack and the output transform (viewing colorspace).

**Grade:** This node holds the complete grade stack applied in the loaded BLG. The grade stack is not editable within Livegrade but is applied to your current look and will be transferred completely when exporting a BLG.

**Out:** This section includes all available display rendering transforms (“DRT”) and output transforms (“Viewing Colorspace”) of the FilmLight color pipeline.



FilmLight BLG grade editor

## RESETTING LOOKS

When clicking “Reset Colors” in the bottom bar of the main window, or choosing “Reset Color Nodes Only” from the Grade menu, all CDL and Saturation nodes are reset. All other parameters stay untouched.

When clicking “Neutral” in the bottom bar of the main window, or choosing “Reset All Nodes To Neutral” from the Grade menu, all CDL and Saturation nodes and the Grade node are reset to the grading mode’s default settings.

## TRANSFERRING LOOK METADATA

Looks stored in the application’s shot and look library can be exported as BLG files for further processing in products capable of processing images in the FilmLight color pipeline.

The following shot metadata fields can be passed on via BLG:

Livegrade Metadata	FilmLight Metadata
Clip-Identifier	Clip
Comment	Comment
Camera	Camera
Scene	Scene
Take	Take
Reel	Tape
Aperture	Aperture
EI/ISO	ISO
Lens Model	Lens
Shutter Angle	Shutter Angle
Tint	Tint
White Balance	Colour Temp
Frames (frameCount)	Length
TC Start	Ref TC

**Note:** For matching your BLG files to camera originals in FilmLight applications, you can use the “Clipname” metadata field. To do so, make sure to set your Default Clip-Identifier to “D3: Clipname” in the library preferences. If there is no Clipname metadata available, you can also match clips using timecode if the shot creation was in the timeframe of the recorded clip (make sure to set your match setting in Daylight to “fuzzy”).

## KNOWN ISSUES

- Spatial layers such as shapes will be skipped on import
- After installing new custom DRTs Livegrade needs to be restarted in order to import a BLG using the new DRT
- Reading and transmitting the “Graderesult Colour Space” is currently not supported
- Shots created if the grade node is disabled will still have the grade node included inside of the exported BLG

## Using the Colorfront Film Grading Mode

Livegrade Studio supports the “Colorfront Film” transform of the Colorfront Engine. From Colorfront’s document “Using the Human Perceptual Model for Multiple Display Mastering”:

*“The Colorfront Engine is a state-of-the-art parametric color processing pipeline mapping various input formats, including camera original (scene-referred) and graded (display-referred) images, to a wide range of SDR and HDR output formats at user definable brightness levels and gamuts while maintaining the creative intent.”*



## Using Colorfront Film with AJA FS-HDR

The Colorfront Engine implemented in AJA FS-HDR device can be controlled by Livegrade Studio. [Setting up AJA FS-HDR](#) for details on how to connect to FS-HDR.

### The Colorfront Film Grading Mode

Livegrade Studio comes with a grading mode supporting all parameters of the Colorfront Film color processing pipeline.



The controls of the Colorfront Film grading mode

The controls are grouped into three sections:

**CFE In:** This section includes the input transform (for matching the incoming signal color space), scene-referred parameters (e.g. exposure and color temperature), and the grading color space.

**CDL:** This is a creative grading mode compatible with ASC-CDL. The ASC-CDL is applied in the color space selected as “Grading Colorspace”.

Although the Colorfront Film color processing pipeline only supports one set of ASC-CDL, you can have more than one CDL nodes in the grading mode. All CDL nodes are combined into one set of CDL nodes when transferring look metadata for the Colorfront Film color processing pipeline.

Click “Edit” in the header bar of the grade controls to add additional CDL nodes or remove nodes.

**CFE Look:** In this section you can set additional creative parameters such as two independent looks (selection of a set of predefined looks), a blend factor between these looks, and an HDR amount.

**CFE Out:** This section holds all controls that define the output, such as output range and colorspace, a SDR preview and PQ output nit level for HDR output transforms.

The order of the mentioned sections cannot be changed.

### Resetting Looks

When clicking “Reset Colors” in the bottom bar of the main window, or choosing “Reset Color Nodes Only” from the Grade menu, the following parameters are reset:

- Exposure, Color Temp, Tint
- All CDL and saturation nodes
- Look selection and look blend
- HDR amount

All other parameters stay untouched.

When clicking “Neutral” in the bottom bar of the main window, or choosing “Reset All Nodes To Neutral” from the Grade menu, all parameters are reset and the color processing pipeline set to Rec.709 input and output.

### Transferring Look Metadata

Looks stored in the application’s shot and look library can be exported as CFE files for further processing in products capable of processing images in the Colorfront Film color processing pipeline.

See [Exporting Look Metadata](#) for more information on exporting CFE files.

### Limitations

Using the proprietary Colorfront Film color processing pipeline has a few consequences for other features in the application.

As the processing is happening in the FS-HDR, the application is currently only communicating and storing parameters for the color processing pipeline, but has no information about the actual color transforms.

This means that the following features are not working the same way as with non-proprietary color processing pipelines (such as LUT and CDL or ACES):

- Processing of framegrabs and recorded clips in the viewer
- Display of scopes of a captured live signal, framegrabs, and recorded clips

- Exporting processed still images

You can work around a few limitations by capturing a pre-graded image (capturing the output of FS-HDR) in Livegrade Studio. See [HD-SDI Signal Recording and Framegrabs](#) for information about capturing “LUT box output (graded)”.

## Setting up Brompton Tessera processors

Livegrade Studio comes with support for remote LUT control Brompton Tessera processors (starting with firmware v3.2.0). This feature enables the user to **control the LUT** inside the Tessera processor that affects the processing of image on the LED wall. Livegrade Studio can connect and control to multiple Tessera processors as long as they are reachable via a network connection (LAN or WiFi depending on your setup).

### Prerequisites

In order to exchange LUT information with Livegrade Studio, the Tessera processor needs to have a working network connection with the Mac where Livegrade Studio is running on. You can test that by using the “ping” command in the Terminal on macOS to check if the IP address of the Tessera server is responding.

In the Brompton Processor configuration make sure that

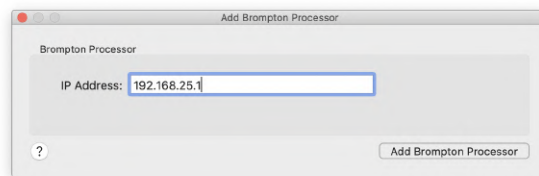
- “IP Control”, and
- “3D LUT”

are switched on.

### Setting up the Connection

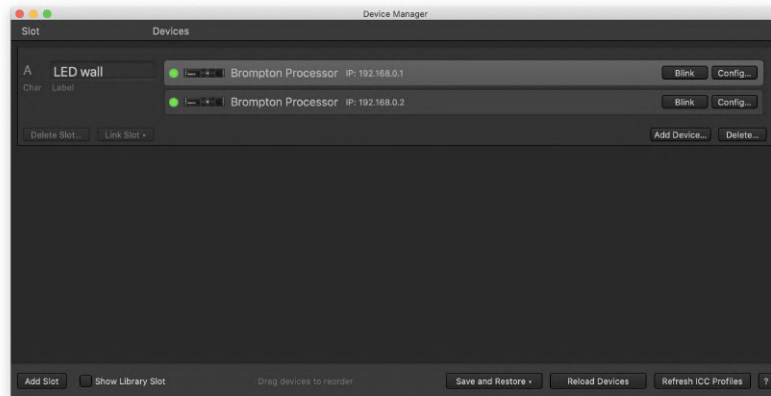
Once a connection is established, launch Livegrade Studio and you can proceed to add the Tessera server as a device.

- In order to do that, you can choose “Slots” in the main menu and then “Add Device” and choose “Brompton device”. Alternatively, you can add the device through the [Device Manager](#).
- A window will appear that asks for an IP address of the processor to add it as a device. Enter the IP address of the camera as displayed in the camera settings. Click “Add Device”.



Enter the IP address of the device.

If you open the device manager in Livegrade Studio by clicking the button “Devices...” on the left side of the Livegrade Studio user interface. The device manager will show a connected Brompton processor:



Two Brompton devices connected to Livegrade Studio.

Livegrade Studio is now able to control the LUT of the device. Please refer to the article [Color Controls and Grading Modes](#) for more information on grading controls in Livegrade Studio.

## Setting up Pomfort Virtual LUT Box for Unreal Engine

**Note:** This is documentation for features available with Livegrade Studio 6.x or newer and the PomfortVL plugin for Unreal Engine version 5.1 or newer. Latest downloads for the PomfortVL plugin can be found on the [virtual production workflow page](#).

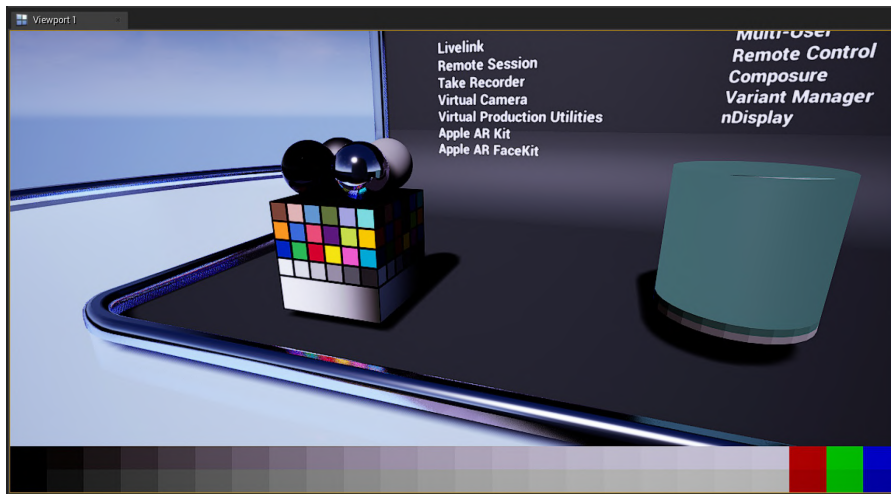
The Pomfort Virtual LUT Box for Unreal Engine allows creatives to interact with the Unreal Engine’s image through Livegrade Studio. It is intended to provide the typical behavior (for example, ASC-CDL in working color space ACEScct) and known tools (standard grading controls and color wheel controllers) for creative color adjustments in virtual production environments. While being color managed in itself, the color adjustments of the Pomfort Virtual LUT Box should be used for creative adjustments of the image only and are not intended to be used for calibration efforts or other color management tasks.

The Pomfort Virtual LUT Box for Unreal Engine consists of two parts:





- **Plugin, components, and assets for Unreal Editor** include the PomfortVL plugin, a custom actor component, several shaders and materials, and example actor blueprints for Unreal Editor that perform the color manipulations in Unreal Engine.
- **Device support in Livegrade Studio** for controlling the Pomfort virtual LUT box from the grade controls in LiveGrade Studio.



Unreal Engine Viewport with active Pomfort Virtual LUT Box

The Pomfort Virtual LUT Box is intended to be used to apply a shader to the entire scene (as a post process material), or to individual frustums, for example, in an nDisplay setup. That way the appearance of a scene on certain parts of the LED wall can be changed interactively from Livegrade Studio. The example blueprints' shaders are configured to apply an ASC-CDL color filter in the working color space ACEScsc and can be easily modified to individual project setups.

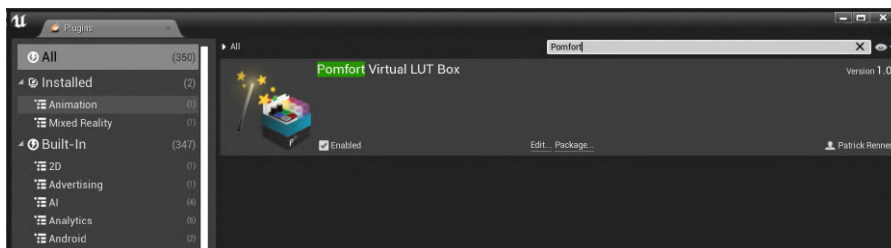
#### Installing the Pomfort Virtual LUT Box Plugin with the Example Assets (Shaders and Blueprints)

- Unzip the download for the Pomfort Virtual LUT Box. It contains the plugin as well as the assets.
- Move the folder for the plugin ("PomfortVL") to the "Plugins" folder of your project. You might need to create a folder "Plugins" in the root directory of your project if it doesn't exist.

#### PomfortVL Plugin:

After restarting Unreal Editor make sure you see the "PomfortVL" plugin installed in the plugin overview (via "Plugins" in the "Edit" menu). If the Unreal Editor shows a message that the plugin needs to be recompiled, do so. The source of the plugin is contained in the plugin's folder.

**Note:** Using the plugin with a newer Unreal Engine version may require re-compilation of the plugin (you are prompted to do so when opening a project with the plugin for the first time in the new Unreal version). All necessary source code is part of the plugin download. Visual Studio including Desktop Development with C++ and the .NET SDK needs to be installed to compile plugins.

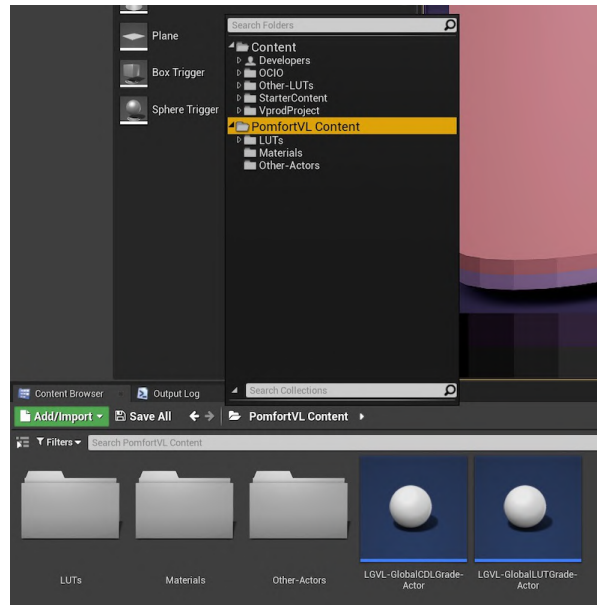


PomfortVL Plugin

#### Plugin Assets:

Make also sure the plugin's assets are visible in the Content Browser in Unreal Editor. The assets are located in the plugin's Content folder and don't need to be installed separately, but may not be shown by default in the Content Browser.

- Enable plugin assets to be shown in the Content Browser to see the plugin's assets:
  - Click on the "View Options" button of the Content Browser
  - Make sure the "Show Plugin Content" option is checked
- To navigate to the plugin's assets, click on the folder icon in the title bar of the Content Browser and choose "PomfortVL Content".



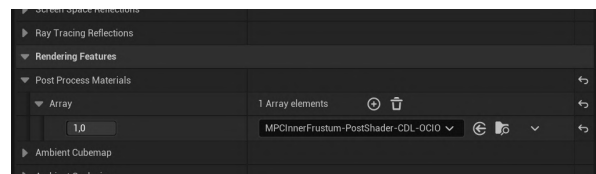
Displaying assets of the Pomfort Virtual LUT Box in the Content Browser

### Basic Setup

Follow the steps below to get started with the virtual LUT Box:

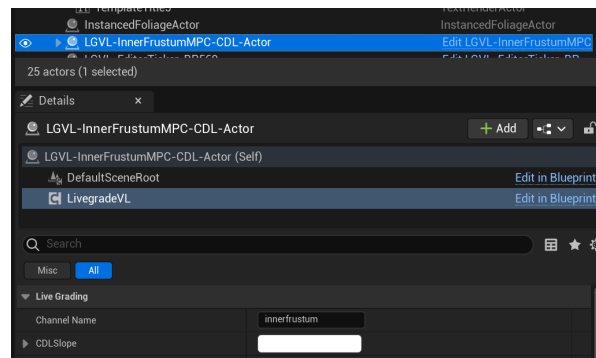
#### Unreal Editor:

1. Set the “MPCInnerFrustum-PostShader-CDL-OCIO” material as a Post Process Material in your scene.



Set post process material in Unreal Editor

2. Navigate to the PomfortVL plugin's assets in the Content Browser.
3. Drag the “LGVL-InnerFrustumMPC-CDL-Actor” into your scene. The ChannelName of the LivegradeVLComponent for that actor is “innerfrustum”.



LivegradeVL actor component with channel name

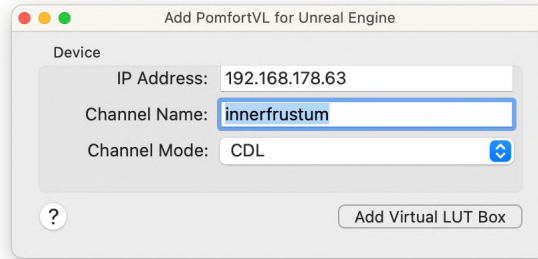
**Note:** The look of CDL-based actors is applied in “play”-mode and also in Editor (“non-play” mode). LUT-based actors are only active in the scene rendering when the scene is in “play”-mode.

#### Livegrade Studio:

1. Set up a new slot and switch the grading mode to “ACES CDL”.



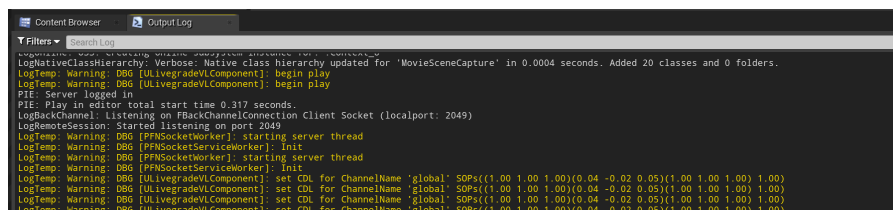
2. Add the “PomfortVL for UE” virtual LUT box device to the slot (for example, in the device manager). Enter
  - the IP address of the machine running Unreal Editor,
  - the ChannelName value of the LGVL-InnerFrustumMPC-CDL-Actor that you plan to control (for example, “innerfrustum” for the example above), and
  - the Channel Mode to “CDL”.



Connect to a workstation with Unreal Editor

3. [OPTIONAL] Set the IDT to “Academy – Reverse sRGB 100 nits (ODT)” and the ODT to “sRGB – sRGB 100 nits (dim)”. With these settings, an ungraded/neutral reference still in sRGB (for example a hires screenshot from Unreal Engine) can be used in Livegrade Studio for preview. With the correct color pipelines set up, Livegrade’s viewer should reproduce the same image as the Unreal Engine with the PomfortVL plugin.

You now should be able to control the look of the scene by changing the CDL controls/color wheels of the configured slot from that Livegrade. The Output Log in Unreal Editor shows one line per change of CDL values (see screenshot below).



Example Output Log of the Pomfort Virtual LUT Box

#### Channel Mode:

A connection between Livegrade and Unreal Engine is made either using CDL parameters or a 3D LUT for communicating look information. Depending on this setting, Livegrade prepares information differently:

- CDL: Livegrade only sends the parameters of the CDL grading nodes, no matter what additional nodes or IDT/ODT nodes are set.
- LUT: Livegrade combines all grading nodes into a 3D LUT, except IDT and ODT nodes. It is always assumed (and implemented in the example Blueprints), that the working color space is set up in the shaders and materials in Unreal Engine.

#### Persistence of Look Information in the Unreal Engine Project:

CDL and LUT values are stored in the project so that the last look can be recalled even if no Livegrade is connected. The information is stored in the PomfortVL plugin’s folder named “SaveState”.

As soon as Livegrade connects again, the current values from Livegrade are applied.

#### Assets of the “Pomfort Virtual LUT Box” in Unreal Editor

The Pomfort virtual LUT box for Unreal Engine comes with the following assets and components:

#### MPCs (Material Parameter Collections), in Materials/:

The MPCs act as an intermediate storage of look metadata between the PomfortVL plugin (through the actor components) and the post process materials.

- **Frustum\_Global\_MPC, Frustum\_Inner\_MPC, Frustum\_Outer\_MPC:** Material parameter collections for the individual actors/materials.

The mechanism to connect post process materials to parameters from the PomfortVL plugin through MPCs enables instantiation of multiple, independent materials to be controlled from Livegrade Studio, e.g. for different frustums (the different materials are bound to independent MPCs, which get their updates from independent PomfortVL instances/actor components, which can be controlled from different connections/channel names from Livegrade Studio).

**Note:** MPCs can only store parameter values, not textures. That’s why the MPC mechanism can only be used with CDL-based looks, but not for LUTs-based looks.

#### Main Actor Components:

- **LGVL-GlobalMPC-CDL-Actor, LGVL-InnerFrustumMPC-CDL-Actor, LGVL-OuterFrustumMPC-CDL-Actor:** An example actor that updates a certain MPC with a CDL values. The actor uses an instance of the LivegradeVLComponent (e.g., ChannelName “innerfrustum”) to provide remote access to the color grade parameters (CDL parameters).

Actor components from previous versions of the PomfortVL plugins:

- **LGVL-GlobalCDLGrade-Actor:** An example actor setting up a dynamic material with a CDL shader as a post-process material. The actor uses an instance of the LivegradeVLComponent (ChannelName “global-cdl”) to provide remote access to the color grade parameters (CDL parameters).



- **LGVL-GlobalLUTGrade-Actor:** An example actor setting up a dynamic material with a 3D LUT shader as a post-process material. The actor uses an instance of the LivegradeVLComponent (ChannelName “global-lut”) to provide remote access to the color grade parameters (dynamic 3D LUT texture).

You can set the identifier in the detail section “Live Grading” as the “ChannelName” property (see screenshot).

Note: Multiple instances of LivegradeVL Component must have different/unique values for ChannelName. Identical values for ChannelNames will lead to undefined behavior.

#### Other Actor Components and Assets:

- **LGVL-CylinderCDLGrade-Actor:** An example actor setting up a dynamic material with a CDL shader as a surface material for a cylinder object. The actor uses an instance of the LivegradeVLComponent (ChannelName “cylinder-cdl”) to provide remote access to the color grade parameters (CDL parameters).
- **LGVL-CylinderLUTGrade-Actor:** An example actor setting up a dynamic material with a 3D LUT shader as a surface material for a cylinder object. The actor uses an instance of the LivegradeVLComponent (ChannelName “cylinder-lut”) to provide remote access to the color grade parameters (dynamic 3D LUT texture).
- **LGVL-GlobalCDL+InvGradeActor:** An example actor setting up a dynamic material with two CDL shaders as a post-process material. The actor uses two instances of the LivegradeVLComponent (ChannelNames “global-cdl” and “global-invcdl”) to provide remote access to the color grade parameters (CDL parameters). See Setting up [PomfortVL for Foreground Grading](#) for use cases.
- **LGVL\_EditorTick\_BPI** and **LGVL\_EditorTicker\_BP:** Blueprints with functionality for triggering updates of CDL-based post process materials also in non-“play” mode.

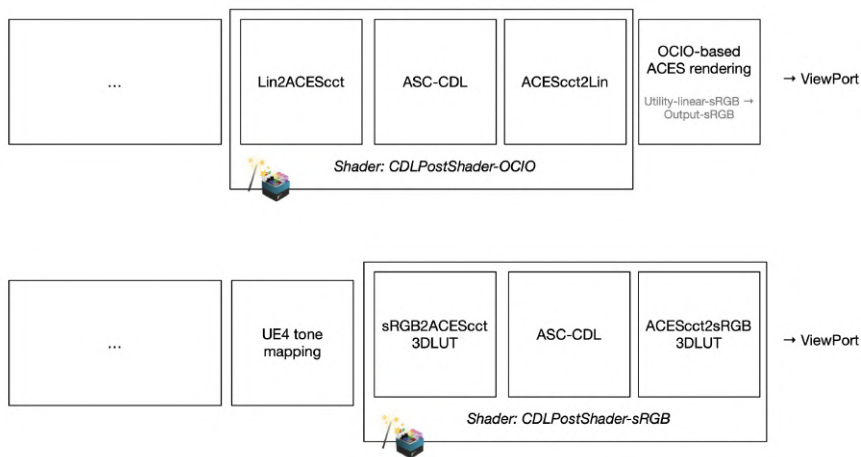
These assets illustrate the basic functionality and interaction of the virtual LUT box, can be used as a starting point for your own integration development.

#### Color Management and Grading Shaders:

- **MPCGlobal-PostShader-CDL-OCIO, MPCInnerFrustum-PostShader-CDL-OCIO, MPCOuterFrustum-PostShader-CDL-OCIO:** Post-process shaders bound to corresponding MPC objects, to be instantiated manually

Grading shaders from previous versions of the PomfortVL plugins:

- **CDLPostShader-sRGB** and **CDLPostShader-Rec2020PQ:** Post-process shaders used to color grade the entire scene. A CDL is applied in working color space ACEScct. The blendable location is set to “After Tonemapping” and the shader is built for tone mappers to sRGB and PQ (with Rec.2020). The shader **CDLPostShader-sRGB** is used by default by the **LGVL-GlobalCDLGrade-Actor**.
- **LUTPostShader-sRGB:** Post-process shaders used to color grade the entire scene. A 3D LUT is applied in working color space ACEScct. The blendable location is set to “After Tonemapping” and the shader is built for tone mappers to sRGB.
- **CDLPostShader-OCIO:** A post-process shader used to color grade the entire scene. A CDL is applied in working color space ACEScct. The blendable location is set to “Before Tonemapping” and the shader is built for OCIO-based ACES processing in the viewport. The shader assumes the color space of the engine’s rendering to be sRGB with linear encoding.



Color pipeline in Unreal Engine with PomfortVL shaders

- **CDLSurfaceShader:** A surface shader used to color grade the emissive color of a material. A CDL is applied in working color space ACEScct. The shader is used by default by the **LGVL-CylinderCDLGrade-Actor**.
- **LUTSurfaceShader:** A surface shader used to color grade the emissive color of a material. A 3D LUT is applied in working color space ACEScct. The shader is used by default by the **LGVL-CylinderLUTGrade-Actor**.

#### Other Setup Options

##### Bottom Color Bars

The color bars on the bottom of the image can be used to quickly indicate if a grade is applied. This is especially helpful when setting up the Pomfort Virtual LUT Box.

If the color bar has only one row, no grade is applied. If the color bar is split into two rows (a neutral on the bottom and a modified row above), a grade is applied.

You can modify or bypass the ramps in each shader asset by manipulating the “Patch-Ramp” nodes in the Material assets. The neutral and the graded color bar are created by one “Patch-Ramp” node each.



- You can change the height of both bars by changing the yStart parameter of each PatchRamp node. yStart is a value from 0.0 to 1.0 spanning the y axis from top (0.0) to bottom (1.0). The color bar is painted from yStart to the bottom of the image.
- You can disable the color bar by bypassing the “Patch-Ramp” nodes (i.e. connecting the output of the previous node directly with the input of the next node).

You can explore the blueprints and shaders for more options.

### Trouble Shooting

If you start the Unreal Engine after you configured the devices in Livegrade Studio, you can click the “Reload devices” button beside the “Devices...” button in the main window to reconnect to the PomfortVL plugin. A yellow warning triangle in the slot UI can indicate that the slot is not in Play mode.

### Known Issues

- Amount of logging in Output Log cannot be configured yet.
- LUTs used in CDLPostShader-sRGB and CDLPostShader-Rec2020PQ currently only for tone mapping to sRGB and PQ (with Rec.2020) output color space. In case you are using the tone mapping to other output color spaces, different LUTs need to be used. Please contact us at [virtualproduction@pomfort.com](mailto:virtualproduction@pomfort.com).

## Setting up PomfortVL for Foreground Grading

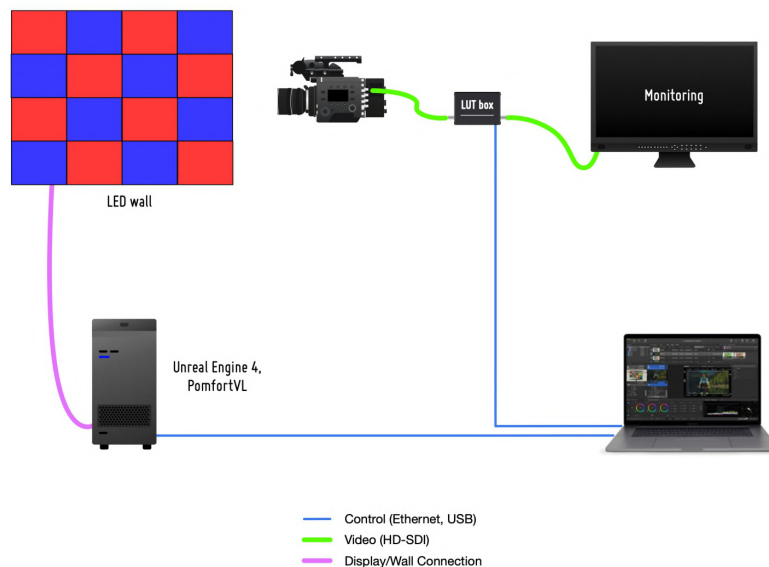
**Note:** This is documentation for features available with Livegrade Studio 6.0 or higher and the PomfortVL plugin (in Beta). Latest beta downloads for the PomfortVL plugin can be found on our [virtual production workflow page](#).

This article documents an example setup for foreground grading in virtual production. Foreground grading uses the concept of manipulating the image of the camera with a LUT box while compensating that grade with an “inverse” grade in the background, i.e., the LED wall. This can be set up with the Pomfort Virtual LUT Box for Unreal Engine, a regular LUT box, and Livegrade Studio.

For the basic setup of the Pomfort Virtual LUT Box for Unreal Engine, please see the article [Setting up Pomfort Virtual LUT Box for Unreal Engine](#).

### Hardware Requirements

The necessary hardware setup for foreground grading is as follows:

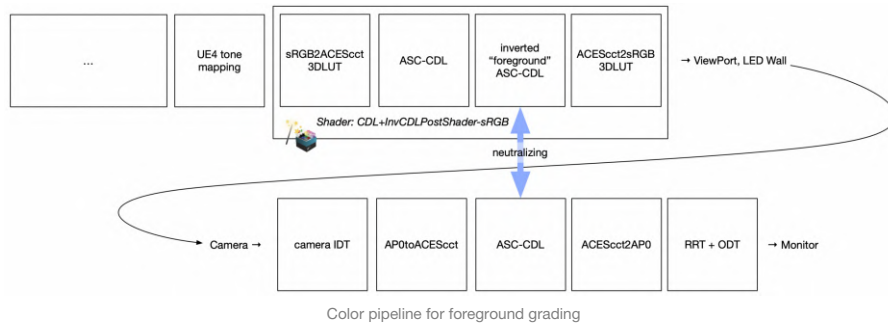


Hardware setup for foreground grading

### Concept

Foreground grading aims to isolate the foreground elements (for example, an actor in the scene) from the background image and color-grade these elements independently. This is not possible directly, so the idea is to compensate the grade of the entire image with the grade of the background.

A LUT box offers the capability to grade the entire captured image (foreground and background), and the PomfortVL plugin introduces the ability to grade the background (i.e., the LED wall). Having access to both grades from Livegrade and linking the two grades, you can achieve the effect of grading the foreground while the background appears to stay unchanged.



### Example

If the actor in the image should appear “greener” while the background should stay unchanged:

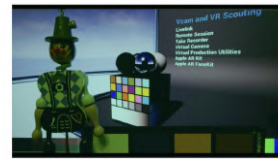
- the LUT box is grading the entire camera image greener while
- the grade of the LED wall gets the inverse of the warmer look, i.e. it shows a “pinker” image.



Filmed image, without any grade



Engine image, compensated



Filmed image, “graded foreground”

Graded foreground example

On the camera monitor, the foreground actor now appears greener (per grade of the LUT box). In the background, the LUT box’s greener look is compensated with the pinker look of the foreground. As a result, the background appears unchanged.

### Setup

#### Unreal Engine:

- Add the **LGVL-GlobalCDL+InvGrade-Actor** actor to your scene (instead of any other “global” grade actor).
- The actor is configured with two LivegradeVL actor components, one for regular grading and one for the compensation grade. Both grades can be controller independently from Livegrade.

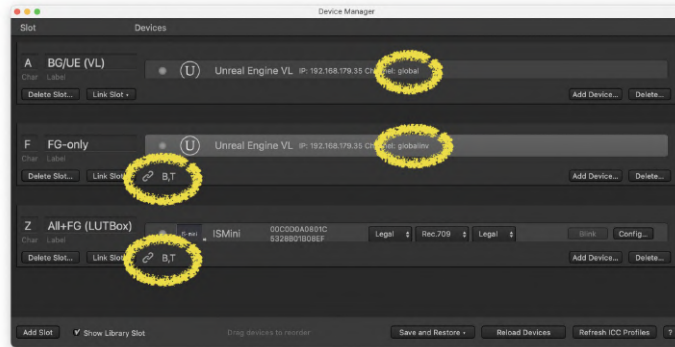
#### Livegrade Studio:

- Set up three slots.
- The first slot connects to PomfortVL component with ChannelName “global-cdl”.
- The second slot connects to PomfortVL component with ChannelName “global-invcdl”.
- The third slot connects to LUT box (camera monitoring).
- Link the second and the third slot in the device manager.
- Setup the third slot so that it has two CDL nodes. One will be used for global (non-compensated) grading with the LUT box, one for compensated (foreground-only) grading. Name the grading nodes accordingly (for instance, “All” for non-compensated and “FG-only” for compensated grading).
- Make sure the CDL node “FG-only” is shared between the second and the third slot (linking checkbox is on), and the “All” CDL node is *not* shared.
- Optionally set up two saturation nodes (one linked and one non-linked) the same way as the CDL nodes.

Now you can use

- the first slot to grade the background,
- the “FG-only” node of the second or third slot to grade the foreground, and
- the “All” node of the third slot to grade the entire camera image.





Device Manager  
with linked slots



Grade controls  
with linked nodes

Device manager and grade controls

### Additional Constraints

- Only looks with no or just a little clipping work well for inversion. So use moderate grades only for foreground grading. Remember, this is a “blending tool” or a “correction tool”, it doesn’t want to replicate the role of lighting on set.
- The camera’s exposure and image processing must be chosen so that the camera’s captured dynamic range is (roughly) the same as the displayed dynamic range of the LED wall. This also means maintaining the LED wall’s exposure quite well balanced with the scene’s overall exposure and the relative camera exposure. For instance, if the LED wall shows a series of grey patches from black to white, the camera monitor image also needs to show the same range of grey patches (and not multiple black patches or multiple white patches). This is required so that the inversion of the camera’s grades (in the LUT box) and the look in Unreal Engine (in the virtual LUT box) cancels out.
- The LED panels should not light the foreground objects so that the foreground objects are affected by the inverse grading applied to the background. If the object is lit by the LED wall only, the inverse look on the LED wall will also change the foreground object’s appearance (acting as the only light source). This compensates the grade of the LUT box and reduces or even cancels the desired effect. The solution is to light the foreground objects with a preferably “constant” light source. That can be achieved by limiting the inverse grading to only a smaller portion of the LED wall like the inner frustum (what the camera sees) or applying the inverse grade to the background but not the ceiling and the frontal LED panels.

### Linked Looks

Livegrade allows to link slots and sync image processing nodes between slots. Thus it is possible to build two independent processing chains that can contain unique as well as shared processing steps.

#### Content

##### Sections:

- Basic Principles
- Linking Slots
- Syncing Nodes
- Saving Linked Looks to the Library
- Creating Individual Looks from a Linked Look
- Editing Individual Looks from a Linked Look
- Exporting Linked Looks
- Create Shots from Linked Slots

##### This article will...

- ...help you understand the basic principles of Linked Looks in Livegrade.
- ...teach you how to link slots and sync nodes.
- ...give you insights how to handle Linked Looks in the library and for export.

### Basic Principles

The basic idea of the Linked Looks feature is to control two slots at the same time. Also important is being able to adjust parts of a look **separately** and other parts **simultaneously**.

While two or more devices are involved you can adjust certain parameters of the look simultaneously for all devices while other parameters can be set uniquely for each device.

Basically that will be achieved with two simple steps:

- Linking slots
- Syncing and unsyncing nodes between the linked slots



By linking slots you decide which two or more slots will synchronize nodes between each other. Then you can decide which nodes to sync and which not to sync.

### Linking Slots

In order to link two slots, open the Device Manager via the “**Devices**” button on the left side of the Livegrade main window.

**Tip:** In case you are dealing with longer slot names (e.g. “A Camera SDR”), you could use the function “Show Slot Label only” as done within this example. As a result, the Slot Label will be used for the “Camera” metadata field.

Inside of the Device Manager click the “**Link Slot**” dropdown in the first slot. From the dropdown choose “**Link with slot**” which will also contains the according letter or slot label of the other slot you link with:

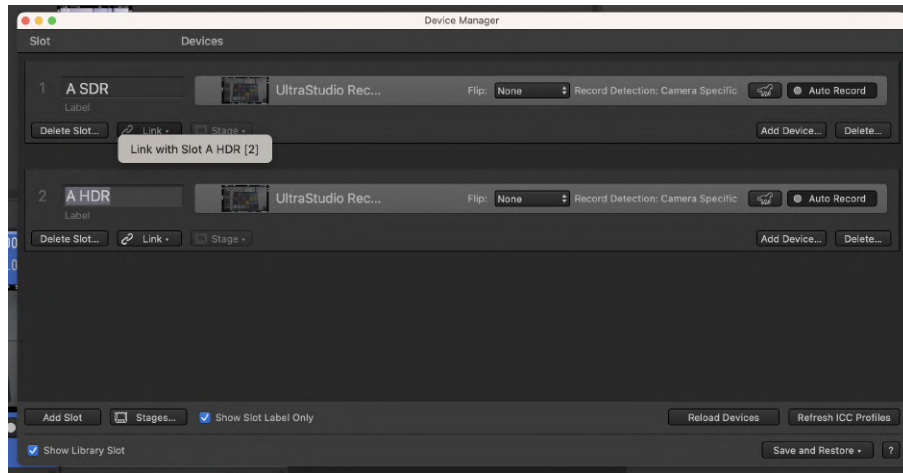


Fig. 1: Linking slots in the device manager

After successfully linking the slots a chain symbol will appear next to the dropdown. Additionally the slot characters of the slots that are linked appear next to the chain icon:

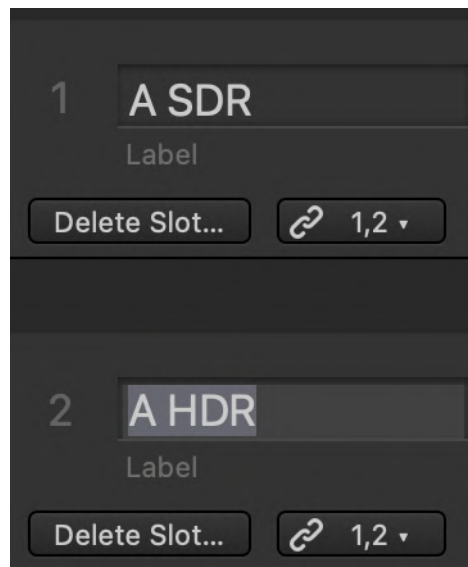


Fig. 2: Linked slots

### Syncing and Unsyncing Nodes

Close the Device Manager to go back to the main window of Livegrade.

You may have noticed that on the right side of each node in the grading panel a chain symbol appeared:



Fig. 3: Nodes showing the chain indicator for connected processing

It indicates the synchronization state of the node:

- **Blue chain button:** Node is **synced** between linked slot
- **Grey chain button:** Node is **unsynced** between linked slots and therefore controlled independently

You can switch the linked state of a node by clicking on the chain buttons.

You can now switch between the two slots to build your look with synced and unsynced nodes. If you have a node unsynced and change its setting, it will only change in the edited slot. If you then click the chain icon to sync it with the linked slot the settings of the node will simultaneously be applied to the according node in the linked slot.

**Tip:** If your set-up requires SDR/HDR monitoring, leave the LUT node disconnected and choose a SDR LUT for your SDR slot, and an appropriate HDR LUT for a HDR slot. The other nodes could be connected, so that all look decisions will be applied on both slots whereas the technical conversions stays different for SDR and HDR monitoring.

### Important

When you connect slots they will always keep the same grading mode and exact same node structure in the grading panel. If you delete a node from one slot it will also be deleted from the linked slot and vice versa. The same behaviour takes effect when adding nodes.

### Saving Linked Looks to the Library

To save Linked Looks from linked slots to your shot library when triggering **“Create Shot”**, open

Livegrade > Settings > **Library** and check **“Create linked looks from linked slots”**

From now on, every time you hit the **“Create Shot”** button, Livegrade will save a Linked Look for the linked slots.

You will immediately recognize a Linked Look by the chain symbol overlay in the Type column of the library:

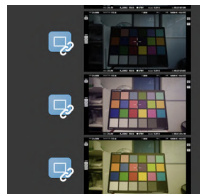


Fig. 4: Linked Look Type in the library

A Linked Look saved to your Shot Library contains:

- A still image of the currently selected slot
- Metadata of the currently selected slot
- Look information of linked slots

When you have two or more slots linked the stored look will contain the node structure for both slots in the exact configuration at the point of time you stored them.

If you apply a look from the library that was saved in linked slot configuration it will restore the same node structure and the same sync status and setting of the nodes and slots you configured before.

### The Linked Slots Column

You will be able to identify linked looks by taking a look at the **“Linked Slots”** column. It contains the information about the linked slots. It is easily detectable of how many independent looks the linked looks persists of and from which slots they were saved.

		A SDR	A SDR,A HDR	A001C001 3
		A SDR	A SDR,A HDR	A001C001 4
		A SDR	A SDR,A HDR	A001C001 5
		A SDR	A SDR,A HDR	A001C001 6

Fig. 5: Linked Slots column

### Creating Individual Looks from a Linked Look

You can split linked looks up into their separate, standalone looks. The Linked Look consists of several standalone looks that come from the different slots. For each slot a standalone look is stored as part of the linked look. The number of standalone looks that will be created is easily predictable by the number of slots the Linked Look possesses (see also Linked Slots column). The Linked Look stays in the library unaltered.

To create individual looks from a Linked Look select the Linked Look in the library and then perform a right click on the linked look:

From the context menu choose **“Creating Individual Looks from Linked Look”**. You will then receive two or more standalone looks depending on the number of linked slots.

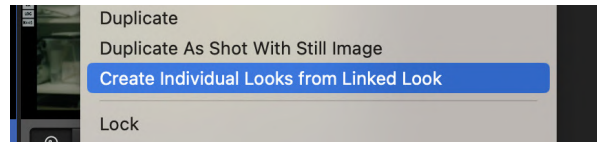


Fig. 6: Context Menu of a Linked Look

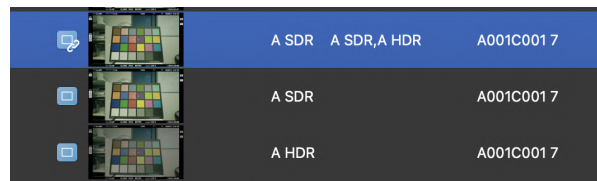
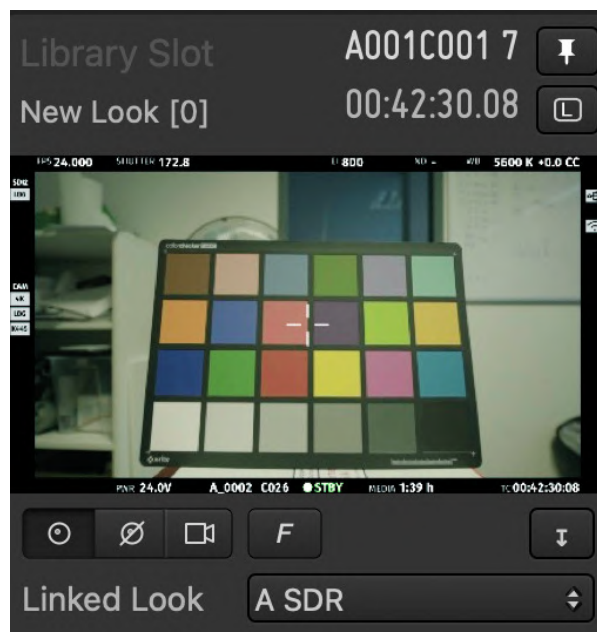


Fig. 7: Individual Looks of Linked Look

The example above shows a Linked Look and the result of creating individual looks from it. The resulting standalone looks receive individual thumbnails and the slot name from the Linked Nodes column. Therefore the Linked Slots column is empty, which is always the case for standalone looks.

### Editing Individual Looks from a Linked Look in the library slot

You can drag a Linked Look to the Library Slot and switch between the individual Looks via the **Linked Look** pop-up menu.



Edit a linked look in the library slot

As soon as you finished your adjustments, click the button in the toolbar to save your changes.

### Exporting Linked Looks

#### 3D LUT, ASC-CDL, Pomfort Look

There are several possibilities to export a look:

- **3D LUTs:** Linked Looks will be exported to all LUT formats by splitting up the Linked Look into its different standalone looks.
- **ASC-CDLs (.cdl):** For each standalone look one .cdl file will be exported.
- **Pomfort Look (.pfl):** As for the 3D LUTs the look will be split into its standalone looks.

Similar to creating individual looks from Linked Looks the export functionality with linked looks will always add “Slot” and the character or slot name (depending on preferences) to the end of the file name.

## Pomfort Look Archive

A Pomfort Look Archive can be exported including Linked Looks. A compatible version of Livegrade will be able to import the Look Archive again including the intact Linked Looks. Importing the Look Archive into Silverstack will result in standalone looks in the Silverstack Look Library.

## CREATE SHOTS FOR LINKED SLOTS

If you prefer working with individual shots in your library rather than with linked looks, the function **Create Shots for Linked Slots** could be of interest for you.

Working this way you are able to use the functionality linked slots while shooting (e.g. grading the look node simultaneously for several cameras, while the conversion LUTs are different) but storing individual shots into your library.

To use this function, deactivate **Create linked looks for linked slots** in **Livegrade > Settings > Library** first.

From now on you can use the menu items

- Livegrade > Library > **Create Shots for Linked Slots** and
- Livegrade > Library > **Create Shots for Linked Slots (with Secondary Label)**

## Legal and Extended – SDI-Signals and LUTs

### HD-SDI signals

Devices supporting HD-SDI (YCbCr) signals can be configured to carry either legal range signals (which is a standard use case for most of all HD-SDI signals) or extended range signals (which is only used in special, rare use cases).

A 10-bit digital signal can theoretically carry code values from 0 to 1023. A legal range signal only uses code values 64 to 940 (for the Y channel) while an extended range signal uses code values 4 to 1019 (for the Y channel).

### 3D LUTs

3D LUTs are applied on RGB images. In post production systems, RGB images are usually using all the code values available – so for example a 10-bit RGB image uses code values 0 to 1023. This means that lookup tables made for post production systems expect that code values 0 to 1023 should be transformed with that LUT.

### Processing chain in Livegrade

To be able to compute color manipulations in a defined code value range, Livegrade converts incoming signals so that code values 0 to 1023 are used (see Figure 1). So the processing chain of Livegrade simulates a post-production pipeline for color processing. This means that **Livegrade's CDL mode always will expect regular, "extended-range" lookup tables (3D LUTs)**.

Please note that the order of CDL and LUT can be changed. Please see [KB 435](#) for more information about the CDL grading mode.

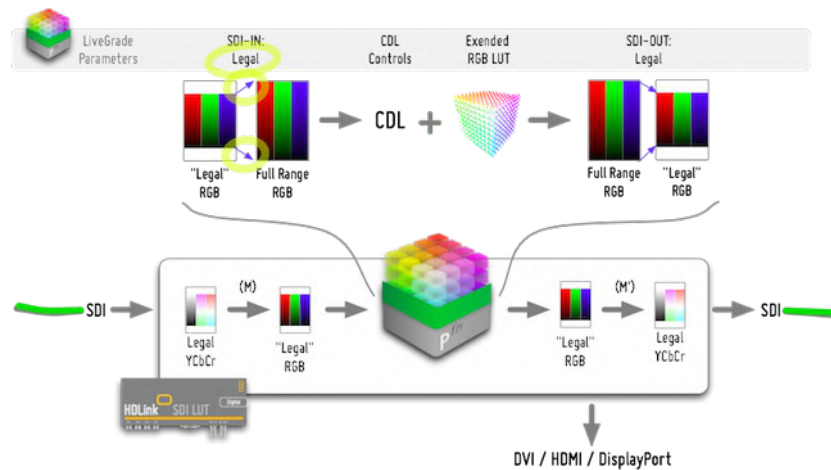


Figure 1: Color processing in Livegrade

The device doesn't know what kind of signal is coming in (legal or extended), so Livegrade takes care about this and converts the signals accordingly as part of the color processing – depending on what is set in the device manager. So as long as you properly specify in the device manager which kind of signal you're feeding in, the look (e.g. CDL and imported LUT) will always be applied correctly. See [KB 238](#) and [KB 216](#) for more information about the device manager.

Another example shows a situation, where the input signal is an extended range SDI signal, Livegrade (as always does the color manipulations in RGB ("full range") and converts the signal in a way that the device sends it out as a legal-range SDI signal (Figure 2).

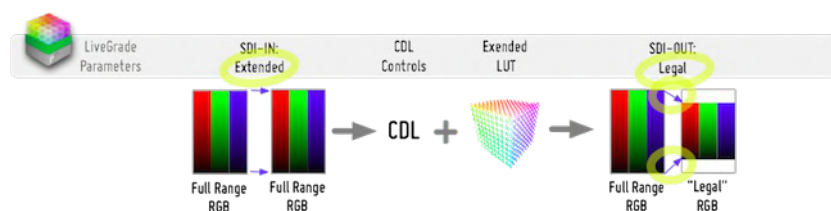


Figure 2: Color processing with Extended-IN and Legal-OUT settings

**NOTE:** A situation where you would use a “legal range” 3D LUT is when you want to load it directly onto the device for use with legal SDI signals. Then the LUT will have to be suited to the signals coming in. In Livegrade only “full range” 3D LUTs are used, as in most post production tools.

### Processing SLog3 signals in Livegrade

As SLog3 signals are always full range on the SDI output, officially provided LUTs by Sony have a baked-in conversion from full range to legal range. Therefore it is important to set LUT boxes in the device manager to “full range” input when receiving SLog3 signals via SDI-connected Sony cameras. The output range should generally be set to “legal range,” although there may be exceptions depending on your setup.

Consequently, capture devices need to be set to decoding levels “full range” and playback devices to “legal range.”



Figure 3: Setting LUT box to “full range” input and “legal range” output in device manager

### Color management with ICC profiles

For a color managed workflow for displaying digital images on a monitor, the color profiles of the source image data as well as the display device must be known.

#### Source images

Images sent as *SDI Signals usually conform to the Rec.709 color space*. So for example the Alexa’s output can be set to Rec.709 directly or the Livegrade application converts the Log-C signal from an Alexa to a Rec.709 signal.

#### Display devices

Reference monitors with SDI inputs usually come with their own calibration tools so that they always conform e.g. to Rec.709. When you use the HDLink devices to transform an SDI signal to HDMI, DisplayPort or DVI, you will have a monitor attached, that is *most probably not calibrated to the Rec.709 color space*.

#### Color management

For computers color management takes care about the proper transform of image data so that it is displayed properly on a certain device. So for example on Apple’s OSX the ColorSync system *transforms the image before it sent to the monitor in according to the monitors characteristics*. This is done by using ICC profiles to characterize image sources such as QuickTime clips as well as display devices such as monitors.

#### Livegrade

Livegrade can use the ICC profiles available for a certain monitor to do the same color management.

For more information on how to set up the ICC profiles in the device manager see the article [DVI, HDMI and DisplayPort setup for Livegrade](#). In figure 1 you can see the color pipeline for ARRI Alexa that Livegrade sets up to apply it to images going through a HDLink box:

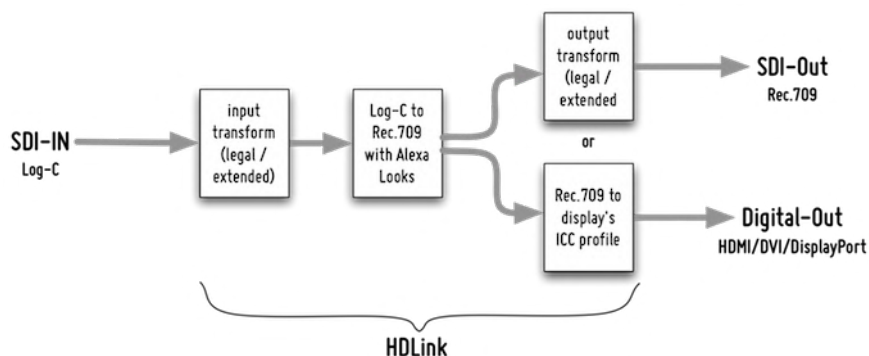


Figure 1: Color pipeline for Alexa with Livegrade

#### ICC profiles for your monitor

There are two possibilities for getting the right ICC profile for use in Livegrade. Either the ICC profile comes with the display or is downloaded from a database of such profiles (e.g. [http://www.tftcentral.co.uk/articles/icc\\_profiles.htm](http://www.tftcentral.co.uk/articles/icc_profiles.htm)), or you create it yourself by using a color probe and a profiling software.

To give you an idea, here are the basic steps needed to create an ICC profile for example with the [i1 Display Pro](#) probe by X-Rite:

1. Attach the DVI/DisplayPort/HDMI monitor that you want to use with Livegrade and HDLink later to your computer.
2. Start the profiling application (e.g. the i1Profiler application that comes with the i1 Display Pro probe).
3. Attach the color probe to your monitor. The probe is a small device that measures the colors displayed by the display.
4. Perform the profiling. The profiling application will display a bunch of colors on the monitor, the probe will measure these colors and from this information an ICC profile is created.
5. Save the resulting ICC profile for the monitor.
6. Remove the monitor from your computer and attach it to the HDLink box.
7. In Livegrades open the device manager and load the freshly created ICC profile for the attached monitor / HDLink.



**Note:** If you experience banding artifacts in the image while using ICC profiles you can limit the use of ICC profiles to display curves in the preferences. You can find more info and examples here <http://kb.pomfort.com/?p=303>.

### Conclusion

The resulting color reproduction will be much closer to what you would see on a reference monitor as without the profile. Computer monitors come with all kinds of “wide gamut” and “super contrast” panels that are far away from the way smaller color space and gamut of Rec.709. Your image will in almost any case look way too saturated and crunchy without the ICC profile.

This can finally be corrected by using ICC profiles for HDMI/DisplayPort/DVI monitors with Livegrade.

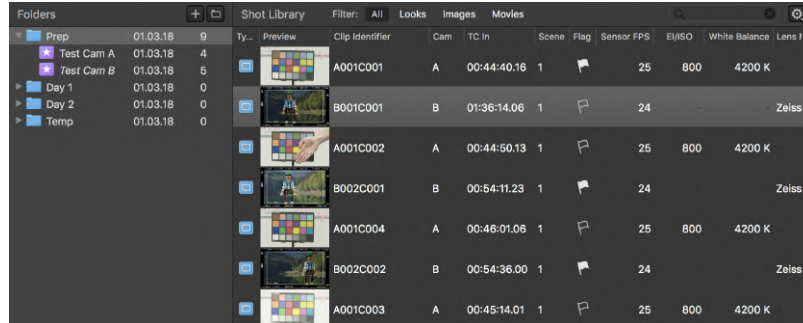
## Browsing and Exporting

### The Shot Library

#### Shots

The shot library stores all shots of the current project. Users can view, manage, and recall their shots in the shot library.

Shots are stored in bins, and bins can be grouped in folders. You can organize folders within folders to create a project hierarchy. Selection of bins and folders behaves recursively: Selecting a folder shows the shots of all the bins and folders in the selected folder.



The shot library with bin and folder outline

Each “shot” (e.g. each entry in the shot library) consists of

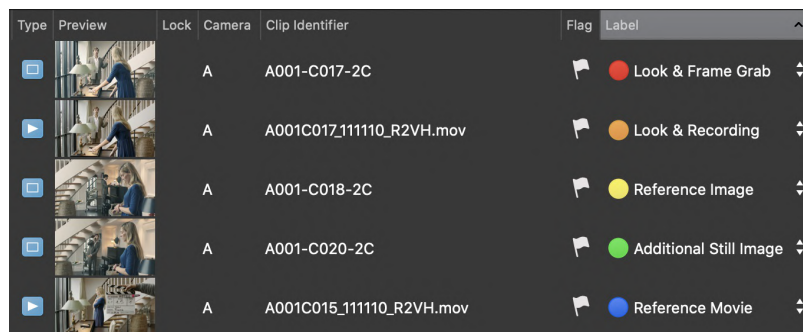
- all associated **clip metadata** received from the camera and from custom-filled metadata fields,
- the **look metadata** with all grade settings from the slot where the shot has been created from, and
- an optional **media asset**, such as a framegrab or movie recording (if available from a capture device in the slot where the shot has been created from).

All shot information is collected at the moment of creation, but can be either edited or updated at a later time if needed.

Note: You can update the clip identifier of selected shots via the “Recreate Clip Identifier” menu item. The clip identifier values are then updated based on the current shot metadata and the active naming scheme set in the shot creation preferences.

Media assets can be framegrabs or movie recordings generated within Livegrade while creating the associated shot, or imported images, imported still images from a movie or imported movie files.

Shots can be tagged with a **color labels** and a customizable label text. The custom label text can be edited in the “General” preferences. A default label or secondary label can be applied on shot creation. Set values for default label and secondary label in the “Library” preferences. “Create Shot” and “Create Shot (with Secondary Label)” then apply the desired label directly on shot creation.



Shots tagged with labels

The primary actions for lists of shots are:

- Export look metadata of selected shots as CDLs or lookup tables
- Create shot reports as PDF from a bin or folder
- Export a bin or folder to Silverstack’s automatic look matching feature.

The primary actions for single shots are:

- Apply the shot’s attached look of a selected shot to the current slot
- Use the shot’s attached still frame or movie clip as a reference (e.g. split screen) in the current slot
- Output the shot’s attached still frame or movie clip to HD-SDI (either in the current slot or permanently in the library slot)

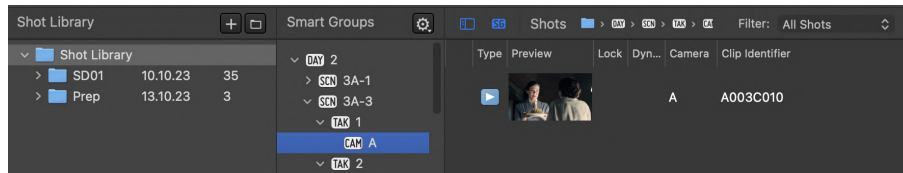
All actions are available through context menus (right-click) or main menu entries / keyboard shortcuts. PDF reports are now customizable, the selection of columns in the report follows the selection of columns in the shot library.

#### Smart Groups

There is an advanced “Smart Groups” view accessible from the shot library window, that displays a hierarchical structured outline of the currently selected folder level of the shot library.

Smart groups are auto-generated based on shot metadata. You can define the hierarchy levels for the outline in a gear menu, that provides the metadata fields “Season”, “Episode”, “Flagged”, “Label”, “Crew Unit”, “Shooting Day”, “Scene”, “Shot”, “Take”, “Camera”, “Caption”, “Location” and “Rating” to choose from. You can also apply from predefined layouts or save custom layouts.

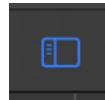




Smart Groups

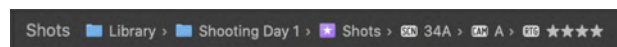
If you like to work with Smart Groups only you can hide the Shot Library Outline on the left side via

- unchecking View > **Show Shot Library Outline**
- or by pressing the following button above the Shot Library:



**Note:** Smart groups are pre-filtered by the selected folder/bin in the shot library sidebar. When you want to view all available items in the library, make sure to select the “Library” home folder in the shot library sidebar.

The path in the “Shots” sub-toolbar shows the current library folder and smart groups level and lets you browse and choose within the library.

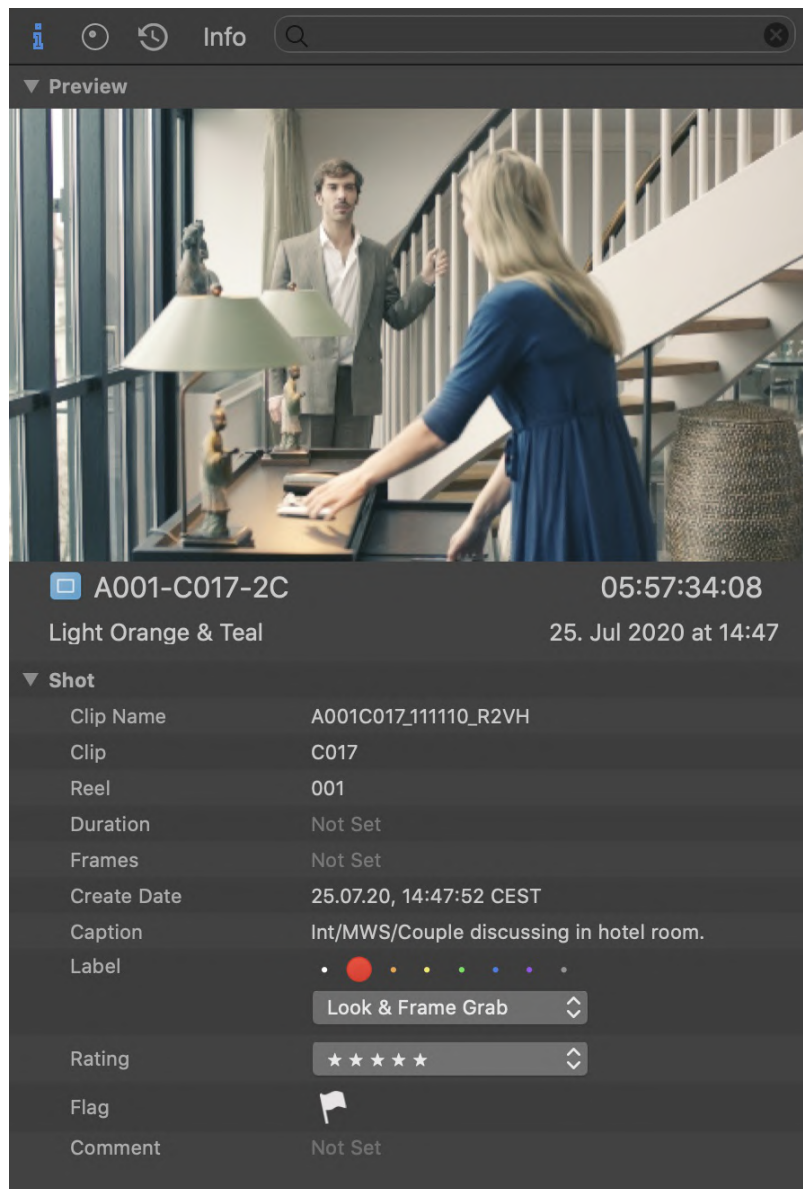


Library path with smart groups level

### Shot Info Panel

The right panel besides the shot library has three tabs: One for the shot info, one for look presets, and one for the history.

The Info tab shows detailed information about the currently selected shot and a preview image. You can resize the preview image by resizing the right panel. You can also edit metadata field of the selected shot or multiple selected shots. A search bar on the top lets you filter the displayed fields and metadata.



Info Tab

### Importing Reference Images and Reference Movies

When building a new look it can be beneficial to import a reference image or reference movie in order to compare color, lightning and exposure with the current grade:

- Import images and movies by choosing "Import Media..." from the "File" menu and selecting one or multiple files.
- Import a still image from a movie file also by choosing "Import Still From movie..." from the "File" menu. A pop-up window lets you playback and scrub through the selected movie and lets you set the position of the still image.

Note: The original media file will be copied into Livegrade's recordings folder. Depending on the file size this might take a while. Imported reference media will show up in the shot library as soon as the copy process is done.

Search Code: LG-SL1

### Exporting Look Metadata

Livegrade offers multiple options for exporting looks e.g. for sending to post production. For an overview of all ways to export information from the shot library, please see the article [Exporting Shot Information](#).

Look metadata can be exported as a 3D LUT, as an ASC-CDL file, a camera format like ALEXA Look and AMIRA Look, AMF (for ACES), or as Colorfront's CFE file.

Additionally there are two formats for transporting look metadata between Livegrade and Silverstack: [Pomfort Looks](#) and [Pomfort Look Archives](#).

### Exporting a Look from Livegrade

To export a look from the shot library perform the following steps:

1. Select one or multiple looks from the library:

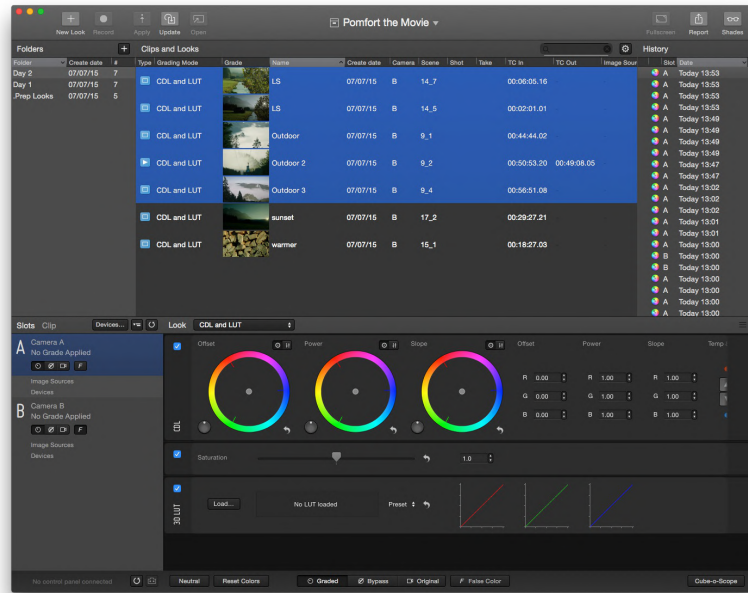


Figure 1: Multiple looks selected

- Go to the Main Menu. Choose **"File>Save selected Shots as"** to export the selected looks (you can also use Shift+Command+S as keyboard shortcut). You can also select **"File>Save current Look as"** to only export the look that is applied in the currently selected slot.
- In the export wizard you will then be able to select the desired format for your export:

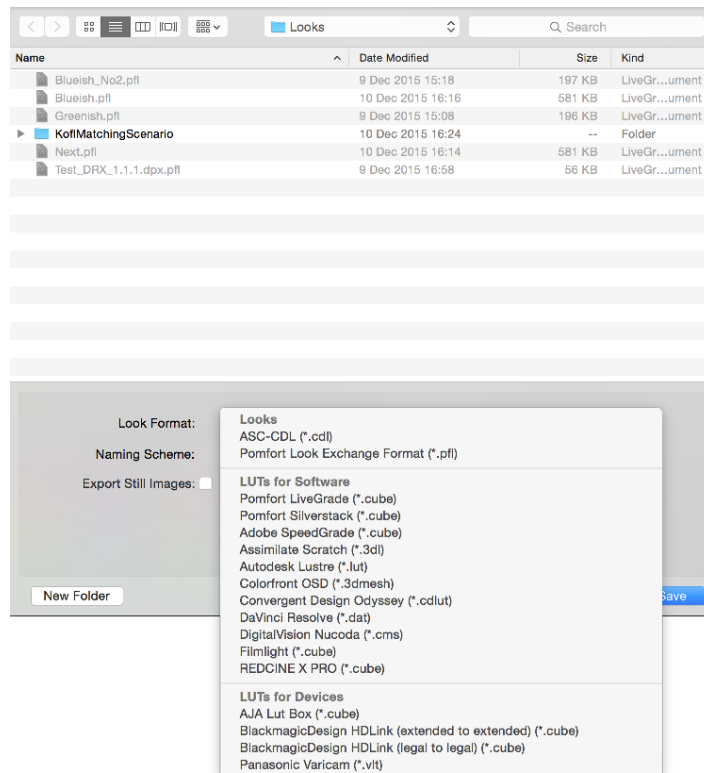


Figure 2: Choose the desired format for the export

Not all looks can be exported to all formats, so the displayed list of available formats is dependent on the grading mode of the selected shots in the shot library.

Available export formats:

- 3D LUTs for Software:** includes the CDL values and the Log to Rec.709 conversion LUT when created on the CDL Grade mode. If it has been created on the ACES mode, it has the IDT and ODT embedded in addition to the CDL values. Multiple export formats are available, which are described below.
  - Pomfort Livegrade (33x33x33, RGB order, .cube file)
  - Pomfort Silverstack (33x33x33, RGB order, .cube file)
  - Adobe (32x32x32 3D LUT, .cube file)
  - Assimilate Scratch (32x32x32 .3dl file)
  - Autodesk Lustre (33x33x33 .lut file)
  - Colorfront OSD (17x17x17 .3dmesh file)
  - [Convergent Design Odyssey](#) (17x17x17 .cdlut file)
  - DaVinci Resolve (33x33x33 3D LUT, .dat file)
  - DigitalVision Nucoda (17x17x17 .cms file)
  - FilmLight Baselight (32x32x32 .cube file)
  - RED CINE X PRO (33x33x33, rgb order .cube file)
- 3D LUTs for Devices:** includes the CDL values and the Log to Rec.709 conversion LUT when created on the CDL Grade mode. If it has been created on the ACES mode, it has the IDT and ODT embedded in addition to the CDL values. Multiple export formats are available, which are described below.
  - BlackmagicDesign HDLink Legal to Legal (17x17x17 .cube file)
  - BlackmagicDesign HDLink Extended to Extended (17x17x17 .cube file)
  - [AJA Lut box](#) (17x17x17 .cube file)
  - Panasonic Varicam (17x17x17, rgb order .vlt file)
  - Teranex Mini (33x33x33, rgb order, with float values RGB full range, .cube file)

Note: Due to lacking accuracy 17x17x17 LUTs are not recommended for color critical decisions in ACES workflows, but will still provide useful results for on-set preview

- Pomfort Look Exchange Format (\*.pfl):** It creates a .pfl file that can be used to transport looks to another Livegrade or Silverstack instance. You can learn about transporting looks from Livegrade to Silverstack in the article [Transferring Looks from Livegrade to Silverstack](#).
- ASC-CDL:** it creates a .cdl file containing the color values as specified by the ASC-CDL standard. It does not include the Log to Rec.709 conversion LUT.

If you select the according grading modes the export options will also include:

- ASC-CDL + 3D LUT [combo]:** Advanced look export splitting CDL and non-CDL components of a grade into ASC-CDL and 3D LUT files (e.g. for re-building a look in third party software)

Note: For looks including non-CDL nodes before a CDL node ASC-CDL + 3D LUT [combo] export is not possible. When importing the files into third-party applications, make sure to re-build the order of nodes like in the original look for consistent results.

- ALEXA Look:** a .xml file that can be loaded on ARRI ALEXA cameras or used in post production tools. It includes the standard LogC to Rec.709 conversion LUT and the color values used on the ALEXA Look mode.
- AMIRA Look:** an .aml look is created, which can be loaded on ARRI AMIRA cameras. It can be saved from grade created on the CDL Grade mode. It includes the cdl values and a neutral LUT. A custom LUT is included instead if a different one than the AMIRA LUT is used or the 1d LUT filter is modified.
- ACES Metadata File (AMF):** An XML-based format specified by ACES for interchanging the entire setup of an ACES pipeline, including IDT, and ODT, ACES version information for all transforms, ASC-CDL values and the working color space for the ASC-CDL.
- ACES Metadata File (AMF) + CLF:** Look exchange format compatible with advanced ACES pipelines including LMTs, can be exported from the ACES CDL Advanced mode and allows round-tripping with third-party applications

Note: Non-CDL compliant grading nodes are passed on as an LMT in the Common LUT Format (.clf)

- STUDIO**  
**CFE:** it creates a .cfe file containing all parameters of the “Colorfront Film” grading mode, including e.g. input and output color spaces, looks, and scene referred parameters.

4. Choose your desired destination on your hard-drive and hit “Save”. For more information about using naming schemes, please take a look at the article [Using automatic naming schemes when exporting grades](#).

5. You can also export the still images associated with a certain look. Simply mark the check box on the export dialogue:

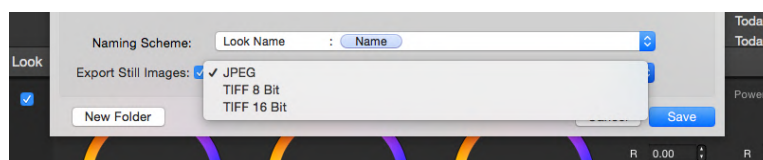


Figure 3: still image export

### Export a LUT Package of the Selected Look

With this option, you can export a look to every available 3D LUT format. Just select the grades you have to export and then click on File>Export a LUT package of the selected Grade. Finally choose the save destination and a naming scheme (more information on [Using automatic naming schemes when exporting grades](#)). Livegrade will create a folder with all the LUT formats of that grade.

### Custom grading modes limitations

Looks stored in some grading modes have limitations regarding the available export formats. For a detailed list see [Grading Modes](#).

## Exporting a Look Archive from Livegrade

A Look Archive can contain one or multiple looks along with all the further metadata acquired in Livegrade.

Look archives can be exported from the whole library ("Library" folder), folders, bins or smart groups. You can export your selected folder, bin or smart group by right-clicking on it and choosing "Export Look Archive" from the context menu.

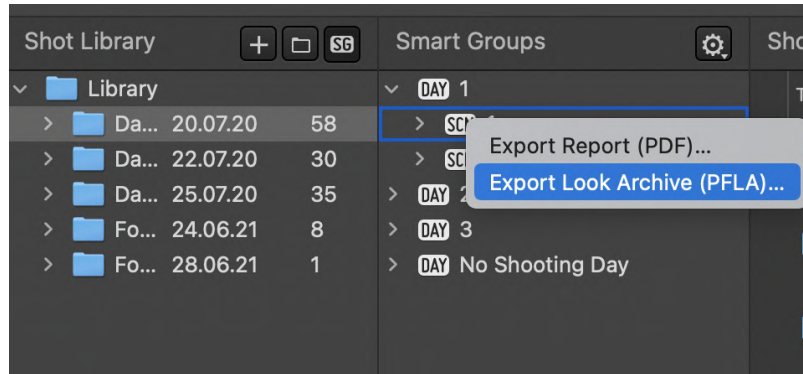


Figure 4: Export PFLA from smart group

Save the resulting .pfla (Pomfort Look Archive) file to the desired destination.

Note: You can also choose to save your hi-res frame grabs, movie recordings or imported reference media together with the PFLA in order to share your work with other units or transfer your project to another machine. See the article [Sharing look archives with media](#) for more info.

## Importing a Look Archive into Livegrade

To import a Look Archive into Livegrade go to the Main Menu. Choose **"File > Import Look Archive"** and select the desired look archive from the Finder. The look archive will be imported as a folder in the Livegrade look library.

You can learn how to handle look archives with Silverstack from the article [Transferring Looks from Livegrade to Silverstack](#).

## Sharing look archives with media

You can export and import a Pomfort look archive (.pfla), including references to a media folder. When exporting a PFLA, you can choose to leave the associated media files in their original location or copy the media files to another location (e.g., to an external hard drive).

Each Livegrade media folder contains a JSON file with an UUID for unambiguous referencing of media assets in Livegrade projects. As exported PFLAs also hold the media folder UUID, Livegrade can pick up the correct media folder and import the shots from a PFLA and link them to the correct media asset. This way, you can share PFLAs with project media flexibly across multiple machines and teams. Learn more about [Media Folders](#).

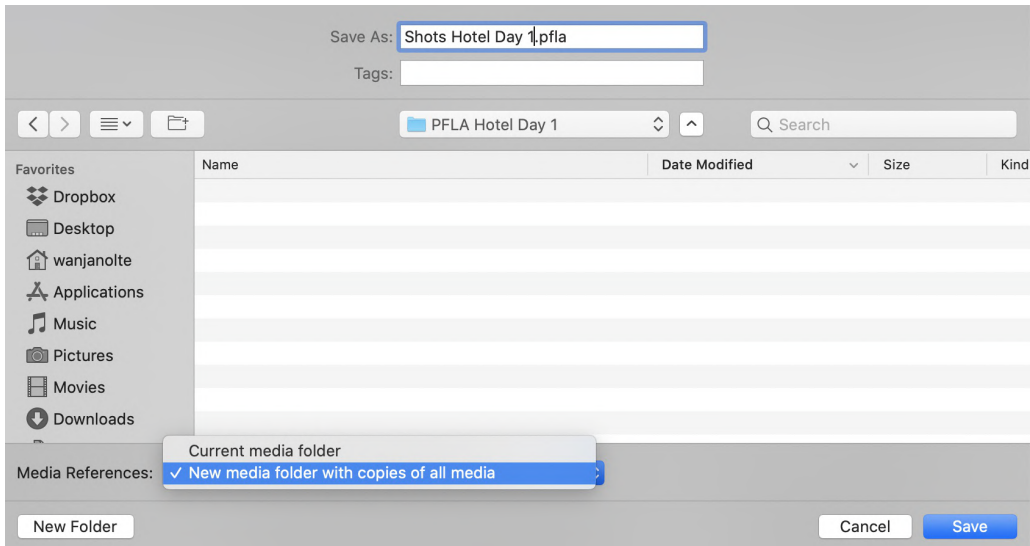
## PFLA Export

Depending on the used export option, your referenced media folder can either be:

- the same media folder used in the original project (or an exact copy of the folder),
- or a new media folder exported together with the PFLA.

## Export options:

- **"Media References: Current media folder"** exports the PFLA using the existing media folder references.
- **"Media References: New media folder with copies of all media"** copies all associated media files into a new media folder that is saved together with a PFLA using the references to the new media folder.



### PFLA Import

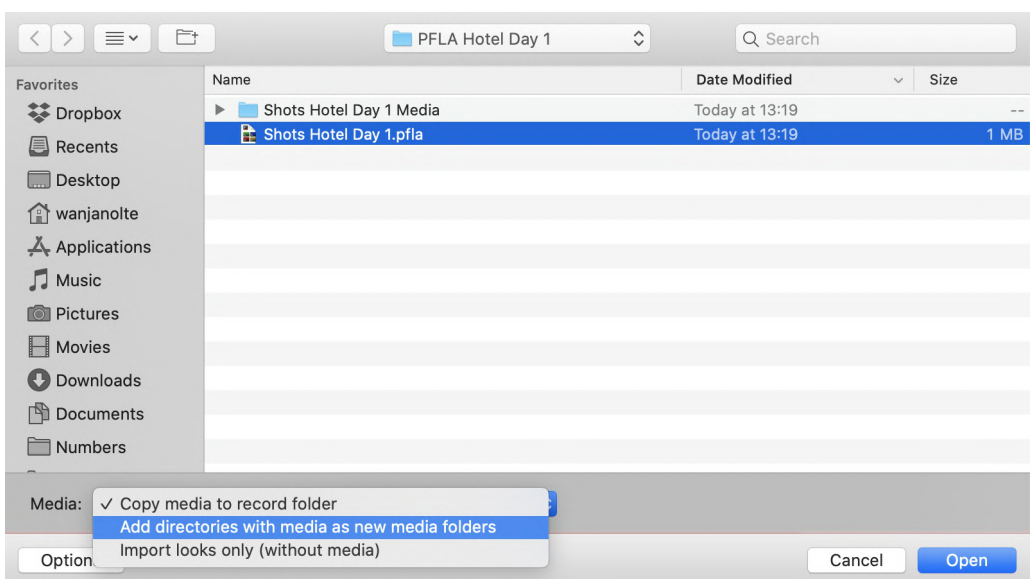
You can now import the PFLA, including media, to another machine or into another project on the same machine.

Depending on the used import option, you can import the referenced media:

- by copying the media files into your project's current record folder,
- **STUDIO** by adding the referenced media folder as new media folder to your project's recording preferences,
- or you can just import looks with thumbnails without the hires media references (with offline media).

#### Import options:

- **“Media: Copy media to record folder”** imports the PFLA and copies the referenced media files to the current record folder. For PFLAs exported using the option “Media References: Current media folder”: You need to select the referenced media folder during the import process.
- **STUDIO**  
**“Media: Add directories with media as new media folders”** imports the PFLA with media directly by automatically adding the associated media folder as a new media folder to the project's recording preferences. For PFLAs exported using the option “Media References: Current media folder”: Either add the referenced media folder to your project's recording preferences manually before the import, or you need to select the referenced media folder during the import process.
- **“Media: Import looks only (without media)”** imports only the looks of the PFLA with thumbnails but without references to the original hires media files.



### Using Automatic Naming Schemes

Different metadata information can be added to each grade through the [Grade Library](#) panel. Adding this information can be helpful to identify your grades and to [automatically match them to clips using Assimilate Scratch](#).

When these grades have to be exported, Livegrade offers the possibility to name them using a combination of the metadata fields. This way, grades can be easily identified along the post workflow. The naming schemes are also available when saving grades or exporting the LUT package. You can learn about the general export process from the article [Exporting Grades](#).

In order to export a look, go to **“File > Save selected Looks as...”**:

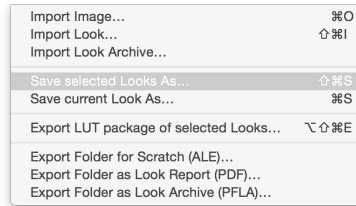
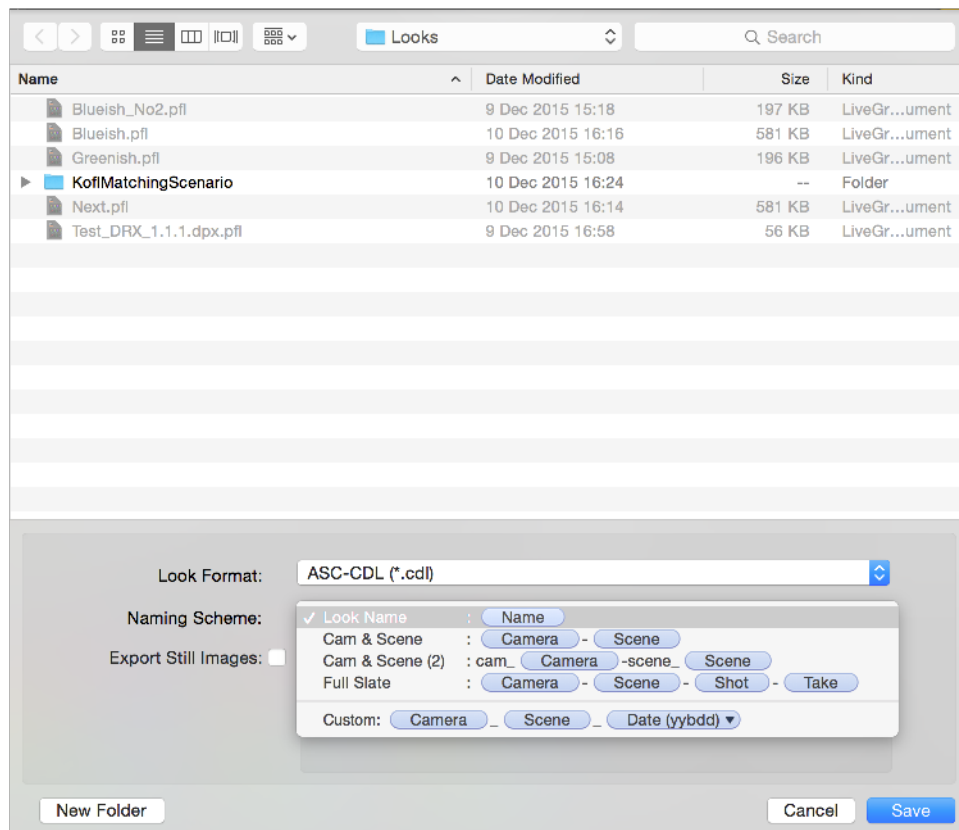


Figure 1: Exporting a look

A dialogue will open showing the destination options, format options and Naming Scheme:



Some wildcard presets are shown (figure 2), but you can create a custom file naming scheme by clicking on **“Custom”** in the drop down menu. After clicking on the appearing button **“Customize...”**, the naming scheme editor window will appear:



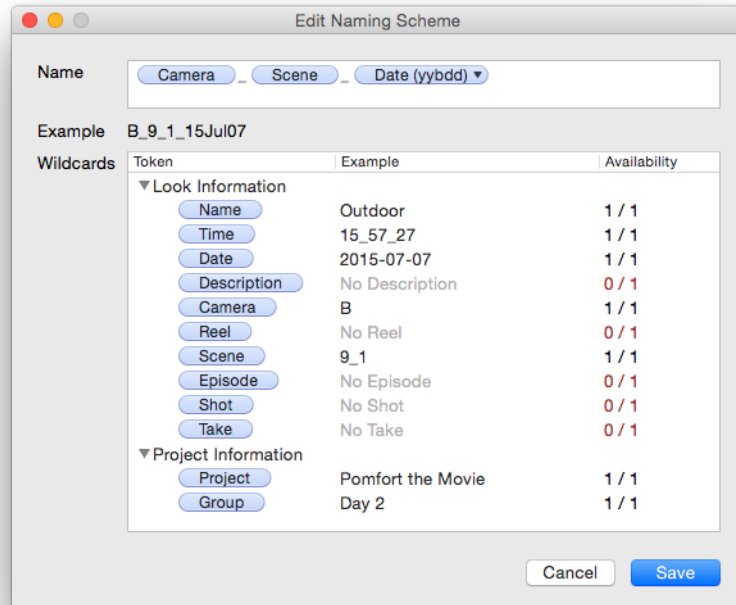


Figure 4: Naming scheme editor

Here you can edit the naming scheme by replacing the original wildcards with the available ones. Simply drag and drop them on the «Name» box to create the custom name. However, have in mind that Livegrade can only use information already added to the grades, otherwise a placeholder will be written in its place. You can see if a grade has a certain information in the «Availability» column.

**Note:** wildcards are usually separated by an underscore sign «\_». In addition, a forward slash «/» can be used to create a folder structure. Here you can see an example:

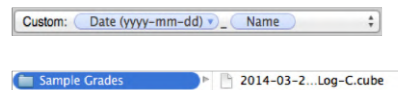


figure 5: result of using an underscore sign

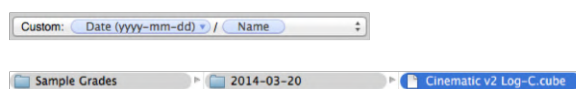


figure 6: result of using a slash sign

## Creating Look Reports

Look reports can be exported as a PDF document containing the thumbnails and the metadata of each library item –look, still or clip–. This feature can be very useful to communicate the different grades of a shooting day for example.

In order to create a clip report, select a folder from the library and click on File > Export Folder Report (PDF):

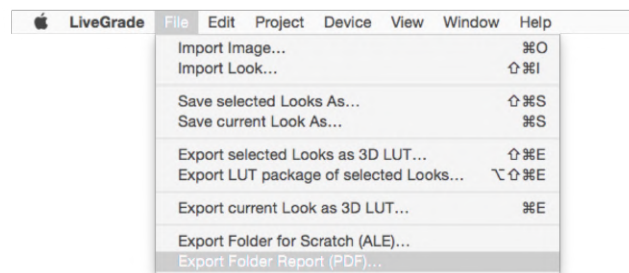


figure 1: exporting a PDF Look report

### Customizing the Look report

The contents of the Look report are based on the metadata columns shown in the Library. You can set which columns are shown by clicking on the «gear» icon on the top right of the Library.

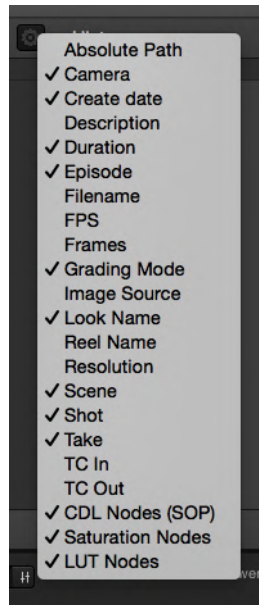
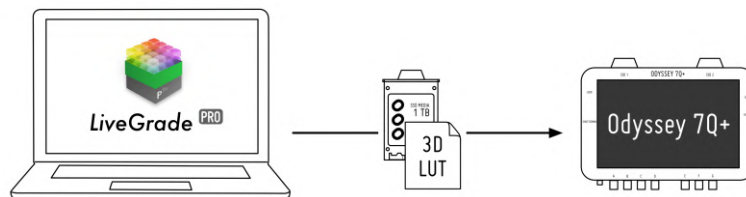


figure 2: customizing the information on the Looks report

### 3D LUT export for Odyssey 7Q+

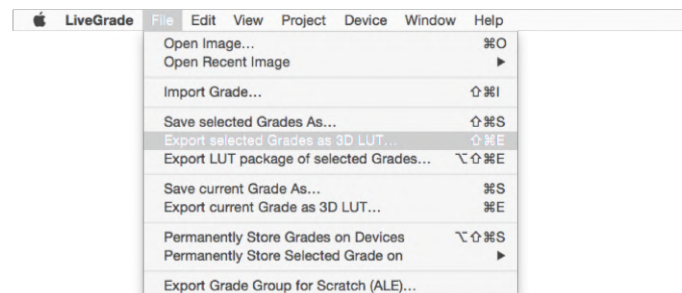


Livegrade lets users export their grades to be used on the Odyssey 7Q+ recorder from Convergent Design. The grades can be loaded into the Odyssey 7Q+ device in order to be applied to the live HD-SDI signal on the built-in monitor.

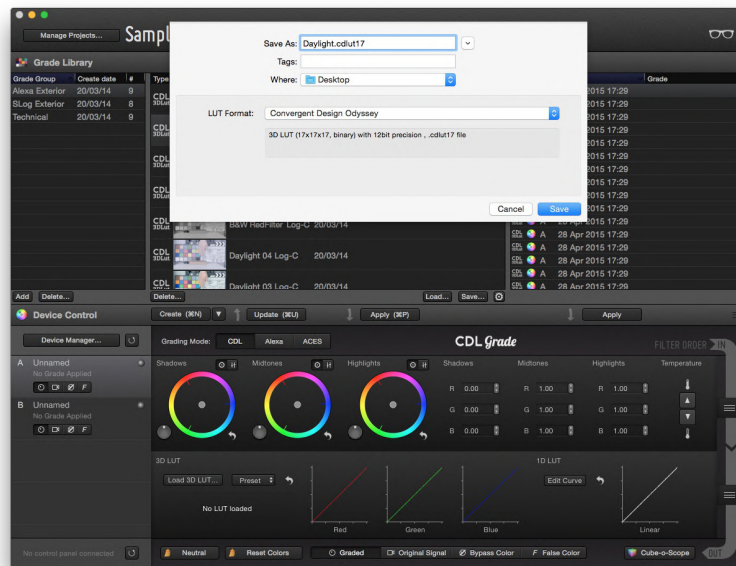
You can use Livegrade's broad range of grading features to create and export LUTs in Convergent Design's .cdlut format. It is possible to get the same look on the field recorder display as in Livegrade and in post production tools (e.g. for dailies creation or color grading) – offering valuable technical as well as creative real-time feedback for DPs and DITs.

### Exporting the grades to Odyssey 7Q+ devices

Once the grade has been created, it has to be selected from the library and then it can be exported as a 3D LUT.



A 3D LUT format selection wizard appears. The «Convergent Design Odyssey» format has to be selected:



After the .cdlut17 3D LUT file has been saved on the desired destination, it is ready to be used. For more information on how to export grades, please check the article [Exporting Grades](#).

#### Loading the grade into the Odyssey 7Q+ device

Once the 3D LUT has been exported, it has to be loaded into the Odyssey 7Q+ SSD drive. You can use Finder to place the .cdlut17 file into the specific folder on the SSD drive to help the Odyssey 7Q+ locate the grade.

**Note:** The .cdlut file file has to be placed into the LUT folder in the root directory of the SSD which has to be named "JCD\_LUTS{". If it does not already exist you have to create it.

After the grade has been copied into the SSD, you can attach it to the Odyssey 7Q+ device. If the SSD is correctly mounted you can see the LUTs load in the lower left corner of the home display.

To open the "LUT-Menu" perform a long tap on "LUT" in the home display:



Step 1: open the LUT menu

Then tap on «Import from SSD» and select all the LUTs that you would like to load:



Step 2: import the LUT files

Confirm the operation:



step 3: confirm the operation

Finally the imported grades should be available on the LUT selection menu:



step 4: select the LUT to be applied.

At this point you should be able to apply the LUTs imported previously to the current SDI signal. To select a specific LUT just tap on it in the menu and it will turn green. After closing the LUT menu you will be able to enable or disable the LUT by performing a short tap on “LUT” in the home display.

## Export LUTs for the AJA LUT-box

Due to the design of the AJA LUT-box Livegrade is not able to use it for real time color grading. However a 3D LUT can be created with Livegrade and exported and uploaded onto the AJA LUT-box.

In order to be able to upload a LUT into the AJA LUT-box, you have to export it from Livegrade into a specific format. To do so select it from the Grade Library and go to File > Save selected Looks as:

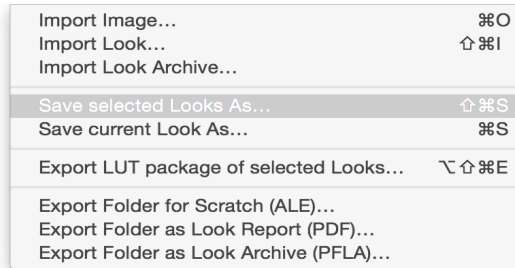


figure 1: exporting a 3D LUT

Then on Look format, you have to select «AJA LUT Box» on the drop down menu:

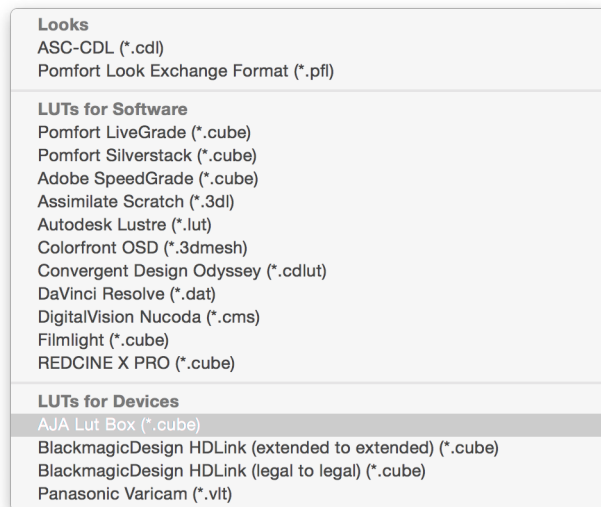


figure 2: LUT format selection

Once the format has been selected, the LUT export wizard will display the format specifications. Now you only have to save the grade to the specified location.

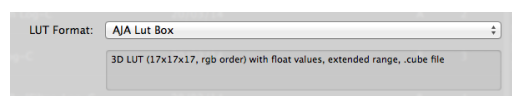


figure 3: AJA LUT Box format

Finally, the LUT has to be uploaded into the AJA LUT-box device using the MiniConfig software downloaded along with the hardware drivers.

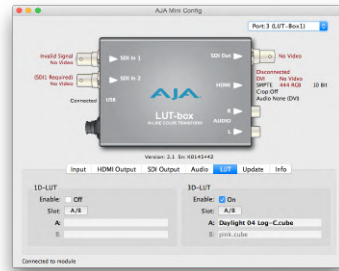


figure 4: MiniConfig software UI

To upload a LUT the user needs to select “3D-Lut” from the main menu and then choose the slot he wants the LUT to be written on:



figure 5: Mini Config menu

Then an open dialog is shown where the LUT that has been exported from Livegrade has to be selected.



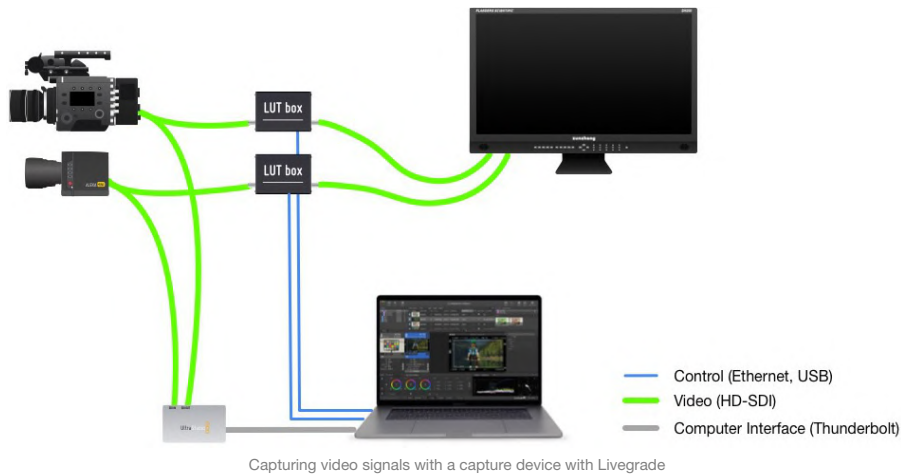


## Advanced Hardware Setup Options

### Setting up HD-SDI Video Capture Devices

Livegrade supports the capturing of live HD-SDI signals for reference and display purposes. Therefore a supported HD-SDI video capture device is required. See the “Capture Devices” section of the article [All supported devices](#) for more information on supported devices.

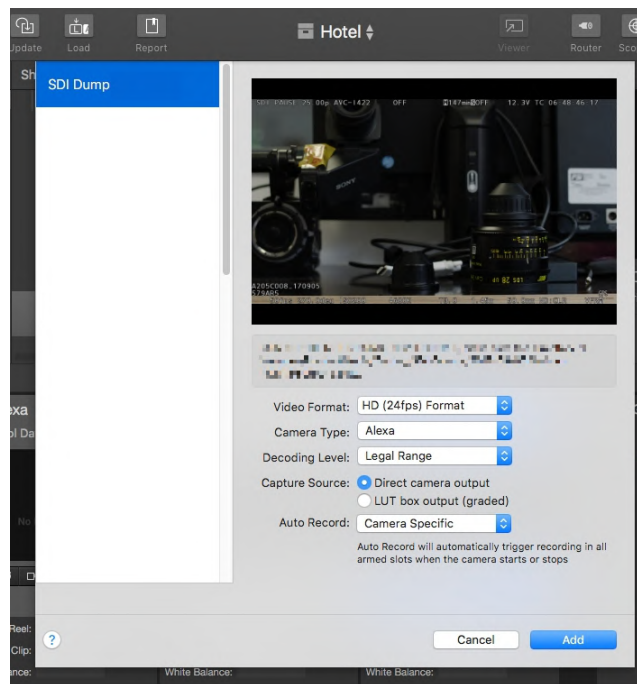
The various HD-SDI setup options with Livegrade are described in the article [HD-SDI Setup Options](#).



For a list of compatible devices for HD-SDI output in LiveGrade Pro 3 and 4 please see the article [Image View Output to HD-SDI in LiveGrade Pro](#).

### Setting up a video capture device

You can add a capture device to a slot by choosing “Add Capture Device...” in the “Add Device” submenu of the “Slots” menu, or in the device manager.



Configuring and adding a capture device

Choose one of the connected capture devices in the table on the left.

You can then choose from the following options:

- **Video Format:** Some capture devices allow to select a video format. Choose the appropriate video format for the captured signal.
- **Camera Type:** If not chosen automatically, choose the camera type here. This enables metadata capture from ANC for that camera type.
- **Decoding Levels:** Choose the video levels that shall be used for decoding the signal (ARRI cameras for example usually are decoded “Legal Range”, while Sony cameras might be captured “Full Range”).
- **YCbCr-RGB Conversion:** Choose the appropriate color conversion matrix (Rec.709/Rec.2020) for your incoming video signal. This parameter will also be passed on into the metadata of your recorded movies.
- **Capture Source:** Tell the application if the incoming signal is the “log” output of the camera (which is recommended), or if the signal is pre-graded (e.g. when capturing the output of a LUT box controlled by the application). This setting avoids “double LUTting” in the case when you need to capture a pre-graded signal.





- **Auto Record:** Enable / disable and choose the method for detecting the record state of the camera for auto-record functionality. Note that the appropriate “Record Trigger” method depends on your setup and camera:
  - All SDI connected cameras support “RecRun Timecode”
  - “Vertical ANC Record Flag” is only supported by older Arri Alexa camera models
  - Choose “Horizontal ANC Record Flag” for supported AJA capture devices (Kona 4 or newer and IO 4K series) when using ARRI, RED and Sony cameras

Click “Add” to add the capture device to the slot.

The capture device appears as a new row in the device manager. You can enable and disable auto-record functionality for that capture device from the capture device row with the button “Auto Record”.

When the device is added to the slot and configured properly, you can watch the live video signal on your computer monitor. The live image can be shown

- in the thumbnail view the slot (updated about every second), or
- in the applications image viewer.

How to use the image viewer to compare different image sources is explained in the article [Image viewer](#).

### Capturing media assets with shots

Once the setup is complete, it is possible to record clips or grab frames for storing them in the shot library. Both recordings and frame grabs are saved as captured (e.g. “log”), but the currently applied look is also saved with the shot in the shot library. This way the look will be applied during playback of the clips and frame grabs.

See the article [Collect Shot, Clip, Still, and Look Information](#) for more information about storing captured media assets in the shot library.

### Taking frame grabs

Frame grabs can be taken in two ways:

- Click the refresh button in the slot UI or in the image viewer to manually create a new frame grab
- Create a new shot entry in the shot library. When the option “Refresh frame grab....” in the General section of the Preferences is set, a new frame grab will be taken.

### Recording clips

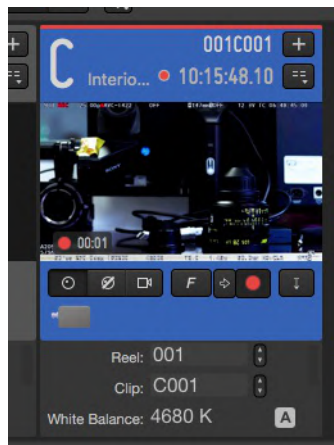
To start a recording for a single slot, click the record button the slot UI. To start a recording for multiple slots, click the «Record» button in the toolbar, or choose “Start Recording” from the main menu.

## STUDIO

You can enable and disable recording for a slot by clicking the arrow button besides the record button in the slot UI. When set, the slot is “armed” for multi-slot recording.

The default destination for storing recorded clips is ~/Movies/LiveGrade Recordings in the user’s home directory. This folder can be configured in the Preferences>Recording settings.

During recording the slot UI will indicate that the recording is running:



Recording indicators in the slot UI

The header bar of the slot will be marked red, and the record button will also become red. The image preview will show a record indicator with the current length of the recording.

### Updating frame grabs

To update the framegrab and a selected shot entry in the shot library choose

- “Replace Image of Selected Shot” in the “Library” menu in order to only replace the image
- “Update Selected Shot and Replace Image” in the “Library” menu in order to only replace the image

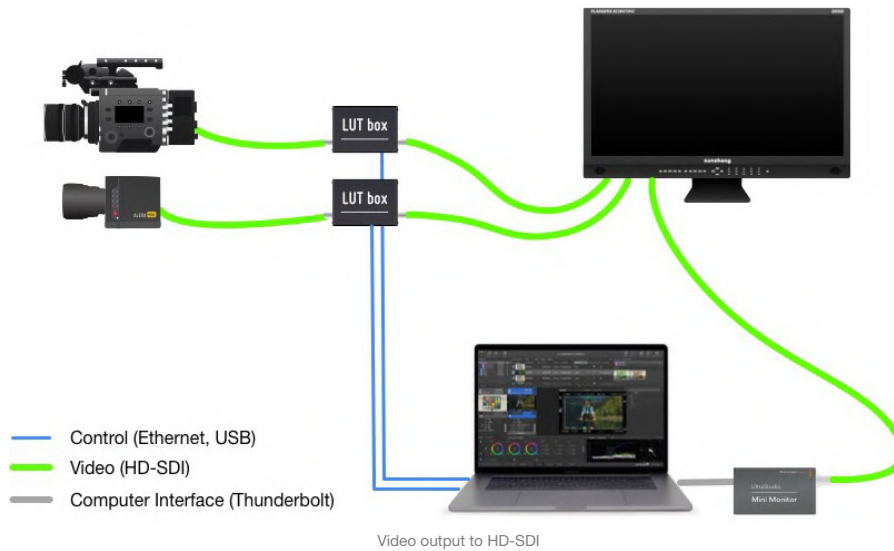
Please be aware that frame grabs from pre-graded image source cannot be updated when the look of the shot is updated.

### Image View Output to HD-SDI



Livegrade comes with HD-SDI output to mirror the Image Viewer to HD-SDI via supported third party devices. The current Image Source in the Image Viewer is mirrored to the HD-SDI output showing the image in full-screen and 10 bit color depth.

The various HD-SDI setup options with Livegrade are described in the article [HD-SDI Setup Options](#).



### Supported Devices for Payout to HD-SDI

To enable the HD-SDI output you need one of the following devices:

- AJA Io Series (e.g. AJA Io XT or IO 4K Plus)
- AJA KONA Cards (e.g. KONA 5G)
- Blackmagic Design UltraStudio Series (e.g. Ultrastudio HD Mini, Ultrastudio 4K or Ultrastudio Mini Monitor)
- Blackmagic Design DeckLink Cards (e.g. DeckLink Duo 2)
- AJA T-TAP

For a list of supported capture devices in Livegrade 3 and 4 please see the article [SDI Signal Recording and Framegrabs](#).

### Schematic Overview: How to Connect

Attach the according interface to your Mac (Thunderbolt or PCIe) and connect the HD-SDI output of the device to the selected destination.

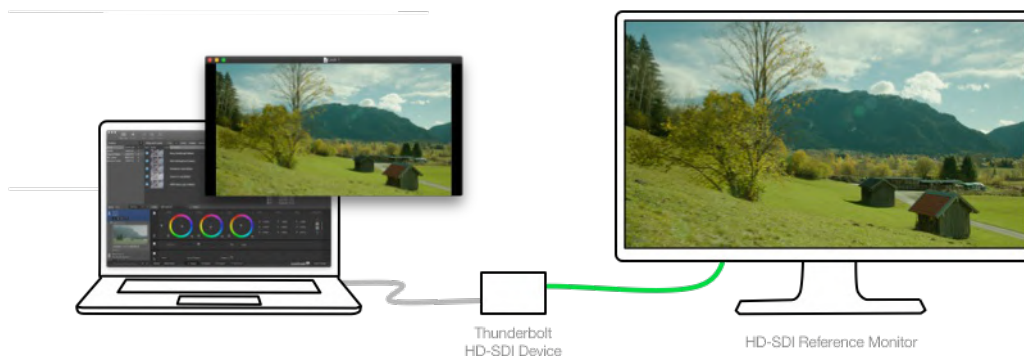


Figure 1: Schematic presentation of a Livegrade setup with HD-SDI output

**Please be aware** that the Ultrastudio Express can only be used either as an input or as an output to or from Livegrade. It can not be used as in- and output at the same time. This is due to hardware limitations of the product. The output will show the loop through of the signal that is not equal to an output out of Livegrade that mirrors the Image Viewer and can contain looks or a reference image.

### Trouble Shooting – AJA Devices

In case your AJA video output device does not respond to the video preferences set in Livegrade, try following these steps to rest the device:

1. Quit Livegrade
2. Open AJA Control Panel
3. Go to presets and press Reset Device
4. Open Livegrade again

### Drivers

In order to use the supported devices you have to install all drivers and necessary software provided by the the manufacturer.

For Blackmagic Design devices that is the “**Desktop Video**” software you can download in [their support area](#).

For AJA Devices that are the “**AJA hardware drivers**” included in the latest “**AJA software installers**” also available in [their support area](#).



### External Video Preferences

To enable the HD-SDI device in the preferences. Go to “**Preferences>Video**”. Choose the intended device from the dropdown.

You can disable the use of the device from the same menu in case another application demands its use (i.e. parallel use of the hardware with other software). If you have multiple output devices attached, you can select which one to use by choosing it in the drop down menu:

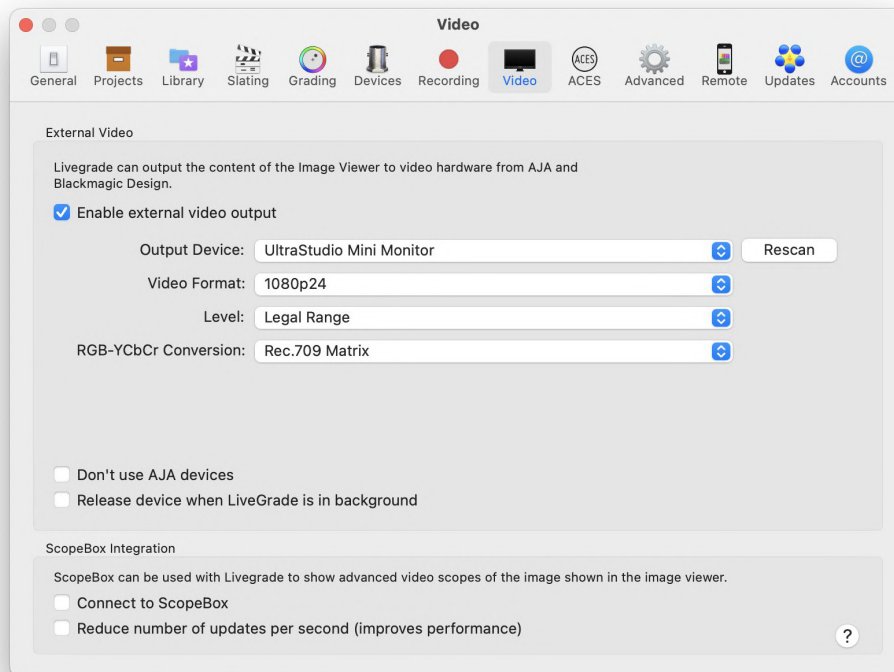


Figure 2: Livegrade Video preferences

Additionally you can choose to release the device when Livegrade is in background. By default it will be kept even if Livegrade is in background.

### Mirroring the Image Viewer Including References

The HD-SDI output will display the Image in the Image Viewer. **The Image Viewer has to be opened in order to send an image to the HD-SDI output.**

You can set a reference for the current Image Source to attain a split screen to compare two looks or stills. The reference will also be visible on your external HD-SDI reference monitor.

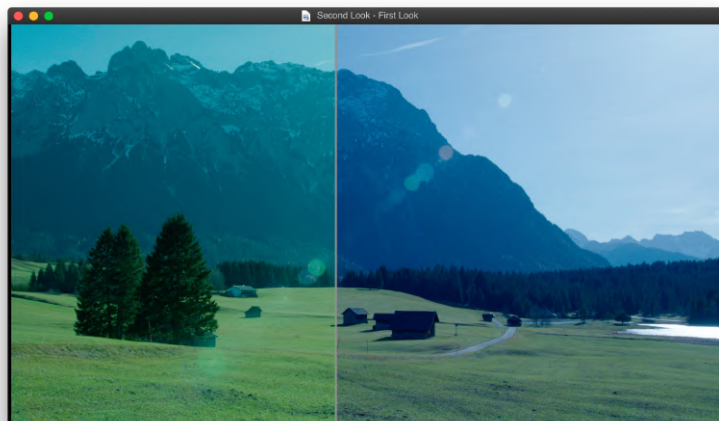


Fig. 3: Livegrade Image Viewer with a reference image set in split screen.

Learn more about the Image Viewer and References from the article [Image Viewer](#)



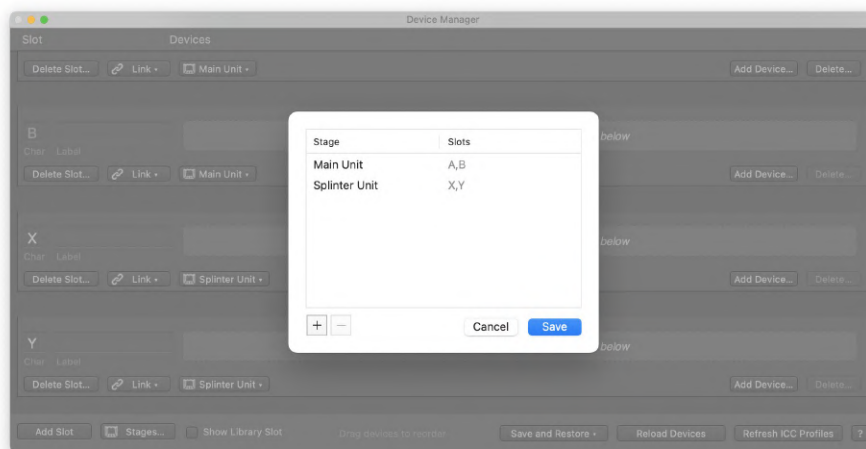
## HD-SDI Features and Quality Characteristics

<b>Color Reproduction</b>	HD video matrix and gamma (ITU-R BT.709; ITU-R BT.1886)
<b>Timing</b>	Sync to closest matching video frame rates
<b>Code Values</b>	10-bit legal range YCbCr output (internal 16-bit RGB processing)
<b>Embedded Audio</b>	Not supported
<b>Metadata Output</b>	Not supported

## Grouping Slots Into Stages

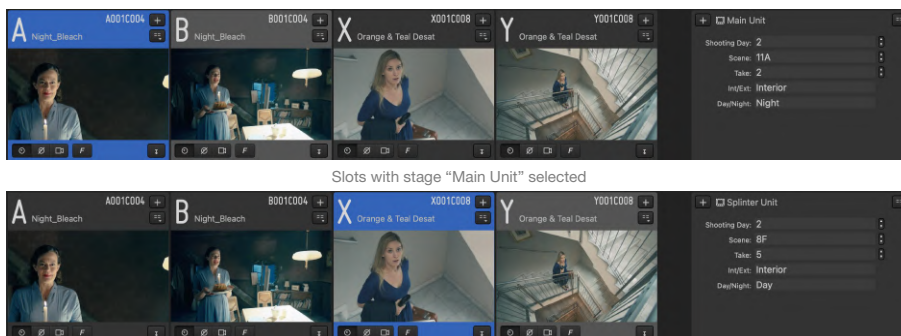
Livegrade Studio lets you group slots into stages for handling independent scenes (e.g., from multiple units) within one project.

You can configure stages in the device manager. You can set a custom name for your stages, e.g., “Main Unit” and “Splinter Unit”. Slots are automatically assigned to the first configured stage. You can change the assignment individually for each slot in the device manager.



Configuring stages within the device manager

The selection of the current stage follows the slot selection. When selecting a slot, all slots from the associated stage are highlighted in a lighter grey color in the slot UI. Slots from other stages are displayed in the darker grey background color.



Slots with stage “Splinter Unit” selected

With stages configured,

- the global metadata panel shows the metadata of the current stage,
- you can edit a stage’s metadata panel independently from other stages,
- “all slots” menu items and actions for shot creation, still image export and recording transform into “all slots of current stage” equivalents so that only slots of the current stage are affected.

The stage attribute is included in the shot metadata and can be used in the shots table, the info tab and the smart groups for filtering, searching and exporting purposes.

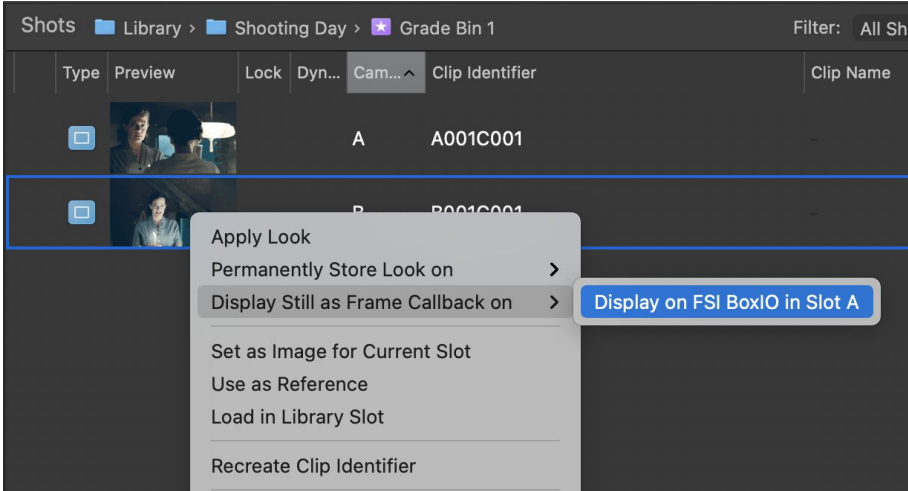
## Frame Callback on FSI BoxiO devices



**Display Still as Frame Callback:**

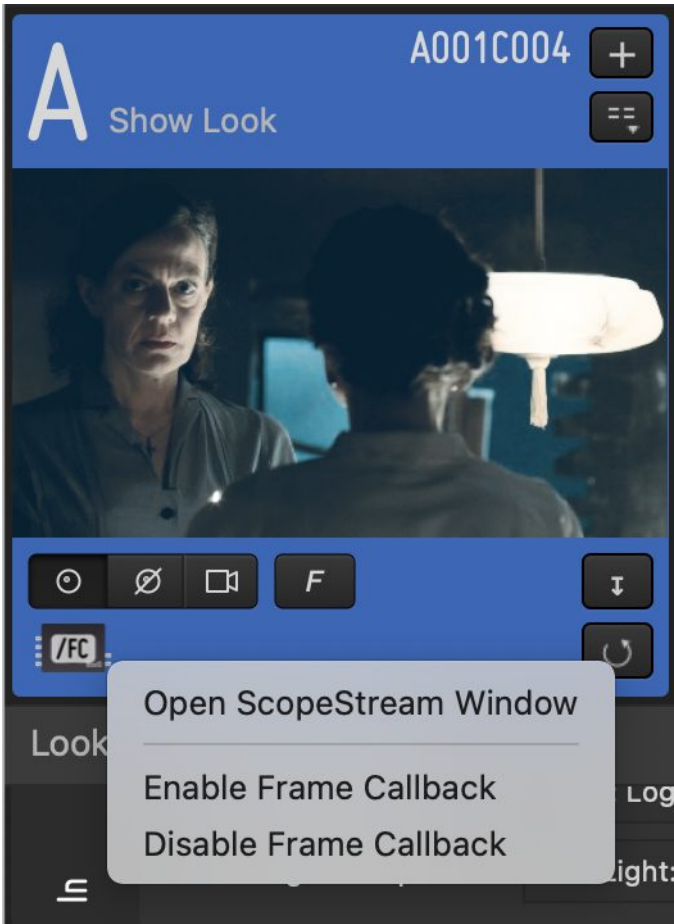
Livegrade supports Flanders Scientific's "Frame Callback" functionality, built into FSI BoxIO LUT boxes.

You can display a shot's graded still image (or thumbnail frame from a recorded movie) on any connected BoxIO device via the library menu or the contextual menu of a selected shot in the shots table.



Display Still as Frame Callback on

The BoxIO icon in the slot UI shows an "/FC" icon as overlay indicating the active frame callback status. You can toggle the frame callback on/off to compare a still with your live image in the contextual menu when right-clicking on the BoxIO icon.



Slot UI with enabled Frame Callback

**Grade Still as Frame Callback:**

For advanced workflows, you can enable "Grade Still as Frame Callback" in the devices preferences. This option adds additional "Grade Still as Frame Callback on" menu items allowing you to apply, re-grade, and update looks from shots via the frame callback mechanism.



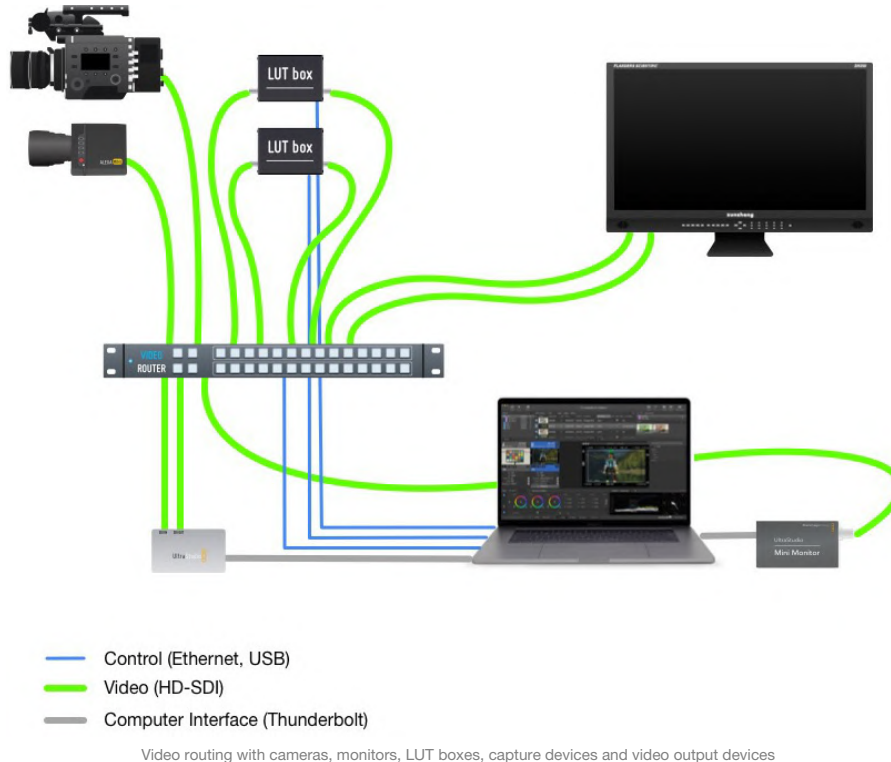
“Grade Still as Frame Callback” displays a shot’s graded still image (or thumbnail frame from a recorded movie) on a connected BoxIO device and applies the look to its slot. You can then edit the look and update the shot using the “Update” button in the toolbar or the associated menu items and controller actions.

**Note:** If you choose to apply a look of a shot via frame callback, the current look in the slot will be overwritten and not be restored after disabling frame callback again.

## Controlling an External Video Router

Video routers often sit at the core of a flexible video setup in a DIT cart. Video routers have multiple input and output ports and allow to easily switch the connections between these ports. Livegrade comes with the ability to control a video router and to apply pre-defined configurations of connections – either manually or on certain events such as switching slots in the application’s user interface.

The various HD-SDI setup options with Livegrade are described in the article [HD-SDI Setup Options](#).



## STUDIO

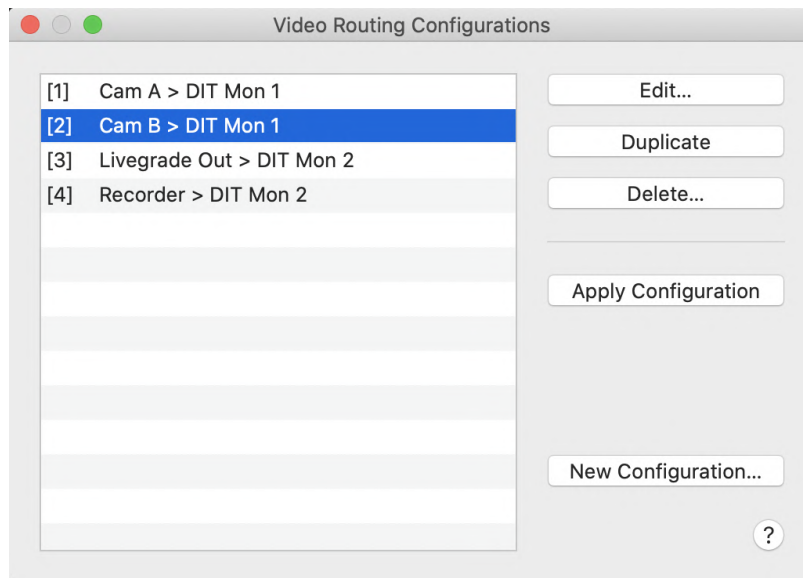
Livegrade Studio has an additional, dedicated view for directly controlling a video router and monitor routings visually. See [Interactive Router Control](#) for detailed information.

You need to have a working network connection between the computer running Livegrade and the video router. For setting up the network, please refer to the manual of your video router.

## Managing Video Routing Configurations

From the main menu, you open the Video Routing Configurations window by choosing “Video Routings -> Manage Configurations...” from the application menu.





Video Routing Configurations panel

The Video Routing Configurations window shows a list of your configured configurations, and options to edit, duplicate, and delete a selected configuration. You can also test the selected configuration by clicking the “Apply Configuration...” button.

You can rename a configuration by double-clicking the entry in the list.

The configurations have an automatically assigned index number for easier referencing (e.g. when using Stream Deck devices for remotely applying configurations).

You can change the order of the configurations by dragging and dropping a configuration entry in the “Manage Configurations” window.

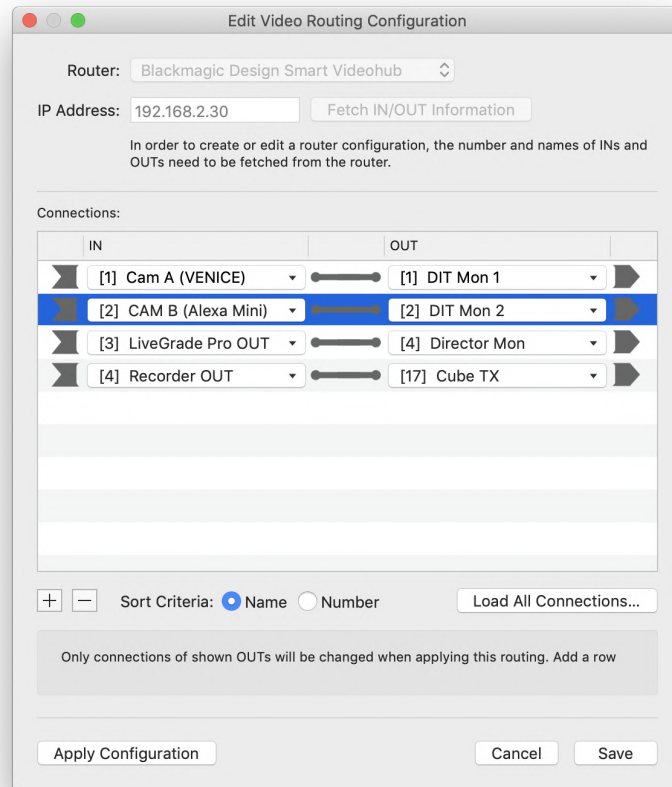
#### Creating a new video routing configuration

By clicking the “New Configuration...” or choosing “Video Routings -> New Configuration...” from the application menu, you open the dialog for creating a new video routing configuration.

In order to be able to create connections between in and out ports of your router, you need to connect to the router first. This is needed, so that the application can fetch a list of ports and their names from the router.

Choose an auto-detected router in the “Router” popup button, or choose the router model family you have (AJA Kumo or Blackmagic Design Smart VideoHub) and enter the IP address or hostname of your router. Click the “Fetch IN/OUT Information” button. If the router’s information has been fetched successfully, the controls below the connection table get enabled and you can start create new connections.





Editing a video routing configuration

Click the “+” button to create a new connection and “-” to remove the selected connection.

When clicking the “+” button below the connection table, you can choose which input (IN) port should be connected to which output (OUT) port. Choose the ports according to your setup and click “Add”. You can edit the connection at any time by double-clicking the connection.

Only connections of shown OUTs will be changed when the routing configuration is applied. All other output ports of your router will remain unchanged when applying this configuration.

You can test your current configuration by clicking the “Apply Configuration” button. The configuration will become active in the connected video router.

You can sort the connection table by IN or OUT ports, and you can choose if the selected column is sorted by name or port number with the “Sort Criteria” controls below the table.

When clicking “Load All Connections...” you can fill the connection table with the current, complete routing configuration of your video router. This can be useful as a starting point for complex routing configurations with lots of connections.

When clicking “Save...”, you will be prompted a name for the video routing configuration, and the configuration appears in the list of configurations in the Video Routing Configurations window.

#### Applying video routing configurations via the menu and keyboard shortcuts

Once a video routing configuration is saved, it will also appear in the “Video Routings” submenu of the application menu. When choosing one of the stored configurations in the menu, the configuration gets applied to the connected router.

You can assign keyboard shortcuts to the menu entries for individual video routing configurations with the Keyboard Shortcuts Manager. This allows you to easily switch between video routing configurations with keyboard shortcuts.

See the article about the [Keyboard Shortcuts Manager](#) for more information.

#### Applying video routing configurations from Stream Deck

You can also apply up to 20 video routing configurations from Stream Deck devices using the Stream Deck plugin.

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Additionally you can edit your video routing remotely using Stream Deck, by selecting up to 20 video inputs and video outputs on your active video router.

#### Automating video routing configurations

You can automate video routing configurations by using them as actions in the Automation Manager. This allows you to for example change the routing configuration when switching slots.

With the automation actions, you can also move a configured capture device from one slot to another. When the routing automation routes the right signal into the capture device, you can use one capture device for multiple cameras – e.g. for monitoring live image and camera metadata in the current slot.



See the article about the [Automation Manager](#) for more information.

## Interactive Router Control

In addition to defining routing presets (see [Controlling an External Video Router](#) for more information) Livegrade Studio has a dedicated view for directly controlling a video router and monitor routings visually.

The video router view displays all inputs and outputs of a connected video router, and lets you interactively change routings.

### Show and Hide the Video Router View

You can show and hide the video router view with the “Router” button in the toolbar. You can also “undock” the video router view from the main window by clicking the window button on the right top of the header bar of the video router view.

### Connecting to a Video Router

Choose an auto-detected router in the “Router” popup button, or choose the router model family you have (AJA Kumo or Blackmagic Design Smart VideoHub), enter the IP address or hostname of your router and click the connection button besides the field for the IP address. You can disconnect the video router at any time by clicking the connection button again.

### Managing Connections

The Video Router view displays all connections between input ports and output ports currently active in the connected video router.

Usually an input port can be connected to multiple output ports, but an output port can only be connected to one input port. Connections between ports are displayed as colored lines.

Input ports are displayed on the top of the view (on the left in vertical layout), output ports are displayed on the bottom of the view (on the right in vertical layout). The ports display the port number in the router (the circled number), and one or two rows of the name of the port.

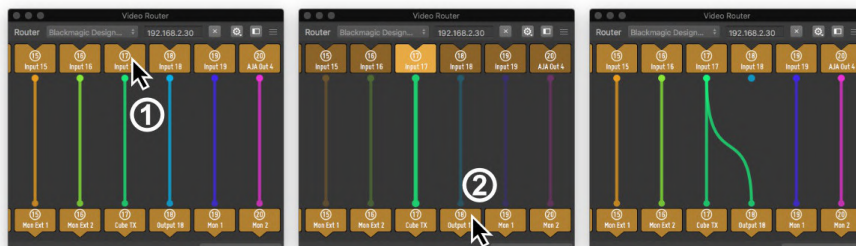
Names of ports can be configured in the administration interface of your video router. Please refer to the manual of your router how to do that.

When connections change (either from within the application or from outside, e.g. by using a hardware control panel or the web UI), the changing connections flash in white to indicate the change.

### Changing Connections via Selecting Ports

You can select a port by clicking on it. The port and its current connections get highlighted. You then can click on one of the ports of the other port type to change a connection:

For example when an input port is selected first and an output port is selected second, the output port changes its connection to the selected input port. You can achieve the same effect by selecting an output port first and selecting the input port second.



Changing video routing connections by clicking on ports

You can select ports also from the utility menu in the wedge button in the header bar of the Video Routing view, or from the main menu by choosing one of the entries in the “Interactive Video Routing” submenu of the “Video Routing” menu in the application menu.

You can assign keyboard shortcuts to the selection of ports with the [Keyboard Shortcuts manager](#).

You can assign MIDI events to the selection of ports with the [MIDI mapper](#).

You can also right-click on each port button to inspect and change the connected port(s).

### Changing Connections via Drag-and-Drop

Each port has a small colored circle besides it. You can drag a line from this circle to the port that you want to make connection with.

### Video Routing Configurations

You can setup video routing configurations as shortcuts to changes of one or more connections. See [Controlling an External Video Router](#) for more information.

Configured video routing configurations show up as menu items in the wedge button in the header bar of the Video Routing view.

You can also use the current state of the video router with all its connections as a starting point for a new configuration. Choose “Save Current Connections...” in the menu of the wedge button in the header bar of the Video Routing view.

### Configuring the Video Routing Interaction

You can view connections either in horizontal layout or vertical layout. Choose “View in Vertical Layout” or “View in Horizontal Layout” menu items in the wedge button in the header bar of the Video Routing view to change the layout.

You can set the color of the connection lines in the Preferences. Choose a color scheme in the “Interactive Video Routing Appearance” section of the “Advanced” preferences tab.



## ZEISS CP.3 XD Lens Correction

Livegrade is able to receive realtime lens correction information from a ZEISS CP.3 XD lens that is connected to an Ambient MasterLockit Plus.

Please learn more about the general workflow concerning the ZEISS CP.3 XD lenses in the article [ZEISS CP.3 XD Lens Correction: Workflow Overview](#).

### Prerequisites:

- MasterLockit Plus is connected to the lens and camera correctly
- MasterLockit Plus is connected via WIFI or Ethernet to the Mac
- Lens is connected and recognized by the MasterLockit Plus.

### Adding the MasterLockit Plus as a Device

The MasterLockit Plus has to be added to Livegrade as a device in the Device Manager to receive live lens correction data from the ZEISS CP.3 XD lens.

To add the MasterLockit Plus as a Device go to the main menu and select “**Device > Add Device.. > Add Lockit...**”:

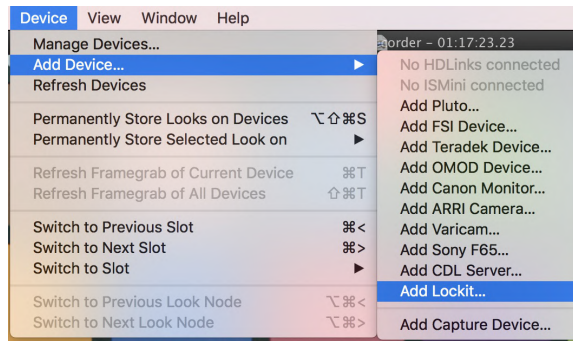


Fig. 1: Add the MasterLockit Plus as a device in Livegrade

After successfully adding the MasterLockitPlus it is shown in the device manager as a device in a slot. You can open the device manager with the “**Devices...**” button on the left side of the Livegrade user interface above the slot section:

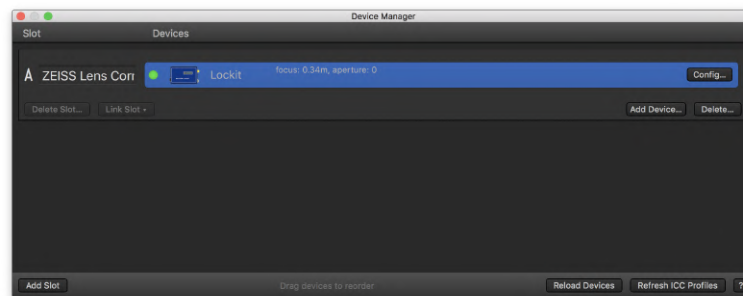


Fig. 2: The device manager with the added MasterLockit Plus

### Adding a Capture Device As Image Input for the Lens Correction

The lens correction preview will be performed on the image viewer in Livegrade. Livegrade is capable of capturing camera signals through third party devices. Please learn more about capturing SDI signals in Livegrade in the article [SDI Signal Recording and Framegrabs](#).

To add a capture device to Livegrade click “**Add Device...**” and choose “**Add Capture Device...**”:

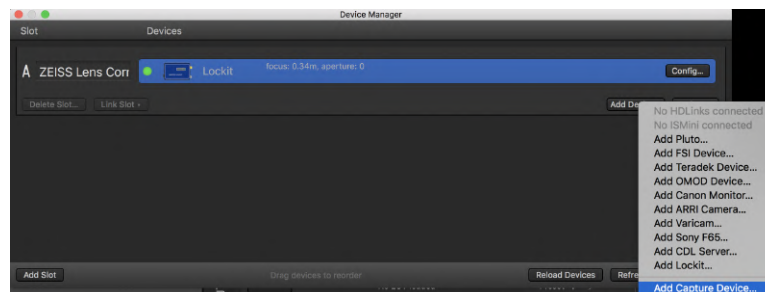


Fig. 3: Adding the capture device to receive a live image in Livegrade

After a successfully adding the Ambient MasterLockit Plus and the capture device the device manager should look like this:

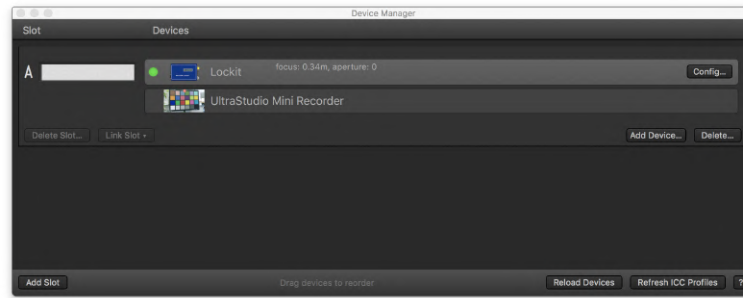


Fig.4: The device manager with an active MasterLockitPlus and a capture device

## The Lens Correction Controls

Now open the ZEISS lens correction controls from the “**Window**” menu by selecting “**Lens Correction Controls...**”:

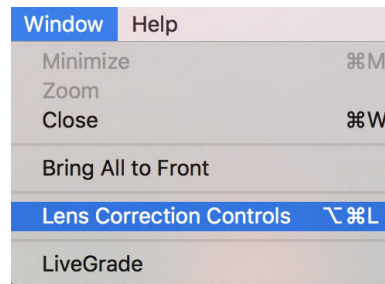


Fig.5: Open the Lens Correction Controls

The lens correction control window opens:

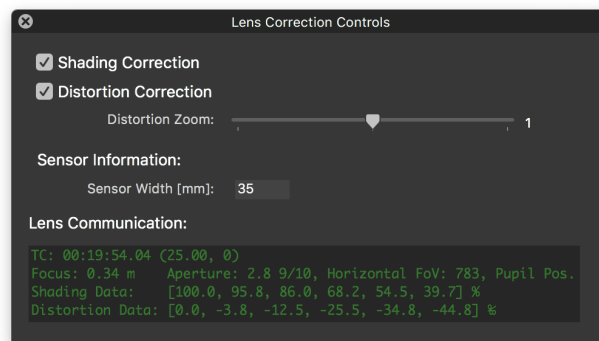


Fig. 6: The lens correction controls window

From top to bottom it contains the following elements:

- **Shading Correction:** The checkbox enables/disables the shading correction applied in the image viewer
- **Distortion Correction:** The checkbox enables/disables the distortion correction applied in the image viewer
  - **Distortion Zoom:** Sets the zoom level to balance possible visible image borders when applying the distortion correction
- **Sensor Information:** Depending on the recording camera and format the active sensor width differs. The active sensor width in mm is necessary to correctly calculate the lens correction. Please take a look at the detailed camera specs to learn more about the sensor width for your specific recording format.
- **Lens Communication:** This section displays the live information that is coming from the lens including TC, Focus, Aperture and detailed shading and distortion information

Here's how a completed setup including image viewer with live image, lens correction controls window and the device manager looks like:

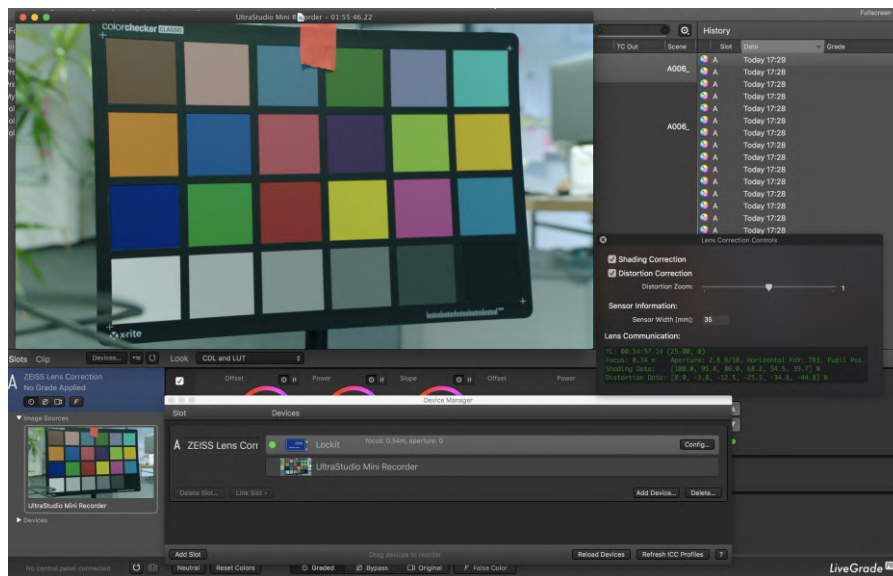


Fig. 6: Image viewer, lens correction controls and device manager in a completed setup

Shading and distortion correction can independently be enabled or disabled to be applied on the image in the image viewer.

## Setting up Control Devices

### Setting Up Tangent Grading Panels

Livegrade supports the hardware grading panels **Tangent Wave**, **Tangent Element** and **Tangent Ripple**. This article describes the use with the **Tangent Element series** and the **Tangent Wave** in detail. For the use with **Tangent Ripple** please refer to the section about the Element Tk control panel that works similar to the Ripple.

Sections in this article:

- Connecting Your Tangent Grading Panel
- Preferences For Your Tangent Grading Panel
- Tangent Element (Element Tk, Element Mf, Element Kb, Element Bt)
- Tangent Wave / Wave2

### CONNECTING YOUR TANGENT GRADING PANEL

Please follow these steps to get Livegrade up and running with your Tangent panel:

1. Connect the Tangent panel to your Mac.
2. If you did not installed your Tangent Device Driver yet, then this would be a good moment. You can find on [Tangent Support website](#).
3. Start Livegrade.
4. Wait until the panel is recognized, indicated by a blue glow at the lower left of the main window.
5. You are ready to grade!

### PREFERENCES FOR YOUR TANGENT GRADING PANEL

1. Choose "Preferences..." from the "Livegrade" Menu Bar or use the keyboard shortcut "⌘+,."
2. You can customize the level of sensitivity for your panel in the grading preferences under "Hardware Panels" > "Sensitivity".

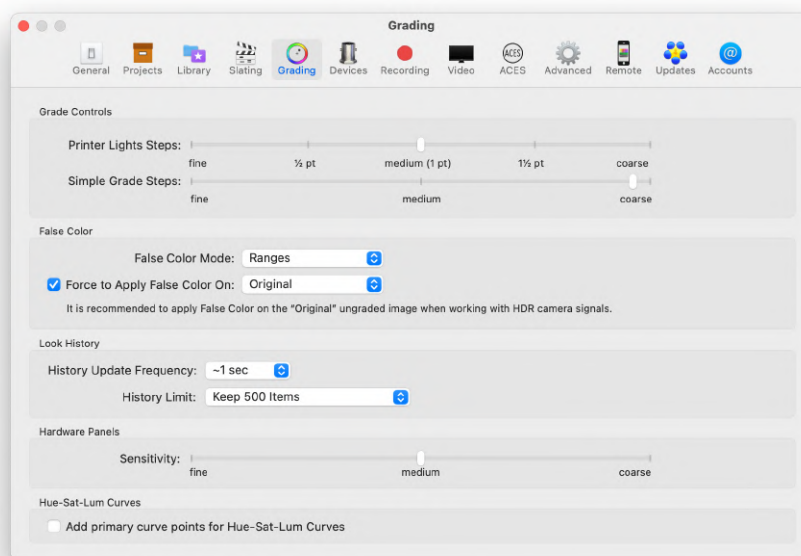


figure 1: Grading preferences

### Tangent Element

Livegrade allows you to connect hardware grading panels, including the Tangent Element, to precisely and physically manipulate your grades. The Tangent Element offers a variety of controls, ranging from Color Balls, Color Wheels, Command Keys to Precision Knobs. The controls utilized by Livegrade are depicted below.

#### The "Element Tk" control panel



figure 2: "Tangent Element Tk"

1. The **Page Button** allows you to cycle through different configurations of the Color Wheels. Depending on the grading mode and active the page, the wheels/balls control different aspects of your grade.
2. The **Status Display** shows which values can be manipulated using the respective controls.
3. The **Color Balls** manipulate the Hue and Saturation values of their respective color ranges.
4. The **Color Wheels** manipulate the Level value of their respective color range.
5. The **Ball/Wheel Reset** buttons reset the values of the Ball/Wheel right next to it.
6. The **Node Button** «A» lets you switch the panel between the CDL nodes if there are multiple, i.e. in the Freestyle grading mode.

Additionally, Livegrade lets you map different actions for the Element Tk panel using the Tangent Mapper.

#### The "Element Mf" control panel

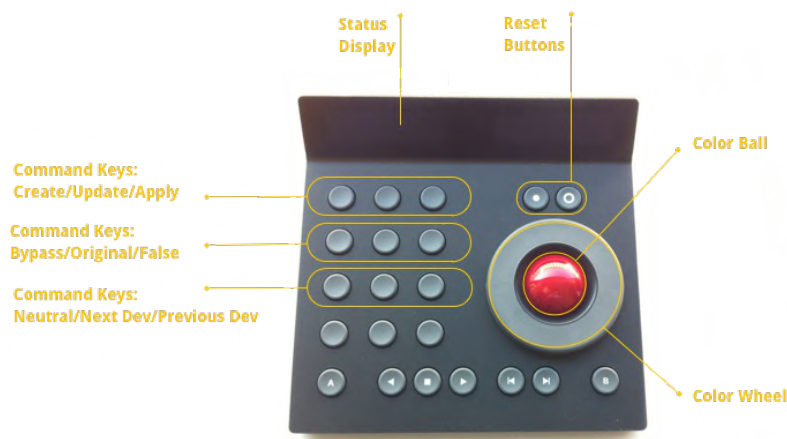


figure 3: "Tangent Element Mf"

1. The **Status Display** shows which values can be manipulated using the respective controls.
2. The first row **Command Keys** perform the following commands from left to right:
  1. New Grade, Update Grade and Apply Selected Grade.
  2. **New Grade:** Adds a new grade in your Livegrade Grade Library
  3. **Update Grade:** Updates your current adjustments to the selected grade in your library
  4. **Apply Selected Grade:** Apply the selection from your Grade Library to your actual grade.
3. The second row **Command Keys** perform the following commands from left to right:
  1. Bypass Color, Show Original Signal and Enable False Color.
4. The third row **Command Keys** perform the following commands from left to right:
  1. Set To Neutral, Next Device, Previous Device





### The “Element Kb” control panel

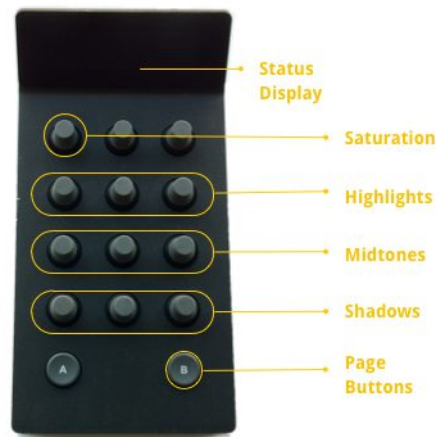


figure 4 : “ Example Tangent Kb in CDL Mode”

1. The **Precision Knobs** each (depending on the grading mode) manipulate one specific aspect of your grade, such as ‘Saturation’, ‘Shadows (RGB channels)’, ‘Midtones’, Highlights or in Alexa Mode also the ‘Printer Lights’.
2. The **Page Buttons** allow you to cycle through different configurations of the Precision Knobs. Depending on the Grading Mode, the knobs control different aspects of your grade.
3. The **Status Display** shows the meaning and value of multiple controls. It is split into three rows and three columns. Depending on grading mode the first line is either empty (Alexa Grading Mode) or setup with Saturation. Saturation is on the first page in both grading modes, only one knob is assigned to saturation. The second line displays the meaning and value of the respective Precision Knob above, such as ‘Shad R’ for ‘Shadows Red’ or ‘Mid R’, standing for ‘Midtones Red’ and so on.

### The “Element Bt” control panel

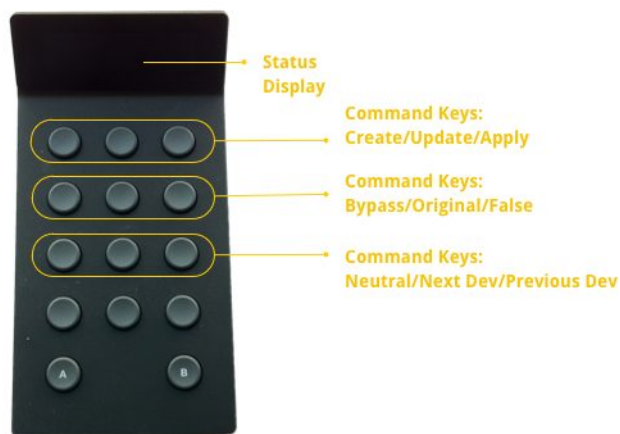


figure 5: “Tangent Element Bt”

The Tangent “Element Bt” panel got the same functionality like the “Element Mf”.

Additionally, you can use the software Tangent Mapper to assign different actions to the buttons on your Tangent panel. These are the actions that can be mapped:

- Apply Look
  - Select Look 1 – 6\*



- Node Selection
  - Select CDL Node 1-2
  - Select previous node
  - Select next node
- Temperature
  - Increase Temperature
  - Decrease Temperature
- Tint
  - Increase Tint
  - Decrease Tint
- SlotSelection
  - Select Slot 1-6\*

\*1-6 means that there are 6 actions the first one applies the first and so on.

## TANGENT WAVE / WAVE2

Livegrade allows you to connect hardware grading panels, including the Tangent Wave and the Tangent Wave 2, to precisely and physically manipulate your grades. Tangent Wave panels offer a variety of controls, ranging from Color Balls, Color Wheels, Command Keys to Precision Knobs. The controls utilized by Livegrade are depicted below.

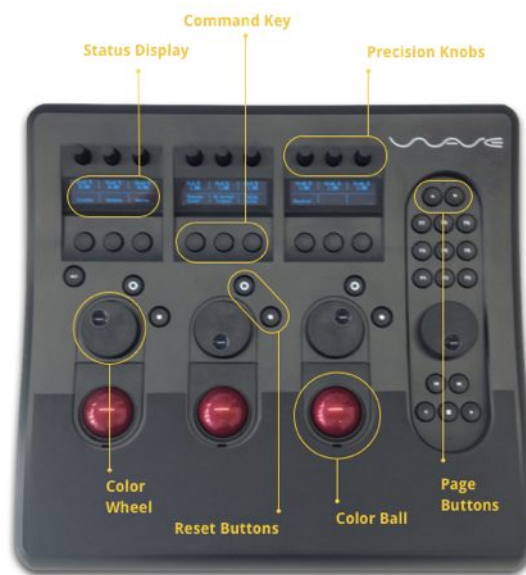


figure 6: "Tangent Wave"

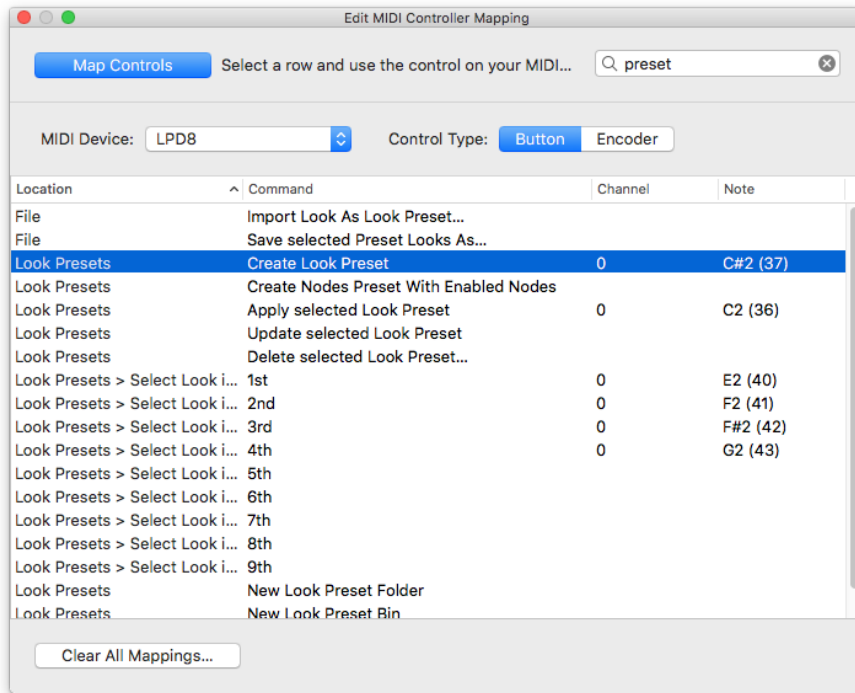
1. The **Page Buttons** allow you to cycle through different configurations of the Precision Knobs. Depending on the page, the knobs control different aspects of your grade.
2. The **Precision Knobs** each manipulate one specific aspect of your grade, such as Offset, Power, Slope for Red, Green and Blue or alternatively (holding ALT button): Saturation, Contrast, Stretch, Warmer and Greener.
3. The **Status Display** shows which values can be manipulated using the respective controls.
4. The **Command Keys** perform the following commands from left to right:
  - **Standard:** New Grade, Update Grade, Apply Selected Grade, Bypass Color, Show Original Signal, Enable False Color, Set To Neutral, Previous Slot and Next Slot
  - **Alternative (holding ALT button):** Create Grade For All Slots, Replace Image of Selected Shot, Update Selected Shot and Replace Image, Create Preset, Update Selected Preset, Apply Selected Preset, Reset Colors, Select Previous Shot, Select Next Shot
5. The **Color Balls** manipulate the Hue and Saturation values of their respective color ranges.
6. The **Color Wheels** manipulate the Level value of their respective color range.
7. The **Ball/Wheel Reset** buttons reset the values of the Ball/Wheel right next to it.

Additionally, the panel can be individually set up to your requirements e.g. if you prefer to use the trackballs for lift, gamma, gain or if you want to store look presets to the F1-9 buttons. You can use the software Tangent Mapper to create your individual control mapping.

## Setting up MIDI Controllers

MIDI controllers offer an easy possibility of mapping application features to physical buttons (besides [configuring custom keyboard shortcuts](#)).

To inspect the list of available actions and controls for mapping to MIDI controllers go to "MIDI Controller Mapping" in the application menu. This will open the MIDI Controller Mapping window (figure 1).



### Listing and Searching MIDI Mappings

The MIDI Controller Mapping window shows a table with a list of all actions in the main menu as well as additional controls with their currently set MIDI mappings for a certain MIDI device.

Choose the MIDI device in the pop-up button. You will only see mapped events for that events in the table below.

You can search the list by typing into the search bar on top of the table.

### Edit MIDI Mappings for Main Menu Actions

To set or edit a MIDI mapping for a menu item in the main menu:

1. Choose “Button” as control type.
2. Select “Map Controls” to allow changes on the key mapping list.
3. Choose the command row.
4. To set or modify a MIDI mapping press the button on your MIDI controller.

The MIDI channel and MIDI note will appear in the control row.

To remove the associated MIDI mapping press  $\times$  (delete / backspace) button.

Close the MIDI Controller Mapping window when you are done.

### Edit MIDI Mappings for Grade Controls

To set or edit a MIDI mapping for a grade control:

1. Choose “Encoder” as control type.
2. Select “Map Controls” to allow changes on the key mapping list.
3. Choose the control row.
4. To set or modify a MIDI mapping turn the knob or encoder on your MIDI controller.

The MIDI channel and control number will appear in the control row.

The application supports absolute and relative / endless encoders. You can set the behavior with the checkbox “Encoders are relative”.

When using absolute encoders the application simulates relative encoders:

- In the middle position the mapped control is not changed.
- As long as the encoder is right / higher than the middle position, the mapped control will be increasing.
- As long as the encoder is left / lower than the middle position, the mapped control will be decreasing.
- Return the encoder to the middle position to stop any changes of the mapped control.

To remove the associated MIDI mapping press  $\times$  (delete / backspace) button.

Close the MIDI Controller Mapping window when you are done.

### Reset Mappings

You can remove all MIDI mappings by clicking “Clear All Mappings...”.

### Setting up Stream Deck



Livegrade integrates with Elgato's Stream Deck devices. There are pre-configured profiles for

- Stream Deck Classic
- Stream Deck XL
- Stream Deck +

devices.



Stream Deck+ Integration in Livegrade

### Installation of Your Stream Deck Device(s)

To get started with your Stream Deck device(s),

- download and install the latest Stream Deck configurations app from [Elgato's website](#),
- attach all Stream Deck device(s) you want to use with your computer and
- open Livegrade and click *Livegrade > Install Stream Deck Plugin...*

Livegrade will then install

- **Actions** for Stream Deck devices
- **Default Livegrade profiles** with recommended configurations for all currently attached Stream Deck devices

### Add another Stream Deck Device

If you already installed a Stream Deck device on your computer and want to use another one, attach it via USB to your computer and click *Livegrade > Install Stream Deck Plugin...* to add default Livegrade profiles for your attached Stream Deck device.

### Configure and Manage profiles

After you install the Livegrade plugin to Stream Deck, open the configuration app and start to configure the profiles to your personal needs. There you can assign, move, or delete actions to the buttons and dials of your Stream Deck.

**Tip:** If you would like to customize the text and backgrounds of your Stream Deck key icons using the Livegrade design as a starting point, download the Photoshop template Stream Deck Icon Creator For Livegrade.psd. The Miso font can be downloaded for free at <http://www.fontspring.com/fonts/marten-nettelblatt/miso>.

### Backup your Stream Deck profiles

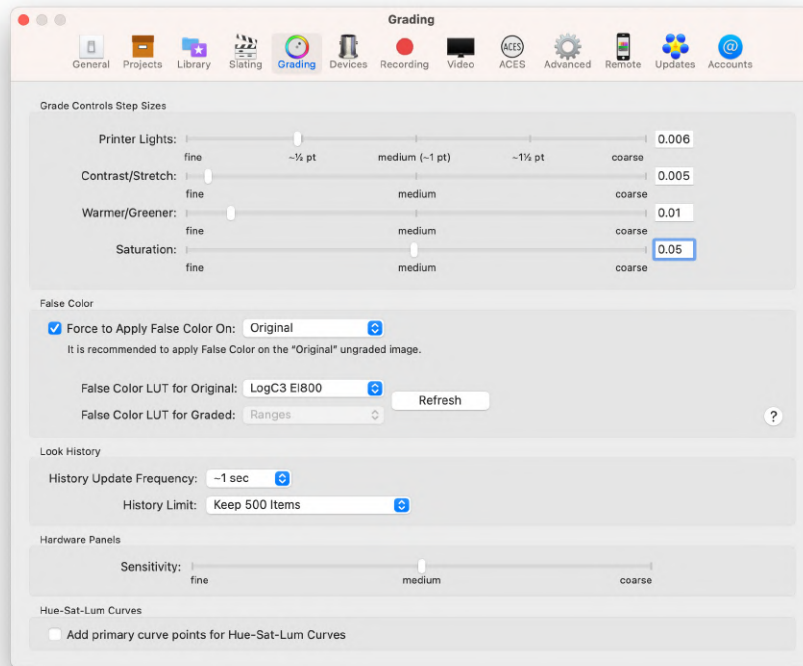
As soon as you configured one or more profiles that fit your needs, we recommend you to backup those by

- Open the Stream Deck configuration app
- Click on your profile and select **Edit Profiles...**
- **Right click** on your profile and select **Export...**
- Save the file to a place on your computer

### Adjust Step Sizes for your Stream Deck device

To change the sensitivity for your Stream Deck device open the Livegrade settings and go to the **Grading** tab.

There you find the **Grading Control Step Sizes** area where you can adjust the sensitivity to your individual needs.



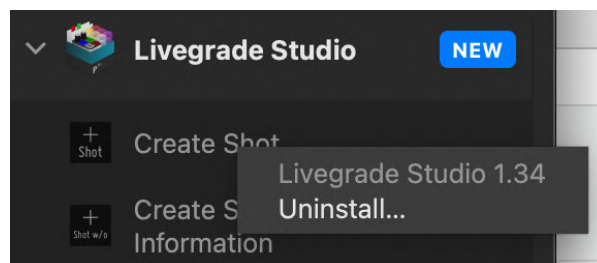
Grade Control Step Sizes

## Troubleshooting

***“My Stream Deck buttons show ? question marks.”***

*A re-install of the Stream Deck plugin most often helps.*

- Make sure that you are on the latest Livegrade version
- Close Livegrade
- uninstall the Livegrade plugin in the Stream Deck configurations app



De-Install Stream Deck plugin

- open Livegrade and go to *Livegrade > Install Stream Deck Plugin...*

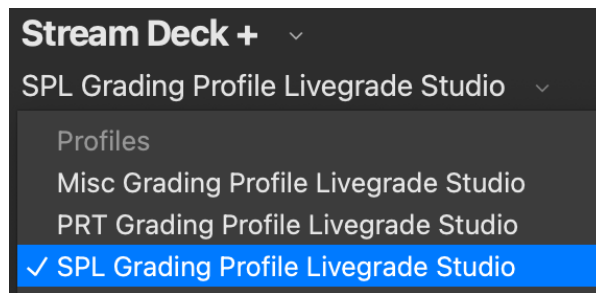
***“My buttons are gone, the actions suddenly disappeared.”***

*Most commonly you just switched to an empty profile.*

When installing the Stream Deck configuration app, there will be added an empty “Default Profile” by default. If you just added Livegrade profiles through the Livegrade plugin installation process, you might run into a situation where you switch from one of the Livegrade profiles to the empty default profile unintentionally. It seems like all actions suddenly were gone, but in fact, you just switched to an empty profile.

We recommend deleting the empty default profile as soon as you have installed your Livegrade profiles.

- Open the Stream Deck configuration app
- Click on your profile and select **Edit Profiles...**
- Select the empty **Default profile** (**NOT** the Default Profile Livegrade) and click the **–** button



Stream Deck+ profiles for Livegrade

## Migrate Stream Deck Profiles from Livegrade Pro to Studio

There are two options to migrate your profiles from Pro to Studio:

- **Automatically**
- **Manually**

### Automatically Migrate Pro to Studio Profiles

- Download and install the latest Stream Deck configurations app from [Elgato's website](#)
- Attach all Stream Deck device(s) you want to use with your computer
- Go to *Livegrade Studio* > **Install Stream Deck plugin...**
- Click **Migrate Now**

Livegrade will then

- Install actions for Stream Deck devices
- Duplicate your old Pro Stream Deck profiles that can now be used with Livegrade Studio
- Create a new Default Profile for Livegrade Studio

To continue

- Click **Restart Stream Deck**
- Confirm in the two following Stream Deck's dialogues to install the default profiles

When you open the Stream Deck configuration App you should now see your duplicated Pro profiles as well as new Default Profile(s) for Livegrade Studio

### Manually Migrate Pro Profiles to Studio Profiles

#### 1. Install Livegrade Studio Stream Deck Plugin without automatic migration

- Download and install the latest Stream Deck configurations app from Elgato's website
- Attach all Stream Deck device(s) you want to use with your computer
- Go to *Livegrade Studio* > **Install Stream Deck plugin...**
- Click **Do Not Migrate**

Livegrade will now install Livegrade Studio's Stream Deck plugin and add a new default Stream Deck profiles of all currently attached Stream Decks for Livegrade Studio

- Confirm in the two following Stream Deck's dialogues to install the default profiles

When you open the Stream Deck configuration app you should now see a new Default Profile for Livegrade Studio

#### 2. Export the profile you want to migrate

- Open the Stream Deck configuration app
- Click on your currently selected profile
- Right click on the profile you would like to export and choose **Export...**
- Choose a location for your Livegrade Pro profile

#### 3. Migrate the profile via Livegrade Studio

- Open Livegrade Studio
- Go to *Livegrade Studio* > **Migrate Stream Deck Profiles from Livegrade Pro...**
- Choose the profile you exported in step 2
- Click **Migrate**
- Click **Reveal in Finder** to locate your migrated profile
- To import the profile, double click on the created file with "**...(Livegrade Studio)**" in its name
- Stream Deck configuration app will be automatically opened and your imported profile will be automatically chosen



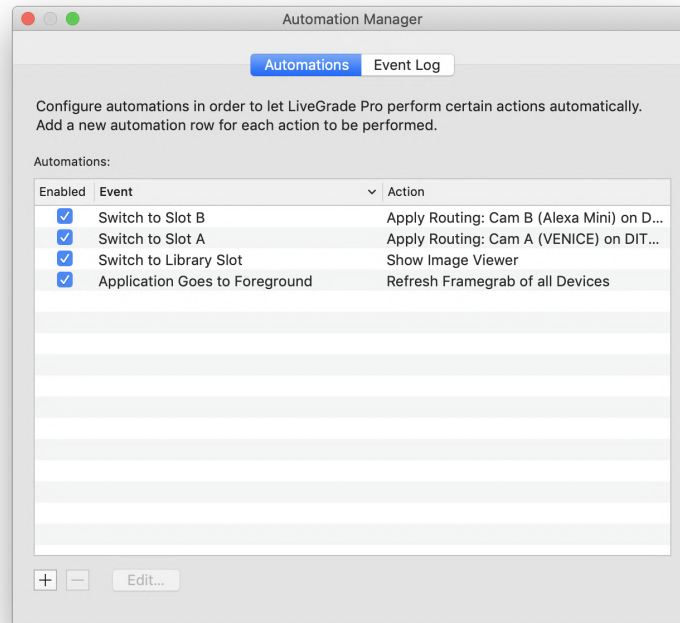
## Automation, Remote Control and 3rd Party Integrations

### Automating with Events and Actions

Livegrade allows you to automatically trigger certain actions by events within the application. This can be used to configure the user interface, apply a video routing configuration, or perform other actions for certain situations.

#### Managing automations

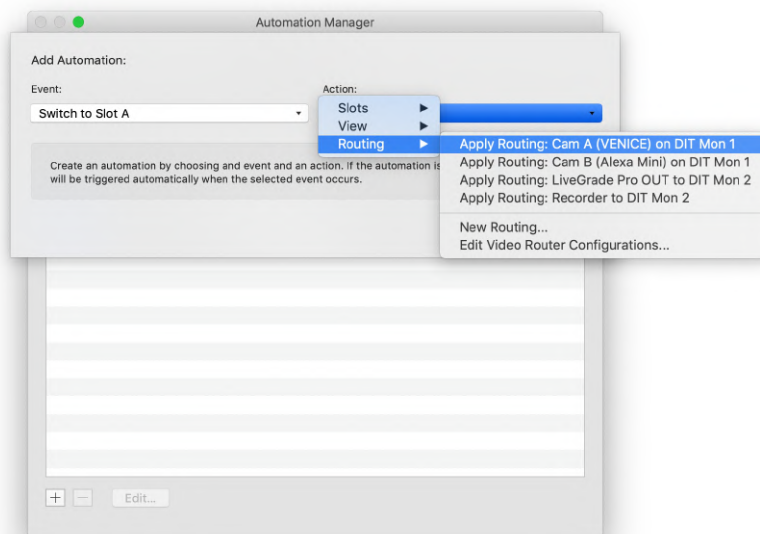
You can create and manage automations in the Automation Manager window. Choose “Automation Manager...” from the application menu to open the Automation Manager window.



Automations panel

By clicking the “+” button below the automations table you can add a new automation. By clicking the “-” button you can remove the selected automation. By clicking “Edit...” you can modify the selected automation.

#### Adding an automation



Setting up an automation

When clicking “+” below the automations table of the Automation Manager, a panel is opened that lets you choose

- the event, that shall trigger the event, and
- the action, that shall be performed when the event happens.





#### Available events:

- **Switch to Slot:** Choose one of the options to trigger an action when the user switches to a specific device slot, the library slot, or if any slot change occurs ("Any").
- **Recording:** Choose one of the start or stop events for recording in individual or any slot.
- **Application:** Choose one of the options to trigger an action when the application started or is going to quit, or goes to foreground or background.

#### Available actions:

- **Slots:** Choose one of the actions with slots such as switching viewing modes, refreshing framegrabs, or locking external control panels.
- **View:** Choose one of the actions for configuring the user interface, such as showing or hiding scopes, configuring the slot appearance, or enable or disable dim mode.
- **Video Routing Configurations:** Choose one of the saved video routing configurations to apply the configuration, or create a new configuration.
- **Video Capture Device:** Choose a configure capture device to move it to the current slot. This can be used to use one capture device for multiple slots together using video routing configurations.

#### • STUDIO

Scripts: Choose one of the installed and executable scripts. See [Scripts and Automation](#) for more details on scripts.

Click "Add" to save the new automation. If the automation is enabled, the chosen action will be triggered automatically when the selected event occurs.

#### Enabling and disabling automations

You can enable and disable single automations by checking the checkbox besides the automation in the automation table.

You can completely disable automations by clicking the automations button in the bottom bar of Livegrade's main window. Please note that the automations button is only shown, if at least one automation is configured.

#### Event and action logging and error

In the bottom bar of Livegrade's main window the automation button indicates when an action has been triggered by switching to a blue icon if a n action has been triggered successfully.

You can click on the automation button to disable all automation temporarily.

If an action failed (e.g. because a video routing setting cannot be applied), the automation button indicates this with a yellow icon. The tooltip of the automation button shows additional information about the failed automation.

A complete log of all automation can be reviewed in the "Event Log" tab of the automation manager. Successful automations, but also error messages of failed actions are displayed there. The event log is cleared when the application quits, so you only see log entries of automations since the last start of the application.

## Scripts and Automation

The application comes with the capability to run scripts from within the application. Scripts can be run manually (e.g. via keyboard shortcuts), or automated (via the Automation Manager).

The application provides environment variables to pass information of the current state of the application (e.g. current slot name, currently selected folder name) to the script.

#### Installing Scripts

You can use any script that is executable in Terminal. The script language is only limited by the available interpreters on your computer. macOS comes with most common interpreters pre-installed (e.g. Python, perl, Bash, ruby), but you can also install you own interpreters (e.g. Lua).

In order to be usable by the application, scripts need to be

- installed in the **Scripts** folder in `~/Library/Application Support/Pomfort/LivegradeStudio5/` and
- have the executable-flag set.

You can open the Scripts folder by choosing "Show in Finder..." in the "Scripts" submenu of the application menu. Move any scripts to this folder.

For a script file to be executable by the application, the executable flag must be set for that script file in the file system. You can use the Terminal to set the executable flag:

```
$ cd ~/Library/Application Support/Pomfort/LivegradeStudio5/Scripts"
$ chmod +x MY-CUSTOM.SCRIPT
```

All scripts also need to start with a [Shebang](#) with an interpreter directive (e.g. `#!/usr/bin/ruby`) so that the application knows what interpreter to use in order to run the script.

#### Running Scripts

Installed scripts that have the executable flag set will show up in the "Scripts" submenu of the application menu.

You can run these scripts manually by choosing the menu entry for a scripts.

You can assign keyboard shortcuts to run these scripts with the [Keyboard Shortcuts manager](#).

You can assign MIDI events to run these scripts with the [MIDI mapper](#).

#### Automating Scripts

You can let the application run scripts automatically on certain events by configuring script actions in the [Automation Manager](#).



### Example Script and Environment Variables

If the Scripts folder doesn't contain executable scripts (e.g. on first start of the application), a sample shell script is installed in the Scripts folder, that illustrates the use of the environment variables.

You can inspect the script by choosing "Show in Finder..." in the "Scripts" submenu of the application menu.

### Debugging Scripts

You can see the output of a script in the Automation Manager's "Logs" tab – no matter if the script has been run manually or through automation.

The log shows both the standard output pipe and the standard error pipe.

The event log is cleared when the application quits, so you only see log entries of automations since the last start of the application.

If a script doesn't exit with exit code "0" (which is the default exit code), the application plays the system beep.

## The iOS Remote for LiveGrade Pro and Livegrade Studio

Along with Livegrade PRO 2.0, the Livegrade PRO Remote iOS app has been released. This app will let you use any iOS device to remotely control basic functions like applying grades from the library, showing original signal, by-passing color and showing False Color while away from the computer.

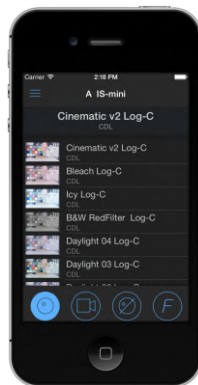


figure 1: iOS Remote

In order to use the remote, open Livegrade's Preferences panel and check the «Enable Livegrade Remote Access» check box as shown in Figure 2:

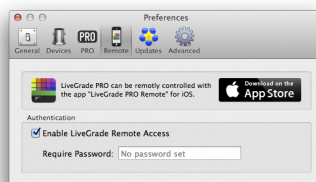


figure 2: Remote preferences

At this point, any iOS device with the Livegrade PRO Remote app connected to the same wireless network will be able to control Livegrade PRO. For this reason, we recommend to set a password in the Preferences panel.

The Livegrade PRO iOS Remote is available from the [App Store](#).

## Setting up ScopeBox Video Scopes

You can use ScopeBox by Divergent Media for software-based waveform and video scopes Livegrade's Image View. ScopeBox offers a variety of waveform monitors and video scopes that enable image analysis and color control of the content in the Livegrade Image View.

You can receive information about how to download, setup and license ScopeBox software on [Divergent Media's Website](#). To use the integration of Livegrade in ScopeBox you have to run version 3.5.3 or later of the ScopeBox application.

### Connecting Livegrade and ScopeBox via ScopeLink

Livegrade sends the current image of the player directly to the ScopeBox application by DivergentMedia's ScopeLink technology. To enable ScopeLink open the ScopeBox application.

Click in the upper left area of the ScopeBox main window to set a new source. Choose "**Add ScopeLink Source > Pomfort Livegrade**" from the context menu:

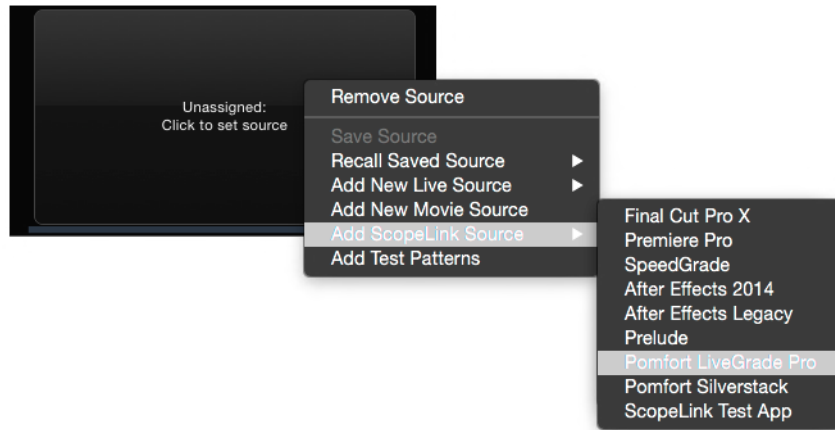


Figure 1: Add Pomfort's Livegrade as a source.

After that the source should show a pending image:

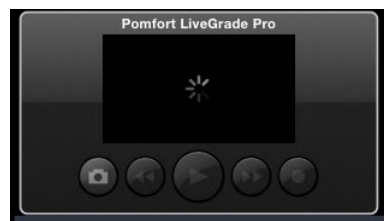


Figure 2: ScopeBox waiting for the Livegrade connection.

If not already open, now open Livegrade. Open the Image View.

Make sure that in the preferences of Livegrade under **"External Video"** the checkbox **"Connect to ScopeBox"** is enabled. You reach the preferences from the Main Menu by choosing **"Livegrade > Preferences..."**:

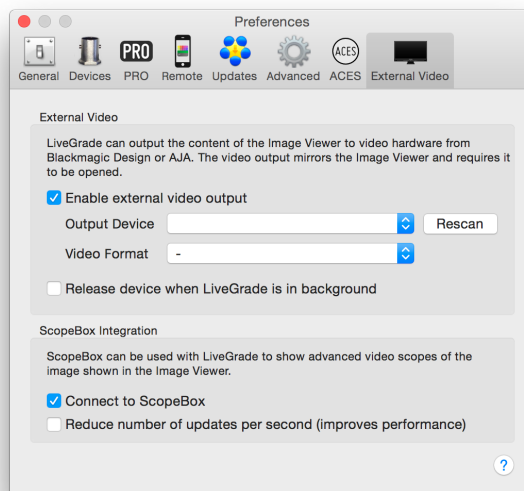


Figure 4: ScopeBox Preference in the External Video tab

There you can also choose if you want to reduce the number of updates per second. Checking this box reduces the required computing resources for the ScopeBox integration.

When you switch to ScopeBox you should then see the default view including an image preview of the image showing in the Livegrade Image View:

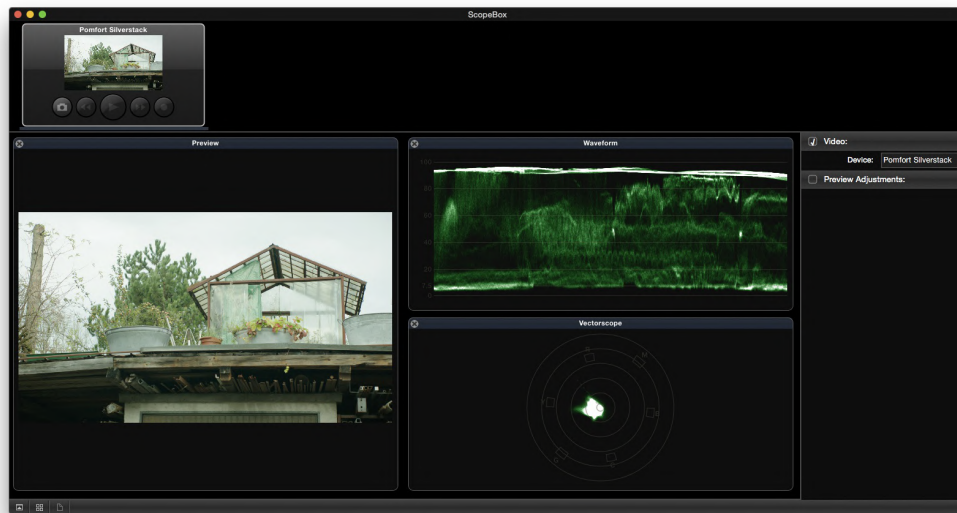
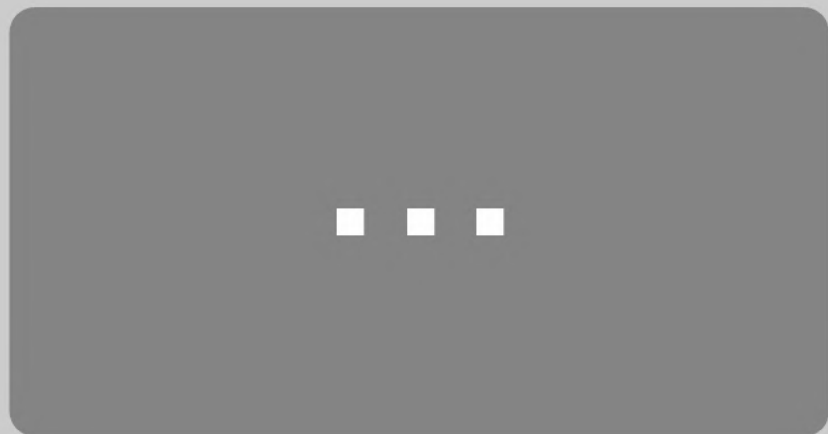


Figure 3: The ScopeBox UI showing the image of the Livegrade Image View and scopes.

Please be aware that the Livegrade Image Viewer has to be open to send the current image to Scopebox. Closing the Image Viewer in Livegrade will continue showing the last frame in Scopebox. When reopening the Image Viewer, Scopebox will refresh the input with the current image from Livegrade.

Learn how to use ScopeBox with this tutorial (from Divergent Media):



By loading the video, you agree to Vimeo's privacy policy.

[Learn more](#)

[Load video](#)

☒ Always unblock Vimeo

Find more tutorial videos from Divergent Media about ScopeBox [here](#).

Because of Livegrade's internal RGB processing, signals from of YCbCr based clips sent to ScopeBox via ScopeLink don't contain code values outside the legal range (even if they might be present in the source files).



Tags: waveform, vectorscope, histogram, rgb parade

## Using Corrective 3D LUTs from SpectraCal CalMAN

With [SpectraCal's](#) software package CalMAN it is possible to create corrective 3D Cube LUTs that are compatible with Livegrade. Based on spectrometric measurements, CalMAN produces a 3D LUT for a specific display device that compensates deviations from the targeted color space. These 3D LUTs can be used in Livegrade to sustain an ideal performance of the connected display devices.

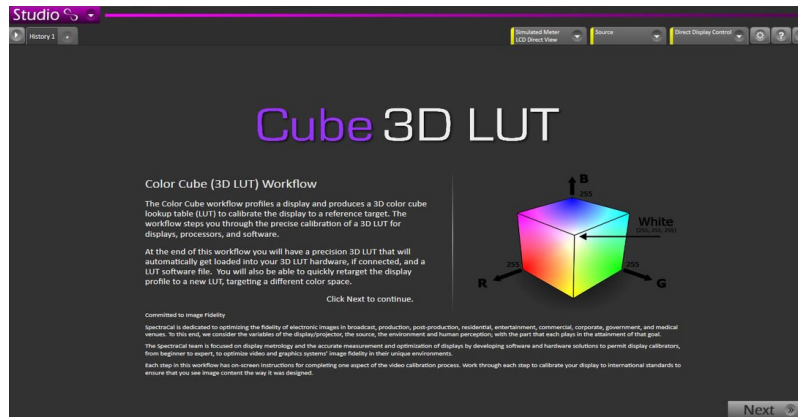


Figure 1: Build a calibration LUT in CalMAN

For further information on how to use CalMAN to create corrective 3D LUTs you can refer to SpectraCal's [Overview Guide](#) or check their complete walkthrough of [Creating 3D LUTs in CalMAN 5](#).

## How to import and use corrective 3D LUTs in Livegrade

To import the corrective 3D LUT from CalMAN into Livegrade you have to add a new 3D LUT Node to your grading mode. To be able to do that you have to select a grading mode that offers the possibility to add nodes as e.g. "CDL Advanced":

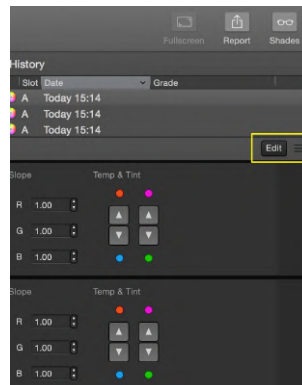


Figure 2: Press edit to add 3D LUT node

Make sure to add the 3D LUT node with the corrective 3D LUT as the last node. As the processings get applied from top to bottom the corrective LUT should be last to compensate the measured deviations of the display. With the "Edit"-Mode enabled you will be able to move the node to the final position:



Figure 3: Use the Edit-Mode to move nodes

Exit the “Edit”-Mode by clicking on “Edit” again.

Use the load button in the final 3D LUT Node to choose the CalMAN calibration LUT you generated from Finder.

As soon as the LUT is chosen the connected display will show the corrected signal as measured by the CalMAN software. The corrective 3D LUT will make sure to correctly display all color processing applied above the corrective 3D LUT node.

How to use Livegrade on an HD-SDI signal can be learned from the article [HD-SDI setup for Livegrade](#).

## Step-By-Step Tutorials

### Dailies Workflow with DaVinci Resolve

Using look information from set for the creation of dailies saves time and communication efforts. Blackmagic Design's "DaVinci Resolve" (<http://www.blackmagic-design.com/products/davinciresolve>) is a powerful and widely used software to create dailies on or near set. This article shows how color information from Livegrade can be used to save extra grading time in Resolve by using the looks created in Livegrade.

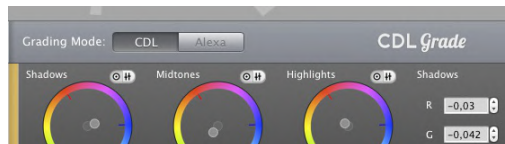
#### CDL Grade mode

Livegrade's CDL-Grade mode lets you export ASC-CDL files of current color settings in Livegrade. These CDL files can be used in various dailies and post-production tools.

To transfer ASC-CDL files to Resolve or Resolve Light follow these steps:

#### 1. Export ASC-CDL file from Livegrade

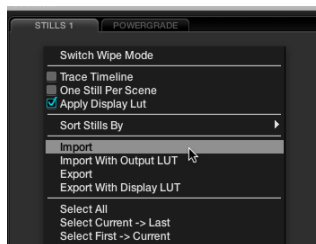
- Make sure that you are in "CDL Grade" mode in Livegrade. Do so by switching the grading mode above the color controls or apply a grade from the grade library of the type "CDL Grade"



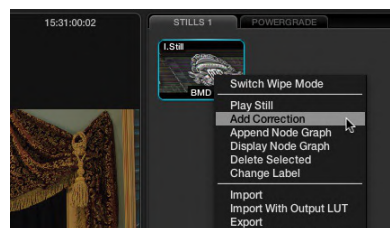
- Choose "File" -> "Save current Grade as..." or "Save selected Grade as..." and save the .cdl file. You can open this file with a text editor and see the typical ASC-CDL XML syntax.
- Hint: To simplify matching of the CDL files with the clips you can use an [automatic name scheme](#) when exporting.

#### 2. Import ASC-CDL file in Resolve

- In Resolve go to the "Color" room.
- In the "Stills" panel right-click and choose "Import".



- Select "CDL files (\*.cdl)" at the bottom of the Open Dialog and navigate to the CDL files just saved in Livegrade.
- A new "Still" with the name of the CDL file will appear in the "Stills" panel.
- Select a one or multiple clips in the timeline that you want the CDL apply to.
- Right-click the new Still and choose "Add correction" in the context menu.



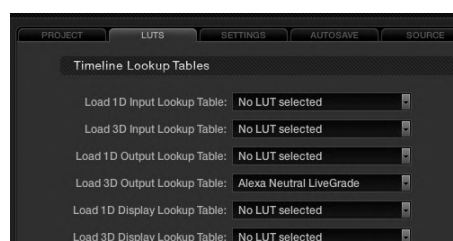
- You should see the controls in 3-WAY COLOR of the selected clips be set according to the CDL values initially coming from Livegrade.

#### 3. Applying a lookup table (3D LUT)

If you are using a 3D LUT in the LUT panel of the CDL grading mode in Livegrade (for example as a preview LUT for log-material), make sure that this LUT is also used in DaVinci Resolve.

Depending on the order of filter panels in Livegrade you might configure Resolve for Loading a "3D Input Lookup Table" or a "3D Output Lookup table" in the "Config" room.

- If in Livegrade the CDL controls are in the upper slot, the LUT is applied after the CDL values and you need to set the LUT in Resolve as output LUT.
- If in Livegrade the CDL controls are in the lower slot, the LUT is applied before and you need to set the LUT in Resolve as input LUT.





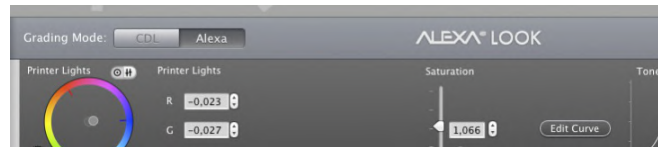
Learn more about Livegrade's [CDL grading mode](#).

## Alexa Look mode

Resolve doesn't support the import of Alexa Look files (xml) directly, but you can instead export a 3D LUT in Livegrade and import that on a per-clip base into Resolve.

### 1. Export 3D LUT from Livegrade

- Make sure that you are in "Alexa Look" mode in Livegrade. Do so by switching the grading mode above the color controls or apply a grade from the grade library of the type "Alexa Look"



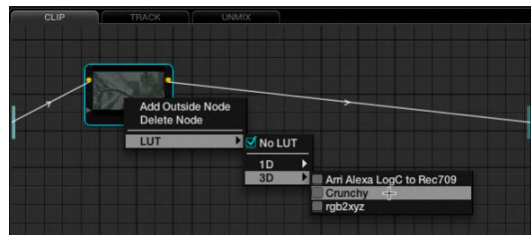
- Choose "File" -> "Save current Grade as 3D LUT..." or "Save selected Grade as 3D LUT..." and save the look as a "DaVinci Resolve" .dat file.
- Hint: To simplify matching of the LUTs with the clips you can use an [automatic name scheme](#) when exporting.

### 2. Install .DAT files for Resolve

- In Finder navigate to /Library/Application Support/Blackmagic Design/DaVinci Resolve/LUT/Arri
- Copy the created .DAT files into this folder.
- Either restart Resolve or click on "Update Lists" in the "LUTS" tab of the "Config" room.

### 3. Choose 3D LUT

- In Resolve go to the "Color" room.
- In the "Clip" panel right-click the node and navigate to the right LUT



## Dailies Workflow with Assimilate Scratch

Using look information from set for the creation of dailies saves time and communication efforts. Scratch is a powerful and high performance software tool that helps you out to create dailies, additionally primary and secondary grading, sound syncing and much more. For additional information take a look at [www.assimilateinc.com](http://www.assimilateinc.com)

This article provides you with information about how to transfer your pre-grades made with Livegrade on set to Assimilate Scratch, to save you some extra time with creating dailies by the end of a hard day on set.

*Note: There are various approaches to apply a LUT & CDL grades in general, accordingly also in Assimilate Scratch. The steps below describe a typical DIT workflow, which we also recommend.*

This article describes a manual matching process, if you want to match grades in Scratch automatically you please see:

- [Exporting grades to Scratch via ALE](#)
- [Using an automatic name scheme when exporting CDL or 3D LUT files](#)

### CDL Grade mode

Livegrade's CDL-Grading mode lets you export ASC-CDL files of current color settings in Livegrade. These CDL files can be used in various dailies and post-production tools. To find out more about CDL please take a look on the [ASC Society Website](#).

To transfer ASC-CDL files to Assimilate Scratch follow these steps:

#### 1. Export ASC-CDL file from Livegrade

- Choose "File" -> "Save current Grade as..." or "Save selected Grade as..." and save the .cdl file. You can open this file with a text editor and see the typical ASC-CDL XML syntax.
- Hint: To automate matching of the CDL files with the clips you can use an [automatic name scheme](#) when exporting.

#### 2. Export log-to-video LUT separately

1. Set your grade to neutral (see figure 1.)
2. Choose a camera preset or load a custom log-to-video 3D LUT
3. Select "Export current Grade as 3D LUT"
4. In the "Save To" dialog menu choose "Assimilate Scratch LUT" as the desired format.

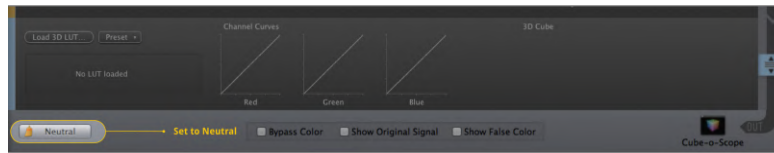


Figure 1: "Set Look Up Table to Neutral"

## Order of Operations

Note: To receive the desired result it is necessary to keep the same order of operations in Livegrade and Scratch. In our example the CDL Grade is applied before an Alexa Neutral 3D LUT camera preset like in figure 2. In this article we illustrate how to create this same order of operations in Scratch.

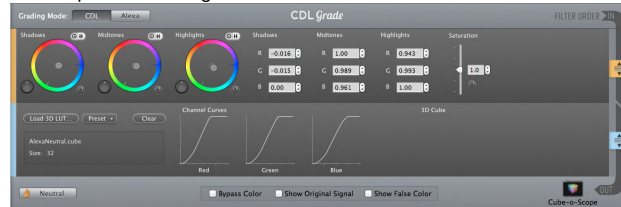


Figure 2: "Order first the CDL Grade then the 3D LUT"

## Import ASC-CDL file in Scratch

At first you will apply a CDL look for every clip. Then you can add the log-to-video LUT in an Output Node for your whole construct, assuming you used the same 3D camera preset LUT in Livegrade. If you have different LUTs applied for different scenes you must apply the 3D LUT separately to every clip. Therefore you can use the copy & paste tool from Scratch. You can also apply a CDL to every clip in your scratch construct by simply copy paste.

## Set Color Settings with CDL file

- Switch to your matrix tool set inside your desired CONstruct
- Load the exported CDL from Livegrade by clicking load...
- Select "CDL files (\*.cdl)" at the bottom of the Open Dialog and navigate to the CDL file just saved in Livegrade.

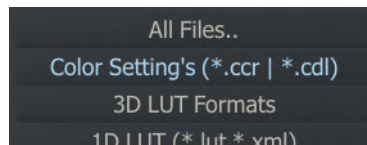


Figure 3: "Select CDL"

## Set 3d LUT if you use a 3d LUT Presets for log-to-video in output node

- Switch from the Timeline to the Output mode like in figure 4.
- Add a "Single Output" and enter the new node
- Under the "FX Ctrl's" hit "Insert" and add a new Plugin
- From the "Plugin" Dialog choose your desired dailies output format
- Switch to the "Matrix" with a right click
- Load the exported 3d LUT or Camera preset from Livegrade by clicking load like in Figure 6
- Set "3d LUT Formats" filter at the bottom of the Open Dialog
- Select the desired .cube" file from Livegrade and press "Load".
- Hit the "Add to Queue" and switch back to your construct to start the Queue process by hitting the "Process" button to start the rendering of dailies

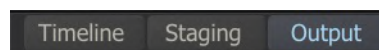


figure 4: "Output mode"



Figure 5: "Output Node View"

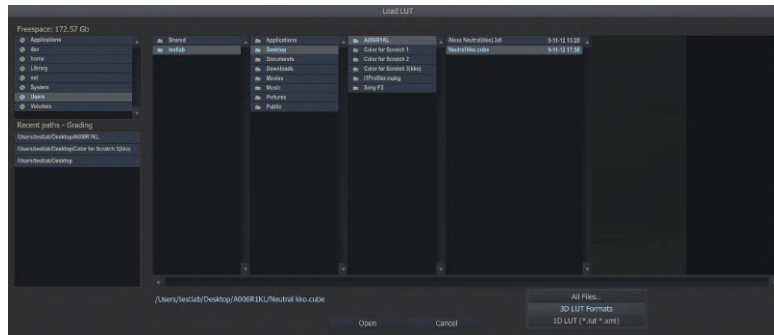


Figure 6: "Load exported .3dl file from Livegrade"

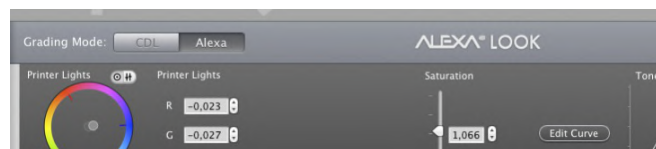
## Alexa Look mode

Scratch does not support the import of Alexa Look files (xml) directly, but you can instead export a 3D LUT in Livegrade and then import it on a per-clip base into Scratch.

More information about the Livegrade's [Alexa Look grade mode](#).

## Export 3D LUT from Livegrade

- Make sure that you are in "Alexa Look" mode in Livegrade. Do so by switching the grading mode above the color controls or apply a grade from the grade library of the type "Alexa Look"



- Select all the grades you want to export to Assimilate Scratch.
- Choose "File" -> "Save current Grade as 3D LUT..." or "Save selected Grade as 3D LUT..." and save the grades as a "Scratch LUT File" file.
- Hint: To simplify matching of the 3D LUTs with the clips you can use an [automatic name scheme](#) when exporting.

## Import LUT to Scratch

- Switch to your matrix tool set inside your desired CONstruct and navigate to a certain clip
- Load the exported LUT in Scratch by selecting "(\*.3dl)" at the bottom of the Open Dialog and navigate to the LUT file which you just saved in Livegrade.

## Apply to all your clips by using the Copy Paste Feature

- If you use the same baked LUT for more than one clip you can use the copy/paste feature as follows in Figure 7 and 8.

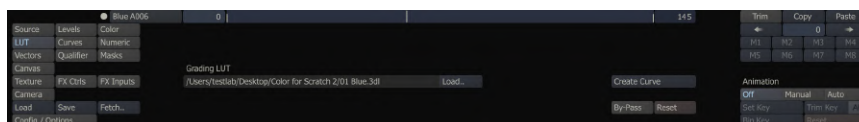


Figure 7: "Load Baked Alexa 3D LUT from Livegrade"



Figure 8: "Copy Paste Feature to apply baked 3D Lut to other clips"

## Exporting Grades to Scratch via ALE

Livegrade offers the possibility to transfer CDL grades to Assimilate Scratch through an ALE file. This feature will help you to match the grades with each clip automatically using their metadata information. In addition, there is the advantage of having all the grades in one single ALE file. As long as camera and scene information are entered for each grade in Livegrade, the exported ALE file will transfer the metadata along with the CDL values to automatically apply the grades to each clip in Scratch.

There are some considerations to have in mind when using this feature:



- it only applies to grades created in the CDL or ACES grading mode
- the 3D LUT information is not included (i.e. a LogC to Rec.709 LUT). Only the CDL information and the LUT name is transferred. The same LUT has to be applied down the post workflow
- camera and scene information has to be properly set on the grades

In order to start the ALE export, you have to select the Grade Group from the Livegrade library. Then select File>Export grade Group for Scratch (ALE) as shown in figure 1.

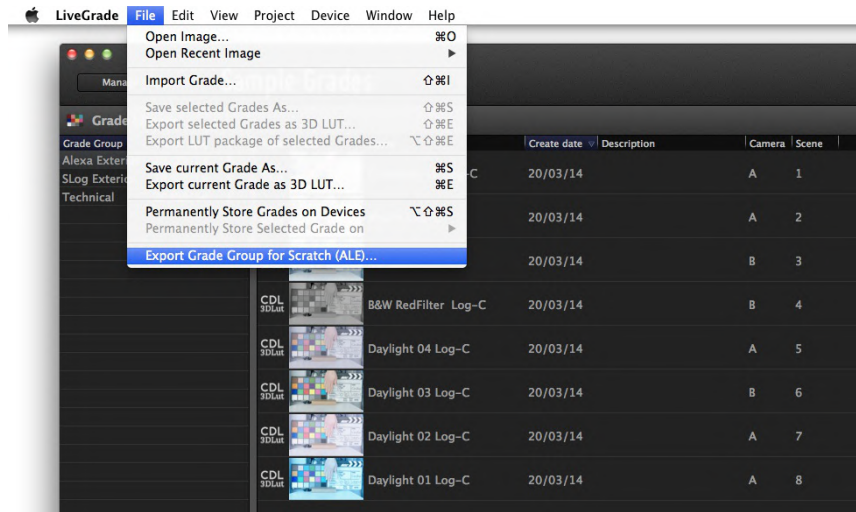


figure 1: exporting grade group as an ALE file

This will bring you to a save destination dialogue:

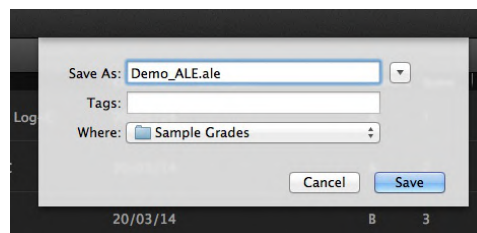


figure 2: save destination selection

Once the ALE file has been saved, you can load it into Assimilate Scratch to match the grades with the clips.

## Transferring Color Decisions to REDCINE-X

Livegrade offers the possibility to export .cdl (Color Decision List) files that can then be imported to the REDCINE-X software offered by RED Digital Cinema. With this workflow you will be able to transfer color decisions from Livegrade to REDCINE-X.

### Exporting a CDL from Livegrade

To export a CDL from the Livegrade library perform the following steps:

1. Select one or multiple looks from the library:

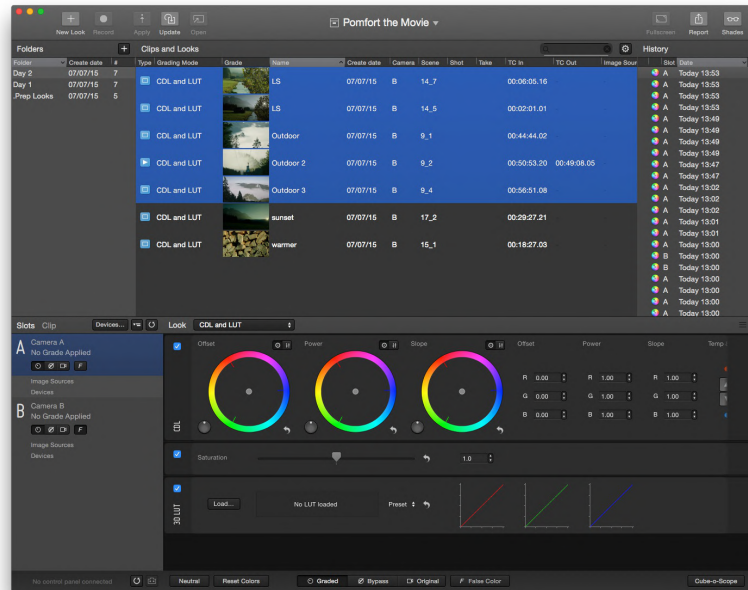


Figure 1: Multiple looks selected

2. Go to the Main Menu. Choose **“File > Save selected Looks as...”** to export the selected looks (you can also use Shift+Command+S as keyboard shortcut):

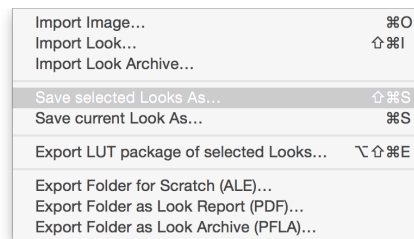


Figure 2: The «File» menu

You can also select **“File > Save current Look as ..”** to only export the look that is currently applied.

3. In the export wizard you will then be able to select the desired format for your export:

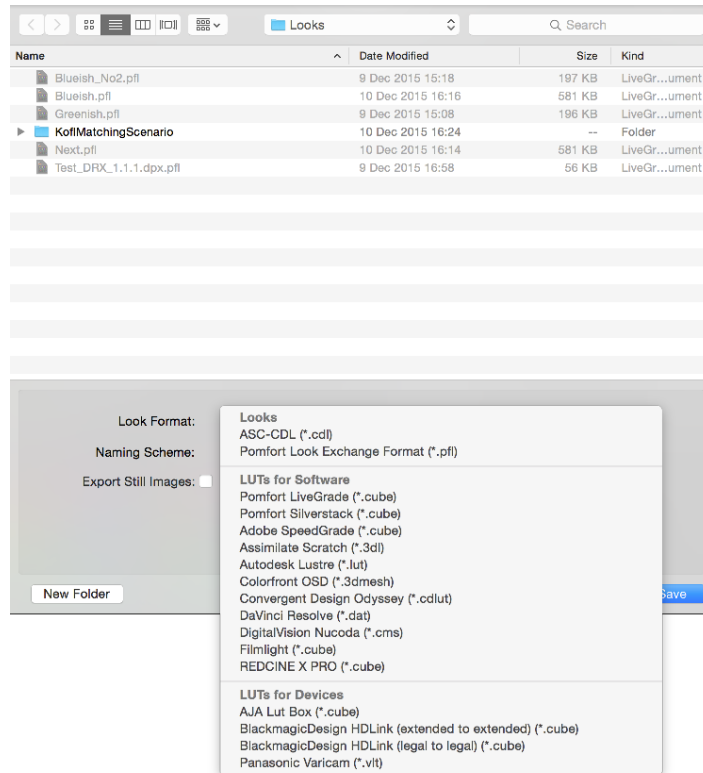


Figure 3: Choose the desired format for the export

Choose **"ASC-CDL (\*.cdl)"** from the dropdown and hit **"Save"**.

Please be aware that you cannot export a CDL from every grading mode with any node constellation. Please refer to the article [Exporting Grades](#) for more information.

### Importing a CDL in REDCINE-X

Open REDCINE-X.

In the File Browser on the left side navigate to the folder with your desired clips and then load it into the viewer.

Select the **"Look"** tab from the tabs on the right side. **"Post : Look : Effects"** should contain a subsection **"Look: Effect : CDL"** :

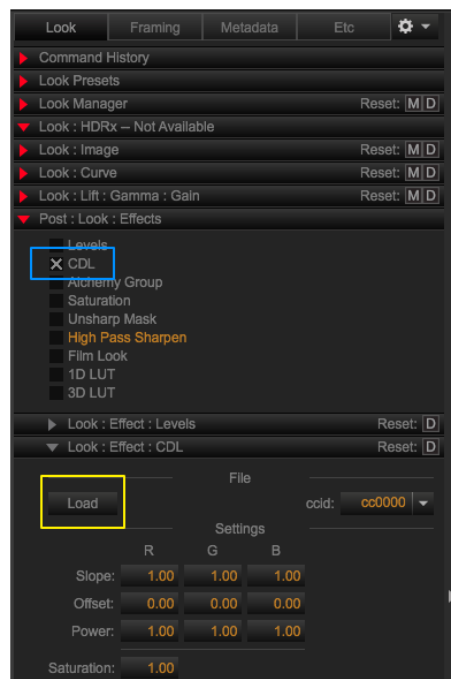


Figure 4: The REDCINE-X "Look" tab with the CDL effect.



From the **“Load”** button (marked with a yellow box in Fig. 4) you can now select the CDL you saved from Livegrade. You can see it taking effect when the Slope, Offset and/or Power values below become altered.

To see the CDL take effect you have to enable the checkbox above the Effects tab (see blue box indicator in Fig. 4).

You will also be able to add a 3D LUT to the color processing in REDCINE-X. This way you can rebuild the CDL+LUT node structure used in Livegrade.

Make sure that you are using the latest version of REDCINE-X. It may appear that you will not be able to use certain functionalities including CDL import when you are not working with the latest release.

For more information take a look at the [REDCINE-X Pro Operations Guide](#).





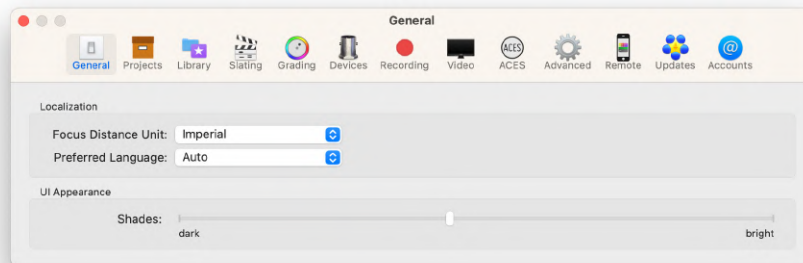
## Additional Settings and Preferences

### Application Preferences

You can find the Livegrade preferences within the main menu under *Livegrade > Preferences...* The preferences window is divided into the following tabs:

#### General

- **Localization:** Choose your desired unit for focus distance and the preferred language to be used in the Livegrade user interface.
- **UI Appearance:** Set the brightness of the [User Interface Dimming](#) effect.



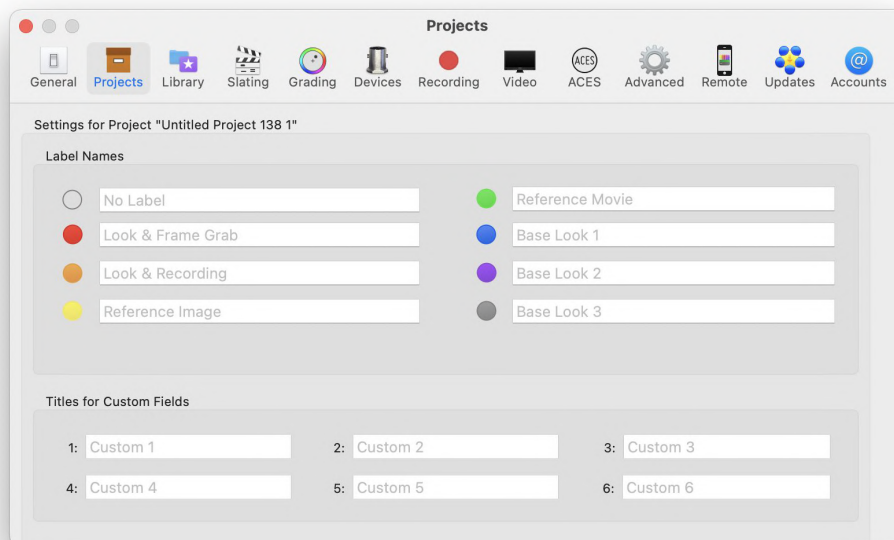
Livegrade Settings General

#### Projects

- **Labels:** You can define a project-based custom label text for each color label. The custom text is displayed together with the color label in the shot library, the info tab and can also be included in reports.

Note: You can exchange the label preferences with other machines or users via settings export/import; see the article [Exchange Settings](#).

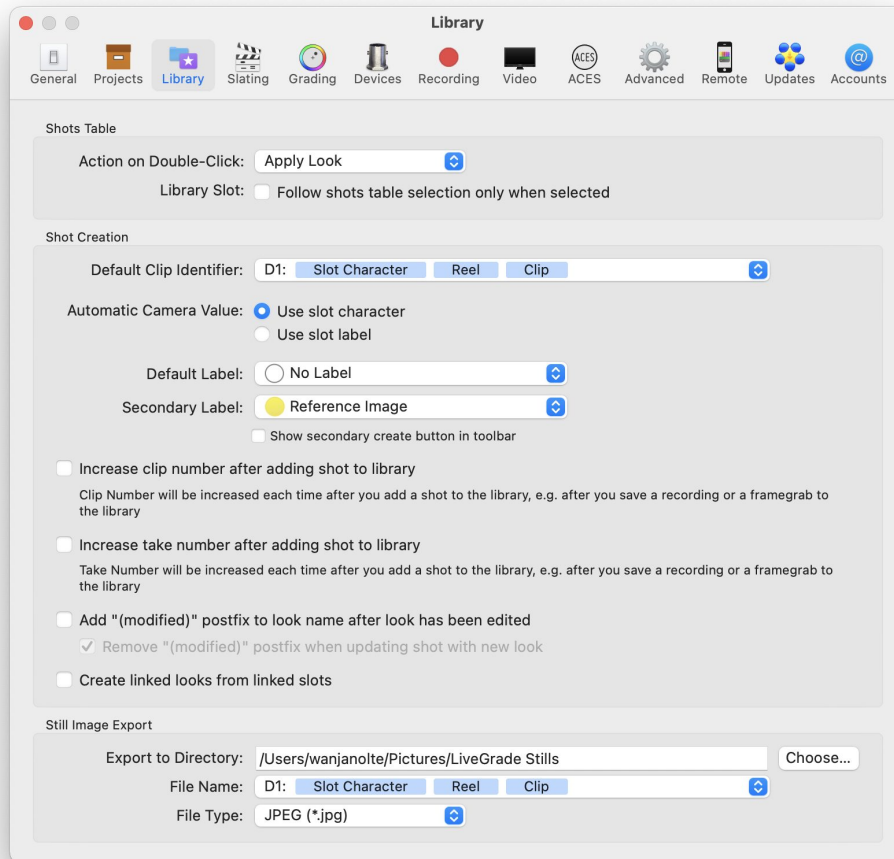
- **Titles for Custom Fields:** You can assign project-bases titles for the “Custom 1” – “Custom 6” fields.



Projects preferences

#### Library

- **Shots Table:** Choose which action to apply when double-clicking a shot in the shots table and set if the library slot should always follow the selection in the shots table.
- **Shot Creation:** Set your preferred default values for new shots: Clip identifier, automatic camera value, default label, and secondary label. Furthermore, set if you want to increase clip number and take number automatically on shot creation. Choose if you want to add a “modified” postfix to your look name for edited looks and if you want to create linked looks from linked slots, see the article [Linked Looks](#) for further information.
- **Still Image Export:** Choose your default directory for still image exports, your preferred file naming scheme for still image exports, and your preferred image file type.



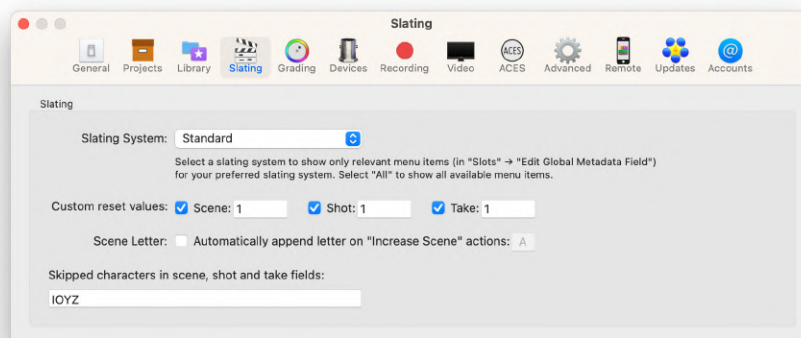
Library preferences

## Slating

- **Slating System:** Choose a “Slating System” to show only relevant menu items within the “Edit Global Metadata Field” menu for your preferred slating system:
  - “Standard” lets you work with continuous slating with scene / shot / take fields (e.g., Scene “56” / Shot “4” / Take “2”)
  - “American” lets you work with American slating with scene / take fields (e.g., Scene “56C” / Take “2”)
  - “All” lets you see all available menu items for full flexibility
- **Custom reset values:** choose reset values for scene, shot and take metadata fields
- **Scene Letter:** The “Scene Letter” checkbox allows you to enable/disable the behavior to append a letter on “Increase Scene” actions automatically (e.g., increment “5” to “5A”). “Scene Letter” is enabled automatically when switching to the “American” slating system and disabled when switching to the “Standard” slating system.

Note: Incrementing letters in the scene/shot/take fields use the overflow system (e.g., “Z” to “AA”, etc.)

- **Skipped Characters:** You can also define specific characters to be skipped when incrementing letters in the scene/shot/take fields.

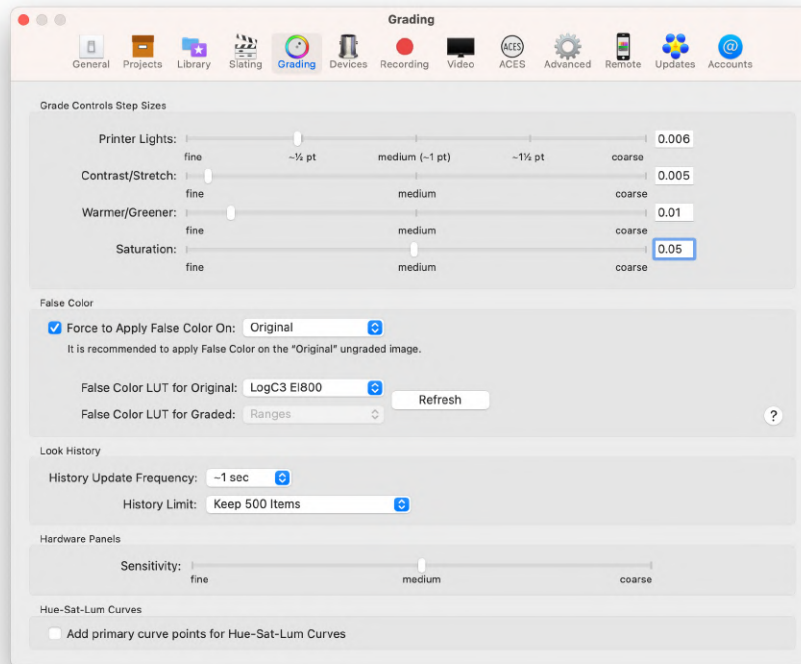


Livegrade Settings Slating



## Grading

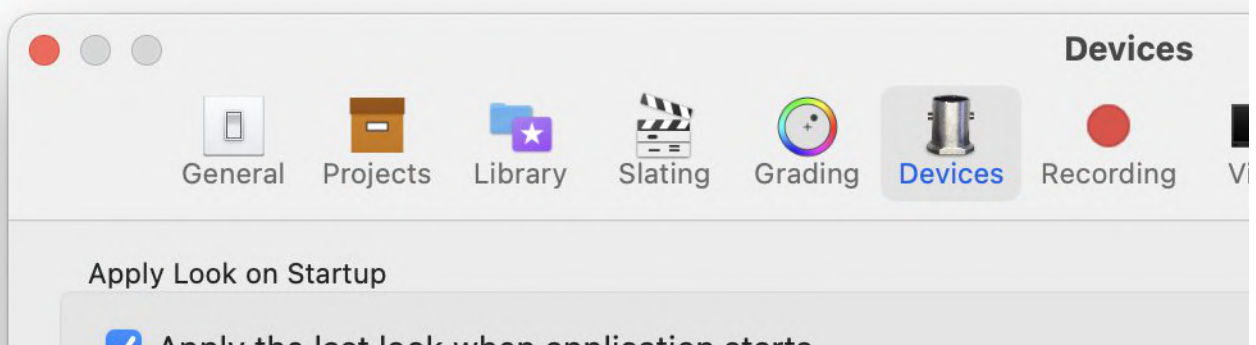
- **Grade Controls Step Sizes:** Set the sensitivity for printer lights (for PRT tab in the CDL node), simple grade parameters (for the SPL tab) and saturation.
- **False Color:** Toggle between the different false color modes. For more information, please check the article [False Color modes in Livegrade](#).
- **Look History:** The look history can be updated to either 1 second (which is the default), 3 or 10 seconds. Additional settings are available to limit the look history for increased performance.
- **Hardware Panels:** If you are using a hardware panel to accomplish your grading tasks, you can set the sensitivity of the panel controls by adjusting the slider.
- **Hue-Sat-Lum Curves:** Choose if the “Hue-Sat-Lum Curves” should show the primary color hue points by default.



Livegrade Settings Grading

## Devices


- **Apply Look on Startup:** Enable the use of the last look used when Livegrade starts.
- **Identify Devices:** Set a mode for temporarily blinking to identify a device.
- **Store Look:** The next option allows you to store the look you have currently selected on the third-party device (e.g., IS-mini, Teradek COLR) connected to Livegrade when quitting the app.
- **Framegrab:** Choose if to refresh the framegrab from devices before shot / look creation.
- **Capture Devices:** You can enable “Use all video connectors as inputs” for using all SDI-connectors of half-duplex capture devices as inputs (e.g., AJA Io4K Plus). If this option is disabled one connector remains available for video output.
- **ARRI Alexa:** Set if Livegrade should automatically store looks on ARRI cameras.
- **IS-Mini:** Choose if Livegrade should search for IS-Mini devices connected via ethernet. Note: It is recommended to connect IS-Minis via USB if possible. You can also disable the automatic framegrab creation of IS-mini devices to prevent the framegrab from being added automatically when connecting a new device.
- **Interactive Video Routing Appearance:** Set a color scheme for the UI of the interactive video routing panel.





☒ Apply the last look when application starts

Identify Devices

Blink / Temporarily Show: Primary Colors 

Store Look

☐ Store look in devices when quitting Livegrade


Framegrab

☒ Refresh framegrab from devices when creating new shot or look

Capture Devices

☐ Use all video connectors as inputs

ARRI Alexa

Store Look in ARRI Camera: Ask 

FSI BoxIO


☐ Enable menu item "Grade Still as Frame Callback" (experimental)

ISMini

☒ Search for ISMinis connected via network

☐ Disable automatic framegrab

Interactive Video Routing Appearance

Color Scheme: Rainbow 

Devices Preferences

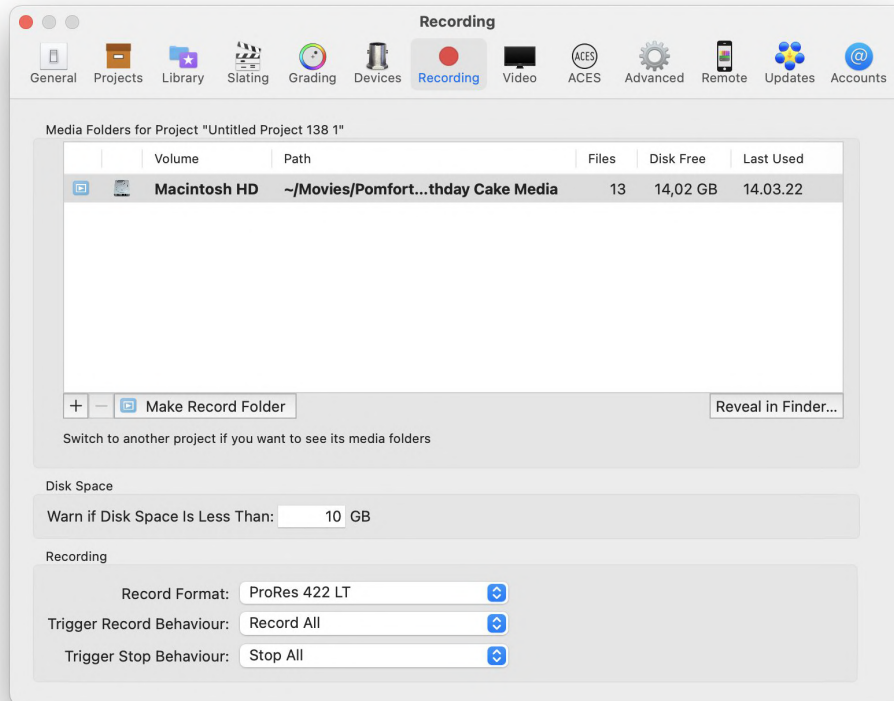
Recording

- **Media Folders/Record Folder:** Set the storage location/s for your project's media files and inspect information like the name of your "Volume", the media folder's "Path", the available "Disk Free" space of the media folder, amount of media "Files" stored in the folder, the "Last Used" date, and your media folder's "UUID". "Reveal in Finder..." opens the selected media folder/record folder in a new Finder window.
- **Disk Space:** You can define a size limit for a warning letting you know that you are soon running out of disk space.



Note: Livegrade Pro is limited to one active media folder (record folder) per project, while Livegrade Studio also supports multiple media folders simultaneously. Learn more about Livegrade's media storage system in the article [Media Folders and Record Folder](#).

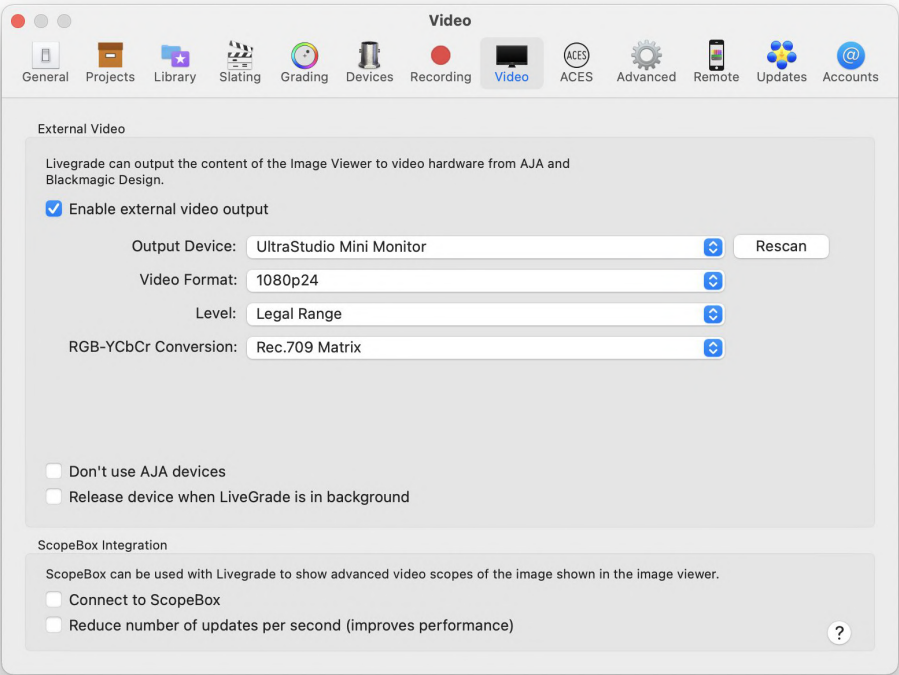
- **Recording:** For general information about the image capturing feature, please check the article [SDI signal recording and Framegrabs](#). It's possible to set the following options:
  - **Record Format:** Choose between the following formats:
    - ProRes 422 Proxy
    - ProRes 422 LT
    - ProRes 422
    - ProRes 422 HQ
  - **Trigger Record Behavior/Trigger Stop Behavior:** Set if the record flag should toggle (start/stop) recording in all slots or just in the triggered slot.



Recording preferences

## Video

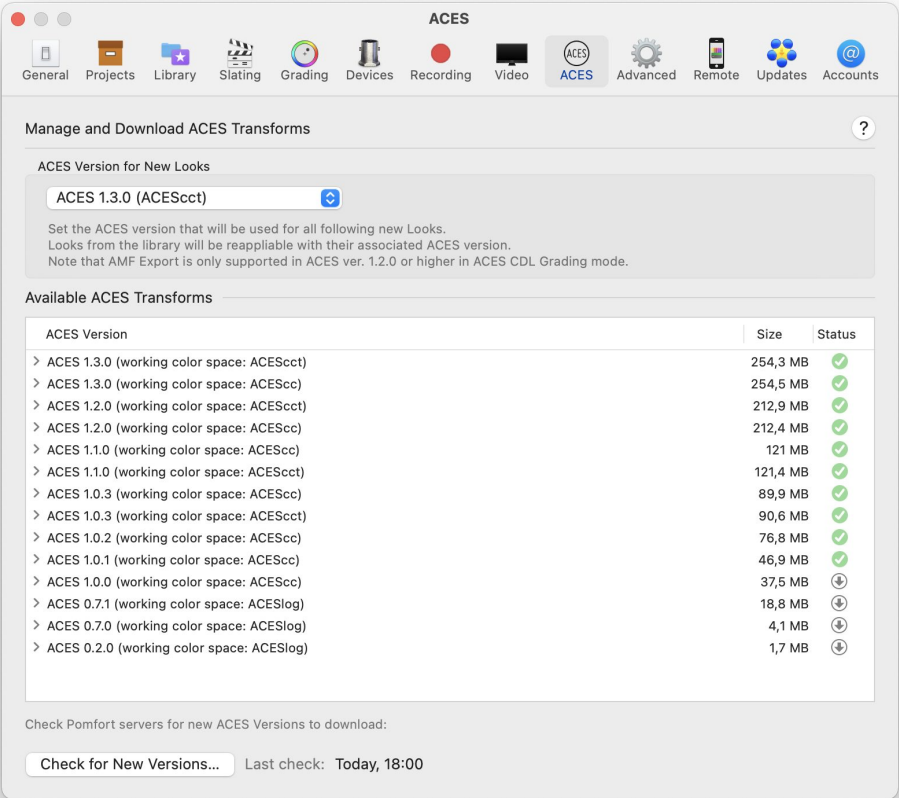
- **External Video:** All the details about this feature can be found in the article [Image View Output to HD-SDI in Livegrade](#). Additionally, you can choose to release the SDI Output device when Livegrade is in the background so that you can use the device with other software apps.
- **ScopeBox Integration:** Livegrade can be connected to ScopeBox to get advanced video scopes. All the details about this feature are found in the article [Professional Video Scopes for Livegrade with ScopeBox](#).



Video preferences

**ACES**

In the Livegrade preferences, you can manage the available ACES versions and transforms. For more details about this feature, please read the article [Using the ACES CDL Grading Mode](#).



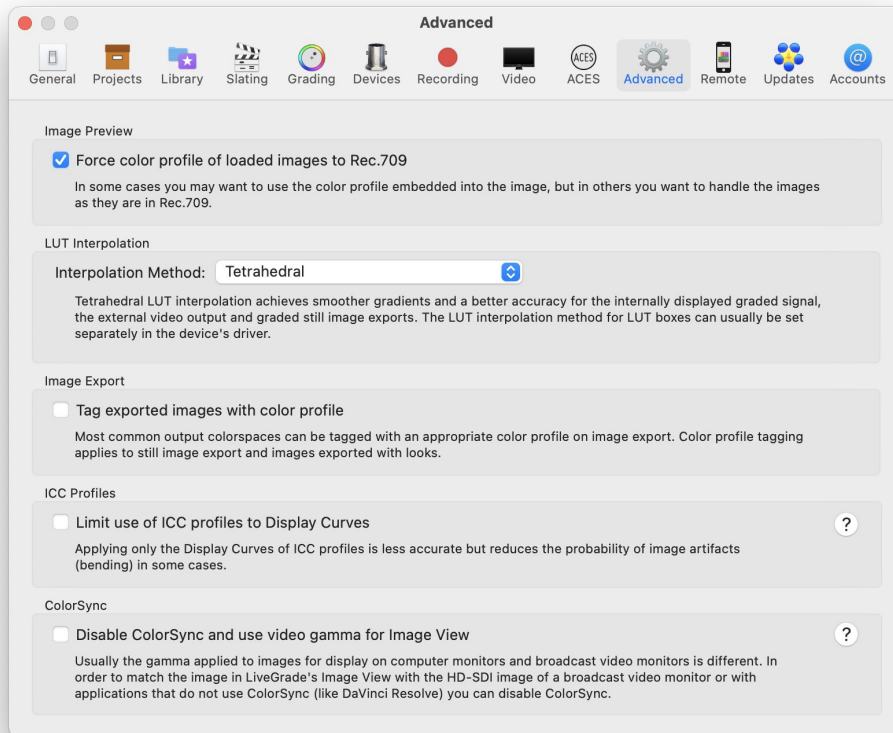
ACES preferences





## Advanced

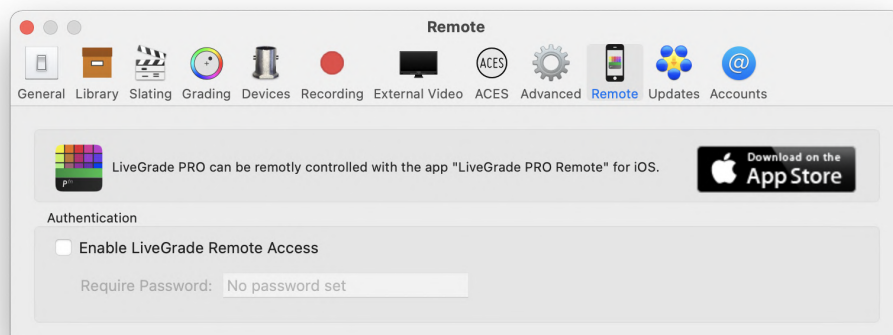
- **Image preview:** Force color profile of loaded images to Rec.709
- **LUT Interpolation:** You can choose between different interpolation methods. It is recommended to choose tetrahedral interpolation for improved color accuracy on video output and still image export.
- **Image Export:** You can enable/disable color profile tagging for still images and apply the appropriate color profile for most common colorspace (Rec.709/Rec.2020/Rec.2100 PQ/Rec.2100 HLG/sRGB).
- **ICC Profiles:** The setting within the "Advanced" section allows you to limit the use to ICC profiles to your Display Curve. This may result in a less accurate color display but, on the other hand, decreases the possibility of [banding effects](#).
- **ColorSync:** Check the article [Matching Livegrade's Image View with a broadcast-video display](#) to learn how to ensure the correct display of images in the Image Viewer on different monitors (e.g., broadcast-video displays).



Advanced preferences

## Remote

Enable the use of the Livegrade Remote app through this tab. For more information about the Livegrade Remote app, please check the article [Livegrade iOS Remote](#).



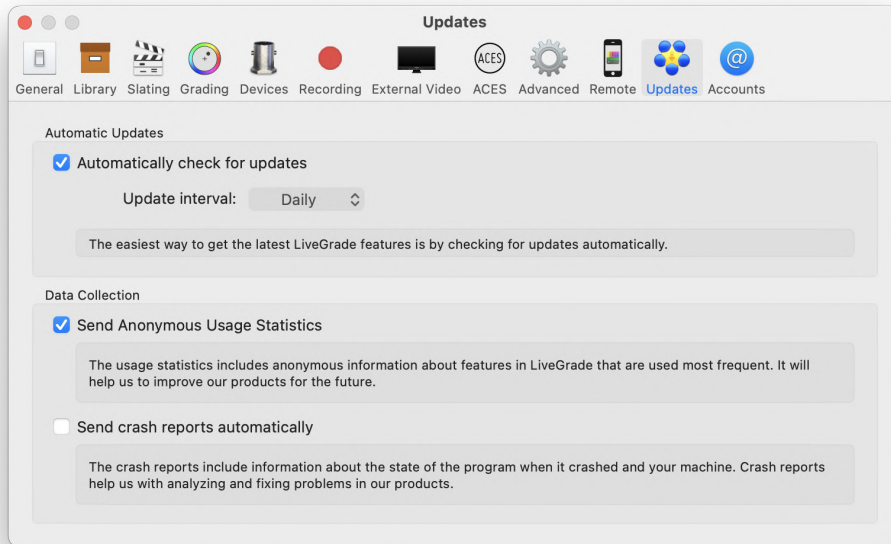
Remote Preferences

## Updates





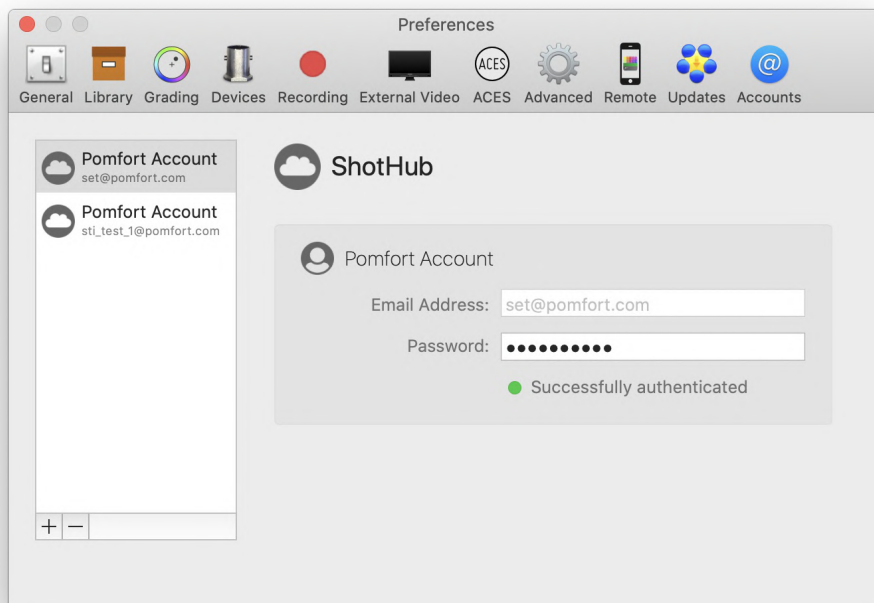
- **Automatic Updates:** Updates for Livegrade will automatically be delivered through the built-in update mechanism. If a new update is available, Livegrade will notify you and ask for permission to install the update. To check if the automatic update function is enabled, go to *Livegrade > Preferences...> Updates*. There you also can change the interval of how frequently Livegrade should look for updates. If you disable automatic updates, you can start a manual update via the *Livegrade > Check for Updates* option at any point. However, we strongly recommend using the automatic update notification feature.
- **Data Collection:** The anonymous usage statistics is selected by default and allows the Pomfort development team to improve the functions and features of Livegrade. If you do not want to supply this information, just deselect the checkbox. Also, choose if Livegrade should automatically send your crash reports to the Pomfort development team, helping them to analyze problems and fix potential issues.



Updates Preferences

## Accounts

In the accounts tab, you can add your ShotHub accounts to upload your project to ShotHub. Learn more in the article [Connecting Livegrade to Pomfort ShotHub](#).



Accounts Preferences



## Editing Keyboard Shortcuts

There are a variety of keyboard shortcuts available for commands in the main menu of the application. Keyboard shortcuts help you to boost your productivity by offering direct physical buttons to features of the application.

Note: Livegrade also has the capability to map actions of the main menu as well as certain additional controls to MIDI controllers. See [Setting up MIDI Controllers](#) for more details.

Some shortcuts are already predefined. You can also set shortcuts for selected commands that you perform quite often in order to memorize the interaction with the application more easily.

To inspect the exact list of available keyboard shortcuts go to “Keyboard Shortcuts” in the application menu. This will open the Keyboard Shortcuts Editor (figure 1).

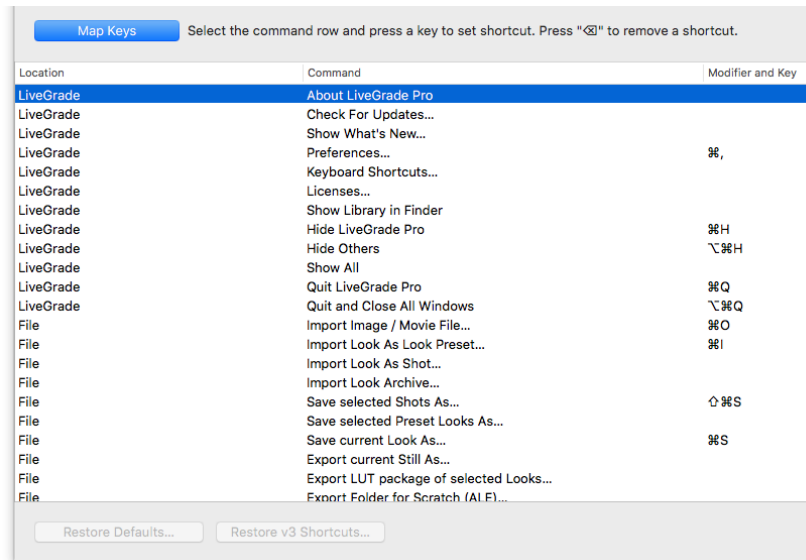


Figure 1: The Keyboard Shortcut Editor

## Listing and Searching Keyboard Shortcuts

The keyboard shortcut editor shows a table with list of all actions in the main menu with their currently set keyboard shortcuts. You can search the list by typing into the search bar on top of the table.

### Edit Keyboard Shortcuts

To edit a keyboard shortcut:

1. Select “Map Keys” to allow changes on the key mapping list.
2. Choose the command row.
3. To set or modify a shortcut press the key or keys to use as the new keyboard shortcut. You can use modifiers, numbers, letters and characters individually or in combination.

To remove the associated shortcut permanently press ⌘ (delete / backspace) button.

Close the Edit Keyboard Shortcuts window when you are done.

If you choose a shortcut already assigned to a command, a warning dialog box will be displayed that shows which command already used the chosen shortcut.

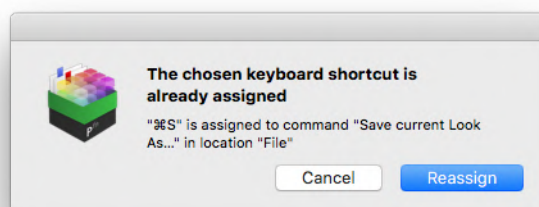


Figure 2: Alert showing used keyboard shortcut

Select “Cancel” and choose another keys for your current command, or select “Reassign” which removes the shortcut from the old command and sets it for the selected command (figure 2).



## Restoring Sets of Keyboard Shortcuts

You can reset all keyboard shortcuts to latest version of GUI-based default by clicking “Restore defaults...”.

You can also reset all keyboard shortcuts to previous version X default by clicking “Restore vX Shortcuts...”.

Note: Both of the restore actions require a restart of the application.

## Change the Application Language

Livegrade offers the possibility to change the language for the User Interface independently from the setting for Mac OS X.

To do so open the preferences. Go to the Main Menu and choose “**Livegrade > Preferences...**”. In the “**General**” tab of the preferences you will find the section “**Language**” right at the bottom:

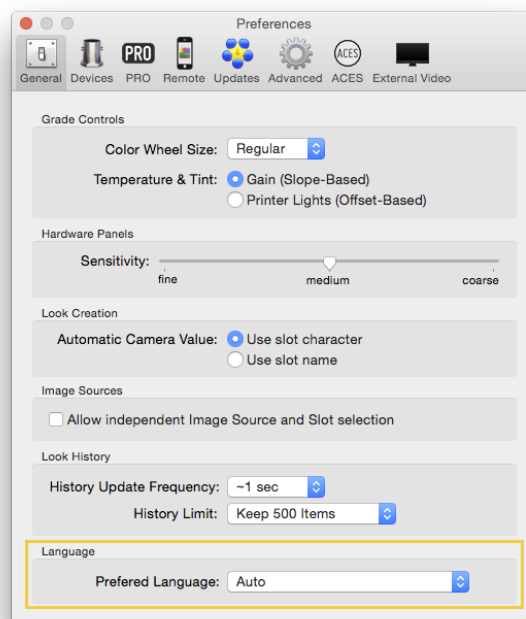


Fig. 1: The General tab of the Livegrade preferences containing the language settings.

The dropdown lets you choose between automatic selection based on the system settings of macOS, or force a specific application language.

After changing the settings Livegrade will show an alert asking you to restart the application for the changes to take effect.

## Exchange Settings

Livegrade allows to export and import global settings and project settings to exchange them with other users or to transfer them to other machines.

### Which Settings Can Be Exchanged?

Project settings:

- Folder Structure
- Record Folder and Media Folders
- Label Preferences
- (Titles for ) Custom Fields

Global settings:

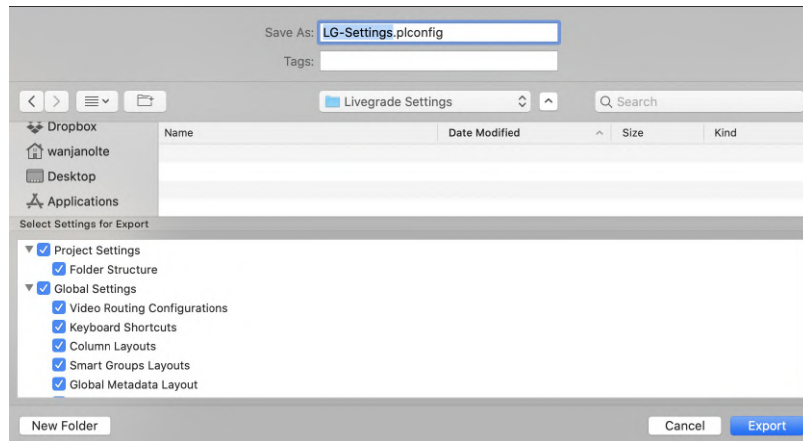
- Video Router Configurations
- Keyboard Shortcuts
- MIDI Controller Mappings
- (Custom) Column Layouts
- (Custom) Smart Groups Layouts
- Custom Clip Identifier
- Slot / Device Configuration
- Global and Slot Metadata Layout



## Export / Import Settings

To export or import project settings go to the Livegrade application menu and select **'Settings > Export... / Import...'**:

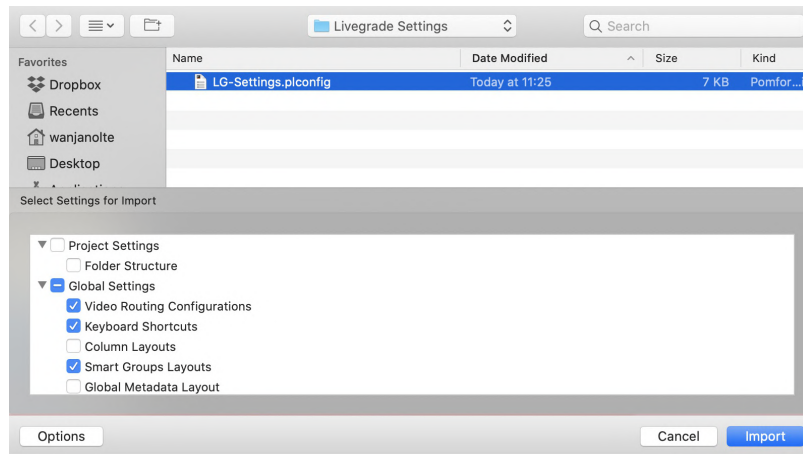
You can specify the individual settings to be exported after clicking on **"Export..."**:



Export Settings

Click **"Export"** to save the .plconfig file containing the settings information to the selected destination.

The export and import settings windows are symmetrical hence you can choose which content to write to the .plconfig file as well as which content to import from a .plconfig file.



Import Settings

## Licensing Features

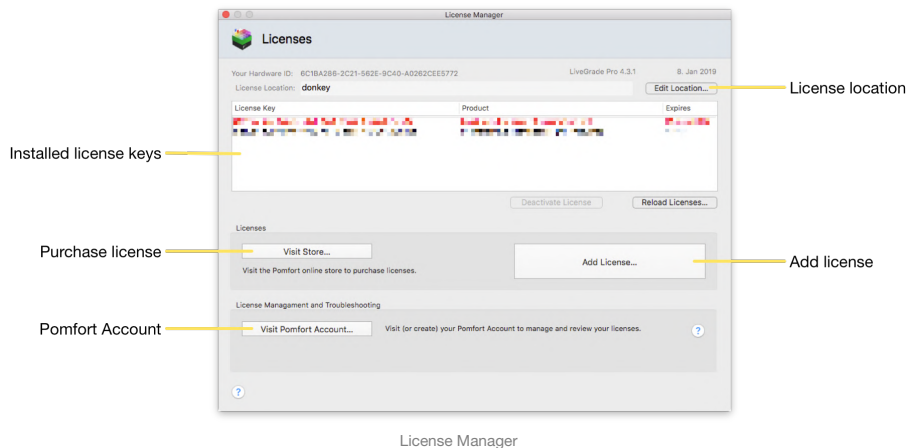
### The License Window

In the license window you can activate the software with a purchased license and manage other aspects of licensing.

#### Trial Period and Read-Only Mode:

Without a valid license you can use the software in a trial mode for 10 days. You can extend the use at any time by entering a valid license.

After the trial mode or after a purchased license has expired, Livegrade still works in read-only mode. You cannot interact with hardware, but you can browse all information stored in the application's shot library, and even create reports and export data.



#### Add License:

By clicking the “Add License...” button a panel opens that allows you to activate a license. In the “License Key” field you enter the license code that you received after purchase. A license code typically has the format: LGPro-123456AB-12AB-12AB-12AB-123456ABCDEF.

If you have entered license codes before, you can choose them directly with the button with the triangle besides the license key field.

In the “License Location” field is a field for you to descriptive the computer you are running the license on (see “License Location” below).

Click “Activate License” to activate the license. A working internet connection is needed so that the software can validate the license code against Pomfort’s license servers.

If the activation fails with the error message “Activation failed”, there are three possible reasons for that:

- You don’t have a working internet connection (or the Pomfort license servers are temporarily not reachable),
- the license code is not correct (e.g. a character or number is missing), or
- the license is activated on another computer already.

If the license is activated on another computer already, deactivate the license there first.

#### Installed License Keys:

The license table shows all installed Pomfort licenses on the computer with their expiration date. It also includes licenses of other products. Licenses (e.g. of other products) that cannot activate the installed software version are greyed out.

By clicking “Reload Licenses” the licenses and their activation and expiration information are refreshed from the Pomfort’s license servers.

You can deactivate a license by selecting it in the table and clicking “Deactivate License”. The license can now be activated on another computer (see article [How do I migrate a license from one computer to another?](#)).

#### License Location:

The license location text will appear in the Pomfort Account (see below) and is helpful for managing and locating multiple licenses in different computers. You can edit the license location by clicking the “Edit Location...” button. You can either choose an arbitrary name (for example “Second Unit Notebook”), or use the computer’s name as set in the Sharing tab of the System preferences by clicking the “Use Hostname” button. When clicking “OK”, the license location will be transferred to Pomfort’s license servers.

#### Purchase License:

By clicking “Visit Store...” the Pomfort online store opens in a browser window where you can purchase a license. You will receive a license code by email only minutes after finishing the purchase process.

#### Pomfort Account:

After the purchase of your first Pomfort product, you can create your personal Pomfort Account on Pomfort’s license servers. In Pomfort Account online system you can see an overview of all your purchased licenses (of all products) and troubleshoot issues with your licenses.

### Pomfort Account: Online License Management

In the **Pomfort Account** you can manage your licenses online. Review the license status of all licenses purchased under a **specific e-mail address** and easily track e.g. license expiration dates, renewal dates or the current activation status of your yearly subscriptions or temporary licenses.

This article will help with the following topics



- How can I create the personal login to access my Pomfort Account?
- Which information can I see in my account?
- License Activation Modes
- Emergency License for Subscribers
- Using a custom License Location / Hostname
- Troubleshooting

#### How Can I Create the Personal Login to Access my Pomfort Account?

Purchasing a license for Silverstack or Livegrade qualifies you to create your personal Pomfort Account. It is not automatically created after the purchase but requires only a few manual steps:

1. Go to <http://pomfort.com> and click the account sign in the upper right corner to access the Pomfort Account login page.  
You can access the login page also directly through <http://account.pomfort.com>
2. Click **"Create New Account"**
3. Insert the email address your license(es) has/have been purchased with and enter a password.
4. After sending the form you will receive an email with an activation link
5. Activate the account through the link and log in on <http://account.pomfort.com> with your credentials.

To change your password click **"Reset Password"** on the login page and fill in your e-mail address in the following page. After submission you will receive a link to create a new password for your account.

#### Which Information Can I See in my Account?

##### Desktop Applications

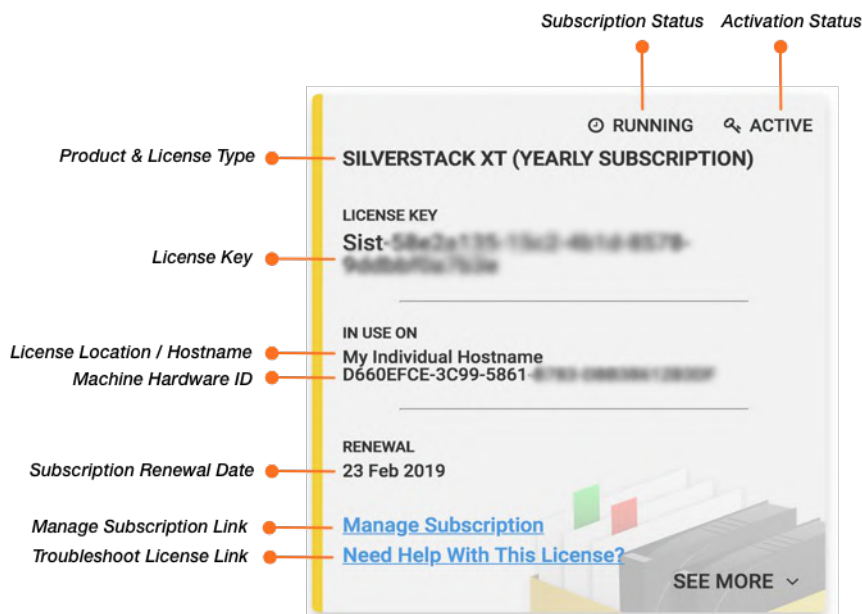
The core of the Pomfort Account is the **"User Licenses Overview"**.

It is separated in three sections that hold different types of licenses:

- **Subscriptions:** This section shows all your subscription licenses.
- **Project Licenses:** This section shows all your project licenses (e.g. 14-days or 1-month licenses)
- **Other Licenses:** All other licenses that do not fall under the above are listed here.

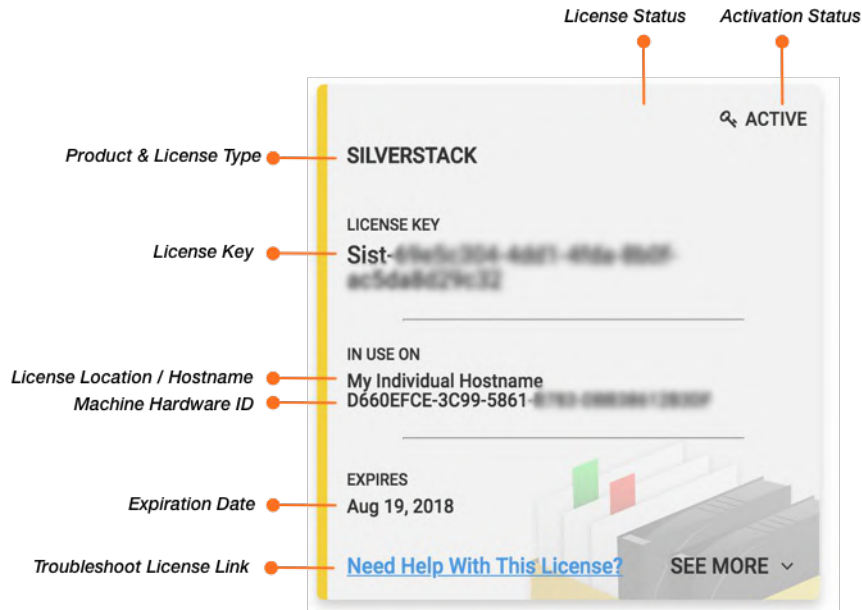
The "User License Overview" gives you a comprehensive overview by showing a unique license card for each of your licenses. Each license card contains detailed information about the license status.

For subscription licenses this is in detail:



- **Subscription Status:** Shows whether your subscription is
  - Running
  - Cancelled
  - Expired
- **Activation Status:** Gives feedback about the activation of the license key in an application and can display
  - **Active:** The license is activated on a machine.
  - **Inactive:** The license is not active on a machine and can be activated for the product.
- **License Key** is the unique key that can be used to activate your product
- **License Location / Hostname:** Identifier for your machine that can be sent through the License Manager of the applications (see section License Location / Hostname)
- **Machine Hardware ID:** Each license can only be activated on one machine. The hardware ID is transmitted to the license server on activation. This can help to identify the active machine for the user.
- **Subscription Renewal Date:** The date the subscription will renew for the next yearly period.
- **Manage Subscription Link:** This link brings you to the manage subscription page in the Pomfort online store to show the billing history, edit subscription details such as payment method or address, or cancel your subscription.
- **See More:** When expanding the 'See More' section on your license card, you can see additional info regarding your purchase, e.g., it will show the date of purchase, the name/email address the license has been purchased with as well as a link to access your invoice from the account directly.

For Project Licenses there are only small differences. Here's an example:



Instead of the renewal date for subscriptions, project licenses show an expiry date after first activation.

- **License Status:** Show whether your license is
  - **Not in Use:** License has not yet been activated.
  - **[Empty]:** No status is shown as soon as the license has been activated.

Besides information about your license, you also have access to all software downloads in the “**Downloads Overview**”.

The **Downloads Overview** is separated in 4 sections:

- **Your Downloads:** Here you can see all direct software downloads that are available for you. What you see here depends on which active licenses you own in your account. By clicking on “Start Download”, you can download the software immediately, without entering any further information. In this section you will always download the most recent version of the software. Older software versions can be found in the changelog or in the “Older Downloads” section further down.
- **Free Trials:** This section shows you all free software trials that are available for you. By clicking on “Start Free Trial”, you will be taken to a separate signup form, where you can start your free trial.
- **Tools:** In this section you can find useful tools for your daily work, such as Pomfort Seal Verify.
- **Older Versions:** If you are looking for older versions to work with (e.g. because you are working on an older OS that is not supported in the new versions), you can find the right version for you in this section.

## Online Services

This area of the Pomfort Account shows all important information related to our cloud solution ShotHub. The “Plans” overview is again divided into three individual areas:

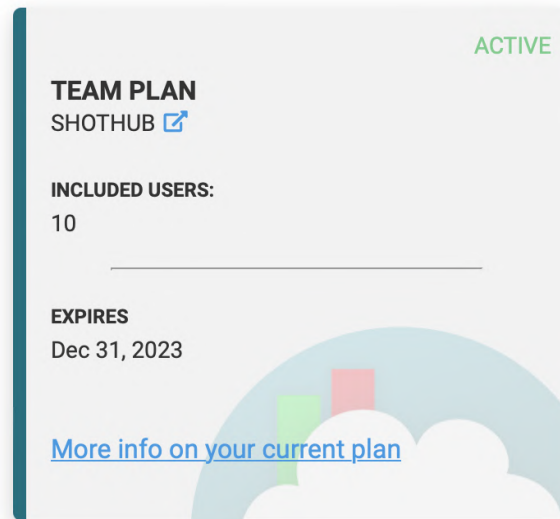
- **Active Plans:** This section shows your currently active plan.
- **Expired Plans:** This section shows your last expired plan.
- **Purchase Options:** If no plan is currently active, all ShotHub purchase options will appear here, and the required plan can be purchased directly from your Pomfort account.

If a purchased plan expires, ShotHub will automatically transition to a Free plan with limited features. This then appears again under Active Plans.

Similar to the licenses for our desktop applications on the respective license cards, the different ShotHub plans (Free/Pro/Team Plan) are also shown on the corresponding cards in the account. In addition, the activation status, the number of included users, and the renewal or expiration date of the current ShotHub plan are displayed.

Furthermore, you can also find a link that will take you directly to the ShotHub login page.





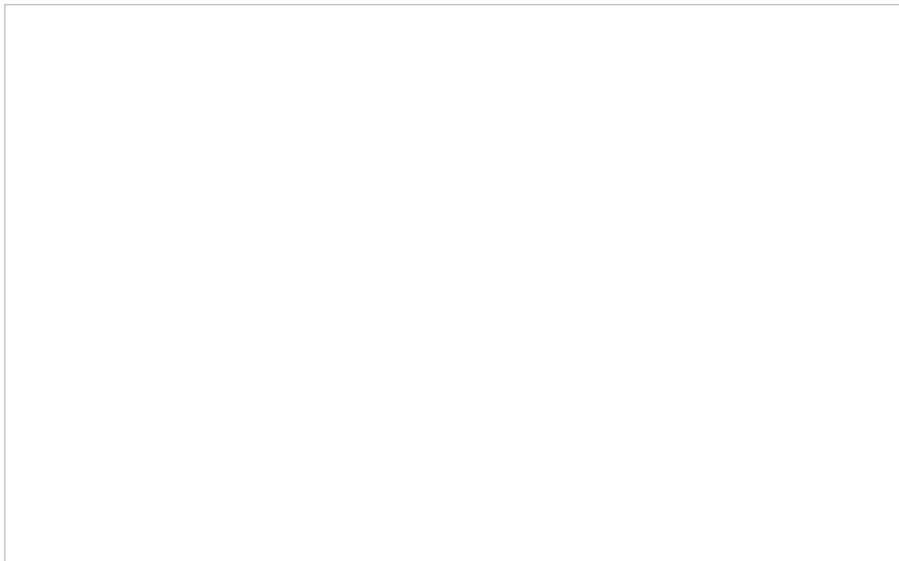
### [License Activation Modes](#)

All customers with a yearly subscription to one of Pomfort's desktop applications can choose from two different activation modes that allow them to use a license, depending on their individual preferences:

- **Standard License Activation Mode (default)**
- **Daily License Activation Mode**

#### Selecting your License Mode

You can select your license mode in your [Pomfort Account](#). Go to the tab "Licenses" to see your active subscriptions. All licenses that are yearly subscriptions now show their "Activation Mode." If you like to change the license activation mode choose "Manage Activation Mode" to adapt your selection. Please ensure that the license you want to change is not in use on any machine, indicated by INACTIVE in the upper right corner of the license card. Therefore the license should be removed from each license manager of your desktop application on all your devices.



For both license activation modes, you should add and activate your license in the license manager of the desktop application as described here: [How do I activate my license?](#)

#### Emergency Licenses for Subscribers

We've experienced that customers sometimes need a functioning license immediately, but cannot access their regular license due to various reasons.

To cope with such situations and to bypass possible extended solving times due to time zone differences, subscribers are now eligible for creating a personal **emergency license**.

#### How to Issue an Emergency License

Click the link at the bottom of the license card to reach the license troubleshoot page:

[← Back to License Overview](#)

## TROUBLESHOOT YOUR LICENSE

If you cannot activate your license and get an error message, please check the following:

### 1.) Is your license shown as inactive?

In order to activate your license on a new computer it needs to be shown as 'inactive' in the license panel. If that's not the case please deactivate your license from the computer it is activated on.

### 2.) Does your computer use the correct time and date?

Make sure that your time and date are set to the current time and date in the system preferences of your computer.

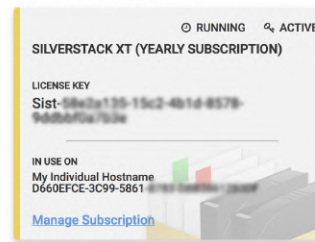
### 3.) Do you have a working Internet connection?

To activate a license you will need a working Internet connection.

### 4.) Are you using the correct software version?

Please make sure that you downloaded the correct software application and version for your license.

## LICENSE DETAILS



[Refresh Subscriptions Status](#)

On this page you find detailed steps to solve the license issue. If that should not be possible an emergency license can be created by clicking on the **"Issue Emergency License..."** button.

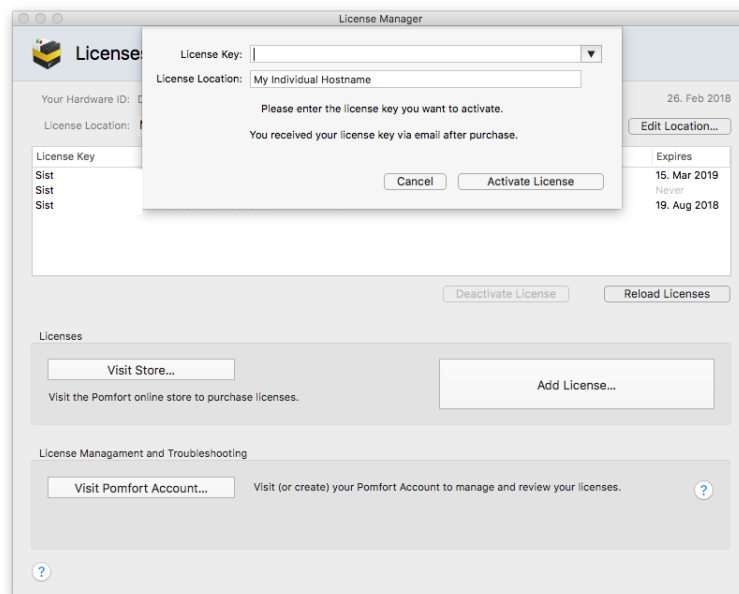
The following restrictions apply to emergency licenses:

- Only subscribers can issue emergency licenses
- Limited number per subscription period
- Valid for 5 consecutive days from moment of issue

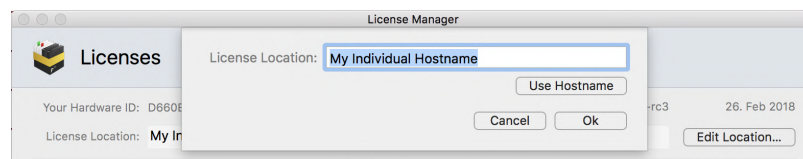
## Using a Custom License Location / Hostname

Since Silverstack and Silverstack Lab 6.3.3 and LiveGrade 3.9.3, a custom license location (host name) can be transmitted with the activation of a license. This host name will be shown on the license card in your Pomfort Account in the "IN USE ON" section and can help to identify the machine a license is active on with a descriptive name.

When activating a license key simply fill in your preferred host name in the "License Location" text field:



Additionally the hostname can be altered for all installed licenses by clicking the **"Edit Location..."** button and filling in a new preferred host name:



After setting the license location in the application you can refresh your browser window with the Pomfort Account to see the license location name appear in the license card of the activated licenses.



## **Troubleshooting**

This section holds an FAQ on the Pomfort Account and possible common problems that might occur.

### **Why don't I see my Licenses?**

In case you logged into your account and do not see the expected license(es) please verify if the following is true:

- You have bought the licenses with the same e-mail address the Pomfort Account is registered to. Only licenses bought with this e-mail address are shown.
- The expiration date of the license is no longer than 2 months in the past. Licenses that expired more than 2 months ago are automatically removed from the license overview.
- You received a proper license mail for your purchase.

If all of the above is true please contact [sales@pomfort.com](mailto:sales@pomfort.com) .

### **I bought my licenses under different email addresses but want to see them in one Account ?**

It is possible to manually merge licenses that have been bought with different email addresses to one address and therefore one Pomfort Account login. Please contact [sales@pomfort.com](mailto:sales@pomfort.com) .

## Troubleshooting

### Matching the Image View With a Video Display

#### Background

In most applications on a Mac, displaying images and video is color managed in OS X by a technology called ColorSync. This is also the case for Livegrade's Image View that can display movies, stills and live video.

Color management in this case means, that the pixel values encoded in a movie file or live video are transformed for display in a way, so that the resulting image on a specific computer monitor leads to the *same perception* as viewing the same image on a reference broadcast monitor. Due to the assumed different viewing environments of broadcast monitors and computer monitors (dimly lit for broadcast video and brighter viewing conditions for computer monitors), the video displayed on a computer monitor will intentionally *not* be exactly the same as the original signal displayed on a broadcast monitor (it will basically have a less contrasty gamma of 2.2 instead of a more contrasty video gamma of around 2.4-2.5), but it will achieve the same perception when taking into account the different viewing conditions.

For more information on this topic, please see Apple's [TN2257](#).

#### Displaying Livegrade's image

If you want to

- use a computer monitor (or a video monitor attached via DVI) for displaying movies or live video with Livegrade's Image View in a broadcast-style (e.g. dimly lit) environment,
- exactly match Livegrade's Image View with the image of a broadcast monitor, or
- match Livegrade's Image View to other, non color-managed software systems such as DaVinci Resolve,

you can perform one of the two actions described below:

- Switch off color-management (ColorSync) for Livegrade's Image View (for installation instructions see below), or
- calibrate your monitor by creating a custom ICC profile – using a video gamma of your choice (e.g. 2.4 or 2.45) as the destination gamma of the profile in the calibration process.

Performing these steps should lead to the *exact same image* of Livegrade's Image View on the attached monitor – when compared to a non color-managed system or the camera signal displayed directly (e.g. via HD-SDI) on a broadcast reference monitor.

#### How to disable color management (ColorSync) in Livegrade

- Open Livegrade's preferences, go to the "Advanced" tab (see Figure 1).
- Check the checkbox "Disable ColorSync and use video gamma for Image View".

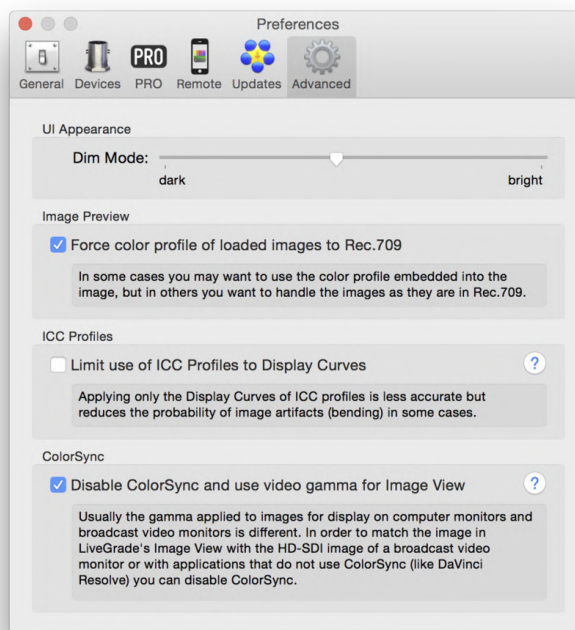


Figure 1: Disabling ColorSync for Livegrade's Image View

**Note:** It's possible to output the Image Viewer through the SDI Out when using Livegrade as described in the article [Image View Output to HD-SDI in Livegrade](#).

### Avoiding Banding Artifacts with ICC Profiles

For use in the HDLink box Livegrade transforms ICC profiles into 3D LUTs together with all other look processing. Due to the limited number of nodes in the HDLink's 3D LUT support (17 x 17 x 17 nodes), some ICC profiles may produce colored banding when used in Livegrade.

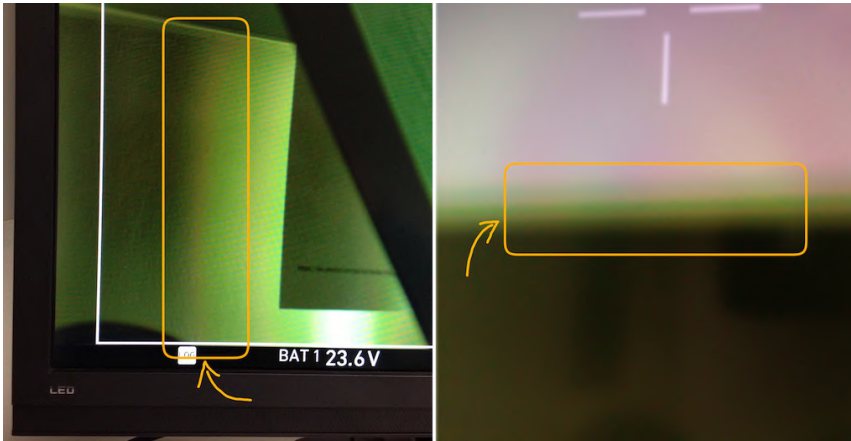


Figure 1: Sample images of colored banding when using ICC profiles.

You can limit the use of ICC to display curves, which in most cases avoids banding artifacts. You can set that in the Preferences dialog of Livegrade:

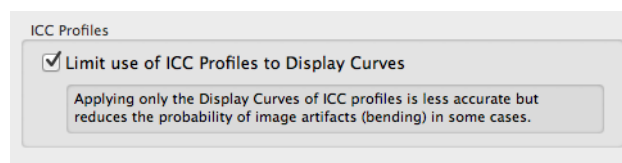


Figure 2: Configuring ICC processing of Livegrade

Switching this setting on has the cause that only the response- or gamma-curve of the ICC profile is applied, but the matrix for the primary colors is skipped.

## Why Does the Software Tell me My License Is Already Activated ?

Each Livegrade license key can be activated on one computer at a time. If an error message appears when you try to activate your license on a new computer please check if the license has been properly deactivated from the original computer.

You can do this check by logging into your Pomfort Account. The license status needs to be shown as “Inactive” for you to activate the license on another computer. If this is not the case, please deactivate your license from the computer that it’s shown as activated on.

Find more information about the Pomfort Account [here](#).

## I have a problem with the license

### The activation of the license doesn't work

#### The license is already activated

According to our software license agreement, each Livegrade license can be active in one computer at a time. However, the license key can be deactivated and reactivated as many times as needed. The article [Migrate a license from one computer to another](#) will help you in the process.

#### The license key has a wrong format

If the key has a wrong format, you won't be able to activate it. Generally, the license key has the following format, accordingly to the Livegrade version you have purchased:

LGPro3-xxxxxxxx-xxxx-xxxx-xxxxxxxxxxxx.

Make sure that no spaces are left when entering the key. We recommend to copy and paste the license key directly from the purchase email to avoid any error.

Alternatively you can also log in to your [Pomfort Account](#) to look up your license key and copy it from there.

#### No internet connection

Livegrade needs an internet connection in order to activate and deactivate licenses. Once the license key is active, you can use Livegrade without a connection.

## Using a wrong Livegrade version

Each Livegrade version needs a certain license. The license purchase email we have sent you should show for which Livegrade version the license is issued.

In case that you have a Livegrade 2 license and would like to upgrade it to Livegrade 3:

- Download the latest Livegrade version [here](#)
- Copy Livegrade to your applications folder and launch it
- Open the license panel by choosing “Licenses...” from the Livegrade menu

- If not already activated, activate your existing Livegrade 2 license by clicking on “Add Licenses...”
- Click the “Upgrade” button next to the Livegrade License you want to upgrade
- Copy the upgrade key from above, paste the key into the upgrade key field, and click on “Upgrade License...”
- Your existing license key is now upgraded, you will never need the upgrade key from now on.

For different Livegrade versions see our [Download section](#).

If you still experience issues, then maybe Livegrade's library is corrupted. The article [Reset Livegrade's Library and Preferences](#) explains how to create a new library in addition to the preferences reset.

#### The license is expired

##### A license has expired

The Livegrade licens is available as a yearly subscription. This way we can assure you always have the latest product. Maybe your license simply expired.

You can check the expiration date of your license either directly in the software, or by logging into your [Pomfort Account](#).

Visit <http://pomfort.com/store/Livegradepro> for a new license.

#### System time is wrong

When the system time on your computer is wrong, the license might not work. Make sure that time and date is set properly in OS X's System Preferences.

If none of the solutions described above have solved your licensing issues, please contact our [support team](#).

### I have a problem with the software

#### LiveGrade doesn't start

In case that LiveGrade doesn't launch on your computer, you can reset the preferences for a clean restart.

This is the process to deleting LiveGrade's preferences:

- Quit LiveGrade
- Create a copy/backup of the following file (optional)

```
~/Library/Preferences/com.pomfort.LiveGrade3.plist
```

*The Library folder is hidden by default. You can open the Library folder in Finder when opening the “Go” menu and holding the “alt” key. You will see an extra entry “Library” in the “Go” menu. Choose this entry and a Finder window will open with the Library folder.*

- Open up the Terminal application (type terminal in your spotlight or navigate within the Utilities folder of your application folder)
- Type the following command in your terminal window

```
defaults delete com.pomfort.LiveGrade3
```

- Start LiveGrade, now LiveGrade should start as usual.

If you still experience issues, then maybe LiveGrade's library is corrupted. The article [Reset LiveGrade's Library and Preferences](#) explains how to create a new library in addition to the preferences reset.

If you have differing problems see the complete [Troubleshooting](#) section for more help articles (like e.g. [Troubleshooting HDLink Devices in LiveGrade](#)). If the problems persist, please contact our [support team](#).

#### LiveGrade hangs or crashes repeatedly

In the rare case that LiveGrade hangs or crashes repeatedly, you can send automatically created reports to our support. You can do this by:

- Choosing “Contact Support” in the “Help” menu of LiveGrade.
- Enter your personal information (name and email) so that we can get back to you.
- Enter a short description:
  - What steps do you perform in the software that lead to the problem,
  - what happens, when you perform these steps, and
  - what you would expect the software to do instead.

In addition to your message, the form will include crash reports, log files and system information that will help our support to trace possible bugs.

### Transfer Large Livegrade Projects

If large projects are to be transferred from one computer to the other, the upper limit of 2GB for .PFLA Look Archives may exceed.

In this article, we will show you how to copy the folder of your Livegrade project, which is stored in the Library of your computer and can be located via *Livegrade > Show Library in Finder*.

Note: The Livegrade version of the new computer should be at least as advanced as that of the old one.

#### Export project settings and transfer media files

As copying the Livegrade project's folder doesn't contain your settings and associated media files, one should take care of them beforehand:

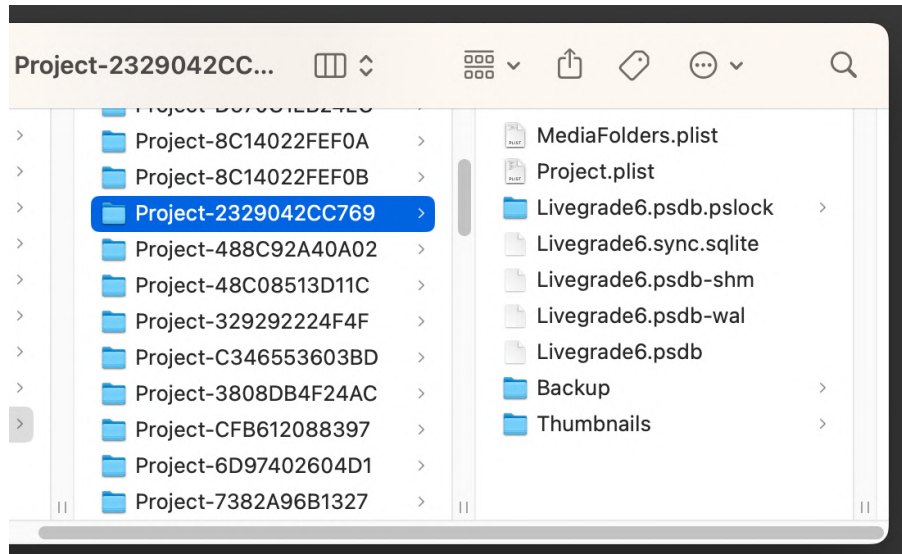
1. **Copy the media folder of your project to the new computer.** To locate your currently used media folder, open Livegrade settings and go to the recording tab. Copy the media files of this folder to your new computer, so that you can access them after transferring your project. Ideally, choose the same on the new computer path as you did on the old.

2. **Export Settings via Livegrade > Settings Import/Export > Export ...**  
Make sure to select all types of settings you wish to transfer.

#### Copy the Project's folder to the new computer

As the media files are already copied to the new computer and your project settings have been exported, you are ready to copy the project:

1. Locate the currently used project folder in the library via **Livegrade > Show Library in Finder**.



Locate the Livegrade project folder via Livegrade > Show Library in Finder

2. **Quit Livegrade** on the old *and* the new computer. This is important before you continue with step 3.
3. Copy the whole project folder (e.g. Project-2329042CC769) to the same path (../Library/Application Support/Pomfort/LivegradeStudio6/) on the new computer.
4. Open Livegrade on the new computer
5. Open your project via the project chooser.
6. Import the settings via **Livegrade > Settings Import/Export > Import ...**
7. If your media folder changed, add the media folder to your Livegrade project via **Livegrade > Settings > Recording**
8. After adding your media folder to your project you should now be able to continue working as before.

## How to Reset Library and Preferences

In the unusual event that Livegrade is not able to launch, you will have to reset its Library and Preferences.

**Warning: This can't be undone, deleting the library will delete the grading history, preset grades and grade groups.**

### Reset Livegrade's Library

To reset the Library, please follow these steps:

1. Quit the Livegrade app
2. In Finder press `⌘⇧G` and copy&paste the following line in the dialog box:

For Livegrade v6:

- Livegrade Pro: `~/Library/Application Support/Pomfort/Livegrade6`
- Livegrade Studio: `~/Library/Application Support/Pomfort/LivegradeStudio6`

For Livegrade v5:

- Livegrade Pro: `~/Library/Application Support/Pomfort/Livegrade5`
- Livegrade Studio: `~/Library/Application Support/Pomfort/LivegradeStudio5`

3. Rename the *LivegradeX* folder to *LivegradeX\_old* and back it up afterwards. All the grading history, preset grades and grade groups will be backed up in the old database.

4. Open the Livegrade app again. It will automatically create a new library folder.

### Reset preferences

In order to reset Livegrade's preferences, open a Terminal window. Then copy and paste the following line:

For Livegrade v6:

- Livegrade Pro: `defaults delete com.pomfort.LiveGrade6`





- Livegrade Studio: *defaults delete com.pomfort.LiveGradeStudio6*

For Livegrade v5:

- Livegrade Pro: *defaults delete com.pomfort.LiveGrade5*
- Livegrade Studio: *defaults delete com.pomfort.LiveGradeStudio5*

Press “return” and the preferences will be reset.

Now Livegrade should start as usual.