Benefit from On-Set Looks in Dailies Creation

Increasing Production Value With a Consistent Look Pipeline

Having color corrected dailies with a consistent, creative look already applied is of great help in a movie production. This white paper outlines the workflow that's used to implement a streamlined dailies workflow with the tools available on the film set, and without much extra work during the shooting day.

Who Is Involved?

The center role for controlling the creation of images on set has always been the DP. He is responsible for the entire camera department that helps realizing his creative visual intent by setting up and operating the camera and recording systems, setting lights, and monitoring signals and image quality. When talking about digital looks, the role of the DIT is also important within the camera department, as it's his responsibility to provide a high quality preview of the live image from the cameras and to maintain all the tools to work with this image interactively.

Hardware and Software Setup

In order to start with a creative look already on set, a device is needed in the signal flow from camera to monitor, that is capable to modify the color appearance or the live image. A few years ago this has been the sole task of dedicated devices (so-called "LUT boxes"), but since then more and more cameras, monitors, and other devices such as signal transmitters can also perform such color manipulation on live images (see fig. 1).
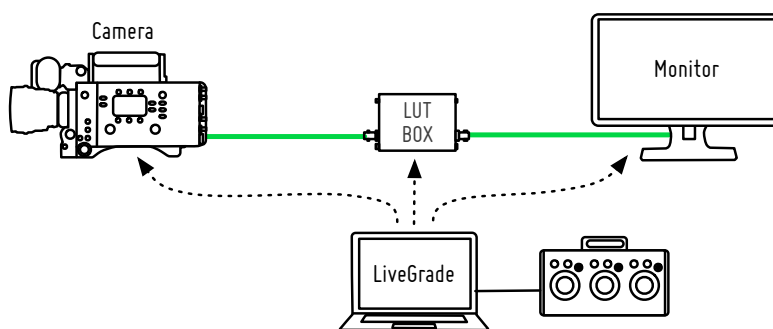
Pomfort LiveGrade supports a broad range of devices, from LUT boxes such as the Teradek's color, FSI's BoxIO, to ISMini (formerly Fujifilm, now Wowow), monitors by FSI and Canon, and cameras from ARRI, Panasonic and Sony. You can use the color controls of LiveGrade with grading

Figure 1: Hardware and software setup for look creation with LiveGrade

No matter which devices are used - and often there are multiple of such devices on a film set - Pomfort LiveGrade can be used for control and management of these devices. The software holds the hardware setup together, allows to include input panels with color wheels for finer control, and stores current and past color settings for later use.

Look Development

Most of the times the look of a production is defined before the shooting begins. This often includes one or more "show LUTs", a color lookup table that merges transforms from the camera camera space to a typical output color space (e.g. from S-Log3 to Rec.709) with a creative choice for image rendering (such as a "contrasty and cool" look vs. a "washed-out desert" look). This static transform is the starting point for interactive color work on set, and is applied to the live image from the camera to be previewed on a calibrated monitor on set.

From time to time during a shooting day the look might be needed to be refined – in order to adopt to different lenses and filters, lighting situations, as well as framing and focal length. The goal is to always maintain a consistent look over the entire shooting day, and eventually through the overall production.

The slight modifications between scenes is usually done with ASC-CDL controls – a set of primary color grading controls commonly used in post production software, but sometimes also more complex and specific tools are used. Each of the modifications is stored in a look library, often accompanied by a frame grab with timecode of the momentary image for later reference.

At any time all the look manipulations are only applied to the signal coming out of the camera for preview purposes, and not on the recorded image (although some camera systems can store the look metadata within the image files). By recording the image without "look baked-in", the recorded material always retains the highest dynamic range and the cleanest image possible, so that any creative decision on set doesn't interfere with the requirements of VFX and finishing later on. But having the look metadata available to recreate the look from set at any stage of post production is of great help to get the creative intent from set into post production.

Bringing Everything Together

During a shooting day, camera media is offloaded regularly in order to create backups of media files as early as possible. When using Pomfort Silverstack Lab for offloading, not only are the media files copied to multiple destinations, but all available metadata is read from the files and stored in a clip library – including timecode information for each clip. When importing looks from LiveGrade, this timecode information allows

LiveGrade manages looks in a look library, a database that persists all the color manipulations of the entire production. A look in LiveGrade can consist of different transforms, such as 3D LUTs and 1D LUTs of various formats, ASC-CDL compatible color wheels, curves, as well as selected secondary color grading transforms. These

All looks stored in LiveGrade can be merged together and exported to various post production tools, e.g. as 3D LUTs or ASC-CDL. When handing over look metadata to Pomfort Silverstack Lab, the entire chain of transforms stays in tact and can be further refined

to select the look for each clip, that has been active for preview on the set monitor at the moment of recording the clip in camera (see fig. 2).
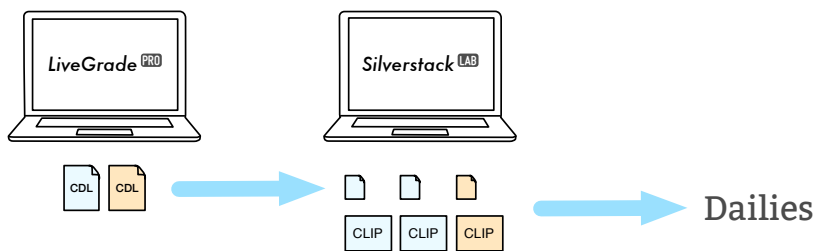

Figure 2: Matching clips and looks in Silverstack

Silverstack Lab attaches imported looks not only to the clip where the timecode matches, but also to subsequent clips – assuming that the look didn't change for a few takes or the entire scene. That way all clips of a card get a look attached

The look metadata can then be applied during playback in Silverstack Lab, and because all the controls from LiveGrade are also recreated in Silverstack Lab, you can even further refine the look for individual clips, for example if a look was a bit off, or there was no look and preview available on set for a few shots (e.g. handheld or mobile shots). Again this manipulating look metadata is still a non-destructive process that is applied to clips "on-the-fly".

But the look needs to get burned into the image during the transcoding of clips for dailies creation. When the transcoded clips should be viewed on an iPad or on a web platform, the clips become compressed, so the look needs to be applied before encoding to maintain decent image quality. Applying the look from set to the dailies (no matter if used for viewing only or for editorial) brings the creative work from the film set into the post production.

*Beyond the transfer of looks, more metadata can be transferred to Silverstack Lab as part of this process.
Like this, meta information that was already acquired in LiveGrade Pro can be prepared for the next production steps.*

Production Benefits

Using on-set look metadata for dailies simplifies and speeds up the dailies creation process. The proximity of the dailies creation process to the creative work of DP leads to better looking images, that are available almost instantly after the shooting ends.

Having looks applied to clips for editorial brings the creative intent of the DP further into post production. The managed process makes sure that the look is consistent and can be used even for rough cuts and in-house viewings.

Silverstack Lab also integrates media asset management activities and dailies activities in one software – further streamlining the workflow

Look Metadata is available to various post production tools, from VFX (for pre-visualizing a look on CGI) to finishing (as a reference or starting point for final grading) and enables a transparent and consistent production workflow.