

A large, light gray watermark of the "Color Symmetry" logo is centered on the page. It consists of a circle with a vertical line through the center, and the word "SYMMETRY" in a stylized font where the "M" is yellow.

# **Color Symmetry Frequently Asked Questions**

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# Color Symmetry Frequently Asked Questions

## Sections

<b>Technology Basics</b>	page-2	<b>Pipeline Building</b>	page-4
<b>Film Look Emulation</b>	page-3	<b>Workflow &amp; Integration</b>	page-5
<b>Monitor Calibration</b>	page-3	<b>Licensing &amp; Support</b>	page-7
<b>Data Interchange</b>	page-4		

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## Technology

### What are the key unique technologies of Color Symmetry?

Color Symmetry offers a solution to the challenging problem of previewing the look of film while creating images for digital post production and visual effects. Color Symmetry plug-ins are based on a core library of techniques and operations that are available in each Color Symmetry-supported application and allow images to be matched between and among different applications.

Color Symmetry's Film Profiles allow real film stock looks and looks created by a DP or production to be viewed accurately across a wide range of software applications, as well as directly in hardware. Additionally, Color Symmetry's Color Correction tools let artists use the same set of color correction operations within each of their applications and work with different types of data (logarithmic data, linear data, etc.) in the same ways within different applications.

Color Symmetry leverages these technologies to provide a range of capabilities not previously available in a single package. This includes:

- Bridging the gap between the look of printed film and images as seen on monitors
- Bridging the gap between the look of color in various software applications
- Bridging the gap between the look of a project in a digital intermediate (DI) suite and in the visual effects pipeline
- Bridging the gap between the 3D world of High Dynamic Range (HDR) and the 2D world of log imagery
- Taking data from one application to another, with matching color tools and operations
- Generating and exchanging LUTs through the visual effects and post-production process.

### How does Color Symmetry provide consistent color handling for 2D work and work in the 3D pipeline?

Color Symmetry plug-ins are designed to provide the same interface and produce matching results even with applications based on radically different underlying technologies. Color Symmetry incorporates a core library of Film Profiles, color correction and color space transformation techniques that essentially allow 2D and 3D applications to see the world of color and light in the same way.

In addition to providing Film Profiles and 3D Lookup Tables (LUTs), Color Symmetry supports both Cineon/DPX Log color image data and floating-point HDR Linear color image data. This support extends film-based terms such as Stops and Printer Lights from the log-based compositing universe directly into the floating-point Linear arena of 3D rendering.

### What benefits does Color Symmetry offer over the color management features that may be included in the product I'm using?

Color Symmetry offers a more complete solution for color consistency in the digital post-production workflow by providing the following key capabilities. First, it eliminates the gap between the image presented on the computer screen in a visual effects application and the image created by projecting film. Second, it eliminates the differences between the ways various applications (animation, compositing, rendering, etc.) handle color. Third, it provides

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consistency among toolsets to help to bridge the gap between the 2D world of live-action imagery and the 3D universe of lighting, rendering, and high-dynamic range results. And fourth, it supports widely available LUT formats so that data can be interchanged between facilities.

While color management capabilities provided in some products may address some of these problems, Color Symmetry addresses them all.

## Film Look Emulation

### What types of film stocks can Color Symmetry emulate?

Color Symmetry can emulate the look of film stocks real and imagined using its built-in Film Profile technology. In addition to emulating popular film stocks such as Kodak Premiere and Premiere Vision, the Color Symmetry plugin suite can also emulate “looks” authored in a digital intermediate (DI) lab or on set.

### Can I author custom looks when using Color Symmetry in my applications?

Color Symmetry’s csLutToLut tool allows users to author custom film stock looks in most of the applications supported by Color Symmetry plug-ins. Using a few simple steps, it is possible to translate a look created in one application into a Color Symmetry Film Profile useable in all other Color Symmetry-supported applications.

### How does Color Symmetry emulate a look created by a DP and colorist in the DI process?

Film looks generated in the DI process are easily represented by Color Symmetry using Color Symmetry’s Film Profile technology, which is also used to represent real film stocks. Color Symmetry includes a set of command line tools that make it possible to translate the DP’s vision into Film Profiles useable in all of the applications supported by Color Symmetry.

### How does Color Symmetry emulate a look defined by a DP on set?

Similar to the way DI looks can be applied in Color Symmetry, the DP’s vision can be translated into Film Profiles useable in all of the applications supported by Color Symmetry. This is also done using Color Symmetry’s command line tools.

### Can Duiker Research create a Film Profile for a real film stock for use in Color Symmetry?

Duiker Research has a profiling service that will generate a Film Profile from a real print film stock for use in Color Symmetry. For further information, please contact Duiker Research Support, [support@duikerresearch.com](mailto:support@duikerresearch.com).

## Monitor Calibration

### How does Color Symmetry deal with monitor calibration?

Color Symmetry is not a monitor calibration solution. It assumes that the user’s monitor is calibrated to a commonly used calibration standard, such as sRGB, Gamma 2.2, Apple RGB or Adobe RGB, using any of the commonly available monitor calibration packages currently on the market.

### How does Color Symmetry integrate with existing monitor calibration software?

Color Symmetry’s plug-ins combine the results of monitor calibration software with proprietary display algorithms to provide accurate emulations of film stock looks.

Color Symmetry assumes that the user’s monitor is calibrated to one of the commonly used standards, such as sRGB, Gamma 2.2, Apple RGB or Adobe RGB, and provides the tools for the user to specify which standard was chosen.

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## Data Interchange

### How does Color Symmetry ensure consistency of files for handoff and interchange between facilities?

Color Symmetry's support for a variety of LUT and look formats enables the interchange of look data between visual effects and DI facilities. Assuming they are using calibrated monitors, different facilities that are each using Color Symmetry will see the same results when using the same look data files. Look files handed off from facilities that are not using Color Symmetry can still be properly interpreted and integrated into applications by a facility that is using Color Symmetry. For example, a colorist producing a look can pass that look to the visual effects houses creating final elements. The DP might in turn modify that look and pass the result along again using the same set of tools.

### Do facilities need to cross-check their results in terms of Color Symmetry's color handling?

All plug-ins for applications supported by Color Symmetry are based around a core library that incorporates Film Profiles, 3D Look-Up Tables (3D-LUTs), high dynamic range imaging, logarithmic processing, and industry-standard color correction techniques. Using one core library of techniques assures consistent results wherever the plug-ins are used.

### How does Color Symmetry benefit the user when either the capture medium or end viewer product is something other than printed film?

Color Symmetry's Film Profile, Color Processing and Film Look authoring technologies were designed to support looks generated from real film stocks as well as those that are imagined in the DI lab as part of the creative process. Even if the end result will never be printed to film, Color Symmetry allows companies to work consistently with color, save time and avoid miscommunications in the process.

Color Symmetry's support for non film-based looks allows it work equally well as solution for commercial producers, video producers or anyone who is creating a project with a unique color look.

## Pipeline Building

### Would Color Symmetry be useful for my facility?

One of the fundamental problems of modern digital post production is matching color imagery produced in animation and effects packages to the look of the imagery seen on film, in different packages or in other facilities. Color Symmetry aims to solve this problem for graphics, animation and visual effects houses large and small. For smaller facilities, Color Symmetry provides an out-of-the box solution for dealing with color in the film production space. For larger facilities, Color Symmetry provides a set of tools that can be easily modified to fit within and extend existing pipelines.

### What are the main benefits of using Color Symmetry on a production or at a facility?

Color Symmetry eliminates the gap between the image presented in a visual effects application on a computer monitor and the image created by projecting film, saving time and work and eliminating the need to constantly print film negative to check results. Color Symmetry also eliminates differences between the ways that different applications (animation, compositing, painting, etc.) handle color, making it easier to see accurate color at any stage of the process without extra renders and iterations of work. This includes providing flexibility to work accurately with color even between 2D and 3D toolsets. As a final benefit, Color Symmetry provides all of the abilities with tools and data files that work across applications, operating systems, platforms and even facilities.

### How do I build a full color pipeline using Color Symmetry?

Because Color Symmetry natively supports a wide number of 2D and 3D packages across multiple platforms, building a color pipeline is as simple as beginning to use the plug-ins in your favorite software apps. Color Symmetry includes a core library of techniques, including Film Profiles, 3D Look-Up Tables (3D-LUTs), high dynamic range imaging, logarithmic processing, and industry-standard color correction, that assure consistent results right out of the box wherever the plug-ins are used.

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## **Is there a learning curve for understanding how and when to apply Color Symmetry plug-in tools?**

Color Symmetry works within the standard parameters of the film production model, providing easy, out-of-the-box use for those with prior experience working with color in film productions. Color Symmetry is built around standard formats like Cineon Log or HDR linear, terminology like Stops and Printer Lights, and widely-used applications. For people already familiar with these formats, terms and applications, Color Symmetry is a simple addition to an existing toolset that eliminates some of the more troublesome color issues not typically addressed by default.

For those new to the terms and techniques commonly used to manipulate color in film productions, there will be a learning curve. Given Color Symmetry's consistent controls and results across applications and platforms, the knowledge gained from understanding Color Symmetry's tools and techniques in one application can be spread over all of the supported applications.

## **Is Color Symmetry a solution for review-and-approval?**

Color Symmetry can be used to aid in the review-and-approval process but is not a review-and-approval system in and of itself.

## **Workflow & Integration**

### **How does Color Symmetry work in a 3D package generally?**

In 3D packages, the Color Symmetry plug-in suite typically presents itself as a set of film look and color correction nodes available for use in the shading graph. The suite also typically integrates itself into the package's post-processing chain either as "lens shaders," "effects" or "filters," depending on the naming standard used by the package.

The Color Symmetry shading graph nodes can be used to adjust color balance, contrast and saturation, transform between Cineon Log and HDR Linear color space, and apply arbitrary LUT or Film Looks to shader graph image and color data.

The Color Symmetry post-processing chain nodes are typically used to apply a Film Look to allow the viewing of the full range of the Linear HDR data generated by the render as that data would appear when printed on a particular film stock.

### **How does Color Symmetry work in a 2D package generally?**

In 2D packages, the Color Symmetry plug-in suite typically presents itself as a set of film look and color correction nodes available for use in the compositing tree. The suite also typically integrates itself into the package's "viewer LUT" filtering system built into the image viewing windows.

The Color Symmetry compositing tree nodes can be used to adjust color balance, contrast and saturation, transform between Cineon Log and HDR Linear color space, and apply arbitrary LUT or Film Looks to image data.

The Color Symmetry "viewer LUT" filters are typically used to apply a Film Look to the result of the compositing tree to allow the viewing of either Linear HDR images or Cineon Log images as those images would appear when printed on a particular film stock.

### **Besides the plug-ins, what other tools are included in Color Symmetry?**

The Color Symmetry plug-in suite also includes a number of command line and GUI-based applications that extend Color Symmetry's coverage to applications that are not directly supported.

csLoadLUT is a hardware LUT tool that allows color correction operations and film stock looks to be applied to the whole screen regardless of which application is being used to view/manipulate the image. This is useful for applications not supported directly by Color Symmetry or for situations where interactivity speed is more important.

csLutToLut is a command-line application that transforms between different Look-up Table formats. LUT formats currently supported include Shake's .txt, Nuke's .3dl, Photoshop's .acv, Scratch's .txt, Iridas Framecycler's .txt, and

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ICC. Formats that will be added soon are the Iridas' .look format, LUTher .lut format, Truelight .lut and .cube and Cinespace's .xml.

### **How is Color Symmetry integrated into Autodesk Maya?**

Color Symmetry integrates into Maya's built-in mental ray rendering engine. The Color Symmetry nodes are available for use as surface shaders as well as lens and output shaders.

### **How is Color Symmetry integrated into Autodesk 3dsMax?**

Color Symmetry is provided as a set of Map and Effect plugins. It also integrates into 3ds Max's mental ray rendering engine. The Color Symmetry Map nodes are available for use as surface shaders as well as lens and output shaders in mental ray and as regular surface shaders in other renderers such as Splutterfish's Brazil. The Color Symmetry Effect plugins work natively in 3ds Max to post-process any render result regardless of how it was generated.

### **How is Color Symmetry integrated into Autodesk Toxik?**

Color Symmetry integrates into Toxik as a set of compositing nodes available for use directly in the compositing tree or as viewer filters.

### **How is Color Symmetry integrated into Apple Shake?**

Color Symmetry integrates into Shake as a set of compositing nodes available for use directly in the compositing tree or as viewer filters.

### **How is Color Symmetry integrated into eyeon Digital Fusion?**

Color Symmetry integrates into Fusion as a set of compositing nodes available for use directly in the compositing tree or as viewer filters.

### **How is Color Symmetry integrated into Adobe After Effects?**

Color Symmetry integrates into After Effects as a set of compositing nodes available for use directly in the compositing layers or as an adjustment layer sitting on top of the compositing tree.

Color Symmetry's csLutToLut tool can also be used to generate ICC display profiles that can also be used much like the viewer filter functionality available in other packages.

### **How is Color Symmetry integrated into Adobe Photoshop?**

Color Symmetry integrates into Photoshop as a set of filters applicable to images of any bit-depth, 8, 16 or 32.

Color Symmetry's csLutToLut tool can also be used to generate ICC display profiles that can also be used much like the viewer filter functionality available in other packages.

### **How is Color Symmetry integrated into Softimage XSI?**

Color Symmetry integrates into XSI's built-in mental ray rendering engine. The Color Symmetry nodes are available for use as surface shaders as well as lens and output shaders.

### **How is Color Symmetry integrated into Iridas Framecycler?**

Color Symmetry's csLutToLut tool can be used to generate Framecycler lut files profiles that can be used much like the viewer filter functionality available in other packages.

### **How is Color Symmetry integrated into Assimilate Scratch?**

Color Symmetry's csLutToLut tool can also be used to generate Scratch lut files profiles that can be used much like the viewer filter functionality available in other packages.

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## **How is Color Symmetry integrated into applications that support OpenFX?**

Color Symmetry integrates into applications that support OpenFX as a set of compositing nodes available for use directly in the compositing tree or as viewer filters, depending on the capabilities of the host application.

## **How is Color Symmetry integrated into SideFX Houdini?**

Color Symmetry experimentally integrates into Houdini's built-in mental ray rendering engine. The Color Symmetry nodes are available as lens and output shaders.

## **How is Color Symmetry integrated into Pixar Renderman-compliant renderers?**

Color Symmetry experimentally integrates into Renderman as a set of shade-ops that are exposed in the shading language.

Renderman Display Drivers are under development.

## **How does Color Symmetry work with files created in systems that are not currently Color Symmetry supported?**

Color Symmetry's support for a variety of LUT and look formats enables the interchange of look data between visual effects and DI facilities. Facilities that are not using Color Symmetry can be certain that the look file they hand off to a facility that is using Color Symmetry will be interpreted and integrated properly into the each application.

Color Symmetry's csLoadLUT is a hardware LUT tool that allows color correction operations and film stock looks to be applied to the whole screen. This is useful for applications not supported directly by Color Symmetry.

## **Licensing and Support**

### **What does a single seat of Color Symmetry include?**

A single seat license of Color Symmetry includes Color Symmetry plug-ins for all of the supported 2D and 3D applications as well as Color Symmetry's standalone tools. A single seat license also includes cross-platform support for all available platforms.

### **Are site licenses available?**

Color Symmetry is available as a site license. For information about volume licensing, please contact [info@duikerresearch.com](mailto:info@duikerresearch.com).

### **What support is included with Color Symmetry?**

Color Symmetry comes with one year of support and maintenance. All minor releases made available in the year are covered in the maintenance agreement. Email and phone support are available.

On-site consulting outside of the standard license support is also available.

### **Will my Color Symmetry plug-ins be compatible when I update my applications to new versions?**

A single seat license of Color Symmetry includes plug-ins for all of Color Symmetry-supported 2D and 3D applications as well as Color Symmetry's standalone tools. Color Symmetry strives to be compatible with the latest releases from the application vendors. As users move to new application versions, the Color Symmetry license will also cover the plug-ins for those new versions.