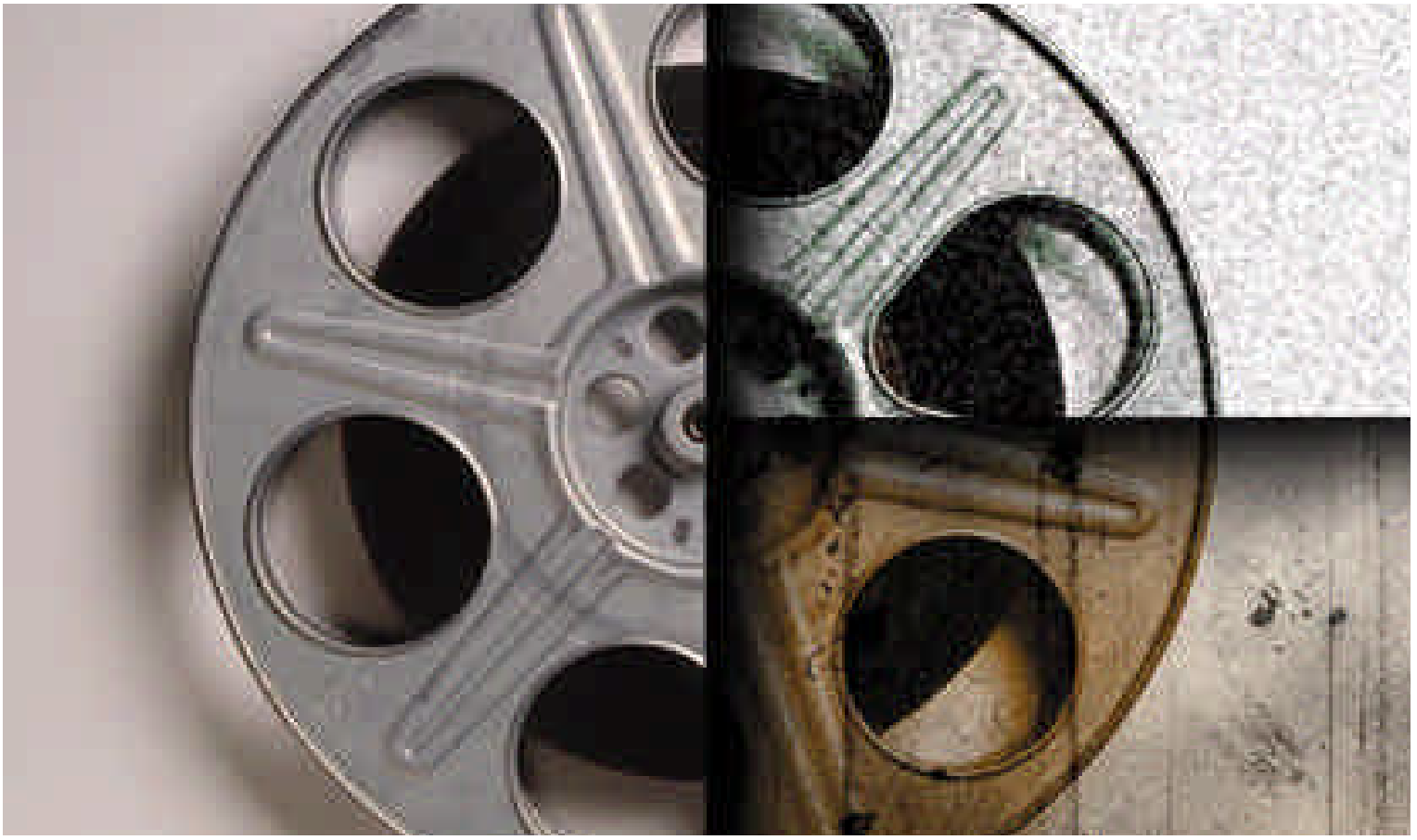
DigiEffects

CineLook Br oadcast

QuickStar t Demo User Guide



Version 1.0
Mac OS

CineLook Broadcast Version 1.0 User Guide for Macintosh OS

Written and Designed at DigiEffects, 818 Monterey Boulevard, San Francisco, California, Postal Zone [94127], United States of America.

Created in San Francisco, California, United States of America.

Written and Designed by Chris Athanas
User Interface Graphic Design by Jeff “Deluxe” Taylor

Manual Written by Chris Athanas
Edited by JoAnne Milette & Daniel Prochazka
Loving Meow-Meows by Coca and Olivia
Helpful Helpy-helps by Ron Lindeboom, David Biedny, Nathan Moody, Sherri Sheridan, Nathan Vogel ,Sherri, Nick Philip, Richard Hansen.

Purpose

To introduce and describe the CineLook features and User Interface.

NOTE: This document does not describe the user interface in full detail, shooting or lighting techniques that will be required to use CineLook to its best potential. This information is included with the full version of CineLook on CD-ROM.

ALSO NOTE: A red star is rendered through the final image in the demo version. This does not occur with the full version.

CineLook Broadcast MacOS is $695 + shipping. Your local reseller or VAR may ha ve a better price or payment terms, so check with them fir st!

DigiEffects
818 Monterey Blvd.
San Francisco, CA 94127

http://www.digieffects.com
info@digieffects.com
415.841.9901 9:30a-5:00p (PST)
1-888-DIGIEFX Toll Free (USA only)

Introduction

Welcome to CineLook, the revolutionary new digital video production tool that "Makes Your Video Look Like Film!" CineLook has quickly become the de-facto standard production tool that allows digital video producers to bypass costly film production and create that wonderful and organic look of film at a fraction of the cost.

CineLook combines many image processing techniques to simulate film. In the past, there have been specialized, high-cost post-production service bureaus that would perform this effect for you. These services cost upwards of $85 per minute of source footage, and usually have a minimum of 10 minutes. The procedure goes like this: you would create your final piece, place it on a tape, send it to them, wait a few days, and then get your tape back in the mail. The results were sometimes good, but the problem was that "What You Get is *What You Get."*In other words, you had no control over the end results. Not exactly the best way of exerting your creative control!

DigiEffects has changed this entire paradigm. By placing the CineLook tool into the hands of the video producers on their desktop computers, we have bypassed the high-cost service bureaus. Not only do you get the same results, you can now customize the look to your liking! This has many advantages, not the least being cost and creative freedom.

CineLook was designed to be easy to use, without detracting from flexibility. You can use it immediately out of the box by selecting any of the 50 film-stock presets. After you have become familiar with how CineLook works, you can customize and save presets for future use!

CineLook can be used on any digital video footage, including DV, Hi-8, Regular 8mm, Beta, Digital Betacam and others. CineLook requires a Macintosh, Adobe After Effects, at least 64mb of RAM, a fast processor (minimum of 132mhz PowerPC 604) and enough disk space to store your footage and the rendered effect. CineLook contains 2 mega-plug-ins, "CineLook" is the plug-in that adds film grain, adjusts color correction and performs time integration. The other plug-in is called "FilmDamage." It adds film artifacts like dust, hair, dirt, scratches and more.

You can simulate any film effect by combining CineLook and FilmDamage. Both are easy to get started with, as they both use presets.

Installation

To install CineLook, follow these instructions:

1 Find the “CineLook Installer” on the “CineLook 1.0 CD”. Double-Click it.
2 Continue through the splash screen to the installation dialog.
3 Click “Install”
4 Locate your After Effects application folder. Inside that folder there will be the “plug-ins” folder.
5 Double-Click the “Plug-ins” folder, and then click “Install into Plug-ins”.
6 This will install CineLook and FilmDamage plug-ins, along with the presets.
7 If After Effects is running, quit it and restart the After Effects application.
8 After Effects will ask you to serialize the plug-in. Click “Serialize All” to accept this.
9 That’s all! CineLook is now installed and ready for use.

About this Manual

This manual assumes that you have basic knowledge of the Macintosh Operating System, and a good understanding of After Effects. If you get confused about terminology, please refer to the Macintosh or After Effects user manuals. Also, when this manual refers to “him” we use it in a genderless way and is completely interchangable with “her.”

About Electronic Manuals

We have decided to create an all-electronic manual to help preserve our environment. Studies show that the shelf life of the average software program is only 2 years. That means that all manuals, CD’s and boxes created by all the software companies today will end up in a landfill within two years. We feel this is extremely wasteful and unnecessary.

To combat this wastefulness, we have decided to create an all electronic manual in the Acrobat format. We have designed this manual to be read on-screen, but it can also be printed. We hope you will support us in this effort by printing only the sections of the manual that you need to read at length or will refer to often.

It takes everyone to preserve our environment, and reducing the consumption of resources is a great first step.

QuickStart Guide

This QuickStart gives a brief overview of all the features in CineLook. This guide is intended for use by users who are already familiar with After Effects including interpreting footage, 3:2 pulldown and render settings. **Please be aware that the QuickStart is not intended as a full explanation of each feature.** Check the CineLook User Interface Reference and the CineLook Tutorial for a more complete discussion of each feature and suggested uses.

CineLook simulates the way film looks by modifying the video footage in three ways: it adds grain, corrects color and integrates timing of frames. CineLook adds grain using two user-definable methods, with full control over amount. It then alters the color response curves and gamma curves to look more like film. Third, it re-interpolates the video from 60 fields per second to 24 frames per second using a technique called inverse-telecine. After Effects does part of this, but CineLook adds to it by integrating previous video frames to simulate the "shutter slur" that occurs in filmed footage.

CineLook calls these three modifications StockMatch™, ChromaMatch™ and TimeMatch™. Each section has several controls which you can modify to your taste. Remember, you can always use the presets to get started.

A word of caution: CineLook is not magic. It will not take any old piece of video and magically turn it into film. CineLook's output depends on it's input. For the best possible results, we recommend using the highest quality source material that you can justify. If you use Beta-quality source footage, CineLook does an amazing job. If you try to use regular 8mm video, the results may be acceptable for a 16mm or 8mm film simulation. CineLook is also very sensitive to lighting conditions. The reference section of this manual goes into detail about recommended shooting conditions.

Also Important: CineLook Broadcast resolution is limited to 768 by 576 pixels.

The CineLook product is made up of 2 mega plug-ins: "CineLook" the film simulator, and "FilmDamage" the film artifact generator. Only the "CineLook" plug-in will be discussed in the QuickStart guide.

CineLook Controls

CineLook has 52 controls grouped into three sections. This many controls can seem overwhelming at first. Once you learn what each control does, you will have a tremendous amount of power and flexibility in achieving an effect that you like. Each control sets a relatively simple parameter, and when all the parameters are sequenced together, CineLook achieves a very realistic film effect.

There are two ways of accessing the controls, first is via the After Effects standard user interface elements, and the second is through a custom user interface. We will first discuss the stanard After Effect user interface controls.

Presets

It's easy to get started with CineLook. Simply choose from the presets pop-up which gives you a variety of built-in film stocks. You may find that the presets are acceptable without any customization.

You can save a preset by clicking "save", or delete the currently selected preset by clicking "delete". You can also scroll through each preset one-by-one by clicking the up and down arrows next to the preset pop-up.

To access the custom user-interface, click the icon on the right side of the preset swatch.

StockMatch

StockMatch allows you to add grain to your video footage. CineLook gives you two styles of grain, monochrome and RGB. Monochrome grain is applied in three independent layers, each with different amounts of grain and smoothness. This is necessary to give the realistic look of film. The monochrome grain only adjusts the luminosity of the source footage. It does not interfere with the color.

The other grain mode is RGB mode. It allows you to control the amount of grain in the Red, Green and Blue channels independently. This allows you to simulate certain film stocks that have color emulsions on different physical layers.

You can control the Grain amount and Smoothness for each layer/channel. In monochrome mode, these "grain layers" are all composited on each other, then rendered onto

your footage. In RGB mode, the “Red Grain” only adds grain to the red channel of your image. The same goes for the green and blue channels.

The second part of StockMatch is the Defocus settings. This is useful for simulating certain filmstocks that have a slight defocusing between the Red, Green and Blue channels due to the fact that the camera lens focuses the image slightly different for each layer of emulsion. These should be set low, as the effect is very subtle.

The Variation Seed is for adjusting the overall look of the grain. This is useful if you want the grain to be different when compositing multiple layers, when each layer has CineLook applied. If the Variation Seed is the same for each layer, the grain will be the same. If it is different, the grain pattern will be different.

ChromaMatch

ChromaMatch parameters control the color correction tools in CineLook.

NTSC Gamut Warning allows you to check if your corrections will be out of NTSC Gamut. NTSC has a very limited color range for Cyan and Magenta. If these colors are too saturated, the image will bleed when broadcast. When this warning is activated, the out-of-gamut areas will turn black.

Next is the Gamma correction. You can control the Red, Green and Blue gamma seperately. This is integral to achieving a film look, as the gamma of video is quite different from the gamma for film.

The next part of ChromaMatch is the color correction curve parameters. The color correction for ChromaMatch is very similar to the “Curves” tool in Photoshop, except there are 7 control points. The big plus over Photoshop is that you can go back and adjust the curve after it has been applied.

Each parameter (Red 1...7, Green 1...7, Blue 1...7, White 1...7) controls a different part of the curve. The “1” parameter controls the darkest part of the input image, and the “7” parameter controls the lightest part of the input image. The White parameters control the overall brightness of the output image.

For example, if the input pixel red brightness is 0, and the “Red 1” slider value is 128, the output pixel value will be 128. Experiment with the “Curves” dialog in the CineLook user interface to see how this works.

The ChromaMatch color curves are interpolated as a cubic curve, which will automatically smoothly interpolate between parameter values. This is useful for special effects and makeing sure the color values are smooth.

The last part of ChromaMatch is the HSB (Hue, Saturation, Brightness) transform. This allows CineLook to change the hue, adjust the color saturation and control the overall brightness of your footage. The values range from -5000 to 5000 which allows you to perform very subtle changes.

TimeMatch

TimeMatch allows CineLook to integrate previous frames of video footage to simulate the "slurriness" of film. Film is captured differently than video. The video frame is captured every 1/60th of a second, whereas the film shutter is open and rotating for 1/24th of a second each frame. Lower quality film (like 8mm) has lower frame rates. This causes a much more "slurry" image at the slower rates. This means that any motion will appear a little more blurred (or slurred, in CineLook-speak.)

This effect is controlled by the "Time Slur" parameters. Each slider controls the blending of previous frames: -1f is for the very previous frame, -2f is the frame before that, and so on for 4 frames.

Blend allows you to blend-in the effect with the unaffected source image.

Integral to the TimeMatch process is the After Effects "Render Settings" which are accessed when you issue the "Make Movie" command. Click on the "Render Settings" option. On the next page there is a sample dialog that will show the proper settings for 24fps film look.

CineLook Custom User Interface

CineLook has a custom user-interface that allows you to more intuitively adjust the parameters using 4 separate dialogs. These dialogs allow you to control the StockMatch and ChromaMatch settings using Photoshop-style tools. In the CineLook custom user interace, StockMatch and Grain control the same set of parameters. StockMatch is a easier to use, and Grain is a more direct way to manipulate the parameters.

The same is true for ChromaMatch and Curves. Both of these dialogs affect the same set of controls, but ChromaMatch is easier to get rough results, wheras Curves is more direct and slightly less intuitive.

Common Areas and Controls

The top part of the UI is the same for all 4 dialogs. The left side is the unaffected source image. The center image is the source with the CineLook effect applied, the right side is a compare layer. This allows you to apply CineLook to an image, while comparing it to another image that you may want to match. This is useful if you have some footage that came from film, and you want to match your video to that footage. By clicking in the image areas, you can switch between full-frame view and 1:1 view. The full-frame view is useful for looking at overall color correction, and the 1:1 view is useful for grain matching.

You can also access any preset from the "P" button, and save your current settings using the "+" button. You can click on the "CineLook" title and drag the dialog around the screen, for optimal viewing. Clicking on the DigiEffects logo brings up the about box. The logo lights up when CineLook is busy rendering.

Clicking the buttons on the left ("StockMatch", "ChromaMatch", etc) will load and switch to the appropriate dialog. The current dialogs' button will be lit. Click on the "Ø" to cancel the dialog without accepting the settings. Click "OK" to accept the current settings.

You can undo and redo any change to any parameter, including loading a preset. This is useful in general, but it's also handy for checking between two parameter settings (ie: "Do I like it with more red or less red? Let's undo and see!") Press command-z to undo/redo.

At the bottom of the screen there is a blue digital text readout. This will tell you the current values for knobs and sliders. It will show the current value as you place the mouse over an item and while you are moving a control.

Knobs are controlled by clicking and dragging left and right. If you pause briefly, the image will update with the current setting. If you hold down the option-key, the preview will continuously update. Command-click to enter values directly.

StockMatch User Interface Dialog

The StockMatch UI lets you adjust grain with a Photoshop "Variations" style tool. Clicking

in one of the 9 boxes will adjust the grain accordingly. The middle box will reset the grain to zero. The grain will be rendered in the current mode (monochrome or RGB). You can change the grain mode by going to the “Grain User Interface”.

The fine-coarse knob allows you to adjust the amount of change for each click.

ChromaMatch User Interface Dialog

The ChromaMatch User Interface allows you to adjust color balance and levels adjustments using a Photoshop “Variations” style tool. Each button is labeled with its action (i.e., “Less Red” will remove red). Click on the buttons to “push” the colors in the different direction.The center button will reset the settings to normal for the section that you’re working on.

You can control the area affected by using the “section” knob. You can adjust the shadows, midtone and hilights, which correspond to the dark, middle and light areas of brightness. The “fine-coarse” knob controls how much each click will change.

You can switch between RGB and HSB mode by clicking on the “RGB/HSB” mode button. When it’s on, CineLook is in RGB mode. When in HSB mode, make sure “Use HSB” is on to see the effects of your changes.

You may also choose to turn on the Gamut warning to see if any of your modifications will throw the image out of the NTSC gamut. Also, the grain rendering is turned off while you are color correcting.

Curves User Interface Dialog

The Curves UI allows you to adjust the color response curves of the source footage with great precision. Curves and ChromaMatch adjust the same sliders, except Curves is more “hands-on”, as you must adjust the controls directly. There are 3 sections in this dialog. The first is the curve section, the second is the Gamma section, and the third is the HSB section.

The curves section consists of seven sliders with the values interpolated as a curve. This curve defines the brightness look-up table for each channel Red, Green, Blue and Brightness (White). If you place the cursor in the source or rendered areas of the image, CineLook will display the lookup values along the curve. This will help you to decide

which slider to adjust for different areas of the image.

Click on the R, G, B or RGB (white) buttons to change the color correction mode. When in R, G, or B modes you can click on the gradient to see the individual channel's gradient. Holding the shift key down while moving the sliders will continue to show the gradient for that channel.

Adjusting the Hue, Brightness and Saturation knobs will adjust the particular aspect of the effect. Adjusting on the Red, Green and Blue Gamma knobs will adjust those gamma curves for that channel. You can copy and paste between channels. To reset a channel to it's default curve, option-click on the R, G, B or RGB buttons. To reset all curves at once, command-option click on the RGB button.

Also, just like in the ChromaMatch User Interface, the grain rendering will be disabled in order to speed up previewing for color correction.

Grain User Interface Dialog

The Grain UI allows you to adjust the grain amount in an easy way. You can choose between RGB and Monochrome mode. See the "StockMatch" section above for more explanation of these two modes. The most time-expensive part of CineLook is smoothing the grain. Because of this, you should use the minimum amount of smoothing that gets the effect that you like. The Grain knobs control the amount of grain for that layer/channel and the Smoothness knobs control the frequency (or smoothness) of the grain.

This concludes the QuickStart Guide.

How CineLook Works

CineLook is a Film Simulator

The CineLook plug-in system was designed to be a realistic film-stock simulator. It was designed to change video images by applying grain, modifying the luminance and color response curves, and applying time integration. By combining all these features, CineLook can change a video based image into an image that looks like film. Since CineLook is a software-based tool, all parameters are modifiable by the end user. This allows a producer to control the effect to his liking.

Grain Model - StockMatch

CineLook uses advanced image processing to mimic the stochastic nature of film grain with fully parameterized settings. CineLook combines three layers of grain to simulate the different frequencies of grain that are apparent on many film emulsions. CineLook also lets you choose between black and white grain and color grain, which is essential to getting the exact film simulation that looks best.

Because the grain is completely controlled by software, you can apply heavy grain to simulate 8mm and 16mm stocks, and light grain to simulate 35mm and 70mm stocks. CineLook gives you full control.

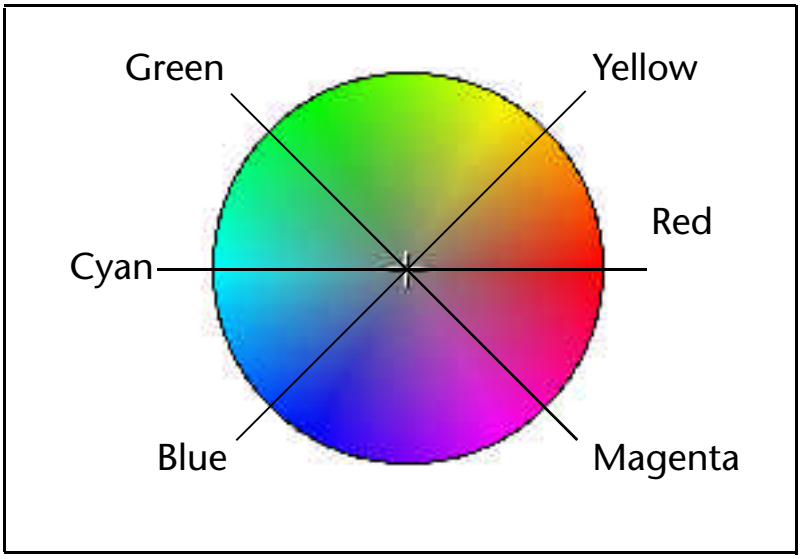
CineLook can also apply a slight blurring effect to each RGB layer independently to mimic the slight out-of-focus effect that happens when light is focused on color film. Some color films are physically separated into three emulsion substrate layers, specifically Cyan, Magenta and Yellow for Negative film or Red, Green and Blue for Positive film. By applying a slight blur to each layer independently, CineLook achieves a very realistic effect.

Color Cor rection Model - ChromaMatch

CineLook uses an advanced color correction system that has never been available before now. CineLook uses three systems of color correction simultaneously, a Red, Green, Blue color curve correction model; a Hue, Saturation, Brightness model and a Red, Green, Blue gamma correction model.

When adjusting the individual color components in an image, it's important to understand that every color adjustment affects the overall color balance in the image, and that there are numerous ways to acheive similar effects. If you're not yet used to adjusting individual color components in an image, it helps to keep a diagram of a color wheel on hand as you work.

You can use the color wheel to help predict how changing one color component will affect the other colors in the image. For example, you can decrease the amount of any color in an image by increasing the amount of opposite color on the color wheel, and vice versa. Similarly, you can increase and decrease a color by adjusting two adjacent colors on the color wheel, or even by adjusting the two colors adjacent to the opposite color on the color wheel.



The color wheel

For example, you can magenta by removing red and blue or by adding green. You can even combine these two corrections to help minimize the effect of the adjustment on the overall saturation.

All of these adjustments result in an overall color balance that contains less magenta. How you choose which adjustment is appropriate for your image depends on the image and on the particular effect you want.

Curves

The Curves model allows you to control the luminance response curves for the Red, Green, Blue channels and overall brightness independently. By controlling the curves independently, you can adjust the brightness of shadows, mid-tones and highlights without resorting to complicated comping processes.

The Curves feature allows you to correct, enhance to demphasize the color in an image by remapping the color values of pixels with a high degree of accuracy. Remapping changes the current color values of pixels to different color values. You can even define a color curve to create special effects like duotone and psychedelic looks.

Each pixel in the image is mapped to a certain color level or levels from 0 (black) to 255 (white or completely saturated). The Curves feature remaps the pixels' color values by defining a curve that specifies the different color values to which the pixels are to be mapped. The remapping is done through the ChromaMatch parameters, specifically the Red 1..7, Green 1..7, Blue 1..7 and White 1..7. The Curves feature has 7 control points per channel, which gives you a lot of flexibility in choosing your effects. The curves are interpolated using a cubic algorithm, so the transition between control points is always smooth.

Hue, Saturation, Brightness (HSB)

Hue, Saturation and Brightness (HSB) is a standard color correction method used to fix unwanted color artifacts and to adjust overall color purity and intensity. Brightess is useful for lightening or darkening an image overall.

By adjusting Hue, you can compensate for unacceptable lighting conditions such as flourescent, incandescent or street lighting. Hue adjustments are also useful for compensating for shifts in hue that occur in an NTSC image that was acquired using a video frame grabber. You can use the Hue control to push the hues into the correct positions on the hue color wheel.

Modifying Saturation can be useful for increasing the amount of color saturation in an image to give a more "technicolor" look, or decreasing the saturation for a more subtle and softer look.

Gamma

Gamma is an important feature of achieving a “film look”. Gamma controls the overall luminance response of an image. Adjusting the gamma allows you to lighten or darken an image without substantially changing the highlights and shadows. The Gamma primarily adjusts the color values of the midtones (the middle color values in an image). The solid black and white areas are not affected.

NTSC Gamut Warning

ChromaMatch gives you the option of detecting out-of-gamut colors for NTSC broadcast transmission. This is useful because CineLook can generate NTSC “hot” colors which when broadcast they tend to “bleed” across the screen. By turning on the NTSC Gamut warning, these pixels will be detected and turned to black.

Time Integration - TimeMatch

The final component that CineLook alters is the time integration component. In conjunction with the After Effects standard render settings, which introduces 3:2 pulldown, CineLook can simulate the rotating shutter effects that are present in filmed presentations. The “3:2 Pulldown” that comes standard with After Effects does a very good job of re-interpolating 30fps footage down to 24fps, which simulates most 35mm film stocks. You can reduce the frame rate even more to simulate 8mm film-stocks, which usually run at 12fps.

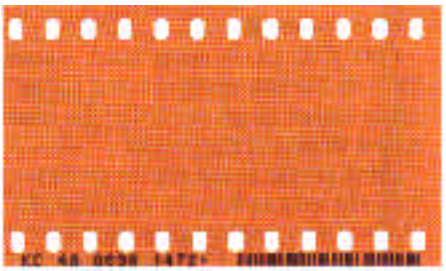
The TimeMatch concept was first introduced with CineLook. By interpolating footage from previous frames with varying amounts, CineLook approximates the “slurriness” of the rotating shutter. You have full control over the amount and intensity of the effect, which is subtle for 35mm footage, but very large for 8mm footage.

Film Versus Video

There are several key differences between the film media and the video media. It is important to understand these differences as it will help you use and understand the CineLook process.

Media Types

First and foremost, film and video use very different media storage types. Film is it's own media storage type, as the image information is coded directly in the emulsion on the acetate. Video, on the other hand, is a signal standard, and can be stored in many different types of media such as 1" video tape, CD-ROM, digital beta cam, and purely as digital information in a computer memory.



Film Acetate is the only true film storage medium.

Given these characteristics, film is firmly rooted in the physical chemical domain whereas video is deeply planted on the electronic and more ephemoral and maleable realm. Film needs a lot more care to process. Video needs more equiptment to modify, but that equiptment makes the process of handling video much easier than film ever could.

Chemicals versus Electronic CCD's

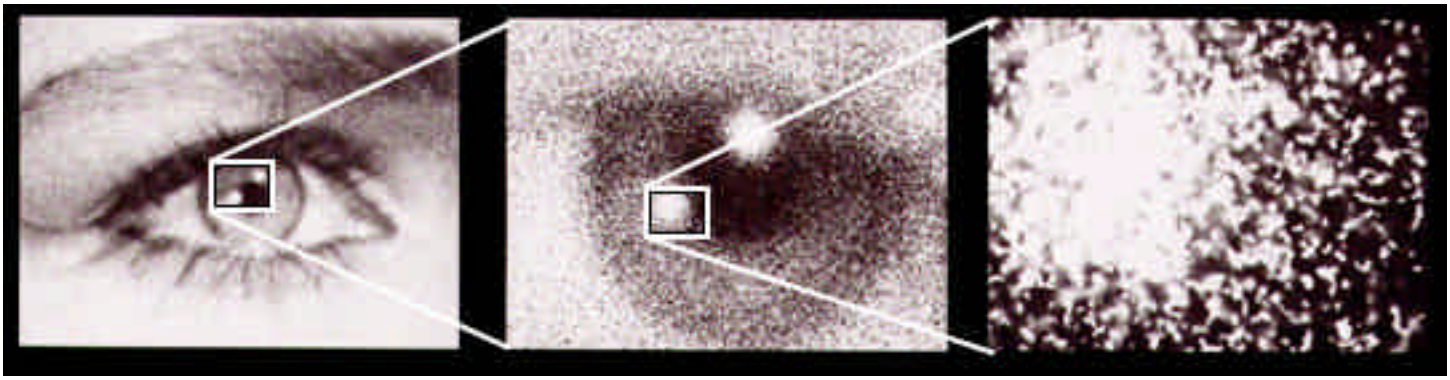
Film is an acetate-based, emulsion-coated strip with perforations on the edges used to make photographic images when exposed to light in a camera, or display images when projected through a film projector. Film uses photo-sensitive chemicals coated on the surface of the film acetate. In black and white film, there is a single layer of acetate that responds to the overall visible light spectrum. On color film, there are usually three layers of acetate, each corresponding to different areas of the spectrum, specifically the red, green and blue primary colors.

These photo-sensitive chemicals capture images using micro-scopic granules of metallic silver grains of various sizes. Motion picture films consist of silver-halide crystals dispersed in gelatin (the emulsion) which is coated in thin layers on a support (the film base). The exposure and development of these crystals form the photographic image, which is, at some stage, made up of discrete particle of silver. In color processes, where the silver is removed after development, the dyes form dye clouds centered on the sites of the developed silver crystals. The crystals vary in size, shape, and sensitivty and are randomly distributed within the emulsion. Within an area of uniform exposure, some of the crystals will be made developable by exposure; others will not.

The location of these crystals is also random. Development usually does not change the position of a grain, so the image of a uniformly exposed area is the result of a random distribution either of opque silver particles (black & white film), or dye clouds (color film), separated by transparent gelatin.

Although the viewer sees a granular pattern, the eye is not necessarily seeing the individual silver particles, which range from about 0.003mm down to about a tenth of that size.

At magnifications where the eye cannot distinguish individual particles, it resolves random groupings of these particles into denser and less dense areas. As magnification decreases, the observer progressively associates larger groups of spots as new units of graininess. The size of these compounded groups gets larger as the magnification decreases, but the amplitude (the difference in density between the darker and the lighter areas) decreases. At still lower magnifications, the graininess disappears altogether because no granular structure can be detected visually.



Example of film stock at different magnifications showing grain particles.

Randomness is necessary condition for the film-effect phenomenon. If the particles were arranged in a regular pattern, like a halftone dot pattern used in printing, no sensation of graininess would be created. When a random pattern of small dots is viewed with

sufficient magnification to resolve the individual dots, no orderly or intelligible pattern can be recognized. When the magnification is decreased so the dots cannot be resolved, they appear to blend together to form an image whose surface is nonuniform or grainy.

Video, on the other hand, uses an electronic charged-coupled device (CCD) to capture images. A CCD is made up of thousands of tiny solid-state image sensors. Inside a high-quality 3 chip camera, a prism splits the image from the lens into three light paths. Each has a CCD with a red, green and blue filter over it.

The image of the scene is focused onto the light-sensitive surface of the CCD, and builds up a charge pattern corresponding to the brightness values in each area of the scene. This pattern is periodically "sampled", recorded and reset at a rate of 1/60th of a second. The signal is sampled line by line, in a long stream of data. This stream is then recorded in a similar fashion to video tape.

Frames versus Interlacing

This is the major difference between video and film, and a source of much confusion.

A film image is captured in the exact same way as when you take a picture with a still photography camera. The entire frame is captured all at one using a purely chemical process. There are no discrete samples, there is no linear signal. The image is sampled at the resolution of the microscopic grains embedded on the film.

Film usually captures the scene at a rate of 24 frame per second (fps). The entire image is exposed and recorded on every frame.

Video, on the other hand, records half of the image every 1/60th of a second. This odd way of recording an image is due mainly to historical reasons. When video was first invented in the late 1920's, the phosphors that were used to make the first television sets were too slow to respond to a full frame of video every 1/30th of a second. So they compromised using the alternating scan-line method. We must live with this compromise today, even though the phosphors used on today's TV sets are of much higher quality and can easily respond to images of much higher rates (like your computer monitor).

Video also samples the image at discrete steps called "pixels". The NTSC standard for video capture is 640 pixels by 480 pixels. There are newer formats that capture at larger sizes, but this is the current standard. Film has no such restrictions, and is captured at the resolution of the microscopic grain. Film is a higher resolution medium than video.

The video image is recorded line by line, from left to right and from top to bottom. These lines are referred to as "scan lines." Video interlaces a new image with the previous image, alternating between even and odd scan lines. Because of this, you never see a full frame of the scene at any one time. You rarely notice this fact because the images are updated so quickly.

When film is converted for use with video the timing difference between the 24 frame per second film and the 60 field per second video becomes a problem. The most common solution to this problem is called "3:2 Pulldown". This technique samples the 24 frame per second film in a special way to create 30 frame per second video. CineLook uses the built-in After Effects 3:2 pulldown to perform this task. Please refer to the "Hints and Tips" section for a more complete discussion of how this is accomplished.

Film Projection versus Video Playback

Film must be developed in the same way that photographs are developed. Film is slightly different in that instead of having a print made, a transparency is made. This transparency is then simply spooled in sequence onto a film reel. This reel is fed through a film projector which projects the film transparency using a strong light source onto a highly reflective screen. The full frame image is reproduced, one frame at a time.

To play back video, the video signal drives a scanning electron beam. The electron beam scans from left to right, top to bottom, skipping every other line. The screen of a television picture tube is made up of three separate patterns of phosphors, which glow red, green and blue when struck by the scanning electron beam. The brightness of each phosphor area corresponds to the video signal strength at that point in the picture.
The eye blends the tiny phosphor points together, so that the separate red, green and blue images mix, and form a natural-colored picture.

Now that you understand the key of the differences between video and film, you can use CineLook to exploit these differences and get a great cinema look!

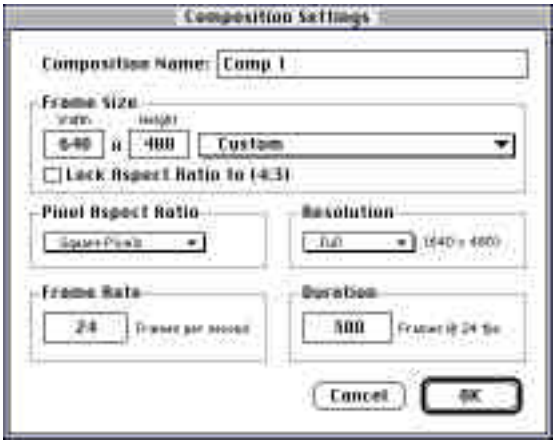
Tutorial

This tutorial section will take you through a typical CineLook rendering operation. This section will show you how to do the following: Import Footage, Apply CineLook to a Layer, Choose a Preset, Modify a Preset with the CineLook User Interface, Set Time Integration Parameters, Save a Preset and Render a Movie with CineLook.

At the end of this tutorial, you will know how to use CineLook to make your video look like film, and modify the basic CineLook settings to achieve the look you want.

1 To begin, Launch After Effects 3.0 and create a new project **(Command-N)** .

2 Now, create a new composition. Set the composition size that is appropriate for your video card (in this case 640 x 480). Set the duration to the length of your clip.



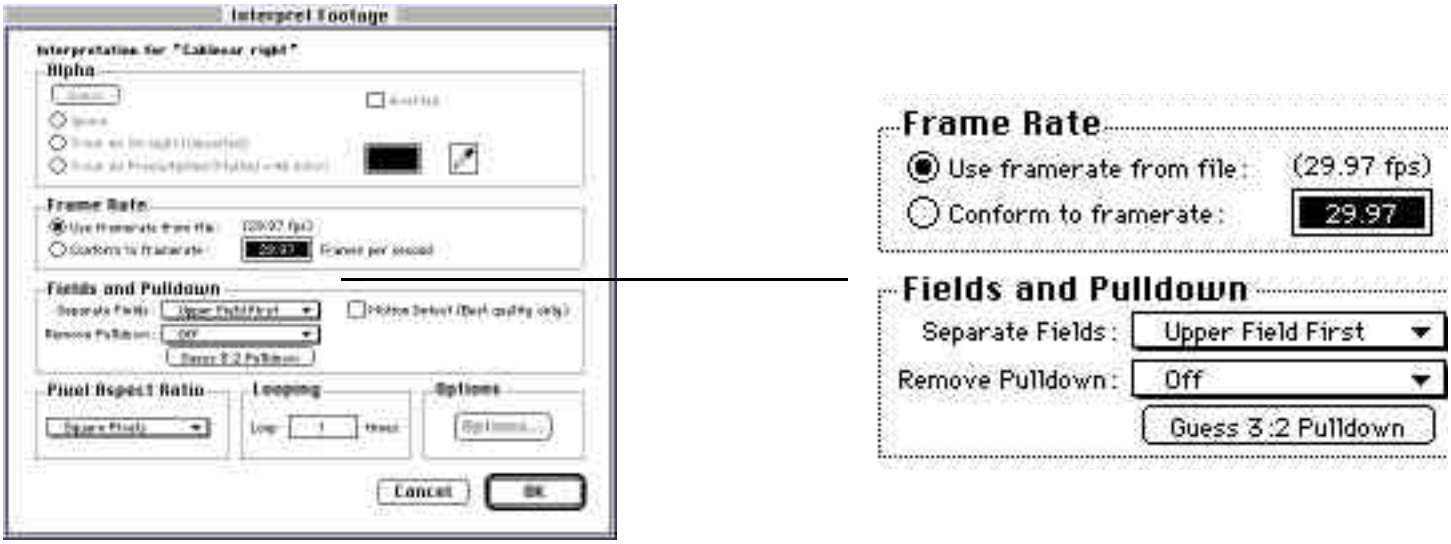
Importing Footage

3 Import your footage **(command-I)** as you normally would. In this example we are using the file “Cablecar Right”, found in the Tutorial folder on the CineLook CD-ROM.

Importing Footage is an important step and requires that you have some information about the particular video hardware (Avid, Media 100, etc.) that was used to digitize your footage. You will need to know which field the clip starts on (Upper/Lower or Odd/Even).

After importing your footage, you will need to tell After Effects how to “interpret” the footage. Since different video hardware manufacturers process and capture video media in

different ways, you must tell After Effects just how each piece of footage was digitized. This is called “interpreting the footage”. Click on the footage in the project window and select “Interpret Footage->Main” from the File menu.



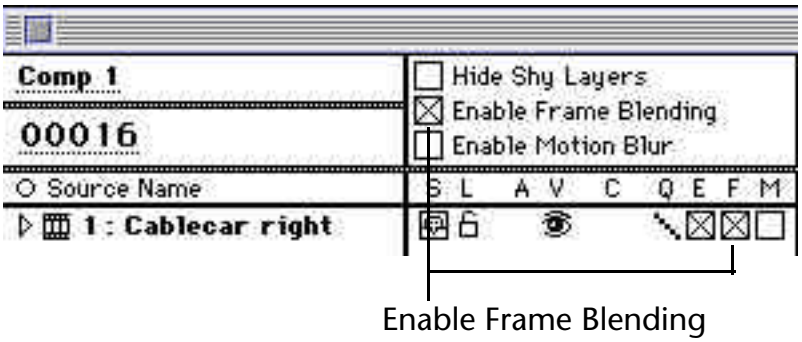
4 Choose the appropriate “**Separate Fields**” from the Fields and Pulldown section.

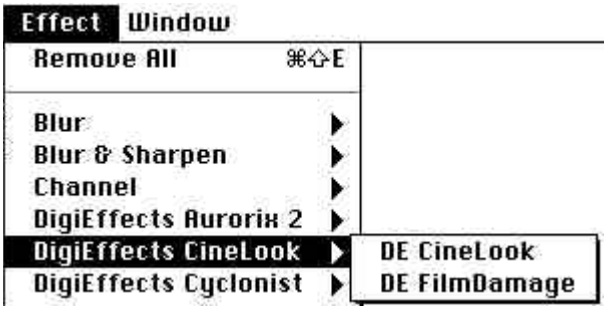
5 Be sure “**Remove Pulldown**” is set to **Off.**

Applying CineLook to a Layer

6 Drag and drop your footage into the composition (Comp 1). The Composition should now be the top-most window. Locate the footage in the “Time Layout” window.

7 Turn on “**Enable Frame Blending**” and click the small “**F**”.

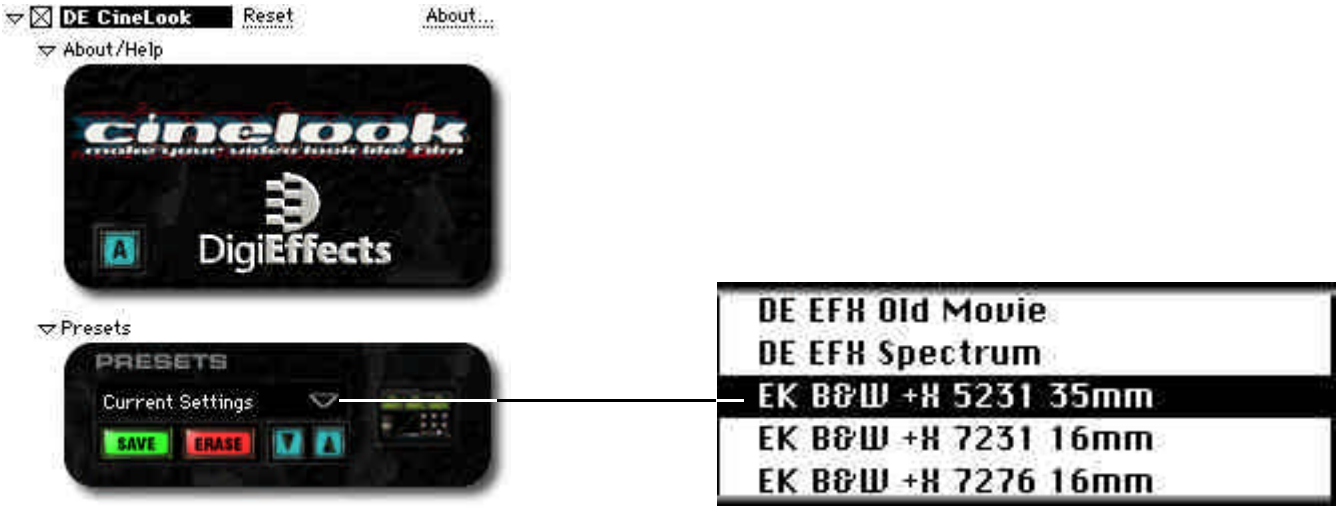




8 Choose "**DE CineLook**" from the "**Filters Menu**" under the "**DigiEffects CineLook**" sub-menu. The CineLook filter will then be applied to that layer. Allow it to render the initial effect as this loads the full-frame previews into RAM for use with the custom interface.

Choosing a Preset

9 Pick a preset by clicking on the "**Preset Pop-up**" from the Presets swatch. For this example, choose the "**EK B&W +X 5231 35mm**" . This preset is meant to simulate a commonly used black and white film stock that adds subtle grain and slight color correction.



Modifying a Preset with the CineLook User Interface

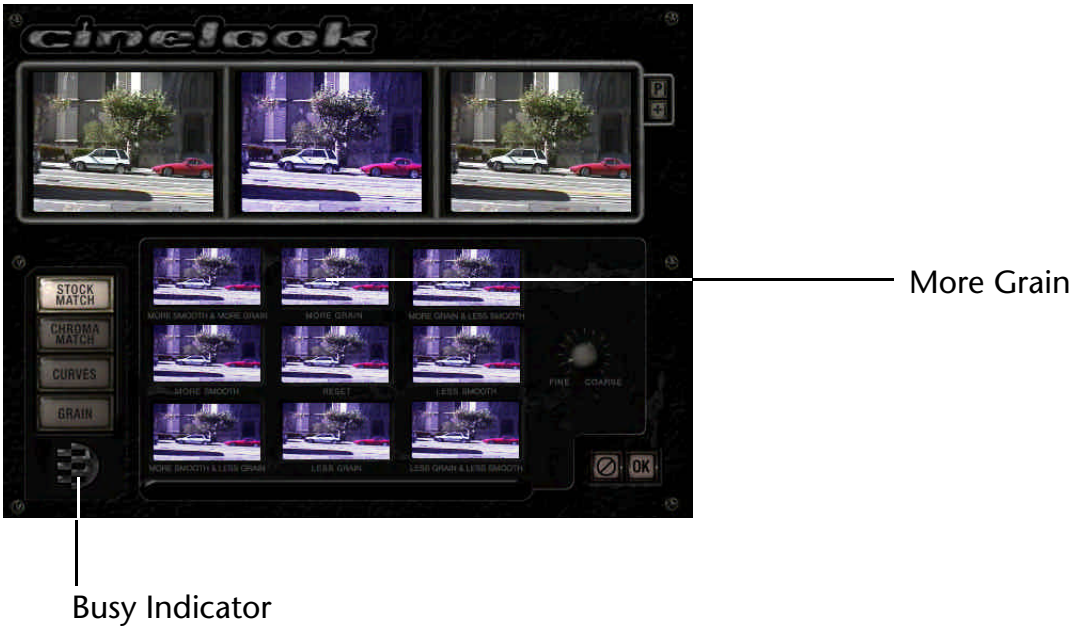
We will now modify this preset to change it from a black & white film stock to a color film stock by adding a little more grain and change the color correction curves.

10 Change this from a black & white film stock to a color stock. This option is only available in the standard After Effects user interface. Scroll down to the "ChromaMatch" section, and find the "Black & White" option. Uncheck it. This sets CineLook to color mode.

11 Add a bit more grain using the CineLook custom User Interface. Click on the **"UI Button"** on the "Preset" swatch. This will bring up the CineLook Custom User Interface.

When the User Interface is loaded, the initial dialog is the StockMatch dialog. On the upper left side is the unaffected source. In the middle is the affected source. For a more complete description of each element, please refer to the "User Interface Reference" section of this manual.

12 We will now proceed to modify a preset. This is the way you will normally work with CineLook. The Presets may be acceptable as-is, but you may want to adjust them for your particular purpose. In this case, we would like to add more grain, so click on the "**More Grain**" area, just once.

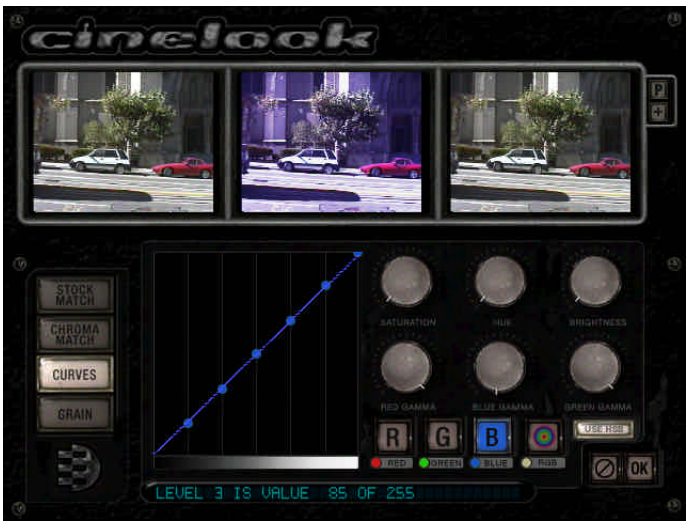


You will see the DigiEffects logo light up then go dim. When the logo is lit up, CineLook is busy rendering the last changes to the parameters. When the logo is dim, CineLook is ready to respond to your next task.

Now adjust some color correction parameters. Let's reduce the blue in the mid-tones, and then make the green curve the same as the blue curve.

13 Click on the **"Curves"** button. Press the **"B"** button. This will give you access to the blue color response curve.

You can command-click on any control to change it's value numerically.



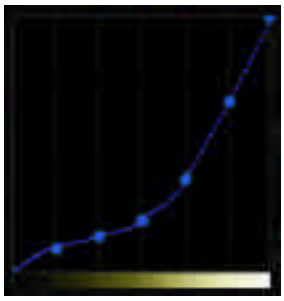
You can also navigate between each color curve by using **command-1** for red, **command-2** for green, **command-3** for blue and **command-4** for white.

Your final curve should look like this.

Try it now!

14 The color curve control points are numbered 1 to 7, from left to right. Change the blue color curve to correspond to the following values:

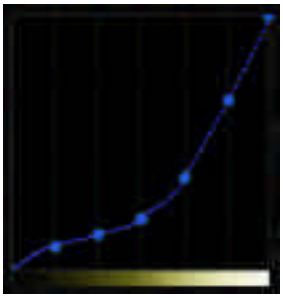
Level 1 0
Level 2 20
Level 3 47
Level 4 78
Level 5 128
Level 6 198
Level 7 255

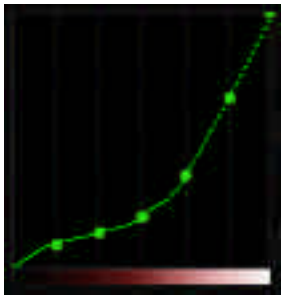


You can click and drag each control point, or command-click each point and enter the numeric value directly. You can also undo any change with command-Z.

Notice that the gradient at the bottom of the curve is now slightly browner than before. This gradient represents the color map changes before gamma correction. The blue gamma is set to 452 on this preset. The blue color gets readjusted through the blue gamma.

15 When you are finished changing the blue correction curve, copy it with a **command-C**. Now go to the green color correction curve and paste the new values into that curve using **command-V**. The green color correction curve will look identical to the blue color correction curve.


Copy the blue curve...


...to the green curve.

16 You will now want to compensate for the green curve by adjusting the green gamma. Set the green gamma to 452 by either command-clicking on the control, or turning the dial. The final setting will have darker mid-tones, and slightly higher color dynamic range.

Time Integration

Time integration is the process of simulating the film-shutter properties of a real film camera. A real film camera uses a rotating shutter to capture images. On the other hand, a video camera uses an electronic device to sample images coming from the camera lens.

CineLook uses a unique process of blending in previous video frames to simulate this effect. CineLook allows you to blend in the previous 4 frames, and we call this blending parameter the "Time Slur." Normally, you will set CineLook to blend in a small and decreasing percentage of each previous frame. These values are somewhat arbitrary, and depend on the look you are trying to achieve. Larger values create a greater motion-blur effect, and lower values create a cleaner look. Here's a visual representation of the process:


Frame -4f
Blend amount = 2
(blend percent = 1%)

+


Frame -3f
Blend amount = 4
(blend percent = 2%)

+


Frame -2f
Blend amount = 8
(blend percent = 4%)

+


Frame -1f
Blend amount = 16
(blend percent = 8%)

The frames are added together with their respective weights to the current frame, giving a subtle or major motion-blurring effect.

17 Set the Time Slur for **Frame -4f** to **2, Frame -3f** to **4, Frame -2f** to **8, Frame -1f** to **16.**


Before TimeMatch

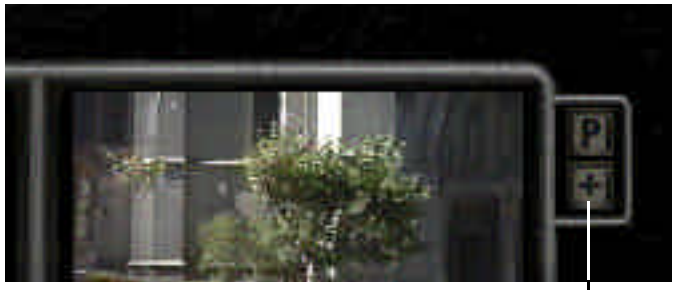

After TimeMatch

Saving a Preset

Once your preset is "dialed-in" and you are happy with it, you will want to save it as a preset. A Preset contains all the parameters of the CineLook filter, including grain, color curves, HSB correction and time integration. Saving a preset is very easy to do in CineLook, and you can save a preset from the standard After Effects user interface, or from the CineLook Custom User Interface.

18 From the CineLook Custom Interface, click on the "+" in the upper-right hand corner. From the After Effects user interface, click on the "**save**" in the "Preset" swatch.

Save a Preset here...



...or here.

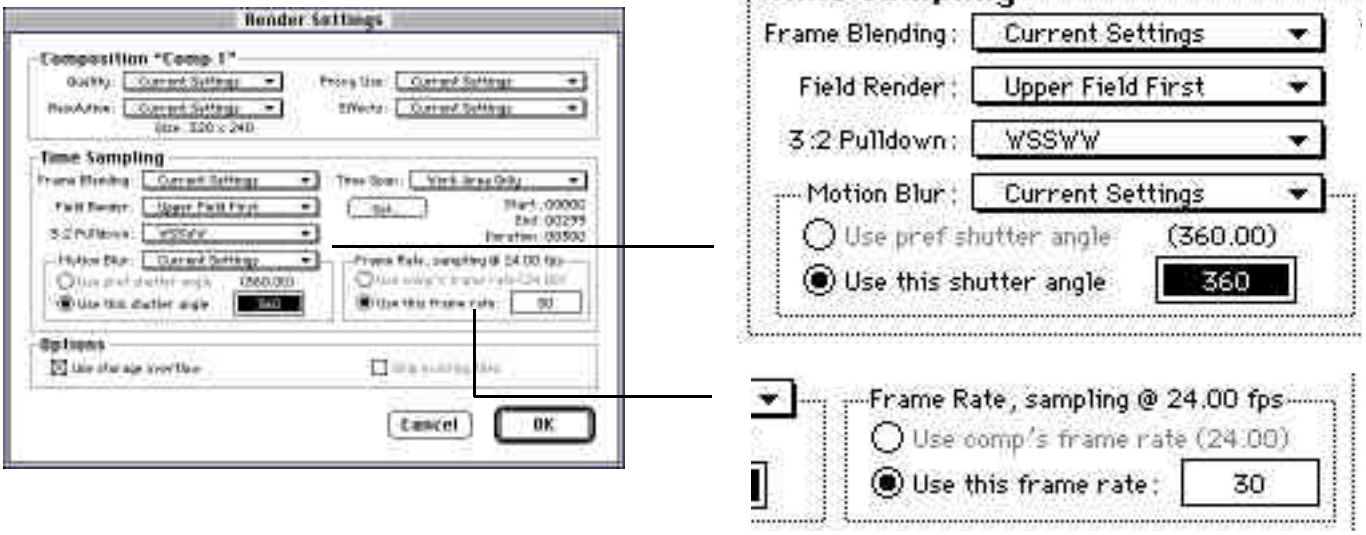
Rendering a Movie

Now that you have modified the CineLook parameters to your liking and saved your pre-set, you will want to render out a movie to see how it looks.

19 Choose "**Make Movie**" from the "Composition" menu in After Effects.
20 Name the new movie "**CineLook Tutorial Movie**" . Click save.
21 The "Render Queue" will now be the top most window. Click on the "**Render Settings**" option.

22 Set the render settings to the following:

Frame Blending : Current Settings
Field Render : Depends on your video card (Upper = Odd, Lower = Even)
3:2 Pulldown : Any "WS" combination will work.
Frame Rate : Should read "Sampling @ 24.00 fps"



Set Quality to low for faster previews or high for smooth motion and images.

You may sometime want to render CineLook at frame rates lower than 30 fps. In this case, do not introduce the "3:2 Pulldown", and set the frame rate appropriately. Be aware that some video systems do not allow rendered frame rates other than 60 fields per second.

23 Set the "**Output Module**" to be appropriate for your digital video card. Check the "Output Module" section of the After Effects user manual for more information on what each parameter does, and how to execute a test to find out which frame your video system renders first (Upper or Lower field first.)

24 Now that all settings have been entered, click "**Render**" to create the movie.

25 Since After Effects is not optimized for playback of hardware assisted video systems, you should play back the footage in the video system that is appropriate for your card.

Congratulations! This concludes the CineLook tutorial!

This also conculdes the QuickStart Demo Documentation. If you have further questions, please check out our web site for the latest FAQ (Frequently Asked Questions).

Tips, Hints and Suppor t

Film Basics

Shoot Video Like You Shoot for Film

Shooting for Film

Producing with CineLook

A vital part of improving the “look” of video is by applying color correction, the way it’s always done with film. Color correction of video is integral to achieving a realistic “film look”. While CineLook color is limited to the video realm, a lot can be done with well shot and well lit video source material. A critical part of the color correction process is the ability to adjust the “response curves” of color and brightness. These controls are integral to the CineLook process.

When you intend to process your footage with CineLook, think in terms of film production. Light it as though you were shooting for film. Use the same lens filters (fog, soft-focus, mist) that you would use for film. But constantly keep in mind the limitations of the video camera. Think of it this way: Shooting video for CineLook is very much like shooting reversal (transparency) film instead of negative film. Exposure and color balance are more critical and you have less control after the footage has been captured.

Here are a few major ideas to keep in mind for CineLook:

• Use the best camera and lens you can find and/or afford. As of 1997 here are some recommended models:

Sony VX-1000 (3 chip DV camera)

• Always avoid over-exposure and under-exposure. Areas lost by clipping (loss of data in over-bright or underlit areas) in the camera are lost forever.

• Don’t use the electronic shutter in the camera. Keep it at the default setting, and use filters on the lens to control brightness.

• Be sure your camera is accurately white and black balanced, and dont use gain boost unless absolutely necessary. If you feel you need to use gain boost, you should think seriously about getting more lights on the set.

Lighting for CineLook

When lighting for CineLook keep in mind that you are shooting for film effects. A single light in a room just won't do. The idea is to get rid of the film, not all expenses associated with film production.

It is important to use the proper lighting for your particular purpose. A good balanced lighting technique is best, but only if it enhances your particular purpose. A good 3-point lighting is usually the best approach for most subjects. An excellent book on the subject it "Lighting for Video". It covers basics of lighting for both film and video production. Check the end of section for the exact book reference.

Shooting for CineLook

Second to lighting, the shooting technique for CineLook is second most important.

Hints & Tips

• Keep the grain smoothness on the lowest setting possible, and use the minimum number of layers of smoothness for the fastest rendering.

• Use the Custom User Interface for generating rough settings, and familiarizing yourself with what the controls do. After that you can use the standard AE controls for final tweaks.

• The quality of the source footage determines the quality of the output. For the best quality, you should treat your video shoot just like a film shoot. The idea is to get rid of the film, not the process of creating film. The recommended minimum number of people on a shoot is three people: A lighting director (preferrably someone familiar with film production), a director of photography (to run the camera) and a director (to deal with the talent and general production.) Using this method of production will greatly enhance the quality of the output from CineLook.

• Render and edit all your footage before applying CineLook. This will save a lot of unneeded renders, and will make your edits cleaner.

• CineLook performance is directly related to your processor speed. Memory is not a crucial component, so if you need CineLook to render faster, get a faster machine. CineLook will be MP compatible and ICE'd by early 1998. These are excellent alternatives to the single processor solutions. ICE web site is http://www.iced.com

CineLook Misconceptions

There are many false ideas floating around about CineLook, about it limitations and benefits. Here are a few of the most common issues:

Misconception # 1 - "CineLook is an easy and inexpensive way to make any hunk of video look like expensive 35mm or 16mm film"

This is positively untrue. CineLook requires high-quality input footage to achieve it's effect. The quality of the output depends on the quality of the input. If you put bad stuff in, you're going to get bad stuff out. Nothing can fix a bad source image. Poorly shot, badly exposed video on a less than broadcast format processed with CineLook will never look as good as a telecined 35mm film print. As much as we'd like to, we cannot overcome these problems. It is crucial not to cut corners on lighting, exposing and recording the video. Treat video that is to be processed by CineLook as you would if you started out on film.

Use the highest quality video camera you can get, hire a lighting crew and just forget about the film!

Misconception # 2 - "CineLook Broadcast can be bumped up to film and it will look just ike a 35mm print"

Unfortunately, this is not the case. CineLook adds gamma correction, color correction, grain and timing characteristics to simulate film stocks. If you were to bring CineLooked footage to film transfer, these effects would be added twice. The end result would probably not be acceptable. The print will look excessively grainy, harsh contrast levels, muddy color and weird motion characteristics.

If you plan on bumping the video footage to film, be sure to keep an unaffected copy of the footage around.

Misconception # 3 - "It doesn't matter what kind of video format you use, all video formats are the same for the CineLook process."

Also untrue. You can use any video format with CineLook, but for the best results we recommend broadcast quality devices and formats like D2, 1", DV-Cam, Beta SP and Beta. Formats like Hi-8, SVHS are acceptable for 16mm simulations. The VHS format can be acceptable for 8mm, but not much else.

Misconception # 4 - "You don't need and special lighting or other gimmicks when shooting for CineLook."

Sorry, this is not the case. CineLook does not require any special lighting or camera techniques in order to achieve its effect. But to take advantage of the full range of the effect, it is imperative that you put the same care and attention as if you were shooting for film. This means proper and creative lighting techniques, lens filters, diffusion, and watching in-camera for under and over exposures as well as overly-contrasty scenes.

Books for CineLook

"Lighting for Video"
by Gerald Millerson, Focal Press. ISBN# 0 240 513037

"American Cinematographer Video Manual"
by Frank Beacham, The ASC Press. ISBN# 0-935578-12-9

"Feature Filmmaking at Used-Car Prices"
by Rick Schmidt, Penguin Books. ISBN# 0 14 01.0525 5 (pbk.)

"Making Movies"
by John Russo, Dell Publishing. ISBN# 0-440-50046-X

"Film Directing Shot-by-Shot"
by Steven D. Katz, Michael Wiese Productions. ISBN# 0-941188-10-8
Phone (818) 379-8799

"Film Directing Cinematic Motion"
by Steven D. Katz, Michael Wiese Productions. ISBN# 0-941188-14-0
Phone (818) 379-8799