

ULTIMATTE[®]

Ultimate Plug-In User's Guide

After Effects[™]

Adobe[®]



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Ultimatte Corporation

GETTING STARTED

| | |
|---|-----------|
| THE ULTIMATTE PLUG-INS | 1 |
| MINIMUM SPECIFICATIONS & REQUIREMENTS | 1 |
| INSTALLATION | 1 |
| SECURITY KEY | 1 |
| THE FEATURES & INTERFACE | 2 |
| SCREEN CORRECTION | 2 |
| GRAIN KILLER | 2 |
| ULTIMATTE | 2 |
| CREATING THE PROJECT | 3 |
| LOADING IMAGES | 3 |
| THE DIALOG BOX | 4 |
| TOOLS | 5 |
| WORDS TO KNOW | 6 |
| SCREEN CORRECTION - UNEVEN LIGHTING, SMUDGES & SET PIECES .. | 9 |
| SAMPLE BACKING COLOR | 11 |
| OVERCORRECTING | 12 |
| MATTE DENSITY | 12 |
| BLACK GLOSS | 12 |
| SUMMARY | 12 |
| GRAIN KILLER - GRAINY & NOISY BACKING | 15 |
| SAMPLE BACKING COLOR | 16 |
| DEFINING THE FILTER AREA | 17 |
| SOFTENED SUBJECT | 18 |
| MATTE DENSITY | 18 |
| BLACK GLOSS | 18 |
| SUMMARY | 18 |

| | |
|---|-----------|
| ULTIMATTE - COMPOSITING | 21 |
| SAMPLE BACKING COLOR | 22 |
| MATTE CONTROLS | 23 |
| PRINT THRU, DARK EDGES & GLOWING EDGES | 23 |
| MATTE DENSITY | 23 |
| BLACK GLOSS | 24 |
| BLACK GLOSS 2 | 24 |
| RED DENSITY | 24 |
| GREEN DENSITY | 24 |
| BLUE DENSITY | 24 |
| HARD EDGES, GLOWING EDGES & SCREEN IMPERFECTIONS | 25 |
| CLEAN UP | 25 |
| CLEAN UP BALANCE | 25 |
| BG LEVEL BALANCE | 25 |
| SHADOW NOISE | 25 |
| FLARE CONTROLS | 26 |
| EXCESSIVE SPILL & MISCOLORED SUBJECT MATTER | 26 |
| WHITE BALANCE | 26 |
| GRAY BALANCE | 26 |
| BLACK BALANCE | 26 |
| GATE 1/3 | 26 |
| GATE 2 | 26 |
| SCREEN CONTROLS | 27 |
| MISCOLORED SCREEN AREA & MISCOLORED EDGES | 27 |
| RED | 27 |
| GREEN | 27 |
| BLUE | 27 |
| ADDITIONAL AFTER EFFECTS CONTROLS | 28 |
| SUMMARY | 29 |

WELCOME TO THE ULTIMATTE LABS!
WATCH FOR IMPORTANT TIPS FROM
ME (OR MY LAB RAT) THROUGHOUT
THIS MANUAL!
FIRST TIP: HAVE FUN!



THE ULTIMATTE PLUG-IN

Ultimatte is blue screen or green screen image compositing and matting software with the unique ability to maintain all detail in the foreground scene. The matte necessary to produce seamless composited images is generated automatically using the same patented Ultimatte algorithms as used in the television and motion picture industries.

MINIMUM SPECIFICATIONS & REQUIREMENTS

- Adobe After Effects, version 3.0
- 24-bit Color Monitor.
- Macintosh OS 7.5
or
- Windows NT 4.0
- Windows 95

INSTALLATION

Macintosh:

Install plug-ins by dragging all three effects into the After Effects plug-in folder.

Win95/NT:

Install plug-ins by copying all three effects into the After Effects effects folder.

SECURITY KEY

Macintosh:

Ultimatte is protected by an EVE security key from Rainbow Technologies. The key must be connected to an ADB (Apple Desktop Bus) port while the software is running. The ADB port is the port to which the keyboard and the mouse are attached. The security key can be attached directly to the port on the computer, to the cable between the computer and the keyboard, or between the keyboard and the mouse.

Win95/NT :

Ultimatte is protected by a Sentinel security key from Rainbow Technologies. The key must be connected to a parallel port (preferably the LPT1) while the software is running.

To install the security key drivers, please follow the Read Me file on the software disk.

Getting Started

THE FEATURES & THE INTERFACE

The Ultimatte plug-in package is designed to create flawless composites. This package consists of Screen Correction, Grain Killer, and Ultimatte.

SCREEN CORRECTION

Screen Correction compensates for anomalies in the blue (green) screen; uneven lighting, smudges, seams, or blue set pieces. Using an exact copy of the problematic blue screen element with the subject matter removed, this effect will rid the foreground of these unwanted anomalies, giving the impression of being shot against a perfect blue field.

All three plug-ins appear in a similar effects dialog box. The following pages will explain common features within Screen Correction, Grain Killer and the Ultimatte effects.

GRAIN KILLER

Grain Killer reduces noise in the screen area of the foreground often created by film grain, video noise, or compression.

ULTIMATTE

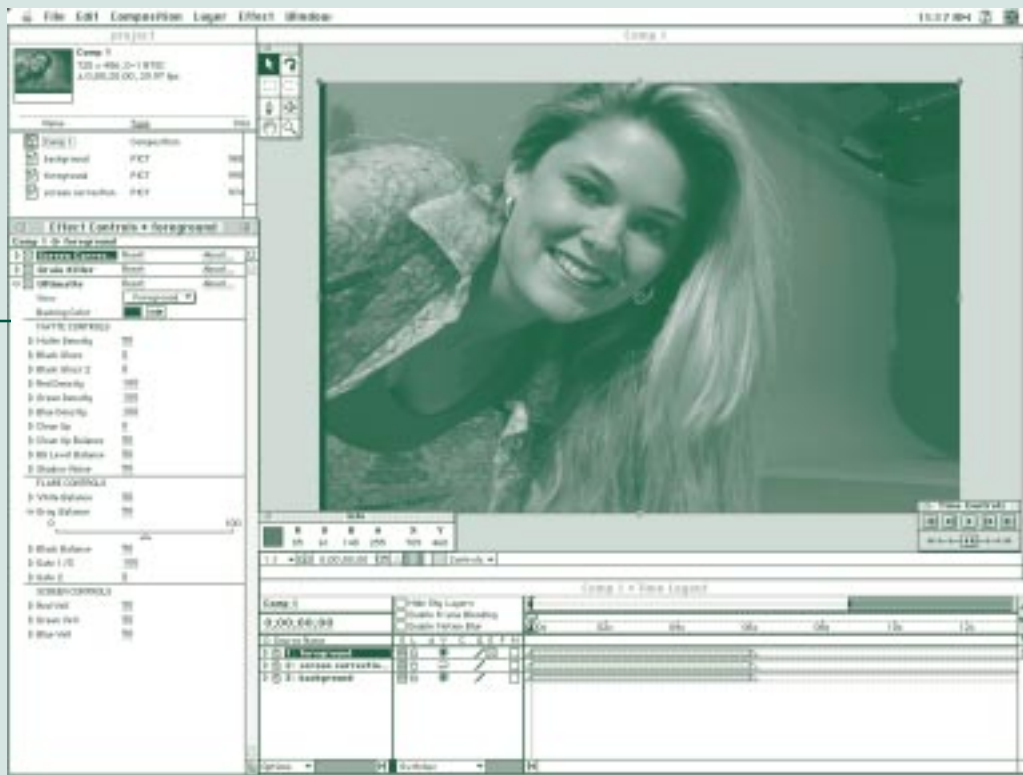
Ultimatte seamlessly composites foreground blue screen elements into a background scene retaining all detail. If the camera can see it, Ultimatte can composite it.

To obtain the best results, use the plug-ins in the following order: Screen Correction, Grain Killer, Ultimatte.

CREATING THE PROJECT & THE DIALOG BOX

LOAD IMAGES INTO PROJECT.

Load the Foreground, Screen Correction, and Background Footage into the project. To achieve the highest quality, be sure to import clips with no or little compression.



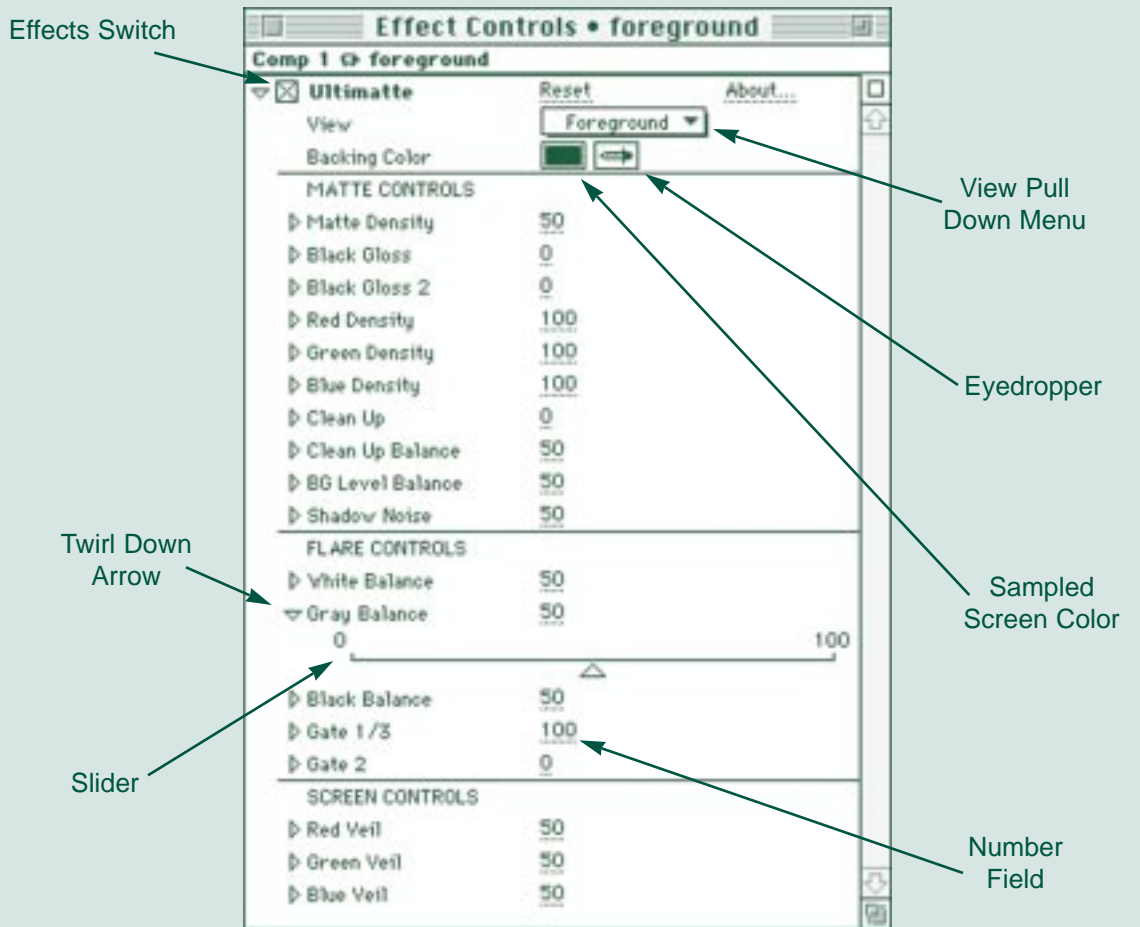
This is an example of a typical Ultimatte Comp. Drag and drop the Background, Screen Correction and the Foreground onto the Comp 1 icon within the project window. This will assure that your clips are perfectly aligned. Remember to keep the Foreground clip above the Background clip in the time layout window.

This is an example of a typical Ultimatte Effects panel within After Effects. All Ultimatte effects are located in Effects>Ultimatte.

Getting Started

TOOLS

The following tools are commonly used during the Ultimatte process.





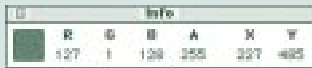
Effects Switch: This box will allow the effect to easily be turned on or off.



Eyedropper: The eyedropper tool is used by placing the tip over the desired area and clicking the mouse to collect data.



Eyeball: This icon allows a layer to remain in the time layout without being visible. "Closing" the eyeball for the screen correction layer will allow the clip to be used as a reference layer.



Info Palette: This palette contains RGB values and will be helpful when using Grain Killer. The Info palette is located in Windows>Palettes>Info.



Number Field: Click once on any underlined number field to enter a numeric setting. In the dialog box, type in the desired value, click OK.



Slider: This option allows you to click and drag on the triangular handle to change settings. Holding the Option (Mac) / Alt (Win95/NT) key while moving this control will update the Comp window for every value. Remember that After Effects does not allow for real time rendering, therefore allow time for settings to change. .



Twirl Down Arrow: Click once on this icon to expose or collapse controls.



Zoom: Located in the tools palette, the zoom tool will allow a closer view of the image. Hold the Option (Mac) or the Alt (Win95/NT) key while clicking to "zoom out" of the frame.

Getting Started

WORDS TO KNOW

Background

The image that will replace the backing color of the foreground in the final composite. Also noted as BG.

Backing Color

The blue or green screen area.

Composite

The foreground image (with the backing area and flare removed) combined with the background clip.

Flare

Contamination of the blue (green) screen on to the foreground subject. Also referred to as spill.

Foreground

The subject matter against the backing color. Also noted as FG.

Garbage Matte

A way of eliminating a portion of an image. This can be done in several methods. Also referred to as a track matte.

Grain Killer

Grain Killer reduces noise in the screen area of the foreground often created by film grain, video noise, or compression.

Matte

A black, gray and white image that is used to determine the percentage of foreground and background values. Also referred to as alpha channel.

Print-thru

When areas of the background are visible through the foreground subject where they should not be seen, or when the foreground is not opaque in areas that should be opaque.

Processed Foreground

The foreground image with the backing area suppressed to black and all flare removed.

Screen Correction

Screen Correction compensates for anomalies in the blue (green) screen; uneven lighting, smudges, seams, or blue set pieces. Using an exact copy of the problematic blue screen element with the subject matter removed, this effect will rid the foreground of these unwanted anomalies, giving the impression of being shot against a perfect blue field.

Screen Correction Scene

An identical copy of the original foreground with no props or talent, no camera changes, and no lighting changes.

Veiling

A colorized haze over the background.

Ultimatte

Ultimatte seamlessly composites foreground blue screen elements into a background scene retaining all detail. If the camera can see it, Ultimatte can composite it.

PROFESSOR WARHOL TIP:
NOT SURE IF YOU SHOULD BE
USING GREEN OR BLUE? CHECK
OUT THE OVERVIEW MANUAL FOR
THIS AND OTHER IMPORTANT
INFORMATION!



UNEVEN LIGHTING, SMUDGES & SET PIECES

FOR BEST RESULTS USE **SCREEN CORRECTION**, THEN **GRAIN KILLER** FOLLOWED BY **ULTIMATE**.

Screen Correction compensates for anomalies in the backing area such as uneven lighting, smudges, seams, variations in the backing color, blue (green) set pieces, and unwanted shadows cast by set pieces. By using an exact copy of the problematic blue (green) screen element with the foreground subject matter omitted as a reference, the patented Screen Correction algorithms will automatically correct the foreground so that the levels of the blue (green) screen are the same throughout each frame. Screen Correction differentiates between foreground elements and backing flaws, thereby allowing the Ultimate algorithms to retain all foreground detail without compromise because of a poorly shot foreground element. For further explanation on Screen Correction, see the Screen Correction section in the Ultimate Overview Manual.

LAB RAT TIP:
IF YOU DIDN'T CAPTURE A FRAME
OF THE BLUE SCREEN WITHOUT THE
TALENT, CREATE ONE IN A
PROGRAM SUCH AS PHOTOSHOP!



Screen Correction

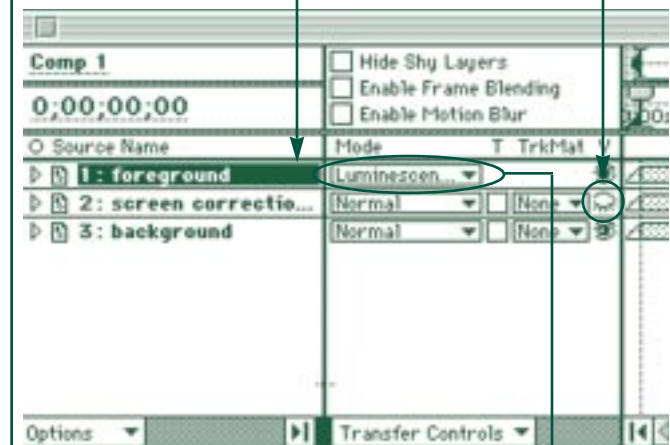
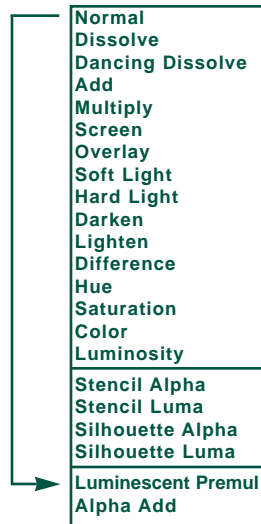
IN THE TIME LAYOUT WINDOW, BE SURE TO ALIGN THE SCREEN CORRECTION LAYER PERFECTLY WITH THE IN/OUT POSITION OF THE FOREGROUND LAYER .

Switch the view (eyeball) to off on the Screen Correction layer.

Select the foreground clip in the Time Layout Window.

Change “Switches” to “Transfer Controls” in the Time Layout.

Change the Foreground transfer mode by holding down Option(Mac) or Alt(Win) and dragging from “Normal” to “Luminescent Premul”.

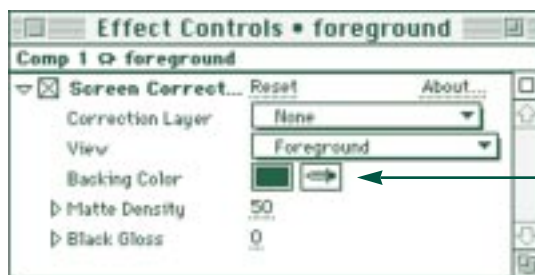


With the Foreground clip still selected, apply **Effects>Ultimatte>Screen Correction** from the menu bar.

SAMPLE THE BACKING COLOR

In the effects dialog box, use the eyedropper tool to sample the backing color of the FG (foreground) image that appears in the viewing area. Be careful to select an area of backing unobscured by any FG detail (smoke, hair, reflections in glass, or shadow areas).

Set the Correction Layer pull down menu to the Screen Correction layer.



Set the View pull down menu to Corrected Foreground.

Screen Correction

OVER CORRECTING

The Matte Density and Black Gloss controls are used to isolate the foreground image from the backing. The control names are the same as in Ultimatte, but they are used differently. When using Screen Correction, the matte should have perfect density or be slightly over dense, but never under dense. If an object that should have an opaque matte has a semi-transparent matte, Screen Correction will try to partially correct that object, thereby making it closer to the actual backing color. This will cause more print-thru problems when the Ultimatte plug-in is used.

If subject matter, a blue tie, is being corrected, the following controls may be adjusted using these guidelines.

Switch View pull-down menu to matte:

- **Matte Density:** Use this control to stop print-thru in bright foreground objects.
- **Black Gloss:** Use this control to stop print-thru in black glossy or dark foreground objects.

SUMMARY

- Switch the eyeball off for the Screen Correction layer
- In the Time Layout Window, Select the Foreground layer
- Holding the Option(Mac) or Alt(Win) key, Change Transfer Control to Luminescent Premul for the Foreground
- Effects>Ultimatte>Screen Correction
- Sample Backing Color of the foreground layer
- In the Effects Box, set the Correction layer pull-down menu to the Screen Correction layer
- Set the View pull-down menu to Corrected Foreground

PROFESSOR WARHOL TIP:
THE NEXT STEPS SHOULD BE
GRAIN KILLER AND THEN
ULTIMATE!



GRAINY & NOISY BACKING AREA

BE SURE TO USE SCREEN CORRECTION BEFORE THIS STEP.

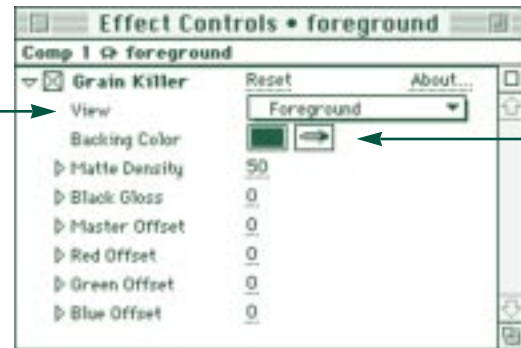
Grain Killer is a filtering process which reduces film grain or video noise in the blue (green) screen area only. One would expect to find grain or noise in both the background and foreground scene. When compositing these scenes together, the grain or noise that is in the blue (green) screen area, will be composited as well, thereby making the background even noisier than it was originally. This becomes especially problematic in multi-layered composites where the addition of noise as each layer is added could make the shot unusable. If a traditional process which does not distinguish subject matter from the blue (green) screen area before filtering were applied, then an overall softening of the image would occur. Grain Killer will soften shadows. For further explanation on Grain Killer, see the Grain Killer section in the Ultimatte Overview Manual.

Grain Killer

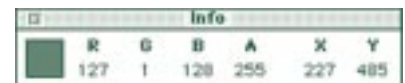
SAMPLE THE BACKING COLOR

In the effects dialog box, use the eyedropper tool to sample the backing color of the FG (foreground) image that appears in the viewing area. Be careful to select an area of backing unobscured by any FG detail (smoke, hair, reflections in glass, or shadow areas).

In the Effects dialog box, switch the View pull down menu to Filter Area.

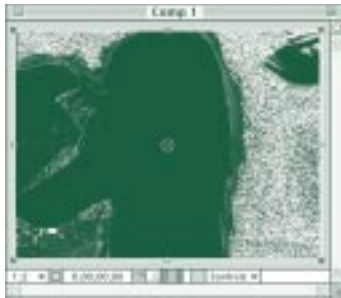


Be sure that the After Effects Info palette is visible.



Next, define the filter area in RGB channels. This process will define areas of the backing to be filtered. The white areas represent filter areas (screen), while the black and colored sections represent areas not to filter (subject and transitions areas). The ideal settings should be such that the film grain or video noise in the backing color become part of the filtered area (white).

With the cursor, identify the RGB value of the black pixels representing noise in the screen area only. While moving the cursor over these black pixels, take note of the RGB values in the Info palette. For example, when the cursor touches a black pixel of the screen area, the RGB values in the Info palette displays “7,15,3.” A different black pixel might have RGB values of “18, 9, 2.” And a third pixel may have RGB values of “14, 8, 0.” Enter the highest value in the respective offset control on the Grain Killer effects panel. In this example, set the Red Offset to “18,” the Green Offset to “15,” and the Blue Offset to “3.”



B E F O R E



A F T E R

Repeat this process until the screen area is white, ADDING the largest value to the appropriate offset control. Therefore if the next set of RGB values is “5, 2, 1,” the new Red Offset value should be “23.” (Previous setting $18 + 5=23$) Follow this procedure in the G and B channels.

Master Offset will increase the Red, Green and Blue offset simultaneously and is additive to the individual offset controls. For example, if the RGB values “24, 32, and 11” were observed, adjust the Master Offset to the lowest of the RGB values: “11.” This will quickly change the range of the offsets.

Switch between the filtered foreground and the foreground to determine if filtering is occurring in the subject matter.

Set the View pull down menu to Filtered Foreground.

Grain Killer

GRAINY OR NOISY BACKING

The Matte Density and Black Gloss controls in this menu are used to isolate the foreground image from the backing. The control names are the same as in Ultimatte, but they are used differently. When using Grain Killer the matte channel controls the amount of filtering that will occur in transparent areas and edges. If the matte is under dense, then too much filtering will occur in the semi-transparent areas, thereby giving the impression of a softer image or a loss of detail. Therefore, attempt to create either a perfectly dense or over dense matte.

Set these controls using the following guidelines.

- Matte Density: Use this control to stop filtering in bright foreground objects.
- Black Gloss: Use this control to stop filtering in black glossy or dark foreground objects.

SUMMARY

- In the Time Layout Window, Select the Foreground Layer
- Hold down the Option(Mac) or Alt(Win) key and Change Transfer Control to Luminescent Premul for the Foreground layer
- Effects>Ultimatte>Grain Killer
- Sample Backing Color
- In the effects dialog box, set the Offset Controls
- Set the View pull-down menu to Filtered Foreground

PROFESSOR WARHOL TIP:
IF YOUR IMAGE STILL APPEARS
GRAINY, USING ADDITIONAL GRAIN
KILLER PASSES WILL HELP. SIMPLY
PLACE THE NEW GRAIN KILLER
EFFECT BELOW THE PREVIOUS
GRAIN KILLER EFFECT.





COMPOSITING

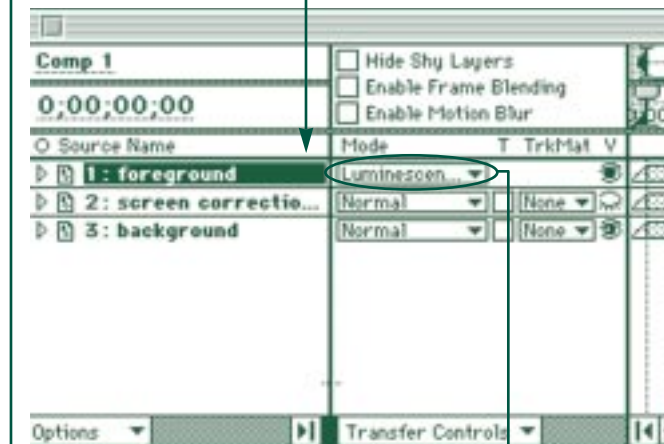
BE SURE TO USE SCREEN CORRECTION AND GRAIN KILLER BEFORE THIS STEP.

Ultimatte has the unique ability to composite anything the camera can see, including but not limited to, smoke, shadows, glass, reflections, fine detail, and motion blur.

Select the foreground clip in the Comp Time Layout Window

If you haven't already done so, Change "Switches" to "Transfer Controls" in the Time Layout.

Change the Foreground transfer mode by holding down Option(Mac) key or Alt(Win) and dragging from "Normal" to "Luminescent Premul".



With the Foreground clip still selected, apply **Effects>Ultimatte>Ultimatte** from the menu bar.

Ultimate

SAMPLE THE BACKING COLOR

In the effects dialog box, use the eyedropper tool to sample the backing color of the FG (foreground) image that appears in the viewing area. Be careful to select an area of backing unobscured by any FG detail (smoke, hair, reflections in glass or shadow areas).



To determine which settings need to be adjusted, you may need to switch between "Matte" and "Composite" in the View pull down menu.

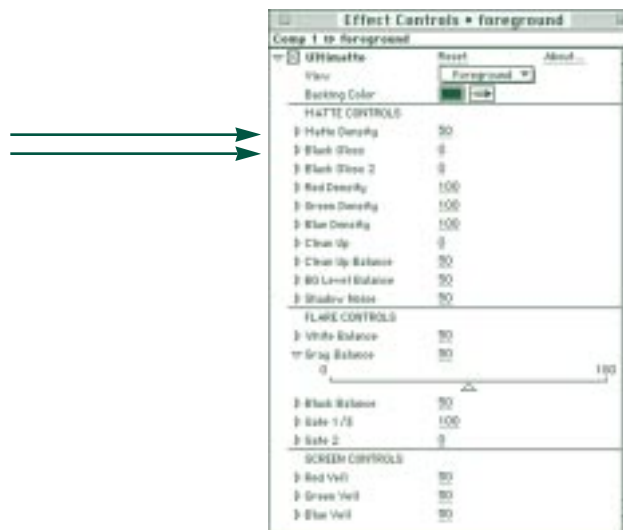
MATTE CONTROLS

These controls are used to adjust the density or opacity of the foreground objects. The density of a foreground object is determined by its matte (alpha) value. A completely opaque object's matte will be white, a completely transparent object's matte will be black, and a partially transparent object's matte will be gray. Reducing the density of the foreground object's matte can reduce dark matte lines from showing in the composite. Set these controls while viewing both the matte and composite.

PRINT THRU, DARK & GLOWING EDGES

Adjust the first six matte controls following these guidelines.

- Matte Density:** Use this control to stop print-thru in bright foreground objects. Warning: Advancing this control too far can cause hard, dark edges around foreground subjects.
- Black Gloss:** Use this control to stop print-thru in black glossy or dark foreground objects. Warning: Advancing this control too far can cause hard, dark edges around foreground subjects.



Ultimate

THE FOLLOWING ADDITIONAL ADJUSTMENTS NEED TO BE MADE BASED ON THE FOREGROUND SUBJECT MATTER AND THE SCREEN COLOR.

- Black Gloss 2: Use this control to stop print-thru on foreground objects that have an excessive amount of spill from the backing. This control adjusts the foreground prior to generating the matte, thereby giving the appearance of being both a matte control and a flare control. View both the matte and the composite when adjusting this control. Warning: Advancing this control too far can alter the color of the foreground objects.

- Red Density: (not available for red backing): Use this control to reduce dark edges from reddish objects (flesh tones). Warning: Reducing this control too much can cause print-thru in reddish foreground objects.

- Green Density: (not available for green backing): Use this control to reduce dark edges from greenish objects (plants). Warning: Reducing this control too much can cause print-thru in greenish foreground objects.

- Blue Density: (not available for blue backing): Use this control to reduce dark edges from bluish objects. Warning: Reducing this control too much can cause print-thru in bluish foreground objects.



HARDEDGES, GLOWING EDGES & SCREEN IMPERFECTIONS

The following matte controls are used to adjust the white and gray areas of the matte channel. This will dramatically affect the nature of foreground objects' edges, the opacity of transparent objects, and the noise in the background image. Use these controls sparingly as they WILL result in the loss of foreground detail. The proper technique for dealing with imperfections in the screen is the use of Screen Correction and Grain Killer.

ADJUST THE LAST FOUR MATTE CONTROLS FOLLOWING THESE GUIDELINES.

- Clean Up:** Use this control to reduce imperfections or small amounts of noise in the backing. Warning: Advancing this control too far will result in a "cut and paste" look. Background noise (as well as some foreground detail) will be reduced. A better method for dealing with imperfections is the use of Screen Correction and Grain Killer.
- Clean Up Balance:** Used only when the Clean Up control has been adjusted, this control determines how much influence the Clean Up control will have on the foreground and background images. View both the matte and the composite when adjusting this control. If using the Clean Up control caused glowing or dark edges, Clean Up Balance can be used to reduce this problem.
- BG Level Balance:** Use this control to override the automatic setting of the Background level as turned on by the matte, based on where the backing color was selected. View both the matte and the composite when adjusting this control. Decreasing this control can enhance the appearance of fine foreground detail, but will darken the background image, and increase "visual noise". Increasing the control can remove "visual noise" and brighten dark edges. Warning: Advancing this control too far can cause foreground objects' edges to glow.
- Shadow Noise:** Use this control to reduce noise in shadows and glare areas. View both the matte and the composite when adjusting this control. Warning: Decreasing the control too much will reduce fine detail.



EXCESSIVE SPILL & MISCOLORED SUBJECT MATTER

The Ultimatte algorithms will automatically suppress flare caused from the backing onto foreground subject matter. The flare controls are used to suppress excessive spill. Set the View pull down menu to Composite when adjusting these controls.

- White Balance: Use this control to remove excessive spill on bright foreground objects.
- Gray Balance: Use this control to remove excessive spill on midrange foreground objects.
- Black Balance: Use this control to remove excessive spill on dark foreground objects.
- Gate 1/3: ("Gate one three") Use this control to reproduce blues, greens, or cyans.

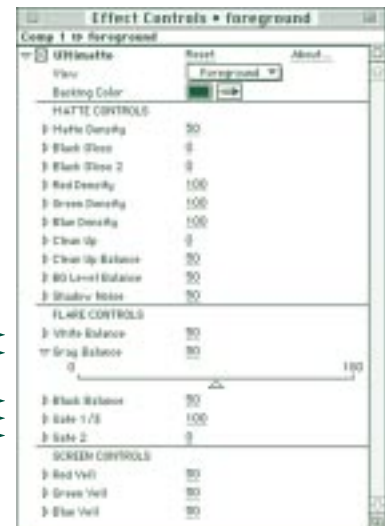
For Blue Screen: At 100%, greens will be reproduced. At 50%, blues will become cyan. At 0%, blues and cyans turn green.

For Green Screen: At 100%, blues will be reproduced. At 50%, greens will become cyan. At 0%, greens and cyans turn blue.

- Gate 2: Use this control to reproduce the following colors:

For Blue Screen: used to reproduce pinks, purples, and magentas turn red. Warning: Since skin tones are pinkish, advancing this control too far may add blue to the skin tones.

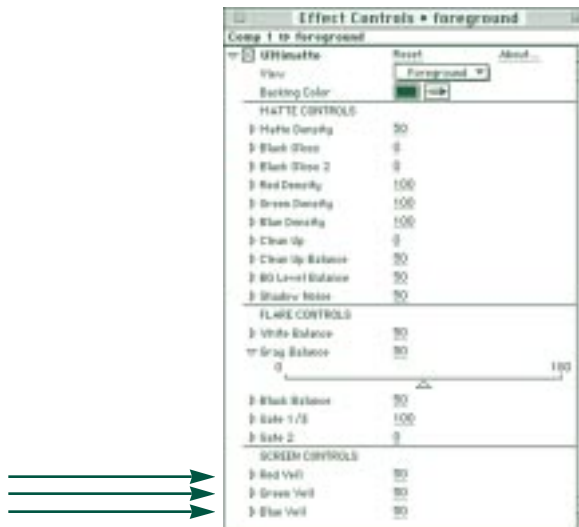
For Green Screen: used to reproduce yellows and orangesturn red. Warning: Since skin tones are pinkish, advancing this control too far may add green to the skin tones.



MISCOLORED SCREEN AREA & MISCOLORED EDGES

These controls are used to override the automatic suppression of the backing color. The Ultimatte process uses the selected backing color to suppress the backing to black. An indication that the automatic settings did not suppress enough backing is "veiling" or a colored haze over the background. An indication that the automatic settings suppressed too much backing is darkened or miscolored foreground edges and transparencies. View the composite when adjusting this control. In most cases these controls will be left at their default settings.

- Red: This control overrides the automatic suppression of the red channel. Increasing this control will increase the amount of red veiling (residue) left in the backing area. Decreasing this control will cause foreground edges and transparencies to turn cyan.
- Green: This control overrides the automatic suppression of the green channel. Increasing this control will increase the amount of green veiling (residue) left in the backing area. Decreasing this control will cause foreground edges and transparencies to turn magenta.
- Blue: This control overrides the automatic suppression of the blue channel. Increasing this control will increase the amount of blue veiling (residue) left in the backing area. Decreasing this control will cause foreground edges and transparencies to turn yellow.



SUMMARY

- In the Time Layout Window, Select the Foreground Layer
- Hold down the Option(Mac) Alt(Win) key and Change Transfer Control to Luminescent Premul for the Foreground layer
- Effects>Ultimatte>Ultimatte
- Sample Backing Color
- In the effects dialog box, set the Matte, Flare, and Screen Controls, if necessary
- Set the View pull-down menu to Composite



LAB RAT TIP:
DARKENED EDGES? CHECK THAT
THE TRANSFER MODE OF THE FG
IS SET TO LUMINESCENT PREMUL.

As a plug-in, all of the After Effects features are available when using Ultimatte (i.e. keyframes)

COLOR CORRECTION

Color Correction should always occur after the matte has been generated by Ultimatte. After Effects has quite an extensive set of color controls, located under Effect >Image Control.

GARBAGE MATTE

Several methods can be applied to create garbage mattes. The most direct method is to use Mask Handles or Mask Vertices.

- Double click on the foreground clip in the Time Layout window to expose the Foreground layer. Switch the pull down menu (currently displaying “none”) to “Mask Handles.”
- Grab one of the 8 handles on the outside edge of the image. Drag handle into the frame. View Composition window to see the change.
- Using “Mask Vertices” will produce a similar effect. Use the pen tool from the Tool box to create points and curves to outline the undesired portion of the frame.
- Advancing the clip and changing the mask position will allow a track matte to be created.

LUMINESCENT PREMUL

Luminescent Premul is the transfer mode that Ultimatte uses to combine images using an additive mix. Try using other transfer modes to create various special effects.

For more information regarding any of these tips, consult Adobe's After Effects Manual.

Ultimate

NOTES



LAB RAT TIP:
USE THIS PAGE TO
TAKE NOTES.

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Chatsworth, CA 91311
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4,344,085; 4,625,231; 5,032,901; 5,202,762;
5,343,252; 5,424,781; 5,515,109; 5,557,339;
with corresponding foreign patents
and patents pending.



Professor Warhol and the Lab Rat are copyright of Keith Robinson.



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