Creating a Keyable Graphic in Photoshop for use in Avid Media Composer | Software

Using Photoshop CC (Creative Cloud) 2014.2.2 and Avid Media Composer |Software 8.3

INTRODUCTION

Choosing the correct file format to save a Graphic in for keying is only one of the skills required to work effectively with Photoshop graphics in Avid Media Composer. This short paper is an introduction to the most common methods used in my environment. Be aware lots of different ways of working with Graphics do indeed exist, but this should get you started.

SELECTIONS

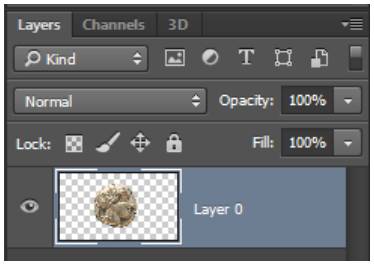
Cutouts in a graphic often begin with making a selection of the area of interest. While the following discussion is I hope useful, almost all cutouts begin with selections. Your selection skills and techniques will do the heavy lifting, what follows are merely the mechanics to convert that work to Transparency in the editing system.

STRAIGHT vs PREMULTIPLIED Alpha Channels

The second surprise is that making the cutout is not the biggest mystery when moving transparency around. Understanding STRAIGHT and PREMULTIPLIED Alpha Channels will help you preserve the original colors in the full screen graphic. Handled improperly, transparent areas of graphics can wash out or become combined with other colored backgrounds, compromising your artistic intent.

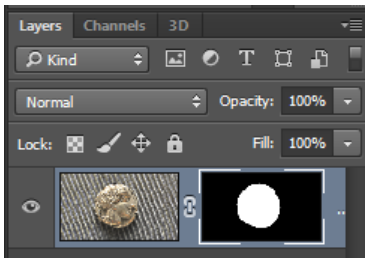
ORIENTATION

There are three main ways to carry transparency from Photoshop to AVID:



> 1 CUTOUT on TRANSPARENT LAYER is often done using an eraser to remove the unwanted pixels from a layer. For all but the simplest graphics this is not the best technique. It 'damages' the original layer by removing pixels. This makes modification and trying alternate approaches difficult- It's hard to change your mind!

< 2 CREATE ALPHA CHANNELS is the classic method. A selection is converted directly into a channel (key signal) in Photoshop. This key signal / Alpha Channel / Mask can be modified as if it were any other Photoshop image. When imported to the editing system it provides the transparency information for your key.



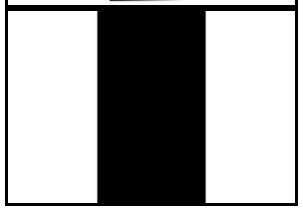
> 3 USE LAYER MASKS is an excellent choice if you are constructing a complex image. It *hides* the pixels you don't want to see in the individual layers. This makes it non-destructive and flexible. You can combine pixel and vector masks to modify the layer in quite complex ways.

1: Cutout on Transparency

In this example we created a graphic in Photoshop and cut it out on Transparency. The graphic was then saved in four formats. When imported into Avid MediaComposer 8.3 the results are as shown below.

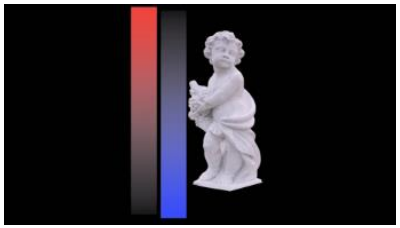
Notice that PNG is the only format of these four which provides for a clean representation of the image, with no white blended into the transparent areas of the final image (transparent areas are not washed out). A conventional Alpha channel may not be required for a PNG file with transparent areas.

When making a cutout on transparency, things should go well if you save a copy as a PNG graphic for import.

	KEY	FILL	KEYED RESULT	COMMENTS
PNG				**Best result. Notice colors in gradient are pure, and fill is 'straight', to be discussed shortly.**
PSD				Colors in transparent areas are mixed with white (washed out)– alpha is treated as 'premultiplied', to be discussed shortly
TARGA				Transparency is not carried properly.
TIF	(none)			Transparency is not carried properly. In fact, file was saved with no transparency at all.

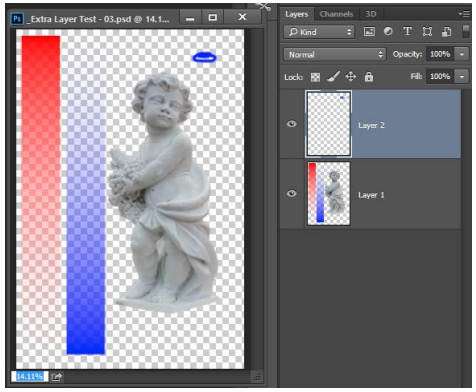
There is a trick…

If you want to use PSD files with Transparency for clean keying, there is a way. It's not intuitive, but it does work. It involves creating more than one layer, and then importing the graphic as a collection of separate layers. Each layer arrives in the Media Composer as a separate keyed graphic



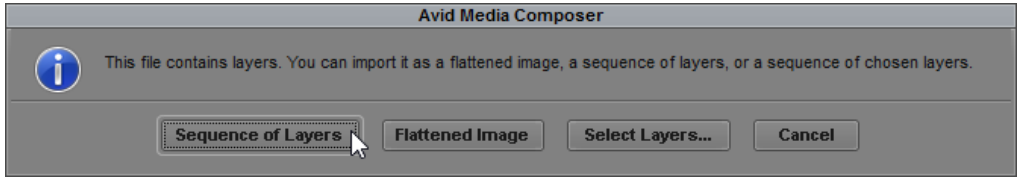
Normal Import

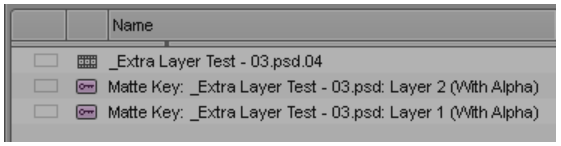
Import using 'bogus' layer



1. Create a second layer in the file if one does not exist, and put some pixels in it. A single tiny dot with a pencil is enough. If you need to hide it, put this layer under the one you are interested in.

2. IMPORT this file into the Media Composer. This dialogue will appear for a multi layered PSD. Choose the first option to import the graphic as a Sequence of Layers



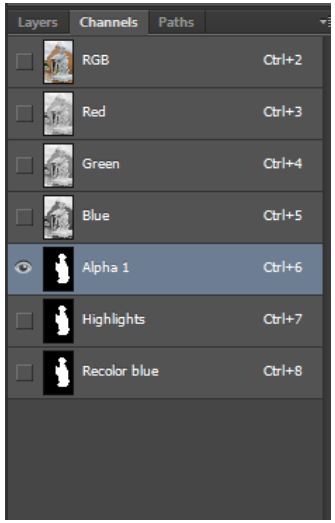


3. The result will be a separate Matte Key clip for each layer in the file, and a Sequence in which they are all edited together to look the same as the original file. In our example, we ignore everything except the Matte Key for Layer 1 – it has the picture in it we want to use.

CREATE ALPHA CHANNELS

In Photoshop, these all start with you making a selection of the area you wish to see as the cutout. This selection is saved as a channel, and if it is in the correct position in the Channels palette Avid recognized it as a TV Alpha Channel and uses it to cutout the graphic.

Alpha Channels (Selections) are saved as grayscale images in channels. You can save a selection as a channel, or recall a channel as a selection. They are identical.



Red, Blue and Green are three channels (pictures) in the image you may already know about. Each of these channels is a grayscale image representing the portion of its colour in the image.

No matter how many layers an RGB image has, there will be one and only one set of Red, Green and Blue channels. Channels may exist after the Red, Green and Blue positions in the channels panel. These extra channels represent saved selections. Channels are like any other Photoshop image: we can paste, paint and use filters directly on channels.

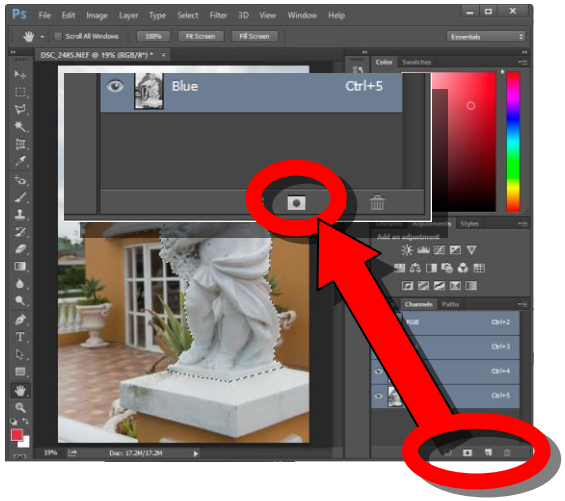
The AVID editing system uses the channel after Blue – the first alpha channel - as its key signal. Channels can be renamed, but this does not affect the Key in Avid. It's the channels position, not its name, which determines what they key channel is.

We will look now at how to create an Alpha channel from a selection, and also from a layer which has already been cutout.

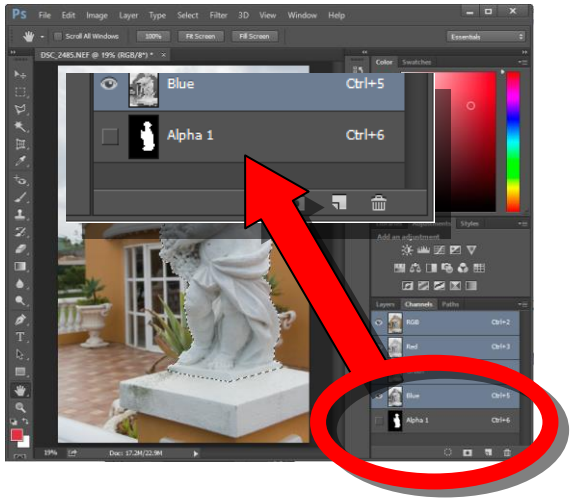
TO CREATE AN ALPHA (KEY) CHANNEL FROM SELECTION:

- Use your SELECTION tools to create a selection around the part of the image you wish to see.
- Select the CHANNELS panel
- In the CHANNELS palette click on the `SAVE SELECTION AS CHANNEL` button

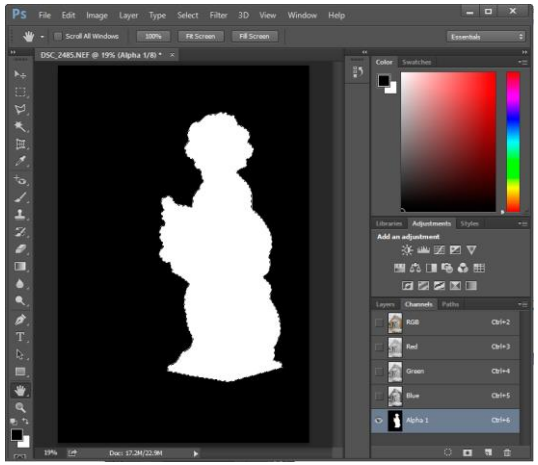
A new ALPHA channel is created.



CLICK on this button



A new Alpha Channel is created



Click on the channel to see it alone
You can paint, draw, filter and modify this channel as if it were any normal image

CREATE ALPHA CHANNEL FROM LAYER TRANSPARENCY

SELECTING PIXELS IN ONE LAYER

If you are creating your graphic by making a cutout of the object on its layer, you can get the selection to make the Alpha channel very simply. CONTROL (PC) / COMMAND (MAC) and click on the layers thumbnail in the LAYERS panel. This will select al the pixels in the layer. You can now go to the Channels panel, and click on the SAVE SELECTION AS CHANNEL  button to complete your Alpha channel.

SELECTING PIXELS IN MANY LAYERS

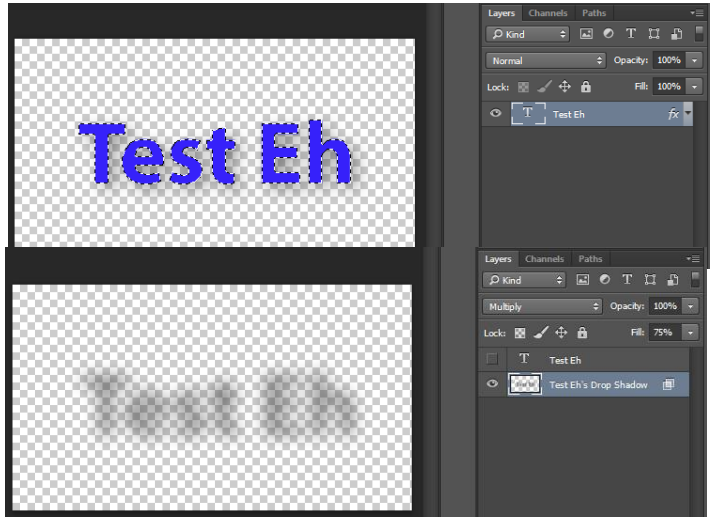
If you have a multilayered image, such as a montage, how do we make an Alpha channel which incorporates the information from each of several layers?

Holding CONTROL (PC) / COMMAND (MAC) and clicking on a single layer in the layers palette will select the non-transparent pixels on that layer. Holding SHIFT as you CONTROL (PC) / COMMAND (MAC) + CLICK on other layers adds their non-transparent pixel areas to the current selection. Step by step, the process is:

- Hold CONTROL (PC) / COMMAND (MAC) + CLICK on the first layer. You select the non-transparent pixels.
- Hold SHIFT as you CONTROL (PC) / COMMAND (MAC) + CLICK on all the other layers, one by one
- Go to the CHANNELS palette and click on the SAVE SELECTION AS CHANNEL  button

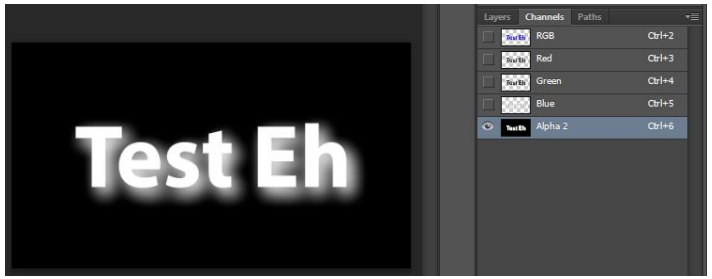
ALPHA's for Shadows and other Layer Effects

Control and clicking on some layers will not select *all* the layer contents. While this technique will select the pixels on the layer, it will not select a drop shadow or other *LAYER EFFECT* attached to the layer. To include the layer effect in your alpha channel, proceed as follows:



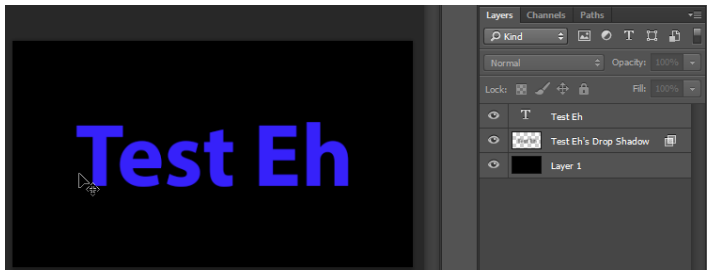
- Add the soft shadow or other layer effect

- In its original form a layer effects is an editable 'equation'. You must convert a layer effect (such as a drop shadow) to actual pixels. Select `LAYER > LAYER STYLE > CREATE LAYER`. This makes a new layer or layers which contain the layer effect only.



- Select the non-transparent pixels in all layers. Do this by CONTROL + CLICKING on the first layer, and doing this again on the other layers while you hold SHIFT. You now have a selection for the text/cutout and its effect.
- Create a channel from this selection. Go to the channels palette and click the `SAVE CHANNEL AS SELECTION` button.

  The ALPHA is inverted. Invert the channel in Photoshop, or invert in the Media Composer on import using the Import Dialogue Options settings.



- To ensure the shadow is black and not grey, we need to make the fill larger than the Alpha channel – a straight alpha. Make a new layer at the bottom of the file and fill it with black. The alpha channel will now key transparent black from this full black layer, with no washed out shadow!

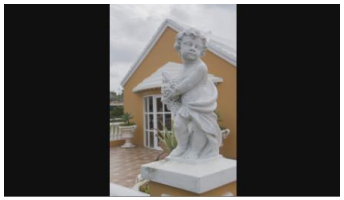
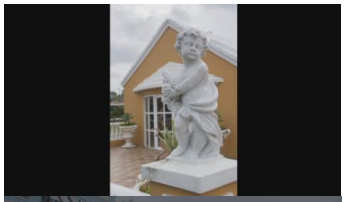
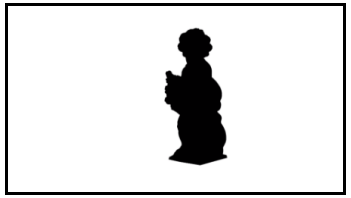
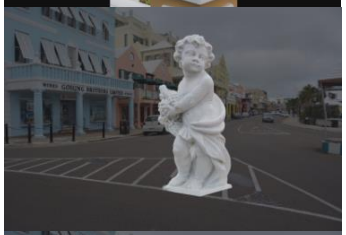
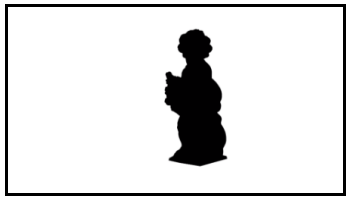
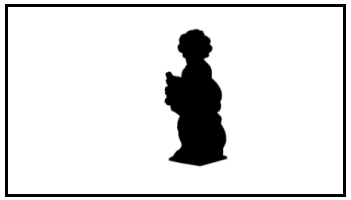
Touching up a Channel

In the image on the right we see a bust and its alpha channel. The Alpha looks like a black and white image – and it is. Any of the Photoshop tools can be used on the Channel. Paint, erase, add gradients, filters or use Free Transforms. The Channel is actually just an image like any other. In this case, we could add a BLUR filter to the channel to soften the edge around the bust.

In this example, a channel was created and filtered to create the custom 'edge' you see in on the rightmost image.

Supported File Formats for Alpha Channels

PSD, TARGA and TIFF files all support the transfer of ALPHA channels into the Avid environment.

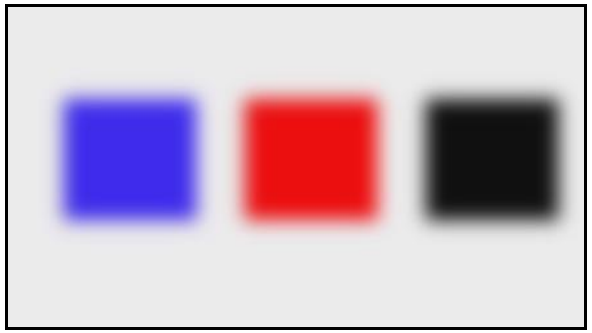
	ALPHA	FILL	KEYED RESULT	COMMENTS
PNG	(NONE)			**No traditional Alpha Channel support. Use LAYER TRANSPARENCY with PNG files**
PSD				Good
TARGA				Good
TIF				Good

Alpha Channels and Transparent pixels

Before we assume all is good, note the cutout just shown has a sharp edge and there are no partially transparent pixels. For Media Composer, your graphics require extra care and processing when the graphic contains transparent pixels. If the file is not constructed properly, these transparent pixels can be washed out. As a result, objects can have halos, and shadows can be grey instead of black.

Below, we see the ALPHA channel, the FILL and the result when they are placed over a dark (black) background. The washed out halo surrounding each color square in the final image is caused by white bleeding into the transparent portions of the image. The fill does not have pure color in its 'soft' edges, but color which has been blended with the white background. This creates the 'halo' when these washed out colors are keyed by the alpha channel.

ALPHA Channel



FILL

KEYED RESULT
Displayed over black

This is a common occurrence. It means that although we know how to make an Alpha Channel, the end results may be washed out if we use transparency in our graphic. Do read the upcoming section on STRAIGHT vs PREMULTIPLIED Alpha channels which offers the correction for this issue.

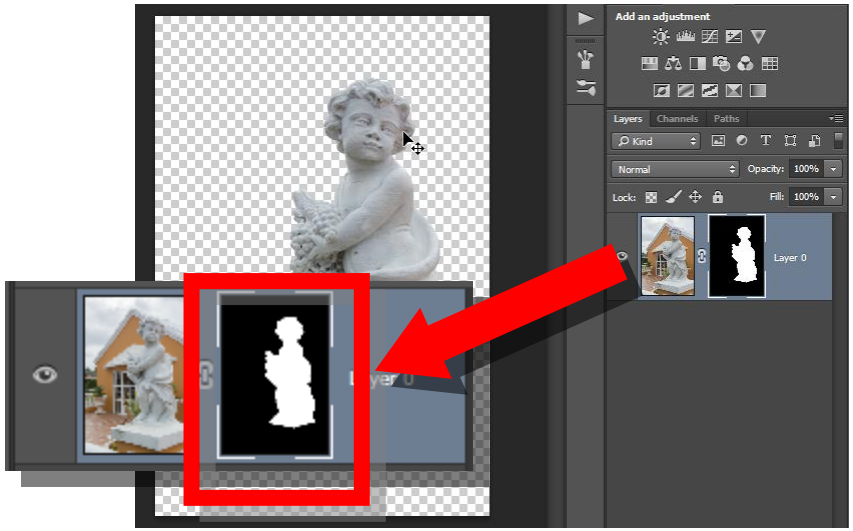
USING LAYER MASKS

SELECTION FROM LAYERS WITH MASKS

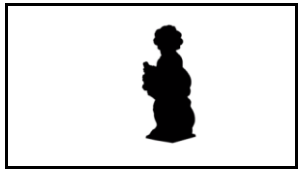
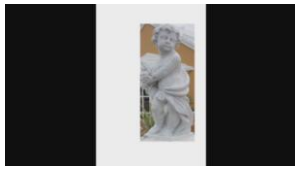
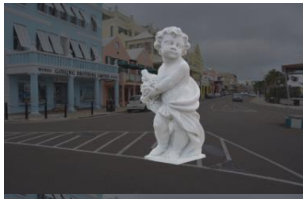
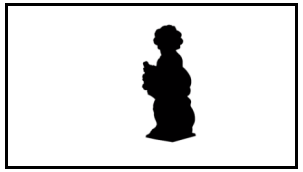
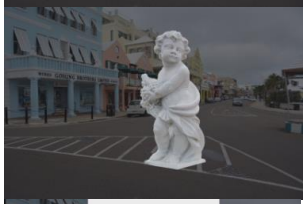
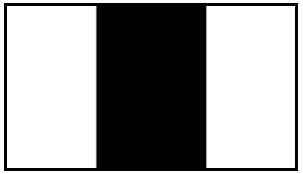
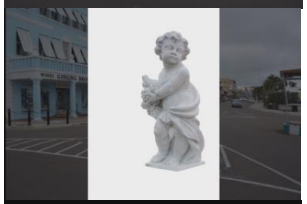
Sometimes the Transparency we see in a layer has not been created by deleting pixels, but by just hiding them using a layer mask. This is in fact the preferred method of creating a 'cutout', as no pixels are modified or lost from the original image.

In this case if we CONTROL (PC) / COMMAND (MAC) + CLICK on a layer *the entire layer will be selected* – not just the visible pixels because the layer is full of pixels.

The solution to this dilemma is to CONTROL (PC) / COMMAND (MAC) + CLICK on the layer mask thumbnail (black and white thumb on the right), not on the layer picture thumbnail (colour image on the left).

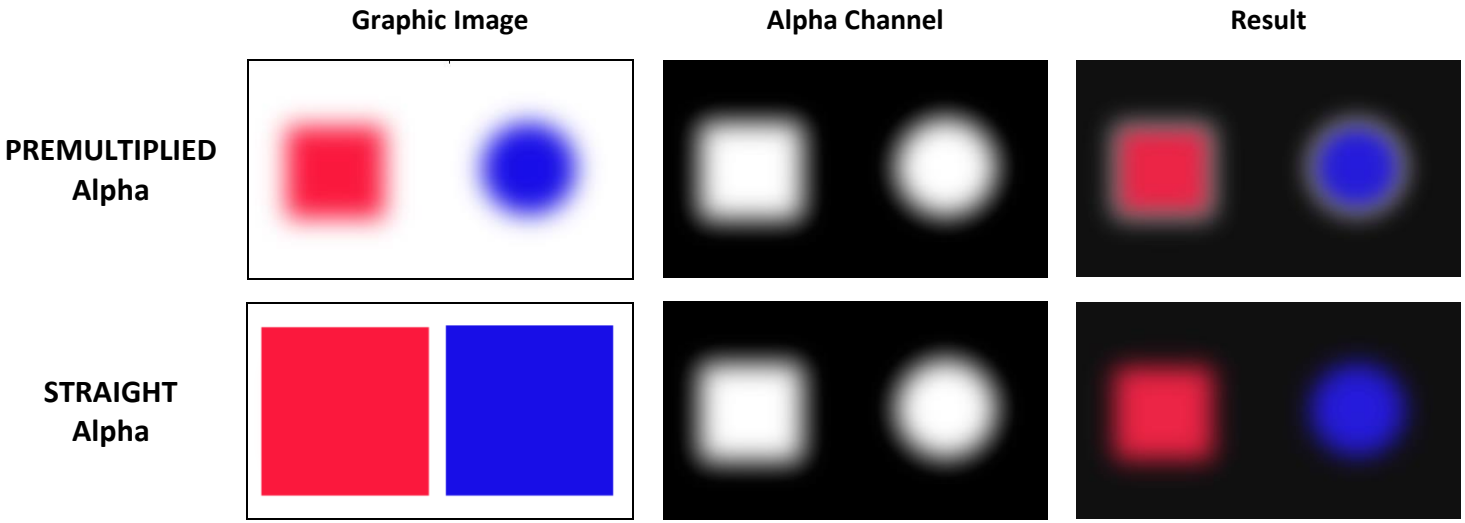


Supported File Formats for Layer Masks

	ALPHA	FILL	KEYED RESULT	COMMENTS
PNG				Good
PSD				Good
TARGA				No real Alpha
TIF	(none)			No ALPHA present, No Key

The results are the same for a Photoshop file containing multiple layers with multiple layer masks.

STRAIGHT vs PREMULTIPLIED Alpha Channels



Here is a graphic of two geometric shapes keyed two different ways. In the RESULT column there is a grey halo around the shapes in one graphic (top right) but not around the other (bottom right).

If we look at the Alpha channels (middle column) we see they both use the same Alpha channel – so the halo is not caused by the alpha channel. It's the FILL, the actual image that is the causing the halo.

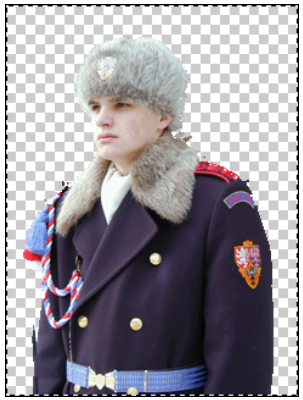
- If the FILL is the same size as the ALPHA CHANNEL (key), white can bleed into the transparent areas washing them out. This is called a PREMULTIPLIED alpha channel (TOP example)
- If the FILL is larger than the ALPHA CHANNEL (key), the resulting key will have clean, pure colors in the transparent areas of your image. This is called a STRAIGHT alpha channel (BOTTOM example)

Notice the difference is the FILL, not the alpha channel, even though the names STRAIGHT ALPHA and PREMULTIPLIED ALPHA would seem to indicate otherwise. For a cleaner key, we want to understand and create STRAIGHT alpha graphics when possible. Some programs are able to adapt and provide clean keys using either STRAIGHT or PREMULTIPLIED alpha channels. After Effects is an example of this. Media Composer is not. It will show Halos, and needs STRAIGHT alpha channel graphics for best results.

STRAIGHT vs PREMULTIPLIED ALPHA CHANNEL

A **PREMULTIPLIED** alpha channel exists when the fill has been cut to the same size as the key.
A **STRAIGHT** alpha channel exists when the fill is full screen, and only a portion of it is being revealed by the key.

ALPHA Channel
Same for STRAIGHT and PREMULTIPLIED

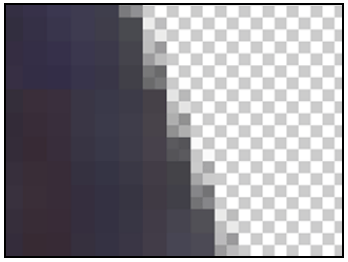


Cutout Fill
PREMULTIPLIED alpha
Bad

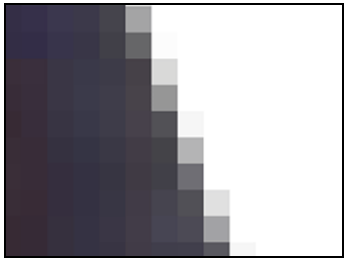
Not cutout fill
STRAIGHT alpha
Good

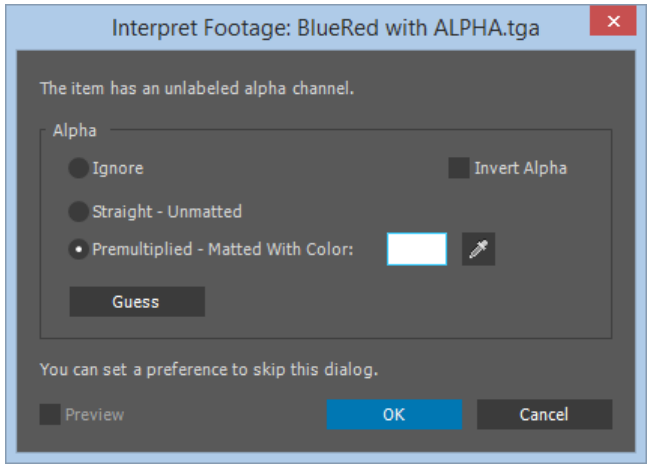
Why might cutting out the graphic cause a grey-white halo? ☻

When the fill is cut to the size of the Alpha, the edge pixels of the fill are transparent. When saved in most formats, these transparent edge pixels cannot be preserved, and will be mixed with (premultiplied) a background color, usually white.



For example, when saving an image as a PICT file, white is premultiplied (mixed into) and transparent edge pixels of our cutout. When the alpha keys these pixels, they are no longer pure, but appear as grey. This is a common problem for AVID editors, and also is the cause of grey instead of black shadows in many TV graphics.

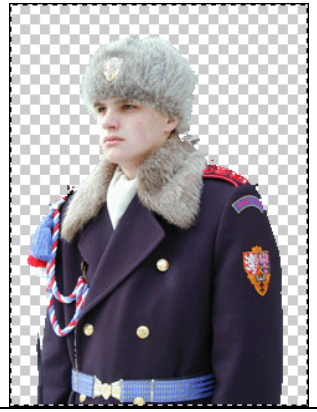
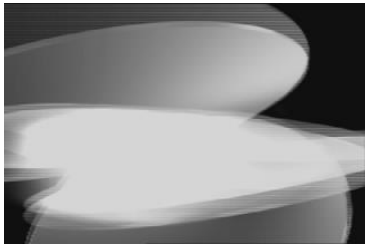
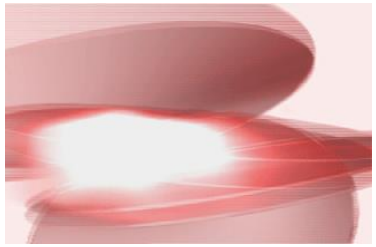
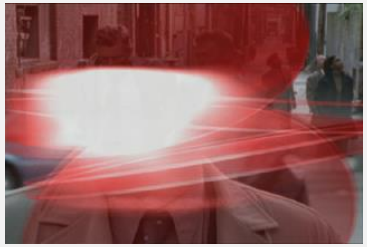




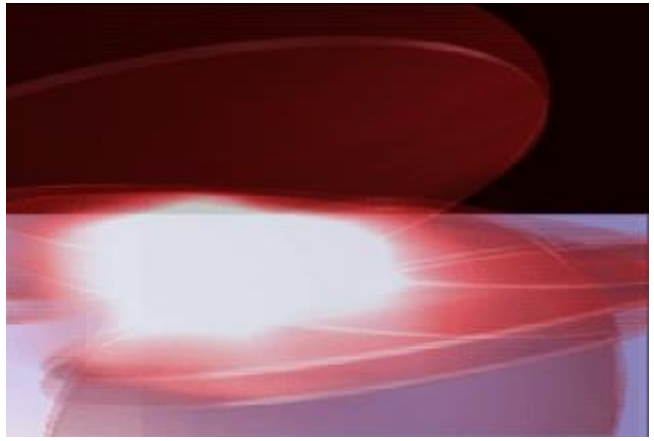
Some programs, like After Effects, allow you to tell it that the alpha is 'Premultiplied', and then to specify the background color that has been mixed into the image. After Effects will then try to remove this color in the edge pixels when it uses the alpha.

In After Effects, this question appears when you import the graphic, or can be accessed at any time through `FILE > INTERPRET FOOTAGE > MAIN`. (CONTROL + ALT + G)

We see below some examples of how the different FILL options could look with the same Alpha channel. With a STRAIGHT or a PREMULTIPLIED alpha graphic, the final result is the same, except for the washed out appearance of transparent pixels in the PREMULTIPLIED graphic.

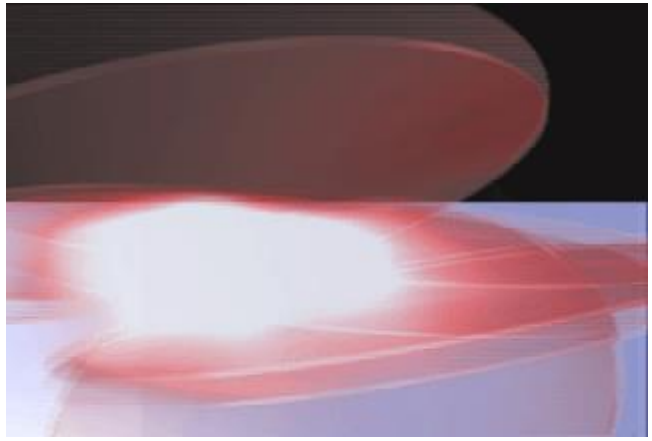
KEY	FILL OPTIONS		FINAL KEY
	PREMULTIPLIED FILL Fill same size as Alpha	**STRAIGHT FILL** Fill larger than Alpha	
			
			
			

To see how important the difference is between a STRAIGHT and a PREMULTIPLIED alpha channel in the final image, look at this example of a completed key:



STRAIGHT alpha

Here, the fill was larger than the key signal, so the Transparent red areas of the key are very clean.



PREMULTIPLIED alpha

The fill was the same size as the alpha, and contained many washed out pixels. Now the transparent areas show the background color (white) which was mixed into the transparent areas.

Here are some final points:

- Straight Alpha's result in a better key than Premultiplied Alphas
- Keys with premultiplied alphas will often have grey mixed into the edge pixels and transparent areas of the graphic.
- For After Effects, *you don't need to use an alpha channel at all*. In Photoshop, create images on transparency and bring them into After Effects- it understands transparency, and the result will be an extremely clean key.

Channel Summary

Create a channel	Click on the new channel button at the bottom of the channels palette
Create a channel from a selection	Make your selection, and click the 'save selection as channel' button in the channels palette.
Viewing a channel	You may view any channel or combination of channels. Click on the eyeball beside each channel to turn it on and off. If RGB is also selected, your other channels will appear as a red overlay on top of the RGB image.
Select a channel	Click on a channel to select it for painting, filtering and so on. The three RGB channels are normally selected together when modifying an image. Thjis is done quickly by clicking on the channel designated 'RGB'.
Delete a channel	Drag the channel to the garbage can at the bottom of the palette.
Duplicate a channel	Drag the channel to the new channel button at the bottom of the palette.
Rename a channel	Double click on the existing channel name to get a dialogue box in which you may type a new name for the layer.
Load a channel	1. Select SELECT > LOAD SELECTION and choose the channel from the offered list. 2. After clicking on the channel you wish to load, press the 'load channel' button in the channels palette 3. Hold Control (PC) Command (MAC) and click on the channel in the channels palette.

Paul Sampson

Adobe and AVID Training for Television

Total Video Communications Inc.