

A BEGINNER'S GUIDE TO ADOBE PHOTOSHOP®

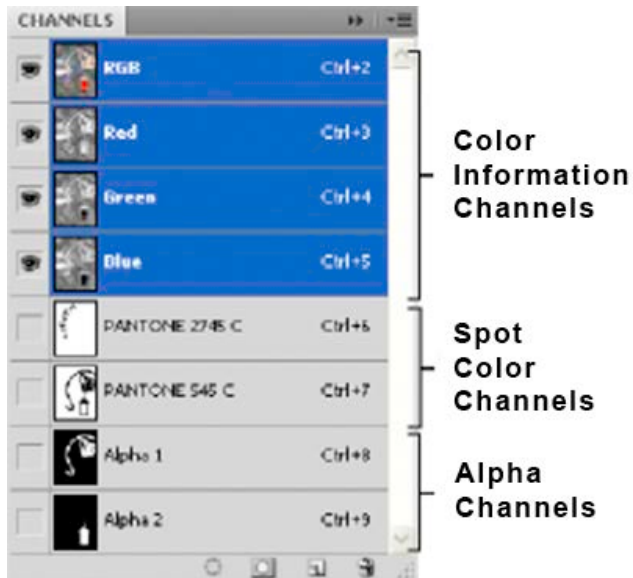
MASKS – USING SELECTIONS and CHANNELS

INTRODUCTION TO CHANNELS:

Photoshop uses *Channels* to store different categories of information about the elements in an image. There are three channel types:

- **Color channels** are greyscale images that store the information about the colors in an image. For example, an RGB image has channels that separately store the information for each color - **Red**, **Green**, and **Blue** - plus a *composite RGB* channel that combines them, presenting the full color range in the image. The composite RGB channel is the default channel displayed while viewing or editing an image. The *Color channels* are created automatically when you open a new image and are updated automatically as paint strokes, filters, effects, and so forth are applied.
- **Alpha channels** are greyscale images that store information about **selections** and **masks**. *Alpha channels* are created automatically when a selection is saved (more on this later) and/or when a mask is created. *Alpha channels* can be edited individually, providing a means to fine-tune selections and masks.
- **Spot Color channels** are greyscale images that store information about specific **inks** to be used in commercial printing. A separate printing plate is generated for each Spot Color defined, and an additional run through the press is required. (**Note:** This document does not provide additional details about Spot Colors.)

THE CHANNELS PANEL:



The **Channels Panel** displaying the three channel types

CHANNELS PANEL OVERVIEW:

The **Channels panel** lists the channels that are present in the image. By default, the *Color channels* will be at the top of the list - starting with the composite (full color) channel, then a channel for each individual color. Below the Color channels will be any *Spot Color channels* and/or *Alpha channels* that have been saved in the image. Each channel is represented by a thumbnail showing the contents, and the channel name.

Note: The **Channels Panel** displays *Layer Masks*, but only when the associated layer is active. Layer Mask names are listed *in italics*, with the word "Mask" appended after the name.


Access the Channels Panel:

From the **Menu Bar**, along the top of Photoshop's interface, choose *Windows > Channels*.

Resize or Hide All Channel Thumbnails:



Open the *Channels panel menu*, located at the top/right of the *Channels panel*, and select **Panel Options**. Then choose a thumbnail size, or click None to turn off the display of thumbnails.

Show or Hide Individual Channels:

Click the **eye icon**  next to any channel to **show** or **hide** (toggles on/off) that channel. This method can be used to view any combination of channels in the document window. For example, you can view an alpha channel and the composite RGB channel together to see how changes made in the alpha channel relate to the entire image.


Channels Panel Command Icons:

At the bottom of the *Channels panel* is a row of **Command icons**.

- Clicking the **Load Selection icon**  creates (“loads”) a new selection based on the *luminance values* of the data in the current (active) channel. If a *layer* is active (instead of a channel) then the data from the *Color channels* is used to create the new selection.
- Clicking the **Save Selection icon**  saves the current selection to a new alpha channel.



A selection saved as a new alpha channel


- Clicking the **Create New Channel icon**  creates a new *Alpha channel*. The new channel will appear at the bottom of the *Channels panel*, and it will be the only channel visible in the image window. The data in the new channel will be either fully black or fully white, depending on the current *Channel Options Menu* settings (more on this below).
- Clicking the **Trashcan icon**, deletes the current (active) channel. If a *layer* is active, and no channels have been selected, then the *Red, Green, Blue, and composite RGB* channels are deleted. A confirmation dialog requires “Yes” to be selected to complete *any* channel deletion.

Channel Options Menu


The **Channel Options Menu** provides the means to change current channel properties. The options available will depend on the type of channel selected. Access the *Channel Options Menu* by double-clicking a channel *thumbnail* in the **Channels panel**, or by selecting *Channel Options* from the **Channels Panel Menu**. One or more of the following options will be available:

- **Name**
The channel name can be edited in this field.

- **Masked Areas**

Selecting this option sets *masked* areas to **black** (results in transparent layer data) and *selected* areas to **white** (results in opaque layer areas). Painting with black increases the masked area; painting with white increases the selected area. When this option is selected, the *Quick Mask Mode* button in the **tool bar** becomes a white circle on a gray background . (*Note:* The *PDF* titled **QUICK_MASK_MODE** provides details.)


- **Selected Areas**

Selecting this option sets *masked* areas to **white** (transparent) and *selected* areas to **black** (opaque). Painting with white increases the masked area; painting with black increases the selected area. When this option is selected, the *Quick Mask Mode* button in the **tool bar** becomes a gray circle on a white background .

- **Spot Color**

Selecting this option converts an alpha channel to a spot color channel. This is one way - there is no option to convert a spot color channel to an alpha channel.


- **Color**

Sets the color and opacity of the mask overlay, which will be visible when the *eye icon*  is activated for an individual channel *and* the color channels simultaneously. Clicking the color field opens a Color Picker where a new color can be applied. Changing the Opacity percentage lowers or raises the opacity of the applied overlay color.

Note: These color and opacity settings affect only the *appearance* of the mask overlay and have no effect on how underlying areas are protected. Changing these settings can be used to make the mask data more easily visible against the colors in the image.

APPLYING LAYER MASKS FROM CHANNEL DATA

CREATE A NEW ALPHA CHANNEL - or - USE EXISTING CHANNEL DATA

1. Click the **New Channel button**  at the bottom of the *Channels panel*.
 - a) The new channel will appear at the bottom of the *Channels panel*.
 - b) The data in the new channel will be either fully black or fully white, depending on the current *Channel Options Menu* settings, and it will be the only data visible in the image window.
 - c) Define masked areas on the new channel by painting with Black, White, and/or shades of Gray. Black defines areas to be fully masked (hidden), white defines areas to be fully unmasked (visible), and shades of gray define areas that are partially masked (translucent).

2. An alternative is to use the data from an **existing** channel. For example: Data from an alpha channel created earlier, or data from one of the *color channels*, can be applied as a Layer Mask.

APPLY CHANNEL DATA AS A LAYER MASK

Method Number 1: *Select and Apply Channel Data*



1. **Ctrl-click** (Win) / **Cmd-Click** (Mac) on a channel thumbnail to select and copy the channel data.
2. With the layer to be masked active, click on the **Add New Layer Mask icon** in the **Layers panel**. This will create a Layer Mask consisting of the contents of the (selected) channel.

Method Number 2: Use *Apply Image*

1. With the layer to be masked active (and no image data selected) click on the **Add New Layer Mask icon** in the **Layers panel**. This will create a blank (all white) mask. Click on this the new empty mask to make it active.
2. From the **Menu Bar**, at the top of Photoshop's interface, choose *Image > Apply Image*.
3. In the **Apply Image dialog box**, select (from the *Channel* dropdown) the *channel* you want apply as a Layer Mask.
4. Set the *Blending Mode* to **Normal**.
5. Click **OK**

Note: Both methods described above will produce the same results.



Viewing Channel Data as a Color Overlay

Clicking the **eye icon**  for the *composite color channel* will display the image with the full color range. Also clicking the **eye icon**  for the *new channel* will with display it with a color overlay indicating the masked areas. Note that a new empty channel will mask the entire image if black, or none of the image if white.

Save and load selections

A selection can be saved in a *new* or *existing* alpha channel. The saved selection can later be loaded as a new selection, or it can be applied as a mask by loading the saved selection then adding a new layer mask while the selection is active.



- **Save a selection as a new channel**

1. Use a selection tool to select the area or areas of the image you want to isolate.
 2. Click the **Save Selection** button  at the bottom of the *Channels panel*. A new channel appears, by default named according to the sequence in which it was created. The name can be changed, if desired, to indicate what selected areas were saved. *Example:* Naming the channel **Boat** can indicate that the selection is the area of the image with a boat.
- **Save a selection to a new or existing channel**
 1. Use a selection tool to select the area or areas of the image you want to isolate.
 2. Choose Select > Save Selection. The **Save Selection** dialog box will open.
 3. Specify the following in the Save Selection dialog box, and click OK:
 - Document**
Choose a destination image for the selection. By default, the selection is placed in a channel in your active image. An alternative is to save the selection to a channel in *another* open image with the same pixel dimensions or to a new image.
 - Channel**
Choose a destination channel for the selection. By default, the selection is saved in a new channel. An alternative is to save the selection to any *existing* channel in the selected image, or to a *layer mask* if the image contains layers.
 4. If saving the selection as a new channel, type a name for the channel in the Name text box.
 5. If saving the selection to an existing channel, select how to combine the selections:
 - Replace Channel**
Replaces the current selection in the channel.
 - Add to Channel**
Adds the selection to the current channel contents.
 - Subtract From Channel**
Deletes the selection from the current channel contents.
 - Intersect With Channel**
Keeps the areas of the new selection that intersect with the current channel contents, and inverts the channel (black becomes white and white becomes black).
 6. Click the *eye icon*  for the saved channel from the Channels panel to see the saved selection displayed in grayscale.

- **Load a saved selection from the Channels panel**

When a selection has been saved to a channel it can be re-activated by loading it into an image.

- Do one of the following in the **Channels panel**:

- Select the *alpha channel*, click the **Load Selection** button  at the bottom of the panel, and then click the *composite color channel* near the top of the panel.
- Drag the channel containing the selection you want to load onto the **Load Selection** button  at the bottom of the panel.
- **Ctrl-click** (Win) / **Cmd-Click** (Mac) the channel containing the selection you want to load.
- To add the mask to an existing selection, press **Ctrl+Shift** (Windows) or **Command+Shift** (Mac OS), and select the channel.
- To subtract the mask from an existing selection, press **Ctrl+Alt** (Windows) or **Command+Option** (Mac OS), and select the channel.
- To load the *intersection* of a saved selection and an active selection (combine the selections), press **Ctrl+Alt+Shift** (Windows) or **Command+Option+Shift** (Mac OS), and select the channel.
- **Note:** A saved selection channel can be dragged from one Photoshop document to another open Photoshop document.

- **Load a saved selection**

Loading a saved selection makes the saved selection active.

1. Choose **Select > Load Selection**.
2. Specify the **Source** options in the *Load Selection dialog box*:

Document

Choose the source to load.

Channel

Choose the channel containing the selection you want to load.

Invert

Selects the non-selected areas, deselects the selected areas.

3. Select an **Operation** option to specify how to combine the selections if the image already has a selection:

New Selection

Adds the loaded selection.

Add To Selection

Adds the loaded selection to any existing selections in the image.

Subtract From Selection

Subtracts the loaded selection from existing selections in the image.

Intersect With Selection

Creates a selection by combining the loaded selection and existing selections in the image.

EXAMPLE: Making an Accurate Selection/Mask of a Furry Kitten

A furry kitten on a white background.

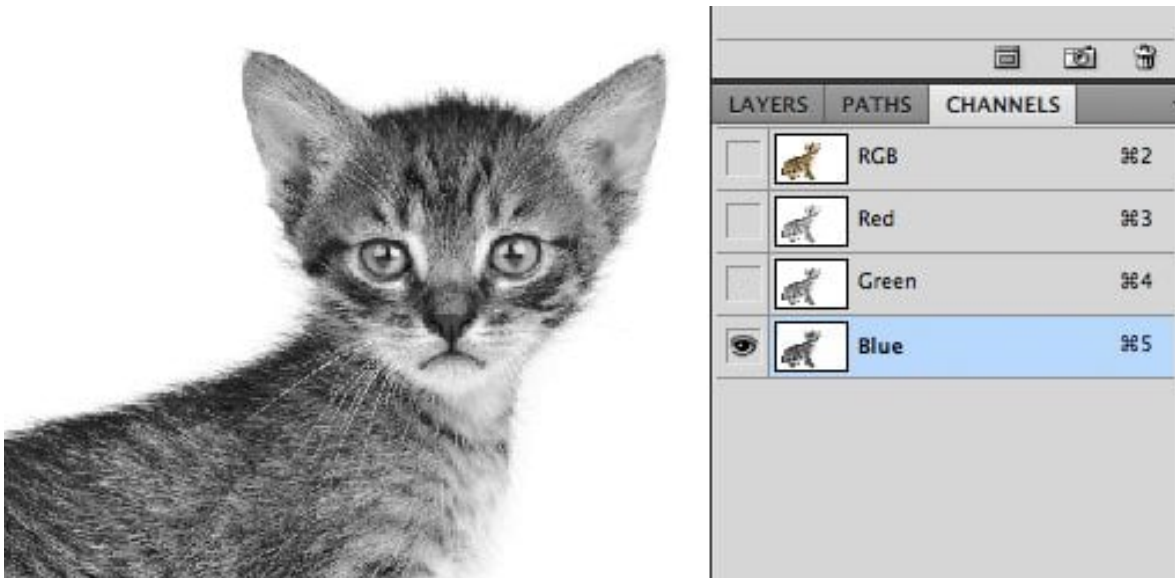
Furry animals are particularly difficult to isolate from backgrounds. The mask image below illustrates the results that are possible using the techniques described in this example.



The furry kitten isolated – note the fine hair detailing.

Start with the Channel with the Highest Contrast

In the *Channels Panel* look for the channel with the most contrast. For this image it is the Blue Channel.



For this image, the Blue channel shows the most contrast

Make a copy of the blue channel, then select the new channel and hit **Cmd+L** (Mac) **Ctrl+L** (Win) to bring up a **Levels Adjustment**. Zoom in on a furry edge to see the fur detail.

There are three sliders in the *Input Levels* section. The left slider adjusts darker pixels, the middle slider adjusts midtone pixels, and the right slider adjusts lighter pixels. Move the left and middle sliders to the right to darken the shadows, until there is extreme contrast, as below.

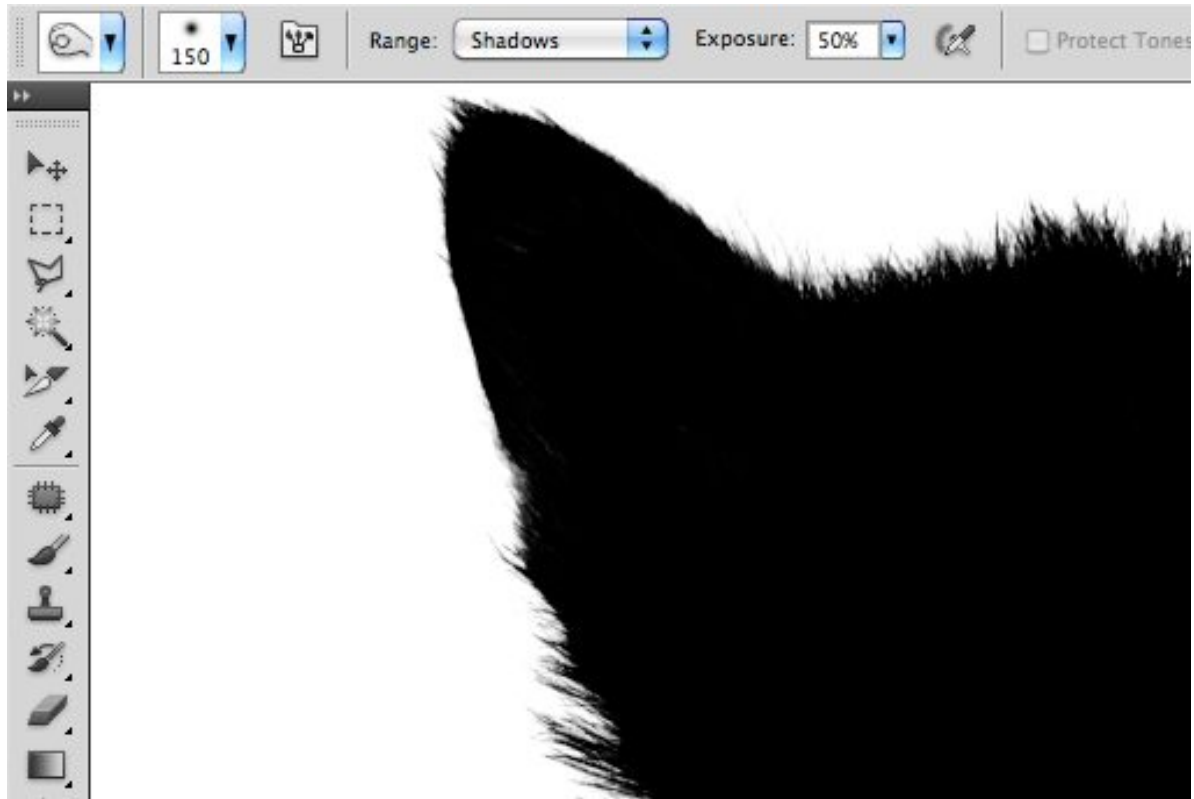


Adjust the Levels sliders to make dark and midtones darker for extreme contrast

Zoom in and pan around, observing the hair detail at the fringes of the fur to ensure the adjustments are not clipping details. The result does not have to be perfectly black and white at this point, some dark grays are acceptable if the fur details are still present.

The final goal is to get as much of the cat as close to black as possible. A black paint brush can be used for the face portions and other random spots that are well within the kitten. But the fur around the edge can be tricky.

One way to handle the furry edges is to use the Dodge and Burn Tools. These tools can accurately adjust the ranges of gray around the edges. Set the Dodge Tool to target the highlights and the Burn Tool to target the shadows. Use a medium size soft brush and travel around the edges of the kitten, burning shadows and dodging highlights, until the fur details are close to pure black and white.

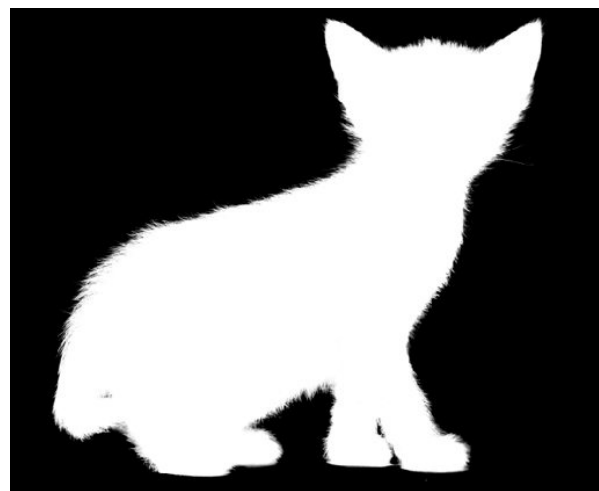


Using the Burn Tool to darken the hair around the edges of the kitten.

When the kitten is black, including fur at the edges, the kitten will be transparent (black in a mask is transparent) and the background will be opaque (white in a mask is opaque). Press **Cmd+Shift+I** (Mac) **Ctrl+Shift+I** (Win) to invert the channel, making the kitten opaque (white) and the background transparent (black).



The kitten will be transparent.



The kitten will be opaque.

Convert the Channel into a Mask

As described earlier, there are a few ways to convert a channel into a mask. The easiest is to **Ctrl-click** (Win) / **Cmd-Click** (Mac) on the channel to select and copy the channel data, then make the cat layer active (click on the cat layer thumbnail), and then click the **New Mask icon**. The channel data will become a layer mask.



The kitten layer with the new mask applied – notice the white “fringing” at the edges.

Removing Mask Fringing using the *Masks Palette* and *Refine Edge*

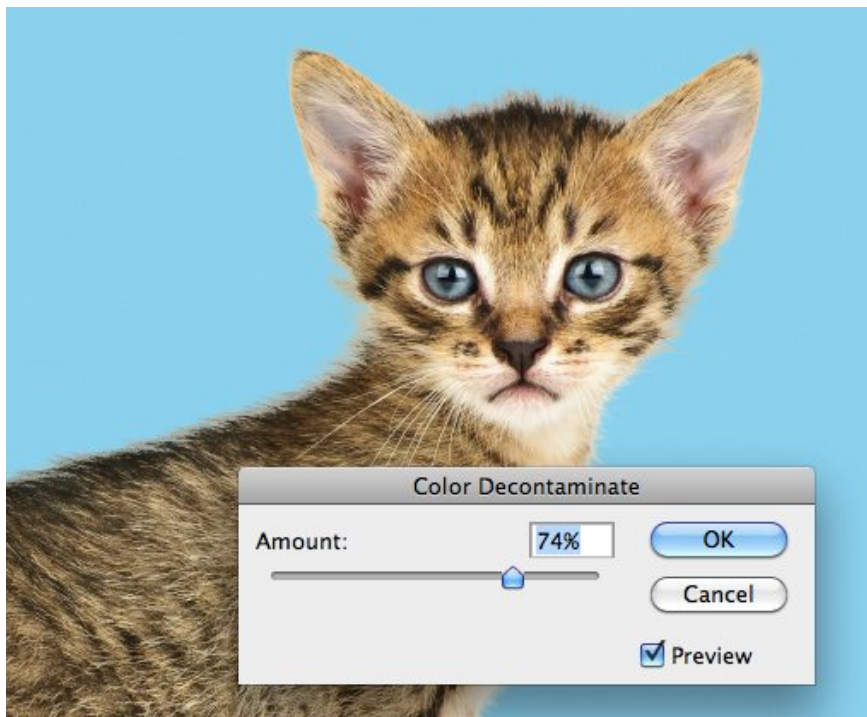
A mask created using the techniques described above may have some white fringing visible around the edges. One method of dealing with this issue is to use the **Masks Palette** in conjunction with **Refine Edge** to adjust the mask. (**Note:** If this method does not adequately remove the fringing there is an alternative method, described below.)



Using the **Masks Palette** in conjunction with **Refine Edge** to adjust the mask.

Removing Mask Fringing using **Decontaminate Colors**

If the **Masks Palette** and **Refine Edge** method is inadequate an alternative is to use the **Decontaminate Colors** palette. From the **Select** menu choose **Refine Mask > Decontaminate Colors** (located in the Output section of the Refine Mask menu). **Note:** **Decontaminate Colors** is a "destructive" editing feature, meaning that it permanently changes the *image pixels* around the edges of masked areas. This feature is disabled for Adjustment layers because Adjustment layers have no pixels.



Using **Decontaminate Colors** to remove fringing around the edges of a mask.

Clean Up Residual Fringing using the *Clone Brush*

Zoom in and pan around, observing the detail at the edges of the fur to ensure the fringing has been removed. If there are areas that still display fringing, or other anomalies, the Clone Brush can be used to refine the results by replacing unnatural colors with the true colors from other areas of the image. For example, compare the back and head of the cat in the image below to the image above to see the improvement.



The Clone Brush has refined the fur at the edges.

Finishing Up

With complicated masks there is always room for improvement, and there are a nearly infinite number of ways to adjust the results. At some point the diminishing returns will dictate that further refinement is unwarranted. Practice and experience will, over time, result in a set of preferred techniques that make creating complicated masks easier and quicker.