

## Removing the Background

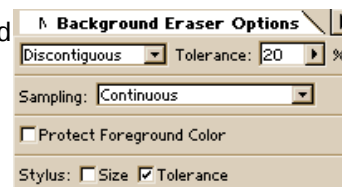
### Photoshop 5.5's Background Eraser

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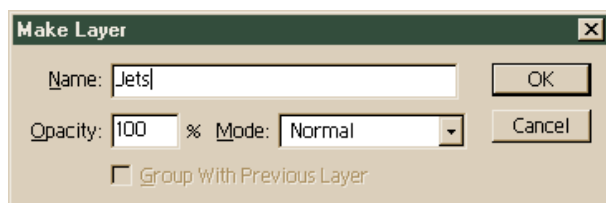
The qualities of this image led me to choose Photoshop's background eraser tool. The background in this image is a similar color throughout the image, and the soft, billowing edges of the vapor trails make the selection tools--such as the magic wand or magnetic lasso--impractical. Using the background eraser and the technique below, I was able to remove the background from this image in just a few minutes.



 The background eraser tool samples the background color as you paint and erases pixels in the same color range as you drag your brush across the image. The color range is determined by the tolerance setting in the background eraser options. Since this image had a background that was all over very similar in color, a low tolerance setting was used. I choose the discontinuous option because I wanted to remove the blue color everywhere it appears in the layer.

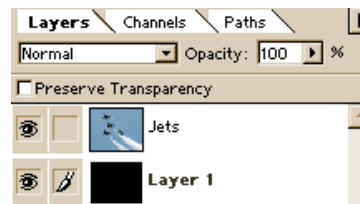


Because part of the foreground in this image is light colored, I find it easier to work with the background eraser by dropping in a contrasting color behind the layer so I can see my work more easily. To do this, I double clicked on the background to promote it to a layer and I named that layer "Jets".



Next, I added a new layer, dragging it below the Jets layer and filling it with solid black. Later, this layer can be deleted or filled with another color.

As you can see below, I like to work with a fairly large brush when using the background eraser tool. You don't want a soft-edged brush either. I find a hardness level of about 80 works well. To customize your brush size and hardness, just double click an existing brush in the brushes palette, or select New Brush from the brush palette menu.





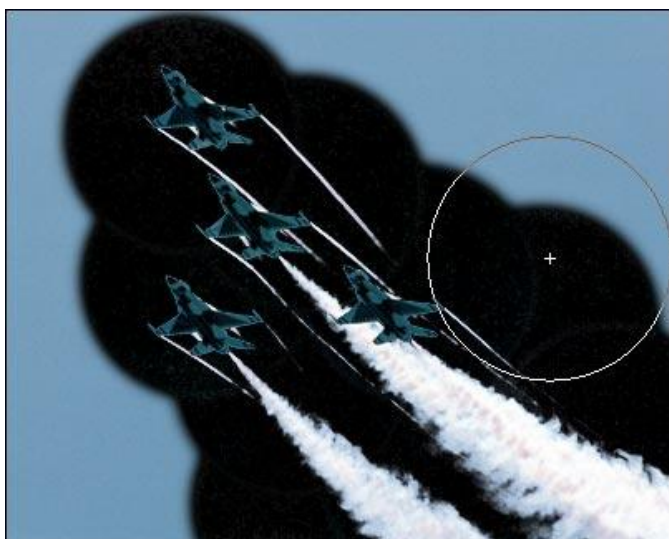
When you click with the background eraser brush in your image, you need to be very careful that the crosshairs in the center of the brush land **only** in the background area. The crosshairs take a sample for the background color, so if the crosshairs touch the foreground, it will remove part of the foreground.



With my giant brush, I like to make several individual clicks in the image rather than using a click and drag motion. When you make individual clicks, it's much easier to undo a mistake if you click too close to the foreground. Below you can see where I've made two clicks with the background eraser.



I continue clicking until the area immediately surrounding the foreground is completely removed, then I go back and take out the surrounding background with a dragging motion.



You can see in the enlarged view here that there are some specks from the background that were not completely removed. If you continue to carefully drag the brush around the image you can erase the majority of those specks.



To make sure all traces of the specks are completely removed, this is what you can do: Ctrl-click on the layer in the layers palette (command-click on Mac) to load the layer as a selection...



Then invert the selection (Selection > Invert) and press delete.



Here is the final image with the background removed and a new background dropped in to replace the black. The total time spent removing the background was under 3 minutes.



It may take a little time experimenting with the background eraser tool options before you can achieve results this quickly, but with a little practice, I'm sure you'll start to see the power of this amazing tool.

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## Removing the Background

### Photoshop Channel Mask

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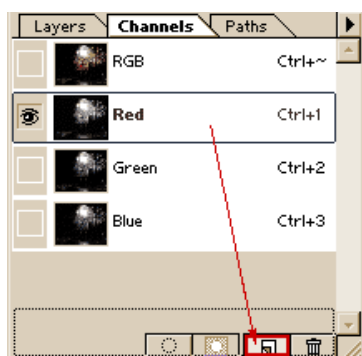
It may seem like a real challenge to pull the fireworks out of this image. The selection tools won't work, and the background eraser didn't produce very good results either. I'm going to show you an amazingly simple technique for masking the fireworks in this image using the channels palette.

The total time isolating the fireworks was under two minutes. This technique doesn't always work this smoothly for every image, but it can be used in combination with other methods for making more complex selections. In the [fifth example](#) on removing backgrounds with Photoshop, you'll see how this technique was expanded on and combined with other methods for masking a more complicated image. If you're not familiar with masks, you may find it helpful to read my previous article, [All About Grayscale Masks](#).

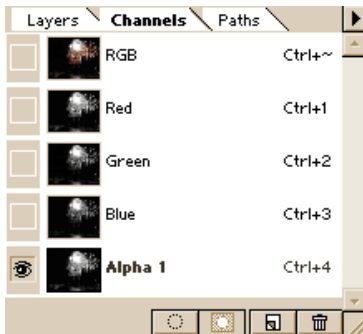


The first step is to look at the channels palette and determine which color channel best represents the area we want to capture. To the right, shown from top to bottom, you can see the red, blue, and green channels for this image. It's obvious that the red channel contains the most information for capturing the fireworks.

In the channel palette, click on the red channel and drag it down to the new channel button.



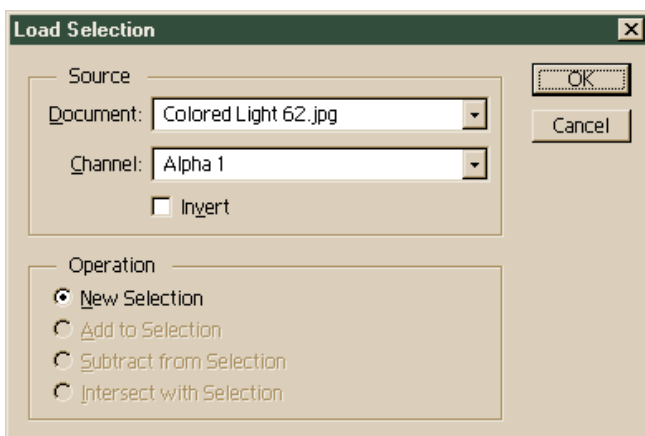
This creates a duplicate of the red channel as an alpha channel. Alpha channels are a way of saving selections that can be loaded at any time. In addition, they can be edited with painting tools like a [grayscale mask](#).



After duplicating the red channel as Alpha 1, the white areas at the bottom of the image (from the city lights in the original image) are painted out. You want to be sure that your alpha channel is the active channel before you start painting. Now we have a grayscale mask that can be loaded as a selection for isolating the fireworks.



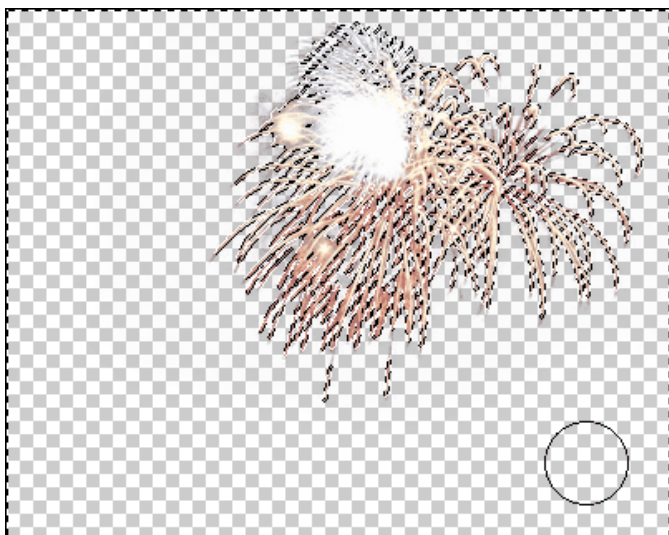
Click on RGB in the channel palettes to make all channels active and return to the color view of your image. Next from the Selection menu, choose Load Selection. In the dialog box, choose Alpha 1.



Here you can see the selection marquee surrounding the fireworks.



Next, invert the selection (Selection > Invert) and hit delete to remove the background. Make sure your image is on a layer before hitting delete. If the layer palette shows only one layer labeled *background*, you must promote it to a layer by double clicking on the background in the layers palette.



Here you can see the fireworks with another background dropped into the layer below. There's just one more step that we can do to improve this image.



From the layers menu choose matting, then Remove Black Matte.



As you can see below, removing the black matte makes a considerable improvement.



Any time you pull an image from its background, it's a good idea to try each of the three matting commands. Sometimes one will produce better results than another, and sometimes none of them appear to have any effect at all... it all depends on the combination of your foreground and background. But don't overlook them entirely because they can often make a world of difference.

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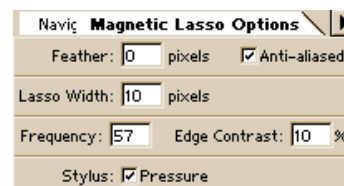
Photoshop Magnetic Lasso Tool, Page 1

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What this image has going for it is a very distinct edge, which makes it a perfect candidate for the magnetic lasso tool. I ruled out the background eraser because there were color variations in the background that were very similar in color to the leaf color. The duplicate channel trick wouldn't work for the same reason, and the edge is just too ragged to trace it with the pen tool. Using the magnetic lasso for the initial selection and taking a few minutes to clean up the selection in quick mask mode, I was able to isolate the leaf in this image in about ten minutes.



 The magnetic lasso tool detects and snaps to the edge of an object as you to trace along its outline. The Magnetic lasso tool options used for this image are shown to the right. The lasso width controls how close the edge you need to stay as you trace the image. Frequency controls how often points are laid down, and edge contrast helps you fine tune the edge detection.



As you drag along the edge of an object, the tool drops fastening points to anchor the selection.



Here's a few helpful shortcuts you should know about working with this tool: If you get too far away from the edge, you may get a point in the wrong place. You can back up and remove points by clicking the delete

key as you use the magnetic lasso tool. You can also add points manually by clicking once where you want to place a point. If you find yourself using this tool often, it's a good idea to get familiar with some of the other shortcuts on page 140 of the *Photoshop 5.0 User's Guide*.



When you get all the way around your object, your cursor will change when you hold it over the first point. Clicking once will close the selection and you'll see the selection marquee surrounding the image as shown below.



As you can see, the magnetic lasso failed to detect the object's edge around the stem area of the leaf. We can correct this fairly easily by zooming in and switching to quick mask mode.



Continue on to the [next page](#) to learn how to clean up the selection using Photoshop's quick mask mode.

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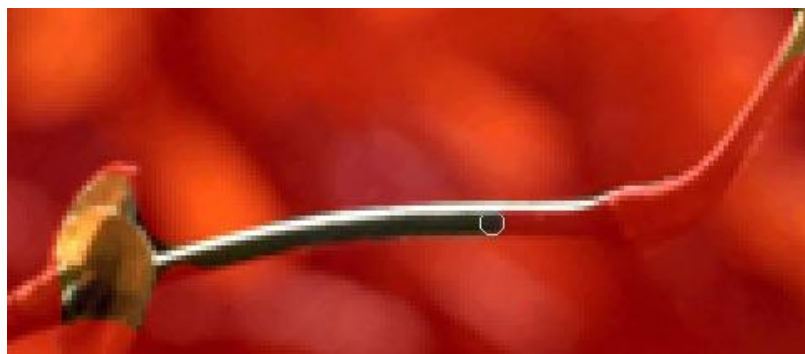
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  Press Q or use the quick mask button on the toolbar to switch into quick mask mode. In quick mask mode, your image is displayed with a ruby overlay that represents the masked area. You'll notice that in quick mask mode, your tool palette only displays white and black for the foreground and background colors. Painting with white takes away from the ruby overlay to subtract from the mask, and painting with black adds to the ruby overlay to add to the mask.

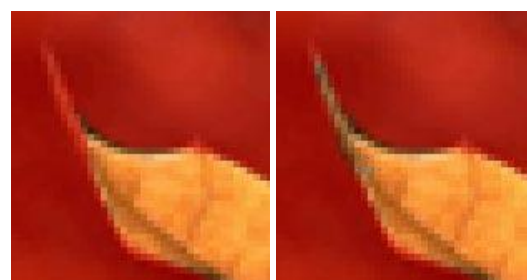


Below you can see where I have painted away the ruby overlay to reveal the stem of the leaf.



I'll continue around the image refining the edges of the selection as needed. Whenever you are zoomed in to an image you can press the keyboard space bar at any time to temporarily activate the hand tool for panning around the image. It should only takes a few minutes to touch up the edges of the selection this way.

Below you can see the image in quick mask mode after refining the selection.





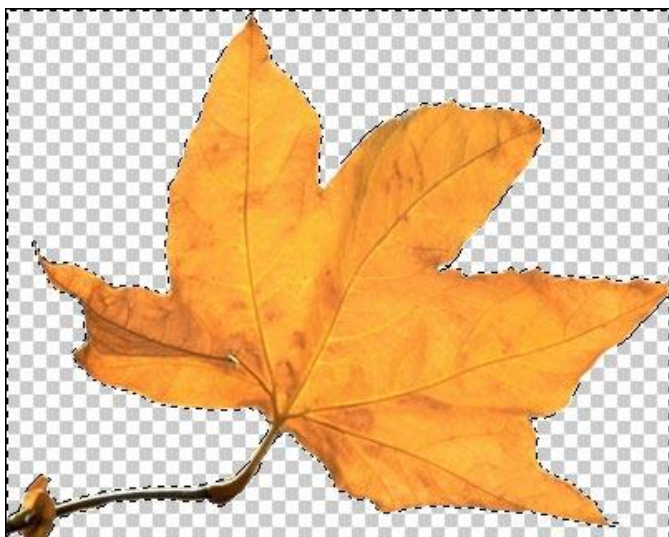
While I'm still in quick mask mode, I like to apply a half-pixel gaussian blur to the mask just to soften the edge the slightest bit. Any filters you apply in quick mask mode will only effect the mask and not the image itself.



After applying the gaussian blur, we can switch back into selection mode by pressing Q or using the toolbar toggle button.



Next the selection is inverted (Selection > Invert) and the background is deleted by pressing delete on the keyboard. Make sure your image is on a layer before hitting delete. If the layer palette shows only one layer labeled *background*, you must promote it to a layer by double clicking on the background in the layers palette.



Here's the final image with a new background. Additional refinements can be made along the edge of the leaf layer using the eraser tool.



I hope you learned that while Photoshop's tools can be a great aid in making selections faster, it still takes a combination of tools for most tasks. While I may have been able to tweak the magnetic lasso tool options to get a perfect selection the first time, I personally found it was much easier to take a few moments to clean up the selection in quick mask mode.

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*Photoshop Pen Tool, page 1*

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Because of the curved shape of the butterfly in this image, the ideal selection tool is Photoshop's pen tool. The background makes it very difficult to use the other selection tools, but it's a fairly simple shape for drawing a path. The entire selection process for this image took approximately fifteen minutes using the technique below.



 The pen tool allows you to draw a path around your image consisting of bezier curves. If you're not familiar with pen tool or working with bezier curves, you'll want to familiarize yourself with pages 153 - 160 in the *Photoshop 5.0 User's Guide*. You'll also find an excellent [pen tool tutorial and tracing templates](#) at Mike's Sketchpad.

Personally, I find it easier to place the points of my path around the image initially, and then go back and edit the curves later. If you're comfortable drawing with the pen tool, you may prefer to draw the curves as you create your path, or you may prefer the magnetic pen tool. If you're just placing the points for editing later, you'll need to place a point between each curved line segment where the line changes direction, as shown below.



Here's a zoomed in view so you can get a better view of how the points were placed.



Once the points are in place, you can switch to the Convert Anchor Point tool to shape the curve. Click on a point and drag away from it to create the curve, then use the control handles to edit the shape of the curve. If you need to select and move a point, hold down the control key (command on Mac) to temporarily switch to the direct selection tool. If you need to add or delete points, you can do that without leaving the convert anchor point tool by right clicking (click-hold on Mac) on the path.

Below is a zoomed in view of the edited path, where you can see the control points for the nodes along the edge of the wing.





Below is the butterfly with the completed path.



And here is a closer view of part of the path.



On the [next page](#) you'll learn how to convert the path to selection and add the butterfly's antennae back in before dropping out the background.

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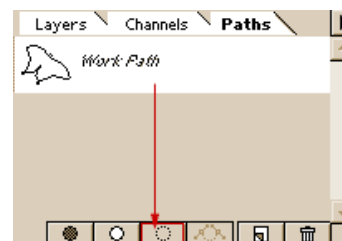
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When you're happy with the path, you can go to the Paths palette. The paths palette displays all the working paths in your image. We will be converting this path to a selection. To do that, just drag the work path down to the Make Selection button on the paths palette.



The path is converted to a selection and the image is displayed with a selection marquee.



As always, I switch to quick mask mode to check my selection. If needed, the selection can be refined while in quick mask mode. See the [leaf example](#) for details on refining a selection in quick mask mode. The selection looks OK, so I won't be making any adjustments.



Ordinarily, at this point we could invert the selection and simply delete the background... but there's just one problem... I neglected to select the poor butterfly's antennae! Actually, it was intentional. The butterfly's antennae are so tiny they would be impossible to select. So, we're just going to draw them in freehand. To

do that I want to leave the background layer in place in order to trace over the antennae. We'll get out of quick mask mode, then go to the layer menu and choose Layer > New > Layer via copy. This places the selection on a new layer with the underlying layer left in place. Now we can go to the underlying layer and drop the opacity down to about 50 percent.



Next make sure the butterfly is the active layer and use a fine brush tip to trace over the butterfly's antennae.



After tracing the antennae, you can delete the background layer.



Here's the final image with a new background and a drop shadow added.



The pen tool is one of the more difficult tools to master, but I can assure you that practice and persistence with the pen tool is time well spent. The pen tool is useful in so many ways, not just for removing backgrounds and making selection, but for drawing shapes, curved lines, and so much more.

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*Photoshop Combination of Tools, Page 1*

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The qualities of this image are such that no single technique is going to be very effective. The background is so close in color to parts of the girl's blouse that it makes the background eraser difficult to work with. The bottom half of the image is simple enough that the pen tool would be ideal, but the girl's hair presents some problems. I decided to use a combination of techniques; first, expanding on the channels trick used in the [fireworks example](#) and using levels to refine the mask, and then using the pen tool to isolate the girl's arms and sleeves to further refine the mask for the lower portion of the image. The entire process took approximately twenty minutes.



I started out by drawing a loose selection around the girl's hair with the freehand lasso tool.



Next I looked at the individual color channels to find the one that had the most contrast. You can see from the thumbnails to the right that the red channel clearly has the most contrast. So initially we'll use a duplicate of the red channel to create our alpha channel mask.

In the channels palette, drag the red channel to the new channel button to create a duplicate.



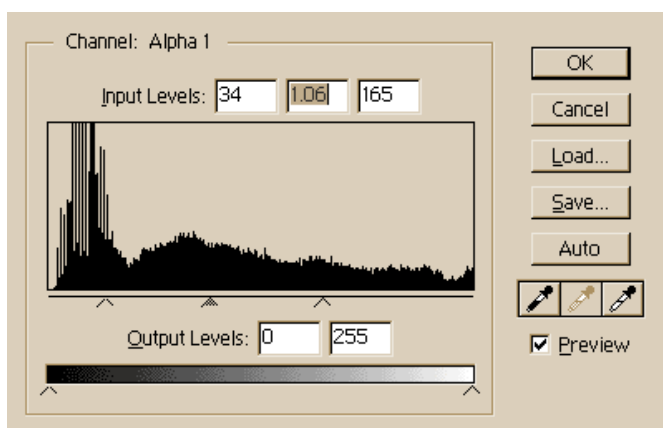
A duplicate channel is created and named Alpha 1. This is what we'll be working with as a selection mask.



The loose selection we made with the lasso tool should still be active and we want to be working only in the Alpha 1 channel.



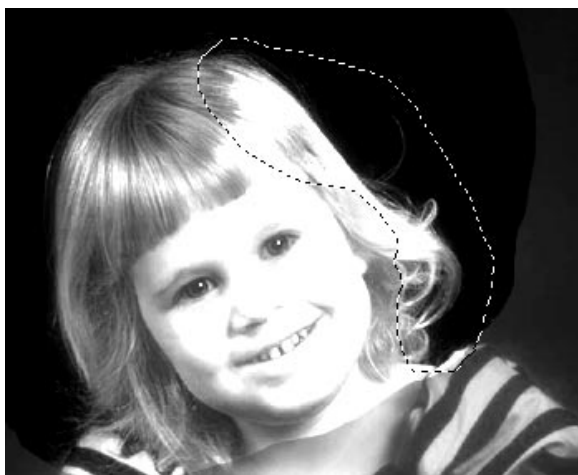
Go to Image > Adjust > Levels to bring up the levels adjustment dialog. Drag the left and right sliders under the histogram toward the center...



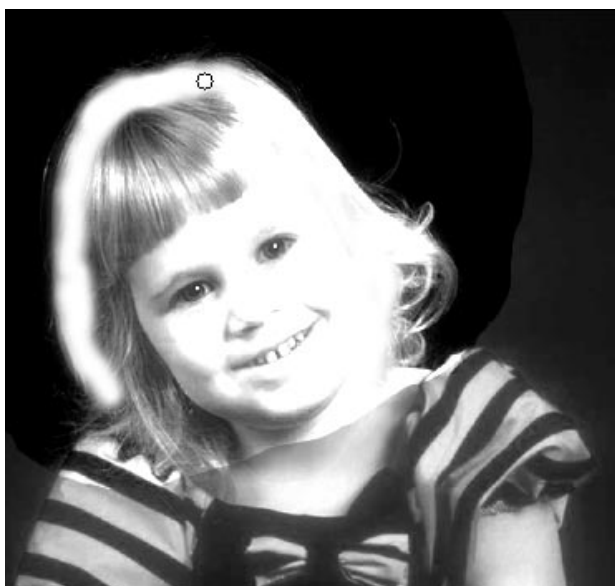
...just enough that you increase the contrast as much as possible without losing the fine wisps of hair. When you start to lose the strands of hair, you'll need to back off some and stop there.



Next you can make another selection and adjust the levels again to increase the contrast even more. You can select different areas and repeat this as needed to make the best possible selection.



Once you've gone as far as you think you can with the levels adjustments, use the paintbrush to fill in the rest of the face and hair with white. Take care not to go too far out to the edge and paint away the fine strands of hair. I got a little too close here on the left side of the girl's head.



Once the face is filled in, we can switch to a larger brush and fill in the lower part of the girl's dress and arms.



Continue on to the [next page](#) to see how the mask was completed for the bottom portion of the image.

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 Next I switch to the pen tool and draw a rough line around the girls arms and sleeves. For a more detailed explanation of using the pen tool, see the [butterfly example](#).

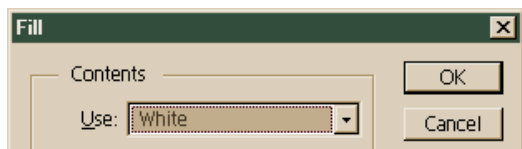


 After the rough outline is drawn, the curves are refined with the convert anchor point tool.



The path is then converted to a selection using the same method that was used in the [butterfly example](#).

The the selection is filled with white. (Edit > Fill)





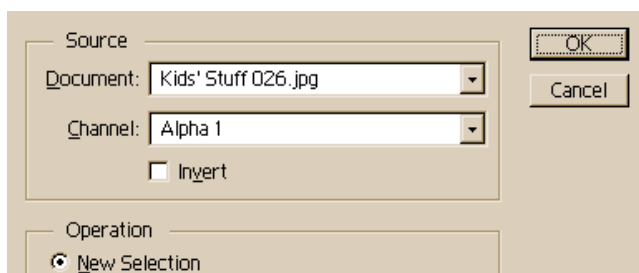
Now we'll need to do another levels adjustment to shift the remaining dark gray areas to 100% black. But we don't want to effect the hair area because it has shades of gray we need to keep. So, first we'll lasso a loose selection around the hair, then invert the selection.



With the inverted selection, we can go to Image > Adjust > Levels and move the left slider in until the surrounding dark gray becomes completely black. We now have a selection mask saved as an alpha channel!



Click the RGB channel in the channels palette to return the view to the full color image. Next go to Selections > Load Selection. In the dialog box, choose the Alpha 1 channel as the source and click OK.



Here you can see the selection marquee around the image.

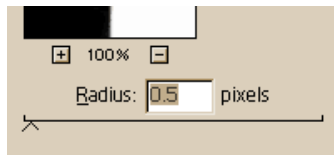


As always, I switch to quick mask mode to have a look at the selection mask. You can learn more about quick mask mode on page two of the [leaf example](#).



While in quick mask mode, I usually apply a half-pixel gaussian blur just to soften the mask the slightest bit.





Next I switch back to selection mode, invert the selection and delete the background.



Here is the final image with a new background.



I hope this series of tutorials showed you that there's never one way to approach a problem. Sometimes it takes creative thinking and a combination of techniques, but with practice and a wide variety of tools I'm confident that anyone can handle even the toughest of background removing challenges.

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