

Rainbow's Twin Workflow

One rainy day, I captured a double rainbow...

The primary rainbow's brilliant flare overdrives the hesitant, weak second rainbow. My objective was - get the primary rainbow. Swift motion on wet slick rock came with some risk - body, camera, etc.. I didn't spend costly time moving to the right position to see if I could strengthen capture of this secondary rainbow.



Here is the initial image after skilled color management. While the primary rainbow, foreground, and distant sky are evocative, subtle addition of another rainbow can create a dramatic and more provocative image.

Back in the digital darkroom, I wanted to create a smooth, yet less powerful rainbow. It's complicated to create workflow for a double rainbow in Photoshop; beyond color changes, the primary rainbow required a rather sophisticated mask with gradational properties. Once the major rainbow is masked, it must be moved into place, then its intensity needs to be lowered. Finally, we must carefully overprint the dim, original rainbow.


What are the successful steps in cloning a rainbow to replace a very low luminosity rainbow? We presume all work of color management and skilled creation of a rainbow mask is done. The final mask was saved as an alpha channel.

A double rainbow can impose significant visual problems, if the second rainbow is imperfect. It's like a half formed idea; vague, ill-defined... Do you take it out? Or, do you try to duplicate the first rainbow? The second option would give our image more balance and an important secondary light source. But, it's no simple task...



Let's Make a Mask...

Our most useful first masking tool is CS3's Quick Selection. Delicate pastel rainbow hues and their much more delicate edges are not something this tool easily finds. Marching ants clearly show a mismatch from our first try.

I usually check Auto-Enhance on the Quick Selection tool bar to get a better initial selection.  The options stays selected until you unclick. Auto-Enhance reduces roughness and blockiness in the selection boundary. Auto-Enhance automatically flows the selection further towards image edges and applies some edge refinement you can apply manually in Refine Edge dialog with Smooth, Contrast and Radius options.

The two black lines show visual edges of this rainbow. While not shown, halfway up the rainbow, color intensity diminishes before again increasing at the top. The black lines are separated by 3/4" at 100% zoom. That's about 50 pixels at 72 dpi.

Clearly, another technique must be added to place the marching ants at each implied black line boundary. On careful examination, that black line's position will vary along the rainbow. So, we're going to need rigorous efforts to place the marching ants, feather the mask as we improve our selection, then move that mask from the clear-to-faint rainbow. Masking can be done; you *will* need patience!

Photoshop can let its ants wander and select regions of no interest without Auto-Enhance and Refine Edge constraints. An effective way to mitigate this reaction is more skilled use of the Quick Mask tool. When you tap Q, CS3 puts a protective red mask outside your selection and leaves your selection transparent. Now, you can move the mask edge by choosing a brush larger than the region whose edge you're trying to choose. Recalling the addage "Black conceals; White reveals", tapping the X-key switches the brush from black to white. In other words, the brush is either red or white and either masks or unmasks.

Now, carefully begin to paint those selected edges near real rainbow edges. To see if you're accurate, tap the Q key to check the actual position of your marching ants.

At this point, it's worth



noting we're dealing with several variables. We're moving a selective boundary using our visual awareness to limit where our tools create a mask. We are now in a try-and-try again masking effort to strengthen our rainbow.

1st Cut

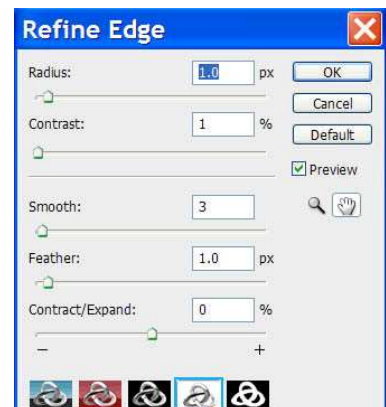
Without making a special effort to use Refine Edge, our first quick selection left us wondering just how many iterations it might take to make a second rainbow.

In this case, we get a crude selection where Refine Edge values were Radius = 2, Contrast = 0, and Feather = 2. After selecting, with feather = 5, we moved the 'new' rainbow into place. Even at this scale, we can see it looks very suspect. Edges are sharp instead of subtle.

2nd Cut



Let's take several steps to simplify our selection. Lower Radius and Contrast to reduce 'jumps' taken by the Quick



Selection tool.

There is an additional visual step which is really helpful as well.

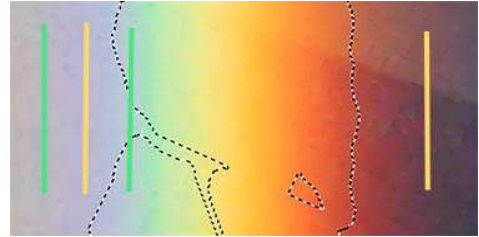
Pastel rainbow edges are quite subtle. Since you will be working at high zoom (200%) and need to have a good sense of the exact edge position, make a duplicate copy of your color layer with Ctrl-J. On that layer, temporarily change blending mode to Color Burn then reduce Opacity to 50%. Now, our two gold lines clarify these edges (where background colors remain constant going outward). The objective is to very carefully continue use of Quick Selection and quick mask modification to choose as much rainbow as possible during step one. If, for some

reason, the Quick Selection tool decides to 'jump', simply hit Ctrl-Z to step back one step, then draw with even more diligence.

3^d Cut

Take it up another level!

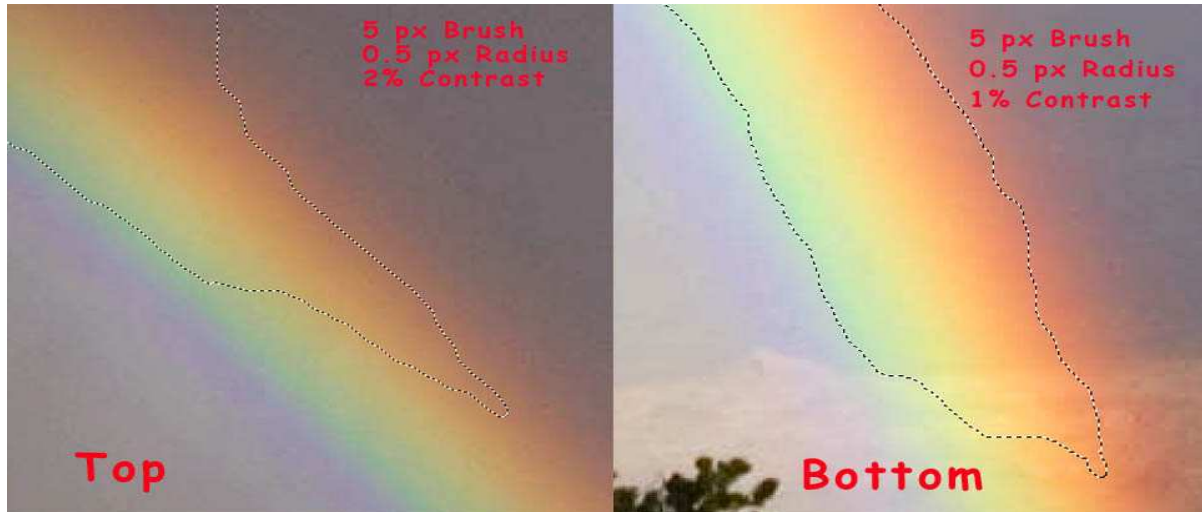
We've cut out the rainbow spectrum which contained the original gold lines. Because the violet rainbow edge is rather subtle, we picked an off-color green to help emphasize that subtlety. But, we also picked green for another very important reason; the yellow line is set amidst the rainbow's bounding violet segment.



Our challenge will be to spread our selection's feather edge across the lower violet edge 'twix gold and green. If marching ants are along the yellow line, then our feather edge needs to extend from one green line to the other. In pixels, on a 72 dpi screen we need a distance of about 7/10" and a feather edge of 25 pixels.

The same considerations must be exercised at the upper orangish red edge.

4th Cut



Here's the next Quick Selection effort with a variable Refine Edge Contrast. Several things are of note:

1. The rainbow's intensity increases as you near the base.
2. At the top, with a 2% contrast on a small 5 px brush, the brush was carefully moved along the orange interface using a pen tablet (more accurate placement) and self selected down into the green.

3. At the point where our selection finally jumped out of the rainbow, brush contrast was reduced to 1%. A careful choice of Ctrl-Z restored the prior brush setting from the history palette.



4. At the bottom, two areas of the selection (violet and orangish red) are not part of

the selection. We're literally missing more than a half an inch of the rainbow on each side of this selection.

5. Now, let's zoom to full screen by double-clicking the Hand on Tools menu.
6. We then save our labor as alpha channel 1. *More on that later!*

Expanding Our Selection with Quick Mask

1. At this point, we need to change tack. Since we need the two missing areas, we use the Quick Mask tool to rather carefully brush to add these important regions to our selection.

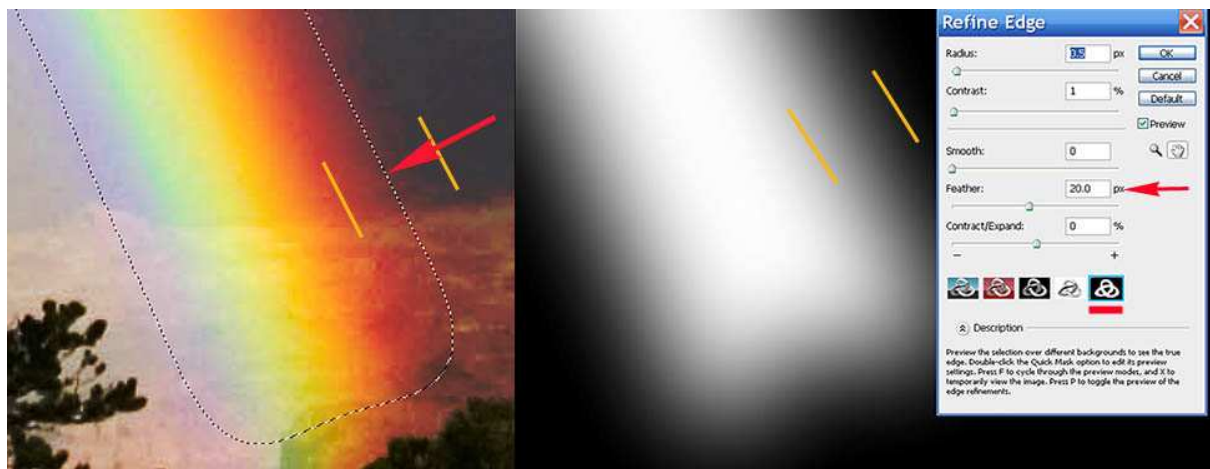
2. First, let's *stress* our rainbow colors! Choose rainbow layer, change blend mode to Multiply, then reduce Opacity 50%. *(Multiply is removed in final steps!)*



3. Estimate distance from selection edge to color edge.
4. Switch to white brush with X-key. Make a door handle selection, guessing how far the violet edge is from the prior choice.
5. By alternating Q-key, check selection accuracy using the enhanced color.
6. The violet zone is about twice as wide as orange. Contrast grades more slowly

- in violet; that's one reason the quick selection tool would jump.
- Now repeat this entire process, widening mask boundaries, the rainbows full-length. *Be very careful not to inadvertently lose keystrokes by hitting Ctrl-X.* If you must back up, use Ctrl-Z (good for only 1 history step).
 - Here, we simply try to set outer boundaries with a small brush size. A larger brush can then finish the job much faster.

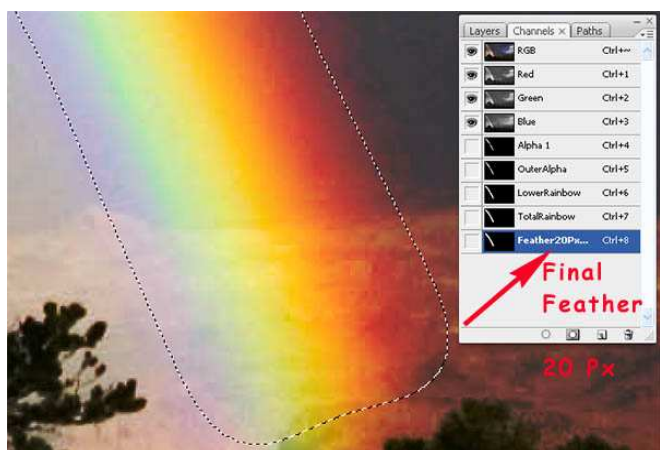
Feather Your Final Mask 20 Pixels



These images show the final quick selection mask and underlying alpha channel with a 20 pixel feather. Marching ants show the selections edge (red arrow); the two gold lines show beginning and end of the feathered area. The dialog box (red underline) shows where you choose the 20 pixel feather; this choice creates a preview of partially selected (rather than strictly *on* or *off*) pixels allied with the mask.

Related Alpha Channels

The Channels Palette contains a sequence of five progressively saved alpha channels. Creating this laborious selection has taken both precision and valuable time. A sequence of alpha channels retains an increment for each iteration from your work. Each channel is saved after some time is spent changing the marching ants position in Quick Selection/Quick Mode iteration process.



Channel 7 (Total Rainbow) retains just the bare mask outline shown in associated figure. When the Photoshop file is closed, selections and history states are lost.

Restoring Rainbow Selections

At any future time, it's easy to modify the Quick Selection. Our sidebar illustrates the technique to reselect the rainbow in the Layers Palette. In this case, we have saved the

Alpha Changes ~ Much Later

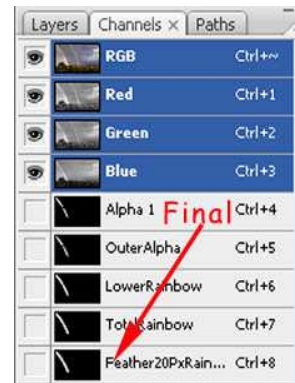
Reselect at ANY Time

To restore a Quick Selection, choose the proper alpha channel then Ctrl-click. The selection will be replaced as of your last save for that particular alpha channel operation.

exact edge of the Quick Selection tool for the rainbow, anticipating we might want a different feather edge at some future point.

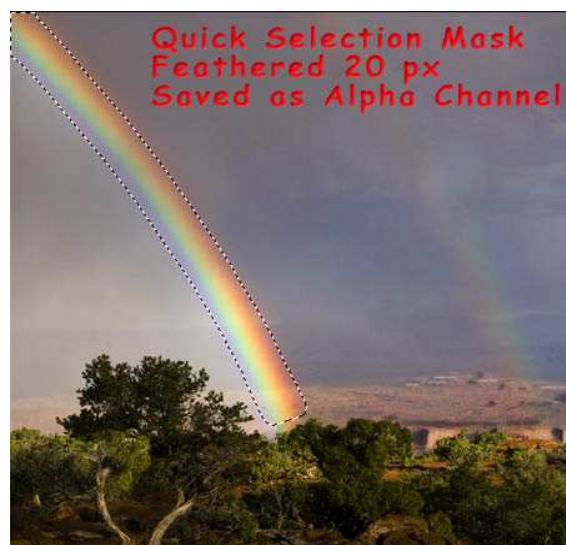
Then, one simply moves any selection element to a new position via Quick Mask, re-saves as a new alpha channel, and improves/refines their final digital imaging goal!

If you recall, our prior six images were boosted with a Color Burn blend. Yet, I reselect in the sidebar shows normal color. For our last Photoshop file save, we reset Normal blending mode and Opacity 100%.



Using Prior Alpha Channel Mask Selection

Since we're about to make definitive changes to a layer, before we begin this operation, let's select the best, final layer in our PSD file, Ctrl-J to dupe this layer, and name it Rainbow 2.



Now, open the Channels Palette. Note: we have five individual alpha channel saved. Each time we completed a specific aspect of the rainbow, since we'd spent a fair amount of time using Quick Selection and carefully painting the mask in the correct

places, we'd save that work as an alpha channel. At the end (step 6), we had the total rainbow but did not feather the mask. As our final step (7), we feathered the mask 20 pixels as another channel.

If we place our cursor just right of this last channel mask and do a Ctrl-click, the mask becomes a selection.

When we switch back to Layers Palette, we see our prime rainbow is now selected (image above).

Make a Quick Selection Mask

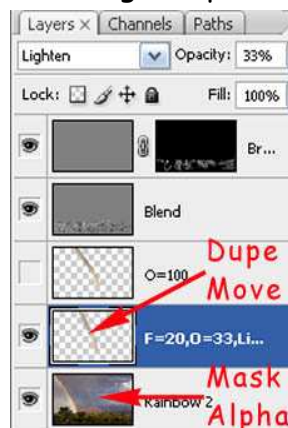
Now, choose the Quick Selection tool!

A Ctrl-J (Layer>Layer as Copy) will place just the rainbow on a transparent layer above layer Rainbow 2.

This rainbow layer becomes our primary building block for creation of a less subdued secondary rainbow. Name it F=20,O=33,Lighten (Feather = 20 Pixels, Opacity = 33%, Lighten Blend Mode). Naming helps jog your memory when you return later.

Moving the Secondary Rainbow

Choose the Move tool, click within marching ants on the transparent mask layer, and drag the primary rainbow atop the secondary. As we check the Layers Palette,



we see several efforts to achieve the effect we wanted.

The first effort left Opacity 100%. The primary rainbow had several glaring errors; it was too bright - the upper left-hand corner had a sharp vertical edge. Clearly, as a first estimate, it wasn't very subtle.

The final effort dropped Opacity to 33%. With the 20 pixel feather, this rainbow seemed to be nearly there. But, only after we lengthened the layer with a transform could we move the top line far enough above the canvas to eliminate a sharp vertical edge. Now, we were finally beginning to have an evocative secondary rainbow.



Well, now...

Here's the final fused rainbow image (right). I like the way the secondary rainbow blends smoothly with both land and sky. I also like the way it's both faint enough and strong enough to make its presence known, without undue dominance.

Voilà...

I like the subtle interplay of this visual poetry with evocative double rainbows disappearing into the Canyon, the shaft of sunset's rays highlighting the Canyon edge, dark trees hiding 'pots of gold' at the rainbow's base, and distant, softly-lit storm clouds



Rainbow's Twin

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