

*pano*scan



WRAPPING & BLENDING  
PANORAMAS

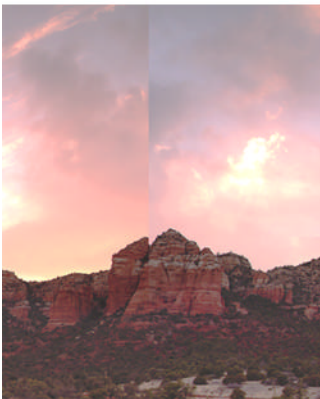
## Introduction

The Panoscan camera system normally produces a 390 degree panorama with 30 degrees of overlap. The red arrows in the image below (Captured by Eric Poppleton.) shows the repeated area of the picture.

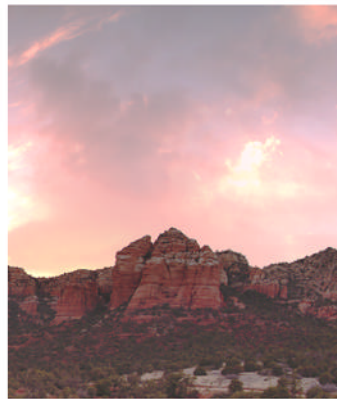


This overlap can be cut off to produce a perfect 360 degree image but this often produces a problem when things change in a scene between the beginning and end of a scan. Many factors such as shifts in light levels, cloud movement or water movement can cause the seam to show when the cylinder is wrapped. Therefore, blending the seam is required to make the seam invisible. The example below of a sunset is a typical example.

**Seam**



**Blended Seam**



The image on the right was created by blending the right end of the cylinder with the left end in a gradual overlapping of the two ends. This tutorial suggests one easy method using Photoshop 5.5 to accomplish this blend.

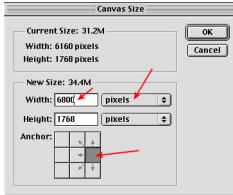
### Step 1.

Open the panorama and find the overlapping regions.



## Step 2.

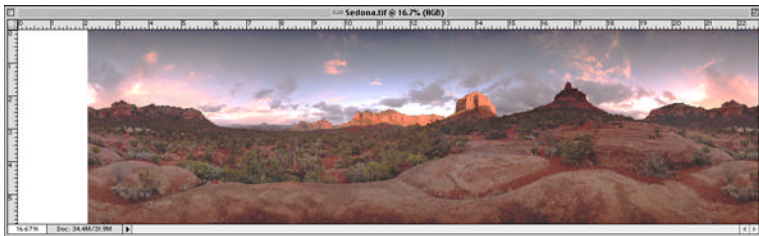
In order to make room for the overlapping region we will need to increase the canvas size. Go to the canvas size menu. Select pixels for the units. Click on the extend canvas to the left box. And extend the canvas to leave enough room for the overlap with plenty of extra. (This extra will be trimmed off later.) See the chart for suggested sizes to extend the canvas.



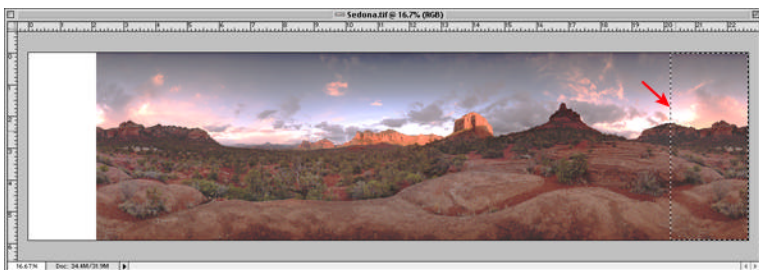
Lens	Lowest	Low	Med	Highest
28mm PC Cropped 360	2,800	5,600	11,200	22,400
28mm PC RAW 390	3,080	6,160	12,320	24,640
Recommended Canvas Size	3,400	6,800	13,600	27,200
16mm Cropped 360	1,350	2,700	5,400	10,800
16mm RAW 390	1,485	2,970	5,940	11,880
Recommended Canvas Size	1,750	3,500	7,000	14,000

## Step 3.

After you have extended the canvas you should see a picture with white space on the left like this one.



Now we must select an area that we want to overlap. Stretch the window a bit so you can see all of the canvas with some gray around the edge. Then select the area of overlap, plus a little extra using the rectangular marquee tool. (Be sure the feathering for the tool is set to zero.)



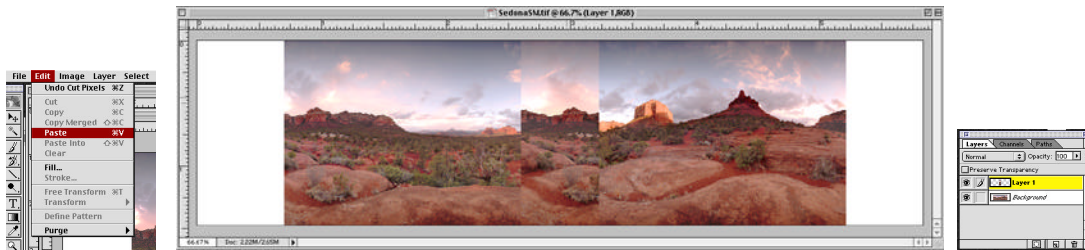
#### Step 4.

Go to the edit menu and cut the selected area. This should clear a white space on the right.



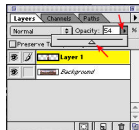
#### Step 5.

Now go to the edit menu and select Paste. This should paste the cut section of picture in the center of the canvas on a new layer.



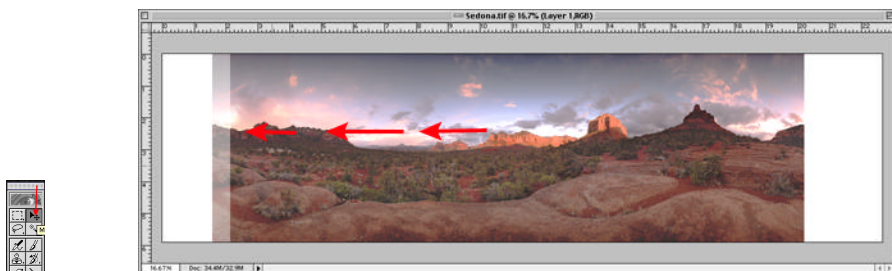
#### Step 6.

Change the opacity of the new layer to approx. 50% so you can see through it.



#### Step 7.

Select the move tool and slide the new piece over the matching area on the left side of the canvas. (If you hold down the shift key the piece will not shift vertically and make this much easier.)



### Step 8.

After you have roughly lined up the image in step 7 use the command and + key to zoom in to 300% on the overlapping area. Use the arrow keys on the keyboard to align the images perfectly.



### Step 9.

Zoom back out using command and - keys and add a layer mask to layer 1.



This new layer mask will act as an alpha channel that allows you to blend between the front and rear image to achieve a perfect blend.

### Step 10.

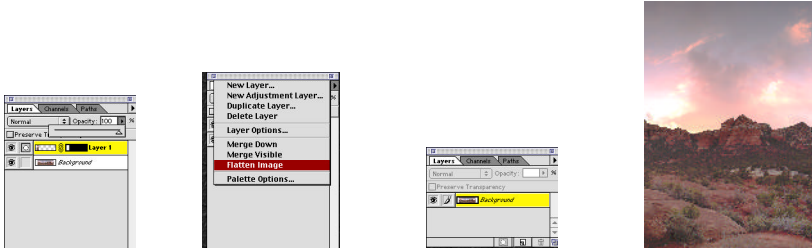
Select the gradient blend tool. Now hold the shift key and draw from the right toward the left over the area that you want to blend across. (Make sure the layer mask on layer 1 is selected when you do this.) When it is done the blend should look like the image on the lower right.





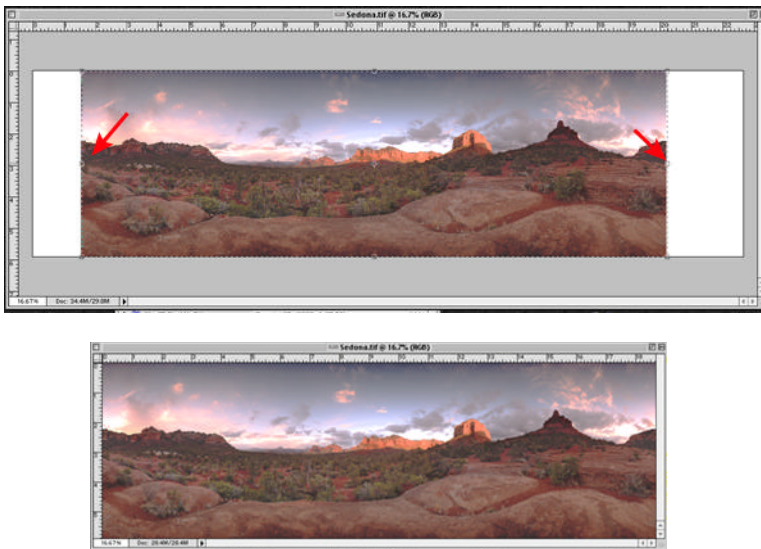
### Step 11.

Now turn the opacity on layer 1 back up to 100% and flatten the image from the menu in the layer palette. The blend should now be perfect.



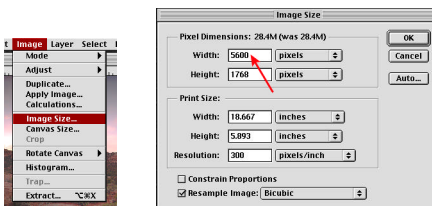
### Step 12.

Crop the white space off the ends of the canvas using the crop tool. Zoom out on the picture to grossly adjust the crop box then zoom in to at least 300% to fine tune the left and right edges using the handlebars. Be very careful when you trim the edges because if you miss the edge by even 1 pixel the seam may show. When you are done you have a perfectly blended 360 degree crop.



### Step 13.

It is normal for the image to expand or shrink by a few pixels when blending the image. The last step is to go back and check to see that the image is rounded off to the expected size for the 360 degree image. Select image size and round off the horizontal width to the expected number listed in the previous chart for a 360 degree image.



Congratulations you are done! Save the image.

## Checking The Image.

You can test your seam and even move the center of the panorama using PhotoShop's offset filter tool. This can be very handy for centering the area of interest when you print out a panorama.

### Step 1.

Open the 360 degree image and select the offset tool from the filter menu.



### Step 2.

Select the "Wrap around" option and type an offset value into the offset field. If the preview is active you should see the panorama move and wrap around. Once you have the picture moved to the composition you like you can click OK and zoom in to check your seam. It should be invisible.



## Last Tips

If you are planning to use your images with the Apple QuickTime VR Authoring Studio there are a few tricks that can drastically speed up the dicing process in that program.

1. Save the image pre-rotated 90 degrees counter clockwise so that the top of the picture faces to the left. The Authoring Studio expects the picture to come in this way. The Authoring Studio does allow you to rotate the image after you have imported the image into the authoring environment but this rotation drastically slows down the dicing process.
2. Save your file in flattened PhotoShop format. The Authoring Studio seems to dice PhotoShop files much faster than PICT or TIFF.

\* Special thanks to Eric Poppleton for the use of this beautiful sunset image captured in Sedona.