

Adding a “Tripod Cap” to Equirectangular Images

Creating an equirectangular image from fisheye photographs taken horizontally will result in a “black hole” at the top and bottom of the image. The “black hole” at the top of the equirectangular image can be eliminated by slightly inclining the camera (e.g. by 10°) or by including a photograph pointing directly upwards, but usually the “black hole” and/or tripod will show at the bottom of the image. There are a variety of methods for elimination these “black holes” by adding a “tripod cap” to the image, which involves the use of a photograph editing software such as PhotoShop or Paint Shop Pro.

Two methods are described here. The first adds the “tripod cap” to the equirectangular image and the second adds the “tripod cap” to the up and down cube images created from the equirectangular image.

Adding a “tripod cap” directly to an equirectangular Image.



The equirectangular image used for this example has a “black hole” at the top and the image of the tripod and a “black hole” at the bottom.

Create a new image with the same width as the equirectangular image and the height a quarter of the width. *In practice it is advisable to make the new image a little wider than the equirectangular image to make pasting in easier later.*

e.g. if the equirectangular image is 2828 x 1414 then the new image could be 2840 x 710.



Write the text, or place the image, you wish to be turned into a circle into the new image.



Resize this image so the height is reduced to one fifth.

When resizing the image ensure that the aspect ratio is not locked so that the resized image has the same width but the height is reduced to one fifth.

e.g. 2840 x 145.



Copy the new image and Paste it on to the bottom part of the equirectangular image to hide the tripod and black hole.

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Rotate the new image through 180°.
Copy the new image and Paste it on the top of the equirectangular image to hide the black hole.

Save the new equirectangular image.



This method results in the text, or image, created in the new image to be placed in a circle round the zenith and nadir when the equirectangular image is transformed to a cube image or movie file.



Note that a true equirectangular image has the height exactly equal to half the width. If the equirectangular image produced by PTGui has a height which is less than half the width you will get a black circle at the centre as shown here. If the equirectangular image is not truly equirectangular (to the Cartographer, a Mercator Projection) then the “Canvas Size” should be adjusted to make it so. Use “Canvas Size” rather than “Resize” to maintain the true geometry of the image.

Adding a “tripod cap” using the cube images.

Use "Pano2QTVR Gui" or "Pano2VR" to create the six cube images from the equirectangular image.

This is the same processes as used to create the six cube images to import in Cyclone.

If you create Jpeg (.jpg) images, as recommended, set the “Image Quality:” to 100% so that there is no loss of quality in the cube images.*

Care must be taken in selecting the size for the cube images to ensure that quality is maintained.

Note that a true equirectangular image has the height exactly equal to half the width.

If the equirectangular image produced by PTGui has a height which is less than exactly half the width you will probably get distorted cube images. This seems to be especially true if using the more recent “Pano2VR”.

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If the equirectangular image is not truly equirectangular then the "Canvas Size" should be adjusted to make the height exactly half the width.

Be sure to use the "Canvas Size" tool and **not** the "Resize" tool



Create the image you wish to use as the "tripod cap" in an image editing software such as Photoshop or Paint Shop Pro.

Save this image in a format which will preserve transparency such as a PSD Photoshop (*.psd) image.

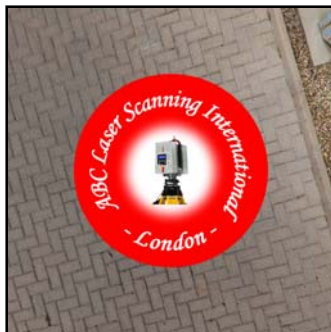
Other possible formats include PNG Portable Network Graphics (*.png) and PSPIMAGE (*.psp), but do not use formats such as Jpeg (*.jpg), BitMap (*.bmp) or Tiff (*.tif) which will "flatten" the image and lose the transparency.



Use the "Circular Crop" tool in your image editing software to create a circular logo to use as your "tripod cap".

Save this image in a format which will preserve the transparent area outside the circle, such as a PSD Photoshop (*.psd) image.

This logo has been used to illustrate the circular cropping.



Open the "Down" and "Up" cube images in your image editing software and Copy and Paste the "tripod cap" to the centre of these images.



Use "Pano2QTVR Gui" or "Pano2VR" to convert the six cube images back to an equirectangular image if you wish make use of this in the future (e.g. to create a Movie or Flash).

Care must be taken in selecting the correct size for the equirectangular image. If you started with a 2828 x 1414 image you should convert back to a 2828 x 1414 image.

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The Leica Geosystems logo shown here has had the circular crop made with “feathering” to soften the hard edge of the “tripod cap”.



The equirectangular images in these examples illustrate the complexity of attempting to create anything other than the simple “circular” logo, as in the first method, by actually editing the equirectangular image. However, this is possible using a “plug in” for Photoshop and Paint Shop Pro called SkyPaint.

SkyPaint

There is a plug-in for Photoshop and Paint Shop Pro called SkyPaint, which allows equirectangular images to be edited, but I have not tried this as the method of using “Pano2QTVR Gui” or “Pano2VR” appears to work best.

If you wish to explore the possibilities of SkyPaint the following URLs may be of interest:

SkyPaint - editing Panoramic images:

<http://www.panoguide.com/howto/panoramas/editing.jsp>

SkyPaint software:

<http://www.skypaint.com/>

Another useful URL for a “How To Guide for Panoramas”:

<http://www.panoguide.com/howto/>