

## Tips & Techniques - Materials

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<b>Materials:</b> <b>How to Create a Spherical Map With Corrections For Distortion</b>	<b>Download:</b> <a href="#">Project</a>	<b>Works with:</b> GO, SE, XL	<b>Requires:</b> Version
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**Special Notes:** Special Thanks to Chris Mills

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Making a texture that is ready for spherical mapping is, like so many things, very easy to do once you know how. To begin with – a texture map that is to be mapped spherically should always have a 2:1 aspect ratio. That is – it should be twice as wide as it is tall. Adobe PhotoShop has several built in effects filters that are required for creating accurate spherical maps. These are – the Polar Coordinates filter found under the Distort category and the Offset filter found under the Other category. Additional tools used in Adobe PhotoShop include feathered selections, the rubber stamp tool, and the layer palette.



The Original Image.

**Step 1:** Take your source image – in our case a 3:4 ratio panoramic landscape image rendered with Bryce – and bring it into Adobe PhotoShop. Then using the Image menu, choose Image Size.

When the Image Size dialog box opens uncheck the "Constrain Proportions" option and resize the image to be a 2:1 ratio. For this project the starting image was 2560\*1920 pixels and was resized to 2400\*1200 pixels.

**Step 2:** Duplicate the resized image layer so that you now have two identical layers in the document. This way you will have a clean copy to go back to if you make a mistake. In this exercise make all your adjustments to the duplicate layer.

Using the Filter menu choose Distort->Polar Coordinates. Set the Polar Coordinates option to "Rectangular to Polar" and click "OK." This will convert the top edge of your image into a point and will stretch the bottom edge around all sides of the image.



Polar Coordinates Dialog

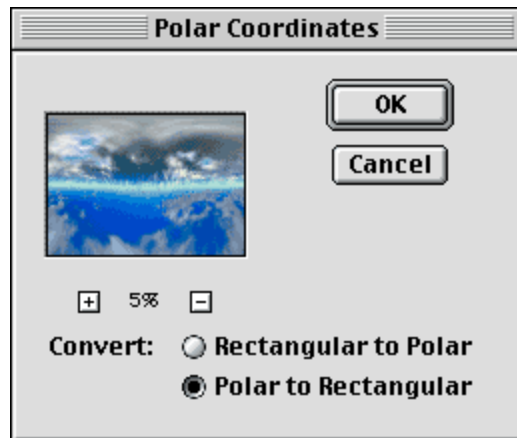


Feathered Selection.

**Step 3:** Choose the Circular Marquee tool and set it to have a feathered edge. For this project a feather size of 50 pixels was chosen. For smaller images a lower feather range would be desired. Hide the distorted layer and make the original layer active. Then make a circular selection from an area that is similar to the top edge of the image. Make the selection large enough to cover the radially smeared region of the distorted layer.

Make sure you hold shift key down when you select the region so that it is constrained into a circle and not an ellipse. Copy the selection and paste it into a new layer in Adobe PhotoShop. Drag the new layer above the distorted layer.

Make the distorted layer visible. Using the move tool position the feathered element over the distorted layer so that it covers the pinched parts. Merge the feathered layer down onto the distorted layer.



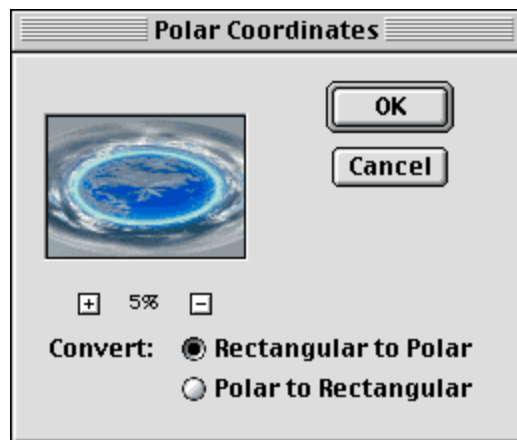
Polar Coordinates Dialog 2.

**Step 4:** Again use the Filter Menu to choose Distort->Polar Coordinates. Set the Polar Coordinates option to "Polar to Rectangular" and click "OK." This will return the image back to its original appearance excepting that the patch that was applied is now stretched across the top of the image.

**Step 5:** Use the Image Menu to choose Rotate Canvas->180°.



Rotate Canvas 180 Degrees.



Polar Coordinates 3.

Once again use the Filter Menu to choose Distort->Polar Coordinates. This time set the Polar Coordinates option to "Rectangular to Polar" and click "OK". This does the same thing as the first time the filter was run with the exception that the bottom of the image is now squished into the center of the image.

**Step 6:** As before choose the Circular Marquee tool (it should still have the feather settings that were used previously). Again – hide the distorted layer and make the original layer active. This time make a circular selection from the area of the image that is similar to the distorted center of the distorted layer.



Bottom Feathered Selection.

Since canvas was rotated 180° you will be making a selection from the top edge of the image. Make sure that the selection is large enough to cover the radially smeared region of the distorted layer and that the selection is constrained into a circle. Copy the selection and paste it into a new layer in Adobe PhotoShop. Drag the new layer above the distorted layer.

Merge the feathered layer down onto the distorted layer.

**Step 7:** For the last time use the Filter Menu to choose Distort->Polar Coordinates. Set the Polar Coordinates option to "Polar to Rectangular" and click "OK." This will return the image back to its original appearance excepting that the patch that was applied is now stretched across the top and bottom of the image.



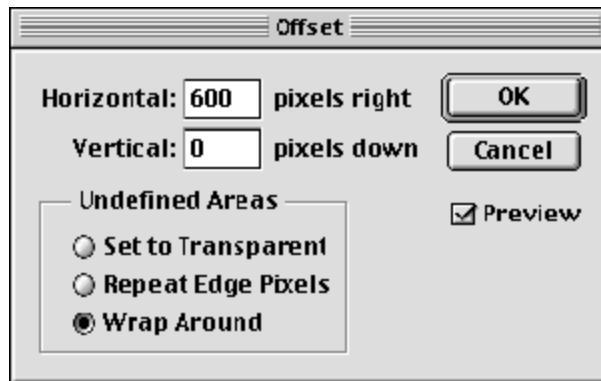
Polar Coordinates 4.



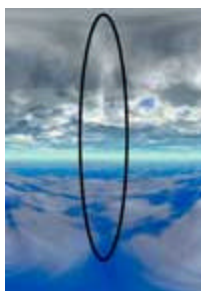
Rotated back 180 Degrees.

Use the Image Menu to choose Rotate Canvas->180°

**Step 8:** It may be necessary to do a little clean up to the image so that there are no seams to be seen as it is wrapped around a sphere. Use the Filter Menu to choose Other->Offset. Make sure to enable the "Wrap Around" option and enter a horizontal value that offsets the edge of the layer towards the center of the image.



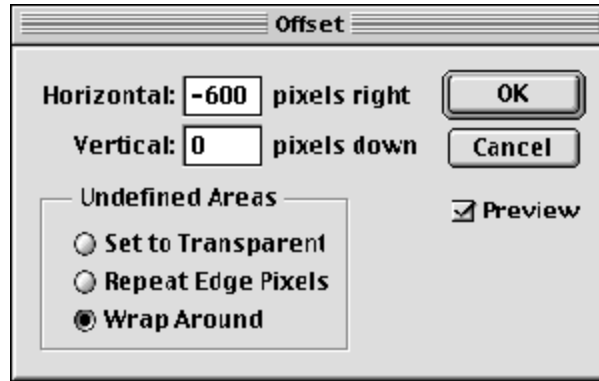
Offset Image.



Fix the seam.

A seam should be visible – if there is not then undo the offset command and skip this step as your original image does not need any further adjustment.

Use the Rubber Stamp tool with a soft brush to clone in some parts of the adjacent image so that the seam is hidden. Once again use the Offset Filter to return the image back to its original position.



Offset image back.



The Finished Map.

All that is left to do is to save your image and apply it in Cinema 4D!

One suggestion would be to save your work as a copy with a new name and to also save the work file as an Adobe PhotoShop file so that you can make changes at a later time. Congratulations! You've made a texture that is ready to be spherically mapped!

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For more information about CINEMA 4D tutorials: [info-usa@maxon.net](mailto:info-usa@maxon.net)

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