Terragen 2: SkyBox Workflow

Heres a run down on my technique for getting a good 360° panorama out of TG2.

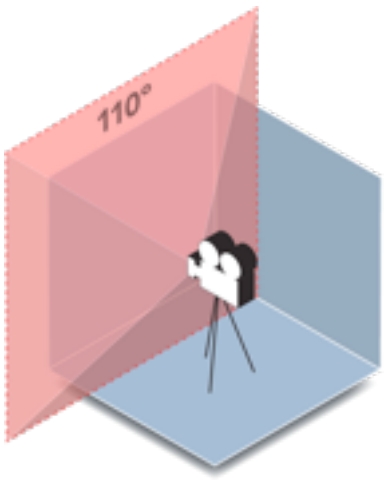
Software used:

Terragen 2 (with animation)
PTGui Pro
Photoshop

In order to get full coverage we need to render 6 images; one for each side of the SkyBox.

As demonstrated in the diagram to the right, the camera rotates around clockwise 90° for the first 4 renders, then directly up and finally directly down.

If we used a 90° field of view we could simply render all six images; and when assembled, it would make a perfectly aligned box. Unfortunately, there will often be visible seams where each of the faces join, especially if you use GI in your renders.

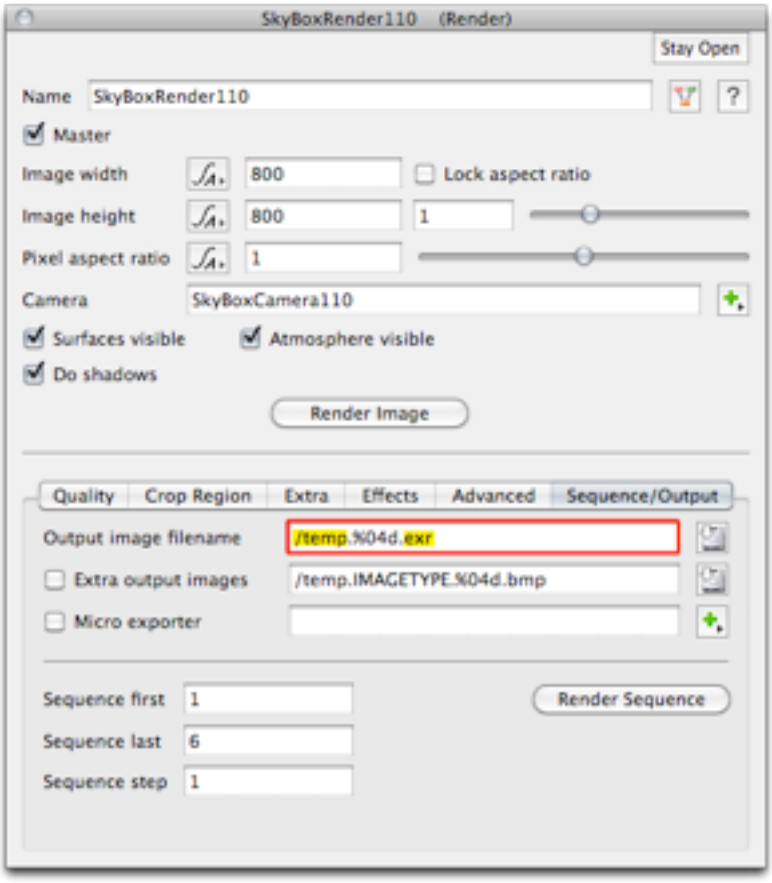


To prevent these ugly seams, we use a 110° field of view. In doing so, we allow for a 20° overlap which can be blended together later on.

To get started, import the SkyBoxCamera110.tgc into your Terragen scene. This has brought a new group into your node graph. Two nodes are included in the group, the camera and the renderer.

First open up the camera (by double clicking) and set its position. This will be the center-point of your SkyBox. You will notice the rotation fields are colored green- this indicates that these parameters are animated.

Next open up the render node. Here you have to set the output image path in the the sequence/ output tab. This is also where you determine the output image type, by appending the appropriate extension. In this case use .exr as it is a 32-bit High Dynamic Range (HDR) format. Leave the %04d in there as this tells the renderer to incrementally append numbers to each render.

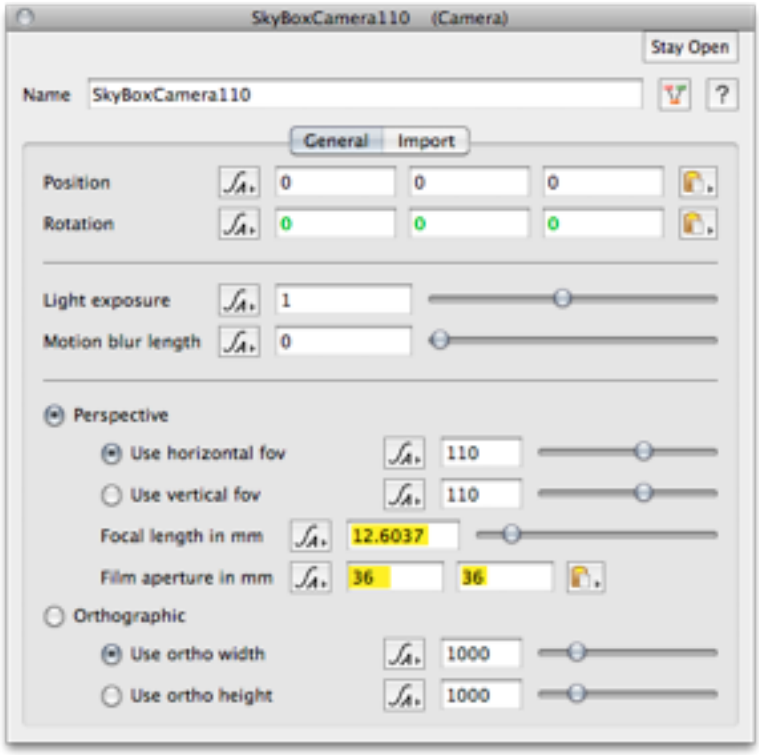


Feel free to change the width/height of your output, but remember to keep it square! Once you have set up your quality settings etc, its time to hit the Render Sequence button and let Terragen do it's magic. Depending on your scene and the image size, this could take a while!

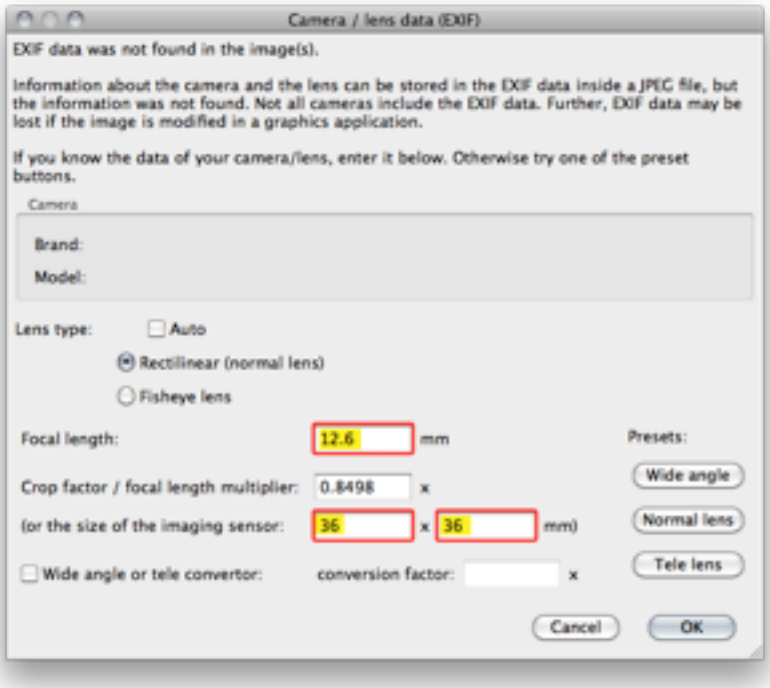
Once you have all your renders its time to stitch them together. I prefer PTGui Pro for this, as it supports 32-bit HDR and is quite robust all round.

Open PTGui Pro and click the load images button. navigate to your six renders and select them all, then open. You will be presented with a screen asking for information about the camera / lens data. Here we are going to copy across information about the camera from within Terragen 2.

Copy the Focal Length from TG2 to PTGui as well as the aperture in mm (this is called imaging sensor in PTGui). Once this is done, you will notice the Crop factor / focal length multiplier automatically updates. now click okay.

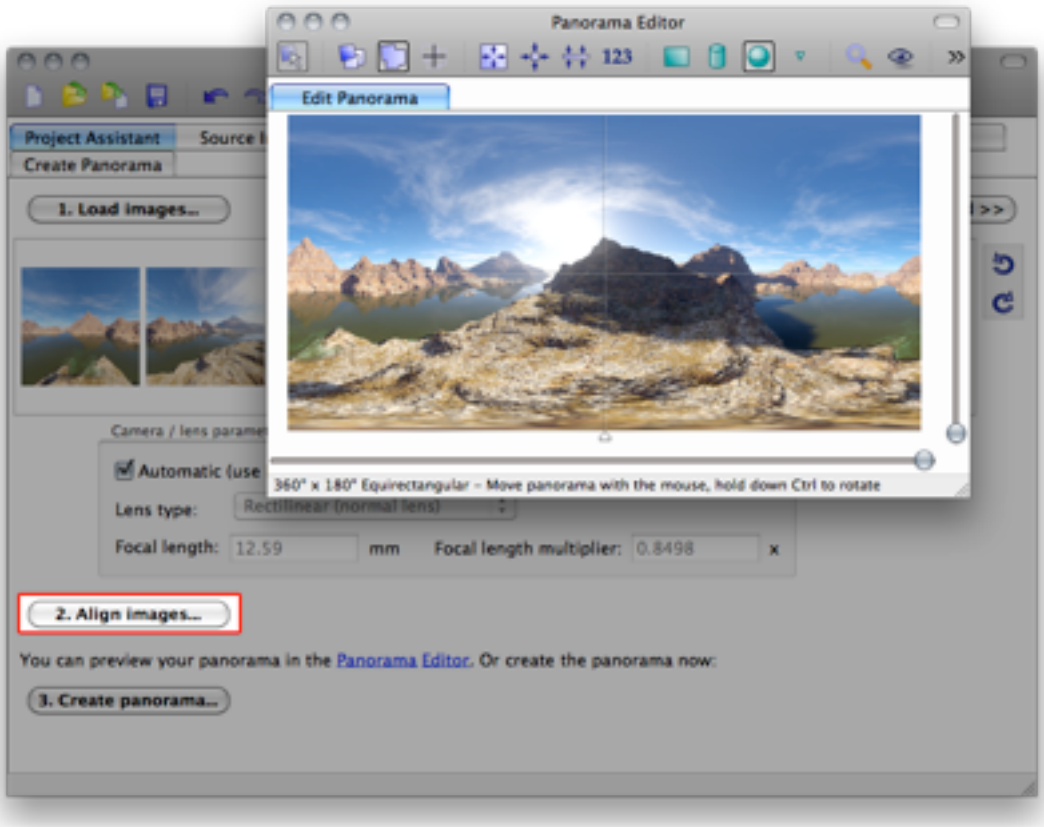


Terragen 2
camera settings

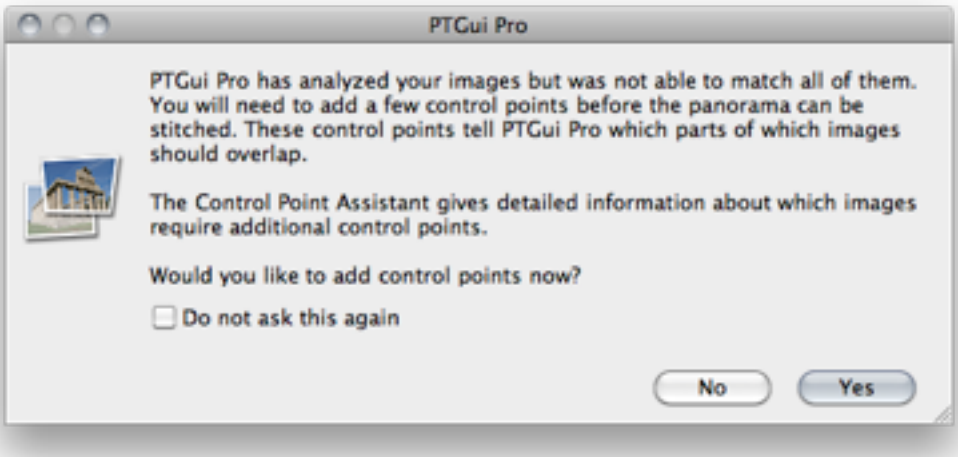


PTGui
camera settings

Next, click Align images. PTGui will do its magic and attempt to align all the images into a 360° Panorama. Once it is done, it will bring up the Panorama Editor window where you can review the assembled image.

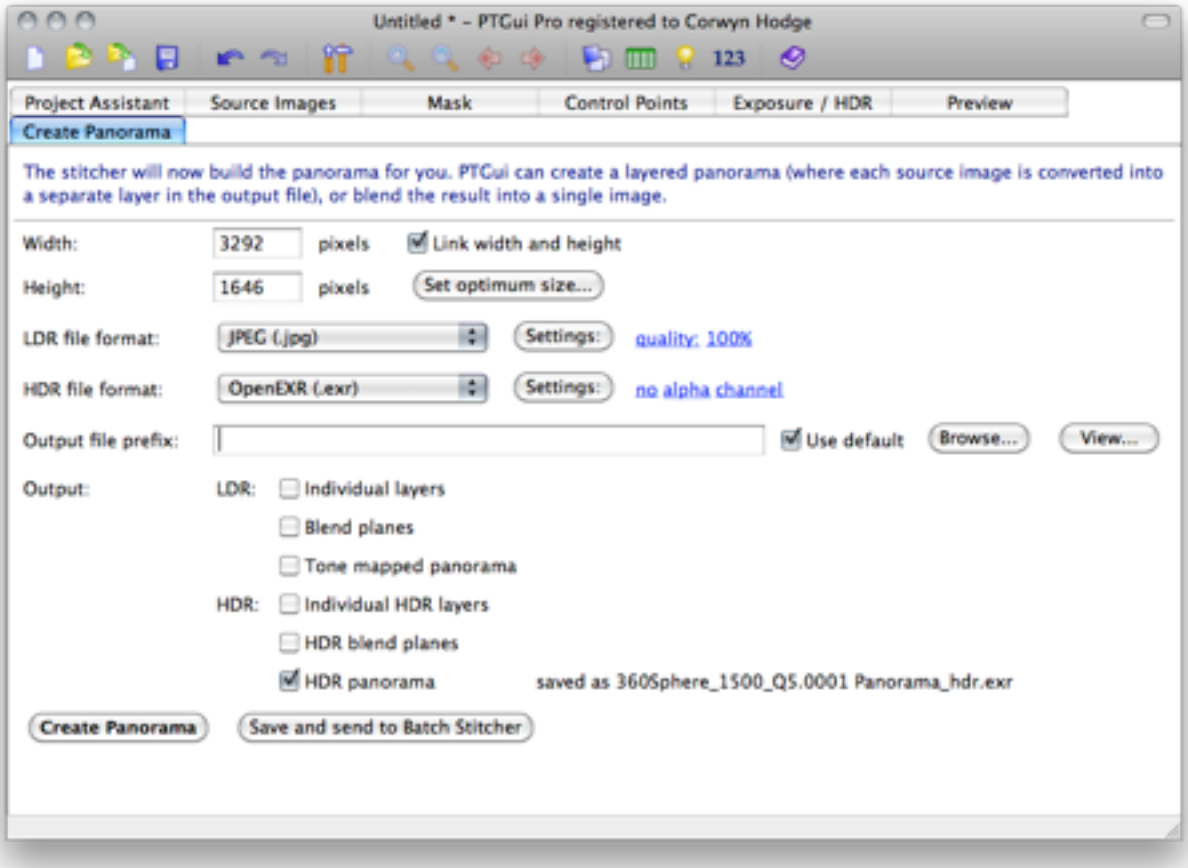


Chances are, if you do not have enough detail in your image you may get the following error:



If this is the case, you may need to utilize a Terragen 2 calibration project which is included. This is basically a scene which any stitching software should have no problem aligning.
Use this project to render out 6 dummy images, which should be loaded into PTGui just as above. Once they have been aligned, save the project (this will become your template) now replace the dummy images with your real renders using PTGui's Source Images tab .

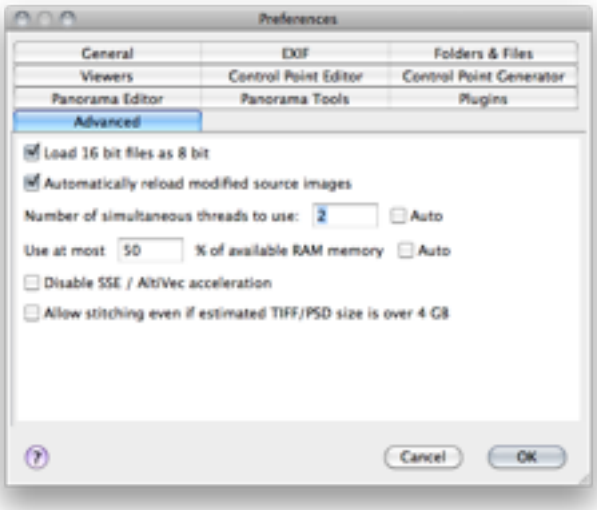
Now that you have a perfectly aligned panorama, its time to render it to disk. Click the Create panorama button. You will be presented with several options- All of this is fairly self-explanatory, I generally Set optimum size to Maximum Size (no loss of detail) and uncheck all outputs except HDR panorama. This all depends on your personal requirements.



Then just choose and output path and click the Create Panorama button!

Happy Skyboxing!

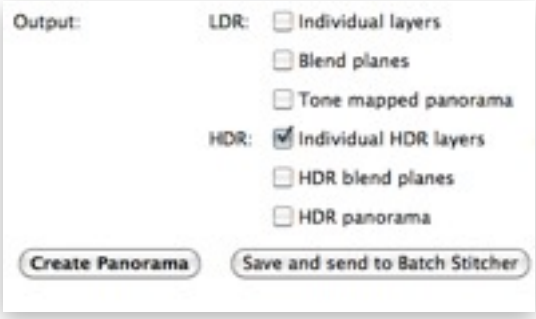
Notes:



If you are not using a powerful workstation, you should probably limit the threads in PTGui's advanced preferences- otherwise it can run out of memory and slow down to a painfully slow crawl.

Sometimes when stitching HDR Terragen 2 renders with PTGui, you might notice some strange artifacts- especially if the sun is visible. I assume this is a miscalculation of the super-bright pixels. In my experience the best way to deal with this is after-the-fact.

See the dark blue dot, right in the middle of the sun? the quickest way to deal with it is by simply painting it out in photoshop.



Otherwise you can render the individual HDR layers out of PTGui and blend them together manually in Photoshop.