

# Using PTGui with a Nikon 10.5mm Lens

## Preliminaries

Before taking photographs, ensure that:

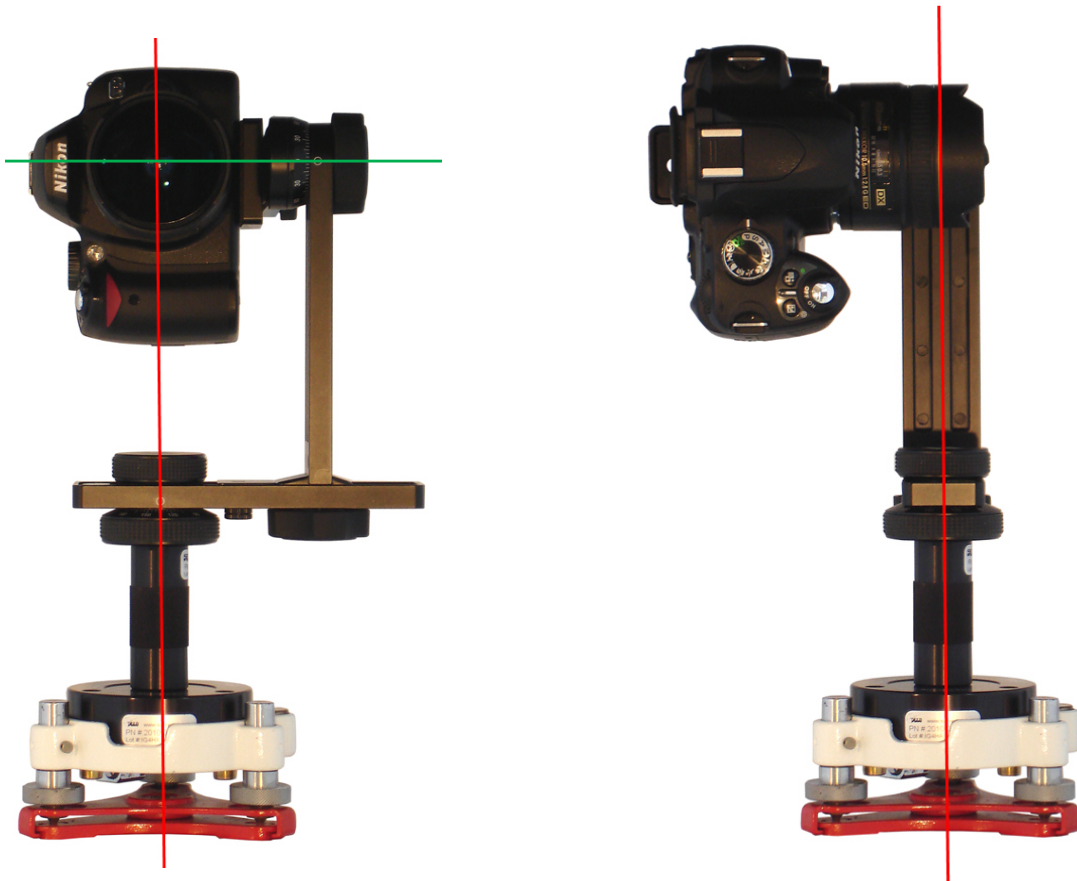
The Nodal Ninja 3 MKII is fitted with the  $45^\circ$   $n=8$  detent ring.

The lower rail is adjusted so that the centre of the lens (principal ray) is vertically in line with the  $\Phi$  mark on the lower rail (i.e. the axis of rotation) as shown in the image below.

The upper rail is adjusted so that the gold ring is vertically in line with the axis of rotation as shown in the image below.

The appropriate adapter for the scanner is used.

The Leica ScanStation C10 adaptor is shown in the images below.



For scanning outside, record 8 images with the camera principal ray horizontal at  $45^\circ$  intervals as controlled by the  $45^\circ$   $n=8$  detent ring.

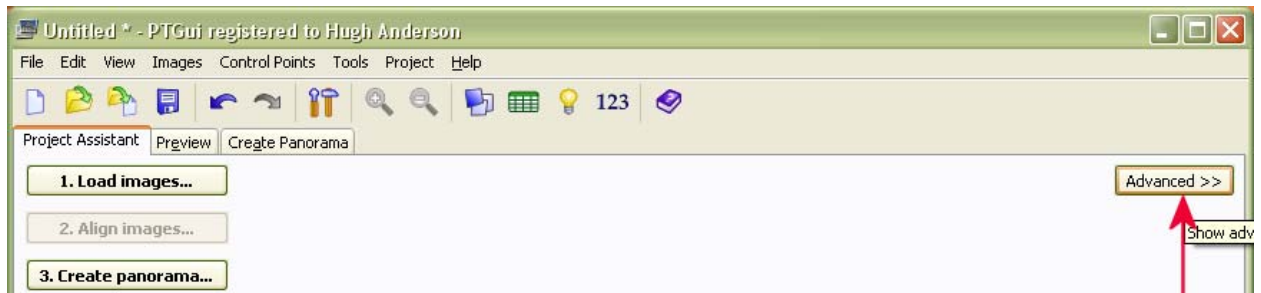
This will result in a “hole” at the zenith of the Spherical Panorama.

If scanning indoors or under cover this “hole” can be filled by rotating the camera into a vertical position and taking two additional images at  $90^\circ$  to each other.

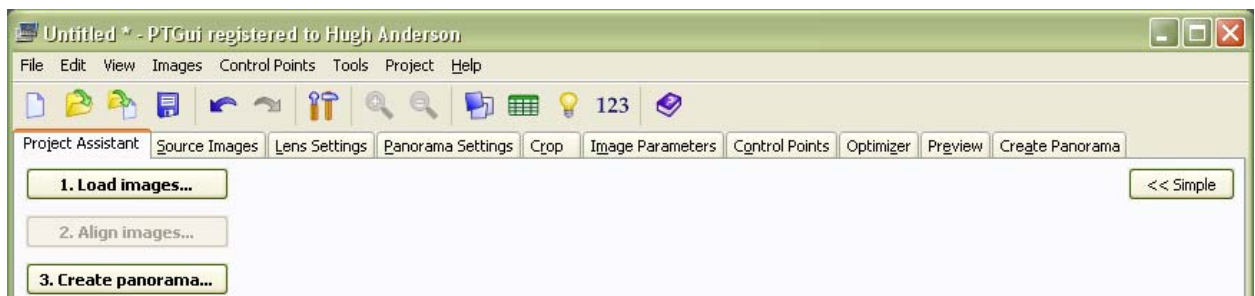
This will be successful if there is sufficient “detail” in the overlap between the set of 8 horizontal images and the set of 2 zenith images for PTGui to generate Control Points, but it may be

preferable for the second tier of images to be 4 at 90° intervals (2 clicks on the 8 point detent ring) with an elevation of +45°, especially if detail is sparse or repetitious.

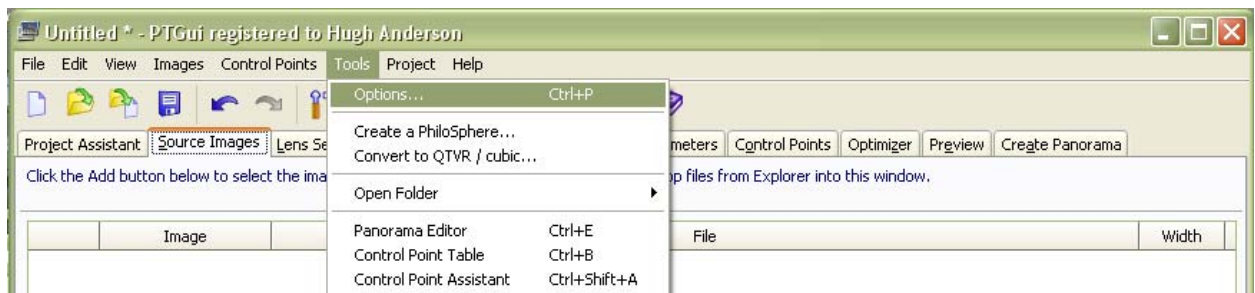
In PTGui, select the **Advanced >>** option:



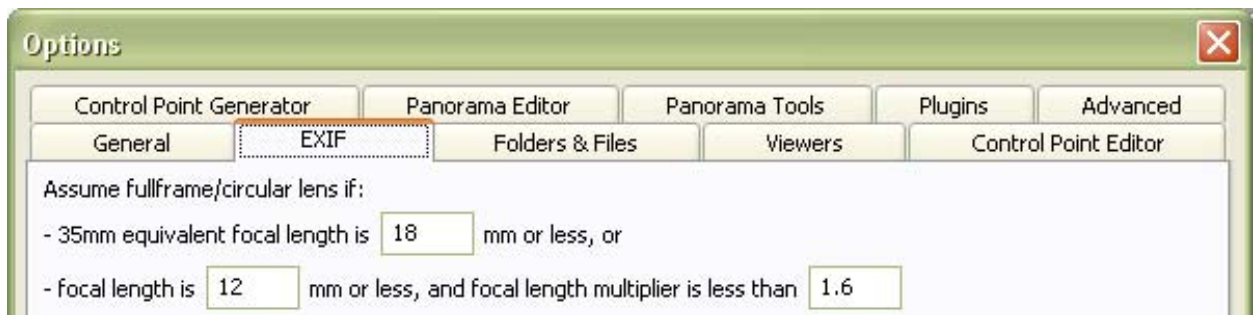
to give access to all the menu tabs:



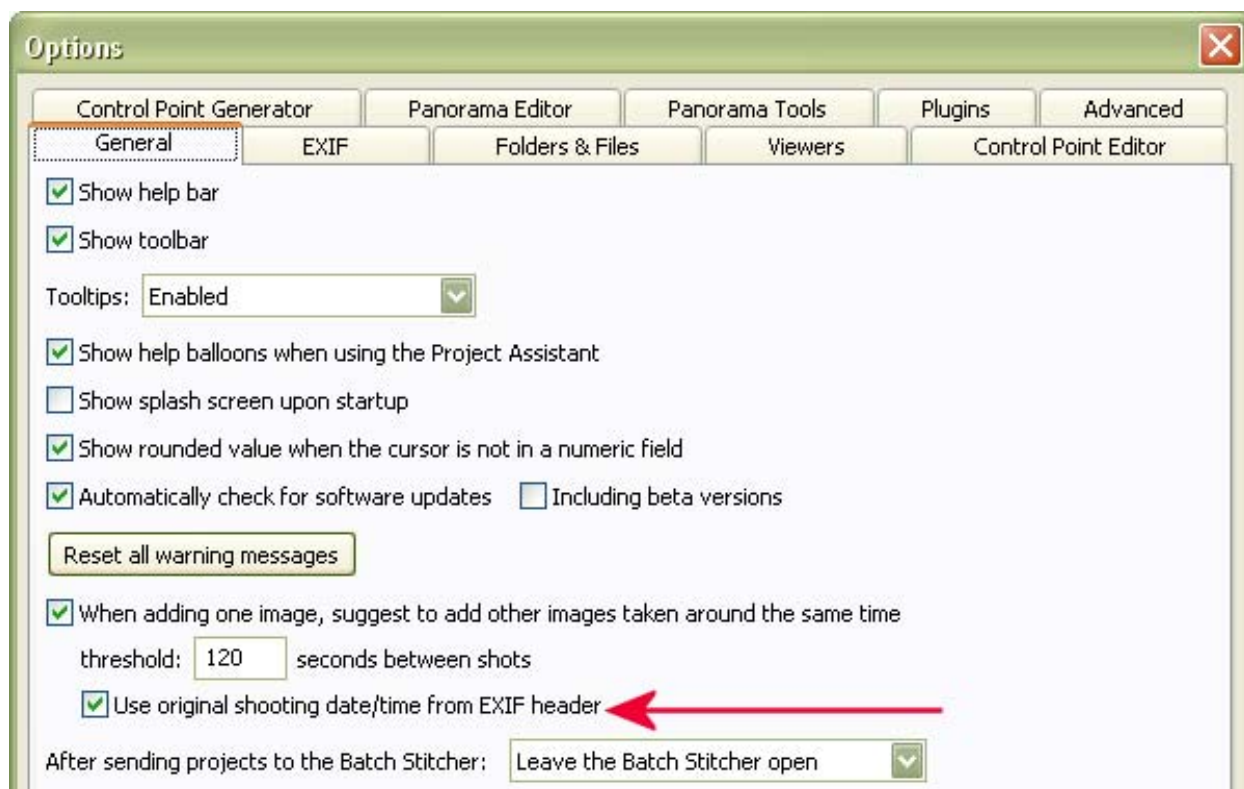
Select **Tools \ Options...** [Ctrl+P]



Select the **EXIF** tab and set the values so that the Nikon 10.5mm lens is recognised by PTGGui as a fisheye lens.



Select the **General** tab and ensure that the "Use original shooting data/time from EXIF header" option is checked.



Select the **Panorama Settings** tab and chose the options as in the following image:



The “Projection” is “Equirectangular” and the “Field of view” is 360° horizontal and 180° vertical.

*Note: that if only 8 photographs are taken with the camera horizontal, without any zenith images, that PTGui will probably reset the vertical “Field of view” so something like 132°, so this will need to be checked after using “2. Align images...”.*

*This is covered in the User Guide for “Using PTGui with a Nikon 10.5mm Lens”.*

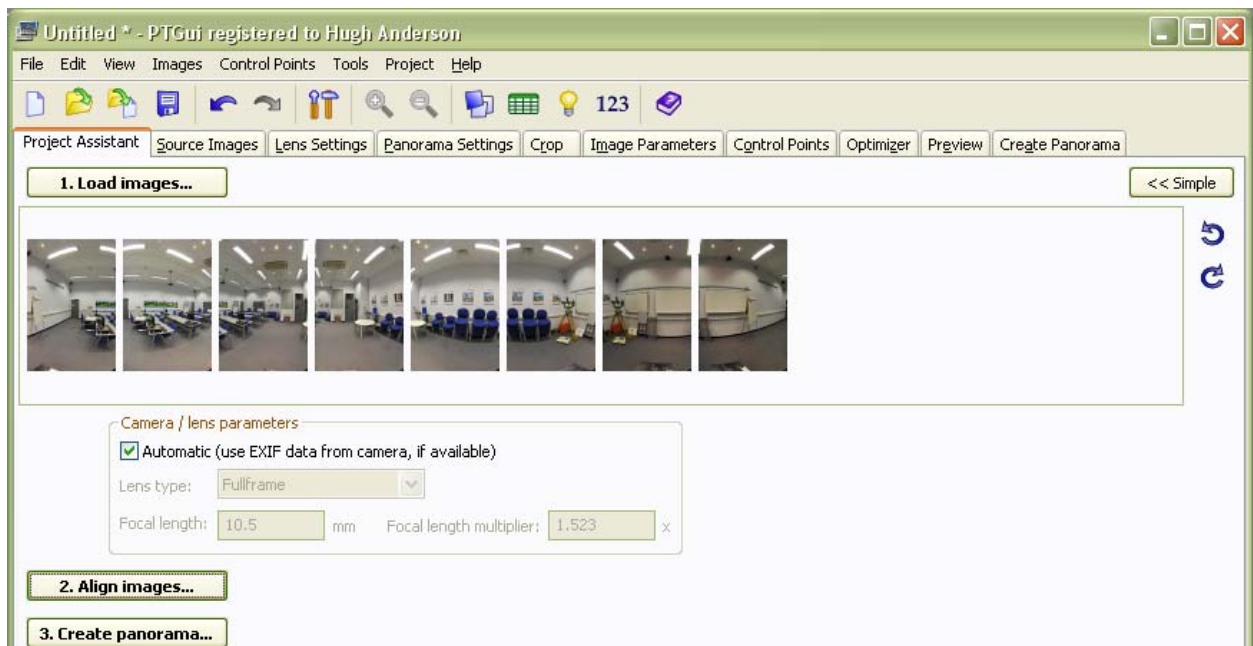
# Using PTGui with a Nikon 10.5mm Lens

PTGui will start with the “Project Assistant” tab open:



Click the [1. Load images... ] button, and select the images that make up the panorama to be generated.

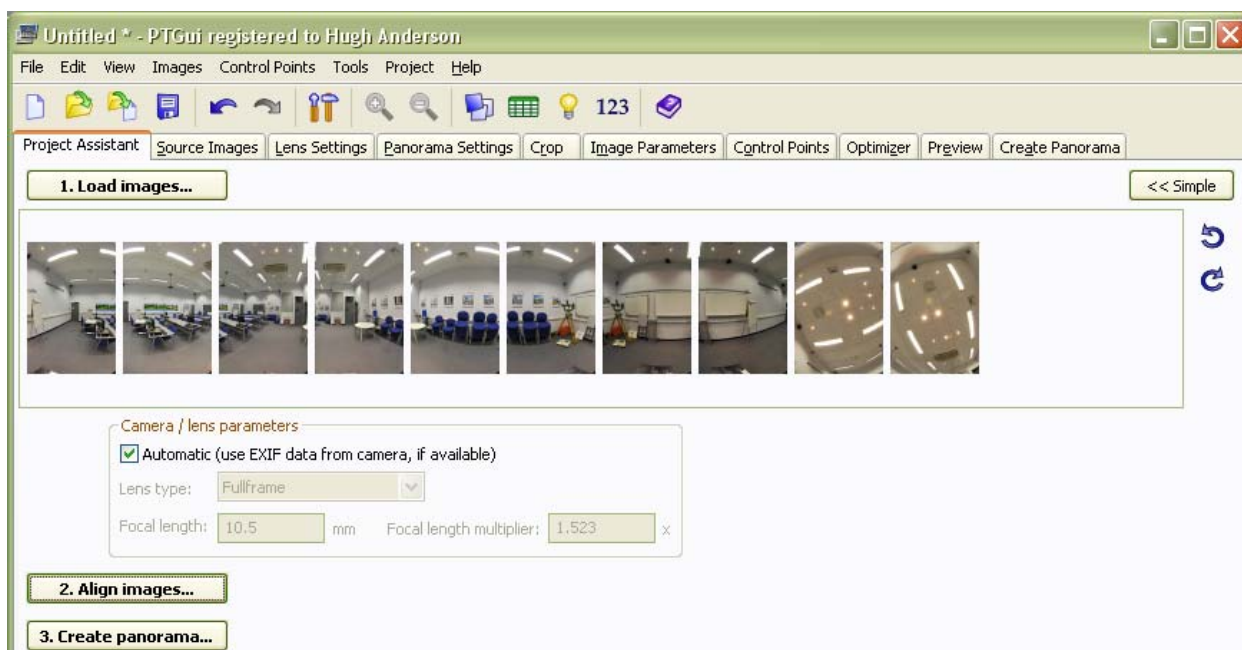
If eight images were taken with the camera horizontal, without any zenith images, the screen should now be as follows:



Note that the “Automatic (use EXIF data from camera, if available)” box is checked so that the other options are “greyed out”, but show that the “Lens type:” is “Fullframe”, the “Focal length:” is “10.5 mm” and the “Focal length multiplier” relates to the Nikon camera being used.

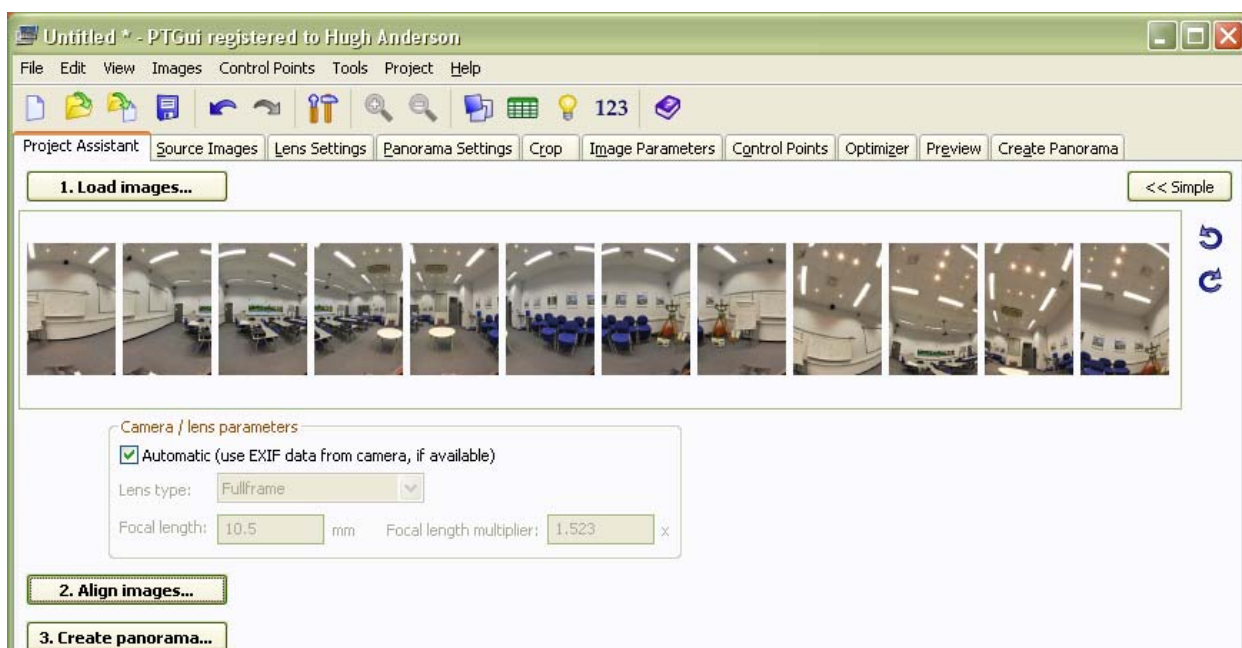
If 10 images were taken, 8 with the camera horizontal plus 2 zenith images at 90°, the screen will display as follows:

Note that with the “Automatic (use EXIF data from camera, if available)” box checked that the “greyed out” options are as before.

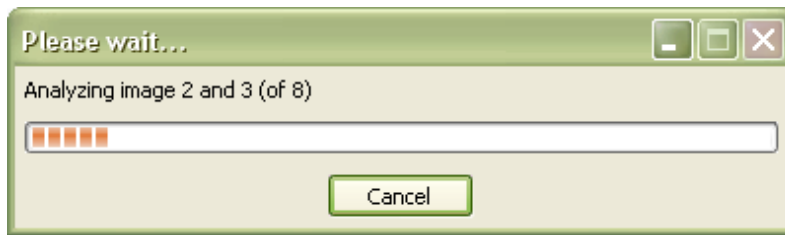


If 12 images were taken, 8 with the camera horizontal plus 4 images elevated to +45° and at 90° intervals horizontally because of little or repetitive detail in the overlap between the two sets, the screen will display as follows:

*Note that with the “Automatic (use EXIF data from camera, if available)” box checked that the “greyed out” options are as before.*

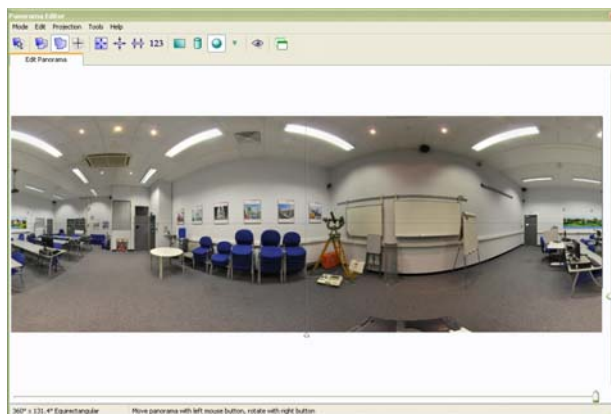


Click the [2. Align images...] button to generate the Control points for stitching the images.

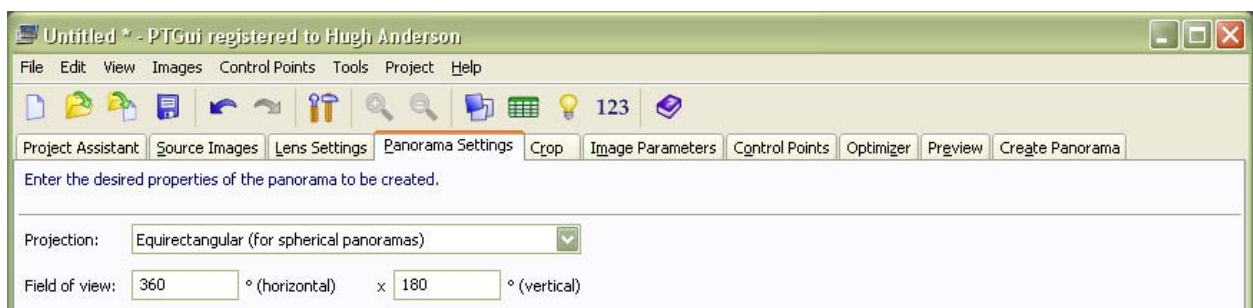


*PTGui should take less than a minute to generate the Control Points*

When the image aligning process is completed, PTGui will usually display the “Panorama Editor”. If eight images were taken with the camera horizontal, without any zenith images, the screen will probably display as in the left image below because PTGui will probably have reset the “Panorama Settings”. What is needed is as in the image on the right, with the chequered pattern at the top and bottom.

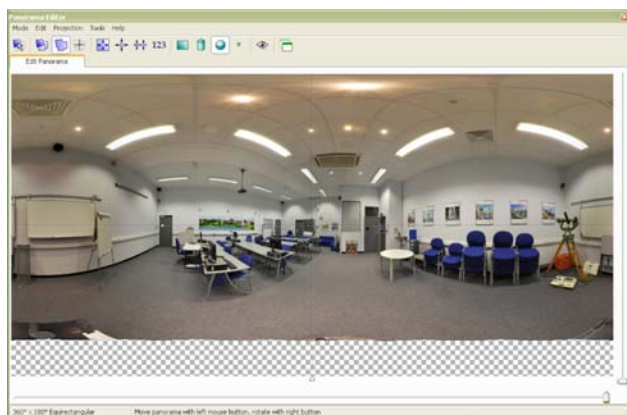
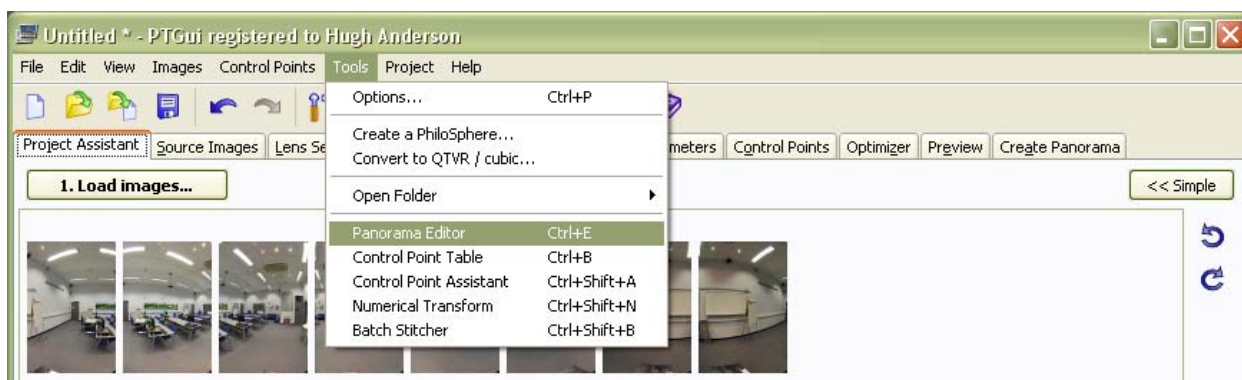


If the “Panorama Editor” shows the image as on the left, select the **Panorama Settings** tab and set the options as in the following image:



The “Projection” is “Equirectangular” and the “Field of view” is 360° horizontal and 180° vertical.

The “Panorama Editor” can be accessed by:  
**Tools \ Panorama Editor** [Ctrl+E]



If eight images were taken with the camera horizontal plus two zenith images or 4 images at +45°, the screen will probably display as in the image to the left.

*With these additional images PTGui appears to accept that a true Equirectangular image is required.*

*A true Equirectangular image has the Height exactly ½ the Width.*

*Eight images horizontally at 45° intervals provides a good overlap between images for PTGui to create **good** Control Points, but it is possible that you may need to add Control Points or edit them.*

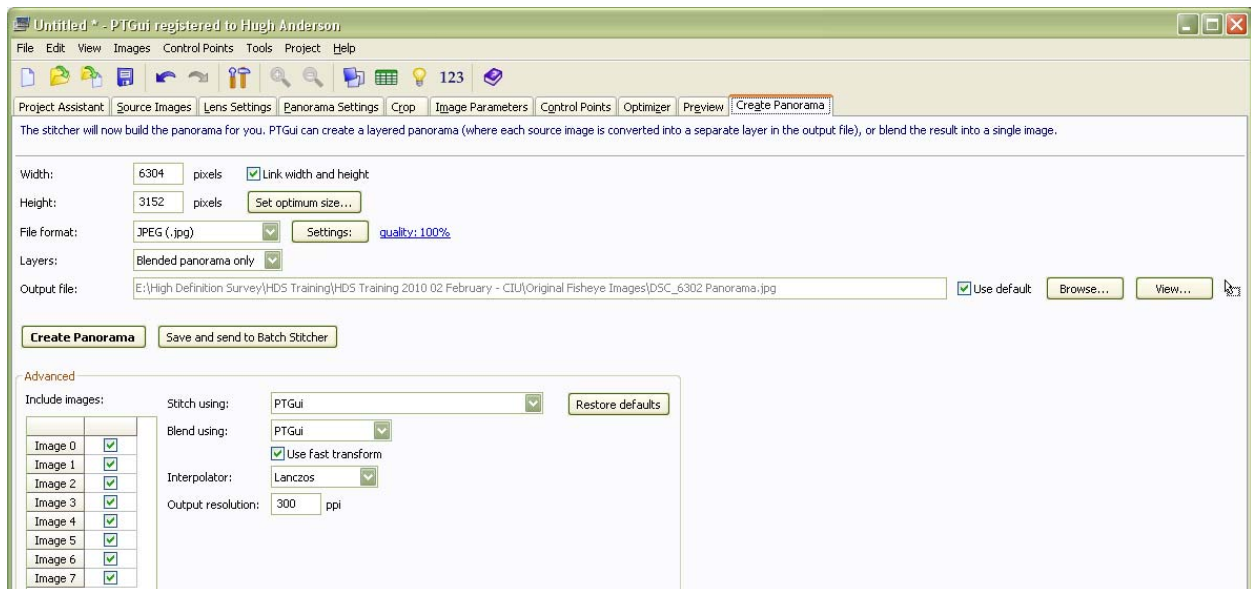
*The Control Points Editor is accessed via the “Control Points” tab.*

*If PTGui displays a message such as “The project may contain some misplaced control points.” Use the Optimiser to optimise the Control Points.*

*Select the “Optimizer” tab and click the “Run Optimizer” button.*



To create the Panorama (Equirectangular Image) either return to the “Project Assistant” tab (leftmost tab) and click the [3. **Create panorama...**] button, or open the “Create Panorama” tab (rightmost tab).

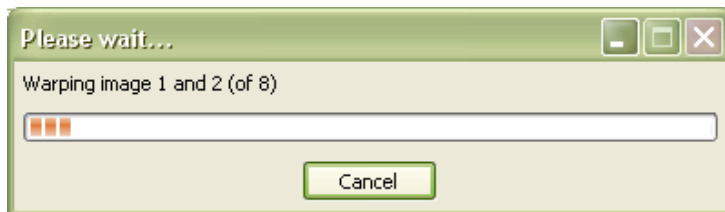


Ensure that the Height is exactly  $\frac{1}{2}$  the Width.

*The “Set optimum size...” button can be clicked to set the Equirectangular Image to “Maximum size (no loss of detail)” if required.*

Use the “Browse...” button to select the directory path and file name to store the Equirectangular Image.

Click the “Create Panorama” button.

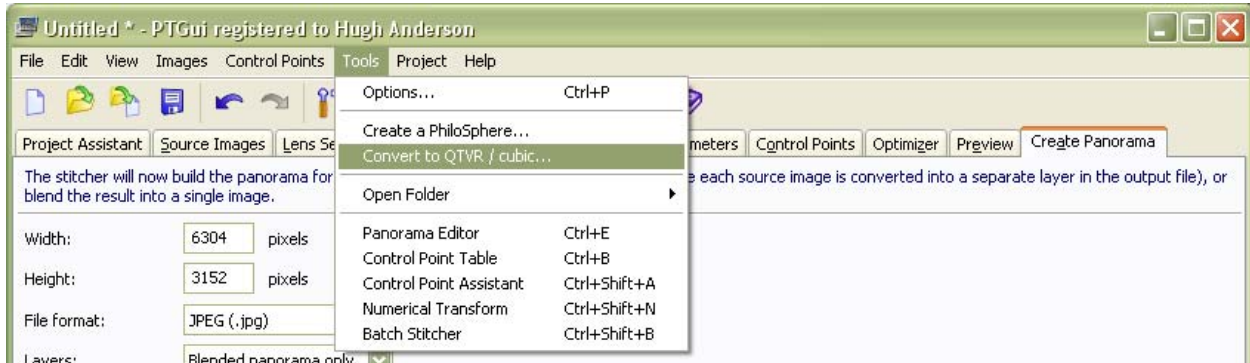


*PTGui will take some minutes to create the Equirectangular Image*

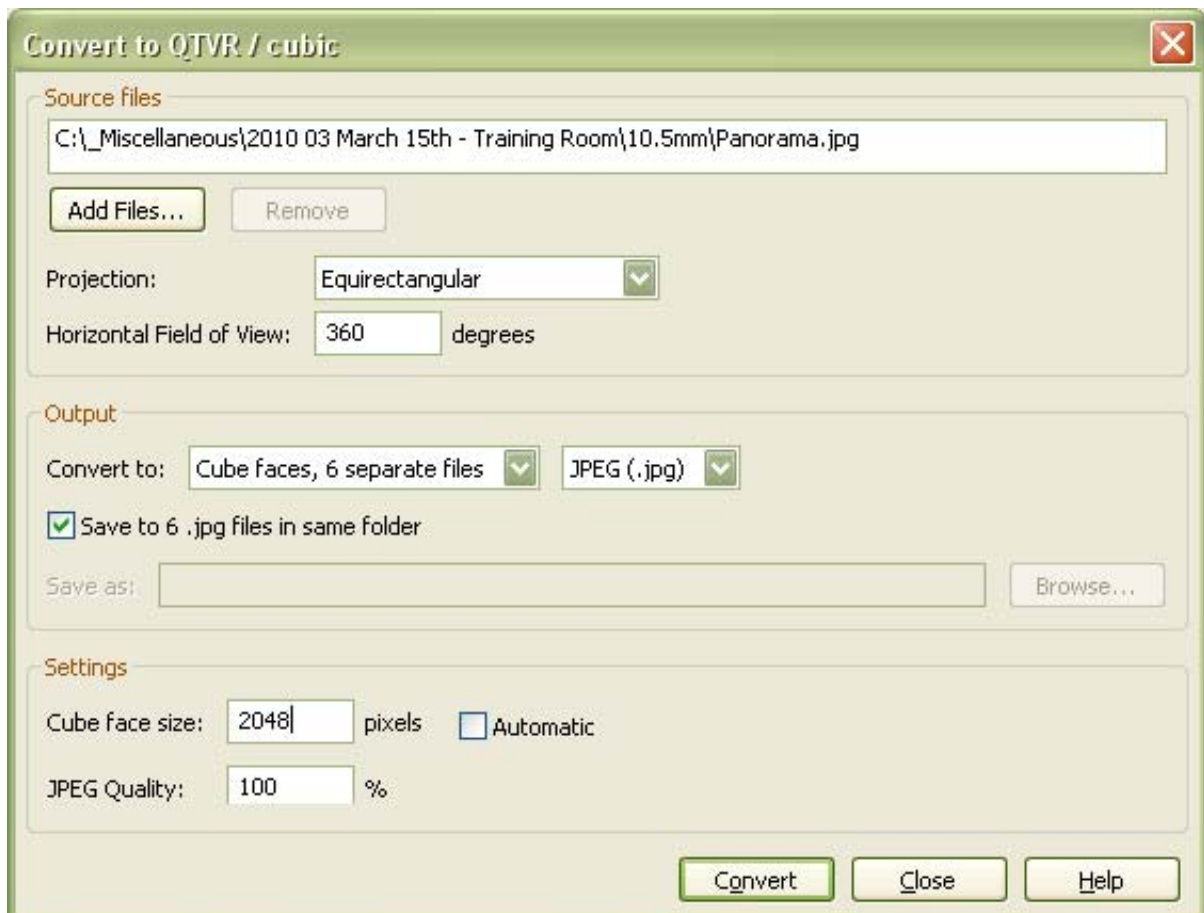
# Using PTGui to create the Cube Images

Select:

**Tools \ Convert to QTVR / cubic...**



Click “Add Files...” and select the Equirectangular Image (panorama) to create the Cube Images from.



Ensure that the “Projection:” is “Equirectangular” and the “Horizontal Field of View:” is “360”.

Set the "Output" "Convert to:" to "Cube faces, 6 separate files", "JPEG (.jpg)".

Set the "Settings" "Cube face size:" to "1024", "**2048**" or "4096" for Cyclone, with the "JPEG Quality:" as "100%".

Click "Convert".

The Cube Images need to be renamed before importing them into Cyclone:

**Cube Image Named by PTGui**

Panorama.back.jpg  
Panorama.bottom.jpg  
Panorama.front.jpg  
Panorama.left.jpg  
Panorama.right.jpg  
Panorama.top.jpg

**Cube Image names for Cyclone**

Panorama\_b.jpg  
Panorama\_d.jpg  
Panorama\_f.jpg  
Panorama\_l.jpg  
Panorama\_r.jpg  
Panorama\_u.jpg

b = back, d = down, f = front, l = left, r = right and u = up.

The Batch File "Rename PTGui Cube Images.bat" can be used to convert the output of a set of Cube Image Files from PTGui to the Cyclone cube nomenclature.

This Batch File must be run in the folder containing the 6 PTGui Cube Image Files and the files must be in JPG format.

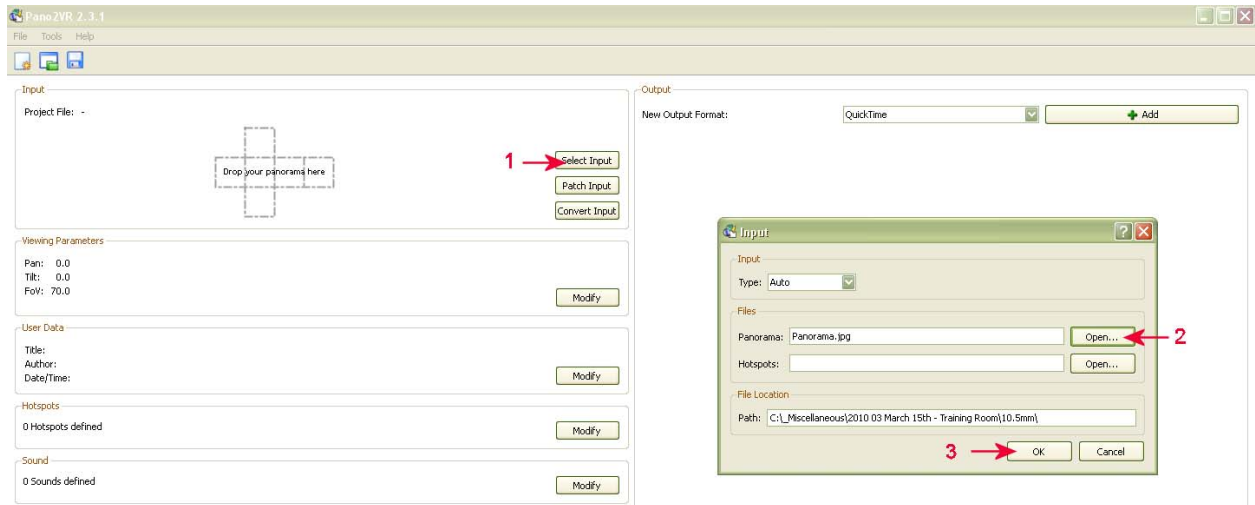
The Batch File can rename multiple sets of Cube Image files at the same time provided that they are all in the same directory.

**WARNING:**

Running this Batch File in any other directory may unintentionally rename some files.

Note that the original Panorama (Equirectangular) Image File Name must not have any SPACES.

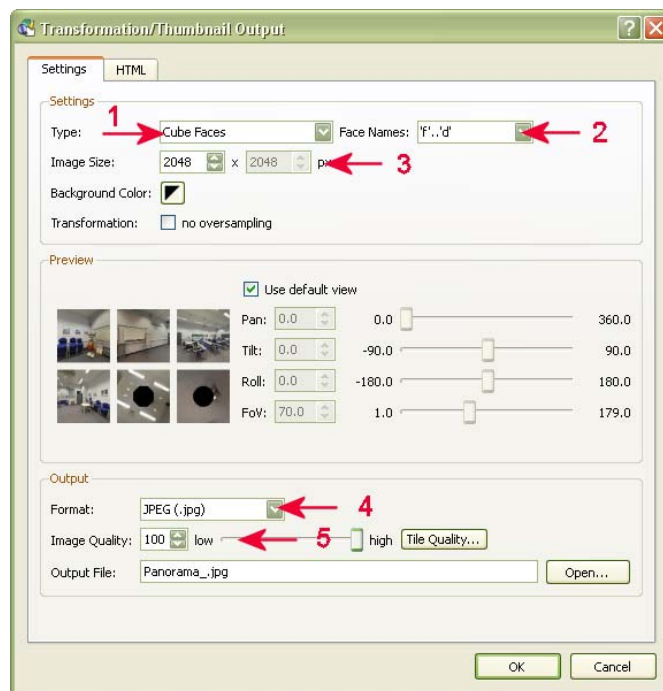
# Using Pano2VR to create the Cube Images



1. Click “Select Input”
2. Click “Open” for the “Panorama:” option
3. Navigate to the Equirectangular (Panorama) image and click **OK**.

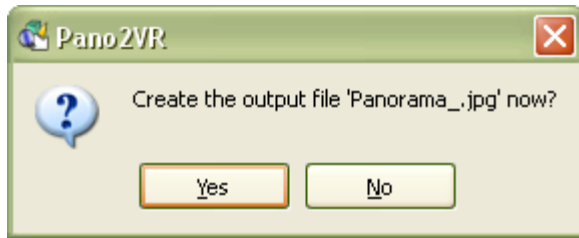


Select “Transformation” and click “+ Add”

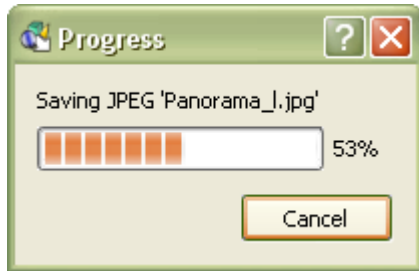


1. Set “Type:” to “Cube Faces”
2. Set “Face Names:” to “f..d”

3. Enter the value for the “Image Size:” as “1024”, “**2048**” or “4096”
4. Set the “Format:” as “JPEG (.jpg)”
5. Set the “Image Quality:” to “100” and click OK.



Click “Yes”



*Pano2VR creates and saves the Cube Images with the correct nomenclature for Cyclone.*