

Using PATB Exterior Orientation Data in OrthoEngine

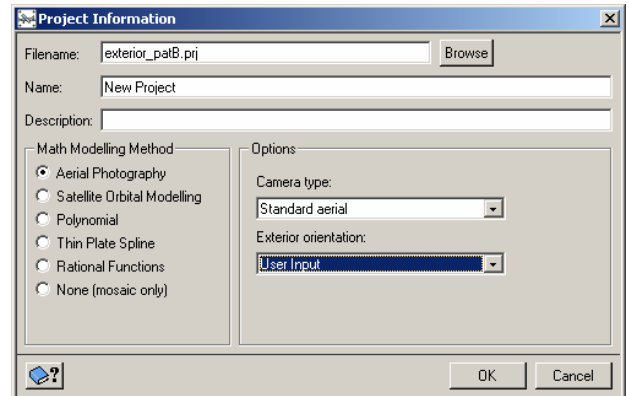


TUTORIAL

The following example will walk you through an example to show you how to use your PAT-B exterior orientation file in your OrthoEngine, Aerial Photography project.

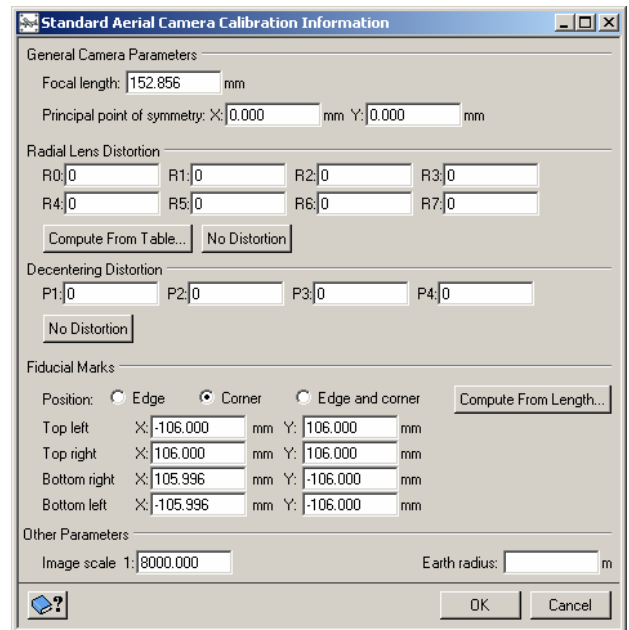
Step 1.

Start a new Aerial Photography OrthoEngine Project. Be sure to select User Input under Exterior Orientation.



Step 2.

Set your Output Projection and Camera Calibration Information.

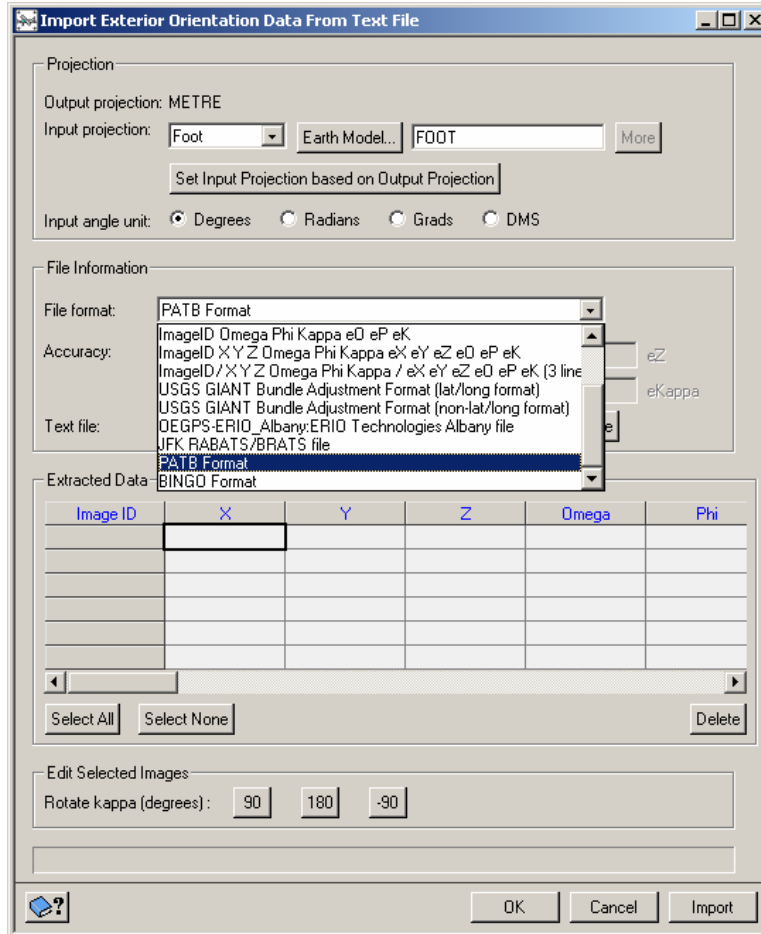


Step 3.

Under Processing Step, select Data Input and add each of your photos to the project.

Step 4.

Still under Data Input, click on the Import GPS/INS Or Exterior Orientation Data From File button. Under File Format, the PAT-B format is a predefined format that you can simply read in. Select PAT-B and browse to the location of your PAT-B file. The Extracted Data table will be updated with the appropriate X, Y, Z, Omega, Phi and Kappa values that are read in for each photo from the PAT-B file. Set the Projection information in this panel and hit the Apply button at the bottom.



You must make sure that the name of each photo added to your project matches the PhotoID filed in your PAT-B file. If they do not, you will either have to rename your photos or manually edit your PAT-B file.

In your PAT-B file there are 3 records (lines) of output for each photo with the format:

- 1st record I16,16x,3F16.5 (photo number, X-, Y-, Z- coordinate of projection center)
- 2nd record 5F16.12 (a11, a12, a13, a21, a22 of rotation matrix)
- 3rd record 4F16.12 (a23, a31, a32, a33 of rotation matrix)

Here is what a sample PAT-B should look like. If it does not meet this format exactly, you may have to manually edit it or import it into a spread sheet, make the appropriate formatting changes, and export it out to a text file.

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      44      0.00000000      3215130.65262      1614253.59035      7404.27229
-0.999971470291 -0.007186439521 -0.002326733947 0.007183137977 -0.999973186702
  0.001424221216 -0.002336906639 0.001407467332 0.999996278945
      45      0.00000000      3214231.54704      1614262.14972      7408.61150
-0.999915804581 -0.011596060625 -0.005823669481 0.011605697668 -0.999931333258
-0.001623746037 -0.005804440531 -0.001691197072 0.999981723994

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NOTE-1: PAT-B is a format usually used for transferring triangulation solutions, not really for GPS/INS. That is why it will only show up in OrthoEngine if you select "User Input" for your project (i.e. you are importing an existing triangulation). This is a little different than if you wanted to use GPS/INS, since you normally want to add some GCPs and/or TPs and come up with a combined solution. That said, PAT-B also offers a special format for GPS data, but that is for use within their own triangulation software, and not supported by PCI.

NOTE-2: PAT-B rotations can be defined left or right-handed. OrthoEngine assumes right handed, in the order omega, phi, kappa (rotations about x, then y, then z). The PAT-B format itself can be in a number of different reference frames.