

Instructions for making .AT5 files to display satellite charts on Navico chartplotters from openCPN .kap files.

From TwoAtSea.com

I wasn't going to make this PDF or video but a friend asked about doing this and I thought, that won't be hard to do. The reason I wasn't excited about converting KAPs to AT5 files was that KAPs only have 127 colors (like the limited color palette of a GIF file). Reducing the colors to 127 can result in a significant loss of detail. It turns out that if the KAPs are of good quality, the AT5 files turn out very well, and there's a significant time savings from using existing KAPs that are available from many sources on the internet (or from fiends on other boats).

I'm using a PC. If you're a Mac, sorry but I'm afraid I can't help you.

What We'll Be Using:

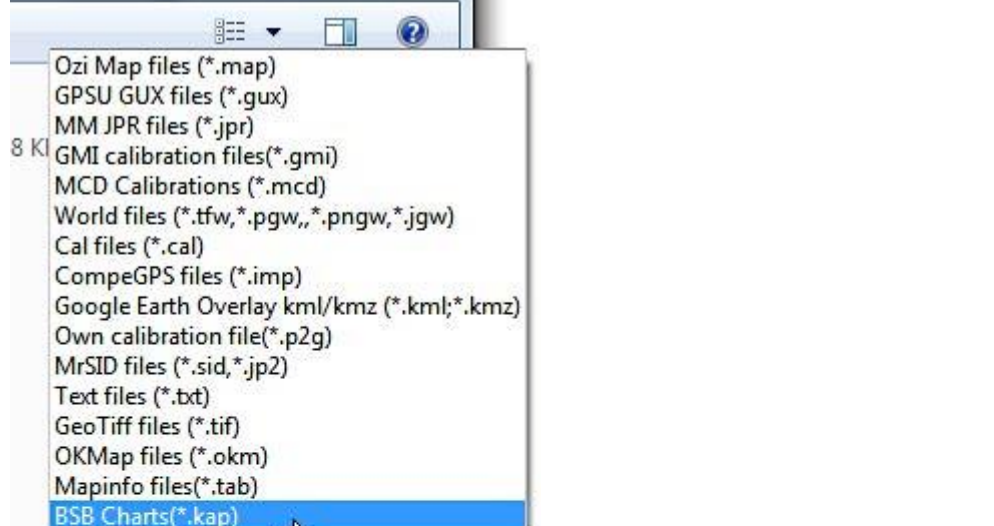
mapc2mapc
Insight Map Creator
A MicroSD card to go in your chartplotter

The sources of the above programs are on our website, twoatsea.com under Cruising Info / Navigation (where this PDF lives).

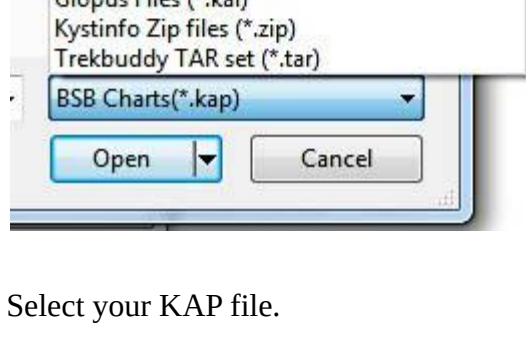
Make the JPEG and geographical data files...

We're going to use mapc2mapc to convert the .kap file to a .jpg image and a .kml geographical data file.

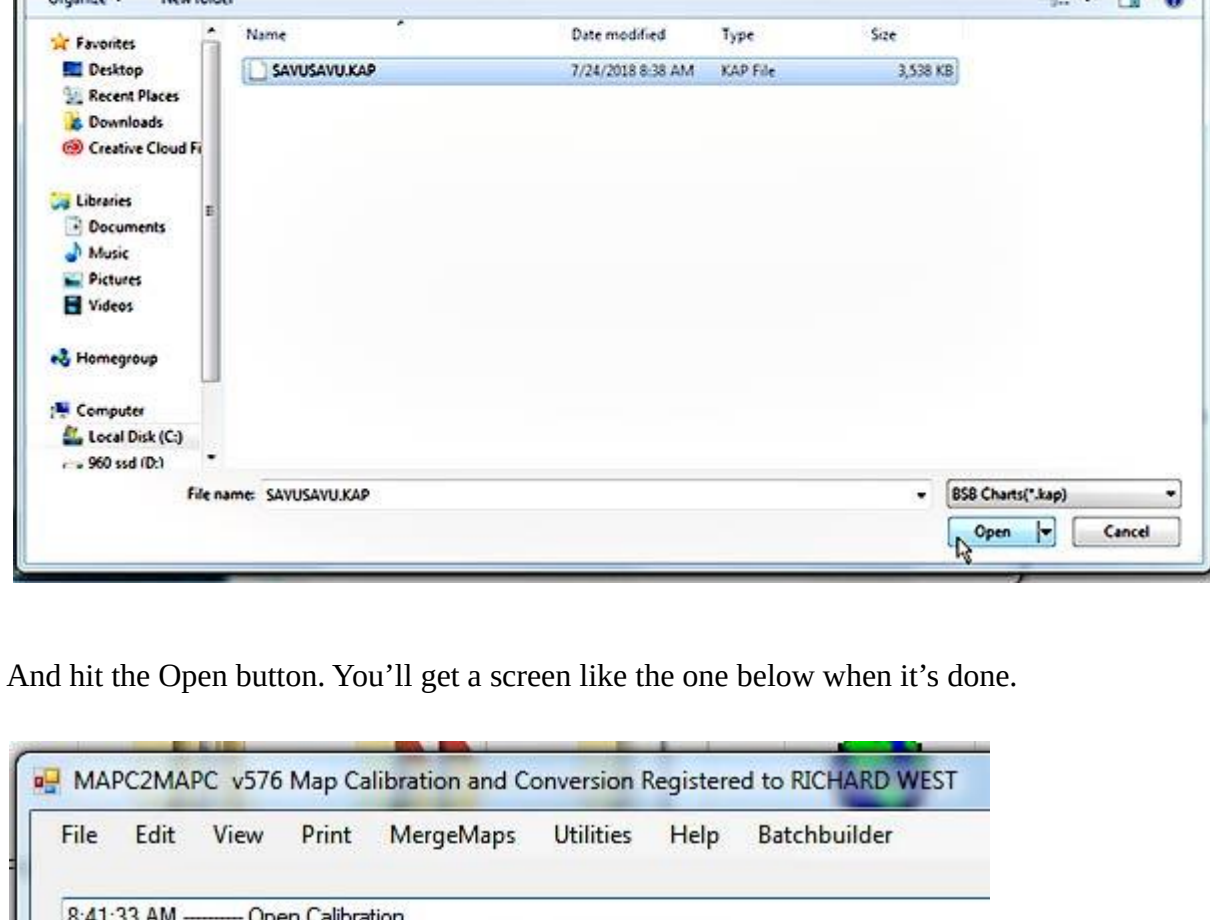
Step 1: Open mapc2mapc and select File/Load Calibrated Map from the main menu.



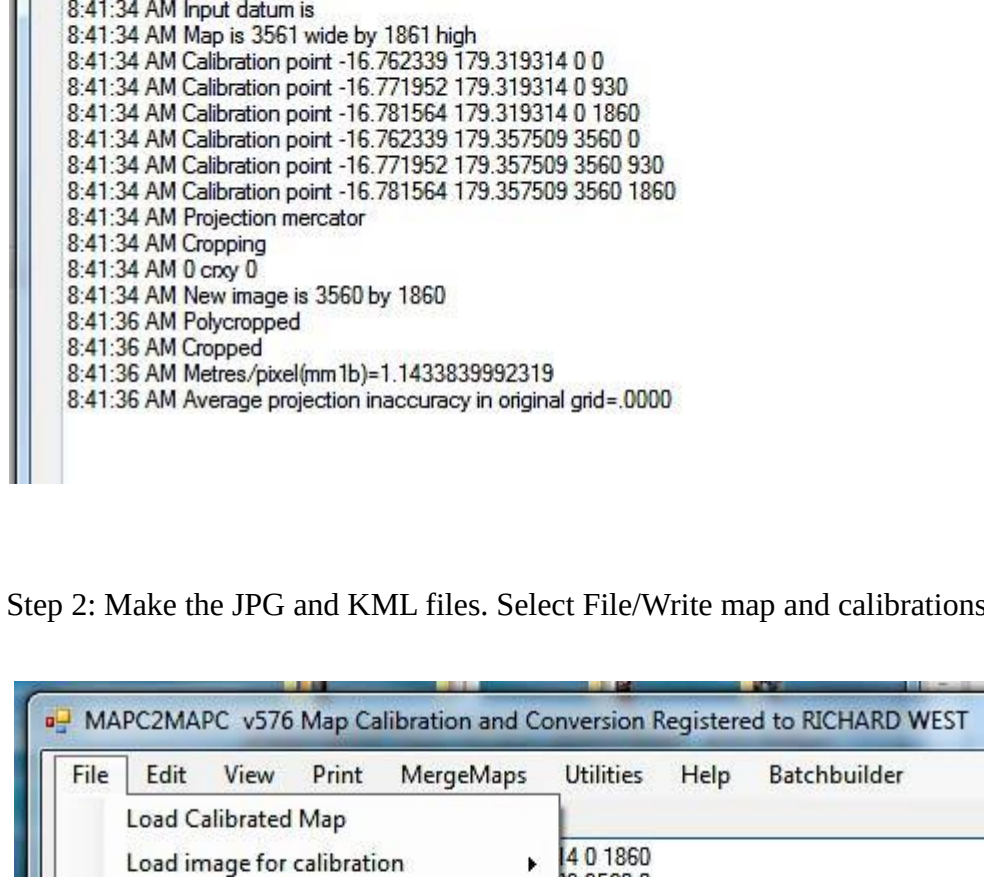
Then select BSB Charts(*.kap) from the list on the right bottom of the screen. Optionally, you can type *. * in the file box, hit enter, then select your KAP.



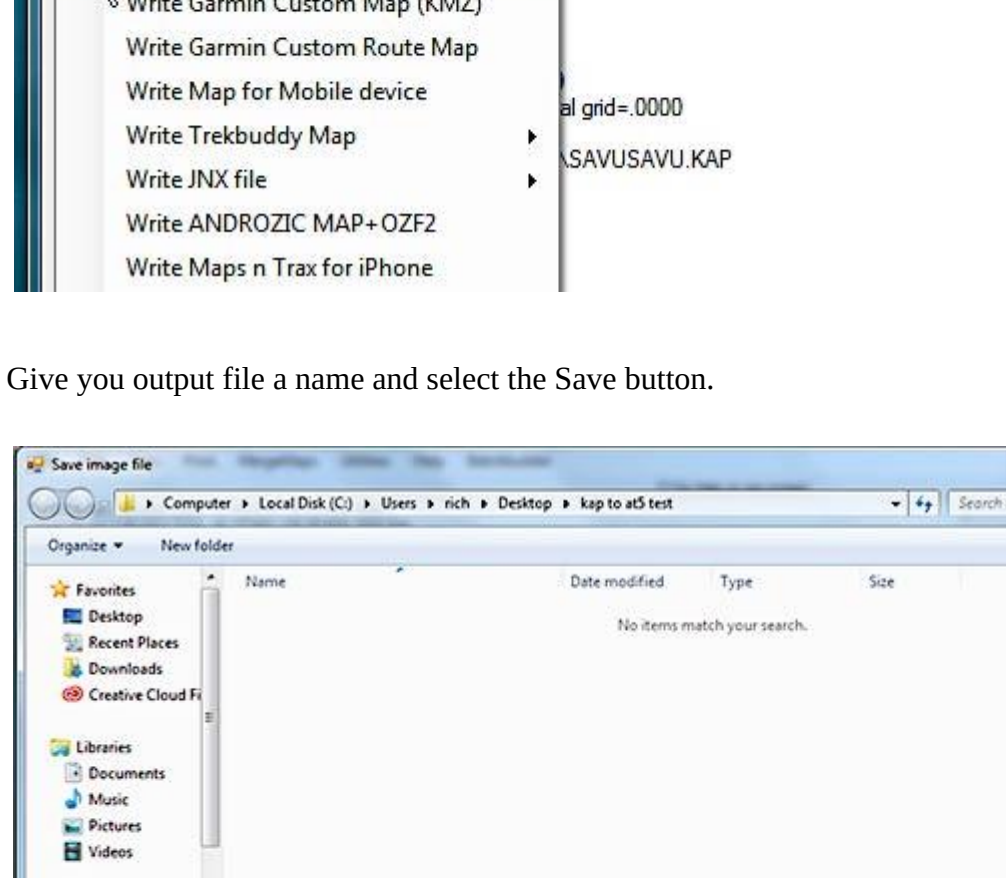
Select your KAP file.



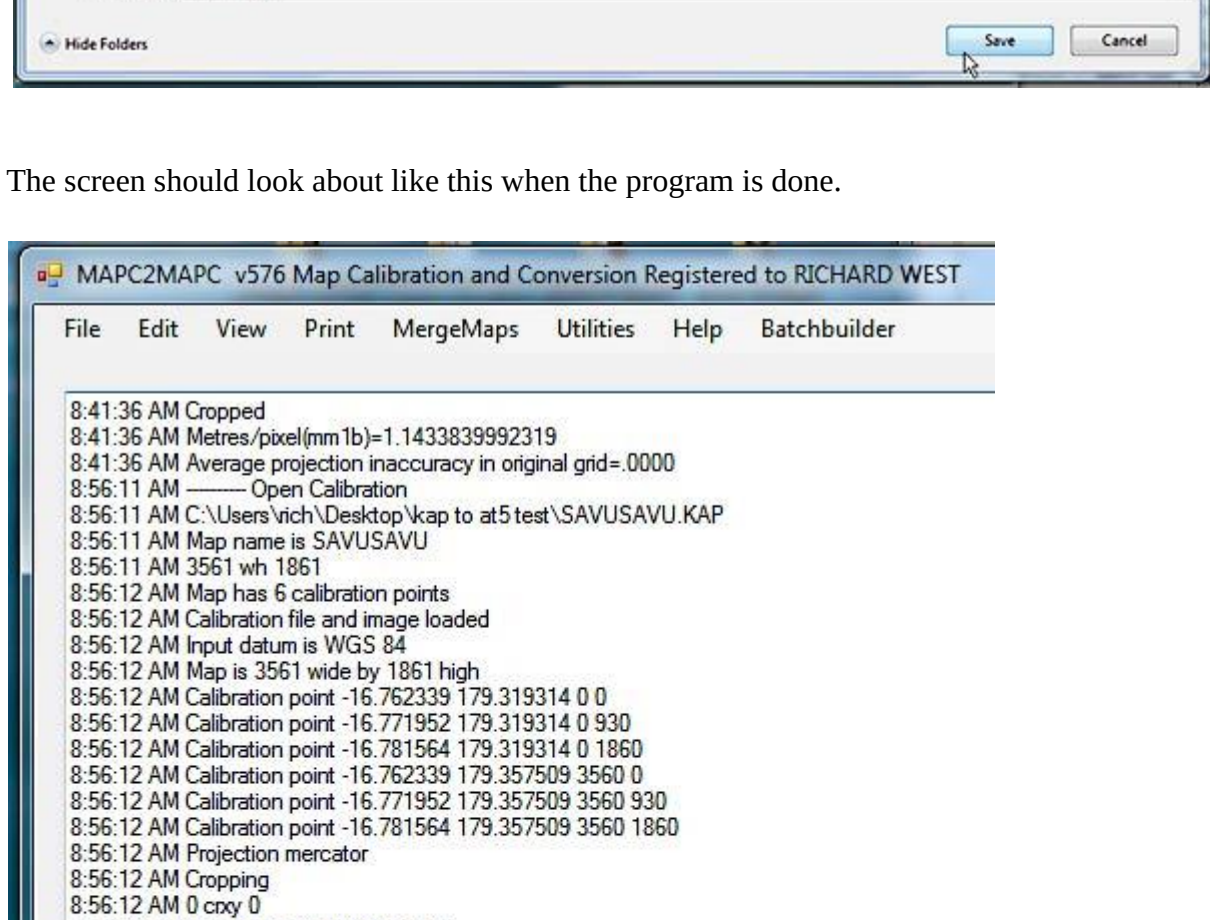
And hit the Open button. You'll get a screen like the one below when it's done.



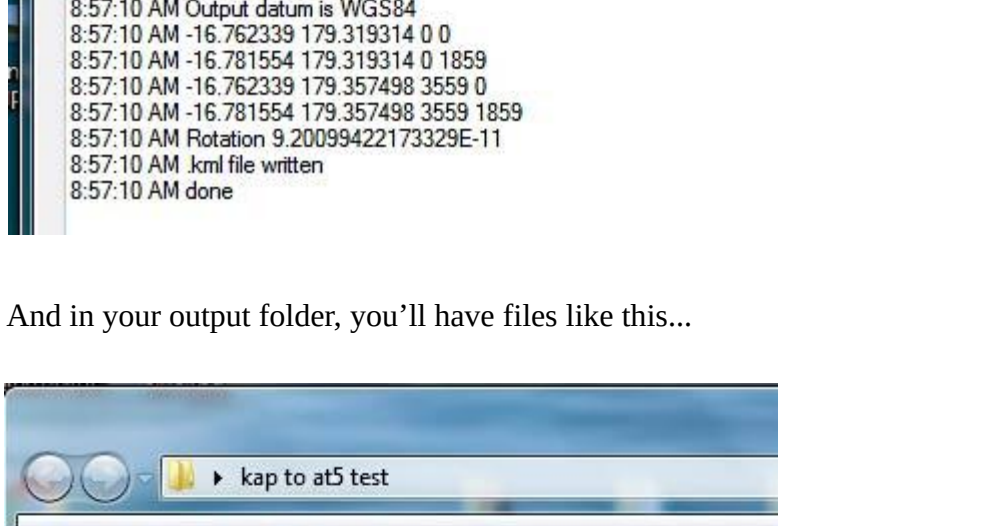
Step 2: Make the JPG and KML files. Select File/Write map and calibrations from the main menu.



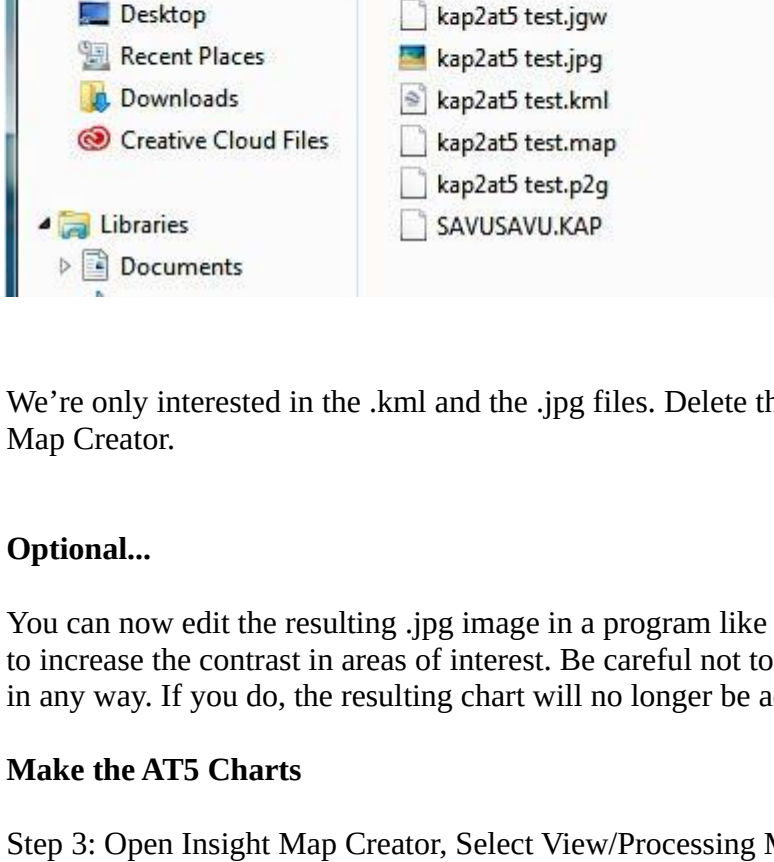
Give you output file a name and select the Save button.



The screen should look about like this when the program is done.



And in your output folder, you'll have files like this...



We're only interested in the .kml and the .jpg files. Delete the rest. They will cause an error in Insight Map Creator.

Optional...

You can now edit the resulting .jpg image in a program like Photoshop if you wish. I often do just that to increase the contrast in areas of interest. Be careful not to change the image size, cropping or rotation in any way. If you do, the resulting chart will no longer be accurate.

Make the AT5 Charts

Step 3: Open Insight Map Creator, Select View/Processing Modes and select Keyhole Mode Window.

Step 4: Click on Add Files and select the .kml file you just made. Click the Build button. It shouldn't take long to complete. There will be a "Process complete" message when it finishes. This step creates a world file (.jgw) with the same name as your jpg. There will now be three files in your working folder.

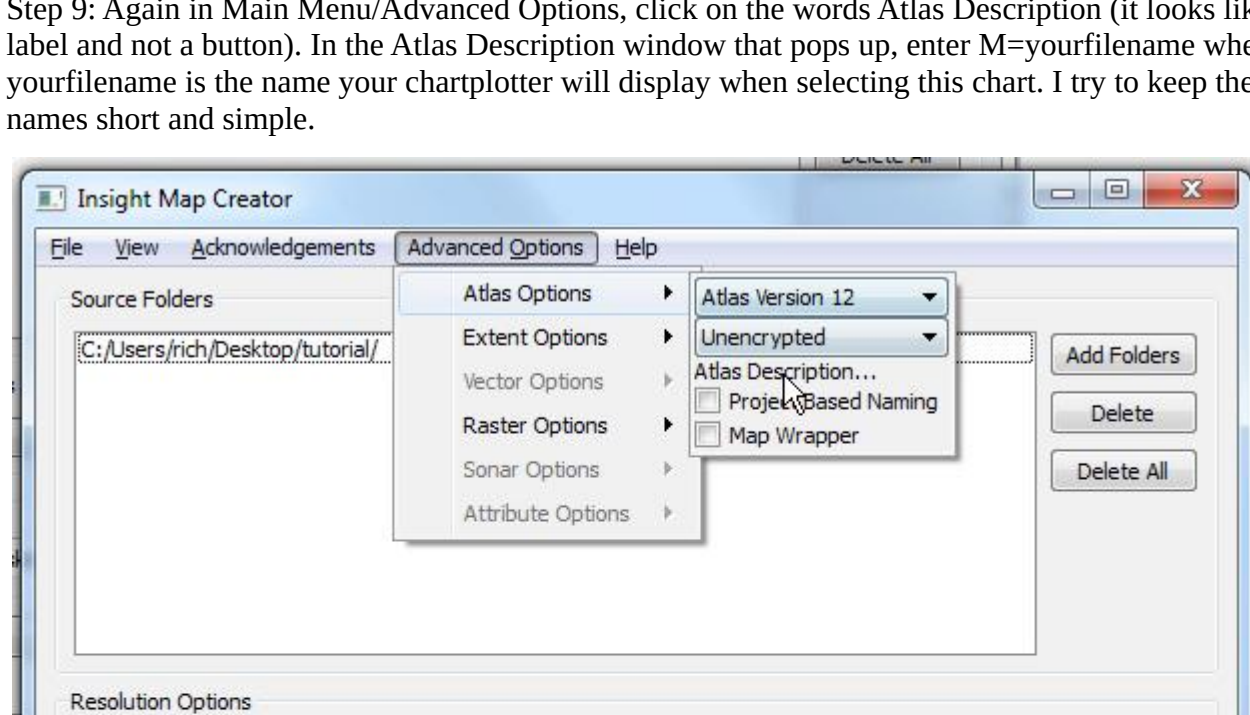
Step 5: Create a working folder to hold the created .at5 charts. I usually name it working and put this in the same folder I've been using up to this point.

Step 6: Select View/Processing Modes/Raster Mode Window (the window shown below will open).

Step 7: Click the Add Folders button and pick the folder you've been using.

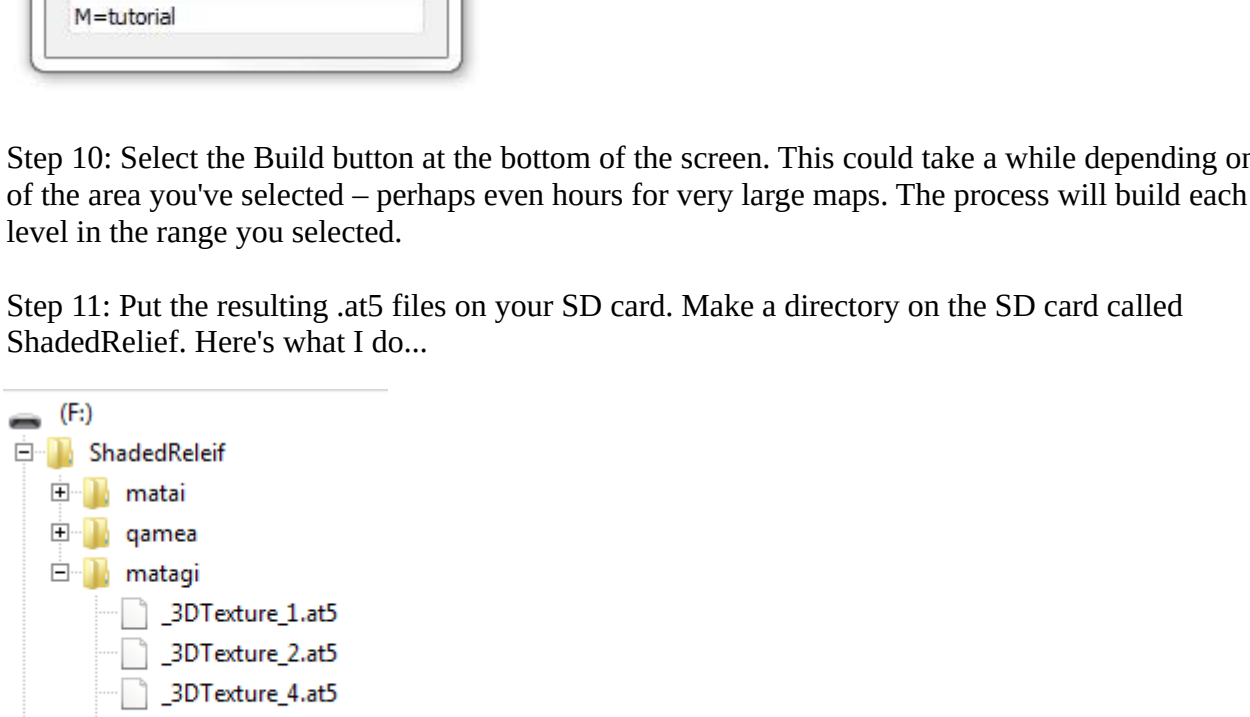
Make Min Resolution 1 and Max Resolution 32. You can go lower than 1 but I've seen no benefit and it'll take a long time to render. Greater than 32 is no problem but I've not seen any benefit.

Make the Work Directory the working directory you created to contain the .at5 charts.



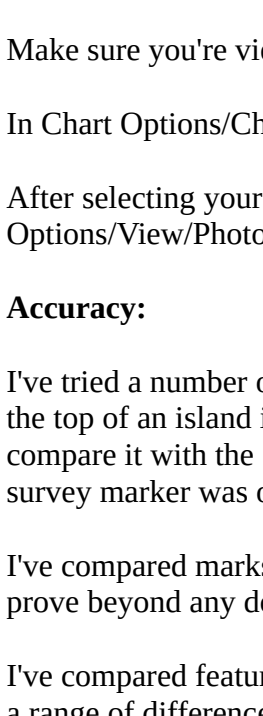
Step 8: In the Main Menu/Advanced Options, select the Atlas Version and make it 12 or 13. I've been using 13 for my evo3 chartplotters. Some chartplotters need a lower atlas version.

Step 9: Again in Main Menu/Advanced Options, click on the words Atlas Description (it looks like a label and not a button). In the Atlas Description window that pops up, enter M=yourfilename where yourfilename is the name your chartplotter will display when selecting this chart. I try to keep the names short and simple.



Step 10: Select the Build button at the bottom of the screen. This could take a while depending on size of the area you've selected - perhaps even hours for very large maps. The process will build each zoom level in the range you selected.

Step 11: Put the resulting .at5 files on your SD card. Make a directory on the SD card called ShadedRelief. Here's what I do...



In the above example, "matagi" is the name of one of the charts I made. Note that the directory name is not the name that appears on your chartplotter. That would be the M=name you selected when making the chart.

Selecting your new chart...

On my evo3 chartplotters, here's what I do:

Insert the SD card with the new chart(s),

Make sure you're viewing the area of your new chart.

In Chart Options/Chart Source, select the chart from the list.

After selecting your new chart, you may not see anything. In this case, you'll need to select Chart Options/View/Photo Overlay and select Full. For me, this often reverts to Off and I have to reset it.

Accuracy:

I've tried a number of ways to verify the accuracy of the resulting charts. We found a survey marker at the top of an island in New Caledonia. We were able to find the lat and long online for that marker and compare it with the chart we made. It was off by about 5 meters but it was hard to see exactly where the survey marker was on the chart.

I've compared marks on features on Navionics charts with the same feature on my .at5 charts only to prove beyond any doubt that Navionics charts are not accurate.

I've compared features on different .kap files I've made with the same feature on the .at5 files and found a range of difference between 0 and 10 meters.

I was disappointed to see any inaccuracy at all. I expect all things computer to be computationally perfect. But then I remember that the underlying source of the position data is a GPS and I seldom see an accuracy greater than 3 meters and it's often 10 meters. I try to keep this inaccuracy in mind to help avoid ECDIS Assisted Groundings (Electronic Chart Display and Information Systems). That's a real term in marine navigation and one of my new favorite expressions.

Conclusion: I believe the resulting .at5 files are as good as they can be and have been incredibly valuable in our navigation.

You can also use the image files you've used to create the .at5 charts to make .kap files that can be displayed in openCPN. I've posted a tutorial about that.

Happy boating!

-Rich
www.twoatsea.com