

I know that many people are using the OpenOrienteeringMap Web application [oomap.co.uk/global/#/new/streeto\\_global/4/-0.1000/51.1000/](http://oomap.co.uk/global/#/new/streeto_global/4/-0.1000/51.1000/) to make quick and simple maps/courses based off OSM map data. Given that the application will also produce the KMZ and KML files needed for MapRunF, I suspect it is even more popular with those setting up MapRunF courses. It does have limitations, primarily no ability to edit the map and the course design being limited to Score-O format only. On the other end of the spectrum there are those that have access to OCAD, Condes and various other paid applications, with lots of mapping experience – this post is not for those!!

My aim was to develop a fairly easy way to start with a base map from OpenOrienteeringMap but allow for some map editing and much more capable course setting while sticking with free software. I'll admit that it took lots of trial and error to get a simple process that did not end up with controls at the wrong place, map shifter and more. I suspect this may be more related to something I'm doing wrong but for now, I'm sticking with what I have here that works! The goal is to start with OpenOrienteeringMap, bring this into OpenOrienteering Mapper ([openorienteering.org](http://openorienteering.org)) where you can make some map edits (including rotating to Magnetic North if desired), then use PurplePen ([purplepen.golde.org](http://purplepen.golde.org)) to design and publish courses and maps. The most challenging issue is using the correct settings to ensure proper geo-referencing (from the initial image) is maintained through the complete process. Second challenge was how to (fairly) easily make use of a better quality image available from the original step.

I put a quick (and so-so quality) YouTube video that walks through the process available at <https://youtu.be/Rlb9ucD2Qis> or, for those more text inclined, a summary below.

Please keep in mind, I'm assuming some knowledge (or willingness to figure out on your own). Happy to get question, comments (positive, negative, alternatives) on this process but can't really help with the use of OOM or PurplePen.

For those that like to jump right in without a video, here is short summary of the highlights – but be aware that the video covers more details of what can and cannot be done. Regardless, check any final product to make sure controls and maps are correct! I'll refer to the web application as OpenOrienteeringMap and the Windows app as OOM – it gets confusing!

I have broken this into two sections – the first is the general workflow to get to the final products. The second is a method to improve the overall quality but starting with a better map image file.

1. OpenOrienteeringMap: select the area you want and save the PDF, JPG, JWG (world file) and KMZ (and note the scale you have selected);
2. Open OOM and 'Create a new map', select the scale of the map, the symbol set and 'Create';
3. Select 'Templates->open template...' and select the JPG from the original step (that has a matching JWG file);
4. Resulting popup should show the Geofenced (World file) selected (if not, you are missing the matching JWG). Select 'Open'. This will open the Map Georeferencing window;
5. With 'Coordinate reference system' (first pull down item) select 'by EPSN code' and in the resulting field replace the 1000 with 3857. This is the EPSN code that is used by the web app to make the World File;
6. If you want to rotate your map to magnetic north, enter the angle into the 'Map North' 'Declination' box;

7. Select OK and a small window pops up to confirm that the world file uses the same Coordinate Reference System. Select 'OK';
8. Now select 'Map->Georeferencing' to bring up the Georeferencing page again;
9. Similar to Step 5 but this time change the 'Coordinate reference system' to UTM and enter your UTM zone, then 'OK'. Note, other systems may work but keeping it as EPSN 3857 will not – the use of the file in Purple Pen will result in messed up locations – trust me! This process is the easiest way to set things up that I have found;
10. Select 'File->Save as' BUT use the OCD (OCAD) format, not the OMAP!! Very important. Seems PP has some problems with the georeferencing when the map file is in OMAP format. Note that each time you save as OCD, you will have a couple of pop up warnings – just go with it;
11. At this stage you can make any map edits you want, including adding magnetic north lines, modifying trails etc. I'm assuming that you are not planning to redo the whole map using the template – if so then you likely know more about this stuff than I do;
12. Open PurplePen when you have completed and saved your map in OOM. Walk through the opening series of pop up windows (all these can be changed later) and at the end, select the saved OCD file from OOM as the Map file. At this stage you are ready to add more items to the map, add controls and courses – and publish them as you would normally (for example, converting the IOF XML V3 course file to KML using the utilities provided at MapRunF);
13. How to get an updated KMZ? If you have made any map changes (either in OOM or PP) that you want shown in MapRunF (otherwise the original one from the web app may be all you need), the easiest way is to set up a course that does not have any controls on it and export an image file. With this, use the 'Create KMZ Map' utility at [console.maprun.net/#/](http://console.maprun.net/#/) ;

### Better Quality

The JPG directly available from the web app is very low quality but there are two ways to get a better version from the original files downloaded – not difficult after you have done it a few times but a bit complex and involves a bit of math. To get a better JPG:

1. Using a Zip tool (7zip is free and works well) open the KMZ and within the 'Files' folder will be a tile\_o\_o.jpg file which you can copy out. As per the documentation with the web app, this is a much higher resolution file than one we used originally. I suggest you rename it to something better.
2. Second option, if you have the tools, is to convert the PDF to an image file (JPG). This can be done with Adobe if you have it or there are some on-line tools (not sure what quality they produce). With Adobe you can set the JPG quality to maximum.

Now for the math (the video start with this at 16:35 and is likely easier to follow but it is not as difficult as it may look). Here goes:

1. You need to find the pixel size of both the original JPG and the new, higher resolution one. I just right click, properties-> details and copy over the x and y dimensions. Lets call these SmallX, SmallY and LargeX, LargeY. The X scaling factor ScaleX is SmallX/LargeX and for ScaleY it's SmallY/LargeY. Both ScaleX and ScaleY should be less than 1 or you have something wrong.
2. Keeping this really simple, the world file has 6 lines with line 1 and 4 representing the pixel size in the x and y direction in map units/pixel (ignore the other lines). To change the World File to match the new higher resolution image, just multiple line 1 by ScaleX and line 4 by ScaleY.

That's it! Save the new World file with the same name as the larger image and make sure it has the JGW extension. Watch that your text editor does not add the .txt extension on.

3. I just use a very simple excel spread sheet where enter the X,Y size for the two files, paste in the original world file which calculates the new one that I can copy and paste into the text file.

	A	B	C	D	E
1		X	Y		
2	Original JPG	841	595		
3	New JPG	4806	3399		
4					
5	Scale	0.174989596	0.175051	=B2/B3 and =C2/C3	
6					
7		Orig WF		New WF	
8		5.01971312		0.878397573	=B5*B8
9		0		0	
10		0		0	
11		-5.01971312		-0.87870824	=C5*B11
12		-8441916.023		-8441916.023	
13		5678157.171		5678157.171	
14					
15					
16					
17					