

## **MAKING A NEW MAP – PART 1**

So you want to make an orienteering map from scratch eh? Below is a list of what you will need before you start.

1. Patience,
2. Persistence,
3. Time,
4. A tolerant partner/friend to feed you when things are working and you are on a roll and also to provide a shoulder to cry on when things are not working,
5. A high level of computer literacy including being able to use old school command line DOS programs.
6. A decent computer with more than a few gigabytes of RAM and spare disk space,
7. A fast internet connection as those gigabytes mentioned above have to be downloaded,
8. Checked that the area to be mapped has not already been mapped. (Refer to your State's mapping database e.g. for NSW - [ONSW mapping database](#), or the more recent [OA Mapping Database](#) )

Still keen?? OK then these instructions assume that you have not done any mapping before but have used orienteering maps and know what they look like. The following steps use the Open Source mapping software called Open Orienteering Mapper (OOM) as it is readily available and is free as opposed to OCAD.

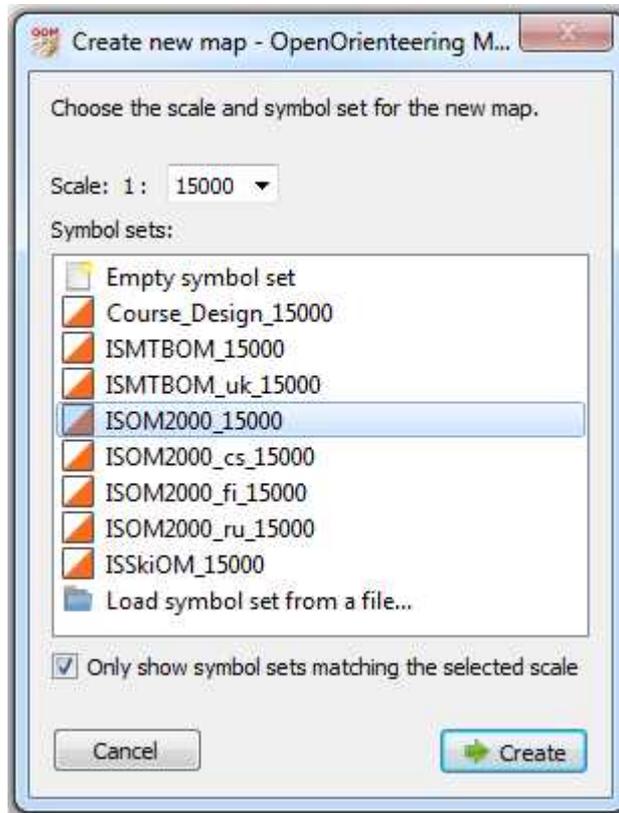
Let's get started then,

1. Download [Open Orienteering Mapper](#) (OOM) and install.
2. Download [Open Street Map file converter](#) and extract ZIP file.
3. Go to [Open Street Map](#) and find the area you wish to map.
4. Select "Export" from the top of the screen.
5. This brings up a menu on the left side of the screen and if you select the "Export" button it will export the map shown on the screen. To export part of the map then select "Manually select a different area" and drag the corners of the box that appears on the screen to the correct position then select the "Export" button.
6. A file called "map.osm" will be downloaded to your computer. You will either be asked where to save it to or it will be automatically saved to your "Downloads" folder depending on your default settings.
7. Locate the file and move it to the same directory as the Open Street Map file converter (osm2xmap.exe) that you extracted in Step 2.
8. In whatever file explorer you use, drag the "map.osm" file and drop it onto the "osm2xmap.exe" file to start the conversion.
9. If following dialog box appears select "Run"



10. If the IT gods are smiling on you then a DOS window will appear showing the progress of the conversion then disappear and a new file named "out.xmap" will magically appear in the directory that you used for Step 8.
11. Open Open Orienteering Mapper and select "Create a new map..." from the left side of the screen and the dialog box shown on the next page appears.

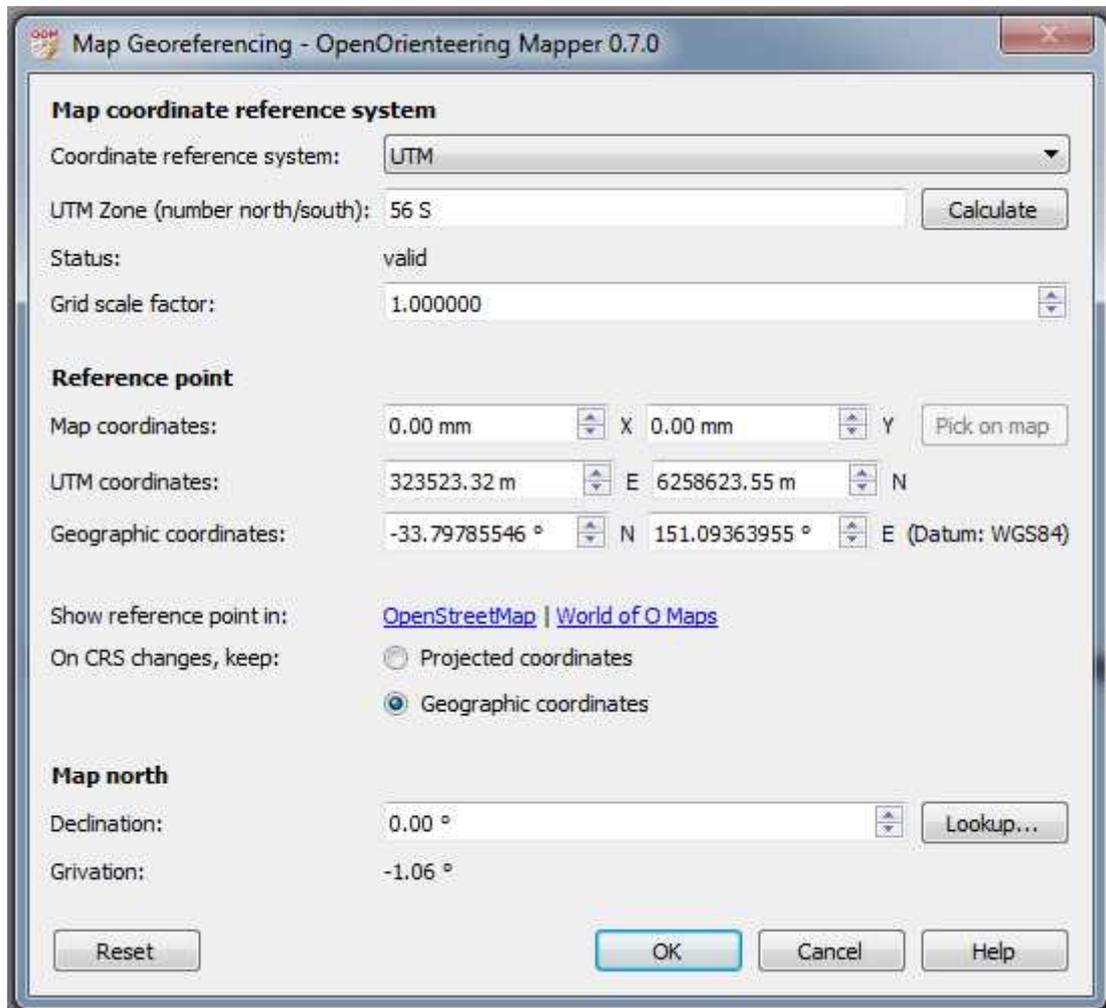
12. The converted file is created at a 1:15,000 scale so leave the scale as is and select the “ISOM2000\_15000” symbol set as it is the best default to start with. (You can always change it later if you wish.) Select the “Create” button to continue.



13. First thing we need to do is import the original Open Street Map file in order to get the correct georeferencing, so from the top menu select “File” -> “Import”. Using the dialog box that appears, navigate to the directory where the “map.osm” file was located and select it and press the “Open” button.
14. The following dialog box appears and select “Georeferenced” so is imported at the correct coordinates.



15. The following Georeferencing dialog box appears and from the “Coordinate reference system” pulldown select “UTM” and all of the georeferencing information from the Open Street Map file will automatically appear. Select OK to continue.



16. Another dialog box asking “Should the waypoints be imported as a line going through all points?” Select NO as there are no waypoints in our file.
17. Your imported map should appear on the screen as a series of grey lines. We will now put this on a separate “part” or layer of the map that can be deleted later once the version with the correct symbols is imported.
18. From the top menu select “Map” -> “Rename current part...” and type “OSM basemap” in the dialog box and select OK.
19. Now create another part for the version created by OSM2XMAP. From the top menu select “Map” -> “Add new part...” and type “Basemap” in the dialog box and select OK.
20. In the toolbar at the top of the screen a new dropdown box should have appeared which shows which part/layer is active. Ensure that this reads “Basemap”
21. From the top menu select “File” -> “Import”. Using the dialog box that appears navigate to the directory where the “out.xmap” file was located and select it and press the “Open” button.
22. This new map will overlay directly over the top of the OSM map but the grey lines will have been converted to the standard symbols where the references from the exported Open Street Map file match with the configuration file.

23. If the conversion is not to your liking then you can change the symbols used by editing the "ISOM\_rules.yaml" configuration file in the OSM2XMAP directory. This is a text file that tells the program which elements in the OSM file to convert to which symbol. It is just a matter of changing the symbol numbers to the ones that you want.

An example of this is that residential roads are imported as solid block lines (symbol 504) whereas in Australia we tend to use brown lines with a black border (symbol 503). You can edit the "ISOM\_rules.yaml" and change each instance of 504 to 503. Refer extract of this file in Figure 1 below.

```
- 412:
landuse: orchard

- 413:
landuse: vineyard

- 419:
natural: tree

- 420:
natural: bush

- 501.0:
highway: motorway

- 502:
highway: primary OR secondary OR tertiary
```

*Figure 1 : Excerpt from "ISOM\_rules.yaml" file*

24. Once you have done that and saved the file, redo the conversion (Steps 8 -10) and import the new "out.xmap" again (Steps 20 – 22).
25. Once you are happy with the basemap import then you can delete the original OSM basemap part/layer. From the part pulldown box in the toolbar select "OSM basemap" then from the top menu select "Map" -> "Remove current part". Select "Yes" to confirm.
26. Now you have a base map so you had better save all that hard work. From the top menu select "File" -> "Save as...". Create a completely new directory for the map and save the file.

Note with regards to changing symbols in Step 23. The other way to change all of the items is to select one of the objects that you wish to change and you will see that the corresponding symbol in the symbol library on the right side of the screen will be highlighted. Right click on this symbol and select "Select all objects with this symbol" which will, obviously, select all the objects with that symbol. Now right click on the symbol that you wish to change it to and select "Switch symbol of selected object(s)" to change them to the new symbol.

One thing you might notice is that the symbols in the symbol library for the imported objects are added to the end of the symbol set instead of being incorporated in it. Not sure why this is but be careful as you now have duplicate symbols. You may want to switch all the imported symbols to the standard symbols then delete the duplicates.

Another thing you may notice are a number of grey dots on your imported map as seen in Figure 2 below. These are items that were not included in the configuration file and so were imported as unknown objects which are shown as grey dots. Figure 3 shows the same map area as Figure 2 in Open Street Map and you can see that the locations of the grey dots correspond to the locations of points of interest in Open Street Map.

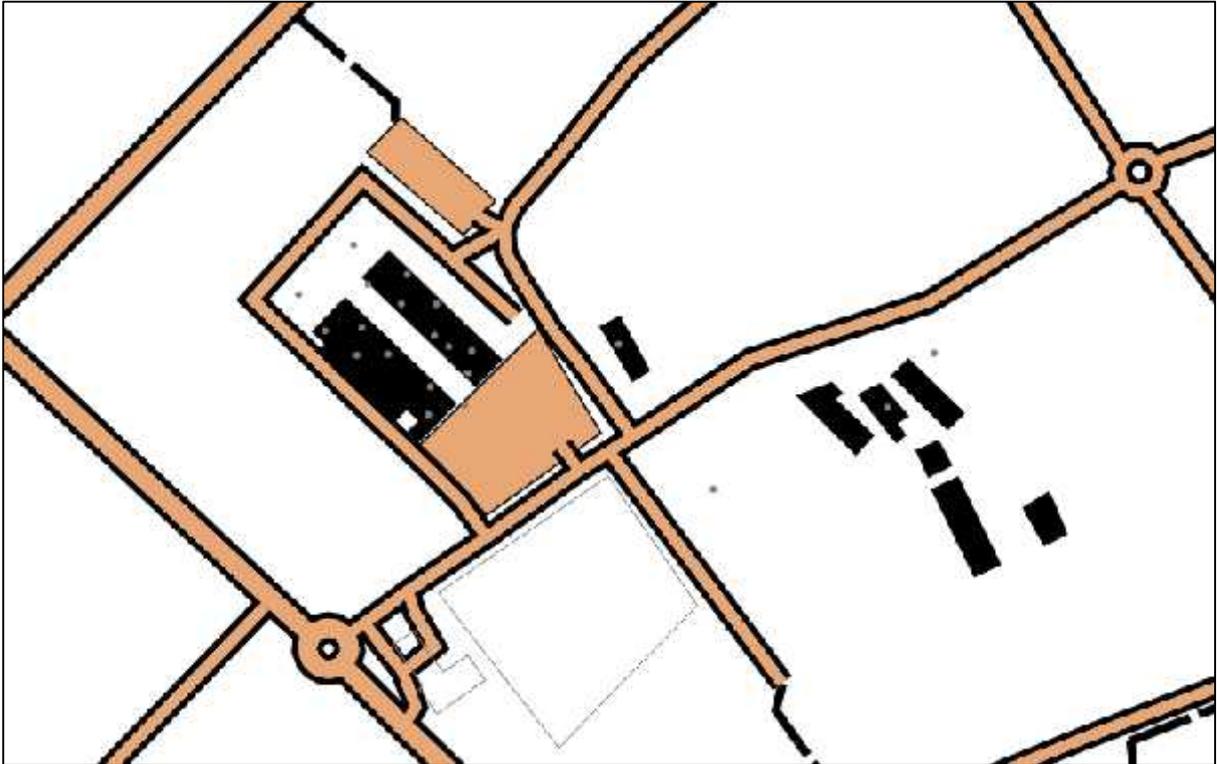


Figure 2 : Imported map in OOM..

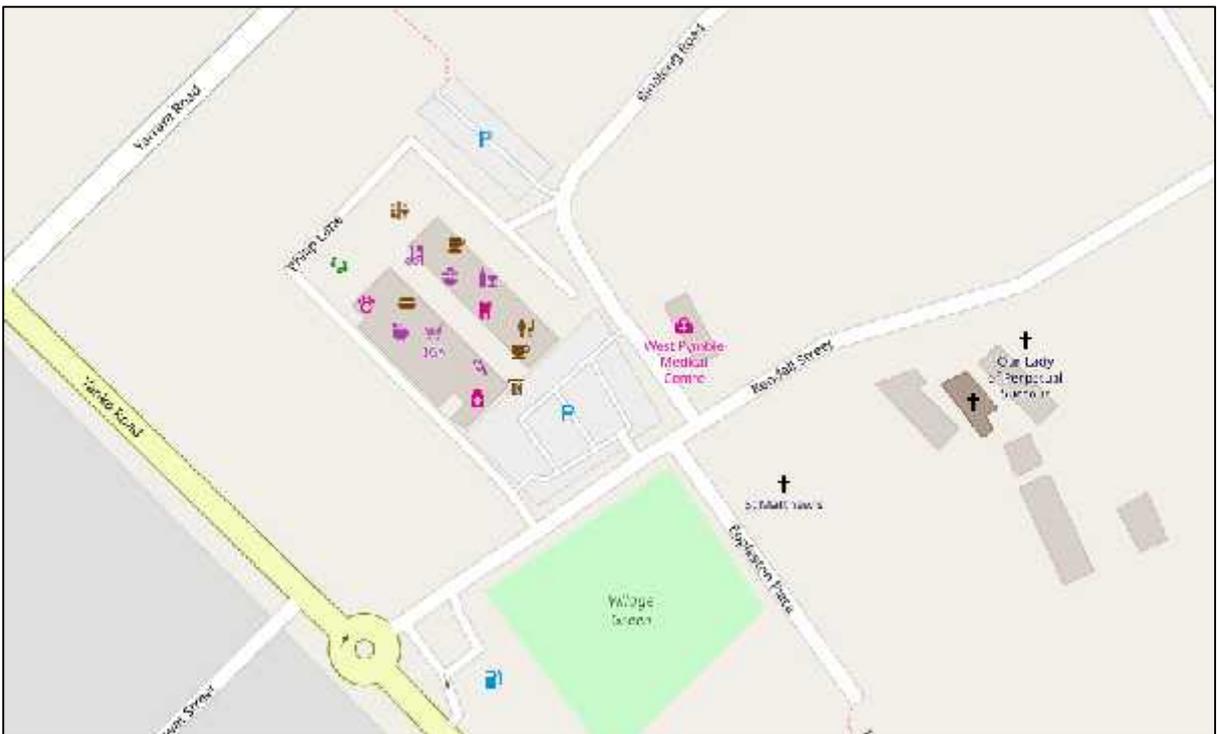


Figure 3 : Open Street Map screenshot

You will see that your imported map has a magenta box around the area that you exported from Open Street Map with a number of lines/roads/paths coming out from it. Now you can either keep this as your base map border or delete it and create another one.

To crop around an area select the bounding box and from the top menu select "Tools" -> "Cutout". This highlights the box and press the Enter key to crop the items outside of the bounding box.

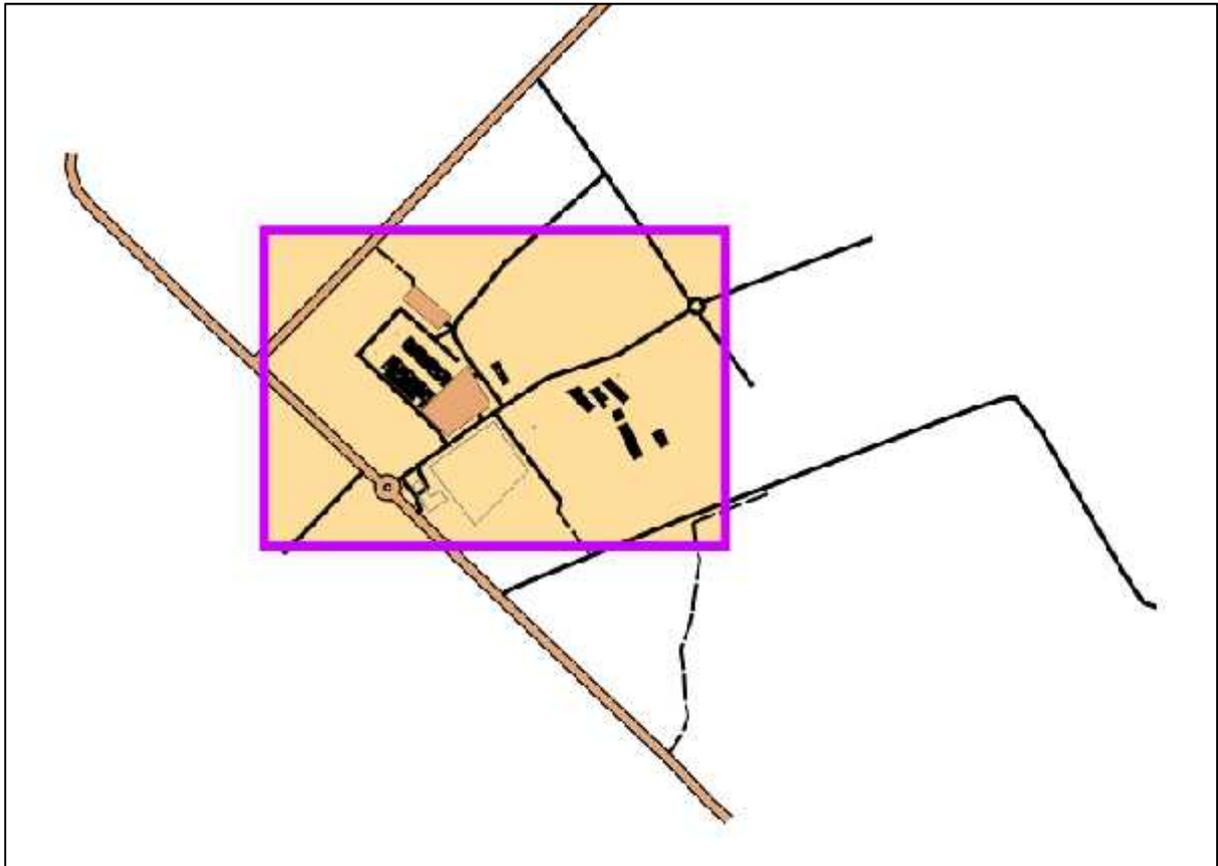


Figure 4 : Raw imported map

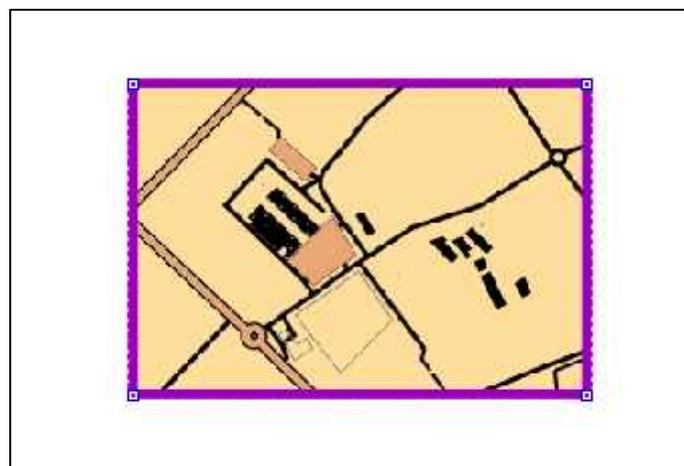


Figure 5 : Map after cropping.

You can check road and track locations by importing GPS tracks from whichever tracking program you use. To do this export the your track in the form of a GPX file which can be imported into OOM but before you do it is advisable to create another part in the map (refer Step 19) such as "GPS trace". Make this the active part or layer by selecting it from the pull down box on the toolbar then importing the GPX file using "File" -> "Import". A dialog box as shown in Step 14 will appear asking if you wish to insert it as georeferenced or not and of course you will select the "Georeferenced" like all good mappers should.

Your GPS track should appear overlaid on your map in the correct location as a grey line which can be change to whatever symbol you wish to make it clearer. Go back to the Basemap part/layer and adjust tracks based on the trace. When you are finished you can delete the part/layer.

Another method of overlaying GPX track is by bringing it in as a "Template". From the top menu select "Templates" -> "Open template". Navigate to the directory where the GPX file is located and select it. Again the Georeferencing dialog box should appear and you should know what to select by now! If the dialog box doesn't appear then try again as I have found that sometime it doesn't appear the first time.

To manage templates from the top menu select "Templates" -> "Template setup window" and the list of templates will appear on the right of the screen where the symbol library was. From this window you can turn templates on and off, delete them, move them if their insertion point is not correct.

I have found templates very useful as they can be turned on an off but have had problems with them not inserting in the correct location, i.e. not georeferenced correctly, but have not figured out exactly why. I have found importing tends to bring objects in more reliably and, using parts, they can be worked on where as templates can't be edited.

Still with me? Excellent. Keep playing with the OOM program to get the base map as good as you can before we move to Part 2 and start adding the contours, vegetation and features.