

Using Quantum GIS with GPS Data

1 Loading GPS Point (Waypoint) Data Into Quantum GIS

1. Start Quantum GIS.
2. Turn on the GPS.
3. Plug in the USB cable to the GPS, and to your computer.
4. Click “Plugins”.
5. Select “Gps”.
6. Click on “Gps tools”.
7. Select the “Download from GPS” tab.
8. For “GPS device”, select “Garmin serial”.
9. Next to “Port”, click “Refresh”. Wait for about 30 seconds.
10. For “Port”, select “usb:”.
11. For “Feature type”, select “Waypoints”.
12. For layer name, enter a name. For example, enter “GPS Points”.
13. Next to “Output file”, click “Save as...”
 - a. Navigate to your “GIS_Workshop” folder.
 - b. For “File name”, enter a name. For example, enter “GPS_Points”.
14. Click “Save”.
15. To load the data from the GPS, click “OK”.
16. You will see a “Downloading data” screen appear. When it is done, the GPS data will be added to your map. The GPS data is currently saved in GPX file format. We need to convert it to a shapefile so we can edit it. See the next section (section 2) to see how to do this.

2 Converting from a GPX file to a Shapefile in Quantum GIS

1. If you already have the GPX file loaded in Quantum GIS, skip to the next step.
 - a. If you do not already have the GPX file loaded, start Quantum GIS and add the GPX file to your map using the “Add vector layer” button.

- b. You will see a “Select vector layers to add...” dialog box.
 - i. If you are loading points – choose “waypoints”.
 - ii. If you are loading lines or polygons – choose “tracks”.
2. Right-click on the GPX layer and choose “Save as...”.
3. The “Save vector layer as...” dialog will appear.
4. Next to the “Save as” box, click “Browse”.
5. Navigate to the folder where you want to save the new shapefile.
6. In the “File name” box, enter a name. For example, enter “Point_shapefile”.
7. Click “Save”.
8. Click “OK”.
9. You will see a box that says “Export to vector file has been completed”. Click “OK”.

3 Loading GPS Line (Track) Data into Quantum GIS

1. Start Quantum GIS.
2. Turn on the GPS.
3. Plug in the USB cable to the GPS, and to your computer.
4. Click “Plugins”.
5. Select “Gps”.
6. Click on “Gps tools”.
7. Select the “Download from GPS” tab.
8. For “GPS device”, select “Garmin serial”.
9. Next to “Port”, click “Refresh”. Wait for about 30 seconds.
10. For “Port”, select “usb:”.
11. For “Feature type”, select “Tracks”.
12. For layer name, enter a name. For example, enter “GPS Tracks”.
13. Next to “Output file”, click “Save as...”.
 - a. Navigate to your “GIS_Workshop” folder.
 - b. For “File name”, enter a name. For example, enter “GPS_Tracks”.

14. Click “Save”.
15. To load the data from the GPS, click “OK”.
16. You will see a “Downloading data” screen appear. When it is done, the GPS data will be added to your map. The GPS data is currently saved in GPX file format. We need to convert it to a shapefile so we can edit it. See the section above (section 2) to see how to do this.

4 Converting GPS Line (Track) Data to a Polygon in Quantum GIS

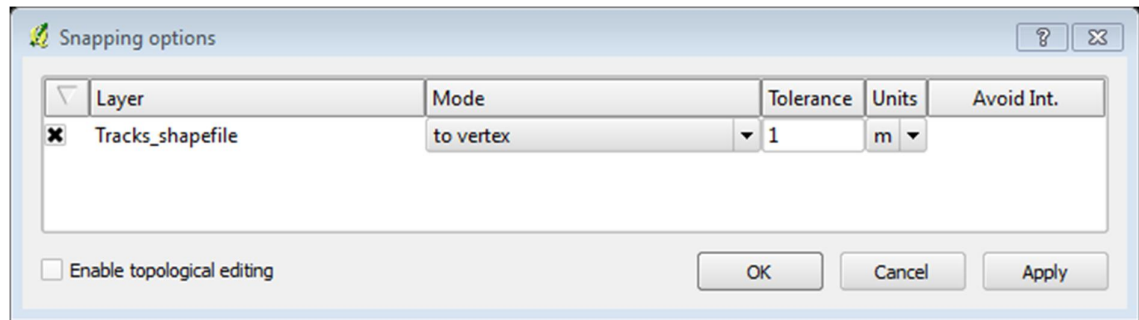
1. Start Quantum GIS.
2. First the GPX file must be converted into a shapefile. See section 2 for how to do this.
3. Add the shapefile with the GPS track data as a new layer using the “Add vector layer” button.
4. First we need to edit the line so that it is a closed polygon. Right-click on the track layer in the table of contents, and choose “Toggle editing”. A series of “x” marks will appear on the line, each one representing a point where the GPS collected data.
5. Now open the attribute table. To do this, right-click on the shapefile in the list of layers, and choose “Open attribute table”.
6. There will be one track called “Active log”. We want to delete this track. First make sure you do not have anything else selected, by clicking the “Deselect features from all layers” button, that looks like this:



7. Now click on the “Active log” track in the attribute table.



8. Now click on the “Delete Selected” button, that looks like this:
9. A box will come up that says “Delete 1 feature(s)?”. Click “OK”.
10. Now we want to convert the remaining tracks to be closed polygons. On the menubar, click “Settings”, then choose “Snapping options...”.
11. Click the checkbox next next the track layer, and enter “1” in the box under tolerance. Your box should look like this:

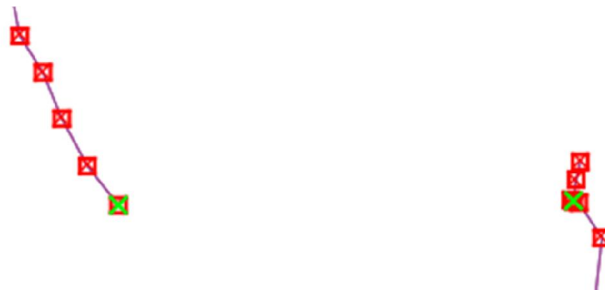


12. Click “OK”.

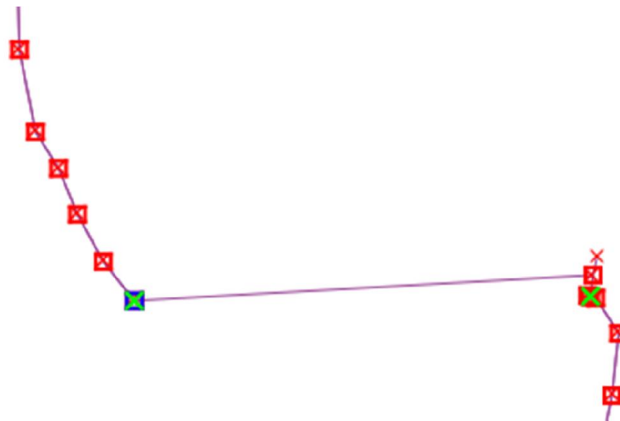


13. Click on the “Node tool” button, which looks like this:

14. Now click on a node at one end of the track line, and drag the node over to the end of the other line. It will “snap” so that it connects, making a closed polygon. Your image should change from looking like this:



To looking like this:



15. If you collected more than one track, repeat steps 13 to 14 for each track, so that each track is a closed polygon.

16. Right-click on the track layer in the table of contents, and choose “Toggle editing”. A box will appear asking “Do you want to save the changes to layer “Tracks_shapefile”? Click “Save”.

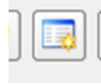
17. Now we want to convert our line shapefile into a polygon shapefile.
18. On the menubar, click “Vector”, then choose “Geometry tools”, then choose “Lines to polygons”.
19. The “Lines to polygons” dialog box will appear.
20. For “Input line vector layer”, choose the track shapefile.
21. Under “Output polygon shapefile”, click “Browse”.
22. Navigate to where you want to save the shapefile.
23. Next to “File name”, enter a name. For example, “GPS_Polygon”.
24. Click “Save”.
25. Click “OK”.
26. A dialog box will appear that says “Would you like to add the new layer to the TOC?”. Click “Yes”.
27. Click “Close”.

5 Adding a New Column to an Attribute Table

Sometimes you want to add new attributes to a dataset, for example you may want to add an attribute called “Name” that gives the name of each canal you collected. To do this, follow this process:

1. Open Quantum GIS.
2. Add the shapefile you want to edit, by using the “Add Vector Layer” button.
3. Right-click on the shapefile in the table of contents, and choose “Toggle editing”.
4. Now open the attribute table. To do this, right-click on the shapefile in the list of layers, and choose “Open attribute table”.
5. To add a new column, click the “New Column” button at the bottom of the attribute

table. The button looks like this:



6. The “Add column” dialog box will open. In the “Name” field, enter the name of the column. For example, enter “FeatureName”.
7. In the “Type” field, choose “Text (string)”.
8. Set the “Width” field to 50.
9. Click “OK”.

10. The new field is now added to your attribute table. To edit the values in the field, scroll over to the new field in the attribute table. You can now type values into the attribute table to name each feature.
11. When you are finished adding the new attributes, Right-click on the track layer in the table of contents, and choose "Toggle editing". A box will appear asking "Do you want to save the changes to layer "Tracks_shapefile?" Click "Save".