

Manual Map Matching Tutorial

This interactive GUI lets you trace the paths of a collection of trajectories on a map.

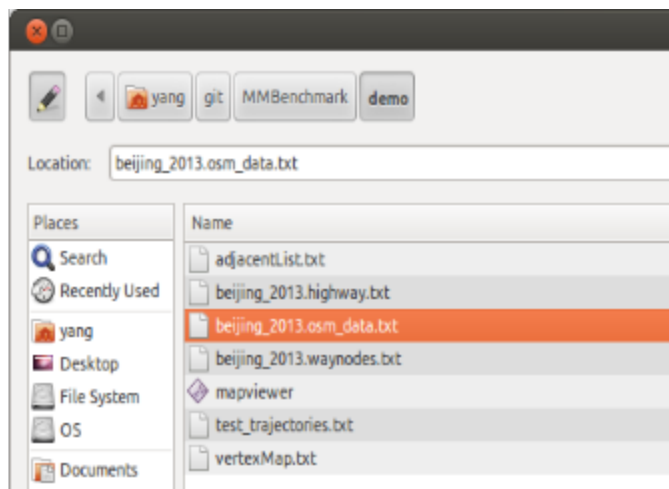
Input files

- Map files
 - beijing_2013.osm_data.txt
 - beijing_2013.way_nodes.txt
 - beijing_2013.highway.txt
- Trajectory file:
 - test_trajectories.txt

Tracing workflow

Note: This GUI is very slow (especially on virtual machines). Please be patient when loading/saving files and zooming the map.

1. Load the map file by clicking “Open Map”. In the file selection dialog box, select any one of the files that start with “beijing_2013” and click “Open”. (The GUI recognizes the prefix.) It will take several seconds to load.

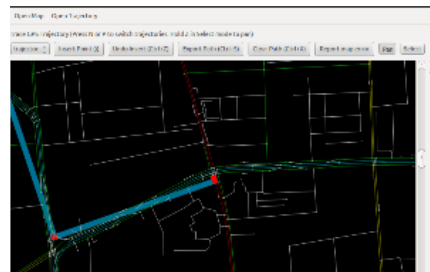


2. Load the trajectory file by clicking “Open trajectories”. If the trajectories don’t show up, you need to change the zoom level, e.g.

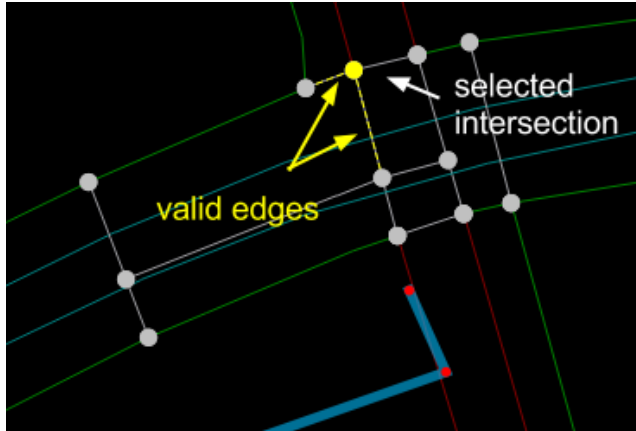
a. Click on the zoom out button below the slider



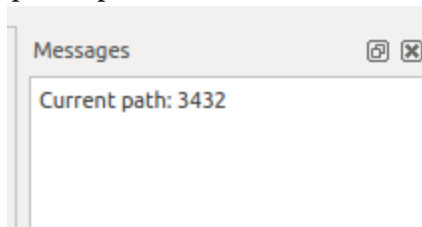
b. Now the window centers at the beginning of the first trajectory



3. Zoom in at the first trajectory point, and start tracing by clicking on the nearest road intersection (grey). The selected point and its outgoing edges will be highlighted as follows:

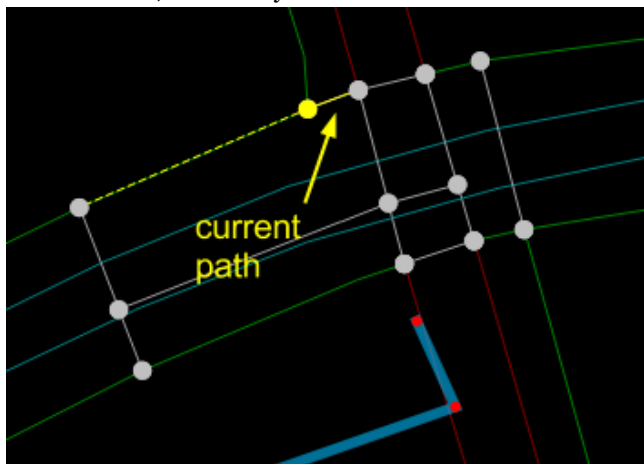


Click “Insert Point” to add the selected point in the path. The Message window will show the updated path.

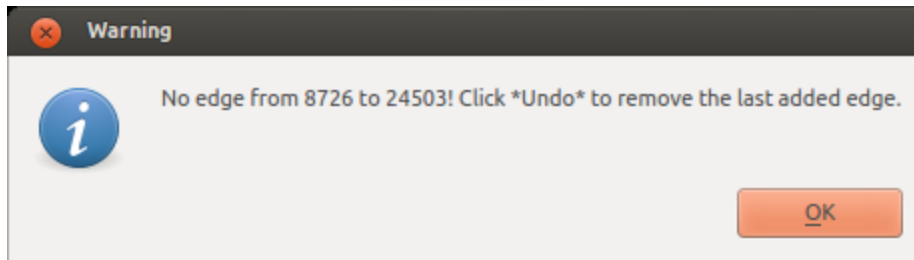


The number 3432 in the above figure is the vertex id of the added point. (*Hint: hovering the mouse over any intersection (light grey) on the map will bring up a tooltip displaying its id; hovering over a trajectory point (red) will tell you its index and coordinates.*)

4. Select one of the neighbors of the last inserted point, and click “Insert Point”. A yellow path will be drawn, and now you can continue to add the next point.

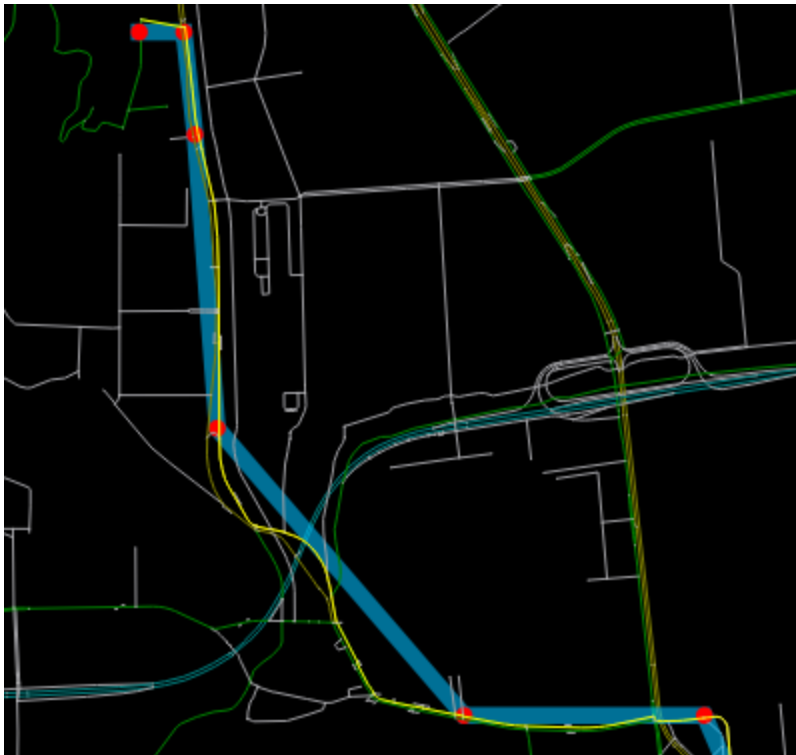


5. Clicking “Undo Insert” will remove the last point from the saved path, and the current last point will be auto-selected. You can remove the entire path by repeated undos, or click on the “Clear Path” button.
6. When you insert a point not adjacent to the previous point, a warning message will show up:



Important: An edge will be added regardless of the warning (since the map may have errors). Most often you want to “Undo” that added point.

Final traced path (yellow) :



7. After the tracing is complete, click “Export Path” to save the path. Suppose you name the output file path.txt, two files will be created
 - a. **path.txt** contains the vertex ids of the path
 - b. **path.coor.txt** contains the complete coordinates of the path
 All files are written in “append” mode, so that you can overwrite path.txt every time you save a new path.

After files are successfully saved, the path will be auto-cleared from the screen. You can move on to the next trajectory by clicking “n” (next).

Tips & Warnings

- Do **not** load another map when a map is already open. Simply open a new instance of the GUI
- It is not recommended to load a new trajectory file when some trajectories are already loaded
- Sometimes you may not be able to find a reasonable path to get around all sample points.
- Use keyboard shortcuts (See the table below). In particular, holding down Z in select mode

lets you pan the map

- If you switch to another trajectory when there is an unsaved path on the map, the “export path” file dialog will pop up as a reminder. If you click “Cancel” , the path will remain on the screen with the new trajectory. You should clear it before tracing the new trajectory.

Summary of Keyboard Shortcuts

n	jump to the next trajectory
p	jump to the previous trajectory
z	Hold down z in Select mode lets you pan the map
i	insert the selected point to the path
Ctrl+Z	remove the last inserted point from the path
Ctrl+S	export the current path to file
Ctrl+X	clear current path