

GEOG 204 - Tutorial 6

Reverse Geocoding

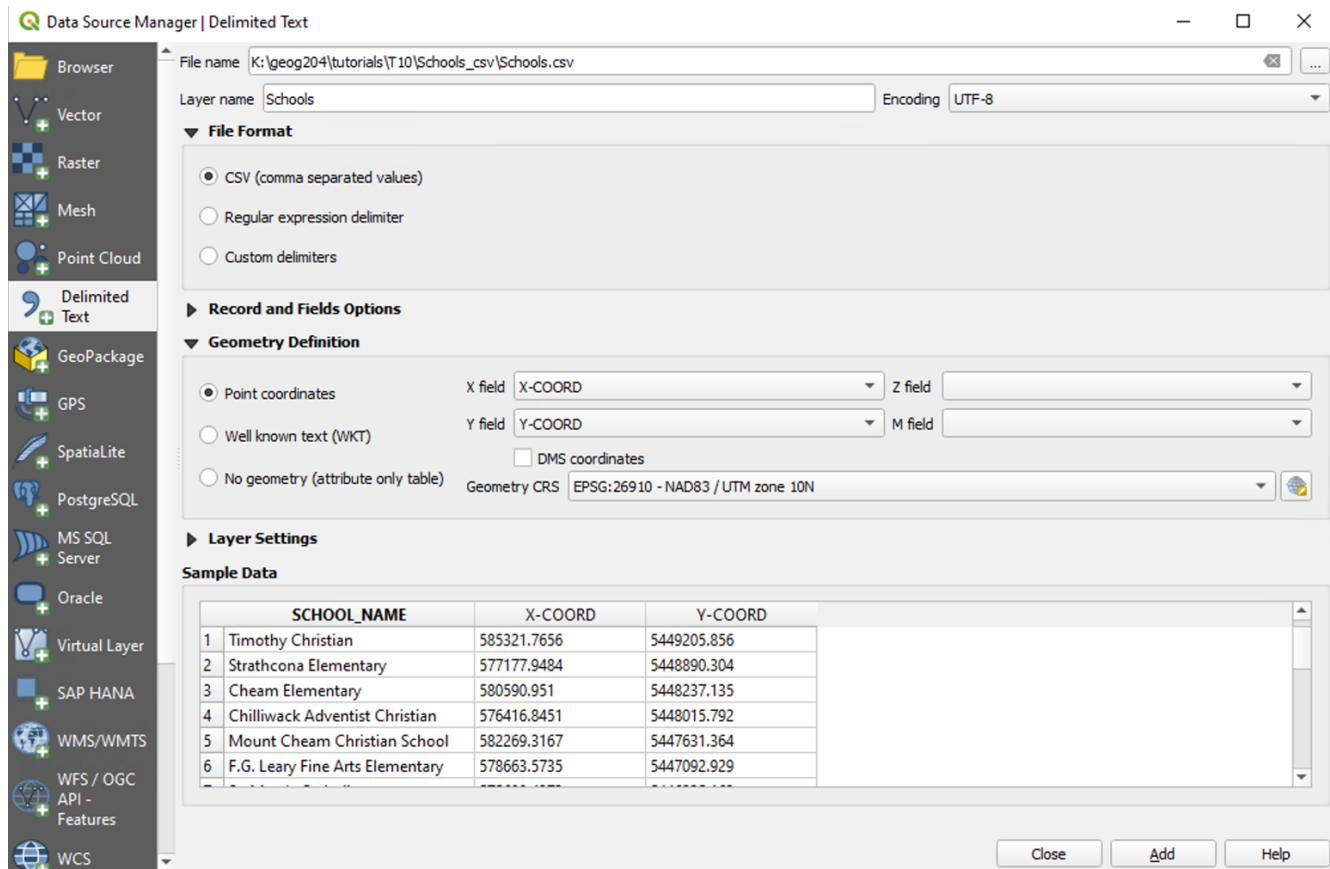
In this exercise, we will explore reverse geocoding using QGIS and ArcGIS Pro. You will be building on your skills already acquired during the Geocoding lab.

You are provided with street data for the city of Chilliwack, a shapefile showing the locations of the schools in the city and a CSV file with the names of the schools and their respective coordinates. The task before us is to reverse geocode on the data in the CSV file in order to get the street address for the schools.

As usual, copy your data from the L drive into a folder on the K drive.

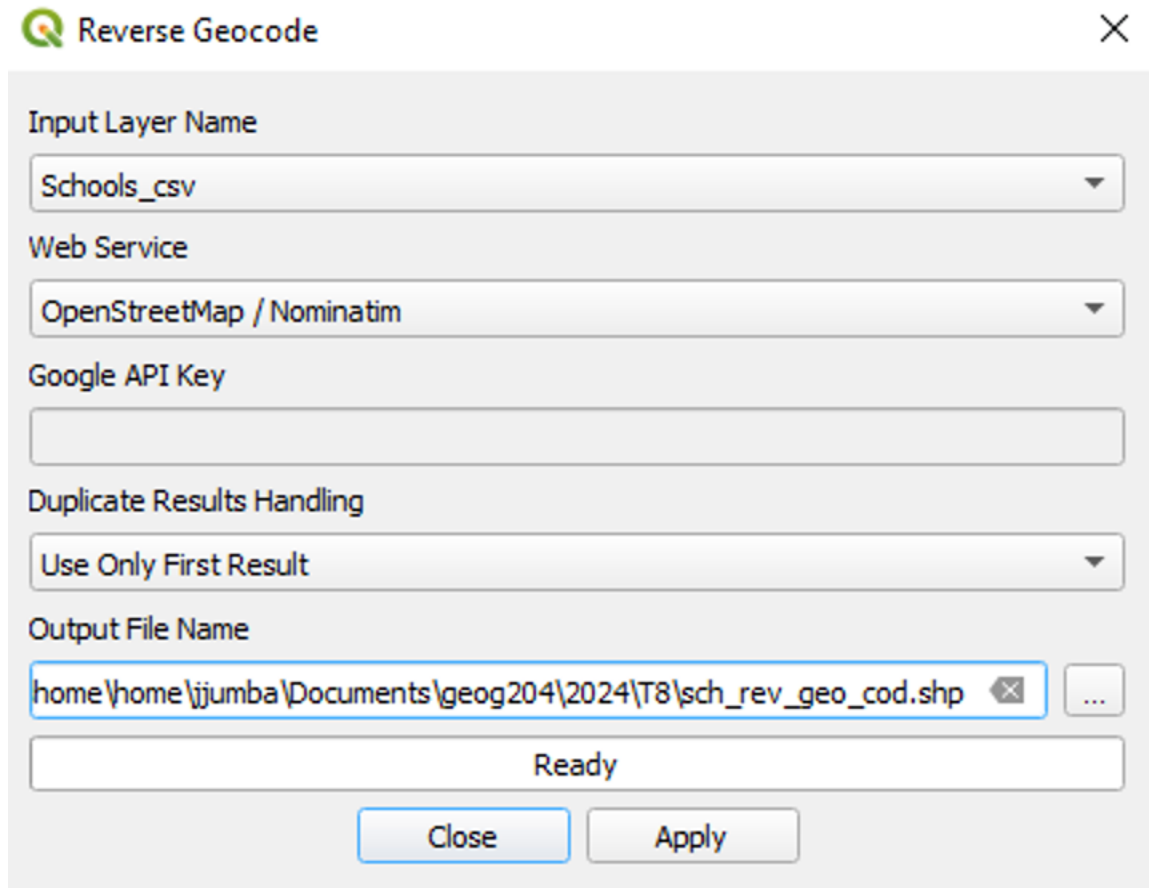
Reverse Geocode with QGIS

1. Add your shapefiles in QGIS.
2. Next, we want to display the data in the CSV using QGIS to examine how well it matches with the schools in the shapefile.
 - First, using the metadata file, which in this case the is the “Schools.txt” file located in the same folder as the CSV
 - **What is the CRS of the CSV data?**
 - Next, display the CSV points in QGIS. On the main menu, go to Layer >> Data Source Manager. In the left-hand column, choose Delimited Text.
 - In the File name field, select the CSV file; under the Geometry Definition section, assign the Point coordinates fields their respective attributes. Make sure that the CRS is NAD83/UTM Zone 10



- How do the points match with the school locations in the polygon shapefile?

3. On the main menu MMQGIS >> Geocode >> Reverse Geocode
 - Specify the webservice as OpenstreetMap/Nominatim
 - Duplicate Results Handling: Use only first result
 - Specify the output file name and make sure it is in your K drive



Reverse Geocode

Input Layer Name
Schools_csv

Web Service
OpenStreetMap / Nominatim

Google API Key

Duplicate Results Handling
Use Only First Result

Output File Name
home\home\jjumba\Documents\geog204\2024\T8\sch_rev_geo_cod.shp

Ready

Close Apply

4. Open the attribute table of the results file from the step above.
 - The school addresses are in the “display_na” field.
 - **What do you think of these results? Are all the school names identified correctly? How you explain the other names provides?**
 - **Also look at the latlong field. These are the coordinates of the coordinates of newly geocoded points. Are these coordinates in the same CRS as the those in the X-Coord and Y-Coord fields?**

Save your work and close QGIS

Reverse Geocode with ArcGIS Pro

5. Open ArcGIS Pro and add the two shapefiles and the CSV file.
6. In the Contents Panel, Right Click on the Map frame and make sure that the CRS is NAD83/UTM Zone 10
7. Display the points in the CSV file
 - Right Click on the schools CSV >> Create Points From Table >> XY Table To Point. Make sure the Coordinate system is NAD_1983_UTM_Zone_10N and that the X-Field and Y-Field are assigned appropriately

In ArcGIS, we need to create an “address locator” which one can use to do geocoding and reverse geocoding. Alternatively, one can use an API but that is beyond the expectations for this exercise.

8. On the main menu, Analysis >> Tools

- Search for Create Locator
- Specify the parameters as shown in the images below. Make sure the Language Code field is set to English. Your results may come with warnings. We will ignore them.

Parameters Environments

Country or Region: Canada

Primary Table(s): cwk_roads

Role: Street Address

Field Mapping

Field Name	Alias Name
Feature ID	<None>
Street Join ID	<None>
*Left House Number From	FROMLEFT
*Left House Number To	TOLEFT
*Right House Number From	FROMRIGHT
*Right House Number To	TORIGHT
Left Parity	<None>
Right Parity	<None>

ID: <None>

Right City/Municipality: <None>

Left Metropolitan Area Join ID: <None>

Left Metropolitan Area: LEFT_MAF

Right Metropolitan Area Join ID: <None>

Right Metropolitan Area: RIGHT_MAF

Left County/Regional District Join ID: <None>

Left County/Regional District: <None>

Right County/Regional District Join ID: <None>

Field Mapping

Field Name	Value
Right Parity	<None>
Prefix Direction	<None>
Prefix Type	PRETYPE
*Street Name	STREETNAME
Suffix Type	SUFTYPE
Suffix Direction	SUFDIR
Full Street Name	STREET
Primary Street Name Indicator	<None>
Left Neighborhood Join ID	<None>

9. Reverse Geocode

Geoprocessing

Reverse Geocode

Parameters Environments

Input Feature Class or layer: Schools_XYTableToPoint

Input Address Locator: cwk_roads_CreateLocator

Output Feature Class: Schools_XYTabl_ReverseGeocod

Feature Type: Select All

☐ Street Intersection

☒ Street Address

☐ Street Name

10. Examine the output file in terms of the addresses, the locations on the map (as compared to school polygons) and the coordinates provided in the attribute table. What do you notice?
11. Using a web search, check the validity of your output. What do you observe?
12. What are your reflections about the differences in the QGIS geocoding engine compared to the one for ArcGIS Pro?