QGIS: Geocoding Addresses

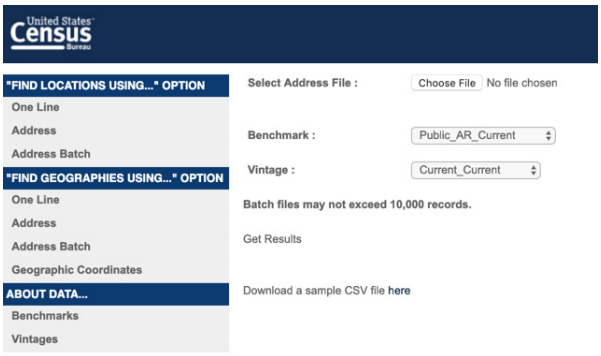
Windows: QGIS 3.4.4
Mac: QGIS 3.4.4

Welcome to the Essential QGIS Task Sheet Series. This series supplements the Iowa State University Geospatial Technology Training Program short course series. The task sheets are designed to provide quick, easy instructions for performing mapping tasks.

Geocoding is the process of converting an address to a geographic location (latitude, longitude) by matching an address to an address range. The U.S. Census Bureau provides a public geocoding tool that allows you to geocode up to 10,000 addresses at a time. A geocoded output file is produced that includes the latitude and longitude information for each address. This task sheet takes you through the process of using the Census Bureau's public geocoding tool, and displaying the results as points on a map using QGIS software.

1. Getting Started and Preparing Addresses

a. Navigate to the U.S. Census Bureau's Batch Geocoding tool at https://geocoding.geo.census.gov/geocoder/geographies/addressbatch?form. *More information about this tool at https://www2.census.gov/geo/pdfs/maps-data/data/FAQ_for_Census_Bureau_Public_Geocoder.pdf.*



b. Click on the word **here** in **Download a sample CSV file here**. This will download a sample CSV file that contains the file formatting that is required to successfully geocode.

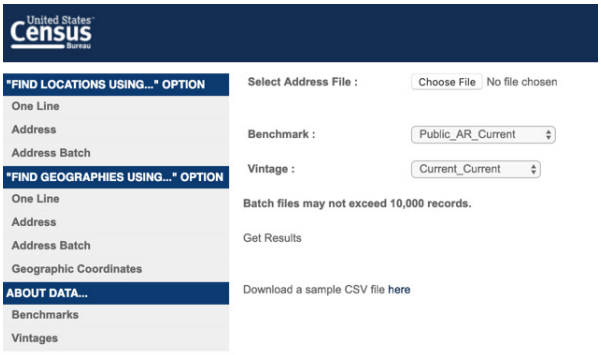
c. You will use the sample file to complete the geocoding process. Add an additional address to the third row of the sample CSV file following the formatting requirements. *Note: your CSV file must be formatted this way or you will get an error in your results.*

Column A: Sequential number 1-10,000
Column B: Address
Column C: City name
Column D: Abbreviated state name
Column E: Zip code

	A	B	C	D	E	F
1	1	4600 Silver Hill Rd	Suitland	MD	20746	
2	2	436 15th St SE	Washington	DC	20003	
3	3	2321 N Loop Dr	Ames	IA	50010	
4						

2. Geocoding Addresses

a. Click on the **Choose File** button and select the sample CSV file named **Addresses.csv** from your downloads folder (downloaded in **step 1b**).

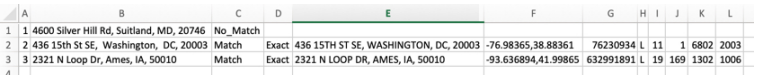


b. Leave the default settings for **Benchmark** and **Vintage**, and click **Get Results**. A file will be downloaded named **GeocodeResults.csv**. Open that file in Excel or other spreadsheet application. *Note: the following directions are only for Excel.*

c. In the **GeocodeResults.csv** file, Column C will either show Match or No Match. Match means the geocoding process was successful, and no match means it was not successful. Column F provides you with the latitude and longitude in decimal degrees. This is the field you will use to display your addresses on a map.

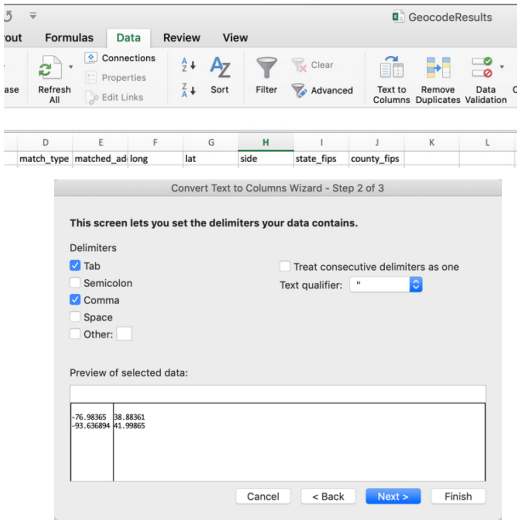
	A	B	C	D	E	F	G	H	I	J	K	L
1	1	4600 Silver Hill Rd, Suitland, MD, 20746	No_Match									
2	2	436 15th St SE, Washington, DC, 20003	Match	Exact	436 15TH ST SE, WASHINGTON, DC, 20003	-76.98365,38.88361	76230934	L	11	1	6802	2003
3	3	2321 N Loop Dr, Ames, IA, 50010	Match	Exact	2321 N LOOP DR, AMES, IA, 50010	-93.636894,41.99865	632991891	L	19	169	1302	1006

3. Preparing Data for Mapping in Excel

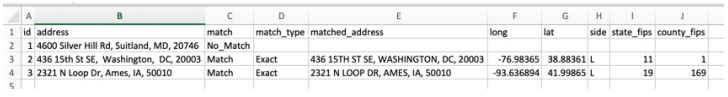


a. There are two steps you need to do to prepare your **GeocodeResults.csv** file for mapping. Step 1, split Column F into two columns. Column F for longitude and Column G for latitude.

b. In Excel, click on Column F to select it, and select the **Data** tab from the Excel menu ribbon and select the **Text to Columns** tool.

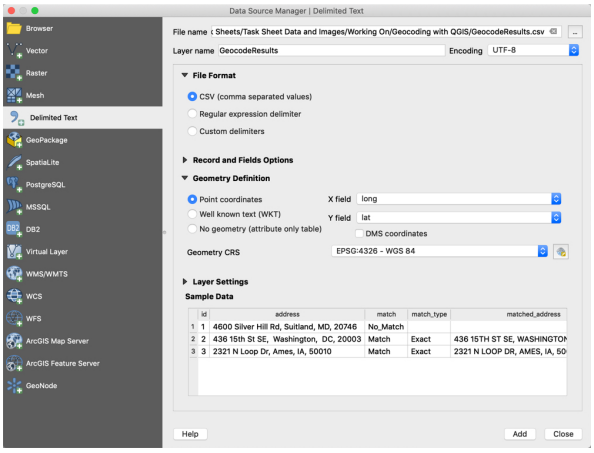


c. In the **Convert Text to Columns Wizard** menu, select **Delimited** and click **Next >**. In step 2 select **Comma** from the list of delimiters and click **Next >**. In step 3 keep the default settings and click **Finish**. Now Column F should contain all the information to the left of the comma and Column G should contain all the information to the right of the comma.



d. Step 2, insert a new row above row 1 and give each column a field name. Right-click on the excel Row 1 number and select insert. That will add a blank row above your address list. Name each column as follows, then save and close your file.

- Column A: **id**
- Column B: **address**
- Column C: **match**
- Column D: **match_type**
- Column E: **matched_address**
- Column F: **long** *(longitude)*
- Column G: **lat** *(latitude)*
- Column H: **side** *(side of street)*
- Column I: **state_fips** *(state census code)*
- Column J: **county_fips** *(county census code)*



4. Map Geocoded Results

a. Open **QGIS** and **create a new project**.

b. Click on **Layer** from the QGIS menu and select **Add Layer**. Choose the **Add Delimited Text Layer** option.

c. In the **Data Source Manager for Dilimted Text** window, click on the ellipsis icon next to the **File name** box. Browse and select your **GeocodeResults.csv** file.

d. Expand the **Geometry Definition** settings and select **Point coordinates**, in the drop-down menu for **X field** select **long**, and for the **Y field** select **lat**. Make sure **Geometry CRS** is set to **EPSG:4326 - WGS 84** and click **Add** then click **Close.**

e. Your address points should now be added to the map! *Note: you can also display the results in an existing project.*

Contact:

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