

Instructions for using the Google Maps API for geocoding

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1. If you have less than 2,500 addresses, download the free Google geocoding script for [Python version 2](#) or for [Python v3](#), depending on which version of Python your machine runs.
2. If you have over 2,500 addresses, download the Google for Work Python script by following the directions below. This will allow geocoding up to 100,000 addresses per day:
 - a. First login [here](#) with your HUID and password (Harvard affiliates only).
 - b. Copy down the download access LOGIN and Password.
 - c. Download the script by clicking one of the following: [Python v2](#) or [Python v3](#) depending on what version of Python you're running. Enter the LOGIN and Password obtained from step 2b. This is a Python script that runs the Google Maps API for Work Geocoder, using the Harvard account. If the contents of the file appear in your web browser, right click on the file and choose Save As.
3. You must have Python installed on your computer to run this. Download and install Python [here](#). Or, visit [any of these computer labs that will have Python installed on all computers](#).
4. Format your data file to be geocoded into tab delimited text format, with no header row, and 6 columns containing an ID, address, city, state, postal code, country. See this [sample input file](#) for the correct format. If you don't have information for any of the 6 columns, leave the column blank. Tab delimited text format can be saved out of Excel by doing Save As and setting the Save as Type to "Text".
5. Put the google_geocoding .py file and your input address file into the same folder.
6. Open the google_geocoding.py file with a text editor. Follow the 4 steps within the file.
7. The geocoded text file will have additional fields:
 - a. Address_Matched – the Google address your address was matched to.
 - b. City_Matched – the city your city was matched to.
 - c. State_Matched – the state your address matched to.
 - d. Country_Matched - the country your address matched to.
 - e. Location_Type – the precision of the match.
 - i. "ROOFTOP" indicates that the returned result is a precise geocode for which we have location information accurate down to street address precision.
 - ii. "RANGE_INTERPOLATED" indicates that the returned result reflects an approximation (usually on a road) interpolated between two precise points (such as intersections). Interpolated results are generally returned when rooftop geocodes are unavailable for a street address.
 - iii. "GEOMETRIC_CENTER" indicates that the returned result is the geometric center of a result such as a polyline (for example, a street) or polygon (region).
 - iv. "APPROXIMATE" indicates that the returned result is approximate.
 - f. Latitude – the latitude of the geocoded location.
 - g. Longitude – the longitude of the geocoded location.

With this output file and its latitude, longitude coordinates, your file is geocoded, and ready for use with Desktop or Web GIS.