Google Direction API user guide

Reference: <https://developers.google.com/maps/documentation/directions/get-directions#TextValueObject>

Input Data

|  |  |
| --- | --- |
| **Input** | **Notes** |
| Origin and Destination locations   * Address **OR** * Coordinates (latitude/longitude) | Use WGS84 projection for coordinates (same as Google Map). The coordinates should look like the below. If you are not sure, add the coordinates to Google Map to double check.   * Lon -71.0992074595997 * Lat: 42.3424800601773 |
| Date, time, time zone |  |
| Mode | driving, walking, bicycling, transit |
| Transit mode | **Only** when mode is **transit**   * Bus * Subway * Train * Tram * Rail |
| Google API key | If you need assistance in setting up Google API key, please talk to Bryan Blanc (NY) or Yonghyeon Kweon (DC). |

Output Data by Mode

|  |  |  |  |
| --- | --- | --- | --- |
| **Driving** | **Walking** | **Bicycling** | **Transit** |
| Distance (mile) | Distance (mile) | Distance (mile) | Total distance(mile) |
| Duration (minute) | Duration (minute) | Duration (minute) | Total duration (minute) |
| Duration with traffic (mile) |  |  | Transport time (min) |
|  |  |  | Transit distance (mile) |
|  |  |  | Transit duration (minute) |
|  |  |  | Total walking distance (mile) |
|  |  |  | Total waking duration (minute) |
|  |  |  | Distance origin to transit (mile) |
|  |  |  | Duration origin to transit (minute) |
|  |  |  | Distance destination to transit (mile) |
|  |  |  | Duration destination to transit (minute) |
|  |  |  | Wait time (minute) |
|  |  |  | The number of transfers |
|  |  |  | Routes used |
|  |  |  | Agency |
|  |  |  | Transit mode |

Important!

Do not move files around - all files should stay in the same folder. Moving the files will break the script!

Step 1 – input.xlsx

1. Open **input.xlsx** file.
2. Fill in your configuration (“config” worksheet)

Graphical user interface, application

Description automatically generated

* 1. **gKey**: valid google API key
  2. **mode**: select from dropdown (driving, transit, walking, bicycling)
  3. **departure\_datetime**: Make sure that departure date/time are in **future**; otherwise, the tool will fail.
  4. **arrival\_datetime**: Only applies to **transit** mode. If both departure\_datetime and arrival\_datetime are supplied, only departure\_datetime will be used
  5. **timezone**: select from dropdown
  6. **traffic\_model**: select from dropdown; **different options** for driving & transit
  7. **transit\_mode:** select from dropdown; only applies to **transit** mode. If you select “not\_specificed” most convenient transit modes will be selected for each OD pair

1. Add origin and destination data in “input” worksheet

Using Address

If input data is **string type**, insert the data in Origin\_address and Dest\_address columns

A picture containing table

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Using Coordinates

If input data is **coordinates**, insert data in Origin\_lon, Origin\_lat, Dest\_lon and Dest\_lat columns

Graphical user interface, text, application

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**Note**: If you have both types entered, **string type** will be processed.

Step 2 – main.R

1. Run **main.R** script and
2. Output files are saved in **output** **folder.**