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geopy is a Python 2 and 3 client for several popular geocoding web services.

geopy makes it easy for Python developers to locate the coordinates of addresses, cities, countries, and landmarks across the globe using third-party geocoders and other data sources.

geopy is tested against CPython (versions 2.7, 3.4, 3.5, 3.6, 3.7, 3.8), PyPy, and PyPy3. geopy does not and will not support CPython 2.6.
CHAPTER 1

Installation

```
pip install geopy
```
geopy 2.0 will be released in 2020, presumably in Q1. Only Python \( \geq 3.5 \) and \( \geq pypy3.5 \) will be supported. The 1.x branch will not receive any features after that, although critical bugfixes might be backported on request.

Python 2.7 support in new releases is already being removed in many other scientific Python packages, such as numpy and pandas (see https://python3statement.org/), so this is a good time to get rid of the 2.7 burden for geopy as well.

The last minor release of 1.x series will contain deprecation warnings for all of the breaking changes introduced in 2.0, thus make sure to check your code with warnings enabled (i.e. run python with the \(-Wd\) switch) to ensure a smoother transition from 1.x to 2.0.
CHAPTER 3

Geocoders

Each geolocation service you might use, such as Google Maps, Bing Maps, or Nominatim, has its own class in geopy.geocoders abstracting the service’s API. Geocoders each define at least a geocode method, for resolving a location from a string, and may define a reverse method, which resolves a pair of coordinates to an address. Each Geocoder accepts any credentials or settings needed to interact with its service, e.g., an API key or locale, during its initialization.

To geolocate a query to an address and coordinates:

```python
>>> from geopy.geocoders import Nominatim
>>> geolocator = Nominatim(user_agent="specify_your_app_name_here")
>>> location = geolocator.geocode("175 5th Avenue NYC")
>>> print(location.address)
Flatiron Building, 175, 5th Avenue, Flatiron, New York, NYC, New York, ...
>>> print((location.latitude, location.longitude))
(40.7410861, -73.9896297241625)
>>> print((location.raw))
{'place_id': '9167009604', 'type': 'attraction', ...}
```

To find the address corresponding to a set of coordinates:

```python
>>> from geopy.geocoders import Nominatim
>>> geolocator = Nominatim(user_agent="specify_your_app_name_here")
>>> location = geolocator.reverse("52.509669, 13.376294")
>>> print(location.address)
Potsdamer Platz, Mitte, Berlin, 10117, Deutschland, European Union
>>> print((location.latitude, location.longitude))
(52.5094982, 13.3765983)
>>> print(location.raw)
{'place_id': '654513', 'osm_type': 'node', ...}
```

Locators’ geocode and reverse methods require the argument query, and also accept at least the argument exactly_one, which is True by default. Geocoders may have additional attributes, e.g., Bing accepts user_location, the effect of which is to bias results near that location. geocode and reverse methods may return three types of values:
• When there are no results found, returns None.
• When the method’s exactly_one argument is True and at least one result is found, returns a `geopy.location.Location` object, which can be iterated over as:

\[(\text{address<String>, (latitude<Float>, longitude<Float>)})\]

Or can be accessed as `location.address`, `location.latitude`, `location.longitude`, `location.altitude`, and `location.raw`. The last contains the full geocoder’s response for this result.
• When exactly_one is False, and there is at least one result, returns a list of `geopy.location.Location` objects, as above:

\[[\text{location, [...]}]\]

If a service is unavailable or otherwise returns a non-OK response, or doesn’t receive a response in the allotted timeout, you will receive one of the `Exceptions` detailed below.

Every geocoder accepts an argument `format_string` that defaults to '%s' where the input string to geocode is interpolated. For example, if you only need to geocode locations in Cleveland, Ohio, you could do:

```python
>>> from geopy.geocoders import Nominatim
>>> geolocator = Nominatim(user_agent="specify_your_app_name_here",
                           format_string="%s, Cleveland OH")
>>> address, (latitude, longitude) = geolocator.geocode("11111 Euclid Ave")
>>> print(address, latitude, longitude)
Thwing Center, 11111, Euclid Avenue, Magnolia-Wade Park Historic District, University Circle, Cleveland, Cuyahoga County, Ohio, 44106, USA 41.5074076 -81.6083649792596
```

`geopy.geocoders.get_geocoder_for_service(service)`

For the service provided, try to return a geocoder class.

```python
>>> from geopy.geocoders import get_geocoder_for_service
>>> get_geocoder_for_service("nominatim")
geopy.geocoders.osm.Nominatim
```

If the string given is not recognized, a `geopy.exc.GeocoderNotFound` exception is raised.

### 3.1 Default Options Object

class `geopy.geocoders.options`

The `options` object contains default configuration values for geocoders, e.g. `timeout` and `User-Agent`. Instead of passing a custom value to each geocoder individually, you can override a default value in this object.

Please note that not all geocoders use all attributes of this object. For example, some geocoders don’t respect the `default_scheme` attribute. Refer to the specific geocoder’s initializer doc for a list of parameters which that geocoder accepts.

Example for overriding default `timeout` and `user_agent`:

```python
>>> import geopy.geocoders
>>> from geopy.geocoders import Nominatim
>>> geopy.geocoders.options.default_user_agent = 'my_app/1'
>>> geopy.geocoders.options.default_timeout = 7
>>> geolocator = Nominatim()
>>> print(geolocator.headers)
{'User-Agent': 'my_app/1'}
>>> print(geolocator.timeout)
7
```
Attributes:

default_format_string  String containing '%s' where the string to geocode should be interpolated before
querying the geocoder. Used by geocode calls only. For example: '%s, Mountain View, CA'.

default_proxies  Tunnel requests through HTTP proxy.

By default the system proxies are respected (e.g. HTTP_PROXY and HTTPS_PROXY env vars or
platform-specific proxy settings, such as macOS or Windows native preferences – see urllib.
request.ProxyHandler for more details). The proxies value for using system proxies is None.

To disable system proxies and issue requests directly, explicitly pass an empty dict as a value for
proxies: {}.

To use a custom HTTP proxy location, pass a string. Valid examples are:

• "192.0.2.0:8080"
• "john:passw0rd@192.0.2.0:8080"
• "http://john:passw0rd@192.0.2.0:8080"

Please note:

• Scheme part (http://) of the proxy is ignored.
• Only http proxy is supported. Even if the proxy scheme is https, it will be ignored, and the
connection between client and proxy would still be unencrypted. However, https requests via http
proxy are still supported (via HTTP CONNECT method).

Raw urllib-style proxies dict might be provided instead of a string:

• {"https": "192.0.2.0:8080"} – means that HTTP proxy would be used only for re-
quests having https scheme. String proxies value is automatically used for both schemes, and is
provided as a shorthand for the urllib-style proxies dict.

For more information, see documentation on urllib.request.ProxyHandler.

Changed in version 1.15.0: Added support for the string value.

default_scheme  Use 'https' or 'http' as the API URL’s scheme.

default_ssl_context  An ssl.SSLContext instance with custom TLS verification settings. Pass None
to use the interpreter’s defaults (starting from Python 2.7.9 and 3.4.3 that is to use the system’s trusted
CA certificates; the older versions don’t support TLS verification completely).

For older versions of Python (before 2.7.9 and 3.4.3) this argument is ignored, as urlopen doesn’t
accept an ssl context there, and a warning is issued.

To use the CA bundle used by requests library:

```python
import ssl
import certifi
import geopy.geocoders
ctx = ssl.create_default_context(cafile=certifi.where())
geopy.geocoders.options.default_ssl_context = ctx
```

To disable TLS certificate verification completely:

```python
import ssl
import geopy.geocoders
ctx = ssl.create_default_context()
ctx.check_hostname = False
```

(continues on next page)
ctx.verify_mode = ssl.CERT_NONE
geopy.geocoders.options.default_ssl_context = ctx

See docs for the `ssl.SSLContext` class for more examples.

**default_timeout**  
Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Pass `None` to disable timeout.

**Note:** Currently `None` as a value is processed correctly only for the `geopy.geocoders.options.default_timeout` option value. `timeout=None` as a method argument (i.e. `geocoder.geocode(..., timeout=None)`) would be treated as “use timeout, as set in `geopy.geocoders.options.default_timeout`”, and a deprecation warning would be raised. In geopy 2.0 this will change, so that `timeout=None` would actually disable timeout.

**default_user_agent**  
User-Agent header to send with the requests to geocoder API.

```
default_format_string = '%s'
default_proxies = None
default_scheme = 'https'
default_ssl_context = None
default_timeout = 1
default_user_agent = 'geopy/1.21.0'
```

## 3.2 Usage with Pandas

It’s possible to geocode a pandas DataFrame with geopy, however, rate-limiting must be taken into account.

A large number of DataFrame rows might produce a significant amount of geocoding requests to a Geocoding service, which might be throttled by the service (e.g. by returning `Too Many Requests` 429 HTTP error or timing out).

**geopy.extra.rate_limiter.RateLimiter** class provides a convenient wrapper, which can be used to automatically add delays between geocoding calls to reduce the load on the Geocoding service. Also it can retry failed requests and swallow errors for individual rows.

If you’re having the `Too Many Requests` error, you may try the following:

- Use `geopy.extra.rate_limiter.RateLimiter` with non-zero `min_delay_seconds`.
- Try a different Geocoding service (please consult with their ToS first, as some services prohibit bulk geocoding).
- Take a paid plan on the chosen Geocoding service, which provides higher quota.
- Provision your own local copy of the Geocoding service (such as Nominatim).

```
class geopy.extra.rate_limiter.RateLimiter(func,  
    min_delay_seconds=0.0,  
    max_retries=2,  
    error_wait_seconds=5.0,  
    swallow_exceptions=True,  
    return_value_on_exception=None)
```

RateLimiter allows to perform bulk operations while gracefully handling error responses and adding delays when needed.
In the example below a delay of 1 second (`min_delay_seconds=1`) will be added between each pair of `geolocator.geocode` calls; all `geopy.exc.GeocoderServiceError` exceptions will be retried (up to `max_retries` times):

```python
import pandas as pd
df = pd.DataFrame({'name': ['paris', 'berlin', 'london']})

from geopy.geocoders import Nominatim
geolocator = Nominatim(user_agent="specify_your_app_name_here")

from geopy.extra.rate_limiter import RateLimiter
geocode = RateLimiter(geolocator.geocode, min_delay_seconds=1)
df['location'] = df['name'].apply(geocode)
df['point'] = df['location'].apply(lambda loc: tuple(loc.point) if loc else None)
```

This would produce the following DataFrame:

```none

<table>
<thead>
<tr>
<th>name</th>
<th>location</th>
</tr>
</thead>
<tbody>
<tr>
<td>paris</td>
<td>(Paris, Île-de-France, France métropolitaine, ...</td>
</tr>
<tr>
<td>berlin</td>
<td>(Berlin, 10117, Deutschland, (52.5170365, 13.3...</td>
</tr>
<tr>
<td>london</td>
<td>(London, Greater London, England, SW1A 2DU, UK...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>point</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>
```

To pass extra options to the `geocode` call:

```python
from functools import partial
df['location'] = df['name'].apply(partial(geocode, language='de'))
```

To see a progress bar:

```python
from tqdm import tqdm
tqdm.pandas()
df['location'] = df['name'].progress_apply(geocode)
```

Before using this class, please consult with the Geocoding service ToS, which might explicitly consider bulk requests (even throttled) a violation.

New in version 1.16.0.

```
__init__(func, min_delay_seconds=0.0, max_retries=2, error_wait_seconds=5.0, swallow_exceptions=True, return_value_on_exception=None)
```

**Parameters**

- `func` (*callable*) – A function which should be wrapped by the `RateLimiter`.
- `min_delay_seconds` (*float*) – Minimum delay in seconds between the wrapped `func` calls.
- `max_retries` (*int*) – Number of retries on exceptions. Only `geopy.exc.GeocoderServiceError` exceptions are retried – others are always re-raised. `max_retries + 1` requests would be performed at max per query. Set `max_retries=0` to disable retries.
• **error_wait_seconds** (*float*) – Time to wait between retries after errors. Must be greater or equal to *min_delay_seconds*.

• **swallow_exceptions** (*bool*) – Should an exception be swallowed after retries? If not, it will be re-raised. If yes, the *return_value_on_exception* will be returned.

• **return_value_on_exception** – Value to return on failure when *swallow_exceptions=True*.

### 3.3 ArcGIS

```python
class geopy.geocoders.ArcGIS(username=None, password=None, referer=None, token_lifetime=60, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, auth_domain='www.arcgis.com', domain='geocode.arcgis.com')
```

Geocoder using the ERSI ArcGIS API.

**Documentation at:** https://developers.arcgis.com/rest/geocode/api-reference/overview-world-geocoding-service.htm

```python
__init__(username=None, password=None, referer=None, token_lifetime=60, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, auth_domain='www.arcgis.com', domain='geocode.arcgis.com')
```

**Parameters**

• **username** (*str*) – ArcGIS username. Required if authenticated mode is desired.

• **password** (*str*) – ArcGIS password. Required if authenticated mode is desired.

• **referer** (*str*) – Required if authenticated mode is desired. *Referer* HTTP header to send with each request, e.g., `'http://www.example.com'`. This is tied to an issued token, so fielding queries for multiple referrers should be handled by having multiple ArcGIS geocoder instances.

• **token_lifetime** (*int*) – Desired lifetime, in minutes, of an ArcGIS-issued token.

• **scheme** (*str*) – See `geopy.geocoders.options.default_scheme`. If authenticated mode is in use, it must be `'https'`.

• **timeout** (*int*) – See `geopy.geocoders.options.default_timeout`.

• **proxies** (*dict*) – See `geopy.geocoders.options.default_proxies`.

• **user_agent** (*str*) – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

• **format_string** (*str*) – See `geopy.geocoders.options.default_format_string`.

  New in version 1.14.0.

• **ssl_context** (*ssl.SSLContext*) – See `geopy.geocoders.options.default_ssl_context`.

  New in version 1.14.0.
• **auth_domain** (*str*) – Domain where the target ArcGIS auth service is hosted. Used only in authenticated mode (i.e. username, password and referer are set).
  New in version 1.17.0.

• **domain** (*str*) – Domain where the target ArcGIS service is hosted.
  New in version 1.17.0.

**geocode**(query, exactly_one=True, timeout=DEFAULT_SENTINEL, out_fields=None)

Return a location point by address.

**Parameters**

• **query** (*str*) – The address or query you wish to geocode.

• **exactly_one** (*bool*) – Return one result or a list of results, if available.

• **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **out_fields** (*str or iterable*) – A list of output fields to be returned in the attributes field of the raw data. This can be either a python list/tuple of fields or a comma-separated string. See https://developers.arcgis.com/rest/geocode/api-reference/geocoding-service-output.htm for a list of supported output fields. If you want to return all supported output fields, set `out_fields="*"`.  
  New in version 1.14.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

**reverse**(query, exactly_one=True, timeout=DEFAULT_SENTINEL, distance=None, wkid=4326)

Return an address by location point.

**Parameters**

• **query** (*geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")*) – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one** (*bool*) – Return one result or a list of results, if available.

• **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **distance** (*int*) – Distance from the query location, in meters, within which to search. ArcGIS has a default of 100 meters, if not specified.

• **wkid** (*str*) – WKID to use for both input and output coordinates.

  Deprecated since version 1.14.0: It wasn’t working before because it was specified incorrectly in the request parameters, and won’t work even if we fix the request, because `geopy.point.Point` normalizes the coordinates according to WKID 4326. Please open an issue in the geopy issue tracker if you believe that custom wkid values should be supported. This parameter is scheduled for removal in geopy 2.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

---

3.3. ArcGIS
## 3.4 AzureMaps

### class `geopy.geocoders.AzureMaps`(
``subscription_key``, `format_string`=None, `scheme`=None, `timeout`=DEFAULT_SENTINEL, `proxies`=DEFAULT_SENTINEL, `user_agent`=None, `ssl_context`=DEFAULT_SENTINEL, `domain`='atlas.microsoft.com')

Bases: `geopy.geocoders.tomtom.TomTom`

AzureMaps geocoder based on TomTom.

**Documentation at:** [https://docs.microsoft.com/en-us/azure/azure-maps/index](https://docs.microsoft.com/en-us/azure/azure-maps/index)

New in version 1.15.0.

#### __init__
``subscription_key``, `format_string`=None, `scheme`=None, `timeout`=DEFAULT_SENTINEL, `proxies`=DEFAULT_SENTINEL, `user_agent`=None, `ssl_context`=DEFAULT_SENTINEL, `domain`='atlas.microsoft.com')

**Parameters**

- `subscription_key` *(str)* – Azure Maps subscription key.
- `format_string` *(str)* – See `geopy.geocoders.options.default_format_string`.
- `scheme` *(str)* – See `geopy.geocoders.options.default_scheme`.
- `timeout` *(int)* – See `geopy.geocoders.options.default_timeout`.
- `proxies` *(dict)* – See `geopy.geocoders.options.default_proxies`.
- `user_agent` *(str)* – See `geopy.geocoders.options.default_user_agent`.
- `ssl_context` *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.
- `domain` *(str)* – Domain where the target Azure Maps service is hosted.

### geocode
``query``, `exactly_one`=True, `timeout`=DEFAULT_SENTINEL, `limit`=None, `typeahead`=False, `language`=None)

Return a location point by address.

**Parameters**

- `query` *(str)* – The address or query you wish to geocode.
- `exactly_one` *(bool)* – Return one result or a list of results, if available.
- `timeout` *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.
- `limit` *(int)* – Maximum amount of results to return from the service. Unless exactly_one is set to False, limit will always be 1.
- `typeahead` *(bool)* – If the "typeahead" flag is set, the query will be interpreted as a partial input and the search will enter predictive mode.
- `language` *(str)* – Language in which search results should be returned. When data in specified language is not available for a specific field, default language is used. List of supported languages (case-insensitive): [https://developer.tomtom.com/online-search/online-search-documentation/supported-languages](https://developer.tomtom.com/online-search/online-search-documentation/supported-languages)
Return type None, geopy.location.Location or a list of them, if exactly_one=False.

reverse (query, exactly_one=True, timeout=DEFAULT_SENTINEL, language=None)
Return an address by location point.

Parameters

- **query** (geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – The coordinates for which you wish to obtain the closest human-readable addresses.
- **exactly_one** (bool) – Return one result or a list of results, if available.
- **timeout** (int) – Time, in seconds, to wait for the geocoding service to respond before raising a geopy.exc.GeocoderTimedOut exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.
- **language** (str) – Language in which search results should be returned. When data in specified language is not available for a specific field, default language is used. List of supported languages (case-insensitive): https://developer.tomtom.com/online-search/online-search-documentation/supported-languages

New in version 1.18.0.

Return type None, geopy.location.Location or a list of them, if exactly_one=False.

## 3.5 Baidu

class geopy.geocoders.Baidu (api_key, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, security_key=None)

Geocoder using the Baidu Maps v2 API.


New in version 1.0.0.

__init__ (api_key, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, security_key=None)

Parameters

- **api_key** (str) – The API key (AK) required by Baidu Map to perform geocoding requests. API keys are managed through the Baidu APIs console (http://lbsyun.baidu.com/apiconsole/key).
- **scheme** (str) – See geopy.geocoders.options.default_scheme.
  Changed in version 1.14.0: Default scheme has been changed from http to https.
- **timeout** (int) – See geopy.geocoders.options.default_timeout.
- **proxies** (dict) – See geopy.geocoders.options.default_proxies.
- **user_agent** (str) – See geopy.geocoders.options.default_user_agent.

New in version 1.12.0.
• **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.
  New in version 1.14.0.

• **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.
  New in version 1.14.0.

• **security_key** *(str)* – The security key (SK) to calculate the SN parameter in request if authentication setting requires (http://lbsyun.baidu.com/index.php?title=lbscloud/api/appendix).
  New in version 1.15.0.

`geocode(query, exactly_one=True, timeout=DEFAULT_SENTINEL)`
Return a location point by address.

**Parameters**

• **query** *(str)* – The address or query you wish to geocode.

• **exactly_one** *(bool)* – Return one result or a list of results, if available.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

`reverse(query, exactly_one=True, timeout=DEFAULT_SENTINEL)`
Return an address by location point.

**Parameters**

• **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s").)* – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one** *(bool)* – Return one result or a list of results, if available. Baidu’s API will always return at most one result.
  New in version 1.14.0.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.6 BANFrance

`class geopy.geocoders.BANFrance(domain='api-adresse.data.gouv.fr', format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)`

Geocoder using the Base Adresse Nationale France API.

**Documentation at:** [https://adresse.data.gouv.fr/api](https://adresse.data.gouv.fr/api)
New in version 1.18.0.

```python
__init__(domain='api-adresse.data.gouv.fr', format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)
```

**Parameters**

- **domain** *(str)* – Currently it is 'api-adresse.data.gouv.fr', can be changed for testing purposes.

- **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

- **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.

- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.

- **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.

- **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

- **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.

```python
geocode(query, limit=None, exactly_one=True, timeout=DEFAULT_SENTINEL)
```

Return a location point by address.

**Parameters**

- **query** *(str)* – The address or query you wish to geocode.

- **limit** *(int)* – Defines the maximum number of items in the response structure. If not provided and there are multiple results the BAN API will return 5 results by default. This will be reset to one if `exactly_one` is True.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

- **exactly_one** *(bool)* – Return one result or a list of results, if available.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

```python
reverse(query, exactly_one=True, timeout=DEFAULT_SENTINEL)
```

Return an address by location point.

**Parameters**

- **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")* – The coordinates for which you wish to obtain the closest human-readable addresses.

- **exactly_one** *(bool)* – Return one result or a list of results, if available.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

3.6. BANFrance
3.7 Bing

class geopy.geocoders.Bing(api_key, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)

Geocoder using the Bing Maps Locations API.


__init__(api_key, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)

Parameters

- **api_key** (str) – Should be a valid Bing Maps API key (https://www.microsoft.com/en-us/maps/create-a-bing-maps-key).
- **format_string** (str) – See geopy.geocoders.options.default_format_string.
- **scheme** (str) – See geopy.geocoders.options.default_scheme.
- **timeout** (int) – See geopy.geocoders.options.default_timeout.
- **proxies** (dict) – See geopy.geocoders.options.default_proxies.
- **user_agent** (str) – See geopy.geocoders.options.default_user_agent.

New in version 1.12.0.

- **ssl_context** (ssl.SSLContext) – See geopy.geocoders.options.default_ssl_context.

New in version 1.14.0.

geocode(query, exactly_one=True, user_location=None, timeout=DEFAULT_SENTINEL, culture=None, include_neighborhood=None, include_country_code=False)

Return a location point by address.

Parameters

- **query** (str) – The address or query you wish to geocode.

For a structured query, provide a dictionary whose keys are one of: addressLine, locality (city), adminDistrict (state), countryRegion, or postalcode.

- **exactly_one** (bool) – Return one result or a list of results, if available.
- **user_location** (geopy.point.Point) – Prioritize results closer to this location.
- **timeout** (int) – Time, in seconds, to wait for the geocoding service to respond before raising a geopy.exc.GeocoderTimedOut exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.
- **culture** (str) – Affects the language of the response, must be a two-letter country code.

New in version 1.4.0.

- **include_neighborhood** (bool) – Sets whether to include the neighborhood field in the response.

New in version 1.4.0.
• **include_country_code** (*bool*) – Sets whether to include the two-letter ISO code of the country in the response (field name ‘countryRegionIso2’).

  New in version 1.4.0.

  **Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

reverse(*query*, `exactly_one=True`, `timeout=DEFAULT_SENTINEL`, `culture=None`, `include_country_code=False`)

Return an address by location point.

Parameters

• **query** (*geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s".*) – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one** (*bool*) – Return one result or a list of results, if available.

• **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **culture** (*str*) – Affects the language of the response, must be a two-letter country code.

• **include_country_code** (*bool*) – Sets whether to include the two-letter ISO code of the country in the response (field name ‘countryRegionIso2’).

  **Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.8 DataBC

```python
class geopy.geocoders.DataBC(scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL):  
    Geocoder using the Physical Address Geocoder from DataBC.
    
    Documentation at: http://www.data.gov.bc.ca/dbc/geographic/locate/geocoding.page

    __init__(scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL,  
             user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)
```

Parameters

• **scheme** (*str*) – See `geopy.geocoders.options.default_scheme`.

• **timeout** (*int*) – See `geopy.geocoders.options.default_timeout`.

• **proxies** (*dict*) – See `geopy.geocoders.options.default_proxies`.

• **user_agent** (*str*) – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

• **format_string** (*str*) – See `geopy.geocoders.options.default_format_string`.

  New in version 1.14.0.
• **ssl_context** ([ssl.SSLContext] ) – See `geopy.geocoders.options.default_ssl_context`.
  
  New in version 1.14.0.

**geocode** (*query*, **max_results**=25, **set_back**=0, **location_descriptor**='any', **exactly_one**=True, **timeout**=DEFAULT_SENTINEL)

Return a location point by address.

**Parameters**

- **query** (*str*) – The address or query you wish to geocode.
- **max_results** (*int*) – The maximum number of results to request.
- **set_back** (*float*) – The distance to move the accessPoint away from the curb (in meters) and towards the interior of the parcel. location_descriptor must be set to accessPoint for set_back to take effect.
- **location_descriptor** (*str*) – The type of point requested. It can be any, accessPoint, frontDoorPoint, parcelPoint, rooftopPoint and routingPoint.
- **exactly_one** (*bool*) – Return one result or a list of results, if available.
- **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

**Return type** None, `geopy.location.Location` or a list of them, if **exactly_one**=False.

### 3.9 GeocodeEarth

**class** `geopy.geocoders.GeocodeEarth`(*api_key*, **format_string**=None, **boundary_rect**=None, **country_bias**=None, **domain**='api.geocode.earth', **timeout**=DEFAULT_SENTINEL, **proxies**=DEFAULT_SENTINEL, **user_agent**=None, **scheme**=None, **ssl_context**=DEFAULT_SENTINEL)

Bases: `geopy.geocoders.pelias.Pelias`

geocode.earth, a Pelias-based service provided by the developers of Pelias itself.

New in version 1.15.0.

**__init__**(*api_key*, **format_string**=None, **boundary_rect**=None, **country_bias**=None, **domain**='api.geocode.earth', **timeout**=DEFAULT_SENTINEL, **proxies**=DEFAULT_SENTINEL, **user_agent**=None, **scheme**=None, **ssl_context**=DEFAULT_SENTINEL)

**Parameters**

- **api_key** (*str*) – Geocode.earth API key, required.
- **format_string** (*str*) – See `geopy.geocoders.options.default_format_string`.
- **boundary_rect** (list or tuple of 2 items of `geopy.point.Point` or (latitude, longitude) or "%(latitude)s, %(longitude)s") – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.

  Changed in version 1.17.0: Previously boundary_rect could be a list of 4 strings or numbers in the format of [longitude, latitude, longitude, latitude]. This
format is now deprecated in favor of a list/tuple of a pair of geopy Points and will be removed in geopy 2.0.

Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use geocode’s boundary_rect instead.

• country_bias (str) – Bias results to this country (ISO alpha-3).

Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use geocode’s country_bias instead.

• domain (str) – Specify a custom domain for Pelias API.

• timeout (int) – See geopy.geocoders.options.default_timeout.

• proxies (dict) – See geopy.geocoders.options.default_proxies.

• user_agent (str) – See geopy.geocoders.options.default_user_agent.

• scheme (str) – See geopy.geocoders.options.default_scheme.

• ssl_context (ssl.SSLContext) – See geopy.geocoders.options.default_ssl_context.

geocode (query, exactly_one=True, timeout=DEFAULT_SENTINEL, boundary_rect=None, country_bias=None, language=None)

Return a location point by address.

Parameters

• query (str) – The address, query or structured query to geocode you wish to geocode.

• exactly_one (bool) – Return one result or a list of results, if available.

• timeout (int) – Time, in seconds, to wait for the geocoding service to respond before raising a geopy.exc.GeocoderTimedOut exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• boundary_rect (list or tuple of 2 items of geopy.point.Point or (latitude, longitude) or "%s, %s") – Coordinates to restrict search within. Example: [Point(22, 180), Point(-22, -180)].

New in version 1.19.0.

• country_bias (str) – Bias results to this country (ISO alpha-3).

New in version 1.19.0.

• language (str) – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

New in version 1.21.0.

Return type None, geopy.location.Location or a list of them, if exactly_one=False.

reverse (query, exactly_one=True, timeout=DEFAULT_SENTINEL, language=None)

Return an address by location point.

Parameters

• query (geopy.point.Point, list or tuple of (latitude, longitude), or string as "%s, %s") – The coordinates for which you wish to obtain the closest human-readable addresses.

• exactly_one (bool) – Return one result or a list of results, if available.
- **timeout (int)** – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

- **language (str)** – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

  New in version 1.21.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.10 GeocodeFarm

```python
class geopy.geocoders.GeocodeFarm(api_key=None, format_string=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL, scheme=None):
    Geocoder using the GeocodeFarm API.

    Documentation at: https://www.geocode.farm/geocoding/free-api-documentation/
```

**__init__ (api_key=None, format_string=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL, scheme=None)**

**Parameters**

- **api_key (str)** – (optional) The API key required by GeocodeFarm to perform geocoding requests.

- **format_string (str)** – See `geopy.geocoders.options.default_format_string`.

- **timeout (int)** – See `geopy.geocoders.options.default_timeout`.

- **proxies (dict)** – See `geopy.geocoders.options.default_proxies`.

- **user_agent (str)** – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

- **ssl_context (ssl.SSLContext)** – See `geopy.geocoders.options.default_ssl_context`.

  New in version 1.14.0.

- **scheme (str)** – See `geopy.geocoders.options.default_scheme`.

  New in version 1.14.0.

```python
def geocode(query, exactly_one=True, timeout=DEFAULT_SENTINEL):
    Return a location point by address.
```

**Parameters**

- **query (str)** – The address or query you wish to geocode.

- **exactly_one (bool)** – Return one result or a list of results, if available.
timeout (int) – Time, in seconds, to wait for the geocoding service to respond before raising a \texttt{geopy.exc.GeocoderTimedOut} exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

\textbf{Return type} None, \texttt{geopy.location.Location} or a list of them, if \texttt{exactly\_one=False}.

\textbf{reverse} (query, exactly\_one=True, timeout=DEFAULT\_SEN TINEL)

Return an address by location point.

\textbf{Parameters}

- \texttt{query (geopy.point.Point, list or tuple of (latitude, longitude), or string as "%\{(latitude)s, \%(longitude)s\}")} – The coordinates for which you wish to obtain the closest human-readable addresses.

- \texttt{exactly\_one (bool)} – Return one result or a list of results, if available. GeocodeFarm’s API will always return at most one result.

- \texttt{timeout (int)} – Time, in seconds, to wait for the geocoding service to respond before raising a \texttt{geopy.exc.GeocoderTimedOut} exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

\textbf{Return type} None, \texttt{geopy.location.Location} or a list of them, if \texttt{exactly\_one=False}.

### 3.11 Geolake

\textbf{class} \texttt{geopy.geocoders.Geolake (api\_key, domain='api.geolake.com', scheme=None, timeout=DEFAULT\_SEN TINEL, proxies=DEFAULT\_SEN TINEL, user\_agent=None, format\_string=None, ssl\_context=DEFAULT\_SEN TINEL)}

Geocoder using the Geolake API.

\textbf{Documentation at:} https://geolake.com/docs/api

\textbf{Terms of Service at:} https://geolake.com/terms-of-use

New in version 1.18.0.

\textbf{\texttt{\_\_init\_\_} (api\_key, domain='api.geolake.com', scheme=None, timeout=DEFAULT\_SEN TINEL, proxies=DEFAULT\_SEN TINEL, user\_agent=None, format\_string=None, ssl\_context=DEFAULT\_SEN TINEL)}

\textbf{Parameters}

- \texttt{format\_string (str)} – See \texttt{geopy.geocoders.options.default\_format\_string}.

- \texttt{api\_key (str)} – The API key required by Geolake to perform geocoding requests. You can get your key here: https://geolake.com/

- \texttt{domain (str)} – Currently it is 'api.geolake.com', can be changed for testing purposes.

- \texttt{scheme (str)} – See \texttt{geopy.geocoders.options.default\_scheme}.

- \texttt{timeout (int)} – See \texttt{geopy.geocoders.options.default\_timeout}.

- \texttt{proxies (dict)} – See \texttt{geopy.geocoders.options.default\_proxies}.
• **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

• **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.

### geocode(query, country_codes=None, exactly_one=True, timeout=DEFAULT_SENTINEL)

Return a location point by address.

**Parameters**

- **query** *(str)* – The address or query you wish to geocode.

  For a structured query, provide a dictionary whose keys are one of: `country`, `state`, `city`, `zipcode`, `street`, `address`, `houseNumber` or `subNumber`.

- **country_codes** *(str or list)* – Provides the geocoder with a list of country codes that the query may reside in. This value will limit the geocoder to the supplied countries. The country code is a 2 character code as defined by the ISO-3166-1 alpha-2 standard (e.g. FR). Multiple countries can be specified with a Python list.

  Changed in version 1.19.0: Previously only a Python list of countries could be specified. Now a single country as a string can be specified as well.

- **exactly_one** *(bool)* – Return one result or a list of one result.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

## 3.12 GeoNames

### class geopy.geocoders.GeoNames (country_bias=None, username=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, scheme='http')

GeoNames geocoder.

**Documentation at:** [http://www.geonames.org/export/geonames-search.html](http://www.geonames.org/export/geonames-search.html)

**Reverse geocoding documentation at:** [http://www.geonames.org/export/web-services.html#findNearbyPlaceName](http://www.geonames.org/export/web-services.html#findNearbyPlaceName)

### __init__(country_bias=None, username=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, scheme='http')

**Parameters**

- **country_bias** *(str)* – Records from the country_bias are listed first. Two letter country code ISO-3166.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`’s `country_bias` instead.

- **username** *(str)* – GeoNames username, required. Sign up here: [http://www.geonames.org/login](http://www.geonames.org/login)

- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.
• **proxies** (dict) – See `geopy.geocoders.options.default_proxies`.

• **user_agent** (str) – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

• **format_string** (str) – See `geopy.geocoders.options.default_format_string`.

  New in version 1.14.0.

• **ssl_context** (ssl.SSLContext) – See `geopy.geocoders.options.default_ssl_context`.

  New in version 1.14.0.

• **scheme** (str) – See `geopy.geocoders.options.default_scheme`. Note that at the time of writing GeoNames doesn’t support https, so the default scheme is http. The value of `geopy.geocoders.options.default_scheme` is not respected. This parameter is present to make it possible to switch to https once GeoNames adds support for it.

  New in version 1.18.0.

**geocode** *(query, exactly_one=True, timeout=DEFAULT_SENTINEL, country=None, country_bias=None)*

Return a location point by address.

**Parameters**

• **query** (str) – The address or query you wish to geocode.

• **exactly_one** (bool) – Return one result or a list of results, if available.

• **timeout** (int) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **country** (str or list) – Limit records to the specified countries. Two letter country code ISO-3166 (e.g. FR). Might be a single string or a list of strings.

  New in version 1.19.0.

• **country_bias** (str) – Records from the country_bias are listed first. Two letter country code ISO-3166.

  New in version 1.19.0.

  **Return type** None, `geopy.location.Location` or a list of them, if exactly_one=False.

**reverse** *(query, exactly_one=DEFAULT_SENTINEL, timeout=DEFAULT_SENTINEL, feature_code=None, lang=None, find_nearby_type='findNearbyPlaceName')*

Return an address by location point.

New in version 1.2.0.

**Parameters**

• **query** (geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – The coordinates for which you wish to obtain the closest human-readable addresses.
• **exactly_one** *(bool)* – Return one result or a list of results, if available.

  Changed in version 1.14.0: Default value for `exactly_one` was `False`, which differs from the conventional default across geopy. Please always pass this argument explicitly, otherwise you would get a warning. In geopy 2.0 the default value will become `True`.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **feature_code** *(str)* – A GeoNames feature code

  New in version 1.18.0.

• **lang** *(str)* – Language of the returned name element (the pseudo language code ‘local’ will return it in local language) Full list of supported languages can be found here: https://www.geonames.org/countries/

  New in version 1.18.0.

• **find_nearby_type** *(str)* – A flag to switch between different GeoNames API endpoints. The default value is `findNearbyPlaceName` which returns the closest populated place. Another currently implemented option is `findNearby` which returns the closest toponym for the lat/lng query.

  New in version 1.18.0.

  **Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

---

reverse_timezone *(query, timeout=DEFAULT_SENTINEL)*

Find the timezone for a point in `query`.

GeoNames always returns a timezone: if the point being queried doesn’t have an assigned Olson timezone id, a `pytz.FixedOffset` timezone is used to produce the `geopy.timezone.Timezone`.

New in version 1.18.0.

**Parameters**

• **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as “%(latitude)s, %(longitude)s”)* – The coordinates for which you want a timezone.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

  **Return type** `geopy.timezone.Timezone`

---

### 3.13 GoogleV3

**class** `geopy.geocoders.GoogleV3` *(api_key=None, domain='maps.googleapis.com', scheme=None, client_id=None, secret_key=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, channel='')*

Geocoder using the Google Maps v3 API.

**Documentation at:** https://developers.google.com/maps/documentation/geocoding/
**Attention:** Since July 2018 Google requires each request to have an API key. See [https://developers.google.com/maps/documentation/geocoding/usage-and-billing](https://developers.google.com/maps/documentation/geocoding/usage-and-billing)

```python
__init__(api_key=None, domain='maps.googleapis.com', scheme=None, client_id=None, secret_key=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL, channel="")
```

**Parameters**

- **api_key** *(str)* – The API key required by Google to perform geocoding requests. API keys are managed through the Google APIs console ([https://code.google.com/apis/console](https://code.google.com/apis/console)). Make sure to have both Geocoding API and Time Zone API services enabled for this API key.

- **domain** *(str)* – Should be the localized Google Maps domain to connect to. The default is ‘maps.googleapis.com’, but if you’re geocoding address in the UK (for example), you may want to set it to ‘maps.google.co.uk’ to properly bias results.

- **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.

- **client_id** *(str)* – If using premier, the account client id.

- **secret_key** *(str)* – If using premier, the account secret key.

- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.

- **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.

- **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

- **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

  New in version 1.14.0.

- **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.

  New in version 1.14.0.

- **channel** *(str)* – If using premier, the channel identifier.

  New in version 1.12.0.

```python
g.geocode(query=None, exactly_one=True, timeout=DEFAULT_SENTINEL, bounds=None, region=None, components=None, place_id=None, language=None, sensor=False)
```

**geocode** *(query=None, exactly_one=True, timeout=DEFAULT_SENTINEL, bounds=None, region=None, components=None, place_id=None, language=None, sensor=False)*

Return a location point by address.

**Parameters**

- **query** *(str)* – The address or query you wish to geocode. Optional, if `components` param is set:

  ```python
  >>> g.geocode(components={"city": "Paris", "country": "FR"})
  Location(France, (46.227638, 2.213749, 0.0))
  ```

  Changed in version 1.14.0: Now query is optional if components param is set.

- **exactly_one** *(bool)* – Return one result or a list of results, if available.
- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

- **bounds** *(list or tuple of 2 items of *geopy.point.Point* or (latitude, longitude) or "%(latitude)s, %(longitude)s") – The bounding box of the viewport within which to bias geocode results more prominently. Example: [Point(22, 180), Point(-22, -180)].

  Changed in version 1.17.0: Previously the only supported format for bounds was a list like [latitude, longitude, latitude, longitude]. This format is now deprecated in favor of a list/tuple of a pair of geopy Points and will be removed in geopy 2.0.

- **region** *(str)* – The region code, specified as a ccTLD (“top-level domain”) two-character value.

- **components** *(dict)* – Restricts to an area. Can use any combination of: route, locality, administrative_area, postal_code, country.

- **place_id** *(str)* – Retrieve a Location using a Place ID. Cannot be not used with *query* or *bounds* parameters.

```
>>> g.geocode(place_id='ChIJOcfP0Iq2j4ARDrXUa7Ws34')
```

New in version 1.19.0.

- **language** *(str)* – The language in which to return results.

- **sensor** *(bool)* – Whether the geocoding request comes from a device with a location sensor.

  Return type None, *geopy.location.Location* or a list of them, if exactly_one=False.

`reverse` *(query, exactly_one=DEFAULT_SENTINEL, timeout=DEFAULT_SENTINEL, language=None, sensor=False)*

Return an address by location point.

Parameters

- **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – The coordinates for which you wish to obtain the closest human-readable addresses.

  Changed in version 1.14.0: Default value for exactly_one was False, which differs from the conventional default across geopy. Please always pass this argument explicitly, otherwise you would get a warning. In geopy 2.0 the default value will become True.

- **exactly_one** *(bool)* – Return one result or a list of results, if available.

  Changed in version 1.14.0: Default value for exactly_one was False, which differs from the conventional default across geopy. Please always pass this argument explicitly, otherwise you would get a warning. In geopy 2.0 the default value will become True.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

- **language** *(str)* – The language in which to return results.

- **sensor** *(bool)* – Whether the geocoding request comes from a device with a location sensor.

  Return type None, *geopy.location.Location* or a list of them, if exactly_one=False.
**reverse_timezone** (*query, at_time=None, timeout=DEFAULT_SENTINEL*)

Find the timezone a point in *query* was in for a specified *at_time*.

New in version 1.18.0.

Changed in version 1.18.1: Previously a *KeyError* was raised for a point without an assigned Olson timezone id (e.g. for Antarctica). Now this method returns None for such requests.

**Parameters**

- **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as “%(latitude)s, %(longitude)s”)* – The coordinates for which you want a timezone.

- **at_time** *(datetime.datetime or None)* – The time at which you want the timezone of this location. This is optional, and defaults to the time that the function is called in UTC. Timezone-aware datetimes are correctly handled and naive datetimes are silently treated as UTC.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

**Return type** None or *geopy.timezone.Timezone*

**timezone** (*location, at_time=None, timeout=DEFAULT_SENTINEL*)

Find the timezone a *location* was in for a specified *at_time*, and return a pytz timezone object.

New in version 1.2.0.

Deprecated since version 1.18.0: Use *GoogleV3.reverse_timezone()* instead. This method will be removed in geopy 2.0.

Changed in version 1.18.1: Previously a *KeyError* was raised for a point without an assigned Olson timezone id (e.g. for Antarctica). Now this method returns None for such requests.

**Parameters**

- **location** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as “%(latitude)s, %(longitude)s”)* – The coordinates for which you want a timezone.

- **at_time** *(datetime.datetime or None)* – The time at which you want the timezone of this location. This is optional, and defaults to the time that the function is called in UTC. Timezone-aware datetimes are correctly handled and naive datetimes are silently treated as UTC.

  Changed in version 1.18.0: Previously this parameter accepted raw unix timestamp as int or float. This is now deprecated in favor of datetimes and support for numbers will be removed in geopy 2.0.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

**Return type** None or pytz timezone. See *pytz.timezone()*.
3.14 HERE

class geopy.geocoders.Here(app_id=None, app_code=None, apikey=None, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)

Geocoder using the HERE Geocoder API.

Documentation at: https://developer.here.com/documentation/geocoder/

New in version 1.15.0.

__init__ (app_id=None, app_code=None, apikey=None, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)

Parameters

- **app_id** (str) – Should be a valid HERE Maps APP ID. Will eventually be replaced with APIKEY. See https://developer.here.com/authenticationpage.

  Deprecated since version 1.21.0: App ID and App Code are being replaced by API Keys and OAuth 2.0 by HERE. Consider getting an apikey instead of using app_id and app_code.

- **app_code** (str) – Should be a valid HERE Maps APP CODE. Will eventually be replaced with APIKEY. See https://developer.here.com/authenticationpage.

  Deprecated since version 1.21.0.

- **apikey** (str) – Should be a valid HERE Maps APIKEY. These keys were introduced in December 2019 and will eventually replace the legacy APP CODE/APP ID pairs which are already no longer available for new accounts (but still work for old accounts). More authentication details are available at https://developer.here.com/blog/announcing-two-new-authentication-types. See https://developer.here.com/authenticationpage.

  New in version 1.21.0.

- **format_string** (str) – See geopy.geocoders.options.default_format_string.

- **scheme** (str) – See geopy.geocoders.options.default_scheme.

- **timeout** (int) – See geopy.geocoders.options.default_timeout.

- **proxies** (dict) – See geopy.geocoders.options.default_proxies.

- **user_agent** (str) – See geopy.geocoders.options.default_user_agent.

- **ssl_context** (ssl.SSLContext) – See geopy.geocoders.options.default_ssl_context.

geocode (query, bbox=None, mapview=None, exactly_one=True, maxresults=None, pageinformation=None, language=None, additional_data=False, timeout=DEFAULT_SENTINEL)

Return a location point by address.

This implementation supports only a subset of all available parameters. A list of all parameters of the pure REST API is available here: https://developer.here.com/documentation/geocoder/topics/resource-geocode.html

Parameters
GeoPy Documentation, Release 1.21.0

- **query** (*str*) – The address or query you wish to geocode.
  
  For a structured query, provide a dictionary whose keys are one of: *city*, *county*, *district*, *country*, *state*, *street*, *housenumber*, or *postalcode*.

- **bbox** (list or tuple of 2 items of `geopy.point.Point` or `(latitude, longitude)` or "%(latitude)s, %(longitude)s") – A type of spatial filter, limits the search for any other attributes in the request. Specified by two coordinate (lat/lon) pairs – corners of the box. The bbox search is currently similar to mapview but it is not extended (cited from the REST API docs). Relevant global results are also returned. Example: `[Point(22, 180), Point(-22, -180)]`.

- **mapview** (list or tuple of 2 items of `geopy.point.Point` or `(latitude, longitude)` or "%(latitude)s, %(longitude)s") – The app’s viewport, given as two coordinate pairs, specified by two lat/lon pairs – corners of the bounding box, respectively. Matches from within the set map view plus an extended area are ranked highest. Relevant global results are also returned. Example: `[Point(22, 180), Point(-22, -180)]`.

- **exactly_one** (*bool*) – Return one result or a list of results, if available.

- **maxresults** (*int*) – Defines the maximum number of items in the response structure. If not provided and there are multiple results the HERE API will return 10 results by default. This will be reset to one if exactly_one is True.

- **pageinformation** (*int*) – A key which identifies the page to be returned when the response is separated into multiple pages. Only useful when maxresults is also provided.

- **language** (*str*) – Affects the language of the response, must be a RFC 4647 language code, e.g. 'en-US'.

- **additional_data** (*str*) – A string with key-value pairs as described on https://developer.here.com/documentation/geocoder/topics/resource-params-additional.html. These will be added as one query parameter to the URL.

- **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

  **Return type** None, `geopy.location.Location` or a list of them, if exactly_one=False.

**reverse** (query, radius=None, exactly_one=True, maxresults=None, pageinformation=None, language=None, mode='retrieveAddresses', timeout=DEFAULT_SENTINEL)

Return an address by location point.

This implementation supports only a subset of all available parameters. A list of all parameters of the pure REST API is available here: https://developer.here.com/documentation/geocoder/topics/resource-reverse-geocode.html

**Parameters**

- **query** (`geopy.point.Point`, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – The coordinates for which you wish to obtain the closest human-readable addresses.

- **radius** (*float*) – Proximity radius in meters.

- **exactly_one** (*bool*) – Return one result or a list of results, if available.
• **maxresults** *(int)* – Defines the maximum number of items in the response structure. If not provided and there are multiple results the HERE API will return 10 results by default. This will be reset to one if `exactly_one` is True.

• **pageinformation** *(int)* – A key which identifies the page to be returned when the response is separated into multiple pages. Only useful when `maxresults` is also provided.

• **language** *(str)* – Affects the language of the response, must be a RFC 4647 language code, e.g. ‘en-US’.

• **mode** *(str)* – Affects the type of returned response items, must be one of: ‘retrieveAddresses’ (default), ‘retrieveAreas’, ‘retrieveLandmarks’, ‘retrieveAll’, or ‘trackPosition’. See online documentation for more information.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

Return type None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.15 IGNFrance

**class** `geopy.geocoders.IGNFrance` *(api_key, username=None, password=None, referer=None, domain='wxs.ign.fr', scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)*

Geocoder using the IGN France GeoCoder OpenLS API.

Documentation at: https://geoservices.ign.fr/documentation/geoservices/index.html

**__init__** *(api_key, username=None, password=None, referer=None, domain='wxs.ign.fr', scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)*

**Parameters**

• **api_key** *(str)* – The API key required by IGN France API to perform geocoding requests. You can get your key here: https://geoservices.ign.fr/documentation/services-acces.html. Mandatory. For authentication with referer and with username/password, the api key always differ.

• **username** *(str)* – When making a call need HTTP simple authentication username. Mandatory if no referer set

• **password** *(str)* – When making a call need HTTP simple authentication password. Mandatory if no referer set

• **referer** *(str)* – When making a call need HTTP referer. Mandatory if no password and username

• **domain** *(str)* – Currently it is 'wxs.ign.fr', can be changed for testing purposes for developer API e.g 'gpp3-wxs.ign.fr' at the moment.

• **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.

• **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.

• **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.
• **user_agent** *(str)* – See *geopy.geocoders.options.default_user_agent.*
  New in version 1.12.0.

• **format_string** *(str)* – See *geopy.geocoders.options.default_format_string.*
  New in version 1.14.0.

• **ssl_context** *(ssl.SSLContext)* – See *geopy.geocoders.options.default_ssl_context.*
  New in version 1.14.0.

**geocode**(query, query_type='StreetAddress', maximum_responses=25, is_freeform=False, filtering=None, exactly_one=True, timeout=DEFAULT_SENTINEL)

Return a location point by address.

**Parameters**

• **query** *(str)* – The query string to be geocoded.

• **query_type** *(str)* – The type to provide for geocoding. It can be *PositionOfInterest, StreetAddress* or *CadastralParcel*. *StreetAddress* is the default choice if none provided.

• **maximum_responses** *(int)* – The maximum number of responses to ask to the API in the query body.

• **is_freeform** *(str)* – Set if return is structured with freeform structure or a more structured returned. By default, value is False.

• **filtering** *(str)* – Provide string that help setting geocoder filter. It contains an XML string. See examples in documentation and ignfrance.py file in directory tests.

• **exactly_one** *(bool)* – Return one result or a list of results, if available.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

**Return type**

None, *geopy.location.Location* or a list of them, if exactly_one=False.

**reverse**(query, reverse_geocode_preference=(*'StreetAddress',*), maximum_responses=25, filtering=None, exactly_one=DEFAULT_SENTINEL, timeout=DEFAULT_SENTINEL)

Return an address by location point.

**Parameters**

• **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")* – The coordinates for which you wish to obtain the closest human-readable addresses.

• **reverse_geocode_preference** *(list)* – Enable to set expected results type. It can be *StreetAddress* or *PositionOfInterest*. Default is set to *StreetAddress*.

• **maximum_responses** *(int)* – The maximum number of responses to ask to the API in the query body.

• **filtering** *(str)* – Provide string that help setting geocoder filter. It contains an XML string. See examples in documentation and ignfrance.py file in directory tests.

• **exactly_one** *(bool)* – Return one result or a list of results, if available.
Changed in version 1.14.0: Default value for `exactly_one` was `False`, which differs from the conventional default across geopy. Please always pass this argument explicitly, otherwise you would get a warning. In geopy 2.0 the default value will become `True`.

- **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

  Return type None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.16 MapBox

```python
class geopy.geocoders.MapBox(api_key, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL, domain='api.mapbox.com')
```

Geocoder using the Mapbox API.

**Documentation at:** https://www.mapbox.com/api-documentation/

New in version 1.17.0.

```python
__init__(api_key, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL, domain='api.mapbox.com')
```

**Parameters**

- **api_key** (*str*) – The API key required by Mapbox to perform geocoding requests. API keys are managed through Mapbox’s account page (https://www.mapbox.com/account/access-tokens).

- **format_string** (*str*) – See `geopy.geocoders.options.default_format_string`.

- **scheme** (*str*) – See `geopy.geocoders.options.default_scheme`.

- **timeout** (*int*) – See `geopy.geocoders.options.default_timeout`.

- **proxies** (*dict*) – See `geopy.geocoders.options.default_proxies`.

- **user_agent** (*str*) – See `geopy.geocoders.options.default_user_agent`.

- **ssl_context** (*ssl.SSLContext*) – See `geopy.geocoders.options.default_ssl_context`.

- **domain** (*str*) – base api domain for mapbox

```python
geocode(query, exactly_one=True, timeout=DEFAULT_SENTINEL, proximity=None, country=None, bbox=None)
```

Return a location point by address

Changed in version 1.20.0: Previously due to a bug the resulting `geopy.location.Location`’s `raw` attribute contained a single string instead of a full service response.

**Parameters**

- **query** (*str*) – The address or query you wish to geocode.
• **exactly_one**(bool) – Return one result or a list of results, if available.

  Changed in version 1.20.0: Previously due to a bug this parameter wasn’t respected.

• **timeout**(int) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **proximity**(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – A coordinate to bias local results based on a provided location.

• **country**(str or list) – Country to filter result in form of ISO 3166-1 alpha-2 country code (e.g. FR). Might be a Python list of strings.

  Changed in version 1.19.0: Previously only a single string could be specified. Now a Python list of individual countries is supported.

• **bbox**(list or tuple of 2 items of geopy.point.Point or (latitude, longitude) or "%(latitude)s, %(longitude)s") – The bounding box of the viewport within which to bias geocode results more prominently. Example: `[Point(22, 180), Point(-22, -180)]`.

  Return type None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

reverse(query, exactly_one=True, timeout=DEFAULT_SENTINEL)

Return an address by location point.

  Changed in version 1.20.0: Previously due to a bug the resulting `geopy.location.Location`’s raw attribute contained a single string instead of a full service response.

Parameters

• **query**(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one**(bool) – Return one result or a list of results, if available.

• **timeout**(int) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

  Return type None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.17 OpenCage

```python
class geopy.geocoders.OpenCage(api_key, domain='api.opencagedata.com', scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)
```

Geocoder using the OpenCageData API.

**Documentation at:** [https://opencagedata.com/api](https://opencagedata.com/api)

New in version 1.1.0.
__init__ (api_key, domain='api.opencagedata.com', scheme=None, timeout=DEFAULT_SENTINEL, proxy=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)

Parameters

- **api_key** (str) – The API key required by OpenCageData to perform geocoding requests. You can get your key here: https://opencagedata.com/

- **domain** (str) – Currently it is 'api.opencagedata.com', can be changed for testing purposes.

- **scheme** (str) – See geopy.geocoders.options.default_scheme.

- **timeout** (int) – See geopy.geocoders.options.default_timeout.

- **proxies** (dict) – See geopy.geocoders.options.default_proxies.

- **user_agent** (str) – See geopy.geocoders.options.default_user_agent.

  New in version 1.12.0.

- **format_string** (str) – See geopy.geocoders.options.default_format_string.

  New in version 1.14.0.

- **ssl_context** (ssl.SSLContext) – See geopy.geocoders.options.default_ssl_context.

  New in version 1.14.0.

generate (query, bounds=None, country=None, language=None, exactly_one=True, timeout=DEFAULT_SENTINEL)

Return a location point by address.

Parameters

- **query** (str) – The address or query you wish to geocode.

- **language** (str) – an IETF format language code (such as es for Spanish or pt-BR for Brazilian Portuguese); if this is omitted a code of en (English) will be assumed by the remote service.

- **bounds** (list or tuple of 2 items of geopy.point.Point or (latitude, longitude) or "%(latitude)s, %(longitude)s") – Provides the geocoder with a hint to the region that the query resides in. This value will help the geocoder but will not restrict the possible results to the supplied region. The bounds parameter should be specified as 2 coordinate points – corners of a bounding box. Example: [Point(22, 180), Point(-22, -180)].

  Changed in version 1.17.0: Previously the only supported format for bounds was a string of "longitude,latitude,longitude,latitude". This format is now deprecated in favor of a list/tuple of a pair of geopy Points and will be removed in geopy 2.0.

- **country** (str or list) – Restricts the results to the specified country or countries. The country code is a 2 character code as defined by the ISO 3166-1 Alpha 2 standard (e.g. fr). Might be a Python list of strings.

  Changed in version 1.19.0: This parameter didn’t seem to be respected previously. Also, previously only a single string could be specified. Now a Python list of individual countries is supported.

- **exactly_one** (bool) – Return one result or a list of results, if available.
timeout (int) – Time, in seconds, to wait for the geocoding service to respond before raising a geopy.exc.GeocoderTimedOut exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

Return type None, geopy.location.Location or a list of them, if exactly_one=False.

reverse (query, language=None, exactly_one=DEFAULT_SENTINEL, timeout=DEFAULT_SENTINEL)
Return an address by location point.

Parameters

• query (geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s") – The coordinates for which you wish to obtain the closest human-readable addresses.

• language (str) – The language in which to return results.

• exactly_one (bool) – Return one result or a list of results, if available.

Changed in version 1.14.0: Default value for exactly_one was False, which differs from the conventional default across geopy. Please always pass this argument explicitly, otherwise you would get a warning. In geopy 2.0 the default value will become True.

• timeout (int) – Time, in seconds, to wait for the geocoding service to respond before raising a geopy.exc.GeocoderTimedOut exception. Set this only if you wish to override, on this call only, the value set during the geocoder's initialization.

Return type None, geopy.location.Location or a list of them, if exactly_one=False.

3.18 OpenMapQuest

class geopy.geocoders.OpenMapQuest (api_key=None, format_string=None, view_box=None, bounded=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='open.mapquestapi.com', scheme=None, user_agent=None, ssl_context=DEFAULT_SENTINEL)

Bases: geopy.geocoders.osm.Nominatim

Geocoder using MapQuest Open Platform Web Services.

Documentation at: https://developer.mapquest.com/documentation/open/

Changed in version 1.17.0: OpenMapQuest now extends the Nominatim class.

__init__ (api_key=None, format_string=None, view_box=None, bounded=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='open.mapquestapi.com', scheme=None, user_agent=None, ssl_context=DEFAULT_SENTINEL)

Parameters

• api_key (str) – API key provided by MapQuest, required.

Changed in version 1.12.0: OpenMapQuest now requires an API key. Using an empty key will result in a geopy.exc.ConfigurationError.
• **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

• **view_box** *(list or tuple of 2 items of `geopy.point.Point` or (latitude, longitude) or "%(latitude)s, %(longitude)s")* – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.

  New in version 1.17.0.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`’s `viewbox` instead.

• **bounded** *(bool)* – Restrict the results to only items contained within the bounding `view_box`.

  New in version 1.17.0.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`’s `bounded` instead.

• **country_bias** *(str or list)* – Limit search results to a specific country. This param sets a default value for the `geocode`’s `country_codes`.

  New in version 1.17.0.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`’s `country_codes` instead.

• **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.

• **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.

• **domain** *(str)* – Domain where the target Nominatim service is hosted.

  New in version 1.17.0.

• **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.

• **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

• **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.

  New in version 1.14.0.

**geocode**(query, exactly_one=True, timeout=DEFAULT_SENTINEL, limit=None, addressdetails=False, language=False, geometry=None, extratags=False, country_codes=None, viewbox=None, bounded=None, featuretype=None, namedetails=False)

Return a location point by address.

**Parameters**

• **query** *(dict or str)* – The address, query or a structured query you wish to geocode.

  Changed in version 1.0.0: For a structured query, provide a dictionary whose keys are one of: `street`, `city`, `county`, `state`, `country`, or `postcode`. For more information, see Nominatim’s documentation for structured requests:

  https://wiki.openstreetmap.org/wiki/Nominatim

• **exactly_one** *(bool)* – Return one result or a list of results, if available.
• **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **limit** (*int*) – Maximum amount of results to return from Nominatim. Unless exactly_one is set to False, limit will always be 1.

New in version 1.13.0.

• **addressdetails** (*bool*) – If you want in `Location.raw` to include addressdetails such as city_district, etc set it to True

• **language** (*str*) – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

New in version 1.0.0.

• **geometry** (*str*) – If present, specifies whether the geocoding service should return the result’s geometry in wkt, svg, kml, or geojson formats. This is available via the `raw` attribute on the returned `geopy.location.Location` object.

New in version 1.3.0.

• **extratags** (*bool*) – Include additional information in the result if available, e.g. wikipedia link, opening hours.

New in version 1.17.0.

• **country_codes** (*str or list*) – Limit search results to a specific country (or a list of countries). A country_code should be the ISO 3166-1alpha2 code, e.g. gb for the United Kingdom, de for Germany, etc.

New in version 1.19.0.

• **viewbox** (list or tuple of 2 items of `geopy.point.Point` or (latitude, longitude) or "%(latitude)s, %(longitude)s".) – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.

New in version 1.19.0.

• **bounded** (*bool*) – Restrict the results to only items contained within the bounding view_box. Defaults to `False`.

New in version 1.19.0.

• **featuretype** (*str*) – If present, restrict results to certain type of features. Allowed values: country, state, city, settlement.

New in version 1.21.0.

• **namedetails** (*bool*) – If you want in `Location.raw` to include namedetails, set it to True. This will be a list of alternative names, including language variants, etc.

New in version 1.21.0.

Return type None, `geopy.location.Location` or a list of them, if exactly_one=False.

reverse(*query*, exactly_one=True, *timeout*=DEFAULT_SENTINEL, *language*=False, *addressdetails*=True)

Return an address by location point.

Parameters
• **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")* – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one** *(bool)* – Return one result or a list of results, if available.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **language** *(str)* – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

  New in version 1.0.0.

• **addressdetails** *(bool)* – Whether or not to include address details, such as city, county, state, etc. in `Location.raw`

  New in version 1.14.0.

**Return type** None, `geopy.location.Location` or a list of them, if exactly_one=False.

### 3.19 Nominatim

**class** `geopy.geocoders.Nominatim` *(format_string=None, view_box=None, bounded=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='nominatim.openstreetmap.org', scheme=None, user_agent=None, ssl_context=DEFAULT_SENTINEL)*

Nominatim geocoder for OpenStreetMap data.

**Documentation at:** [https://wiki.openstreetmap.org/wiki/Nominatim](https://wiki.openstreetmap.org/wiki/Nominatim)

**Attention:** Using Nominatim with the default user_agent is strongly discouraged, as it violates Nominatim’s Usage Policy [https://operations.osmfoundation.org/policies/nominatim/](https://operations.osmfoundation.org/policies/nominatim/) and may possibly cause 403 and 429 HTTP errors. Please make sure to specify a custom user_agent with Nominatim(user_agent="my-application") or by overriding the default user_agent: `geopy.geocoders.options.default_user_agent = "my-application"`. In geopy 2.0 an exception will be thrown when a custom user_agent is not specified.

Changed in version 1.16.0: A warning is now issued when a default user_agent is used which restates the Attention block above.

```python
__init__ (format_string=None, view_box=None, bounded=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='nominatim.openstreetmap.org', scheme=None, user_agent=None, ssl_context=DEFAULT_SENTINEL)
```

**Parameters**

• **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

• **view_box** *(list or tuple of 2 items of geopy.point.Point or (latitude, longitude) or "%(latitude)s, %(longitude)s")* – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.
Changed in version 1.15.0: Previously only a list of stringified coordinates was supported.

Changed in version 1.17.0: Previously view_box could be a list of 4 strings or numbers in
the format of [longitude, latitude, longitude, latitude]. This format
is now deprecated in favor of a list/tuple of a pair of geopy Points and will be removed in
geopy 2.0.

Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use
geocode’s viewbox instead.

• **bounded** (bool) – Restrict the results to only items contained within the bounding
  view_box.

  New in version 1.15.0.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use
  geocode’s bounded instead.

• **country_bias** (str or list) – Limit search results to a specific country. This
  param sets a default value for the geocode’s country_codes.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use
  geocode’s country_codes instead.

• **timeout** (int) – See geopy.geocoders.options.default_timeout.

• **proxies** (dict) – See geopy.geocoders.options.default_proxies.

• **domain** (str) – Domain where the target Nominatim service is hosted.

  New in version 1.8.2.

• **scheme** (str) – See geopy.geocoders.options.default_scheme.

  New in version 1.8.2.

• **user_agent** (str) – See geopy.geocoders.options.default_user_agent.

  New in version 1.12.0.

• **ssl_context** (ssl.SSLContext) – See geopy.geocoders.options.default_ssl_context.

  New in version 1.14.0.

**geocode**(query, exactly_one=True, timeout=DEFAULT_SENTINEL, limit=None, addressdetails=False, language=False, geometry=None, extratags=False, country_codes=None, viewbox=None, namedetails=None, featuretype=None)

Return a location point by address.

**Parameters**

• **query** (dict or str) – The address, query or a structured query you wish to geocode.

  Changed in version 1.0.0: For a structured query, provide a dictionary whose keys are one
  of: street, city, county, state, country, or postcode. For more information, see Nominatim’s
documentation for structured requests:

    https://wiki.openstreetmap.org/wiki/Nominatim

• **exactly_one** (bool) – Return one result or a list of results, if available.

• **timeout** (int) – Time, in seconds, to wait for the geocoding service to respond before
  raising a geopy.exc.GeocoderTimedOut exception. Set this only if you wish to
  override, on this call only, the value set during the geocoder’s initialization.
• **limit (int)** – Maximum amount of results to return from Nominatim. Unless exactly_one is set to False, limit will always be 1.
   
   New in version 1.13.0.

• **addressdetails (bool)** – If you want in Location.raw to include addressdetails such as city_district, etc set it to True

• **language (str)** – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.
   
   New in version 1.0.0.

• **geometry (str)** – If present, specifies whether the geocoding service should return the result’s geometry in wkt, svg, kml, or geojson formats. This is available via the raw attribute on the returned geopy.location.Location object.
   
   New in version 1.3.0.

• **extratags (bool)** – Include additional information in the result if available, e.g. wikipedia link, opening hours.
   
   New in version 1.17.0.

• **country_codes (str or list)** – Limit search results to a specific country (or a list of countries). A country_code should be the ISO 3166-1alpha2 code, e.g. gb for the United Kingdom, de for Germany, etc.
   
   New in version 1.19.0.

• **viewbox (list or tuple of 2 items of geopy.point.Point or (latitude, longitude) or "%(latitude)s, %(longitude)s")** – Coordinates to restrict search within. Example: [Point(22, 180), Point(-22, -180)].
   
   New in version 1.19.0.

• **bounded (bool)** – Restrict the results to only items contained within the bounding view_box. Defaults to False.
   
   New in version 1.19.0.

• **featuretype (str)** – If present, restrict results to certain type of features. Allowed values: country, state, city, settlement.
   
   New in version 1.21.0.

• **namedetails (bool)** – If you want in Location.raw to include namedetails, set it to True. This will be a list of alternative names, including language variants, etc.
   
   New in version 1.21.0.

Return type None, geopy.location.Location or a list of them, if exactly_one=False.

reverse (query, exactly_one=True, timeout=DEFAULT_SENTINEL, language=False, addressdetails=True)

Return an address by location point.

Parameters

• **query (geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")** – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one (bool)** – Return one result or a list of results, if available.
• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **language** *(str)* – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.
  
  New in version 1.0.0.

• **addressdetails** *(bool)* – Whether or not to include address details, such as city, county, state, etc. in `Location.raw`
  
  New in version 1.14.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.20 Pelias

```python
class geopy.geocoders.Pelias(domain, api_key=None, format_string=None, boundary_rect=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, scheme=None, ssl_context=DEFAULT_SENTINEL)
```

Pelias geocoder.

**Documentation at:** https://github.com/pelias/documentation

See also `geopy.geocoders.GeocodeEarth` which is a Pelias-based service provided by the developers of Pelias itself.

Changed in version 1.15.0: Mapzen geocoder has been renamed to **Pelias**.

**__init__** *(domain, api_key=None, format_string=None, boundary_rect=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, scheme=None, ssl_context=DEFAULT_SENTINEL)*

**Parameters**

• **domain** *(str)* – Specify a domain for Pelias API.

• **api_key** *(str)* – Pelias API key, optional.

• **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

• **boundary_rect** *(list or tuple of 2 items of `geopy.point.Point` or (latitude, longitude) or "%(latitude)s, %(longitude)s")* – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.

  Changed in version 1.17.0: Previously `boundary_rect` could be a list of 4 strings or numbers in the format of `[longitude, latitude, longitude, latitude]`. This format is now deprecated in favor of a list/tuple of a pair of geopy Points and will be removed in geopy 2.0.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`’s `boundary_rect` instead.

• **country_bias** *(str)* – Bias results to this country (ISO alpha-3).

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`’s `country_bias` instead.
• **timeout** (*int*) – See `geopy.geocoders.options.default_timeout`.

• **proxies** (*dict*) – See `geopy.geocoders.options.default_proxies`.

• **user_agent** (*str*) – See `geopy.geocoders.options.default_user_agent`.

• **scheme** (*str*) – See `geopy.geocoders.options.default_scheme`.

• **ssl_context** (*ssl.SSLContext*) – See `geopy.geocoders.options.default_ssl_context`.

**geocode**(query, **exact**=True, **timeout**=DEFAULT_SENTINEL, **boundary_rect**=None, **country_bias**=None, **language**=None)

Return a location point by address.

**Parameters**

• **query** (*str*) – The address, query or structured query to geocode you wish to geocode.

• **exactly_one** (*bool*) – Return one result or a list of results, if available.

• **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **boundary_rect** (*list or tuple of 2 items of geopy.point.Point or (latitude, longitude) or "%(latitude)s, %(longitude)s".*) – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.

  New in version 1.19.0.

• **country_bias** (*str*) – Bias results to this country (ISO alpha-3).

  New in version 1.19.0.

• **language** (*str*) – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

  New in version 1.21.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

**reverse**(query, **exact**=True, **timeout**=DEFAULT_SENTINEL, **language**=None)

Return an address by location point.

**Parameters**

• **query** (*geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s".*) – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one** (*bool*) – Return one result or a list of results, if available.

• **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **language** (*str*) – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

  New in version 1.21.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`. 
3.21 Photon

```python
class geopy.geocoders.Photon(format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='photon.komoot.de', user_agent=None, ssl_context=DEFAULT_SENTINEL):
```

Geocoder using Photon geocoding service (data based on OpenStreetMap and service provided by Komoot on https://photon.komoot.de).

**Documentation at:** https://github.com/komoot/photon

Photon/Komoot geocoder aims to let you search as you type with OpenStreetMap. No API Key is needed by this platform.

```python
def __init__(self, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='photon.komoot.de', user_agent=None, ssl_context=DEFAULT_SENTINEL):

Parameters

- **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.
- **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.
- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.
- **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.
- **domain** *(str)* – Should be the localized Photon domain to connect to. The default is 'photon.komoot.de', but you can change it to a domain of your own.
- **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

New in version 1.12.0.

- **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.

New in version 1.14.0.

```python
def geocode(self, query, exactly_one=True, timeout=DEFAULT_SENTINEL, location_bias=None, language=False, limit=None, osm_tag=None):
```

Return a location point by address.

**Parameters**

- **query** *(str)* – The address or query you wish to geocode.
- **exactly_one** *(bool)* – Return one result or a list of results, if available.
- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.
- **location_bias** – The coordinates to used as location bias.
- **language** *(str)* – Preferred language in which to return results.
- **limit** *(int)* – Limit the number of returned results, defaults to no limit.

New in version 1.12.0.
GeoPy Documentation, Release 1.21.0

- **osm_tag** *(str or list or set)* – The expression to filter (include/exclude) by key and/or value, str as 'key:value' or list/set of str if multiple filters are required as ['key:val', '!key', ':!value'].

  **Return type** None, *geopy.location.Location* or a list of them, if exactly_one=False.

- **reverse** *(query, exactly_one=True, timeout=DEFAULT_SENTINEL, language=False, limit=None)*

  Return an address by location point.

  **Parameters**

  - **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")* – The coordinates for which you wish to obtain the closest human-readable addresses.
  
  - **exactly_one** *(bool)* – Return one result or a list of results, if available.
  
  - **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.
  
  - **language** *(str)* – Preferred language in which to return results.
  
  - **limit** *(int)* – Limit the number of returned results, defaults to no limit.

  New in version 1.12.0.

  **Return type** None, *geopy.location.Location* or a list of them, if exactly_one=False.

### 3.22 PickPoint

class *geopy.geocoders.PickPoint* *(api_key, format_string=None, view_box=None, bounded=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='api.pickpoint.io', scheme=None, user_agent=None, ssl_context=DEFAULT_SENTINEL)*

  **Bases:** *geopy.geocoders.osm.Nominatim*

  PickPoint geocoder is a commercial version of Nominatim.

  **Documentation at:** [https://pickpoint.io/api-reference](https://pickpoint.io/api-reference)

  New in version 1.13.0.

  **__init__** *(api_key, format_string=None, view_box=None, bounded=None, country_bias=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, domain='api.pickpoint.io', scheme=None, user_agent=None, ssl_context=DEFAULT_SENTINEL)*

  **Parameters**

  - **api_key** *(str)* – PickPoint API key obtained at [https://pickpoint.io](https://pickpoint.io).
  
  - **format_string** *(str)* – See *geopy.geocoders.options.default_format_string*.
  
  - **view_box** *(list or tuple of 2 items of *geopy.point.Point* or (latitude, longitude) or "%(latitude)s, %(longitude)s")* – Coordinates to restrict search within. Example: *[Point(22, 180), Point(-22, -180)]*.
Changed in version 1.17.0: Previously view_box could be a list of 4 strings or numbers in the format of [longitude, latitude, longitude, latitude]. This format is now deprecated in favor of a list/tuple of a pair of geopy Points and will be removed in geopy 2.0.

Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use geocode’s viewbox instead.

- **bounded (bool)** – Restrict the results to only items contained within the bounding view_box.
  
  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use geocode’s bounded instead.

- **country_bias (str or list)** – Limit search results to a specific country. This param sets a default value for the geocode’s country_codes.
  
  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use geocode’s country_codes instead.

- **timeout (int)** – See geopy.geocoders.options.default_timeout.

- **proxies (dict)** – See geopy.geocoders.options.default_proxies.

- **domain (str)** – Domain where the target Nominatim service is hosted.

- **scheme (str)** – See geopy.geocoders.options.default_scheme.

- **user_agent (str)** – See geopy.geocoders.options.default_user_agent.

- **ssl_context (ssl.SSLContext)** – See geopy.geocoders.options.default_ssl_context.

New in version 1.14.0.

```python
geocode(query, exactly_one=True, timeout=DEFAULT_SENTINEL, limit=None, addressdetails=False, language=False, geometry=None, extratags=False, country_codes=None, viewbox=None, bounded=None, featuretype=None, namedetails=False)
```

Return a location point by address.

**Parameters**

- **query (dict or str)** – The address, query or a structured query you wish to geocode.

  Changed in version 1.0.0: For a structured query, provide a dictionary whose keys are one of: `street, city, county, state, country, or postcode`. For more information, see Nominatim’s documentation for structured requests:

  https://wiki.openstreetmap.org/wiki/Nominatim

- **exactly_one (bool)** – Return one result or a list of results, if available.

- **timeout (int)** – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

- **limit (int)** – Maximum amount of results to return from Nominatim. Unless exactly_one is set to False, limit will always be 1.

  New in version 1.13.0.

- **addressdetails (bool)** – If you want in `Location.raw` to include addressdetails such as city_district, etc set it to True
• **language** *(str)* – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

  New in version 1.0.0.

• **geometry** *(str)* – If present, specifies whether the geocoding service should return the result’s geometry in wkt, svg, kml, or geojson formats. This is available via the raw attribute on the returned `geopy.location.Location` object.

  New in version 1.3.0.

• **extratags** *(bool)* – Include additional information in the result if available, e.g. wikipedia link, opening hours.

  New in version 1.17.0.

• **country_codes** *(str or list)* – Limit search results to a specific country (or a list of countries). A country_code should be the ISO 3166-1 alpha2 code, e.g. gb for the United Kingdom, de for Germany, etc.

  New in version 1.19.0.

• **viewbox** *(list or tuple of 2 items of `geopy.point.Point` or (latitude, longitude) or "%(latitude)s, %(longitude)s")* – Coordinates to restrict search within. Example: `[Point(22, 180), Point(-22, -180)]`.

  New in version 1.19.0.

• **bounded** *(bool)* – Restrict the results to only items contained within the bounding view_box. Defaults to False.

  New in version 1.19.0.

• **featuretype** *(str)* – If present, restrict results to certain type of features. Allowed values: country, state, city, settlement.

  New in version 1.21.0.

• **namedetails** *(bool)* – If you want in `Location.raw` to include namedetails, set it to True. This will be a list of alternative names, including language variants, etc.

  New in version 1.21.0.

**Return type** None, `geopy.location.Location` or a list of them, if exactly_one=False.

**reverse**(query, exactly_one=True, timeout=DEFAULT_SENTINEL, language=False, addressdetails=True)

Return an address by location point.

**Parameters**

• **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")* – The coordinates for which you wish to obtain the closest human-readable addresses.

• **exactly_one** *(bool)* – Return one result or a list of results, if available.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **language** *(str)* – Preferred language in which to return results. Either uses standard RFC2616 accept-language string or a simple comma-separated list of language codes.

  New in version 1.0.0.
• **addressdetails** *(bool)* – Whether or not to include address details, such as city, county, state, etc. in `Location.raw`

New in version 1.14.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.23 LiveAddress

class geopy.geocoders.LiveAddress(auth_id, auth_token, candidates=None, scheme='https', timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)

Geocoder using the LiveAddress API provided by SmartyStreets.

Documentation at: https://smartystreets.com/docs/cloud/us-street-api

__init__ (auth_id, auth_token, candidates=None, scheme='https', timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, format_string=None, ssl_context=DEFAULT_SENTINEL)

**Parameters**

- **auth_id** *(str)* – Valid Auth ID from SmartyStreets.

  New in version 1.5.0.

- **auth_token** *(str)* – Valid Auth Token from SmartyStreets.

- **candidates** *(int)* – An integer between 1 and 10 indicating the max number of candidate addresses to return if a valid address could be found. Defaults to 1.

  Deprecated since version 1.19.0: This argument will be removed in geopy 2.0. Use `geocode`'s `candidates` instead.

- **scheme** *(str)* – Must be https.

  Deprecated since version 1.14.0: Don’t use this parameter, it’s going to be removed in geopy 2.0.

  Changed in version 1.8.0: LiveAddress now requires https. Specifying `scheme=http` will result in a `geopy.exc.ConfigurationError`.

- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.

- **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.

- **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

- **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

  New in version 1.14.0.

- **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.

  New in version 1.14.0.
geocode(query, exactly_one=True, timeout=DEFAULT_SENTINEL, candidates=None)

Return a location point by address.

Parameters

- **query** *(str)* – The address or query you wish to geocode.
- **exactly_one** *(bool)* – Return one result or a list of results, if available.
- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.
- **candidates** *(int)* – An integer between 1 and 10 indicating the max number of candidate addresses to return if a valid address could be found. Defaults to 1.

New in version 1.19.0.

Return type None, `geopy.location.Location` or a list of them, if exactly_one=False.

### 3.24 TomTom

class geopy.geocoders.TomTom(api_key, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL, domain='api.tomtom.com')

TomTom geocoder.

Documentation at: https://developer.tomtom.com/search-api/search-api-documentation

New in version 1.15.0.

__init__(api_key, format_string=None, scheme=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL, domain='api.tomtom.com')

Parameters

- **api_key** *(str)* – TomTom API key.
- **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.
- **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.
- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.
- **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.
- **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.
- **ssl_context** *(ssl.SSLContext)* – See `geopy.geocoders.options.default_ssl_context`.
- **domain** *(str)* – Domain where the target TomTom service is hosted.

geocode(query, exactly_one=True, timeout=DEFAULT_SENTINEL, limit=None, typeahead=False, language=None)

Return a location point by address.

Parameters
• **query** *(str)* – The address or query you wish to geocode.

• **exactly_one** *(bool)* – Return one result or a list of results, if available.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a *geopy.exc.GeocoderTimedOut* exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

• **limit** *(int)* – Maximum amount of results to return from the service. Unless exactly_one is set to False, limit will always be 1.

• **typeahead** *(bool)* – If the “typeahead” flag is set, the query will be interpreted as a partial input and the search will enter predictive mode.

• **language** *(str)* – Language in which search results should be returned. When data in specified language is not available for a specific field, default language is used. List of supported languages (case-insensitive): https://developer.tomtom.com/online-search/online-search-documentation/supported-languages

Return type: None, *geopy.location.Location* or a list of them, if exactly_one=False.

### 3.25 What3Words

class *geopy.geocoders.**What3Words***(api_key, format_string=None, scheme='https', timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)

What3Words geocoder.

Documentation at: https://docs.what3words.com/api/v2/

New in version 1.5.0.

Changed in version 1.15.0: API has been updated to v2.

**__init__** *(api_key, format_string=None, scheme='https', timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, ssl_context=DEFAULT_SENTINEL)

3.25. What3Words
Parameters

- **api_key** (*str*) – Key provided by What3Words (https://accounts.what3words.com/register).

- **format_string** (*str*) – See `geopy.geocoders.options.default_format_string`.

- **scheme** (*str*) – Must be `https`. Deprecated since version 1.15.0: API v2 requires https. Don’t use this parameter, it’s going to be removed in geopy 2.0. Scheme other than `https` would result in a `geopy.exc.ConfigurationError` being thrown.

- **timeout** (*int*) – See `geopy.geocoders.options.default_timeout`.

- **proxies** (*dict*) – See `geopy.geocoders.options.default_proxies`.


`geocode(query, lang='en', exactly_one=True, timeout=DEFAULT_SENTINEL)`

Return a location point for a 3 words query. If the 3 words address doesn’t exist, a `geopy.exc.GeocoderQueryError` exception will be thrown.

**Parameters**

- **query** (*str*) – The 3-word address you wish to geocode.

- **lang** (*str*) – two character language codes as supported by the API (https://docs.what3words.com/api/v2/#lang).

- **exactly_one** (*bool*) – Return one result or a list of results, if available. Due to the address scheme there is always exactly one result for each 3 words address, so this parameter is rather useless for this geocoder.

  Changed in version 1.14.0: exactly_one=False now returns a list of a single location. This option wasn’t respected before.

- **timeout** (*int*) – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

**Return type** `geopy.location.Location` or a list of them, if exactly_one=False.

`reverse(query, lang='en', exactly_one=True, timeout=DEFAULT_SENTINEL)`

Return a 3 words address by location point. Each point on surface has a 3 words address, so there’s always a non-empty response.

**Parameters**

- **query** (*geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")*) – The coordinates for which you wish to obtain the 3 word address.

- **lang** (*str*) – two character language codes as supported by the API (https://docs.what3words.com/api/v2/#lang).
• **exactly_one** *(bool)* – Return one result or a list of results, if available. Due to the address scheme there is always exactly one result for each 3 words address, so this parameter is rather useless for this geocoder.

  Changed in version 1.14.0: `exactly_one=True` now returns a list of a single location. This option wasn’t respected before.

• **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

  Return type `geopy.location.Location` or a list of them, if `exactly_one=False`.

### 3.26 Yandex

**class** `geopy.geocoders.Yandex` *(api_key=None, lang=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, scheme=None, format_string=None, ssl_context=DEFAULT_SENTINEL)*

Yandex geocoder.

**Documentation at:** [https://tech.yandex.com/maps/doc/geocoder/desc/concepts/input_params-docpage/](https://tech.yandex.com/maps/doc/geocoder/desc/concepts/input_params-docpage/)

New in version 1.5.0.

**Attention:** Since September 2019 Yandex requires each request to have an API key. API keys can be created at [https://developer.tech.yandex.ru/](https://developer.tech.yandex.ru/)

```
__init__(api_key=None, lang=None, timeout=DEFAULT_SENTINEL, proxies=DEFAULT_SENTINEL, user_agent=None, scheme=None, format_string=None, ssl_context=DEFAULT_SENTINEL)
```

Changed in version 1.14.0: Default scheme has been changed from http to https.

**Parameters**

- **api_key** *(str)* – Yandex API key, mandatory. The key can be created at [https://developer.tech.yandex.ru/](https://developer.tech.yandex.ru/)

  Changed in version 1.21.0: API key is mandatory since September 2019.

- **lang** *(str)* – response locale, the following locales are supported: "ru_RU" (default), "uk_UA", "be_BY", "en_US", "tr_TR".

- **timeout** *(int)* – See `geopy.geocoders.options.default_timeout`.

- **proxies** *(dict)* – See `geopy.geocoders.options.default_proxies`.

- **user_agent** *(str)* – See `geopy.geocoders.options.default_user_agent`.

  New in version 1.12.0.

- **scheme** *(str)* – See `geopy.geocoders.options.default_scheme`.

  New in version 1.14.0.

- **format_string** *(str)* – See `geopy.geocoders.options.default_format_string`.

  New in version 1.14.0.
**ssl_context** (ssl.SSLContext) – See `geopy.geocoders.options.default_ssl_context`.

New in version 1.14.0.

**geocode** *(query, exactly_one=True, timeout=DEFAULT_SENTINEL)*

Return a location point by address.

**Parameters**

- **query** *(str)* – The address or query you wish to geocode.
- **exactly_one** *(bool)* – Return one result or a list of results, if available.
- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`.

**reverse** *(query, exactly_one=DEFAULT_SENTINEL, timeout=DEFAULT_SENTINEL, kind=None)*

Return an address by location point.

**Parameters**

- **query** *(geopy.point.Point, list or tuple of (latitude, longitude), or string as "%(latitude)s, %(longitude)s")* – The coordinates for which you wish to obtain the closest human-readable addresses.
- **exactly_one** *(bool)* – Return one result or a list of results, if available.

Changed in version 1.14.0: Default value for `exactly_one` was `False`, which differs from the conventional default across geopy. Please always pass this argument explicitly, otherwise you would get a warning. In geopy 2.0 the default value will become `True`.

- **timeout** *(int)* – Time, in seconds, to wait for the geocoding service to respond before raising a `geopy.exc.GeocoderTimedOut` exception. Set this only if you wish to override, on this call only, the value set during the geocoder’s initialization.
- **kind** *(str)* – Type of toponym. Allowed values: `house`, `street`, `metro`, `district`, `locality`.

New in version 1.14.0.

**Return type** None, `geopy.location.Location` or a list of them, if `exactly_one=False`. 
Calculating Distance

Geopy can calculate geodesic distance between two points using the `geodesic` distance or the `great-circle` distance, with a default of the geodesic distance available as the function `geopy.distance.distance`.

Great-circle distance (`great_circle`) uses a spherical model of the earth, using the mean earth radius as defined by the International Union of Geodesy and Geophysics, \((2a + b)/3 = 6371.0087714150598\) kilometers approx 6371.009 km (for WGS-84), resulting in an error of up to about 0.5%. The radius value is stored in `distance.EARTH_RADIUS`, so it can be customized (it should always be in kilometers, however).

The geodesic distance is the shortest distance on the surface of an ellipsoidal model of the earth. The default algorithm uses the method is given by Karney (2013) (`geodesic`); this is accurate to round-off and always converges. An older `deprecated` method due to Vincenty (1975) (`vincenty`) is also available; this is only accurate to 0.2 mm and the distance calculation fails to converge for nearly antipodal points.

`geopy.distance.distance` currently uses `geodesic`.

There are multiple popular ellipsoidal models, and which one will be the most accurate depends on where your points are located on the earth. The default is the WGS-84 ellipsoid, which is the most globally accurate. geopy includes a few other models in the `distance.ELLIPSOIDS` dictionary:

```python
ELLIPSOIDS = {'WGS-84': (6378.137, 6356.7523142, 1 / 298.257223563),
              'GRS-80': (6378.137, 6356.7523141, 1 / 298.257222101),
              'Airy (1830)': (6377.563396, 6356.256909, 1 / 299.3249646),
              'Intl 1924': (6378.388, 6356.911946, 1 / 297.0),
              'Clarke (1880)': (6378.249145, 6356.51486955, 1 / 293.465),
              'GRS-67': (6378.1600, 6356.774719, 1 / 298.25),
}
```

Here are examples of `distance.distance` usage:

```python
>>> from geopy import distance
>>> newport_ri = (41.49008, -71.312796)
>>> cleveland_oh = (41.499498, -81.695391)
>>> print(distance.distance(newport_ri, cleveland_oh).miles)
538.39044536
```
```python
>>> wellington = (-41.32, 174.81)
>>> salamanca = (40.96, -5.50)
>>> print(distance.distance(wellington, salamanca).km)
19959.6792674

The second example above fails with `vincenty`.

Using `great_circle` distance:

```python
>>> print(distance.great_circle(newport_ri, cleveland_oh).miles)
536.997990696
```

You can change the ellipsoid model used by the geodesic formulas like so:

```python
>>> ne, cl = newport_ri, cleveland_oh
>>> print(distance.geodesic(ne, cl, ellipsoid='GRS-80').miles)
```

The above model name will automatically be retrieved from the `distance.ELLIPSOIDS` dictionary. Alternatively, you can specify the model values directly:

```python
>>> distance.geodesic(ne, cl, ellipsoid=(6377., 6356., 1 / 297.)).miles
```

Distances support simple arithmetic, making it easy to do things like calculate the length of a path:

```python
>>> from geopy import Nominatim
>>> d = distance.distance
>>> g = Nominatim(user_agent="specify_your_app_name_here")
>>> _, wa = g.geocode('Washington, DC')
>>> _, pa = g.geocode('Palo Alto, CA')
>>> print((d(ne, cl) + d(cl, wa) + d(wa, pa)).miles)
3277.30439191
```

`geopy.distance.lonlat(x, y, z=0)`

`geopy.distance.distance` accepts coordinates in (y, x)/(lat, lon) order, while some other libraries and systems might use (x, y)/(lon, lat).

This function provides a convenient way to convert coordinates of the (x, y)/(lon, lat) format to a `geopy.point.Point` instance.

Example:

```python
>>> from geopy.distance import lonlat, distance
>>> newport_ri_xy = (-71.312796, 41.49008)
>>> cleveland_oh_xy = (-81.695391, 41.499498)
>>> print(distance(lonlat(*newport_ri_xy), lonlat(*cleveland_oh_xy)).miles)
538.3904453677203
```

**Parameters**

- **x** – longitude
- **y** – latitude
- **z** – (optional) altitude

**Returns** `Point(latitude, longitude, altitude)`
class geopy.distance.geodesic(*args, **kwargs)

Calculate the geodesic distance between two points.

Set which ellipsoidal model of the earth to use by specifying an ellipsoid keyword argument. The default is ‘WGS-84’, which is the most globally accurate model. If ellipsoid is a string, it is looked up in the ELLIPSOIDS dictionary to obtain the major and minor semiaxes and the flattening. Otherwise, it should be a tuple with those values. See the comments above the ELLIPSOIDS dictionary for more information.

Example:

```python
>>> from geopy.distance import geodesic
>>> newport_ri = (41.49008, -71.312796)
>>> cleveland_oh = (41.499498, -81.695391)
>>> print(geodesic(newport_ri, cleveland_oh).miles)
538.390445368
```

New in version 1.13.0.

__init__(*args, **kwargs)

Initialize self. See help(type(self)) for accurate signature.

class geopy.distance.vincenty(*args, **kwargs)

Deprecated since version 1.13: Use geodesic instead. Vincenty will be removed in geopy 2.0.

Calculate the geodesic distance between two points using the Vincenty’s method.

Set which ellipsoidal model of the earth to use by specifying an ellipsoid keyword argument. The default is ‘WGS-84’, which is the most globally accurate model. If ellipsoid is a string, it is looked up in the ELLIPSOIDS dictionary to obtain the major and minor semiaxes and the flattening. Otherwise, it should be a tuple with those values. See the comments above the ELLIPSOIDS dictionary for more information.

Example:

```python
>>> from geopy.distance import vincenty
>>> newport_ri = (41.49008, -71.312796)
>>> cleveland_oh = (41.499498, -81.695391)
>>> print(vincenty(newport_ri, cleveland_oh).miles)
538.390445362
```

Note: Vincenty’s method for distance fails to converge for some valid (nearly antipodal) points. In such cases, use geodesic which always produces an accurate result.

__init__(*args, **kwargs)

Initialize self. See help(type(self)) for accurate signature.

class geopy.distance.great_circle(*args, **kwargs)

Use spherical geometry to calculate the surface distance between two points.

Set which radius of the earth to use by specifying a radius keyword argument. It must be in kilometers. The default is to use the module constant EARTH_RADIUS, which uses the average great-circle radius.

Example:

```python
>>> from geopy.distance import great_circle
>>> newport_ri = (41.49008, -71.312796)
>>> cleveland_oh = (41.499498, -81.695391)
>>> print(great_circle(newport_ri, cleveland_oh).miles)
536.997990696
```

__init__(*args, **kwargs)

Initialize self. See help(type(self)) for accurate signature.
class geopy.location.Location(address=", point=None, raw=None)
Contains a parsed geocoder response. Can be iterated over as (location<String>, (latitude<float>, longitude<Float))). Or one can access the properties address, latitude, longitude, or raw. The last is a dictionary of the geocoder's response for this item.

address
Location as a formatted string returned by the geocoder or constructed by geopy, depending on the service.

    Return type unicode

altitude
Location’s altitude.

    Return type float or None

latitude
Location’s latitude.

    Return type float or None

longitude
Location’s longitude.

    Return type float or None

point
google point.Point instance representing the location’s latitude, longitude, and altitude.

    Return type google point.Point or None

raw
Location’s raw, unparsed geocoder response. For details on this, consult the service’s documentation.

    Return type dict or None

class geopy.point.Point
A geodetic point with latitude, longitude, and altitude.
Latitude and longitude are floating point values in degrees. Altitude is a floating point value in kilometers. The reference level is never considered and is thus application dependent, so be consistent! The default for all values is 0.

Points can be created in a number of ways...

With latitude, longitude, and altitude:

```python
>>> p1 = Point(41.5, -81, 0)
>>> p2 = Point(latitude=41.5, longitude=-81)
```

With a sequence of 0 to 3 values (latitude, longitude, altitude):

```python
>>> p1 = Point([41.5, -81, 0])
>>> p2 = Point((41.5, -81))
```

Copy another `Point` instance:

```python
>>> p2 = Point(p1)
>>> p2 == p1
True
>>> p2 is p1
False
```

Give a string containing at least latitude and longitude:

```python
>>> p1 = Point('41.5,-81.0')
>>> p2 = Point('41.5 N -81.0 W')
>>> p3 = Point('-41.5 S, 81.0 E, 2.5km')
>>> p4 = Point('23 26m 22s N 23 27m 30s E 21.0mi')
>>> p5 = Point('''3 26' 22" N 23 27' 30" E'''')
```

Point values can be accessed by name or by index:

```python
>>> p = Point(41.5, -81.0, 0)
>>> p.latitude == p[0]
True
>>> p.longitude == p[1]
True
>>> p.altitude == p[2]
True
```

When unpacking (or iterating), a (latitude, longitude, altitude) tuple is returned:

```python
>>> latitude, longitude, altitude = p
```

```python
static __new__(cls, latitude=None, longitude=None, altitude=None)
Parameters
    • latitude (float) – Latitude of point.
    • longitude (float) – Longitude of point.
    • altitude (float) – Altitude of point.
classmethod from_point (point)
    Create and return a new Point instance from another Point instance.
```
classmethod from_sequence(seq)

Create and return a new `Point` instance from any iterable with 0 to 3 elements. The elements, if present, must be latitude, longitude, and altitude, respectively.

classmethod from_string(string)

Create and return a `Point` instance from a string containing latitude and longitude, and optionally, altitude.

Latitude and longitude must be in degrees and may be in decimal form or indicate arcminutes and arcseconds (labeled with Unicode prime and double prime, ASCII quote and double quote or ‘m’ and ‘s’). The degree symbol is optional and may be included after the decimal places (in decimal form) and before the arcminutes and arcseconds otherwise. Coordinates given from south and west (indicated by S and W suffixes) will be converted to north and east by switching their signs. If no (or partial) cardinal directions are given, north and east are the assumed directions. Latitude and longitude must be separated by at least whitespace, a comma, or a semicolon (each with optional surrounding whitespace).

Altitude, if supplied, must be a decimal number with given units. The following unit abbreviations (case-insensitive) are supported:

- km (kilometers)
- m (meters)
- mi (miles)
- ft (feet)
- nm, nmi (nautical miles)

Some example strings that will work include:

- 41.5; -81.0
- 41.5, -81.0
- 41.5 -81.0
- 41.5 N -81.0 W
- -41.5 S; 81.0 E
- 23 26m 22s N 23 27m 30s E
- 23 26' 22'' N 23 27' 30'' E
- UT: N 39° 20' 0'' / W 74° 35' 0''

class geopy.timezone.Timezone(pytz_timezone, raw=None)

Contains a parsed response for a timezone request, which is implemented in few geocoders which provide such lookups.

New in version 1.18.0.

pytz_timezone

pytz timezone instance.

Return type `pytz.tzinfo.BaseTzInfo`

raw

Timezone’s raw, unparsed geocoder response. For details on this, consult the service’s documentation.

Return type `dict` or `None`
class geopy.exc.GeopyError
   Bases: Exception

   Geopy-specific exceptions are all inherited from GeopyError.

class geopy.exc.ConfigurationError
   Bases: geopy.exc.GeopyError

   When instantiating a geocoder, the arguments given were invalid. See the documentation of each geocoder’s __init__ for more details.

class geopy.exc.GeocoderServiceError
   Bases: geopy.exc.GeopyError

   There was an exception caused when calling the remote geocoding service, and no more specific exception could be raised by geopy. When calling geocoders’ geocode or reverse methods, this is the most generic exception that can be raised, and any non-geopy exception will be caught and turned into this. The exception’s message will be that of the original exception.

class geopy.exc.GeocoderQueryError
   Bases: geopy.exc.GeocoderServiceError

   Either geopy detected input that would cause a request to fail, or a request was made and the remote geocoding service responded that the request was bad.

class geopy.exc.GeocoderQuotaExceeded
   Bases: geopy.exc.GeocoderServiceError

   The remote geocoding service refused to fulfill the request because the client has used its quota.

class geopy.exc.GeocoderAuthenticationFailure
   Bases: geopy.exc.GeocoderServiceError

   The remote geocoding service rejected the API key or account credentials this geocoder was instantiated with.

class geopy.exc.GeocoderInsufficientPrivileges
   Bases: geopy.exc.GeocoderServiceError

   The remote geocoding service refused to fulfill a request using the account credentials given.
class geopy.exc.GeocoderTimedOut
    Bases: geopy.exc.GeocoderServiceError

    The call to the geocoding service was aborted because no response has been received within the timeout argument of either the geocoding class or, if specified, the method call. Some services are just consistently slow, and a higher timeout may be needed to use them.

class geopy.exc.GeocoderUnavailable
    Bases: geopy.exc.GeocoderServiceError

    Either it was not possible to establish a connection to the remote geocoding service, or the service responded with a code indicating it was unavailable.

class geopy.exc.GeocoderParseError
    Bases: geopy.exc.GeocoderServiceError

    Geopy could not parse the service’s response. This is probably due to a bug in geopy.

class geopy.exc.GeocoderNotFound
    Bases: geopy.exc.GeopyError

    Caller requested the geocoder matching a string, e.g., "google" > GoogleV3, but no geocoder could be found.
CHAPTER 7

Logging

geopy will log geocoding URLs with a logger name geopy at level DEBUG, and for some geocoders, these URLs will include authentication information.

HTTP bodies of responses with unsuccessful status codes are logged with INFO level.

Default logging level is NOTSET, which delegates the messages processing to the root logger. See docs for logging.Logger.setLevel() for more information.
geopy attempts to follow semantic versioning, however some breaking changes are still being made in minor releases, such as:

- Backwards-incompatible changes of the undocumented API. This shouldn’t affect anyone, unless they extend geocoder classes or use undocumented features or monkey-patch anything. If you believe that something is missing in geopy, please consider opening an issue or providing a patch or a PR instead of hacking around geopy.

- Geocoder classes which simply don’t work (usually because their service has been discontinued) might get removed. They don’t work anyway, so that’s hardly a breaking change, right? :)

- Geocoding services sometimes introduce new APIs and deprecate the previous ones. We try to upgrade without breaking the geocoder’s API interface, but the `geopy.location.Location.raw` value might change in a backwards-incompatible way.

- Behavior for invalid input and peculiar edge cases might be altered. For example, `geopy.point.Point` instances did coordinate values normalization, though it’s not documented, and it was completely wrong for the latitudes outside the \([-90; 90]\) range. So instead of using an incorrectly normalized value for latitude, an `ValueError` exception is now thrown (#294).

To make the upgrade less painful, please read the changelog before upgrading.
Changelog for 1.x.x series.

For changes in the 0.9 series, see the 0.9x changelog.
CHAPTER 10

Indices and search

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