
Route4Me Python SDK Documentation

Release v0.0.7.1

Route4Me Python Team

Sep 01, 2020

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Quick start guide

1.1 Install

Probably, the best and simplest way — use PIP:

```
$ pip install route4me-sdk
```

See also:

The full installation guide: *Installation guide*

1.2 Use

```
from route4me import Route4Me  
from route4me.constants import ALGORITHM_TYPE, DISTANCE_UNIT, TRAVEL_MODE, OPTIMIZE  
  
API_KEY = "11111111111111111111111111111111"  
r4m = Route4Me(API_KEY)  
optimization = r4m.optimization  
address = r4m.address  
optimization.algorithm_type(ALGORITHM_TYPE.TSP)  
optimization.share_route(0)  
optimization.store_route(0)  
optimization.route_time(7 * 600)  
optimization.rt(True)  
optimization.route_max_duration(86400)  
optimization.route_name('Single Driver Round Trip')  
optimization.optimize(OPTIMIZE.TIME)  
optimization.distance_unit(DISTANCE_UNIT.MI)
```

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```
optimization.travel_mode(TRAVEL_MODE.DRIVING)
address.add_address(
    address='754 5th Ave New York, NY 10019',
    lat=40.7636197,
    lng=-73.9744388,
    alias='Bergdorf Goodman',
    is_depot=True,
    time=0
)
address.add_address(
    address='717 5th Ave New York, NY 10022',
    lat=40.7669692,
    lng=-73.9693864,
    alias='Giorgio Armani',
    time=60
)
address.add_address(
    address='888 Madison Ave New York, NY 10014',
    lat=40.7715154,
    lng=-73.9669241,
    alias='Ralph Lauren Women\'s and Home',
    time=60
)
address.add_address(
    address='1011 Madison Ave New York, NY 10075',
    lat=40.7772129,
    lng=-73.9669,
    alias='Yigal Azrou\u00ebl',
    time=60
)
address.add_address(
    address='440 Columbus Ave New York, NY 10024',
    lat=40.7808364,
    lng=-73.9732729,
    alias='Frank Stella Clothier',
    time=60
)
address.add_address(
    address='324 Columbus Ave #1 New York, NY 10023',
    lat=40.7803123,
    lng=-73.9793079,
    alias='Liana',
    time=60
)
address.add_address(
    address='110 W End Ave New York, NY 10023',
    lat=40.7753077,
    lng=-73.9861529,
    alias='Toga Bike Shop',
    time=60
)
address.add_address(
    address='555 W 57th St New York, NY 10019',
    lat=40.7718005,
    lng=-73.9897716,
    alias='BMW of Manhattan',
    time=60
)
```

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```
)  
address.add_address(  
    address='57 W 57th St New York, NY 10019',  
    lat=40.7558695,  
    lng=-73.9862019,  
    alias='Verizon Wireless',  
    time=60  
)  
  
response = r4m.run_optimization()  
print("Optimization Problem ID: {}".format(response.get("optimization_problem_id")))  
for a in response.get("addresses", []):  
    print('{} - {} - {}'.format(a.get("sequence_no"), a.get("alias"), a.get("address  
    ↪")))
```


There are several ways to install Route4Me Python SDK.

2.1 PyPI

To install **Route4Me Python SDK** run this command in your terminal:

```
$ pip install route4me-sdk
```

If you don't have `pip` installed you can use [this guide to install pip](#).

2.2 Source Code

The source code of **Route4Me Python SDK** is open, public and live on GitHub: <https://github.com/route4me/route4me-python-sdk>.

You can either clone the entire repository:

```
$ git clone git://github.com/route4me/route4me-python-sdk.git
```

Or, download the zip/tarball:

```
# tarball
$ curl -OL https://github.com/route4me/route4me-python-sdk/tarball/master

# zip version:
$ curl -OL https://github.com/route4me/route4me-python-sdk/archive/master.zip
```

Now you can explore/modify code or embed it in your own project.


```
class route4me.api.Route4Me(key, headers={'Accept': '*/*', 'Accept-Encoding': 'identity, deflate, compress, gzip', 'User-Agent': 'python-sdk'}, redirects=True, verify_ssl=True, proxies={})
```

Bases: `object`

Route4Me Python SDK

```
__init__ (key, headers={'Accept': '*/*', 'Accept-Encoding': 'identity, deflate, compress, gzip', 'User-Agent': 'python-sdk'}, redirects=True, verify_ssl=True, proxies={})
    Initialize self. See help(type(self)) for accurate signature.
```

```
export_request_to_json (file_name)
    Export request to JSON File :param file_name: :return:
```

```
export_result_to_json (file_name)
    Export response to JSON File :param file_name: :return:
```

```
get (request_method)
    Execute optimization :param request_method: :return: JSON
```

```
get_optimization (optimization_problem_id)
    Get optimization given optimization_problem_id :param optimization_problem_id: :return:
```

```
parse_response ()
    Parse response and set it to Route4me instance :return:
```

```
re_optimization (optimization_id, data={})
    Execute reoptimization :param optimization_id: :param data: :return: response as a object
```

```
run_optimization ()
    Run optimization and return response as an object. :return: response as an object
```

3.1 Data Structures

3.1.1 Enums and constants

`route4me.constants.auto_enum(*sequential, **named)`

Create enum :param sequential: :param named: :return:

`route4me.constants.enum(**enums)`

Create enums with custom values to help user set their params :param enums: :return:

3.2 API endpoints

3.2.1 Members

class `route4me.members.Members(api)`

Bases: `route4me.base.Base`

Members management.

`__init__(api)`

Members Instance :param api: :return:

app_purchase_user_license (**kwargs)

Application purchase user License :param kwargs: :return: API response content

get_api_key_users (**kwargs)

Get users taht belong to a given api_key using GET request :return: API response

get_users (**kwargs)

Get users using GET request :return: API response

member_authenticate (**kwargs)

Member Authenticate :param kwargs: :return: API response content

register (**kwargs)

Register Action :param kwargs: :return: API response content

validate_session (**kwargs)

Validate Session :param kwargs: :return: API response content

verify_device_license (**kwargs)

Verify User License :param kwargs: :return: API response content

webinar_registration (**kwargs)

Webinar Register :param kwargs: :return: API response content

3.2.2 Optimization

class `route4me.optimization.Optimization(api)`

Bases: `route4me.base.Base`

An Optimization Problem is a collection of addresses that need to be visited. This is distinct from a Route, which is a sequence of addresses that need to be visited by a single vehicle and a single driver in a fixed time period. Solving an Optimization Problem results in a number of routes.

`__init__(api)`

Optimization Instance :param api: :return:

delete_address_from_optimization (***kwargs*)

Delete Address from an optimization using DELETE request :return: API response :raise: ParamValueException if required params are not present.

delete_optimization (***kwargs*)

Delete optimization using DELETE request :return: API response :raise: ParamValueException if required params are not present.

get_optimization (***kwargs*)

Get optimization using GET request :return: API response :raise: ParamValueException if required params are not present.

get_optimizations (***kwargs*)

Get optimizations using GET request :return: API response :raise: ParamValueException if required params are not present.

update_optimization (***kwargs*)

Update optimization using PUT request :return: API response :raise: ParamValueException if required params are not present.

4.1 Typeconv

`route4me.utils.json2obj(data)`

Parse JSON to object :param data: JSON data :return: object

exception `route4me.exceptions.APIException (status_code, response, url)`

Bases: `Exception`

Handle API Exceptions

`__init__ (status_code, response, url)`

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

`get_response ()`

Return response :return:

`get_status_code ()`

Status code :return:

exception `route4me.exceptions.ParamValueException (param, msg)`

Bases: `Exception`

Handle Params exceptions

`__init__ (param, msg)`

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

`get_msg ()`

Message from exception :return:

This is the history of changes of the `route4me-python` package

This file should be filled by maintainers, using pull requests Please, follow this [guide](#)

6.1 [0.0.7.0] - 2020-09-01

6.1.1 Removed

- Python 2 support
- Pypy build
- Set Tracking Data Test

6.1.2 Added

- Documentation
- Changelog file
- Tox
- MANIFEST file
- VERSION file

6.1.3 Fixed

- Bug in Optimization Callback example
- Some Test Cases that were failing

6.1.4 Changed

- setup.py
- Travis config file

6.2 [0.0.6.1] - 2019-11-11

6.2.1 Added

- Added Exception when the server could not geo-code some addresses

6.3 [0.0.6.1] - 2019-11-06

6.3.1 Added

- Redirect flag to QS when redirects are disable

6.3.2 Fixed

- Bug on batch geocoding

6.4 [0.0.6.0] - 2019-10-24

6.4.1 Changed

- Batch Geocoding method converted to POST request.

6.4.2 Fixed

- Bug that assign the geo-coordinates to the wrong addresses

6.5 [0.0.5.2] - 2018-08-24

6.5.1 Changed

- All Examples to work with JSON response

6.5.2 Fixed

- Some Bugs

6.6 [0.0.5.1] - 2018-08-22

6.6.1 Changed

- Changed all responses to JSON.

6.6.2 Fixed

- All examples to support JSON response
- GPS Test

6.7 [0.0.5.0] - 2018-02-26

6.7.1 Added

- Address-Book example to query for any field

6.7.2 Removed

- Lib xmldict dependency.
- Limit and offset as required fields in addressbook service

6.7.3 Changed

- Addresses service

6.8 [0.0.4.0] - 2017-08-03

6.8.1 Added

- Optimized Callback URL feature and example

6.9 [0.0.3.11] - 2016-11-02

6.9.1 Added

- Python 3 support

6.10 [0.0.3.10] - 2016-09-19

6.10.1 Added

- Routes Management and Missing Examples

6.11 [0.0.3.9] - 2016-09-16

6.11.1 Added

- Members Management

6.12 [0.0.3.8] - 2016-09-12

6.12.1 Added

- Activity Feed Support and Examples
- Optimization missing Examples
- Rapid Address missing Examples, remove python env from all examples, moved geocoding examples to its own folder
- File Uploading feature and examples
- Avoidance Zone missing Examples

6.13 [0.0.3.7] - 2016-07-25

6.13.1 Added

- Territory Support

6.14 [0.0.3.6] - 2016-07-14

6.14.1 Added

- Rapid Address Support and Examples
- Optimization Example

6.15 [0.0.3.5] - 2016-06-22

6.15.1 Added

- Orders support

6.16 [0.0.3.4] - 2016-04-22

6.16.1 Added

- Avoidance Zone Management
- Address Book Management, Route Tracking

6.17 [0.0.3.3] - 2016-04-18

6.17.1 Added

- Generic Example, Notes, Delete Route, Single Depot Multiple Driver, Single Depot Multiple Driver TW Examples and Features

6.18 [0.0.3.2] - 2016-03-24

6.18.1 Added

- Activities, Optimizations, Routes, Telematics, and Users Examples
- Notes, and Activities Services

6.19 [0.0.3.1] - 2016-01-21

6.19.1 Added

- Trucking hazardous goods features

6.20 [0.0.3.0] - 2016-01-19

6.20.1 Added

- Example to update address attributes/details in an existing route (i.e. custom data, alias, order details, weight)
- Example to insert address into existing route
- Example to remove address from existing route
- Example to move address from one stop into another

6.21 [0.0.2.14] - 2015-12-17

6.21.1 Added

- Optimization trucking parameters and min_tour_size

6.22 [0.0.2.13] - 2015-12-03

6.22.1 Changed

- Exceptions and Algorithm Type verification

6.23 [0.0.2.12] - 2015-11-28

6.23.1 Added

- Optimization parameters, added support to Algorithm 100 and 101

6.24 [0.0.2.11] - 2015-08-13

6.24.1 Fixed

- Examples

6.25 [0.0.2.10] - 2015-07-16

6.25.1 Added

- Turns Avoidance uturn and leftturn support

6.26 [0.0.2.9] - 2015-05-12

6.26.1 Changed

- Enabled follow redirects feature

6.27 [0.0.2.8] - 2015-04-27

6.27.1 Added

- Optimization parameter max_tour_size

6.28 [0.0.2.7] - 2015-04-22

6.28.1 Added

- Disable redirects

6.29 [0.0.2.6] - 2015-04-19

6.29.1 Added

- Retry feature in case of geocoding error

6.30 [0.0.2.5] - 2015-04-08

6.30.1 Changed

- Multiple depot multiple driver example

6.30.2 Added

- Geo-localization getter retry functionality in case of failure

6.31 [0.0.2.4] - 2015-04-01

6.31.1 Added

- Optimization quality and route start date feature
- Geocoding Example

6.32 [0.0.2.3] - 2015-03-31

6.32.1 Fixed

- Multiple Depot, Multiple Driver, Time window Example

6.33 [0.0.2.2] - 2015-03-01

6.33.1 Added

- API Endpoints
- Batch and single address geocoding

6.34 [0.0.2.1] - 2015-02-20

6.34.1 Added

- Route Exporter feature

6.35 [0.0.2.0] - 2015-02-19

6.35.1 Added

- Geocoding feature

6.36 [0.0.1.0] - 2014-07-01

6.36.1 Added

- First commit of the package.

CHAPTER 7

License

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