Package 'graphhopper'

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Title An R Interface to the 'GraphHopper' Directions API

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Maintainer Stefan Kuethe <crazycapivara@gmail.com>

Description Provides a quick and easy access to the 'GraphHopper' Directions API. 'GraphHopper' <https://www.graphhopper.com/> itself is a routing engine based on 'OpenStreetMap' data. API responses can be converted to simple feature (sf) objects in a convenient way.

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Encoding UTF-8

LazyData true

Imports magrittr, httr, googlePolylines, jsonlite, tibble, dplyr

Suggests sf, geojsonsf, ggplot2, testthat

RoxygenNote 6.1.1

URL https://github.com/crazycapivara/graphhopper-r

BugReports https://github.com/crazycapivara/graphhopper-r/issues

NeedsCompilation no

Author Stefan Kuethe [aut, cre]

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R topics documented:

`gh_as_sf` *Convert a gh object into an sf object*

Description

Convert a gh object into an sf object

Usage

```
gh_as_sf(data, ...)

## S3 method for class 'gh_route'
gh_as_sf(data, ..., geom_type = c("linestring",
  "point"))

## S3 method for class 'gh_spt'
gh_as_sf(data, ...)

## S3 method for class 'gh_isochrone'
gh_as_sf(data, ...)
```

Arguments

`data`	A `gh_route` or `gh_spt` object.
`...`	ignored
`geom_type`	Use `geom_type = point` to return the points of the route with ids corresponding to the instruction ids.

Examples

```
if (FALSE) {
  start_point <- c(52.592204, 13.414307)
  end_point <- c(52.539614, 13.364868)

  route_sf <- gh_get_route(list(start_point, end_point)) %>%
    gh_as_sf()
}
```

gh_available_spt_columns *Get a vector with available columns of the spt endpoint*

Description

Get a vector with available columns of the spt endpoint

Usage

```
gh_available_spt_columns()
```

gh_bbox *Extract the bounding box from a gh object*

Description

Extract the bounding box from a gh object

Usage

```
gh_bbox(data)

## S3 method for class 'gh_route'
gh_bbox(data)

## S3 method for class 'gh_info'
gh_bbox(data)
```

Arguments

data	A gh_route or gh_info object.

gh_get_info *Get information about the GraphHopper instance*

Description

Get information about the GraphHopper instance

Usage

```
gh_get_info()
```

Examples

```
if (FALSE) {
  info <- gh_get_info()

  message(info$version)
  message(info$data_date)
  print(gh_bbox(info))
}
```

gh_get_isochrone *Get isochrones for a given start point*

Description

Get isochrones for a given start point

Usage

```
gh_get_isochrone(start_point, time_limit = 180, distance_limit = -1,
  ...)
```

Arguments

start_point	The start point as (lat, lon) pair.
time_limit	The travel time limit in seconds. Ignored if distance_limit > 0.
distance_limit	The distance limit in meters.
...	Additonal parameters. See https://docs.graphhopper.com/#operation/getIsochrone.

Examples

```
if (FALSE) {
  start_point <- c(52.53961, 13.36487)

  isochrone_sf <- gh_get_isochrone(start_point, time_limit = 180) %>%
    gh_as_sf()
}
```

---

gh_get_route *Get a route for a given set of points*

Description

Get a route for a given set of points

Usage

```
gh_get_route(points, ..., response_only = FALSE)
```

Arguments

points	A list of 2 or more points as (lat, lon) pairs.
...	Optional parameters that are passed to the query.
response_only	Whether to return the raw response object instead of just its content.

See Also

https://docs.graphhopper.com/#tag/Routing-API for optional parameters.

Examples

```
if (FALSE) {
  start_point <- c(52.592204, 13.414307)
  end_point <- c(52.539614, 13.364868)

  route_sf <- gh_get_route(list(start_point, end_point)) %>%
    gh_as_sf()
}
```

gh_get_routes *Get multiple routes*

Description

Internally it just calls gh_get_route sevaral times. See also gh_get_spt.

Usage

```
gh_get_routes(x, y, ..., callback = NULL)
```

Arguments

x	A single start point as (lat, lon) pair
y	A matrix or a data frame containing columns with latitudes and longitudes that are used as endpoints. Needs (lat, lon) order.
...	Parameters that are passed to gh_get_route.
callback	A callback function that is applied to every calculated route.

Examples

```
if (FALSE) {
  start_point <- c(52.519772, 13.392334)

  end_points <- rbind(
    c(52.564665, 13.42083),
    c(52.564456, 13.342724),
    c(52.489261, 13.324871),
    c(52.48738, 13.454647)
  )

  time_distance_table <- gh_get_routes(
    start_point, end_points, calc_points = FALSE,
    callback = gh_time_distance
  ) %>%
    dplyr::bind_rows()

  routes_sf <- gh_get_routes(start_point, end_points, callback = gh_as_sf) %>%
    do.call(rbind, .)
}
```

gh_get_spt *Get the shortest path tree for a given start point*

Description

Get the shortest path tree for a given start point

Usage

```
gh_get_spt(start_point, time_limit = 600, distance_limit = -1,
  columns = gh_spt_columns(), reverse_flow = FALSE, profile = "car")
```

Arguments

start_point	The start point as (lat, lon) pair.
time_limit	The travel time limit in seconds. Ignored if distance_limit > 0.
distance_limit	The distance limit in meters.
columns	The columns to be returned. See gh_spt_columns and gh_available_spt_columns for available columns.
reverse_flow	Use reverse_flow = TRUE to change the flow direction.
profile	The profile for which the spt should be calculated.

Examples

```
if (FALSE) {
  start_point <- c(52.53961, 13.36487)

  columns <- gh_spt_columns(
    prev_longitude = TRUE,
    prev_latitude = TRUE,
    prev_time = TRUE
  )

  points_sf <- gh_get_spt(start_point, time_limit = 180, columns = columns) %>%
    gh_as_sf()
}
```

gh_instructions *Extract the instructions from a gh route object*

Description

Extract the instructions from a gh route object

Usage

```
gh_instructions(data, instructions_only = FALSE)
```

Arguments

data	A gh_route object.
instructions_only	Whether to return the instructions without the corresponding points.

See Also

gh_get_route

gh_points *Extract the points from a gh route object*

Description

Extract the points from a gh route object

Usage

```
gh_points(data)
```

Arguments

data	A gh_route object.

gh_set_api_url *Set gh API base url*

Description

Set gh API base url

Usage

```
gh_set_api_url(api_url)
```

Arguments

api_url	API base url

Note

Internally it calls `Sys.setenv` to store the API url in an environment variable called `GH_API_URL`.

Examples

```
gh_set_api_url("http://localhost:8989")
```

gh_spt_as_linestrings_sf *Build lines from a gh spt object*

Description

Build lines from a gh spt object

Usage

```
gh_spt_as_linestrings_sf(data)
```

Arguments

data	A `gh_spt` object.

Examples

```
if (FALSE) {
  start_point <- c(52.53961, 13.36487)

  columns <- gh_spt_columns(
    prev_longitude = TRUE,
    prev_latitude = TRUE,
    prev_time = TRUE
  )

  lines_sf <- gh_get_spt(start_point, time_limit = 180, columns = columns) %>%
    gh_spt_as_linestrings_sf()
}
```

`gh_spt_columns` *Select the columns to be returned by a spt request*

Description

Times are returned in milliseconds and distances in meters.

Usage

```
gh_spt_columns(longitude = TRUE, latitude = TRUE, time = TRUE,
  distance = TRUE, prev_longitude = FALSE, prev_latitude = FALSE,
  prev_time = FALSE, prev_distance = FALSE, node_id = FALSE,
  prev_node_id = FALSE, edge_id = FALSE, prev_edge_id = FALSE)
```

Arguments

`longitude, latitude`
: The longitude, latitude of the node.

`time, distance`
: The travel time, distance to the node.

`prev_longitude, prev_latitude`
: The longitude, latitude of the previous node.

`prev_time, prev_distance`
: The travel time, distance to the previous node.

`node_id, prev_node_id`
: The ID of the node, previous node.

`edge_id, prev_edge_id`
: The ID of the edge, previous edge.

gh_time_distance *Extract time and distance from a gh route object*

Description

Extract time and distance from a gh route object

Usage

```
gh_time_distance(data)
```

Arguments

data	A gh_route object.

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