

Package ‘traveltimeR’

May 9, 2024

Title Interface to 'Travel Time' API

Version 1.2.1

Description 'Travel Time' API <<https://docs.traveltime.com/api/overview/introduction>> helps users find locations by journey time rather than using 'as the crow flies' distance. Time-based searching gives users more opportunities for personalisation and delivers a more relevant search.

Maintainer TravelTime <frontend@traveltime.com>

License MIT + file LICENSE

Encoding UTF-8

RoxygenNote 7.3.1

Imports data.table, httr, jsonlite, RProtoBuf

URL <https://github.com/traveltime-dev/traveltime-sdk-r>

BugReports <https://github.com/traveltime-dev/traveltime-sdk-r/issues>

Depends R (>= 2.10)

NeedsCompilation no

Author TravelTime [aut, cre] (<https://github.com/traveltime-dev>)

Repository CRAN

Date/Publication 2024-05-09 07:30:02 UTC

R topics documented:

check_coords_for_error	2
distance_map	2
geocoding	4
geocoding_reverse	5
make_location	6
make_search	6
make_union_intersect	7
map_info	8

routes	9
supported_locations	10
time_filter	11
time_filter_fast	12
time_filter_fast_proto	14
time_filter_postcodes	15
time_filter_postcode_districts	16
time_filter_postcode_sectors	17
time_map	19
time_map_fast	20

Index	22
--------------	-----------

check_coords_for_error
Validates location coordinates

Description

Validates location coordinates

Usage

check_coords_for_error(coords)

Arguments

coords Location coordinates. Must use this format: list(lat = 0, lng = 0)

Value

TRUE if coords are valid, FALSE otherwise

distance_map *Distance Map*

Description

Given origin coordinates, find shapes of zones reachable within corresponding travel distance. Find unions/intersections between different searches

Usage

```
distance_map(  
  departure_searches = NULL,  
  arrival_searches = NULL,  
  unions = NULL,  
  intersections = NULL,  
  format = NULL  
)
```

Arguments

`departure_searches` One or more objects created by `make_search`

`arrival_searches` One or more objects created by `make_search`

`unions` One or more objects created by `make_union_intersect`

`intersections` One or more objects created by `make_union_intersect`

`format` distance-map response format. See <https://docs.traveltime.com/api/reference/distance-map#Response-Body> for details.

Details

See <https://docs.traveltime.com/api/reference/distance-map/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:  
  
dateTime <- strptime(as.POSIXlt(Sys.time()), "UTC"), "%Y-%m-%dT%H:%M:%SZ")  
  
departure_search <-  
  make_search(id = "driving from Trafalgar Square",  
             departure_time = dateTime,  
             travel_distance = 900,  
             coords = list(lat = 51.507609, lng = -0.128315),  
             transportation = list(type = "driving"))  
  
arrival_search <-  
  make_search(id = "driving to Trafalgar Square",  
             arrival_time = dateTime,  
             travel_distance = 900,  
             coords = list(lat = 51.507609, lng = -0.128315),  
             transportation = list(type = "driving"),  
             range = list(enabled = TRUE, width = 3600))
```

```

union <- make_union_intersect(id = "union of driving to and from Trafalgar Square",
                             search_ids = list('driving from Trafalgar Square',
                                                'driving to Trafalgar Square'))
intersection <- make_union_intersect(id = "intersection of driving to and from Trafalgar Square",
                                    search_ids = list('driving from Trafalgar Square',
                                                      'driving to Trafalgar Square'))

result <-
  distance_map(
    departure_searches = departure_search,
    arrival_searches = arrival_search,
    unions = union,
    intersections = intersection
  )

## End(Not run)

```

geocoding

Geocoding (Search)

Description

Match a query string to geographic coordinates.

Usage

```

geocoding(
  query,
  within.country = NA,
  format.name = NA,
  format.exclude.country = NA,
  bounds = NA
)

```

Arguments

query	A query to geocode. Can be an address, a postcode or a venue.
within.country	Only return the results that are within the specified country. If no results are found it will return the country itself. Optional. Format:ISO 3166-1 alpha-2 or alpha-3
format.name	Format the name field of the response to a well formatted, human-readable address of the location. Experimental. Optional.
format.exclude.country	Exclude the country from the formatted name field (used only if format.name is equal true). Optional.
bounds	Used to limit the results to a bounding box. Expecting a character vector with four floats, marking a south-east and north-west corners of a rectangle: min-latitude,min-longitude,max-latitude,max-longitude. e.g. bounds for Scandinavia c(54.16243,4.04297,71.18316,31.81641). Optional.

Details

See <https://docs.traveltime.com/api/reference/geocoding-search/> for details

Value

API response parsed as list and as a raw json

Examples

```
## Not run:  
geocoding('Parliament square')  
  
## End(Not run)
```

geocoding_reverse	<i>Reverse Geocoding</i>
-------------------	--------------------------

Description

Attempt to match a latitude, longitude pair to an address.

Usage

```
geocoding_reverse(lat, lng)
```

Arguments

lat	Latitude of the point to reverse geocode.
lng	Longitude of the point to reverse geocode.

Details

See <https://docs.traveltime.com/api/reference/geocoding-reverse/> for details

Value

API response parsed as list and as a raw json

Examples

```
## Not run:  
geocoding_reverse(lat=51.507281, lng=-0.132120)  
  
## End(Not run)
```

make_location	<i>Location objects constructor</i>
---------------	-------------------------------------

Description

Define your locations to use later in `departure_searches` or `arrival_searches`.

Usage

```
make_location(id, coords)
```

Arguments

id	You will have to reference this id in your searches. It will also be used in the response body. MUST be unique among all locations.
coords	Location coordinates. Must use this format: <code>list(lat = 0, lng = 0)</code>

Details

See <https://docs.traveltime.com/api/reference/distance-matrix> for details

Value

A `data.frame` wrapped in a list. It is constructed in a way that allows `jsonlite::toJSON` to correctly transform it into a valid request body

See Also

See [time_filter](#) for usage examples

make_search	<i>Search objects constructor</i>
-------------	-----------------------------------

Description

Searches based on departure or arrival times. Departure: Leave departure location at no earlier than given time. You can define a maximum of 10 searches Arrival: Arrive at destination location at no later than given time. You can define a maximum of 10 searches

Usage

```

make_search(
  id,
  travel_time = NA,
  coords = NA,
  departure_time = NA,
  arrival_time = NA,
  transportation = list(type = "driving"),
  ...
)

```

Arguments

<code>id</code>	Used to identify this specific search in the results array. MUST be unique among all searches.
<code>travel_time</code>	Travel time in seconds. Maximum value is 14400 (4 hours)
<code>coords</code>	The coordinates of the location we should start the search from. Must use this format: <code>list(lat = 0, lng = 0)</code>
<code>departure_time</code>	Date in extended ISO-8601 format
<code>arrival_time</code>	Date in extended ISO-8601 format
<code>transportation</code>	Transportation mode and related parameters.
<code>...</code>	Any additional parameters to pass. Some functions require extra parameters to work. Check their API documentation for details.

Value

A data.frame wrapped in a list. It is constructed in a way that allows `jsonlite::toJSON` to correctly transform it into a valid request body

See Also

See [time_map](#) for usage examples

`make_union_intersect` *Set objects constructor*

Description

Allows you to define unions or intersections of shapes that are results of previously defined searches. You can define a maximum of 10 unions/intersections

Usage

```
make_union_intersect(id, search_ids)
```

Arguments

- id Used to identify this specific search in the results array. MUST be unique among all searches.
- search_ids An unnamed list of search ids which results will formulate this union.

Details

See <https://docs.traveltime.com/api/reference/isochrones> for details

Value

A data.frame wrapped in a list. It is constructed in a way that allows jsonlite::toJSON to correctly transform it into a valid request body

See Also

See [time_map](#) for usage examples

map_info

Map Info

Description

Returns information about currently supported countries.

Usage

```
map_info()
```

Details

See <https://docs.traveltime.com/api/reference/map-info/> for details

Value

API response parsed as list and as a raw json

Examples

```
## Not run:  
map_info()  
  
## End(Not run)
```

routes	<i>Routes</i>
--------	---------------

Description

Returns routing information between source and destinations.

Usage

```
routes(locations, departure_searches = NULL, arrival_searches = NULL)
```

Arguments

locations One or more objects created by [make_location](#)
 departure_searches One or more objects created by [make_search](#)
 arrival_searches One or more objects created by [make_search](#)

Details

See <https://docs.traveltime.com/api/reference/routes/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:
locations <- c(
  make_location(
    id = 'London center',
    coords = list(lat = 51.508930, lng = -0.131387)),
  make_location(
    id = 'Hyde Park',
    coords = list(lat = 51.508824, lng = -0.167093)),
  make_location(
    id = 'ZSL London Zoo',
    coords = list(lat = 51.536067, lng = -0.153596))
)

departure_search <-
  make_search(id = "departure search example",
             departure_location_id = "London center",
             arrival_location_ids = list("Hyde Park", "ZSL London Zoo"),
             departure_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             transportation = list(type = "driving"),
             properties = list("travel_time", "distance", "route"))
```

```

arrival_search <-
  make_search(id = "arrival search example",
             arrival_location_id = "London center",
             departure_location_ids = list("Hyde Park", "ZSL London Zoo"),
             arrival_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             transportation = list(type = "public_transport"),
             properties = list('travel_time', "distance", "route", "fares"),
             range = list(enabled = TRUE, width = 1800, max_results = 1))

result <-
  routes(
    departure_searches = departure_search,
    arrival_searches = arrival_search,
    locations = locations
  )

## End(Not run)

```

supported_locations *Supported Locations*

Description

Find out what points are supported by the api. The returned map name for a point can be used to determine what features are supported. See also the [map_info](#).

Usage

```
supported_locations(locations)
```

Arguments

locations One or more objects created by [make_location](#)

Details

See <https://docs.traveltime.com/api/reference/supported-locations/> for details

Value

API response parsed as list and as a raw json

Examples

```

## Not run:
locationsDF <- data.frame(
  id = c('Kaunas', 'London', 'Bangkok', 'Lisbon'),
  lat = c(54.900008, 51.506756, 13.761866, 38.721869),
  lng = c(23.957734, -0.128050, 100.544818, -9.138549)
)

```



```

locations <- unlist(locations, recursive = FALSE)

departure_search <-
  make_search(id = "forward search example",
             departure_location_id = "London center",
             arrival_location_ids = list("Hyde Park", "ZSL London Zoo"),
             departure_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             travel_time = 1800,
             transportation = list(type = "bus"),
             properties = list('travel_time'),
             range = list(enabled = TRUE, width = 600, max_results = 3))

arrival_search <-
  make_search(id = "backward search example",
             arrival_location_id = "London center",
             departure_location_ids = list("Hyde Park", "ZSL London Zoo"),
             arrival_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             travel_time = 1800,
             transportation = list(type = "public_transport"),
             properties = list('travel_time', "distance", "distance_breakdown", "fares"),
             range = list(enabled = TRUE, width = 600, max_results = 3))

result <-
  time_filter(
    departure_searches = departure_search,
    arrival_searches = arrival_search,
    locations = locations
  )

## End(Not run)

```

time_filter_fast	<i>Time Filter (Fast)</i>
------------------	---------------------------

Description

A very fast version of [time_filter](#). However, the request parameters are much more limited. Currently only supports UK and Ireland.

Usage

```

time_filter_fast(
  locations,
  arrival_many_to_one = NULL,
  arrival_one_to_many = NULL
)

```

Arguments

locations One or more objects created by `make_location`
arrival_many_to_one One or more objects created by `make_search`
arrival_one_to_many One or more objects created by `make_search`

Details

See <https://docs.traveltime.com/api/reference/time-filter-fast/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:

locations <- c(
  make_location(
    id = 'London center',
    coords = list(lat = 51.508930, lng = -0.131387)),
  make_location(
    id = 'Hyde Park',
    coords = list(lat = 51.508824, lng = -0.167093)),
  make_location(
    id = 'ZSL London Zoo',
    coords = list(lat = 51.536067, lng = -0.153596))
)
arrival_many_to_one <- make_search(id = "arrive-at many-to-one search example",
  arrival_location_id = "London center",
  departure_location_ids = list("Hyde Park", "ZSL London Zoo"),
  travel_time = 1900,
  transportation = list(type = "public_transport"),
  properties = list('travel_time', "fares"),
  arrival_time_period = "weekday_morning")

arrival_one_to_many <- make_search(id = "arrive-at one-to-many search example",
  departure_location_id = "London center",
  arrival_location_ids = list("Hyde Park", "ZSL London Zoo"),
  travel_time = 1900,
  transportation = list(type = "public_transport"),
  properties = list('travel_time', "fares"),
  arrival_time_period = "weekday_morning")

result <- time_filter_fast(locations, arrival_many_to_one, arrival_one_to_many)

## End(Not run)
```

time_filter_fast_proto

Time Filter (Fast) with Protobuf

Description

The Travel Time Matrix (Fast) endpoint is available with even higher performance through a version using Protocol Buffers. The endpoint takes as inputs a single origin location, multiple destination locations, a mode of transport, and a maximum travel time. The endpoint returns the travel times to each destination location, so long as it is within the maximum travel time.

Usage

```
time_filter_fast_proto(
  departureLat,
  departureLng,
  country = c("uk", "ireland"),
  travelTime,
  destinationCoordinates,
  transportation = names(protoTransport),
  useDistance = FALSE
)
```

Arguments

departureLat	origin latitude
departureLng	origin longitude
country	Origin country. Only UK and Ireland are supported.
travelTime	Maximum journey time (in seconds).
destinationCoordinates	data.frame with pairs of coordinates. Coordinates columns must be named 'lat' and 'lng'
transportation	One of supported transportation methods: 'pt', 'driving+ferry', 'cycling+ferry', 'walking+ferry'.
useDistance	return distance information

Details

See <https://docs.traveltime.com/api/start/travel-time-distance-matrix-protobuf> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:
time_filter_fast_proto(
  departureLat = 51.508930,
  departureLng = -0.131387,
  destinationCoordinates = data.frame(
    lat = c(51.508824, 51.536067),
    lng = c(-0.167093, -0.153596)
  ),
  transportation = 'driving+ferry',
  travelTime = 7200,
  country = "uk",
  useDistance = FALSE
)

## End(Not run)
```

time_filter_postcodes *Time Filter (Postcodes)*

Description

Find reachable postcodes from origin (or to destination) and get statistics about such postcodes. Currently only supports United Kingdom.

Usage

```
time_filter_postcodes(departure_searches = NULL, arrival_searches = NULL)
```

Arguments

departure_searches
One or more objects created by [make_search](#)

arrival_searches
One or more objects created by [make_search](#)

Details

See <https://docs.traveltime.com/api/reference/postcode-search/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:
departure_search <-
  make_search(id = "public transport from Trafalgar Square",
             departure_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             travel_time = 1800,
             coords = list(lat = 51.507609, lng = -0.128315),
             transportation = list(type = "public_transport"),
             properties = list('travel_time', 'distance'))

arrival_search <-
  make_search(id = "public transport to Trafalgar Square",
             arrival_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             travel_time = 1800,
             coords = list(lat = 51.507609, lng = -0.128315),
             transportation = list(type = "public_transport"),
             properties = list('travel_time', 'distance'))

result <-
  time_filter_postcodes(
    departure_searches = departure_search,
    arrival_searches = arrival_search
  )

## End(Not run)
```

```
time_filter_postcode_districts
      Time Filter (Postcode Districts)
```

Description

Find districts that have a certain coverage from origin (or to destination) and get statistics about postcodes within such districts. Currently only supports United Kingdom.

Usage

```
time_filter_postcode_districts(
  departure_searches = NULL,
  arrival_searches = NULL
)
```

Arguments

```
departure_searches
  One or more objects created by make\_search

arrival_searches
  One or more objects created by make\_search
```


Details

See <https://docs.traveltime.com/api/reference/postcode-district-filter/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:
departure_search <-
  make_search(id = "public transport from Trafalgar Square",
             departure_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             travel_time = 1800,
             coords = list(lat = 51.507609, lng = -0.128315),
             transportation = list(type = "public_transport"),
             reachable_postcodes_threshold = 0.1,
             properties = list("coverage", "travel_time_reachable", "travel_time_all"))

arrival_search <-
  make_search(id = "public transport to Trafalgar Square",
             arrival_time = strftime(as.POSIXlt(Sys.time(), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),
             travel_time = 1800,
             coords = list(lat = 51.507609, lng = -0.128315),
             transportation = list(type = "public_transport"),
             reachable_postcodes_threshold = 0.1,
             properties = list("coverage", "travel_time_reachable", "travel_time_all"))

result <-
  time_filter_postcode_districts(
    departure_searches = departure_search,
    arrival_searches = arrival_search
  )

## End(Not run)
```

time_filter_postcode_sectors

Time Filter (Postcode Sectors)

Description

Find sectors that have a certain coverage from origin (or to destination) and get statistics about postcodes within such sectors. Currently only supports United Kingdom.

Usage

```
time_filter_postcode_sectors(  
  departure_searches = NULL,  
  arrival_searches = NULL  
)
```

Arguments

departure_searches
One or more objects created by [make_search](#)

arrival_searches
One or more objects created by [make_search](#)

Details

See <https://docs.traveltime.com/api/reference/postcode-sector-filter/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:  
departure_search <-  
  make_search(id = "public transport from Trafalgar Square",  
             departure_time = strftime(as.POSIXlt(Sys.time()), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),  
             travel_time = 1800,  
             coords = list(lat = 51.507609, lng = -0.128315),  
             transportation = list(type = "public_transport"),  
             reachable_postcodes_threshold = 0.1,  
             properties = list("coverage", "travel_time_reachable", "travel_time_all"))  
  
arrival_search <-  
  make_search(id = "public transport to Trafalgar Square",  
             arrival_time = strftime(as.POSIXlt(Sys.time()), "UTC"), "%Y-%m-%dT%H:%M:%SZ"),  
             travel_time = 1800,  
             coords = list(lat = 51.507609, lng = -0.128315),  
             transportation = list(type = "public_transport"),  
             reachable_postcodes_threshold = 0.1,  
             properties = list("coverage", "travel_time_reachable", "travel_time_all"))  
  
result <-  
  time_filter_postcode_sectors(  
    departure_searches = departure_search,  
    arrival_searches = arrival_search  
  )  
  
## End(Not run)
```

time_map	<i>Isochrones (Time Map)</i>
----------	------------------------------

Description

Given origin coordinates, find shapes of zones reachable within corresponding travel time. Find unions/intersections between different searches

Usage

```
time_map(
  departure_searches = NULL,
  arrival_searches = NULL,
  unions = NULL,
  intersections = NULL,
  format = NULL
)
```

Arguments

departure_searches One or more objects created by [make_search](#)

arrival_searches One or more objects created by [make_search](#)

unions One or more objects created by [make_union_intersect](#)

intersections One or more objects created by [make_union_intersect](#)

format time-map response format. See <https://docs.traveltime.com/api/reference/isochrones#Response-Body> for details.

Details

See <https://docs.traveltime.com/api/reference/isochrones/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:

dateTime <- strptime(as.POSIXlt(Sys.time()), "UTC"), "%Y-%m-%dT%H:%M:%SZ")

departure_search1 <-
  make_search(id = "public transport from Trafalgar Square",
             departure_time = dateTime,
             travel_time = 900,
```

```

coords = list(lat = 51.507609, lng = -0.128315),
transportation = list(type = "public_transport"),
properties = list('is_only_walking'))

departure_search2 <-
  make_search(id = "driving from Trafalgar Square",
    departure_time = dateTime,
    travel_time = 900,
    coords = list(lat = 51.507609, lng = -0.128315),
    transportation = list(type = "driving"))

arrival_search <-
  make_search(id = "public transport to Trafalgar Square",
    arrival_time = dateTime,
    travel_time = 900,
    coords = list(lat = 51.507609, lng = -0.128315),
    transportation = list(type = "public_transport"),
    range = list(enabled = TRUE, width = 3600))

union <- make_union_intersect(id = "union of driving and public transport",
  search_ids = list('driving from Trafalgar Square',
    'public transport from Trafalgar Square'))
intersection <- make_union_intersect(id = "intersection of driving and public transport",
  search_ids = list('driving from Trafalgar Square',
    'public transport from Trafalgar Square'))

result <-
  time_map(
    departure_searches = c(departure_search1, departure_search2),
    arrival_searches = arrival_search,
    unions = union,
    intersections = intersection
  )

## End(Not run)

```

time_map_fast

Isochrones (Time Map) Fast

Description

A very fast version of Isochrone API. However, the request parameters are much more limited.

Usage

```

time_map_fast(
  arrival_many_to_one = NULL,
  arrival_one_to_many = NULL,
  format = NULL
)

```

Arguments

arrival_many_to_one
One or more objects created by `make_search`

arrival_one_to_many
One or more objects created by `make_search`

format
time-map response format. See <https://docs.traveltime.com/api/reference/isochrones-fast#Response-Body> for details.

Details

See <https://docs.traveltime.com/api/reference/isochrones-fast/> for details

Value

API response parsed as a list and as a raw json

Examples

```
## Not run:

arrival_search <-
  make_search(id = "public transport to Trafalgar Square",
             travel_time = 900,
             coords = list(lat = 51.507609, lng = -0.128315),
             arrival_time_period = "weekday_morning",
             transportation = list(type = "public_transport"))

result <-
  time_map_fast(
    arrival_many_to_one = arrival_search
  )

## End(Not run)
```

Index

`check_coords_for_error`, 2

`distance_map`, 2

`geocoding`, 4

`geocoding_reverse`, 5

`make_location`, 6, 9–11, 13

`make_search`, 3, 6, 9, 11, 13, 15, 16, 18, 19, 21

`make_union_intersect`, 3, 7, 19

`map_info`, 8, 10

`routes`, 9

`supported_locations`, 10

`time_filter`, 6, 11, 12

`time_filter_fast`, 12

`time_filter_fast_proto`, 14

`time_filter_postcode_districts`, 16

`time_filter_postcode_sectors`, 17

`time_filter_postcodes`, 15

`time_map`, 7, 8, 19

`time_map_fast`, 20