Package 'azuremapsr'

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Title Interface to the 'Azure Maps' API

Version 0.0.2

Description Provides a wrapper for the Microsoft 'Azure Maps' REST APIs <https://learn.microsoft.com/en-us/rest/api/maps/route?view=rest-maps-2025-01-01>, enabling users to access mapping and geospatial services directly from R. This package simplifies authenticating, building, and sending requests for services like route directions. It handles conversions between R objects (such as 'sf' objects) and the GeoJSON+JSON format required by the API, making it easier to integrate 'Azure Maps' into R-based data analysis workflows.

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Encoding UTF-8

URL https://github.com/juanfonsecaLS1/azuremapsr

BugReports https://github.com/juanfonsecaLS1/azuremapsr/issues

RoxygenNote 7.3.2

Imports geojsonsf (>= 2.0.3), httr2 (>= 1.2.1), jsonlite (>= 2.0.0), lubridate (>= 1.9.4), purrr (>= 1.1.0), rlist (>= 0.4.6.2), sf (>= 1.0.21), stringr (>= 1.5.1)

Depends R (>= 4.1.0)

LazyData true

NeedsCompilation no

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Contents

`check_params` *check conformity of parameters for JSON section*

Description

check conformity of parameters for JSON section

Usage

```
check_params(test_params, template_params, tz)
```

Arguments

`test_params`	list of parameters from input
`template_params`	list of parameters hardcoded in package
`tz`	timezone from input

Value

No return value, called for side effects

Examples

```
## Not run:
check_params(params,template_params,"UTC")

## End(Not run)
```

get_azuremaps_token *Get Azure Maps API Authentication Token*

Description

Retrieves the Azure Maps API token from the environment.

Usage

```
get_azuremaps_token()
```

Value

A character string containing the Azure Maps API token.

Examples

```
## Not run:
get_azuremaps_token()

## End(Not run)
```

get_point *Create sfc Object from Coordinates or sf Object*

Description

Converts a pair of coordinates, a matrix of coordinates, or an sf POINT object into an sfc object for use in GeoJSON bodies.

Usage

```
get_point(x)

## Default S3 method:
get_point(x)

## S3 method for class 'numeric'
get_point(x)

## S3 method for class 'matrix'
get_point(x)

## S3 method for class 'sf'
get_point(x)

## S3 method for class 'sfc'
get_point(x)
```

Arguments

x	A numeric vector of length 2, a matrix with coordinates, or an sf object of POINT type.

Value

An sfc object with coordinates in EPSG:4326.

Examples

```
get_point(c(-122.201399,47.608678))
```

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get_routes *Extract and Combine Routes from an 'Azure Maps' Response*

Description

This function takes a successful response object from the 'Azure Maps' API, extracts the main route and any alternative routes, and combines them into a single `sf` object.

Usage

```
get_routes(resp)
```

Arguments

resp	An `httr2_response` object, typically from a successful call to `req_route_directions`.

Value

An `sf` object containing the combined main and alternative routes. If the request was not successful (status code is not 200), the function will stop with an error.

Examples

```
## Not run:
# Assuming 'response' is a successful response from req_route_directions
all_routes_sf <- get_routes(response)
plot(sf::st_geometry(all_routes_sf))

## End(Not run)
```

json_to_sf *Convert 'Azure Maps' JSON Response to an sf Object*

Description

This function processes a JSON response body from the Azure Maps API, extracts the route information, and converts it into a spatial (`sf`) object.

Usage

```
json_to_sf(body, main_route = TRUE, linestring = TRUE)
```

Arguments

`body`	A list, typically the parsed JSON response from an httr2 request.
`main_route`	A logical value. If `TRUE` (the default), only the main route is processed. If `FALSE`, alternative routes are processed instead.
`linestring`	A logical value. If `TRUE` (the default), it filters for LineString geometries (the route path).

Value

An `sf` object containing the spatial features from the route response, or `NULL` if no valid features are found.

Examples

```
## Not run:
# Assuming 'resp' is an httr2 response object from req_route_directions
body <- httr2::resp_body_json(resp)
route_sf <- json_to_sf(body)
plot(sf::st_geometry(route_sf))

## End(Not run)
```

POSTbody_builder_directions_geojson *Build GeoJSON Body for Route Directions*

Description

Constructs the GeoJSON part of the request body for the Azure Maps Route Directions API. This includes the origin, destination, and any waypoints.

Usage

```
POSTbody_builder_directions_geojson(origin, destination, waypoints = NULL)
```

Arguments

origin	A numeric vector of coordinates (longitude, latitude) or an sf object representing the starting point.
destination	A numeric vector of coordinates (longitude, latitude) or an sf object representing the end point.
waypoints	Optional. A numeric vector, a matrix of coordinates, or an sf object with POINT geometries for intermediate stops.

Value

A list formatted as a GeoJSON FeatureCollection, ready to be included in the API request body.

Examples

```
## Not run:
origin <- c(-122.201399, 47.608678)
destination <- c(-122.201669, 47.615076)
waypoints <- c(-122.20687, 47.612002)
geojson_part <- POSTbody_builder_directions_geojson(origin, destination, waypoints)

## End(Not run)
```

POSTbody_builder_directions_json

Build JSON Parameter Body for Route Directions

Description

Constructs the JSON part of the request body containing routing parameters for the Azure Maps Route Directions API.

Usage

```
POSTbody_builder_directions_json(params, tz)
```

Arguments

params	A list of routing parameters, such as travelMode, routeType, departAt, etc.
tz	A string specifying the timezone for any date-time parameters.

Value

A list of routing parameters, with values formatted and unboxed as required for the JSON request.

Examples

```
## Not run:
params <- list(
  travelMode = "car",
  routeType = "fastest"
)
json_part <- POSTbody_builder_directions_json(params, "UTC")

## End(Not run)
```

`req_route_directions` *Get Route Directions from 'Azure Maps'*

Description

Requests route directions from 'Azure Maps' API using origin, destination, waypoints, and route parameters.

Usage

```
req_route_directions(
  origin,
  destination,
  waypoints = NULL,
  params,
  tz = Sys.timezone(),
  api_key = get_azuremaps_token(),
  api_version = "2025-01-01"
)
```

Arguments

`origin`	A numeric vector of length 2 with origin coordinates (longitude, latitude), or an `sf` object with a single POINT geometry.
`destination`	A numeric vector of length 2 with destination coordinates (longitude, latitude), or an `sf` object with a single POINT geometry.
`waypoints`	Optional. A numeric vector, a matrix of coordinates, or an `sf` object with POINT geometries representing intermediate stops.
`params`	A list of route parameters (e.g., `optimizeRoute`, `routeOutputOptions`, `maxRouteCount`, `travelMode`). See the API documentation
`tz`	A string specifying the timezone. Defaults to the system's timezone.
`api_key`	The 'Azure Maps' API key. Defaults to the value retrieved by `get_azuremaps_token()`.
`api_version`	The API version to use. Defaults to "2025-01-01".

Value

An `httr2_response` object from the 'Azure Maps' API.

Examples

```
## Not run:
origin <- c(-122.201399, 47.608678)
destination <- c(-122.201669, 47.615076)
waypoints <- c(-122.20687, 47.612002)

params <- list(
  optimizeRoute = "fastestWithTraffic",
  routeOutputOptions = "routePath",
  maxRouteCount = 3,
  travelMode = "driving"
)

response <- req_route_directions(origin, destination, waypoints, params)

## End(Not run)
```

`sample_response` *A sample response obtained from the* `get_route_directions` *function*

Description

A sample response obtained from the `get_route_directions` function

Format

a `httr2` response object

References

Sample of the call based on the API documentation in https://learn.microsoft.com/en-us/rest/api/maps/route/post-route-directions?view=rest-maps-2025-01-01&tabs=HTTP#examples

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`sample_response_leeds` *A sample response obtained from the* `get_route_directions` *function*

Description

A sample response obtained from the `get_route_directions` function

Format

a `httr2` response object

`set_azuremaps_token` *Set Azure Maps API Authentication Token*

Description

Saves an authentication token for the Azure Maps API in the environment.

Usage

```
set_azuremaps_token(token)
```

Arguments

`token`	A character string containing the Azure Maps API token.

Value

Logical TRUE if the token is correctly set.

Examples

```
## Not run:
set_azuremaps_token("your_token_here")

## End(Not run)
```

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