Package: caRtociudad (via r-universe)

July 21, 2024

Type Package

Title Interface to Cartociudad API

Version 0.6.3

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Encoding UTF-8

Description Access to Cartociudad cartography API, which provides
mapping and other related services for Spain.

Imports httr, jsonlite, xml2, plyr, geosphere, sp

Depends R (>= 3.0.0)

Suggests ggmap, testthat

URL https://github.com/rOpenSpain/caRtociudad

License GPL-3

LazyLoad yes

LazyData yes

RoxygenNote 6.0.1

ByteCompile yes

Repository https://ropenspain.r-universe.dev

RemoteUrl https://github.com/rOpenSpain/caRtociudad

RemoteRef HEAD

RemoteSha 760b752ffb6183d76f424a3e9d0cb4c7ce884fe4

Contents

Index   **13**

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cartociudad_geocode   *Interface to Cartociudad geolocation API*

Description

Geolocation of Spanish addresses via Cartociudad API calls, providing the full address in a single text string via `full_address`. It is advisable to add the street type (calle, etc.) and to omit the country name.

Usage

```
cartociudad_geocode(full_address, on.error = "fail", ...)
```

Arguments

`full_address`	Character string providing the full address to be geolocated; e.g., "calle miguel servet 5, zaragoza". Adding the country may cause problems.
`on.error`	Defaults to `fail`; in such case, in case of errors in the API call, the process will fail. Set it to "warn" and, in case of errors, the function will return `NULL` and a warning.
`...`	Other parameters for the API. See Details section below.

Details

The entity geolocation API admits more parameters beyond the address field such as `id` or `type`. You can use these extra arguments (see the References or the Examples sections below for further information) at your own risk.

Value

A data frame consisting of a single row per guess. See the reference below for an explanation of the data frame columns.

Author(s)

Carlos J. Gil Bellosta

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.pdf

Examples

```
# standard usage
res <- cartociudad_geocode(full_address = "plaza de cascorro 11, 28005 madrid")

#' # km 41 of A-23 motorway
res <- cartociudad_geocode("A-23 41")

# specific usage (see References for details)
res <- cartociudad_geocode("A-23 41", type = "portal", id = "600000000045", portal = 41)

# vectorized call
## Not run:
addresses <- paste("A-23", 1:10)
res <- lapply(addresses, cartociudad_geocode, on.error = "warn")

## End(Not run)
```

cartociudad_get_area   *Area calculation*

Description

Returns the polygon that describes the area

Usage

```
cartociudad_get_area(latitude, longitude, radius)
```

Arguments

latitude	Point latitude in geographical coordinates (e.g., 40.3930144)
longitude	Point longitude in geographical coordinates (e.g., -3.6596683)
radius	Distance in meters (e.g., 500)

Details

This function calculates the area given a point and a radius in meters

Value

A dataframe with the polygon that describes the area.

Author(s)

Luz Frias

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.
pdf

Examples

```
cartociudad_get_area(40.3930144, -3.6596683, 500)
```

---

cartociudad_get_location_info

Administrative information for a location

Description

Returns the administrative information related to a geographical point in Spain: province, munici-
pality, censal district, censal section, cadastral reference and reverse geocoding data.

Usage

```
cartociudad_get_location_info(latitude, longitude, year = 2016,
  info.source = c("census", "cadastre", "reverse"))
```

Arguments

latitude	Point latitude in geographical coordinates (e.g., 40.473219)
longitude	Point longitude in geographical coordinates (e.g., -3.7227241)
year	Reference year; see Details section
info.source	A character vector specifying the APIs to consult. Possible values are "census", "cadastre" and "reverse"

Details

This function consults administrative information for a point within Spain. Censal information
is consulted from a different set of layers, each one corresponding to a different year. Whereas
provincial and municipal information is mostly stable, censal districts and sections may be subject
to greater changes over the years.

Value

A list contaning the administrative information for the given point. For info.source = "census"
it contains the province, municipality, censal disrict and censal section codes. For info.source
= "cadastre" it contains the cadastral reference and the url to the spanish cadastre website. For
info.source = "reverse" it contains the details of the address closest to the specified location,
such us road type, number, zip code, street name, ... More information about reverse geocoding in
cartociudad_reverse_geocode.

Author(s)

Luz Frías with small edits by Carlos J. Gil Bellosta

References

INE's web service is mostly undocumented and the function has been built by reverse engineering API calls. However, users may want to check the *capabilities* of INEs WMS service at http://goo.gl/aKn3vj. Cadastre web service documentation can be consulted at http://goo.gl/lKkwK and WMS service *capabilities* at http://goo.gl/5JAd9N.

Examples

```
cartociudad_get_location_info(40.473219, -3.7227241)
```

---

cartociudad_get_map   *Get a Cartociudad Map*

Description

Downloads static maps using Cartociudad API. These maps can be then plotted by functions such as ggmap.

Usage

```
cartociudad_get_map(center, radius, add.censal.section = FALSE,
    add.postcode.area = FALSE, add.cadastral.layer = FALSE,
    height = 800, width = 1200)
```

Arguments

center	a pair of numbers (latitude and longitude of the center of the map)
radius	approximate map "width" in kilometers
add.censal.section	whether to add the limit of censal sections and districts to the base map; note that this layer may not be available at low zoom levels
add.postcode.area	whether to add the limit of postal code areas to the base map; note that this layer may not be available at low zoom levels
add.cadastral.layer	whether to add cadastral information
height	map height in pixels
width	map width in pixels

Details

This function, similar to `get_googlemap` or `get_openstreetmap` downloads a map from Cartociudad API and creates a `ggmap` compatible version of it.

Value

An object of class `ggmap` and `raster` which can be used within the ggmapframework.

Author(s)

Carlos J. Gil Bellosta

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.pdf

Examples

```
## Not run:
  soria <- cartociudad_geocode("plaza de san esteban, soria")
  soria_map <- cartociudad_get_map(c(soria$lat, soria$lng), 1)
  ggmap::ggmap(soria_map)

## End(Not run)
```

---

cartociudad_get_route *Driving and walking directions from Cartociudad API*

Description

Cartociudad API provides driving and walking routes between two points. This function quieries the API and provides the user the data in convenient form.

Usage

```
cartociudad_get_route(latlon.orig, latlon.dest, vehicle = "car")
```

Arguments

`latlon.orig`	Latitude and longitude of the starting point
`latlon.dest`	Latitude and longitude of the destination point
`vehicle`	Either `car` or `walking`

Value

A list containing the fields described in Cartociudad API documentation (see the link below).

Author(s)

Carlos J. Gil Bellosta

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.pdf

Examples

```
res <- cartociudad_get_route(c(39.48,-0.37),
    c(39.484336,-0.358171),
    vehicle = "car")
```

---

cartociudad_reverse_geocode

Reverse geocoding of locations

Description

Returns the address details of a geographical point in Spain.

Usage

```
cartociudad_reverse_geocode(latitude, longitude)
```

Arguments

latitude	Point latitude in geographical coordinates (e.g., 40.473219)
longitude	Point longitude in geographical coordinates (e.g., -3.7227241)

Details

This function performs reverse geocoding of a location. It returns the details of the closest address in Spain.

Value

A list with the following items:

tipo	type of location.
tipo.via	road type.
nombre.via	road name.
num.via	road number.
num.via.id	internal id of this address in cartociudad database.
municipio	town.
provincia	province.
cod.postal	zip code.

Author(s)

Luz Frias

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.pdf

Examples

```
cartociudad_reverse_geocode(40.473219, -3.7227241)
```

`get_cartociudad_area`   *Area calculation*

Description

Returns the polygon that describes the area

Usage

```
get_cartociudad_area(latitude, longitude, radius)
```

Arguments

latitude	Point latitude in geographical coordinates (e.g., 40.3930144)
longitude	Point longitude in geographical coordinates (e.g., -3.6596683)
radius	Distance in meters (e.g., 500)

Details

This function calculates the area given a point and a radius in meters

Value

A dataframe with the polygon that describes the area.

Author(s)

Luz Frias

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.pdf

Examples

```
## Not run:
get_cartociudad_area(40.3930144, -3.6596683, 500)

## End(Not run)
```

---

get_cartociudad_location_info

Administrative information for a location

Description

Returns the administrative information related to a geographical point in Spain: province, municipality, censal district, censal section, cadastral reference and reverse geocoding data.

Usage

```
get_cartociudad_location_info(latitude, longitude, year = 2016,
  info.source = c("census", "cadastre", "reverse"))
```

Arguments

latitude	Point latitude in geographical coordinates (e.g., 40.473219)
longitude	Point longitude in geographical coordinates (e.g., -3.7227241)
year	Reference year; see Details section
info.source	A character vector specifying the APIs to consult. Possible values are "census", "cadastre" and "reverse"

Details

This function consults administrative information for a point within Spain. Censal information is consulted from a different set of layers, each one corresponding to a different year. Whereas provincial and municipal information is mostly stable, censal districts and sections may be subject to greater changes over the years.

Value

A list contaning the administrative information for the given point. For info.source = "census" it contains the province, municipality, censal discrict and censal section codes. For info.source = "cadastre" it contains the cadastral reference and the url to the spanish cadastre website. For info.source = "reverse" it contains the details of the address closest to the specified location, such us road type, number, zip code, street name, ... More information about reverse geocoding in cartociudad_reverse_geocode.

Author(s)

Luz Frías with small edits by Carlos J. Gil Bellosta

References

INE's web service is mostly undocumented and the function has been built by reverse engineering API calls. However, users may want to check the *capabilities* of INEs WMS service at http://goo.gl/aKn3vj. Cadastre web service documentation can be consulted at http://goo.gl/lKkwK and WMS service *capabilities* at http://goo.gl/5JAd9N.

Examples

```
## Not run:
get_cartociudad_location_info(40.473219, -3.7227241)

## End(Not run)
```

---

get_cartociudad_map   *Get a Cartociudad Map*

Description

Downloads static maps using Cartociudad API. These maps can be then plotted by functions such as ggmap.

Usage

```
get_cartociudad_map(center, radius, add.censal.section = FALSE,
    add.postcode.area = FALSE, add.cadastral.layer = FALSE,
    height = 800, width = 1200)
```

Arguments

center	a pair of numbers (latitude and longitude of the center of the map)
radius	approximate map "width" in kilometers
add.censal.section	
	whether to add the limit of censal sections and districts to the base map; note that this layer may not be available at low zoom levels
add.postcode.area	
	whether to add the limit of postal code areas to the base map; note that this layer may not be available at low zoom levels
add.cadastral.layer	
	whether to add cadastral information
height	map height in pixels
width	map width in pixels

Details

This function, similar to `get_googlemap` or `get_openstreetmap` downloads a map from Cartociudad API and creates a `ggmap` compatible version of it.

Value

An object of class `ggmap` and `raster` which can be used within the ggmapframework.

Author(s)

Carlos J. Gil Bellosta

References

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Examples

```
## Not run:
  soria <- cartociudad_geocode("plaza de san esteban, soria")
  soria_map <- get_cartociudad_map(c(soria$lat, soria$lng), 1)
  ggmap::ggmap(soria_map)

## End(Not run)
```

---

get_cartociudad_route   *Driving and walking directions from Cartociudad API*

Description

Cartociudad API provides driving and walking routes between two points. This function quieries the API and provides the user the data in convenient form.

Usage

```
get_cartociudad_route(latlon.orig, latlon.dest, vehicle = "car")
```

Arguments

`latlon.orig`	Latitude and longitude of the starting point
`latlon.dest`	Latitude and longitude of the destination point
`vehicle`	Either `car` or `walking`

Value

A list containing the fields described in Cartociudad API documentation (see the link below).

Author(s)

Carlos J. Gil Bellosta

References

http://www.cartociudad.es/recursos/Documentacion_tecnica/CARTOCIUDAD_ServiciosWeb.pdf

Examples

```
## Not run:
res <- get_cartociudad_route(c(39.48,-0.37),
   c(39.484336,-0.358171),
   vehicle = "car")

## End(Not run)
```

Index