Package ‘postal’

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Type Package

Title United States Postal Service API Interface

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Description An interface to the United States Postal Service Post Calc and Zone Calc APIs, postal allows users to find the postage price, delivery day, and other information for packages and envelopes,
as well as to find the postal zone for an origin and a destination zip code pair.

Depends R (>= 2.10)

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Encoding UTF-8

LazyData TRUE

URL https://github.com/aedobbyn/postal/

BugReports https://github.com/aedobbyn/postal/issues/

Imports curl, dplyr, glue, janitor, jsonlite, lubridate, magrittr, purrr, readr, stringr, tibble (>= 1.2), tidyr

Suggests covr, cowsay, ggplot2, here, knitr, maps, rmarkdown, stats, testthat, zipcode

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R topics documented:

`all_possible_origins` *All possible 3-digit origins*

Description

All possible 3-digit origins

Usage

```
all_possible_origins
```

Format

An object of class `character` of length 1000.

`fetch_all` *Grab all the 3-digit origin-destination pairs.*

Description

Grab all the 3-digit origin-destination pairs.

Usage

```
fetch_all(origins = all_possible_origins, write_to = NULL, sleep_time = 1,
  n_tries = 3, as_range = FALSE, show_details = FALSE, verbose = TRUE)
```

Arguments

`origins`	A vector of origin zips. Defaults to all possible origin zips from 000 to 999.
`write_to`	The path to a CSV file to create and append each result to.
`sleep_time`	How long to sleep in between requests, plus or minus `runif(1)` second.
`n_tries`	How many times to try getting an origin if we're unsuccessful the first time?
`as_range`	Do you want zones corresponding to a range of destination zips or a full listing of them?
`show_details`	Should columns with more details be retained?
`verbose`	Message what's going on?

Details

For all the 3-digit origin zip codes, grab all destination zips and their corresponding zones. This is equivalent to running `fetch_zones_three_digit` for all possible 3 digit origin zips.

If this fails partway through, origins that could not be retrieved get a "no_success" value in their `dest_zip` and `zone` columns but we continue trying to grab results for all supplied `origins`.

Value

A tibble with origin zip and destination zips (in ranges or unspooled) and the USPS zones the origin-destination pair corresponds to.

See Also

fetch_zones_three_digit

Examples

```
## Not run:

fetch_all(sample(all_possible_origins, 4))

fetch_all(show_details = TRUE, verbose = TRUE,
    write_to = glue::glue(here::here("data", "{Sys.Date()}_zip_zones.csv")))

## End(Not run)
```

`fetch_mail` *Fetch postage details*

Description

Get postage options for a flat-rate envelope, flat-rate box, or package.

Usage

```
fetch_mail(origin_zip = NULL, destination_zip = NULL,
  shipping_date = "today", shipping_time = "now", type = "package",
  ground_transportation_needed = FALSE, live_animals = FALSE,
  day_old_poultry = FALSE, hazardous_materials = FALSE, pounds = 0,
  ounces = 0, length = 0, height = 0, width = 0, girth = 0,
  shape = "rectangular", show_details = FALSE, n_tries = 3,
  verbose = TRUE)
```

Arguments

`origin_zip`	(character) A single 5-digit origin zip code.
`destination_zip`	(character) A single 5-digit destination zip code.
`shipping_date`	(character) Date you plan to ship the package on in "MM-DD-YYYY" format as character, or "today".
`shipping_time`	(character) Time of day you plan to ship in 24-hour "HH:MM" format as character, or "now".
`type`	(character) One of: "box", "envelope", "package". The types "box" and "envelope" refer to flat-rate boxes and envelopes.
`ground_transportation_needed`	(boolean) does the package need to be transported by ground?

live_animals (boolean) Does this contain live animals? See https://pe.usps.com/text/pub52/pub52c5_003.htm for more details.

day_old_poultry (boolean) Does this contain day-old poultry? See https://pe.usps.com/text/pub52/pub52c5_008.htm#ep184002 for more details.

hazardous_materials (boolean) Does this contain any hazardous materials? See https://pe.usps.com/text/pub52/pub52c3_001.htm for more details.

pounds (numeric) Number of pounds the package weighs.

ounces (numeric) Number of ounces the package weighs.

length (numeric) Length of the package in inches. This is the longest dimension.

height (numeric) Height of the package in inches.

width (numeric) Width of the package in inches.

girth (numeric) Girth of the package in inches. Required if shape is "nonrectangular". This is the distance around the thickest part.

shape (character) Shape of the package: "rectangular" or "nonrectangular". "nonrectangular" requires a non-null girth value. If type is box or envelope, shape will always be "rectangular".

show_details (boolean) Non-essential details of the response are hidden by default. Show them by setting this to TRUE.

n_tries (numeric) How many times to try the API if at first we don't succeed.

verbose (boolean) Should information like the shipping date time be displayed if the defaults "today" and "now" are chosen be messaged?

Details

Supply the required information about the package and receive a tibble. Displays the result of a query to the "Postage Price Calculator" in dataframe format. The inputs origin_zip, destination_zip, shipping_date, and shipping_time are included in the result.

If type is "envelope" or "box", the response is the same regardless of measurements (pounds, ounces, height, width, girth and shape) applied. These only vary outcomes for "package"s.

The result can be further cleaned and standardized by piping the result to scrub_mail.

Multiple origins, destinations, and other options can be supplied and mapped together using, e.g. purrr::pmap.

The API is tried n_tries times until a tibble is returned with no_success in columns that could not be returned. This indicates either that the connection was interrupted during the request or that one or more of the arguments supplied were malformed.

If a response is successfully received but there are no shipping options, the columns are filled with NAs.

Value

A tibble with information for different postage options, including price and box/envelope dimensions.

See Also

scrub_mail

Examples

```
## Not run:

fetch_mail(origin_zip = "90210",
         destination_zip = "59001",
         type = "envelope")


fetch_mail(origin_zip = "68003",
         destination_zip = "23285",
         pounds = 4,
         ground_transportation_needed = TRUE,
         type = "package",
         shape = "rectangular",
         show_details = TRUE)

# Contains an invalid zip ("foobar"), which will get a "no_success" row
origins <- c("90210", "foobar", "59001")
destinations <- c("68003", "94707", "23285")

purrr::map2_dfr(
  origins, destinations,
  fetch_mail,
  type = "package"
)

# A syntactically fine request, but no results are returned
fetch_mail(origin_zip = "04101",
    destination_zip = "97211",
    shipping_date = "3018-07-04",  # way in the future!
    type = "package",
    show_details = TRUE)


## End(Not run)
```

fetch_zones *Fetch zones for a 3-digit origin zip or an origin-destination pair*

Description

For a given 3-digit origin zip code, grab all destination zips and their corresponding zones.

Usage

```
fetch_zones(origin_zip = NULL, destination_zip = NULL,
  exact_destination = FALSE, as_range = FALSE, show_details = FALSE,
  n_tries = 3, verbose = FALSE)
```

Arguments

origin_zip	A single origin zip as character. If > 3 digits and contains leading zeros, make sure to supply as character.

`destination_zip`
: Optional destination zip. If not included, returns all possible destinations for the origin provided. If > 3 digits and contains leading zeros, make sure to supply as character.

`exact_destination`
: If `destination_zip` is supplied, should the result be filtered to the full destination zip, or its first 3 digits?

`as_range`
: Do you want zones corresponding to a range of destination zips or a full listing of them?

`show_details`
: Should columns with more details be retained?

`n_tries`
: How many times to try getting an origin if we're unsuccessful the first time?

`verbose`
: Message what's going on?

Details

Displays the result of a query to the ["Get Zone Chart"](https://postcalc.usps.com/DomesticZoneChart/) tab. If you just want to supply two 5-digit zips and get a single zone back, use `fetch_zones_five_digit`.

Value

A tibble with origin zip and destination zips (in ranges or unspooled) and the USPS zones the origin-destination pair corresponds to.

Examples

```
## Not run:

a_zip <- fetch_zones("123")
nrow(a_zip)

fetch_zones("123", "456", show_details = TRUE)

(double_oh_seven <- fetch_zones("007", as_range = TRUE))

## End(Not run)
```

---

fetch_zones_five_digit

Fetch zones for a 5-digit origin origin-destination pair

Description

For a given 5-digit origin and destination zip code pair, display the zone number and full response.

Usage

```
fetch_zones_five_digit(origin_zip, destination_zip, show_details = FALSE,
  n_tries = 3, verbose = FALSE)
```

Arguments

`origin_zip` (character) A single origin zip as 5-digit character.

`destination_zip` (character) Required destination zip as 5-digit character.

`show_details` (boolean) Extract extra stuff from the response? Specifically: `specific_to_priority_mail`, `local`, `same_ndc`, and `full_response`. Get more info with `zone_detail_definitions`.

`n_tries` (numeric) Number times to try the API if at first we don't succeed.

`verbose` (boolean) Message what's going on?

Details

Displays the result of a query to the "Get Zone for ZIP Code Pair" tab of the USPS Zone Calc website.

If you want all destinations for a given origin, use `fetch_zones_three_digit` with the first 3 digits of the origin; there you don't need to supply a destination.

Value

A tibble with origin zip, destination zip and the USPS zone that origin-destination pair corresponds to. If `show_details` is TRUE, other columns are shown.

See Also

fetch_zones_three_digit

Examples

```
## Not run:
fetch_zones_five_digit("90210", "20500")

fetch_zones_five_digit("40360", "09756",
                       show_details = TRUE)

# Supply multiple origins and destinations
purrr::map2_dfr(c("11238", "60647", "80205"),
                c("98109", "02210", "94707"),
      fetch_zones_five_digit)

## End(Not run)
```

`fetch_zones_three_digit` *Get 3 digit zones*

Description

For a given 3-digit origin zip code, grab all destination zips and their corresponding zones. If a destination is supplied, the result is filtered to that origin-destination pair.

Usage

```
fetch_zones_three_digit(origin_zip = NULL, destination_zip = NULL,
  exact_destination = FALSE, as_range = FALSE, show_details = FALSE,
  n_tries = 3, verbose = FALSE)
```

Arguments

`origin_zip` (character) A single origin zip. If > 3 characters are supplied, the first 3 are used. If fewer, leading 0s are prepended. (E.g., "7" becomes "007".)

`destination_zip` (character) Optional destination zip. Can be 3 or 5 characters. If not included, returns all possible destinations for the origin provided.

`exact_destination` (boolean) If `destination_zip` is supplied and is 5 digits, should the result be filtered to the full destination zip, or its first 3 digits?

`as_range` (boolean) Should zones be shown with one row per zone (the default) or as one row per range of zips they apply to?

`show_details` (boolean) Should columns with more details be retained? Specifically: `specific_to_priority_mai` `same_ndc`, and `has_five_digit_exceptions`. Get more info with `zone_detail_definitions`.

`n_tries` (numeric) How many times to try getting data if we're unsuccessful the first time.

`verbose` (boolean) Message what's going on?

Details

Displays the result of a query what's shown on the "Get Zone Chart" tab of the USPS Zone Calc website. If you just want to supply two 5-digit zips and get a single zone back, use `fetch_zones_five_digit`.

Value

A tibble with origin zip and destination zips (in ranges or unspooled depending on `as_range`) and the USPS zones the origin-destination pair corresponds to. If `show_details` is TRUE, other columns are shown.

See Also

`fetch_zones_five_digit`

Examples

```
## Not run:

# All destination zips are returned for this origin
a_zip <- fetch_zones_three_digit("123")
nrow(a_zip)

# Only the zone corresponding to this origin and this destination are returned
fetch_zones_three_digit("123", "456", show_details = TRUE)

fetch_zones_three_digit("007", as_range = TRUE)

# Get multiple zips
```

```
c("897", "786") %>%
  purrr::map_df(fetch_zones_three_digit)


## End(Not run)
```

postal *Fetch mail information and zones from USPS*

Description

Calculate shipping rates and times for packages and get the USPS zones corresponding to 3-digit and 5-digit zip code pairs.

Details

Contributors:

- Amanda Dobbyn

To get postage information, use `fetch_mail`. To get zones, use `get_zone_three_digit` or `get_zone_five_digit`.

The zones vignette can be found with `browseVignettes(package = "postal")`.

scrub_mail *Clean the response from fetched mail*

Description

Clean the response from fetched mail

Usage

```
scrub_mail(tbl)
```

Arguments

`tbl`	A tibble; the result of a call to `fetch_mail`.

Details

This scrubber converts "Not available"s to `NA`s, removes dollar signs from prices and converts them to numeric, and splits `delivery_day` into YYYY-MM-DD `delivery_date` and `delivery_by_time` (if present, the time of day by which the mail should arrive).

`delivery_date` is inferred from the current year.

Value

A tibble with the same number of rows the input. `delivery_day` becomes `delivery_date` and `delivery_by_time`, from which `delivery_duration` in days is calculated (`delivery_date - shipping_date`).

Examples

```
## Not run:

fetch_mail_flat_rate(origin_zip = "60647",
         destination_zip = "11238", type = "envelope") %>% scrub_mail()

## End(Not run)
```

---

zips_zones_sample *Zips and Zones*

Description

A random sample of all 3-digit zips and zones. The result of running fetch_all() with `as_range = TRUE` and taking a 1m row sample.

Usage

```
zips_zones_sample
```

Format

A data frame with 3,804,494 rows and 6 variables:

origin_zip Origin zip

dest_zip Destination zip

zone weight of the diamond, in carats

has_five_digit_exceptions Does this 3 digit zip have 5 digit zips with different zones?

same_ndc Origin and destination in same Network Distribution Center?

specific_to_priority_mail Zone specific to Priority Mail?

---

zone_detail_definitions *Details*

Description

Details

Usage

```
zone_detail_definitions
```

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 5 rows and 3 columns.

Index