

Package ‘geogenr’

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Type Package

Title Geomultistar Generator from American Community Survey (ACS)
Geodatabases

Version 1.0.0

Description

The American Community Survey (ACS) <<https://www.census.gov/programs-surveys/acs>> offers geodatabases with geographic information and associated data of interest to researchers in the area. The goal of this package is to generate geomultistar objects from those geodatabases automatically, once the focus of attention is selected. Multidimensional queries with geographic information can be easily defined on these objects.

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Suggests testthat, knitr, rmarkdown

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download_geodatabases *Download geodatabases*

Description

For the name of a geodatabase and the given years, downloads from the web the corresponding geodatabase data files. Returns a vector with the years for which data is now available on the folder.

Usage

```
download_geodatabases(ua, geodatabase, years, folder = NULL)
```

```
## S3 method for class 'uscb_acs_5ye'
download_geodatabases(ua, geodatabase, years, folder = NULL)
```

Arguments

ua	A uscb_acs_5ye object.
geodatabase	A string.
years	A vector of integers.
folder	A string.

Details

If the folder is not indicated, it is considered that of the class.

Value

A vector of integers.

See Also

Other data collection functions: [get_available_years_downloaded\(\)](#), [get_available_years_in_the_web\(\)](#), [get_legal_and_administrative_areas\(\)](#), [get_statistical_areas\(\)](#), [uscb_acs_5ye\(\)](#)

Examples

```
library(tidyr)

folder <- "../geodimension/data/us/"
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()

# sa[6]
# [1] "New England City and Town Area Division"

y <- ua %>% get_available_years_in_the_web(geodatabase = sa[6])
## Not run:
y_res <- ua %>% download_geodatabases(geodatabase = sa[6], years = y)

## End(Not run)
```

```
get_available_years_downloaded
  Get available years downloaded
```

Description

For the name of a geodatabase, returns a vector with the years for which data is available on the local folder.

Usage

```
get_available_years_downloaded(ua, geodatabase, folder = NULL)

## S3 method for class 'uscb_acs_5ye'
get_available_years_downloaded(ua, geodatabase, folder = NULL)
```

Arguments

ua	A uscb_acs_5ye object.
geodatabase	A string.
folder	A string.

Details

If the folder is not indicated, it is considered that of the class.

Value

A vector of integers.

See Also

Other data collection functions: [download_geodatabases\(\)](#), [get_available_years_in_the_web\(\)](#), [get_legal_and_administrative_areas\(\)](#), [get_statistical_areas\(\)](#), [uscb_acs_5ye\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()

# sa[6]
# [1] "New England City and Town Area Division"

y <- ua %>% get_available_years_downloaded(geodatabase = sa[6])
```

get_available_years_in_the_web

Get available years in the web

Description

For the name of a geodatabase, returns a vector with the years for which data is available on the web.

Usage

```
get_available_years_in_the_web(ua, geodatabase)

## S3 method for class 'uscb_acs_5ye'
get_available_years_in_the_web(ua, geodatabase)
```

Arguments

ua A uscb_acs_5ye object.
geodatabase A string.

Value

A vector of integers.

See Also

Other data collection functions: [download_geodatabases\(\)](#), [get_available_years_downloaded\(\)](#), [get_legal_and_administrative_areas\(\)](#), [get_statistical_areas\(\)](#), [uscb_acs_5ye\(\)](#)

Examples

```
library(tidyr)

folder <- "../geodimension/data/us/"
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()

# sa[6]
# [1] "New England City and Town Area Division"

y <- ua %>% get_available_years_in_the_web(geodatabase = sa[6])
```

get_common_flat_table *Get common flat table*

Description

Get the layer group data in the form of a flat table that includes all the available data columns for the geodatabases corresponding to the selected years.

Usage

```
get_common_flat_table(uf, remove_zeros = TRUE, remove_geometry = FALSE)

## S3 method for class 'uscb_folder'
get_common_flat_table(uf, remove_zeros = TRUE, remove_geometry = TRUE)
```

Arguments

uf	A uscb_folder object.
remove_zeros	A boolean, remove data with zero value.
remove_geometry	A boolean, remove geometry column.

Details

Optionally you can delete the rows whose measurement value is zero and remove the geometry column.

Value

A tibble object.

See Also

Other result generation functions: [get_common_geomultistar\(\)](#), [get_flat_table\(\)](#), [get_geomultistar\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()
# layers[3]
# [1] "X02_RACE"
ul <- ul %>% get_layer(layers[3])
lg <- ul %>% get_layer_group_names()
# lg[2]
# [1] "003 - DETAILED RACE"
ul <- ul %>% get_layer_group(lg[2])
uf <- uscb_folder(ul)

layer_common <- uf %>% get_common_flat_table()
```

```
get_common_geomultistar
```

```
Get common geomultistar
```

Description

Get all the layer group data in the form of a geomultistar object for all geodatabases from the same folder selected: It contains fact and dimension tables, and a dimension with an associated geographic layer.

Usage

```
get_common_geomultistar(uf)

## S3 method for class 'uscb_folder'
get_common_geomultistar(uf)
```

Arguments

uf A uscb_folder object.

Details

The name of the facts is the layer group name.

Value

A geomultistar object.

See Also

Other result generation functions: [get_common_flat_table\(\)](#), [get_flat_table\(\)](#), [get_geomultistar\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()
# layers[3]
# [1] "X02_RACE"
ul <- ul %>% get_layer(layers[3])
lg <- ul %>% get_layer_group_names()
# lg[2]
# [1] "003 - DETAILED RACE"
ul <- ul %>% get_layer_group(lg[2])
uf <- uscb_folder(ul)

gms <- uf %>% get_common_geomultistar()
```

get_flat_table

Get flat table

Description

Get the layer group data in the form of a flat table that includes all the available data columns.

Usage

```
get_flat_table(ul, remove_zeros = FALSE, remove_geometry = TRUE)

## S3 method for class 'uscb_layer'
get_flat_table(ul, remove_zeros = FALSE, remove_geometry = TRUE)
```

Arguments

```
ul          A uscb_layer object.
remove_zeros A boolean, remove data with zero value.
remove_geometry A boolean, remove geometry column.
```

Details

Optionally you can delete the rows whose measurement value is zero and remove the geometry column.

Value

A tibble object.

See Also

Other result generation functions: [get_common_flat_table\(\)](#), [get_common_geomultistar\(\)](#), [get_geomultistar\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()
# layers[3]
# [1] "X02_RACE"
ul <- ul %>% get_layer(layers[3])
lg <- ul %>% get_layer_group_names()
# lg[2]
# [1] "003 - DETAILED RACE"
ul <- ul %>% get_layer_group(lg[2])

layer <- ul %>% get_flat_table()
```

get_geomultistar	<i>Get</i> geomultistar
------------------	-------------------------

Description

Get all the layer group data in the form of a `geomultistar` object: It contains fact and dimension tables, and a dimension with an associated geographic layer.

Usage

```
get_geomultistar(ul)

## S3 method for class 'uscb_layer'
get_geomultistar(ul)
```

Arguments

`ul` A `uscb_layer` object.

Details

The name of the facts is the layer group name.

Value

A `geomultistar` object.

See Also

Other result generation functions: [get_common_flat_table\(\)](#), [get_common_geomultistar\(\)](#), [get_flat_table\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()
# layers[3]
# [1] "X02_RACE"
ul <- ul %>% get_layer(layers[3])
lg <- ul %>% get_layer_group_names()
# lg[2]
```

```
# [1] "003 - DETAILED RACE"
ul <- ul %>% get_layer_group(lg[2])

gms <- ul %>% get_geomultistar()
```

get_layer

Get layer

Description

Get a layer to interpret its variables. Refines the content of the object.

Usage

```
get_layer(ul, layer_name)

## S3 method for class 'uscb_layer'
get_layer(ul, layer_name)
```

Arguments

```
ul          A uscb_layer object.
layer_name  A layer name.
```

Value

A uscb_layer object.

See Also

Other data selection functions: [get_layer_group_names\(\)](#), [get_layer_group\(\)](#), [get_layer_names\(\)](#), [uscb_folder\(\)](#), [uscb_layer\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()

# layers[3]
# [1] "X02_RACE"
```

```
ul <- ul %>% get_layer(layers[3])
```

get_layer_group	<i>Get layer group</i>
-----------------	------------------------

Description

Get a layer group to interpret its variables. Refines the content of the object.

Usage

```
get_layer_group(ul, layer_group_name)
```

```
## S3 method for class 'uscb_layer'  
get_layer_group(ul, layer_group_name)
```

Arguments

ul	A uscb_layer object.
layer_group_name	A layer name.

Value

A uscb_layer object.

See Also

Other data selection functions: [get_layer_group_names\(\)](#), [get_layer_names\(\)](#), [get_layer\(\)](#), [uscb_folder\(\)](#), [uscb_layer\(\)](#)

Examples

```
library(tidyr)  
  
folder <- system.file("extdata", package = "geogenr")  
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")  
ua <- uscb_acs_5ye(folder = folder)  
sa <- ua %>% get_statistical_areas()  
# sa[6]  
# [1] "New England City and Town Area Division"  
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)  
layers <- ul %>% get_layer_names()  
# layers[3]  
# [1] "X02_RACE"  
ul <- ul %>% get_layer(layers[3])  
lg <- ul %>% get_layer_group_names()
```

```
# lg[2]
# [1] "003 - DETAILED RACE"
ul <- ul %>% get_layer_group(lg[2])
```

get_layer_group_names *Get layer group names*

Description

A layer is broken down into groups. Get the name of the layer groups.

Usage

```
get_layer_group_names(ul)

## S3 method for class 'uscb_layer'
get_layer_group_names(ul)
```

Arguments

ul A uscb_layer object.

Value

A vector of names.

See Also

Other data selection functions: [get_layer_group\(\)](#), [get_layer_names\(\)](#), [get_layer\(\)](#), [uscb_folder\(\)](#), [uscb_layer\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()
# layers[3]
# [1] "X02_RACE"
ul <- ul %>% get_layer(layers[3])

layer_groups <- ul %>% get_layer_group_names()
```

get_layer_names	<i>Get layer names</i>
-----------------	------------------------

Description

Once a specific geodatabase has been selected from which the class object has been created, we can obtain the names of the layers it contains.

Usage

```
get_layer_names(ul)

## S3 method for class 'uscb_layer'
get_layer_names(ul)
```

Arguments

`ul` A `uscb_layer` object.

Value

A vector of names.

See Also

Other data selection functions: [get_layer_group_names\(\)](#), [get_layer_group\(\)](#), [get_layer\(\)](#), [uscb_folder\(\)](#), [uscb_layer\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)

layers <- ul %>% get_layer_names()
```

```
get_legal_and_administrative_areas
```

Get Legal and Administrative Area names

Description

Returns a list of area names for which geodatabases are available.

Usage

```
get_legal_and_administrative_areas(ua)
```

```
## S3 method for class 'uscb_acs_5ye'  
get_legal_and_administrative_areas(ua)
```

Arguments

ua A uscb_acs_5ye object.

Value

A vector of names.

See Also

Other data collection functions: [download_geodatabases\(\)](#), [get_available_years_downloaded\(\)](#), [get_available_years_in_the_web\(\)](#), [get_statistical_areas\(\)](#), [uscb_acs_5ye\(\)](#)

Examples

```
library(tidyr)  
  
folder <- "../geodimension/data/us/"  
ua <- uscb_acs_5ye(folder = folder)  
laa <- ua %>% get_legal_and_administrative_areas()
```

```
get_statistical_areas
```

Get Statistical Area names

Description

Returns a list of area names for which geodatabases are available.

Usage

```
get_statistical_areas(ua)

## S3 method for class 'uscb_acs_5ye'
get_statistical_areas(ua)
```

Arguments

ua A uscb_acs_5ye object.

Value

A vector of names.

See Also

Other data collection functions: [download_geodatabases\(\)](#), [get_available_years_downloaded\(\)](#), [get_available_years_in_the_web\(\)](#), [get_legal_and_administrative_areas\(\)](#), [uscb_acs_5ye\(\)](#)

Examples

```
library(tidyr)

folder <- "../geodimension/data/us/"
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
```

uscb_acs_5ye	uscb_acs_5ye S3 class
--------------	-----------------------

Description

A uscb_acs_5ye object is created from a given local folder.

Usage

```
uscb_acs_5ye(folder = "")
```

Arguments

folder A string.

Value

A uscb_acs_5ye object.

See Also

Other data collection functions: [download_geodatabases\(\)](#), [get_available_years_downloaded\(\)](#), [get_available_years_in_the_web\(\)](#), [get_legal_and_administrative_areas\(\)](#), [get_statistical_areas\(\)](#)

Examples

```
folder <- "../geodimension/data/us/"
ua <- uscb_acs_5ye(folder = folder)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
```

uscb_acs_metadata	uscb_acs_metadata
-------------------	-------------------

Description

Metadata according to subjects included in the American Community Survey (ACS) from the United States Census Bureau (USCB).

Usage

```
uscb_acs_metadata
```

Format

A uscb_metadata.

Details

They are obtained from the variables defined in the reports, classifying the concepts according to these subjects.

Source

<https://www.census.gov/programs-surveys/acs/guidance/subjects.html>

uscb_folder	uscb_folder <i>S3 class</i>
-------------	-----------------------------

Description

A `uscb_folder` object is created from a `uscb_layer` object and the geodatabases of the same layer group corresponding to other years located in the same folder

Usage

```
uscb_folder(ul, year = NULL)
```

Arguments

<code>ul</code>	A <code>uscb_folder</code> object.
<code>year</code>	A vector of years.

Details

If the vector of years is not indicated, the geodatabases of all the years located in the same folder are considered.

Value

A `uscb_folder` object.

See Also

Other data selection functions: [get_layer_group_names\(\)](#), [get_layer_group\(\)](#), [get_layer_names\(\)](#), [get_layer\(\)](#), [uscb_layer\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()
# sa[6]
# [1] "New England City and Town Area Division"
ul <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
layers <- ul %>% get_layer_names()
# layers[3]
# [1] "X02_RACE"
ul <- ul %>% get_layer(layers[3])
lg <- ul %>% get_layer_group_names()
# lg[2]
# [1] "003 - DETAILED RACE"
```

```
ul <- ul %>% get_layer_group(lg[2])
uf <- uscb_folder(ul)
```

uscb_layer	uscb_layer <i>S3 class</i>
------------	----------------------------

Description

A `uscb_layer` object is created from the available metadata, a `uscb_acs_5ye` object, a geodatabase name, and a year.

Usage

```
uscb_layer(metadata, ua, geodatabase, year, folder = NULL)
```

Arguments

<code>metadata</code>	A metadata object.
<code>ua</code>	A <code>uscb_acs_5ye</code> object.
<code>geodatabase</code>	A string.
<code>year</code>	A integer
<code>folder</code>	A string.

Details

If the folder is not indicated, it is considered that of the `uscb_acs_5ye` object class.

Value

A `uscb_layer` object.

See Also

Other data selection functions: [get_layer_group_names\(\)](#), [get_layer_group\(\)](#), [get_layer_names\(\)](#), [get_layer\(\)](#), [uscb_folder\(\)](#)

Examples

```
library(tidyr)

folder <- system.file("extdata", package = "geogenr")
folder <- stringr::str_replace_all(paste(folder, "/", ""), " ", "")
ua <- uscb_acs_5ye(folder = folder)
sa <- ua %>% get_statistical_areas()

# sa[6]
```

uscb_layer

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```
# [1] "New England City and Town Area Division"
```

```
u1 <- uscb_layer(uscb_acs_metadata, ua = ua, geodatabase = sa[6], year = 2015)
```

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