

Package ‘helsinki’

December 2, 2022

Type Package

Title R Tools for Helsinki Open Data

Version 1.0.6

Date 2022-11-30

Description Tools for accessing various open data APIs in the Helsinki region in Finland. Current data sources include the Service Map API, Linked Events API, and Helsinki Region Infoshare statistics API.

License BSD_2_clause + file LICENSE

Depends R (>= 3.1.0)

Imports jsonlite, httr, purrr, xml2, methods, dplyr, sf, curl,

Suggests knitr, rmarkdown, remotes, ggplot2, covr, testthat (>= 3.0.0),

URL <http://ropengov.github.io/helsinki/>,
<https://github.com/rOpenGov/helsinki>

BugReports <https://github.com/ropengov/helsinki/issues>

VignetteBuilder knitr

NeedsCompilation no

Repository CRAN

Encoding UTF-8

RoxygenNote 7.2.1

Config/testthat/edition 3

X-schema.org-isPartOf <http://ropengov.org/>

X-schema.org-keywords ropengov

Author Juuso Parkkinen [aut, cre],
Joona Lehtomaki [aut],
Pyry Kantanen [aut] (<<https://orcid.org/0000-0003-2853-2765>>),
Leo Lahti [aut] (<<https://orcid.org/0000-0001-5537-637X>>)

Maintainer Juuso Parkkinen <juuso.parkkinen@iki.fi>

Date/Publication 2022-12-02 09:30:05 UTC

R topics documented:

helsinki-package	2
get_city_map	3
get_feature	4
get_feature_list	4
get_hri_stats	5
get_linkedevents	6
get_rakennustietoruudukko	8
get_servicemap	9
get_vaestotietoruudukko	10
select_feature	11
to_sf	12
wfs_api	13

Index	15
--------------	-----------

helsinki-package	<i>Helsinki open data R tools</i>
------------------	-----------------------------------

Description

Brief summary of the helsinki package

Details

Package: helsinki
 Type: Package
 Version: See sessionInfo() or DESCRIPTION file
 Date: 2013-2022
 License: BSD-2-Clause

Tools for accessing various open data sources in the Helsinki region in Finland.

Author(s)

Juuso Parkkinen, Leo Lahti, Joonas Lehtomaki and Pyry Kantanen <louhos@googlegroups.com>

References

See citation("helsinki") <https://github.com/rOpenGov/helsinki>

Examples

```
# library(helsinki)
```

get_city_map	<i>Get city administrative regions</i>
--------------	--

Description

Sf object of city districts in the Helsinki Capital Region.

Usage

```
get_city_map(city = NULL, level = NULL, ...)
```

Arguments

city	The desired city. Valid options: <i>Helsinki, Espoo, Vantaa, Kauniainen</i>
level	The desired administrative level. Valid options: <i>suurpiiri, tilastoalue, pienalue</i> and <i>aanestysalue</i>
...	For passing parameters to embedded functions, for example <i>timeout.s</i> (timeout in seconds) in the case of gracefully_fail() internal function

Details

See [get_feature_list\(\)](#) for a list of all available features

Value

sf object

Author(s)

Pyry Kantanen pyry.kantanen@gmail.com

Source

Metropolitan area in districts: https://hri.fi/data/en_GB/dataset/seutukartta

Examples

```
## Not run:  
map <- get_city_map(city = "helsinki", level = "suuralue")  
  
## End(Not run)
```

get_feature *Produce an SF object*

Description

Produces an sf object for easy visualization

Usage

```
get_feature(  
  base.url = "https://kartta.hsy.fi/geoserver/wfs",  
  typename = "asuminen_ja_maankaytto:Vaestotietoruudukko_2015",  
  CRS = 3879  
)
```

Arguments

base.url	WFS url, for example "https://kartta.hsy.fi/geoserver/wfs"
typename	accepts feature names, e.g. "asuminen_ja_maankaytto:1000m_verkostobufferi" No short form titles here, e.g. "1000m_verkostobufferi"!
CRS	Default CRS is 3879 (or EPSG:3879), see ?sf::st_crs for other input options

Value

sf object

Author(s)

Pyry Kantanen pyry.kantanen@gmail.com

See Also

Use [get_feature_list](#) to list all available features for a given WFS, [select_feature](#) for listing and selecting a feature

get_feature_list *Print all available Features*

Description

Basically a neat wrapper for "request=GetCapabilities".

Usage

```
get_feature_list(base.url = NULL, queries = c(request = "GetCapabilities"))
```

Arguments

base.url WFS url, for example "https://kartta.hsy.fi/geoserver/wfs"
queries desired query for acquiring the list of features, default is "request=GetCapabilities"

Details

Lists all <FeatureType> nodes.

Value

data frame

Author(s)

Pyry Kantanen pyry.kantanen@gmail.com

See Also

Use [get_feature\(\)](#) to download feature, [select_feature\(\)](#) for menu-driven listing and downloading

Examples

```
## Not run:  
dat <- get_feature_list(base.url = "https://kartta.hsy.fi/geoserver/wfs")  
  
## End(Not run)
```

get_hri_stats

Helsinki Region Infoshare statistics API

Description

Retrieves data from the Helsinki Region Infoshare (HRI) statistics API: <http://dev.hel.fi/stats/>. Currently provides access to the *aluesarjat* data: <https://stat.hel.fi/pxweb/fi/Aluesarjat/>.

Usage

```
get_hri_stats(query = "", verbose = TRUE)
```

Arguments

query A string, specifying the dataset to query
verbose logical. Should R report extra information on progress? Default is TRUE

Details

Current implementation is very simple. You can either get the list of resources with `query=""`, or query for a specific resources and retrieve it in a three-dimensional array form.

Value

multi-dimensional array

Author(s)

Juuso Parkkinen <louhos@googlegroups.com>

References

See `citation("helsinki")`

See Also

See <https://dev.hel.fi/apis/statistics/dev.hel.fi> website and <http://dev.hel.fi/stats/API> documentation (in Finnish)

Examples

```
## Not run:
stats_array <- get_hri_stats("aluesarjat_a03s_hki_vakiluku_aidinkieli")

## End(Not run)
```

get_linkedevents

Access Helsinki Linked Events API

Description

Easy access to Helsinki Linked Events API

Usage

```
get_linkedevents(query, ...)
```

Arguments

query	The API query as a string, for example "event", "category", "language", "place" or "keyword".
...	Additional parameters that narrow down the output (optional).

Details

Complete list of possible query input: "keyword", "keyword_set", "place", "language", "organization", "image", "event", "search", "user".

With "..." the user can pass on additional parameters that depend on the chosen query input. For example, when performing a search (query = "search"), the search can be narrowed down with parameters such as:

- q="konsertti" complete search, returns events that have the word "konsertti"
- input="konse" partial search, returns events with words that contain "konse"
- type="event" returns only "events"
- start="2017-01-01" events starting on 2017-01-01 or after
- end="2017-01-10" events ending on 2017-01-10 or before

For more detailed explanation, see <http://api.hel.fi/linkedevents/v1/>.

Value

Data frame or a list

Author(s)

Juuso Parkkinen <louhos@googlegroups.com>, Pyry Kantanen

Source

Helsinki Linked Events API v1. Developed by the City of Helsinki Open Software Development team. Event data from Helsinki Marketing, Helsinki Cultural Centres, Helmet metropolitan area public libraries and City of Helsinki registry of service unit. CC BY 4.0. <https://creativecommons.org/licenses/by/4.0/>

For more API documentation and license information see the API link: <http://api.hel.fi/linkedevents/v1/>

Examples

```
## Not run:  
events <- get_linkedevents(query="search", q="teatteri", start="2020-01-01")  
  
## End(Not run)
```

`get_rakennustietoruudukko`*Produce an SF object: Rakennustietoruudukko*

Description

Produces an sf object for Rakennustietoruudukko (building information grid).

Usage

```
get_rakennustietoruudukko(year = NULL)
```

Arguments

`year` year as numeric between 1997-1998 and 2009-2021. If NULL (default), the function will return the latest available dataset.

Details

Additional data not available here can be manually downloaded from HRI website: <https://hri.fi/data/fi/dataset/rakennustietoruudukko>

Years 2015-2021 are tested to work at the time of development. Additional years may be added in the future and older datasets may be removed from the API. Datasets from years 2015-2021 are downloaded from HSY WFS API and datasets for other years are downloaded as zip files from HRI website. The format of the output might be a bit different between datasets downloaded from the WFS API and datasets downloaded from HRI website.

Additional years may be added in the future and older datasets may be removed from the API. See package NEWS for more information.

The current datasets can be listed with [get_feature_list\(\)](#) or [select_feature\(\)](#).

Value

sf object

Author(s)

Pyry Kantanen pyry.kantanen@gmail.com

Examples

```
## Not run:  
building_grid <- get_rakennustietoruudukko(year = 2021)  
  
## End(Not run)
```

get_servicemap	<i>Access Helsinki region Service Map API</i>
----------------	---

Description

Access the new Helsinki region Service Map (Paakaupunkiseudun Palvelukartta, <https://palvelukartta.hel.fi/fi/>) data through the API: <http://api.hel.fi/servicemap/v2/>. For more API documentation and license information see the API link.

Usage

```
get_servicemap(query, ...)
```

Arguments

query	The API query as a string, for example <i>search</i> , <i>service</i> , or <i>unit</i> . For full list of available options and details, see https://dev.hel.fi/apis/service-map-backend-api/ .
...	Additional parameters to the API (optional). For additional details, see https://dev.hel.fi/apis/service-map-backend-api/ .

Details

Complete list of possible query input:

- "unit" unit, or service point
- "service" category of service provided by a unit
- "organization" organization providing services
- "search" full text search for units, services and street addresses
- "accessibility" rule database for calculating accessibility scores
- "geography" spatial information, where services are located

With "..." the user can pass on additional parameters that depend on the chosen query input. For example, when performing a search (query = "search"), the search can be narrowed down with parameters such as:

- "q" complete search
- "input" partial search
- "type" valid types: service_node, service, unit, address
- "language" as two-character ISO-639-1 code: fi, sv, en
- "municipality" comma-separated list of municipalities, lower-case, in Finnish
- "service" comma-separated list of service IDs
- "include" include the complete content from certain fields with a comma-separated list of field names with a valid type prefix
- "only" restricts the results with a comma-separated list of field names with a valid type prefix

- "page" request a certain page number
- "page_size" determine number of entries in one page

For more detailed explanation, see <https://dev.hel.fi/apis/service-map-backend-api/>.

Value

Data frame or a list

Author(s)

Juuso Parkkinen <louhos@googlegroups.com>, Pyry Kantanen

Source

API contents: All content is available under CC BY 4.0, except where otherwise stated. The City of Helsinki logo is a registered trademark. The Helsinki Grotesk Typeface is a proprietary typeface licensed by Camelot Typefaces. <https://creativecommons.org/licenses/by/4.0/>

API Location: <https://api.hel.fi/servicemap/v2/>

API documentation: <https://dev.hel.fi/apis/service-map-backend-api/>

Examples

```
## Not run:  
# A data.frame with 47 variables  
search_puisto <- get_servicemap(query="search", q="puisto")  
# A data.frame with 7 variables  
search_padel <- get_servicemap(query="search", input="padel",  
  only="unit.name, unit.location.coordinates, unit.street_address",  
  municipality="helsinki")  
  
## End(Not run)
```

get_vaestotietoruudukko

Produce an SF object: Vaestotietoruudukko

Description

Produces an sf object for Väestötietoruudukko (population grid).

Usage

```
get_vaestotietoruudukko(year = NULL)
```

Arguments

year a single year as numeric between 1997-2003 and 2008:2021. If NULL (default), the function will return the latest available dataset.

Details

Additional data not available here can be manually downloaded from HRI website: <https://hri.fi/data/fi/dataset/vaestotietoruudukko>

Years 1997-2003 and 2008-2021 are tested to work at the time of development. Datasets from years 2015-2021 are downloaded from HSY WFS API and datasets for other years are downloaded as zip files from HRI website. The format of the output might be a bit different between datasets downloaded from the WFS API and datasets downloaded from HRI website.

Additional years may be added in the future and older datasets may be removed from the API. See package NEWS for more information.

The current datasets can be listed with [get_feature_list\(\)](#) or [select_feature\(\)](#).

Value

sf object

Author(s)

Pyry Kantanen pyry.kantanen@gmail.com

Examples

```
## Not run:
pop_grid <- get_vaestotietoruudukko(year = 2021)

## End(Not run)
```

select_feature	<i>Interactively browse and select features</i>
----------------	---

Description

Use an interactive menu to select and download a feature for use in other functions

Usage

```
select_feature(base.url = NULL, get = FALSE)
```

Arguments

base.url WFS url, for example "https://kartta.hsy.fi/geoserver/wfs"
get Should the selected feature be downloaded? Default is FALSE

Value

feature Title (character) or feature object (sf), if get parameter is TRUE

Author(s)

Pyry Kantanen pyry.kantanen@gmail.com

See Also

[get_feature](#), [get_feature_list](#)

Examples

```
## Not run:
selection <- select_feature(base.url = "https://kartta.hsy.fi/geoserver/wfs")
feature <- get_feature(base.url = "https://kartta.hsy.fi/geoserver/wfs", type_name = selected)
ggplot(feature) +
  geom_sf()

## End(Not run)
```

to_sf

Transform to sf-object

Description

Transform a wfs_api object into a sf object.

Usage

```
to_sf(api_obj)
```

Arguments

api_obj wfs api object

Details

FMI API response object's XML (GML) content is temporarily wrtitten on disk and then immediately read back in into a sf object.

Value

sf object

Note

For internal use, not exported.

Author(s)

Joona Lehtomäki joona.lehtomaki@iki.fi

wfs_api

WFS API

Description

Requests to various WFS API.

Usage

```
wfs_api(base.url = NULL, queries, ...)
```

Arguments

<code>base.url</code>	WFS url, for example "https://kartta.hsy.fi/geoserver/wfs"
<code>queries</code>	List of query parameters
<code>...</code>	For passing parameters to embedded functions, for example <i>timeout.s</i> (timeout in seconds) in the case of gracefully_fail() internal function

Details

Make a request to the specific WFS API. The base url is <https://kartta.hsy.fi/geoserver/wfs> to which other components defined by the arguments are appended.

This is a low-level function intended to be used by other higher level functions in the package.

Value

wfs_api (S3) object with the following attributes:

content XML payload.

path path provided to get the response.

response the original response object.

Author(s)

Joona Lehtomäki joona.lehtomaki@iki.fi, Kostas Vasilopoulos, Pyry Kantanen

Source

Gracefully failing HTTP request code (slightly adapted by Pyry Kantanen) from RStudio community member kvasilopoulos. Many thanks!

Source of the original RStudio community discussion: <https://community.rstudio.com/t/internet-resources-should-fail-gracefully/49199>

Examples

```
## Not run:
wfs_api(base.url = "https://kartta.hsy.fi/geoserver/wfs",
        queries = c("service" = "WFS",
                    "version" = "1.0.0",
                    "request" = "getFeature",
                    "typeName" = "ilmanlaatu:Ilmanlaatu_nyt")
        )

## End(Not run)
```

Index

* **package**

helsinki-package, [2](#)

* **utilities**

to_sf, [12](#)

get_city_map, [3](#)

get_feature, [4](#), [12](#)

get_feature(), [5](#)

get_feature_list, [4](#), [4](#), [12](#)

get_feature_list(), [3](#), [8](#), [11](#)

get_hri_stats, [5](#)

get_linkedevents, [6](#)

get_rakennustietoruudukko, [8](#)

get_servicemap, [9](#)

get_vaestotietoruudukko, [10](#)

helsinki (helsinki-package), [2](#)

helsinki-package, [2](#)

select_feature, [4](#), [11](#)

select_feature(), [5](#), [8](#), [11](#)

to_sf, [12](#)

wfs_api, [13](#)