

Package ‘odataR’

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Type Package

Title Read access to OData information

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Author Han Oostdijk

Maintainer Han Oostdijk <han.oostdijk@xs4all.nl>

Description (Read) access to OData information
Reading table and catalog information.

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LazyData true

Imports httr,
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dplyr,
rlang

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Suggests knitr,
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VignetteBuilder knitr

R topics documented:

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odataR

odataR: A package for reading OData information.

Description

The odataR package contains some functions to obtain information from databases with the OData interface.

Details

Located under the root of an OData database are some tables. To obtain the information one should specify the correct root and the name of the table. Because this package was created to access the information of the CBS (Statistics Netherlands) the default root is appropriate for this information. The name of a table (here called `table_id`) can be found in the documentation of the database. For the CBS you can use the catalog <https://opendata.cbs.nl/dataportaal/portal.html> to see the available tables and their metadata. It is also possible to get the catalog information in a data.frame by using the function `odataR_get_cat`.

Setting a different root can be done by using the function `odataR_set_root` and querying the root by executing `odataR_get_root`.

The other functions in the package are related to actually obtain information from the database. In the CBS database a table name (`table_id`) points to a set of sub tables that together provide the information. One 'main' sub table contains the topic data and dimensions in coded form indicating where the topic data relates to. The other sub tables convey the meaning of the coded dimensions. E.g. a topic field could be the number of unemployed workers and the dimensions could be gender, age-class, province and year.

The main function is `odataR_get_table` that extracts the information from the database and decodes the dimensions. This function can also be used to get metadata about the table. It is possible to use the OData query language.

Currently version 3 is used for the CBS data but a conversion to version 4 is taking place at the moment (January 2018)

v3: <http://www.odata.org/documentation/odata-version-3-0/odata-version-3-0-core-protocol/>

v4: <http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part1-protocol.html>

For examples of the query language see `odataR_get_table`

The description of the function `odataR_get_cat` contains examples to retrieve catalog information. The same query language can be used when that is useful.

odataR_get_cat

Get catalog information

Description

This function can be used to get information from an OData catalog.

Usage

```
odataR_get_cat(type = "Tables", query = NULL, debug = F)
```

Arguments

type	Type of catalog information. This type can be one of: <ul style="list-style-type: none"> • NULL : a tibble with the various types in this catalog • 'Tables' or empty : a tibble with the Tables in this catalog • 'Featured' : a tibble with the Features in this catalog • 'Table_Featured' : a tibble with the Table_Featured in this catalog • 'Themes' : a tibble with the Themes in this catalog • 'Tables_Themes' : a tibble with the Tables_Themes in this catalog
query	OData query to restrict data returned from the catalog
debug	Boolean indicating if (for debugging) the generated OData queries are to be printed (default FALSE)

Value

A tibble (data_frame) when successful otherwise an empty tibble or a message

Remarks

See <http://www.odata.org/documentation/odata-version-3-0/odata-version-3-0-core-protocol/> or <http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part1-protocol.html> (depending on the version of the OData protocol that is used) for details about the query possibilities.

\$format=json is forced by the code so do not specify \$format=atom because this will not work

Examples

```
## Not run:
# all types in catalog:
df = odataR_get_cat(type=NULL)
# all Tables in catalog:
df = odataR_get_cat()
# all tables that have a Title starting with 'Vacature':
df = odataR_get_cat(query="?$filter=startswith(Title,'Vacature')")
# all tables that have a Title containing 'vacature' regardless of case:
df = odataR_get_cat(query="?$filter=substringof('vacature',tolower(Title))")
# all active tables that have a Title containing 'vacature' regardless of case:
df = odataR_get_cat(query="?$filter=substringof('vacature',tolower(Title)) and Frequency ne 'Stopgezet' ")
# all Featured entries in catalog:
df = odataR_get_cat(type='Featured')
# all Featured tables (?) in catalog:
df = odataR_get_cat(type='Table_Featured')
# all Themes in catalog:
df = odataR_get_cat(type='Themes')
# all Tables_Themes (?) in catalog:
df = odataR_get_cat(type='Tables_Themes')
```

```
## End(Not run)
```

odataR_get_meta	<i>Get meta data about table</i>
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Description

This function can be used to get information about an OData table.

Usage

```
odataR_get_meta(root = odataR_get_root_data(), table_id = NULL,
  metatype = NULL, query = NULL, debug = FALSE)
```

Arguments

root	Root of data structure
table_id	Identification of table
metatype	indicates the type of metadata that will be retrieved. Possible values are: <ul style="list-style-type: none"> • NULL or empty : a tibble with the urls of the subtables will be retrieved • 'TableInfos' : a tibble with one row is retrieved with (background) information about the table • 'CategoryGroups' : a tibble with one row is retrieved with information about the category tables for this table • 'DataProperties' : a tibble is retrieved with information about the columns of the table • a dimension name : a tibble is retrieved with the code information of the dimension (e.g. Gemeenten in the examples below).
query	OData query to restrict data returned from the meta table (do not use in combination with metatype=NULL)
debug	Boolean indicating if (for debugging) the generated OData queries are to be printed (default FALSE)

Value

A **tibble** (**data_frame**) when successful otherwise an empty **tibble** or a message

Remarks

See <http://www.odata.org/documentation/odata-version-3-0/odata-version-3-0-core-protocol/> or <http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part1-protocol.html> (depending on the version of the OData protocol that is used) for details about the query possibilities.

\$format=json is forced by the code so do not specify **\$format=atom** because this will not work

Examples

```
## Not run:
odataR_set_root('http://dataderden.cbs.nl')
# NB statement in previous line is necessary
# otherwise the examples below will not work!
df = odataR_get_meta(table_id='45042NED')
df = odataR_get_meta(table_id='45042NED',metatype='TableInfos')
df = odataR_get_meta(table_id='45042NED',metatype='CategoryGroups')
df = odataR_get_meta(table_id='45042NED',metatype='DataProperties')
df = odataR_get_meta(table_id='45042NED',metatype='Gemeenten')
df = odataR_get_meta(table_id='45042NED',metatype='Verslagsoort')
df = odataR_get_meta(table_id='45042NED',metatype='Gemeenten',
  query="?$filter=substringof('amstelveen',tolower(Title))",
  debug=T)

## End(Not run)
```

odataR_get_root	<i>Gets the root for OData data and catalog structure</i>
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Description

Determines from which structure data and catalog information will be extracted. If the function `odataR_set_root` is not called yet this will be done first with the default `https://opendata.cbs.nl` (the root for the CBS Statistics Netherlands structures).

Usage

```
odataR_get_root()
```

See Also

[odataR_set_root](#)

Examples

```
odataR_get_root()
```

odataR_get_root_catalog	<i>Gets the root for OData catalog structure</i>
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Description

Determines from which structure the catalog information will be extracted. Derived from the common OData data and catalog root: `paste0(odataR_get_root(), '/ODataCatalog/Tables')`.

Usage

```
odataR_get_root_catalog(type = "Tables")
```

Details

Types of catalog entries available are Featured, Table_Featured, Tables, Themes, Tables_Themes

See Also

[odataR_get_root](#) and [odataR_get_root_data](#)

odataR_get_root_data	<i>Gets the root for OData data structure</i>
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Description

Determines from which structure the data will be extracted. Derived from the common OData data and catalog root: `paste0(odataR_get_root(), '/ODataFeed/OData')`

Usage

```
odataR_get_root_data()
```

See Also

[odataR_get_root](#) and [odataR_get_root_catalog](#)

odataR_get_table	<i>Get table data</i>
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Description

This is the main function of this package. It retrieves a data table from the data base and all dimensions are decoded (if requested). An (optional) query is executed in the database

Usage

```
odataR_get_table(root = odataR_get_root_data(), table_id = NULL,
  query = NULL, typed = T, decode = T, keepcode = c(), debug = F)
```

Arguments

<code>root</code>	Root of data structure
<code>table_id</code>	Identification of table
<code>query</code>	OData query to restrict data returned from structure
<code>typed</code>	Boolean indicating 'TypedDataSet' when T or 'UntypedDataSet' when F
<code>decode</code>	Boolean indicating if fields are to be decoded (default T)
<code>keepcode</code>	Character string with dimension(s) for which the coded values are kept
<code>debug</code>	Boolean indicating if (for debugging) the generated OData queries are to be printed (default FALSE)

Value

A tibble (data_frame) when successful otherwise an empty tibble or a message

Remarks

See <http://www.odata.org/documentation/odata-version-3-0/odata-version-3-0-core-protocol/> or <http://docs.oasis-open.org/odata/odata/v4.0/odata-v4.0-part1-protocol.html> (depending on the version of the OData protocol that is used) for details about the query possibilities.

\$format=json is forced by the code so do not specify \$format=atom because this will not work

Examples

```
## Not run:
df      = odataR_get_table(table_id="82935NED")
df      = odataR_get_table(table_id="82935NED",keepcode = "RegioS")
df      = odataR_get_table(table_id="82935NED",keepcode = c("RegioS","Perioden"))
df      = odataR_get_table(table_id="82935NED",
  query  = paste0("?$filter=startswith(RegioS,'NL01')",
    "&$select=RegioS,Perioden,TotaleInvesteringen_1",
    "&$skip=2&$top=3"),
  debug=T)

## End(Not run)
```

odataR_query

Retrieve OData (sub) table

Description

This is a low level function used to retrieve OData data. The high level functions (as e.g. [odataR_get_table](#)) convert the user specification to one or more calls to [odataR_query](#) with the appropriate url and query. Normally not used by the occasional user.

Usage

```
odataR_query(odata_url, odata_query = NULL, debug = F)
```

Arguments

odata_url	Character string with the requested url
odata_query	Character string with the query to attach to the url
debug	Boolean indicating if the odata_url and odata_query argument will be printed (default FALSE)

odataR_set_root	<i>Sets the root for OData data and catalog structure</i>
-----------------	---

Description

Determines from which structure data and catalog information will be extracted. If this function is not called the default `https://opendata.cbs.nl` (the root for the CBS Statistics Netherlands structures) will be used

Usage

```
odataR_set_root(root = NULL)
```

Arguments

root	NULL for the default or the url of the root structure otherwise
------	---

See Also

[odataR_get_root](#)

Examples

```
odataR_set_root()  
odataR_set_root('https://opendata.cbs.nl')
```


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