

# Package ‘sgapi’

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**Title** Aid Querying 'nomis' and 'Office for National Statistics Open Geography' APIs

**Version** 1.0.3

**Description** Facilitates extraction of geospatial data from the 'Office for National Statistics Open Geography' and 'nomis' Application Programming Interfaces (APIs). Simplifies process of querying 'nomis' datasets <<https://www.nomisweb.co.uk/>> and extracting desired datasets in dataframe format. Extracts area shapefiles at chosen resolution from 'Office for National Statistics Open Geography' <<https://geoportal.statistics.gov.uk/>>.

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**URL** <https://defra-data-science-centre-of-excellence.github.io/sgapi/>,  
<https://github.com/Defra-Data-Science-Centre-of-Excellence/sgapi>

**BugReports**

<https://github.com/Defra-Data-Science-Centre-of-Excellence/sgApi/issues>

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**Config/testthat/edition** 3

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assert_function	<i>Escape Function in Case of Errors</i>
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### Description

Evaluate condition and return error message if condition not satisfied.

### Usage

```
assert_function(condition, msg)
```

### Arguments

condition	a logical expresssion (e.g. is.null(test_variable))
msg	the error message returned if the condition is not met.

### Value

No return value, called for side effects.

### Examples

```
assert_function(1==2, "Incorrect inequality")
```

---

`availableBoundaries.rda`*List of available ONS boundaries*

---

**Description**

A list of the available boundary layers that the Office for National Statistics (ONS) has for ArcGIS queries

**Usage**`availableBoundaries`**Format**

A list of with 3348 rows and 1 variable:

**boundary** name of boundary table within 'ONS Open geography'

**Source**`availableBoundaries.rda`

---

`get_available_scales` *Available Boundary Scales for 'nomis' Table*

---

**Description**

Retrieve available spatial scales for a given 'nomis' table id. This is useful as each table only has data at a specific set of scales, e.g. many census tables are available at MSOA and LSOA resolutions but not at Regional level.

**Usage**`get_available_scales(id)`**Arguments**

`id` A valid 'nomis' table id given as a string.

**Value**

A tidy dataframe listing the geographical scales available for the 'nomis' table selected.

**Examples**`get_available_scales(id="NM_1003_1")`

---

 get\_boundaries

*Get Boundaries Using Geospatial Filter*


---

### Description

Retrieve boundaries from the Office for National Statistics (ONS) 'ONS Geography Portal' given a valid boundary name and layer name. If the submitted geometry is outwith the ONS Boundary, e.g. the geometry is in France, the function will return an empty shape file.

### Usage

```
get_boundaries(boundary, geometry_filter = NULL)
```

### Arguments

**boundary**            A valid ONS boundary name given as a string.

**geometry\_filter**        geospatial shape or point (using latitude and longitude). Currently limited to a rectangular box or dropped pin.

### Value

An sf object for all constituencies in the geospatial area submitted through the `geometry_filter`, at the chosen ONS Boundary.

### Examples

```
## Not run:
get_boundaries(boundary="MSOA_Dec_2011_Boundaries_Generalised_Clippped_BGC_EW_V3_2022",
geometry_filter="-1.282825,52.354169,0.206626,52.7106")

## End(Not run)
```

---

 get\_boundaries\_areaname

*Get Boundaries Using Area Names*


---

### Description

Extract a geojson shapefile of the chosen areas at the user-selected resolution.

### Usage

```
get_boundaries_areaname(boundary,col_name_var,chosen_constituency_list)
```

**Arguments**

boundary	The resolution of constituencies, e.g. Census Output Areas or Westminster Constituencies. Available boundaries can be found here: <a href="https://geoportal.statistics.gov.uk/">https://geoportal.statistics.gov.uk/</a>
col_name_var	The name of the datafield where the constituency name is held, e.g. PCON22NM for 2022 Parliamentary Constituencies.
chosen_constituency_list	List of chosen constituencies.

**Value**

An sf object of the constituencies submitted to the function. If there are no constituencies, return is NULL.

**Examples**

```
get_boundaries_areaname(boundary="Local_Authority_Districts_December_2022_UK_BGC_V2",  
col_name_var="LAD22NM",chosen_constituency_list=c("Westminster", "Tower Hamlets", "County Durham"))
```

---

get\_keyword\_table\_id *Keyword Search of 'nomis'*

---

**Description**

Function to return dataframe of all 'nomis' tables, and their corresponding codes and descriptions, which have the chosen keyword.

**Usage**

```
get_keyword_table_id(usr_keyword)
```

**Arguments**

usr_keyword	Keyword to search 'nomis' tables for, e.g. "religion", "employment", "housing"
-------------	--

**Value**

A tidy dataframe of all nomis tables and their ids, which contain the chosen keyword.

**Examples**

```
get_keyword_table_id(usr_keyword="passports")
```

---

get_overview	<i>Table Overview</i>
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---

**Description**

Retrieve dataset overview for a valid 'nomis' table id. Returned object includes description of the dataset, last update date, contact for the data. It also extracts all of the available instances of the available table dimensions, which can then be used to filter the dataset 'nomis' table.

**Usage**

```
get_overview(id)
```

**Arguments**

id	A valid 'nomis' id.
----	---------------------

**Value**

An object with overview information of chosen data set. Object has the structure of the extracted JSON object.

**Examples**

```
get_overview(id="NM_1_1")
```

---

get_structure	<i>Extract 'nomis' Table Data for Chosen Dimension</i>
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---

**Description**

Retrieve dataset for a valid 'nomis' table id and dimension. This extracts all of the available instances of the chosen dimension, which can then be used to filter the 'nomis' table.

**Usage**

```
get_structure(id, dim)
```

**Arguments**

id	A valid 'nomis' id.
dim	The name of the g which dimension is queried.

**Value**

An object with JSON structure for the chosen dimension of the selected 'nomis' table.

**Examples**

```
get_structure(id="NM_187_1",dim="industry")
```

---

get\_table

*Get 'nomis' Table*


---

**Description**

Retrieve a 'nomis' table, containing the columns of interest, using a given table ID. Option to apply filters to the query, and to circumnavigate the limit on number of rows returned using your 'nomis' uid.

**Usage**

```
get_table(id, options, selection = NULL, uid = NULL)
```

**Arguments**

id	a table ID recognised by 'nomis' (e.g. "NM_1_1")
options	a list of paramaters to pass to the API query.
selection	a vector of column names to return. NULL returns all. Defaults to NULL.
uid	Unique 'nomis' identifier to enable larger 'nomis' queries - <a href="https://www.nomisweb.co.uk/">https://www.nomisweb.co.uk/</a> . Defaults to NULL.

**Value**

A tidy dataframe of selected 'nomis' table with the selected parameters and user filters applied.

**Examples**

```
get_table(id="NM_1_1", options = list("geography" = "TYPE480", "time" = "latest"))
get_table(id="NM_1002_1", options = list("geography" = "TYPE265", "time" = "latest"),
selection = "GEOGRAPHY_NAME,C_AGE_NAME,OBS_VALUE",uid=NULL)
```

---

get\_table\_dimensions    *Table Dimensions*

---

### Description

Extract dimensions available for a given 'nomis' table ID. e.g. the dimensions of the table 'RM011 - Country of birth by age' are age, country and geography; this function will return all of the available age, country and geography filters available on the table.

### Usage

```
get_table_dimensions(id)
```

### Arguments

id                    A table ID recognised by 'nomis' (e.g "NM\_1\_1").

### Value

A tidy dataframe of the dimensions, and available filtering values, of your chosen 'nomis' table.

### Examples

```
get_table_dimensions(id="NM_1240_1")
```

---

get\_table\_id            *Get 'nomis' Table IDs*

---

### Description

Extract unique table ids for 'nomis' tables containing given name in their title, these unique table ids can be used to rapidly query census data in other functions e.g. 'get\_overview("NM\_102\_1")'

### Usage

```
get_table_id(name)
```

### Arguments

name                    A string to search for within 'nomis' table titles.

### Value

A dataframe of 'nomis' table codes and names, as strings, for all 'nomis' tables containing the selected 'name' in their title.

### Examples

```
get_table_id(name="employment")
```

---

*get\_table\_info\_brief*    *Key 'nomis' Table Information*

---

### Description

Retrieve summary information about a given 'nomis' dataset. This is useful as it provides the description of the dataset and any caveats. It also returns information about the current status of the data, and when it was last updated.

### Usage

```
get_table_info_brief(id)
```

### Arguments

`id`                    A valid 'nomis' table id given as a string, e.g. NM\_46\_1.

### Value

A json file containing the DatasetInfo, DatasetMetadata, Dimensions (variables), Dataset Contact, Units from the target 'nomis' table.

### Examples

```
get_table_info_brief(id="NM_1_1")
```

---

*get\_table\_link\_lookup*    *Lookup Between Boundary Scales*

---

### Description

Extract a lookup table between two boundary scales from 'ONS Open Geography' portal, e.g. get a lookup between Regions and Parliamentary constituencies.

### Usage

```
get_table_link_lookup(  
  lookup_table,  
  col_name_1,  
  col_name_2,  
  col_name_3,  
  col_name_4  
)
```

**Arguments**

lookup_table	A valid ONS lookup table
col_name_1	Field in ONS table containing the constituency code of the smaller scale resolution.
col_name_2	Field in ONS table containing the constituency code of the larger scale resolution.
col_name_3	Field in ONS table containing the constituency name of the smaller scale resolution.
col_name_4	Field in ONS table containing the constituency name of the larger scale resolution.

**Value**

A tidy dataframe, providing a lookup between two chosen boundary resolutions.

**Examples**

```
## Not run:  
get_table_link_lookup(lookup_table="LAD22_CTY22_EN_LU", col_name_1="LAD22CD",  
col_name_2="CTY22CD", col_name_3="LAD22NM", col_name_4="CTY22NM")  
  
## End(Not run)
```

---

list_boundaries	<i>List Available Boundaries</i>
-----------------	----------------------------------

---

**Description**

Retrieve all available ArcGIS boundary layers from the 'ONS Open Geography Portal'.

**Usage**

```
list_boundaries()
```

**Value**

A vector of available boundary layers on 'ONS Open Geography'.

---

list_data_sources	<i>List 'nomis' Data Sources</i>
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---

**Description**

Return a list of the data sources available on 'nomis'.

Returns a list including the name, id and description of each data source available on 'nomis'. More information can be found here: <https://www.nomisweb.co.uk/api/v01/help>

**Usage**

```
list_data_sources()
```

**Value**

A tidy dataframe of all available data sources accessible through the 'nomis' API system.

**Examples**

```
list_data_sources()
```

---

list_tables	<i>Available 'nomis' Tables</i>
-------------	---------------------------------

---

**Description**

List all available datasets on 'nomis'. User can then use the items on this list to query 'nomis' data.

**Usage**

```
list_tables(base_url = "https://www.nomisweb.co.uk/api/v01/")
```

**Arguments**

base\_url            Url of the API from which the available tables are listed.

**Value**

A tidy dataframe containing the name and ID of each table available on 'nomis'.

---

lookup.rda	<i>Lookup to match Office for National Statistics (ONS) and 'nomis' boundary names</i>
------------	--

---

### Description

Lookup table providing ONS and 'nomis' references for a given ONS boundary layer. The variables are as follows:

### Usage

lookup

### Format

A data frame with 30 rows and 4 variables:

**resolution** boundary layer, written in interpretable manner

**ons** corresponding boundary layer in the format that the 'ONS Open Geography' API will interpret

**nomis** corresponding boundary layer in the format that the 'nomis' API will interpret

**Names\_and\_Codes** lookup file containing the constituency names and codes of the boundary layer

### Source

lookup.rda

---

nomisTables.rda	<i>#' List of tables on 'nomis'</i>
-----------------	-------------------------------------

---

### Description

A dataset containing the available tables, codes and sources of data available on 'nomis'. The variables are as follows:

### Usage

nomisTables

### Format

A data frame with 1605 rows and 3 variables:

**name** name of dataset

**id** code corresponding to dataset

**sourceName** source of dataset

**Source**

nomisTables.rda

---

scalesForEachDataset.rda

*#' List of tables available at each ONS resolution*

---

**Description**

A dataset containing the available tables on 'nomis', and the boundary layers at which this data is held, e.g. demographic information may only be held in the Census output areas and not NHS regions. The variables are as follows:

**Usage**

scalesForEachDataset

**Format**

A data frame with 22564 rows and 3 variables:

**name** name of boundary layer

**value** type of data

**table** nomis code for the table

**Source**

scalesForEachDataset.rda

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