Package 'istatR'

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Title Interface to the Italian National Institute of Statistics ('ISTAT') API

Version 0.1.0

Description Provides an interface to the 'ISTAT' 'SDMX' RESTful API <https://esploradati.istat.it/SDMXWS>. Allows users to discover available datasets, explore their structure and dimensions, and retrieve statistical data from the Italian National Institute of Statistics. Based on the Python 'istatapi' package by Jacopo Attolini.

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BugReports https://github.com/jfulponi/istatR/issues

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Contents

`all_available` *List all available ISTAT datasets*

Description

Retrieves a list of all available datasets (dataflows) from the ISTAT API.

Usage

```
all_available()
```

Value

A tibble with the following columns:

df_id Dataflow ID

version Dataset version

df_description English description of the dataset

df_structure_id Data structure definition ID

Examples

```
## Not run:
# Get all available datasets
datasets <- all_available()
head(datasets)

## End(Not run)
```

base *ISTAT API Base Functions*

Description

Core functions for communicating with the ISTAT SDMX REST API

dimensions_info *Get information about dataset dimensions*

Description

Returns information about the dimensions of a dataset, including their positions and associated codelists.

Usage

```
dimensions_info(dataset, include_descriptions = TRUE)
```

Arguments

dataset	An istat_dataset object
include_descriptions	Logical; whether to include dimension descriptions (default: TRUE)

Value

A tibble with dimension information

Examples

```
## Not run:
ds <- istat_dataset("139_176")
dimensions_info(ds)

## End(Not run)
```

discovery *ISTAT Dataset Discovery Functions*

Description

Functions for discovering and exploring ISTAT datasets

get_available_values *Get all available values for all dimensions*

Description

Uses the availableconstraint endpoint to get all valid values for each dimension. This is more accurate than getting values from codelists as it reflects actual data availability.

Usage

```
get_available_values(dataset)
```

Arguments

dataset	An istat_dataset object

Value

A named list where each element contains a tibble of available values for that dimension

Examples

```
## Not run:
ds <- istat_dataset("139_176")
available <- get_available_values(ds)
available$FREQ  # Available frequency values

## End(Not run)
```

get_data *Retrieve data from an ISTAT dataset*

Description

Fetches data from an ISTAT dataset using the currently set filters. The data is returned as a tibble with the TIME_PERIOD column converted to Date format and sorted in ascending order.

Usage

```
get_data(
  dataset,
  start_period = NULL,
  end_period = NULL,
  last_n_observations = NULL
)
```

Arguments

dataset	An istat_dataset object with filters set
start_period	Optional start date for filtering (format: YYYY-MM-DD or YYYY)
end_period	Optional end date for filtering (format: YYYY-MM-DD or YYYY)
last_n_observations	Optional integer to get only the last N observations

Value

A tibble containing the requested data with columns including:

DATAFLOW Dataset identifier

FREQ Frequency

TIME_PERIOD Time period (as Date)

OBS_VALUE Observation value

... Additional dimension and metadata columns

Examples

```
## Not run:
# Create and configure dataset
ds <- istat_dataset("139_176")
ds <- set_filters(ds,
  FREQ = "M",
  TIPO_DATO = c("ISAV", "ESAV"),
  PAESE_PARTNER = "WORLD"
)

# Get all data
data <- get_data(ds)

# Get data for a specific time range
data <- get_data(ds, start_period = "2020-01-01", end_period = "2023-12-31")

# Get only the last 12 observations
data <- get_data(ds, last_n_observations = 12)

## End(Not run)
```

---

get_dimension_values *Get available values for a dimension*

Description

Retrieves all available values for a specific dimension of a dataset.

Usage

```
get_dimension_values(dataset, dimension_id)
```

Arguments

dataset	An istat_dataset object
dimension_id	The ID of the dimension

Value

A tibble with columns:

id Value ID/code

name Human-readable name (English)

Examples

```
## Not run:
ds <- istat_dataset("139_176")
get_dimension_values(ds, "TIPO_DATO")

## End(Not run)
```

---

istat_dataset *Create an ISTAT dataset object*

Description

Creates a dataset object for a specific ISTAT dataflow. This object can be used to explore the dataset's structure, dimensions, and available values, and to set filters before retrieving data.

Usage

```
istat_dataset(dataflow_identifier)
```

Arguments

dataflow_identifier	Either a dataflow ID (e.g., "139_176"), a structure ID, or an exact dataset description

Value

A list with class "istat_dataset" containing:

df_id Dataflow ID

version Dataset version

df_description Dataset description

df_structure_id Data structure definition ID

dimensions Named list of dimension information

filters Named list of current filters (initialized to "." for all)

Examples

```
## Not run:
# Create dataset by ID
ds <- istat_dataset("139_176")

# View dimensions
dimensions_info(ds)

# Get available values for a dimension
get_dimension_values(ds, "TIPO_DATO")

# Set filters
ds <- set_filters(ds, FREQ = "M", TIPO_DATO = c("ISAV", "ESAV"))

## End(Not run)
```

`istat_get` *Quick data retrieval*

Description

A convenience function that combines creating a dataset, setting filters, and retrieving data in one call.

Usage

```
istat_get(
  dataflow_id,
  ...,
  start_period = NULL,
  end_period = NULL,
  last_n_observations = NULL
)
```

Arguments

dataflow_id	Dataflow ID (e.g., "139_176")
...	Named filter arguments (dimension_id = value)
start_period	Optional start date
end_period	Optional end date
last_n_observations	Optional integer to get only the last N observations

Value

A tibble containing the requested data

Examples

```
## Not run:
# Quick retrieval with filters
data <- istat_get(
  "139_176",
  FREQ = "M",
  TIPO_DATO = "ISAV",
  PAESE_PARTNER = "WORLD",
  start_period = "2020-01-01"
)

## End(Not run)
```

---

istat_timeout *Get or set the API timeout*

Description

The ISTAT API can be slow to respond, especially for large queries. This function allows you to get or set the timeout value in seconds. The default timeout is 300 seconds (5 minutes).

Usage

```
istat_timeout(seconds = NULL)
```

Arguments

seconds	Optional. If provided, sets the timeout to this value in seconds. If NULL (default), returns the current timeout value.

Value

If seconds is NULL, returns the current timeout value. If seconds is provided, invisibly returns the previous timeout value.

Examples

```
# Get current timeout
istat_timeout()

# Set timeout to 10 minutes
istat_timeout(600)

# Set timeout back to default
istat_timeout(300)
```

`print.istat_dataset` *Print method for istat_dataset*

Description

Print method for istat_dataset

Usage

```
## S3 method for class 'istat_dataset'
print(x, ...)
```

Arguments

`x`	An istat_dataset object
`...`	Additional arguments (ignored)

Value

Invisibly returns the input

`reset_filters` *Reset all filters to default (all values)*

Description

Reset all filters to default (all values)

Usage

```
reset_filters(dataset)
```

Arguments

`dataset`	An istat_dataset object

Value

The modified istat_dataset object with all filters reset to "."

Examples

```
## Not run:
ds <- istat_dataset("139_176")
ds <- set_filters(ds, FREQ = "M")
ds <- reset_filters(ds)  # All filters back to "."

## End(Not run)
```

`retrieval` *ISTAT Data Retrieval Functions*

Description

Functions for retrieving data from ISTAT datasets

`search_dataset` *Search for datasets by keyword*

Description

Searches available ISTAT datasets by keyword in their description. The search is case-insensitive.

Usage

```
search_dataset(keyword)
```

Arguments

`keyword`	Character string to search for in dataset descriptions

Value

A tibble with matching datasets (same columns as `all_available()`)

Examples

```
## Not run:
# Search for datasets related to imports
import_datasets <- search_dataset("import")

# Search for population datasets
pop_datasets <- search_dataset("population")

## End(Not run)
```

set_filters *Set filters for a dataset*

Description

Sets dimension filters that will be used when retrieving data. Filter names should match dimension IDs (case-insensitive).

Usage

```
set_filters(dataset, ...)
```

Arguments

dataset	An istat_dataset object
...	Named arguments where names are dimension IDs and values are either single values or character vectors for multiple values. Use "." to select all values for a dimension.

Value

The modified istat_dataset object

Examples

```
## Not run:
ds <- istat_dataset("139_176")

# Set single values
ds <- set_filters(ds, FREQ = "M", PAESE_PARTNER = "WORLD")

# Set multiple values
ds <- set_filters(ds, TIPO_DATO = c("ISAV", "ESAV"))

## End(Not run)
```

utils *ISTAT API Utility Functions*

Description

XML parsing and helper functions

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