

USER GUIDES

API - Getting started with statistics API

Introduction

Statistics API is dedicated to support online visualisation built on Eurostat data thanks to the JSON-stat Toolkit

Pre-requisite

It is strongly recommended to read through the [introduction of the JSON-stat toolkit by its author](https://observablehq.com/@jsonstat/toolkit) ↗ (<https://observablehq.com/@jsonstat/toolkit>)

[JSON-stat.org](https://json-stat.org/) ↗ (<https://json-stat.org/>) **describe the format** that is a simple lightweight JSON dissemination format best suited for data visualisation, mobile apps or open data initiatives.

It is based on a cube model that arises from the evidence that the most common form of data dissemination is the tabular form.

In this cube model, datasets are organised in dimensions. Dimensions are organised in categories.

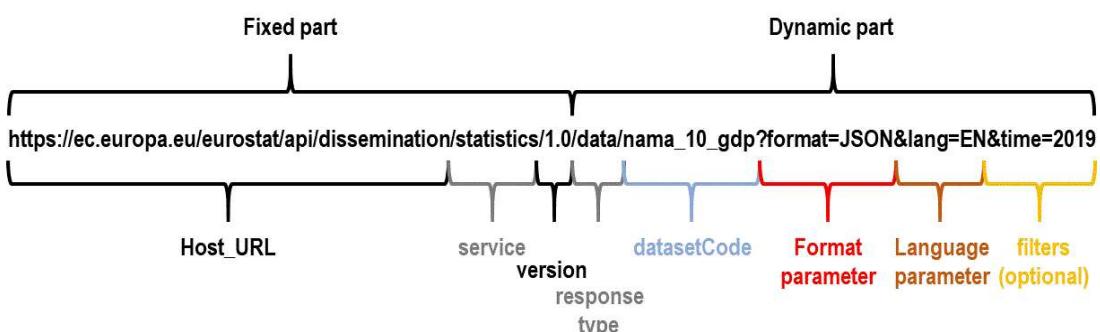
The particularity of this format is that it intend to provide ready-to-use content for visualisations **from a single API call**

[JSON-stat.com](https://jsonstat.com/) ↗ (<https://jsonstat.com/>) **describe the toolkit(s)** to take full advantages of the JSON-stat format.

For further usage details of the toolkit, please consult the [README of the jsonstat-toolkit](https://www.npmjs.com/package/jsonstat-toolkit) ↗ (<https://www.npmjs.com/package/jsonstat-toolkit>)

The structure of the REST request

The structure to build the REST request is a URL:
{host_url}/{service}/{version}/{response_type}/{datasetCode}?{format}&{lang}&{filters}



Fixed part

URL part	{host_url}/
Example	https://ec.europa.eu/eurostat/api/https://ec.europa.eu/eurostat/api/dissemination/ comext/dissemination (Comext and Prodcom datasets)
Comment	Fixed part of the request related to our website
URL part	{service}/
Example	statistics/
Comment	Fixed part of the request related to the service
URL part	{version}/
Example	1.0/
Comment	Fixed part of the request related to the version of the service

Dynamic part

URL part	{response_type}/
Example	data/
Comment	Only statistical data are currently returned
URL part	{datasetCode}
Example	nama_10_gdp
Comment	Unique code identifier of the queried data product (either a dataset or a predefined extraction)
URL part	?{format}
Example	?format=JSON
Comment	Optional parameter
URL part	&{lang}
Example	&lang=EN
Comment	Optional parameter
URL part	&{filters}
Example	&time=2019
Comment	Optional parameters

Retrieving your first content

Usage of API statistics starts when a dataset is selected for data retrieval, **knowing the dataset online data code**, that can be easily found.

Q In case the language of the response should be other than English (default language), a specific Query parameter should be added to the URL

https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DATASET_CODE?lang=EN

DATASET_CODE in the URL above is a placeholder to be replaced with the dataset code of choice, for example :

https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN)

Finding the online data code

In Eurostat website navigation tree

The online data code is always next to the dataset title in between parentheses.



In Databrowser navigation tree

The online data code is present below the dataset title in between square brackets.



In Databrowser dataset view

The online data code is present in the information panel about the dataset

Home > Database > Population and social conditions > Demography, population stock and balance > Main population indicators

Population density by NUTS 3 region

Online data code: **demo_r_d3dens** | DOI: 10.2899/demo_r_d3dens | last update: 01/10/2024 23:00 | view: DEFAULT

Source of data: Eurostat

Metadata Dataset information Add to 'My datasets'

Thus on this example, the JSON-stat data for this **DEMO_R_D3DENS** dataset can be retrieved via the URL

https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN)

Understanding response metadata

Dataset metadata

The first elements of the JSON-stat response are the metadata indicating the type of JSON-stat response, the title of the dataset its source and its last update date.

```
"version": "2.0",  
"class": "dataset",  
"label": "Population density by NUTS 3 region",  
"source": "ESTAT",  
"updated": "2023-04-19T11:00:00+0200",
```

Dimension metadata : id and size

Then the dimensional structure of the dataset is summarised in two arrays indicating the code and size of each dimension used by the dataset.

We can observe that the **GEO** dimension is quite large (2031 positions) as this dataset is one of Eurostat's **regional** datasets, meaning that it contains statistical data for countries and their subdivision in statistical regions also called NUTS regions (see more information on [NUTS classification](#) ([/eurostat/web/nuts](#)))

```
"id" : ["freq", "unit", "geo", "time"],
```

```
"size": [1,1,2031,33],
```

Dimension metadata : index and label

The **dimension** object in the response uses dimension code as keys to references objects with its title and for each position (called **category** in JSON-stat) a list of key-value pair of its code and corresponding order and a key-value pair of its code and corresponding label.

```
"dimension":{  
    "freq":{  
        "label":"Time frequency",  
        "category":{  
            "index":{  
                "A":0  
            },  
            "label":{  
                "A":"Annual"  
            }  
        }  
    },  
    [...]
```

[Preview this data on JSON-stat Explorer ↗](#)

(https://jsonstat.com/explorer/#/https%3A%2F%2Fec.europa.eu%2Feurostat%2Fapi%2Fdissemination%2Fstatistics%2F1.0%2Fdata%2FDEMO_R_D3DENS)

(⚠ this can take up to one minute to preview the content as the JSON-stat is large, please see below for ways to filter the data)

Filter data

Filtering on geoLevel

As the above regional dataset have more than 2000 positions for the **GEO** dimension and is a **regional** dataset, it is interesting to make use of the special filter **geoLevel** to help retrieving content for a specific NUTS level. Following table list the possible value of this filter with example on DEMO_R_D3DENS dataset.

aggregate	filter GEO dimension on European aggregates based on a white list (EU15, EU25, EU27_2007, EU27_2019, EU28, EA19, etc)	https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=aggregate (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=aggregate)
country	filter GEO dimension on country code (EU Member States, or EFTA, or Candidate Countries or other countries)	https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=country (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=country)
nuts1	filter GEO dimension on level-1 NUTS codes (major socio-economic regions)	https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=nuts1 (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=nuts1)
nuts2	filter GEO dimension on level-2 NUTS code (basic regions for the application of regional policies)	https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=nuts2 (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=nuts2)
nuts3	filter GEO dimension on level-3 NUTS code (small regions for specific diagnoses)	https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=nuts3 (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS? lang=EN&geoLevel=nuts3)

Filtering on Time

It is possible to restrict the response to specific time values or a range of values.

time=YYYY or time_period=YYYY

Filter TIME dimension on one or more specific time values (ie. time=2020) https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN&geoLevel=country&time=2020 (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN&geoLevel=country&time=2020)

sinceTimePeriod=YYYY

Filter TIME dimension on all time values since the specified value included (for example **sinceTimePeriod=2020** means "all time values **since 2020, 2020 included**")

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l
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untilTimePeriod=YYYY

Filter TIME dimension on all time values until the specified value included (for example **untilTimePeriod=2000** means "all time values **until 2000, 2000 included**")

[ht
l
ar
3I](#)

sinceTimePeriod=YYYY AND untilTimePeriod=YYYY

Filter TIME dimension by combining both above filters to define a FROM-TO range

(for example sinceTimePeriod=2010&untilTimePeriod=2020 means "all time values **from 2010 to 2020, both ends included**")

lastTimePeriod=N

Filter TIME dimension to always retrieve the N latest positions (for example **lastTimePeriod=1** means 'most recent data' or lastTimePeriod=3 means 'last 3 positions')

Filtering on other dimensions

Any dimension present in the data product can be used as filter parameter with the syntax **&dimension_code=position_code**.

For example to retrieve only EU27 data for 2022 of our example dataset, the following query should be used

https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN&geo=EU27_2020&time=2022 (https://ec.europa.eu/eurostat/api/dissemination/statistics/1.0/data/DEMO_R_D3DENS?lang=EN&geo=EU27_2020&time=2022)

Need help in building your API query

From Eurostat query builder

Eurostat website include a [Query Builder](#) (</eurostat/web/query-builder/tool>) on its website.

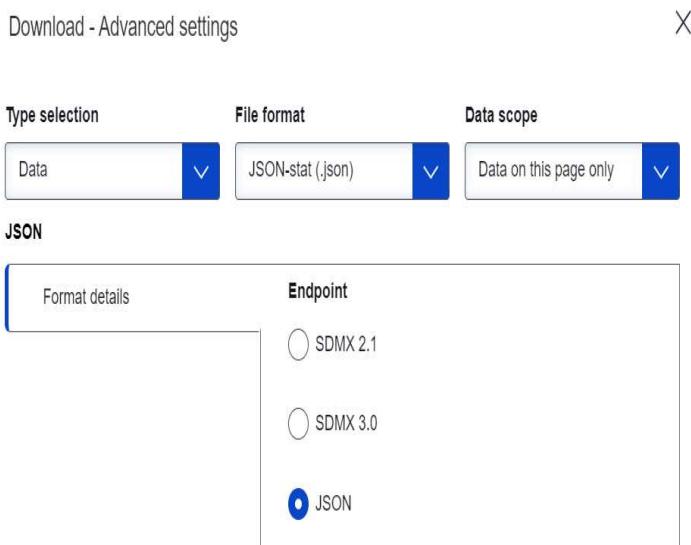
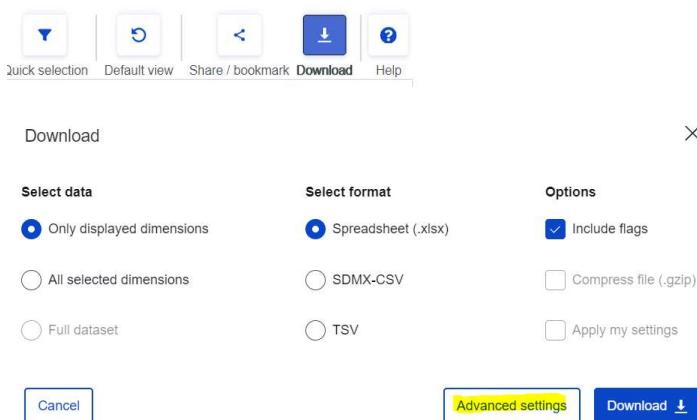
From Eurostat Databrowser

The advanced menu for download in DataBrowser is providing a query based on the currently visualised data if you open the menu via Download > Advanced settings and then select the options below (as shown in below screenshot)

File format: JSON-stat (.json)

Data scope: Data on this page only

Endpoint: JSON



From JSON-stat community

JSON-stat community is maintaining a [showcase on Eurostat data](https://jsonstat.com/eurostat/) (<https://jsonstat.com/eurostat/>) that could also be used as a query builder or a data previewer

From detailed documentation

Please consult the [detailed documentation](#) ([/eurostat/web/user-guides/data-browser/api-data-access/api-detailed-guidelines/api-statistics](https://eurostat/web/user-guides/data-browser/api-data-access/api-detailed-guidelines/api-statistics)) for further details.