31. lokakuu 2024

Statistics Finland's PxWeb API Help

Through Statistics Finland's PxWeb API interface for statistical databases you can search for machine readable information in, for example, XLSX, CSV, JSON, JSON-stat, JSON-stat2 and PX formats.

Before using the service, you should take a look at Statistics Sweden's (SCB) API documentation (pdf).

NB. SCB's description is based on the use of a relational database where you do not have to use a PX extension in the table name. By contrast, in Statistics Finland's databases you must always remember to use the PX extension in the table name.

API limitations can be seen in this link https://pxdata.stat.fi/PXWeb/api/v1/en/?config

API's structure

In the newest PxWeb version you can see the structure of the database:

https://pxdata.stat.fi/pxweb/api/v1/en/StatFin/?query=*&filter=*

API's structure	PXWEB/API-NAME/API-VERSION/LANGUAGE/DATABASE-ID/LEVELS/TABLE-ID
Available databases	https://pxdata.stat.fi/PXWeb/api/v1/en/
List of tables	https://pxdata.stat.fi/PXWeb/api/v1/fi/StatFin/vaerak
Table metadata	https://pxdata.stat.fi/PXWeb/api/v1/fi/StatFin/vaerak/statfin_vaerak_pxt_11re.px Now a short version of both GET and POST requests can be used: https://pxdata.stat.fi/PXWeb/api/v1/fi/StatFin/statfin_vaerak_pxt_11re.px

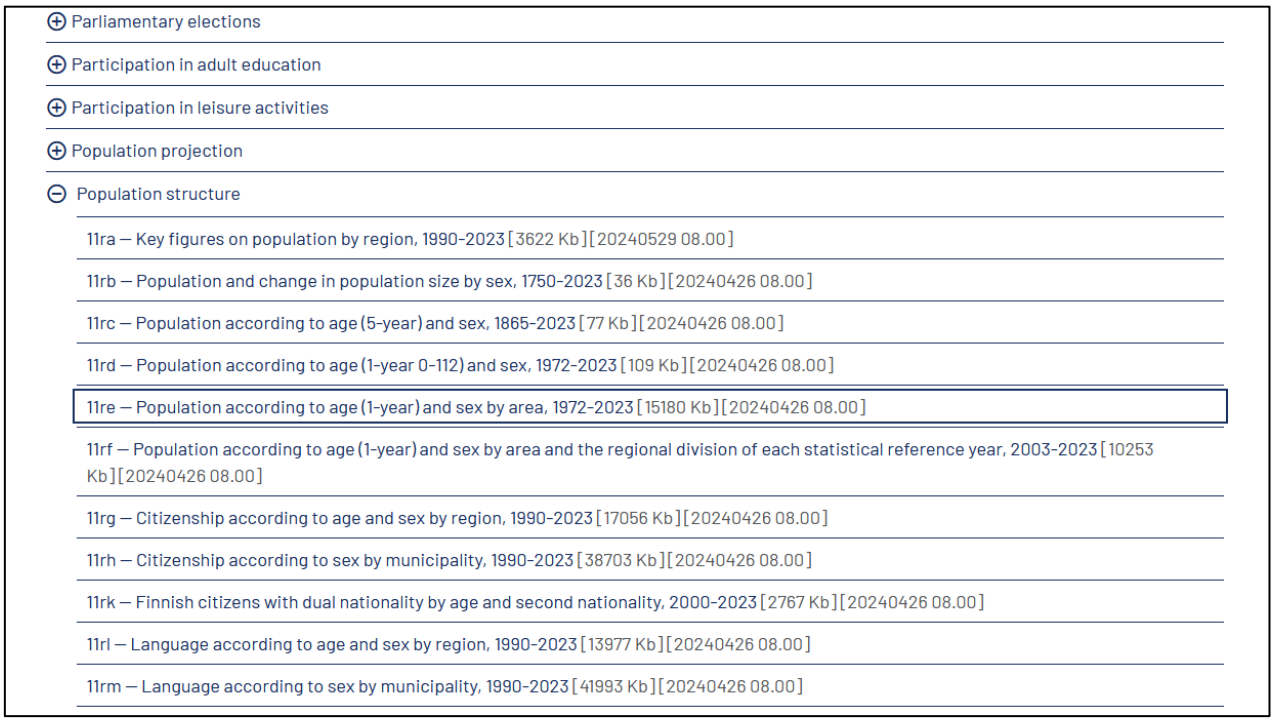
PxWeb API

Example:

1. First select the desired table from Statistics Finland's StatFin database.

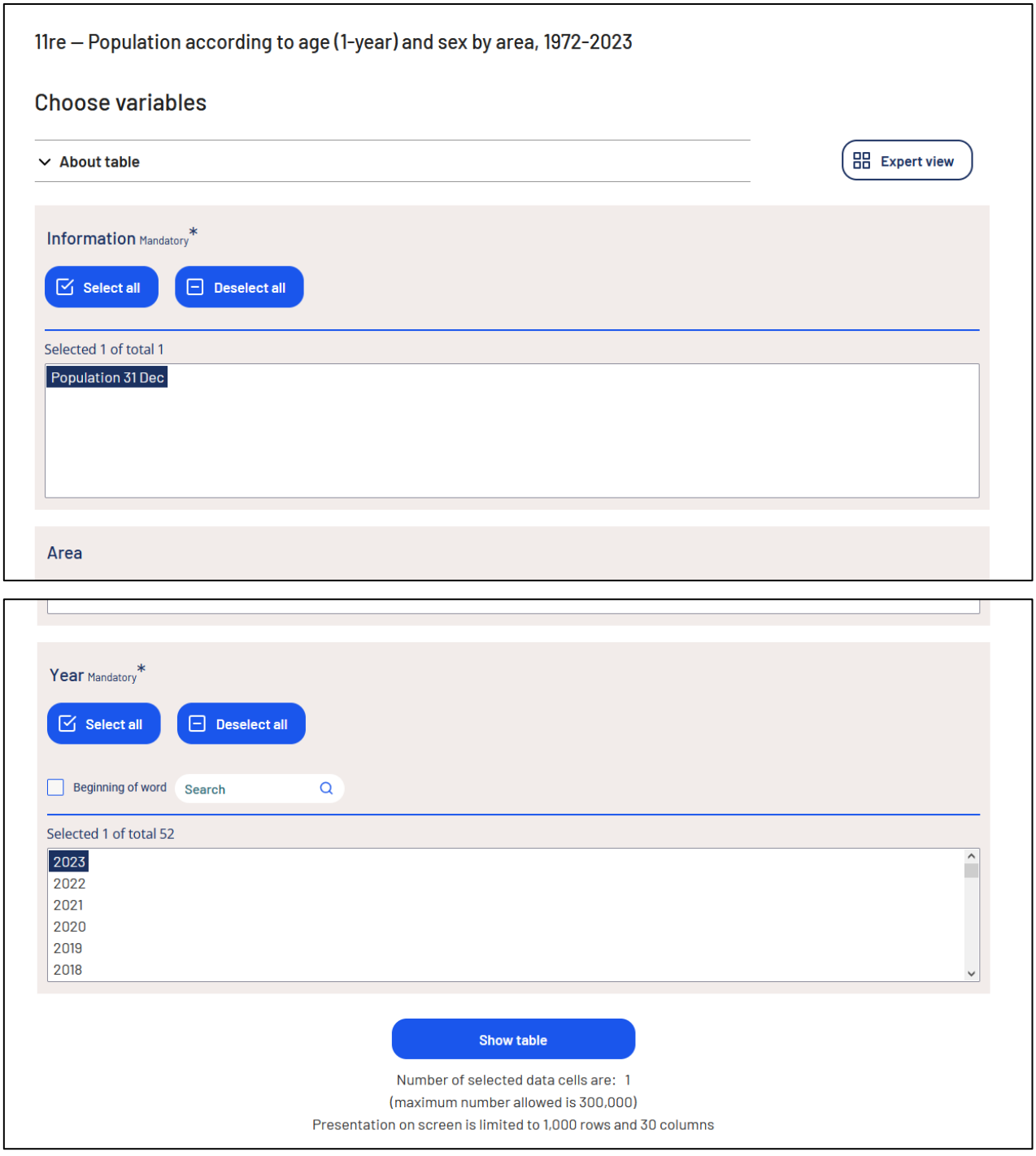
   In this example, a table describing the population by age and sex is selected from the

   Population structure statistics: **11re - Population according to age (1-year) and sex by area, 1972-2023**

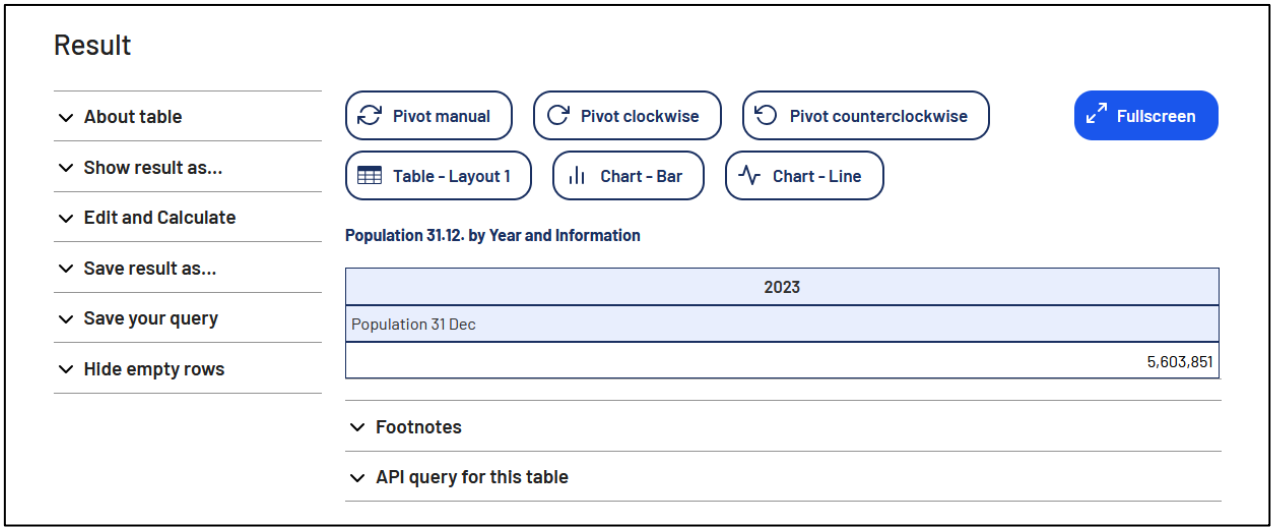


2. Next, select the desired variables and click "Continue".

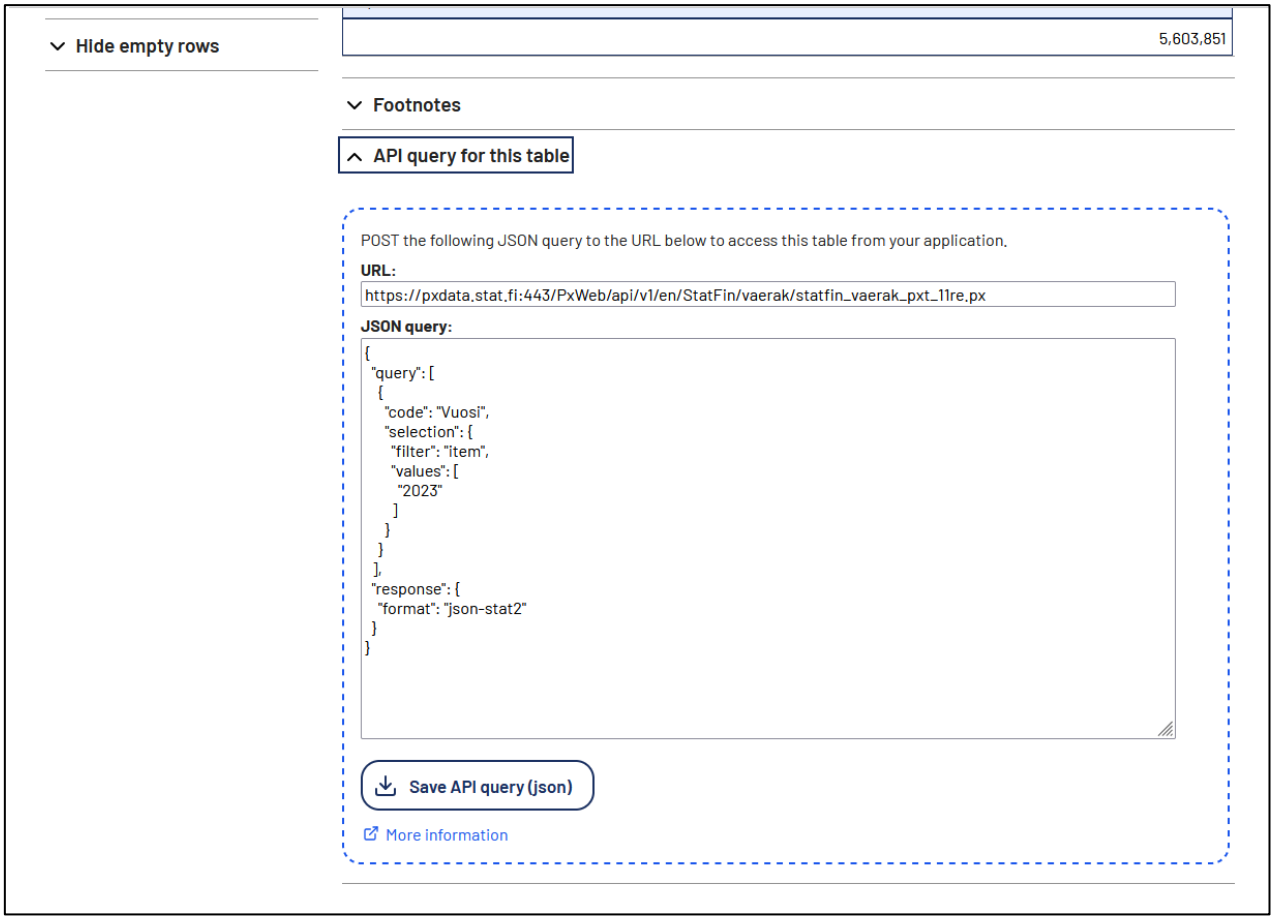
   In this table, only the **Year** variable marked with a red asterisk (*) is mandatory. Only select **2023** as at this stage you only need the data form the API interface.



3. After the selection you see the table depicted below. Next, select the **API query for this table** tab which displays table information.



4. Here you find the necessary API interface data. You can use the JSON POST query to retrieve data and the GET query to retrieve the metadata of the table. These provide a machine-readable link to the database table.



Using PxWeb API with RESTClient

The supported formats are: PX, CSV, JSON, XLXS JSON-stat and JSON-stat2.

The URL address together with the GET function gives the metadata of the selected PX table. The metadata are also shown when the URL address is typed into the address field of the browser.

When retrieving the information with the GET function of the URL command https://pxdata.stat.fi/PXWeb/api/v1/en/StatFin we find out that the database has on 146 **root nodes**.

The URL command GET https://pxdata.stat.fi/PXWeb/api/v1/fi/StatFin/altp hows that the database has 6 **table nodes**.

Next page is an image of the POST query result together with the URL command and JSON query code shown in the example (https://pxdata.stat.fi:443/PxWeb/api/v1/en/StatFin/vaerak/statfin_vaerak_pxt_11re.px):

```
{
  "query": [
    {
      "code": "Vuosi",
      "selection": {
        "filter": "item",
        "values": [
          "2023"
        ]
      }
    }
  ],
  "response": {
    "format": "json"
  }
}
```

```
{
  "columns": [
    {
      "code": "Vuosi",
      "text": "Year",
      "type": "t"
    },
    {
      "code": "vaesto",
      "text": "Population 31 Dec",
      "comment": "Population at the end of the statistical reference period.\r\n",
      "type": "c"
    }
  ],
  "comments": [],
  "data": [
    {
      "key": [
        "2023"
      ],
      "values": [
        "5603851"
      ]
    }
  ],
  "metadata": [
    {
      "updated": "2024-04-26T05.00.00Z",
      "label": "Population 31.12. by Year and Information",
      "source": "Statistics Finland, population structure"
    }
  ]
}
```


If we want POST query result shown on CSV so there is the result:


```
,"2023 Population 31 Dec"
,5603851
```

When you remove the time variable from the JSON query code you can see all periods and their values. The image below now shows the table describing the index point figures:

```
{
  "query": [ ],
  "response": {
    “format": "csv”
  }
}
```

```
,"1972 Population 31 Dec","1973 Population 31 Dec","1974 Population 31 Dec","1975 Population 31 Dec","1976 Pop
ulation 31 Dec","1977 Population 31 Dec","1978 Population 31 Dec","1979 Population 31 Dec","1980 Population 31
Dec","1981 Population 31 Dec","1982 Population 31 Dec","1983 Population 31 Dec","1984 Population 31 Dec","1985
Population 31 Dec","1986 Population 31 Dec","1987 Population 31 Dec","1988 Population 31 Dec","1989 Population
31 Dec","1990 Population 31 Dec","1991 Population 31 Dec","1992 Population 31 Dec","1993 Population 31 Dec","1
994 Population 31 Dec","1995 Population 31 Dec","1996 Population 31 Dec","1997 Population 31 Dec","1998 Popula
tion 31 Dec","1999 Population 31 Dec","2000 Population 31 Dec","2001 Population 31 Dec","2002 Population 31 De
c","2003 Population 31 Dec","2004 Population 31 Dec","2005 Population 31 Dec","2006 Population 31 Dec","2007 P
opulation 31 Dec","2008 Population 31 Dec","2009 Population 31 Dec","2010 Population 31 Dec","2011 Population
31 Dec","2012 Population 31 Dec","2013 Population 31 Dec","2014 Population 31 Dec","2015 Population 31 Dec","2
016 Population 31 Dec","2017 Population 31 Dec","2018 Population 31 Dec","2019 Population 31 Dec","2020 Popula
tion 31 Dec","2021 Population 31 Dec","2022 Population 31 Dec","2023 Population 31 Dec"
,4653401,4678761,4702387,4720492,4730836,4746967,4758088,4771292,4787778,4812150,4841715,4869858,4893748,49106
64,4925644,4938602,4954359,4974383,4998478,5029002,5054982,5077912,5098754,5116826,5132320,5147349,5159646,517
1302,5181115,5194901,5206295,5219732,5236611,5255580,5276955,5300484,5326314,5351427,5375276,5401267,5426674,5
451270,5471753,5487308,5503297,5513130,5517919,5525292,5533793,5548241,5563970,5603851
```

Using filters

Filters can be used to search only for defined values.

- **Item**. The filter lists valid variable values. There can be one or several filtered values, for example, years “2015” and “2016”.
- **All**. This filter uses the wildcard feature but only one of these can be used at a time. For example, 01* shows all values that begin with 01, * shows all values.
- **Top**. Shows the first values or the latest values if the variable is time-based. The number of values to be shown is entered in the value field, for example, “5” which would show the five first or latest values.

Examples:

Population for 2023

```
{
  "code": "Vuosi",
  "selection": {
    "filter": "item",
    "values": [
      "2023"
    ]
  }
}
```

If the figures “1980” and “1988” are added to the time variable, the population for 1980 and 1988 are shown in addition to that for 2023.

```
{
  "code": "Vuosi",
  "selection": {
    "filter": "item",
    “values": [
      "2023", “1980”, “1988”
    ]
  }
```

Select all **Vuosi** (year**)** variables that end in zero, i.e. Show the populations for 1970, 1980, 1990, 2000, 2010 and 2020. Set the value of the **Ikä** (age) variable as “010” so only persons aged 10 are shown for the selected years.

```
{
  "code": "Vuosi",
  "selection": {
    "filter": "all",
    "values": [
      "*0"
      ]
   }
},
{
  "code": "Ikä",
  "selection": {
    "filter": "item",
    "values": [
      "010"
      ]
  }
}
```

Shows the population of the past three years: 2023, 2022 and 2021. For time-based variables, the newest values are shown first.

```
{
  "code": "Vuosi",
  "selection": {
    "filter": "top",
    "values": [
      "3"
      ]
  }
}
```

This example shows the number of women (sukupuoli = gender) in the last five years.

```
{
  "code": "Vuosi",
  "selection": {
    "filter": "top",
    "values": [
      "5"
      ]
  }
},
{
  "code": "Sukupuoli",
  "selection": {
    "filter": "item",
    "values": [
      "2"
      ]
  }
}
```

You can also use a free text search with URL commands through the API interface. For example:

1. Search “population”
   https://pxdata.stat.fi/PXWeb/api/v1/en/StatFin?query=population
2. Searches for data related to the population in the “vaerak” topic
   https://pxdata.stat.fi/PXWeb/api/v1/en/StatFin/vaerak?query=population

Technical support:

Further information is available by contacting tietokannat@stat.fi.