

# Release notes PxWeb 2021 v1



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## What is new in PxWeb 2021 v1?

Here are some of the new features in PxWeb 2021 v1:

- Presentation pages follow the WCAG (Web Content Accessibility Guidelines) 2.1 rules
- Full screen presentation
- Save API query as file
- Settings for headings
- Official statistics logotype
- Mandatory variables displayed first
- Autopivot table
- Usage log for operations
- Improved default configuration for:
  - o Request filtering
  - o Security headings
- Fixed issues reported on github

This document is a description of the features and bug fixes introduced with PxWeb 2021 v1.

An online demo of PxWeb 2021 v1 can be found at:

<http://pxwebdemo.scb.se/>

More information about PxWeb can be found at:

<https://www.scb.se/en/services/statistical-programs-for-px-files/px-web/>

## Presentation pages follow the WCAG 2.1 rules

One of the main objectives with this version of PxWeb is to have a complete user interface (also the presentation pages) that follow the WCAG (Web Content Accessibility Guidelines) 2.1 rules.

The main purpose of WCAG is to make web content more accessible to people with disabilities and is now regulated by law for all official authorities within the European Union.

More information about the WCAG rules can be found at:  
<https://www.w3.org/WAI/standards-guidelines/wcag/>

In the latest version of PxWeb (2020 v2) about half of the pages of PxWeb were adjusted to follow the WCAG rules. In this version we have finalized this work and now all of the pages in PxWeb should follow the rules of WCAG.

In PxWeb 2021 v1 the presentation pages have the following layout:

**PxWeb 2021 v1** Svenska

Example / Population / Migration for Sweden, Stockholm county and some municipalities

Choose table Choose variable Show result

### Migration for Sweden, Stockholm county and some municipalities

#### Result

	2003		
	Immigrated		
	Men	Women	
20	456	938	
21	613	948	
22	835	968	

Obs:

Type

Inmigrated

Migration cannot be added with regard to regions. When, for instance, municipalities are added to metropolitan areas, migration to the region is added to migrations within the region.

With calculating of age-specific rates per 1 000 of the mean population you shall use the mean population per year of birth. And some more

## Tools and presentation views

All of the tools and selection of presentation views have been moved to be displayed to the left of the table.

### About table

In the *About table* accordion, *Contact* is displayed first:

## Result

### ^ About table

#### ^ Contact

Ewa Eriksson, SCB  
Tel: +46 19-17 67 43  
Fax: +46 19-17 69 42  
E-mail: [befolkning@scb.se](mailto:befolkning@scb.se)

#### ^ Official statistics

#### ^ Latest update

#### ^ Unit

#### ^ Data type

#### ^ Creation date

#### ^ Copyright

#### ^ Source

#### ^ Matrix

#### ^ Database

## Note regarding “Save your query”

The Copy button for saved queries only works if your site is running using HTTPS. This problem has been reported as an issue on github: <https://github.com/statisticssweden/PxWeb/issues/130>

For more information see the section “Known issues” below.

## Shortcuts

Shortcuts to operations are displayed over the table.

## Fullscreen mode

It is possible to display all of the presentation views (table, chart and so on) in fullscreen mode.

When displaying a table in fullscreen mode the table headings will be “sticky” so they will always be displayed at the top of the table even if you scroll down in the table.

It is possible to control this behaviour using the “Lock table header in fullscreen mode” in the administration tool. The setting is located under Settings -> Presentation -> Table:



If you change this setting to “No” the headers will no longer be sticky in fullscreen mode.

## Footnotes

Mandatory footnotes are displayed directly under the table. The rest of the footnotes are displayed as an accordion.

## Save API query as file

A button has been added to the API query dialog, “Save API query (json)”:

### ^ API query for this table

POST the following JSON query to the URL below to access this table from your application.

**URL:**

**JSON query:**

```
{
  "query": [
    {
      "code": "type",
      "selection": {
        "filter": "item",
        "values": [
          "BE0101F1"
        ]
      }
    },
    {
      "code": "sex",
      "selection": {
        "filter": "item",
        "values": [
          "1",
          "2"
        ]
      }
    }
  ]
}
```

[Save API query \(json\)](#)

[More information](#)

Clicking this button will save the API query as a json file.

The file name of this file will have the following format:

*{prefix}api\_table\_{tableid}.json*

{tableid} is the id of the table

{prefix} You can change the prefix part of the file name using the “Prefix API query file” setting in the administration tool:

**PxWEB ADMINISTRATION** Log out English

HOME SETTINGS TOOLS FEATURES USERS

GENERAL CHARTS API SAVED QUERY SEARCH BACKGROUND WORKER PROCESS Save

**GENERAL** **API settings**

**PX databases** en sv

Example

**CNMM databases** en sv

ssd

Route prefix

URL root API

Max values returned

Max cells returned

Limiter requests

Limiter timespan

Enable CORS

Enable cache

Show API help

Default response format

Show button 'Save API query'

Prefix API query file

The default value for this setting is “*pxapi-*”. If you left this setting blank “*px-web*” will be used as the prefix.

**Supported browsers**

The new user interface supports the latest version of Chrome, Safari and Firefox.

**Considerations when customizing your PxWeb site**

If you customize the design of your PxWeb site we recommend that you use tools such as Wave to verify that the changes you have made don't break the rules of WCAG. Visit <https://wave.webaim.org/> for more information about Wave.

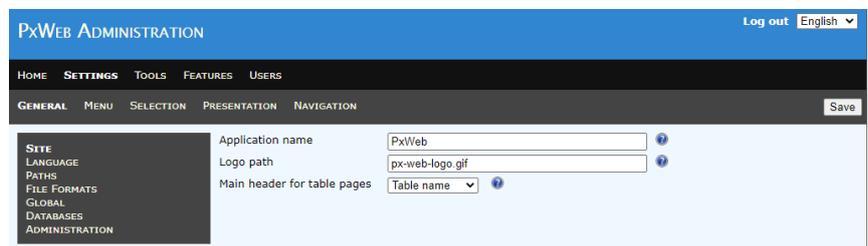
## PxWeb headings

In PxWeb 2021 v1 it is possible to control the headings (html h1 and h2 tags) that will be displayed in the user interface. A couple of new settings have been added in the administration tool for this purpose.

### Main header for table pages

Setting to control what will be displayed as main (html tag h1) and second heading (html tag h2) in PxWeb. This setting will have effect on the selection page where you select variables and values and also on all of the presentation pages (table view, chart view and so on).

This setting is located under Settings -> General -> Site in the Administration tool.

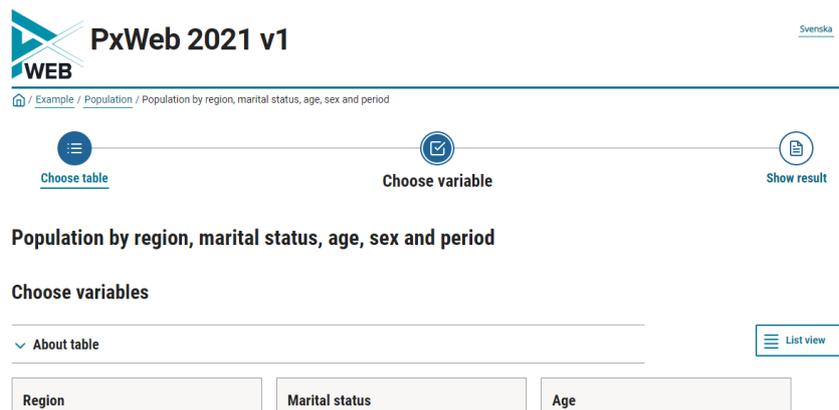


There are two possible values for this setting:

#### Table name

Table name will be displayed as the main heading (h1). Static text "Choose variables" and "Result" will be displayed as the second heading (h2).

It will look like this on the selection page:



On the presentation pages it will look like this:

**PxWeb 2021 v1** Svenska

Example / Population / Population by region, marital status, age, sex and period

Choose table Choose variable Show result

**Population by region, sex and period**

**Result**

About table

Show result as...
 

	2004	2005
--	------	------

**Statistics area**

Statistics area will be displayed as the main heading (h1). Statistics area is the same as the level in the treeview where the table is located. Table name will be displayed as the second heading (h2).

It will look like this on the selection page:

**PxWeb 2021 v1** Svenska

Example / Population / Population by region, marital status, age, sex and period

Choose table Choose variable Show result

**Population by region, marital status, age, sex and period**

About table

Region	Marital status	Age
--------	----------------	-----

On the presentation pages it will look the same:

**PxWeb 2021 v1** Svenska

Example / Population / Population by region, marital status, age, sex and period

Choose table Choose variable Show result

**Population by region, sex and period**

About table

Show result as...
 

	2004	2005
--	------	------

## New layout for title

In earlier versions of PxWeb the heading for the table title was displayed right above the table on the presentation pages.

Following the WCAG rules and a more userfriendly interface, the headings should appear on the same place and as early as possible for each web page. For this reason this setting has been added.

If you set this setting to "Yes" the table name heading will not be displayed right above the table but instead as described under the "Main header for table pages" above.

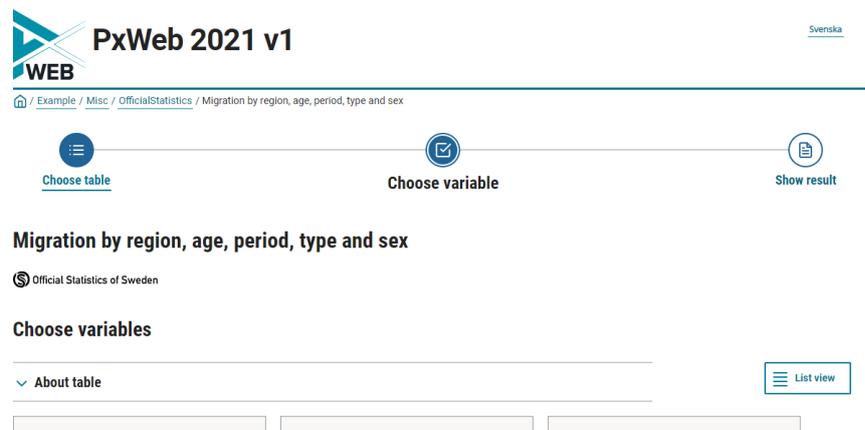
If you for some reason still want to display the table name header as before you can set this setting to "No".

This setting is located under Settings -> Presentation in the Administration tool.



## Official statistics logotype

If you have configured your PxWeb site to display information about official statistics (Settings -> General -> Global -> Show information types -> Official statistics in the administration tool) an "Official statistics" logotype will be displayed for tables marked as official statistics. This logotype will be displayed on the selection page where you select variables and values and also on the presentation pages:



Included in PxWeb are the images used for official statistics in Sweden:

`official_statistics_en.svg` and `official_statistics_sv.svg`

Replace these images with the ones you want to use in your organisation. You should add one image per language that is supported on your PxWeb site. The names of the images should have the following pattern:

`official_statistics_{language}.svg`

Add your images to the `/Resources/Images` folder of your PxWeb site.

## Autopivot table

In PxWeb 2021 v1 it is possible to autopivot tables to improve the way the tables are displayed to the user.

Note that this functionality is only implemented for CNMM 2.3 and CNMM 2.4 databases, it will not work for PX-file databases. The functionality is implemented in the PCAxis.Sql component that you can find on github and nuget.org.

Autopivot is disabled by default but you can switch it on by adding the following appsetting in the `web.config` file:

```
<add key="autopivot" value="yes" />
```

Rules and some example of automatically pivot

1. If time is the only selected classification variable and contents x time  $\leq 12$ , contents are placed in pre-column and time in the table header.
2. If contents x time  $\leq 12$  and at least one classification variable in addition is selected: Both contents and time are placed in table header, contents at the top. Other classification variables are placed in pre-column.
3. If contents x time  $> 12$  and time  $\leq 24$ : Time is placed in table header, contents in pre-column as highest level, i.e. to the left the classification variables.
4. If time  $> 24$ : Time is placed in pre-column, as the lowest level, i.e. to the right of the other classification variables.
5. If only one time and one content are selected (contents x time = 1) and more than one classification variable, the classification variable with the fewest selected values  $> 1$  and  $\leq 24$  is placed in table header. Other classification variables are placed in pre-column.

Rule nr 1: Example of table with three content and three time periods

	2021	2022	2023
Consumption in households etc	6.9	6.9	3.1
General government consumption	2.1	1.7	1.2
Gross fixed investment	-0.2	0.8	3.1

Rule nr 2: Example of table with three content, two time periods and five municipality

	Births		Deaths		Excess of births	
	2020K1	2020K2	2020K1	2020K2	2020K1	2020K2
K-3001 Halden	56	64	71	79	-15	-15
K-3002 Moss	99	95	129	115	-30	-20
K-3003 Sarpsborg	135	132	123	126	12	6
K-3004 Fredrikstad	175	169	197	165	-22	4
K-3005 Drammen	248	237	205	207	43	30

Rule nr 3: Example of table with four contents, eight time periods and two municipality

	2018K3	2018K4	2019K1	2019K2	2019K3	2019K4	2020K1	2020K2
Births								
K-3001 Halden	66	46	60	68	69	60	56	64
K-3002 Moss	115	92	98	119	99	92	99	95
Deaths								
K-3001 Halden	68	59	81	83	68	67	71	79
K-3002 Moss	78	111	136	99	95	116	129	115
Excess of births								
K-3001 Halden	-2	-13	-21	-15	1	-7	-15	-15
K-3002 Moss	37	-19	-38	20	4	-24	-30	-20
Immigration								
K-3001 Halden	81	39	33	39	73	37	48	30
K-3002 Moss	101	85	82	92	79	134	102	47

Rule nr 4: Example of table with two, forty time periods and one municipality

	Births	Deaths
K-3001 Halden		
2010K1	86	70
2010K2	70	82
2010K3	94	88
2010K4	67	74
2011K1	74	90
2011K2	82	80
2011K3	79	66
2011K4	55	97
2012K1	75	67
2012K2	81	79
2012K3	71	78
2012K4	69	74
2013K1	76	78
2013K2	87	76
2013K3	77	68
2013K4	55	82
2014K1	75	83
2014K2	87	73
2014K3	72	75
2014K4	63	95

Rule nr 5: Example of table with three content and three time periods

	2021	2022	2023
Consumption in households etc	6.9	6.9	3.1
General government consumption	2.1	1.7	1.2
Gross fixed investment	-0.2	0.8	3.1

## Usage log for operations

A usage log for PxWeb operations (pivot, sum, delete value and so on) has been added. This logger is disabled by default. To enable it you uncomment the `FeatureUsageLogger` part that can be found in the beginning of the `web.config` file. After you have enabled this logger, usage information about PxWeb operations will be written to the `FeatureUsage.log` file in the `logs` directory of your PxWeb site.

The logging information has the following format:

```
2021-05-04 15:25:46,658 [6] INFO FeatureUsage - Feature=PIVOT_CW, Variant=NULL, maintable=BefolkningNy
2021-05-04 15:28:10,810 [6] INFO FeatureUsage - Feature=PER_PART, Variant=OneVariableAllValues, maintable=BefolkningNy
```

You can see which operations have been performed on which tables.

Note: At the moment maintable information is collected from `TableId` property of PxWeb tables. If you are using Matrix as the table identifier the maintable value will be empty in the log file.

## Upgraded components

The logging component Log4Net has been upgraded to version 2.0.12.  
The javascript library JQuery has been upgraded to version 3.5.1.

## Fixed issues

The following issues on github has been fixed. For more information about issues see: <https://github.com/statisticssweden/PxWeb/issues>.

### #57 - Aggregations in subfolders need IIS restart to take effect

If aggregations are added to a subfolder of the Aggregation folder of PxWeb they are now loaded after "Reset aggregations" has been made from the Administration tool. It is no longer necessary to restart the IIS for the aggregations to load.

### #75 – Focus marker in Choose table view

The TAB-controlled focus marker is now displayed correctly when tabbing through the selection tree view where you select table.

### #76 - The skiplink doesn't work

The TAB-controlled skiplink now work for all PxWeb pages. This will take you faster to the main content of the page when navigating using a keyboard.

**#77 - Incorrect headings**

The Heading structure has been fixed for all PxWeb pages.

For more information about PxWeb headings see the new setting *"Main header for table pages"* above.

**#96 - Saved query to screen can fail under high memory pressure**

Bug has been fixed that could cause saved queries with display on screen to fail. The problem could appear when the PxWeb site was very busy with a lot of memory allocated.

**#97 - Reorder of the variables on the selection page**

Mandatory variables will be displayed first on the selection page where you select variables and values. This is only implemented for CNMM 2.3 and CNMM 2.4 databases.

**#104 - Wrong date in JSON-STAT 1.0 output**

When fetching a table in JSON-STAT 1.0 the updated attribute in JSON was wrong. Instead of when the table was last updated you got the creation time of the table. This has been fixed in the PCAxis.Serializers.JsonStat repository on github and is also included in PxWeb 2021 v1.

**Other bug fixes**

The character # inside an element will no longer result in a new line.

Example:

```
<a href="foo#bar" />
```

## Improved security configuration

The default security configuration in PxWeb has been improved. The new configuration will better handle different types of hacker attacks. The following changes has been made in the web.config file of PxWeb:

### Don't Expose the IIS Version

The IIS version is exposed via the Server HTTP response header. It's best to disable this as it helps hide the version of server software you're using to make it just a bit harder for an attacker to find known vulnerabilities to use against you.

```
<configuration>
  <system.webServer>
    <security>
      <requestFiltering removeServerHeader="true" />
    </security>
  </system.webServer>
</configuration>
```

This will remove the `Server` header in the PxWeb response.

### Don't Expose the ASP.NET Version

As with the IIS version, for the same reasons it's also best to hide the ASP.NET version you're using to clients as well. You can accomplish this with the following Web.config setting:

```
<configuration>
  <system.web>
    <httpRuntime enableVersionHeader="false" />
  </system.web>
</configuration>
```

This will remove the `X-AspNet-Version` header in the PxWeb response.

## Security headers

A number of custom headers have been added in the response to clients to improve the PxWeb security. The following headers have been added:

```
<configuration>
  <system.webServer>
    <httpProtocol>
      <customHeaders>
        <add name="X-Content-Type-Options" value="nosniff"/>
        <add name="X-XSS-Protection" value="1; mode=block" />
        <add name="Content-Security-Policy" value="script-src
          'self' 'unsafe-inline' 'unsafe-eval' " />
        <add name="X-Frame-Options" value="SAMEORIGIN" />
        <add name="Referrer-Policy" value="no-referrer-when-downgrade" />
      </customHeaders>
    </httpProtocol>
  </system.webServer>
</configuration>
```

**Avoid MIME-sniffing attacks**

The `X-Content-Type-Options` response HTTP header is a marker used by the server to indicate that the MIME types advertised in the Content-Type headers should not be changed and be followed. This is a way to opt out of MIME type sniffing, or, in other words, to say that the MIME types are deliberately configured.

Setting the `X-Content-Type-Options` to `nosniff` is a way to avoid attacks caused by MIME sniffing.

**Avoid cross-site scripting (XSS) attacks**

The HTTP `X-XSS-Protection` response header is a feature of Internet Explorer, Chrome and Safari that stops pages from loading when they detect reflected cross-site scripting (XSS) attacks.

**Avoid cross-site scripting (XSS) and data injection attacks**

Content Security Policy (CSP) is an added layer of security that helps to detect and mitigate certain types of attacks, including Cross Site Scripting (XSS) and data injection attacks. These attacks are used for everything from data theft to site defacement to distribution of malware.

Setting `Content-Security-Policy` to `script-src 'self' 'unsafe-inline' 'unsafe-eval'` will only allow execution of javascript from the sites own origin (also inline scripts and evaluated scripts).

**Avoid click-jacking attacks**

The `X-Frame-Options` HTTP response header can be used to indicate whether or not a browser should be allowed to render a page in a `<frame>`, `<iframe>`, `<embed>` or `<object>`. Sites can use this to avoid click-jacking attacks, by ensuring that their content is not embedded into other sites.

The added security is provided only if the user accessing the document is using a browser that supports `X-Frame-Options`.

With `X-Frame-Options` set to `SAMEORIGIN` the page will only be displayed in a frame on the same origin as the page itself.

**Control referrer information**

Control how much referrer information should be included in requests.

`Referrer-Policy` set to `no-referrer-when-downgrade` is the default level

## Default configuration for IIS request filtering

As an improvement of security, default configuration has been added for request filtering in IIS. This will make IIS deny certain strings in the URL and in the querystring. Also some HTTP verbs will be denied by default.

The request filtering added will provide increased protection against SQL injection attacks.

Note that the `removeServerHeader="true"` attribute on `requestFiltering` element in the example below requires that you are running the 10.0 version of IIS.

```
<security>
  <requestFiltering removeServerHeader="true">
    <denyQueryStringSequences>
      ...
      List of strings that will be denied in the querystring
      ...
    </denyQueryStringSequences>
    <denyUrlSequences>
      ...
      List of strings that will be denied in the URL
      ...
    </denyUrlSequences>
    <verbs>
      ...
      List of denied HTTP verbs
      ...
    </verbs>
  </requestFiltering>
</security>
```

## **Known issues**

There are some known issues regarding PxWeb. You can read about these issues on github:

<https://github.com/statisticssweden/PxWeb/issues>

This is also the place where you report PxWeb bugs and problems.