

# PxWeb2 after release

THE FIRST YEAR OF DEVELOPMENT



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# Agenda

Who am I?

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What has happened in the last year?

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What have we done, code-wise?

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How we chose the package for charts

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# Who am I?

- Name: Sjur Sutterud Sagen
- Worked on PxWeb since the new UI project started
- One of the main developers for the UI
- Not worked on:
  - API
  - What comes next

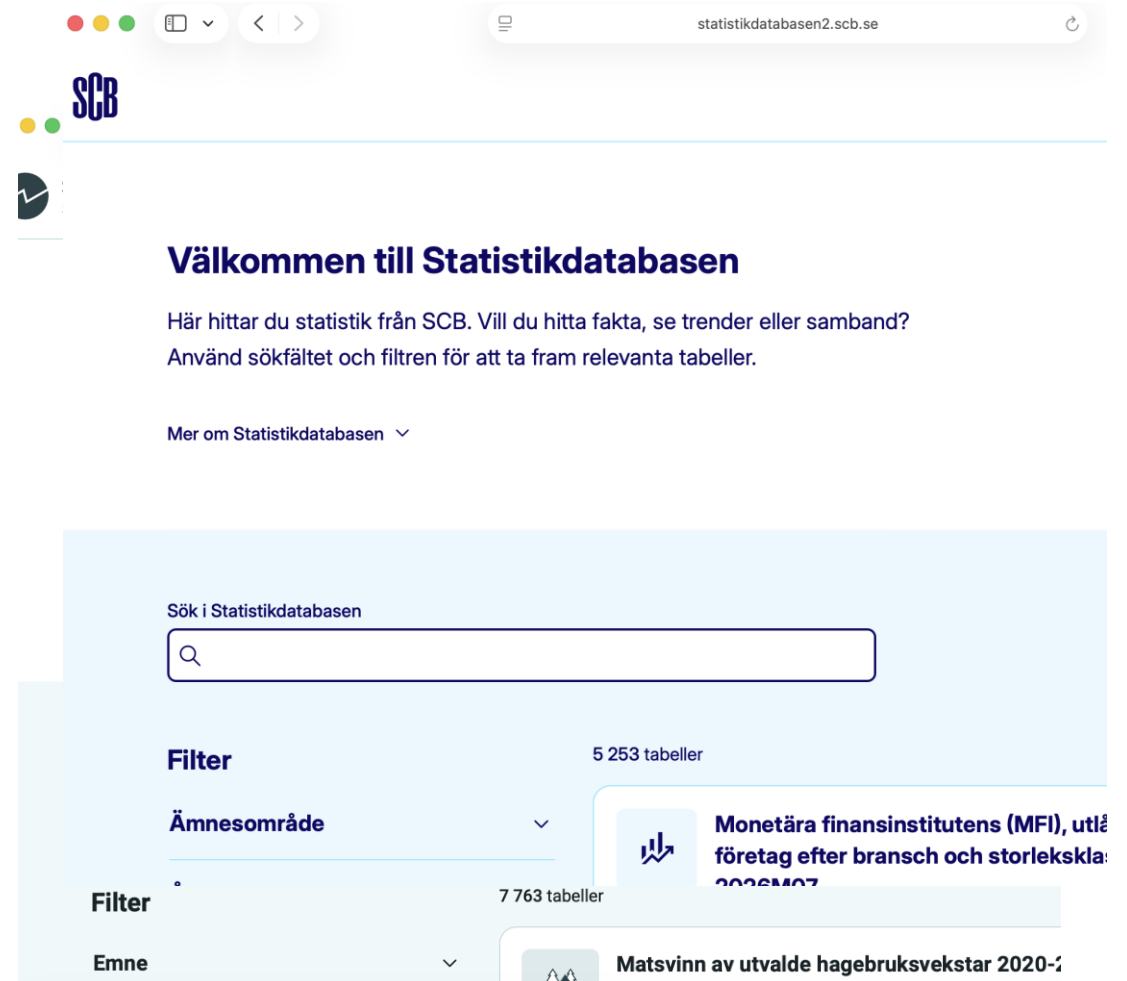
**What has happened in the last year?**



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# PxWeb2 is now in use

- Deployed in both Norway and Sweden
- Norway defaults to the new UI
- Sweden has a link to the new UI, but defaults to the old
- Norway and Sweden are broadening their focus to also include other tasks



# Denmark

- Joined in a greater capacity
- Will focus on AI use cases

# AI-powered attacks increasing

[Home](#) > [News](#) > [Security](#) > Shai Hulud attack ships signed malicious TanStack, Mistral npm packages

## Self-Replicating Worm Hits Latest Supply Chain Attack

👤 Ravie Lakshmanan 📅 Sep 16, 2025

## Malware Injected into 7 npm Packages After Maintainer Tokens Stolen in Phishing Attack

👤 Ravie Lakshmanan 📅 Jul 20, 2025

DevOps / Threat Intelligence

📅 May 12, 2026 ⌚ 07:29 AM 💬 1

Hundreds of packages across npm and PyPI have been compromised in a new Shai-Hulud supply-chain campaign delivering credential-stealing malware targeting developers.

- Not been compromised
- However, we spend more time:
  - Staying on top of vulnerabilities
  - Checking if we are affected by the large-scale attacks

# Improved release workflow and release notes

- Release-please for autom
- Uses conventional comm
  - Creates a draft PR for tl
  - Generates release no
  - Updates version num
  - Updates CHANGELOC
- Removes manual steps

## 2.11.0 (2026-09-10)

### 🌟 Features

- Add graph legend handling ([#1460](#)) ([a308485](#))
- Chart autopivot ([#1346](#)) ([763b42a](#))
- Improve chart axis functionality ([#1358](#)) ([d9ce7cb](#))
- visual styling of non data elements 108 ([#1461](#)) ([79edff3](#))

### 🐛 Bug Fixes

- Add correct styling to linechart showmore button ([#1476](#)) ([7979cdb](#))
- change link target to open in the same tab ([#1493](#)) ([c312a5b](#))
- Minor EmptyState changes ([#1477](#)) ([918a365](#))
- resolve type errors by converting numbers to strings in 2 translations in Presentation component ([#1459](#)) ([12303a4](#))

### 📖 Documentation

- update MAINTAINERS file ([#1491](#)) ([185d1ee](#))

### 🔧 Build System and dependencies

- **deps-dev:** bump @typescript-eslint/eslint-plugin ([#1465](#)) ([ae261f8](#))

# Improve security for releases

- Enable Immutable Releases on GitHub
- Can not change after release is published:
  - Release assets (the zip-file)
  - Git tag (v2.11.0)
- Does not include the image tags
  - Use image digest/SHA if wanted

**v2.11.0** Latest

 github-actions released this last week  Immutable  v2.11.0

[2.11.0](#) (2026-09-10)



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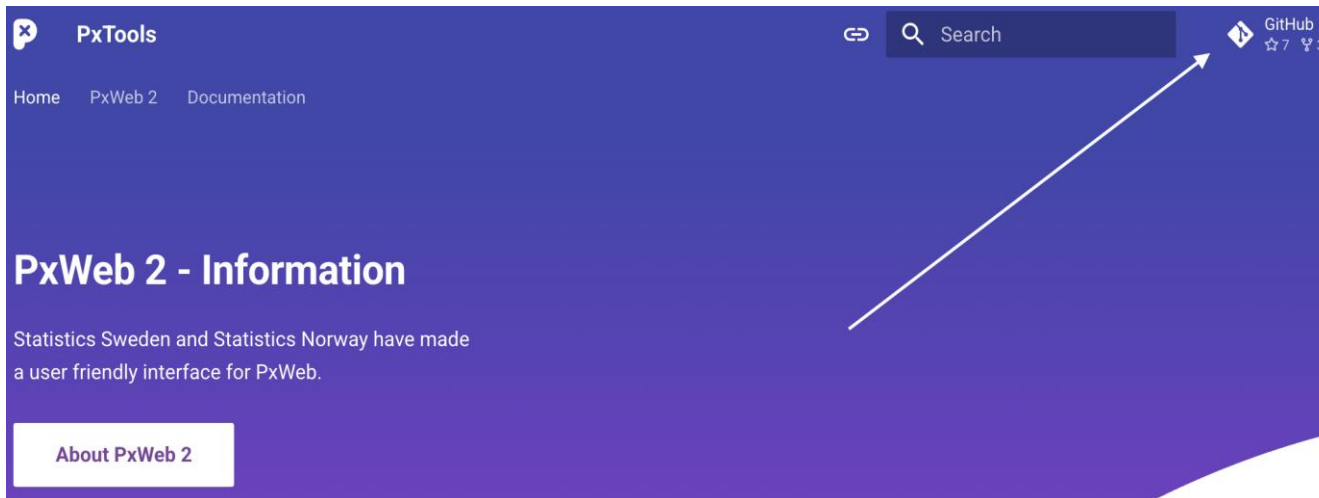
# PxWeb2-project migrated from Jira to GitHub

- Used to be in Norway's Jira and Confluence
  - Only those with access could see
- GitHub is now used to handle project management, tasks, backlog etc.
  - Now viewable by anyone: [github.com/orgs/PxTools/projects/6](https://github.com/orgs/PxTools/projects/6)



# Documentation

- Find it here: <https://www.pxtools.net/>
- If you find issues:
  - Can create issues on the GitHub page for the documentation
  - <https://github.com/PxTools/pxtools.github.io>



# Demo GitHub and Docs



# What have we done, code-wise?



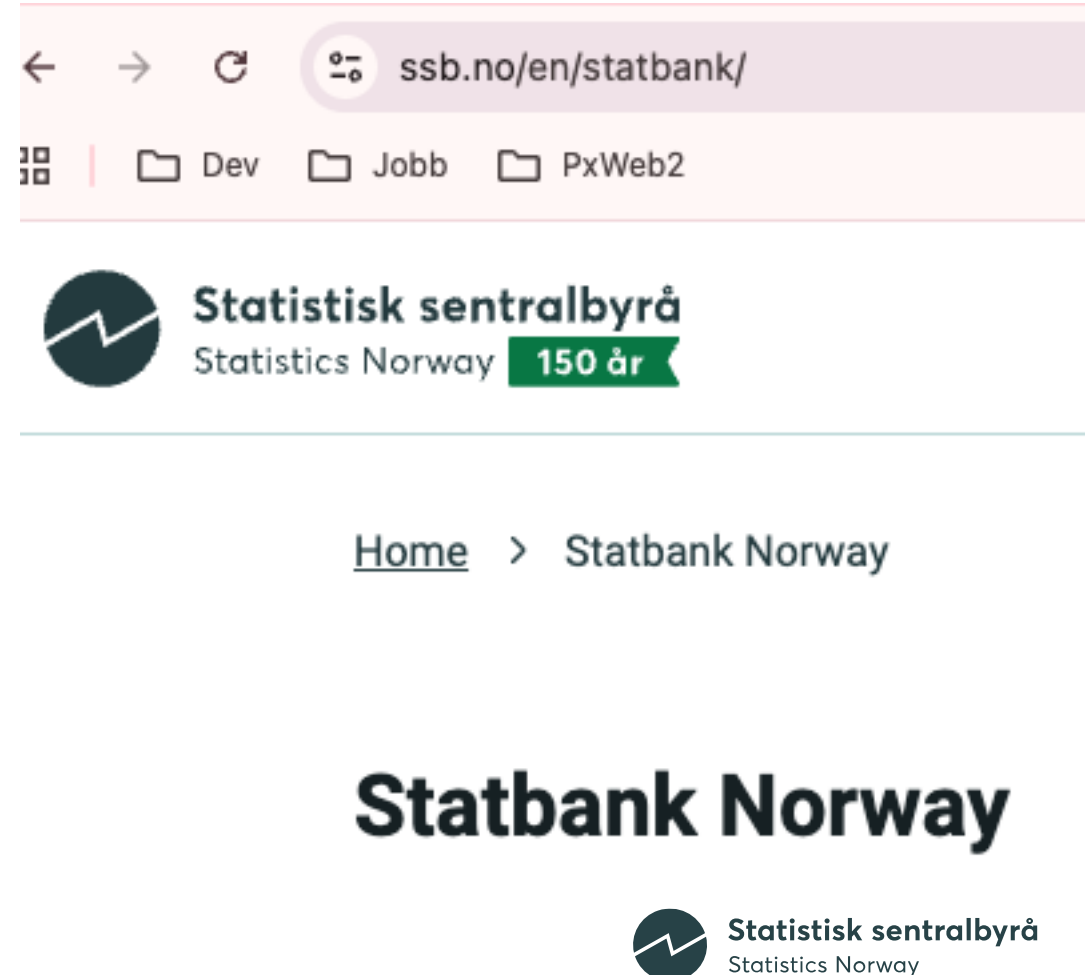
# Bugfixes and performance

- Various bugfixes
- Performance enhancements on both pages

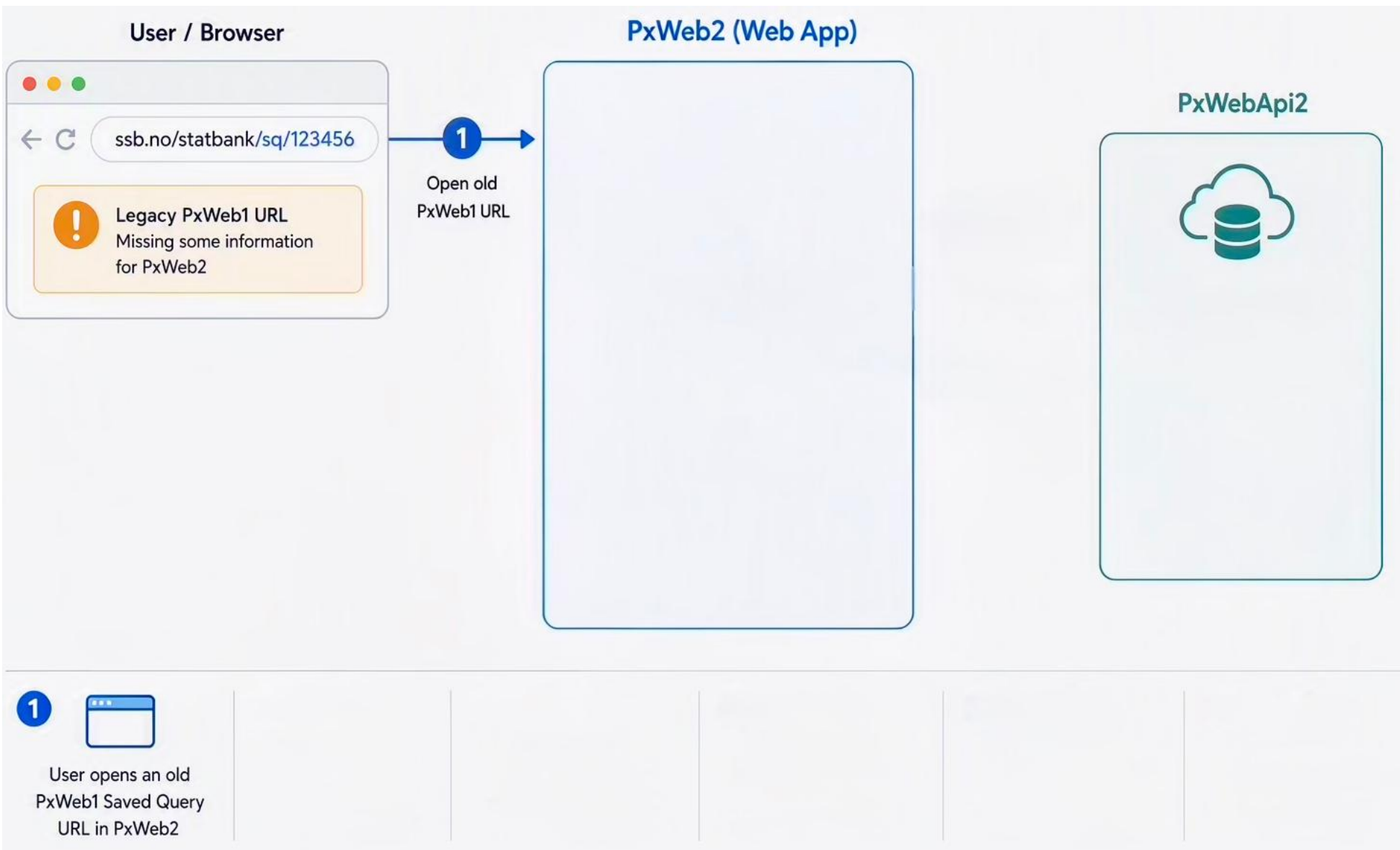


# Expand available language positions in URL

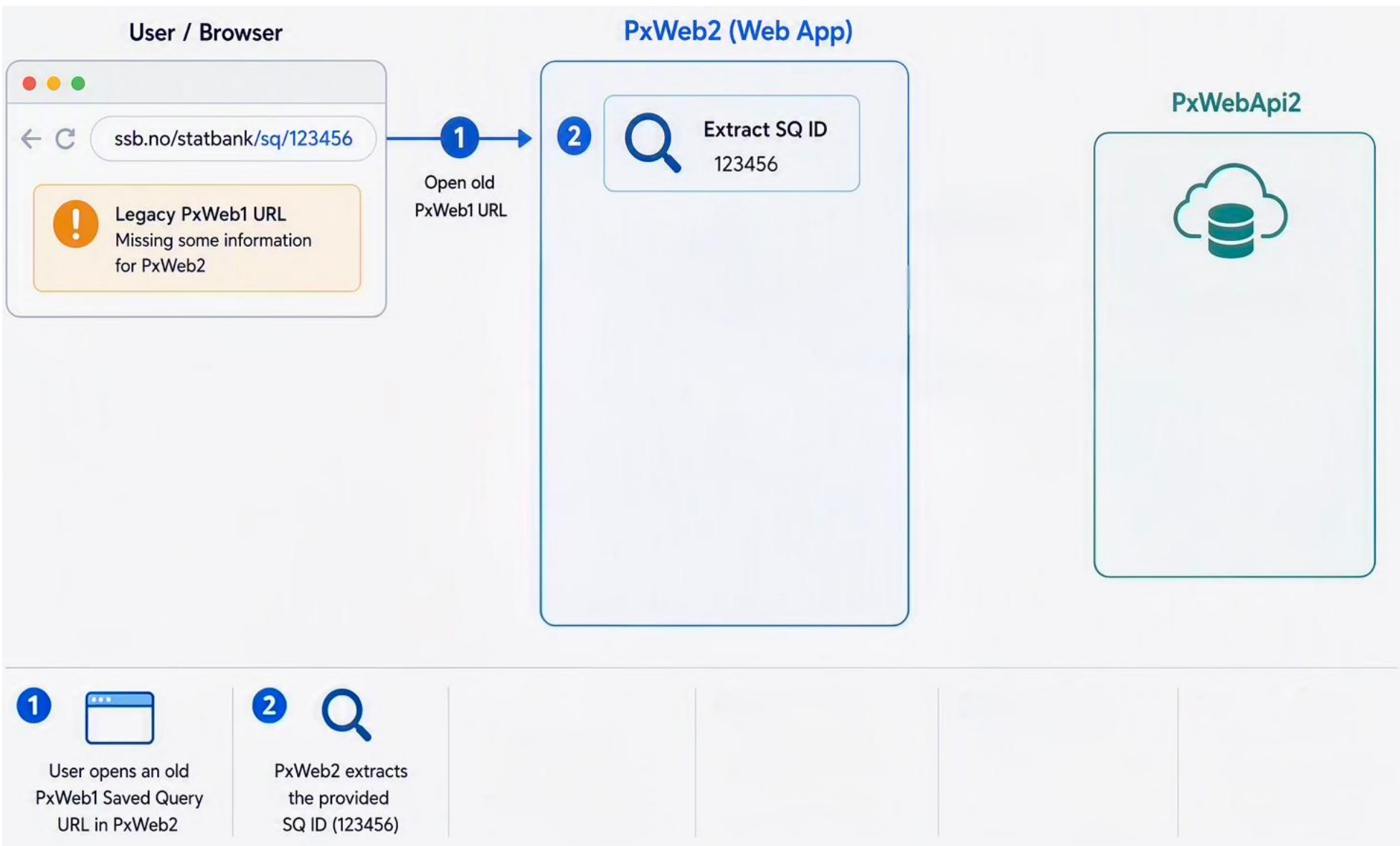
- Now supports language-code being earlier
- Before:           ssb.no/statbank/en/
- Now also:       ssb.no/en/statbank/



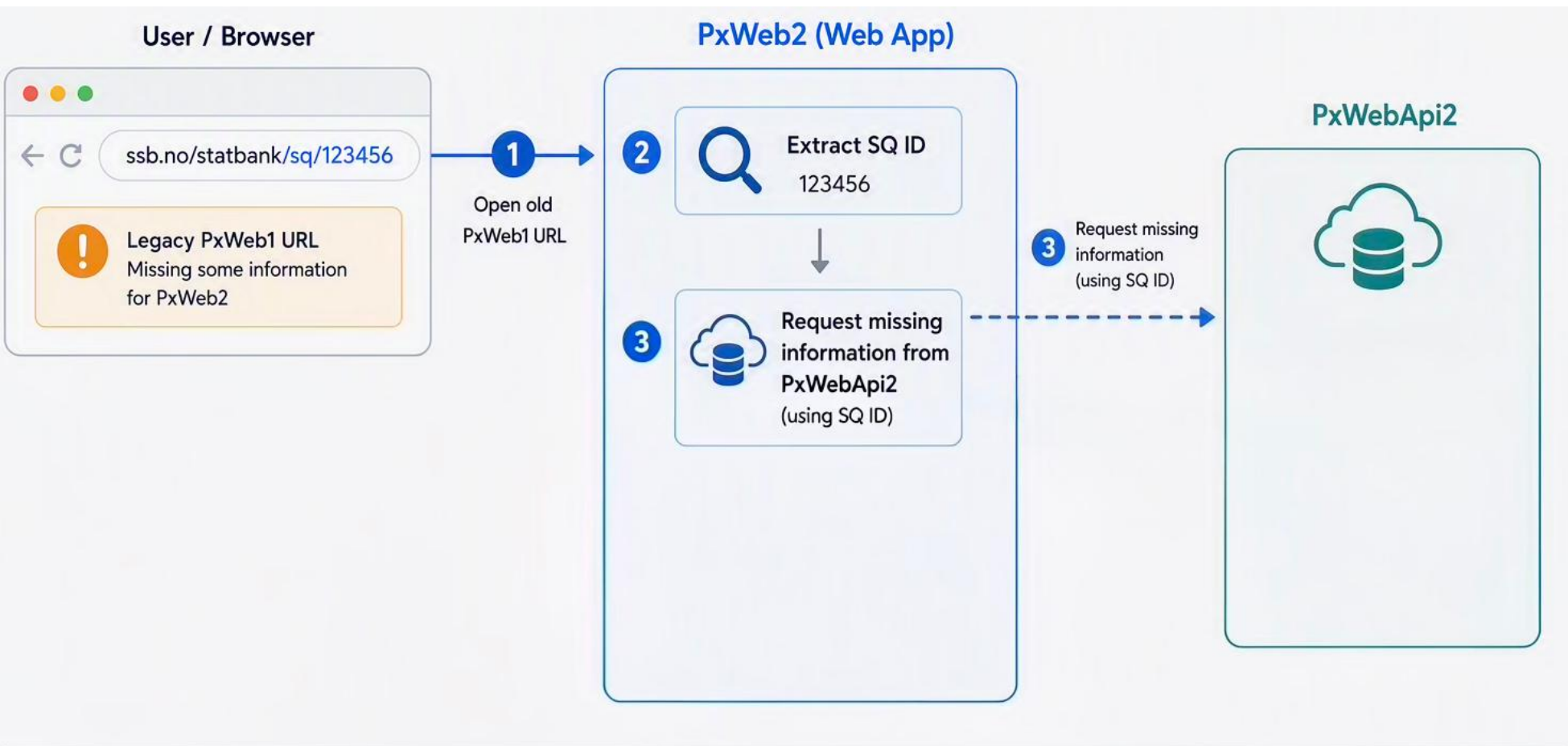
# Supporting Legacy PxWeb1 Saved Query URLs in PxWeb2



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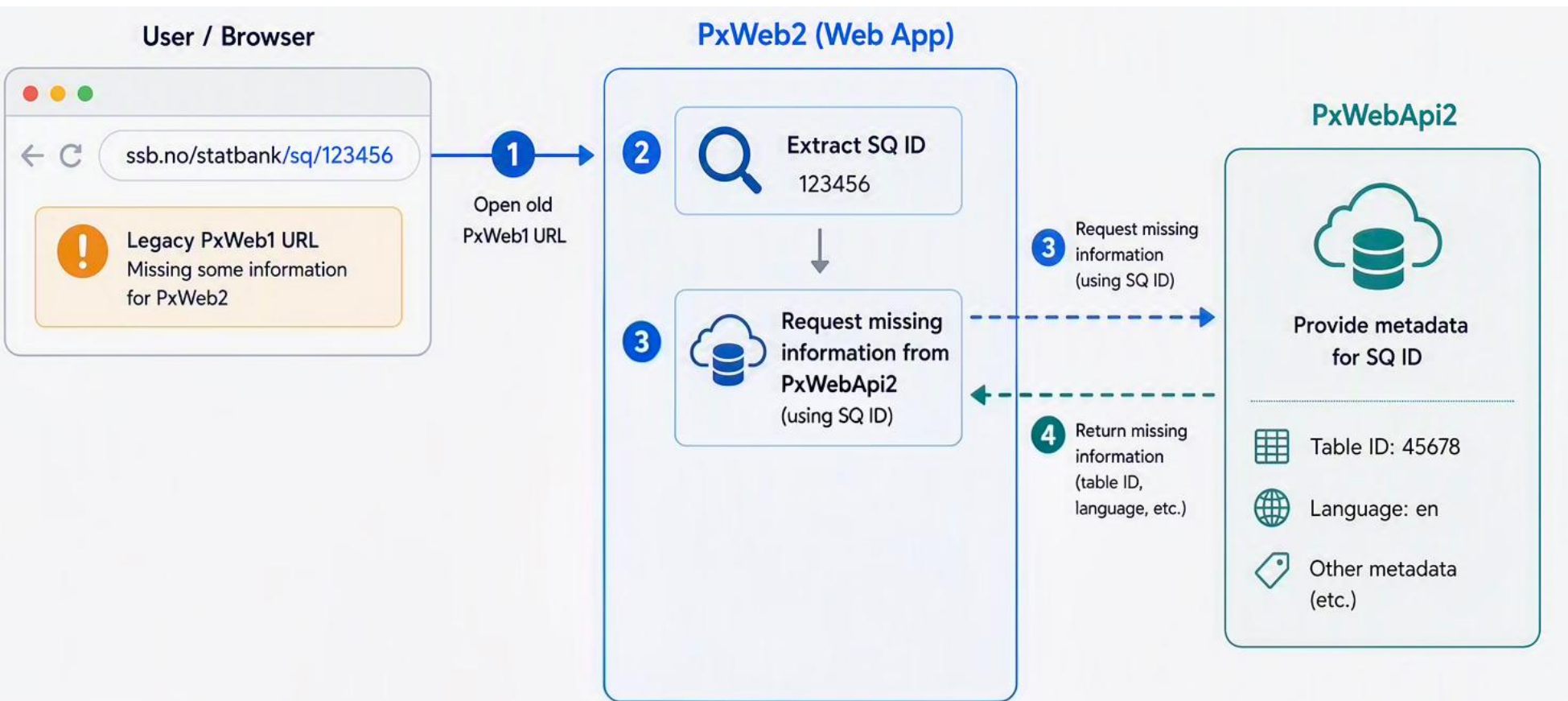
1 User opens an old PxWeb1 Saved Query URL in PxWeb2
- 

2 PxWeb2 extracts the provided SQ ID (123456)
- 

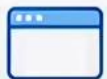
3 PxWeb2 requests missing information from PxWebApi2



# Supporting Legacy PxWeb1 Saved Query URLs in PxWeb2



1



User opens an old PxWeb1 Saved Query URL in PxWeb2

2



PxWeb2 extracts the provided SQ ID (123456)

3



PxWeb2 requests missing information from PxWebApi2

4

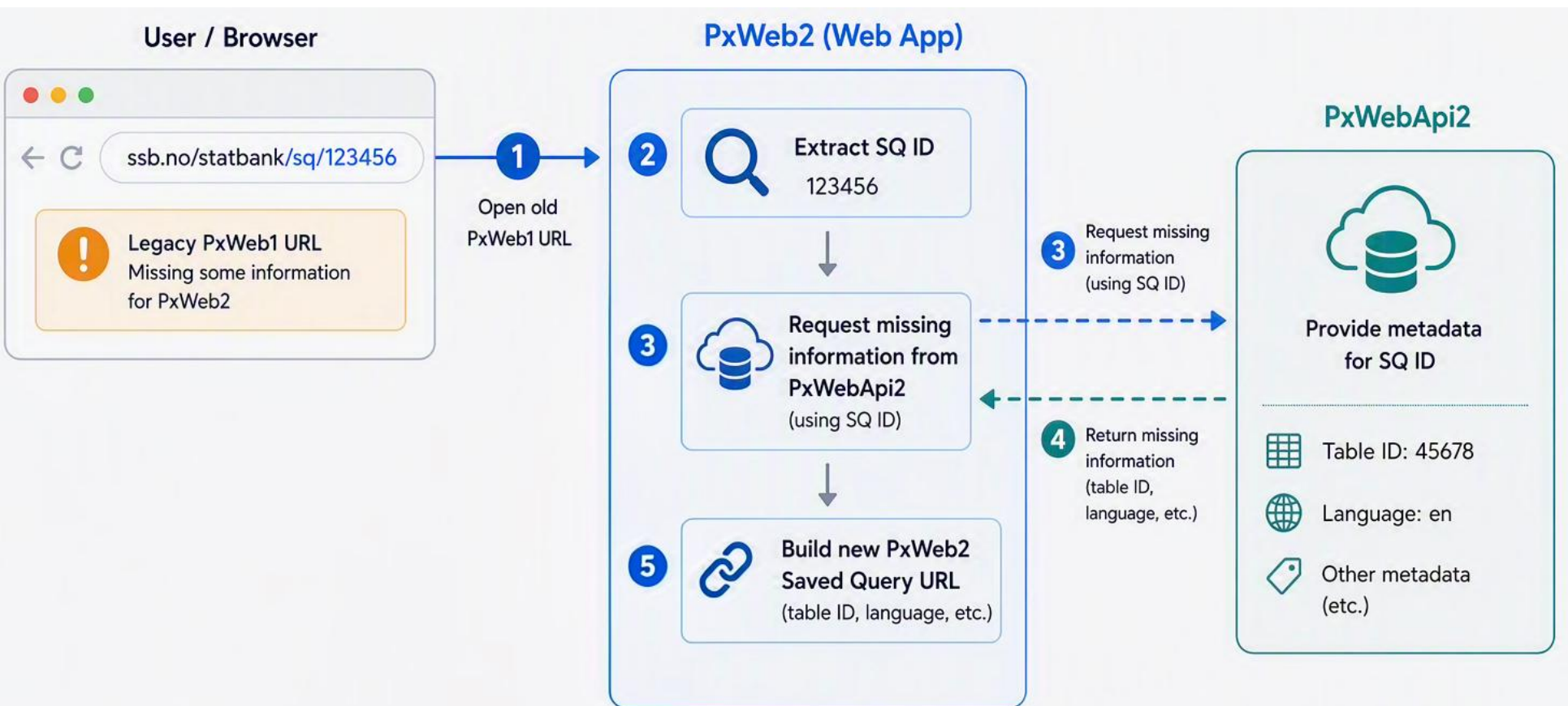


PxWebApi2 returns table ID, language and other metadata



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# Supporting Legacy PxWeb1 Saved Query URLs in PxWeb2



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User opens an old PxWeb1 Saved Query URL in PxWeb2

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PxWeb2 extracts the provided SQ ID (123456)

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PxWeb2 requests missing information from PxWebApi2

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PxWebApi2 returns table ID, language and other metadata

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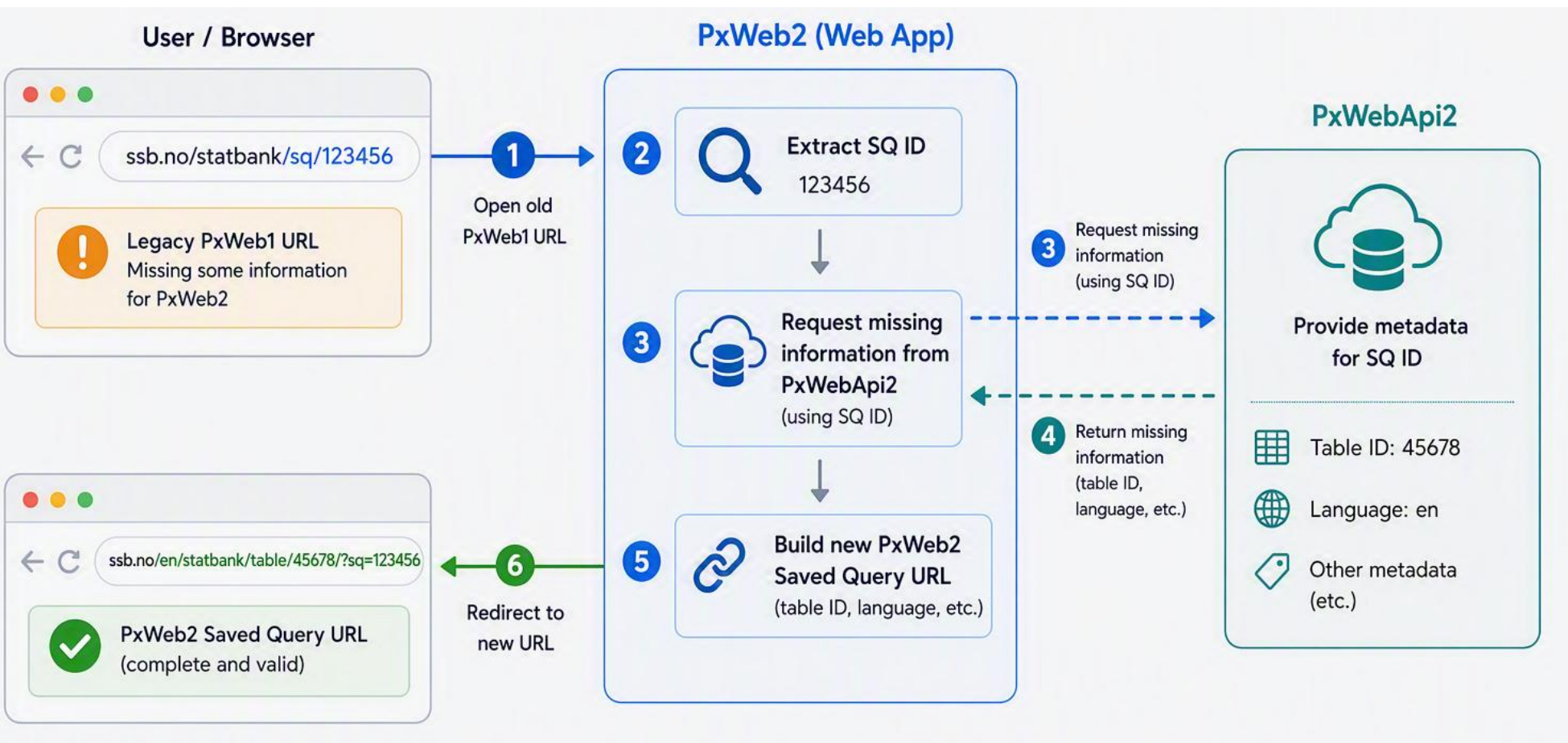


PxWeb2 builds the correct Saved Query URL for PxWeb2

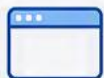


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# Supporting Legacy PxWeb1 Saved Query URLs in PxWeb2



1



User opens an old PxWeb1 Saved Query URL in PxWeb2

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PxWeb2 extracts the provided SQ ID (123456)

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PxWeb2 requests missing information from PxWebApi2

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PxWebApi2 returns table ID, language and other metadata

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PxWeb2 builds the correct Saved Query URL for PxWeb2

6



PxWeb2 redirects the user to the new URL



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# Table page



# Definitions tab

- In the Information sidemenu
  - Shows definitions information from the API
  - Requires atleast one of the two links
  - Can also show variable definitions

## Informasjon



Merknader

Definisjoner

Detaljer

Kontakt

### Om statistikken

Definisjoner, forklaringer og annen informasjon relatert til tabellen, finner du på tabellens statistikkside.



Statistikkside



Definisjoner og forklaringer



### Metadata

Her finner du lenker til variabeldefinisjoner og klassifikasjoner brukt i tabellen.

### Statistikkvariabel



Variabeldefinisjon av Verdi



Variabeldefinisjon av Verdi hittil i år

# Slightly changed the layout

- Why make the change
  - Fix various longstanding and recurring bugs related to the layout
  - Worried the old layout would negatively affect the performance work coming
- What changed
  - Global Alert moved into the table section
  - Removed on level in the html code

# Old layout

Welcome to the new PxWeb 2.0! We're still improving to help you find and use the figures you need 🇳🇴🌟



Språk/Language



Filter



Display



Edit



Save



Help

## Filter

< Hide

### Observations

1 of 1 selected Mandatory

☒ Distribution

### Month

1 of 161 selected Mandatory

### Bidding zone

5 of 5 selected Mandatory

[Home](#) > [Energy](#) > [Electricity prices and electricity contracts](#) > [Electricity prices and electricity contracts](#) > Distribution of electricity contracts by bidding zone and contract type. Month 2013M04-2026M08



## Distribution of electricity contracts, share (percent) by contract type, month and bidding zone



Information

Updated: 9/23/2026, 8:00 AM

**There are 6 important notes for your selection**

Click on this message to read the notes.



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# New layout

 PxWeb

 Språk/Language

 Filter

 Display

 Edit

 Save



**Filter** < Hide

**Observations** ^

1 of 1 selected Mandatory

☒ Distribution

**Month** v

1 of 161 selected Mandatory

 Welcome to the new PxWeb 2.0! We're still improving to help you find and use the figures you need 🇳🇴🇸🇪. [More about PxWeb](#) 

[Home](#) > [Energy](#) > [Electricity prices and electricity contracts](#) > [Electricity prices and electricity contracts](#) > Distribution of electricity contracts by bidding zone and contract type. Month 2013M04-2026M08 <->

**Distribution of electricity contracts, share (percent) by contract type, month and bidding zone**

 Information Updated: 9/23/2026, 8:00 AM

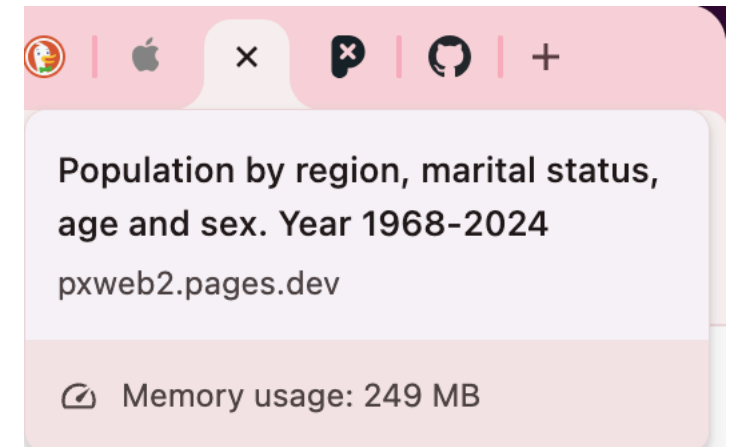
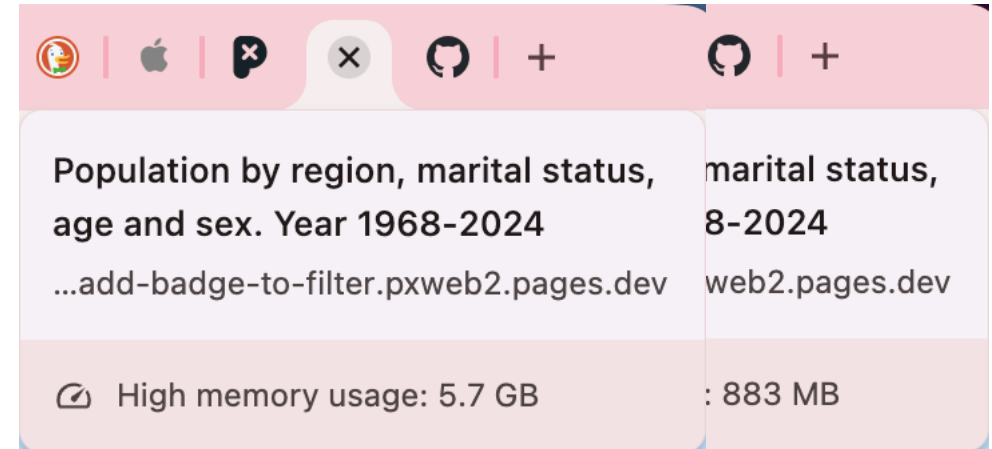


# Virtualized the table

- What does virtualization mean?
  - Only creating what you see in the browser
- Old implementation used to create the entire table
- Used virtualization before in PxWeb2
- Two stage work process
  - Add virtualization to the table page
  - Adjust it to look and feel good
- Took a lot of work
- Very complex

# Why virtualize and what could we gain

- Had issues with the old table
- Help with performance
- Significantly lower memory usage
  - Old usage for 130.000+ cells = 850MB+
  - New usage for 130.000+ cells = 240MB+
- Solve a memory leak



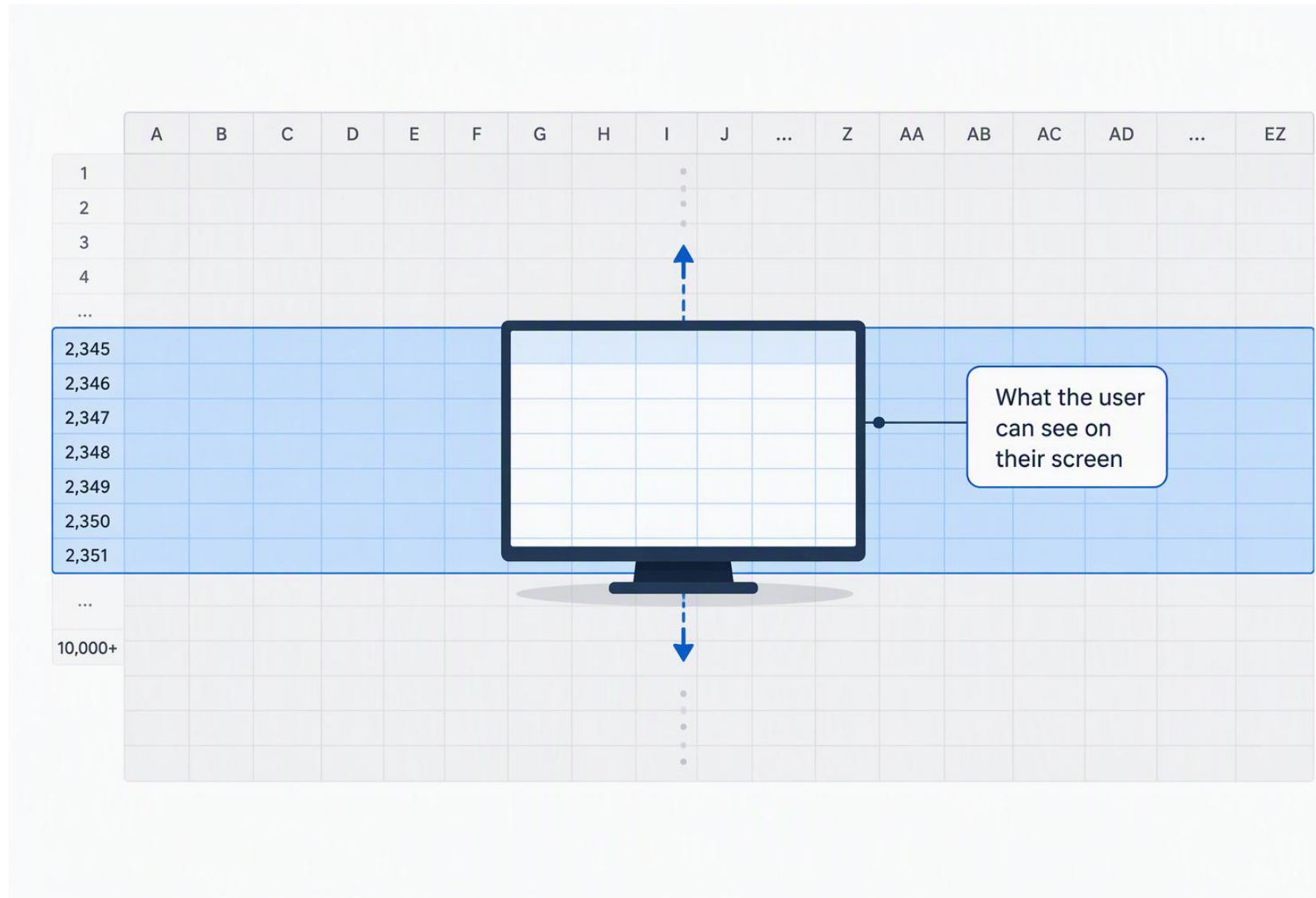
## Without virtualization

- Every cell in the table is created by the browser
- Only a few cells are visible

The diagram illustrates the concept of 'What the user can see on screen' in a large spreadsheet. It shows a large grid representing the entire dataset, with columns labeled A through EZ and rows numbered 1 through 10,000+. A smaller monitor-like window shows a zoomed-in view of a specific range of the grid, specifically columns J through N and rows 1,001 through 1,005. A callout box with an eye icon points to the monitor, stating 'What the user can see on screen'.

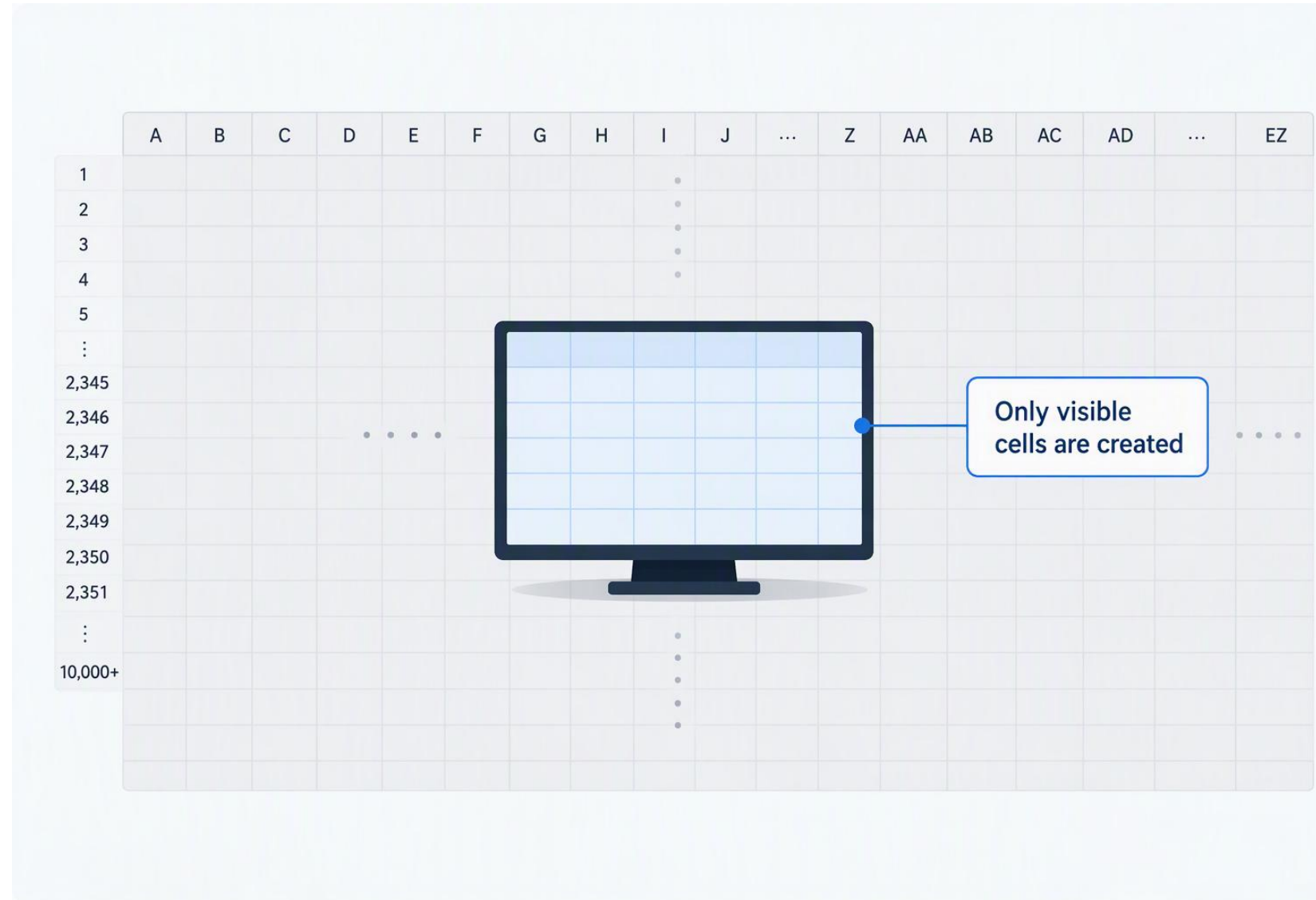
# Row virtualization

- Only the cells in the rows around the visible area are created
- As you scroll, rows are added and removed seamlessly



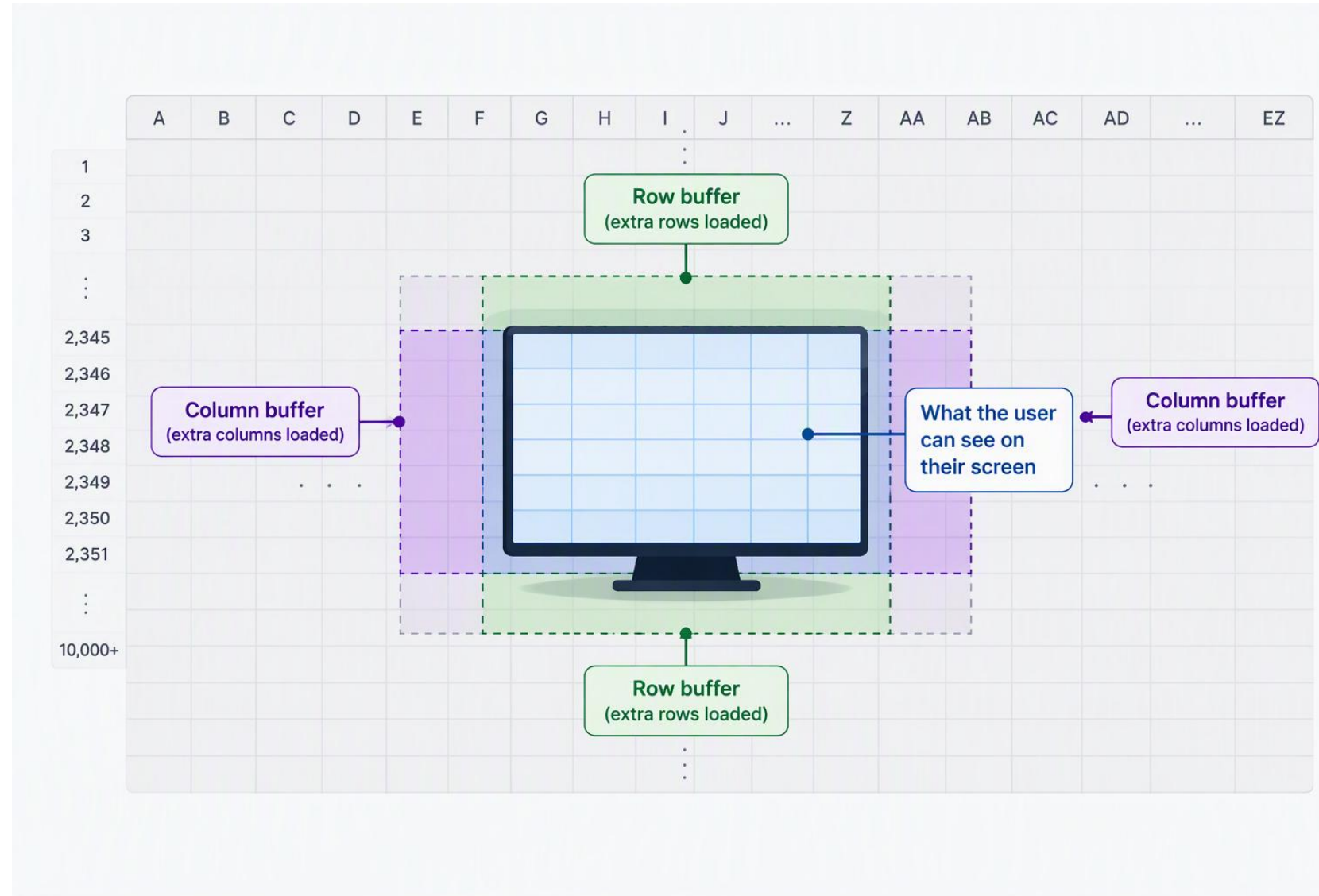
# Row and column virtualization

- Both rows and columns are virtualized
- Only the cells around the visible area are created
- Everything outside the visible area is only created when needed
- Issues with fast scrolling

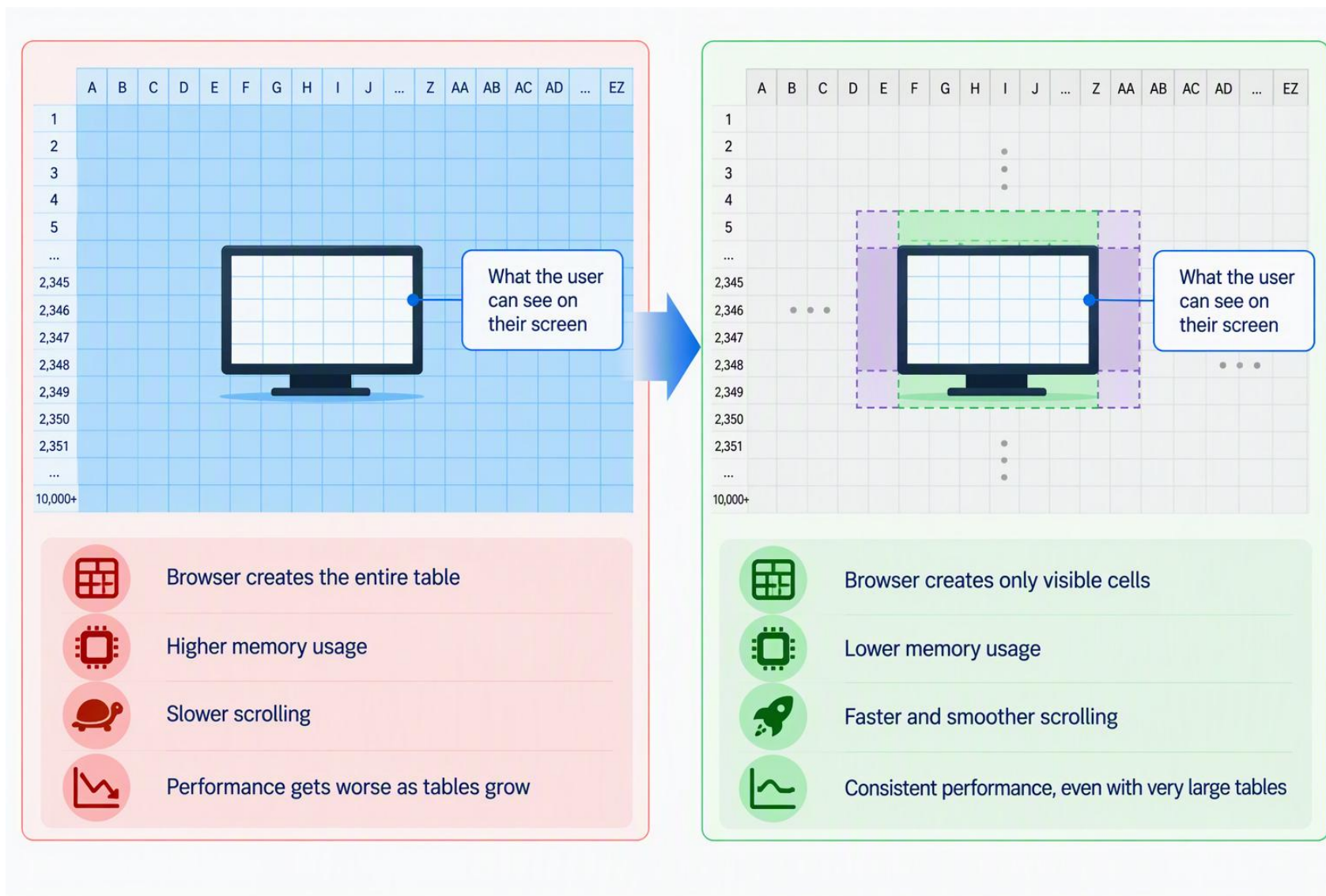


# Row and column virtualization with buffers

- We create the cells you see, plus a small buffer around that area
- Smooth, fast scrolling



# Virtualization before and after: The difference



# How we chose the package for Charts



# Choosing a chart library

- Tested 3 different packages
  - Recharts
  - Chart.js
  - Apache ECharts
- Important requirements
  - Which types of charts they support?
  - How are they drawn in the browser?
  - Which file formats do they support for download?
  - How maintained are they?

# Which we chose: Apache ECharts

- Supports both SVG and Canvas rendering
  - Possible to have better performance in the browser
- Can save as both SVG and PNG
- Supports geographical area/maps
- Only one that supports every requirement

# Thank you!

