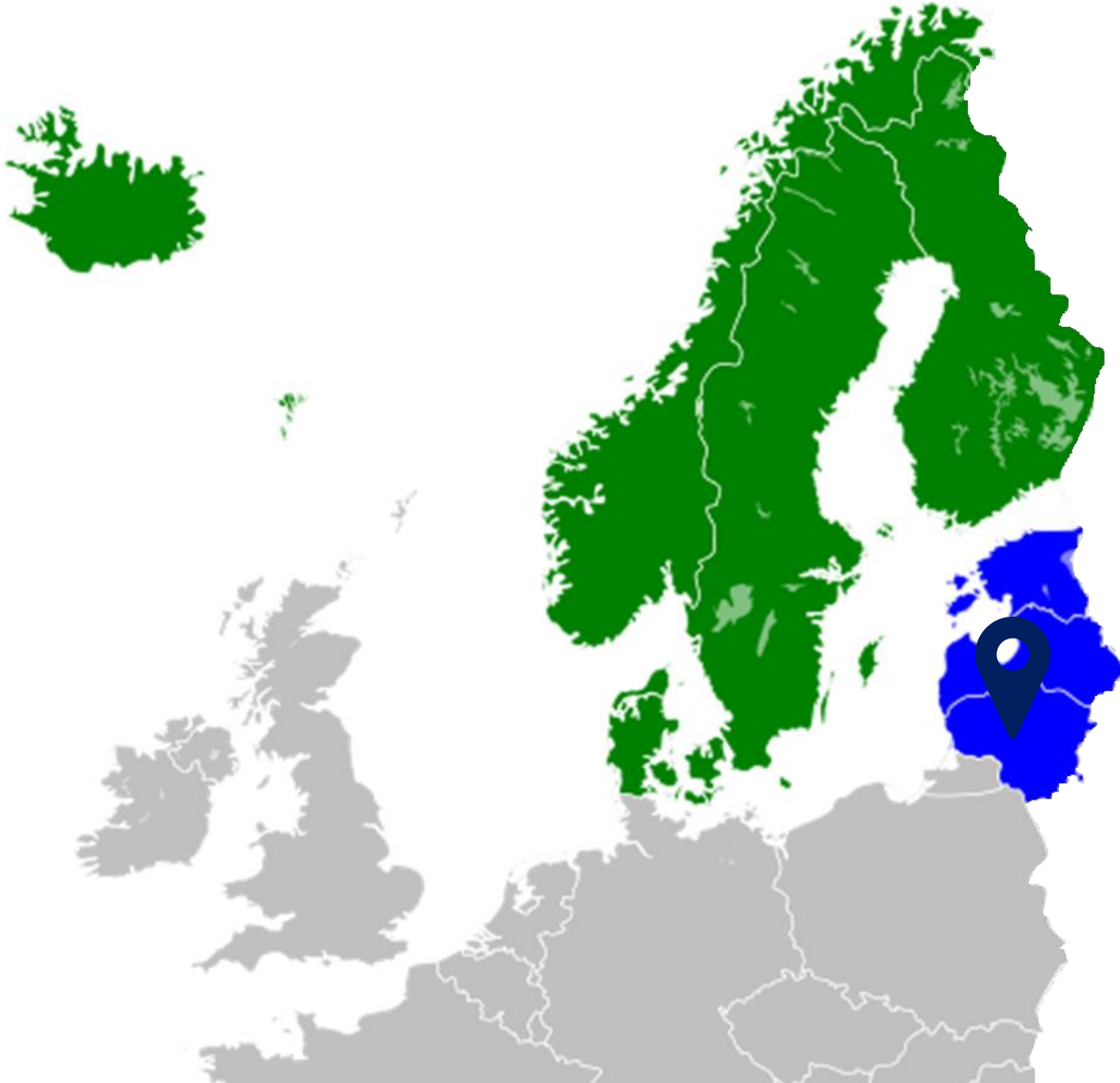


ProPeek: OpenEdge Application Profiling in VSCode

PAULIUS KUPREVIČIUS | p.kuprevicius@ba.lt

PUG CHALLENGE 2023





Why Lithuania?

- ✓ We have been part of the EU and NATO since 2004.
- ✓ We have been part of the Eurozone since 2015.
- ✓ We have been part of OECD since 2018.
- ✓ 1st in the EU for real GDP per capita growth 2000-2020 (Eurostat, 2020).
- ✓ 1st globally for digital skills availability (IMD World Competitiveness Yearbook, IMD World Competitiveness Center, 2023).
- ✓ 3rd globally for fiber coverage (OECD, 2021).
- ✓ 1st in EU for population with Higher Education – 70% of women and 48% of men.



baltic
 **amadeus**

About Baltic Amadeus:

30+

Years in business

250+

IT talents

500+

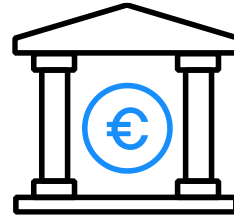
Customers

2000+

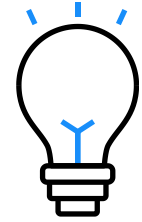
Implemented projects

We focus on services such as:

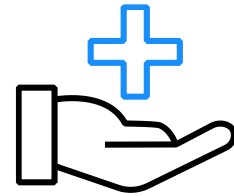
- ✓ Omnichannel platform
- ✓ eCommerce platform
- ✓ Marketplace platform
- ✓ Progress OpenEdge
- ✓ IT architecture
- ✓ Managed cloud
- ✓ Information security
- ✓ IT Due Diligence
- ✓ Mobile banking
- ✓ Data analytics



Banking & finance



Energy



Healthcare & Pharmacy



Telecommunications



Insurance



IT & consulting



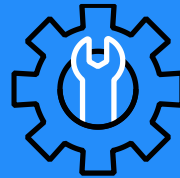
Well-experienced team

- ✓ Working with Progress since 2003;
- ✓ 40+ specialists and growing;
- ✓ Av. Age – 32y old;
- ✓ Av. Experience with Progress OE – 8y;
- ✓ Progress SDP & License reseller;
- ✓ Experienced with mission critical, legacy systems, ERP;
- ✓ Helping customers with support, new development, modernization projects;
- ✓ Working with all major frameworks and tools for Progress OE.

About me



Working with
Progress OpenEdge
since 2018



Passionate about
creating tools for
developers



Studying for a
master's degree in
Software Engineering

Agenda for today

- 01 Intro to VS Code
- 02 OpenEdge profiling
- 03 ProPeek
- 04 Demo
- 05 Conclusions and future development

The background features the letters 'VS Code' rendered in a 3D, blue, sans-serif font. The letters are slightly offset and layered, creating a sense of depth. The 'V' is on the left, 'S' is in the middle, and 'Code' is on the right. The text is centered horizontally and vertically.

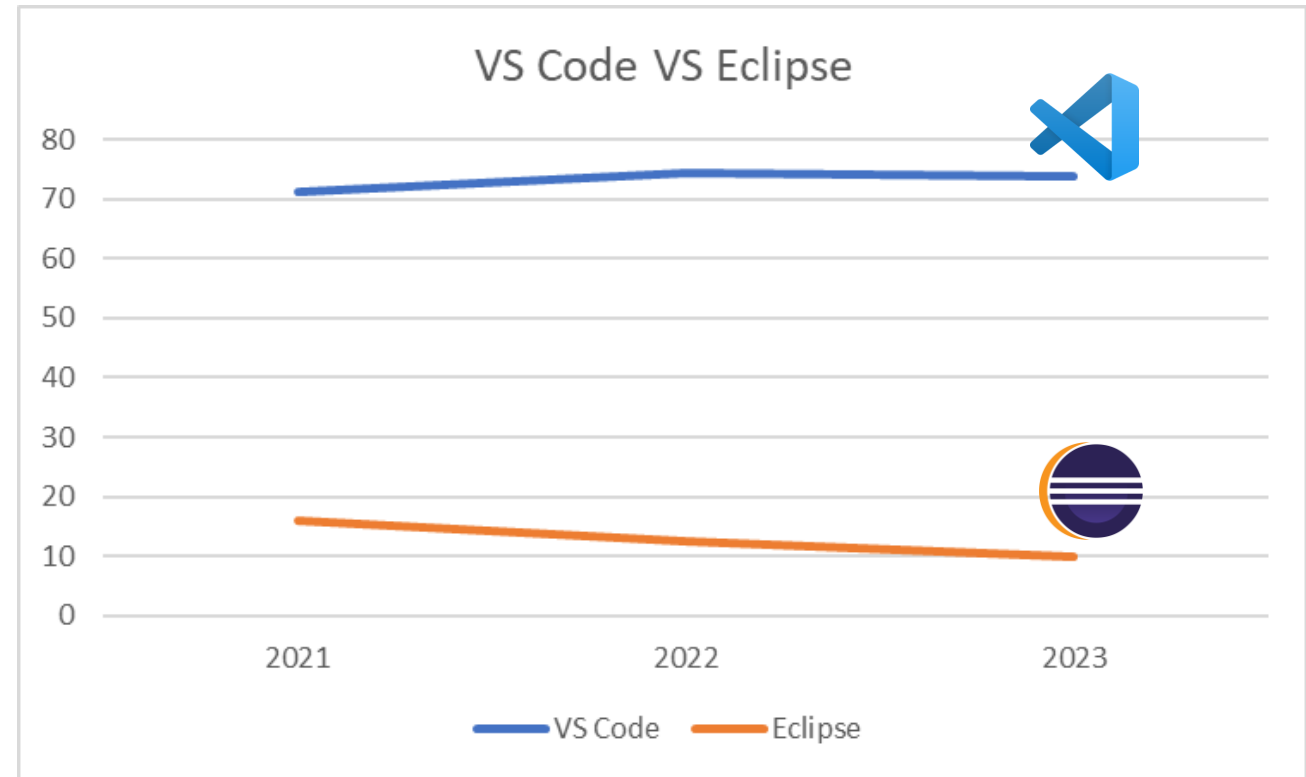
Intro to VS Code

Who uses VS Code?



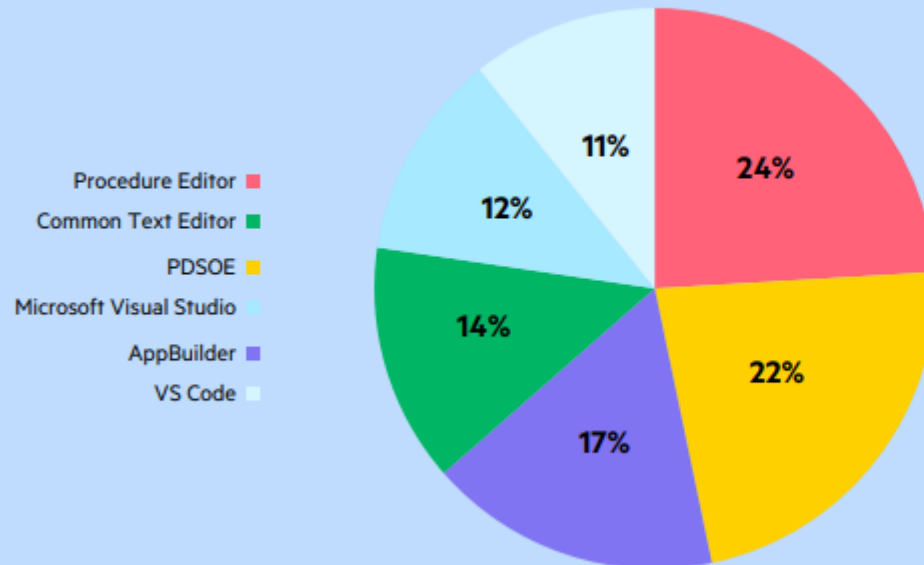
Who uses VS Code?

Everyone



Source: Stack overflow survey 2021, 2022, 2023

Who uses VS Code for OpenEdge?



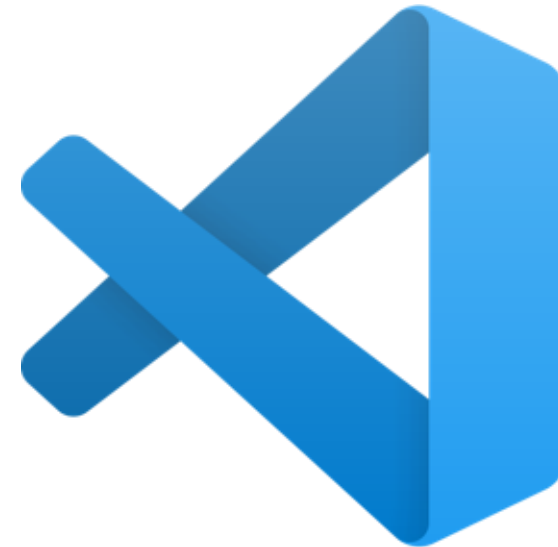
05

Development Tools Used

The legacy Procedure Editor and AppBuilder continue to be used stand-alone, even though they are available in PDSOE.

What is VS Code?

- ✓ Source-code editor;
- ✓ Free to use;
- ✓ Supports Windows, Linux and macOS;
- ✓ Based on the Electron framework (Chromium engine + Node.js);
- ✓ Easily extendable.



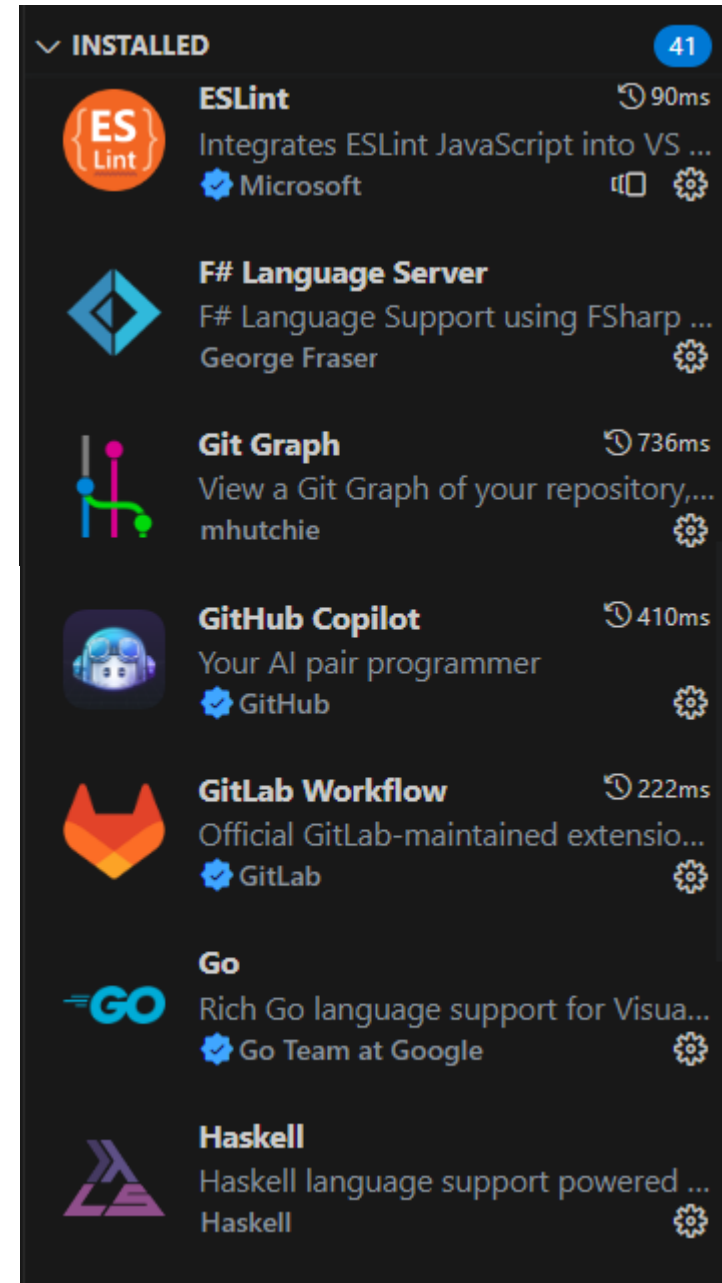
Extensions

- ✓ Thousands of different lightweight extensions:
 - ✓ Linters
 - ✓ Debuggers
 - ✓ Testing
 - ✓ Visualization
 - ✓ Automation



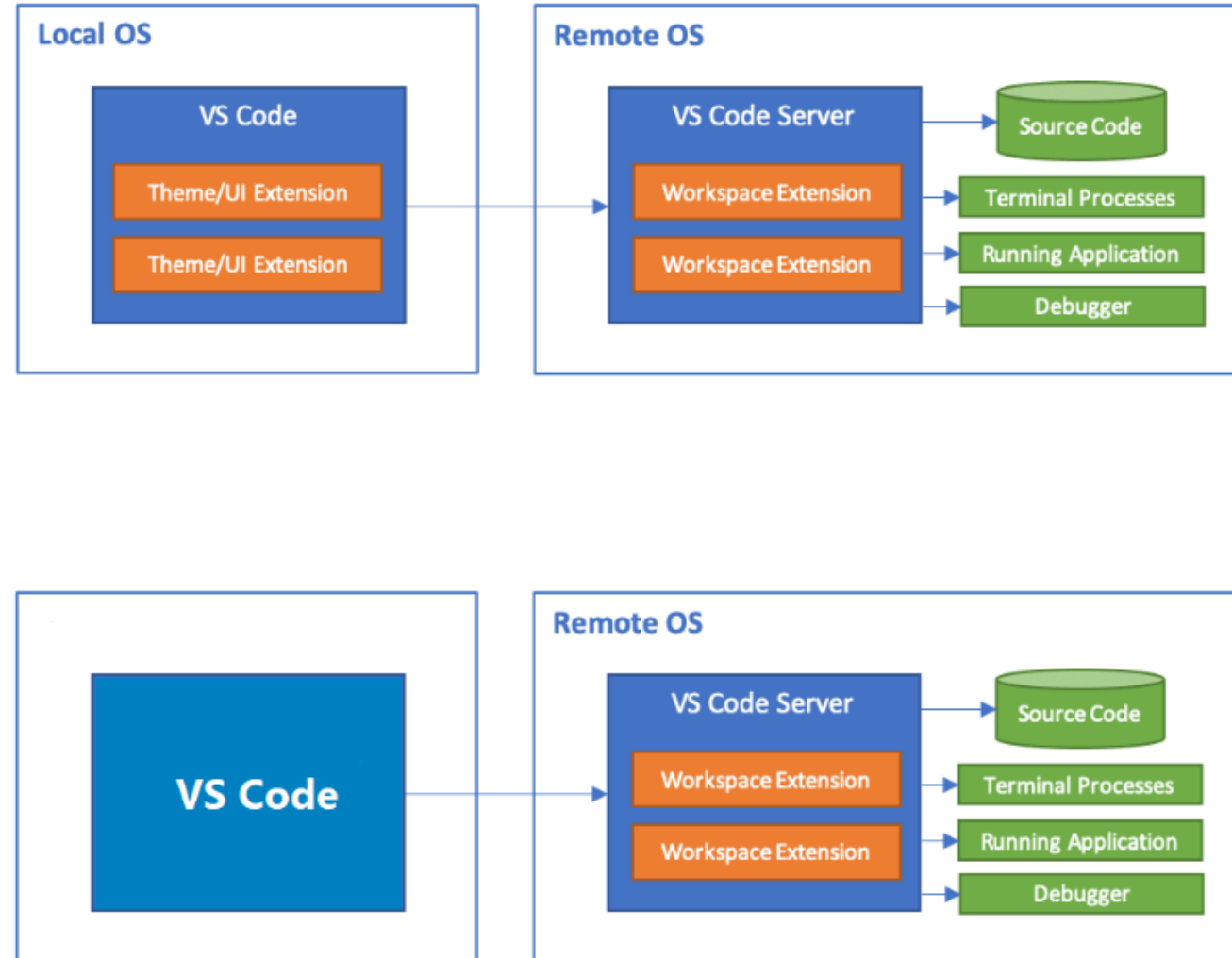
Plain
VSCode 

VSCode with
extensions



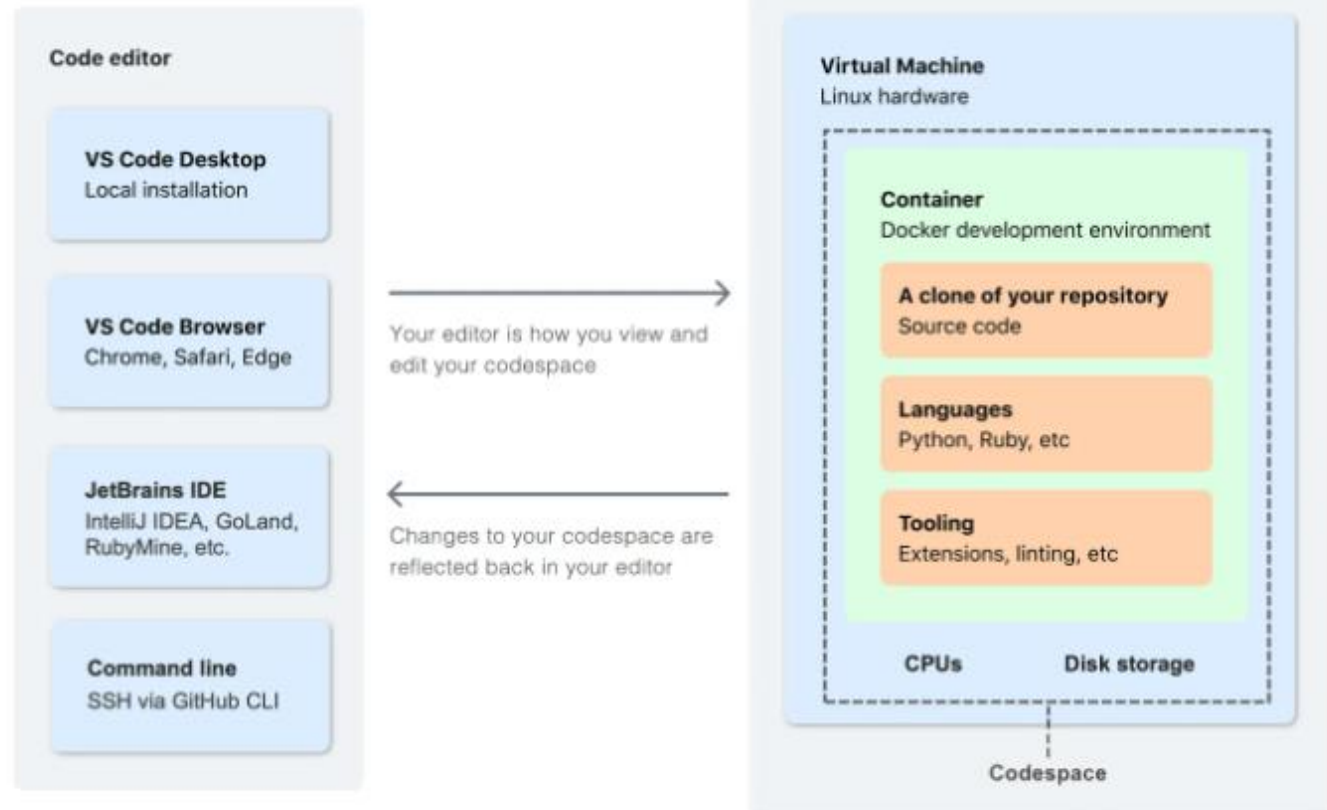
Architecture

- ✓ Clear separation between frontend and backend
- ✓ Multiple options for remote connection



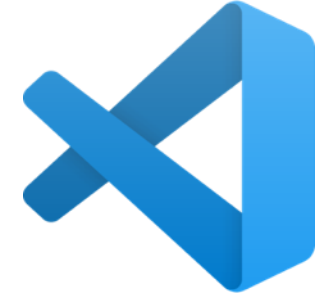
Gitpod and Codespaces

- ✓ Development environments that are hosted in the cloud
- ✓ Configuration as Code











VS Code for OpenEdge

- ✓ Only a few extensions for OE ABL support;
- ✓ Lack of continuous support.



8 Results Showing: All categories Sort By: Relevance

 OpenEdge ABL Camicas Christophe <small>21.5K</small> OpenEdge ABL language support for VS Code. ★★★★★ FREE	 OpenEdge ABL Riverside Software <small>3K</small> OpenEdge ABL support for VS Code. ★★★★★ FREE	 OpenEdge ABL (Progress) Ezequiel Gandolfi <small>8K</small> OpenEdge ABL Extension for VS Code. ★★★★★ FREE	 OpenEdge ABL ZaphyrVonGeneves <small>3.7K</small> OpenEdge ABL language support for VS Code. ★★★★★ FREE	 OpenEdge ABL Snippets YaginIgor <small>1.8K</small> Code snippets for OpenEdge ABL development ★★★★★ FREE	 Progress 4GL OpenEdge rafael canal <small>2.5K</small> Progress 4GL OpenEdge ABL Script ★★★★★ FREE
 ProBro Baltic Amadeus <small>372</small> VS Code extension for browsing Progress OpenEdge DataBases ★★★★★ FREE	 ProPeek Baltic Amadeus <small>7</small> Profiler app for OpenEdge ABL ★★★★★ FREE	Take a screenshot			

OpenEdge ABL by Gilles Querret

Tomorrow, 9am



- ✓ Syntax highlight
- ✓ OpenEdge project configuration (propath, database connections, aliases, ...)
- ✓ Multi-thread background compiler
- ✓ Profiles
- ✓ Debugger
- ✓ ABLUnit Support (currently not active)
- ✓ Code completion (work in progress)



ProBro

The screenshot shows the Visual Studio Marketplace page for the ProBro extension. At the top left is the extension's icon, a stylized blue 'B' on a black background. To its right, the extension name 'ProBro' is displayed with the version 'v1.4.0'. Below the name, it lists the publisher 'Baltic Amadeus', a download count of '369', and a rating of '5 stars (1)'. The description reads 'VS Code extension for browsing Progress OpenEdge DataBases'. There are buttons for 'Disable', 'Uninstall', and a settings gear icon. A status message says 'This extension is enabled globally.' Below this are navigation tabs for 'DETAILS', 'FEATURE CONTRIBUTIONS', 'CHANGELOG', and 'RUNTIME STATUS'. The main content area has a heading 'ProBro' followed by the description 'An extension for Progress DB browsing.' and a section 'Current status' which states 'This open source project is in active development. Our goal is to simplify the access to Progress DB when using VS Code as a development environment.' There is also a 'Features' section. On the right side, there are 'Categories' (Programming Languages, Visualization, Other) and 'Extension Resources' (Marketplace, Repository, License, Baltic Amadeus).

OPENEDGE EXPLORER sports2020.Customer X

Query: WHERE ... ▶ QUERY ⬇ EXPORT RAW + CREATE ✎ UPDATE 🗑 DELETE

CustNum	Country	Name	Address	Address2	City	State
3000	USA	Lift Tours	276 North Drive		Burlington	MA
3005	Finland	Urpon Frisbee	Rattipolku 3		Oslo	Uusim:
3010	USA	Hoops	Suite 415	40 Grove St.	Atlanta	GA
3015	United Kingdom	Go Fishing Ltd	Unit 2	83 Ponders End Rd	Harrow	Middle
3020	USA	Match Point Tennis	66 Homer Pl	Address 2	Boston	MA
3025	United Kingdom	Fanatical Athletes	20 Bicep Bridge Rd	Leyton	Montgomery	AL
3030	Finland	Aerobics valine Ky	Peltolantie 3		Tikkurila	Uusim:
3035	USA	Game Set Match	Box 60		Deatsville	AL
3040	Finland	Pihtiputaan Pyora	Putikontie 2		Pihtipudas	Etela-S
3045	United Kingdom	Just Joggers Limited	Fairwind Trading Est	Shoe Lane	Ramsbottom	Sussex
3050	Finland	Keilailu ja Biljardi	Vattuniemenkuja 8 A		Helsinki	Uusim:
3055	Finland	Surf Lautaveikkoset	Venemestarinkatu 35		Salo	Varsina
3060	Finland	Biljardi ja tennis	Urheilutie 1		Mantsala	Uusim:
3065	France	Paris St Germain	113, avenue du Stade	BP 338	Paris	Seine

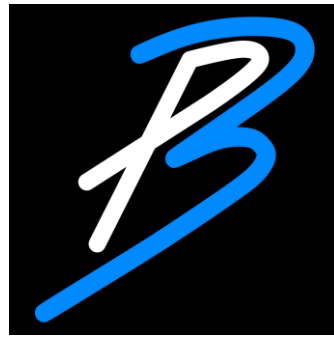
Records in grid: > 223 Recent records numbers: 223 Recent retrieval time: 100

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL **FIELDS EXPLORER**

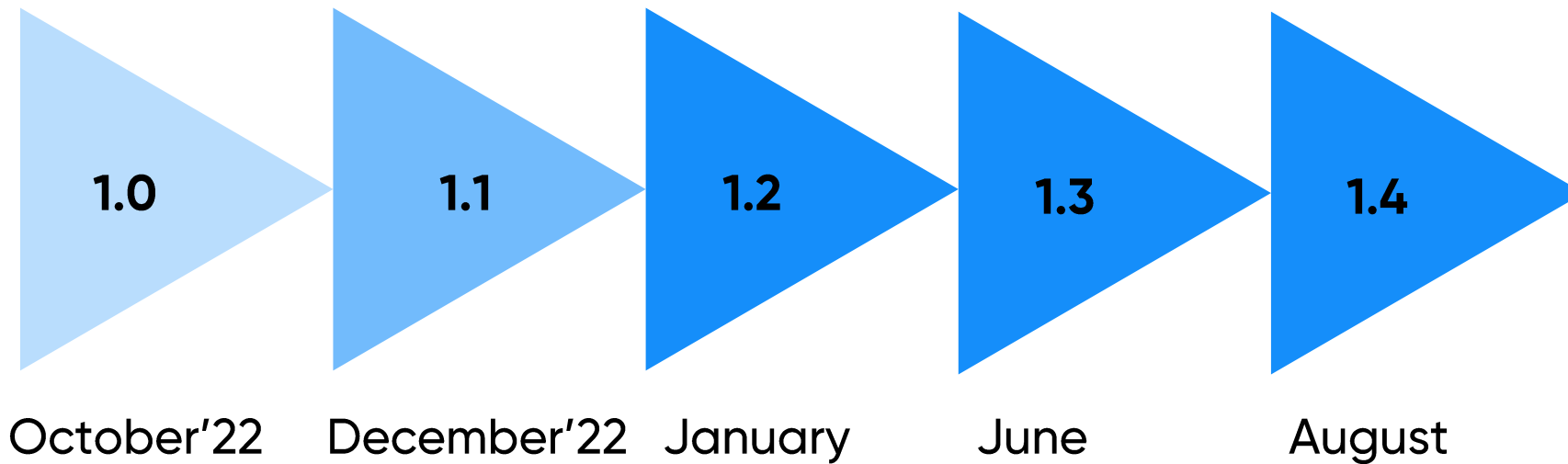
Order	Name	Type	Format	Label	Initial
10	CustNum	integer	>>>>9	Cust Num	0
15	Country	character	x(20)	Country	USA
30	Name	character	x(30)	Name	

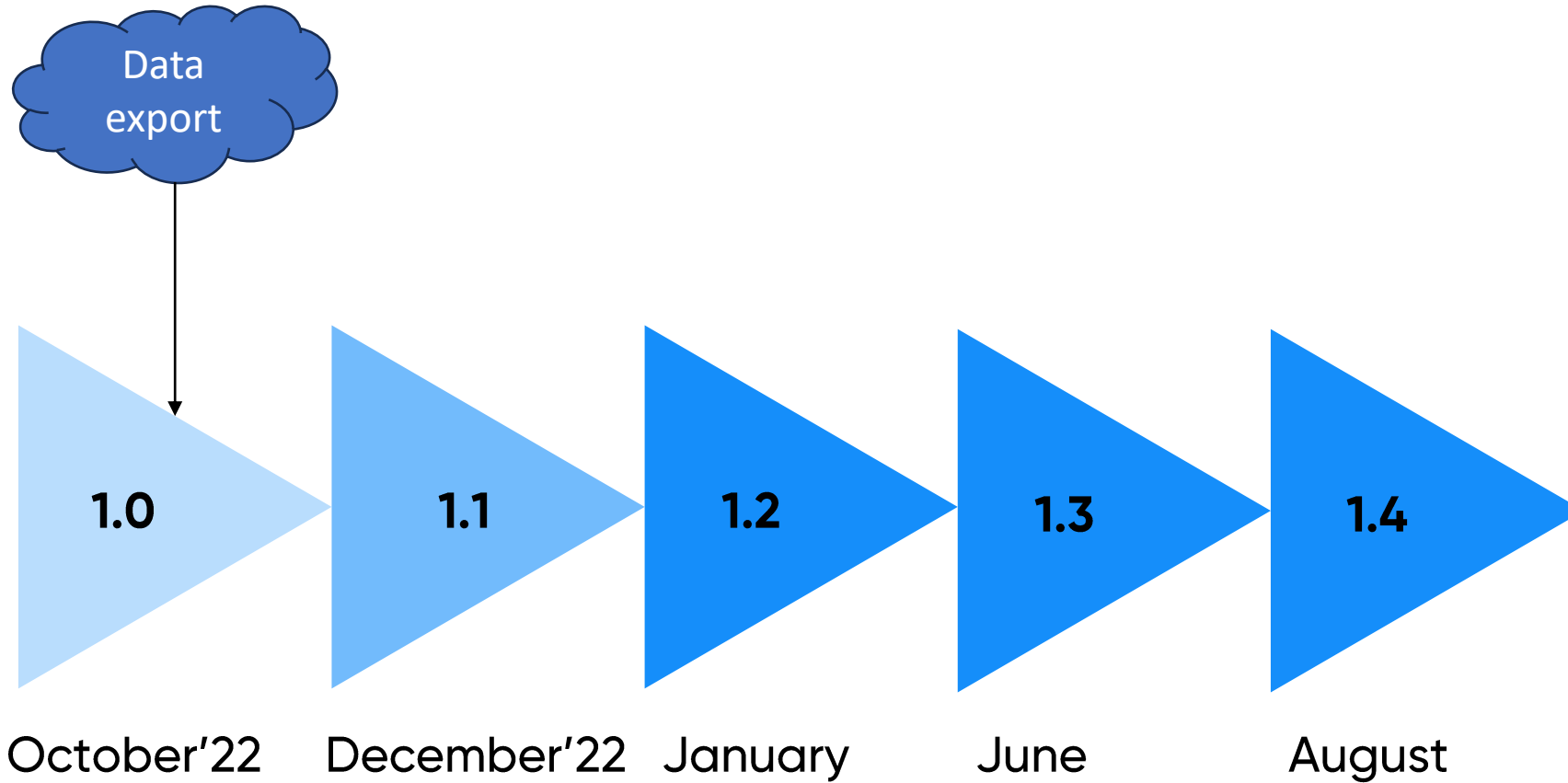
INDEXES EXPLORER:

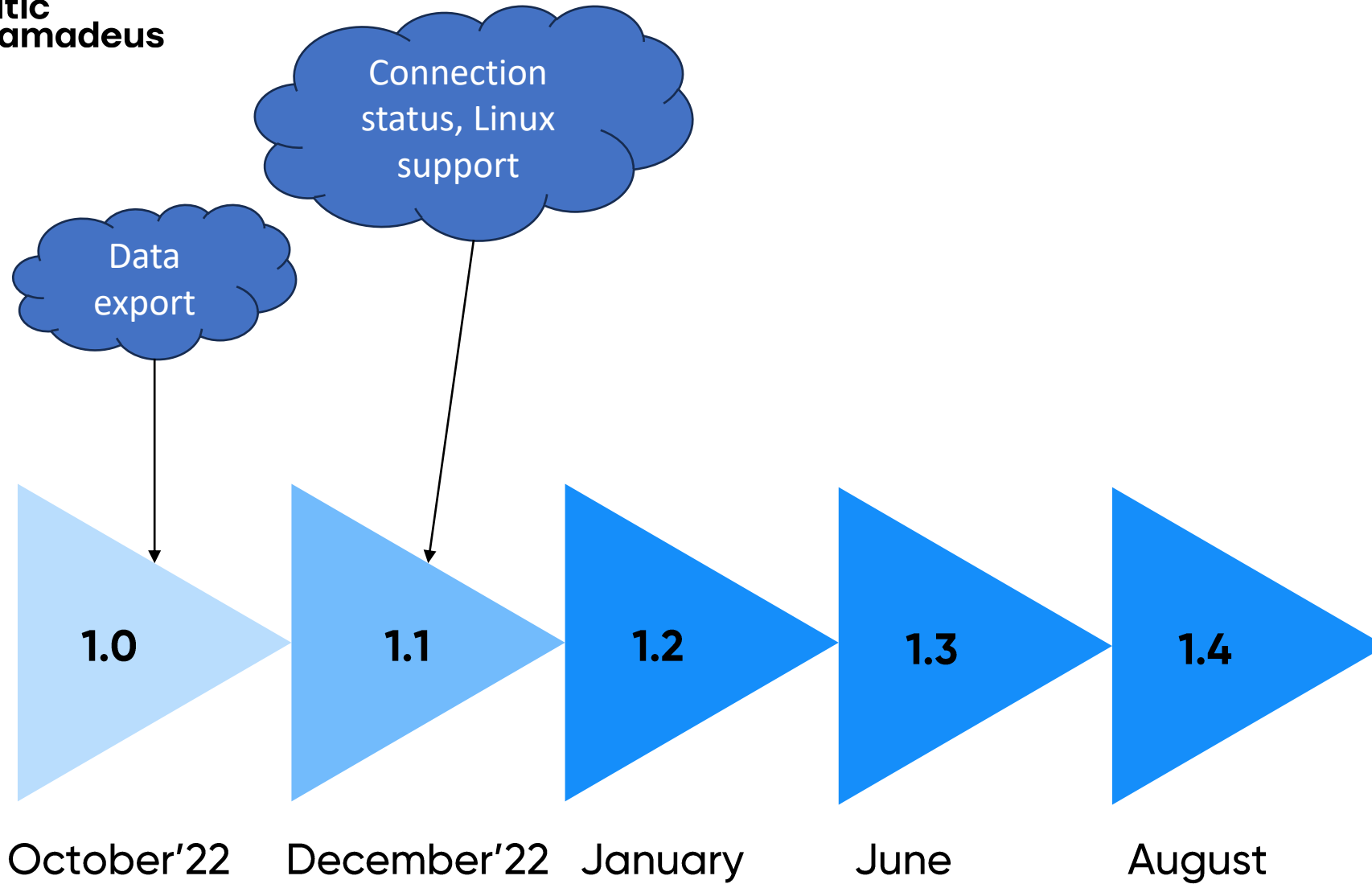
Name	Flags	Fields
Comments	W	Comments+
CountryPost		Country+ PostalCode+
CustNum	P U	CustNum+
Name		Name+

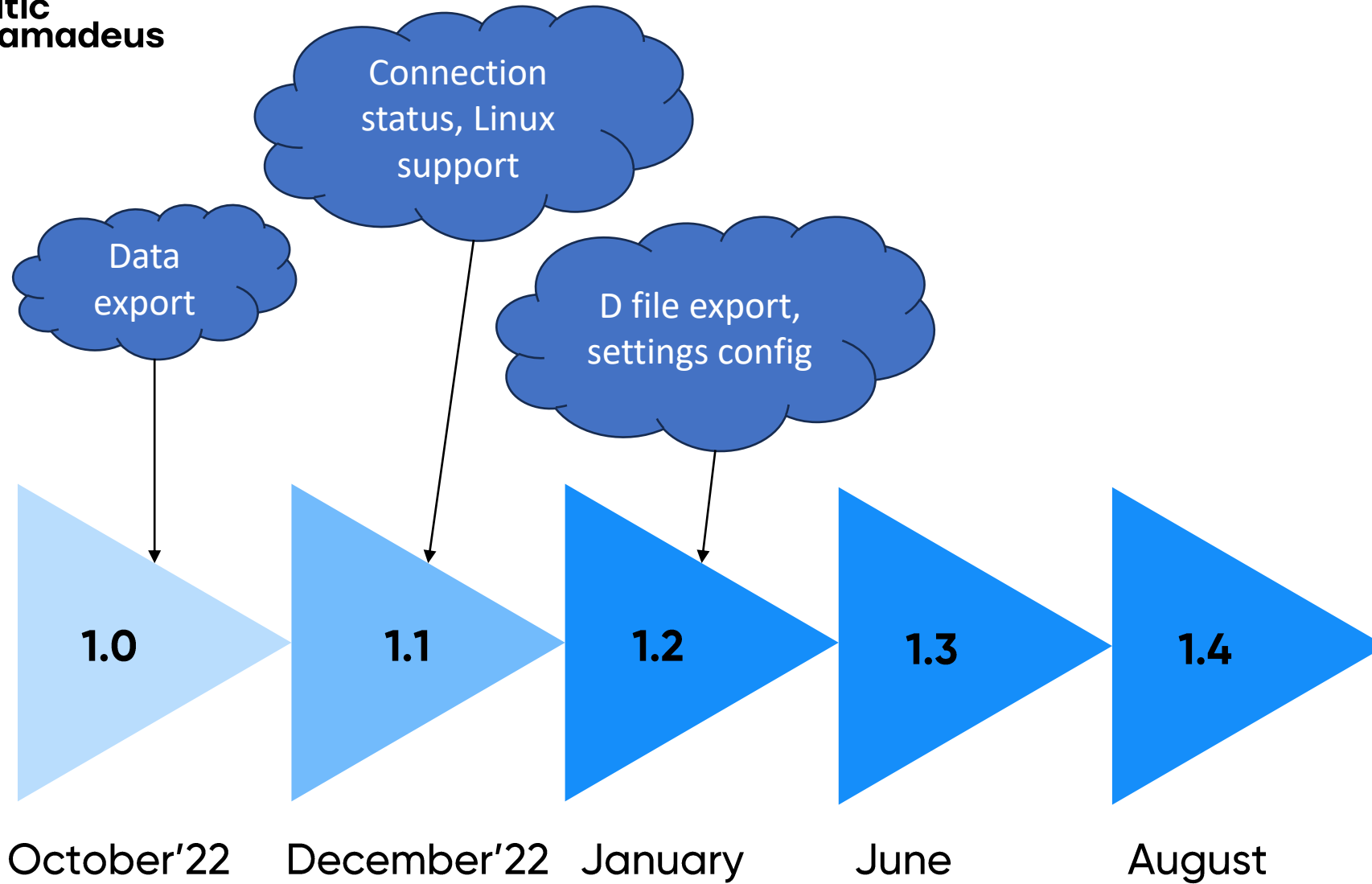


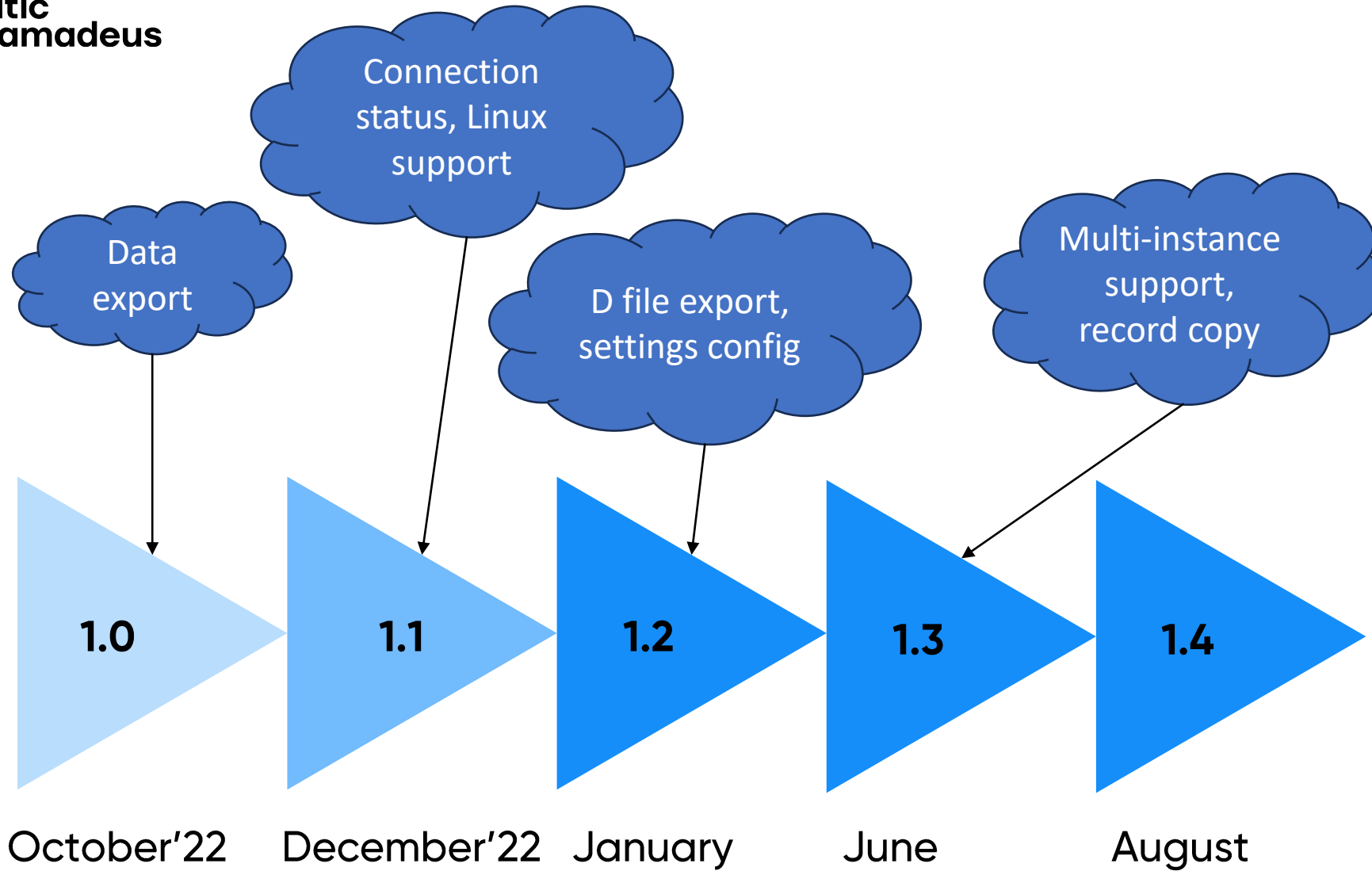
ProBro: Our journey

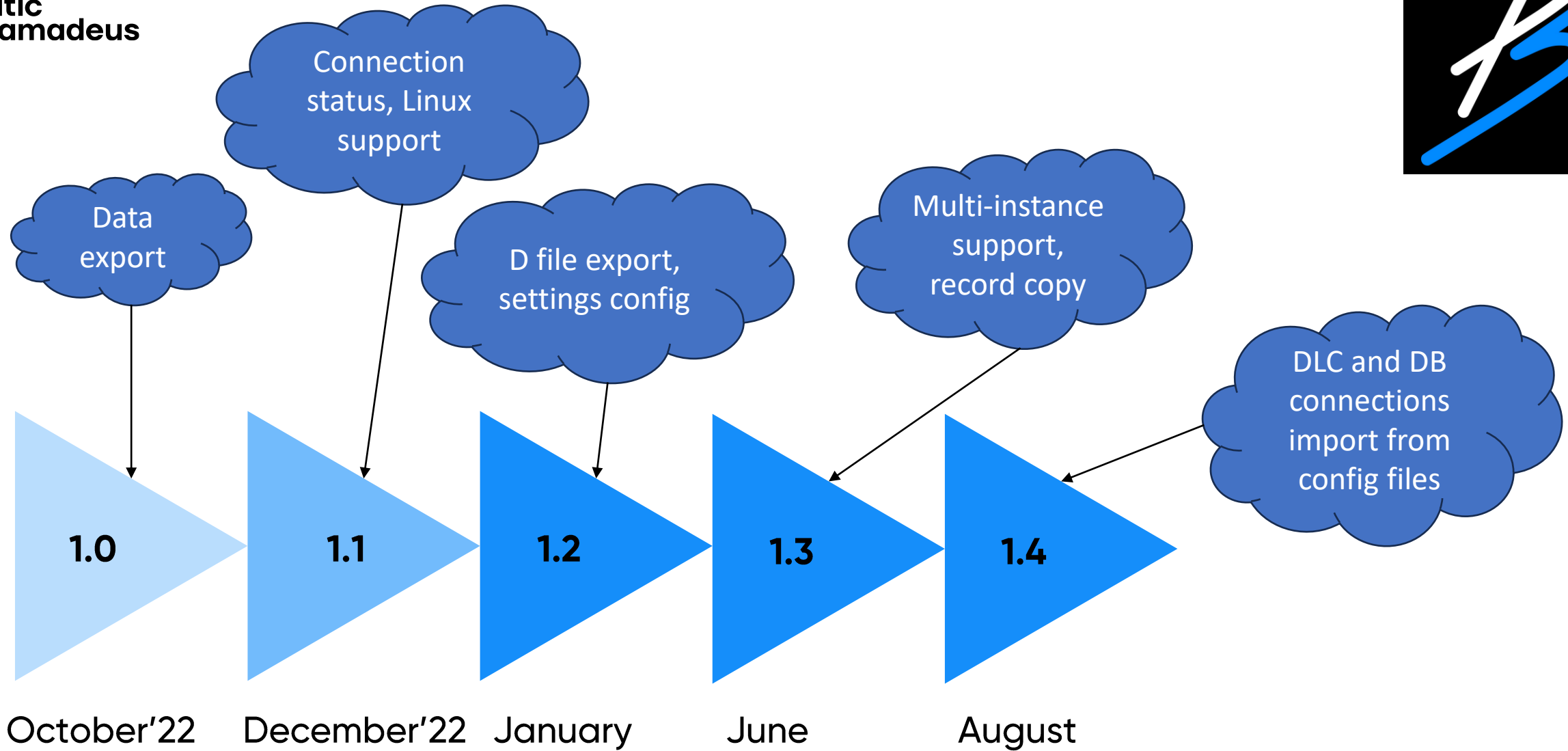














ProBro: Feel free to join

BalticAmadeus / ProBro

Code Issues 22 Pull requests 3 Discussions Actions Projects 1 Security Insights Settings

ProBro Public

1.4.0 56 branches 15 tags

Go to file Code

About

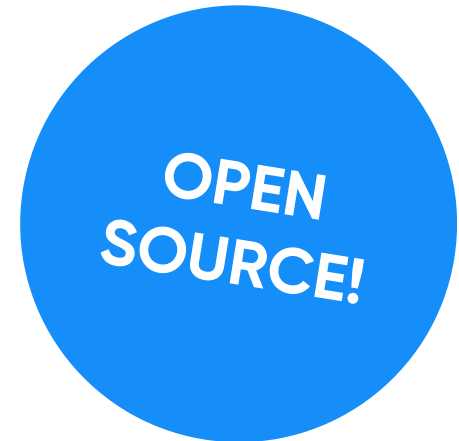
VSCode extension for Progress OpenEdge Database browsing

marketplace.visualstudio.com/items?ite...

react progress vscode-extension database-access openedge

Readme Apache-2.0 license Activity 2 stars 2 watching 0 forks

PauliusKu Merge pull request #389 from BalticAmadeus/develop ...	c2a47f9 on Aug 3	599 commits
.vscode	Fix icons not loading / Made it so docker workspace would load up on ...	2 months ago
docker	Fix icons not loading / Made it so docker workspace would load up on ...	2 months ago
resources	setup	last month
src	release prep	last month
.eslintrc.json	React INIT	last year
.gitignore	added builder to both ignore files	3 months ago
.prettierrc	db client cleanup and enabling prettier	3 months ago
.vscodeignore	added builder to both ignore files	3 months ago



Profiling in VSCode

```
60 4 0 0.000008 0.743116
61 2 8 0.000137 0.742980
62 2 10 0.000000 0.743952
63 2 6 0.000002 0.743952
64 2 7 0.000001 0.743954
65 3 3 0.000001 0.744103
66 3 0 0.000007 0.744099
67 2 9 0.000145 0.743955
68 2 10 0.000000 0.744108
69 2 6 0.000000 0.744108
70 2 7 0.000000 0.744109
71 4 5 0.000002 0.744264
72 4 7 0.000828 0.744266
73 4 0 0.000008 0.744260
74 2 8 0.000152 0.744109
75 2 10 0.000000 0.745099
76 2 6 0.000001 0.745100
77 2 7 0.000001 0.745101
78 3 3 0.000001 0.745232
79 3 4 0.000000 0.745233
80 4 5 0.000002 0.745377
81 4 7 0.000924 0.745379
82 4 0 0.000009 0.745372
83 3 5 0.000140 0.745233
84 3 6 0.000759 0.746308
85 3 7 0.000001 0.747067
86 3 0 0.000007 0.745228
87 2 9 0.000127 0.745102
```




Profiling in OpenEdge

- ✓ One of standard **OE functions**
- ✓ Easy to use
- ✓ One of the few ways to **evaluate**
OE application's **performance**

```
1  PROFILER:ENABLED = TRUE.  
2  PROFILER:PROFILING = TRUE.  
3  PROFILER:LISTINGS = FALSE.  
4  PROFILER:DIRECTORY = ".".  
5  PROFILER:FILE-NAME = "./demoProc.prof".  
6  PROFILER:DESCRIPTION = "Running a demo procedure".  
7  PROFILER:TRACE-FILTER = "*".  
8  
9  RUN main.p  
10  
11 PROFILER:ENABLED = FALSE.  
12 PROFILER:PROFILING = FALSE.  
13 PROFILER:WRITE-DATA().
```



Understanding the output

- ✓ 4 different versions
 - ✓ V1: OE from 12.2
 - ✓ V2: V1 + PROFILER:STATISTICS enabled
 - ✓ V3: V1 + Call tree and more minor changes
 - ✓ V4: V3 + PROFILER:STATISTICS enabled

60	4	0	0.000008	0.743116
61	2	8	0.000137	0.742980
62	2	10	0.000000	0.743952
63	2	6	0.000002	0.743952
64	2	7	0.000001	0.743954
65	3	3	0.000001	0.744103
66	3	0	0.000007	0.744099
67	2	9	0.000145	0.743955
68	2	10	0.000000	0.744108
69	2	6	0.000000	0.744108
70	2	7	0.000000	0.744109
71	4	5	0.000002	0.744264
72	4	7	0.000828	0.744266
73	4	0	0.000008	0.744260
74	2	8	0.000152	0.744109
75	2	10	0.000000	0.745099
76	2	6	0.000001	0.745100
77	2	7	0.000001	0.745101
78	3	3	0.000001	0.745232
79	3	4	0.000000	0.745233
80	4	5	0.000002	0.745377
81	4	7	0.000924	0.745379
82	4	0	0.000009	0.745372
83	3	5	0.000140	0.745233
84	3	6	0.000759	0.746308
85	3	7	0.000001	0.747067
86	3	0	0.000007	0.745228
87	2	9	0.000127	0.745102



Understanding the output

- ✓ Up to 8 sections describing:
 - ✓ Session
 - ✓ Module data
 - ✓ Call graph
 - ✓ Line summary
 - ✓ Tracing
 - ✓ Coverage
 - ✓ User

```
60 4 0 0.000008 0.743116
61 2 8 0.000137 0.742980
62 2 10 0.000000 0.743952
63 2 6 0.000002 0.743952
64 2 7 0.000001 0.743954
65 3 3 0.000001 0.744103
66 3 0 0.000007 0.744099
67 2 9 0.000145 0.743955
68 2 10 0.000000 0.744108
69 2 6 0.000000 0.744108
70 2 7 0.000000 0.744109
71 4 5 0.000002 0.744264
72 4 7 0.000828 0.744266
73 4 0 0.000008 0.744260
74 2 8 0.000152 0.744109
75 2 10 0.000000 0.745099
76 2 6 0.000001 0.745100
77 2 7 0.000001 0.745101
78 3 3 0.000001 0.745232
79 3 4 0.000000 0.745233
80 4 5 0.000002 0.745377
81 4 7 0.000924 0.745379
82 4 0 0.000009 0.745372
83 3 5 0.000140 0.745233
84 3 6 0.000759 0.746308
85 3 7 0.000001 0.747067
86 3 0 0.000007 0.745228
87 2 9 0.000127 0.745102
```



Profiling in OpenEdge

Can be viewed in OE Developer Studio

The screenshot displays the OpenEdge Profiler interface for a session named 'profiler.prof'. It is divided into several sections:

- Module Details:** A table showing the execution time of various modules. The 'main2.p' module is highlighted as the most time-consuming.
- Calling and Called modules for "main2.p":** Two tables showing the relationships between modules. 'main1.p' is the caller of 'main2.p', and 'main3.p' is called by 'main2.p'.
- Line Summary:** A table showing the execution time for individual lines of code. Line 2 is the most frequent.
- Message Panel:** A message indicating that the profiling data does not contain debug listing file information.

Module Name	Times Called	Avg Time Per Call(secs)	Total Time(secs)	% of Session
<Regex>	<Numeric>	<Numeric>	<Numeric>	<Numeric>
main3.p	22	0.000116	0.002557	46.9778
main2.p	11	0.000107	0.001182	21.7160
main1.p	1	0.000979	0.000979	17.9864
/tmp/p16478_test.ped	1	0.000725	0.000725	13.3199
Session	1	0.000000	0.000000	0.0000

Total time taken by the session(secs): 0.005443

Module Name	Times Calling	% of Session
<Regex>	<Numeric>	<Numeric>
main1.p	11	17.9864

Module Name	Times Called	% of Session
<Regex>	<Numeric>	<Numeric>
main3.p	22	46.9778

Line Number	Times Called	Avg Time(secs)	Total
0	11	0.000015	
1	11	0.000064	
2	22	0.000014	

Profiling data does not contain the debug listing file information. Profile with the -listing option to generate debug listing files.



ProPeek

Problem

- ✓ Only in PDSOE
- ✓ Only Windows
- ✓ Lack of visuals

profiler.prof

Module Details

Execution time of modules

Module Name	Times Called	Avg Time Per Call(secs)	Total Time(secs)	% of Session
<Regex>	<Numeric>	<Numeric>	<Numeric>	<Numeric>
main3.p	22	0.000116	0.002557	46.9778
main2.p	11	0.000107	0.001182	21.7160
main1.p	1	0.000979	0.000979	17.9864
/tmp/p16478_test.ped	1	0.000725	0.000725	13.3199
Session	1	0.000000	0.000000	0.0000

Total time taken by the session(secs): 0.00544

Calling and Called modules for "main2.p"

Calling Modules

Module Name	Times Calling	% of Session
<Regex>	<Numeric>	<Numeric>
main1.p	11	17.9864

Called Modules

Module Name	Times Called	% of Session
<Regex>	<Numeric>	<Numeric>
main3.p	22	46.9778

Module Details | Call Tree | AVM Information

Search | Log Viewer | ABL Messages | Line Summary

Line Number	Times Called	Avg Time(secs)	Total
0	11	0.000015	
1	11	0.000064	
2	22	0.000014	

Profiling data does not contain the debug listing file information. Profile with the -listing option to generate debug listing files.

Main features

- ✓ Module details
- ✓ Called/calling modules
- ✓ Line summary
- ✓ Call tree
- ✓ Call Flame graph
- ✓ Filtering search options
- ✓ Code snippets

Module Details

Tree View

Flame Graph

Module Details

Module Name	% Of Session	Times Called
Module292 Module56.Module65.Module66.Module...	37.0931%	1225
Module115 Module56.Module65.Module66.Module...	27.6746%	1019
Module533 Module56.Module57.Module533	3.9723%	18342
Module196 Module56.Module65.Module69.Module...	3.9162%	14676
Module196 Module56.Module186.Module103.Mod...	3.5151%	18342
Module488 Module56.Module186.Module317 Mod...	1.6424%	18342
Module852 Module22.Module23.Module850	1.2359%	2830
Module221 Module56.Module186.Module103.Mod...	1.2068%	15285

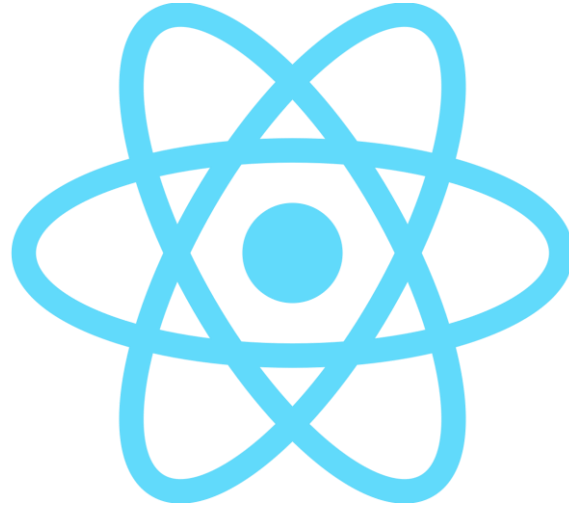
TreeView

Module Name	Number of Calls	Cumulative Time	% of Session
Module606 Module607.Module608.Module1153	1	5.511701	100.00%
Module606 Module607.Module608.Module416 Module1.Module8.Module146.Module416.Module417	1	5.511701	100.00%
Module415 Module1.Module8.Module146.Module416.Module417	1	5.511701	100.00%
Module145 Module1.Module8.Module146.Module147 Module40.Module2.Module8.Module148	1	5.511701	100.00%
Module78 Module1.Module8.Module872	1	5.511701	100.00%
Module375 Module10.Module25.Module12.Module167	1	5.511701	100.00%
Module78 Module1.Module8.Module15 Module10.Module25.Module12.Module167	1	5.511701	100.00%
Module78 Module10.Module25.Module12.Module167	1	5.511701	100.00%
Module198 Module10.Module25.Module12.Module167	1	5.511678	100.00%
Module1088 Module1.Module143.Module780	1	0.000056	0.00%
Module985 Module10.Module25.Module12.Module178	1	0.000028	0.00%
Module1088 Module1.Module143.Module780	1	0.000024	0.00%
Module1004 Module1.Module143.Module780	1	0.000014	0.00%
Module1189 Module10.Module25.Module12.Module167	1	5.238399	95.04%
Module1.Module118	1	0.000005	0.00%
Module10.Module25.Module12.Module619	1	0.000043	0.00%
Module619 Module10.Module25.Module12.Module619	1	0.000042	0.00%
Module261 Module1.Module2.Module262	2	0.000014	0.00%

OPEN
SOURCE!

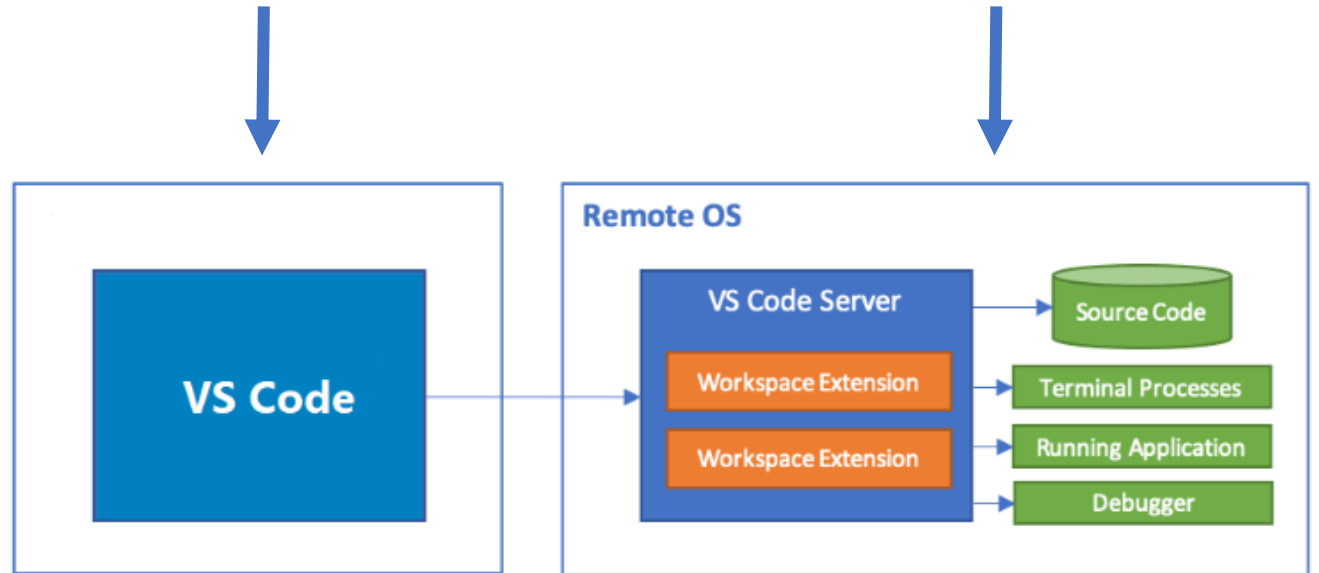
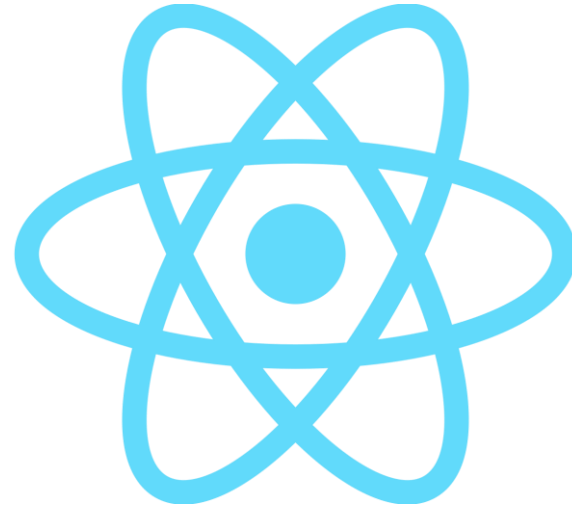
Tech stack

- ✓ React
- ✓ Node.js
- ✓ **No Progress needed**



Tech stack

- ✓ React
- ✓ Node.js
- ✓ No Progress needed





Demo

Demo

The background of the slide features a solid blue color with several large, semi-transparent, interlocking gears scattered across it. The gears are rendered in a slightly darker shade of blue, creating a subtle 3D effect with shadows and highlights. The text is centered over this background.

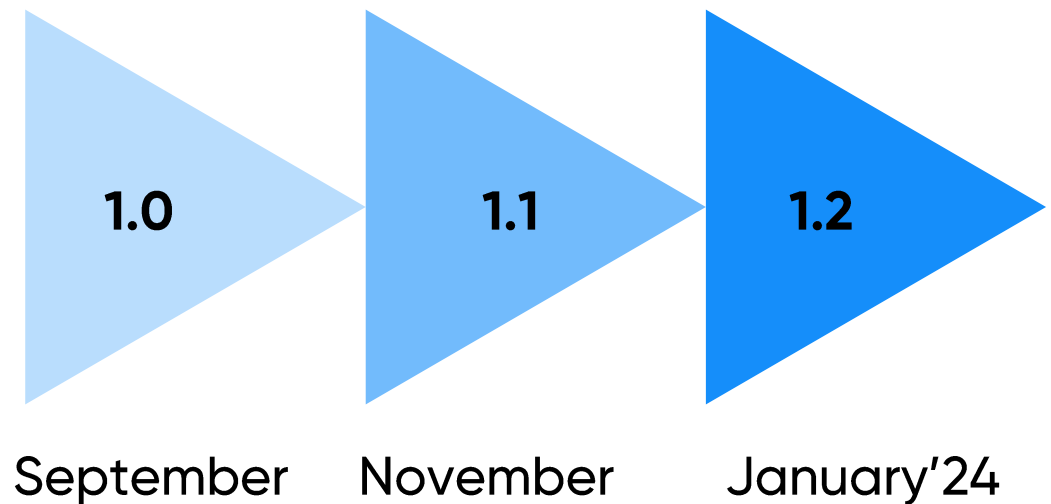
Conclusions and future development

Room for improvement

- **Crashing with large files (currently fixing)**
- **Lack of features in current flame graph component**
- **Add progress bar for loading**
- **Navigation improvements**
- **Bugs, bugs, bugs**

Ideas for future development

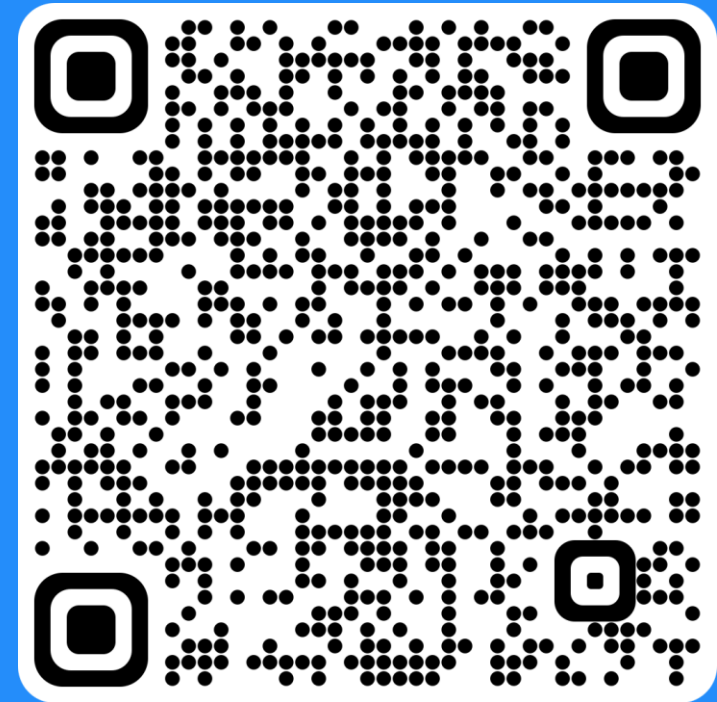
- **Launch Profiling from code with one button click**
- **More filtering/search options**
- **Expand jump to code functionality**
- **Read and show other OE statistics file formats**
- **Memory profiling (12.8)**



Feel free to join



GitHub
(Baltic Amadeus, ProPeek)



Visual Studio, Marketplace
(Baltic Amadeus, ProPeek)



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Let's connect!

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