



**Marco Cantù (Embarcadero)**

**Delphi, dalla Versione 12 al Futuro**



**Marco Cantù**

RAD Studio Senior Product Manager  
@Embarcadero, a division of Idera, Inc

Author of 20+ Delphi books over 30 years

Speaker at software development conference  
around the world

Lives in Italy

Contact email:  
[marco.cantu@embarcadero.com](mailto:marco.cantu@embarcadero.com)





# Agenda

- Some history, celebrating 30 years!
  - How Delphi evolved over the years while respecting its core pillars and foundations
- Delphi 12.x core product directions
- Reading tea leaves: The future



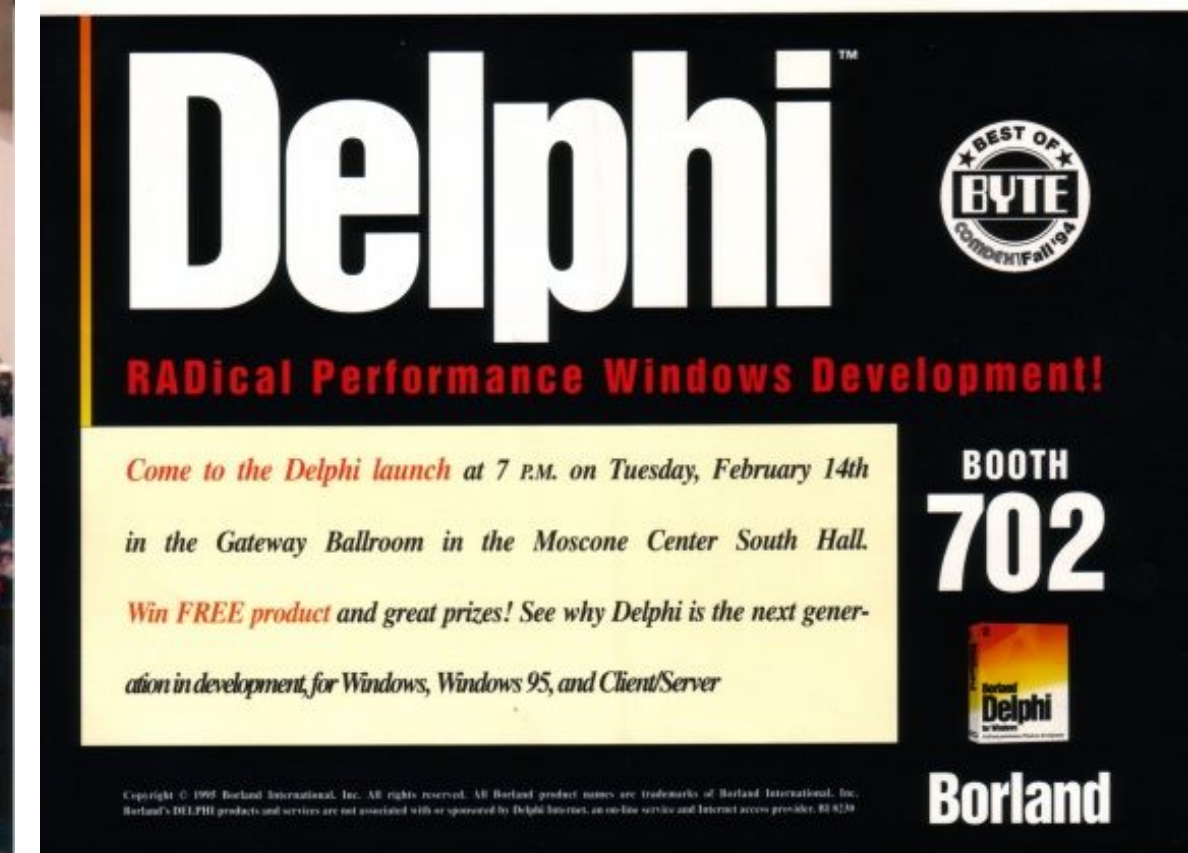
**Let's start from the beginning  
Feb 14th, 1995**





# Feb 14th, 1995

Moscone Center, San Francisco, CA  
SD Conference West 95

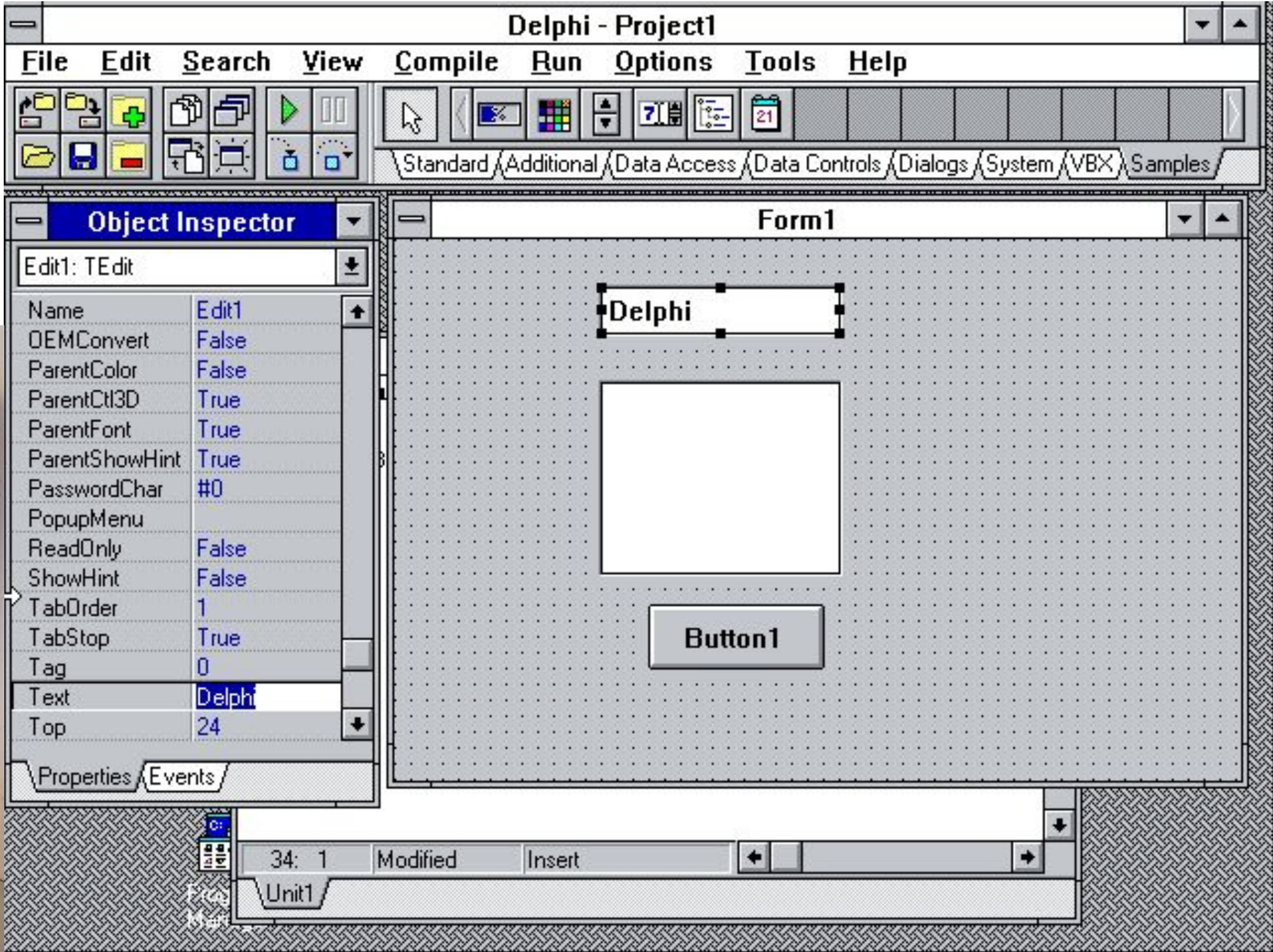







Feb 14th, 1995

Delphi 1  
Launched  
on Win 3.1





## Borland® Delphi™ for Windows

RADical performance Windows development

*Delphi is the only Windows development tool to combine the Rapid Application Development (RAD) benefits of visual component-based design with the power of an optimizing native code compiler and scalable database access.*

*Delphi represents the next generation in:*

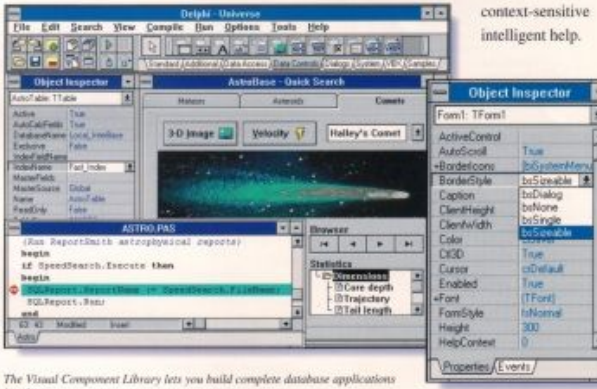
- Performance—with the world's fastest compiler
- Rapid Application Development—via visual Two-Way-Tools™
- Component Reuse—a true object-oriented environment
- Scalable Database Access—the fast track to client/server

**The fastest way to the fastest applications**

Delphi is the next generation Windows development tool, combining the most intuitive visual design environment with the unrivaled performance of a world-class optimizing native code compiler. It compiles Windows applications at more than **350,000 lines per minute**.<sup>\*</sup> An automatic MAKE facility ensures that only code that has been changed is recompiled for maximum efficiency, and the **built-in assembler** allows for ultimate fine-tuned performance.

**RAD, from prototype to production**

The comprehensive suite of **visual design and debugging tools** accelerate development so you move seamlessly from prototyping to deployment. You'll create high-performance applications in record time with the gallery of reusable forms, project templates, programming experts, and context-sensitive intelligent help.



The resulting executable files (EXEs) are lean, highly efficient, and run up to **10 to 20 times faster** than interpreted p-code. Delphi executables are immediately deployable, **royalty-free**, and require no runtime interpreter Dynamic Link Library (DLL), so maximum performance is guaranteed.

And smart **computer-based tutorials** guide you through your project and help explain concepts.

The **Object Inspector** provides complete access to properties and events of a selected component, with smart **Property Editors** for

Factsheet

*"It's going to change our lives, you know."*

—J.D. Hildebrand, Editor  
Windows Tech Journal

The Visual Component Library lets you build complete database applications in minutes.

Two-Way-Tools give you complete control of your code.





# 1995 was the Year of Programming Languages

Python 1.0      January 1994

Delphi      February 14

Java      May 23

PHP      June 8

JavaScript      December 4

Ruby 0.95      December 21

*Developers call Delphi “an old language” and  
happily use other equally old languages*

# Early Years were a Huge Success



VERSIONS  
Delphi 1



VERSIONS  
Delphi 2



VERSIONS  
Delphi 3



VERSIONS  
Delphi 4





# Early Years were a Huge Success







**Delphi Core Tenets....  
Still Valid Today**





# Delphi = RAD from Day 1

- The fastest way to build the fastest applications
- RAD: prototype to production
- Reuse your components
- Smooth scaling to Client/Server

*This has been true for 30 years:  
nothing wrong with fast coding,  
compiled code, prime data access:  
we are actually proud of it*

# RAD → ROI

RAPID APPLICATION DEVELOPMENT    RETURN ON INVESTMENT

## Introducing Delphi

Redefining the fundamental relationship between you and your business

### The fastest way to the fastest applications

If you program . . . you have to see Delphi™. You'll quickly see how its breakthrough combination of the world's fastest optimising native code compiler, visual Rapid Application Development tools, and scalable database technology will give you a tremendous Return On Investment. And sets you on the fast track to Client/Server and Windows 95.

	Delphi	PowerBuilder	VB Pro
Native code compiler for high-performance applications	✓	—	—
Creates standalone, redistributable .EXEs and DLLs	✓	—	—
No runtime interpreter DLL required	✓	—	—
Fully object-oriented programming language. Provides optimal code reuse	✓	—	—
No external tools necessary to build new components or extend environment	✓	—	—
Combines high-performance compiler, visual environment, reusable components, and scalable database tools	✓	—	—
Robust exception handling	✓	—	—
ReportSmith® "live" data reporting	✓	—	—
Local ANSI SQL-92 engine for server independent client/server development	✓	✓	—
Client/Server version available	✓	✓	—

### Reuse your components

Delphi's Visual Component Library (VCL) helps you minimise coding, accelerate project completion, and simplify corporate standardisations. You get a gallery of reusable forms, project templates, dialogs, buttons, multimedia controls, and more. Or add your own reusable objects, DLLs, VBX controls, or OLE 2.0 servers into Delphi's open, integrated, component-based development environment.

### Smooth scaling to Client/Server

Delphi has a built-in ANSI SQL-92 server, Paradox®/dBASE® access, and ODBC support. So you can rapidly develop full Client/Server applications on your desktop. Then, by upgrading to Delphi Client/Server, you can quickly deploy applications across the entire enterprise with high-performance native drivers for Oracle, Sybase, MS SQL Server, Informix®, and InterBase®. And all the work you do in Delphi today will be fully compatible with Delphi's forthcoming 32-bit, Windows 95 release. Put RADical performance to work on your bottom line today.

**Delphi usual RRP £349 + VAT**  
**Delphi Client/Server RRP £999 + VAT**

## Borland

**SPECIAL LIMITED OFFER**  
**Purchase Delphi before 31st May 1995**  
**for only £199 + VAT**

Visit your dealer, or for further information call **0800 212727**

Borland International (UK) Limited, 8 Pavilions, Ruscombe Business Park,





# 1. The fastest way to build the fastest applications



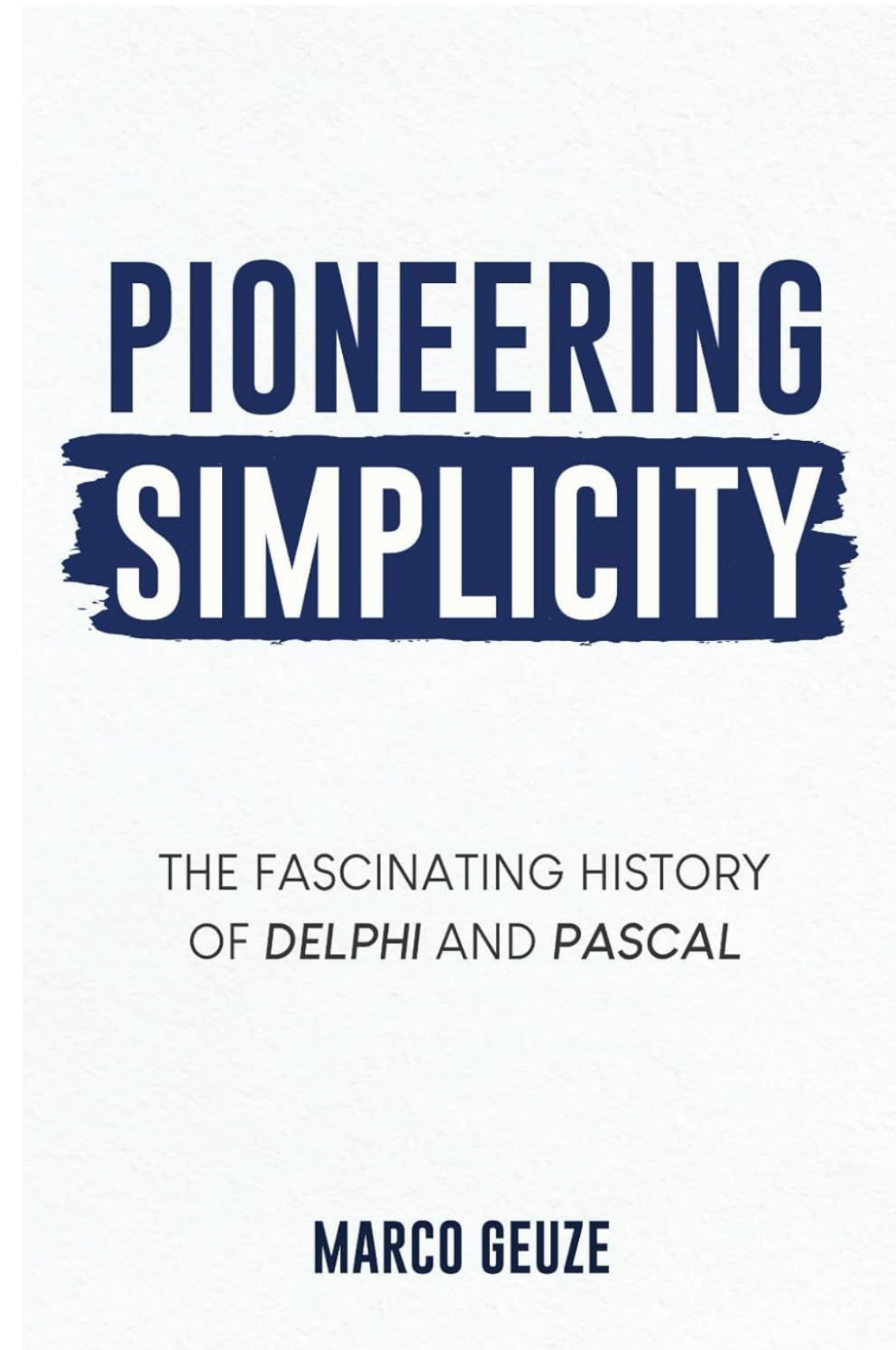
- Delphi 1: Native compiler for Win16
- Delphi 12: Native compilers for 9 targets (Win32, Win64, Linux64, Mac64 Intel, Mac64 ARM, Android32, Android64, iOS64, IosSimulator64)
  - Fast, secure, XCopy deployment, small executables...
  - Stability of apps with little or no runtime dependencies (to install, update, maintain)
  - Fast to compile (even millions of lines); single large exe with 10+ million lines of code (or flexible runtime packages)
  - *Did I mention Delphi apps are way more secure?*





# Aside: The Power of Simplicity

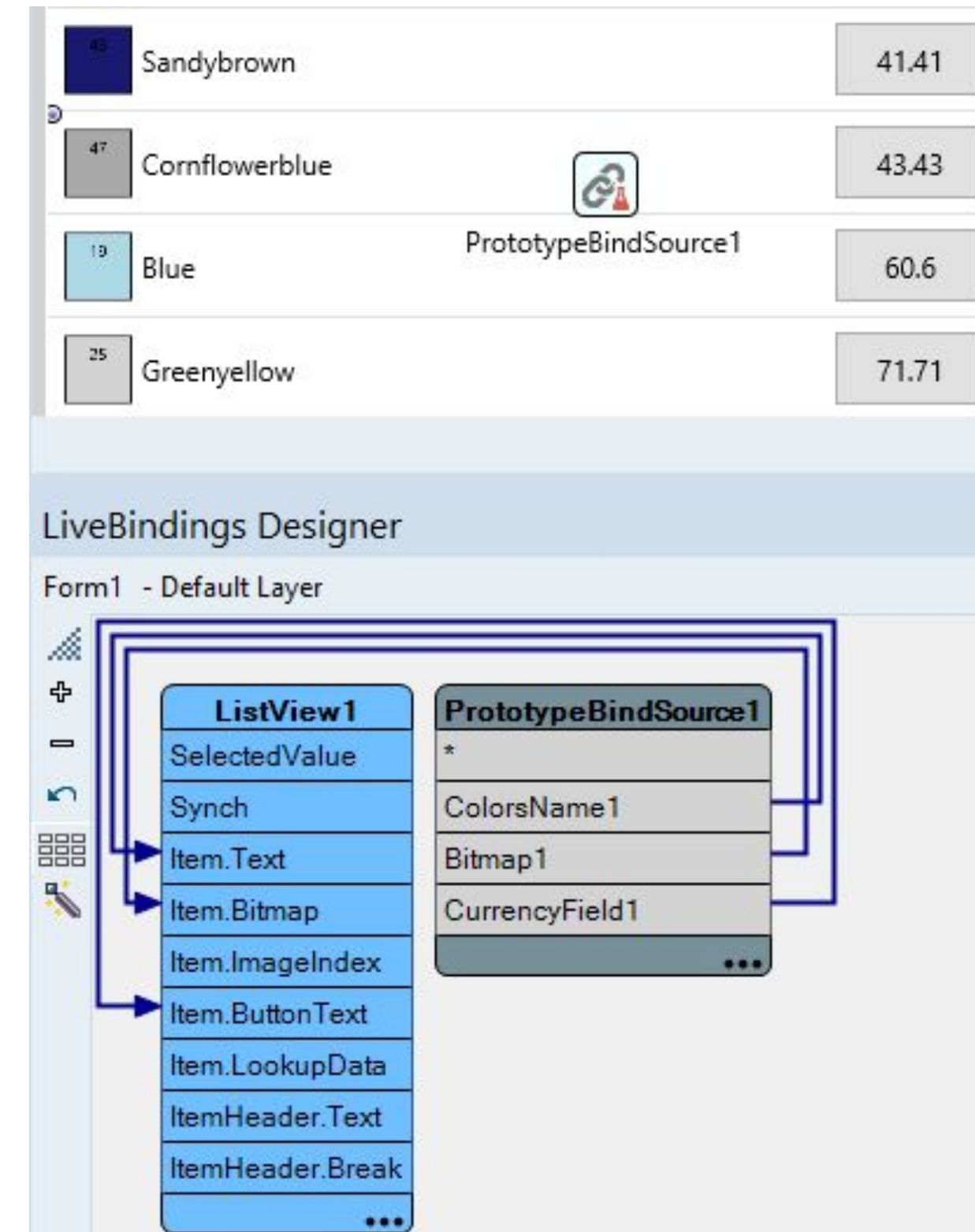
- “Power and simplicity, expressiveness and readability, great for learning and for professional development alike, these are some of the traits of today's Object Pascal”
- “A tool for all trades, with compilers and development tools embracing the mobile era. A language ready for the future, but with solid roots in the past”





## 2. RAD: Prototype to Production

- The best and most flexible designer surfaces
  - Live data and live styles at design time
  - Visual Form inheritance, frames, etc
- FireMonkey styling architecture
  - On device preview
  - Device views and customization
- Live Bindings designer
- *But if you prefer... You can also just write code: everything you do at design time, you can do at runtime in code*







# Aside: VCL is The Most Effective UI library for Windows

- What's Microsoft offering these days for building UIs on Windows? It's so confusing you hardly know. C# WinUI3? MFC and C++? The good old WinForms? React and JavaScript?
- Microsoft moved from UWP back to native apps, and migration from UWP back to native: Desktop bridger, Project Reunion. Windows App SDK
- We offer the UI library with the best coverage of Windows APIs + integration of WinRT APIs, UWP support, WebView 2 (Chromium Edge), and more. Plus 30 years of compatibility!





## 3. Reuse your Components

- Build components in the same language, with the same tool
  - Library source code included as reference
  - Also custom properties and components editors
- Large third-party components ecosystem
- You can also expand the IDE freely with a rich ToolsAPI, which has been growing over the years
  - Even the AI integration – Smart CodeInsight – has a ToolsAPI!





## 4. Smooth Scaling to Client/Server

- Database access has been at the center of Delphi
  - BDE, dbExpress, ADO, IBX...
- In recent years, the focus has been on FireDAC, a great, universal and very powerful data access library
- Also, multitier solutions like DataSnap and RAD Server
- Internet has been a focus from day 1:
  - Indy, WebBroker
  - Recently the HTTP and REST client libraries
  - Up to the WebStencils Web template library





# Summary: What is Great in Delphi?



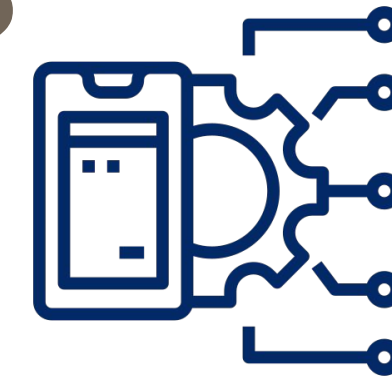
## Developer Productivity

Shipping is a feature.  
Get to market 5x faster.



## Fast Native Apps

Native compilers give your apps the speed they need.



## Platform API Access

Gives you access to all the platform APIs on all platforms.

## Database Access

Key to Delphi's initial design, database access is easy and fast.

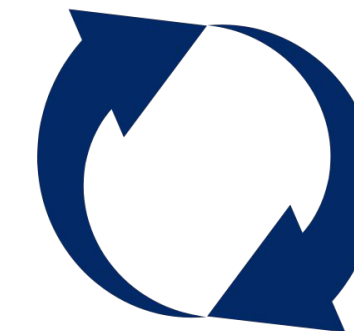
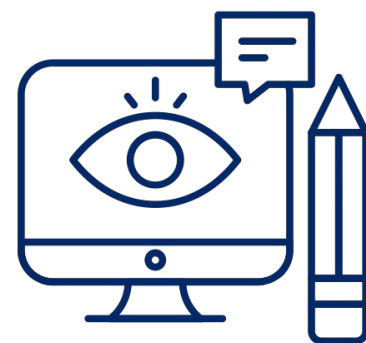


## Strong Community

Technology Partners, MVPs, trainers, authors and developers – worldwide

## Visual Designers

Forget prototyping in another tool, just design it and finish it in one IDE



## Backward Compatibility

You have an investment in your code, keep your code relevant.





**Delphi is Providing Value...**





# Where is Delphi? Providing value to the industry, silently

- Easy, native, multi-device, and a top Windows solution
- Stability of apps with little or no dependencies
- Single code base to create apps for multiple platforms
- Huge availability of components
- Very easy to use language that any developer can easily understand, yet also very powerful and supports all the modern constructs developers could need
- Delphi is very 'silently successful' and is in use in a great number of places!
  - We have so many case studies, but very hidden... Schiphol Airport, New Pier development Amsterdam, F1 at Miniature Wunderland, designing CPUs, the best music software, Long Beach Containers Terminal, Tax returns, government mandated electronic invoicing... and so many more



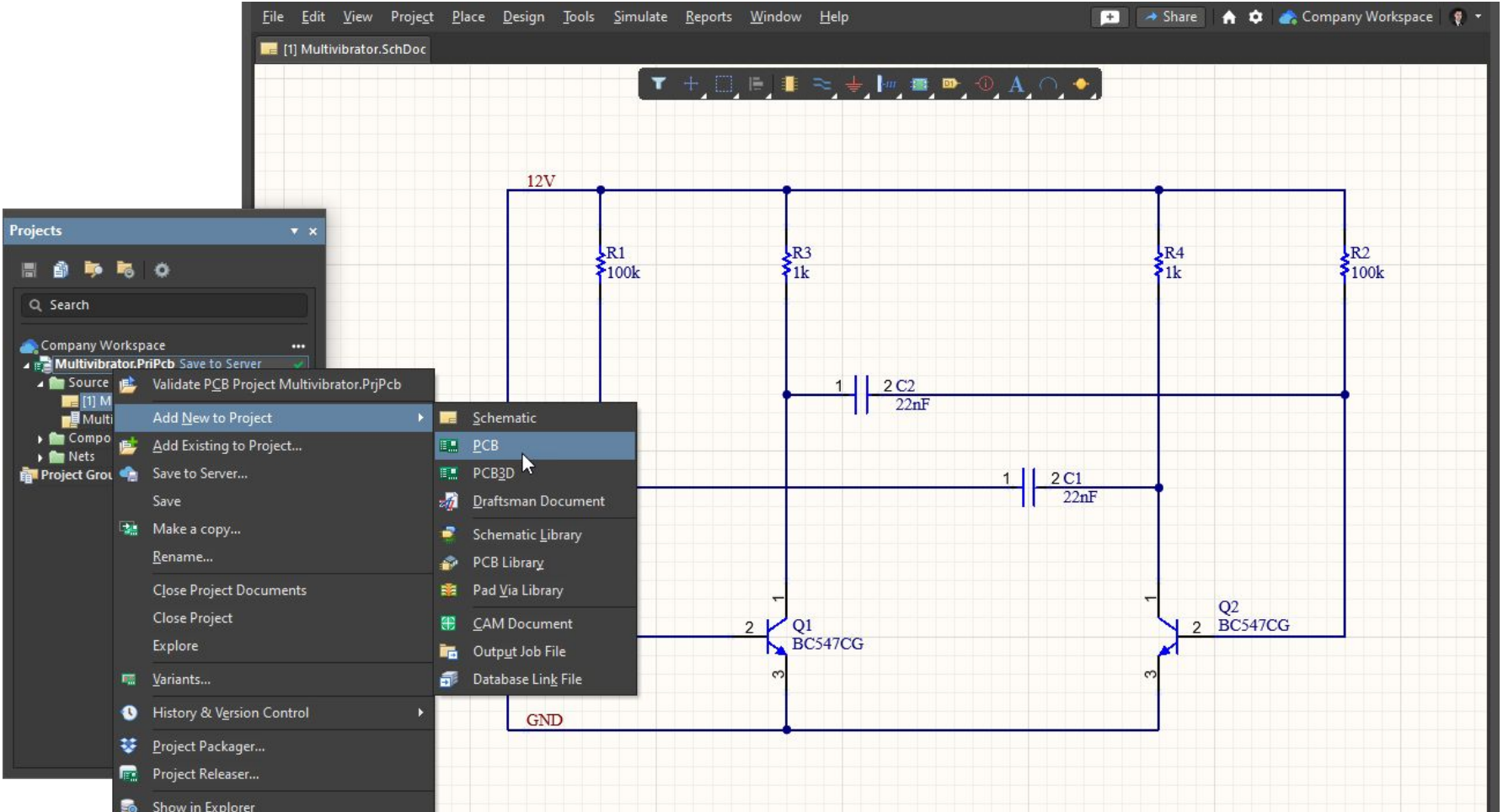
# Delphi is very ‘silently successful’







# Delphi is very ‘silently successful’



## Japan chipmaker Renesas to buy software firm Altium for \$5.9 bln





# Delphi is very ‘silently successful’ in many industries...

Oil and Gas	Aerospace	Large Data Processing	Gis Applications
Accounting	Kiosk Applications	Communication Software	Measurements
Automotive	Flights Management	Remote Computer Access	Architecture
Healthcare	Business Analytics	Systems Administration	Music Editors
Video Games	Database Front Ends	Agricultural Management	IoT Management
E-Invoices	Trains and Railways	Mobile Apps Of All Types	Point of Sales
Government	Engineering Projects	Production Systems Monitoring	Animated Movies
Television	Complete ERP Systems	Real-Time Finances	Banking Systems
Tax Returns	Manufacturing	Warehouse Automation	Developer Tools
Advertising	Circuit Boards Design	Shipping & Logistics	Trucks Tracking





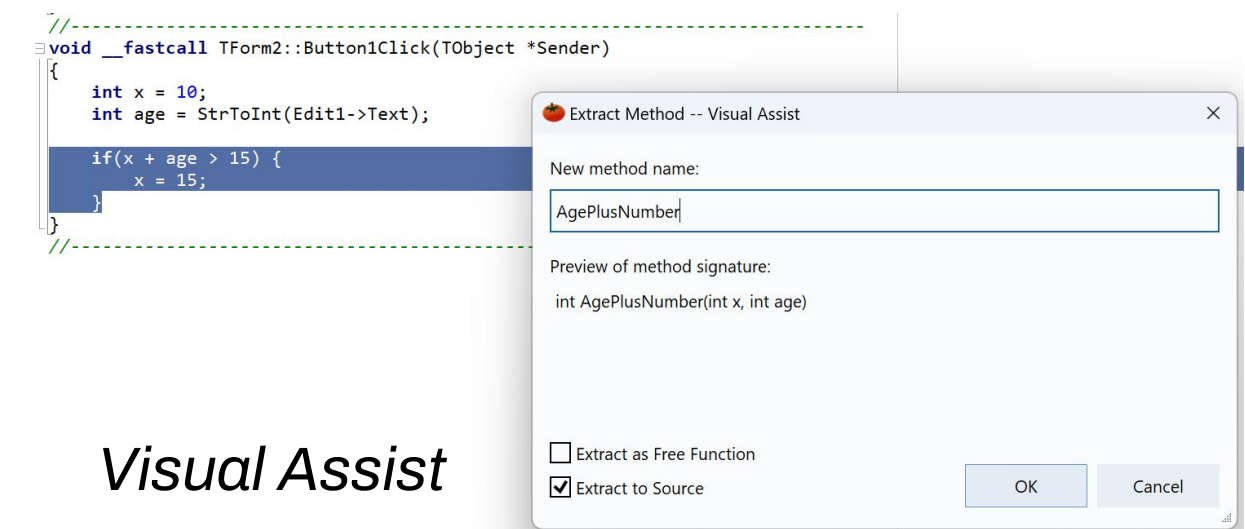
# Highlights of RAD Studio 12.3





# RAD Studio 12 Athens was a *Mega Release*

1. C++
  - Visual Assist
  - New Clang Tech Preview
2. Installer & IDE
  - Multidevice Icons
  - Improved VCL Designers and ToolsAPI
3. FireMonkey & Skia
  - Skia UI Controls, rendering, graphic formats and way more (and VCL as well)
  - TMemo and TEdit improvements
4. VCL
  - MDI and Tab based UIs
  - Fonts and Screen, Components improvements
4. Data
  - JSON Data Binding
  - FireDAC Secure Coding
  - Sqids for RAD Server
5. Delphi
  - String literals improvements
  - Circular Uses Statements
6. Quality
  - *How many* bug fixes this release?!

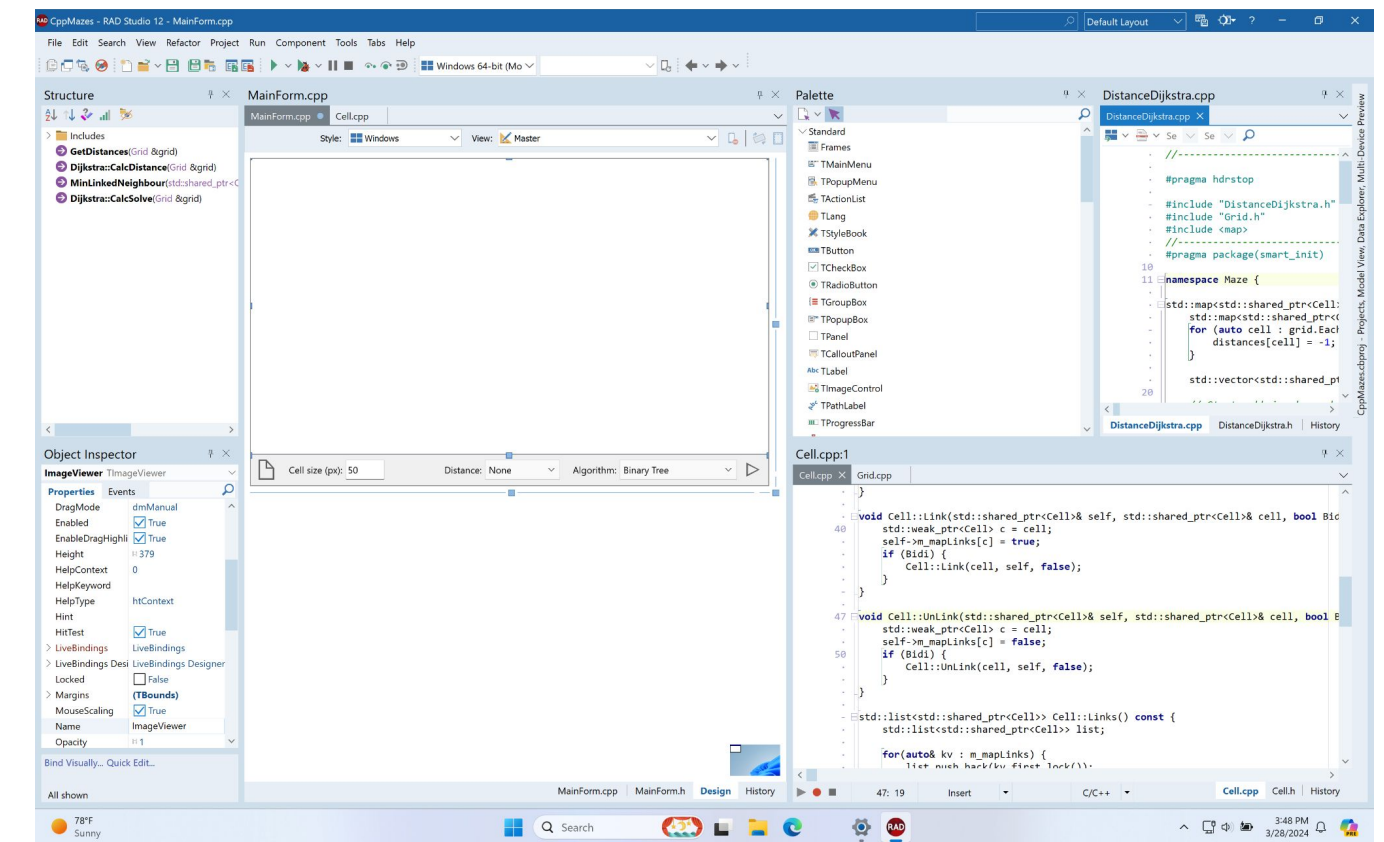






# RAD 12.1 Summary: Focus on Quality

- With some substantial features
  - Editor split views and other IDE enhancements
  - The delivery of the new C++ Builder Win64 Clang compiler
  - Android API level 34 support
- Quality highlights including
  - C++ Builder VA integration
  - VCL and extensive FireMonkey quality
  - RTL, database, etc



*Editor split views*





# RAD Studio 12.2: Web and AI

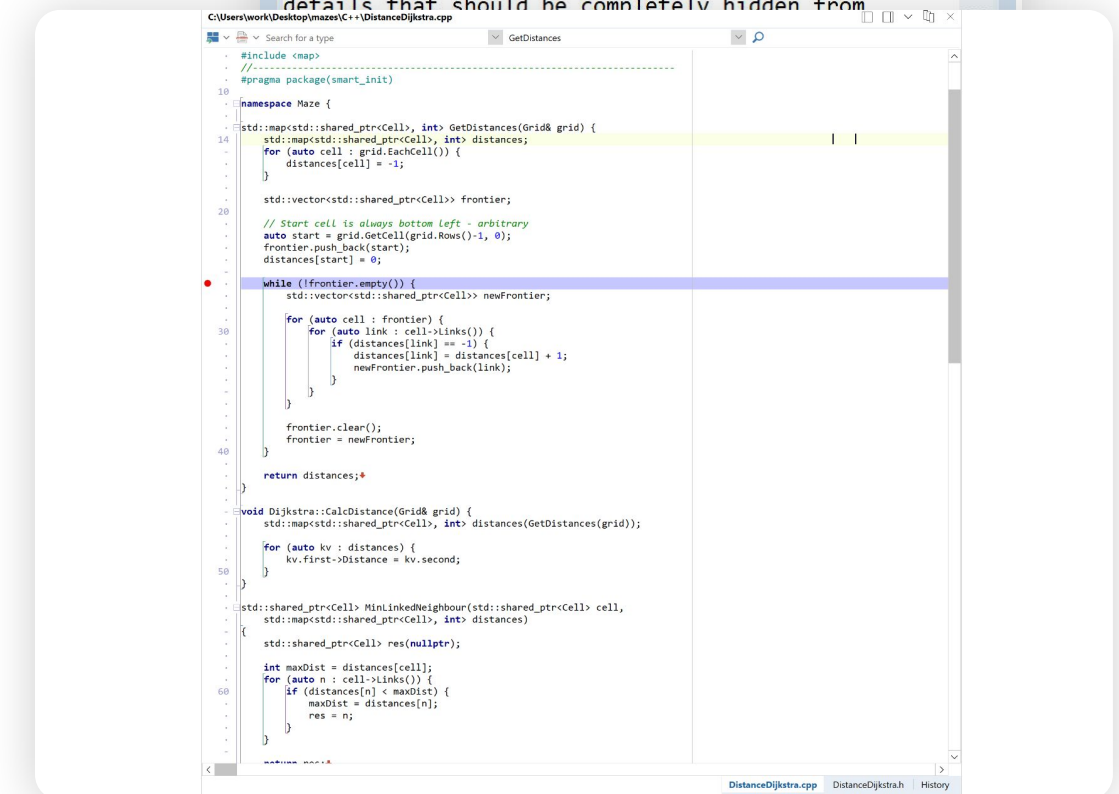
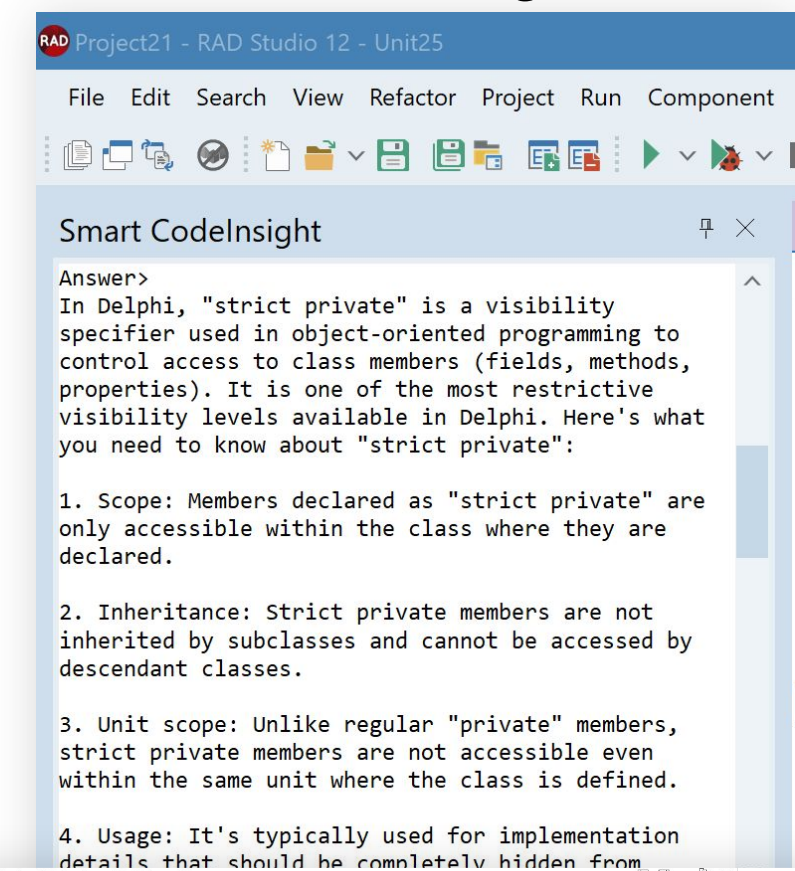
## ● New Features

- Modernized C++ Compiler and Toolchains
- Delphi 64-bit compilers and tools
- Smart CodeInsight
- Focus Mode and Scrollbar Annotations
- WebStencils

## ● Quality

- Improved Mobile Development
- Visual Assist for C++ Builder Enhancements
- Quality, Quality, Quality

### Smart CodeInsight Chat



### Editor Focus Mode





# RAD Studio 12.3: Completion... and 64-bit

- 12.x Projects Completion
  - C++ 64-bit Modern Toolchain
  - Smart CodeInsight
  - WebStencils
- Android API Level 35
- **64-bit IDE – Initial Release**
- Quality & Quality





# The 12 Athens IDE






# Editor: Focus Mode

Progression from 12.1's split views, and known as 'zen mode' in other IDEs

Focus Mode leaves the IDE with **only your code editor**

- Removes other UI chrome
- Multiple side by side editors
- 'Code only'
- Distraction free... *focus!* 

```

C:\Users\work\Desktop\mazes\C++\DistanceDijkstra.cpp
GetDistances

#include <map>
//
#pragma package(smart_init)

namespace Maze {

std::map<std::shared_ptr<Cell>, int> GetDistances(Grid& grid) {
    std::map<std::shared_ptr<Cell>, int> distances;
    for (auto cell : grid.EachCell()) {
        distances[cell] = -1;
    }

    std::vector<std::shared_ptr<Cell>> frontier;

    // Start cell is always bottom left - arbitrary
    auto start = grid.GetCell(grid.Rows()-1, 0);
    frontier.push_back(start);
    distances[start] = 0;

    while (!frontier.empty()) {
        std::vector<std::shared_ptr<Cell>> newFrontier;
        for (auto cell : frontier) {
            for (auto link : cell->Links()) {
                if (distances[link] == -1) {
                    distances[link] = distances[cell] + 1;
                    newFrontier.push_back(link);
                }
            }
        }
        frontier.clear();
        frontier = newFrontier;
    }

    return distances;
}

void Dijkstra::CalcDistance(Grid& grid) {
    distances = GetDistances(grid);
}
  
```

## Focus Mode

☒ Enable focus mode

☐ Clone all tabs in Focus mode.

Focus mode editors display:

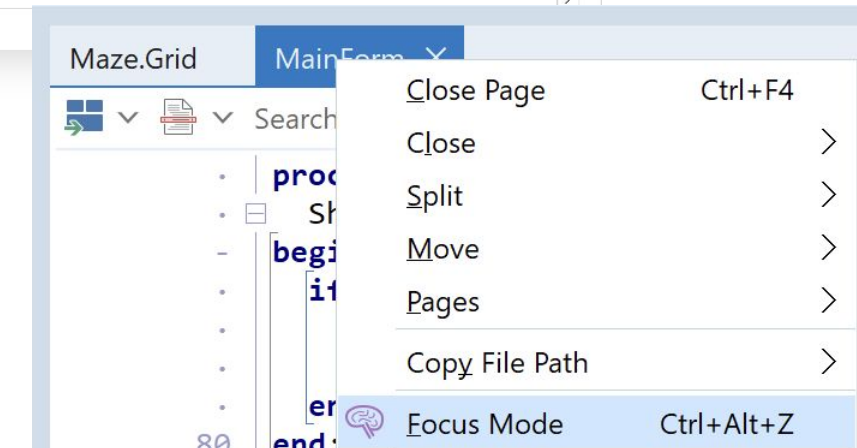
☒ Bookmarks

☐ Right margin

☐ Navigation toolbar

☐ Code folding

☒ Debug Info (Breakpoints, Compiled lines)







# Smart CodeInsight: AI Powered Coding

Use **AI LLMs for coding** in the RAD Studio IDE

- An **open architecture** for AI plugins

Ready-to-use support for **three online solutions**

- OpenAI
- Gemini by Google
- Claude by Anthropic

and one **offline solution**

- Ollama  
Ready to use docker image, works in WSL2

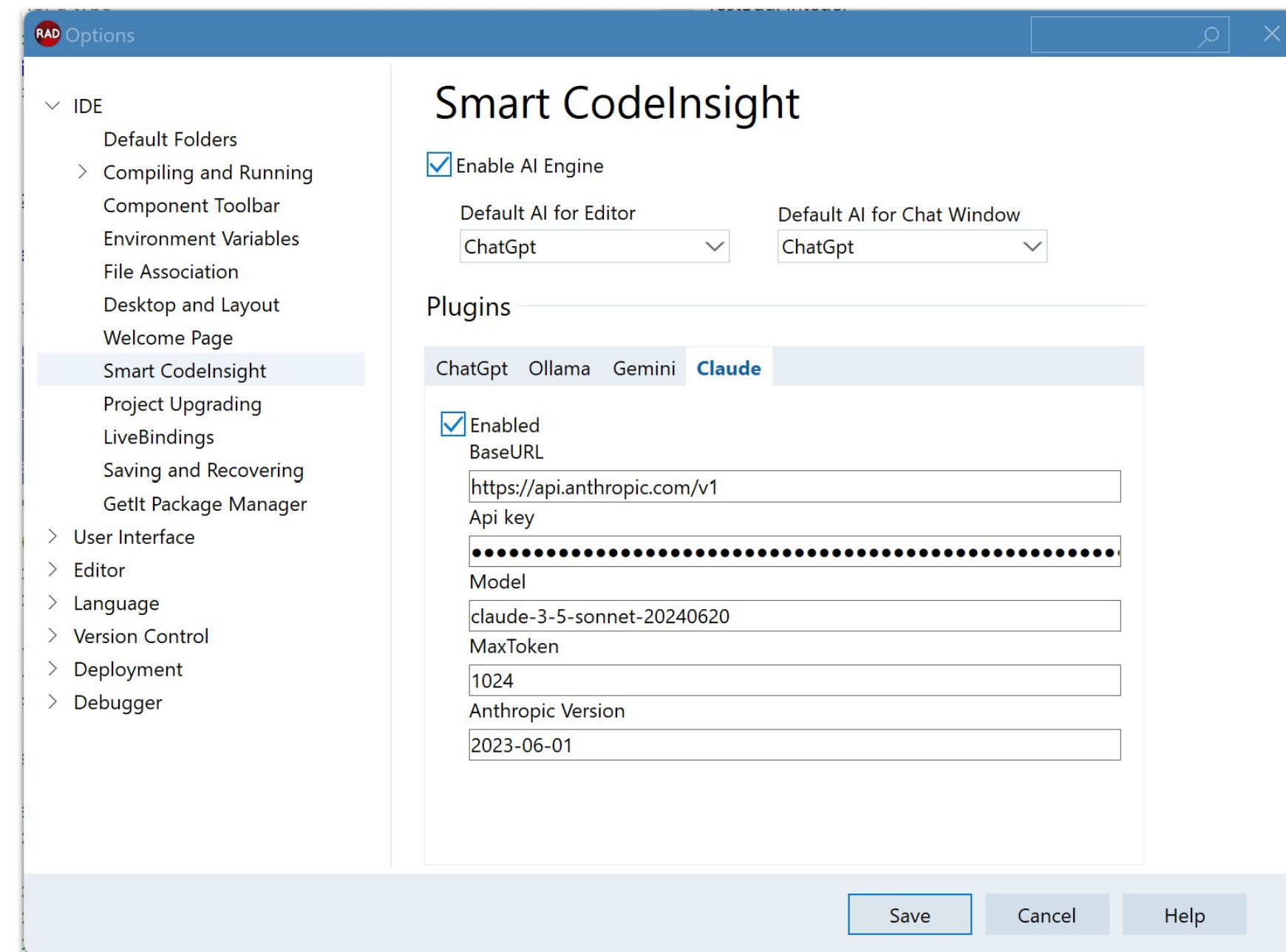






# Smart CodeInsight: AI Powered Coding

- Everything is **optional** and **disabled** by default
- **Multiple** providers, so you can **choose** which one or ones **you want** to enable
- A locally installed, **offline** solution for **maximum privacy**
- You decide **if** and **how** to use **AI**  
... and you can even **create additional plugins** for your preferred solution

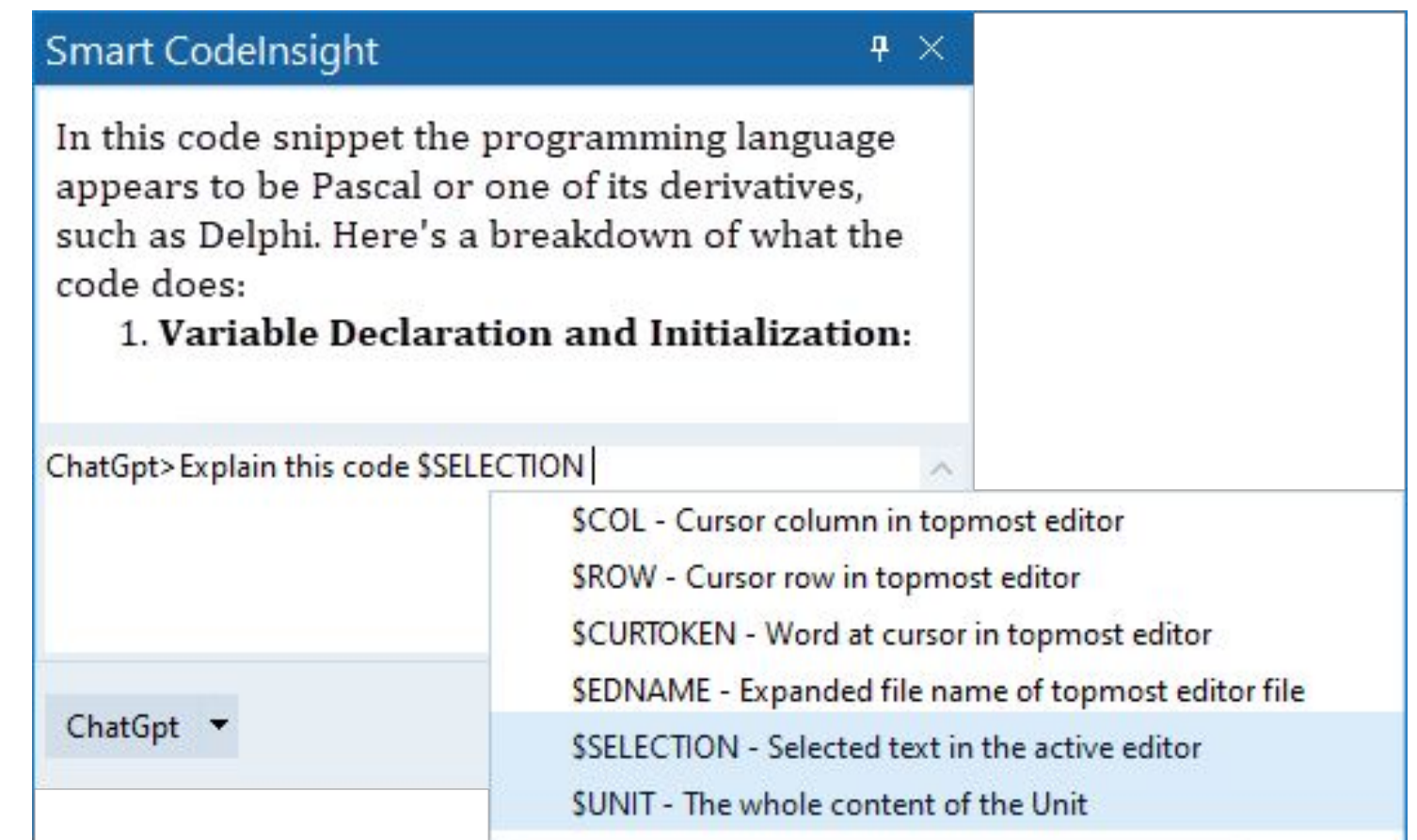




## 12.3 Projects Completion: Smart CodeInsight

*RAD Studio open architecture for AI plugins, offering ready-to-use support for three online solutions (OpenAI, Gemini by Google, and Claude by Anthropic) and one offline solution (Ollama)*

- Chat window supports Markdown
- More integration of chat and Editor
  - Read editor context from the Chat window via button or text macro
    - Current editor selection
    - Current active unit
  - Display editor command results in Chat window (using Markdown) rather than editor comment



*Smart CodeInsight Chat with MarkDown and macros*





# 12.3 Projects Completion: Smart CodeInsight

- **Smart CodeInsight**

- List of models in configuration dialog
  - Always updated list of available models
  - Directly refreshed from engine
- New Find Unit / Header (AI) command
  - Select a type or symbol and find the required uses or include statement via AI

*Smart CodeInsight Options*

The screenshot shows the 'Options' dialog box with the 'Smart CodeInsight' section selected in the left sidebar. The 'Smart CodeInsight' section has a checked 'Enable Smart CodeInsight' checkbox. Below it are two dropdown menus for 'Default AI for Editor' and 'Default AI for Chat Window'. The 'Plugins' section shows 'ChatGpt' as the selected plugin. The 'ChatGpt' plugin settings include an 'Enabled' checkbox (unchecked), a 'BaseURL' field (https://api.openai.com/v1), an 'Api key' field (masked with dots), 'MaxToken' (2048), 'Temperature' (0.1), and a 'Model' dropdown menu. The 'Model' dropdown is open, showing a list of models: gpt-4o-mini (selected), o1-preview, whisper-1, dall-e-3, babbage-002, omni-moderation-latest, omni-moderation-2024-09-26, and tts-1-hd-1106. At the bottom are 'Save', 'Cancel', and 'Help' buttons.





# 64-bit IDE – Initial Release



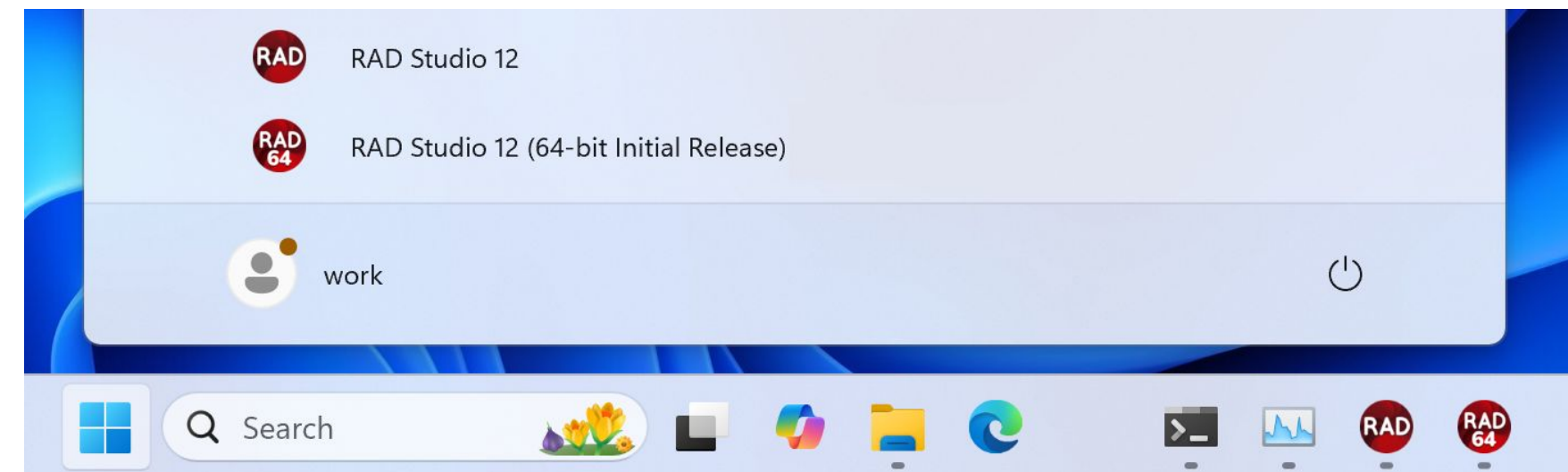
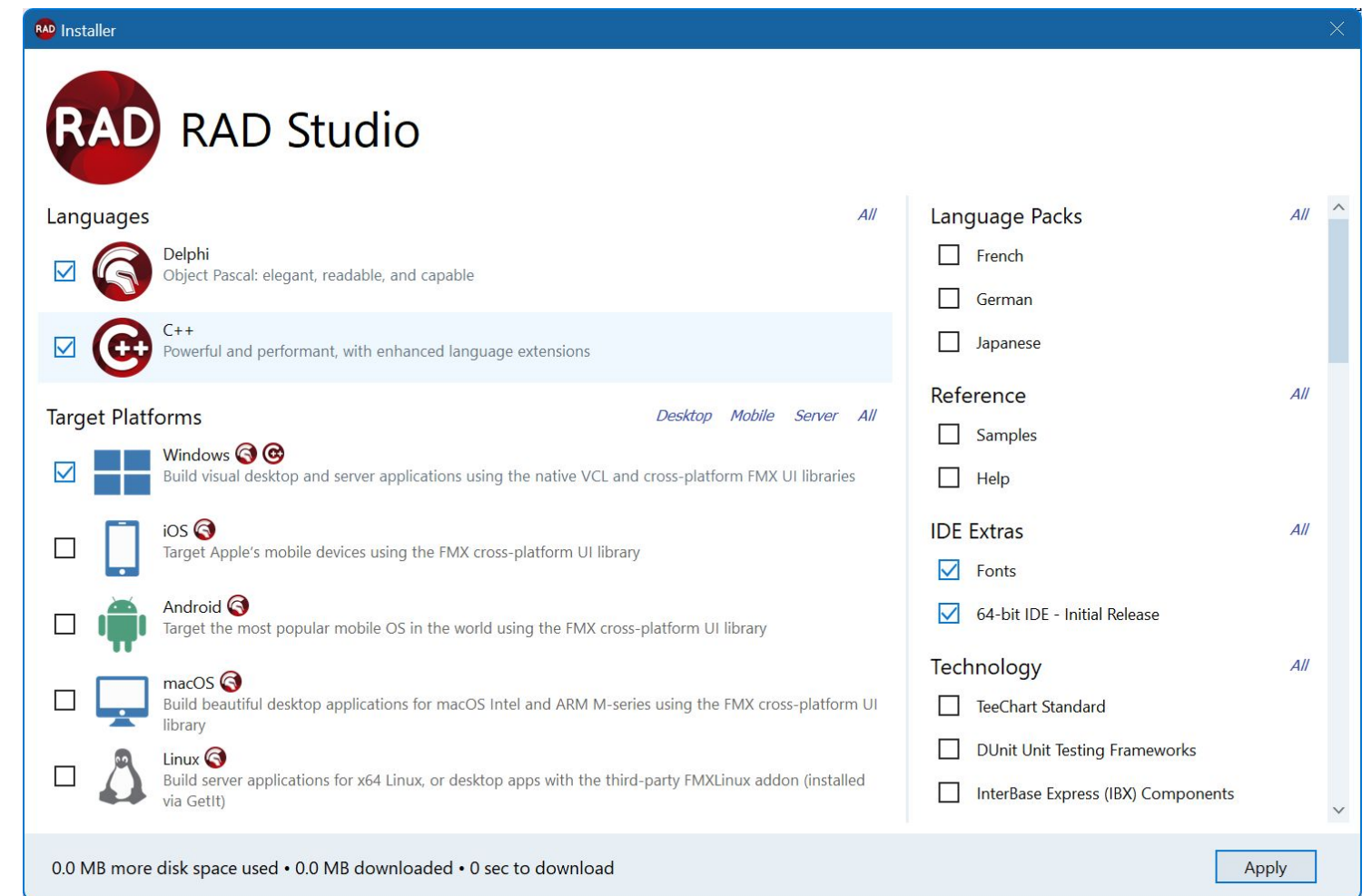
- 12.3 includes: the Initial Release of a 64-bit build of the RAD Studio IDE
- Key value:
  - 64-bit memory size when compiling Delphi in-IDE
  - 64-bit database drivers
  - ...and it's a 64-bit world!  
Windows is 64-bit, and 32-bit apps run via WoW.
- *A really exciting and a massive product milestone!*





# 64-bit IDE – Initial Release

- Optional install (right-hand side) **side by side** with 32-bit IDE
- The 32-bit IDE
  - Remains in the product
  - Is always installed
  - **Remains the default** in 12.3
- You can use either or both at once







# 64-bit IDE – Initial Release has Core Scope

- Compile and debug Delphi and C++ VCL & FMX apps for **Win64 / Win64 Modern**
  - Form design (both VCL & FMX)
  - Our components
  - Code editing
  - Debugging
  - Databases
  - ToolsAPI
- ie, fundamental / core features
- Out of scope in *this* release:
  - Non-Win64 platforms (including C++ legacy Win64 – it supports *Win64 Modern*)
  - Visual Assist for C++
  - Type Library support (i.e. ActiveX projects)
  - Delphi Refactorings and Metrics
  - Live Templates



# 64-bit IDE – An Exciting Direction

- Initial Release
  - In all editions (Pro, Ent, and Arch)
- You can use 32-bit & 64-bit together
- Access to:
  - 64-bit database drivers
  - 64-bit Delphi compiler  
(C++ Modern already 64-bit, even in 32-bit IDE)
  - 64-bit memory space
- Modern direction: the world is 64-bit!



\* Not committed until completed and GA released





# The 12 Athens Libraries

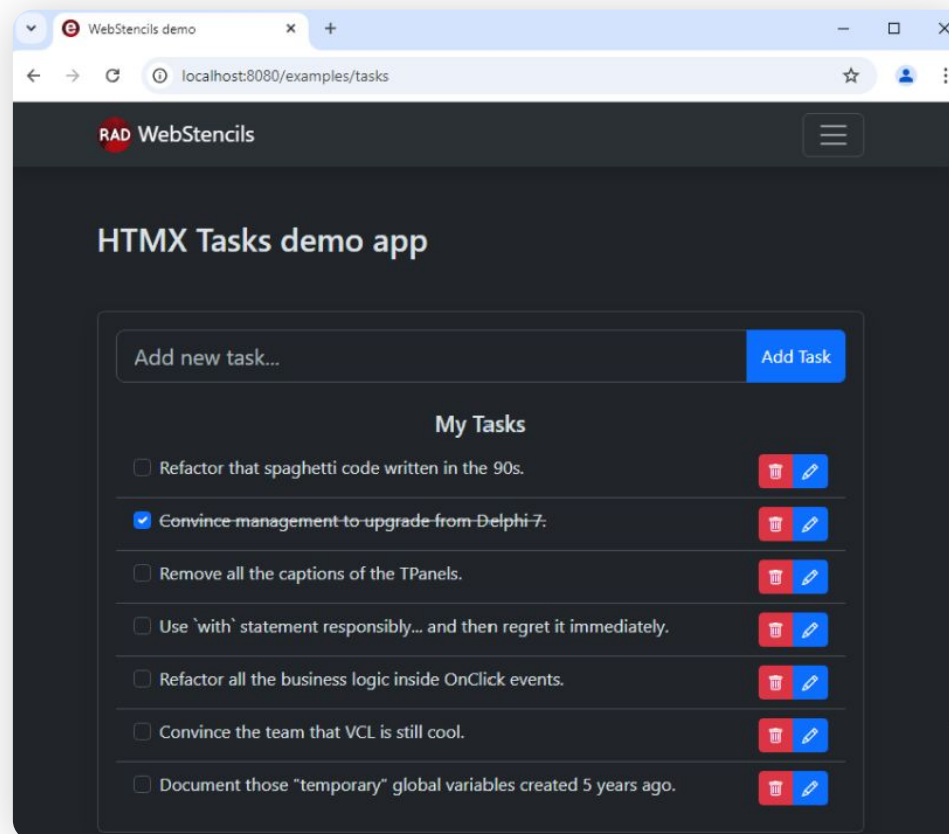




# WebStencils Template Library

Server-side script-based integration and processing of HTML files for WebBroker and RAD Server. **You** can develop modern websites

- Based on **any JavaScript library**, CSS, and web technology
- Powered by the data extracted and processed by a RAD Studio **server-side application**
- Foundation for **HTMX** as a web development solution.
- HTMX pages benefit from server-side code generation and hook into REST servers for content updates







# WebStencils Template Library

## Core Web Scripting Syntax

- Uses **@** for special processing of symbols and **{ }** to define blocks
- **@object.value** to read data from server objects
- **@keywords** for special processing
- Supports simple expressions

```
ProcessorGeneric.AddVar( 'obj2',  
    TSimpleObject.Create( 'marc', 9 ) );
```

```
<h4>Obj2</h4>  
  
@if obj2.ValueBelowTen {  
    <p>@obj2.name <span> has a value of </span>  
    @obj2.value, which is under 10</p>  
}
```

**Obj2**

marc has a value of 9, which is below 10





# Android API Level 35

- New API level, required by Play Store in August 2025
  - Default value of the targetSdkVersion manifest attribute is now 35
- Many related improvements and changes:
  - Updated the NDK version to 27.1.12297006
  - Updated the SDK to 16.0 version of the Command-line Tools
  - Added support for 16 KB page sizes (compiler, linker, packager and bundletool)
  - New compiler option --allow-rosegment
    - For compatibility with older versions of Android, < API 29
  - New provisioning options and user permissions
- Delphi supports state-of-the-art Android development







# Improved Mobile Development

Significant improvements for Delphi mobile development

## Apple platforms

- Linker updated to the most recent Apple version
- Link iOS static libraries written in Xcode, like Firebase iOS SDK

## Android support

- Options to compress Dex files and compress native library files
- The targetSdkVersion of the manifest file can be configured in the IDE
- Import Android libraries ('.aar' files)
- Works with the Facebook SDK for Android and Firebase Analytics





**Let's Summarize  
1995 to 2025**





# Delphi in 2025

**30 years of great history, a tool silently helping the industry**

The best Windows UI library, for 30 years

Now also great on mobile!

The best code compatibility from version to version, for 30 years

*Preserving Delphi developers investment (their source code) like no other tool does today*

***Delphi is here to stay, but not standing still***





**And What About the Future?**





# The Future is looking great!

- Work in continuing on the 64-bit IDE
  - Goal is to make it the default IDE, eventually phasing out 32-bit
- Keep working on AI “as it makes sense”
- We focused a lot in C++, time to get back to Delphi
- Focus on some core tech with significant rework (example, DelphiLSP)
- Remain at the forefront of Windows development

*Want to know more? If you are on update subscription keep an eye on your email for an NDA beta invite. If not on subscription, buy today!*