



<RAD Studio 12.3 Athens>

Wednesday 7 May 2025 | Wellcome Collection, London



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

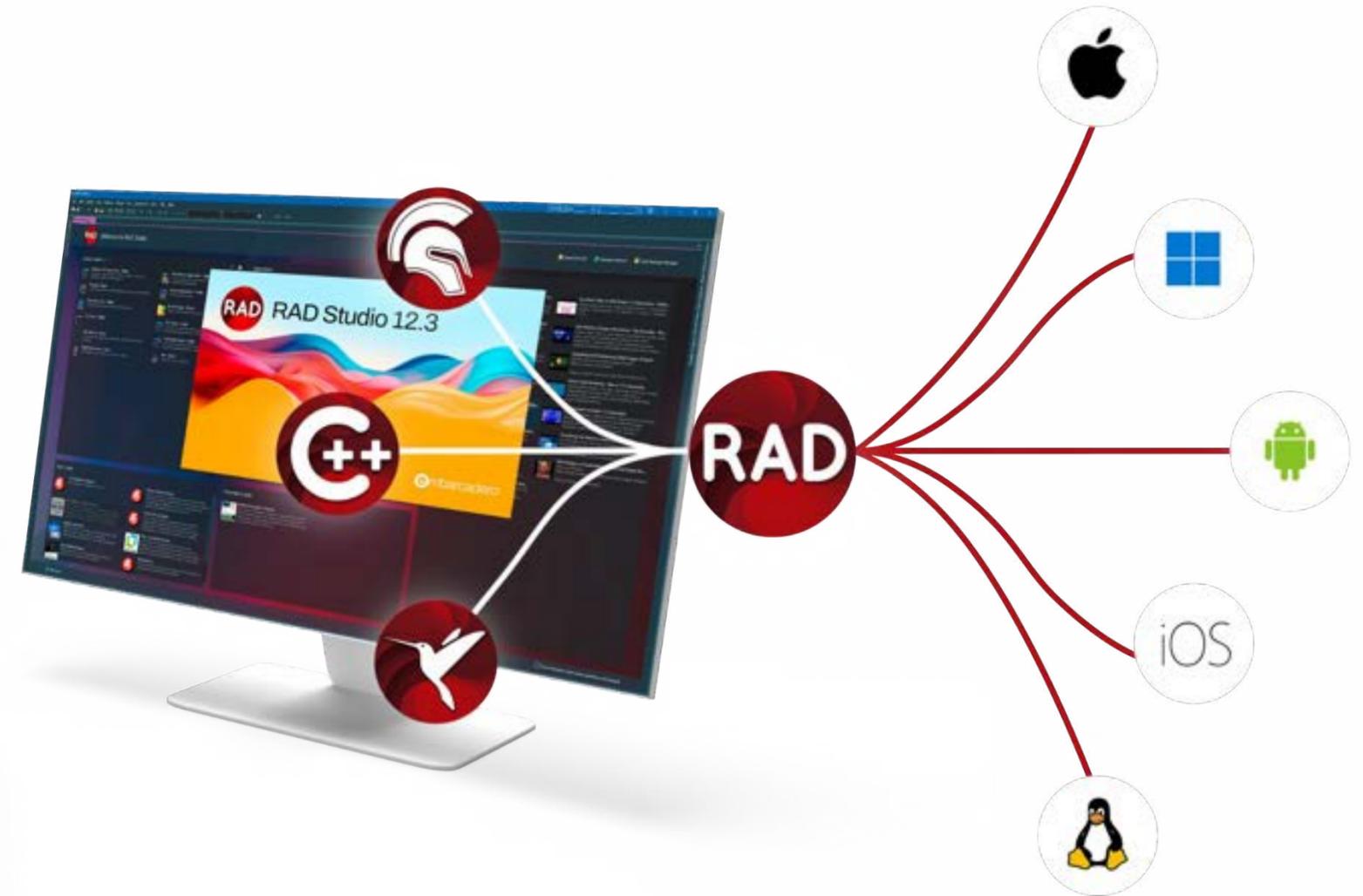
Lives in Italy

Contact email:
marco.cantu@embarcadero.com

What is RAD Studio?

RAD Studio is an

- Advanced IDE *for*
- Visually building
- High-performance
- Platform-native apps *for*
- Windows, Linux, iOS, macOS and Android *from* a single codebase *in* Delphi
- Windows *in* C++



What is Great in RAD Studio?



Developer Productivity

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



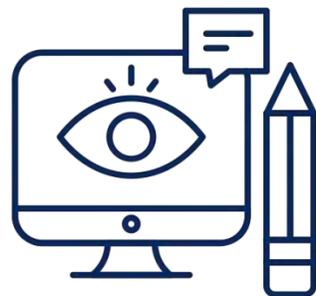
Fast Native Apps

Native compilers give your apps the speed they need.



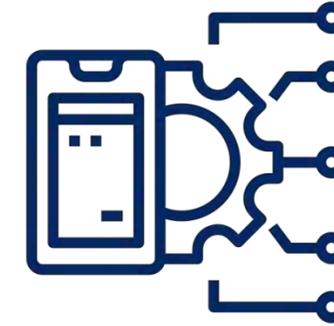
Strong Community

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



Visual Designers

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



Platform API Access

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

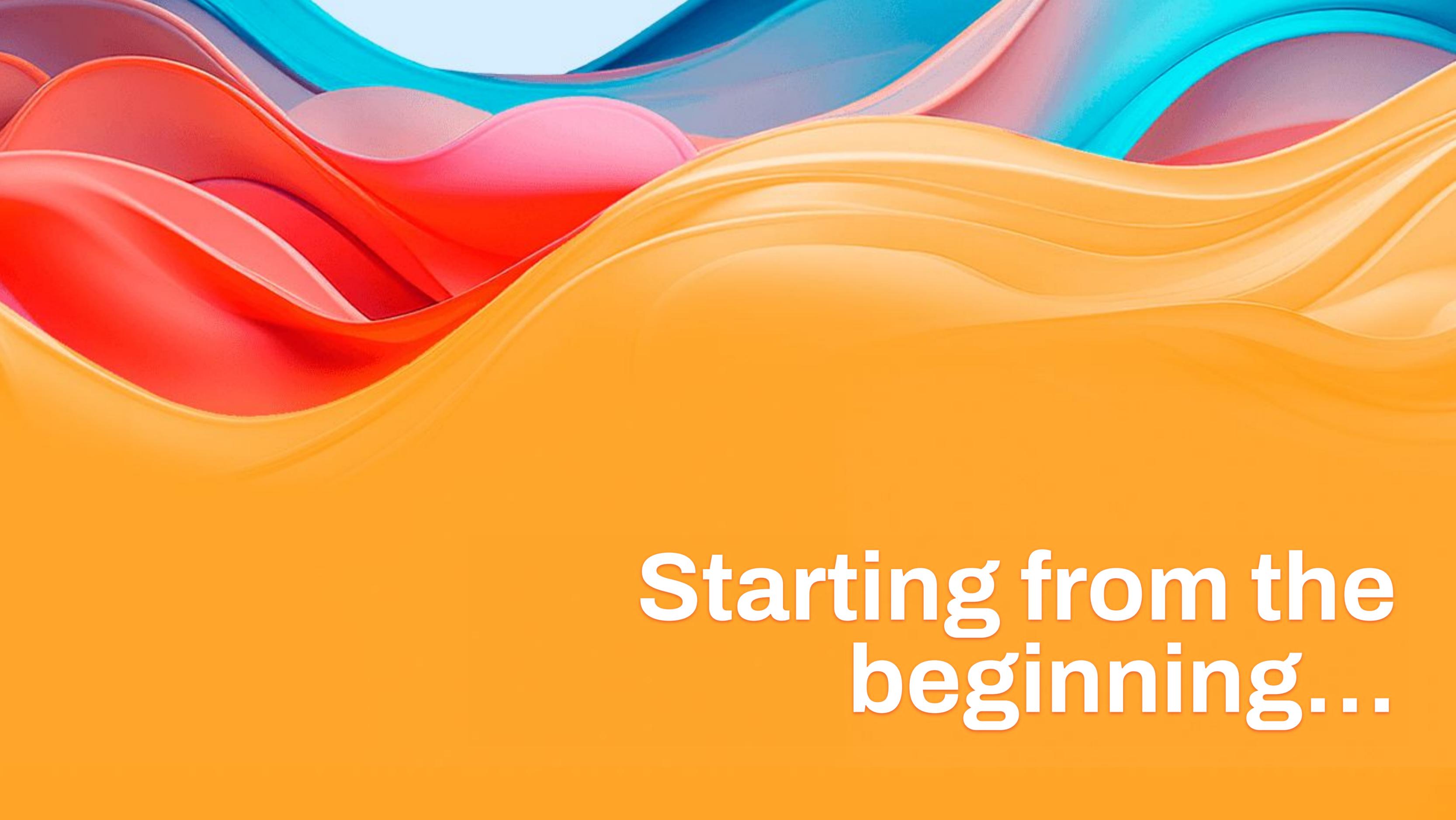
Database Access

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



Backward Compatibility

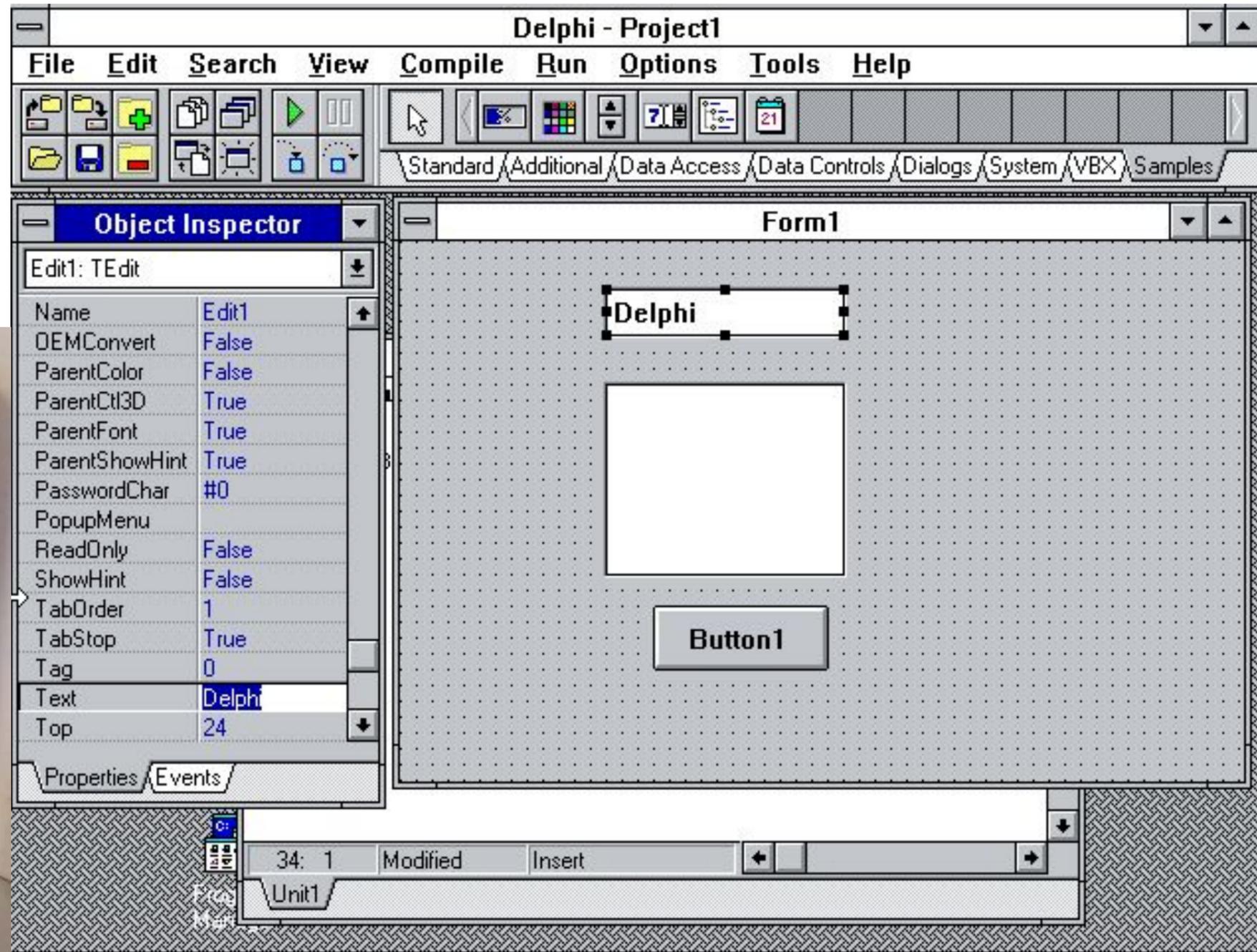
You have an investment
in your code, keep your
code relevant.



**Starting from the
beginning...**

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.* 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.

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

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

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 optimizing 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.

RAD: prototype to production

Delphi's sophisticated visual design and debugging tools help you develop faster. They make it easy to work interactively with your customers, so your final .EXE will fit their needs, increase their productivity, and make you a star! But faster development cycles are just the beginning. The Delphi compiler produces applications that run 10-20 times faster than P-code interpreters. Royalty-free executables let you deploy fast, so you can crunch through the applications backlog in record time. And just wait until your users experience the speed of your delivered apps—they won't want anyone's apps but yours.

Delphi The Facts

Feature	Delphi	Other	4GL
Native code compiler for high-performance applications	✓	—	—
Create standards, redistributable EXEs and DLLs	✓	—	—
No runtime installer DLL required	✓	—	—
Fully object-oriented programming language. Provides optimal code reuse	✓	—	—
No external code necessary to build new components or extend environment	✓	—	—
Combines high-performance compiler, visual environment, reusable components, and available database tools	✓	—	—
Robust exception handling	✓	—	—
ReportWizard™ "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 minimize coding, accelerate project completion, and simplify corporate standardizations. 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**

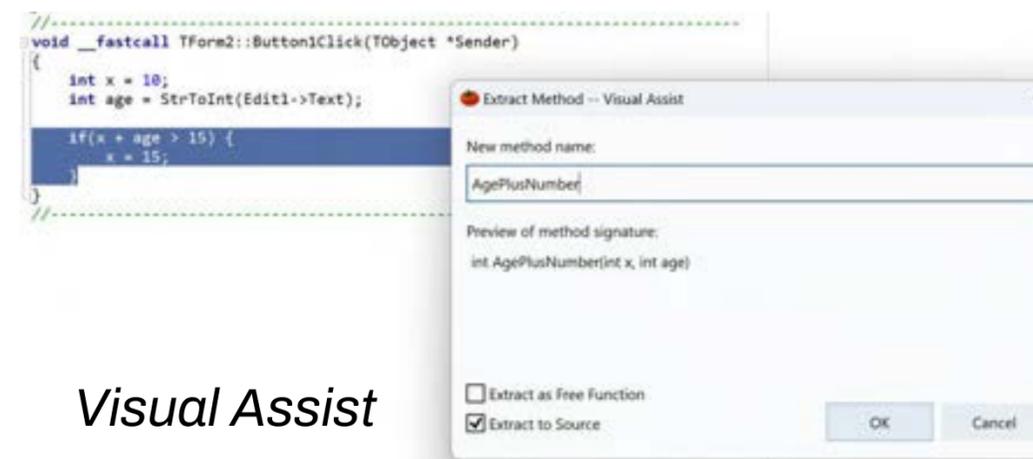
Borland International (UK) Limited, 3 Pavilions, Ruscombe Business Park,



Highlights of RAD Studio 12.x (so far)

RAD Studio 12 Athens was a *Mega Release*

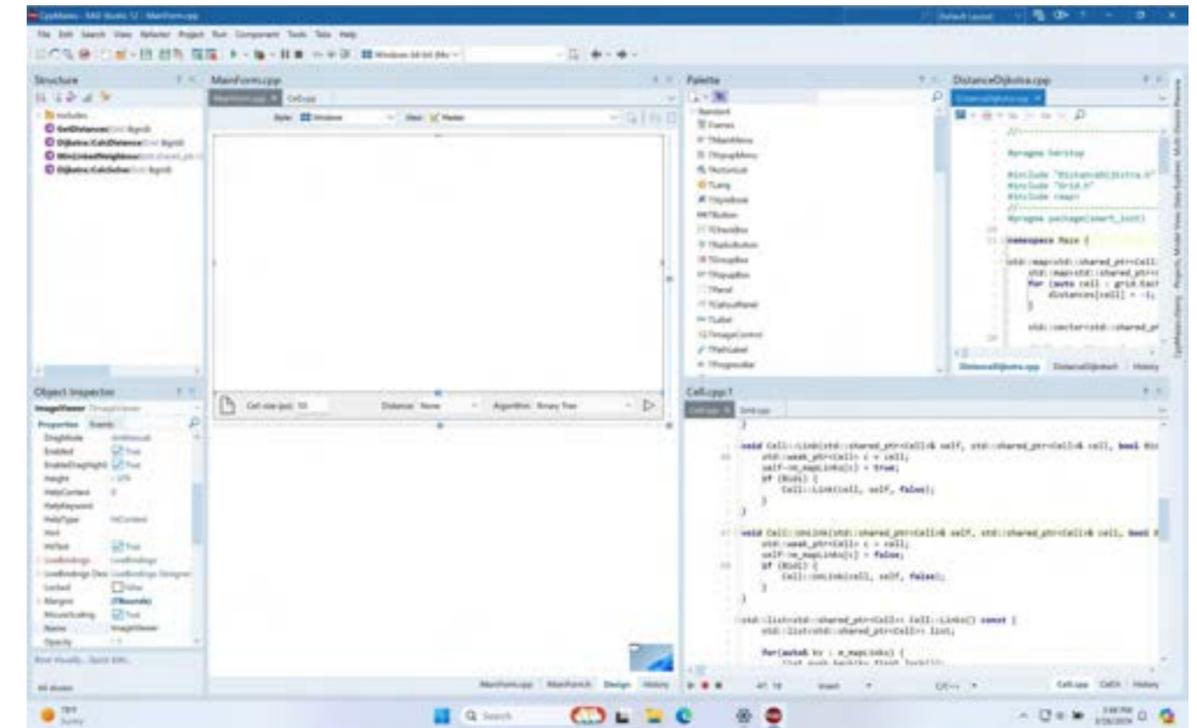
1. C++
 - Visual Assist
 - New Clang Tech Preview
2. Installer & IDE
 - Multidevice Icons
 - Improved VCL Designers and ToolsAPI
3. FireMonkey & Skia
 - Skia UI Controls, rendering, graphic formats and way more (and VCL as well)
 - TMemo and TEdit improvements
4. VCL
 - MDI and Tab based UIs
 - Fonts 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?!



Visual Assist

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

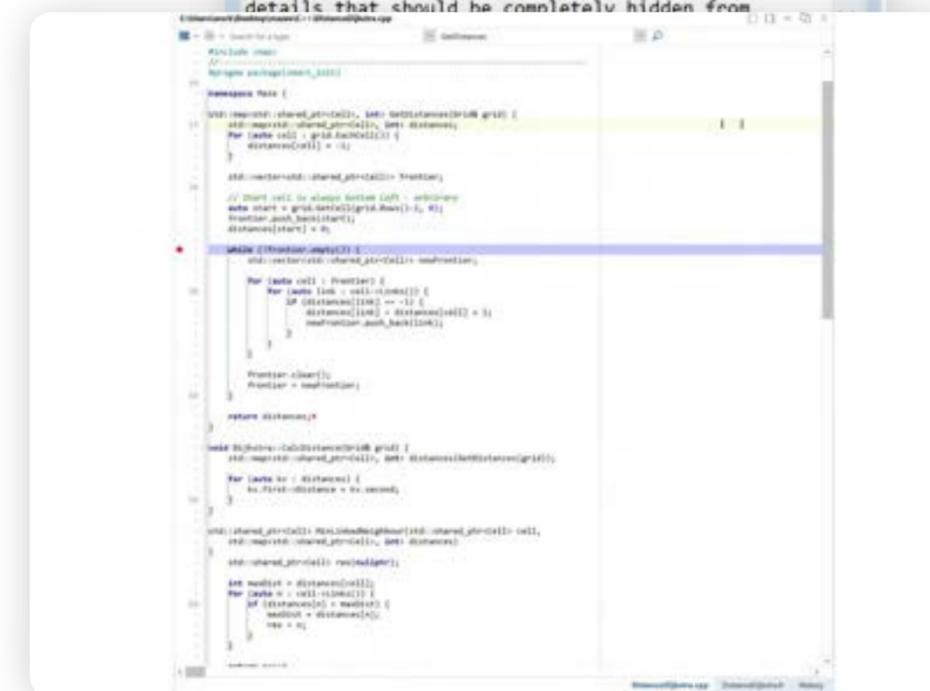
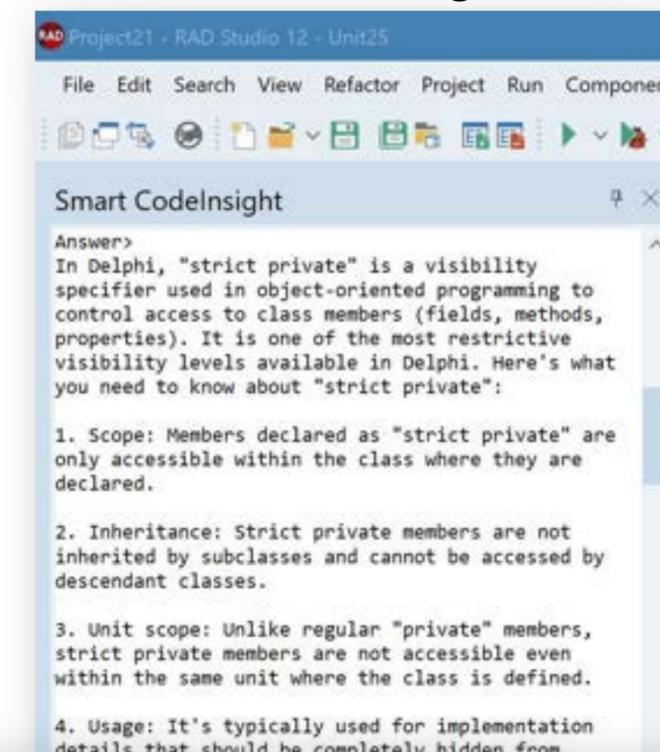
● New Features

- 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

- **12.x Projects Completion**
- **Android API Level 35**
- **64-bit IDE – Initial Release**
- **Quality & Quality**

RAD Studio 12.3 Themes



12.x Projects Completion

12.x Projects Completion: C++ Modern Win64

- Lots of **Quality** – focus is on revising the new platform before moving forward
- Performance:
 - Debugging: LLDB formatters (like visualisers) for types like `std::map`, `vector`, etc **optimised**: many rewritten in C++
 - And **more** compiler performance!
 - Up to 15% faster in general *just by using 12.3*
 - And a *further* 5-6% faster when using UTF-8 with BOM!
(Yes, the Modern STL is shipped UTF-8.)
- Smaller feature: some compatibility additions for old RTL (bcc) with Modern
 - Plus some macros in `bcccompat.h`
 - Goal is: help get old code compiling with Modern



12.x Projects Completion: C++ Modern Win64

But revising was not only quality & performance.

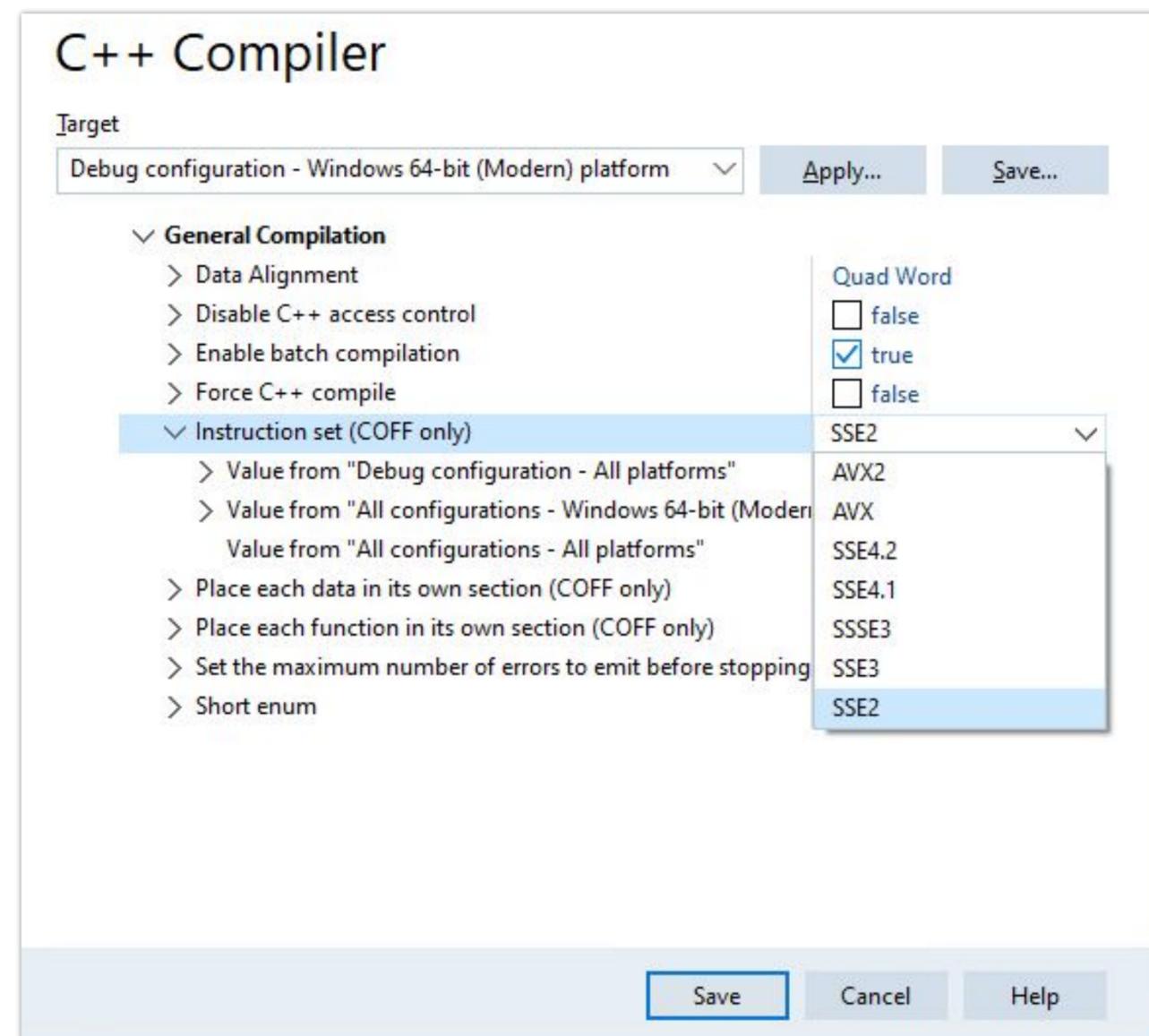
The new toolchain is a foundation for the future.

So: even in a ‘pause and revise’ quality release,
what has this solid foundation let us create and deliver to you?

12.x Projects Completion: C++ Modern Win64

- **Instruction sets:**

- Past: SSE2 supported
- Now: Official support for six new instruction sets: SSE3, SSSE3, SSE 4.1 & SSE 4.2; AVX; and AVX-2
- Some great for floating-point work; some great for integer work
- **All are great for code performance!**
Not only a great optimizer, but it can use modern CPU instructions!



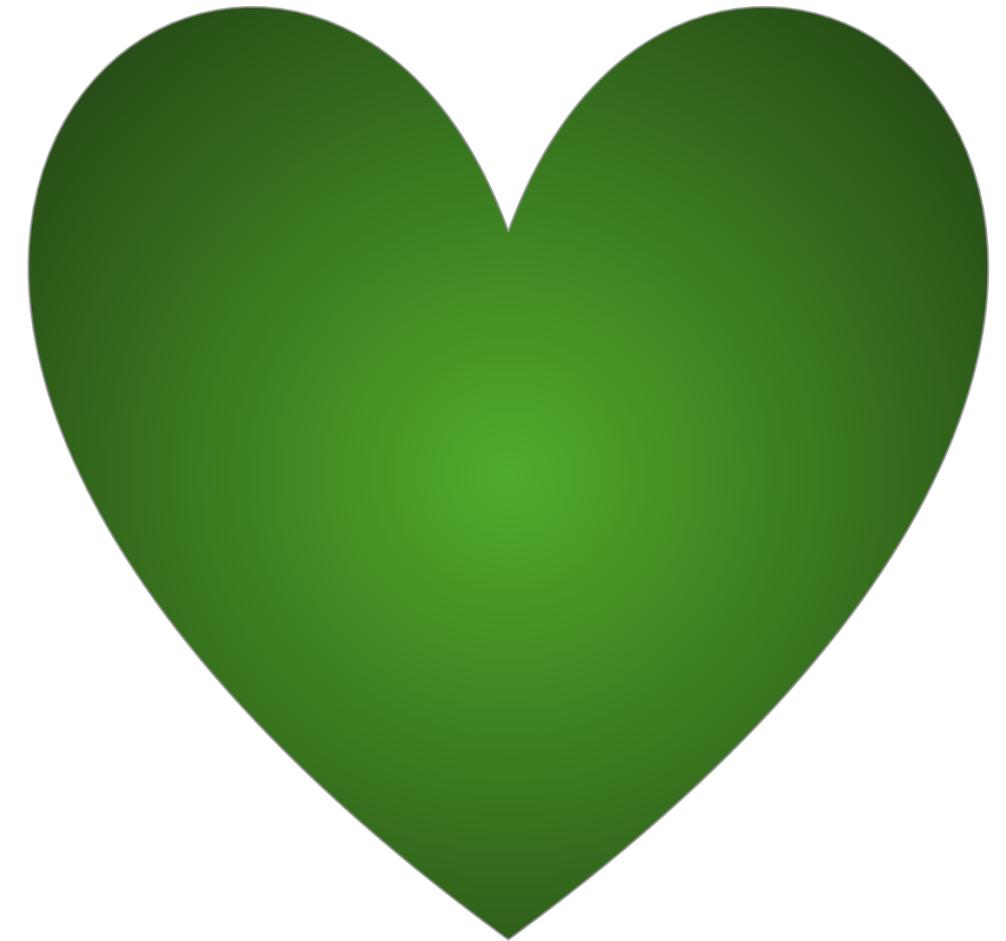
12.x Projects Completion: C++ Modern Win64

- New **Safety** section for increasing safety and security in your app:
 - This adds two **Sanitizers!**
 - Runtime correctness checking (a bit like CodeGuard)
 - Address Sanitizer
 - Undefined Behaviour Sanitizer
 - Note: run asan-enabled apps from the command line (best to handle errors & see full output)
- Very major, long-standing customer request
and it's here



12.x Projects Completion: C++ Modern Win64

- **Quality**
- **Debugger performance**
- Some assistance **upgrading from classic**
- Even faster **compiler performance**: 12.2 was CPU-saturating, on by default, *and we just made that up to 20% faster still*
- Six new **instruction sets**
- Two **sanitizers**

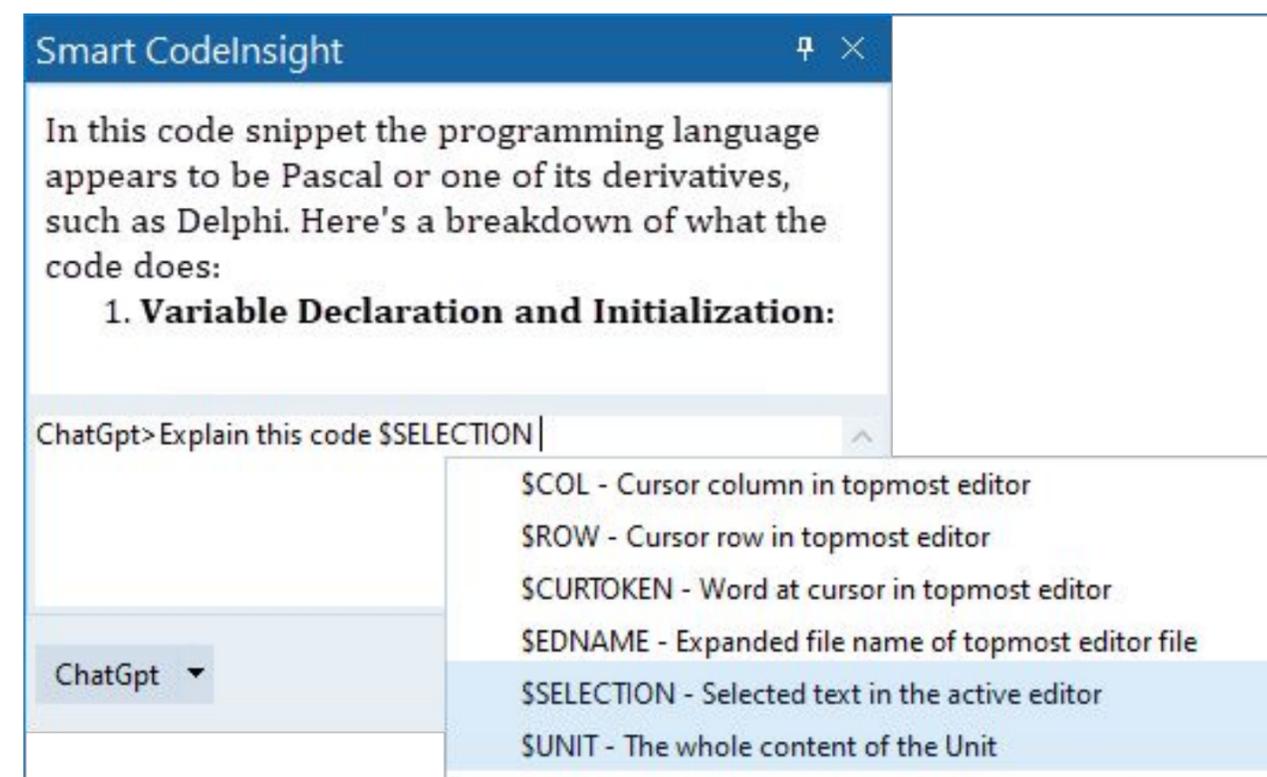


We ❤️ C++. We strongly recommend switching to the Modern toolchain!

12.x 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



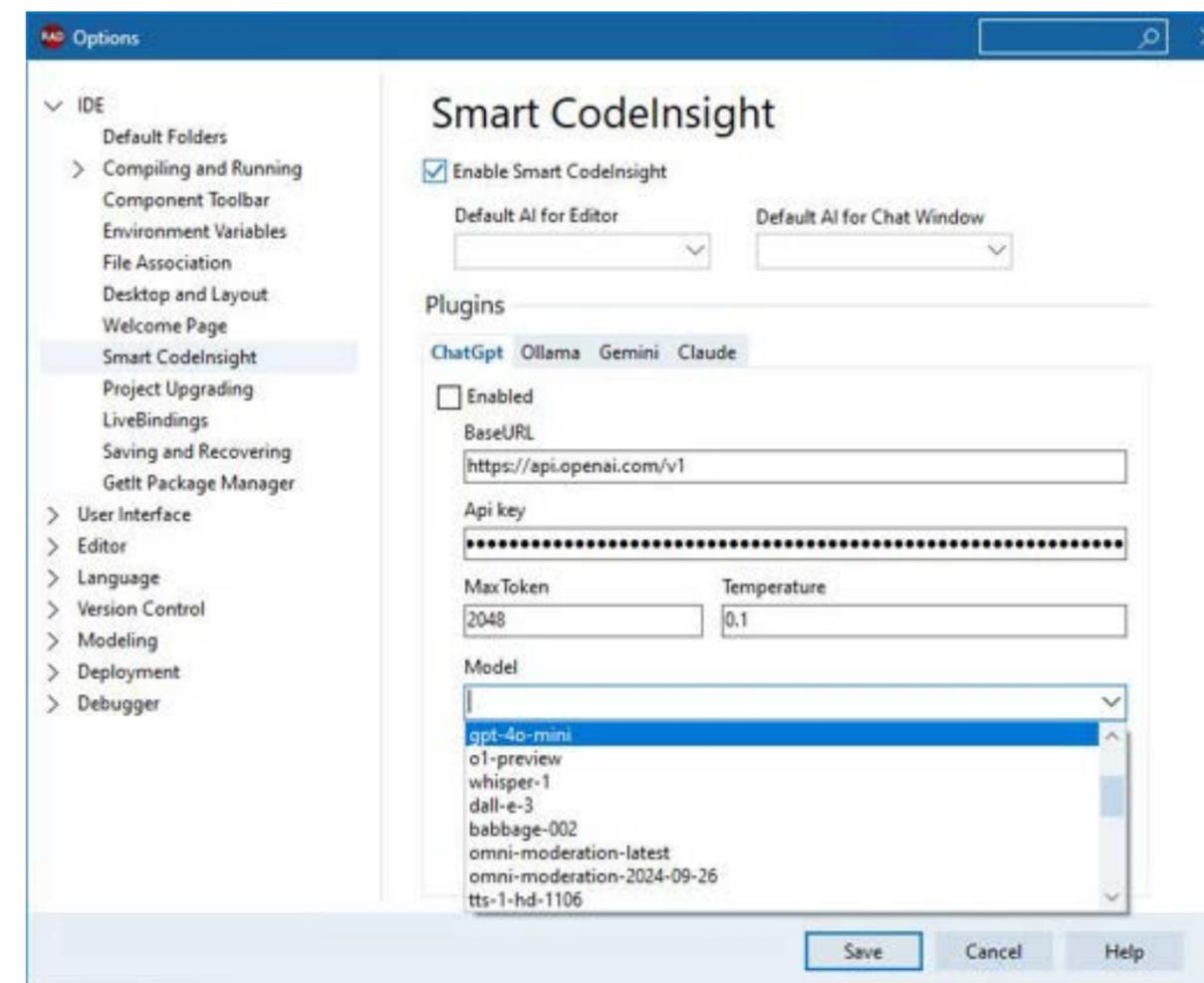
Smart CodeInsight Chat with MarkDown and macros

12.x 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

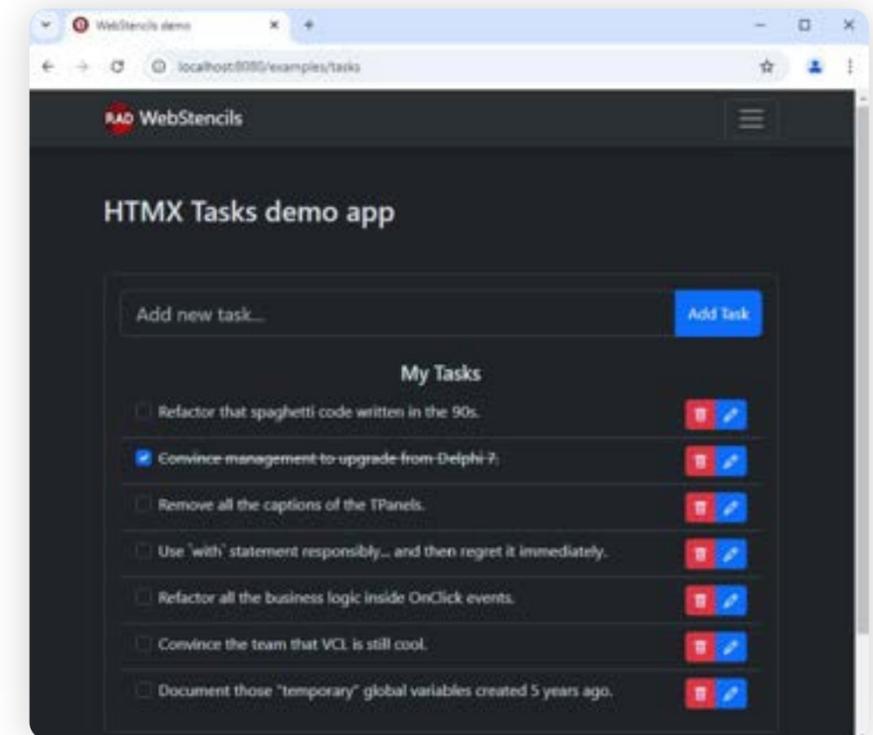
Smart CodeInsight Options



12.x Projects Completion

- **Delphi Compiler 64-bit binary**
 - Quality focus for the 64-bit binary compilers for Win32 and Win64 introduced in 12.2
Now available to all customers (including Professional SKU)
- **WebStencils**
 - Access to nested objects and nested data types (with the *@object.subobject.value* notation)
 - More flexible processing of the “@” symbol

HTMX and WebStencils



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





**64-bit IDE
Initial Release**

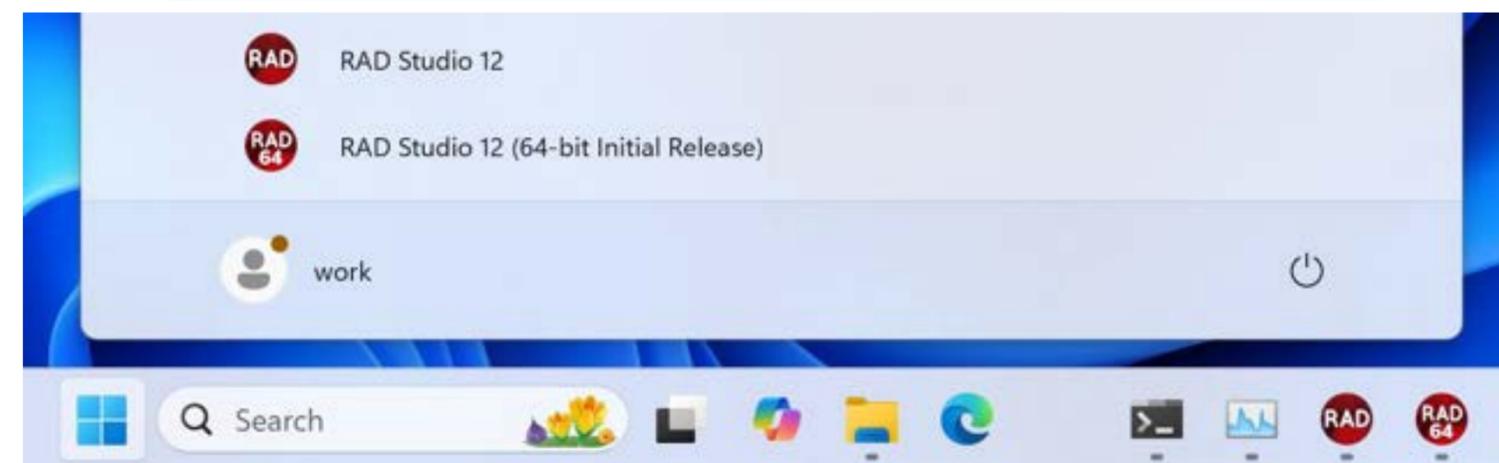
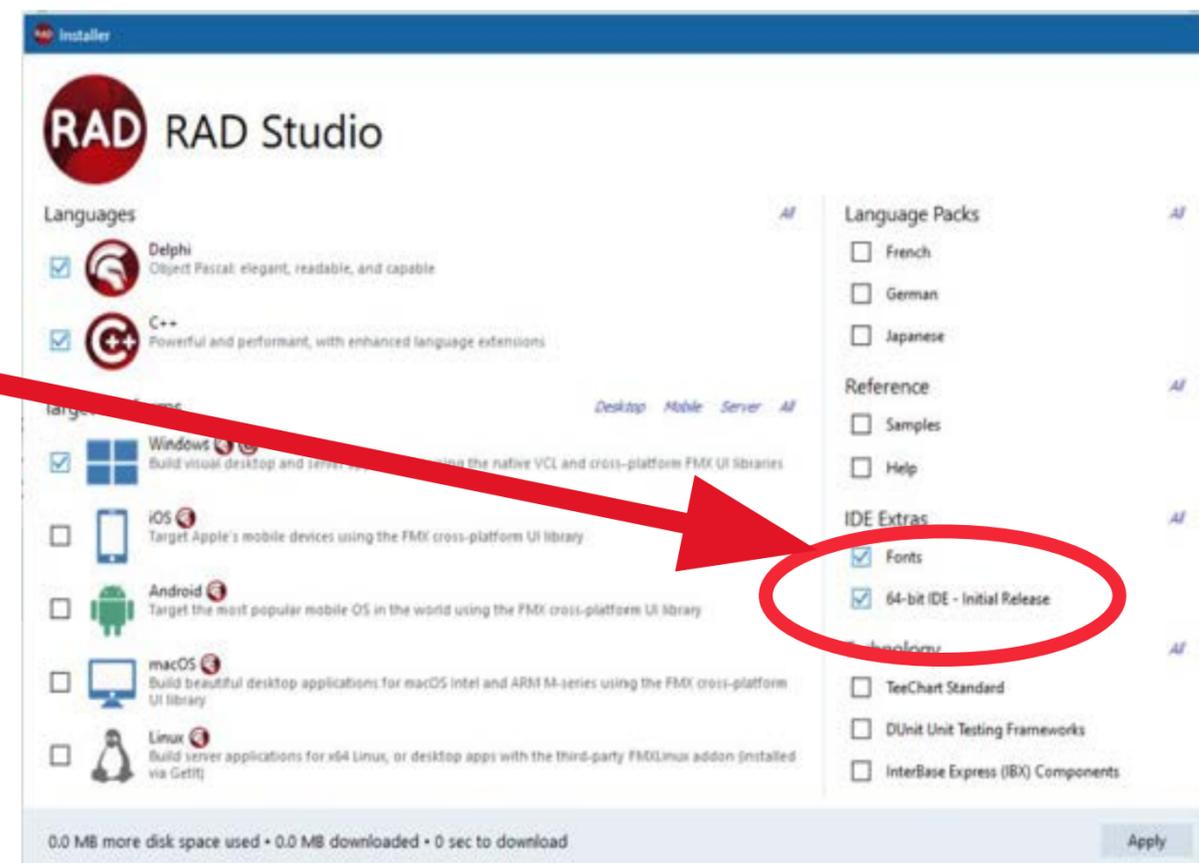
64-bit IDE – Initial Release

- 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!*



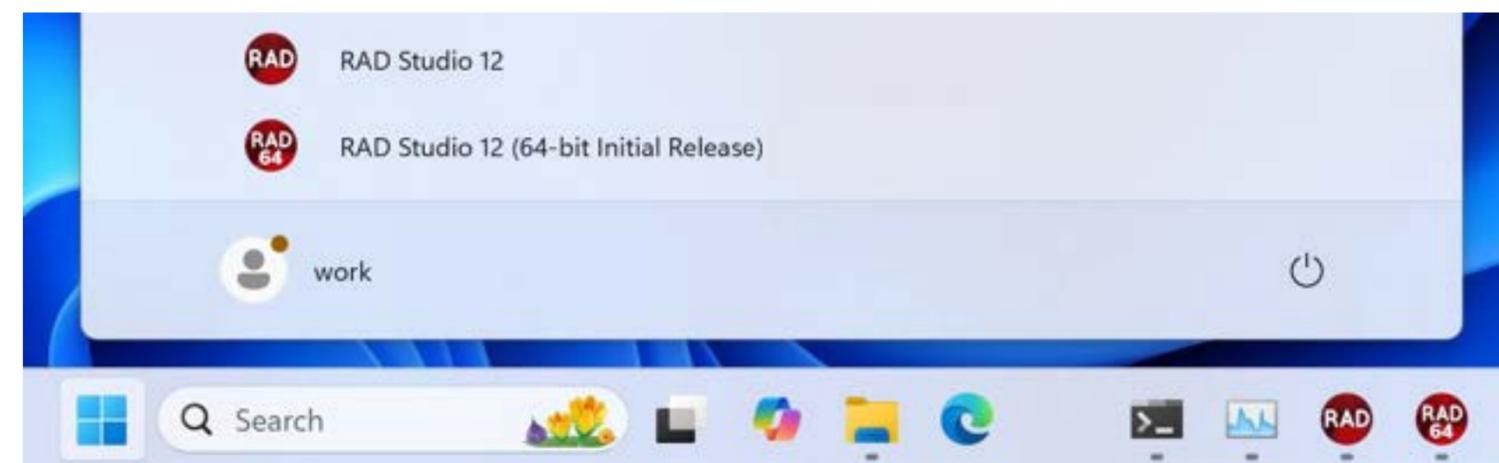
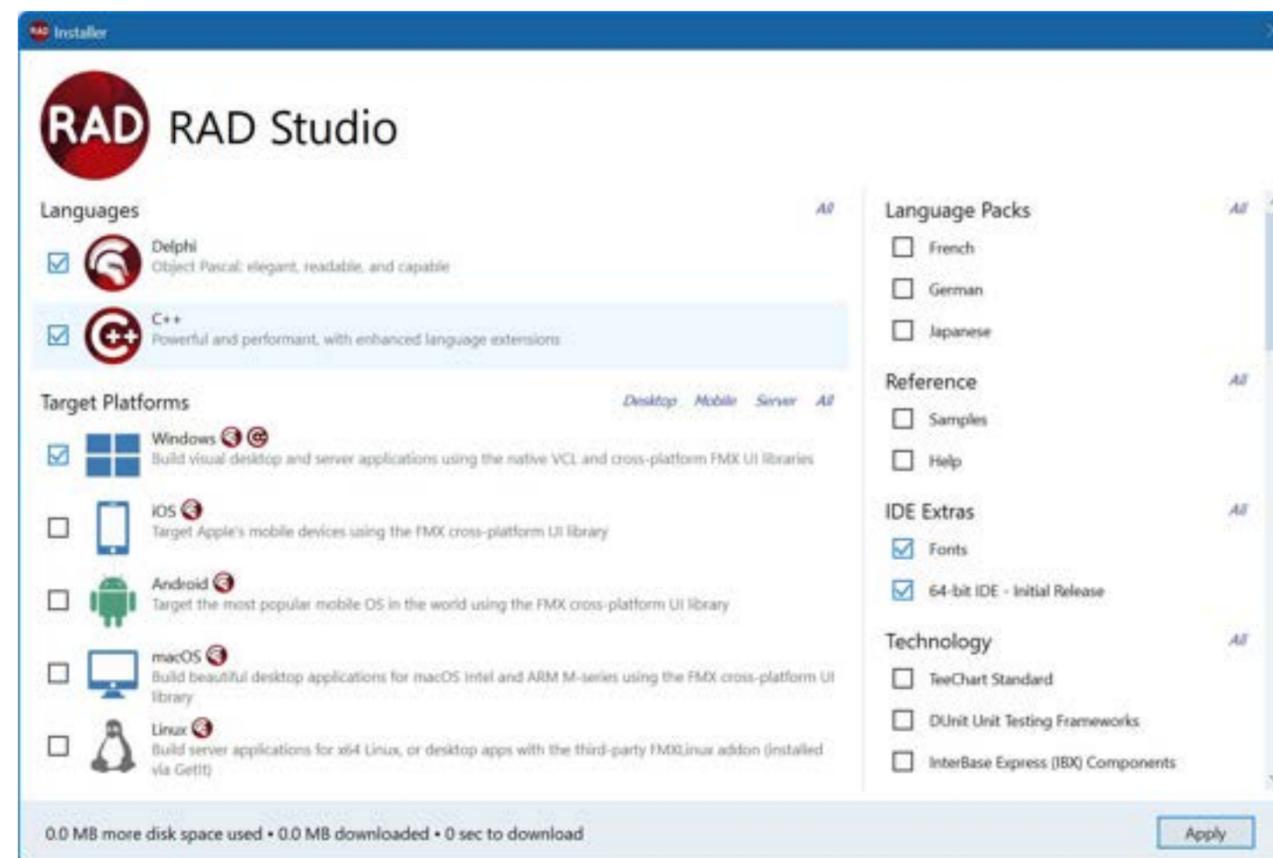
64-bit IDE – Initial Release

- 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

- 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



As the Initial Release
– *the first version* –
the 64-bit IDE does not yet feature-match the 32-bit IDE.

The 32-bit IDE remains the default in *this* release.

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 – Initial Release Is Win64 Only

- Win64 target only...
- ...so what happens if you open a project with another target? Win32? iOS?
- When opening a project, other platforms are **temporarily** hidden



64-bit IDE – Initial Release is Win64 Only



- Target Platforms (Windows 32-bit)
 - Android 32-bit - Android SDK 34.0.0
 - Android 64-bit - Android SDK 34.0.0
 - iOS Device 64-bit - iPhoneOS 17.2 -
 - iOS Simulator ARM 64-bit - iPhoneSi
 - macOS 64-bit - macbook profile
 - macOS ARM 64-bit - MacOSX 13.3 -
 - Windows 32-bit**

- Target Platforms (Windows 64-bit)
 - Windows 64-bit**

Non-Win64
temporarily
hidden.
(Win64 added if
not present)

- Target Platforms (Windows 32-bit)
 - Android 32-bit - Android SDK 34.0.0
 - Android 64-bit - Android SDK 34.0.0
 - iOS Device 64-bit - iPhoneOS 17.2 -
 - iOS Simulator ARM 64-bit - iPhoneSi
 - macOS 64-bit - macbook profile
 - macOS ARM 64-bit - MacOSX 13.3 -
 - Windows 32-bit**
 - Windows 64-bit

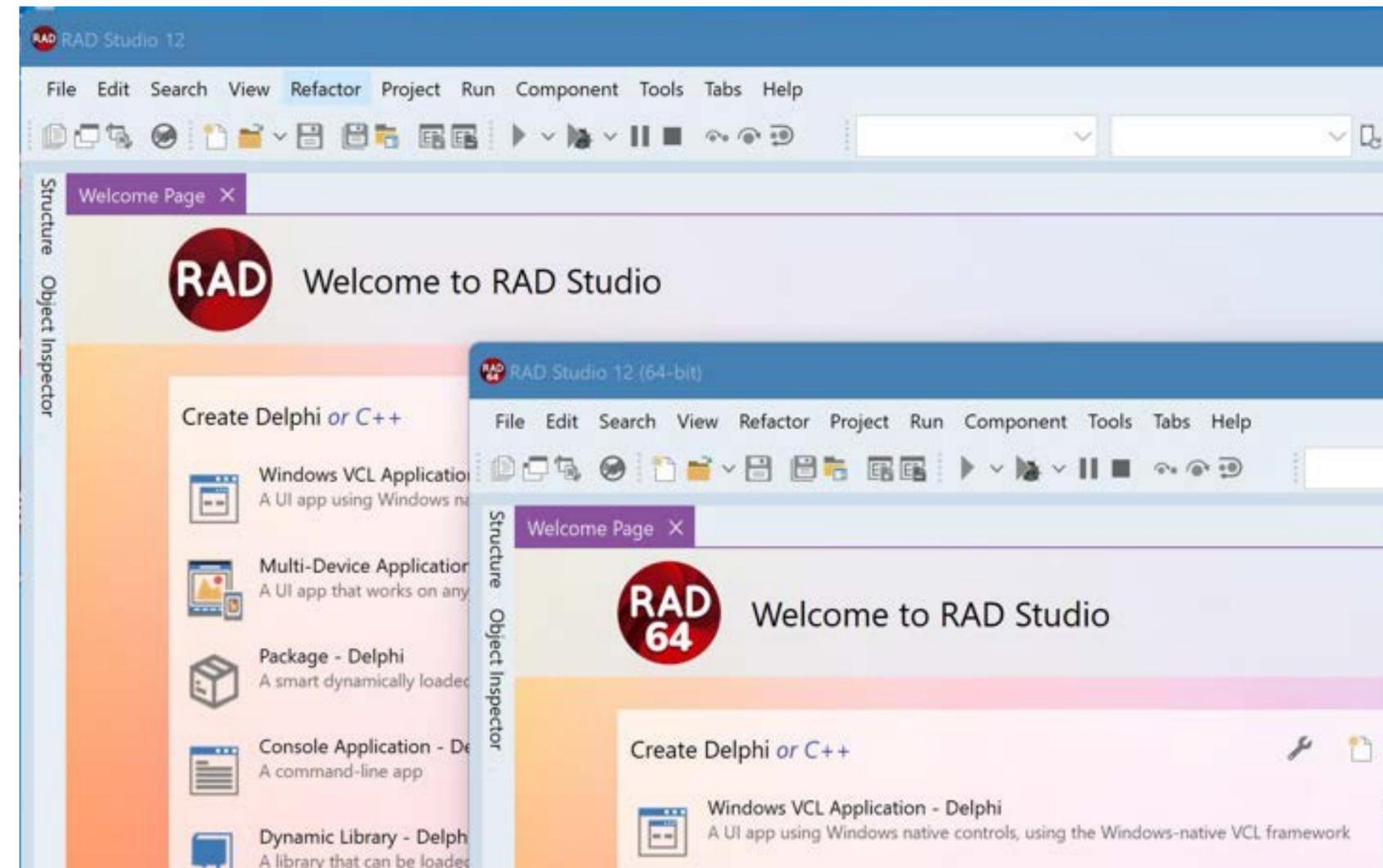
64-bit IDE – Initial Release Scope

- When opening a project, other platforms are **temporarily** hidden
- Win64 platform added if not already present
- Win32, iOS, Android, Linux, macOS, and C++ ‘legacy’ Win64 will be there, but *invisible*
 - They *reappear* when you reopen your project in the 32-bit IDE

You can *safely* make project changes in 64-bit IDE, save, and later re-open in the 32-bit IDE

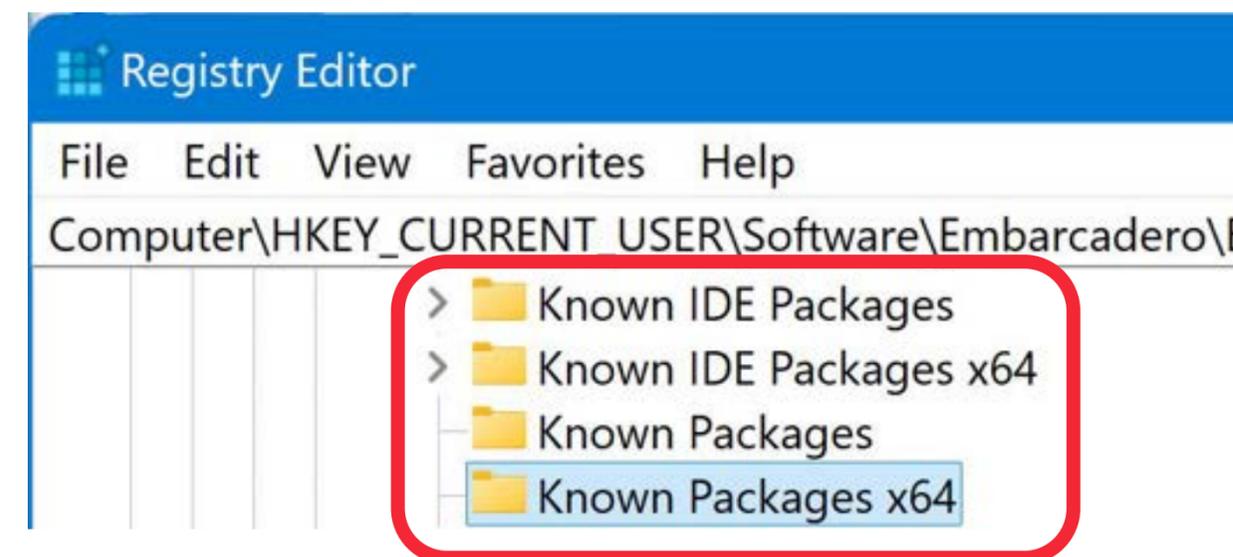
64-bit IDE – Initial Release Scope

- New Delphi LLDB-based Win64 debugger
 - Used in the 64-bit IDE only
 - Should allow stepping between Delphi & C++ code!
 - Does not feature-match yet, but fundamentals present



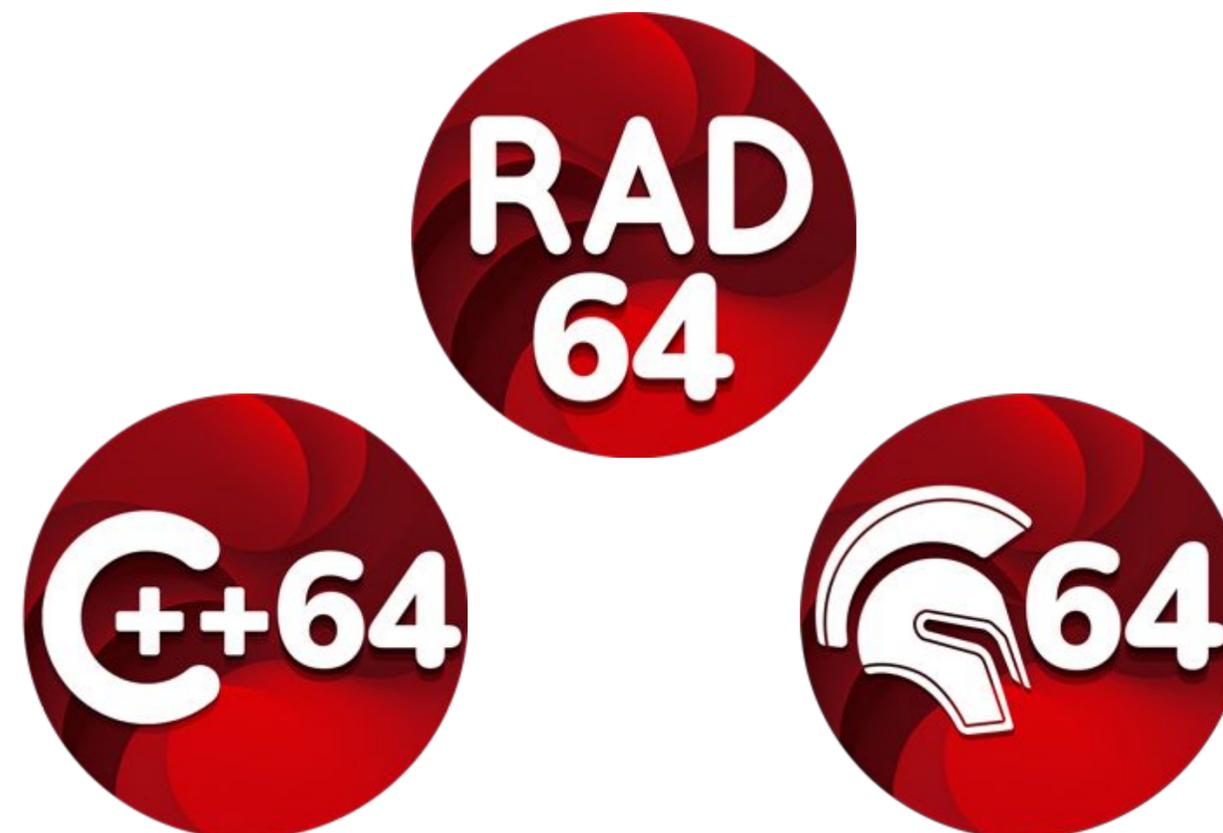
Tech details: 64-bit IDE & Components

- Component packages need to support 64-bit
 - *New requirement:* have 64-bit design time packages
 - Most components already support runtime 64-bit – so design time is the biggest thing for vendors
- When opening a package in the 64-bit IDE:
 - The Win64 platform is added automatically
 - No other code changes required, if you have 64-bit-safe code. Register() etc still the same.
- Registry Settings
 - Most settings are shared (eg, look and feel, Open Recent, etc etc)
 - Components/packages/plugins & debugger are all IDE32/IDE64 separate



64-bit IDE – An Exciting Direction

- Initial Release
 - Further work planned over time*
 - 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



12.3 Focus on Quality

Quality & IDE

- DelphiLSP
 - Addressed some core compiler-related and LSP configuration issues
 - 64-bit engine for 32-bit IDE available to Pro customers
- VA for C++Builder
 - Integrated 12.2 Patch 1 and further cleanup
- IDE General
 - ToolsAPI tweaks, eg for closing the Wait dialog
 - Caret can be coloured, for visibility / accessibility
 - Quality (~120 issues resolved)!



Quality & Libraries

- WSDL Importer and SOAP Quality
 - Addressed some long standing issues
- BLE and Bluetooth
 - Improving core BLE issues (discovery, OnMTUChanged)
- VCL Quality
 - VCL styles, HighDPI, and enhancements to the TImageCollection editor
- FireMonkey Quality
 - Further work on TMemo, Skia4Delphi update to 6.3.0, improved dynamic style loading (non-Windows) and the Z-Order Manager (on Windows)
 - Command line VCL Style to FireMonkey Style Converter (vsf2fm.exe)



Quality & Data

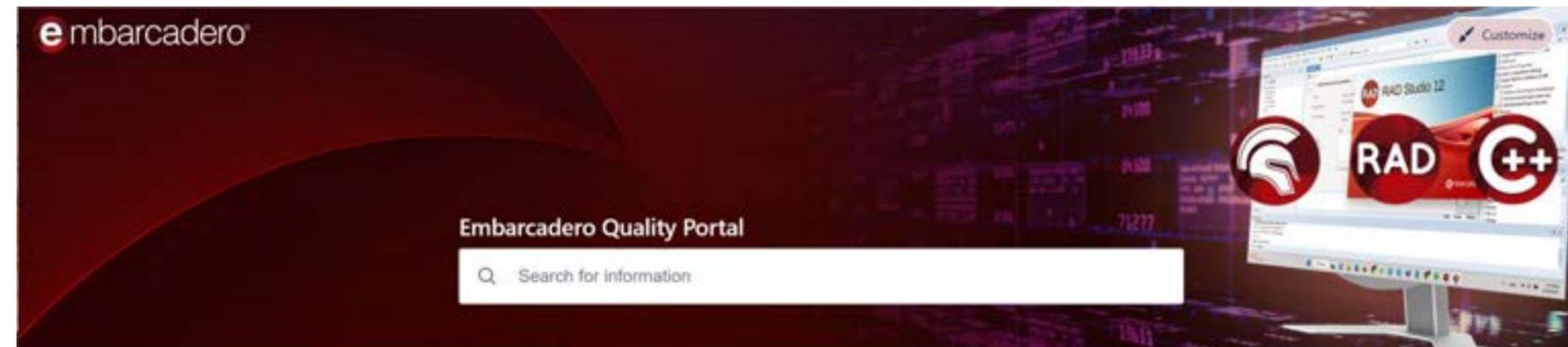


- RAD Server Improvements
 - Better date and time formatting in JSON responses
 - Option to obfuscate (MD5 hash) MasterSecret and AppSecret in emsserver.ini
 - New concept of instance-wide custom variables
 - [EndpointHide] attribute to hide endpoints
- FireDAC and Database
 - Scripts for migration script from IBX to FireDAC (based on Refind tool)
 - Microsoft SQL Server 2022 and support for sequences
 - MySQL 8.4
 - MongoDB 8.0
 - Oracle DRCP (Database Resident Connection Pooling)



Quality & Portal

- Customer reports fixed: 350
 - 223 RSS tickets (new portal, qp.embarcadero.com)
 - 127 RSP tickets (old portal, quality.embarcadero.com)
 - Plus 19 public feature requests
- Total public tickets addressed (any resolution)
 - 501 bug reports
 - 39 feature requests

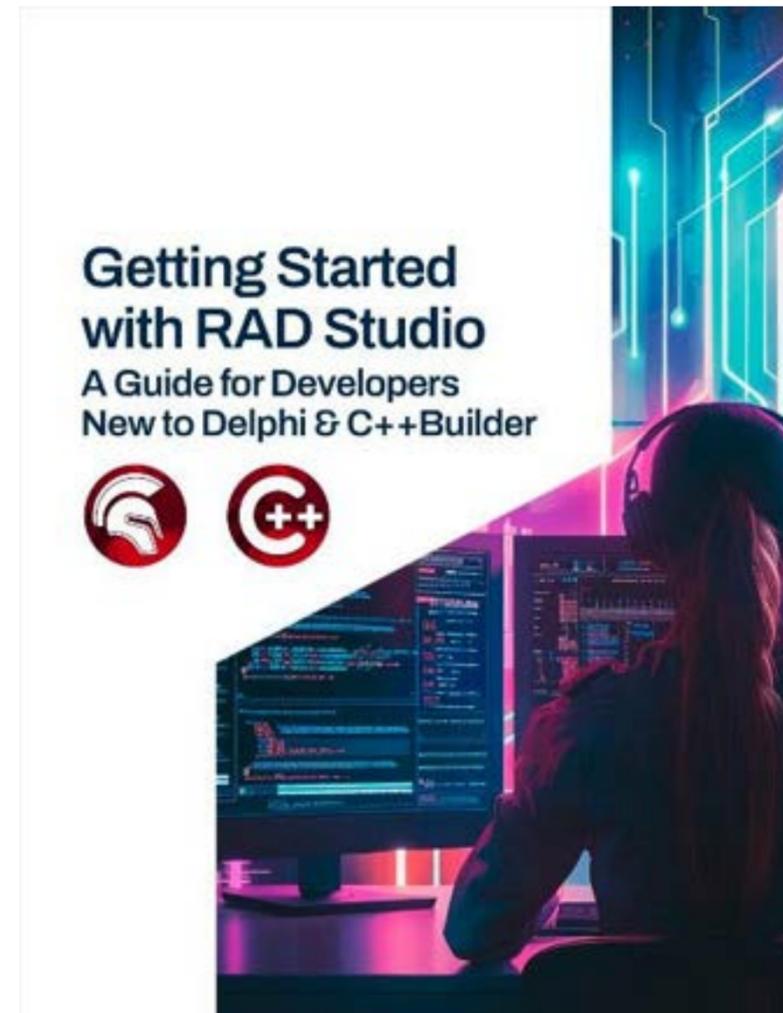


- **12.x Projects Completion**
- **Android API Level 35**
- **64-bit IDE – Initial Release**
- **Quality & Quality**

RAD Studio 12.3 Summary

Focus on Content: Recent Ebooks

- Embarcadero is also working on additional product ebooks, freely available on the Embarcadero website or in GetIt



Last Minute Updates

- Delivered RAD Studio 12.3 April Patch
 - Addresses a few important issues, including updated Delphi compilers
- Released KSVC version 8
 - The most relevant update since Embarcadero bought the components from Raize Software



**RAD: Silently
Successfull**

RAD Studio huge value to the industry, silently

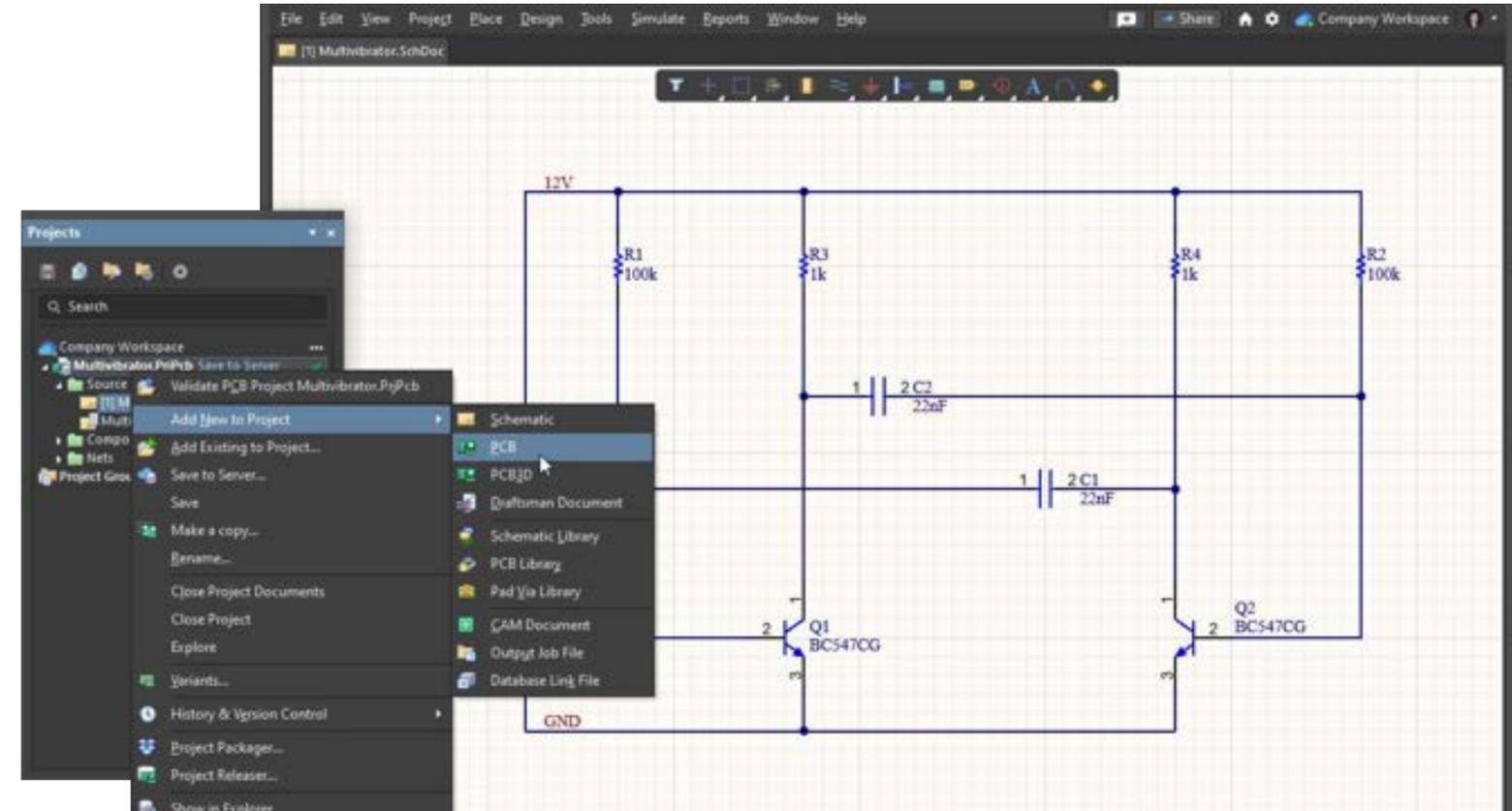
- Easy, native, multi-device, and a top Windows solution
- Stability of apps with little or no dependencies
- Single code base to create apps for multiple platforms
- Huge availability of components
- Delphi = easy to use language, yet also very powerful
- C++ = the most sophisticated language down to the metal

Delphi is very 'silently successful'

Miniature F1 track at Miniature Wunderland => a Delphi gem



RAD is very 'silently successful'



World ▾ US Election Business ▾ Markets ▾ Sustainability ▾ Legal ▾ Break

Technology | ADAS, AV & Safety | Partnerships & M&A | Software-Defined Vehicle

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

RAD Studio is ‘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



Q & A