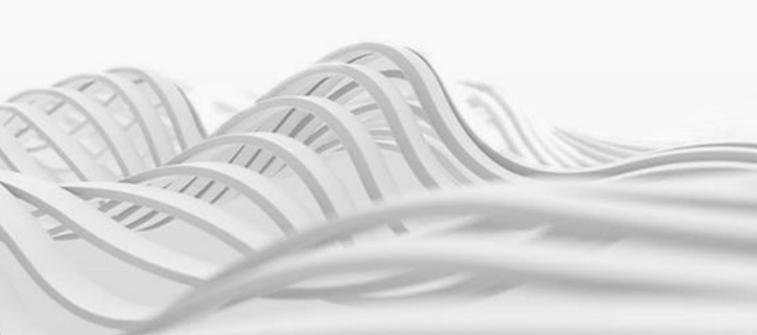


RAD Studio 11 Alexandria

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The Landscape

Microsoft about to release Windows 11

- Fully focused on it, key reason for picking version 11
- New dev platform is Windows App SDK (aka Project Reunion)

Transition to ARM also on desktop

- Led by Apple with macOS
- And ARM reigns on mobile platforms

• Developers on 4K

- High resolution and multi screen are common for developers
- Growing also for end users







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What's Great in RAD Studio

Developer Productivity - Shipping is a feature. Get to market 5x faster with Delphi and C++Builder **Fast Native Apps** - With native compilers, RAD Studio gives your apps the speed they need **Database Access** - Key to Delphi's initial design, database access is integral to RAD Studio **Powerful C++ Libraries** - Hundreds of C++ libraries can be used in C++Builder or Delphi in RAD Studio **Platform API Access** - Gives you access to all the platform APIs on all platforms **Visual Designers** - Forget prototyping in another tool, just design it and finish it in the RAD Studio IDE **Strong Community** - Full of Technology Partners, MVPs, trainers, authors and developers **Backward Compatibility** – You have an investment in your code, RAD Studio keeps that relevant





Recent RAD Studio Features

• IDE

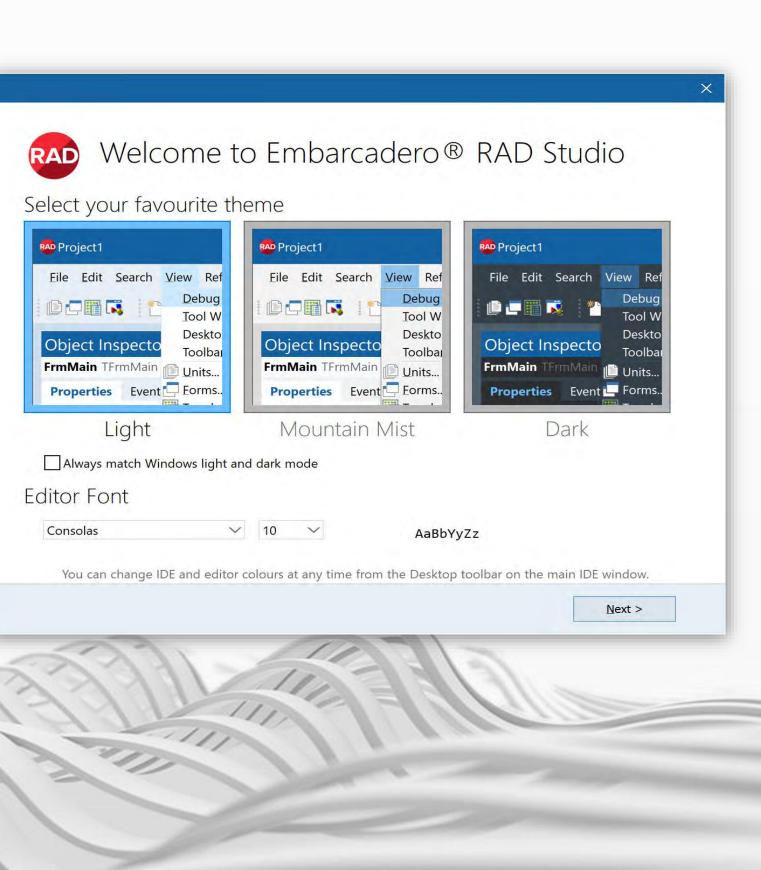
- Dark theme and full styling support
- Delphi redesigned Code Insight with LSP
- Reworked offline installation experience
- MSIX support
- Extensive VCL work • High DPI, High DPI styles, per-control styling Additional components: TControlList, TNumberBox and TEdgeBrowser



• C++ Win64 extensions • New 64-bit Debugger • C++ Exception Handling and STL Improvements

 FMX and Multi Device macOS 64-bit Intel support (Delphi) • Support for the latest iOS and Android (Delphi) • Apple Metal GPU driver support FireMonkey Low Code App Wizard

I. RAD Studio 11 IDE



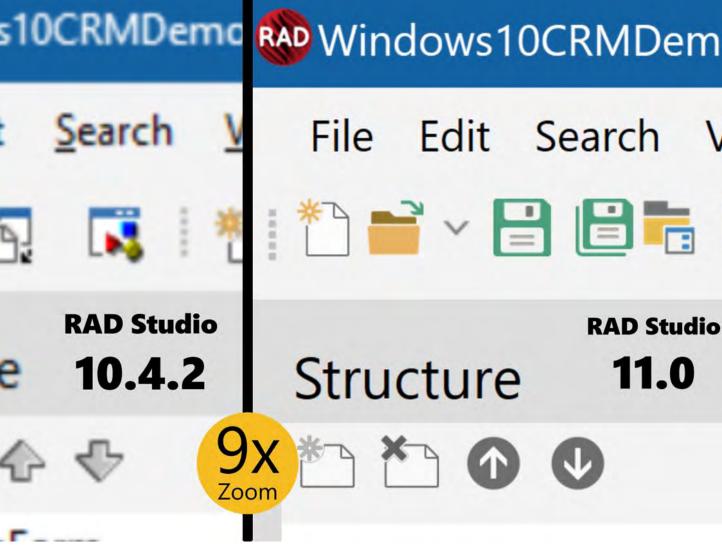
High DPI IDE

- Crisp fonts in all windows, and editor
- Based on VCL PerMonitorV2 support and High-DPI support for styles
- All new set of IDE icons (with multiple resolutions), IDE uses the image collection and virtual image list components
- ToolsAPI: new interfaces for APIs that use images

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High DPI enabled form designer

- Forms, frames, and data modules
- Designer can use low (96) DPI, your current DPI, or a custom DPI (set in Options dialog). Default is low
- DPI is saved in the DFM, and form scaled at runtime

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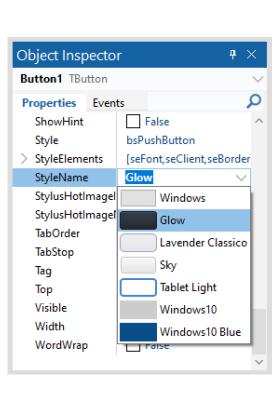
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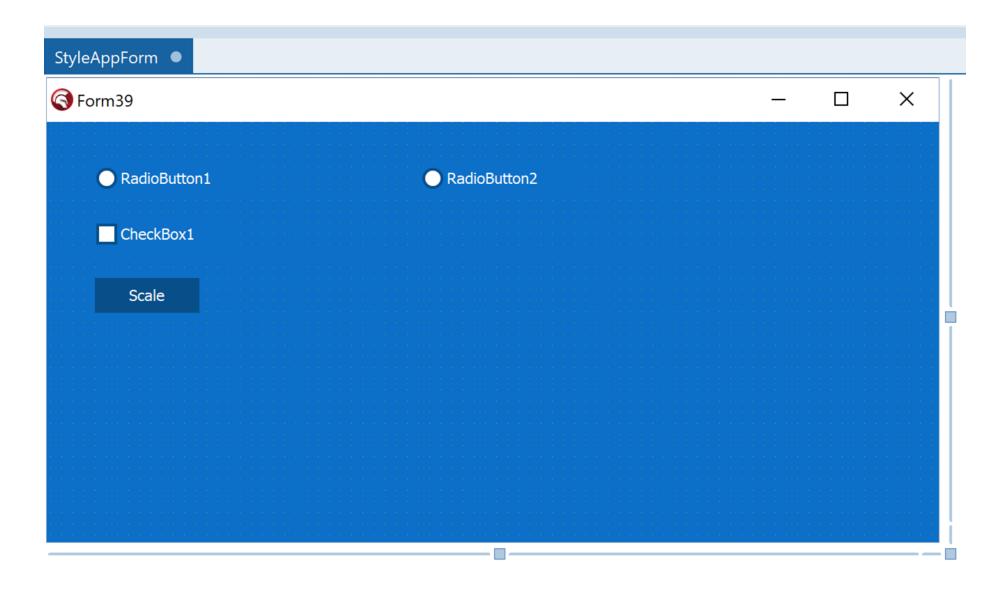


Active styles in VCL designer

- For styled applications, pick a native style (for each form or control) and preview at design
- Also Win10 styled window frame
- Not enabled by default

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Difference Viewer	Show designer hints *	Use <u>d</u> esigner guidelines
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Explorer	Enable VCL Styles *	
✓ Form Designer	C Enable VCE Styles	
FireUI Live Preview	Madula mastice antions	
Device Manager	Module creation options	
High DPI	New forms as text	
> Language	Auto create forms & data modules	
> Version Control		
> Deployment		
> Translation Tools		
> Modeling		
> Debugger		









More in RAD Studio IDE

- FMX designer enhancements • Hints and guidelines
- Delphi LSP quality improvements
- New C++ code formatter
 - Based on clang-format
 - (Optional) format on save or as you type (on Enter)
- Consolas is the new editor font, plus additional fonts shipped
- Many fixes to multi-window support, including design & code at the same time

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New Welcome Page

- New native Welcome page, VCL based and flexible Similar content as today
- Plugin architecture, to be made open in the future for third-party plugins

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Welcome to Delphi			Extend the IDE	e Platforms 🤤 Getit Package Manager
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Windows VCL Application - Delphi A UI app using Windows native controls, using the Windows-native VCL framework	Project1.dproj C:\Code\R11_CoolBarTest\			t expected, and don't care if you are e essential to preventing damage to user
Multi-Device Application - Delphi A UI app that works on any OS or device, using the FireMonkey framework	Project2.dproj C:\Code\R11_TTreeView and checkboxes\		data and operations within any organ	dows 11 ARM & macOS 12 ARM
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New in GetIt Fast Report FMX	FMX_Edge.dproj C_\Code\R11_FMXEdge\		Data Visualizations Conversation MVPs David I and Ian Barker are join Software to discuss Data Visualization	ed by Marc Meumann of Steema
Report generator FastReport FMX is a modern solution for integrating Business Intelligence in your software, It has been created for developers who want to use ready-made components for reporting. FastReport FMX, with its simplicity	Project7.dproj C\Users\MarcoCa\Documents\Embarcadero\Studio\Projects\			in 10.4.2 GetIt zard for Delphi: quickly create a fully tform FireMonkey application with a few
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Edit Layout			Close	Welcome screen when opening a new project

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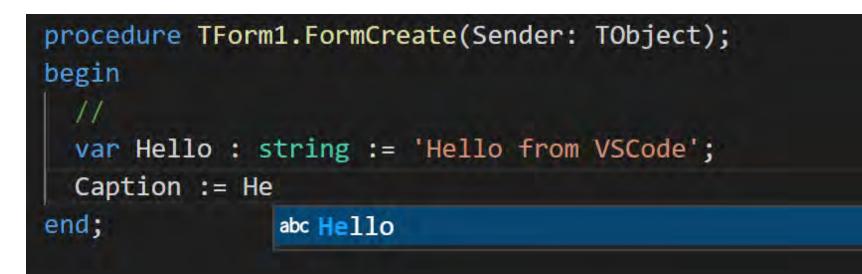
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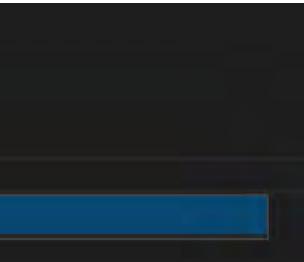
Visual Studio Code Delphi LSP Support

- VSCode plugin to use DelphiLSP
 - Will be in the Visual Studio Marketplace
 - Windows only
- Allows customers to use another editor, with code tooling











Installer

- Minimal installer improvements
 - High DPI UI
 - Initial Language selection (rather than detection)
 - Ability to specify a custom Catalog Repository folder
- Feature Installer
 - Some done operations in parallel, for faster installation





Select S	Setup Language X
RAD	Select the language to use during the installation.
	English
	OK Cancel



II. C++ and Delphi Languages



C++ Quality work

- Focus on RTTI (for components)
 - Delphi-style RTTI for C++ components allows using Clang-built components in-IDE
 - C++-style RTTI for Delphi types available to Clang
 - typeid() for Delphi-style types works
- Exception handling: further work following 10.4.2's: complex scenarios passing
- C++/Delphi interop improvements
 - std::string_view for Delphi strings
 - String assignment
 - String conversion methods for Delphi types

CMake: revision of functionality and packages it can handle



Delphi

- New macOS 64-bit ARM target platform
 For Apple Silicon M1 and beyond
 Includes toolchain and signing support
 Universal binary (package Intel + ARM)
- Minor language enhancements
 Binary literals and digit separator support
 Inline assembler support for AVX instructions (AVX-512)
- Further compiler performance optimizations
 Mostly already delivered in 10.4.2 and patches

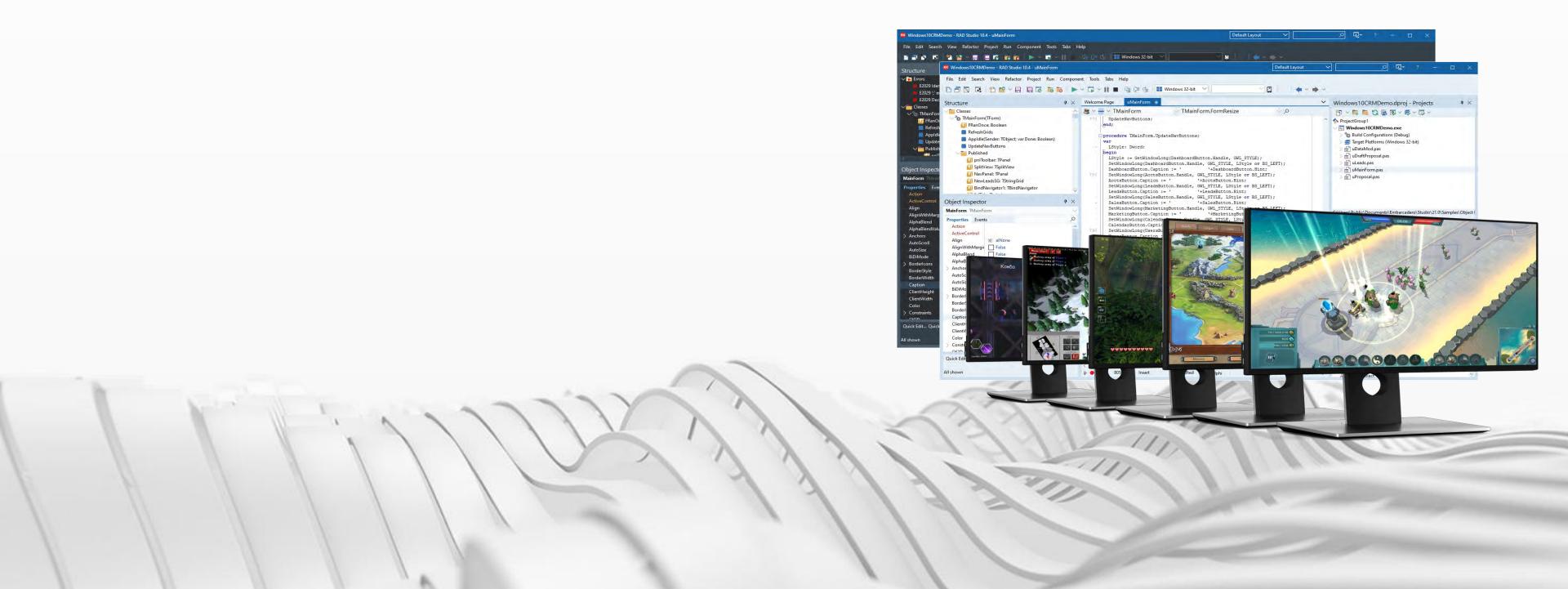


```
procedure TForm5.ButtonlClick(Sender: TObject)
var
    x: Integer;
begin
    x := 1_000_000;
    ShowMessage (x.ToString);
    x := %1010101;
    ShowMessage (x.ToString);
end;
```

30



III. RAD 11 Libraries Quality & Improvements



VCL Modernization work

- "New" RichEdit implementation (RichEdit 4.1 via MSFTEDIT.dll) Including URL detection, transparency, spell checking
- Large collection of small improvements focused on removing XP legacies and improve core features
 - TreeView checkboxes
 - Smaller: nsDropHilited, Coolbar Chevron, mouse wheel, button category gutter, TWICImage multi frame, default form size, SetSelText Undo, default form font, exception dialog copy button... too many to list here
- VCL Quality
 - Remote desktop improvements for VCL and IDE
 - New TDBLabeledEdit component







	Toggle CheckableItems
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🖉 overview.rtf - Rich Edit Control Demo File Edit RichEdit Help	
window class. Because the common control libr InitCommonControls function to ensure that t	ateWindowEx function, specifying the "RichEdit" rary registers this window class, you must call the the library is loaded before the rich edit control is
created.	
Rich edit controls support most of the window s	styles used with edit controls as well as additional window style if you want to allow more than one line of



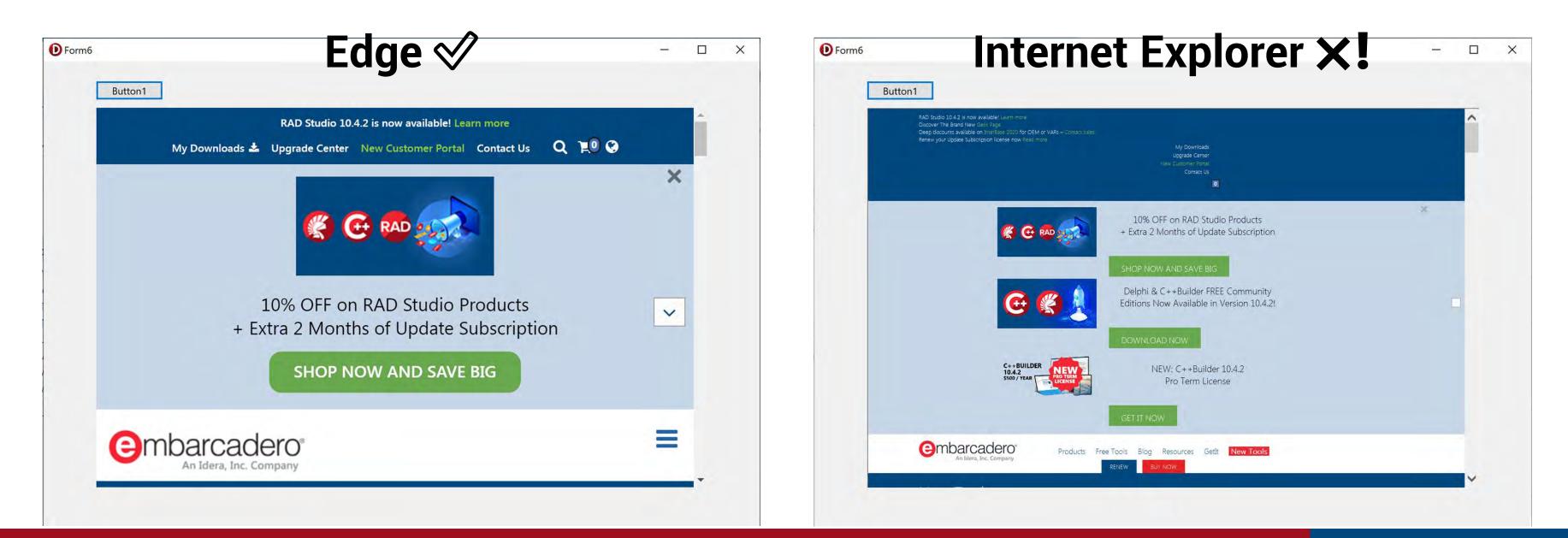
FireMonkey

- Better FMX Windows and desktop integration
 - Platform services for macOS and Windows refactored into separate units Ο
 - IFMXSaveStateService, IFMXDeviceService, IFMXVirtualKeyboardService, Ο IFMXTimerService, IFMXLoggingService, IFMXMenuService, FMX.Platform.Metrics.*
 - Firemonkey Accessibility Pack Integration
- FireMonkey Windows High-DPI improvements
 - \circ From pixels to device independent units (PX to DP)
 - Extended IFMXMultiDisplayService Ο
 - Delivers much higher UI quality on Windows High DPI monitors Ο
- Target Android API 30
 - Related requirements for AndroidX, in-app purchases, matching Play Store requirements
 - Multiple classes.dex files, simplifying integration of external Android dependencies Ο



FMX TWebBrowser with Edge

• WebView 2 (Chromium Edge) implementation of TWebBrowser on Windows • Compare website rendering:



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(Delphi) RTL & Data Improvements

- TZipFile (including Zip64, files deletion, quality improvements and optimizations)
- Large data structures (and 64-bit) improvements • Lists, large stream operations, dictionary improvements for hashing and capacity
- Record helpers for TDateTime and TCurrency, UTCNow function
- New core classes: TNoRefCountObject and TPointerStream
- Bluetooth LE quality (for most platforms)
- Performance optimizations and RTTI improvements (open array support)
- PPL Thread pool statistics
- FireDAC: offers specific improvements for the PostgreSQL, Oracle, and Firebird databases

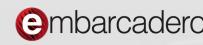






HTTP, REST, Cloud, Multitier

- Web Technologies
 - HTTP Client Library: Windows support for HTTP / 2
 - New property THttpClient.ProtocolVersion
 - CustomContentType in RestRequest Ο
 - TCertificate.PublicKey Ο
 - DataSnap: Configurable REST URI to methods mapping Ο
 - Base64url encoding Ο
- RAD Server
 - Multipart/form-data support
 - New TRESTRequestDataSetAdapter component for uploading datasets to RAD Server Ο
 - RAD Server Lite: Embeds IBToGo, easy to deploy, unlimited deployment, limited throughput Ο





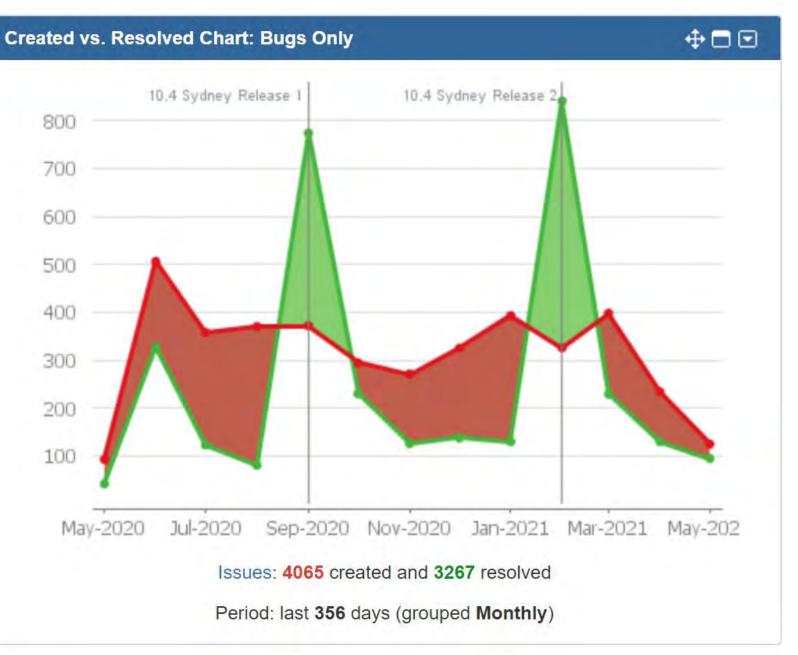


Quality Overall

- Customer reported QP issues *fixed* * New Features: 115 670 Bugs:
- Total QP issues addressed (*any resolution*) * New Features: 150 Bugs: 920







800

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RAD 11 Summary

I. Large Focus on IDE

• IDE High DPI and High DPI enabled form designer

- VCL styles in VCL designer; improvements to FMX designer and Multi-window design/code for a unit
- LSP quality and new C++ code formatter
- New Welcome page
- Visual Studio Code LSP support
- Minimal installer improvements

II. Delphi and C++ compilers and toolchains

- C++ Quality: RTTI (components); exception handling
- Delphi macOS 64 ARM (M1) compiler and toolchain
- Minor Delphi language improvements



III. Libraries Improvements

- Delphi RTL quality: TZipFile, 64-bit data structures, Bluetooth LE
- VCL Modernization work
- Better FMX High DPI on Windows and
 - desktop integration, including WebView 2
- Android API 30 support and related work
- Additional Delphi Supported Platforms
 Support for WSL 2 (Windows Subsystem for Linux)



