



Join us for <Dev Days of Summer> 2024!

August 12-16 | 19-23, 2024

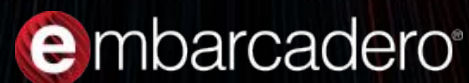
Two full weeks of live and on-demand
developer content, all for free!



Visual Assist



Sponsored by





Make games in Delphi (v2024)

Getting started



Patrick Prémartin

MVP Embarcadero, writer, editor,
freelance developer and trainer,
Twitch streamer.

Bio, links and contacts on
<https://vasur.fr/gravatar>

Agenda

Introduction

Why code a game in Delphi?

Why a FireMonkey project?

Why use Skia and Skia4Delphi?

What's in the Delphi Game Engine project?

A starter kit for game coding?

Find examples

Alternatives to the starter kit?

Conclusion

Introduction

- Many developers started out as autodidacts, before going on to study or launch their professional careers.
- Playing and creating games has always been more of a dream than developing a spreadsheet.
- Creating video games is a way of learning programming and improving skills even after years of experience.

Introduction

- For me, creating video games (big or small) is as much a pleasure as it is a thought-provoking exercise that needs to be repeated regularly to get the neurons working.
- It can be headache-inducing, but there's great satisfaction in the end.
- There's always something new to do, far removed from the sometimes demotivating routine of website or business software development.

Introduction

- When developing video games, you have to ask yourself questions about...:
 - data security
 - program optimization and speed
 - memory management
 - interaction with users (players)
 - user experience and interface

Why code a game in Delphi?

- The Pascal language and Object Pascal make it possible to do everything and everywhere.
- Delphi is a great set of development tools, compilers, libraries and developer resources.
- Coding with Delphi means being able to reach a maximum number of users without really worrying about where they are: Windows (and its emulators), macOS, iOS and iPadOS, Android, Linux and even the web!

Why code a game in Delphi?

- By design, since its first version, Delphi has offered a RAD (Rapid Application Development) environment, with a form designer for screen design and a synchronized code editor for typing.
- Why not take advantage of these tools, available in both the paid and Community editions, to make your own games?

Why a FireMonkey project?

- We currently have three universes for creating projects with a user interface:
 - VCL: for Windows only
 - FireMonkey: for Windows, macOS, iOS, Android and Linux
 - web solutions: TMS Web Core (the only one open enough to develop games), IntraWeb, UniGUI and others.
- The choice of FireMonkey and cross-platform is a natural one.

Why a FireMonkey project?

- FireMonkey is a framework of visual and non-visual components. Visual components are drawn from styles.
- The framework provides graphical elements, vector elements, effects, animations and access to APIs for targeted platforms.
- As long as we've developed our screens with size diversity in mind and coded asynchronously, we're really in the "I code once, I compile everywhere" business.

Why use Skia and Skia4Delphi?

- Skia4Delphi is an open source project based on the Skia library. Available on Github, GetIt and now preinstalled in Delphi 12 Athens.
- From the point of view of "classic" software developers, Skia&Skia4Delphi brings speed gains and improved user interface design quality.

Why use Skia and Skia4Delphi?

- From a video game developer's point of view, Skia offers a gain in speed and a few responsive graphics routines for drawing directly onto a TCanvas.
- And frankly, how can you resist vector graphics when you've got 4K screens or smartphones to target with the same quality?

What's in the Delphi Game Engine project?

- In 40 years of programming, I've made a lot of things and a lot of little games, for fun, distributed or lost forever, available as listings or storage media in formats that are unreadable these days.
- For the past 10 years, I've been a regular participant in game jams. Challenges to code games on a theme or a technology in a limited time. And now I'm doing it live on Twitch.

What's in the Delphi Game Engine project?

- Programming video games in Delphi, without a game engine (although there are more than a dozen in Pascal), is handy for the code part, but less so for certain things: sound, support for game controllers.
- As I stream video games on Twitch, I try to reuse things and not reinvent the wheel every time.
- Reinventing the wheel can be fun, but it takes time.
And time in a game jam is limited!

What's in the Delphi Game Engine project?

- So I did what every good programmer should do: build up a library of reusable tools around game design.
- This project is the Delphi Game Engine, which is not a game engine but a set of things based on the VCL or FireMonkey as an engine.

What's in the Delphi Game Engine project?

- In this library you'll find :
 - support for background music and sound effects
 - game controller support and detection
 - a help bar for contextual display of available actions and additional components
 - score management and archiving
 - a class for manipulating conventional (button-type) and non-conventional (drawing-type) keyboard and gamepad controls

What's in the Delphi Game Engine project?

- Delphi Game Engine is open source.
- You can find it on GitHub at <https://github.com/DeveloppeurPascal/Delphi-Game-Engine>
- Examples of use are provided, but you can also find more on the Delphi FMX Game Snippets repository: <https://github.com/DeveloppeurPascal/Delphi-FMX-Game-Snippets>

What's in the Delphi Game Engine project?

- Of course I use Delphi Game Engine in my video games. Its features evolve according to my needs and what I see in other games.
- You can download my video games from <https://gamolf.fr>
- Some have their code open on GitHub. They are listed at <https://github.com/DeveloppeurPascal/DevPas-Games-Pack>

What's in the Delphi Game Engine project?

- I also use Delphi Game Engine outside video games, for example for the unit that handles background music.
- This unit is used for the ZicPlay MP3 player available at <https://zicplay.olfsoftware.fr>
- Why reinvent the wheel when you've got something solid and reusable at your disposal? (*)

(*) he says, as he spends his time coding things that others have already done, in order to master them from start to finish...

What's in the Delphi Game Engine project?

- If you're interested in using less conventional peripherals (game controllers, connected devices, remote controls, smartphones or tablets) to help your users use your software, take a look at the current (and future) examples around UIElements.
- It might give you some ideas and tick a few accessibility boxes for your creations.
- PS: Making games is also useful outside ;-)

A starter kit for game coding?

- A library to take care of common things is good, but it's still not enough.
- In game jams, you're on the clock. We have to be fast and efficient.
- We're up against developers using Godot, GDevelop, Construct, Unity, Unreal Engine, Gamemaker or a whole host of other tools designed to make games with minimal coding.

A starter kit for game coding?

- Each time we have to decide whether to use forms, frames or layouts to create our screens or scenes, and each time we have to recode their sequence, the game loop, interface elements, game data storage, etc... it takes time, and we don't have any!

A starter kit for game coding?

- Outside game jams, this is less of a problem, but we might as well concentrate on what interests us: the game mechanics rather than the usual series of screens (welcome, game, endgame, scores, credits, settings, etc.) and their sequence.

A starter kit for game coding?

- This problem has been on my mind for a long time.
- I dealt with it in a "light" version during train journeys at a time when I traveled a lot. In the end, it was only used once: for the Pairpix video game available at <https://pairpix.gamolf.fr>
- It was high time to move on to the next stage: creating a starter kit that could be reused not only by me, but also by you, experienced or inexperienced developers.

A starter kit for game coding?

- Just for you (and the rest of the universe), here's the Gamolf FMX Game Starter Kit.
- You'll find at <https://github.com/DeveloppeurPascal/Gamolf-FMX-Game-Starter-Kit>
- It's a FireMonkey project containing everything you need to avoid wasting time on features common to all video games.

A starter kit for game coding?

- The project will evolve according to needs and requests. If you use it, let me know and share your impressions.
- Documentation, videos and lots of demos are planned around this Delphi game development kit.
- My next games will be developed from here.

Find examples

- The Gamolf FMX Game Starter Kit project is both a customizable project template and an (ugly but functional) example of how to use the kit.
- Open it, see how it works, read the comments in the source code.
- You'll also find examples developed for this presentation on the code repository

<https://github.com/DeveloppeurPascal/DevDaysOfSummer2024-MakeGamesInDelphi>

Find examples

- My next games will use this starter kit. You will find them on this link
<https://github.com/DeveloppeurPascal?tab=repositories&q=gfgsk-game>
- If you're developing open-source games using this kit, remember to use the keyword "gfgsk-game" on code repositories. That'll find them all.
- On GitHub, use the keywords "delphi", "delphi-game" and "game-source". It won't hurt the overall visibility of Delphi and your projects.

Alternatives to the starter kit?

- There's plenty!
 - Castle Game Engine
 - Apus Game Engine
 - Gorilla 3D
 - TileEngine
 - etc...

<https://github.com/Fr0sT-Brutal/awesome-pascal?tab=readme-ov-file#game-dev>

Alternatives to the starter kit?

- Gamolf FMX Game Starter Kit is designed for developers.
- You've got the basics, but there's no 2D or 3D engine to automate game mechanics (nor is there a plan to do so).
- You can use it to learn programming, the Pascal language, Object Pascal and, of course, Delphi.
- If you prefer something more "automatic" and less coding-oriented, take a look at Castle Game Engine.

Conclusion

- Do you know the guy who talks about video games and how to make them but doesn't show anything?
- Not even a screenshot?
- Well, okay, a little demo then :-)

The Quiz !!! (DDoS2024)

- The Quiz is a quiz game with a questions generator.
- It shows the use of the starter kit as a git submodule (to benefit from its updates).
- The project is included in this presentation repository at <https://github.com/DeveloppeurPascal/DevDaysOfSummer2024-MakeGamesInDelphi>

The Quiz !!! (DDoS2024)

- I've added a splash screen with a bottom (fake) loading progress bar
- The screen is displayed 3 seconds and redirects to the main menu screen.



The Quiz !!! (DDoS2024)

- The buttons are a TFrame with 3 TRectangle : button up, button down and the third use a a “focused” selector.



The Quiz !!! (DDoS2024)

- The help bar is shown at the bottom right of the screen with keyboard icons from Kenney.nl



The Quiz !!! (DDoS2024)

- Questions are displayed over a TRectangle and two buttons are available to answer.



The Quiz !!! (DDoS2024)

- When a game controller is detected a picto is shown on the top left corner of the screen and the icons in the help bar are adapted.



The Quiz !!! (DDoS2024)

- The credit scene uses a ShowMessage (a TFrame with TRectangle(s), a TVertScrollBar and a close button).



Conclusion

- FYI, the online version of the starter kit with the examples and this presentation took around a hundred hours of work to show up today at <Dev Days of Summer> 2024!
- I hope you'll want to try out this starter kit for developing video games or game engines enabling you to code in Pascal.
- I look forward to seeing you at Ludum Dare 56 from October 4 to 6, 2024, and perhaps at a Delphi game jam for Christmas?

Conclusion

- Resources for this presentation and links to its replay:
<https://github.com/DeveloppeurPascal/DevDaysOfSummer2024-MakeGamesInDelphi>
- Gamolf FMX Game Starter Kit :
<https://github.com/DeveloppeurPascal/Gamolf-FMX-Game-Starter-Kit>
- Delphi Game Engine :
<https://delphigameengine.developpeur-pascal.fr/>

Conclusion

- Thanks for watching :-)





<Dev Days of Summer> 2024!

Thanks for Watching

RAD



Visual Assist

Yellowfin