



# CodeRage 2019



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## Embed C code into Delphi FMX project

Marion Candau

Embarcadero MVP

@marioncandau

[marion.candau@cyberens.fr](mailto:marion.candau@cyberens.fr)

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# Overview

- How to compile C Code to be embed into Delphi project
- How to link the C objects to the Delphi units
- How to call the C functions



Marion Candau



# How to compile C code to embed into Delphi project

- Two options to compile your C code:
  - Use C++ Builder
    - Ok for Windows, macOS 32 and mobile platforms
    - Issue: linux and macOS 64 platforms not available
  - Use other tools
    - Visual Studio for Windows
    - GCC for Linux
    - XCode for macOS and iOS
    - Android Studio for Android



# How to compile C code to embed into Delphi project

- Two options for the resulting format:

- Objects files .o, .obj
- Shared libraries

- We use objects files for:

- Windows 32 and 64 bits
- macOS 32 and 64 bits

- We use shared library for:

- Linux (by using ar command line tool)
- iOS 32 and 64 bits
- Android



# How to compile C code to embed into Delphi project

So we use for the different platforms:

- Windows and macOS 32:
  - C++ Builder project
  - To generate C object files
- Linux:
  - GCC and ar
  - To generate shared library
- Android and iOS:
  - C++ Builder shared library project
  - To generate shared library
- macOS 64:
  - Xcode
  - To generate C object files



# How to link the C objects to the Delphi units

- We need to link the C object files for Windows and macOS 32 platforms.
- For mobile platforms, we link directly each function with its shared library file and need to add the path to the shared library into the Search path.
- For macOS 64 platform, we link directly each function with its C object file.
- In Windows and macOS platforms, compiled functions in object files are prefixed with `_` and need to have `cdecl`; calling convention.
- Some standard C functions are not recognized and we need to precise in which file the compiler can find it.  
If we do not know where to find it, we can use Delphi functions whose result is the same.
- `AnsiChar` type is not available on mobile platforms, so we use `Byte` type.



# How to call the C functions

Simply call them like any other functions ;-)





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## More Information

- Marion Candau
- @marioncandau
- marion.candau@cyberens.fr



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