

Description

This example is focusing on filter design and implementation with various tools. The goal is to show C code generation out of a MATLAB algorithm for analog filters and its integration with a third party graphical library in C/C++ or in C#. The generated C code can be directly reused with an external C/C++ or C# IDE. It is also possible to use the MATLAB Compiler to deploy the App as a standalone executable.

M_MEX_project

In this folder, there is all the code that can be edited and run directly from within MATLAB. The main files are:

- "filter_bode.m" that computes the Bodes of the filter
- "test_filter_bode.m" that exercises "filter_bode.m"
- "main.m" that runs the interactive console mode asking for user's inputs
- "test_main.m" that exercises "main.m"
- "Filter_Design.mlapp" that implements the Graphical User Interface of the application

There is also a "Deployment" folder that contains a MATLAB Compiler project file to build a standalone executable of the MATLAB App.

M_C_project

In this folder, the goal is to focus on the C code generation part out of the MATLAB algorithms. The main file is:

- "main.prj" that generates the C source files that can be brought to external C/C++ IDE

C_project

Here we have two C code integration examples for C and C# IDEs:

- C_DISLIN => C/C++ graphical library
- CS_GUI => C#/.NET graphical interface

For the C_DSILIN one, the integration is shown via 2 IDEs: Dev-Cpp and VS2017. All files are in a flat directory and it is just needed to open the main project file of the IDEs.

For the CS_GUI one, three folders are containing DLL components:

- "KnobControl" and "LampControl" that contain graphical C# components
- "M_Algorithm" that can generate a DLL for the "filter_bode" function using the MATLAB Coder

The last folder called "GUI" contains the VS2017 project to build the C# App. The main project file is "GUI.sln".

For more information on C code generation from MATLAB Coder and legacy C code integration, please have a look to the following article: [Using Legacy Code with MATLAB Coder](#)