# How to Switch C/C++ Library in MCUXpresso IDE

There are three C/C++ libraries supported in MCUXpresso IDE, Newlib, NewlibNano, and Redlib. Newlib is a standard GNU C/C++ LIB, includes comprehensive functions. NewlibNano is optimized in size of Newlib. And Redlib isn't a GUN C library, produce much smaller applications.

MCUXpresso SDK demos use Redlib by default , you can switch refer to your requirements.

This document mainly includes two parts:



## 一．Different C/C++ libraries used in MCUXpresso IDE

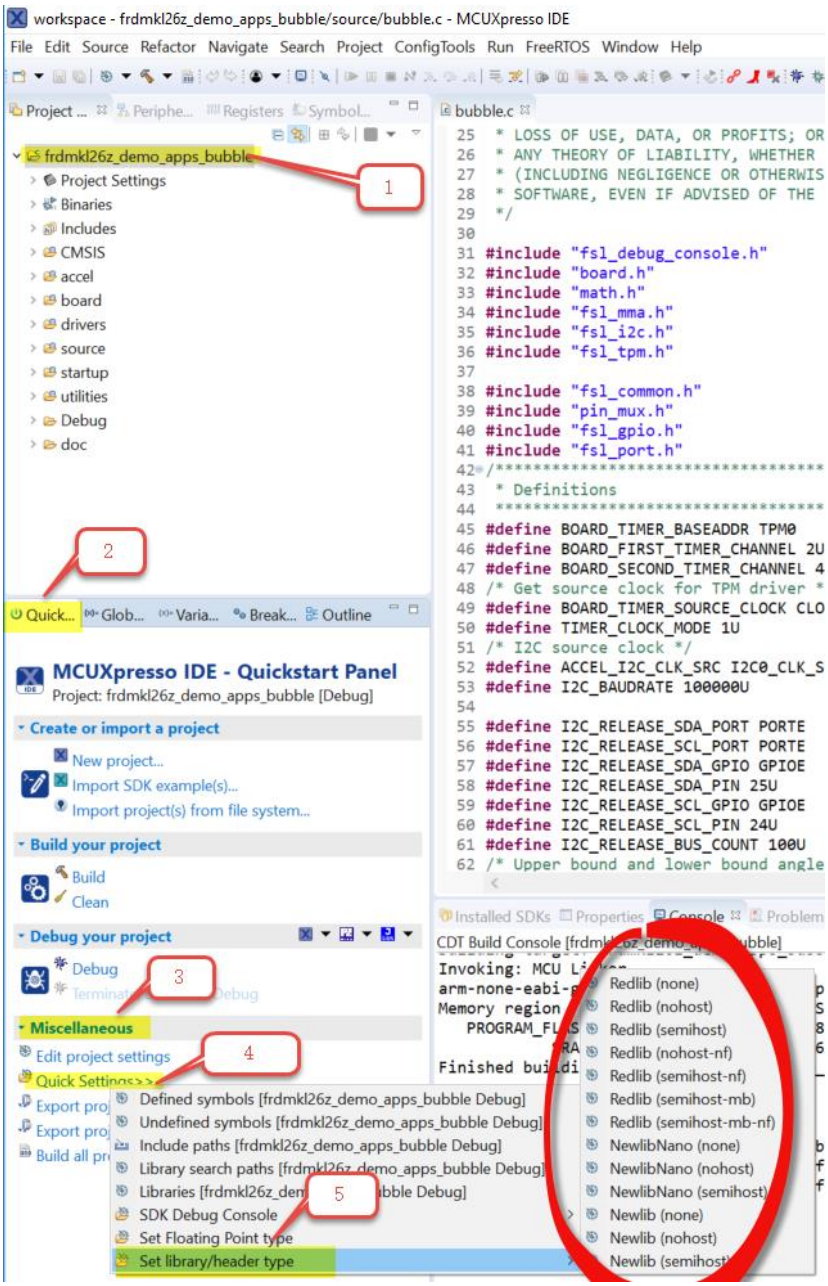
The three libraries Newlib, NewlibNano, and Redlib are all followed by a suffix, semihost, nohost, none, semihost-mb, semihost-mb-nf, nohost-nf. Usually it related to "Printf", print to debugger console , UART or None. Libraries combination with different suffix can be used in different application, balance code size and function. The bellow graph generally shows the meaning and application scenarios, about detail description , you can refer to the document <MCUXpresso_IDE_User_Guide.pdf> .

| | Newlib | NewlibNano | Redlib |
|---|---|---|---|
| Semihost | Standard GNU C/C++ library, support complete C99 and C++;<br>Printf/scanf use the debugger console window . | A version of GUN C/C++ library optimized for size.<br>Printf/scanf use the debugger console window . | Non-GNU ISO C90 standard C library, much smaller size.<br>Printf/scanf use the debugger console window , |
| Semihost-mb | NULL | NULL | Non-GNU ISO C90 standard C library, much smaller size.<br>Printf/scanf use the debugger console window , enhanced semihosting performance. |
| Semihost-mb-nf(no files) | NULL | NULL | Non-GNU ISO C90 standard C library, much smaller size.<br>Printf/scanf use the debugger console window , cannot open and use files. |
| Nohost and Nohost-nf | Standard GNU C/C++lib, support complete C99 and C++;<br><br>User provided I/O functions, for example redirect printf/scanf to the UART. | A version of GUN C/C++ library optimized for size.<br><br>User provided I/O functions, for example redirect printf/scanf to the UART. | Non-GNU ISO C90 standard C library, much smaller size.<br><br>User provided I/O functions, for example redirect printf/scanf to the UART. |
| None | Standard GNU C/C++lib, support complete C99 and C++ lib;<br><br>It excludes low-level functions for all file-based I/O, avoid use printf/scanf. | A version of GUN C/C++ library optimized for size.<br><br>It excludes low-level functions for all file-based I/O, avoid use printf/scanf. | Non-GNU ISO C90 standard C library, much smaller size.<br><br>It excludes low-level functions for all file-based I/O, avoid use printf/scanf. |

## 二．Switch C Library in MCUXpresso IDE

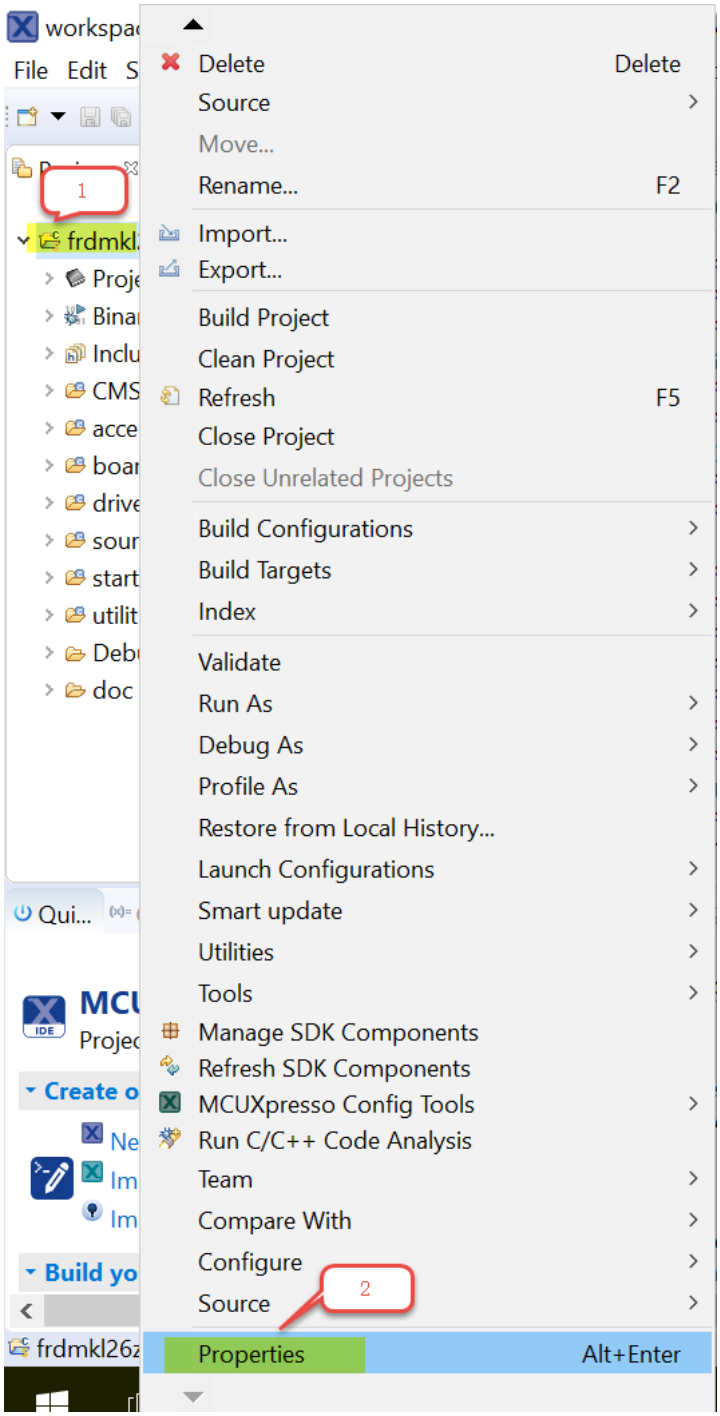
There are two methods to switch C library in MCUXpresso IDE.

2.1 The first method is highlight the project, go to Quickstart Panel -> Miscellaneous -> Quick Setting -> Set library/header type, choose the library you want to use. About different libraries meaning, please refer to the above part "1. Different C/C++ libraries used in MCUXpresso IDE "



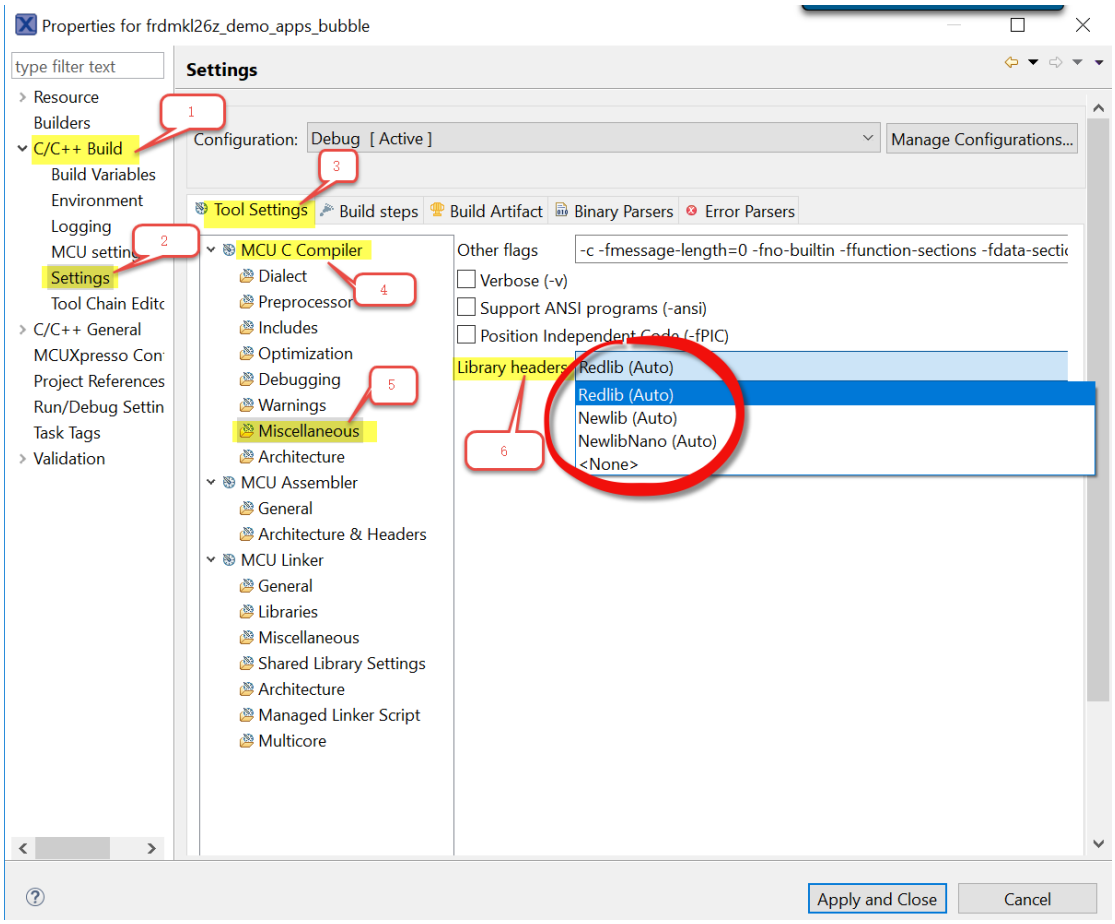
2.2. The second method as bellow:

- Right click the project in "Project Explorer", choose "Properties":

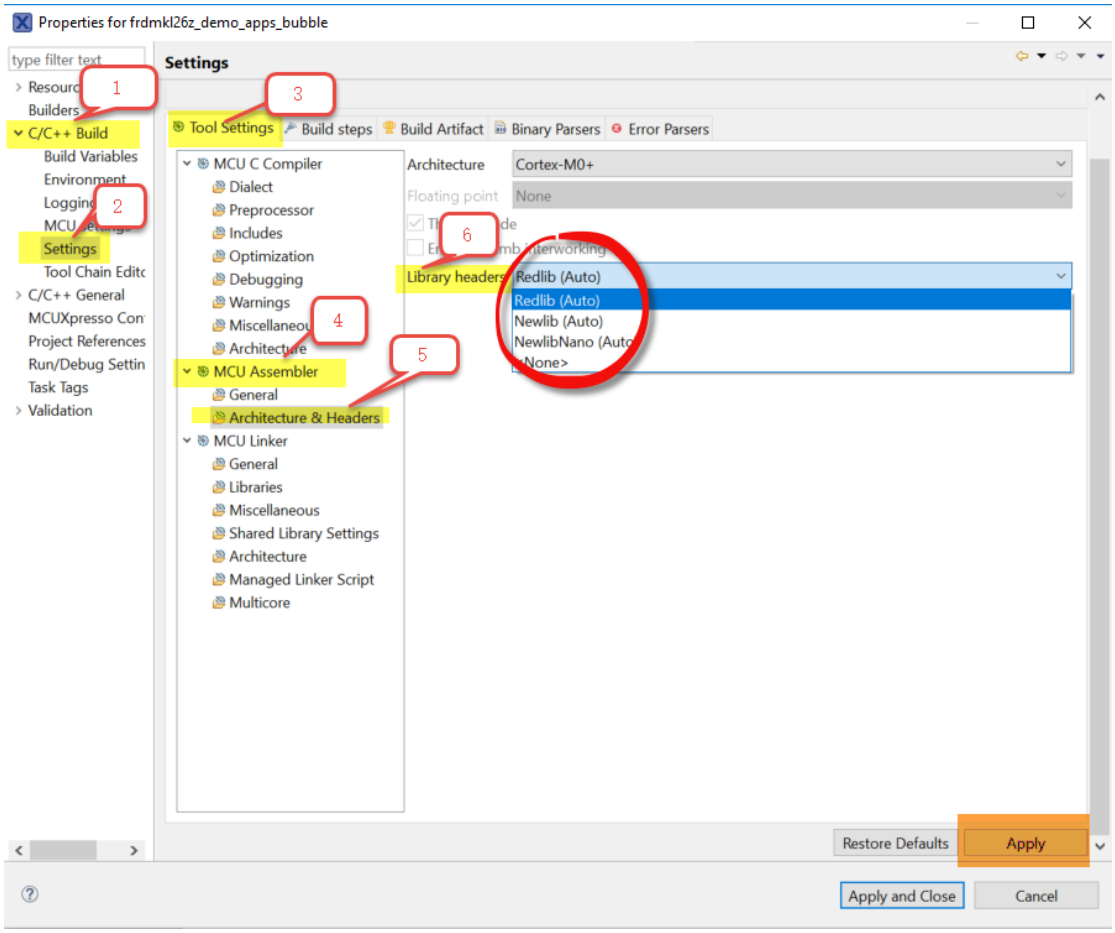



- In Properties config view , select "C/C++ Build" -> "Settings" -> "Tool Settings"

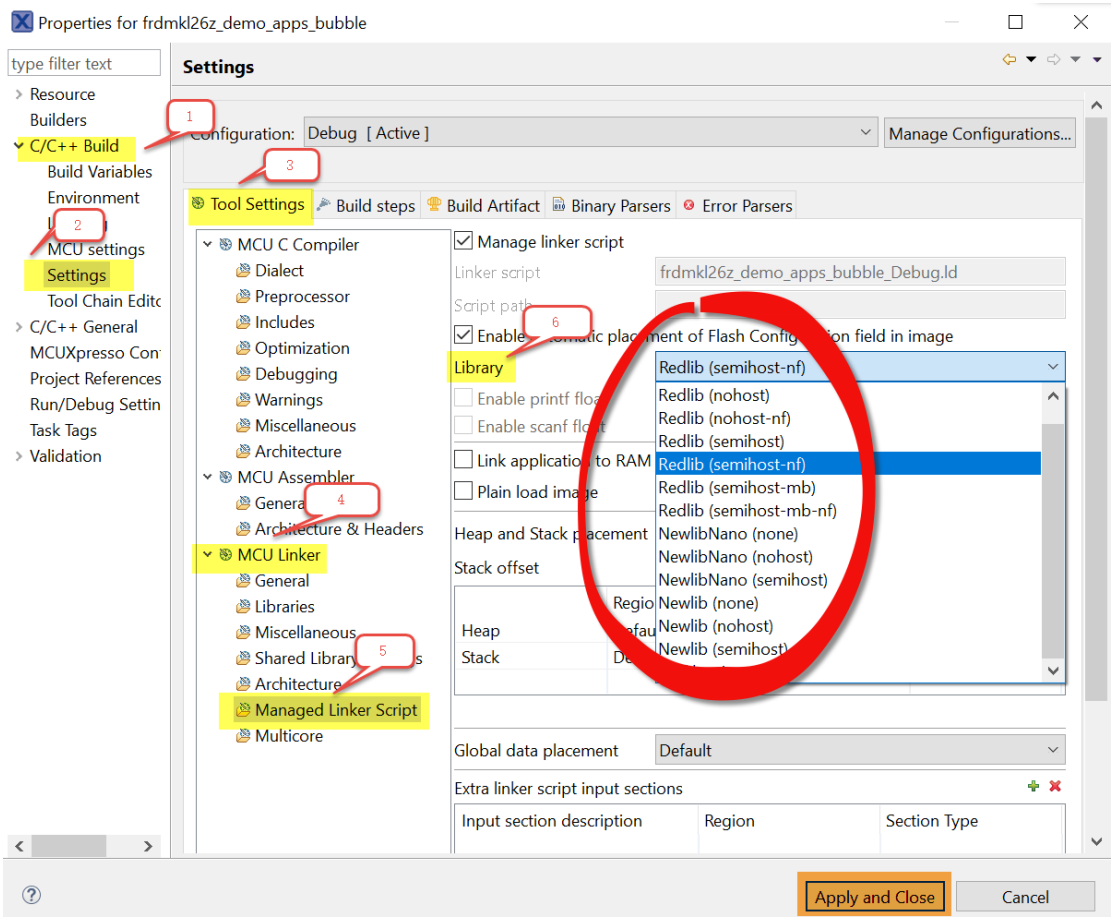
-> “MCU Compiler” -> “Miscellaneous”-> “Library headers”. After choose the right library header, Click “Apply” button.




- In the “Architecture & Headers” under “MCU Assembler” , also choose the right library header , then click “Apply ” button:




- Select “MCU Linker” tab under “Tool Settings” , then go to “Managed Linker Script” -> Library, choose the right library:




- Click “Apply and Close” button after finish configuration.

## 3. Reference

“MCUXpresso_IDE_User_Guide.pdf”.