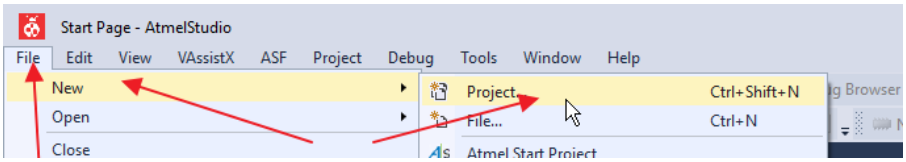
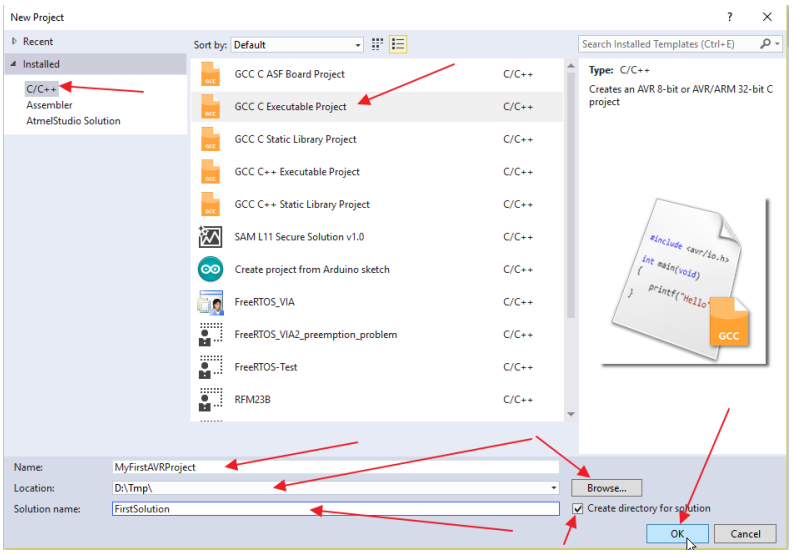
Creating a C-Project in Atmel Studio

Start Atmel Studio.

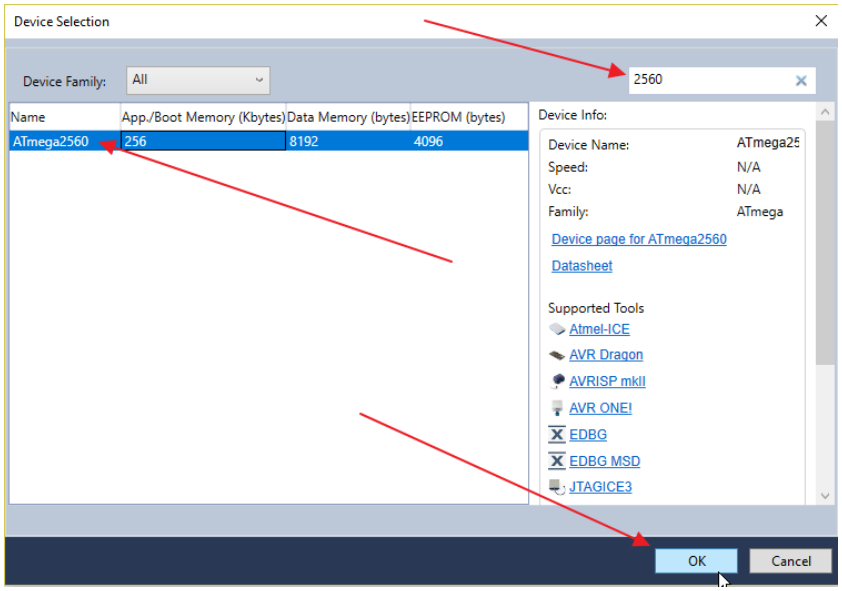
Create a new project



Be sure that you create a *GCC C Executable Project*, give it a name, and browse to where you want it to be stored. You can give the solution a different name if you want.



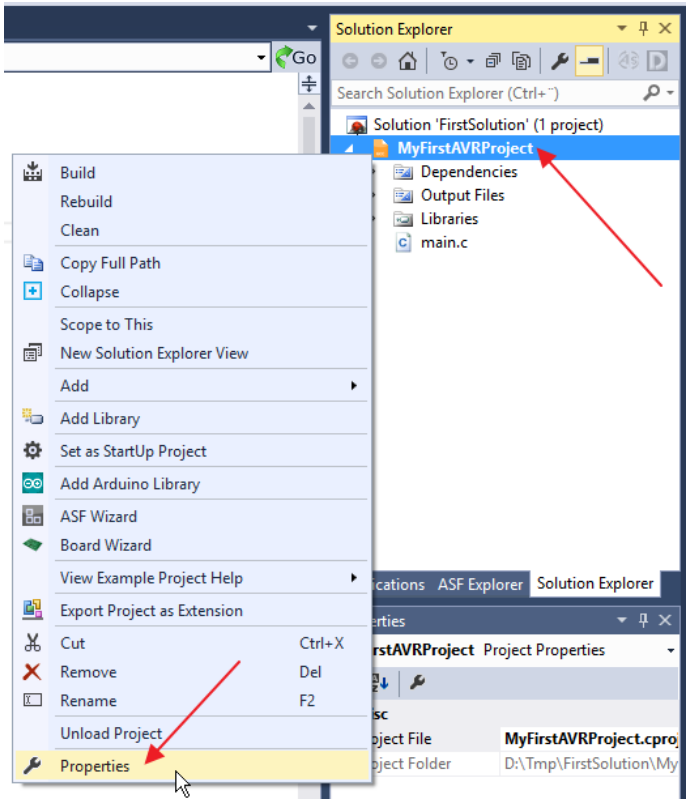
Search for *2560* and select *ATmega2560* to match the MCU on the Arduino MEGA 2560 board.



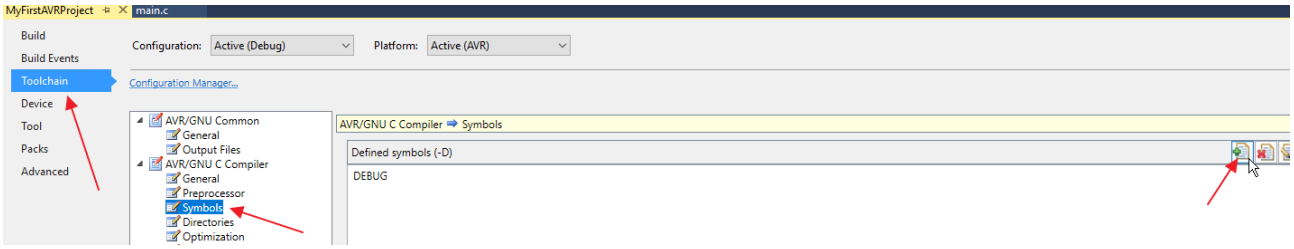
Now the project is created.

Next step is to tell the toolchain the MCUs clock frequency. The Arduino MEGA 2560 are running at 16 Mhz.

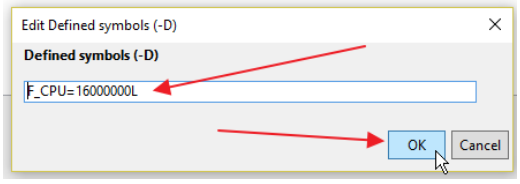
Right click on the project and select *Properties*



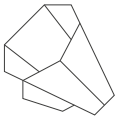
Select *Toolchain->Symbols* and click on the small green + icon



Input `F_CPU=16000000L` in the dialog box.



Now the project is setup, and you can start programming ☺



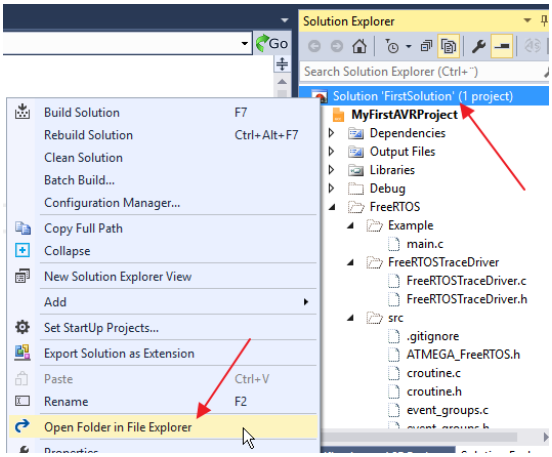
Using FreeRTOS

Put your project under git control

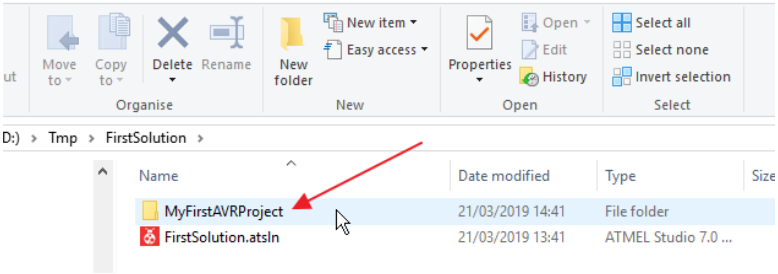
Be sure that you have installed git on your computer (https://git-scm.com/).

Follow these steps to put your project under git control – or use your favoured git tool to do the same

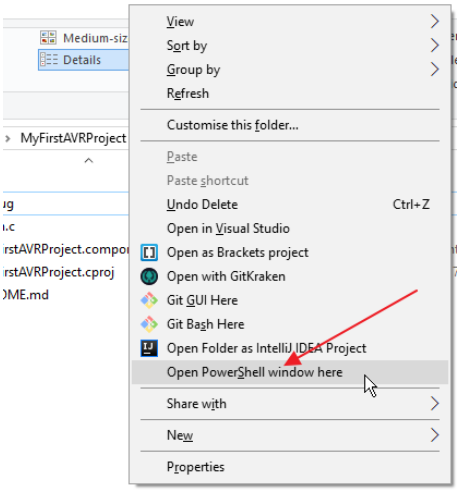
Open a command prompt in the root of your project. This can be done by right clicking on the solution and Open Folder in File Explorer



The folder that will be opened is the solutions folder so double click on the projects folder

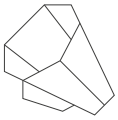


In the projects folder you can open a command prompt by holding SHIFT+CTRL and right click in the window and then click *Open PowerShell window here* or *CMD prompt*



In the command window write the following git commands

```
>git init
>git add .
>git commit -m “Initial Commit”
```



Now your project is under git control ☺

Add FreeRTOS as a git submodule

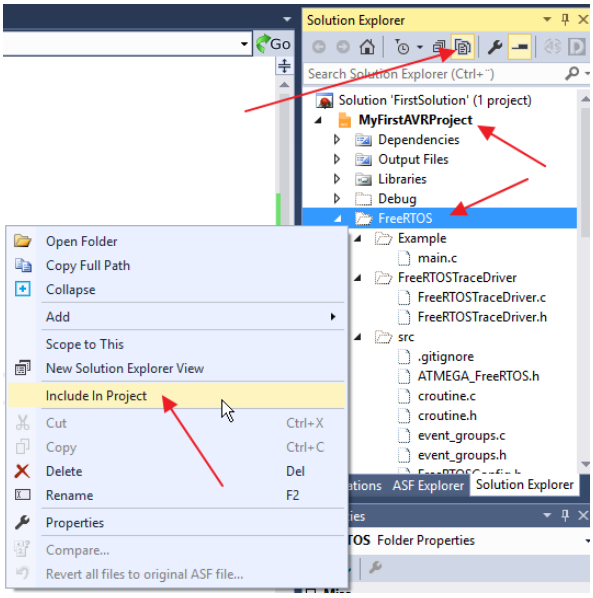
Be sure that your project is under git control.

Follow these steps to add the ported version of FreeRTOS to your project.

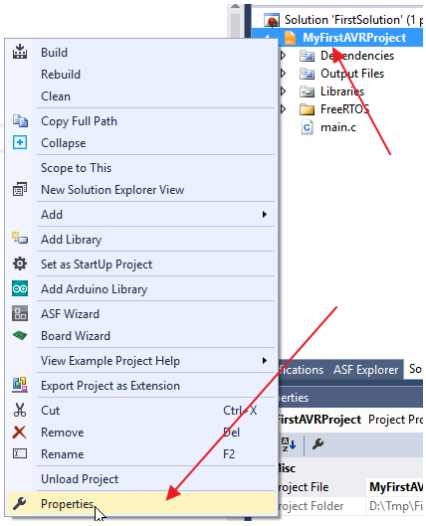
1. Open https://github.com/ihavn/VIA_FreeRTOS_AVRMEGA in a browser.
2. Read the readme carefully and do the following steps
3. Open a command prompt in the project folder as described above
4. Add FreeRTOS as a submodule to your project
   Write the following git command in the command window

```
>git submodule add https://github.com/ihavn/VIA_FreeRTOS_AVRMEGA FreeRTOS
```

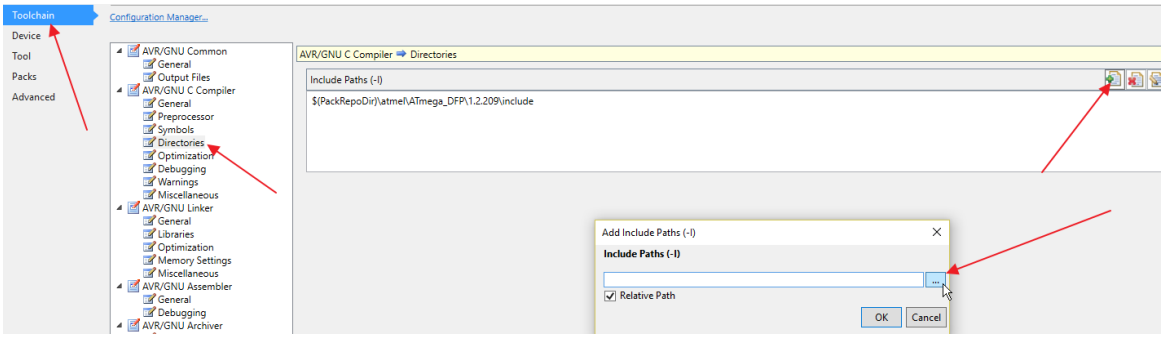
   This command adds the FreeRTOS repository to your project
5. Now you must tell Atmel Studio that FreeRTOS should be included in your project. This is done by selecting your project in the *Solution Explore* click on the *Show All Files* icon  Then right click on the grayed out *FreeRTOS* folder and *Include In Project*. Now Atmel Studio will compile FreeRTOS as part of your project.



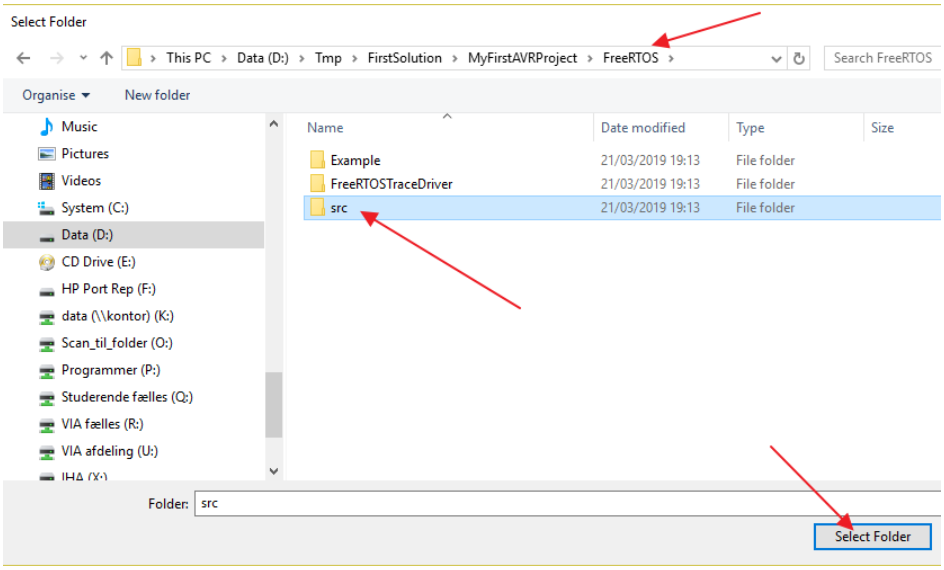
6. To make it possible to include files from FreeRTOS you have to configure the toolchains *Include Path*. Right click on your project in the *Solution Explore* and *Properties*



The select Toolchain, Directories click on the little green add icon 



and browse to FreeRTOS\src



7. Now clean the project. Right click on the project in the *Solution Explore* and *Clean*