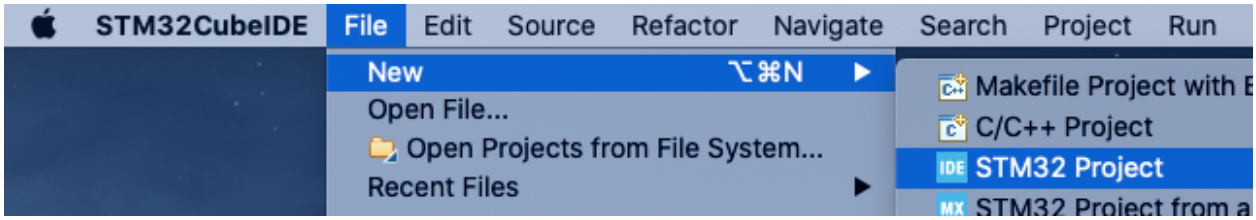
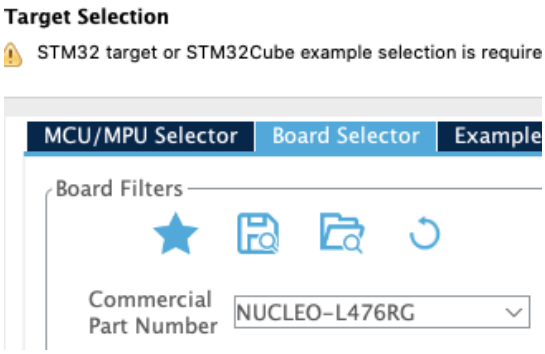
Create our first project

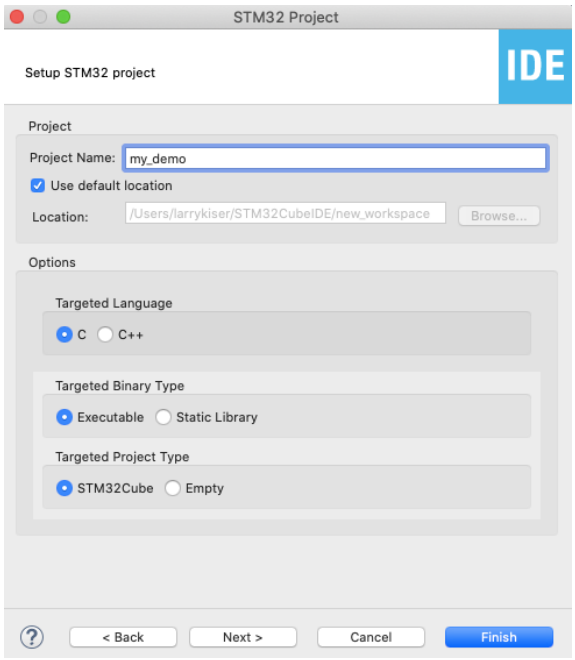
1. Create a new STM32 project using the menu path:
   File>New>STM32 Project



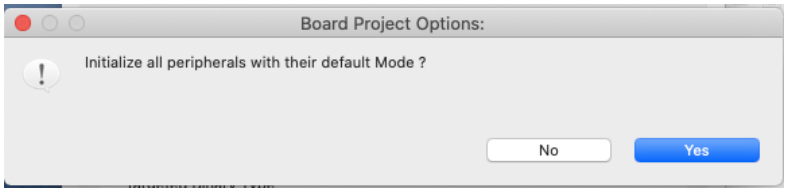
2. Pick our specific microcontroller (NUCLEO-L476RG) from the Board Selector tab. Select the resulting board and then select Next.



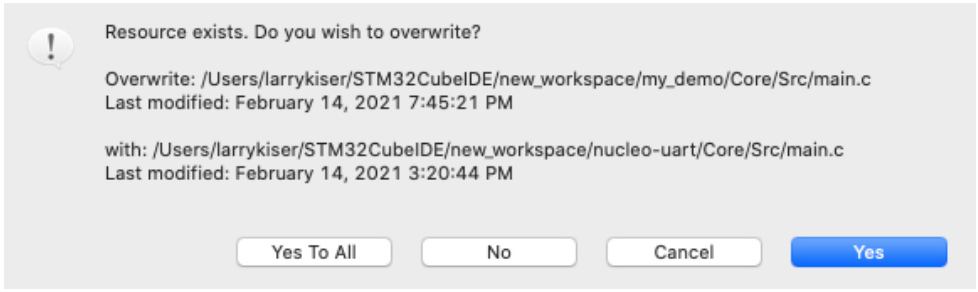
3. Give your project a name e.g. LED_Joystick. This is a C project, Executable, STM32Cube type project. Select **Finish**.



4. Select **No** on the Board Project Options dialog. After selecting No the IDE creates your project.



5. You have a brand-new empty project. Build the project to confirm that it builds with zero errors and zero warnings.
6. Navigate to the Core directory which contains Inc and Src directories. You will be provided two zip files for each of these two directories.
7. Copy the files in the Src zip file to the Src directory. Copy the files in the Inc zip file to the Inc directory. When you get a warning dialog like this select **Yes To All**.



8. **DO NOT SKIP THIS STEP!** Delete the **stm32l4xx_hal_msp.c** and **stm32l4xx_it.c** files from the Src directory.
9. Build the project. Project > Build Project (hammer icon) (or right click on the project and select from the drop down menu).
10. Select Run or Debug from the icons or the project right-click menu. You may need to select the Run Configurations for the first time (pick what you see below). You may also get an additional **Edit launch configuration properties** dialog concerning your debug or run configuration. If you do get this dialog select OK (the defaults are fine).

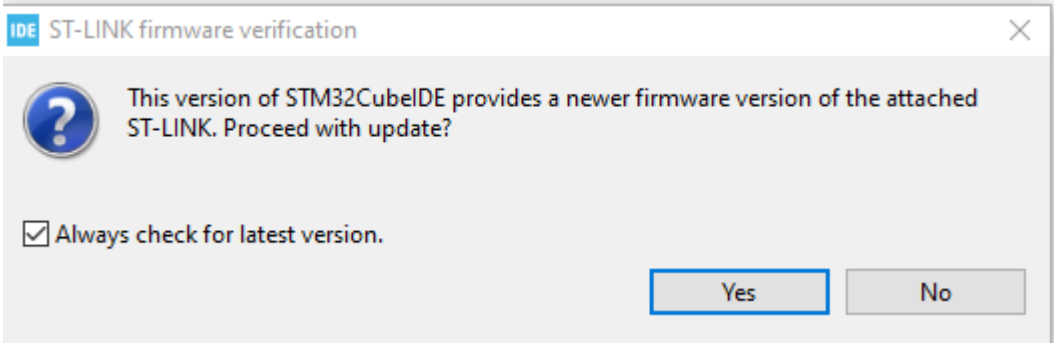
At this point, you have created an executable binary that can run on a board.

- Plug the board into your laptop using a USB cable.
- The board may appear as a file system. You can ignore that.
- You may have to update your ST-Link drivers when you attempt your first download.
- To build, Project>Build - this is the normal thing you will do
  The first time through, CubeIDE may ask you if you want to change perspectives. Eclipse (the tool upon which CubeIDE is built) has the notion of perspectives...IDE layouts tailored to different tasks. Writing code and debugging code may use different perspectives. Select 'Switch' and Remember my decision.
- To run/debug, Run>Run As or Run>Debug As (or click Bug Icon).

You can single step your way through the code. You can set breakpoints, examine variables, etc. The goal of this tutorial is to make sure you have a properly functioning development environment, a working board, are able to do simple debugging operations.

Update ST-Link firmware on your microcontroller

When you download software to the board, your IDE may require an ST-LINK update to your NUCLEO board. This is OK. It should happen only once.



Clicking Yes, the STLink Upgrade utility will ask to open the ST-LINK device in update mode.
Open in update mode, do not Change Type, click Upgrade.
Close the ST-LINK Upgrade utility.
If you were building the app for debug, go back and restart those instructions.