Installation and project creation tutorial for Keil µVision IDE V5.25.2.0 (v 3.0)

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Installation

Do not connect the STM32L476-Discovery board until you have installed all the software listed here.

First, you will need to download and install the Keil uVision IDE from the following link: http://www2.keil.com/mdk5/editions/lite

First, click on the **Download & Install** button, and then on the **Download MDK-Core** button. Fill in all the information needed and click on the **Submit** button, and the download will begin (the installer has around 850 MB of size). After the download has finished, install the IDE as any other Windows application.

Second, you will need to install the Windows drivers for **STM32 ST-Link** from the following link: https://www.st.com/content/st_com/en/products/development-tools/software-development-tools/stm32-software-development-tools/stm32-utilities/stsw-link009.html

Scroll down the page and click on the blue **Download** button. You will need to register again, and the download link will be sent to your registered email. You will download a zip file. Extract the contents to any folder, and run **dpinst_amd64.exe**, if your Windows is 64-bit, or **dpinst_x86.exe**, if your Windows is 32-bit.

Third, you will need to install the **uVision Software Pack** for our board from the following link: http://www.keil.com/dd2/stmicroelectronics/stm32l476vgtx/

Click on the **Download** button, accept the EULA, and install it by clicking twice on it from the Windows File Explorer.

Now, you can connect the STM32L476-Discovery board into your computer.

Summary

For the STM32L Discovery kit, this tutorial shows how to create a project for C programs.

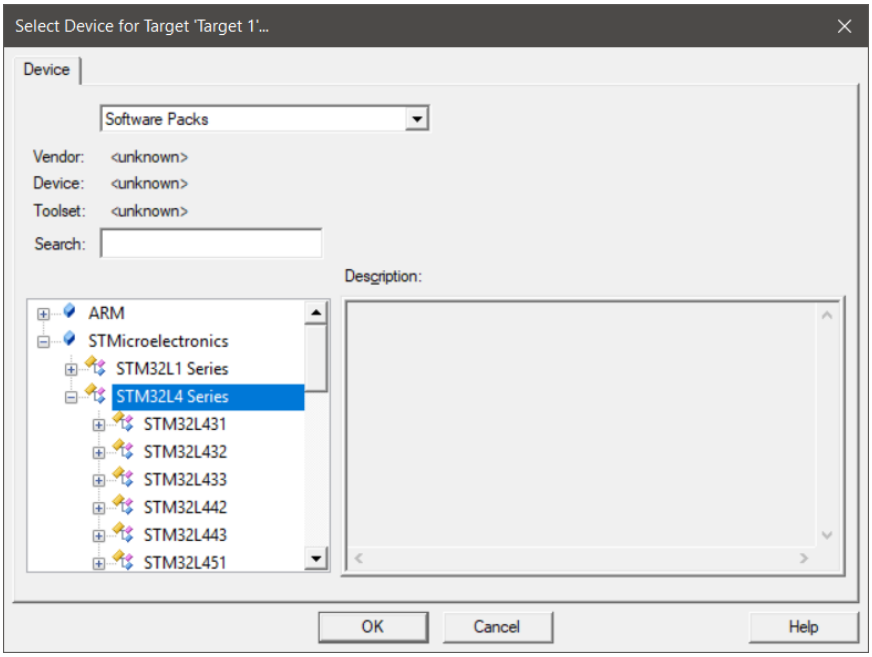
If you want to start the project from scratch, go to *Steps to create a new project in Keil* section. If template project is provided, just open the ***.uvprojx** file by Keil µVision, double check the properties following the guideline in *Steps to create a new project*.

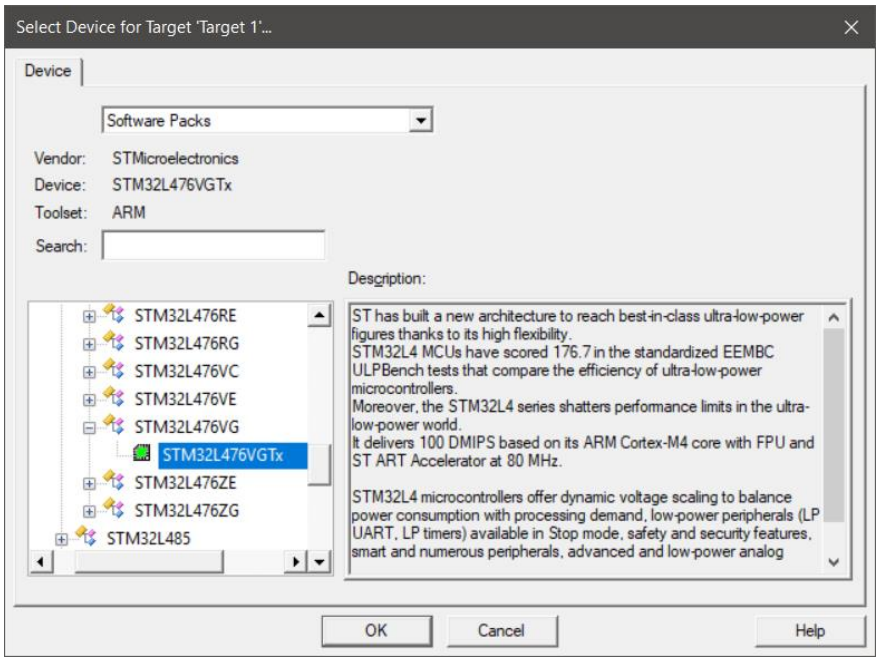
Identifying Target Processor

The board provided to you is the **STM32L476VGTx**. It has 1MB Flash Memory and 128kB RAM.

Steps to create a new project in Keil

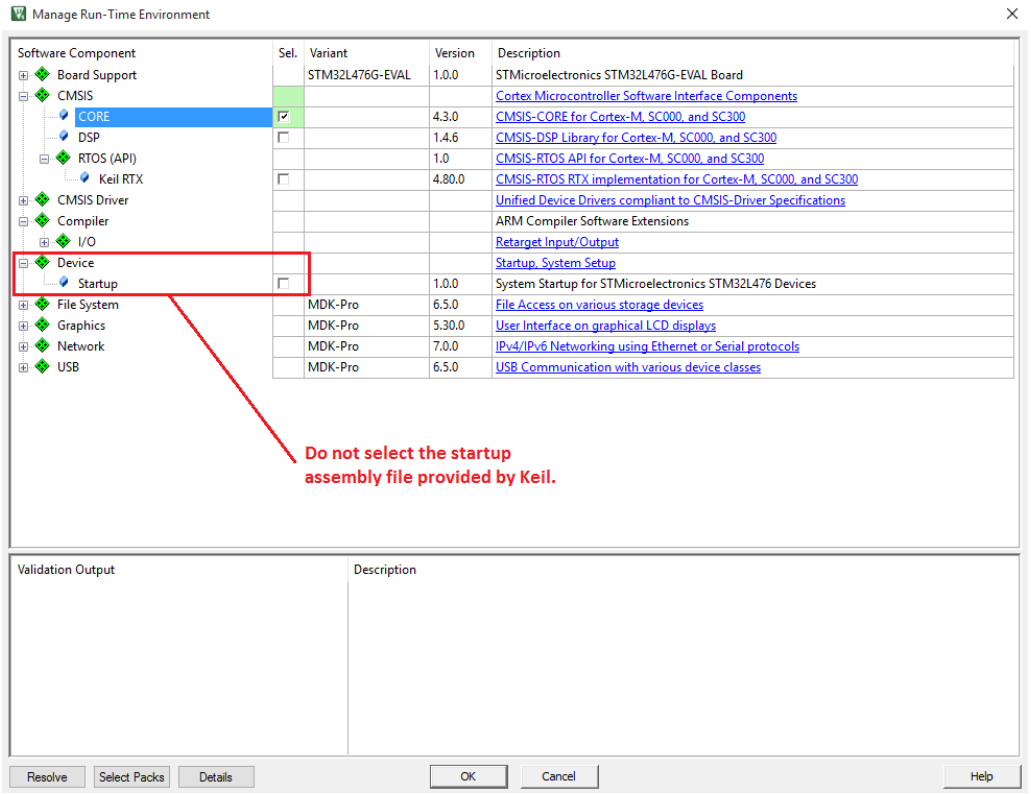
1. From the menu **Project** ⟶ **New µVision Project**
2. Give the project a name and select its storage directory. In this tutorial, the project is named as "lab".
3. Select **STM32L476VG** device in *STMicroelectronics->STM32L4 Series->STM32L476 (see below figure)*.



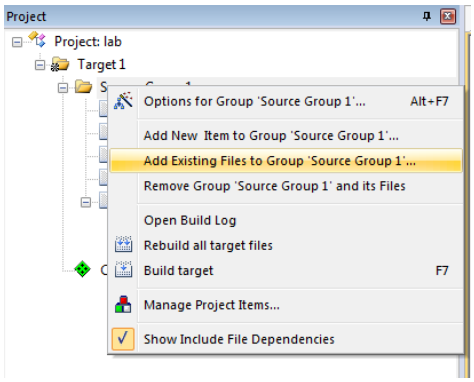


Select **STM32L476VGTx** and click **OK**

4. Select **CMSIS Core** only – you should click CMSIS first in Software Components and then click CORE in the sub-menu (under the CMSIS item by hitting the "+" key). Do NOT select Device Startup. Confirm by clicking on **OK**.



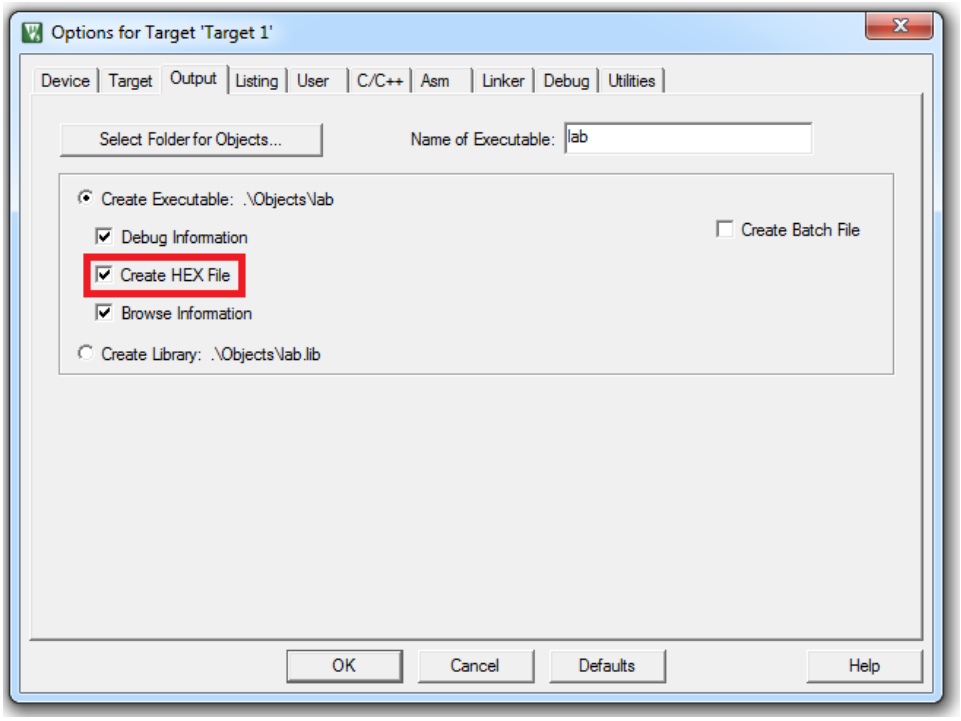
5. Add source code files into the project. Right click the **Source Group** inside the **Target 1** folder and select **Add Existing Files to Group 1**. You should download **startup_stm32l476xx.s** and **stm32l476xx.h** from the Online Classroom and include these as well as your **main.c**.



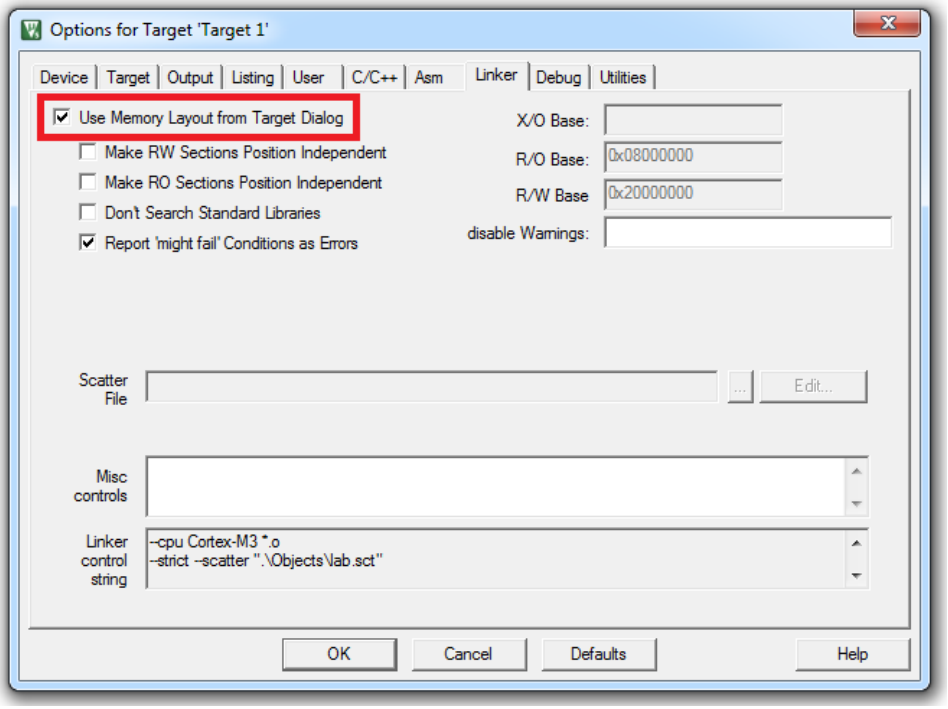
Note: The window to select files will not close once you have added a file. You should look for you file, select it, click **Add,** and close the window.

6. **Set Project Properties**

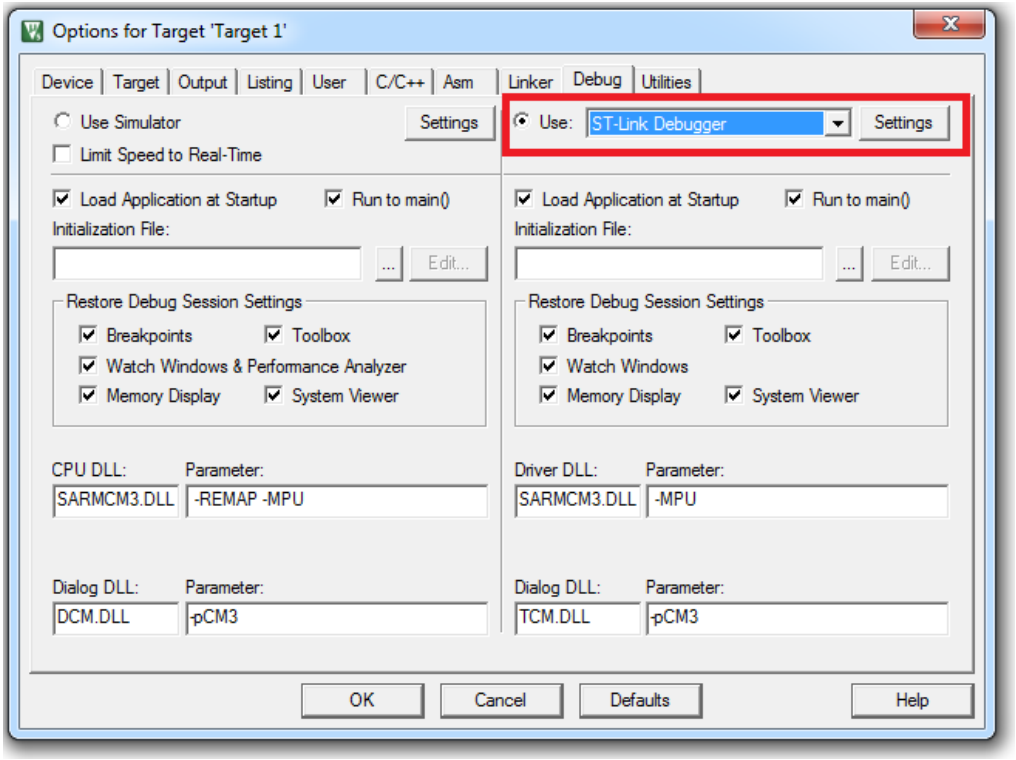
Make sure to select **Project: yourProjectName** on the left panel, and then click on **Project** ⟶ **Option for Target 'Target 1'**, Go to the **Output** page, select "**Create HEX file**"



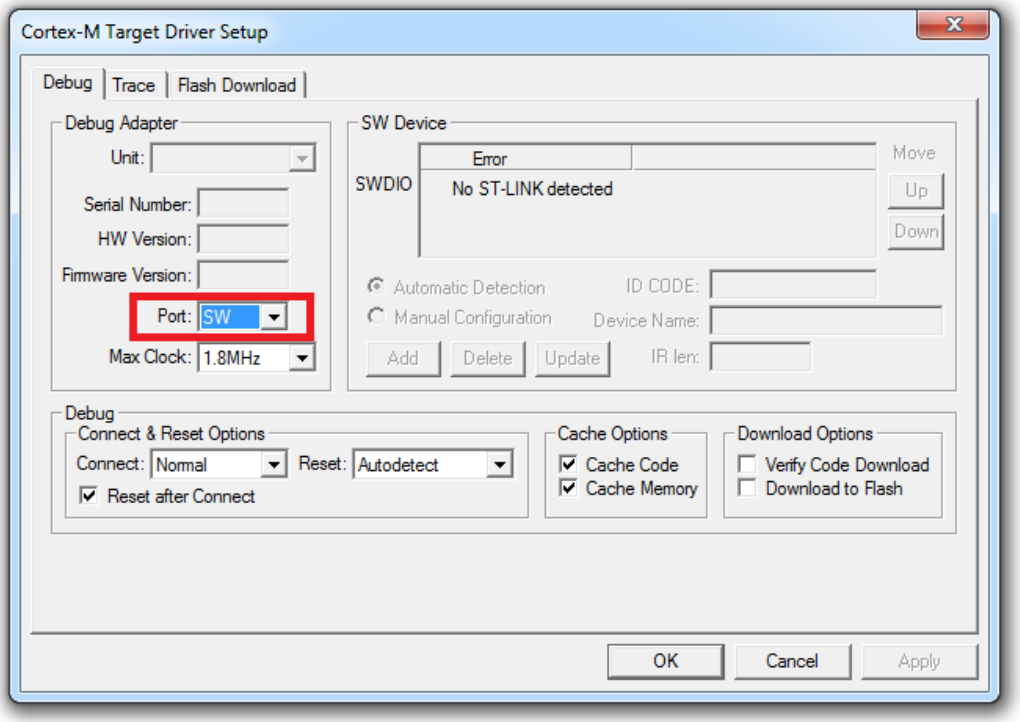
Go to the **Linker** page, select "**Use Memory Layout from Target Dialog**". This will enable your code (Program Memory) to be stored in Flash memory properly.



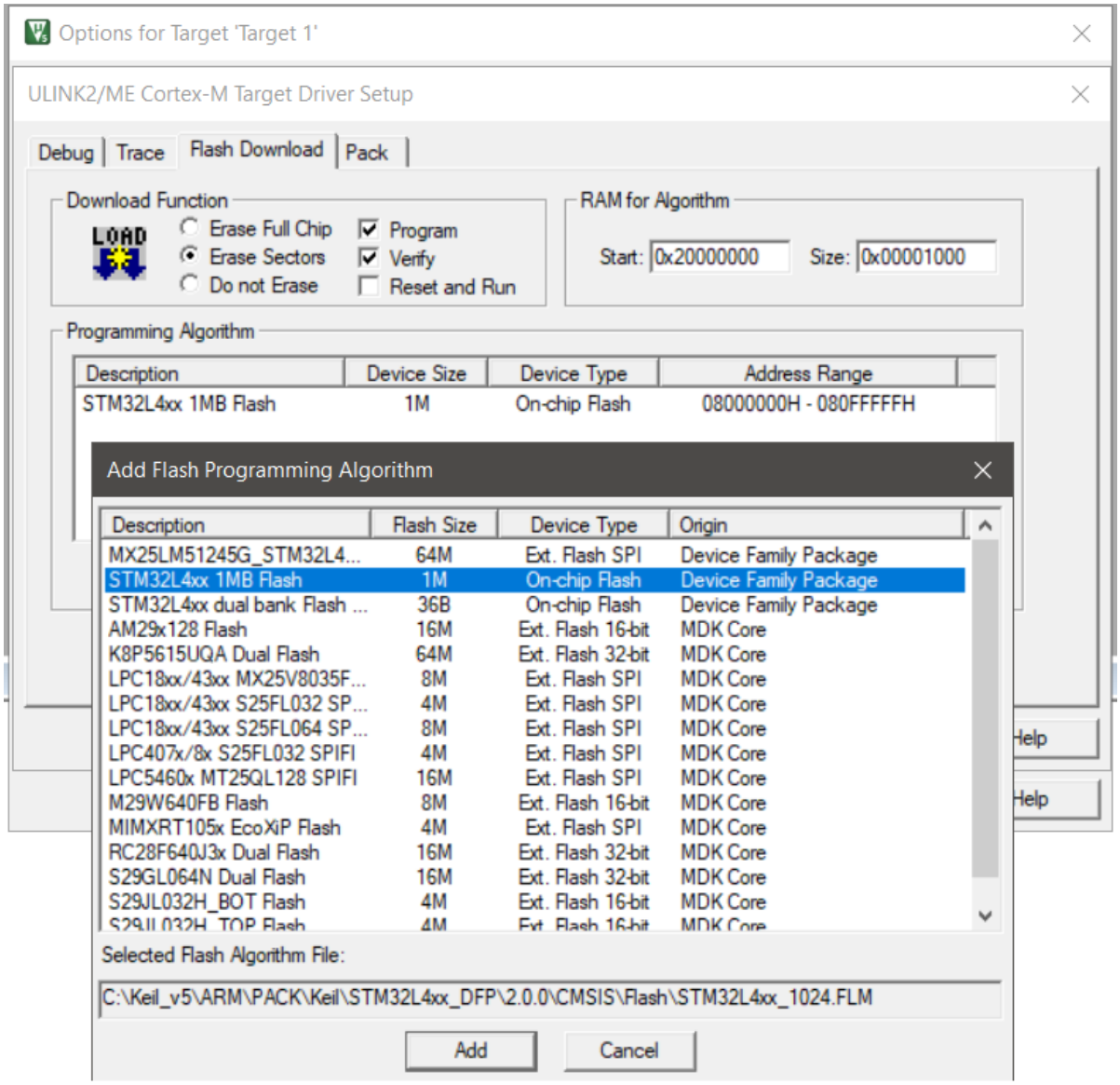
Go to the **Debug** page, select "**Use: ST-Link Debugger"** on the right side.



Click "**Settings**" next to **ST-Link Debugger** and select "**SW**" (Serial Wire) as the port.

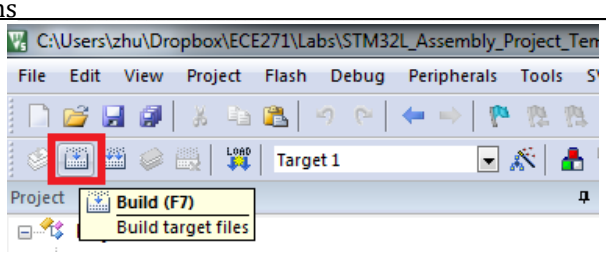


On the same window, go to the **Flash Download** tab, and verify that **STM32L4xx 1MB Flash On-chip Flash** is set up in the Programming Algorithm. If not, click "Add" and select **STM32L4xx 1MB Flash On-chip Flash** in the popped dialog.



7. **Compile and run your project**

   Build the program by clicking the build button (make sure you have your **main.c** file on your project folder). You can also click **Project→Build Target** (its also bound to your functions keys of F7). If you make a change in your program, you can always rebuild it with the same procedure. Building is convenient for projects if you have multiple files in that its easy to compile everything all at once:



Connect your discovery kit to the computer and download the program to the STM32L processor. A good debug is to make sure your board has its "COM" LED on as well as the "PWR" LED. These two LEDs mean your board is ready to have it "flash"-ed or downloaded to the board.