This guide will walk you through the steps needed to install and import a project with the STM32CubeIDE software.

1) STM32CubeIDE software installation
2) STM32CubeIDE workspace setup
3) lab_setup.m MATLAB script walkthrough
4) STM32CubeIDE import existing projects
5) Running projects on the discovery board

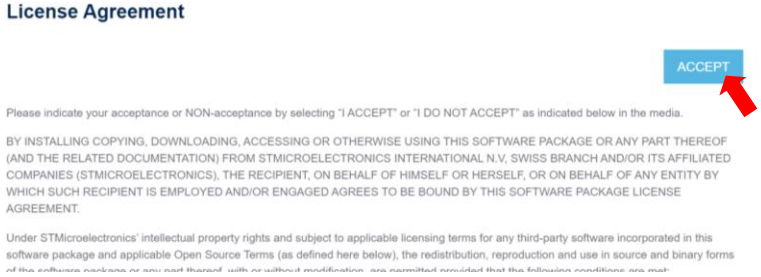
STM32CubeIDE software installation walkthrough

The easiest way to program the discovery board is with the STM32CubeIDE software.

The software is free, but you will need to either register an account with ST of provide your email to access it.

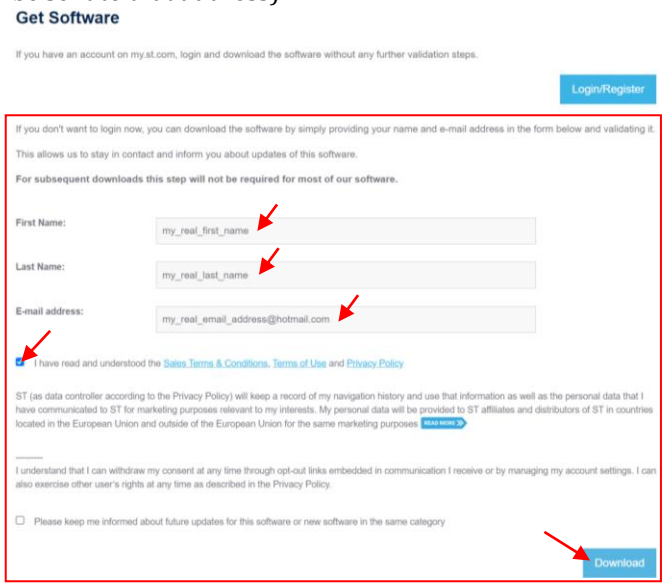
1. Access the website to download the installation here: STM32CubeIDE software
2. Scroll down to "**Get Software**" and select the latest version for your device

3. You will be prompted to accept the License agreement. Please accept it.

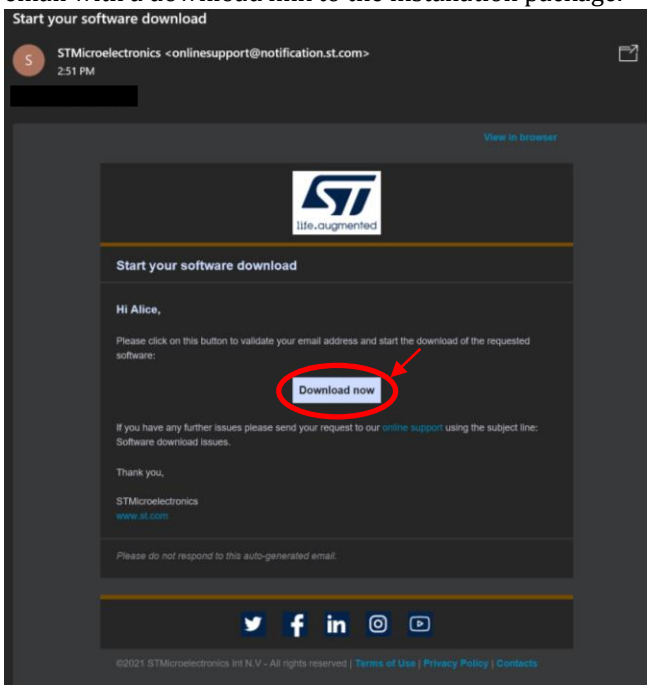


4. You will then either need to…
   A. Sign-in/register an account, OR (see B)

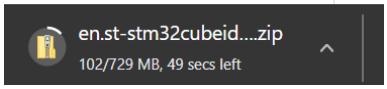
   B. Enter your personal details (use a valid email address as the software download details will be sent to that address)



After clicking "**Download**", you will be notified of your registration and should receive an email with a download link to the installation package.

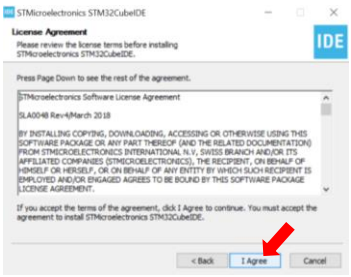


Clicking "**Download now**" will begin downloading the installation file from your browser

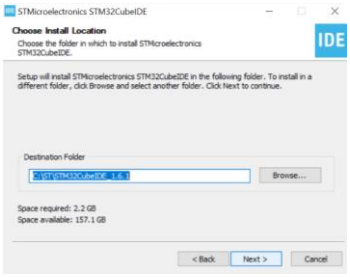


5. Extract the .zip file, run the install application, and follow the prompts from the installation wizard…

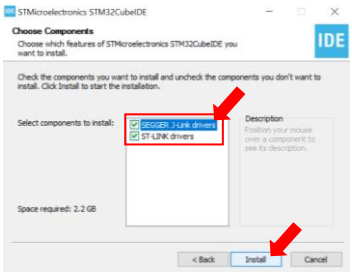
(1) Welcome



(2) License Agreement (accept)

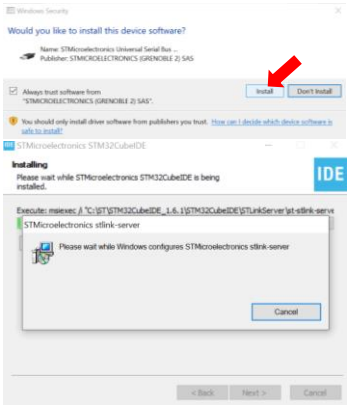


(3) Default Installation Location for Windows.

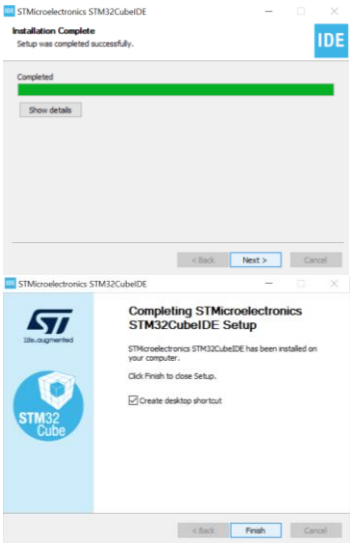


(4) Additional drivers, please select **both**!

i. SEGGER J-Link drivers
ii. ST-LINK drivers



(5) Possible prompts for STM USB software installation (accept)



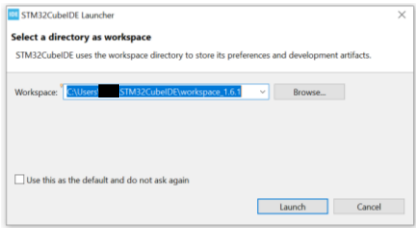
(6) Finish Installation

You have successfully installed the STM32CubeIDE software! Next, we will walk you through setting up your STM32CubeIDE workspace.

STM32CubeIDE workspace setup walkthrough

When you open the software for the first time, you will be prompted to select a workspace. The default location is fine, but you can change it to a more convenient location if you prefer since you will need to access this when you import a project.

1. On first launch of STM32CubeIDE, it will prompt you to set up a workspace:

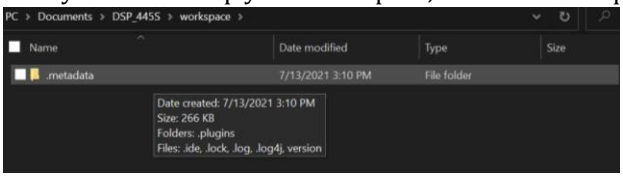


   The workspace defaults to:
   "C:\Users\user_name\STM32CubeIDE\workspace_x.x.x"

   You can also change it to a more convenient/preferred location, such as
   "C:\Users\user_name\Documents\DSP445S\workspace"

   The location of the workspace doesn't matter, just pick one that is easier for you to access/remember.

2. Now you have set up your workspace, it should be empty (no project folders, only metadata):



3. To import existing projects, you need to have the project file folders already in the workspace. This can be done by running the **lab_setup.m** MATLAB script that is explained in the lab_setup MATLAB script tutorial PDF.

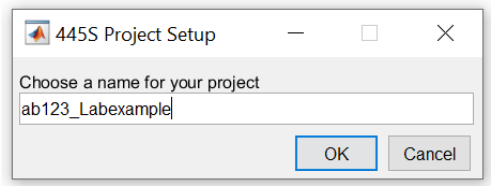
Now, with the workspace set up and project folders extracted into the workspace, you can import existing projects into the STM32CubeIDE!

lab_setup.m MATLAB script walkthrough

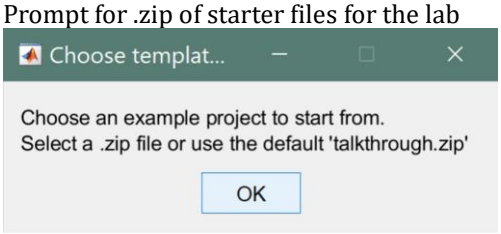
The MATLAB script (**lab_setup.m**) will help setup a new STM32CubeIDE project for the labs.
A short explanation on MATLAB script and how to run them can be found here:
[UMICH_ENGR_CTMS_MATLAB_File_Tutorial]

When running the **lab_setup.m** MATLAB script, you should see prompts such as…

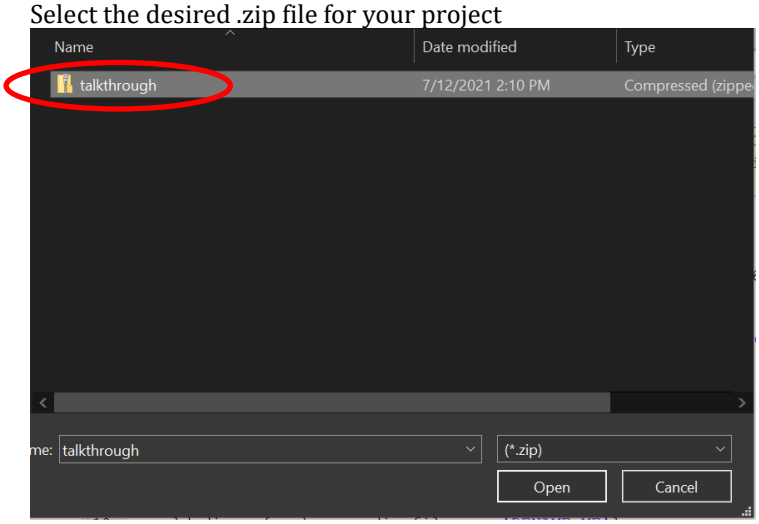
1) Enter a project name (ex: uteid_Lab#, ab123_Lab0, etc)



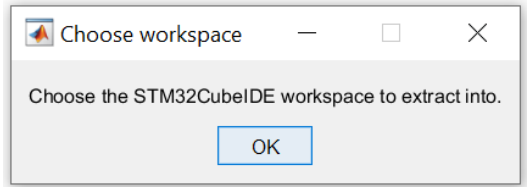
2) Prompt for .zip of starter files for the lab



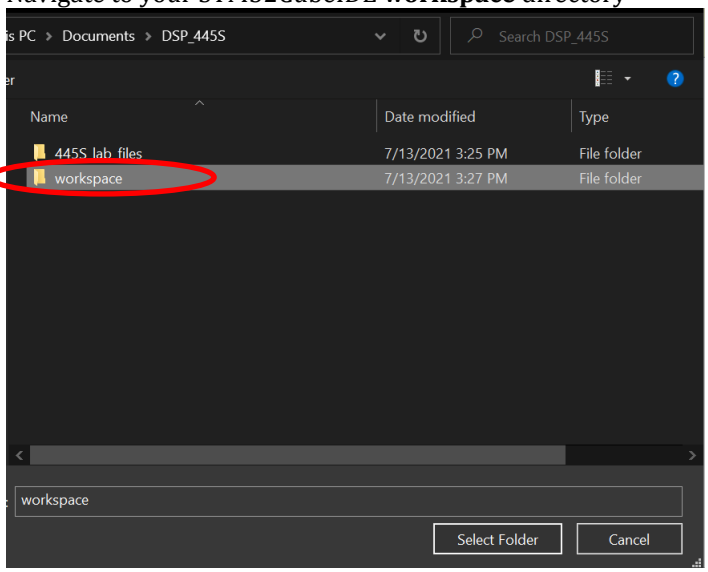
Select the desired .zip file for your project



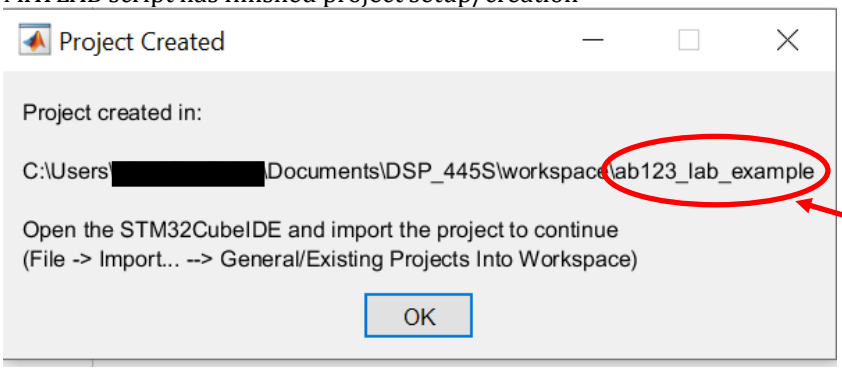
3) Prompt to select board STM32CubeIDE **workspace**



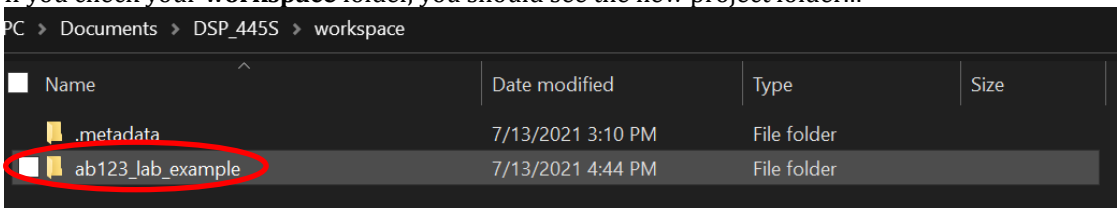
Navigate to your STM32CubeIDE **workspace** directory



4) MATLAB script has finished project setup/creation



If you check your **workspace** folder, you should see the new project folder...

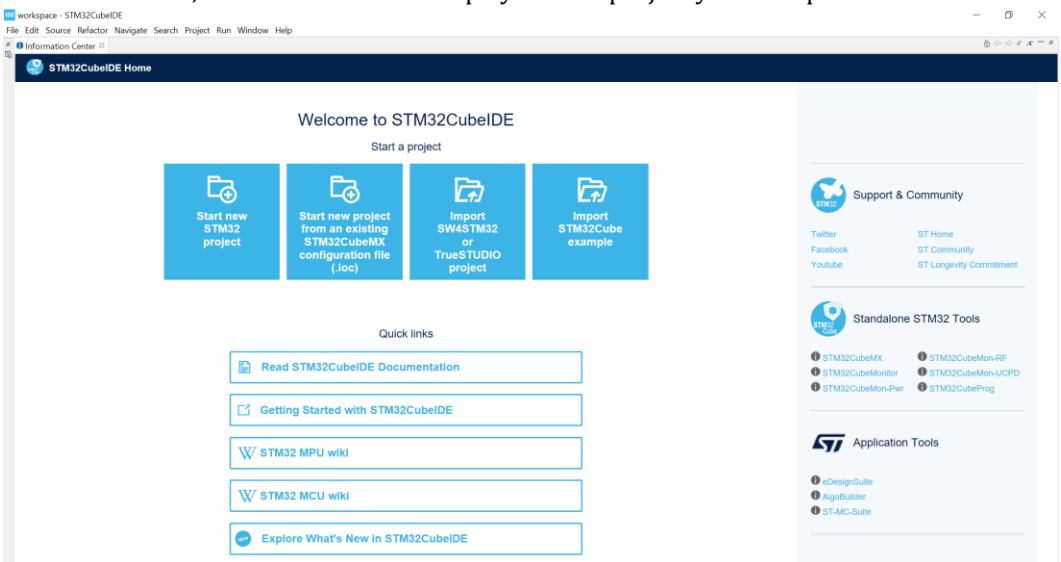


This concludes the **lab_setup.m** MATLAB script walkthrough guide.

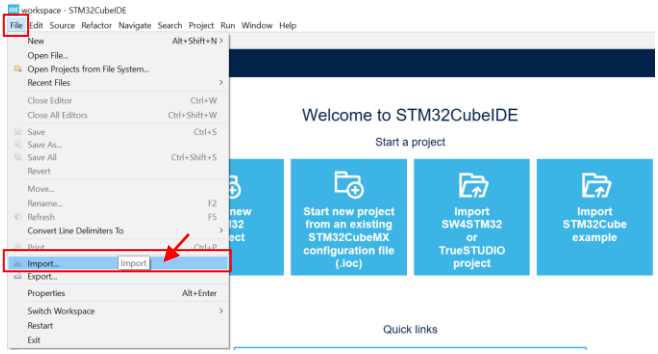
STM32CubeIDE import existing projects walkthrough

NOTE: Prior to importing existing projects to a workspace, you should already have the project files in your workspace folder! (see lab_setup MATLAB tutorial PDF)

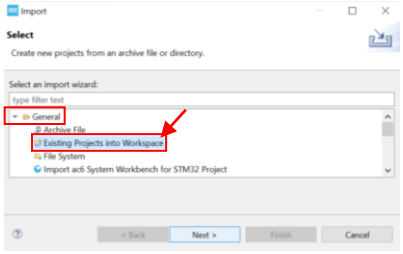
1. After launching the application, the **first** time you should see the home-screen
   In later launches, the IDE will instead display the last project you had open.



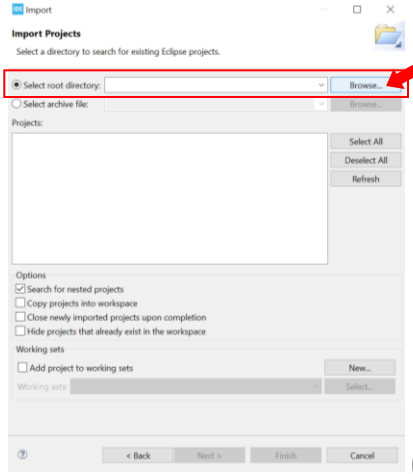
2. To import existing projects, go to: **File>Import**



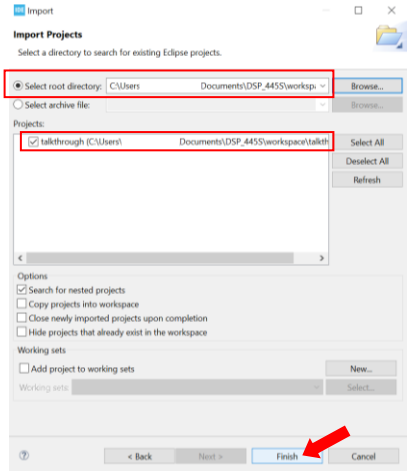
3. Then select **General>Existing Project Into Workspace**



4. Select the **Browse** in **Root Directory**, and select the existing project file folder in your workspace.

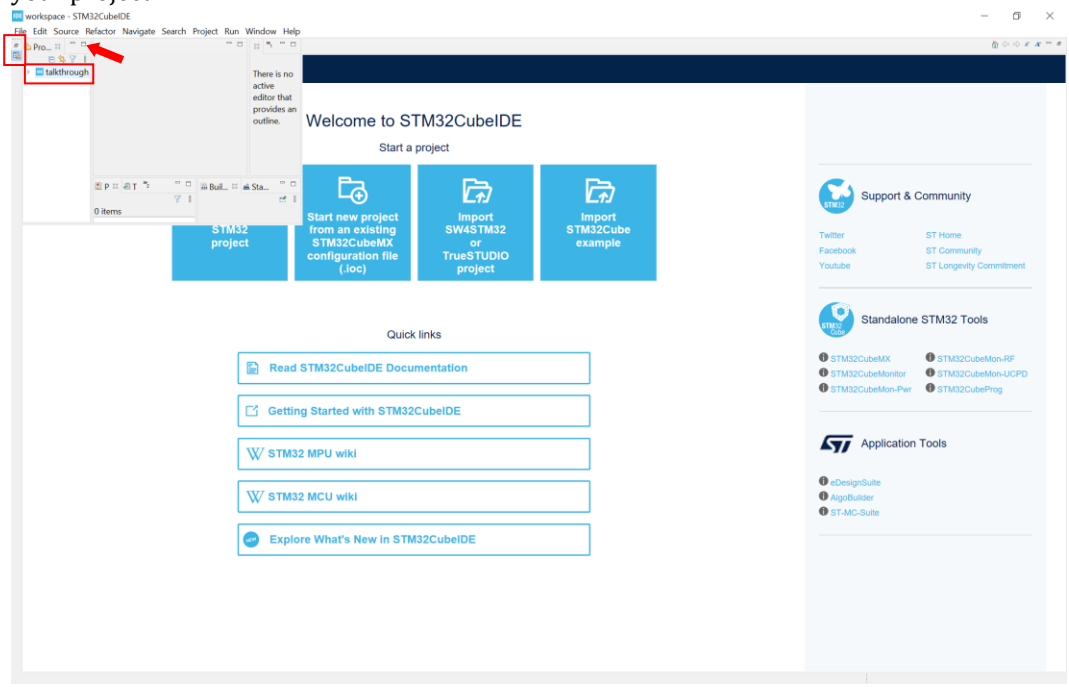


(Before selection)

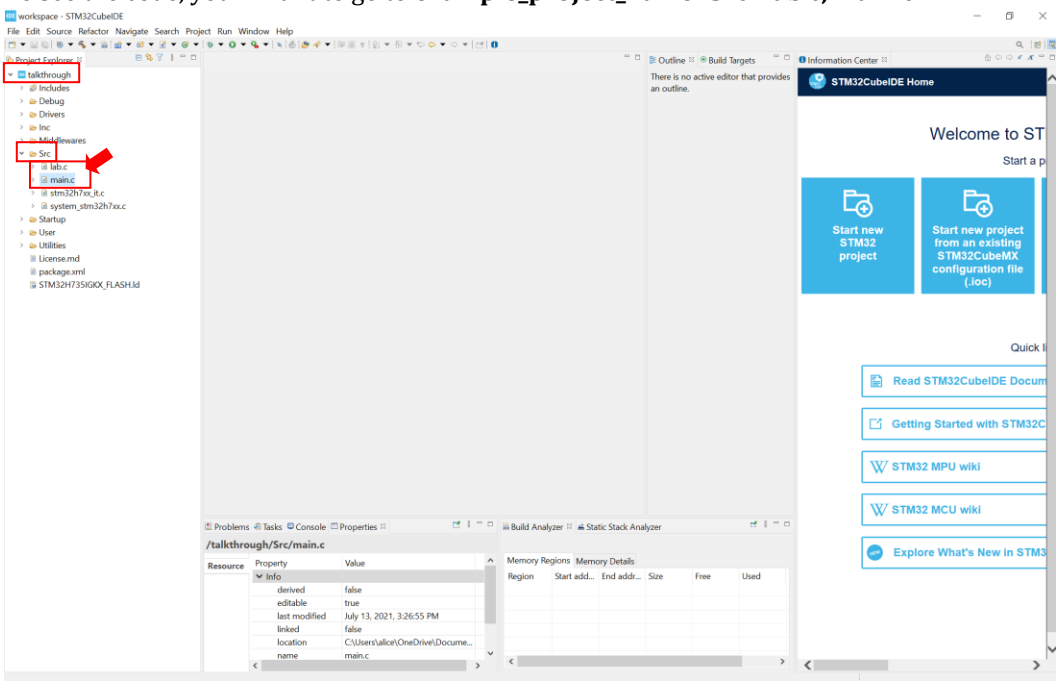


(After selection)

5. You may have to click in the top left corner to see the project, then **maximize** the window to view your project:



6. To see the code, you'll want to go to **example_project_name>Src>lab.c, main.c**

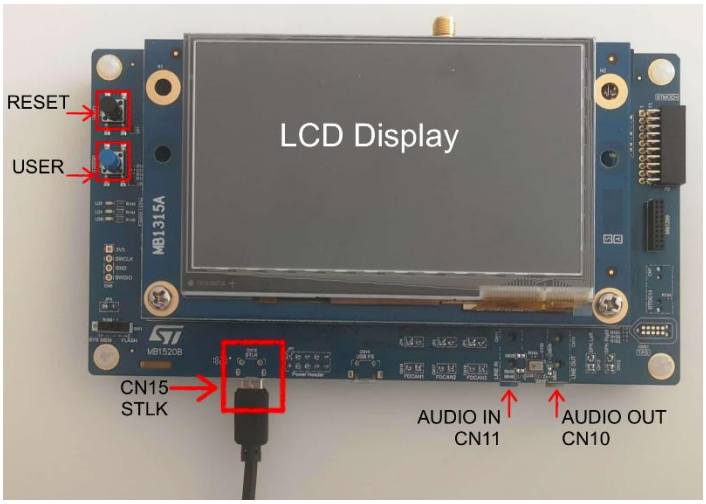


Now you can Edit/Debug/Run your code onto your STM32 DK board!

Running the project on the discovery board

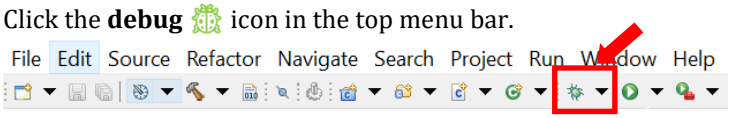
Once the project is imported, select it as the active project by double clicking it.

Connect the board with a micro USB cable to your computer. There are two micro USB ports on the board. Use the one labeled '**CN15 STLK**'.

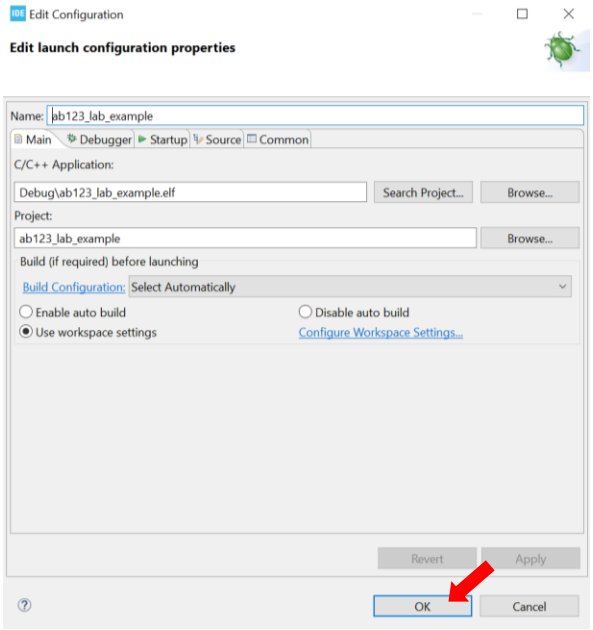


Compile and run the program on the board in debug mode:

1. Click the **debug** icon in the top menu bar.

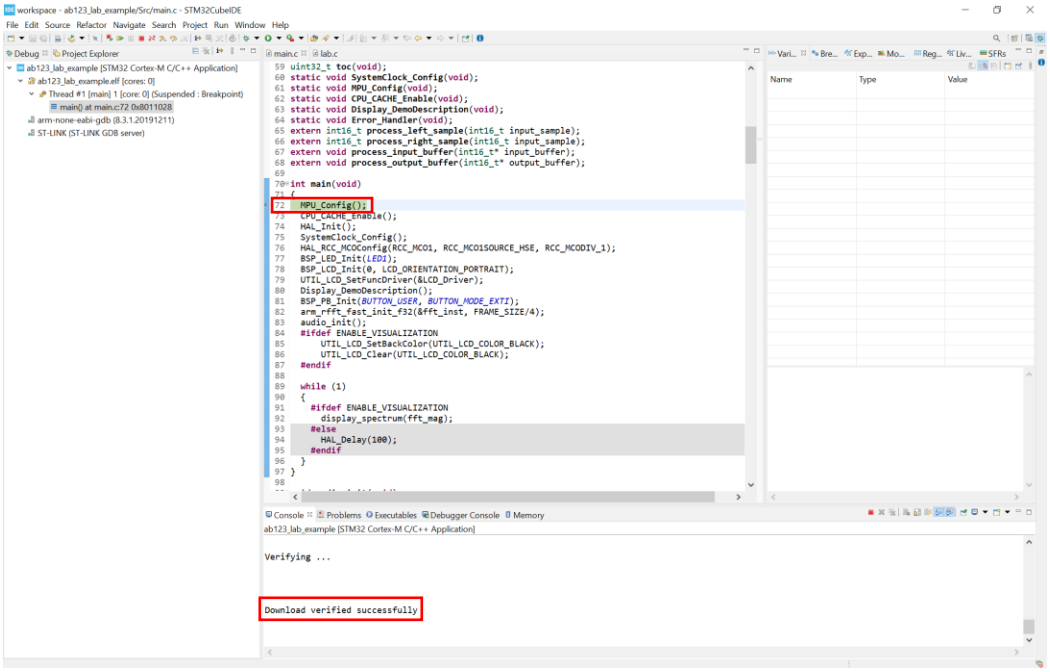


2. The first time you debug the program, you will be prompted to modify the settings. No changes are necessary, so click 'OK.'

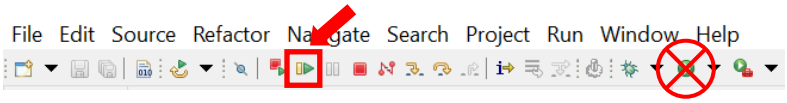


3. The first time you program the board, you may be prompted to update the firmware. Follow the instructions and then proceed.

4. The program will compile and load to the board. When it is complete you should see "**download verified successfully**" printed in the console, and first line of the program will be highlighted, indicating that execution is paused on this line.



5. Press F8 (or the resume ▶ icon) to run the program.



The sample program will pass audio through from the blue input jack to the green headphone jack and display the spectrum of the input signal.