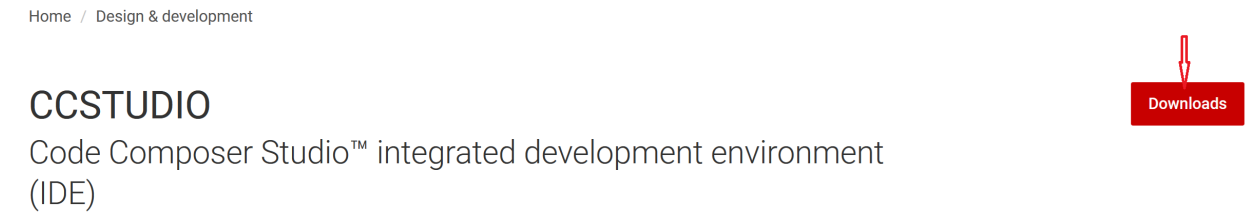
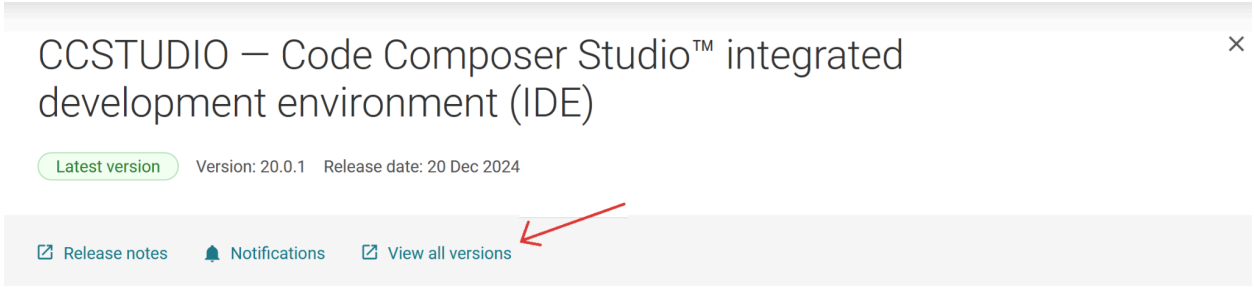
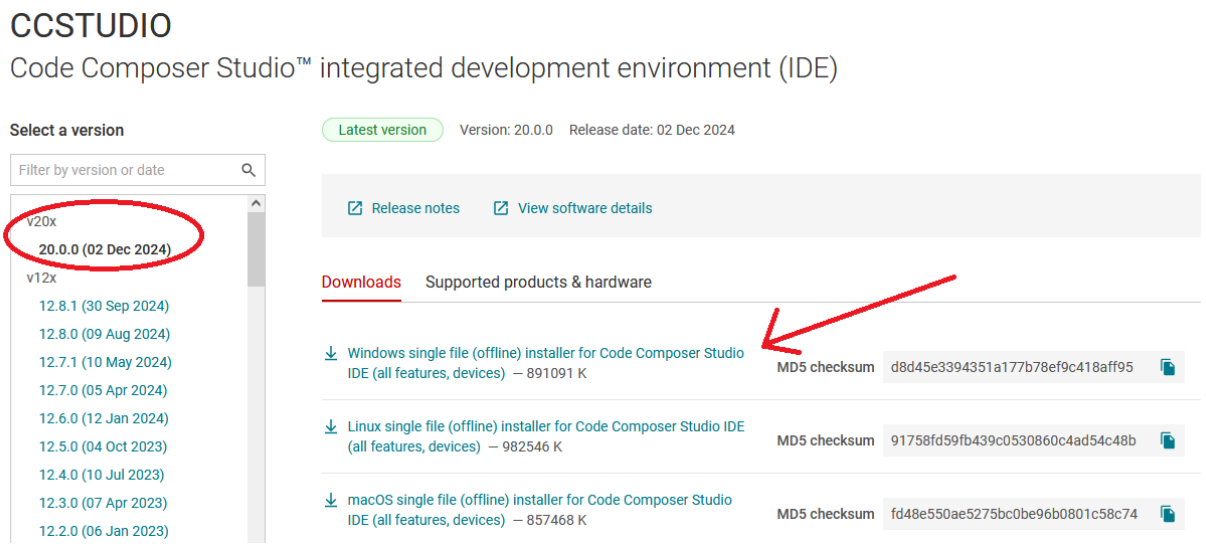
CCS Installation for ECE319K/ECE319H, University of Texas
by Jason J. Kacines, Jonathan Valvano and Ramesh Yerraballi

Step 1: Download and install version 20.2.0 of CCS on your personal computer (MSPM0G3507) (If there is a newer version than 20.2.0, ask Valvano or Yerraballi, do NOT install the newer version). Rather, install 20.2.0; this way everyone is using the same version all semester) https://www.ti.com/tool/CCSTUDIO
Click **Downloads** on the right:



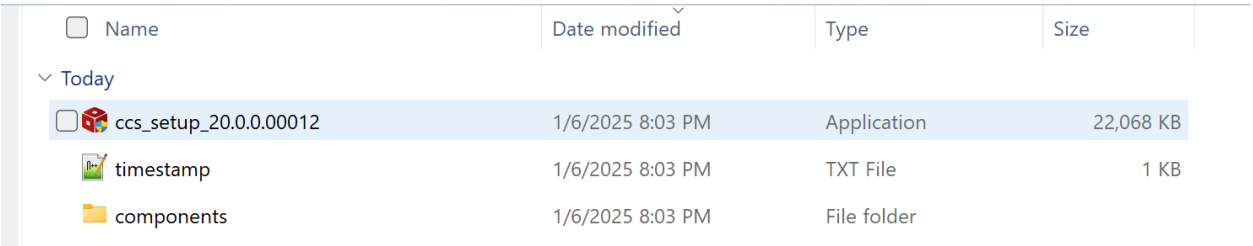
This will take you to the following screen where you should click on “View all versions” so you can choose the recommended version which is 20.2.0. This is important, otherwise you will end up with a newer version.



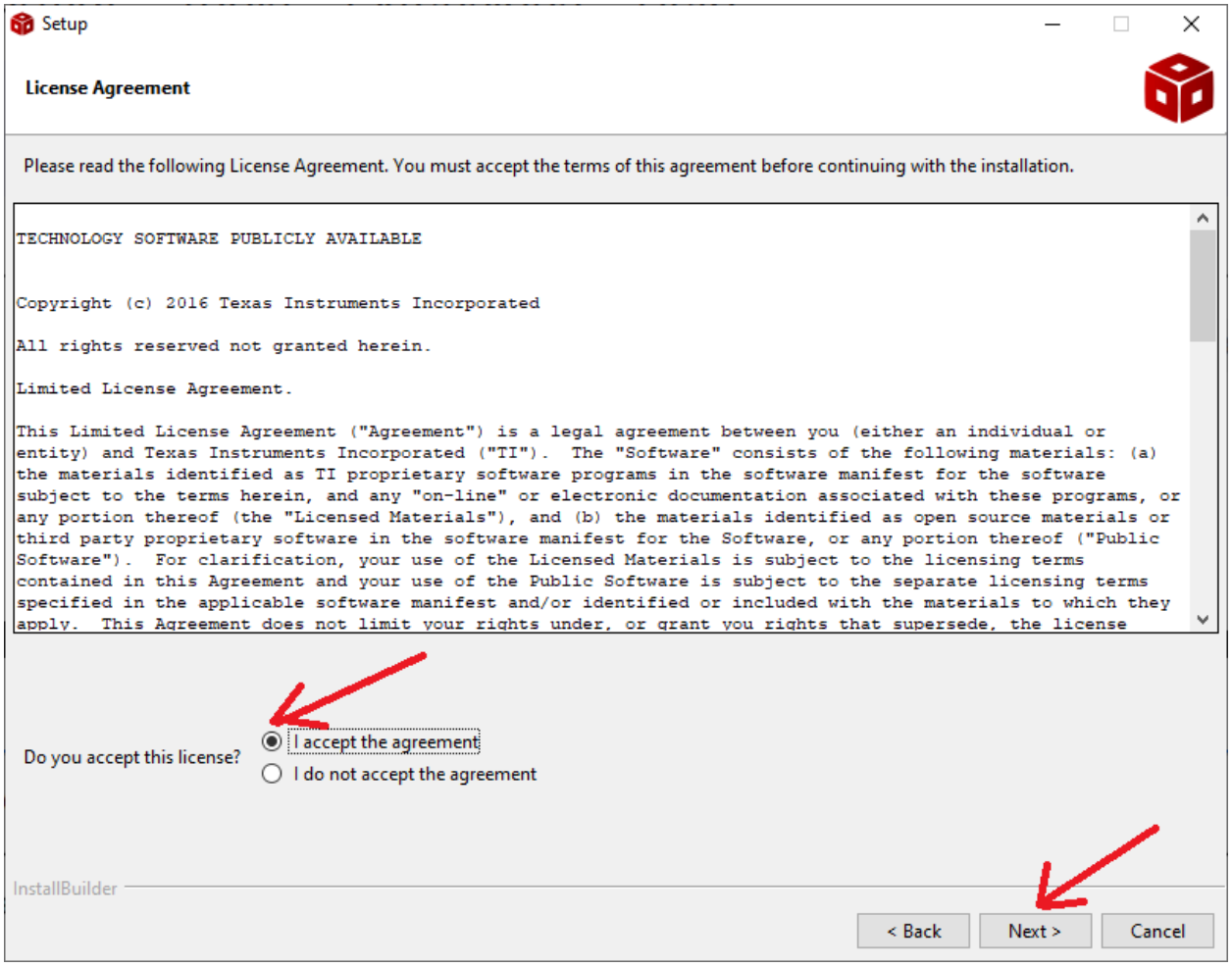


Choose **single file (offline) installer** for your operating system

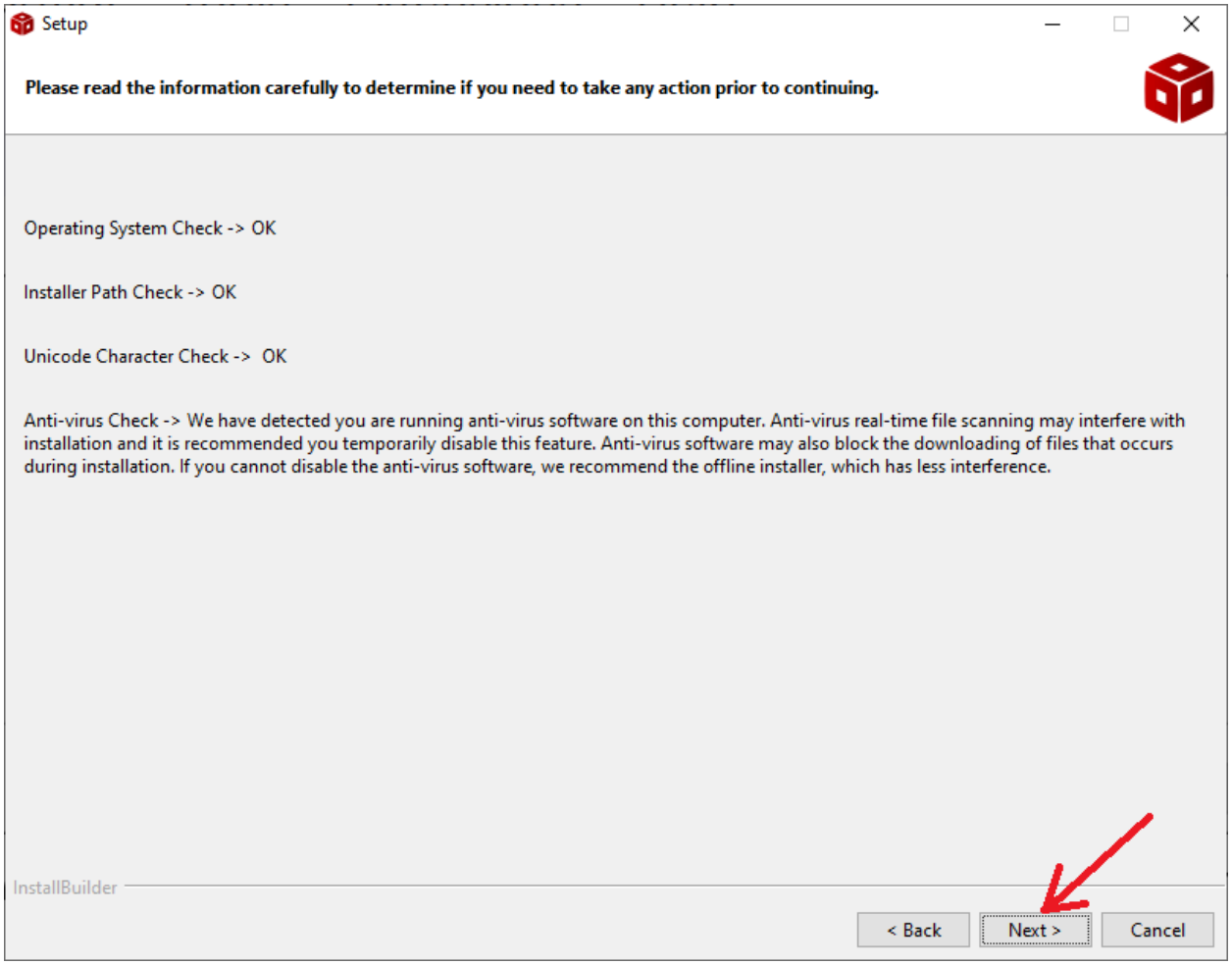
Extract the downloaded **CCS20.2.0.xxx zip file** into a folder and launch the **ccs_setup_20.2.0.00012.exe** file you find in the folder:



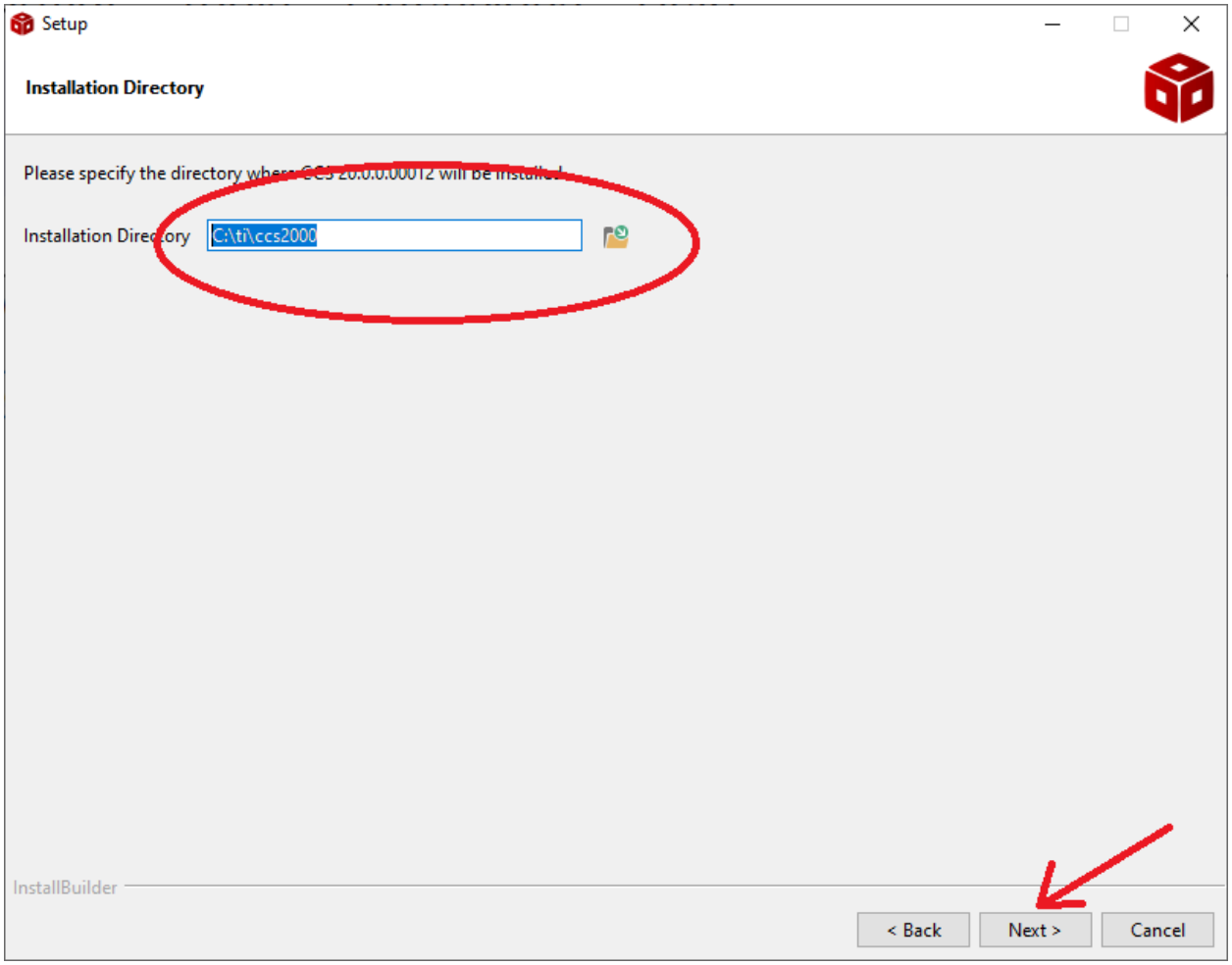
This will open a installation Wizard click **Next >**



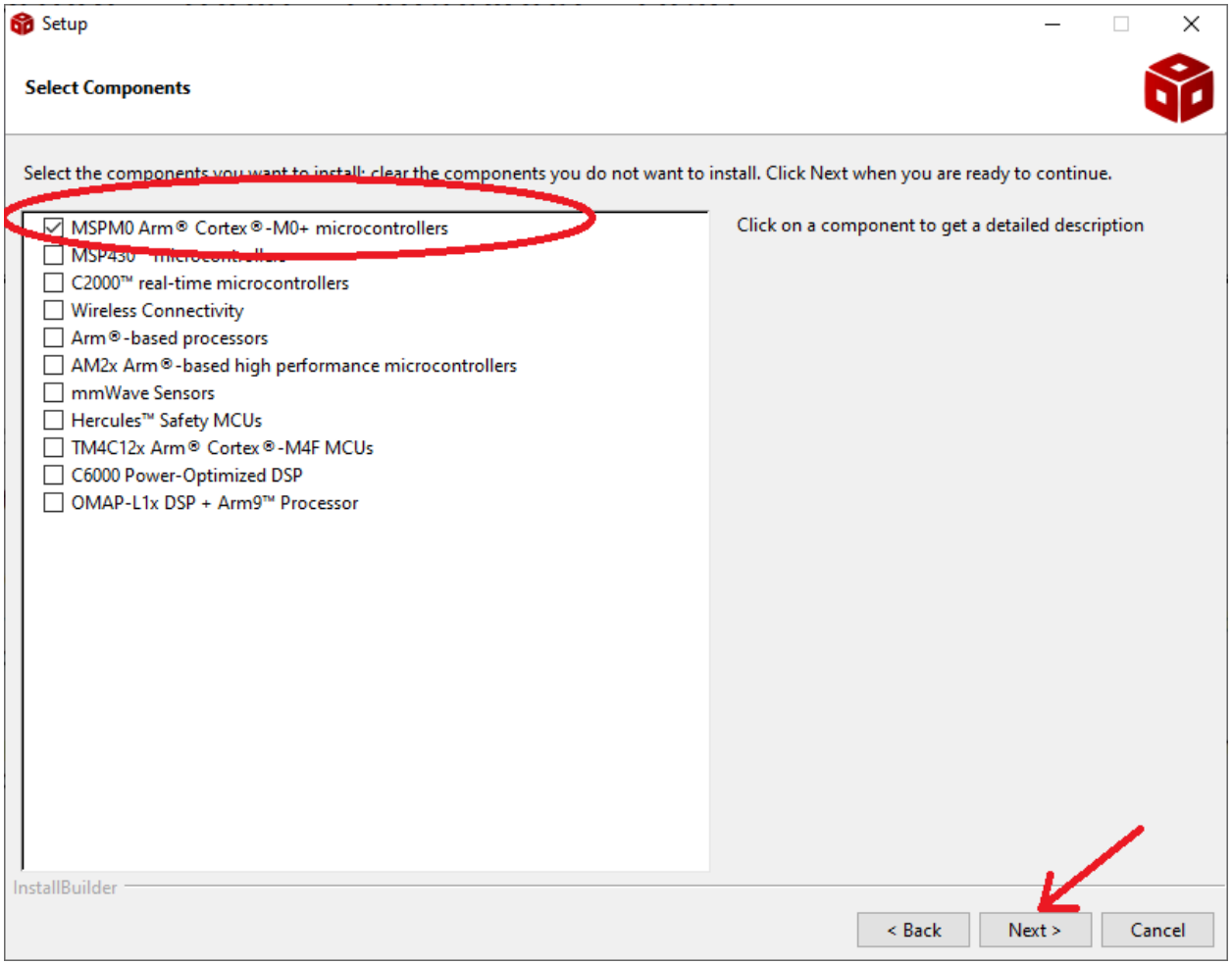
Accept the agreement and click **Next >**



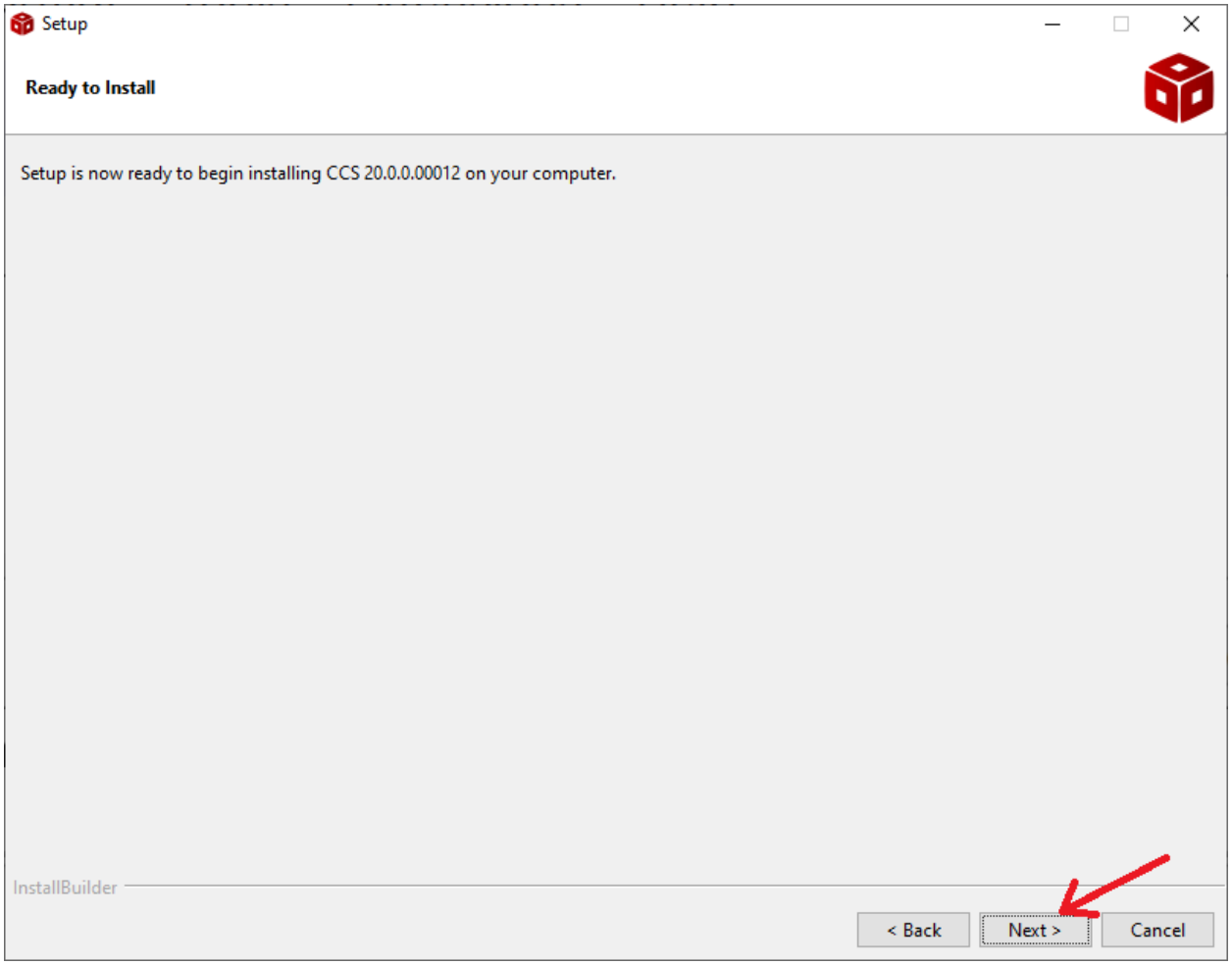
Click **Next >***It will ask to reboot, but do it later.* (use Version 20.2.0 for Fall 2025)



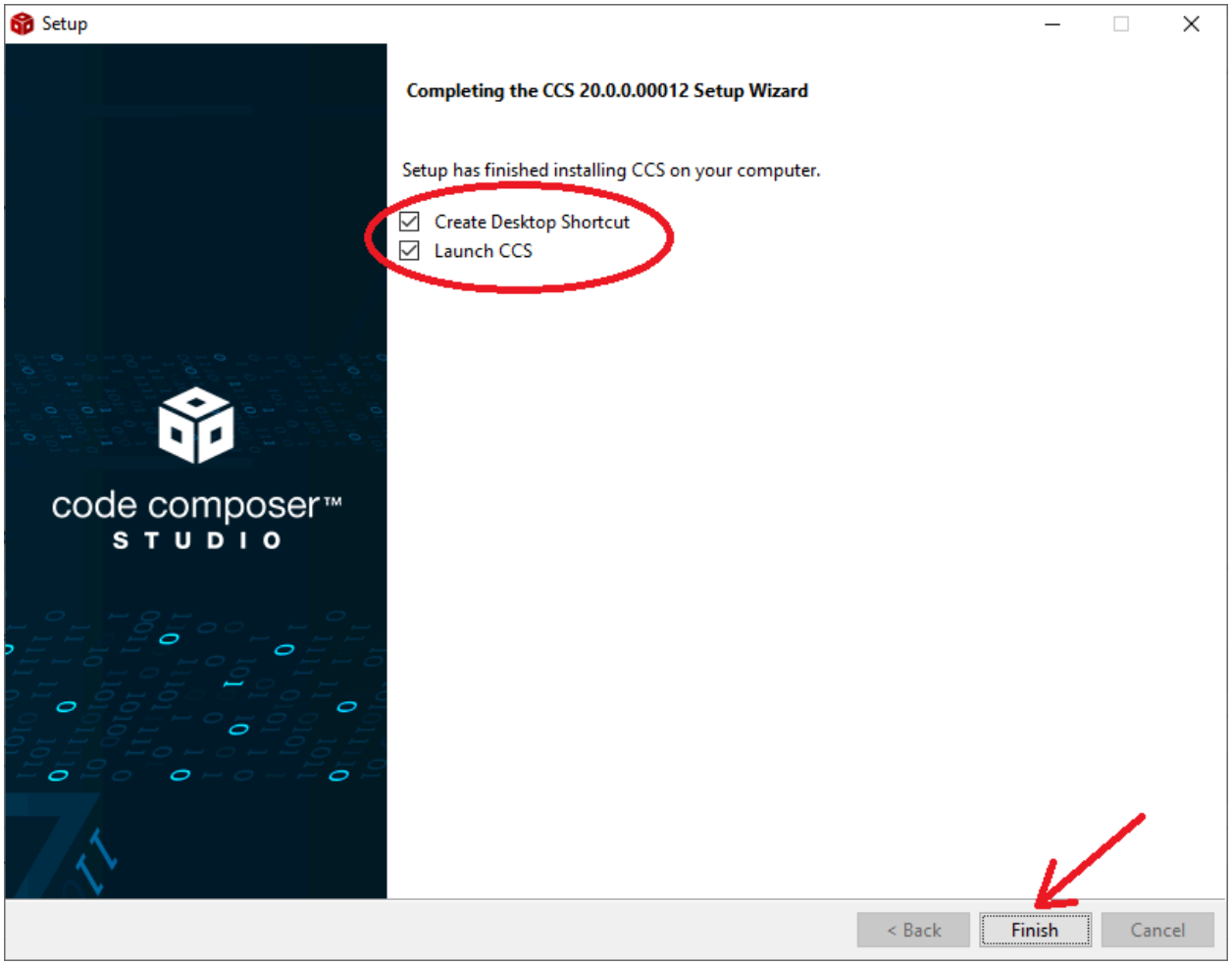
Note: It is recommended to leave the Installation Directory as the default. *If you would like to change the installation directory, make note of the location that you are installing Code Composer Studio and ensure the directory includes \ti\ccs2020 in the path.*



Select **MSPM0 Arm Cortex-M0+ Microcontrollers** and click **Next >**

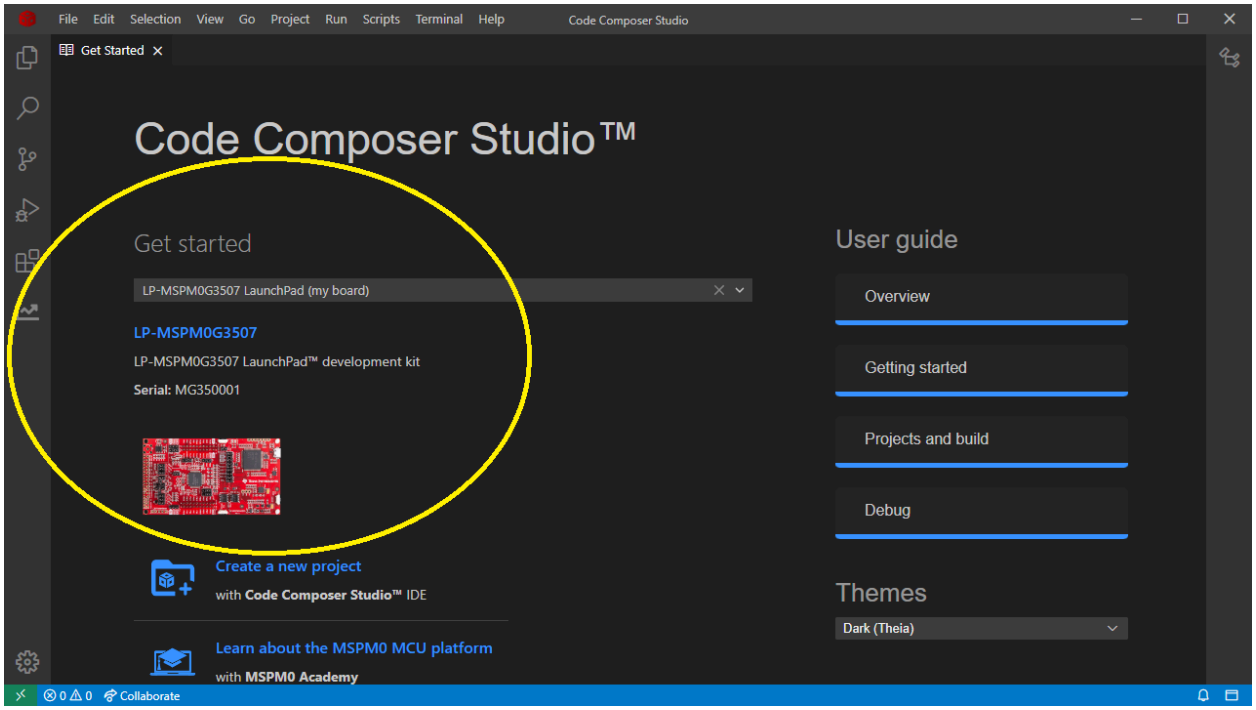


Click **Next >** to begin installation (this will take a long time)



CCS is now installed.

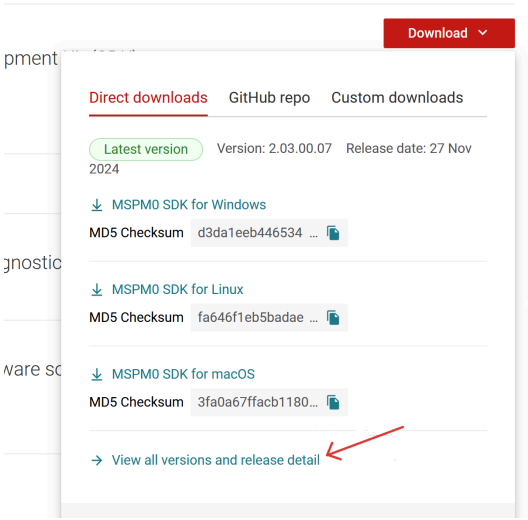
Launch Code Composer Studio. The following screen will appear. If the LaunchPad is plugged in, then CCS will recognize it.



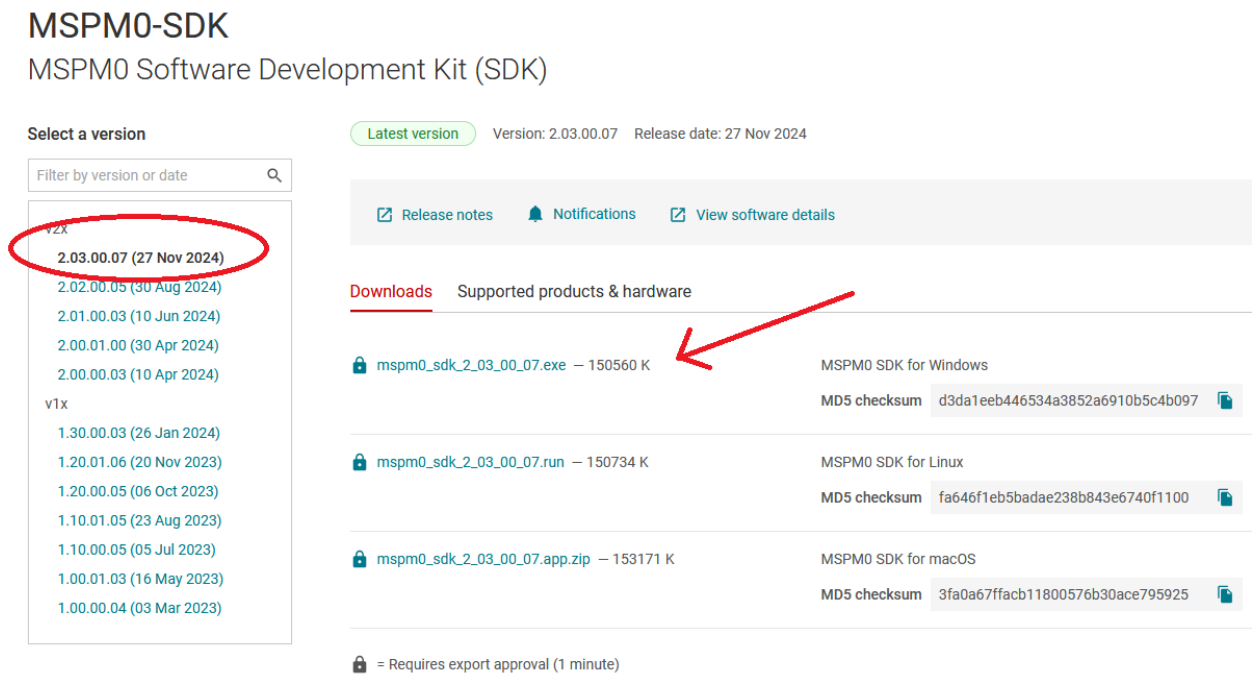
Close Code Composer Studio and install the SDK (next steps)

Step 2: Download and install version 2.05.00.05 **of MSPM0-SDK — MSPM0 Software Development Kit (SDK)** https://www.ti.com/tool/MSPM0-SDK
Do not install the newest, rather install Version: 2.05.00.05 (this way all of ECE319K is running the exact same installation) **mspm0_sdk_2_05_00_05**

On the SDK page, click on Downloads and you will find the following dropdown options where you can click on "**View all versions and releases detail**"

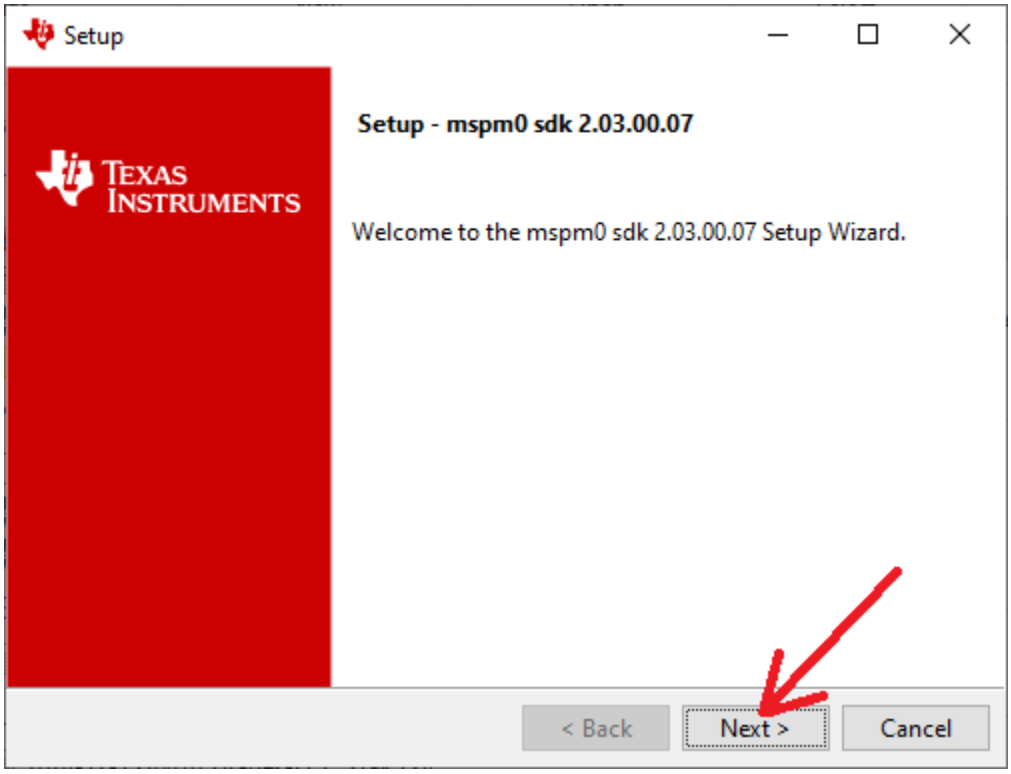


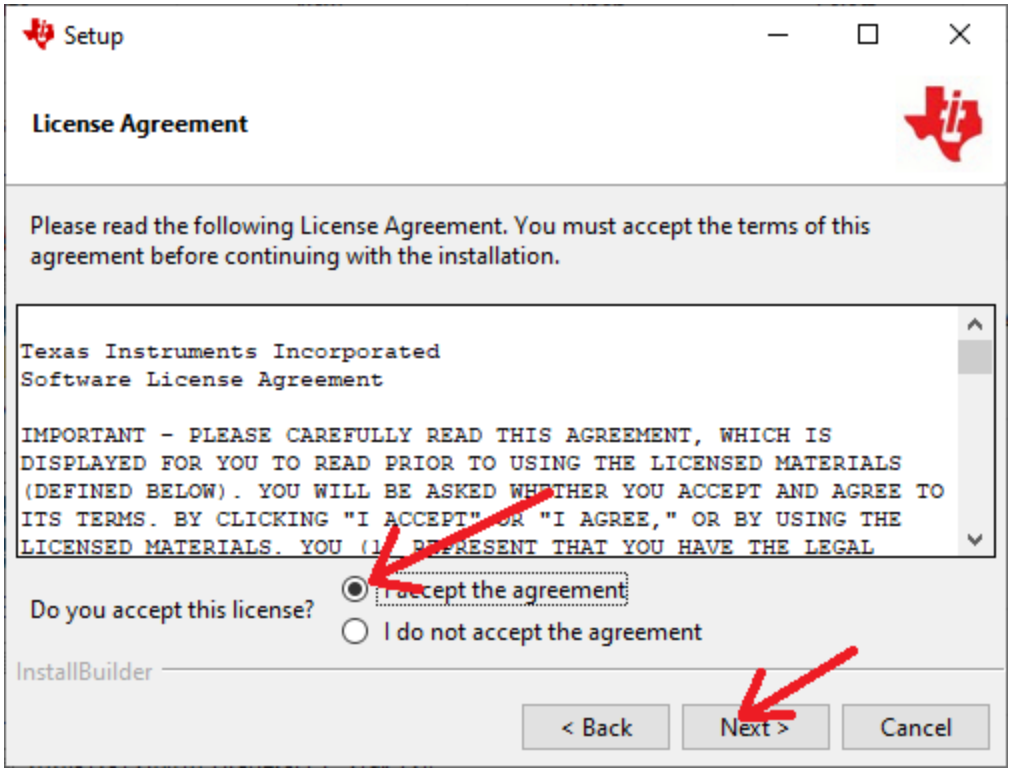
This will take you to the page where you choose the version 2.05.00.05.

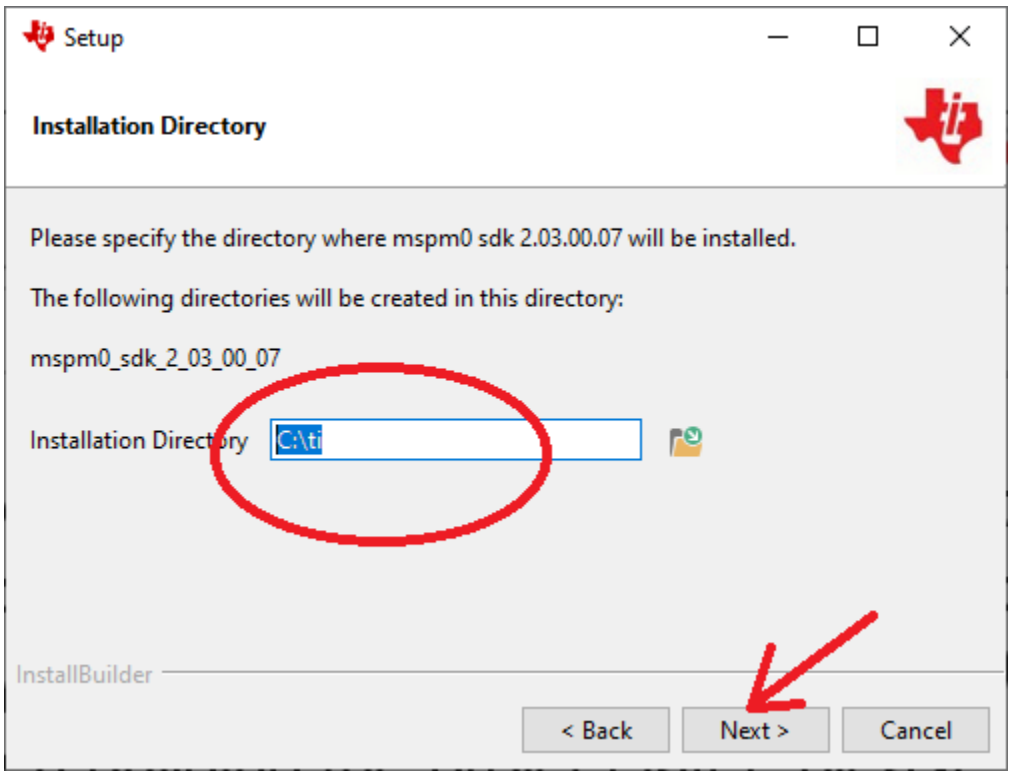


Download the SDK for your operating system. **If you are asked to create an account do so.**

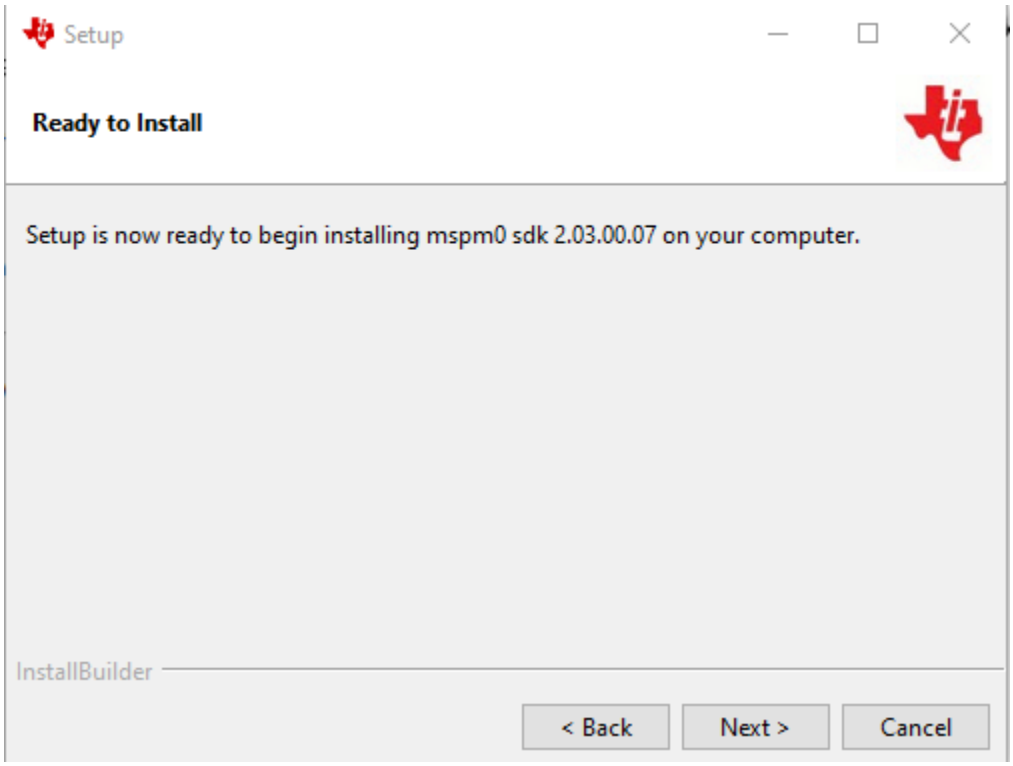
Run the **mspm0_sdk** executable to download the SDK



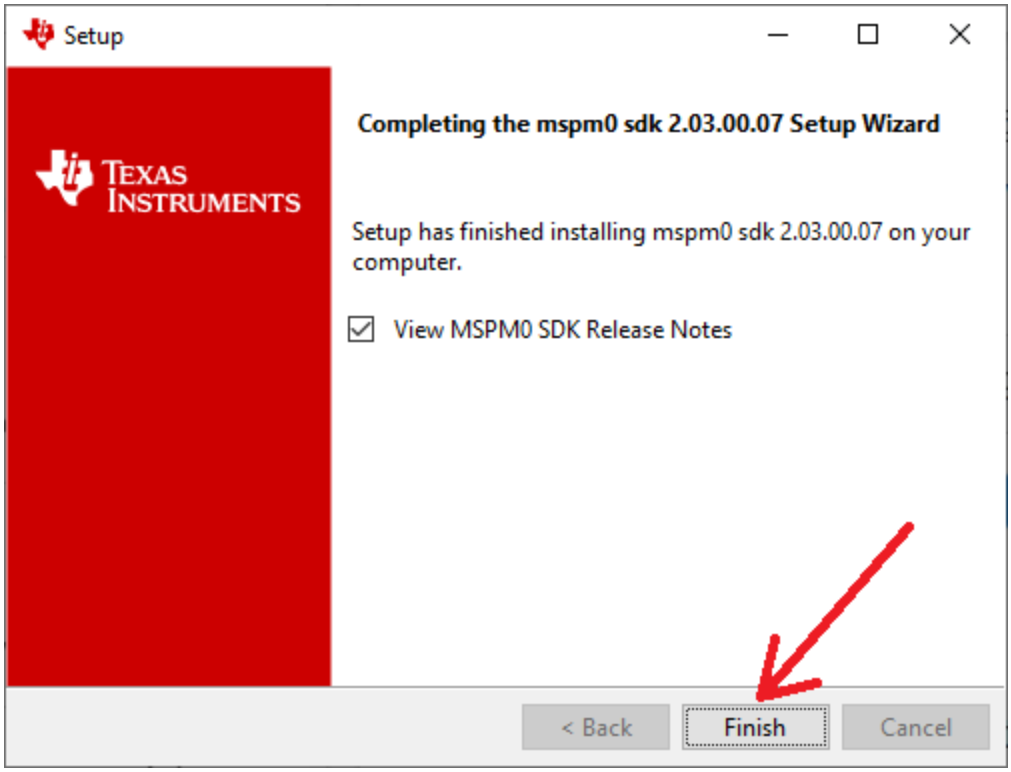

Setup
License Agreement
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
Texas Instruments Incorporated
Software License Agreement
IMPORTANT - PLEASE CAREFULLY READ THIS AGREEMENT, WHICH IS
DISPLAYED FOR YOU TO READ PRIOR TO USING THE LICENSED MATERIALS
(DEFINED BELOW). YOU WILL BE ASKED WHETHER YOU ACCEPT AND AGREE TO
ITS TERMS. BY CLICKING "I ACCEPT" OR "I AGREE," OR BY USING THE
LICENSED MATERIALS, YOU (1
Do you accept this license?
I accept the agreement
I do not accept the agreement
InstallBuilder
< Back
Next >
Cancel


Setup
Installation Directory
Please specify the directory where mspm0 sdk 2.03.00.07 will be installed.
The following directories will be created in this directory:
mspm0_sdk_2_03_00_07
Installation Directory
C:\ti
InstallBuilder
< Back
Next >
Cancel

Note: *This installation directory* ***MUST*** *be the same as the one used for Code Composer Studio. If you did not previously change the installation directory from the default, do* ***NOT*** *change it here. If you DID previously change the installation directory, update it accordingly here. If you encounter errors when building the project later, please check the FAQ.*



Click **Next >** to begin installation (this will take some time)

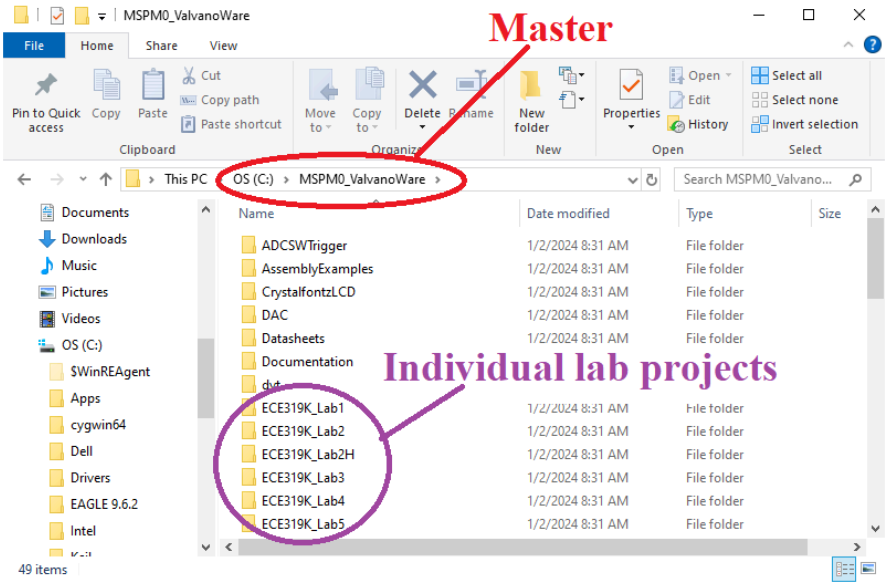


Click **Finish >**

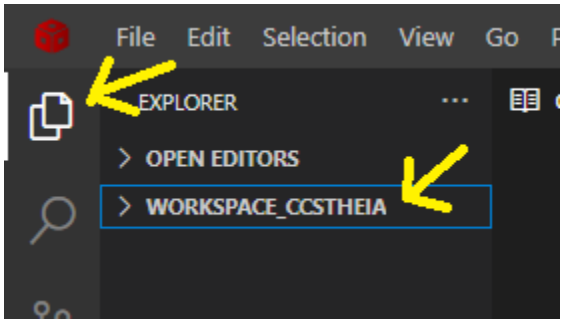
REBOOT YOUR COMPUTER

Step 3: Download and unzip the projects for ECE319K called MSPM0_ValvanoWare. You will find the zip file here: MSPM0_ValvanoWare_Fall25.zip (updated 8/27/2025)

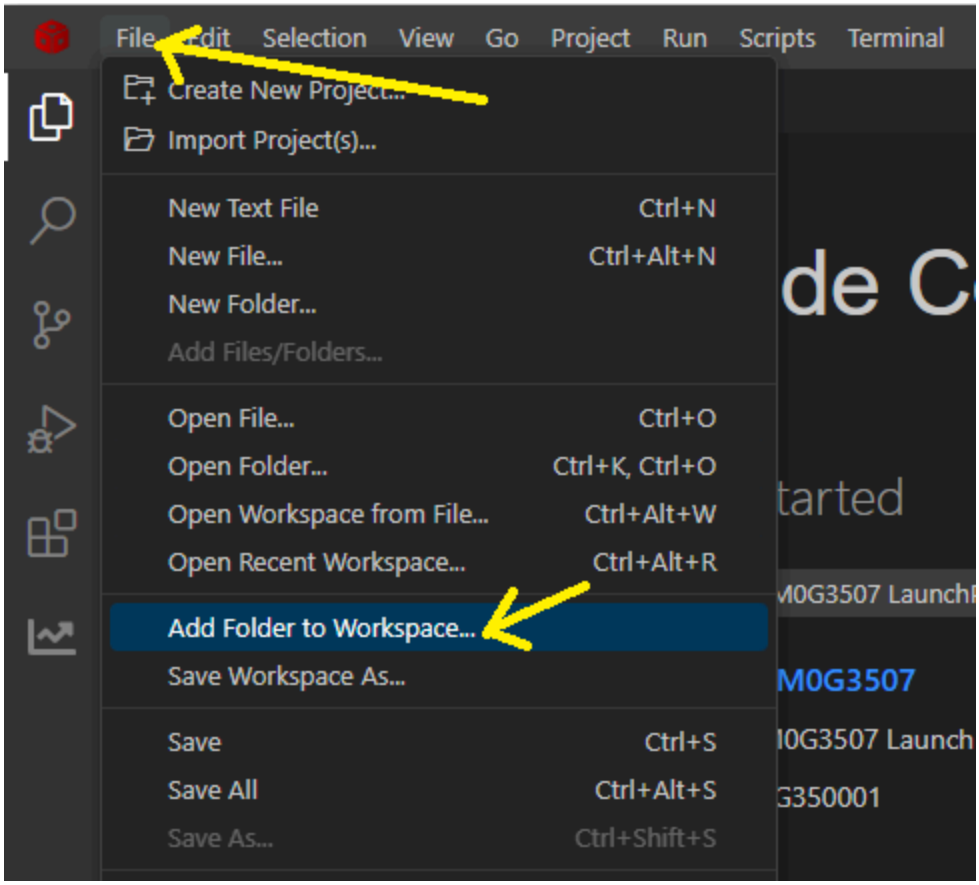
Put the folder **MSPM0_ValvanoWare** somewhere it is easy for you to find and edit. Notice there is one master directory, 42 subdirectories containing individual lab projects. Make sure this is the exact structure of your project workspace.



Step 4: Plug the MSPM0G3507 LaunchPad into a USB port. **Open CCS, Click Explorer, then click WORKSPACE_CCSTHEIA**



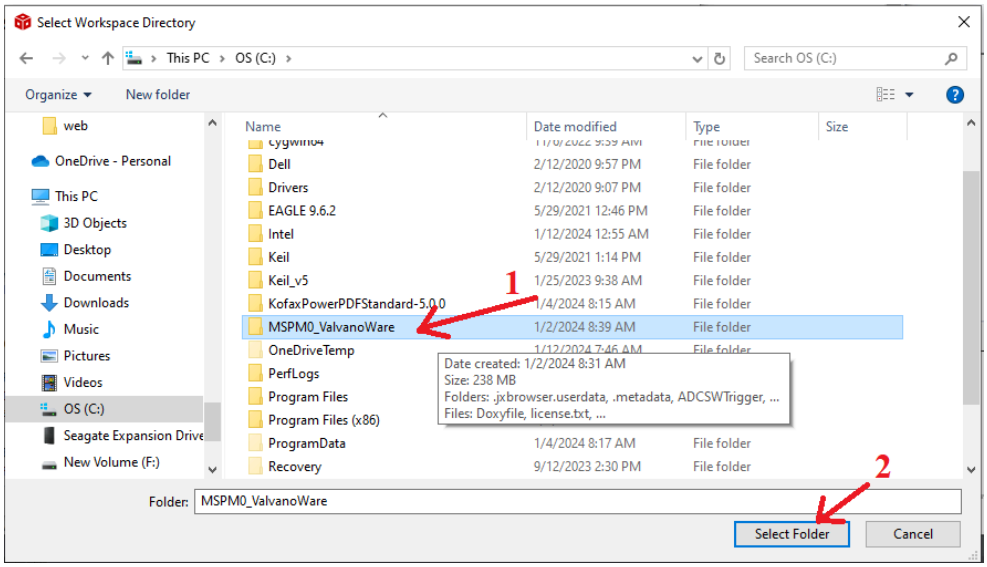
Execute File->Add Folder to Workspace

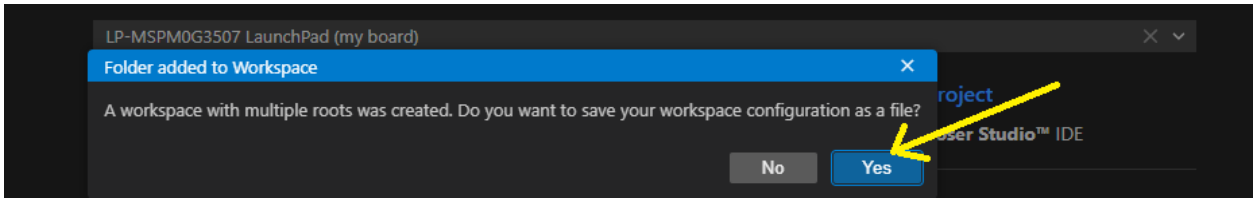


Browse for the MSPM0_ValvanoWare folder

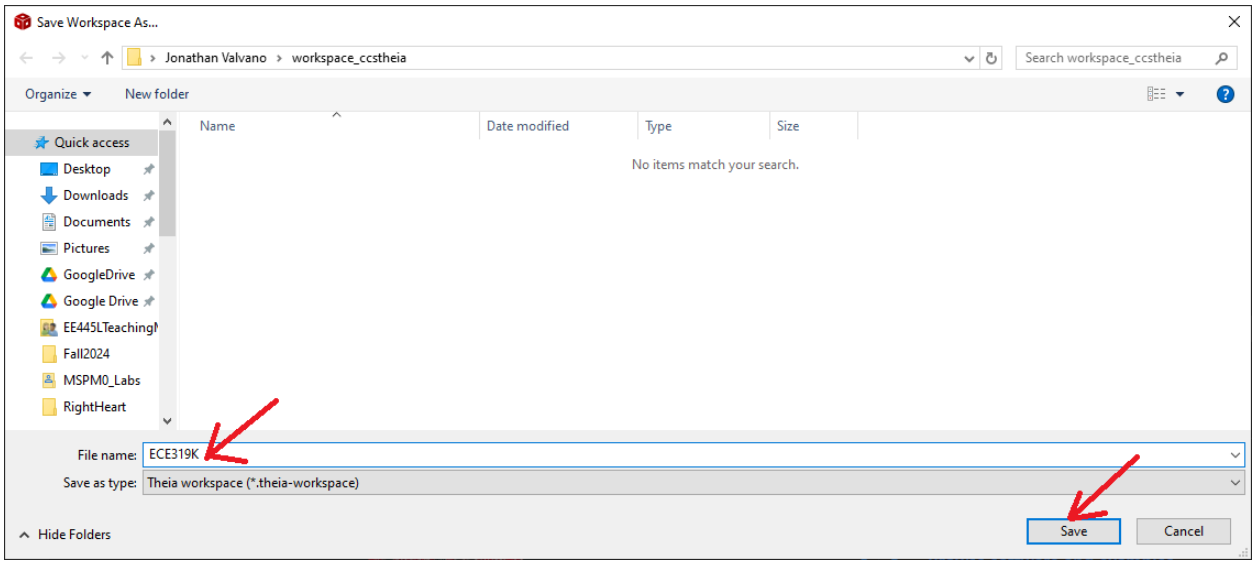
1) Single click on MSPM0_ValvanoWare folder

2) Execute Select Folder

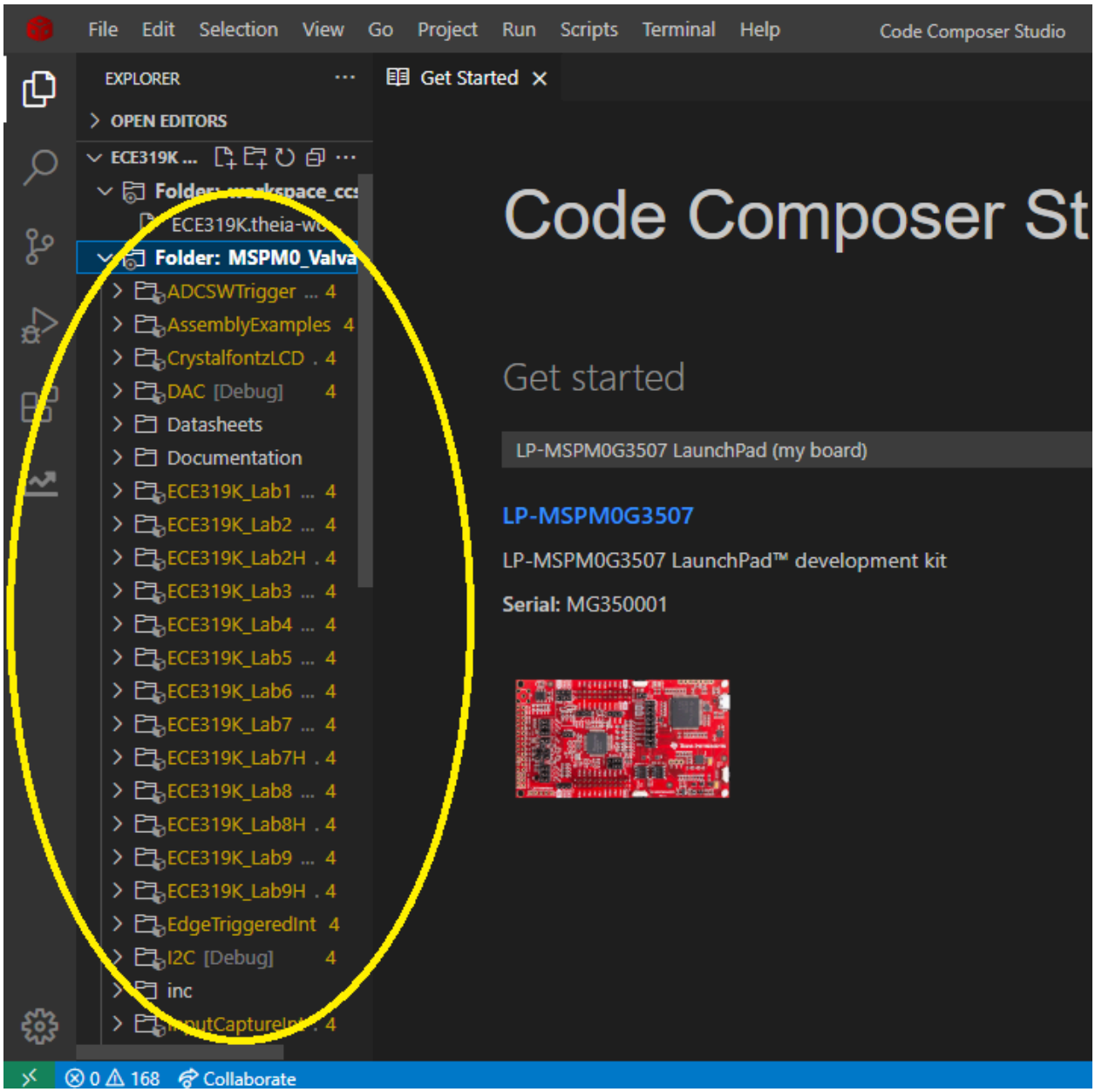




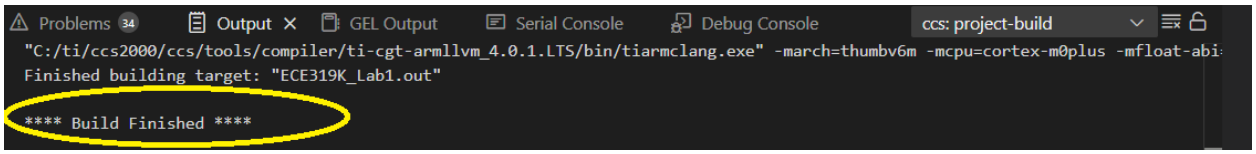
Notice the path to the MSPM0_ValvanoWare folder matches where you put it. Click Launch. Save workspace configuration as a file



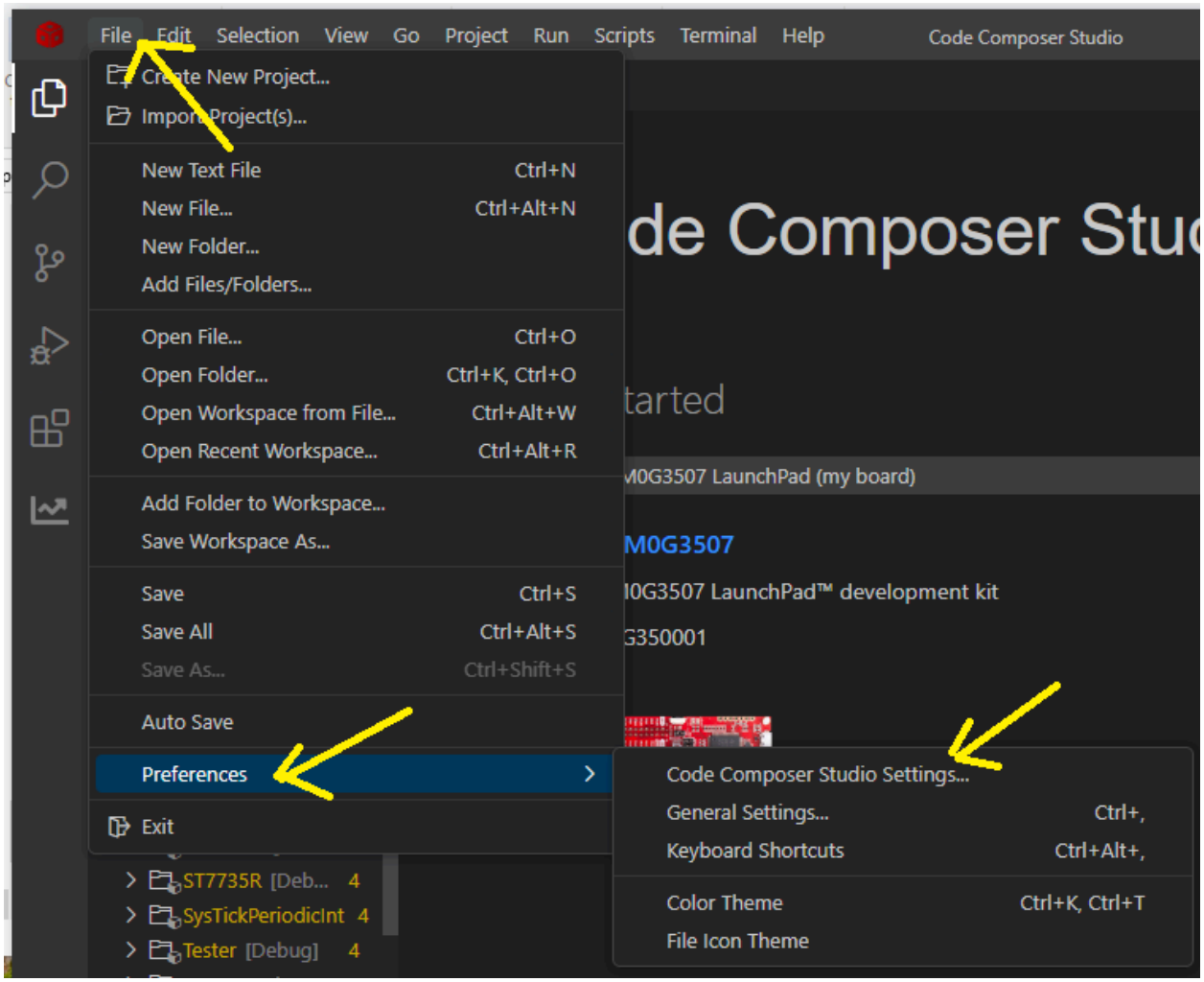
Notice all the projects, You should now see all of the projects on the left hand side of CCS


File Edit Selection View Go Project Run Scripts Terminal Help
Code Composer Studio
EXPLORER
OPEN EDITORS
Get Started
Folder: MSPM0_Valva
ADCSWTrigger
AssemblyExamples
CrystalfontzLCD
DAC [Debug]
Datasheets
Documentation
ECE319K_Lab1
ECE319K_Lab2
ECE319K_Lab2H
ECE319K_Lab3
ECE319K_Lab4
ECE319K_Lab5
ECE319K_Lab6
ECE319K_Lab7
ECE319K_Lab7H
ECE319K_Lab8
ECE319K_Lab8H
ECE319K_Lab9
ECE319K_Lab9H
EdgeTriggeredInt
I2C [Debug]
inc
Code Composer St
Get started
LP-MSPM0G3507 LaunchPad (my board)
LP-MSPM0G3507
LP-MSPM0G3507 LaunchPad™ development kit
Serial: MG350001
0 168
Collaborate

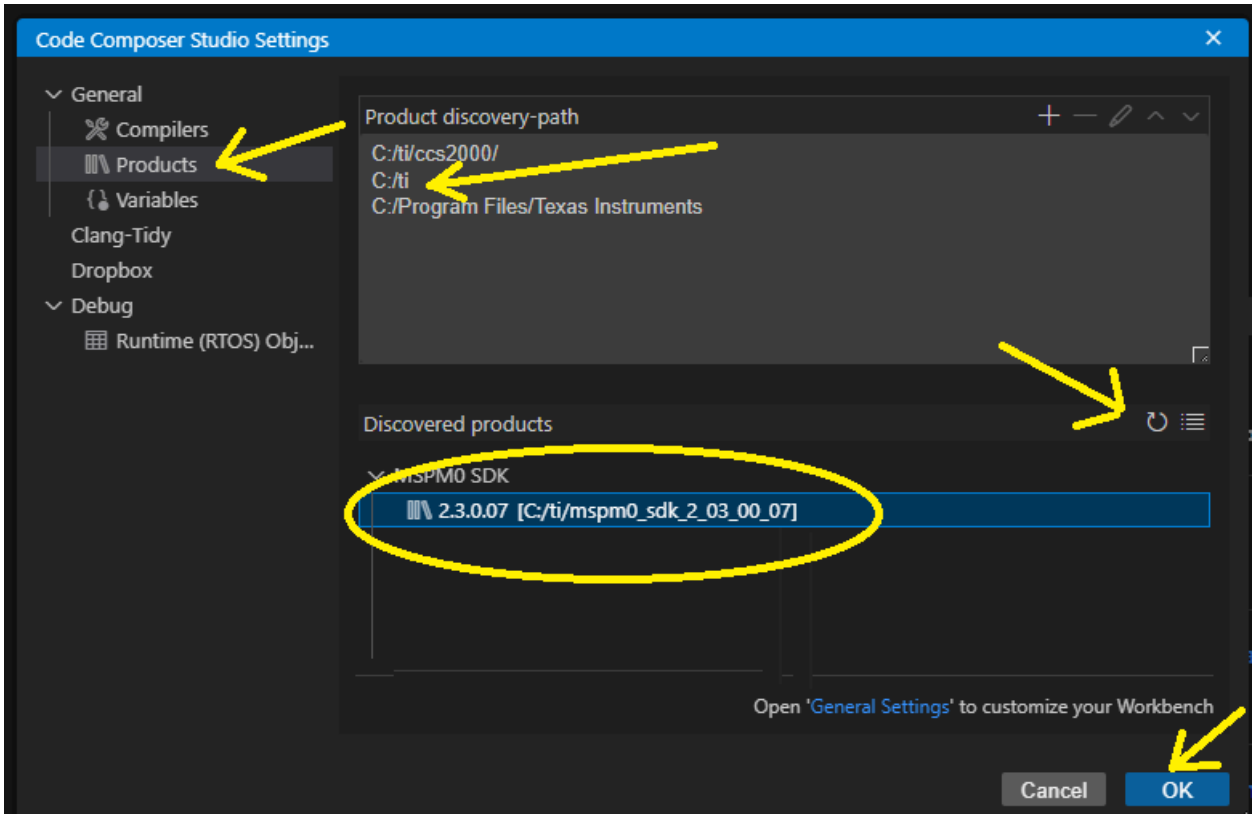
Step 5) Click on Lab1 and execute **Project->Build**. It should compile.
The console should output ****** Build Finished ****** without any errors, if you get errors check the FAQ or ask a TA on the class forum for help



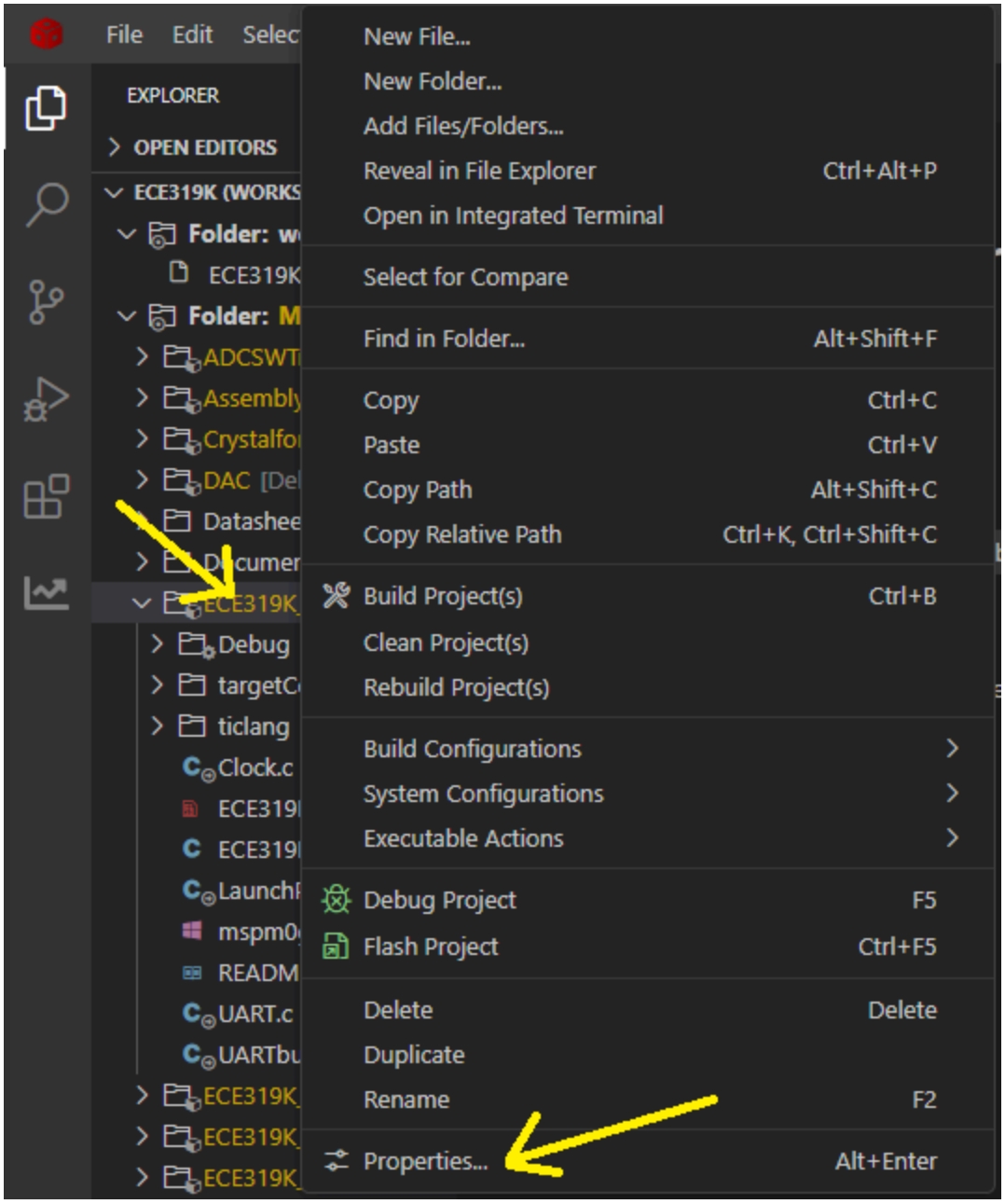
If it get can't find SDK, execute these steps (if it builds, go to Step 6)
File->Preferences->CodeComposerStudio Settings



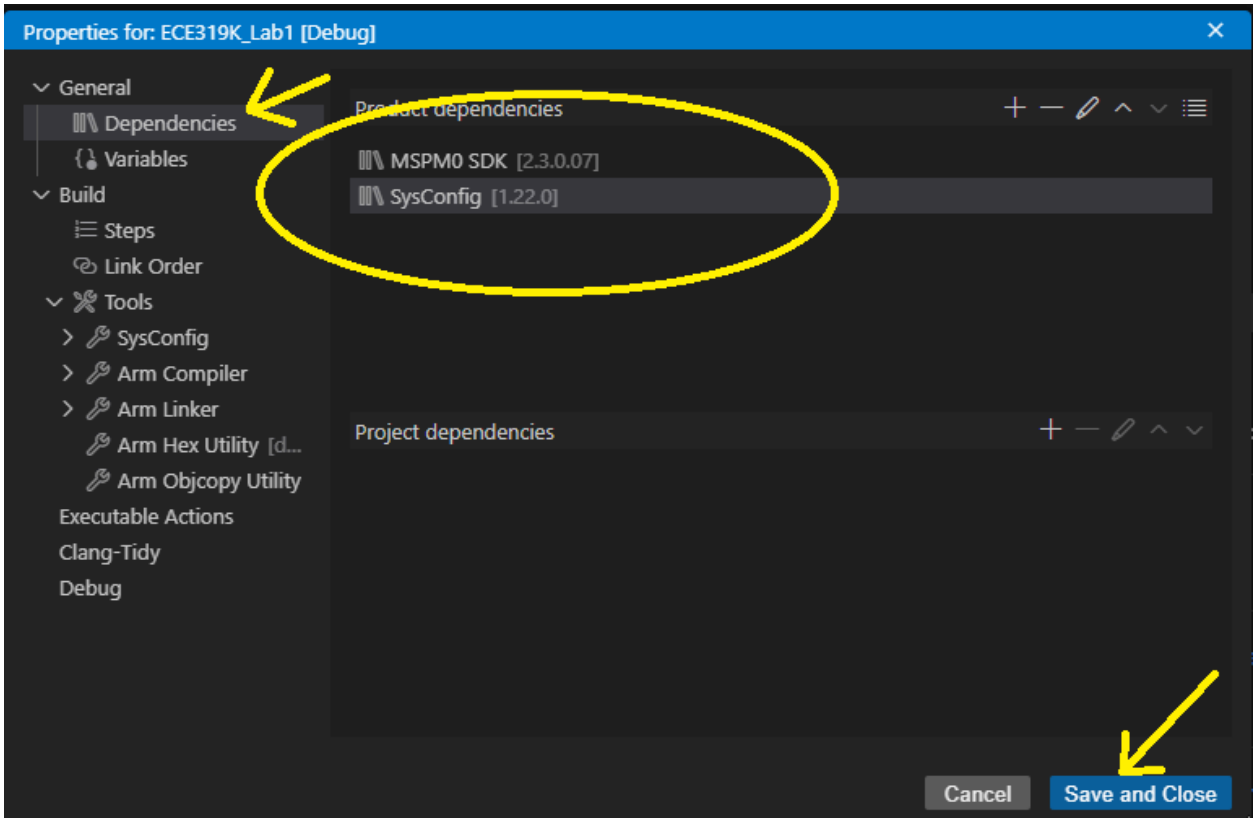
Products, SDK should be in C:/ti, click refresh to find the SDK, then OK



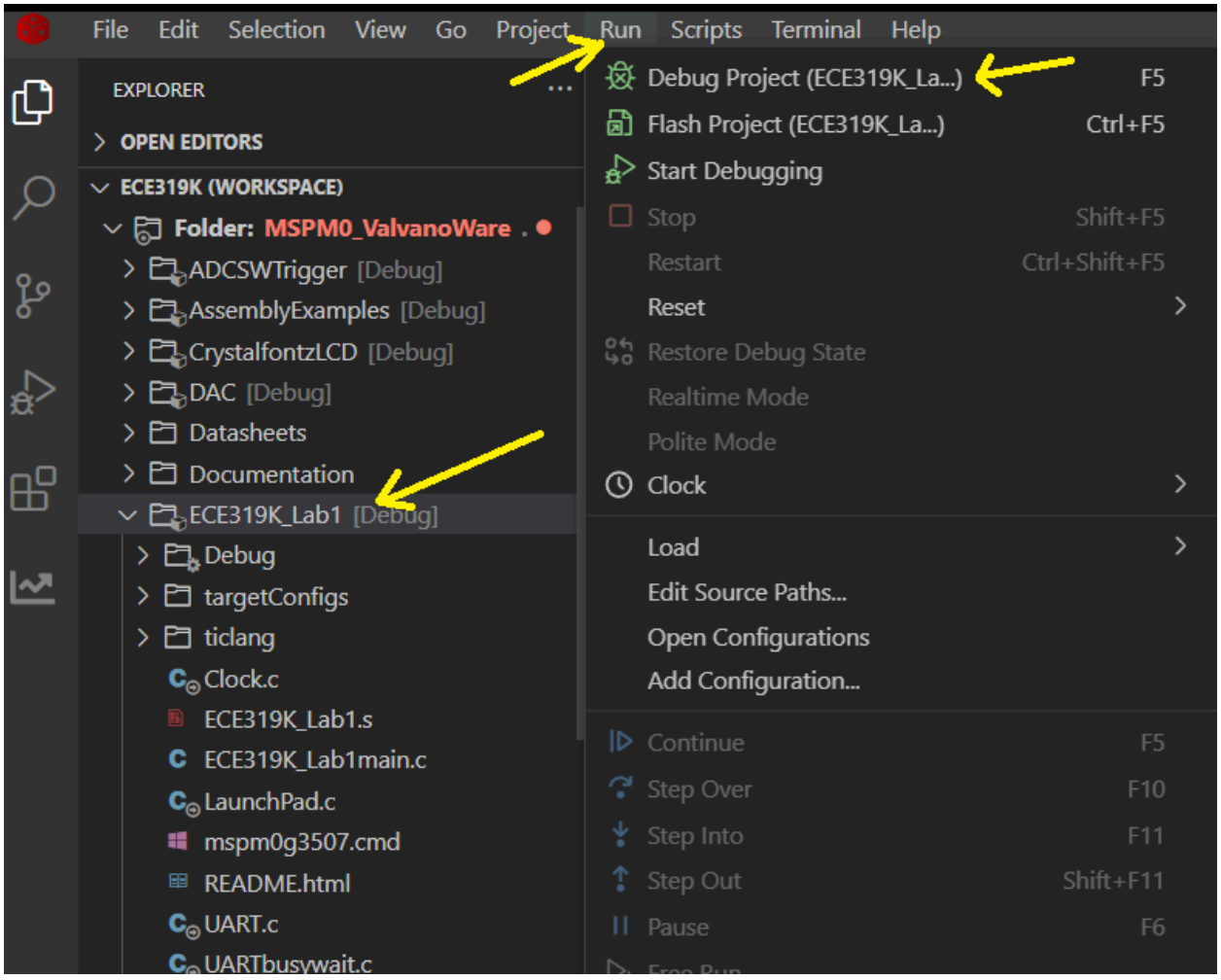
Double check the connection to SDK. Click Lab1 project, right click and execute Properties



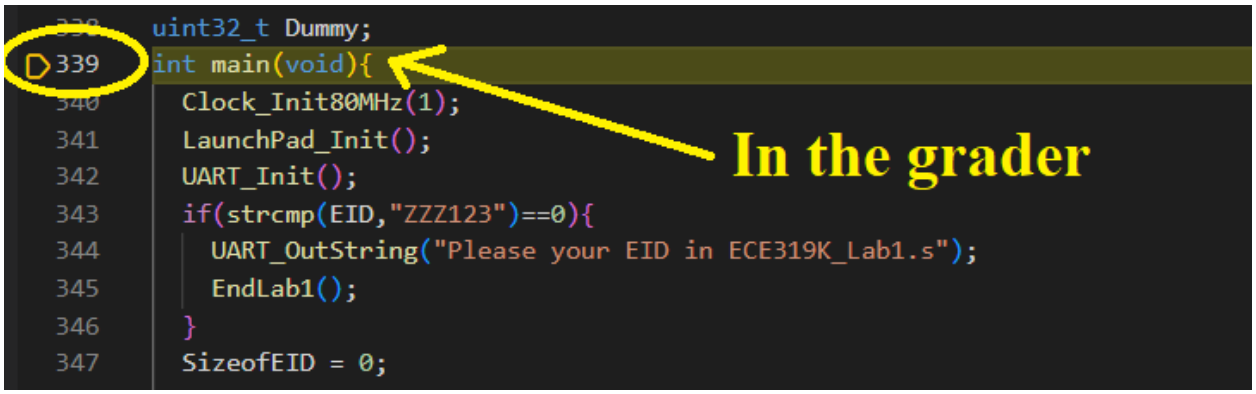
Click Dependencies, and notice the SDK version 2.3.0.07 and SysConfig 1.22.0



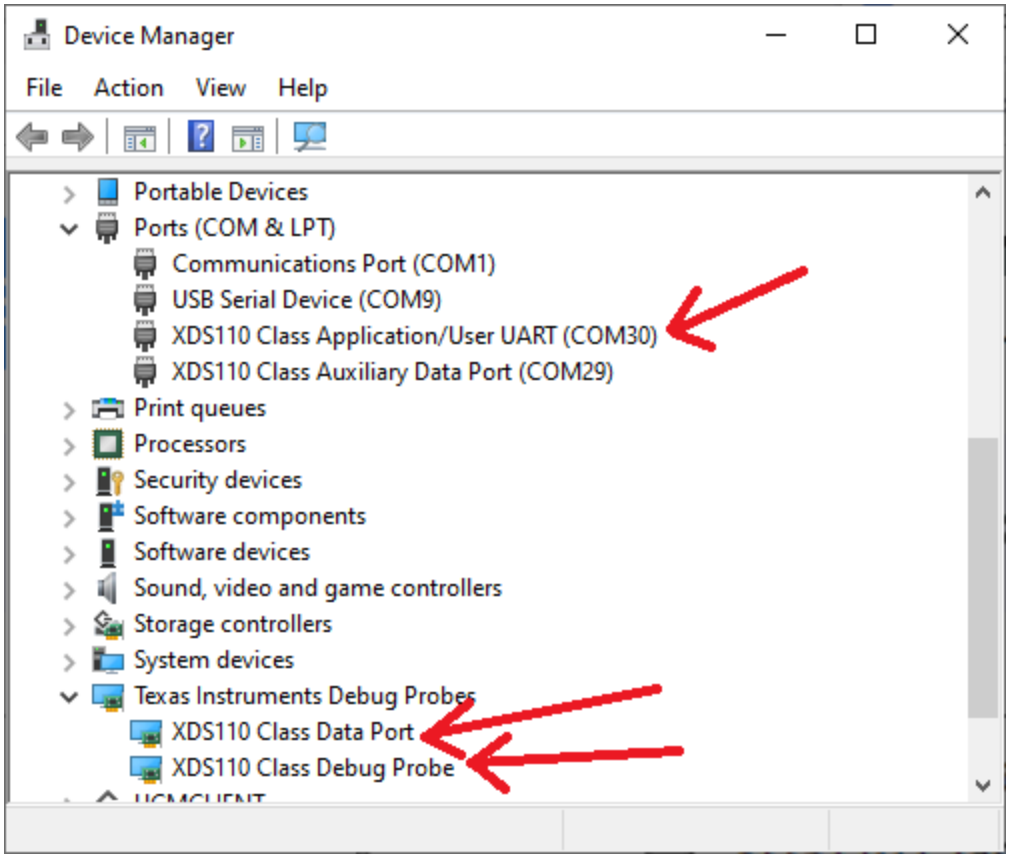
Step 6) Verify the MSPM0G3507 LaunchPad is connected to a USB port. Click on the ECE319K_Lab1 project and execute **Run->Debug Project**. This will erase flash ROM, program flash ROM with the object code, and launch the debugger. The first time it debugs it will ask to update the firmware. Click ok and do update firmware.



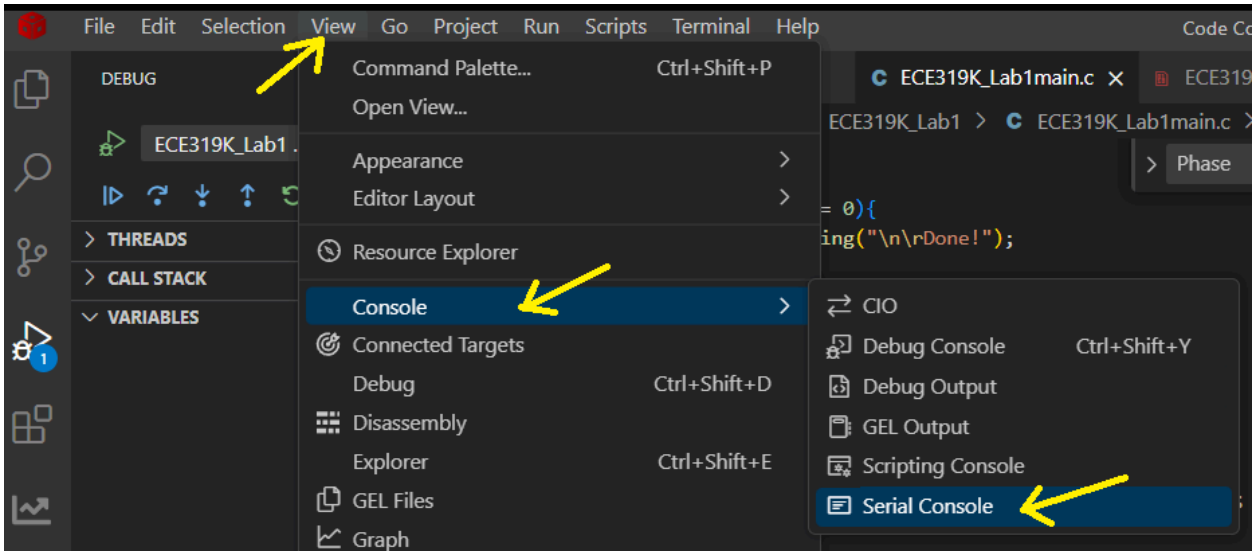
In the debugger you will see it is ready to run the **main** program, which is the debugger



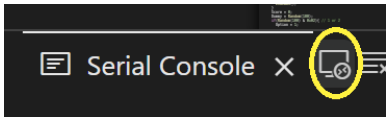
Step 7) (Windows only, Macbook skip this step) Plug in the LaunchPad. Open the Device Manager and make note of the COM port number for the **XDS11 Class Application/User UART** (COM30 on this computer, your computer will be a different COM port number). Notice also the Texas Instruments Debug Probes.



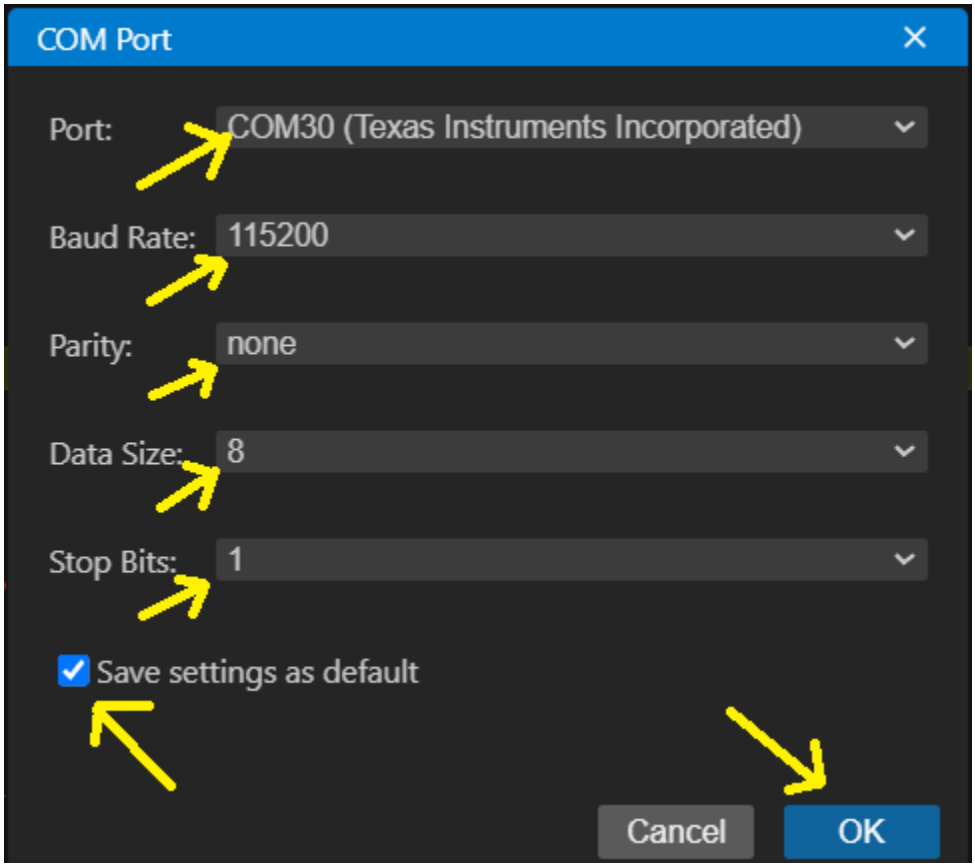
Step 8) In the debugger, open a terminal window by executing the menu command **View->Console->SerialConsole**



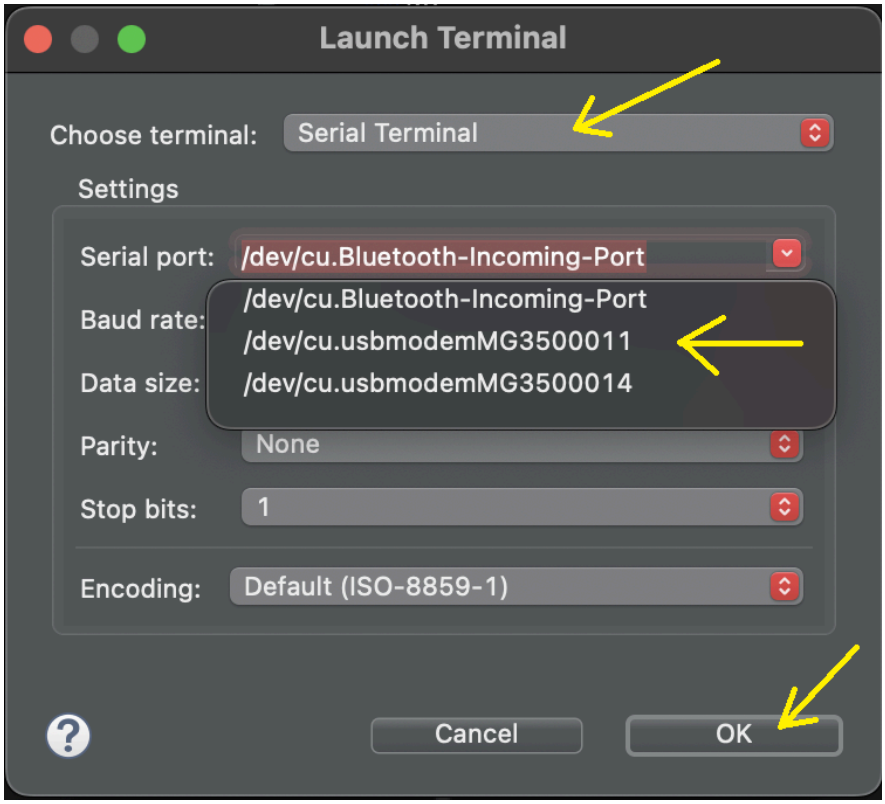
Open a Terminal by clicking Serial Console (bottom of the screen) and then clicking the Connect/Disconnect COM port icon



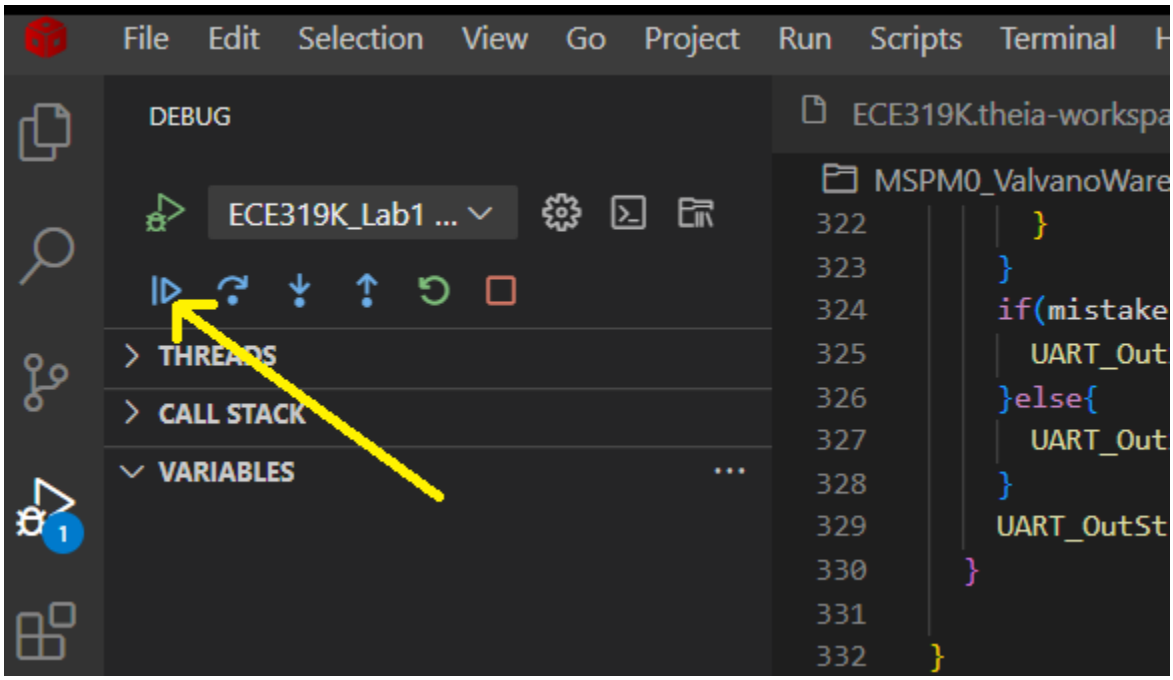
Select the COM port for **XDS11 Class Application/User UART (Windows version)**, baud rate of 115200 bits/sec, no parity, 8 data bits, 1 stop, save as default. Your COM port will probably be different, but make it match Step 7 above.



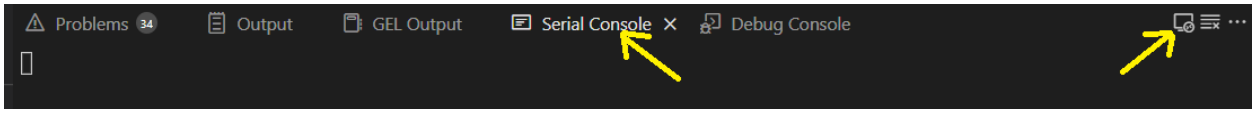
Choose **Serial Terminal** and select one of the /dev/cu.usbmodem device. My mac used the MG3500011 device **(Macintosh version)**

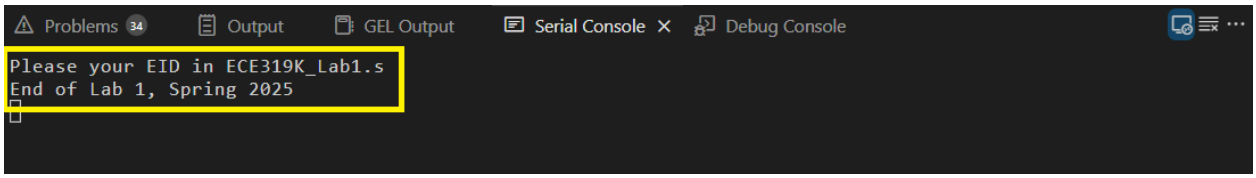


Click the **Continue** toolbar to start execution



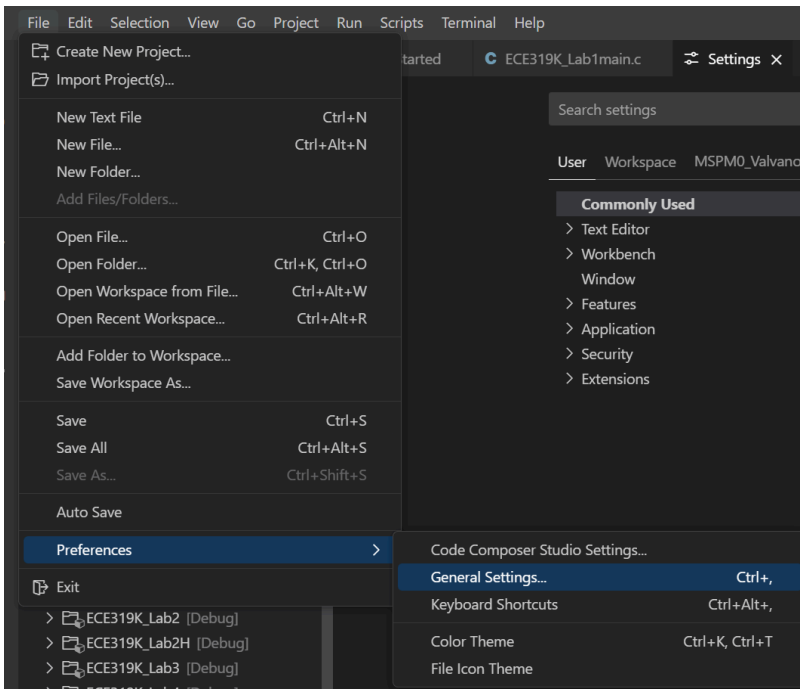
See the ECE319K Lab 1 results in the **Serial Console** window





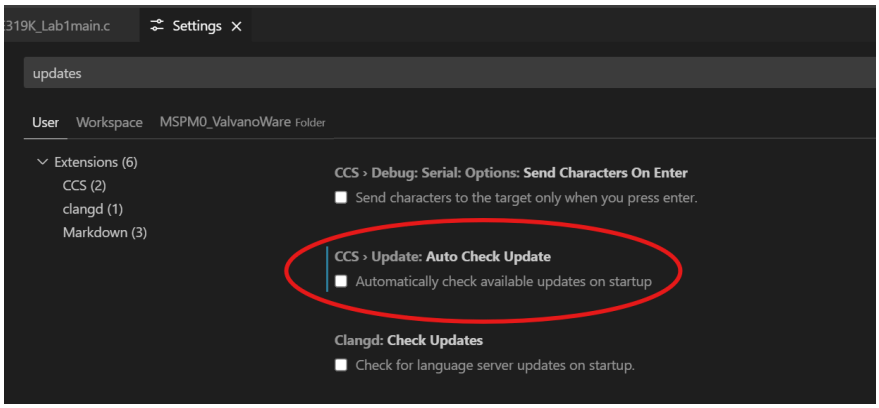
Step 9) Disable Auto Check Update

Go to File->Preferences->General Settings…



In Search settings, type in “updates”

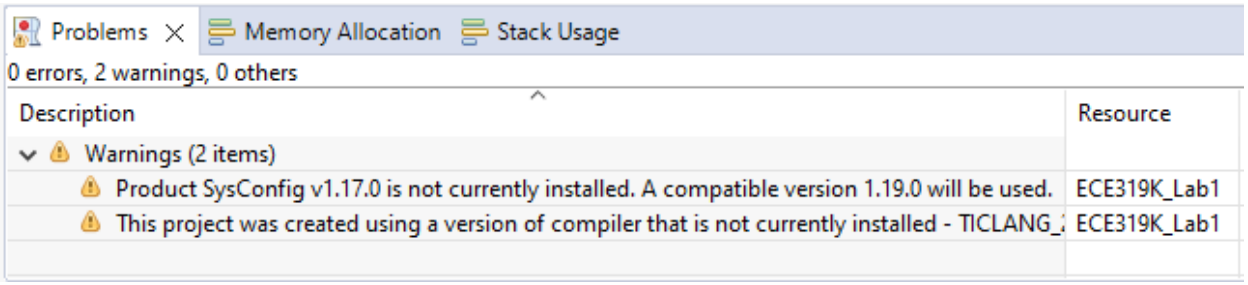
Uncheck the box under CCS>Update: Auto Check Update



Continue to Part a on the Lab 1 document

FAQ (these need updating for CCS 20.2)

0. I get these two warnings when I build

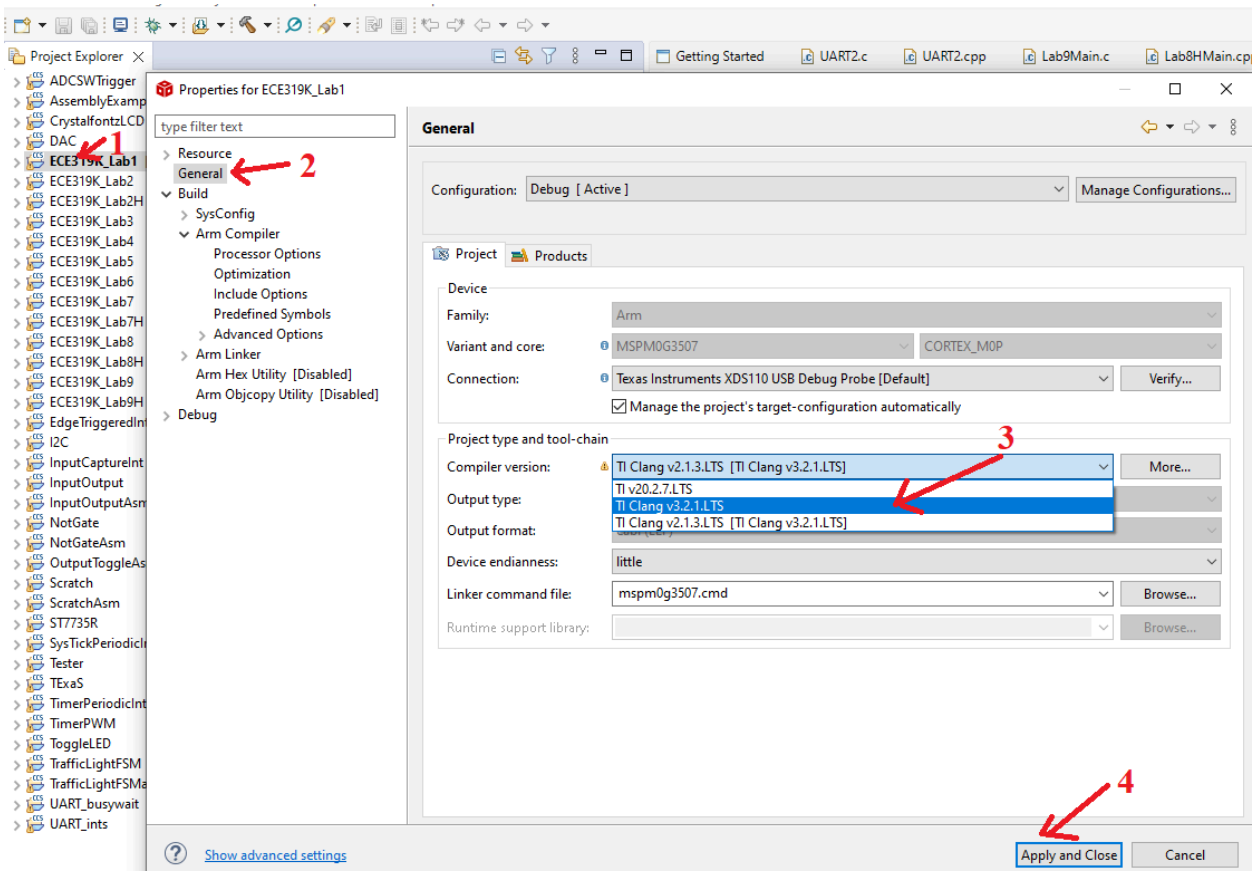


Problem 0. Valvano built the **MSPM0_ValvanoWare** projects, then TI upgraded CCS from 12.4 to 12.5 then to 12.6 within the space of a month, rendering all the project settings obsolete.

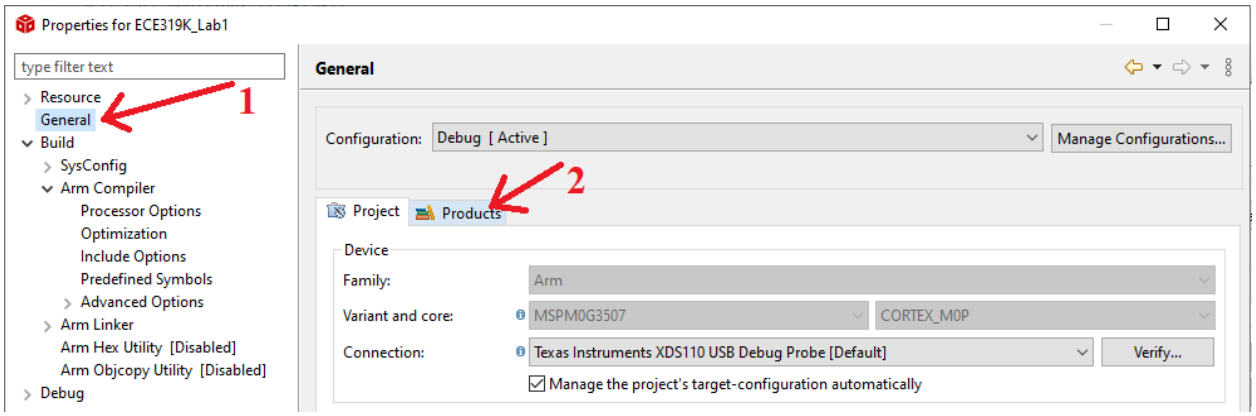
Solution 0a. Ignore these two warnings. *Don't ignore all warnings.* We do not use SysConfig and any compiler version is ok

Solution 0b. If the warnings bother you, you could change the preferences for all 30 projects

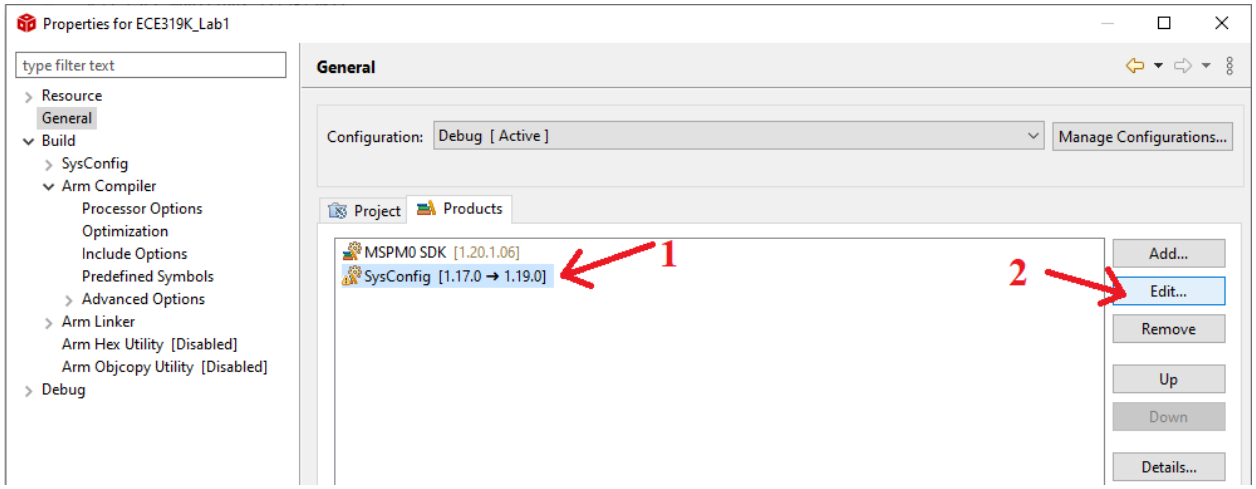
1) Right-click the project name in the Project explorer, select **Properties**
2) Select **General**
3) Pull down Compiler version and select the newest Clang compiler
4) Click **Apply and Close**



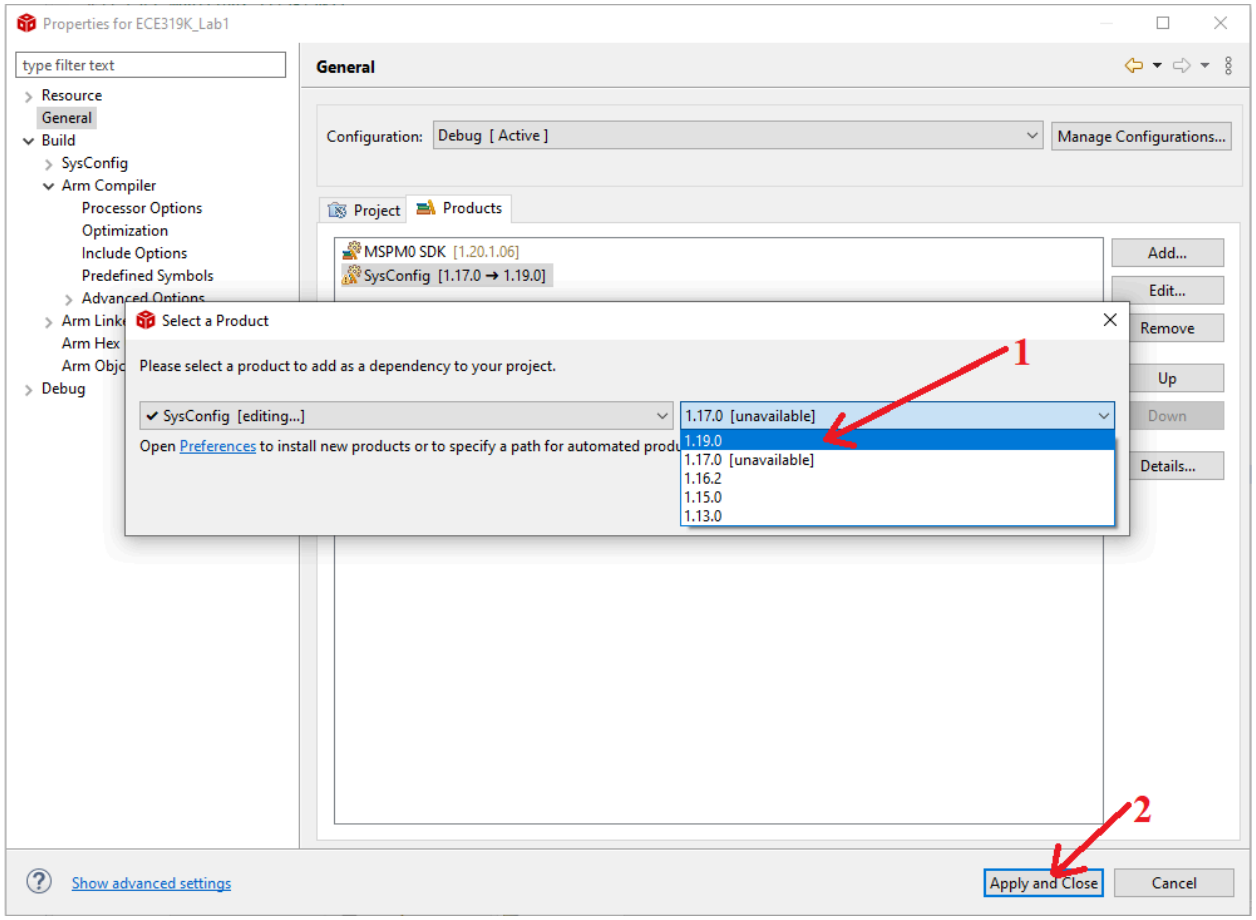
1) Right-click the project name in the Project explorer, select **Properties**
2) Select **General**
3) Click the **Products** tab



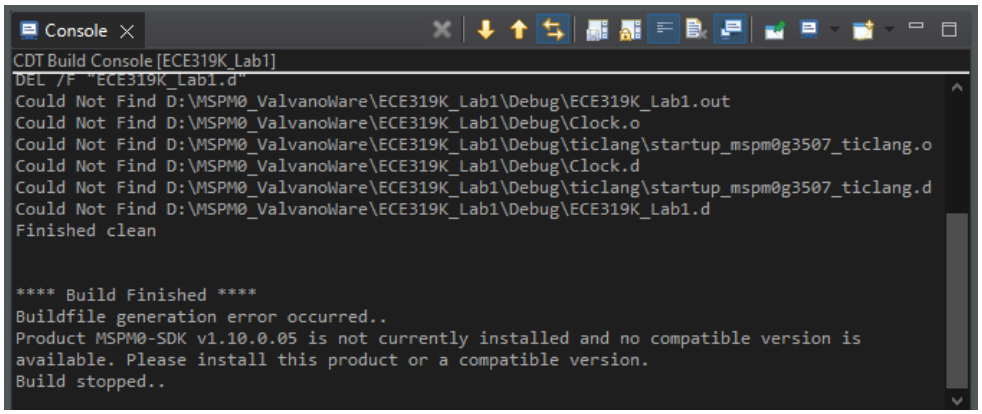
4) Click **SysConfig**
5) Click **Edit…**



6) Select the newest **SysConfig** installed on your system
7) Click Ok
8) Click **Apply and Close**



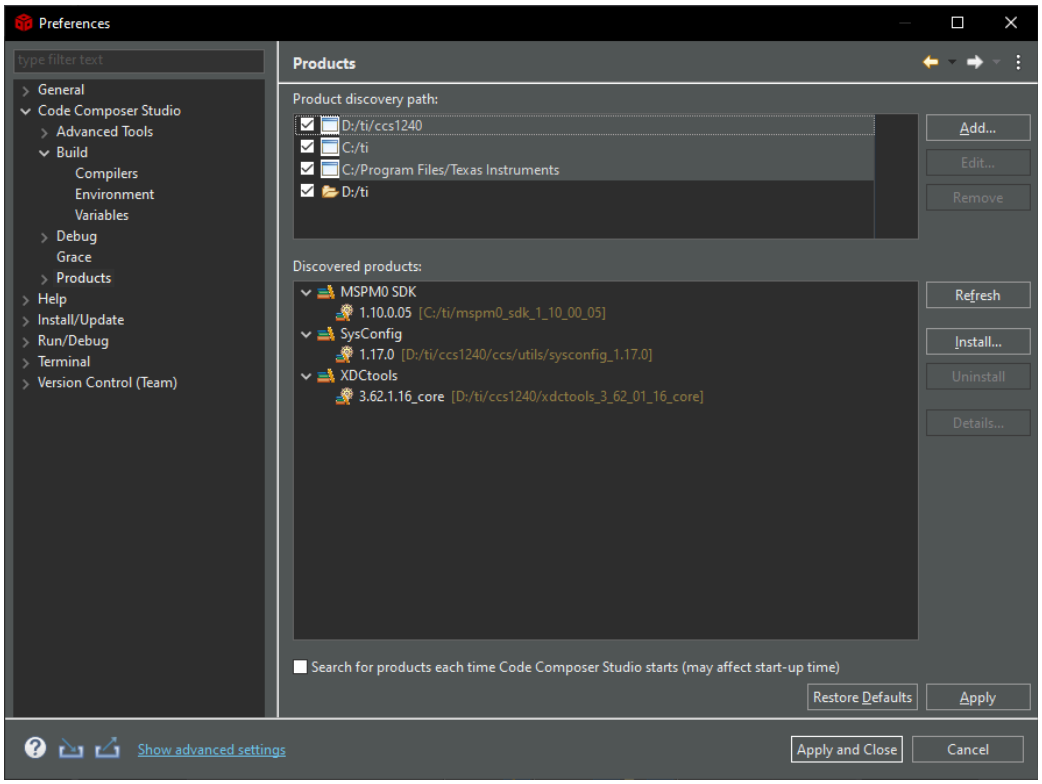
1. **When I build the project I get this error, what's the problem?**



Problem 1: When installing CCS or the SDK, the default location was changed and not updated correctly
Solution 1: Re-install the SDK and double check that it is located in the same directory as CCS. Find where you installed CCS (ex: C:/ti/ccs…) and install the SDK in C:/ti/

Problem 2: CCS cannot locate the SDK in its current location

Solution 2: Open **Window > Preferences**. In the Product discovery path, add the location of the SDK. This issue will often arise if you decide to install CCS and the SDK on a different drive from the default. Once the new discovery path has been added you should see the SDK appear in the Discovered products window. Click **Apply and Close** and rebuild the project.

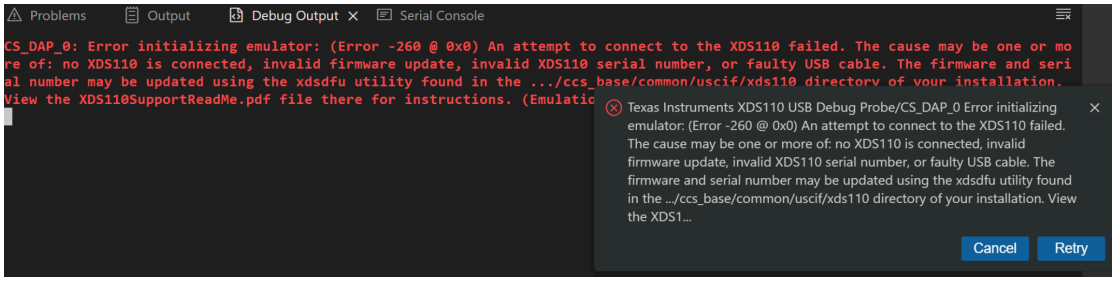


Problem 3: CCS cannot debug
Solution 3: Verify the board is plugged in and the Texas Instruments Debug Probes are visible in the Device Manager

Problem 4: You get red errors when launching the debugger.
Solution 4: **How to unbrick the MSPM0G3507**:

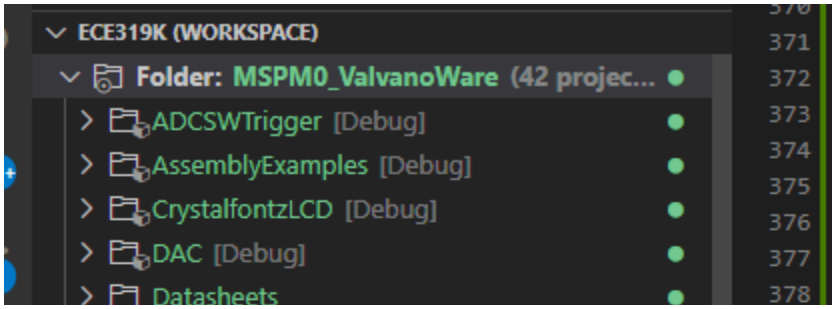
1) Press-and-hold the BSL_Invoke button (S1, near LED) while pressing and releasing the Reset button.
2) The device should go to BSL and stay in Active mode for ~10secs.
3) Attempt to program immediately after releasing the reset button.
4) Release the BSL_Invoke button (S1, near LED).

Problem 5: You get this error when launching the debugger.



Solution 5: This error is usually caused by the board not having the correct firmware. Ensure your firmware is up-to-date when prompted. Some computers are unable to update the board's firmware (especially Surfacebooks with Snapdragon CPUs), but you can plug in the board to another laptop with CCS and update the firmware from there.

Problem 6: launch.json is not a valid JSON file. Missing debug configuration properties.
Solution 6: This issue is caused by having multiple root directories in the workspace. Sometimes, CCS will have an extra root directory called ccs/theia (anyone have a screenshot of this?). Right click it and remove it from the workspace. Your workspace should look like this:



General Troubleshooting:
CCS is finicky. Sometimes doing some combination of these things will work.

- Check the jumpers
- Unplug/replug the board
- Restart CCS/restart computer
- Build the project then do Run→Flash before Run→Debug
- Close and reopen the serial console
- Change USB cable
- Try the BSL thing in Solution 4
- Factory reset the board