

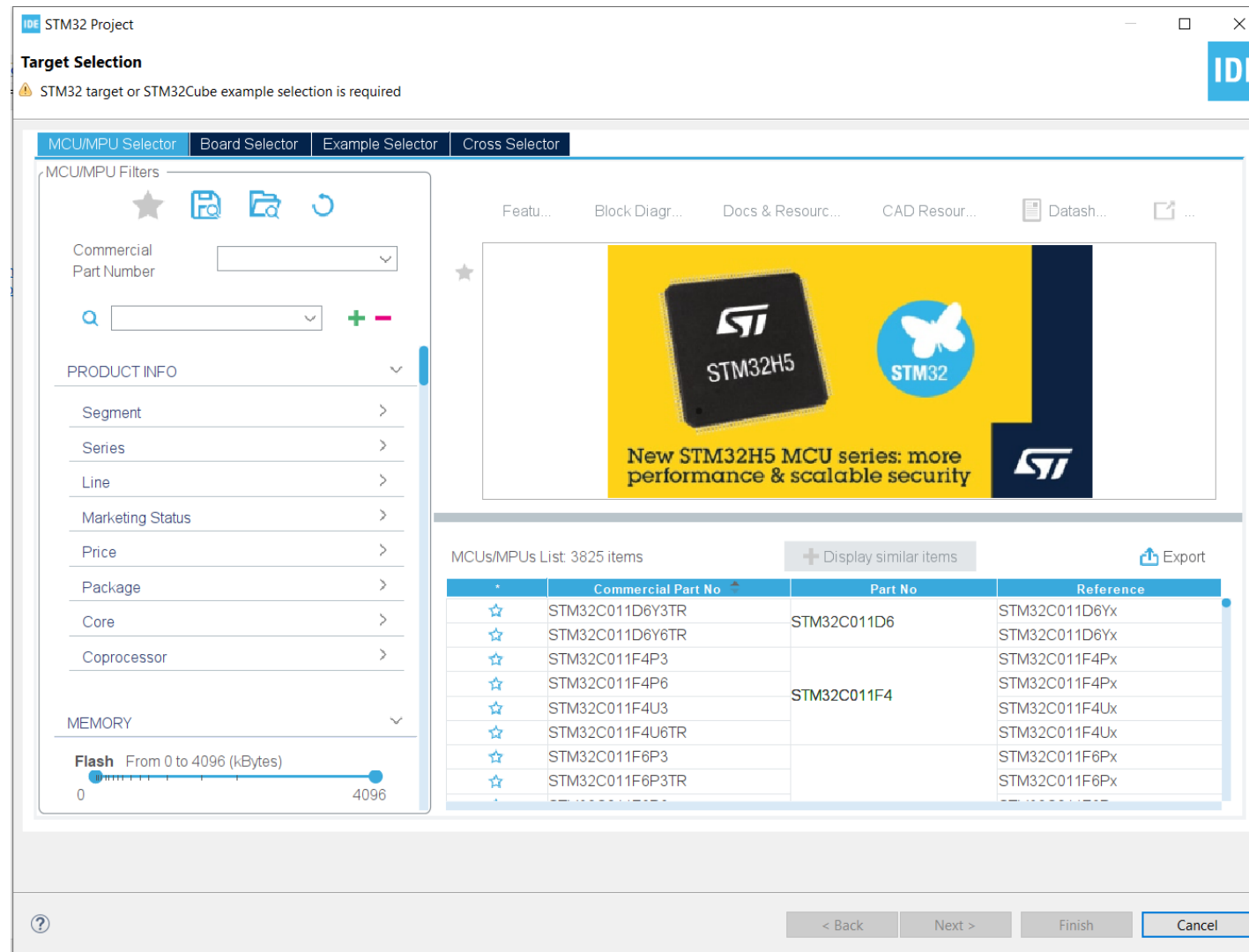
# UCSD Embedded C Assignment 9

By

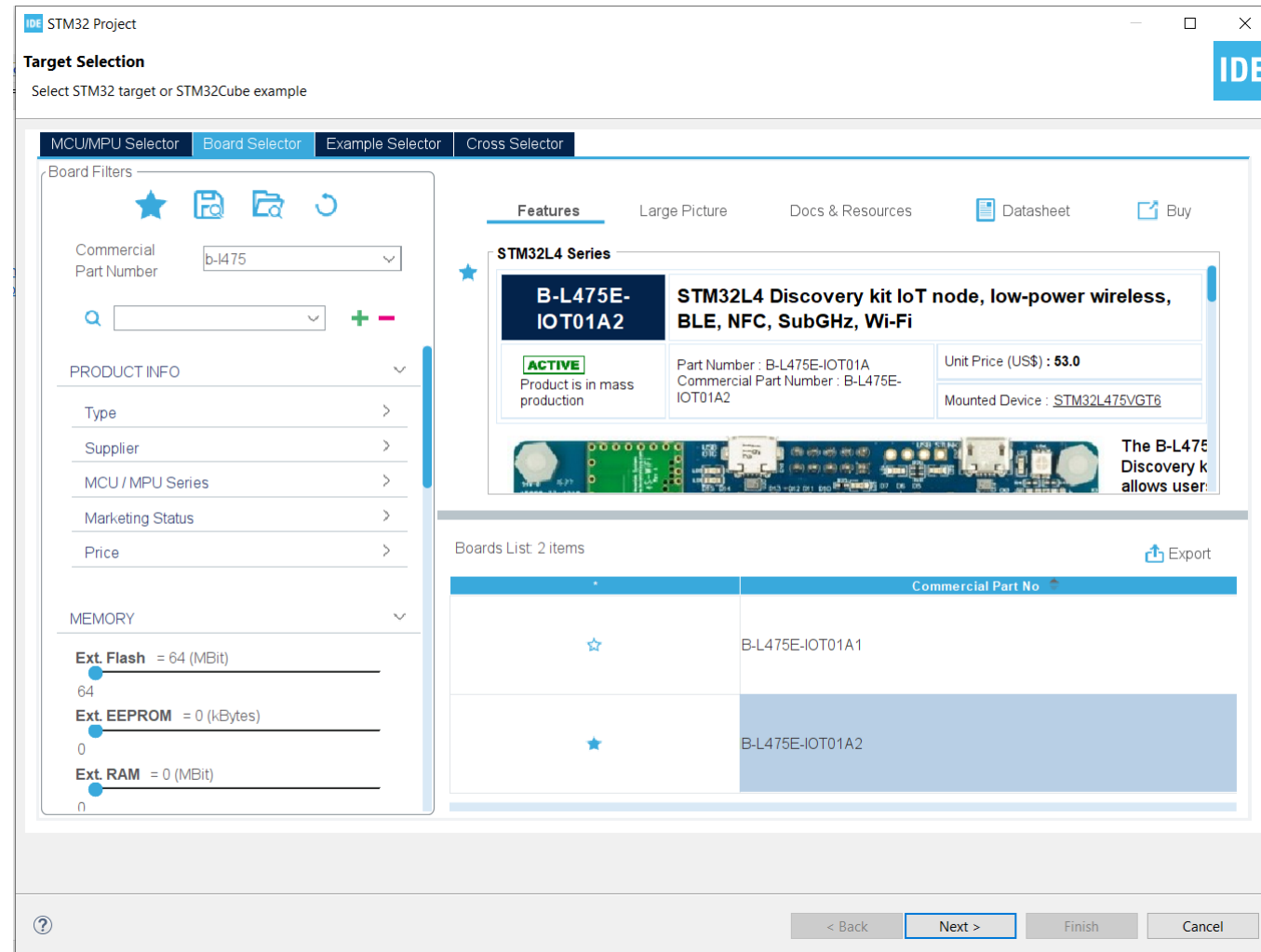
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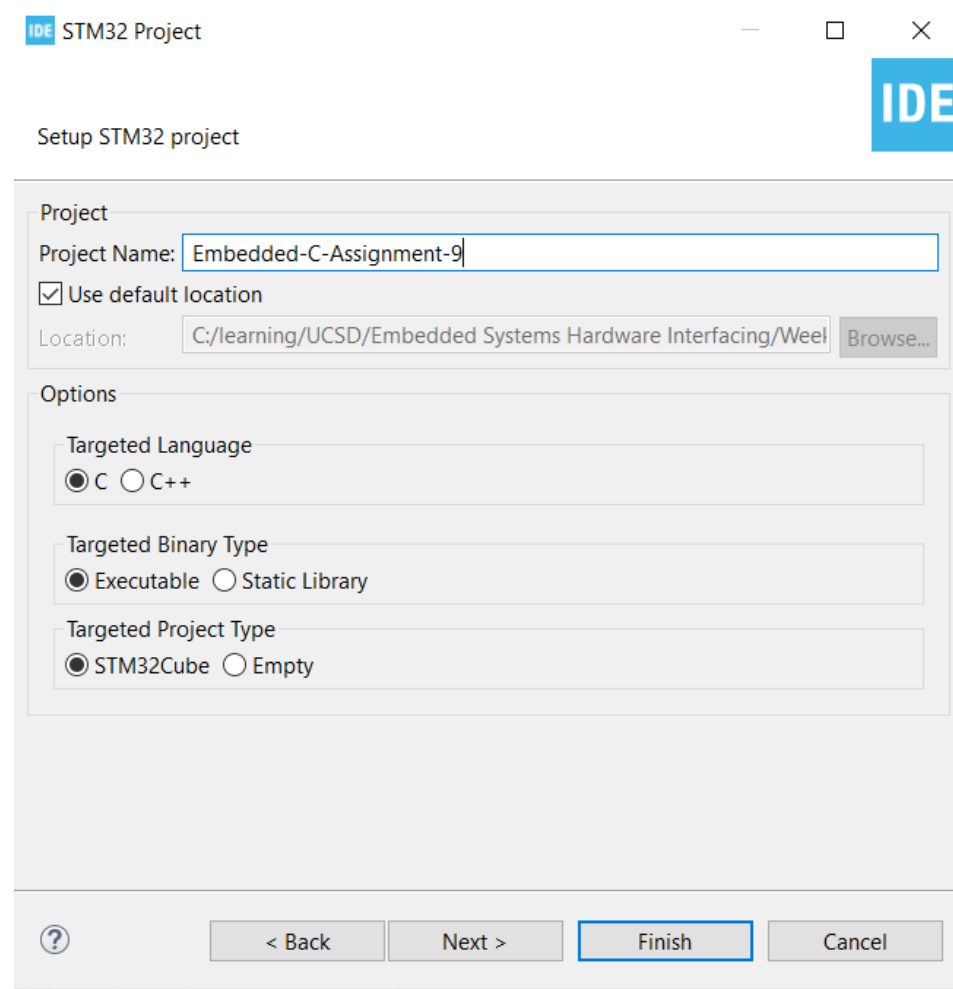
# Step 1. Startup STM32CubeIDE and create new STM32 project



Step 2. Access board selector and type in the board you use, click Next



Step 3. Enter the project name then click Next



The image shows a 'Setup STM32 project' dialog box from an IDE. The window title is 'IDE STM32 Project'. The dialog is titled 'Setup STM32 project'. It has two main sections: 'Project' and 'Options'. In the 'Project' section, the 'Project Name' field contains 'Embedded-C-Assignment-9'. Below it, the 'Use default location' checkbox is checked. The 'Location' field shows 'C:/learning/UCSD/Embedded Systems Hardware Interfacing/Weel' with a 'Browse...' button to its right. The 'Options' section contains three groups of radio buttons: 'Targeted Language' with 'C' selected, 'Targeted Binary Type' with 'Executable' selected, and 'Targeted Project Type' with 'STM32Cube' selected. At the bottom, there are four buttons: a help button (question mark icon), '< Back', 'Next >', and 'Finish' (which is highlighted with a blue border). A 'Cancel' button is also present to the right of 'Finish'.

IDE STM32 Project

Setup STM32 project

Project

Project Name: Embedded-C-Assignment-9

☒ Use default location

Location: C:/learning/UCSD/Embedded Systems Hardware Interfacing/Weel [Browse...](#)

Options

Targeted Language

☒ C ☐ C++

Targeted Binary Type

☒ Executable ☐ Static Library

Targeted Project Type

☒ STM32Cube ☐ Empty

? < Back Next > Finish Cancel

Step 4. See the firmware package name, version and location



The screenshot shows a dialog box titled "STM32 Project" with a subtitle "Firmware Library Package Setup". The main instruction is "Setup STM32 target's firmware". The dialog is divided into three sections: "Target and Firmware Package", "Firmware and Software Package Repository", and "Code Generator Options".

**Target and Firmware Package**

Target Reference: B-L475E-IOT01A2

Firmware Package Name and Version: STM32Cube FW\_L4 V1.17.2

**Firmware and Software Package Repository**

Location: C:\Users\hsuankai.chang\STM32Cube\Repository

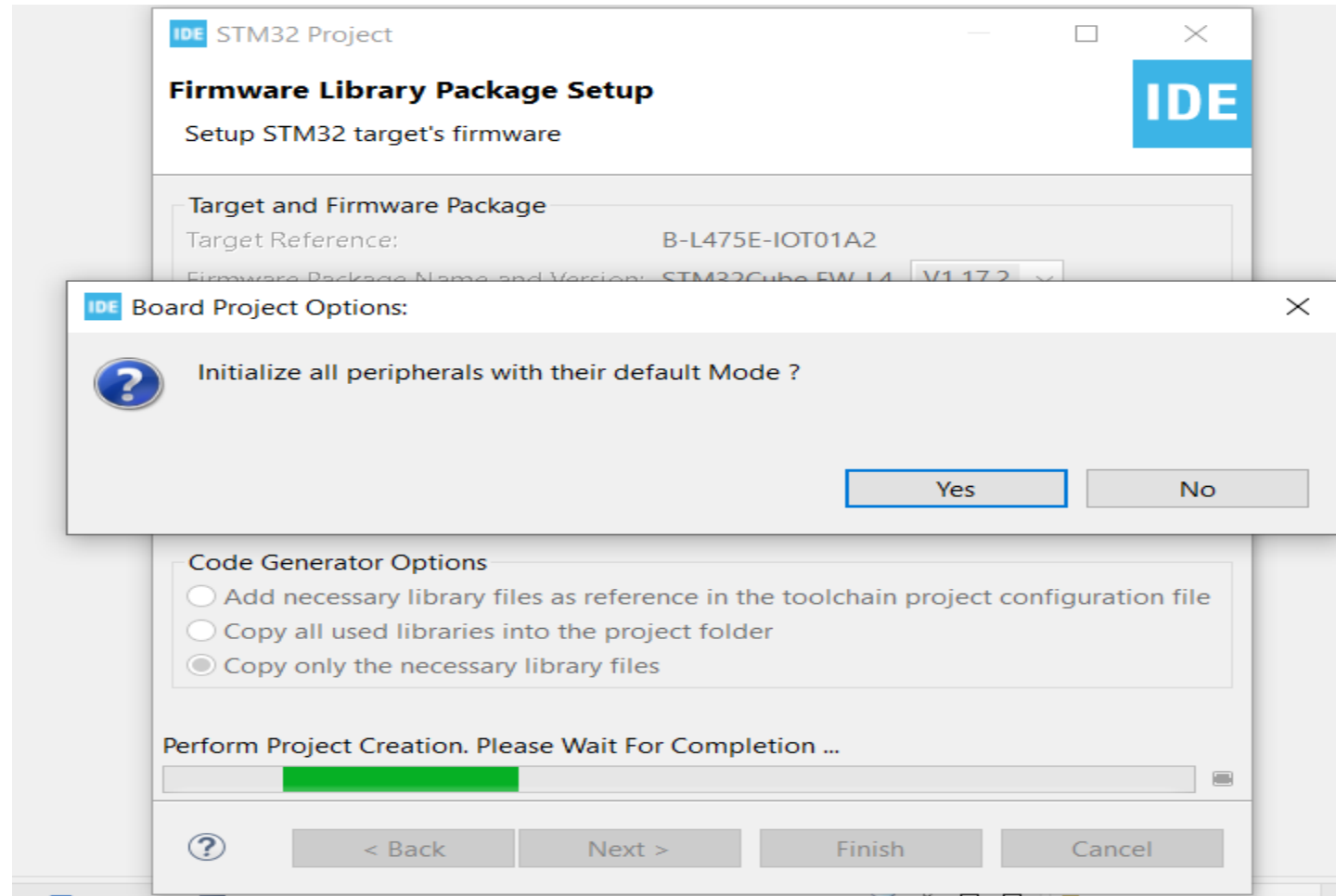
See ['Firmware Updater'](#) for settings related to package installation

**Code Generator Options**

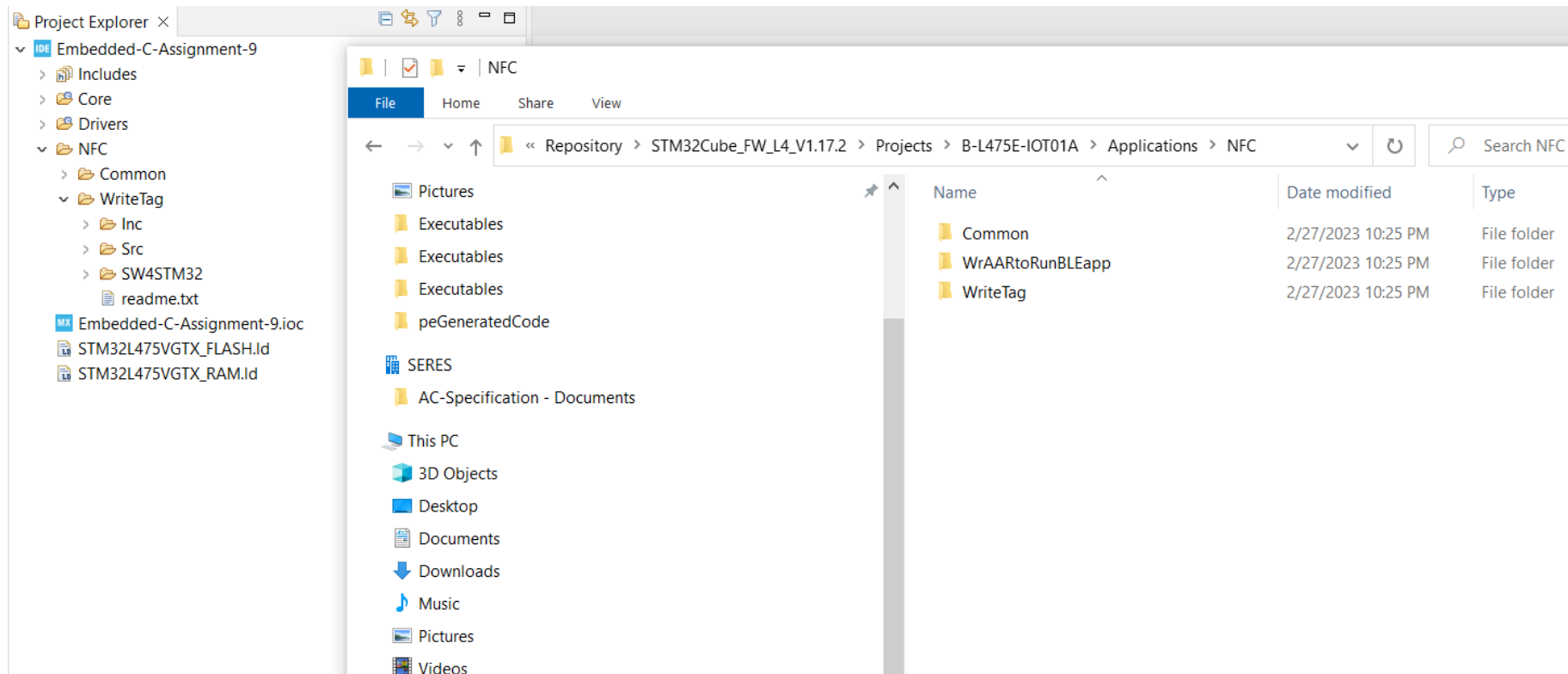
- ☐ Add necessary library files as reference in the toolchain project configuration file
- ☐ Copy all used libraries into the project folder
- ☒ Copy only the necessary library files

At the bottom, there are navigation buttons: a help icon (?), "< Back", "Next >", "Finish" (highlighted with a blue border), and "Cancel".

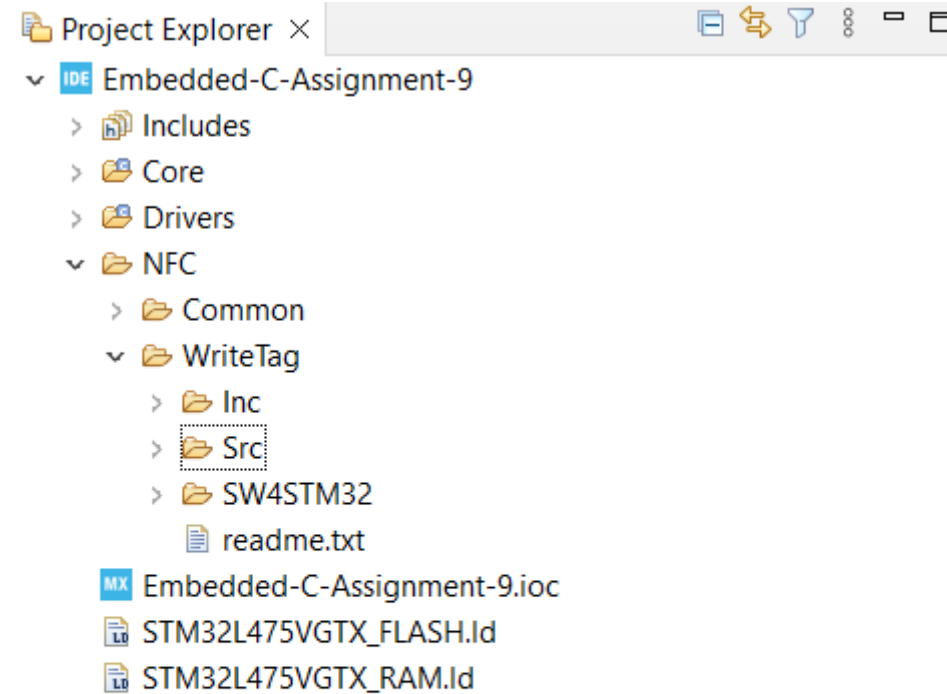
Step 5. Click yes to initialize all peripherals to default



Step 6. Copy the NFC folder into the project, and delete the WrAARtoRunBLEapp folder

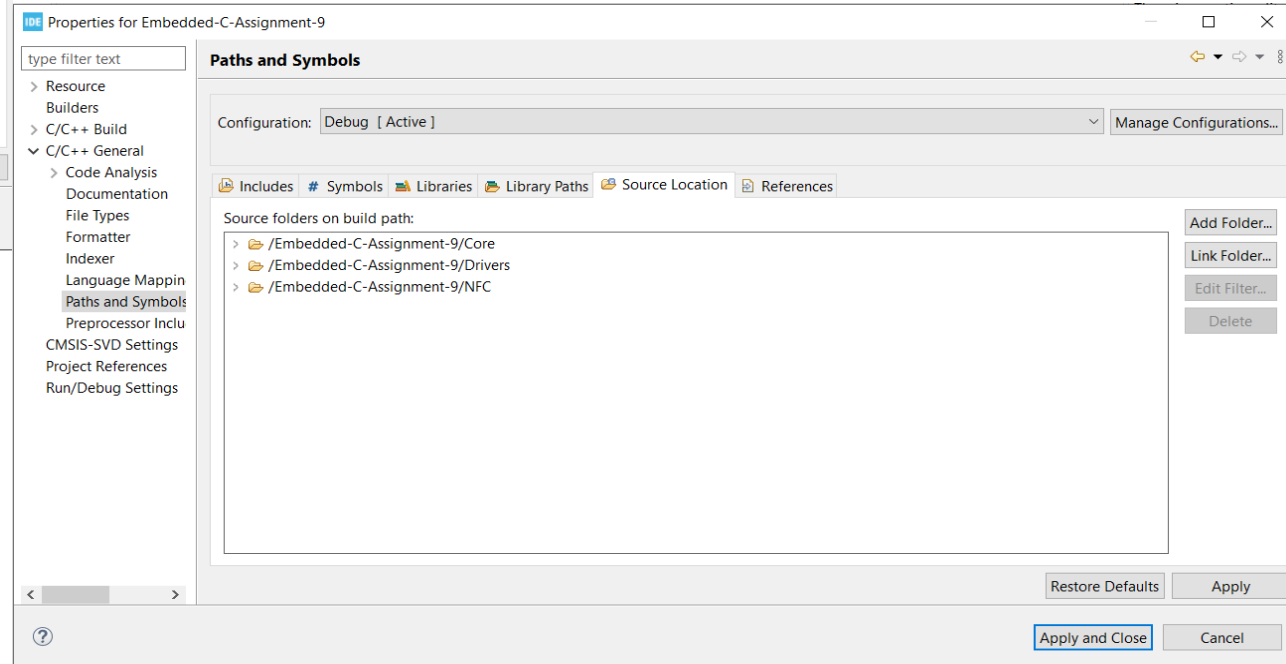
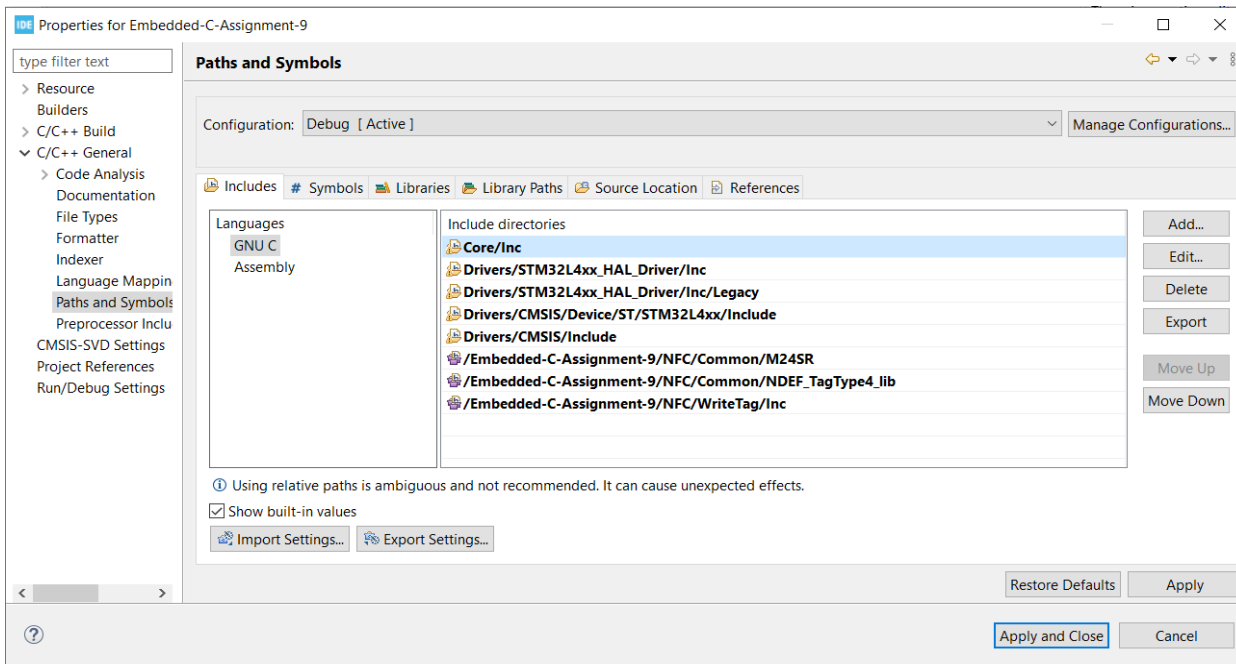


## Step 7. Delete EWARM and MDK-ARM folder

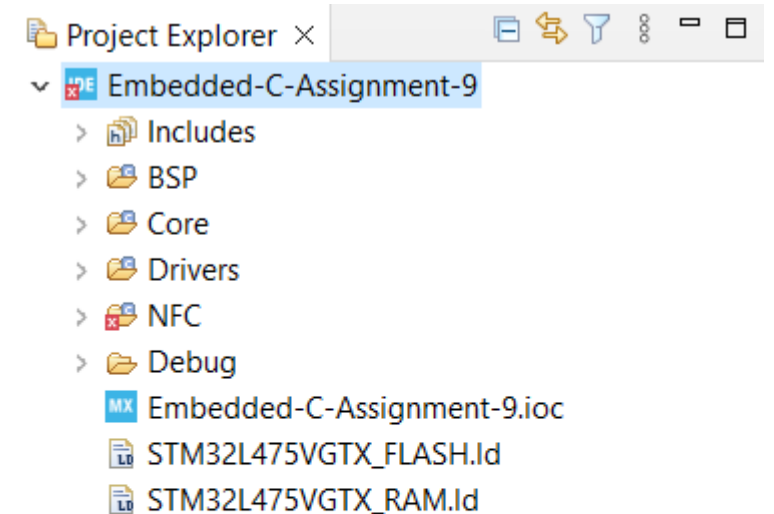
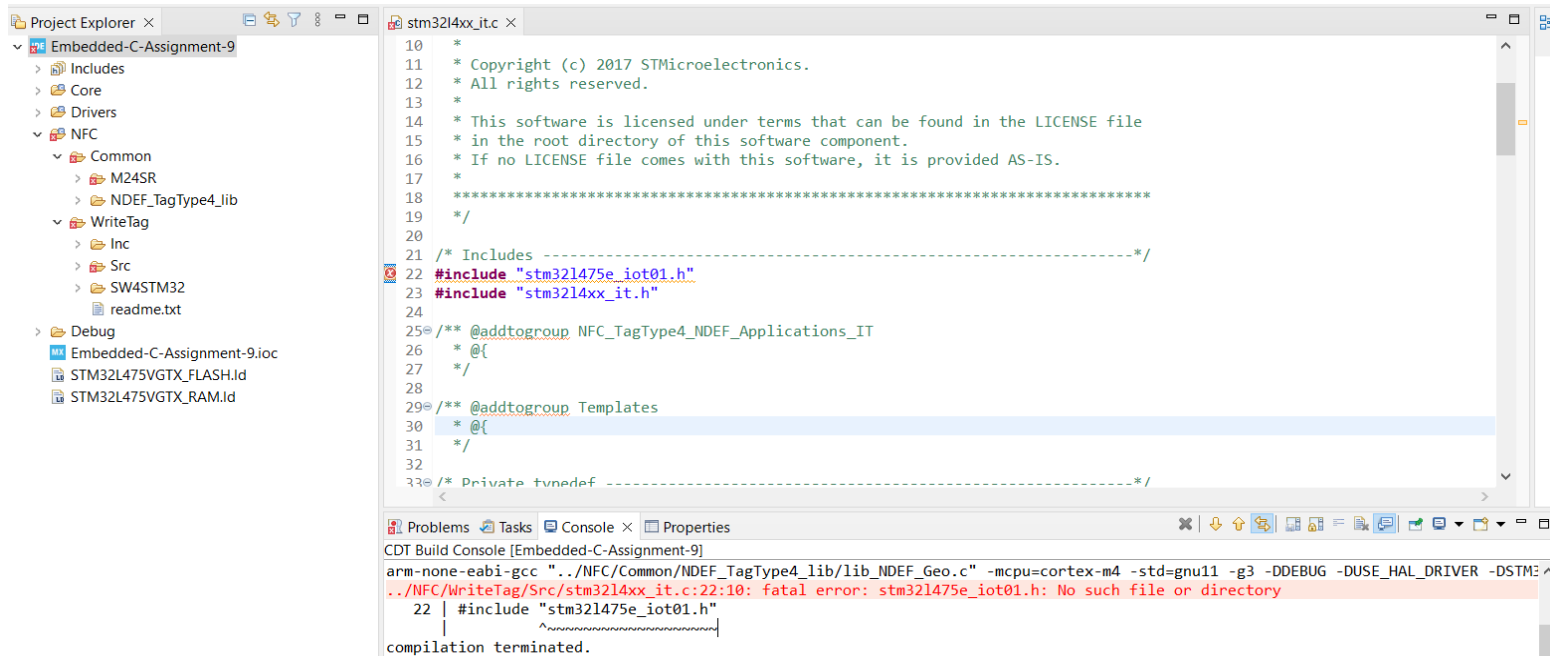




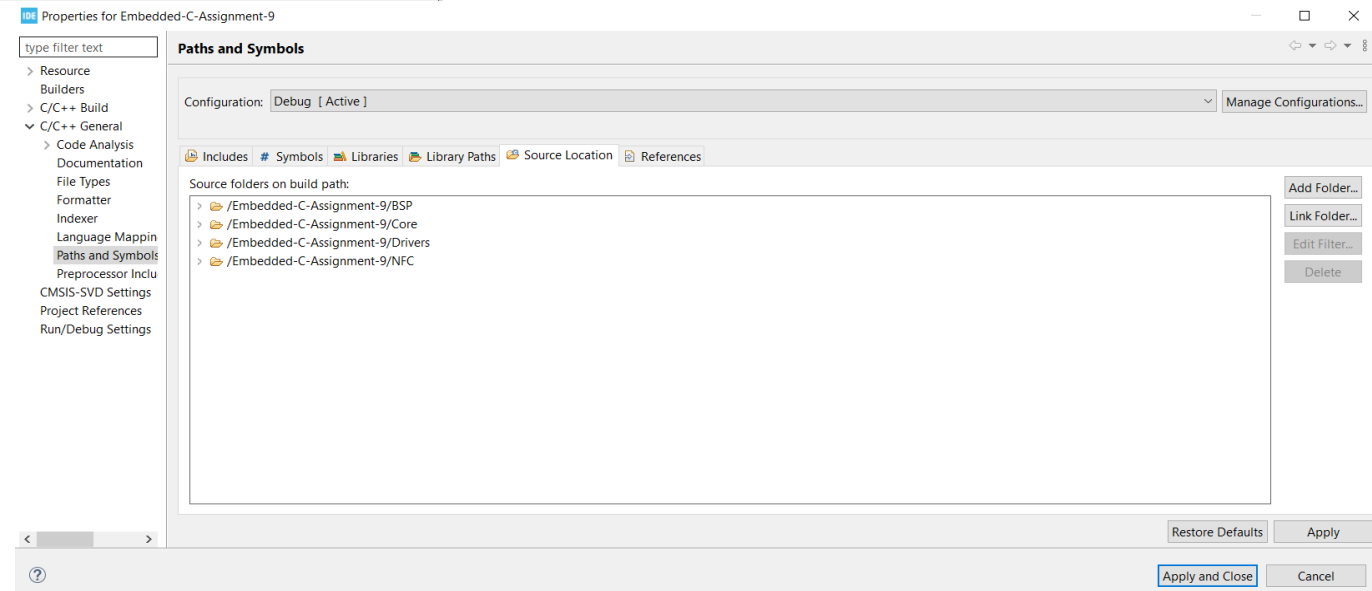
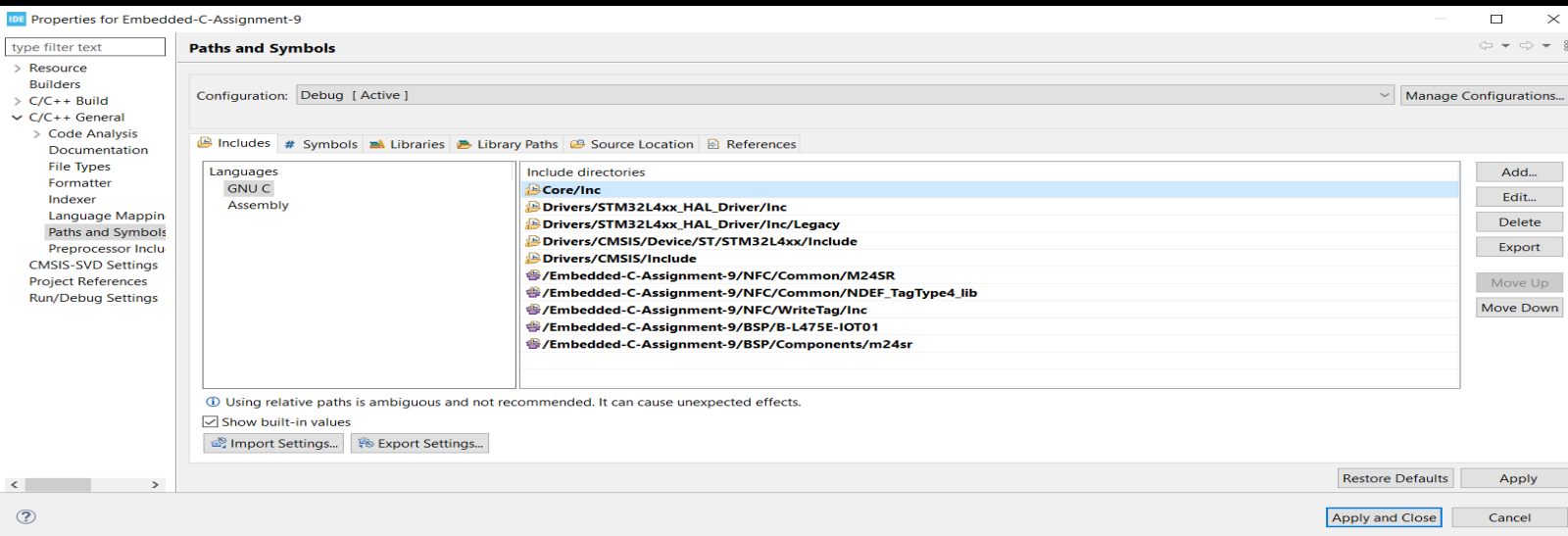
## Step 8. Add the NFC source path and include path



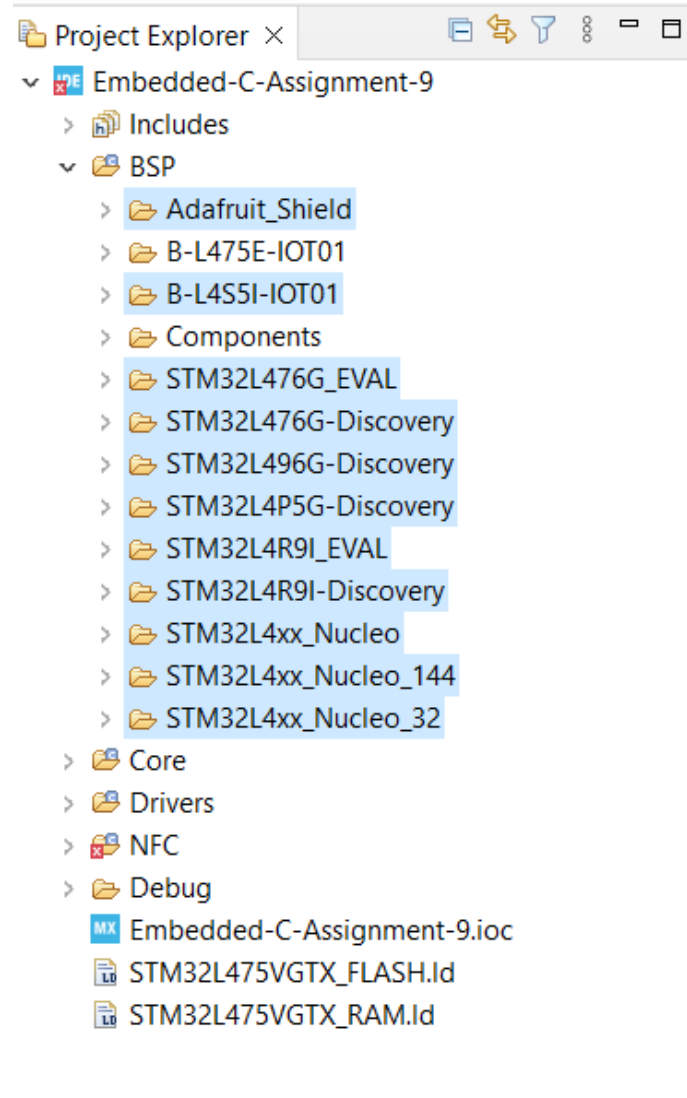
Step 9. When attempting to build, missing file is in BSP, so add BSP folder in the project



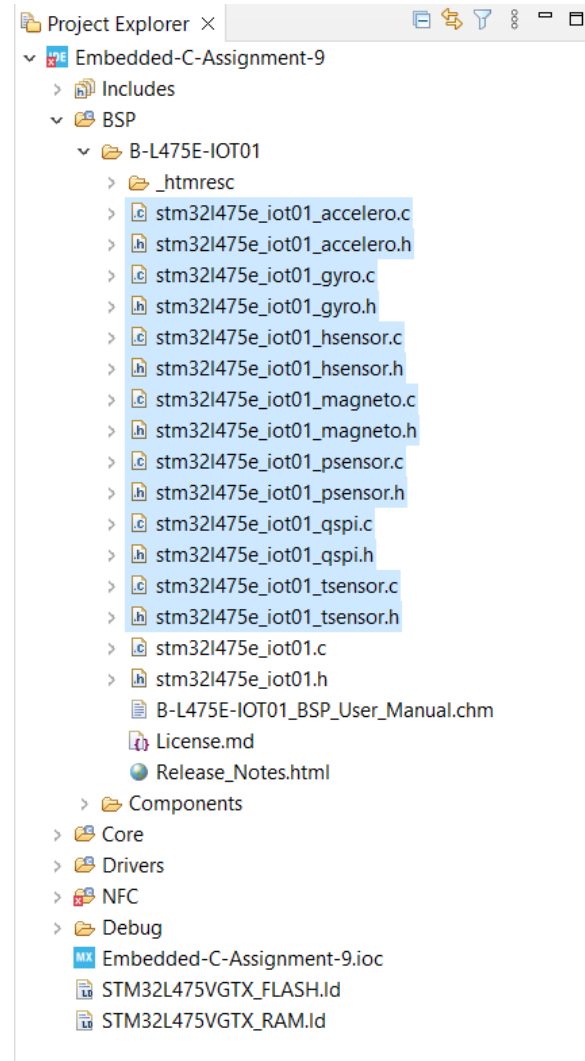
# Step 10. Add the BSP m24sr into include path, and add BSP into source path



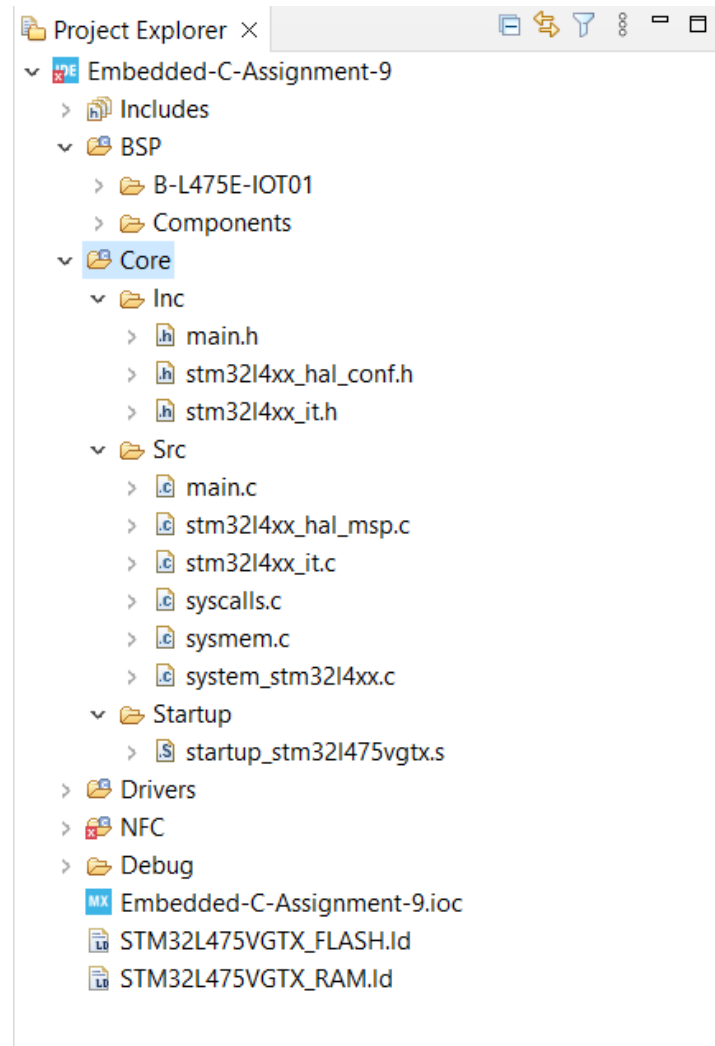
## Step 11. Delete unnecessary folder under BSP folder



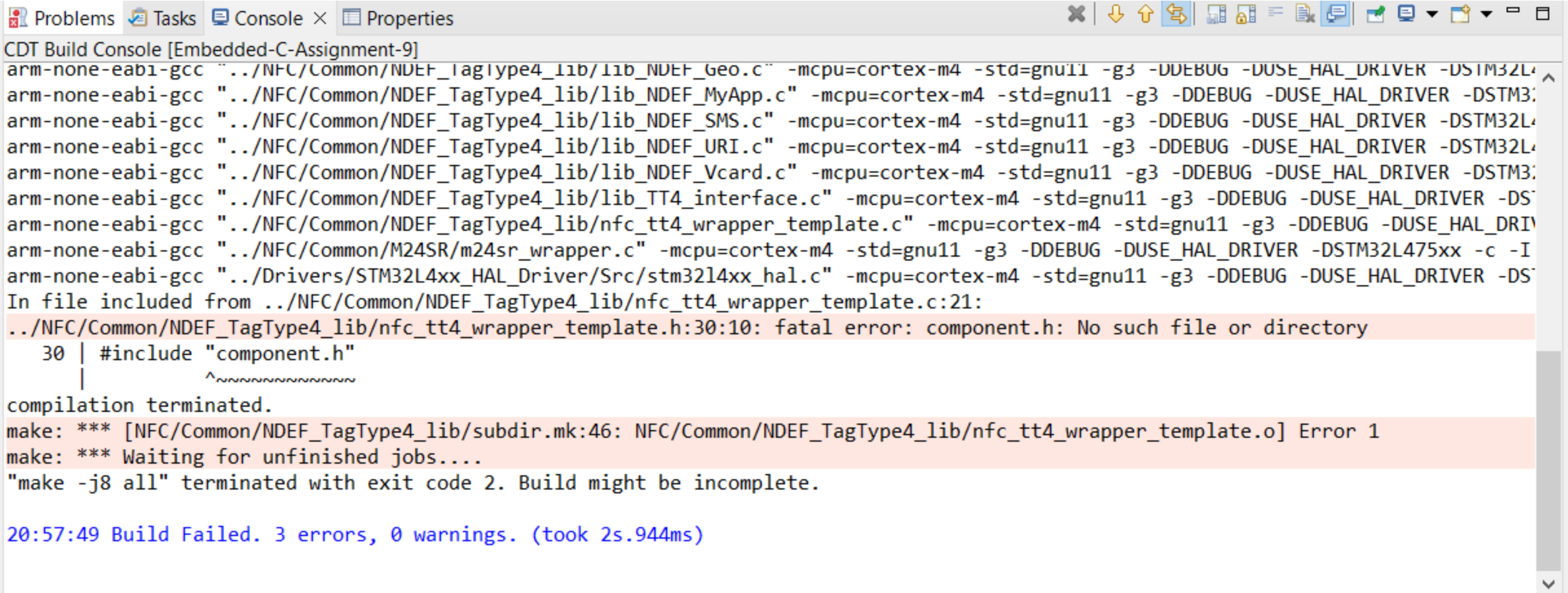
## Step 12. Delete unnecessary files under B-L475E-IOT01 folder



## Step 13. Remove the entire Core directory



## Step 14. Missing component.h file

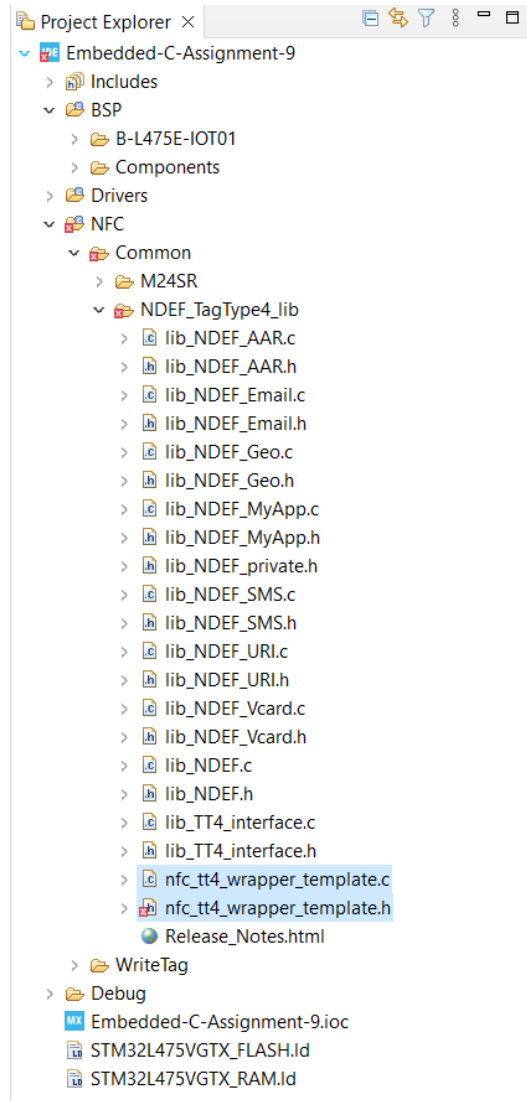


The screenshot shows the CDT Build Console window in an IDE. The window has tabs for Problems, Tasks, Console, and Properties. The Console tab is active, displaying the output of a build process. The output shows several compilation commands for various source files, all using the same compiler flags: `-mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx`. The final line of the build output is a fatal error: `fatal error: component.h: No such file or directory`, which is highlighted in red. The error message is preceded by the file path `../NFC/Common/NDEF_TagType4_lib/nfc_tt4_wrapper_template.h:30:10:`. Below the error message, the console shows the compilation terminated, followed by make messages indicating the build failed with 3 errors and 0 warnings.

```
CDT Build Console [Embedded-C-Assignment-9]
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/lib_NDEF_Geo.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/lib_NDEF_MyApp.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/lib_NDEF_SMS.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/lib_NDEF_URI.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/lib_NDEF_Vcard.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/lib_TT4_interface.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/NDEF_TagType4_lib/nfc_tt4_wrapper_template.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
arm-none-eabi-gcc ".../NFC/Common/M24SR/m24sr_wrapper.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx -c -I...
arm-none-eabi-gcc ".../Drivers/STM32L4xx_HAL_Driver/Src/stm32l4xx_hal.c" -mcpu=cortex-m4 -std=gnu11 -g3 -DDEBUG -DUSE_HAL_DRIVER -DSTM32L475xx
In file included from ../NFC/Common/NDEF_TagType4_lib/nfc_tt4_wrapper_template.c:21:
../NFC/Common/NDEF_TagType4_lib/nfc_tt4_wrapper_template.h:30:10: fatal error: component.h: No such file or directory
   30 | #include "component.h"
      |           ^~~~~~
compilation terminated.
make: *** [NFC/Common/NDEF_TagType4_lib/subdir.mk:46: NFC/Common/NDEF_TagType4_lib/nfc_tt4_wrapper_template.o] Error 1
make: *** Waiting for unfinished jobs....
"make -j8 all" terminated with exit code 2. Build might be incomplete.

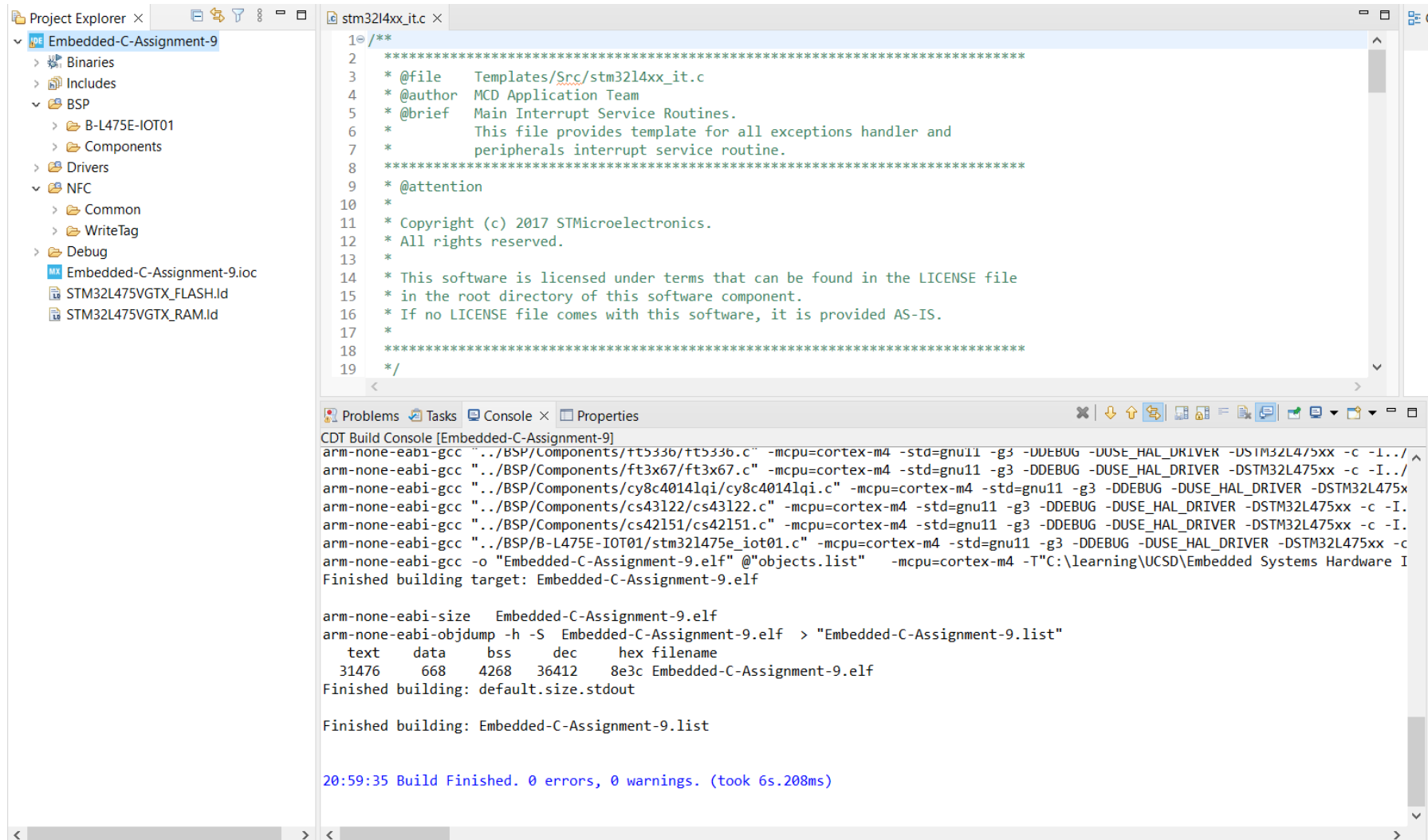
20:57:49 Build Failed. 3 errors, 0 warnings. (took 2s.944ms)
```

## Step 15. Remove nfc\_tt4\_wrapper\_template.c and .h files

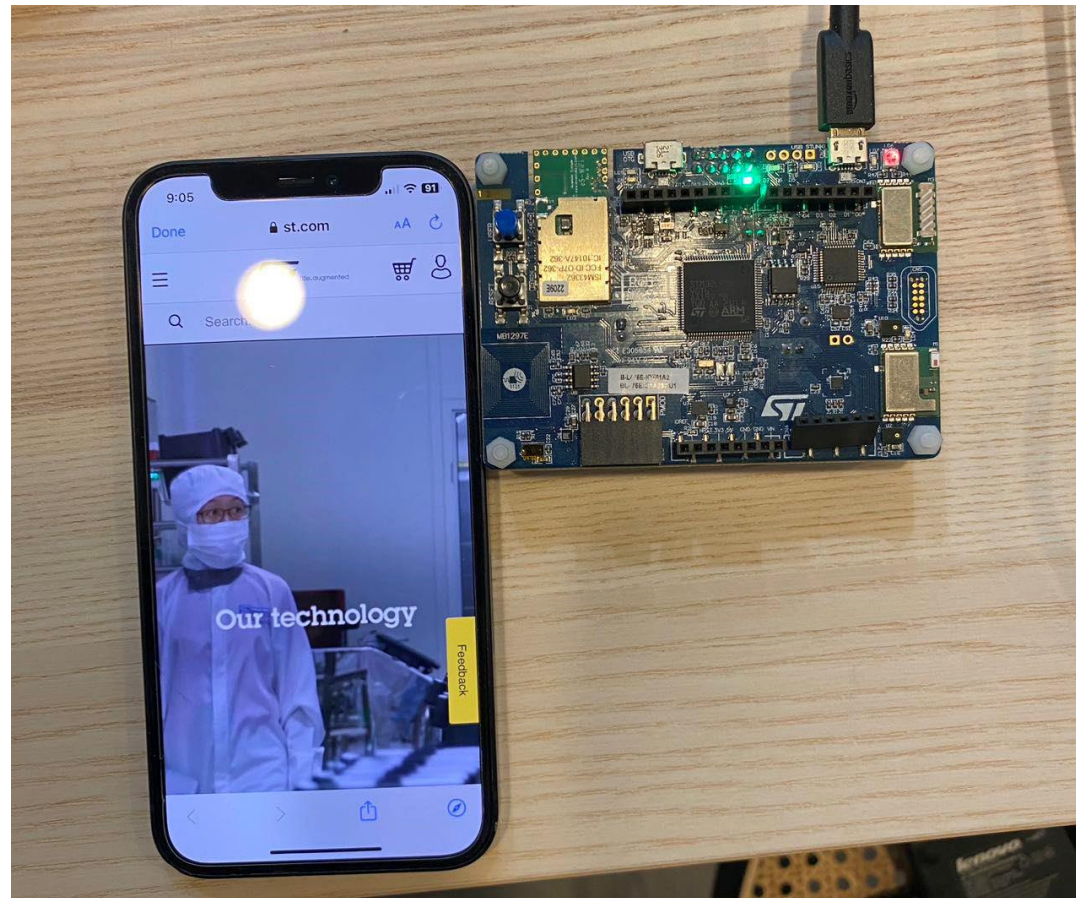




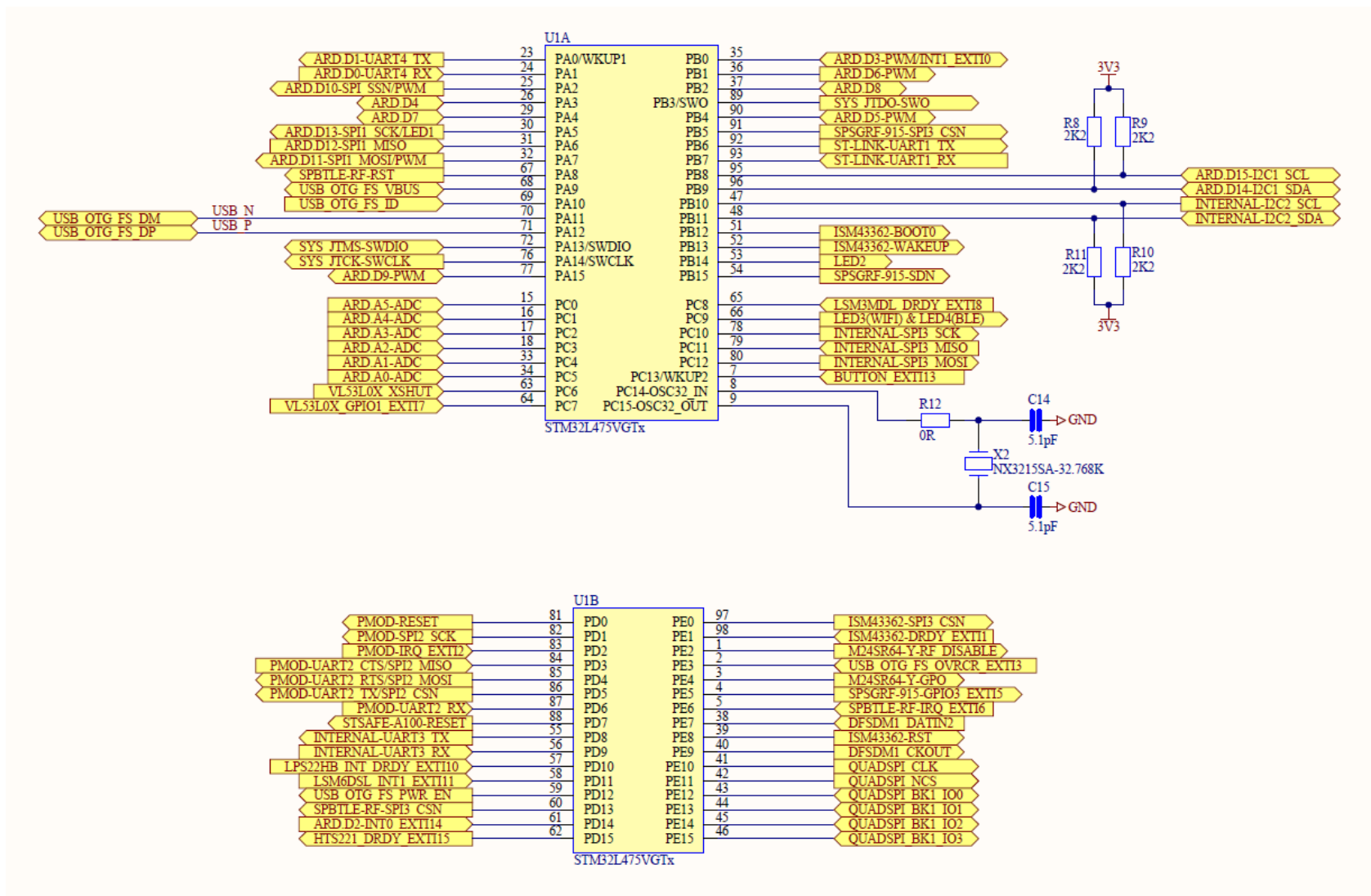
## Step 16. Finally, we get a successful build



Step 17. Run the code and open iphone with GoToTags app, we can see the tags pops up and LED rate changing



## Appendix, schematic for NFC module, processor side connection



## Appendix, schematic for NFC module

