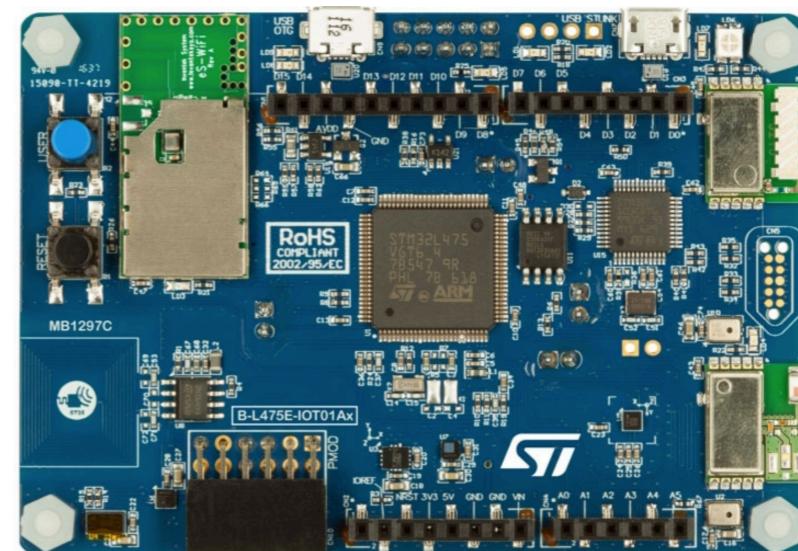
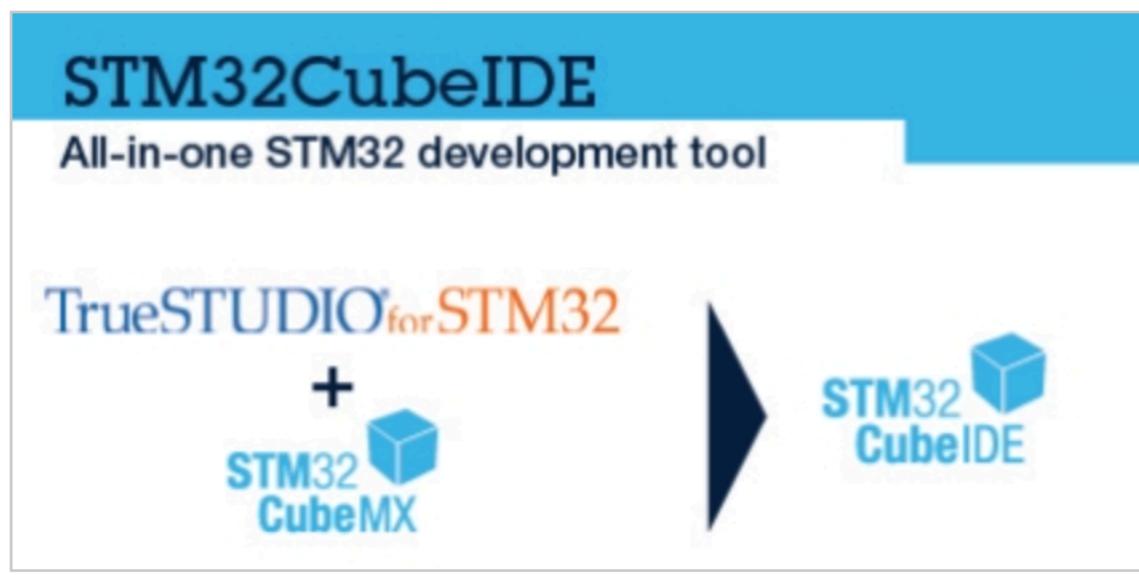


# STM32Cube IDE

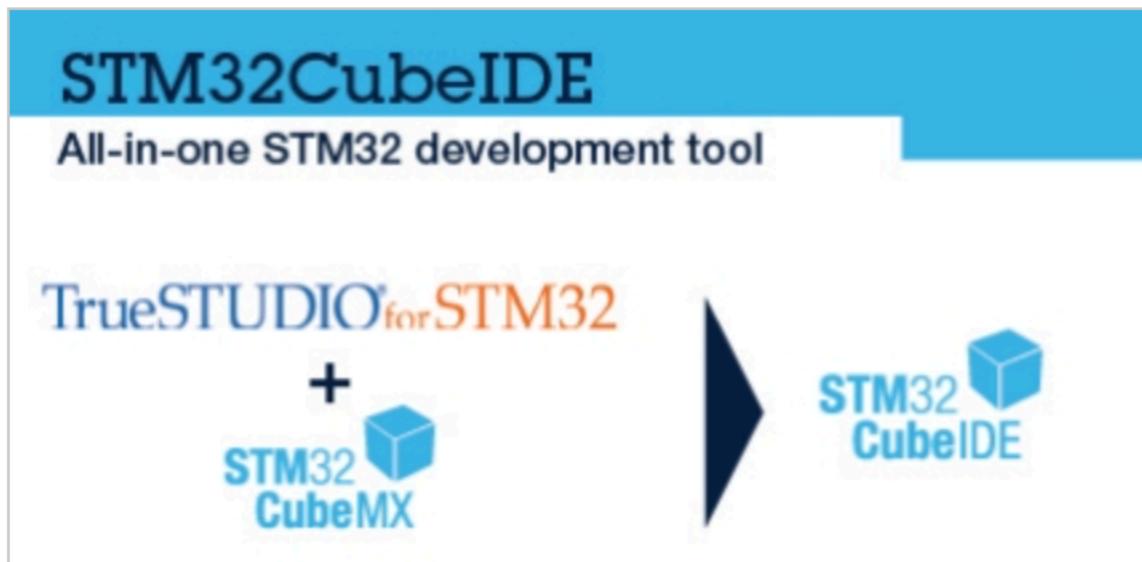
Norman McEntire



# References

- <https://www.st.com/en/development-tools/stm32cubeide.html>

# STM32CubeIDE



STM32CubeIDE is an advanced C/C++ development platform with peripheral configuration, code generation, code compilation, and debug features for STM32 microcontrollers and microprocessors. It is based on the Eclipse®/CDT framework and GCC toolchain for the development, and GDB for the debugging. It allows the integration of the hundreds of existing plugins that complete the features of the Eclipse® IDE.

STM32CubeIDE integrates STM32 configuration and project creation functionalities from STM32CubeMX to

offer all-in-one tool experience and save installation and development time. After the selection of an empty STM32 MCU or MPU, or preconfigured microcontroller or microprocessor from the selection of a board or the selection of an example, the project is created and initialization code generated. At any time during the development, the user can return to the initialization and configuration of the peripherals or middleware and regenerate the initialization code with no impact on the user code.

STM32CubeIDE includes build and stack analyzers that provide the user with useful information about project status and memory requirements.

STM32CubeIDE also includes standard and advanced debugging features including views of CPU core registers, memories, and peripheral registers as well as live variable watch, Serial Wire Viewer interface, or fault analyzer.

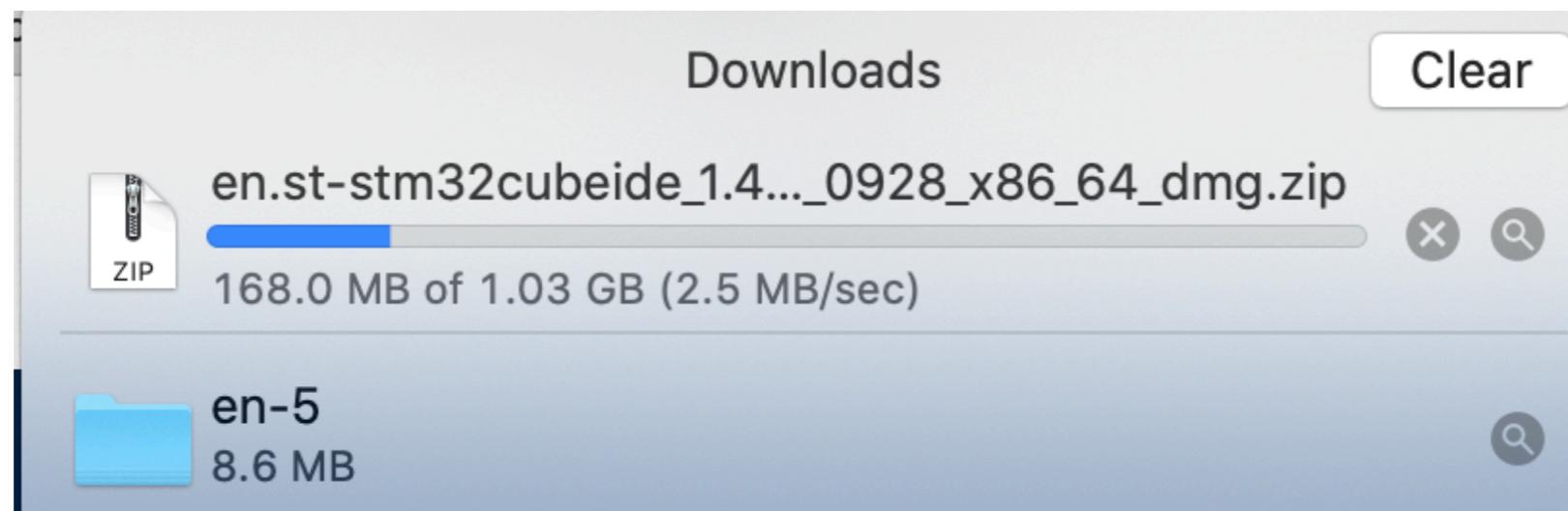
- Multi-OS support: Windows®, Linux®, and macOS®, 64-bit versions only

# Linux, macOS, Windows

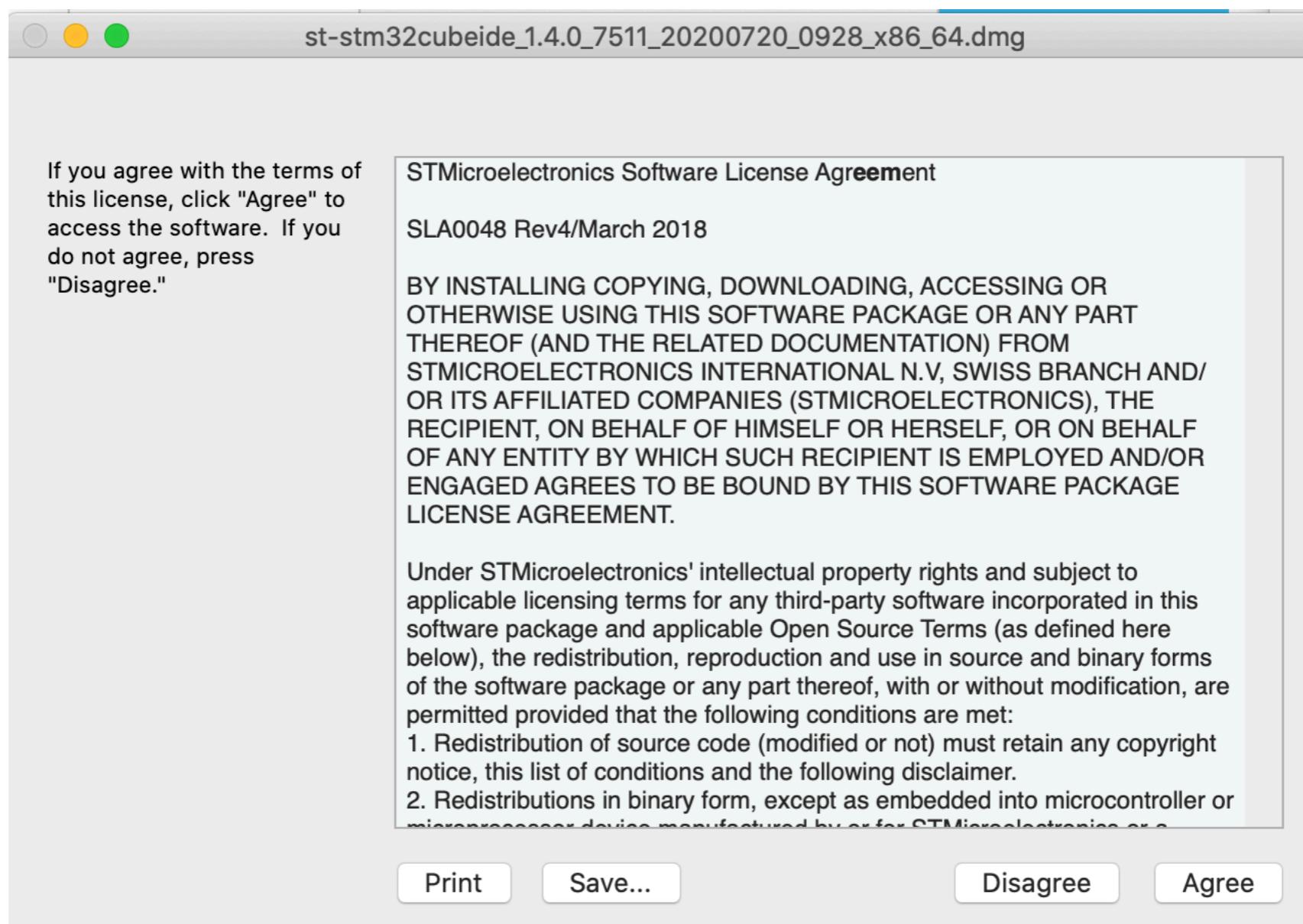
## Get Software

Part Number	General Description	Software Version	Download	Previous versions
+ STM32CubeIDE-DEB	STM32CubeIDE Debian Linux Installer	1.4.0	<a href="#">Get Software</a>	<a href="#">Select version ▾</a>
+ STM32CubeIDE-Lnx	STM32CubeIDE Generic Linux Installer	1.4.0	<a href="#">Get Software</a>	<a href="#">Select version ▾</a>
+ STM32CubeIDE-Mac	STM32CubeIDE macOS Installer	1.4.0	<a href="#">Get Software</a>	<a href="#">Select version ▾</a>
+ STM32CubeIDE-RPM	STM32CubeIDE RPM Linux Installer	1.4.0	<a href="#">Get Software</a>	<a href="#">Select version ▾</a>
+ STM32CubeIDE-Win	STM32CubeIDE Windows Installer	1.4.0	<a href="#">Get Software</a>	<a href="#">Select version ▾</a>

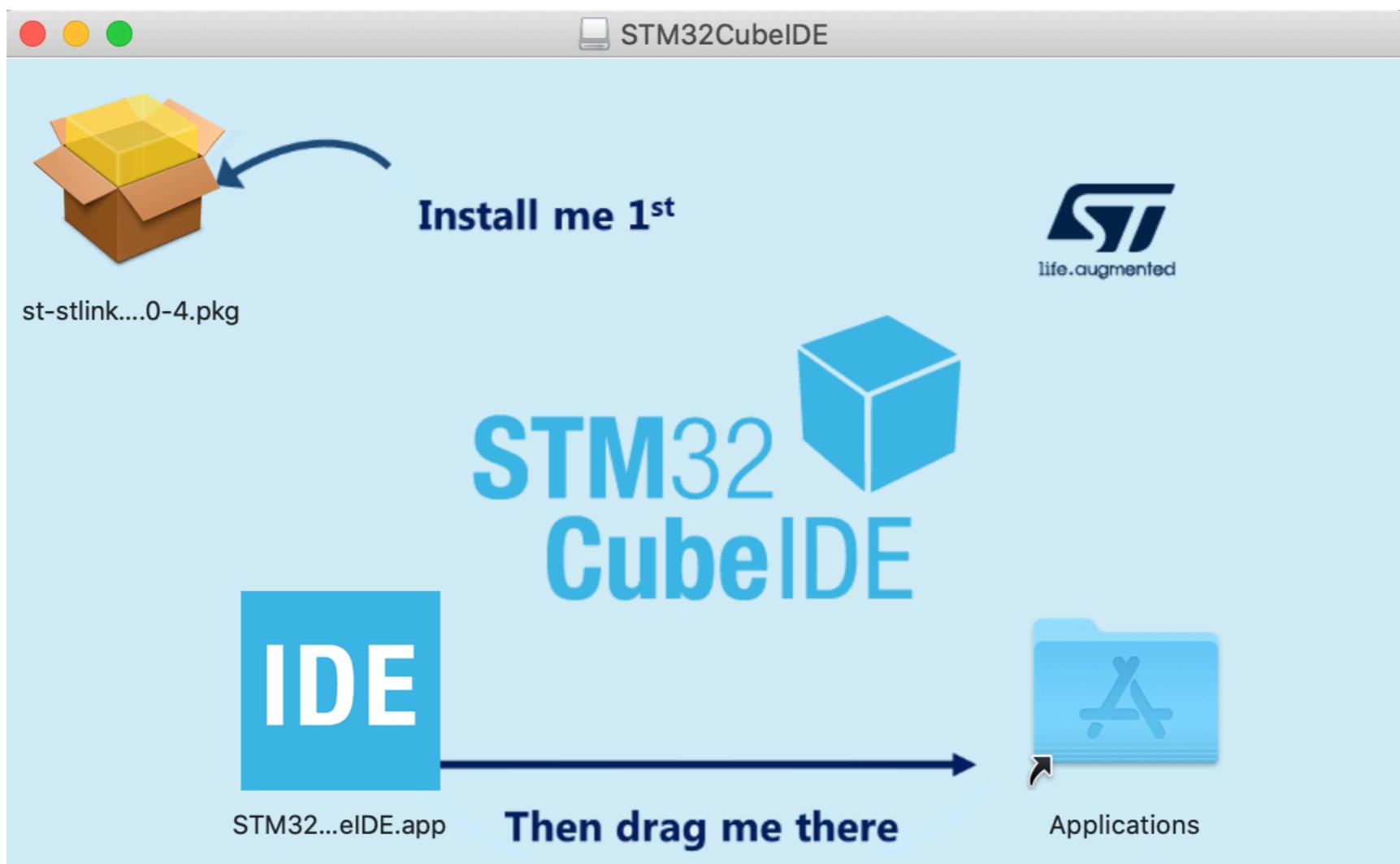
# Download in progress on macOS



# Installation - 1



# Installation - 2



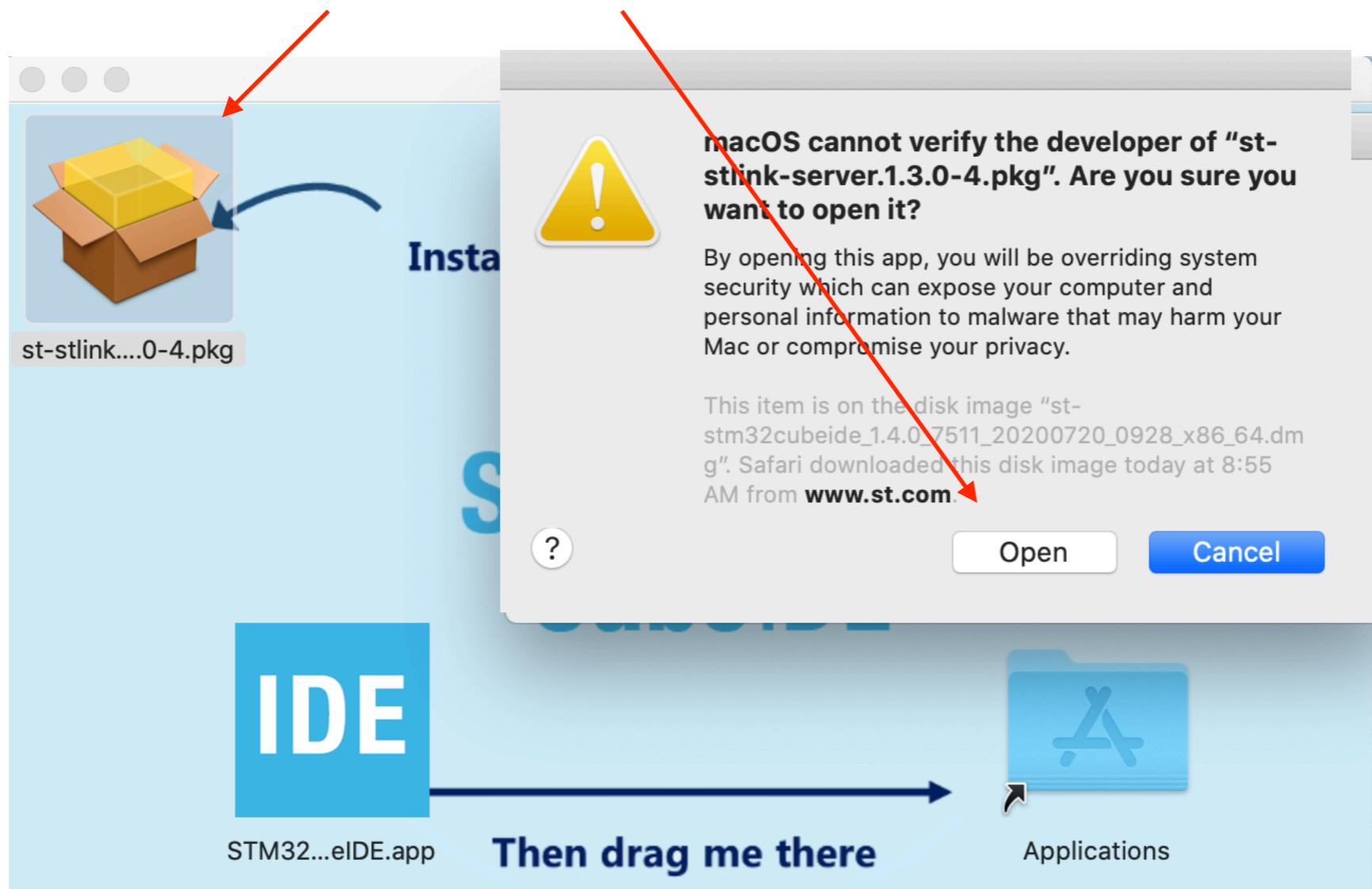
# Installation - 3

By default, install blocked

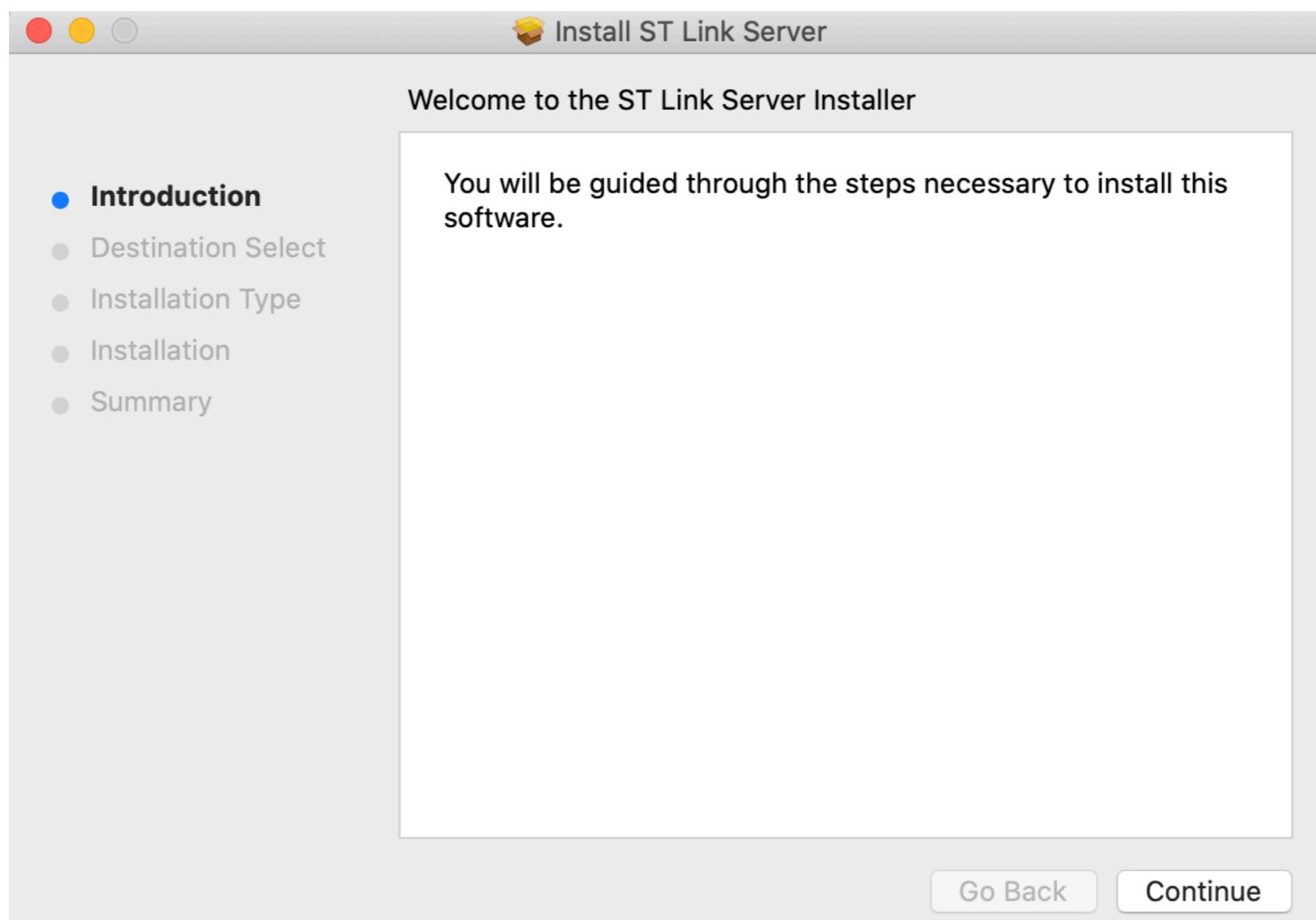


# Installation - 4

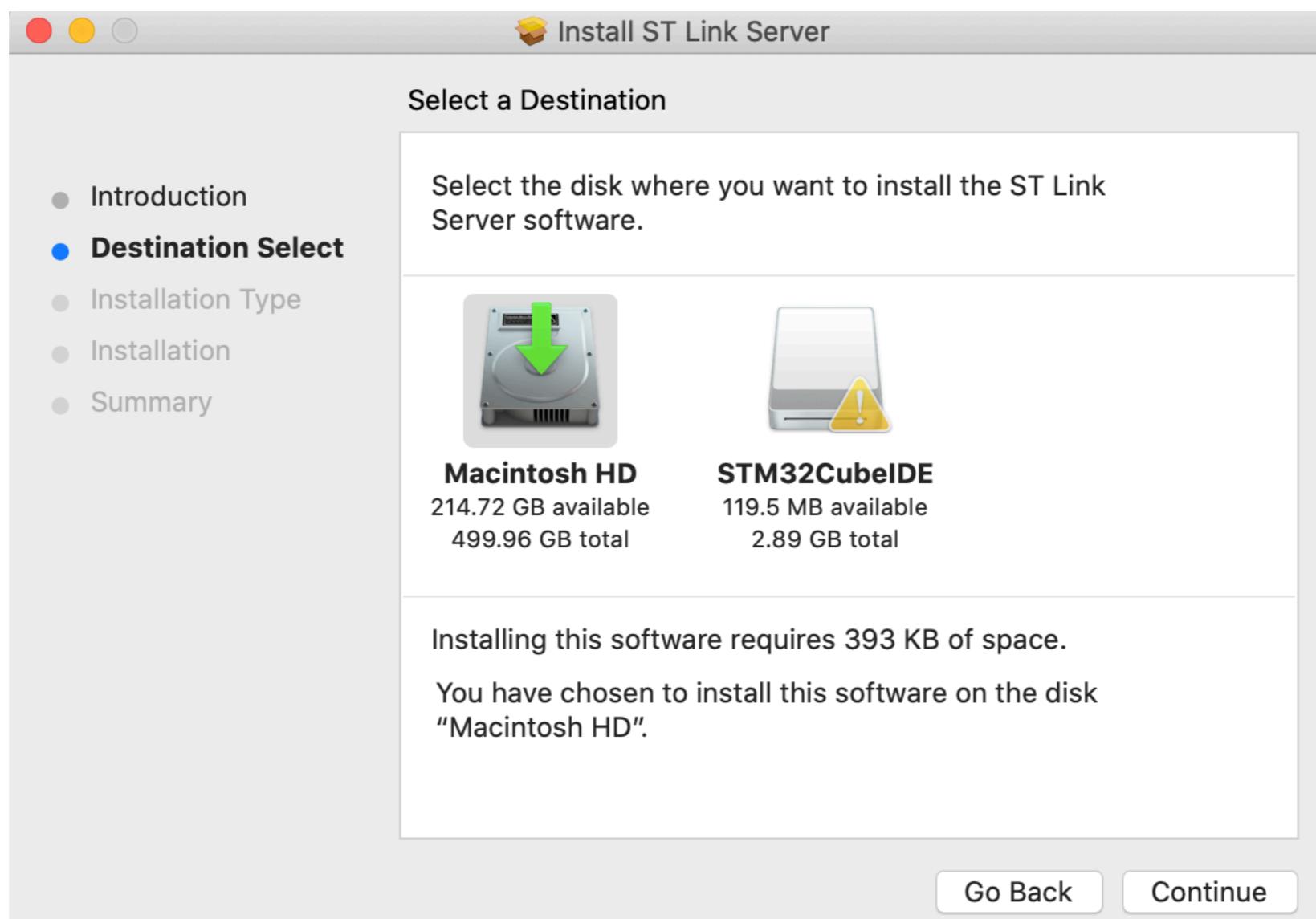
Right-click- Open to get this choice



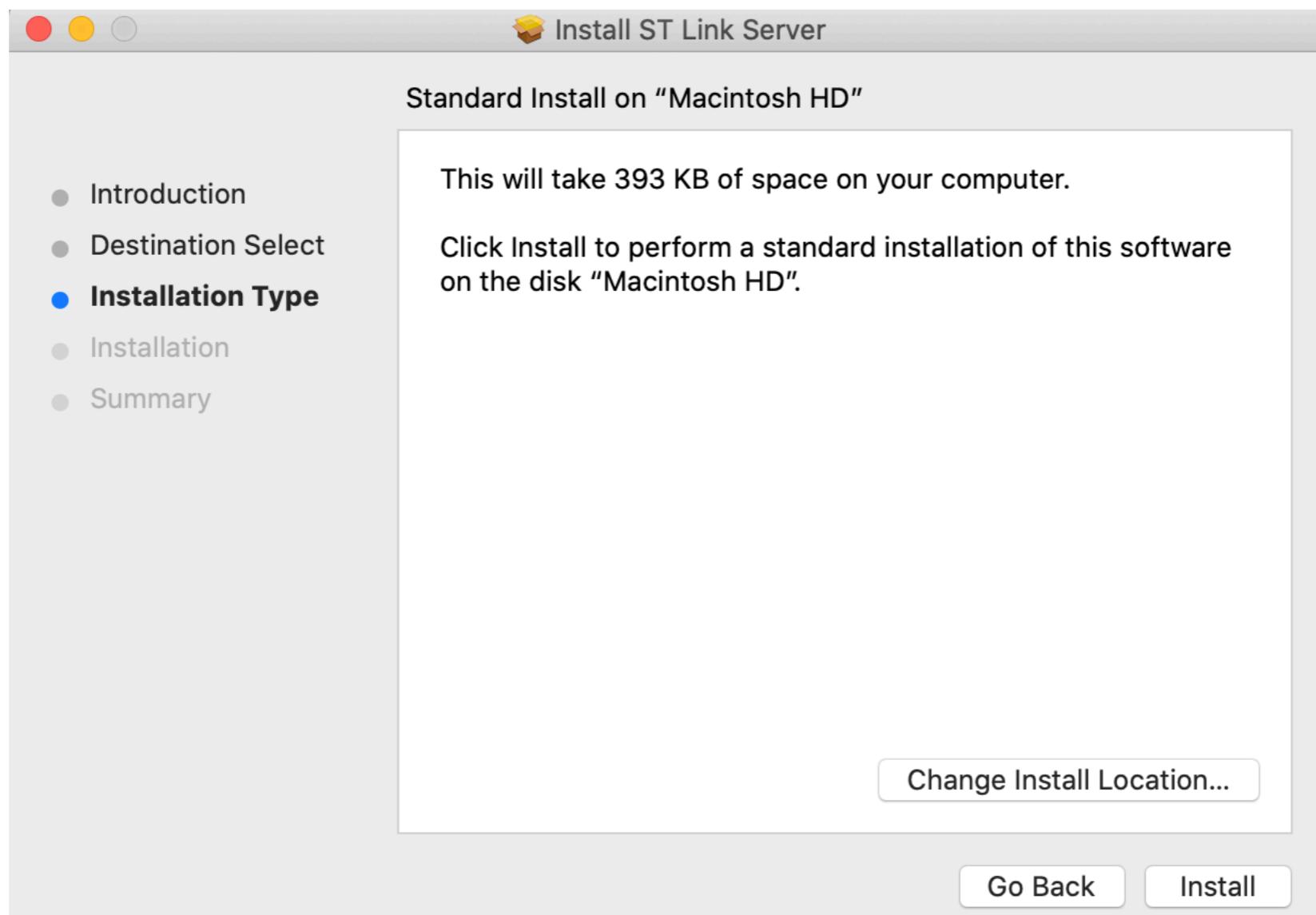
# Installation - 5



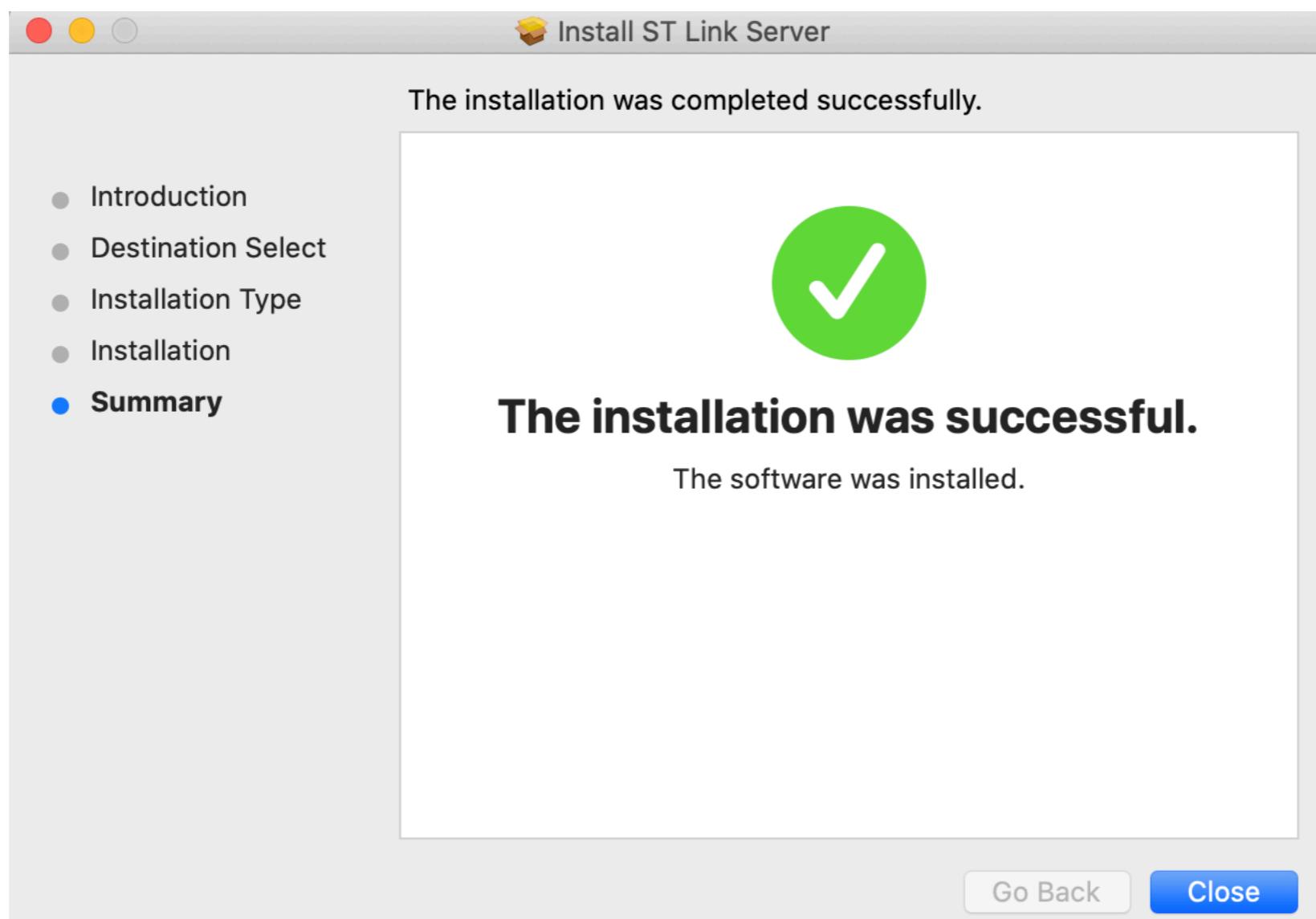
# Installation - 6



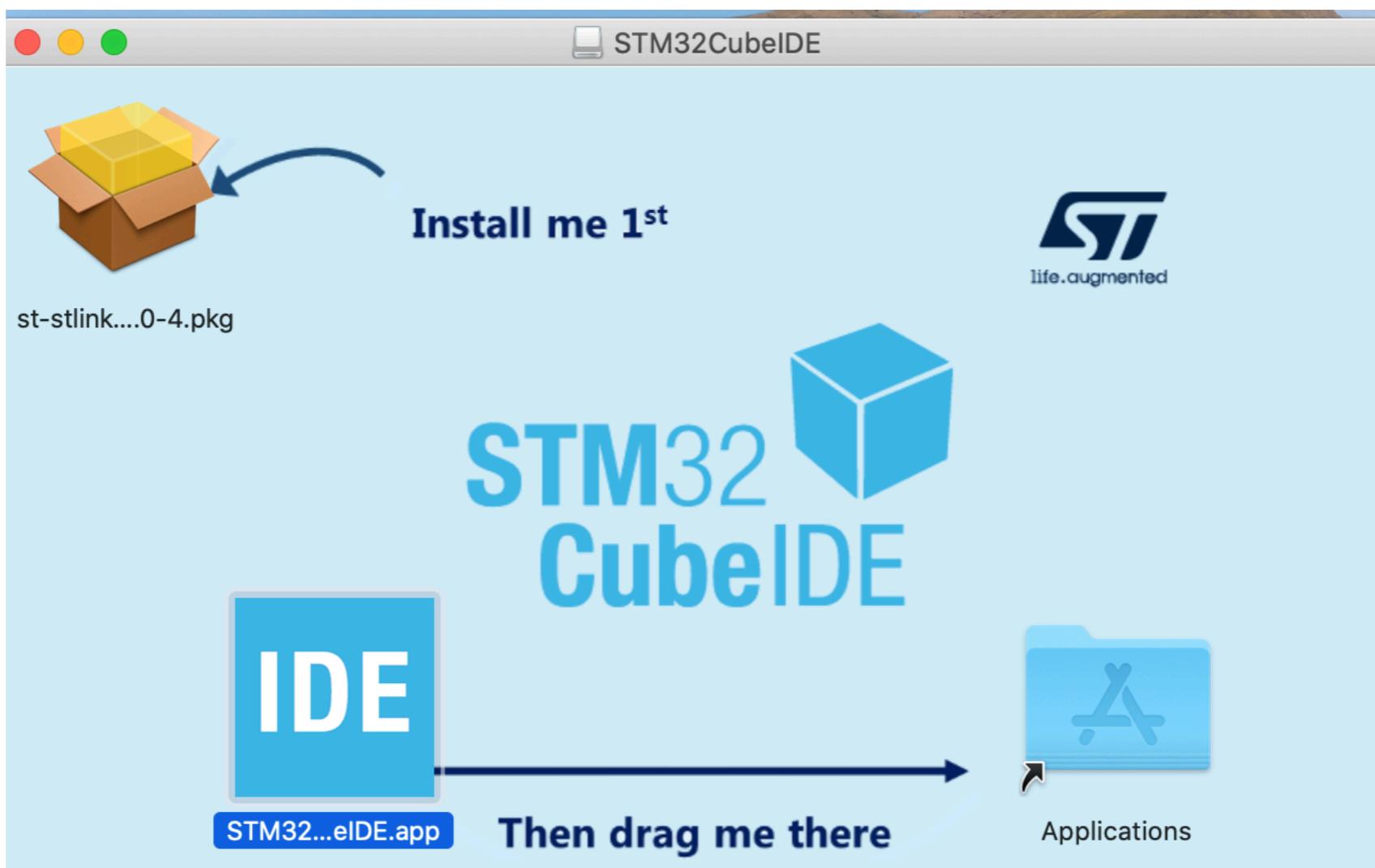
# Installation - 7



# Installation - 8



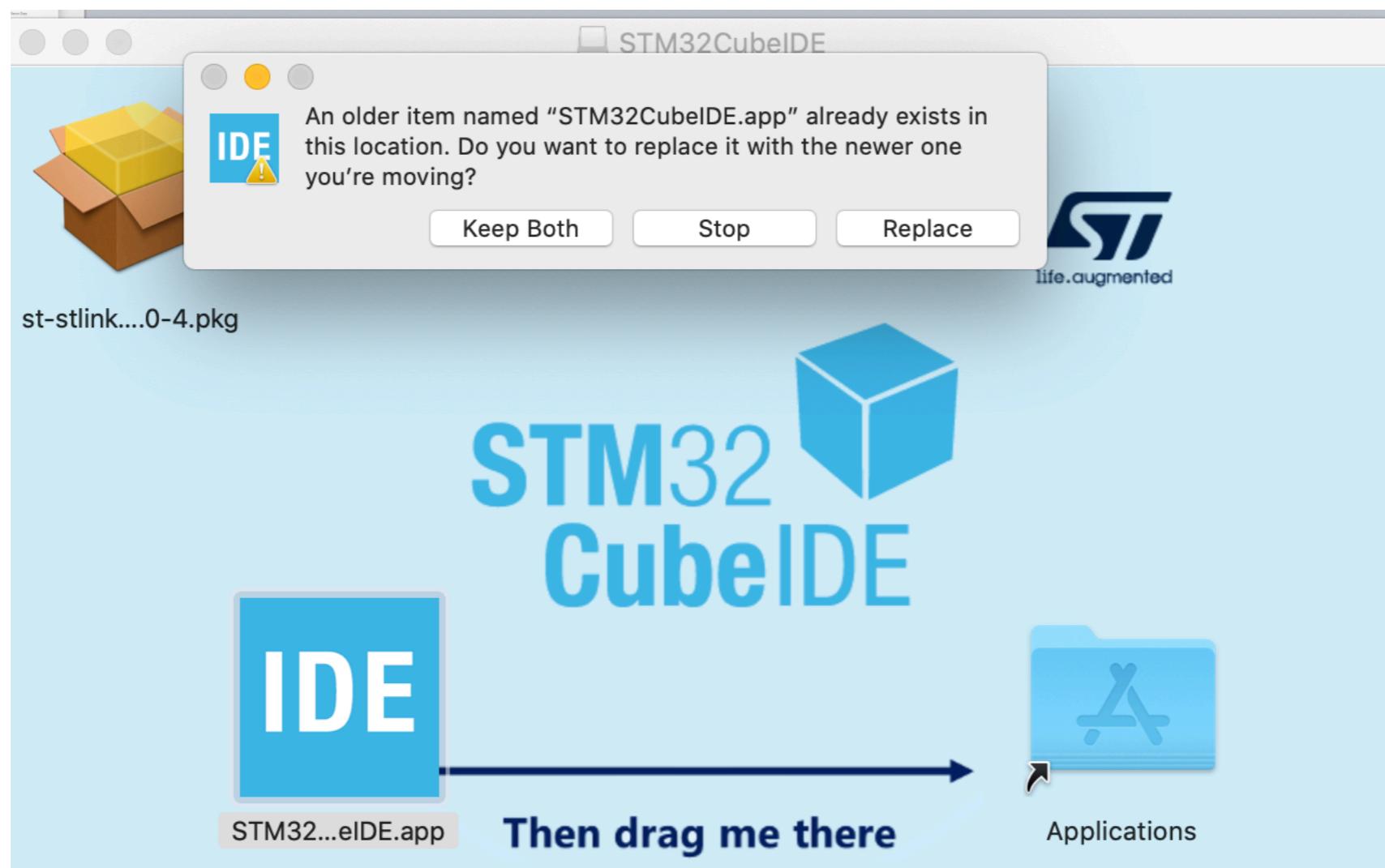
# Installation - 9



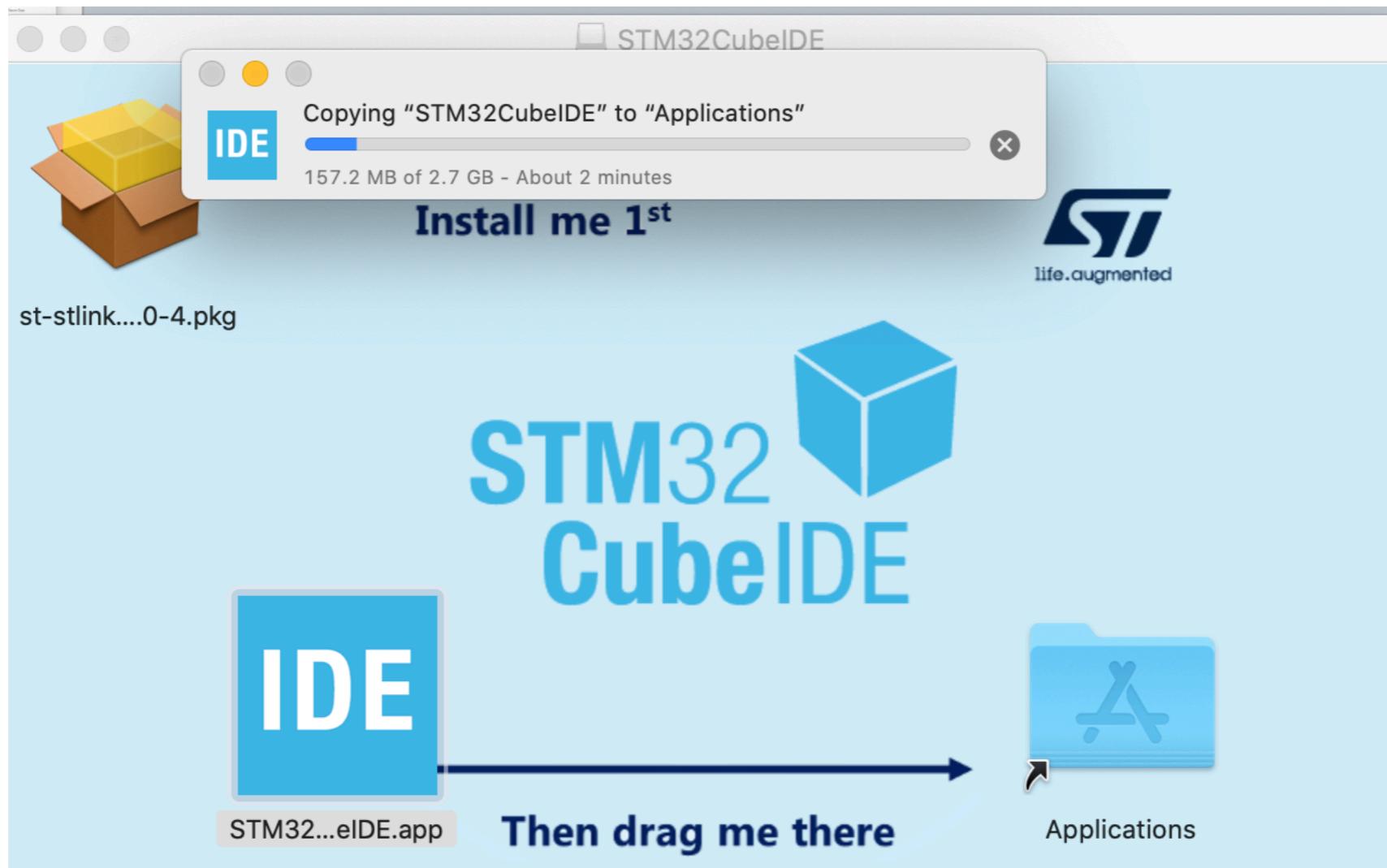
# Installation - 10



# Installation - 11



# Installation - 12



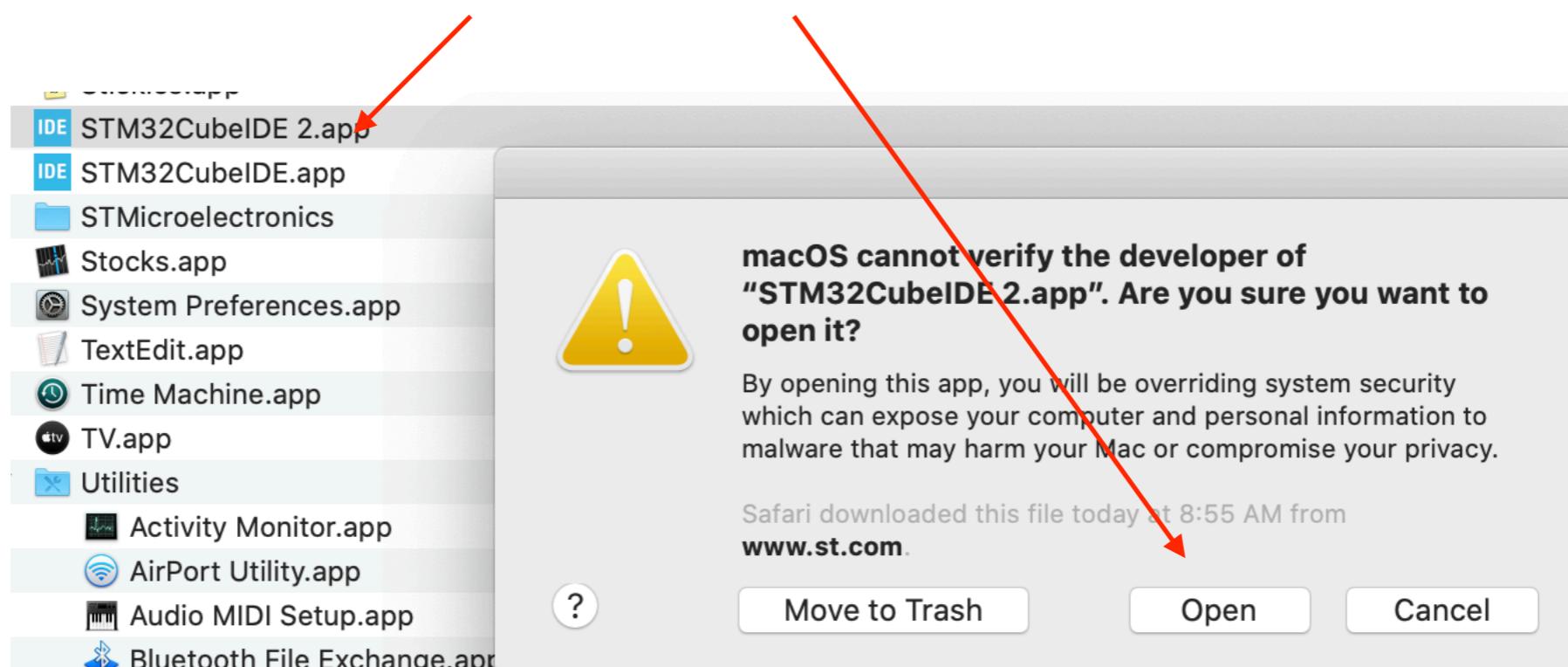
# Startup

# Default Startup on macOS

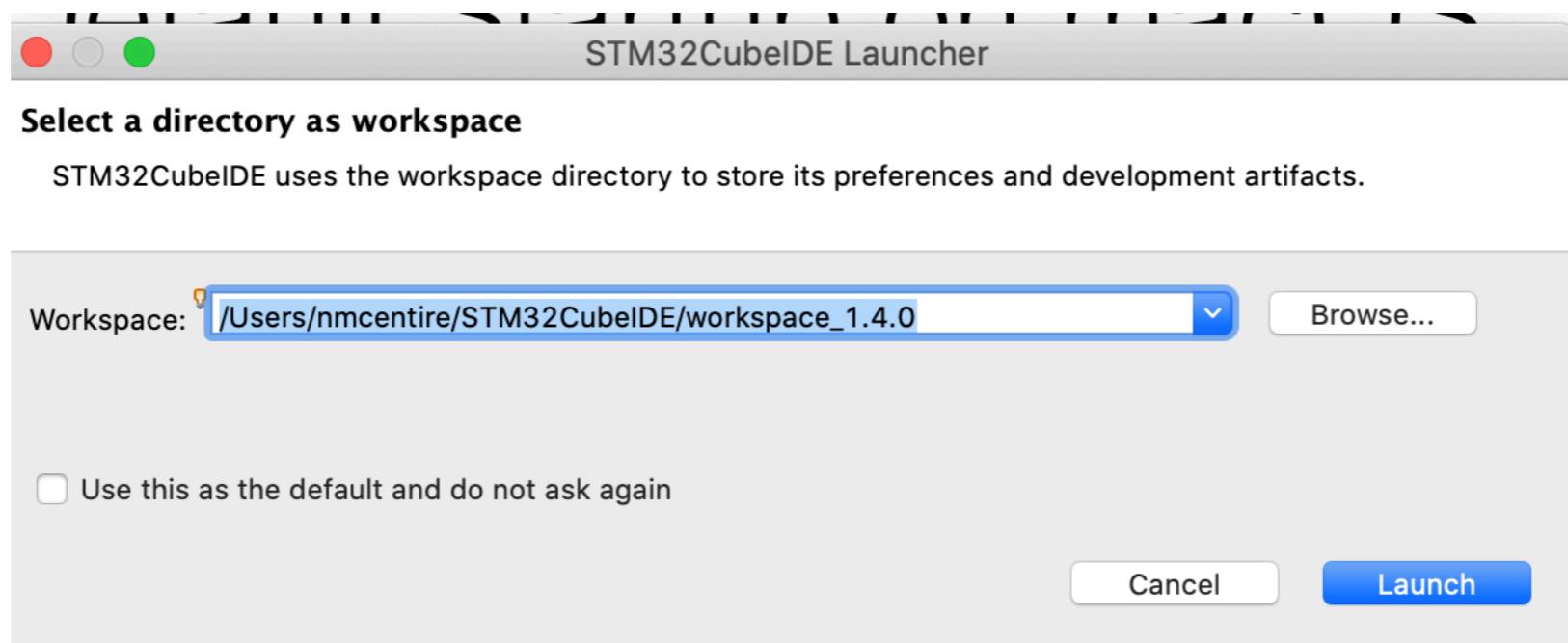


# Default Startup on macOS

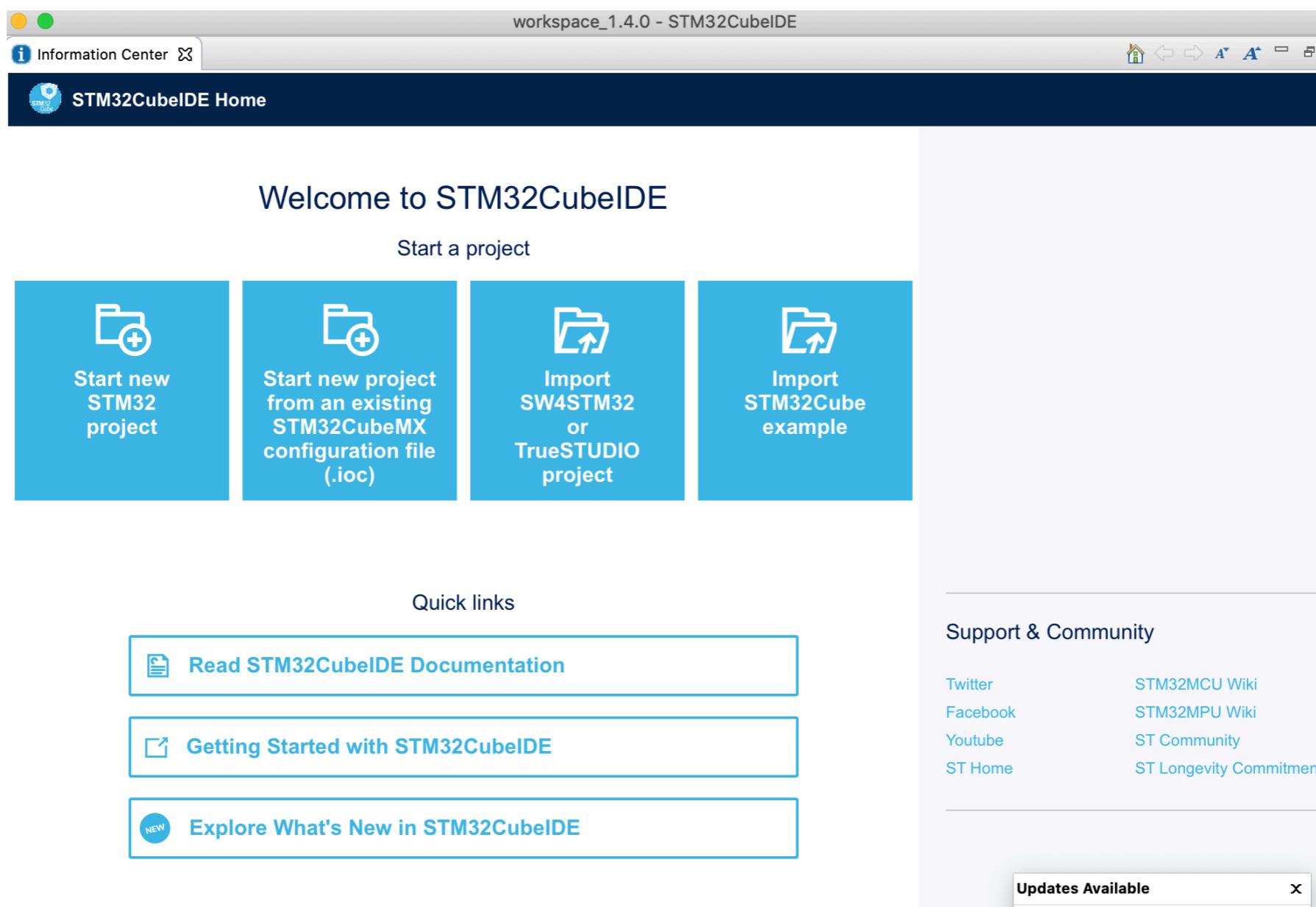
Right-click- Open to get this choice



# Default Workspace

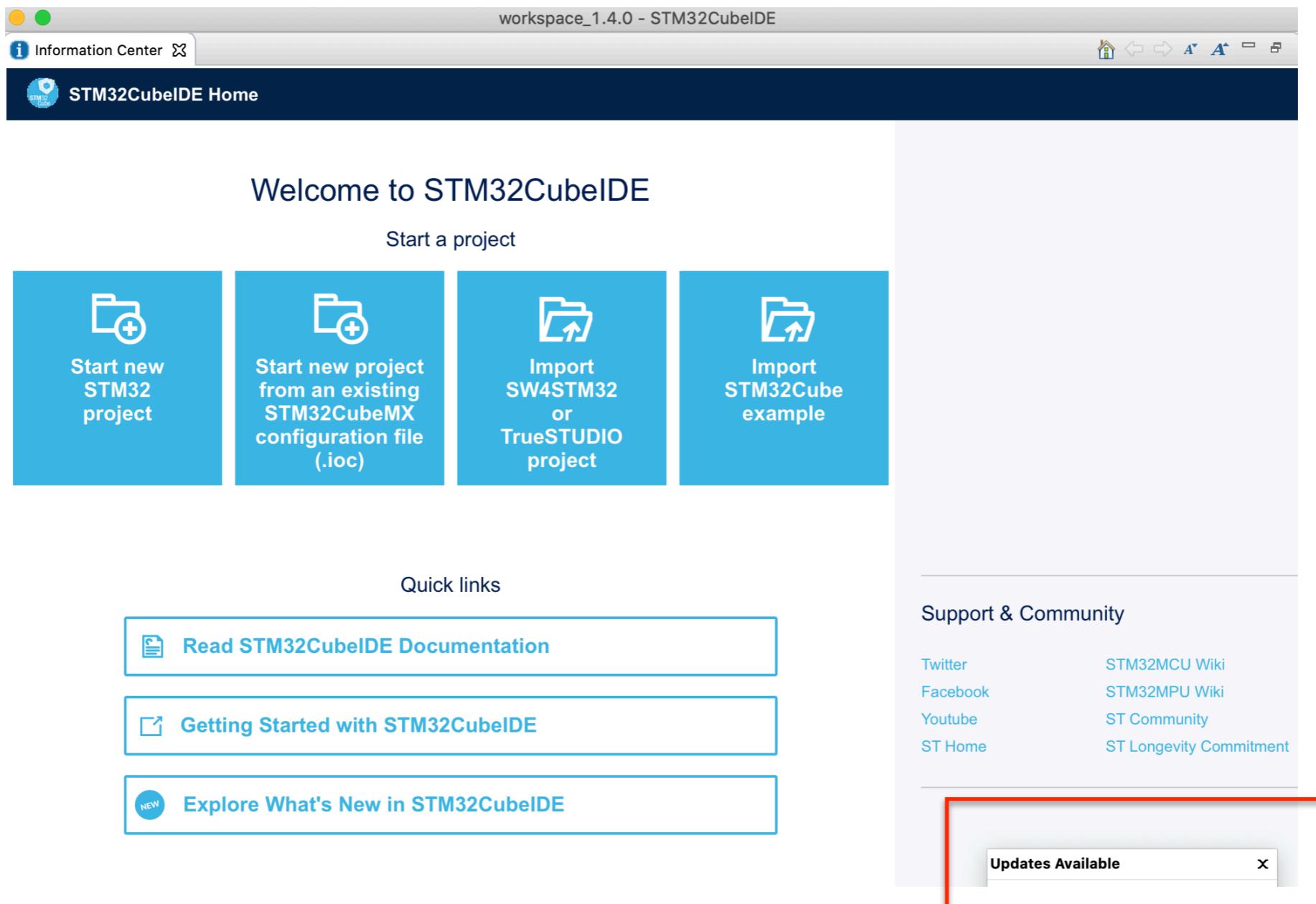


# Welcome Screen



# Updates

# Welcome Screen Updates Available



# Available Updates

1.4.2



# Update Details

Available Updates

**Update Details**  
Review and confirm the updates.



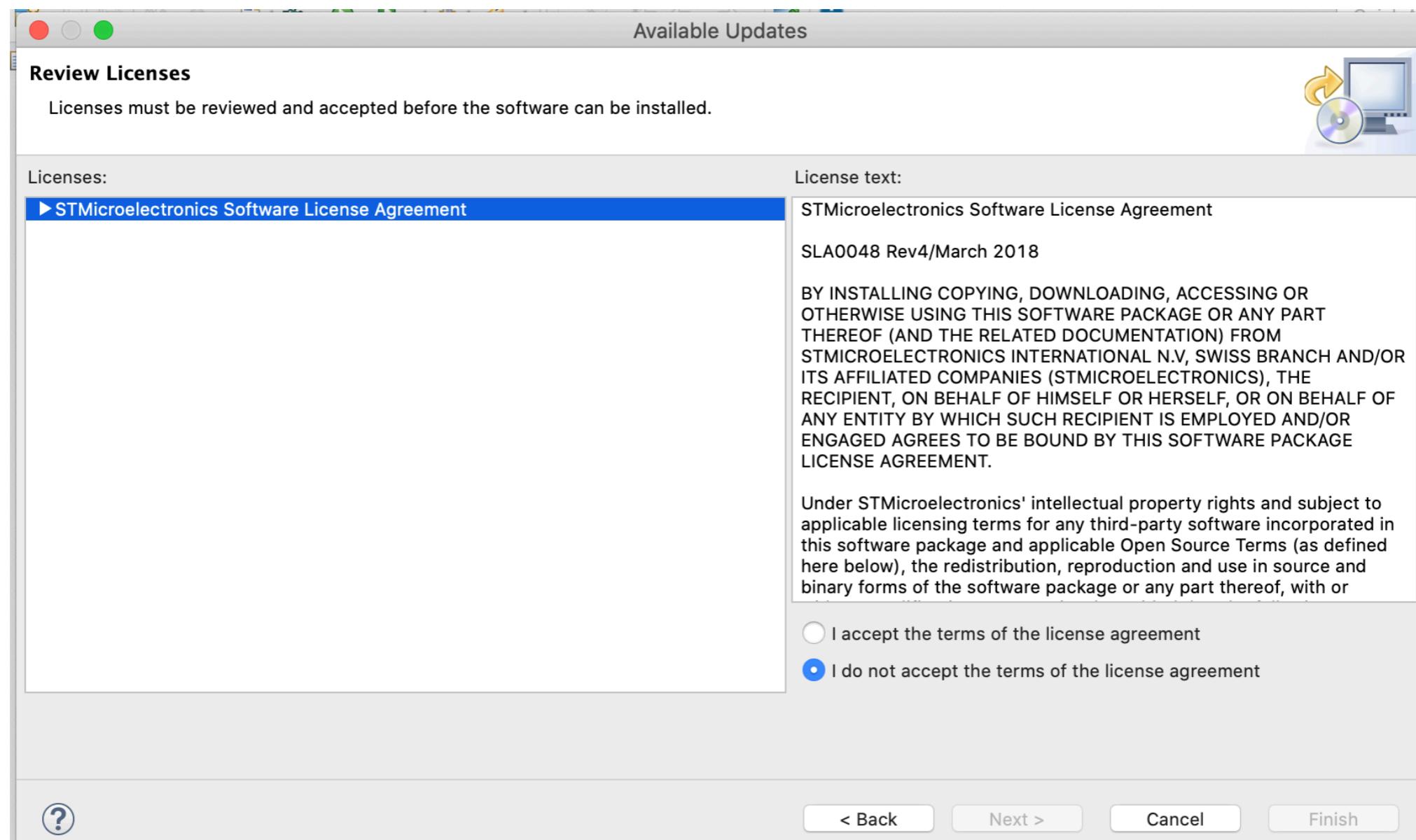
Name	Version	Id
STM32CubeIDE	1.4.2	com.st.stm32cube.ide.mcu.rcp.pro...
STM32CubeIDE C/C++ Embedded Development Tools for MCU	1.4.2.202008031403	com.st.stm32cube.ide.feature.mcu...
STM32CubeIDE Common Services	1.4.1.202007301502	com.st.stm32cube.ide.feature.com...
STM32CubeIDE Common STM32CubeMX Services	1.4.2.202008031403	com.st.stm32cube.ide.feature.com...
STM32CubeIDE MCU OpenOCD (ST-LINK)	1.4.2.202008061104	com.st.stm32cube.ide.feature.mcu...
STM32CubeIDE MCU RCP	1.4.2.202008031402	com.st.stm32cube.ide.feature.mcu...
STM32CubeIDE P2 Utils	1.4.1.202007301502	com.st.stm32cube.ide.feature.mcu...
STM32CubeIDE Project Creation	1.4.1.202007301502	com.st.stm32cube.common.featur...
STM32CubeMX	6.0.1.202008101643	com.st.stm32cube.common.featur...
STM32CubeMX (ST Insider)	6.0.1.202008101643	com.st.stm32cube.common.featur...

Size: 178,359 KB

Details

< Back **Next >** Cancel Finish

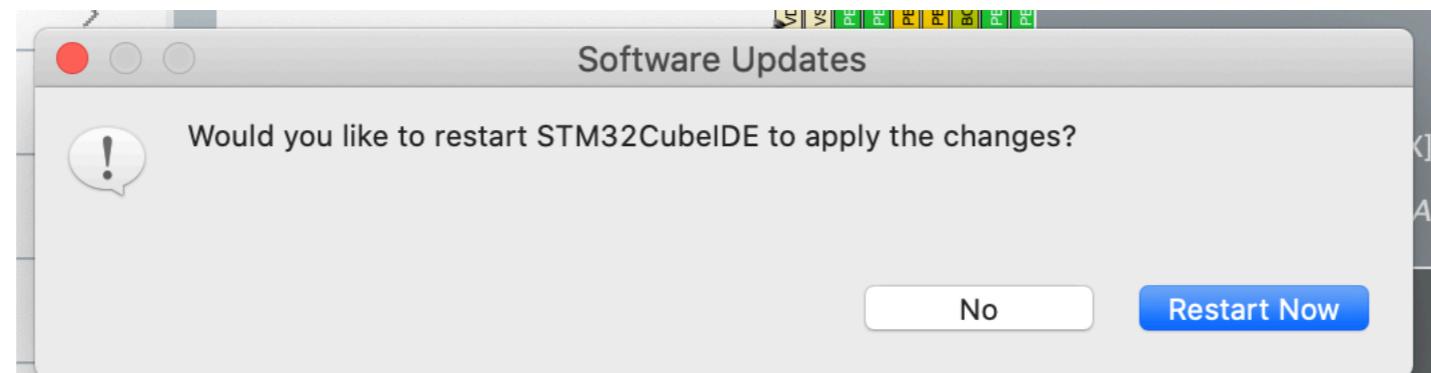
# Review Licenses



# Security Warning

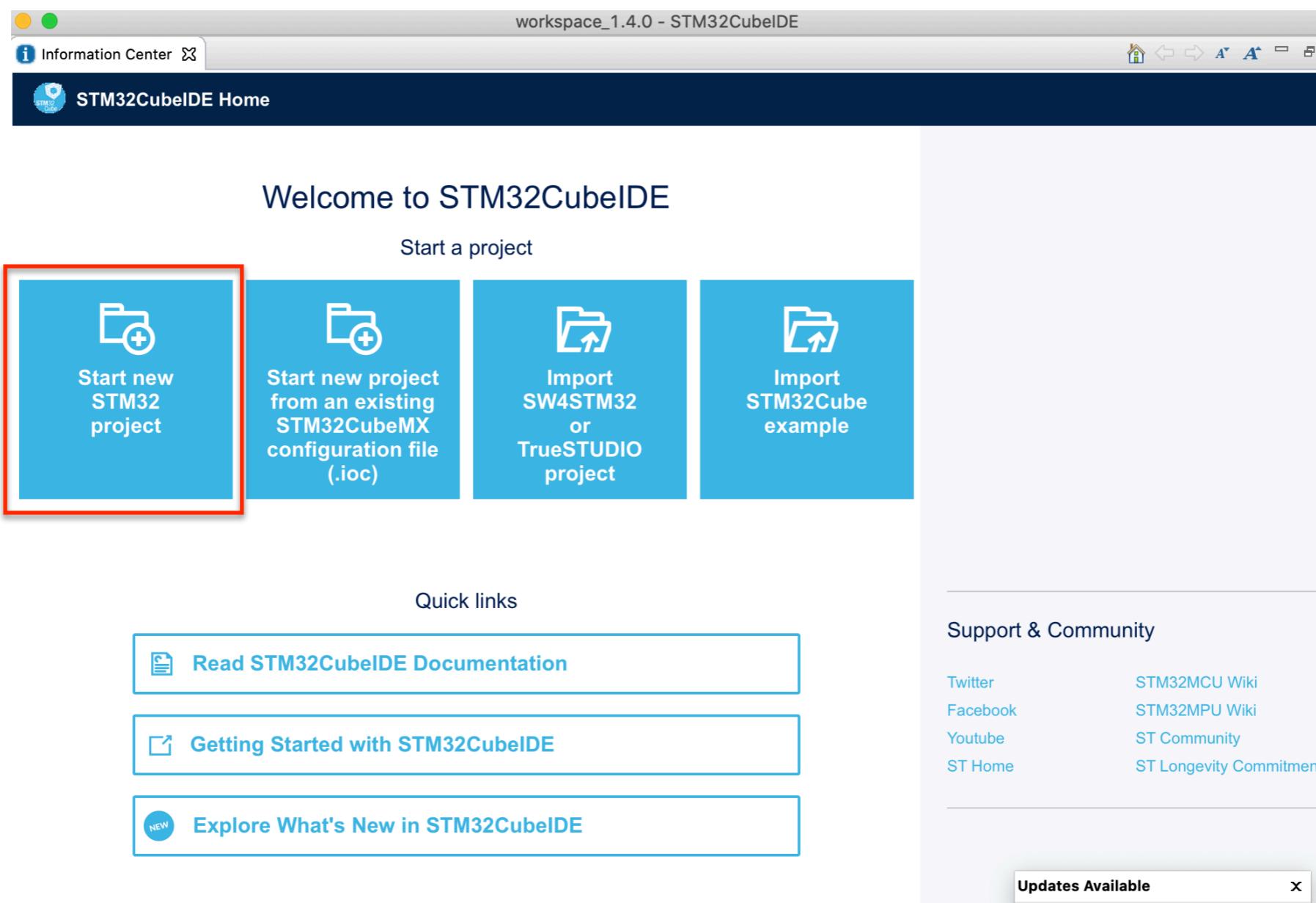


# Restart Warning

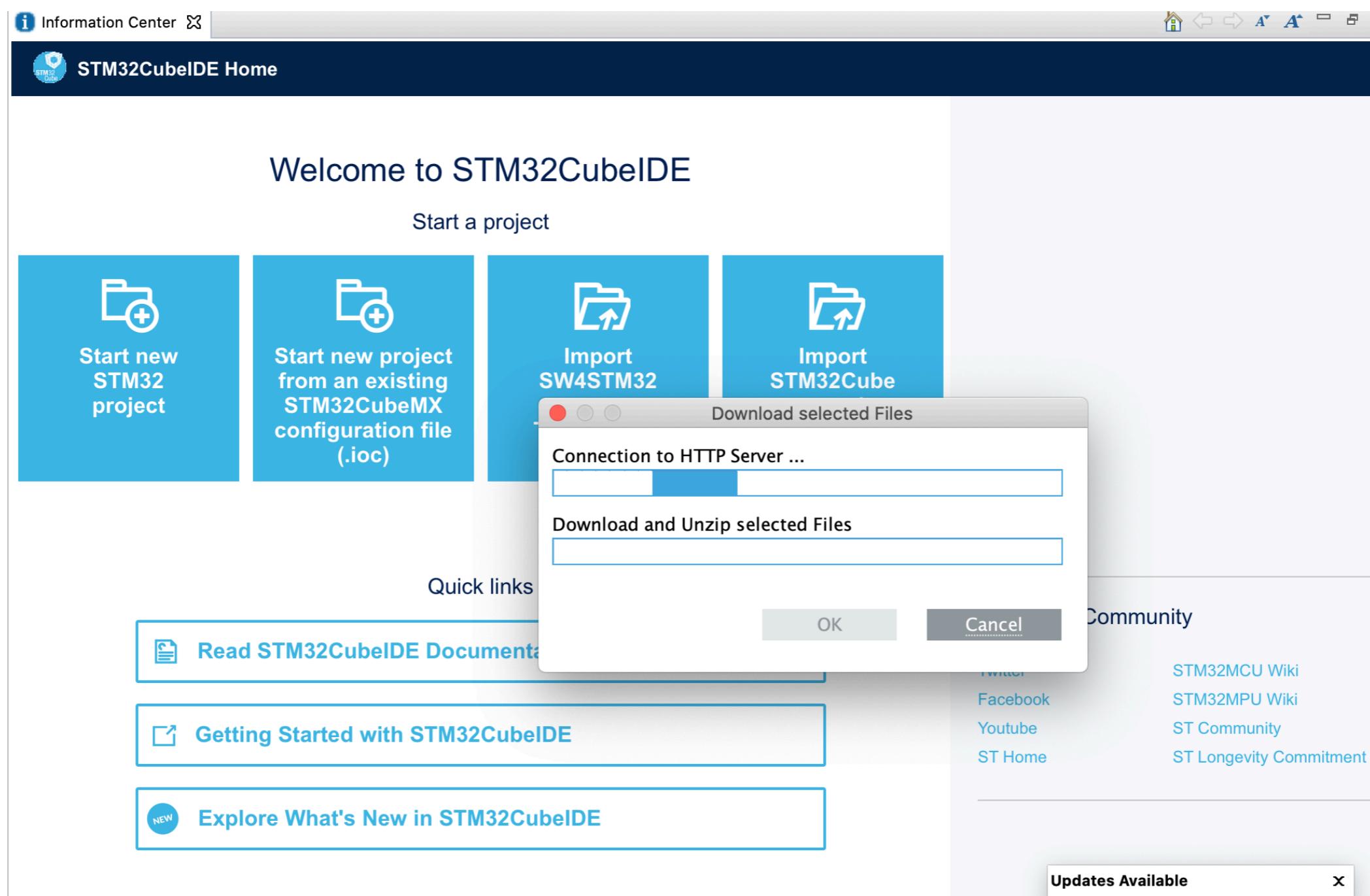


# Start New Project

# Start New Project



# Start New Project



# Target Selector

STM32 Project

**Target Selection**

STM32 target or STM32Cube example selection is required

ID

MCU/MPU Selector | Board Selector | Example Selector | Cross Selector

MCU/MPU Filters

- Part Number
- Core >
- Series >
- Line >
- Package >
- Other >
- Peripheral >

Features | Block Diagram | Docs & Resources | Datasheet | Buy

SIL Ready | ASIL Ready | ClassB Ready | Partner Program

Build your certified safety system with STM32 and STM8 ST

MCUs/MPUs List: 1728 items

Display similar items | Export

*	Part No	Reference	Marketing Status	Unit Price for 10kU (US\$)	Board	Package	Flash	RAM	IO	Freq.
★	STM32F030C6	STM32F030C6Tx	Active	0.597		LQFP48	32 kBytes	4 kBytes	39	48 MHz
★	STM32F030C8	STM32F030C8Tx	Active	0.722		LQFP48	64 kBytes	8 kBytes	39	48 MHz
★	STM32F030CC	STM32F030CCTx	Active	1.1		LQFP48	256 kBytes	32 kBytes	37	48 MHz
★	STM32F030F4	STM32F030F4Px	Active	0.424		TSSOP20	16 kBytes	4 kBytes	15	48 MHz
★	STM32F030K6	STM32F030K6Tx	Active	0.518		LQFP32	32 kBytes	4 kBytes	25	48 MHz
★	STM32F030R8	STM32F030R8Tx	Active	0.754	NU...ST...	LQFP64	64 kBytes	8 kBytes	55	48 MHz
★	STM32F030RC	STM32F030RCTx	Active	1.21		LQFP64	256 kBytes	32 kBytes	51	48 MHz
★	STM32F031C4	STM32F031C4Tx	Active	0.97		LQFP48	16 kBytes	4 kBytes	39	48 MHz
★	STM32F031C6	STM32F031C6Tx	Active	1.013		LQFP48	32 kBytes	4 kBytes	39	48 MHz
★	STM32F031E6	STM32F031E6Yx	Active	0.776		WLCSP25	32 kBytes	4 kBytes	20	48 MHz

# Board Selector

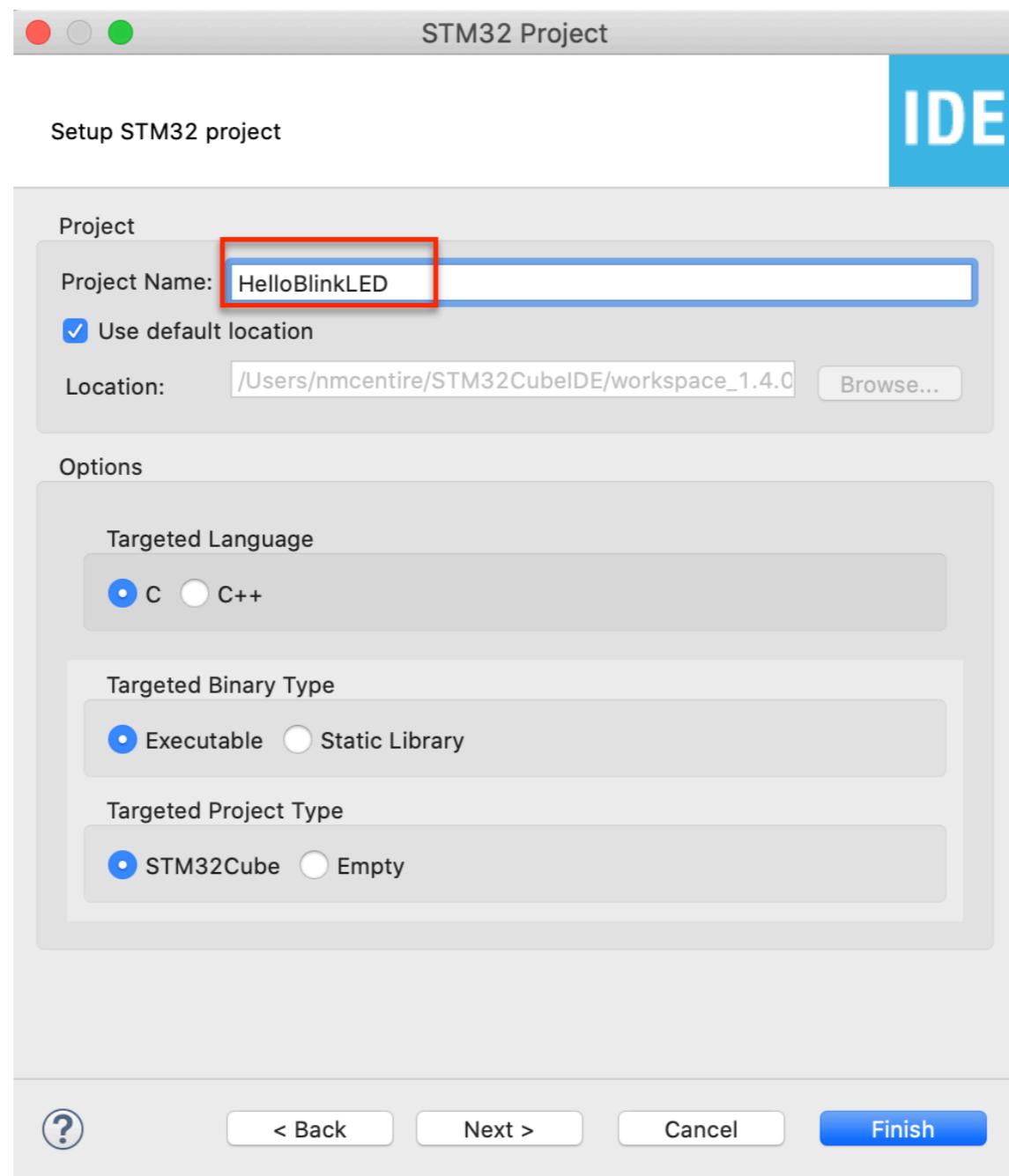
## B-L475E-IOT01A1

The screenshot shows the STM32 Project interface with the 'Board Selector' tab selected (highlighted by a red box). The main area displays a table of boards under the 'STM32L4 Series' heading. The table includes columns for Overview, Commercial Part No., Type, Marketing Status, Unit Price (US\$), and Mounted Device. The B-L475E-IOT01A1 board is highlighted with a red box.

*	Overview	Commercial Part No.	Type	Marketing Status	Unit Price (US\$)	Mounted Device
★		B-G474E-DPOW1	Discovery Kit	Active	59.0	<a href="#">STM32G474RETx</a>
★		B-L072Z-LRWAN1	Discovery Kit	Active	46.5	<a href="#">STM32L072CZYx</a>
★		B-L462E-CELL1	Discovery Kit	NA	NA	<a href="#">STM32L462REYx</a>
★		<b>B-L475E-IOT01A1</b>	Discovery Kit	Active	53.0	<a href="#">STM32L475VGTx</a>
★		B-L475E-IOT01A2	Discovery Kit	NA	NA	<a href="#">STM32L475VGTx</a>

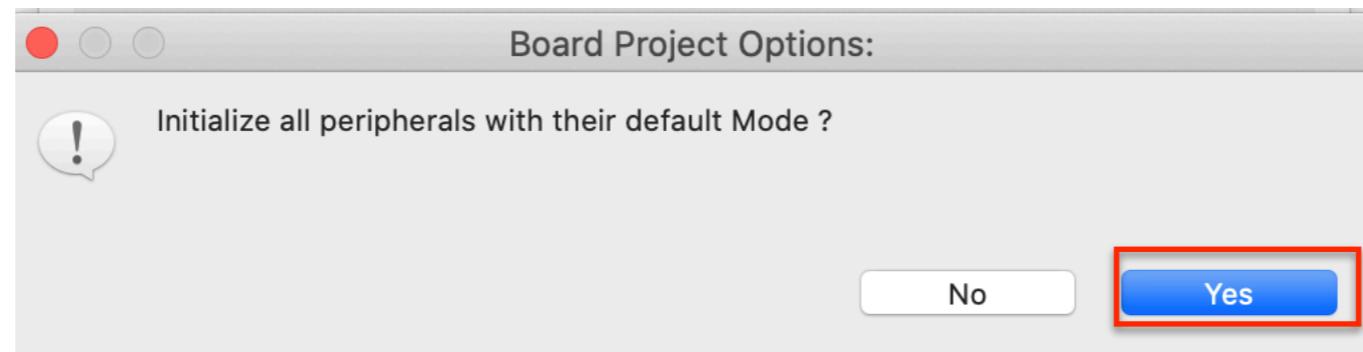
# Setup Project

## HelloBlinkLED



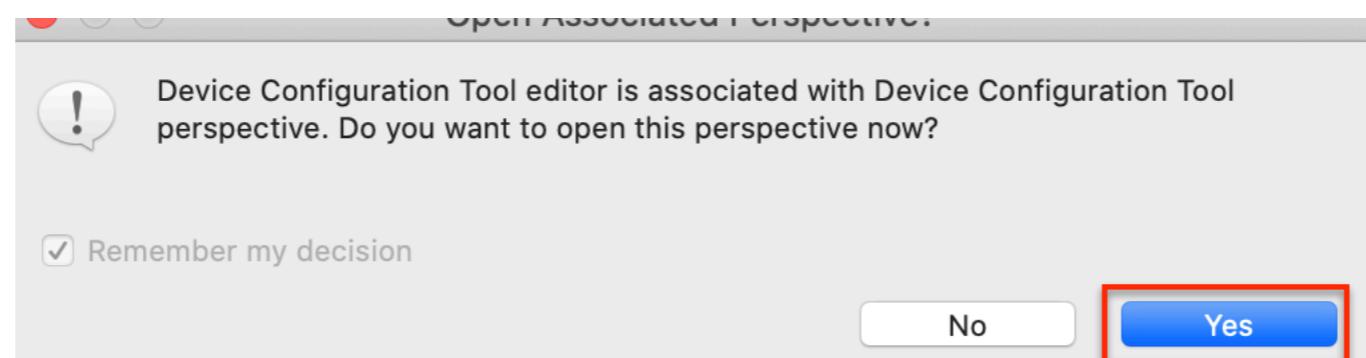
# Setup Project

## Init all peripherals to default mode

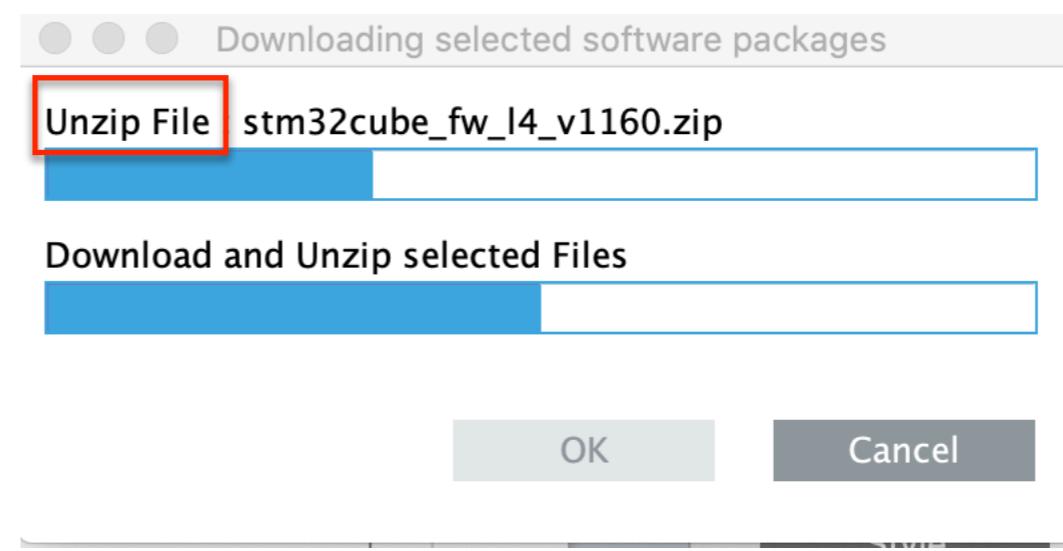
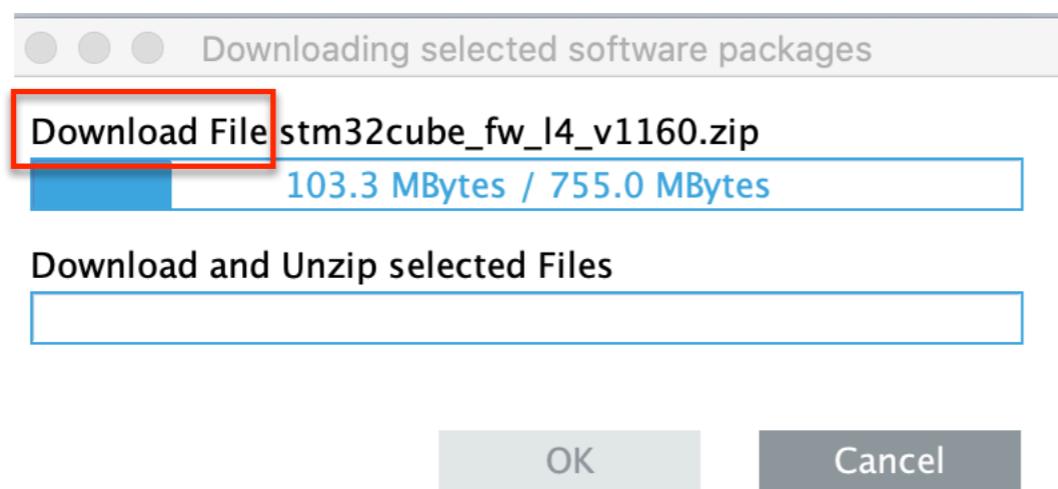


# Setup Project

# Open Device Config Tool Perspective

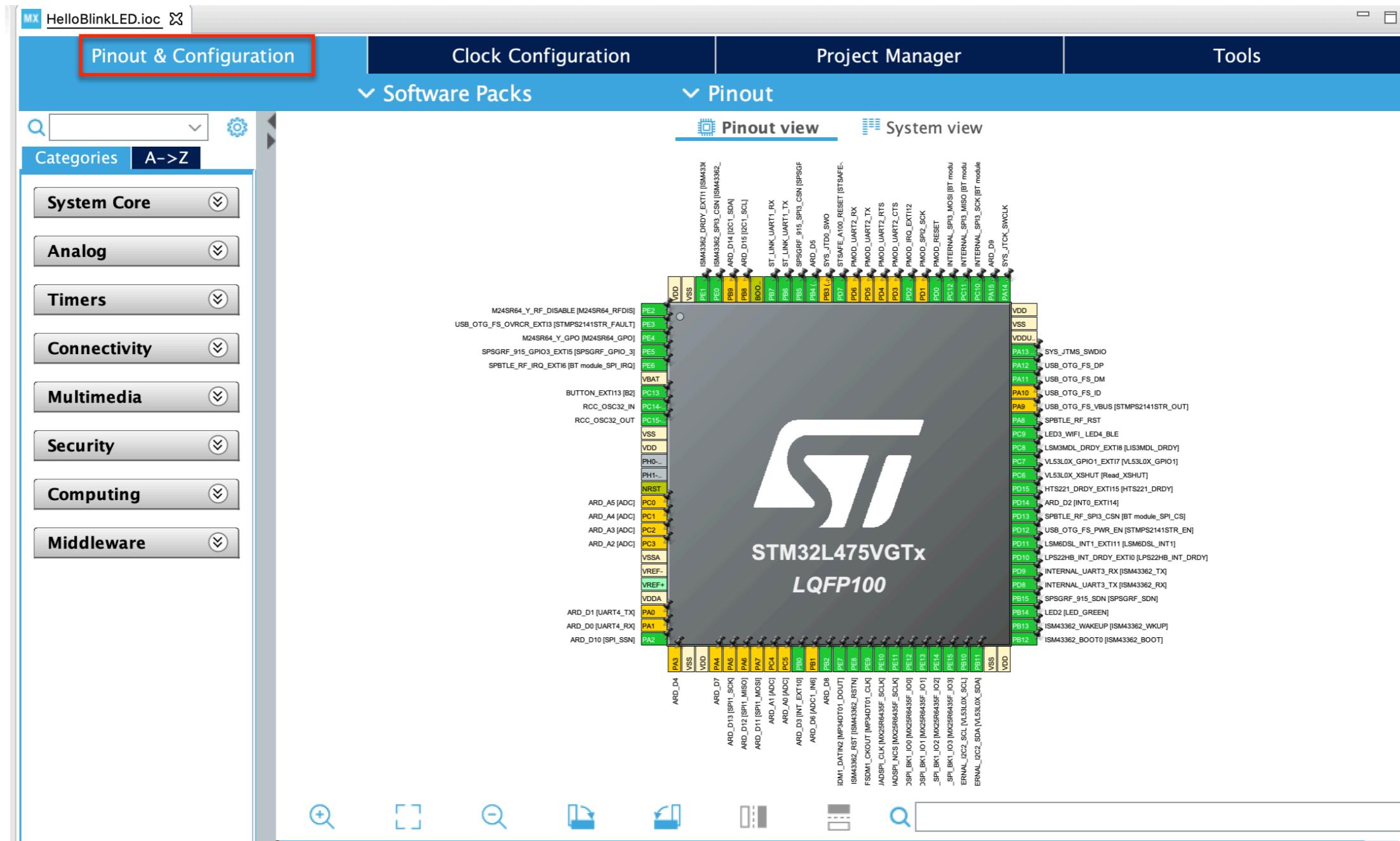


# Downloading Software

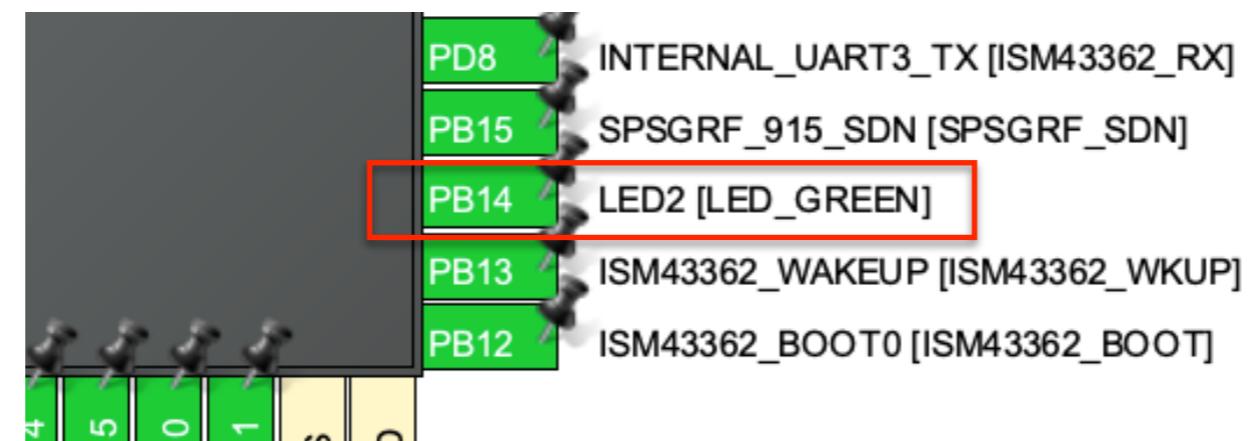


# Device Config Perspective

## Pinout & Configuration

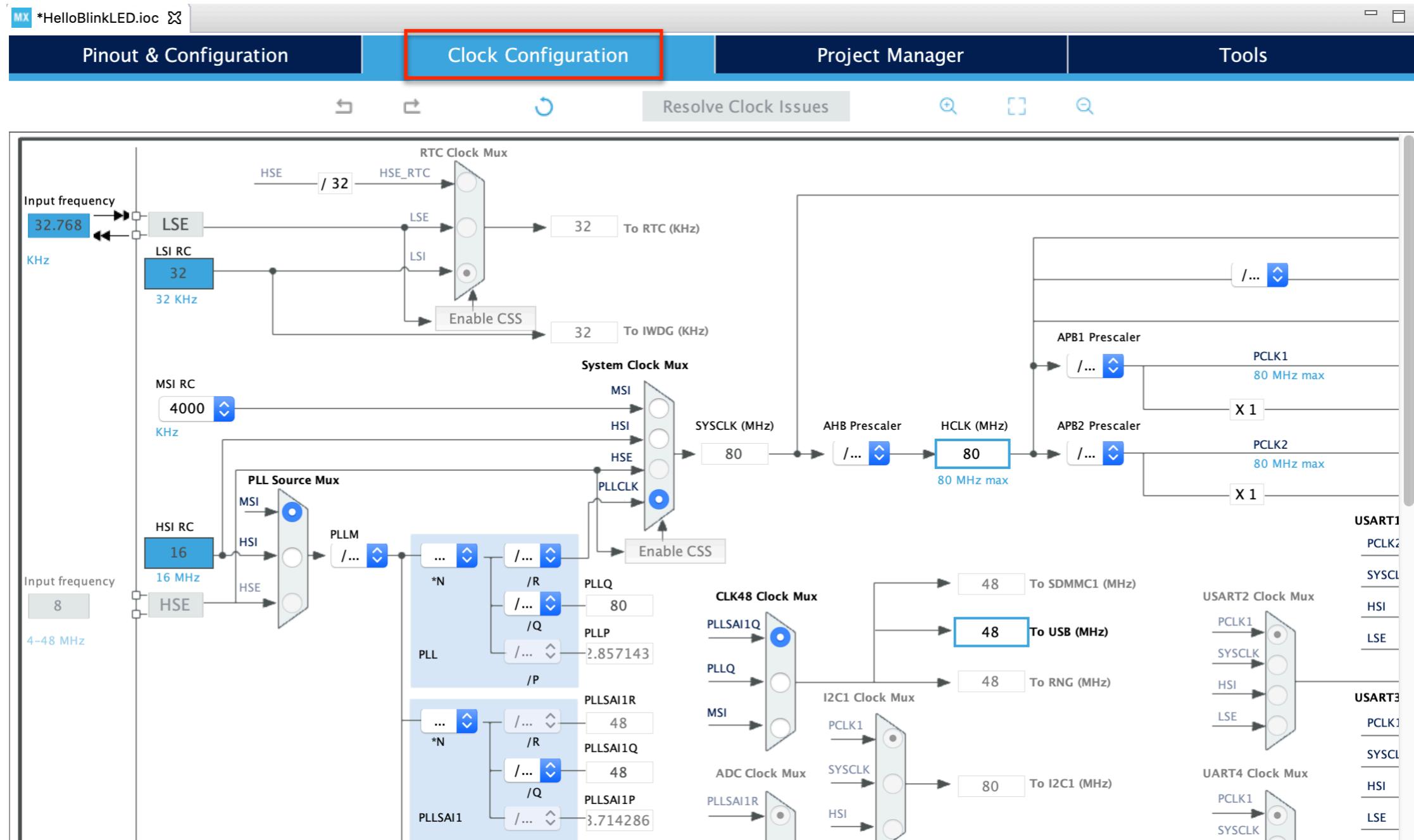


# LED2



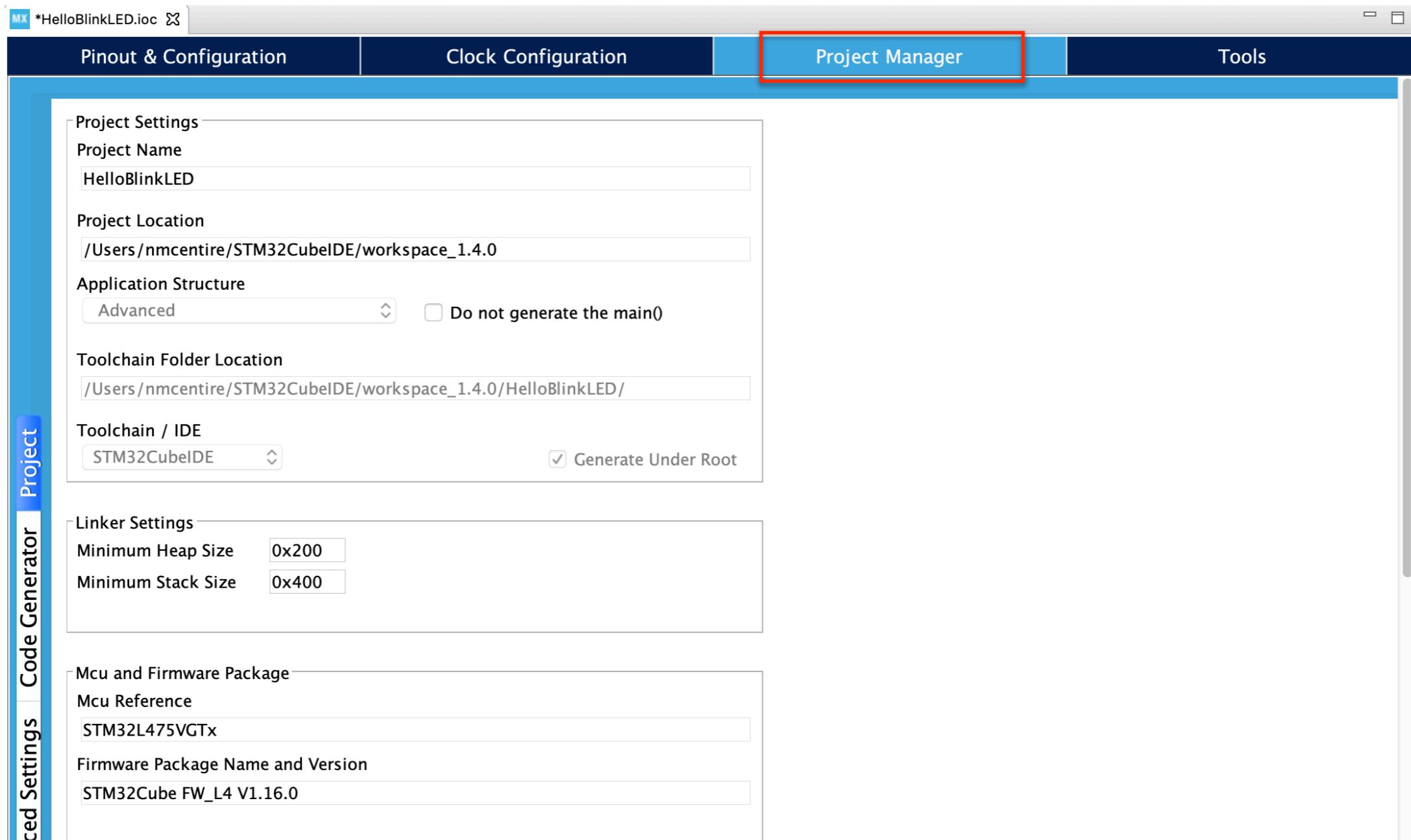
# Device Config Perspective

## Clock Configuration

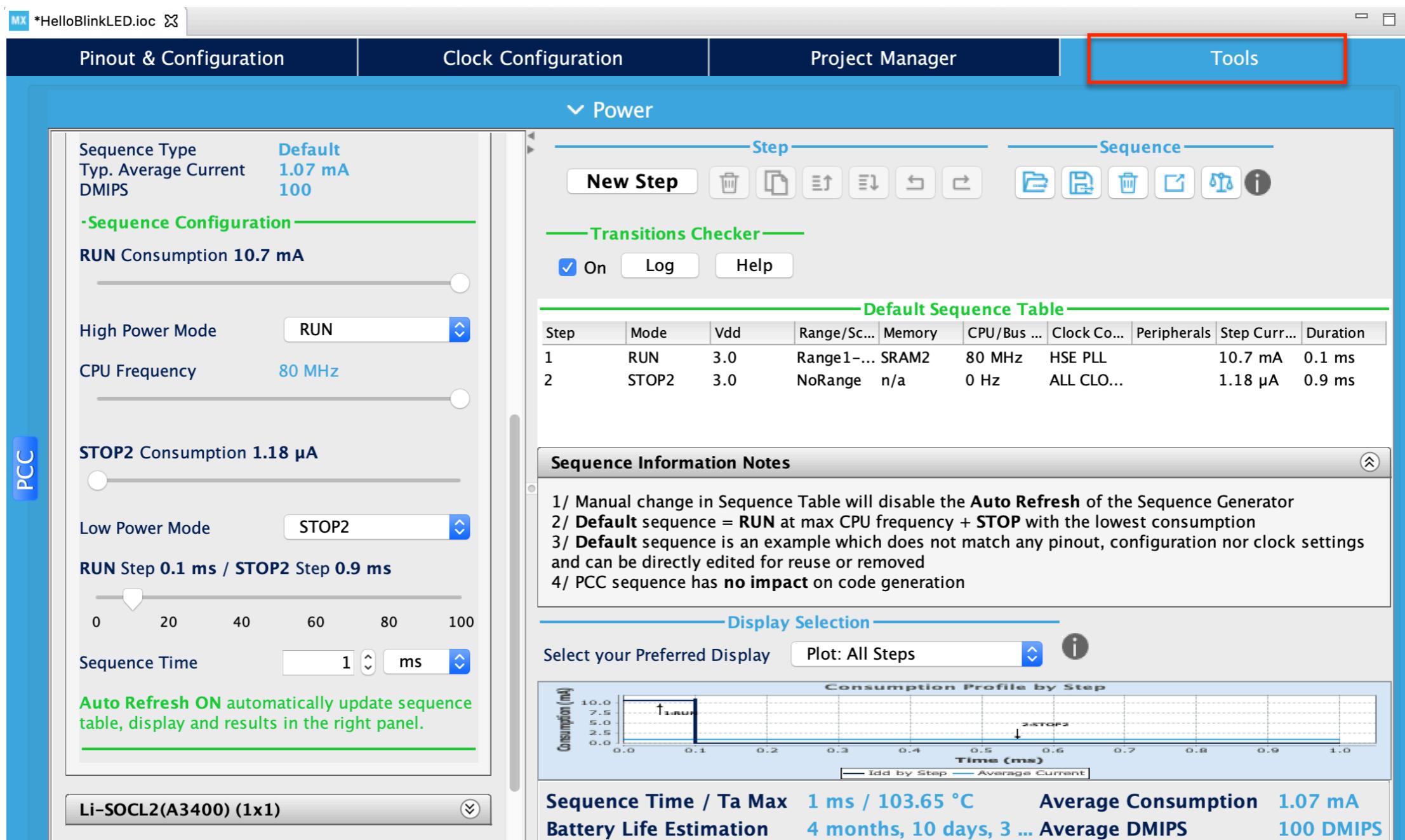


# Device Config Perspective

## Project Manager

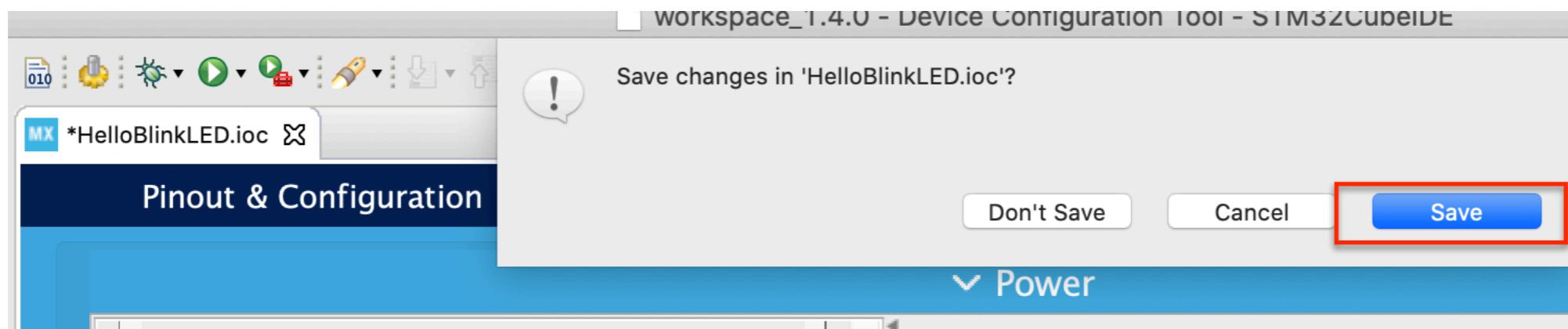


# Device Config Perspective Tools



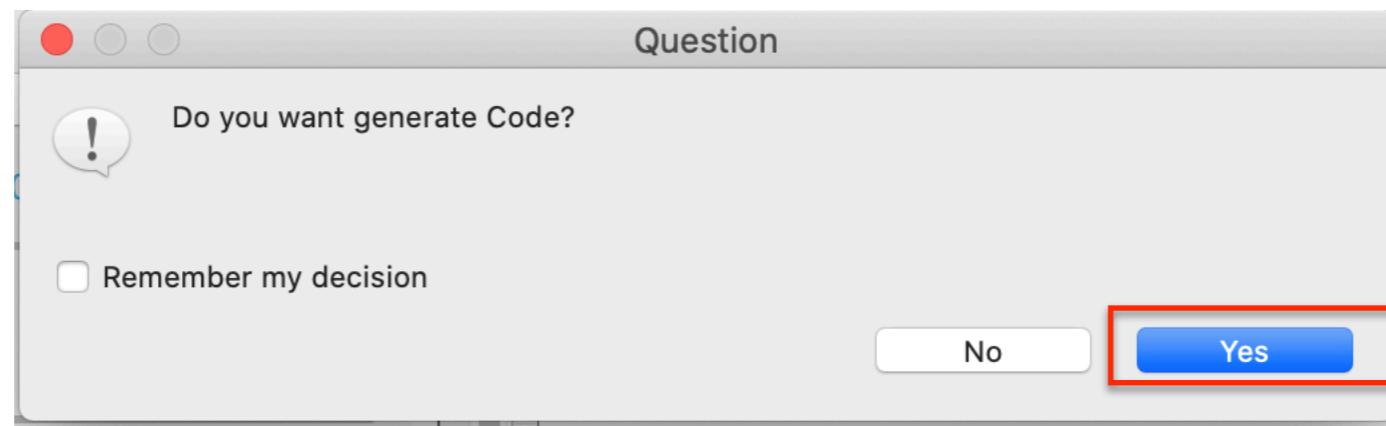
# Device Config Perspective

## Save Changes



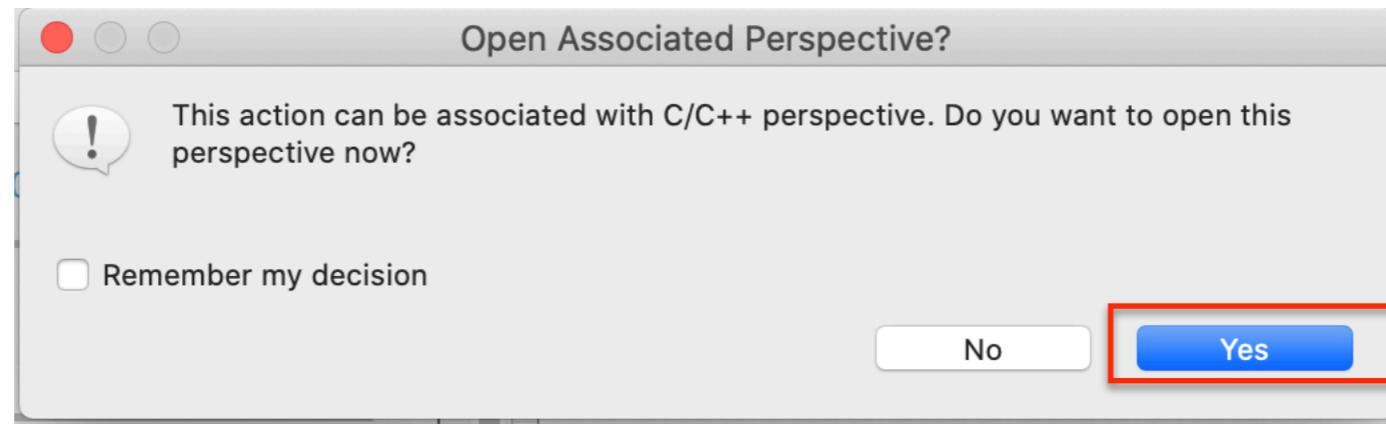
# Device Config Perspective

## Generate Code



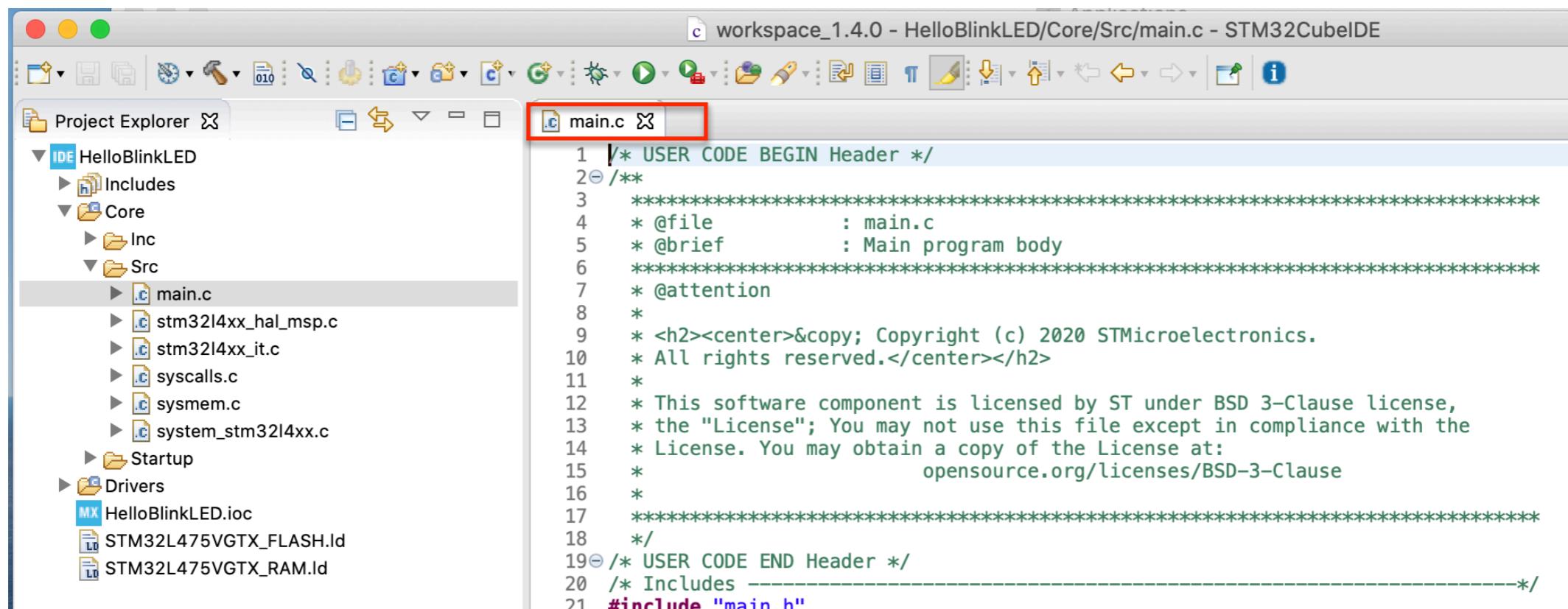
# Device Config Perspective

## Open C/C++ Perspective



# main.c

# main.c



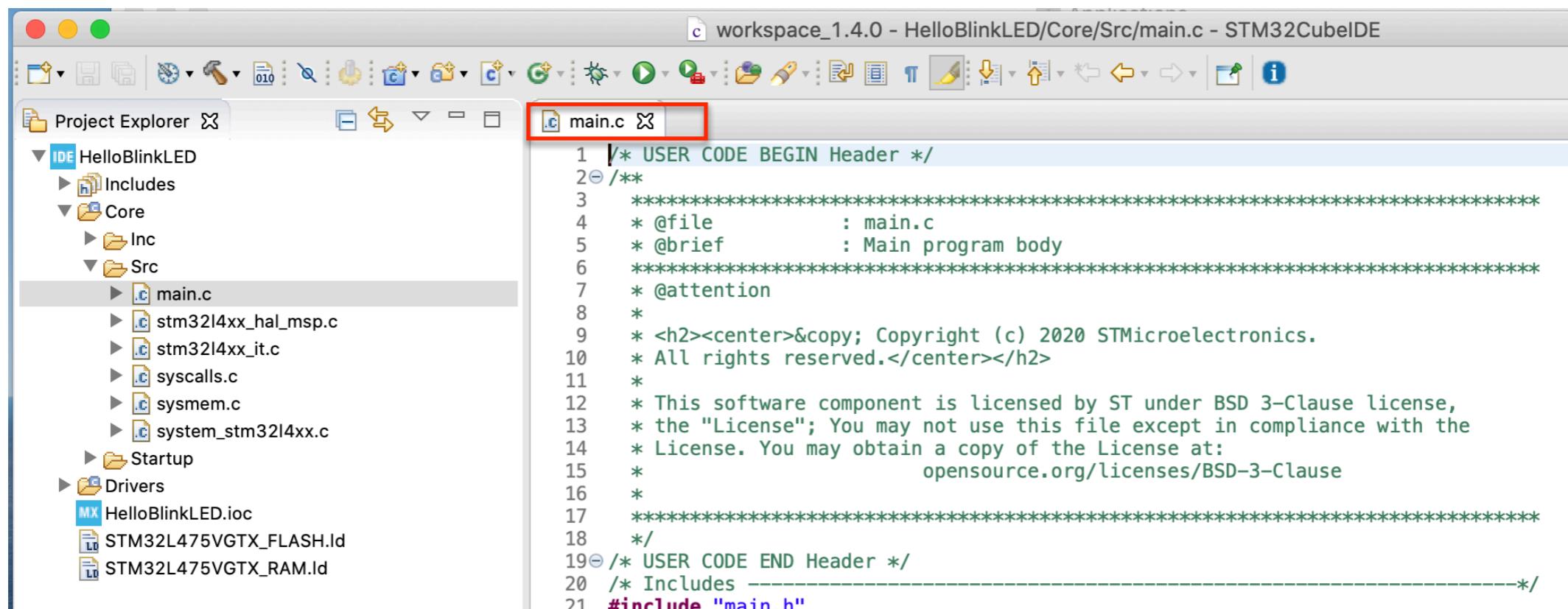
The screenshot shows the STM32CubeIDE interface. The Project Explorer on the left displays a project named "HelloBlinkLED" with the following structure:

- IDE HelloBlinkLED
  - Includes
  - Core
    - Inc
    - Src
      - main.c
      - stm32l4xx\_hal\_msp.c
      - stm32l4xx\_it.c
      - syscalls.c
      - sysmem.c
      - system\_stm32l4xx.c
    - Startup
  - Drivers
  - MX HelloBlinkLED.ioc
  - STM32L475VGTX\_FLASH.Id
  - STM32L475VGTX\_RAM.Id

The Editor tab on the right shows the content of the main.c file:

```
1 /* USER CODE BEGIN Header */
2 /**
3  * @file      : main.c
4  * @brief     : Main program body
5  * @attention
6  *
7  * <h2><center>&copy; Copyright (c) 2020 STMicroelectronics.
8  * All rights reserved.</center></h2>
9  *
10 * This software component is licensed by ST under BSD 3-Clause license,
11 * the "License"; You may not use this file except in compliance with the
12 * License. You may obtain a copy of the License at:
13 *           opensource.org/licenses/BSD-3-Clause
14 *
15 * -----
16 *
17 * -----
18 */
19 /* USER CODE END Header */
20 /* Includes ----- */
21 #include "main.h"
```

# main.c



The screenshot shows the STM32CubeIDE interface. The Project Explorer on the left lists a project named "HelloBlinkLED" with several source files under "Core/Src": main.c, stm32l4xx\_hal\_msp.c, stm32l4xx\_it.c, syscalls.c, sysmem.c, and system\_stm32l4xx.c. The "main.c" file is selected and highlighted in the Project Explorer. In the center, the code editor displays the content of main.c. The code starts with a header comment and ends with an include directive.

```
/* USER CODE BEGIN Header */
/*
 * @file      : main.c
 * @brief     : Main program body
 * @attention
 *
 * <h2><center>&copy; Copyright (c) 2020 STMicroelectronics.
 * All rights reserved.</center></h2>
 *
 * This software component is licensed by ST under BSD 3-Clause license,
 * the "License"; You may not use this file except in compliance with the
 * License. You may obtain a copy of the License at:
 *          opensource.org/licenses/BSD-3-Clause
 *
 */
/* USER CODE END Header */
/* Includes */
#include "main.h"
```

# main() - while(1) Default Code

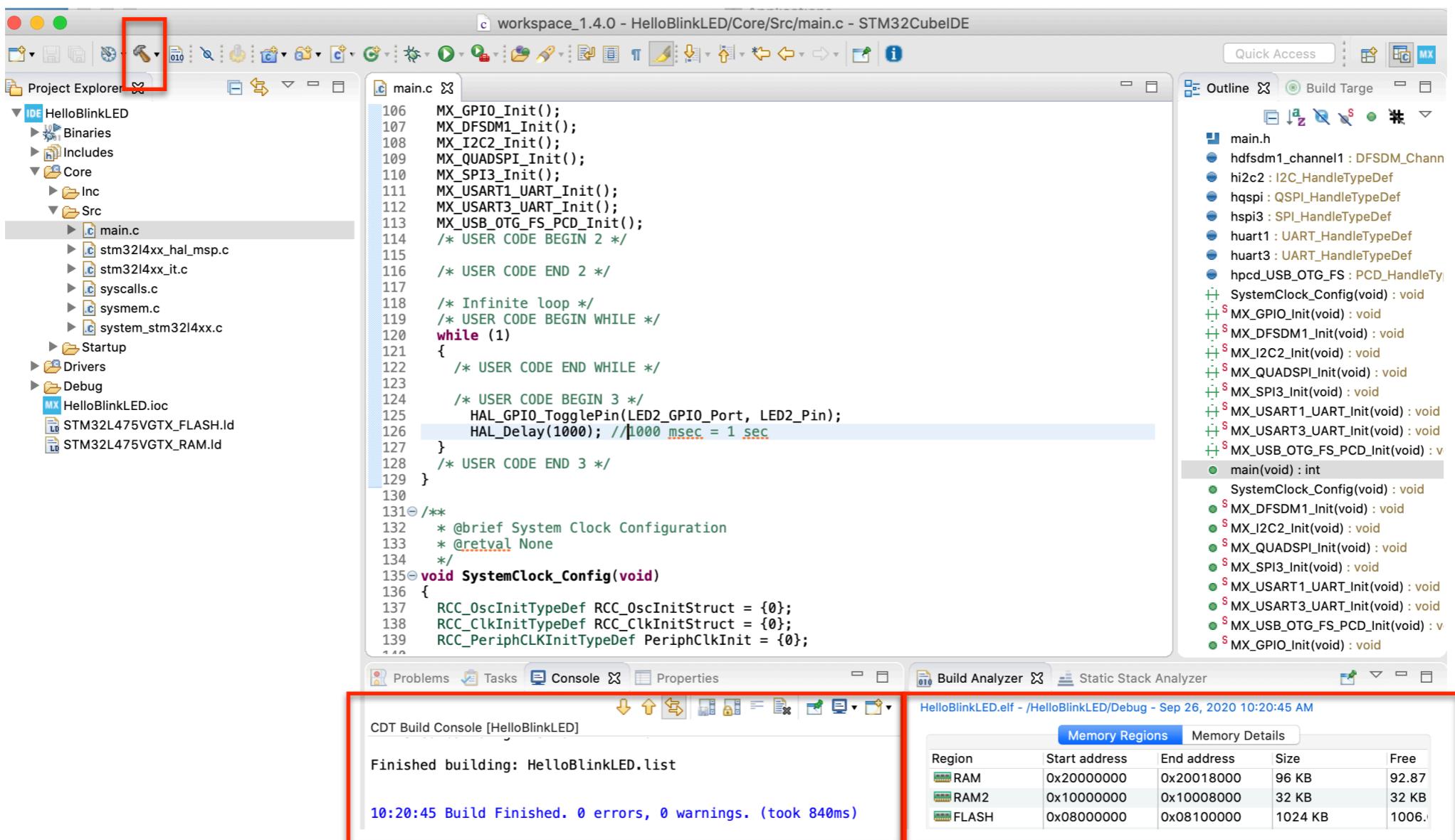
```
117  
118     /* Infinite loop */  
119     /* USER CODE BEGIN WHILE */  
120     while (1)  
121     {  
122         /* USER CODE END WHILE */  
123  
124         /* USER CODE BEGIN 3 */  
125     }  
126     /* USER CODE END 3 */  
127 }  
128
```

# main() - while(1) LED Blink Code

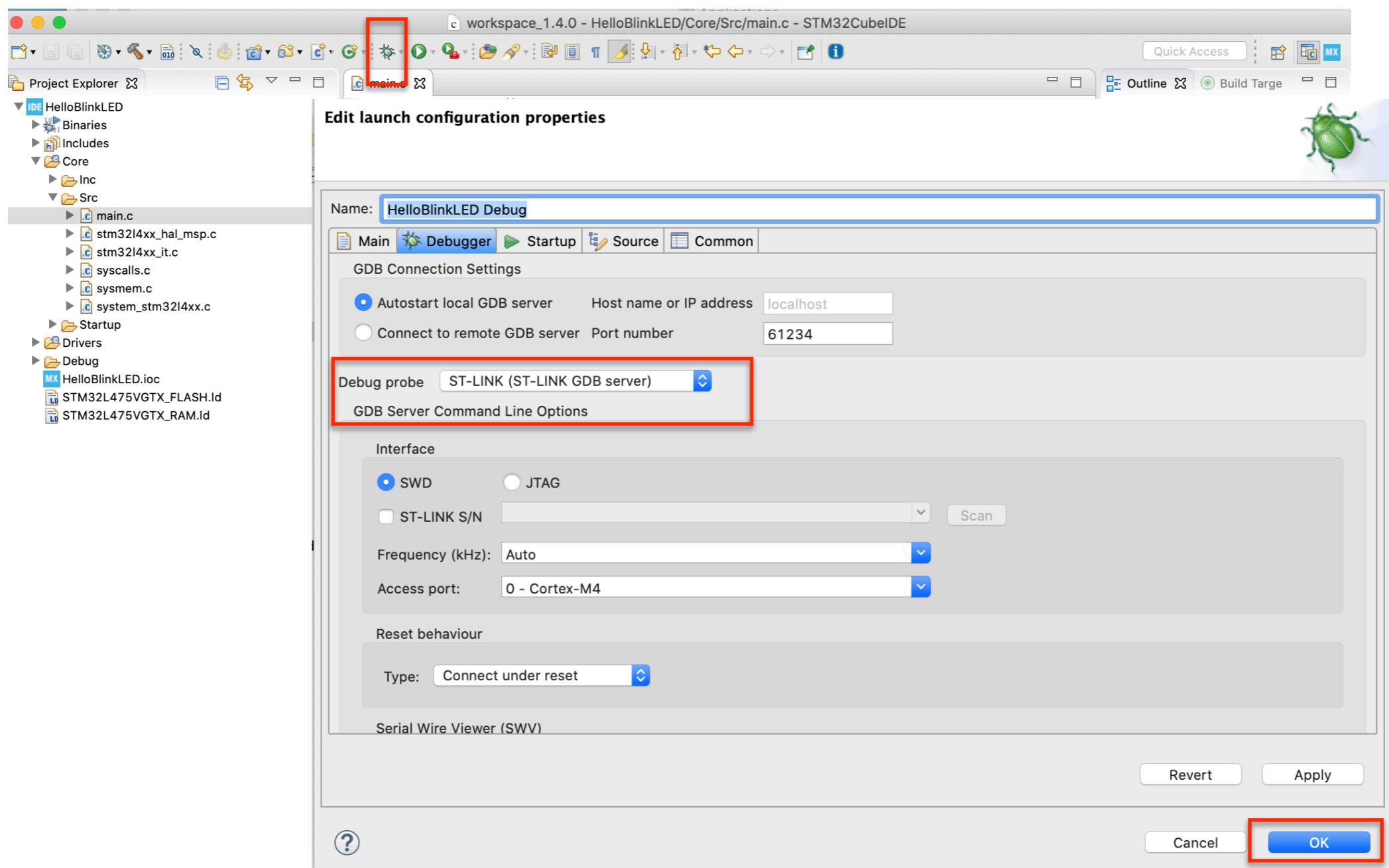
```
11/
118  /* Infinite loop */
119  /* USER CODE BEGIN WHILE */
120  while (1)
121  {
122      /* USER CODE END WHILE */
123
124      /* USER CODE BEGIN 3 */
125      HAL_GPIO_TogglePin(LED2_GPIO_Port, LED2_Pin);
126      HAL_Delay(1000); //1000 msec = 1 sec
127  }
128  /* USER CODE END 3 */
129 }
```

# Build and Run

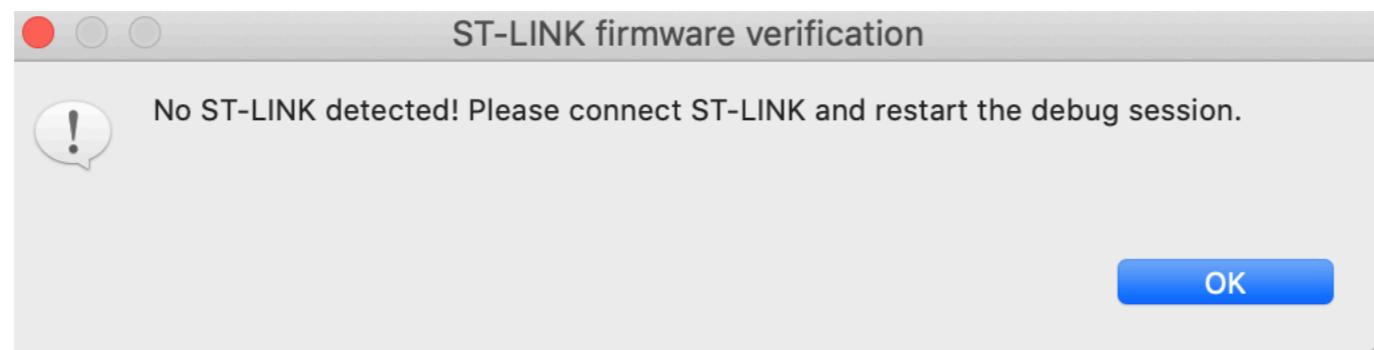
# Building



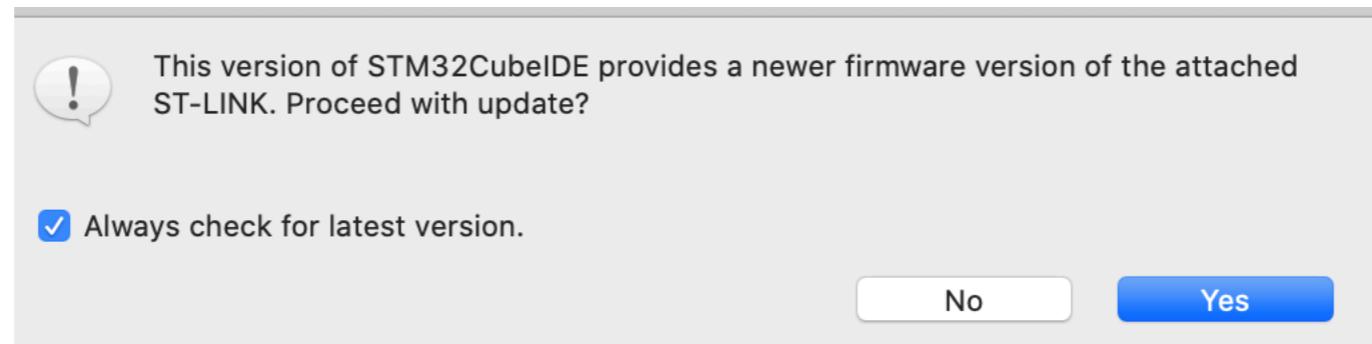
# Debugging



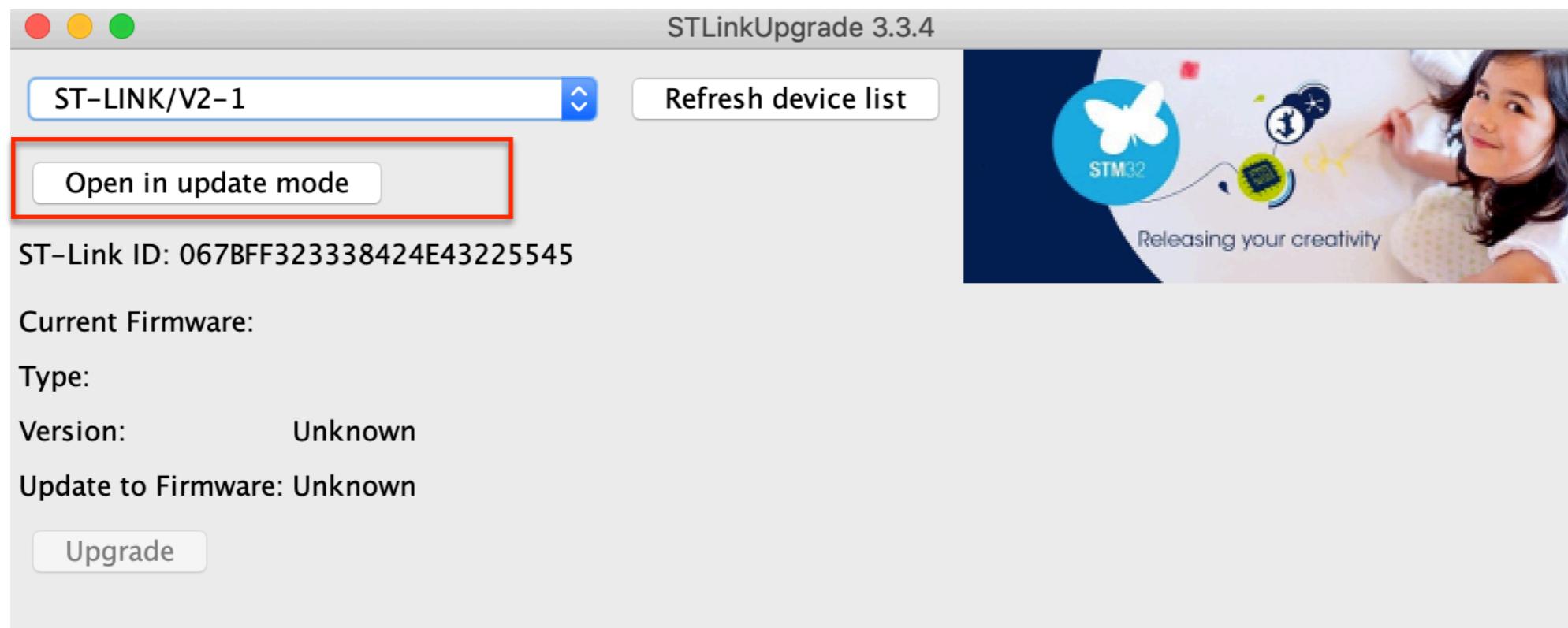
# If ST-LINK Not Detected



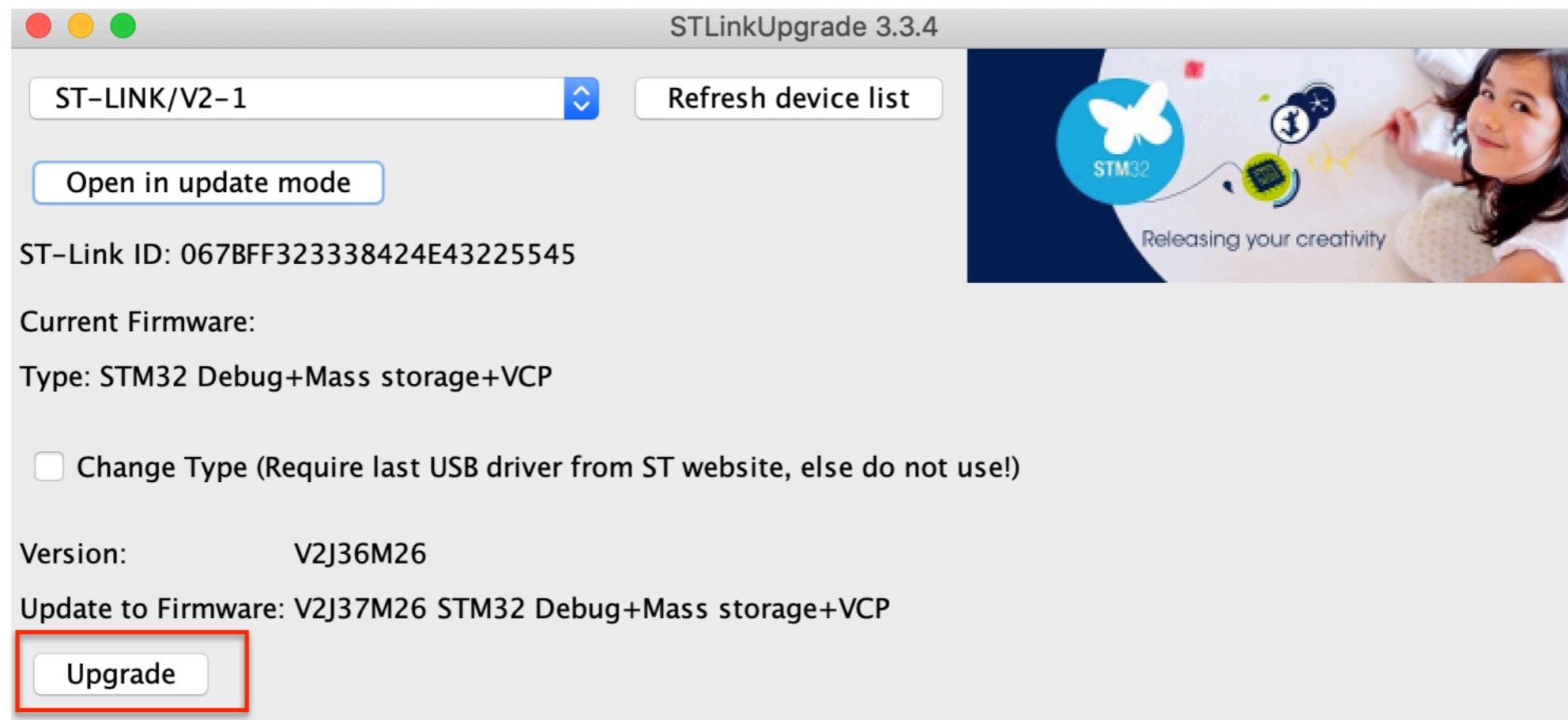
# If ST-LINK Needs Firmware Update



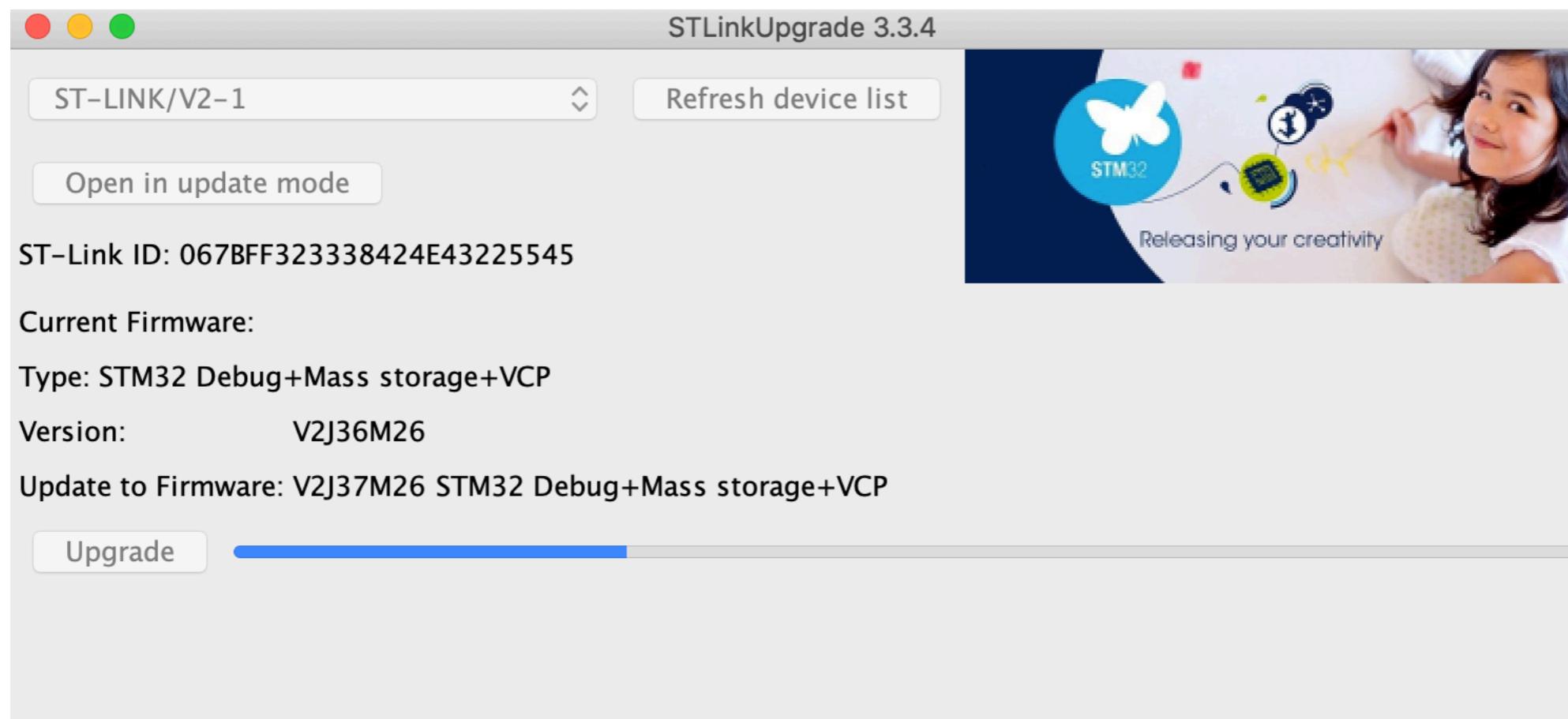
# ST-Link Update - 1



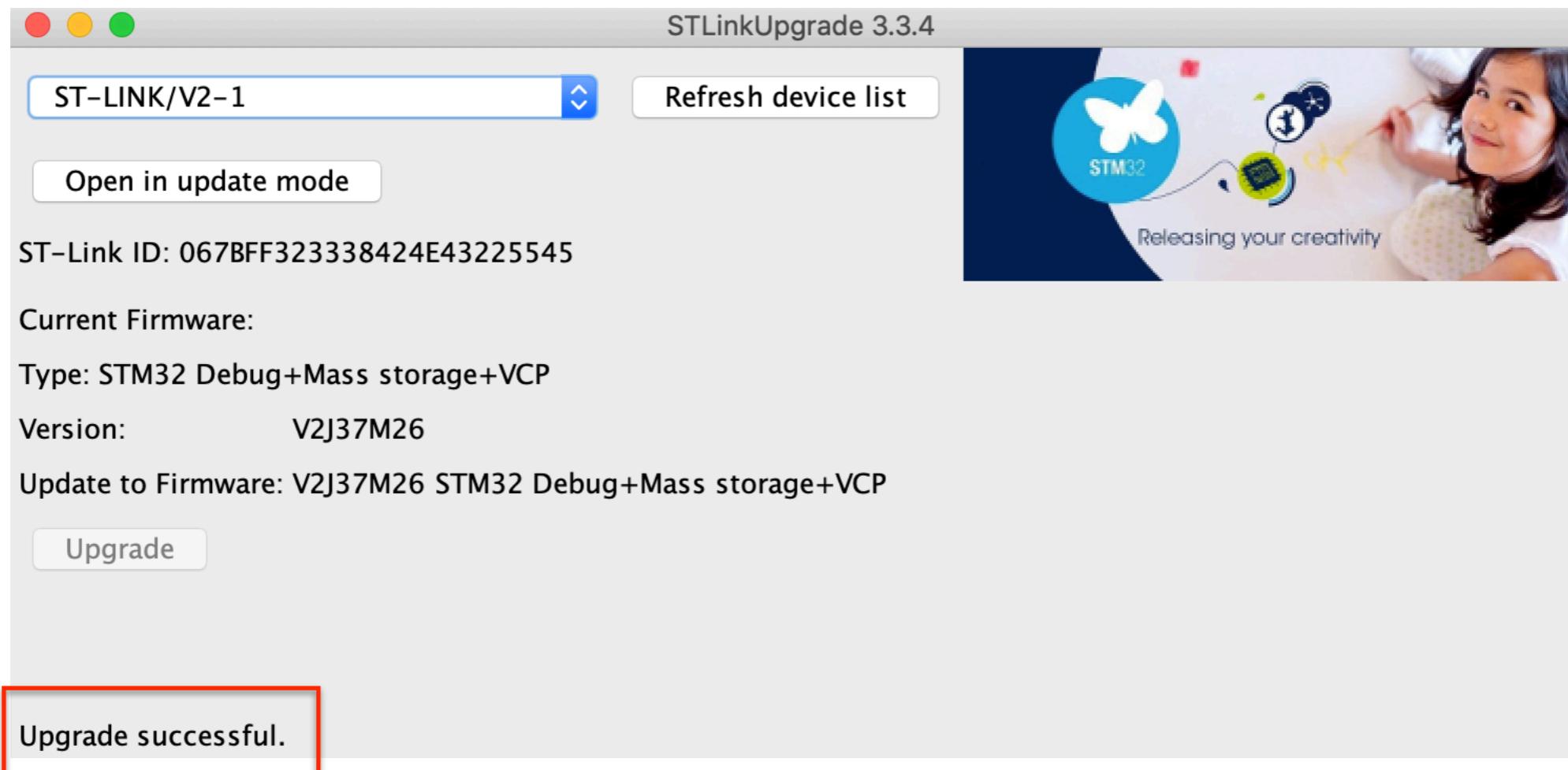
# ST-Link Update - 2



# ST-Link Update - 3

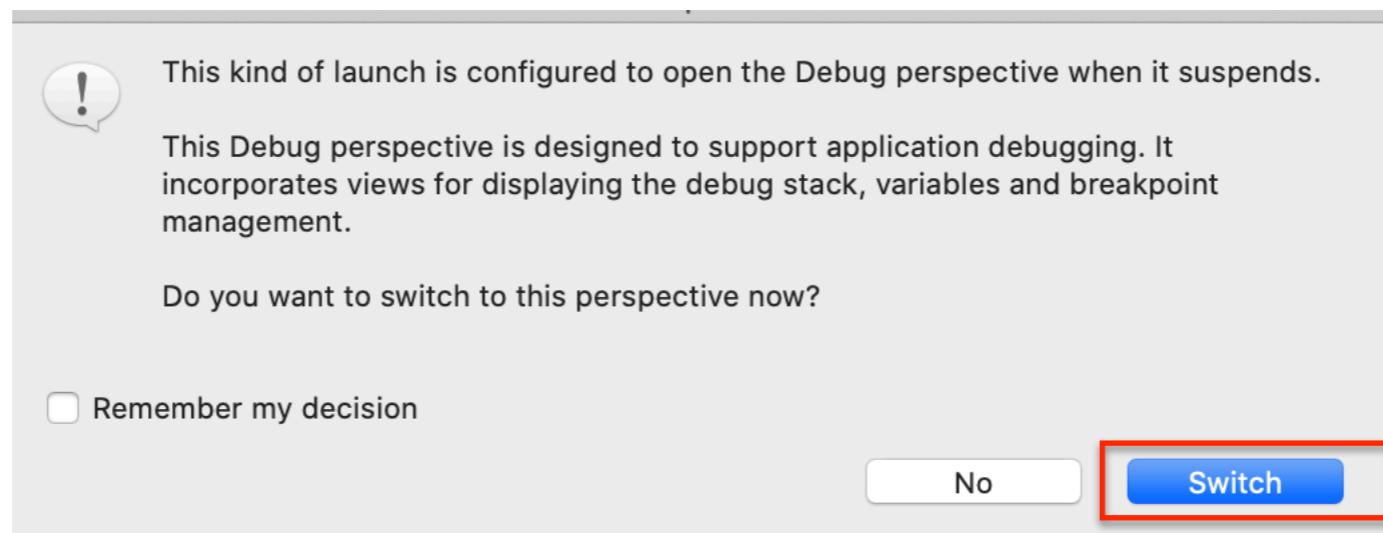


# ST-Link Update - 4

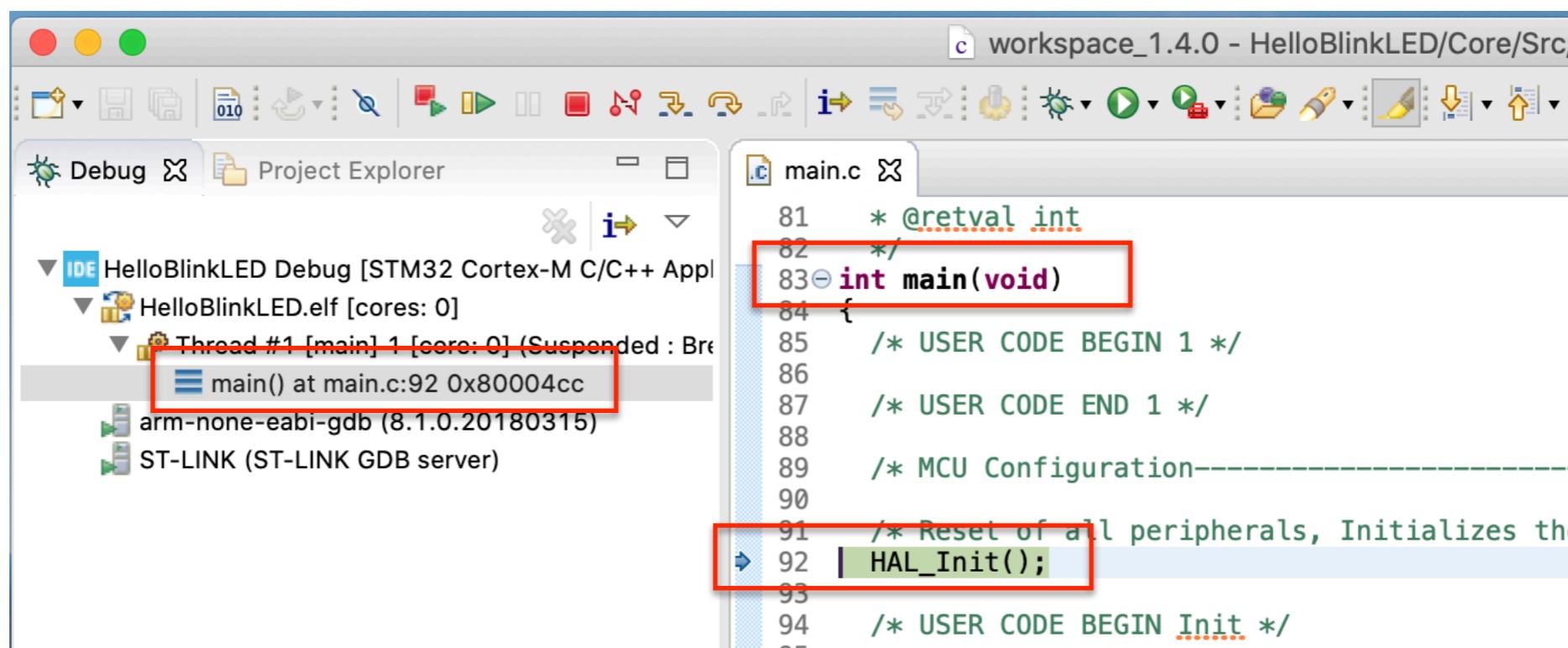


# Back to Startup In Debug

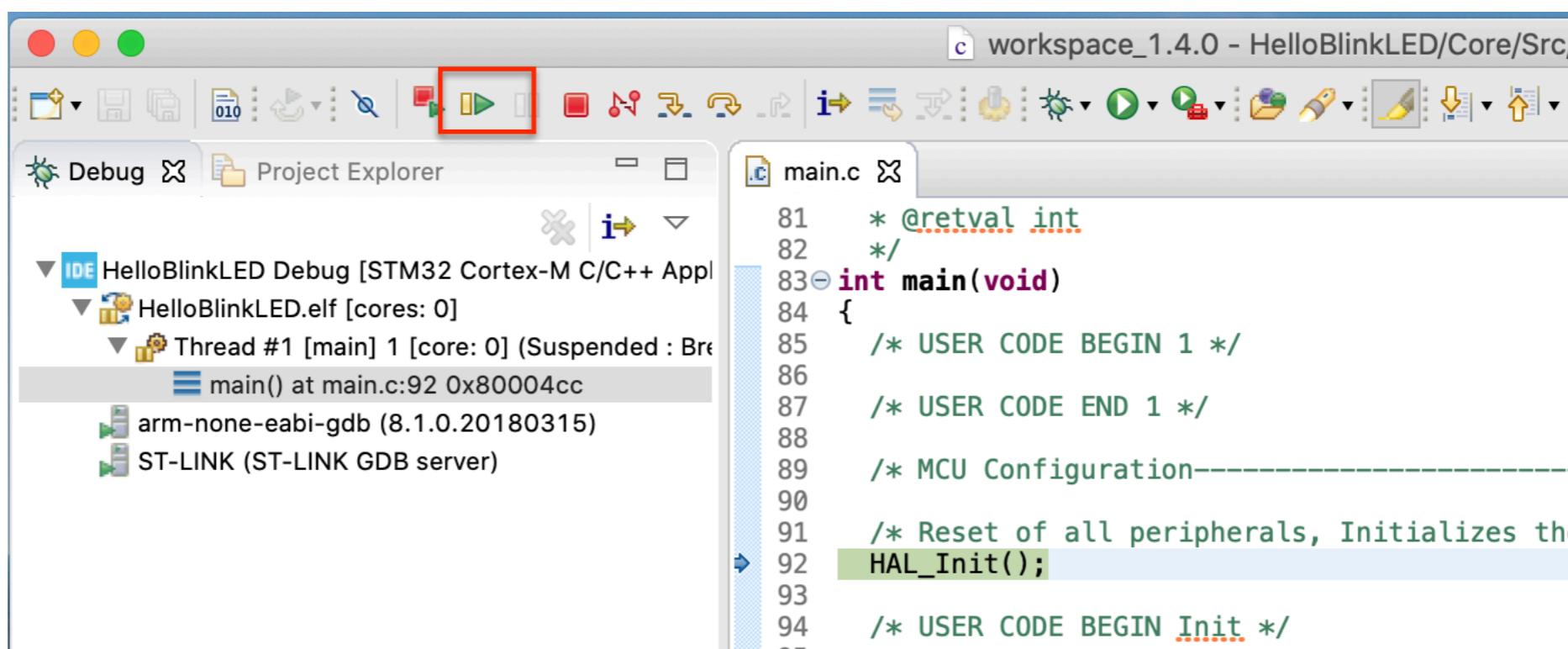
# Change to Debug Perspective



# Hit Breakpoint



# Resume



# Results

# LED Blinking!

