

[STM32WB Workshop - Installation Procedure \(v1.0\)](#)

Welcome to the STM32WB Workshop!

Please follow all installation steps below before the day of the Workshop.

[STM32WB Workshop – Requirements](#)

Important:

You need to have administration rights on your Laptop Computer to be able to install drivers and software and also to do the workshop.

You need to bring an iOS or Android Smartphone/Tablet with Bluetooth 4.0 (BLE) support.

Note: Most modern iOS and Android devices, since 2012, support Bluetooth 4.0 (BLE) or later.

System requirements for Laptop Computer:

Windows® 7 and later or MacBook running Windows using Parallels, VM Fusion

Software requirements for Laptop Computer:

Install Java™ Run Time Environment for 1.8.0 or later. If Java™ is not installed on your computer or if you have an old version, STM32CubeMX and STM32CubeProgrammer installer will open the Java™ download web page and stop.

Minimum Recommended Hardware Requirements for Laptop Computer:

- Type A USB port
- 2+ GHz processor
- 4 GB of system memory (RAM)
- 10 GB of available disk space

Note: For machines with USB Type C, please bring a Type A to Type C adapter.

STM32WB Workshop - Installation Procedure – Introduction:

In the following installation procedure, you are going to install the following Software/Tools/Libraries that are needed for the Workshop:

- [STM32CubeMX](#): version 5.1.0 minimum required, if you have a previous version you will need to install a new version as explained in this installation procedure.
- [STM32CubeWB](#): version 1.0.0 minimum required, if you have a previous version you will need to install a new one as explained in this installation procedure.
- [STM32CubeProgrammer](#): version 2.0.0 minimum required, if you have a previous version you will need to install a new version as explained in this installation procedure.
- [STM32CubeMonitorRF](#): version 2.3.0 minimum required, if you have a previous version you will need to install a new version as explained in this installation procedure.
- [IAR Embedded Workbench for ARM](#): version 8.32.3 minimum required, if you have a previous version you will need to install a new version as explained in this installation procedure.
- [Tera Term](#): In one of the labs we use a Terminal application to display output, any Terminal Software can be used; however, Tera Term is recommended.
- [ST BLE Sensor App](#): In one of the labs we will use the ST BLE Sensor Smartphone/Tablet app.
- [LightBlue Explorer App](#): In one of the labs we will use the LightBlue Explorer Smartphone/Tablet app from Punch Through Design.

Note: Some of the versions of the software and libraries on our website might have newer version than the version seen in the document, please use the latest version from the links provided in the installation procedure below.

The entire installation procedure can take several hours (downloading and installing).

STM32WB Workshop - Installation Procedure

For the Workshop installation please follow the steps below:

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1- STM32CubeMX: STM32Cube initialization code generator

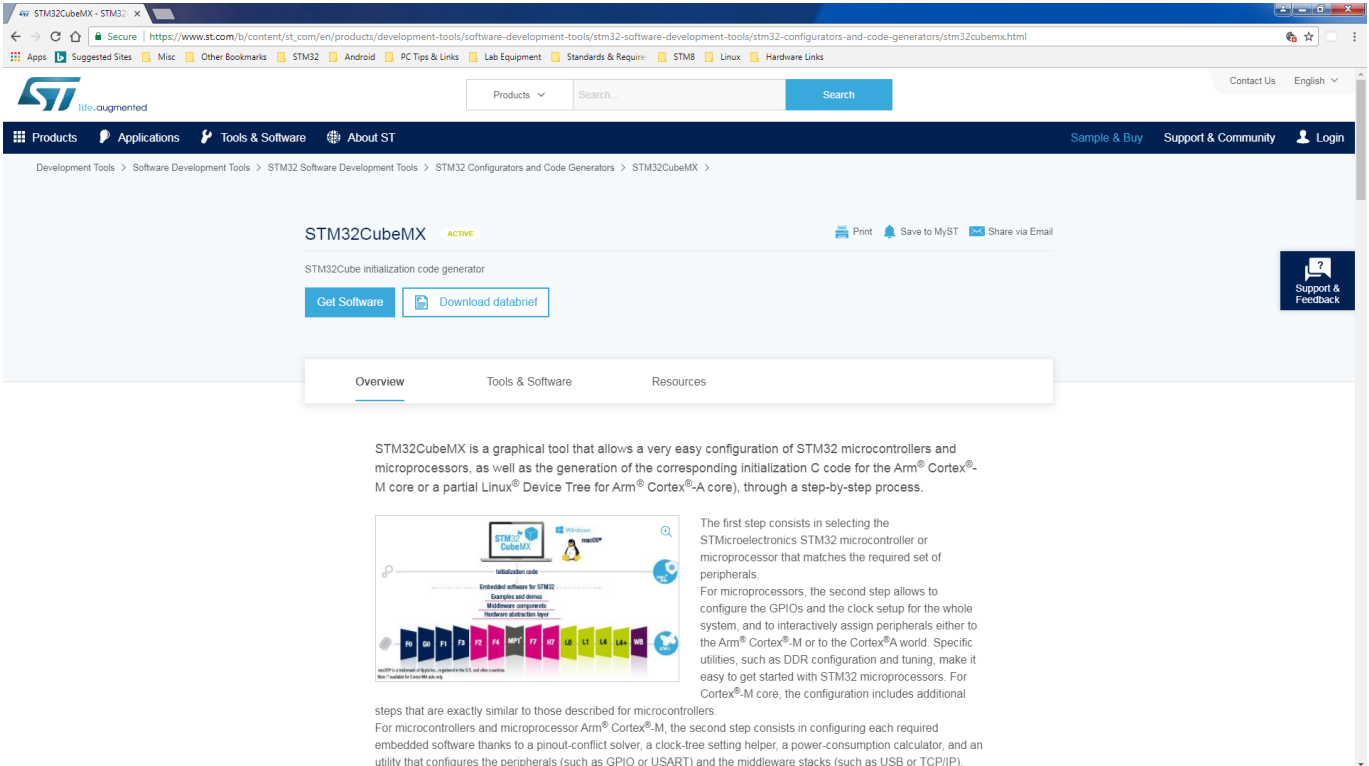
Click Link: [STM32CubeMX](https://www.st.com/en/development-tools/stm32cubemx.html)

Minimum version to be installed: 5.1.0

Or use Direct Install Link:

<https://www.st.com/en/development-tools/stm32cubemx.html>

In the web browser, the following page will come up:



STM32CubeMX ACTIVE

STM32Cube initialization code generator

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Overview Tools & Software Resources

STM32CubeMX is a graphical tool that allows a very easy configuration of STM32 microcontrollers and microprocessors, as well as the generation of the corresponding initialization C code for the Arm® Cortex®-M core or a partial Linux® Device Tree for Arm® Cortex®-A core), through a step-by-step process.

The first step consists in selecting the STMicroelectronics STM32 microcontroller or microprocessor that matches the required set of peripherals. For microprocessors, the second step allows to configure the GPIOs and the clock setup for the whole system, and to interactively assign peripherals either to the Arm® Cortex®-M or to the Cortex®-A world. Specific utilities, such as DDR configuration and tuning, make it easy to get started with STM32 microprocessors. For Cortex®-M core, the configuration includes additional steps that are exactly similar to those described for microcontrollers. For microcontrollers and microprocessor Arm® Cortex®-M, the second step consists in configuring each required embedded software thanks to a pinout-conflict solver, a clock-tree setting helper, a power-consumption calculator, and an utility that configures the peripherals (such as GPIO or USART) and the middleware stacks (such as USB or TCP/IP).

Click on: [Get Software](#)

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Part Number	Software Version	Marketing Status	Supplier	Download	Previous versions
STM32CubeMX	5.1.0	Active	ST	Get Software	Select version

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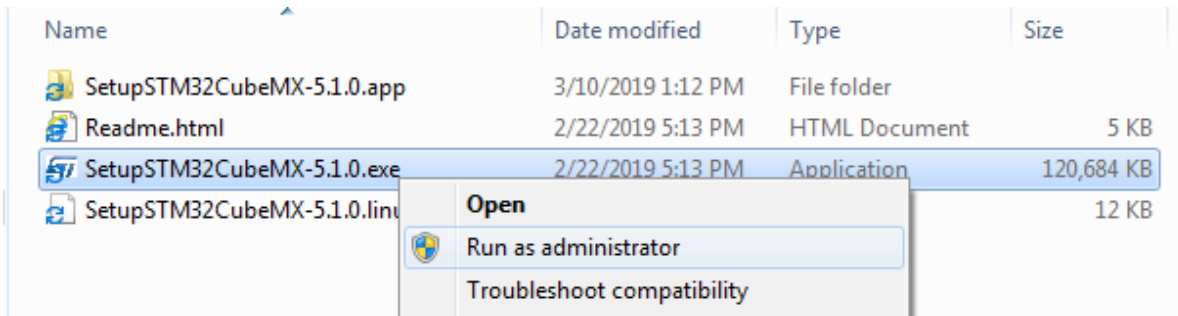
Then click:

Save the file 'en.stm32cubemx.zip' at a location of your choice:

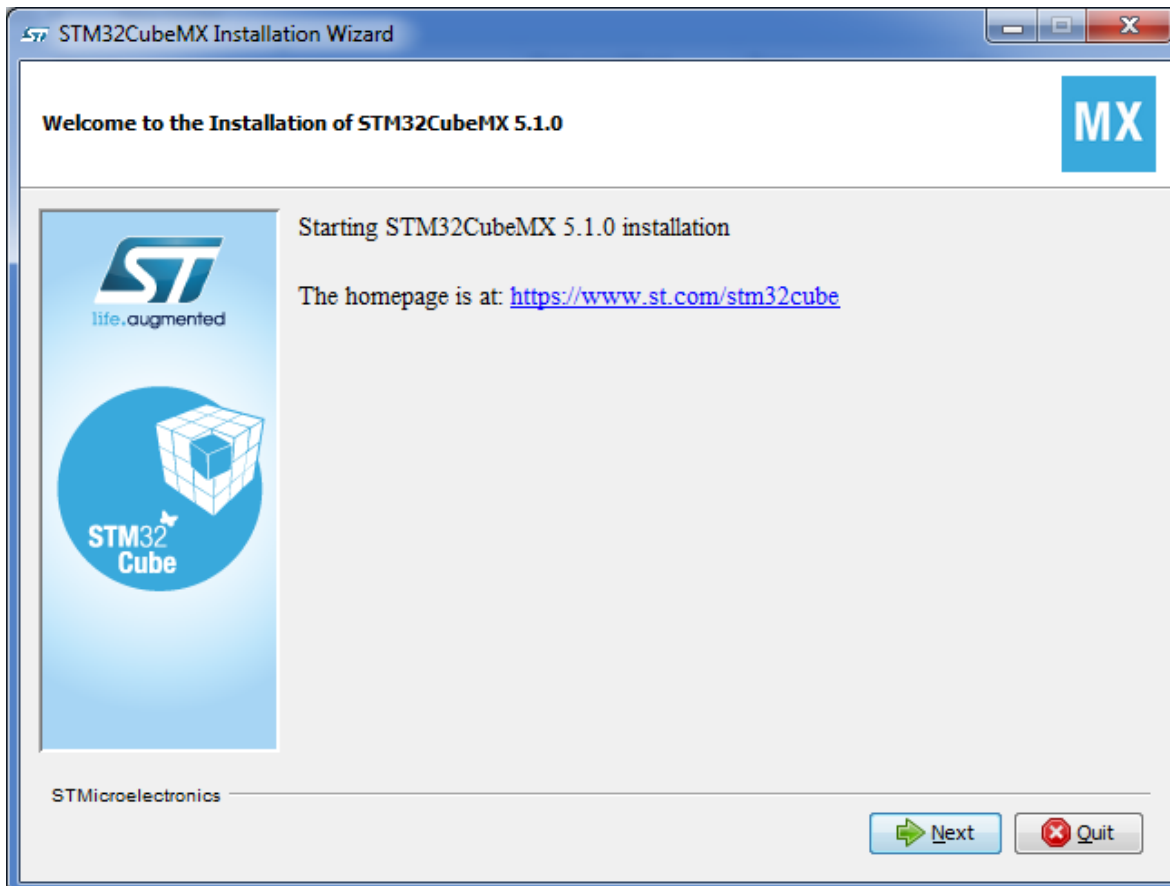
Unzip the file (en.SetupSTM32CubeMX-x.x.x.zip) and you will see this:

Name	Date modified	Type	Size
 SetupSTM32CubeMX-5.1.0.app	3/10/2019 1:12 PM	File folder	
 Readme.html	2/22/2019 5:13 PM	HTML Document	5 KB
 SetupSTM32CubeMX-5.1.0.exe	2/22/2019 5:13 PM	Application	120,684 KB
 SetupSTM32CubeMX-5.1.0.linux	2/22/2019 5:13 PM	LINUX File	12 KB

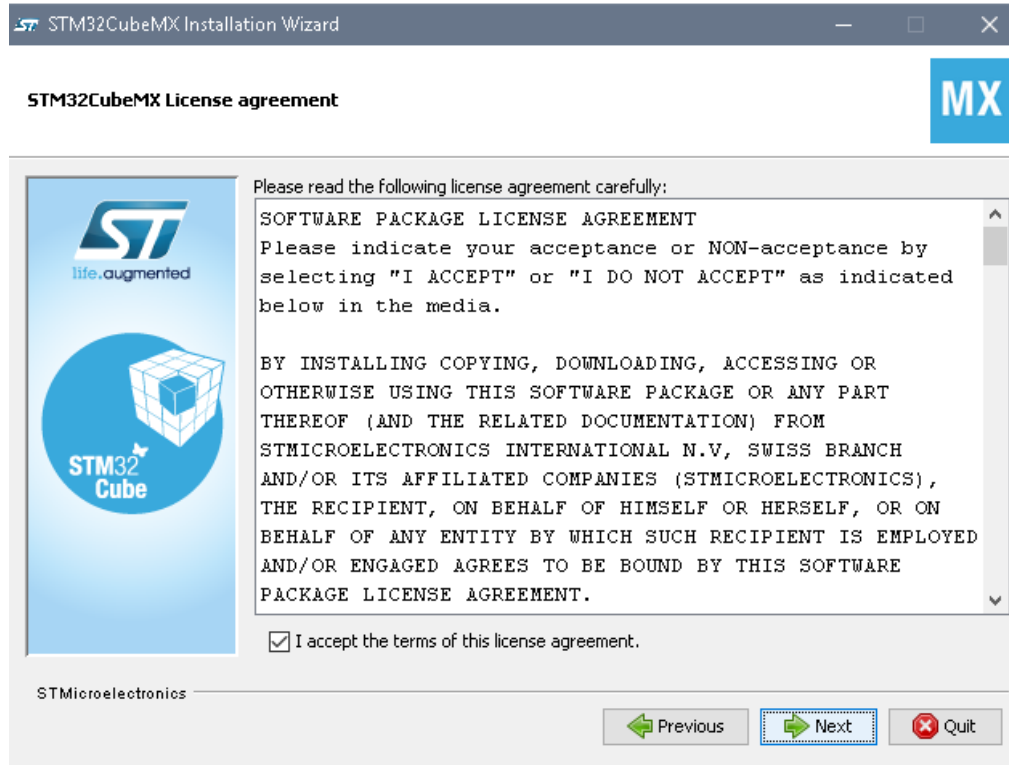
Right Click on 'SetupSTM32CubeMX-x.x.x.exe' (x.x.x is the version number) and Run as administrator:



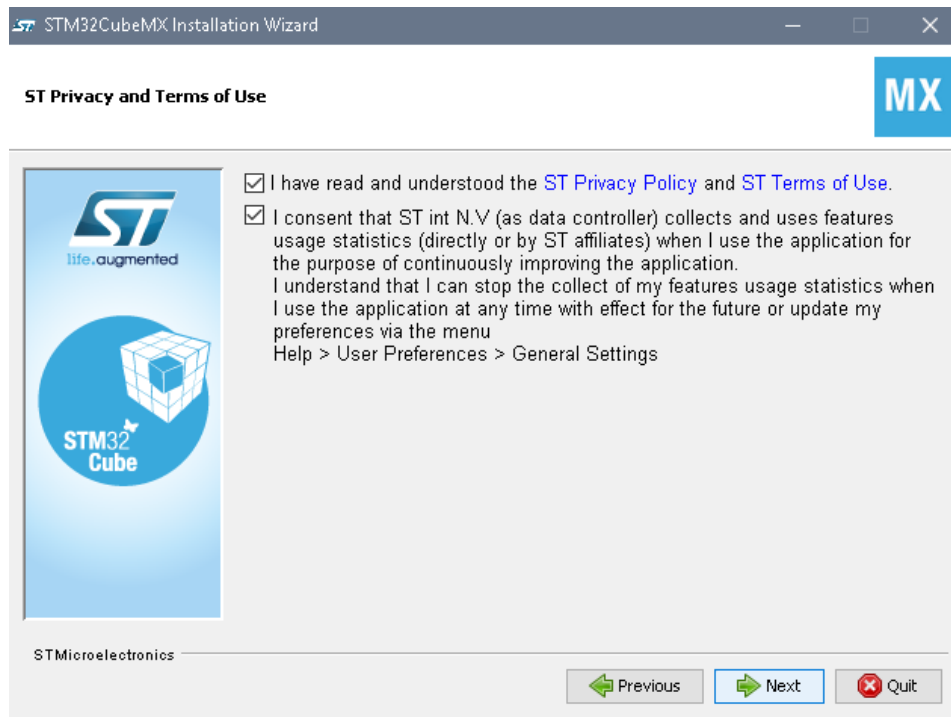
Click Next:



Click Next:

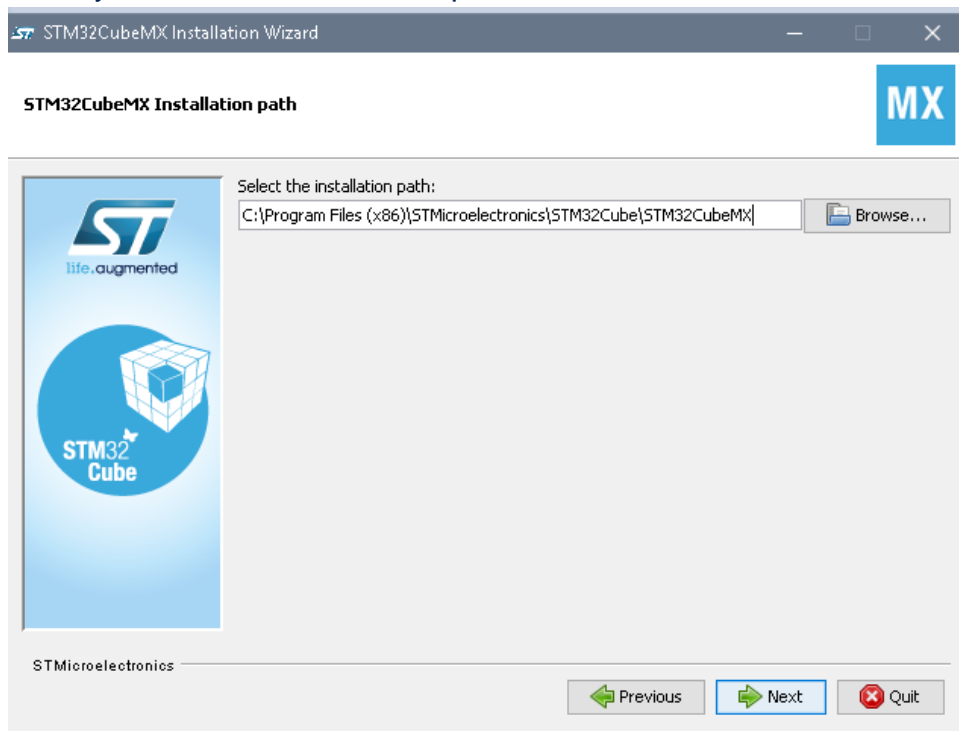


Check the 2 boxes and then Click Next:

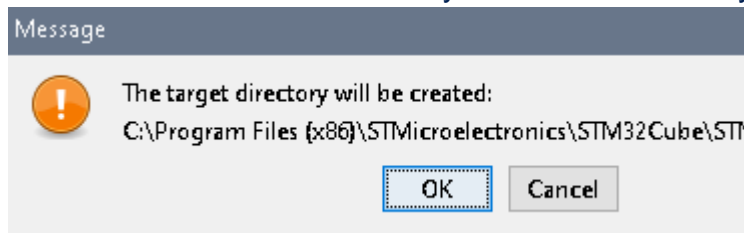


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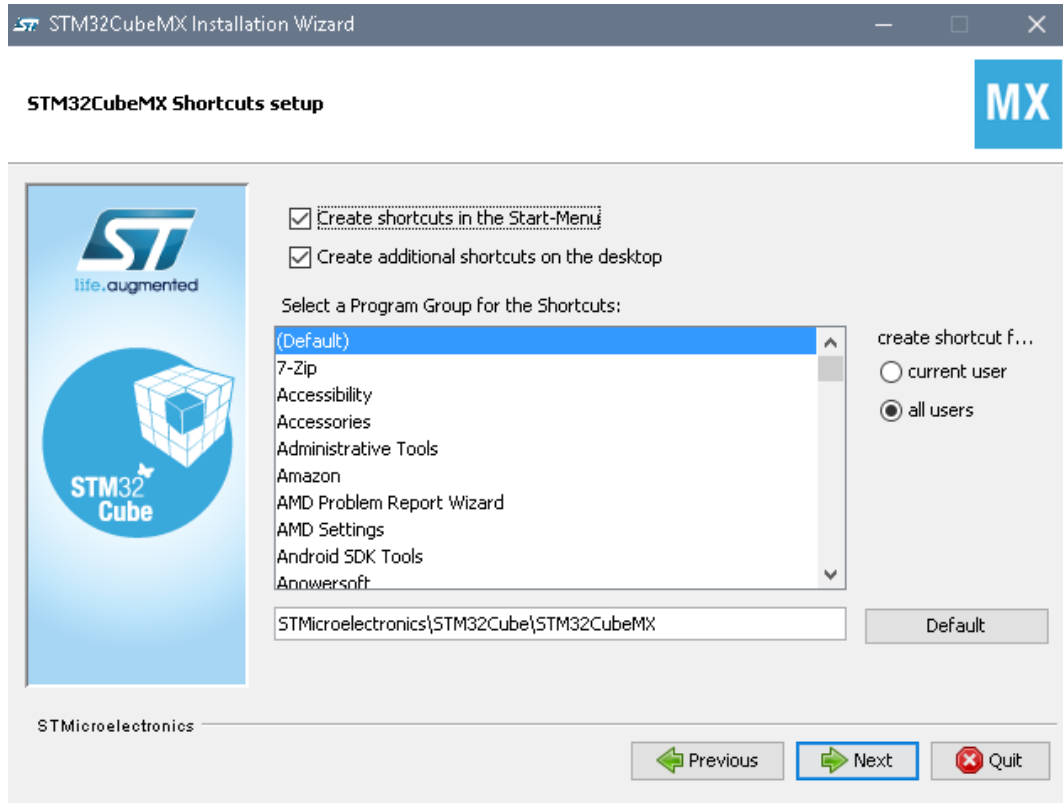
Once you have decided on the path then Click Next:



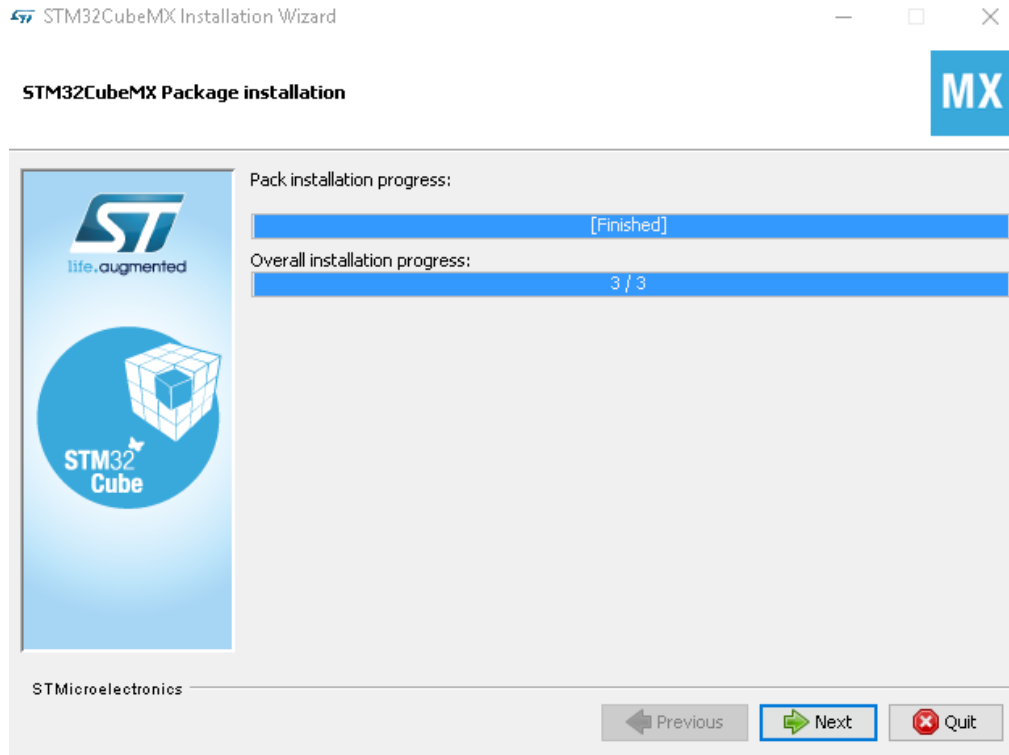
Click OK to Create the directory if it does not already exist:



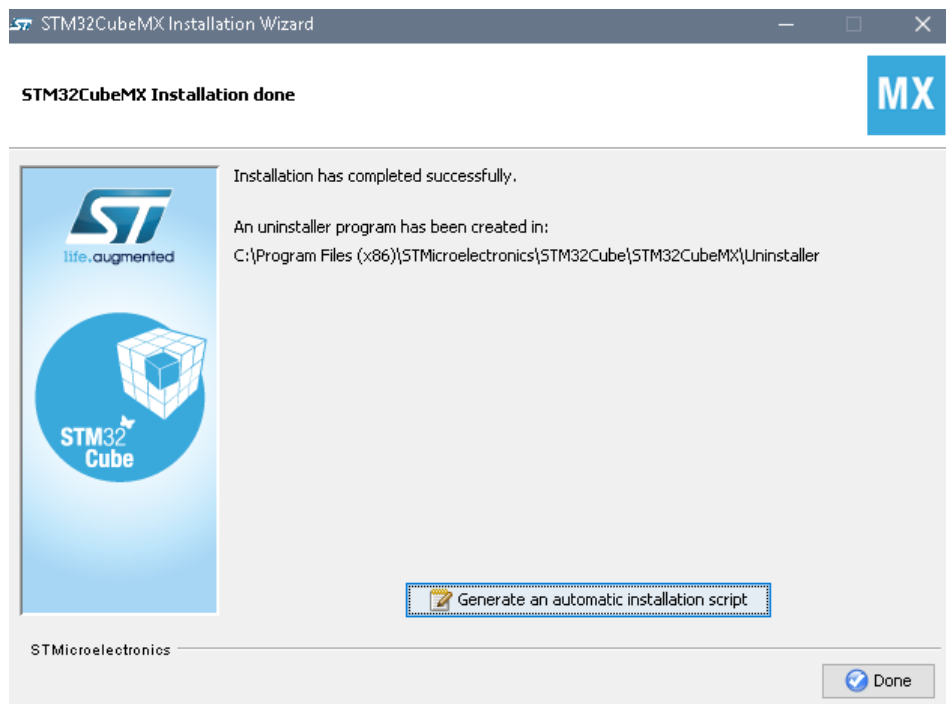
Click Next:



Wait for the Install to complete and then Click Next



Click Done:



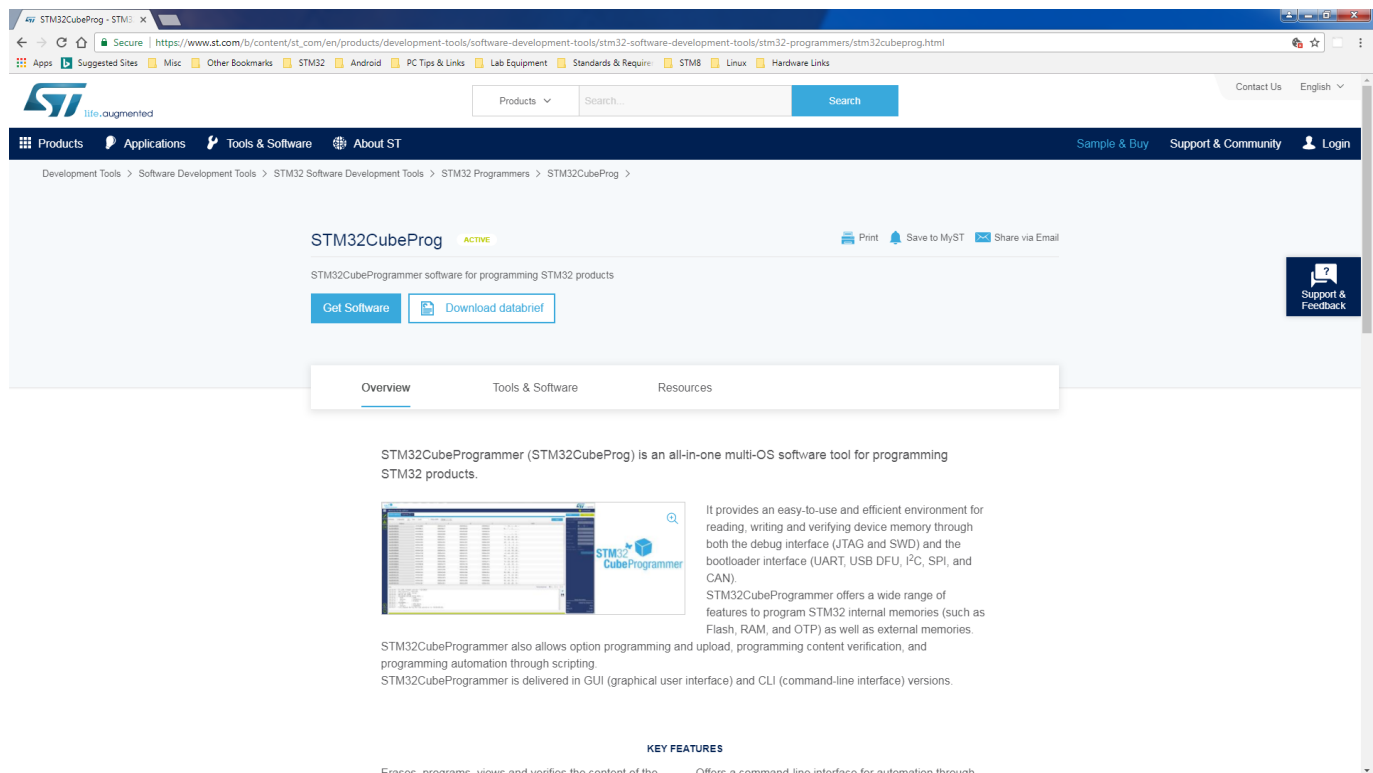
2- STM32CubeProg: STM32CubeProgrammer software for programming STM32 products

Click Link: [STM32CubeProg](https://www.st.com/en/development-tools/stm32cubeprog)

Minimum version required: 2.0.0

Direct Install Link:

<https://www.st.com/en/development-tools/stm32cubeprog.html>



STM32CubeProg ACTIVE

STM32CubeProgrammer software for programming STM32 products

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Overview Tools & Software Resources

STM32CubeProgrammer (STM32CubeProg) is an all-in-one multi-OS software tool for programming STM32 products.

It provides an easy-to-use and efficient environment for reading, writing and verifying device memory through both the debug interface (JTAG and SWD) and the bootloader interface (UART, USB DFU, I²C, SPI, and CAN).

STM32CubeProgrammer offers a wide range of features to program STM32 internal memories (such as Flash, RAM, and OTP) as well as external memories.

STM32CubeProgrammer also allows option programming and upload, programming content verification, and programming automation through scripting.

STM32CubeProgrammer is delivered in GUI (graphical user interface) and CLI (command-line interface) versions.

KEY FEATURES

- Erases, programs, views and verifies the content of the
- Offers a command-line interface for automation through

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Then click:

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Unzip the file (en.stm32cubeprog.zip)

Name	Date modified	Type	Size
 SetupSTM32CubeProgrammer-2.0.0.app	2/27/2019 11:10 AM	File folder	
 SetupSTM32CubeProgrammer-2.0.0.exe	2/21/2019 8:15 PM	Application	177,993 KB
 SetupSTM32CubeProgrammer-2.0.0.linux	2/21/2019 8:17 PM	LINUX File	742 KB


Right Click on SetupSTM32CubeProgrammer-x.x.x.exe and Run as administrator

Name	Date modified	Type	Size
 SetupSTM32CubeProgrammer-2.0.0.app	2/27/2019 11:10 AM	File folder	
 SetupSTM32CubeProgrammer-2.0.0.exe	2/21/2019 8:15 PM	Application	177,993 KB
 SetupSTM32CubeProgrammer-2.0.0.linux	2/21/2019 8:17 PM	LINUX File	742 KB

Open

 Run as administrator

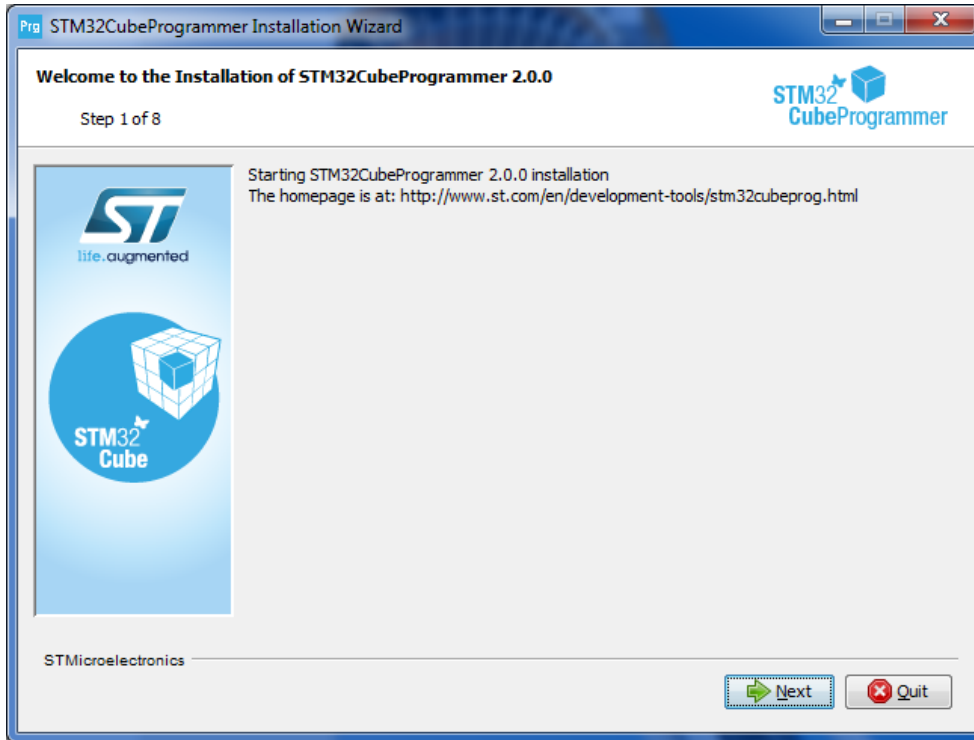
Troubleshoot compatibility

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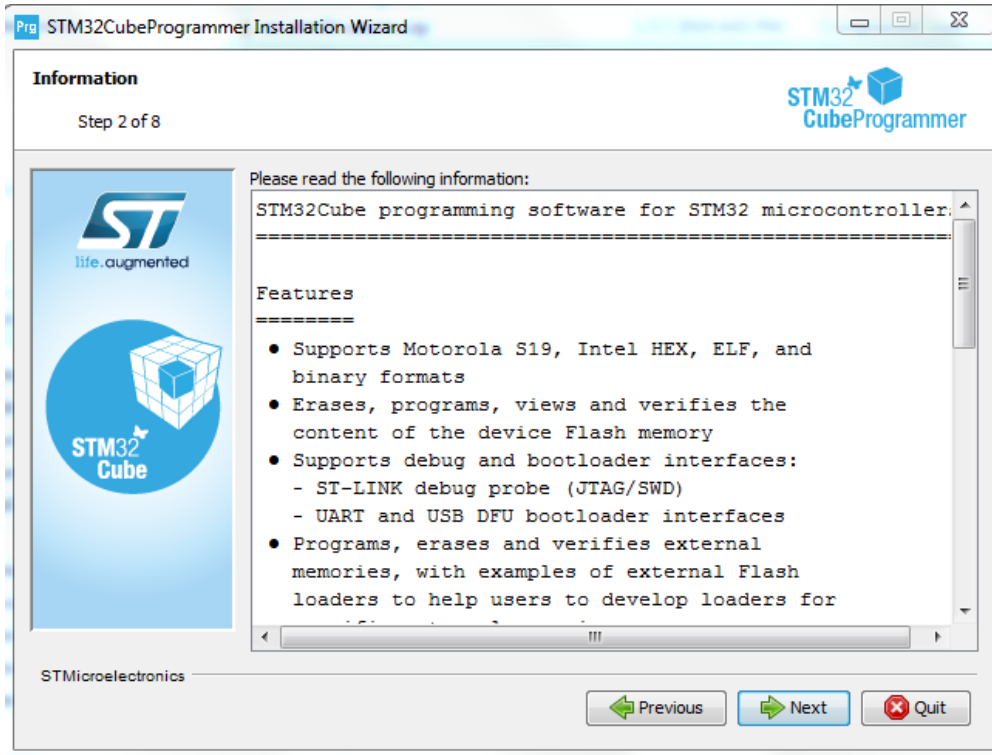
View online

Choose OneDrive folders to sync

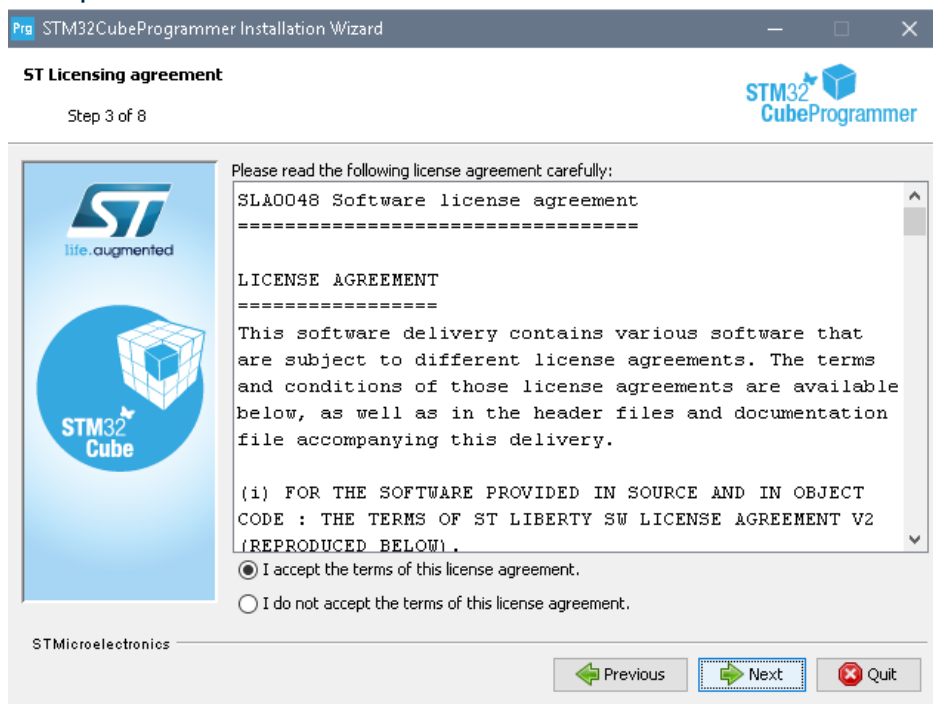
Click Next:



Click Next:

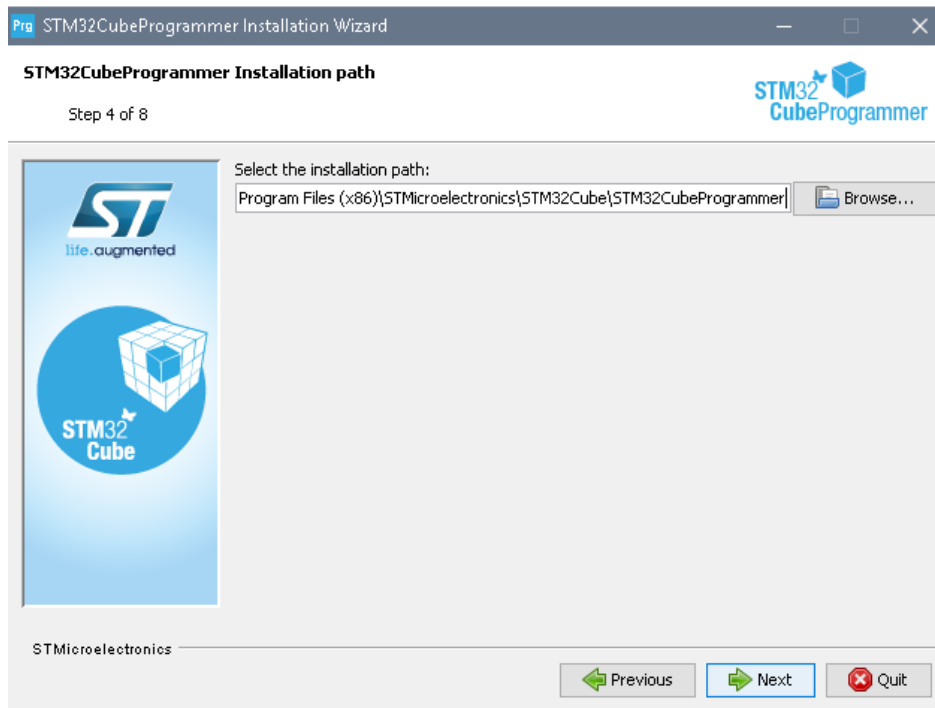


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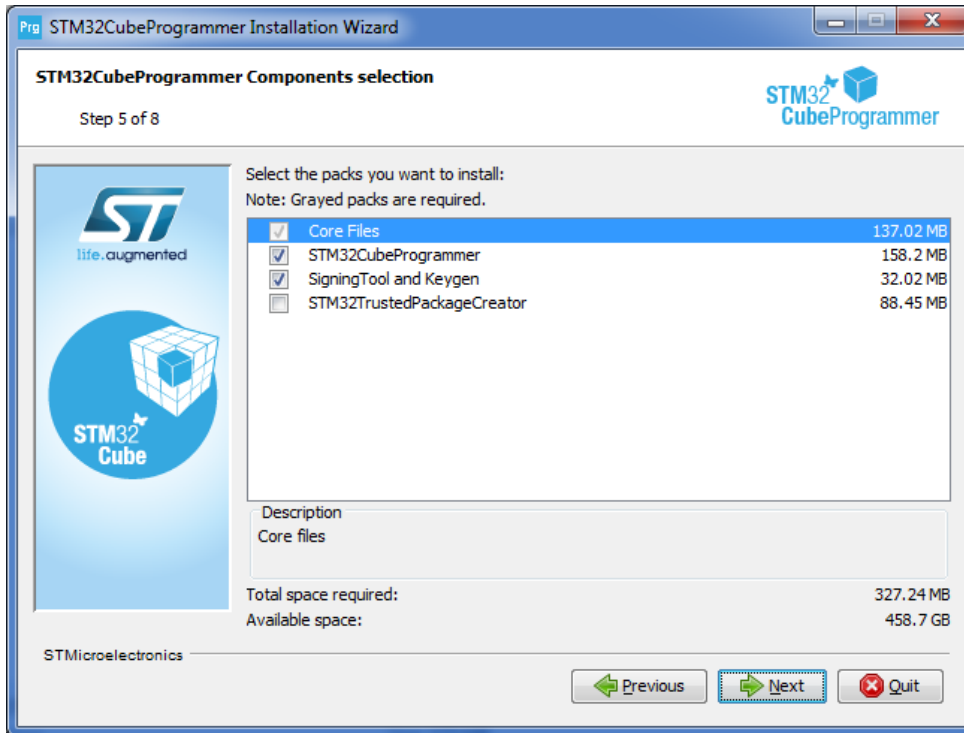


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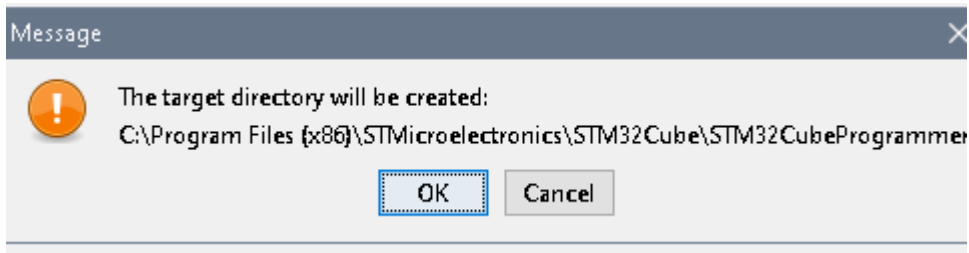
Once you have decided on the path then Click Next:



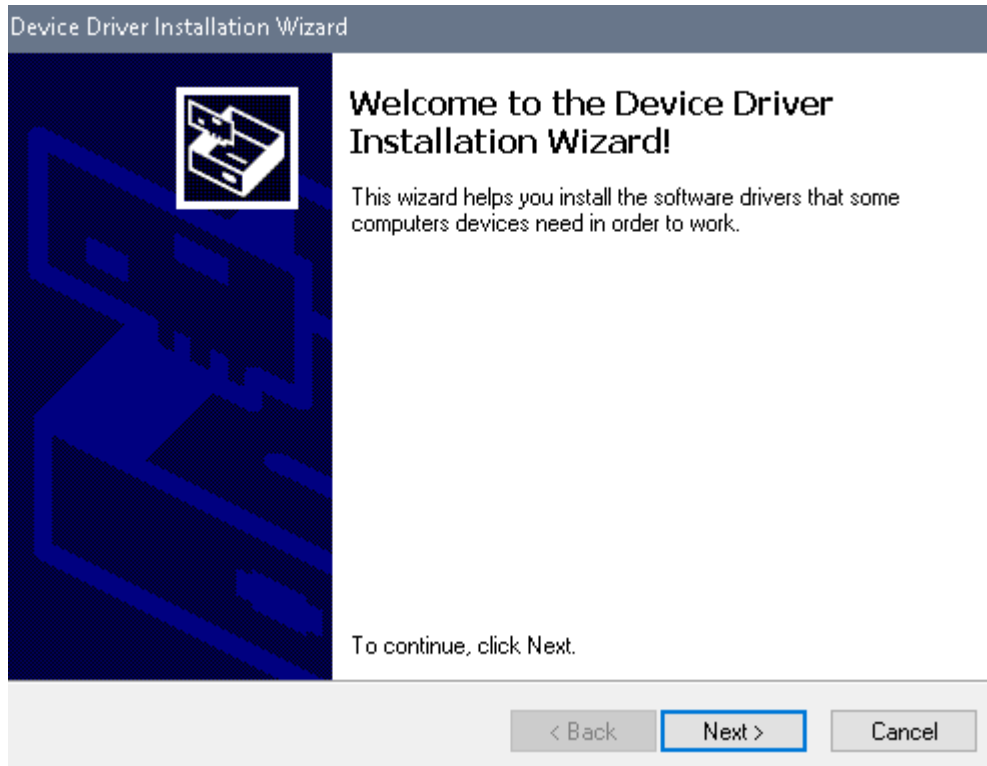
Select the packs you want to install as below.



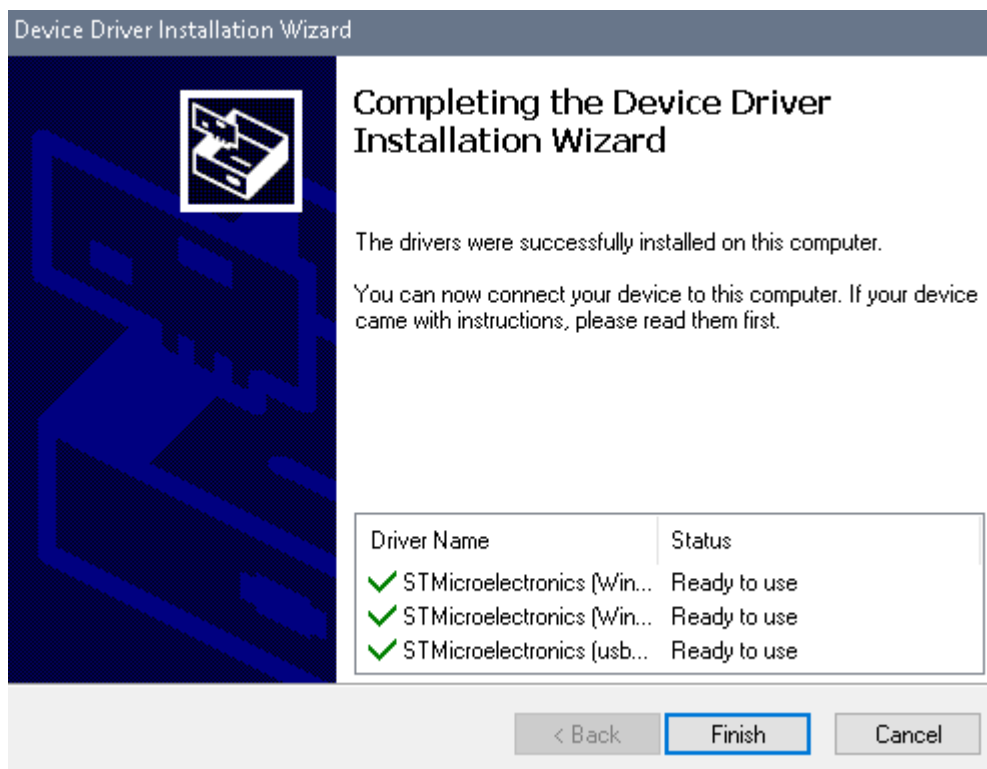
Click OK to create the Directory if the directory does not exist:



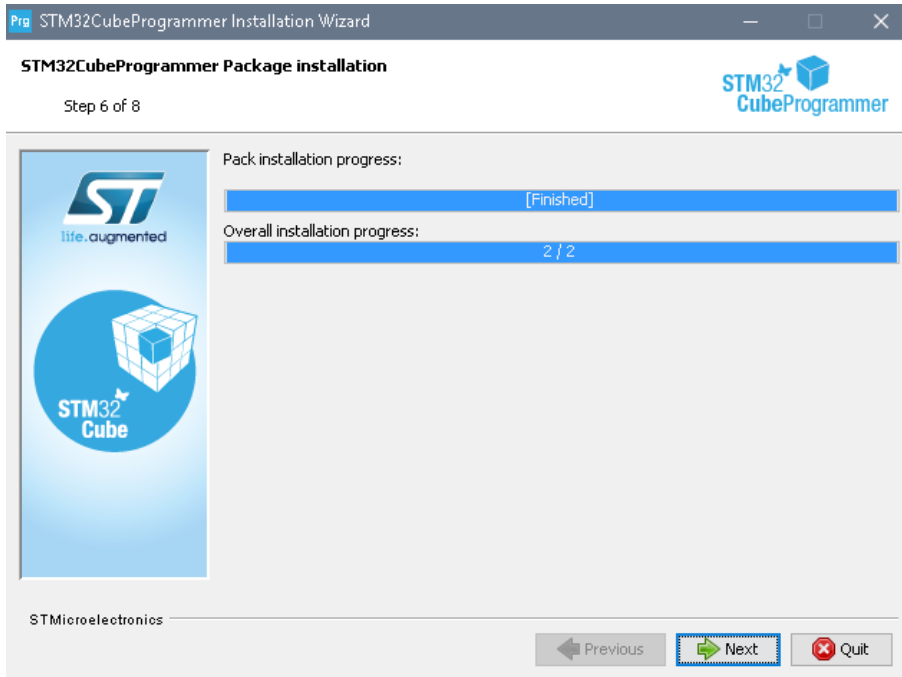
Follow the following steps are to install the ST-LINK, Virtual COM Port, and DFU Drivers:
Click Next:



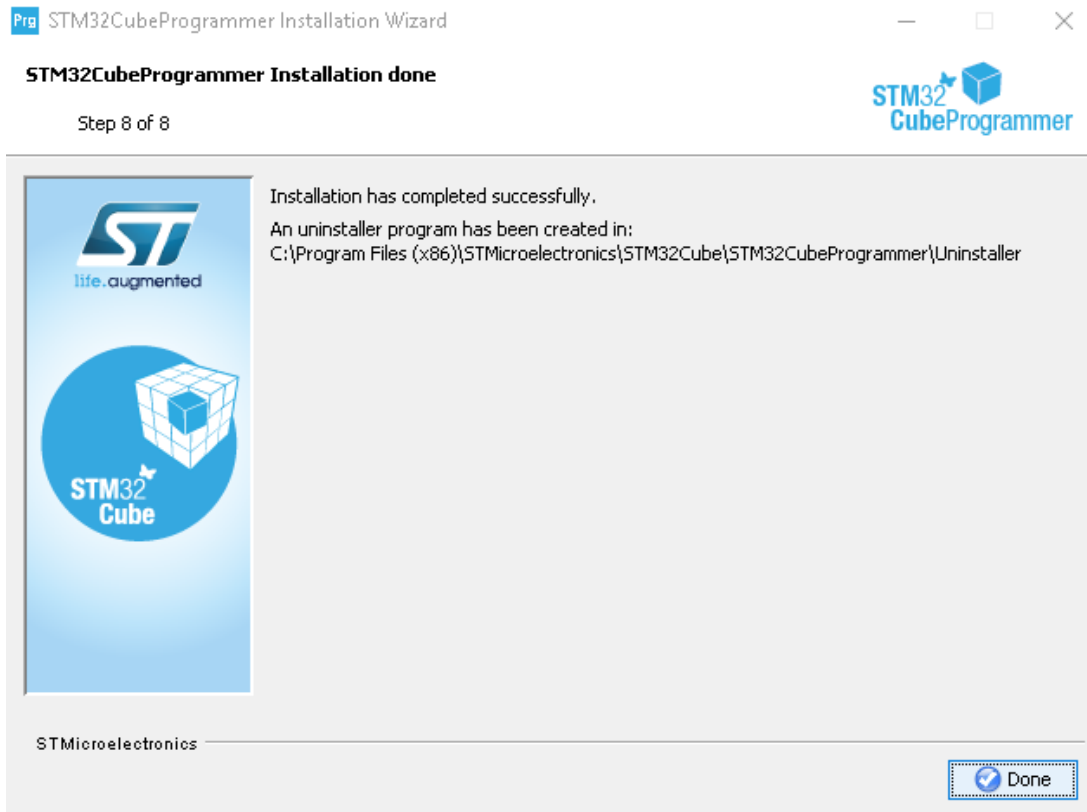
Click Finish:



Wait for the install to complete and then Click Next:



Click Done:



Now try to open STM32CubeProgrammer to make sure it was installed properly.

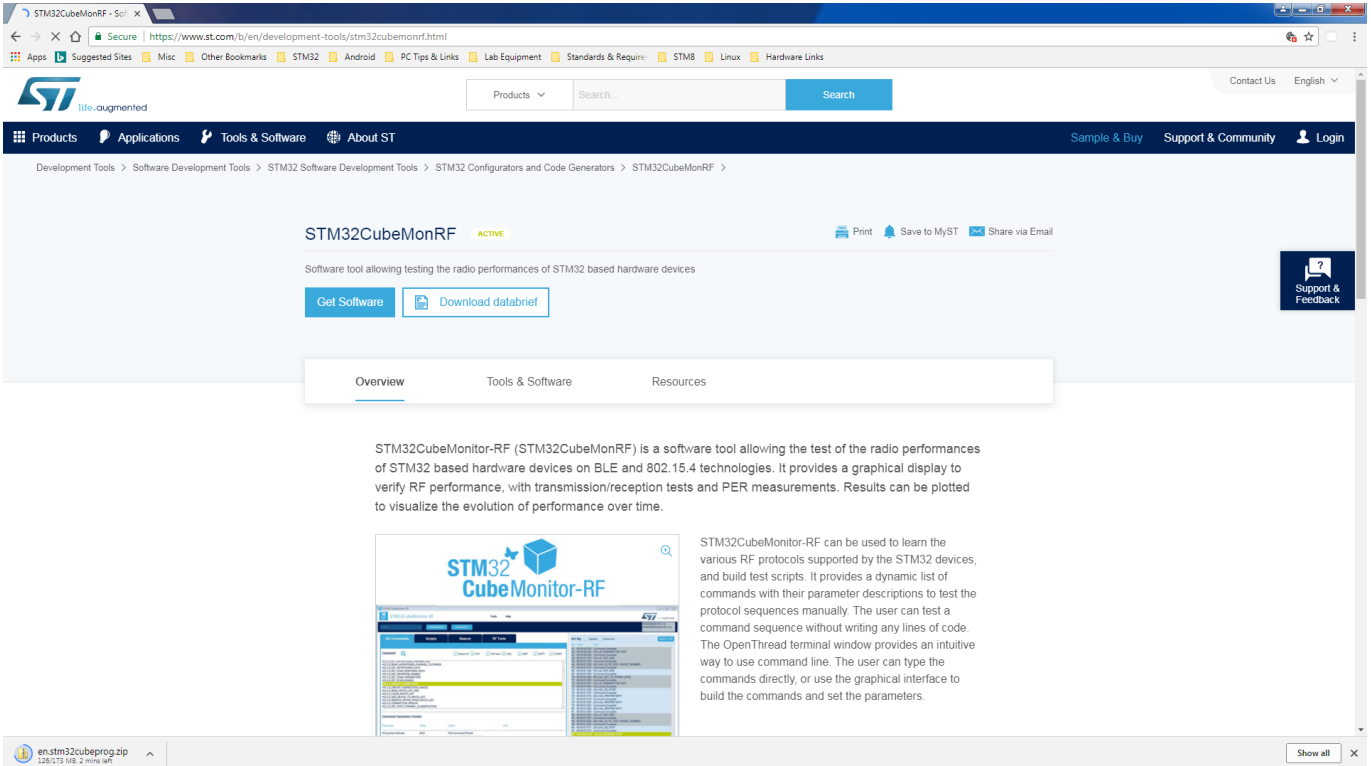
3- STM32CubeMonRF: STM32CubeMonitor-RF software for testing the radio performances of BLE and 802.15.4 in the STM32WB.

Click Link: [STM32CubeMonRF](https://www.st.com/en/development-tools/stm32cubemonrf.html)

Minimum version required: 2.3.0

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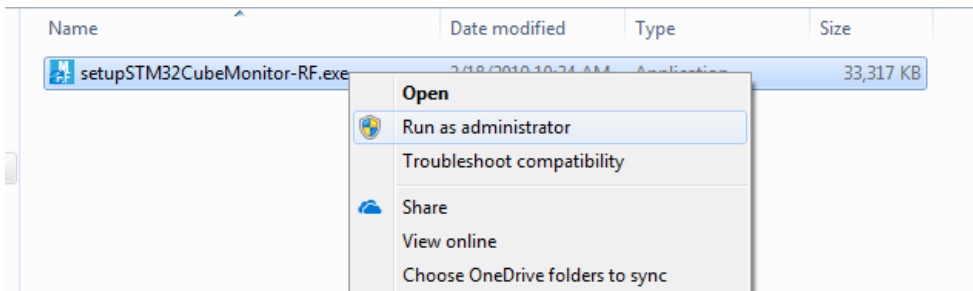
Then click:

Save the file at a location of your choice:

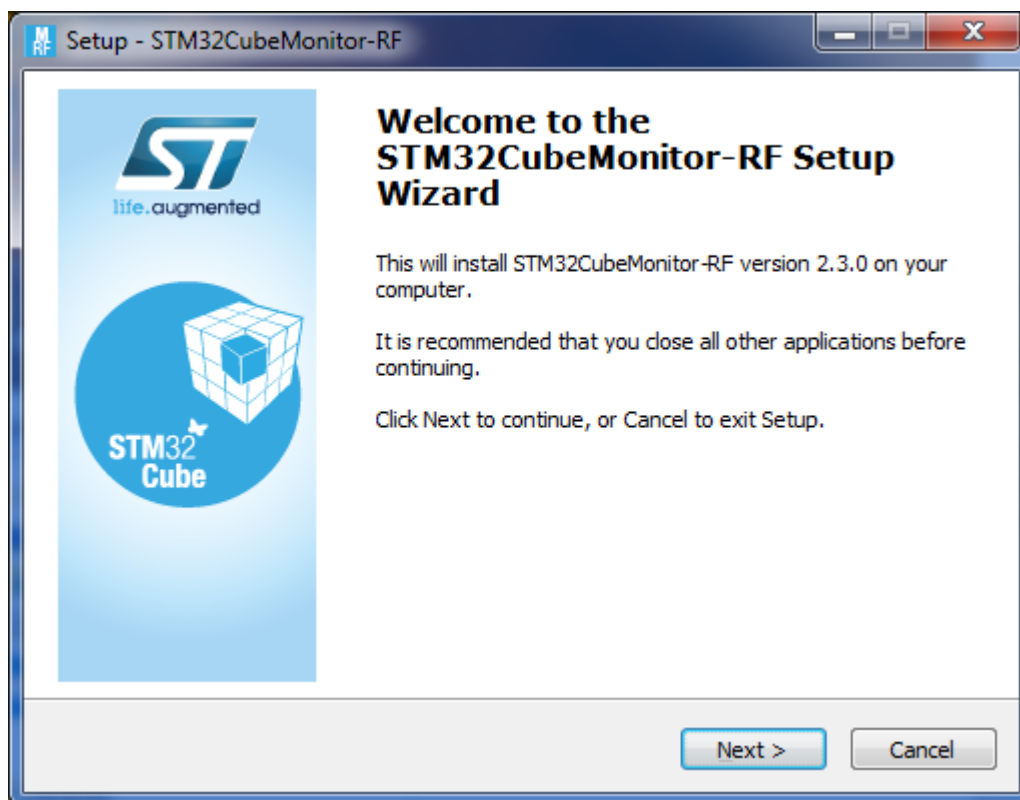
Unzip the file (en.stm32cmonrfwin.zip)

Name	Date modified	Type	Size
 setupSTM32CubeMonitor-RF.exe	2/18/2019 10:34 AM	Application	33,317 KB

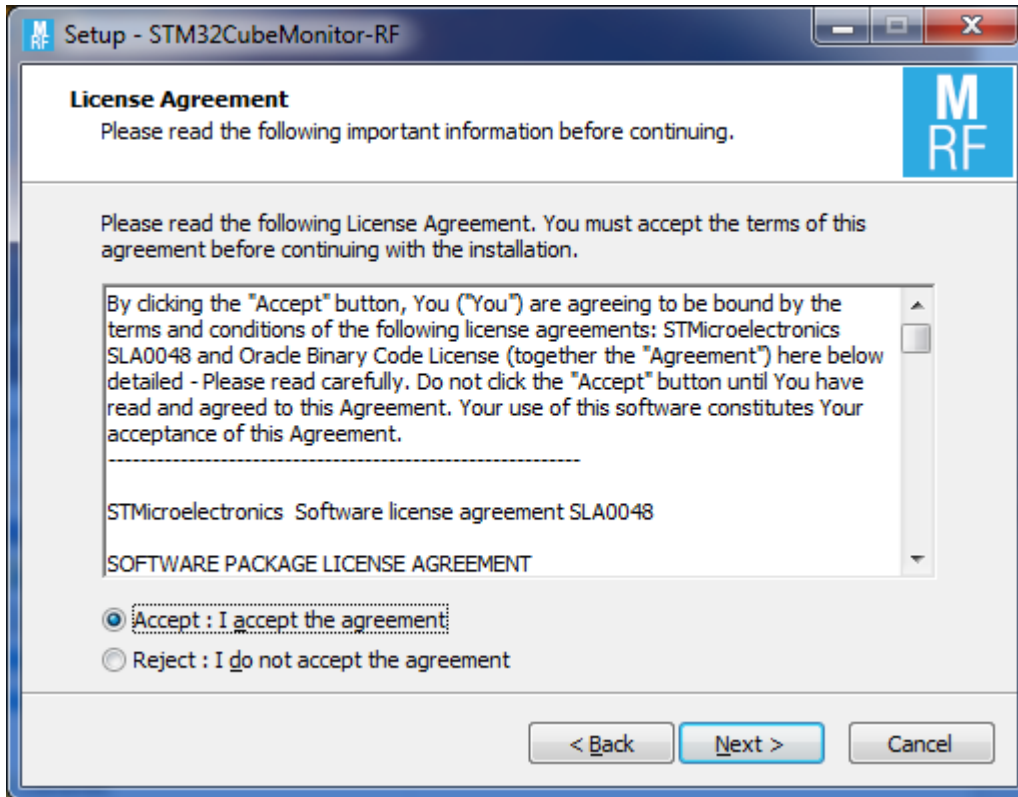
Right Click on setupSTM32CubeMonitor-RF.exe and Run as administrator



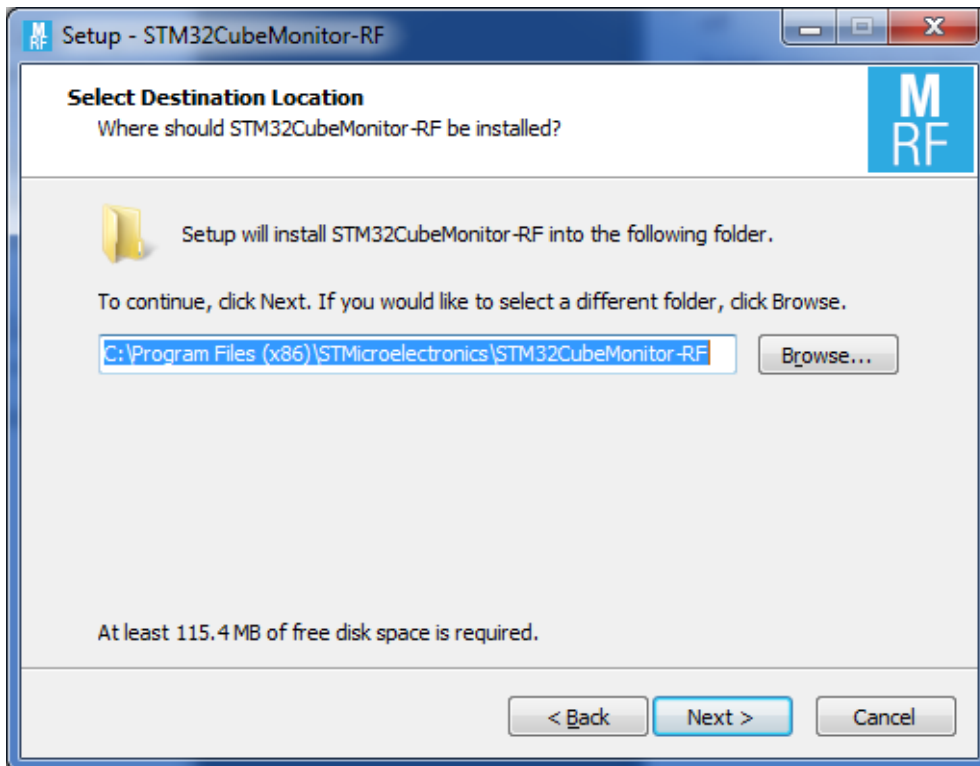
Click Next:



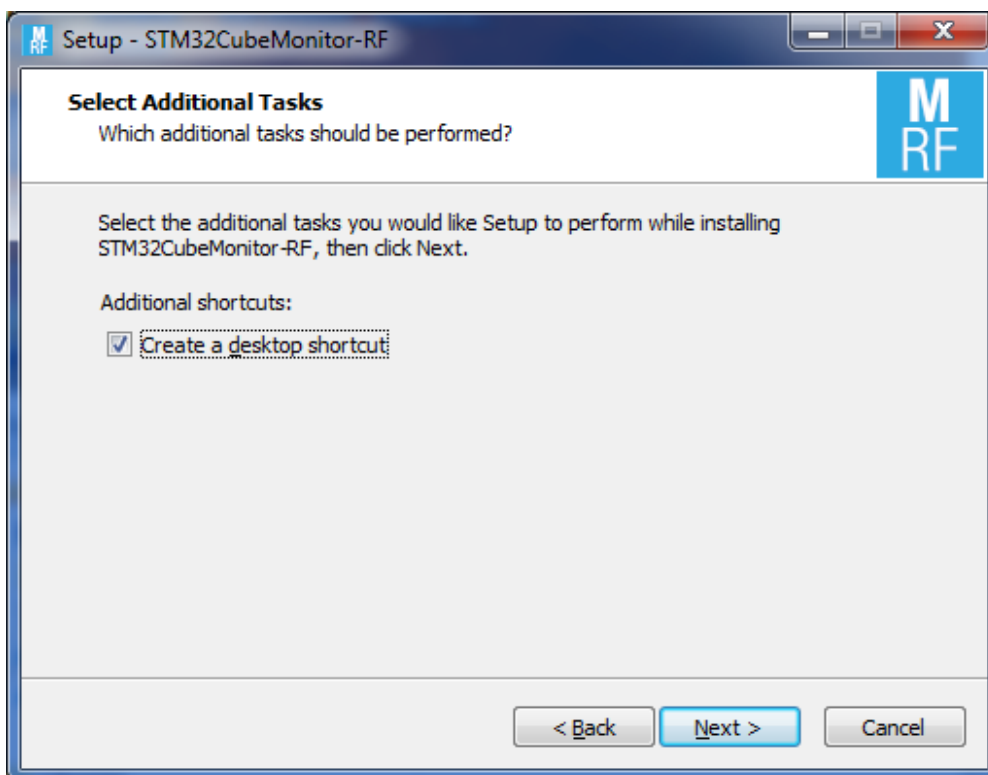
Accept the Terms and then click on Next:



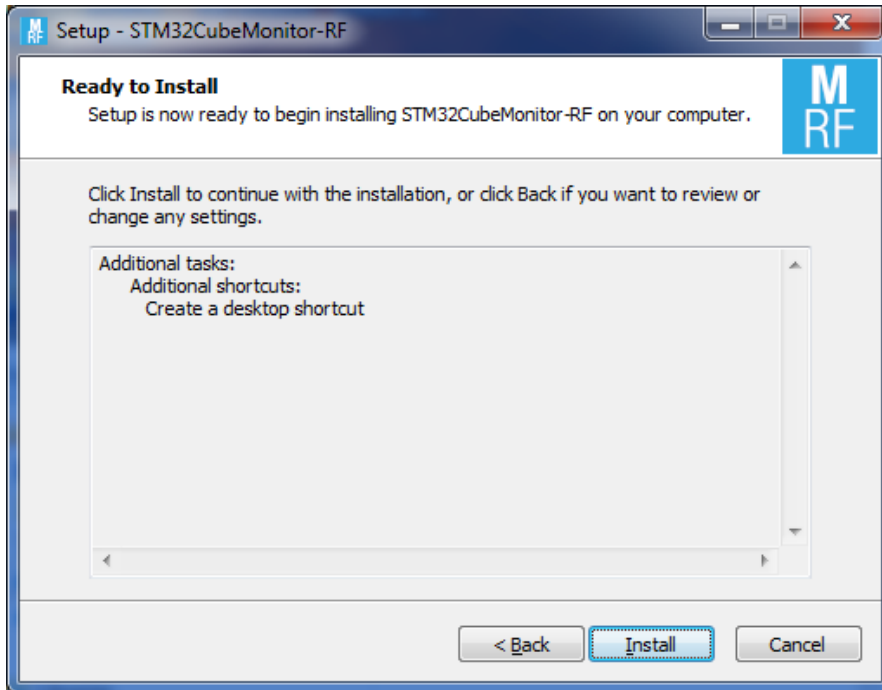
Select Destination Location and Click Next



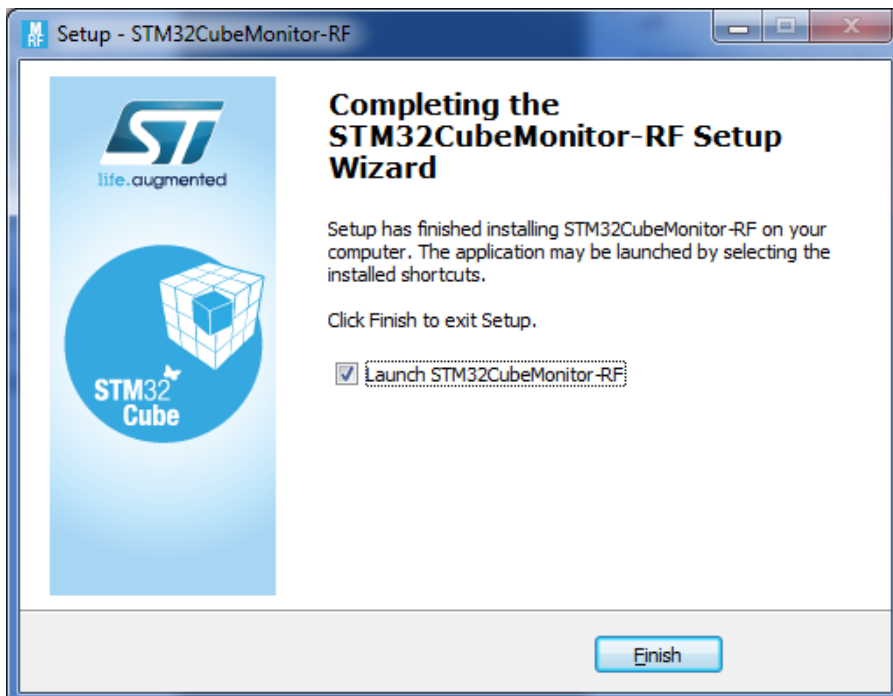
Click Next



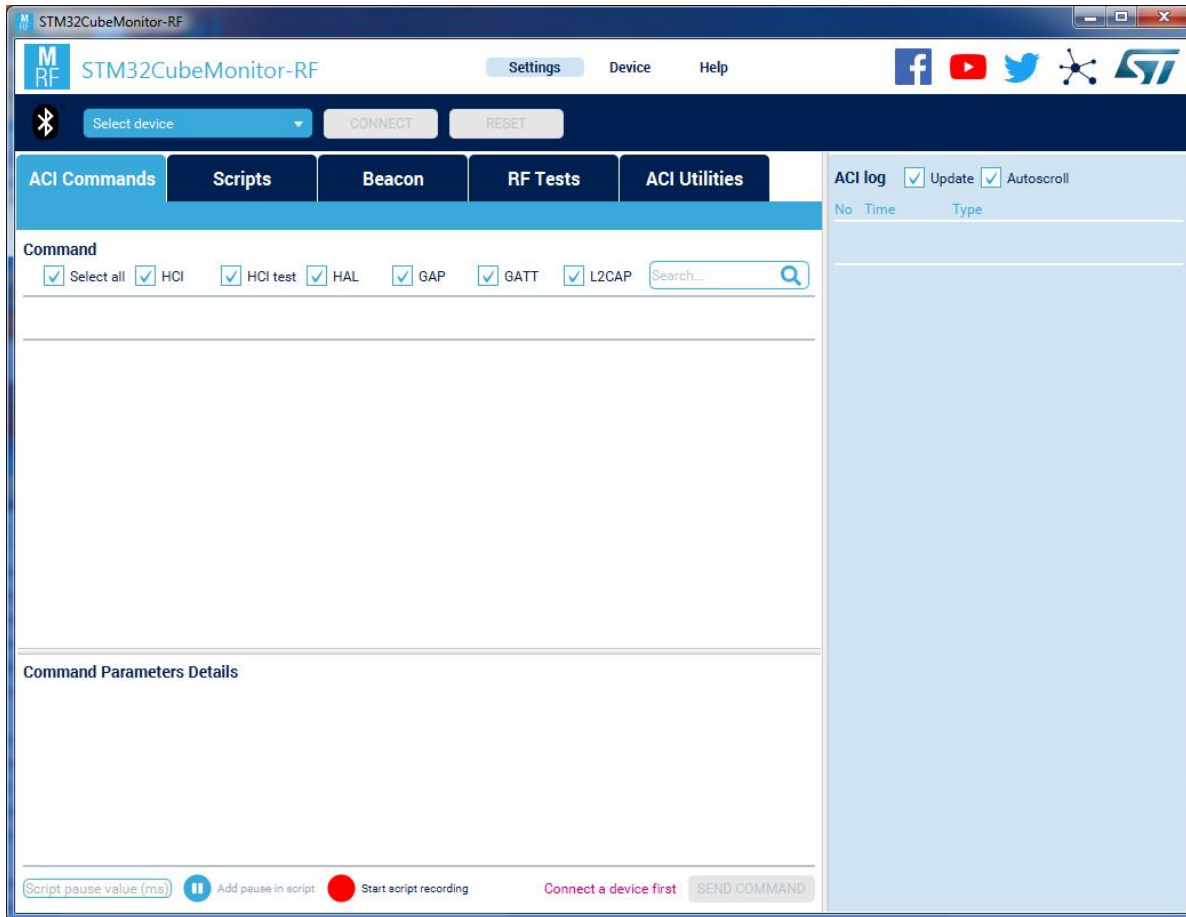
Click Install



Click Finish



Open STM32CubeMonitor-RF to make sure it was installed properly.




4- IAR IDE: IAR Embedded Workbench for ARM 8.32.3

Click Link: [IAR EWARM](#)

Minimum version required: 8.32.3

Or use Direct Link: <https://www.iar.com/iar-embedded-workbench/#!?currentTab=free-trials> and click on the “Download Software” button in the IAR Embedded Workbench for ARM.

ARM



Download Software

(Version 8.32,
1346.29 MB)

The evaluation license is completely free of charge and allows you to try the integrated development environment and evaluate its efficiency and ease of use. When you start the product for the first time, you will be asked to register to get your evaluation license.

After download and installation, you have the following evaluation options to choose from:

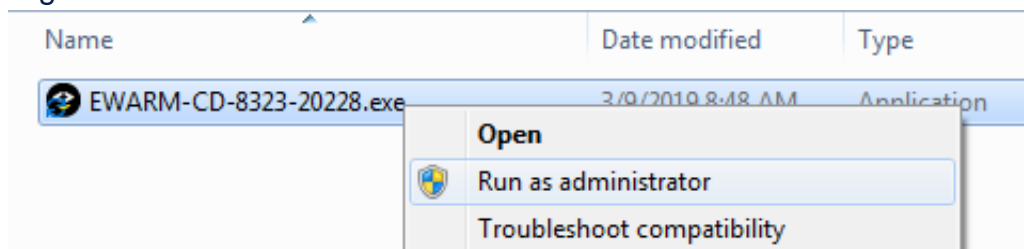
- a 30-day time-limited but fully functional license
- a size-limited Kickstart license without any time limit

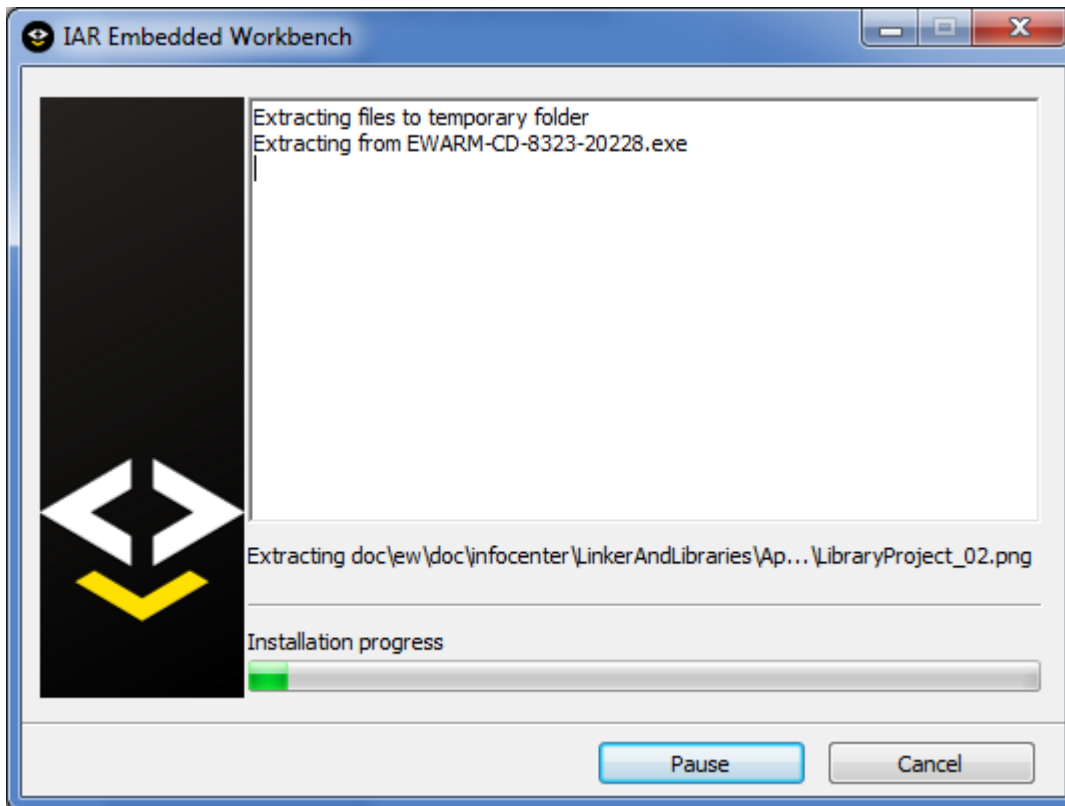
Restrictions to the 30-day time-limited evaluation

- A 30-day time limitation.
- Source code for runtime libraries is not included.
- No support for MISRA C.

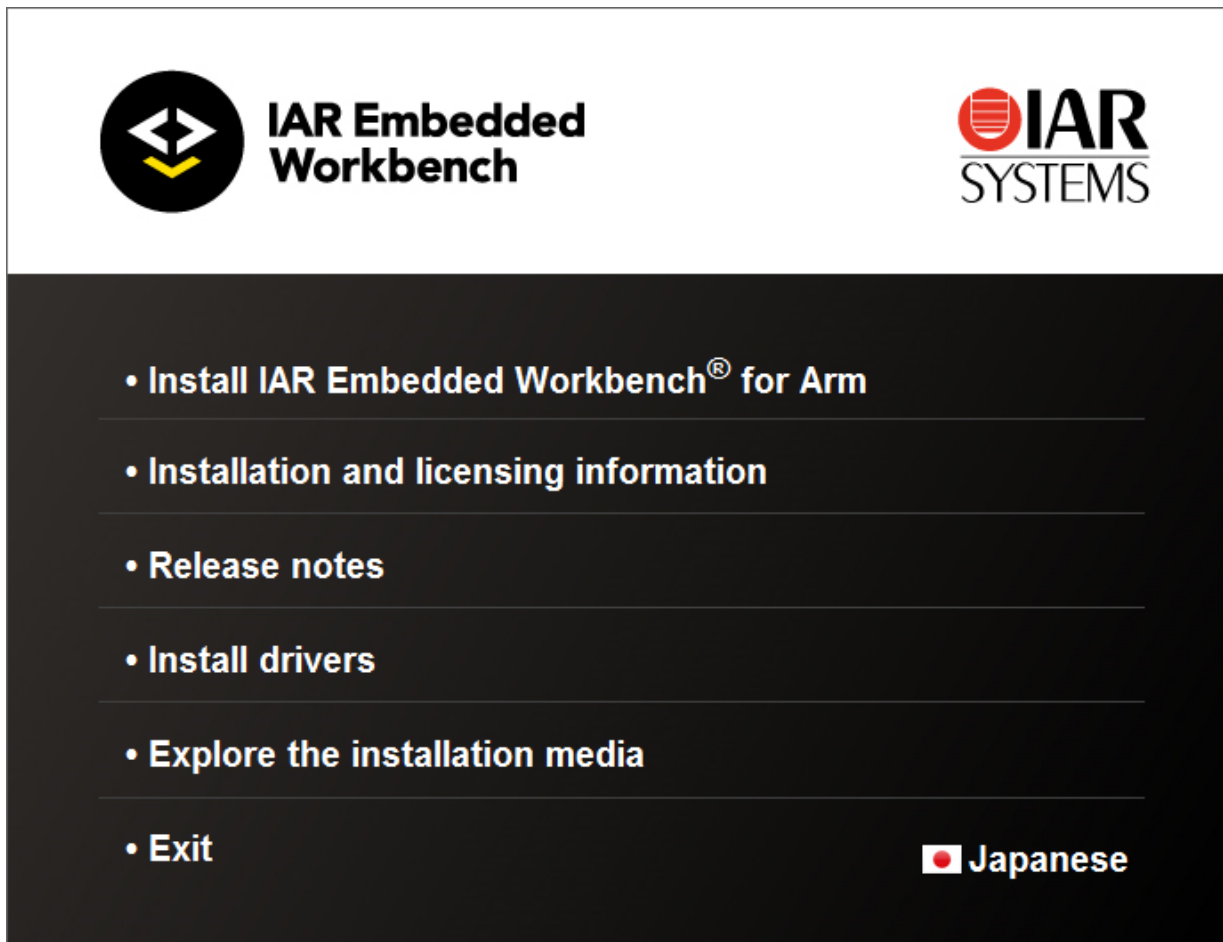
Save EWARM-CD-832x-xxxxx.exe at a location of your choice:

Right Click on EWARM-CD-832x-xxxxx.exe and Run as Administrator:

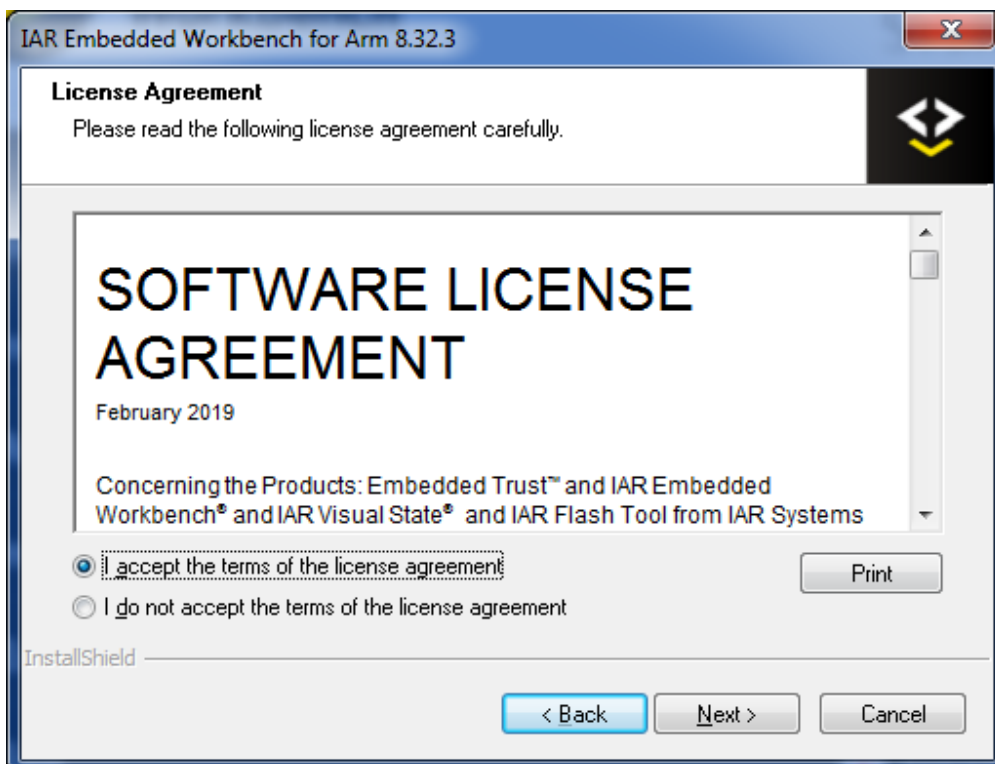
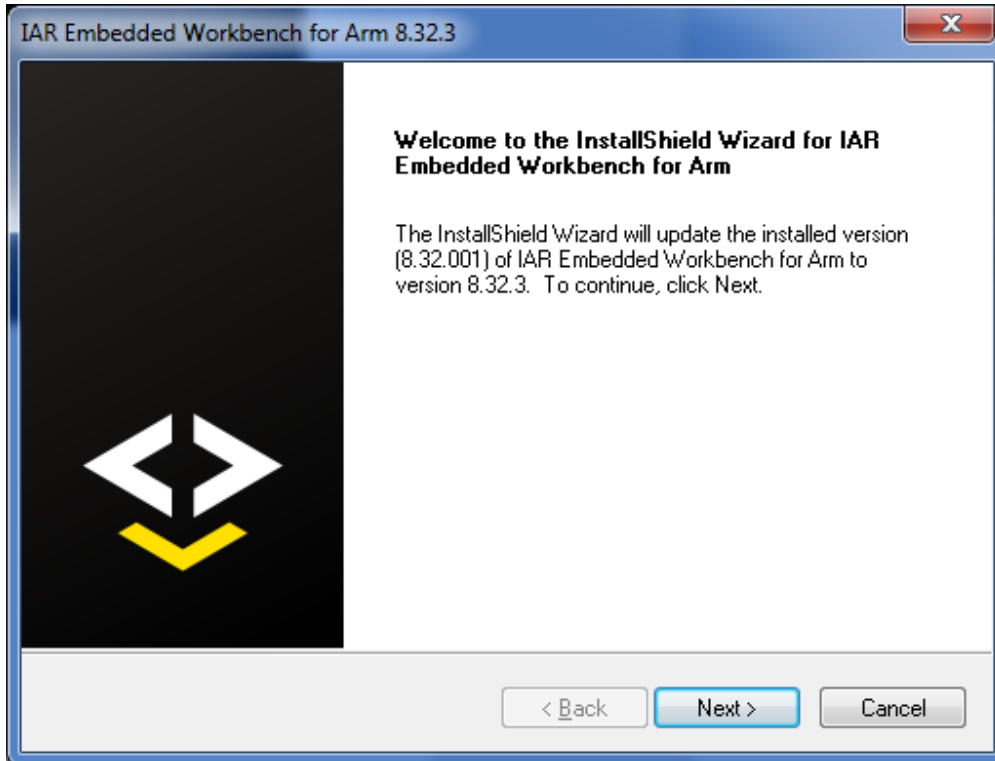




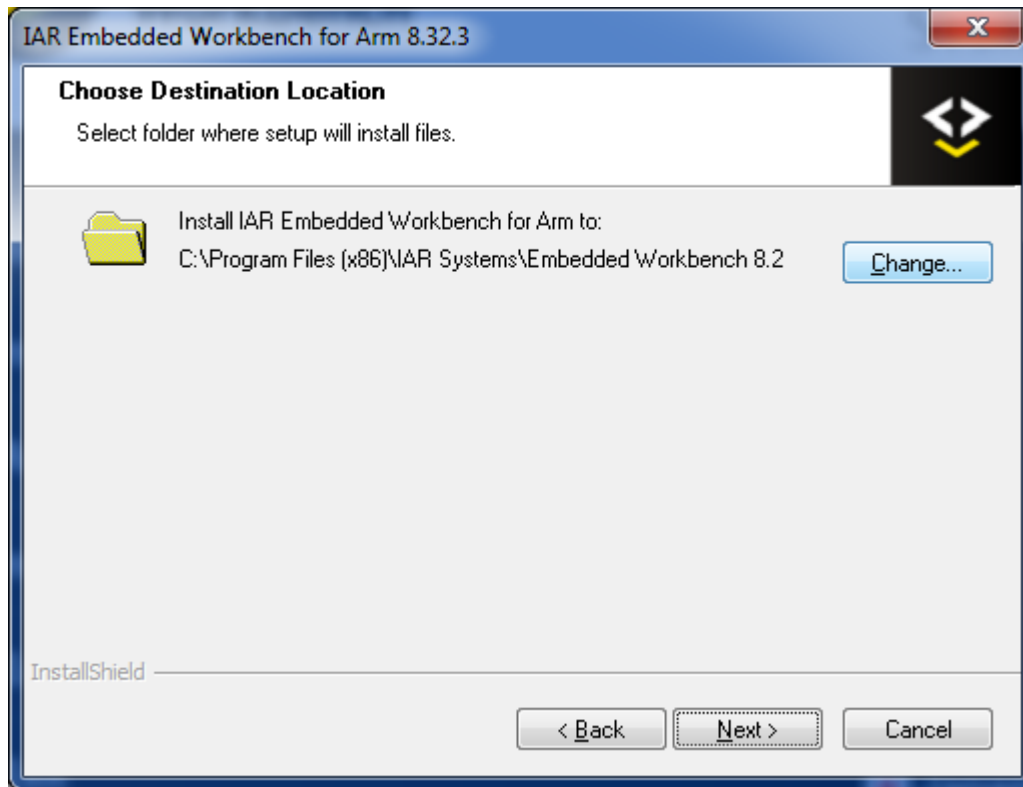
Click “Install IAR Embedded Workbench for ARM”:



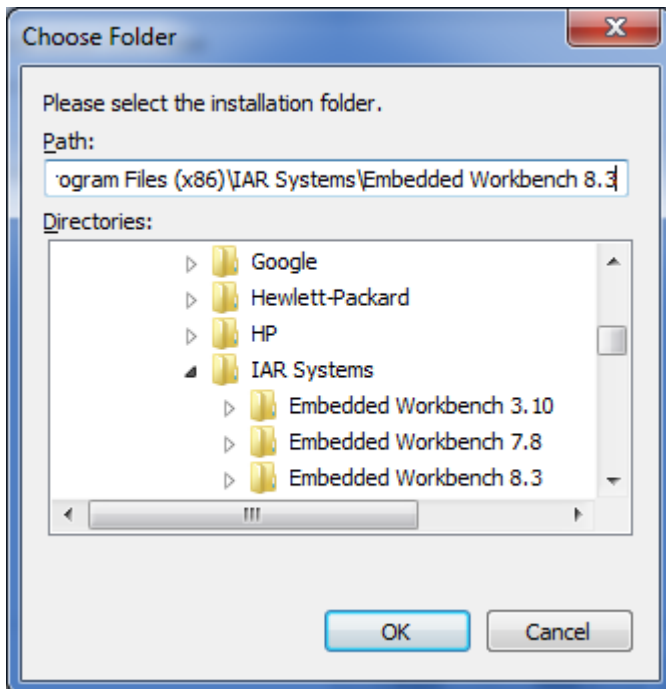
Click Next



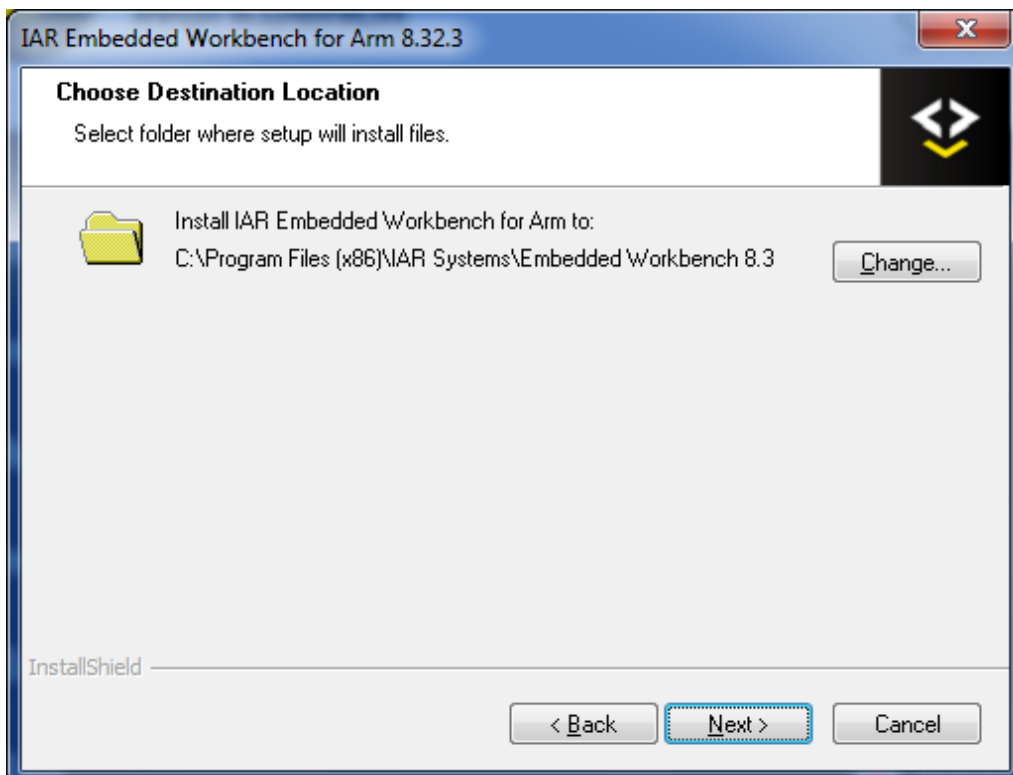
Choose Destination Location if one different from default is preferred. Click “Change” if a new location will be entered.



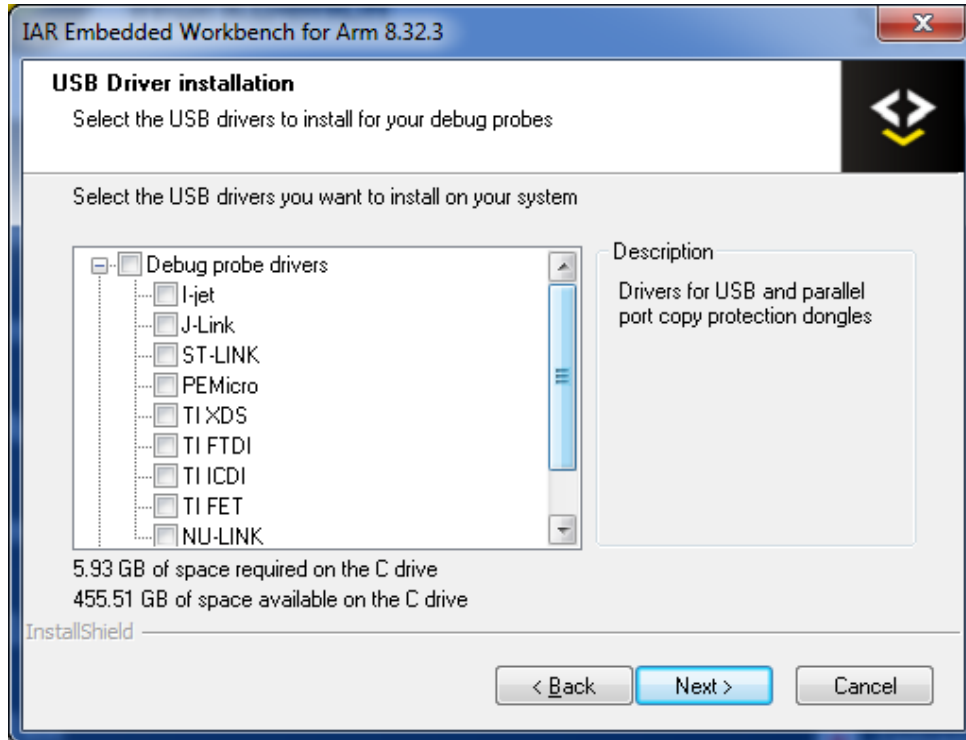
Set the preferred destination location and click OK



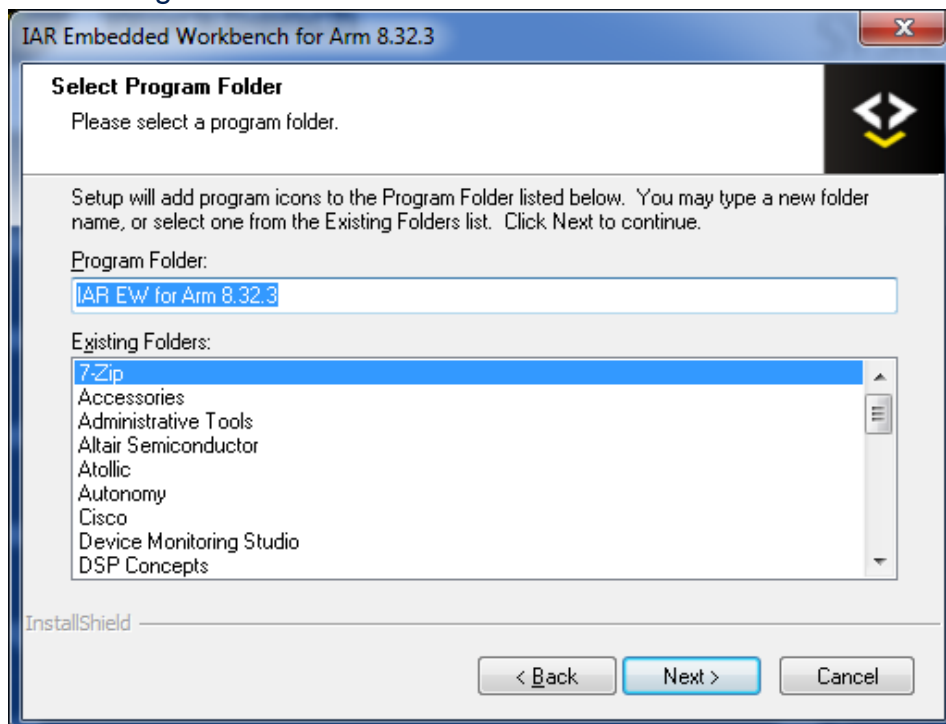
Click Next



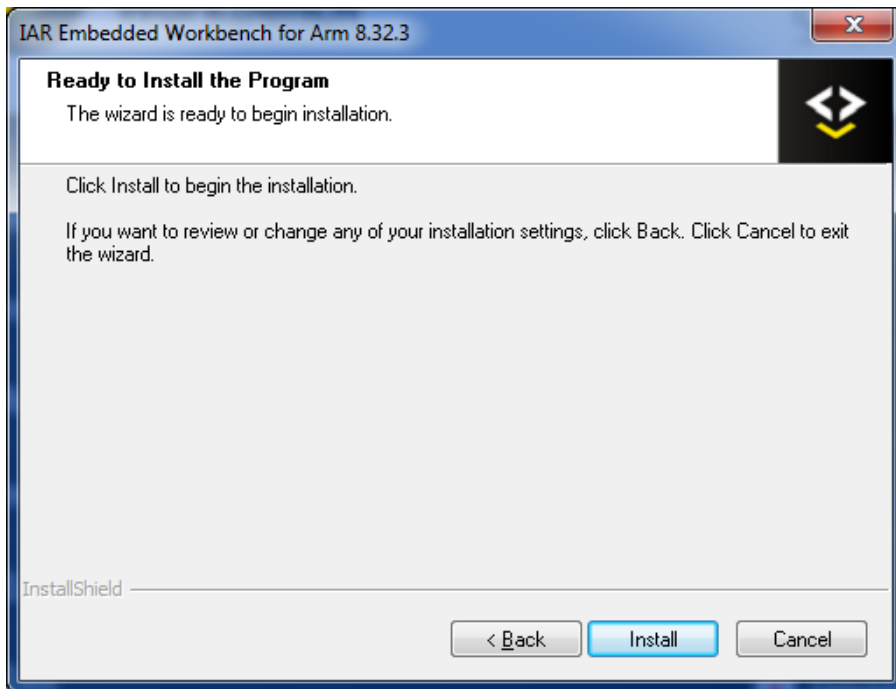
Uncheck all boxes and so no USB Drivers get installed. And click Next



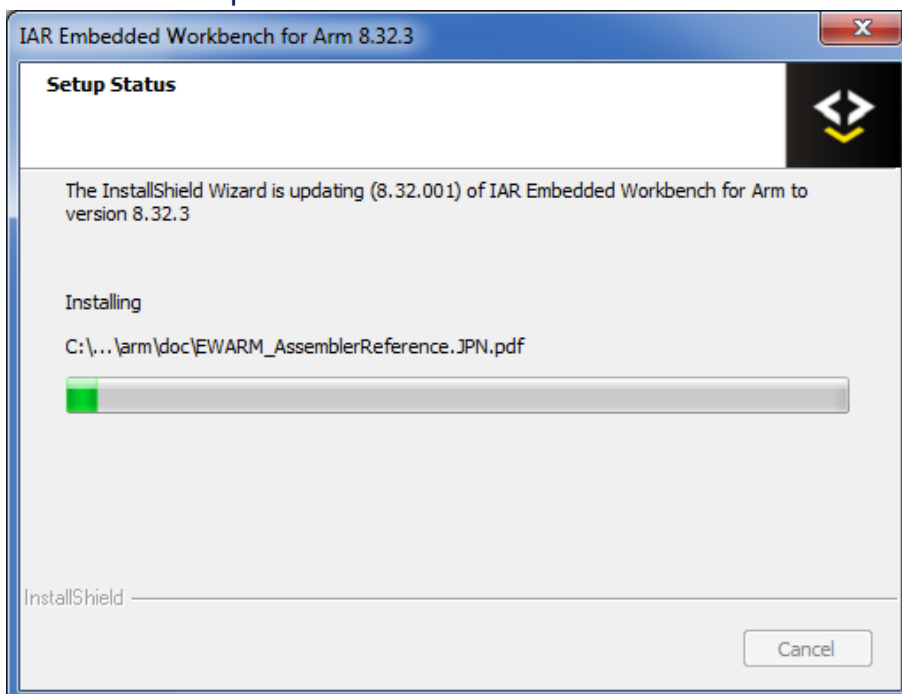
Leave Program Folder as default and Click Next



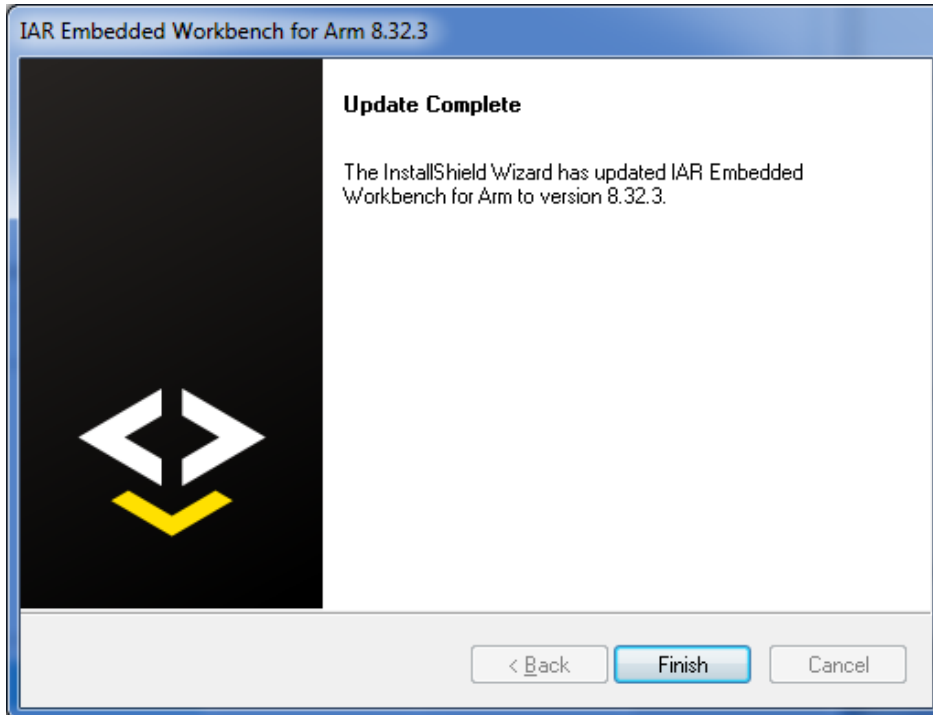
Click Install to begin Program Installation



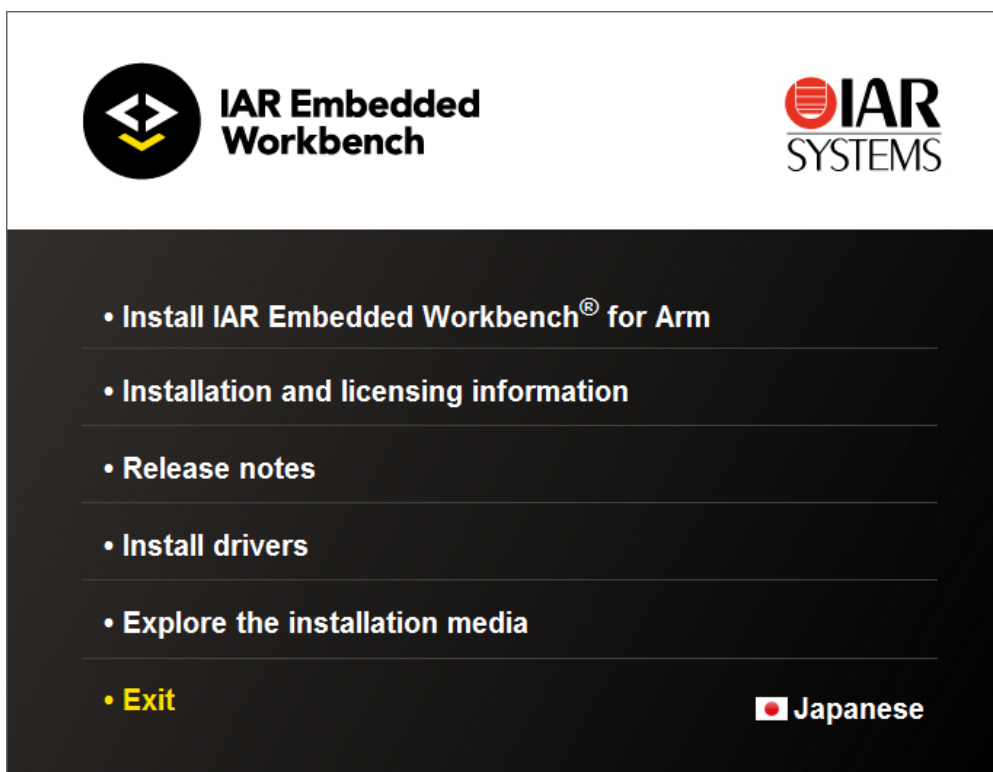
The installation process will start



Installation is now complete, Click Finish



Click "Exit" to close the IAR window.



5- IAR License

IAR license activation instructions will be provided during the workshop.

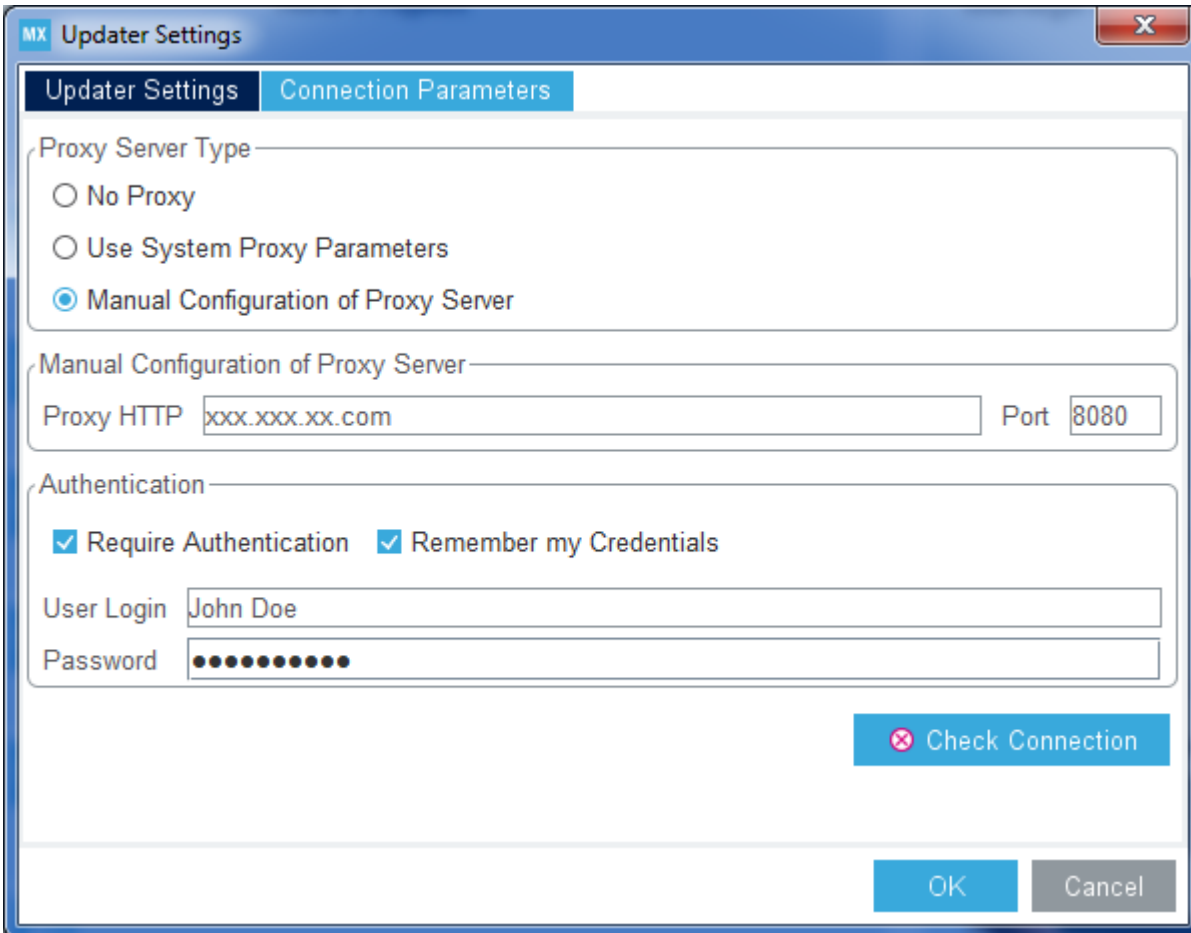
Warning: If you don't already have a full IAR license installed, please do not install any temporary one until the day of the workshop, as a time limited license will be provided to you then.

6- STM32CubeWB: Install STM32Cube MCU Package for STM32WB series

Double click on STM32CubeMX icon on your Desktop or look for it in your Start Menu:



Note: Use Help > Updater Settings > Connection Parameters to enter any proxy necessary for CubeMX to access the internet.



The screenshot shows the 'Updater Settings' dialog box with the 'Connection Parameters' tab selected. The 'Proxy Server Type' section has three radio buttons: 'No Proxy', 'Use System Proxy Parameters', and 'Manual Configuration of Proxy Server' (which is selected). Below this, the 'Manual Configuration of Proxy Server' section contains a 'Proxy HTTP' text field with the value 'xxx.xxx.xx.com' and a 'Port' text field with the value '8080'. The 'Authentication' section has two checked checkboxes: 'Require Authentication' and 'Remember my Credentials'. Below these are 'User Login' and 'Password' text fields. The 'User Login' field contains 'John Doe' and the 'Password' field contains ten dots. At the bottom right, there is a 'Check Connection' button with a red 'X' icon, and 'OK' and 'Cancel' buttons.

MX Updater Settings

Updater Settings Connection Parameters

Proxy Server Type—

- ☐ No Proxy
- ☐ Use System Proxy Parameters
- ☒ Manual Configuration of Proxy Server

Manual Configuration of Proxy Server—

Proxy HTTP Port

Authentication—

- ☒ Require Authentication
- ☒ Remember my Credentials

User Login

Password

⊗ Check Connection

OK Cancel

Note: For those behind a corporate firewall or having issue with installing the Cube Library from the internet, you can use “From local” to do an offline install of the STM32CubeWB Library, the offline installation is explained in Appendix at the end of this document.

From STM32CubeMX: Help -> Manage embedded software packages

Help



Help	F1
About	Alt-A
Docs & Resources	Alt-D
Refresh Data	Alt-R
User Preferences	
Check for Updates	Alt-C
Manage embedded software packages	Alt-U
Updater Settings ..	Install, Remove, check for new embedded software package releases. ar

ed to :

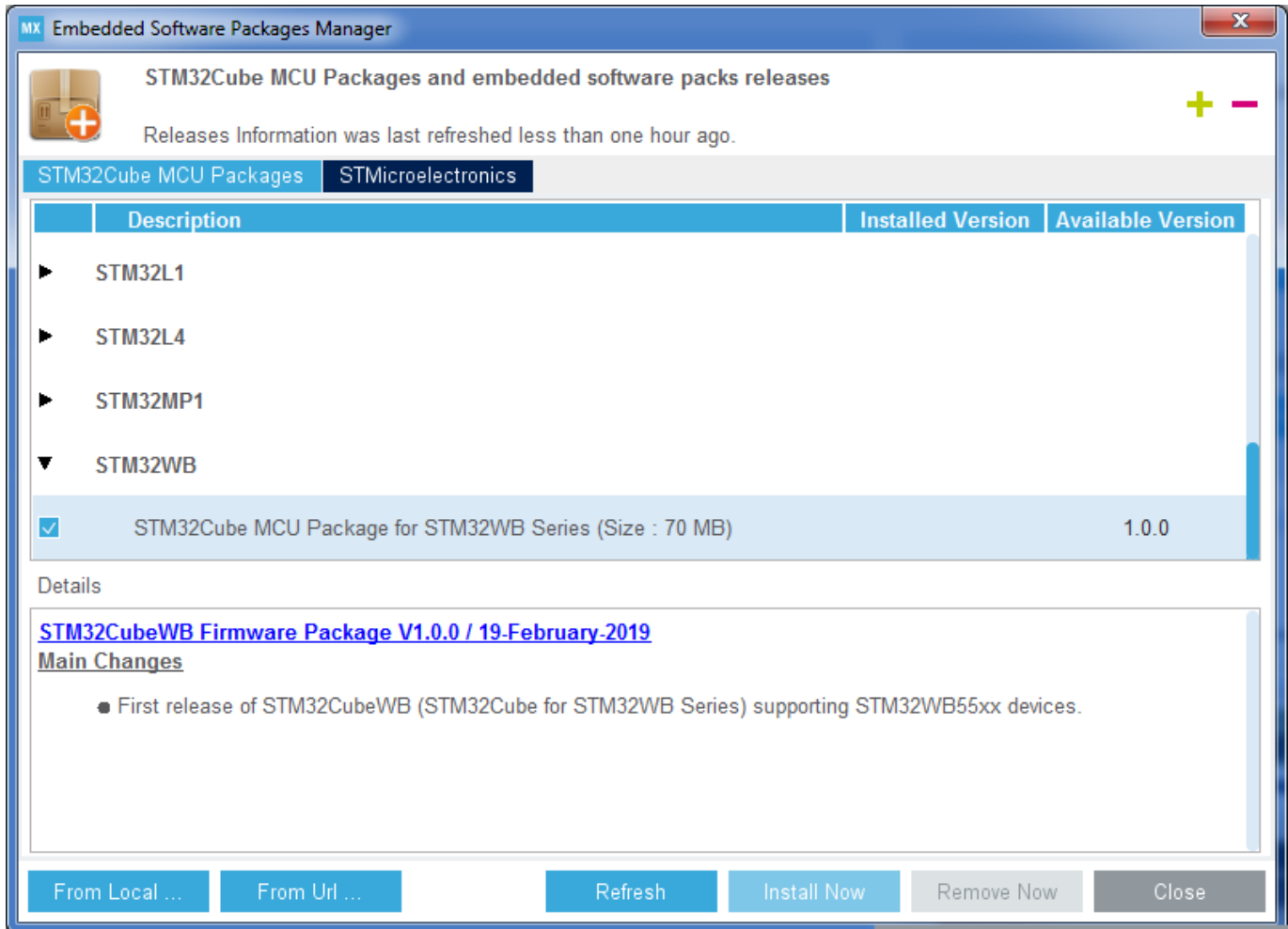
Manage software installations

CHECK E

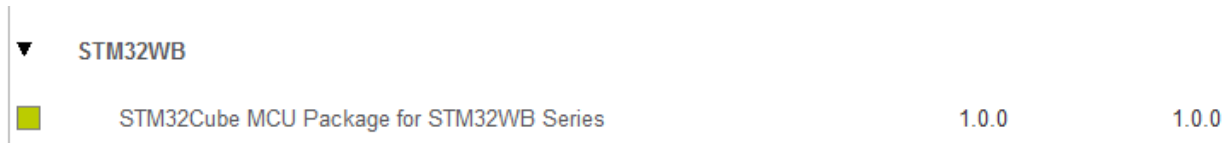
Click on Refresh:



Under STM32WB, expand then check the STM32 MCU Package for STM32WB and click Install Now



Once installed it should look like this:



7- Tera Term: Terminal software

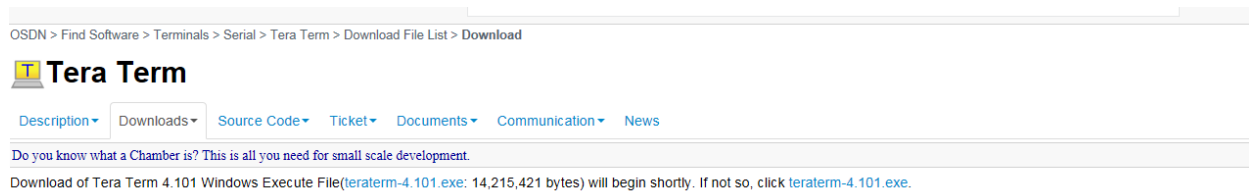
In one of the labs we use a Terminal application to display printf output, any Terminal Software can be used; however, Tera Term is recommended.

Click Link: [Tera Term](#)

Current version used: 4.101

Or use Direct Link to install:

<https://osdn.net/projects/ttssh2/downloads/70355/teraterm-4.101.exe/>

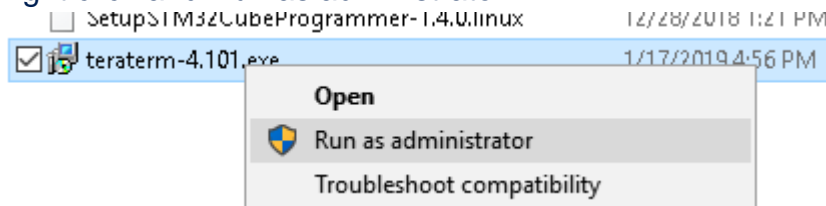


Click on:

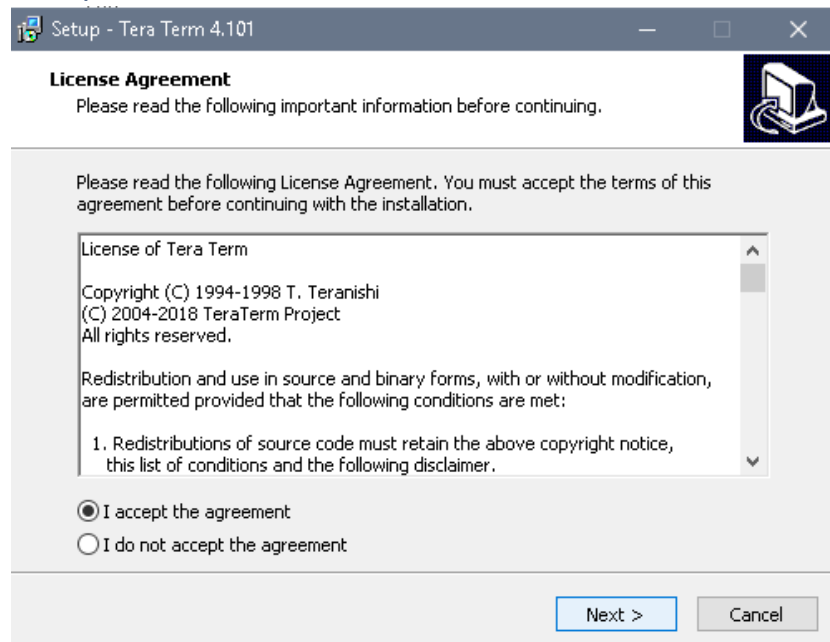
[teraterm-4.101.exe](#).

Save teraterm-x.xxx.exe at your desired location:

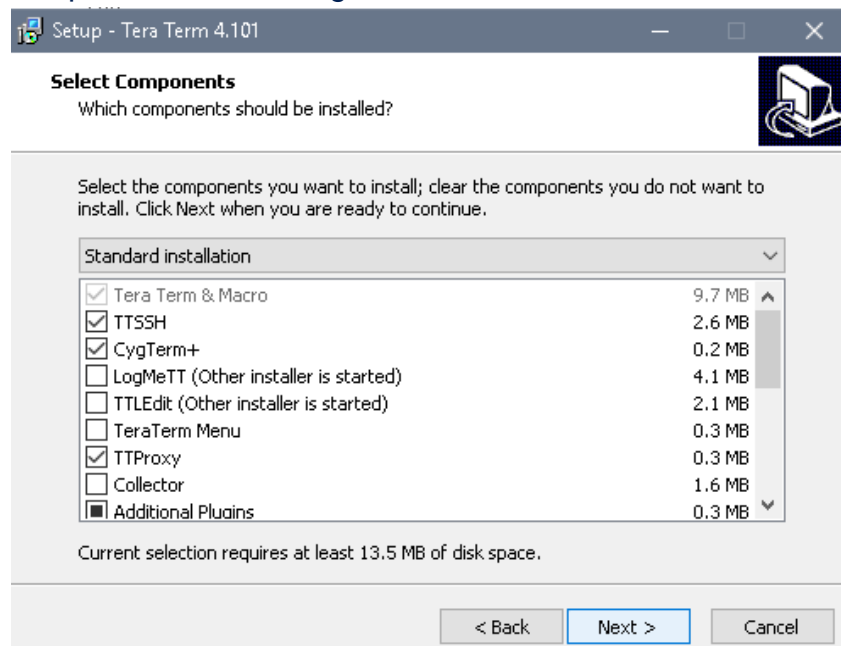
Right click and Run as administrator



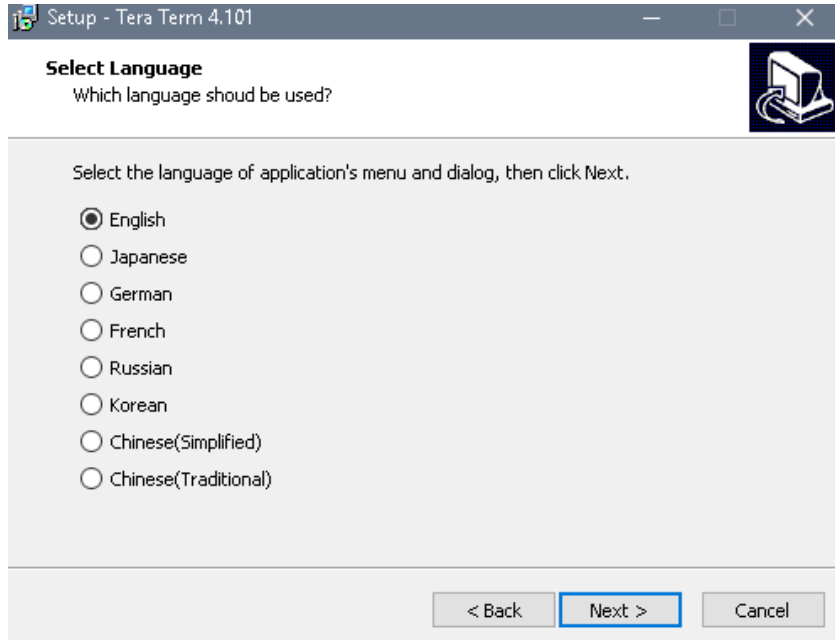
Accept and then click Next:



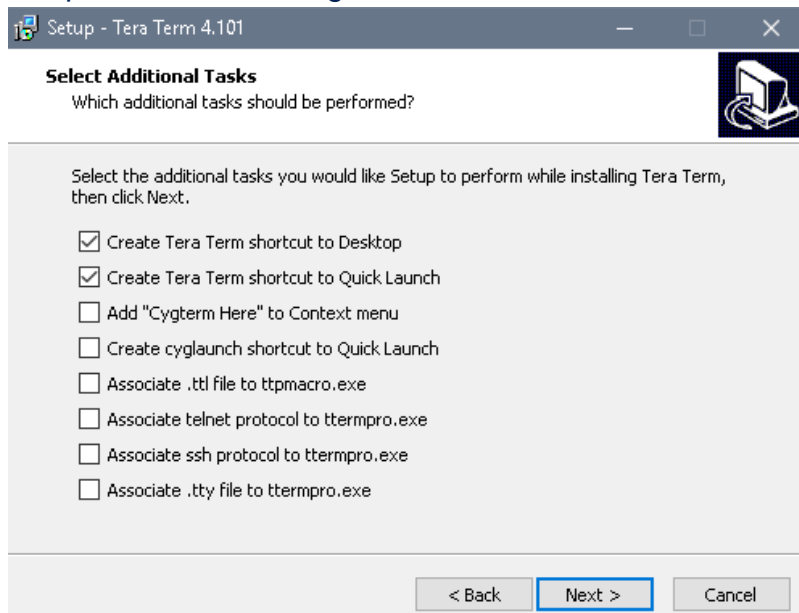
Keep the default settings and then click Next:



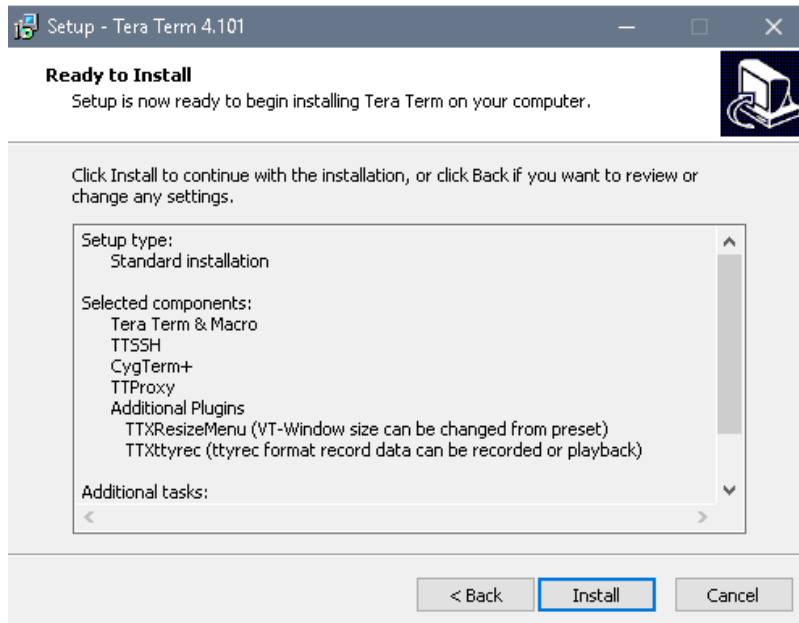
Select the language you want and then click Next:



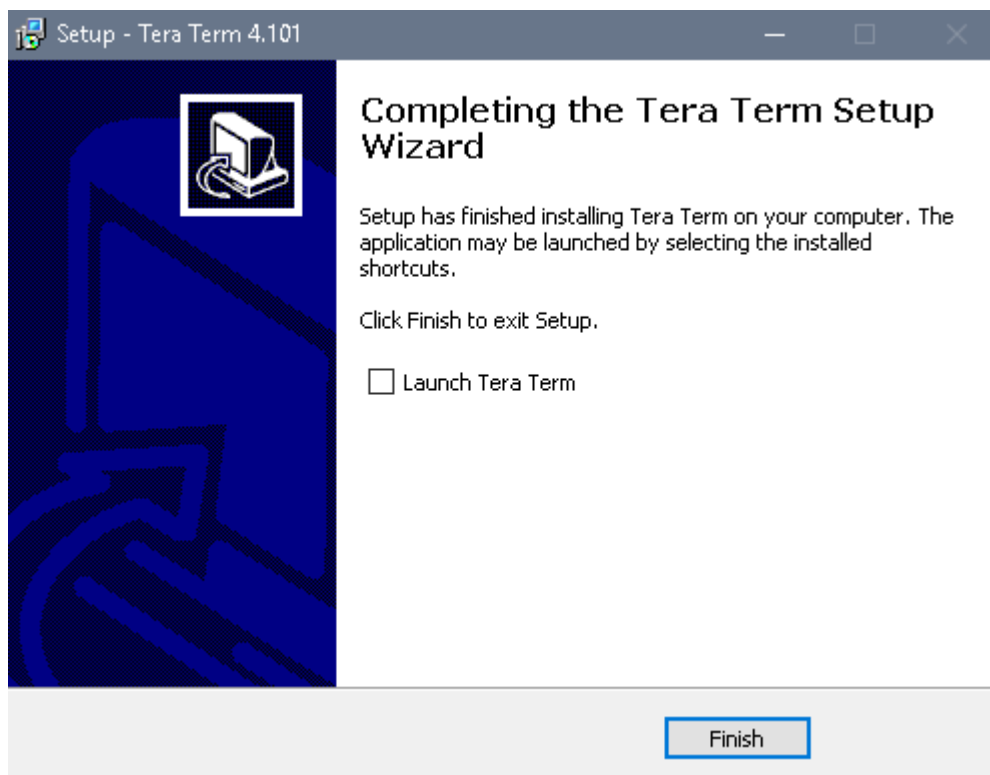
Keep the default settings and then click Next:



Click on Install:



Click on Finish:



8- ST BLE Sensor App: iOS or Android Smart Phone or Tablet App

In one of the labs we will use the ST BLE Sensor Smartphone/Tablet app.

Search for “ST BLE Sensor” app on the App Store:



Search for “ST BLE Sensor” app on the Google Play Store:



And install on your iOS or Android Smartphone or Tablet. **Note:** Make sure your device supports Bluetooth Low Energy (Bluetooth 4.0).

Or use Direct Link to install:

<https://itunes.apple.com/us/app/st-ble-sensor/id993670214?mt=8>

Current version used: 4.3.0

Or use Direct Link to install:

https://play.google.com/store/apps/details?id=com.st.bluems&hl=en_GB

Current version used: 4.3.0

9- Light Blue Explorer App: iOS or Android Smart Phone or Tablet App

In one of the labs we will use the Punch Through Design LightBlue Explorer Smartphone/Tablet app.

Search for “LightBlue” app on the App Store:





Search for “LightBlue” app on the Google Play Store:



And install on your iOS or Android Smartphone or Tablet. **Note:** Make sure your device supports Bluetooth Low Energy (BLE).

Or use Direct Link to install:

Current version used: 2.7.1

<https://itunes.apple.com/us/app/lightblue-explorer/id557428110?mt=8>

Current version used: 1.2

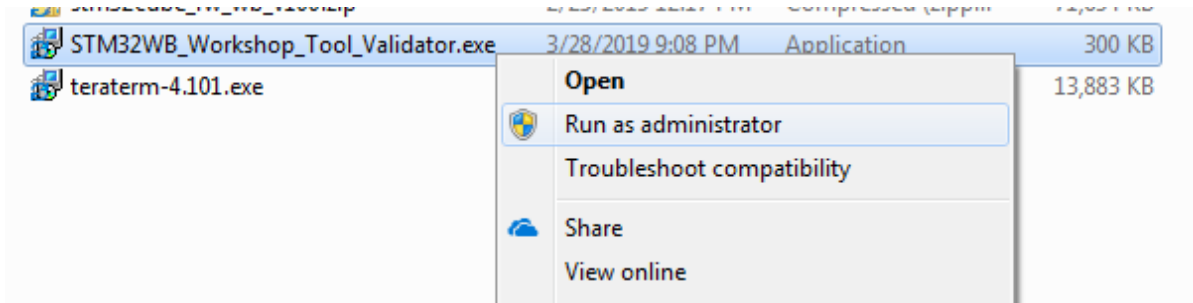
Or use Direct Link to install:

<https://play.google.com/store/apps/details?id=com.punchthrough.lightblueexplorer>

10- STM32WB Workshop – Tool Validator

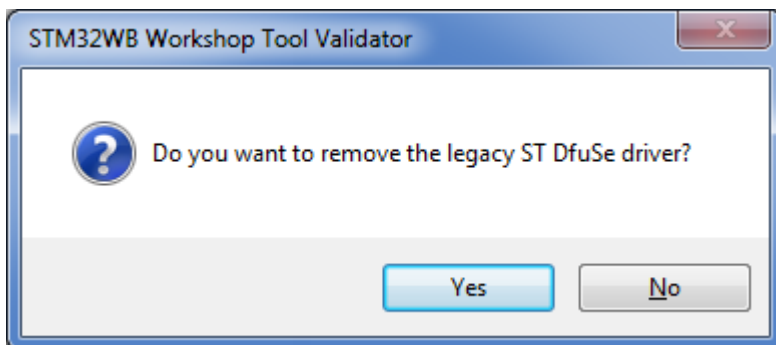
The tool called “STM32WB_Workshop_Tool_Validator.exe” will validate the installed software/software components/libraries/drivers that will be used in the Workshop. The Tool is included in the zip file “STM32WB_Workshop_Installation.zip”.

Launch the application “STM32WB_Workshop_Tool_Validator.exe” by Right clicking on the icon and Run as administrator:

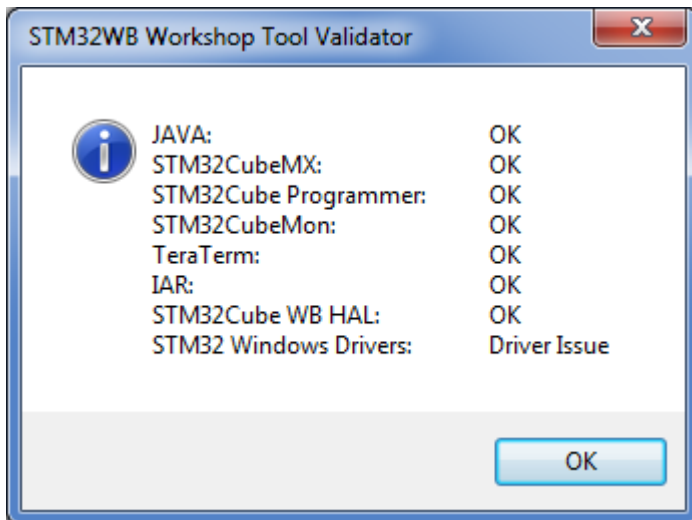


The tool will analyze your system and make sure that all the software/software components/libraries/drivers are installed correctly.

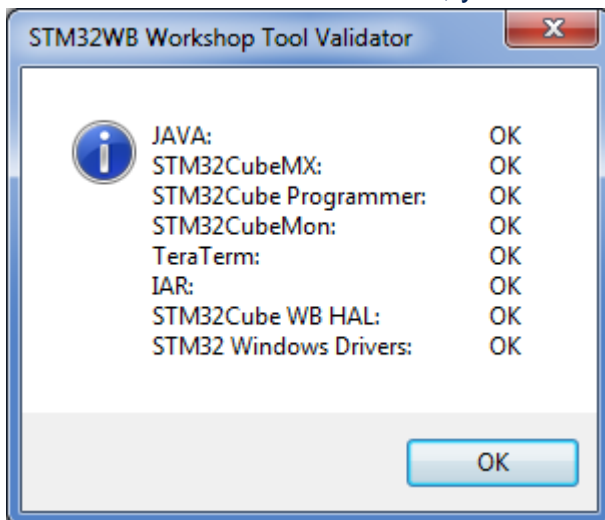
Note: When running the validator for the first time, you might get a pop up asking if you want to remove the legacy ST DfuSe driver from your system. You will get this if you happened to have installed our legacy [DfuSe](#) Utility on your machine in the past. Recently, ST has released the [STM32CubeProgrammer](#) Utility, which we'll be using in this workshop, and in order for this new utility to work, it is necessary to uninstall the old legacy DfuSe driver by clicking 'Yes'. If you're still actively working with the legacy DfuSe utility and its driver, please proceed to remove the driver anyways, and at the end of the workshop, you may reinstall it again.



If you don't remove the legacy driver or any of the three drivers (ST-Link Debug, VCP, and Bridge driver), that are installed with STM32CubeProgrammer, are missing, the summary window will show "Driver Issue" indicating a problem.



If the full install was successful, you will see this:

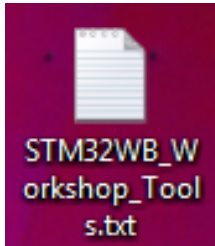


If you did not get all OKs please refer to the **important notes** on the next page.

All the software, software components, libraries, and drivers above are marked as OK, meaning that the installs were completed successfully.

If you don't see OK in every field that means that either the software, software component, libraries, or the drivers were not installed properly, were not installed at all or that the wrong version was installed on your system. If it is marked other than OK, you will need to install or re-install by going back to the related procedure step(s) in this document.

If you still have issues with the install, please refer to the generated log report file (STM32WB_Workshop_Tools.txt) created on your Desktop by the Tool Validator:



It provides more information about the install of the Workshop material that might be helpful to determine the issue.

Important notes about “STM32WB_Workshop_Tool_Validator.exe”: this is a basic application to help validate the tool installation. It has some limitations as follows:

1. When multiple instances of a tool are installed in different directories, the Tool Validator only checks the version of the one at the default path.
2. Regarding the STM32CubeWB Library, the Tool Validator is only able to detect and report if version 1.0.0 is installed. If version 1.0.0 is not installed and a newer version is (i.e. 1.1.0), the tool will report that the library is not installed. This message can be ignored as long as a newer version of the library is installed.

If you still have issues please contact ST by entering an online support request (OLS) at:

<https://my.st.com/ols>

Enter a New Request and use “**STM32WB Workshop Installation**” for the Subject.

Please describe in details the issue encountered and also attach the log file from the Tool Validator (STM32WB_Workshop_Tools.txt).

Appendix: STM32CubeWB Firmware Library offline installation

You only need to do this step if you were not able to do install of the STM32CubeWB from STM32CubeMX in the step 6 of this document.

For those behind a corporate firewall or having issues with installing the Cube Library, you can use “From local” to do an offline install as explained here:

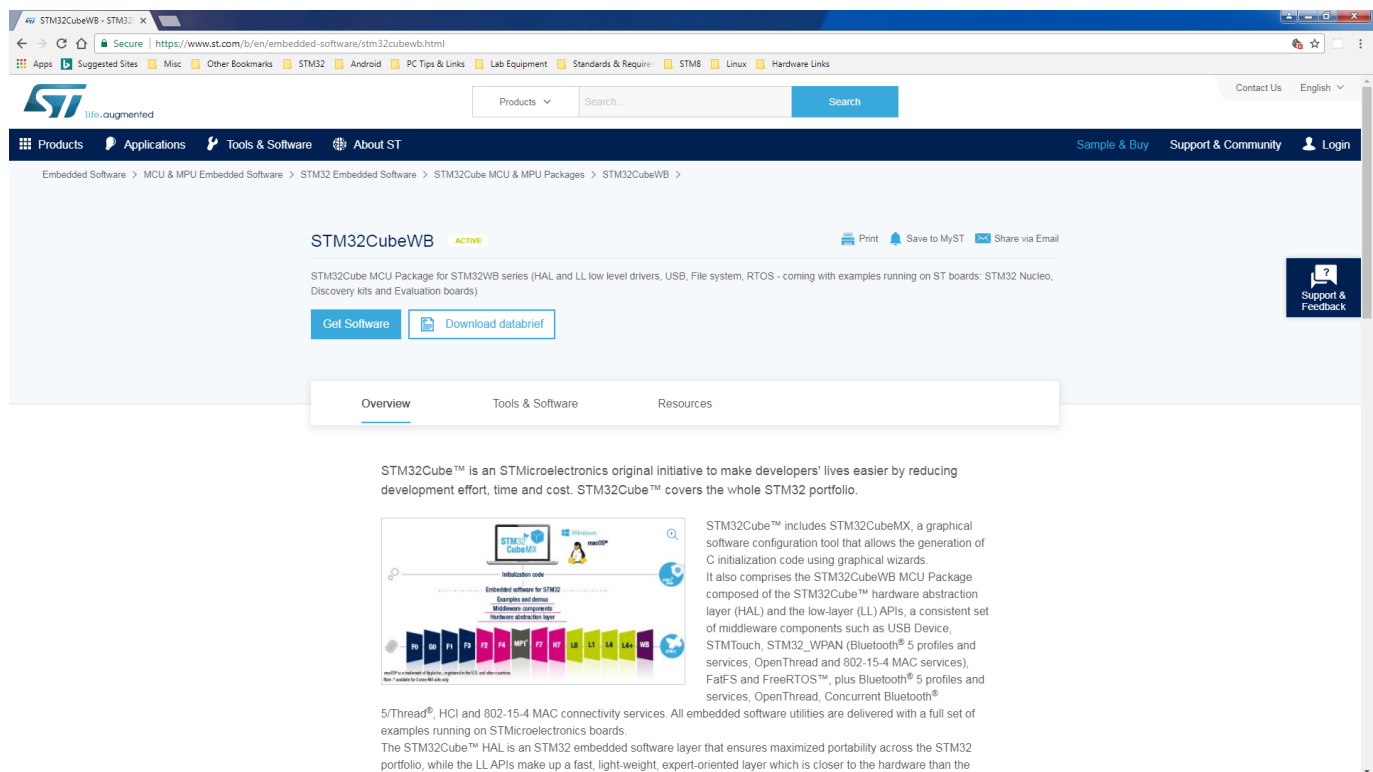
Go to this link to download the STM32CubeWB Library:

Click Link: [STM32CubeWB](https://www.st.com/en/embedded-software/stm32cubewb.html)

Minimum version required: 1.0.0

Or use Direct Link to install:

<https://www.st.com/en/embedded-software/stm32cubewb.html>



The screenshot shows the STM32CubeWB product page on the ST website. The page includes a navigation bar with links to Products, Applications, Tools & Software, and About ST. The main content area features the STM32CubeWB logo, a description of the MCU Package for STM32WB series, and buttons for 'Get Software' and 'Download databrief'. A tabbed interface at the bottom shows 'Overview', 'Tools & Software', and 'Resources'. The 'Overview' tab is active, displaying a diagram of the STM32CubeWB architecture and a detailed description of the package components, including HAL, LL APIs, and various middleware components like USB Device, STMicroelectronics, STM32_WPAN, OpenThread, and Bluetooth.

STM32CubeWB **ACTIVE** [Print](#) [Save to MyST](#) [Share via Email](#)

STM32Cube MCU Package for STM32WB series (HAL and LL low level drivers, USB, File system, RTOS - coming with examples running on ST boards: STM32 Nucleo, Discovery kits and Evaluation boards)

[Get Software](#) [Download databrief](#)

[Support & Feedback](#)

Overview Tools & Software Resources

STM32Cube™ is an STMicroelectronics original initiative to make developers' lives easier by reducing development effort, time and cost. STM32Cube™ covers the whole STM32 portfolio.

STM32Cube™ includes STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards. It also comprises the STM32CubeWB MCU Package composed of the STM32Cube™ hardware abstraction layer (HAL) and the low-layer (LL) APIs, a consistent set of middleware components such as USB Device, STMicroelectronics, STM32_WPAN (Bluetooth® 5 profiles and services, OpenThread and 802.15.4 MAC services), FatFS and FreeRTOS™, plus Bluetooth® 5 profiles and services, OpenThread, Concurrent Bluetooth®

5/Thread®, HCI and 802.15.4 MAC connectivity services. All embedded software utilities are delivered with a full set of examples running on STMicroelectronics boards.

The STM32Cube™ HAL is an STM32 embedded software layer that ensures maximized portability across the STM32 portfolio, while the LL APIs make up a fast, light-weight, expert-oriented layer which is closer to the hardware than the

Click on: [Get Software](#)

Get Software

Part Number	Download
STM32CubeWB	Get Software
General Description	STM32Cube MCU Package for STM32WB series (HAL and LL low level drivers, USB, File system, RTOS - coming with examples running on ST boards: STM32 Nucleo, Discovery kits and Evaluation boards)
Software Version	1.0.0
Supplier	ST
Marketing Status	Active

Click on:



When the following page appears:



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6. Some portion of the software package may contain software subject to Open Source Terms (as defined below) applicable for each such portion ("Open Source Software"), as further specified in the software package. Such Open Source Software is supplied under the applicable Open Source Terms and is not subject to the terms and conditions of license hereunder. "Open Source Terms" shall mean any open source license which requires as part of distribution of software that the source code of

ACCEPT

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Get Software

If you have an account on my.st.com, login and download the software without any further validation steps.

Login/Register

If you don't want to login now, you can download the software by simply providing your name and e-mail address in the form below and validating it.

This allows us to stay in contact and inform you about updates of this software.

For subsequent downloads this step will not be required for most of our software.

First Name:

Last Name:

E-mail address:

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Download

There are 3 ways of getting the software:

1. If you have an ST account click on:

Login/Register

2. If you don't have one, create one by clicking on:

Login/Register

3. If you don't have an account and don't want to create one, fill in the information below:

First Name:

Last Name:

E-mail address:

Click on the check box:

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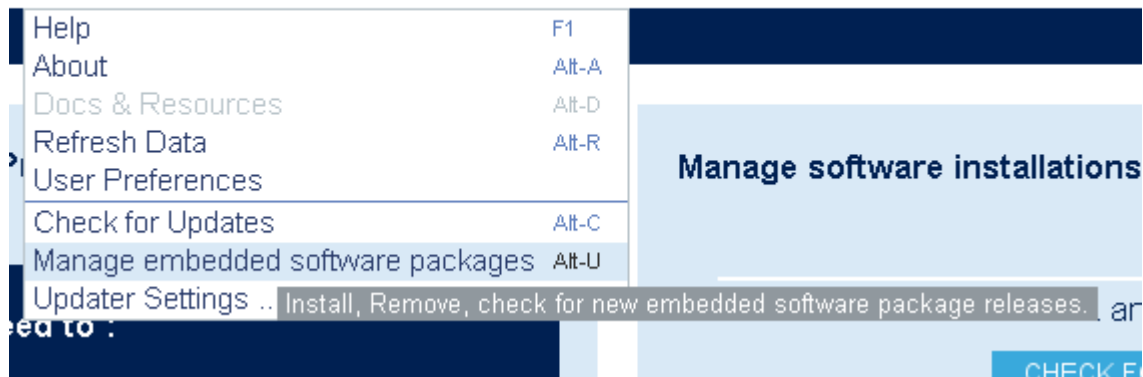
Download

Then click:

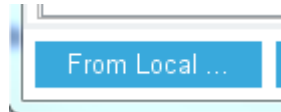
Save the file en.stm32cubewb.zip at a location of your choice:

From STM32CubeMX : Help -> Manage embedded software packages

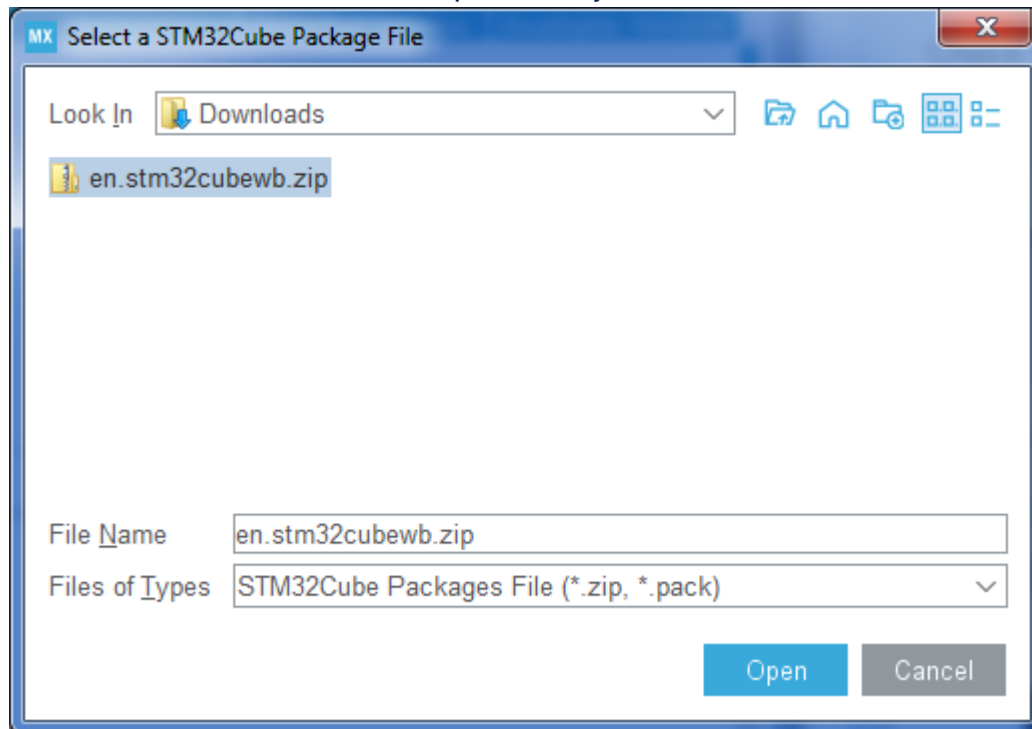
Help




Click : From Local... :



Point to the en.stm32cubewb.zip file that you have downloaded:



This will install the Cube Library for the STM32WB at the correct location for you.
At the end when the install is complete you will see this:

▼ STM32WB			
	STM32Cube MCU Package for STM32WB Series	1.0.0	1.0.0