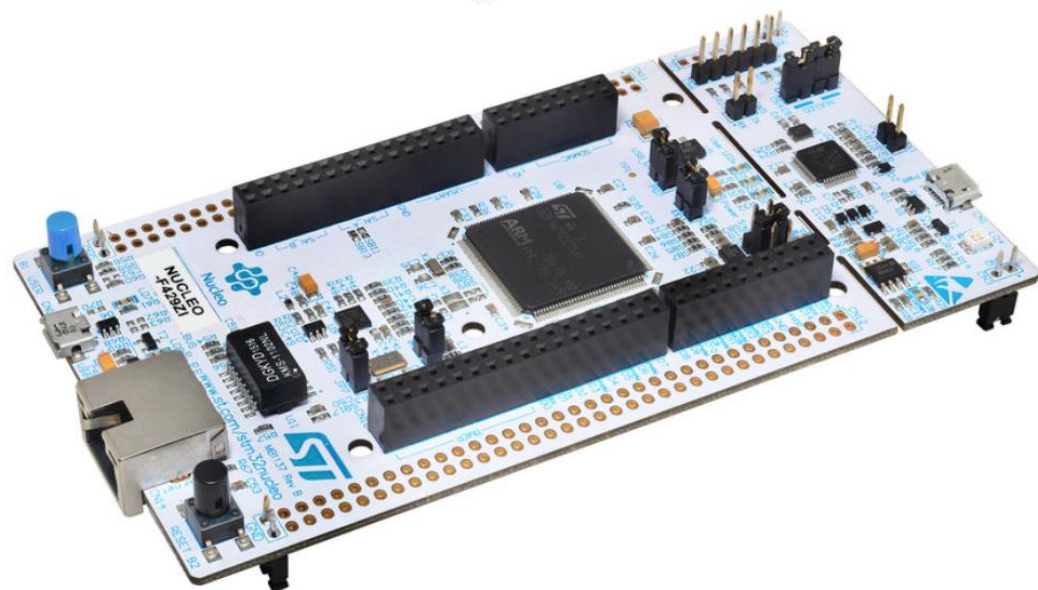
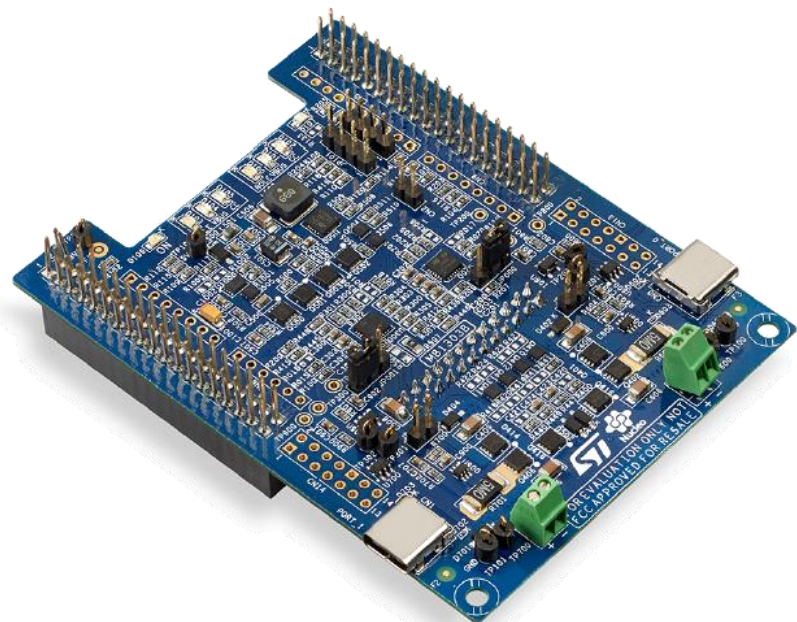




life.augmented



# STSW-STUSB012 Quick Start Guide

STUSB1602 software  
library for STM32F446



# STUSB



# QUICK START

## Introduction

This document provides an overview of the STUSB1602 software package enabling USB PD stack with **NUCLEO-F446ZE** and **MB1303 shield**

SOFTWARE	
<b>STSW-STUSB012</b>	STUSB1602 software library for STM32F446
<b>IAR 8.x</b>	C-code compiler
HARDWARE	
<b>NUCLEO-F446ZE</b>	STM32 Nucleo-144 development board
<b>P-NUCLEO-USB002</b>	STUSB1602 Nucleo Pack containing <b>MB1303</b> shield (Nucleo expansion board to be plugged on NUCLEO-F446ZE)



# SW library set-up (1/3)

- 1 Download the STUSB1602 software package by searching STSW-STUSB012 from www.st.com home page:

The screenshot shows the ST website search results for the query 'STSW-STUSB012'. The page includes the ST logo, navigation menus, and a search bar. The search results are displayed in a table with the following columns: Part Number, Status, Type, Category, and Description. The results table shows one entry: STSW-STUSB012, ACTIVE, Embedded Software, Evaluation Tool Software, and STUSB1602 software library for STM32F446. The page also includes a 'REFINE BY TYPE' section with 'Embedded Software (1)' and a 'REFINE BY VENDOR' section with 'ST (1)'. A 'Feedback' button is visible on the right side of the results table.

Part Number	Status	Type	Category	Description
STSW-STUSB012	ACTIVE	Embedded Software	Evaluation Tool Software	STUSB1602 software library for STM32F446



# SW library set-up (2/3)

2 Then click on “Get Software” from either the bottom or top of the page

Get Software				
Part Number	Software Version	Marketing Status	Supplier	Download
STSW-STUSB012	1.1.0	Active	ST	<a href="#">Get Software</a>

3 Download will start after accepting the License Agreement, and filling contact information.

## License Agreement

ACCEPT

### IMPORTANT-READ CAREFULLY:

This Limited License Agreement ("LLA") is made between you (either an individual person or a single legal entity, who will be referred to in this LLA as "You" or "Licensee") and STMicroelectronics International NV, a company incorporated under the laws of the Netherlands acting for the purpose of this LLA through its Swiss branch 39, Chemin du Champ des Filles, 1228 Plan-les-Ouates, Geneva, Switzerland (hereinafter "ST") for the software licensed materials that accompany this LLA, including any associated media, printed materials and electronic documentation (the "Licensed Materials"). The Licensed Materials include any software updates and supplements, that ST may provide You or make available to You after the date You obtain the Licensed Materials to the extent that such items are not accompanied by a separate license agreement or other terms of use.

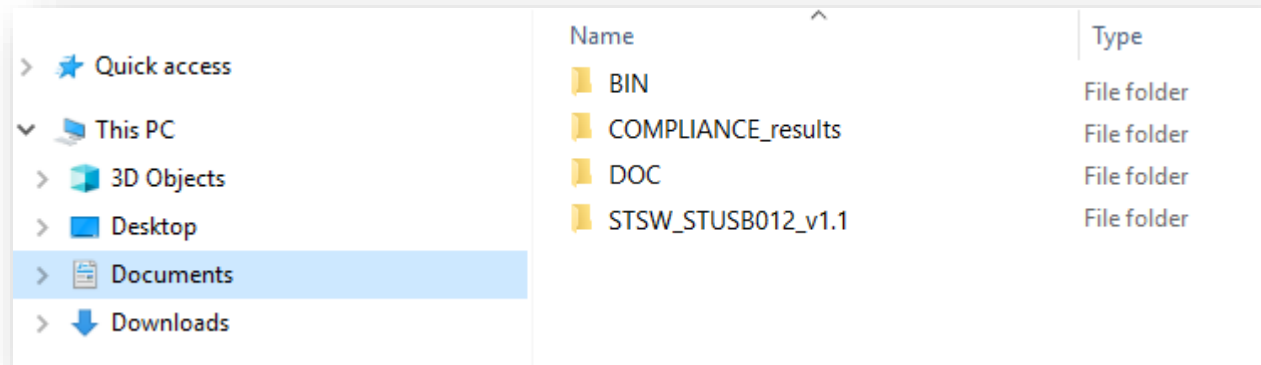


# SW library set-up (3/3)

- 4 Save the file [en.STSW-STUSB012.zip](#) on your laptop



and unzip:



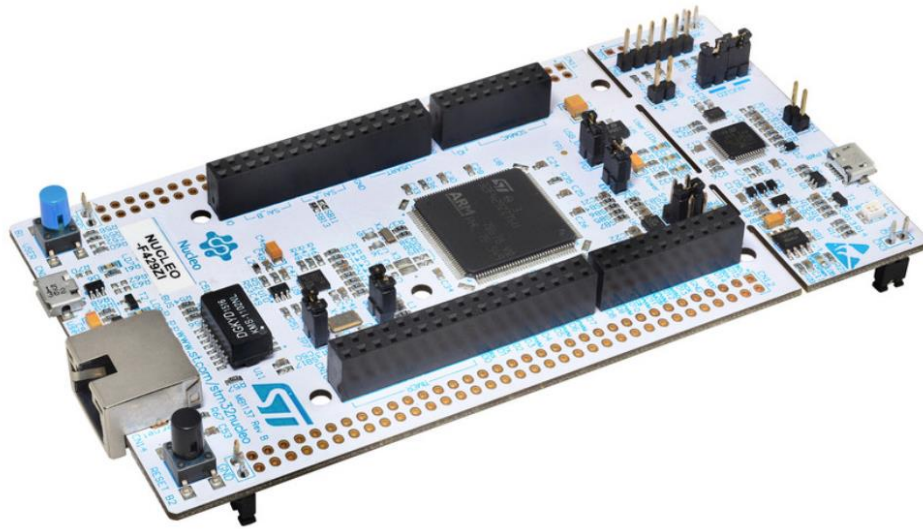
- 5 The package contains a DOC directory, ready-to-use binary files, associated projects and compliance reports



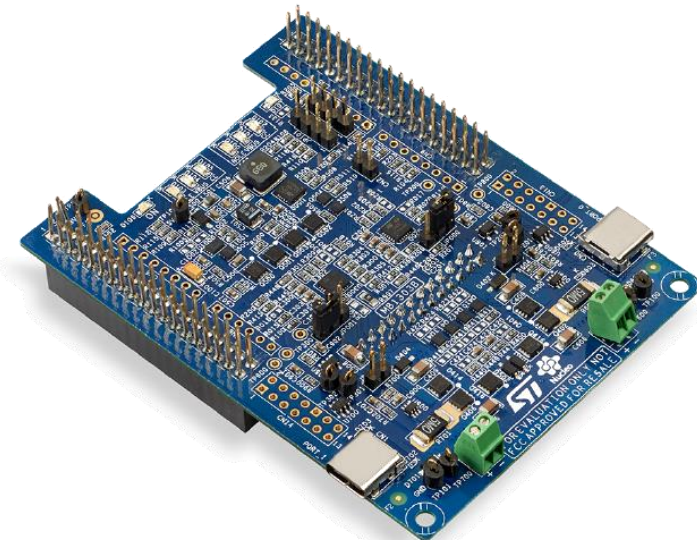
# Suggested Hardware requirements

The software library has been optimized to quickly compile on the NUCLEO-F446FE development board stacked with MB1303 expansion board (from P-NUCLEO-USB002 package).

MB1303 is composed of 2 Dual Role Ports (DRP) USB PD capable receptacles (form factor not optimized)



**NUCLEO-F446ZE**



**MB1303**

(Board contained in  
P-NUCLEO-USB002 orderable package)

# NUCLEO-F446ZE

## Hardware set-up

```
Readme_Nucleo_Hardware_modif.txt - Notepad
File Edit Format View Help
*****
** Hardware modifications to be done on MB1137 **
** in order to use MB1303 shield offering **
** 2 USBPD ports based on STUSB1602 + STM32F446ZE **
*****

Remove:
SB118
SB5
SB6
R37 (for 2nd port LEDs)
R38 (for 2nd port LEDs)

Close
SB144 (for 2nd port LEDs)
SB145 (for 2nd port LEDs)
Add:
38 pins connectors on both CN11 and CN12

For Trace:
add wire between PA9-CN9(pin21) of MB1303 and CN5-RX on Nucleo-MB1137
Windows (CRLF) Ln 5, Col 46 100%
```



# Software package Overview

The software library includes 8 different software frameworks (+ 3 without RTOS) already optimized to address most common application scenario:

	Project	Typical Application
#1	STM32F446_MB1303_SRC_ONLY(*)	Provider / SOURCE (power management)
#2	STM32F446_MB1303_SRC_VDM	Provider / SOURCE (power management) + extended message support
#3	STM32F446_MB1303_SNK_ONLY(*)	Consumer / SINK (power management)
#4	STM32F446_MB1303_SNK_VDM	Consumer / SINK (power management) + extended message support + UFP support
#5	STM32F446_MB1303_DRP_ONLY (*)	Dual Role Port (power management) + dead battery mode
#6	STM32F446_MB1303_DRP_VDM	Dual Role Port (power management) + dead battery mode + extended message support + UFP support
#7	STM32F446_MB1303_DRP_2ports	2 x Dual Role Port (power management) + dead battery mode + extended message support + UFP support
#8	STM32F446_MB1303_DRP_SRCING_DEVICE	Dual Role Port requesting PR_swap when attached in Sink or DR_swap when attached in Source

- by default, all projects are packaged with RTOS support
- project annotated with a (\*) are available with and without RTOS support





# For more details, please check Firmware Package documentation:

## Presentations



STSW-STUSB012 Firmware package documentation v2 2.0

22 Oct 2020

en.STSW-STUSB012-v1.1.0 > STSW\_STUSB012\_v1.1

Name

- STM32F446\_MB1303\_DRP\_2PORTS
- STM32F446\_MB1303\_DRP\_ONLY
- STM32F446\_MB1303\_DRP\_ONLY\_noRTOS
- STM32F446\_MB1303\_DRP\_SRCING\_DEVICE
- STM32F446\_MB1303\_DRP\_VDM
- STM32F446\_MB1303\_SNK\_ONLY
- STM32F446\_MB1303\_SNK\_ONLY\_noRTOS
- STM32F446\_MB1303\_SNK\_VDM
- STM32F446\_MB1303\_SRC\_ONLY
- STM32F446\_MB1303\_SRC\_ONLY\_noRTOS
- STM32F446\_MB1303\_SRC\_VDM



## STSW-STUSB012

### Firmware package documentation

V2.1



## STUSB