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# STSW-STUSB002 Quick Start Guide



Customizing the STUSB4500  
using the Graphical User Interface (GUI)



# Introduction

This document describes how to configure an STM32 NUCLEO board as a USB to I<sup>2</sup>C bridge.

Configuration of such a NUCLEO board is required in order to connect the STUSB Graphical User Interface ([STSW-STUSB002](#)) running on a laptop with an STUSB evaluation board.

Main components	
<b>NUCLEO-F072RB</b>	STM32 Nucleo-64 development board with AMR Cortex M0
<b>Mini-B USB cable</b>	with USB data support
<b>USB-C cable</b>	with USB data support
<b>STSW-STUSB002</b>	STUSB4500 Graphical User Interface
<b>STEWAL-ISC005V1</b>	STUSB4500 evaluation board
OR	
<b>EVAL-SCS001V1</b>	STUSB4500 reference design board
<b>Operating System</b>	Windows OS



# Supported Hardware



**STEVAL-ISC005V1**  
Evaluation Board



**EVAL-SCS001V1**  
Reference Design



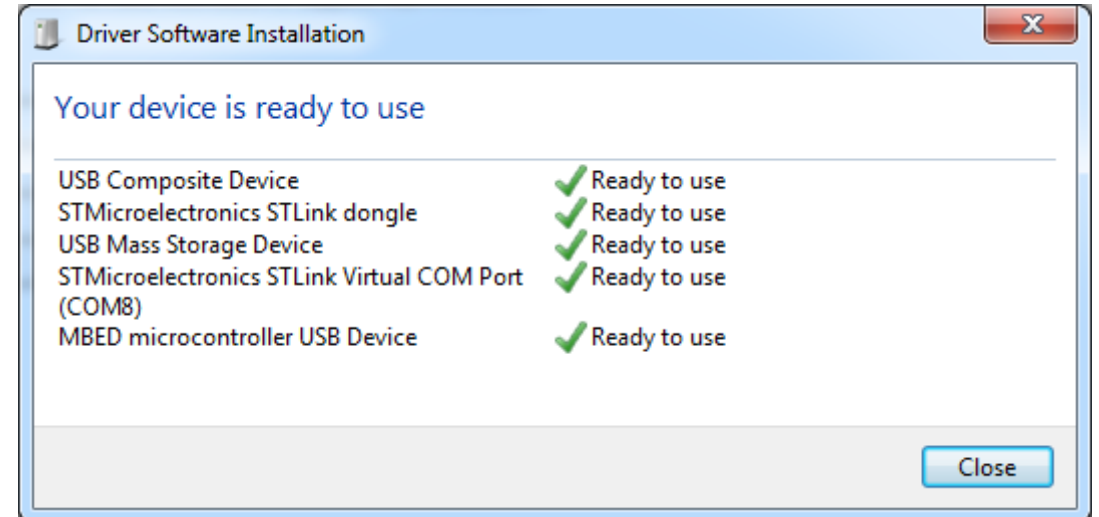
# Hardware Configuration

(1/8)

- 1 Connect the NUCLEO-F072RB to the Laptop using mini-B USB cable



- 2 Please make sure the device drivers are installed successfully:





# Hardware Configuration (2/8)

- 3 Download the STUSB45 GUI package ([STSW-STUSB002](#)) by searching from [www.st.com](http://www.st.com) home page:

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Embedded Software (1)

1 tools & software: STSW-STUSB002 [Show / hide columns](#)

Part Number	Status	Type	Category	Description
<a href="#">STSW-STUSB002</a>	ACTIVE	Embedded Software	Evaluation Tool Software	Graphical User Interface for STUSB45



# Hardware Configuration (3/8)

## Get Software

4 Click on **Get Software** button

Part Number	Software Version	Marketing Status	Supplier	Download
STSW-STUSB002	1.1.1	Active	ST	<b>Get Software</b>

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

### License Agreement

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# Hardware Configuration

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6 Save the file **en.STSW-STUSB002.zip** on your laptop



and unzip:

	Name	Type	Size
★ Quick access			
☁ OneDrive - STMicroelectronics			
💻 This PC			
📁 3D Objects			
🖥 Desktop			
📄 Documents			
↓ Downloads			
	back-up DLL	File folder	
	Nucleo_F072RB_STUSB_HID_NVM_config_1.6.bin	BIN File	52 KB
	Nucleo_F072RB_STUSB_UART_NVM_config_1.05.bin	BIN File	13 KB
	serialg168.dll	Application extension	129 KB
	serialwrap.dll	Application extension	296 KB
	STUSB4500_GUI_1.11.exe	Application	3,377 KB
	uipinterface.dll	Application extension	189 KB
	vcredist_x86.exe	Application	6,403 KB



# Hardware Configuration

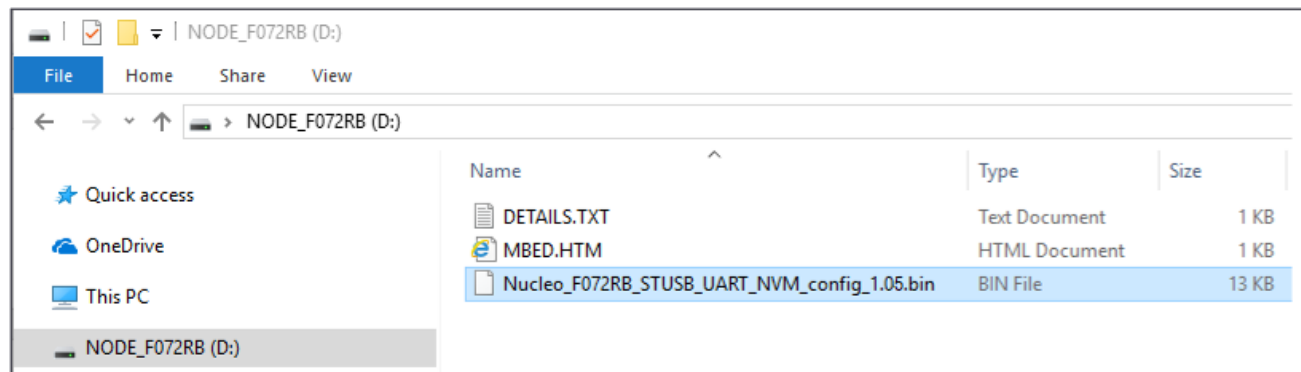
## (5/8)

### 7 Upload the binary into the STM32 Nucleo board

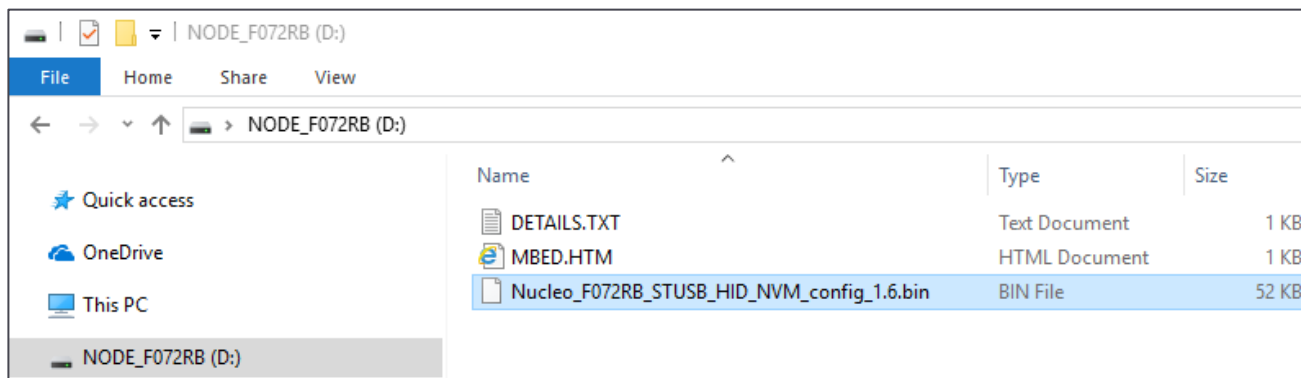
Connect the Nucleo board to the PC using a USB mini-B cable

Drag and drop the BIN file to the Nucleo board (NODE\_F072RB)

- If you access the **GUI through the USB Mini-B cable**, use the BIN file called: **NUCLEO\_F072RB\_STUSB\_UART\_NVM\_config\_1.05.bin**



- If you access the **GUI through the USB Type-C cable**, use the BIN file called: **NUCLEO\_F072RB\_STUSB\_HID\_NVM\_config\_1.6.bin**





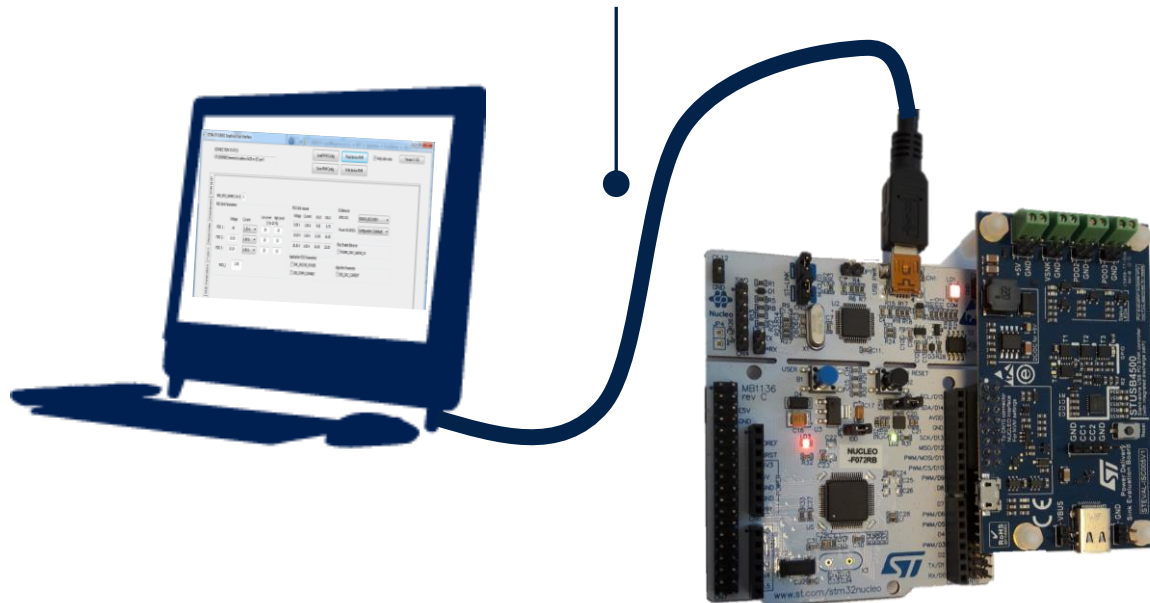


# Hardware Configuration

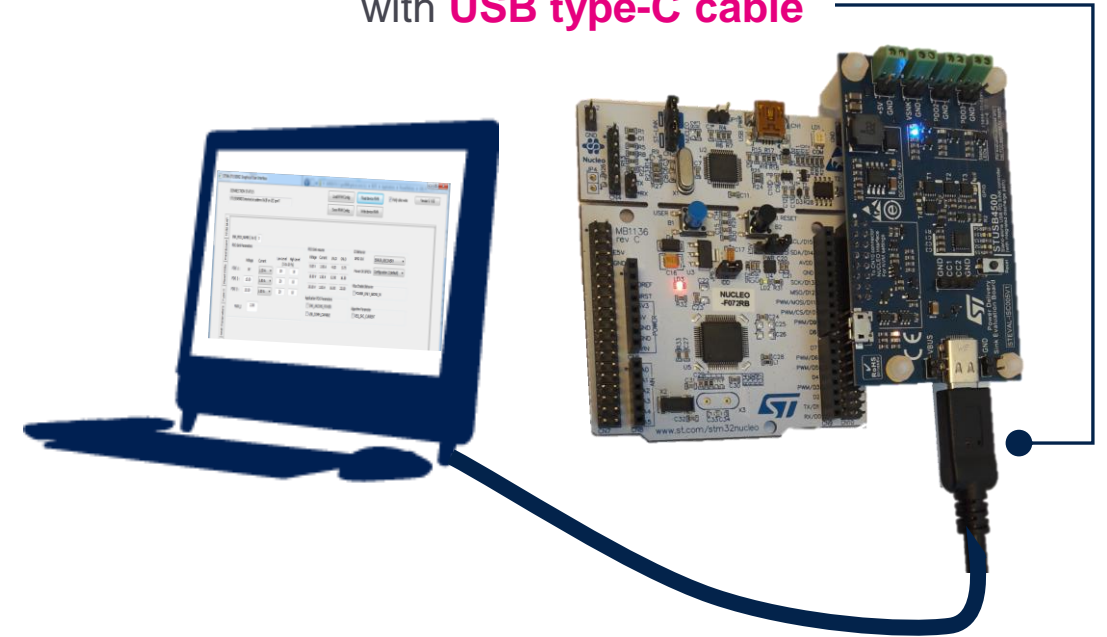
(6/8)

## 8 Connect the boards to the PC. **Case 1: Using STEVAL-ISC005V1**

Connection between the GUI and  
NUCLEO-F072RB + STEVAL-ISC005V1  
through **USB mini-B cable**



Connection between the GUI  
NUCLEO-F072RB and STEVAL-ISC005V1  
with **USB type-C cable**



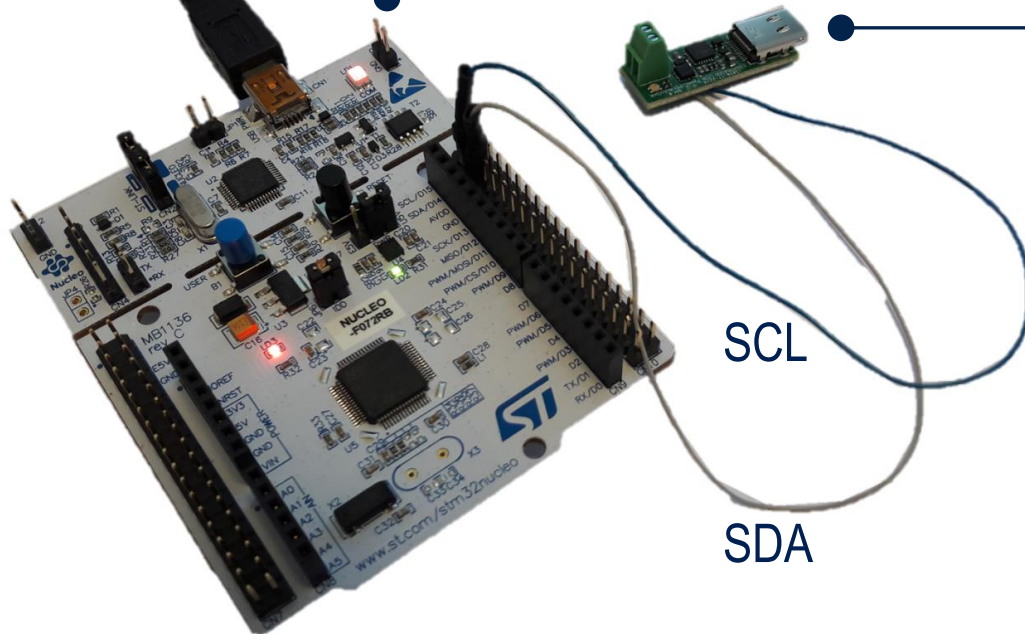


# Hardware Configuration

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## Case 2: Using EVAL-SCS001V1

I<sup>2</sup>C connection between  
NUCLEO-F072RB and EVAL-SCS001V1  
Connection to the PC using **USB mini-B cable**



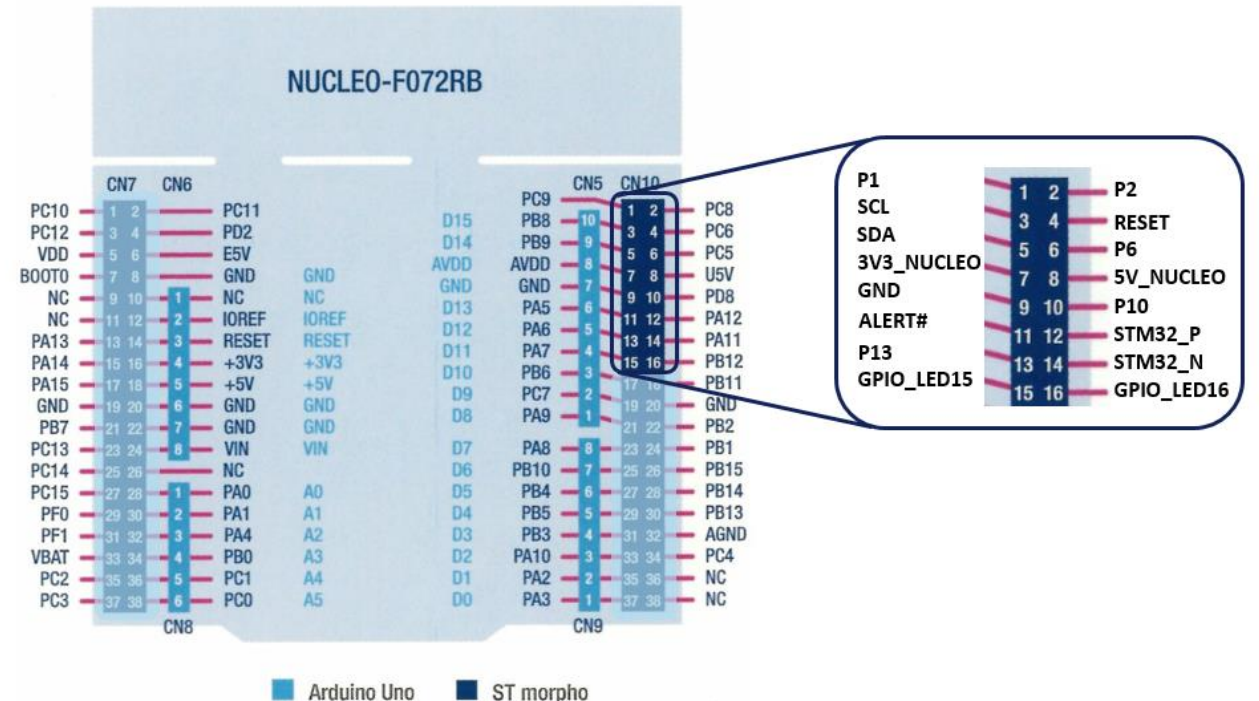
**NB:**  
EVAL-SCS001V1 must be supplied  
through USB connector  
Additional GND connection to the  
NUCLEO is recommended



# Hardware Configuration (8/8)

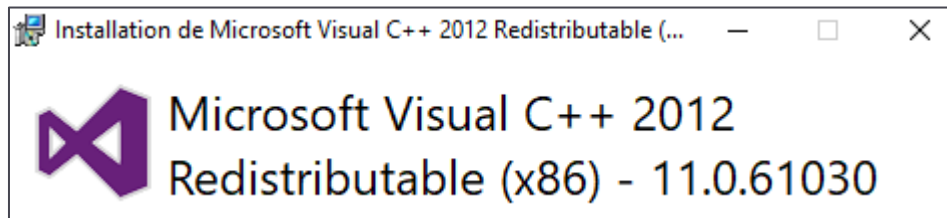
- 9 Press the NUCLEO-F072RB “RESET” button (B2 – Black push button).
- 10 The board is now configured to act as a USB to I<sup>2</sup>C bridge between the STUSB Graphical User Interface (GUI) and STUSB4500.
- 11 Before opening the GUI, please make sure SDA and SCL signals from the STUSB4500 application board are properly connected to their counterpart from NUCLEO-F072B.

NB: in case of custom boards, please do not forget 4.7 kOhms pull-up resistors on SDA/SCL





**12** Install the Microsoft MFC software package: vcredist\_x86.exe

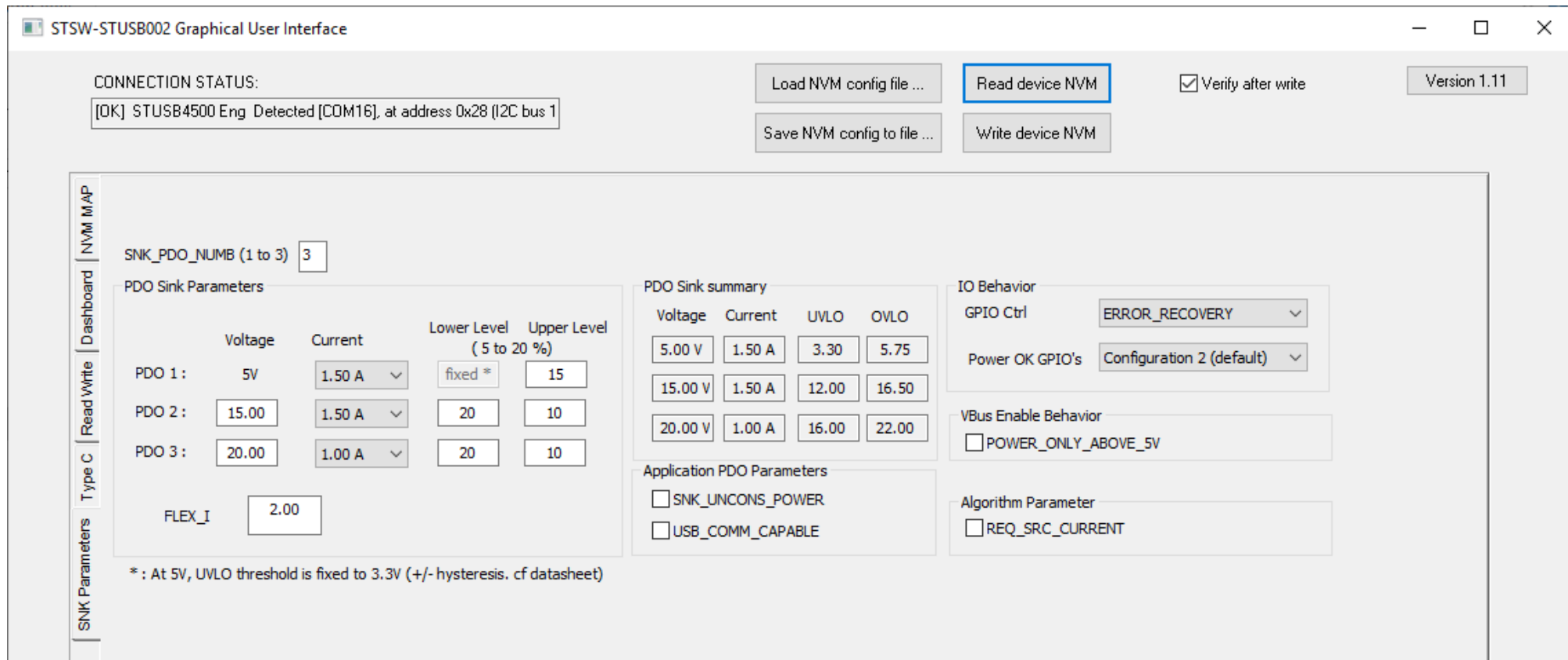


**OR** copy the back-up dll into the local directory

Name	Type	Size
mfc110u.dll	Application extension	4,353 KB
msvcp110.dll	Application extension	523 KB
msvcr110.dll	Application extension	855 KB
Nucleo_F072RB_STUSB_HID_NVM_config_1.6.bin	BIN File	52 KB
Nucleo_F072RB_STUSB_UART_NVM_config_1.05.bin	BIN File	13 KB
serialg168.dll	Application extension	129 KB
serialwrap.dll	Application extension	296 KB
STUSB4500_GUI_1.11.exe	Application	3,377 KB
uiinterface.dll	Application extension	189 KB
vcredist_x86.exe	Application	6,403 KB



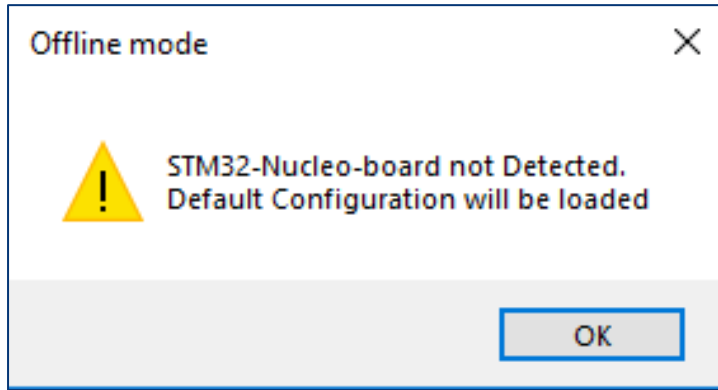
- 13 Click on the STUSB4500\_GUI\_1.09.exe file to open the GUI.  
The following window must appear.



The GUI is now ready to use.



# Error Message (1/2)



**ISSUE:** The STUSB evaluation board is not detected by the GUI

**RESOLUTION:**

Please check I<sup>2</sup>C signals (SDA, SCL) connection to MCU (see section 10). Also double check that the STUSB4500 is properly powered (through VDD or VSYS pins) as well as the GROUND.

Then re-start the GUI.



# Error Message (2/2)

NB:

It is possible to use the GUI without STUSB4500 connected to it. In this case, STUSB4500 default configuration (as per the Datasheet) is loaded. This mode (File edition mode) is generally used to IMPORT or EXPORT a STUSB4500 custom configuration into a file.

STSW-STUSB002 Graphical User Interface

CONNECTION STATUS:  
[Offline] - STUSB4500 Not Detected - File Edition mode

Load NVM config file ...  
Save NVM config to file ...

SNK\_PDO\_NUMB (1 to 3) 3

PDO Sink Parameters

	Voltage	Current	Lower Level (5 to 20 %)	Upper Level
PDO 1 :	5V	1.50 A	fixed *	15
PDO 2 :	15.00	1.50 A	20	10
PDO 3 :	20.00	1.00 A	20	10

FLEX\_I 2.00

PDO Sink summary

Voltage	Current	UVLO	OVLO
5.00 V	1.50 A	3.30	5.75
15.00 V	1.50 A	12.00	16.50
20.00 V	1.00 A	16.00	22.00

Application PDO Parameters

- SNK\_UNCONS\_POWER
- USB\_COMM\_CAPABLE

IO Behavior

GPIO Ctrl ERROR\_RECOVERY

Power OK GPIO's Configuration 2 (default)

VBus Enable Behavior

POWER\_ONLY\_ABOVE\_5V

Algorithm Parameter

REQ\_SRC\_CURRENT

\* : At 5V, UVLO threshold is fixed to 3.3V (+/- hysteresis. cf datasheet)



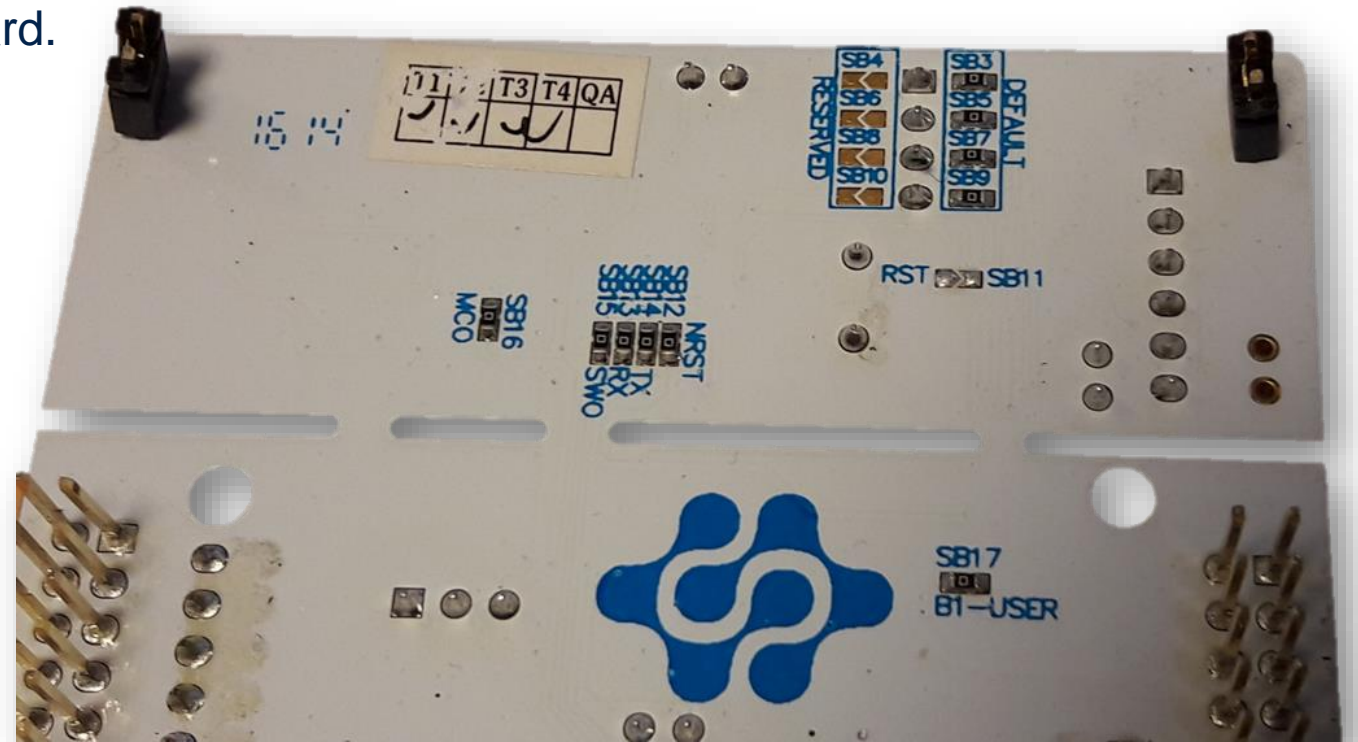
# STUSB4500 not responding / not detected

when using NUCLEO-F072RB + STEVAL-ISC005V1

**ISSUE:** I<sup>2</sup>C access to STUSB4500 looks to be failing

## RESOLUTION:

NUCLEO board might not power properly the STEVAL-ISC005V1. Please check SB connections on the back of the NUCLEO board. Especially SB13 and SB14 must be closed for UART communication







# For More Information

[www.st.com/stusb4500-pr](http://www.st.com/stusb4500-pr)

