



life.augmented

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 I²C 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	
NUCLEO-F072RB	STM32 Nucleo-64 development board with ARM Cortex M0
Mini-B USB cable	with USB data support
USB-C cable	with USB data support
STSW-STUSB002	STUSB4500 Graphical User Interface
OR -----	STEVAL-ISC005V1 STUSB4500 evaluation board
	EVAL-SCS001V1 STUSB4500 reference design board
Operating System	Windows OS



Supported Hardware



STEVAL-ISC005V1
Evaluation Board



EVAL-SCS001V1
Reference Design



Hardware Configuration

(1/8)

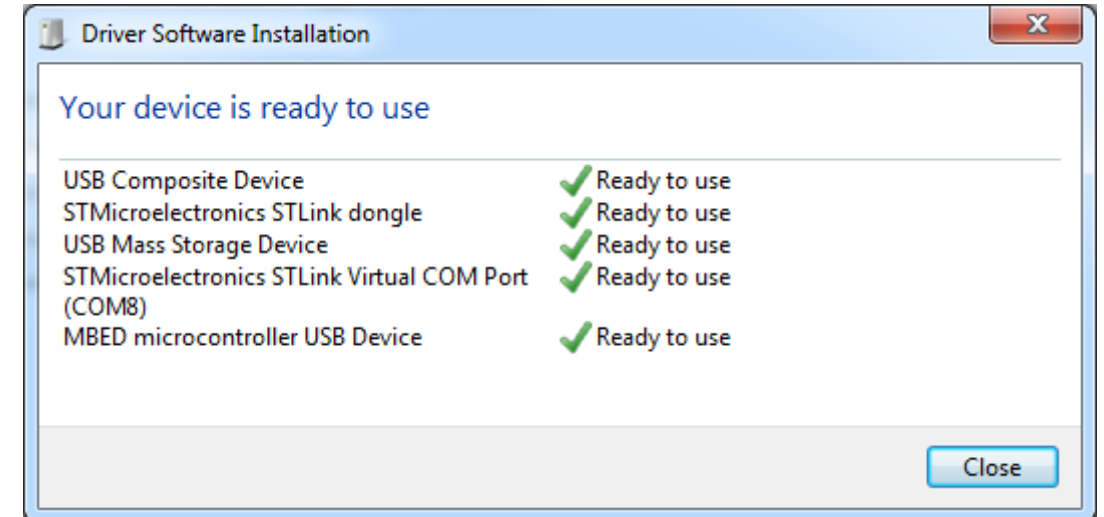
1

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](#) home page:

The screenshot shows the STMicroelectronics website search results for the query "STSW-STUSB002". The page features the ST logo and "life.augmented" tagline. A search bar at the top right contains the query and a "Search" button. Below the search bar, a navigation menu includes "Products", "Applications", "Tools & Software", and "About ST". On the right side of the menu are links for "Sample & Buy", "Support & Community", and "Login". The search results section shows "Search result >" followed by a search bar containing the query and a magnifying glass icon. Below the search bar are links for "My bookmarks" and "Search History". A horizontal filter bar shows "Products", "Tools & Software (1)", "Resources (4)", "Videos", "Solutions", "Applications", "X-Reference", and "All site". The "Tools & Software (1)" filter is selected. On the left side, a "REFINE BY TYPE" section shows "Embedded Software (1)" with a "Clear" link. The main results area displays "1 tools & software: STSW-STUSB002" and a table with the following data:

Part Number	Status	Type	Category	Description
STSW-STUSB002	ACTIVE	Embedded Software	Evaluation Tool Software	Graphical User Interface for STUSB45

A "Show / hide columns" button is located at the top right of the table.



Hardware Configuration

(3/8)

Get Software

4 Click on **Get Software** button

	Part Number ▲	General Description	ECCN (EU) ◆	ECCN (US) ◆	Latest version ◆	Download ◆
+	STSW-STUSB002	Graphical User Interface for STUSB45	NEC	EAR99	2.0.0	Get latest

5 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.

1. LIMITED LICENSE

Subject to the terms and conditions of this LLA and applicable Open Source Terms (as defined hereafter) and during the term of this LLA, ST hereby grants You under intellectual property rights owned by or licensed to ST, a non-exclusive, non-transferable, royalty-free, copyright license, without the right to sub-license (except as expressly stipulated herein or authorized in writing by an authorized representative of ST), to use and reproduce the Licensed Materials in object code solely and exclusively with ST chipsets, integrated circuits or ST Gyro product as applicable ("ST Chipsets") for incorporation in a Licensee Product (as defined hereinafter) and subsequent distribution directly or indirectly of said Licensee Product provided that the software part of Licensed Material executes solely and exclusively on, or in conjunction with ST Chipset in Licensee Product ("Limited License Purpose").

To the extent the Licensed Materials are made available to You in source code and subject to the terms and conditions of this LLA, ST hereby grants You under intellectual property rights owned by or licensed to ST during the term of this LLA a non-exclusive, royalty-free, non-transferable



Hardware Configuration

(4/8)

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



and unzip:

	Name	Type	Size
> Quick access			
> OneDrive - STMicroelectronics			
> STMicroelectronics			
> This PC			
> NODE_F072RB (D:)			
> Network			
	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_2.00.exe	Application	268 KB
	uiinterface.dll	Application extension	189 KB
	VC_redist.x86.exe	Application	13,459 KB



Hardware Configuration

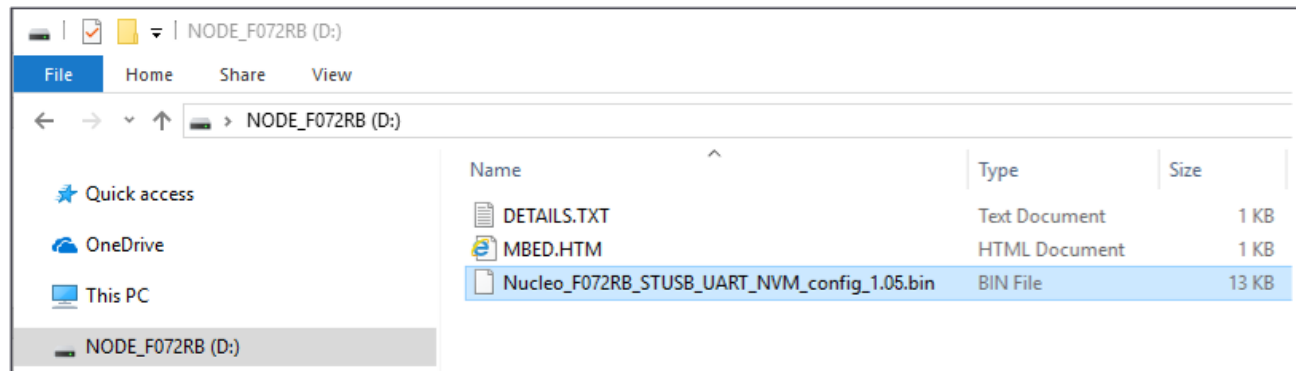
(5/8)

7 Upload the binary into the STM32 Nucleo board

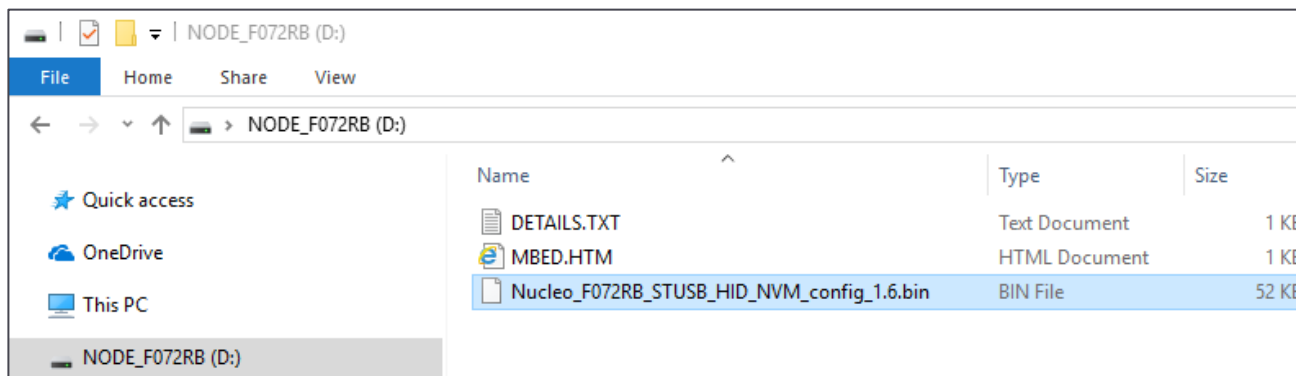
Connect the Nucleo board to the PC using a USB mini-B cable

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**



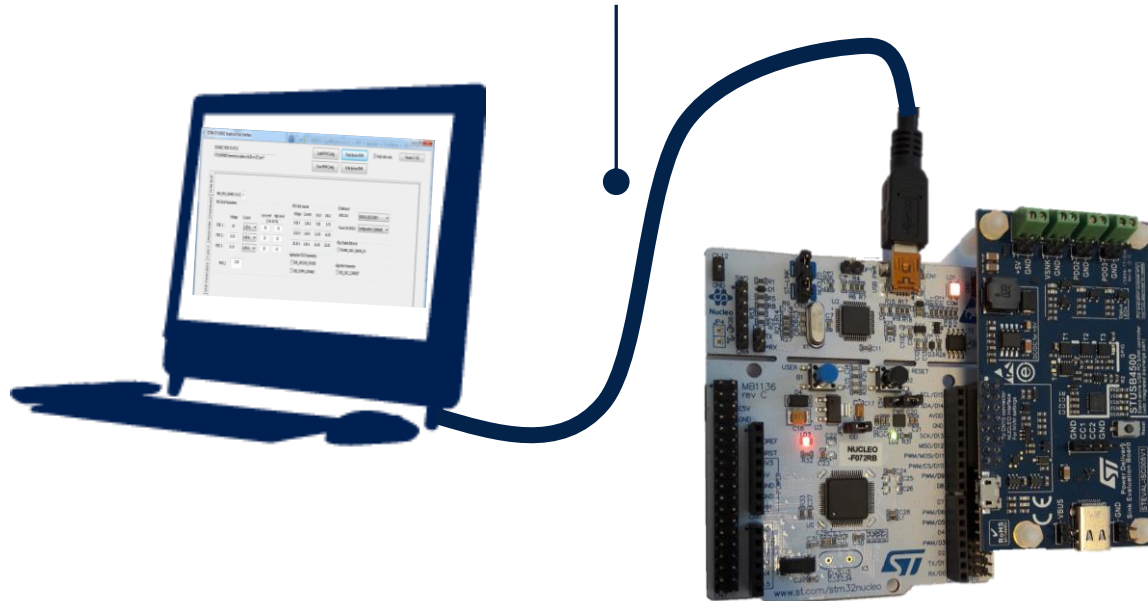


Hardware Configuration

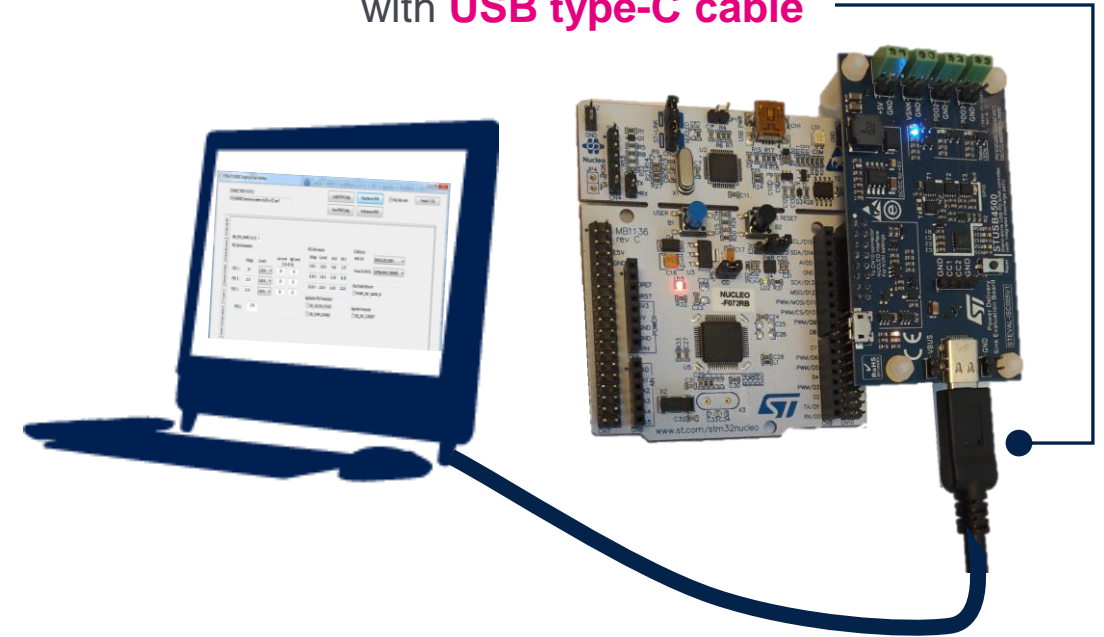
(6/8)

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 and
NUCLEO-F072RB and STEVAL-ISC005V1
with **USB type-C cable**



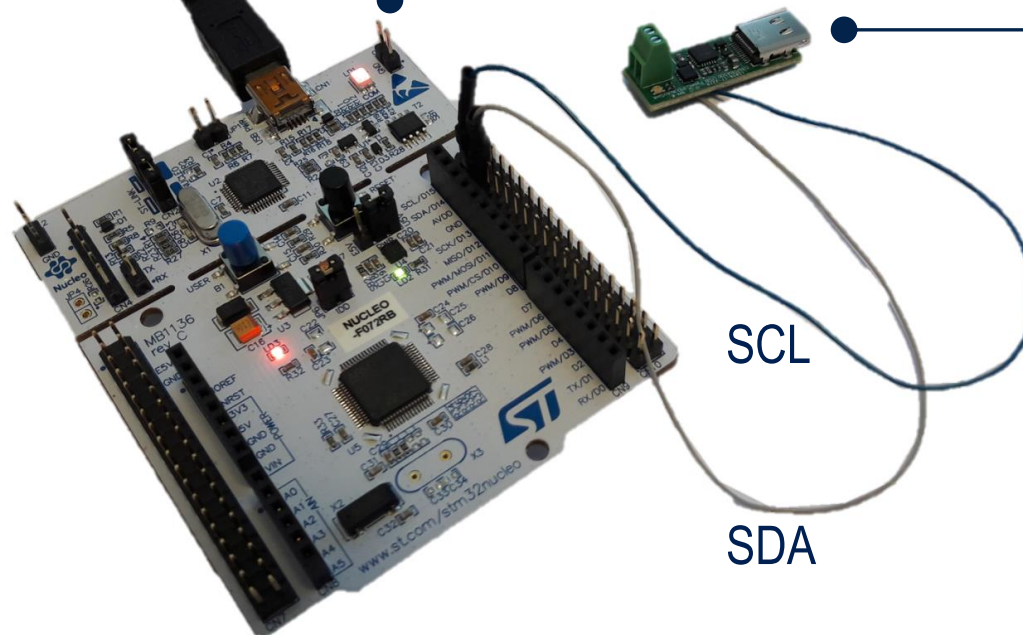


Hardware Configuration

(7/8)

Case 2: Using EVAL-SCS001V1

I²C 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

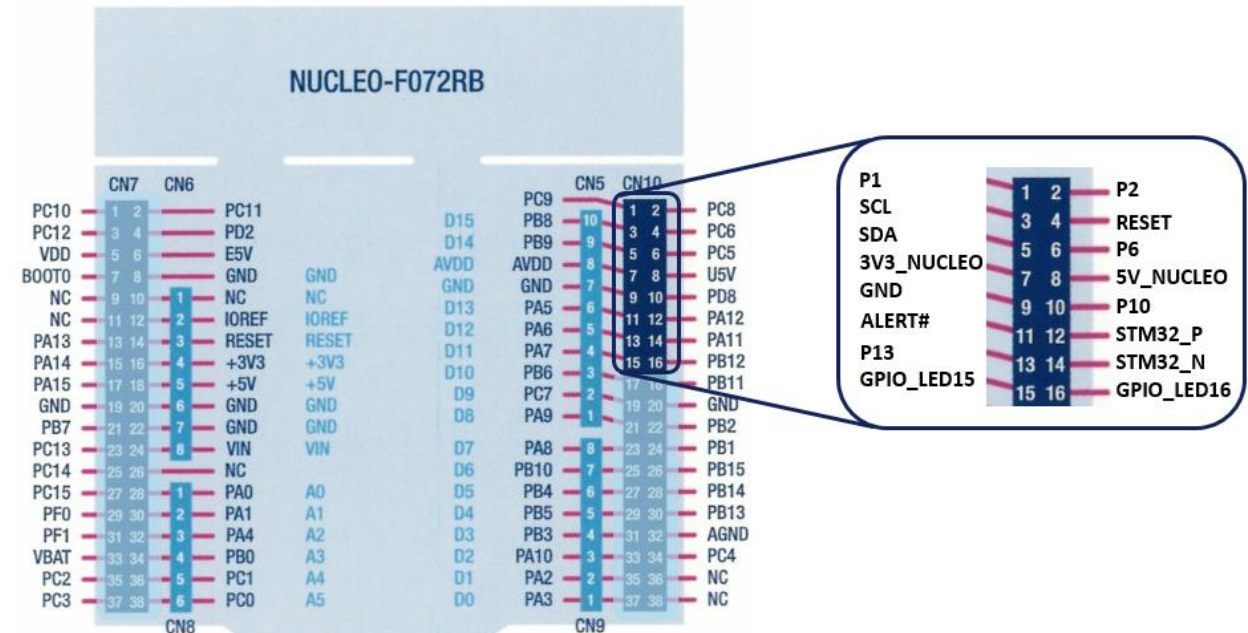


Hardware Configuration

(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 I²C 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.

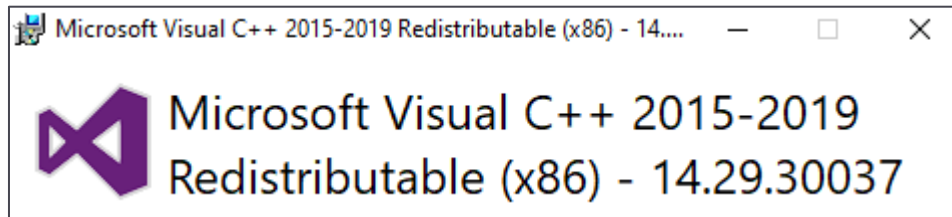
NB: in case of custom boards, please do not forget 4.7 kOhms pull-up resistors on SDA/SCL





GUI Set-up (1/2)

12 Install the Microsoft MFC software package: vccredist_x86.exe





GUI Set-up (2/2)

- 13 Click on the STUSB4500_GUI_2.00.exe file to open the GUI.
The following window must appear.

STSW-STUSB002 Graphical User Interface

CONNECTION STATUS:
[OK] STUSB4500 Eng. Detected [COM7] ST-by0206, at address 0x28 (I2C bus 1)

Load NVM config file ... Read device NVM ☒ Verify after write version 2.00
Save NVM config to file ... Write device NVM

SNK Parameters Type C Read Write Dashboard NVM MAP

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

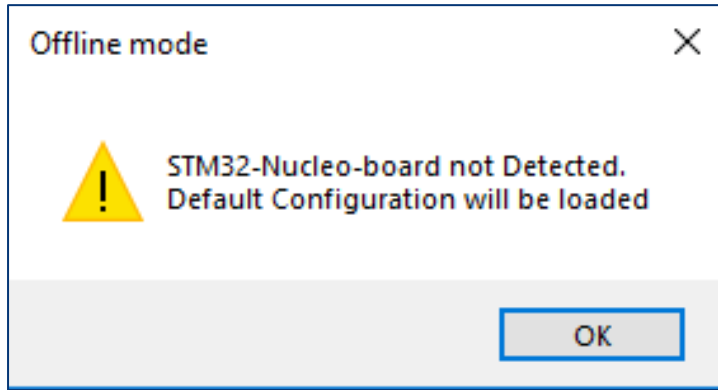
* : At 5V, UVLO threshold is fixed to 3.3V (+/- hysteresis. cf datasheet)

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 I²C 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.

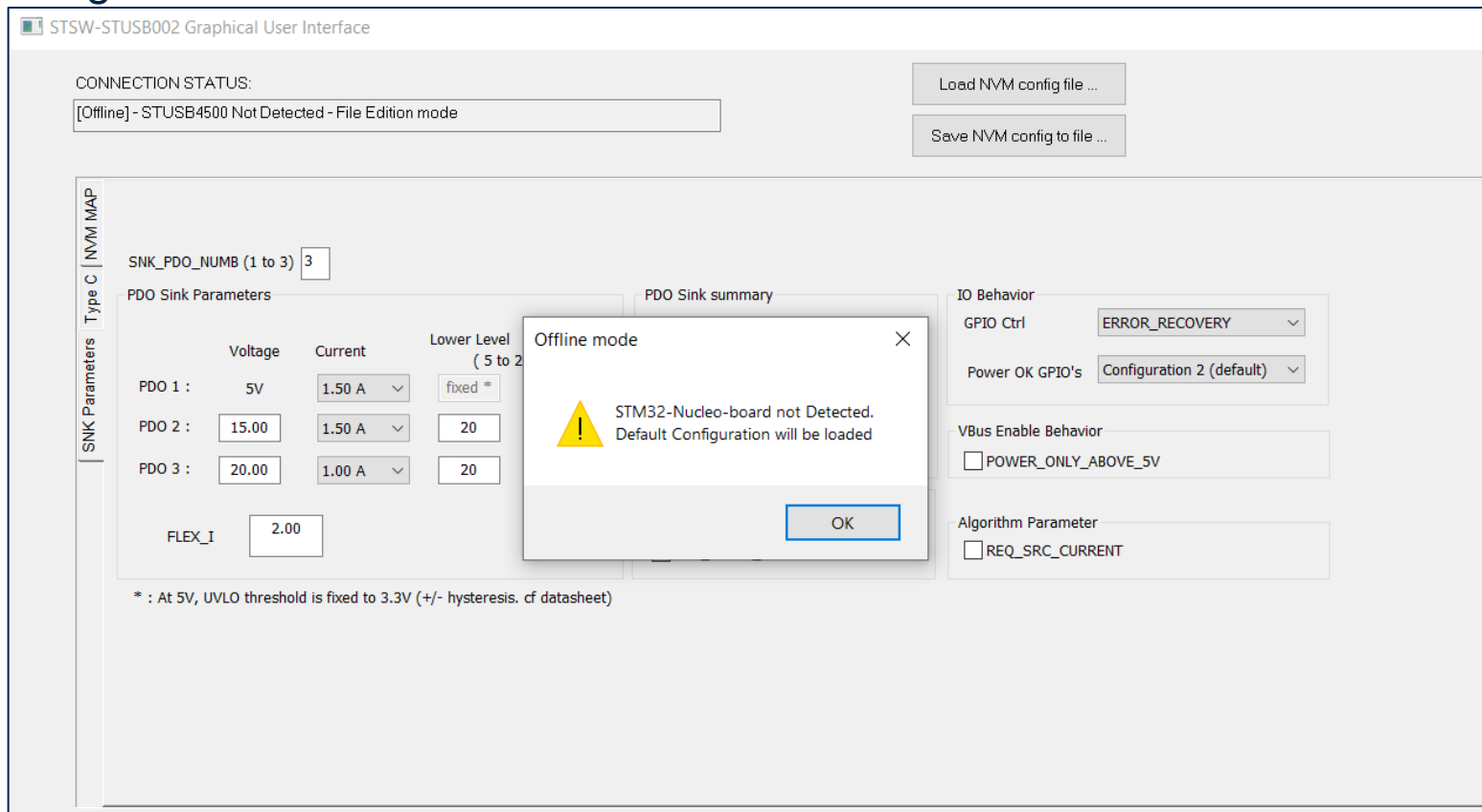
Then re-start the GUI.



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.





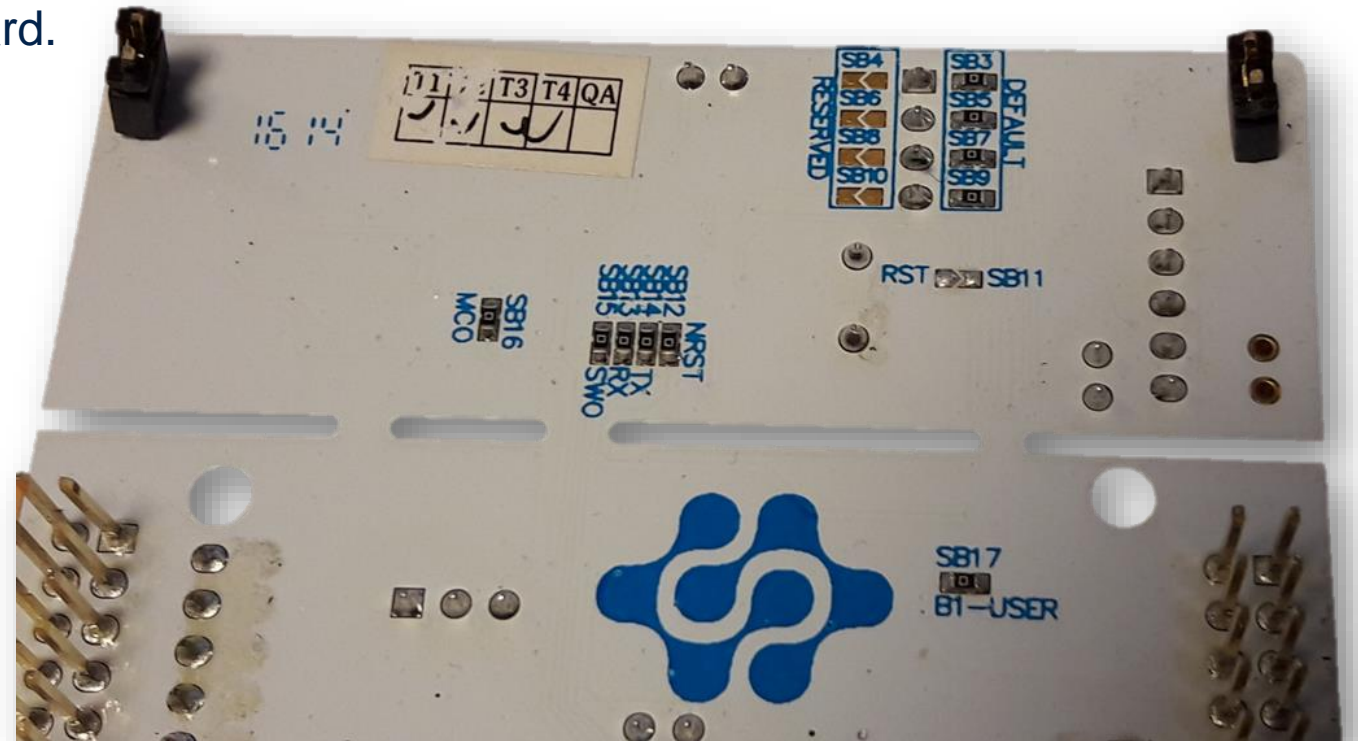
STUSB4500 not responding / not detected

when using NUCLEO-F072RB + STEVAL-ISC005V1

ISSUE: I²C 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

