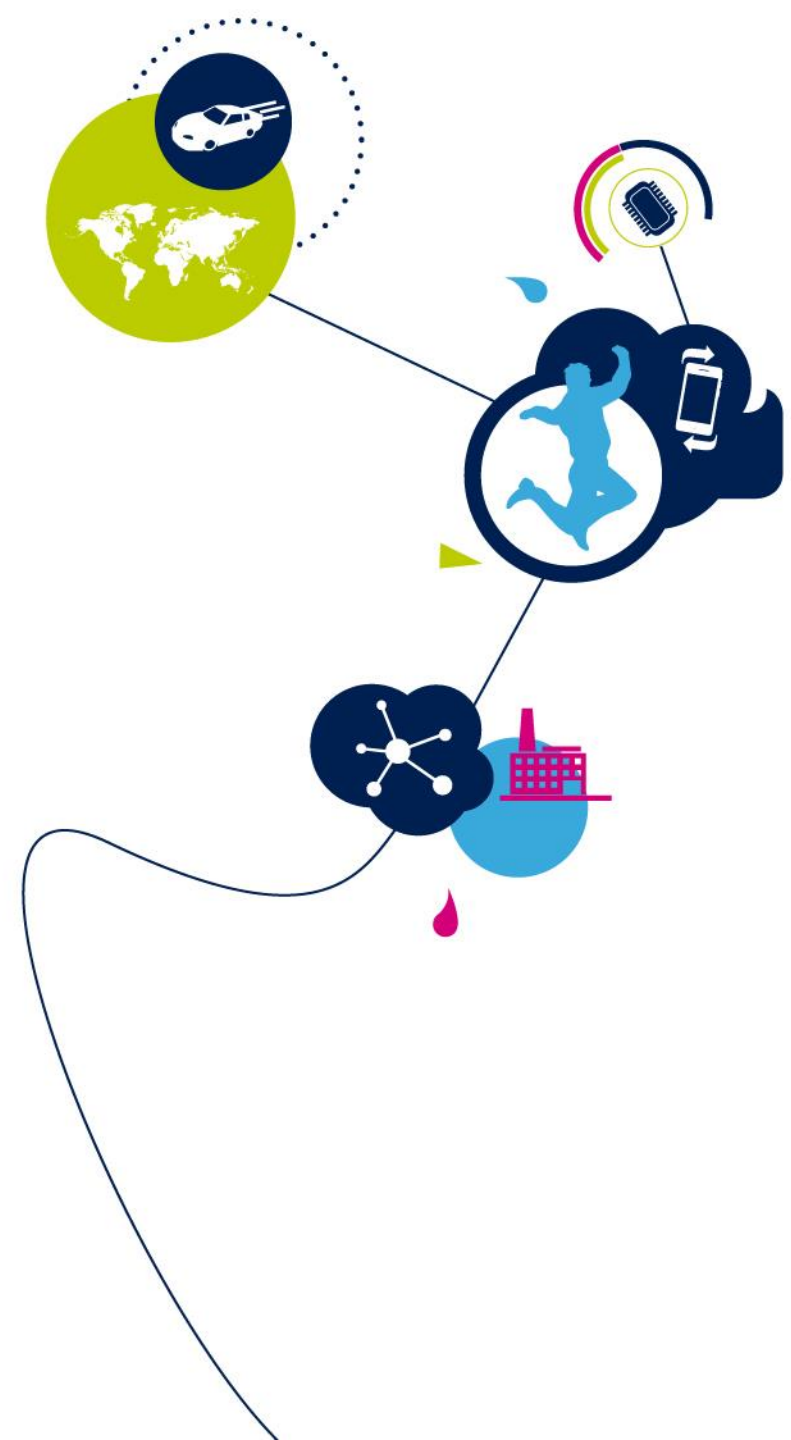


# STSW-STUSB005

## Quick Start Guide

Customizing the STUSB4761 using the  
Graphical User Interface (GUI)





# QUICK START

## Introduction

This document describes how to install STUSB4761 Graphical User Interface (STSW-STUSB005), and main GUI features

Graphical User Interface (GUI)	
STSW-STUSB005	STUSB4761 Graphical User Interface
Operating System	Windows or iOS
Related HARDWARE	
EVAL-SCS003V1	STUSB utility dongle
NUCLEO-F072RB	STM32 Nucleo-64 development board with ARM Cortex M0
EVLSTCH03-45WPD	STUSB4761 45W AC/DC reference design




# GUI set-up

(1/4)

3

- 1 Download the STUSB4761 GUI package by searching STSW-STUSB005 from www.st.com home page:

 life.augmented

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**REFINE BY TYPE** Clear

Embedded Software (1)

1 tools & software: STSW-STUSB005 Show / hide columns

Part Number ▾	Status ▾	Type ▾	Category ▾	Description ▾
<a href="#">STSW-STUSB005</a>	ACTIVE	Embedded Software	Evaluation Tool Software	Graphical User Interface for STUSB4761





# GUI set-up (2/4)

4

- 2 Then click on “Get Software” from the bottom of the page

Get Software				
Part Number	Software Version	Marketing Status	Supplier	Download
STSW-STUSB005	1.0.0	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:

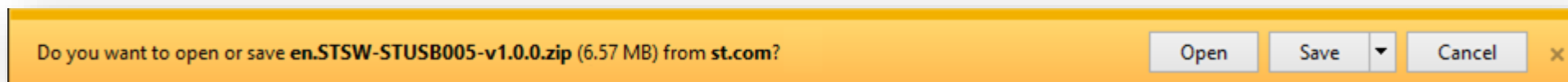
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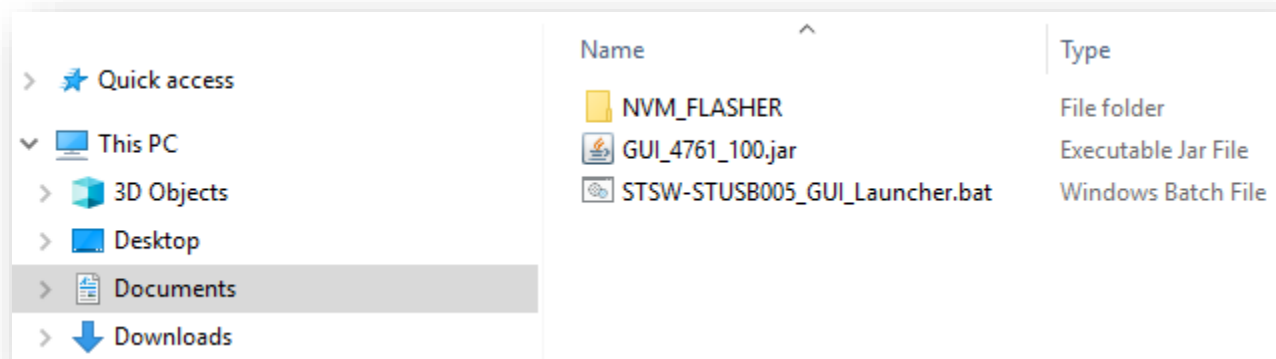
# GUI set-up (3/4)

5

4 Save the file **en.STSW-STUSB005.zip** on your laptop



and unzip:





# GUI set-up (4/4)

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5

Click on the [STSW-STUSB005\\_GUI\\_Launcher.bat](#) file to open the GUI. The following window must appear.

The GUI is now ready to use.

VIF Specification		Version 2.0	Battery Charging 1.2 Support	Charging Port
VIF Producer	USB-IF Vendor Info File Editor 2.0.0.0		Battery Charging 1.2 Port Type	DCP
Vendor Name	STMicroelectronics		SOP P Debug Capable	NO
Model Part Number	4761_VIF		SOP PP Capable	NO
Product Revision	45WPD		SOP PP Debug Capable	NO
TID	XXX		USB PD Support	YES
VIF Product Type	Port		Port Battery Powered	NO
Port Label	0		OC Protection	YES
Connector Type	USB Type-C		SOP Capable	YES
PD Port Type	Provider Only		SOP P Capable	NO
Type C State Machine	Source			



# GUI

# overview

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The GUI provides an easy way to change STUSB4761 parameters stored in Non Volatile Memory (NVM)

The GUI can be used in different manners, and allows synchronization between different environments:

- the Vendor Info File (.VIF) and Product Info File (.PIF)
- the physical NVM content (when connected to a STUSB4761 IC)
- the NVM content stored in a C code structure (for I2C Read/Write operations with STUSB4761)
- the NVM content stored a utility dongle (EVAL-SCS003V1 tool for customization thru CC pins)

It allows:

- to configure a STUSB4761 IC starting from an existing Vendor Info File (.VIF) and adding STUSB4761 specific or application specific parameters (Product Info File (.PIF)),
- or vice versa, generate a .VIF from an existing STUSB4761 customization
- or both: start from scratch modifying the STUSB4761 default configuration and generate:
  - o associated .VIF
  - o associated STUSB4761 NVM configuration in MEMORY bank format (.h header file for customization from I<sup>2</sup>C using an STM32)
  - o associated STUSB4761 NVM configuration in STUSB utility dongle format (.bin file for customization thru USB-C connector using EVAL-SCS003V1 tool.

The screenshot shows the STUSB4761 Graphical User Interface. The top menu bar includes buttons for 'Load Default', 'Import VIF/PIF', 'Export VIF/PIF', 'Read IC', 'Flash IC', 'Export NVM File', 'Import NVM File', 'Export BIN File', and 'Import BIN File'. Below the menu bar, there are input fields for 'VENDOR ID' (483), 'PRODUCT ID' (4761), 'DEVICE ID' (AB2A), 'Role', and 'Source'. The main area contains tabs for 'VIF Information', 'USB-C & PD', 'Source', 'Circuit Parameters', and 'Log'. The 'VIF Information' tab is active, showing fields for 'VIF Specification', 'VIF Producer', 'Vendor Name', 'Model Part Number', 'Product Revision', 'TID', 'VIF Product', 'Port Label', 'Connector', 'PD Port Type', and 'Type C State Machine'. The 'Source' tab is also visible, showing fields for 'Source', 'Port Battery Powered', 'Protection', 'P Capable', and 'P P Capable'. The 'Log' tab is also visible, showing a table with columns for 'Source' and 'Log'.

**STUSB4761 NVM direct access**  
**READ:** import the STUSB4761 NVM content into the GUI  
**FLASH:** store the GUI parameters into a STUSB4761 IC

**STUSB4761 vendor and product info file**  
**IMPORT:** Load a configuration stored in .VIF and .PIF into the GUI  
**EXPORT:** Save the STUSB4761 GUI parameters into a .VIF and .PIF file

**LOAD default**  
**RESTORE** STUSB4761 default parameters

**STUSB4761 NVM file**  
**IMPORT:** Load a STUSB4761 NVM file into the GUI  
**EXPORT:** Save a STUSB4761 NVM file in the laptop

**STUSB utility Dongle .BIN file**  
**IMPORT:** download the NVM configuration from the Dongle to the GUI  
**EXPORT:** upload the NVM configuration from the GUI to the Dongle



STSW-STUSB005 STUSB4761 Graphical User Interface

Load Default Import VIF/PIF Export VIF/PIF Read IC Flash IC Export NVM File Import NVM File Export BIN File Import BIN File

VENDOR ID 483 PRODUCT ID 4761 DEVICE ID AB2A Role Source

VIF Information USB-C & PD Source Circuit Parameters Log

VIF Specification  
VIF Producer  
Vendor Name  
Model Part Number  
Product Revision  
TID  
VIF Product Type  
Port Label  
Connector Type  
PD Port Type  
Type C State Machine

Version 2  
USB-IF Vendor Info File Editor 2.0.0  
STMicroelectronics  
4761\_V

**LOG tab**  
Log window

**IC parameters tab**  
Configuration of STUSB4761 specific parameters, or application related.

**USB PD SOURCE tab**  
Configuration of STUSB4761 power profiles, Under and Over voltage thresholds etc...

**USB-C and general USB PD tab**  
Configuration of STUSB4761 Type-C parameters and generic USB PD parameters

**Vendor Info File tab**  
Contains .VIF parameters that are not applicable to STUSB4761.  
Most are Read Only and .VIF must be edited manually to be changed



# Vendor Info File tab

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STSW-STUSB005 STUSB4761 Graphical User Interface

Load Default Import VIF/PIF Export VIF/PIF Read IC Flash IC Export NVM File Import NVM File Export BIN File Import BIN File

VENDOR ID 483 PRODUCT ID 4761 DEVICE ID AB2A Role Source

VIF Information USB-C & PD Source Circuit Parameters Log

VIF Specification	Version 2.0	Battery Charging 1.2 Support	Charging Port
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Product Revision	45WPD	SOP PP Debug Capable	NO
TID	XXX	USB PD Support	YES
VIF Product Type	Port	Port Battery Powered	NO
Port Label	0	OC Protection	YES
Connector Type	USB Type-C	SOP Capable	YES
PD Port Type	Provider Only	SOP P Capable	NO
Type C State Machine	Source		

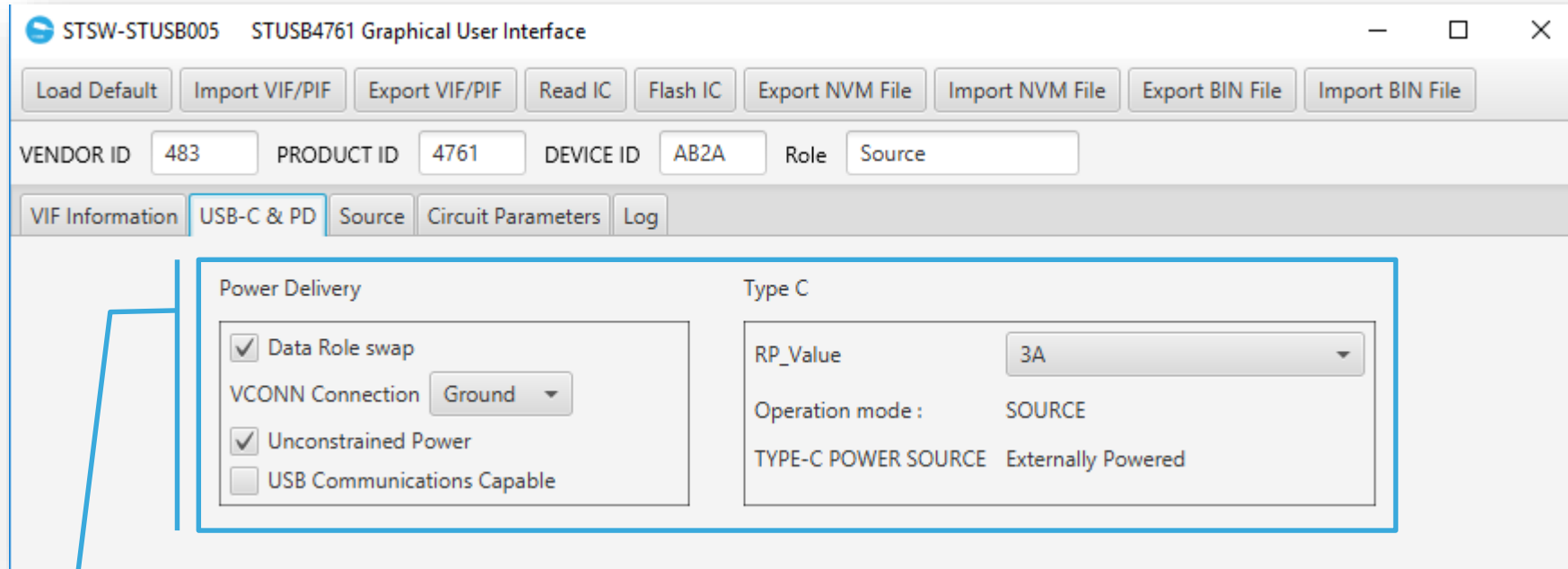
Field can be used as project name

To be changed for customers having their own TID



# USB-C and general USB PD tab

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Configuration of STUSB4761 Type-C parameters and generic USB PD parameters:

Check STUSB4761 datasheet, section §4.1. “Parameter overview” for definition.

NB: VCONN pin can be configured to GND when:

- current is <3A for all PDO
- or when captive cable is used



# USB PD SOURCE tab

STSW-STUSB005 STUSB4761 Graphical User Interface

Load Default Import VIF/PIF Export VIF/PIF Read IC Flash IC Export NVM File Import NVM File Export BIN File Import BIN File

VENDOR ID 483 PRODUCT ID 4761 DEVICE ID AB2A Role Source

VIF Information USB-C & PD Source Circuit Parameters Log

Number of PDO 5

	Fixed Voltage (V)	Current (A) Default Profile	Current (A) Temperature Safe Profile	UVLO	OVLO
PDO 1 :	5.00	3.00	2.00	5%	10%
PDO 2 :	9.00	3.00	2.00	5%	10%
PDO 3 :	12.00	3.00	2.00	5%	10%
PDO 4 :	15.00	3.00	2.00	5%	10%
PDO 5 :	20.00	2.25	2.00	5%	10%

	Fixed Voltage	Current Default Profile	Current Temperature Safe Profile	Current Power Safe Profile	UVLO	OVLO
PDO 1 :	5.00V	3.00A	2.00A	1.000A	4.75V	5.50V
PDO 2 :	9.00V	3.00A	2.00A	1.000A	8.55V	9.90V
PDO 3 :	12.00V	3.00A	2.00A	1.000A	11.40V	13.20V
PDO 4 :	15.00V	3.00A	2.00A	1.000A	14.25V	16.50V
PDO 5 :	20.00V	2.25A	2.00A	1.000A	19.00V	22.00V

### Configuration field

- Up to 5 PDO available
- PDO1 must be 5V as per USB PD standard.
- PDO must be ranked by increasing voltage values
- 5V, 9V and 15V are standard values
- 2 voltage values can be full custom
- 1 current values (default profile) can be full custom

### Summary table:

“Power safe” currents are automatically set to half “temperature safe” values. See STUSB4761 datasheet section §3.4



# IC parameters tab

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STSW-STUSB005 STUSB4761 Graphical User Interface

Load Default Import VIF/PIF Export VIF/PIF Read IC Flash IC Export NVM File Import NVM File Export BIN File Import BIN File

VENDOR ID 483 PRODUCT ID 4761 DEVICE ID AB2A Role Source

VIF Information USB-C & PD Source **Circuit Parameters** Log

**Current Regulation**

Discharge time to transition 288ms

Discharge time to 0V 168ms

OCP Threshold 12.5%

Constant Current reference SINK operating current

Stepping Time 31.25us

Stepping Voltage 12.5 mV

Shunt 10mOhms

☐ Disable Device Customization thru type C

Discharge time settings

Constant Current mode settings

See STUSB4761 Datasheet. Section §3.6.2

PDO Voltage transition settings

Allows to fine tune the transition slew rate

Shunt Resistor setting

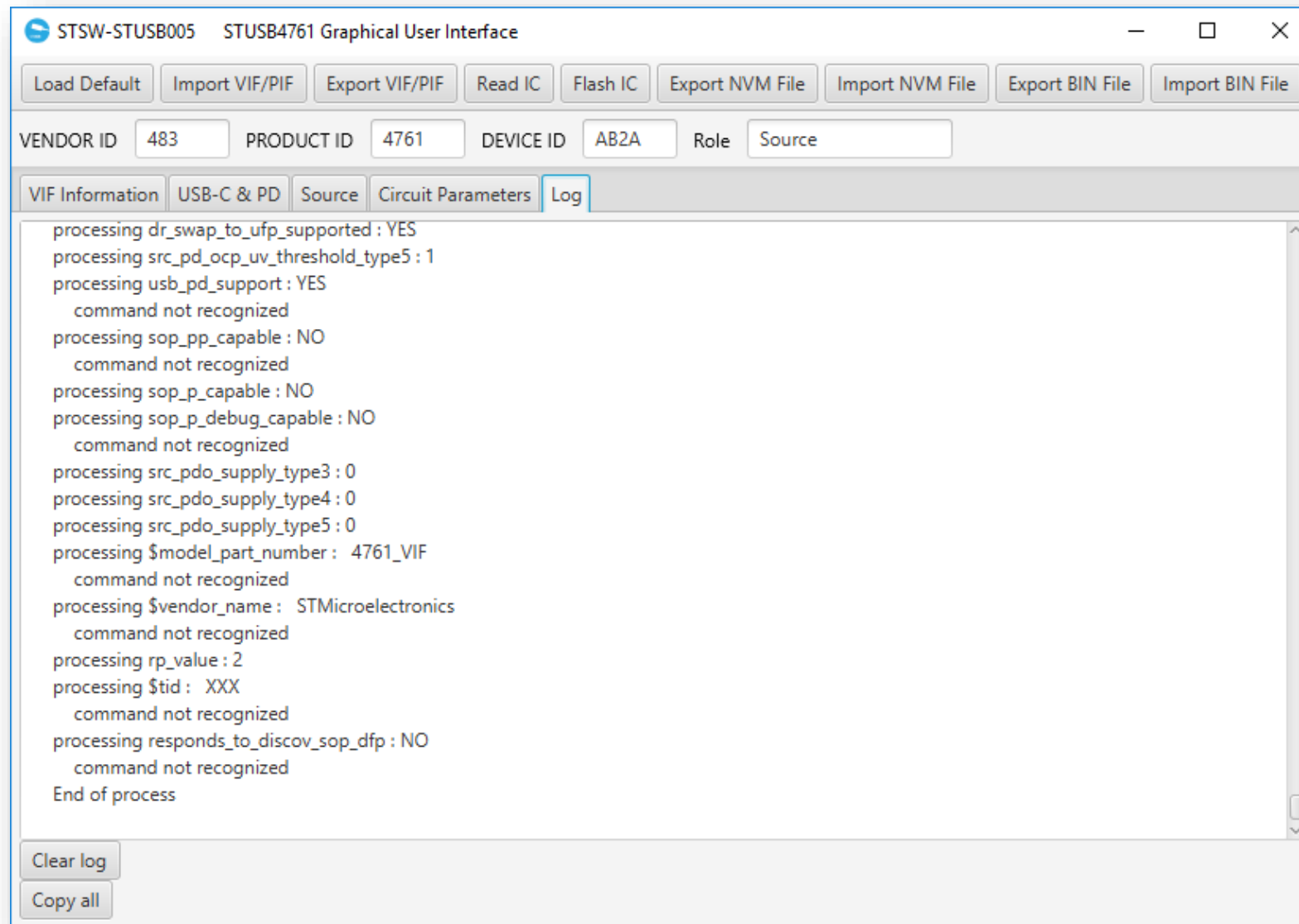
CC pin customization settings

See STUSB4761 Datasheet. Section §3.1 and  
VDM\_CUSTOM\_DIS param. Section §4.1



# LOG tab

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# NVM customization via I<sup>2</sup>C or via CC pin?

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For more flexibility, NVM can be physically accessed through 2 distinct communication channels:

1. using STUSB4761 I<sup>2</sup>C interface
2. through USB port (unstructured Vendor Define Messages on CC pin)

## 1. I<sup>2</sup>C interface customization

This method is not applicable on final product (I<sup>2</sup>C port must be accessible).

It can be done:

- a. at IC level (non-soldered device)
- b. at PCB level (IC already mounted)

## 2. USB port customization

This method is applicable on final product (by default, STUSB4761 NVM memory is accessible thru CC pin).



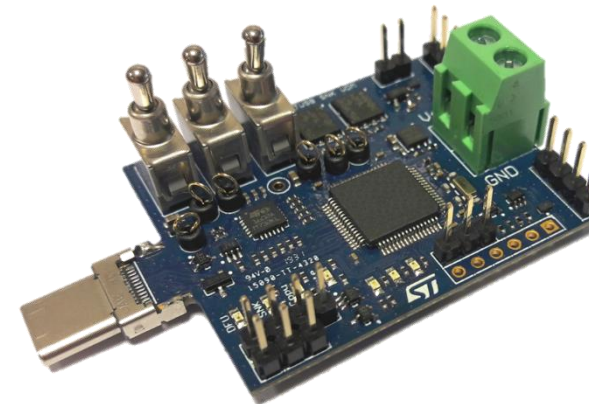
# Hardware tools (1/3)

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**NUCLEO-F072RB**

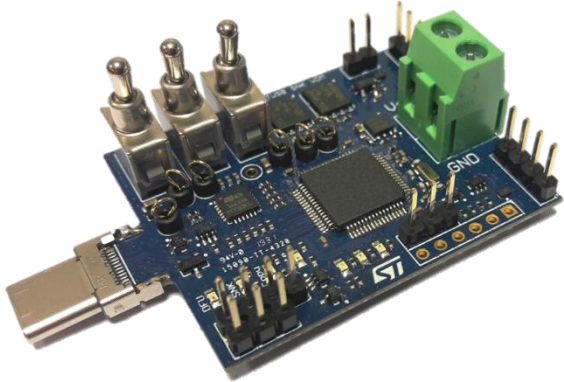
- NVM Customization via I<sup>2</sup>C
- Recommended at PCB level



**EVAL-SCS003V1**

- NVM Customization via USB-C port (CC pin)
- Recommended at final product level





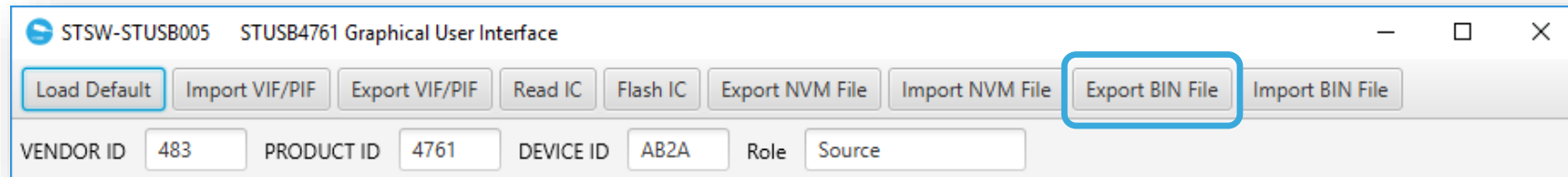
## EVAL-SCS003V1

- NVM Customization via USB-C port (CC pin)
- Recommended at final product level

# Hardware tools

## EVAL-SCS003V1 (2/3)

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- Save the STUSB4761 configuration file by pressing the “EXPORT BIN FILE” button
- Please refer to [EVAL-SCS003V1](#) (STUSB Utility Dongle) “Quick start Guide” to load the .BIN file on the dongle and program STUSB4761 via USB-C port



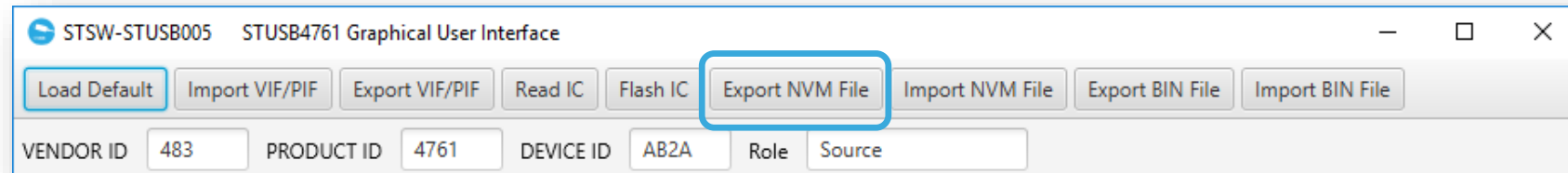
## NUCLEO-F072RB

- NVM Customization via I<sup>2</sup>C
- Recommended at PCB level

# Hardware tools

## NUCLEO-F072RB (3/3)

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- Save the STUSB4761 configuration file by pressing the “EXPORT NVM FILE” button
- Please ask to your local support the [STSW-STUSB006](#) software package (STUSB4761 NVM software library) to automatically generate the correct I<sup>2</sup>C sequence re-using the NVM file and execute it on the [NUCLEO-F072RB](#)

ON REQUEST