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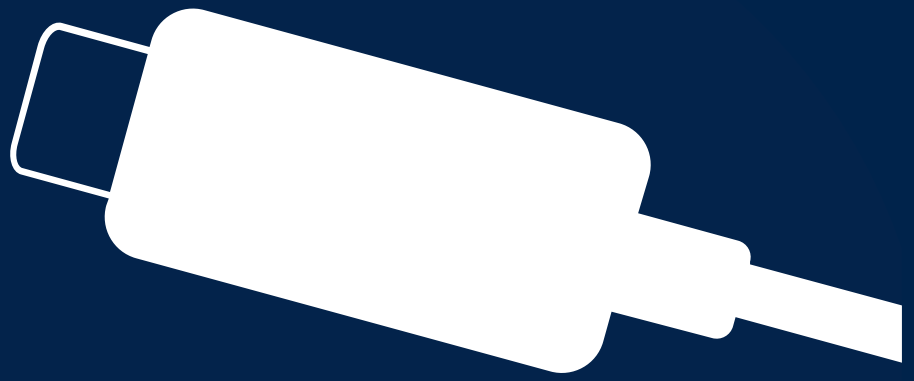
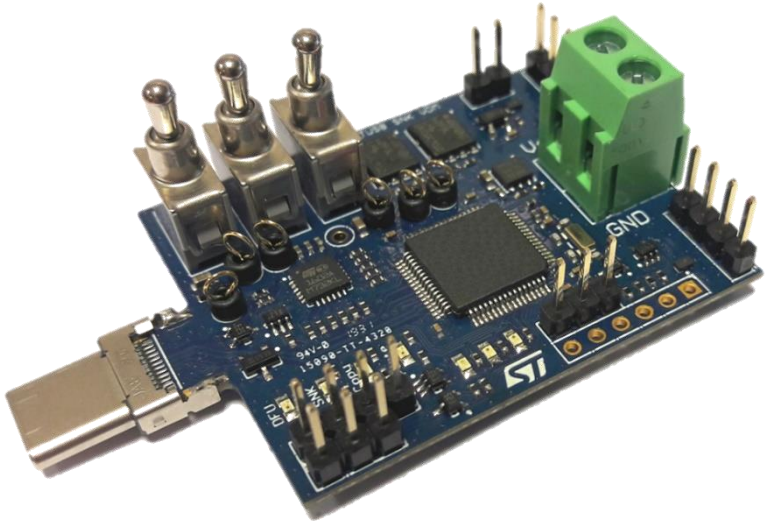


STUSB

EVAL-SCS003V1 Quick Start Guide

Customizing STUSB4761
using EVAL-SCS003V1 Dongle

Introduction



This document describes how to use an EVAL-SCS003V1 dongle in order to read or update STUSB4761 NVM (Non Volatile Memory).

Related components	
EVAL-SCS003V1	STUSB utility dongle board
STSW-STUSB011	STUSB utility dongle software package
STSW-STUSB005	STUSB4761 Graphical User Interface (GUI)
Operating System	Windows OS

Summary

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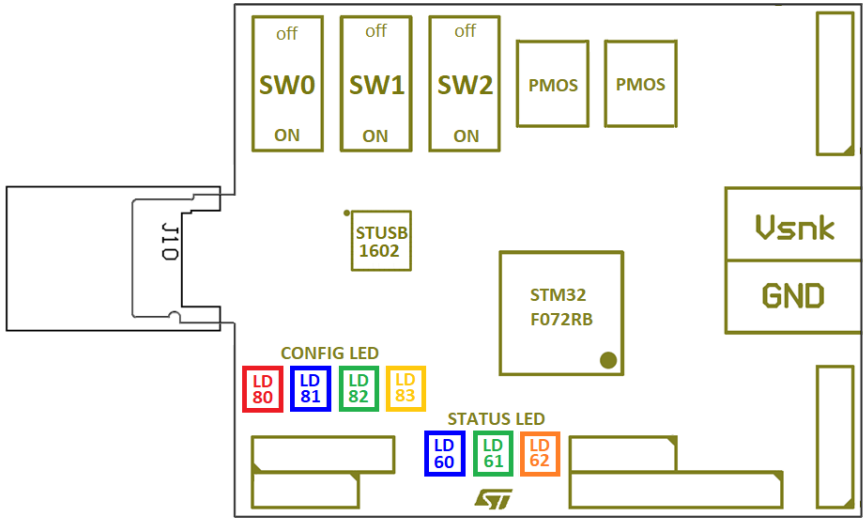
Quick Start
4 modes

Depending on the switch configuration, the EVAL-SCS003V1 dongle can be configured according to 4 modes:

mode	SW0	SW1	SW2	function
DFU	**ON**	off	off	This mode is used to configure and update the dongle firmware
COPY	off	**ON**	**ON**	This mode configures the board as a STUSB4761 NVM reader
PASTE	off	**ON**	off	This mode configures the board as a STUSB4761 customization tool
SINK	off	off	off	This mode configures the board as a USB PD SINK device



Quick Start
Pre-requisite (1/5)

Dongle configuration and update is done using DFU (Device Firmware Update) mode. This requires installation of the following package:

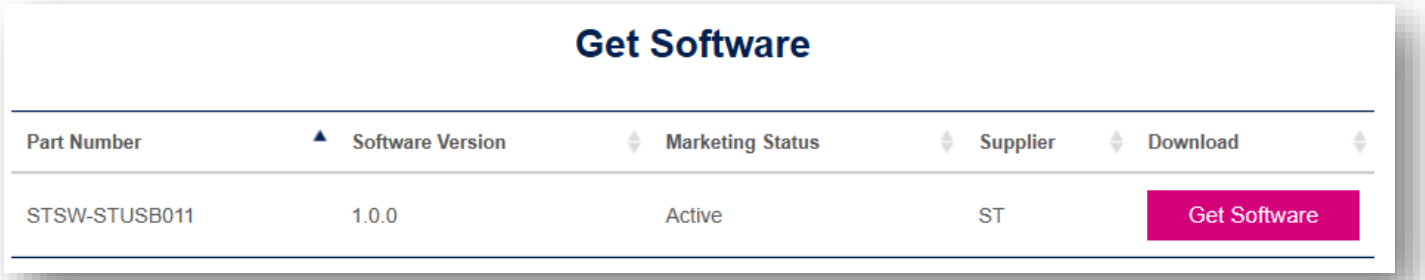
- STSW-STUSB011: follow steps 1 and 2

Also, please ensure that DFU drivers are installed on your windows PC. If not, please install also:

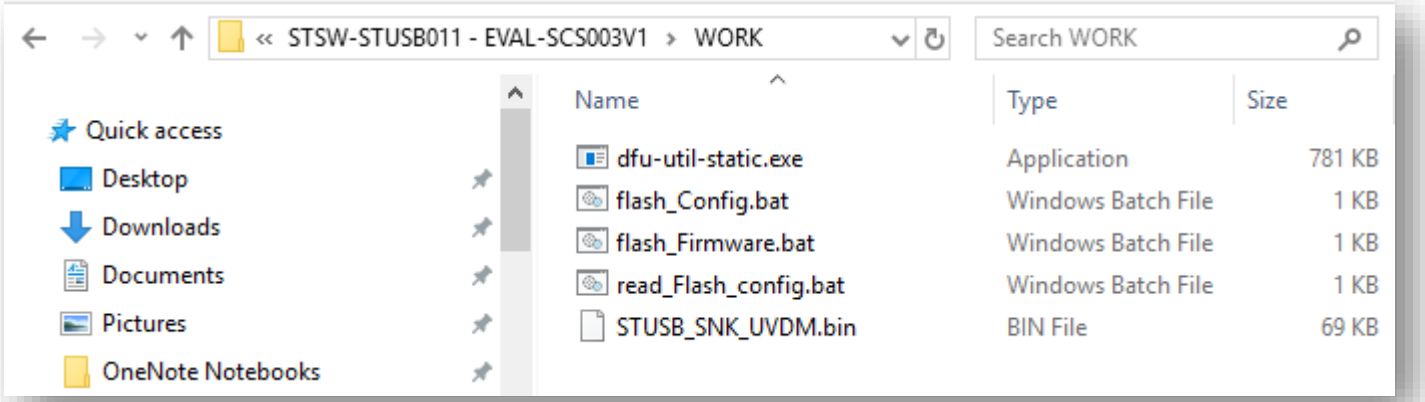
- STM32CubeProgrammer software: follow steps 3 to 9

Quick Start
Pre-requisite (2/5)

1 Please search STSW-STUSB011 software package from www.st.com:

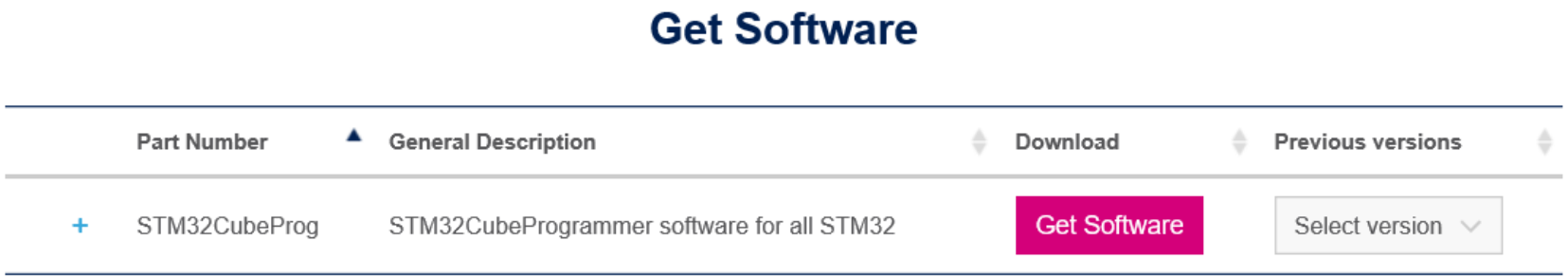


2 Download and unzip in a working directory:



Quick Start
Pre-requisite (3/5)

3 Search STM32CubeProg software package from www.st.com or click on: https://www.st.com/en/development-tools/stm32cubeprog.html



4 Download, unzip and start the installation process by clicking on: SetupSTM32CubeProgrammer-2.2.1.exe

Quick Start
Pre-requisite (4/5)

5 Plug EVAL-SCS003V1 board into USB-C port of the PC with below switch configuration:

mode	SW0	SW1	SW2
DFU	ON	off	off

NB: PC should find drivers by itself (installed by STM32CubeProgrammer)

6 Check that Red and Orange LEDs are continuously ON

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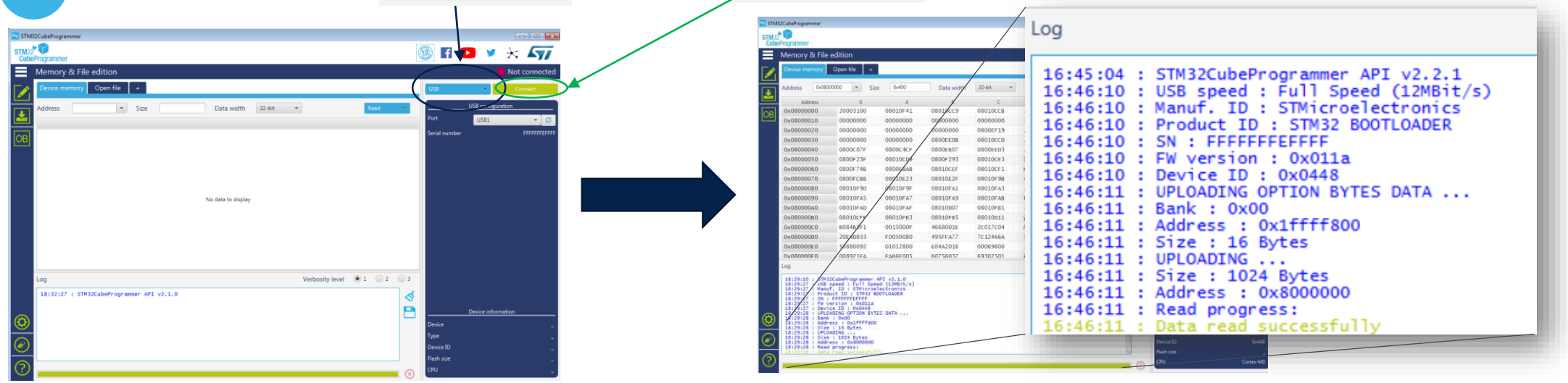
Quick Start
Pre-requisite (5/5)

7 Launch STM32CubeProgrammer program with dongle connected to PC

8 Take care to select USB then click Connect



9 If OK then click on Disconnect and close the program

STUSB4761 customization using the GUI and the Dongle

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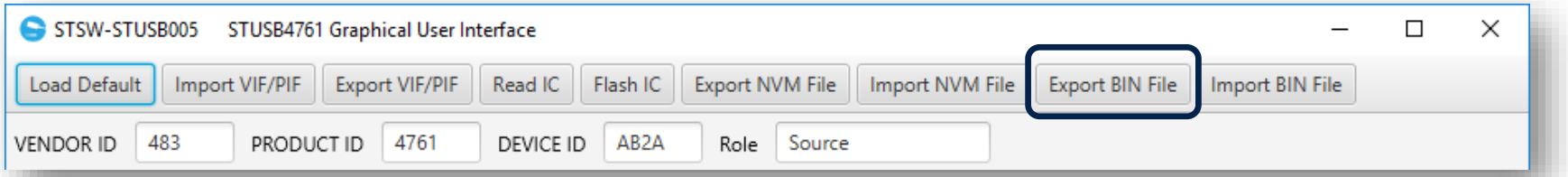
STUSB4761 customization (1/5)

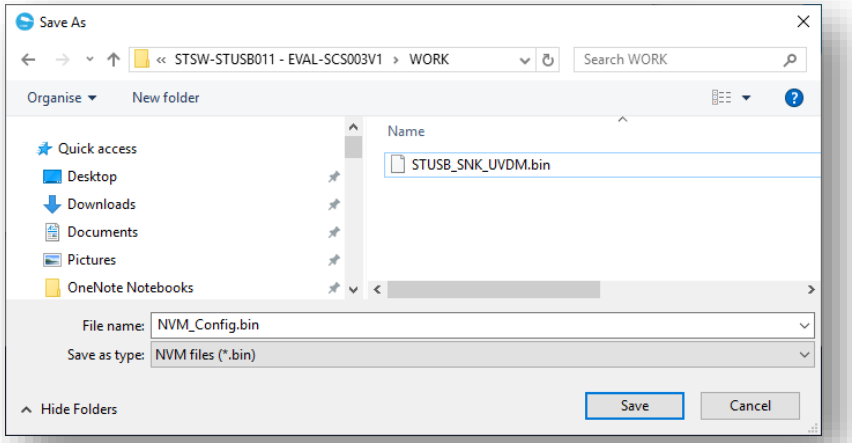
Export STUSB4761 configuration file from the GUI

1. The GUI (STSW-STUSB005) is typically used to customize STUSB4761 parameters in order to meet application requirements (see STSW-STUSB005 QUICK START Guide).

   Once a configuration is frozen, it must be first saved in the STSW-STUSB011 working directory (cf 2) by pressing the 'EXPORT BIN file' button:



2. Save as « NVM_Config.bin »
   in the STSW-STUSB011 working directory



STUSB4761 customization (2/5)

Plug the board in DFU mode

3 Plug EVAL-SCS003V1 board into USB-C port of the PC with below switch configuration:

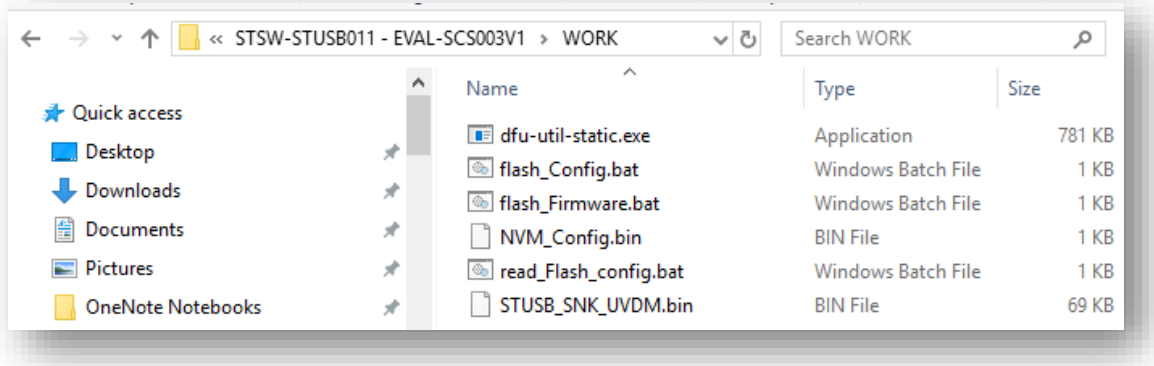
mode	SW0	SW1	SW2
DFU	ON	off	off

4 Check that Red and Orange LEDs are continuously ON

STUSB4761 customization (3/5)

Load STUSB4761 NVM configuration file into the dongle

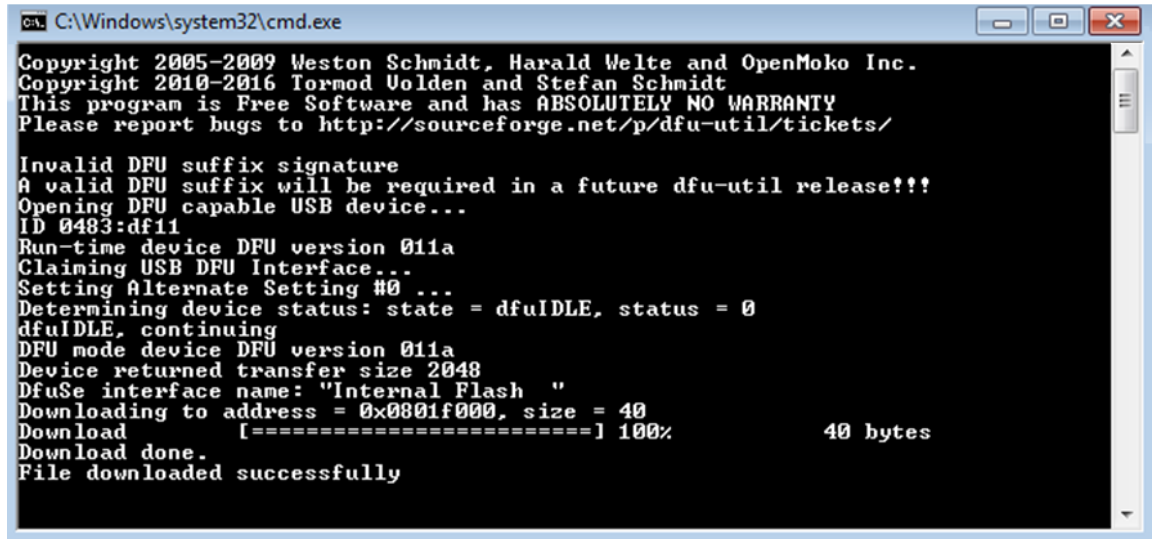
5 From STSW-STUSB011 working directory, launch ‘Flash_Config.bat’



NB: ‘Flash_Config.bat’ uses ‘NVM_Config.bin’ as NVM file.

In case the NVM file is exported with another name, just edit ‘Flash_Config.bat’

6 Check that file download is successful:



STUSB4761 customization (4/5)

Switch the board into PASTE mode

7 Toggle dongle switches like below picture:

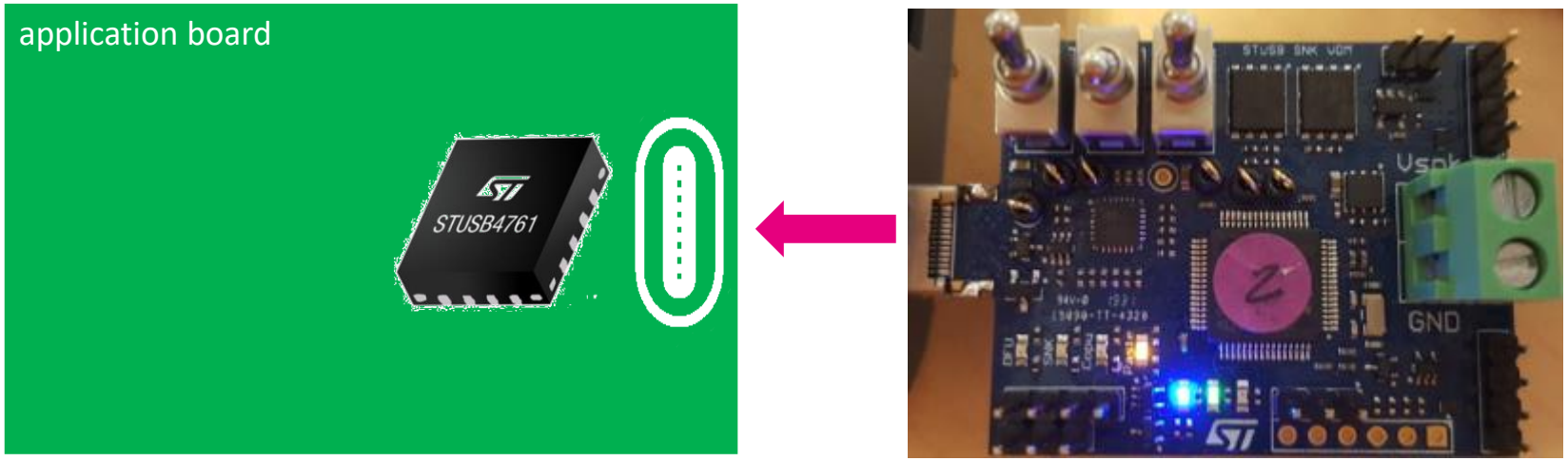
mode	SW0	SW1	SW2
PASTE	off	ON	off

8 Ensure that Orange LED is continuously ON

STUSB4761 customization (5/5)

Store new NVM content into STUSB4761

9 Plug the dongle into a powered STUSB4761 application board (to be customized):



10 Blue and Green status LEDs should be lighting continuously when all is OK. Dongle can be unplugged

11 Unpower STUSB4761:
new NVM content is taken into account **ONLY** at STUSB4761 power-up.

Reading STUSB4761 NVM content using the dongle and the GUI

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Reading STUSB4761 NVM (1/4)

select COPY mode

1. Toggle dongle switches like below picture

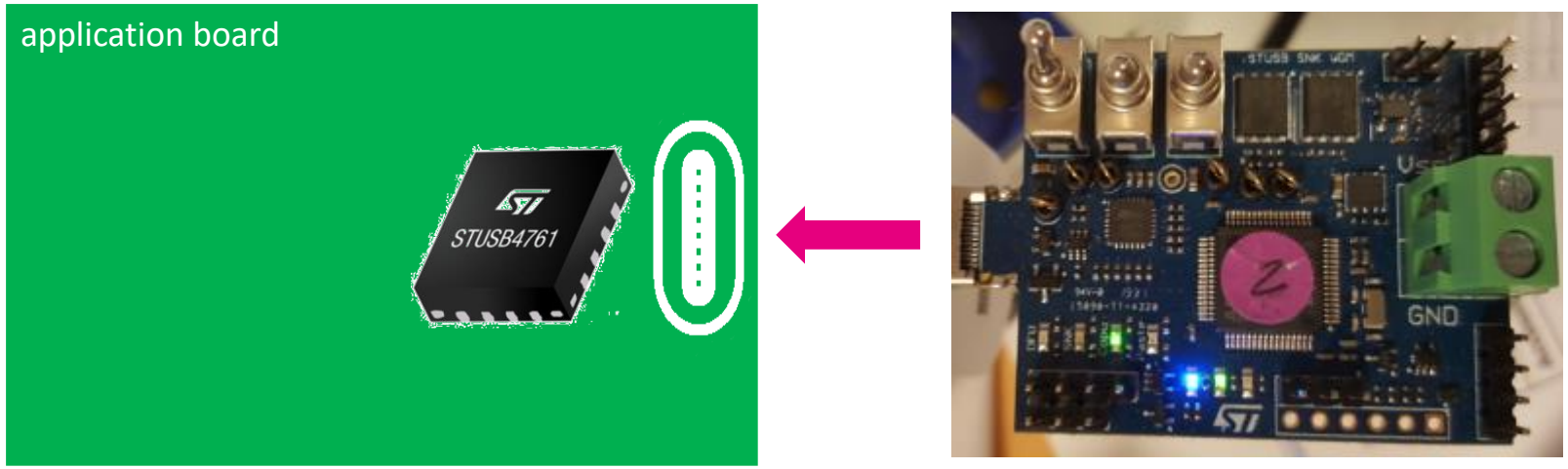
mode	SW0	SW1	SW2
COPY	off	ON	ON

2. Connect EVAL-SCS003V1 dongle to PC and ensure that Green LED is continuously ON

Reading STUSB4761 NVM (2/4)

copy STUSB4761 NVM content into the dongle

3 Plug EVAL-SCS003V1 dongle into STUSB4761 application board (or EVLSTCH03-45WPD)



4 blue and green status LEDs should be lighting continuously when all is OK.

5 STUSB4761 NVM content is now stored into dongle flash memory:

1. It can be used as a reference for other application boards: user can proceed to duplication using the ‘PASTE’ mode (see 7 to 11)
2. It can be imported into the GUI for further analysis. Move to 6

Reading STUSB4761 NVM (3/4)

plug the board in DFU mode

6 Plug EVAL-SCS003V1 board into USB-C port of the PC with below switch configuration:

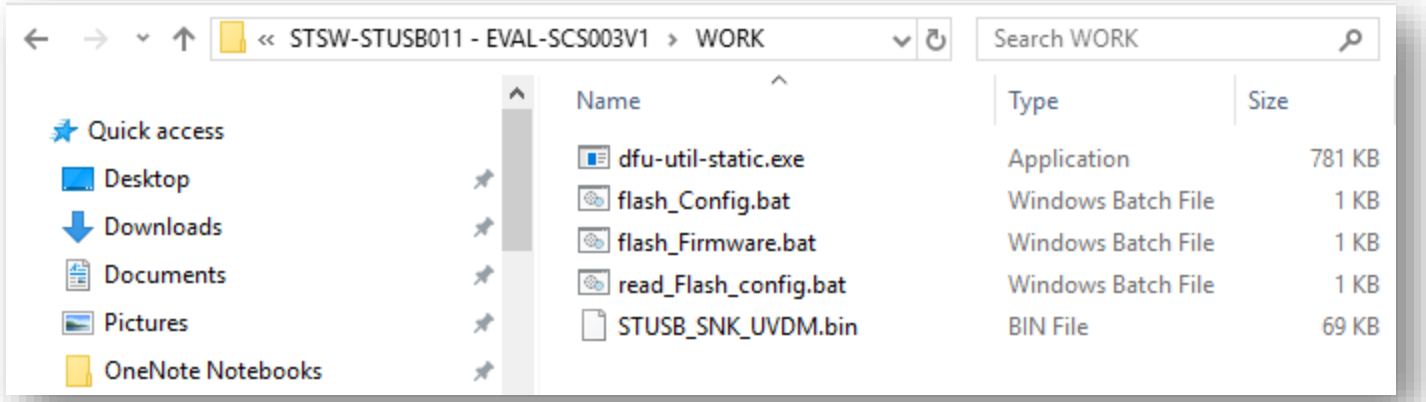
mode	SW0	SW1	SW2
DFU	ON	off	off

7 Check that Red and Orange LEDs are continuously ON

Reading STUSB4761 NVM (4/4)

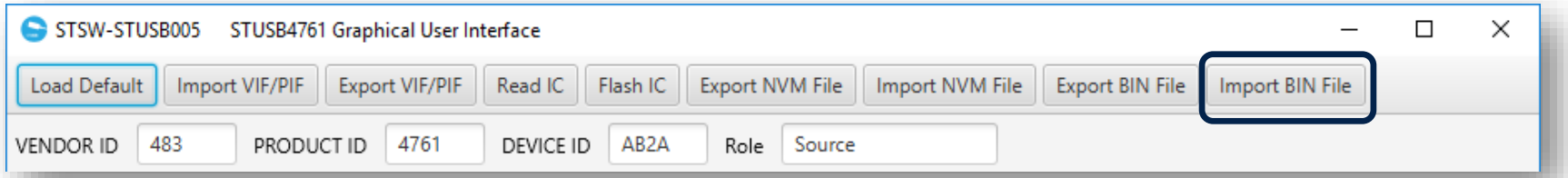
import STUSB4761 configuration file from the dongle

8 From the working directory, launch ‘read_Flash_config.bat’



9 The NVM content is automatically stored in ‘NVM_Config_read.bin’ file.
NB: if file already exists, please remove or save under different name as the ‘read_Flash_config.bat’ is not able to override existing ‘NVM_Config_read.bin’ files

10 Open the STSW-STUSB005 GUI and import ‘NVM_Config_read.bin’ file pressing the « IMPORT BIN FILE » button



Connecting to a SOURCE using SINK Mode

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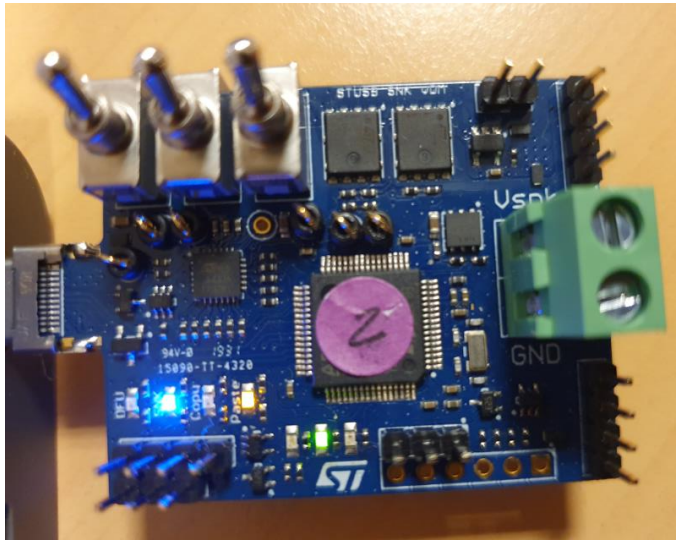
Connecting to a SOURCE (1/2)

use the dongle as a Sink

1. Toggle dongle switches like below picture

mode	SW0	SW1	SW2
SINK	off	off	off

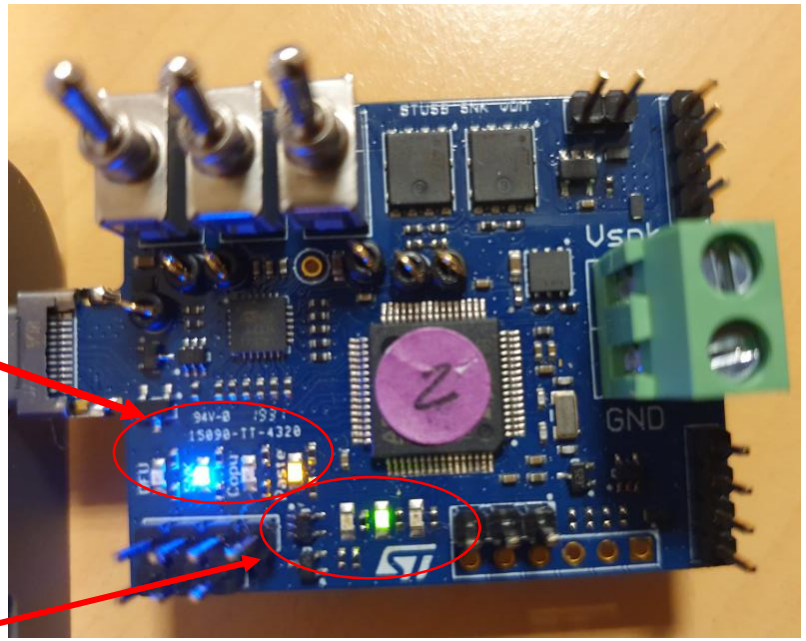


2. Then plug to a SOURCE

3. With default firmware, the dongle will automatically try to negociate 9V/1.5A first or by default 5V/1.5A

Connecting to a SOURCE (2/2)
sink connection status

- Blue and Orange LEDs are statically lighting
- When PD contract is established, Green LED is ON static
- Red LED blinks regularly 1 time to indicate CC1 connection or 2 times to indicate CC2 connection
- Blue LED is blinking regularly 2 times to indicate that dongle is Sink



Updating EVAL-SCS003V1 dongle firmware using ‘DFU’ mode

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Updating dongle firmware (1/2)

plug the board in DFU mode

Upon ST request, EVAL-SCS003V1 dongle firmware can be updated.
Please follow bellow process:

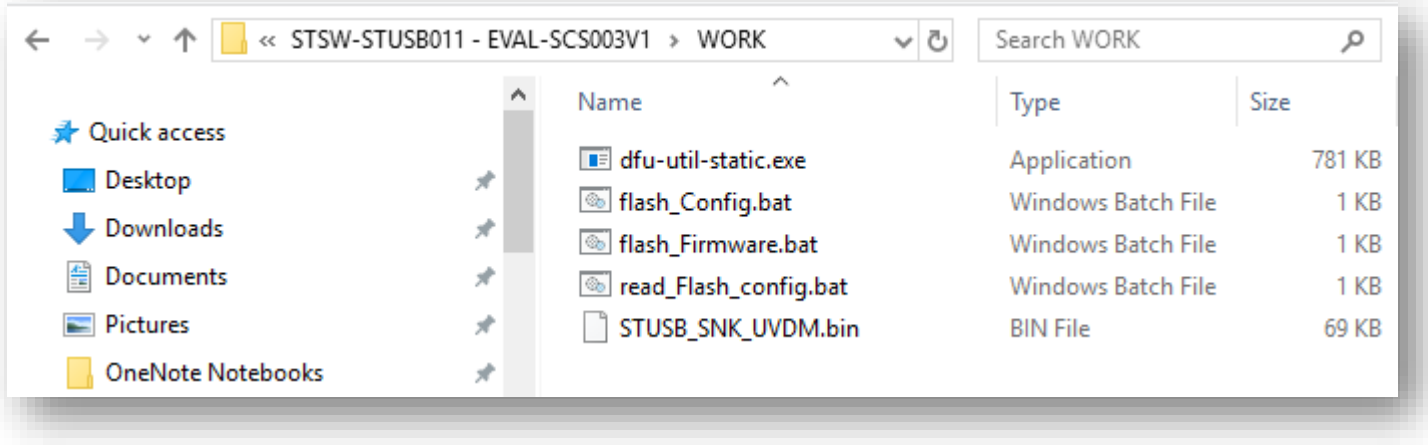
1 Plug EVAL-SCS003V1 board into USB-C port of the PC with below switch configuration:

mode	SW0	SW1	SW2
DFU	ON	off	off

2 Check that Red and Orange LEDs are continuously ON

Updating dongle firmware (2/2)
load the new firmware into the dongle

3 From the STSW-STUSB011 working directory, launch ‘Flash_Firmware.bat’ with the new STUSB_SNK_UVDM.bin provided by ST



4 Check dongle firmware has been properly updated:

```
Device returned transfer size 2048
DfuSe interface name: "Internal Flash  "
Downloading to address = 0x08000000, size = 70152
Download        [=========================] 100%        70152 bytes
Download done.
File downloaded successfully

Press any key to continue . . .
```

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TRICKS

Known Error

- Fresh dongles might have difficulties to power up with some PC or laptop
- Work around is to use Legacy-to-C female adaptor to connect dongle to PC
  - Adaptor example:

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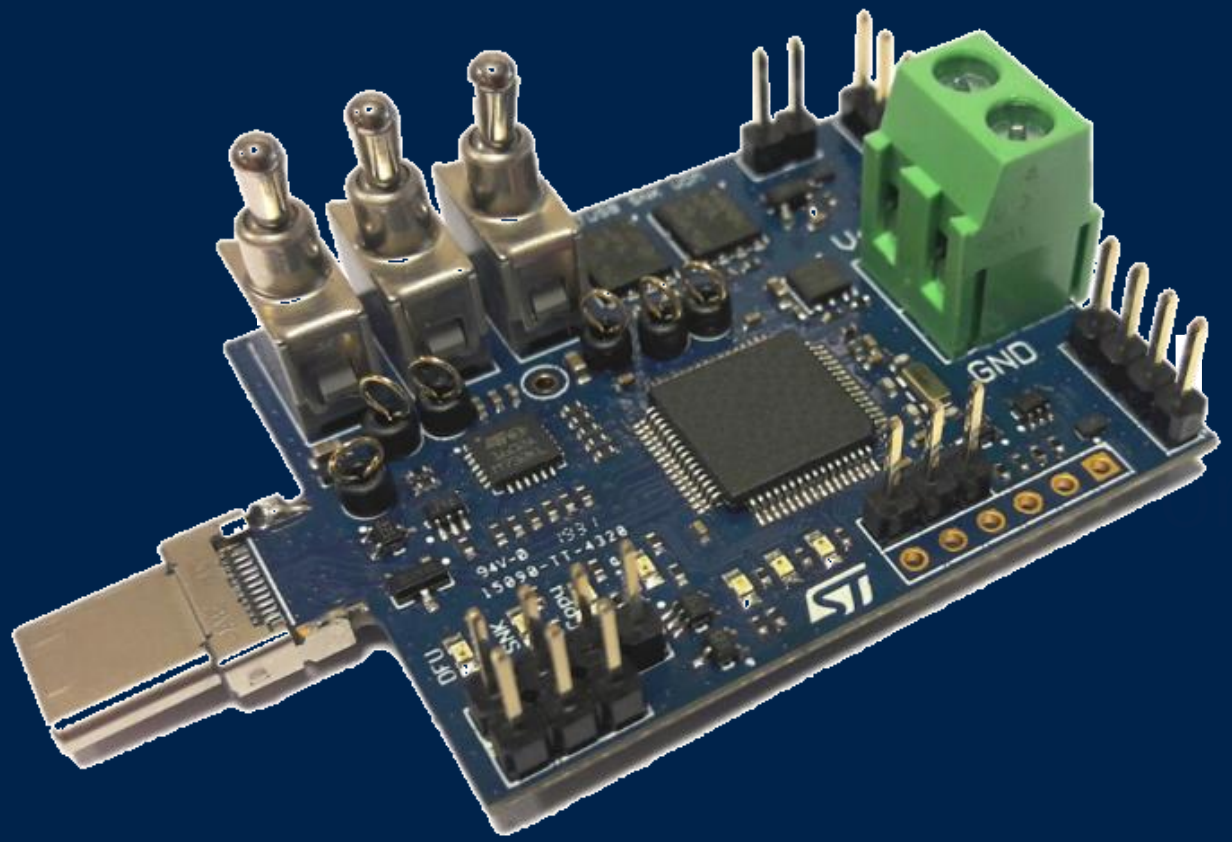
search EVAL-SCS003V1 on www.st.com



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