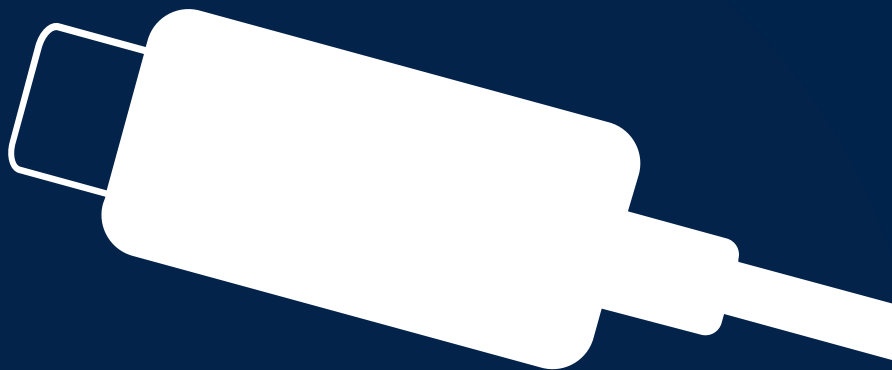




life.augmented



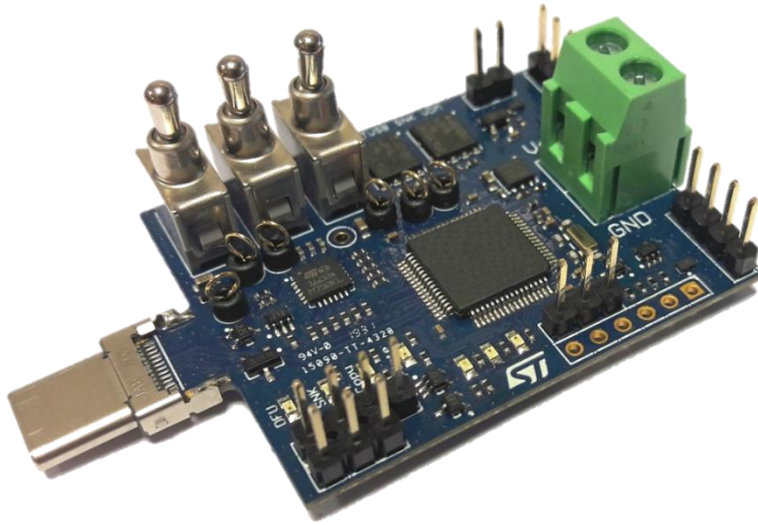
STUSB

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

Quick Start

- EVAL-SCS03V1: switch configuration
- Pre-requisites - installation of STSW-STUSB011
- Pre-requisites - installation of DFU drivers
- Pre-requisites - installation of STSW-STUSB005 (GUI from STUSB4761)

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STUSB4761 customization using the GUI and the dongle

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Reading STUSB4761 NVM content using the dongle and the GUI

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Updating EVAL-SCS003V1 dongle firmware using 'DFU' mode

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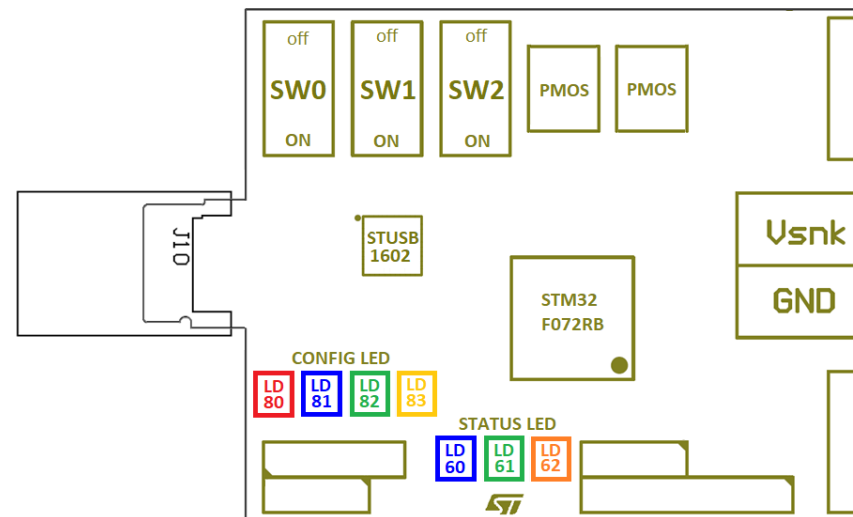


Quick Start

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 (1/6)

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**

If not used previously, STUSB4761 Graphical User Interface must be installed in order to easily and quickly customize the IC configuration.

This requires installation of the following package:

- [STSW-STUSB005](#): follow steps **10** and **11**



Quick Start

Pre-requisite (2/6)

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

Get Software				
Part Number	Software Version	Marketing Status	Supplier	Download
STSW-STUSB011	1.0.0	Active	ST	Get Software

- 2 Download and unzip in a working directory:

STSW-STUSB011 - EVAL-SCS003V1 > WORK			Search WORK
Name	Type	Size	
dfu-util-static.exe	Application	781 KB	
flash_Config.bat	Windows Batch File	1 KB	
flash_Firmware.bat	Windows Batch File	1 KB	
read_Flash_config.bat	Windows Batch File	1 KB	
STUSB_SNK_UVDM.bin	BIN File	69 KB	



Quick Start

Pre-requisite (3/6)

3

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

Get Software

Part Number	General Description	Download	Previous versions
+ STM32CubeProg	STM32CubeProgrammer software for all STM32	Get Software	Select version ▼

4

Download, unzip and start the installation process by clicking on:
[SetupSTM32CubeProgrammer-2.8.1.exe](#)



Quick Start

Pre-requisite (4/6)

- 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



Quick Start

Pre-requisite (5/6)

7 Launch STM32CubeProgrammer program with dongle connected to PC

8 Take care to select **USB** then click **Connect**

The screenshot shows the STM32CubeProgrammer interface. The 'Device memory' tab is active. The 'Port' dropdown menu is set to 'USB'. The 'Connect' button is highlighted. A green arrow points from the 'Connect' button to the 'Log' window. The 'Log' window displays the following information:

```
16:45:04 : STM32CubeProgrammer API v2.2.1
16:46:10 : USB speed : Full Speed (12MBit/s)
16:46:10 : Manuf. ID : STMicroelectronics
16:46:10 : Product ID : STM32 BOOTLOADER
16:46:10 : SN : FFFFFFFF
16:46:10 : FW version : 0x011a
16:46:10 : Device ID : 0x0448
16:46:11 : UPLOADING OPTION BYTES DATA ...
16:46:11 : Bank : 0x00
16:46:11 : Address : 0x1ffff800
16:46:11 : Size : 16 Bytes
16:46:11 : UPLOADING ...
16:46:11 : Size : 1024 Bytes
16:46:11 : Address : 0x8000000
16:46:11 : Read progress:
16:46:11 : Data read successfully
```

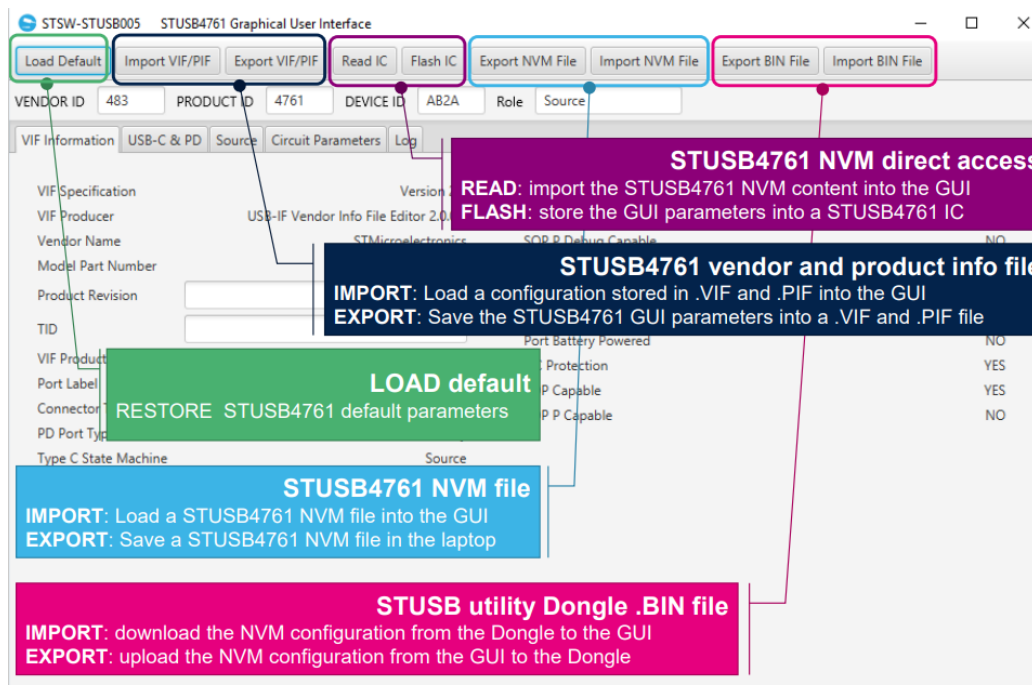
9 If OK then click on **Disconnect** and close the program



Quick Start

Pre-requisite (6/6)

- 10 Download STUSB4761 Graphical User Interface from www.st.com by searching: [STSW-STUSB005](http://www.st.com/STSW-STUSB005)
- 11 Follow instructions and documentation from [Quick Start guide](#)





STUSB4761 customization using the GUI and the Dongle

Export STUSB4761 configuration file from the GUI

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Plug the board in DFU mode

13

Load STUSB4761 NVM configuration file into the dongle

14

Switch the board into PASTE mode

15

Store new NVM content into STUSB4761

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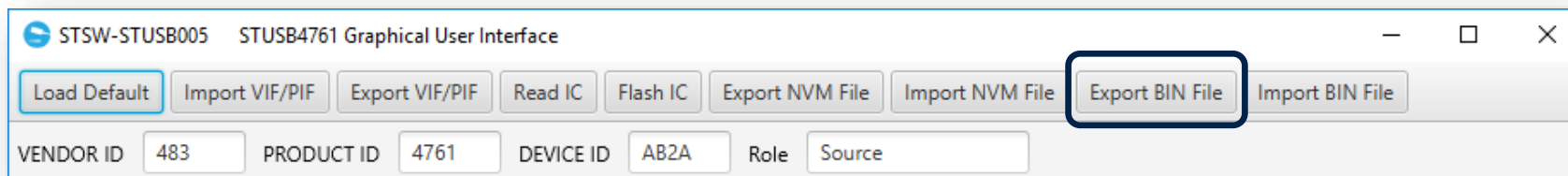
STUSB4761 customization (1/5)

Export STUSB4761 configuration file from the GUI

1

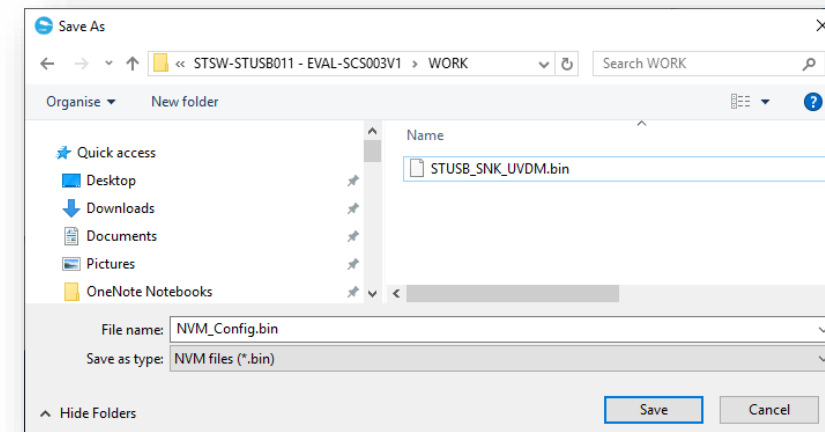
The GUI ([STSW-STUSB005](#)) is typically used to customize STUSB4761 parameters in order to meet application requirements (see [STSW-STUSB005 QUICK START Guide](#)).

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



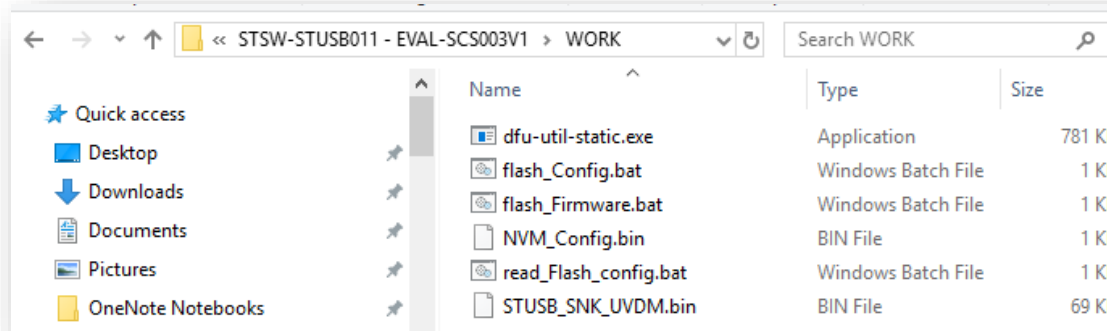
4 Check that Red and Orange LEDs are continuously ON



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:

```
C:\Windows\system32\cmd.exe

Copyright 2005-2009 Weston Schmidt, Harald Welte and OpenMoko Inc.
Copyright 2010-2016 Tormod Uolden and Stefan Schmidt
This program is Free Software and has ABSOLUTELY NO WARRANTY
Please report bugs to http://sourceforge.net/p/dfu-util/tickets/

Invalid DFU suffix signature
A valid DFU suffix will be required in a future dfu-util release!!!
Opening DFU capable USB device...
ID 0483:df11
Run-time device DFU version 011a
Claiming USB DFU Interface...
Setting Alternate Setting #0 ...
Determining device status: state = dfuIDLE, status = 0
dfuIDLE, continuing
DFU mode device DFU version 011a
Device returned transfer size 2048
DfuSe interface name: "Internal Flash "
Downloading to address = 0x0801f000, size = 40
Download [=====] 100% 40 bytes
Download done.
File downloaded successfully
```



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



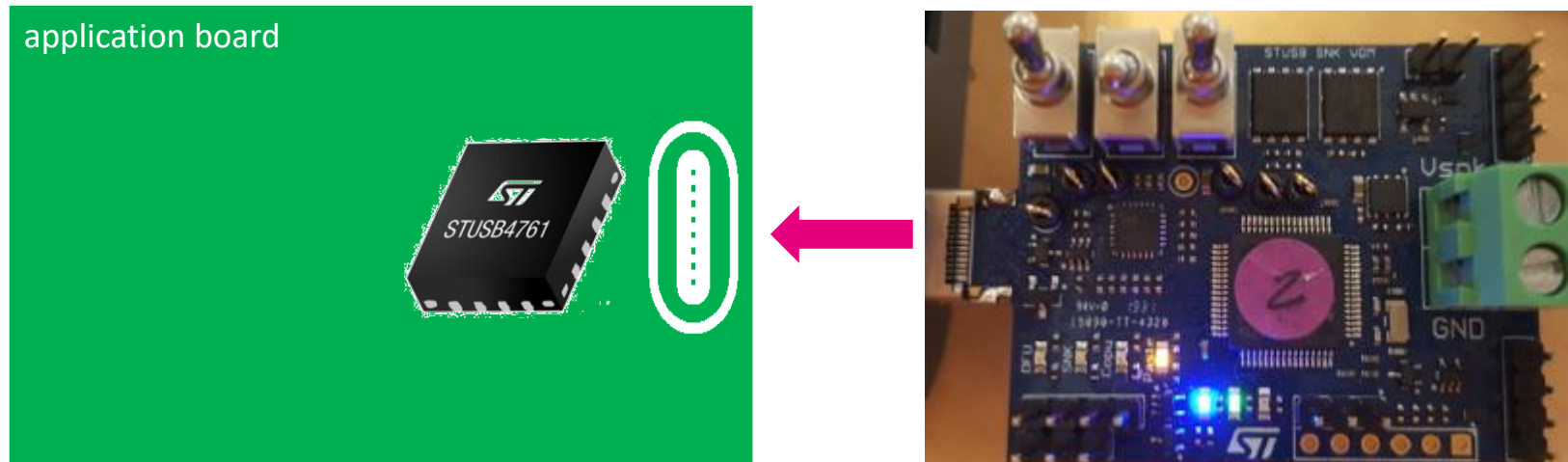
8 Ensure that Orange LED is continuously ON



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

select COPY mode

18

copy STUSB4761 NVM content into the dongle

19

plug the board in DFU mode

20

import STUSB4761 configuration file from the dongle

21



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



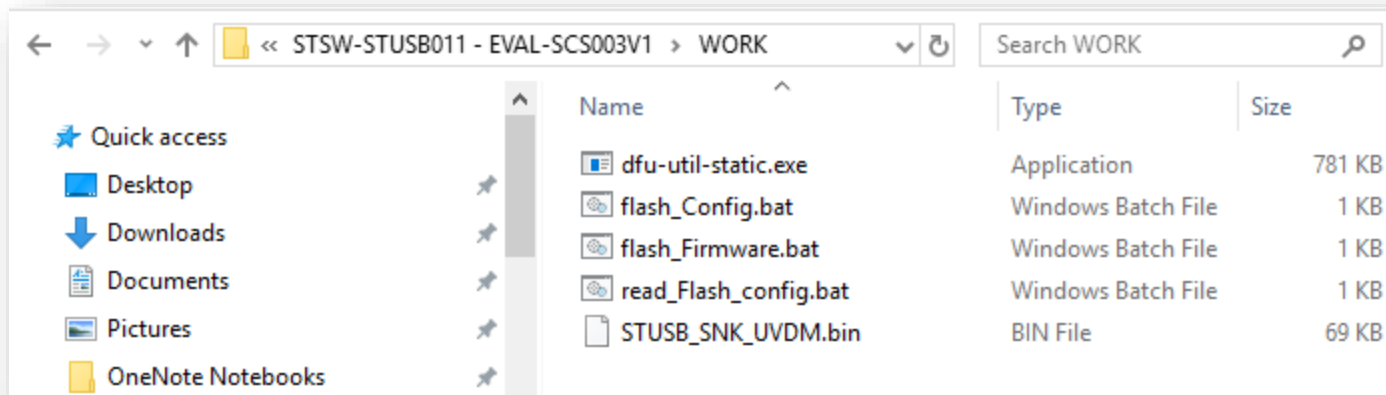
7 Check that Red and Orange LEDs are continuously ON



Reading STUSB4761 NVM (4/4)

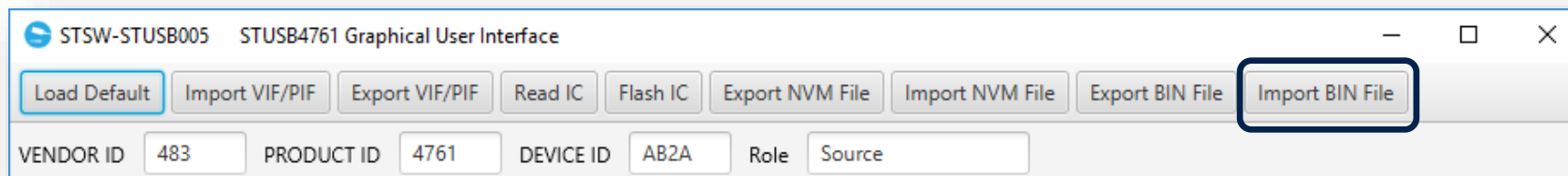
import STUSB4761 configuration file from the dongle

- 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

use the dongle as a Sink

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sink connection status

24

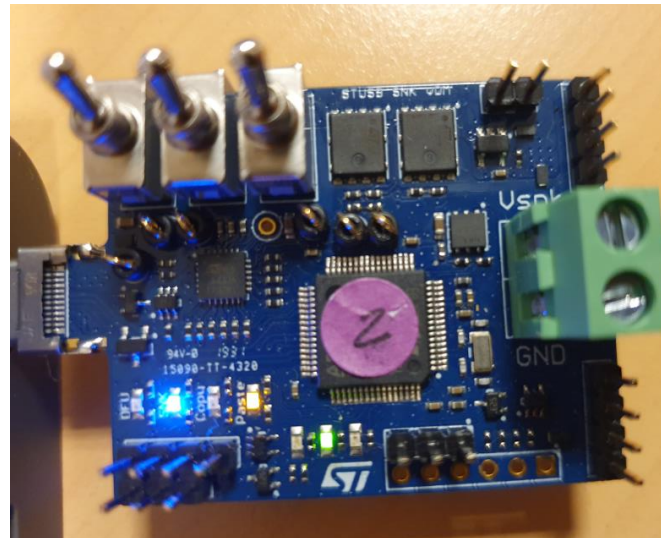


Connecting to a SOURCE (1/2)

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

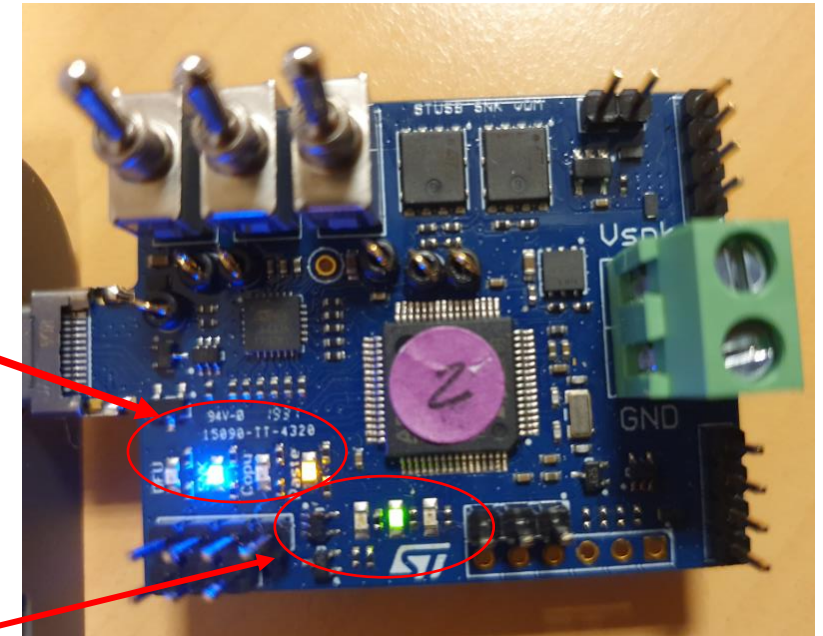
3 With default firmware, the dongle will automatically try to negotiate 9V/1.5A first or by default 5V/1.5A



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

plug the board in DFU mode

26

load the new firmware into the dongle

27



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

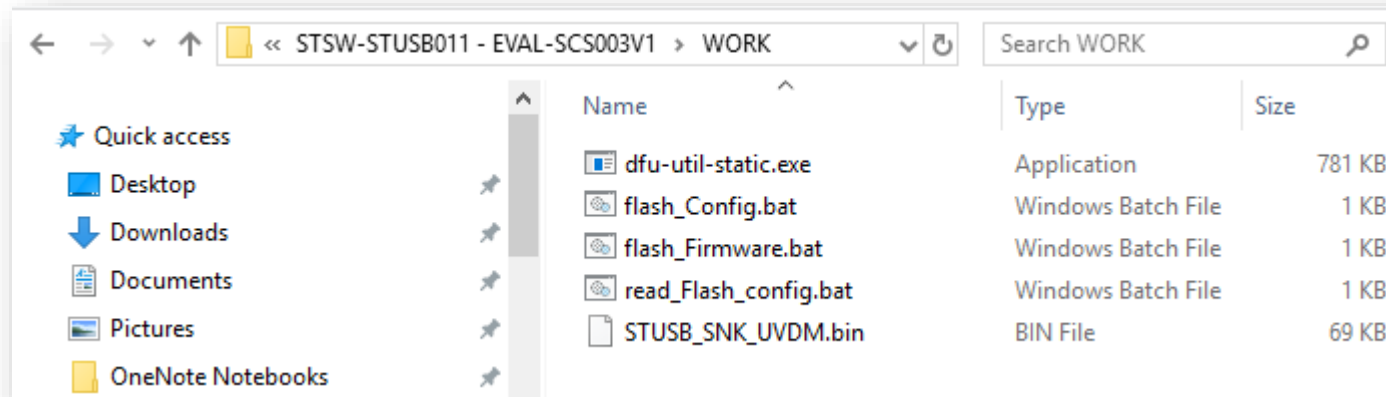


Updating dongle firmware (2/2)

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 . . .
```



TRICKS



Known Error

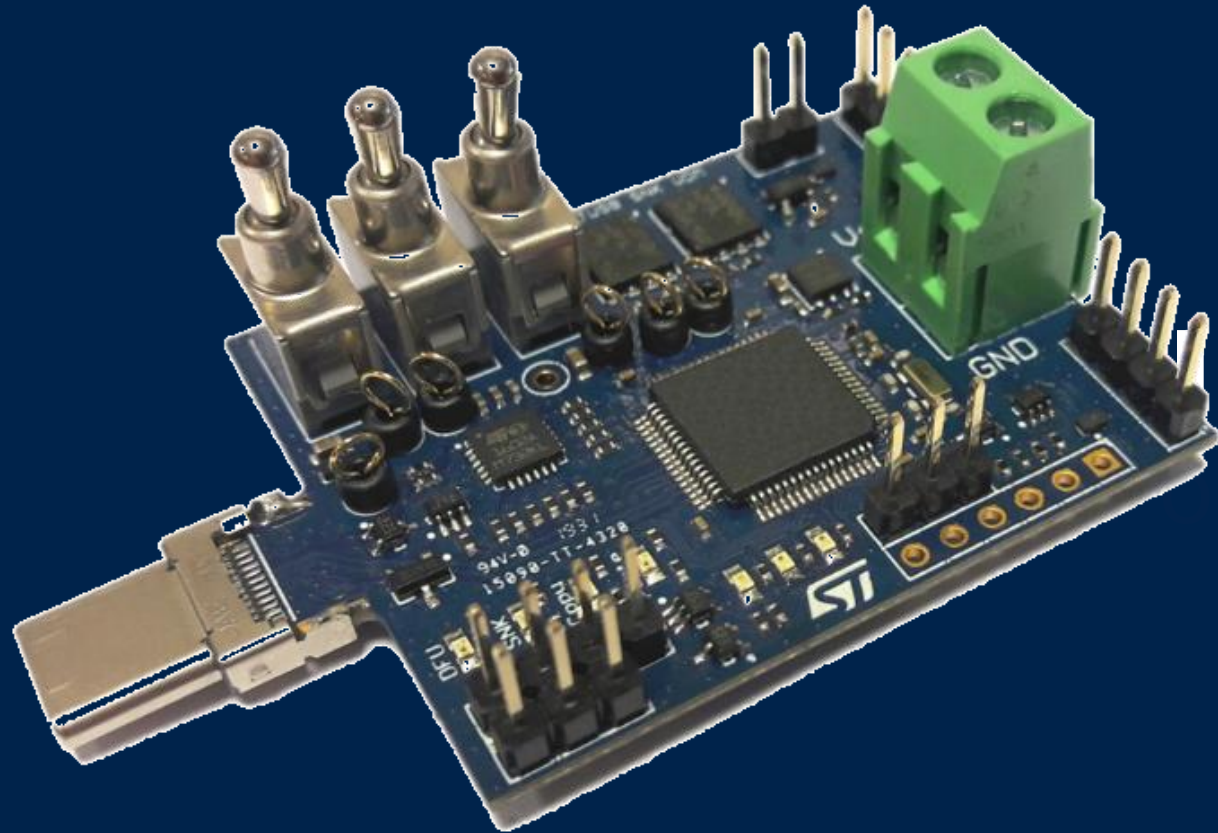
- Fresh dongles might have difficulties to power up with some PC or laptop
- Work around is to use Legacy-to-C female adaptor to connect dongle to PC
 - Adaptor example:





STUSB

search EVAL-SCS003V1 on www.st.com



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