TI-GROMmy 2 boards

Pinouts and flashing
Designed by Erik Piehl 2022-2023

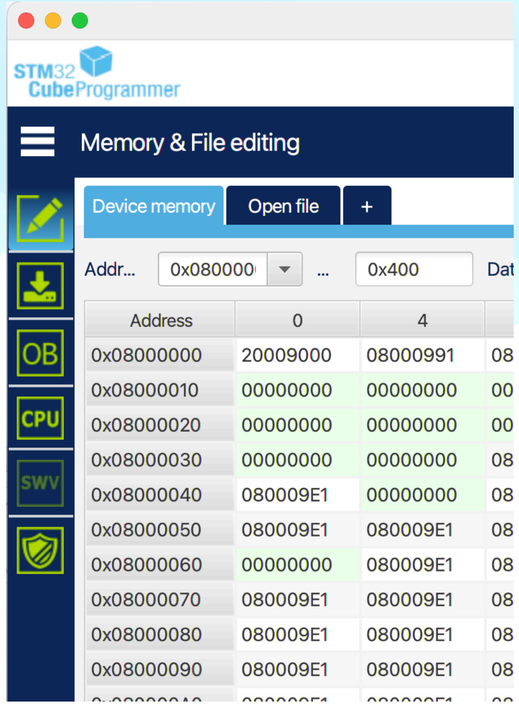
Erik Piehl 2022-10-20, 2023-01-06

Programming process

How to reprogram the flash

- Prerequisites
  - Download and install STM32CubeProgrammer
  - Use ST-LINK V2 board for SWD programming, OR
  - Use FTDI serial port dongle for serial programming
  - Have a new firmware file available (grommy2.elf)
- Programming the flash
  - Connect the GROMmy2 board with appropriate wires
  - Connect to the device with STM32CubeProgrammer
  - Check option bit settings (OB screen)

  - Enter Erasing & Programming screen , select file and click Start Programming



TI-GROMmy2

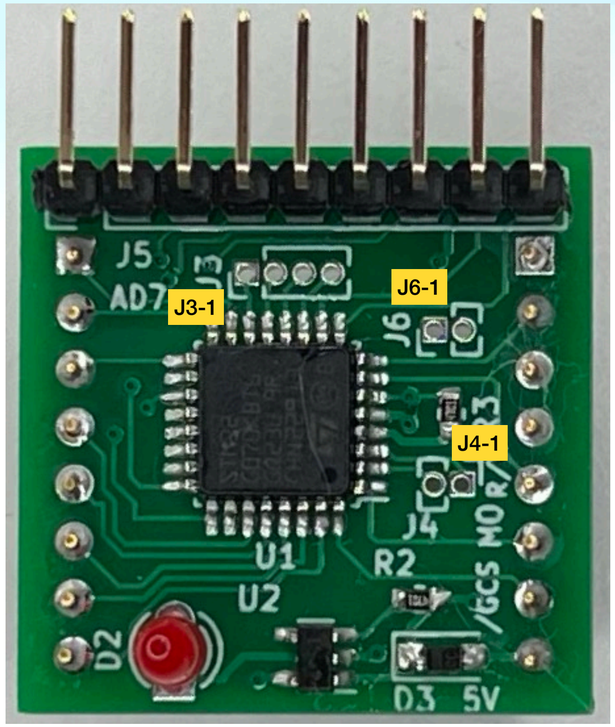
Pinning

Microcontroller
STM32G070KBT6
128K Flash
36K SRAM

Programming interface, matches first 5 pins of the SWD header on Nucleo boards

VCC
SWCLK
VSS
SWDIO
/RESET
TXD - PA9
RXD - PA10
PA3
PA2 - MOSI

AD7 - PB0
AD6 - PB1
AD5 - PB2
AD4 - PB3
AD3 - PB4
AD2 - PB5
AD1 - PB6
AD0 - PB7



-0.7V
GREADY - PA1
N.C.
N.C.
R/W - PA0
MO - PB9
/GCS - PB8
VCC5V

J3 - SPI etc.
1 - PA7
2 - PA6 MISO
3 - PA5 SCK
4 - PA4 NSS

J6 - GPIO
1 - PA8
2 - PC6

J4 - OSC32
1 - PC15
2 - PC14

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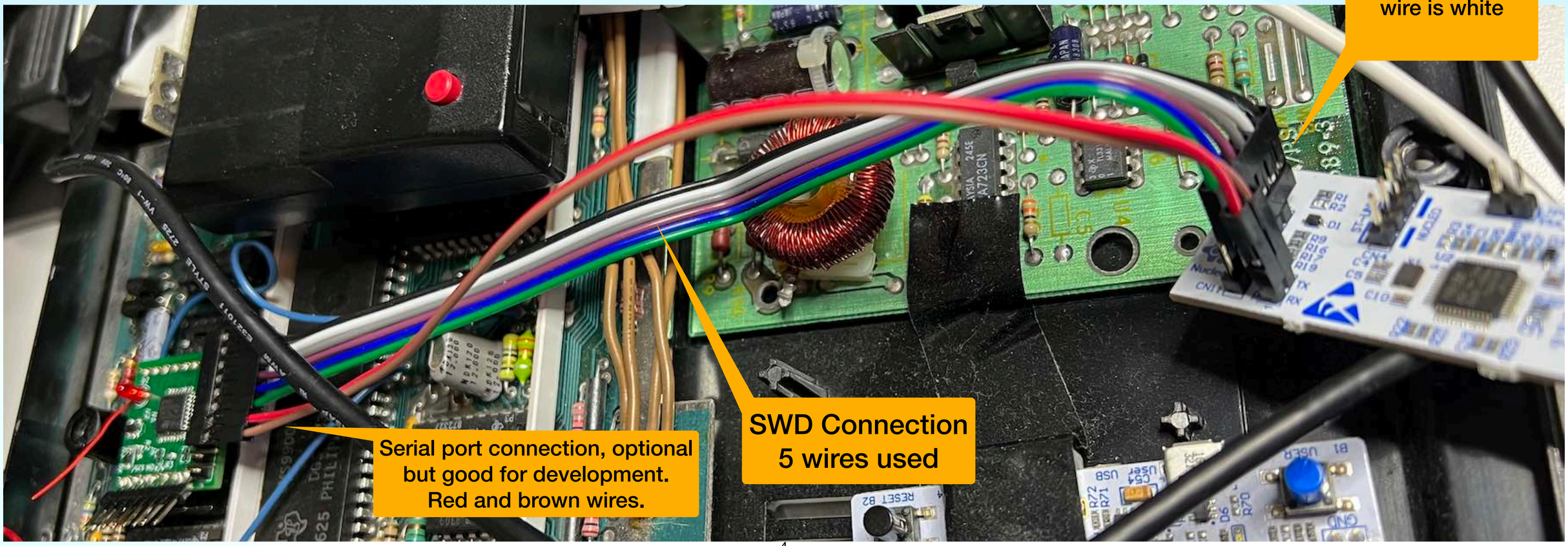
Programming GROMmy2 with SWD

Requires ST-LINK 2 programmer, pictured below

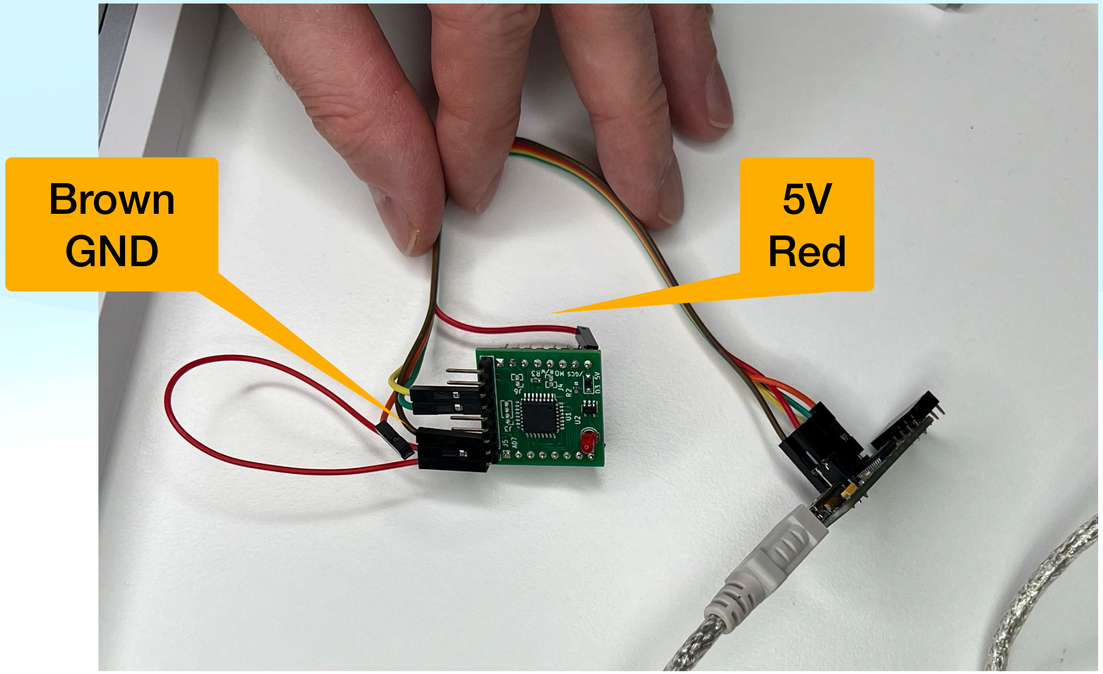
I have acquired ST-LINK V2 programmers by buying STM NUCLEO boards. Many of them have built in the ST-LINK programmer, which can be broken off from the NUCLEO development board. For example NUCLEO-G070RB or NUCLEO-G071RB.



Programming GROMmy2 with serial port

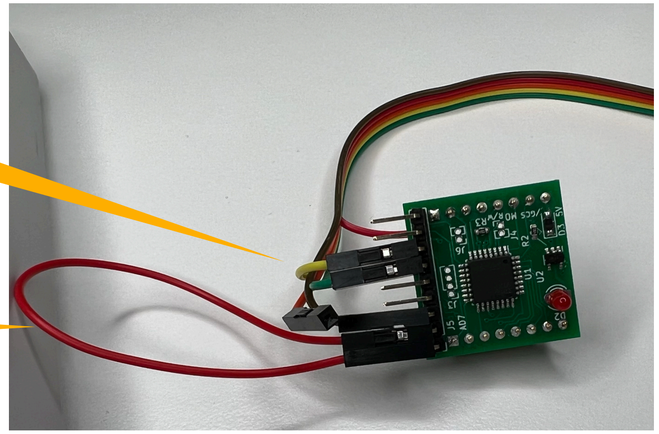
FTDI dongle

- Required connections:
  - TXD - FTDI RXD
  - RXD - FTDI TXD
  - GND - GND
  - VCC (if board not plugged in to the TI and not getting power from there). Not this should be 5 volts brought though the GROM socket pin.
- SWCLK - PA14 - BOOT0 selects boot mode. Must be brought high. This can be achieved by connecting two adjacent pins as shown here.



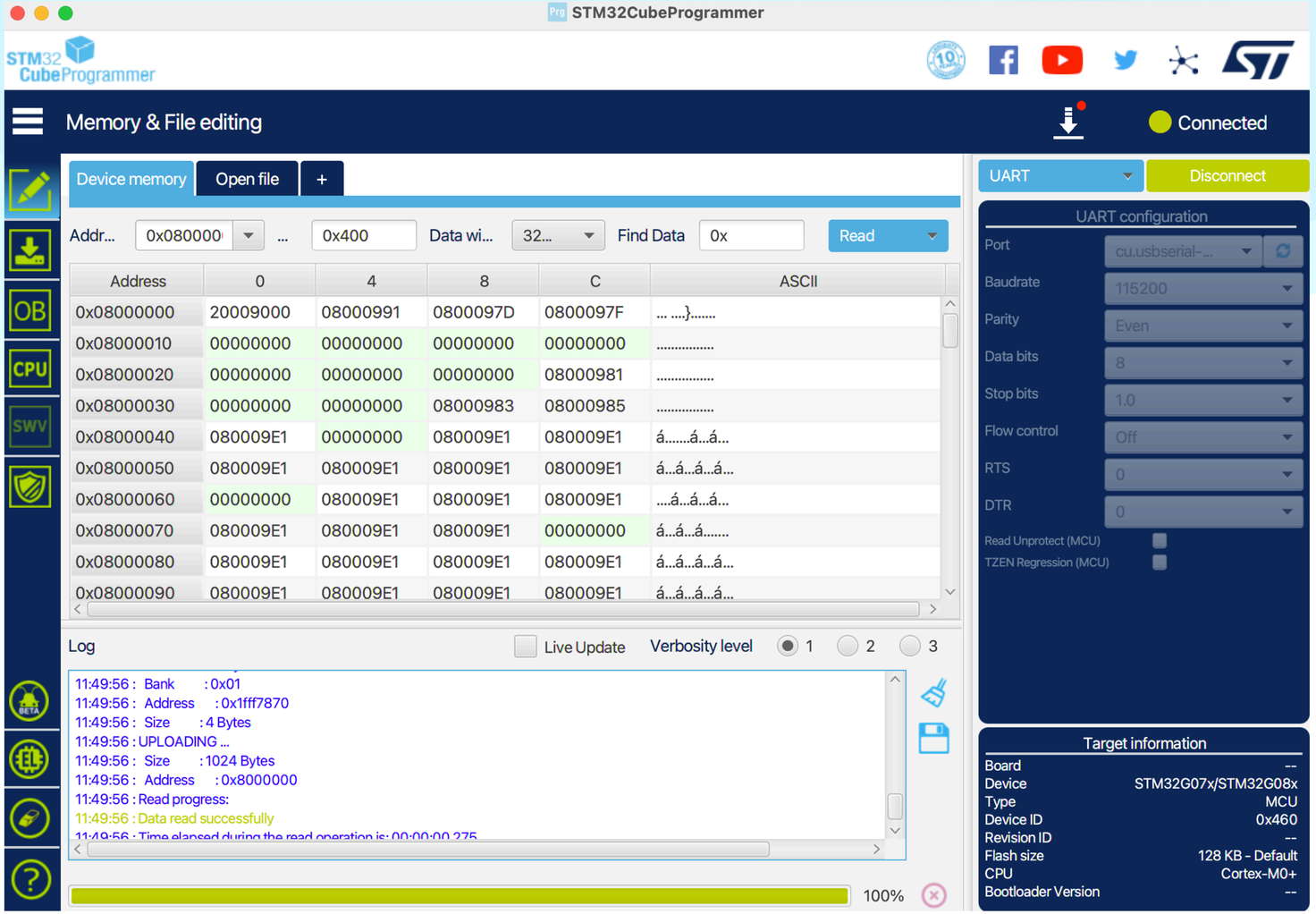
Yellow and green here connect the serial port TXD and RXD.

This loop connects SWCLK to VCC for boot mode entry when power is applied.



STM32CubeProgrammer with FTDI dongle

Initial screen after successful connection



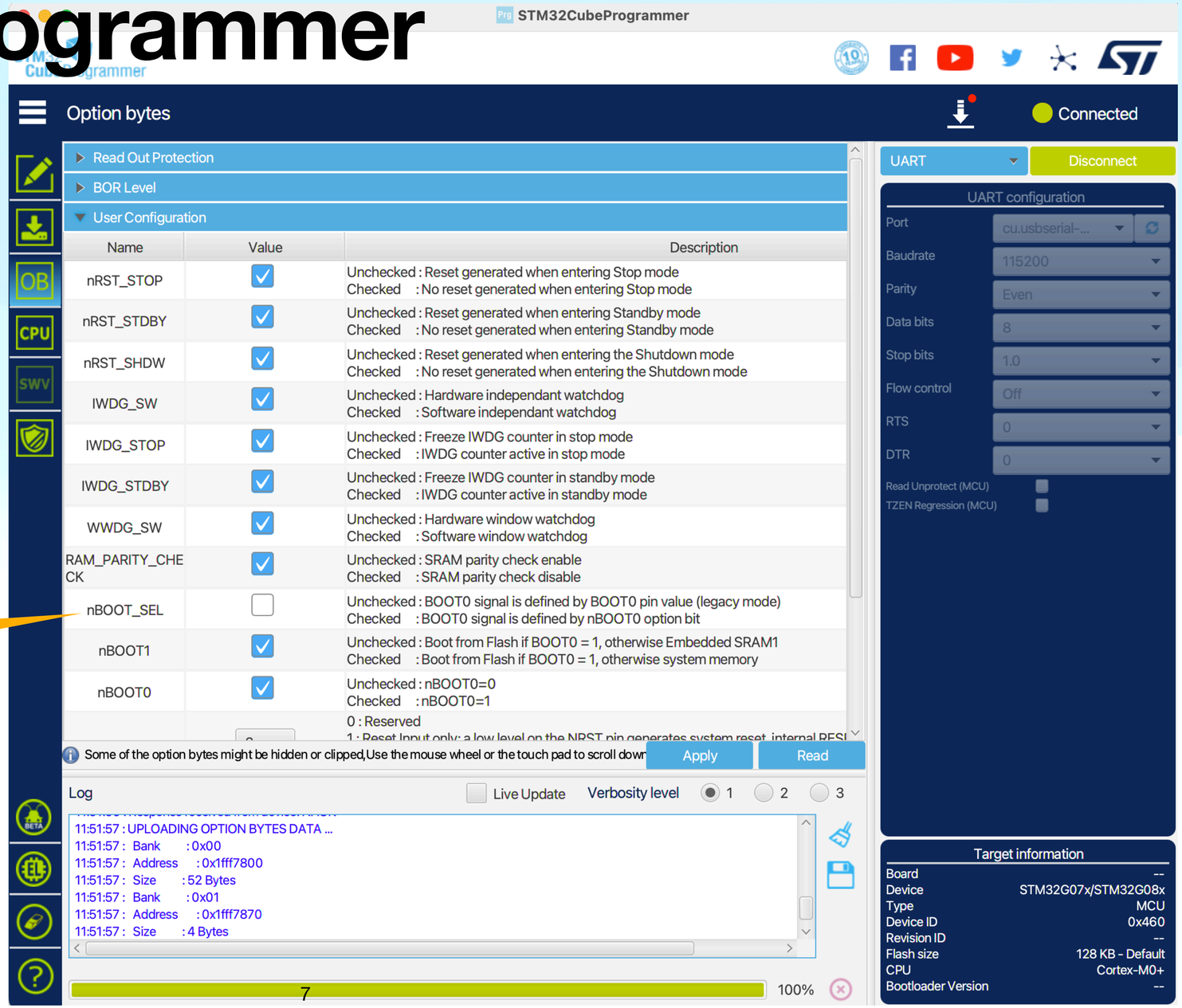
STM32CubeProgrammer

Option bytes OB

Make sure nBOOT_SEL is unchecked.
The default value is checked, but during board assembly this should be already unchecked.

If it is checked, serial programming mode cannot be entered and SWD programming must be used.

Change nBOOT_SEL from default to unchecked. Without this serial port programming does not work.

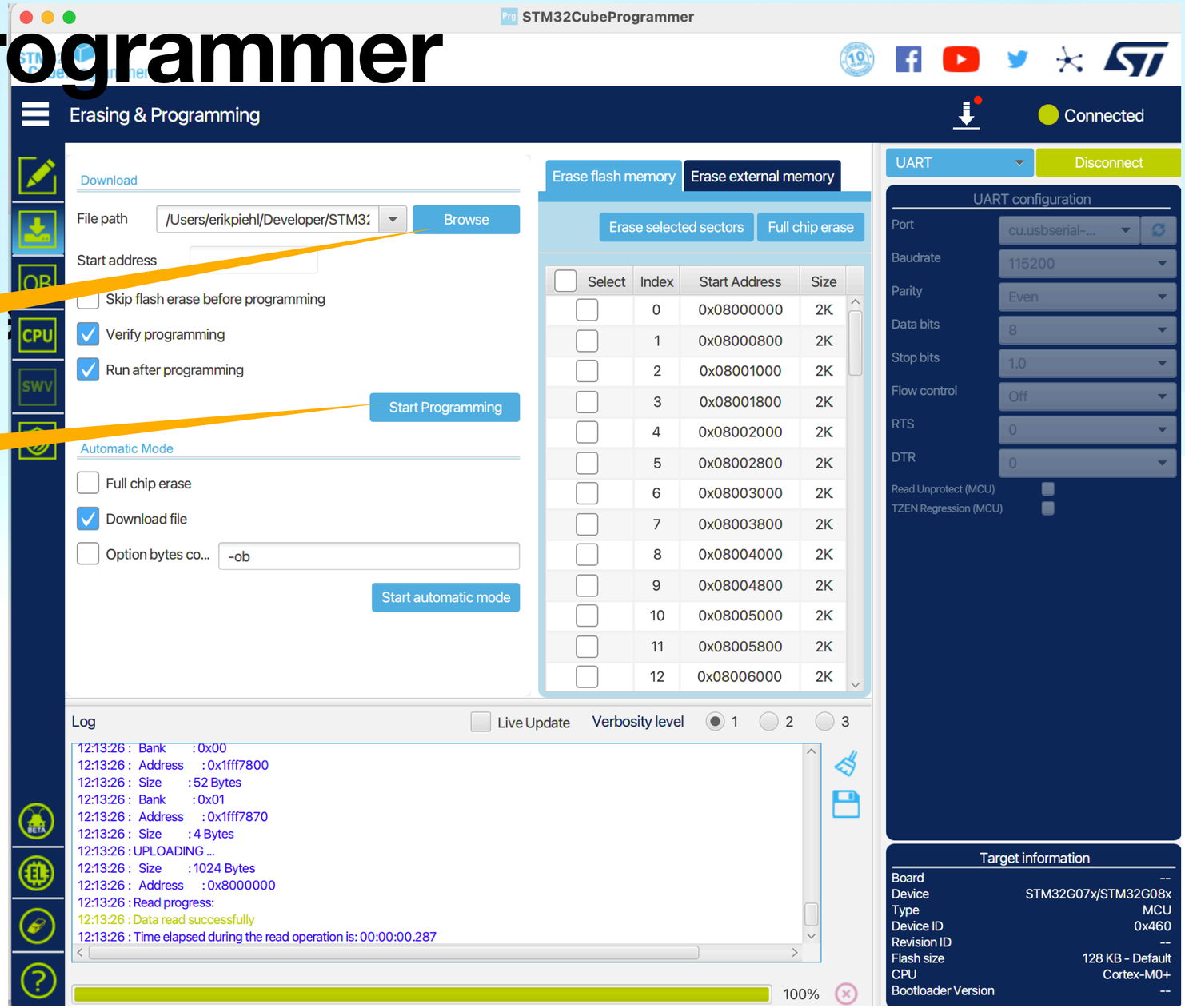


STM32CubeProgrammer

Programming screen

Select file

Start programming



After programming the serial port disconnects from STM32CubeProgrammer since the programmer by default launches the programmed software, and the boot loader cannot continue to communicate with the board .