

Mountbatten Brailer Tutor reflash procedure

This procedure describes updating your Mountbatten Brailer Tutor bootloader program. Bootloader is the basic part of the software that starts up all other processes, running on the internal microcomputer of the MB Tutor.

For the procedure, you will need:

- STM32CubeProgrammer is available at this page:
<https://www.st.com/en/development-tools/stm32cubeprog.html>
- a .bin file with the updated bootloader program, which should be provided by Harpo
- a USB memory stick FAT32 formatted
- main MB Tutor firmware update file (MBUPDATE.TUT.zip) unpacked on the USB memory stick mentioned above
- a USB-A to USB-A cable
- a tool for activating the Boot0 key; this needs to be a 2,5 mm prong at least 5 cm long

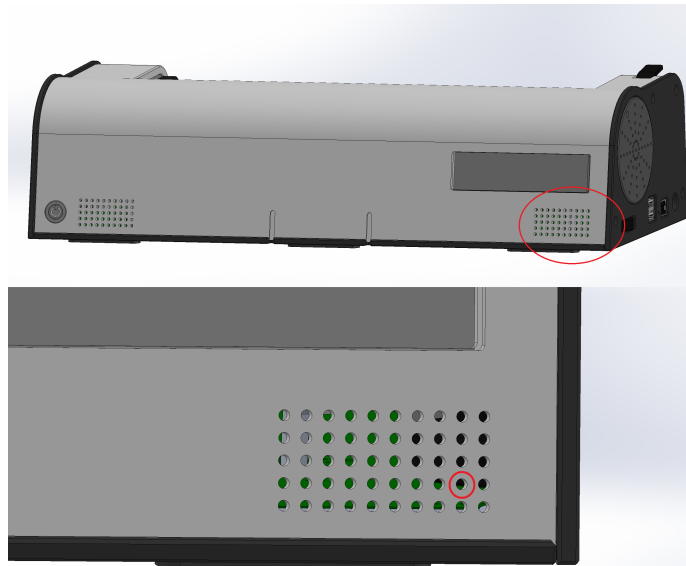
1. Plug the charger power supply jack into the MB Tutor and connect to a wall outlet; check if the power supply delivers power.

2. Plug in the USB-A to USB-A cord to the upper USB socket on the right side of the MB Tutor



3. Plug the other end of the USB-A cord to any USB socket on your PC

4. Locate the Boot0 key under the housing of the MB Tutor:



5. Using a prong push, keep pressed the key that is under the case:



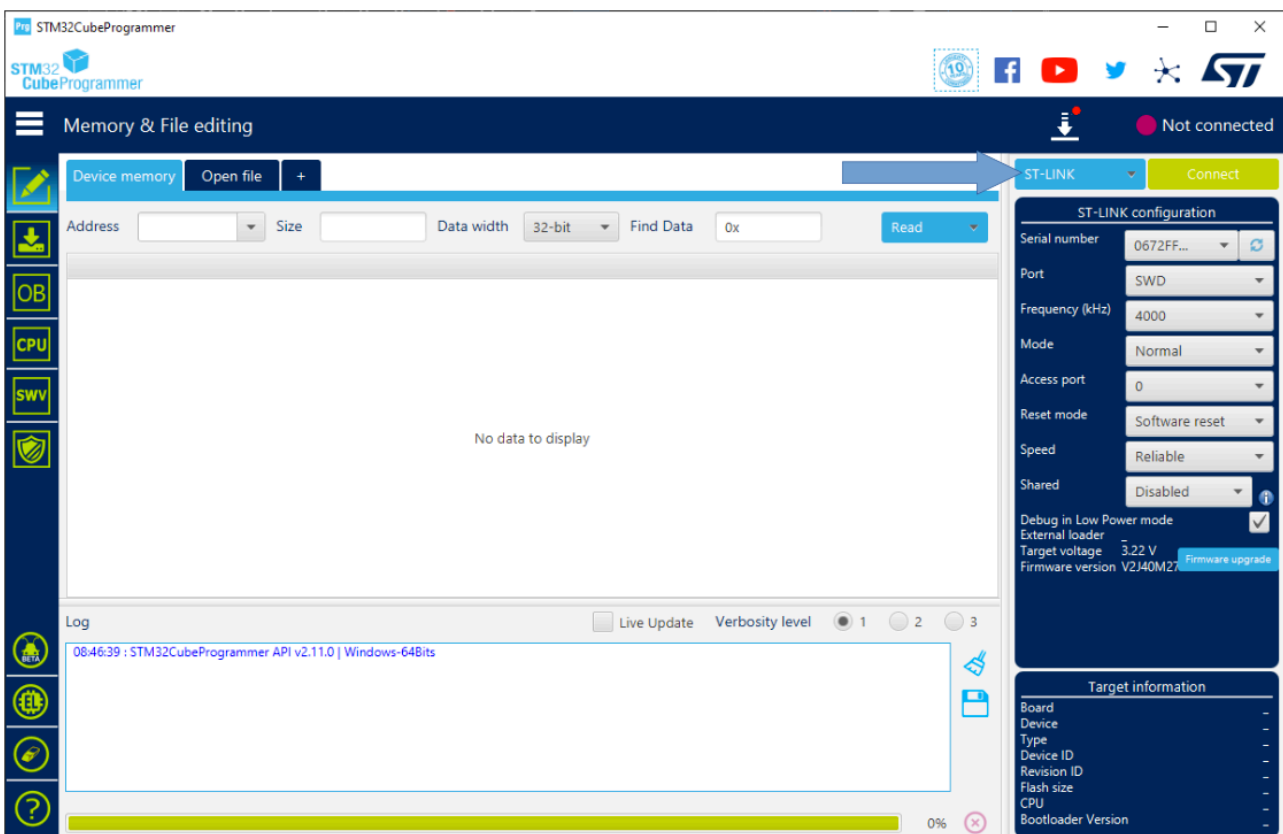
6. Keeping the Boot0 pressed, push the reset button shortly on the right side of the MB Tutor. (You need to press both reset and Boot0 at the same time, then release the reset button first, and Boot0 later.)

7. Run the STM32CubeProgrammer program on your PC

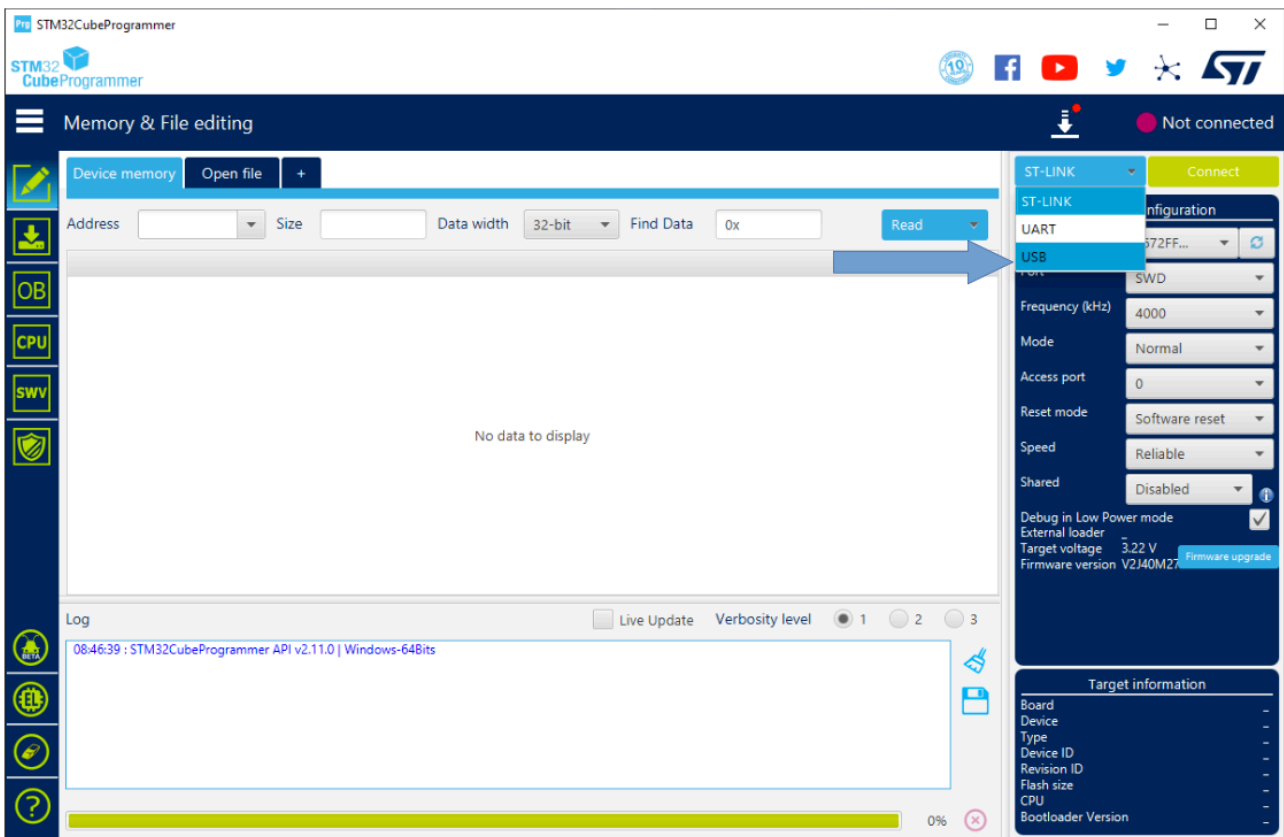
8. Place the .bin file with the new bootloader program in a folder on your computer

In the following interaction with the STM32CubeProgrammer you will be asked several times for confirmation ("OK"). Confirm them all.

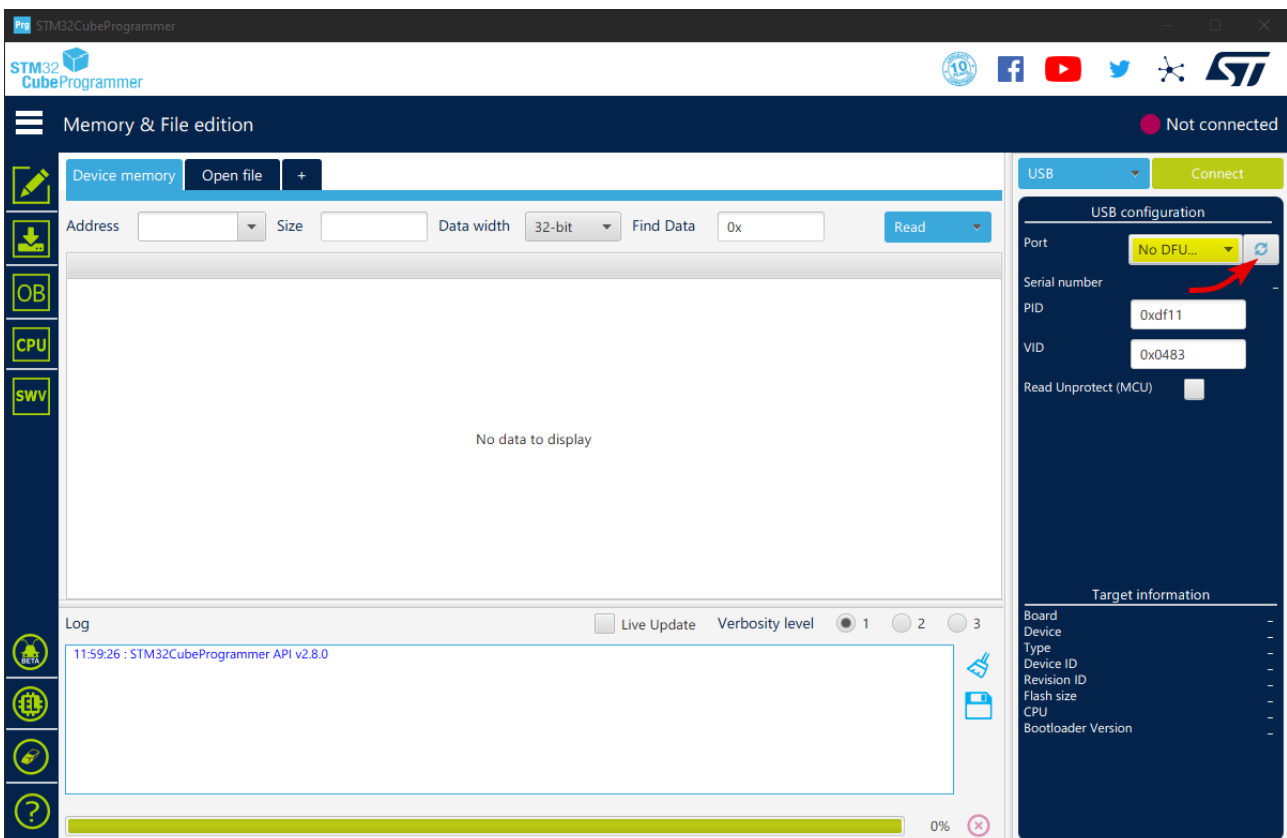
9. Go to the STM32CubeProgrammer program and click the ST-LINK button:



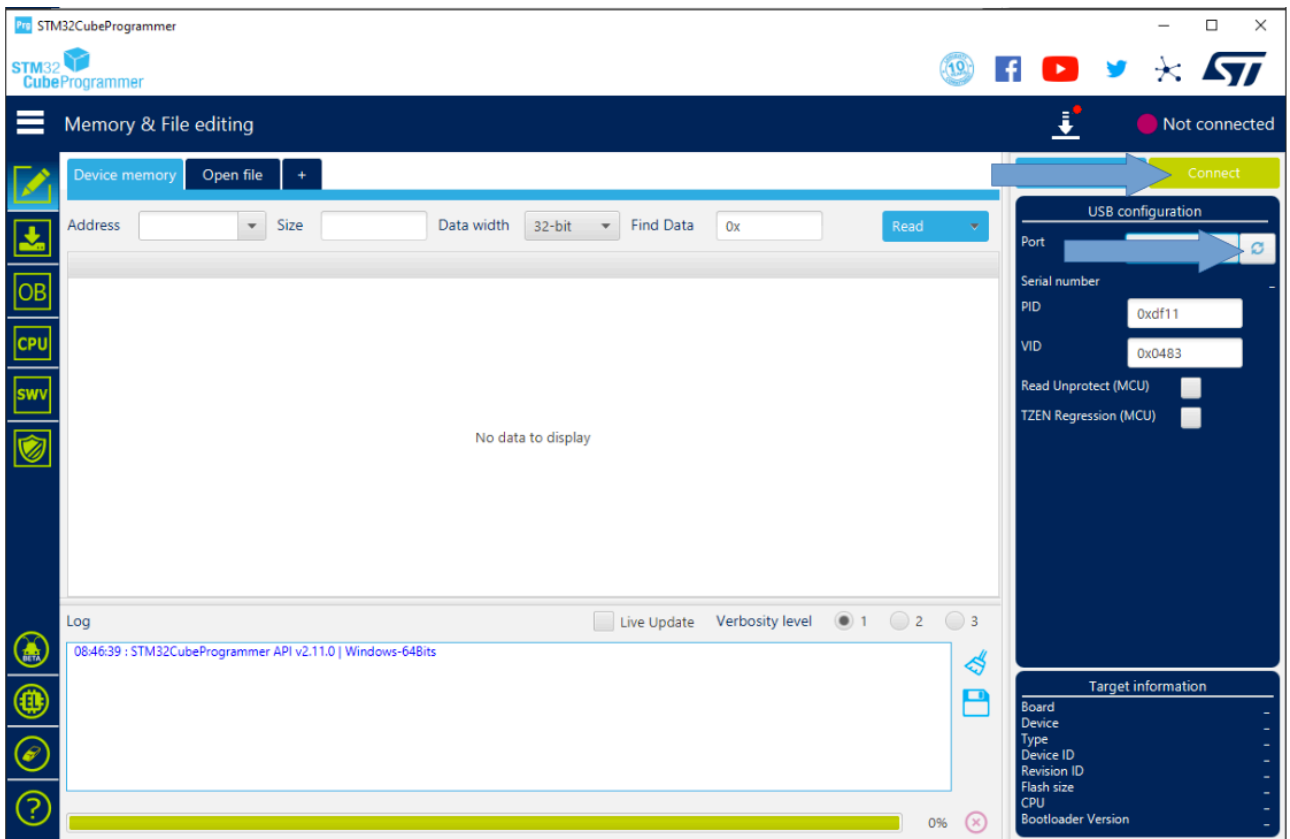
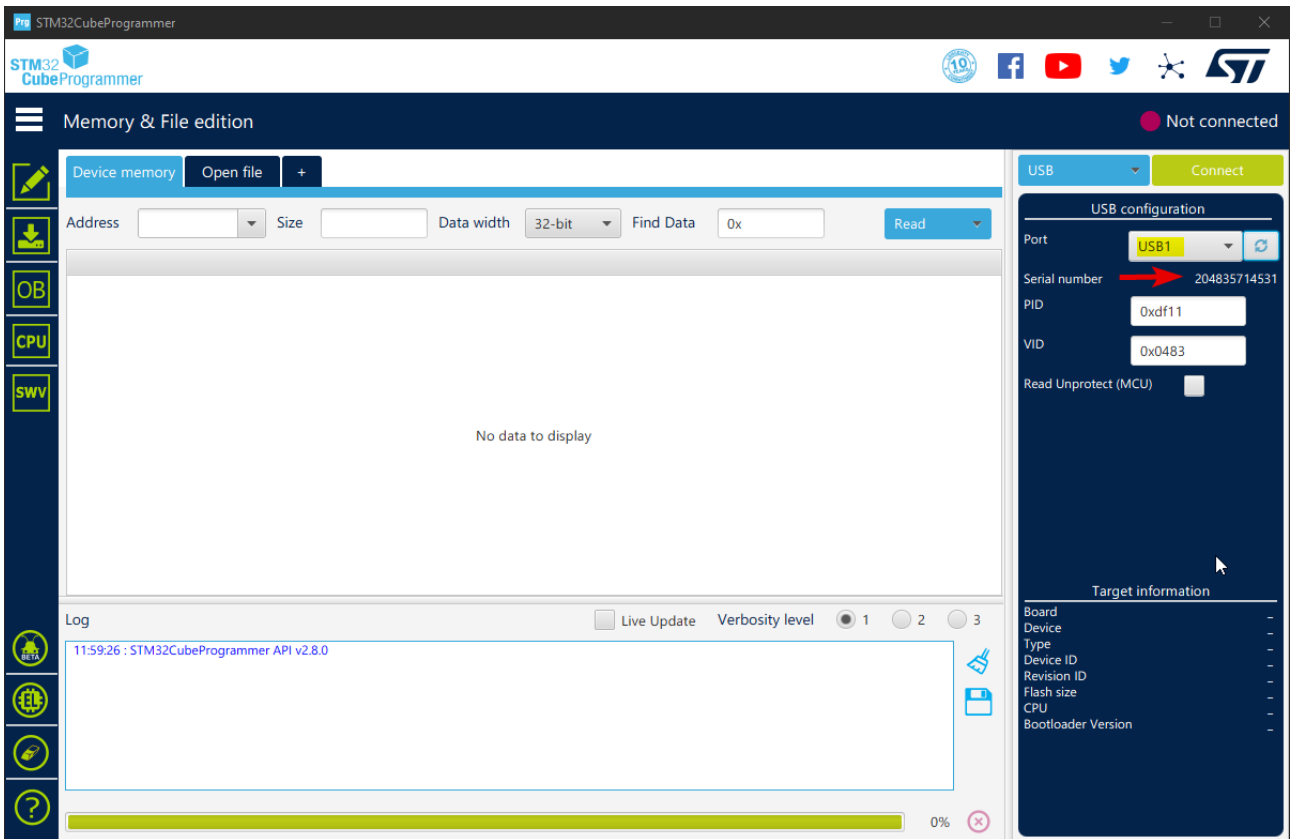
10. Now we will refer to the display of the STM32CubeProgrammer. Choose USB from the drop-down list:



11. Click Refresh button



12. Click Connect button to the right with USB1 set as Port:



13. Click the Download button to the left:

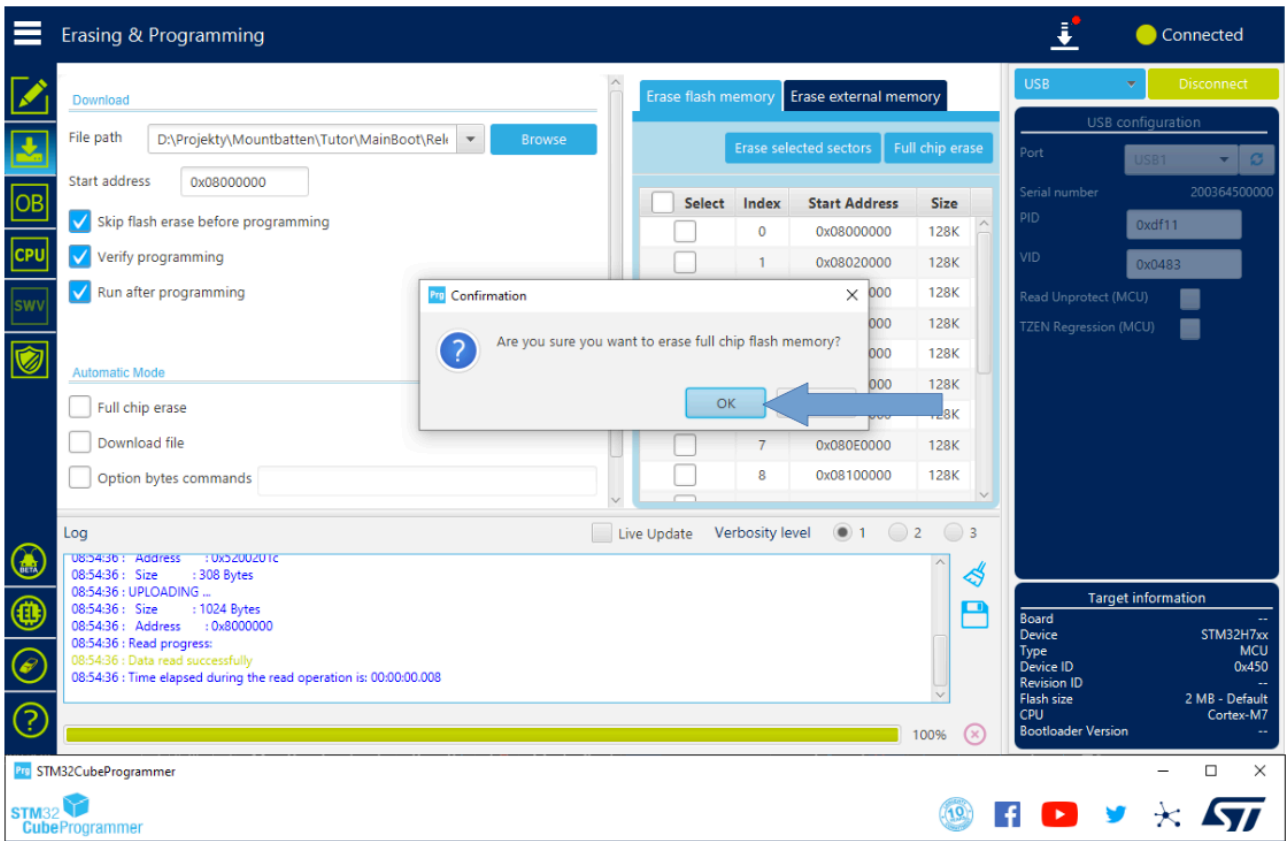
The screenshot shows the STM32CubeProgrammer interface. The main window is titled "Memory & File editing". On the left sidebar, there are several icons, including a download icon (a downward arrow) which is highlighted by a blue arrow. The main area displays a table of device memory addresses and their contents. The table has columns for Address, 0, 4, 8, C, and ASCII. The data shows hexadecimal values and their corresponding ASCII representations. Below the table is a log window showing the progress of a read operation. On the right side, there is a "USB configuration" panel with fields for Port, Serial number, PID, and VID, and a "Disconnect" button. Below that is a "Target information" panel with fields for Board, Device, Type, Device ID, Revision ID, Flash size, CPU, and Bootloader Version.

Address	0	4	8	C	ASCII
0x08000000	24080000	08001C81	08001A15	08001A17	...\$±.....
0x08000010	08001A19	08001A1B	08001A1D	00000000	.....
0x08000020	00000000	00000000	00000000	0800C831	.....1É..
0x08000030	08001A1F	00000000	0800C8C1	0800C925	.....Æ...%É..
0x08000040	08001D01	08001D01	08001D01	08001D01	.....
0x08000050	08001D01	08001D01	08001D01	08001D01	.....
0x08000060	08001D01	08001D01	08001D01	08001A21!...
0x08000070	08001D01	08001D01	08001D01	08001D01	.....
0x08000080	08001D01	08001D01	08001D01	08001D01	.....
0x08000090	08001D01	08001D01	08001D01	08001D01	.....
0x080000A0	08001D01	08001D01	08001D01	08001D01	.....
0x080000B0	08001D01	08001A2D	08001A39	08001D01	.....9.....

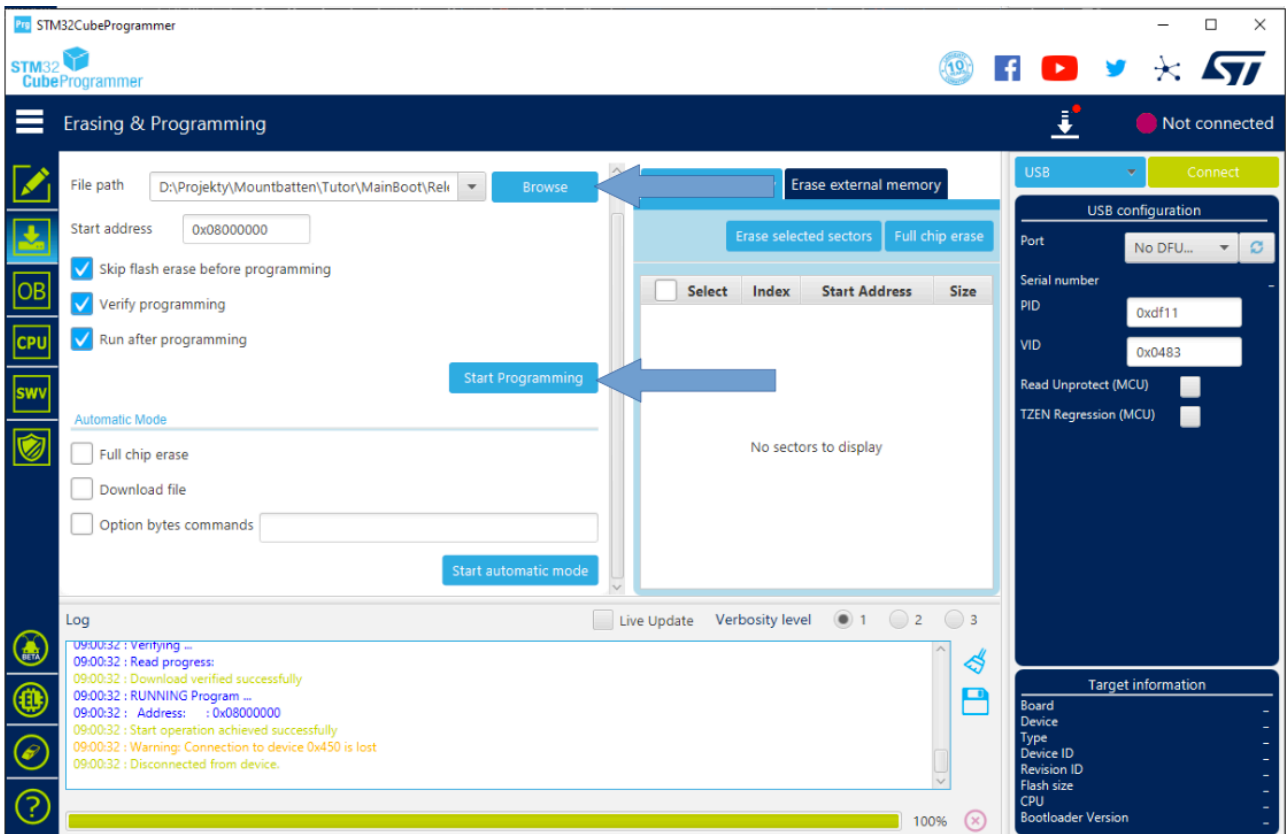
14. Choose full chip erase to the right:

The screenshot shows the STM32CubeProgrammer interface. The main window is titled "Erasing & Programming". On the left sidebar, there are several icons, including a download icon (a downward arrow) which is highlighted by a blue arrow. The main area displays a table of device memory addresses and their contents. The table has columns for Select, Index, Start Address, and Size. The data shows hexadecimal values and their corresponding sizes. Below the table is a log window showing the progress of a read operation. On the right side, there is a "USB configuration" panel with fields for Port, Serial number, PID, and VID, and a "Disconnect" button. Below that is a "Target information" panel with fields for Board, Device, Type, Device ID, Revision ID, Flash size, CPU, and Bootloader Version.

Select	Index	Start Address	Size
<input type="checkbox"/>	0	0x08000000	128K
<input type="checkbox"/>	1	0x08020000	128K
<input type="checkbox"/>	2	0x08040000	128K
<input type="checkbox"/>	3	0x08060000	128K
<input type="checkbox"/>	4	0x08080000	128K
<input type="checkbox"/>	5	0x080A0000	128K
<input type="checkbox"/>	6	0x080C0000	128K
<input type="checkbox"/>	7	0x080E0000	128K
<input type="checkbox"/>	8	0x08100000	128K



15. Locate your bootloader .bin file on your computer, using the File path dialog and press Start programming:



This will flash the bootloader program to the MB Tutor's processor.

Now - move to your MB Tutor:

16. When the unit begins emitting beeps, unplug the USB-A cable from the MB Tutor and plug the USB thumb drive containing the update package into the same USB socket (upper on the right side).

The process can take up to 5 minutes, and the device will start on its own when the process is finished.