

# STM32Cube Programmer

08/2024

### STM32CubeProgrammer



The STM32CubeProgrammer tool and the TFT Display STM32 Adapter programming adapter (2.250.7583) are required to programme the software on the microcontroller in the (non-Graf-Syteco) TFT display.

The STM32CubeProgrammer (STM32CubeProg) is an all-in-one multi-OS software tool for programming STM32 products.

It provides an easy-to-use and efficient environment for reading, writing and checking the device memory both via the debug interface (JTAG and SWD) and via the bootloader interface (UART, USB DFU, I2C, SPI and CAN).

STM32CubeProgrammer also enables the programming and upload of options, the verification of programming content and the automation of programming through scripts.

The latest version of the tool can be downloaded here: <u>https://www.st.com/en/development-tools/stm32cubeprog.html</u>

After downloading the installation file, the programme can be installed on your computer. The software is supplied with some important drivers that should also be installed for proper operation.

After connecting the programming device, Windows should also install some necessary drivers.

#### **Display programming:**

Insert the battery into the transmitter and switch it on.

Start the STM32CubeProgrammer tools on your computer and connect the TFT Display STM32 Adapter (2.250.7583) to the computer.

#### The user interface should look like this:

TT STM	32CubeProgrammer	
STM32 Cube	2 Programmer (1997)	1 🖸 💆 🛧 🖅
≡	Memory & File edition	Not connected
	Device memory +	ST-LINK Connect
	Address 0x08000000 V Size 0x400 Data width 32-bit V Find Data 0x Read V	Serial number 002000 • Ø
OB		Port SWD  Frequency (kHz) 24000
CPU		Mode Normal 👻
SWV	No data to display	Reset mode Software reset -
		Shared Disabled ▼ ⑦ Debug in Low Power mode ✓ External loader 0 Target voltage 0 V Firmware version V3J3M2 Firmware upgrade
		Target information Board
	Live Update Verbosky lever 1 2 5	Device
۲	143/3/90; Sude : 110/4 Bytes 143/3/6; Kadores : 0:A000000 143/3/45; Read progress: 143/3/45; Inead progress:	Flash size - CPU - Bootloader Version -
0	1437:45 : Time elapsed during the read operation is: 00:00:00.002 1437:46 : Oisconnected from device.	
?	100% (>)	

Connect the ST Link programming interface to the transmitter board at connector X5 (PocketEvo), X11 (HyPro+) or X51 (Nano-media, Nano-magna).

#### Press the green "Connect" button in the STM32CubeProgrammer:

M32 M32 CubePro	ubeProgram ogramme	mmer	oditio			- 20.				1	Fi 🖸	
= ™	temory Device m	emory	+	n							ST-LINK	Connected     Disconnect
A	ddress	0x0800	0000	▼ Size	0x400	Data width	32-bit 💌	Find	I Data Ox	Read 💌	Serial number	LINK configuration
	Add	iress		0	4	8		с	ASCII		Port	
B	0x08000	000	100	02000	080194A1	080109E1	08010	9E3	jáă			SWO Y
0	0x08000	010	080	109E5	080109E7	080109E9	00000	000	åçé		Frequency (kH	24003 👻
U	0x08000	020	000	000000	00000000	00000000	08010	9EB	ē		Mode	Normal
0	0x08000	030	080	109ED	00000000	080109EF	08010	9F1	íñ		Access port	
V C	0x08000	040	080	19523	08019527	0801952B	08019	52F	#'+/			
0	0x08000	050	080	19533	08019537	0801953B	08019	53F	37;?		Reset mode	Software reset
g (	0x08000	060	080	19543	08019547	0801954B	08019	54F	СG <mark>К</mark> О		Shared	PROBADILY .
<b>1</b> (	0x08000	070	080	19553	08019557	0801955B	08019	55F	SW[		Dahua in Low	Power mode
C	0x08000	080	080	19563	08019567	0801956B	08019	56F	cgko		External loade	=
C	0x08000	090	080	19573	08019577	0801957B	08019	57F	sw{		Target voltage Firmware versi	
C	0x08000	0A0	080	19583	08019587	0801958B	08019	58F				
Q	0x08000	080	080	19593	08019597	0801959B	08010	1D		12	~	and the formation
	09 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : T	Address Size JPLOADIN Size Address Read progr Data read s Time elapse	: 0x40 : 4 Byte: G : 1024 B : 0x80 ess: uccessfu ed durin	1023c14 s bytes 000000 ully ig the read op	eration is: 00:00:00	003		Live U	pdate Verbosity level 💿		Ta Board Device Device ID Revision ID Flash size CPU Bootloader Ve	rget information STM32F405xx/F407xx/F407 MCL 0x413 Rev 2.C 1 M Cortex-M4 rsion

A successful connection should be indicated by the "Connected" label.

#### Open a suitable file for programming:

STM3	2CubeProgrammer	6008×			4.11		1		
STM32 Cube	Programmer						(19)	f 🖸 🖌	* 457
≡	Memory & File	edition							Ocnnected
	Device memory	+						ST-LINK	Disconnect
	Address 0x0800	Open file		Data width	32-bit 🔻 F	ind Data Ox	Read ·	ST-LIN	K configuration
<b></b>		Open memory tab	)					Serial number	002000 👻 🗭
	Address	Compare memory	with file	8	c	AS	SCII	Port.	swo 💌
OR	0x08000000 0x08000010	Compare two files	41 E7	080109E1 080109E9	080109E3 00000000	iââ âçé		Frequency (kHz)	24000 💌
CPU	0x08000020	00000000	00000000	00000000	080109EB	ē		Mode	Normal
	0x08000030	080109ED	00000000	080109EF	080109F1	íīñ		Access port	
SWV	0x08000040	08019523	08019527	0801952B	0801952F	#'+/			<u>.</u>
	0x08000050	08019533	08019537	0801953B	0801953F	37;?		Reset mode	Software reset 👻
REG	0x08000060	08019543	08019547	0801954B	0801954F	СGКО		Shared	DIGAME -
	0x08000070	08019553	08019557	0801955B	0801955F	SW[		Debug in Low Po	ver mode
	0x08000080	08019563	08019567	0801956B	0801956F	cgko		External loader	5.7
	0x08000090	08019573	08019577	0801957B	0801957F	sw{		Firmware version	V3J3M2
	0x080000A0	08019583	08019587	0801958B	0801958F				Firmware upgrade
	0x080000B0	08019593	08019597	0801959B	08010C1D		×	Toro	at information
	Log 1438351 Address 1438355 Size 1438355 Size 1438355 Size 1438355 Address 1438355 Address 1438355 Read progr 1438355 Time elaps	: 0x40023c14 :4 Bytes G :1024 Bytes : 0x8000000 ess: uccessfully ed during the read opr	rration is: 00:00:00	003	Liv	e Update Verbosity level	<ul> <li>1</li> <li>2</li> <li>3</li> <li>3</li> <li>4</li> <li>2</li> <li>3</li> <li>4</li> <li>2</li> <li>3</li> <li>4</li> <li>4</li></ul>	Targi Board Device STI Type Device ID Revision ID Revision ID Flash size CPU Bootloader Versic	et information M32F405xx/F407xx/F415x. 0x413 Rev 2.0 1 MB Cortex-M4 m

## STM32CubeProgrammer



Press the "Download" button to programme the software on the TFT display:

STM3	2CubeProgra	ammer	0008		-	1000		100		
STM32 Cube	Programme	er							1	f 🕒 💆 🛧 ភ
≡	Memory	v & File e	edition							Connected
	Device m	emory 9	600121680_TFT_	/1_1.hex × +						ST-LINK V Disconnect
	Address	0x80000	00 💌 Size	0x196F8	Data width	32-bit •	Find Dat	a Ox	Download 💌	ST-LINK configuration
	Ad	dress	0	4	8	c		ASC	п	Port
OB	0x08000	0000	10002000	080194A1	080109E1	0801098	3	jáā	_	swo 👻
	0x08000	010	080109E5	080109E7	080109E9	0000000	00	âç <mark>é</mark>		Frequency (kHz) 24000
CPU	0x08000	020	00000000	00000000	00000000	0801098	в	ē		Mode
=	0x08000	030	080109ED	00000000	080109EF	080109F	1	íñ		Access port
SWV	0x08000	0040	08019523	08019527	0801952B	0801952	F i	#'+/		0
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REG	0x08000	060	08019543	08019547	0801954B	0801954	F (	сGко		Shared Threater C
	0x08000	0070	08019553	08019557	0801955B	0801955	F S	5W[		Debug in Low Power mode
	0x08000	080	08019563	08019567	0801956B	0801956	iF (	cgko		External loader
	0x08000	090	08019573	08019577	0801957B	0801957	F :	5w{		Firmware version V3J3M2
	0x08000	0A0	08019583	08019587	0801958B	0801958	F			Firmware upgrade
	0x08000	0080	08019593	08019597	0801959B	08010C1	D		~	Taxantiafarmatica
					00040510					Board
	14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:38:35 : 14:40:05 : 14:40:05 :	Size : Address Read progres Data read su Time elapsec Read File: \\/ Number of si segment[0]: a	1024 Bytes : 0x800000 ss: uccessfully d during the read of Nb14-11Nbb-desig legments: 1 address= 0x800000	peration is: 00:00:00 Ins\Designs\960012 0, size= 0x196F8	003 1680\Prog\Display	/Navision\960012	1680_TFT_	vilthex		Device STM32F405xx/F407xx/F415x Type MCU Device ID 0x413 Revision ID Rev 20 Flash size 1MB CPU Cortex-M4 Bootloader Version

After successfully programming the TFT display, disconnect the software and the programming adapter and restart the transmitter.