

# Check Unique ID

## Link

<https://www.youtube.com/watch?v=qCuVBD2dmTA&list=PLnMKNibPkDnFzux3PHKUEi14ftDn9Cbm7&index=3>


## Description

In this paperwork, we will do all the steps to quickly get the reference ID of the stm32 nucleo board you are using.

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## Prerequisites



**Security Features by STM32 Series**

STM32 Series	96-Bit Unique ID	FLASH WRP	FLASH PCROP	FLASH RDP	Unique entry point	Secure mem/HDP	MPU	Firewall	Trustzone	OTFDEC	Tamper	TRNG	CRYPT AES	HASH	PKA	CryptoLib	Arm Cortex®
STM32 F0	Available on all devices	Available on all devices		Available on all devices							Available on all devices					Available on all devices	M0
STM32 F1	Available on all devices	Available on all devices		Available on all devices			Available on all devices				Available on all devices					Available on all devices	M3
STM32 F2	Available on all devices	Available on all devices		Available on all devices			Available on all devices				Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M3
STM32 F3	Available on all devices	Available on all devices		Available on all devices			Available on all devices				Available on all devices		Depends on device part number	Depends on device part number		Available on all devices	M4
STM32 F4	Available on all devices	Available on all devices	Depends on device part number	Available on all devices			Available on all devices				Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M4
STM32 F7	Available on all devices	Available on all devices	Depends on device part number	Available on all devices			Available on all devices				Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M7
STM32 L0	Available on all devices	Available on all devices		Available on all devices			Available on all devices	Available on all devices			Available on all devices		Depends on device part number	Depends on device part number		Available on all devices	M0+
STM32 L1	Available on all devices	Available on all devices		Available on all devices			Available on all devices				Available on all devices		Depends on device part number	Depends on device part number		Available on all devices	M3
STM32 L4	Available on all devices	Available on all devices		Available on all devices			Available on all devices	Available on all devices			Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M4
STM32 L5	Available on all devices	Available on all devices		Available on all devices	Depends on device part number	Depends on device part number	Available on all devices		Available on all devices	Available on all devices	Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number	Available on all devices	Available on all devices	M33
STM32 H7	Available on all devices	Available on all devices	Depends on device part number	Available on all devices	Depends on device part number	Depends on device part number	Available on all devices				Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M7/M4
STM32 G0	Available on all devices	Available on all devices		Available on all devices	Depends on device part number	Depends on device part number	Available on all devices				Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M0+
STM32 G4	Available on all devices	Available on all devices		Available on all devices	Depends on device part number	Depends on device part number	Available on all devices				Available on all devices	Depends on device part number	Depends on device part number	Depends on device part number		Available on all devices	M4
STM32 WB	Available on all devices	Available on all devices		Available on all devices			Available on all devices				Available on all devices	Depends on device part number	Depends on device part number		Available on all devices	Available on all devices	M4/M0+

 Available on all devices  
 Depends on device part number

ST logo: **ST** life.augmented

STM32 Board

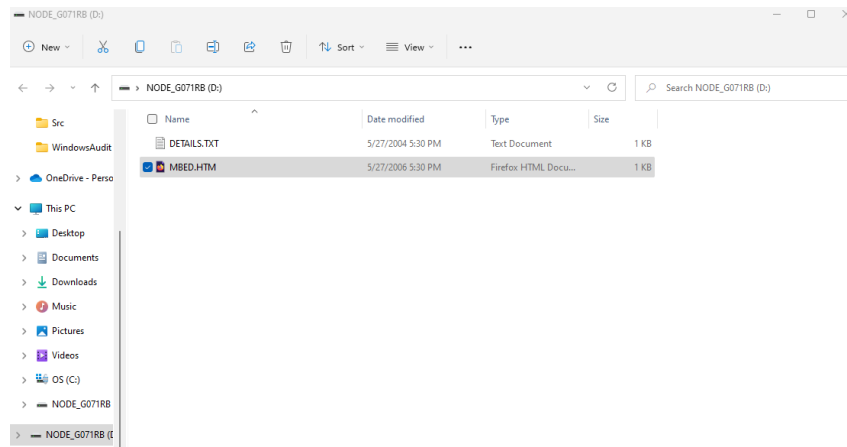
ST-Link cable

STM32CubeProgrammer

## Walkthrough

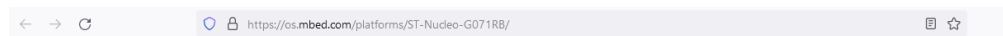
### Step 1 : Open card information

Connect the stm32 board with the ST-Link to the computer. Once it is done you could open the device with the file manager. Once in, you just have to open the HTM File with your browser.



### Step 2 : Go to the card website

When on the page, you scroll till you see the technical references and click to the first link corresponding to the board. This one should be the same that you are using.



## Getting started

### Nucleo ST-LINK/V2 driver installation and firmware upgrade

- Install the ST-LINK/V2 driver before connecting the Nucleo board to your PC the first time. Follow this [LINK](#) for all details.
- For optimum performances, ensure that the Nucleo ST-LINK/V2 firmware is upgraded to the latest version. Follow this [LINK](#) for all details.

## Technical references

For more information, please refer to:

- [MCU STM32G071RB](#) ←
- [Nucleo boards](#)
- [Nucleo-G071RB development board](#)

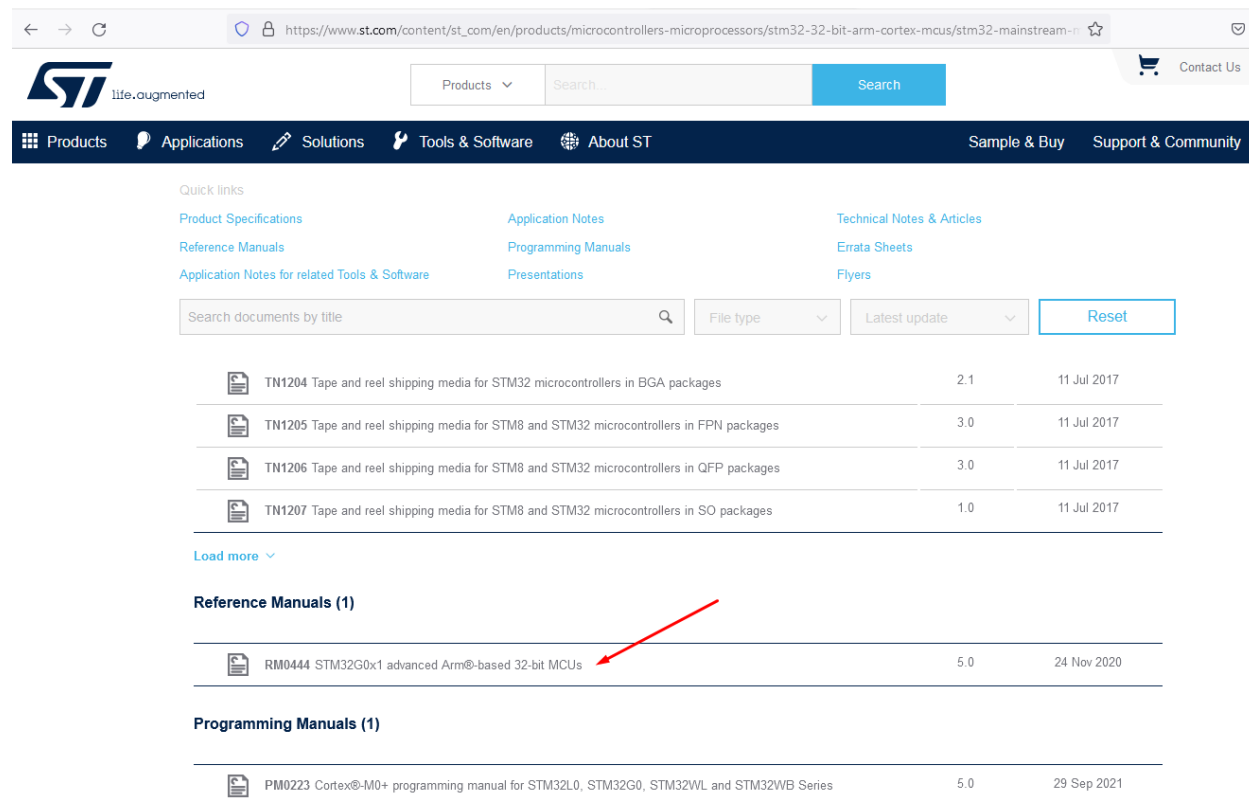
## Example applications

- [mbed-os-example-blinky-baremetal](#)

## Known limitations

### Step 3 : Open the Reference Manual

On the second website, go to the documentation and download the Reference Manual of the board. This is in this document that we will get the address reference of our id.



Quick links

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- Application Notes
- Programming Manuals
- Presentations
- Technical Notes & Articles
- Errata Sheets
- Flyers

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File type

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Reset

TN1204 Tape and reel shipping media for STM32 microcontrollers in BGA packages	2.1	11 Jul 2017
TN1205 Tape and reel shipping media for STM8 and STM32 microcontrollers in FPN packages	3.0	11 Jul 2017
TN1206 Tape and reel shipping media for STM8 and STM32 microcontrollers in QFP packages	3.0	11 Jul 2017
TN1207 Tape and reel shipping media for STM8 and STM32 microcontrollers in SO packages	1.0	11 Jul 2017

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**Reference Manuals (1)**

RM0444 STM32G0x1 advanced Arm®-based 32-bit MCUs	5.0	24 Nov 2020
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**Programming Manuals (1)**

PM0223 Cortex®-M0+ programming manual for STM32L0, STM32G0, STM32WL and STM32WB Series	5.0	29 Sep 2021
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## Step 4 : Find the unique ID section

Once it is downloaded, just search for the word “unique” in your PDF and you will get to the “Unique device id” section. Here you will have everything needed to find the address on the STM32CubeProgrammer.

### 41.1 Unique device ID register (96 bits)

The unique device identifier is ideally suited:

- for use as serial numbers (for example USB string serial numbers or other end applications)
- for use as part of the security keys in order to increase the security of code in Flash memory while using and combining this unique ID with software cryptographic primitives and protocols before programming the internal Flash memory
- to activate secure boot processes, etc.

The 96-bit unique device identifier provides a reference number which is unique for any device and in any context. These bits cannot be altered by the user.

Base address: 0x1FFF 7590

Address offset: 0x00

Read only = 0xFFFF XXXX where X is factory-programmed

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
UID[31:16]															
r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
UID[15:0]															
r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r

Bits 31:0 UID[31:0]: X and Y coordinates on the wafer expressed in BCD format

Address offset: 0x04

Read only = 0xFFFF XXXX where X is factory-programmed

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
UID[63:48]															
r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
UID[47:32]															
r	r	r	r	r	r	r	r	r	r	r	r	r	r	r	r

## Step 5 : Display the address content

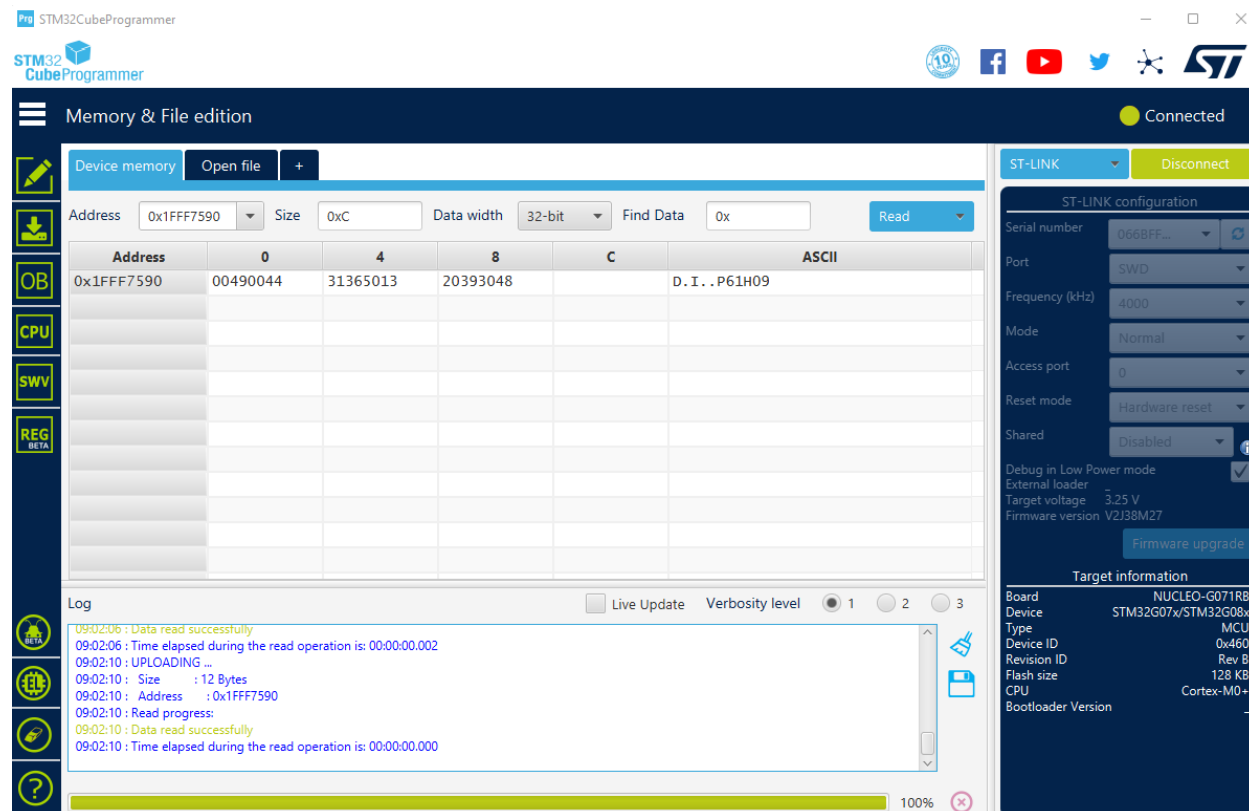
Launch STM32CubeProgrammer. On it you will just connect with your STM32 board, and then you could set the same parameters than the manual.

In this case I used :

Address : 0x1FFF7590 (address where to start display)

Size : 0xC (which will display 12 bytes)

Data width : 32bits (which will divide the result in 32 bits parts)



The screenshot shows the STM32CubeProgrammer interface. The 'Memory & File edition' tab is active. The 'Device memory' section shows a table of memory data. The 'Find Data' field is set to '0x'. The 'Read' button is visible. The 'Log' window at the bottom shows the following messages:

```

09:02:06 : Data read successfully
09:02:06 : Time elapsed during the read operation is: 00:00:00.002
09:02:10 : UPLOADING ...
09:02:10 : Size : 12 Bytes
09:02:10 : Address : 0x1FFF7590
09:02:10 : Read progress:
09:02:10 : Data read successfully
09:02:10 : Time elapsed during the read operation is: 00:00:00.000
  
```

The 'ST-LINK configuration' panel on the right shows the following settings:

- Serial number: 0060FF...
- Port: SWD
- Frequency (kHz): 4000
- Mode: Normal
- Access port: 0
- Reset mode: Hardware reset
- Shared: Disabled
- Debug in Low Power mode: ☒
- External loader: ☒
- Target voltage: 3.25 V
- Firmware version: V2J38M27
- Firmware upgrade: [Firmware upgrade](#)

The 'Target information' panel on the right shows the following details:

- Board: NUCLEO-G071RB
- Device: STM32G07x/STM32G08x
- Type: MCU
- Device ID: 0x460
- Revision ID: Rev B
- Flash size: 128 KB
- CPU: Cortex-M0+
- Bootloader Version: -

We can finally see our ID in ascii : D.I..P61H09.