

Firmware Update

From time to time Vescent will issue new releases of firmware for the SLICE products. Below are instructions on upgrading the SLICE firmware. Please follow these instructions carefully.

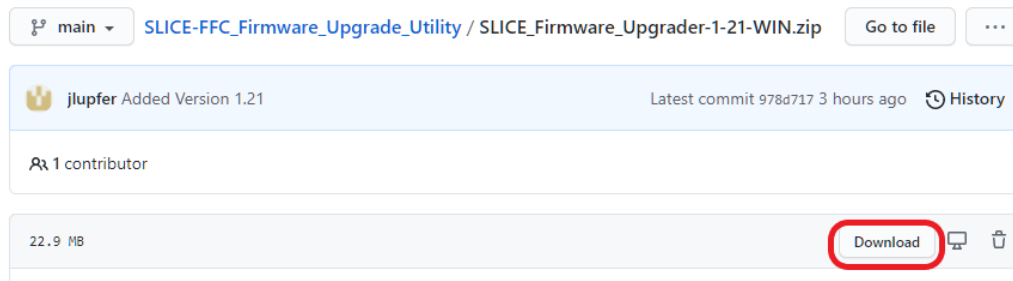
NOTE: The Firmware Upgrade Utility requires a Windows 10 PC with an available USB port and a connection to the internet.



For SLICE-QT firmware versions 1.38 and lower, updating the firmware will reset all stored parameters (PID loop parameters, etc.). Before beginning a firmware update, manually record all settings for all channels. Versions 1.50 and higher will automatically store this information.

1. From [SLICE-FFC Firmware Upgrade Utility/SLICE Firmware Upgrader-1-21-WIN.zip at main · Vescent/SLICE-FFC Firmware Upgrade Utility \(github.com\)](#)

Select Download and save **SLICE_Firmware_Upgrader-1-21-WIN.zip** to your PC



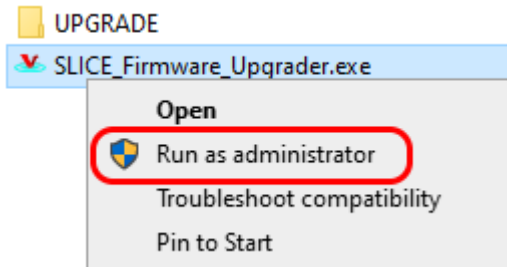
2. Unzip **SLICE_Firmware_Upgrader-1-21-WIN.zip** to a location of your choice on your PC.
3. Connect a USB cable (type B) from the back of the SLICE unit to your PC
4. Power On the SLICE
5. Open Windows File Explorer and navigate to the folder where the **SLICE_Firmware_Upgrader-x-xx-WIN.exe** file was placed earlier

6. Launch the **SLICE_Firmware_Upgrader-x-xx-WIN.exe** application.



Note: The first time the upgrade utility is run, it needs to install a driver library to communicate with the SLICE in the Upgrade Mode.

Therefore, the **SLICE_Firmware_Upgrader-x-xx-WIN.exe** application must be launched as **administrator**.



Subsequent operation of the **SLICE_Firmware_Upgrader-x-xx-WIN.exe** application can be launched in regular user mode by simply double clicking on the filename in Windows File Explorer.

7. Follow the prompts in **SLICE_Firmware_Upgrader-x-xx-WIN** application to complete the upgrade process.



Please follow firmware update instructions carefully.

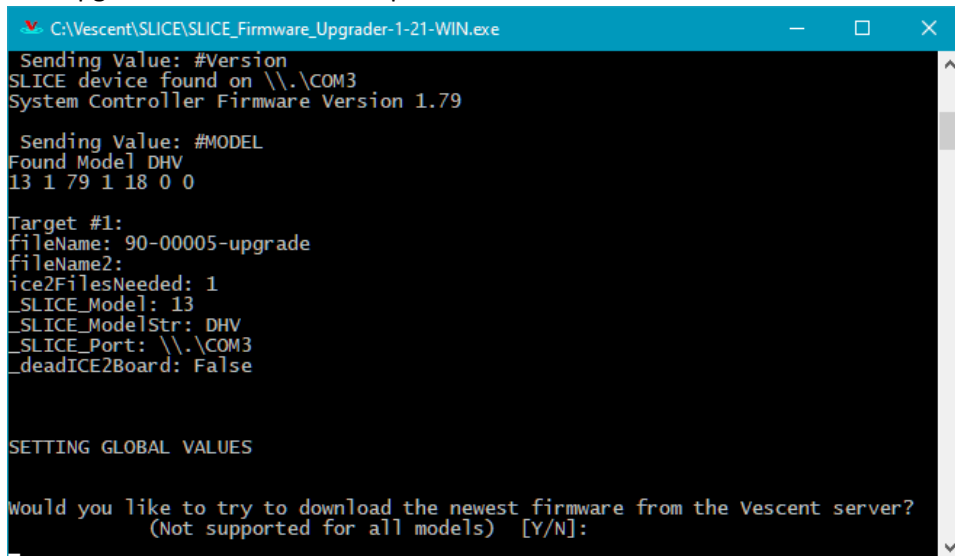
During the upgrade, do not turn off, disconnect, or unplug the SLICE.

```
C:\Vescent\SLICE\SLICE_Firmware_Upgrader-1-21-WIN.exe

***** Vescent SLICE FIRMWARE UPGRADE UTILITY VER 1.21 *****
This program will update the firmware in the Vescent SLICE product.
The SLICE must be POWERED ON and connected to this PC with the USB cable.
The SLICE will restart multiple times during this process.
Wait until this program completes before attempting to use the SLICE.
*****
Choose an option:
  1) Press 'U' to continue with the Firmware Upgrade normally
  2) Press 'R' to enter RECOVERY MODE (SLICE won't boot)
  3) Press 'Q' to Exit
_
```

Select 'U' to do a normal upgrade.

1. The Upgrader will scan the com ports on the PC to find the attached SLICE device(s).



```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-21-WIN.exe
Sending Value: #Version
SLICE device found on \\.\COM3
System Controller Firmware Version 1.79

Sending Value: #MODEL
Found Model DHV
13 1 79 1 18 0 0

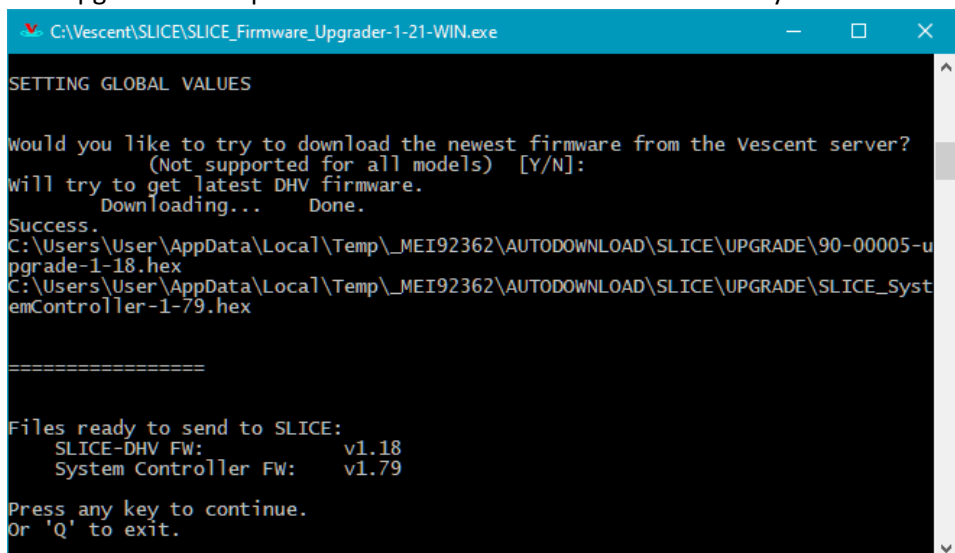
Target #1:
fileName: 90-00005-upgrade
fileName2:
ice2FilesNeeded: 1
_SLICE_Model: 13
_SLICE_ModelStr: DHV
_SLICE_Port: \\.\COM3
_deadICE2Board: False

SETTING GLOBAL VALUES

Would you like to try to download the newest firmware from the Vescent server?
(Not supported for all models) [Y/N]:
```

Select 'Y' to have the Upgrader download the latest released firmware for your device.

2. The Upgrader will report the firmware versions downloaded for your device



```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-21-WIN.exe

SETTING GLOBAL VALUES

Would you like to try to download the newest firmware from the Vescent server?
(Not supported for all models) [Y/N]:
Will try to get latest DHV firmware.
Downloading... Done.
Success.
C:\Users\User\AppData\Local\Temp\_MEI92362\AUTODOWNLOAD\SLICE\UPGRADE\90-00005-upgrade-1-18.hex
C:\Users\User\AppData\Local\Temp\_MEI92362\AUTODOWNLOAD\SLICE\UPGRADE\SLICE_SystemController-1-79.hex

=====

Files ready to send to SLICE:
SLICE-DHV FW: v1.18
System Controller FW: v1.79

Press any key to continue.
Or 'Q' to exit.
```

Press any key to continue.

3. Depending on the current firmware in the SLICE, it may present the following instruction screen.

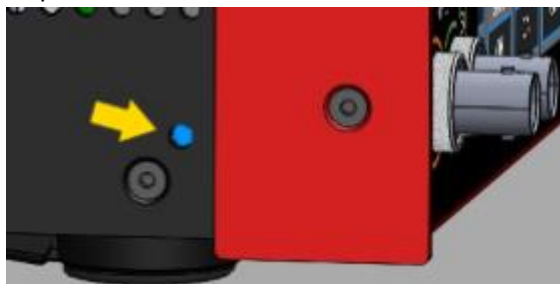
```
C:\Vescent\SLICE\SLICE_Firmware_Updater.exe
Press any key to continue or 'Q' to Exit
Discovered Port \\.\COM1
Sending Value: #Version
Discovered Port \\.\COM3
Sending Value: #Version
SLICE device found on \\.\COM3
System Controller Firmware Version 1.176

Sending Value: #MODEL
Found Model QTC
11 1 176 1 50 0 0

C:/Vescent/SLICE/UPGRADE/90-00001-upgrade-1-50.hex
C:/Vescent/SLICE/UPGRADE/SystemController-1-176_QTC_Legacy5.dfu
*****
1) Power off the SLICE
2) Depress and hold the blue button in the hole on the left side of the SLICE
3) While holding the button, power on the SLICE
4) When the SLICE is powered on and has a completely
   white screen, release the blue button
*****
5) Press Any Key to continue 'Q' to exit
```

Before continuing:

- i Power off the SLICE
- ii Depress and hold the blue button on in the hole on the left side of the SLICE



- iii While holding the button, power on the SLICE
 - iv When the SLICE is powered on and has a completely white screen, release the blue button.
 - v Press Any Key to continue the process
4. Driver Installation (Only occurs on the first upgrade performed a particular PC):
If this screen message appears, press Any Key to exit. Power Cycle the SLICE and restart the **SLICE_Firmware_Updater-x-xx-WIN.exe** application in Administrator Mode.

```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-10-WIN.exe
*****
Press any key to continue or 'Q' to Exit
Discovered Port \\.\COM1
Sending Value: #Version
Discovered Port \\.\COM3
Sending Value: #Version
SLICE device found on \\.\COM3
System Controller Firmware Version 2.2

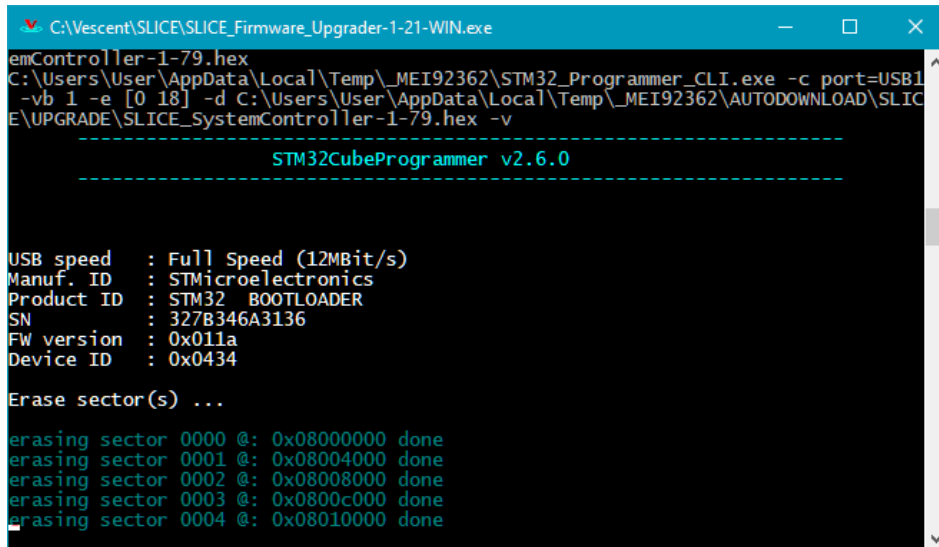
Sending Value: #MODEL
Found Model QTC
11 2 2 2 27 0 0

C:/Vescent/SLICE/UPGRADE/90-00001-upgrade-2-27.hex
Sending Value: #_DFU
Scanning Devices
.....
Driver Installation is Needed.

Please power cycle the SLICE and re-launch this Upgrader in Administrator Mode.

Press any key to Exit
```

5. Once the driver is installed, the upgrade process will continue.
6. The System Controller firmware will be upgraded First
DO NOT turn off power on the SLICE or touch the touchscreen during this process.



```

C:\Vescent\SLICE\SLICE_Firmware_Updater-1-21-WIN.exe
emController-1-79.hex
C:\Users\User\AppData\Local\Temp\_MEI92362\STM32_Programmer_CLI.exe -c port=USB1
-vb 1 -e [0 18] -d C:\Users\User\AppData\Local\Temp\_MEI92362\AUTODOWNLOAD\SLICE\UPGRADE\SLICE_SystemController-1-79.hex -v

-----
STM32CubeProgrammer v2.6.0
-----

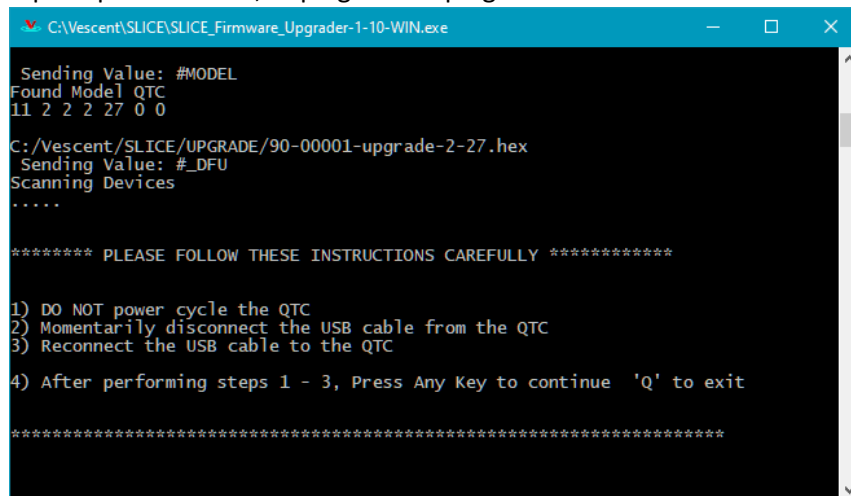
USB speed   : Full Speed (12MBit/s)
Manuf. ID   : STMicroelectronics
Product ID  : STM32 BOOTLOADER
SN          : 327B346A3136
FW version  : 0x011a
Device ID   : 0x0434

Erase sector(s) ...
erasing sector 0000 @: 0x08000000 done
erasing sector 0001 @: 0x08004000 done
erasing sector 0002 @: 0x08008000 done
erasing sector 0003 @: 0x0800c000 done
erasing sector 0004 @: 0x08010000 done
  
```



NOTE: Some Windows 10 PCs may exhibit behavior that will require additional steps.

- i If prompted to do so, unplug then replug the USB cable.



```

C:\Vescent\SLICE\SLICE_Firmware_Updater-1-10-WIN.exe

Sending Value: #MODEL
Found Model QTC
11 2 2 2 27 0 0

C:\Vescent\SLICE\UPGRADE\90-00001-upgrade-2-27.hex
Sending Value: #DFU
Scanning Devices
.....

***** PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY *****

1) DO NOT power cycle the QTC
2) Momentarily disconnect the USB cable from the QTC
3) Reconnect the USB cable to the QTC
4) After performing steps 1 - 3, Press Any Key to continue 'Q' to exit

*****
  
```

- ii If prompted to do so, power cycle the SLICE

```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-10-WIN.exe
C:\Users\JOE~1\LUP\AppData\Local\Temp\_MEI158322\STM32_Programmer_CLI.exe -c port=USB1 -vb 1 -s

-----
STM32CubeProgrammer v2.7.0
-----

USB speed : Full Speed (12MBit/s)
Manuf. ID : STMicroelectronics
Product ID : STM32 BOOTLOADER
SN : 315A35723338
FW version : 0x011a
Device ID : 0x0434
Return Code: 3221225477

***** PLEASE FOLLOW THESE INSTRUCTIONS CAREFULLY *****

1) Power Cycle the QTC
2) Wait until the Vescent Splash Screen appears on the display
3) Press Any Key to continue 'Q' to exit

*****
```

7. When the System Controller Firmware upgrade finishes, the SLICE will Reboot.
DO NOT cycle power on the SLICE or touch the touchscreen during this process.

```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-21-WIN.exe

Download verified successfully

C:\Users\User\AppData\Local\Temp\_MEI92362\STM32_Programmer_CLI.exe -c port=USB1
-vb 1 -s

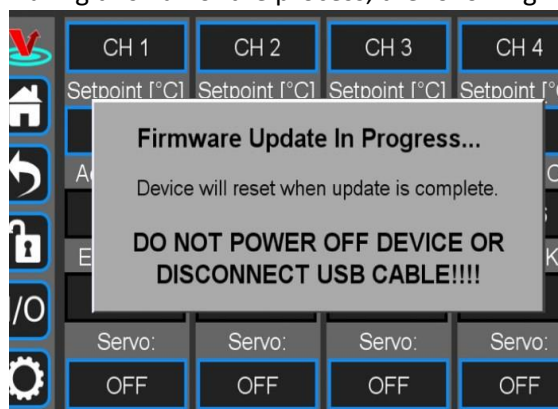
-----
STM32CubeProgrammer v2.6.0
-----

USB speed : Full Speed (12MBit/s)
Manuf. ID : STMicroelectronics
Product ID : STM32 BOOTLOADER
SN : 327B346A3136
FW version : 0x011a
Device ID : 0x0434

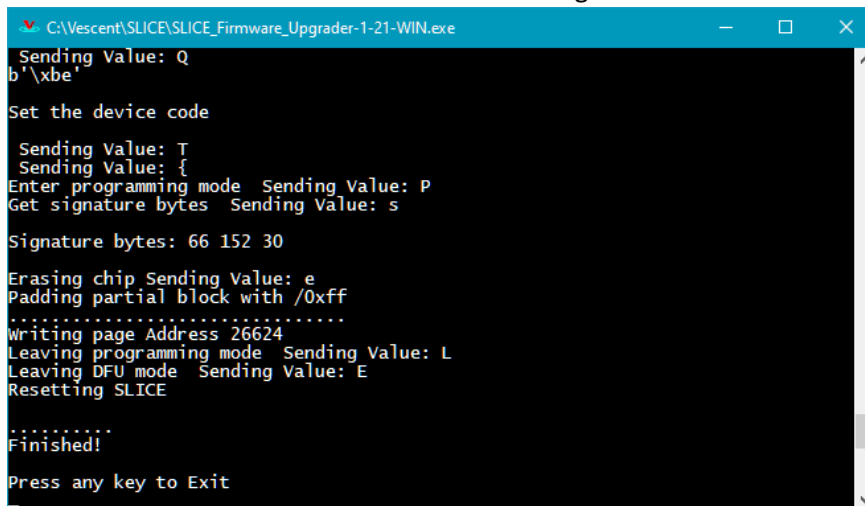
RUNNING Program ...
Address: : 0x8000000
Start operation achieved successfully
Return Code: 0

Restarting DHV Please Wait....
```

During this half of the process, the following message will appear on the SLICE touchscreen.



8. The Upgrade is finished when the **SLICE_Firmware_Updater-x-xx-WIN** application restarts the device for the final time and shows the following screen

A screenshot of a Windows command prompt window titled "C:\Vescent\SLICE\SLICE_Firmware_Updater-1-21-WIN.exe". The window has a black background with white text. The text shows the progression of a firmware upgrade, including sending values, setting device code, entering programming mode, getting signature bytes, erasing the chip, padding blocks, writing pages, leaving programming and DFU modes, and finally resetting the SLICE. The process ends with "Finished!" and a prompt to "Press any key to Exit".

```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-21-WIN.exe
Sending Value: Q
b'\xbe'

Set the device code

Sending Value: T
Sending Value: {
Enter programming mode Sending Value: P
Get signature bytes Sending Value: s

Signature bytes: 66 152 30

Erasing chip Sending Value: e
Padding partial block with /0xff
.....
Writing page Address 26624
Leaving programming mode Sending Value: L
Leaving DFU mode Sending Value: E
Resetting SLICE

.....
Finished!

Press any key to Exit
```

9. Troubleshooting:
- Some USB ports will not work with the upgrade utility. If the upgrader repeatedly fails, try connect it directly to a USB port on the PC bypassing any hubs or docking stations.