

## 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.

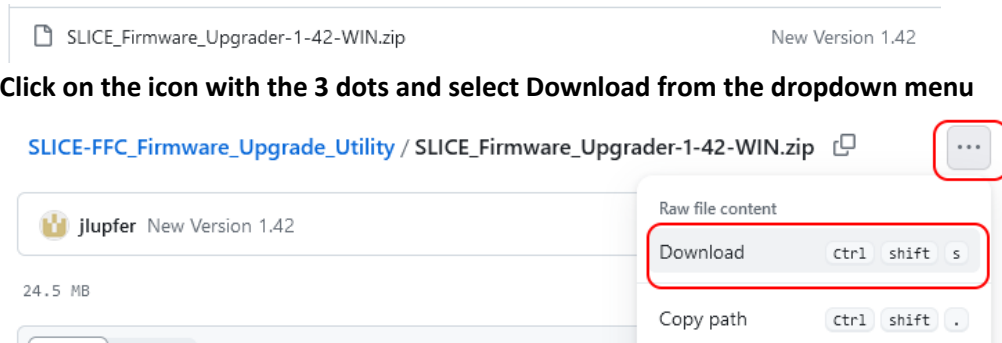
**NOTE: The Firmware Upgrade Utility requires a Windows 10 PC with an available USB port and a connection to the internet.**



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/ at main · Vescent/SLICE-FFC Firmware Upgrade Utility \(github.com\)](https://github.com/Vescent/SLICE-FFC_Firmware_Upgrade_UTILITY)

Left click on **SLICE\_Firmware\_Upgrader-1-42-WIN.zip**.



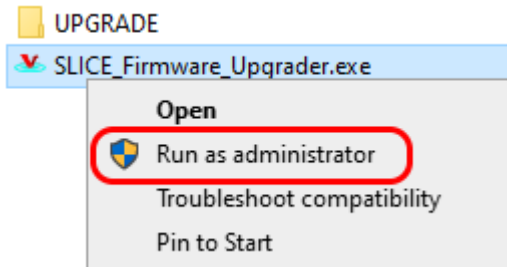
2. Unzip **SLICE\_Firmware\_Upgrader-1-42-WIN.zip** to a location of your choice on your PC.
3. Connect a USB cable (type B) from the back of the SLICE unit to your PC
4. Power On the SLICE
5. Open Windows File Explorer and navigate to the folder where the **SLICE\_Firmware\_Upgrader-1-42-WIN.exe** file was placed earlier

6. Launch the **SLICE\_Firmware\_Upgrader-x-xx-WIN.exe** application.



**Note:** The first time the upgrade utility is run, it may need 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.

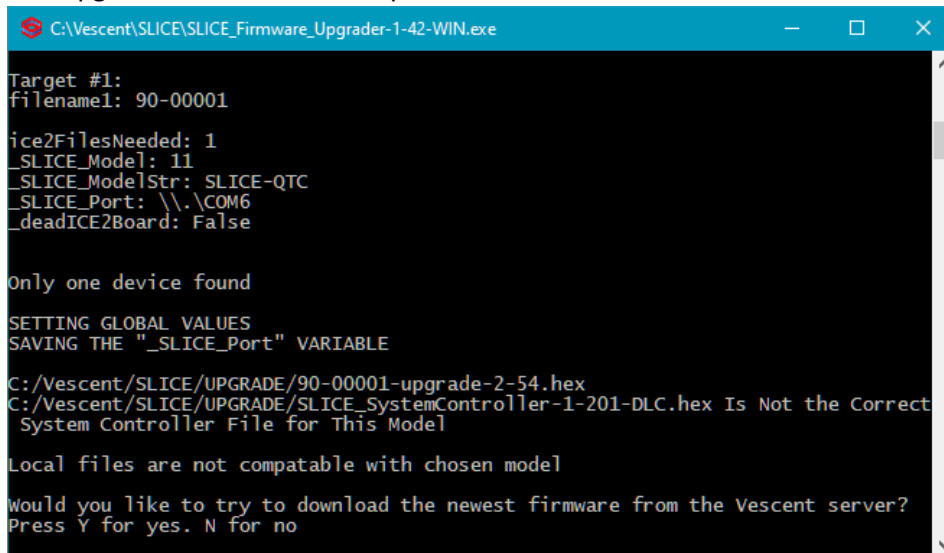
During the upgrade, do not turn off, disconnect, or unplug the SLICE.

```
C:\Vescent\SLICE\SLICE_Firmware_Upgrader-1-42-WIN.exe

***** Vescent SLICE FIRMWARE UPGRADE UTILITY VER 1.42 *****
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_Upgrader-1-42-WIN.exe

Target #1:
filename1: 90-00001

ice2FilesNeeded: 1
_SLICE_Model: 11
_SLICE_ModelStr: SLICE-QTC
_SLICE_Port: \\.\COM6
_deadICE2Board: False

Only one device found

SETTING GLOBAL VALUES
SAVING THE "_SLICE_Port" VARIABLE

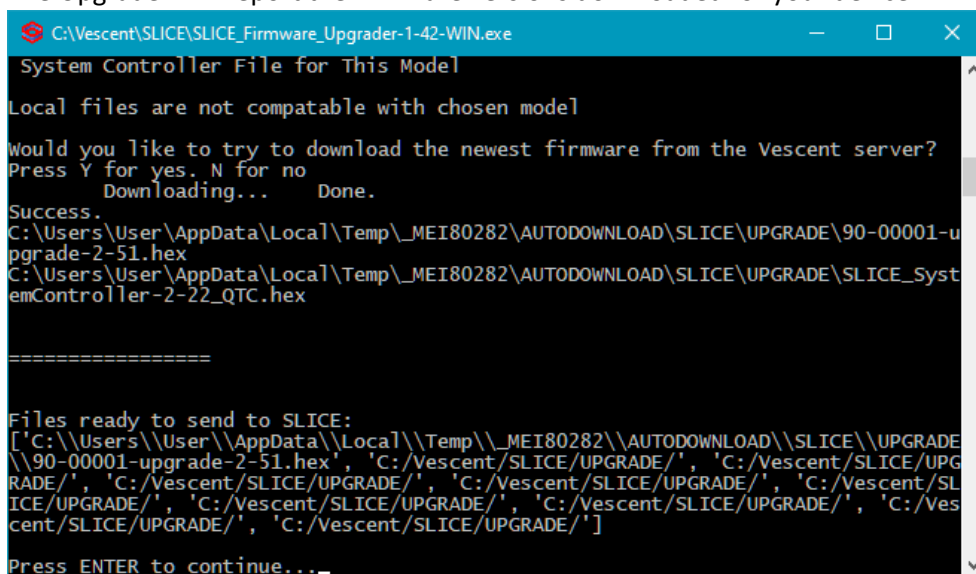
C:/Vescent/SLICE/UPGRADE/90-00001-upgrade-2-54.hex
C:/Vescent/SLICE/UPGRADE/SLICE_SystemController-1-201-DLC.hex Is Not the Correct
System Controller File for This Model

Local files are not compatable with chosen model

Would you like to try to download the newest firmware from the Vescent server?
Press Y for yes. N for no
```

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_Upgrader-1-42-WIN.exe

System Controller File for This Model

Local files are not compatable with chosen model

Would you like to try to download the newest firmware from the Vescent server?
Press Y for yes. N for no
    Downloading...    Done.

Success.
C:\Users\User\AppData\Local\Temp\_MEI80282\AUTODOWNLOAD\SLICE\UPGRADE\90-00001-upgrade-2-51.hex
C:\Users\User\AppData\Local\Temp\_MEI80282\AUTODOWNLOAD\SLICE\UPGRADE\SLICE_SystemController-2-22_QTC.hex

=====

Files ready to send to SLICE:
['C:\\Users\\User\\AppData\\Local\\Temp\\_MEI80282\\AUTODOWNLOAD\\SLICE\\UPGRADE\\90-00001-upgrade-2-51.hex', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/', 'C:/Vescent/SLICE/UPGRADE/']

Press ENTER to continue...
```

Press any <Enter> to continue.

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

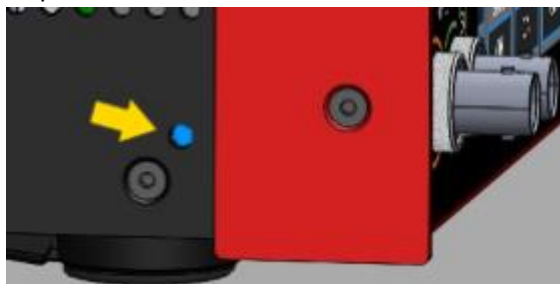
```
C:\Vescent\SLICE\SLICE_Firmware_Updater.exe
Press any key to continue or 'Q' to Exit
Discovered Port \\.\COM1
Sending Value: #Version
Discovered Port \\.\COM3
Sending Value: #Version
SLICE device found on \\.\COM3
System Controller Firmware Version 1.176

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

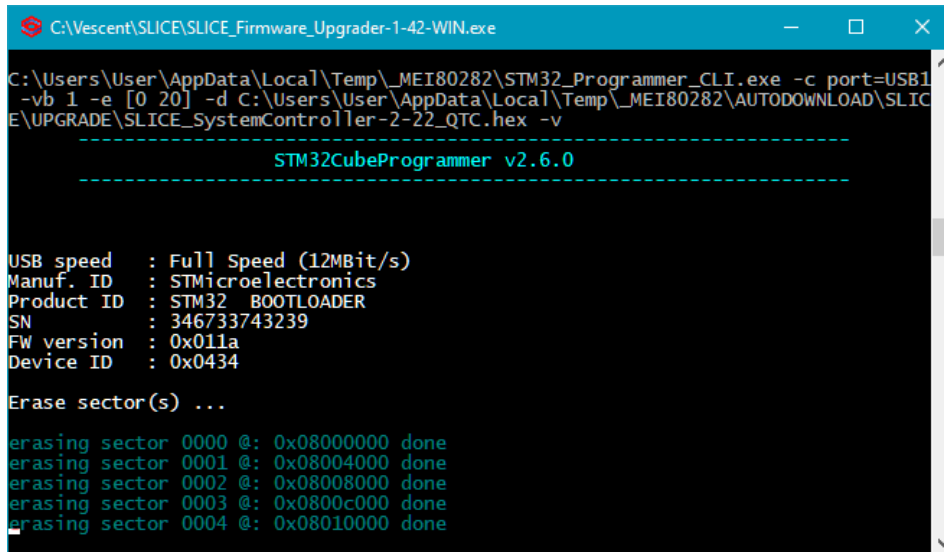
Sending Value: #MODEL
Found Model QTC
11 2 2 2 27 0 0

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:\Users\User\AppData\Local\Temp\_MEI80282\STM32_Programmer_CLI.exe -c port=USB1
-vb 1 -e [0 20] -d C:\Users\User\AppData\Local\Temp\_MEI80282\AUTODOWNLOAD\SLICE\UPGRADE\SLICE_SystemController-2-22_QTC.hex -v

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

USB speed      : Full Speed (12MBit/s)
Manuf. ID     : STMicroelectronics
Product ID    : STM32 BOOTLOADER
SN            : 346733743239
FW version    : 0x011a
Device ID     : 0x0434

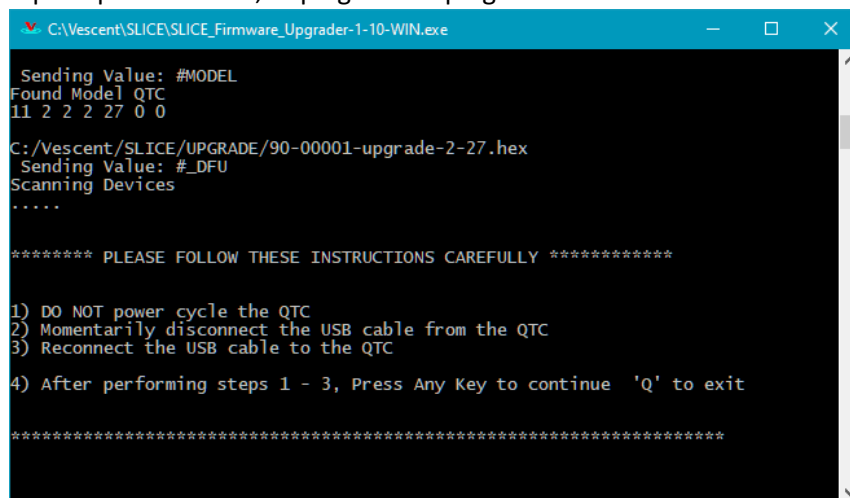
Erase sector(s) ...

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 : STMicreoelectronics
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-1-42-WIN.exe
-vb 1 -s

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

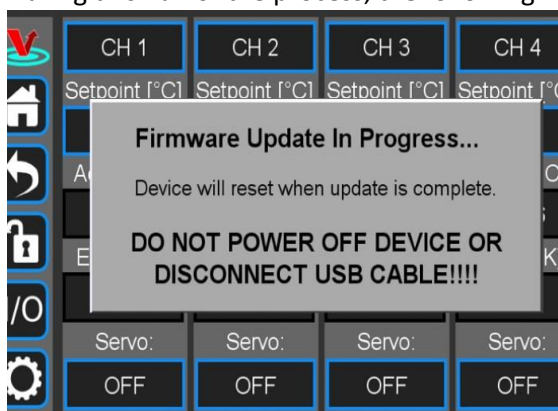
USB speed : Full Speed (12MBit/s)
Manuf. ID : STMicreoelectronics
Product ID : STM32 BOOTLOADER
SN : 346733743239
FW version : 0x011a
Device ID : 0x0434

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

Restarting SLICE-QTC Please WaitOnly one device found

SETTING GLOBAL VALUES
SAVING THE "_SLICE_Port" VARIABLE
*****
```

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

```
C:\Vescent\SLICE\SLICE_Firmware_Updater-1-42-WIN.exe
```

```
Sending Value: T  
Sending Value: {  
Enter programming mode Sending Value: P  
Get signature bytes Sending Value: s  
  
Signature bytes: 0X4C 0X97 0X1E  
  
Erasing chip Sending Value: e  
Padding partial block with /0xff  
.....  
.....  
.....  
.....  
.....  
Writing page Address 64512  
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.