

## Quick-Start guide firmware flashing to C5 Hardware and OpenXC Firmware

### Windows:

1. Download OpenXC installation package [here](#).  
(**Note:** If you have a clone of vi-firmware from GitHub, this package is included and is located in /docs/\_static/)
2. Create a folder on your computer and extract the package.
3. Put the hex file that you want to flash in this new folder as well. You can [build your own](#) firmware or obtain one for [supported vehicles](#).
4. Copy "libusb0.dll" to c:\Windows\SysWOW64 for 64-bit Windows, or c:\Windows\system32 for 32-bit Windows
5. Copy "libusb0.sys" to c:\Windows\system32\drivers
6. Connect the C5 to your computer via USB cable, the USB bootloader will run for about 5 seconds (blinking red and solid blue lights).
7. While the USB bootloader is running (first 5 seconds after power-up), use Device Manager to manually install the provided driver file "stk500v2.inf" (note that Windows 8 will indicate the file has not been signed – ignore this message).
8. Open a command prompt window and navigate to the folder that you created in step number 2.
9. Disconnect and re-connect the OpenXC device.
10. Within 5 seconds of connecting the device, run avrdude using "**avrdude.exe -U flash:w:<HEX> -c stk500 -p 32MX795F512L -C avrdude.conf -P COM<n>**", where <HEX> is the name of your firmware file (that you copied into the folder) and <n> is the com port number for the OpenXC device (you can use Device Manager to check this).
- 10b. Alternatively, a batch script is included to that allows you to input the firmware filename and com port then flash the device. Double click on flashDevice.bat and follow the prompts.
11. After flashing is complete, power cycle the device and initialize the [RTC](#) via the Python command (\$ **openxc-control set --time 1461545558**), but using the [current UNIX time](#).
12. Enjoy!

### MAC / Linux:

1. Download OpenXC installation package [here](#).  
(**Note:** If you have a clone of vi-firmware from GitHub, this package is included and is located in /docs/\_static/)
2. Create a folder on your computer and extract the package.
3. Put the hex file that you want to flash in this new folder as well. You can [build your own](#) firmware or obtain one for [supported vehicles](#).
4. Install avrdude – the command line tool to flash firmware onto the OpenXC device. To install avrdude:
  - a. Navigate to the **avrdude-5.10** folder in installation package directory.
  - b. From within the **avrdude-5.10** folder, run the following commands:
    - i. \$ **./configure**
    - ii. \$ **make**
    - iii. \$ **sudo make install**
  - c. avrdude version 5.10 should be installed



5. Connect the C5 to your computer via USB cable, the USB bootloader will run for about 5 seconds (blinking red and solid blue lights).
6. Open a command line window and identify which device is plugged in by searching through the output of "`$ ls /dev/tty.usb*`". The device should appear as something similar to `/dev/tty.usbmodem1421`.
7. Disconnect and re-connect the OpenXC device.
8. Within 5 seconds of connecting the device, run avrdude using "`avrdude -U flash:w:<HEX> -c stk500 -p 32MX795F512L -C avrdude.conf -P <id>`", where <HEX> is the name of your firmware file (that you copied into the folder) and <id> is the OpenXC device such as `/dev/tty.usbmodem1421`".
- 8b. Alternatively, a shell script is included to that allows you to input the firmware filename and device location (<id>) then flash the device. Double click on flashDevice.command or run flashDevice.sh in a shell and follow the prompts.
9. After flashing is complete, power cycle the device and initialize the [RTC](#) via the Python command (`$ openxc-control set --time 1461545558`), but using the [current UNIX time](#).
10. Enjoy!