

# Loading Caveatron Firmware

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## Software Required:

- **TyCommander or TyUploader** – GUI portions of the open source TyTools, a small lightweight set of applications for interfacing with a Teensy processor and loading pre-compiled firmware without needing the full Arduino/Teensyduino IDE. Precompiled versions TyTools for Windows and Mac can be found on Github here:

<https://github.com/Koromix/tytools/releases>

An instruction page can be found here:

<https://koromix.dev/tytools>

**OR**

**Teensy Loader** – The official tool from PJRC who produces the Teensy, It is more reliable but not as flexible as TyTools. It can be downloaded here:

<https://www.pjrc.com/teensy/teensy.exe>

An instruction page can be found here:

[https://www.pjrc.com/teensy/loader\\_win10.html](https://www.pjrc.com/teensy/loader_win10.html)

- **Caveatron\_v3xx.hex** – The Caveatron firmware file to load. This is provided on Github as a .zip file and must be unzipped first.

## Additional for Windows 7 & 8:

- **serial\_install.exe** – This installs the driver to communicate with the Teensy Board. This is not required for Windows 10 or Mac OS which recognize the Teensy natively. This installer can be found on the official PJRC Teensy site here:

[http://www.pjrc.com/teensy/serial\\_install.exe](http://www.pjrc.com/teensy/serial_install.exe)

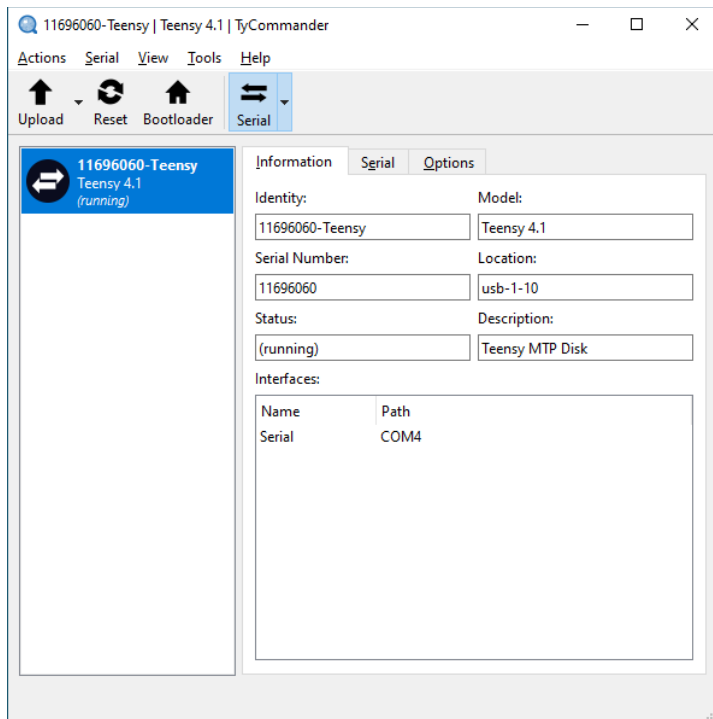
## Instructions (TyCommander)

1 (Windows 7 & 8 only): Install Teensy drivers by running serial\_install.exe. (Note: After the install appears to complete successfully in Windows 7 a Windows error message may appear stating that the drivers had a problem and need to be reinstalled. This message can be ignored.)

2: Install TyTools

3: Connect the Caveatron (or the Teensy board directly) and power it on. (Note: On Windows 7, after plugging in the Caveatron and Windows trying to load the driver, a message indicated that the drivers did not install correctly. This can be ignored. You can verify that the driver is in fact loaded by going to Windows Device Manager -> Ports (COM & LPT) and verifying that there is an entry for "Teensy USB Serial (COMxx)" – this will only appear if the Caveatron is connected and powered on.)

4: Run TyCommander. It will automatically connect to the Caveatron/Teensy and you will see a screen like the one below if it connected successfully. If the area to the left is blank and does not show a Teensy board, it did not connect. Note that you have to have the Caveatron powered on and connected before running TyCommander. If the icon on the left side for the Teensy board does not show the black arrow icon shown in the screenshot, do not try to load the firmware.



Programming Button

- 5: Press the Upload button at the top left of the window and a dialog will appear to select the "Caveatron\_vxxx.hex" file to upload.
- 6: Upload should proceed and then the Caveatron should automatically reboot. If it does not or only partially completes, try pressing the reset button on the top of the Teensy board (or try again).
- 7: Verify on the Caveatron that the new firmware is loaded and then you are done.

### Instructions (Teensy Loader)

- 1: Download and unzip Teensy Loader (Teensy.exe)
- 2: Connect the Caveatron (or the Teensy board directly) and power it on. (Note: On Windows 7 and 8 you will have to perform the driver install described in the TyCommander section above.)
- 3: Run Teensy Loader. It does not provide any indication if a Teensy is detected.
- 4: In the menu select File->Open HEX File and choose the "Caveatron\_vxxx.hex" file to upload. The name of the selected file appears at the bottom of the Teensy Loader window.
- 5: If the center buttons at the top are visible, you can upload the file but pressing the program button (2<sup>nd</sup> from left). Otherwise, press the button on top of the Teensy to upload the file.
- 6: Verify on the Caveatron that the new firmware is loaded and then you are done.

