How to Remove Developer Lock on Chromebooks

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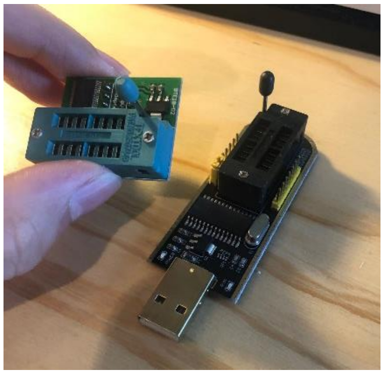
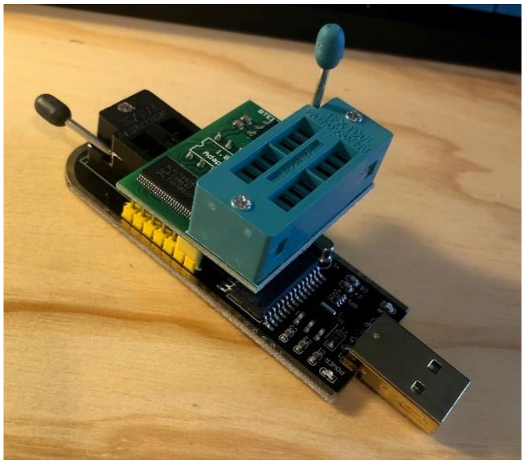
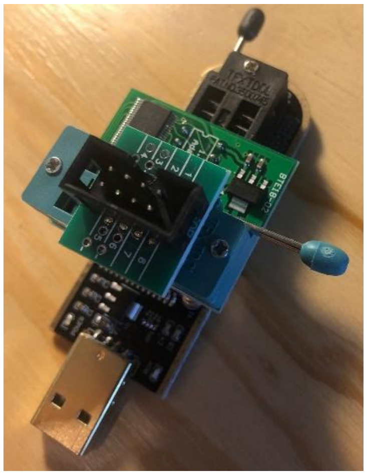
1. Materials Needed
    a. USB Flash Chip Programmer https://www.amazon.com/gp/product/B07T61DXFK/ref=ppx_yo_dt_b_asin_title_o06_s00?ie=UTF8&psc=1
    b. 1.8V Adapter for programmer https://www.amazon.com/gp/product/B072KYK2DR/ref=ppx_yo_dt_b_asin_title_o06_s00?ie=UTF8&psc=1
    c. Computer with Ubuntu Linux installed (tutorial to install Ubuntu https://tutorials.ubuntu.com/tutorial/tutorial-create-a-usb-stick-on-windows#0)
2. Follow Unbricking tutorial (https://wiki.mrchromebox.tech/Unbricking)
    a. Ensure USB Programmer is configured correctly
        i. Start with the USB and the blue "1.8V adapter" (shown to the right). Make sure the black lever on the usb is flipped up, and then insert the pins on the blue adapter into the black slots closest to the USB connector as shown to the left. Then push the black lever down to lock the connector in place.



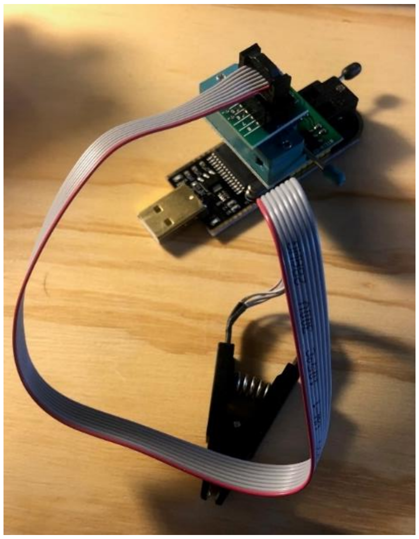


ii. Next, insert the “chip clip” connector piece (shown on the right). Ensure the blue lever is lifted up, then insert the connector into the 1.8V adapter, making sure that pin 1 on the connector lines up with pin 1 on the 1.8V adapter. Then, push the blue lever down to secure the connector in place. When correctly configured, the clip will be held in place.



iii. Locate the “Chip clip cable”, and connect it to the adapter pins. It only inserts into the connector in one direction.

iv. This is the final configuration of the “USB Programmer”. Please take note that one of the wires on the chip clip cable is red. This identifies which pin is Pin 1 (this is important later).



b. Download “Flashrom” software on Ubuntu Computer

i. The designer of the “Unbricking tutorial” has made a custom version of flashrom available for chromebook flashing purposes.

ii. Open terminal on the Ubuntu computer

iii. Type in the following commands:

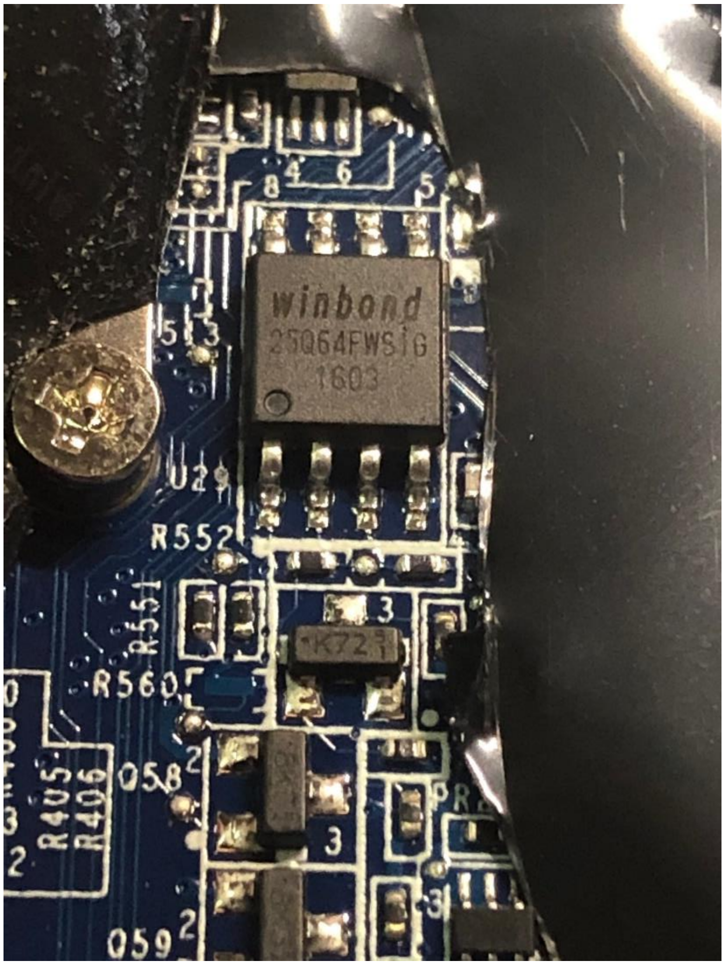
iv. “**cd ;**”

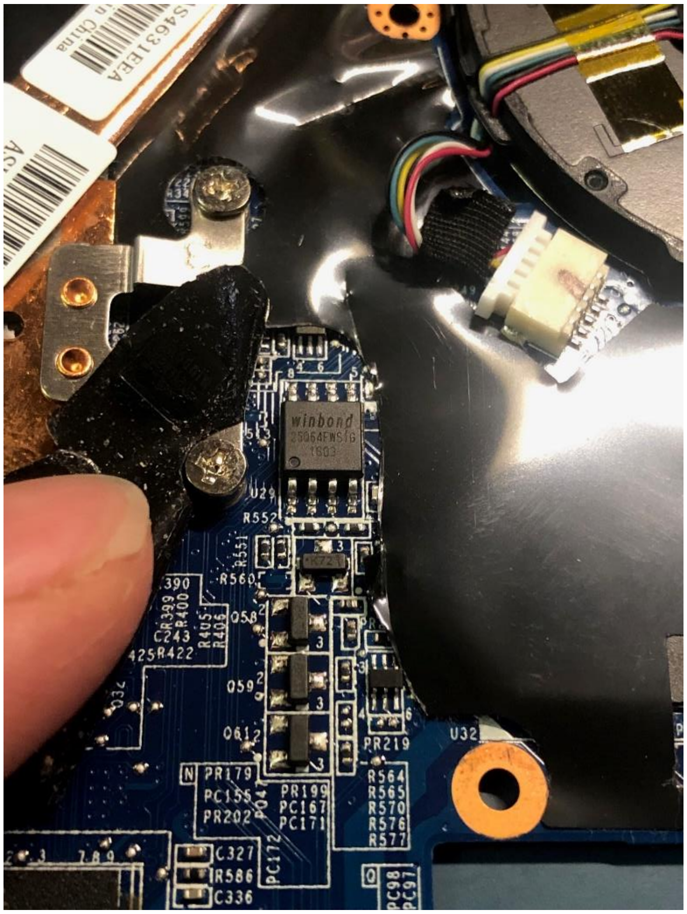
v. “**wget https://mrchromebox.tech/files/util/flashrom.0602.tar.gz && tar -zxf flashrom.0602.tar.gz**” **(this is all one command. take out the quotes)**

c. Now the flashrom software has been downloaded to the computer

i. Insert the USB Programmer into the computer. If configured correctly, a RED LED will light up brightly to show it has power.

ii. You must locate the correct chip on the motherboard you wish to flash. On Lenovo 11e Chromebooks, it is right next to the heatsink+fan, under the black plastic cover. It will say **“winbond”. Do not connect to any other chip. This may cause the device to not boot after re-programming the device.**





iii. The dot in the corner of the “winbond” chip identifies which pin is pin 1.

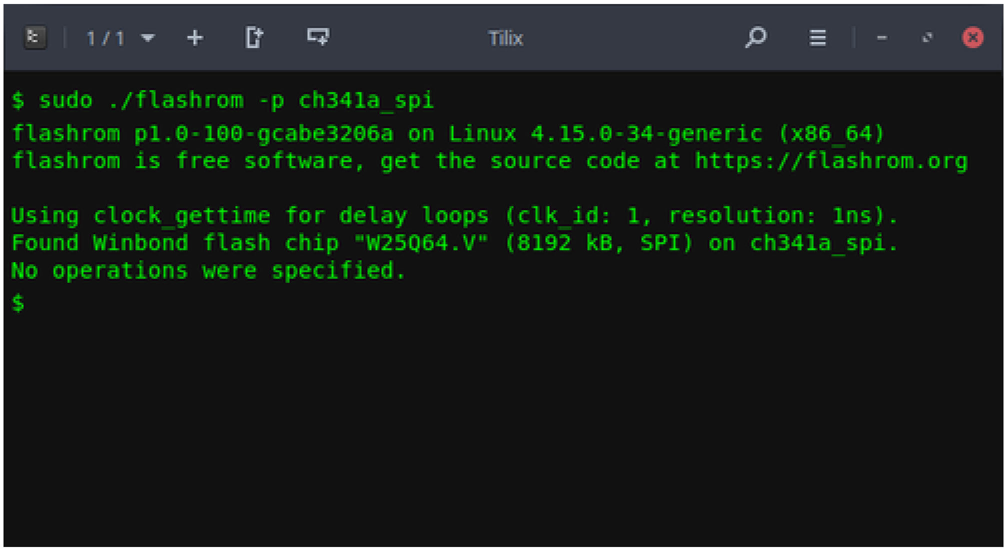
iv. Attach the chip clip to the Winbond chip, ensuring that pin 1 on the chip is connected correctly to pin 1 of the connector

d. Return to the computer with “flashrom” installed

   i. With the programmer connected to the flash chip, type the following command into the linux terminal

      1. “sudo ./flashrom -p ch341a_spi”

   ii. This will test the connection between the computer and the flash chip on the motherboard. If everything is configured correctly, the following information will be shown in the terminal:



```
$ sudo ./flashrom -p ch341a_spi
flashrom p1.0-100-gcabe3206a on Linux 4.15.0-34-generic (x86_64)
flashrom is free software, get the source code at https://flashrom.org

Using clock_gettime for delay loops (clk_id: 1, resolution: 1ns).
Found Winbond flash chip "W25Q64.V" (8192 kB, SPI) on ch341a_spi.
No operations were specified.
$
```

   iii. If this information does not show up, try reconnecting the clip to the flash chip

   iv. Once the chip is detected by the flashrom software, technicians may safely proceed with backing up and rewriting the chip

e. To read/backup the contents of the flash chip, use the following command

   i. “sudo ./flashrom -p ch341a_spi -r *filename*”

   ii. Replace *filename* with the name of the backup you want to create, preferably the serial number of the Chromebook being re-programmed.

   iii. The flash reading process will take some time to complete, and then the backup will be stored on the computer

f. To write to the flash chip, first ensure you have a backup of a “good chip”. This should be from a completely working motherboard of the same model device, any other backup may cause this process to fail.

   i. Use the following command to write to the chip:

   ii. “sudo ./flashrom -p ch341a_spi -w *filename*”

iii. Where filename is the name of the “known good” backup created from a completely working motherboard

g. If all goes well, the terminal will state that it is “writing and verifying” the flash chip

i. It is very possible to get an error that “write-protect” is enabled, meaning that it is impossible to write to the chip. Try ensuring the screw pad for the RW-screw (Write Protect screw) is clean, and attempt flashing again. In my experience, this fixed flashing issues on several occasions

h. Once the flashing process is complete, the device should be able to enter developer mode, and you will be able to assign the motherboard a new serial number as required by the school district.