Arduino 101 Firmware Update

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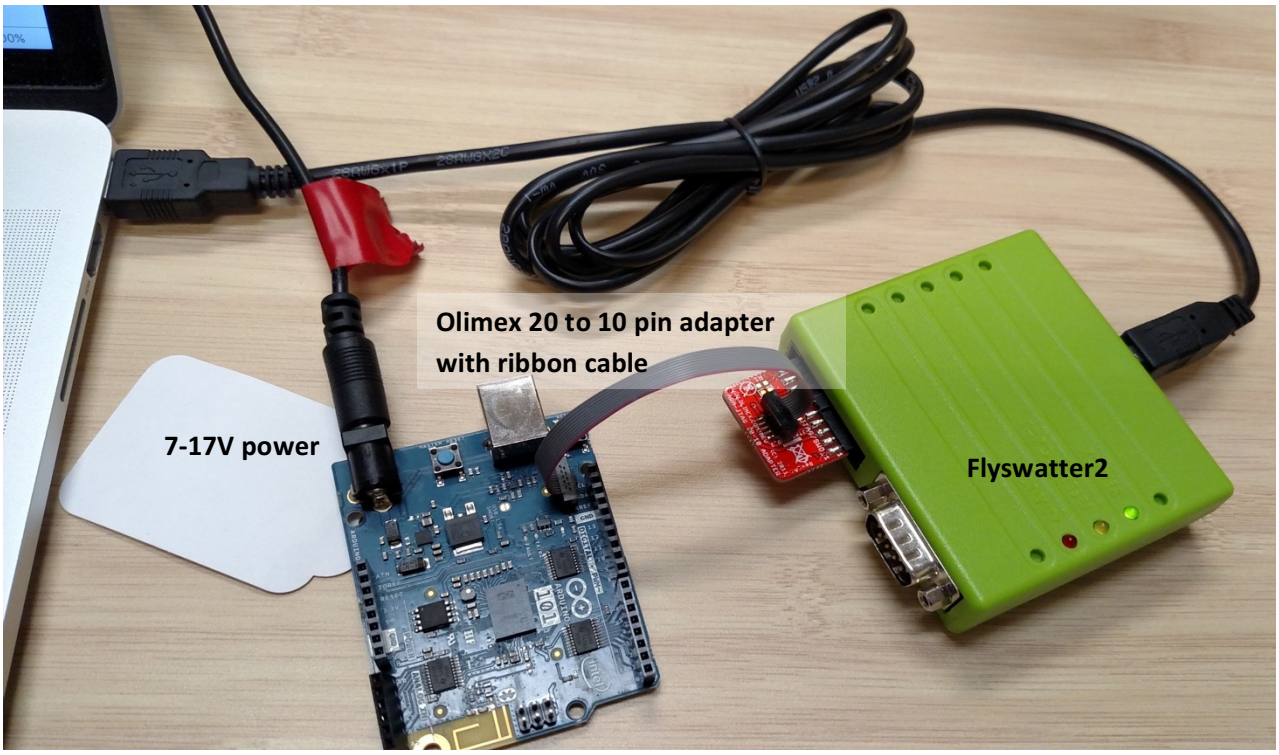
Firmware Update Using JTAG

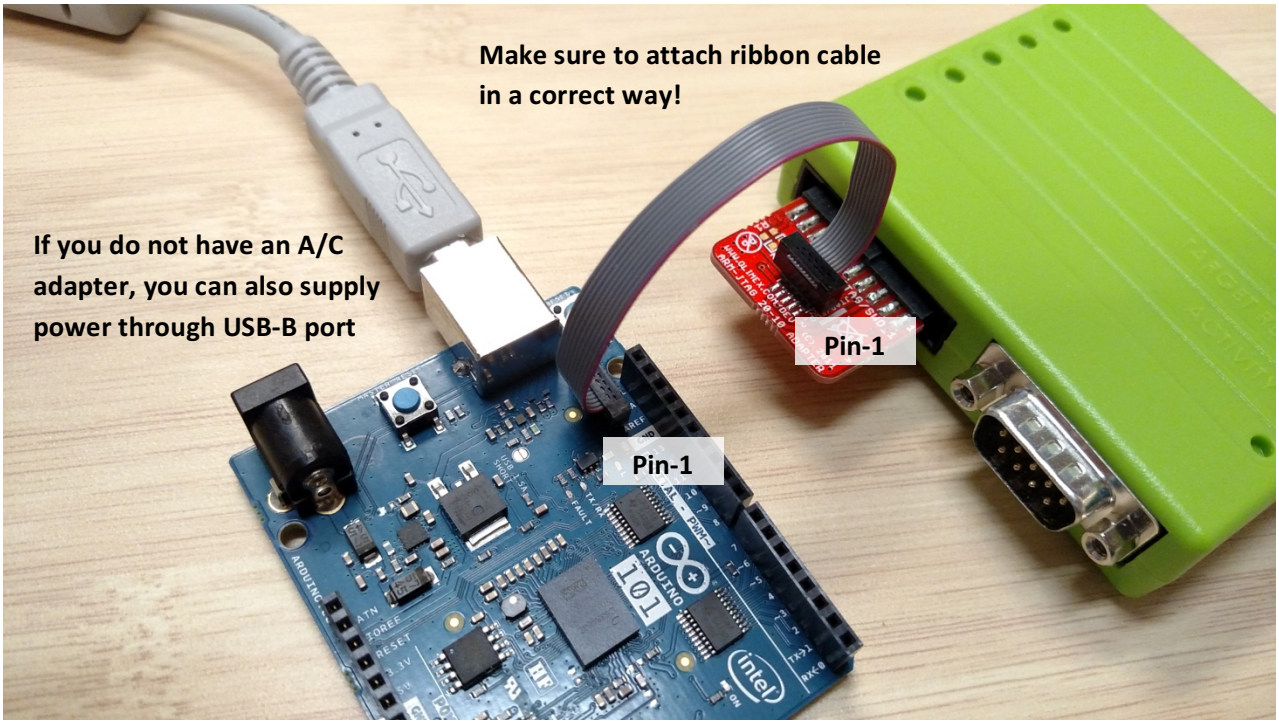
1. Connect all wires as shown on the picture



Components listing:

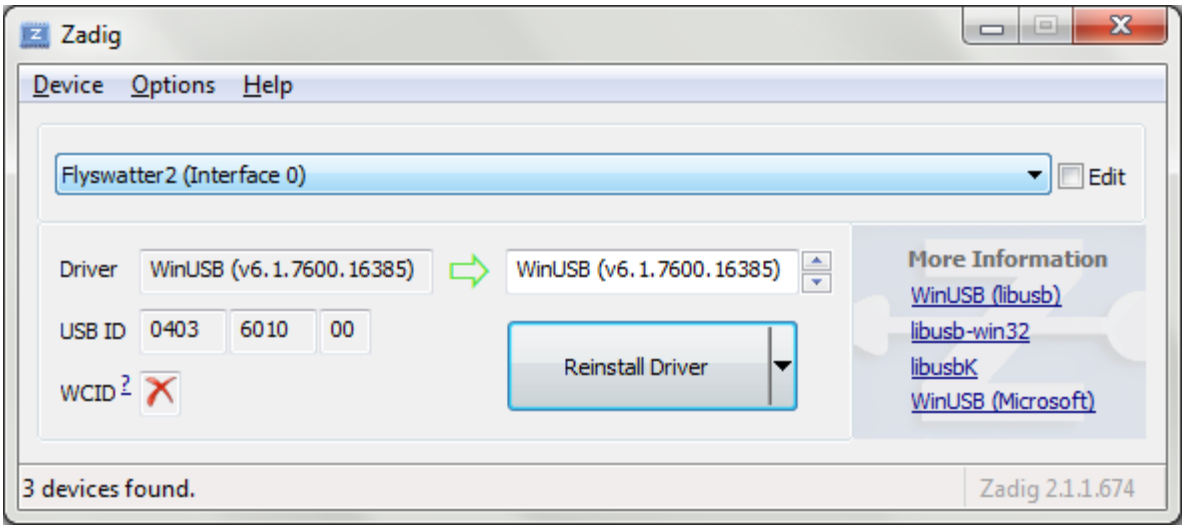
a. Windows/Linux laptop. OSX is not supported.
b. Flyswatter2 JTAG probe with USB cable
c. Olimex 20 to 10 pin adapter with ribbon cable
d. Arduino 101 board with 7-17V DC power supply (or USB-B cable)

Make sure to attach ribbon cable in a correct way, as shown on the photo!



2. Install Flyswatter2 probe drivers:

2.1. Windows



a. Plug in Flyswatter2 probe to the host
b. Download and extract the latest firmware release
c. Go to bin\ directory, run "zadig_2.1.1.exe".
d. Options > List all devices.
e. Select your probe (Flyswatter2), pick WinUSB and hit Reinstall Driver;
   do it for Interface 0 and Interface 1.
f. Close zadig and **REPLUG THE PROBE**

2.2. Linux

By default, non-root users won't have access to the JTAG pods connected via USB. You must grant write access to the proper /dev/bus/usb entry every time a device is connected to be able to run OpenOCD using a non-root account. The process can be automated by adding an udev rule. Simply create a text file in the rules directory:

```
$ sudo vim /etc/udev/rules.d/99-openocd.rules
```

The IDs depend on the JTAG device. For example, for the Flyswatter2* and the Olimex-ARM-USB-OCD-H, the rules file must have the following content:

```
SUBSYSTEM=="usb", ATTR{idVendor}=="0403", ATTR{idProduct}=="6010", MODE="0666"

SUBSYSTEM=="usb", ATTR{idVendor}=="15ba", ATTR{idProduct}=="002b", MODE="0666"
```

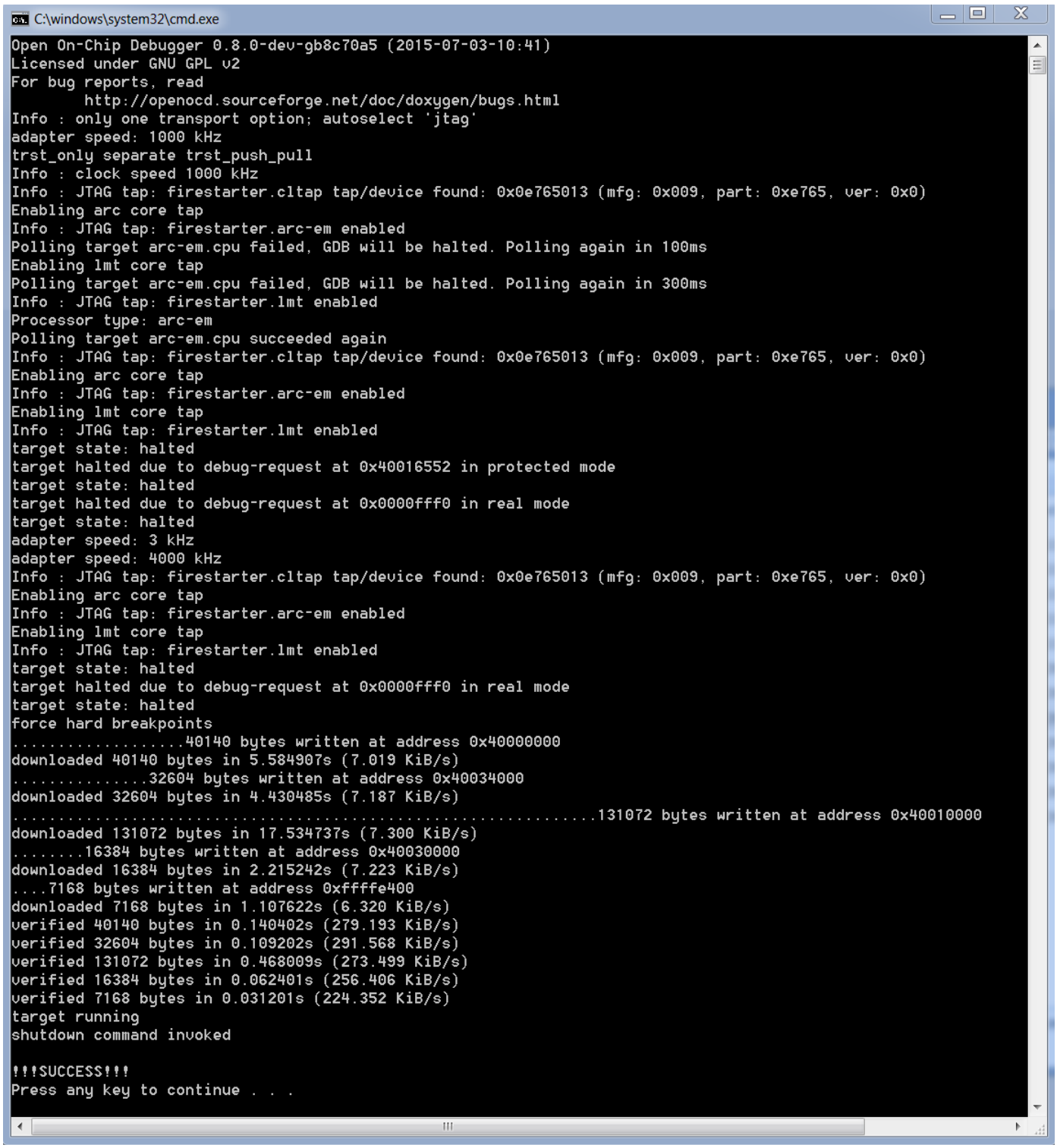
(See drivers/rules.d/99-openocd.rules)

3. Flash the firmware

a. In the extracted flash pack directory, run the flashing script:

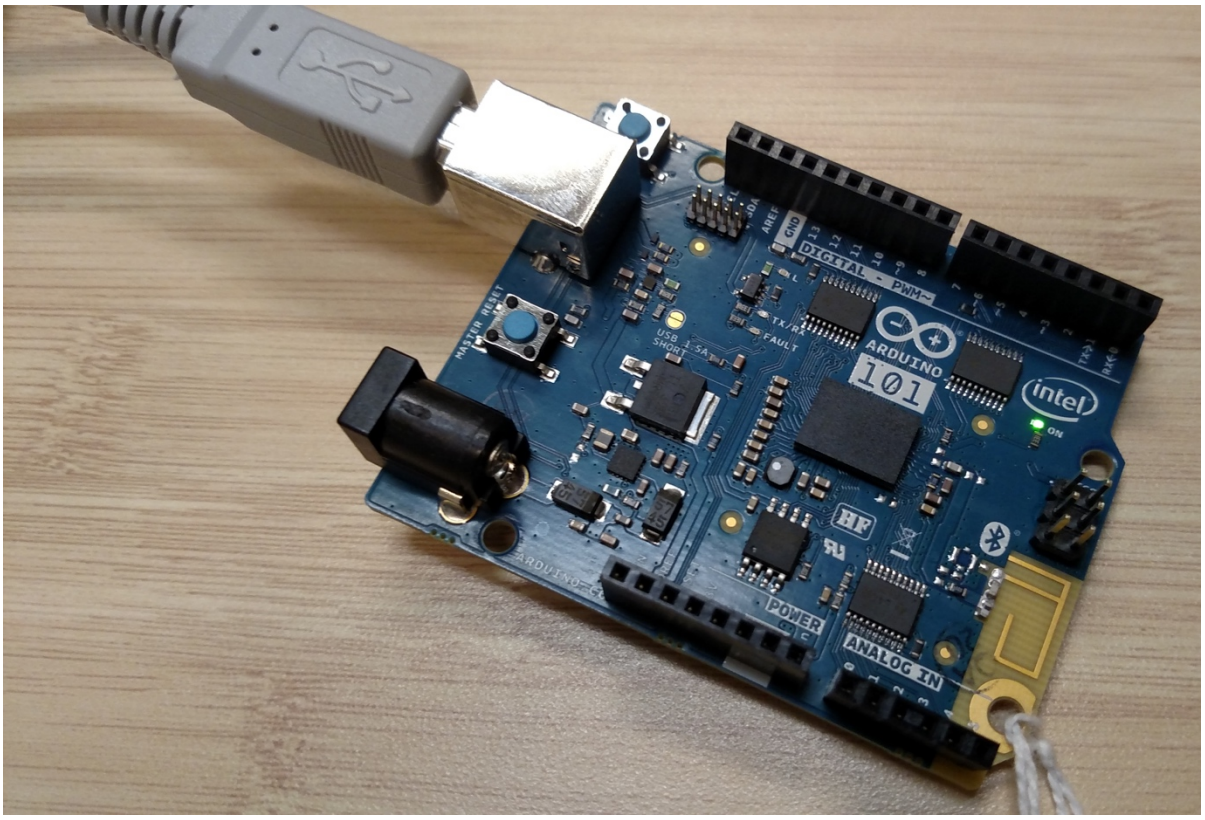
- **Windows:** Execute (double-click) **flash_jtag.bat** in order to flash production image.
- **Linux:** Run **flash_jtag.sh** in order to flash production image

Below is what a successful flash looks like



Firmware Update Using USB

1. Connect USB cable to board as shown



Components listing:

a. Windows/Linux/OSX Laptop
b. USB cable
c. Arduino 101 board
d. 7-17V **DC** power supply (or USB-B cable)

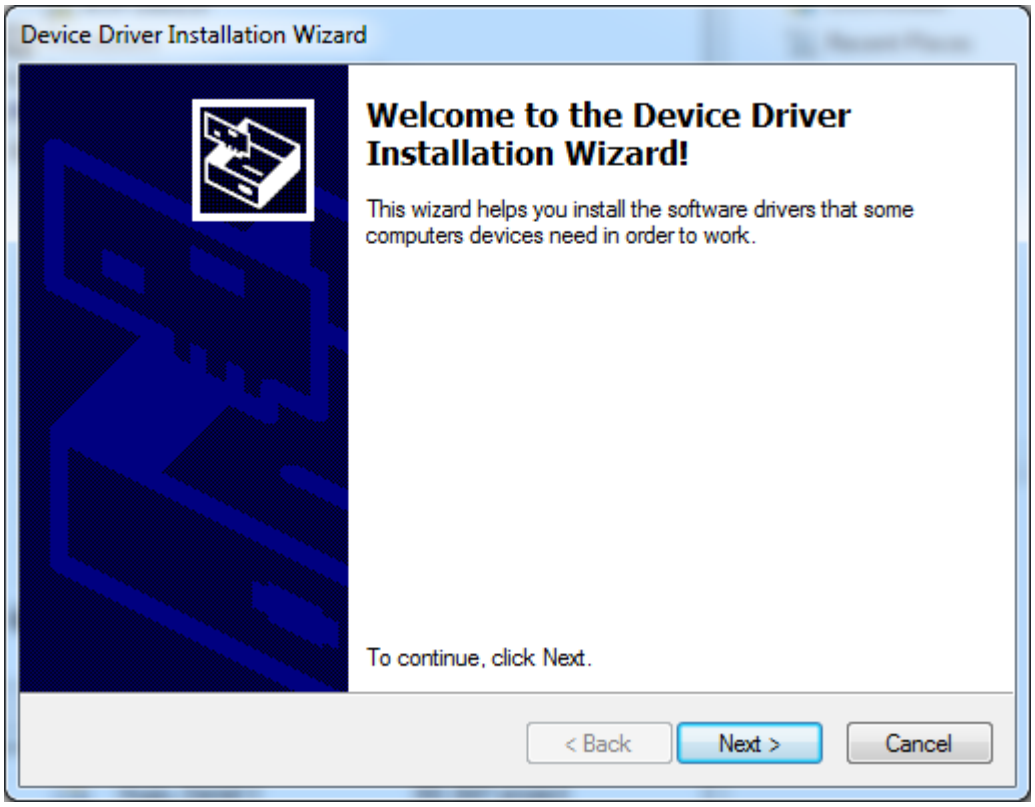
2. Install drivers

2.1. Windows

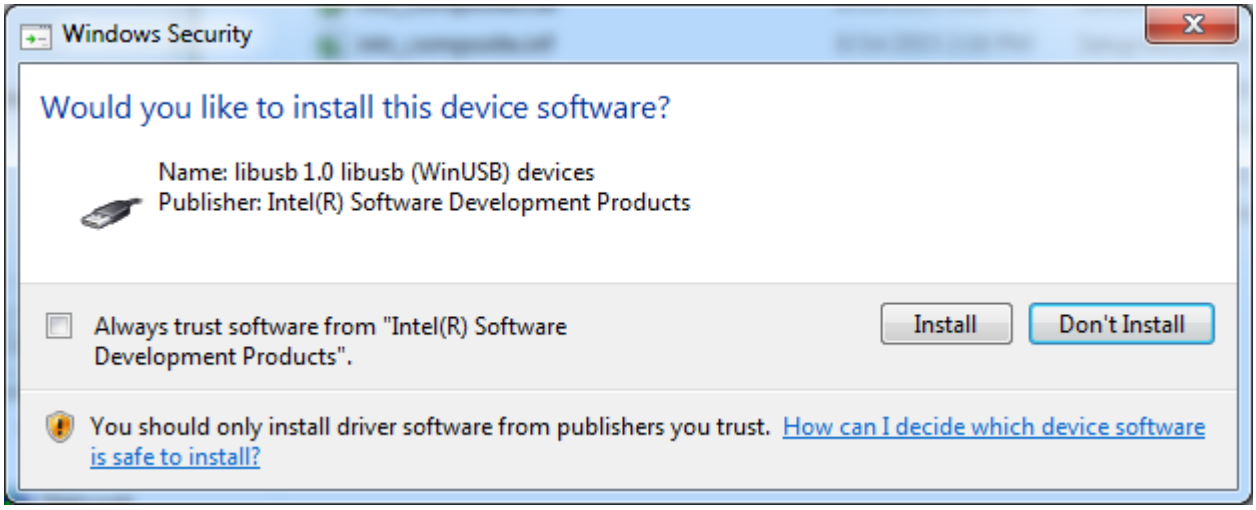
a. Download and extract the latest firmware release

b. In the extracted flash pack directory, go to `drivers\Windows\` directory and run

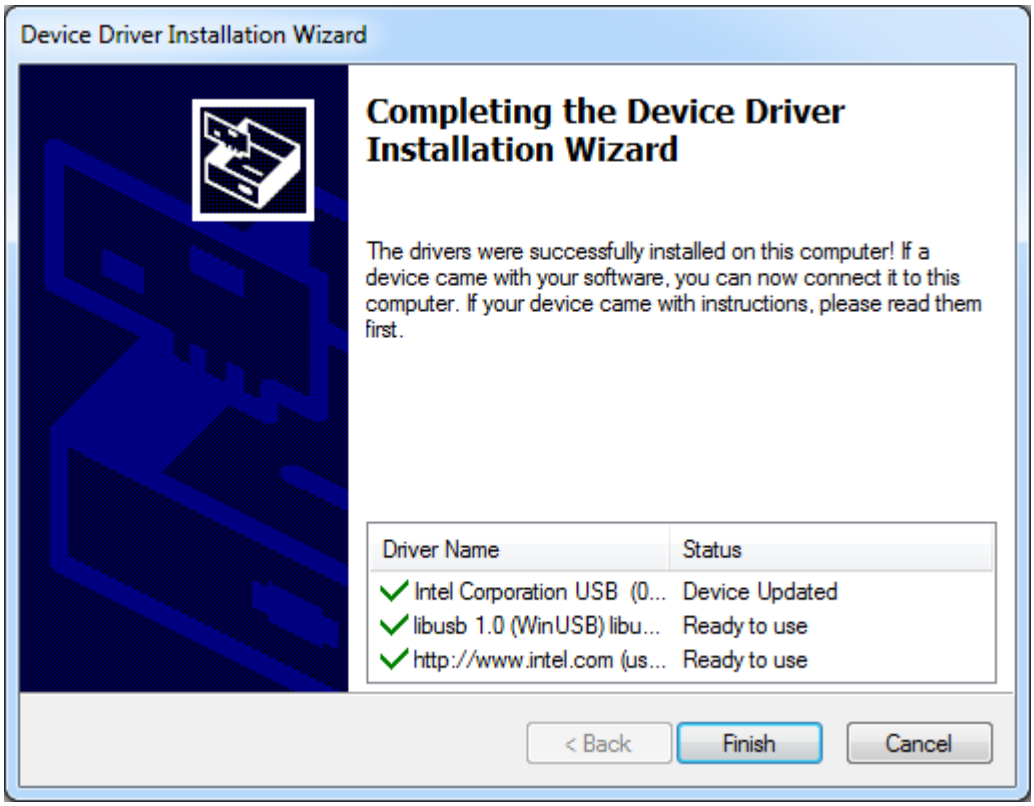
- `dpinst-amd64.exe` on 64-bit Windows
- `dpinst-x86.exe` on 32-bit Windows



c. Click Next



d. Click **Install**



e. Click **Finish**

2.2. Linux

The DFU device can be set up for use by regular users by editing a text file in the rules directory. Enter **ONE RULE PER LINE**. Newline characters are not allowed.

$ sudo vi /etc/udev/rules.d/99-dfu.rules

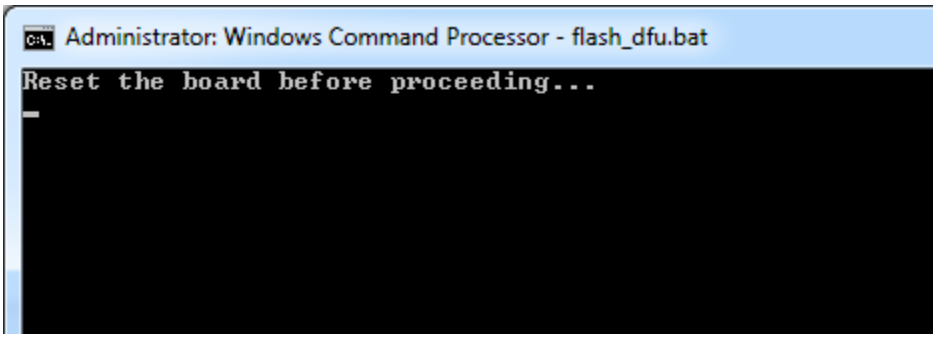
```
# Arduino 101 in DFU Mode
SUBSYSTEM=="tty", ENV{ID_REVISION}=="8087", ENV{ID_MODEL_ID}=="0ab6", MODE="0666", ENV{ID_MM_DEVICE_IGNORE}="1", ENV{ID_MM_CANDIDATE}="0"
SUBSYSTEM=="usb", ATTR{idVendor}=="8087", ATTR{idProduct}=="0aba", MODE="666", ENV{ID_MM_DEVICE_IGNORE}="1"
```

(See drivers/rules.d/99-dfu.rules)

3. Flash firmware

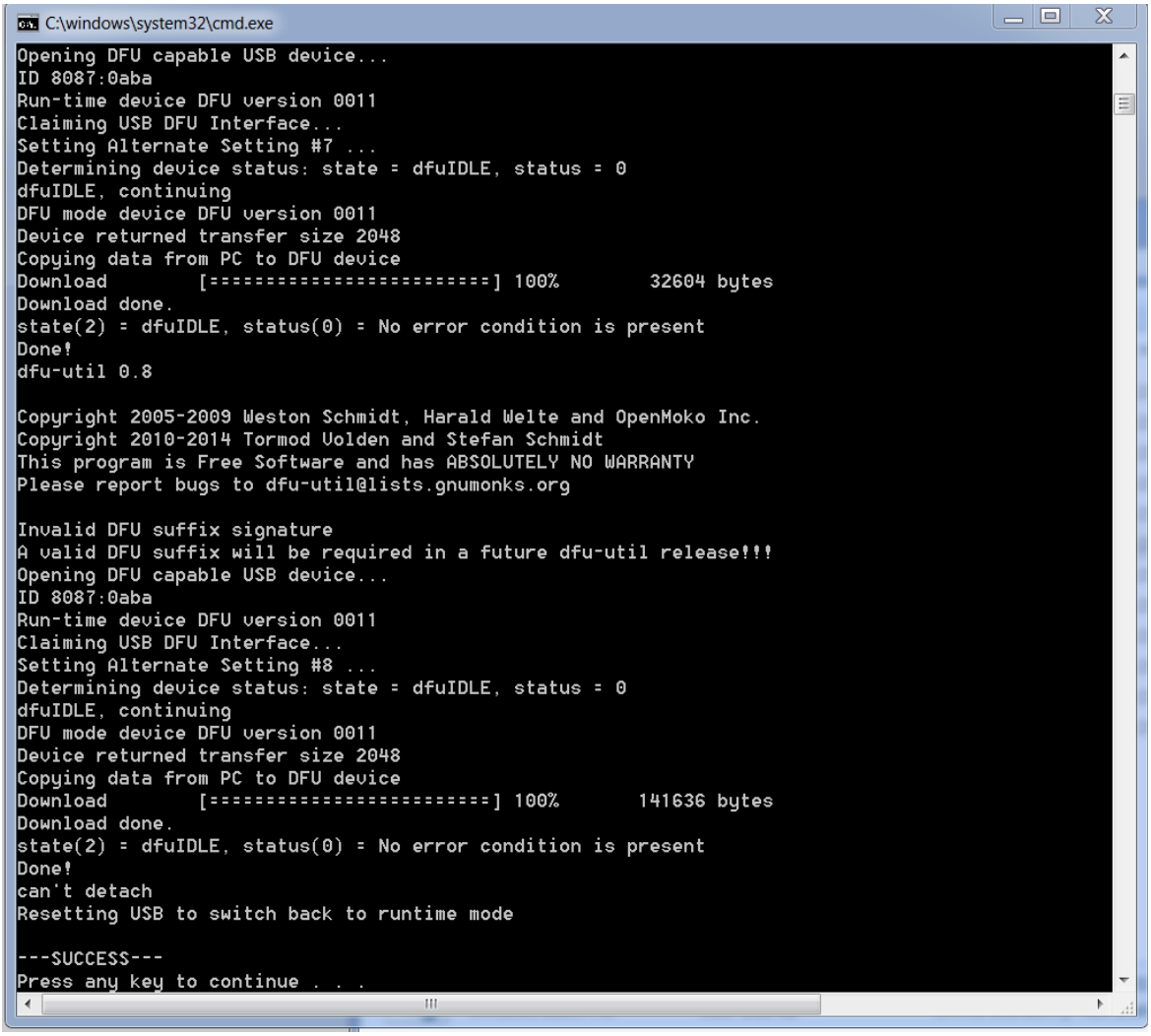
a. In the extracted flash pack directory, run the flashing script:

- **Windows:** Execute (double-click) **flash_dfu.bat**
- **Linux or OSX:** Run **flash_dfu.sh**



- Press the **reset** button on the board to start the flash process

b. Below is how a successful **DFU** flash looks like

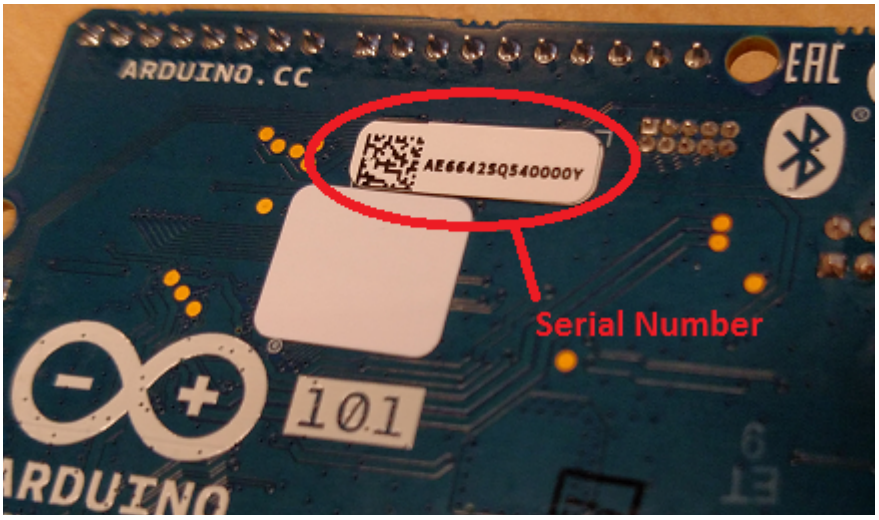


Appendix

1. Flashing Multiple Arduino101 Boards Simultaneously

By default, users can flash to only one board at a time. If more than one DFU device is visible to the host system, an error will occur. When flashing firmware to multiple boards at the same time, specify a serial number.

a. Get the board serial number:



b. Specify the serial number when running the flash_dfu script:

i. **Linux**

e.g.,

```
flash_dfu.sh AE642SQ34000Y
```

ii. **Windows**

e.g.,

```
flash_dfu.bat AE642SQ34000Y
```