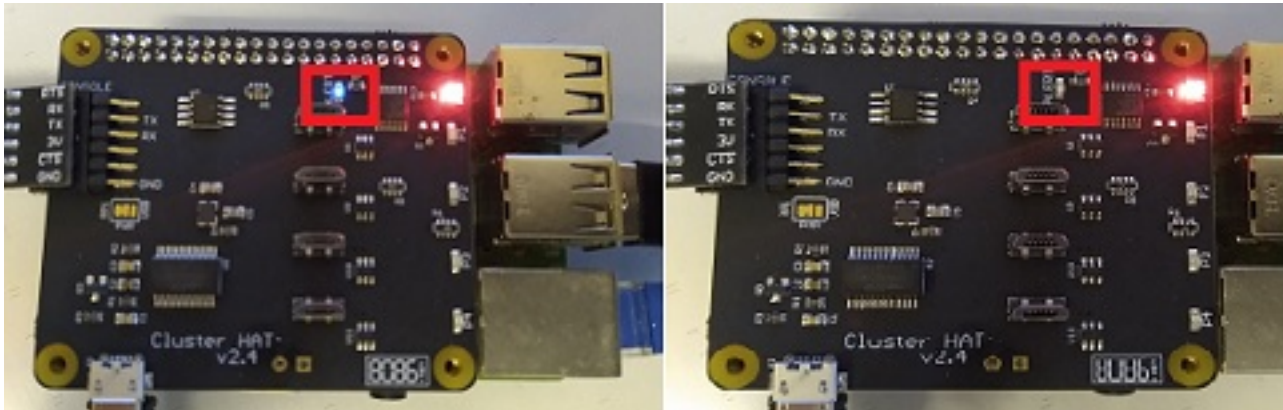# Cluster HAT

Troubleshooting missing Pi Zeros in a ClusterHAT

If you've got the Cluster HAT connected and you're having problems with one or more Pi Zeros not being visible after booting with an SD card please check through these steps and report any issues on the [forum](#).

1) After powering on the Controller Pi is the PWR LED on the HAT lit up, and after Raspbian boots does the ALERT LED go from dim to off?

- If not check the HAT is plugged into the Controller Pi properly.

2) When you run "clusterctrl status" does it say "clusterhat:1" ?

- If it doesn't check the Cluster HAT is pressed onto the Controller Pi GPIO pins properly (you will need to reboot the Controller Pi before it will be detected).

3) Check the USB hub is visible, run "clusterctrl hub off", "lsusb -t" (save the output), "clusterctrl hub on", run "lsusb -t" again and compare.
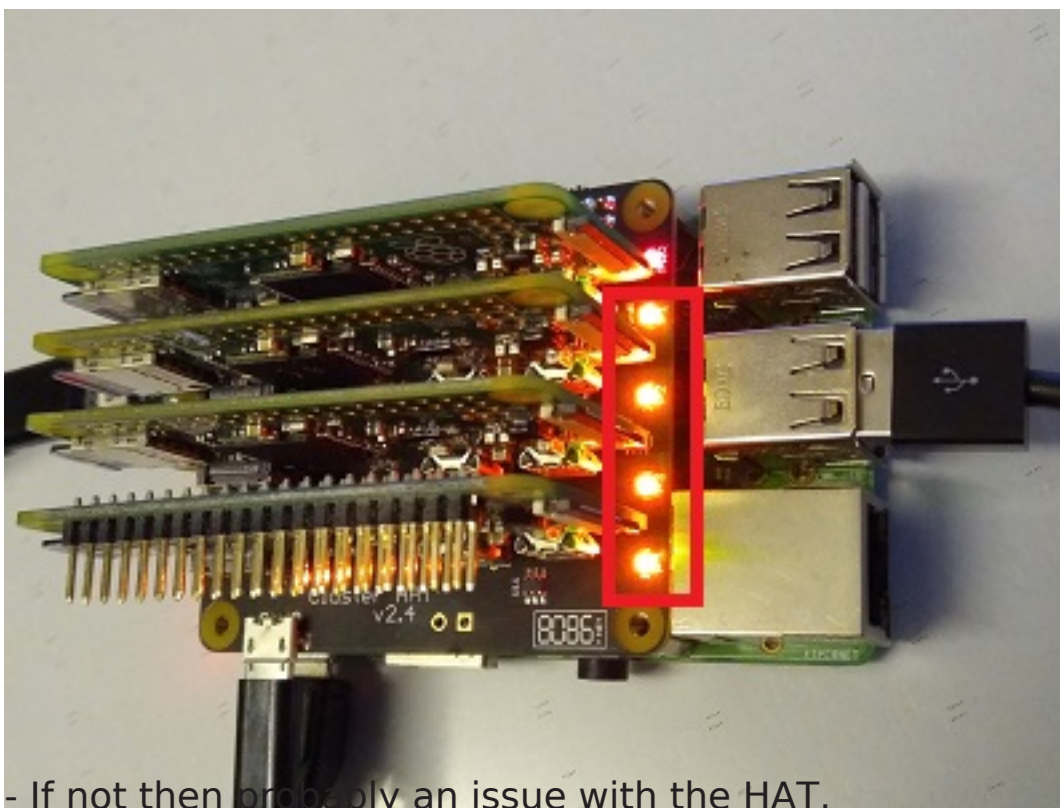
```
pi@cbridge:~$ clusterctrl hub off
pi@cbridge:~$ lsusb -t
/:  Bus 01.Port 1: Dev 1, Class=root_hub, Driver=dwc_otg/1p, 480M
    |__ Port 1: Dev 2, If 0, Class=Hub, Driver=hub/5p, 480M
        |__ Port 1: Dev 3, If 0, Class=Vendor Specific Class, Driver=smsc95xx, 480M
pi@cbridge:~$ clusterctrl hub on
pi@cbridge:~$ lsusb -t
/:  Bus 01.Port 1: Dev 1, Class=root_hub, Driver=dwc_otg/1p, 480M
    |__ Port 1: Dev 2, If 0, Class=Hub, Driver=hub/5p, 480M
        |__ Port 1: Dev 3, If 0, Class=Vendor Specific Class, Driver=smsc95xx, 480M
        |__ Port 2: Dev 7, If 0, Class=Hub, Driver=hub/4p, 480M
pi@cbridge:~$
```

- If you don't see the 4 port HUB check the USB cable (try another cable ensuring the cable supports data as some are power only).

4) With the power off to the Pi Zeros "clusterctrl off", remove their SD cards, run "sudo service clusterctrl-rpiboot stop", "clusterctrl on" and then wait a minute.

5) Do the P1-P4 LED (on the Cluser HAT) come on (you may need to run "clusterctrl led on" if you've turned the LED off)?


- If not then probably an issue with the HAT.

6) Do you see four 12M USB devices hanging off the USB hub detected above?

installation on the SD cards, please try to write the image again and/or use a different SD card if you have one available.

- If you don't them make sure you've pressed the Pi Zeros onto the connectors far enough (if new they will normally click), you should be able to see the hooks through the holes in the connectors on the Pi Zero if it's plugged in far enough.
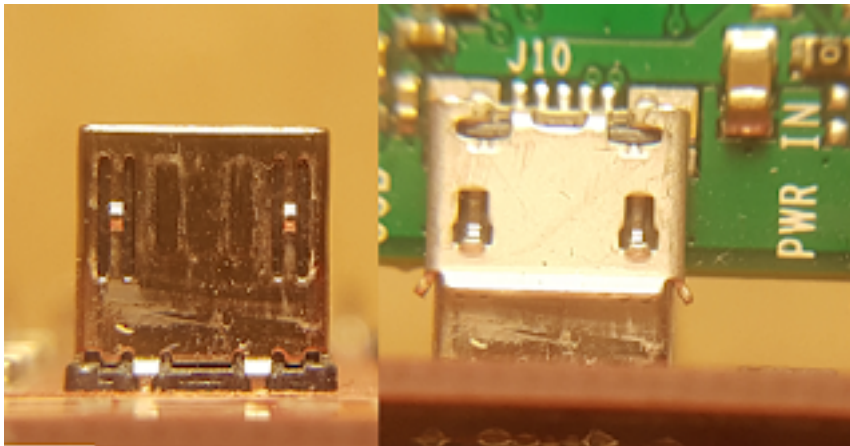
7) Power off the Pi Zeros "clusterctrl off", replace the SD cards, and power on "clusterctrl on" and wait a minute or two (the initial boot will take longer as it will resize the image to the size of the SD card).

8) Does "ls -l /dev/ttyACM* /dev/ttypi*" show the USB Gadget Serial ports and links?

Cluster HAT

```
pi@cbridge:~$ ls -l /dev/ttyACM* /dev/ttypi*
crw-rw---- 1 root dialout 166, 0 Mar  2 19:07 /dev/ttyACM0
crw-rw---- 1 root dialout 166, 1 Mar  2 19:07 /dev/ttyACM1
crw-rw---- 1 root dialout 166, 2 Mar  2 19:07 /dev/ttyACM2
crw-rw---- 1 root dialout 166, 3 Mar  2 19:07 /dev/ttyACM3
crw-rw---- 1 root dialout 166, 4 Mar  2 19:07 /dev/ttyACM4
crw-rw---- 1 root dialout 166, 5 Mar  2 19:07 /dev/ttyACM5
crw-rw---- 1 root dialout 166, 6 Mar  2 19:07 /dev/ttyACM6
crw-rw---- 1 root dialout 166, 7 Mar  2 19:07 /dev/ttyACM7
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi1 -> ttyACM0
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi1a -> ttyACM1
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi2 -> ttyACM6
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi2a -> ttyACM7
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi3 -> ttyACM4
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi3a -> ttyACM5
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi4 -> ttyACM2
lrwxrwxrwx 1 root root           7 Mar  2 19:07 /dev/ttypi4a -> ttyACM3
pi@cbridge:~$ 
```

9) Does "sudo ifconfig -a" show the ethpi1 to ethpi4 interfaces?

Cluster HAT

```
ethpil: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet6 fe80::222:82ff:feff:fe01  prefixlen 64  scopeid 0x20<link>
        ether 00:22:82:ff:fe:01  txqueuelen 1000  (Ethernet)
        RX packets 101  bytes 8804 (8.5 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 441  bytes 92885 (90.7 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

ethpi2: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet6 fe80::222:82ff:feff:fe02  prefixlen 64  scopeid 0x20<link>
        ether 00:22:82:ff:fe:02  txqueuelen 1000  (Ethernet)
        RX packets 134  bytes 26937 (26.3 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 316  bytes 59204 (57.8 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

ethpi3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet6 fe80::222:82ff:feff:fe03  prefixlen 64  scopeid 0x20<link>
        ether 00:22:82:ff:fe:03  txqueuelen 1000  (Ethernet)
        RX packets 124  bytes 8144 (7.9 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 325  bytes 78423 (76.5 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

ethpi4: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet6 fe80::222:82ff:feff:fe04  prefixlen 64  scopeid 0x20<link>
        ether 00:22:82:ff:fe:04  txqueuelen 1000  (Ethernet)
        RX packets 128  bytes 25698 (25.0 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 324  bytes 61280 (59.8 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0
```

- If not, do you have any "renameX" interfaces? If so then it's likely you have a MAC address conflict (the MAC should correspond to the Px number so P1 should use "00:22:82:ff:fe:01", P2 "00:22:82:ff:fe:02", etc.). If you have a "renameX" interface check if the MAC address is the same as one of the ethpiX interfaces, if so you will need to either reconfigure the SD card (see Intermediate Setup section) or re-image the SD card with the correct image.

 If you're still having problems please post details of your setup to the forum - Cluster HAT model, Controller Pi Model, filenames of the image used on the controller (cnat/cbridge at a minimum) and Pi Zeros image filenames, how you're connecting to the internet (wifi/ethernet/etc) - basically please explain it like me like I don't know your setup :).

Unique solution ID: #1114
Author: n/a
Last update: 2020-03-03 10:30