

From former student in 95-733 **Ryosuke Nakashima**

I found a way to avoid the crash and make BLE function with Node-RED on Windows 10.

#### <Cause>

First, the crash of Node-RED is due to the following error raised by node-bluetooth-hci-socket.

*Error: No compatible USB Bluetooth 4.0 device found!*

This error means a Bluetooth USB adapter of your PC is not supported by node-bluetooth-hci-socket.

In fact, node-bluetooth-hci-socket supports limited hardware as listed in the page below.

<https://github.com/noble/node-bluetooth-hci-socket#compatible-bluetooth-40-usb-adapters>

It requires Bluetooth 4.0 USB adapter; however, nowadays PCs generally have newer versions of Bluetooth USB adapters.

For example, my PC purchased 1.5 years ago has Bluetooth 5.2 USB adapter.

#### <Solution>

As the above page also mentions, using WinUSB driver can be a workaround.

You can use a tool called [Zadig](#) which enables to replace your Bluetooth USB adapter to WinUSB driver.

The following video explains how to install Zadig and replace your driver.

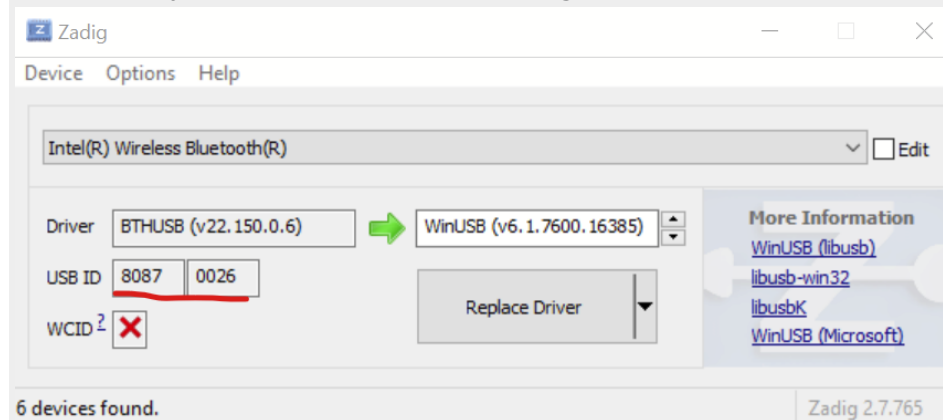
<https://www.youtube.com/watch?v=mL9B8wuEdms&t=106s>

(Warning: Your default Bluetooth driver will be disabled until you rollback it by Device Manager -> Action -> Update driver)

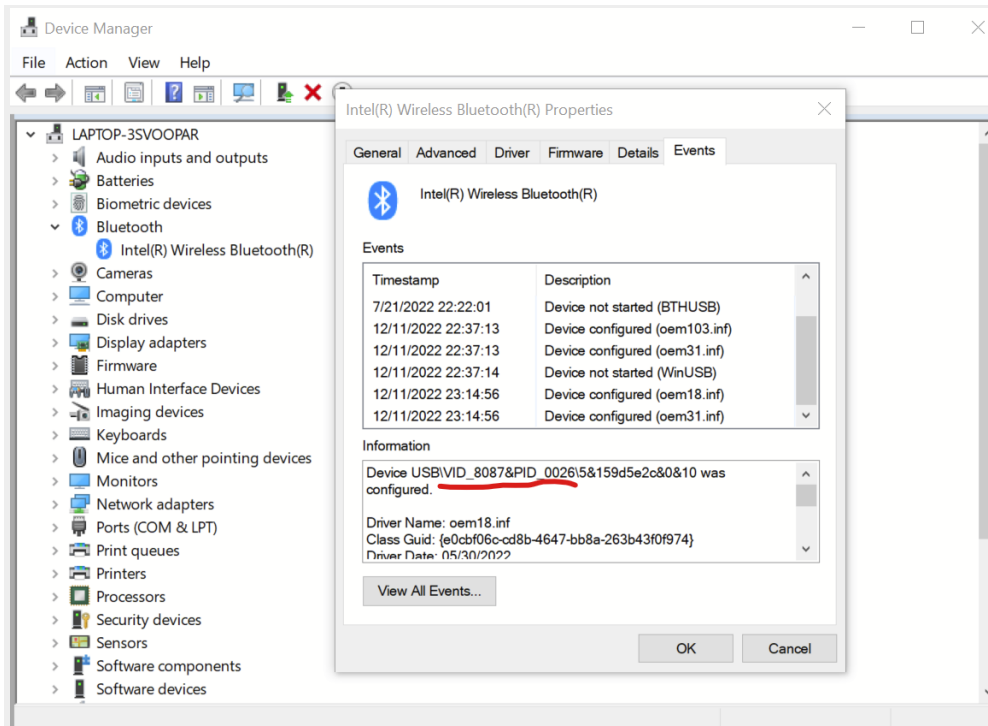
After that, you will need to add your USB VID and PID of your Bluetooth driver to \bluetooth-hci-socket\lib\usb.js.

(In my case, the file is located here: C:\Users\nakas\.node-red\node\_modules\@abandonware\bluetooth-hci-socket\lib\usb.js)

You can find your USB VID and PID from Zadig as below.



Or you can find them from Device Manager as follows.



Then, you need to add them to `\bluetooth-hci-socket\lib\usb.js` as follows.

```

1  var events = require('events');
2  var util = require('util');
3
4  var debug = require('debug')('hci-usb');
5  var usb = require('usb');
6
7  var HCI_COMMAND_PKT = 0x01;
8  var HCI_ACLDATA_PKT = 0x02;
9  var HCI_EVENT_PKT = 0x04;
10
11  var OGF_HOST_CTL = 0x03;
12  var OCF_RESET = 0x0003;
13
14  var VENDOR_DEVICE_LIST = [
15    {vid: 0x0CF3, pid: 0xE300 }, // Qualcomm Atheros QCA61x4
16    {vid: 0x0a5c, pid: 0x21e8 }, // Broadcom BCM20702A0
17    {vid: 0x0a5c, pid: 0x21f1 }, // Broadcom BCM20702A0
18    {vid: 0x19ff, pid: 0x0239 }, // Broadcom BCM20702A0
19    {vid: 0x413c, pid: 0x8143 }, // Broadcom BCM20702A0
20    {vid: 0x0a12, pid: 0x0001 }, // CSR
21    {vid: 0x0b05, pid: 0x17cb }, // ASUS BT400
22    {vid: 0x8087, pid: 0x07da }, // Intel 6235
23    {vid: 0x8087, pid: 0x07dc }, // Intel 7260
24    {vid: 0x8087, pid: 0x0a2a }, // Intel 7265
25    {vid: 0x8087, pid: 0x0a2b }, // Intel 8265
26    {vid: 0x0489, pid: 0xe07a }, // Broadcom BCM20702A1
27    {vid: 0x0a5c, pid: 0x6412 }, // Broadcom BCM2045A0
28    {vid: 0x050D, pid: 0x065A }, // Belkin BCM20702A0
29    {vid: 0x1286, pid: 0x204C }, // Marvell AVASTAR
30    {vid: 0x8087, pid: 0x0025 }, // Dell Precision 5530
31    {vid: 0x8087, pid: 0x0026 },
32  ];
33

```

After the above steps, the error of the Bluetooth 4.0 USB adapter disappears, and Node-RED won't crash when it gets started.

It starts to listen to BLE notifications from the Argon as follows.

The screenshot shows the Node-RED web interface. The top tab is 'BLE Test'. The flow contains three nodes: 'inject', 'timestamp', and 'debug 3'. The 'inject' node is connected to the 'timestamp' node, which is connected to the 'debug 3' node. The 'debug 3' node is connected to the 'Argon-HLBDP8' node, which is connected to the 'debug 3' node. The 'Argon-HLBDP8' node has a green 'connected' indicator. The right sidebar shows the 'debug' console with the following log entries:

```
12/11/2022, 11:24:54 PM node: debug 3
msg.payload: string[100]
{"uuid":"d55661f007ab","characteristics":{"notification":true,"2a19":{"type":"Buffer","data":[90]}}}}
12/11/2022, 11:24:56 PM node: debug 3
msg.payload: string[114]
{"uuid":"d55661f007ab","characteristics":{"notification":true,"2a1c":{"type":"Buffer","data":[4,179,15,0,254,6]}}}}
12/11/2022, 11:24:56 PM node: debug 3
msg.payload: string[100]
{"uuid":"d55661f007ab","characteristics":{"notification":true,"2a19":{"type":"Buffer","data":[89]}}}}
12/11/2022, 11:24:58 PM node: debug 3
msg.payload: string[114]
{"uuid":"d55661f007ab","characteristics":{"notification":true,"2a1c":{"type":"Buffer","data":[4,169,15,0,254,6]}}}}
```

Try it at your own risk :)

### <References>

<https://github.com/noble/noble/issues/472>

<https://github.com/noble/node-bluetooth-hci-socket/issues/118>

<https://github.com/noble/node-bluetooth-hci-socket#compatible-bluetooth-40-usb-adapters>

<https://newscrewdriver.com/2020/10/01/adding-noble-specified-hardware-failed-to-enable-ble-discovery/>