YakMUX
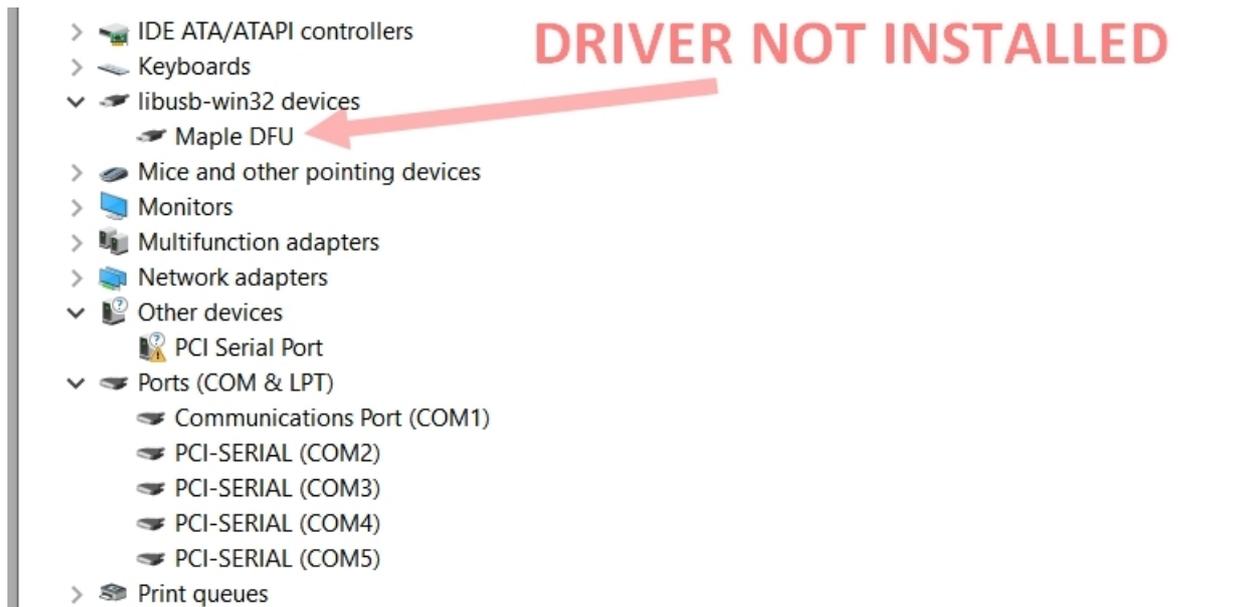
3 Port NMEA 0183
Multiplexer/Combiner

Installation and Configuration

Usually the driver required to talk to the YakMUX is already installed but if not, you will see something like this in Windows Device Manager:

If you need to install the driver you can download it from here: https://1drv.ms/u/s!Ai74KoSqD2htkvYfYq1CsLX1LxWQkA Download and unzip the driver and look in the "win" folder. Find and run the "install_drivers.bat" file by double clicking it.

After plugging in the first time it can take up to a minute for the driver to become ready. If the driver is already installed you will see something like this:


Fig. 2

Once the driver is installed and you can see the new Serial Port/Device in Device Manager, you are ready to configure your YakMUX.
I use and recommend puTTY.exe which is a free Serial Terminal app. You can download puTTY from here:
https://1drv.ms/u/s!Ai74KoSqD2htkZtQ_vAHApJGpwifTg   puTTY does not need to be installed, you can simply download and run it.
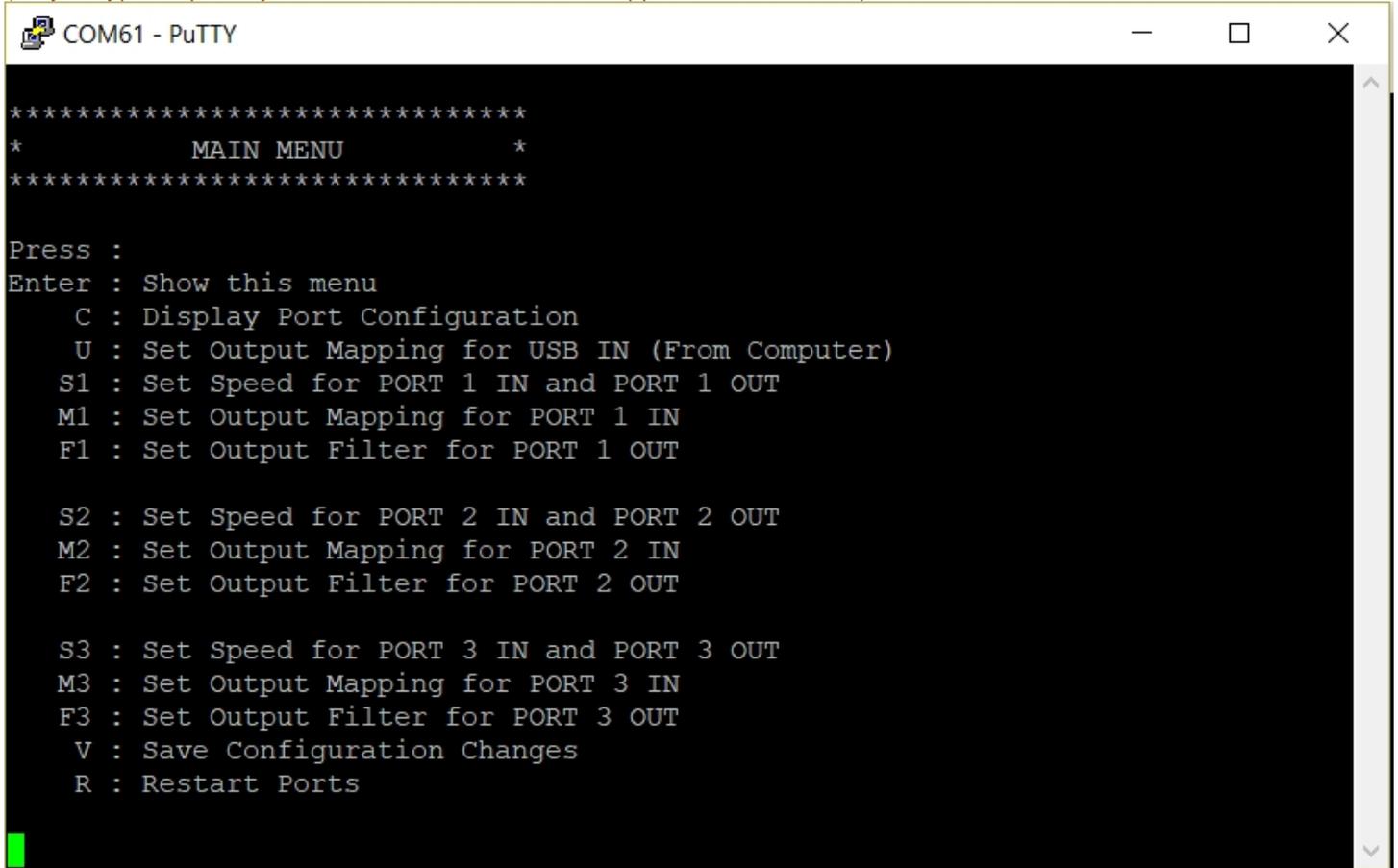
Take note of the serial port number created by the YakMUX driver (Fig. 3) (COM29 in this example) and configure puTTY as seen here:

After clicking the "Open" button you should see a blank terminal window.
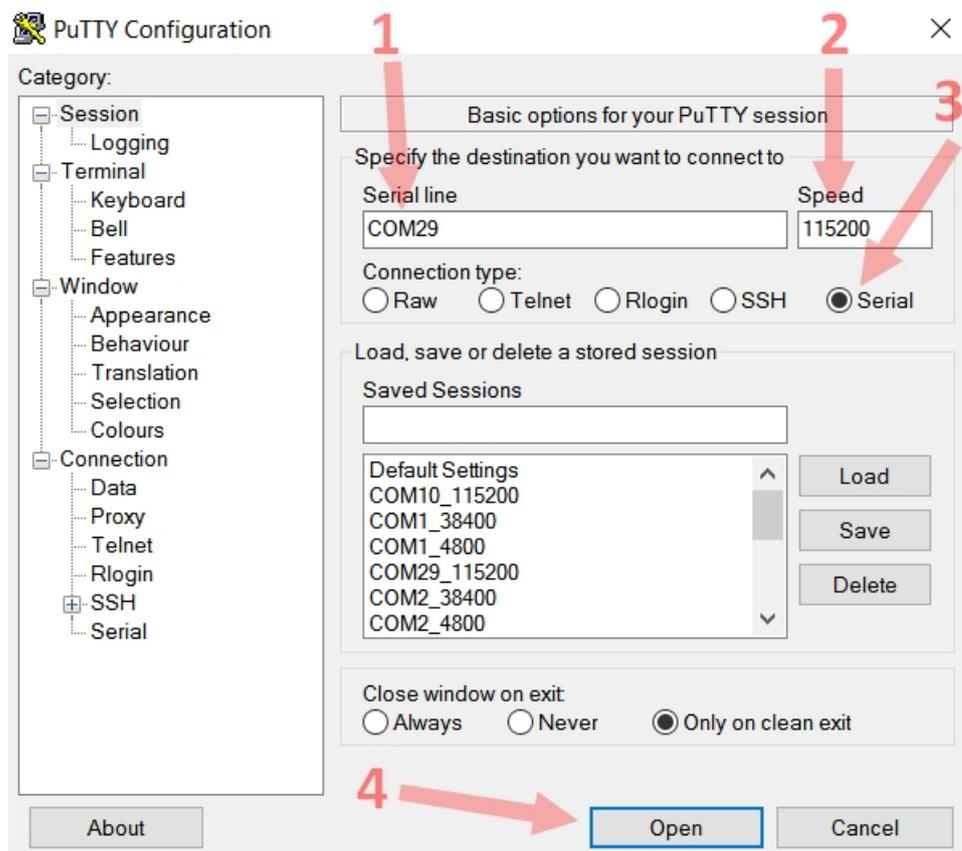
Main Menu

Type "stopmux" and you should then see the YakMUX Config Menu as seen below.
(As you type stopmux you will not see the characters appear, this is normal)

```
COM61 - PuTTY                                                    —   □   ✕

*****************************
*         MAIN MENU         *
*****************************


Press :
Enter : Show this menu
    C : Display Port Configuration
    U : Set Output Mapping for USB IN (From Computer)
   S1 : Set Speed for PORT 1 IN and PORT 1 OUT
   M1 : Set Output Mapping for PORT 1 IN
   F1 : Set Output Filter for PORT 1 OUT

   S2 : Set Speed for PORT 2 IN and PORT 2 OUT
   M2 : Set Output Mapping for PORT 2 IN
   F2 : Set Output Filter for PORT 2 OUT

   S3 : Set Speed for PORT 3 IN and PORT 3 OUT
   M3 : Set Output Mapping for PORT 3 IN
   F3 : Set Output Filter for PORT 3 OUT
    V : Save Configuration Changes
    R : Restart Ports
```
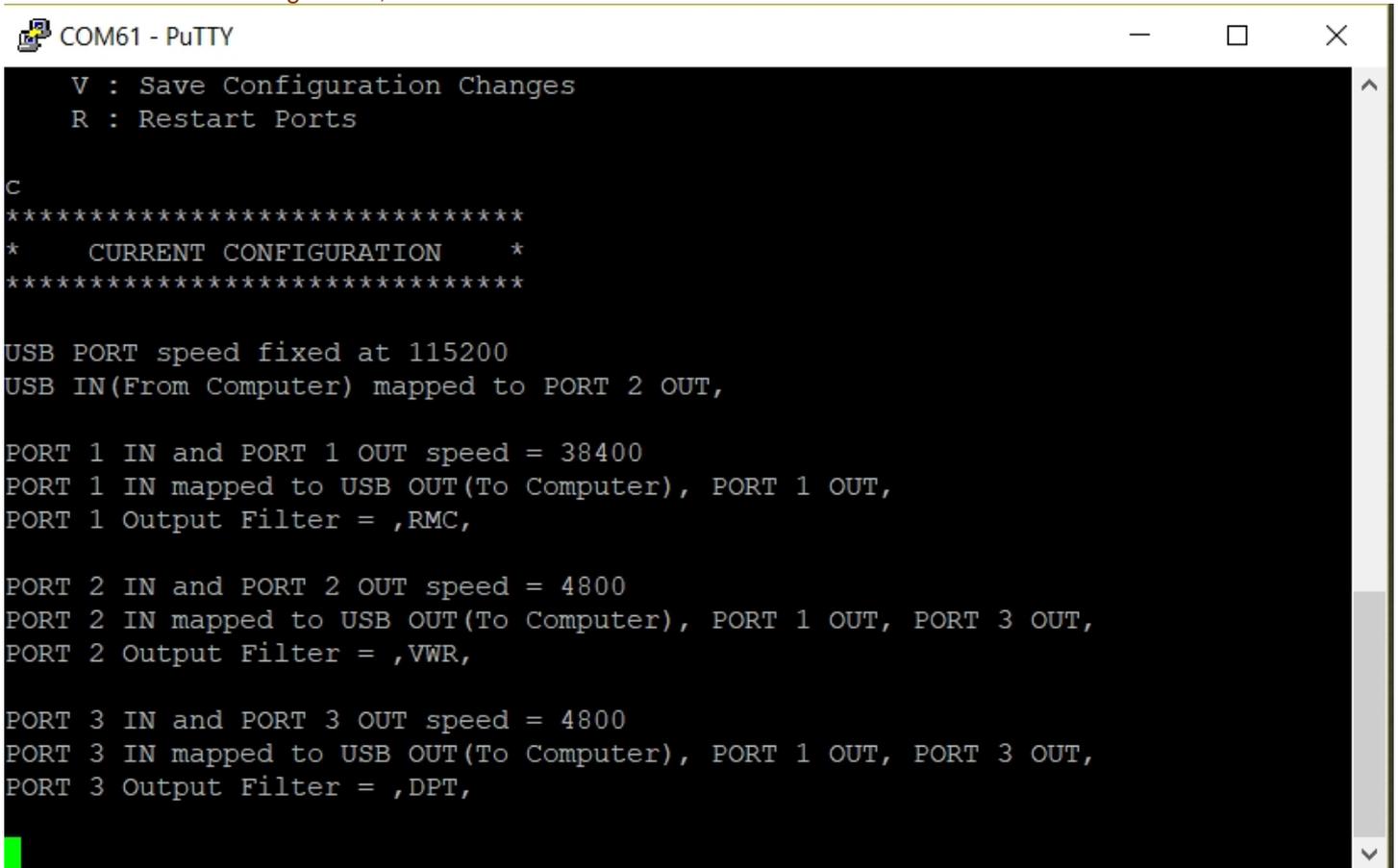
Current Configuration

To view the current configuration, Press "C"

```
COM61 - PuTTY                                                    —   □   ✕

    V : Save Configuration Changes
    R : Restart Ports


C
*****************************
*    CURRENT CONFIGURATION    *
*****************************


USB PORT speed fixed at 115200
USB IN(From Computer) mapped to PORT 2 OUT,

PORT 1 IN and PORT 1 OUT speed = 38400
PORT 1 IN mapped to USB OUT(To Computer), PORT 1 OUT,
PORT 1 Output Filter = ,RMC,

PORT 2 IN and PORT 2 OUT speed = 4800
PORT 2 IN mapped to USB OUT(To Computer), PORT 1 OUT, PORT 3 OUT,
PORT 2 Output Filter = ,VWR,

PORT 3 IN and PORT 3 OUT speed = 4800
PORT 3 IN mapped to USB OUT(To Computer), PORT 1 OUT, PORT 3 OUT,
PORT 3 Output Filter = ,DPT,
```

PORT SPEED

Each port can have it's speed set individually. So you could have port 1 set to 38400, Port 2 set to 9600 and Port 3 set to 4800. The input and output speed for each port are the same, so if you set Port 1 to 38400, this applies to the input and the output.

To change the speed of Port 1 to 4800 for example, you would press "S1" as shown in the Menu.
You would then see the following options.

```
s1
*******************************
* Set Port Speed for PORT 1 IN *
*         and PORT 1 OUT        *
*******************************

Currently set to 38400
Press :
Enter : Return to Main Menu
    1 : 4800
    2 : 9600
    3 : 19200
    4 : 38400
    5 : 57600
```

Press "1" to set Port 1 speed to 4800.
You will now see your change like this.

```
1
PORT 1 IN and PORT 1 OUT speed set to 4800
```

Press the Enter key to go back to the Menu.

To check that your changes have been made correctly, press "C" to show the current configuration.
If you succeeded you will see the speed for Port 1 has been changed to 4800.

```
USB IN(From Computer) mapped to PORT 2 OUT,

PORT 1 IN and PORT 1 OUT speed = 4800
PORT 1 IN mapped to USB OUT(To Computer), PORT 1 OUT,
PORT 1 Output Filter = ,RMC,

PORT 2 IN and PORT 2 OUT speed = 4800
```

Port Mapping

Next we want to set the Mapping. This tells the YakMux where to send the sentences coming into each port.
You can map an input to any combination of outputs including the USB Port. For example, you might want the sentences sent out of port 1 which is set to 38400 to your chartplotter, but also to port 3 to a repeater display at 4800.

For this example we want to Map Port 1's input to the computer and Port 3's output.
As shown in the Main Menu, to change Port 1's mapping you press "M1".
This will display the following options.

```
m1
******************************
*       Set Output Mapping       *
*          for PORT 1 IN          *
******************************

 Press : (Repeat to toggle on/off)
 Enter : To return to Main Menu
     0 : For USB OUT(To Computer)
     1 : For PORT 1 OUT
     2 : For PORT 2 OUT
     3 : For PORT 3 OUT


PORT 1 IN mapped to USB OUT(To Computer), PORT 1 OUT, PORT 3 OUT,
```

The bottom line above shows that USB and Port 3 are already selected which we want.
It also shows that Port1 is selected which we do not want.
As the Menu tells us pressing the number for the output Port we want will toggle that output on and off.
To turn off Port 1 output we press "1"

```
 Press : (Repeat to toggle on/off)
 Enter : To return to Main Menu
     0 : For USB OUT(To Computer)
     1 : For PORT 1 OUT
     2 : For PORT 2 OUT
     3 : For PORT 3 OUT


PORT 1 IN mapped to USB OUT(To Computer), PORT 1 OUT, PORT 3 OUT,
1
PORT 1 IN mapped to USB OUT(To Computer), PORT 3 OUT,
```

You will then see that Port 1 is no longer selected. Sentences coming into Port 1 will now only be sent to the computer and Port 3.

Press Enter to return to the Main Menu. Press "C" to make sure all your changes are as they should be.

Port Filters

Port Filters allow you to block certain sentences from being output from each of the three ports independently.

To do this you need to know a little about the different types of sentences. One excellent source of information can be found here.

This is an example of an RMC sentence sent by a GPS receiver.
$GPRMC,123519,A,4807.038,N,01131.000,E,022.4,084.4,230394,003.1,W*6A

Contained within this sentence are data relating to the time, position, direction of travel and speed. The part that is important to us for filtering purposes is just the first part "$GPRMC". The "$" is just used to indicate the start of a sentence so we can ignore it. The first two characters of the sentence "GP" comprise the Talker ID, this one tells us that the sentence was sent from a GPS receiver. The next 3 characters "RMC", the Sentence ID, tells us which sentence it is. RMC is the acronym for "Recommended Minimum Navigation Information".

As an example, you might be using the YakMux to combine the data from an AIS receiver, a Wind Instrument and a Depth Instrument and send all of the data to your chartplotter connected to Port 1 OUT. Perhaps the AIS receiver connected to Port 1 IN has a built-in GPS, but you want to use the position data from the GPS that is built into your chartplotter. This means that you will need to filter out the position related sentences from the AIS.

For this example we will assume that we need to filter these three sentences so they do not get sent out of Port 1: RMC, GGA and GLL.

To create the filter for Port 1, from the Main Menu we enter "F1". Which gives us:

```
f1
*****************************
*      Set Output Filter      *
*        for PORT 1 OUT        *
*****************************


 Enter 2, 3 or 5 character sentence headers
 seperated by commas.
 These sentences will not be output
 from Port 1.

 Press :
   Esc : To cancel and return to the Main Menu
 Enter : To save new filter and return to Main Menu

Port 1 Output filter :
█
```

Now we enter the Sentence ID's for our filter separated by commas, like this: "RMC,GLL,GGA"

```
Port 1 Output filter :
RMC,GLL,GGA█
```

If you want to block all sentences from a particular instrument or device, you need to know it's 2 character Talker ID. Since we already know that the Talker ID for a GPS is "GP", we'll use that. To block all sentences from the GPS we would simply enter "GP" as our filter.

```
Port 1 Output filter :
GP█
```

Port Filters Continued…

Sometimes a situation can arise where you have the same sentence being sent from two devices with different Talker ID's, and you only want to block one of them. For example, if the YakMux is receiving an RMC sentence from a GPS with a Talker ID of "GP" and an MFD or other multi-function device with a Talker ID of "II", which stands for Integrated Instrument, and you want to filter out the RMC sentence form the Integrated Instrument you would enter a 5 character filter like this: "IIRMC".

```
Port 1 Output filter :
IIRMC
```

You can also have multiple filters in which case you simply add them all separated by commas like this:

```
Port 1 Output filter :
IIRMC,GP,WMV,ZDA,HDG
```

Once you have the filter entered press Enter to accept it and return to the Main Menu.

If you want to cancel what you have entered and return the Main Menu without changing the existing filter simply press the Esc key.

Saving your settings

Once you are happy with your settings you MUST press "V" from the Main Menu to save your changes. If you do not save your changes then the YakMuX will revert to the previous settings when it is restarted.

```
Press :
Enter : Show this menu
    C : Display Port Configuration
    U : Set Output Mapping for USB IN (From Computer)
   S1 : Set Speed for PORT 1 IN and PORT 1 OUT
   M1 : Set Output Mapping for PORT 1 IN
   F1 : Set Output Filter for PORT 1 OUT

   S2 : Set Speed for PORT 2 IN and PORT 2 OUT
   M2 : Set Output Mapping for PORT 2 IN
   F2 : Set Output Filter for PORT 2 OUT

   S3 : Set Speed for PORT 3 IN and PORT 3 OUT
   M3 : Set Output Mapping for PORT 3 IN
   F3 : Set Output Filter for PORT 3 OUT
    V : Save Configuration Changes
    R : Restart Ports
```

Once you have saved your changes, press "R" to exit configuration mode and restart the ports.

If you do not need to send data to your computer you can now disconnect the USB cable.

If you need any further assistance you can email us via our website:

www.yakbitz.com

Cheers, Steve.