



Article Number - 00071-2026

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Article applies to - Digital Yacht NAVLink2 product

ISSUE: Blacklisting a Network Device that is sending bad data

NAVLink2 is a wireless NMEA 2000 gateway that will receive all of the NMEA 2000 network data and based on what NMEA Mode it is set to, run a series of conversions from NMEA 2000 PGNs to NMEA 0183 Sentences that most popular navigation apps for mobile devices will support.

If there is duplicate data on the NMEA 2000 network, for instance GPS or Depth data, NAVLink2 will prioritise which source of data to use, based on the NMEA Address of the devices that are sending the data. Lowest NMEA address = Highest priority and so if two GPS devices are on NMEA addresses 6 and 23, the data for the conversions will be taken from the device at address 6.

This automatic source selection works well, until a device sends out bad or no data. This can often happen if an MFD has an optional internal GPS or depth sounder module that is not fitted or disabled. Symptoms of this type of problem will be if NAVLink2 is sending out GPS, Date/Time, Depth, etc. data that is wrong or not present.

In this situation it is necessary to “Blacklist” the device and then the NAVLink2 will ignore all data from that device. If the device is sending some data that you want to continue to use, then you can blacklist specific PGNs from that device.

Blacklist Procedure

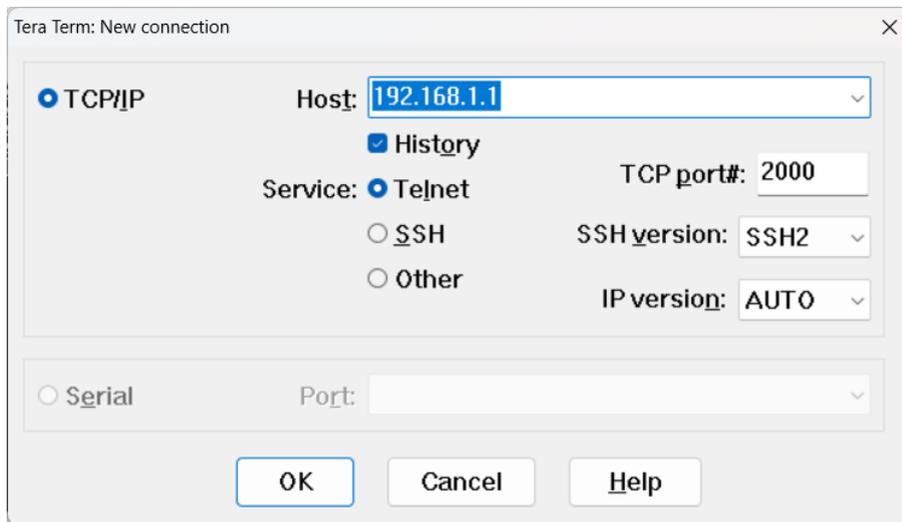
In order to blacklist a device or specific PGNs, you need to wirelessly send a command to the NAVLink2 over TCP. You will need to have a suitable Telnet or Terminal program installed on your mobile device, such as TereTerm (Windows), PuTTY (LINUX), TelNet Lite (MAC), etc. Any Telnet client app that can send commands over TCP can be used.

NMEA 0183 sentences always end with two special End of Line characters – Carriage Return + Line Feed – and you must set your TelNet program to send CR+LF as the End of Line sequence.

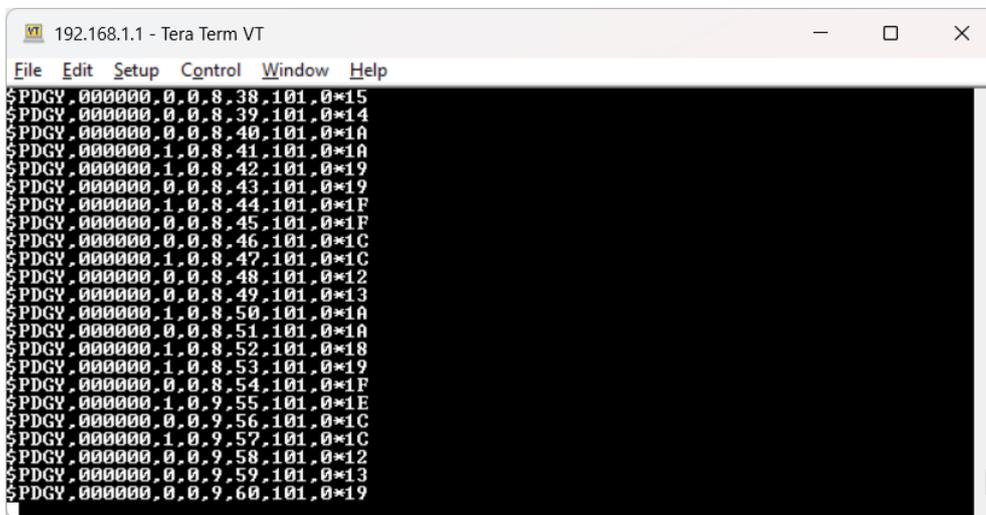
The following procedure shows Tera Term screen shots, but the procedure should be very similar for other Tel Net programs.

Once you have your TelNet program installed and configured correctly, make your mobile device join the NAVLink2’s wireless network and then open your TelNet program.

The default IP address of the NAVLink2 is 192.168.1.1 and it uses Port 2000 for TCP connections. You will need to use these values to setup the TelNet connection in your TelNet program, as shown in the Tera Term screen shot below.



Once the TCP connection is made, your program should display a scrolling page of NMEA 0183 sentences. For large networks, there could be a lot of data scrolling down the page or in the case of my simple test network, just the NAVLink2 Heartbeat sentence that is always output once per second.



You can use the NAVLink2's RAW Mode to discover more about the NMEA 2000 devices and what PGNs they output and once you know the address of the device you wish to blacklist or the specific PGNs it is transmitting use the following example blacklist commands to work out what command you need to send to the NAVLink2....

To blacklist the Depth PGN 128267 from the device at address 5, use this command....

```
$PDGY,BLACKLIST,5,128267
```

To blacklist the three GPS PGNs from the device at address 5, use this command....

```
$PDGY,BLACKLIST,5,129025,129026,129029
```

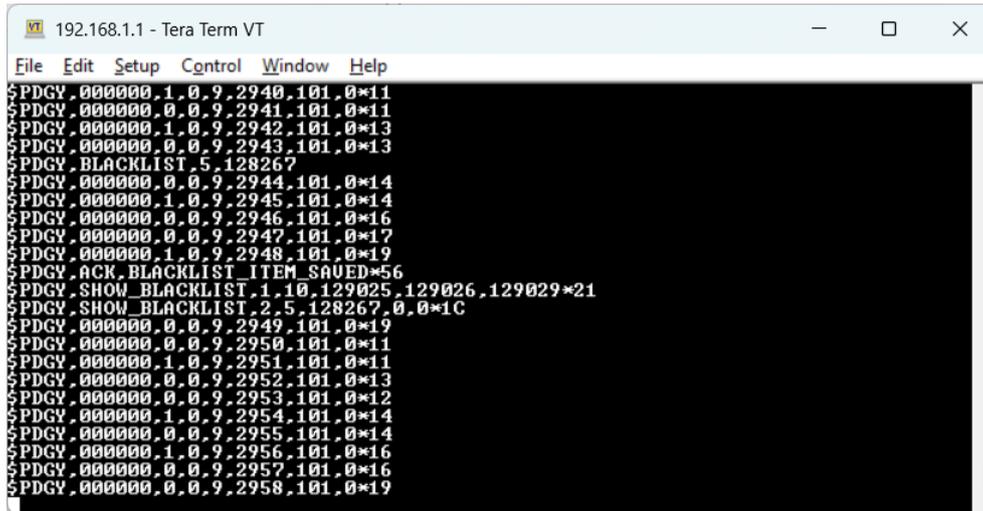
To completely blacklist all of the PGNs being sent by the device at address 10, replace the PGN number(s) with a 1, as shown in this command...

```
$PDGY,BLACKLIST,10,1
```

To reset all of the current blacklist rules, send this command....

```
$PDGY,RESET_BLACKLIST
```

Whatever command you send to NAVLink2, you should receive an acknowledgement as shown below.



```
192.168.1.1 - Tera Term VT
File Edit Setup Control Window Help
$PDGY,000000,1,0,9,2940,101,0*11
$PDGY,000000,0,0,9,2941,101,0*11
$PDGY,000000,1,0,9,2942,101,0*13
$PDGY,000000,0,0,9,2943,101,0*13
$PDGY,BLACKLIST,5,128267
$PDGY,000000,0,0,9,2944,101,0*14
$PDGY,000000,1,0,9,2945,101,0*14
$PDGY,000000,0,0,9,2946,101,0*16
$PDGY,000000,0,0,9,2947,101,0*17
$PDGY,000000,1,0,9,2948,101,0*19
$PDGY,ACK,BLACKLIST,ITEM,SAVED*56
$PDGY,SHOW,BLACKLIST,1,10,129025,129026,129029*21
$PDGY,SHOW,BLACKLIST,2,5,128267,0,0*1C
$PDGY,000000,0,0,9,2949,101,0*19
$PDGY,000000,0,0,9,2950,101,0*11
$PDGY,000000,1,0,9,2951,101,0*11
$PDGY,000000,0,0,9,2952,101,0*13
$PDGY,000000,0,0,9,2953,101,0*12
$PDGY,000000,1,0,9,2954,101,0*14
$PDGY,000000,0,0,9,2955,101,0*14
$PDGY,000000,1,0,9,2956,101,0*16
$PDGY,000000,0,0,9,2957,101,0*16
$PDGY,000000,0,0,9,2958,101,0*19
```

Once you have blacklisted the rogue devices, you should see that the NAVLink2 is now using the good data from the other devices.

These blacklist rules will be retained by NAVLink2 until you send a Reset Blacklist command or you do a Factory Reset on the NAVLink2 by pressing and holding the Reset switch for >10 seconds.