



Article Number - 00053-2013

Date - 19th December 2012

Article applies to - iAIS, WLN10, WLN10HS, NavLink and PilotLink wireless NMEA servers

ISSUE: Configuring Wireless NMEA Products for Wireless+3G Connections

Originally Digital Yacht's wireless NMEA products; iAIS, WLN10, WLN10HS, NavLink and PilotLink were designed to create an Ad-Hoc wireless network. With the introduction of the latest V4.00 firmware, we changed the operation to create an Access Point wireless network which was more stable and supported Android devices.

Since January 2013 all Digital Yacht wireless NMEA products have had the "Access Point" (V4.00) firmware and are pre-configured to create a local wireless network with the following network settings;

IP Address	-	169.254.1.1
Subnet	-	255.255.255.0
Gateway	-	169.254.1.1
DNS	-	169.254.1.1

Recently we have received reports that when customers are connected to one of our wireless NMEA products, that they can no longer access the internet via 3G on their mobile device. This is due to the device thinking that it has a good wireless internet connection and so defaulting to this connection rather than the 3G connection.

This Tech Support note explains how to configure our wireless NMEA products so that an iPhone/iPad can be connected wirelessly to get NMEA data and still connect to the internet via the 3G connection.

SOLUTION:

The solution involves sending a command to our wireless NMEA product to set the Gateway IP address to 0.0.0.0 (no Gateway). When the iPhone or iPad sees that the wireless connection has no Gateway to the internet, it automatically switches to the 3G connection whenever it needs an internet connection.

In order to send the command, you will need to use a Windows PC, a Mac or the iPhone/iPad itself using a special Terminal program. The actual program you use is different for each of the three platforms and this Tech Note will provide details on which program to use and give you a simple step-by-step guide on how to send the command and store the new settings in our wireless products.

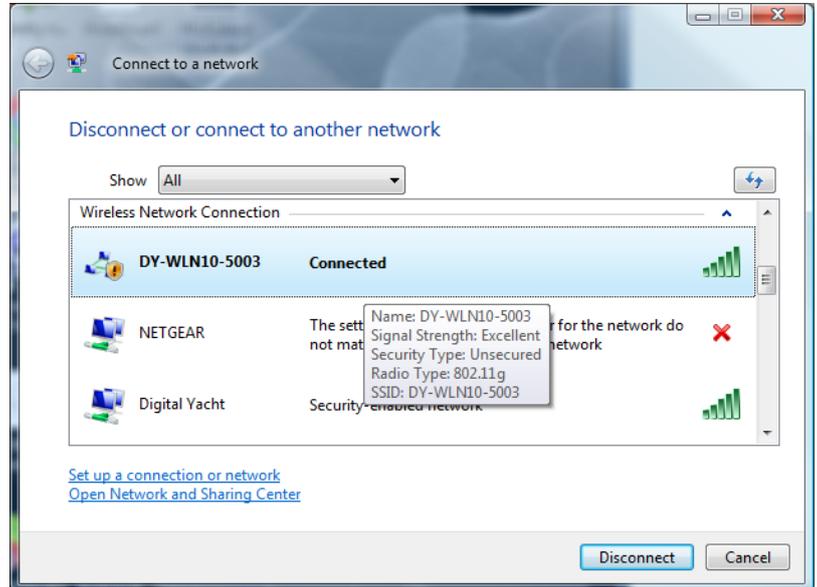
The procedure can be done on the boat or in your home/office but in this case you will need to connect our wireless product to a 12v DC power supply.

Procedure for Windows PC

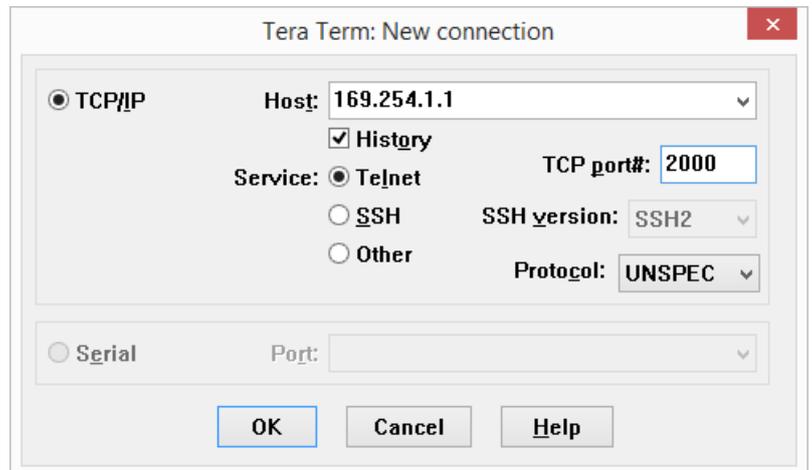
The terminal program we recommend for Windows is called TeraTerm and a copy of this program is included on the Digital Yacht “Software and Drivers” CD-Rom (in the Utilities folder), or is available for download at the link below;

<http://en.sourceforge.jp/projects/ttssh2/downloads/51174/teraterm-4.69.exe/>

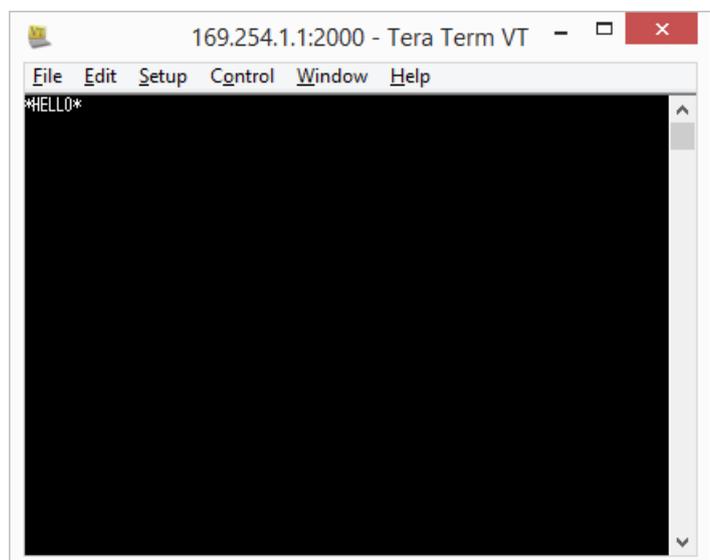
After installing Tera Term, it is necessary to wirelessly connect the PC to our wireless NMEA product using the Windows Wireless Network utility, scan for available networks and connect to the device to be configured.



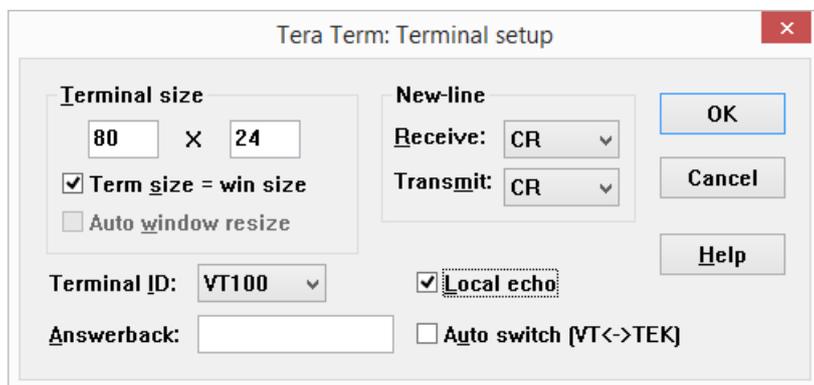
Once connected, run Tera Term and when the “New Connection” window is displayed, select the TelNet service, enter the IP address and Port number of the our wireless NMEA product – which is always 169.254.1.1 Port 2000.



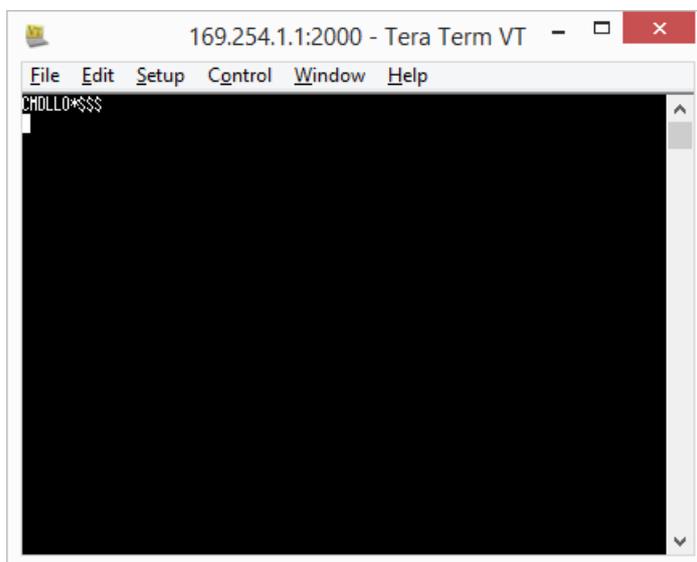
If Tera Term successfully creates a TCP/IP connection to our wireless NMEA product, then you should see the window below with the word “*HELLO*” displayed.



In order to see what you are typing in Tera Term, click on Setup>Terminal and then make sure the “Local Echo” option is ticked (see below). Once you have done this click “OK” to return to the terminal window.



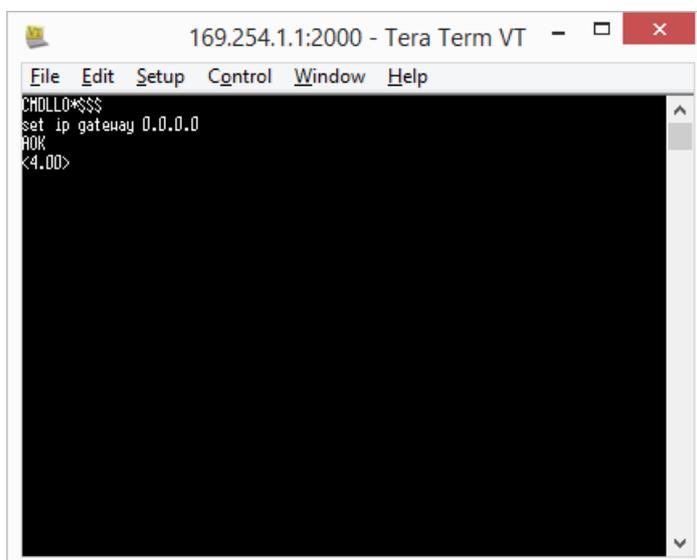
To place the wireless NMEA product in to Command Mode type three dollar signs **\$\$\$** and then press the ENTER key. You should see the following screen where the text CMD has been over typed on the *HELLO* text – you’re now in Command Mode and can send the configuration command to the wireless NMEA product.



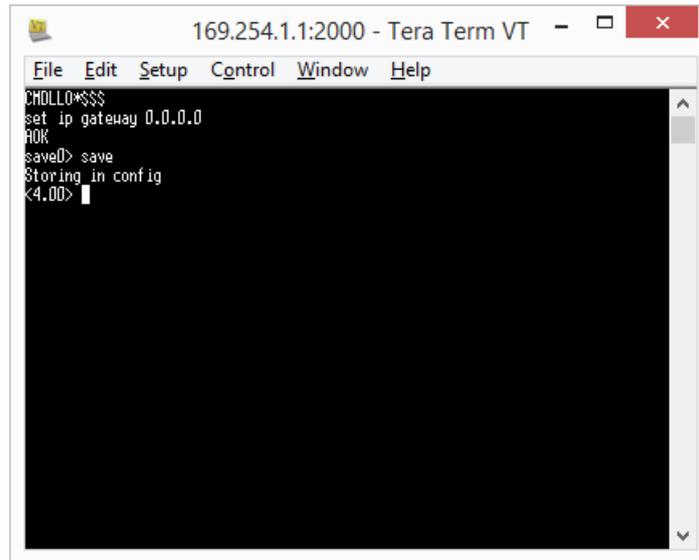
To set the Gateway IP address to 0.0.0.0, type the following command and then press the ENTER key.

set ip gateway 0.0.0.0

The wireless NMEA product should respond with an Acknowledgement “AOK” as shown below.

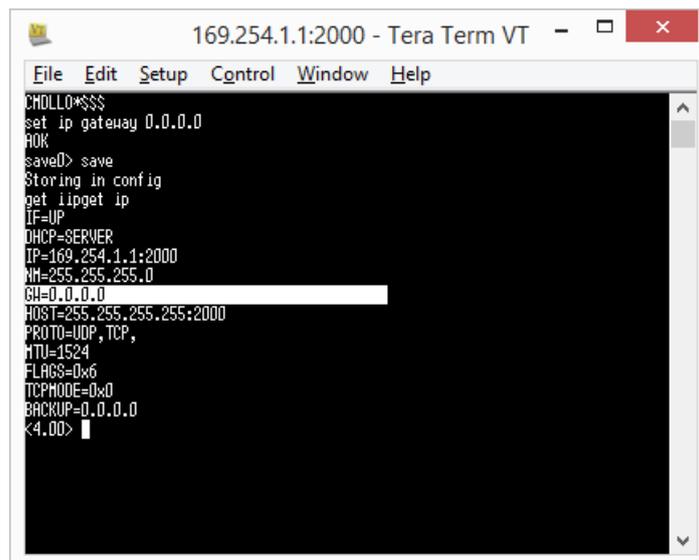


Now you should save the settings you have changed by typing **save** and then pressing the ENTER key, which should cause the following message to be displayed.



```
169.254.1.1:2000 - Tera Term VT
File Edit Setup Control Window Help
CHOLLO*$$$
set ip gateway 0.0.0.0
AOK
saveD> save
Storing in config
<4.00> █
```

You can double check that the new setting has been accepted by typing **get ip** and then pressing the ENTER key, which will display the following information



```
169.254.1.1:2000 - Tera Term VT
File Edit Setup Control Window Help
CHOLLO*$$$
set ip gateway 0.0.0.0
AOK
saveD> save
Storing in config
get ipget ip
IF=UP
DHCP=SERVER
IP=169.254.1.1:2000
NH=255.255.255.0
GA=0.0.0.0
HOST=255.255.255.255:2000
PROTO=UDP,TCP,
MTU=1524
FLAGS=0x6
TCPMODE=0x0
BACKUP=0.0.0.0
<4.00> █
```

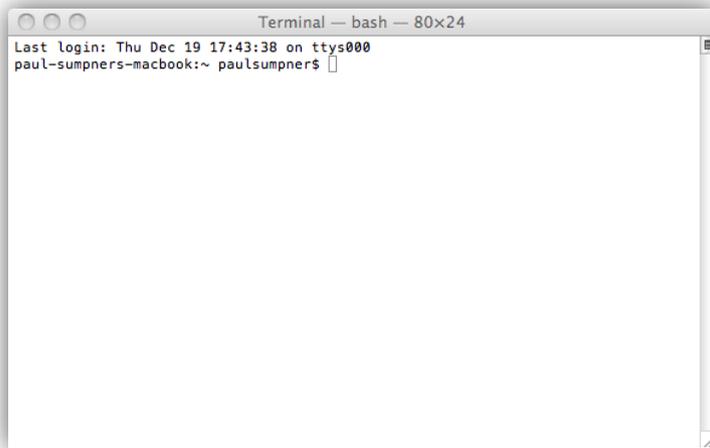
The highlighted line in the previous image is the changed Gateway setting which should now read 0.0.0.0.

Now you should turn off your wireless NMEA product, wait a couple of seconds and then turn it on again.

To test that everything is working OK, go to **Settings>Wi-Fi** on the iPhone/iPad scan for wireless networks and connect to our wireless NMEA product. Then open Safari and see if you can access the internet (assuming that you have a good 3G connection).

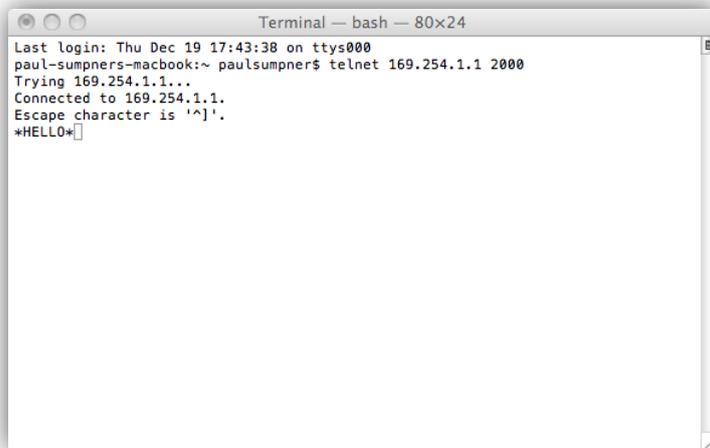
Procedure for Macs

The Terminal program we recommend for Macs is the built-in TelNet program. To access this, in Finder click **Go>Utilities** and then double click the "Terminal" program. Once in the Terminal, you will see a screen like the one below. Now do a scan for wireless networks and select our wireless NMEA product.



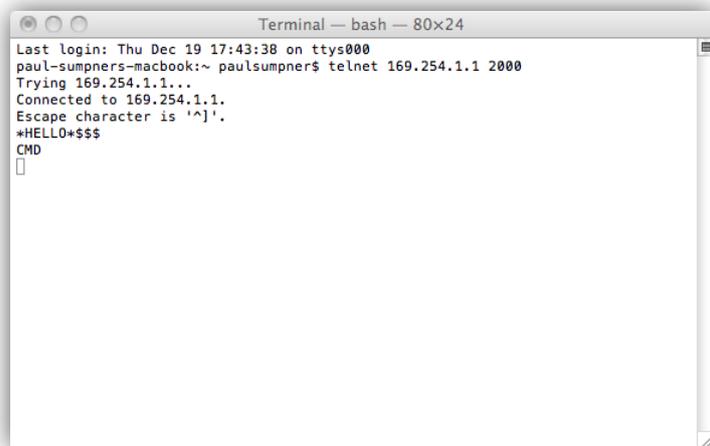
```
Terminal — bash — 80x24
Last login: Thu Dec 19 17:43:38 on ttys000
paul-summners-macbook:~ paulsumpner$
```

Now type **telnet 169.254.1.1 2000** and this will create a TCP connection to our wireless NMEA product which will respond with the word **"*HELLO*"** as shown below...



```
Terminal — bash — 80x24
Last login: Thu Dec 19 17:43:38 on ttys000
paul-summners-macbook:~ paulsumpner$ telnet 169.254.1.1 2000
Trying 169.254.1.1...
Connected to 169.254.1.1.
Escape character is '^'.
*HELLO*
```

To place the wireless NMEA product in to Command Mode type three dollar signs **\$\$\$** and then press the ENTER key. You should see the following screen where the text **CMD** has appeared below the ***HELLO*** text – you’re now in Command Mode and can send the configuration command to the wireless NMEA product.



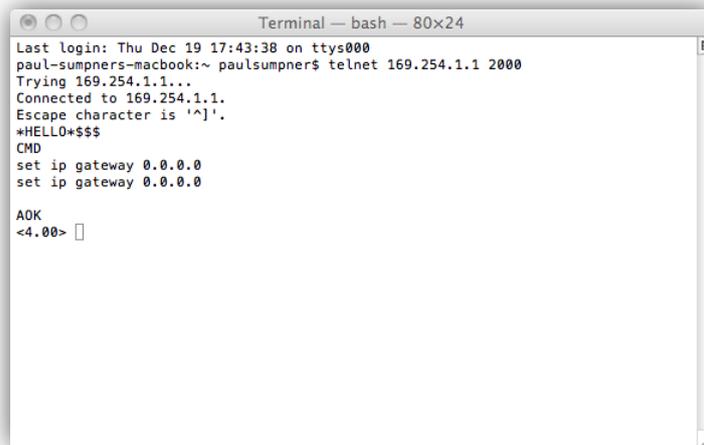
```
Terminal — bash — 80x24
Last login: Thu Dec 19 17:43:38 on ttys000
paul-summners-macbook:~ paulsumpner$ telnet 169.254.1.1 2000
Trying 169.254.1.1...
Connected to 169.254.1.1.
Escape character is '^'.
*HELLO*$$$
CMD

```

To set the Gateway IP address to 0.0.0.0, type the following command and then press the ENTER key.

set ip gateway 0.0.0.0

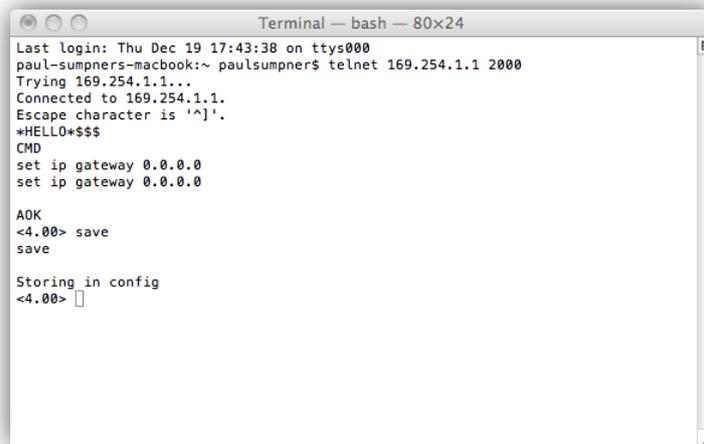
The wireless NMEA product should respond with an Acknowledgement “AOK” as shown below.



```
Terminal — bash — 80x24
Last login: Thu Dec 19 17:43:38 on ttys000
paul-sumpnrs-macbook:~ paulsumpner$ telnet 169.254.1.1 2000
Trying 169.254.1.1...
Connected to 169.254.1.1.
Escape character is '^]'.
*HELLO*$$$
CMD
set ip gateway 0.0.0.0
set ip gateway 0.0.0.0

AOK
<4.00> 
```

Now you should save the settings you have changed by typing **save** and then pressing the ENTER key, which should cause the following message to be displayed.

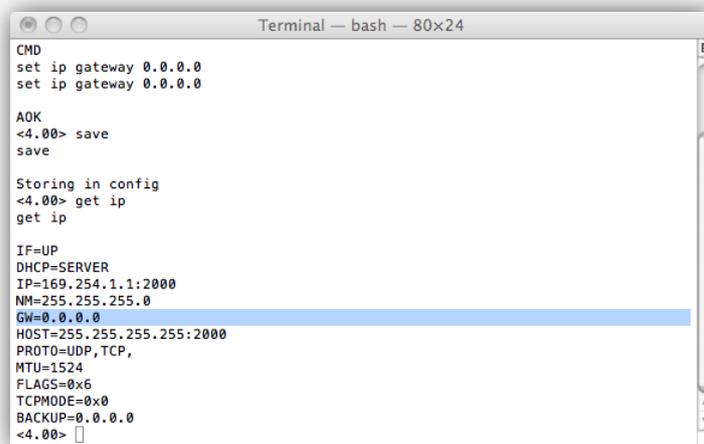


```
Terminal — bash — 80x24
Last login: Thu Dec 19 17:43:38 on ttys000
paul-sumpnrs-macbook:~ paulsumpner$ telnet 169.254.1.1 2000
Trying 169.254.1.1...
Connected to 169.254.1.1.
Escape character is '^]'.
*HELLO*$$$
CMD
set ip gateway 0.0.0.0
set ip gateway 0.0.0.0

AOK
<4.00> save
save

Storing in config
<4.00> 
```

You can double check that the new setting has been accepted by typing **get ip** and then pressing the ENTER key, which will display the following information



```
Terminal — bash — 80x24
CMD
set ip gateway 0.0.0.0
set ip gateway 0.0.0.0

AOK
<4.00> save
save

Storing in config
<4.00> get ip
get ip

IF=UP
DHCP=SERVER
IP=169.254.1.1:2000
NM=255.255.255.0
GW=0.0.0.0
HOST=255.255.255.255:2000
PROTO=UDP,TCP,
MTU=1524
FLAGS=0x6
TCPMODE=0x0
BACKUP=0.0.0.0
<4.00> 
```

The highlighted line in the previous image is the changed Gateway setting which should now read 0.0.0.0.

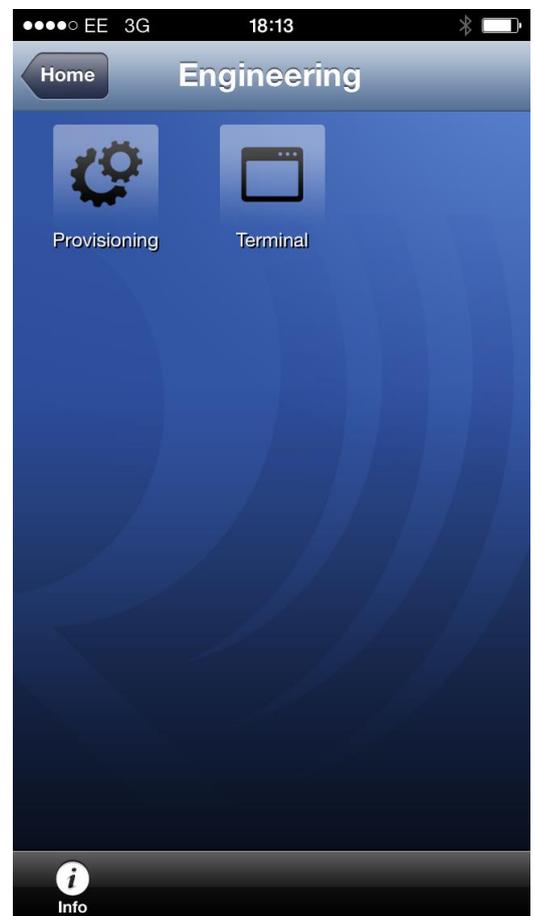
Now you should turn off your wireless NMEA product, wait a couple of seconds and then turn it on again.

To test that everything is working OK, go to **Settings>Wi-Fi** on the iPhone/iPad scan for wireless networks and connect to our wireless NMEA product. Then open Safari and see if you can access the internet (assuming that you have a good 3G connection).

Procedure for iPhones/iPads

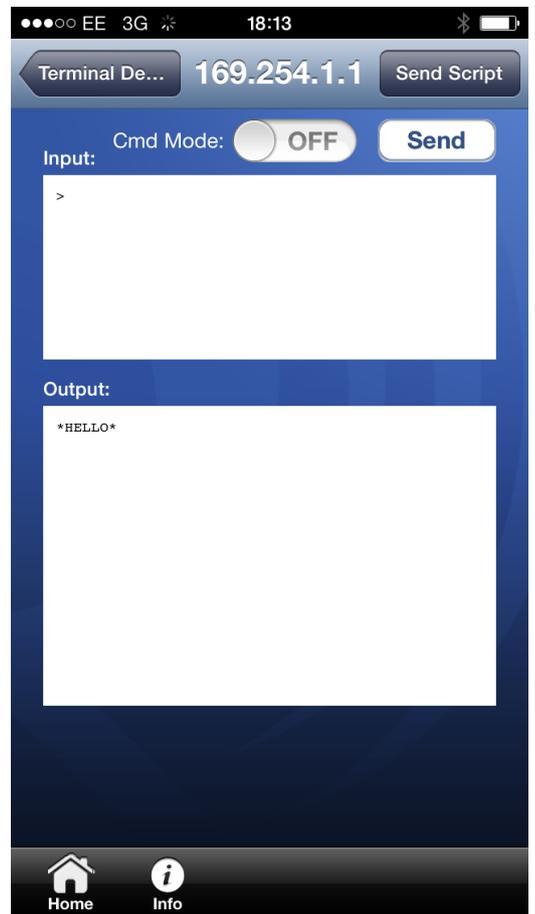
The Terminal program we recommend for iPhones/iPads is a free app from the manufacturers of the wireless chip we use in our wireless NMEA products. Go to the Apple App Store and search for an App called “WiFly Apps”. Once you have found the right App (developed by Roving Networks) install the app and open it. You should see a screen like the left hand image below.

Press the “Engineering Tools” icon and you will see the screen shown in the right image below.

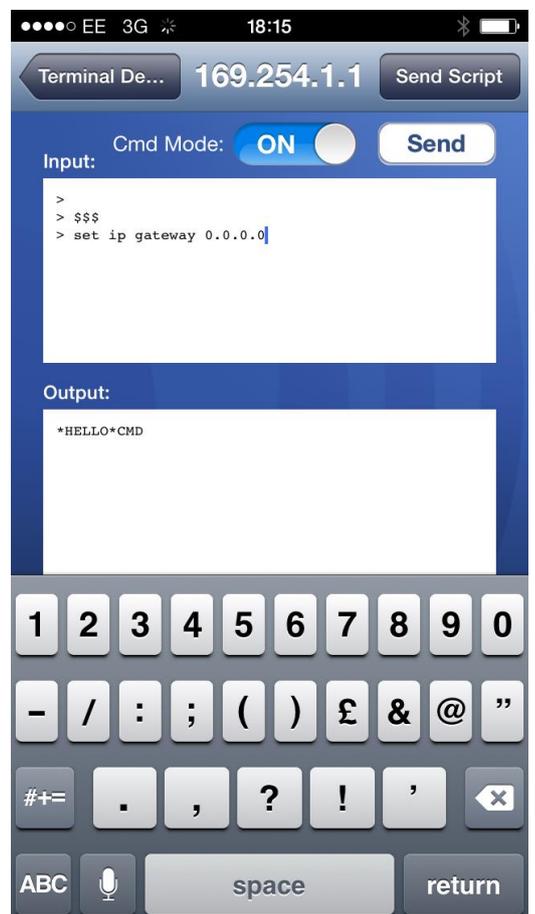
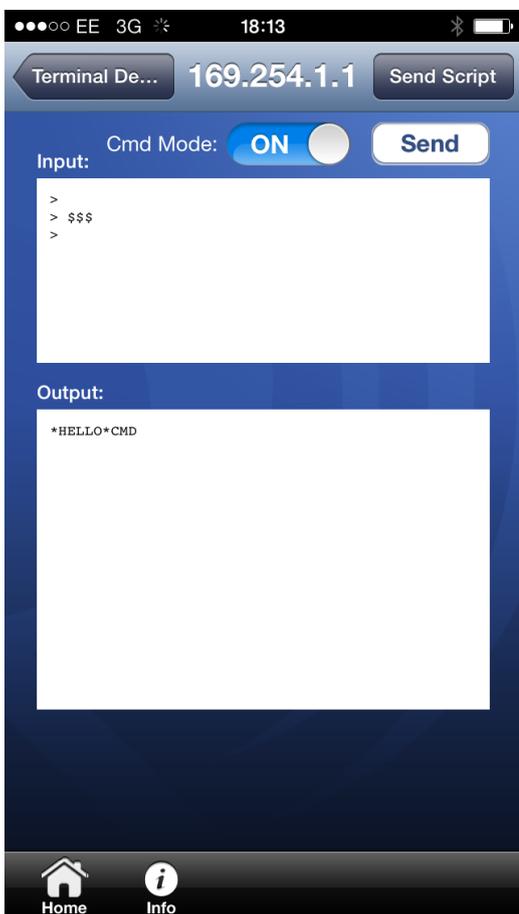


Now press the “Terminal” icon and the App will search for wireless devices and then list them as shown in the left hand image below. Select the “WiFly-GSX” by clicking on the button in the list and the App will then try to establish a data link with our wireless NMEA product.

If it is successful, you will see the screen shown in the right hand image below where two white communication windows are shown; the top “input” window is where you enter the commands to be sent to the device and the bottom “output” window is where you will see the responses and status of the wireless NMEA product.



Now place the wireless NMEA product in to command mode by sliding the “Cmd Mode” button to the on position. You should see the word CMD appear in the lower Output window as shown in the left hand image below. Now tap the upper Input window and the keyboard should appear as shown.



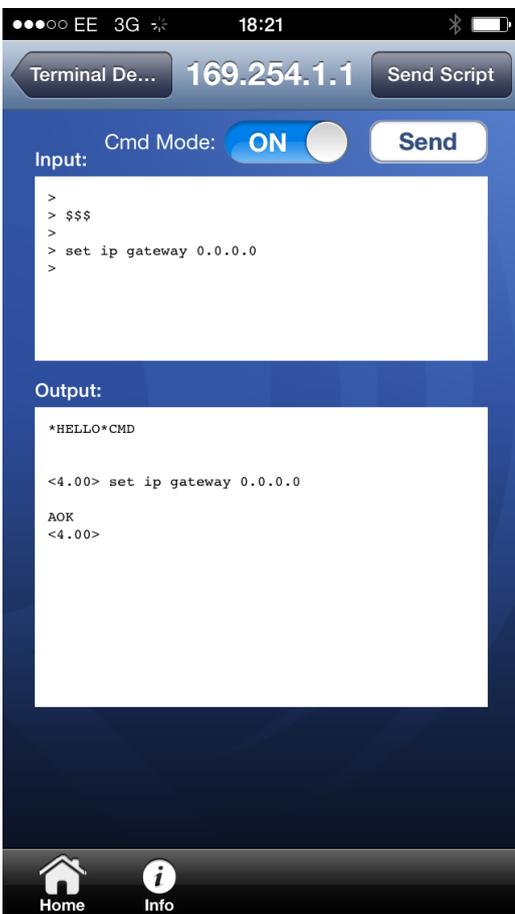
Press the “Return” key on the keyboard to make sure that the wireless NMEA product is receiving commands, you should see a cursor appear with the firmware version next to it – if the firmware is less than V4.00 then I would recommend updating the firmware to the latest version.

Now we can send the commands to the wireless NMEA product to change the configuration BUT it is important to note that the automatic spell checker of the iPhone/iPad will try to correct your typing, for example as you type “ip” it will try and change it to “up” so be careful to cancel any automatic changes and double check everything that you type to make sure that it has not been changed by the automatic spell checker

To set the Gateway IP address to 0.0.0.0, type the following command and then press the Return key.

set ip gateway 0.0.0.0

You should see an Acknowledgement “AOK” response as shown in the left hand image below.



Now save the change by typing the following command and pressing the Return button.

save

The wireless NMEA product should respond with a message “Storing in config” as shown in the right hand image above. As a final check that everything is correctly set, you can type the following command and then press the Return key.

get ip

This command will cause the wireless NMEA product to reply with all of its current network settings and you should see an entry "GW=0.0.0.0" if the setting has been made correctly.

You should now power off the wireless NMEA product, wait a couple of seconds and then power it on again.

To test that everything is working OK, go to **Settings>Wi-Fi** on the iPhone/iPad scan for wireless networks and connect to our wireless NMEA product. Then open Safari and see if you can access the internet (assuming that you have a good 3G connection).

