

Application Note

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Application Note of Setting up The Geobee Using TR600 as NTRIP Client/Server Modem

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Part 1 Setting up TR600 as Ntrip Server.

In this documentation I will explain how to setup the Tersus GeoBee. GeoBee Solution consists of one David GNSS Receiver and Tersus Ntrip Modem TR600.

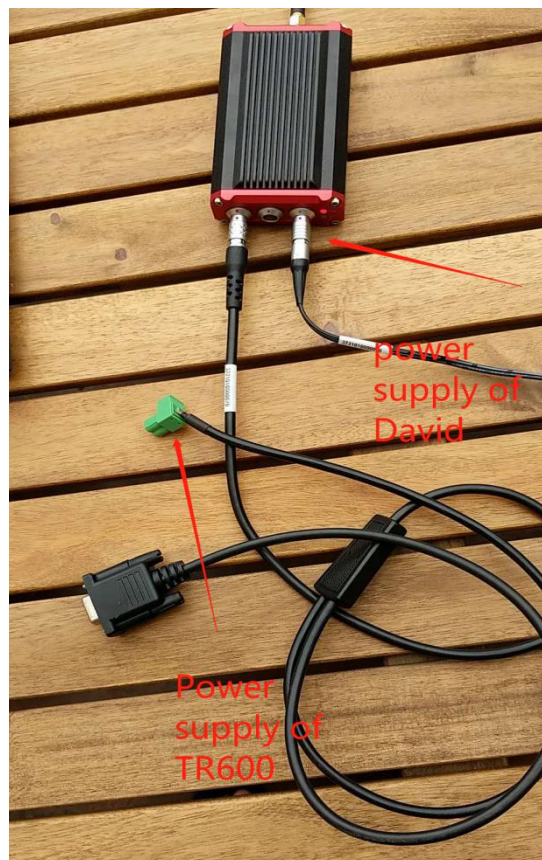


Here is the Ntrip Modem TR600.

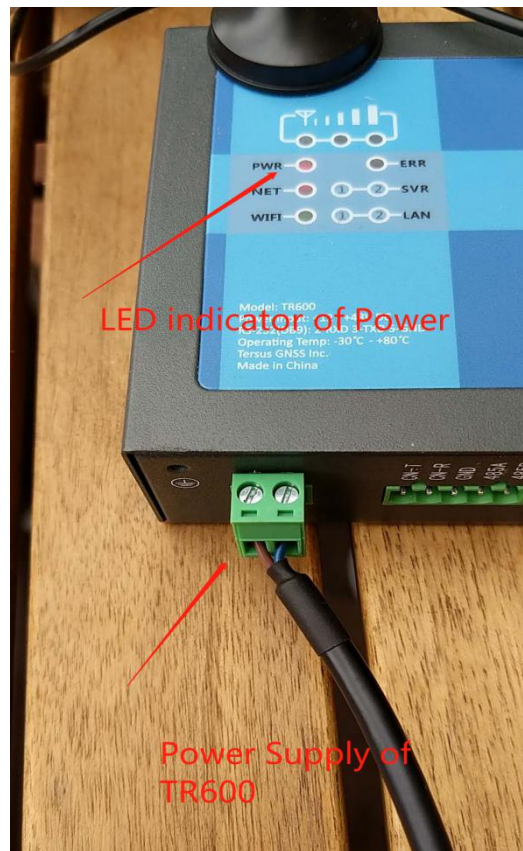


This is the Tersus GNSS Receiver.

Firstly we need to connect the David GNSS Receiver to the power and Ntrip Modem with the power supply.



As you can see, the Ntrip Modem power comes from David GNSS Receiver COMM1.
It reduces one power adaptor.



There is split RS232 cable from the David,
now you need to connect the RS232 port of the Ntrip Modem.

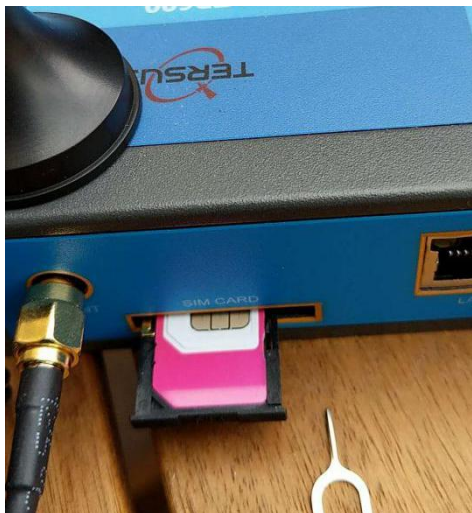


Now you can connect the 3G and WIFI antenna to the TR600 Modem



The next step is to install the SIM card, it's not necessary to use the mobile network. You can see what frequency or network the TR600 may support in the TR600 specs. But most countries support TR600, if you can have any question regarding the mobile network support in your country, just contact us.

I bought a Telstra 4G card, it works in Australia.



If you have local area network, such as Ethernet switch or router, its perfect to use wire line network. In my case, I use Ethernet, Wi-Fi, and 4G to do the test.

Here is the Ethernet cable connected:



The LAN1/WAN is used to connect to your home router/switch.

The LAN2 is usually connect to your PC.

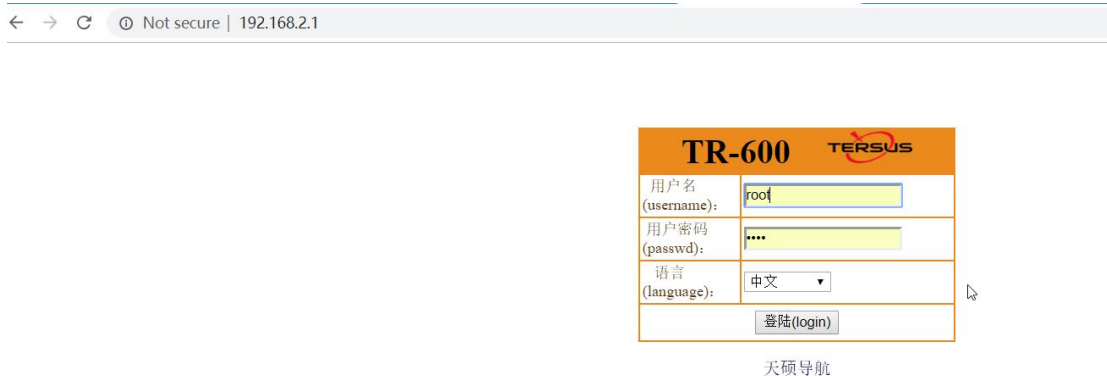
Once the PC is connected, you can see from the network settings of the local area network

Properties

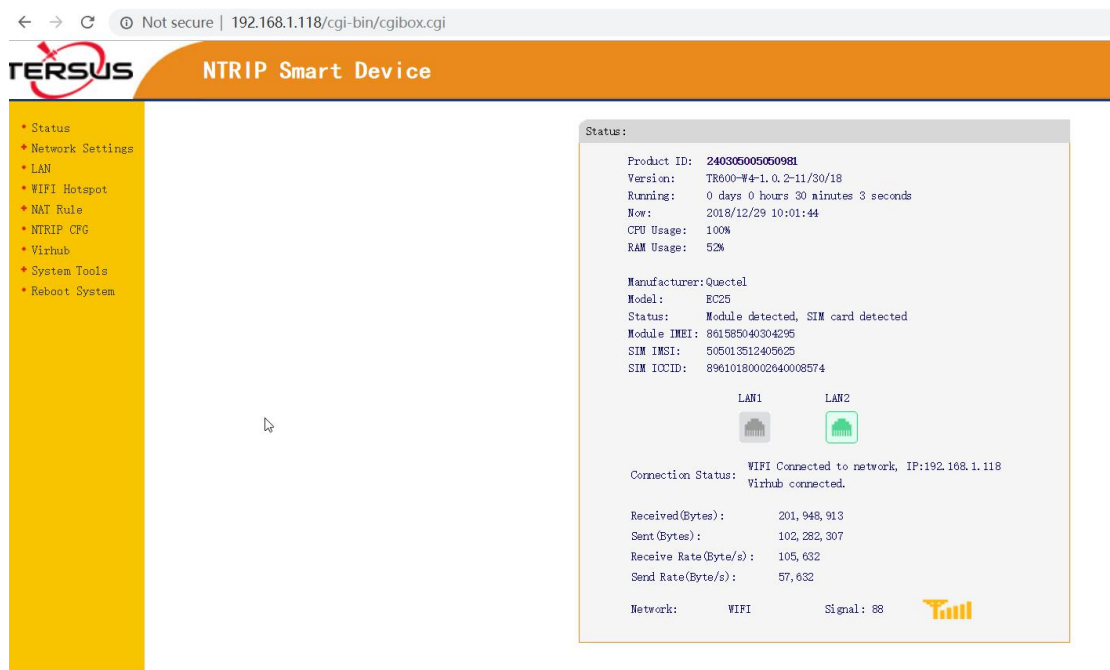
IPv4 address:	192.168.2.20
IPv4 DNS servers:	192.168.2.1
Manufacturer:	Realtek
Description:	Realtek PCIe GBE Family Controller
Driver version:	10.1.505.2015
Physical address (MAC):	44-A8-42-F4-23-28

192.168.2.20 is your PC address just get from the TR600, so now you can connect to the Web portal of TR600 through its IP address 192.168.2.1. In your web browser, input the ip address 192.168.2.1

Here is the web portal:

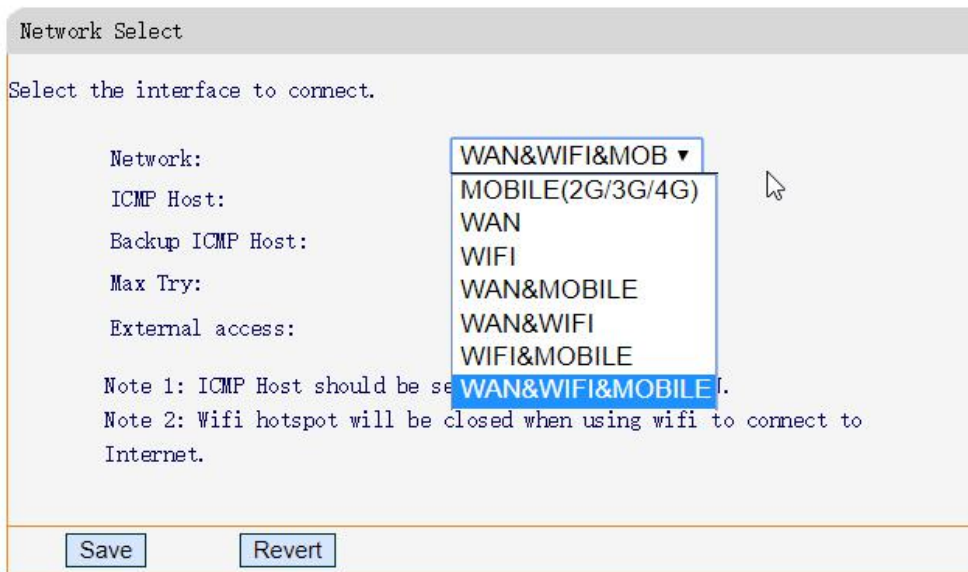


The initial username is root, the password is 1234, you can change it later on



The most part of NTRIP modem TR600 is very intuitive and straightforward.
The first page is showing the status of the current connections.

Now we start the network settings.

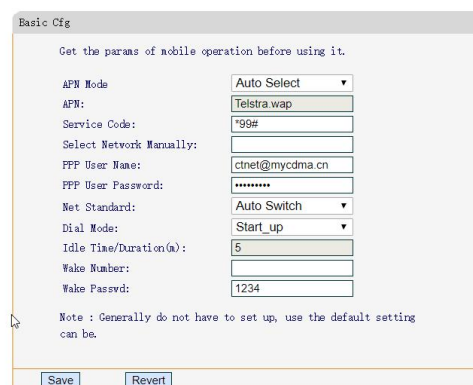


“Network select” we can use

It shows the WAN(Ethernet) priority is over WIFI, WIFI is over Mobile. So you can adjust your policy according to your needs.

Other options just leave there.

Now we come to the wireless basics, it’s actually 2/3/4G configuration, I just changed the APN to Telstra.wap. You can consult your mobile carrier of their APN settings. Other options just left there, these options actually not used by most carriers.



Wireless advanced, we don’t need to touch.

Now we come to the WAN configuration



WAN

Set up the WAN interface.

WAN MAC: 10:9C:94:99:A0:91

Type: DHCP

PPPOE Account:

PPPOE Password:

Static IP:

Mask:

Gateway:

DNS1:

DNS2:

Note:

Just use the default DHCP, because most the router supports DHCP. You connect the WAN to your router'LAN, then the router will assign an IP address to the TR600 modem.

In my situation, I got 192.168.1.117 from the router.

Now we come to the WIFI client section



WIFI Client

This Page: Set WIFI parameters

WIFI MAC: 20:32:33:13:7D:7F

SSID: WIFI-832A

Security: WPA2-PSK AES

PSK pin:

Type: DHCP

Static IP:

Mask:

Gateway:

DNS1:

DNS2:

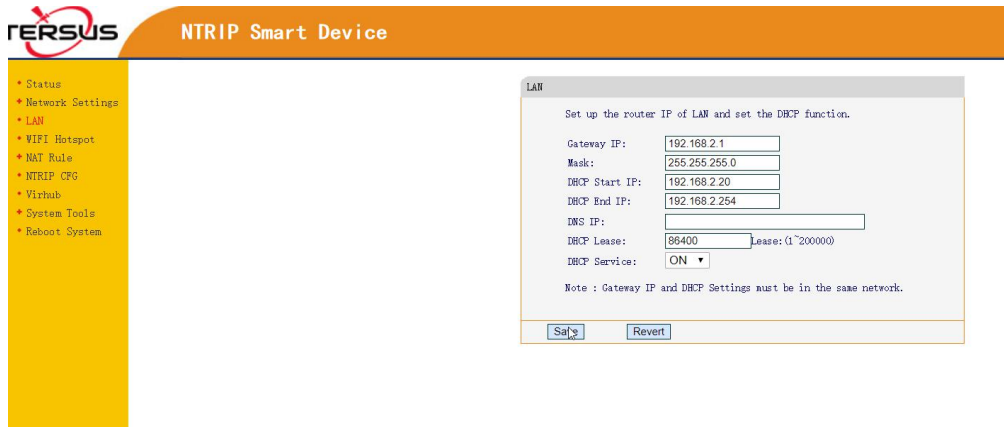
WIFI AP list

Note: If wifi is disabled, the first time clicking "Refresh", it need some time to output the result.

	SSID	Signal (0-100)	Security
<input checked="" type="radio"/>	WIFI-832A	91	[WPA2]
<input type="radio"/>	Dlink	64	[WPA2]
<input type="radio"/>	Upstairs Extender	45	[WPA2]
<input type="radio"/>	WIFI-865D	43	[WPA2]
<input type="radio"/>	192.168.1.117	22	[WPA2]

It's easy to configure, you can click refresh to find the hotspot. Then select it, and input the password in the PSK PIN area.

Now we come to the LAN configuration

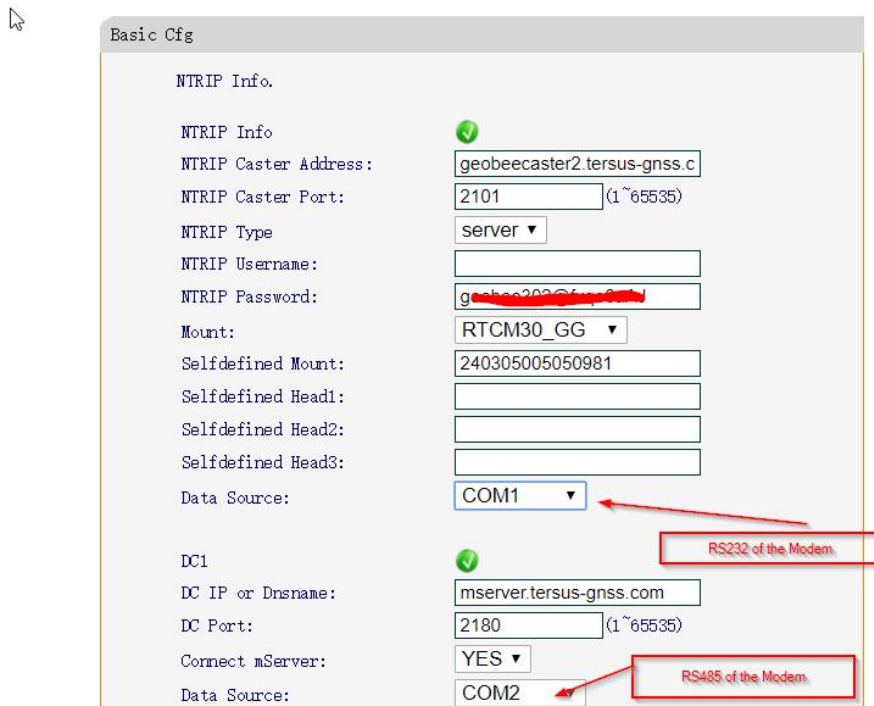


You can see the LAN configuration is ready, and IP address information is there.

[TIPs: you can configure the TR600 through web portal using wifi or LAN connection once you have connected to it.](#)

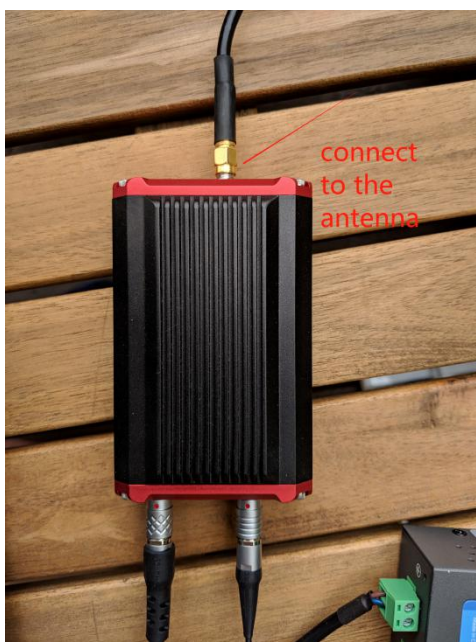
NAT rule we don't need to touch.

Ntrip CFG was pre-defined by Tersus, if you use Tersus GeoCaster service, it means you transmit all the RTCM to the Tersus server, then you pull from the server. That's the Ntrip caster service, then you don't need to touch it. Just left there.



Virhub is used to remote control of the modem and David, but we don't need to touch it.
We will introduce it in another document.

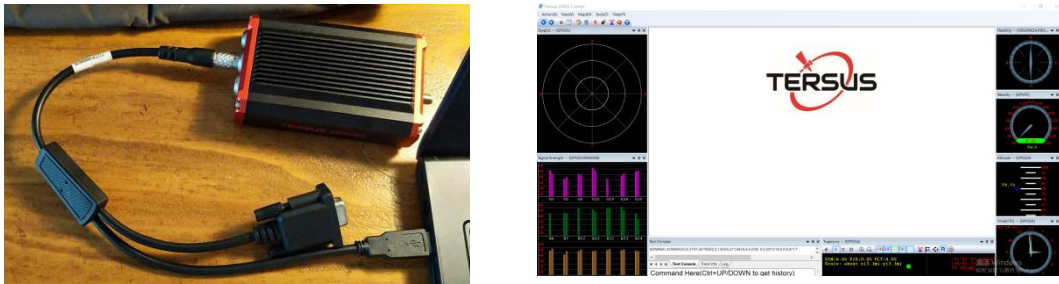
Now all the configuration of the modem is done.
Now we move the David Part.



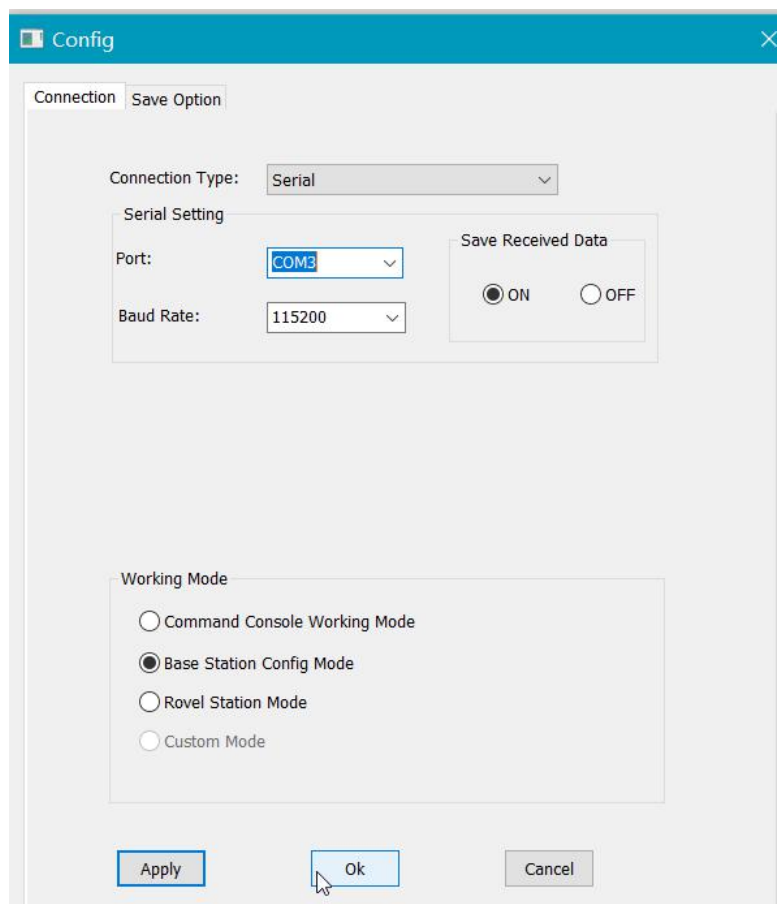
Now we connect the antenna. The antenna should be in open sky environment



Now connect the COMM2 USB for the PC USB port.



Open Tersus GNSS center software,
the software can be download from the website of tersus-gnss.com



Once you plug the USB cable to the PC, there should be COM* displayed in the port area.
In my case, it's port com3, then select the base station config mode.

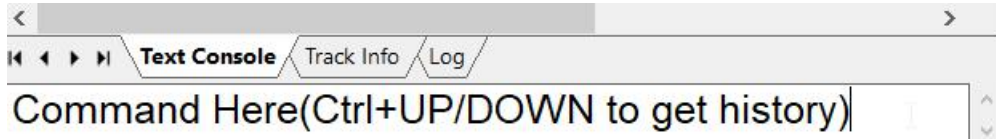
Position area can be left as blank, it will use the position average to start the base station.

Just select the com1 port of RTCM3, because we connect the COMM1 port to the Modem TR600, so we use COM1 in the Tersus GNSS Center. You can check Details, we just use the default settings.

It will broadcast the observations of GPS, GLONASS, and BeiDou.

Just leave there unless you know what you are doing.

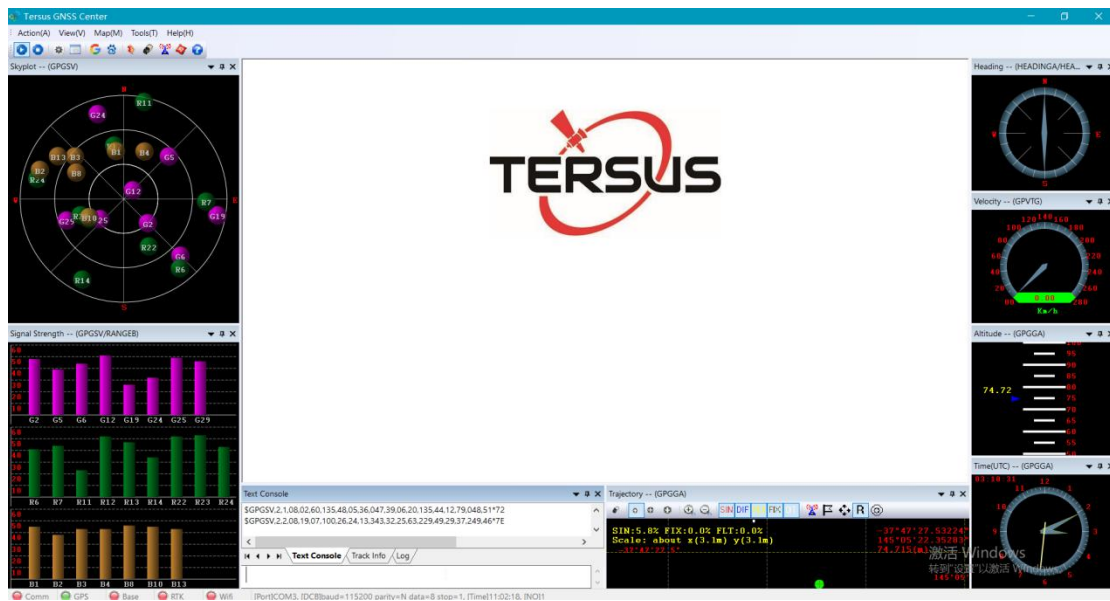
There is a command line window, you can input command into the David GNSS receiver. You can refer to the Tersus documentation of log and command book for all the command explanation.



Now we input

```
log gpgga ontime 1
log gpgsv ontime 1
log rangeb ontime 1
```

then you can see the position and signal strength from the windows. Just look like this.



It means the David receiver now is tracking well.

Then we need to check the data are correctly pushed to the network or not.

Now we go back to the TR600 web portal status

```

Connection Status:  WIFI Connected to network, IP:192.168.1.118
                   Virhub connected.

Received(Bytes) :    1,770,799
Sent(Bytes)       :    2,363,865
Receive Rate(Byte/s) : 723
Send Rate(Byte/s)  :    545

Network:           WIFI           Signal: 83
    
```

We can see data amount is increasing every second. Now we check the geobee caster web portal

← → ↻ 🔒 Not secure | geobeecaster2.terus-gnss.com:2101/Ntrip.html?usr=geobee302&pwd=f...

Current Time:18-12-29 03:15:26(-0000)

Server/Client Current Status

S/C	From IP	MountPoint	StartTime	Data Bytes(KB)	Data Type	lat/long/height
Server	210.185.123.190	240305005050981	18-12-29 03:06:54(-0000)	189.723	RTCM3	...

Statistics

MountPoint	First Start Time	PAS Count/ideal	total online rate(%)	Error/Valid Package	lat/long/height
240305005050981	18-12-24 02:02:47(-0000)	85/242	35.37	20114/505264	...

240305005050981 Hourly online rate from 12/27 to 12/29(-0000)

00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
12/27	0	0	5	93	96	94	84	8	29	26	71	93	100	100	100	71	98	100	100	96	99	98	99
12/28	51	83	99	99	99	93	84	94	93	98	99	92	92	87	86	82	96	90	93	98	100	100	98
12/29	84	92	94	24																			

The server is successfully showed in the web portal.

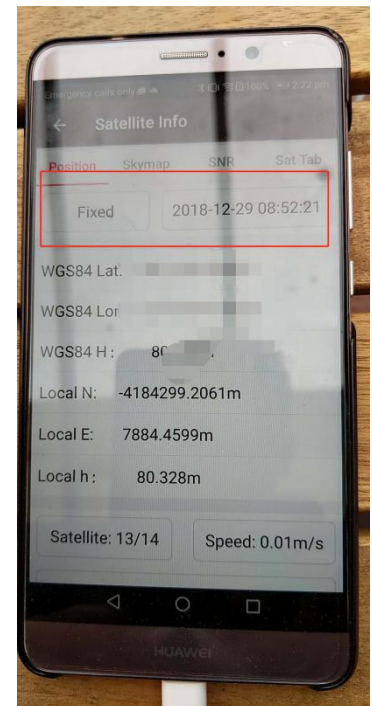
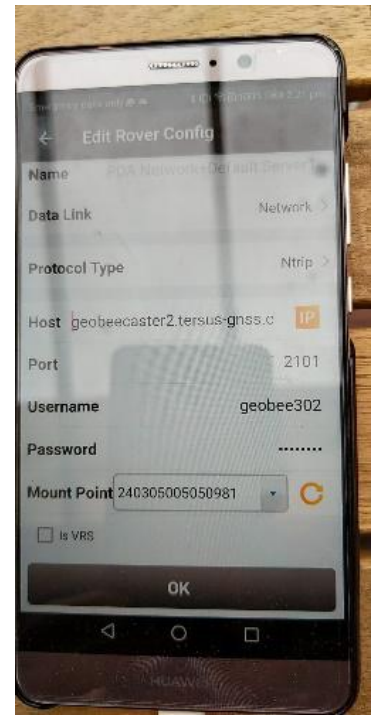
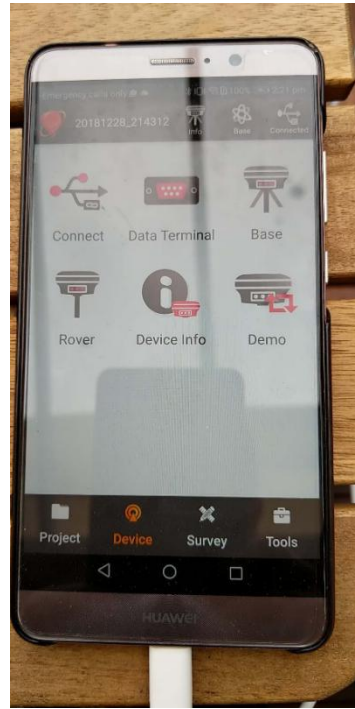
Now we just build a rover to test the base and caster function.

We use another David and Nuwa software to test it.

Here is the setup.



Open the Nuwa App. Connect to the Bluetooth of David.

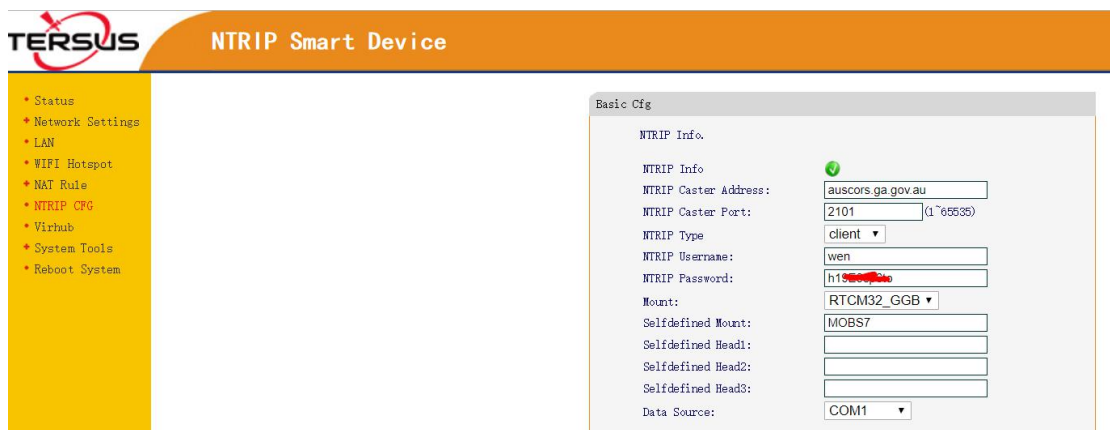


Now we have the rover Fix. It's the good result for not so open sky rover setup:)

Part 2 Setting up TR600 Modem as Ntrip Client

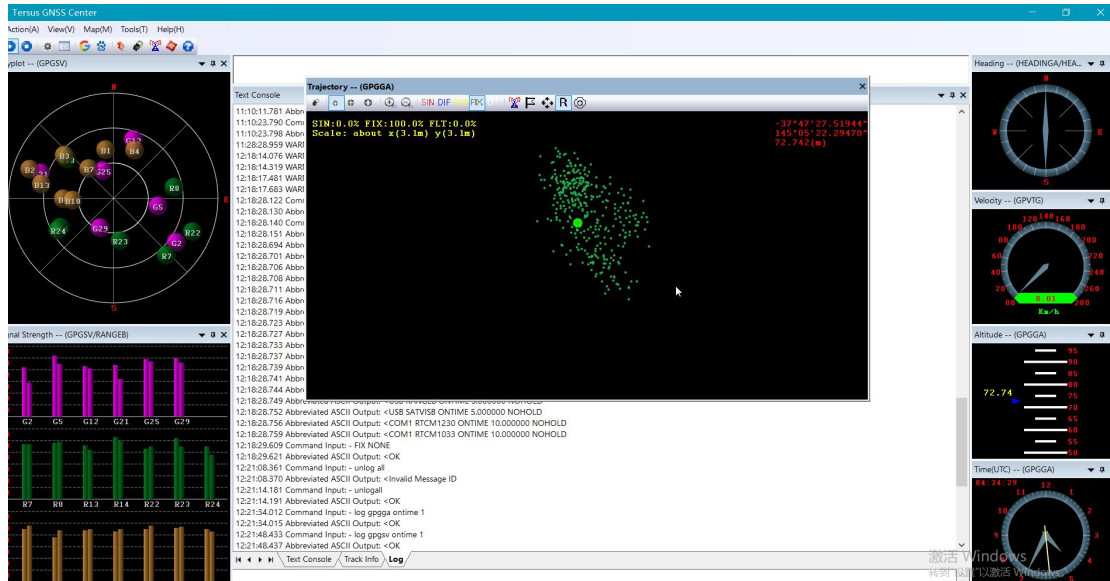
First you have to get the NTRIP caster username, password, and also the mountpoint.

Here is I got from Australia government and input into the NTRIP CFG of Ntrip Modem.



Connect the COM1 cable with the Ntrip Modem. And connect the COM2 USB cable to the PC, just as follows.





Now you can open the Tersus GNSS center, see the solution is FIX.

Now I have shown you all the information you need to setup the Ntrip Modem TR600 and David GNSS Receiver basics.

This document can serve as a quick startup of the system. Furthermore you can refer to the website of tersus-gnss.com, we will publish more application notes on the topic of remote control of David and TR600. Feel free to contact us with any problem, just drop us a line at support@tersus-gnss.com.

Thank you!

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